



From the time of its establishment, December 1981, YG-1 has been devoting painstaking efforts to develop superior technology and improve quality in order to provide products of the highest quality and services to meet complete customer satisfaction.

As a result, the company has been representative of Korea becoming a leading global manufacturer of cutting tools, specializing in exports that are essential for precision manufacturing parts and aircraft fuselage, mold for automobiles and electronic appliances, such as end mills, taps and drills. Today, we exist in the world of fierce competition where every second counts and where top-notch quality is the ultimate goal.

In order to efficiently cope with these changes, we, at YG-1, are embracing the concept of a borderless, global management based on a global focus and actions.

YG-1 will take a epoch-making leap towards becoming the representative company in the 21st century that provides satisfaction to the customers, serving as the pillar of the national export industry and contributing to the national economy.

We thank you for your continuous patronage of YG-1 and we pledge to maintain our zealous devotion and undertakings into the future.

President / **Hokeun Song**



CERTIFICATE

**The TÜV CERT Certification Body
of TÜV Thüringen e.V.**

certifies in accordance with TÜV CERT
procedure that

YG-1 CO., LTD.

**#378, CHEONGCHON-DONG, PUPYONG-GU,
INCHON, KOREA**

has established and applies a quality system for

**Management, Design and Development,
Production and Service for Cutting Tool**

An audit was performed, Report No. **3330 713 990**

Proof has been furnished that the requirements according to

**EN ISO 9001 (1994-08)
KS A 9001**

are fulfilled. The certificate is valid until **December 2002**

Certificate Registration No. **15 100 9648**



Jena, 28.12.1999




TÜV CERT Certification Body
of TÜV Thüringen e. V.



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YG-1 CO., Ltd.

**#378, Cheongchon-Dong, Pupyong-Gu,
Inchon, KOREA**

has established and applies an environmental
management system for

**Management, Design and Development,
Production and Service for Cutting Tool**

An audit was performed, Report No. 3330 2126 10

Proof has been furnished that the requirements according to

**EN ISO 14001 (1996-10)
KS A 14001**

are fulfilled. The certificate is valid until **November 2004**

Certificate Registration No. 15 104 1037



Jena, 04.11.2001



A handwritten signature in blue ink, reading "A. Drechsel".

TÜV CERT Certification Body
of TÜV Thüringen e. V.



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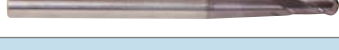
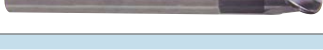



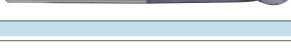



















X-POWER END MILLS

X-POWER FRÄSER

X-POWER END MILLS

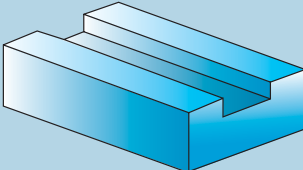
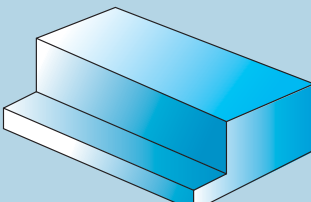
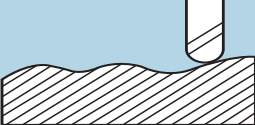
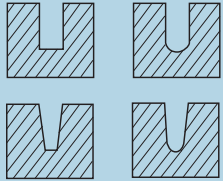
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MATERIAL GROUP	WORK MATERIAL	WERKSTOFF	SUITABLE END MILL
A	CAST IRON	GUSS	X-POWER
B	NON-ALLOYED STEELS	UNLEGIERTE STÄHLE	X-POWER
C	ALLOY STEELS	LEGIERTE STÄHLE	X-POWER
D	HEAT RESISTANT STEELS	HITZEBESTÄNDIGE STÄHLE	X-POWER
E	STAINLESS STEELS	ROSTFREIE STÄHLE	Jet-Power
F	45 ~ 55 HRc	45 ~ 55 HRc	X-POWER
G	55 ~ 60 HRc	55 ~ 60 HRc	X-POWER
H	60 ~ 65 HRc	60 ~ 65 HRc	X-POWER
I	TITANIUM ALLOYS	TITAN	Jet-Power
J	INCONEL & NIMONIC	INCONEL & NIMONIC	Jet-Power

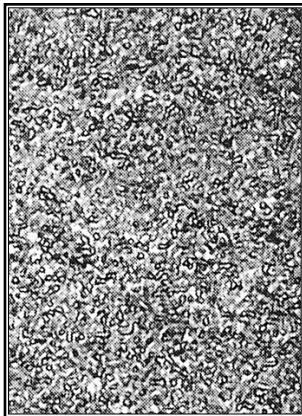
If you need, we'll send Jet-Power End Mill catalogue to you.

TYPE OF MILLING	WORKPIECE FORM	END MILL TYPE	SUITABLE END MILL	MATERIAL GROUP
SLOTTING		SQUARE	EM810, EM820 EM816, EM826 EM817, EM827 EM836, EM846 EM895, EM896	A, B, C D, F, G
		ROUGHING	EM832, EM842 EM814, EM824	
		CORNER RADIUS	EM818, EM828 EM905 EM819, EM829 EM839, EM849	
		TAPER	EM837, EM847	
SIDE CUTTING		SQUARE	EM810, EM820 EM816, EM826 EM811, EM821 EM817, EM827 EM836, EM846 EM895, EM896	A, B, C D, F, G
			EM812, EM822 EM834, EM844	A, B, C D, F, G, H
		ROUGHING	EM832, EM842 EM814, EM824	A, B, C D, F, G
		CORNER RADIUS	EM818, EM828 EM905 EM819, EM829 EM839, EM849 EM897, EM898 EM835, EM845 EM897, EM898	
		TAPER	EM837, EM847	
PROFILING		BALL	EM813, EM823 EM899, EM900 EM838, EM848 EM902, EM904 EM815, EM825 EM833, EM843 EM876, EM877 EM878, EM879 EM865, EM669 EM673, EM863 EM864	A, B, C D, F
			EM868, EM869	G, H
RIB PROCESSING		SQUARE	EM883	A, B, C D, F, G
		BALL	EM886	
		TAPER SQUARE	EM889	
		TAPER BALL	EM890	

New Development Carbide Materials Neuentwicklung Hartmetall-Material

Advantage

YG-1 X-POWER END MILLS are made of carbide which is processed by special expensive furnaces in which put after vacuum sintering Argon gas with 50 bar pressure in the high temperature of the furnace. That gives the possibility to press that carbide in the high temperature so that We have no porosity after cooling down that carbide and have a better toughness.

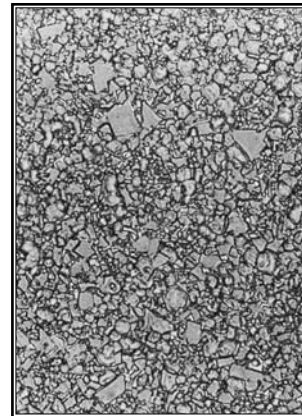


X-POWER Carbide Grain Structure
Carbide Grain size = $0 < 0.5 \mu\text{m}$ Consistent

X-POWER Hartmetall-Korn-Struktur
Hartmetall-Korn-Größe = $0 < 0.5 \mu\text{m}$ konsistent

Vorteil

YG-1 X-POWER Schaftfräser werden aus Hartmetall gefertigt, das durch ein besonderes verfahren hergestellt wird. In einem Spezial-ofen wird in Vakuum gesintertes Argon-Gas mit 50 bar Druck gegeben. Dadurch wird das Hartmetall bei hoher Temperatur zusammen gepreßt, sodaß es nach dem Abkühlen keine Porosität gibt und eine höhere Festigkeit gegeben ist.



General Carbide Grain Structure

Allgemeine Hartmetall-Korn-Struktur

Where is X-POWER used?

The hard PVD coating X-POWER was developed for carbide cutting tools used for hard machining. High hardness and excellent thermal and chemical stability are the outstanding qualities with which X-POWER protects tools against premature wear.

What advantage does X-POWER offer?

Excellent performance at dry cutting condition.
Excellent performance on hardened steel(HRc70).
Apply proper geometry for machining tough materials.
Applicable on a large range of materials.
X-POWER coating protect tools against premature wear, and extend tool life at extreme cutting condition.
Superior workpiece finishes.
Fast chip ejection.

Wo wird X-POWER eingesetzt?

Die harte PVD-Beschichtung X-POWER wurde für Hartmetall-Schneidwerkzeuge für schwierige Bearbeitung entwickelt. Große Härte und ausgezeichnete thermische und chemische Stabilität sind die herausragenden Eigenschaften mit denen X-POWER Werkzeuge gegen vorzeitigen Verschleiß schützt.

Welche Vorteile bietet X-POWER?

Ausgezeichnete Leistung bei Trockenbearbeitung.
Ausgezeichnete Leistung bei gehärtetem Stahl(HRc70).
Anwendung der richtigen Geometrie beim Bearbeiten von zähen Materialien. Anwendbar bei einer Vielzahl von Materialien. X-POWER Beschichtung schützt das Werkzeug gegen vorzeitigen Verschleiß und verlängert die Standzeit bei extremen Bearbeitungsbedingungen.
Bessere Oberflächengüte, schnelle Spanentfernung.

2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ

SERIES EM810

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM820

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM



FLUTE
2

PLAIN

FLAT



P.50

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet Zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- Superior workpiece finishes.
Höhere Oberflächengüte.
- Increased feed rates.
Erhöhter Vorschub.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM810901	EM820901	1.0	6	2.5	40
EM810902	EM820902	1.5	6	4	40
EM810020	—	2.0	4	6	40
EM810903	EM820020	2.0	6	6	40
EM810025	—	2.5	4	8	40
EM810904	EM820903	2.5	6	8	40
EM810030	EM820030	3.0	6	8	45
EM810035	EM820035	3.5	6	10	45
EM810040	EM820040	4.0	6	11	45
EM810045	EM820045	4.5	6	11	45
EM810050	EM820050	5.0	6	13	50
EM810055	EM820055	5.5	6	13	50
EM810060	EM820060	6.0	6	13	50
EM810065	EM820065	6.5	8	16	60
EM810070	EM820070	7.0	8	16	60
EM810075	EM820075	7.5	8	16	60
EM810080	EM820080	8.0	8	19	60
EM810085	EM820085	8.5	10	19	70
EM810090	EM820090	9.0	10	19	70
EM810095	EM820095	9.5	10	19	70
EM810100	EM820100	10.0	10	22	70
EM810105	EM820105	10.5	12	22	75
EM810110	EM820110	11.0	12	22	75
EM810115	EM820115	11.5	12	22	75
EM810120	EM820120	12.0	12	26	75
EM810906	EM820906	13.0	12	26	85
EM810140	EM820140	14.0	14	26	85
EM810905	EM820905	14.0	16	26	85
EM810908	EM820908	15.0	16	26	90
EM810160	EM820160	16.0	16	32	100
EM810909	EM820909	17.0	16	32	100
EM810180	EM820180	18.0	18	32	100
EM810911	EM820911	19.0	20	32	100
EM810200	EM820200	20.0	20	38	105
EM810220	EM820220	22.0	20	38	105
EM810240	EM820240	24.0	25	45	120
EM810250	EM820250	25.0	25	45	120

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, MINIATURE 2 SCHNEIDEN, MINI

SERIES EM810

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

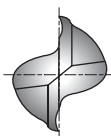


FLUTE
2



P.50

- High precision milling in medical, optical, electronics and aero space industries.
Hochpräzises Fräsen in Industrien : Medizen, Optik, Elektronik und Raunfahrt.
- Excellent performance on high hardened steel(HRc70)
Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem stahl(HRc70)



Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EM810004	0.4	3	0.8	40
EM810005	0.5	3	1.0	40
EM810006	0.6	3	1.2	40
EM810007	0.7	3	1.4	40
EM810008	0.8	3	1.6	40
EM810009	0.9	3	2.0	40
EM810010	1.0	4	2.5	40
EM810011	1.1	4	2.5	40
EM810012	1.2	4	4.0	40
EM810013	1.3	4	4.0	40
EM810014	1.4	4	4.0	40
EM810015	1.5	4	4.0	40

MILL DIAMETER	0.4 ~ 0.9	1.0 ~ 1.5
MILL DIA. TOLERANCE	0 —0.012	—0.014 —0.028
SHANK DIA. TOLERANCE	0 —0.006	0 —0.008

2 FLUTE, LONG LENGTH 2 SCHNEIDEN, LANG

SERIES EM816

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM826

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2

PLAIN

FLAT



P.51

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet Zum Fräsen von Werkzeugstählen, Legierten Stählen, Vorrichtungsbau-stählen und Hochgehärtete Stähle.
- Superior workpiece finishes.
Höhere Oberflächengüte.
- Increased feed rates.
Erhöhter Vorschub.

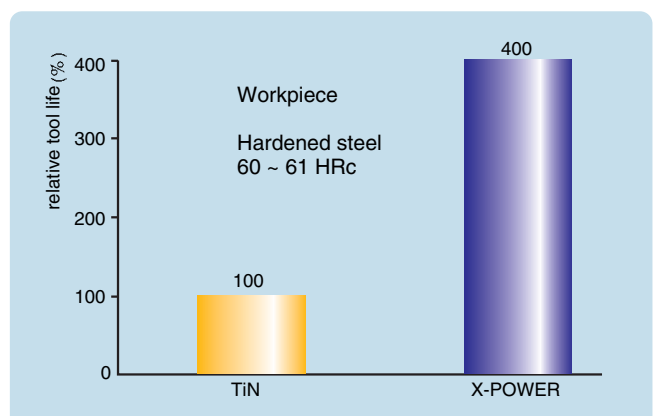


Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM816020	—	2.0	4	8	40
EM816030	EM826030	3.0	6	12	50
EM816040	EM826040	4.0	6	15	50
EM816050	EM826050	5.0	6	20	60
EM816060	EM826060	6.0	6	20	60
EM816080	EM826080	8.0	8	25	70
EM816100	EM826100	10.0	10	30	90
EM816120	EM826120	12.0	12	30	90
EM816140	EM826140	14.0	16	40	110
EM816160	EM826160	16.0	16	50	110
EM816180	EM826180	18.0	20	50	110
EM816200	EM826200	20.0	20	55	110
EM816250	EM826250	25.0	25	75	140

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



3 FLUTE, SHORT LENGTH 3 SCHNEIDEN, KURZ

SERIES EM895

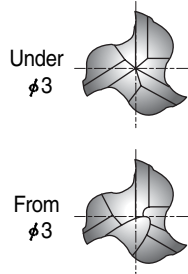
PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM896

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM

38°

FLUTE
3

PLAIN

FLAT



P.52

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet zum Fräsen von Werkzeugstählen, Legierten Stählen, Vorrichtungsbau-stählen und Hochgehärtete Stähle.
- Possesses the advantage of 2 flute and 4 flute end mill.
Besitzt die Vorteile von Z-und 4 Schneiden Fräsern.
- Superior workpiece finishes.
Höhere Oberflächengüte.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM895010	—	1.0	3	2.5	38
EM895015	—	1.5	4	5	50
EM895025	—	2.5	3	7	38
EM895030	—	3.0	3	10	38
EM895901	EM896901	3.0	6	10	50
EM895035	—	3.5	4	12	50
EM895902	EM896902	3.5	6	12	50
EM895040	—	4.0	4	12	50
EM895903	EM896040	4.0	6	12	50
EM895045	EM896045	4.5	6	14	57
EM895050	—	5.0	5	14	50
EM895904	EM896903	5.0	6	14	57
EM895060	EM896060	6.0	6	16	57
EM895080	EM896080	8.0	8	20	63
EM895100	EM896100	10.0	10	22	72
EM895120	EM896120	12.0	12	25	73
EM895140	EM896140	14.0	14	25	75
EM895160	EM896160	16.0	16	32	82
EM895180	EM896180	18.0	18	32	92
EM895200	EM896200	20.0	20	38	92

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, MINIATURE 3 SCHNEIDEN, MINI

SERIES EM836

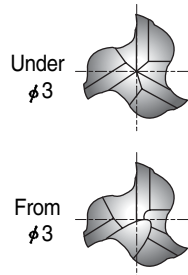
PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM846

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM

30°

FLUTE
3

PLAIN

FLAT



P.52

► The MINIATURE END MILL developed by Y.G-1 is universally adopted as the most cost effective system for small milling cutters and possesses the advantage of 2 flute and 4 flute end mill.
Der von YG-1 entwickelte Miniature-Fräser gilt als eins der wirtschaftlichsten Frässysteme und besitzt die Vorteile von 2- und 4 Schneiden Fräsern.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM836010	—	1.0	4	2	35
EM836020	—	2.0	4	4	35
EM836030	EM846030	3.0	6	5	36
EM836040	EM846040	4.0	6	7	38
EM836050	EM846050	5.0	6	8	39
EM836060	EM846060	6.0	6	8	39
EM836080	EM846080	8.0	8	11	43
EM836100	EM846100	10.0	10	13	50
EM836120	EM846120	12.0	12	15	55
EM836140	EM846140	14.0	14	15	58
EM836160	EM846160	16.0	16	18	62
EM836180	EM846180	18.0	18	20	70
EM836200	EM846200	20.0	20	22	75

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, SHORT LENGTH 4 SCHNEIDEN, KURZ

SERIES EM811

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM821

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM

30°

FLUTE
4

PLAIN

FLAT



P.53

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet zum Fräsen von Werkzeugstählen, Legierte Stählen, GuBstahl und andern Hochgehärteten Stählen.
- 4 flute allows for better workpiece finishes.
4 Schneiden erlauben bessere Oberflächengüte des Werkstücks.
- Increased production.
Gesteigerte Produktivität.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM811020	—	2.0	4	6	40
EM811901	EM821901	2.0	6	6	40
EM811025	—	2.5	4	8	40
EM811902	EM821902	2.5	6	8	40
EM811030	EM821030	3.0	6	8	45
EM811035	EM821035	3.5	6	10	45
EM811040	EM821040	4.0	6	11	45
EM811045	EM821045	4.5	6	11	45
EM811050	EM821050	5.0	6	13	50
EM811055	EM821055	5.5	6	13	50
EM811060	EM821060	6.0	6	13	50
EM811065	EM821065	6.5	8	16	60
EM811070	EM821070	7.0	8	16	60
EM811075	EM821075	7.5	8	16	60
EM811080	EM821080	8.0	8	19	60
EM811085	EM821085	8.5	10	19	70
EM811090	EM821090	9.0	10	19	70
EM811095	EM821095	9.5	10	19	70
EM811100	EM821100	10.0	10	22	70
EM811105	EM821105	10.5	12	22	75
EM811110	EM821110	11.0	12	22	75
EM811115	EM821115	11.5	12	22	75
EM811120	EM821120	12.0	12	26	75
EM811904	EM821904	13.0	12	26	85
EM811140	EM821140	14.0	14	26	85
EM811905	EM821905	14.0	12	26	85
EM811903	EM821903	14.0	16	26	85
EM811906	EM821906	15.0	16	26	90
EM811160	EM821160	16.0	16	32	100
EM811907	EM821907	17.0	16	32	100
EM811180	EM821180	18.0	18	32	100
EM811908	EM821908	18.0	16	32	100
EM811909	EM821909	19.0	20	32	100
EM811200	EM821200	20.0	20	38	105
EM811220	EM821220	22.0	20	38	105
EM811240	EM821240	24.0	25	45	120
EM811250	EM821250	25.0	25	45	120

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, LONG LENGTH 4 SCHNEIDEN, LANG

SERIES EM817

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM827

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM



FLUTE
4

PLAIN

FLAT



P.53

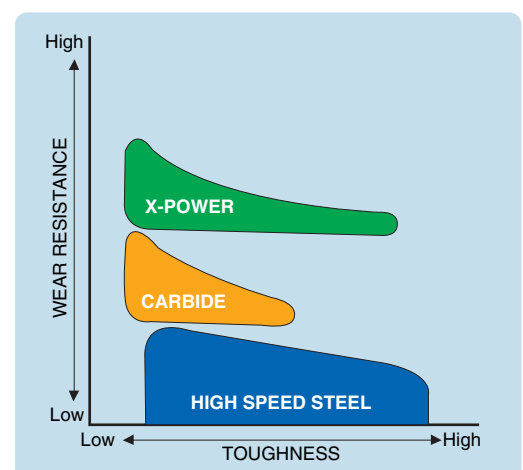
- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- 4 flute allows for better workpiece finishes.
4 Schneiden erlauben bessere Oberflächengüte des Werkstücks.
- Increased production.
Gesteigerte Produktivität.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM817020	—	2.0	4	8	40
EM817030	EM827030	3.0	6	12	50
EM817040	EM827040	4.0	6	15	50
EM817050	EM827050	5.0	6	20	60
EM817060	EM827060	6.0	6	20	60
EM817080	EM827080	8.0	8	25	70
EM817100	EM827100	10.0	10	30	90
EM817120	EM827120	12.0	12	30	90
EM817140	EM827140	14.0	16	40	110
EM817160	EM827160	16.0	16	50	110
EM817180	EM827180	18.0	20	50	110
EM817200	EM827200	20.0	20	55	110
EM817250	EM827250	25.0	25	75	140

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



6, 8 FLUTE, 45° HELIX, LONG LENGTH 6, 8 SCHNEIDEN, 45° RECHTSSPIRALE, LANG

SERIES EM812 PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM822 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
6 & 8



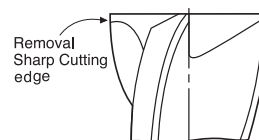
P.54

- Designed to machine high hardened materials.
Geeignet zum Fräsen Hochgehärteten Stählen.
- High speed cutting and finish milling with high feed rates.
Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- Superior workpiece finishes.
Höhere Oberflächengüte.
- Superior wear resistant.
Besserer Abnutzungswiderstand.
- Suitable for dry milling.
Geeignet zum Trocken-Fräsen.



Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EM812060	EM822060	6.0	6	13	57	6
EM812070	EM822070	7.0	8	16	63	6
EM812080	EM822080	8.0	8	19	63	6
EM812090	EM822090	9.0	10	19	72	6
EM812100	EM822100	10.0	10	22	72	6
EM812120	EM822120	12.0	12	26	83	6
EM812140	EM822140	14.0	14	26	83	6
EM812901	EM822901	14.0	16	26	83	6
EM812160	EM822160	16.0	16	32	92	6
EM812180	EM822180	18.0	18	32	92	8
EM812200	EM822200	20.0	20	38	104	8
EM812250	EM822250	25.0	25	44	104	8

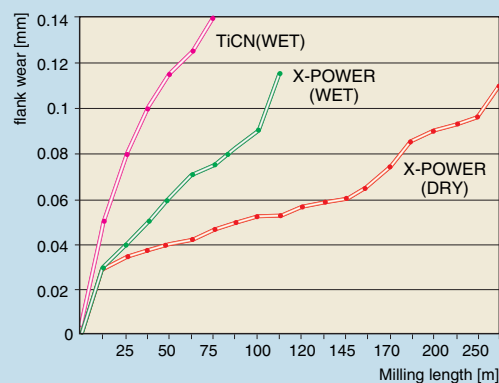


Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

TOOL :
EM812100

WORKPIECE :
TOOL STEEL
DIN 1.2713
1300 N/mm²
RPM : 9980
FEED : 5990
climb milling



6 FLUTE, 45° HELIX, EXTRA LONG LENGTH 6 SCHNEIDEN, 45° RECHTSSPIRALE, EXTRA LANG

SERIES EM834 PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM844 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
6

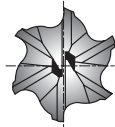
PLAIN

FLAT



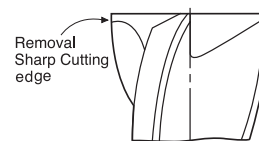
P.55

- Designed to machine high hardened materials.
Geeignet zum Fräsen Hochgehärteten Stählen.
- High speed cutting and finish milling with high feed rates.
Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- Superior workpiece finishes.
Höhere Oberflächengüte.
- Superior wear resistant.
Besserer Abnutzungswiderstand.
- Suitable for dry milling.
Geeignet zum Trocken-Fräsen.



Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	NO. OF FLUTE
PLAIN	FLAT					
EM834060	EM844060	6.0	6	26	70	6
EM834080	EM844080	8.0	8	36	90	6
EM834100	EM844100	10.0	10	46	100	6
EM834120	EM844120	12.0	12	56	110	6
EM834160	EM844160	16.0	16	66	130	6
EM834200	EM844200	20.0	20	76	140	6
EM834250	EM844250	25.0	25	92	180	6



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, BALL NOSE, SHORT LENGTH 2 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES EM876 PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM877 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.56

- Economic type with short overall length.
Ökonomisch Typ und kurz Gesamtlänge.
- Radius tolerance $\pm 0.02\text{mm}$ & short length of cut.
Radius Toleranz $\pm 0.02\text{mm}$ und kurz Schnittlänge.



Unit : mm

EDP No.		R ± 0.02	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM876010	—	R0.5	1.0	3	3	38
EM876012	—	R0.6	1.2	3	3	38
EM876015	—	R0.75	1.5	3	3	38
EM876020	EM877020	R1.0	2.0	6	3	50
EM876030	EM877030	R1.5	3.0	6	4	50
EM876040	EM877040	R2.0	4.0	6	5	54
EM876050	EM877050	R2.5	5.0	6	6	54
EM876060	EM877060	R3.0	6.0	6	7	54
EM876070	EM877070	R3.5	7.0	8	8	58
EM876080	EM877080	R4.0	8.0	8	9	58
EM876090	EM877090	R4.5	9.0	10	10	66
EM876100	EM877100	R5.0	10.0	10	11	66
EM876120	EM877120	R6.0	12.0	12	12	73
EM876140	EM877140	R7.0	14.0	14	14	75
EM876160	EM877160	R8.0	16.0	16	16	82
EM876180	EM877180	R9.0	18.0	18	18	84
EM876200	EM877200	R10.0	20.0	20	20	92
EM876250	EM877250	R12.5	25.0	25	25	104

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, BALL NOSE, LONG LENGTH 2 SCHNEIDEN, STIRNRADIUS, LANG

SERIES EM813

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM823

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.56

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten stählen.
- For copy - milling machines.
Für kopieren - Maschinen.



Unit : mm

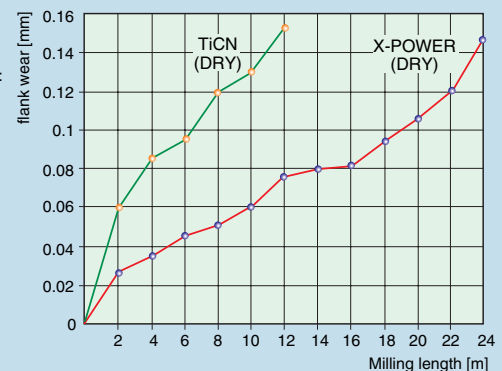
EDP No.		R ±0.02	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM813010	—	R0.5	1.0	4	2.5	50
EM813901	EM823901	R0.5	1.0	6	2.5	50
EM813012	—	R0.6	1.2	4	3	50
EM813015	—	R0.75	1.5	4	4	50
EM813902	EM823902	R0.75	1.5	6	4	50
EM813020	EM823020	R1.0	2.0	6	5	50
EM813025	EM823025	R1.25	2.5	6	6	60
EM813030	EM823030	R1.5	3.0	6	8	60
EM813035	EM823035	R1.75	3.5	6	8	70
EM813040	EM823040	R2.0	4.0	6	8	70
EM813050	EM823050	R2.5	5.0	6	10	80
EM813060	EM823060	R3.0	6.0	6	12	90
EM813070	EM823070	R3.5	7.0	8	14	90
EM813080	EM823080	R4.0	8.0	8	14	100
EM813090	EM823090	R4.5	9.0	10	18	100
EM813100	EM823100	R5.0	10.0	10	18	100
EM813120	EM823120	R6.0	12.0	12	22	110
EM813140	EM823140	R7.0	14.0	14	26	110
EM813903	EM823903	R7.0	14.0	16	26	110
EM813160	EM823160	R8.0	16.0	16	30	140
EM813180	EM823180	R9.0	18.0	18	34	140
EM813200	EM823200	R10.0	20.0	20	38	160
EM813250	EM823250	R12.5	25.0	25	50	180

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

TOOL :
EM813200

WORKPIECE :
STEEL
DIN 1.2436
60 HRC
RPM : 5260
FEED : 840
climb milling



2 FLUTE, MEDIUM, BALL NOSE with NECK

2 SCHNEIDEN, MEDIUM, STIRNRADIUS mit ABGESETZTEN SCHAFTTEIL

SERIES EM899

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM900

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HMFLUTE
2

P.57

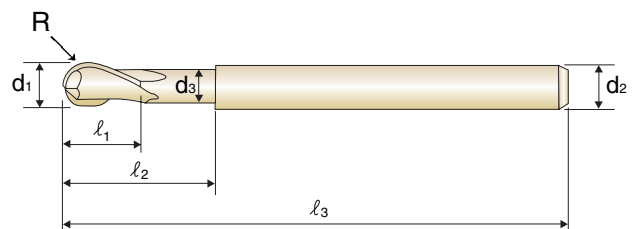
- Deep slotting milling is possible by reduced neck.
Mit abgesetztem Schaftteil ist Tiefnutenfräsen möglich.
- High efficiency milling is possible in deep slotting with projection of the end mill being long.
Effizientes Tiefnutenfräsen von tiefliegenden Bereichen möglich.



Unit : mm

EDP No.		R	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT ℓ ₁	LENGTH BELOW SHANK ℓ ₂	OVERALL LENGTH ℓ ₃	NECK DIAMETER d ₃
PLAIN	FLAT							
EM899030	EM900030	R1.5	3.0	6	8	—	70	—
EM899040	EM900040	R2.0	4.0	6	8	—	70	—
EM899050	EM900050	R2.5	5.0	6	12	—	80	—
EM899060	EM900060	R3.0	6.0	6	12	22	80	5.8
EM899070	EM900070	R3.5	7.0	8	14	—	90	—
EM899080	EM900080	R4.0	8.0	8	14	27	90	7.8
EM899100	EM900100	R5.0	10.0	10	18	31	100	9.8
EM899120	EM900120	R6.0	12.0	12	22	35	110	11.8
EM899140	EM900140	R7.0	14.0	12	26	—	120	—
EM899160	EM900160	R8.0	16.0	16	30	50	140	15.8
EM899180	EM900180	R9.0	18.0	16	34	—	140	—
EM899200	EM900200	R10.0	20.0	20	38	58	160	19.8
EM899250	EM900250	R12.5	25.0	25	55	75	180	24.8

MILL DIA. TOLERANCE		RADIUS TOLERANCE	
d ₁ < 6	$\begin{smallmatrix} 0 \\ -0.028 \end{smallmatrix}$	R ≤ 6.5	±0.01
d ₁ ≥ 6	$\begin{smallmatrix} 0 \\ -0.038 \end{smallmatrix}$	R > 6.5	±0.02



2 FLUTE, BALL NOSE, LONG REACH 2 SCHNEIDEN, STIRNRADIUS, GROBE REICHWEITE

SERIES EM838

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM848

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.58

► Longer overall length than EM813, EM823 type and suitable for machining deeply located area.
Längere Gesamtlänge als bei EM813, EM823 Typen und geeignet für extrem tiefliegende Löcher.



Unit : mm

EDP No.		R ±0.02	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM838020	—	R1.0	2.0	3	6	80
EM838030	—	R1.5	3.0	3	8	100
EM838040	—	R2.0	4.0	4	8	100
EM838050	EM848050	R2.5	5.0	6	10	120
EM838060	EM848060	R3.0	6.0	6	10	120
EM838080	EM848080	R4.0	8.0	8	14	140
EM838100	EM848100	R5.0	10.0	10	18	180
EM838120	EM848120	R6.0	12.0	12	22	200
EM838160	EM848160	R8.0	16.0	16	30	250
EM838200	EM848200	R10.0	20.0	20	38	250

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, BALL NOSE with TAPER NECK 2 SCHNEIDEN, STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

SERIES EM902

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM904

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.59

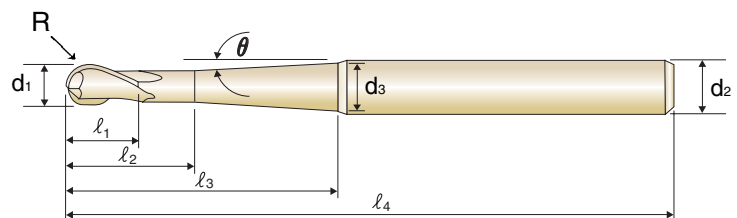
► High efficiency milling is possible in deep slotting with projection of the end mill being long
Effizientes Tiefnutenfräsen von tieflegenden Bereichen möglich.



Unit : mm

EDP No.		R ±0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	NECK DIAMETER d ₃	LENGTH OF CUT l ₁	l ₂	LENGTH BELOW SHANK l ₃	OVERALL LENGTH l ₄	NECK TAPER ANGLE θ
PLAIN	FLAT									
EM902010	EM904010	R0.5	1.0	6	2.0	2	4	23	60	1°30'
EM902901	EM904901	R0.5	1.0	6	4.3	2	4	23	60	5°
EM902902	EM904902	R0.5	1.0	6	5.0	2	4	42	80	3°
EM902020	EM904020	R1.0	2.0	6	2.9	4	6	23	60	1°30'
EM902903	EM904903	R1.0	2.0	6	5.0	4	6	23	60	5°
EM902904	EM904904	R1.0	2.0	6	5.7	4	6	41	80	3°
EM902030	EM904030	R1.5	3.0	6	5.6	6	8	32	70	3°
EM902905	EM904905	R1.5	3.0	6	5.3	6	8	52	90	1°30'
EM902040	EM904040	R2.0	4.0	6	6.0	8	10	28	70	3°
EM902906	EM904906	R2.0	4.0	6	6.0	8	10	49	90	1°30'
EM902050	EM904050	R2.5	5.0	8	8.0	10	12	41	90	3°
EM902907	EM904907	R2.5	5.0	8	7.6	10	12	61	110	1°30'
EM902060	EM904060	R3.0	6.0	8	8.0	12	15	34	90	3°
EM902908	EM904908	R3.0	6.0	8	8.0	12	15	53	110	1°30'
EM902080	EM904080	R4.0	8.0	10	10.0	14	17	36	100	3°
EM902909	EM904909	R4.0	8.0	10	10.0	14	17	55	120	1°30'
EM902100	EM904100	R5.0	10.0	12	12.0	18	21	40	110	3°
EM902910	EM904910	R5.0	10.0	12	12.0	18	21	59	130	1°30'
EM902120	EM904120	R6.0	12.0	16	16.0	22	25	63	140	3°
EM902911	EM904911	R6.0	12.0	16	15.0	22	25	83	160	1°30'

MILL DIA. TOLERANCE		SHANK DIA. TOLERANCE
d ₁ < 6	$\begin{matrix} 0 \\ -0.028 \end{matrix}$	
d ₁ ≥ 6	$\begin{matrix} 0 \\ -0.038 \end{matrix}$	h6



2 FLUTE, HIGH PRECISION BALL NOSE, STUB CUT LENGTH 2 SCHNEIDEN, PRÄZISER STIRNRADIUS, EXRTA KURZ

SERIES EM878

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM879

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.56

- Designed for high precision milling operation.
Geeignet zum Hochpräzises Fräsen
- Radius tolerace $\pm 0.01\text{mm}$ and improved surface roughness.
Radius Toleranz $\pm 0.01\text{mm}$ und höhere Oberflächengüte.

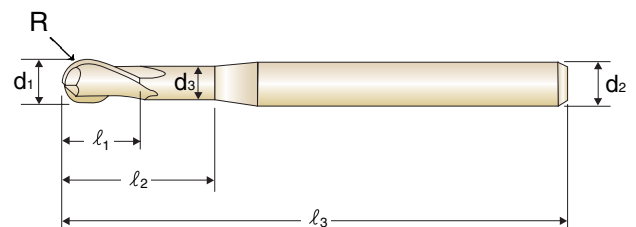


Unit : mm

EDP No.		R ± 0.01	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT ℓ_1	LENGTH BELOW SHANK ℓ_2	OVERALL LENGTH ℓ_3	NECK DIAMETER d ₃
PLAIN	FLAT							
EM878010	—	R0.5	1.0	4	1	2.2	50	0.95
EM878901	—	R0.5	1.0	6	1	2.2	50	0.95
EM878012	—	R0.6	1.2	4	1.2	2.6	50	1.1
EM878015	—	R0.75	1.5	4	1.5	3	50	1.4
EM878020	EM879020	R1.0	2.0	6	2	4	50	1.9
EM878030	EM879030	R1.5	3.0	6	3	6	60	2.9
EM878040	EM879040	R2.0	4.0	6	4	8	70	3.9
EM878050	EM879050	R2.5	5.0	6	5	10	80	4.9
EM878060	EM879060	R3.0	6.0	6	6	12	90	5.9
EM878070	EM879070	R3.5	7.0	8	7	14	90	6.9
EM878080	EM879080	R4.0	8.0	8	8	16	100	7.9
EM878090	EM879090	R4.5	9.0	10	9	18	100	8.9
EM878100	EM879100	R5.0	10.0	10	10	20	100	9.9
EM878120	EM879120	R6.0	12.0	12	12	24	110	11.9
EM878140	EM879140	R7.0	14.0	14	14	28	110	13.8
EM878160	EM879160	R8.0	16.0	16	16	32	140	15.8
EM878180	EM879180	R9.0	18.0	18	18	36	140	17.8
EM878200	EM879200	R10.0	20.0	20	20	40	160	19.8
EM878250	EM879250	R12.5	25.0	25	25	50	180	24.8

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13



2 FLUTE, BALL NOSE, STUB CUT LENGTH for OVER HRc55 STEELS 2 SCHNEIDEN, STIRNRADIUS, EXTRA KURZ für Stähle ÜBER HRc55

SERIES EM868 PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
2



P.60

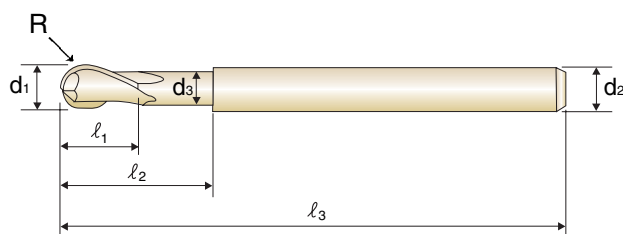
SERIES EM869 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No.		R ±0.01	MILL DIAMETER d1(e8)	SHANK DIAMETER d2(h6)	LENGTH OF CUT l1	LENGTH BELOW SHANK l2	OVERALL LENGTH l3	NECK DIAMETER d3
PLAIN	FLAT							
EM868010	—	R0.5	1.0	4	1	2.2	50	0.95
EM868901	—	R0.5	1.0	6	1	2.2	50	0.95
EM868012	—	R0.6	1.2	4	1.2	2.6	50	1.1
EM868015	—	R0.75	1.5	4	1.5	3	50	1.4
EM868020	EM869020	R1.0	2.0	6	2	4	50	1.9
EM868030	EM869030	R1.5	3.0	6	3	6	60	2.9
EM868040	EM869040	R2.0	4.0	6	4	8	70	3.9
EM868050	EM869050	R2.5	5.0	6	5	10	80	4.9
EM868060	EM869060	R3.0	6.0	6	6	12	90	5.9
EM868070	EM869070	R3.5	7.0	8	7	14	90	6.9
EM868080	EM869080	R4.0	8.0	8	8	16	100	7.9
EM868090	EM869090	R4.5	9.0	10	9	18	100	8.9
EM868100	EM869100	R5.0	10.0	10	10	20	100	9.9
EM868120	EM869120	R6.0	12.0	12	12	24	110	11.9
EM868140	EM869140	R7.0	14.0	14	14	28	110	13.8
EM868160	EM869160	R8.0	16.0	16	16	32	140	15.8
EM868180	EM869180	R9.0	18.0	18	18	36	140	17.8
EM868200	EM869200	R10.0	20.0	20	20	40	160	19.8
EM868250	EM869250	R12.5	25.0	25	25	50	180	24.8



Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

- Suitable for HRc55~HRc70 high hardened materials.
Geeignet zum Fräsen von HRc55 ~ HRc70
- Strong cutting edges and higher tool rigidity.
Robuste Schneidkanten und hohe Werkzeughärte.
- Radius tolerance $\pm 0.01\text{mm}$.
Radius Toleranz $\pm 0.01\text{mm}$.

2 FLUTE, MINIATURE BALL NOSE 2 SCHNEIDEN, MINI STIRNRADIUS

SERIES EM865

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
2

PLAIN



P.51



- High precision milling in medical, optical, electronics and aerospace industrials.
Hochpräzise Fräsen in Industrien wie : Medizen, Optik, Elektronik und Raumfahrt.
- Excellent performance at dry cutting conditon.
Ausgezeichnete Leistung bei Trocken - Zerspanung
- Excellent performance on high hardened steel up to HRC70
Ausgezeichnete Leistung bei der Bearbeitung von gehärtentetem Stähle(HRC70).

Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EM865006	R0.30	0.6	3	1.1	40
EM865007	R0.35	0.7	3	1.5	40
EM865008	R0.40	0.8	3	2.0	40
EM865009	R0.45	0.9	3	2.2	40
EM865010	R0.50	1.0	3	2.5	40
EM865011	R0.55	1.1	3	3.0	40
EM865012	R0.60	1.2	3	3.0	40
EM865013	R0.65	1.3	3	3.5	40
EM865014	R0.70	1.4	3	3.5	40
EM865015	R0.75	1.5	3	4.0	40

RADIUS TOLERANCE	± 0.010
MILL DIA. TOLERANCE	— 0.014 — 0.028
SHANK DIA. TOLERANCE	0 — 0.006

X-POWER BALL NOSE END MILLS-MMC

X-POWER STIRNRADIUS FRÄSER-MMC

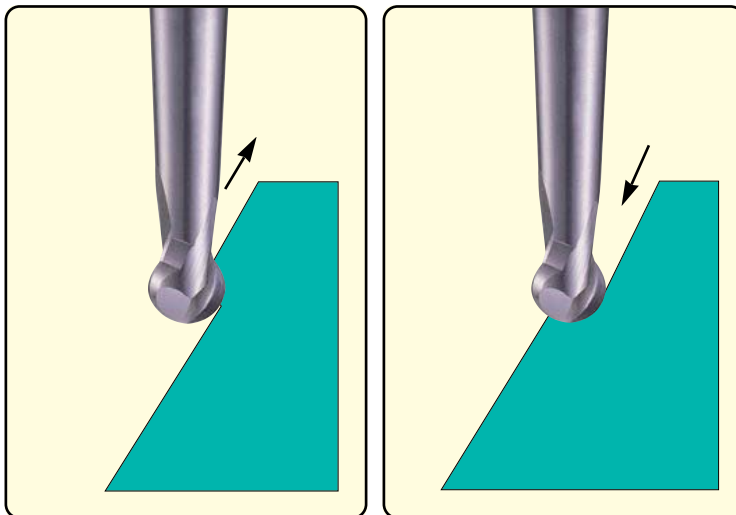
● Useful Field Area / Geeignete Verwendungsgebiete

- Die & Mold making, Turbine manufacturing and Aircraft Industry, etc.
Vorrichtungsbau, Turbinenherstellung, Luftfahrtindustrie, etc.
- Difficult 3-D Forms.
Schwierige 3-D Formen.
- Profiling of up to HRc 70 high hardened steels and Alloy steels, Nickelbase alloys, Titanium alloys.
Profilfräsen von bis zu HRc 70 gehärtetem Stahl und Stahlegierungen Nickellegierungen, Titanlegierungen.

● Characteristic / Eigenschaften

- Ultra micro grain carbide which increase both toughness and hardness.
Ultra micro grain Vollhartmetall, erhöht sowohl Zähigkeit wie auch Härte.
- YG-1's unique X-POWER coating suitable for dry cutting and high speed cutting.
YG-1's einzigartige X-POWER-Beschichtung, geeignet zum Trockenfräsen und HSC-Fräsen.
- Outstanding tool geometry and sphere shape ball enables more increased tool life and higher speed and feed operation.
Aussergewöhnliche Werkzeug-Geometrie und Kugelform ergeben eine längere Standzeit sowie eine höhere Geschwindigkeit und Vorschubbewegung.

● Surpassing Milling Operation / Fräsvorgang



Favorable Back Milling
Vorteilhaftes Rückwärtsfräsen

Unfavorable Drilling
Unvorteilhaftes Fräsen

- Operating angle $14^\circ \sim 16^\circ$, higher speed and feed are possible by decreased cutting resistance at the cutting edges contacting the workpiece.

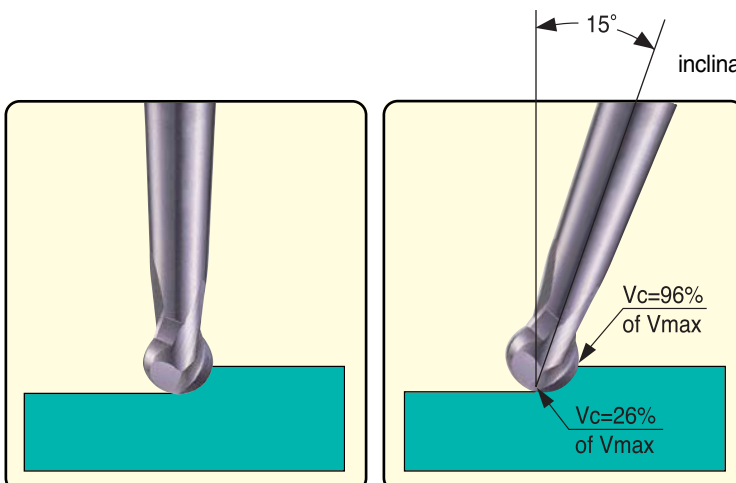
Bearbeitungswinkel $14^\circ \sim 16^\circ$, höhere Geschwindigkeit und Vorschub sind möglich durch geringeren Fräswiderstand an der Schneidkante des Werkstückes.

- Excellent surface roughness and higher milling process.

Ausgezeichnete Oberflächengüte und grösseren Fräsvorgang.

- Enable to milling with higher speed and feed when Back Milling.

Ermöglicht Fräsen mit grösserer Geschwindigkeit und höherem Vorschub beim Rückwärtsfräsen.



Unfavorable Profiling
Unvorteilhaftes Profilfräsen

Favorable Profiling
Vovorteilhaftes Profilfräsen

- When 15° inclination milling operation, more productivity and higher speed and feed are possible.

Beim Fräsvorgang mit 15° Neigung ergibt sich eine höhere produktivität, sowie eine grössere Geschwindigkeit und ein höherer Vorschub sind möglich.

- Decreased cutting force.

Reduzierte Fräskraft.

- Excellent surface roughness and brightness.

Ausgezeichnete Oberflächengüte und Glanz.

2 FLUTE, BALL NOSE LONG LENGTH-MMC 2 SCHNEIDEN, STIRNRADIUS LANG-MMC

SERIES EM669

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

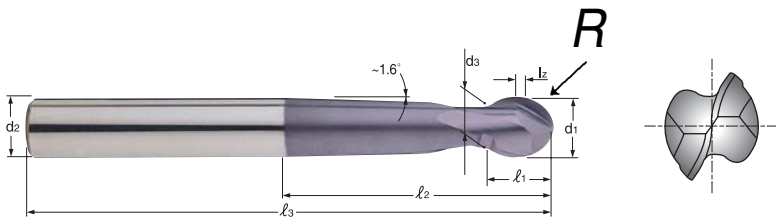
30°

FLUTE
2

PLAIN



P.61



- Designed for copy milling.
Geeignet zum kopierfräsen.
- Increased feed rates.
Erhöhter Vorschub.
- 15° inclination.
15° Neigung.
- Easy to regrind.
Leicht nachschleifen.
- Radius Tolerance ± 0.01 mm.
Radius Toleranz ± 0.01 mm.

● 2 FLUTE LONG LENGTH- ECONOMIC TYPE

2 Schneiden lang-Preisgünstig

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d ₁ (h9)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃	l _z
EM669030	R1.5	3.0	6	4	30	80	2.5	1.5
EM669040	R2.0	4.0	6	5	30	80	3.3	1.5
EM669050	R2.5	5.0	6	6	43	80	4.1	2.0
EM669060	R3.0	6.0	6	7	30	100	4.7	2.0
EM669080	R4.0	8.0	8	9	36	100	6.5	3.0
EM669100	R5.0	10.0	10	11	43	100	8.2	3.0
EM669120	R6.0	12.0	12	13	52	100	9.8	3.0
EM669160	R8.0	16.0	16	15	61	150	13.4	3.0

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h9	0 — 25	0 — 30	0 — 36	0 — 43	0 — 52
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, BALL NOSE LONG LENGTH-MMC 4 SCHNEIDEN, STIRNRADIUS LANG-MMC

SERIES EM673

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



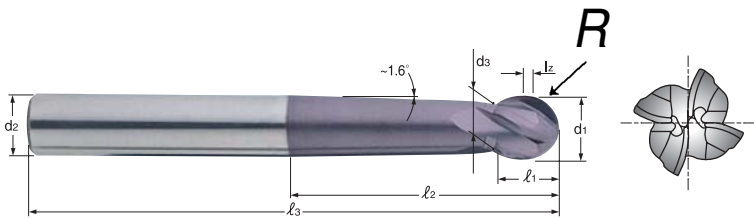
FLUTE
4

PLAIN



P.62

- Designed for copy milling.
Geeignet zum kopierfräsen.
- Increased feed rates.
Erhöhter Vorschub.
- 15° inclination.
15° Neigung.
- Easy to regrind.
Leicht nachschleifen.
- Radius Tolerance $\pm 0.01\text{mm}$.
Radius Toleranz $\pm 0.01\text{mm}$.



● 4 FLUTE LONG LENGTH- ECONOMIC TYPE

4 Schneiden lang-Preisgunstig

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d1(h9)	SHANK DIAMETER d2(h6)	LENGTH OF CUT l1	LENGTH BELOW SHANK l2	OVERALL LENGTH l3	NECK DIAMETER d3	lz
EM673050	R2.5	5.0	6	6	43	80	4.1	2.0
EM673060	R3.0	6.0	6	7	30	100	4.7	2.0
EM673080	R4.0	8.0	8	9	36	100	6.5	3.0
EM673100	R5.0	10.0	10	11	43	100	8.2	3.0
EM673120	R6.0	12.0	12	13	52	100	9.8	3.0
EM673160	R8.0	16.0	16	15	61	150	13.4	3.0

※ECONOMIC TYPE HAS MORE ADVANTAGE IN RESHARPENING THAN SPHERE TYPE.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h9	$\begin{smallmatrix} 0 \\ -25 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -30 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -36 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -43 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -52 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

2 FLUTE, BALL NOSE LONG LENGTH-MMC 2 SCHNEIDEN, STIRANRADIUS LANG-MMC

SERIES EM863

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

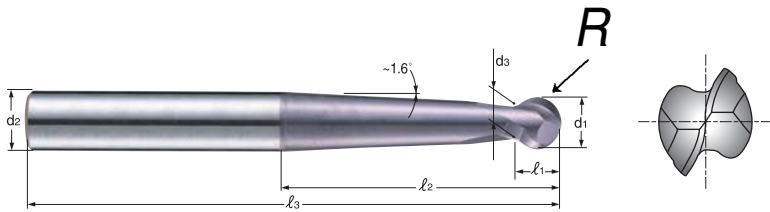
30°

FLUTE
2

PLAIN



P.61



- Designed for copy milling.
Geeignet zum kopierfräsen.
- Increased feed rates.
Erhöhter Vorschub.
- 15° inclination.
15° Neigung.
- Easy to regrind.
Leicht nachschleifen.
- Radius Tolerance $\pm 0.01\text{mm}$.
Radius Toleranz $\pm 0.01\text{mm}$.

● 2 FLUTE LONG LENGTH- SPHERE TYPE

2 Schneiden lang-Sphäre Typ

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d1(h9)	SHANK DIAMETER d2(h6)	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d3
EM863030	R1.5	3	6	2.3	30	80	2.5
EM863040	R2.0	4	6	3.1	30	80	3.3
EM863050	R2.5	5	6	3.9	38	80	4.1
EM863060	R3.0	6	6	4.9	28	100	4.7
EM863080	R4.0	8	8	6.3	33	100	6.5
EM863100	R5.0	10	10	7.9	40	100	8.2
EM863120	R6.0	12	12	9.5	49	100	9.8
EM863160	R8.0	16	16	12.4	59	150	13.4

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h9	0 — 25	0 — 30	0 — 36	0 — 43	0 — 52
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, BALL NOSE LONG LENGTH-SPHERE TYPE 4 SCHNEIDEN STIRNRADIUS LANG-SPHÄRE TYP

SERIES EM864

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

**MG
HM**

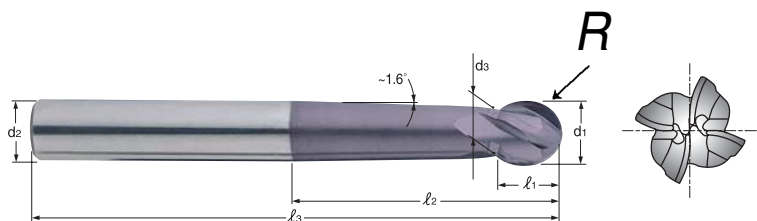


**FLUTE
4**

PLAIN



P.62



- ▶ Designed for copy milling.
Geeignet zum kopierfräsen.
- ▶ Increased feed rates.
Erhöhter Vorschub.
- ▶ 15° inclination.
15° Neigung.
- ▶ Easy to regrind.
Leicht nachschleifen.
- ▶ Radius Tolerance $\pm 0.01\text{mm}$.
Radius Toleranz $\pm 0.01\text{mm}$.

● 4 FLUTE LONG LENGTH- SPHERE TYPE

4 Schneiden lang-Sphäre Typ

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d ₁ (h9)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
EM864050	R2.5	5.0	6	3.9	38	80	4.1
EM864060	R3.0	6.0	6	4.9	28	100	4.7
EM864080	R4.0	8.0	8	6.3	33	100	6.5
EM864100	R5.0	10.0	10	7.9	40	100	8.2
EM864120	R6.0	12.0	12	9.5	49	100	9.8
EM864160	R8.0	16.0	16	12.4	59	150	13.4

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h9	$\begin{smallmatrix} 0 \\ -25 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -30 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -36 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -43 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -52 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

4 FLUTE, BALL NOSE, LONG LENGTH 4 SCHNEIDEN, STIRNRADIUS, LANG

SERIES EM815

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM825

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
4



P.63

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet Zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- For copy - milling machines.
Für kopierfräs maschinen.
- 4 Flute design - higher feed than EM813, EM823 series
4 Schneiden - Höherer Vorschub als bei EM 813, EM 823 serien.



Unit : mm

EDP No.		R ±0.02	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM815010	—	R0.5	1.0	4	2.5	50
EM815901	EM825901	R0.5	1.0	6	2.5	50
EM815015	—	R0.75	1.5	4	4	50
EM815902	EM825902	R0.75	1.5	6	4	50
EM815020	EM825020	R1.0	2.0	6	5	50
EM815030	EM825030	R1.5	3.0	6	8	60
EM815040	EM825040	R2.0	4.0	6	8	70
EM815050	EM825050	R2.5	5.0	6	10	80
EM815060	EM825060	R3.0	6.0	6	12	90
EM815070	EM825070	R3.5	7.0	8	14	90
EM815080	EM825080	R4.0	8.0	8	14	100
EM815090	EM825090	R4.5	9.0	10	18	100
EM815100	EM825100	R5.0	10.0	10	18	100
EM815120	EM825120	R6.0	12.0	12	22	110
EM815140	EM825140	R7.0	14.0	14	26	110
EM815903	EM825903	R7.0	14.0	16	26	110
EM815160	EM825160	R8.0	16.0	16	30	140
EM815180	EM825180	R9.0	18.0	18	34	140
EM815200	EM825200	R10.0	20.0	20	38	160
EM815250	EM825250	R12.5	25.0	25	50	180

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES EM832 PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM842 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM



FLUTE
3 - 5

FINE

PLAIN

FLAT



P.64

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet Zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- High velocity milling of hardened steels.
Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- For dry and wet milling.
Für Trocken - und Naßfräsen.
- Fast chip ejection.
Schnelle Spanausfuhr.

Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EM832060	EM842060	6.0	6	7	54	3
EM832070	EM842070	7.0	8	8	58	3
EM832080	EM842080	8.0	8	9	58	3
EM832090	EM842090	9.0	10	13	66	4
EM832100	EM842100	10.0	10	14	66	4
EM832120	EM842120	12.0	12	16	73	4
EM832140	EM842140	14.0	14	18	75	4
EM832160	EM842160	16.0	16	22	82	4
EM832180	EM842180	18.0	18	24	84	4
EM832200	EM842200	20.0	20	26	92	4
EM832250	EM842250	25.0	25	25	110	5

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

MULTI. FLUTE, ROUGHING, LONG LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, LANG

SERIES EM814

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM824

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

20°

FLUTE
3 - 5

FINE

PLAIN

FLAT



P.64

X-POWER



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet Zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- High velocity milling of hardened steels.
Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- For dry and wet milling.
Für Trocken - und Naßfräsen.
- Fast chip ejection.
Schnelle Spanausfuhr.
- Longer flute length than EM832, EM842 series.
Längere Schneiden als bei EM832 und EM842 Serien.

Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EM814060	EM824060	6.0	6	16	57	3
EM814070	EM824070	7.0	8	16	63	3
EM814080	EM824080	8.0	8	16	63	3
EM814090	EM824090	9.0	10	19	72	4
EM814100	EM824100	10.0	10	22	72	4
EM814120	EM824120	12.0	12	26	83	4
EM814140	EM824140	14.0	14	26	83	4
EM814901	EM824901	14.0	16	26	83	4
EM814160	EM824160	16.0	16	32	92	4
EM814180	EM824180	18.0	18	32	92	4
EM814200	EM824200	20.0	20	38	104	4
EM814250	EM824250	25.0	25	45	121	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3, 4 FLUTE, ROUGHING BALL NOSE, LONG LENGTH 3, 4 SCHNEIDEN, RADIUS-SCHRUPPFRÄSER, LANG

SERIES EM833 PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM843 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
3 & 4

FINE

PLAIN

FLAT



P.64



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet Zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- High velocity milling of hardened steels.
Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- For dry and wet milling.
Für Trocken - und Naßfräsen.
- Fast chip ejection.
Schnelle Spanausfuhr.

Unit : mm

EDP No.		R ±0.02	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT						
EM833060	EM843060	R3.0	6.0	6	16	57	3
EM833080	EM843080	R4.0	8.0	8	16	63	3
EM833100	EM843100	R5.0	10.0	10	22	72	4
EM833120	EM843120	R6.0	12.0	12	26	83	4
EM833140	EM843140	R7.0	14.0	14	26	83	4
EM833160	EM843160	R8.0	16.0	16	32	92	4
EM833180	EM843180	R9.0	18.0	18	32	92	4
EM833200	EM843200	R10.0	20.0	20	38	104	4

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, CORNER RADIUS, LONG LENGTH 2 SCHNEIDEN, ECKENRADIUS, LANG

SERIES EM818

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM828

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.65

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet Zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- Superior workpiece finishes.
Höherer Oberflächengüte.
- Increased feed rates.
Erhöhter Vorschub.



Unit : mm

EDP No.		R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM818030	EM828030	R0.3	3.0	6	12	50
EM818040	EM828040	R0.3	4.0	6	15	50
EM818911	EM828911	R0.5	4.0	6	15	50
EM818050	EM828050	R0.3	5.0	6	20	60
EM818912	EM828912	R0.5	5.0	6	20	60
EM818913	EM828913	R0.3	6.0	6	20	60
EM818060	EM828060	R0.5	6.0	6	20	60
EM818901	EM828901	R1.0	6.0	6	20	70
EM818914	EM828914	R0.3	8.0	8	25	70
EM818080	EM828080	R0.5	8.0	8	25	70
EM818902	EM828902	R1.0	8.0	8	25	70
EM818903	EM828903	R1.5	8.0	8	25	70
EM818904	EM828904	R2.0	8.0	8	25	70
EM818915	EM828915	R0.3	10.0	10	30	90
EM818100	EM828100	R0.5	10.0	10	30	90
EM818905	EM828905	R1.0	10.0	10	30	90
EM818906	EM828906	R1.5	10.0	10	30	90
EM818907	EM828907	R2.0	10.0	10	30	90
EM818120	EM828120	R0.5	12.0	12	30	90
EM818908	EM828908	R1.0	12.0	12	30	90
EM818909	EM828909	R1.5	12.0	12	30	90
EM818910	EM828910	R2.0	12.0	12	30	90
EM818160	EM828160	R0.5	16.0	16	50	110
EM818916	EM828916	R1.0	16.0	16	50	110
EM818917	EM828917	R1.5	16.0	16	50	110
EM818918	EM828918	R2.0	16.0	16	50	110
EM818200	EM828200	R0.5	20.0	20	55	110
EM818919	EM828919	R1.0	20.0	20	55	110
EM818920	EM828920	R1.5	20.0	20	55	110
EM818921	EM828921	R2.0	20.0	20	55	110

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, 45° HELIX, CORNER RADIUS, SHORT LENGTH 4 SCHNEIDEN, 45° RECHTSSPIRALE, ECKENRADIUS, KURZ

SERIES EM905

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HMFLUTE
4

P.69

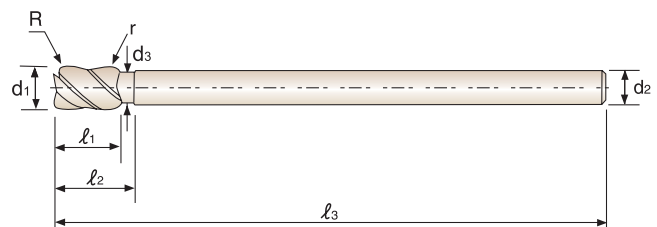


- No line is marked on the boundary section during step milling because this tool has radius on the end faces of the shank
Keine Frässtreifen, da keine scharfen Fräsecken vorhanden.
- High speed cutting in wide deep wall with step milling
Hochgeschwindigkeits - stufenfräsen auf lange Strecke möglich.
- Suitable for deep side milling, Helical Milling, Contour Milling
Geeignet für Tiefes Seitenfräsen, Spiralfräsen und Konturfräsen.

Unit : mm

EDP No. PLAIN	R	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT ℓ_1	LENGTH BELOW SHANK ℓ_2	OVERALL LENGTH ℓ_3	NECK DIAMETER d_3
EM905100	R0.5	10.0	8	15	19.2	130	7.5
EM905901	R1.0	10.0	8	15	19.2	130	7.5
EM905120	R0.5	12.0	10	18	22.2	150	9.5
EM905902	R1.0	12.0	10	18	22.2	150	9.5
EM905140	R0.5	14.0	12	21	25.2	160	11.5
EM905903	R1.0	14.0	12	21	25.2	160	11.5
EM905180	R0.5	18.0	16	27	31.2	180	15.5
EM905904	R1.0	18.0	16	27	31.2	180	15.5
EM905220	R0.5	22.0	20	33	37.2	200	19.5
EM905905	R1.0	22.0	20	33	37.2	200	19.5

MILL DIA. TOLERANCE	SHANK DIA. TOLERANCE
$\begin{matrix} 0 \\ -0.02 \end{matrix}$	h6



4 FLUTE, CORNER RADIUS, LONG LENGTH 4 SCHNEIDEN, ECKENRADIUS, LANG

SERIES EM819

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM829

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
4



P.65

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geeignet zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärtete Stähle.
- 4 flute allows for better workpiece finishes.
4 Schneiden erlauben bessere Oberflächengüte des Werkstücks.
- Increased production.
Gesteigerte Produktivität



Unit : mm

EDP No.		R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM819030	EM829030	R0.3	3.0	6	12	50
EM819040	EM829040	R0.3	4.0	6	15	50
EM819911	EM829911	R0.5	4.0	6	15	50
EM819050	EM829050	R0.3	5.0	6	20	60
EM819912	EM829912	R0.5	5.0	6	20	60
EM819913	EM829913	R0.3	6.0	6	20	60
EM819060	EM829060	R0.5	6.0	6	20	60
EM819901	EM829901	R1.0	6.0	6	20	70
EM819914	EM829914	R0.3	8.0	8	25	70
EM819080	EM829080	R0.5	8.0	8	25	70
EM819902	EM829902	R1.0	8.0	8	25	70
EM819903	EM829903	R1.5	8.0	8	25	70
EM819904	EM829904	R2.0	8.0	8	25	70
EM819915	EM829915	R0.3	10.0	10	30	90
EM819100	EM829100	R0.5	10.0	10	30	90
EM819905	EM829905	R1.0	10.0	10	30	90
EM819906	EM829906	R1.5	10.0	10	30	90
EM819907	EM829907	R2.0	10.0	10	30	90
EM819120	EM829120	R0.5	12.0	12	30	90
EM819908	EM829908	R1.0	12.0	12	30	90
EM819909	EM829909	R1.5	12.0	12	30	90
EM819910	EM829910	R2.0	12.0	12	30	90
EM819160	EM829160	R0.5	16.0	16	50	110
EM819916	EM829916	R1.0	16.0	16	50	110
EM819917	EM829917	R1.5	16.0	16	50	110
EM819918	EM829918	R2.0	16.0	16	50	110
EM819200	EM829200	R0.5	20.0	20	55	110
EM819919	EM829919	R1.0	20.0	20	55	110
EM819920	EM829920	R1.5	20.0	20	55	110
EM819921	EM829921	R2.0	20.0	20	55	110

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

6 FLUTE, 45° HELIX, CORNER RADIUS, STUB CUT LENGTH 6 SCHNEIDEN, 45° RECHTSSPIRALE, ECKENRADIUS, EXTRA KURZ

SERIES EM897

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM898

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

45°

FLUTE
6

PLAIN

FLAT



P.66

- High speed cutting
Hochgeschwindigkeitsfräsen.
- Excellent performance in dry cutting
Ausgezeichnete Leistung bei Trocken - Zerspanung.
- Cutting up to the dimension three times as much as the diameter by reduced Neck
Fräst bis zu 3-fache Größe des Durchmessers des abgesetzten Schaftteils.

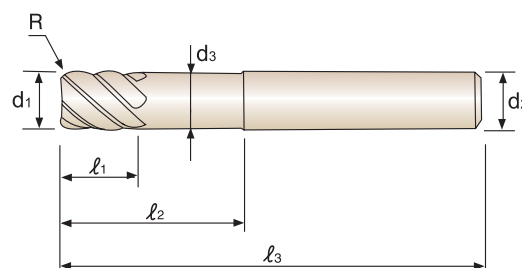


Unit : mm

EDP No.		R	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
PLAIN	FLAT							
EM897060	EM898060	R0.5	6.0	6	6	14	50	5.7
EM897080	EM898080	R0.5	8.0	8	8	24	60	7.65
EM897100	EM898100	R1.0	10.0	10	10	30	70	9.65
EM897120	EM898120	R1.0	12.0	12	12	30	75	11.6

MILL DIA. TOLERANCE		SHANK DIA. TOLERANCE
DIA. 6	—0.015 —0.038	
DIA. 8~	—0.020 —0.047	

h6



6 FLUTE, 45° HELIX, CORNER RADIUS, LONG LENGTH 6 SCHNEIDEN, 45° RECHTSSPIRALE, ECKENRADIUS, LANG

SERIES EM835

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM845

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
6



P.55

X-POWER



- Designed to machine high hardened materials.
Geeignet zum Fräsen von Hochgehärteten Stählen.
- High speed cutting and finish milling with high feed rates.
Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- Superior workpiece finishes.
Höhere Oberflächengüte.
- Superior wear resistant.
Besserer Abnutzungswiderstand.
- Suitable for dry milling.
Geeignet zum Trocken-Fräsen.

Unit : mm

EDP No.		R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT						
EM835060	EM845060	R0.5	6.0	6	13	70	6
EM835080	EM845080	R0.5	8.0	8	19	90	6
EM835100	EM845100	R0.5	10.0	10	22	100	6
EM835901	EM845901	R1.0	10.0	10	22	100	6
EM835120	EM845120	R0.5	12.0	12	26	110	6
EM835902	EM845902	R1.0	12.0	12	26	110	6
EM835160	EM845160	R1.0	16.0	16	32	130	6
EM835903	EM845903	R1.5	16.0	16	32	130	6
EM835200	EM845200	R1.0	20.0	20	38	140	6
EM835904	EM845904	R1.5	20.0	20	38	140	6
EM835905	EM845905	R2.0	20.0	20	38	140	6

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, CORNER RADIUS, STUB CUT LENGTH 4 SCHNEIDEN, ECKENRADIUS, EXTRA KURZ

SERIES EM839 PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM849 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
4

PLAIN

FLAT



P.66

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
Geignet zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.
- Superior workpiece finishes.
Höhere Oberflächengüte.
- Increased feed rates.
Erhöhter Vorschub

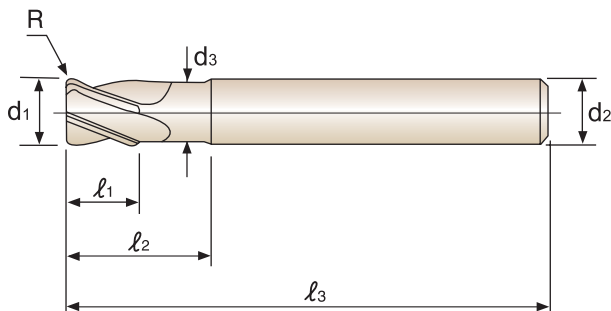


Unit : mm

EDP No.		R	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
PLAIN	FLAT							
EM839020	EM849020	R0.2	2.0	6	2.5	5	50	1.9
EM839025	EM849025	R0.25	2.5	6	3	6	50	2.4
EM839030	EM849030	R0.3	3.0	6	4	7	50	2.8
EM839035	EM849035	R0.35	3.5	6	4.5	8	50	3.2
EM839040	EM849040	R0.4	4.0	6	5	9	50	3.7
EM839050	EM849050	R0.5	5.0	6	6	12	50	4.6
EM839060	EM849060	R0.6	6.0	6	7	14	55	5.6
EM839080	EM849080	R0.8	8.0	8	10	18	60	7.4
EM839100	EM849100	R1.0	10.0	10	12	25	70	9.4
EM839120	EM849120	R1.2	12.0	12	15	30	80	11.4
EM839160	EM849160	R1.6	16.0	16	18	35	90	15.4

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



2 FLUTE, TAPER 2 SCHNEIDEN, KONISCH

SERIES EM837

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EM847

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.69

- Designed for milling die cavity.
Entworfen zur Gußform - Aushöhlung.
- Suitable for machining tool steel alloy steel, mold steel and other high hardened materials.
Geeignet zum Fräsen von Werkzeugstählen, Legierten Stählen, Gußstahl und andern Hochgehärteten Stählen.



Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	TAPER ANGLE (θ)
PLAIN	FLAT					
EM837913	—	2.0	4	6	45	30'
EM837020	—	2.0	4	6	45	1°
EM837901	—	2.0	4	6	45	2°
EM837902	—	2.0	4	6	45	3°
EM837914	EM847914	3.0	6	10	55	30'
EM837030	EM847030	3.0	6	10	55	1°
EM837903	EM847903	3.0	6	10	55	2°
EM837904	EM847904	3.0	6	10	55	3°
EM837915	EM847915	4.0	6	15	55	30'
EM837040	EM847040	4.0	6	15	55	1°
EM837905	EM847905	4.0	6	15	55	2°
EM837906	EM847906	4.0	6	15	55	3°
EM837916	EM847916	5.0	6	15	60	30'
EM837050	EM847050	5.0	6	15	60	1°
EM837907	EM847907	5.0	6	15	60	2°
EM837908	EM847908	5.0	6	15	60	3°
EM837917	EM847917	6.0	6	20	60	30'
EM837060	EM847060	6.0	6	20	60	1°
EM837909	EM847909	6.0	6	20	60	2°
EM837910	EM847910	6.0	8	20	65	3°
EM837918	EM847918	8.0	8	25	70	30'
EM837080	EM847080	8.0	8	25	70	1°
EM837911	EM847911	8.0	8	25	70	2°
EM837912	EM847912	8.0	10	25	75	3°

- We can supply various sizes and taper angle.
Verschiedene Größen und Kegelneigungswinkeln lieferbar.

MILL DIA. TOLERANCE	SHANK DIA. TOLERANCE
0 —0.03	h6

2 FLUTE END MILLS for RIB PROCESSING

2 SCHNEIDEN, für KLEINSTE RIPPE

SERIES EM883

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
2

PLAIN

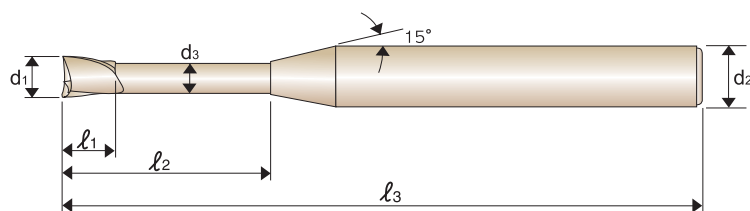


P.67

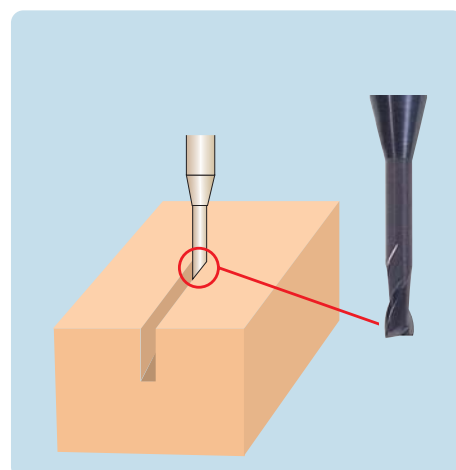


Unit : mm

EDP No. PLAIN	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d_3
EM883908	0.8	4	1.2	6	45	0.75
EM883909	0.8	4	1.2	8	45	0.75
EM883010	1.0	4	1.5	6	45	0.97
EM883912	1.0	4	1.5	8	45	0.95
EM883914	1.0	4	1.5	12	45	0.93
EM883915	1.2	4	1.8	8	45	1.15
EM883917	1.2	4	1.8	12	45	1.13
EM883920	1.4	4	2.1	12	45	1.33
EM883923	1.5	4	2.3	8	45	1.45
EM883924	1.5	4	2.3	10	45	1.45
EM883925	1.5	4	2.3	12	45	1.43
EM883927	1.5	4	2.3	16	50	1.41
EM883932	1.6	4	2.4	12	45	1.53
EM883946	1.8	4	2.7	12	45	1.73
EM883960	2.0	4	3.0	12	45	1.93
EM883962	2.0	4	3.0	16	50	1.91
EM883968	2.5	4	3.7	12	45	2.40
EM883970	2.5	4	3.7	16	55	2.40
EM883977	3.0	6	4.5	14	50	2.85
EM883979	3.0	6	4.5	18	55	2.85



MILL DIA. TOLERANCE	SHANK DIA. TOLERANCE
$\begin{matrix} 0 \\ -0.015 \end{matrix}$	$\begin{matrix} 0 \\ -0.008 \end{matrix}$



2 FLUTE, BALL NOSE for RIB PROCESSING 2 SCHNEIDEN, STIRNRADIUS, für KLEINSTE RIPPE

SERIES EM886

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
2

PLAIN



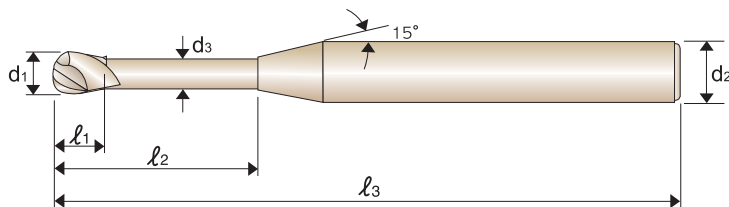
P.67

X-POWER

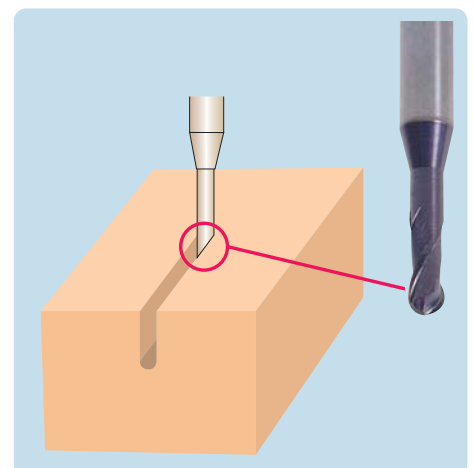


Unit : mm

EDP No. PLAIN	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d_3
EM886006	0.6	3	0.9	6	35	0.55
EM886008	0.8	4	1.2	6	45	0.75
EM886901	0.8	4	1.2	8	45	0.75
EM886010	1.0	4	1.5	6	45	0.97
EM886902	1.0	4	1.5	8	45	0.95
EM886904	1.0	4	1.5	12	45	0.93
EM886012	1.2	4	1.8	8	45	1.15
EM886905	1.2	4	1.8	12	45	1.13
EM886014	1.4	4	2.1	12	45	1.33
EM886015	1.5	4	2.3	8	45	1.45
EM886906	1.5	4	2.3	12	45	1.43
EM886907	1.5	4	2.3	16	50	1.41
EM886016	1.6	4	2.4	16	50	1.51
EM886018	1.8	4	2.7	16	50	1.71
EM886020	2.0	4	3.0	8	45	1.95
EM886909	2.0	4	3.0	16	50	1.91
EM886910	2.0	4	3.0	20	55	1.89
EM886030	3.0	6	4.5	16	55	2.85
EM886911	3.0	6	4.5	20	60	2.85
EM886040	4.0	6	6.0	16	60	3.85
EM886912	4.0	6	6.0	20	65	3.85



MILL DIAMETER	0.6	0.8 ~ 3.0	4.0
MILL DIA. TOLERANCE	-0.014 -0.028		-0.020 -0.038
SHANK DIA. TOLERANCE	h6		



4 FLUTE, TAPER for RIB PROCESSING 4 SCHNEIDEN, KONISCH, für KLEINSTE RIPPE

SERIES EM889

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
4

PLAIN



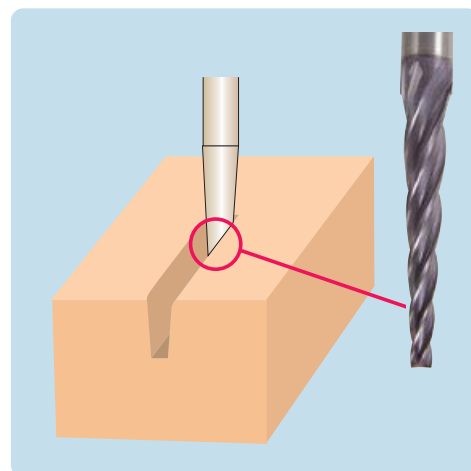
P.68



Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	TAPER ANGLE	OVERALL LENGTH
EM889952	1.0	4	8	30'	45
EM889954	1.0	4	12	30'	45
EM889010	1.0	4	8	1°	45
EM889959	1.0	4	12	1°	45
EM889960	1.0	4	8	1° 30'	45
EM889962	1.0	4	12	1° 30'	45
EM889963	1.0	4	8	2°	45
EM889965	1.0	4	12	2°	45
EM889968	1.2	4	8	30'	45
EM889970	1.2	4	12	30'	45
EM889012	1.2	4	8	1°	45
EM889977	1.2	4	12	1°	45
EM889979	1.2	4	8	1° 30'	45
EM889981	1.2	4	12	1° 30'	45
EM889983	1.2	4	8	2°	45
EM889985	1.2	4	12	2°	45
EM889987	1.5	4	8	30'	45
EM889991	1.5	4	12	30'	45
EM889992	1.5	4	16	30'	50
EM889015	1.5	4	8	1°	45

MILL DIA. TOLERANCE	$\begin{matrix} 0 \\ -0.015 \end{matrix}$
TAPER ANGLE TOLERANCE	$\pm 5'$
SHANK DIA. TOLERANCE	$\begin{matrix} 0 \\ -0.008 \end{matrix}$



4 FLUTE, TAPER for RIB PROCESSING 4 SCHNEIDEN, KONISCH für KLEINSTE RIPPE

SERIES EM889

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
4



P.68

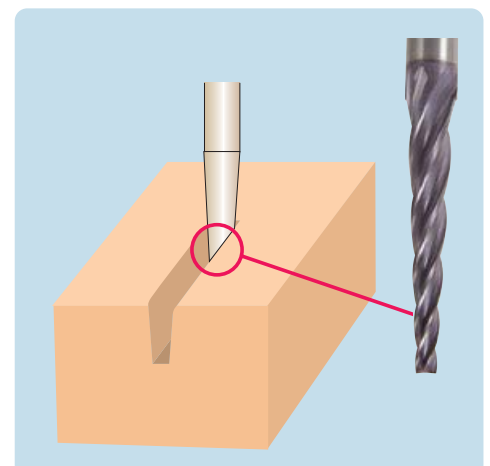
X-POWER



Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	TAPER ANGLE	OVERALL LENGTH
EM889801	1.5	4	12	1°	45
EM889802	1.5	4	16	1°	50
EM889804	1.5	4	8	1° 30'	45
EM889806	1.5	4	12	1° 30'	45
EM889807	1.5	4	16	1° 30'	50
EM889809	1.5	4	8	2°	45
EM889811	1.5	4	12	2°	45
EM889812	1.5	4	16	2°	50
EM889869	2.0	4	12	30'	45
EM889870	2.0	4	16	30'	50
EM889878	2.0	4	12	1°	45
EM889879	2.0	4	16	1°	50
EM889883	2.0	4	12	1° 30'	45
EM889884	2.0	4	16	1° 30'	50
EM889888	2.0	4	12	2°	45
EM889889	2.0	4	16	2°	50

MILL DIA. TOLERANCE	$\begin{smallmatrix} 0 \\ -0.015 \end{smallmatrix}$
TAPER ANGLE TOLERANCE	$\pm 5'$
SHANK DIA. TOLERANCE	$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$



4 FLUTE, TAPER BALL NOSE for RIB PROCESSING 4 SCHNEIDEN, KONISCH STIRNRADIUS für KLEINSTE RIPPE

SERIES EM890

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
4

PLAIN



P.68

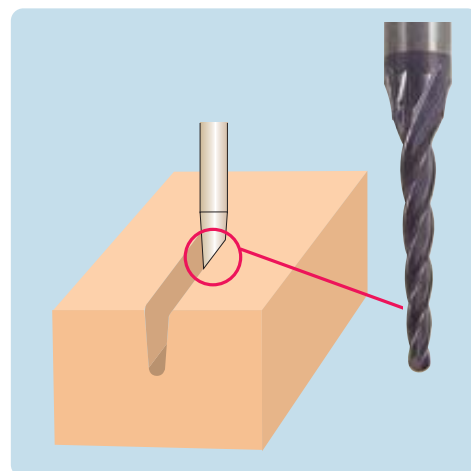


$R : \pm 0.01\text{mm}$

Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	TAPER ANGLE	OVERALL LENGTH
EM890909	1.0	4	8	30'	45
EM890911	1.0	4	12	30'	45
EM890010	1.0	4	8	1°	45
EM890916	1.0	4	12	1°	45
EM890917	1.0	4	8	1° 30'	45
EM890919	1.0	4	12	1° 30'	45
EM890920	1.0	4	8	2°	45
EM890922	1.0	4	12	2°	45
EM890923	1.2	4	8	30'	45
EM890925	1.2	4	12	30'	45
EM890012	1.2	4	8	1°	45
EM890932	1.2	4	12	1°	45
EM890934	1.2	4	8	1° 30'	45
EM890936	1.2	4	12	1° 30'	45
EM890938	1.2	4	8	2°	45
EM890940	1.2	4	12	2°	45
EM890942	1.5	4	8	30'	45
EM890944	1.5	4	12	30'	45
EM890945	1.5	4	16	30'	50
EM890015	1.5	4	8	1°	45

RADIUS TOLERANCE	± 0.010
TAPER ANGLE TOLERANCE	$\pm 5'$
SHANK DIA. TOLERANCE	$\begin{matrix} 0 \\ -0.008 \end{matrix}$



4 FLUTE, TAPER BALL NOSE for RIB PROCESSING 4 SCHNEIDEN, KONISCH STIRNRADIUS für KLEINSTE RIPPE

SERIES EM890

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM



FLUTE
4



P.68

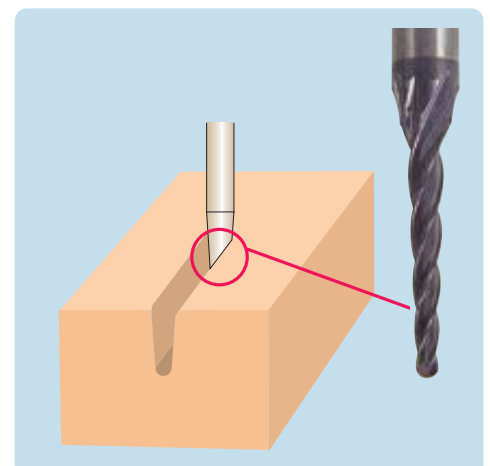
X-POWER



Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	TAPER ANGLE	OVERALL LENGTH
EM890953	1.5	4	12	1°	45
EM890954	1.5	4	16	1°	50
EM890956	1.5	4	8	1° 30'	45
EM890958	1.5	4	12	1° 30'	45
EM890959	1.5	4	16	1° 30'	50
EM890961	1.5	4	8	2°	45
EM890963	1.5	4	12	2°	45
EM890964	1.5	4	16	2°	50
EM890816	2.0	4	12	30'	45
EM890817	2.0	4	16	30'	50
EM890825	2.0	4	12	1°	45
EM890826	2.0	4	16	1°	50
EM890830	2.0	4	12	1° 30'	45
EM890831	2.0	4	16	1° 30'	50
EM890835	2.0	4	12	2°	45
EM890836	2.0	4	16	2°	50

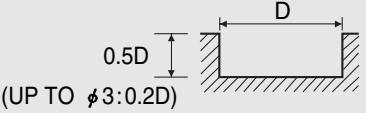
RADIUS TOLERANCE	± 0.010
TAPER ANGLE TOLERANCE	± 5'
SHANK DIA. TOLERANCE	$\begin{matrix} 0 \\ -0.008 \end{matrix}$



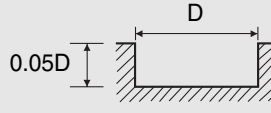
2 FLUTE, SHORT, SLOTTING

■ EM810, EM820

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	190	7560	120	6300	90	5040	35		
3	8920	210	5560	140	4620	120	3360	40	1900	40
4	7560	300	4620	180	3880	150	2940	40	1480	40
5	6300	320	3780	190	3160	160	2320	50	1260	40
6	5560	350	3360	220	2840	180	2000	55	1100	40
8	4200	380	2520	200	2100	180	1680	75	840	40
10	3260	330	2000	160	1680	160	1360	60	680	35
12	2740	280	1680	130	1360	130	1160	55	560	35
16	2200	220	1360	110	1060	110	900	40	440	20
20	1680	170	1060	80	840	80	680	30	320	20
25	1360	130	840	70	680	60	540	20	260	15



0.5D
(UP TO φ3:0.2D)



0.05D

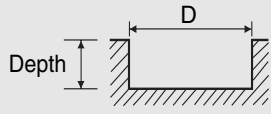
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2FLUTE, MINIATURE, SLOTTING

■ EM810

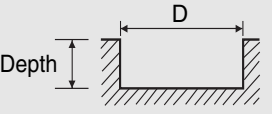
MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	HRc30 ~ HRc45		HRc45 ~ HRc55	
STRENGTH	1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
0.4	30000	180	23000	100
0.8	24000	300	18000	130
1	20000	320	15000	150
1.2	16000	320	12000	150
1.5	12000	300	9000	140

$D < 1$
 Depth=0.15 × D
 $D \geq 1$
 Depth=0.25 × D



Depth

$D < 1$
 Depth=0.02 × D
 $D \geq 1$
 Depth=0.05 × D



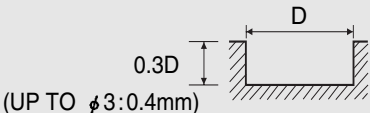
Depth

RPM=REVOLUTION PER MIN.
FEED=mm/min.

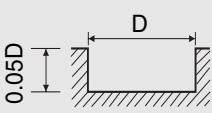
2 FLUTE, LONG, SLOTTING

■ EM816, EM826

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	6300	60	5040	50	3150	25
3	4410	70	3570	60	2200	30
4	3570	85	2840	70	1790	35
5	3050	105	2420	85	1580	40
6	2630	125	2100	105	1370	50
8	2000	135	1580	105	1050	50
10	1680	135	1370	105	840	50
12	1370	105	1160	95	700	40
16	1160	95	890	75	560	35
20	840	70	680	50	420	25



(UP TO φ3:0.4mm)



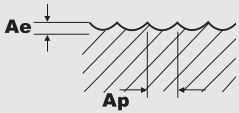
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, MINIATURE BALL NOSE

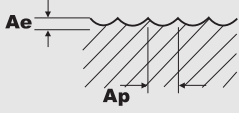
■ EM865

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	HRc30 ~ HRc45		HRc45 ~ HRc55	
STRENGTH	1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
0.6	30000	600	30000	300
0.8	27000	650	27000	380
1	25000	650	25000	400
1.2	24000	670	24000	410
1.5	23000	700	23000	430

$D < 1$
 $Ae = 0.05 \times D$
 $Ap = 0.15 \times D$
 $D \geq 1$
 $Ae = 0.075 \times D$
 $Ap = 0.15 \times D$



$D < 1$
 $Ae = 0.05 \times D$
 $Ap = 0.1 \times D$
 $D \geq 1$
 $Ae = 0.05 \times D$
 $Ap = 0.15 \times D$

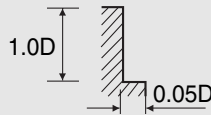


RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 FLUTE, FINISH, SIDE CUTTING

■ EM895, EM896, EM836, EM846

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	210	7560	140	6300	115	5040	30		
3	8920	240	5560	150	4620	125	3360	40	1900	45
4	7560	430	4620	260	3880	210	2940	45	1480	45
5	6300	450	3780	270	3160	230	2320	55	1260	45
6	5560	500	3360	310	2840	250	2000	60	1100	45
8	4200	530	2520	290	2100	265	1680	80	840	45
10	3260	460	2000	230	1680	230	1360	70	680	35
12	2740	390	1680	190	1360	180	1160	60	560	35
16	2200	310	1360	150	1060	150	900	45	440	20
18	1940	280	1210	135	950	130	790	35	380	20
20	1680	240	1060	120	840	115	680	30	320	20

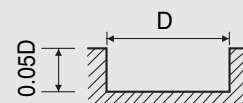
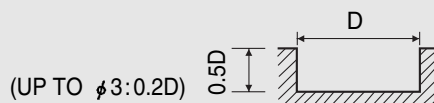


RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 FLUTE, FINISH, SLOTTING

■ EM895, EM896, EM836, EM846

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	170	7560	110	6300	80	5040	30		
3	8920	190	5560	130	4620	110	3360	35	1900	40
4	7560	270	4620	160	3880	130	2940	35	1480	35
5	6300	280	3780	170	3160	140	2320	45	1260	35
6	5560	310	3360	200	2840	160	2000	50	1100	35
8	4200	340	2520	180	2100	160	1680	65	840	35
10	3260	300	2000	140	1680	145	1360	55	680	30
12	2740	250	1680	120	1360	120	1160	50	560	30
16	2200	200	1360	100	1060	100	900	35	440	20
18	1940	175	1210	85	950	85	790	30	380	20
20	1680	150	1060	70	840	70	680	25	320	20

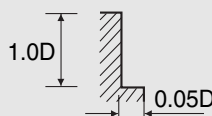


RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, SHORT, SIDE CUTTING

■ EM811, EM821

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	280	7560	170	6300	140	5040	50		
3	8920	320	5560	200	4620	170	3360	60	1900	60
4	7560	570	4620	350	3880	280	2940	60	1480	60
5	6300	600	3780	360	3160	300	2320	70	1260	60
6	5560	660	3360	410	2840	330	2000	80	1100	60
8	4200	710	2520	380	2100	350	1680	110	840	60
10	3260	610	2000	300	1680	300	1360	90	680	50
12	2740	520	1680	250	1360	240	1160	80	560	50
16	2200	410	1360	200	1100	200	900	60	440	30
20	1680	320	1060	160	840	150	680	40	320	30
25	1360	250	840	130	680	120	540	30	260	20

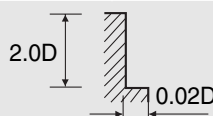
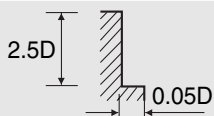


RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, LONG, SIDE CUTTING

■ EM817, EM827

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	6300	100	5040	80	3150	45		
3	4410	115	3570	100	2200	55	1890	30
4	3570	140	2840	115	1790	60	1470	35
5	3050	180	2420	140	1580	70	1260	40
6	2630	215	2100	180	1370	90	1160	50
8	2000	230	1580	180	1050	90	840	50
10	1680	230	1370	180	840	90	670	50
12	1370	180	1160	160	700	70	560	40
16	1160	160	890	125	560	60	440	35
20	840	115	680	90	420	45	340	25



RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 & 8 FLUTE, 45° HELIX, LONG, SIDE CUTTING

■ EM812, EM822

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc50		HRc50 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	5560	2000	3880	1370	1580	210	1100	130
8	4200	2000	2940	1370	1160	210	840	130
10	3360	2000	2320	1370	1000	210	680	130
12	2840	1680	2000	1160	840	180	560	110
16	2100	1260	1480	880	640	130	420	70
20	1680	1010	1160	690	500	110	320	60
25	1500	900	1100	600	430	90	260	50

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RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 & 8 FLUTE, 45° HELIX, LONG, SIDE CUTTING

■ EM812, EM822

(HIGH SPEED CUTTING)

MATERIAL	HEAT RESISTANT STEELS HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc50		HRc50 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6	16800	6090	8400	3050	4200	1470
8	12600	6090	6300	3050	3160	1470
10	9980	5990	5040	3050	2520	1470
12	8400	5040	4200	2520	2100	1260
16	6300	3780	3160	1890	1580	950
20	5040	3050	2520	1470	1260	760
25	4500	2700	2200	1300	1120	670

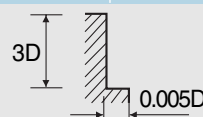
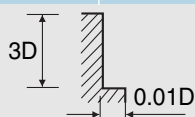
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RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 FLUTE, 45° HELIX, EXTRA LONG, SIDE CUTTING

■ EM834, EM844

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc40		HRc40 ~ HRc50		HRc50 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	~ 1250N/mm ²		1250 ~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2230	470	1670	350	1390	250	1110	200
8	1670	450	1250	330	1050	240	840	180
10	1330	440	1000	300	840	230	680	160
12	1110	400	840	270	690	210	560	150
16	840	330	630	230	530	170	420	130
20	670	280	500	200	420	150	320	120
25	540	240	400	170	340	130	270	95



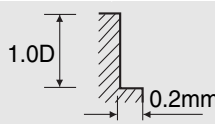
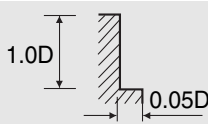
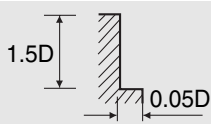
RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 FLUTE, 45° HELIX, CORNER RADIUS, SIDE CUTTING

■ EM835, EM845

(HIGH SPEED CUTTING)

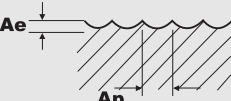
MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc50		HRc50 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6	16800	6090	8400	3050	4200	1470
8	12600	6090	6300	3050	3150	1470
10	9980	5990	5040	3050	2520	1470
12	8400	5040	4200	2520	2100	1260
16	6300	3780	3150	1890	1580	950
20	5040	3050	2520	1470	1260	760



RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE

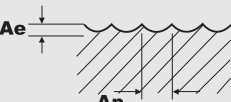
■ EM876, EM877, EM813, EM823, EM878, EM879

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	15760	250	12720	200	5800	90
1.5	15760	350	12140	270	5320	120
2	14400	750	10700	490	4680	150
2.5	14400	750	10700	490	4680	150
3	13100	680	10000	460	4520	150
4	10500	740	8400	530	4200	180
5	9140	820	7300	580	3680	180
6	7780	840	6300	630	3160	190
8	5260	950	4420	660	2100	190
10	4620	1020	3780	710	1780	190
12	3780	900	2940	660	1360	190
16	2740	920	2320	650	1160	190
20	2100	840	1900	630	840	190
<div> <div> Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.2 × D </div>  <div> Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.1 × D </div> </div>						

RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE

■ EM876, EM877, EM813, EM823, EM878, EM879 (HIGH SPEED CUTTING)

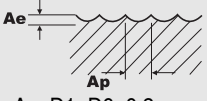
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRc45		HRc45 ~ HRc65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	25000	650	25000	400
1.5	23000	700	23000	430
2	21000	740	21000	470
2.5	21000	880	19000	490
3	21000	1000	17000	520
4	21000	1470	13660	580
5	21000	1800	12000	600
6	21000	2310	10500	630
8	15760	2840	7880	740
10	13660	3050	6300	840
12	10500	2630	5260	840
16	8200	2630	3780	710
20	6300	2520	2940	530
<div> <div> Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.05 × D </div>  </div>				

RPM=REVOLUTION PER MIN.
FEED=mm/min.

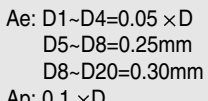
2 FLUTE, BALL NOSE

■ EM899, EM900

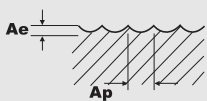
MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRC30 ~ HRC40		HRC45 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	1000 ~ 1250N/mm ²		1500N/mm ² ~ 1750N/mm ²		1750N/mm ² ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	12720	200	20000	460	20000	400
1.5	12140	270	16300	640	16100	580
2	10700	490	14500	800	14200	740
2.5	10700	490	13400	950	13000	890
3	10000	460	12700	1100	12300	1050
4	8400	530	10600	1100	10300	1050
5	7300	580	9400	1100	9050	1050
6	6300	630	8600	1150	8250	1100
8	4420	660	7000	1050	6700	1000
10	3780	710	6050	1000	5800	960
12	2940	660	5450	1000	5200	960
16	2320	650	4350	870	4150	830
20	1900	630	3500	690	3300	650



Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.2 × D



Ae: D1~D4=0.05 × D
D5~D8=0.25mm
D8~D20=0.30mm
Ap: 0.1 × D



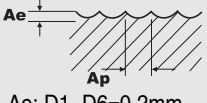
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE

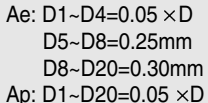
■ EM899, EM900

(HIGH SPEED CUTTING)

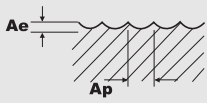
MATERIAL	NON-ALLOY STEELS ALLOY STEELS CAST IRON		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~ 1750N/mm ²		1750N/mm ² ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	25000	650	20000	770	20000	700
1.5	23000	700	16300	1050	16100	980
2	21000	740	14500	1300	14200	1230
2.5	21000	880	13400	1500	13000	1430
3	21000	1000	12700	1750	12300	1670
4	21000	1470	10600	1700	10300	1620
5	21000	1800	9400	1650	9050	1570
6	21000	2310	8600	1750	8250	1670
8	15760	2840	7000	1550	6700	1460
10	13660	3050	6050	1450	5800	1360
12	10500	2630	5450	1420	5200	1330
16	8200	2630	4350	1230	4150	1130
20	6300	2520	3500	1000	3300	900



Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.05 × D



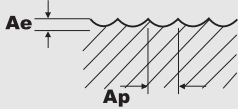
Ae: D1~D4=0.05 × D
D5~D8=0.25mm
D8~D20=0.30mm
Ap: D1~D20=0.05 × D



RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE, LONG REACH

■ EM838, EM848

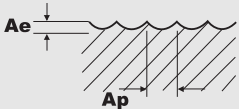
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	12600	200	10180	160	4640	70
1.5	12600	280	9710	220	4250	95
2	12600	420	9250	260	3870	90
2.5	11520	600	8560	390	3740	120
3	10500	540	8000	370	3620	120
4	8400	590	6720	420	3360	140
5	7310	660	5840	460	2940	140
6	6220	670	5040	500	2530	150
8	4210	760	3540	530	1680	150
10	3700	820	3020	570	1420	150
12	3020	720	2350	530	1090	150
16	2190	740	1860	520	930	150
20	1680	670	1520	500	670	150
<div> <div> Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.2 × D </div>  <div> Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.1 × D </div> </div>						

RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE, LONG REACH

■ EM838, EM848

(HIGH SPEED CUTTING)

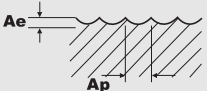
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRc45		HRc45 ~ HRc65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	20000	520	20000	320
1.5	18400	560	18400	340
2	16800	590	16800	380
2.5	16800	700	15200	390
3	16800	800	13600	420
4	16800	1180	10930	460
5	16800	1440	9600	480
6	16800	1850	8400	500
8	12610	2270	6300	590
10	10930	2440	5040	670
12	8400	2100	4210	670
16	6560	2100	3020	570
20	5040	2020	2350	420
<div> <div> Ae: D1~D6 =0.2mm D8~D20=0.3mm Ap: 0.05 × D </div>  </div>				

RPM=REVOLUTION PER MIN.
FEED=mm/min.


2 FLUTE, BALL NOSE with TAPER NECK

■ EM902, EM904

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRC30 ~ HRC40		HRC40 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	1000 ~ 1250N/mm ²		1250N/mm ² ~ 1750N/mm ²		1750N/mm ² ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	10180	160	16000	370	16000	320
2	9250	260	11500	640	11300	590
3	8000	370	10200	880	9800	850
4	6720	420	8500	880	8200	850
5	5840	460	7500	880	7200	850
6	5040	500	6900	920	6500	880
8	3540	530	5600	840	5300	800
10	3020	570	4850	800	4650	770
12	2350	530	4350	800	4150	770



Ae: D1~D6=0.2mm
D8~D12=0.3mm
Ap: 0.2 × D



Ae: D1~D4=0.05 × D
D5~D8=0.25mm
D10~D12=0.30mm
Ap: 0.1 × D

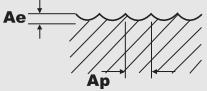
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE with TAPER NECK


■ EM902, EM904

(HIGH SPEED CUTTING)

MATERIAL	NON-ALLOY STEELS ALLOY STEELS CAST IRON		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	~ 1500N/mm ²		1250N/mm ² ~ 1750N/mm ²		1750N/mm ² ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	20000	520	16000	620	16000	550
2	16800	590	11500	850	11400	980
3	16800	800	10200	1400	9800	1300
4	16800	1180	8500	1350	8200	1300
5	16800	1440	7500	1320	7200	1250
6	16800	1850	6900	1400	6600	1350
8	12610	2270	5600	1250	5300	1150
10	10930	2440	4800	1150	4600	1100
12	8400	2100	4350	1130	4150	1050



Ae: D1~D6=0.2mm
D8~D12=0.3mm
Ap: 0.05 × D



Ae: D1~D4=0.05 × D
D5~D8=0.25mm
D10~D20=0.30mm
Ap: 0.05 × D

RPM=REVOLUTION PER MIN.
FEED=mm/min.

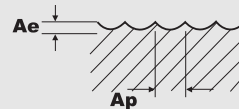
2 FLUTE, BALL NOSE for OVER HRc 55

■ EM868, EM869

MATERIAL	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc45 ~ HRc50		HRc50 ~ HRc55		HRc55 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	1500 ~ 1750N/mm ²		1750 ~ 2000N/mm ²		2000 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1	20000	460	20000	400	20000	350	20000	240
1.5	16300	640	16100	580	16000	570	14200	360
2	14500	800	14200	740	13850	760	11300	465
2.5	13400	950	13000	890	12600	920	9600	560
3	12700	1100	12300	1050	11800	1000	8400	660
4	10600	1100	10300	1050	9800	1000	6650	650
5	9400	1100	9050	1050	8600	950	5600	680
6	8600	1150	8250	1100	7850	950	4850	700
8	7000	1050	6700	1000	6350	950	3800	650
10	6050	1000	5800	960	5450	900	3200	620
12	5450	1000	5200	960	4900	900	2750	610
16	4350	870	4150	830	3900	820	2150	265
20	3500	690	3300	650	3150	630	1700	220

Ae: D1~D4 = 0.05 × D
 D5~D8 = 0.25mm
 D8~D20 = 0.30mm

Ap: D1~D20 = 0.1 × D



RPM=REVOLUTION PER MIN.
 FEED=mm/min.

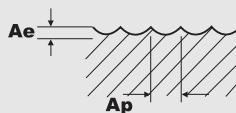
2 FLUTE, BALL NOSE for OVER HRc 55

■ EM868, EM869

(HIGH SPEED CUTTING)

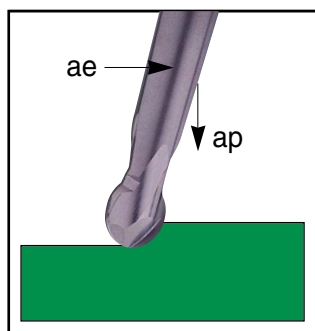
MATERIAL	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc45 ~ HRc50		HRc50 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	1500 ~ 1750N/mm ²		1750 ~ 2000N/mm ²		2000 ~ 2080N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	20000	770	20000	700	20000	410
1.5	16300	1050	16100	980	16000	580
2	14500	1300	14200	1230	13850	700
2.5	13400	1500	13000	1430	12600	780
3	12700	1750	12300	1670	11800	860
4	10600	1700	10300	1620	9800	780
5	9400	1650	9050	1570	8600	750
6	8600	1750	8250	1670	7850	700
8	7000	1550	6700	1460	6350	650
10	6050	1450	5800	1360	5450	620
12	5450	1420	5200	1330	4900	610
16	4350	1230	4150	1130	3900	265
20	3500	1000	3300	900	3150	220

Ae: D1~D4 = 0.05 × D
 D5~D8 = 0.25mm
 D8~D20 = 0.30mm
 Ap: D1~D20 = 0.05 × D



RPM=REVOLUTION PER MIN.
 FEED=mm/min.

2 FLUTE, BALL NOSE, MMC



RECOMMENDED CUTTING CONDITIONS

- ▶ $ae = 0.05 \times d1$
- ▶ $ap = 0.02 \times d1$

■ EM669, EM863

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
3	35000	2800	33000	2600	12000	900
4	26000	2300	25000	2200	9000	800
5	21000	2100	20000	2000	7000	700
6	17000	1900	16000	1800	6000	650
8	13000	1700	12000	1600	4500	550
10	10500	1450	10000	1400	3500	500
12	9000	1400	8000	1300	3000	450
16	6000	1200	5500	1100	2000	400

RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE, MMC

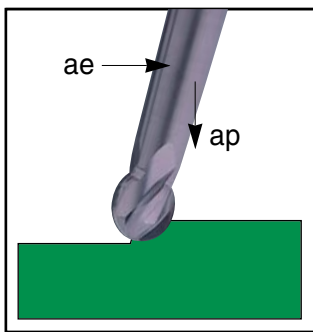
■ EM669, EM863

(HIGH SPEED CUTTING)

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
3	47000	3700	44000	3500	17000	1400
4	35000	3200	33000	3000	13000	1200
5	28000	2800	27000	2600	10000	1100
6	23000	2600	22000	2400	8000	950
8	18000	2300	17000	2100	6000	850
10	14000	2000	13000	1900	5000	750
12	12000	1800	11000	1800	4000	700
16	9000	1600	8000	1500	3300	600

RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, BALL NOSE, MMC



RECOMMENDED CUTTING CONDITIONS

- ▶ $ae = 0.05 \times d1$
▶ $ap = 0.02 \times d1$

■ EM673, EM864

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
5	21000	4000	20000	4000	7000	1400
6	17000	4000	16000	3500	6000	1300
8	13000	3500	12000	3000	4500	1100
10	10500	3000	10000	2500	3500	1000
12	9000	2800	8000	2500	3000	950
16	6000	2800	5500	2200	2000	800

RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, BALL NOSE, MMC

■ EM673, EM864

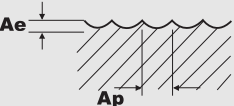
(HIGH SPEED CUTTING)

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
5	28000	5600	27000	5300	11000	2100
6	23000	5100	22000	4900	9000	1900
8	18000	4600	17000	4300	7000	1700
10	14000	3900	13000	3700	5000	1400
12	12000	3700	11000	3500	4500	1300
16	9000	3100	8000	3000	3300	1100

RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, BALL NOSE, LONG

■ EM815, EM825

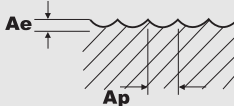
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	15760	380	12720	300	5800	130
1.5	15760	530	12140	410	5320	180
2	15760	800	11560	480	4840	160
3	13100	1020	10000	690	4520	220
4	10500	1110	8400	800	4200	270
5	9140	1230	7300	870	3680	270
6	7780	1260	6300	950	3160	280
8	5260	1430	4420	990	2100	280
10	4620	1530	3780	1070	1780	280
12	3780	1350	2940	990	1360	280
16	2740	1380	2320	980	1160	280
20	2100	1260	1900	950	840	280
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 30%;"> <p>Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.2 × D</p> </div> <div style="width: 30%; text-align: center;">  </div> <div style="width: 30%;"> <p>Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.1 × D</p> </div> </div>						

RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, BALL NOSE, LONG

■ EM815, EM825

(HIGH SPEED CUTTING)

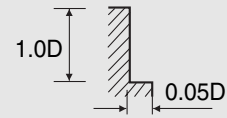
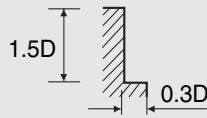
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRc45		HRc45 ~ HRc65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	25000	980	25000	600
1.5	23000	1050	23000	640
2	21000	1110	21000	700
3	21000	1500	17000	780
4	21000	2210	13660	870
5	21000	2700	12000	900
6	21000	3470	10500	940
8	15760	4260	7880	1110
10	13660	4580	6300	1260
12	10500	3950	5260	1260
16	8200	3950	3780	1060
20	6300	3780	2940	790
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 30%;"> <p>Ae: D1~D6=0.2mm D8~D20=0.3mm Ap: 0.05 × D</p> </div> <div style="width: 30%; text-align: center;">  </div> </div>				

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI. FLUTE, ROUGHING, SIDE CUTTING

■ EM832, EM842, EM814, EM824

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc38		HRc38 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1200N/mm ²		1200 ~ 1400N/mm ²		1400 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	15600	2320	12400	840	8400	570	3400	260	2400	190
8	11600	2320	9200	840	6300	570	2400	240	1800	180
10	9200	2320	7600	840	5100	570	2000	290	1300	190
12	8000	2400	6000	800	4200	570	1680	260	1200	190
14	6800	2400	5200	840	3600	570	1400	200	900	130
16	6000	2400	4800	760	3300	510	1200	160	800	110
18	5200	2320	4400	720	2700	420	1100	150	700	100
20	4800	2160	3600	560	2400	360	1000	150	660	100
25	4300	2150	3200	620	2160	410	900	160	600	100

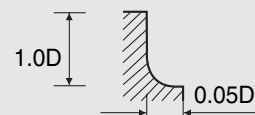


RPM=REVOLUTION PER MIN.
FEED=mm/min.

3, 4 FLUTE, ROUGHING BALL NOSE, SIDE CUTTING

■ EM833, EM843

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc38		HRc38 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1200N/mm ²		1200 ~ 1400N/mm ²		1400 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	15600	2320	12400	840	8400	570	3400	260	2400	190
8	11600	2320	9200	840	6300	570	2400	240	1800	180
10	9200	2320	7600	840	5100	570	2000	290	1300	190
12	8000	2400	6000	800	4200	570	1680	260	1200	190
14	6800	2400	5200	840	3600	570	1400	200	900	130
16	6000	2400	4800	760	3300	510	1200	160	800	110
18	5200	2320	4400	720	2700	420	1100	150	700	100
20	4800	2160	3600	560	2400	360	1000	150	660	100

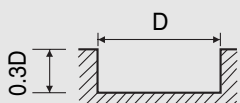
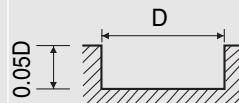


RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, CORNER RADIUS, LONG, SLOTTING

■ EM818, EM828

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	4410	70	3570	60	2200	30	1870	18
4	3570	85	2840	70	1790	35	1470	20
5	3050	105	2420	85	1580	40	1260	25
6	2630	125	2100	105	1370	50	1160	35
8	2000	135	1580	105	1050	50	840	35
10	1680	135	1370	105	840	50	670	35
12	1370	105	1160	95	700	40	550	25
16	1160	95	890	75	560	35	440	20
20	840	70	680	50	420	25	340	15

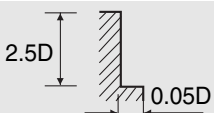
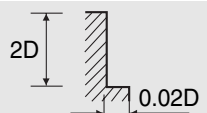
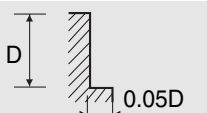



RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, CORNER RADIUS, LONG, SIDE CUTTING

■ EM819, EM829

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	4410	115	3570	100	2200	55	1870	30
4	3570	140	2840	115	1790	60	1470	35
5	3050	180	2420	140	1580	70	1260	40
6	2630	215	2100	180	1370	85	1160	50
8	2000	230	1580	180	1050	85	840	50
10	1680	230	1370	180	840	85	670	50
12	1370	180	1160	160	700	70	550	40
16	1160	160	890	125	560	60	440	35
20	840	115	680	90	420	45	340	25

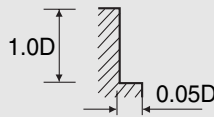




RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, CORNER RADIUS, STUB CUT, SIDE CUTTING

■ EM839, EM849

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	13870	340	9070	205	6050	60		
2.5	12290	360	7870	220	5040	65		
3	10700	385	6670	240	4030	70	2280	70
3.5	9890	535	6100	330	3780	70	2030	70
4	9070	685	5540	420	3530	70	1780	70
5	7560	720	4540	430	2780	85	1510	70
6	6670	790	4030	490	2400	95	1320	70
8	5040	850	3020	455	2020	130	1010	70
10	3910	730	2400	360	1630	110	820	60
12	3290	625	2020	300	1390	95	670	60
16	2640	490	1630	240	1080	70	530	35

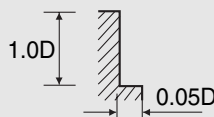


RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 FLUTE, CORNER RADIUS, STUB CUT, SIDE CUTTING

■ EM897, EM898

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	13870	340	9070	205	6050	60		
2.5	12290	360	7870	220	5040	65		
3	10700	385	6670	240	4030	70	2280	70
3.5	9890	535	6100	330	3780	70	2030	70
4	9070	685	5540	420	3530	70	1780	70
5	7560	720	4540	430	2780	85	1510	70
6	6670	790	4030	490	2400	95	1320	70
8	5040	850	3020	455	2020	130	1010	70
10	3910	730	2400	360	1630	110	820	60
12	3290	625	2020	300	1390	95	670	60
16	2640	490	1630	240	1080	70	530	35



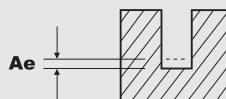
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE for RIB PROCESSING

■ EM883

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC 30 ~ HRC 45			HRC 45 ~ HRC 55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
0.8	27000~35000	190~420	0.014~0.035	19500~24500	60~240	0.014~0.035	12500~14800	35~95	0.007~0.015
1	22500~28000	190~540	0.045~0.090	15700~20000	95~300	0.045~0.090	10000~12500	50~100	0.009~0.018
1.2	18500~23500	190~600	0.055~0.100	13000~16500	95~300	0.055~0.100	8300~10500	50~100	0.010~0.022
1.4	16000~20000	190~600	0.062~0.125	11500~14000	95~300	0.062~0.125	7200~9000	50~100	0.012~0.025
1.5	14500~18500	190~600	0.070~0.135	10500~13500	95~300	0.070~0.135	6700~8200	50~100	0.014~0.028
1.6	14000~18000	190~600	0.075~0.145	10200~12800	95~300	0.075~0.145	6400~8000	50~100	0.015~0.030
1.8	13000~16500	190~600	0.080~0.160	9200~11500	95~300	0.080~0.160	5700~7200	50~100	0.016~0.032
2	12000~14500	190~600	0.090~0.180	8300~10500	95~300	0.090~0.180	5300~6600	50~100	0.018~0.035
2.5	9500~12000	190~600	0.112~0.235	6700~8500	95~300	0.112~0.235	4300~5300	50~100	0.022~0.045
3	8000~10000	190~600	0.135~0.270	5500~7000	95~300	0.135~0.270	3500~4400	50~100	0.028~0.055

(Depth of Cut per one pass)



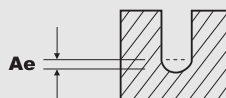
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE for RIB PROCESSING

■ EM883

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC 30 ~ HRC 45			HRC 45 ~ HRC 55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
0.6	30000~40000	400~600	0.010~0.020	25000~30000	100~300	0.010~0.020	13000~16500	25~60	0.005~0.010
0.8	27000~35000	190~420	0.014~0.035	19500~24500	60~240	0.014~0.035	12500~14800	35~95	0.007~0.015
1	22500~28000	190~540	0.045~0.090	15700~20000	95~300	0.045~0.090	10000~12500	50~100	0.009~0.018
1.2	18500~23500	190~600	0.055~0.100	13000~16500	95~300	0.055~0.100	8300~10500	50~100	0.010~0.022
1.4	16000~20000	190~600	0.062~0.125	11500~14000	95~300	0.062~0.125	7200~9000	50~100	0.012~0.025
1.5	14500~18500	190~600	0.070~0.135	10500~13500	95~300	0.070~0.135	6700~8200	50~100	0.014~0.028
1.6	14000~18000	190~600	0.075~0.145	10200~12800	95~300	0.075~0.145	6400~8000	50~100	0.015~0.030
1.8	13000~16500	190~600	0.080~0.160	9200~11500	95~300	0.080~0.160	5700~7200	50~100	0.016~0.032
2	12000~14500	190~600	0.090~0.180	8300~10500	95~300	0.090~0.180	5300~6600	50~100	0.018~0.035
3	8000~10000	190~600	0.135~0.270	5500~7000	95~300	0.135~0.270	3500~4400	50~100	0.028~0.055
4	6500~8500	190~600	0.180~0.360	4500~6000	95~300	0.180~0.360	3000~3800	50~100	0.035~0.070

(Depth of Cut per one pass)



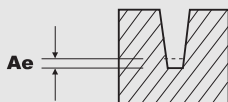
RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, TAPER for RIB PROCESSING

■ EM889

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRc 30			HRc 30 ~ HRc 45			HRc 45 ~ HRc 55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
1	20000	700	0.020~0.040	15000	500	0.020~0.030	10000	300	0.010~0.020
1.2	16000	700	0.025~0.050	13000	500	0.025~0.040	8000	300	0.012~0.025
1.5	13000	700	0.030~0.060	10000	500	0.030~0.050	6500	300	0.015~0.030
2	10000	700	0.040~0.080	8000	500	0.040~0.060	5000	300	0.020~0.040

(Depth of Cut per one pass)



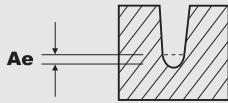
RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, TAPER BALL NOSE for RIB PROCESSING

■ EM890

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRc 30			HRc 30 ~ HRc 45			HRc 45 ~ HRc 55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
1	20000	700	0.020~0.040	15000	500	0.020~0.030	10000	300	0.010~0.020
1.2	16000	700	0.025~0.050	13000	500	0.025~0.040	8000	300	0.012~0.025
1.5	13000	700	0.030~0.060	10000	500	0.030~0.050	6500	300	0.015~0.030
2	10000	700	0.040~0.080	8000	500	0.040~0.060	5000	300	0.020~0.040

(Depth of Cut per one pass)

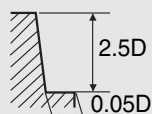


RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, TAPER, SIDE CUTTING

■ EM837, EM847

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS		ALLOY STEELS HEAT RESISTANT STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
2	8400	170	6300	125
3	4410	120	3570	100
4	3570	140	2840	115
5	3050	180	2410	145
6	2630	210	2100	170
8	2000	250	1580	180

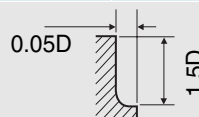


RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, 45° HELIX, CORNER RADIUS, SIDE CUTTING

■ EM905

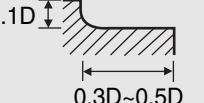
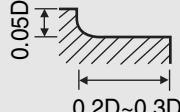
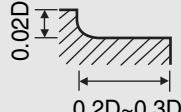
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
10	7690	2000	7690	1220	5680	920	5680	740	3840	480
12	5760	2000	5760	1220	4260	920	4260	740	2880	480
14	4600	1800	4600	1220	3410	920	3410	740	2300	480
18	3850	1530	3850	1220	2840	920	2840	740	1920	480
22	3300	1300	3300	1220	2430	920	2430	740	1650	480



RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, 45° HELIX, CORNER RADIUS, CONTOURING

■ EM905

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc 30		HRc 30 ~ HRc 45				HRc 45 ~ HRc 55		HRc 55 ~ HRc 65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
10	7690	1150	5680	920	5680	800	5680	460	3840	290
12	5760	1150	4260	920	4260	800	4260	460	2880	290
14	4600	1150	3410	920	3410	800	3410	460	2300	290
18	3850	1150	2840	920	2840	800	2840	460	1920	290
22	3300	1150	2430	920	2430	800	2430	460	1650	290
										

HIGH SPEED CUTTING

V6-4534-9908-0076J-00J

人と地球にやさしい先端技術

**SHG2による
高速加工**

Eco·eco
JIMTOF 2000

倍速横形
マシニングセンタ
HS400

SHG加工モードを使った
最短時間の高品位加工
(富士山の模型)

主軸14000min⁻¹ #40

UUP+データサーハ

・被削材 : 130×130×50mm
S45C

・総加工時間 : 264分

・CAD/CAM : Space-E
(日立造船情報システム)



加工条件

工程	工具			切削条件			加工時間 min
	種類	メーカー	型式	切削速度 m/min	回転数 min ⁻¹	送り速度 mm/min	
大荒加工	φ50R8ラジアスミル	日立ツール	BT40-C32-85	130	830	870	37.6
			ARS5050R RCMX1604M07N CY25				
荒加工	R5ボールエンドミル	KOBELCO	BBT40-MEGA 13N-90	250	8000	1600	10.7
			NBC13-10AA VC-2MB-R5				
中仕上	R3ボールエンドミル	KOBELCO	BBT40-MEGA 10N-90	264	14000	2800	123.8
			NBC10-6AA VC-2MB-R3				
仕上げ	R2ボールエンドミル	YG-1	BBT40-MEGA 10N-90	176	14000	2800	65.4
			NBC10-60AA E5999776A				
文字	R1ボールエンドミル	YG-1	BBT40-MEGA 10N-90	88	14000	1400	26.5
			NBC10-6AA E5999773A				

日立精機(株)テクニカルシート

2000 JIMTOF,
YG-1 X-POWER BALL NOSE END MILLS WERE USED IN
HIGH SPEED MACHINING
ON HITACHI SEIKI MACHINING CENTER



Jet-Power END MILLS

Jet-POWER-BECHICHTETE FRÄSER

for machining STAINLESS STEELS, TITANIUM, INCONEL

for machining STEELS UNDER HRc45

EH911
EH912



CARBIDE, 2 FLUTE, 35° HELIX, SHORT LENGTH
HARTMETALL, 2 SCHNEIDEN, 35° RECHTSSPIRALE, KURZ 74

EH913
EH914



CARBIDE, 4 FLUTE, 35° HELIX, SHORT LENGTH
HARTMETALL, 4 SCHNEIDEN, 35° RECHTSSPIRALE, KURZ 75

EH830
EH840



CARBIDE, 3&4 FLUTE, 50° HELIX, LONG LENGTH
HARTMETALL, 3&4 SCHNEIDEN, 50° RECHTSSPIRALE, LANG 76

EH915
EH916



CARBIDE, 6&8 FLUTE, 45° HELIX, LONG LENGTH (Positive Rake Angle)
HARTMETALL, 6&8 SCHNEIDEN, 45° RECHTSSPIRALE, LANG 77

EE515



YPM, 4&6 FLUTE, SHORT LENGTH
YPM, 4&6 SCHNEIDEN, KURZ 78

EH852
EH862



CARBIDE, MULTI. FLUTE, ROUGHING, SHORT LENGTH
HARTMETALL, MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ 79

EH831
EH841



CARBIDE, MULTI. FLUTE, ROUGHING, LONG LENGTH
HARTMETALL, MULTI. SCHNEIDEN, SCHRUPPFRÄSER, LANG 80

EH917
EH918



CARBIDE, MULTI. FLUTE, 45° HELIX ROUGHING, SHORT LENGTH
HARTMETALL, MULTI. SCHNEIDEN, 45° RECHTSSPIRALE SCHRUPPFRÄSER, KURZ 81

EH919
EH920



CARBIDE, MULTI. FLUTE, 45° HELIX ROUGHING, LONG LENGTH
HARTMETALL, MULTI. SCHNEIDEN, 45° RECHTSSPIRALE SCHRUPPFRÄSER, LANG 82

EH921
EH942



CARBIDE, MULTI. FLUTE, 45° HELIX ROUGHING, LONG REACH
HARTMETALL, MULTI. SCHNEIDEN, 45° RECHTSSPIRALE SCHRUPPFRÄSER, GROßE REICHWEITE 83

SPEED & FEED DATA 84~88

2 FLUTE, 35° HELIX, SHORT LENGTH 2 SCHNEIDEN, 35° RECHTSSPIRALE, KURZ

SERIES EH911

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH912

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
2



P.84

- Ultra micro grain carbide
Ultra Feins Korn - Hartmetall
- Reduces chipping of corner edges
Verringert Abbröckelungen an Eckkanten.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, Karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- Removal sharp cutting edges for avoiding the chipping
Beseitigung von scharfen Schneidkanten zur Vermeidung von Abbröckelungen.

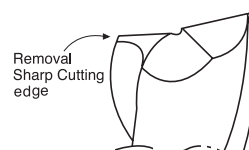


Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EH911010	-	1.0	4	2.5	40
EH911901	EH912901	1.0	6	2.5	40
EH911015	-	1.5	4	4	40
EH911902	EH912902	1.5	6	4	40
EH911020	-	2.0	4	6	40
EH911903	EH912903	2.0	6	6	40
EH911025	-	2.5	4	8	40
EH911904	EH912904	2.5	6	8	40
EH911030	EH912030	3.0	6	8	45
EH911035	EH912035	3.5	6	10	45
EH911040	EH912040	4.0	6	11	45
EH911045	EH912045	4.5	6	11	45
EH911050	EH912050	5.0	6	13	50
EH911055	EH912055	5.5	6	13	50
EH911060	EH912060	6.0	6	13	50
EH911065	EH912065	6.5	8	16	60
EH911070	EH912070	7.0	8	16	60
EH911075	EH912075	7.5	8	16	60
EH911080	EH912080	8.0	8	19	60
EH911085	EH912085	8.5	10	19	70
EH911090	EH912090	9.0	10	19	70
EH911095	EH912095	9.5	10	19	70
EH911100	EH912100	10.0	10	22	70
EH911110	EH912110	11.0	12	22	75
EH911120	EH912120	12.0	12	26	75
EH911140	EH912140	14.0	16	26	85
EH911160	EH912160	16.0	16	32	100
EH911180	EH912180	18.0	16	32	100
EH911200	EH912200	20.0	20	38	105
EH911220	EH912220	22.0	20	38	105
EH911250	EH912250	25.0	25	45	120

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73
h6	0 -6	0 -8	0 -9	0 -11	0 -13



4 FLUTE, 35° HELIX, SHORT LENGTH 4 SCHNEIDEN, 35° RECHTSSPIRALE, KURZ

SERIES EH913

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH914

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM



FLUTE
4



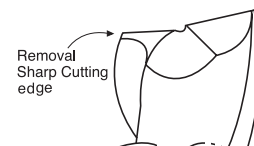
P.84



- Ultra micro grain carbide
Ultra Feins Korn - Hartmetall
- Reduces chipping of corner edges
Vermindert Abbröckelungen an Eckenkanten.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, Karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- Removal sharp cutting edges for avoiding the chipping
Beseitigung von scharfen Schneidkanten zur Vermeidung von Abbröckelungen.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EH913020	-	2.0	4	6	40
EH913901	EH914901	2.0	6	6	40
EH913025	-	2.5	4	8	40
EH913902	EH914902	2.5	6	8	40
EH913030	EH914030	3.0	6	8	45
EH913035	EH914035	3.5	6	10	45
EH913040	EH914040	4.0	6	11	45
EH913045	EH914045	4.5	6	11	45
EH913050	EH914050	5.0	6	13	50
EH913055	EH914055	5.5	6	13	50
EH913060	EH914060	6.0	6	13	50
EH913065	EH914065	6.5	8	16	60
EH913070	EH914070	7.0	8	16	60
EH913075	EH914075	7.5	8	16	60
EH913080	EH914080	8.0	8	19	60
EH913085	EH914085	8.5	10	19	70
EH913090	EH914090	9.0	10	19	70
EH913095	EH914095	9.5	10	19	70
EH913100	EH914100	10.0	10	22	70
EH913110	EH914110	11.0	12	22	75
EH913120	EH914120	12.0	12	26	75
EH913140	EH914140	14.0	16	26	85
EH913160	EH914160	16.0	16	32	100
EH913180	EH914180	18.0	16	32	100
EH913200	EH914200	20.0	20	38	105
EH913220	EH914220	22.0	20	38	105
EH913250	EH914250	25.0	25	45	120



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 & 4 FLUTE, 50° HELIX, LONG LENGTH 3 & 4 SCHNEIDEN, 50° RECHTSSPIRALE, LANG

SERIES EH830

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH840

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

50°

FLUTE
3 & 4

PLAIN

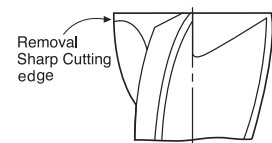
FLAT

P.85

- Ultra micro grain carbide
Ultra Feins Korn - Hartmetall
- Reduces chipping of corner edges
Verringert Abbröckelungen an Eckkanten.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, Karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- Removal sharp cutting edges for avoiding the chipping
Beseitigung von scharfen Schneidkanten zur Vermeidung von Abbröckelungen.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
PLAIN	FLAT					
EH830060	EH840060	6.0	6	13	50	3
EH830080	EH840080	8.0	8	19	60	3
EH830100	EH840100	10.0	10	22	70	3
EH830120	EH840120	12.0	12	25	75	3
EH830160	EH840160	16.0	16	32	90	3
EH830901	EH840901	18.0	16	32	90	3
EH830180	EH840180	18.0	18	32	90	3
EH830200	EH840200	20.0	20	38	100	4
EH830250	EH840250	25.0	25	45	120	4



Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

6 & 8 FLUTE, 45° HELIX, LONG LENGTH (Positive Rake Angle) 6 & 8 SCHNEIDEN, 45° RECHTSSPIRALE, LANG

SERIES EH915

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH916

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

45°

FLUTE
6 & 8

PLAIN

FLAT

P.86

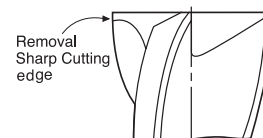
P.86



- Ultra micro grain carbide
Ultra Feinskorn - Hartmetall
- Reduces chipping of corner edges
Vermindert Abbröckelungen an Eckkanten.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, Karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- Removal sharp cutting edges for avoiding the chipping
Beseitigung von scharfen Schneidkanten zur Vermeidung von Abbröckelungen.

Unit : mm

EDP No.		MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EH915060	EH916060	6.0	6	13	57	6
EH915070	EH916070	7.0	8	16	63	6
EH915080	EH916080	8.0	8	19	63	6
EH915090	EH916090	9.0	10	19	72	6
EH915100	EH916100	10.0	10	22	72	6
EH915120	EH916120	12.0	12	26	83	6
EH915140	EH916140	14.0	14	26	83	6
EH915160	EH916160	16.0	16	32	92	6
EH915180	EH916180	18.0	18	32	92	8
EH915200	EH916200	20.0	20	38	104	8
EH915250	EH916250	25.0	25	44	104	8



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

YPM, 4 & 6 FLUTE, SHORT LENGTH YPM, 4 & 6 SCHNEIDEN, KURZ

SERIES EE515

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

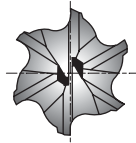
YPM



FLUTE
4 & 6



P.87



- Excellent performance on Low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, Stainless Steel, Titanium, Inconel. Ausgezeichnete Eignung zur Bearbeitung von weichen Materialien (bis HRC45), Legierten Stählen, Karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- High Chemical Stability prevents built-up edge, micro cracks and crater wear. Hohe chemische Stabilität verhindert Kantenbildung, Mikrorisse und Krateraufzug.
- Superior workpiece finishes. Höhere Oberflächengüte.

Unit : mm

EDP No. FLAT	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
EE515030	3.0	6	8	52	4
EE515040	4.0	6	11	55	4
EE515050	5.0	6	13	57	4
EE515060	6.0	6	13	57	4
EE515080	8.0	10	19	69	4
EE515100	10.0	10	22	72	4
EE515120	12.0	12	26	83	4
EE515140	14.0	12	26	83	4
EE515160	16.0	16	32	92	6
EE515180	18.0	16	32	92	6
EE515200	20.0	20	38	104	6
EE515250	25.0	25	45	121	6

Mill Dia. Tolerance	Shank Dia. Tolerance
$+0.03$ 0	h6

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES EH852

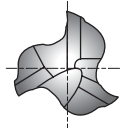
PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH862

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM

30°

FLUTE
3 - 5

FINE

PLAIN

FLAT



P.88

- Suitable for low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc.
Geeignet Zum Fräsen von Materialien mit geringerer Härte (bis HRc45), Legierten Stählen, karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- High velocity milling operation.
Hochgeschwindigkeitsfräsen.
- Fast chip ejection.
Schnelle Spanausfuhr.

Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EH852060	EH862060	6.0	6	7	54	3
EH852070	EH862070	7.0	8	8	58	3
EH852080	EH862080	8.0	8	9	58	3
EH852090	EH862090	9.0	10	13	66	4
EH852100	EH862100	10.0	10	14	66	4
EH852120	EH862120	12.0	12	16	73	4
EH852140	EH862140	14.0	14	18	75	4
EH852160	EH862160	16.0	16	22	82	4
EH852180	EH862180	18.0	18	24	84	4
EH852200	EH862200	20.0	20	26	92	4
EH852250	EH862250	25.0	25	25	110	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

MULTI. FLUTE, ROUGHING, LONG LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, LANG

SERIES EH831

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH841

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

30°

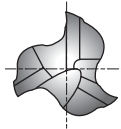
FLUTE
3 - 5

FINE

PLAIN

FLAT

P.88



- Longer flute length than EH852, EH862.
Längere Schneiden als bei EH852 und EH862.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet Zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- High velocity milling operation.
Hochgeschwindigkeitsfräsen.
- Fast chip ejection.
Schnelle Spanausfuhr.

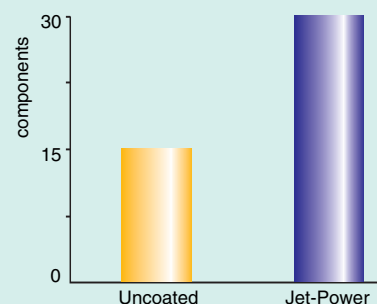
Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EH831060	EH841060	6.0	6	16	57	3
EH831070	EH841070	7.0	8	16	63	3
EH831080	EH841080	8.0	8	16	63	3
EH831090	EH841090	9.0	10	19	72	4
EH831100	EH841100	10.0	10	22	72	4
EH831120	EH841120	12.0	12	26	83	4
EH831140	EH841140	14.0	14	26	83	4
EH831160	EH841160	16.0	16	32	92	4
EH831180	EH841180	18.0	18	32	92	4
EH831200	EH841200	20.0	20	38	104	4
EH831250	EH841250	25.0	25	45	121	5

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

TOOL :
EH831080
WORKPIECE :
DIN2, 4856
INCONEL625
(DIE FOR GLASS
MOLDING)
RPM : 1800
FEED : 180mm/min



MULTI FLUTE, 45° HELIX ROUGHING, SHORT LENGTH MULTI SCHNEIDEN, 45° RECHTSSPIRALE SCHRUPPFRASER, KURZ

SERIES EH917

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH918

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

45°

FLUTE
4 - 6

FINE

PLAIN

FLAT

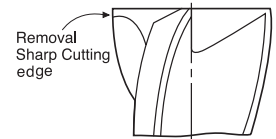
P.88

- Ultra micro grain carbide
Ultra Feinskorn - Hartmetan.
- High chip removal and minimizing breakages of cutting edges.
Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet Zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.



Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
PLAIN	FLAT					
EH917060	EH918060	6.0	6	7	54	4
EH917080	EH918080	8.0	8	9	58	4
EH917100	EH918100	10.0	10	14	66	4
EH917120	EH918120	12.0	12	16	73	4
EH917160	EH918160	16.0	16	22	82	5
EH917200	EH918200	20.0	20	26	92	6



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	$-\frac{0}{40}$	$-\frac{0}{48}$	$-\frac{0}{58}$	$-\frac{0}{70}$	$-\frac{0}{84}$
h6	$-\frac{0}{6}$	$-\frac{0}{8}$	$-\frac{0}{9}$	$-\frac{0}{11}$	$-\frac{0}{13}$

MULTI FLUTE, 45° HELIX ROUGHING, LONG LENGTH MULTI SCHNEIDEN, 45° RECHTSSPIRALE SCHRUPPFRASER, LANG

SERIES EH919

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH920

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

45°

FLUTE
3 - 6

FINE

PLAIN

FLAT

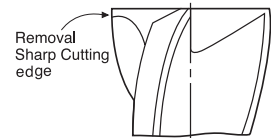
P.88

- Ultra micro grain carbide
Ultra Feins Korn - Hartmetan.
- High chip removal and minimizing breakages of cutting edges.
Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet Zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.



Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
PLAIN	FLAT					
EH919040	EH920040	4.0	6	11	57	3
EH919050	EH920050	5.0	6	13	57	4
EH919060	EH920060	6.0	6	16	57	4
EH919070	EH920070	7.0	8	16	63	4
EH919080	EH920080	8.0	8	16	63	4
EH919090	EH920090	9.0	10	19	72	4
EH919100	EH920100	10.0	10	22	72	4
EH919120	EH920120	12.0	12	26	83	4
EH919140	EH920140	14.0	14	26	83	5
EH919160	EH920160	16.0	16	32	92	5
EH919200	EH920200	20.0	20	38	104	6
EH919250	EH920250	25.0	25	45	121	6



Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

MULTI FLUTE, 45° HELIX ROUGHING, LONG REACH MULTI SCHNEIDEN, 45° RECHTSSPIRALE SCHRUPPFÄRER, GROÖE REICHWEITE

SERIES EH921

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EH942

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

45°

FLUTE
4 - 6

FINE

PLAIN

FLAT

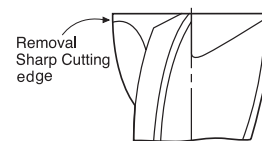
P.88

- Ultra micro grain carbide
Ultra Feinskorn - Hartmetan.
- High chip removal and minimizing breakages of cutting edges.
Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
Geeignet Zum Fräsen von Materialien mit geringerer Härte (bis HRC45), Legierten Stählen, karbonstahl, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.



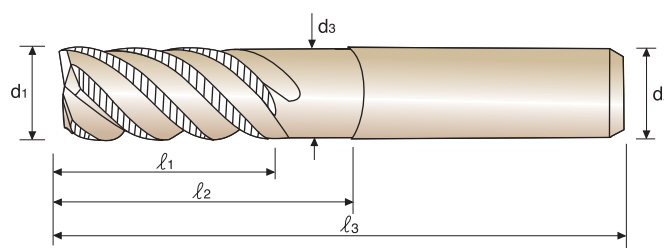
Unit : mm

EDP No.		MILL DIAMETER d1 (h10)	SHANK DIAMETER d2 (h6)	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d3	No.OF FLUTE
PLAIN	FLAT							
EH921060	EH942060	6.0	6	16	20	57	5.5	4
EH921080	EH942080	8.0	8	16	26	63	7.5	4
EH921100	EH942100	10.0	10	22	31	72	9.5	4
EH921120	EH942120	12.0	12	26	37	83	11.5	4
EH921160	EH942160	16.0	16	32	51	100	15.5	5
EH921200	EH942200	20.0	20	38	59	110	19.2	6



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

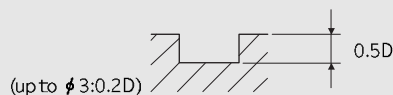
Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



2 FLUTE, SHORT, SLOTTING

■ EH911, EH912

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY	
HARDNESS	~ HRc30		HRc30 ~ HRc45			
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	190	7560	120	6300	90
3	8920	210	5560	140	4620	120
4	7560	300	4620	180	3880	150
5	6300	320	3780	190	3160	160
6	5560	350	3360	220	2840	180
8	4200	380	2520	200	2100	180
10	3260	330	2000	160	1680	160
12	2740	280	1680	130	1360	130
16	2200	220	1360	110	1060	110
20	1680	170	1060	80	840	80
25	1360	130	840	70	680	60

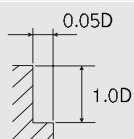


RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, SHORT, SIDE CUTTING

■ EH913, EH914

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY	
HARDNESS	~ HRc30		HRc30 ~ HRc45			
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	280	7560	170	6300	140
3	8920	320	5560	200	4620	170
4	7560	570	4620	350	3880	280
5	6300	600	3780	360	3160	300
6	5560	660	3360	410	2840	330
8	4200	710	2520	380	2100	350
10	3260	610	2000	300	1680	300
12	2740	520	1680	250	1360	240
16	2200	410	1360	200	1060	200
20	1680	320	1060	160	840	150
25	1360	250	840	130	680	120



RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 & 4 FLUTE, 50° HELIX, SLOTTING

■ EH830, EH840

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRc30		HRc30 ~ HRc45					
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	5560	310	3360	200	2840	160	1160	40
8	4200	340	2520	180	2100	160	840	40
10	3260	300	2000	140	1680	140	670	40
12	2740	250	1680	120	1370	120	560	30
16	2200	200	1360	100	1050	100	420	25
18	1940	175	1210	85	950	85	370	20
20	1680	150	1060	70	840	70	320	20
25	1360	115	840	60	670	60	270	15

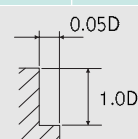
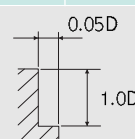
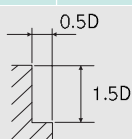


RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 & 4 FLUTE, 50° HELIX, SIDE CUTTING

■ EH830, EH840

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRc30		HRc30 ~ HRc45					
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	5560	400	3360	250	2840	250	1050	55
8	4200	420	2520	230	2100	265	840	50
10	3260	370	2000	180	1680	230	680	50
12	2740	310	1680	150	1370	180	560	45
16	2200	250	1360	120	1050	150	420	35
18	1940	220	1210	110	950	130	370	30
20	1680	190	1060	95	840	115	340	30
25	1360	150	840	75	670	90	270	25

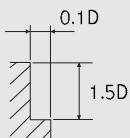
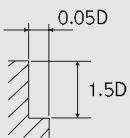
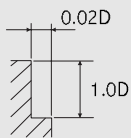


RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 & 8 FLUTE, 45° HELIX, LONG, SIDE CUTTING

■ EH915, EH916

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRc30		HRc30 ~ HRc45					
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	5560	2000	3880	1370	3370	1100	1350	280
8	4200	2000	2940	1370	2490	1100	1000	280
10	3360	2000	2320	1370	1920	1100	440	280
12	2840	1680	2000	1160	1610	1000	400	250
16	2100	1260	1480	880	1160	770	310	190
20	1680	1010	1160	690	900	620	250	155
25	1500	900	1100	600	850	540	220	135

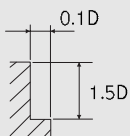
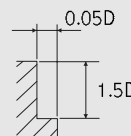
RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 & 8 FLUTE, 45° HELIX, LONG, SIDE CUTTING

■ EH915, EH916

(HIGH SPEED CUTTING)

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45	
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2	
DIAMETER	RPM	FEED	RPM	FEED
6	22200	8000	16800	6090
8	16800	8000	12600	6090
10	13400	8000	9980	5990
12	11350	6720	8400	5040
16	8400	5040	6300	3780
20	6700	4040	5040	3050
25	6000	3600	4500	2700

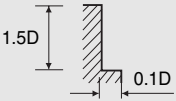
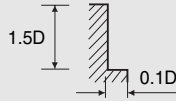
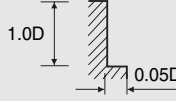



RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 & 6 FLUTE, POWDER METALLURGY (YPM), SIDE CUTTING

■ EE515

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS ~HRC30		CARBON STEELS ALLOY STEELS TOOL STEELS HRC30 ~ HRC45		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	4400	185	1100	23	2200	110	880	28
4	3600	210	900	31	1800	125	720	37
5	3000	225	750	30	1500	135	600	36
6	2600	235	600	29	1300	140	480	35
8	2000	250	500	28	1000	150	400	34
10	1600	285	410	30	800	170	330	36
12	1320	250	340	29	660	150	270	35
14	1160	235	290	27	580	140	230	32
16	1000	225	250	26	500	135	200	31
18	900	210	225	23	450	125	180	28
20	800	200	200	17	400	120	160	21
25	640	165	165	15	320	100	130	18

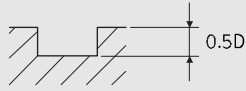




RPM=REVOLUTION PER MIN.
FEED=mm/min.

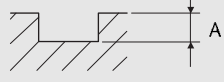
MULTI FLUTE, ROUGHING, SLOTTING

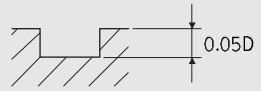
■ EH917, EH918, EH919, EH920, EH921, EH942, EH852, EH862, EH831, EH841

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRc30		HRc30 ~ HRc45					
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	15600	2320	12400	840	8400	570	2400	190
8	11600	2320	9200	840	6300	570	1800	180
10	9200	2320	7600	840	5100	570	1300	190
12	8000	2400	6000	800	4200	570	1200	190
14	6800	2400	5200	840	3600	570	900	130
16	6000	2400	4800	760	3300	510	800	110
18	5200	2320	4400	720	2700	420	700	100
20	4800	2160	3600	560	2400	360	660	100
25	4300	2150	3200	620	2160	410	600	110



A: $\phi 6 - \phi 10: 0.25 \times D$
 $\phi 12 - \phi 16: 0.15 \times D$
 $\phi 18 - \phi 25: 0.10 \times D$



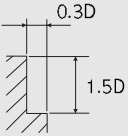


RPM=REVOLUTION PER MIN.
FEED=mm/min.

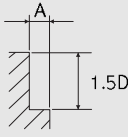
MULTI FLUTE, ROUGHING, SIDE CUTTING

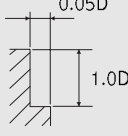
■ EH917, EH918, EH919, EH920, EH921, EH942, EH852, EH862, EH831, EH841

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRc30		HRc30 ~ HRc45					
STRENGTH	1000N/mm2		1000 ~ 1500N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	15600	2320	12400	840	8400	570	2400	190
8	11600	2320	9200	840	6300	570	1800	180
10	9200	2320	7600	840	5100	570	1300	190
12	8000	2400	6000	800	4200	570	1200	190
14	6800	2400	5200	840	3600	570	900	130
16	6000	2400	4800	760	3300	510	800	110
18	5200	2320	4400	720	2700	420	700	100
20	4800	2160	3600	560	2400	360	660	100
25	4300	2150	3200	620	2160	410	600	110



A: $\phi 6 - \phi 10: 0.15 \times D$
 $\phi 12 - \phi 16: 0.10 \times D$
 $\phi 18 - \phi 25: 0.05 \times D$





RPM=REVOLUTION PER MIN.
FEED=mm/min.



TANK-POWER END MILLS

TANK-POWER FRÄSER

TANK-POWER End Mills are #1 Choice.

Powerful Milling!! High Productivity!!

EP936

**2 FLUTE, SHORT LENGTH END MILL**
2 SCHNEIDEN FRÄSER, KURZ

92

EP942

**3 FLUTE, STUB LENGTH END MILL**
3 SCHNEIDEN FRÄSER, EXTRA KURZ

93

EP938

**4 FLUTE, SHORT LENGTH END MILL**
4 SCHNEIDEN FRÄSER, KURZ

94

EP940

**2 FLUTE, SHORT LENGTH BALL NOSE END MILL**
2 SCHNEIDEN, STIRNRADIUS, KURZ

95

EP941

**MULTI FLUTE, SHORT LENGTH ROUGHING END MILL**
MULTI SCHNEIDEN, SCHRUPPFRÄSER, KURZ

96

SPEED & FEED DATA

97~99

2 FLUTE, SHORT LENGTH END MILL 2 SCHNEIDEN FRÄSER, KURZ

SERIES EP936

FLAT SHANK

SEITLICHEN MITNAHNEFLÄCHEN

PREMIUM
PM

30°

FLUTE
2

DIN
327

DIN1835B

↙ ↘

↙ ↘

P.97



- Two-Flute design for slotting.
2 - Schneiden, Geeignet für Nutenfräsen.
- Suitable for high speed cutting of difficult - to - cut materials.
Geeignet für Hochgeschwindigkeitsfräsen von schwer zu schneidenden Materialien.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
Die von YG-1 entwickelte TANK-POWER Beschichtung ist geeignet für Hochgeschwindigkeitsschnitt.

unit : mm

EDP No. FLAT	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EP936010	1.0	6	2.5	47
EP936020	2.0	6	4	48
EP936030	3.0	6	5	49
EP936040	4.0	6	7	51
EP936050	5.0	6	8	52
EP936060	6.0	6	8	52
EP936070	7.0	10	10	60
EP936080	8.0	10	11	61
EP936090	9.0	10	11	61
EP936100	10.0	10	13	63
EP936120	12.0	12	16	73
EP936140	14.0	12	16	73
EP936160	16.0	16	19	79
EP936180	18.0	16	19	79
EP936200	20.0	20	22	88
EP936220	22.0	20	22	88
EP936250	25.0	25	26	102

※ Uncoated end mills are available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, STUB LENGTH END MILL 3 SCHNEIDEN FRÄSER, EXTRA KURZ

SERIES EP942

FLAT SHANK

SEITLICHEN MITNAHNEFLÄCHEN

PREMIUM
PM

30°

FLUTE
3

DIN
327

DIN1835B

TANK-POWER

P.97, 98

- Well balanced web design to minimize deflection and chattering.
Optimales kern-Design zur Minimierung von Abweichungen und Schnattern.
- 3 flute design possess the advantage of 2 flute and 4 flute end mill.
3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
Die von YG-1 entwickelte TANK-POWER Beschichtung ist geeignet für Hochgeschwindigkeitsschnitt.



unit : mm

EDP No. FLAT	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EP942010	1.0	6	2.5	47
EP942020	2.0	6	4	48
EP942030	3.0	6	5	49
EP942040	4.0	6	7	51
EP942050	5.0	6	8	52
EP942060	6.0	6	8	52
EP942070	7.0	10	10	60
EP942080	8.0	10	11	61
EP942090	9.0	10	11	61
EP942100	10.0	10	13	63
EP942120	12.0	12	16	73
EP942140	14.0	12	16	73
EP942160	16.0	16	19	79
EP942180	18.0	16	19	79
EP942200	20.0	20	22	88
EP942220	22.0	20	22	88
EP942250	25.0	25	26	102

※ Uncoated end mills are available on your request.

TANK-POWER

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, SHORT LENGTH END MILL 4 SCHNEIDEN FRÄSER, KURZ

SERIES EP938

FLAT SHANK

SEITLICHEN MITNAHNEFLÄCHEN

PREMIUM
PM



FLUTE
4

DIN
844



P.98



- Recommended for pocketing, tracer milling, cam milling, die sinking and slotting.
Empfohlen für Lochfräsen, Spurfraßen, Nockenfräsen, Gußformversenkungen und Nutenfräsen.
- Designed for high speed cutting of difficult - to - cut materials.
Geeignet für Hochgeschwindigkeitsfräsen von schwer zu schneidenden Materialien.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
Die von YG-1 entwickelte TANK-POWER Beschichtung ist geeignet für Hochgeschwindigkeitsschnitt.

unit : mm

EDP No. FLAT	MILL DIAMETER +0.03/0	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EP938010	1.0	6	3	49
EP938020	2.0	6	7	51
EP938030	3.0	6	8	52
EP938040	4.0	6	11	55
EP938050	5.0	6	13	57
EP938060	6.0	6	13	57
EP938070	7.0	10	16	66
EP938080	8.0	10	19	69
EP938090	9.0	10	19	69
EP938100	10.0	10	22	72
EP938120	12.0	12	26	83
EP938140	14.0	12	26	83
EP938160	16.0	16	32	92
EP938180	18.0	16	32	92
EP938200	20.0	20	38	104
EP938220	22.0	20	38	104
EP938250	25.0	25	45	121

※ Uncoated end mills are available on your request.

TANK-POWER

MILL DIA. TOLERANCE	SHANK DIA. TOLERANCE
+ 0.03 0	h6

2 FLUTE, SHORT LENGTH BALL NOSE END MILL 2 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES EP940

FLAT SHANK

SEITLICHEN MITNAHNEFLÄCHEN

PREMIUM
PM



FLUTE
2

DIN
327



P.99



- Excellent performance on wide materials from carbon steels and stainless steels to aluminum.
Exzellente Bearbeitung von verschiedensten Materialien wie Karbonstahl, rostfreier Stahl bis zu Aluminium.
- Designed for milling of radius bottom slots, fillets and special contours.
Entworfen zum Fräsen von Rundboden-kerbungen, Rippen und speziellen konturen.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
Die von YG-1 entwickelte TANK-POWER Beschichtung ist geeignet für Hochgeschwindigkeitsschnitt.

unit : mm

EDP No. FLAT	R ±0.02	MILL DIAMETER 0/ - 0.03	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EP940010	R0.5	1.0	6	a2.5	47
EP940020	R1.0	2.0	6	4	48
EP940030	R1.5	3.0	6	5	49
EP940040	R2.0	4.0	6	7	51
EP940050	R2.5	5.0	6	8	52
EP940060	R3.0	6.0	6	8	52
EP940070	R3.5	7.0	10	10	60
EP940080	R4.0	8.0	10	11	61
EP940090	R4.5	9.0	10	11	61
EP940100	R5.0	10.0	10	13	63
EP940120	R6.0	12.0	12	16	73
EP940140	R7.0	14.0	12	16	73
EP940160	R8.0	16.0	16	19	79
EP940180	R9.0	18.0	16	19	79
EP940200	R10.0	20.0	20	22	88
EP940220	R11.0	22.0	20	22	88
EP940250	R12.5	25.0	25	26	102

※ Uncoated end mills are available on your request.

MILL DIA. TOLERANCE	SHANK DIA. TOLERANCE
0 -0.03	h6

MULTI FLUTE, SHORT LENGTH ROUGHING END MILL MULTI SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES EP941

FLAT SHANK

SEITLICHEN MITNAHNEFLÄCHEN

**PREMIUM
PM**



**FLUTE
3 - 5**

**DIN
844**



P.99



- Suitable for high-feed roughing milling.
Geeignet zum HSC - Schrappen - Fräsen.
- Designed to machine carbon steels, alloyed steels, stainless steels.
Geeignet zum Fräsen Stähle, Legierte Stähle, Edelstähle.
- Providing excellent finished surfaces in many cases.
Liefert in vielen Fällen exzellent bearbeitete Oberflächen.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
Die von YG-1 entwickelte TANK-POWER Beschichtung ist geeignet für Hochgeschwindigkeitsschnitt.
- up to $\phi 20$: center cut, over $\phi 20$: non center cut
bis $\phi 20$: mit Mitteschnitt, über $\phi 20$: Ohne Mitteschnitt.

unit : mm

EDP No. FLAT	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.of Flute
EP941060	6.0	6	13	57	3
EP941070	7.0	10	16	66	3
EP941080	8.0	10	19	69	3
EP941090	9.0	10	19	69	3
EP941100	10.0	10	22	72	4
EP941120	12.0	12	26	83	4
EP941140	14.0	12	26	83	4
EP941160	16.0	16	32	92	4
EP941180	18.0	16	32	92	4
EP941200	20.0	20	38	104	4
EP941220	22.0	20	38	104	5
EP941250	25.0	25	45	121	5

※ Uncoated end mills are available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

2 FLUTE, SHORT, SLOTTING

■ EP936

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm2		500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1100N/mm2		1100 ~ 1300N/mm2	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	6700	100	5600	80	4700	85	3000	55	1900	35
3	4700	140	3900	120	3200	100	2200	70	1700	55
4	4100	200	3400	155	3000	140	1900	80	1500	65
5	3700	220	3100	175	2500	160	1600	90	1300	65
6	3300	230	2750	185	2200	165	1400	95	1100	75
8	2500	240	2100	210	1700	175	1100	100	850	75
10	2000	260	1700	230	1400	200	850	110	670	90
12	1700	240	1400	210	1100	180	700	100	550	75
14	1500	230	1200	200	950	170	600	95	480	70
16	1300	230	1100	185	850	155	530	90	420	70
18	1100	210	900	170	750	140	480	85	380	65
20	900	190	750	145	670	130	420	80	340	60
22	800	160	680	130	570	110	380	70	300	50
25	720	135	600	120	470	100	340	65	240	45



RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 FLUTE, STUB, SLOTTING

■ EP942

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm2		500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1100N/mm2		1100 ~ 1300N/mm2	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	6200	60	5200	50	4600	40	2900	30	1800	25
3	4400	90	3700	75	3200	45	2100	40	1700	40
4	4100	120	3400	100	2900	70	1800	45	1450	50
5	3600	140	3000	115	2500	80	1600	55	1250	50
6	3200	200	2700	165	2200	120	1400	80	1050	65
8	2500	210	2100	180	1700	130	1100	90	850	75
10	2000	220	1700	185	1350	140	850	100	650	80
12	1700	240	1400	200	1150	150	700	100	550	80
14	1500	220	1300	190	950	140	630	95	480	75
16	1300	210	1100	180	850	130	530	90	420	75
18	1100	210	850	170	750	130	480	85	380	70
20	900	200	750	165	670	120	420	80	340	70
22	800	200	700	170	570	130	380	85	300	75
25	720	210	600	180	470	140	340	90	240	75

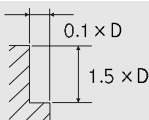


RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 FLUTE, STUB, SIDE CUTTING

■ EP942

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm2		500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1100N/mm2		1100 ~ 1300N/mm2	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7800	85	6500	70	5200	55	3600	45	2300	35
3	5500	125	4600	105	3600	65	2600	55	2100	55
4	5000	160	4200	135	3300	95	2200	65	1800	65
5	4500	180	3800	155	2800	110	1900	75	1600	65
6	4000	260	3400	220	2500	165	1700	110	1400	90
8	3000	290	2500	240	1900	175	1250	120	1000	100
10	2400	300	2000	250	1500	185	1000	130	850	110
12	2000	310	1700	260	1300	200	850	130	700	110
14	1700	300	1400	250	1100	185	750	125	600	105
16	1500	290	1250	240	950	175	625	120	520	100
18	1300	270	1100	230	850	170	550	115	480	95
20	1200	260	1000	220	750	165	500	110	420	95
22	1100	270	900	230	700	170	450	115	380	95
25	950	290	800	240	600	185	400	120	340	105



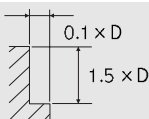
RPM=REVOLUTION PER MIN.

FEED=mm/min.

4 FLUTE, SHORT, SIDE CUTTING

■ EP938

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm2		500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1100N/mm2		1100 ~ 1300N/mm2	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	8800	250	8000	210	5800	150	3900	110	3200	75
3	6300	360	5700	300	4200	220	2800	155	2300	110
4	5000	420	4500	350	3400	260	2200	175	1900	130
5	4200	440	3800	370	2800	275	1900	190	1600	140
6	3700	470	3400	390	2500	285	1700	200	1400	155
8	3000	500	2500	420	1900	320	1300	210	1100	160
10	2200	550	2000	460	1500	330	1000	230	850	175
12	1900	500	1700	420	1300	320	850	210	690	160
14	1700	480	1500	400	1100	300	750	200	600	150
16	1550	440	1300	370	950	290	650	190	520	145
18	1400	400	1200	350	850	270	600	170	480	130
20	1200	380	1000	320	750	240	500	155	420	120
22	1000	360	900	280	650	220	450	140	380	115
25	950	320	800	265	600	200	400	130	340	110



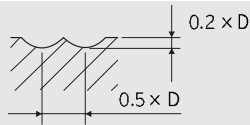
RPM=REVOLUTION PER MIN.

FEED=mm/min.

2 FLUTE, BALL NOSE, PROFILING

■ EP940

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	7000	300	5500	200	3700	110	1900	50
R2.0 × 4.0	5700	370	4400	250	2900	140	1500	65
R3.0 × 6.0	4200	420	3300	280	2200	155	1150	75
R4.0 × 8.0	3200	460	2500	310	1700	175	850	75
R5.0 × 10.0	2600	520	2000	350	1350	200	650	90
R6.0 × 12.0	2200	460	1700	310	1150	175	550	75
R8.0 × 16.0	1600	420	1250	280	850	155	420	70
R10.0 × 20.0	1300	360	1000	240	650	130	340	60
R12.5 × 25.0	900	270	700	180	450	100	240	45

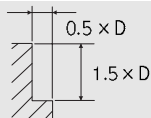


RPM=REVOLUTION PER MIN.
FEED=mm/min.

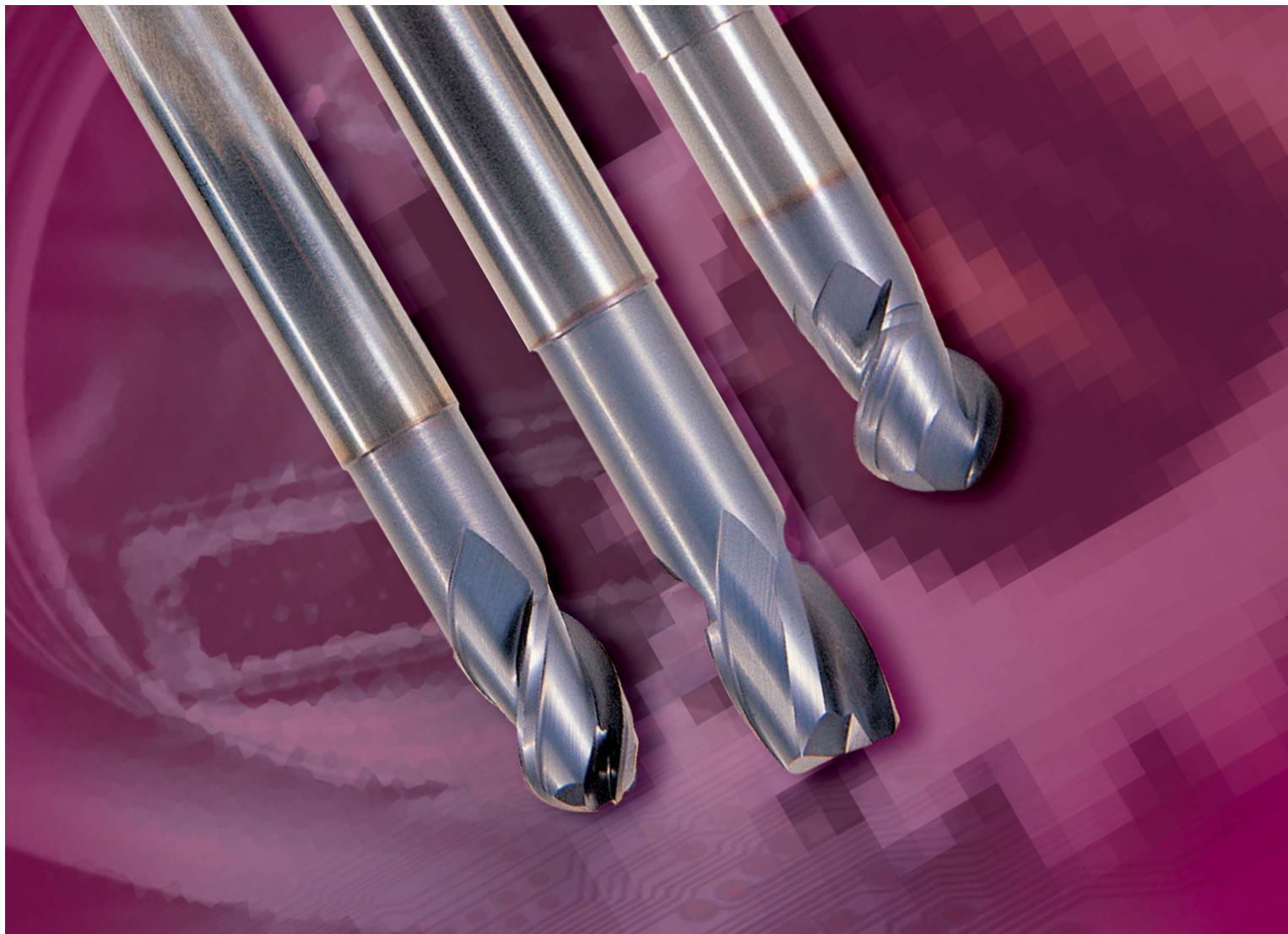
MULTI FLUTE, ROUGHING, SIDE CUTTING

■ EP941

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2700	200	2100	155	1500	100	1250	90
8	2300	250	1800	200	1300	140	1000	110
10	1800	360	1400	275	1000	170	850	140
12	1500	360	1150	290	850	200	700	155
14	1300	360	1000	290	720	200	600	155
16	1150	360	900	290	625	200	520	155
18	1000	360	850	290	580	200	470	155
20	920	370	720	290	500	200	420	155
22	850	370	620	290	450	200	380	155
25	750	360	570	275	400	190	340	155



RPM=REVOLUTION PER MIN.
FEED=mm/min.



Alu-POWER END MILLS

for ALUMINUM

Alu-POWER FRÄSER
für ALUMINIUM

EI926



CARBIDE, 2 FLUTE, 45° HELIX for ALUMINUM, DIAMOND COATED
VHM, 2 SCHNEIDEN, 25° RECHTSSPIRALE für ALUMINIUM, DIAMANT-BESCHICHTETE

102

EG930



CARBIDE, 2 FLUTE, 25° HELIX for ALUMINUM, TiCN COATED
VHM, 2 SCHNEIDEN, 25° RECHTSSPIRALE für ALUMINIUM, TiCN-BESCHICHTETE

103

E5522
E5521



CARBIDE, 2 FLUTE, 45° HELIX for ALUMINUM
VHM, 2 SCHNEIDEN, 45° RECHTSSPIRALE für ALUMINIUM

104

EG909



CARBIDE, 2 FLUTE, CORNER RADIUS for ALUMINUM, TiCN COATED
VHM, 2 SCHNEIDEN, ECKENRADIUS für ALUMINIUM, TiCN-BESCHICHTETE

105

EG910



CARBIDE, 2 FLUTE, 50° HELIX, BALL NOSE for ALUMINUM, TiCN COATED
VHM, 2 SCHNEIDEN, 50° RECHTSSPIRALE, STIRNRADIUS für ALUMINIUM, TiCN-BESCHICHTETE

106

EG908



CARBIDE, 3 FLUTE, 40° HELIX, BALL NOSE for ALUMINUM, TiCN COATED
VHM, 3 SCHNEIDEN, 40° RECHTSSPIRALE, STIRNRADIUS für ALUMINIUM, TiCN-BESCHICHTETE

107

EP922
EP923



YPM, 3 FLUTE, 42° HELIX, SHORT, ROUGHING END MILL for ALUMINUM, TiAlN COATED
YPM, 3 SCHNEIDEN, 42° RECHTSSPIRALE, KURZ, SCHRUPPFRÄSER für ALUMINIUM, TiAlN-BESCHICHTETE

108

EP924
EP925



YPM, 3 FLUTE, 42° HELIX, LONG, ROUGHING END MILL for ALUMINUM, TiAlN COATED
YPM, 3 SCHNEIDEN, 42° RECHTSSPIRALE, LANG, SCHRUPPFRÄSER für ALUMINIUM, TiAlN-BESCHICHTETE

109

SPEED & FEED DATA

110~113

2 FLUTE, 45° HELIX for ALUMINUM, DIAMOND COATED

2 SCHNEIDEN, 45° RECHTSSPIRALE für ALUMINIUM, DIAMANT-BESCHICHTETE

SERIES EI926

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

**MG
HM**

45°

**FLUTE
2**

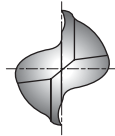
PLAIN

45°

45°

P.110

Diamond



► Designed for the machining aluminum and its alloys, non-ferrous materials.

Geeignet zum Fräsen von Aluminium, Aluminium-legierungen und anderen Nichteisen-Metallen.

► YG-1's newly developed diamond film coating increases the tool life surprisingly due to Hv4,500-5,500 high hardness of diamond film.

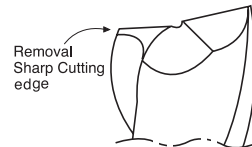
Die von YG-1 neuentwickelte Diamantbeschichtung verlängert, dank der zwischen Hv4500 bis 5500 hohen Härte der Beschichtung die Werkzeuglebensdauer beachtlich.

► Maximum-stock removal, chip ejection, stability.

Sehr gute Spanausfuhr.

Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EI926010	1.0	4	3	40
EI926015	1.5	4	4	40
EI926020	2.0	4	6	40
EI926025	2.5	4	8	40
EI926030	3.0	6	8	45
EI926035	3.5	6	10	45
EI926040	4.0	6	11	45
EI926045	4.5	6	11	50
EI926050	5.0	6	13	50
EI926055	5.5	6	13	50
EI926060	6.0	6	13	50
EI926070	7.0	8	16	60
EI926080	8.0	8	19	60
EI926090	9.0	10	19	70
EI926100	10.0	10	22	70
EI926110	11.0	12	22	75
EI926120	12.0	12	26	75
EI926160	16.0	16	32	90
EI926200	20.0	20	38	100



AL-POWER

MILL DIA. TOLERANCE		SHANK DIA. TOLERANCE
DIAMETER	TOL.	
from 1 to 3	—0.014 —0.028	h6
over 3 to 6	—0.020 —0.038	
over 6 to 10	—0.025 —0.047	
over 10 to 20	—0.032 —0.059	

2 FLUTE, 25° HELIX for ALUMINUM, TiCN COATED

2 SCHNEIDEN, 25° RECHTSSPIRALE für ALUMINIUM, TiCN-BESCHICHTETE

SERIES EG930

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

25°

FLUTE
2

PLAIN



P.110



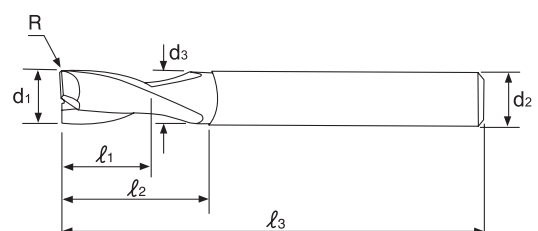
- Designed for the machining aluminum and its alloys, non-ferrous materials.
Geeignet zum Fräsen von Aluminium, Aluminiumlegierungen und NE-Metallen.
- Increased tool Life and higher cutting accuracy.
Längere Werkzeuglebensdauer und höherer Schnittgenauigkeit.
- Maximum-stock removal, chip ejection, stability.
Sehr gute Spanausfuhr.
- Corner Radius for avoiding the chipping.
Eckenradius für Vermeidung von Abbröckelungen.

Unit : mm

EDP No. PLAIN	R	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d3
EG930020	R0.2	2.0	3	3	6	40	1.9
EG930030	R0.2	3.0	3	4	8	40	2.9
EG930040	R0.2	4.0	4	5	12	50	3.8
EG930050	R0.2	5.0	5	8	14	50	4.8
EG930060	R0.2	6.0	6	8	18	65	5.7
EG930080	R0.2	8.0	8	10	22	70	7.7
EG930100	R0.2	10.0	10	14	28	80	9.7
EG930120	R0.2	12.0	12	16	35	90	11.5
EG930160	R0.2	16.0	16	20	40	90	15.5
EG930200	R0.2	20.0	20	25	50	100	19.5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



2 FLUTE, 45° HELIX for ALUMINUM 2 SCHNEIDEN, 45° RECHTSSPIRALE für ALUMINIUM

SERIES E5522

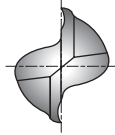
PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES E5521

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



MG
HM

45°

FLUTE
2

PLAIN

FLAT

FLUTE

FLUTE

P.111

► Suitable for high speed machining in aluminum and other non-ferrous materials, excellent surface finishes, superior chip removal.
Geeignet zum Hochgeschwindigkeitsfräsen von Aluminium und anderen NE-Metallen. Exzellente Oberflächenbearbeitung und Spanausfuhr.

Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
E5522030	E5521030	3.0	6	8	57
E5522040	E5521040	4.0	6	11	57
E5522050	E5521050	5.0	6	13	57
E5522060	E5521060	6.0	6	13	57
E5522080	E5521080	8.0	8	19	63
E5522100	E5521100	10.0	10	22	72
E5522120	E5521120	12.0	12	26	83
E5522140	E5521140	14.0	14	26	83
E5522160	E5521160	16.0	16	32	92
E5522180	E5521180	18.0	18	32	92
E5522200	E5521200	20.0	20	38	104

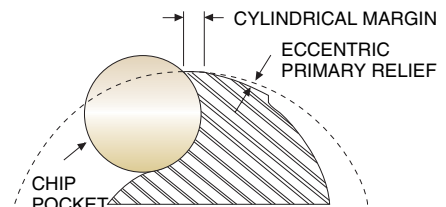
► TiN, TiCN - coating & TiAlN - coating is available on your request.



- High performance in machining aluminum and non-ferrous materials
- Special designed geometry with high rigidity cutting edge
- Improved surface roughness - cylindrical margin which is controlled tightly.
- Excellent chip removal - higher rake angle, higher helix angle(45°), bigger chip pocket.

- Corner radius, Corner chamfer, Neck design is available on your request.
- TiN, TiCN & TiAlN coating is available on your request.

	UNCOATED	TiN	TiCN	TiAlN
PLAIN SHANK	E5522	E6522	EG522	EH522
FLAT SHANK	E5521	E6521	EG521	EH521



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 40	— 48	— 58	— 70	— 84
h6	— 6	— 8	— 9	— 11	— 13

2 FLUTE, CORNER RADIUS for ALUMINUM, TiCN COATED 2 SCHNEIDEN, ECKENRADIUS für ALUMINIUM, TiCN-BESCHICHTETE

SERIES EG909

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

**MG
HM**



**FLUTE
2**



P.112



- Excellent cutting qualities on stainless steel, Aluminum, copper.
Ausgezeichnete Leistung bei der Bearbeitung von Edelmetalle,
Aluminium und Kupfer.
- Increased tool life and higher cutting accuracy.
Längere Werkzeuglebensdauer und höhere Schnittgenauigkeit.

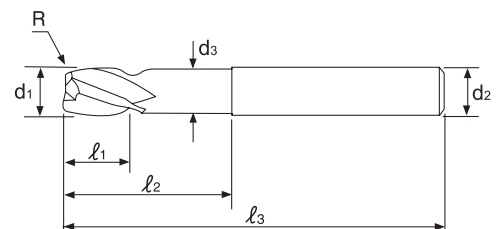
Unit : mm

EDP No. PLAIN	R	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
EG909040	R0.3	4.0	6	5	10	50	3.6
EG909060	R0.5	6.0	6	8	20	60	5.4
EG909080	R0.6	8.0	8	10	30	70	7.2
EG909100	R0.8	10.0	10	12	36	80	9.0
EG909120	R1.0	12.0	12	14	40	90	11.0
EG909160	R1.3	16.0	16	18	45	100	14.5
EG909200	R1.6	20.0	20	24	45	100	18.0

AIU-POWER

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



2 FLUTE, BALL NOSE for ALUMNUM, TiCN COATED 2 SCHNEIDEN, STIRNRADIUS für ALUMINIUM, TiCN-BESCHICHTETE

SERIES EG910

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

**MG
HM**

50°

**FLUTE
2**

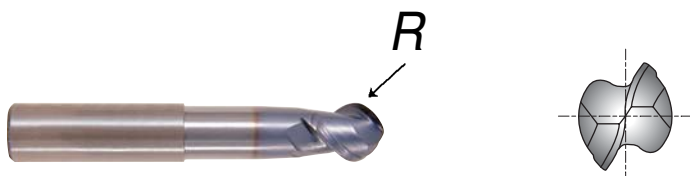
PLAIN

50°

50°

P.112

- Excellent cutting qualities on stainless steel, Aluminum, copper.
Ausgezeichnete Fräisleistung von rostfreien Stählen, Aluminium und Kupfer.
- Increased tool life and higher cutting accuracy.
Längere Werkzeuglebensdauer und höhere Schnittgenauigkeit.

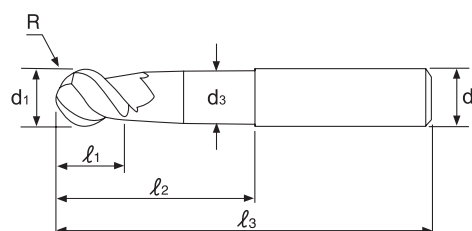


Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
EG910060	R3.0	6.0	6	5.5	25	55	5.4
EG910080	R4.0	8.0	8	7	30	65	7.2
EG910100	R5.0	10.0	10	8.5	35	75	9.0
EG910120	R6.0	12.0	12	10.5	40	75	11.0
EG910160	R8.0	16.0	16	14	50	90	14.5
EG910200	R10.0	20.0	20	17	50	100	18.0

AL-POWER

MILL DIA. TOLERANCE	SHANK DIA. TOLERANCE
± 0.02	h6



3 FLUTE, BALL NOSE for ALUMINUM, TiCN COATED 3 SCHNEIDEN, STIRNRADIUS für ALUMINIUM, TiCN-BESCHICHTETE

SERIES EG908

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

40°

FLUTE
3

PLAIN

P.113

- Excellent cutting qualities on stainless steel, Aluminum, copper.
Ausgezeichnete Fräsleistung von rostfreien Stählen, Aluminium und Kupfer.
- Increased tool life and higher cutting accuracy.
Längere Werkzeuglebensdauer und höhere Schnittgenauigkeit.



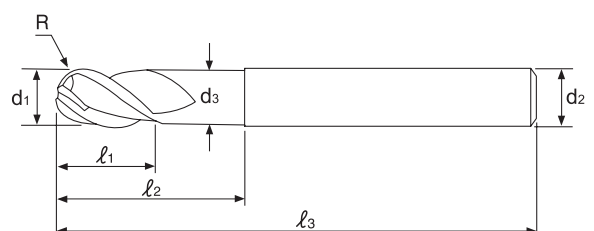
Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
EG908020	R1.0	2.0	6	3	5	60	1.9
EG908025	R1.25	2.5	6	4	6	60	2.4
EG908030	R1.5	3.0	6	4.5	6.5	60	2.8
EG908035	R1.75	3.5	6	5	7	65	3.2
EG908040	R2.0	4.0	6	6	8	65	3.7
EG908050	R2.5	5.0	6	7.5	10	65	4.6
EG908060	R3.0	6.0	6	9	12	75	5.6
EG908080	R4.0	8.0	8	12	25	75	7.4
EG908100	R5.0	10.0	10	15	30	80	9.4
EG908120	R6.0	12.0	12	18	36	90	11.4
EG908160	R8.0	16.0	16	24	40	100	15.4

AIU-POWER

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



3 FLUTE, SHORT, ROUGHING END MILL for ALUMINUM, TiAIN COATED 3 SCHNEIDEN, KURZ, SCHRUPPFRÄSER für ALUMINIUM, TiAIN-BESCHICHTETE

SERIES EP922

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

YPM



FLUTE
3

ALU

PLAIN

FLAT



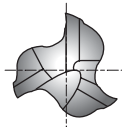
P.113

SERIES EP923

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

- Maximum stock removal rates at High Speed Condition.
Sehr gute Spanausfuhr auch bei Hochgeschwindigkeitsfräsen.
- Reduces vibrations and improves surface roughness.
Verringert Vibrationen und verbessert Oberflächengrobheit.



Unit : mm

EDP No.		MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EP922120	EP923120	12.0	12	26	83
EP922140	EP923140	14.0	12	26	83
EP922160	EP923160	16.0	16	32	92
EP922180	EP923180	18.0	16	32	92
EP922200	EP923200	20.0	20	38	104
EP922220	EP923220	22.0	20	38	104
EP922250	EP923250	25.0	25	45	121
EP922280	EP923280	28.0	25	45	121
EP922320	EP923320	32.0	32	53	133

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

3 FLUTE, LONG, ROUGHING END MILL for ALUMINUM, TiAIN COATED 3 SCHNEIDEN, LANG, SCHRUPPFÄSER für ALUMINIUM, TiAIN-BESCHICHTETE

SERIES EP924

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

SERIES EP925

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

YPM



FLUTE
3



ALU



PLAIN



FLAT



P.113

- Maximum stock removal rates at High Speed Condition.
Sehr gute Spanausfuhr auch bei Hochgeschwindigkeitfräsen.
- Reduces vibrations and improves surface roughness.
Verringert Vibrationen und verbessert.



Unit : mm

EDP No.		MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EP924120	EP925120	12.0	12	53	110
EP924140	EP925140	14.0	12	53	110
EP924160	EP925160	16.0	16	63	123
EP924180	EP925180	18.0	16	63	123
EP924200	EP925200	20.0	20	75	141
EP924220	EP925220	22.0	20	75	141
EP924250	EP925250	25.0	25	90	166
EP924280	EP925280	28.0	25	90	166
EP924320	EP925320	32.0	32	106	186

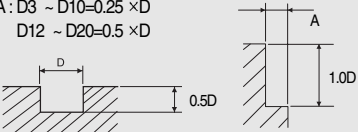
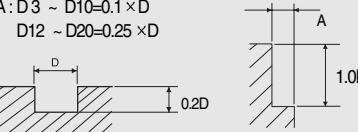
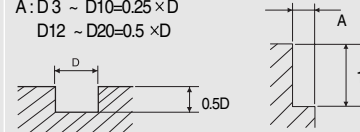
AIU-POWER

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

2 FL. FINISH for ALUMINUM, DIAMOND COATED

■ EI926

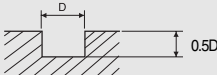
MATERIAL	ALUMINUM LOW SILICON ALUMINUM		ALUMINUM DIECAST		COPPER ALLOY	
DIAMETER	RPM	FEED(mm/min)	RPM	FEED(mm/min)	RPM	FEED(mm/min)
3	45000	1100	24000	700	14000	280
4	35000	1500	20000	950	11000	380
5	25000	1600	13000	1100	7500	400
6	25000	1900	13000	1200	7500	480
8	20000	2300	11000	1500	6000	580
10	16000	2800	8500	1800	4800	700
12	13000	3400	7200	2200	3900	850
16	11000	3100	6000	2000	3300	780
20	6500	2500	3600	1600	2000	630
	A: D3 ~ D10=0.25 × D D12 ~ D20=0.5 × D 		A: D3 ~ D10=0.1 × D D12 ~ D20=0.25 × D 		A: D3 ~ D10=0.25 × D D12 ~ D20=0.5 × D 	

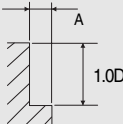
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FL. FINISH for ALUMINUM, TiCN COATED

■ EG930

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
R0.2 ×3	13000	900	13000	1200
R0.2 ×4	13000	1200	13000	1400
R0.2 ×5	13000	1300	13000	1700
R0.2 ×6	13000	1500	13000	2000
R0.2 ×8	10000	1800	10000	2300
R0.2 ×10	10000	2200	10000	2700
R0.2 ×12	10000	2700	10000	3400
R0.2 ×16	8000	2500	8000	3100
R0.2 ×20	5000	2000	5000	2500





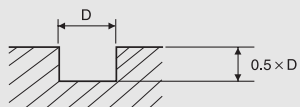
A: $\phi 3 \sim \phi 10 = 0.25 \times D$
 $\phi 12 \sim \phi 20 = 0.5 \times D$

RPM=REVOLUTION PER MIN.
FEED=mm/min.

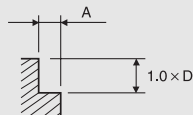
2 FL. 45° HELIX for ALUMINUM

■ E5522, E5521

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3	10000	700	10000	900
4	10000	900	10000	1100
5	10000	1000	10000	1300
6	10000	1200	10000	1500
8	8000	1400	8000	1800
10	8000	1700	8000	2100
12	8000	2100	8000	2600
14	6000	1800	6000	2200
16	6000	1900	6000	2400
18	4000	1400	4000	1800
20	4000	1600	4000	1900



A : $\phi 3 \sim \phi 10 = 0.25 \times D$
 $\phi 12 \sim \phi 20 = 0.5 \times D$

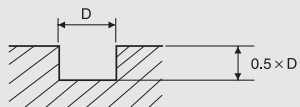


RPM=REVOLUTION PER MIN.
 FEED=mm/min.

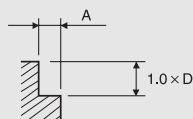
2 FL. 45° HELIX for ALUMINUM, TiCN COATED

■ EG522, EG521

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3	13000	900	13000	1200
4	13000	1200	13000	1400
5	13000	1300	13000	1700
6	13000	1500	13000	2000
8	10000	1800	10000	2300
10	10000	2200	10000	2700
12	10000	2700	10000	3400
14	8000	2300	8000	2800
16	8000	2500	8000	3100
18	5000	1800	5000	2300
20	5000	2000	5000	2500



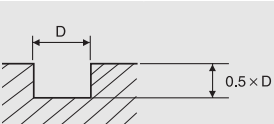
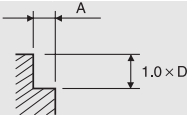
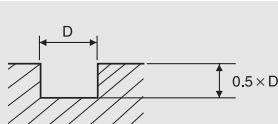
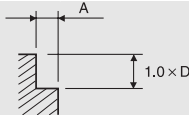
A : $\phi 3 \sim \phi 10 = 0.25 \times D$
 $\phi 12 \sim \phi 20 = 0.5 \times D$



RPM=REVOLUTION PER MIN.
 FEED=mm/min.

2 FL. CORNER RADIUS for ALUMINUM, TiCN COATED

■ EG909

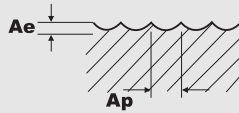
MATERIAL	ALUMINUM ALUMINUM ALLOY				COPPER ALLOY			
DIAMETER	RPM	FEED(mm/min)	RPM	FEED(mm/min)	RPM	FEED(mm/min)	RPM	FEED(mm/min)
R0.3 ×4	13000	1200	13000	1400	3900	300	3900	350
R0.5 ×6	13000	1500	13000	2000	3900	380	3900	500
R0.6 ×8	10000	1800	10000	2300	3000	450	3000	580
R0.8 ×10	10000	2200	10000	2700	3000	550	3000	680
R1.0 ×12	10000	2700	10000	3400	3000	680	3000	850
R1.3 ×16	8000	2500	8000	3100	2400	630	2400	780
R1.6 ×20	5000	2000	5000	2500	1500	500	1500	630
			 A: ~ φ 10=0.25D φ 12~φ 20=0.5D				 A: ~ φ 10=0.25D φ 12~φ 20=0.5D	
RPM=REVOLUTION PER MIN. FEED=mm/min.								

2 FL. BALL NOSE for ALUMINUM, TiCN COATED

■ EG910

MATERIAL	ALUMINUM ALUMINUM ALLOY		COPPER ALLOY	
	DIAMETER	FEED	RPM	FEED
	R3.0 × 6	1750	5500	440
	R4.0 × 8	2000	4200	500
	R5.0 × 10	2350	4200	580
	R6.0 × 12	3000	4200	750
	R8.0 × 16	2700	3300	670
	R10.0 × 20	2200	2100	550

$Ae=0.2 \times D$
 $Ap=0.5 \times D$



RPM=REVOLUTION PER MIN.
FEED=mm/min.

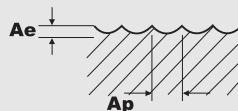
3 FL. BALL NOSE for ALUMINUM, TiCN COATED

■ EG908

MATERIAL	ALUMINUM LOW SILICON ALUMINUM		COPEER ALLOYS	
	RPM	FEED	RPM	FEED
DIAMETER				
R1.0 × 2	27000	950	8000	240
R1.25 × 2.5	22000	950	6500	240
R1.5 × 3	18000	950	5500	240
R2.0 × 4	18000	1250	5500	310
R2.5 × 5	18000	1350	5500	340
R3.0 × 6	18000	1750	5500	440
R4.0 × 8	14000	2000	4200	500
R5.0 × 10	14000	2350	4200	580
R6.0 × 12	14000	3000	4200	750
R8.0 × 16	11000	2700	3300	670

$$A_e = 0.2 \times D$$

$$A_p = 0.5 \times D$$

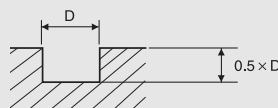
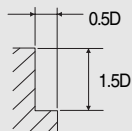


RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 FL. ROUGHING for ALUMINUM, TiCN COATED

■ EP922, EP923, EP924, EP925

MATERIAL	ALUMINUM ALUMINUM ALLOY			
	RPM	FEED	RPM	FEED
DIAMETER				
12	2800	550	2800	410
16	2200	625	2200	465
20	1700	700	1700	525
25	1400	625	1400	465
32	1100	700	1100	525



RPM=REVOLUTION PER MIN.
FEED=mm/min.



D-POWER CARBIDE END MILLS

*D-POWER VOLLHARTMETALL FRÄSER
for GRAPHITE*

DIAMOND COATED END MILL for GRAPHITE!
DIAMANT-BECHICHTETE FRÄSER für GRAPHIT!

EI880



2 FLUTE, BALL NOSE, SHORT LENGTH
2 SCHNEIDEN, STIRNRADIUS, KURZ

116

EI451



2 FLUTE, BALL NOSE, LONG LENGTH
2 SCHNEIDEN, STIRNRADIUS, LANG

117

EI450



2 FLUTE, BALL NOSE, LONG REACH
2 SCHNEIDEN, STIRNRADIUS, GROßE REICHWEITE

118

EI881



3 FLUTE, BALL NOSE, SHORT LENGTH
3 SCHNEIDEN, STIRNRADIUS, KURZ

119

DIAMOND COATED, 2 FLUTE, BALL NOSE, SHORT LENGTH DIAMANT-BESCHICHTETE, 2 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES EI880

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

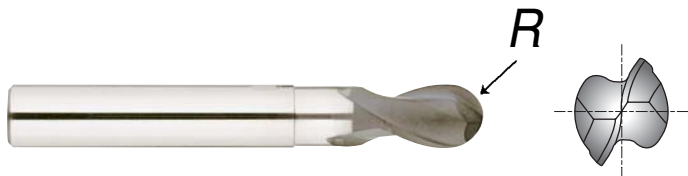
**MG
HM**



**FLUTE
2**



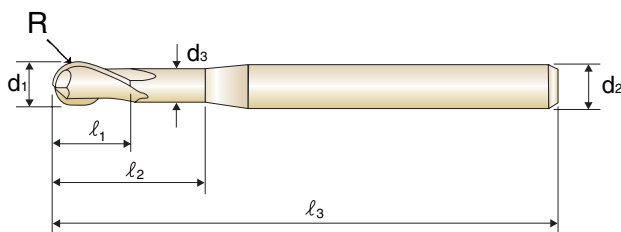
- Higher hardness of film and excellent wear-resistance increase the tool life suprisingly.
Höhere Härte des Films und ausgezeichnete Verschleißfestigkeit verlängern die standzeit beachtlich.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Radius - Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills may have good result for the machining of non-ferrous metals and non-metallic materials.
Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne silicongehalt, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete hartmetall Radius - Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
EI880020	R1.0	2.0	6	3	5	60	1.9
EI880025	R1.25	2.5	6	4	6	60	2.4
EI880030	R1.5	3.0	6	4.5	6.5	60	2.8
EI880035	R1.75	3.5	6	5	7	65	3.2
EI880040	R2.0	4.0	6	6	8	65	3.7
EI880050	R2.5	5.0	6	7.5	10	65	4.6
EI880060	R3.0	6.0	6	9	12	75	5.6
EI880080	R4.0	8.0	8	12	25	75	7.4
EI880100	R5.0	10.0	10	15	30	80	9.4
EI880120	R6.0	12.0	12	18	36	90	11.4

- Recommended Cutting Condition
- Cutting Speed : 200-400m/min
- Feed : 0.05~0.15mm/teeth



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

DIAMOND COATED, 2 FLUTE, BALL NOSE, LONG LENGTH DIAMANT-BESCHICHTETE, 2 SCHNEIDEN, STIRNRADIUS, LANG

SERIES EI451

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

30°

FLUTE
2

PLAIN



► Higher hardness of film and excellent wear-resistance increase the tool life suprisingly.

Höhere Härte des Films und ausgezeichnete Verschleißfestigkeit verlängern die standzeit beachtlich.

► Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.

Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Radius - Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.

► High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills may have good result for the machining of non-ferrous metals and non-metallic materials.

Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne silicongehalt, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete hartmetall Radius - Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.

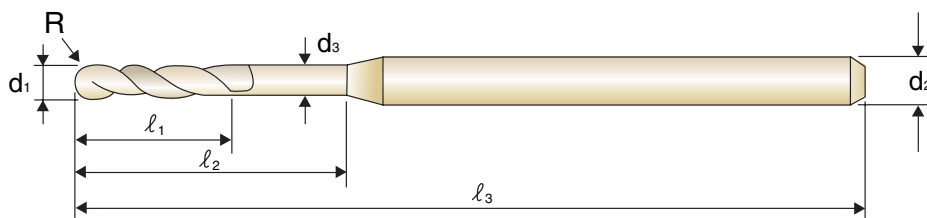
Unit : mm

EDP No. PLAIN	R	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT ℓ ₁	LENGTH BELOW SHANK ℓ ₂	OVERALL LENGTH ℓ ₃	NECK DIAMETER d ₃
EI451020	R1.0	2	4	10	20	80	1.95
EI451030	R1.5	3	4	15	25	80	2.9
EI451040	R2.0	4	4	20	30	80	3.9
EI451050	R2.5	5	6	30	50	100	4.9
EI451060	R3.0	6	6	30	50	100	5.5
EI451080	R4.0	8	8	40	60	110	7.5
EI451100	R5.0	10	10	50	70	120	9.5
EI451120	R6.0	12	12	55	75	130	11.5

► Recommended Cutting Condition

► Cutting Speed : 200-400 m/min

► Feed : 0.05~0.15 mm/teeth



Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

DIAMOND COATED, 2 FLUTE, BALL NOSE, LONG REACH DIAMANT-BESCHICHTETE, 2 SCHNEIDEN, STIRNRADIUS, GROßE REICHWEITE

SERIES EI450

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

**MG
HM**

30°

**FLUTE
2**

PLAIN

30°

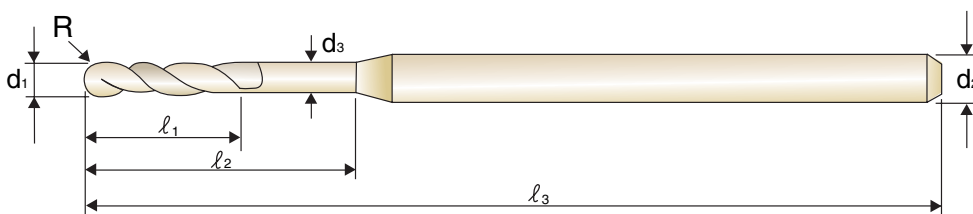


- Higher hardness of film and excellent wear-resistance increase the tool life suprisingly.
Höhere Härte des Films und ausgezeichnete Verschleißfestigkeit verlängern die standzeit beachtlich.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Radius - Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
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Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne silicongehalt, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete hartmetall Radius - Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.

Unit : mm

EDP No. PLAIN	R	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d ₃
EI450020	R1.0	2	4	10	20	100	1.95
EI450030	R1.5	3	4	15	25	100	2.9
EI450040	R2.0	4	4	20	30	100	3.9
EI450050	R2.5	5	6	30	50	120	4.9
EI450060	R3.0	6	6	30	50	150	5.5
EI450080	R4.0	8	8	40	60	150	7.5

- Recommended Cutting Condition
- Cutting Speed : 200-400 m/min
- Feed : 0.05~0.15 mm/teeth



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

DIAMOND COATED, 3 FLUTE, BALL NOSE, SHORT LENGTH DIAMANT-BESCHICHTETE, 3 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES EI881

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

30°

FLUTE
3

PLAIN



► Higher hardness of film and excellent wear-resistance increase the tool life suprisingly.

Höhere Härte des Films und ausgezeichnete Verschleißfestigkeit verlängern die standzeit beachtlich.

► Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.

Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Radius - Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.

► High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills may have good result for the machining of non-ferrous metals and non-metallic materials.

Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne silicongehalt, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete hartmetall Radius - Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.

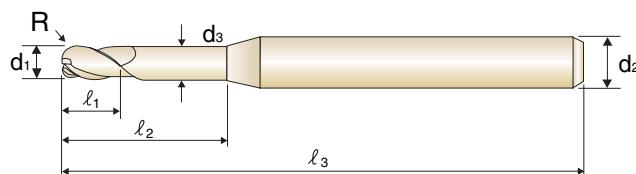
Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER d ₁ (e8)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT ℓ ₁	LENGTH BELOW SHANK ℓ ₂	OVERALL LENGTH ℓ ₃	NECK DIAMETER d ₃
EI881020	R1.0	2.0	6	3	5	60	1.9
EI881025	R1.25	2.5	6	4	6	60	2.4
EI881030	R1.5	3.0	6	4.5	6.5	60	2.8
EI881035	R1.75	3.5	6	5	7	65	3.2
EI881040	R2.0	4.0	6	6	8	65	3.7
EI881050	R2.5	5.0	6	7.5	10	65	4.6
EI881060	R3.0	6.0	6	9	12	75	5.6
EI881080	R4.0	8.0	8	12	25	75	7.4
EI881100	R5.0	10.0	10	15	30	80	9.4
EI881120	R6.0	12.0	12	18	36	90	11.4

► Recommended Cutting Condition

► Cutting Speed : 200-400 m/min

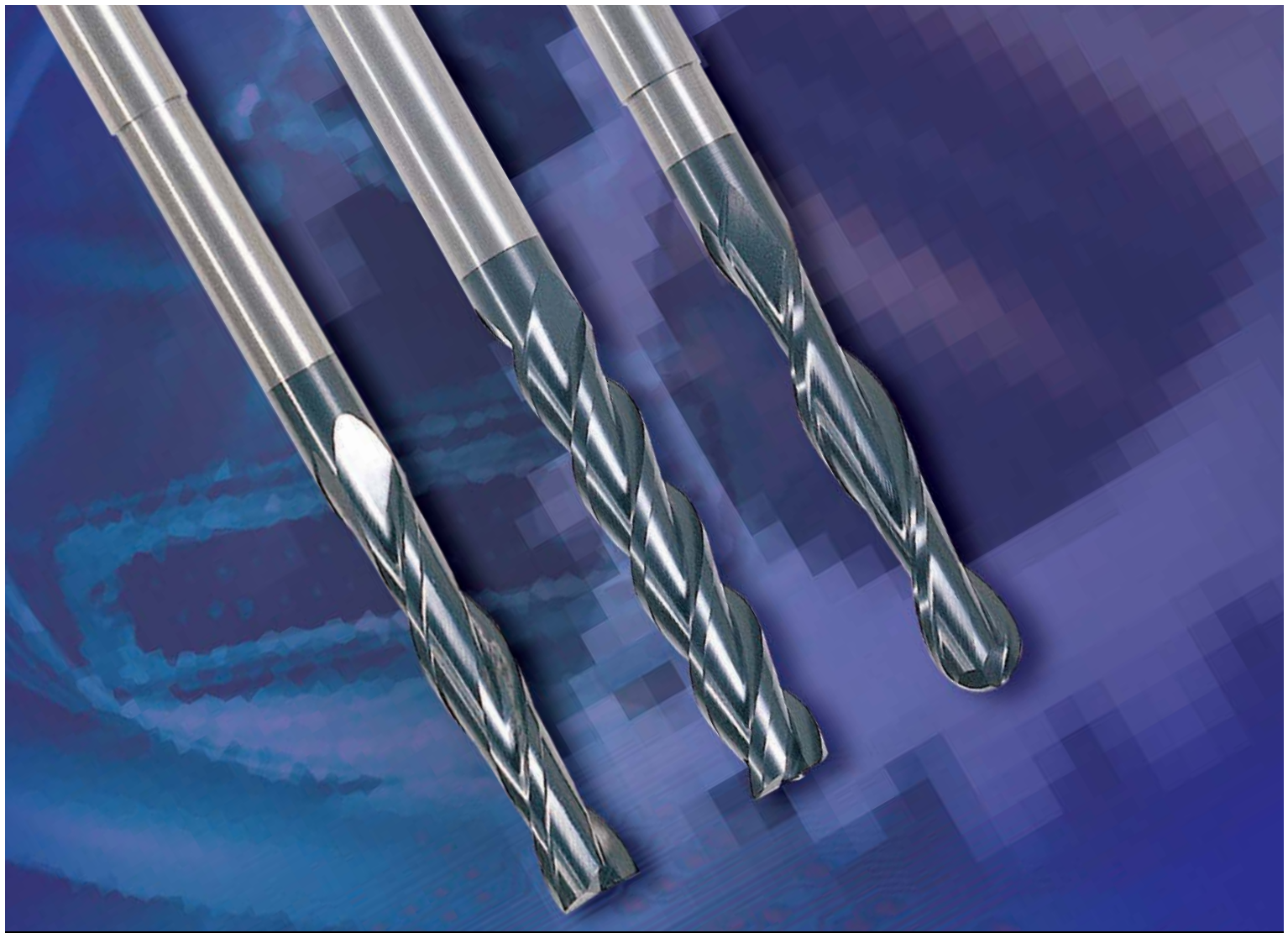
► Feed : 0.05~0.15 mm/teeth



Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



DIAMOND COATED CARBIDE END MILLS

***DIAMANT-BECHICHTETE
VOLLHARTMETALL FRÄSER***

EI926

**Alu-POWER**

2 FLUTE, SHORT LENGTH END MILL for ALUMINUM
2 SCHNEIDEN, KURZ FRÄSER für ALUMINIUM

123

EI927



2 FLUTE, LONG LENGTH END MILL for GRAPHITE
2 SCHNEIDEN, LANG FRÄSER für GRAPHIT

124

EI928



3 FLUTE, SHORT LENGTH, CORNER RADIUS END MILL for GRAPHITE
3 SCHNEIDEN, KURZ, ECKENRADIUS FRÄSER für GRAPHIT

125

EI929



3 FLUTE, LONG LENGTH, CORNER RADIUS END MILL for GRAPHITE
3 SCHNEIDEN, LANG, ECKENRADIUS FRÄSER für GRAPHIT

126

EI944

**ECONOMY**

2 FLUTE, SHORT LENGTH, BALL NOSE END MILL for GRAPHITE
2 SCHNEIDEN, KURZ, STIRNRADIUS FRÄSER für GRAPHIT

127

EI945

**ECONOMY**

2 FLUTE, LONG LENGTH, BALL NOSE END MILL for GRAPHITE
2 SCHNEIDEN, LANG, STIRNRADIUS FRÄSER für GRAPHIT

128

EI946

**ECONOMY**

2 FLUTE, LONG REACH, BALL NOSE END MILL for GRAPHITE
2 SCHNEIDEN, LANG REACH, STIRNRADIUS FRÄSER für GRAPHIT

129

EI947

**ECONOMY**

3 FLUTE, SHORT LENGTH, BALL NOSE END MILL for GRAPHITE
3 SCHNEIDEN, KURZ, STIRNRADIUS FRÄSER für GRAPHIT

130

SPEED & DATA

131~132

DIAMOND COATED END MILLS

Useful Field Area

- Die & Mold making, Turbine manufacturing and Aircraft Industry, etc.
- Profiling of wrought aluminum, low silicon aluminum alloys, high silicon aluminum alloys, reinforced plastics, graphite.

Geeignete Verwendungsgebiete

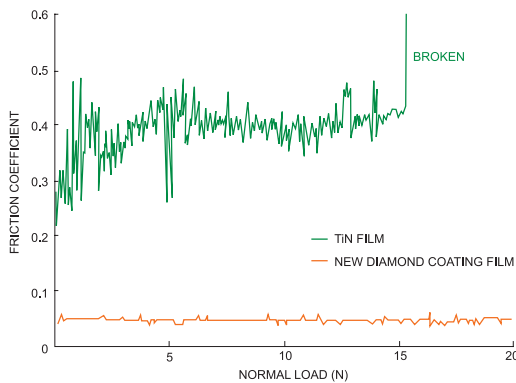
- Vorrichtungsbau, Turbinenherstellung und Luftfahrtindustrie, etc.
- Profilfräsen von Aluminium ohne Siliciumgehalt, Aluminium mit geringerem Siliciumanteil, Aluminium mit hohem Siliciumanteil, abrasiven Kunststoffen, Graphit.

◎ : **Excellent / Ausgezeichnete** ○ : **Good / gute** ○ : **Possible / möglich** × : **Impossible / unmöglich**

PERFORMANCE Leistung	◎	◎	○	◎	◎	◎	◎	◎	×
MATERIAL Werkstück	Wrought Aluminum Aluminium ohne Siliciumgehalt	Low silicon Aluminum Aluminium mit geringerem Siliziumanteil	High Silicon Aluminum Aluminium mit hohem Siliziumanteil	Graphite Graphit	Magnesium, Mg-alloys Magnesium und Magnesiumlegierungen	Plastics Kunststoff	Glass and carbon fiber reinforced plastics und Abrasiven Kunststoffen	Green Compact	Steels Stähle

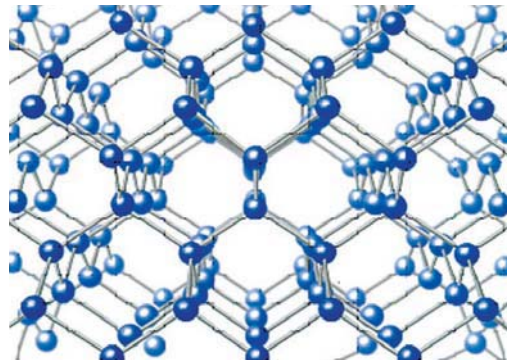
Characteristics

- New developed YG-1's diamond coating ensures adhesion of the film and precise coating thickness. Also, thanks to the high density and ultra fine grain structure of the diamond coating film, the friction coefficient is lower in the dry condition and the surface roughness of the work-piece is much more improved on milling process.



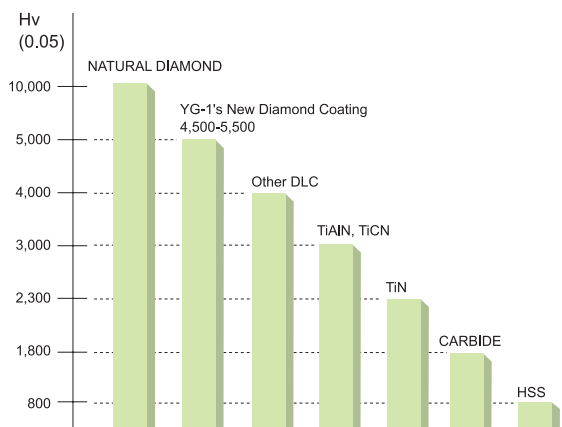
Eigenschaften

- Die neuentwickelte YG-1 Diamantenbeschichtung garantiert die Anhaftung der Beschichtung und praezise Beschichtungsdicke. Dank der hohen Dichte und der Ultra fein Korn Struktur ist der Reibungskoeffizient im trocknen Zustand niedriger und Oberflaechenguete der Werkstuecks besser.

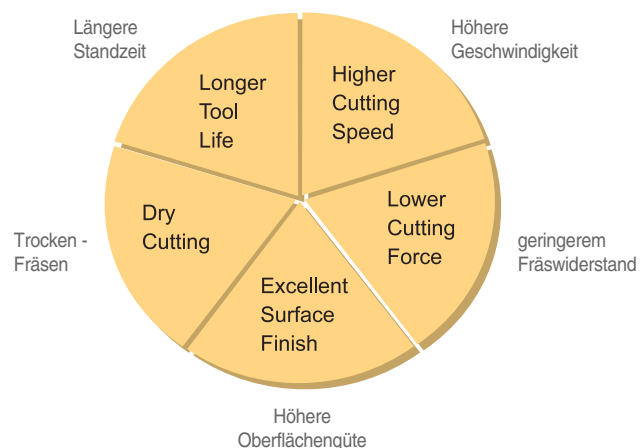


Diamond Structure

HARDNESS / HÄRTE



Advantages of the New Diamond Coating Vorteile auf Diamant - beschichtung



2 FLUTE, SHORT LENGTH END MILL for ALUMINUM 2 SCHNEIDEN, KURZ FRÄSER für ALUMINIUM

SERIES EI926

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

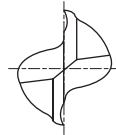


FLUTE
2



P.131

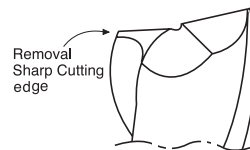
DIAMOND COATED



- Designed for the machining aluminum and its alloys, copper, plastic etc.
Geeignet zum Fräsen von Aluminium, Aluminiumlegierungen, Kupfer und Kunststoffe, etc.
- YG-1's newly developed diamond film coating increases the tool life surprisingly due to the high hardness at Hv4,500-5,500 of diamond film.
Die von YG-1 neuentwickelte Diamantbeschichtung verlängert, dank der zwischen Hv4500 bis 5500 hohen Härte der Beschichtung die Werkzeuglebensdauer beachtlich.
- Maximum-stock removal, chip ejection, stability.
Sehr gute Spanausfuhr.
- Removal sharp cutting edges for avoiding the chipping.
Beseitigung von scharfen Schneidkanten zur Vermeidung von Abbröckelungen.

Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EI926010	1.0	4	3	40
EI926015	1.5	4	4	40
EI926020	2.0	4	6	40
EI926025	2.5	4	8	40
EI926030	3.0	6	8	45
EI926035	3.5	6	10	45
EI926040	4.0	6	11	45
EI926045	4.5	6	11	50
EI926050	5.0	6	13	50
EI926055	5.5	6	13	50
EI926060	6.0	6	13	50
EI926070	7.0	8	16	60
EI926080	8.0	8	19	60
EI926090	9.0	10	19	70
EI926100	10.0	10	22	70
EI926110	11.0	12	22	75
EI926120	12.0	12	26	75
EI926160	16.0	16	32	90
EI926200	20.0	20	38	100



MILL DIA. TOLERANCE		SHANK DIA. TOLERANCE
DIAMETER	TOL.	
from 1 to 3	— 0.014 — 0.028	h6
over 3 to 6	— 0.020 — 0.038	
over 6 to 10	— 0.025 — 0.047	
over 10 to 20	— 0.032 — 0.059	

2 FLUTE, LONG LENGTH END MILL for GRAPHITE 2 SCHNEIDEN, LANG FRÄSER für GRAPHIT

SERIES EI927

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

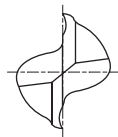
**MG
HM**



**FLUTE
2**



P.132



► Designed for the machining graphite, reinforced plastic, high silicon aluminum alloys.

Geeignet zum Fräsen von Graphit, verstärkten Kunststoffen und Aluminiumlegierungen mit hohem Siliziumanteil.

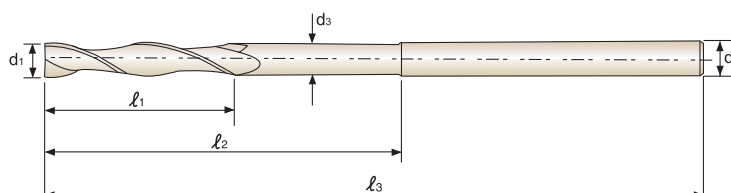
► YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

Die von YG-1 neuentwickelte Diamantfilm-Beschichtung erlaubt hervorragende Fräsergebnisse von NE-Eisen und nichtmetallischen Materialien.

Unit : mm

EDP No. PLAIN	MILL DIAMETER d_1	SHANK DIAMETER d_2 (h6)	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d_3
EI927005	0.5	3	1	2	40	0.45
EI927006	0.6	3	2	3	40	0.55
EI927007	0.7	3	2	4	40	0.65
EI927008	0.8	3	2	5	40	0.75
EI927009	0.9	3	2	6	40	0.85
EI927010	1.0	4	3	8	75	0.95
EI927015	1.5	4	4	10	75	1.45
EI927020	2.0	4	6	16	100	1.90
EI927025	2.5	4	8	20	100	2.40
EI927030	3.0	6	8	30	100	2.80
EI927035	3.5	6	10	35	100	3.20
EI927040	4.0	6	20	40	100	3.70
EI927050	5.0	6	25	50	125	4.60
EI927060	6.0	6	30	60	140	5.60
EI927070	7.0	6	35	—	140	—
EI927080	8.0	8	40	80	150	7.40
EI927090	9.0	8	45	—	150	—
EI927100	10.0	10	50	80	150	9.40
EI927110	11.0	10	50	—	150	—
EI927120	12.0	12	55	80	150	11.40

MILL DIA. TOLERANCE		SHANK DIA. TOLERANCE
DIAMETER	TOL.	
from 0.5 to 3	— 0.014 — 0.028	h6
over 3 to 6	— 0.020 — 0.038	
over 6 to 10	— 0.025 — 0.047	
over 10 to 20	— 0.032 — 0.059	



3 FLUTE, SHORT LENGTH, CORNER RADIUS END MILL for GRAPHITE 3 SCHNEIDEN, KURZ, ECKENRADIUS FRÄSER für GRAPHIT

SERIES EI928

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

40°

FLUTE
3

PLAIN

P.132



► Designed for the machining graphite, reinforced plastic, high silicon aluminum alloys.

Geeignet zum Fräsen von Graphit, verstärkten Kunststoffen und Aluminiumlegierungen mit hohem Siliziumanteil.

► YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

Die von YG-1 neuentwickelte Diamantfilm-Beschichtung erlaubt hervorragende Fräsergebnisse von NE-Eisen und nichtmetallischen Materialien.

Unit : mm

EDP No. PLAIN	R	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EI928020	R0.15	2.0	3	6	40
EI928030	R0.15	3.0	3	12	40
EI928040	R0.2	4.0	4	14	50
EI928050	R0.3	5.0	5	16	50
EI928060	R0.3	6.0	6	20	65
EI928080	R0.5	8.0	8	20	65
EI928100	R0.5	10.0	10	25	75
EI928120	R0.5	12.0	12	25	75

MILL DIA. TOLERANCE		SHANK DIA. TOLERANCE
DIAMETER	TOL.	
over 2 to 6	— 0.010 — 0.050	h6
over 6 to 12	0 — 0.060	

3 FLUTE, LONG LENGTH, CORNER RADIUS END MILL for GRAPHITE 3 SCHNEIDEN, LANG, ECKENRADIUS FRÄSER für GRAPHIT

SERIES EI929

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

**MG
HM**

40°

**FLUTE
3**

PLAIN

40°

40°

P.132



► Designed for the machining graphite, reinforced plastic, high silicon aluminum alloys.

Geeignet zum Fräsen von Graphit, verstärkten Kunststoffen und Aluminiumlegierungen mit hohem Siliziumanteil.

► YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

Die von YG-1 neuentwickelte Diamantfilm-Beschichtung erlaubt hervorragende Fräsergebnisse von NE-Eisen und nichtmetallischen Materialien.

Unit : mm

EDP No. PLAIN	R	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EI929020	R0.15	2.0	3	9	60
EI929030	R0.15	3.0	3	30	60
EI929040	R0.2	4.0	4	30	60
EI929050	R0.3	5.0	5	35	70
EI929060	R0.3	6.0	6	40	100
EI929080	R0.5	8.0	8	40	100
EI929100	R0.5	10.0	10	40	100
EI929120	R0.5	12.0	12	45	100

MILL DIA. TOLERANCE		SHANK DIA. TOLERANCE
DIAMETER	TOL.	
over 2 to 6	— 0.010 — 0.050	h6
over 6 to 12	0 — 0.060	

2 FLUTE, SHORT LENGTH, BALL NOSE END MILL for GRAPHITE 2 SCHNEIDEN, KURZ, STIRNRADIUS FRÄSER für GRAPHIT

SERIES EI944

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

30°

FLUTE
2

PLAIN

P.132

DIAMOND COATED



► Designed for the machining graphite, reinforced plastic, high silicon aluminum alloys.

Geeignet zum Fräsen von Graphit, verstärkten Kunststoffen und Aluminiumlegierungen mit hohem Siliziumanteil.

► YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

Die von YG-1 neuentwickelte Diamantfilm-Beschichtung erlaubt hervorragende Fräsergebnisse von NE-Eisen und nichtmetallischen Materialien.

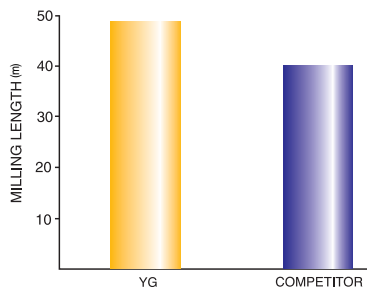
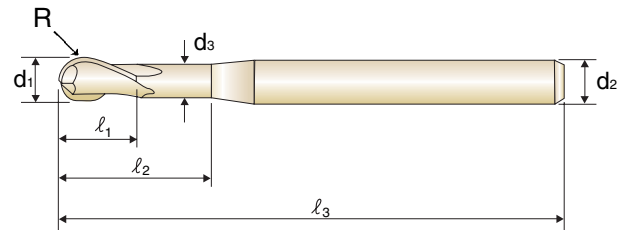
Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER d1 (e8)	SHANK DIAMETER d2 (h6)	LENGTH OF CUT ℓ ₁	LENGTH BELOW SHANK ℓ ₂	OVERALL LENGTH ℓ ₃	NECK DIAMETER d3
EI944020	R1.0	2.0	6	3	5	60	1.9
EI944025	R1.25	2.5	6	4	6	60	2.4
EI944030	R1.5	3.0	6	4.5	6.5	60	2.8
EI944035	R1.75	3.5	6	5	7	65	3.2
EI944040	R2.0	4.0	6	6	8	65	3.7
EI944050	R2.5	5.0	6	7.5	10	65	4.6
EI944060	R3.0	6.0	6	9	12	75	5.6
EI944080	R4.0	8.0	8	12	25	75	7.4
EI944100	R5.0	10.0	10	15	30	80	9.4
EI944120	R6.0	12.0	12	18	36	90	11.4

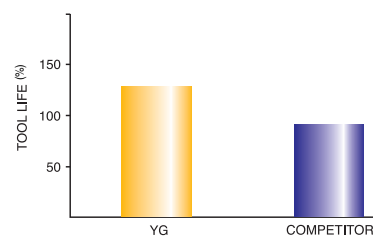
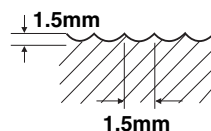
Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

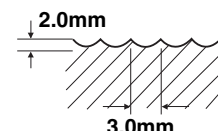
Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



TOOL: YG : EI944060, $\phi 6$, 2FL. BALL NOSE, DIAMOND COATING
COMPETITOR : $\phi 6$, 2FL. BALL NOSE, DIAMOND COATING
MATERIAL : GRAPHITE (IMPELLAR DIECASTING-ROUGHING)
RPM = 12,000 rev./min
FEED = 2,000 mm/min
DRY CUTTING



TOOL: YG : EI944060, $\phi 6$, 2FL. BALL NOSE, DIAMOND COATING
COMPETITOR : $\phi 6$, 2FL. BALL NOSE, DIAMOND COATING
MATERIAL : GRAPHITE R8710 (HIGH WROUGHT CARBON)
RPM = 22,000 rev./min
FEED = 3,600 mm/min
DRY CUTTING



2 FLUTE, LONG LENGTH, BALL NOSE END MILL for GRAPHITE 2 SCHNEIDEN, LANG, STIRNRADIUS FRÄSER für GRAPHIT

SERIES EI945

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

**MG
VHM**

30°

**FLUTE
2**

PLAIN

30°

30°

P.132

ECONOMY



► Designed for the machining graphite, reinforced plastic, high silicon aluminum alloys.

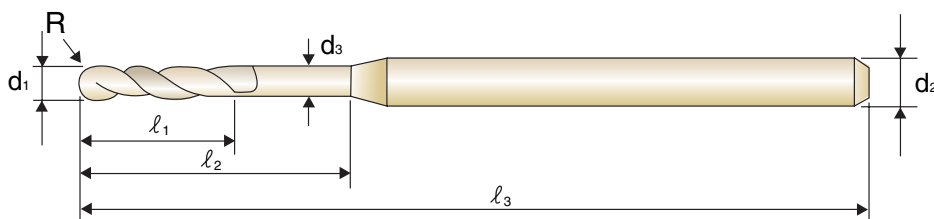
Geeignet zum Fräsen von Graphit, verstärkten Kunststoffen und Aluminiumlegierungen mit hohem Siliziumanteil.

► YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

Die von YG-1 neuentwickelte Diamantfilm-Beschichtung erlaubt hervorragende Fräsergebnisse von NE-Eisen und nichtmetallischen Materialien.

Unit : mm

EDP No. PLAIN	R	MILL DIAMETER d1 (e8)	SHANK DIAMETER d2 (h6)	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d3
EI945020	R1.0	2.0	4	10	20	80	1.95
EI945030	R1.5	3.0	4	15	25	80	2.9
EI945040	R2.0	4.0	4	20	30	80	3.9
EI945050	R2.5	5.0	6	30	50	100	4.9
EI945060	R3.0	6.0	6	30	50	100	5.5
EI945070	R3.5	7.0	6	30	—	100	—
EI945080	R4.0	8.0	8	40	60	110	7.5
EI945090	R4.5	9.0	8	40	—	110	—
EI945100	R5.0	10.0	10	50	70	120	9.5
EI945120	R6.0	12.0	12	55	75	130	11.5



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, LONG REACH, BALL NOSE END MILL for GRAPHITE 2 SCHNEIDEN, LANG REACH, STIRNRADIUS FRÄSER für GRAPHIT

SERIES EI946

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
VHM

30°

FLUTE
2

PLAIN

P.132

DIAMOND COATED



► Designed for the machining graphite, reinforced plastic, high silicon aluminum alloys.

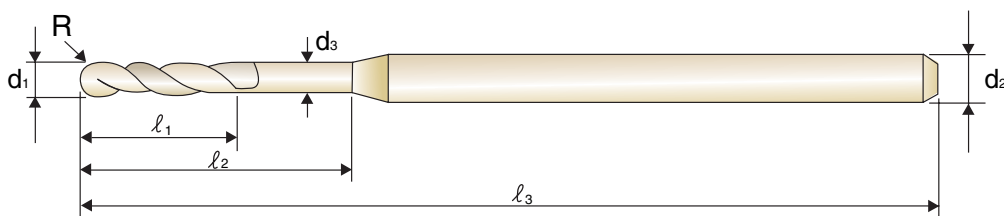
Geeignet zum Fräsen von Graphit, verstärkten Kunststoffen und Aluminiumlegierungen mit hohem Siliziumanteil.

► YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

Die von YG-1 neuentwickelte Diamantfilm-Beschichtung erlaubt hervorragende Fräsergebnisse von NE-Eisen und nichtmetallischen Materialien.

Unit : mm

EDP No. PLAIN	R	MILL DIAMETER d1 (e8)	SHANK DIAMETER d2 (h6)	LENGTH OF CUT l_1	LENGTH BELOW SHANK l_2	OVERALL LENGTH l_3	NECK DIAMETER d3
EI946020	R1.0	2.0	4	10	20	100	1.95
EI946030	R1.5	3.0	4	15	25	100	2.9
EI946040	R2.0	4.0	4	20	30	100	3.9
EI946050	R2.5	5.0	6	30	50	120	4.9
EI946060	R3.0	6.0	6	30	50	150	5.5
EI946070	R3.5	7.0	6	30	—	150	—
EI946080	R4.0	8.0	8	40	60	150	7.5
EI946090	R4.5	9.0	8	40	—	150	—
EI946100	R5.0	10.0	10	50	70	180	9.5
EI946120	R6.0	12.0	12	55	75	200	11.5



Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, SHORT LENGTH, BALL NOSE END MILL for GRAPHITE

3 SCHNEIDEN, KURZ, STIRNRADIUS FRÄSER für GRAPHIT

SERIES EI947**PLAIN SHANK**

GLATTEM ZYLINDERSCHAFT

**MG
VHM****30°****FLUTE
3****PLAIN****3****3**

P.132



► Designed for the machining graphite, reinforced plastic, high silicon aluminum alloys.

Geeignet zum Fräsen von Graphit, verstärkten Kunststoffen und Aluminiumlegierungen mit hohem Siliziumanteil.

► YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

Die von YG-1 neuentwickelte Diamantfilm-Beschichtung erlaubt hervorragende Fräsergebnisse von NE-Eisen und nichtmetallischen Materialien.

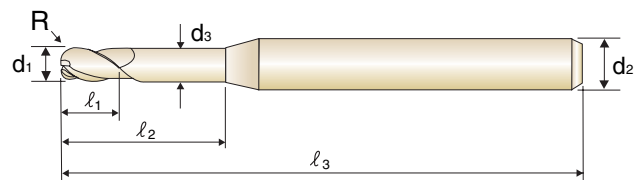
Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER d1 (e8)	SHANK DIAMETER d2 (h6)	LENGTH OF CUT l ₁	LENGTH BELOW SHANK l ₂	OVERALL LENGTH l ₃	NECK DIAMETER d3
EI947020	R1.0	2.0	6	3	5	60	1.9
EI947025	R1.25	2.5	6	4	6	60	2.4
EI947030	R1.5	3.0	6	4.5	6.5	60	2.8
EI947035	R1.75	3.5	6	5	7	65	3.2
EI947040	R2.0	4.0	6	6	8	65	3.7
EI947050	R2.5	5.0	6	7.5	10	65	4.6
EI947060	R3.0	6.0	6	9	12	75	5.6
EI947080	R4.0	8.0	8	12	25	75	7.4
EI947100	R5.0	10.0	10	15	30	80	9.4
EI947120	R6.0	12.0	12	18	36	90	11.4

Tolerances according to DIN 7160 & 7161

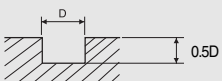
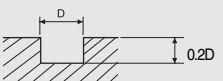
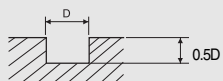
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13



2 FL. FINISH for ALUMINUM-DIAMOND COATED

■ EI926

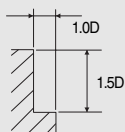
MATERIAL	ALUMINUM LOW SILICON ALUMINUM		ALUMINUM DIECAST		COPPER ALLOY	
	RPM	FEED(mm/min)	RPM	FEED(mm/min)	RPM	FEED(mm/min)
3	45000	1100	24000	700	14000	280
4	35000	1500	20000	950	10000	380
5	25000	1600	13000	1100	7500	400
6	25000	1900	13000	1200	7500	480
8	20000	2300	11000	1500	6000	580
10	16000	2800	8500	1800	4800	700
12	13000	3400	7200	2200	3900	850
16	11000	3100	6000	2000	3300	780
20	6500	2500	3600	1600	2000	630
	A: D3 ~ D10=0.25×D D12 ~ D20=0.5×D 		A: D3 ~ D10=0.1×D D12 ~ D20=0.25×D 		A: D3 ~ D10=0.25×D D12 ~ D20=0.5×D 	

RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FL. & 3 FL. FINISH for GRAPHITE-DIAMOND COATED

■ EI927, EI928, EI929

MATERIAL	GRAPHITE	
DIAMETER	RPM	FEED
2	25000	800
3	20000	750
4	18000	950
5	14000	1200
6	10000	1400
8	8000	1300
10	6000	1200
12	5000	1200

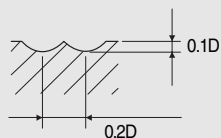


RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FL. & 3 FL. BALL NOSE for GRAPHITE-DIAMOND COATED

■ EI944, EI945, EI946, EI947

MATERIAL	GRAPHITE	
DIAMETER	RPM	FEED
2 × R1.0	30000	1600
3 × R1.5	24000	1700
4 × R2.0	21000	1900
5 × R2.5	18000	2400
6 × R3.0	16000	2800
8 × R4.0	13000	2600
10 × R5.0	11000	2500
12 × R6.0	9000	2400


















RPM=REVOLUTION PER MIN.
FEED=mm/min.















CARBIDE END MILLS

VOLLHARTMETALL FRÄSER

E5424 E5416		2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ	137
E5444		2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ	138
E5445		2 FLUTE, LONG LENGTH 2 SCHNEIDEN, LANG	139
E5527		2 FLUTE, LONG LENGTH 2 SCHNEIDEN, LANG	140
E5452		2 FLUTE, EXTRA LONG LENGTH 2 SCHNEIDEN, EXTRA LANG	141
E5553		3 FLUTE, SHORT LENGTH, THROW AWAY 3 SCHNEIDEN, KURZ, EINWEG FRÄSER	142
E5425 E5417		3 FLUTE, SHORT LENGTH 3 SCHNEIDEN, KURZ	143
E5439		3 FLUTE, SHORT LENGTH 3 SCHNEIDEN, KURZ	144
E5433		3 FLUTE, LONG LENGTH 3 SCHNEIDEN, LANG	145
E5528		3 FLUTE, LONG LENGTH 3 SCHNEIDEN, LANG	146
E5882		3 FLUTE, 35° HELIX, CORNER RADIUS 3 SCHNEIDEN, 35° RECHTSSPIRALE, ECKENRADIUS	147
E5423 E5415		3 FLUTE, 45° HELIX, CORNER RADIUS 3 SCHNEIDEN, 45° RECHTSSPIRALE, KURZ	148
E5446		3 FLUTE, 45° HELIX, CORNER RADIUS 3 SCHNEIDEN, 45° RECHTSSPIRALE, KURZ	149
E5447		3 FLUTE, 45° HELIX, LONG LENGTH 3 SCHNEIDEN, 45° RECHTSSPIRALE, LANG	150
E5432 E5595		4 FLUTE, SHORT LENGTH 4 SCHNEIDEN, KURZ	151

SOLID CARBIDE END MILLS

SELECTION GUIDE

E5448		4 FLUTE, SHORT LENGTH 4 SCHNEIDEN, KURZ	152
E5449		4 FLUTE, LONG LENGTH 4 SCHNEIDEN, LANG	153
E5540		4 FLUTE, LONG LENGTH 4 SCHNEIDEN, LANG	154
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E5624 E5650		2 FLUTE, BALL NOSE, SHORT LENGTH 2 SCHNEIDEN, STIRNRADIUS, KURZ	156
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E5438		2 FLUTE, BALL NOSE, LONG LENGTH 2 SCHNEIDEN, STIRNRADIUS, LANG	158
E5454		2 FLUTE, BALL NOSE, LONG REACH 2 SCHNEIDEN, STIRNRADIUS, GROßE REICHWEITE	159
E5455		2 FLUTE, BALL NOSE, EXTRA LONG LENGTH 2 SCHNEIDEN, STIRNRADIUS, EXTRA LANG	160
E5634 E5424		4 FLUTE, BALL NOSE, SHORT LENGTH 4 SCHNEIDEN, STIRNRADIUS, KURZ	161
E5742 E5711		3 FLUTE, LONG ROUGHING END MILLS For ALUMINIUM 3 SCHNEIDEN, STIRNRADIUS, LANG für ALUMINIUM	162
E5400		CARBIDE DRILL MILLS VHM BOHRNUTEN FRÄSER	163
SPEED & FEED DATA			164~175

2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ

SERIES E5424

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N



FLUTE
2

DIN
6535HA

DIN
6535HB



P.164

SERIES E5416

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	EDP No. FLAT	ITEM No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5424010	T2GRS-010X	—	—	1.0	4	3	40
E5424015	T2GRS-015X	—	—	1.5	4	4.5	40
E5424020	T2GRS-020Z	—	—	2.0	2	8	32
E5424025	T2GRS-025Z	—	—	2.5	2.5	8	32
E5424030	T2GRS-030Z	—	—	3.0	3	12	32
E5424035	T2GRS-035Z	—	—	3.5	3.5	12	32
E5424040	T2GRS-040Z	—	—	4.0	4	12	40
E5424045	T2GRS-045Z	—	—	4.5	4.5	14	50
E5424050	T2GRS-050Z	—	—	5.0	5	14	50
E5424055	T2GRS-055Z	—	—	5.5	5.5	16	50
E5424060	T2GRS-060Z	E5416060	T2GRS-060ZF	6.0	6	16	50
E5424070	T2GRS-070Z	—	—	7.0	7	20	60
E5424080	T2GRS-080Z	E5416080	T2GRS-080ZF	8.0	8	20	60
E5424090	T2GRS-090Z	—	—	9.0	9	20	60
E5424100	T2GRS-100Z	E5416100	T2GRS-100ZF	10.0	10	22	70
E5424120	T2GRS-120Z	E5416120	T2GRS-120ZF	12.0	12	22	70
E5424140	T2GRS-140Z	E5416140	T2GRS-140ZF	14.0	14	25	75
E5424160	T2GRS-160Z	E5416160	T2GRS-160ZF	16.0	16	25	75
E5424200	T2GRS-200Z	E5416200	T2GRS-200ZF	20.0	20	32	100

► TiCN-COATING & TiAlN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ

SERIES E5444

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

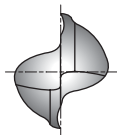
N



FLUTE
2



P.164



Unit : mm

EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5444020	2.0	6	3	50
E5444030	3.0	6	4	50
E5444035	3.5	6	4	50
E5444040	4.0	6	5	54
E5444045	4.5	6	5	54
E5444050	5.0	6	6	54
E5444060	6.0	6	7	54
E5444070	7.0	8	8	58
E5444080	8.0	8	9	58
E5444090	9.0	10	10	66
E5444100	10.0	10	11	66
E5444120	12.0	12	12	73
E5444140	14.0	14	14	75
E5444160	16.0	16	16	82
E5444180	18.0	18	18	84
E5444200	20.0	20	20	92

►TiCN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

2 FLUTE, LONG LENGTH 2 SCHNEIDEN, LANG

SERIES E5445

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

N



FLUTE
2



P.164



Unit : mm

EDP No. FLAT	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5445901	2.0	●3	6	38
E5445028	2.8	6	7	57
E5445030	3.0	6	7	57
E5445035	3.5	6	7	57
E5445038	3.8	6	8	57
E5445040	4.0	6	8	57
E5445045	4.5	6	8	57
E5445048	4.8	6	10	57
E5445050	5.0	6	10	57
E5445957	5.75	6	10	57
E5445060	6.0	6	10	57
E5445967	6.75	8	13	63
E5445070	7.0	8	13	63
E5445977	7.75	8	16	63
E5445080	8.0	8	16	63
E5445087	8.7	10	16	72
E5445090	9.0	10	16	72
E5445097	9.7	10	19	72
E5445100	10.0	10	19	72
E5445117	11.7	12	22	83
E5445120	12.0	12	22	83
E5445137	13.7	14	22	83
E5445140	14.0	14	22	83
E5445157	15.7	16	26	92
E5445160	16.0	16	26	92
E5445177	17.7	18	26	92
E5445180	18.0	18	26	92
E5445197	19.7	20	32	104
E5445200	20.0	20	32	104

● with plain shank

► TiCN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, LONG LENGTH 2 SCHNEIDEN, LANG

SERIES E5527

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

DIN
6528

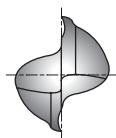
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FLUTE
2



P.164



Unit : mm

EDP No. PLAIN	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5527035	3.5	3.5	7	50
E5527040	4.0	4	8	50
E5527045	4.5	4.5	8	50
E5527050	5.0	5	10	50
E5527055	5.5	5.5	10	57
E5527060	6.0	6	10	57
E5527065	6.5	6.5	13	60
E5527070	7.0	7	13	60
E5527075	7.5	7.5	16	63
E5527080	8.0	8	16	63
E5527085	8.5	8.5	16	67
E5527090	9.0	9	16	67
E5527095	9.5	9.5	19	72
E5527100	10.0	10	19	72
E5527110	11.0	11	22	83
E5527120	12.0	12	22	83
E5527130	13.0	13	22	83
E5527140	14.0	14	22	83
E5527150	15.0	15	26	92
E5527160	16.0	16	26	92
E5527180	18.0	18	26	92
E5527200	20.0	20	32	104

►TICN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	$\begin{smallmatrix} 0 \\ -40 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -48 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -58 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -70 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -84 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

2 FLUTE, EXTRA LONG LENGTH 2 SCHNEIDEN, EXTRA LANG

SERIES E5452

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N



FLUTE
2

DIN
6535HA



P.164



Unit : mm

EDP No. PLAIN	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5452030	3.0	3	30	75
E5452040	4.0	4	30	75
E5452050	5.0	5	40	100
E5452060	6.0	6	50	150
E5452080	8.0	8	50	150
E5452100	10.0	10	60	150
E5452120	12.0	12	75	150
E5452140	14.0	14	65	150
E5452160	16.0	16	65	150
E5452180	18.0	18	65	150
E5452200	20.0	20	65	150

►TICN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, SHORT LENGTH, THROW AWAY 3 SCHNEIDEN, KURZ, EINWEG FRÄSER

SERIES E5553

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

YG
STD

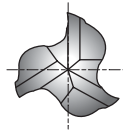
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FLUTE
3



P.165, 166

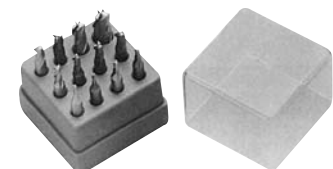


Unit : mm

EDP No. FLAT	ITEM No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5553005	T3FSC-005KS	0.5	●3	1.5	38
E5553006	T3FSC-006KS	0.6	●3	1.5	38
E5553008	T3FSC-008KS	0.8	●3	2	38
E5553010	T3FSC-010KS	1.0	●3	2	38
E5553012	T3FSC-012KS	1.2	●3	2	38
E5553015	T3FSC-015KS	1.5	●3	2	38
E5553018	T3FSC-018KS	1.8	●3	2	38
E5553020	T3FSC-020AF	2.0	6	4	35
E5553025	T3FSC-025AF	2.5	6	5	36
E5553030	T3FSC-030AF	3.0	6	5	36
E5553035	T3FSC-035AF	3.5	6	6	37
E5553040	T3FSC-040AF	4.0	6	7	38
E5553045	T3FSC-045AF	4.5	6	8	38
E5553050	T3FSC-050AF	5.0	6	8	39
E5553055	T3FSC-055AF	5.5	6	8	39
E5553957	T3FSC-0575AF	5.75	6	8	39
E5553060	T3FSC-060AF	6.0	6	8	39
E5553967	T3FSC-0675BF	6.75	8	10	42
E5553070	T3FSC-070BF	7.0	8	10	42
E5553977	T3FSC-0775BF	7.75	8	10	42
E5553080	T3FSC-080BF	8.0	8	11	43
E5553087	T3FSC-087TF	8.7	10	11	48
E5553090	T3FSC-090TF	9.0	10	11	48
E5553097	T3FSC-097TF	9.7	10	11	48
E5553100	T3FSC-100TF	10.0	10	13	50
E5553120	T3FSC-120DF	12.0	12	15	55
E5553140	T3FSC-140ZF	14.0	14	15	58
E5553160	T3FSC-160EF	16.0	16	18	62
E5553180	T3FSC-180ZF	18.0	18	20	70
E5553200	T3FSC-200FF	20.0	20	22	75

● with plain shank

► TiCN-COATING & TiAlN-COATING is available on your request.



SET YG#3 (MINIATURE SET)

* 12PCS. SET
2PCS. OF EACH SIZE
2, 3, 4, 5, 6mm (T3FSC)
1PC. OF EACH SIZE
8, 10mm (T3FSC)
* SET ORDERING NO.:SET YG#3

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 40	— 48	— 58	— 70	— 84
h6	— 6	— 8	— 9	— 11	— 13

3 FLUTE, SHORT LENGTH 3 SCHNEIDEN, KURZ

SERIES E5425

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N

30°

FLUTE
3

DIN
6535HA

DIN
6535HB

3

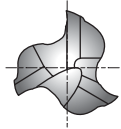
3

P.165, 166

SERIES E5417

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	EDP No. FLAT	ITEM No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5425020	T3GRC-020Z	—	—	2.0	2	8	32
E5425025	T3GRC-025Z	—	—	2.5	2.5	8	32
E5425030	T3GRC-030Z	—	—	3.0	3	12	32
E5425035	T3GRC-035Z	—	—	3.5	3.5	12	32
E5425040	T3GRC-040Z	—	—	4.0	4	12	40
E5425045	T3GRC-045Z	—	—	4.5	4.5	14	50
E5425050	T3GRC-050Z	—	—	5.0	5	14	50
E5425055	T3GRC-055Z	—	—	5.5	5.5	16	50
E5425060	T3GRC-060Z	E5417060	T3GRC-060ZF	6.0	6	16	50
E5425070	T3GRC-070Z	—	—	7.0	7	20	60
E5425080	T3GRC-080Z	E5417080	T3GRC-080ZF	8.0	8	20	60
E5425090	T3GRC-090Z	—	—	9.0	9	20	60
E5425100	T3GRC-100Z	E5417100	T3GRC-100ZF	10.0	10	22	70
E5425120	T3GRC-120Z	E5417120	T3GRC-120ZF	12.0	12	22	70
E5425140	T3GRC-140Z	E5417140	T3GRC-140ZF	14.0	14	25	75
E5425160	T3GRC-160Z	E5417160	T3GRC-160ZF	16.0	16	25	75
E5425200	T3GRC-200Z	E5417200	T3GRC-200ZF	20.0	20	32	100

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, SHORT LENGTH 3 SCHNEIDEN, KURZ

SERIES E5439

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

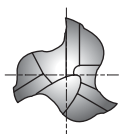
N



FLUTE
3



P.165, 166



Unit : mm

EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5439020	2.0	6	3	50
E5439030	3.0	6	4	50
E5439035	3.5	6	4	50
E5439040	4.0	6	5	54
E5439045	4.5	6	5	54
E5439050	5.0	6	6	54
E5439060	6.0	6	7	54
E5439070	7.0	8	8	58
E5439080	8.0	8	9	58
E5439090	9.0	10	10	66
E5439100	10.0	10	11	66
E5439120	12.0	12	12	73
E5439140	14.0	14	14	75
E5439160	16.0	16	16	82
E5439180	18.0	18	18	84
E5439200	20.0	20	20	92

►TICN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

3 FLUTE, LONG LENGTH 3 SCHNEIDEN, LANG

SERIES E5433

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

N



FLUTE
3

DIN
6535HB



P.165, 166



Unit : mm

EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5433030	3.0	6	7	57
E5433040	4.0	6	8	57
E5433050	5.0	6	10	57
E5433060	6.0	6	10	57
E5433080	8.0	8	16	63
E5433100	10.0	10	19	72
E5433120	12.0	12	22	83
E5433140	14.0	14	22	83
E5433160	16.0	16	26	92
E5433180	18.0	18	26	92
E5433200	20.0	20	32	104

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, LONG LENGTH 3 SCHNEIDEN, LANG

SERIES E5528

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

DIN
6528

N

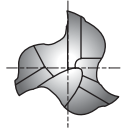
≈ 30°

FLUTE
3

DIN
6535HA



P.165, 166



Unit : mm

EDP No. PLAIN	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5528035	3.5	3.5	7	50
E5528040	4.0	4	8	50
E5528045	4.5	4.5	8	50
E5528050	5.0	5	10	50
E5528055	5.5	5.5	10	57
E5528060	6.0	6	10	57
E5528065	6.5	6.5	13	60
E5528070	7.0	7	13	60
E5528075	7.5	7.5	16	63
E5528080	8.0	8	16	63
E5528085	8.5	8.5	16	67
E5528090	9.0	9	16	67
E5528095	9.5	9.5	19	72
E5528100	10.0	10	19	72
E5528110	11.0	11	22	83
E5528120	12.0	12	22	83
E5528130	13.0	13	22	83
E5528140	14.0	14	22	83
E5528150	15.0	15	26	92
E5528160	16.0	16	26	92
E5528180	18.0	18	26	92
E5528200	20.0	20	32	104

►TICN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	$\begin{smallmatrix} 0 \\ -40 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -48 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -58 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -70 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -84 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

3 FLUTE, 35° HELIX, CORNER RADIUS 3 SCHNEIDEN, 35° RECHTSSPIRALE, ECKENRADIUS

SERIES E5882

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

DIN
6527

N

35°

FLUTE
3

DIN
6535HA



Unit : mm

EDP No. PLAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	CORNER RADIUS
E5882030	3.0	3	4	38	0.20~0.25
E5882040	4.0	6	5	54	0.20~0.25
E5882050	5.0	6	6	54	0.20~0.25
E5882060	6.0	6	7	54	0.40~0.50
E5882080	8.0	8	9	58	0.40~0.50
E5882100	10.0	10	11	66	0.40~0.50
E5882120	12.0	12	12	73	0.75~0.85
E5882160	16.0	16	16	82	0.75~0.85
E5882200	20.0	20	20	92	0.75~0.85

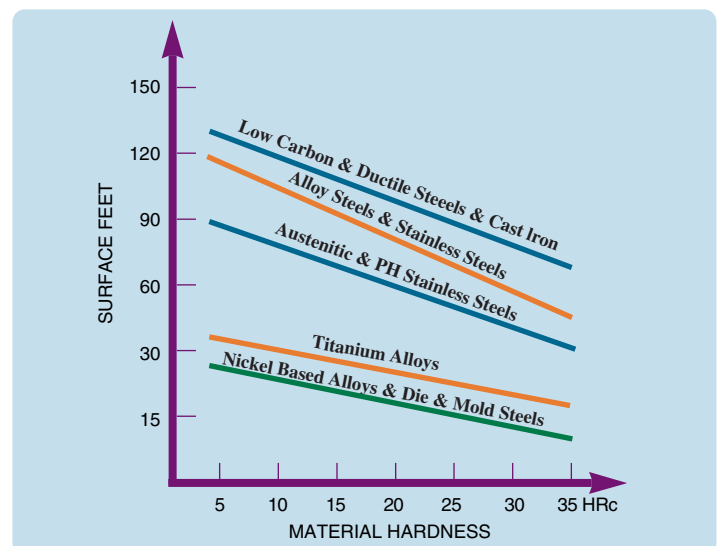
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FEED CHART

MILL DIAMETER(mm)	3	5	6	8	10	12	16	20
FEED(mm)/TOOTH	0.008 ~ 0.015	0.010 ~ 0.050	0.025 ~ 0.065	0.040 ~ 0.075	0.040 ~ 0.090	0.050 ~ 0.100	0.065 ~ 0.130	0.075 ~ 0.150

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



3 FLUTE, 45° HELIX, SHORT LENGTH 3 SCHNEIDEN, 45° RECHTSSPIRALE, KURZ

SERIES E5423

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N



FLUTE
3

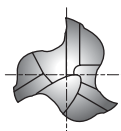


P.167, 168

SERIES E5415

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	EDP No. FLAT	ITEM No. FLAT	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5423030	T3ERS-030A	E5415030	T3ERS-030AF	3.0	6	8	45
E5423040	T3ERS-040A	E5415040	T3ERS-040AF	4.0	6	11	45
E5423050	T3ERS-050A	E5415050	T3ERS-050AF	5.0	6	13	50
E5423060	T3ERS-060Z	E5415060	T3ERS-060ZF	6.0	6	13	50
E5423080	T3ERS-080Z	E5415080	T3ERS-080ZF	8.0	8	19	60
E5423100	T3ERS-100Z	E5415100	T3ERS-100ZF	10.0	10	22	70
E5423120	T3ERS-120Z	E5415120	T3ERS-120ZF	12.0	12	26	75
E5423140	T3ERS-140Z	E5415140	T3ERS-140ZF	14.0	14	26	75
E5423160	T3ERS-160Z	E5415160	T3ERS-160ZF	16.0	16	25	75
E5423200	T3ERS-200Z	E5415200	T3ERS-200ZF	20.0	20	32	100

►TiCN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, 45° HELIX, SHORT LENGTH 3 SCHNEIDEN, 45° RECHTSSPIRALE, KURZ

SERIES E5446

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

N

45°

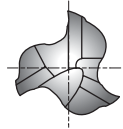
FLUTE
3

DIN
6535HB

45°

45°

P.167, 168



Unit : mm

EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5446015	1.5	● 3	3	38
E5446020	2.0	6	3	50
E5446030	3.0	6	4	50
E5446035	3.5	6	4	50
E5446040	4.0	6	5	54
E5446045	4.5	6	5	54
E5446050	5.0	6	6	54
E5446060	6.0	6	7	54
E5446070	7.0	8	8	58
E5446080	8.0	8	9	58
E5446090	9.0	10	10	66
E5446100	10.0	10	11	66
E5446120	12.0	12	12	73
E5446140	14.0	14	14	75
E5446160	16.0	16	16	82
E5446180	18.0	18	18	84
E5446200	20.0	20	20	92

● with plain shank

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, 45° HELIX, LONG LENGTH 3 SCHNEIDEN, 45° RECHTSSPIRALE, LANG

SERIES E5447

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

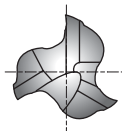
N



FLUTE
3



P.167, 168



Unit : mm

EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5447030	3.0	6	7	57
E5447035	3.5	6	7	57
E5447040	4.0	6	8	57
E5447045	4.5	6	8	57
E5447050	5.0	6	10	57
E5447060	6.0	6	10	57
E5447070	7.0	8	13	63
E5447080	8.0	8	16	63
E5447090	9.0	10	16	72
E5447100	10.0	10	19	72
E5447120	12.0	12	22	83
E5447140	14.0	14	22	83
E5447160	16.0	16	26	92
E5447180	18.0	18	26	92
E5447200	20.0	20	32	104

► TiCN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

4 FLUTE, SHORT LENGTH 4 SCHNEIDEN, KURZ

SERIES E5432

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N



FLUTE
4

DIN
6535HA

DIN
6535HB



P.169

SERIES E5595

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	EDP No. FLAT	ITEM No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5432020	T4GRC-020Z	—	—	2.0	2	8	32
E5432025	T4GRC-025Z	—	—	2.5	2.5	8	32
E5432030	T4GRC-030Z	—	—	3.0	3	12	32
E5432035	T4GRC-035Z	—	—	3.5	3.5	12	32
E5432040	T4GRC-040Z	—	—	4.0	4	12	40
E5432045	T4GRC-045Z	—	—	4.5	4.5	14	50
E5432050	T4GRC-050Z	—	—	5.0	5	14	50
E5432055	T4GRC-055Z	—	—	5.5	5.5	16	50
E5432060	T4GRC-060Z	E5595060	T4GRC-060ZF	6.0	6	16	50
E5432070	T4GRC-070Z	—	—	7.0	7	20	60
E5432080	T4GRC-080Z	E5595080	T4GRC-080ZF	8.0	8	20	60
E5432090	T4GRC-090Z	—	—	9.0	9	20	60
E5432100	T4GRC-100Z	E5595100	T4GRC-100ZF	10.0	10	22	70
E5432120	T4GRC-120Z	E5595120	T4GRC-120ZF	12.0	12	22	70
E5432140	T4GRC-140Z	E5595140	T4GRC-140ZF	14.0	14	25	75
E5432160	T4GRC-160Z	E5595160	T4GRC-160ZF	16.0	16	25	75
E5432200	T4GRC-200Z	E5595200	T4GRC-200ZF	20.0	20	32	100

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, SHORT LENGTH 4 SCHNEIDEN, KURZ

SERIES E5448

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

N



FLUTE
4

DIN
6535HB



P.169



Unit : mm

EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5448020	2.0	6	4	50
E5448025	2.5	6	4	50
E5448030	3.0	6	5	50
E5448035	3.5	6	6	50
E5448040	4.0	6	8	54
E5448045	4.5	6	8	54
E5448050	5.0	6	9	54
E5448060	6.0	6	10	54
E5448070	7.0	8	11	58
E5448080	8.0	8	12	58
E5448090	9.0	10	13	66
E5448100	10.0	10	14	66
E5448120	12.0	12	16	73
E5448140	14.0	14	18	75
E5448160	16.0	16	22	82
E5448180	18.0	18	24	84
E5448200	20.0	20	26	92

►TICN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

4 FLUTE, LONG LENGTH 4 SCHNEIDEN, LANG

SERIES E5449

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

N



FLUTE
4

DIN
6535HB



P.169



Unit : mm

EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5449901	2.0	●3	7	38
E5449030	3.0	6	8	57
E5449035	3.5	6	10	57
E5449040	4.0	6	11	57
E5449045	4.5	6	11	57
E5449050	5.0	6	13	57
E5449060	6.0	6	13	57
E5449070	7.0	8	16	63
E5449080	8.0	8	19	63
E5449090	9.0	10	19	72
E5449100	10.0	10	22	72
E5449120	12.0	12	26	83
E5449140	14.0	14	26	83
E5449160	16.0	16	32	92
E5449180	18.0	18	32	92
E5449200	20.0	20	38	104

● with plain shank

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

4 FLUTE, LONG LENGTH 4 SCHNEIDEN, LANG

SERIES E5540

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

DIN
6528

N

30°

FLUTE
4

DIN
6535HA

→

L

P.169



Unit : mm

EDP No. PLAIN	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5540035	3.5	3.5	10	50
E5540040	4.0	4	11	50
E5540045	4.5	4.5	11	50
E5540050	5.0	5	13	50
E5540055	5.5	5.5	13	57
E5540060	6.0	6	13	57
E5540065	6.5	6.5	16	60
E5540070	7.0	7	16	60
E5540075	7.5	7.5	19	63
E5540080	8.0	8	19	63
E5540085	8.5	8.5	19	67
E5540090	9.0	9	19	67
E5540095	9.5	9.5	22	72
E5540100	10.0	10	22	72
E5540110	11.0	11	26	83
E5540120	12.0	12	26	83
E5540130	13.0	13	26	83
E5540140	14.0	14	26	83
E5540150	15.0	15	32	92
E5540160	16.0	16	32	92
E5540180	18.0	18	32	92
E5540200	20.0	20	38	104

►TICN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

CARBIDE END MILLS

4 FLUTE, EXTRA LONG LENGTH 4 SCHNEIDEN, EXTRA LANG

SERIES E5453

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N

30°

FLUTE
4

DIN
6535HA

→

L

P.169



Unit : mm

EDP No. PLAIN	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5453030	3.0	3	30	75
E5453040	4.0	4	30	75
E5453050	5.0	5	40	100
E5453060	6.0	6	50	150
E5453080	8.0	8	50	150
E5453100	10.0	10	60	150
E5453120	12.0	12	75	150

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FULTE, BALL NOSE, SHORT LENGTH 2 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES E5624

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N



FLUTE
2

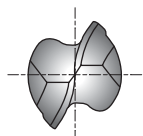


P.170

SERIES E5650

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	EDP No. FLAT	ITEM No. FLAT	R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5624020	T2GRB-020A	E5650020	T2GOB-020AF	R1.0	2.0	6	4	48
E5624025	T2GRB-025A	E5650025	T2GOB-025AF	R1.25	2.5	6	4	48
E5624030	T2GRB-030A	E5650030	T2GOB-030AF	R1.5	3.0	6	4	48
E5624040	T2GRB-040A	E5650040	T2GOB-040AF	R2.0	4.0	6	6	50
E5624901	T2GRB-040Z	—	—	R2.0	4.0	4	12	40
E5624050	T2GRB-050A	E5650050	T2GOB-050AF	R2.5	5.0	6	7	51
E5624902	T2GRB-050Z	—	—	R2.5	5.0	5	14	50
E5624060	T2GRB-060Z	E5650060	T2GOB-060ZF	R3.0	6.0	6	7	51
E5624080	T2GRB-080Z	E5650080	T2GOB-080ZF	R4.0	8.0	8	9	59
E5624100	T2GRB-100Z	E5650100	T2GOB-100ZF	R5.0	10.0	10	10	60
E5624120	T2GRB-120Z	E5650120	T2GOB-120ZF	R6.0	12.0	12	14	71
E5624140	T2GRB-140Z	E5650140	T2GOB-140ZF	R7.0	14.0	14	14	71
E5624160	T2GRB-160Z	E5650160	T2GOB-160ZF	R8.0	16.0	16	16	76
E5624180	T2GRB-180Z	E5650180	T2GOB-180ZF	R9.0	18.0	18	18	76
E5624200	T2GRB-200Z	E5650200	T2GOB-200ZF	R10.0	20.0	20	20	82

► TiCN-COATING & TiAlN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13


2 FLUTE, BALL NOSE, SHORT LENGTH 2 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES E5437 **FLAT SHANK**
SEITLICHEN MITNAHMEFLÄCHEN


MG
HM


DIN
6527


N

 30°

FLUTE
2

 DIN
6535HB





P.170



Unit : mm

EDP No. FLAT	R	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5437020	R1.0	2.0	6	3	50
E5437030	R1.5	3.0	6	4	50
E5437040	R2.0	4.0	6	5	54
E5437050	R2.5	5.0	6	6	54
E5437060	R3.0	6.0	6	7	54
E5437080	R4.0	8.0	8	9	58
E5437100	R5.0	10.0	10	11	66
E5437120	R6.0	12.0	12	12	73
E5437140	R7.0	14.0	14	14	75
E5437180	R9.0	18.0	18	18	84
E5437200	R10.0	20.0	20	20	92

►TiCN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	$\begin{smallmatrix} 0 \\ -40 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -48 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -58 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -70 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -84 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

2 FLUTE, BALL NOSE, LONG LENGTH 2 SCHNEIDEN, STIRNRADIUS, LANG

SERIES E5438

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

MG
HM

DIN
6527

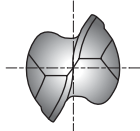
N



FLUTE
2



P.170



Unit : mm

EDP No. FLAT	R	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5438020	R1.0	2.0	●3	6	38
E5438030	R1.5	3.0	6	7	57
E5438040	R2.0	4.0	6	8	57
E5438050	R2.5	5.0	6	10	57
E5438060	R3.0	6.0	6	10	57
E5438080	R4.0	8.0	8	16	63
E5438100	R5.0	10.0	10	19	72
E5438120	R6.0	12.0	12	22	83
E5438140	R7.0	14.0	14	22	83
E5438160	R8.0	16.0	16	26	92
E5438180	R9.0	18.0	18	26	92
E5438200	R10.0	20.0	20	32	104

● with plain shank

► TiCN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 40	— 48	— 58	— 70	— 84
h6	— 6	— 8	— 9	— 11	— 13

2 FLUTE, BALL NOSE, LONG REACH 2 SCHNEIDEN, STIRNRADIUS, GROßE REICHWEITE

SERIES E5454

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N

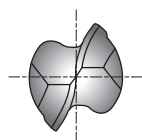


FLUTE
2

DIN
6535HA



P.170



Unit : mm

EDP No. PLAIN	R	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5454030	R1.5	3.0	3	5	75
E5454040	R2.0	4.0	4	8	75
E5454050	R2.5	5.0	5	9	75
E5454060	R3.0	6.0	6	10	100
E5454080	R4.0	8.0	8	12	100
E5454100	R5.0	10.0	10	14	100
E5454120	R6.0	12.0	12	16	100
E5454140	R7.0	14.0	14	18	100
E5454160	R8.0	16.0	16	22	150
E5454200	R10.0	20.0	20	26	150

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

2 FLUTE, BALL NOSE, EXTRA LONG LENGTH 2 SCHNEIDEN, STIRNRADIUS, EXTRA LANG

SERIES E5455

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

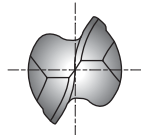
N



FLUTE
2



P.170



Unit : mm

EDP No. PLAIN	R	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5455030	R1.5	3.0	3	30	75
E5455040	R2.0	4.0	4	30	75
E5455050	R2.5	5.0	5	40	100
E5455060	R3.0	6.0	6	50	150
E5455080	R4.0	8.0	8	50	150
E5455100	R5.0	10.0	10	60	150
E5455120	R6.0	12.0	12	75	150
E5455140	R7.0	14.0	14	75	150
E5455160	R8.0	16.0	16	75	150
E5455180	R9.0	18.0	18	75	150
E5455200	R10.0	20.0	20	75	150

►TICN-COATING & TiAIN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	$\begin{smallmatrix} 0 \\ -40 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -48 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -58 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -70 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -84 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

4 FLUTE, BALL NOSE, SHORT LENGTH 4 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES E5634

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N

30°

FLUTE
4

DIN
6535HA

DIN
6535HB

30°

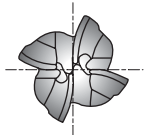
30°

P.171

SERIES E5524

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	EDP No. FLAT	ITEM No. FLAT	R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5634020	T4GRB-020A	E5524020	T4GRB-020AF	R1.0	2.0	6	4	48
E5634030	T4GRB-030A	E5524030	T4GRB-030AF	R1.5	3.0	6	4	48
E5634040	T4GRB-040A	E5524040	T4GRB-040AF	R2.0	4.0	6	6	50
E5634050	T4GRB-050A	E5524050	T4GRB-050AF	R2.5	5.0	6	7	51
E5634060	T4GRB-060Z	E5524060	T4GRB-060ZF	R3.0	6.0	6	7	51
E5634080	T4GRB-080Z	E5524080	T4GRB-080ZF	R4.0	8.0	8	9	59
E5634100	T4GRB-100Z	E5524100	T4GRB-100ZF	R5.0	10.0	10	10	60
E5634120	T4GRB-120Z	E5524120	T4GRB-120ZF	R6.0	12.0	12	14	71
E5634140	T4GRB-140Z	E5524140	T4GRB-140ZF	R7.0	14.0	14	14	71
E5634160	T4GRB-160Z	E5524160	T4GRB-160ZF	R8.0	16.0	16	16	76
E5634180	T4GRB-180Z	E5524180	T4GRB-180ZF	R9.0	18.0	18	18	76
E5634200	T4GRB-200Z	E5524200	T4GRB-200ZF	R10.0	20.0	20	20	82

► TiCN-COATING & TiAIN-COATING is available on your request.

CARBIDE END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

3 FLUTE, LONG ROUGHING END MILLS for ALUMINIUM 3 SCHNEIDEN, SCHRUPPFRÄSER, LANG, für ALUMINIUM

SERIES E5742

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

WR



FLUTE
3



P.172

SERIES E5711

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. PLAIN	EDP No. FLAT	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5742060	E5711060	6.0	6	16	57
E5742070	E5711070	7.0	8	16	63
E5742080	E5711080	8.0	8	16	63
E5742090	E5711090	9.0	10	19	72
E5742100	E5711100	10.0	10	22	72
E5742120	E5711120	12.0	12	26	83
E5742140	E5711140	14.0	14	26	83
E5742160	E5711160	16.0	16	32	92
E5742180	E5711180	18.0	18	32	92
E5742200	E5711200	20.0	20	38	104
E5742250	E5711250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	— 0 — 40	— 0 — 48	— 0 — 58	— 0 — 70	— 0 — 84
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13

2 FLUTE, DRILL MILLS 2 SCHNEIDEN, BOHRNUTEN FRÄSER

SERIES E5400

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

MG
HM

YG
STD

N



FLUTE
2



P.173, 174, 175

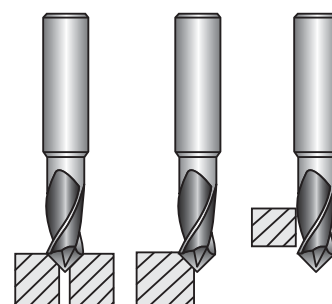
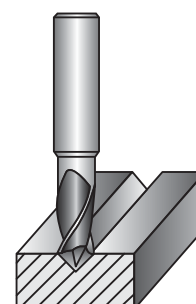
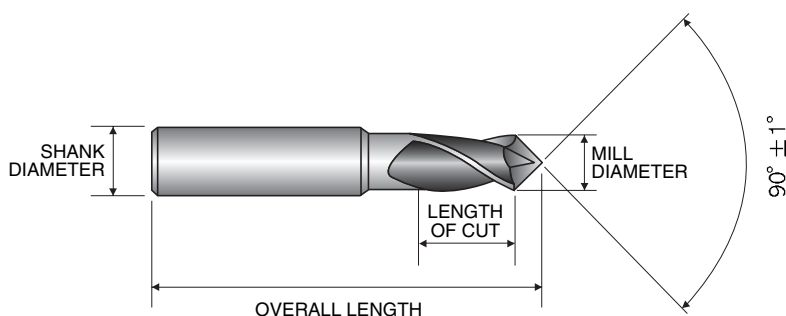


Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E5400030	3.0	4	6	50
E5400040	4.0	5	8	50
E5400050	5.0	6	10	50
E5400060	6.0	8	12	60
E5400080	8.0	10	16	70
E5400100	10.0	12	18	70
E5400120	12.0	12	20	70
E5540140	14.0	14	24	80
E5400160	16.0	16	26	80
E5400200	20.0	20	32	100

► TiCN-COATING & TiAIN-COATING is available on your request.

- Performs many drilling and milling operations not presently done with the standard end mill.
- Among the many vertical milling machine operations the Drill Mill performs are : Drilling, Slotting, NC Milling
Drilling & Slotting, Profile Milling, Chamfering.

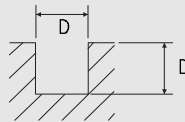


MILL DIA. TOL.	SHANK DIA. TOL.
$\phi 3 \sim \phi 10 = h9$ $\phi 12 \sim \phi 20 = d9$	h6

2FL. FINISH SLOTTING

■ E5424, E5416, E5444, E5527, E5445, E5452

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5500	80	4800	70	4000	55	8000	65	6500	150	16000	320	12000	240
3	3700	90	3200	80	2600	60	5300	65	4200	150	11000	320	8000	240
4	2800	90	2400	80	2000	60	4000	65	3200	150	8000	320	6000	240
5	2200	90	1900	80	1600	60	3200	65	2500	150	6400	320	4800	240
6	1800	90	1600	80	1300	60	2600	65	2100	180	5300	340	4000	260
8	1400	90	1200	80	1000	60	2000	65	1600	190	4000	340	3000	260
10	1100	90	950	80	800	60	1600	65	1300	200	3200	340	2400	260
12	900	90	800	80	660	60	1300	65	1000	210	2600	340	2000	260
14	800	90	700	80	570	60	1100	65	900	220	2300	340	1700	260
16	700	100	600	85	500	75	1000	75	800	225	2000	340	1500	260
20	550	100	480	85	400	75	800	80	640	240	1600	340	1200	260



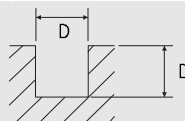
※The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

2FL. FINISH SLOTTING TiCN-COATED

■ E5424, E5416, E5444, E5527, E5445, E5452

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7200	100	6200	90	5200	70	7000	85	8500	200	20000	420	15000	310
3	4800	120	4200	105	3400	80	6900	85	5500	200	14000	420	10000	310
4	3640	120	3100	105	2600	80	5200	85	4200	200	10000	420	8000	310
5	2860	120	2500	105	2000	80	4200	85	3300	200	8300	420	6200	310
6	2400	120	2000	105	1700	80	3400	85	2700	230	6900	440	5200	340
8	1800	120	1500	105	1300	80	2600	85	2000	250	5200	440	4000	340
10	1400	120	1200	105	1000	80	2000	85	1700	260	4200	440	3100	340
12	1200	120	1000	105	860	80	1700	85	1300	270	3400	440	2600	340
14	1000	120	900	105	740	80	1400	85	1200	280	3000	440	2200	340
16	900	130	800	110	650	100	1300	100	1000	290	2600	440	2000	340
20	720	130	620	110	520	100	1000	100	830	310	2000	440	1560	340



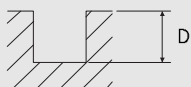
※The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

3FL. FINISH SLOTTING

■ E5553, E5425, E5417, E5439, E5433, E5528

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40									
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5500	70	4800	60	4000	50	8000	55	6500	140	16000	290	12000	220
3	3700	80	3200	75	2600	55	5300	55	4200	140	11000	300	8000	220
4	2800	80	2400	75	2000	55	4000	55	3200	130	8000	290	6000	220
5	2200	80	1900	70	1600	55	3200	55	2500	135	6400	290	4800	220
6	1800	80	1600	70	1300	55	2600	60	2100	160	5300	305	4000	240
8	1400	80	1200	70	1000	55	2000	60	1600	170	4000	310	3000	230
10	1100	80	950	70	800	55	1600	60	1300	180	3200	305	2400	230
12	900	80	800	70	660	55	1300	60	1000	190	2600	300	2000	230
14	800	80	700	70	570	55	1100	60	900	200	2300	300	1700	230
16	700	90	600	75	500	65	1000	70	800	200	2000	300	1500	230
20	550	90	480	75	400	65	800	70	640	215	1600	300	1200	230



※ The FEED, in long & extra long types, should be reduced by around 50%

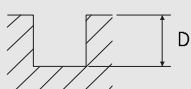
RPM =rev/min
FEED =mm/min

CARBIDE END MILLS

3FL. FINISH SLOTTING, TiCN-COATED

■ E5553, E5425, E5417, E5439, E5433, E5528

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40									
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7200	90	6200	80	5200	65	10000	70	8500	180	20000	380	15000	280
3	4800	105	4200	100	3400	70	6900	70	5500	180	14000	390	10000	280
4	3640	105	3100	100	2600	70	5200	70	4200	170	10000	380	8000	280
5	2860	105	2500	90	2000	70	4200	70	3300	180	8300	380	6200	280
6	2400	105	2000	90	1700	70	3400	80	2700	210	6900	400	5200	310
8	1800	105	1500	90	1300	70	2600	80	2000	220	5200	400	4000	300
10	1400	105	1200	90	1000	70	2000	80	1700	230	4200	400	3100	300
12	1200	105	1000	90	860	70	1700	80	1300	250	3400	390	2600	300
14	1000	105	900	90	740	70	1400	80	1200	260	3000	390	2200	300
16	900	120	800	100	650	85	1300	90	1000	260	2600	390	2000	300
20	720	120	620	100	520	85	1000	90	830	280	2000	390	1560	300



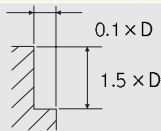
※ The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

3FL. FINISH SIDE CUTTING

■ E5553, E5425, E5417, E5439, E5433, E5528

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5500	180	4800	160	4000	120	8000	140	6500	330	16000	720	12000	540
3	3700	200	3200	170	2600	130	5300	140	4200	330	11000	690	8000	530
4	2800	200	2400	180	2000	130	4000	140	3200	340	8000	720	6000	540
5	2200	200	1900	180	1600	130	3200	140	2500	340	6400	710	4800	530
6	1800	200	1600	180	1300	130	2600	150	2100	400	5300	760	4000	580
8	1400	200	1200	180	1000	130	2000	150	1600	430	4000	760	3000	580
10	1100	200	950	180	800	130	1600	150	1300	450	3200	760	2400	580
12	900	200	800	180	660	130	1300	150	1000	470	2600	760	2000	580
14	800	200	700	180	570	130	1100	150	900	490	2300	760	1700	580
16	700	220	600	190	500	160	1000	170	800	510	2000	760	1500	580
20	550	220	480	190	400	160	800	180	640	540	1600	760	1200	580



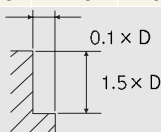
※The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

3FL. FINISH SIDE CUTTING, TiCN-COATED

■ E5553, E5425, E5417, E5439, E5433, E5528

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7200	230	6200	210	5200	160	10000	180	8500	430	20000	940	15000	700
3	4800	260	4200	220	3400	170	6900	180	5500	430	14000	900	10000	690
4	3640	260	3100	230	2600	170	5200	180	4200	440	10000	940	8000	700
5	2860	260	2500	230	2000	170	4200	180	3300	440	8300	920	6200	690
6	2400	260	2000	230	1700	170	3400	200	2700	520	6900	1000	5200	750
8	1800	260	1500	230	1300	170	2600	200	2000	560	5200	1000	4000	750
10	1400	260	1200	230	1000	170	2000	200	1700	580	4200	1000	3100	750
12	1200	260	1000	230	860	170	1700	200	1300	610	3400	1000	2600	750
14	1000	260	900	230	740	170	1400	200	1200	640	3000	1000	2200	750
16	900	280	800	250	650	210	1300	220	1000	660	2600	1000	2000	750
20	720	280	620	250	520	210	1000	230	830	700	2000	1000	1560	750



※The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

3FL. FINISH SLOTTING 45° HELIX

■ E5423, E5415, E5446, E5447

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc30		HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm2		1000 ~ 1300N/mm2							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	1600	95	1300	65	2100	220	5300	410	4000	310
8	1200	95	1000	65	1600	230	4000	410	3000	310
10	950	95	800	65	1300	240	3200	410	2400	310
12	800	95	660	65	1000	250	2600	410	2000	310
14	700	95	570	65	900	260	2300	410	1700	310
16	600	100	500	80	800	270	2000	410	1500	310
20	480	100	400	80	640	290	1600	410	1200	310



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.

3FL. FINISH SLOTTING 45° HELIX, TiCN-COATED

■ E5423, E5415, E5446, E5447

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc30		HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm2		1000 ~ 1300N/mm2							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2000	125	1700	85	2700	280	6900	530	5200	400
8	1560	125	1300	85	2000	300	5200	530	3900	400
10	1240	125	1000	85	1700	310	4200	530	3100	400
12	1000	125	860	85	1300	330	3400	530	2600	400
14	900	125	740	85	1200	340	3000	530	2200	400
16	800	130	650	100	1000	350	2600	530	2000	400
20	620	130	520	100	830	380	2000	530	1560	400



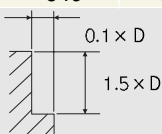
※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.

3FL. FINISH SIDE CUTTING, 45° HELIX

■ E5423, E5415, E5446, E5447

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc30		HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm2		1000 ~ 1300N/mm2							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	1600	190	1300	130	2100	440	5300	820	4000	620
8	1200	190	1000	130	1600	460	4000	820	3000	620
10	950	190	800	130	1300	480	3200	820	2400	620
12	800	190	660	130	1000	500	2600	820	2000	620
14	700	190	570	130	900	520	2300	820	1700	620
16	600	200	500	160	800	540	2000	820	1500	620
20	480	200	400	160	640	580	1600	820	1200	620



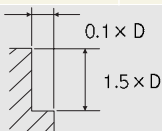
※The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.

3FL. FINISH SIDE CUTTING, 45° HELIX, TiCN-COATED

■ E5423, E5415, E5446, E5447

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc30		HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm2		1000 ~ 1300N/mm2							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2000	250	1700	170	2700	570	6900	1000	5200	800
8	1560	250	1300	170	2000	600	5200	1000	3900	800
10	1240	250	1000	170	1700	620	4200	1000	3100	800
12	1000	250	860	170	1300	650	3400	1000	2600	800
14	900	250	740	170	1200	680	3000	1000	2200	800
16	800	260	650	210	1000	700	2600	1000	2000	800
20	620	260	520	210	830	750	2000	1000	1560	800



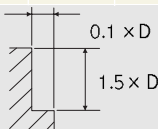
※The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.

4FL. FINISH SIDE CUTTING

■ E5432, E5595, E5448, E5449, E5540, E5453

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40									
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5500	240	4800	210	4000	160	8000	200	6500	450	16000	960	12000	720
3	3700	270	3200	240	2600	180	5300	200	4200	450	11000	960	8000	720
4	2800	270	2400	240	2000	180	4000	200	3200	450	8000	960	6000	720
5	2200	270	1900	240	1600	180	3200	200	2500	450	6400	960	4800	720
6	1800	270	1600	240	1300	180	2600	200	2100	540	5300	1020	4000	780
8	1400	270	1200	240	1000	180	2000	200	1600	570	4000	1020	3000	780
10	1100	270	950	240	800	180	1600	200	1300	600	3200	1020	2400	780
12	900	270	800	240	660	180	1300	200	1000	630	2600	1020	2000	780
14	800	270	700	240	570	180	1100	200	900	660	2300	1020	1700	780
16	700	300	600	260	500	220	1000	225	800	680	2000	1020	1500	780
20	550	300	480	260	400	220	800	240	640	720	1600	1020	1200	780



※ The FEED, in long & extra long types, should be reduced by around 50%

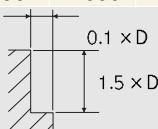
RPM =rev/min
FEED =mm/min

CARBIDE END MILLS

4FL. FINISH SIDE CUTTING, TiCN-COATED

■ E5432, E5595, E5448, E5449, E5540, E5453

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40									
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7200	310	6200	270	5200	210	10000	260	8500	580	20000	1200	15000	940
3	4800	350	4200	310	3400	230	6900	260	5500	580	14000	1200	10000	940
4	3640	350	3100	310	2600	230	5200	260	4200	580	10000	1200	8000	940
5	2860	350	2500	310	2000	230	4200	260	3300	580	8300	1200	6200	940
6	2400	350	2000	310	1700	230	3400	260	2700	700	6900	1300	5200	1000
8	1800	350	1500	310	1300	230	2600	260	2000	740	5200	1300	4000	1000
10	1400	350	1200	310	1000	230	2000	260	1700	780	4200	1300	3100	1000
12	1200	350	1000	310	860	230	1700	260	1300	820	3400	1300	2600	1000
14	1000	350	900	310	740	230	1400	260	1200	860	3000	1300	2200	1000
16	900	390	800	340	650	290	1300	290	1000	880	2600	1300	2000	1000
20	720	390	620	340	520	290	1000	310	830	940	2000	1300	1560	1000



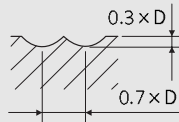
※ The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

2FL. BALL NOSE

■ E5624, E5650, E5437, E5438, E5454, E5455

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRC30		HRC30 ~ HRC40					
STRENGTH	~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 1.0 × 2.0	5200	90	4400	45	7300	150	21500	280
R 1.5 × 3.0	3500	100	2900	45	4900	160	14300	280
R 2.0 × 4.0	2600	100	2100	45	3600	200	10900	280
R 2.5 × 5.0	2100	105	1700	45	2900	230	8800	330
R 3.0 × 6.0	1700	100	1430	45	2400	250	7260	330
R 4.0 × 8.0	1270	95	1100	45	1800	320	5500	380
R 5.0 × 10.0	1000	95	870	45	1430	320	4300	380
R 6.0 × 12.0	870	85	730	45	1200	320	3600	440
R 7.0 × 14.0	750	85	620	45	1000	325	3000	440
R 8.0 × 16.0	650	85	540	45	920	325	2700	380
R 9.0 × 18.0	580	85	480	45	810	325	2400	380
R 10.0 × 20.0	500	85	430	45	730	290	2100	380



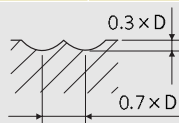
※The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

2FL. BALL NOSE, TiCN-COATED

■ E5624, E5650, E5437, E5438, E5454, E5455

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRC30		HRC30 ~ HRC40					
STRENGTH	~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 1.0 × 2.0	6760	120	5700	60	9500	200	28000	360
R 1.5 × 3.0	4500	130	3800	60	6400	210	18600	360
R 2.0 × 4.0	3400	130	2700	60	4700	260	14000	360
R 2.5 × 5.0	2700	135	2200	60	3800	300	11000	430
R 3.0 × 6.0	2200	130	1860	60	3100	330	9400	430
R 4.0 × 8.0	1600	120	1400	60	2300	420	7200	490
R 5.0 × 10.0	1300	120	1100	60	1860	420	5600	490
R 6.0 × 12.0	1100	110	950	60	1600	420	4700	570
R 7.0 × 14.0	980	110	800	60	1300	420	3900	570
R 8.0 × 16.0	850	110	700	60	1200	420	3500	490
R 9.0 × 18.0	750	110	620	60	1000	420	3100	490
R 10.0 × 20.0	650	110	560	60	950	380	2700	490



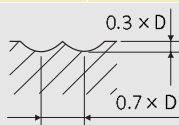
※The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

4FL. BALL NOSE

■ E5634, E5524

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRc30		HRc30 ~ HRc40					
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 1.0 × 2.0	5200	140	4400	70	7300	230	21500	420
R 1.5 × 3.0	3500	150	2900	70	4900	240	14300	420
R 2.0 × 4.0	2600	150	2100	70	3600	300	10900	420
R 2.5 × 5.0	2100	160	1700	70	2900	350	8800	500
R 3.0 × 6.0	1700	150	1430	70	2400	380	7260	500
R 4.0 × 8.0	1270	140	1100	70	1800	480	5500	570
R 5.0 × 10.0	1000	140	870	70	1430	480	4300	570
R 6.0 × 12.0	870	130	730	70	1200	480	3600	660
R 7.0 × 14.0	750	130	620	70	1000	490	3000	660
R 8.0 × 16.0	650	130	540	70	920	490	2700	570
R 9.0 × 18.0	580	130	480	70	810	490	2400	570
R 10.0 × 20.0	500	130	430	70	730	440	2100	570



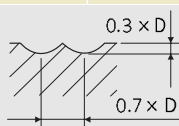
※ The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

4FL. BALL NOSE, TiCN-COATED

■ E5634, E5524

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRc30		HRc30 ~ HRc40					
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 1.0 × 2.0	6760	180	5700	90	9500	300	28000	550
R 1.5 × 3.0	4500	200	3800	90	6400	310	18600	550
R 2.0 × 4.0	3400	200	2700	90	4700	390	14000	550
R 2.5 × 5.0	2700	210	2200	90	3800	450	11000	650
R 3.0 × 6.0	2200	200	1860	90	3100	490	9400	650
R 4.0 × 8.0	1600	180	1400	90	2300	620	7200	740
R 5.0 × 10.0	1300	180	1100	90	1860	620	5600	740
R 6.0 × 12.0	1100	170	950	90	1600	620	4700	860
R 7.0 × 14.0	980	170	800	90	1300	640	3900	860
R 8.0 × 16.0	850	170	700	90	1200	640	3500	740
R 9.0 × 18.0	750	170	620	90	1000	640	3100	740
R 10.0 × 20.0	650	170	560	90	950	570	2700	740



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM =rev/min
FEED =mm/min

3 FLUTE. ROUGHING, for ALUMINIUM

■ E5742, E5711

<Slotting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6	10500	800
8	8000	700
10	6500	750
12	5250	800
16	4000	800
20	3200	800

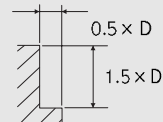


RPM =rev/min
FEED =mm/min

■ E5742, E5711

<Side Cutting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6	10500	800
8	8000	700
10	6500	750
12	5250	800
16	4000	800
20	3200	800



RPM =rev/min
FEED =mm/min

3 FLUTE. ROUGHING, for ALUMINIUM, TiCN COATED

■ E5742, E5711

<Slotting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6	13500	1050
8	10500	900
10	8500	1000
12	6800	1050
16	5200	1050
20	4200	1050

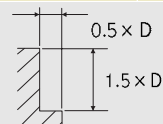


RPM =rev/min
FEED =mm/min

■ E5742, E5711

<Side Cutting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6	13500	1050
8	10500	900
10	8500	950
12	6800	1050
16	5200	1050
20	4200	1050

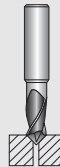


RPM =rev/min
FEED =mm/min

2FL. FINISH CHAMFERING

■ E5400

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	4400	220	3500	160	3000	140	2400	100	11000	550
4	3600	220	3000	160	2500	140	2000	100	9000	580
5	2860	230	2400	170	2000	140	1760	105	6900	620
6	2300	240	2000	170	1600	140	1400	105	5600	640
8	1760	250	1540	180	1200	145	1000	110	4400	660
10	1500	250	1300	190	1100	145	870	110	4000	680
12	1300	260	1100	200	900	150	730	115	3500	700
16	1000	250	950	200	700	160	550	120	2750	740
20	950	260	750	210	600	160	530	130	2200	770



※The FEED, in long & extra long types, should be reduced by around 50%

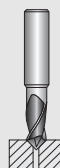
RPM=rev/min
FEED=mm/min.

CARBIDE END MILLS

2FL. FINISH CHAMFERING, TiCN-COATED

■ E5400

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	5700	280	4500	210	4000	180	3100	130	14000	720
4	4700	280	4000	210	3300	180	2600	130	11000	750
5	3700	300	3100	220	2600	180	2300	135	9000	810
6	3000	310	2600	220	2000	180	1800	135	7300	830
8	2300	330	2000	230	1600	190	1300	145	5700	860
10	2000	330	1700	250	1400	190	1100	145	5200	880
12	1700	340	1400	260	1200	200	950	150	4500	900
16	1300	330	1200	260	900	210	700	155	3600	960
20	1200	340	1000	270	800	210	690	170	2900	1000



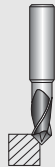
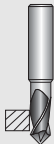
※The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.

2FL. FINISH CHAMFERING & SIDE CUTTING

■ E5400

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	5900	95	3900	65	3300	50	2400	40	14000	230
4	4800	95	3200	65	2800	50	2000	40	12000	240
5	3800	100	2500	65	2200	55	1760	45	9500	250
6	3000	110	2000	70	1800	60	1400	50	7700	300
8	2300	115	1540	75	1300	65	1100	55	5800	350
10	2000	120	1300	80	1200	65	1000	55	5100	380
12	1760	130	1100	90	1000	70	840	60	4400	400
16	1300	140	900	90	770	70	660	60	3300	330
20	1100	140	700	90	600	70	440	60	2640	340



※The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.

2FL. FINISH CHAMFERING & SIDE CUTTING, TiCN-COATED

■ E5400

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	7600	120	5000	85	4300	65	3100	50	18000	300
4	6200	120	4200	85	3600	65	2600	50	16000	310
5	5000	130	3300	85	2900	70	2300	60	13000	330
6	4000	140	2600	90	2300	80	1800	65	10000	390
8	3000	150	2000	100	1700	85	1400	70	7500	450
10	2600	160	1700	105	1600	85	1300	70	6600	490
12	2300	170	1400	120	1300	90	1100	80	5700	520
16	1700	180	1200	120	1000	90	860	80	4300	430
20	1400	180	900	120	800	90	570	80	3400	440

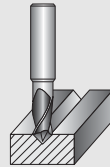
※The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.

2FL. FINISH V-GROOVING

■ E5400

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	5900	60	4000	30	3300	25	2400	20	14000	220
4	4800	60	3300	30	2800	25	2000	20	11800	230
5	3800	60	2500	30	2200	25	1760	20	9500	240
6	3000	60	2000	30	1800	30	1400	20	7700	250
8	2300	65	1540	35	1300	35	1100	20	5800	260
10	2000	65	1300	35	1200	35	1000	20	5000	260
12	1760	65	1000	40	1000	35	840	20	4400	260
16	1400	65	900	40	770	35	660	25	3300	270
20	1100	65	700	40	600	35	440	25	2600	270



※The FEED, in long & extra long types, should be reduced by around 50%

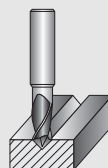
RPM=rev/min
FEED=mm/min.

CARBIDE END MILLS

2FL. FINISH V-GROOVING, TiCN-COATED

■ E5400

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm2		800 ~ 1000N/mm2		1000 ~ 1300N/mm2					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	7600	80	5000	40	4300	30	3100	25	18000	290
4	6200	80	4300	40	3600	30	2600	25	15000	300
5	5000	80	3300	40	2900	30	2300	25	12000	310
6	4000	80	2600	40	2300	40	1800	25	10000	330
8	3000	85	2000	45	1700	45	1400	25	7500	340
10	2600	85	1700	45	1600	45	1300	25	6500	340
12	2300	85	1300	50	1300	45	1100	25	5700	340
16	1800	85	1200	50	1000	45	860	30	4300	350
20	1400	85	900	50	800	45	570	30	3400	350



※The FEED, in long & extra long types, should be reduced by around 50%

RPM=rev/min
FEED=mm/min.















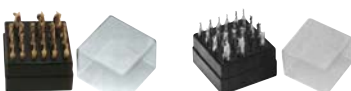

















HSS END MILLS

HSS FRÄSER

HSS END MILLS
















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HSS END MILLS

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E3570



2 FLUTE, SHORT LENGTH
2 SCHNEIDEN, KURZ

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E3574
E3575

4&6 FLUTE, SHORT LENGTH
4&6 SCHNEIDEN, KURZ

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E3463

3&4 FLUTE, 60° HELIX, SHORT LENGTH
3&4 SCHNEIDEN, 60° RECHTSSPIRALE, KURZ

229

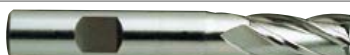
E9410



2 FLUTE, SHORT LENGTH
2 SCHNEIDEN, KURZ

230

E9515



4&6 FLUTE, SHORT LENGTH
4&6 SCHNEIDEN, KURZ

231

E9720



FINE

MULTI. FLUTE, ROUGHING, SHORT LENGTH
MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

232

SPEED & FEED DATA

233~251

2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ

SERIES E2570

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
327

N



FLUTE
2

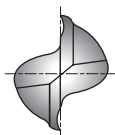


P.233, 243, 247

SERIES EQ570

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2570010	C2GRS-010AF	EQ570010	R2GRS-010AF	1.0	6	2.5	47
E2570015	C2GRS-015AF	EQ570015	R2GRS-015AF	1.5	6	3	47
E2570020	C2GRS-020AF	EQ570020	R2GRS-020AF	2.0	6	4	48
E2570025	C2GRS-025AF	EQ570025	R2GRS-025AF	2.5	6	5	49
E2570028	C2GRS-028AF	EQ570028	R2GRS-028AF	2.8	6	5	49
E2570030	C2GRS-030AF	EQ570030	R2GRS-030AF	3.0	6	5	49
E2570035	C2GRS-035AF	EQ570035	R2GRS-035AF	3.5	6	6	50
E2570038	C2GRS-038AF	EQ570038	R2GRS-038AF	3.8	6	7	51
E2570040	C2GRS-040AF	EQ570040	R2GRS-040AF	4.0	6	7	51
E2570045	C2GRS-045AF	EQ570045	R2GRS-045AF	4.5	6	7	51
E2570048	C2GRS-048AF	EQ570048	R2GRS-048AF	4.8	6	8	52
E2570050	C2GRS-050AF	EQ570050	R2GRS-050AF	5.0	6	8	52
E2570055	C2GRS-055AF	EQ570055	R2GRS-055AF	5.5	6	8	52
E2570957	C2GRS-0575AF	EQ570957	R2GRS-0575AF	5.75	6	8	52
E2570060	C2GRS-060AF	EQ570060	R2GRS-060AF	6.0	6	8	52
E2570065	C2GRS-065TF	EQ570065	R2GRS-065TF	6.5	10	10	60
E2570967	C2GRS-0675TF	EQ570967	R2GRS-0675TF	6.75	10	10	60
E2570070	C2GRS-070TF	EQ570070	R2GRS-070TF	7.0	10	10	60
E2570075	C2GRS-075TF	EQ570075	R2GRS-075TF	7.5	10	10	60
E2570977	C2GRS-0775TF	EQ570977	R2GRS-0775TF	7.75	10	11	61
E2570080	C2GRS-080TF	EQ570080	R2GRS-080TF	8.0	10	11	61
E2570085	C2GRS-085TF	EQ570085	R2GRS-085TF	8.5	10	11	61
E2570087	C2GRS-087TF	EQ570087	R2GRS-087TF	8.7	10	11	61
E2570090	C2GRS-090TF	EQ570090	R2GRS-090TF	9.0	10	11	61
E2570095	C2GRS-095TF	EQ570095	R2GRS-095TF	9.5	10	11	61
E2570097	C2GRS-097TF	EQ570097	R2GRS-097TF	9.7	10	13	63
E2570100	C2GRS-100TF	EQ570100	R2GRS-100TF	10.0	10	13	63
E2570105	C2GRS-105DF	EQ570105	R2GRS-105DF	10.5	12	13	70
E2570107	C2GRS-107DF	EQ570107	R2GRS-107DF	10.7	12	13	70
E2570110	C2GRS-110DF	EQ570110	R2GRS-110DF	11.0	12	13	70
E2570115	C2GRS-115DF	EQ570115	R2GRS-115DF	11.5	12	13	70
E2570117	C2GRS-117DF	EQ570117	R2GRS-117DF	11.7	12	16	73
E2570120	C2GRS-120DF	EQ570120	R2GRS-120DF	12.0	12	16	73
E2570125	C2GRS-125DF	EQ570125	R2GRS-125DF	12.5	12	16	73
E2570127	C2GRS-127DF	EQ570127	R2GRS-127DF	12.7	12	16	73
E2570130	C2GRS-130DF	EQ570130	R2GRS-130DF	13.0	12	16	73

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

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Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ

SERIES E2570

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
327

N



FLUTE
2

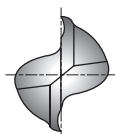


P.233, 243, 247

SERIES EQ570

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2570135	C2GRS-135DF	EQ570135	R2GRS-135DF	13.5	12	16	73
E2570137	C2GRS-137DF	EQ570137	R2GRS-137DF	13.7	12	16	73
E2570140	C2GRS-140DF	EQ570140	R2GRS-140DF	14.0	12	16	73
E2570147	C2GRS-147DF	EQ570147	R2GRS-147DF	14.7	12	16	73
E2570150	C2GRS-150DF	EQ570150	R2GRS-150DF	15.0	12	16	73
E2570157	C2GRS-157EF	EQ570157	R2GRS-157EF	15.7	16	19	79
E2570160	C2GRS-160EF	EQ570160	R2GRS-160EF	16.0	16	19	79
E2570167	C2GRS-167EF	EQ570167	R2GRS-167EF	16.7	16	19	79
E2570170	C2GRS-170EF	EQ570170	R2GRS-170EF	17.0	16	19	79
E2570177	C2GRS-177EF	EQ570177	R2GRS-177EF	17.7	16	19	79
E2570180	C2GRS-180EF	EQ570180	R2GRS-180EF	18.0	16	19	79
E2570190	C2GRS-190EF	EQ570190	R2GRS-190EF	19.0	16	19	79
E2570197	C2GRS-197FF	EQ570197	R2GRS-197FF	19.7	20	22	88
E2570920	C2GRS-200EF	EQ570920	R2GRS-200EF	20.0	16	22	82
E2570200	C2GRS-200FF	EQ570200	R2GRS-200FF	20.0	20	22	88
E2570210	C2GRS-210FF	EQ570210	R2GRS-210FF	21.0	20	22	88
E2570220	C2GRS-220FF	EQ570220	R2GRS-220FF	22.0	20	22	88
E2570922	C2GRS-220GF	EQ570922	R2GRS-220GF	22.0	25	22	98
E2570240	C2GRS-240GF	EQ570240	R2GRS-240GF	24.0	25	26	102
E2570250	C2GRS-250GF	EQ570250	R2GRS-250GF	25.0	25	26	102
E2570260	C2GRS-260GF	EQ570260	R2GRS-260GF	26.0	25	26	102
E2570270	C2GRS-270GF	EQ570270	R2GRS-270GF	27.0	25	26	102
E2570280	C2GRS-280GF	EQ570280	R2GRS-280GF	28.0	25	26	102
E2570290	C2GRS-290GF	EQ570290	R2GRS-290GF	29.0	25	26	102
E2570300	C2GRS-300GF	EQ570300	R2GRS-300GF	30.0	25	26	102
E2570320	C2GRS-320HF	EQ570320	R2GRS-320HF	32.0	32	32	112
E2570340	C2GRS-340HF	EQ570340	R2GRS-340HF	34.0	32	32	112
E2570350	C2GRS-350HF	EQ570350	R2GRS-350HF	35.0	32	32	112
E2570360	C2GRS-360HF	EQ570360	R2GRS-360HF	36.0	32	32	112
E2570380	C2GRS-380HF	EQ570380	R2GRS-380HF	38.0	32	38	118
E2570938	C2GRS-380IF	EQ570938	R2GRS-380IF	38.0	40	38	130
E2570400	C2GRS-400HF	EQ570400	R2GRS-400HF	40.0	32	38	118
E2570903	C2GRS-400IF	EQ570903	R2GRS-400IF	40.0	40	38	130

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13	— 0 — 16

2 FLUTE, LONG LENGTH 2 SCHNEIDEN, LANG

SERIES E2571

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
2

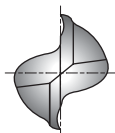


P.233, 243, 247

SERIES EQ571

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2571015	C2GLS-015AF	EQ571015	R2GLS-015AF	1.5	6	7	51
E2571020	C2GLS-020AF	EQ571020	R2GLS-020AF	2.0	6	7	51
E2571025	C2GLS-025AF	EQ571025	R2GLS-025AF	2.5	6	8	52
E2571030	C2GLS-030AF	EQ571030	R2GLS-030AF	3.0	6	8	52
E2571035	C2GLS-035AF	EQ571035	R2GLS-035AF	3.5	6	10	54
E2571040	C2GLS-040AF	EQ571040	R2GLS-040AF	4.0	6	11	55
E2571045	C2GLS-045AF	EQ571045	R2GLS-045AF	4.5	6	11	55
E2571050	C2GLS-050AF	EQ571050	R2GLS-050AF	5.0	6	13	57
E2571055	C2GLS-055AF	EQ571055	R2GLS-055AF	5.5	6	13	57
E2571060	C2GLS-060AF	EQ571060	R2GLS-060AF	6.0	6	13	57
E2571065	C2GLS-065TF	EQ571065	R2GLS-065TF	6.5	10	16	66
E2571070	C2GLS-070TF	EQ571070	R2GLS-070TF	7.0	10	16	66
E2571075	C2GLS-075TF	EQ571075	R2GLS-075TF	7.5	10	16	66
E2571080	C2GLS-080TF	EQ571080	R2GLS-080TF	8.0	10	19	69
E2571085	C2GLS-085TF	EQ571085	R2GLS-085TF	8.5	10	19	69
E2571090	C2GLS-090TF	EQ571090	R2GLS-090TF	9.0	10	19	69
E2571095	C2GLS-095TF	EQ571095	R2GLS-095TF	9.5	10	19	69
E2571100	C2GLS-100TF	EQ571100	R2GLS-100TF	10.0	10	22	72
E2571110	C2GLS-110DF	EQ571110	R2GLS-110DF	11.0	12	22	79
E2571120	C2GLS-120DF	EQ571120	R2GLS-120DF	12.0	12	26	83
E2571130	C2GLS-130DF	EQ571130	R2GLS-130DF	13.0	12	26	83
E2571140	C2GLS-140DF	EQ571140	R2GLS-140DF	14.0	12	26	83
E2571150	C2GLS-150DF	EQ571150	R2GLS-150DF	15.0	12	26	83
E2571160	C2GLS-160EF	EQ571160	R2GLS-160EF	16.0	16	32	92
E2571180	C2GLS-180EF	EQ571180	R2GLS-180EF	18.0	16	32	92
E2571200	C2GLS-200FF	EQ571200	R2GLS-200FF	20.0	20	38	104
E2571220	C2GLS-220FF	EQ571220	R2GLS-220FF	22.0	20	38	104
E2571240	C2GLS-240GF	EQ571240	R2GLS-240GF	24.0	25	45	121
E2571250	C2GLS-250GF	EQ571250	R2GLS-250GF	25.0	25	45	121
E2571260	C2GLS-260GF	EQ571260	R2GLS-260GF	26.0	25	45	121
E2571270	C2GLS-270GF	EQ571270	R2GLS-270GF	27.0	25	45	121
E2571280	C2GLS-280GF	EQ571280	R2GLS-280GF	28.0	25	45	121
E2571300	C2GLS-300GF	EQ571300	R2GLS-300GF	30.0	25	45	121
E2571320	C2GLS-320HF	EQ571320	R2GLS-320HF	32.0	32	53	133
E2571400	C2GLS-400IF	EQ571400	R2GLS-400IF	40.0	40	63	155

►Other shank design on your request.

►TIN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

2 FLUTE, EXTRA LONG LENGTH 2 SCHNEIDEN, EXTRA LANG

SERIES E2510

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
2



P.233, 243, 247

SERIES EQ510

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2510025	C2GXS-025AF	EQ510025	R2GXS-025AF	2.5	6	8	56
E2510030	C2GXS-030AF	EQ510030	R2GXS-030AF	3.0	6	8	56
E2510035	C2GXS-035AF	EQ510035	R2GXS-035AF	3.5	6	10	59
E2510040	C2GXS-040AF	EQ510040	R2GXS-040AF	4.0	6	11	63
E2510045	C2GXS-045AF	EQ510045	R2GXS-045AF	4.5	6	11	63
E2510050	C2GXS-050AF	EQ510050	R2GXS-050AF	5.0	6	13	68
E2510055	C2GXS-055AF	EQ510055	R2GXS-055AF	5.5	6	13	68
E2510060	C2GXS-060AF	EQ510060	R2GXS-060AF	6.0	6	13	68
E2510065	C2GXS-065TF	EQ510065	R2GXS-065TF	6.5	10	16	80
E2510070	C2GXS-070TF	EQ510070	R2GXS-070TF	7.0	10	16	80
E2510080	C2GXS-080TF	EQ510080	R2GXS-080TF	8.0	10	19	88
E2510085	C2GXS-085TF	EQ510085	R2GXS-085TF	8.5	10	19	88
E2510090	C2GXS-090TF	EQ510090	R2GXS-090TF	9.0	10	19	88
E2510100	C2GXS-100TF	EQ510100	R2GXS-100TF	10.0	10	22	95
E2510120	C2GXS-120DF	EQ510120	R2GXS-120DF	12.0	12	26	110
E2510140	C2GXS-140DF	EQ510140	R2GXS-140DF	14.0	12	26	110
E2510160	C2GXS-160EF	EQ510160	R2GXS-160EF	16.0	16	32	123
E2510180	C2GXS-180EF	EQ510180	R2GXS-180EF	18.0	16	32	123
E2510200	C2GXS-200FF	EQ510200	R2GXS-200FF	20.0	20	38	141
E2510220	C2GXS-220FF	EQ510220	R2GXS-220FF	22.0	20	38	141
E2510240	C2GXS-240GF	EQ510240	R2GXS-240GF	24.0	25	45	166
E2510250	C2GXS-250GF	EQ510250	R2GXS-250GF	25.0	25	45	166
E2510260	C2GXS-260GF	EQ510260	R2GXS-260GF	26.0	25	45	166
E2510280	C2GXS-280GF	EQ510280	R2GXS-280GF	28.0	25	45	166
E2510300	C2GXS-300GF	EQ510300	R2GXS-300GF	30.0	25	45	166
E2510320	C2GXS-320HF	EQ510320	R2GXS-320HF	32.0	32	53	186
E2510360	C2GXS-360HF	EQ510360	R2GXS-360HF	36.0	32	53	186
E2510400	C2GXS-400HF	EQ510400	R2GXS-400HF	40.0	32	63	207
E2510940	C2GXS-400IF	EQ510940	R2GXS-400IF	40.0	40	63	217

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

2 FLUTE, SHORT LENGTH for ALUMINIUM 2 SCHNEIDEN, KURZ für ALUMINIUM

SERIES E2464

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

W



FLUTE
2



P.233

SERIES EU464

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. HARDLUBE	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2464010	EU464010	1.0	6	3	49
E2464015	EU464015	1.5	6	5	49
E2464020	EU464020	2.0	6	7	51
E2464025	EU464025	2.5	6	8	52
E2464030	EU464030	3.0	6	8	52
E2464035	EU464035	3.5	6	10	54
E2464040	EU464040	4.0	6	11	55
E2464045	EU464045	4.5	6	11	55
E2464050	EU464050	5.0	6	13	57
E2464055	EU464055	5.5	6	13	57
E2464060	EU464060	6.0	6	13	57
E2464065	EU464065	6.5	10	16	66
E2464070	EU464070	7.0	10	16	66
E2464075	EU464075	7.5	10	16	66
E2464080	EU464080	8.0	10	19	69
E2464085	EU464085	8.5	10	19	69
E2464090	EU464090	9.0	10	19	69
E2464100	EU464100	10.0	10	22	72
E2464110	EU464110	11.0	12	22	79
E2464120	EU464120	12.0	12	26	83
E2464130	EU464130	13.0	12	26	83
E2464140	EU464140	14.0	12	26	83
E2464150	EU464150	15.0	12	26	83
E2464160	EU464160	16.0	16	32	92
E2464170	EU464170	17.0	16	32	92
E2464180	EU464180	18.0	16	32	92
E2464190	EU464190	19.0	16	32	92
E2464200	EU464200	20.0	20	38	104
E2464210	EU464210	21.0	20	38	104
E2464220	EU464220	22.0	20	38	104
E2464230	EU464230	23.0	20	38	104
E2464240	EU464240	24.0	25	45	121
E2464250	EU464250	25.0	25	45	121
E2464260	EU464260	26.0	25	45	121
E2464280	EU464280	28.0	25	45	121
E2464300	EU464300	30.0	25	45	121
E2464320	EU464320	32.0	32	53	133

► Other shank design on your request.

► TIN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

2 FLUTE, LONG LENGTH for ALUMINIUM 2 SCHNEIDEN, LANG für ALUMINIUM

SERIES E2509

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

W



FLUTE
2



P.233

SERIES EU509

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. HARDLUBE	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2509020	EU509020	2.0	6	10	54
E2509030	EU509030	3.0	6	12	56
E2509040	EU509040	4.0	6	19	63
E2509050	EU509050	5.0	6	24	68
E2509060	EU509060	6.0	6	24	68
E2509070	EU509070	7.0	10	30	80
E2509080	EU509080	8.0	10	38	88
E2509090	EU509090	9.0	10	38	88
E2509100	EU509100	10.0	10	45	95
E2509110	EU509110	11.0	12	45	102
E2509120	EU509120	12.0	12	53	110
E2509130	EU509130	13.0	12	53	110
E2509140	EU509140	14.0	12	53	110
E2509150	EU509150	15.0	12	53	110
E2509160	EU509160	16.0	16	63	123
E2509180	EU509180	18.0	16	63	123
E2509200	EU509200	20.0	20	75	141

►Other shank design on your request.

►TIN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

1 FLUTE END MILLS for ALUMINIUM 1 SCHNEIDEN-FRÄSER für ALUMINIUM

SERIES EL612

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

HSS
Co5

YG
STD

W

FLUTE
1

DIN
1835A



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	MILL DIAMETER js14	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EL612030	M1NRA-03001	3.0	8	12	60
EL612040	M1NRA-04001	4.0	8	12	60
EL612050	M1NRA-05001	5.0	8	14	60
EL612060	M1NRA-06001	6.0	8	14	60
EL612070	M1NRA-07001	7.0	8	14	60
EL612080	M1NRA-08001	8.0	8	14	80
EL612090	M1NRA-09001	9.0	8	14	80
EL612100	M1NRA-10001	10.0	8	14	80

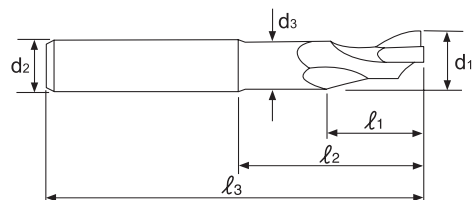


Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	MILL DIAMETER d ₁ (js14)	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT ℓ ₁	LENGTH BELOW SHANK ℓ ₂	OVERALL LENGTH ℓ ₃	NECK DIAMETER d ₃
EL612904	M1NRA-05002	5.0	8	18	35	80	4.8
EL612909	M1NRA-05009	5.0	8	40	40	100	—
EL612932	M1NRA-08007	8.0	8	14	68	120	7.5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js14	± 125	± 150	± 180	± 215	± 260	± 310
h6	$\frac{0}{-6}$	$\frac{0}{-8}$	$\frac{0}{-9}$	$\frac{0}{-11}$	$\frac{0}{-13}$	$\frac{0}{-16}$



1 FLUTE END MILLS 1 SCHNEIDEN-FRÄSER

SERIES EL623

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

HSS
Co5

YG
STD

N

FLUTE
1

DIN
1835A



Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	MILL DIAMETER js14	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EL623030	M1NRS-03001	3.0	8	12	60
EL623040	M1NRS-04001	4.0	8	12	60
EL623050	M1NRS-05006	5.0	8	12	60
EL623060	M1NRS-06001	6.0	8	14	60
EL623070	M1NRS-07001	7.0	8	14	60
EL623080	M1NRS-08001	8.0	8	14	80
EL623090	M1NRS-09001	9.0	8	14	80
EL623100	M1NRS-10001	10.0	8	14	80

HSS END MILLS

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js14	± 125	± 150	± 180	± 215	± 260	± 310
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

3 FLUTE, STUB LENGTH 3 SCHNEIDEN, EXTRA KURZ

SERIES E2572

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
327

N



FLUTE
3

DIN
1835B

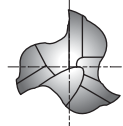


P.234, 243, 244, 247, 248

SERIES EQ572

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2572015	C3GSC-015AF	EQ572015	R3GSC-015AF	1.5	6	3	47
E2572020	C3GSC-020AF	EQ572020	R3GSC-020AF	2.0	6	4	48
E2572025	C3GSC-025AF	EQ572025	R3GSC-025AF	2.5	6	5	49
E2572030	C3GSC-030AF	EQ572030	R3GSC-030AF	3.0	6	5	49
E2572035	C3GSC-035AF	EQ572035	R3GSC-035AF	3.5	6	6	50
E2572040	C3GSC-040AF	EQ572040	R3GSC-040AF	4.0	6	7	51
E2572045	C3GSC-045AF	EQ572045	R3GSC-045AF	4.5	6	7	51
E2572050	C3GSC-050AF	EQ572050	R3GSC-050AF	5.0	6	8	52
E2572055	C3GSC-055AF	EQ572055	R3GSC-055AF	5.5	6	8	52
E2572060	C3GSC-060AF	EQ572060	R3GSC-060AF	6.0	6	8	52
E2572065	C3GSC-065TF	EQ572065	R3GSC-065TF	6.5	10	10	60
E2572070	C3GSC-070TF	EQ572070	R3GSC-070TF	7.0	10	10	60
E2572075	C3GSC-075TF	EQ572075	R3GSC-075TF	7.5	10	10	60
E2572080	C3GSC-080TF	EQ572080	R3GSC-080TF	8.0	10	11	61
E2572085	C3GSC-085TF	EQ572085	R3GSC-085TF	8.5	10	11	61
E2572100	C3GSC-100TF	EQ572100	R3GSC-100TF	10.0	10	13	63
E2572120	C3GSC-120DF	EQ572120	R3GSC-120DF	12.0	12	16	73
E2572140	C3GSC-140DF	EQ572140	R3GSC-140DF	14.0	12	16	73
E2572150	C3GSC-150DF	EQ572150	R3GSC-150DF	15.0	12	16	73
E2572160	C3GSC-160EF	EQ572160	R3GSC-160EF	16.0	16	19	79
E2572180	C3GSC-180EF	EQ572180	R3GSC-180EF	18.0	16	19	79
E2572200	C3GSC-200FF	EQ572200	R3GSC-200FF	20.0	20	22	88
E2572220	C3GSC-220FF	EQ572220	R3GSC-220FF	22.0	20	22	88
E2572240	C3GSC-240GF	EQ572240	R3GSC-240GF	24.0	25	26	102
E2572250	C3GSC-250GF	EQ572250	R3GSC-250GF	25.0	25	26	102
E2572260	C3GSC-260GF	EQ572260	R3GSC-260GF	26.0	25	26	102
E2572280	C3GSC-280GF	EQ572280	R3GSC-280GF	28.0	25	26	102
E2572300	C3GSC-300GF	EQ572300	R3GSC-300GF	30.0	25	26	102
E2572320	C3GSC-320HF	EQ572320	R3GSC-320HF	32.0	32	32	112

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

3 FLUTE, SHORT LENGTH 3 SCHNEIDEN, KURZ

SERIES E2573

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
3

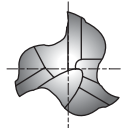


P.234, 243, 244, 247, 248

SERIES EQ573

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2573010	C3GRC-010AF	EQ573010	R3GRC-010AF	1.0	6	3	47
E2573015	C3GRC-015AF	EQ573015	R3GRC-015AF	1.5	6	7	51
E2573020	C3GRC-020AF	EQ573020	R3GRC-020AF	2.0	6	7	51
E2573025	C3GRC-025AF	EQ573025	R3GRC-025AF	2.5	6	8	52
E2573030	C3GRC-030AF	EQ573030	R3GRC-030AF	3.0	6	8	52
E2573035	C3GRC-035AF	EQ573035	R3GRC-035AF	3.5	6	10	54
E2573040	C3GRC-040AF	EQ573040	R3GRC-040AF	4.0	6	11	55
E2573045	C3GRC-045AF	EQ573045	R3GRC-045AF	4.5	6	11	55
E2573050	C3GRC-050AF	EQ573050	R3GRC-050AF	5.0	6	13	57
E2573055	C3GRC-055AF	EQ573055	R3GRC-055AF	5.5	6	13	57
E2573060	C3GRC-060AF	EQ573060	R3GRC-060AF	6.0	6	13	57
E2573065	C3GRC-065TF	EQ573065	R3GRC-065TF	6.5	10	16	66
E2573070	C3GRC-070TF	EQ573070	R3GRC-070TF	7.0	10	16	66
E2573075	C3GRC-075TF	EQ573075	R3GRC-075TF	7.5	10	16	66
E2573080	C3GRC-080TF	EQ573080	R3GRC-080TF	8.0	10	19	69
E2573085	C3GRC-085TF	EQ573085	R3GRC-085TF	8.5	10	19	69
E2573090	C3GRC-090TF	EQ573090	R3GRC-090TF	9.0	10	19	69
E2573095	C3GRC-095TF	EQ573095	R3GRC-095TF	9.5	10	19	69
E2573100	C3GRC-100TF	EQ573100	R3GRC-100TF	10.0	10	22	72
E2573120	C3GRC-120DF	EQ573120	R3GRC-120DF	12.0	12	26	83
E2573140	C3GRC-140DF	EQ573140	R3GRC-140DF	14.0	12	26	83
E2573150	C3GRC-150DF	EQ573150	R3GRC-150DF	15.0	12	26	83
E2573160	C3GRC-160EF	EQ573160	R3GRC-160EF	16.0	16	32	92
E2573180	C3GRC-180EF	EQ573180	R3GRC-180EF	18.0	16	32	92
E2573200	C3GRC-200FF	EQ573200	R3GRC-200FF	20.0	20	38	104
E2573220	C3GRC-220FF	EQ573220	R3GRC-220FF	22.0	20	38	104
E2573240	C3GRC-240GF	EQ573240	R3GRC-240GF	24.0	25	45	121
E2573250	C3GRC-250GF	EQ573250	R3GRC-250GF	25.0	25	45	121
E2573260	C3GRC-260GF	EQ573260	R3GRC-260GF	26.0	25	45	121
E2573280	C3GRC-280GF	EQ573280	R3GRC-280GF	28.0	25	45	121
E2573300	C3GRC-300GF	EQ573300	R3GRC-300GF	30.0	25	45	121
E2573320	C3GRC-320HF	EQ573320	R3GRC-320HF	32.0	32	53	133
E2573400	C3GRC-400IF	EQ573400	R3GRC-400IF	40.0	40	63	155

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

3 FLUTE, LONG LENGTH 3 SCHNEIDEN, LANG

SERIES E2516

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
3

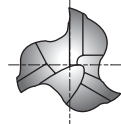


P.234, 243, 244, 247, 248

SERIES EQ516

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2516020	C3GLC-020AF	EQ516020	R3GLC-020AF	2.0	6	10	54
E2516025	C3GLC-025AF	EQ516025	R3GLC-025AF	2.5	6	12	56
E2516030	C3GLC-030AF	EQ516030	R3GLC-030AF	3.0	6	12	56
E2516035	C3GLC-035AF	EQ516035	R3GLC-035AF	3.5	6	15	59
E2516040	C3GLC-040AF	EQ516040	R3GLC-040AF	4.0	6	19	63
E2516045	C3GLC-045AF	EQ516045	R3GLC-045AF	4.5	6	19	63
E2516050	C3GLC-050AF	EQ516050	R3GLC-050AF	5.0	6	24	68
E2516055	C3GLC-055AF	EQ516055	R3GLC-055AF	5.5	6	24	68
E2516060	C3GLC-060AF	EQ516060	R3GLC-060AF	6.0	6	24	68
E2516070	C3GLC-070TF	EQ516070	R3GLC-070TF	7.0	10	30	80
E2516075	C3GLC-075TF	EQ516075	R3GLC-075TF	7.5	10	30	80
E2516080	C3GLC-080TF	EQ516080	R3GLC-080TF	8.0	10	38	88
E2516090	C3GLC-090TF	EQ516090	R3GLC-090TF	9.0	10	38	88
E2516100	C3GLC-100TF	EQ516100	R3GLC-100TF	10.0	10	45	95
E2516110	C3GLC-110DF	EQ516110	R3GLC-110DF	11.0	12	45	102
E2516120	C3GLC-120DF	EQ516120	R3GLC-120DF	12.0	12	53	110
E2516130	C3GLC-130DF	EQ516130	R3GLC-130DF	13.0	12	53	110
E2516140	C3GLC-140DF	EQ516140	R3GLC-140DF	14.0	12	53	110
E2516150	C3GLC-150DF	EQ516150	R3GLC-150DF	15.0	12	53	110
E2516160	C3GLC-160EF	EQ516160	R3GLC-160EF	16.0	16	63	123
E2516170	C3GLC-170EF	EQ516170	R3GLC-170EF	17.0	16	63	123
E2516180	C3GLC-180EF	EQ516180	R3GLC-180EF	18.0	16	63	123
E2516190	C3GLC-190EF	EQ516190	R3GLC-190EF	19.0	16	63	123
E2516901	C3GLC-200EF	EQ516901	R3GLC-200EF	20.0	16	75	135
E2516200	C3GLC-200FF	EQ516200	R3GLC-200FF	20.0	20	75	141
E2516220	C3GLC-220FF	EQ516220	R3GLC-220FF	22.0	20	75	141
E2516240	C3GLC-240GF	EQ516240	R3GLC-240GF	24.0	25	90	166
E2516250	C3GLC-250GF	EQ516250	R3GLC-250GF	25.0	25	90	166
E2516260	C3GLC-260GF	EQ516260	R3GLC-260GF	26.0	25	90	166
E2516280	C3GLC-280GF	EQ516280	R3GLC-280GF	28.0	25	90	166
E2516300	C3GLC-300GF	EQ516300	R3GLC-300GF	30.0	25	90	166
E2516320	C3GLC-320HF	EQ516320	R3GLC-320HF	32.0	32	106	186
E2516350	C3GLC-350HF	EQ516350	R3GLC-350HF	35.0	32	106	186
E2516360	C3GLC-360HF	EQ516360	R3GLC-360HF	36.0	32	106	186
E2516400	C3GLC-400IF	EQ516400	R3GLC-400IF	40.0	40	125	217

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

3 FLUTE, SHORT LENGTH, THROW AWAY 3 SCHNEIDEN, KURZ, EINWEGFRÄSER

SERIES E2553

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

YG
STD

N



FLUTE
3

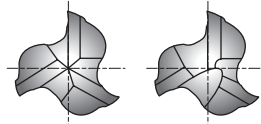


P.234, 243, 244, 247, 248

SERIES EQ553

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



up to $\phi 10$

Over $\phi 10$

Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2553010	C3FSC-010AF	EQ553010	R3FSC-010AF	1.0	6	2	34
E2553013	C3FSC-013AF	EQ553013	R3FSC-013AF	1.3	6	3	34
E2553015	C3FSC-015AF	EQ553015	R3FSC-015AF	1.5	6	3	34
E2553018	C3FSC-018AF	EQ553018	R3FSC-018AF	1.8	6	3	34
E2553020	C3FSC-020AF	EQ553020	R3FSC-020AF	2.0	6	4	35
E2553023	C3FSC-023AF	EQ553023	R3FSC-023AF	2.3	6	4	35
E2553025	C3FSC-025AF	EQ553025	R3FSC-025AF	2.5	6	5	36
E2553028	C3FSC-028AF	EQ553028	R3FSC-028AF	2.8	6	5	36
E2553030	C3FSC-030AF	EQ553030	R3FSC-030AF	3.0	6	5	36
E2553033	C3FSC-033AF	EQ553033	R3FSC-033AF	3.3	6	6	37
E2553035	C3FSC-035AF	EQ553035	R3FSC-035AF	3.5	6	6	37
E2553038	C3FSC-038AF	EQ553038	R3FSC-038AF	3.8	6	7	38
E2553040	C3FSC-040AF	EQ553040	R3FSC-040AF	4.0	6	7	38
E2553043	C3FSC-043AF	EQ553043	R3FSC-043AF	4.3	6	7	38
E2553045	C3FSC-045AF	EQ553045	R3FSC-045AF	4.5	6	7	38
E2553048	C3FSC-048AF	EQ553048	R3FSC-048AF	4.8	6	8	39
E2553050	C3FSC-050AF	EQ553050	R3FSC-050AF	5.0	6	8	39
E2553053	C3FSC-053AF	EQ553053	R3FSC-053AF	5.3	6	8	39
E2553055	C3FSC-055AF	EQ553055	R3FSC-055AF	5.5	6	8	39
E2553957	C3FSC-0575AF	EQ553957	R3FSC-0575AF	5.75	6	8	39
E2553060	C3FSC-060AF	EQ553060	R3FSC-060AF	6.0	6	8	39
E2553065	C3FSC-065BF	EQ553065	R3FSC-065BF	6.5	8	10	42
E2553070	C3FSC-070BF	EQ553070	R3FSC-070BF	7.0	8	10	42
E2553075	C3FSC-075BF	EQ553075	R3FSC-075BF	7.5	8	10	42
E2553080	C3FSC-080BF	EQ553080	R3FSC-080BF	8.0	8	11	43
E2553085	C3FSC-085TF	EQ553085	R3FSC-085TF	8.5	10	11	48
E2553090	C3FSC-090TF	EQ553090	R3FSC-090TF	9.0	10	11	48
E2553095	C3FSC-095TF	EQ553095	R3FSC-095TF	9.5	10	11	48
E2553100	C3FSC-100TF	EQ553100	R3FSC-100TF	10.0	10	13	50
E2553120	C3FSC-120DF	EQ553120	R3FSC-120DF	12.0	12	16	58
E2553160	C3FSC-160EF	EQ553160	R3FSC-160EF	16.0	16	19	64
E2553200	C3FSC-200FF	EQ553200	R3FSC-200FF	20.0	20	22	78

►TIN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 11 — 11	— 0 — 13	— 0 — 16

3 FLUTE, LONG LENGTH, THROW AWAY 3 SCHNEIDEN, LANG, EINWEGFRÄSER

SERIES E2554

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

YG
STD

N



FLUTE
3

DIN
1835B

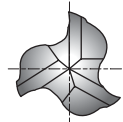


P.234, 243, 244, 247, 248

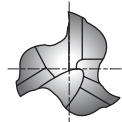
SERIES EQ554

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Upto ϕ 10



Over ϕ 10

Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2554015	C3FLC-015AF	EQ554015	R3FLC-015AF	1.5	6	4	35
E2554020	C3FLC-020AF	EQ554020	R3FLC-020AF	2.0	6	7	38
E2554025	C3FLC-025AF	EQ554025	R3FLC-025AF	2.5	6	8	39
E2554030	C3FLC-030AF	EQ554030	R3FLC-030AF	3.0	6	8	39
E2554035	C3FLC-035AF	EQ554035	R3FLC-035AF	3.5	6	10	41
E2554040	C3FLC-040AF	EQ554040	R3FLC-040AF	4.0	6	11	42
E2554045	C3FLC-045AF	EQ554045	R3FLC-045AF	4.5	6	11	42
E2554050	C3FLC-050AF	EQ554050	R3FLC-050AF	5.0	6	13	44
E2554055	C3FLC-055AF	EQ554055	R3FLC-055AF	5.5	6	13	44
E2554060	C3FLC-060AF	EQ554060	R3FLC-060AF	6.0	6	13	44
E2554065	C3FLC-065BF	EQ554065	R3FLC-065BF	6.5	8	16	48
E2554070	C3FLC-070BF	EQ554070	R3FLC-070BF	7.0	8	16	48
E2554075	C3FLC-075BF	EQ554075	R3FLC-075BF	7.5	8	16	48
E2554080	C3FLC-080BF	EQ554080	R3FLC-080BF	8.0	8	19	51
E2554085	C3FLC-085TF	EQ554085	R3FLC-085TF	8.5	10	19	56
E2554090	C3FLC-090TF	EQ554090	R3FLC-090TF	9.0	10	19	56
E2554095	C3FLC-095TF	EQ554095	R3FLC-095TF	9.5	10	19	56
E2554100	C3FLC-100TF	EQ554100	R3FLC-100TF	10.0	10	22	59

► TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

3 FLUTE, SHORT LENGTH, THROW AWAY 3 SCHNEIDEN, KURZ, EINWEGFRÄSER

SERIES E2551

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

YG
STD

N



FLUTE
3

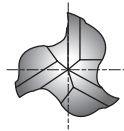


P.234, 243, 244, 247, 248

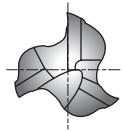
SERIES EQ551

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Upto $\phi 6$



Over $\phi 6$

Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
E2551010	C3CSC-010AF	EQ551010	R3CSC-010AF	1.0	6	2	24.5
E2551015	C3CSC-015AF	EQ551015	R3CSC-015AF	1.5	6	2.5	24.5
E2551020	C3CSC-020AF	EQ551020	R3CSC-020AF	2.0	6	3	25.5
E2551025	C3CSC-025AF	EQ551025	R3CSC-025AF	2.5	6	4	26
E2551028	C3CSC-028AF	EQ551028	R3CSC-028AF	2.8	6	4.5	28
E2551030	C3CSC-030AF	EQ551030	R3CSC-030AF	3.0	6	4.5	28
E2551035	C3CSC-035AF	EQ551035	R3CSC-035AF	3.5	6	5.5	30
E2551038	C3CSC-038AF	EQ551038	R3CSC-038AF	3.8	6	6.5	32.5
E2551040	C3CSC-040AF	EQ551040	R3CSC-040AF	4.0	6	6.5	32.5
E2551045	C3CSC-045AF	EQ551045	R3CSC-045AF	4.5	6	7	34.5
E2551048	C3CSC-048AF	EQ551048	R3CSC-048AF	4.8	6	7.5	36
E2551050	C3CSC-050AF	EQ551050	R3CSC-050AF	5.0	6	7.5	36
E2551055	C3CSC-055AF	EQ551055	R3CSC-055AF	5.5	6	8.5	36
E2551957	C3CSC-0575AF	EQ551957	R3CSC-0575AF	5.75	6	9.5	36
E2551060	C3CSC-060AF	EQ551060	R3CSC-060AF	6.0	6	9.5	36
E2551075	C3CSC-075TF	EQ551075	R3CSC-075TF	7.5	10	11	47.5
E2551080	C3CSC-080TF	EQ551080	R3CSC-080TF	8.0	10	11	47.5
E2551095	C3CSC-095TF	EQ551095	R3CSC-095TF	9.5	10	13	51.5
E2551100	C3CSC-100TF	EQ551100	R3CSC-100TF	10.0	10	13	51.5

►TIN-COATING & TiCN-COATING is available on your request.

TOLERANCE

MILL DIA.	e8
SHANK DIA.	—0.018 —0.025

3 FLUTE, LONG LENGTH, THROW AWAY 3 SCHNEIDEN, LANG, EINWEGFRÄSER

SERIES E2552

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

YG
STD

N



FLUTE
3

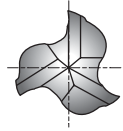


P.234, 243, 244, 247, 248

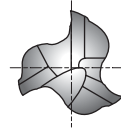
SERIES EQ552

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Upto $\phi 6$



Over $\phi 6$

Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
E2552015	C3CLC-015AF	EQ552015	R3CLC-015AF	1.5	6	4	28
E2552020	C3CLC-020AF	EQ552020	R3CLC-020AF	2.0	6	4.5	29
E2552025	C3CLC-025AF	EQ552025	R3CLC-025AF	2.5	6	6.5	32
E2552030	C3CLC-030AF	EQ552030	R3CLC-030AF	3.0	6	7.5	34
E2552035	C3CLC-035AF	EQ552035	R3CLC-035AF	3.5	6	8.5	36.5
E2552040	C3CLC-040AF	EQ552040	R3CLC-040AF	4.0	6	9.5	39
E2552045	C3CLC-045AF	EQ552045	R3CLC-045AF	4.5	6	11	42
E2552050	C3CLC-050AF	EQ552050	R3CLC-050AF	5.0	6	12.5	44.5
E2552055	C3CLC-055AF	EQ552055	R3CLC-055AF	5.5	6	14.5	46
E2552060	C3CLC-060AF	EQ552060	R3CLC-060AF	6.0	6	16	44.5
E2552080	C3CLC-080TF	EQ552080	R3CLC-080TF	8.0	10	19	55.5
E2552090	C3CLC-090TF	EQ552090	R3CLC-090TF	9.0	10	22.5	61
E2552100	C3CLC-100TF	EQ552100	R3CLC-100TF	10.0	10	22.5	61

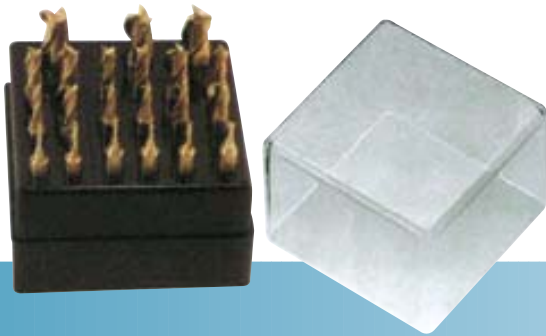
►TIN-COATING & TiCN-COATING is available on your request.

HSS END MILLS

TOLERANCE	
MILL DIA.	e8
SHANK DIA.	-0.018 -0.025

THROW AWAY END MILL SETS

- SET YG#1 : Co8%HSS, TiN-COATING SET
- SET YG#2 : Co8%HSS, Non-COATING SET



SET YG#1 (TiN-COATING SET)

* 21 PCS. SET

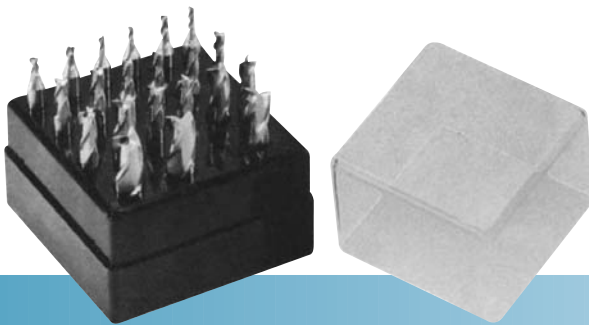
SHORT LENGTH : 2PCS. OF EACH SIZE

2, 3, 4, 5, 6, 8, 10mm(G3FSC)

LONG LENGTH : 1PC. OF EACH SIZE

2, 3, 4, 5, 6, 8, 10mm(G3FLC)

* SET ORDERING No.-SET YG#1



SET YG#2 (NON-COATING SET)

* 21 PCS. SET

SHORT LENGTH : 2PCS. OF EACH SIZE

2, 3, 4, 5, 6, 8, 10mm(C3FSC)

LONG LENGTH : 1PC. OF EACH SIZE

2, 3, 4, 5, 6, 8, 10mm(C3FLC)

* SET ORDERING No.-SET YG#2

4&6 FLUTE, SHORT LENGTH 4&6 SCHNEIDEN, KURZ

SERIES E2574, EQ574

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
4 & 6



P.235, 244, 248

SERIES E2575, EQ575

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2574020	C4GRS-020AF	EQ574020	R4GRS-020AF	2.0	6	7	51	4
E2574025	C4GRS-025AF	EQ574025	R4GRS-025AF	2.5	6	8	52	4
E2574030	C4GRS-030AF	EQ574030	R4GRS-030AF	3.0	6	8	52	4
E2574035	C4GRS-035AF	EQ574035	R4GRS-035AF	3.5	6	10	54	4
E2574040	C4GRS-040AF	EQ574040	R4GRS-040AF	4.0	6	11	55	4
E2574050	C4GRS-050AF	EQ574050	R4GRS-050AF	5.0	6	13	57	4
E2574060	C4GRS-060AF	EQ574060	R4GRS-060AF	6.0	6	13	57	4
E2574070	C4GRS-070TF	EQ574070	R4GRS-070TF	7.0	10	16	66	4
E2574080	C4GRS-080TF	EQ574080	R4GRS-080TF	8.0	10	19	69	4
E2574090	C4GRS-090TF	EQ574090	R4GRS-090TF	9.0	10	19	69	4
E2574100	C4GRS-100TF	EQ574100	R4GRS-100TF	10.0	10	22	72	4
E2574110	C4GRS-110DF	EQ574110	R4GRS-110DF	11.0	12	22	79	4
E2574120	C4GRS-120DF	EQ574120	R4GRS-120DF	12.0	12	26	83	4
E2574130	C4GRS-130DF	EQ574130	R4GRS-130DF	13.0	12	26	83	4
E2574140	C4GRS-140DF	EQ574140	R4GRS-140DF	14.0	12	26	83	4
E2574150	C4GRS-150DF	EQ574150	R4GRS-150DF	15.0	12	26	83	4
E2574160	C4GRS-160EF	EQ574160	R4GRS-160EF	16.0	16	32	92	4
E2574170	C4GRS-170EF	EQ574170	R4GRS-170EF	17.0	16	32	92	4
E2574180	C4GRS-180EF	EQ574180	R4GRS-180EF	18.0	16	32	92	4
E2574190	C4GRS-190EF	EQ574190	R4GRS-190EF	19.0	16	32	92	4
E2574200	C4GRS-200FF	EQ574200	R4GRS-200FF	20.0	20	38	104	4
E2575210	C6GRS-210FF	EQ575210	R6GRS-210FF	21.0	20	38	104	6
E2575220	C6GRS-220FF	EQ575220	R6GRS-220FF	22.0	20	38	104	6
E2575230	C6GRS-230FF	EQ575230	R6GRS-230FF	23.0	20	38	104	6
E2575240	C6GRS-240GF	EQ575240	R6GRS-240GF	24.0	25	45	121	6
E2575250	C6GRS-250GF	EQ575250	R6GRS-250GF	25.0	25	45	121	6
E2575260	C6GRS-260GF	EQ575260	R6GRS-260GF	26.0	25	45	121	6
E2575280	C6GRS-280GF	EQ575280	R6GRS-280GF	28.0	25	45	121	6
E2575300	C6GRS-300GF	EQ575300	R6GRS-300GF	30.0	25	45	121	6
E2575320	C6GRS-320HF	EQ575320	R6GRS-320HF	32.0	32	53	133	6
E2575340	C6GRS-340HF	EQ575340	R6GRS-340HF	34.0	32	53	133	6
E2575350	C6GRS-350HF	EQ575350	R6GRS-350HF	35.0	32	53	133	6
E2575360	C6GRS-360HF	EQ575360	R6GRS-360HF	36.0	32	53	133	6
E2575400	C6GRS-400HF	EQ575400	R6GRS-400HF	40.0	32	63	143	6

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

TOLERANCE	
MILL DIA.	+0.040 -0
SHANK DIA.	h6

4&6 FLUTE, LONG LENGTH 4&6 SCHNEIDEN, LANG

SERIES E2576, EQ576

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
4 & 6



P.235, 244, 248

SERIES E2577, EQ577

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2576020	C4GLS-020AF	EQ576020	R4GLS-020AF	2.0	6	10	54	4
E2576025	C4GLS-025AF	EQ576025	R4GLS-025AF	2.5	6	12	56	4
E2576030	C4GLS-030AF	EQ576030	R4GLS-030AF	3.0	6	12	56	4
E2576035	C4GLS-035AF	EQ576035	R4GLS-035AF	3.5	6	15	59	4
E2576040	C4GLS-040AF	EQ576040	R4GLS-040AF	4.0	6	19	63	4
E2576045	C4GLS-045AF	EQ576045	R4GLS-045AF	4.5	6	19	63	4
E2576050	C4GLS-050AF	EQ576050	R4GLS-050AF	5.0	6	24	68	4
E2576060	C4GLS-060AF	EQ576060	R4GLS-060AF	6.0	6	24	68	4
E2576070	C4GLS-070TF	EQ576070	R4GLS-070TF	7.0	10	30	80	4
E2576080	C4GLS-080TF	EQ576080	R4GLS-080TF	8.0	10	38	88	4
E2576090	C4GLS-090TF	EQ576090	R4GLS-090TF	9.0	10	38	88	4
E2576100	C4GLS-100TF	EQ576100	R4GLS-100TF	10.0	10	45	95	4
E2576110	C4GLS-110DF	EQ576110	R4GLS-110DF	11.0	12	45	102	4
E2576120	C4GLS-120DF	EQ576120	R4GLS-120DF	12.0	12	53	110	4
E2576130	C4GLS-130DF	EQ576130	R4GLS-130DF	13.0	12	53	110	4
E2576140	C4GLS-140DF	EQ576140	R4GLS-140DF	14.0	12	53	110	4
E2576150	C4GLS-150DF	EQ576150	R4GLS-150DF	15.0	12	53	110	4
E2576160	C4GLS-160EF	EQ576160	R4GLS-160EF	16.0	16	63	123	4
E2576170	C4GLS-170EF	EQ576170	R4GLS-170EF	17.0	16	63	123	4
E2576180	C4GLS-180EF	EQ576180	R4GLS-180EF	18.0	16	63	123	4
E2576190	C4GLS-190EF	EQ576190	R4GLS-190EF	19.0	16	63	123	4
E2576902	C4GLS-200EF	EQ576902	R4GLS-200EF	20.0	16	75	135	4
E2576200	C4GLS-200FF	EQ576200	R4GLS-200FF	20.0	20	75	141	4
E2577220	C6GLS-220FF	EQ577220	R6GLS-220FF	22.0	20	75	141	6
E2577240	C6GLS-240GF	EQ577240	R6GLS-240GF	24.0	25	90	166	6
E2577250	C6GLS-250GF	EQ577250	R6GLS-250GF	25.0	25	90	166	6
E2577260	C6GLS-260GF	EQ577260	R6GLS-260GF	26.0	25	90	166	6
E2577280	C6GLS-280GF	EQ577280	R6GLS-280GF	28.0	25	90	166	6
E2577300	C6GLS-300GF	EQ577300	R6GLS-300GF	30.0	25	90	166	6
E2577320	C6GLS-320HF	EQ577320	R6GLS-320HF	32.0	32	106	186	6
E2577360	C6GLS-360HF	EQ577360	R6GLS-360HF	36.0	32	106	186	6
E2577400	C6GLS-400IF	EQ577400	R6GLS-400IF	40.0	40	125	217	6

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

TOLERANCE		
MILL DIA.	φ2.0~ φ6.0	+0.040 —0
	φ6.5~	+0.050 —0
SHANK DIA.	h6	

4&6 FLUTE, SHORT LENGTH 4&6 SCHNEIDEN, KURZ

SERIES E2595, EQ595

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
4 & 6



P.235, 244, 248

SERIES E2596, EQ596

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2595020	C4GRC-020AF	EQ595020	R4GRC-020AF	2.0	6	7	51	4
E2595030	C4GRC-030AF	EQ595030	R4GRC-030AF	3.0	6	8	52	4
E2595040	C4GRC-040AF	EQ595040	R4GRC-040AF	4.0	6	11	55	4
E2595050	C4GRC-050AF	EQ595050	R4GRC-050AF	5.0	6	13	57	4
E2595060	C4GRC-060AF	EQ595060	R4GRC-060AF	6.0	6	13	57	4
E2595070	C4GRC-070TF	EQ595070	R4GRC-070TF	7.0	10	16	66	4
E2595080	C4GRC-080TF	EQ595080	R4GRC-080TF	8.0	10	19	69	4
E2595090	C4GRC-090TF	EQ595090	R4GRC-090TF	9.0	10	19	69	4
E2595100	C4GRC-100TF	EQ595100	R4GRC-100TF	10.0	10	22	72	4
E2595110	C4GRC-110DF	EQ595110	R4GRC-110DF	11.0	12	22	79	4
E2595120	C4GRC-120DF	EQ595120	R4GRC-120DF	12.0	12	26	83	4
E2595130	C4GRC-130DF	EQ595130	R4GRC-130DF	13.0	12	26	83	4
E2595140	C4GRC-140DF	EQ595140	R4GRC-140DF	14.0	12	26	83	4
E2595150	C4GRC-150DF	EQ595150	R4GRC-150DF	15.0	12	26	83	4
E2595160	C4GRC-160EF	EQ595160	R4GRC-160EF	16.0	16	32	92	4
E2595170	C4GRC-170EF	EQ595170	R4GRC-170EF	17.0	16	32	92	4
E2595180	C4GRC-180EF	EQ595180	R4GRC-180EF	18.0	16	32	92	4
E2595190	C4GRC-190EF	EQ595190	R4GRC-190EF	19.0	16	32	92	4
E2595920	C4GRC-200EF	EQ595920	R4GRC-200EF	20.0	16	38	98	4
E2595200	C4GRC-200FF	EQ595200	R4GRC-200FF	20.0	20	38	104	4
E2595220	C4GRC-220FF	EQ595220	R4GRC-220FF	22.0	20	38	104	4
E2595250	C4GRC-250GF	EQ595250	R4GRC-250GF	25.0	25	45	121	4
E2596220	C6GRC-220FF	EQ596220	R6GRC-220FF	22.0	20	38	104	6
E2596240	C6GRC-240GF	EQ596240	R6GRC-240GF	24.0	25	45	121	6
E2596250	C6GRC-250GF	EQ596250	R6GRC-250GF	25.0	25	45	121	6
E2596260	C6GRC-260GF	EQ596260	R6GRC-260GF	26.0	25	45	121	6
E2596280	C6GRC-280GF	EQ596280	R6GRC-280GF	28.0	25	45	121	6
E2596300	C6GRC-300GF	EQ596300	R6GRC-300GF	30.0	25	45	121	6
E2596320	C6GRC-320HF	EQ596320	R6GRC-320HF	32.0	32	53	133	6
E2596340	C6GRC-340HF	EQ596340	R6GRC-340HF	34.0	32	53	133	6
E2596350	C6GRC-350HF	EQ596350	R6GRC-350HF	35.0	32	53	133	6
E2596360	C6GRC-360HF	EQ596360	R6GRC-360HF	36.0	32	53	133	6
E2596380	C6GRC-380HF	EQ596380	R6GRC-380HF	38.0	32	63	143	6
E2596901	C6GRC-400HF	EQ596901	R6GRC-400HF	40.0	32	63	143	6
E2596400	C6GRC-400IF	EQ596400	R6GRC-400IF	40.0	40	63	155	6

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

TOLERANCE	
MILL DIA.	+0.040 -0
SHANK DIA.	h6

4&6 FLUTE, LONG LENGTH 4&6 SCHNEIDEN, LANG

SERIES E2597, EQ597

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
4 & 6



P.235, 244, 248

SERIES E2598, EQ598

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2597020	C4GLC-020AF	EQ597020	R4GLC-020AF	2.0	6	10	54	4
E2597025	C4GLC-025AF	EQ597025	R4GLC-025AF	2.5	6	12	56	4
E2597030	C4GLC-030AF	EQ597030	R4GLC-030AF	3.0	6	12	56	4
E2597035	C4GLC-035AF	EQ597035	R4GLC-035AF	3.5	6	15	59	4
E2597040	C4GLC-040AF	EQ597040	R4GLC-040AF	4.0	6	19	63	4
E2597045	C4GLC-045AF	EQ597045	R4GLC-045AF	4.5	6	19	63	4
E2597050	C4GLC-050AF	EQ597050	R4GLC-050AF	5.0	6	24	68	4
E2597055	C4GLC-055AF	EQ597055	R4GLC-055AF	5.5	6	24	68	4
E2597060	C4GLC-060AF	EQ597060	R4GLC-060AF	6.0	6	24	68	4
E2597070	C4GLC-070TF	EQ597070	R4GLC-070TF	7.0	10	30	80	4
E2597080	C4GLC-080TF	EQ597080	R4GLC-080TF	8.0	10	38	88	4
E2597090	C4GLC-090TF	EQ597090	R4GLC-090TF	9.0	10	38	88	4
E2597100	C4GLC-100TF	EQ597100	R4GLC-100TF	10.0	10	45	95	4
E2597110	C4GLC-110DF	EQ597110	R4GLC-110DF	11.0	12	45	102	4
E2597120	C4GLC-120DF	EQ597120	R4GLC-120DF	12.0	12	53	110	4
E2597130	C4GLC-130DF	EQ597130	R4GLC-130DF	13.0	12	53	110	4
E2597140	C4GLC-140DF	EQ597140	R4GLC-140DF	14.0	12	53	110	4
E2597150	C4GLC-150DF	EQ597150	R4GLC-150DF	15.0	12	53	110	4
E2597160	C4GLC-160EF	EQ597160	R4GLC-160EF	16.0	16	63	123	4
E2597170	C4GLC-170EF	EQ597170	R4GLC-170EF	17.0	16	63	123	4
E2597180	C4GLC-180EF	EQ597180	R4GLC-180EF	18.0	16	63	123	4
E2597190	C4GLC-190EF	EQ597190	R4GLC-190EF	19.0	16	63	123	4
E2597200	C4GLC-200FF	EQ597200	R4GLC-200FF	20.0	20	75	141	4
E2598220	C6GLC-220FF	EQ598220	R6GLC-220FF	22.0	20	75	141	6
E2598240	C6GLC-240GF	EQ598240	R6GLC-240GF	24.0	25	90	166	6
E2598250	C6GLC-250GF	EQ598250	R6GLC-250GF	25.0	25	90	166	6
E2598260	C6GLC-260GF	EQ598260	R6GLC-260GF	26.0	25	90	166	6
E2598280	C6GLC-280GF	EQ598280	R6GLC-280GF	28.0	25	90	166	6
E2598300	C6GLC-300GF	EQ598300	R6GLC-300GF	30.0	25	90	166	6
E2598320	C6GLC-320HF	EQ598320	R6GLC-320HF	32.0	32	106	186	6
E2598360	C6GLC-360HF	EQ598360	R6GLC-360HF	36.0	32	106	186	6
E2598400	C6GLC-400IF	EQ598400	R6GLC-400IF	40.0	40	125	217	6

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

TOLERANCE		
MILL DIA.	φ2.0~ φ6.0	+0.040 —0
	φ6.5~	+0.050 —0
SHANK DIA.	h6	

MULTI. FLUTE, 50° HELIX, SHORT LENGTH MULTI. SCHNEIDEN, 50° RECHTSSPIRALE, KURZ

SERIES E2461, E2462, E2463

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

N



FLUTE
2 - 4

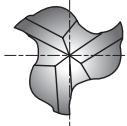


P.235

SERIES EQ461, EQ462, EQ463

FLAT SHANK

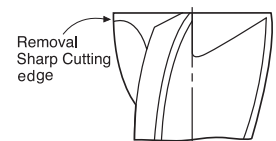
SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2461020	C2ERH-020AF	EQ461020	R2ERH-020AF	2.0	6	7	51	2
E2461030	C2ERH-030AF	EQ461030	R2ERH-030AF	3.0	6	8	52	2
E2461040	C2ERH-040AF	EQ461040	R2ERH-040AF	4.0	6	11	55	2
E2461050	C2ERH-050AF	EQ461050	R2ERH-050AF	5.0	6	13	57	2
E2462060	C3ERH-060AF	EQ462060	R3ERH-060AF	6.0	6	13	57	3
E2462070	C3ERH-070TF	EQ462070	R3ERH-070TF	7.0	10	16	66	3
E2462080	C3ERH-080TF	EQ462080	R3ERH-080TF	8.0	10	19	69	3
E2462090	C3ERH-090TF	EQ462090	R3ERH-090TF	9.0	10	19	69	3
E2462100	C3ERH-100TF	EQ462100	R3ERH-100TF	10.0	10	22	72	3
E2462110	C3ERH-110DF	EQ462110	R3ERH-110DF	11.0	12	22	79	3
E2462120	C3ERH-120DF	EQ462120	R3ERH-120DF	12.0	12	26	83	3
E2462130	C3ERH-130DF	EQ462130	R3ERH-130DF	13.0	12	26	83	3
E2462140	C3ERH-140DF	EQ462140	R3ERH-140DF	14.0	12	26	83	3
E2462150	C3ERH-150DF	EQ462150	R3ERH-150DF	15.0	12	26	83	3
E2462160	C3ERH-160EF	EQ462160	R3ERH-160EF	16.0	16	32	92	3
E2462180	C3ERH-180EF	EQ462180	R3ERH-180EF	18.0	16	32	92	3
E2462200	C3ERH-200FF	EQ462200	R3ERH-200FF	20.0	20	38	104	3
E2462230	C3ERH-230FF	EQ462230	R3ERH-230FF	23.0	20	38	104	3
E2463220	C4ERH-220GF	EQ463220	R4ERH-220GF	22.0	25	45	121	4
E2463250	C4ERH-250GF	EQ463250	R4ERH-250GF	25.0	25	45	121	4
E2463300	C4ERH-300GF	EQ463300	R4ERH-300GF	30.0	25	45	121	4

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING is available on your request.



HSS END MILLS

TOLERANCE		
MILL DIA.	φ2.0~ φ3.0	+0.040 -0
	φ4.0~ φ6.0	+0.048 -0
	φ7.0~ φ10.0	+0.058 -0
	φ10.5~ φ18.0	+0.070 -0
	φ18.5~ φ30.0	+0.084 -0
SHANK DIA.	h6	

2 FLUTE, BALL NOSE, SHORT LENGTH 2 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES E2535

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
327

N



FLUTE
2

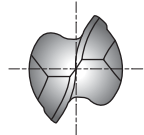


P.236, 245, 249

SERIES EQ535

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TAIN	ITEM No. TAIN	R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2535020	C2GRB-020AF	EQ535020	R2GRB-020AF	R1.0	2.0	6	4	48
E2535025	C2GRB-025AF	EQ535025	R2GRB-025AF	R1.25	2.5	6	5	49
E2535030	C2GRB-030AF	EQ535030	R2GRB-030AF	R1.5	3.0	6	5	49
E2535035	C2GRB-035AF	EQ535035	R2GRB-035AF	R1.75	3.5	6	6	50
E2535040	C2GRB-040AF	EQ535040	R2GRB-040AF	R2.0	4.0	6	7	51
E2535045	C2GRB-045AF	EQ535045	R2GRB-045AF	R2.25	4.5	6	7	51
E2535050	C2GRB-050AF	EQ535050	R2GRB-050AF	R2.5	5.0	6	8	52
E2535055	C2GRB-055AF	EQ535055	R2GRB-055AF	R2.75	5.5	6	8	52
E2535060	C2GRB-060AF	EQ535060	R2GRB-060AF	R3.0	6.0	6	8	52
E2535070	C2GRB-070TF	EQ535070	R2GRB-070TF	R3.5	7.0	10	10	60
E2535080	C2GRB-080TF	EQ535080	R2GRB-080TF	R4.0	8.0	10	11	61
E2535090	C2GRB-090TF	EQ535090	R2GRB-090TF	R4.5	9.0	10	11	61
E2535100	C2GRB-100TF	EQ535100	R2GRB-100TF	R5.0	10.0	10	13	63
E2535110	C2GRB-110DF	EQ535110	R2GRB-110DF	R5.5	11.0	12	13	70
E2535120	C2GRB-120DF	EQ535120	R2GRB-120DF	R6.0	12.0	12	16	73
E2535130	C2GRB-130DF	EQ535130	R2GRB-130DF	R6.5	13.0	12	16	73
E2535140	C2GRB-140DF	EQ535140	R2GRB-140DF	R7.0	14.0	12	16	73
E2535150	C2GRB-150DF	EQ535150	R2GRB-150DF	R7.5	15.0	12	16	73
E2535160	C2GRB-160EF	EQ535160	R2GRB-160EF	R8.0	16.0	16	19	79
E2535170	C2GRB-170EF	EQ535170	R2GRB-170EF	R8.5	17.0	16	19	79
E2535180	C2GRB-180EF	EQ535180	R2GRB-180EF	R9.0	18.0	16	19	79
E2535190	C2GRB-190EF	EQ535190	R2GRB-190EF	R9.5	19.0	16	19	79
E2535923	C2GRB-200EF	EQ535923	R2GRB-200EF	R10.0	20.0	16	22	82
E2535200	C2GRB-200FF	EQ535200	R2GRB-200FF	R10.0	20.0	20	22	88
E2535220	C2GRB-220FF	EQ535220	R2GRB-220FF	R11.0	22.0	20	22	88
E2535922	C2GRB-220GF	EQ535922	R2GRB-220GF	R11.0	22.0	25	22	98
E2535240	C2GRB-240GF	EQ535240	R2GRB-240GF	R12.0	24.0	25	26	102
E2535250	C2GRB-250GF	EQ535250	R2GRB-250GF	R12.5	25.0	25	26	102
E2535260	C2GRB-260GF	EQ535260	R2GRB-260GF	R13.0	26.0	25	26	102
E2535280	C2GRB-280GF	EQ535280	R2GRB-280GF	R14.0	28.0	25	26	102
E2535300	C2GRB-300GF	EQ535300	R2GRB-300GF	R15.0	30.0	25	26	102
E2535320	C2GRB-320HF	EQ535320	R2GRB-320HF	R16.0	32.0	32	32	112

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

2 FLUTE, BALL NOSE, LONG LENGTH 2 SCHNEIDEN, STIRNRADIUS, LANG

SERIES E2492

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
1889

N



FLUTE
2

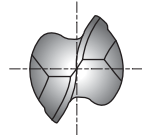


P.236, 245, 249

SERIES EQ492

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2492020	C2GLB-020AF	EQ492020	R2GLB-020AF	R1.0	2.0	6	7	54
E2492030	C2GLB-030AF	EQ492030	R2GLB-030AF	R1.5	3.0	6	8	56
E2492040	C2GLB-040AF	EQ492040	R2GLB-040AF	R2.0	4.0	6	11	63
E2492050	C2GLB-050AF	EQ492050	R2GLB-050AF	R2.5	5.0	6	13	68
E2492060	C2GLB-060AF	EQ492060	R2GLB-060AF	R3.0	6.0	6	13	68
E2492070	C2GLB-070TF	EQ492070	R2GLB-070TF	R3.5	7.0	10	16	80
E2492080	C2GLB-080TF	EQ492080	R2GLB-080TF	R4.0	8.0	10	19	88
E2492090	C2GLB-090TF	EQ492090	R2GLB-090TF	R4.5	9.0	10	19	88
E2492100	C2GLB-100TF	EQ492100	R2GLB-100TF	R5.0	10.0	10	22	95
E2492110	C2GLB-110DF	EQ492110	R2GLB-110DF	R5.5	11.0	12	22	102
E2492120	C2GLB-120DF	EQ492120	R2GLB-120DF	R6.0	12.0	12	26	110
E2492130	C2GLB-130DF	EQ492130	R2GLB-130DF	R6.5	13.0	12	26	110
E2492140	C2GLB-140DF	EQ492140	R2GLB-140DF	R7.0	14.0	12	26	110
E2492150	C2GLB-150DF	EQ492150	R2GLB-150DF	R7.5	15.0	12	26	110
E2492160	C2GLB-160EF	EQ492160	R2GLB-160EF	R8.0	16.0	16	32	123
E2492170	C2GLB-170EF	EQ492170	R2GLB-170EF	R8.5	17.0	16	32	123
E2492180	C2GLB-180EF	EQ492180	R2GLB-180EF	R9.0	18.0	16	32	123
E2492190	C2GLB-190EF	EQ492190	R2GLB-190EF	R9.5	19.0	16	32	123
E2492200	C2GLB-200FF	EQ492200	R2GLB-200FF	R10.0	20.0	20	38	141
E2492220	C2GLB-220FF	EQ492220	R2GLB-220FF	R11.0	22.0	20	38	141
E2492240	C2GLB-240GF	EQ492240	R2GLB-240GF	R12.0	24.0	25	45	166
E2492250	C2GLB-250GF	EQ492250	R2GLB-250GF	R12.5	25.0	25	45	166
E2492260	C2GLB-260GF	EQ492260	R2GLB-260GF	R13.0	26.0	25	45	166
E2492280	C2GLB-280GF	EQ492280	R2GLB-280GF	R14.0	28.0	25	45	166
E2492300	C2GLB-300GF	EQ492300	R2GLB-300GF	R15.0	30.0	25	45	166

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	— 11	— 13	— 16

4&6 FLUTE, BALL NOSE, SHORT LENGTH 4&6 SCHNEIDEN, STIRNRADIUS, KURZ

SERIES E2410 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
1889

N



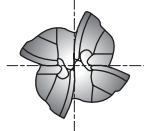
FLUTE
4 & 6



P.236, 245, 249

SERIES EQ410 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAIN	R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2410060	EQ410060	R3.0	6.0	6	13	57	4
E2410080	EQ410080	R4.0	8.0	10	19	69	4
E2410100	EQ410100	R5.0	10.0	10	22	72	4
E2410120	EQ410120	R6.0	12.0	12	26	83	4
E2410160	EQ410160	R8.0	16.0	16	32	92	4
E2410200	EQ410200	R10.	20.0	20	38	104	4
E2410250	EQ410250	R12.5	25.0	25	45	121	6

4&6 FLUTE, BALL NOSE, LONG LENGTH 4&6 SCHNEIDEN, STIRNRADIUS, LANG

SERIES E2429 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
1889

N



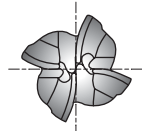
FLUTE
4 & 6



P.236, 245, 249

SERIES EQ429 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAIN	R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2429100	EQ429100	R5.0	10.0	10	45	95	4
E2429120	EQ429120	R6.0	12.0	12	53	110	4
E2429160	EQ429160	R8.0	16.0	16	63	123	4
E2429200	EQ429200	R10.	20.0	20	75	141	4
E2429250	EQ429250	R12.5	25.0	25	90	166	6

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

3 FLUTE, BALL NOSE, SHORT LENGTH, THROW AWAY 3 SCHNEIDEN, STIRNRADIUS, KURZ, EINWEGFRÄSER

SERIES E2512

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

YG
STD

N

30°

FLUTE
3

DIN
1835B

30°

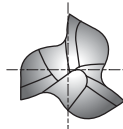
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P.236, 245, 249

SERIES EQ512

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	R	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E2512020	C3FSB-020AF	EQ512020	R3FSB-020AF	R1.0	2.0	6	4	35
E2512025	C3FSB-025AF	EQ512025	R3FSB-025AF	R1.25	2.5	6	5	36
E2512030	C3FSB-030AF	EQ512030	R3FSB-030AF	R1.5	3.0	6	5	36
E2512040	C3FSB-040AF	EQ512040	R3FSB-040AF	R2.0	4.0	6	7	38
E2512050	C3FSB-050AF	EQ512050	R3FSB-050AF	R2.5	5.0	6	8	39
E2512060	C3FSB-060AF	EQ512060	R3FSB-060AF	R3.0	6.0	6	8	39

► TIN-COATING & TiCN-COATING is available on your request.

HSS END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E2751

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NR



FLUTE
3 - 6



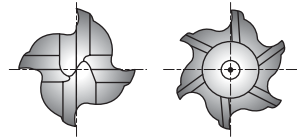
P.237, 246, 250

SERIES EQ751

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

COARSE



Upto $\phi 20$

Over $\phi 20$

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2751060	EQ751060	6.0	6	13	57	3
E2751070	EQ751070	7.0	10	16	66	3
E2751080	EQ751080	8.0	10	19	69	3
E2751090	EQ751090	9.0	10	19	69	3
E2751095	EQ751095	9.5	10	19	69	3
E2751100	EQ751100	10.0	10	22	72	4
E2751110	EQ751110	11.0	12	22	79	4
E2751120	EQ751120	12.0	12	26	83	4
E2751125	EQ751125	12.5	12	26	83	4
E2751130	EQ751130	13.0	12	26	83	4
E2751140	EQ751140	14.0	12	26	83	4
E2751145	EQ751145	14.5	12	26	83	4
E2751150	EQ751150	15.0	12	26	83	4
E2751160	EQ751160	16.0	16	32	92	4
E2751170	EQ751170	17.0	16	32	92	4
E2751180	EQ751180	18.0	16	32	92	4
E2751190	EQ751190	19.0	16	32	92	4
E2751200	EQ751200	20.0	20	38	104	4
E2751901	EQ751901	20.0	16	38	98	4

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

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Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E2751

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NR

30°

FLUTE
3 - 6

DIN
1835B

~20

~20

~20

P.237, 246, 250

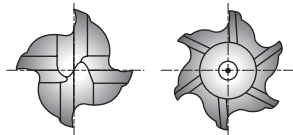
SERIES EQ751

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



COARSE



Upto $\phi 20$

Over $\phi 20$

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2751220	EQ751220	22.0	20	38	104	5
E2751240	EQ751240	24.0	25	45	121	5
E2751250	EQ751250	25.0	25	45	121	5
E2751260	EQ751260	26.0	25	45	121	6
E2751280	EQ751280	28.0	25	45	121	6
E2751300	EQ751300	30.0	25	45	121	6
E2751320	EQ751320	32.0	32	53	133	6
E2751340	EQ751340	34.0	32	53	133	6
E2751350	EQ751350	35.0	32	53	133	6
E2751360	EQ751360	36.0	32	53	133	6
E2751380	EQ751380	38.0	32	63	155	6
E2751938	EQ751938	38.0	40	63	155	6
E2751400	EQ751400	40.0	32	63	155	6
E2751940	EQ751940	40.0	40	63	155	6
E2751450	EQ751450	45.0	32	63	143	6
E2751500	EQ751500	50.0	50	75	177	6

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

MULTI. FLUTE, ROUGHING, LONG LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, LANG

SERIES E2752

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NR



FLUTE
3 - 6

DIN
1835B



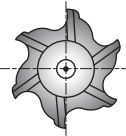
P.237, 246, 250

SERIES EQ752

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

COARSE



Upto $\phi 20$

Over $\phi 20$

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2752060	EQ752060	6.0	6	24	68	3
E2752070	EQ752070	7.0	10	30	80	3
E2752080	EQ752080	8.0	10	38	88	3
E2752090	EQ752090	9.0	10	38	88	3
E2752100	EQ752100	10.0	10	45	95	4
E2752110	EQ752110	11.0	12	45	102	4
E2752120	EQ752120	12.0	12	53	110	4
E2752130	EQ752130	13.0	12	53	110	4
E2752140	EQ752140	14.0	12	53	110	4
E2752150	EQ752150	15.0	12	53	110	4
E2752160	EQ752160	16.0	16	63	123	4
E2752170	EQ752170	17.0	16	63	123	4
E2752180	EQ752180	18.0	16	63	123	4
E2752190	EQ752190	19.0	16	63	123	4
E2752200	EQ752200	20.0	20	75	141	4
E2752901	EQ752901	20.0	16	75	135	4
E2752220	EQ752220	22.0	20	75	141	5
E2752902	EQ752902	22.0	25	75	151	5
E2752240	EQ752240	24.0	25	90	166	5
E2752250	EQ752250	25.0	25	90	166	5
E2752260	EQ752260	26.0	25	90	166	6
E2752280	EQ752280	28.0	25	90	166	6
E2752300	EQ752300	30.0	25	90	166	6
E2752320	EQ752320	32.0	32	106	186	6
E2752350	EQ752350	35.0	32	106	186	6
E2752360	EQ752360	36.0	32	106	186	6
E2752380	EQ752380	38.0	32	125	217	6
E2752938	EQ752938	38.0	40	125	217	6
E2752400	EQ752400	40.0	32	125	217	6
E2752940	EQ752940	40.0	40	125	217	6

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

3 FLUTE, ROUGHING, SHORT LENGTH 3 SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E2751, EQ751

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NR



FLUTE
3

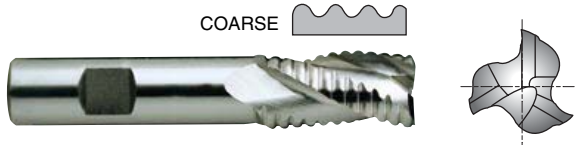


P.237, 246, 250

SERIES E2764, EQ764

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2751060	EQ751060	6.0	6	13	57	3
E2751080	EQ751080	8.0	10	19	69	3
E2764100	EQ764100	10.0	10	22	72	3
E2764120	EQ764120	12.0	12	26	83	3
E2764140	EQ764140	14.0	12	26	83	3
E2764160	EQ764160	16.0	16	32	92	3
E2764180	EQ764180	18.0	16	32	92	3
E2764200	EQ764200	20.0	20	38	104	3
E2764220	EQ764220	22.0	20	38	104	3
E2764250	EQ764250	25.0	25	45	121	3
E2764280	EQ764280	28.0	25	45	121	3
E2764300	EQ764300	30.0	25	45	121	3
E2764320	EQ764320	32.0	32	53	133	3
E2764360	EQ764360	36.0	32	53	133	3
E2764400	EQ764400	40.0	32	63	155	3

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

HSS END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

3 FLUTE, ROUGHING, LONG LENGTH 3 SCHNEIDEN, SCHRUPPFRÄSER, LANG

SERIES E2752, EQ752

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NR

30°

FLUTE
3

DIN
1835B



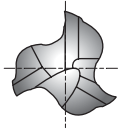
P.237, 246, 250

SERIES E2765, EQ765

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

COARSE



Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2752060	EQ752060	6.0	6	24	68	3
E2752080	EQ752080	8.0	10	38	88	3
E2765100	EQ765100	10.0	10	45	95	3
E2765120	EQ765120	12.0	12	53	110	3
E2765140	EQ765140	14.0	12	53	110	3
E2765160	EQ765160	16.0	16	63	123	3
E2765180	EQ765180	18.0	16	63	123	3
E2765200	EQ765200	20.0	20	75	141	3
E2765220	EQ765220	22.0	20	75	141	3
E2765250	EQ765250	25.0	25	90	166	3
E2765280	EQ765280	28.0	25	90	166	3
E2765300	EQ765300	30.0	25	90	166	3
E2765360	EQ765360	36.0	32	106	186	3
E2765400	EQ765400	40.0	32	125	217	3

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

3 FLUTE, ROUGHING, SHORT LENGTH for ALUMINIUM 3 SCHNEIDEN, SCHRUPPFRÄSER, KURZ für ALUMINIUM

SERIES E2755

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

WR

37°

FLUTE
3

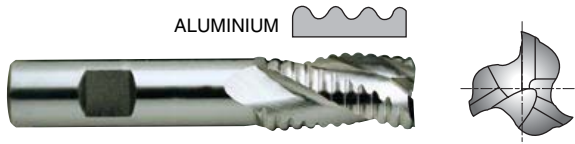
DIN
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SERIES EU755

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. HARDLUBE	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2755060	EU755060	6.0	6	13	57	3
E2755080	EU755080	8.0	10	19	69	3
E2755100	EU755100	10.0	10	22	72	3
E2755120	EU755120	12.0	12	26	83	3
E2755140	EU755140	14.0	12	26	83	3
E2755160	EU755160	16.0	16	32	92	3
E2755180	EU755180	18.0	16	32	92	3
E2755200	EU755200	20.0	20	38	104	3
E2755220	EU755220	22.0	20	38	104	3
E2755250	EU755250	25.0	25	45	121	3
E2755300	EU755300	30.0	25	45	121	3

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

HSS END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

3 FLUTE, ROUGHING, LONG LENGTH for ALUMINIUM 3 SCHNEIDEN, SCHRUPPFRÄSER, LANG für ALUMINIUM

SERIES E2756

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

WR



FLUTE
3



SERIES EU756

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. HARDLUBE	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2756100	EU756100	10.0	10	45	95	3
E2756120	EU756120	12.0	12	53	110	3
E2756140	EU756140	14.0	12	53	110	3
E2756160	EU756160	16.0	16	63	123	3
E2756180	EU756180	18.0	16	63	123	3
E2756200	EU756200	20.0	20	75	141	3
E2756220	EU756220	22.0	20	75	141	3
E2756250	EU756250	25.0	25	90	166	3
E2756300	EU756300	30.0	25	90	166	3

►Other shank design on your request.

►TIN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 —6	0 —8	0 —9	0 —11	0 —13	0 —16

3&4 FLUTE, BALL NOSE ROUGHING, SHORT LENGTH 3&4 SCHNEIDEN, STIRNRADIUS SCHRUPPFRÄSER, KURZ

SERIES E2757

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
1889

NR

30°

FLUTE
3 & 4

DIN
1835B



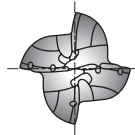
P.237

SERIES EQ757

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

COARSE



Unit : mm

EDP No. FLAT	EDP No. TiAIN	R	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2757060	EQ757060	R3.0	6.0	6	13	57	3
E2757080	EQ757080	R4.0	8.0	10	19	69	3
E2757100	EQ757100	R5.0	10.0	10	22	72	3
E2757120	EQ757120	R6.0	12.0	12	26	83	4
E2757160	EQ757160	R8.0	16.0	16	32	92	4
E2757200	EQ757200	R10.0	20.0	20	38	104	4
E2757250	EQ757250	R12.5	25.0	25	45	121	4
E2757320	EQ757320	R16.0	32.0	32	53	133	4
E2757400	EQ757400	R20.0	40.0	32	63	155	4

►Other shank design on your request.

►TIN-COATING & TiCN-COATING is available on your request.

HSS END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E2761

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

HR



FLUTE
3 - 5



P.237, 246, 250

SERIES EQ761

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

EXTRA FINE



Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2761060	EQ761060	6.0	6	13	57	3
E2761070	EQ761070	7.0	10	16	66	3
E2761080	EQ761080	8.0	10	19	69	3
E2761090	EQ761090	9.0	10	19	69	3
E2761100	EQ761100	10.0	10	22	72	4
E2761120	EQ761120	12.0	12	26	83	4
E2761140	EQ761140	14.0	12	26	83	4
E2761160	EQ761160	16.0	16	32	92	4
E2761180	EQ761180	18.0	16	32	92	4
E2761200	EQ761200	20.0	20	38	104	4
E2761220	EQ761220	22.0	20	38	104	5
E2761250	EQ761250	25.0	25	45	121	5

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

3&4 FLUTE, ROUGHING, STUB LENGTH 3&4 SCHNEIDEN, SCHRUPPFRÄSER, EXTRA KURZ

SERIES E2524

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
327

HR

30°

FLUTE
3 & 4

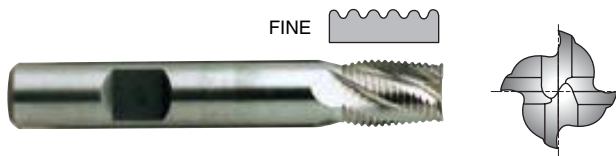
DIN
1835B

P.237, 246, 250

SERIES EQ524

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER k12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2524060	EQ524060	6.0	6	8	52	3
E2524080	EQ524080	8.0	10	11	61	4
E2524100	EQ524100	10.0	10	13	63	4
E2524120	EQ524120	12.0	12	16	73	4
E2524140	EQ524140	14.0	12	16	73	4
E2524160	EQ524160	16.0	16	19	79	4
E2524180	EQ524180	18.0	16	19	79	4
E2524200	EQ524200	20.0	20	22	88	4

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

HSS END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
k12	+ 90 0	+ 120 0	+ 150 0	+ 180 0	+ 210 0	+ 250 0
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

3&4 FLUTE, BALL NOSE ROUGHING, SHORT LENGTH 3&4 SCHNEIDEN, STIRNRADIUS SCHRUPPFRÄSER, KURZ

SERIES E2606

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
1889

HR



FLUTE
3 & 4

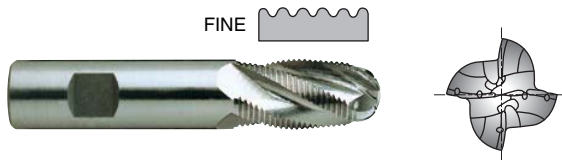


P.237

SERIES EQ606

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAlN	R	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2606060	EQ606060	R3.0	6.0	6	13	57	3
E2606080	EQ606080	R4.0	8.0	10	19	69	3
E2606100	EQ606100	R5.0	10.0	10	22	72	3
E2606120	EQ606120	R6.0	12.0	12	26	83	4
E2606160	EQ606160	R8.0	16.0	16	32	92	4
E2606200	EQ606200	R10.0	20.0	20	38	104	4
E2606250	EQ606250	R12.5	25.0	25	45	121	4
E2606320	EQ606320	R16.0	32.0	32	53	133	4
E2606400	EQ606400	R20.0	40.0	32	63	155	4

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E2753

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

HR

30°

FLUTE
3 - 6

DIN
1835B

~20

~22

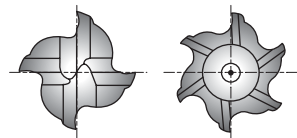
~22

P.237, 246, 250

SERIES EQ753

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Upto $\phi 20$

Over $\phi 20$

Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2753060	C3426-060AF	EQ753060	R3426-060AF	6.0	6	13	57	3
E2753070	C3426-070TF	EQ753070	R3426-070TF	7.0	10	16	66	3
E2753080	C3426-080TF	EQ753080	R3426-080TF	8.0	10	19	69	3
E2753090	C3426-090TF	EQ753090	R3426-090TF	9.0	10	19	69	3
E2753100	C4426-100TF	EQ753100	R4426-100TF	10.0	10	22	72	4
E2753110	C4426-110DF	EQ753110	R4426-110DF	11.0	12	22	79	4
E2753120	C4426-120DF	EQ753120	R4426-120DF	12.0	12	26	83	4
E2753130	C4426-130DF	EQ753130	R4426-130DF	13.0	12	26	83	4
E2753140	C4426-140DF	EQ753140	R4426-140DF	14.0	12	26	83	4
E2753150	C4426-150DF	EQ753150	R4426-150DF	15.0	12	26	83	4
E2753160	C4426-160EF	EQ753160	R4426-160EF	16.0	16	32	92	4
E2753180	C4426-180EF	EQ753180	R4426-180EF	18.0	16	32	92	4
E2753200	C4426-200FF	EQ753200	R4426-200FF	20.0	20	38	104	4
E2753250	C5426-250GF	EQ753250	R5426-250GF	25.0	25	45	121	5
E2753280	C6426-280GF	EQ753280	R6426-280GF	28.0	25	45	121	6
E2753300	C6426-300GF	EQ753300	R6426-300GF	30.0	25	45	121	6
E2753320	C6426-320HF	EQ753320	R6426-320HF	32.0	32	53	133	6
E2753350	C6426-350HF	EQ753350	R6426-350HF	35.0	32	53	133	6
E2753400	C6426-400HF	EQ753400	R6426-400HF	40.0	32	63	155	6

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

MULTI. FLUTE, ROUGHING, LONG LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, LANG

SERIES E2762

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

HR



FLUTE
3 - 6

DIN
1835B



P.237, 246, 250

SERIES EQ762

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



FINE



Upto $\phi 20$



Over $\phi 20$

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2762060	EQ762060	6.0	6	24	68	3
E2762070	EQ762070	7.0	10	30	80	3
E2762080	EQ762080	8.0	10	38	88	3
E2762090	EQ762090	9.0	10	38	88	3
E2762100	EQ762100	10.0	10	45	95	4
E2762110	EQ762110	11.0	12	45	102	4
E2762120	EQ762120	12.0	12	53	110	4
E2762130	EQ762130	13.0	12	53	110	4
E2762140	EQ762140	14.0	12	53	110	4
E2762150	EQ762150	15.0	12	53	110	4
E2762160	EQ762160	16.0	16	63	123	4
E2762170	EQ762170	17.0	16	63	123	4
E1762180	EQ762180	18.0	16	63	123	4
E2762190	EQ762190	19.0	16	63	123	4
E2762200	EQ762200	20.0	20	75	141	4
E2762220	EQ762220	22.0	20	75	141	5
E2762240	EQ762240	24.0	25	90	166	5
E2762250	EQ762250	25.0	25	90	166	5
E2762260	EQ762260	26.0	25	90	166	6
E2762280	EQ762280	28.0	25	90	166	6
E2762300	EQ762300	30.0	25	90	166	6
E2762320	EQ762320	32.0	32	106	186	6
E2762350	EQ762350	35.0	32	106	186	6
E2762360	EQ762360	36.0	32	106	186	6
E2762380	EQ762380	38.0	32	125	217	6
E2762400	EQ762400	40.0	32	125	217	6
E2762940	EQ762940	40.0	40	125	217	6

►Other shank design on your request.

►TIN-COATING & TICN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

MULTI. FLUTE, ROUGHING & FINISHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPSCHLICHTFRÄSER, KURZ

SERIES E2754

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NF

30°

FLUTE
3 - 6

DIN
1835B

~20°

~22°

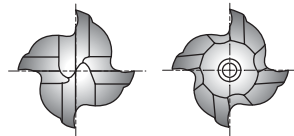
~22°

P.238, 246, 251

SERIES EQ754

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Upto ϕ 20

Over ϕ 20

Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER k10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2754060	C3428-060AF	EQ754060	R3428-060AF	6.0	6	13	57	3
E2754070	C3428-070TF	EQ754070	R3428-070TF	7.0	10	16	66	3
E2754080	C4428-080TF	EQ754080	R4428-080TF	8.0	10	19	69	4
E2754090	C4428-090TF	EQ754090	R4428-090TF	9.0	10	19	69	4
E2754100	C4428-100TF	EQ754100	R4428-100TF	10.0	10	22	72	4
E2754110	C4428-110DF	EQ754110	R4428-110DF	11.0	12	22	79	4
E2754120	C4428-120DF	EQ754120	R4428-120DF	12.0	12	26	83	4
E2754130	C4428-130DF	EQ754130	R4428-130DF	13.0	12	26	83	4
E2754140	C4428-140DF	EQ754140	R4428-140DF	14.0	12	26	83	4
E2754150	C4428-150DF	EQ754150	R4428-150DF	15.0	12	26	83	4
E2754160	C4428-160EF	EQ754160	R4428-160EF	16.0	16	32	92	4
E2754180	C4428-180EF	EQ754180	R4428-180EF	18.0	16	32	92	4
E2754200	C4428-200FF	EQ754200	R4428-200FF	20.0	20	38	104	4
E2754220	C5428-220FF	EQ754220	R5428-220FF	22.0	20	38	104	5
E2754250	C5428-250GF	EQ754250	R5428-250GF	25.0	25	45	121	5
E2754280	C5428-280GF	EQ754280	R5428-280GF	28.0	25	45	121	5
E2754300	C5428-300GF	EQ754300	R5428-300GF	30.0	25	45	121	5
E2754320	C5428-320HF	EQ754320	R5428-320HF	32.0	32	53	133	5
E2754360	C6428-360HF	EQ754360	R6428-360HF	36.0	32	53	133	6
E2754400	C6428-400HF	EQ754400	R6428-400HF	40.0	32	63	155	6

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

MULTI. FLUTE, ROUGHING & FINISHING, LONG LENGTH MULTI. SCHNEIDEN, SCHRUPPSCHLICHTFRÄSER, LANG

SERIES E2768

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NF



FLUTE
3 - 6

DIN
1835B



P.238, 246, 251

SERIES EQ768

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Upto $\phi 20$

Over $\phi 20$

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER k10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2768060	EQ768060	6.0	6	24	68	3
E2768080	EQ768080	8.0	10	38	88	4
E2768100	EQ768100	10.0	10	45	95	4
E2768120	EQ768120	12.0	12	53	110	4
E2768140	EQ768140	14.0	12	53	110	4
E2768160	EQ768160	16.0	16	63	123	4
E2768180	EQ768180	18.0	16	63	123	4
E2768200	EQ768200	20.0	20	75	141	4
E2768220	EQ768220	22.0	20	75	141	5
E2768250	EQ768250	25.0	25	90	166	5
E2768300	EQ768300	30.0	25	90	166	5
E2768320	EQ768320	32.0	32	106	186	5
E2768450	EQ768450	45.0	40	125	217	6

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

3 FLUTE, ROUGHING & FINISHING, SHORT LENGTH 3 SCHNEIDEN, SCHRUPPSCHLICHTFRÄSER, KURZ

SERIES E2766

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NF



FLUTE
3

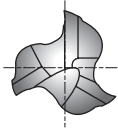


P.238, 246, 251

SERIES EQ766

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER k10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2766060	EQ766060	6.0	6	13	57	3
E2766080	EQ766080	8.0	10	19	69	3
E2766100	EQ766100	10.0	10	22	72	3
E2766120	EQ766120	12.0	12	26	83	3
E2766130	EQ766130	13.0	12	26	83	3
E2766140	EQ766140	14.0	12	26	83	3
E2766160	EQ766160	16.0	16	32	92	3
E2766180	EQ766180	18.0	16	32	92	3
E2766200	EQ766200	20.0	20	38	104	3
E2766220	EQ766220	22.0	20	38	104	3
E2766250	EQ766250	25.0	25	45	121	3
E2766280	EQ766280	28.0	25	45	121	3
E2766300	EQ766300	30.0	25	45	121	3
E2766320	EQ766320	32.0	32	53	133	3
E2766360	EQ766360	36.0	32	53	133	3
E2766400	EQ766400	40.0	32	63	155	3

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

HSS END MILLS

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

3 FLUTE, ROUGHING & FINISHING, LONG LENGTH 3 SCHNEIDEN, SCHRUPPSCHLICHTFRÄSER, LANG

SERIES E2767

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
844

NF



FLUTE
3

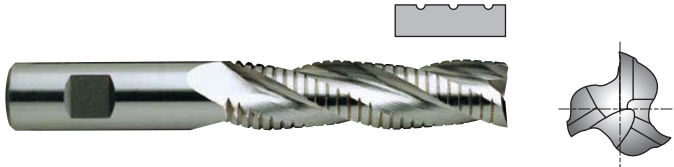


P.238, 246, 251

SERIES EQ767

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER k10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E2767060	EQ767060	6.0	6	24	68	3
E2767080	EQ767080	8.0	10	38	88	3
E2767100	EQ767100	10.0	10	45	95	3
E2767120	EQ767120	12.0	12	53	110	3
E2767140	EQ767140	14.0	12	53	110	3
E2767160	EQ767160	16.0	16	63	123	3
E2767180	EQ767180	18.0	16	63	123	3
E2767200	EQ767200	20.0	20	75	141	3
E2767220	EQ767220	22.0	20	75	141	3
E2767250	EQ767250	25.0	25	90	166	3
E2767280	EQ767280	28.0	25	90	166	3
E2767300	EQ767300	30.0	25	90	166	3
E2767360	EQ767360	36.0	32	106	186	3
E2767400	EQ767400	40.0	32	125	217	3

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

MULTI. FLUTE, SHORT LENGTH MULTI. SCHNEIDEN, KURZ

SERIES E2776

MORSE TAPER SHANK

MORSE KEGELSCHAFT

HSS
Co8

DIN
845

N

30°

FLUTE
4 - 8

DIN
228A

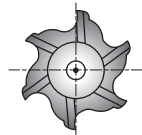


P.235, 244

SERIES EQ776

MORSE TAPER SHANK

MORSE KEGELSCHAFT



with Morse Taper Shank

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER	LENGTH OF CUT	OVERALL LENGTH	MORSE TAPER No	No.OF FLUTE
E2776140	EQ776140	14.0	26	111	2	4
E2776150	EQ776150	15.0	26	111	2	4
E2776160	EQ776160	16.0	32	117	2	4
E2776180	EQ776180	18.0	32	117	2	4
E2776200	EQ776200	20.0	38	123	2	4
E2776220	EQ776220	22.0	38	123	2	6
E2776240	EQ776240	24.0	45	147	3	6
E2776250	EQ776250	25.0	45	147	3	6
E2776260	EQ776260	26.0	45	147	3	6
E2776280	EQ776280	28.0	45	147	3	6
E2776300	EQ776300	30.0	45	147	3	6
E2776320	EQ776320	32.0	53	178	4	6
E2776350	EQ776350	35.0	53	178	4	6
E2776360	EQ776360	36.0	53	178	4	6
E2776380	EQ776380	38.0	63	188	4	6
E2776400	EQ776400	40.0	63	188	4	6
E2776420	EQ776420	42.0	63	188	4	6
E2776440	EQ776440	44.0	63	188	4	6
E2776450	EQ776450	45.0	63	188	4	8
E2776500	EQ776500	50.0	75	233	5	8

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

TOLERANCE	
MILL DIA.	±0.120

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E2777

MORSE TAPER SHANK

MORSE KEGELSCHAFT

HSS
Co8

DIN
845

NR



FLUTE
4 - 6

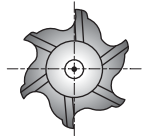


P.237, 246

SERIES EQ777

MORSE TAPER SHANK

MORSE KEGELSCHAFT



with Morse Taper Shank

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER	LENGTH OF CUT	OVERALL LENGTH	MORSE TAPER No	No.OF FLUTE
E2777140	EQ777140	14.0	26	111	2	4
E2777160	EQ777160	16.0	32	117	2	4
E2777180	EQ777180	18.0	32	117	2	4
E2777200	EQ777200	20.0	38	123	2	4
E2777220	EQ777220	22.0	38	123	2	5
E2777240	EQ777240	24.0	45	147	3	5
E2777250	EQ777250	25.0	45	147	3	5
E2777260	EQ777260	26.0	45	147	3	5
E2777270	EQ777270	27.0	45	147	3	6
E2777280	EQ777280	28.0	45	147	3	6
E2777300	EQ777300	30.0	45	147	3	6
E2777320	EQ777320	32.0	53	178	4	6
E2777350	EQ777350	35.0	53	178	4	6
E2777360	EQ777360	36.0	53	178	4	6
E2777380	EQ777380	38.0	63	188	4	6
E2777400	EQ777400	40.0	63	188	4	6
E2777450	EQ777450	45.0	63	188	4	6
E2777500	EQ777500	50.0	75	233	5	6

►Other shank design on your request.

►TIN-COATING & TiCN-COATING is available on your request.

TOLERANCE

MILL DIA.

±0.120

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E2778

MORSE TAPER SHANK

MORSE KEGELSCHAFT

HSS
Co8

DIN
845

HR

30°

FLUTE
4 - 6

DIN
228A

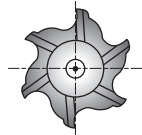


P.237, 246

SERIES EQ778

MORSE TAPER SHANK

MORSE KEGELSCHAFT



with Morse Taper Shank

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER	LENGTH OF CUT	OVERALL LENGTH	MORSE TAPER No	No.OF FLUTE
E2778160	EQ778160	16.0	32	117	2	4
E2778180	EQ778180	18.0	32	117	2	4
E2778200	EQ778200	20.0	38	123	2	4
E2778220	EQ778220	22.0	38	123	2	5
E2778240	EQ778240	24.0	45	147	3	5
E2778250	EQ778250	25.0	45	147	3	5
E2778260	EQ778260	26.0	45	147	3	5
E2778280	EQ778280	28.0	45	147	3	6
E2778300	EQ778300	30.0	45	147	3	6
E2778320	EQ778320	32.0	53	178	4	6
E2778350	EQ778350	35.0	53	178	4	6
E2778360	EQ778360	36.0	53	178	4	6
E2778380	EQ778380	38.0	63	188	4	6
E2778400	EQ778400	40.0	63	188	4	6
E2778450	EQ778450	45.0	63	188	4	6
E2778500	EQ778500	50.0	75	233	5	6

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

TOLERANCE	
MILL DIA.	±0.120

MULTI. FLUTE, ROUGHING & FINISHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPSCHLICHTFRÄSER, KURZ

SERIES E2779

MORSE TAPER SHANK

MORSE KEGELSCHAFT

HSS
Co8

DIN
845

NF

30°

FLUTE
4 - 6

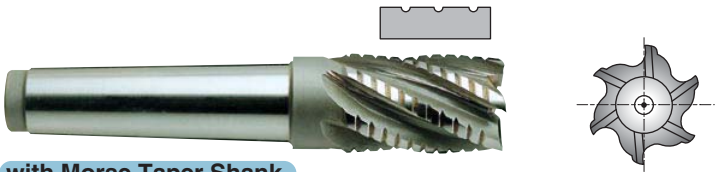
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P.238, 246

SERIES EQ779

MORSE TAPER SHANK

MORSE KEGELSCHAFT



with Morse Taper Shank

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER	LENGTH OF CUT	OVERALL LENGTH	MORSE TAPER No	No.OF FLUTE
E2779160	EQ779160	16.0	32	117	2	4
E2779180	EQ779180	18.0	32	117	2	4
E2779200	EQ779200	20.0	38	123	2	4
E2779220	EQ779220	22.0	38	123	2	5
E2779240	EQ779240	24.0	45	147	3	5
E2779250	EQ779250	25.0	45	147	3	5
E2779260	EQ779260	26.0	45	147	3	5
E2779280	EQ779280	28.0	45	147	3	6
E2779300	EQ779300	30.0	45	147	3	6
E2779320	EQ779320	32.0	53	178	4	6
E2779350	EQ779350	35.0	53	178	4	6
E2779360	EQ779360	36.0	53	178	4	6
E2779380	EQ779380	38.0	63	188	4	6
E2779400	EQ779400	40.0	63	188	4	6
E2779450	EQ779450	45.0	63	188	4	6
E2779500	EQ779500	50.0	75	233	5	6

- Other shank design on your request.
- TiN-COATING & TiCN-COATING is available on your request.

TOLERANCE	
MILL DIA.	±0.120

2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ

SERIES E3570

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

PM
ASP30

DIN
327

N



FLUTE
2



P.239

SERIES ER570

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAlN	ITEM No. TiAlN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E3570020	P2GRS-020AF	ER570020	Z2GRS-020AF	2.0	6	4	48
E3570025	P2GRS-025AF	ER570025	Z2GRS-025AF	2.5	6	5	49
E3570030	P2GRS-030AF	ER570030	Z2GRS-030AF	3.0	6	5	49
E3570040	P2GRS-040AF	ER570040	Z2GRS-040AF	4.0	6	7	51
E3570050	P2GRS-050AF	ER570050	Z2GRS-050AF	5.0	6	8	52
E3570060	P2GRS-060AF	ER570060	Z2GRS-060AF	6.0	6	8	52
E3570070	P2GRS-070TF	ER570070	Z2GRS-070TF	7.0	10	10	60
E3570080	P2GRS-080TF	ER570080	Z2GRS-080TF	8.0	10	11	61
E3570090	P2GRS-090TF	ER570090	Z2GRS-090TF	9.0	10	11	61
E3570100	P2GRS-100TF	ER570100	Z2GRS-100TF	10.0	10	13	63
E3570110	P2GRS-110DF	ER570110	Z2GRS-110DF	11.0	12	13	70
E3570120	P2GRS-120DF	ER570120	Z2GRS-120DF	12.0	12	16	73
E3570130	P2GRS-130DF	ER570130	Z2GRS-130DF	13.0	12	16	73
E3570140	P2GRS-140DF	ER570140	Z2GRS-140DF	14.0	12	16	73
E3570150	P2GRS-150DF	ER570150	Z2GRS-150DF	15.0	12	16	73
E3570160	P2GRS-160EF	ER570160	Z2GRS-160EF	16.0	16	19	79
E3570170	P2GRS-170EF	ER570170	Z2GRS-170EF	17.0	16	19	79
E3570180	P2GRS-180EF	ER570180	Z2GRS-180EF	18.0	16	19	79
E3570190	P2GRS-190EF	ER570190	Z2GRS-190EF	19.0	16	19	79
E3570200	P2GRS-200FF	ER570200	Z2GRS-200FF	20.0	20	22	88
E3570220	P2GRS-220FF	ER570220	Z2GRS-220FF	22.0	20	22	88
E3570240	P2GRS-240GF	ER570240	Z2GRS-240GF	24.0	25	26	102
E3570250	P2GRS-250GF	ER570250	Z2GRS-250GF	25.0	25	26	102
E3570280	P2GRS-280GF	ER570280	Z2GRS-280GF	28.0	25	26	102
E3570300	P2GRS-300GF	ER570300	Z2GRS-300GF	30.0	25	26	102

▶ Other shank design on your request.

▶ TIN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

4&6 FLUTE, SHORT LENGTH 4&6 SCHNEIDEN, KURZ

SERIES E3574, ER574

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

PM
ASP30

DIN
844

N



FLUTE
4 & 6

DIN
1835B



P.240

SERIES E3575, ER575

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAIN	ITEM No. TiAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E3574020	P4GRS-020AF	ER574020	Z4GRS-020AF	2.0	6	7	51	4
E3574030	P4GRS-030AF	ER574030	Z4GRS-030AF	3.0	6	8	52	4
E3574040	P4GRS-040AF	ER574040	Z4GRS-040AF	4.0	6	11	55	4
E3574050	P4GRS-050AF	ER574050	Z4GRS-050AF	5.0	6	13	57	4
E3574060	P4GRS-060AF	ER574060	Z4GRS-060AF	6.0	6	13	57	4
E3574070	P4GRS-070TF	ER574070	Z4GRS-070TF	7.0	10	16	66	4
E3574080	P4GRS-080TF	ER574080	Z4GRS-080TF	8.0	10	19	69	4
E3574090	P4GRS-090TF	ER574090	Z4GRS-090TF	9.0	10	19	69	4
E3574100	P4GRS-100TF	ER574100	Z4GRS-100TF	10.0	10	22	72	4
E3574120	P4GRS-120DF	ER574120	Z4GRS-120DF	12.0	12	26	83	4
E3574140	P4GRS-140DF	ER574140	Z4GRS-140DF	14.0	12	26	83	4
E3574160	P4GRS-160EF	ER574160	Z4GRS-160EF	16.0	16	32	92	4
E3574180	P4GRS-180EF	ER574180	Z4GRS-180EF	18.0	16	32	92	4
E3574200	P4GRS-200FF	ER574200	Z4GRS-200FF	20.0	20	38	104	4
E3575220	P6GRS-220FF	ER575220	Z6GRS-220FF	22.0	20	38	104	6
E3575240	P6GRS-240GF	ER575240	Z6GRS-240GF	24.0	25	45	121	6
E3575250	P6GRS-250GF	ER575250	Z6GRS-250GF	25.0	25	45	121	6
E3575280	P6GRS-280GF	ER575280	Z6GRS-280GF	28.0	25	45	121	6
E3575300	P6GRS-300GF	ER575300	Z6GRS-300GF	30.0	25	45	121	6

►Other shank design on your request.

►TIN-COATING & TiCN-COATING is available on your request.

TOLERANCE	
MILL DIA.	+ 0.040 - 0
SHANK DIA.	h6

3&4 FLUTE, 60° HELIX, SHORT LENGTH 3&4 SCHNEIDEN, 60° RECHTSSPIRALE, KURZ

SERIES E3462, ER462

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

PM
ASP30

DIN
844

N



FLUTE
3 & 4

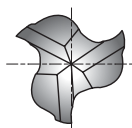


P.241

SERIES E3463, ER463

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

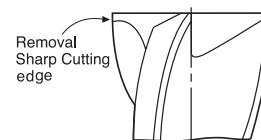


Unit : mm

EDP No. FLAT	ITEM No. FLAT	EDP No. TiAlN	ITEM No. TiAlN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E3462060	P3ERH-060AF	ER462060	Z3ERH-060AF	6.0	6	13	57	3
E3462070	P3ERH-070TF	ER462070	Z3ERH-070TF	7.0	10	16	66	3
E3462080	P3ERH-080TF	ER462080	Z3ERH-080TF	8.0	10	19	69	3
E3462090	P3ERH-090TF	ER462090	Z3ERH-090TF	9.0	10	19	69	3
E3462100	P3ERH-100TF	ER462100	Z3ERH-100TF	10.0	10	22	72	3
E3462120	P3ERH-120DF	ER462120	Z3ERH-120DF	12.0	12	26	83	3
E3462140	P3ERH-140DF	ER462140	Z3ERH-140DF	14.0	12	26	83	3
E3462150	P3ERH-150DF	ER462150	Z3ERH-150DF	15.0	12	26	83	3
E3462160	P3ERH-160EF	ER462160	Z3ERH-160EF	16.0	16	32	92	3
E3462180	P3ERH-180EF	ER462180	Z3ERH-180EF	18.0	16	32	92	3
E3462200	P3ERH-200FF	ER462200	Z3ERH-200FF	20.0	20	38	104	3
E3463250	P4ERH-250GF	ER463250	Z4ERH-250GF	25.0	25	45	121	4
E3463300	P4ERH-300GF	ER463300	Z4ERH-300GF	30.0	25	45	121	4

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.



HSS END MILLS

TOLERANCE		
MILL DIA.	~ ϕ 6.5	+0.048 -0
	ϕ 7.0 ~ ϕ 10.0	+0.058 -0
	ϕ 10.5 ~ ϕ 18.0	+0.070 -0
	ϕ 18.5 ~ ϕ 30.0	+0.084 -0
SHANK DIA.	h6	

2 FLUTE, SHORT LENGTH 2 SCHNEIDEN, KURZ

SERIES E9410 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

YPM

DIN
327

N



FLUTE
2



P.241

SERIES EP410 FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER e8	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
E9410020	EP410020	2.0	6	4	48
E9410030	EP410030	3.0	6	5	49
E9410040	EP410040	4.0	6	7	51
E9410050	EP410050	5.0	6	8	52
E9410060	EP410060	6.0	6	8	52
E9410080	EP410080	8.0	10	11	61
E9410100	EP410100	10.0	10	13	63
E9410120	EP410120	12.0	12	16	73
E9410140	EP410140	14.0	12	16	73
E9410160	EP410160	16.0	16	19	79
E9410180	EP410180	18.0	16	19	79
E9410200	EP410200	20.0	20	22	88
E9410220	EP410220	22.0	20	22	88
E9410250	EP410250	25.0	25	26	102

►Other shank design on your request.

►TiN-COATING & TiCN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

4&6 FLUTE, SHORT LENGTH 4&6 SCHNEIDEN, KURZ

SERIES E9515

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

YPM

DIN
844

N



FLUTE
4&6



P.242

SERIES EE515

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No. FLAT	EDP No. TAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E9515020	EE515020	2.0	6	7	51	4
E9515030	EE515030	3.0	6	8	52	4
E9515040	EE515040	4.0	6	11	55	4
E9515050	EE515050	5.0	6	13	57	4
E9515060	EE515060	6.0	6	13	57	4
E9515901	EE515901	6.0	6	19	63	4
E9515080	EE515080	8.0	10	19	69	4
E9515902	EE515902	8.0	10	28	78	4
E9515100	EE515100	10.0	10	22	72	4
E9515903	EE515903	10.0	10	35	84	4
E9515120	EE515120	12.0	12	26	83	4
E9515904	EE515904	12.0	12	40	97	4
E9515140	EE515140	14.0	12	26	83	4
E9515160	EE515160	16.0	16	32	92	6
E9515905	EE515905	16.0	16	48	108	6
E9515180	EE515180	18.0	16	32	92	6
E9515200	EE515200	20.0	20	38	104	6
E9515906	EE515906	20.0	20	58	122	6
E9515220	EE515220	22.0	20	38	104	6
E9515250	EE515250	25.0	25	45	121	6
E9515907	EE515907	25.0	25	68	144	6

► Other shank design on your request.

► TIN-COATING & TiCN-COATING is available on your request.

TOLERANCE	
MILL DIA.	+ 0.030 - 0
SHANK DIA.	h6

MULTI. FLUTE, ROUGHING, SHORT LENGTH MULTI. SCHNEIDEN, SCHRUPPFRÄSER, KURZ

SERIES E9720

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

YPM

DIN
844

HR



FLUTE
4&6

DIN
1835B



P.242

SERIES EP720

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN



FINE



Upto ϕ 20

Over ϕ 20

Unit : mm

EDP No. FLAT	EDP No. TiAIN	MILL DIAMETER js12	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No.OF FLUTE
E9720060	EP720060	6.0	6	13	57	4
E9720070	EP720070	7.0	10	16	66	4
E9720080	EP720080	8.0	10	19	69	4
E9720090	EP720090	9.0	10	19	69	5
E9720100	EP720100	10.0	10	22	72	5
E9720110	EP720110	11.0	12	22	79	5
E9720120	EP720120	12.0	12	26	83	5
E9720130	EP720130	13.0	12	26	83	5
E9720140	EP720140	14.0	12	26	83	5
E9720150	EP720150	15.0	12	26	83	5
E9720160	EP720160	16.0	16	32	92	5
E9720180	EP720180	18.0	16	32	92	5
E9720200	EP720200	20.0	20	38	104	5
E9720220	EP720220	22.0	20	38	104	5
E9720250	EP720250	25.0	25	45	121	6
E9720300	EP720300	30.0	25	45	121	6

► Other shank design on your request.

► TiN-COATING & TiCN-COATING is available on your request.

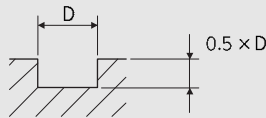
Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Toleranzwerte in μm / Tolerance range in μm						
Nennmaßbereich in mm / Nominal-Diameter in mm						
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30	über 30 bis 50 over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -16 \end{smallmatrix}$

2FL. FINISH SLOTTING, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5600	40	4500	30	4000	30	2200	15	12000	160
3	3500	55	3200	45	2500	40	1600	20	11000	250
4	2800	70	2200	55	1800	45	1100	30	8000	290
5	2200	90	1800	70	1600	60	900	35	6300	310
6	1800	90	1600	80	1200	60	800	40	5600	310
8	1400	100	1100	90	900	70	560	45	4000	390
10	1100	100	900	90	800	80	450	45	3100	400
12	900	110	800	100	630	80	400	50	2500	380
14	800	110	700	90	560	80	350	50	2200	350
16	700	110	560	90	450	70	280	45	2000	350
18	630	100	500	90	400	70	250	45	1800	350
20	560	100	450	90	400	70	220	45	1600	320
22	500	100	450	90	350	70	220	45	1400	300
25	450	90	400	80	310	60	180	35	1200	280
28	400	80	350	70	280	55	160	30	1100	270
30	350	70	310	60	250	50	160	30	1100	270
32	350	70	280	55	220	45	140	30	1000	240
36	310	60	250	50	200	40	120	25	900	220
40	280	60	220	50	180	40	110	25	800	200



※ The FEED, in long & extra long types, should be reduced by around 50%

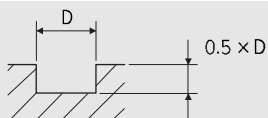
RPM=REVOLUTION PER MIN.
FEED=mm/min.

HSS END MILLS

2FL. FINISH, 42° HELIX, HSS-Co8 for ALUMINIUM

<Slotting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
3	8000	560
6	7000	700
8	6000	850
10	5000	1200
12	5000	1200
14	3500	1240
16	3500	1240
18	2300	1300
20	2300	1300

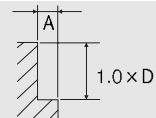


RPM=REVOLUTION PER MIN.
FEED=mm/min.

<Side Cutting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
3	8000	730
6	7000	900
8	6000	1100
10	5000	1500
12	5000	1500
14	3500	1600
16	3500	1600
18	2300	1700
20	2300	1700

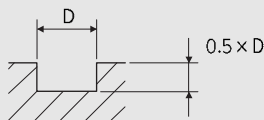
A: $\phi 3 \sim \phi 10 = 0.25 \times D$
 $\phi 12 \sim \phi 20 = 0.5 \times D$



RPM=REVOLUTION PER MIN.
FEED=mm/min.

3FL. FINISH SLOTTING, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5600	60	4500	45	4000	45	2200	20	12000	240
3	3500	80	3200	65	2500	60	1600	30	11000	380
4	2800	105	2200	80	1800	65	1100	45	8000	440
5	2200	135	1800	105	1600	90	900	50	6300	470
6	1800	135	1600	120	1200	90	800	60	5600	470
8	1400	150	1100	135	900	105	560	65	4000	580
10	1100	150	900	135	800	120	450	65	3100	600
12	900	165	800	150	630	120	400	75	2500	570
14	800	165	700	135	560	120	350	75	2200	530
16	700	165	560	135	450	105	280	65	2000	530
18	630	150	500	135	400	105	250	65	1800	530
20	560	150	450	135	400	105	220	65	1600	480
22	500	150	450	135	350	105	220	65	1400	450
25	450	135	400	120	310	90	180	50	1200	420
28	400	120	350	105	280	80	160	45	1100	400
30	350	105	310	90	250	75	160	45	1100	400

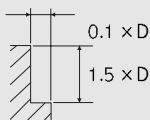


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

3FL. FINISH SIDE CUTTING, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5600	60	4500	40	4000	35	2200	15	12000	180
3	3500	80	3200	60	2500	45	1600	20	11000	280
4	2800	105	2200	75	1800	50	1100	30	8000	330
5	2200	135	1800	95	1600	65	900	35	6300	350
6	1800	135	1600	110	1200	65	800	45	5600	350
8	1400	150	1100	120	900	80	560	50	4000	440
10	1100	150	900	120	800	90	450	50	3100	450
12	900	165	800	135	630	90	400	55	2500	430
14	800	165	700	120	560	90	350	55	2200	400
16	700	165	560	120	450	80	280	50	2000	400
18	630	150	500	120	400	80	250	50	1800	400
20	560	150	450	120	400	80	220	50	1600	360
22	500	150	450	120	350	80	220	50	1400	340
25	450	135	400	110	310	65	180	35	1200	320
28	400	120	350	95	280	60	160	30	1100	300
30	350	105	310	80	250	55	160	30	1100	300

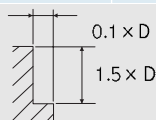


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, FINISH SIDE CUTTING, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	5600	80	4500	55	4000	45	2200	20	12000	240
3	3500	110	3200	80	2500	60	1600	30	11000	380
4	2800	140	2200	100	1800	65	1100	45	8000	440
5	2200	180	1800	125	1600	90	900	50	6300	470
6	1800	180	1600	145	1200	90	800	60	5600	470
8	1400	200	1100	160	900	105	560	65	4000	580
10	1100	200	900	160	800	120	450	65	3100	600
12	900	220	800	180	630	120	400	75	2500	570
14	800	220	700	160	560	120	350	75	2200	530
16	700	220	560	160	450	105	280	65	2000	530
18	630	200	500	160	400	105	250	65	1800	530
20	560	200	450	160	400	105	220	65	1600	480
22	500	200	450	160	350	105	220	65	1400	450
25	450	180	400	145	310	90	180	50	1200	420
28	400	160	350	125	280	80	160	45	1100	400
30	350	140	310	110	250	75	160	45	1100	400
32	350	140	280	100	220	65	140	45	1000	360
36	310	120	250	90	200	60	120	35	900	330
40	280	120	220	90	180	60	110	35	800	300

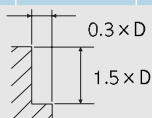


RPM=REVOLUTION PER MIN.
FEED=mm/min.

HSS END MILLS

MULTI FLUTE, FINISH SIDE CUTTING, 50° HELIX, HSS-Co8 END MILLS

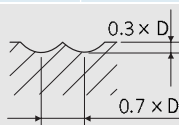
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	5000	35	4500	25	2500	10
3	3500	50	2800	35	1800	20
4	2500	60	2000	40	1200	25
5	2000	75	1800	55	1000	30
6	1800	85	1300	55	900	35
8	1200	95	1000	65	600	40
10	1000	95	900	70	500	40
12	900	110	700	70	450	45
14	800	95	600	70	400	45
16	600	95	500	65	300	40
18	550	95	450	65	280	40
20	500	95	450	65	250	40
22	500	95	400	65	250	40
25	450	85	350	55	200	30
28	400	75	300	50	180	25
30	350	65	280	45	180	25



RPM=REVOLUTION PER MIN.
FEED=mm/min.

2FL. BALL NOSE, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 1.5 × 3.0	4500	95	3400	70	2000	30	1400	20	11000	230
R 2.0 × 4.0	3200	115	2400	80	1400	35	1000	25	8000	260
R 3.0 × 6.0	2200	135	1700	90	1000	45	700	25	5600	280
R 4.0 × 8.0	1600	160	1200	105	700	50	500	30	4000	350
R 5.0 × 10.0	1300	180	1000	120	560	60	400	35	3200	360
R 6.0 × 12.0	1000	170	800	105	450	55	320	35	2500	340
R 8.0 × 16.0	800	150	600	100	350	55	250	35	2000	300
R 10.0 × 20.0	600	140	500	85	300	50	200	35	1600	280
R 12.5 × 25.0	500	130	400	70	220	40	160	30	1300	250

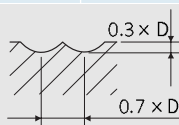


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, BALL NOSE, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 3.0 × 6.0	2200	200	1700	135	1000	70	700	40	5600	420
R 4.0 × 8.0	1600	240	1200	160	700	75	500	45	4000	530
R 5.0 × 10.0	1300	270	1000	180	560	90	400	50	3200	540
R 6.0 × 12.0	1000	260	800	160	450	80	320	50	2500	510
R 8.0 × 16.0	800	230	600	150	350	80	250	50	2000	450
R 10.0 × 20.0	600	210	500	130	300	75	200	50	1600	420
R 12.5 × 25.0	500	200	400	105	220	60	160	45	1300	380

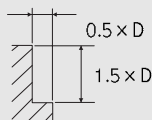


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, SIDE CUTTING, ROUGHING, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	1800	80	1600	60	1200	55	800	30	4500	200
8	1400	105	1100	75	900	65	560	35	3100	230
10	1100	150	900	120	800	110	450	60	2500	350
12	900	180	800	140	630	110	400	70	2000	400
14	800	180	700	140	560	110	350	70	1800	420
16	700	180	560	140	450	110	280	70	1600	450
18	630	180	500	140	400	110	250	70	1400	470
20	560	180	450	140	400	110	220	70	1200	500
22	500	220	450	170	350	140	220	85	1100	470
25	450	220	400	170	310	140	180	85	1000	450
28	400	210	350	160	280	130	160	85	900	510
30	350	210	310	160	250	130	160	85	900	530
32	350	210	280	160	220	130	140	85	800	500
36	310	210	250	160	200	130	120	85	700	470
40	280	200	220	150	180	120	110	80	630	450
50	220	200	180	170	160	140	90	80	500	370

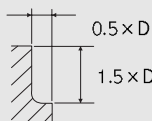


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, SIDE CUTTING, BALL NOSE ROUGHING, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 4.0 × 8.0	1400	105	1100	75	900	65	560	35	3100	230
R 5.0 × 10.0	1100	150	900	120	800	110	450	60	2500	250
R 6.0 × 12.0	900	180	800	140	630	110	400	70	2000	400
R 8.0 × 16.0	700	180	560	140	450	110	280	70	1600	450
R 10.0 × 20.0	560	180	450	140	400	110	220	70	1200	500
R 12.5 × 25.0	450	220	400	170	310	140	180	85	1000	450
R 16.0 × 32.0	350	210	280	160	220	130	140	85	800	500
R 20.0 × 40.0	280	200	220	150	180	120	110	80	630	450

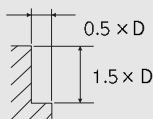


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, SIDE CUTTING, ROUGHING & FINISHING, HSS-Co8 END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	1800	65	1600	50	1200	45	800	25	4500	160
8	1400	85	1100	60	900	50	560	30	3100	185
10	1100	120	900	95	800	90	450	50	2500	280
12	900	145	800	110	630	90	400	55	2000	320
14	800	145	700	110	560	90	350	55	1800	340
16	700	145	560	110	450	90	280	55	1600	360
18	630	145	500	110	400	90	250	55	1400	380
20	560	145	450	110	400	90	220	55	1200	400
22	500	175	450	135	350	110	220	70	1100	380
25	450	175	400	135	310	110	180	70	1000	360
28	400	170	350	130	280	105	160	70	900	410
30	350	170	310	130	250	105	160	70	900	420
32	350	170	280	130	220	105	140	70	800	400
36	310	170	250	130	200	105	120	70	700	380
40	280	160	220	120	180	95	110	65	630	360

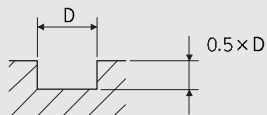


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

2FL. FINISH SLOTTING, ASP-30 END MILLS

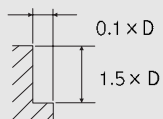
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	5000	35	4500	35	2400	15
3	3500	50	2800	45	1800	20
4	2500	60	2000	50	1200	35
5	2000	75	1800	65	1000	40
6	1800	90	1300	65	900	45
8	1200	100	1000	75	600	50
10	1000	100	900	90	500	50
12	900	110	700	90	450	55
14	800	100	600	90	400	55
16	600	100	500	75	300	50
18	550	100	450	75	280	50
20	500	100	450	75	250	50
22	500	100	400	75	250	50
25	450	90	350	65	200	40



RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, FINISH SIDE CUTTING, ASP-30 END MILLS

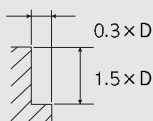
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	5000	60	4500	50	2400	20
3	3500	90	2800	65	1800	35
4	2500	110	2000	70	1200	50
5	2000	140	1800	100	1000	55
6	1800	160	1300	100	900	65
8	1200	180	1000	115	600	70
10	1000	180	900	130	500	70
12	900	200	700	130	450	80
14	800	180	600	130	400	80
16	600	180	500	115	300	70
18	550	180	450	115	280	70
20	500	180	450	115	250	70
22	500	180	400	115	250	70
25	450	160	350	100	200	55



RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, FINISH SIDE CUTTING, 60° HELIX, ASP-30 END MILLS

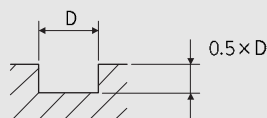
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6	2000	100	1600	65	1200	45
8	1500	100	1300	80	1000	45
10	1300	110	1000	80	800	50
12	1000	120	800	80	600	50
14	800	130	650	80	500	55
16	660	140	520	110	400	70
18	500	180	400	140	310	100
20	400	190	330	160	250	100



RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FL. FINISH SLOTTING, YPM END MILLS

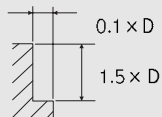
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	5600	35	5000	35	2800	20
3	4000	55	3000	50	2000	25
4	2800	70	2200	55	1400	35
5	2200	85	2000	75	1100	45
6	2000	100	1500	75	1000	50
8	1400	110	1100	85	700	55
10	1100	110	1000	100	560	55
12	1000	125	800	100	500	60
14	900	110	700	100	450	60
16	700	110	560	85	350	55
18	600	110	500	85	300	55
20	560	110	500	85	280	55
22	560	110	450	85	280	55
25	500	100	400	75	230	45



RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, FINISH SIDE CUTTING, YPM END MILLS

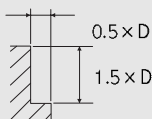
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	5600	70	5000	55	2800	25
3	4000	100	3000	75	2000	35
4	2800	130	2200	80	1400	55
5	2200	160	2000	110	1100	60
6	2000	180	1500	110	1000	75
8	1400	200	1100	130	700	80
10	1100	200	1000	150	560	80
12	1000	230	800	150	500	95
14	900	200	700	150	450	95
16	700	200	560	130	350	80
18	600	200	500	130	300	80
20	560	200	500	130	280	80
22	560	200	450	130	280	80
25	500	180	400	110	230	60



RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, SIDE CUTTING, ROUGHING, YPM END MILLS

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 900N/mm ²		900 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2300	100	2000	75	1500	70	1000	35
8	1800	130	1400	95	1100	80	700	45
10	1400	190	1100	150	1000	140	560	75
12	1100	230	1000	180	800	140	500	85
14	1000	230	900	180	700	140	450	85
16	900	230	700	180	560	140	350	85
18	800	230	600	180	500	140	300	85
20	700	230	560	180	500	140	300	85
22	600	280	560	210	450	180	300	105
25	560	280	500	210	400	180	230	105
28	500	260	450	200	350	160	200	105
30	450	260	400	200	300	160	200	105

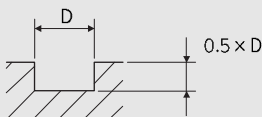


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

2FL. FINISH SLOTTING, HSS-Co8 END MILLS, TiN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	6700	50	5400	35	5000	35	2600	20	14000	190
3	4200	65	3800	55	3000	50	1900	25	13000	300
4	3400	85	2600	65	2200	55	1300	35	9500	350
5	2600	110	2200	85	1900	70	1100	40	7500	370
6	2200	110	1900	95	1400	70	950	50	6700	370
8	1700	120	1300	110	1100	85	670	55	5000	470
10	1300	120	1100	110	950	95	550	55	3700	480
12	1100	130	950	120	750	95	500	60	3000	460
14	950	130	850	110	670	95	400	60	2600	420
16	850	130	670	110	550	85	340	55	2400	420
18	750	120	600	110	500	85	300	55	2200	420
20	670	120	550	110	500	85	260	55	1900	380
22	600	120	550	110	400	85	260	55	1700	360
25	550	110	500	95	370	70	220	40	1400	340
28	500	95	400	85	340	65	190	35	1300	320
30	400	85	370	70	300	60	190	35	1300	320
32	400	85	340	65	260	55	170	35	1200	290
36	370	70	300	60	240	50	140	30	1100	260
40	340	70	260	60	220	50	130	30	950	240

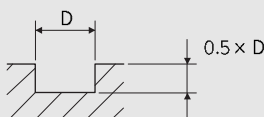


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

3FL. FINISH SLOTTING, HSS-Co8 END MILLS, TiN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	6700	70	5400	55	5000	55	2600	25	14000	290
3	4200	95	3800	80	3000	70	1900	35	13000	460
4	3400	125	2600	95	2200	80	1300	55	9500	530
5	2600	160	2200	125	1900	110	1100	60	7500	560
6	2200	160	1900	145	1400	110	950	70	6700	560
8	1700	180	1300	160	1100	125	670	80	5000	700
10	1300	180	1100	160	950	145	550	80	3700	720
12	1100	200	950	180	750	145	500	90	3000	680
14	950	200	850	160	670	145	400	90	2600	640
16	850	200	670	160	550	125	340	80	2400	640
18	750	180	600	160	500	125	300	80	2200	640
20	670	180	550	160	500	125	260	80	1900	580
22	600	180	550	160	400	125	260	80	1700	540
25	550	160	500	145	370	110	220	60	1400	500
28	500	145	400	125	340	95	190	55	1300	480
30	400	125	370	110	300	90	190	55	1300	480

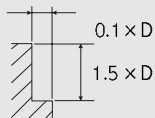


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

3FL. FINISH SIDE CUTTING, HSS-Co8 END MILLS, TiN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	6700	70	5400	50	5000	40	2600	20	14000	220
3	4200	95	3800	70	3000	55	1900	25	13000	340
4	3400	125	2600	90	2200	60	1300	35	9500	400
5	2600	160	2200	115	1900	80	1100	40	7500	420
6	2200	160	1900	130	1400	80	950	55	6700	420
8	1700	180	1300	145	1100	95	670	60	5000	530
10	1300	180	1100	145	950	110	550	60	3700	540
12	1100	200	950	160	750	110	500	65	3000	520
14	950	200	850	145	670	110	400	65	2600	480
16	850	200	670	145	550	95	340	60	2400	480
18	750	180	600	145	500	95	300	60	2200	480
20	670	180	550	145	500	95	260	60	1900	430
22	600	180	550	145	400	95	260	60	1700	410
25	550	160	500	130	370	80	220	40	1400	380
28	500	145	400	115	340	70	190	35	1300	360
30	400	125	370	95	300	65	190	35	1300	360

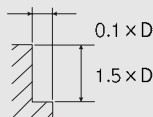


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

MULTI FLUTE, FINISH SIDE CUTTING, HSS-Co8 END MILLS, TiN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	6700	95	5400	65	5000	55	2600	25	14000	290
3	4200	130	3800	95	3000	70	1900	35	13000	460
4	3400	170	2600	120	2200	80	1300	55	9500	530
5	2600	220	2200	150	1900	110	1100	60	7500	560
6	2200	220	1900	170	1400	110	950	70	6700	560
8	1700	240	1300	190	1100	125	670	80	5000	700
10	1300	240	1100	190	950	145	550	80	3700	720
12	1100	260	950	220	750	145	500	90	3000	680
14	950	260	850	190	670	145	400	90	2600	640
16	850	260	670	190	550	125	340	80	2400	640
18	750	240	600	190	500	125	300	80	2200	640
20	670	240	550	190	500	125	260	80	1900	580
22	600	240	550	190	400	125	260	80	1700	540
25	550	220	500	175	370	110	220	60	1400	500
28	500	190	400	150	340	95	190	55	1300	480
30	400	170	370	130	300	90	190	55	1300	480
32	400	170	340	120	260	80	170	55	1200	430
36	370	145	300	110	240	70	140	40	1100	400
40	340	145	260	110	220	70	130	40	950	360

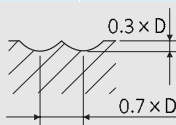


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

2FL. BALL NOSE, HSS-Co8 END MILLS, TiN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 1.5 × 3.0	5400	115	4000	85	2400	35	1700	25	13000	280
R 2.0 × 4.0	3800	140	3000	95	1700	40	1200	30	9500	310
R 3.0 × 6.0	2600	160	2000	110	1200	55	850	30	6700	340
R 4.0 × 8.0	1900	190	1400	125	850	60	600	35	5000	420
R 5.0 × 10.0	1600	220	1200	145	670	70	500	40	4000	430
R 6.0 × 12.0	1200	200	950	125	550	65	400	40	3000	410
R 8.0 × 16.0	950	180	700	120	400	65	300	40	2500	360
R 10.0 × 20.0	700	170	600	100	350	60	240	40	2000	340
R 12.5 × 25.0	600	155	500	85	260	50	190	35	1500	300

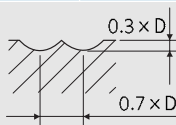


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, BALL NOSE, HSS-Co8 END MILLS, TiN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 3.0 × 6.0	2600	240	2000	160	1200	85	850	50	6700	500
R 4.0 × 8.0	1900	290	1400	190	850	90	600	55	5000	640
R 5.0 × 10.0	1600	320	1200	220	670	110	500	60	4000	650
R 6.0 × 12.0	1200	310	950	190	550	95	400	60	3000	610
R 8.0 × 16.0	950	280	700	180	400	95	300	60	2500	540
R 10.0 × 20.0	700	250	600	160	350	90	240	60	2000	500
R 12.5 × 25.0	600	240	500	130	260	70	190	55	1500	450

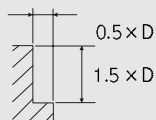


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, SIDE CUTTING, ROUGHING, HSS-Co8 END MILLS, TIN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2200	95	1900	70	1400	65	950	35	5500	240
8	1700	125	1300	90	1000	80	670	40	3700	280
10	1300	180	1000	145	950	130	550	70	3000	420
12	1000	220	950	170	750	130	500	85	2500	480
14	950	220	850	170	670	130	420	85	2200	500
16	850	220	670	170	550	130	340	85	1900	540
18	750	220	600	170	500	130	300	85	1700	560
20	650	220	550	170	500	130	260	85	1400	600
22	600	260	550	200	400	170	260	100	1300	560
25	500	260	500	200	370	170	220	100	1200	540
28	500	250	400	190	340	160	190	100	1100	600
30	400	250	370	190	300	160	190	100	1100	640
32	400	250	340	190	260	160	170	100	950	600
36	370	250	300	190	240	160	140	100	850	560
40	340	240	260	180	220	140	130	95	750	540
50	260	240	220	200	190	170	110	95	600	440

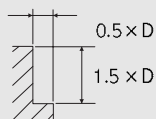


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

MULTI FLUTE, SIDE CUTTING, ROUGHING & FINISHING, HSS-Co8 END MILLS, TIN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2200	80	1900	60	1400	55	950	30	5500	190
8	1700	100	1300	70	1000	60	670	35	3700	220
10	1300	145	1000	115	950	110	550	60	3000	340
12	1000	175	950	130	750	110	500	65	2500	380
14	950	175	850	130	670	110	420	65	2200	410
16	850	175	670	130	550	110	340	65	1900	430
18	750	175	600	130	500	110	300	65	1700	460
20	650	175	550	130	500	110	260	65	1400	480
22	600	210	550	160	400	130	260	85	1300	460
25	500	210	500	160	370	130	220	85	1200	430
28	500	200	400	155	340	125	190	85	1100	490
30	400	200	370	155	300	125	190	85	1100	500
32	400	200	340	155	260	125	170	85	950	480
36	370	200	300	155	240	125	140	85	850	460
40	340	190	260	145	220	115	130	80	750	430

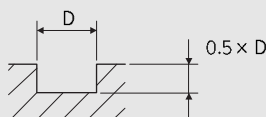


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

2FL. FINISH SLOTTING, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7300	50	6000	40	5000	40	2900	20	16000	210
3	4500	70	4200	60	3300	50	2100	25	14000	330
4	3600	90	2900	70	2300	60	1400	40	10000	380
5	2900	115	2300	90	2100	80	1200	45	8200	400
6	2300	115	2000	105	1600	80	1000	50	7300	400
8	1800	130	1400	115	1200	90	730	60	5000	510
10	1400	130	1200	115	1000	105	600	60	4000	520
12	1200	145	1000	130	800	105	500	65	3300	500
14	1000	145	900	115	700	105	450	65	2800	450
16	900	145	700	115	600	90	360	60	2600	450
18	800	130	650	115	500	90	320	60	2300	450
20	730	130	600	115	500	90	300	60	2100	420
22	650	130	600	115	450	90	280	60	1800	390
25	600	120	500	105	400	80	230	48	1600	360
28	500	105	450	90	350	70	210	40	1400	350
30	450	90	400	80	320	65	210	40	1400	350
32	450	90	360	70	280	60	180	40	1300	310
36	400	80	320	65	260	50	160	30	1200	280
40	360	80	280	65	230	50	140	30	1000	260

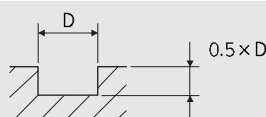


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

3FL. FINISH SLOTTING, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7300	80	6000	60	5000	60	2900	25	16000	310
3	4500	105	4200	85	3300	80	2100	40	14000	500
4	3600	135	2900	105	2300	85	1400	60	10000	570
5	2900	175	2300	135	2100	115	1200	65	8200	610
6	2300	175	2000	155	1600	115	1000	80	7300	610
8	1800	195	1400	175	1200	135	730	85	5000	750
10	1400	195	1200	175	1000	155	600	85	4000	780
12	1200	215	1000	195	800	155	500	95	3300	740
14	1000	215	900	175	700	155	450	95	2800	690
16	900	215	700	175	600	135	360	85	2600	690
18	800	195	650	175	500	135	320	85	2300	690
20	730	195	600	175	500	135	300	85	2100	620
22	650	195	600	175	450	135	280	85	1800	580
25	600	175	500	155	400	115	230	65	1600	550
28	500	155	450	135	350	105	210	60	1400	520
30	450	135	400	115	320	95	210	60	1400	520

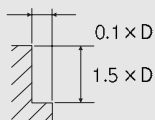


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

3FL. FINISH SIDE CUTTING, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7300	80	6000	50	5000	45	2900	20	16000	230
3	4500	105	4200	80	3300	60	2100	25	14000	360
4	3600	135	2900	95	2300	65	1400	40	10000	430
5	2900	175	2300	125	2100	85	1200	45	8200	450
6	2300	175	2000	145	1600	85	1000	60	7300	450
8	1800	195	1400	155	1200	105	730	65	5000	570
10	1400	195	1200	155	1000	115	600	65	4000	590
12	1200	215	1000	175	800	115	500	70	3300	560
14	1000	215	900	155	700	115	450	70	2800	520
16	900	215	700	155	600	105	360	65	2600	520
18	800	195	650	155	500	105	320	65	2300	520
20	730	195	600	155	500	105	300	65	2100	470
22	650	195	600	155	450	105	280	65	1800	440
25	600	175	500	145	400	85	230	45	1600	420
28	500	155	450	125	350	80	210	40	1400	390
30	450	135	400	105	320	70	210	40	1400	390

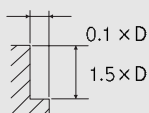


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

MULTI FLUTE, FINISH SIDE CUTTING, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	7300	105	6000	70	5000	60	2900	25	16000	310
3	4500	145	4200	105	3300	80	2100	40	14000	500
4	3600	180	2900	130	2300	85	1400	60	10000	570
5	2900	235	2300	160	2100	115	1200	65	8200	610
6	2300	235	2000	190	1600	115	1000	80	7300	610
8	1800	260	1400	210	1200	135	730	85	5000	750
10	1400	260	1200	210	1000	155	600	85	4000	780
12	1200	285	1000	235	800	155	500	95	3300	740
14	1000	285	900	210	700	155	450	95	2800	690
16	900	285	700	210	600	135	360	85	2600	690
18	800	260	650	210	500	135	320	85	2300	690
20	730	260	600	210	500	135	300	85	2100	620
22	650	260	600	210	450	135	280	85	1800	580
25	600	235	500	190	400	115	230	65	1600	550
28	500	210	450	160	350	105	210	60	1400	520
30	450	180	400	145	320	95	210	60	1400	520
32	450	180	360	130	280	85	180	60	1300	470
36	400	155	320	120	260	80	160	45	1200	430
40	360	155	280	120	230	80	140	45	1000	390

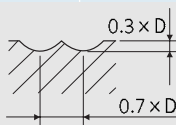


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

2FL. BALL NOSE, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 1.5 × 3.0	6000	125	4400	90	2600	40	1800	25	14000	300
R 2.0 × 4.0	4000	150	3100	105	1800	45	1300	30	10000	340
R 3.0 × 6.0	3000	175	2200	115	1300	60	900	30	7300	360
R 4.0 × 8.0	2000	210	1600	135	900	65	650	40	5000	450
R 5.0 × 10.0	1700	235	1300	155	730	80	500	45	4000	470
R 6.0 × 12.0	1300	220	1000	135	600	70	400	45	3300	440
R 8.0 × 16.0	1000	200	800	130	450	70	300	45	2600	390
R 10.0 × 20.0	800	180	650	110	400	65	250	45	2000	360
R 12.5 × 25.0	650	170	500	90	300	50	200	40	1700	330

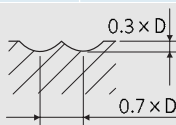


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, BALL NOSE, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R 3.0 × 6.0	3000	260	2200	175	1300	90	900	50	7300	550
R 4.0 × 8.0	2000	310	1600	210	900	95	650	60	5000	690
R 5.0 × 10.0	1700	350	1300	230	730	115	500	65	4000	700
R 6.0 × 12.0	1300	340	1000	210	600	105	400	65	3300	660
R 8.0 × 16.0	1000	300	800	200	450	105	300	65	2600	590
R 10.0 × 20.0	800	270	650	170	400	95	250	65	2000	550
R 12.5 × 25.0	650	260	500	135	300	80	200	60	1700	490

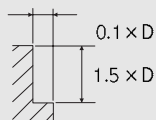


※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

MULTI FLUTE, SIDE CUTTING, ROUGHING, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2300	105	2000	80	1600	70	1000	40	6000	260
8	1800	135	1400	95	1200	85	700	45	4000	300
10	1400	195	1200	155	1000	145	600	80	3200	450
12	1200	235	1000	180	800	145	500	90	2600	520
14	1000	235	900	180	700	145	450	90	2300	550
16	900	235	700	180	600	145	350	90	2100	580
18	800	235	650	180	500	145	320	90	1800	610
20	700	235	600	180	500	145	300	90	1600	650
22	650	285	600	220	450	180	300	110	1400	610
25	600	285	500	220	400	180	230	110	1300	580
28	500	275	450	210	350	170	210	110	1200	660
30	450	275	400	210	320	170	210	110	1200	690
36	450	275	350	210	300	170	180	110	1000	650
39	400	275	320	210	250	170	150	110	900	610
40	350	260	300	195	230	155	140	105	800	280
50	300	260	230	220	200	180	120	105	650	480

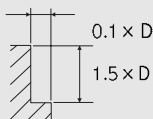


※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.

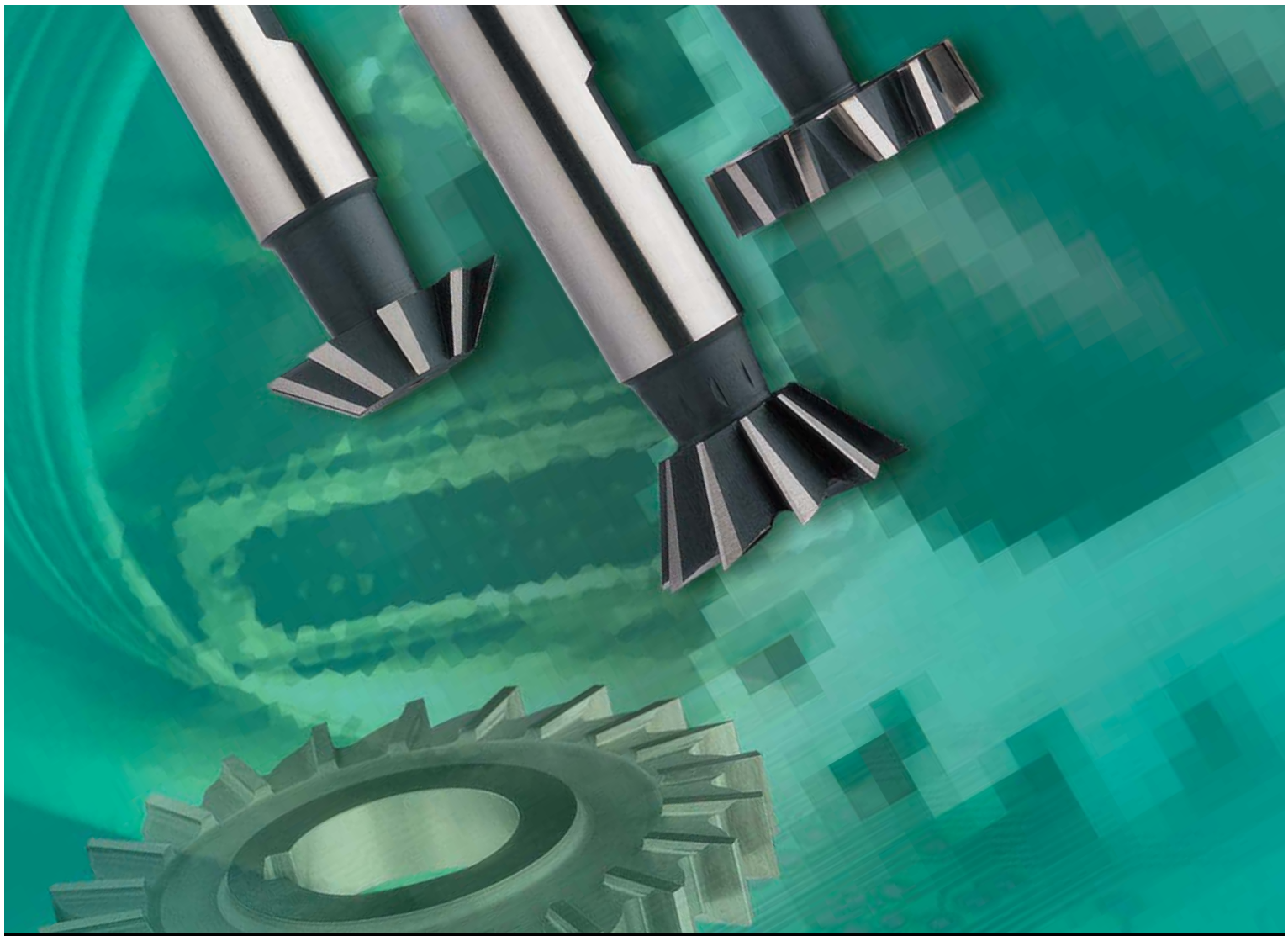
MULTI FLUTE, SIDE CUTTING, ROUGHING & FINISHING, HSS-Co8 END MILLS, TiCN-COATED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2300	85	2000	65	1600	60	1000	30	6000	210
8	1800	110	1400	80	1200	65	700	40	4000	240
10	1400	155	1200	125	1000	115	600	65	3200	360
12	1200	190	1000	145	800	115	500	70	2600	420
14	1000	190	900	145	700	115	450	70	2300	440
16	900	190	700	145	600	115	350	70	2100	470
18	800	190	650	145	500	115	320	70	1800	500
20	700	190	600	145	500	115	300	70	1600	520
22	650	230	600	175	450	145	300	90	1400	500
25	600	230	500	175	400	145	230	90	1300	470
28	500	220	450	170	350	135	210	90	1200	530
30	450	220	400	170	320	135	210	90	1200	550
32	450	220	350	170	300	135	180	90	1000	520
36	400	220	320	170	250	135	150	90	900	500
40	350	210	300	155	230	125	140	85	800	470



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN. FEED=mm/min.



MILLING CUTTERS & COUNTERBORES

- **DOVETAIL CUTTERS**
- **WOODRUFF KEYSEAT CUTTERS**
- **T-SLOT CUTTERS**
- **SIDE AND FACE MILLING CUTTERS**
- **SHELL END MILLS**
- **CORNER ROUNDING CUTTERS**
- **COUNTERBORES**

ML012
ML022
ML112
ML122DOVETAIL CUTTERS TYPE "A"
WINKELFRÄSER FORM "A"

254

ML032
ML042
ML132
ML142DOVETAIL CUTTERS TYPE "B"
WINKELFRÄSER FORM "B"

255

ML062
ML162WOODRUFF KEYSEAT CUTTERS
SCHLITZFRÄSER FORM "B"

256

ML072
ML172T-SLOT CUTTERS
SCHAFTERFRÄSER FÜR T-NUTEN

257

ML092

SIDE AND FACE MILLING CUTTERS WITH STRAIGHT TEETH
SCHEIBENFRÄSER mit GERADEVERZAHNT

258

ML102

SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH
SCHEIBENFRÄSER mit KREUZVERZAHNT

259~261

E2675

MULTI. FLUTE, SHELL END MILLS
MULTI. SCHNEIDEN, WALZENSTIRNFRÄSER

262

E2676

MULTI. FLUTE, SHELL END MILLS for ALUMINUM
MULTI. SCHNEIDEN, WALZENSTIRNFRÄSER für ALUMINUM

263

E2677
E2678MULTI. FLUTE, ROUGHING SHELL END MILLS
MULTI. SCHNEIDEN, WALZENSTIRN-SCHRUPPFRÄSER

264~265

E2679

MULTI. FLUTE, ROUGHING & FINISHING SHELL END MILLS
MULTI. SCHNEIDEN, WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER

266

E2498

4 FLUTE, CORNER ROUNDING CUTTERS
4 SCHNEIDEN, VIERTELKREISFRÄSER

267

EL950

3 FLUTE, COUNTERBORES for 180° CAPSCREW
3 SCHNEIDEN, FLACHSENKER mit FESTEM FÜHRUNGSAFFEN

268

SPEED & FEED DATA

269~278

ISO TOLERANCE / ISO TOLERANZ

279

DOVETAIL CUTTERS TYPE "A"

WINKELFRÄSER FORM "A"

SERIES ML012, ML022

GLATTEM ZYLINDERSCHAFT

PLAIN SHANK

HSS
Co5

N



DIN
1833



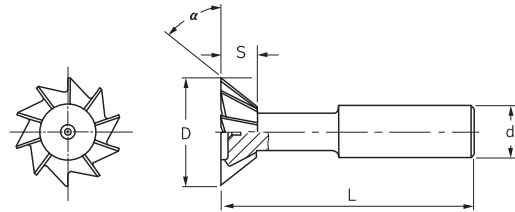
P.269

SERIES ML112, ML122

SEITLICHEN MITNAHMEFLÄCHEN

FLAT SHANK

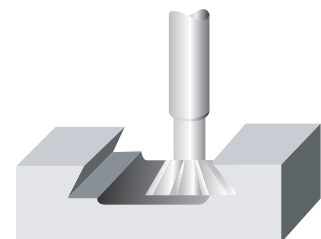
► Recommended for use in place of arbor and threaded hole type cutters to reduce set time and facilitate handling.



Unit : mm

EDP No.		CUTTER DIAMETER D (js16)	WIDTH OF FACE S (js14)	DIVERGENT TAPER ANGLE α ($\pm 15^\circ$)	SHANK DIAMETER d (h6)	OVERALL LENGTH L (js18)	NUMBER OF TEETH Z
PLAIN SHANK	FLAT SHANK						
ML01201601	ML11201601	16	4	45°	12	60	6
ML01202001	ML11202001	20	5	45°	12	63	6
ML01202201	ML11202201	22	6	45°	12	67	6
ML01202501	ML11202501	25	6.3	45°	16	67	8
ML01202801	ML11202801	28	7.5	45°	16	67	8
ML01203201	ML11203201	32	8	45°	16	71	10
ML01203801	ML11203801	38	10	45°	16	80	12
ML02201601	ML12201601	16	6.3	60°	12	60	6
ML02202001	ML12202001	20	8	60°	12	63	6
ML02202201	ML12202201	22	9	60°	12	67	6
ML02202501	ML12202501	25	10	60°	16	67	8
ML02202801	ML12202801	28	11	60°	16	67	8
ML02203201	ML12203201	32	12.5	60°	16	71	10
ML02203801	ML12203801	38	16	60°	16	80	12
ML02204001	ML12204001	40	13	60°	25	85	12
ML02205001	ML12205001	50	16	60°	25	100	16

ISO TOLERANCE : SEE PAGE 279



DOVETAIL CUTTERS TYPE "B" WINKELFRÄSER FORM "B"

SERIES ML032, ML042

GLATTEM ZYLINDERSCHAFT

PLAIN SHANK

HSS
Co5

N



DIN
1833



DIN
1835A



DIN
1835B

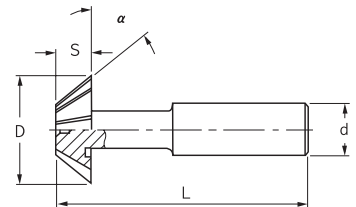
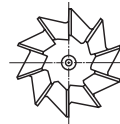


P.270

SERIES ML132, ML142

SEITLICHEN MITNAHMEFLÄCHEN

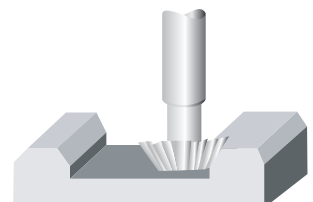
FLAT SHANK



Unit : mm

EDP No.		CUTTER DIAMETER D (js16)	WIDTH OF FACE S (js14)	CONVERGENT TAPER ANGLE $\alpha (\pm 15^\circ)$	SHANK DIAMETER d (h6)	OVERALL LENGTH L (js18)	NUMBER OF TEETH Z
PLAIN SHANK	FLAT SHANK						
ML03201601	ML13201601	16	4	45°	12	60	6
ML03202001	ML13202001	20	5	45°	12	63	6
ML03202201	ML13202201	22	6	45°	12	67	6
ML03202501	ML13202501	25	6.3	45°	16	67	8
ML03202801	ML13202801	28	7.5	45°	16	67	8
ML03203201	ML13203201	32	8	45°	16	71	10
ML03203801	ML13203801	38	10	45°	16	80	12
ML04201601	ML14201601	16	6.3	60°	12	60	6
ML04202001	ML14202001	20	8	60°	12	63	6
ML04202201	ML14202201	22	9	60°	12	67	6
ML04202501	ML14202501	25	10	60°	16	67	8
ML04202801	ML14202801	28	11	60°	16	67	8
ML04203201	ML14203201	32	12.5	60°	16	71	10
ML04203801	ML14203801	38	16	60°	16	80	12

ISO TOLERANCE : SEE PAGE 279



WOODRUFF KEYSEAT CUTTERS SCHLITZFRÄSER FORM "B"

SERIES ML062

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

HSS
Co5

N



DIN
1833

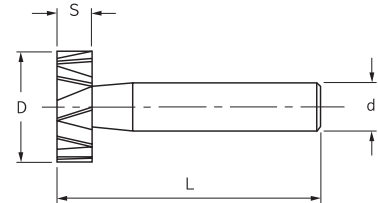
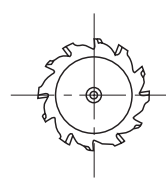


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SERIES ML162

FLAT SHANK

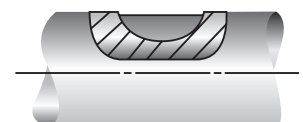
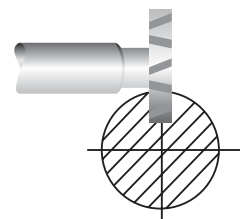
SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No.		CUTTER DIAMETER D (h11)	WIDTH OF FACE S (e8)	SHANK DIAMETER d (h6)	OVERALL LENGTH L (js18)	NUMBER OF TEETH Z
PLAIN SHANK	FLAT SHANK					
ML06210E01	ML16210E01	10.5	2	6	50	8
ML06210E02	ML16210E02	10.5	2.5	6	50	8
ML06210E03	ML16210E03	10.5	3	6	50	8
ML06213E01	ML16213E01	13.5	2	10	56	8
ML06213E02	ML16213E02	13.5	2.5	10	56	8
ML06213E03	ML16213E03	13.5	3	10	56	8
ML06213E04	ML16213E04	13.5	4	10	56	8
ML06216E01	ML16216E01	16.5	2.5	10	56	8
ML06216E02	ML16216E02	16.5	3	10	56	8
ML06216E03	ML16216E03	16.5	4	10	56	8
ML06216E04	ML16216E04	16.5	5	10	56	8
ML06219E01	ML16219E01	19.5	3	10	56	8
ML06219E02	ML16219E02	19.5	4	10	63	10
ML06219E03	ML16219E03	19.5	5	10	63	10
ML06219E04	ML16219E04	19.5	6	10	63	10
ML06222E01	ML16222E01	22.5	4	10	63	10
ML06222E02	ML16222E02	22.5	5	10	63	10
ML06222E03	ML16222E03	22.5	6	10	63	10
ML06222E04	ML16222E04	22.5	8	10	63	10
ML06225E01	ML16225E01	25.5	5	10	63	10
ML06225E02	ML16225E02	25.5	6	10	63	10
ML06225E03	ML16225E03	25.5	7	10	63	10
ML06225E04	ML16225E04	25.5	8	10	63	10
ML06228E01	ML16228E01	28.5	5	10	63	10
ML06228E02	ML16228E02	28.5	6	10	63	10
ML06228E03	ML16228E03	28.5	7	10	63	10
ML06228E04	ML16228E04	28.5	8	10	63	10
ML06228E05	ML16228E05	28.5	10	12	71	10
ML06232E01	ML16232E01	32.5	5	12	71	12
ML06232E02	ML16232E02	32.5	6	12	71	12
ML06232E03	ML16232E03	32.5	7	12	71	12
ML06232E04	ML16232E04	32.5	8	12	71	12
ML06232E05	ML16232E05	32.5	10	12	71	12
ML06238E01	ML16238E01	38.5	7	12	71	12
ML06238E02	ML16238E02	38.5	8	12	71	12
ML06238E03	ML16238E03	38.5	9	12	71	12
ML06238E04	ML16238E04	38.5	10	12	71	12
ML06245E01	ML16245E01	45.5	10	12	71	14

ISO TOLERANCE : SEE PAGE 279



T-SLOT CUTTERS SCHAFTERFRÄSER FÜR T-NUTEN

SERIES ML072

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

HSS
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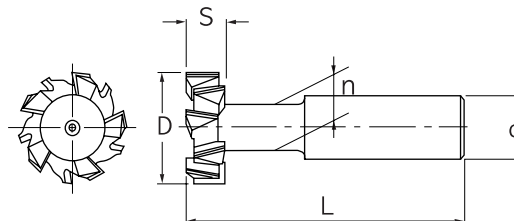


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SERIES ML172

FLAT SHANK

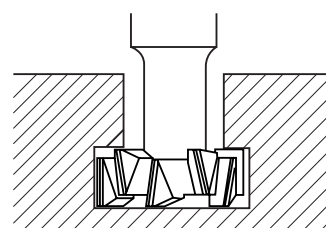
SEITLICHEN MITNAHMEFLÄCHEN



Unit : mm

EDP No.		CUTTER DIAMETER D (d11)	WIDTH OF FACE S (d11)	NECK DIAMETER n (h12)	SHANK DIAMETER d (h6)	OVERALL LENGTH L (js18)	NUMBER OF TEETH Z
PLAIN SHANK	FLAT SHANK						
ML07212E01	ML17212E01	12.5	6	5	10	57	6
ML07201601	ML17201601	16	8	6.5	10	62	6
ML07201801	ML17201801	18	8	8	12	70	6
ML07201901	ML17201901	19	9	8	12	71	6
ML07202101	ML07202101	21	9	10	12	74	6
ML07202201	ML17202201	22	10	10	12	75	6
ML07202501	ML17202501	25	11	12	16	82	6
ML07202801	ML17202801	28	12	13	16	83	6
ML07203201	ML17203201	32	14	15	16	90	8
ML07203601	ML17203601	36	16	17	25	103	8
ML07204001	ML17204001	40	18	19	25	108	8

ISO TOLERANCE : SEE PAGE 279



SIDE AND FACE MILLING CUTTERS WITH STRAIGHT TEETH SCHEIBENFRÄSER mit GERADEVERZAHNT

SERIES ML092

STRAIGHT TEETH

GERADEVERZAHNT

HSS
Co5

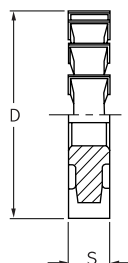
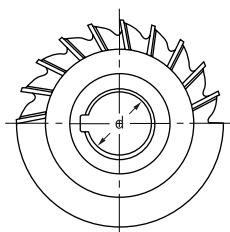
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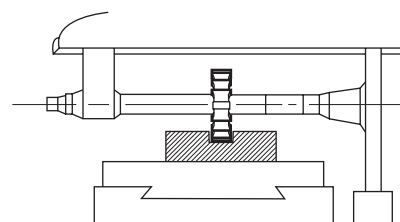
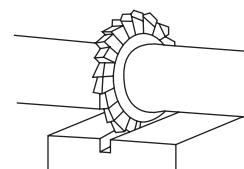
► The tools are used for general purpose side and straddle milling where deep cut is not required.



Unit : mm

EDP No.	CUTTER DIAMETER D (js14)	WIDTH OF FACE S (k11)	INTERNAL DIAMETER d (H7)	NUMBER OF TEETH Z
ML09205001	50	4	16	18
ML09205002	50	5	16	18
ML09205003	50	6	16	18
ML09205004	50	8	16	16
ML09205005	50	10	16	16
ML09206301	63	5	22	22
ML09206302	63	6	22	22
ML09206303	63	8	22	20
ML09206304	63	10	22	20
ML09206305	63	12	22	20
ML09208001	80	6	22	24
ML09208002	80	8	22	24
ML09208003	80	10	22	24
ML09208004	80	12	22	20
ML09208005	80	6	27	24
ML09208006	80	8	27	24
ML09208007	80	10	27	24
ML09208008	80	12	27	20
ML09210001	100	6	27	26
ML09210002	100	8	27	26
ML09210003	100	10	27	22
ML09210004	100	6	32	26
ML09210005	100	8	32	26
ML09210006	100	10	32	22
ML09210007	100	12	32	22
ML09212501	125	8	32	30
ML09212502	125	10	32	30
ML09212503	125	12	32	24

ISO TOLERANCE : SEE PAGE 279



SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH SCHEIBENFRÄSER mit KREUZVERZAHNT

SERIES ML102

STAGGERED TEETH

KREUZVERZAHNT

HSS
Co5

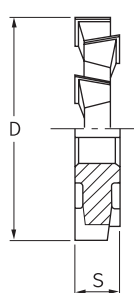
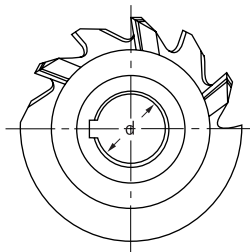
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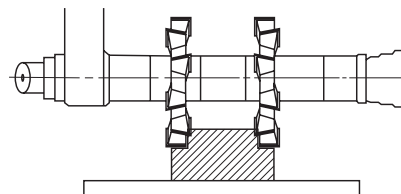
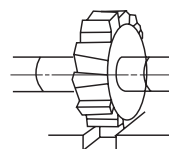
► The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.



Unit : mm

EDP No.	CUTTER DIAMETER D (js14)	WIDTH OF FACE S (k11)	INTERNAL DIAMETER d (H7)	NUMBER OF TEETH Z
ML10205001	50	3	16	14
ML10205002	50	4	16	14
ML10205003	50	5	16	14
ML10205004	50	6	16	14
ML10205005	50	7	16	14
ML10205006	50	8	16	14
ML10205007	50	9	16	14
ML10205008	50	10	16	14
ML10206301	63	3	22	16
ML10206302	63	4	22	16
ML10206303	63	5	22	16
ML10206304	63	6	22	16
ML10206305	63	7	22	16
ML10206306	63	8	22	16
ML10206307	63	9	22	16
ML10206308	63	10	22	16
ML10206309	63	12	22	16
ML10206310	63	14	22	16
ML10206311	63	16	22	16
ML10206312	63	18	22	16
ML10208001	80	3	22	18
ML10208002	80	4	22	18
ML10208003	80	5	22	18
ML10208004	80	6	22	18
ML10208005	80	7	22	18
ML10208006	80	8	22	18
ML10208007	80	9	22	18
ML10208008	80	10	22	18
ML10208009	80	12	22	18
ML10208010	80	14	22	18
ML10208011	80	16	22	18
ML10208012	80	18	22	18
ML10208013	80	20	22	18
ML10208014	80	4	27	18
ML10208015	80	5	27	18
ML10208016	80	6	27	18
ML10208017	80	7	27	18

ISO TOLERANCE : SEE PAGE 279



SIDE AND FACE MILLING CUTTERS WITH STARGGERED TEETH SCHEIBENFRÄSER mit KREUZVERZAHNT

SERIES ML102

STAGGERED TEETH

KREUZVERZAHNT

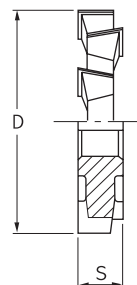
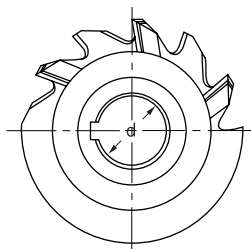
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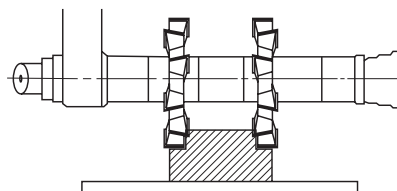
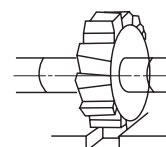


Unit : mm

► The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.

EDP No.	CUTTER DIAMETER D (js14)	WIDTH OF FACE S (k11)	INTERNAL DIAMETER d (H7)	NUMBER OF TEETH Z
ML10208018	80	8	27	18
ML10208019	80	9	27	18
ML10208020	80	10	27	18
ML10208021	80	12	27	18
ML10208022	80	14	27	18
ML10208023	80	16	27	18
ML10208024	80	18	27	18
ML10208025	80	20	27	18
ML10210001	100	3	27	20
ML10210002	100	4	27	20
ML10210003	100	5	27	20
ML10210004	100	6	27	20
ML10210005	100	7	27	20
ML10210006	100	8	27	20
ML10210007	100	9	27	20
ML10210008	100	10	27	20
ML10210009	100	12	27	20
ML10210010	100	14	27	20
ML10210011	100	15	27	20
ML10210012	100	16	27	20
ML10210013	100	18	27	20
ML10210014	100	20	27	20
ML10210015	100	4	32	20
ML10210016	100	5	32	20
ML10210017	100	6	32	20
ML10210018	100	7	32	20
ML10210019	100	8	32	20
ML10210020	100	9	32	20
ML10210021	100	10	32	20
ML10210022	100	12	32	20
ML10210023	100	14	32	20
ML10210024	100	15	32	20
ML10210025	100	16	32	20
ML10210026	100	18	32	20
ML10210027	100	20	32	20
ML10212501	125	5	32	22
ML10212502	125	6	32	22

ISO TOLERANCE : SEE PAGE 279



SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH SCHEIBENFRÄSER mit KREUZVERZAHNT

SERIES ML102

KREUZVERZAHNT

STAGGERED TEETH

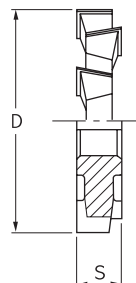
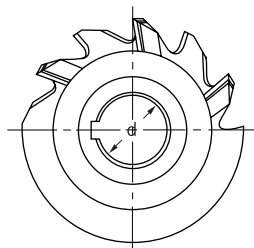
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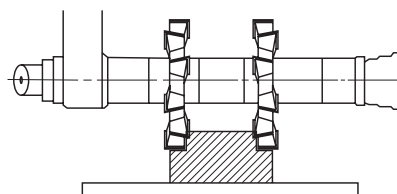
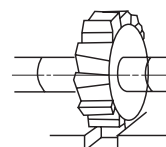


Unit : mm

► The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.

EDP No.	CUTTER DIAMETER D (js14)	WIDTH OF FACE S (k11)	INTERNAL DIAMETER d (H7)	NUMBER OF TEETH Z
ML10212503	125	8	32	22
ML10212504	125	10	32	22
ML10212505	125	12	32	22
ML10212506	125	14	32	22
ML10212507	125	16	32	22
ML10212508	125	18	32	22
ML10212509	125	20	32	22
ML10216001	160	6	32	26
ML10216002	160	8	32	26
ML10216003	160	10	32	26
ML10216004	160	12	32	26
ML10216005	160	14	32	26
ML10216006	160	16	32	26
ML10216007	160	18	32	26
ML10216008	160	20	32	26
ML10216009	160	6	40	26
ML10216010	160	8	40	26
ML10216011	160	10	40	26
ML10216012	160	12	40	26
ML10216013	160	14	40	26
ML10216014	160	16	40	26
ML10216015	160	18	40	26
ML10216016	160	20	40	26
ML10220001	200	10	40	30
ML10220002	200	12	40	30
ML10220003	200	14	40	30
ML10220004	200	16	40	30
ML10220005	200	18	40	30
ML10220006	200	20	40	30
ML10220007	200	22	40	30
ML10220008	200	25	40	30

ISO TOLERANCE : SEE PAGE 279



MULTI. FLUTE, SHELL END MILLS MULTI. SCHNEIDEN, WALZENSTIRNFRÄSER



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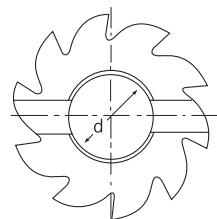
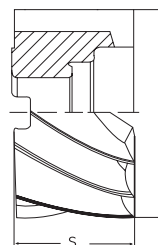
FLUTE
6 - 10



P.275

Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2675300	30.0	30	●13	6
E2675350	35.0	35	●16	6
E2675400	40.0	20	●16	8
E2675402	40.0	40	●16	8
E2675500	50.0	25	22	8
E2675501	50.0	36	22	8
E2675502	50.0	50	22	8
E2675600	60.0	30	27	8
E2675601	60.0	60	27	8
E2675630	63.0	40	27	8
E2675750	75.0	35	27	10
E2675751	75.0	75	27	10
E2675800	80.0	45	27	10
E2675900	90.0	35	27	10
E2675902	110.0	35	32	10



HSS
Co8

DIN
1880

N

30°

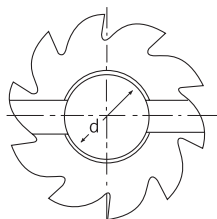
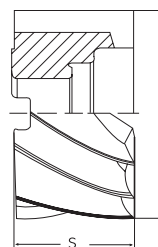
FLUTE
8 - 14



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Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2675401	40.0	32	●16	8
E2675501	50.0	36	22	8
E2675630	63.0	40	27	8
E2675800	80.0	45	27	10
E2675901	100.0	50	32	10
E2675903	125.0	56	40	12
E2675904	160.0	63	50	14



TOLERANCE

MILL DIA.	+0.25 -0.15
WIDTH OF FACE	+0.5 -0
INTERNAL DIA.	+0.02 -0

● Tolerance of Internal Diameter = +0.018 ~ 0

► TIN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

MULTI. FLUTE, SHELL END MILLS for ALUMINUM MULTI. SCHNEIDEN, WALZENSTIRNFRÄSER für ALUMINUM



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841

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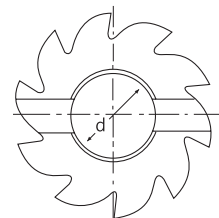
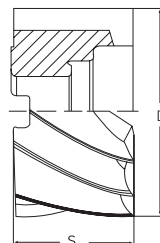


FLUTE
4 & 6



Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2676300	30.0	30	●13	4
E2676400	40.0	20	●16	4
E2676402	40.0	40	●16	4
E2676500	50.0	25	22	6
E2676502	50.0	50	22	6
E2676600	60.0	30	27	6
E2676601	60.0	60	27	6
E2676750	75.0	75	27	6



HSS
Co8

DIN
1880

W

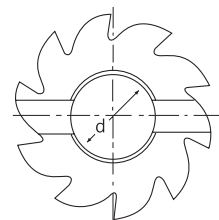
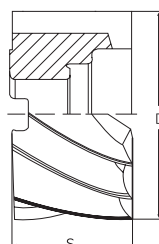


FLUTE
4 & 6



Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2676401	40.0	32	●16	4
E2676501	50.0	36	22	6
E2676630	63.0	40	27	6
E2676800	80.0	45	27	6
E2676901	100.0	50	32	6

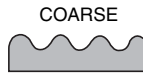


TOLERANCE	
MILL DIA.	+ 0.25 - 0.15
WIDTH OF FACE	+ 0.5 - 0
INTERNAL DIA.	+ 0.02 - 0

● Tolerance of Internal Diameter = +0.018 ~ 0

► TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

MULTI. FLUTE, ROUGHING SHELL END MILLS MULTI. SCHNEIDEN, WALZENSTIRN-SCHRUPPFRÄSER



HSS
Co8

DIN
841

NR



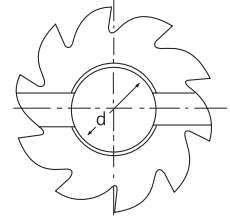
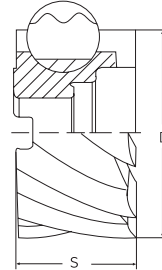
FLUTE
6 - 12



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Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2677401	40.0	40	●16	6
E2677501	50.0	50	22	8
E2677600	60.0	30	27	8
E2677601	60.0	60	27	8
E2677750	75.0	35	27	10
E2677751	75.0	75	27	10
E2677900	90.0	35	27	10
E2677902	110.0	35	32	12



HSS
Co8

DIN
1880

NR



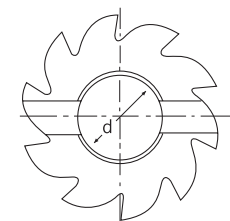
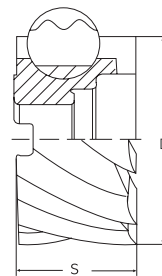
FLUTE
6 - 12



P.276

Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2677400	40.0	32	●16	6
E2677500	50.0	36	22	8
E2677630	63.0	40	27	8
E2677800	80.0	45	27	10
E2677901	100.0	50	32	10
E2677903	125.0	56	40	12
E2677904	160.0	63	50	12



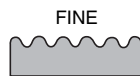
TOLERANCE

MILL DIA.	+0.25 -0.15
WIDTH OF FACE	+0.5 -0
INTERNAL DIA.	+0.02 -0

● Tolerance of Internal Diameter = +0.018 ~ 0

► TIN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

MULTI. FLUTE, ROUGHING SHELL END MILLS MULTI. SCHNEIDEN, WALZENSTIRN-SCHRUPPFRÄSER



HSS
Co8

DIN
841

HR



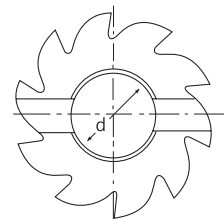
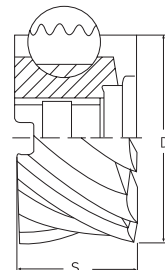
FLUTE
6-12



P.276

Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2678401	40.0	40	●16	6
E2678501	50.0	50	22	8
E2678600	60.0	30	27	8
E2678601	60.0	60	27	8
E2678750	75.0	35	27	10
E2678751	75.0	75	27	10
E2678900	90.0	35	27	10
E2678902	110.0	35	32	12



HSS
Co8

DIN
1880

HR



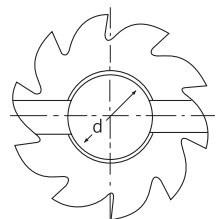
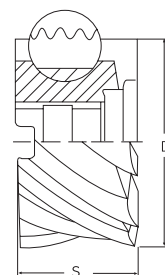
FLUTE
6-12



P.276

Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2678400	40.0	32	●16	6
E2678500	50.0	36	22	8
E2678630	63.0	40	27	8
E2678800	80.0	45	27	10
E2678901	100.0	50	32	10
E2678903	125.0	56	40	12
E2678904	160.0	63	50	12



TOLERANCE

MILL DIA.	+ 0.25 - 0.15
WIDTH OF FACE	+ 0.5 - 0
INTERNAL DIA.	+ 0.02 - 0

● Tolerance of Internal Diameter = +0.018 ~ 0

► TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

MULTI. FLUTE, ROUGHING & FINISHING SHELL END MILLS MULTI. SCHNEIDEN, WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER



HSS
Co8

DIN
841

NF



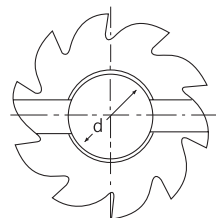
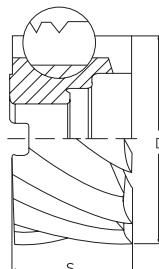
FLUTE
6 - 12



P.276

Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2679401	40.0	40	●16	6
E2679501	50.0	50	22	8
E2679600	60.0	30	27	8
E2679601	60.0	60	27	8
E2679750	75.0	35	27	10
E2679751	75.0	75	27	10
E2679900	90.0	35	27	10
E2679902	110.0	35	32	12



HSS
Co8

DIN
1880

NF



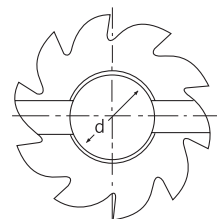
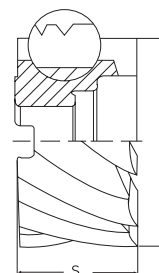
FLUTE
6 - 12



P.276

Unit : mm

EDP No.	MILL DIAMETER D	WIDTH OF FACE S	INTERNAL DIAMETER d	NUMBER OF TEETH Z
E2679400	40.0	32	●16	6
E2679500	50.0	36	22	8
E2679630	63.0	40	27	8
E2679800	80.0	45	27	10
E2679901	100.0	50	32	10
E2679903	125.0	56	40	12
E2679904	160.0	63	50	12



TOLERANCE

MILL DIA.	+0.25 -0.15
WIDTH OF FACE	+0.5 -0
INTERNAL DIA.	+0.02 -0

● Tolerance of Internal Diameter = +0.018 ~ 0

► TIN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

4 FLUTE, CORNER ROUNDING CUTTERS 4 SCHNEIDEN, VIERTELKREISFRÄSER

SERIES E2498

FLAT SHANK

SEITLICHEN MITNAHMEFLÄCHEN

HSS
Co8

DIN
6518

N



FLUTE
4



P.277

► These tools can be adapted for many screw machine applications as end forming tools to form a specific radius.

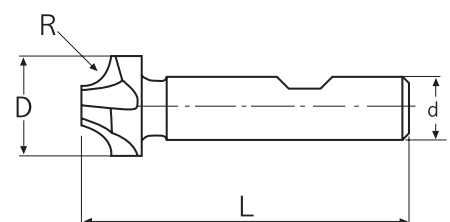


Unit : mm

EDP No. FLAT SHANK	RADIUS R (H11)	OUTSIDE DIAMETER D	SHANK DIAMETER d (h6)	OVERALL LENGTH L
E2498010	1.0	8	10	60
E2498015	1.5	9	10	60
E2498020	2.0	10	10	60
E2498025	2.5	11	10	60
E2498030	3.0	12	12	60
E2498035	3.5	13	12	60
E2498040	4.0	14	12	60
E2498045	4.5	15	12	60
E2498050	5.0	16	12	60
E2498055	5.5	19	16	67
E2498060	6.0	20	16	67
E2498065	6.5	21	16	71
E2498070	7.0	22	16	71
E2498075	7.5	23	16	71
E2498080	8.0	24	16	71
E2498085	8.5	25	25	85
E2498090	9.0	26	25	85
E2498095	9.5	27	25	85
E2498100	10.0	28	25	85
E2498105	10.5	31	25	90
E2498110	11.0	32	25	90
E2498120	12.0	34	25	90
E2498125	12.5	41	25	100
E2498130	13.0	42	25	100
E2498140	14.0	44	25	100
E2498150	15.0	46	25	100
E2498160	16.0	48	25	100
E2498180	18.0	52	32	112
E2498200	20.0	56	32	112

► TIN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

ISO TOLERANCE : SEE PAGE 279



3 FLUTE, COUNTERBORES FOR 180° CAPSCREW 3 SCHNEIDEN, FLACHSENKER MIT FESTEM FÜHRUNGSZAPFEN

SERIES EL950

PLAIN SHANK

GLATTEM ZYLINDERSCHAFT

HSS
Co5

DIN
373

FLUTE
3

PLAIN



P.278

► The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.



MEDIUM

Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	SCREW SIZE	PILOT DIAMETER D ₁ (e8)	CUTTER DIAMETER D ₂ (z9)	SHANK DIAMETER d (h9)	OVERALL LENGTH L
EL950003	YG54M3-M	M3	3.4	6.0	5	71
EL950035	YG54M3.5-M	M3.5	3.9	6.5	5	71
EL950004	YG54M4-M	M4	4.5	8.0	5	71
EL950005	YG54M5-M	M5	5.5	10.0	8	80
EL950006	YG54M6-M	M6	6.6	11.0	8	80
EL950008	YG54M8-M	M8	9.0	15.0	12.5	100
EL950010	YG54M10-M	M10	11.0	18.0	12.5	100
EL950012	YG54M12-M	M12	14.0	20.0	12.5	100

FINE

Unit : mm

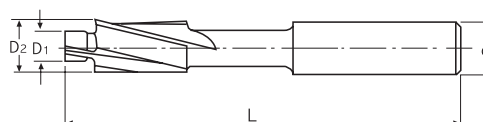
EDP No. PLAIN	ITEM No. PLAIN	SCREW SIZE	PILOT DIAMETER D ₁ (e8)	CUTTER DIAMETER D ₂ (z9)	SHANK DIAMETER d (h9)	OVERALL LENGTH L
EL950901	YG54M3-F	M3	3.2	6.0	5	71
EL950902	YG54M3.5-F	M3.5	3.7	6.5	5	71
EL950903	YG54M4-F	M4	4.3	8.0	5	71
EL950904	YG54M5-F	M5	5.3	10.0	8	80
EL950905	YG54M6-F	M6	6.4	11.0	8	80
EL950906	YG54M8-F	M8	8.4	15.0	12.5	100
EL950907	YG54M10-F	M10	10.5	18.0	12.5	100
EL950908	YG54M12-F	M12	13.0	20.0	12.5	100

BEFORE THREADING

Unit : mm

EDP No. PLAIN	ITEM No. PLAIN	SCREW SIZE	PILOT DIAMETER D ₁ (e8)	CUTTER DIAMETER D ₂ (z9)	SHANK DIAMETER d (h9)	OVERALL LENGTH L
EL950909	YG54M3-T	M3	2.5	6.0	5	71
EL950910	YG54M3.5-T	M3.5	2.9	6.5	5	71
EL950911	YG54M4-T	M4	3.3	8.0	5	71
EL950912	YG54M5-T	M5	4.2	10.0	8	80
EL950913	YG54M6-T	M6	5.0	11.0	8	80
EL950914	YG54M8-T	M8	6.8	15.0	12.5	100
EL950915	YG54M10-T	M10	8.5	18.0	12.5	100
EL950916	YG54M12-T	M12	10.2	20.0	12.5	100

ISO TOLERANCE : SEE PAGE 279

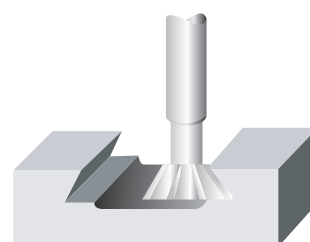


DOVETAIL CUTTERS TYPE “A” WINKELFRÄSER FORM “A”

HSS Co5 ML012, ML112, ML022, ML122 SERIES



MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
CUTTER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
DIAMETER(mm)	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
16	615	110	305	57	215	40	160	20	1850	336
20	500	110	255	55	180	38	125	15	1350	324
25	380	80	190	47	135	30	100	16	1150	270
32	300	125	155	64	100	40	80	16	920	375
40	250	130	125	64	90	45	60	16	765	387
50	190	90	100	42	75	36	50	16	550	265
63	150	75	80	40	60	32	40	15	450	240

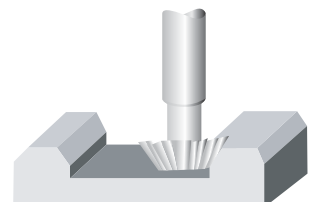


DOVETAIL CUTTERS TYPE "B" WINKELFRÄSER FORM "B"

HSS Co5 ML032, ML132, ML042, ML142 SERIES



MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
CUTTER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
DIAMETER(mm)	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
16	615	110	305	57	215	40	160	20	1850	336
20	500	110	255	55	180	38	125	15	1350	324
25	380	80	190	47	135	30	100	16	1150	270
32	300	125	155	64	100	40	80	16	920	375

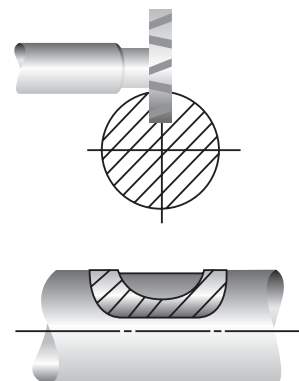


WOODRUFF KEYSEAT CUTTERS SCHLITZFRÄSER

HSS Co5 ML062, ML162 SERIES



MATERIAL	CARBON STEELS ALLOY STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	ALUMINUM & ALUMINUM ALLOYS
HARDNESS		~ HRc20	HRc20 ~ HRc30	HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²	500 ~ 800N/mm ²	800 ~ 1000N/mm ²	1000 ~ 1300N/mm ²	
CUTTER	RPM	RPM	RPM	RPM	RPM
DIAMETER(mm)	Rev/min	Rev/min	Rev/min	Rev/min	Rev/min
10.5	900	600	480	300	3000
13.5	700	470	370	230	2300
16.5	570	380	300	190	1900
19.5	480	320	260	160	1600
22.5	420	280	220	140	1400
28.5	330	220	180	110	1100
32.5	290	190	155	90	900
45.5	210	130	110	70	700

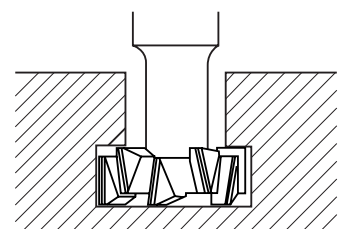


T-SLOT CUTTERS SCHAFTERFRÄSER FÜR T-NUTEN

HSS Co5 ML072, ML172 SERIES



MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
CUTTER DIAMETER(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
12.5	770	38	380	16	270	8	2350	110
16	600	45	300	19	210	9	1830	140
18	550	47	270	20	195	12	1680	150
19	500	50	250	20	180	15	1540	160
21	470	52	230	22	160	16	1430	165
22	440	55	220	25	150	17	1330	170
25	390	65	190	30	135	18	1170	180
28	345	75	170	38	120	20	1040	210
32	310	90	150	42	100	20	910	250
50	270	80	135	40	90	20	800	230
63	240	70	120	38	85	20	730	210



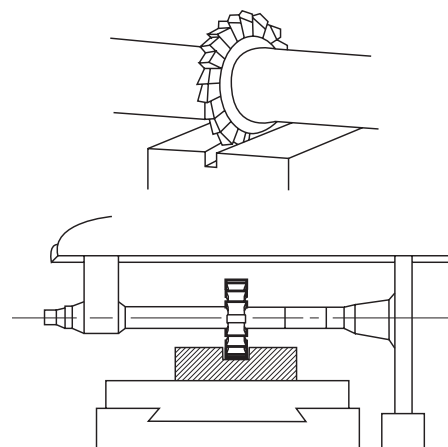
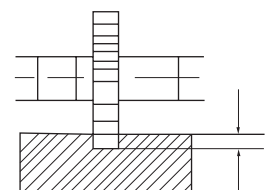
SIDE AND FACE MILLING CUTTERS WITH STRAIGHT TEETH SCHEIBENFRÄSER mit GERADEVERZAHNT

HSS Co5 ML092 SERIES



MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
CUTTER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
DIAMETER(mm)	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
50	160	130	115	82	95	58	76	42	630	200
63	125	160	90	72	75	51	60	38	500	250
80	100	145	70	69	60	48	47	34	400	250
100	80	130	60	60	47	41	38	30	320	200
125	63	100	45	54	38	38	30	26	250	200

MILLING DEPTH P = WIDTH OF FACES



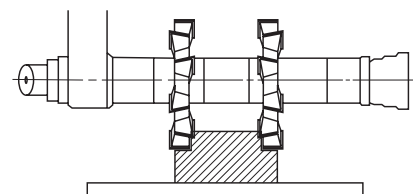
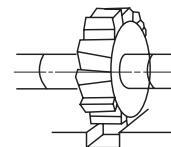
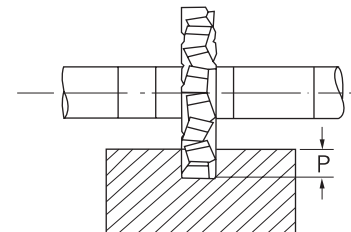
SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH SCHEIBENFRÄSER mit KREUZVERZAHNT

HSS Co5 ML102 SERIES



MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
CUTTER DIAMETER(mm)	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
50	160	130	115	85	95	58	76	42	630	200
63	125	160	90	75	75	51	60	38	500	250
80	100	145	70	69	60	48	47	34	400	250
100	80	130	60	60	47	41	38	30	320	200
125	63	100	45	54	38	38	30	26	250	200
160	50	105	37	48	30	34	23	24	200	150
200	40	95	31	45	25	31	19	22	160	150

MILLING DEPTH P = WIDTH OF FACES



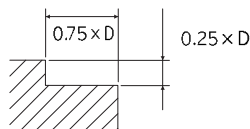
MULTI. FLUTE, SHELL END MILLS MULTI. SCHNEIDEN, WALZENSTIRNFRÄSER

HSS Co8 E2675 SERIES



MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc28		HRc28 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 800N/mm ²		800 ~ 900N/mm ²		900 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
CUTTER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
DIAMETER(mm)	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
40	240	135	200	120	140	80	80	50
50	200	125	170	105	120	75	70	45
63	150	110	130	95	90	65	50	40
80	120	120	100	100	80	75	40	40
100	100	115	80	95	60	70	30	35
125	80	115	70	95	50	65	20	35
160	60	110	60	100	40	65	20	35

※ The FEED, in long & extra long types, should be reduced by around 50%

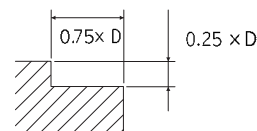


MULTI. FLUTE ROUGHING SHELL END MILLS MULTI. SCHNEIDEN, WALZENSTIRN-SCHRUPPFRÄSER

HSS Co8 E2677, E2678 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc28		HRc28 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 800N/mm ²		800 ~ 900N/mm ²		900 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
CUTTER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
DIAMETER(mm)	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
40	240	100	200	85	140	60	80	35
50	200	125	170	105	120	75	70	45
63	150	110	130	95	90	65	50	40
80	120	120	100	100	80	75	40	40
100	100	115	80	95	60	70	30	35
125	80	115	70	95	50	65	20	35
160	60	110	60	100	40	65	20	35

※The FEED, in long & extra long types, should be reduced by around 50%

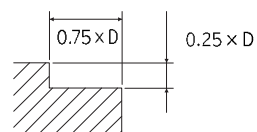


MULTI. FLUTE ROUGHING & FINISHING SHELL END MILLS MULTI. SCHNEDIDEN, WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER

HSS Co8 E2679 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc28		HRc28 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 800N/mm ²		800 ~ 900N/mm ²		900 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
CUTTER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
DIAMETER(mm)	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min	Rev/min	mm/min
40	240	100	200	85	140	60	80	35
50	200	125	170	105	120	75	70	45
63	150	110	130	95	90	65	50	40
80	120	120	100	100	80	75	40	40
100	100	115	80	95	60	70	30	35
125	80	115	70	95	50	65	20	35
160	60	110	60	100	40	65	20	35

※The FEED, in long & extra long types, should be reduced by around 50%



4 FLUTE, CORNER ROUNDING CUTTERS 4 SCHNEIDEN, VIERTELKREISFRÄSER

HSS Co8 E2498 SERIES



MATERIAL		ALUMINUM & ALUMINUM ALLOYS	CARBON STEELS ALLOY STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS
HARDNESS				~ HRc20	HRc20 ~ HRc35
STRENGTH			~ 500N/mm ²	500 ~ 800N/mm ²	800 ~ 1100N/mm ²
OUTSIDE	RADIUS	RPM	RPM	RPM	RPM
DIAMETER(mm)	R(mm)	Rev/min	Rev/min	Rev/min	Rev/min
8	1	3500	800	600	480
9	1.5	2800	630	470	380
10	2	2800	630	470	380
11	2.5	2400	530	390	315
12	3	2400	530	390	315
14	4	2000	450	330	270
16	5	1600	350	260	210
20	6	1400	310	230	185
24	8	1200	260	190	155
28	10	950	210	155	125
34	12	800	180	130	105
48	16	600	130	95	75

3 FLUTE, COUNTERBORES for 180° CAPSCREW

3 SCHNEIDEN, FLACHSENKER mit FESTEM FÜHRUNGSZAPFEN

HSS Co5 EL950 SERIES



MATERIAL	ALUMINUM & ALUMINUM ALLOYS	CARBON STEELS ALLOY STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS
HARDNESS			~ HRc20	HRc20 ~ HRc35	HRc35 ~ HRc40
STRENGTH		~ 500N/mm ²	500 ~ 800N/mm ²	800 ~ 1100N/mm ²	1100 ~ 1300N/mm ²
CUTTER	RPM	RPM	RPM	RPM	RPM
DIAMETER(mm)	Rev/min	Rev/min	Rev/min	Rev/min	Rev/min
6.0	2100	590	480	380	320
6.5	2100	590	480	380	320
8.0	1700	470	380	300	250
10.0	1200	380	320	260	170
11.0	1100	300	240	190	160
15.0	840	240	195	155	130
18.0	670	190	160	120	80
20.0	550	160	125	95	70

ISO TOLERANCE

ISO TOLERANZ

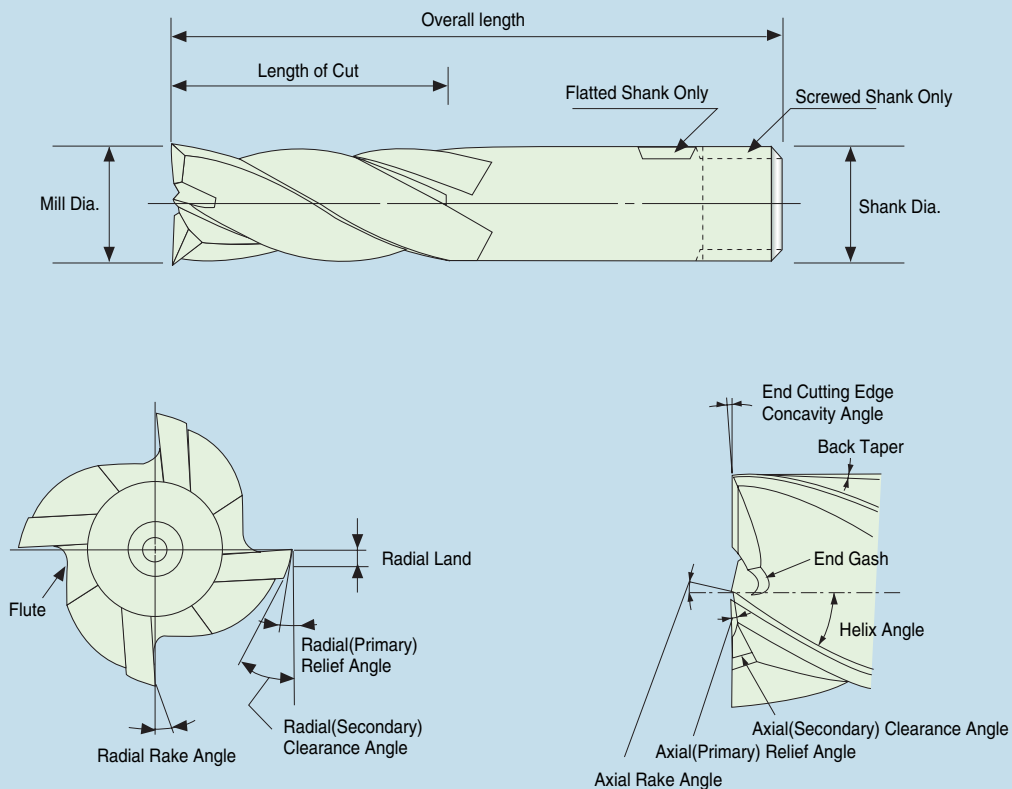
(μm = 1/1000mm)

SIZE(mm)	von vis from to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to
	1~3	3~6	6~10	10~18	18~30	30~50	50~80	80~120	120~180	180~250
TOLERANCE	μm									
d11	- 20 - 80	- 30 - 105	- 40 - 130	- 50 - 160	- 65 - 195	- 80 - 240	- 100 - 290	- 120 - 340	- 145 - 395	- 170 - 460
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89	- 60 - 106	- 72 - 126	- 85 - 148	- 100 - 172
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19	0 - 22	0 - 25	0 - 29
h11	0 - 60	0 - 75	0 - 90	0 - 110	0 - 130	0 - 160	0 - 190	0 - 220	0 - 250	0 - 290
k11	+ 60 0	+ 75 0	+ 90 0	+ 110 0	+ 130 0	+ 160 0	+ 190 0	+ 220 0	+ 250 0	+ 290 0
H7	+ 10 0	+ 12 0	+ 15 0	+ 18 0	+ 21 0	+ 25 0	+ 30 0	+ 35 0	+ 40 0	+ 46 0
H11	+ 60 0	+ 75 0	+ 90 0	+ 110 0	+ 130 0	+ 160 0	+ 190 0	+ 220 0	+ 250 0	+ 290 0
TOLERANCE	mm									
h12	0 - 0.10	0 - 0.12	0 - 0.15	0 - 0.18	0 - 0.21	0 - 0.25	0 - 0.30	0 - 0.35	0 - 0.40	0 - 0.46
js14	± 0.125	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
js16	± 0.30	± 0.375	± 0.45	± 0.55	± 0.65	± 0.80	± 0.95	± 1.10	± 1.25	± 1.45
js18	-	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70	± 3.15	± 3.60

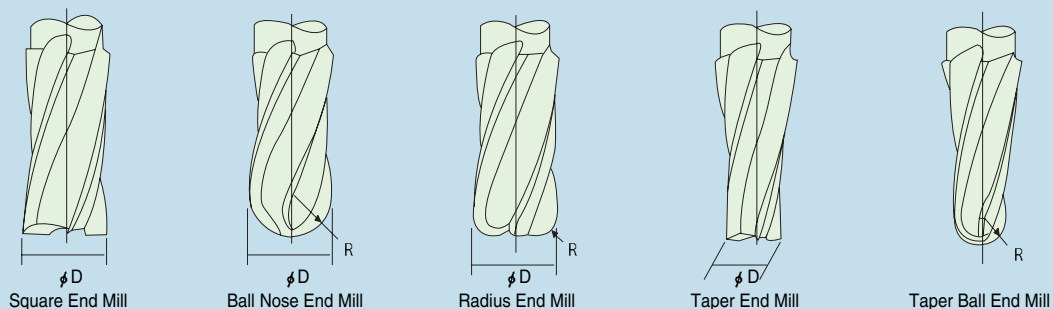
SIZE(mm)	von vis from to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to	über bis over to
	1~3	3~6	6~10	10~14	14~18	18~24	24~30	30~40	40~50	50~65
TOLERANCE	μm									
z9	+ 51 + 26	+ 65 + 35	+ 78 + 42	+ 93 + 50	+ 103 + 60	+ 125 + 73	+ 140 + 88	+ 174 + 112	+ 198 + 136	+ 246 + 172

SUPER CUTTING END MILLS

1 Names of End Mill Parts



2 Type of End Mill



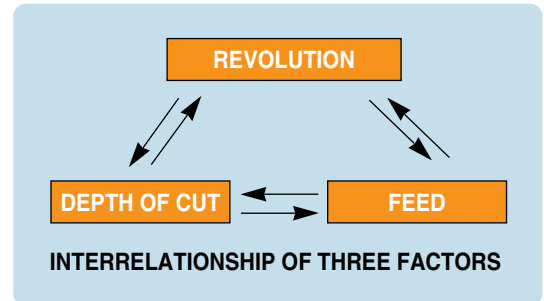
SUPER CUTTING END MILLS

Speed, feed and depth of cut are the most important factors to consider for best results in milling. Improper feeds and speeds often cause low production, poor work quality and unnecessary damage to the cutter.

This section covers the basic principles of speed and feed selection for milling cutters and end mills. It will serve as a guide in setting-up new milling jobs.

Geschwindigkeit, Vorschub und Schnitttiefe sind die wichtigsten Faktoren, um das beste Fräsergebnis zu erzielen. Ungeeignete Vorschübe und Geschwindigkeiten verursachen oft niedrige Produktivität, schlechte Bearbeitungsqualität und unnötige Beschädigung des Fräasers.

Dieser Abschnitt beinhaltet die Basisprinzipien von Geschwindigkeit- und Vorschubauswahl für Fräser und Scheibenfräser. Dieser Abschnitt sollte als ein Setting up-Führer neuer Fräsaufgaben dienen.



3 SPEEDS / Geschwindigkeit

In milling, SPEED is measured in peripheral feet per minute. (revolution per minute times cutter circumference in feet) This is frequently referred to as "peripheral speed" "cutting speed" or "surface speed".

Beim Fräsen, Geschwindigkeit ist gemessen in Bogenlänge pro Minute. Dies wird oft als 'peripheral speed', 'cutting speed' oder 'surface speed' bezeichnet.

$$N = \frac{1000V}{\pi \times D}$$

Revolutions per Minute
Umdrehung pro Minute

V : Cutting Speed(m/min) / Schneidgeschwindigkeit
D : Diameter of Tool(mm) / Werkzeugdurchmesser
N : Revolution per minute(rev/min) / Umdrehung pro Minute
 π : 3.1416

They will have to be tempered to suit the conditions ON THE JOB. For example:

Dies muß der jeweiligen Aufgabe angepaßt werden. Zum Beispiel:

Use Lower Speed Ranges For / Niedrige Geschwindigkeitsbereiche für

Hard materials / Hartes Material
Tough materials / Rauhes Material
Abrasive materials / Abrasives Material
Heavy cuts / Heavy cut
Minimum tool wear / Minimale Werkzeugabnutzung
Maximum cutter life / Maximale Standzeit

Use Higher Speed Ranges For / Hohe Geschwindigkeitsbereiche für

Softer materials / Weiches Material
Better finishes / Bessere Oberflächengüte
Smaller diameter cutters / Kleinere Fräserdurchmesser
Light cuts / Light cut
Frail work pieces or set-ups / Zerbrechliche stücke oder Set-up
Hand feed operations / Handarbeit
Maximum production rates / Maximale Produktivität
Non-metallics / Nichtmetallische Werkstoffe

4 FEEDS / Vorschub

Feed is usually measured in millimeters per minute. It is the product of feed per tooth times revolution per minute times the number of teeth in the cutter. Due to variations in cutter sizes, numbers of teeth and revolutions per minute, all feed rates should be calculated from feed per tooth. Feed per tooth is the basis of all feed rates per minute, whether the cutters are large or small, fine or coarse tooth, and are run at high or low peripheral speed. Because feed per tooth affects chip thickness. It is a very important factor in cutter life.

Highest possible feed per tooth will usually give longer cutter life between grinds and greater production per grind. Excessive feeds may over load the cutter teeth and cause breakage or chipping of the cutting edges. The following factors should be kept in mind when using the recommended starting feed per tooth.

Vorschub wird meist in Millimeter pro Minute gemessen. Er ist das Produkt von Vorschub pro Zahn, Umdrehung pro Minute oder der Anzahl der Zähne am Werkzeug. Aufgrund der Variationen in Fräsergrößen, Anzahl der Zähne und Umdrehungen pro Minute, Vorschübe sollten mit Vorschub pro Zahn gerechnet werden. Vorschub pro Zahn ist die Basis für alle Vorschubraten pro Minute unabhängig davon, ob die Fräser groß, klein, mit Fein- oder grobgewinde und mit hoher- oder niedriger Bogengeschwindigkeit arbeiten. Vorschub pro Zahn beeinflusst Spandicke, was für ein Werkzeug ein sehr wichtiger Faktor ist. Höchstmöglicher Vorschub pro Zahn verursacht meist längeres Werkzeugleben zwischen Abnutzung und Produktivität pro Abnutzung. Exzessiver Vorschub dagegen wird den Werkzeugzahn überbelasten und Beschädigungen oder Abbröckelungen von Schneidkanten verursachen. Bei der Nutzung von empfohlenen Vorschüben pro Zahn sollten folgende Faktoren berücksichtigt werden.

SUPER CUTTING END MILLS

Feed in millimeters per Minute / Vorschub in Milimeter pro Minute

$$F.M = F.R. \times R.P.M$$

F.R. : Feed per Revolutions in millimeters / Vorschub pro Umdrehungen pro Minute

R.P.M. : Revolutions per Minutes / Umdrehungen pro Minute

The following factors should be kept in mind when using the recommended stating feed per tooth.

Use Higher Feeds For

/ Höherer Vorschub für

Heavy, roughing cuts / Heavy cut, Schruppfräsen
Rigid set-ups / Robustes Werkstück
Easy-to-machine work materials / Leicht fräsbares Material
Rugged cutters / Robuster Fräser
Slab milling cuts / Scheibenfräsen
Low tensile strength materials / Material von niedriger Zugfestigkeit
Coarse tooth cutters / Grobgewinde-Fräser
Abrasive materials / Abrasives Material

Use Lower Feeds For

/ Niedrigerer Vorschub für

Light, and finishing cuts / Light cut, Finishing cut
Frail set-ups / Zerbrechliches Material
Hard to machine work materials / Schwer fräsbares Material
Frail and small cutters / Dünne, kleine Fräser
Deep slots / Tiefnuten
High tensile strength materials / Material von hoher Zugfestigkeit
Fine tooth cutters / Feingewinde-Fräser

SPEED AND FEED CALCULATIONS FOR MILLING CUTTERS AND OTHER ROTATING TOOLS

TO FIND	HAVING	FORMULA
Surface(or Periphery) Speed in meter Per Minute=S.F.M.	Diameter of Tool in millimeters =D Revolutions per Minute =R.P.M.	$V = \frac{D \times 3.1416 \times R.P.M.}{1000}$
Revolutions Per Minute=R.P.M.	Surface Speed in meter per Minute =S.F.M. Diameter of Tool in millimeters =D	$R.P.M. = \frac{V \times 1000}{D \times 3.1416}$
Feed per Revolution in millimeters-F.R.	Feed in millimeters per Minute =F.M. Revolution per Minute =R.P.M.	$F.R. = \frac{F.M.}{R.P.M.}$
Feed in millimeters Per Minute-F.M.	Feed per Revolution in millimeters =F.R. Revolution per Minute =R.P.M.	$F.M. = F.R. \times R.P.M.$
Number of Cutting Teeth per Minute=T.M.	Number of Teeth in Tool =T Revolution per Minute =R.P.M.	$T.M. = T \times R.P.M.$
Feed per tooth=F.T.	Number of Teeth in Tool =T Feed per Revolution in millimeters =R.P.M.	$F.T. = \frac{F.R.}{T}$
Feed per Tooth=F.T.	Number of Teeth in Tool =T Feed in millimeters per Minute =F.M. Speed in Revolution per Minute =R.P.M.	$F.T. = \frac{F.M.}{T \times R.P.M.}$

SUPER CUTTING END MILLS

5 CASE OF RESHARPENING / Nachschleiffälle

When the product finish become worse, the cutting edge must get dulled, chips become smaller and the cutting sound gets louder. In such cases, a end mill must be resharpened. The following are the damages of end mills when the resharpening is required.

Wenn die Schneidkante abstumpft, verschlechtert sich die Bearbeitungsqualität, Span wird kürzer und das Fräsgeräusch wird lauter. In solchen Fällen muß der Fräser nachgeschliffen werden. Folgend sind Beschädigungen an Fräser, die das Nachschleifen nötig machen.

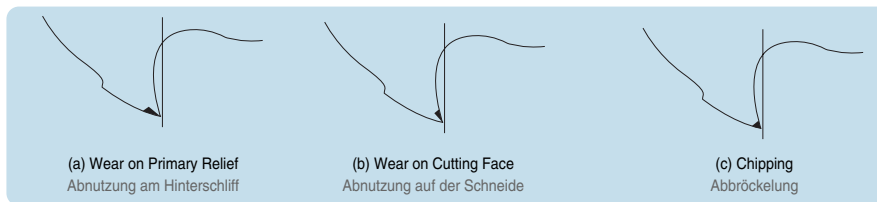


Fig. 1. Damages of Cutting Edge

6 SHARPEN AT PREDETERMINED WEAR LAND

/ Schleifen bei vorbestimmten Abnutzungsflächen

Cutters should be sharpened as soon as the wear land (Fig. 2.) reaches a predetermined width. This width should permit sharpening without excessive loss of tool life. It may vary from a few thousandth to 1/16 inch, depending on the type of cutter and the finish required on the product. This method is used on production runs where uneven amounts of stock is removed or where the material varies in machinability. It is also used on small quantity product lots.

Fräser sollten nachgeschliffen werden, so bald die Abnutzungsfläche die vorbestimmte Breite erreicht. Diese Breite sollte ein Schleifen ohne exzessive Verlust der Werkzeuglebensdauer ermöglichen. Sie variiert, in Abhängigkeit von Werkzeugtypen und benötigtem Finish, von ein paar tausendstel bis zu 1/16tel Inch. Diese Methode wird in Prozeßen angewandt, in denen variierende Mengen von Werkstoffen abgefräst oder Materialien verschiedener Fräsbarkeiten bearbeitet werden. Ebenso in Produktionen kleiner Losgrößen.

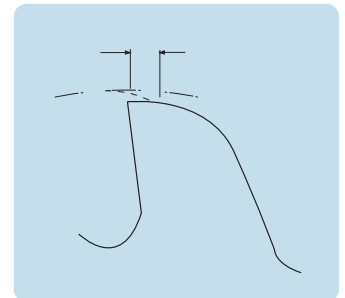


Fig. 2. Wear Land

7 RESHARPENING PERIPHERAL CUTTING EDGE / Nachschleifen von Peripher-Schneidkanten

1. RESHARPENING PRIMARY LAND / Nachschleifen von Primärschneide

The geometry of relief angle in an end mill consist of three methods as shown in Fig.3 concave, flat, and eccentric. Recently, most end mills have the eccentric relief(eccentric sharpening). In this method, since the relief is formed an eccentric are surface in cylindrical grinding method, the roughness of the finished surface of the relief improves and the strength of cutting edge increase at the same time.(Fig.4) As a result, the tool life is improved.

Die Geometrie von Hinterschliffwinkel in einem Fräser hat, wie in Fig. 3 gezeigt, 3 verschiedene Variationen : Konkav, Flach und Exzentrisch. In letzter Zeit, die meisten Fräser haben die exzentrische Form. In dieser Methode verbessern sich Oberflächengüte der bearbeiteten Fläche und die Stärke der Schneidkanten gleichzeitig, was eine Verlängerung der Werkzeuglebensdauer zur Folge hat.

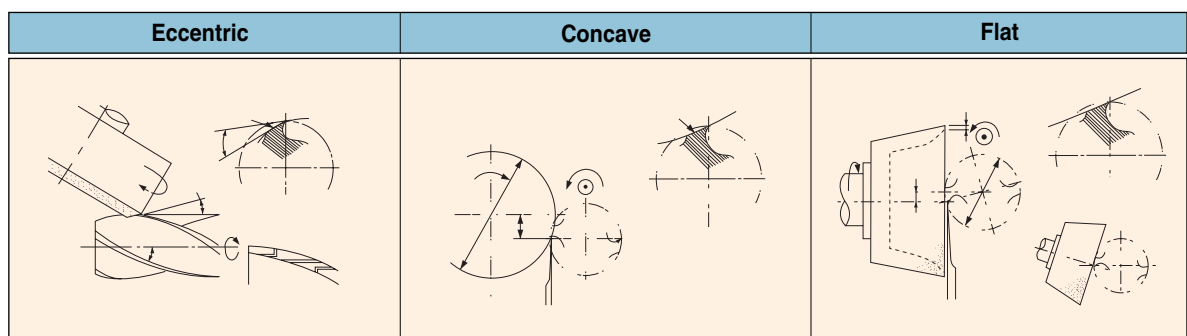


Fig. 3. Three Types of Primary Relief

SUPER CUTTING END MILLS

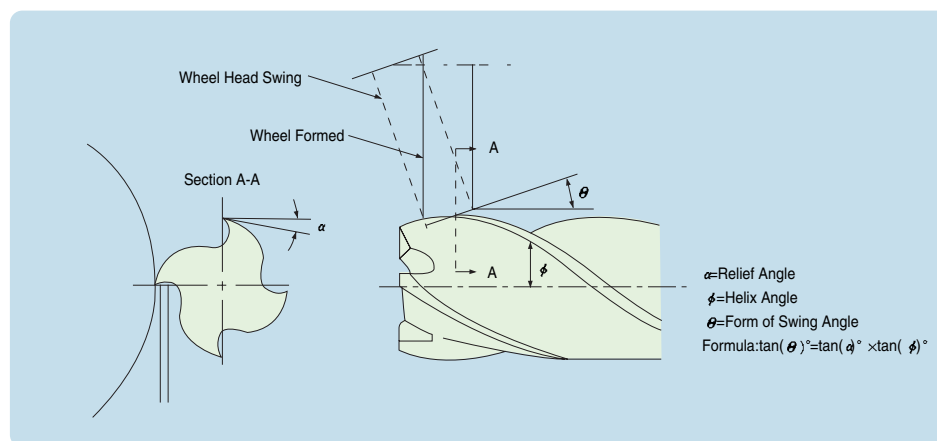


Fig. 4. Tothing of Eccentric Relief Angle

2. ANGLE OF WHEEL INCLINATION / Winkel der Radneigung.

Eccentric relief is produced with a plain wheel positioned with its axis parallel or at a slight angle with the cutter axis. The degree of relief is varied by changing the angle of wheel inclination.

Exzentrischer Hinterschliff wird mit einem, mit der eigenen Achse zur Fräsachse parallelen oder nur geringfügig geneigten Rad produziert. Das Grad des Hinterschliffs variiert mit dem Wechsel der Rad-Neigungen.

Table 1. RECOMMENDED RELIEF ON END MILLS

Mill Diameter (mm)	Eccentric relief indicator drop for relief Angles shown		Checking Distance	Wheel Angles(Deg.) θ			Radial Relief Angles(α)	Clearance Angles(α)
				15° Helix	30° Helix	60° Helix		
-	Min	Max.	-	*Angle	*Angle	*Angle	*Angle	*Angle
3.0	0.100	0.130	0.40	4°24'	9°25'	26°28'	16°02'	25°
6.0	0.090	0.125	0.50	3°18'	7°05'	20°25'	12°08'	25°
12.0	0.100	0.135	0.65	2°46'	5°46'	17°23'	10°15'	25°
25.0	0.095	0.140	0.80	2°15'	4°15'	14°16'	8°21'	25°
40.0	0.085	0.125	0.80	2°01'	4°33'	12°48'	7°29'	25°
50.0	0.085	0.125	0.80	2°01'	4°33'	12°48'	7°29'	25°

The actual at the radial relief angle is normally kept within the range shown but may be varied to suit the cutter material, the work material and the operating conditions.

*Angle is calculated from the basic mean at the radial angle.

SUPER CUTTING END MILLS

8 RESHARPENING END TEETH / Nachschleifen des Endzahns

The three necessary operations and one option feature, along with setup suggestions are shown in Fig.5 A to D in each drawing, the shaded area indicates the surface being ground.

Die drei nötigen Operationen und eine Option werden, zusammen mit einem Rüstvorschlag, in Bild 5 A bis D gezeigt. Die dunklen Flächen zeigen Bereiche an, die nachgeschliffen werden.

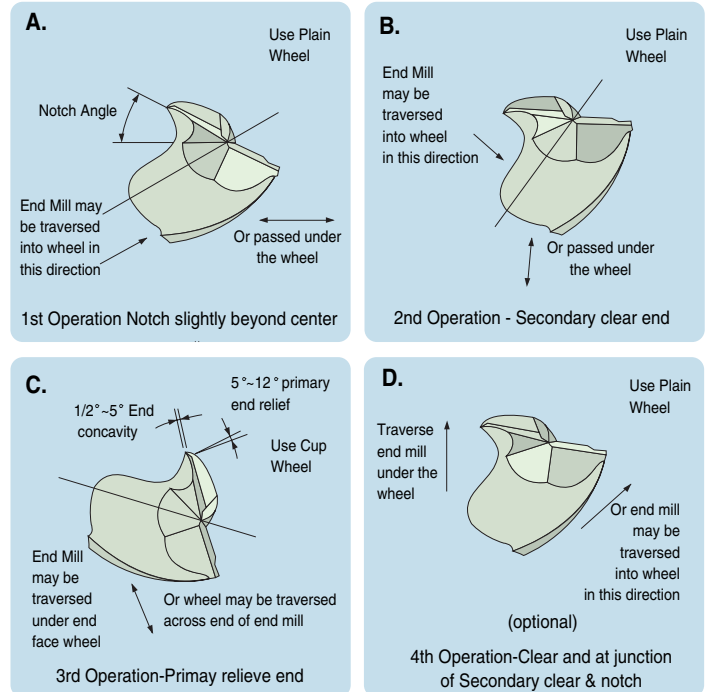


Fig 5. PROCEDURE FOR SHARPENING END OF 2 FLUTE SQUARE END MILLS

9 INSPECTION / Inspektion

The inspection is calculated by using the formula shown in Table1.

Procedure To Check
Radial Relief Angles
With Indicators.

1. Mount the cutter to rotate freely with no end movement.
2. Adjust the sharp pointed indicator to bear at the very tip of the cutting edge, pointing in a radial line, shown in Figure6
3. Roll the cutter the tabulated amount gives under "checking distance" using the second indicator as control.
4. Consult chart for amount of drop for the particular diameter and relief angle.

Die Inspektion wird aufgrund der Formel aus der Tabelle 1 durchgeführt.

Prozedur, um mit Indikator radialen Hinterschliffwinkel zu messen.

1. Fräser so montieren, daß er frei rotiert ohne sich seitlich zu bewegen.
2. Indikator so justieren, daß der Stab, in radiale Richtung zeigend, am äußersten Rand der Schneidkante angelegt ist (Bild 6).
3. Den Fräser um tabellierte 'Checking distance' rollen. Einen zweiten Indikator zur Kontrolle einsetzen.
4. Um den 'Drop' für den gemessenen Durchmesser und Hinterschliffwinkel zu erhalten, Chart konsultieren.

Radial Relief	Peripheral Cutting Edge	Cutting Angle

Fig. 6. Indicator Set-Up for Checking

SUPER CUTTING END MILLS

10 Troubleshooting in Endmilling / Problemlösung bei Fräsen

Trouble / Problem	Occurrences of trouble / Werkzeugbruch	Countermeasures / Auftreten des Problems
Breaking of tool	<ul style="list-style-type: none"> At time of engaging with work material Wenn mit Werkstück in Berührung kommt When ending cut Vermindern von Vorschub 	<ol style="list-style-type: none"> Decrease feed rate. / Vermindern von Vorschub Decrease projection amount / Vermindern der Projektionsgröße Shorten cutting edge length to required minimum limit Um ein Minimumlimit zu erhalten, Schneidkanten kürzen
	<ul style="list-style-type: none"> During normal cutting Während des FräSENS 	<ol style="list-style-type: none"> Decrease feed rate / Vorschub mindern Control wear → replace tool early Abnutzung kontrollieren - Werkzeug frühzeitig ersetzen Replace chuck or collet / Chuck oder Collet ersetzen Decrease projection amount / Projektionsgröße mindern Carry out honing / Nachschleifen If 4 flute, reduce to 2 flute(clogging of chipping) Wenn 4 Schneiden, zu 2 Schneiden verkleinern If dry cutting change to wet cutting utilize cutting fluid. In case of wet cutting flow oil supplied from the front, change to from rear angle of side top. Use ample with rate. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlflüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten
	<ul style="list-style-type: none"> When changing direction of feed Wenn Vorschubrichtung geändert wird 	<ol style="list-style-type: none"> Utilize circular interpolation(in case of NC machine) or temporarily stop feed(Dowelling) Circular interpolation benutzen(bei NC-Maschinen) oder Vorschub vorübergehend stoppen. Reduce feed rate before and after change of directions Vor und nach dem Richtungswechsel den Vorschub mindern Replace chuck or collect / Chuck oder Collet ersetzen,
Fracture of cutting edge Beschädigung der Schneidkante	<ul style="list-style-type: none"> Fracture of corners Eckenbruch 	<ol style="list-style-type: none"> Carry out chamfering or nose with hand lapper. Mit Handlapper eine Abschrägung durchführen. Down cut → Up cut / Down cut - Up cut
	<ul style="list-style-type: none"> Fracture at boundary of depth of cut Beschädigung an der Schneidtiefengrenze 	<ol style="list-style-type: none"> Down cut → Up cut / Down cut - Up cut Reduce cutting speed / Schneidgeschwindigkeit mindern
	<ul style="list-style-type: none"> Chipping at center part or overall Abbröckelung an der Hauptschneide oder überall 	<ol style="list-style-type: none"> Carry out honing. Or enlarge. / Nachschleifen oder erweitern Change number of rotation(in case machine vibrates) Rotationsgeschwindigkeit ändern(wenn Maschine vibriert). Increase cutting speed / Fräsgeschwindigkeit erhöhen. In ease of squeaking noise during cutting, increase feed. Wenn quitschendes Fräsgeräusch zu vernehmen, Vorschub erhöhen. It dry cutting use cutting fluid or blow air. Wenn Trockenfräsen, Kühlflüssigkeit oder Luft zuführen Replace chuck or collet / Chuck oder Collet auswechseln. Reduce cutting speed / Fräsgeschwindigkeit reduzieren.
	<ul style="list-style-type: none"> Large fracturing of cutting edge Größere Beschädigung an Schneidkanten 	<ol style="list-style-type: none"> Decrease feed rate / Vorschub mindern. If 4 flute reduce to 2 flute / Wenn 4 Schneiden, zu 2 Schneiden wechseln. Carry out honing. Or enlarge / Nachschleifen oder erweitern. Replace chuck or collet / Chuck oder Collet auswechseln. Reduce cutting speed / Fräsgeschwindigkeit mindern. If dry cutting, change to wet cutting. In case oil supply in wet cutting is from the front, change to rear at an angle or from side top. Use ample supply. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlflüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten.
Rapid tool wear Zu schnelle Werkzeugabnutzung		<ol style="list-style-type: none"> Reduce cutting speed / Fräsgeschwindigkeit mindern Up cut → Down cut / Up cut - Down cut Increase feed / Vorschub erhöhen

SUPER CUTTING END MILLS

10 Troubleshooting in Endmilling / Problemlösung bei Fräsen

Trouble / Problem	Occurrences of trouble / Werkzeugbruch	Countermeasures / Auftreten des Problems
		4. Utilize wet cutting or air / Naßfräsen oder Kühlluft zuführen. 5. If reground tool, improve surface roughness of flank. Wenn nachschleifen, die Oberflächenrauheit der Hauptfreiflächen verbessern.
Inferior finished surface Ungenügende Bearbeitungs Oberfläche	• Surface is good but rough Oberfläche ist gut aber rau	1. Decrease feed / Vorschub mindern 2. In case using 2 flute, increase to 4 flute Wenn 2 Schneiden, zu 4 Schneiden wechseln
	• Small chip welding Kleine Partikelverschweißung	1. Increase cutting speed / Fräsgeschwindigkeit erhöhen 2. Utilize wet cutting air blow(ample supply) Naßfräsen und Luftzufuhr(Reichlicher Zufuhr) 3. Carry out fine honing / Feinschliff durchführen 4. Up cut → Down cut / Up cut - Down cut 5. Increase feed or enlarge finish allowance Vorschub erhöhen oder Bearbeitungstoleranz erhöhen
	• With transverse streaks Mit Querstreifen	1. Carry out fine honing / Feinschliff durchführen 2. Use water insoluble cutting fluid Wasserunlösliche Kühflüssigkeit benutzen. 3. Down cut → Up cut / Down cut - Up cut
	• Signs of excessive cutting Zeichen exzessiven Fräsens	1. Reduce finishing depth of cut / Frästiefe reduzieren. 2. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 3. Reduce feed / Vorschub mindern
Poor machining accuracy	• Finish dimensions are on minus side Bearbeitungsmaße auf der Minusseite	1. Up cut → Down cut / Up cut - Down cut 2. Reduce finishing depth of cut / Finishing-tiefe reduzieren. 3. Replace chuck or collet / Chuck oder Collet austauschen. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Increase cutting speed / Fräsgeschwindigkeit reduzieren.
	• Poor perpendicularity Ungenauer Winkel	1. Reduce finishing depth of cut / Finishing-tiefe reduzieren. 2. Replace chuck or collet / Chuck oder Collet austauschen. 3. Reduce projection amount / Projektionsgröße mindern 4. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 5. 2Flute → 4 Flute / 2 Schneiden - 4 Schneiden 6. Reduce feed / Vorschub mindern. 7. Check wear rate → Replace tool Abnutzungsgrad überprüfen - Werkzeug austauschen.
Chattering Schnattern		1. Increase feed rate(in case over 0.05 mm/tooth, try reducing) Vorschub erhöhen(wenn über 0.05mm/Tooth Vorschub reduzieren). 2. Change cutting speed / Fräsgeschwindigkeit wechseln. 3. Replace chuck or collet/ Chuck oder Collet austauschen. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Use 2 flute cutter for rough cutting and 4 flute for finishing 2 Schneiden Fräser für rauhes Schneiden und 4 für Finishing einsetzen. 6. Down cut → Up cut / Down cut - Up cut



TOOL BITS

DREHLINGE

B1120
B2120
B3120HSS, 5% COBALT & 10% COBALT HSS SQUARE
GROUND TOOL BITS

290

B1220
B2220
B3220HSS, 5% COBALT & 10% COBALT HSS RECTANGULAR
GROUND TOOL BITS

291

B1320
B2320
B4320

HSS, 5% COBALT HSS & YPM ROUND TOOL BITS

292

B1420
B2420

HSS, 5% COBALT HSS CUT-OFF BLADES

293

B6320



CARBIDE ROUND TOOL BITS

294

HSS, 5% COBALT & 10% COBALT HSS, SQUARE GROUND TOOL BITS

SERIES B1120

HSS

SERIES B2120

5% COBALT HSS

SERIES B3120

10% COBALT HSS



Unit : mm

HSS	EDP No.		Width W	Height H	Length L
	Co.5%	Co.10%			
B1120050	B2120050	B3120050	5.0	5.0	63
B1120051	B2120051	B3120051	5.0	5.0	80
B1120060	B2120060	B3120060	6.0	6.0	63
B1120061	B2120061	B3120061	6.0	6.0	100
B1120062	B2120062	B3120062	6.0	6.0	160
B1120080	B2120080	B3120080	8.0	8.0	63
B1120081	B2120081	B3120081	8.0	8.0	100
B1120082	B2120082	B3120082	8.0	8.0	160
B1120101	B2120101	B3120101	10.0	10.0	80
B1120102	B2120102	B3120102	10.0	10.0	100
B1120103	B2120103	B3120103	10.0	10.0	160
B1120120	B2120120	B3120120	12.0	12.0	100
B1120121	B2120121	B3120121	12.0	12.0	160
B1120150	B2120150	B3120150	15.0	15.0	160
B1120160	B2120160	B3120160	16.0	16.0	160
B1120161	B2120161	B3120161	16.0	16.0	200
B1120200	B2120200	B3120200	20.0	20.0	160
B1120201	B2120201	B3120201	20.0	20.0	200
B1120220	B2120220	B3120220	22.0	22.0	160
B1120250	B2120250	B3120250	25.0	25.0	200

HSS, 5% COBALT & 10% COBALT HSS, RECTANGULAR GROUND TOOL BITS

SERIES B1220

HSS

SERIES B2220

5% COBALT HSS

SERIES B3220

10% COBALT HSS



Unit : mm

HSS	EDP No.		Width W	Height H	Length L
	Co.5%	Co.10%			
B1220040	B2220040	B3220040	4.0	10.0	100
B1220041	B2220041	B3220041	4.0	10.0	200
B1220060	B2220060	B3220060	6.0	10.0	150
B1220061	B2220061	B3220061	6.0	10.0	200
B1220062	B2220062	B3220062	6.0	12.0	150
B1220063	B2220063	B3220063	6.0	12.0	200
B1220064	B2220064	B3220064	6.0	14.0	140
B1220065	B2220065	B3220065	6.0	14.0	200
B1220080	B2220080	B3220080	8.0	12.0	150
B1220081	B2220081	B3220081	8.0	12.0	200
B1220100	B2220100	B3220100	10.0	12.0	150
B1220101	B2220101	B3220101	10.0	12.0	200
B1220102	B2220102	B3220102	10.0	16.0	150
B1220103	B2220103	B3220103	10.0	16.0	200
B1220120	B2220120	B3220120	12.0	16.0	150
B1220121	B2220121	B3220121	12.0	16.0	200
B1220122	B2220122	B3220122	12.0	20.0	150
B1220160	B2220160	B3220160	16.0	20.0	200
B1220161	B2220161	B3220161	16.0	25.0	200

HSS, 5% COBALT HSS, YPM (POWDER METALLURGY HSS) ROUND TOOL BITS

SERIES B1320

HSS

SERIES B2320

5% COBALT HSS

SERIES B4320

10% COBALT HSS



Unit : mm

EDP No.			Diameter D	Length L
HSS	Co.5%	YPM		
B1320030	B2320030	B4320030	3.0	60
B1320040	B2320040	B4320040	4.0	60
B1320050	B2320050	B4320050	5.0	60
B1320060	B2320060	B4320060	6.0	80
B1320080	B2320080	B4320080	8.0	80
B1320100	B2320100	B4320100	10.0	100
B1320120	B2320120	B4320120	12.0	150
B1320160	B2320160	B4320160	16.0	150
B1320200	B2320200	B4320200	20.0	200

HSS, 5% COBALT HSS, CUT-OFF BLADES

SERIES B1420

HSS

SERIES B2420

5% COBALT HSS



Unit : mm

EDP No.		Width W	Height H	Length L
HSS	Co.5%			
B1420030	B2420030	3.0	12.0	160
B1420031	B2420031	3.0	16.0	160
B1420040	B2420040	4.0	16.0	160
B1420041	B2420041	4.0	19.0	160
B1420050	B2420050	5.0	19.0	160
B1420051	B2420051	5.0	25.0	170

CARBIDE ROUND TOOL BITS

SERIES B6320

CARBIDE ROUND TOOL BITS



Unit : mm

EDP No. CARBIDE	Diameter D	Length L
B6320030	3.0	60
B6320040	4.0	60
B6320050	5.0	60
B6320060	6.0	80
B6320080	8.0	80
B6320100	10.0	100
B6320120	12.0	150
B6320160	16.0	100
B6320200	20.0	200



SUPER CUTTING TAPS

GEWINDEBOHRER

EXPLANATION OF ABBREVIATIONS

Working Materials

AL Aluminium & Aluminium Alloys	Cu Copper	GG Grey Cast Iron	GS Steels with good machinability $R_m < 750 \text{ N/mm}^2$
GV Any material with at least 8-10% elonga- tion	HR High alloyed steels $R_m > 1,000 \text{ N/mm}^2$	Ms Brass	Ni Nickel alloys
NW Carbon steels with low contents of alloy $R_m < 600 \text{ N/mm}^2$	Ti Titanium alloys	VA Stainless steels	VG Heat treated and heat-resistant steels $R_m > 750 \text{ N/mm}^2$

HM Carbide	HSS High Speed Steels (M2)	HSS-E 5% Co. High Speed Steels (M35)
HSS-PM Powder Metallurgy High Speed Steels		

Tap Materials

Surface Treatment and Coating

A Form A (Chamfer Lead 5-6 Threads)		vap Steam Tempered	TiN TiN-Coating (Titanium Nitride)
B Form B (with GUN- Nose and Chamfer Lead 4-5 Threads)	C Form C (Chamfer Lead 2-3 Threads)	TiAlN TiAlN-Coating (Titanium Aluminium Nitride)	TiCN TiCN-Coating (Titanium Carbon Nitride)
D Form D (Chamfer Lead 4-5 Threads)		Hardslick TiAlN+WC/C-Coating	
E Form E (Chamfer Lead 1.5-2 Threads)			

Chamfer Lead acc. to DIN 2197

Others

Az with Interrupted Threads	LH Left Hand Thread	EG Wire Thread Inserts
--	-------------------------------	----------------------------------

SURFACE TREATMENT AND COATING

The High Speed Steels we use grant a good wear resistance and toughness. Therefore we normally deliver our taps with bright, untreated surface. In machining certain materials, various surface treatments are of advantage.

STEAM TEMPERED - vap

The Steam Tempered is a Fe_3O_4 -oxyd-coating which reduces the friction between tool and workpiece and prevents cold welding.

NITRIDING - NI

We recommend this surface treatment for machining materials which effect a hard wear / abrasion, such as grey cast iron, alu-alloys with high Si-percentage more than 10%.

These are surface finishes of good value and suitable for many application. We do these surface treatments within our own company.

Further surface finishes are the various coatings.

TiN-COATING - TiN

The TiN-coating has a hardness of approx. **2,300 HV** and is temperature-resistant up to approx. **600°C**. This is an excellent all-round coating for normal applications.
Colour : **Golden** Coefficient of friction against steel : 0.4

TiCN-COATING - TiCN

TiCN takes place of TiN when the conditions require the coating to have a different hardness and toughness.
The TiCN brings advantage in machining very difficult steels or cutting interrupted bores.
The TiCN-coating has a hardness of approx. **3,000 HV**, but is temperature-resistant up to approx. **400°C** only. That means TiCN needs an excellent cooling for long service life.
Colour : **Blue-Grey** Coefficient of friction against steel : 0.4

TiAlN-COATING - TiAlN








This is a special coating for machining abrasive materials such as : grey cast iron, alu-alloys with silicon, fiber reinforced plastics, etc., or machining under high temperatures, which means with insufficient cooling, or high speeds $\geq 600\text{m/min}$. The TiAlN has a hardness of approx. **3,000 HV** and is temperature resistant up to approx. **800°C**.
Colour : **Violet-Grey** Coefficient of friction against steel : 0.4

Hardslick-COATING - Hardslick

Hardslick combines in a novel way the advantages of an extremely hard, thermally stable TiAlN-coating with the sliding and lubricating properties of an outer WC/C(Tungsten carbide/carbon)-coating. The Hardslick coating has a hardness of approx. **3,000 HV** and is temperature-resistant up to approx. **800°C**.
Colour : **Violet-Grey** Coefficient of friction against steel : 0.2

HAND TAPS & MACHINE TAPS - HSS & HSS-E



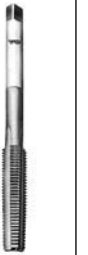



Program summary (Recommendation table see page 307-310)












Material Groups	GS	GS	GS	GS	GS	GS	GS
Hole Type	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through
Description	HSS Set of 3 pieces Straight flutes	HSS Set of 3 pieces Straight flutes Left hand thread	HSS Set of 2 pieces Straight flutes	HSS Set of 3 pieces Straight flutes	HSS Set of 2 pieces Straight flutes	HSS Set of 3 pieces Straight flutes	HSS Set of 2 pieces Straight flutes
Figure of Tools							
Cat.-No.	T7109	T7343	T7309	T7363	T7509	T7609	T7709
Threads	M	M-LH	MF	UNC	UNF	W	G
Dimensions	DIN 352	DIN 352	DIN 2181	DIN 351	DIN 2181	DIN 351	DIN 5157
Tolerance	ISO 2/6H	ISO 2/6H	ISO 2/6H	2B	2B	-	-
Chamfer	I / II / III	I / II / III	I / III	I / II / III	I / III	I / II / III	I / III
Surface							
Page	319	320	395/396	412	426	435	438

Material Groups	VG	VA	GS	GS	GS	GS	GS	GS	GS
Hole Type	Blind & Through	Blind & Through	Through	Blind	Through	Through	Through	Through	Blind & Through
Description	HSS-E Set of 3 pieces Straight flutes No.1 Pilot guide	HSS-E Set of 3 pieces Straight flutes No.1 Pilot guide	HSS-E Gun Pointed	HSS-E Spiral Fluted R20	HSS-E Gun Pointed	HSS-E Gun Pointed	HSS-E Gun Pointed	HSS-E Gun Pointed	HSS-E Straight Fluted
Figure of Tools									
Cat.-No.	TC353	TB373	TC122	TC612	TC127	TC227	TD127	TD227	TC463
Threads	M	M	M	M	M	M	M	M	M
Dimensions	DIN 352	DIN 352	DIN 352	DIN 352	DIN 371	DIN 376	DIN 371	DIN 376	DIN 37 1/8/6
Tolerance	ISO 2/6H	ISO 2X/6HX	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H
Chamfer	I / II / III	I / II / III	B	C	B	B	B	B	C
Surface		vap					TiN	TiN	
Page	321	322	323	324	325	326	327	328	329

MACHINE TAPS - *HSS-E* & *HSS-PM*

Program summary (Recommendation table see page 307-310)











Material Groups	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS
Hole Type	Through	Blind	Blind	Blind	Through	Through	Through	Blind & Through	Blind	Blind
Description	<i>HSS-E</i> Spiral Fluted L20	<i>HSS-E</i> Spiral Fluted R20	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Straight Fluted Nut Taps	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Straight Fluted	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R40
Figure of Tools										
Cat.-No.	TC211	TC517	TC711	TD711	TC803	TC222	TD222	TC473	TC411	TD411
Threads	M	M	M	M	M	MF	MF	MF	MF	MF
Dimensions	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 357	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374
Tolerance	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H
Chamfer	C	C	C	C	LONG	B	B	C	C	C
Surface				TiN			TiN			TiN
Page	330	331	332	333	334	397	398	399	400	401

Material Groups	GS	GS	GS	GS	GS	GS	GS	GS	GS	VG	VG	VG
Hole Type	Through	Blind & Through	Blind	Through	Blind	Through	Blind	Through	Blind	Through	Through	Through
Description	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Straight Fluted	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-PM</i> Gun Pointed	<i>HSS-PM</i> Gun Pointed	<i>HSS-E</i> Gun Pointed
Figure of Tools												
Cat.-No.	TC214	TC424	TC144	TC234	TC124	TC224	TC134	TC727	TC728	TQ863	TR863	TC422
Threads	UNC	UNC	UNC	UNF	UNF	W(BSW)	W(BSW)	G(BSP)	G(BSP)	M	M	M
Dimensions	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/374	DIN 371/374	DIN 2182/18	DIN 2182/18	DIN 5156	DIN 5156	DIN 371/376	DIN 371/376	DIN 371/376
Tolerance	2B	2B	2B	2B	2B	-	-	-	-	ISO 2/6H	ISO 2/6H	ISO 2/6H
Chamfer	B	C	C	B	C	B	C	B	C	B	B	B
Surface										vap		
Page	413	414	415	427	428	436	437	439	440	335	336	337

MACHINE TAPS - *HSS-E* & *HSS-PM*















Program summary (Recommendation table see page 307-310)











Material Groups	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG
Hole Type	Through	Through	Through	Blind	Blind	Blind	Blind	Blind	Blind	Blind	Through	Through
Description	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Gun Pointed	<i>HSS-PM</i> Spiral Fluted R40	<i>HSS-PM</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R40, Recessed Threads	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Gun Pointed
Figure of Tools												
Cat.-No.	TE422	TD422	TY422	TQ823	TR823	TC312	TB312	TD312	TY312	TB913	TC263	TD263
Threads	M	M	M	M	M	M	M	M	M	M	MF	MF
Dimensions	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 374	DIN 374
Tolerance	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H
Chamfer	B	B	B	C	C	C	C	C	C	C	B	C
Surface	NI	TiN	TiAlN	vap			vap	TiN	TiAlN	vap		TiN
Page	338	339	340	341	342	343	344	345	346	347	402	403

Material Groups	VG	VG	VG	VG	VG	VG	VG	VG	VG	HR
Hole Type	Blind	Blind	Through	Through	Blind	Blind	Through	Blind	Blind	Through
Description	HSS-E Spiral Fluted R40	HSS-E Spiral Fluted R40	HSS-E Gun Pointed	HSS-E Gun Pointed	HSS-E Spiral Fluted R40	HSS-E Spiral Fluted R40	HSS-E Gun Pointed	HSS-E Spiral Fluted R40	HSS-E Spiral Fluted R40	HSS-E Gun Pointed
Figure of Tools										
Cat.-No.	TC413	TD413	TC244	TD244	TC174	TD174	TC254	TC184	TC729	TC283
Threads	MF	MF	UNC	UNC	UNC	UNC	UNF	UNF	G(BSP)	M
Dimensions	DIN 374	DIN 374	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/376	DIN 371/374	DIN 371/374	DIN 5156	DIN 371/376
Tolerance	ISO 2/6H	ISO 2/6H	2B	2B	2B	2B	2B	2B	-	ISO 2/6H
Chamfer	C	C	B	B	C	C	B	C	C	B
Surface		TiN		TiN		TiN				
Page	404	405	416	417	418	419	429	430	441	348

MACHINE TAPS - HSS-E & HSS-PM










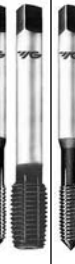
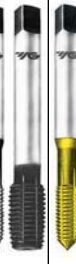





Program summary (Recommendation table see page 307-310)











Material Groups	HR	HR	HR	HR	VA	VA	VA NW	VA NW	VA	VA	VA NW	VA NW	VA NW	VA NW
Hole Type	Through	Blind	Blind	Blind	Through	Through	Through	Through	Blind	Blind	Blind	Blind	Through	Blind
Description	HSS-E Gun Pointed	HSS-E Spiral Fluted R40	HSS-E Spiral Fluted R40	HSS-E Spiral Fluted R40	HSS-PM Gun Pointed	HSS-PM Gun Pointed	HSS-E Gun Pointed	HSS-E Gun Pointed	HSS-PM Spiral Fluted R40	HSS-PM Spiral Fluted R40	HSS-E Spiral Fluted R40, Recessed Thread	HSS-E Spiral Fluted R40, Recessed Thread	HSS-E Gun Pointed	HSS-E Spiral Fluted R40
Figure of Tools														
Cat.-No.	TY283	TC313	TB313	TY313	TQ853	TR853	TB623	TCH23	TQ813	TR813	TB914	TCH14	TB123	TB183
Threads	M	M	M	M	M	M	M	M	M	M	M	M	MF	MF
Dimensions	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 37136	DIN 374	DIN 374
Tolerance	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H
Chamfer	B	C	C	C	B	B	B	B	C	C	C	C	B	C
Surface	TiAlN		vap	TiAlN	vap		vap	Hard slick	vap		vap	Hard slick	vap	vap
Page	349	350	351	352	353	354	355	356	357	358	359	360	406	407

Material Groups	VA NW	VA NW	VA NW	VA NW	VA NW	NW	Ti	Ti	Ti	Ti
Hole Type	Through	Blind	Through	Blind	Blind	Blind	Through	Through	Blind	Blind
Description	HSS-E Gun Pointed	HSS-E Spiral Fluted R40	HSS-E Gun Pointed	HSS-E Spiral Fluted R40	HSS-E Spiral Fluted R40	HSS-E Spiral Fluted R40	HSS-PM Gun Pointed	HSS-PM Gun Pointed	HSS-PM Spiral Fluted R25	HSS-PM Spiral Fluted R25
Figure of Tools										
Cat.-No.	TB264	TB904	TB274	TB924	TB514	TB711	TM293	TZ293	TM903	TZ903
Threads	UNC	UNC	UNF	UNF	G(BSP)	M	M-Az	M-Az	M	M
Dimensions	DIN 371376	DIN 371376	DIN 371374	DIN 371374	DIN 5156	DIN 371376	DIN 371376	DIN 371376	DIN 371376	DIN 371376
Tolerance	2B	2B	2B	2B	-	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H
Chamfer	B	C	B	C	C	C	B	B	C	C
Surface	vap	vap	vap	vap	vap	vap		TiAlN		TiAlN
Page	420	421	431	432	442	361	362	363	364	365

MACHINE TAPS - *HSS-E* & *HSS-PM*

Program summary (Recommendation table see page 307-310)

Material Groups	Ti Ni	Ti Ni	Ni	Ni	Ti Ni	Ti Ni	Ni	Ni	GV	GV	GV	GV	GV	GV	GV	GV
Hole Type	Through	Through	Through	Through	Blind	Blind	Blind	Blind	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through
Description	<i>HSS-PM</i> Gun Pointed	<i>HSS-PM</i> Gun Pointed	<i>HSS-PM</i> Gun Pointed	<i>HSS-PM</i> Gun Pointed	<i>HSS-PM</i> Spiral Fluted R40	<i>HSS-PM</i> Spiral Fluted R40	<i>HSS-PM</i> Spiral Fluted R40	<i>HSS-PM</i> Spiral Fluted R40	<i>HSS-PM</i> ColdForming Taps with Oil Grooves	<i>HSS-E</i> ColdForming Taps with Oil Grooves	<i>HSS-E</i> ColdForming Taps with Oil Grooves	<i>HSS-E</i> ColdForming Taps with Oil Grooves	<i>HSS-E</i> ColdForming Taps with Oil Grooves	<i>HSS-E</i> ColdForming Taps with Oil Grooves	<i>HSS-PM</i> ColdForming Taps	<i>HSS-E</i> ColdForming Taps
Figure of Tools																
Cat.-No.	TQ873	TR873	TM923	TZ923	TQ833	TR833	TM933	TZ933	TQ703	TE703	TE713	TD703	TD713	TY703	TQ723	TE723
Threads	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Dimensions	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376	DN37/376
Tolerance	ISO26H	ISO26H	ISO26H	ISO26H	ISO26H	ISO26H	ISO26H	ISO26H	ISO26HX	ISO26HX	ISO26HX	ISO26HX	ISO26HX	ISO26HX	ISO26HX	ISO26HX
Chamfer	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C
Surface	vap			TiAIN	vap			TiAIN	vap	NI	NI	TiN	TiN	TiAIN	vap	NI
Page	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381

Material Groups	GV	GV	GV	GV	GV	AI	AI	AI	AI	AI
Hole Type	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Through	Through	Blind	Blind	Blind
Description	<i>HSS-E</i> Cold Forming Taps	<i>HSS-E</i> Cold Forming Taps with Oil Grooves	<i>HSS-E</i> Cold Forming Taps with Oil Grooves	<i>HSS-E</i> Cold Forming Taps with Oil Grooves	<i>HSS-E</i> Cold Forming Taps with Oil Grooves	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Gun Pointed	<i>HSS-E</i> Spiral Fluted R45	<i>HSS-E</i> Spiral Fluted R40	<i>HSS-E</i> Spiral Fluted R45
Figure of Tools										
Cat.-No.	TD723	TE733	TD733	TE704	TD704	TC622	TE943	TC163	TE953	TC963
Threads	M	MF	MF	UNC	UNC	M-Az	M	M	M	MF
Dimensions	DIN 37 1/376	DIN 374	DIN 374	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376	DIN 374
Tolerance	ISO2X6HX	ISO2X6HX	ISO2X6HX	2BX	2BX	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H	ISO 2/6H
Chamfer	C	C	C	C	C	B	B	C	C	C
Surface	TiN	NI	TiN	NI	TiN		NI		NI	
Page	382	408	409	422	423	383	384	385	386	410

MACHINE TAPS - *HSS-E* & *HM*

Program summary (Recommendation table see page 307-310)

Material Groups	AI	AI	AI	AI	AI	AI	AI	GG	GG	GG
Hole Type	Blind	Blind	Through	Blind	Through	Blind	Through	Blind & Through	Blind & Through	Blind & Through
Description	HSS-E Spiral Fluted R45	HSS-E Spiral Fluted R45	HSS-E Gun Pointed	HSS-E Spiral Fluted R40	HSS-E Gun Pointed	HSS-E Spiral Fluted R40	HSS-E Gun Pointed	HSS-E Straight Fluted	HSS-E Straight Fluted	HSS-E Straight Fluted
Figure of Tools										
Cat.-No.	TC169	TC170	TC973	TC909	TC934	TC944	TC954	TE821	TD821	TI821
Threads	UNC	UNF	EG M	EG M	EG UNC	EG UNC	EG UNF	M	M	M
Dimensions	DIN 37 1/376	DIN 37 1/374	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376	DIN 374	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376
Tolerance	2B	2B	6H Mod.	6H Mod.	2B	2B	2B	ISO 2X,6HX	ISO 2X,6HX	ISO 2X,6HX
Chamfer	C	C	B	C	B	C	B	C	C	C
Surface								NI	TiN	TiCN
Page	424	433	443	444	445	446	447	387	388	389

Material Groups	GG	GG	GG	GG	GG	Ms	Ms	Ms		
Hole Type	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through	Blind & Through		
Description	HSS-E Straight Fluted	HM Straight Fluted	HSS-E Straight Fluted	HSS-E Straight Fluted	HSS-E Straight Fluted	HSS-E Straight Fluted	HSS-E Straight Fluted	HSS-E Straight Fluted		
Figure of Tools										
Cat.-No.	TY821	TO993	TE403	TE434	TE454	TC433	TE443	TY433		
Threads	M	M	MF	UNC	UNF	M	M	M		
Dimensions	DIN 37 1/376	DIN 37 1/376	DIN 374	DIN 37 1/376	DIN 37 1/374	DIN 37 1/376	DIN 37 1/376	DIN 37 1/376		
Tolerance	ISO 2X,6HX	ISO 2X,6HX	ISO 2X,6HX	2BX	2BX	ISO 2,6H	ISO 2X,6HX	ISO 2,6H		
Chamfer	C	C	C	C	C	C	C	C		
Surface	TiAlN		NI	NI	NI		NI	TiAlN		
Page	390	391	411	425	434	392	393	394		

NEW TOLERANCE NOTATIONS TO DIN EN 22857

For taps with metric ISO threads

The standard DIN 802 part 1 has been withdrawn and replaced by DIN EN 22857.

The following chart gives a comparison between the new standard DIN EN 22857 and the withdrawn standard DIN 802 part 1. An important change is the re-classification from tap tolerance classes to tap application classes.

Application classes for taps to DIN EN 22857		Tolerance classes to withdrawn standard DIN 802 part 1	Allotment of the tolerance zones of the nut thread to be cut				
Name	Code						
Class 1	ISO 1	4H	4H	5H	-	-	-
Class 2	ISO 2	6H	4G	5G	6H	-	-
Class 3	ISO 3	6G	-	-	6G	7H	8H
-	-	7G	-	-	-	7G	8G

A suitable transition period is to be expected.

Codes for tolerance classes 7G/8G and <X> tolerance zones have not yet been standardised within DIN EN 22857 and the values from DIN 802 part 1 will continue to be valid.

CUTTING SPEED TABLE

Cutting Speeds m/min. into revolutions per minute

Cutting Speed m/min.																
Tool Dia.	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
Tool r.p.m.																
1	318	637	955	1274	1592	1910	2548	3185	3822	4777	6396	7962	9554	12739	15924	19108
2	159	318	478	637	796	955	1274	1592	1911	2388	3185	3981	4777	6369	7962	9554
3	106	212	318	425	531	637	849	1062	1274	1592	2123	2654	3185	4246	5308	6369
4	80	159	239	318	398	478	637	796	955	1194	1592	1990	2389	3185	3981	4777
5	64	127	191	255	318	382	510	637	764	955	1274	1592	1911	2548	3185	3822
6	53	106	159	212	265	318	425	531	637	796	1062	1327	1592	2123	2653	3185
8	40	80	119	159	199	239	318	398	478	597	796	955	1194	1592	1990	2388
10	31	64	96	127	159	191	255	318	382	478	637	796	955	1274	1592	1911
12	26	53	80	106	133	159	212	265	318	398	531	663	796	1062	1327	1592
14	23	45	68	91	114	136	182	227	273	341	455	569	682	910	1137	1365
16	20	40	60	80	100	119	159	199	239	299	398	498	597	796	995	1194
18	18	35	53	71	88	106	142	177	212	265	354	442	531	708	885	1062
20	16	32	48	64	80	96	127	159	191	239	318	398	478	637	796	955
25	13	25	38	51	64	76	102	127	153	191	255	318	382	510	637	764
30	11	21	32	42	53	64	85	106	127	159	212	265	318	425	531	637
35	9	18	27	36	45	55	73	91	109	136	182	227	273	364	455	546
40	8	16	24	32	40	48	64	80	96	119	159	199	239	318	398	478

EXAMPLES FOR APPLICATION MATERIAL GROUPS

11 Magnetic Soft Steels $< 400 \text{ N/mm}^2$ 1.1013 RFe 100 1.1014 RFe 80 1.1015 RFe 60 1.0718 9 S MnPb 28	12 Structure/Case Carburizing Steels $< 700 \text{ N/mm}^2$ 1.0037 St 37-2 1.0050 St 50-2 1.0060 St 60-2 1.0070 St 70-2 1.0401 C 15 1.1141 Ck 15	13 Plain Carbon Steels $< 850 \text{ N/mm}^2$ 1.0501 C 35 1.0503 C 45 1.0535 C 55 1.0601 C 60 1.1181 Ck 35 1.1191 Ck 45	14 Alloy Steels $< 850 \text{ N/mm}^2$ 1.2080 X210Cr12 1.2363 X100CrMoV5-1 1.3243 S 6-5-2-5 1.3343 S 6-5-2 1.7218 25CrMo4 1.7220 34CrMo4
15 Alloy, Hardened & Tempered Steels $< 1,200 \text{ N/mm}^2$ 1.2581 X30WCrV9 3 1.2622 X60WCrMoV9 1.2550 60WCrV7 1.6580 30CrNiMo8 1.7361 32CrMo12 1.8515 31CrMo12	16 Alloy, Hardened & Tempered Steels $> 1,200 \text{ N/mm}^2$ To this group belong most of the materials of group 15, but present a higher tensile strength.	21 Free machining stainless Steels $< 850 \text{ N/mm}^2$ 1.4005 X12CrS13 1.4006 X10Cr13 1.4016 X6Cr17 1.4104 X12CrMoS17 1.4305 X10CrNiS18 9	22 Austenitic stainless Steels $< 850 \text{ N/mm}^2$ 1.4301 X5CrNi18 10 1.4406 X2CrNiMoN17 12 2 1.4435 X2CrNiMo18 14 3 1.4541 X6CrNiTi18 10 1.4571 X6CrNiMoTi17 12 2 1.4828 X15CrNiSi20 12
23 Martensitic/Ferritic/Fer.-Aus. Stainless Steels $< 1,000 \text{ N/mm}^2$ 1.4112 X90CrMoV18 1.4125 X105CrMo17 1.4002 X6CrAl13 1.4512 X6CrTi12 1.4582 X4CrNiMoNb25 7 1.4821 X20CrNiSi25 4	31 Grey graphite cast irons $< 500 \text{ N/mm}^2$ 0.6015 GG-15 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	32 Grey graphite cast irons $< 1,000 \text{ N/mm}^2$ 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	33 Nodular graphite, Malleable cast irons $< 700 \text{ N/mm}^2$ 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.8040 GTW-40 0.8065 GTW-65
34 Nodular graphite, Malleable cast irons $< 1,000 \text{ N/mm}^2$ 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.7070 GGG-70 0.7080 GGG-80	41 Titanium unalloys $< 700 \text{ N/mm}^2$ 3.7024 Ti99.5 3.7034 Ti99.7 3.7035 Ti2 3.7055 Ti99.4 3.7064 Ti99.2 3.7065 Ti4	42 Titanium alloys $< 900 \text{ N/mm}^2$ TiA14Mn4 3.7114 TiA15Sn2 3.7124 TiCu2 3.7164 TiA16V4 3.7174 TiA16V6Sn2	43 Titanium alloys $< 1,300 \text{ N/mm}^2$ 3.7124 TiCu2 3.7144 TiA16Sn2Zr4Mo2 3.7154 TiAl6Zr5 3.7164 TiA16V4 3.7174 TiA16V6Sn2 3.7184 TiAl4Mo4Sn2
51 Nickel unalloys $< 500 \text{ N/mm}^2$ 2.1504 NiAlBz 2.4042 Ni99CSi 2.4060 Ni99.6 2.4062 Ni99.4Fe	52 Heat resisting Nickel alloys $< 900 \text{ N/mm}^2$ 2.4360 Monel 400 2.4374 Monel 500 2.4665 Hastelloy X 2.4812 Hastelloy C 2.4816 Inconel 600 1.4876 Incoloy 800	53 Heat resisting Nickel alloys $< 1,400 \text{ N/mm}^2$ 2.4631 Nimonic80A 2.4632 Nimonic90 2.4634 Nimonic105 2.4662 Nimonic901 2.4668 Inconel 718 2.4669 Inconel X-750	61 Copper unalloys $< 350 \text{ N/mm}^2$ 2.0060 E-Cu57 2.0070 SE-Cu 2.0090 SF-Cu 2.1356 CuMn3 2.1522 CuSi2Mn
62 Short chip Brass, Bronze copper alloys $< 700 \text{ N/mm}^2$ 2.0360 CuZn40 (Ms60) 2.0380 CuZn39Pb2 (Ms58) 2.0410 CuZn44Pb2 2.0580 CuZn40Mn1Pb 2.1086 G-CuSn10Zn 2.1096 G-CuSn5ZnPb	63 Long chip Brass, Bronze copper alloys $< 700 \text{ N/mm}^2$ 2.0250 CuZn20 2.0321 CuZn37 2.1020 CuSn6 2.1080 CuSn6Zn6 2.1245 CuBel.7 2.1293 CuCrZr	64 Cu-Al-Fe alloys $< 1,500 \text{ N/mm}^2$ Ampco 18 Ampco 20 Ampco 25	71 Aluminium-Magnesium unalloys $< 350 \text{ N/mm}^2$ 3.0250 Al99.5H 3.0280 Al99.8H 3.0305 Al99.9 3.3308 Al99.9Mg0.5
72 Aluminium alloys, Si $< 0.5\%$ $< 600 \text{ N/mm}^2$ 3.0515 AlMn1 3.0525 AlMn1Mg0.5 3.1325 AlCuMg1 3.3315 AlMg1 3.3241 G-AlMg3Si 3.3292 GD-AlMg9	73 Aluminium alloys, 0.5-10% Si $< 600 \text{ N/mm}^2$ 3.2134 G-AlSi5Cu1Mg 3.2152 GD-AlSi6Cu4 3.2162 GD-AlSi8Cu3 3.2373 G-AlSi9Mg	74 Aluminium alloys, Si $> 10\%$ $< 600 \text{ N/mm}^2$ 3.2381 G-AlSi10Mg 3.2383 G-AlSi10Mg(Cu) 3.2581 G-AlSi12 3.2583 G-AlSi12(Cu) 3.5662 G-MgA16 3.5812 G-MgA18Zn1	81 Thermoplastics Delrin(POM) Teflon Nylon
82 Thermosetting plastics Bakelit Novopan	83 Reinforced plastics materials Glass fiber reinforced Thermo and Duroplastics	Reference: DIN	

[illegible]

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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10 - STEEL

11 - Magnetic soft steels - Hardness < 120 HB 30 - Tensile strength < 400 N/mm²

1.1013	RFe 100		OSOA12	EN2	
1.1014	RFe 80				
1.1015	RFe 60		230Mo7	EN1	
1.0718	9 S MnPb 28				

12 - Structural steels - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

12.1 - Structural steels

1.0034	RSt 34-2	A34-2 EN	1449 34/20 HR		
1.0035	St 33	A33	Fe 310-0		
1.0036	St 37-2		060A35	EN3A,4,5,6,7,8	
1.0037	RSt 37-2				
1.0044	St 44-2				
1.0050	St 50-2		4360-50B	EN 207	
1.0060	St 60-2				
1.0070	St 70-2				
1.0116	St 37-3				
1.0144	St 44-3				

12.2 - Case carburizing steels

1.0301	C 10	AF 34 C 10	040 A 10		M 1010
1.0401	C 15	AF 37 C 12	080 A 15		M 1015
1.1121	Ck 10	XC 10	040 A 10		1010
1.1141	Ck 15	XC 12	040 A 15		1015
1.5732	14 Ni Cr 10	14 NC 11			3415
1.7015	15 Cr 3	12 C 3	523 M 15		5015
1.7131	16 Mn Cr 5	16 MC 4	527 M 17	EN 32	5115
1.7147	20 Mn Cr 5	20 MC 5			5120

12.3 - Free machining steels

1.0710	15 S 10				
1.0715	9 S Mn 28	S 250	230 M 07		1213
1.0718	9 S Mn Pb 28	S 250 Pb			12 L 13
1.0721	10 S 20	10 F1	210 M 15		1108 1109
1.0722	10 S Pb 20	10 Pb F 2			11 L 08
1.0723	15 S 20	210 A 15		
1.0726	35 S 20	35 MF 6	212 M 36		1140
1.0727	45 S 20	45 MF 4			1146
1.0736	9 S Mn 36	S 300			1215
1.0737	9 S Mn Pb 36	S 300 Pb			12 L 14

12.4 - Cast structural steels

1.0416	GS - 38				
1.0446	GS - 45				
1.0552	GS - 52				
1.0553	GS - 60	E 36 - 3			
1.0554	GS - 70				

13 - Plain carbon steels - tempered

13.1 - Steels, tempered - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²

1.0402	C 22	1 C 22	070 M 20		M 1023
1.0501	C 35	1 C 35	080 A 32		1035
1.0503	C 45	1 C 45	060 A 47		1045
1.0535	C 55	1 C 55	070 M 55		1055
1.0601	C 60	1 C 60	060 A 62	EN 43	1060
1.1157	40 Mn 4	35 M 5	150 M 36		1035 1041
1.1151	Ck 22	2 C 22	055 M 15		1020 1023
1.1181	Ck 35	2 C 35	080 A 35		1035 1038
1.1191	Ck 45	2 C 45	080 M 46	EN 9, 10	1045
1.1203	Ck 55	2 C 55	060 A 57		1055
1.1221	Ck 60	2 C 60	060 A 62		1060 1064

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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14 - Alloy steels - Hardness < 250 HB 30, < 25 HRC - Tensile strength < 850 N/mm²

14.1 - Cold work tool steels

1.2056	90 Cr 3				
1.2067	100 Cr 6	Y 100 C 6	BL 3		L 1 L 3
1.2080	X 210 Cr 12	Z 200 C 12	BD 3		D3
1.2083	X 42 Cr 13	Z 40 C 14			420
1.2363	X 100 CrMoV5 1	Z 100 CDV 5	BA 2		A 2
1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	BD 2		D 2
1.2510	100 MnCrW 4	90 MWCV 5	BO 1		O1
1.2550	60 WCrV 7	55WC 20	BS 1		S1
1.2823	70 Si 7				
1.2826	60 Mn Si Cr 4				
1.2842	90 MnCrV 8	90 MV 8	BO 2		O 2

14.2 - High speed steels

1.3202	S 12-4-4-5	Z 130 WKCV 12-05-04-04	BT 15		T 15
1.3207	S 10-4-3-10	Z130 WKCDV10-10-04-04-03	BT 42		T 42
1.3243	S 6-5-2-5	Z85 WDKCV 06-05-05-04-02	BM 35		M 35
1.3247	S 2-10-1-8	Z110 DKCWV 09-08-04-02-01	BM 42		M 42
1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2		M 2
1.3344	S 6-5-3	Z 120 WDCV 06-05-04-03			M 3 / 2
1.3348	S 2-9-2	Z 100 DCWV 09-04-02-02			M 7
ASP 23	(S 6-5-3)				
ASP 30					
ASP 60					

14.3 - Alloy cast irons

1.5919	GS-15Cr Ni 6	16 NC 6			3115
1.7218	GS-25Cr Mo 4	25 C D 4	70 8A 25		4130
1.7220	GS-34Cr Mo 4	35 C D 4	70 8A 37		4135 4137
1.7379	GS-18 Cr Mo 9 10				

14.4 - Tempered steels

1.0503	C 45	1 C 45	060 A 47		1045
1.7220	34 Cr Mo 4	34 Cr Mo 4	708 A 37		4135, 4137
1.7225	42 Cr Mo 4	42 CD 4	708 A 42	EN 16, 17, 19	4140, 4142
1.7228	50 Cr Mo 4	50 Cr Mo 4	708 A 47		4150

14.5 - Nitriding steels

1.7779	20 Cr Mo V 13.5				
1.8504	34 Cr Al 6				
1.8506	34 Cr Al S 5				
1.8507	34 Cr Al Mo 5	30 CAD 6.12			A 355 Cl.D
1.8509	41 Cr Al Mo 7	40 CAD 6.12	905 M 39		A 355 Cl.A
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		

15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm²

15.1 - Alloy steels for tools

1.2311	40 Cr Mn Mo 7				
1.2312	40 Cr Mn Mo S 86				
1.2436	X 210 Cr W 12	Z 200 CW 12			
1.2711	54 Ni Cr Mo V 6				
1.2713	55 Ni Cr Mo V 6	55 NCDV 7	826 M 40	S 95, S 97, S 98	L 6
1.2714	56 Ni Cr Mo V 7				
1.2743	60 Ni Cr Mo V 12 4				
1.2766	35 Ni Cr Mo 16				

15.2 - Alloy steels for hot work

1.2343	X 38 Cr Mo V 5 1	Z 38 CDV 5	BH 11		H 11
1.2344	X 40 Cr Mo V 5 1	Z 40 CDV 5	BH 13		H 13
1.2365	X 32 Cr Mo V 3 3	32 DCV 28	BH 10		H 10
1.2367	X 40 Cr Mo V 5 3	Z 38 CDV 5.3			
1.2581	X 30 W Cr V 9 3	Z 30 WCV 9.3	BH 21		H 21
1.2622	X 60 W Cr Mo V 9				
1.2678	X 45 CoCrWV 5 5 5				
1.2550	60 WCr V 7	55 WC 20	BS 1		S 1
1.2567	X 30 W Cr V 5 3	Z 32 WCV 5			

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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15.3 - Hardened tempered steels - Hardness may be different according to presentation and dimensions of material

1.5864	35 Ni Cr 18				
1.6580	30 Cr Ni Mo 8	30 Cr Ni Mo 8			
1.7361	32 Cr Mo 12	30 CD 12	722 M 24		
1.7707	30 Cr Mo V 9				
1.8161	58 Cr V 4				

15.4 - Nitriding steels

1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
1.8519	31 Cr Mo V 9		830 M 31		
1.8523	39 Cr Mo V 13 9		897 M 39		
1.8550	34 Cr Al Ni 7		826 M 40		

16 - Alloy steels / Hardened tempered steels - Hardness > 38 HRC - Tensile strength > 1,200 N/mm²

To this group belong most of the materials of group 15, but present a higher tensile strength

20 - STAINLESS STEELS

21 - Free machining stainless steels - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²

1.4104	X 12 Cr Mo S 17	Z 13 CF 17	416 S 37	EN 56	430 F
1.4305	X 10 Cr Ni S 18 09	Z 8 CNF 18-09	303 S 21	EN 60	303

22 - Austenitic stainless steels - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²

1.4300	X 12 Cr Ni 18 8		320 S 12		
1.4301	X 5 Cr Ni 18 10	Z 6 CN 18-09	304 S 15	EN 80, EN 58 + C	304
1.4311	X 2 CrNiN 18 10	Z 3 CN 18-07 Az	304 S 61		304 LN
1.4406	X 2 CrNiMoN 17 12 2	Z 3 CND 17 11 02	316 S 61		316 LN
1.4433	X 2 CrNiMo 18 15		316 S		
1.4435	X 2 CrNiMo 18 14 3	Z3 CND 17-12-03	316 S 11		316 L
1.4539	X 1 CrNiMoCu 25 20 5	Z 1 NCDU 25-20	321 S 17		UNS N08904
1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18 10	321 S 18	EN 58 J, 316	321
1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNDT 17 12	320 S 18		316 Ti
1.4573	X 10 CrNiMoTi 18 12		320 S 33		
1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20-12	309 S 24		309

22.1 - Cast austenitic stainless steels

1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M	304 C 15(LT196)		CF-8
1.4313	G-X 5 CrNi 13 4	Z 8 CD 17-01	425 C 12		CA 6 -NM
1.4408	G-X 6 CrNiMo 18 10		316 C 16(LT196)		CF-8M
1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12M	318 C 17		

23 - Martensitic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²

1.4021	X 20 Cr 13	Z 20 C 13	420 S 37		420
1.4034	X 46 Cr 13	Z 44 C 14	(420 S 45)		
1.4057	X 20 CrNi 17 2	Z 15 CN 16-02	431 S 29		431
1.4112	X 90 CrMoV 18				
1.4116	X 45 CrMoV 15			EN 58, b.e.j.t	
1.4125	X 105 CrMo 17	Z 100 CD 17		Duplex alloys	440 C
1.4718	X 45 CrSi 9 3	Z 45 CS 9	401 S 45		HNV 3
1.4747	X 80 CrNiSi 20	Z 80 CSN 20-02	443 S 65		HNV 6
1.4086	G-X 120 Cr 29				
1.4106	G-X 10 CrMo 13				
1.4138	G-X 120 CrMo 29 2				

24 - Ferritic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²

1.4002	X 6 Cr Al 13	Z 8 CA 12	405 S 17		405
1.4006	X 10 Cr 13	Z 10 C 13	410 C 21		410
1.4016	X 6 Cr 17	Z 8 C 17	430 S 17		430
1.4510	X 6 Cr Ti 17	Z 8 CT 17			430 Ti
1.4512	X 6 Cr Ti 12	Z 6 CT 12	409 S 19		409

25 - Ferritic-Austenitic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²

1.4460	X 8 CrNiMo 27 5	Z 5 CND 27-05 Az			329
1.4582	X 4 CrNiMoNb 25 7				
1.4821	X 20 CrNiSi 25 4				

30

31 - Grey graphite cast irons - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²

0.6010	GG-10	Ft 10 D			A 48-20 B
0.6015	GG-15	Ft 20 D	Grade 150	Grey cast iron soft	A 48-25 B
0.6020	GG-20	Ft 25 D	Grade 220		A 48-30 B
0.6025	GG-25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG-30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG-35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG-40	Ft 40 D	Grade 400		A 48-60 B

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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31.1 - Meehanite - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²

.....	GF - 150				
.....	GD - 260				

32 - Grey graphite cast irons - Hardness 150 - 300 HB 30 - Tensile strength 500 - 1,000 N/mm²

0.6020	GG - 20	Ft 25 D	Grade 220	Grey cast iron hard	A 48-30 B
0.6025	GG - 25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG - 30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG - 35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG - 40	Ft 40 D	Grade 400		A 48-60 B

32.1 - Meehanite - Hardness 150-300 HB 30 - Tensile strength 500-1,000 N/mm²

.....	GF - 150				
.....	GD - 260				

33 - Nodular graphite, malleable cast irons - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

0.7033	GGG-35.3				
0.7040	GGG-40	FGS 400-12	420 / 12		60-40-18
0.7043	GGG-40.3	FGS 370-17	370 / 17		
0.7050	GGG-50	FGS 500-7	500 / 7		65-45-12
0.7060	GGG-60	FGS 600-3	600 / 3	S.G.iron, Meehanite	80-55-06
0.8035	GTW-35		700/2,30g/72	Black & White Heart	
0.8040	GTW-40				
0.8045	GTW-45				
0.8065	GTW-65				
0.8135	GTS-35				
0.8145	GTS-45				
0.8155	GTS-55				
0.8165	GTS-65				

33.1 - Meehanite - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

	SF 400				
	SPF 600				

34 - Nodular graphite, tempered malleable cast irons - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm²

0.7070	GGG-70	FGS 700-2	700 / 2	S.G.iron, Meehanite	100-70-03
0.7080	GGG-80	FGS 800-2	800 / 2	Black & White Heart	120-90-02

And materials from group 33 tempered

34.1 - Meehanite - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm²

	SH 800		420/12, P 440/7		
	SH 1000				

40

41 - Titanium, unalloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

3.7024.1LN	Ti 99.5				
3.7034.1LN	Ti 99.7				
3.7035	Ti 2				
3.7055	Ti 99.4		TA 1-9	Ti 99.0	
3.7064.1LN	Ti 99.2				
3.7065	Ti 4				
3.7255	Ti 3 Pd				

42 - Titanium, alloys - Hardness < 270 HB 30 - Tensile strength < 900 N/mm²

	Ti Al 4 Mn 4				
3.7144 LN	Ti Al 5 Sn 2				
3.7124 LN	Ti Cu 2		TA 10-14, TA 17	Ti - 2AL	
3.7164 LN	Ti Al 6 V 4		TA 18		
3.7174 LN	Ti Al 6 V 6 Sn 2				

43 - Titanium, alloys - Hardness 270-300 HB 30 - Tensile strength 900-1,300 N/mm²

3.7124 LN	Ti Cu 2				
3.7144 LN	Ti Al 6 Sn 2 Zr4 Mo2			Ti AL	
3.7154 LN	Ti Al 6 Zr 5		TA 10-13, TA 28	3.7174LN, 3.7148LN	
3.7164 LN	Ti Al 6 V 4				
3.7174 LN	Ti Al 6 V Sn 2				
3.7184 LN	Ti Al 4 Mo 4 Sn 2				

50

51 - Nickel, unalloys - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²

2.1504 LN	Ni Al Bz				
2.4042	Ni 99 CSi		NA 11, NA 12	Nickel 200	
2.4060	Ni 99.6			Nickel 270	
2.4062	Ni 99.4 Fe				

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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52 - Heat resisting nickel alloys - Hardness < 270 HB 30 - Tensile strength < 900 N/mm²

2.4360 LN	Monel 400				
2.4374 LN	Monel 500				
2.4617	Hastelloy B 2			Nimonic 75	
2.4665	Hastelloy X		HR 203		
2.4812	Hastelloy C		3027-76	Hastelloy C	
2.4816	Inconel 600			Haynes Alloys 263	
1.4876	Incoloy 800				
2.4983	Udimet 500				

53 - Heat resisting nickel alloys - Hardness 270-410 HB 30 - Tensile strength 900-1,400 N/mm²

2.4631	Nimonic 80 A			Nimonic 80	
2.4632	Nimonic 90				
2.4634	Nimonic 105				
2.4662	Nimonic 901		HR 8		
2.4668	Inconel 718		HR 401, 601	Rene 41	
2.4669	Inconel X-750				
2.4670 LN	Nimocast 713				
2.4674 LN	Nimocast PK 24				
2.4856	Inconel 625				
2.6554 LN	Waspaloy				

60 - COPPER

61 - Copper, unalloys - Hardness < 100 HB 30 - Tensile strength < 350 N/mm²

2.0060	E - Cu 57				
2.0070	SE - Cu			Commercially Pure	
2.0090	SF - Cu		C 101		
2.1356	Cu Mn 3				
2.1522	Cu Si 2 Mn				

62 - Short chip copper alloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

62.1 - Brass

2.0360	Cu Zn 40(MS 60)				
2.0380	Cu Zn 39 Pb 2 (MS 58)				
2.0410	Cu Zn 44 Pb 2		CZ120, CZ109 PB104		
2.0561	Cu Zn 40 Al 1			2.1030, 2.1080	
2.0580	Cu Zn 40 Mn 1 Pb				
2.0771	Cu Ni 7 Zn 39 Mn 5 Pb3				

62.2 - Bronzes

2.1086	G-Cu Sn 10 Zn				
2.1093	G-Cu Sn 6 Zn Ni				
2.1096	G-Cu Sn 5 Zn Pb				

63 - Long chip copper alloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

63.1 - Brass

2.0250	Cu Zn 20				
2.0265	Cu Zn 30				
2.0321	Cu Zn 37		CZ108, CZ106		
2.0335	Cu Zn 36 (Ms 63)				

63.2 - Bronzes

2.1020	Cu Sn 6				
2.1030	Cu Sn 8				
2.1080	Cu Sn 6 Zn 6				

63.3 - Copper alloys tempered by forging

2.1245	Cu Be 1.7				
2.1247	Cu Be 2				
2.1293	Cu Cr Zr				

64 - Cu - Al - Fe alloys Hardness < 440 HB 30 - Tensile strength < 1,500 N/mm²

64.1 - Ampco

	Ampco 18			Ampco 18	
	Ampco 20		AB 1 type		
	Ampco 25			Ampco 26	

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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70 - ALUMINIUM - MAGNESIUM

71 - Aluminium - Magnesium, unalloys - Hardness < 100 HB 30 - Tensile strength < 350 N/mm²

3.0250	Al 99.5 H				
3.0280	Al 99.8 H				
3.0305	Al 99.9				
3.3308	Al 99.9 Mg 0.5				

72 - Aluminium alloys, Si < 0.5% - Hardness < 180 HB 30 - Tensile strength < 600 N/mm²

72.1 - Forging aluminium alloys

3.0515	Al Mn 1				
3.0516	S-Al Mn				
3.0525	Al Mn 1 Mg 0.5				
3.0615	Al Mg Si Pb				
3.1325	Al Cu Mg 1				
3.1355	Al Cu Mg 2				
3.3315	Al Mg 1				
3.3535	Al Mg 3				
3.4365	Al Zn Mg Cu 1.5				

72.2 - Cast aluminium alloys

3.1841	G - Al Cu 4 Ti				
3.3241	G - Al Mg 3 Si				
3.3292	GD - Al Mg 9				

73 - Aluminium alloys, 0.5-10% Si - Hardness < 180 HB 30 - Tensile strength < 600 N/mm²

73.1 - Cast aluminium alloys

3.2134	G - Al Si 5 Cu 1 Mg				
3.2152	GD - Al Si 6 Cu 4				
3.2162	GD - Al Si 8 Cu 3				
3.2373	G - Al Si 9 Mg				

74 - Aluminium alloys, Si > 10% - Hardness < 180 HB 30 - Tensile strength < 600 N/mm²

74.1 - Cast aluminium alloys

3.2381	G - Al Si 10 Mg				
3.2383	G - Al Si 10 Mg (Cu)				
3.2581	G - Al Si 12				
3.2583	G - Al Si 12 (Cu)				
3.2982	GD - Al Si 12 (Cu)				

74.2 - Cast aluminium - magnesium alloys

3.5106	G - Mg Ag 3 SE 2 Zr 1				
3.5662	G - Mg Al 6				
3.5812	G - Mg Al 8 Zn 1				
3.5912	G - Mg Al 9 Zn 1				

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T7343	320								
TC353	321								
TB373	322								
TC122	323								
TC612	324								
TC127	325								
TC227	326								
TD127	327								
TD227	328								
TC463	329								
TC211	330								
TC517	331								
TC711	332								
TD711	333								
TC803	334								
TQ863	335								
TR863	336								
TC422	337								
TE422	338								
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TQ823	341								
TR823	342								
TC312	343								
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TY283	349								
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TR813	358								
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TCH14	360								
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TM903	364								
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TAPS

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Cat. -No.	THREAD								
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TC254				429					
TC184				430					
TB274				431					
TB924				432					
TC170				433					
TE454				434					
T7609					435				
TC224					436				
TC134					437				
T7709						438			
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Material
groups

GS

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HSS

**DIN
352**

6H

60°



First



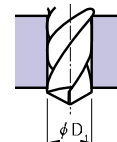
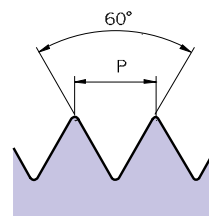
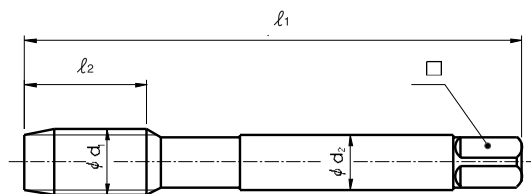
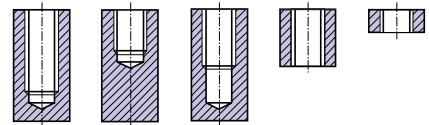
Second



Bottoming

Sets of taps
Gewindebohrer - Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	139	36	8	2.8	2.1	1.6	
	2.2	\times	0.45	159	36	9	2.8	2.1	1.75	
*	2.3	\times	0.4	199	36	9	2.8	2.1	1.9	
	2.5	\times	0.45	179	40	9	2.8	2.1	2.05	
*	2.6	\times	0.45	499	40	9	2.8	2.1	2.1	
	3	\times	0.5	209	40	11	3.5	2.7	2.5	
	3.5	\times	0.6	229	45	13	4	3	2.9	
	4	\times	0.7	249	45	13	4.5	3.4	3.3	
	4.5	\times	0.75	269	50	16	6	4.9	3.7	
	5	\times	0.8	289	52	16	6	4.9	4.2	
*	5.5	\times	0.9	N69	56	18	6	4.9	4.6	
	6	\times	1	319	56	18	6	4.9	5	
	7	\times	1	349	56	18	6	4.9	6	
	8	\times	1.25	369	63	20	6	4.9	6.8	
	9	\times	1.25	399	63	20	7	5.5	7.8	
	10	\times	1.5	429	70	22	7	5.5	8.5	
	11	\times	1.5	469	70	22	8	6.2	9.5	
	12	\times	1.75	509	80	24	9	7	10.2	
	14	\times	2	549	80	26	11	9	12	
	16	\times	2	609	80	27	12	9	14	
	18	\times	2.5	659	95	30	14	11	15.5	
	20	\times	2.5	709	95	32	16	12	17.5	
	22	\times	2.5	749	100	32	18	14.5	19.5	
	24	\times	3	789	110	34	18	14.5	21	
	27	\times	3	869	110	36	20	16	24	
	30	\times	3.5	949	125	40	22	18	26.5	
	33	\times	3.5	A49	125	40	25	20	29.5	
	36	\times	4	B39	150	50	28	22	32	
	39	\times	4	C09	150	50	32	24	35	
	42	\times	4.5	C89	150	56	32	24	37.5	
	45	\times	4.5	D59	160	58	36	29	40.5	
	48	\times	5	E29	180	65	36	29	43	
	52	\times	5	F39	180	65	40	32	47	

* DIN profile not ISO

Material
groups

GS

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HSS

DIN
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6H

60°

I / II / III



First



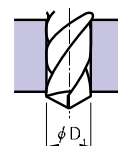
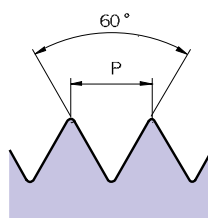
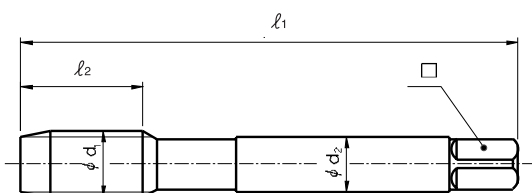
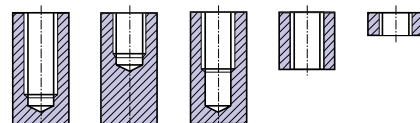
Second



Bottoming

Sets of taps
Gewindebohrer - Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	3	×	0.5	209	40	11	3.5	2.7	2.5	
	3.5	×	0.6	229	45	13	4	3	2.9	
	4	×	0.7	249	45	13	4.5	3.4	3.3	
	4.5	×	0.75	269	50	16	6	4.9	3.7	
	5	×	0.8	289	52	16	6	4.9	4.2	
	6	×	1	319	56	18	6	4.9	5	
	8	×	1.25	369	63	20	6	4.9	6.8	
	10	×	1.5	429	70	22	7	5.5	8.5	
	12	×	1.75	509	80	24	9	7	10.2	
	14	×	2	549	80	26	11	9	12	
	16	×	2	609	80	27	12	9	14	
	18	×	2.5	659	95	30	14	11	15.5	
	20	×	2.5	709	95	32	16	12	17.5	
	22	×	2.5	749	100	32	18	14.5	19.5	
	24	×	3	789	110	34	18	14.5	21	
	27	×	3	869	110	36	20	16	24	
	30	×	3.5	949	125	40	22	18	26.5	

◆ LH=Left hand thread

Material
groups

VG

HSS-E

**DIN
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See page 311 ~ 316



First



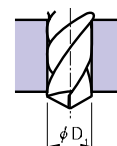
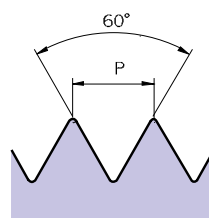
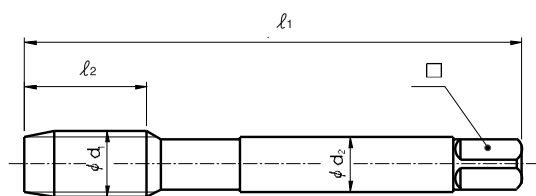
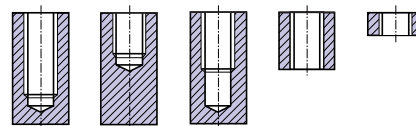
Second



Bottoming

Sets of taps
Gewindebohrer - Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	3	\times	0.5	209	40	11	3.5	2.7	2.5	
	3.5	\times	0.6	229	45	13	4	3	2.9	
	4	\times	0.7	249	45	13	4.5	3.4	3.3	
	4.5	\times	0.75	269	50	16	6	4.9	3.7	
	5	\times	0.8	289	52	16	6	4.9	4.2	
	6	\times	1	319	56	18	6	4.9	5	
	8	\times	1.25	369	63	20	6	4.9	6.8	
	10	\times	1.5	429	70	22	7	5.5	8.5	
	12	\times	1.75	509	80	24	9	7	10.2	
	14	\times	2	549	80	26	11	9	12	
	16	\times	2	609	80	27	12	9	14	
	18	\times	2.5	659	95	30	14	11	15.5	
	20	\times	2.5	709	95	32	16	12	17.5	

◆ First with pilot guide

Material
groups

VA

HSS-E

**DIN
352**

6HX

60°

I / II / III

vap

See page 311~316



First



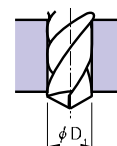
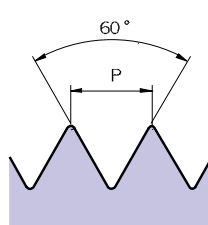
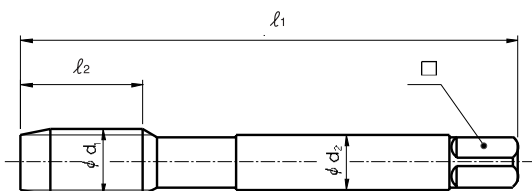
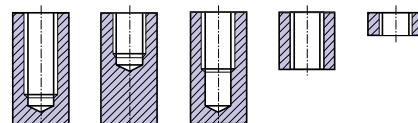
Second



Bottoming

Sets of taps
Gewindebohrer - Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	3	×	0.5	209	40	11	3.5	2.7	2.5	
	3.5	×	0.6	229	45	13	4	3	2.9	
	4	×	0.7	249	45	13	4.5	3.4	3.3	
	4.5	×	0.75	269	50	16	6	4.9	3.7	
	5	×	0.8	289	52	16	6	4.9	4.2	
	6	×	1	319	56	18	6	4.9	5	
	8	×	1.25	369	63	20	6	4.9	6.8	
	10	×	1.5	429	70	22	7	5.5	8.5	
	12	×	1.75	509	80	24	9	7	10.2	
	14	×	2	549	80	26	11	9	12	
	16	×	2	609	80	27	12	9	14	
	18	×	2.5	659	95	30	14	11	15.5	
	20	×	2.5	709	95	32	16	12	17.5	

◆ First with pilot guide

Material
groups

GS

HSS-E

**DIN
352**

6H

60°

B

See page 311 ~316

12-13-14-33-34-63-74

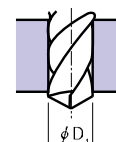
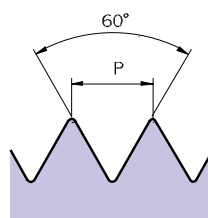
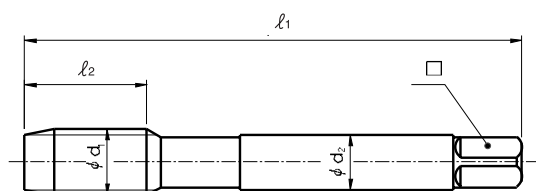
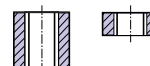
Other materials:
41-51-61-71-72-73-81



DIN 352

Short machine taps
Maschinengewindebohrer kurz
Tarauds machine courts
Maschi a macchina corto

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	36	8	2.8	2.1	1.6	
	2.5	\times	0.45	176	40	9	2.8	2.1	2.05	
	3	\times	0.5	206	40	11	3.5	2.7	2.5	
	4	\times	0.7	246	45	13	4.5	3.4	3.3	
	5	\times	0.8	286	52	16	6	4.9	4.2	
	6	\times	1	316	56	18	6	4.9	5	
	8	\times	1.25	366	63	20	6	4.9	6.8	
	10	\times	1.5	426	70	22	7	5.5	8.5	
	12	\times	1.75	506	80	24	9	7	10.2	
	14	\times	2	546	80	26	11	9	12	
	16	\times	2	606	80	27	12	9	14	

Material
groups

GS

HSS-E

**DIN
352**

6H

60°

C

See page 311~316

12-13-14-33-34-63-74

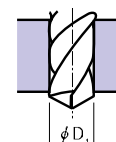
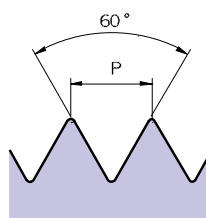
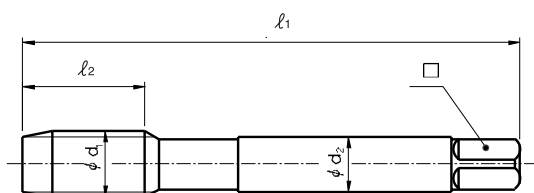
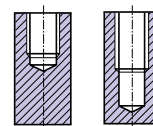
Other materials:
41-51-61-71-73



DIN 352

Short machine taps
Maschinengewindebohrer kurz
Tarauds machine courts
Maschi a macchina corto

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
3	\times	0.5	206	40	11	3.5	2.7	2.5	
4	\times	0.7	246	45	13	4.5	3.4	3.3	
5	\times	0.8	286	52	16	6	4.9	4.2	
6	\times	1	316	56	18	6	4.9	5	
8	\times	1.25	366	63	20	6	4.9	6.8	
10	\times	1.5	426	70	22	7	5.5	8.5	
12	\times	1.75	506	80	24	9	7	10.2	
14	\times	2	546	80	26	11	9	12	
16	\times	2	606	80	27	12	9	14	
18	\times	2.5	656	95	30	14	11	15.5	
20	\times	2.5	706	95	32	16	12	17.5	

Material
groups

GS

HSS-E

**DIN
371**

6H

60°

B

See page 311 ~316

12-13-14-33-34-63-74

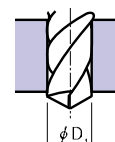
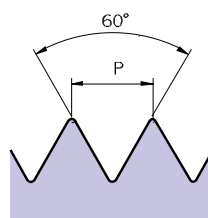
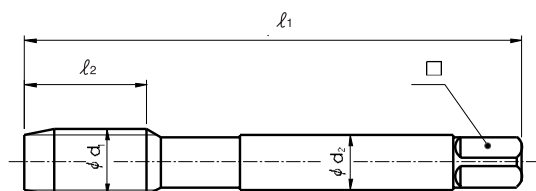
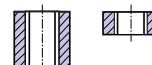
Other materials:
41-51-61-71-72-73-81



DIN 371

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	11	9	9.5	
	12	\times	1.75	506	110	24	12	9	10.2	

* DIN profile not ISO

Material
groups

GS

HSS-E

**DIN
376**

6H

60°

B

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 376

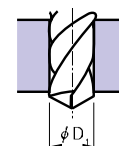
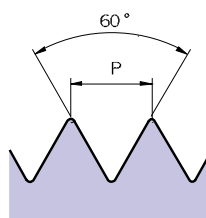
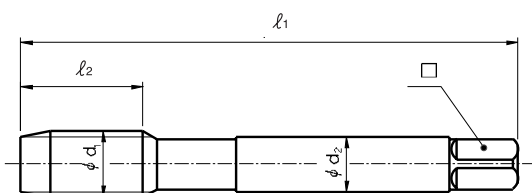
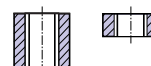
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	3	\times	0.5	206	56	11	2.2	1.8	2.5	
	3.5	\times	0.6	226	56	12	2.5	2.1	2.9	
	4	\times	0.7	246	63	13	2.8	2.1	3.3	
	4.5	\times	0.75	266	70	14	3.5	2.7	3.7	
	5	\times	0.8	286	70	15	3.5	2.7	4.2	
	6	\times	1	316	80	17	4.5	3.4	5	
	7	\times	1	346	80	17	5.5	4.3	6	
	8	\times	1.25	366	90	20	6	4.9	6.8	
	9	\times	1.25	396	90	20	7	5.5	7.8	
	10	\times	1.5	426	100	22	7	5.5	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

Material
groups

GS

HSS-E

DIN
371

6H

60°

B

TiN



DIN 371

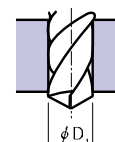
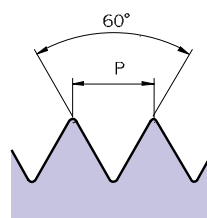
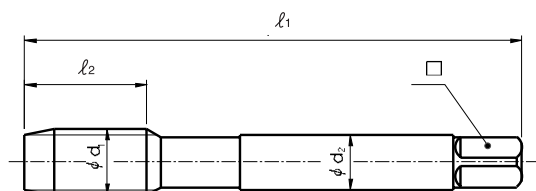
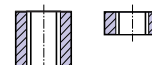
See page 311 ~ 316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73-81

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	11	9	9.5	
	12	\times	1.75	506	110	24	12	9	10.2	

* DIN profile not ISO

Material
groups

GS

HSS-E

**DIN
376**

6H

60°

B

TiN

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 376

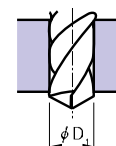
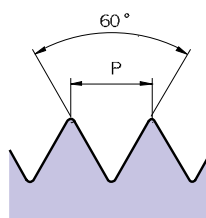
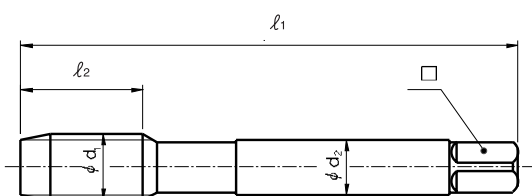
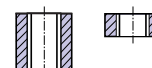
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	3	\times	0.5	206	56	11	2.2	1.8	2.5	
	3.5	\times	0.6	226	56	12	2.5	2.1	2.9	
	4	\times	0.7	246	63	13	2.8	2.1	3.3	
	4.5	\times	0.75	266	70	14	3.5	2.7	3.7	
	5	\times	0.8	286	70	15	3.5	2.7	4.2	
	6	\times	1	316	80	17	4.5	3.4	5	
	7	\times	1	346	80	17	5.5	4.3	6	
	8	\times	1.25	366	90	20	6	4.9	6.8	
	9	\times	1.25	396	90	20	7	5.5	7.8	
	10	\times	1.5	426	100	22	7	5.5	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

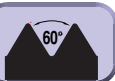
Material
groups

GS

HSS-E

**DIN
371/376**

6H



DIN 371



DIN 376

See page 311 ~316

12-13-14-33-34-74

Other materials:
11-62-63

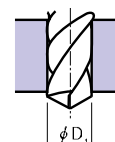
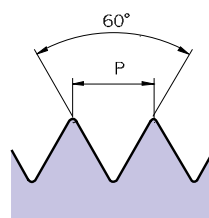
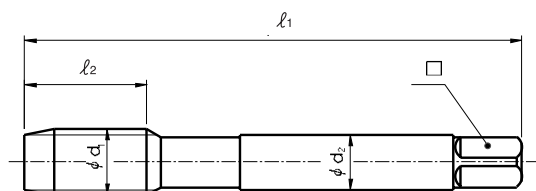
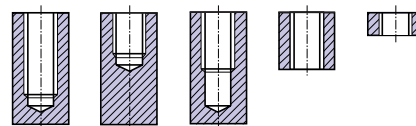
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

GS

HSS-E

DIN
371/376

6H

60°

C

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 371



DIN 376

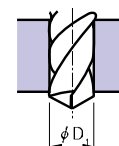
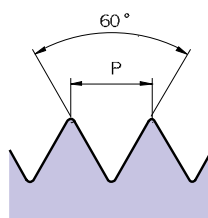
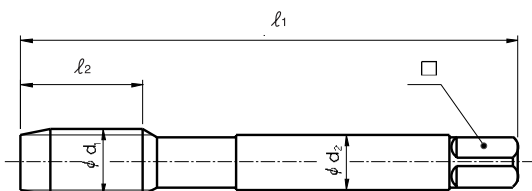
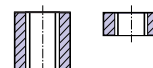
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

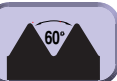
Material
groups

GS

HSS-E

**DIN
371/376**

6H



See page 311 ~316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73



DIN 371



DIN 376

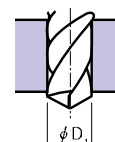
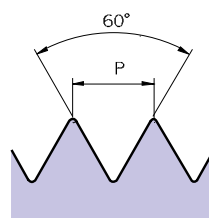
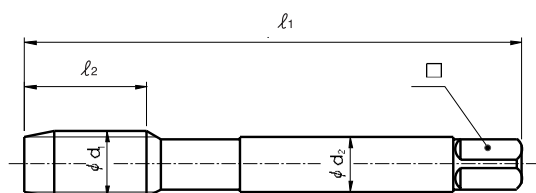
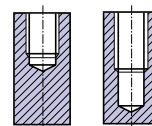
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

GS

HSS-E

**DIN
371/376**

6H

60°

C

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 371



DIN 376

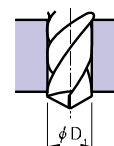
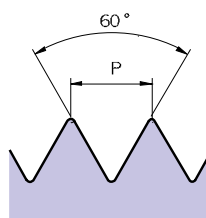
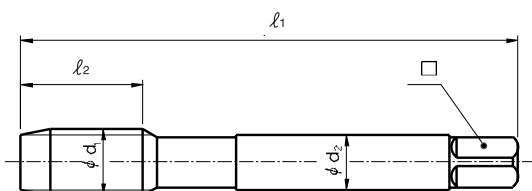
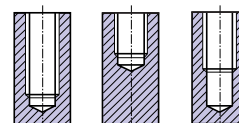
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

GS

HSS-E

**DIN
371/376**

6H



TiN

See page 311 ~316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73-81



DIN 371



DIN 376

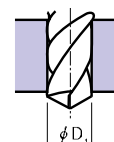
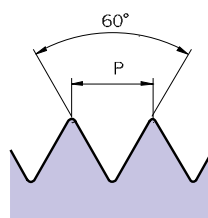
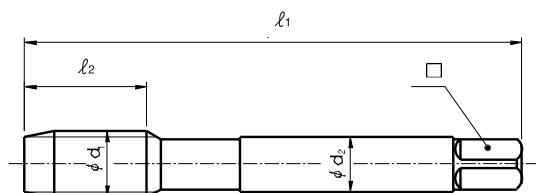
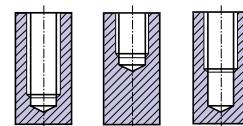
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
*	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

GS

HSS-E

**DIN
357**

6H

60°

LONG



DIN 357

See page 311~316

12-13-14-33-34-74

Other materials:
11-62-63

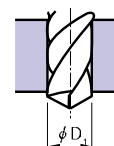
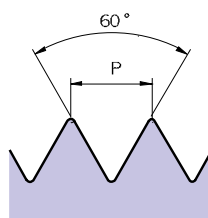
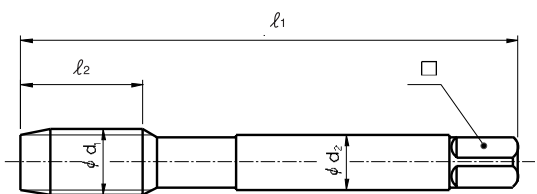
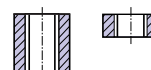
Nut taps

Muttergewindebohrer

Tarauds pour écrous

Maschi per dadi

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.7	246	90	25	2.8	2.1	3.3	
	5	\times	0.8	286	100	28	3.5	2.7	4.2	
	6	\times	1	316	110	32	4.5	3.4	5	
	7	\times	1	346	110	36	5.5	4.3	6	
	8	\times	1.25	366	125	40	6	4.9	6.8	
	10	\times	1.5	426	140	45	7	5.5	8.5	
	12	\times	1.75	506	180	50	9	7	10.2	
	14	\times	2	546	200	56	11	9	12	
	16	\times	2	606	200	63	12	9	14	
	18	\times	2.5	656	220	63	14	11	15.5	
	20	\times	2.5	706	250	70	16	12	17.5	

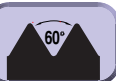
Material
groups

VG

HSS-PM

**DIN
371/376**

6H



vap

See page 311 ~316

15

Other materials:
14-23-42-52



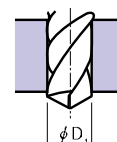
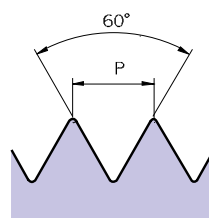
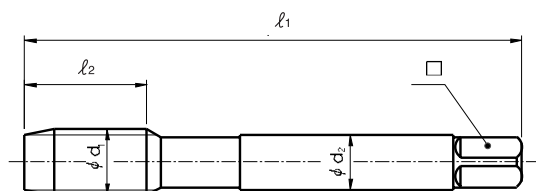
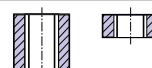
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	2	×	0.4	136	45	8	2.8	2.1	1.6	
	2.2	×	0.45	156	45	8	2.8	2.1	1.75	
	2.5	×	0.45	176	50	9	2.8	2.1	2.05	
	3	×	0.5	206	56	11	3.5	2.7	2.5	
	3.5	×	0.6	226	56	12	4	3	2.9	
	4	×	0.7	246	63	13	4.5	3.4	3.3	
	4.5	×	0.75	266	70	14	6	4.9	3.7	
	5	×	0.8	286	70	15	6	4.9	4.2	
	6	×	1	316	80	17	6	4.9	5	
	7	×	1	346	80	17	7	5.5	6	
	8	×	1.25	366	90	20	8	6.2	6.8	
	10	×	1.5	428	100	22	10	8	8.5	
	12	×	1.75	506	110	24	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

Material
groups

VG

HSS-PM

**DIN
371/376**

6H

60°

B

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 376

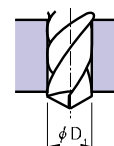
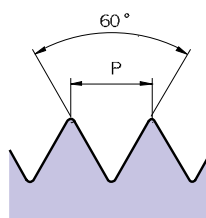
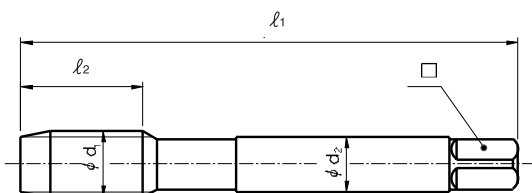
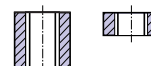
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	10	\times	1.5	428	100	22	10	8	8.5	
	12	\times	1.75	506	110	24	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

Cat.-No. **TC422**

Material
groups

VG

HSS-E

**DIN
371/376**

6H



See page 311 ~316

15

Other materials:
14-23-42-52



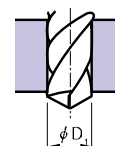
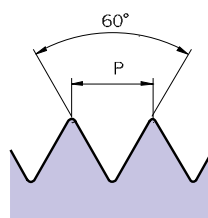
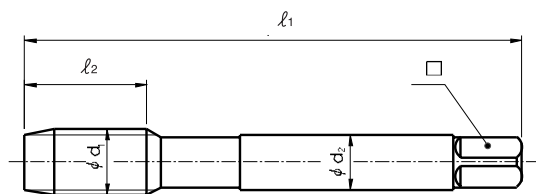
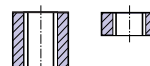
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

VG

HSS-E

**DIN
371/376**

6H

60°

B

NI

See page 311~316

15

Other materials:
14-23-42-52



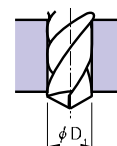
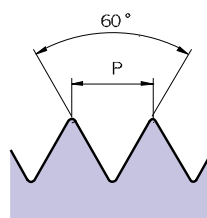
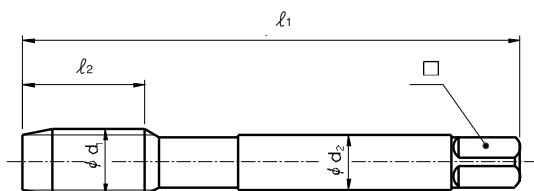
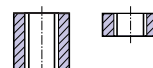
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

Cat.-No. **TD422**

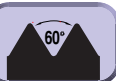
Material
groups

VG

HSS-E

**DIN
371/376**

6H



B

TiN

See page 311 ~316

15

Other materials:
14-23-42-52



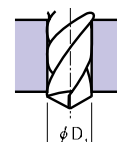
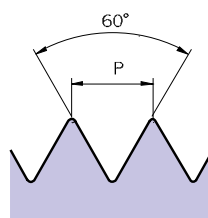
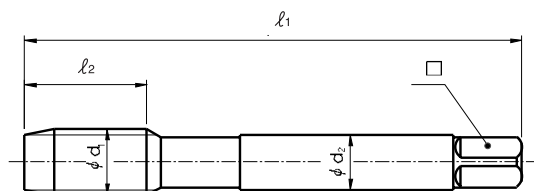
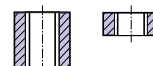
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

VG

HSS-E

**DIN
371/376**

6H



B

TiAlN

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 376

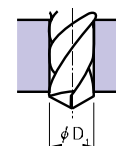
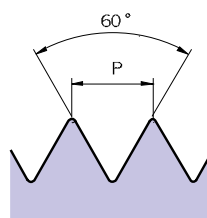
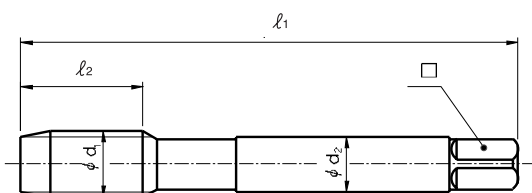
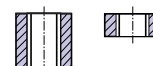
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

VG

HSS-PM

DIN
371/376

6H



vap

See page 311 ~316

15

Other materials:
14-23-42-52



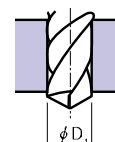
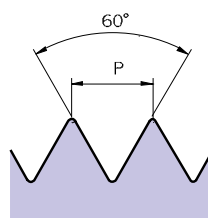
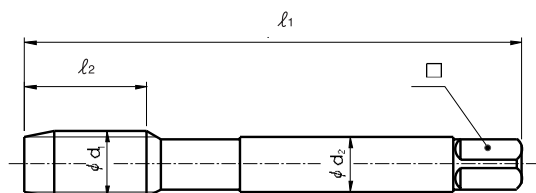
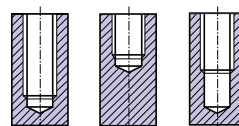
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	245	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	12	\times	1.75	506	110	18	9	7	10.2	

* DIN (M2-M10) and DIN 376(M12)

Material
groups

VG

HSS-PM

DIN
371/376

6H

60°

C

See page 311~316

15

Other materials:
14-23-42-52



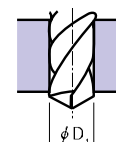
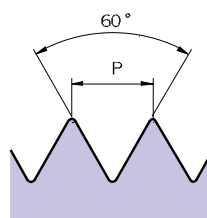
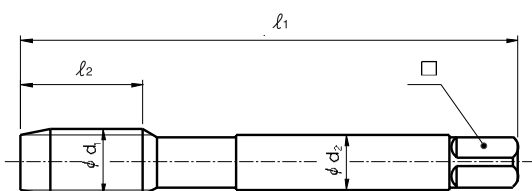
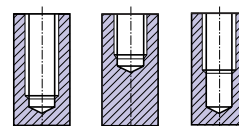
DIN 371



DIN 376




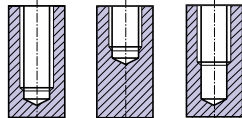
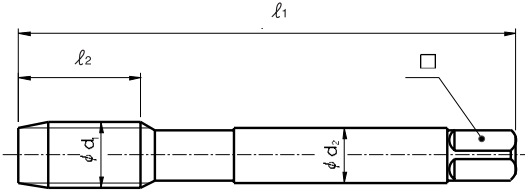
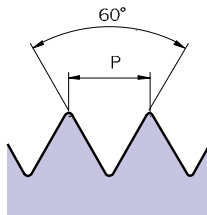
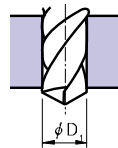
Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
2	\times	0.4	136	45	8	2.8	2.1	1.6	
2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
3	\times	0.5	206	56	6	3.5	2.7	2.5	
3.5	\times	0.6	226	56	7	4	3	2.9	
4	\times	0.7	245	63	7	4.5	3.4	3.3	
4.5	\times	0.75	266	70	8	6	4.9	3.7	
5	\times	0.8	286	70	8	6	4.9	4.2	
6	\times	1	316	80	10	6	4.9	5	
7	\times	1	346	80	10	7	5.5	6	
8	\times	1.25	366	90	13	8	6.2	6.8	
10	\times	1.5	426	100	15	10	8	8.5	
12	\times	1.75	506	110	18	9	7	10.2	

* DIN (M2-M10) and DIN 376(M12)

Material groups	VG	HSS-E	DIN 371/376	 DIN 371					
		6H				 DIN 376			
See page 311 ~316	15	C							
Other materials: 14-23-42-52									
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina				Hole type					
									
ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times 0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times 0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times 0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times 0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times 0.45	496	50	9	2.8	2.1	2.1	
	3	\times 0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times 0.6	226	56	7	4	3	2.9	
	4	\times 0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times 0.75	266	70	8	6	4.9	3.7	
	5	\times 0.8	286	70	8	6	4.9	4.2	
	6	\times 1	316	80	10	6	4.9	5	
	7	\times 1	346	80	10	7	5.5	6	
	8	\times 1.25	366	90	13	8	6.2	6.8	
	9	\times 1.25	396	90	13	9	7	7.8	
	10	\times 1.5	426	100	15	10	8	8.5	
	11	\times 1.5	466	100	17	8	6.2	9.5	
	12	\times 1.75	506	110	18	9	7	10.2	
	14	\times 2	546	110	20	11	9	12	
	16	\times 2	606	110	20	12	9	14	
	18	\times 2.5	656	125	25	14	11	15.5	
	20	\times 2.5	706	140	25	16	12	17.5	
	22	\times 2.5	746	140	25	18	14.5	19.5	
	24	\times 3	786	160	30	18	14.5	21	
	27	\times 3	866	160	30	20	16	24	
	30	\times 3.5	946	180	35	22	18	26.5	
DIN 371(M2-M10) and DIN 376(M11-M30)									
* DIN profile not ISO									

Material
groups

VG

HSS-E

**DIN
371/376**

6H



C

vap

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 376

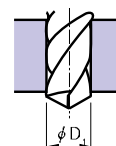
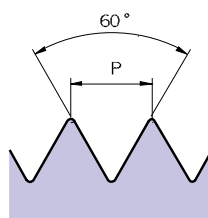
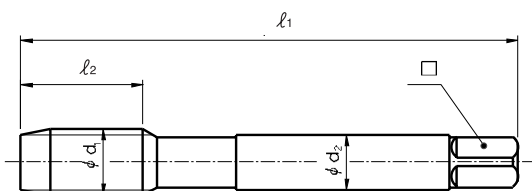
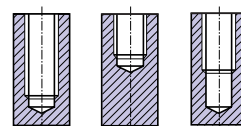
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina




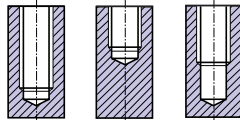
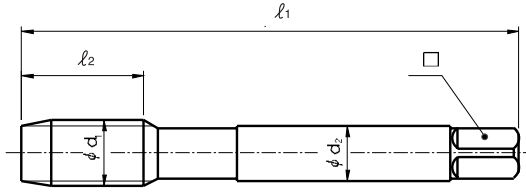
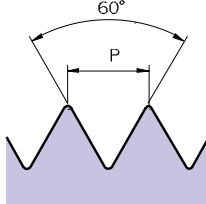
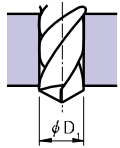
Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material groups	VG	HSS-E	DIN 371/376	 DIN 371  DIN 376					
		6H							
See page 311 ~316	15	C	TiN						
Other materials: 14-23-42-52									
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina				Hole type					
									
ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times 0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times 0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times 0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times 0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times 0.45	496	50	9	2.8	2.1	2.1	
	3	\times 0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times 0.6	226	56	7	4	3	2.9	
	4	\times 0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times 0.75	266	70	8	6	4.9	3.7	
	5	\times 0.8	286	70	8	6	4.9	4.2	
	6	\times 1	316	80	10	6	4.9	5	
	7	\times 1	346	80	10	7	5.5	6	
	8	\times 1.25	366	90	13	8	6.2	6.8	
	9	\times 1.25	396	90	13	9	7	7.8	
	10	\times 1.5	426	100	15	10	8	8.5	
	11	\times 1.5	466	100	17	8	6.2	9.5	
	12	\times 1.75	506	110	18	9	7	10.2	
	14	\times 2	546	110	20	11	9	12	
	16	\times 2	606	110	20	12	9	14	
	18	\times 2.5	656	125	25	14	11	15.5	
	20	\times 2.5	706	140	25	16	12	17.5	
	22	\times 2.5	746	140	25	18	14.5	19.5	
	24	\times 3	786	160	30	18	14.5	21	
	27	\times 3	866	160	30	20	16	24	
	30	\times 3.5	946	180	35	22	18	26.5	
DIN 371(M2-M10) and DIN 376(M11-M30) * DIN profile not ISO									

Material
groups

VG

HSS-E

**DIN
371/376**

6H

60°

C

TiAlN

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 376

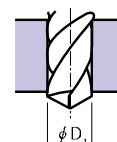
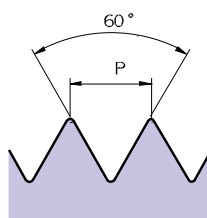
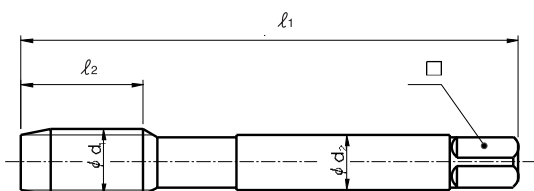
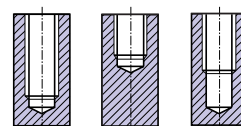
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina




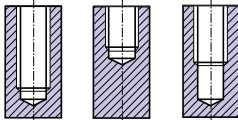
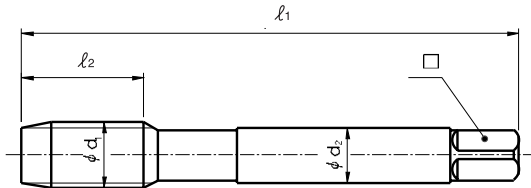
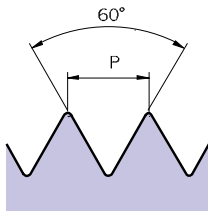
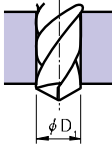
Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material groups	VG	HSS-E	DIN 371/376	 DIN 371					
See page 311 ~316	15	6H		 DIN 376					
Other materials: 14-23-33-42-52		C	vap	◆ With recessed threads for machine tapping of deep blind holes.					
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina	Hole type								
									
ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M 2	×	0.4	136	45	8	2.8	2.1	1.6	
2.2	×	0.45	156	45	8	2.8	2.1	1.75	
* 2.3	×	0.4	196	45	8	2.8	2.1	1.9	
2.5	×	0.45	176	50	9	2.8	2.1	2.05	
* 2.6	×	0.45	496	50	9	2.8	2.1	2.1	
3	×	0.5	206	56	6	3.5	2.7	2.5	
3.5	×	0.6	226	56	7	4	3	2.9	
4	×	0.7	246	63	7	4.5	3.4	3.3	
4.5	×	0.75	266	70	8	6	4.9	3.7	
5	×	0.8	286	70	8	6	4.9	4.2	
6	×	1	316	80	10	6	4.9	5	
7	×	1	346	80	10	7	5.5	6	
8	×	1.25	366	90	13	8	6.2	6.8	
9	×	1.25	396	90	13	9	7	7.8	
10	×	1.5	426	100	15	10	8	8.5	
11	×	1.5	466	100	17	8	6.2	9.5	
12	×	1.75	506	110	18	9	7	10.2	
14	×	2	546	110	20	11	9	12	
16	×	2	606	110	20	12	9	14	
18	×	2.5	656	125	25	14	11	15.5	
20	×	2.5	706	140	25	16	12	17.5	
22	×	2.5	746	140	25	18	14.5	19.5	
24	×	3	786	160	30	18	14.5	21	
27	×	3	866	160	30	20	16	24	
30	×	3.5	946	180	35	22	18	26.5	
DIN 371(M2-M10) and DIN 376(M11-M30)									
* DIN profile not ISO									

Material
groups

HR

HSS-E

**DIN
371/376**

6H



B



See page 311~316

16-64

Other materials:
15-23-62-82-83



DIN 371



DIN 376

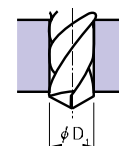
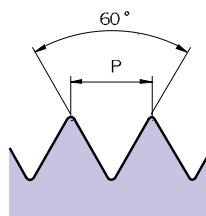
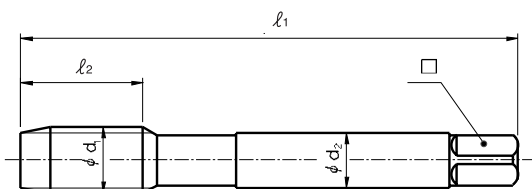
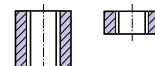
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

Cat.-No. **TY283**

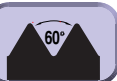
Material
groups

HR

HSS-E

**DIN
371/376**

6H



TiAIN

See page 311 ~316

16-64

Other materials:
15-23-62-82-83



DIN 371



DIN 376

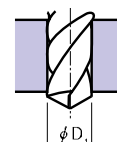
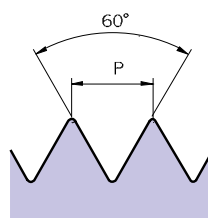
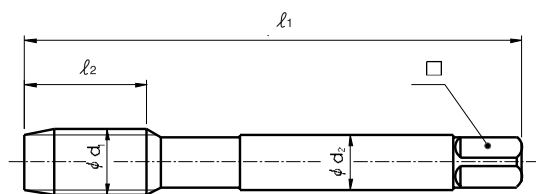
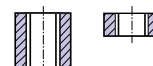
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

HR

HSS-E

DIN
371/376

6H

60°

C

See page 311~316

16-64

Other materials:
15-23-62-82-83



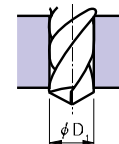
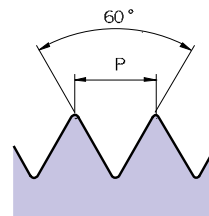
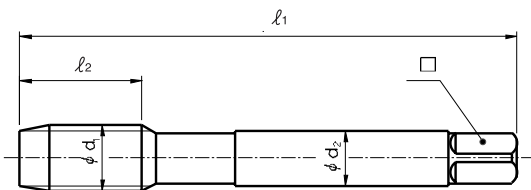
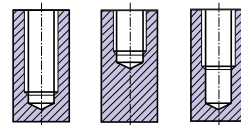
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

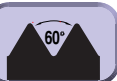
Material
groups

HR

HSS-E

**DIN
371/376**

6H



vap

See page 311 ~ 316

16-64

Other materials:
15-23-62-82-83



DIN 371



DIN 376

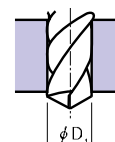
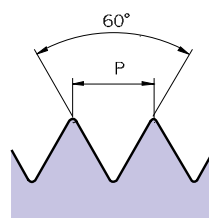
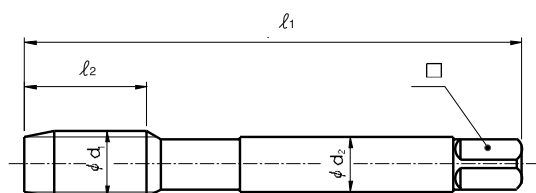
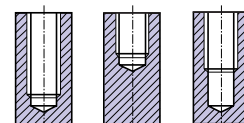
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

HR

HSS-E

**DIN
371/376**

6H



C

TiAlN

See page 311~316

16-64

Other materials:
15-23-62-82-83



DIN 371



DIN 376

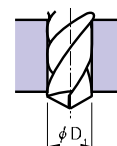
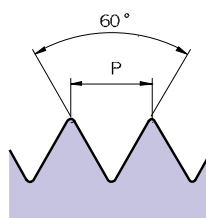
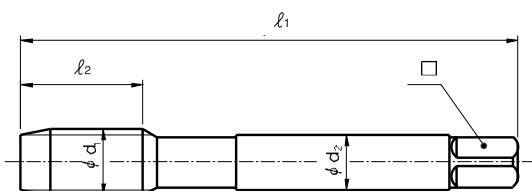
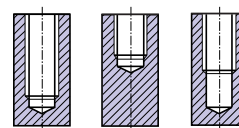
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

VA

HSS-PM

**DIN
371/376**

6H



B



vap

See page 311 ~316

11-12-21-22-23

Other materials:
42-52



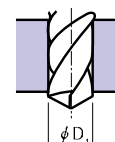
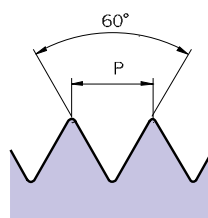
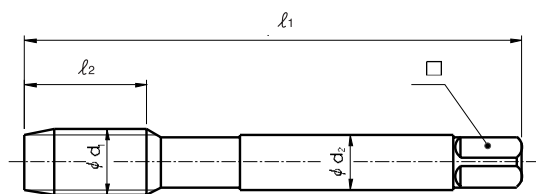
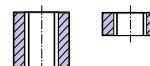
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	245	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	12	\times	1.75	506	110	24	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

Material
groups

VA

HSS-PM

**DIN
371/376**

6H

60°

B

See page 311~316

11-12-21-22-23

Other materials:
42-52



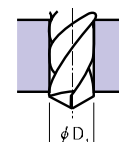
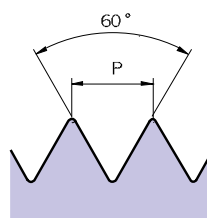
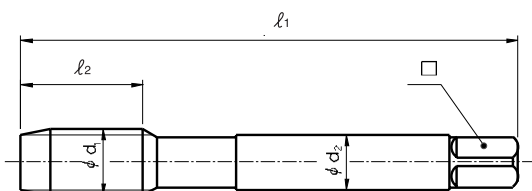
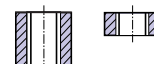
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
2	\times	0.4	136	45	8	2.8	2.1	1.6	
2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
3	\times	0.5	206	56	11	3.5	2.7	2.5	
3.5	\times	0.6	226	56	12	4	3	2.9	
4	\times	0.7	245	63	13	4.5	3.4	3.3	
4.5	\times	0.75	266	70	14	6	4.9	3.7	
5	\times	0.8	286	70	15	6	4.9	4.2	
6	\times	1	316	80	17	6	4.9	5	
7	\times	1	346	80	17	7	5.5	6	
8	\times	1.25	366	90	20	8	6.2	6.8	
10	\times	1.5	426	100	22	10	8	8.5	
12	\times	1.75	506	110	24	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

Material
groups

VA
NW

HSS-E

DIN
371/376

6HX



B



vap

See page 311 ~316

11-12-21-22-23

Other materials:
42-52



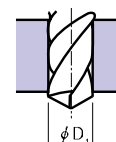
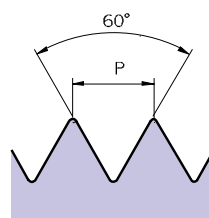
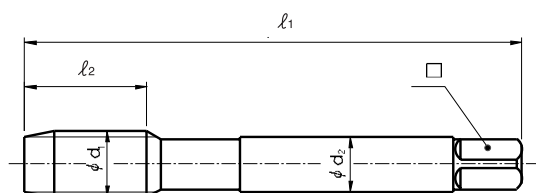
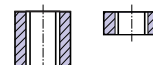
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

VA
NW

HSS-E

DIN
371/376

6HX

60°

B

Hardslick

See page 311~316

11-12-21-22-23

Other materials:
42-52



DIN 371



DIN 376

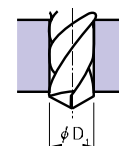
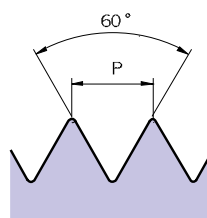
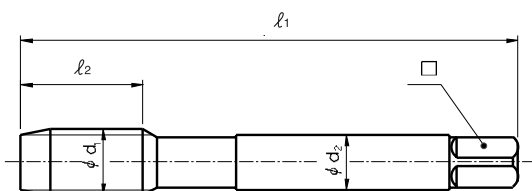
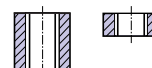
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

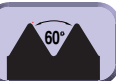
Material
groups

VA

HSS-PM

**DIN
371/376**

6H



vap

See page 311 ~316

11-12-21-22-23

Other materials:
42-52



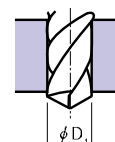
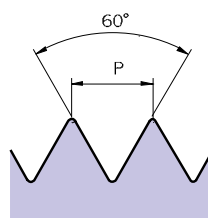
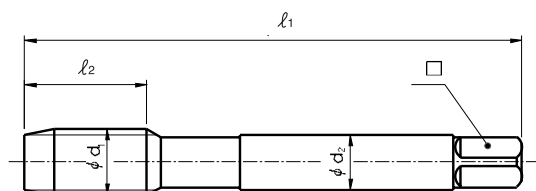
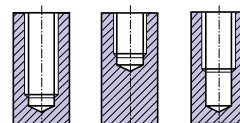
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	245	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	12	\times	1.75	506	110	18	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

Material
groups

VA

HSS-PM

**DIN
371/376**

6H

60°

C

See page 311~316

11-12-21-22-23

Other materials:
42-52



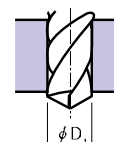
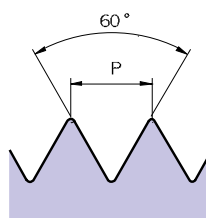
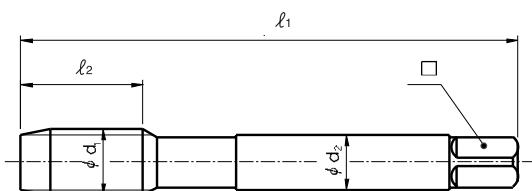
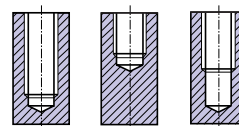
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
2	\times	0.4	136	45	8	2.8	2.1	1.6	
2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
3	\times	0.5	206	56	6	3.5	2.7	2.5	
3.5	\times	0.6	226	56	7	4	3	2.9	
4	\times	0.7	245	63	7	4.5	3.4	3.3	
4.5	\times	0.75	266	70	8	6	4.9	3.7	
5	\times	0.8	286	70	8	6	4.9	4.2	
6	\times	1	316	80	10	6	4.9	5	
7	\times	1	346	80	10	7	5.5	6	
8	\times	1.25	366	90	13	8	6.2	6.8	
10	\times	1.5	426	100	15	10	8	8.5	
12	\times	1.75	506	110	18	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

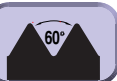
Material
groups

VA
NW

HSS-E

DIN
371/376

6H



vap

See page 311 ~ 316

11-12-21-22-23

Other materials:
42-52



DIN 371



DIN 376

◆ With recessed threads for machine tapping of deep blind holes.

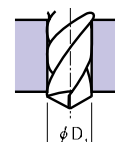
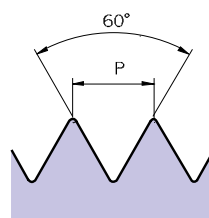
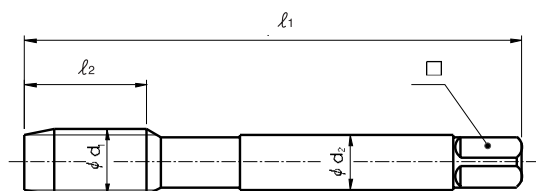
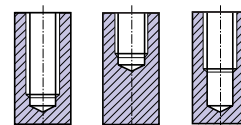
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

VA
NW

HSS-E

DIN
371/376

6H

60°

C

Hardslick

See page 311~316

11-12-21-22-23

Other materials:
42-52



DIN 371



DIN 376

◆ With recessed threads for machine tapping of deep blind holes.

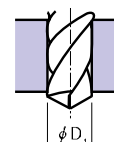
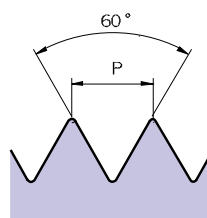
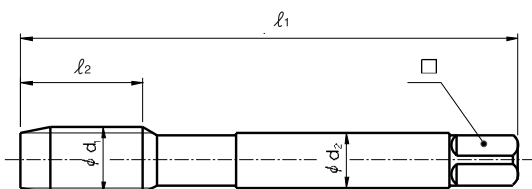
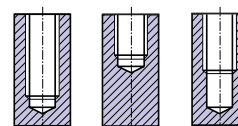
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

NW

HSS-E

**DIN
371/376**

6H



vap

See page 311 ~316

11-12-22

Other materials:
60-70



DIN 371



DIN 376

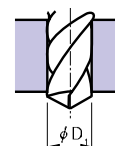
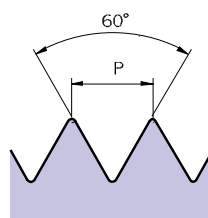
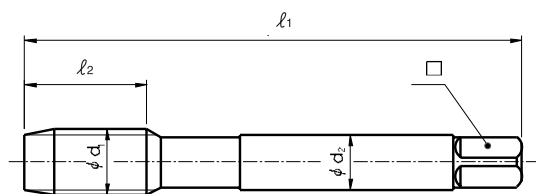
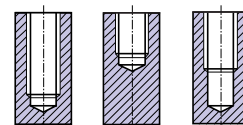
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

Ti

HSS-PM

**DIN
371/376**

6H

60°

B

See page 311~316

42-43

Other materials:
15-41



DIN 371



DIN 376

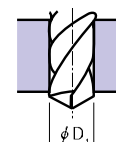
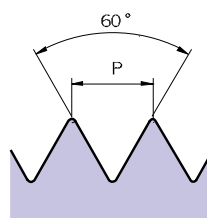
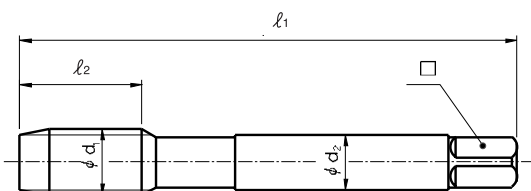
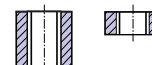
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

Ti

HSS-PM

**DIN
371/376**

6H



TiAIN

See page 311 ~316

42-43

Other materials:
15-41



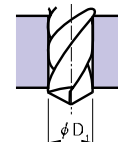
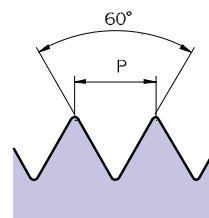
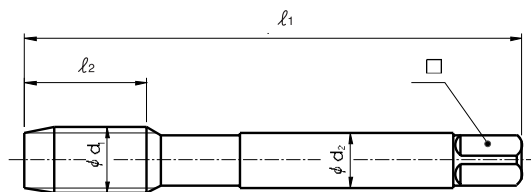
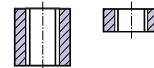
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

Ti

HSS-PM

**DIN
371/376**

6H

60°

C

See page 311~316

42-43

Other materials:
15-41



DIN 371



DIN 376

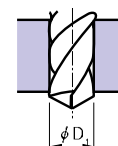
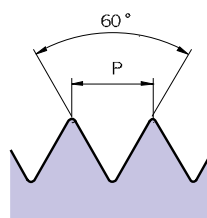
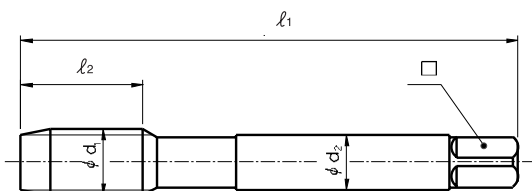
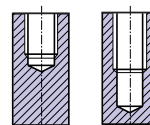
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina




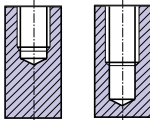
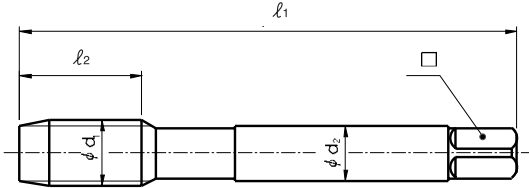
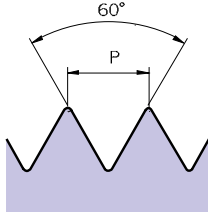
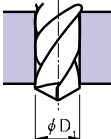
Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material groups	<div>Ti</div>	<div>HSS-PM</div>	<div>DIN 371/376</div>	<div></div> <div>DIN 371</div>					
		<div>6H</div>	<div></div>	<div></div> <div>DIN 376</div>					
See page 311 ~ 316 42-43		<div>C</div>	<div>TiAlN</div>						
Other materials: 15-41									
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina				<div>Hole type</div>	<div></div>				
<div></div>				<div></div>	<div></div>				
ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times 0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times 0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times 0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times 0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times 0.45	496	50	9	2.8	2.1	2.1	
	3	\times 0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times 0.6	226	56	7	4	3	2.9	
	4	\times 0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times 0.75	266	70	8	6	4.9	3.7	
	5	\times 0.8	286	70	8	6	4.9	4.2	
	6	\times 1	316	80	10	6	4.9	5	
	7	\times 1	346	80	10	7	5.5	6	
	8	\times 1.25	366	90	13	8	6.2	6.8	
	9	\times 1.25	396	90	13	9	7	7.8	
	10	\times 1.5	426	100	15	10	8	8.5	
	11	\times 1.5	466	100	17	8	6.2	9.5	
	12	\times 1.75	506	110	18	9	7	10.2	
	14	\times 2	546	110	20	11	9	12	
	16	\times 2	606	110	20	12	9	14	
	18	\times 2.5	656	125	25	14	11	15.5	
	20	\times 2.5	706	140	25	16	12	17.5	
	22	\times 2.5	746	140	25	18	14.5	19.5	
	24	\times 3	786	160	30	18	14.5	21	
	27	\times 3	866	160	30	20	16	24	
	30	\times 3.5	946	180	35	22	18	26.5	
DIN 371(M2-M10) and DIN 376(M11-M30)									
* DIN profile not ISO									

Material
groups

**Ti
Ni**

HSS-PM

**DIN
371/376**

6H



B

vap

See page 311~316

15-16-42-43-52-53

Other materials:
15-41-43-64



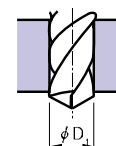
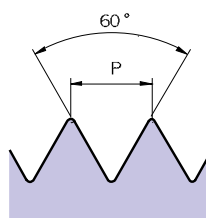
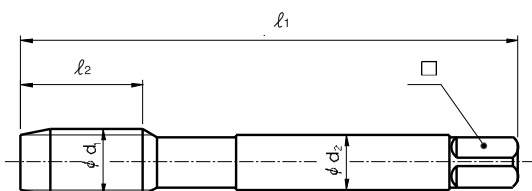
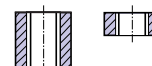
DIN 371



DIN 376

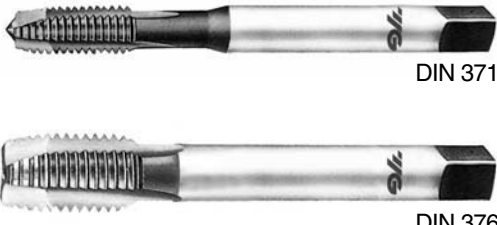
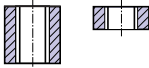
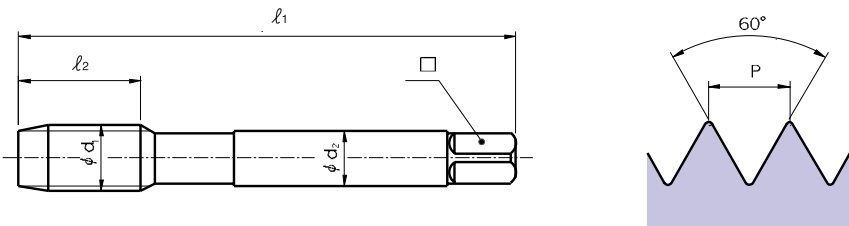
Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	2	×	0.4	136	45	8	2.8	2.1	1.6	
	2.2	×	0.45	156	45	8	2.8	2.1	1.75	
	2.5	×	0.45	176	50	9	2.8	2.1	2.05	
	3	×	0.5	206	56	11	3.5	2.7	2.5	
	3.5	×	0.6	226	56	12	4	3	2.9	
	4	×	0.7	245	63	13	4.5	3.4	3.3	
	4.5	×	0.75	266	70	14	6	4.9	3.7	
	5	×	0.8	286	70	15	6	4.9	4.2	
	6	×	1	316	80	17	6	4.9	5	
	7	×	1	346	80	17	7	5.5	6	
	8	×	1.25	366	90	20	8	6.2	6.8	
	10	×	1.5	426	100	22	10	8	8.5	
	12	×	1.75	506	110	24	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

Material groups	Ti Ni	HSS-PM	DIN 371/376	 <div>DIN 371</div> <div>DIN 376</div>					
See page 311 ~316 15-16-42-43-52-53 Other materials: 15-41-43-64		6H	60°	<div>Hole type</div> 					
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina		B							
ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	× 0.4	136	45	8	2.8	2.1	1.6	
	2.2	× 0.45	156	45	8	2.8	2.1	1.75	
	2.5	× 0.45	176	50	9	2.8	2.1	2.05	
	3	× 0.5	206	56	11	3.5	2.7	2.5	
	3.5	× 0.6	226	56	12	4	3	2.9	
	4	× 0.7	245	63	13	4.5	3.4	3.3	
	4.5	× 0.75	266	70	14	6	4.9	3.7	
	5	× 0.8	286	70	15	6	4.9	4.2	
	6	× 1	316	80	17	6	4.9	5	
	7	× 1	346	80	17	7	5.5	6	
	8	× 1.25	366	90	20	8	6.2	6.8	
	10	× 1.5	426	100	22	10	8	8.5	
	12	× 1.75	506	110	24	9	7	10.2	
* DIN 371(M2-M10) and DIN 376(M12)									

Material
groups

Ni

HSS-PM

**DIN
371/376**

6H



B



See page 311~316

15-16-52-53

Other materials:
43-64



DIN 371



DIN 376

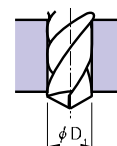
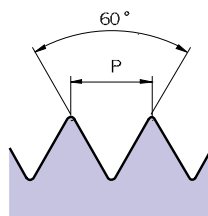
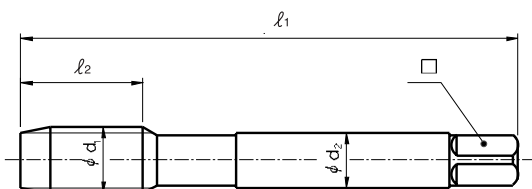
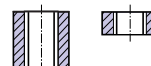
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

Cat.-No. **TZ923**

Material groups

Ni

HSS-PM

DIN 371/376

6H



TiAIN

See page 311 ~316

15-16-52-53

Other materials:
43-64



DIN 371



DIN 376

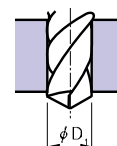
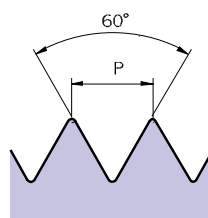
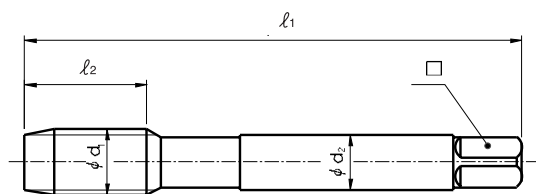
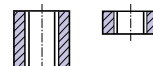
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

**Ti
Ni**

HSS-PM

**DIN
371/376**

6H

60°

C

vap

See page 311~316

15-16-42-43-52-53

Other materials:
15-41-43-64



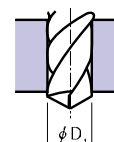
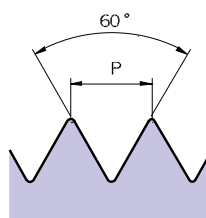
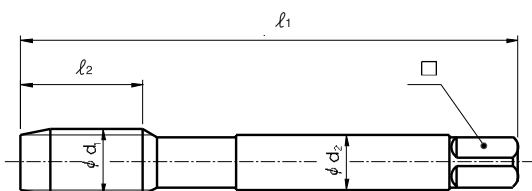
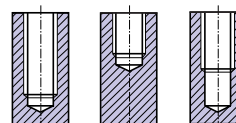
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
2	\times	0.4	136	45	8	2.8	2.1	1.6	
2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
3	\times	0.5	206	56	6	3.5	2.7	2.5	
3.5	\times	0.6	226	56	7	4	3	2.9	
4	\times	0.7	245	63	7	4.5	3.4	3.3	
4.5	\times	0.75	266	70	8	6	4.9	3.7	
5	\times	0.8	286	70	8	6	4.9	4.2	
6	\times	1	316	80	10	6	4.9	5	
7	\times	1	346	80	10	7	5.5	6	
8	\times	1.25	366	90	13	8	6.2	6.8	
10	\times	1.5	426	100	15	10	8	8.5	
12	\times	1.75	506	110	18	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

Cat.-No. **TR833**

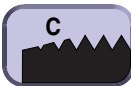
Material
groups

Ti
Ni

HSS-PM

DIN
371/376

6H



See page 311 ~316

15-16-42-43-52-53

Other materials:
15-41-43-64



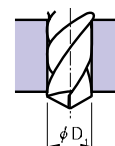
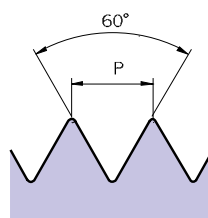
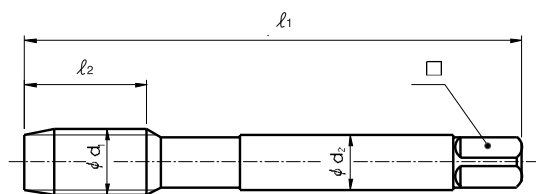
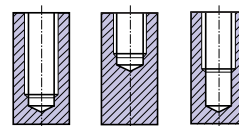
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	245	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	12	\times	1.75	506	110	18	9	7	10.2	

* DIN 371(M2-M10) and DIN 376(M12)

Material
groups

Ni

HSS-PM

DIN
371/376

6H

60°

C

See page 311~316

15-16-52-53

Other materials:
43-64



DIN 371



DIN 376

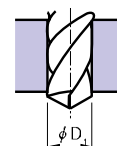
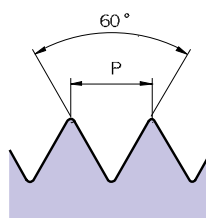
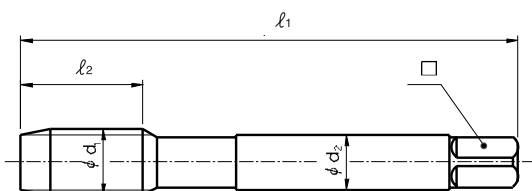
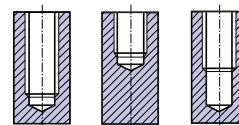
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

Cat.-No. **TZ933**

Material
groups

Ni

HSS-PM

DIN
371/376

6H



TiAlN

See page 311 ~316

15-16-52-53

Other materials:
43-64



DIN 371



DIN 376

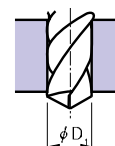
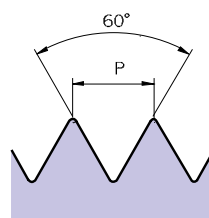
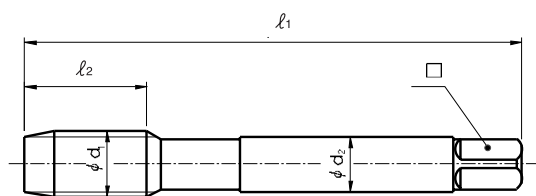
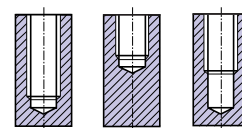
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

GV

HSS-PM

DIN
371/376

6HX



vap

See page 311~316

11-12-13-14-51-71

Other materials:
21-22-41-61-63-73



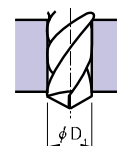
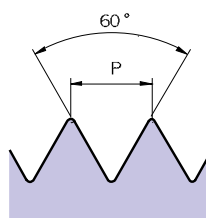
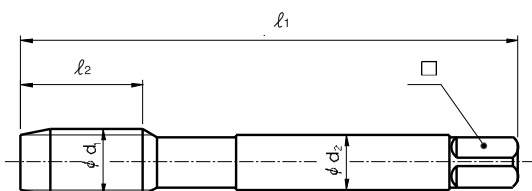
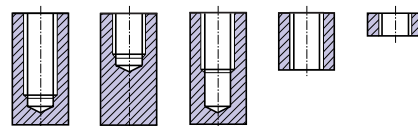
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.83	
	2.2	\times	0.45	156	45	8	2.8	2.1	2	
*	2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
	3	\times	0.5	206	56	11	3.5	2.7	2.8	
	3.5	\times	0.6	226	56	12	4	3	3.25	
	4	\times	0.7	246	63	13	4.5	3.4	3.7	
	4.5	\times	0.75	266	70	14	6	4.9	4.15	
	5	\times	0.8	286	70	15	6	4.9	4.65	
	6	\times	1	316	80	17	6	4.9	5.55	
	7	\times	1	346	80	17	7	5.5	6.55	
	8	\times	1.25	366	90	20	8	6.2	7.4	
	9	\times	1.25	396	90	20	9	7	8.4	
	10	\times	1.5	426	100	22	10	8	9.3	
	11	\times	1.5	466	100	22	8	6.2	10.3	
	12	\times	1.75	506	110	24	9	7	11.2	
	14	\times	2	546	110	26	11	9	13	
	16	\times	2	606	110	27	12	9	15	
	18	\times	2.5	656	125	30	14	11	16.8	
	20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-E

**DIN
371/376**

6HX



NI

See page 311 ~316

11-12-13-14-51-71

Other materials:
21-22-41-61-63-73



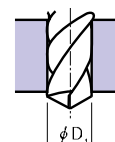
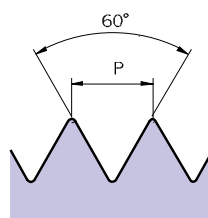
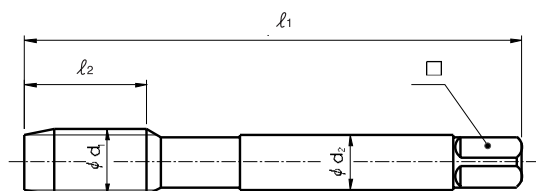
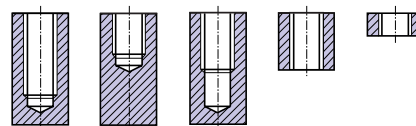
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.83	
	2.2	\times	0.45	156	45	8	2.8	2.1	2	
*	2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
	3	\times	0.5	206	56	11	3.5	2.7	2.8	
	3.5	\times	0.6	226	56	12	4	3	3.25	
	4	\times	0.7	246	63	13	4.5	3.4	3.7	
	4.5	\times	0.75	266	70	14	6	4.9	4.15	
	5	\times	0.8	286	70	15	6	4.9	4.65	
	6	\times	1	316	80	17	6	4.9	5.55	
	7	\times	1	346	80	17	7	5.5	6.55	
	8	\times	1.25	366	90	20	8	6.2	7.4	
	9	\times	1.25	396	90	20	9	7	8.4	
	10	\times	1.5	426	100	22	10	8	9.3	
	11	\times	1.5	466	100	22	8	6.2	10.3	
	12	\times	1.75	506	110	24	9	7	11.2	
	14	\times	2	546	110	26	11	9	13	
	16	\times	2	606	110	27	12	9	15	
	18	\times	2.5	656	125	30	14	11	16.8	
	20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-E

DIN
371/376

6GX



C

NI

See page 311~316

11-12-13-14-51-71

Other materials:
21-22-41-61-63-73



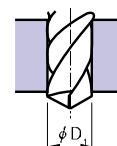
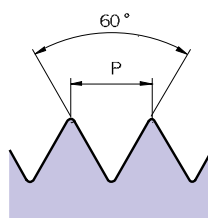
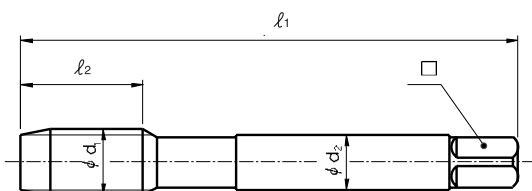
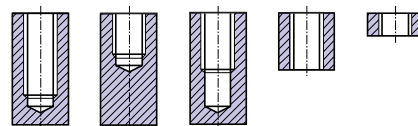
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.83	
	2.2	\times	0.45	156	45	8	2.8	2.1	2	
*	2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
	3	\times	0.5	206	56	11	3.5	2.7	2.8	
	3.5	\times	0.6	226	56	12	4	3	3.25	
	4	\times	0.7	246	63	13	4.5	3.4	3.7	
	4.5	\times	0.75	266	70	14	6	4.9	4.15	
	5	\times	0.8	286	70	15	6	4.9	4.65	
	6	\times	1	316	80	17	6	4.9	5.55	
	7	\times	1	346	80	17	7	5.5	6.55	
	8	\times	1.25	366	90	20	8	6.2	7.4	
	9	\times	1.25	396	90	20	9	7	8.4	
	10	\times	1.5	426	100	22	10	8	9.3	
	11	\times	1.5	466	100	22	8	6.2	10.3	
	12	\times	1.75	506	110	24	9	7	11.2	
	14	\times	2	546	110	26	11	9	13	
	16	\times	2	606	110	27	12	9	15	
	18	\times	2.5	656	125	30	14	11	16.8	
	20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-E

**DIN
371/376**

6HX



TiN

See page 311 ~316

11-12-13-14-21-22-41-51-61-71

Other materials:
63-73



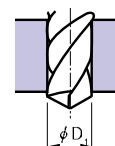
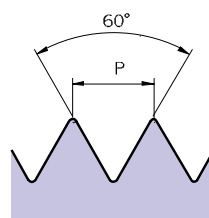
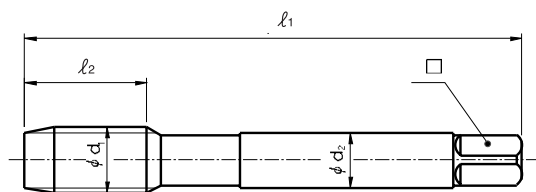
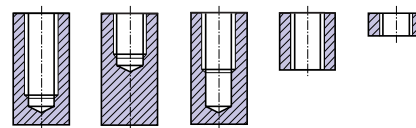
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.83	
	2.2	\times	0.45	156	45	8	2.8	2.1	2	
*	2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
	3	\times	0.5	206	56	11	3.5	2.7	2.8	
	3.5	\times	0.6	226	56	12	4	3	3.25	
	4	\times	0.7	246	63	13	4.5	3.4	3.7	
	4.5	\times	0.75	266	70	14	6	4.9	4.15	
	5	\times	0.8	286	70	15	6	4.9	4.65	
	6	\times	1	316	80	17	6	4.9	5.55	
	7	\times	1	346	80	17	7	5.5	6.55	
	8	\times	1.25	366	90	20	8	6.2	7.4	
	9	\times	1.25	396	90	20	9	7	8.4	
	10	\times	1.5	426	100	22	10	8	9.3	
	11	\times	1.5	466	100	22	8	6.2	10.3	
	12	\times	1.75	506	110	24	9	7	11.2	
	14	\times	2	546	110	26	11	9	13	
	16	\times	2	606	110	27	12	9	15	
	18	\times	2.5	656	125	30	14	11	16.8	
	20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-E

DIN
371/376

6GX



TiN

See page 311~316

11-12-13-14-21-22-41-51-61-71

Other materials:
63-73



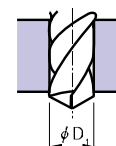
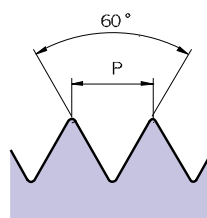
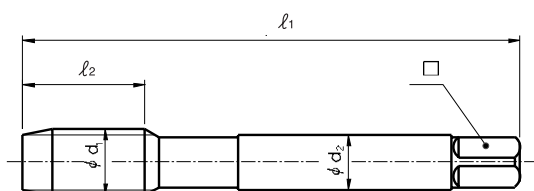
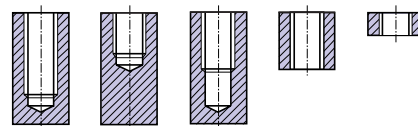
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.83	
	2.2	\times	0.45	156	45	8	2.8	2.1	2	
*	2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
	3	\times	0.5	206	56	11	3.5	2.7	2.8	
	3.5	\times	0.6	226	56	12	4	3	3.25	
	4	\times	0.7	246	63	13	4.5	3.4	3.7	
	4.5	\times	0.75	266	70	14	6	4.9	4.15	
	5	\times	0.8	286	70	15	6	4.9	4.65	
	6	\times	1	316	80	17	6	4.9	5.55	
	7	\times	1	346	80	17	7	5.5	6.55	
	8	\times	1.25	366	90	20	8	6.2	7.4	
	9	\times	1.25	396	90	20	9	7	8.4	
	10	\times	1.5	426	100	22	10	8	9.3	
	11	\times	1.5	466	100	22	8	6.2	10.3	
	12	\times	1.75	506	110	24	9	7	11.2	
	14	\times	2	546	110	26	11	9	13	
	16	\times	2	606	110	27	12	9	15	
	18	\times	2.5	656	125	30	14	11	16.8	
	20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-E

**DIN
371/376**

6HX



TiAIN

See page 311 ~316

11-12-13-14-41-51-61-71

Other materials:
63-73



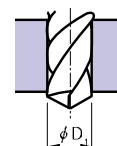
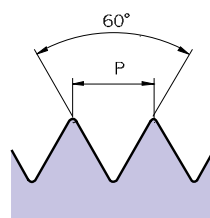
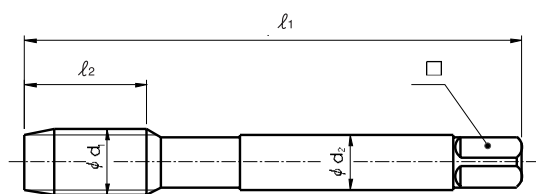
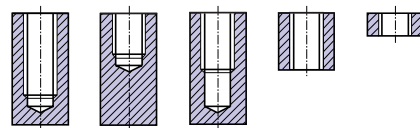
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.83	
	2.2	\times	0.45	156	45	8	2.8	2.1	2	
*	2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
	3	\times	0.5	206	56	11	3.5	2.7	2.8	
	3.5	\times	0.6	226	56	12	4	3	3.25	
	4	\times	0.7	246	63	13	4.5	3.4	3.7	
	4.5	\times	0.75	266	70	14	6	4.9	4.15	
	5	\times	0.8	286	70	15	6	4.9	4.65	
	6	\times	1	316	80	17	6	4.9	5.55	
	7	\times	1	346	80	17	7	5.5	6.55	
	8	\times	1.25	366	90	20	8	6.2	7.4	
	9	\times	1.25	396	90	20	9	7	8.4	
	10	\times	1.5	426	100	22	10	8	9.3	
	11	\times	1.5	466	100	22	8	6.2	10.3	
	12	\times	1.75	506	110	24	9	7	11.2	
	14	\times	2	546	110	26	11	9	13	
	16	\times	2	606	110	27	12	9	15	
	18	\times	2.5	656	125	30	14	11	16.8	
	20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-PM

DIN
371/376

6HX



vap

See page 311~316

11-12-13-14-51-71-72

Other materials:
41-61-63-73



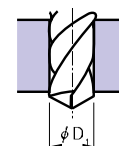
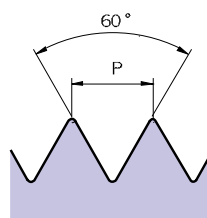
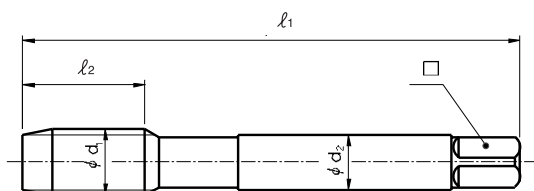
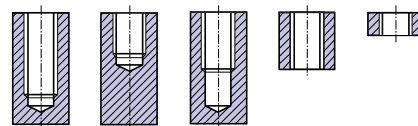
DIN 371



DIN 376

Cold forming taps
Gewindeformer
Tarauds à refouler
Maschi a rullare

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
2	\times	0.4	136	45	8	2.8	2.1	1.83	
2.2	\times	0.45	156	45	8	2.8	2.1	2	
*									
2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*									
2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
3	\times	0.5	206	56	11	3.5	2.7	2.8	
3.5	\times	0.6	226	56	12	4	3	3.25	
4	\times	0.7	246	63	13	4.5	3.4	3.7	
4.5	\times	0.75	266	70	14	6	4.9	4.15	
5	\times	0.8	286	70	15	6	4.9	4.65	
6	\times	1	316	80	17	6	4.9	5.55	
7	\times	1	346	80	17	7	5.5	6.55	
8	\times	1.25	366	90	20	8	6.2	7.4	
9	\times	1.25	396	90	20	9	7	8.4	
10	\times	1.5	426	100	22	10	8	9.3	
11	\times	1.5	466	100	22	8	6.2	10.3	
12	\times	1.75	506	110	24	9	7	11.2	
14	\times	2	546	110	26	11	9	13	
16	\times	2	606	110	27	12	9	15	
18	\times	2.5	656	125	30	14	11	16.8	
20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-E

**DIN
371/376**

6HX



NI

See page 311 ~ 316

11-12-13-14-51-71-72

Other materials:
41-61-63-73

Cold forming taps

Gewindeformer

Tarauds à refouler

Maschi a rullare

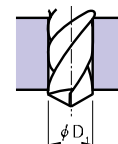
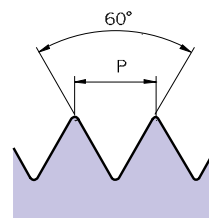
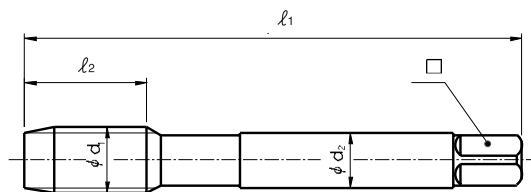
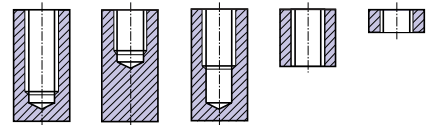


DIN 371



DIN 376

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.83	
	2.2	\times	0.45	156	45	8	2.8	2.1	2	
*	2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
	3	\times	0.5	206	56	11	3.5	2.7	2.8	
	3.5	\times	0.6	226	56	12	4	3	3.25	
	4	\times	0.7	246	63	13	4.5	3.4	3.7	
	4.5	\times	0.75	266	70	14	6	4.9	4.15	
	5	\times	0.8	286	70	15	6	4.9	4.65	
	6	\times	1	316	80	17	6	4.9	5.55	
	7	\times	1	346	80	17	7	5.5	6.55	
	8	\times	1.25	366	90	20	8	6.2	7.4	
	9	\times	1.25	396	90	20	9	7	8.4	
	10	\times	1.5	426	100	22	10	8	9.3	
	11	\times	1.5	466	100	22	8	6.2	10.3	
	12	\times	1.75	506	110	24	9	7	11.2	
	14	\times	2	546	110	26	11	9	13	
	16	\times	2	606	110	27	12	9	15	
	18	\times	2.5	656	125	30	14	11	16.8	
	20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

* DIN profile not ISO

Material
groups

GV

HSS-E

**DIN
371/376**

6HX



TiN

See page 311~316

11-12-13-14-41-51-61-71-72

Other materials:
21-22-63-73



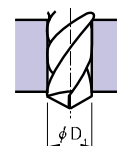
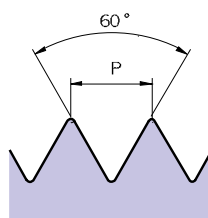
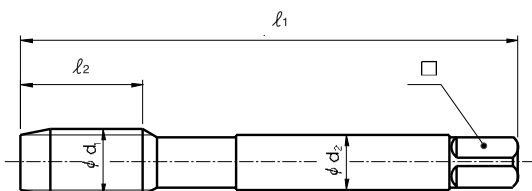
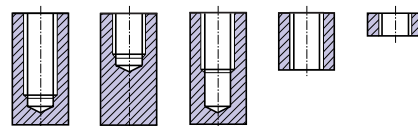
DIN 371



DIN 376

Cold forming taps
Gewindeformer
Tarauds a refouler
Maschi a rullare

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
2	\times	0.4	136	45	8	2.8	2.1	1.83	
2.2	\times	0.45	156	45	8	2.8	2.1	2	
*									
2.3	\times	0.4	196	45	8	2.8	2.1	2.1	
2.5	\times	0.45	176	50	9	2.8	2.1	2.3	
*									
2.6	\times	0.45	496	50	9	2.8	2.1	2.4	
3	\times	0.5	206	56	11	3.5	2.7	2.8	
3.5	\times	0.6	226	56	12	4	3	3.25	
4	\times	0.7	246	63	13	4.5	3.4	3.7	
4.5	\times	0.75	266	70	14	6	4.9	4.15	
5	\times	0.8	286	70	15	6	4.9	4.65	
6	\times	1	316	80	17	6	4.9	5.55	
7	\times	1	346	80	17	7	5.5	6.55	
8	\times	1.25	366	90	20	8	6.2	7.4	
9	\times	1.25	396	90	20	9	7	8.4	
10	\times	1.5	426	100	22	10	8	9.3	
11	\times	1.5	466	100	22	8	6.2	10.3	
12	\times	1.75	506	110	24	9	7	11.2	
14	\times	2	546	110	26	11	9	13	
16	\times	2	606	110	27	12	9	15	
18	\times	2.5	656	125	30	14	11	16.8	
20	\times	2.5	706	140	32	16	12	18.8	

DIN 371(M2-M10) and DIN 376(M11-M20)

*** DIN profile not ISO**

Material
groups

Al

HSS-E

**DIN
371/376**

6H



B



See page 311 ~316

61-71-72-73

Other materials:
11-12-13-41



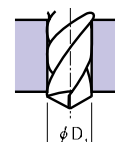
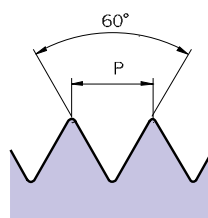
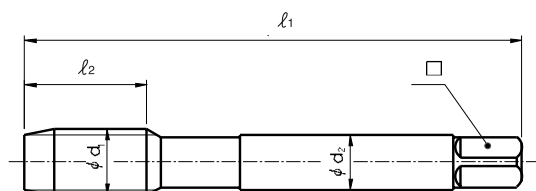
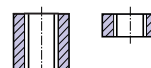
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

Al

HSS-E

**DIN
371/376**

6H



B

NI

See page 311~316

74

Other materials:
13



DIN 371



DIN 376

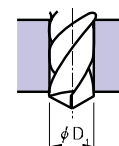
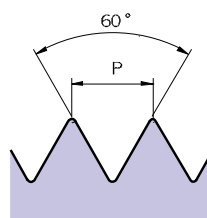
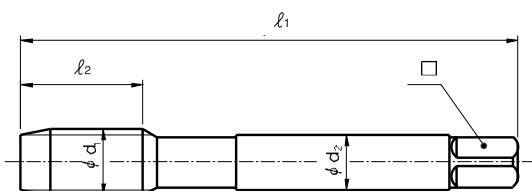
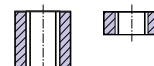
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

Cat.-No. **TC163**

Material
groups

Al

HSS-E

**DIN
371/376**

6H



See page 311 ~316

71-72-73

Other materials:



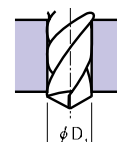
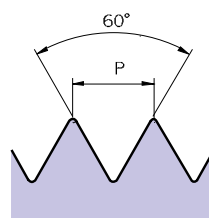
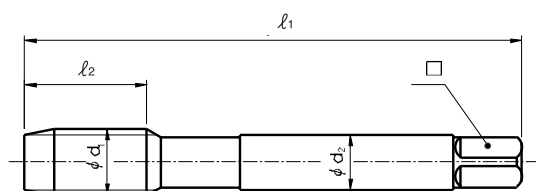
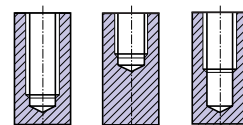
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

Al

HSS-E

**DIN
371/376**

6H



C

NI

See page 311~316

74

Other materials:
13



DIN 371



DIN 376

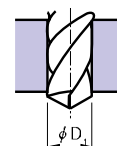
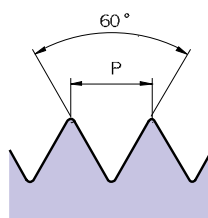
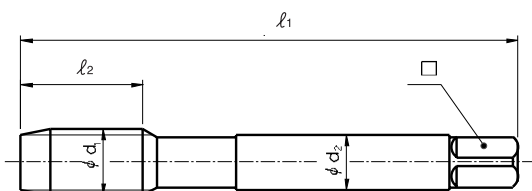
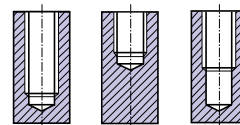
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina





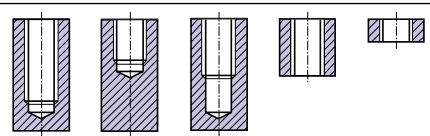
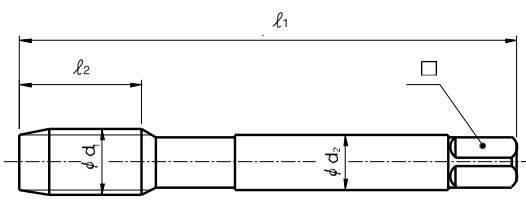
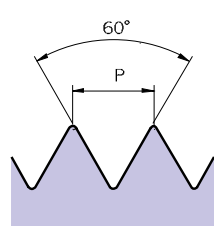
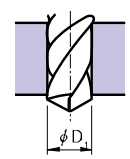
Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	6	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	7	4	3	2.9	
	4	\times	0.7	246	63	7	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	8	6	4.9	3.7	
	5	\times	0.8	286	70	8	6	4.9	4.2	
	6	\times	1	316	80	10	6	4.9	5	
	7	\times	1	346	80	10	7	5.5	6	
	8	\times	1.25	366	90	13	8	6.2	6.8	
	9	\times	1.25	396	90	13	9	7	7.8	
	10	\times	1.5	426	100	15	10	8	8.5	
	11	\times	1.5	466	100	17	8	6.2	9.5	
	12	\times	1.75	506	110	18	9	7	10.2	
	14	\times	2	546	110	20	11	9	12	
	16	\times	2	606	110	20	12	9	14	
	18	\times	2.5	656	125	25	14	11	15.5	
	20	\times	2.5	706	140	25	16	12	17.5	
	22	\times	2.5	746	140	25	18	14.5	19.5	
	24	\times	3	786	160	30	18	14.5	21	
	27	\times	3	866	160	30	20	16	24	
	30	\times	3.5	946	180	35	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material groups		GG		HSS-E		DIN 371/376				DIN 371	
See page 311 ~316		31-32-83		6HX						DIN 376	
Other materials: 62				NI							
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina						Hole type					
											
ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark		
M 2	\times 0.4	136	45	8	2.8	2.1	1.6				
2.2	\times 0.45	156	45	8	2.8	2.1	1.75				
* 2.3	\times 0.4	196	45	8	2.8	2.1	1.9				
2.5	\times 0.45	176	50	9	2.8	2.1	2.05				
* 2.6	\times 0.45	496	50	9	2.8	2.1	2.1				
3	\times 0.5	206	56	11	3.5	2.7	2.5				
3.5	\times 0.6	226	56	12	4	3	2.9				
4	\times 0.7	246	63	13	4.5	3.4	3.3				
4.5	\times 0.75	266	70	14	6	4.9	3.7				
5	\times 0.8	286	70	15	6	4.9	4.2				
6	\times 1	316	80	17	6	4.9	5				
7	\times 1	346	80	17	7	5.5	6				
8	\times 1.25	366	90	20	8	6.2	6.8				
9	\times 1.25	396	90	20	9	7	7.8				
10	\times 1.5	426	100	22	10	8	8.5				
11	\times 1.5	466	100	22	8	6.2	9.5				
12	\times 1.75	506	110	24	9	7	10.2				
14	\times 2	546	110	26	11	9	12				
16	\times 2	606	110	27	12	9	14				
18	\times 2.5	656	125	30	14	11	15.5				
20	\times 2.5	706	140	32	16	12	17.5				
22	\times 2.5	746	140	32	18	14.5	19.5				
24	\times 3	786	160	34	18	14.5	21				
27	\times 3	866	160	36	20	16	24				
30	\times 3.5	946	180	40	22	18	26.5				
DIN 371(M2-M10) and DIN 376(M11-M30)											
* DIN profile not ISO											

Material
groups

GG

HSS-E

**DIN
371/376**

6HX

60°

C

TiN

See page 311~316

31-32-83

Other materials:
62



DIN 371



DIN 376

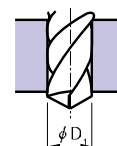
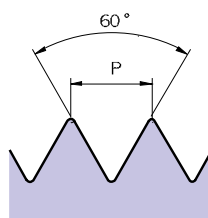
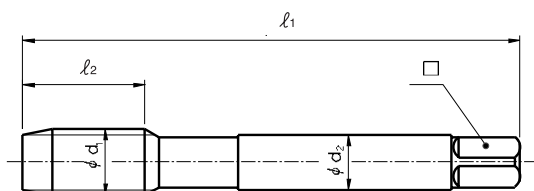
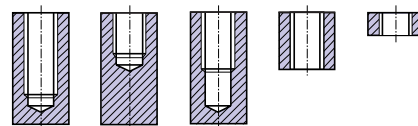
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina





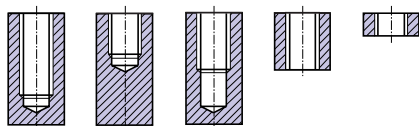
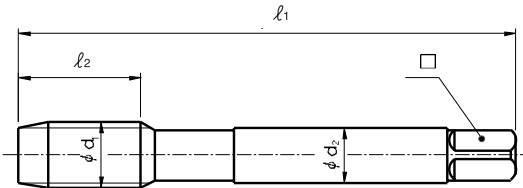
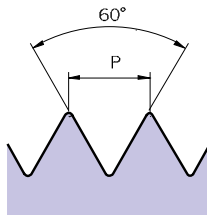
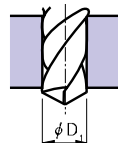
Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material groups	GG	HSS-E	DIN 371/376	 DIN 371  DIN 376						
		6HX								
See page 311 ~316 31-32-62-83 Other materials:			TiCN							
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina				Hole type						
										
	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	
DIN 371(M2-M10) and DIN 376(M11-M30) * DIN profile not ISO										

Material
groups

GG

HSS-E

**DIN
371/376**

6HX



C

TiAlN

See page 311~316

31-32-62-83

Other materials:



DIN 371



DIN 376

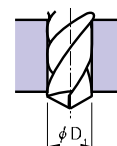
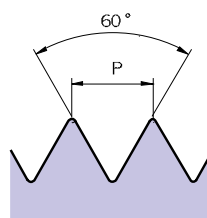
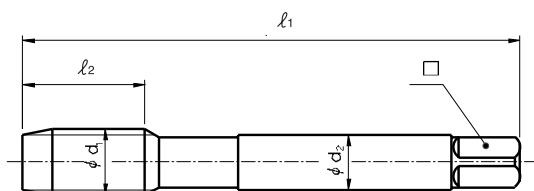
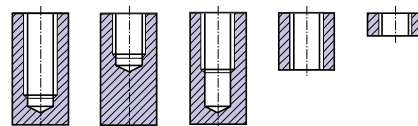
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

GG

HM

**DIN
371/376**

6HX



DIN 371



DIN 376

See page 311 ~316

31-32-62-83

Other materials:

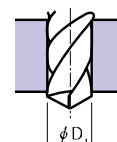
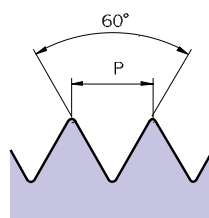
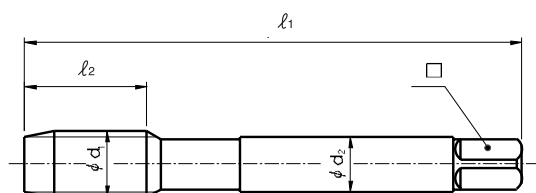
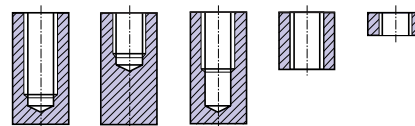
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	

DIN 371(M2-M10) and DIN 376(M11-M20)

Material
groups

Ms

HSS-E

**DIN
371/376**

6H



C



See page 311~316

62

Other materials:
63



DIN 371



DIN 376

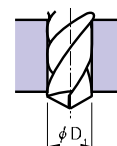
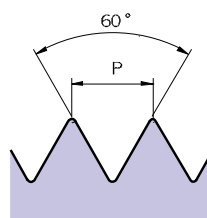
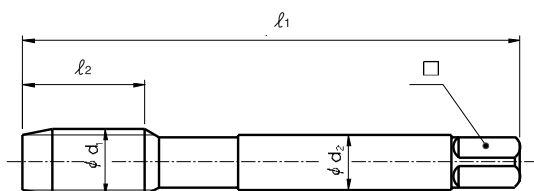
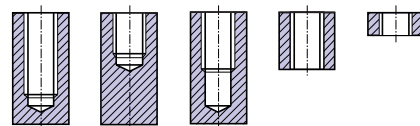
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	2	×	0.4	136	45	8	2.8	2.1	1.6	
	2.2	×	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	×	0.4	196	45	8	2.8	2.1	1.9	
	2.5	×	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	×	0.45	496	50	9	2.8	2.1	2.1	
	3	×	0.5	206	56	11	3.5	2.7	2.5	
	3.5	×	0.6	226	56	12	4	3	2.9	
	4	×	0.7	246	63	13	4.5	3.4	3.3	
	4.5	×	0.75	266	70	14	6	4.9	3.7	
	5	×	0.8	286	70	15	6	4.9	4.2	
	6	×	1	316	80	17	6	4.9	5	
	7	×	1	346	80	17	7	5.5	6	
	8	×	1.25	366	90	20	8	6.2	6.8	
	9	×	1.25	396	90	20	9	7	7.8	
	10	×	1.5	426	100	22	10	8	8.5	
	11	×	1.5	466	100	22	8	6.2	9.5	
	12	×	1.75	506	110	24	9	7	10.2	
	14	×	2	546	110	26	11	9	12	
	16	×	2	606	110	27	12	9	14	
	18	×	2.5	656	125	30	14	11	15.5	
	20	×	2.5	706	140	32	16	12	17.5	
	22	×	2.5	746	140	32	18	14.5	19.5	
	24	×	3	786	160	34	18	14.5	21	
	27	×	3	866	160	36	20	16	24	
	30	×	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

Ms

HSS-E

**DIN
371/376**

6HX



NI

See page 311 ~ 316

62

Other materials:



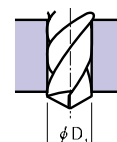
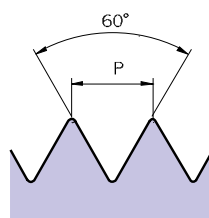
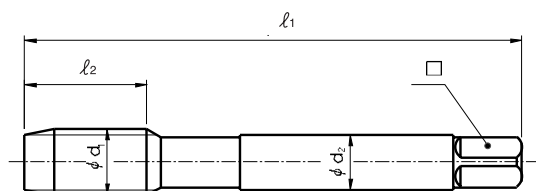
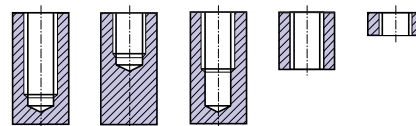
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

Ms

HSS-E

**DIN
371/376**

6H



C

TiAlN

See page 311~316

62

Other materials:
63



DIN 371



DIN 376

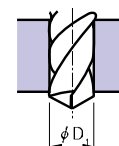
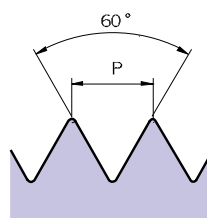
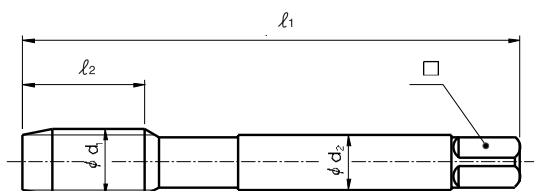
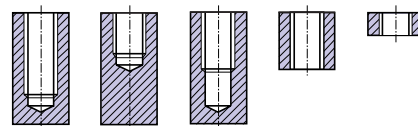
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	2	\times	0.4	136	45	8	2.8	2.1	1.6	
	2.2	\times	0.45	156	45	8	2.8	2.1	1.75	
*	2.3	\times	0.4	196	45	8	2.8	2.1	1.9	
	2.5	\times	0.45	176	50	9	2.8	2.1	2.05	
*	2.6	\times	0.45	496	50	9	2.8	2.1	2.1	
	3	\times	0.5	206	56	11	3.5	2.7	2.5	
	3.5	\times	0.6	226	56	12	4	3	2.9	
	4	\times	0.7	246	63	13	4.5	3.4	3.3	
	4.5	\times	0.75	266	70	14	6	4.9	3.7	
	5	\times	0.8	286	70	15	6	4.9	4.2	
	6	\times	1	316	80	17	6	4.9	5	
	7	\times	1	346	80	17	7	5.5	6	
	8	\times	1.25	366	90	20	8	6.2	6.8	
	9	\times	1.25	396	90	20	9	7	7.8	
	10	\times	1.5	426	100	22	10	8	8.5	
	11	\times	1.5	466	100	22	8	6.2	9.5	
	12	\times	1.75	506	110	24	9	7	10.2	
	14	\times	2	546	110	26	11	9	12	
	16	\times	2	606	110	27	12	9	14	
	18	\times	2.5	656	125	30	14	11	15.5	
	20	\times	2.5	706	140	32	16	12	17.5	
	22	\times	2.5	746	140	32	18	14.5	19.5	
	24	\times	3	786	160	34	18	14.5	21	
	27	\times	3	866	160	36	20	16	24	
	30	\times	3.5	946	180	40	22	18	26.5	

DIN 371(M2-M10) and DIN 376(M11-M30)

* DIN profile not ISO

Material
groups

GS

HSS

DIN
2181

6H

60°



See page 311 ~ 316



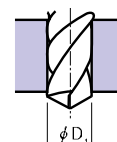
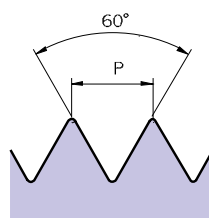
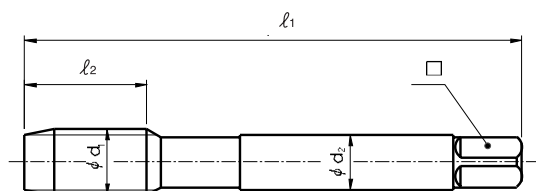
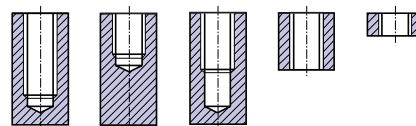
First



Bottoming

Sets of taps
Gewindebohrer-Satz
Jeu de tarauds
Serie di maschi

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
3	\times	0.35	219	42	8	3.5	2.7	2.65	
4	\times	0.5	259	48	9	4.5	3.4	3.5	
5	\times	0.5	299	52	11	6	4.9	4.5	
6	\times	0.5	339	56	12	6	4.9	5.5	
6	\times	0.75	329	56	12	6	4.9	5.2	
7	\times	0.75	359	56	14	6	4.9	6.2	
8	\times	0.5	939	63	14	6	4.9	7.5	
8	\times	0.75	389	63	14	6	4.9	7.2	
8	\times	1	379	63	17	6	4.9	7	
9	\times	1	409	63	17	7	5.5	8	
10	\times	0.75	459	63	18	7	5.5	9.2	
10	\times	1	449	63	18	7	5.5	9	
10	\times	1.25	439	70	22	7	5.5	8.8	
11	\times	1	479	63	18	8	6.2	10	
12	\times	1	539	70	18	9	7	11	
12	\times	1.25	529	70	20	9	7	10.8	
12	\times	1.5	519	70	20	9	7	10.5	
13	\times	1	N29	70	18	11	9	12	
13	\times	1.5	N19	70	20	11	9	11.5	
14	\times	1	579	70	18	11	9	13	
14	\times	1.25	569	70	20	11	9	12.8	
14	\times	1.5	559	70	20	11	9	12.5	
15	\times	1	599	70	18	12	9	14	
15	\times	1.5	589	70	20	12	9	13.5	
16	\times	1	629	70	18	12	9	15	
16	\times	1.5	619	70	20	12	9	14.5	
18	\times	1	689	80	18	14	11	17	
18	\times	1.5	679	80	22	14	11	16.5	
18	\times	2	669	80	22	14	11	16	
20	\times	1	739	80	18	16	12	19	
20	\times	1.5	729	80	22	16	12	18.5	
20	\times	2	719	80	22	16	12	18	
22	\times	1	779	80	18	18	14.5	21	

Material
groups

GS

See page 311~316

HSS

DIN
2181

6H

60°

I / III



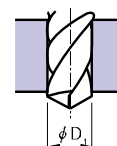
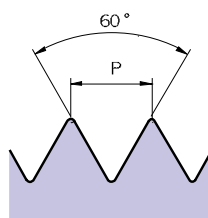
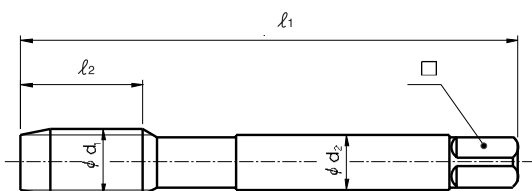
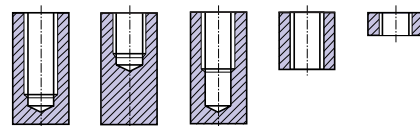
First



Bottoming

Sets of taps
Gewindebohrer-Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	22	×	1.5	769	80	22	18	14.5	20.5	
	22	×	2	759	80	22	18	14.5	20	
	24	×	1	819	90	18	18	14.5	23	
	24	×	1.5	809	90	22	18	14.5	22.5	
	24	×	2	799	90	22	18	14.5	22	
	25	×	1	849	90	18	18	14.5	24	
	25	×	1.5	839	90	22	18	14.5	23.5	
	26	×	1	049	90	18	18	14.5	25	
	26	×	1.5	859	90	22	18	14.5	24.5	
	27	×	1	899	90	18	20	16	26	
	27	×	1.5	889	90	22	20	16	25.5	
	27	×	2	879	90	22	20	16	25	
	28	×	1.5	919	90	22	20	16	26.5	
	28	×	2	909	90	22	20	16	26	
	30	×	1	989	90	18	22	18	29	
	30	×	1.5	979	90	22	22	18	28.5	
	30	×	2	969	90	22	22	18	28	

Material
groups

GS

HSS-E

**DIN
374**

6H

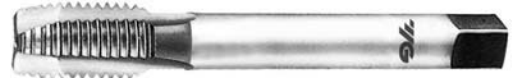
60°

B

See page 311 ~ 316

12-13-14-33-34-63-74

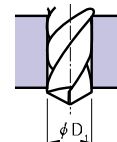
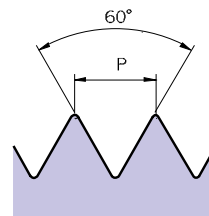
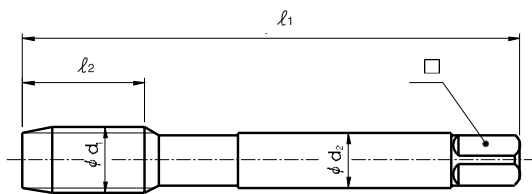
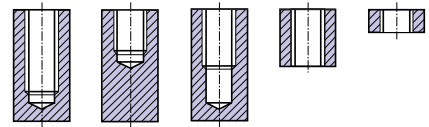
Other materials:
41-51-61-71-72-73-81



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	10	2.8	2.1	3.5	
	5	\times	0.5	296	70	11	3.5	2.7	4.5	
	6	\times	0.5	336	80	13	4.5	3.4	5.5	
	6	\times	0.75	326	80	13	4.5	3.4	5.2	
	7	\times	0.75	356	80	14	5.5	4.3	6.2	
	8	\times	0.5	936	80	14	6	4.9	7.5	
	8	\times	0.75	386	80	14	6	4.9	7.2	
	8	\times	1	376	90	17	6	4.9	7	
	10	\times	0.75	456	90	18	7	5.5	9.2	
	10	\times	1	446	90	18	7	5.5	9	
	10	\times	1.25	436	100	22	7	5.5	8.8	
	12	\times	1	536	100	18	9	7	11	
	12	\times	1.25	526	100	22	9	7	10.8	
	12	\times	1.5	516	100	22	9	7	10.5	
	14	\times	1	576	100	18	11	9	13	
	14	\times	1.25	566	100	22	11	9	12.8	
	14	\times	1.5	556	100	22	11	9	12.5	
	16	\times	1	626	100	18	12	9	15	
	16	\times	1.5	616	100	22	12	9	14.5	
	18	\times	1	686	110	20	14	11	17	
	18	\times	1.5	676	110	25	14	11	16.5	
	20	\times	1	736	125	20	16	12	19	
	20	\times	1.5	726	125	25	16	12	18.5	
	22	\times	1	776	125	20	18	14.5	21	
	22	\times	1.5	766	125	25	18	14.5	20.5	
	24	\times	1.5	806	140	27	18	14.5	22.5	
	24	\times	2	796	140	27	18	14.5	22	
	26	\times	1.5	856	140	28	18	14.5	24.5	
	27	\times	1.5	886	140	28	20	16	25.5	
	27	\times	2	876	140	28	20	16	25	
	28	\times	1.5	916	140	28	20	16	26.5	
	30	\times	1.5	976	150	30	22	18	28.5	
	30	\times	2	966	150	30	22	18	28	

Material
groups

GS

HSS-E

**DIN
374**

6H

60°

B

TiN

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 374

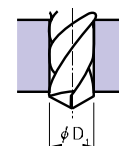
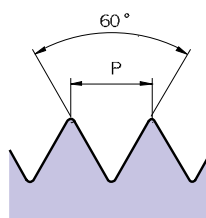
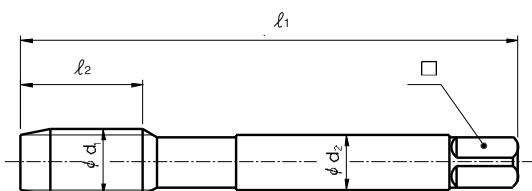
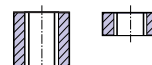
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
4	\times	0.5	256	63	10	2.8	2.1	3.5	
5	\times	0.5	296	70	11	3.5	2.7	4.5	
6	\times	0.5	336	80	13	4.5	3.4	5.5	
6	\times	0.75	326	80	13	4.5	3.4	5.2	
7	\times	0.75	356	80	14	5.5	4.3	6.2	
8	\times	0.5	936	80	14	6	4.9	7.5	
8	\times	0.75	386	80	14	6	4.9	7.2	
8	\times	1	376	90	17	6	4.9	7	
10	\times	0.75	456	90	18	7	5.5	9.2	
10	\times	1	446	90	18	7	5.5	9	
10	\times	1.25	436	100	22	7	5.5	8.8	
12	\times	1	536	100	18	9	7	11	
12	\times	1.25	526	100	22	9	7	10.8	
12	\times	1.5	516	100	22	9	7	10.5	
14	\times	1	576	100	18	11	9	13	
14	\times	1.25	566	100	22	11	9	12.8	
14	\times	1.5	556	100	22	11	9	12.5	
16	\times	1	626	100	18	12	9	15	
16	\times	1.5	616	100	22	12	9	14.5	
18	\times	1	686	110	20	14	11	17	
18	\times	1.5	676	110	25	14	11	16.5	
20	\times	1	736	125	20	16	12	19	
20	\times	1.5	726	125	25	16	12	18.5	
22	\times	1	776	125	20	18	14.5	21	
22	\times	1.5	766	125	25	18	14.5	20.5	
24	\times	1.5	806	140	27	18	14.5	22.5	
24	\times	2	796	140	27	18	14.5	22	
26	\times	1.5	856	140	28	18	14.5	24.5	
27	\times	1.5	886	140	28	20	16	25.5	
27	\times	2	876	140	28	20	16	25	
28	\times	1.5	916	140	28	20	16	26.5	
30	\times	1.5	976	150	30	22	18	28.5	
30	\times	2	966	150	30	22	18	28	

Material
groups

GS

HSS-E

**DIN
374**

6H

60°



DIN 374

See page 311~316

12-13-14-33-34-74

Other materials:
11-62-63

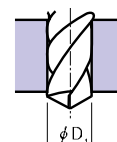
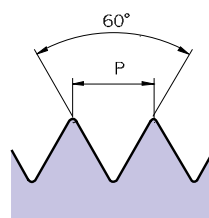
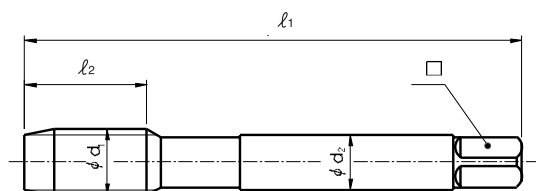
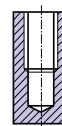
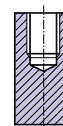
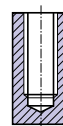
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	10	2.8	2.1	3.5	
	5	\times	0.5	296	70	11	3.5	2.7	4.5	
	6	\times	0.5	336	80	13	4.5	3.4	5.5	
	6	\times	0.75	326	80	13	4.5	3.4	5.2	
	7	\times	0.75	356	80	14	5.5	4.3	6.2	
	8	\times	0.5	936	80	14	6	4.9	7.5	
	8	\times	0.75	386	80	14	6	4.9	7.2	
	8	\times	1	376	90	17	6	4.9	7	
	10	\times	0.75	456	90	18	7	5.5	9.2	
	10	\times	1	446	90	18	7	5.5	9	
	10	\times	1.25	436	100	22	7	5.5	8.8	
	12	\times	1	536	100	18	9	7	11	
	12	\times	1.25	526	100	22	9	7	10.8	
	12	\times	1.5	516	100	22	9	7	10.5	
	14	\times	1	576	100	18	11	9	13	
	14	\times	1.25	566	100	22	11	9	12.8	
	14	\times	1.5	556	100	22	11	9	12.5	
	16	\times	1.5	616	100	22	12	9	14.5	
	18	\times	1.5	676	110	25	14	11	16.5	
	20	\times	1.5	726	125	25	16	12	18.5	
	22	\times	1.5	766	125	25	18	14.5	20.5	
	24	\times	1.5	806	140	27	18	14.5	22.5	

Material
groups

GS

HSS-E

**DIN
374**

6H

60°

C

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 374

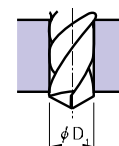
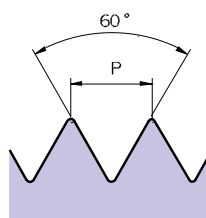
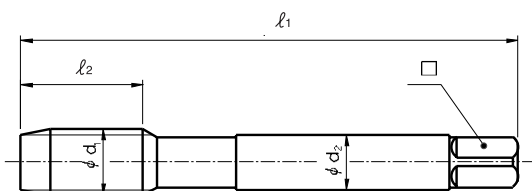
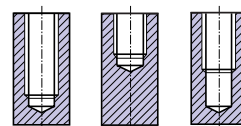
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	5	2.8	2.1	3.5	
	5	\times	0.5	296	70	5	3.5	2.7	4.5	
	6	\times	0.5	336	80	5	4.5	3.4	5.5	
	6	\times	0.75	326	80	8	4.5	3.4	5.2	
	7	\times	0.75	356	80	10	5.5	4.3	6.2	
	8	\times	0.5	936	80	5	6	4.9	7.5	
	8	\times	0.75	386	80	8	6	4.9	7.2	
	8	\times	1	376	90	10	6	4.9	7	
	10	\times	0.75	456	90	10	7	5.5	9.2	
	10	\times	1	446	90	10	7	5.5	9	
	10	\times	1.25	436	100	16	7	5.5	8.8	
	12	\times	1	536	100	11	9	7	11	
	12	\times	1.25	526	100	15	9	7	10.8	
	12	\times	1.5	516	100	15	9	7	10.5	
	14	\times	1	576	100	11	11	9	13	
	14	\times	1.25	566	100	15	11	9	12.8	
	14	\times	1.5	556	100	15	11	9	12.5	
	16	\times	1	626	100	12	12	9	15	
	16	\times	1.5	616	100	15	12	9	14.5	
	18	\times	1	686	110	13	14	11	17	
	18	\times	1.5	676	110	17	14	11	16.5	
	20	\times	1	736	125	14	16	12	19	
	20	\times	1.5	726	125	17	16	12	18.5	
	22	\times	1	776	125	14	18	14.5	21	
	22	\times	1.5	766	125	17	18	14.5	20.5	
	24	\times	1.5	806	140	20	18	14.5	22.5	
	24	\times	2	796	140	20	18	14.5	22	
	26	\times	1.5	856	140	20	18	14.5	24.5	
	27	\times	1.5	886	140	20	20	16	25.5	
	27	\times	2	876	140	20	20	16	25	
	28	\times	1.5	916	140	20	20	16	26.5	
	30	\times	1.5	976	150	22	22	18	28.5	
	30	\times	2	966	150	22	22	18	28	

Material
groups

GS

HSS-E

**DIN
374**

6H

60°



TIN

See page 311~316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73-81



DIN 374

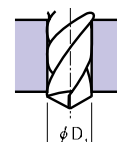
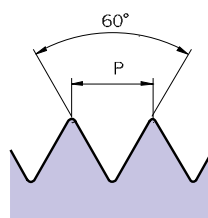
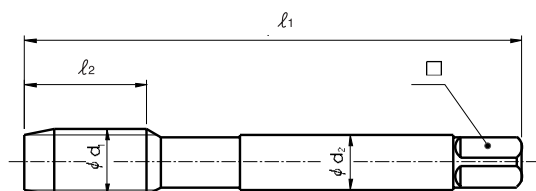
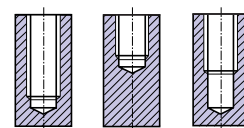
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
4	\times	0.5	256	63	5	2.8	2.1	3.5	
5	\times	0.5	296	70	5	3.5	2.7	4.5	
6	\times	0.5	336	80	5	4.5	3.4	5.5	
6	\times	0.75	326	80	8	4.5	3.4	5.2	
7	\times	0.75	356	80	10	5.5	4.3	6.2	
8	\times	0.5	936	80	5	6	4.9	7.5	
8	\times	0.75	386	80	8	6	4.9	7.2	
8	\times	1	376	90	10	6	4.9	7	
10	\times	0.75	456	90	10	7	5.5	9.2	
10	\times	1	446	90	10	7	5.5	9	
10	\times	1.25	436	100	16	7	5.5	8.8	
12	\times	1	536	100	11	9	7	11	
12	\times	1.25	526	100	15	9	7	10.8	
12	\times	1.5	516	100	15	9	7	10.5	
14	\times	1	576	100	11	11	9	13	
14	\times	1.25	566	100	15	11	9	12.8	
14	\times	1.5	556	100	15	11	9	12.5	
16	\times	1	626	100	12	12	9	15	
16	\times	1.5	616	100	15	12	9	14.5	
18	\times	1	686	110	13	14	11	17	
18	\times	1.5	676	110	17	14	11	16.5	
20	\times	1	736	125	14	16	12	19	
20	\times	1.5	726	125	17	16	12	18.5	
22	\times	1	776	125	14	18	14.5	21	
22	\times	1.5	766	125	17	18	14.5	20.5	
24	\times	1.5	806	140	20	18	14.5	22.5	
24	\times	2	796	140	20	18	14.5	22	
26	\times	1.5	856	140	20	18	14.5	24.5	
27	\times	1.5	886	140	20	20	16	25.5	
27	\times	2	876	140	20	20	16	25	
28	\times	1.5	916	140	20	20	16	26.5	
30	\times	1.5	976	150	22	22	18	28.5	
30	\times	2	966	150	22	22	18	28	

Material
groups

VG

HSS-E

**DIN
374**

6H

60°

B

See page 311~316

15

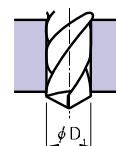
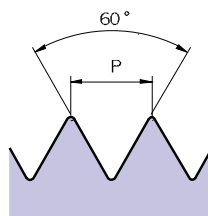
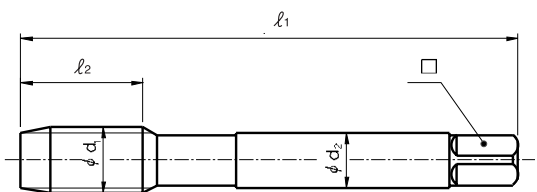
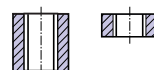
Other materials:
14-23-42-52






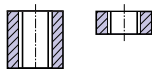
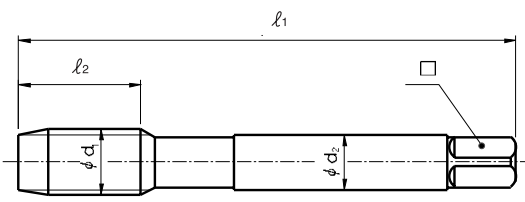
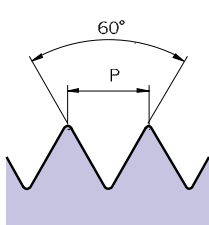
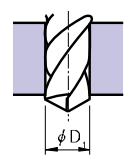
DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	4	×	0.5	256	63	10	2.8	2.1	3.5	
	5	×	0.5	296	70	11	3.5	2.7	4.5	
	6	×	0.5	336	80	13	4.5	3.4	5.5	
	6	×	0.75	326	80	13	4.5	3.4	5.2	
	7	×	0.75	356	80	14	5.5	4.3	6.2	
	8	×	0.75	386	80	14	6	4.9	7.2	
	8	×	1	376	90	17	6	4.9	7	
	10	×	0.75	456	90	18	7	5.5	9.2	
	10	×	1	446	90	18	7	5.5	9	
	10	×	1.25	436	100	22	7	5.5	8.8	
	12	×	1	536	100	18	9	7	11	
	12	×	1.25	526	100	22	9	7	10.8	
	12	×	1.5	516	100	22	9	7	10.5	
	14	×	1.25	566	100	22	11	9	12.8	
	14	×	1.5	556	100	22	11	9	12.5	
	16	×	1.5	616	100	22	12	9	14.5	
	18	×	1.5	676	110	25	14	11	16.5	
	20	×	1.5	726	125	25	16	12	18.5	
	22	×	1.5	766	125	25	18	14.5	20.5	
	24	×	1.5	806	140	27	18	14.5	22.5	

Material groups		VG		HSS-E		DIN 374		 DIN 374		
See page 311~316		15		6H		 60°				
Other materials: 14-23-42-52		 B		TiN						
Machine taps Maschinengewindebohrer Tarauds machine Maschi a macchina					Hole type					
										
ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark	
M	4	\times	0.5	256	63	10	2.8	2.1	3.5	
	5	\times	0.5	296	70	11	3.5	2.7	4.5	
	6	\times	0.5	336	80	13	4.5	3.4	5.5	
	6	\times	0.75	326	80	13	4.5	3.4	5.2	
	7	\times	0.75	356	80	14	5.5	4.3	6.2	
	8	\times	0.75	386	80	14	6	4.9	7.2	
	8	\times	1	376	90	17	6	4.9	7	
	10	\times	0.75	456	90	18	7	5.5	9.2	
	10	\times	1	446	90	18	7	5.5	9	
	10	\times	1.25	436	100	22	7	5.5	8.8	
	12	\times	1	536	100	18	9	7	11	
	12	\times	1.25	526	100	22	9	7	10.8	
	12	\times	1.5	516	100	22	9	7	10.5	
	14	\times	1.25	566	100	22	11	9	12.8	
	14	\times	1.5	556	100	22	11	9	12.5	
	16	\times	1.5	616	100	22	12	9	14.5	
	18	\times	1.5	676	110	25	14	11	16.5	
	20	\times	1.5	726	125	25	16	12	18.5	
	22	\times	1.5	766	125	25	18	14.5	20.5	
	24	\times	1.5	806	140	27	18	14.5	22.5	

Material
groups

VG

HSS-E

**DIN
374**

6H

60°

C

See page 311~316

15

Other materials:
14-23-42-52



DIN 374

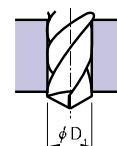
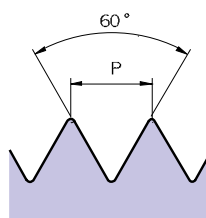
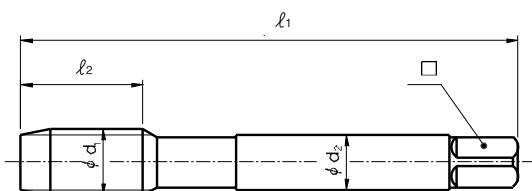
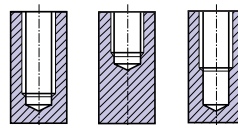
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	×	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
M	4	×	0.5	256	63	5	2.8	2.1	3.5	
	5	×	0.5	296	70	5	3.5	2.7	4.5	
	6	×	0.5	336	80	5	4.5	3.4	5.5	
	6	×	0.75	326	80	8	4.5	3.4	5.2	
	7	×	0.75	356	80	10	5.5	4.3	6.2	
	8	×	0.75	386	80	8	6	4.9	7.2	
	8	×	1	376	90	10	6	4.9	7	
	10	×	0.75	456	90	10	7	5.5	9.2	
	10	×	1	446	90	10	7	5.5	9	
	10	×	1.25	436	100	16	7	5.5	8.8	
	12	×	1	536	100	11	9	7	11	
	12	×	1.25	526	100	15	9	7	10.8	
	12	×	1.5	516	100	15	9	7	10.5	
	14	×	1.25	566	100	15	11	9	12.8	
	14	×	1.5	556	100	15	11	9	12.5	
	16	×	1.5	616	100	15	12	9	14.5	
	18	×	1.5	676	110	17	14	11	16.5	
	20	×	1.5	726	125	17	16	12	18.5	
	22	×	1.5	766	125	17	18	14.5	20.5	
	24	×	1.5	806	140	20	18	14.5	22.5	

Material
groups

VG

HSS-E

**DIN
374**

6H

60°



TiN

See page 311~316

15

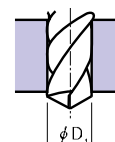
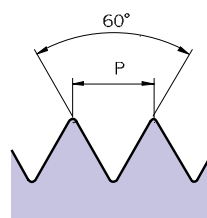
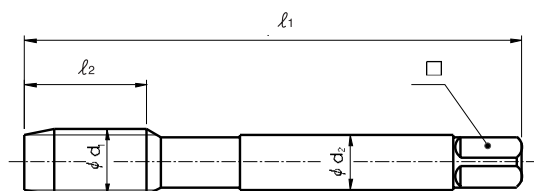
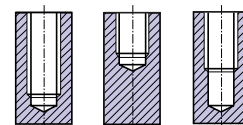
Other materials:
14-23-42-52



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	5	2.8	2.1	3.5	
	5	\times	0.5	296	70	5	3.5	2.7	4.5	
	6	\times	0.5	336	80	5	4.5	3.4	5.5	
	6	\times	0.75	326	80	8	4.5	3.4	5.2	
	7	\times	0.75	356	80	10	5.5	4.3	6.2	
	8	\times	0.75	386	80	8	6	4.9	7.2	
	8	\times	1	376	90	10	6	4.9	7	
	10	\times	0.75	456	90	10	7	5.5	9.2	
	10	\times	1	446	90	10	7	5.5	9	
	10	\times	1.25	436	100	16	7	5.5	8.8	
	12	\times	1	536	100	11	9	7	11	
	12	\times	1.25	526	100	15	9	7	10.8	
	12	\times	1.5	516	100	15	9	7	10.5	
	14	\times	1.25	566	100	15	11	9	12.8	
	14	\times	1.5	556	100	15	11	9	12.5	
	16	\times	1.5	616	100	15	12	9	14.5	
	18	\times	1.5	676	110	17	14	11	16.5	
	20	\times	1.5	726	125	17	16	12	18.5	
	22	\times	1.5	766	125	17	18	14.5	20.5	
	24	\times	1.5	806	140	20	18	14.5	22.5	

Material
groups

VA
NW

HSS-E

DIN
374

6HX

60°

B

vap

See page 311~316

11-12-21-22-23

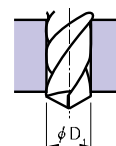
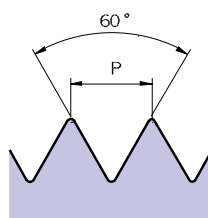
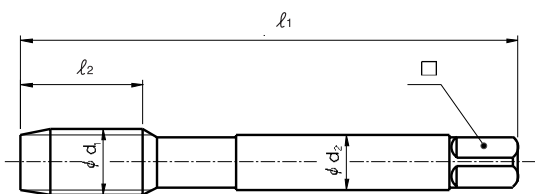
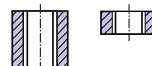
Other materials:
42-52



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	10	2.8	2.1	3.5	
	5	\times	0.5	296	70	11	3.5	2.7	4.5	
	6	\times	0.5	336	80	13	4.5	3.4	5.5	
	6	\times	0.75	326	80	13	4.5	3.4	5.2	
	7	\times	0.75	356	80	14	5.5	4.3	6.2	
	8	\times	0.75	386	80	14	6	4.9	7.2	
	8	\times	1	376	90	17	6	4.9	7	
	10	\times	0.75	456	90	18	7	5.5	9.2	
	10	\times	1	446	90	18	7	5.5	9	
	10	\times	1.25	436	100	22	7	5.5	8.8	
	12	\times	1	536	100	18	9	7	11	
	12	\times	1.25	526	100	22	9	7	10.8	
	12	\times	1.5	516	100	22	9	7	10.5	
	14	\times	1.25	566	100	22	11	9	12.8	
	14	\times	1.5	556	100	22	11	9	12.5	
	16	\times	1.5	616	100	22	12	9	14.5	
	18	\times	1.5	676	110	25	14	11	16.5	
	20	\times	1.5	726	125	25	16	12	18.5	
	22	\times	1.5	766	125	25	18	14.5	20.5	
	24	\times	1.5	806	140	27	18	14.5	22.5	

Material
groups

**VA
NW**

HSS-E

**DIN
374**

6H

60°



vap

See page 311~316

11-12-21-22-23

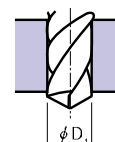
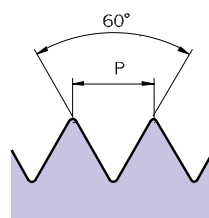
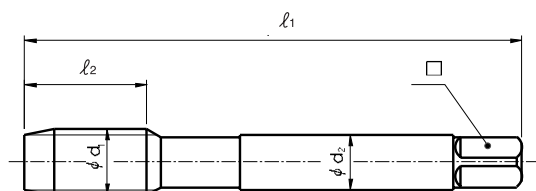
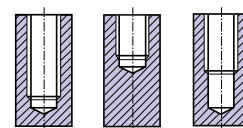
Other materials:
42-52



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	5	2.8	2.1	3.5	
	5	\times	0.5	296	70	5	3.5	2.7	4.5	
	6	\times	0.5	336	80	5	4.5	3.4	5.5	
	6	\times	0.75	326	80	8	4.5	3.4	5.2	
	7	\times	0.75	356	80	10	5.5	4.3	6.2	
	8	\times	0.75	386	80	8	6	4.9	7.2	
	8	\times	1	376	90	10	6	4.9	7	
	10	\times	0.75	456	90	10	7	5.5	9.2	
	10	\times	1	446	90	10	7	5.5	9	
	10	\times	1.25	436	100	16	7	5.5	8.8	
	12	\times	1	536	100	11	9	7	11	
	12	\times	1.25	526	100	15	9	7	10.8	
	12	\times	1.5	516	100	15	9	7	10.5	
	14	\times	1.25	566	100	15	11	9	12.8	
	14	\times	1.5	556	100	15	11	9	12.5	
	16	\times	1.5	616	100	15	12	9	14.5	
	18	\times	1.5	676	110	17	14	11	16.5	
	20	\times	1.5	726	125	17	16	12	18.5	
	22	\times	1.5	766	125	17	18	14.5	20.5	
	24	\times	1.5	806	140	20	18	14.5	22.5	

Material
groups

GV

HSS-E

**DIN
374**

6HX

60°

C

NI

See page 311~316

11-12-13-14-51-71

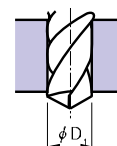
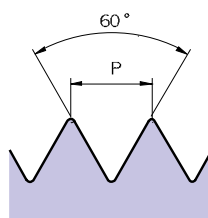
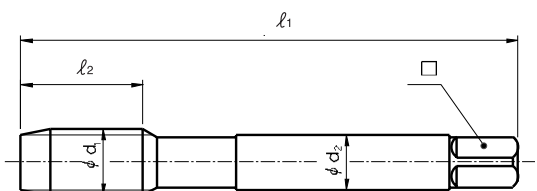
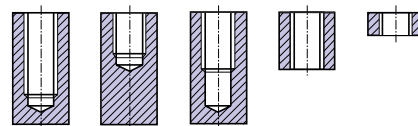
Other materials:
21-22-41-61-63-73



DIN 374

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M									
4	\times	0.5	256	63	10	2.8	2.1	3.75	
5	\times	0.5	296	70	11	3.5	2.7	4.75	
6	\times	0.5	336	80	13	4.5	3.4	5.75	
6	\times	0.75	326	80	13	4.5	3.4	5.65	
7	\times	0.75	356	80	14	5.5	4.3	6.65	
8	\times	0.75	386	80	14	6	4.9	7.65	
8	\times	1	376	90	17	6	4.9	7.50	
10	\times	0.75	456	90	18	7	5.5	9.65	
10	\times	1	446	90	18	7	5.5	9.5	
10	\times	1.25	436	100	22	7	5.5	9.4	
12	\times	1	536	100	18	9	7	11.5	
12	\times	1.25	526	100	22	9	7	11.4	
12	\times	1.5	516	100	22	9	7	11.25	
14	\times	1.25	566	100	22	11	9	13.4	
14	\times	1.5	556	100	22	11	9	13.25	
16	\times	1.5	616	100	22	12	9	15.25	
18	\times	1.5	676	110	25	14	11	17.25	
20	\times	1.5	726	125	25	16	12	19.25	

Material
groups

GV

HSS-E

**DIN
374**

6HX

60°



TiN

See page 311~316

11-12-13-14-21-22-41-51-61-71

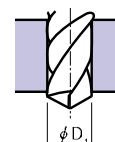
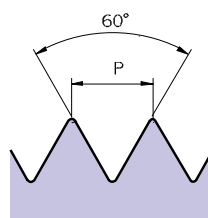
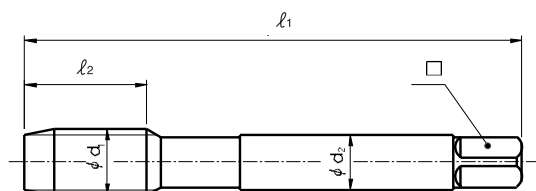
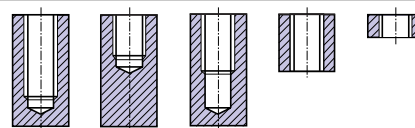
Other materials:
63-73



DIN 374

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	10	2.8	2.1	3.75	
	5	\times	0.5	296	70	11	3.5	2.7	4.75	
	6	\times	0.5	336	80	13	4.5	3.4	5.75	
	6	\times	0.75	326	80	13	4.5	3.4	5.65	
	7	\times	0.75	356	80	14	5.5	4.3	6.65	
	8	\times	0.75	386	80	14	6	4.9	7.65	
	8	\times	1	376	90	17	6	4.9	7.50	
	10	\times	0.75	456	90	18	7	5.5	9.65	
	10	\times	1	446	90	18	7	5.5	9.5	
	10	\times	1.25	436	100	22	7	5.5	9.4	
	12	\times	1	536	100	18	9	7	11.5	
	12	\times	1.25	526	100	22	9	7	11.4	
	12	\times	1.5	516	100	22	9	7	11.25	
	14	\times	1.25	566	100	22	11	9	13.4	
	14	\times	1.5	556	100	22	11	9	13.25	
	16	\times	1.5	616	100	22	12	9	15.25	
	18	\times	1.5	676	110	25	14	11	17.25	
	20	\times	1.5	726	125	25	16	12	19.25	

Material
groups

Al

HSS-E

**DIN
374**

6H

60°

C

See page 311~316

71-72-73

Other materials:



DIN 374

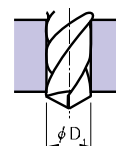
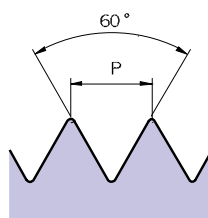
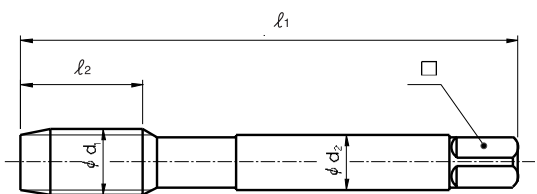
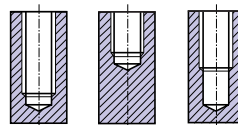
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	5	2.8	2.1	3.5	
	5	\times	0.5	296	70	5	3.5	2.7	4.5	
	6	\times	0.5	336	80	5	4.5	3.4	5.5	
	6	\times	0.75	326	80	8	4.5	3.4	5.2	
	7	\times	0.75	356	80	10	5.5	4.3	6.2	
	8	\times	0.75	386	80	8	6	4.9	7.2	
	8	\times	1	376	90	10	6	4.9	7	
	10	\times	0.75	456	90	10	7	5.5	9.2	
	10	\times	1	446	90	10	7	5.5	9	
	10	\times	1.25	436	100	16	7	5.5	8.8	
	12	\times	1	536	100	11	9	7	11	
	12	\times	1.25	526	100	15	9	7	10.8	
	12	\times	1.5	516	100	15	9	7	10.5	
	14	\times	1.25	566	100	15	11	9	12.8	
	14	\times	1.5	556	100	15	11	9	12.5	
	16	\times	1.5	616	100	15	12	9	14.5	
	18	\times	1.5	676	110	17	14	11	16.5	
	20	\times	1.5	726	125	17	16	12	18.5	
	22	\times	1.5	766	125	17	18	14.5	20.5	
	24	\times	1.5	806	140	20	18	14.5	22.5	

Material
groups

GG

HSS-E

**DIN
374**

6HX

60°

C

NI

See page 311~316

31-32-83

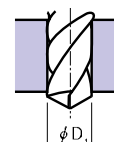
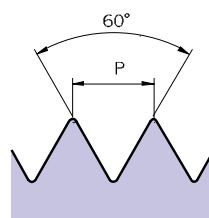
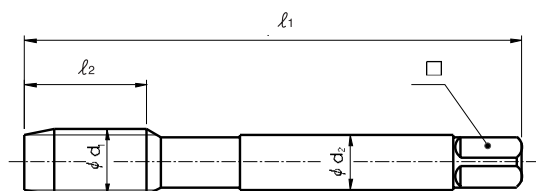
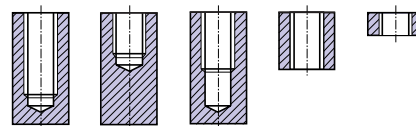
Other materials:
62



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 mm	\times	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
M	4	\times	0.5	256	63	10	2.8	2.1	3.5	
	5	\times	0.5	296	70	11	3.5	2.7	4.5	
	6	\times	0.5	336	80	13	4.5	3.4	5.5	
	6	\times	0.75	326	80	13	4.5	3.4	5.2	
	7	\times	0.75	356	80	14	5.5	4.3	6.2	
	8	\times	0.75	386	80	14	6	4.9	7.2	
	8	\times	1	376	90	17	6	4.9	7	
	10	\times	0.75	456	90	18	7	5.5	9.2	
	10	\times	1	446	90	18	7	5.5	9	
	10	\times	1.25	436	100	22	7	5.5	8.8	
	12	\times	1	536	100	18	9	7	11	
	12	\times	1.25	526	100	22	9	7	10.8	
	12	\times	1.5	516	100	22	9	7	10.5	
	14	\times	1.25	566	100	22	11	9	12.8	
	14	\times	1.5	556	100	22	11	9	12.5	
	16	\times	1.5	616	100	22	12	9	14.5	
	18	\times	1.5	676	110	25	14	11	16.5	
	20	\times	1.5	726	125	25	16	12	18.5	
	22	\times	1.5	766	125	25	18	14.5	20.5	
	24	\times	1.5	806	140	27	18	14.5	22.5	

Material
groups

GS

See page 311~316

HSS

DIN
351

2B

60°



First



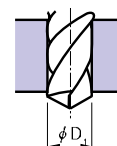
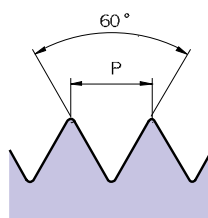
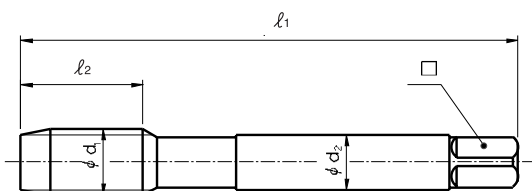
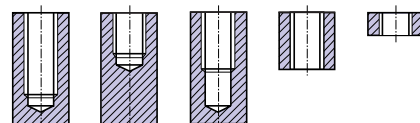
Second



Bottoming

Sets of taps
Gewindebohrer-Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
No.	2	-	56	089	36	9	2.8	2.1	1.8	
	3	-	48	129	40	10	2.8	2.1	2.1	
	4	-	40	169	42	10	3.5	2.7	2.3	
	5	-	40	209	42	10	3.5	2.7	2.6	
	6	-	32	249	45	11	4	3	2.85	
	8	-	32	289	48	12	4.5	3.4	3.5	
	10	-	24	329	52	14	6	4.9	3.9	
	12	-	24	369	56	16	6	4.9	4.5	
UNC	1/4	-	20	409	56	16	6	4.9	5.2	
	5/16	-	18	449	63	20	6	4.9	6.6	
	3/8	-	16	489	70	22	7	5.5	8	
	7/16	-	14	529	70	22	8	6.2	9.4	
	1/2	-	13	569	80	25	9	7	10.75	
	9/16	-	12	609	80	26	11	9	12.25	
	5/8	-	11	649	90	27	12	9	13.5	
	3/4	-	10	709	105	32	14	11	16.5	
	7/8	-	9	749	110	32	18	14.5	19.5	
	1	-	8	789	110	36	20	16	22.25	
	1 * 1/8	-	7	829	125	40	22	18	25	
	1 * 1/4	-	7	869	125	40	25	20	28.25	
	1 * 3/8	-	6	909	150	50	28	22	30.75	
	1 * 1/2	-	6	949	150	50	32	24	34	
	1 * 3/4	-	5	B89	160	58	36	29	39.5	
	2	-	4 1/2	D29	180	65	40	32	45.25	

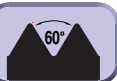
Material
groups

GS

HSS-E

**DIN
371/376**

2B



B



DIN 371



DIN 376

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81

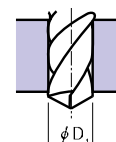
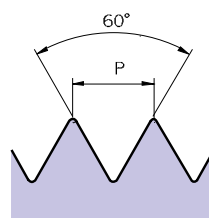
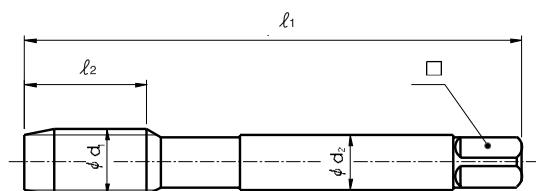
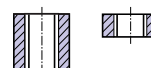
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	11	3.5	2.7	2.3	
	5	-	40	202	56	11	3.5	2.7	2.6	
	6	-	32	242	56	12	4	3	2.85	
	8	-	32	282	63	13	4.5	3.4	3.5	
	10	-	24	322	70	15	6	4.9	3.9	
	12	-	24	362	80	16	6	4.9	4.5	
UNC	1/4	-	20	402	80	17	7	5.5	5.2	
	5/16	-	18	442	90	20	8	6.2	6.6	
	3/8	-	16	482	100	22	9	7	8	
	7/16	-	14	522	100	22	8	6.2	9.4	
	1/2	-	13	562	110	25	9	7	10.75	
	9/16	-	12	602	110	26	11	9	12.25	
	5/8	-	11	642	110	27	12	9	13.5	
	3/4	-	10	702	125	30	14	11	16.5	
	7/8	-	9	742	140	32	18	14.5	19.5	
	1	-	8	782	160	36	20	16	22.25	
	1 * 1/8	-	7	822	180	40	22	18	25	
DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)										

Material
groups

GS

HSS-E

**DIN
371/376**

2B



C



DIN 371



DIN 376

See page 311~316

12-13-14-33-34-74

Other materials:
11-62-63

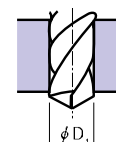
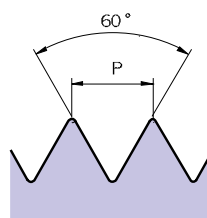
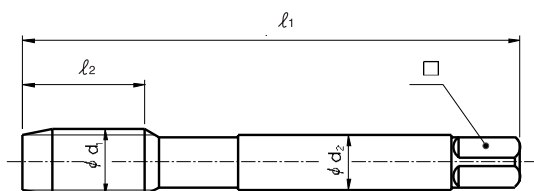
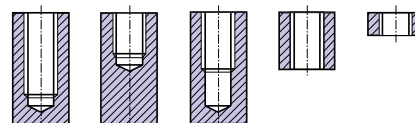
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	11	3.5	2.7	2.3	
	5	-	40	202	56	11	3.5	2.7	2.6	
	6	-	32	242	56	12	4	3	2.85	
	8	-	32	282	63	13	4.5	3.4	3.5	
	10	-	24	322	70	15	6	4.9	3.9	
	12	-	24	362	80	16	6	4.9	4.5	
UNC	1/4	-	20	402	80	17	7	5.5	5.2	
	5/16	-	18	442	90	20	8	6.2	6.6	
	3/8	-	16	482	100	22	9	7	8	
	7/16	-	14	522	100	22	8	6.2	9.4	
	1/2	-	13	562	110	25	9	7	10.75	
	9/16	-	12	602	110	26	11	9	12.25	
	5/8	-	11	642	110	27	12	9	13.5	
	3/4	-	10	702	125	30	14	11	16.5	
	7/8	-	9	742	140	32	18	14.5	19.5	
	1	-	8	782	160	36	20	16	22.25	
	1 * 1/8	-	7	822	180	40	22	18	25	

DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)

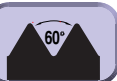
Material
groups

GS

HSS-E

**DIN
371/376**

2B



DIN 371



DIN 376

See page 311~316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73-81

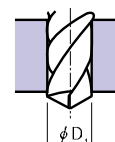
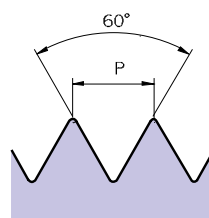
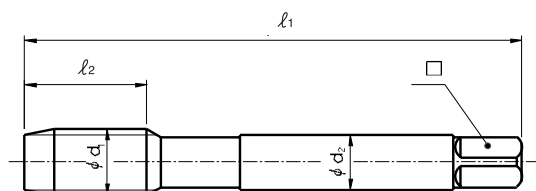
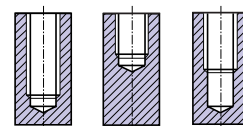
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	6	3.5	2.7	2.3	
	5	-	40	202	56	7	3.5	2.7	2.6	
	6	-	32	242	56	7	4	3	2.85	
	8	-	32	282	63	8	4.5	3.4	3.5	
	10	-	24	322	70	10	6	4.9	3.9	
	12	-	24	362	80	10	6	4.9	4.5	
UNC	1/4	-	20	402	80	13	7	5.5	5.2	
	5/16	-	18	442	90	14	8	6.2	6.6	
	3/8	-	16	482	100	16	9	7	8	
	7/16	-	14	522	100	17	8	6.2	9.4	
	1/2	-	13	562	110	20	9	7	10.75	
	9/16	-	12	602	110	20	11	9	12.25	
	5/8	-	11	642	110	22	12	9	13.5	
	3/4	-	10	702	125	25	14	11	16.5	
	7/8	-	9	742	140	27	18	14.5	19.5	
	1	-	8	782	160	30	20	16	22.25	
	1 * 1/8	-	7	822	180	35	22	18	25	
DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)										

Material
groups

VG

HSS-E

**DIN
371/376**

2B

60°

B

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 376

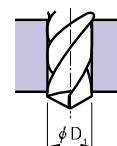
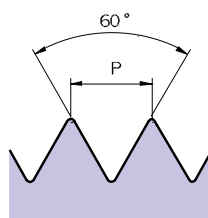
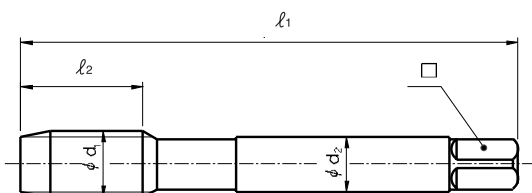
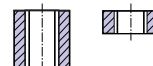
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	11	3.5	2.7	2.3	
	5	-	40	202	56	11	3.5	2.7	2.6	
	6	-	32	242	56	12	4	3	2.85	
	8	-	32	282	63	13	4.5	3.4	3.5	
	10	-	24	322	70	15	6	4.9	3.9	
	12	-	24	362	80	16	6	4.9	4.5	
UNC	1/4	-	20	402	80	17	7	5.5	5.2	
	5/16	-	18	442	90	20	8	6.2	6.6	
	3/8	-	16	482	100	22	9	7	8	
	7/16	-	14	522	100	22	8	6.2	9.4	
	1/2	-	13	562	110	25	9	7	10.75	
	9/16	-	12	602	110	26	11	9	12.25	
	5/8	-	11	642	110	27	12	9	13.5	
	3/4	-	10	702	125	30	14	11	16.5	
	7/8	-	9	742	140	32	18	14.5	19.5	
	1	-	8	782	160	36	20	16	22.25	
	1 * 1/8	-	7	822	180	40	22	18	25	
DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)										

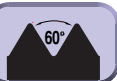
Material
groups

VG

HSS-E

**DIN
371/376**

2B



TiN

See page 311~316

15

Other materials:
14-23-42-52



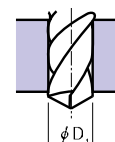
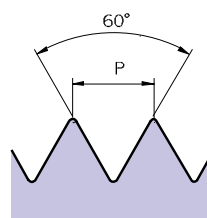
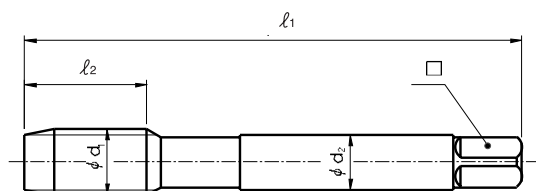
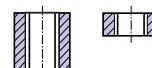
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	11	3.5	2.7	2.3	
	5	-	40	202	56	11	3.5	2.7	2.6	
	6	-	32	242	56	12	4	3	2.85	
	8	-	32	282	63	13	4.5	3.4	3.5	
	10	-	24	322	70	15	6	4.9	3.9	
	12	-	24	362	80	16	6	4.9	4.5	
UNC	1/4	-	20	402	80	17	7	5.5	5.2	
	5/16	-	18	442	90	20	8	6.2	6.6	
	3/8	-	16	482	100	22	9	7	8	
	7/16	-	14	522	100	22	8	6.2	9.4	
	1/2	-	13	562	110	25	9	7	10.75	
	9/16	-	12	602	110	26	11	9	12.25	
	5/8	-	11	642	110	27	12	9	13.5	
	3/4	-	10	702	125	30	14	11	16.5	
	7/8	-	9	742	140	32	18	14.5	19.5	
	1	-	8	782	160	36	20	16	22.25	
	1 * 1/8	-	7	822	180	40	22	18	25	
DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)										

Material
groups

VG

HSS-E

**DIN
371/376**

2B

60°

C

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 376

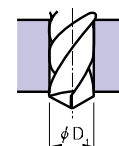
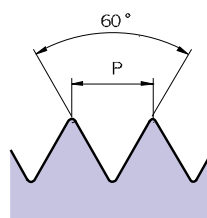
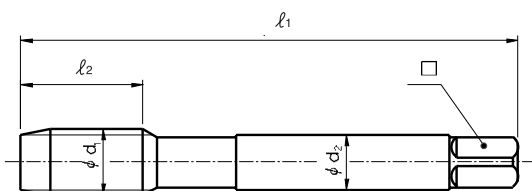
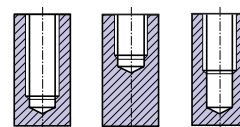
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	6	3.5	2.7	2.3	
	5	-	40	202	56	7	3.5	2.7	2.6	
	6	-	32	242	56	7	4	3	2.85	
	8	-	32	282	63	8	4.5	3.4	3.5	
	10	-	24	322	70	10	6	4.9	3.9	
	12	-	24	362	80	10	6	4.9	4.5	
UNC	1/4	-	20	402	80	13	7	5.5	5.2	
	5/16	-	18	442	90	14	8	6.2	6.6	
	3/8	-	16	482	100	16	9	7	8	
	7/16	-	14	522	100	17	8	6.2	9.4	
	1/2	-	13	562	110	20	9	7	10.75	
	9/16	-	12	602	110	20	11	9	12.25	
	5/8	-	11	642	110	22	12	9	13.5	
	3/4	-	10	702	125	25	14	11	16.5	
	7/8	-	9	742	140	27	18	14.5	19.5	
	1	-	8	782	160	30	20	16	22.25	
	1 * 1/8	-	7	822	180	35	22	18	25	
DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)										

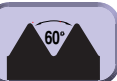
Material
groups

VG

HSS-E

**DIN
371/376**

2B



TiN

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 376

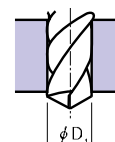
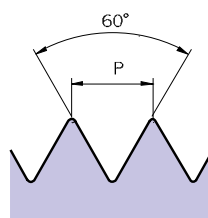
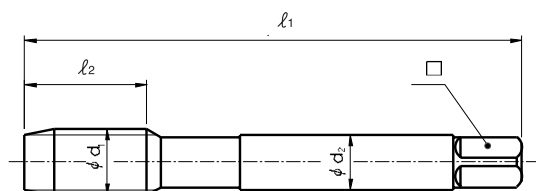
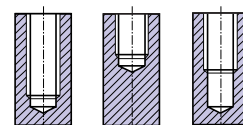
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	6	3.5	2.7	2.3	
	5	-	40	202	56	7	3.5	2.7	2.6	
	6	-	32	242	56	7	4	3	2.85	
	8	-	32	282	63	8	4.5	3.4	3.5	
	10	-	24	322	70	10	6	4.9	3.9	
	12	-	24	362	80	10	6	4.9	4.5	
UNC	1/4	-	20	402	80	13	7	5.5	5.2	
	5/16	-	18	442	90	14	8	6.2	6.6	
	3/8	-	16	482	100	16	9	7	8	
	7/16	-	14	522	100	17	8	6.2	9.4	
	1/2	-	13	562	110	20	9	7	10.75	
	9/16	-	12	602	110	20	11	9	12.25	
	5/8	-	11	642	110	22	12	9	13.5	
	3/4	-	10	702	125	25	14	11	16.5	
	7/8	-	9	742	140	27	18	14.5	19.5	
	1	-	8	782	160	30	20	16	22.25	
	1 * 1/8	-	7	822	180	35	22	18	25	
DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)										

Material
groups

VA
NW

HSS-E

DIN
371/376

2B

60°

B

vap

See page 311~316

16-64

Other materials:
15-23-62-82-83



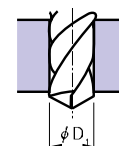
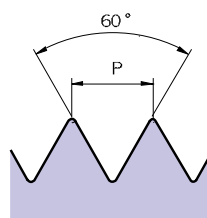
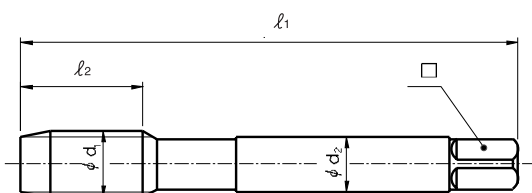
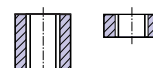
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	11	3.5	2.7	2.3	
	5	-	40	202	56	11	3.5	2.7	2.6	
	6	-	32	242	56	12	4	3	2.85	
	8	-	32	282	63	13	4.5	3.4	3.5	
	10	-	24	322	70	15	6	4.9	3.9	
	12	-	24	362	80	16	6	4.9	4.5	
UNC	1/4	-	20	402	80	17	7	5.5	5.2	
	5/16	-	18	442	90	20	8	6.2	6.6	
	3/8	-	16	482	100	22	9	7	8	
	7/16	-	14	522	100	22	8	6.2	9.4	
	1/2	-	13	562	110	25	9	7	10.75	
	9/16	-	12	602	110	26	11	9	12.25	
	5/8	-	11	642	110	27	12	9	13.5	
	3/4	-	10	702	125	30	14	11	16.5	
	7/8	-	9	742	140	32	18	14.5	19.5	
	1	-	8	782	160	36	20	16	22.25	
	1 * 1/8	-	7	822	180	40	22	18	25	

DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)

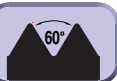
Material
groups

VA
NW

HSS-E

DIN
371/376

2B



vap

See page 311~316

11-12-21-22-23

Other materials:
42-52



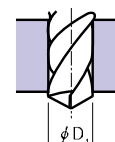
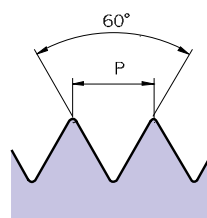
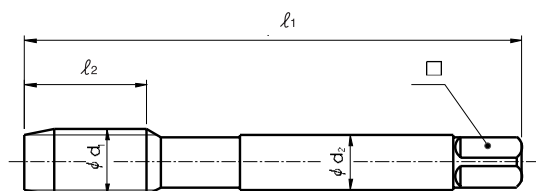
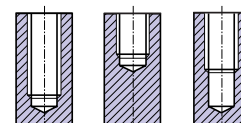
DIN 371



DIN 376

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	6	3.5	2.7	2.3	
	5	-	40	202	56	7	3.5	2.7	2.6	
	6	-	32	242	56	7	4	3	2.85	
	8	-	32	282	63	8	4.5	3.4	3.5	
	10	-	24	322	70	10	6	4.9	3.9	
	12	-	24	362	80	10	6	4.9	4.5	
UNC	1/4	-	20	402	80	13	7	5.5	5.2	
	5/16	-	18	442	90	14	8	6.2	6.6	
	3/8	-	16	482	100	16	9	7	8	
	7/16	-	14	522	100	17	8	6.2	9.4	
	1/2	-	13	562	110	20	9	7	10.75	
	9/16	-	12	602	110	20	11	9	12.25	
	5/8	-	11	642	110	22	12	9	13.5	
	3/4	-	10	702	125	25	14	11	16.5	
	7/8	-	9	742	140	27	18	14.5	19.5	
	1	-	8	782	160	30	20	16	22.25	
	1 * 1/8	-	7	822	180	35	22	18	25	

DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)

Material
groups

GV

HSS-E

**DIN
371/376**

2BX



NI

See page 311~316

11-12-13-14-51-71

Other materials:
21-22-41-61-63-73



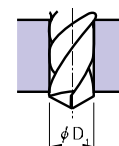
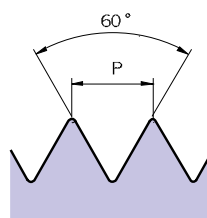
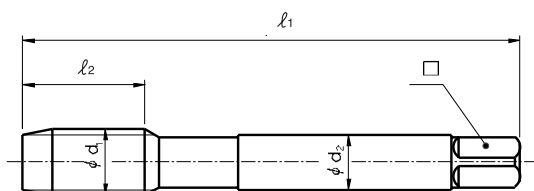
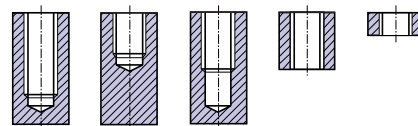
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	5	-	40	202	56	11	3.5	2.7	2.87	
	6	-	32	242	56	12	4	3	3.1	
	8	-	32	282	63	13	4.5	3.4	3.8	
	10	-	24	322	70	15	6	4.9	4.3	
	12	-	24	362	80	16	6	4.9	4.95	
UNC	1/4	-	20	402	80	17	7	5.5	5.75	
	5/16	-	18	442	90	20	8	6.2	7.25	
	3/8	-	16	482	100	22	9	7	8.75	
	7/16	-	14	522	100	22	8	6.2	10.2	
	1/2	-	13	562	110	25	9	7	11.7	
	9/16	-	12	602	110	26	11	9	13.2	
	5/8	-	11	642	110	27	12	9	14.7	
	3/4	-	10	702	125	30	14	11	17.8	

DIN 371(No.4-3/8) and DIN 376(7/16-3/4)

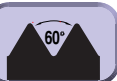
Material
groups

GV

HSS-E

**DIN
371/376**

2BX



TIN

See page 311~316

11-12-13-14-21-22-41-51-61-71

Other materials:
63-73



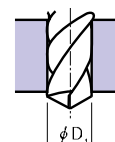
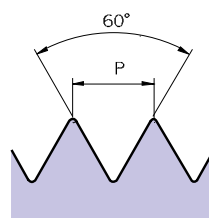
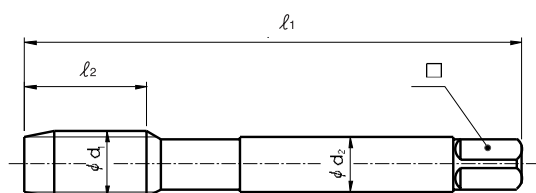
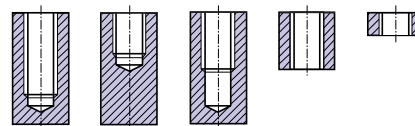
DIN 371



DIN 376

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten
Tarauds a refouler avec goujures de lubr.
Maschi a rullare con canalini di lubr.

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	5	-	40	202	56	11	3.5	2.7	2.87	
	6	-	32	242	56	12	4	3	3.1	
	8	-	32	282	63	13	4.5	3.4	3.8	
	10	-	24	322	70	15	6	4.9	4.3	
	12	-	24	362	80	16	6	4.9	4.95	
UNC	1/4	-	20	402	80	17	7	5.5	5.75	
	5/16	-	18	442	90	20	8	6.2	7.25	
	3/8	-	16	482	100	22	9	7	8.75	
	7/16	-	14	522	100	22	8	6.2	10.2	
	1/2	-	13	562	110	25	9	7	11.7	
	9/16	-	12	602	110	26	11	9	13.2	
	5/8	-	11	642	110	27	12	9	14.7	
	3/4	-	10	702	125	30	14	11	17.8	

DIN 371(No.4-3/8) and DIN 376(7/16-3/4)

Material
groups

Al

HSS-E

**DIN
371/376**

2B

60°

C

See page 311~316

71-72-73

Other materials:



DIN 371



DIN 376

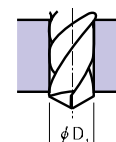
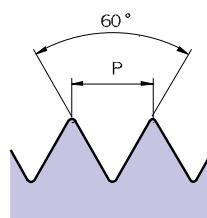
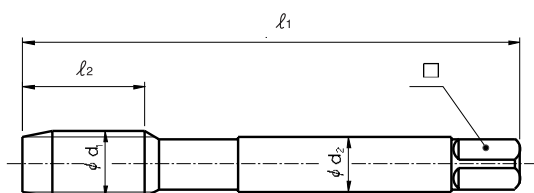
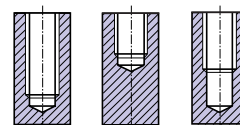
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	40	162	56	6	3.5	2.7	2.3	
	5	-	40	202	56	7	3.5	2.7	2.6	
	6	-	32	242	56	7	4	3	2.85	
	8	-	32	282	63	8	4.5	3.4	3.5	
	10	-	24	322	70	10	6	4.9	3.9	
	12	-	24	362	80	10	6	4.9	4.5	
UNC	1/4	-	20	402	80	13	7	5.5	5.2	
	5/16	-	18	442	90	14	8	6.2	6.6	
	3/8	-	16	482	100	16	9	7	8	
	7/16	-	14	522	100	17	8	6.2	9.4	
	1/2	-	13	562	110	20	9	7	10.75	
	9/16	-	12	602	110	20	11	9	12.25	
	5/8	-	11	642	110	22	12	9	13.5	
	3/4	-	10	702	125	25	14	11	16.5	
	7/8	-	9	742	140	27	18	14.5	19.5	
	1	-	8	782	160	30	20	16	22.25	
	1 * 1/8	-	7	822	180	35	22	18	25	

DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)

Material groups

GG

See page 311~316

31-32-83

Other materials:
62

HSS-E


DIN 371/376


2BX

60°

C

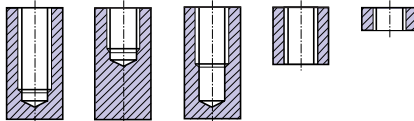
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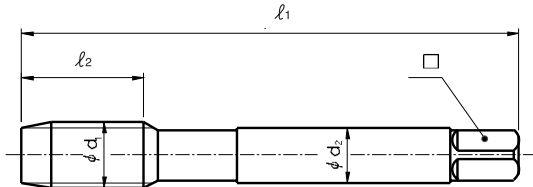

DIN 371

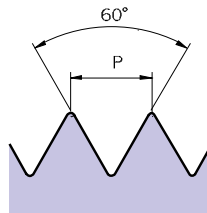

DIN 376

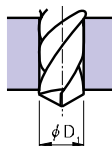
Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole type









ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark	
No.	4	-	40	162	56	11	3.5	2.7	2.3	
	5	-	40	202	56	11	3.5	2.7	2.6	
	6	-	32	242	56	12	4	3	2.85	
	8	-	32	282	63	13	4.5	3.4	3.5	
	10	-	24	322	70	15	6	4.9	3.9	
	12	-	24	362	80	16	6	4.9	4.5	
UNC	1/4	-	20	402	80	17	7	5.5	5.2	
	5/16	-	18	442	90	20	8	6.2	6.6	
	3/8	-	16	482	100	22	9	7	8	
	7/16	-	14	522	100	22	8	6.2	9.4	
	1/2	-	13	562	110	25	9	7	10.75	
	9/16	-	12	602	110	26	11	9	12.25	
	5/8	-	11	642	110	27	12	9	13.5	
	3/4	-	10	702	125	30	14	11	16.5	
	7/8	-	9	742	140	32	18	14.5	19.5	
	1	-	8	782	160	36	20	16	22.25	
	1 * 1/8	-	7	822	180	40	22	18	25	

DIN 371(No.4-3/8) and DIN 376(7/16-1 * 1/8)

Material
groups

GS

See page 311~316

HSS

DIN
2181

2B

60°

I / III



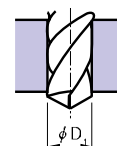
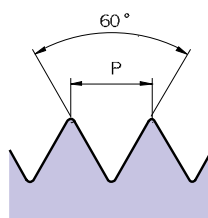
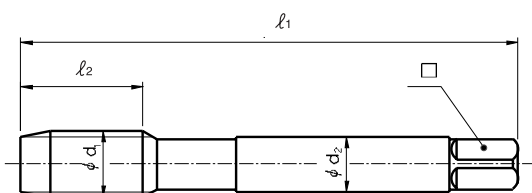
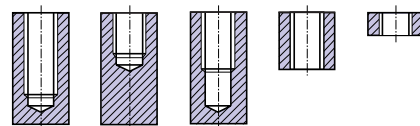
First



Bottoming

Sets of taps
Gewindebohrer-Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
No.	4	-	48	189	42	10	3.5	2.7	2.4	
	5	-	44	229	42	10	3.5	2.7	2.7	
	6	-	40	269	45	11	4	3	3	
	8	-	36	309	48	12	4.5	3.4	3.5	
	10	-	32	349	52	14	6	4.9	4.1	
	12	-	28	389	56	16	6	4.9	4.7	
UNF	1/4	-	28	429	56	16	6	4.9	5.5	
	5/16	-	24	469	63	17	6	4.9	6.9	
	3/8	-	24	509	63	18	7	5.5	8.5	
	7/16	-	20	549	70	20	8	6.2	9.9	
	1/2	-	20	589	70	20	9	7	11.5	
	9/16	-	18	629	70	20	11	9	12.9	
	5/8	-	18	669	70	20	12	9	14.5	
	3/4	-	16	729	80	22	14	11	17.5	
	7/8	-	14	769	80	22	18	14.5	20.5	
	1	-	12	809	90	22	18	14.5	23.25	
	1 * 1/8	-	12	849	90	22	22	18	26.5	

Material
groups

GS

HSS-E

**DIN
371/374**

2B



B



DIN 371



DIN 374

See page 311~316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73-81

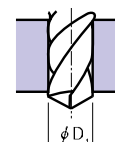
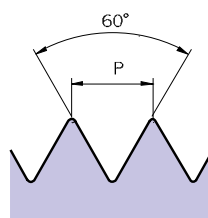
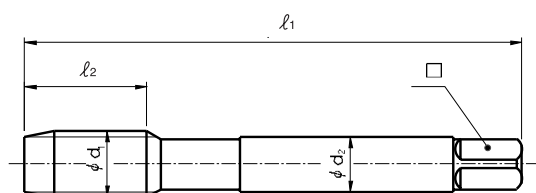
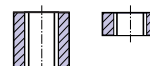
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	48	182	56	11	3.5	2.7	2.4	
	5	-	44	222	56	11	3.5	2.7	2.7	
	6	-	40	262	56	12	4	3	3	
	8	-	36	302	63	13	4.5	3.4	3.5	
	10	-	32	342	70	13	6	4.9	4.1	
	12	-	28	382	80	16	6	4.9	4.7	
UNF	1/4	-	28	422	80	17	7	5.5	5.5	
	5/16	-	24	462	90	17	8	6.2	6.9	
	3/8	-	24	502	100	18	9	7	8.5	
	7/16	-	20	542	100	22	8	6.2	9.9	
	1/2	-	20	582	100	22	9	7	11.5	
	9/16	-	18	622	100	22	11	9	12.9	
	5/8	-	18	662	100	22	12	9	14.5	
	3/4	-	16	722	110	25	14	11	17.5	
	7/8	-	14	762	125	26	18	14.5	20.5	
	1	-	12	802	140	28	20	16	23.25	
	1 * 1/8	-	12	842	150	30	22	18	26.5	
DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)										

Material
groups

GS

HSS-E

**DIN
371/374**

2B

60°

C

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 371



DIN 374

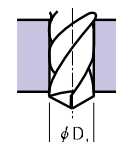
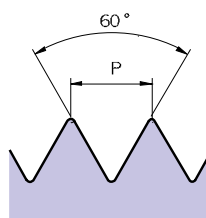
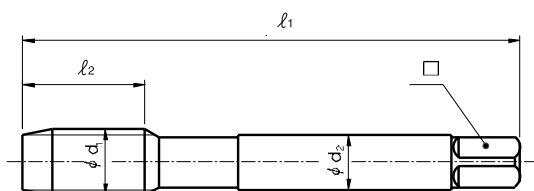
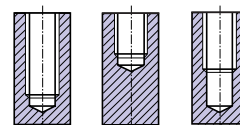
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	48	182	56	6	3.5	2.7	2.4	
	5	-	44	222	56	7	3.5	2.7	2.7	
	6	-	40	262	56	7	4	3	3	
	8	-	36	302	63	8	4.5	3.4	3.5	
	10	-	32	342	70	10	6	4.9	4.1	
	12	-	28	382	80	10	6	4.9	4.7	
UNF	1/4	-	28	422	80	10	7	5.5	5.5	
	5/16	-	24	462	90	10	8	6.2	6.9	
	3/8	-	24	502	100	10	9	7	8.5	
	7/16	-	20	542	100	13	8	6.2	9.9	
	1/2	-	20	582	100	13	9	7	11.5	
	9/16	-	18	622	100	15	11	9	12.9	
	5/8	-	18	662	100	15	12	9	14.5	
	3/4	-	16	722	110	17	14	11	17.5	
	7/8	-	14	762	125	17	18	14.5	20.5	
	1	-	12	802	140	20	20	16	23.25	
	1 * 1/8	-	12	842	150	22	22	18	26.5	
DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)										

Material
groups

VG

HSS-E

**DIN
371/374**

2B



B



See page 311~316

15

Other materials:
14-23-42-52



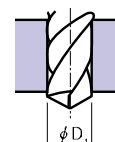
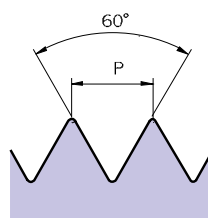
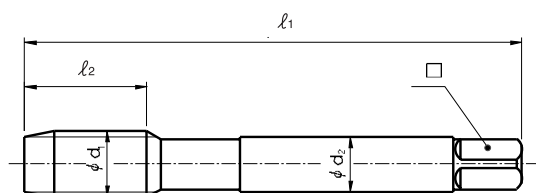
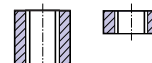
DIN 371



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	48	182	56	11	3.5	2.7	2.4	
	5	-	44	222	56	11	3.5	2.7	2.7	
	6	-	40	262	56	12	4	3	3	
	8	-	36	302	63	13	4.5	3.4	3.5	
	10	-	32	342	70	13	6	4.9	4.1	
	12	-	28	382	80	16	6	4.9	4.7	
UNF	1/4	-	28	422	80	17	7	5.5	5.5	
	5/16	-	24	462	90	17	8	6.2	6.9	
	3/8	-	24	502	100	18	9	7	8.5	
	7/16	-	20	542	100	22	8	6.2	9.9	
	1/2	-	20	582	100	22	9	7	11.5	
	9/16	-	18	622	100	22	11	9	12.9	
	5/8	-	18	662	100	22	12	9	14.5	
	3/4	-	16	722	110	25	14	11	17.5	
	7/8	-	14	762	125	26	18	14.5	20.5	
	1	-	12	802	140	28	20	16	23.25	
	1 * 1/8	-	12	842	150	30	22	18	26.5	
DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)										

Material
groups

VG

HSS-E

**DIN
371/374**

2B

60°

C

See page 311~316

15

Other materials:
14-23-42-52



DIN 371



DIN 374

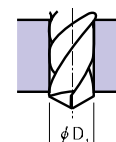
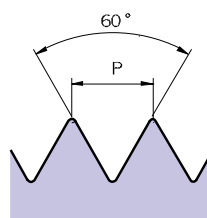
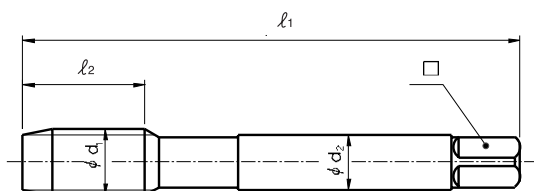
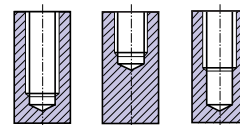
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	48	182	56	6	3.5	2.7	2.4	
	5	-	44	222	56	7	3.5	2.7	2.7	
	6	-	40	262	56	7	4	3	3	
	8	-	36	302	63	8	4.5	3.4	3.5	
	10	-	32	342	70	10	6	4.9	4.1	
	12	-	28	382	80	10	6	4.9	4.7	
UNF	1/4	-	28	422	80	10	7	5.5	5.5	
	5/16	-	24	462	90	10	8	6.2	6.9	
	3/8	-	24	502	100	10	9	7	8.5	
	7/16	-	20	542	100	13	8	6.2	9.9	
	1/2	-	20	582	100	13	9	7	11.5	
	9/16	-	18	622	100	15	11	9	12.9	
	5/8	-	18	662	100	15	12	9	14.5	
	3/4	-	16	722	110	17	14	11	17.5	
	7/8	-	14	762	125	17	18	14.5	20.5	
	1	-	12	802	140	20	20	16	23.25	
	1 * 1/8	-	12	842	150	22	22	18	26.5	

DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)

Material
groups

VA
NW

HSS-E

DIN
371/374

2B



B



vap

See page 311~316

11-12-21-22-23

Other materials:
42-52



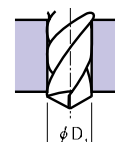
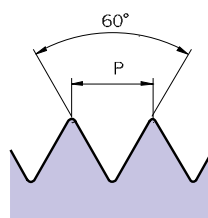
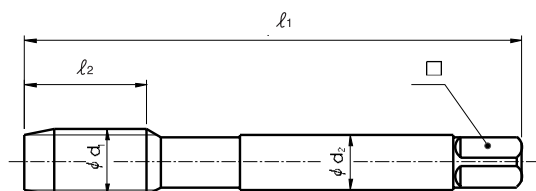
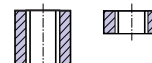
DIN 371



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	48	182	56	11	3.5	2.7	2.4	
	5	-	44	222	56	11	3.5	2.7	2.7	
	6	-	40	262	56	12	4	3	3	
	8	-	36	302	63	13	4.5	3.4	3.5	
	10	-	32	342	70	13	6	4.9	4.1	
	12	-	28	382	80	16	6	4.9	4.7	
UNF	1/4	-	28	422	80	17	7	5.5	5.5	
	5/16	-	24	462	90	17	8	6.2	6.9	
	3/8	-	24	502	100	18	9	7	8.5	
	7/16	-	20	542	100	22	8	6.2	9.9	
	1/2	-	20	582	100	22	9	7	11.5	
	9/16	-	18	622	100	22	11	9	12.9	
	5/8	-	18	662	100	22	12	9	14.5	
	3/4	-	16	722	110	25	14	11	17.5	
	7/8	-	14	762	125	26	18	14.5	20.5	
	1	-	12	802	140	28	20	16	23.25	
	1 * 1/8	-	12	842	150	30	22	18	26.5	
DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)										

Material
groups

VA
NW

HSS-E

DIN
371/374

2B

60°

C

vap

See page 311~316

11-12-21-22-23

Other materials:
42-52



DIN 371



DIN 374

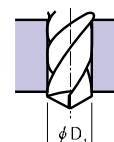
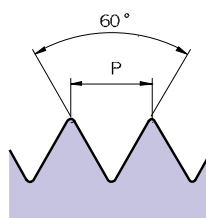
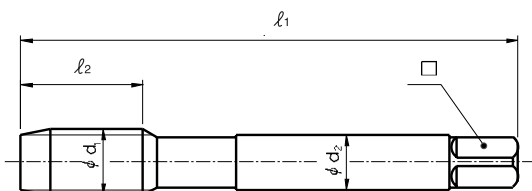
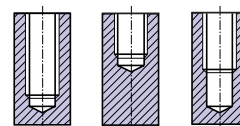
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
No.	4	-	48	182	56	6	3.5	2.7	2.4	
	5	-	44	222	56	7	3.5	2.7	2.7	
	6	-	40	262	56	7	4	3	3	
	8	-	36	302	63	8	4.5	3.4	3.5	
	10	-	32	342	70	10	6	4.9	4.1	
	12	-	28	382	80	10	6	4.9	4.7	
UNF	1/4	-	28	422	80	10	7	5.5	5.5	
	5/16	-	24	462	90	10	8	6.2	6.9	
	3/8	-	24	502	100	10	9	7	8.5	
	7/16	-	20	542	100	13	8	6.2	9.9	
	1/2	-	20	582	100	13	9	7	11.5	
	9/16	-	18	622	100	15	11	9	12.9	
	5/8	-	18	662	100	15	12	9	14.5	
	3/4	-	16	722	110	17	14	11	17.5	
	7/8	-	14	762	125	17	18	14.5	20.5	
	1	-	12	802	140	20	20	16	23.25	
	1 * 1/8	-	12	842	150	22	22	18	26.5	

DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)

Material
groups

Al

HSS-E

**DIN
371/374**

2B



See page 311~316

71-72-73

Other materials:



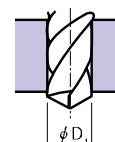
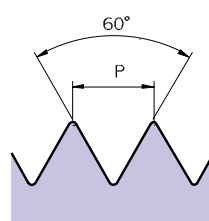
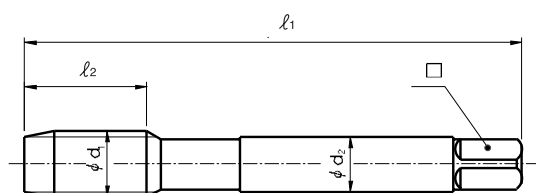
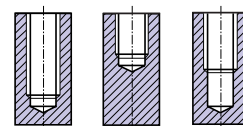
DIN 371



DIN 374

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	48	182	56	6	3.5	2.7	2.4	
	5	-	44	222	56	7	3.5	2.7	2.7	
	6	-	40	262	56	7	4	3	3	
	8	-	36	302	63	8	4.5	3.4	3.5	
	10	-	32	342	70	10	6	4.9	4.1	
	12	-	28	382	80	10	6	4.9	4.7	
UNF	1/4	-	28	422	80	10	7	5.5	5.5	
	5/16	-	24	462	90	10	8	6.2	6.9	
	3/8	-	24	502	100	10	9	7	8.5	
	7/16	-	20	542	100	13	8	6.2	9.9	
	1/2	-	20	582	100	13	9	7	11.5	
	9/16	-	18	622	100	15	11	9	12.9	
	5/8	-	18	662	100	15	12	9	14.5	
	3/4	-	16	722	110	17	14	11	17.5	
	7/8	-	14	762	125	17	18	14.5	20.5	
	1	-	12	802	140	20	20	16	23.25	
	1 * 1/8	-	12	842	150	22	22	18	26.5	
DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)										

Material
groups

GG

HSS-E

**DIN
371/374**

2B

60°

C

NI

See page 311~316

31-32-83

Other materials:
62



DIN 371



DIN 374

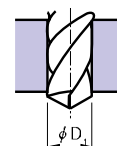
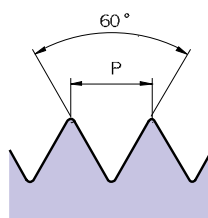
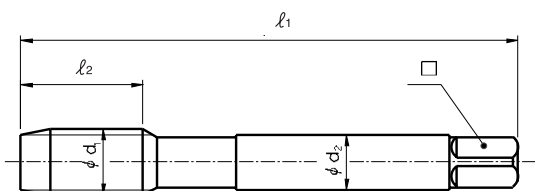
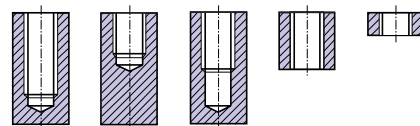
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
No.	4	-	48	182	56	11	3.5	2.7	2.4	
	5	-	44	222	56	11	3.5	2.7	2.7	
	6	-	40	262	56	12	4	3	3	
	8	-	36	302	63	13	4.5	3.4	3.5	
	10	-	32	342	70	13	6	4.9	4.1	
	12	-	28	382	80	16	6	4.9	4.7	
UNF	1/4	-	28	422	80	17	7	5.5	5.5	
	5/16	-	24	462	90	17	8	6.2	6.9	
	3/8	-	24	502	100	18	9	7	8.5	
	7/16	-	20	542	100	22	8	6.2	9.9	
	1/2	-	20	582	100	22	9	7	11.5	
	9/16	-	18	622	100	22	11	9	12.9	
	5/8	-	18	662	100	22	12	9	14.5	
	3/4	-	16	722	110	25	14	11	17.5	
	7/8	-	14	762	125	26	18	14.5	20.5	
	1	-	12	802	140	28	20	16	23.25	
	1 * 1/8	-	12	842	150	30	22	18	26.5	
DIN 371(No.4-3/8) and DIN 374(7/16-1 * 1/8)										

Material
groups

GS

See page 311~316

HSS

DIN
351

-

55°



First



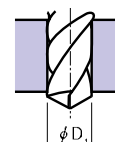
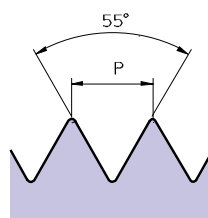
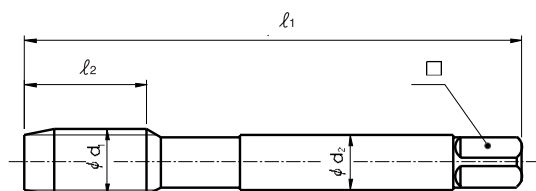
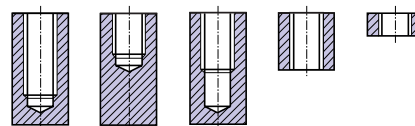
Second



Bottoming

Sets of taps
Gewindebohrer-Satz
Jeu de tarauds
Serie di maschi

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
W	3/32	-	48	129	40	10	2.8	2.1	1.8	
	1/8	-	40	209	42	10	3.5	2.7	2.5	
	5/32	-	32	289	48	12	4.5	3.4	3.1	
	3/16	-	24	329	52	14	6	4.9	3.6	
	7/32	-	24	369	56	16	6	4.9	4.4	
	1/4	-	20	409	56	16	6	4.9	5.1	
	5/16	-	18	449	63	20	6	4.9	6.5	
	3/8	-	16	489	70	22	7	5.5	7.9	
	7/16	-	14	529	70	22	8	6.2	9.3	
	1/2	-	12	569	80	25	9	7	10.5	
	9/16	-	12	609	80	26	11	9	12	
	5/8	-	11	649	90	27	12	9	13.5	
	3/4	-	10	709	105	32	14	11	16.5	
	7/8	-	9	749	110	32	18	14.5	19.25	
	1	-	8	789	110	36	20	16	22	
	1 * 1/8	-	7	829	125	40	22	18	24.75	
	1 * 1/4	-	7	869	125	40	25	20	27.75	
	1 * 3/8	-	6	909	150	50	28	22	30.5	
	1 * 1/2	-	6	949	150	50	32	24	33.5	
	1 * 5/8	-	5	B29	150	56	32	24	35.5	
	1 * 3/4	-	5	B89	160	58	36	29	39	
	1 * 7/8	-	4 1/2	C69	180	65	36	29	41.5	
	2	-	4 1/2	D29	180	65	40	32	44.5	

Material
groups

GS

HSS-E

DIN
2182/2183

-

55°

B

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81



DIN 2182



DIN 2183

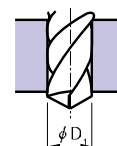
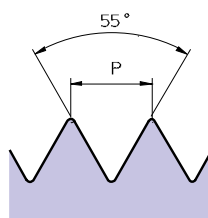
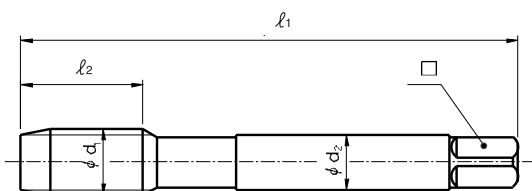
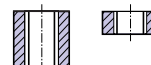
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
W 1/8	-	40	200	56	11	3.5	2.7	2.5	
5/32	-	32	280	63	13	4.5	3.4	3.1	
3/16	-	24	320	70	15	6	4.9	3.6	
7/32	-	24	360	80	16	6	4.9	4.4	
1/4	-	20	400	80	17	7	5.5	5.1	
5/16	-	18	440	90	20	8	6.2	6.5	
3/8	-	16	480	100	22	9	7	7.9	
7/16	-	14	520	100	22	8	6.2	9.3	
1/2	-	12	560	110	25	9	7	10.5	
9/16	-	12	600	110	26	11	9	12	
5/8	-	11	640	110	27	12	9	13.5	
3/4	-	10	700	125	30	14	11	16.5	
7/8	-	9	740	140	32	18	14.5	19.25	
1	-	8	780	160	36	20	16	22	
1 * 1/8	-	7	820	180	40	22	18	24.75	

DIN 2182(W1/8-W3/8) and DIN 2183(W7/16-W1 * 1/8)

Material
groups

GS

HSS-E

DIN
2182/2183

-



DIN 2182



DIN 2183

See page 311~316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73-81

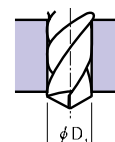
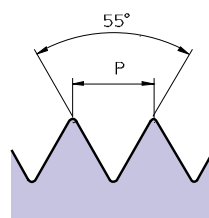
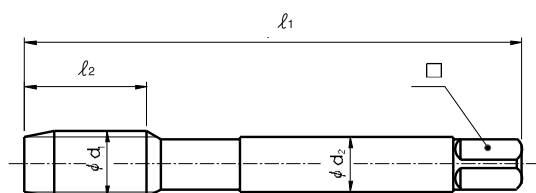
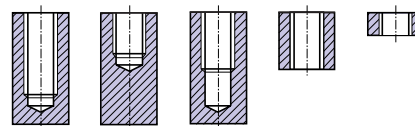
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
W 1/8	-	40	200	56	7	3.5	2.7	2.5	
5/32	-	32	280	63	7	4.5	3.4	3.1	
3/16	-	24	320	70	10	6	4.9	3.6	
7/32	-	24	360	80	10	6	4.9	4.4	
1/4	-	20	400	80	13	7	5.5	5.1	
5/16	-	18	440	90	14	8	6.2	6.5	
3/8	-	16	480	100	16	9	7	7.9	
7/16	-	14	520	100	17	8	6.2	9.3	
1/2	-	12	560	110	20	9	7	10.5	
9/16	-	12	600	110	20	11	9	12	
5/8	-	11	640	110	22	12	9	13.5	
3/4	-	10	700	125	25	14	11	16.5	
7/8	-	9	740	140	27	18	14.5	19.25	
1	-	8	780	160	30	20	16	22	
1 * 1/8	-	7	820	180	35	22	18	24.75	

DIN 2182(W1/8-W3/8) and DIN 2183(W7/16-W1 * 1/8)



Whitworth Pipe threads DIN ISO 228/1 Whitworth Rohrgewinde DIN ISO 228/1

Cat.-No. **T7709**

Material
groups

GS

See page 311~316

HSS-E

**DIN
5157**

-

55°

I / III



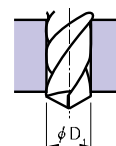
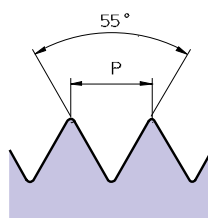
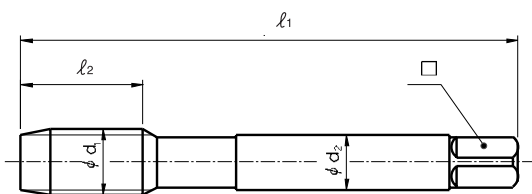
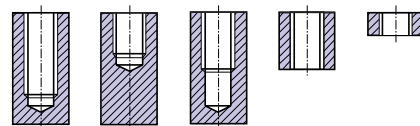
First



Bottoming

Sets of taps
Gewindebohrer-Satz
Jeu de tarauds
Serie di maschi

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
G 1/16	-	28	029	63	17	6	4.9	6.8	
1/8	-	28	209	63	18	7	5.5	8.8	
1/4	-	19	409	70	20	11	9	11.8	
3/8	-	19	489	70	20	12	9	15.25	
1/2	-	14	569	80	22	16	12	19	
3/4	-	14	709	90	22	20	16	24.5	
1	-	11	789	100	25	25	20	30.75	
1 * 1/4	-	11	869	125	30	32	24	39.5	
1 * 1/2	-	11	949	140	30	36	29	45.20	

Material
groups

GS

HSS-E

**DIN
5156**

-

55°

B



DIN 5156

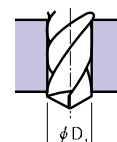
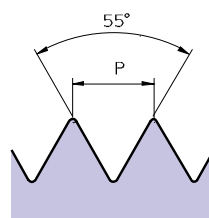
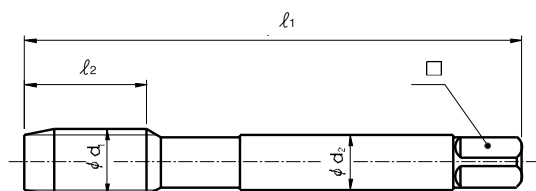
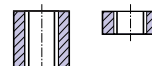
See page 311~316

12-13-14-33-34-63-74

Other materials:
41-51-61-71-72-73-81

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
G 1/8	-	28	200	90	18	7	5.5	8.8	
1/4	-	19	400	100	22	11	9	11.8	
3/8	-	19	480	100	22	12	9	15.25	
1/2	-	14	560	125	25	16	12	19	
3/4	-	14	700	140	28	20	16	24.5	
1	-	11	780	160	32	25	20	30.75	



Whitworth pipe threads DIN ISO 228/1 Whitworth Rohrgewinde DIN ISO 228/1

Cat.-No. **TC728**

Material
groups

GS

HSS-E

**DIN
5156**

-

55°

C



DIN 5156

See page 311~316

12-13-14-33-34-63-74

Other materials:

41-51-61-71-72-73-81

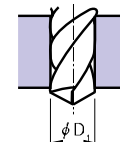
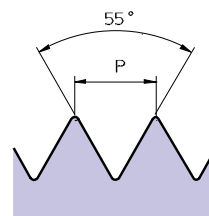
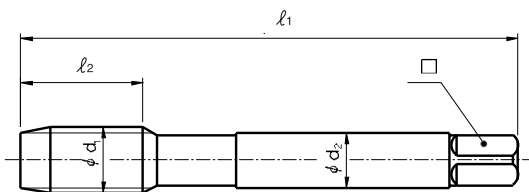
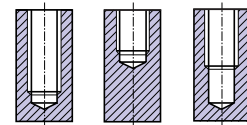
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
G 1/8	-	28	200	90	10	7	5.5	8.8	
1/4	-	19	400	100	14	11	9	11.8	
3/8	-	19	480	100	15	12	9	15.25	
1/2	-	14	560	125	17	16	12	19	
3/4	-	14	700	140	20	20	16	24.5	
1	-	11	780	160	24	25	20	30.75	

TAPS



Whitworth pipe threads DIN ISO 228/1 Whitworth Rohrgewinde DIN ISO 228/1

Cat.-No. **TC729**

Material
groups

VG

HSS-E

**DIN
5156**

-

55°

C



DIN 5156

See page 311~316

15

Other materials:
14-23-42-52

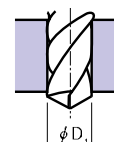
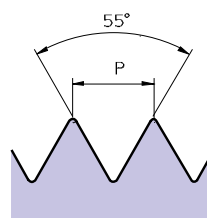
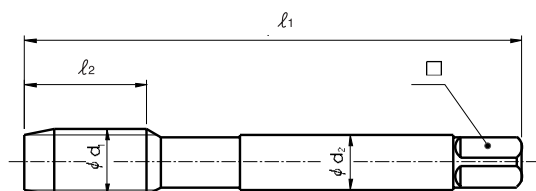
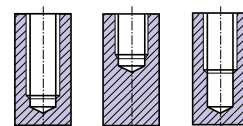
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
G 1/8	-	28	200	90	10	7	5.5	8.8	
1/4	-	19	400	100	14	11	9	11.8	
3/8	-	19	480	100	15	12	9	15.25	
1/2	-	14	560	125	17	16	12	19	
3/4	-	14	700	140	20	20	16	24.5	
1	-	11	780	160	24	25	20	30.75	



Whitworth pipe threads DIN ISO 228/1 Whitworth Rohrgewinde DIN ISO 228/1

Cat.-No. **TB514**

Material
groups

VA
NW

HSS-E

DIN
5156

-

55°

C

vap

See page 311~316

11-12-21-22-23

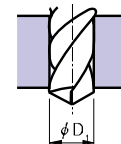
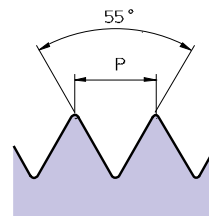
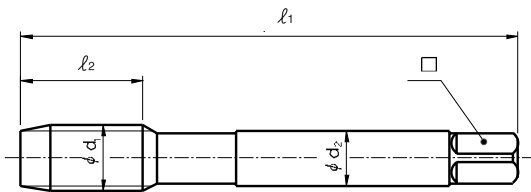
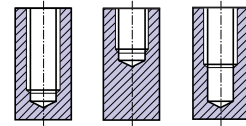
Other materials:
42-52



DIN 5156

Machine taps
Maschinengewindebohrer
Tarauds machine
Maschi a macchina

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
G 1/8	-	28	200	90	10	7	5.5	8.8	
1/4	-	19	400	100	14	11	9	11.8	
3/8	-	19	480	100	15	12	9	15.25	
1/2	-	14	560	125	17	16	12	19	
3/4	-	14	700	140	20	20	16	24.5	
1	-	11	780	160	24	25	20	30.75	

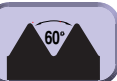
Material
groups

Al

HSS-E

DIN
=371/376

6H Mod.



See page 311~316

61-71-72-73

Other materials:
11-12-13-41



DIN 371



DIN 376

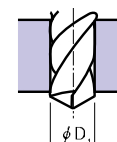
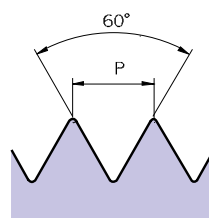
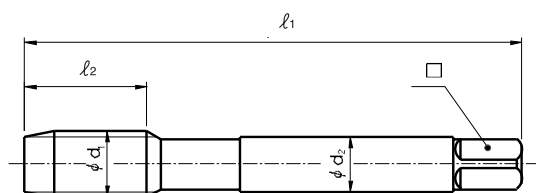
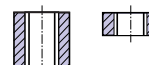
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 mm	-	P mm	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
EG-M	2.5	x	0.45	176	56	11	3.5	2.7	2.65	
	3	x	0.5	206	63	10	4.5	3.4	3.15	
	3.5	x	0.6	226	70	14	6	4.9	3.7	
	4	x	0.7	246	70	13	6	4.9	4.2	
	5	x	0.8	286	80	13	6	4.9	5.25	
	6	x	1	316	90	17	8	6.2	6.3	
	8	x	1.25	366	100	18	10	8	8.4	
	10	x	1.5	426	110	22	9	7	10.4	
	12	x	1.75	506	110	26	11	9	12.5	
	14	x	2	546	110	27	12	9	14.5	
	16	x	2	606	125	27	14	11	16.5	
	18	x	2.5	656	140	32	18	14.5	18.75	
	20	x	2.5	706	160	34	18	14.5	20.75	

DIN 371(M2.5-M8) and DIN 376(M10-M20)

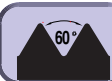
Material
groups

Al

HSS-E

DIN
=371/376

6H Mod.



See page 311~316

61-71-72-73

Other materials:
11-12-13-41



DIN 371



DIN 376

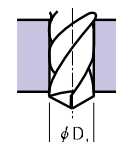
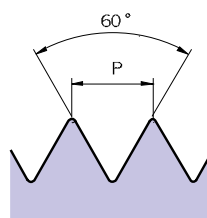
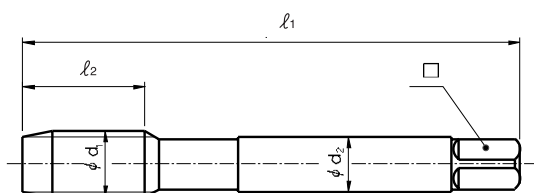
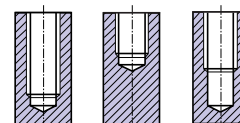
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 mm	-	P mm	EDP No.	l_1	l_2	ϕd_2	□	Tapping drill diameter	Remark
EG-M 2.5	x	0.45	176	56	6	3.5	2.7	2.65	
3	x	0.5	206	63	5	4.5	3.4	3.15	
3.5	x	0.6	226	70	8	6	4.9	3.7	
4	x	0.7	246	70	8	6	4.9	4.2	
5	x	0.8	286	80	8	6	4.9	5.25	
6	x	1	316	90	10	8	6.2	6.3	
8	x	1.25	366	100	16	10	8	8.4	
10	x	1.5	426	110	15	9	7	10.4	
12	x	1.75	506	110	20	11	9	12.5	
14	x	2	546	110	22	12	9	14.5	
16	x	2	606	125	20	14	11	16.5	
18	x	2.5	656	140	27	18	14.5	18.75	
20	x	2.5	706	160	30	18	14.5	20.75	

DIN 371(M2.5-M8) and DIN 376(M10-M20)

Material
groups

Al

HSS-E

DIN
=371/376

2B



B



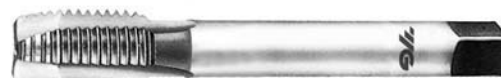
See page 311~316

61-71-72-73

Other materials:
11-12-13-41



DIN 371



DIN 376

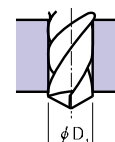
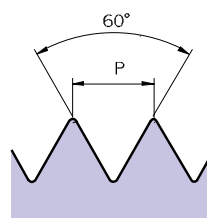
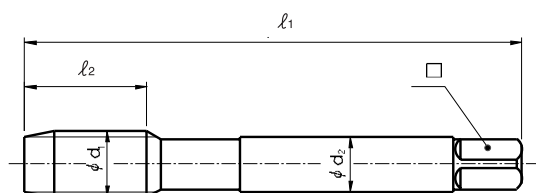
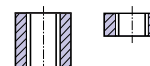
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
EG-No.	4	-	40	162	63	13	4.5	3.4	3.1	
	5	-	40	202	63	13	4.5	3.4	3.4	
	6	-	32	242	70	14	6	4.9	3.8	
	8	-	32	282	80	13	6	4.9	4.4	
	10	-	24	322	80	17	7	5.5	5.2	
	12	-	24	362	80	17	7	5.5	5.8	
EG-UNC	1/4	-	20	402	90	20	8	6.2	6.7	
	5/16	-	18	442	100	22	10	8	8.4	
	3/8	-	16	482	110	21	12	9	10.0	
	7/16	-	14	522	110	26	11	9	11.6	
	1/2	-	13	562	110	27	12	9	13.3	
	9/16	-	12	602	125	26	14	11	15	
	5/8	-	11	642	125	30	14	11	16.5	
	3/4	-	10	702	140	32	18	14.5	19.75	

DIN 371(No.4-3/8) and DIN 376(7/16-3/4)

EG-UNC

Unified coarse threads for wire inserts
Unified Regelgew.f.Gew.Drahteins

Cat.-No. **TC944**

Material
groups

Al

HSS-E

**DIN
371/376**

2B

60°

C

See page 311~316

61-71-72-73

Other materials:
11-12-13-41



DIN 371



DIN 376

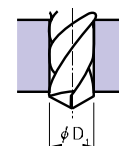
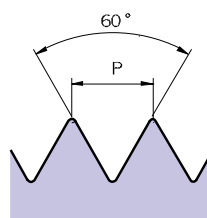
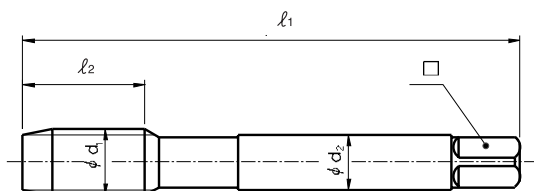
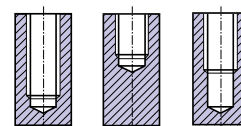
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
EG-No. 4	-	40	162	63	7	4.5	3.4	3.1	
5	-	40	202	63	7	4.5	3.4	3.4	
6	-	32	242	70	8	6	4.9	3.8	
8	-	32	282	80	8	6	4.9	4.4	
10	-	24	322	80	10	7	5.5	5.2	
12	-	24	362	80	10	7	5.5	5.8	
EG-UNC 1/4	-	20	402	90	14	8	6.2	6.7	
5/16	-	18	442	100	16	10	8	8.4	
3/8	-	16	482	110	16	12	9	10.0	
7/16	-	14	522	110	20	11	9	11.6	
1/2	-	13	562	110	22	12	9	13.3	
9/16	-	12	602	125	22	14	11	15	
5/8	-	11	642	125	25	14	11	16.5	
3/4	-	10	702	140	27	18	14.5	19.75	

DIN 371(No.4-3/8) and DIN 376(7/16-3/4)

EG-UNF

Unified fine threads for wire inserts
Unified Feingew.f.Gew.Drahteins

Cat.-No. **TC954**

Material
groups

Al

HSS-E

**DIN
371/374**

2B



B



DIN 371



DIN 374

See page 311~316

61-71-72-73

Other materials:
11-12-13

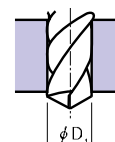
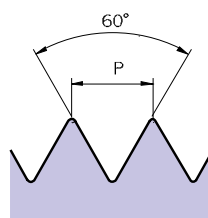
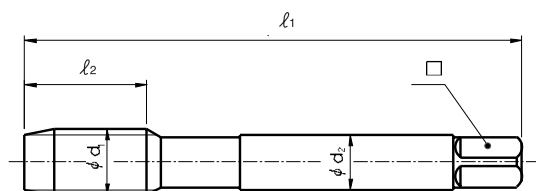
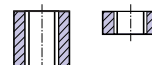
Machine taps

Maschinengewindebohrer

Tarauds machine

Maschi a macchina

Hole
type



EG-No.	ϕd_1 inch	-	TPI inch	EDP No.	l_1	l_2	ϕd_2	\square	Tapping drill diameter	Remark
4	4	-	48	182	56	12	4	3	3.1	
6	6	-	40	262	70	14	6	4.9	3.7	
8	8	-	36	302	70	13	6	4.9	4.4	
10	10	-	32	342	80	13	6	4.9	5.1	
EG-UNF 1/4	1/4	-	28	422	90	17	8	6.2	6.6	
5/16	5/16	-	24	462	100	18	10	8	8.25	
3/8	3/8	-	24	502	110	18	12	9	9.8	
7/16	7/16	-	20	542	100	22	9	7	11.5	
1/2	1/2	-	20	582	100	22	11	9	13.1	
9/16	9/16	-	18	622	100	22	12	9	14.75	
5/8	5/8	-	18	662	110	25	14	11	16.25	
3/4	3/4	-	16	722	125	25	16	12	19.5	

DIN 371(No.4-3/8) and DIN 374(7/16-3/4)



TAPS TERMINOLOGY

DRILL SIZES BEFORE TAPPING

TAP TOLERANCE

INTERESTING HINTS FOR TAPPING

APPLICATION AND USE OF THREADING TAPS

RESHARPENING

IMPORTANT RECOMMENDATIONS

ORDERS/INQUIRIES OF SPECIAL TAPS

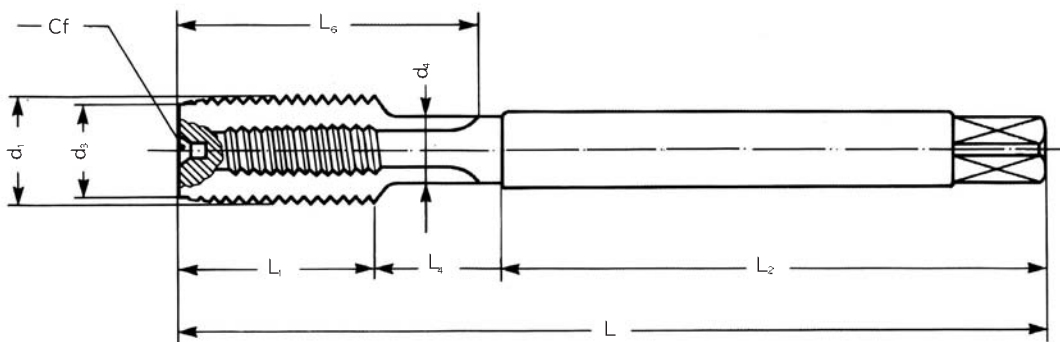
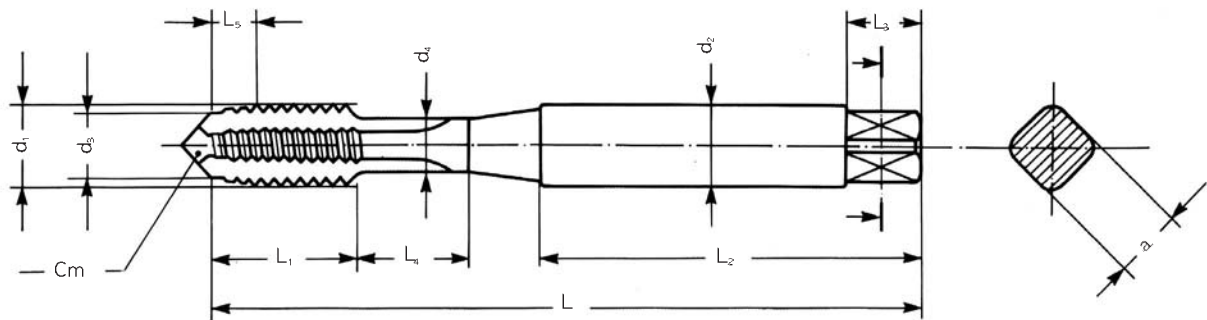
SEND US YOUR TAPPING PROBLEM

MAIN THREAD SYMBOLS

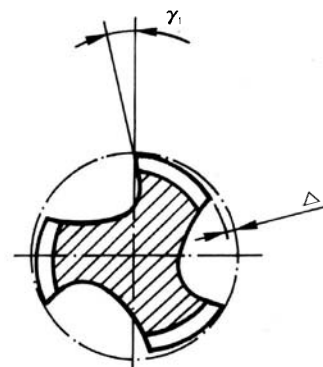
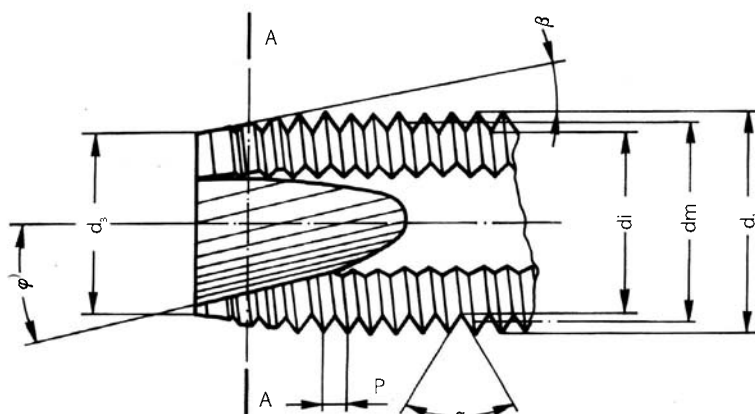
TAPS TERMINOLOGY

TERMINOLOGIE DES TARAUDS

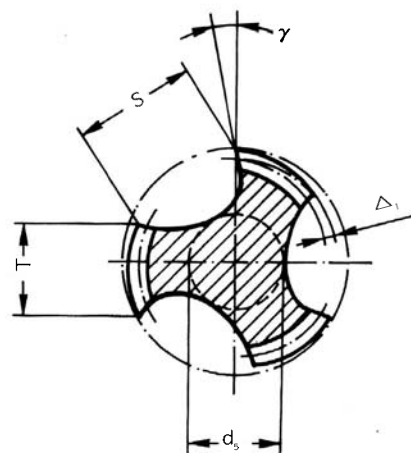
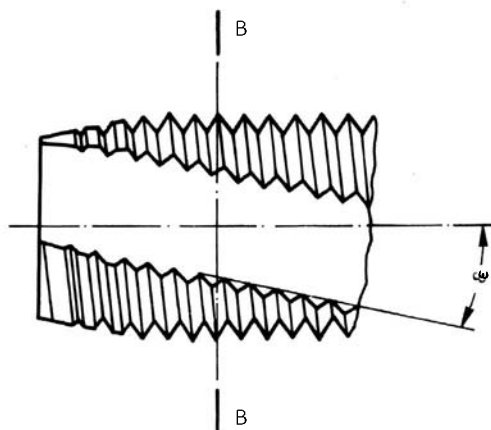
TECHNISCHE BEGRIFFE BEI GEWINDEBOHRERN



d ₁ Major diameter	d ₁ Diamètre externe nominal	d ₁ Nenn Aussendurchmesser
d ₂ Shank diameter	d ₂ Diamètre de la queue	d ₂ Schaftdurchmesser
d ₃ Chamfer diameter	d ₃ Diamètre de l'entrée	d ₃ Anschnittdurchmesser
d ₄ Neck diameter	d ₄ Diamètre de la collerette	d ₄ Bunddurchmesser
L Total length	L Longueur totale	L Gesamtlänge
L ₁ Thread length	L ₁ Longueur de la partie filetée	L ₁ Gewindelänge
L ₂ Shank length	L ₂ Longueur de la queue	L ₂ Schaftlänge
L ₃ Square length	L ₃ Longueur du carré	L ₃ Vierkantlänge
L ₄ Neck length	L ₄ Longueur de la collerette	L ₄ Bundlänge
L ₅ Chamfer length	L ₅ Longueur de l'entrée	L ₅ Anschnittlänge
L ₆ Flutes length	L ₆ Longueur des goujures	L ₆ Nutenlänge
a Square	a Carré	a Vierkantmaß
Cm Center male	Cm Centre mâle	Cm Mittelpunkt des Aussengewindes
Cf Center female	Cf Centre femelle	Cf Mittelpunkt des Innengewindes



A-A



B-B

d_1 Major diameter
 d_m Flank diameter
 d_i Minor diameter
 d_3 Chamfer diameter
 P Pitch
 a Flank angle
 β Chamfer angle
 φ Gun nose angle
 γ Gun nose rake angle in front
 Δ Chamfer relief
 Δ_1 Pitch diameter relief
on the land
 γ Rake angle
 T Width of land
 S Flute width
 d_5 Web thickness
 ϵ Angle of spiral flute

d_1 Diamètre externe nominal
 d_m Diamètre moyen
 d_i Diamètre interne
 d_3 Diamètre de l'entrée
 P Pas
 a Angle du filet
 β Demi-angle du cône d'entrée
 φ Angle de l'entrée GUN
 γ_1 Angle de coupe sur
l'entrée GUN
 Δ Détalonnage sur l'entrée
 Δ_1 Détalonnage sur le filet
 γ Angle de coupe frontale
 T Largeur des dents
 S Largeur des goujures
 d_5 Diamètre de l'âme
 ϵ Angle d'hélice des goujures

d_1 Nenn Aussendurchmesser
 d_m Flankendurchmesser
 d_i Kerndurchmesser
 d_3 Anschnittdurchmesser
 P Steigung
 a Flankenwinkel
 β Anschnittwinkel
 φ Schälschnittwinkel
 γ_1 Schälschnitt-Spanwinkel
 Δ Hinterschliff am Anschnitt
 Δ_1 Flankenhinterschliff auf
Zahnbreite
 γ Spanwinkel
 T Zahnstollenbreite
 S Nutenbreite
 d_5 Seelendicke
 ϵ Spiralwinkel

DRILL SIZES BEFORE TAPPING

Metric-ISO threads coarse pitch			
M	Pitch mm.	Maximun core dia. mm.	Drill size mm.
1	0,25	0,785	0,75
1,1	0,25	0,885	0,85
1,2	0,25	0,985	0,95
1,4	0,30	1,160	1,10
1,6	0,35	1,321	1,25
1,7	0,35	1,346	1,30
1,8	0,35	1,521	1,45
2	0,40	1,679	1,60
2,2	0,45	1,838	1,75
2,3	0,40	1,920	1,90
2,5	0,45	2,138	2,05
2,6	0,45	2,176	2,10
3	0,50	2,599	2,50
3,5	0,60	3,010	2,90
4	0,70	3,422	3,30
4,5	0,75	3,878	3,70
5	0,80	4,334	4,20
6	1,00	5,153	5,00
7	1,00	6,153	6,00
8	1,25	6,912	6,80
9	1,25	7,912	7,80
10	1,50	8,676	8,50
11	1,50	9,676	9,50
12	1,75	10,441	10,20
14	2,00	12,210	12,00
16	2,00	14,210	14,00
18	2,50	15,744	15,50
20	2,50	17,744	17,50
22	2,50	19,744	19,50
24	3,00	21,252	21,00
27	3,00	24,252	24,00
30	3,50	26,771	26,50
33	3,50	29,771	29,50
36	4,00	32,270	32,00
39	4,00	35,270	35,00
42	4,50	37,799	37,50
45	4,50	40,799	40,50
48	5,00	43,297	43,00
52	5,00	47,297	47,00
56	5,50	50,796	50,50
60	5,50	54,796	54,50
64	6,00	58,305	58,00
68	6,00	62,305	62,00

Metric-ISO threads fine pitch			
MF	Pitch mm.	Maximun core dia. mm.	Drill size mm.
2,5	0,35	2,221	2,15
3	0,35	2,271	2,65
3,5	0,35	3,221	3,15
4	0,50	3,599	3,50
4,5	0,50	4,099	4,00
5	0,50	4,599	4,50
5,5	0,50	5,099	5,00
6	0,75	5,378	5,20
7	0,75	6,378	6,20
8	0,75	7,378	7,20
8	1,00	7,153	7,00
9	0,75	8,378	8,20
9	1,00	8,153	8,00
10	0,75	9,378	9,20
10	1,00	9,153	9,00
10	1,25	8,912	8,80
11	0,75	10,378	10,20
11	1,00	10,153	10,00
12	1,00	11,153	11,00
12	1,25	10,912	10,80
12	1,50	10,676	10,50
14	1,00	13,153	13,00
14	1,25	12,912	12,80
14	1,50	12,676	12,50
15	1,00	14,153	14,00
15	1,50	13,676	13,50
16	1,00	15,153	15,00
16	1,50	14,676	14,50
17	1,00	16,153	16,00
17	1,50	15,676	15,50
18	1,00	17,153	17,00
18	1,50	16,676	16,50
18	2,00	16,210	16,00
20	1,00	19,153	19,00
20	1,50	18,676	18,50
20	2,00	18,210	18,00
22	1,00	21,153	21,00
22	1,50	20,676	20,50
22	2,00	20,210	20,00
24	1,00	23,153	23,00
24	1,50	22,676	22,50
24	2,00	22,210	22,00
25	1,00	24,153	24,00
25	1,50	23,676	23,50

Metric-ISO threads fine pitch			
MF	Pitch mm.	Maximun core dia. mm.	Drill size mm.
25	2,00	23,210	23,00
26	1,50	24,676	24,50
27	1,00	26,153	26,00
27	1,50	25,676	25,50
27	2,00	25,210	25,00
28	1,00	27,153	27,00
28	1,50	26,676	26,50
28	2,00	26,210	26,00
30	1,00	29,153	29,00
30	1,50	28,676	28,50
30	2,00	28,210	28,00
30	3,00	27,252	27,00
32	1,50	30,675	30,50
32	2,00	30,210	30,00
33	1,50	31,676	31,50
33	2,00	31,210	31,00
33	3,00	30,252	30,00
35	1,50	33,676	33,50
36	1,50	34,676	34,50
36	2,00	34,210	34,00
36	3,00	33,252	33,00
38	1,50	36,676	36,50
39	1,50	37,676	37,50
39	2,00	37,210	37,00
39	3,00	36,252	36,00
40	1,50	38,676	38,50
40	2,00	38,210	38,00
40	3,00	37,252	37,00
42	1,50	40,676	40,50
42	2,00	40,210	40,00
42	3,00	39,252	39,00
45	1,50	43,676	43,50
45	2,00	43,210	43,00
45	3,00	42,252	42,00
48	1,50	46,676	46,50
48	2,00	46,210	46,00
48	3,00	45,252	45,00
50	1,50	48,676	48,50
50	2,00	48,210	48,00
50	3,00	47,252	47,00
52	1,50	50,676	50,50
52	2,00	50,210	50,00
52	3,00	49,252	49,00

**American
Unified
coarse threads**

UNC	T.P.I	Maximum core dia. mm.	Drill size mm.
1	64	1,585	1,50
2	56	1,872	1,80
3	48	2,146	2,10
4	40	2,385	2,30
5	40	2,697	2,60
6	32	2,896	2,85
8	32	3,528	3,50
10	24	3,950	3,90
12	24	4,590	4,50
1/4"	20	5,250	5,20
5/16"	18	6,680	6,60
3/8"	16	8,082	8,00
7/16"	14	9,441	9,40
1/2"	13	10,881	10,75
9/16"	12	12,301	12,25
5/8"	11	13,693	13,50
3/4"	10	16,624	16,50
7/8"	9	19,520	19,50
1"	8	22,344	22,25
1 1/8"	7	25,082	25,00
1 1/4"	7	28,258	28,25
1 3/8"	6	30,851	30,75
1 1/2"	6	34,026	34,00
1 3/4"	5	39,560	39,50
2"	4,5	45,367	45,25

**American
Unified
fine threads**

UNF	T.P.I	Maximum core dia. mm.	Drill size mm.
0	80	1,306	1,30
1	72	1,613	1,60
2	64	1,913	1,90
3	56	2,197	2,10
4	48	2,459	2,40
5	44	2,741	2,70
6	40	3,012	3,00
8	36	3,597	3,50
10	32	4,168	4,10
12	28	4,717	4,70
1/4"	28	5,563	5,50
5/16"	24	6,995	6,90
3/8"	24	8,565	8,50
7/16"	20	9,947	9,90
1/2"	20	11,524	11,50
9/16"	18	12,969	12,90
5/8"	18	14,554	14,50
3/4"	16	17,546	17,50
7/8"	14	20,493	20,50
1"	12	23,363	23,25
1 1/8"	12	26,538	26,50
1 1/4"	12	29,713	29,50
1 3/8"	12	32,888	32,70
1 1/2"	12	36,063	36,00

**Whitworth
threads B.S.W.**

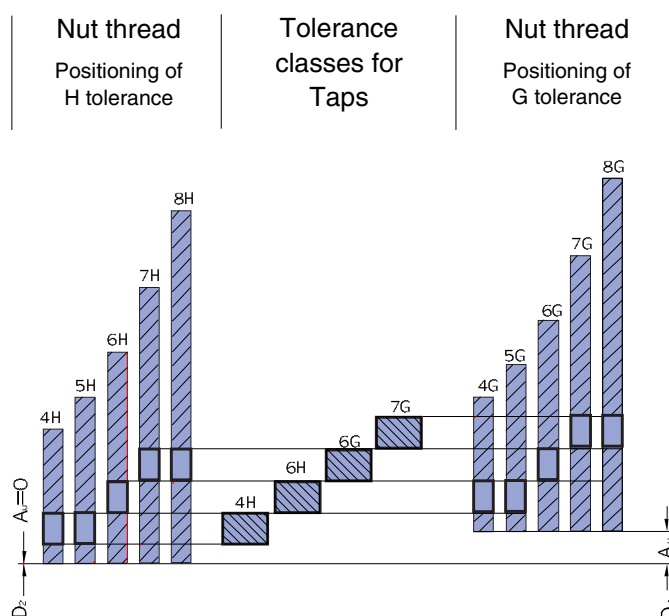
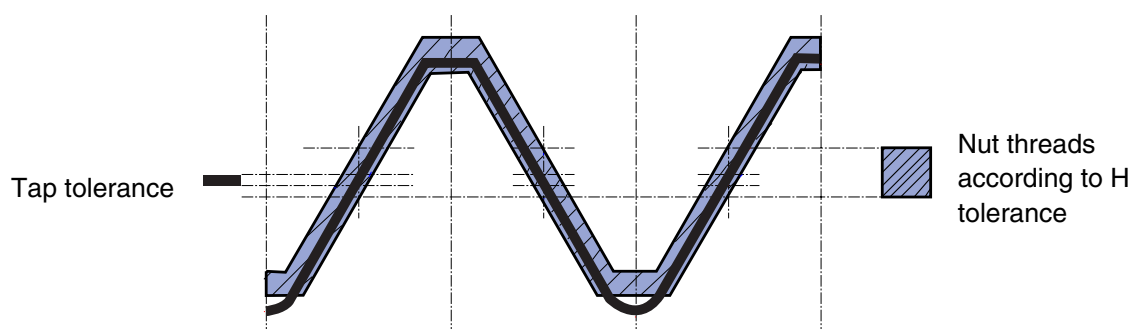
W	T.P.I	Maximum core dia. mm.	Drill size mm.
3/32"	48	1,910	1,80
1/8"	40	2,590	2,50
5/32"	32	3,211	3,10
3/16"	24	3,743	3,60
7/32"	24	4,538	4,40
1/4"	20	5,224	5,10
5/16"	18	6,661	6,50
3/8"	16	8,052	7,90
7/16"	14	9,379	9,30
1/2"	12	10,610	10,50
9/16"	12	12,176	12,00
5/8"	11	13,598	13,50
3/4"	10	16,538	16,50
7/8"	9	19,411	19,25
1"	8	22,185	22,00
1 1/8"	7	24,879	24,75
1 1/4"	7	28,054	27,75
1 3/8"	6	30,555	30,50
1 1/2"	6	33,730	33,50
1 5/8"	5	35,921	35,50
1 3/4"	5	39,096	39,00
1 7/8"	4,5	41,648	41,50
2"	4,5	44,823	44,50
2 1/4"	4	50,420	50,00
2 1/2"	4	56,770	56,50
2 3/4"	3,5	62,108	62,00
3"	3,5	68,459	68,50

**Whitworth
pipe thread BSP.PI**

G	T.P.I	Maximum core dia. mm.	Drill size mm.
1/8"	28	8,848	8,80
1/4"	19	11,890	11,80
3/8"	19	15,395	15,25
1/2"	14	19,172	19,00
5/8"	14	21,128	21,00
3/4"	14	24,658	24,50
7/8"	14	28,418	28,25
1"	11	30,931	30,75
1 1/8"	11	35,579	35,50
1 1/4"	11	39,592	39,50
1 3/8"	11	42,005	42,00
1 1/2"	11	45,485	45,20
1 5/8"	11	49,670	49,60
1 3/4"	11	51,428	51,40
2"	11	57,296	57,20
2 1/4"	11	63,392	63,30
2 3/8"	11	67,080	67,00
2 1/2"	11	72,866	72,80
2 3/4"	11	79,216	79,10
3"	11	85,566	85,50
3 1/4"	11	91,662	91,50
3 1/2"	11	98,012	98,00
3 3/4"	11	104,362	104,00
4"	11	110,712	110,50

TAP TOLERANCES

Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO Standard.



Taps tolerances and recommended classes

Tap tolerance ISO	Tap tolerance DIN	Correct class to obtain Nut thread with tolerance				
ISO 1	4H	4H	5H			
ISO 2	6H	4G	5G	6H		
ISO 3	6G			6G	7H	8H
	7G				7G	8G

METRIC ISO THREADS

Nominal dimensions UNI 4535-64

Production tolerances on tap flank diameter for ISO 6H Nut threads

Limit dimensions-Nut threads ISO 6H

Coarse pitch threads

Dimensions in mm

$$H = 0,86603P$$

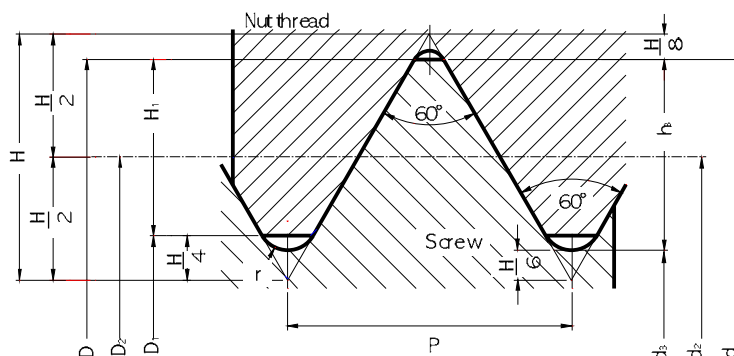
$$H_1 = \frac{5}{8} H = 0,54127P$$

$$h_3 = \frac{17}{24} H = 0,61343P$$

$$d_2 = D_2 = d - \frac{3}{4} H = d - 0,64952P$$

$$d_3 = d - 2h_3 = d - 1,22687P$$

$$r = \frac{H}{6} = 0,14434P$$



Nominal diameter d = D	Pitch P	Flank diameter d ₂ = D ₂	Minor diameter		Thread depth		Radius r	Flank diameter Tap tolerance 6H d ₂		Flank diameter Nut tolerance 6H	
			Screw d ₃	Nut D ₁	Screw h ₃	Nut H ₁		min.	max.	min.	max.
M 1,6	0,35	1,373	1,171	1,221	0,215	0,189	0,051	1,393	1,407	1,373	1,458
M 1,8	0,35	1,573	1,371	1,421	0,215	0,189	0,051	1,593	1,607	1,573	1,658
M 2	0,4	1,740	1,509	1,567	0,245	0,217	0,058	1,761	1,776	1,740	1,830
M 2,2	0,45	1,908	1,648	1,713	0,276	0,244	0,065	1,931	1,946	1,908	2,003
M 2,5	0,45	2,208	1,948	2,013	0,276	0,244	0,065	2,231	2,246	2,208	2,303
M 3	0,5	2,675	2,387	2,459	0,307	0,271	0,072	2,699	2,715	2,675	2,775
M 3,5	0,6	3,110	2,764	2,850	0,368	0,325	0,087	3,137	3,155	3,110	3,222
M 4	0,7	3,545	3,141	3,242	0,429	0,379	0,101	3,574	3,593	3,545	3,663
M 4,5	0,75	4,013	3,580	3,688	0,460	0,406	0,108	4,042	4,061	4,013	4,131
M 5	0,8	4,480	4,019	4,134	0,491	0,433	0,115	4,510	4,530	4,480	4,605
M 6	1	5,350	4,773	4,917	0,613	0,541	0,144	5,385	5,409	5,350	5,500
M 7	1	6,350	5,773	5,917	0,613	0,541	0,144	6,385	6,409	6,350	6,500
M 8	1,25	7,188	6,466	6,647	0,767	0,677	0,180	7,226	7,251	7,188	7,348
M 9	1,25	8,188	7,466	7,647	0,767	0,677	0,180	8,226	8,251	8,188	8,348
M 10	1,5	9,026	8,160	8,376	0,920	0,812	0,217	9,068	9,096	9,026	9,206
M 11	1,5	10,026	9,160	9,376	0,920	0,812	0,217	10,068	10,096	10,026	10,206
M 12	1,75	10,863	9,853	10,106	1,074	0,947	0,253	10,911	10,943	10,863	11,063
M 14	2	12,701	11,546	11,835	1,227	1,083	0,289	12,752	12,786	12,701	12,913
M 16	2	14,701	13,546	13,835	1,227	1,083	0,289	14,752	14,786	14,701	14,913
M 18	2,5	16,376	14,933	15,294	1,534	1,353	0,361	16,430	16,466	16,376	16,600
M 20	2,5	18,376	16,933	17,294	1,534	1,353	0,361	18,430	18,466	18,376	18,600
M 22	2,5	20,376	18,933	19,294	1,534	1,353	0,361	20,430	20,466	20,376	20,600
M 24	3	22,051	20,319	20,752	1,840	1,624	0,433	22,115	22,157	22,051	22,316
M 27	3	25,051	23,319	23,752	1,840	1,624	0,433	25,115	25,157	25,051	25,316
M 30	3,5	27,727	25,706	26,211	2,147	1,894	0,505	27,794	27,839	27,727	28,007
M 33	3,5	30,727	28,706	29,211	2,147	1,894	0,505	30,794	30,839	30,727	31,007
M 36	4	33,402	31,093	31,670	2,454	2,165	0,577	33,473	33,520	33,402	33,702
M 39	4	36,402	34,093	34,670	2,454	2,165	0,577	36,473	36,520	36,402	36,702
M 42	4,5	39,077	36,479	37,129	2,760	2,436	0,650	39,152	39,202	39,077	39,392
M 45	4,5	42,077	39,479	40,129	2,760	2,436	0,650	42,152	42,202	42,077	42,392
M 48	5	44,752	41,866	42,587	3,067	2,706	0,722	44,832	44,885	44,752	45,087
M 52	5	48,752	45,866	46,587	3,067	2,706	0,722	48,832	48,885	48,752	49,087
M 56	5,5	52,428	49,252	50,046	3,374	2,977	0,794	52,512	52,568	52,428	52,783
M 60	5,5	56,428	53,252	54,046	3,374	2,977	0,794	56,512	56,568	56,428	56,783
M 64	6	60,103	56,639	57,505	3,681	3,248	0,866	60,193	60,253	60,103	60,478
M 68	6	64,103	60,639	61,505	3,681	3,248	0,866	64,193	64,253	64,103	64,478

Metric thread MA(old UNI 159 Profile)

Nut tolerance SH8

M 1,7	0,35	1,473	1,246	1,246	0,227	0,227	0,040	1,493	1,507	1,473	1,529
M 2,3	0,4	2,040	1,780	1,780	0,260	0,260	0,040	2,061	2,076	2,040	2,120
M 2,6	0,45	2,308	2,016	2,016	0,292	0,292	0,050	2,331	2,346	2,308	2,388

METRIC ISO FINE THREADS

Nominal dimensions UNI 4535-64

Production tolerances on tap flank diameter for ISO 6H Nut threads

Limit dimensions-Nut threads ISO 6H

Fine pitch threads

Dimensions in mm

$H = 0,86603P$

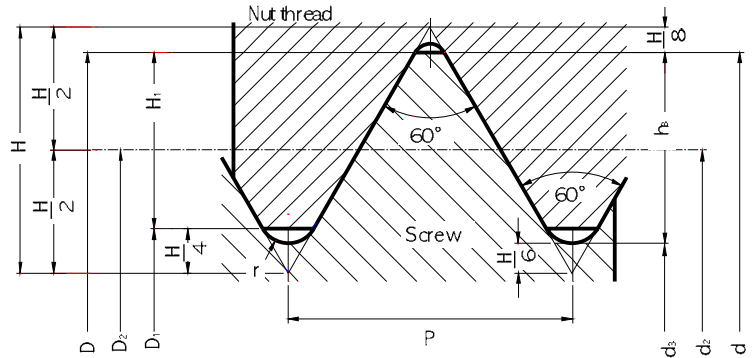
$H_1 = \frac{5}{8}H = 0,54127P$

$h_3 = \frac{17}{24}H = 0,61343P$

$d_2 = D_2 = d - \frac{3}{4}H = d - 0,64952P$

$d_3 = d - 2h_3 = d - 1,22687P$

$r = \frac{H}{6} = 0,14434P$



Nominal diameter d = D	Pitch P	Flank diameter d ₂ = D ₂	Minor diameter		Thread depth		Radius r	Flank diameter Tap tolerance 6H d ₂		Flank diameter Nut tolerance 6H	
			Screw d ₃	Nut D ₁	Screw h ₃	Nut H ₁		min.	max.	min.	max.
M 2	0,25	1,838	1,693	1,729	0,153	0,135	0,036	1,844	1,856	1,838	1,886
M 2,5	0,35	2,273	2,701	2,121	0,215	0,189	0,051	2,293	2,307	2,273	2,358
M 3	0,35	2,773	2,571	2,621	0,215	0,189	0,051	2,794	2,809	2,773	2,863
M 3,5	0,35	3,273	3,071	3,121	0,215	0,189	0,051	3,294	3,309	3,273	3,363
M 4	0,5	3,675	3,387	3,459	0,307	0,271	0,072	3,699	3,715	3,675	3,775
M 4,5	0,5	4,175	3,887	3,959	0,307	0,271	0,072	4,199	4,215	4,175	4,275
M 5	0,5	4,675	4,387	4,459	0,307	0,271	0,072	4,699	4,715	4,675	4,775
M 5,5	0,5	5,175	4,887	4,959	0,307	0,271	0,072	5,199	5,215	5,175	5,275
M 6	0,5	5,675	5,387	5,459	0,307	0,271	0,072	5,702	5,720	5,675	5,787
M 6	0,75	5,513	5,080	5,188	0,460	0,406	0,108	5,545	5,566	5,513	5,645
M 7	0,75	6,513	6,080	6,188	0,460	0,406	0,108	6,545	6,566	6,513	6,645
M 8	0,5	7,675	7,387	7,459	0,307	0,271	0,072	7,702	7,720	7,675	7,787
M 8	0,75	7,513	7,080	7,188	0,460	0,406	0,108	7,545	7,566	7,513	7,645
M 8	1	7,350	6,773	6,917	0,613	0,541	0,144	7,835	7,409	7,350	7,500
M 9	0,75	8,513	8,080	8,188	0,460	0,406	0,108	8,545	8,566	8,513	8,645
M 9	1	8,350	7,773	7,917	0,613	0,541	0,144	8,385	8,409	8,350	8,500
M 10	0,5	9,675	9,387	9,459	0,307	0,271	0,072	9,702	9,720	9,675	9,787
M 10	0,75	9,513	9,080	9,188	0,460	0,406	0,108	9,545	9,566	9,513	9,645
M 10	1	9,350	8,773	8,917	0,613	0,541	0,144	9,385	9,409	9,350	9,500
M 10	1,25	9,188	8,466	8,647	0,767	0,677	0,180	9,226	9,251	9,188	9,348
M 11	0,75	10,513	10,080	10,188	0,460	0,406	0,108	10,545	10,566	10,513	10,645
M 11	1	10,350	9,773	9,917	0,613	0,541	0,144	10,385	10,409	10,350	10,500
M 12	0,75	11,513	11,080	11,188	0,460	0,406	0,108	11,547	11,569	11,513	11,653
M 12	1	11,350	10,773	10,917	0,613	0,541	0,144	11,388	11,413	11,350	11,510
M 12	1,25	11,188	10,466	10,647	0,767	0,677	0,180	11,230	11,258	11,188	11,368
M 12	1,5	11,026	10,160	10,376	0,920	0,812	0,217	11,071	11,101	11,026	11,216
M 13	1	12,350	11,773	11,917	0,613	0,541	0,144	12,388	12,413	12,350	12,510
M 14	1	13,350	12,773	12,917	0,613	0,541	0,144	13,388	13,413	13,350	13,510
M 14	1,25	13,188	12,466	12,647	0,767	0,677	0,180	13,230	13,258	13,188	13,368
M 14	1,5	13,026	12,160	12,376	0,920	0,812	0,217	13,071	13,101	13,026	13,216
M 15	1	14,350	13,773	13,917	0,613	0,541	0,144	14,388	14,413	14,350	14,510
M 15	1,5	14,026	13,160	13,376	0,920	0,812	0,217	14,071	14,101	14,026	14,216
M 16	1	15,350	14,773	14,917	0,613	0,541	0,144	15,388	15,413	15,350	15,510
M 16	1,25	15,188	14,466	14,647	0,767	0,677	0,180	15,230	15,258	15,188	15,368
M 16	1,5	15,026	14,160	14,376	0,920	0,812	0,217	15,071	15,101	15,026	15,216
M 17	1	16,350	15,773	15,917	0,613	0,541	0,144	16,388	16,413	16,350	16,510
M 17	1,5	16,026	15,160	15,376	0,920	0,812	0,217	16,071	16,101	16,026	16,216
M 18	1	17,350	16,773	16,917	0,613	0,541	0,144	17,388	17,413	17,350	17,510
M 18	1,5	17,026	16,160	16,376	0,920	0,812	0,217	17,071	17,101	17,026	17,216
M 18	2	16,701	15,546	15,835	1,227	1,083	0,289	16,752	16,786	16,701	16,913
M 20	1	19,350	18,773	18,917	0,613	0,541	0,144	19,388	19,413	19,350	19,510
M 20	1,5	19,026	18,160	18,376	0,920	0,812	0,217	19,071	19,101	19,026	19,216
M 20	2	18,701	17,546	17,835	1,227	1,083	0,289		18,786	18,701	18,913

METRIC ISO FINE THREADS

Nominal diameter d = D	Pitch P	Flank diameter d ₂ = D ₂	Minor diameter		Thread depth		Radius r	Flank diameter Tap tolerance 6H d ₂		Flank diameter Nut tolerance 6H	
			Screw d ₃	Nut D ₁	Screw h ₃	Nut H ₁		min.	max.	min.	max.
M 22	1	21,350	20,773	20,917	0,613	0,541	0,144	21,388	21,413	21,350	21,510
M 22	1,5	21,026	20,160	20,376	0,920	0,812	0,217	21,071	21,101	21,026	21,216
M 22	2	20,701	19,546	19,835	1,227	1,083	0,289	20,752	20,786	20,701	20,913
M 24	1	23,350	22,773	22,917	0,613	0,541	0,144	23,390	23,416	23,350	23,520
M 24	1,5	23,026	22,160	22,376	0,920	0,812	0,217	23,074	23,106	23,026	23,226
M 24	2	22,701	21,546	21,835	1,227	1,083	0,289	22,754	22,791	22,701	22,925
M 25	1	24,350	23,773	23,917	0,613	0,541	0,144	24,390	24,416	24,350	24,520
M 25	1,5	24,026	23,160	23,376	0,920	0,812	0,217	24,074	24,106	24,026	24,226
M 25	2	23,701	22,546	22,835	1,227	1,083	0,289	23,754	23,791	23,701	23,925
M 26	1	25,350	24,773	24,917	0,613	0,541	0,144	25,390	25,416	25,350	25,520
M 26	1,5	25,026	24,160	24,376	0,920	0,812	0,217	25,074	25,106	25,026	25,226
M 26	2	24,701	23,546	23,835	1,227	1,083	0,289	24,754	24,791	24,701	24,925
M 27	1	26,350	25,773	25,917	0,613	0,541	0,144	26,390	26,416	26,350	26,520
M 27	1,5	26,026	25,160	25,376	0,920	0,812	0,217	26,074	26,106	26,026	26,226
M 27	2	25,701	24,546	24,835	1,227	1,083	0,289	25,754	25,791	25,701	25,925
M 28	1	27,350	26,773	26,917	0,613	0,541	0,144	27,390	27,416	27,350	27,520
M 28	1,5	27,026	26,160	26,376	0,920	0,812	0,217	27,074	27,106	27,026	27,226
M 28	2	26,701	25,546	25,835	1,227	1,083	0,289	26,754	26,791	26,701	26,925
M 30	1	29,350	28,773	28,917	0,613	0,541	0,144	29,390	29,416	29,350	29,520
M 30	1,5	29,026	28,160	28,376	0,920	0,812	0,217	29,074	29,106	29,026	29,226
M 30	2	28,701	27,546	27,835	1,227	1,083	0,289	28,754	28,791	28,701	28,925
M 30	3	28,051	26,319	26,752	1,840	1,624	0,433	28,115	28,157	28,051	28,316
M 32	1,5	31,026	30,160	30,376	0,920	0,812	0,217	31,074	31,106	31,026	31,226
M 32	2	30,701	29,546	29,835	1,227	1,083	0,289	30,754	30,791	30,701	30,925
M 33	1,5	32,026	31,160	31,376	0,920	0,812	0,217	32,074	32,106	32,026	32,226
M 33	2	31,701	30,546	30,835	1,227	1,083	0,289	31,754	31,791	31,701	31,925
M 33	3	31,051	29,319	29,752	1,840	1,624	0,433	31,115	31,157	31,051	31,316
M 35	1,5	34,026	33,160	33,376	0,920	0,812	0,217	34,074	34,106	34,026	34,226
M 35	2	33,701	32,546	32,835	1,227	1,083	0,289	33,754	33,791	33,701	33,925
M 36	1,5	35,026	34,160	34,376	0,920	0,812	0,217	35,074	35,106	35,026	35,226
M 36	2	34,701	33,546	33,835	1,227	1,083	0,289	34,754	34,791	34,701	34,925
M 36	3	34,051	32,319	32,752	1,840	1,624	0,433	34,115	34,157	34,051	34,316
M 38	1,5	37,026	36,160	36,376	0,920	0,812	0,217	37,074	37,106	37,026	37,226
M 39	1,5	38,026	37,160	37,376	0,920	0,812	0,217	38,074	38,106	38,026	38,226
M 39	2	37,701	36,546	36,835	1,227	1,083	0,289	37,754	37,791	37,701	37,925
M 39	3	37,051	35,319	35,752	1,840	1,624	0,433	37,115	37,157	37,051	37,316
M 40	1,5	39,026	38,160	38,376	0,920	0,812	0,217	39,074	39,106	39,026	39,226
M 40	2	38,701	37,546	37,835	1,227	1,083	0,289	38,754	38,791	38,701	38,925
M 40	3	38,051	36,319	36,752	1,840	1,624	0,433	38,115	38,157	38,051	38,316
M 42	1,5	41,026	40,160	40,376	0,920	0,812	0,217	41,074	41,106	41,026	41,226
M 42	2	40,701	39,546	39,835	1,227	1,083	0,289	40,754	40,791	40,701	40,925
M 42	3	40,051	38,319	38,752	1,840	1,624	0,433	40,115	40,157	40,051	40,316
M 45	1,5	44,026	43,160	43,376	0,920	0,812	0,217	44,074	44,106	44,026	44,226
M 45	2	43,701	42,546	42,835	1,227	1,083	0,289	43,754	43,791	43,701	43,925
M 45	3	43,051	41,319	41,752	1,840	1,624	0,433	43,115	43,157	43,051	43,316
M 48	1,5	47,026	46,160	46,376	0,920	0,812	0,217	47,077	47,111	47,026	47,238
M 48	2	46,701	45,546	45,835	1,227	1,083	0,289	46,758	46,796	46,701	46,937
M 48	3	46,051	44,319	44,752	1,840	1,624	0,433	46,118	46,163	46,051	46,331
M 50	1,5	49,026	48,160	48,376	0,920	0,812	0,217	49,077	49,111	49,026	49,238
M 50	2	48,701	47,546	47,835	1,227	1,083	0,289	48,758	48,796	48,701	48,937
M 50	3	48,051	46,319	46,752	1,840	1,624	0,433	48,118	48,163	48,051	48,331
M 52	1,5	51,026	50,160	50,376	0,920	0,812	0,217	51,077	51,111	51,026	51,238
M 52	2	50,701	49,546	49,835	1,227	1,083	0,289	50,758	50,796	50,701	50,937
M 52	3	50,051	48,319	48,752	1,840	1,624	0,433	50,118	50,163	50,051	50,331
M 55	1,5	54,026	53,160	53,376	0,920	0,812	0,217	54,077	54,111	54,026	54,238
M 55	2	53,701	52,546	52,835	1,227	1,083	0,289	53,758	53,796	53,701	53,937
M 55	3	53,051	51,319	51,752	1,840	1,624	0,433	53,118	53,163	53,051	53,331
M 56	1,5	55,026	54,160	54,376	0,920	0,812	0,217	55,077	55,111	55,026	55,238
M 56	2	54,701	53,546	53,835	1,227	1,083	0,289	54,758	54,796	54,701	54,937
M 56	3	54,051	52,319	52,752	1,840	1,624	0,433	54,118	54,163	54,051	54,331
M 58	1,5	57,026	56,160	56,376	0,920	0,812	0,217	57,077	57,111	57,026	57,238
M 58	2	56,701	55,546	55,835	1,227	1,083	0,289	56,758	56,796	56,701	56,937
M 58	3	56,051	54,319	54,752	1,840	1,624	0,433	56,118	56,163	56,051	56,331
M 60	1,5	59,026	58,160	58,376	0,920	0,812	0,217	59,077	59,111	59,026	59,238
M 60	2	58,701	57,546	57,835	1,227	1,083	0,289	58,758	58,796	58,701	58,937
M 60	3	58,051	56,319	56,752	1,840	1,624	0,433	58,118	58,163	58,051	58,331
Metric thread MB(old UNI 160 Profile)								Nut tolerance SH8			
M 2,3	0,25	2,138	1,976	1,976	0,162	0,162	0,030	2,144	2,156	2,138	2,194
M 2,6	0,35	2,373	2,146	2,146	0,227	0,227	0,040	2,393	2,407	2,373	2,429

UNIFIED COARSE THREADS

Nominal dimensions as per ANSI B1.1

Production tolerances on tap flank diameter for 2B class nut threads

Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$$H = 0,86603P$$

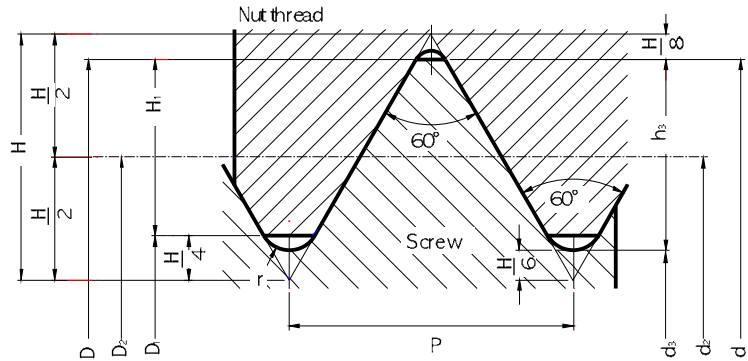
$$H_1 = \frac{5}{8} H = 0,54127P$$

$$h_3 = \frac{17}{24} H = 0,61343P$$

$$d_2 = D_2 = d - \frac{3}{4} H = d - 0,64952P$$

$$d_3 = d - 2h_3 = d - 1,22687P$$

$$r = \frac{H}{6} = 0,14434P$$



Nominal diameter and T.P.I	Pitch P	External diameter d = D	Flank diameter d ₂ = D ₂	Minor diameter		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
				Nut D ₁	Screw d ₃			min. 2B/3B	max. 2B	max. 3B
No. 1-64	0,397	1,854	1,598	1,425	1,367	1,610	1,623	1,598	1,664	1,646
No. 2-64	0,454	2,184	1,890	1,694	1,628	1,902	1,915	1,890	1,961	1,943
No. 3-48	0,529	2,515	2,172	1,941	1,864	2,184	2,197	2,172	2,248	2,228
No. 4-40	0,635	2,845	2,433	2,156	2,065	2,446	2,459	2,433	2,517	2,494
No. 5-40	0,635	3,175	2,764	2,487	2,395	2,776	2,789	2,764	2,847	2,827
No. 6-32	0,794	3,505	2,990	2,647	2,532	3,105	3,028	2,990	3,084	3,058
No. 8-32	0,794	4,166	3,650	3,307	3,193	3,675	3,688	3,650	3,746	3,721
No. 10-24	1,058	4,826	4,138	3,680	3,528	4,163	4,176	4,138	4,247	4,219
No. 12-24	1,058	5,486	4,798	4,341	4,188	4,823	4,836	4,798	4,910	4,882
UNC 1/4" -20	1,270	6,350	5,524	4,976	4,793	5,575	5,588	5,524	5,646	5,616
UNC 5/16" -18	1,411	7,938	7,021	6,411	6,205	7,071	7,084	7,021	7,155	7,120
UNC 3/8" -16	1,588	9,525	8,494	7,805	7,577	8,545	8,557	8,494	8,639	8,603
UNC 7/16" -14	1,814	11,112	9,934	9,149	8,887	9,985	9,997	9,934	10,089	10,051
UNC 1/2" -13	1,954	12,700	11,430	10,584	10,302	11,481	11,494	11,430	11,595	11,552
UNC 9/16" -12	2,117	14,288	12,913	11,996	11,692	12,964	12,977	12,913	13,086	13,043
UNC 5/8" -11	2,309	15,875	14,376	13,376	13,043	14,427	14,440	14,376	14,559	14,514
UNC 3/4" -10	2,540	19,050	17,399	16,229	15,933	17,450	17,463	17,399	17,595	17,544
UNC 7/8" -9	2,822	22,225	20,391	19,169	18,763	20,455	20,467	20,391	20,599	20,546
UNC 1" -8	3,175	25,400	23,338	21,963	21,504	23,401	23,414	23,338	23,561	23,505
UNC 1 1/8" -7	3,629	28,575	26,218	24,648	24,122	26,294	26,319	26,218	26,457	26,398
UNC 1 1/4" -7	3,629	31,750	29,393	27,823	27,297	29,469	29,494	29,393	29,637	29,576
UNC 1 3/8" -6	4,233	34,925	32,174	30,343	29,731	32,250	32,276	32,174	32,438	32,372
UNC 1 1/2" -6	4,233	38,100	35,349	33,518	32,906	35,425	35,451	35,349	35,616	35,550
UNC 1 3/4" -5	5,080	44,450	41,151	38,951	38,217	41,241	41,266	41,151	41,445	41,372
UNC 2" -4 1/2	5,644	50,800	47,135	44,689	43,876	47,235	47,260	47,135	47,450	47,371
UNC 2 1/4" -4 1/2	5,644	57,150	53,485	51,039	50,226			53,485	53,805	53,726
UNC 2 1/2" -4	6,350	63,500	59,375	56,627	55,710			59,375	59,718	59,632
UNC 2 3/4" -4	6,350	69,850	65,725	62,977	62,060			65,725	66,073	65,987
UNC 3" -4	6,350	76,200	72,075	69,327	68,410			72,075	72,428	72,339
UNC 3 1/4" -4	6,350	82,550	78,425	75,677	74,760			78,425	78,783	78,694
UNC 3 1/2" -4	6,350	88,900	84,775	82,027	81,110			84,775	85,183	85,049
UNC 3 3/4" -4	6,350	95,250	91,125	88,377	87,460			91,125	91,493	91,402
UNC 4" -4	6,350	101,600	97,475	94,727	93,810			97,475	97,848	97,757

UNIFIED FINE THREADS

Nominal dimensions as per ANSI B1.1

Production tolerances on tap flank diameter for 2B class nut threads

Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$$H = 0,86603P$$

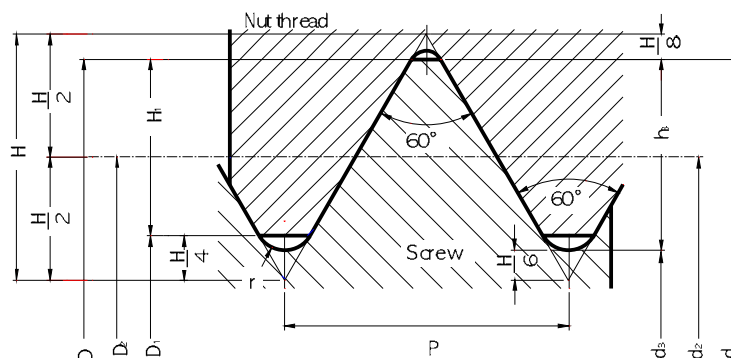
$$H_1 = \frac{5}{8} H = 0,54127P$$

$$h_3 = \frac{17}{24} H = 0,61343P$$

$$d_2 = D_2 = d - \frac{3}{4} H = d - 0,64952P$$

$$d_3 = d - 2h_3 = d - 1,22687P$$

$$r = \frac{H}{6} = 0,14434P$$



Nominal diameter and T.P.I	Pitch P	External diameter d = D	Flank diameter d ₂ = D ₂	Minor diameter		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
				Nut D ₁	Screw d ₃			min. 2B/3B	max. 2B	max. 3B
				min.	max.					
No. 0-80	0,318	1,524	1,318	1,181	1,135	1,331	1,344	1,318	1,377	1,361
No. 1-72	0,353	1,854	1,626	1,473	1,422	1,638	1,651	1,626	1,689	1,674
No. 2-64	0,397	2,184	1,928	1,755	1,697	1,941	1,953	1,928	1,996	1,979
No. 3-56	0,454	2,515	2,220	2,024	1,958	2,233	2,245	2,220	2,291	2,273
No. 4-48	0,529	2,845	2,502	2,271	2,195	2,515	2,527	2,502	2,581	2,560
No. 5-44	0,577	3,175	2,799	2,550	2,466	2,812	2,824	2,799	2,880	2,860
No. 6-40	0,635	3,505	3,094	2,817	2,725	3,108	3,119	3,094	3,180	3,157
No. 8-36	0,706	4,166	3,708	3,401	3,299	3,721	3,734	3,708	3,800	3,777
No.10-32	0,794	4,826	4,310	3,967	3,853	4,336	4,348	4,310	4,409	4,384
No.12-28	0,907	5,486	4,897	4,503	4,374	4,923	4,935	4,897	5,004	4,976
UN F 1/4" -28	0,907	6,350	5,761	5,367	5,237	5,799	5,812	5,761	5,870	5,842
UN F 5/16" -24	1,058	7,938	7,249	6,792	6,640	7,287	7,300	7,249	7,371	7,341
UN F 3/8" -24	1,058	9,525	8,837	8,379	8,227	8,875	8,887	8,837	8,961	8,931
UN F 7/16" -20	1,270	11,112	10,287	9,738	9,555	10,338	10,351	10,287	10,424	10,391
UN F 1/2" -20	1,270	12,700	11,874	11,326	11,143	11,925	11,938	11,874	12,017	11,981
UN F 9/16" -18	1,411	14,288	13,371	12,761	12,555	13,421	13,434	13,371	13,520	13,482
UN F 5/8" -18	1,411	15,875	14,958	14,348	14,143	15,009	15,022	14,958	15,110	15,072
UN F 3/4" -16	1,588	19,050	18,019	17,330	17,102	18,070	18,082	18,019	18,184	18,143
UN F 7/8" -14	1,814	22,225	21,046	20,262	20,000	21,110	21,123	21,046	21,224	21,181
UN F 1" -12	2,117	25,400	24,026	23,109	22,804	24,089	24,102	24,026	24,219	24,171
UN F 1 1/8" -12	2,117	28,575	27,201	26,284	25,979	27,252	27,277	27,201	27,339	27,351
UN F 1 1/4" -12	2,117	31,750	30,376	29,459	29,154	30,427	30,452	30,376	30,579	30,528
UN F 1 3/8" -12	2,117	34,925	33,551	32,634	32,329	33,602	33,627	33,551	33,759	33,706
UN F 1 1/2" -12	2,117	38,100	36,726	35,809	35,504	36,777	36,802	36,726	36,937	36,886

WHITWORTH PIPE THREADS

Nominal dimensions ISO 228/1-UNI 338-66

Production tolerances on tap flank diameter

Limit dimensions for internal threads

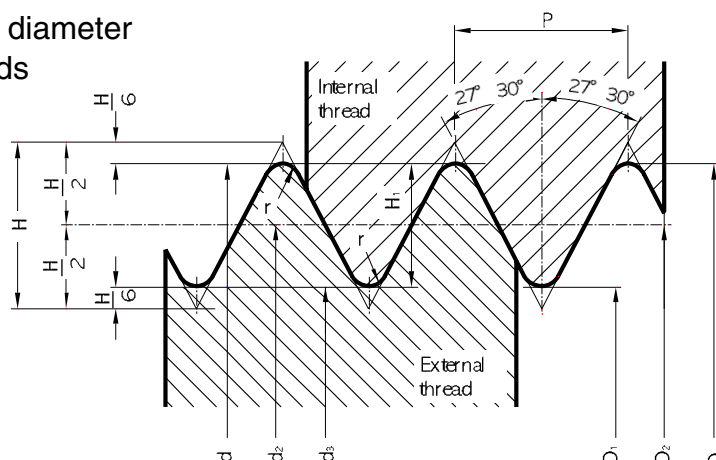
Dimensions in mm

$$P = \frac{25,4}{Z} H$$

$$H = 0,960491 P$$

$$H_1 = 0,640327 P$$

$$r = 0,137329 P$$



Type (1)	Thread diameter d = D	Pitch P	T.P.I. Z	Flank diameter d2 = D2	Minor diameter d3 = d1	H1	r ≈	Tap Flank diameter d2		Internal Thread Flank diameter	
								min.	max.	min.	max.
G 1/8	9,728	0,907	28	9,147	8,566	0,581	0,125	9,177	9,194	9,147	9,254
G 1/4	13,147	1,337	19	12,301	11,445	0,856	0,184	12,336	12,356	12,301	12,426
G 3/8	16,662	1,337	19	15,806	14,950	0,856	0,184	15,841	15,861	15,806	15,933
G 1/2	20,955	1,814	14	19,793	18,631	1,162	0,249	19,828	19,848	19,793	19,935
G 5/8	22,911	1,814	14	21,749	20,587	1,162	0,249	21,784	21,804	21,749	21,891
G 3/4	26,441	1,814	14	25,279	24,117	1,162	0,249	25,314	25,334	25,279	25,421
G 7/8	32,201	1,814	14	29,039	27,877	1,162	0,249	29,074	29,094	29,039	29,181
G 1	33,249	2,309	11	31,770	30,291	1,479	0,317	31,815	31,839	31,770	31,950
G 1 1/8	37,897	2,309	11	36,418	34,939	1,479	0,317	36,463	36,487	36,418	36,598
G 1 1/4	41,910	2,309	11	40,431	38,952	1,479	0,317	40,476	40,500	40,431	40,611
G 1 3/8	44,323	2,309	11	42,844	41,365	1,479	0,317	42,889	42,913	42,844	43,024
G 1 1/2	47,803	2,309	11	46,324	44,845	1,479	0,317	46,374	46,398	46,324	46,504
G 1 3/4	53,746	2,309	11	52,267	50,788	1,479	0,317	52,327	52,354	52,267	52,447
G 2	59,614	2,309	11	58,135	56,656	1,479	0,317	58,195	58,222	58,135	58,315
G 2 1/4	65,710	2,309	11	64,231	62,752	1,479	0,317	64,291	64,318	64,231	64,448
G 2 3/8	69,398	2,309	11	67,919	66,440	1,479	0,317	67,979	68,006	67,919	68,136
G 2 1/2	75,184	2,309	11	73,705	72,226	1,479	0,317	73,765	73,792	73,705	73,922
G 2 3/4	81,534	2,309	11	80,055	78,576	1,479	0,317	80,127	80,157	80,055	80,272
G 3	87,884	2,309	11	86,405	84,926	1,479	0,317	86,477	86,507	86,405	86,622
G 3 1/4	93,980	2,309	11	92,501	91,022	1,479	0,317	92,573	92,603	92,501	92,718
G 3 1/2	100,330	2,309	11	98,851	97,372	1,479	0,317	98,923	98,953	98,851	99,068
G 3 3/4	106,680	2,309	11	105,201	103,722	1,479	0,317	105,273	105,303	105,201	105,418
G 4	113,030	2,309	11	111,551	110,072	1,479	0,317	111,623	111,653	111,551	111,768
G 4 1/2	125,730	2,309	11	124,251	122,772	1,479	0,317				
G 5	138,430	2,309	11	136,951	135,472	1,479	0,317				
G 5 1/2	151,130	2,309	11	149,651	148,172	1,479	0,317				
G 6	163,830	2,309	11	162,351	160,872	1,479	0,317				

(1) - This type is conventional: originally the value in inches was the internal pipe diameter.

INTERESTING HINTS FOR TAPPING

Optimum tapping conditions reduce effective machining times and increase tap life.

Selection of the most suitable tap

Which types of tap or whether or not a thread former can be used, depends on the type of material to be machined.

As a general guide, materials with an extension of at least 10% can be cold-formed.

To determine the most suitable tap, refer to the tap recommendation table on pages 11 to 14.

Core holes

- Core holes should be clean and swarf-free.
- Core holes should be of the prescribed size, see chart extract on page 142-143 of this catalogue, and dependent on the actual application, selected towards the upper diameter limit.

Lubricant in relation to machining centers

Frequently the coolants used on machining centers are unsatisfactory for tapping because their percentage lubricant content is too low. If it is not possible to increase the percentage of lubricant in the emulsion, the lubrication problem can be solved in other ways, i.e.:

Lubricating with concentrated emulsion

- A. A lubricating unit, connected to the machine control, delivers at the required instant a specific quantity of concentrated emulsion into the core hole or onto the tap.
- B. A pump in a separate tank, controlled by the machine, delivers a specific amount of concentrate into the core hole.

Tapping in separate operations

This procedure allows the use of the ideal tapping lubricant.

Cutting speeds for taps

The cutting speed has a great influence on chip flow and the life of the tap. It is worthwhile to establish the ideal cutting speed by tapping trials. Guide values see on the recommendation table page 15. The cutting speed should be in relation to the characteristics of the material, the machine and its equipment.

Effects of unsuitable cutting speed

- forced tapping
- tap lead chipping caused by overloaded cutting tooth
- torn threads
- unsatisfactory tap-life
- rejected threads

INTERESTING HINTS FOR TAPPING

Cold welding

What are the causes of cold welding?

- unsuitable tap selection
- tap with incorrect cutting geometry
- coolant unsuitable for material
- insufficient coolant
- axial pressure (pull or push) on the tap
- core hole too small
- breaks in walls of core hole
- speed too high or too low
- swarf trapped in the hole
- incorrect alignment of tap and core hole
- tap eccentricity

Effects of cold welding:

- torn threads
- short tap life
- rejected threads
- tap breakage
- scrap workpieces

Tap mounting

- The tap must be mounted on the axis of the core hole.
- On non-synchronized machines (feed / speed) we recommend the use of a tapping spindle.

Tapping heads

With non-synchronized machine spindles (feed / speed) the feed rate should as a rule be programmed approx. 5-10% lower than the thread pitch. In these cases a tapping chuck must be used which will compensate the difference between the feed rate and the thread pitch.

It is important that the tension spring in the axial compensation is set to a light rate to avoid axially loading the tap.

The compression spring should be tensioned so that the tap starts to cut by compressing the spring at the most up to one half pitch.

Important hints:

Ensure that the correct speed is selected.

Ensure that ample lubricating coolant is used when tapping.

Good machine and equipment stability is essential for optimum quality and performance.

APPLICATION AND USE OF THREADING TAPS

Problem	Causes	Solutions
Tapped hole oversize	Incorrect tap in use (cutting geometry unsuitable for application)	Use tap selected from the relevant material group
	Faulty alignment	Ensure that the tap is correctly aligned with the core hole axis
	Cold welding	Improve lubrication and direction of coolant Adjust cutting speed
	Re-ground tap (lead-in is not concentric)	Regrind tap lead correctly on a suitable tap grinding machine

Problem	Causes	Solutions
Stripped threads	Incorrect tap in use (cutting geometry incorrect for application)	Use a tap from the relevant material group.
	Spindle speed and feed rate not synchronized	Check feed rate programming and / or pitch of leading spindle Use a tapping spindle with axial float
	Insufficient start pressure exerted on tap with peel-cut	Increase start pressure

Problem	Causes	Solutions
Bell mouthed tapped hole	Incorrect start pressure applied to tap	Use a tapping spindle with axial float

Problem	Causes	Solutions
Unsatisfactory thread surface finish	Incorrect tap in use (Cutting geometry unsuitable for application)	Select tap from the relevant material group
	The tap is blunt	Replace or re-grind tap
	Tap badly re-ground	Re-grind tap again. Check that cutting geometry is suitable for material
	Coolant lacking in lubricating qualities and / or quantity	Ensure the use of suitable coolant and an ample supply

APPLICATION AND USE OF THREADING TAPS

Problem	Causes	Solutions
Partial chipping of tap	Swarf jamming	Check cutting speed Use alternative tap type
	Tap has jammed against bottom of core hole	Check hole and thread depths Drill core hole deeper
	Tap incorrectly re-ground (lead-in diameter too small therefore too few cutting teeth)	Ensure that original values are maintained when regrinding
	Irregular workpiece material structure	Adjust cutting speed Improve lubricating quality of coolant

Problem	Causes	Solutions
Excessive tap wear	Incorrect cutting speed	Adjust cutting speed to suit workpiece material
	Coolant lacking in lubricating qualities and / or quantity	Ensure the use of a suitable coolant and an ample supply Check that coolant is reaching the cutting zone
	Surface of the core hole is compacted	Check core hole drilling conditions (drill carefully to reduce risk of surface compacting) Check drill cutting edges

Problem	Causes	Solutions
Tap breakage	Incorrect tap in use (cutting geometry unsuitable for application)	Use tap from the relevant material group
	Centering error	Ensure that axes of tap and core hole are aligned
	Blunt tap	Re-grind tap Ensure that taps are stored carefully
	Tap has reached bottom of core hole	Use tapping spindle with axial float and slipping clutch
	Core hole too small	Select core hole as per chart, pages 142~143 of this catalogue

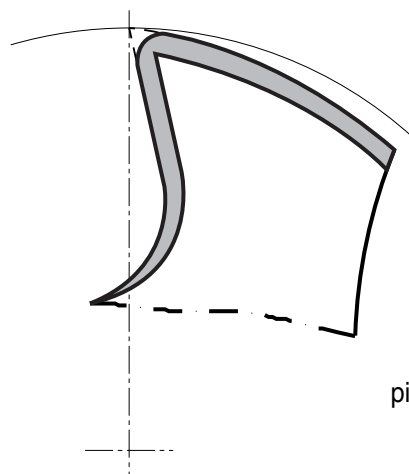
RESHARPENING

The resharpening on taps is done for regenerating the active hedges worn by the destructive action of cutting and of friction, it has high importance for an economical exploitation of the tool and so far has to be made rationally, keeping away from wrong operations which can heavily compromise the accuracy and the life.

In order to execute the tap resharpening quickly and accurately we recommend the use of proper resharpening machines having all necessary equipments for this operation.

The tap resharpening take place in two steps:

- resharpening of (relieved) chamfer;
- resharpening of flutes. (See picture 1)



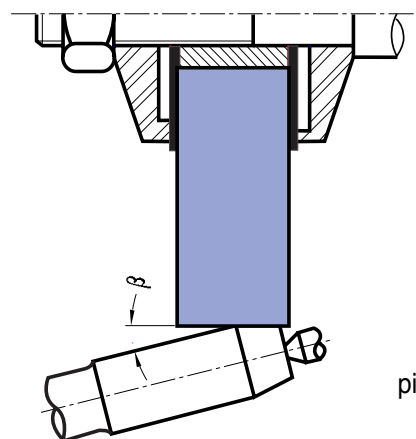
pic. 1

RESHARPENING OF (RELIEVED) CHAMFER

The chamfer resharpening must be executed both on specific for taps machines or on conventional resharpening machines equipped with an auxiliary system proper to generate the circular relief on back.

The picture 2 shows the resharpening made with the cylindrical surface of a grinding wheel.

Before resharpening, verify that the tap, fixed between points or on pincer, runs concentric; verify also the angle β which has to be correct in order to keep the same number of threads on chamfer.

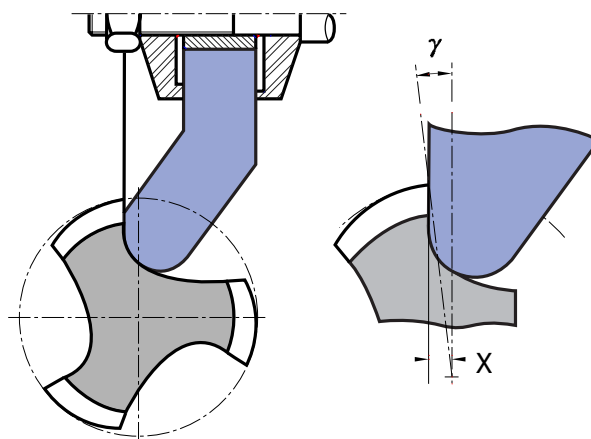


pic. 2

RESHARPENING OF FLUTES

This operation must be done on a specific resharpening machine for taps, equipped with: dividing head, lead screw of "barrasinus" for executing the helix and cooling equipment.

The rake angle γ is obtained moving the tap axis, in relation to the resharpening surface, of an amount X to be calculated with the formula: $X = \frac{1}{2} d_1 \sin \gamma$ (see picture 3). (d_1 =tap major diameter)



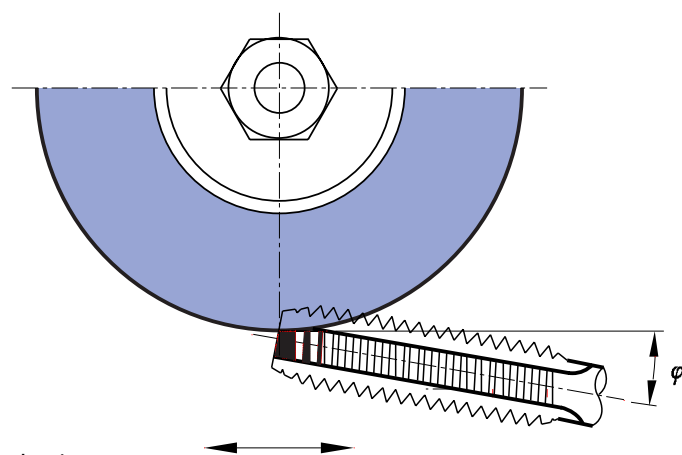
pic. 3

Example:

Tap 10 \times 1,5 to cut on steel strength = 600 N/mm²

$d_1 = 10\text{mm}$; $\gamma = 15^\circ$; $\sin \gamma = 0,25882$;

$$X = \frac{0,25882 \times 10}{2} ; X = 1,29\text{mm}$$

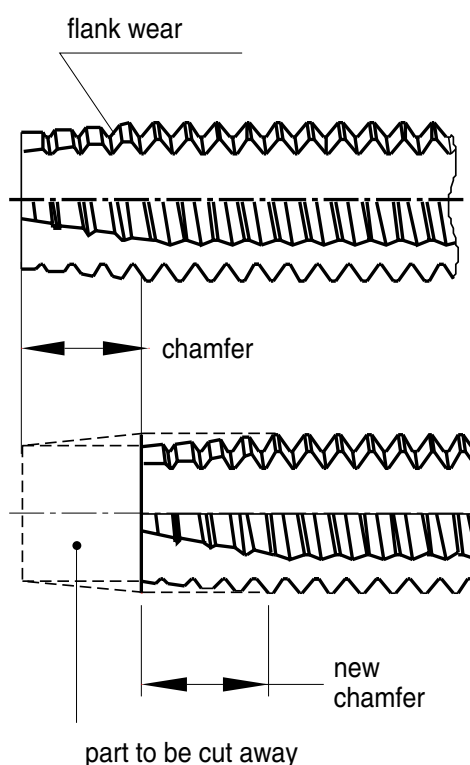


pic. 4

On all taps having spiral-flutes, in addition to the trade mark and identification of the dimension and type, it is possible to find also the pitch of the spiral referred to the lead screw necessary for the resharpener.

In case of employment of taps equipped with deburring tool **Burr-Bit** it is necessary to extend the flutes following what suggested by the supplier.

Because the wear on a tap is mainly on the chamfer area, on taps having "gun nose" the resharpener of the flutes can be made on the front area only (see picture 4).



pic. 5

It is very important to pay attention that, when also the thread flanks are worn (in addition to the active edges) the resharpener as above described is practically useless.

In this case the "regeneration" is made, by means of cutting completely the chamfer away (this means a shorter tap) and reproducing then the chamfer with same angle and relief. (see picture 5)

The regeneration is also advisable on taps with spiral flutes, because that way the flutes grinding is not necessary, in absence of special resharpener machines with lead screw with proper angle.

RESHARPEN TIMELY

It is important to resharpen timely the wore tap. In these conditions in fact defective threads can be produced, risking to brake the tool; in addition the wear is increasing quickly, damaging a wide area of the cutter and rapidly.

PROPER GRINDING WHEELS

The structure and grain of grinding wheels must be the right one for the tap to be resharpened. Our technicians are at complete disposal to give the proper recommendations.

TAPS FOR CAST IRONS

On these taps the resharpening is rarely possible because, due to cast iron is abrasive, the tap is wearing on flank of the thread and so far out of tolerance.

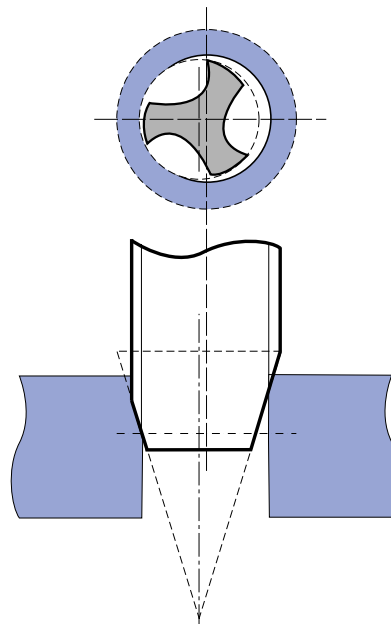
TAPS FOR ALUMINIUM

It is advisable, after resharpening as above described, to remove steel burrs from the grinding wheel action. This operation, easy with iron brushes, avoid the danger of boring or over tolerance tapping instead of accurate tapping.

CONTROLS(TESTS)

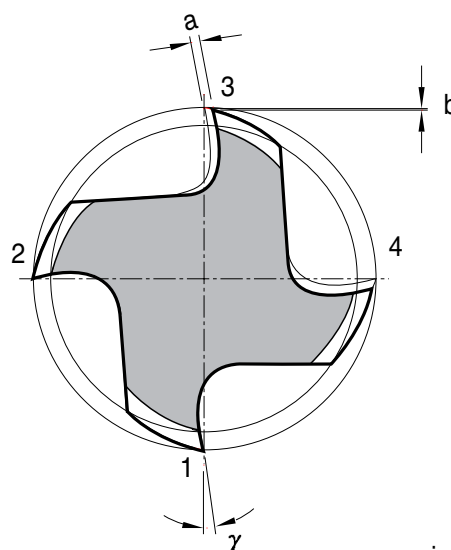
Once resharpened the tap, it is always better to make some tests to obtain correct threads same as when the tap was new.

- The chamfer must be perfectly on axis to avoid the effects of picture 6.
- The cutters must have correct divisions. The results of a resharpening with a wrong division is shown on picture 7.
- The length and number of threads on chamfer must be rigorously identical to those of the new tap.



pic. 6

chamfer out of center



pic. 7

incorrect division
cutters not concentric

SPECIAL TAPS

For photocopying

Orders / Inquiries

This form may be returned to your local Y.G-1 distributor or to Y.G-1.

Company

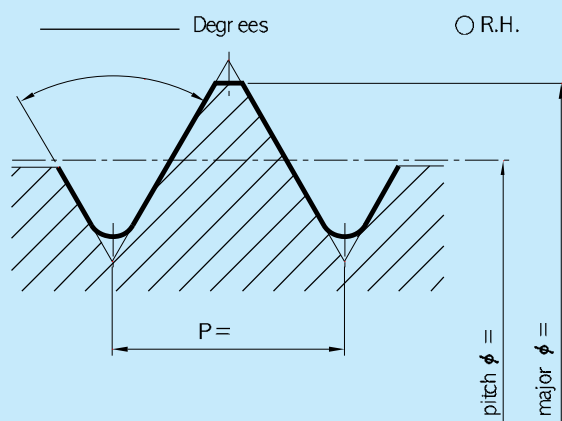
Address

Department

Phone

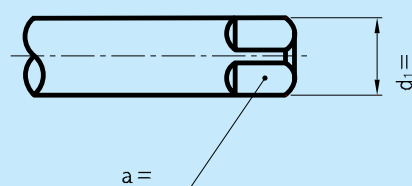
Tool

Thread ϕ and pitch



☐ R.H.

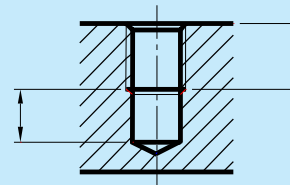
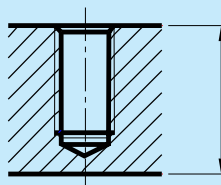
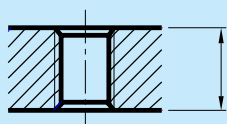
☐ L.H.



Tolerance class

Overall length mm

Hole



Unusual characteristics of the threaded product or of the tapping method, e.g. counterbore, tapping on an angle, etc.

Material to be tapped

Material No. or designation

Tensile strength

N/mm²

HB

HRc

Chip form

☐ short

☐ long

☐ Annealed steel

☐ Hardened steel

☐ Heat treated steel

Special requirements :

Person to be contacted within the company

Date

Signature

SEND US YOUR TAPPING PROBLEMS

For photocopying

This form may be returned to your local Y.G-1 distributor or to Y.G-1.

Company _____
Address _____
Department _____
Phone _____

Tool	Description of the tap being used at present _____ Thread ϕ and pitch _____ <input type="radio"/> right-hand cutting <input type="radio"/> fluteless <input type="radio"/> straight flutes <input type="radio"/> spiral point Additional information for special pitches or thread forms pitch ϕ _____ major ϕ _____ minor ϕ _____ flank angle _____ degrees	Make _____ Type _____ Class of tolerance _____ <input type="radio"/> left-hand cutting <input type="radio"/> right hand spiral flutes _____ degrees <input type="radio"/> left hand spiral flutes _____ degrees <input type="radio"/> length of chamfer _____ thread chamfer
Hole	Tap drill ϕ _____ length of hole _____ depth of full thread _____ <input type="radio"/> through hole <input type="radio"/> bottoming hole Special requirements or unusual characteristics of the threaded product _____	
Tapping speed	_____ meters per minute _____ revolutions per minute	
Lubricant	<input type="radio"/> without <input type="radio"/> emulsion % <input type="radio"/> cutting oil <input type="radio"/> other _____ Application <input type="radio"/> under pressure <input type="radio"/> vaporization <input type="radio"/> other _____	
Machine	Type _____ <input type="radio"/> horizontal tapping <input type="radio"/> vertical tapping	
Driving	<input type="radio"/> tap revolves <input type="radio"/> work revolves Number of spindles _____	
Feed	<input type="radio"/> without <input type="radio"/> power <input type="radio"/> CNC % _____	
Tool holder	<input type="radio"/> rigid <input type="radio"/> floating <input type="radio"/> with safety clutch Make _____ Type _____	
Material to be tapped	Material No. or designation _____ Composition, if possible _____ Tensile strength or hardness _____ N/mm ² _____ HB _____ HRC Chip form <input type="radio"/> short <input type="radio"/> long	
Short description of problem : _____ _____ _____ _____		
Person to be contacted within the company _____ Date _____ Signature _____		

TAP TOLERANCES

AMERICAN STANDARD

Cylindrical threads

UNC	Unified Coarse-Thread Series
UNF	Unified Fine-Thread Series
UNEF	Unified Extra-Fine-Thread Series
UN	Constant Pitch Series-Threads with constant pitch of T.P.I. 4,6,8,12,16, 20,28,32
UNS	Selected combinations-Threads with special dia-pitch combinations
UNJ	Unified threads with constant pitch with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJC	Unified coarse thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJEF	Unified extra fine thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJF	Unified fine threads with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch

Pipe cylindrical threads

NPS	Cylindrical threads for pipe
NPSC	American Standard for pipe coupling
NPSF	American Standard for internal thread on pipe, dryseal
NPSH	American Standard for cylindrical threads for pipe, joints and nipples
NPSI	American Standard for internal cylindrical threads on pipe(dryseal)
NPSL	American Standard for cylindrical threads on pipe for nuts
NPSM	American Standard for cylindrical threads on pipe for mechanical joints
NGO	American National pipe threads for gas exhaust
NGS	American National pipe threads for gas

Taper pipe threads

ANPT	Taper pipe threads for Army, Navy and Airforce
F-PTE	Taper pipe fine threads(dryseal)

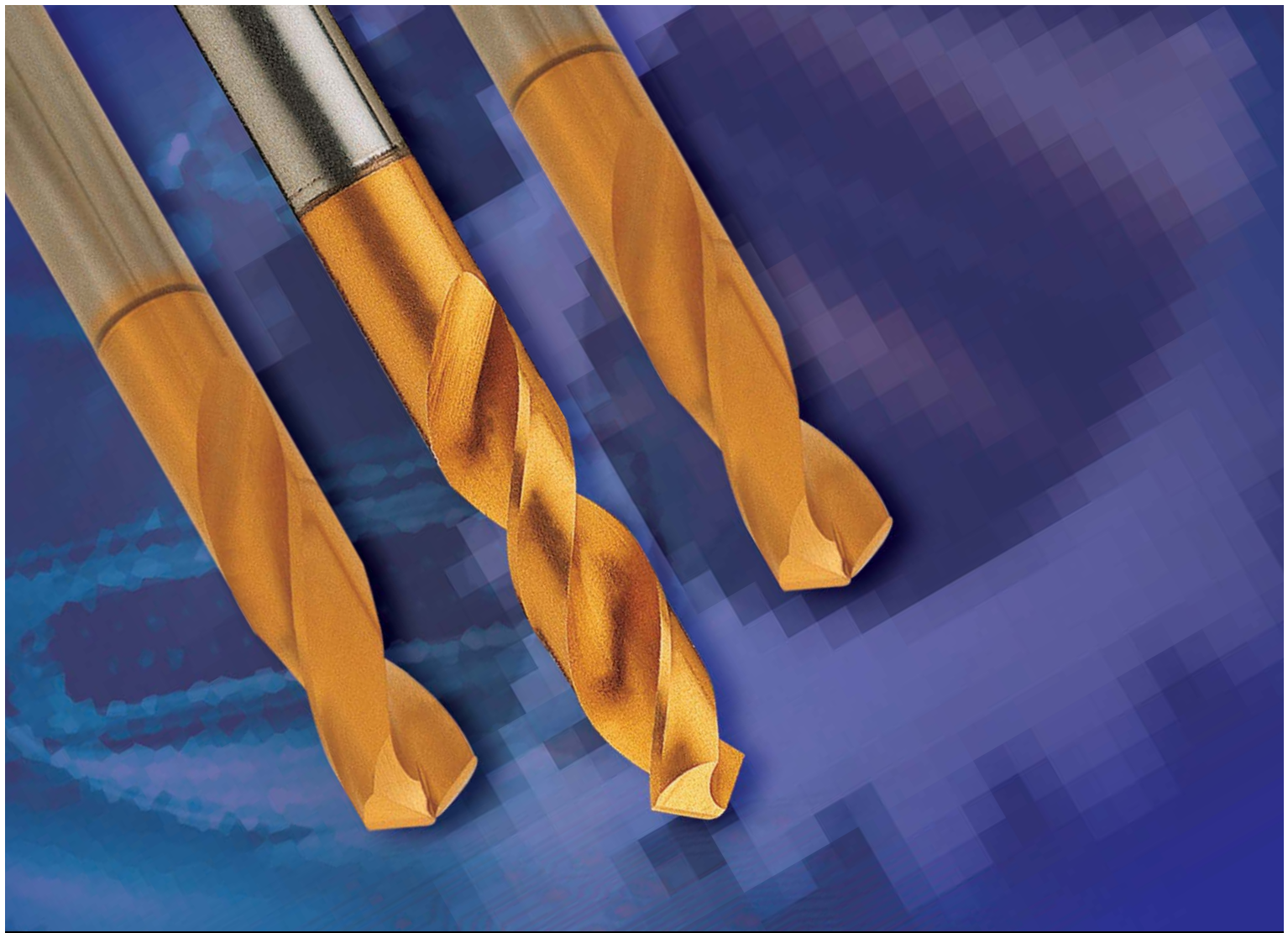
NPT	Taper pipe thread
NPTF	Taper pipe thread (dryseal)
NPTR	Taper pipe thread for railways equipments
PTF-SAE SHORT	Taper pipe short thread(dryseal)-SAE
PTF-SPL SHORT	Taper pipe special thread(dryseal)-SAE
PTF-SPL EXTRA SHORT	Extra short special thread(dryseal)-SAE
SPL-PTF	Special taper pipe dryseal thread
NGT	National American taper pipe thread
SGT	Special taper pipe thread
API	American petroleum Institute taper pipe thread

Trapezoidal and saw tooth threads

ACME-C	ACME selfcentering thread
ACME-G	ACME generical application
STUB-ACME	ACME flat thread with reduced thread depth
60° STUB-ACME	ACME flat thread with 60° flank angle
N BUTT	American National Saw tooth thread

BRITISH STANDARD

BSW	Whitworth British Standard coarse pitch
BSF	Whitworth British Standard fine pitch
WHIT	Whitworth Standard special pitch
R	British Standard external threading for taper pipe(dryseal)(already BSP-Tr)
Rc	British Standard internal threading taper thread for pipe(BSP-Tr)
Rp	British Standard cylindrical thread for pipe(already BSP.PI)
BA	British Standard Association thread
BSC	British Standard thread for bicycle
CEI	British Standard for bicycle



SPIRALBOHRER - TWIST DRILLS

***SOLID CARBIDE
&
HIGH SPEED STEEL***

SOLID CARBIDE DREAM DRILLS

For High productivity, High precision drilling in steels.

DIN6539 (3XD) VHM CARBIDE		Vollhartmetall - DREAM - Spiralbohrer Carbide DREAM Drills	EXTRA KURZ STUB	475
DIN6537 (3XD) VHM CARBIDE		Vollhartmetall - DREAM - Spiralbohrer Carbide DREAM Drills	KURZ SHORT	477
DIN6537 (5XD) VHM CARBIDE		Vollhartmetall - DREAM - Spiralbohrer Carbide DREAM Drills	LANG LONG	479
DIN6537 (3XD) VHM CARBIDE		Vollhartmetall-DREAM-Hochleistungsbohrer Carbide DREAM Drills with Coolant Holes	KURZ SHORT	481
DIN6537 (5XD) VHM CARBIDE		Vollhartmetall-DREAM-Hochleistungsbohrer Carbide DREAM Drills with Coolant Holes	LANG LONG	483
DIN6537 (8XD) VHM CARBIDE		Vollhartmetall-DREAM-Hochleistungsbohrer Carbide DREAM Drills with Coolant Holes	EXTRA LANG EXTRA LONG	485



SOLID CARBIDE DRILLS

For General materials, cast steel, cast iron, non-ferrous materials

DIN6539 VHM CARBIDE		Vollhartmetall-Spiralbohrer Carbide Drills	EXTRA KURZ STUB	487
DIN338 VHM CARBIDE		Vollhartmetall-Spiralbohrer Carbide Drills	KURZ JOBBER	489
NC VHM CARBIDE		Vollhartmetall NC-Anbohrer Carbide NC Spotting Drills		490

Hi-Q-HIGH QUALITY DRILLS

For General materials, Steels and Stainless Steels,etc

Hi-Q STUB ASP30		Hi-Q Spiralbohrer für Stähle, Edelstähle Hi-Q Twist Drills for steels, Stainless steels	EXTRA KURZ STUB	491
Hi-Q JOBBER ASP30		Hi-Q Spiralbohrer für Stähle, Edelstähle Hi-Q Twist Drills for steels, Stainless steels	KURZ JOBBER	494

HPD - HIGH PERFORMANCE DRILLS

HPD Drills for High precision drilling in general steels.

HPD-SUS Drills for High precision drilling in Stainless steels

HPD-STUB
PREMIUM
HSSCo



HPD Spiralbohrer für Stähle
HPD Twist Drills for Steels

EXTRA KURZ
STUB

497

HPD-JOBBER
PREMIUM
HSSCo



HPD Spiralbohrer für Stähle
HPD Twist Drills for Steels

KURZ
JOBBER

501

HPD-SUS
STUB
HSS-EX



HPD-SUS Spiralbohrer für Edelstähle
HPD-SUS Drills for Stainless steels

EXTRA KURZ
STUB

506

HPD-SUS
JOBBER
HSS-EX



HPD-SUS Spiralbohrer für Edelstähle
HPD-SUS Drills for Stainless steels

KURZ
JOBBER

509

HPD-T.S
JOBBER
PREMIUM HSSCo



HPD Spiralbohrer für stähle mit Morsekegelschaft
HPD Morse Taper Shank Twist Drills for steels

KURZ
JOBBER

512

DH100, DH50-WORM PATTERN DRILLS

DH100-For Deep hole drilling in general steels.

DIN1897
STUB
HSSCo5



DH100 Spiralbohrer für tiefloch mit Zylinderschaft, Form B
DH100 Straight Shank Drills for deep hole, Form B

EXTRA KURZ
STUB

515

DIN338
JOBBER
HSSCo5



DH100 Spiralbohrer für tiefloch mit Zylinderschaft, Form B
DH100 Straight Shank Drills for deep hole, Form B

KURZ
JOBBER

517

DIN340
LONG
HSSCo5



DH100 Spiralbohrer für tiefloch mit Zylinderschaft, Form B
DH100 Straight Shank Drills for deep hole, Form B

LANG
LONG

519

DIN338
JOBBER
HSSCo5



DH100 Spiralbohrer für tiefloch mit Zylinderschaft, Form C
DH100 Straight Shank Drills for deep hole, Form C

KURZ
JOBBER

521

DIN340
LONG
HSSCo5



DH100 Spiralbohrer für tiefloch mit Zylinderschaft, Form C
DH100 Straight Shank Drills for deep hole, Form C

LANG
LONG

523

DIN1869
EXTRA LONG
HSSCo5



DH100 Spiralbohrer für tiefloch mit Zylinderschaft, Form C
DH100 Straight Shank Drills for deep hole, Form C

ÜBERLANG
EXTRA LONG

524

DIN341
T.S LONG
HSSCo5



DH100 Spiralbohrer für tiefloch mit Morsekegelschaft
DH100 Taper Shank Drills for deep hole, Form C

LANG
LONG

525

DIN1870/1
T.S EXTRA LONG
HSSCo5



DH100 Spiralbohrer für tiefloch mit Morsekegelschaft
DH100 Taper Shank Drills for deep hole, Form C

ÜBERLANG
EXTRA LONG

526

DIN1870/2
T.S EXTRA LONG
HSSCo5



DH100 Spiralbohrer für tiefloch mit Morsekegelschaft
DH100 Taper Shank Drills for deep hole, Form C

ÜBERLANG
EXTRA LONG

527

DH50-For Deep hole drilling in aluminium

EXTRA
Long
HSSCo5



DH50 Spiralbohrer für aluminium tiefloch mit Zylinderschaft
DH50 Straight shank Drills for aluminium deep hole, Form C

LANG
LONG

528

STRAIGHT SHANK TWIST DRILLS

HSS Drills for soft materials & cobalt HSS Drills for tough materials

DIN1897
STUB
HSSCo8



Spiralbohrer mit Zylinderschaft
Straight Shank Twist Drills, Form C

EXTRA KURZ
STUB

530

DIN1897
STUB
HSS



Spiralbohrer mit Zylinderschaft
Straight Shank Twist Drills

EXTRA KURZ
STUB

533

DIN338
JOBBER
HSSCo8



Spiralbohrer mit Zylinderschaft
Straight Shank Twist Drills, Form C

KURZ
JOBBER

535

DIN338
JOBBER
HSSCo5



Spiralbohrer mit Zylinderschaft
Straight Shank Twist Drills, Form C

KURZ
JOBBER

538

DIN338
JOBBER
HSS



Spiralbohrer mit Zylinderschaft
Straight Shank Twist Drills

KURZ
JOBBER

541

DIN340
LONG
HSSCo8



Spiralbohrer mit Zylinderschaft
Straight Shank Twist Drills

LANG
LONG

545

DIN1869
EXTRA LONG
HSS



Spiralbohrer mit Zylinderschaft
Straight Shank Twist Drills, Form C

ÜBERLANG
EXTRA LONG

547

DIN338
JOBBER
HSSCo5



Spiralbohrer für hoheleistungen mit Zylinderschaft
Straight Shank Twist Drills for Heavy Duty, Form C

KURZ
JOBBER

548

DIN338
JOBBER
HSS



Spiralbohrer für messing mit Zylinderschaft
Straight Shank Twist Drills for Brass

KURZ
JOBBER

549

DIN338
JOBBER
HSS



Spiralbohrer für aluminium mit Zylinderschaft
Straight Shank Twist Drills for Aluminium, Form C

KURZ
JOBBER

551

NC
HSS Co8



NC-Anbohrer
NC Spotting Drills

553

DIN333
CENTER
HSS-EX



Zentrierbohrer
Center Drills

554

*HSS, MORSE TAPER SHANK DRILLS***Morse Taper Shank Twist Drills for wide applications.**T.S SHORT
HSSCo5Spiralbohrer mit Morsekegelschaft
Taper Shank Twist DrillsKURZ
SHORT

555

DIN345
T.S JOBBER
HSSCo5Spiralbohrer für hoheleistungen mit Morsekegelschaft
Taper Shank Twist Drills for Heavy DutyKURZ
JOBBER

556

DIN345
T.S JOBBER
HSSSpiralbohrer mit Morsekegelschaft
Taper Shank Twist DrillsKURZ
JOBBER

557

DIN341
T.S LONG
HSSSpiralbohrer mit Morsekegelschaft
Taper Shank Twist DrillsLANG
LONG

559

DIN1870/1
T.S EXTRA LONG
HSSSpiralbohrer mit Morsekegelschaft
Taper Shank Twist DrillsÜBERLANG
EXTRA LONG

560

DIN1870/2
T.S EXTRA LONG
HSSSpiralbohrer mit Morsekegelschaft
Taper Shank Twist DrillsÜBERLANG
EXTRA LONG

561

TECHNICAL INFORMATION

562~576

SPEED & FEED DATA

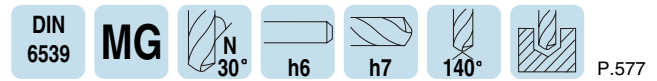
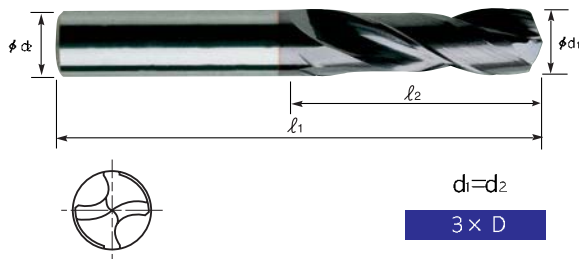
577~589

Vollhartmetall - DREAM - Spiralbohrer

Carbide DREAM Drills

EXTRA KURZ

STUB



- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 -Keine Führungsbuchse notwendig.
 Spezielles Design
 -Räumen ist nicht notwendig
 -Güte Spanabfuhr
 -Leistungsfähiges Bohren
- **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.
- **Advantage** : Self centering - center drilling is not required
 Excellent positioning - bush is not necessary
 Special design - reaming is not required
 - good chip removal
 - powerful drilling

Unit:mm

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH404030	3.0	46	16	DH404057	5.7	66	28
DH404031	3.1	49	18	DH404058	5.8	66	28
DH404032	3.2	49	18	DH404059	5.9	66	28
DH404033	3.3	49	18	DH404060	6.0	66	28
DH404034	3.4	52	20	DH404061	6.1	70	31
DH404035	3.5	52	20	DH404062	6.2	70	31
DH404036	3.6	52	20	DH404063	6.3	70	31
DH404037	3.7	52	20	DH404064	6.4	70	31
DH404038	3.8	55	22	DH404065	6.5	70	31
DH404039	3.9	55	22	DH404066	6.6	70	31
DH404040	4.0	55	22	DH404067	6.7	70	31
DH404041	4.1	55	22	DH404068	6.8	74	34
DH404042	4.2	55	22	DH404069	6.9	74	34
DH404043	4.3	58	24	DH404070	7.0	74	34
DH404044	4.4	58	24	DH404071	7.1	74	34
DH404045	4.5	58	24	DH404072	7.2	74	34
DH404046	4.6	58	24	DH404073	7.3	74	34
DH404047	4.7	58	24	DH404074	7.4	74	34
DH404048	4.8	62	26	DH404075	7.5	74	34
DH404049	4.9	62	26	DH404076	7.6	79	37
DH404050	5.0	62	26	DH404077	7.7	79	37
DH404051	5.1	62	26	DH404078	7.8	79	37
DH404052	5.2	62	26	DH404079	7.9	79	37
DH404053	5.3	62	26	DH404080	8.0	79	37
DH404054	5.4	66	28	DH404081	8.1	79	37
DH404055	5.5	66	28	DH404082	8.2	79	37
DH404056	5.6	66	28	DH404083	8.3	79	37

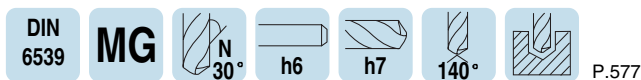
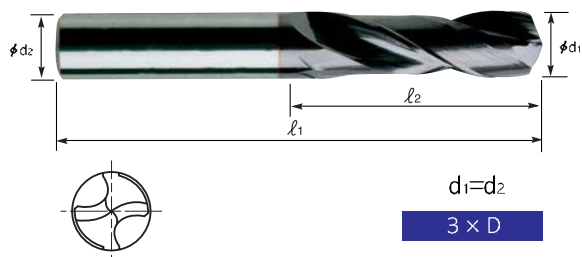
► The TiN(D6404), TiCN(DG404) and HARD LUBE(DZ404) is available on your request.

Vollhartmetall - DREAM - Spiralbohrer

Carbide DREAM Drills

EXTRA KURZ

STUB



► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DH404084	8.4	79	37
DH404085	8.5	79	37
DH404086	8.6	84	40
DH404087	8.7	84	40
DH404088	8.8	84	40
DH404089	8.9	84	40
DH404090	9.0	84	40
DH404091	9.1	84	40
DH404092	9.2	84	40
DH404093	9.3	84	40
DH404094	9.4	84	40
DH404095	9.5	84	40
DH404096	9.6	89	43
DH404097	9.7	89	43
DH404098	9.8	89	43
DH404099	9.9	89	43
DH404100	10.0	89	43
DH404102	10.2	89	43
DH404105	10.5	89	43

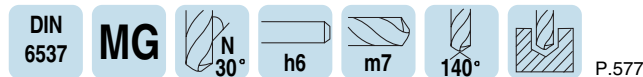
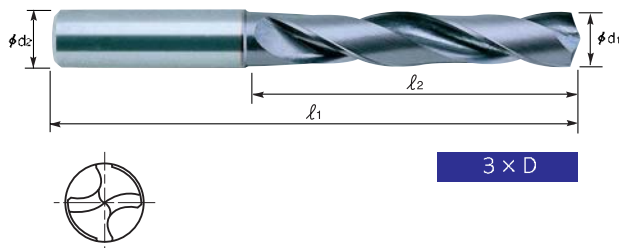
Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DH404110	11.0	95	47
DH404115	11.5	95	47
DH404120	12.0	102	51
DH404130	13.0	102	51
DH404135	13.5	107	54
DH404140	14.0	107	54
DH404145	14.5	111	56
DH404150	15.0	111	56
DH404155	15.5	115	58
DH404160	16.0	115	58
DH404165	16.5	119	60
DH404170	17.0	119	60
DH404175	17.5	123	62
DH404180	18.0	123	62
DH404185	18.5	127	64
DH404190	19.0	127	64
DH404195	19.5	131	66
DH404200	20.0	131	66

► TiN(D6404), TiCN(DG404) and HARD LUBE(DZ404) is available on your request.

Vollhartmetall - DREAM - Spiralbohrer

Carbide DREAM Drills

KURZ
SHORT



- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
-Keine Führungsbuchse notwendig.
Spezielles Design
-Räumen ist nicht notwendig
-Güte Spanabfuhr
-Leistungsfähiges Bohren
- **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.
- **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

NEW

Unit:mm

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH423030	3.0	6.0	62	20	DH423059	5.9	6.0	66	28
DH423031	3.1	6.0	62	20	DH423060	6.0	6.0	66	28
DH423032	3.2	6.0	62	20	DH423061	6.1	8.0	79	34
DH423033	3.3	6.0	62	20	DH423062	6.2	8.0	79	34
DH423034	3.4	6.0	62	20	DH423063	6.3	8.0	79	34
DH423035	3.5	6.0	62	20	DH423064	6.4	8.0	79	34
DH423036	3.6	6.0	62	20	DH423065	6.5	8.0	79	34
DH423037	3.7	6.0	62	20	DH423066	6.6	8.0	79	34
DH423038	3.8	6.0	66	24	DH423067	6.7	8.0	79	34
DH423039	3.9	6.0	66	24	DH423068	6.8	8.0	79	34
DH423040	4.0	6.0	66	24	DH423069	6.9	8.0	79	34
DH423041	4.1	6.0	66	24	DH423070	7.0	8.0	79	34
DH423042	4.2	6.0	66	24	DH423071	7.1	8.0	79	41
DH423043	4.3	6.0	66	24	DH423072	7.2	8.0	79	41
DH423044	4.4	6.0	66	24	DH423073	7.3	8.0	79	41
DH423045	4.5	6.0	66	24	DH423074	7.4	8.0	79	41
DH423046	4.6	6.0	66	24	DH423075	7.5	8.0	79	41
DH423047	4.7	6.0	66	24	DH423076	7.6	8.0	79	41
DH423048	4.8	6.0	66	28	DH423077	7.7	8.0	79	41
DH423049	4.9	6.0	66	28	DH423078	7.8	8.0	79	41
DH423050	5.0	6.0	66	28	DH423079	7.9	8.0	79	41
DH423051	5.1	6.0	66	28	DH423080	8.0	8.0	79	41
DH423052	5.2	6.0	66	28	DH423081	8.1	10.0	89	47
DH423053	5.3	6.0	66	28	DH423082	8.2	10.0	89	47
DH423054	5.4	6.0	66	28	DH423083	8.3	10.0	89	47
DH423055	5.5	6.0	66	28	DH423084	8.4	10.0	89	47
DH423056	5.6	6.0	66	28	DH423085	8.5	10.0	89	47
DH423057	5.7	6.0	66	28	DH423086	8.6	10.0	89	47
DH423058	5.8	6.0	66	28	DH423087	8.7	10.0	89	47

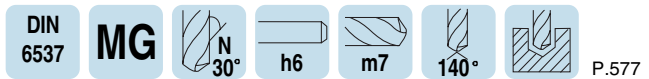
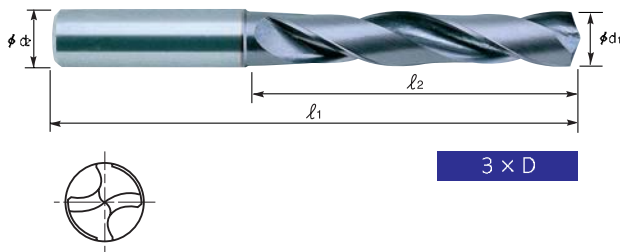
► The TiN(D6423), TiCN(DG423) and HARD LUBE(DZ423) is available on your request.

DRILLS

Vollhartmetall - DREAM - Spiralbohrer

Carbide DREAM Drills

KURZ
SHORT



► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

NEW

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH423088	8.8	10.0	89	47
DH423089	8.9	10.0	89	47
DH423090	9.0	10.0	89	47
DH423091	9.1	10.0	89	47
DH423092	9.2	10.0	89	47
DH423093	9.3	10.0	89	47
DH423094	9.4	10.0	89	47
DH423095	9.5	10.0	89	47
DH423096	9.6	10.0	89	47
DH423097	9.7	10.0	89	47
DH423098	9.8	10.0	89	47
DH423099	9.9	10.0	89	47
DH423100	10.0	10.0	89	47
DH423101	10.1	12.0	102	55
DH423102	10.2	12.0	102	55
DH423103	10.3	12.0	102	55
DH423104	10.4	12.0	102	55
DH423105	10.5	12.0	102	55
DH423106	10.6	12.0	102	55
DH423107	10.7	12.0	102	55
DH423108	10.8	12.0	102	55
DH423109	10.9	12.0	102	55
DH423110	11.0	12.0	102	55
DH423111	11.1	12.0	102	55
DH423112	11.2	12.0	102	55
DH423113	11.3	12.0	102	55
DH423114	11.4	12.0	102	55
DH423115	11.5	12.0	102	55
DH423116	11.6	12.0	102	55

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH423117	11.7	12.0	102	55
DH423118	11.8	12.0	102	55
DH423119	11.9	12.0	102	55
DH423120	12.0	12.0	102	55
DH423123	12.3	14.0	107	60
DH423125	12.5	14.0	107	60
DH423128	12.8	14.0	107	60
DH423130	13.0	14.0	107	60
DH423135	13.5	14.0	107	60
DH423138	13.8	14.0	107	60
DH423140	14.0	14.0	107	60
DH423145	14.5	16.0	115	65
DH423148	14.8	16.0	115	65
DH423150	15.0	16.0	115	65
DH423155	15.5	16.0	115	65
DH423158	15.8	16.0	115	65
DH423160	16.0	16.0	115	65
DH423165	16.5	18.0	123	73
DH423168	16.8	18.0	123	73
DH423170	17.0	18.0	123	73
DH423175	17.5	18.0	123	73
DH423178	17.8	18.0	123	73
DH423180	18.0	18.0	123	73
DH423185	18.5	20.0	131	79
DH423190	19.0	20.0	131	79
DH423195	19.5	20.0	131	79
DH423198	19.8	20.0	131	79
DH423200	20.0	20.0	131	79

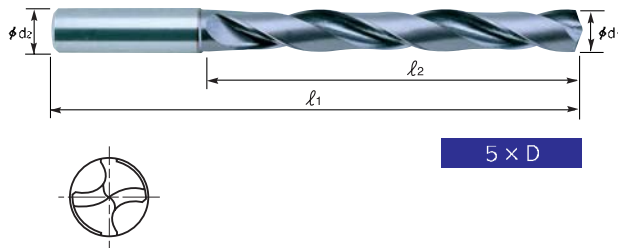
► The TiN(D6423), TiCN(DG423) and HARD LUBE(DZ423) is available on your request.

Vollhartmetall - DREAM - Spiralbohrer

Carbide DREAM Drills

LANG

LONG



DIN
6537

MG

N
30°

h6

m7

140°



P.577

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein,
Stahlguß, Hart-und Temperguß, Nichteisen
Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled
cast iron, malleable cast iron, non-ferrous heavy metal,
non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

NEW

Unit:mm

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH424030	3.0	6.0	66	28
DH424031	3.1	6.0	66	28
DH424032	3.2	6.0	66	28
DH424033	3.3	6.0	66	28
DH424034	3.4	6.0	66	28
DH424035	3.5	6.0	66	28
DH424036	3.6	6.0	66	28
DH424037	3.7	6.0	66	28
DH424038	3.8	6.0	74	36
DH424039	3.9	6.0	74	36
DH424040	4.0	6.0	74	36
DH424041	4.1	6.0	74	36
DH424042	4.2	6.0	74	36
DH424043	4.3	6.0	74	36
DH424044	4.4	6.0	74	36
DH424045	4.5	6.0	74	36
DH424046	4.6	6.0	74	36
DH424047	4.7	6.0	74	36
DH424048	4.8	6.0	82	44
DH424049	4.9	6.0	82	44
DH424050	5.0	6.0	82	44
DH424051	5.1	6.0	82	44
DH424052	5.2	6.0	82	44
DH424053	5.3	6.0	82	44
DH424054	5.4	6.0	82	44
DH424055	5.5	6.0	82	44
DH424056	5.6	6.0	82	44
DH424057	5.7	6.0	82	44
DH424058	5.8	6.0	82	44

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH424059	5.9	6.0	82	44
DH424060	6.0	6.0	82	44
DH424061	6.1	8.0	91	53
DH424062	6.2	8.0	91	53
DH424063	6.3	8.0	91	53
DH424064	6.4	8.0	91	53
DH424065	6.5	8.0	91	53
DH424066	6.6	8.0	91	53
DH424067	6.7	8.0	91	53
DH424068	6.8	8.0	91	53
DH424069	6.9	8.0	91	53
DH424070	7.0	8.0	91	53
DH424071	7.1	8.0	91	53
DH424072	7.2	8.0	91	53
DH424073	7.3	8.0	91	53
DH424074	7.4	8.0	91	53
DH424075	7.5	8.0	91	53
DH424076	7.6	8.0	91	53
DH424077	7.7	8.0	91	53
DH424078	7.8	8.0	91	53
DH424079	7.9	8.0	91	53
DH424080	8.0	8.0	91	53
DH424081	8.1	10.0	103	61
DH424082	8.2	10.0	103	61
DH424083	8.3	10.0	103	61
DH424084	8.4	10.0	103	61
DH424085	8.5	10.0	103	61
DH424086	8.6	10.0	103	61
DH424087	8.7	10.0	103	61

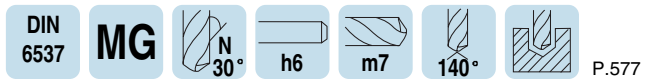
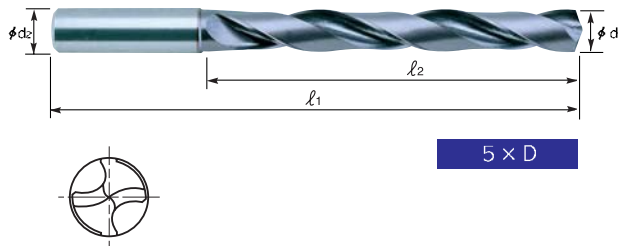
► The TiN(D6424), TiCN(DG424) and HARD LUBE(DZ424) is available on your request.

Vollhartmetall - DREAM - Spiralbohrer

Carbide DREAM Drills

LANG

LONG



► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

NEW

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH424088	8.8	10.0	103	61
DH424089	8.9	10.0	103	61
DH424090	9.0	10.0	103	61
DH424091	9.1	10.0	103	61
DH424092	9.2	10.0	103	61
DH424093	9.3	10.0	103	61
DH424094	9.4	10.0	103	61
DH424095	9.5	10.0	103	61
DH424096	9.6	10.0	103	61
DH424097	9.7	10.0	103	61
DH424098	9.8	10.0	103	61
DH424099	9.9	10.0	103	61
DH424100	10.0	10.0	103	61
DH424101	10.1	12.0	118	71
DH424102	10.2	12.0	118	71
DH424103	10.3	12.0	118	71
DH424104	10.4	12.0	118	71
DH424105	10.5	12.0	118	71
DH424106	10.6	12.0	118	71
DH424107	10.7	12.0	118	71
DH424108	10.8	12.0	118	71
DH424109	10.9	12.0	118	71
DH424110	11.0	12.0	118	71
DH424111	11.1	12.0	118	71
DH424112	11.2	12.0	118	71
DH424113	11.3	12.0	118	71
DH424114	11.4	12.0	118	71
DH424115	11.5	12.0	118	71
DH424116	11.6	12.0	118	71

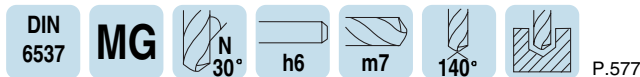
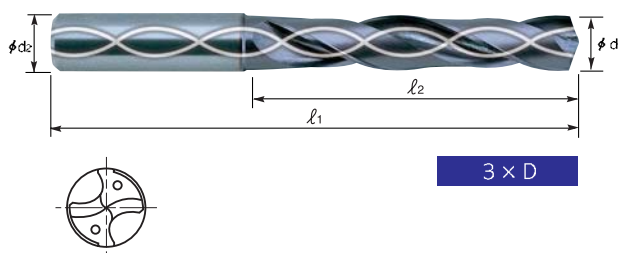
Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH424117	11.7	12.0	118	71
DH424118	11.8	12.0	118	71
DH424119	11.9	12.0	118	71
DH424120	12.0	12.0	118	71
DH424123	12.3	14.0	124	77
DH424125	12.5	14.0	124	77
DH424128	12.8	14.0	124	77
DH424130	13.0	14.0	124	77
DH424135	13.5	14.0	124	77
DH424138	13.8	14.0	124	77
DH424140	14.0	14.0	124	77
DH424145	14.5	16.0	133	83
DH424148	14.8	16.0	133	83
DH424150	15.0	16.0	133	83
DH424155	15.5	16.0	133	83
DH424158	15.8	16.0	133	83
DH424160	16.0	16.0	133	83
DH424165	16.5	18.0	143	93
DH424168	16.8	18.0	143	93
DH424170	17.0	18.0	143	93
DH424175	17.5	18.0	143	93
DH424178	17.8	18.0	143	93
DH424180	18.0	18.0	143	93
DH424185	18.5	20.0	153	101
DH424190	19.0	20.0	153	101
DH424195	19.5	20.0	153	101
DH424198	19.8	20.0	153	101
DH424200	20.0	20.0	153	101

► The TiN(D6424), TiCN(DG424) and HARD LUBE(DZ424) is available on your request.

Vollhartmetall - DREAM - Hochleistungsbohrer

Carbide DREAM Drills with Coolant Holes

KURZ
SHORT



- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
-Keine Führungsbuchse notwendig.
Spezielles Design
-Räumen ist nicht notwendig
-Güte Spanabfuhr
-Leistungsfähiges Bohren
- **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.
- **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

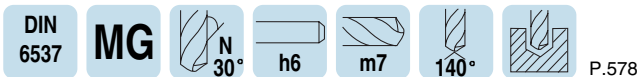
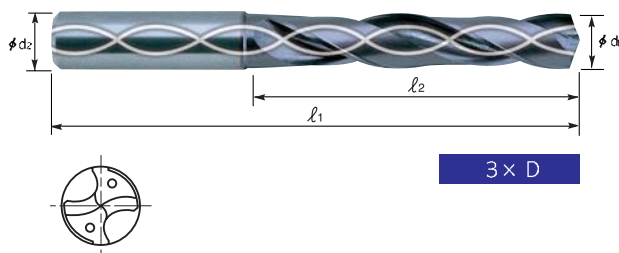
Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH406030	3.0	6.0	62	20	DH406059	5.9	6.0	66	28
DH406031	3.1	6.0	62	20	DH406060	6.0	6.0	66	28
DH406032	3.2	6.0	62	20	DH406061	6.1	8.0	79	34
DH406033	3.3	6.0	62	20	DH406062	6.2	8.0	79	34
DH406034	3.4	6.0	62	20	DH406063	6.3	8.0	79	34
DH406035	3.5	6.0	62	20	DH406064	6.4	8.0	79	34
DH406036	3.6	6.0	62	20	DH406065	6.5	8.0	79	34
DH406037	3.7	6.0	62	20	DH406066	6.6	8.0	79	34
DH406038	3.8	6.0	66	24	DH406067	6.7	8.0	79	34
DH406039	3.9	6.0	66	24	DH406068	6.8	8.0	79	34
DH406040	4.0	6.0	66	24	DH406069	6.9	8.0	79	34
DH406041	4.1	6.0	66	24	DH406070	7.0	8.0	79	34
DH406042	4.2	6.0	66	24	DH406071	7.1	8.0	79	41
DH406043	4.3	6.0	66	24	DH406072	7.2	8.0	79	41
DH406044	4.4	6.0	66	24	DH406073	7.3	8.0	79	41
DH406045	4.5	6.0	66	24	DH406074	7.4	8.0	79	41
DH406046	4.6	6.0	66	24	DH406075	7.5	8.0	79	41
DH406047	4.7	6.0	66	24	DH406076	7.6	8.0	79	41
DH406048	4.8	6.0	66	28	DH406077	7.7	8.0	79	41
DH406049	4.9	6.0	66	28	DH406078	7.8	8.0	79	41
DH406050	5.0	6.0	66	28	DH406079	7.9	8.0	79	41
DH406051	5.1	6.0	66	28	DH406080	8.0	8.0	79	41
DH406052	5.2	6.0	66	28	DH406081	8.1	10.0	89	47
DH406053	5.3	6.0	66	28	DH406082	8.2	10.0	89	47
DH406054	5.4	6.0	66	28	DH406083	8.3	10.0	89	47
DH406055	5.5	6.0	66	28	DH406084	8.4	10.0	89	47
DH406056	5.6	6.0	66	28	DH406085	8.5	10.0	89	47
DH406057	5.7	6.0	66	28	DH406086	8.6	10.0	89	47
DH406058	5.8	6.0	66	28	DH406087	8.7	10.0	89	47

► The TiN(D6406), TiCN(DG406) and HARD LUBE(DZ406) is available on your request.

Vollhartmetall - DREAM - Hochleistungsbohrer

Carbide DREAM Drills with Coolant Holes

KURZ
SHORT



► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH406088	8.8	10.0	89	47
DH406089	8.9	10.0	89	47
DH406090	9.0	10.0	89	47
DH406091	9.1	10.0	89	47
DH406092	9.2	10.0	89	47
DH406093	9.3	10.0	89	47
DH406094	9.4	10.0	89	47
DH406095	9.5	10.0	89	47
DH406096	9.6	10.0	89	47
DH406097	9.7	10.0	89	47
DH406098	9.8	10.0	89	47
DH406099	9.9	10.0	89	47
DH406100	10.0	10.0	89	47
DH406101	10.1	12.0	102	55
DH406102	10.2	12.0	102	55
DH406103	10.3	12.0	102	55
DH406104	10.4	12.0	102	55
DH406105	10.5	12.0	102	55
DH406106	10.6	12.0	102	55
DH406107	10.7	12.0	102	55
DH406108	10.8	12.0	102	55
DH406109	10.9	12.0	102	55
DH406110	11.0	12.0	102	55
DH406111	11.1	12.0	102	55
DH406112	11.2	12.0	102	55
DH406113	11.3	12.0	102	55
DH406114	11.4	12.0	102	55
DH406115	11.5	12.0	102	55

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH406116	11.6	12.0	102	55
DH406117	11.7	12.0	102	55
DH406118	11.8	12.0	102	55
DH406119	11.9	12.0	102	55
DH406120	12.0	12.0	102	55
DH406125	12.5	14.0	107	60
DH406130	13.0	14.0	107	60
DH406135	13.5	14.0	107	60
DH406140	14.0	14.0	107	60
DH406145	14.5	16.0	115	65
DH406150	15.0	16.0	115	65
DH406155	15.5	16.0	115	65
DH406160	16.0	16.0	115	65
DH406165	16.5	18.0	123	73
DH406170	17.0	18.0	123	73
DH406175	17.5	18.0	123	73
DH406180	18.0	18.0	123	73
DH406185	18.5	20.0	131	79
DH406190	19.0	20.0	131	79
DH406195	19.5	20.0	131	79
DH406200	20.0	20.0	131	79
DH406220	22.0	25.0	147	89
DH406240	24.0	25.0	147	89
DH406250	25.0	25.0	147	89
DH406260	26.0	32.0	173	111
DH406280	28.0	32.0	173	111
DH406300	30.0	32.0	173	111

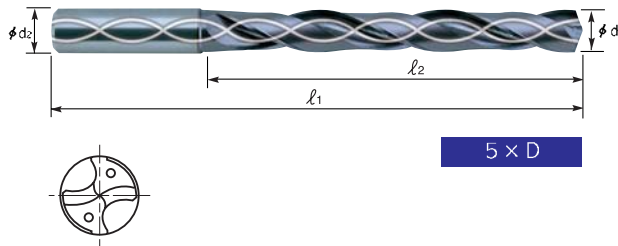
► The TiN(D6406), TiCN(DG406) and HARD LUBE(DZ406) is available on your request.

Vollhartmetall - DREAM - Hochleistungsbohrer

Carbide DREAM Drills with Coolant Holes

LANG

LONG



DIN
6537

MG

N
30°

h6

m7

140°



P.578

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH408030	3.0	6.0	66	28
DH408031	3.1	6.0	66	28
DH408032	3.2	6.0	66	28
DH408033	3.3	6.0	66	28
DH408034	3.4	6.0	66	28
DH408035	3.5	6.0	66	28
DH408036	3.6	6.0	66	28
DH408037	3.7	6.0	66	28
DH408038	3.8	6.0	74	36
DH408039	3.9	6.0	74	36
DH408040	4.0	6.0	74	36
DH408041	4.1	6.0	74	36
DH408042	4.2	6.0	74	36
DH408043	4.3	6.0	74	36
DH408044	4.4	6.0	74	36
DH408045	4.5	6.0	74	36
DH408046	4.6	6.0	74	36
DH408047	4.7	6.0	74	36
DH408048	4.8	6.0	82	44
DH408049	4.9	6.0	82	44
DH408050	5.0	6.0	82	44
DH408051	5.1	6.0	82	44
DH408052	5.2	6.0	82	44
DH408053	5.3	6.0	82	44
DH408054	5.4	6.0	82	44
DH408055	5.5	6.0	82	44
DH408056	5.6	6.0	82	44
DH408057	5.7	6.0	82	44
DH408058	5.8	6.0	82	44
DH408059	5.9	6.0	82	44

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH408060	6.0	6.0	82	44
DH408061	6.1	8.0	91	53
DH408062	6.2	8.0	91	53
DH408063	6.3	8.0	91	53
DH408064	6.4	8.0	91	53
DH408065	6.5	8.0	91	53
DH408066	6.6	8.0	91	53
DH408067	6.7	8.0	91	53
DH408068	6.8	8.0	91	53
DH408069	6.9	8.0	91	53
DH408070	7.0	8.0	91	53
DH408071	7.1	8.0	91	53
DH408072	7.2	8.0	91	53
DH408073	7.3	8.0	91	53
DH408074	7.4	8.0	91	53
DH408075	7.5	8.0	91	53
DH408076	7.6	8.0	91	53
DH408077	7.7	8.0	91	53
DH408078	7.8	8.0	91	53
DH408079	7.9	8.0	91	53
DH408080	8.0	8.0	91	53
DH408081	8.1	10.0	103	61
DH408082	8.2	10.0	103	61
DH408083	8.3	10.0	103	61
DH408084	8.4	10.0	103	61
DH408085	8.5	10.0	103	61
DH408086	8.6	10.0	103	61
DH408087	8.7	10.0	103	61
DH408088	8.8	10.0	103	61
DH408089	8.9	10.0	103	61

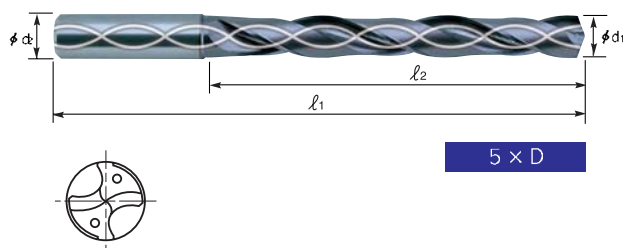
► The TiN(D6408), TiCN(DG408) and HARD LUBE(DZ408) is available on your request.

Vollhartmetall - DREAM - Hochleistungsbohrer

Carbide DREAM Drills with Coolant Holes

LANG

LONG



DIN
6537

MG



P.578

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH408090	9.0	10.0	103	61
DH408091	9.1	10.0	103	61
DH408092	9.2	10.0	103	61
DH408093	9.3	10.0	103	61
DH408094	9.4	10.0	103	61
DH408095	9.5	10.0	103	61
DH408096	9.6	10.0	103	61
DH408097	9.7	10.0	103	61
DH408098	9.8	10.0	103	61
DH408099	9.9	10.0	103	61
DH408100	10.0	10.0	103	61
DH408101	10.1	12.0	118	71
DH408102	10.2	12.0	118	71
DH408103	10.3	12.0	118	71
DH408104	10.4	12.0	118	71
DH408105	10.5	12.0	118	71
DH408106	10.6	12.0	118	71
DH408107	10.7	12.0	118	71
DH408108	10.8	12.0	118	71
DH408109	10.9	12.0	118	71
DH408110	11.0	12.0	118	71
DH408111	11.1	12.0	118	71
DH408112	11.2	12.0	118	71
DH408113	11.3	12.0	118	71
DH408114	11.4	12.0	118	71
DH408115	11.5	12.0	118	71
DH408116	11.6	12.0	118	71

Art.-Nr. EDP No. TiAlN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH408117	11.7	12.0	118	71
DH408118	11.8	12.0	118	71
DH408119	11.9	12.0	118	71
DH408120	12.0	12.0	118	71
DH408125	12.5	14.0	124	77
DH408130	13.0	14.0	124	77
DH408135	13.5	14.0	124	77
DH408140	14.0	14.0	124	77
DH408145	14.5	16.0	133	83
DH408150	15.0	16.0	133	83
DH408155	15.5	16.0	133	83
DH408160	16.0	16.0	133	83
DH408165	16.5	18.0	143	93
DH408170	17.0	18.0	143	93
DH408175	17.5	18.0	143	93
DH408180	18.0	18.0	143	93
DH408185	18.5	20.0	153	101
DH408190	19.0	20.0	153	101
DH408195	19.5	20.0	153	101
DH408200	20.0	20.0	153	101
DH408220	22.0	25.0	213	155
DH408240	24.0	25.0	213	155
DH408250	25.0	25.0	213	155
DH408260	26.0	32.0	248	186
DH408280	28.0	32.0	248	186
DH408300	30.0	32.0	248	186

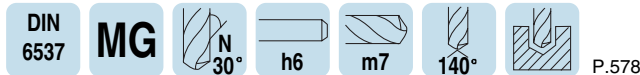
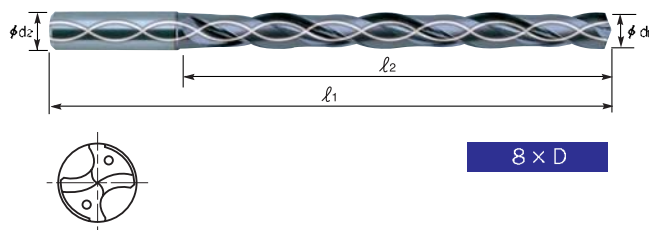
► The TiN(D6408), TiCN(DG408) and HARD LUBE(DZ408) is available on your request.

Vollhartmetall - DREAM - Hochleistungsbohrer

Carbide DREAM Drills with Coolant Holes

EXTRA LANG

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- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 -Keine Führungsbuchse notwendig.
 Spezielles Design
 -Räumen ist nicht notwendig
 -Güte Spanabfuhr
 -Leistungsfähiges Bohren
- **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.
- **Advantage** : Self centering - center drilling is not required
 Excellent positioning - bush is not necessary
 Special design - reaming is not required
 - good chip removal
 - powerful drilling

Unit:mm

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH421030	3.0	6.0	72	34	DH421057	5.7	6.0	95	57
DH421031	3.1	6.0	72	34	DH421058	5.8	6.0	95	57
DH421032	3.2	6.0	72	34	DH421059	5.9	6.0	95	57
DH421033	3.3	6.0	72	34	DH421060	6.0	6.0	95	57
DH421034	3.4	6.0	72	34	DH421061	6.1	8.0	114	76
DH421035	3.5	6.0	72	34	DH421062	6.2	8.0	114	76
DH421036	3.6	6.0	72	34	DH421063	6.3	8.0	114	76
DH421037	3.7	6.0	72	34	DH421064	6.4	8.0	114	76
DH421038	3.8	6.0	81	43	DH421065	6.5	8.0	114	76
DH421039	3.9	6.0	81	43	DH421066	6.6	8.0	114	76
DH421040	4.0	6.0	81	43	DH421067	6.7	8.0	114	76
DH421041	4.1	6.0	81	43	DH421068	6.8	8.0	114	76
DH421042	4.2	6.0	81	43	DH421069	6.9	8.0	114	76
DH421043	4.3	6.0	81	43	DH421070	7.0	8.0	114	76
DH421044	4.4	6.0	81	43	DH421071	7.1	8.0	114	76
DH421045	4.5	6.0	81	43	DH421072	7.2	8.0	114	76
DH421046	4.6	6.0	81	43	DH421073	7.3	8.0	114	76
DH421047	4.7	6.0	81	43	DH421074	7.4	8.0	114	76
DH421048	4.8	6.0	95	57	DH421075	7.5	8.0	114	76
DH421049	4.9	6.0	95	57	DH421076	7.6	8.0	114	76
DH421050	5.0	6.0	95	57	DH421077	7.7	8.0	114	76
DH421051	5.1	6.0	95	57	DH421078	7.8	8.0	114	76
DH421052	5.2	6.0	95	57	DH421079	7.9	8.0	114	76
DH421053	5.3	6.0	95	57	DH421080	8.0	8.0	114	76
DH421054	5.4	6.0	95	57	DH421081	8.1	10.0	142	95
DH421055	5.5	6.0	95	57	DH421082	8.2	10.0	142	95
DH421056	5.6	6.0	95	57	DH421083	8.3	10.0	142	95

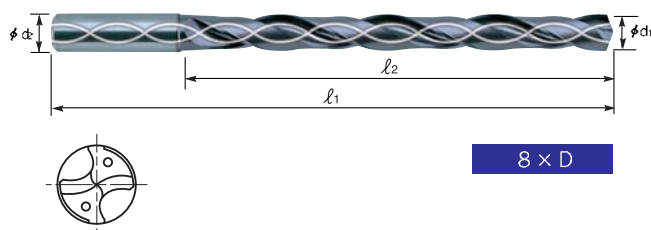
► The TiN(D6421), TiCN(DG421) and HARD LUBE(DZ421) is available on your request.

Vollhartmetall - DREAM - Hochleistungsbohrer

Carbide DREAM Drills with Coolant Holes

EXTRA LANG

EXTRA LONG



DIN
6537

MG



P.578

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
Spezielles Design
- Räumen ist nicht notwendig
- Güte Spanabfuhr
- Leistungsfähiges Bohren

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

► **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special design - reaming is not required
- good chip removal
- powerful drilling

Unit:mm

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH421084	8.4	10.0	142	95
DH421085	8.5	10.0	142	95
DH421086	8.6	10.0	142	95
DH421087	8.7	10.0	142	95
DH421088	8.8	10.0	142	95
DH421089	8.9	10.0	142	95
DH421090	9.0	10.0	142	95
DH421091	9.1	10.0	142	95
DH421092	9.2	10.0	142	95
DH421093	9.3	10.0	142	95
DH421094	9.4	10.0	142	95
DH421095	9.5	10.0	142	95
DH421096	9.6	10.0	142	95
DH421097	9.7	10.0	142	95
DH421098	9.8	10.0	142	95
DH421099	9.9	10.0	142	95
DH421100	10.0	10.0	142	95
DH421101	10.1	12.0	162	114
DH421102	10.2	12.0	162	114

Art.-Nr. EDP No. TiAIN	DRILL DIAMETER d ₁	SHANK DIAMETER d ₂	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DH421103	10.3	12.0	162	114
DH421104	10.4	12.0	162	114
DH421105	10.5	12.0	162	114
DH421106	10.6	12.0	162	114
DH421107	10.7	12.0	162	114
DH421108	10.8	12.0	162	114
DH421109	10.9	12.0	162	114
DH421110	11.0	12.0	162	114
DH421111	11.1	12.0	162	114
DH421112	11.2	12.0	162	114
DH421113	11.3	12.0	162	114
DH421114	11.4	12.0	162	114
DH421115	11.5	12.0	162	114
DH421116	11.6	12.0	162	114
DH421117	11.7	12.0	162	114
DH421118	11.8	12.0	162	114
DH421119	11.9	12.0	162	114
DH421120	12.0	12.0	162	114

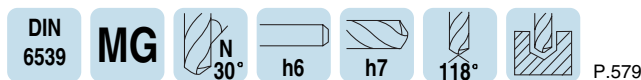
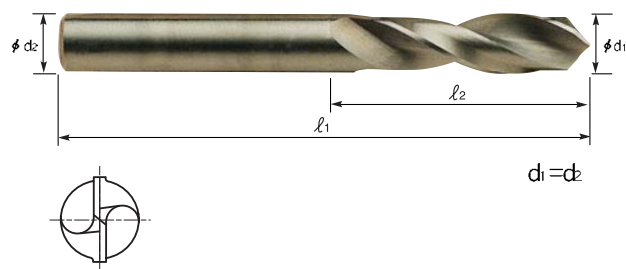
► The TiN(D6421), TiCN(DG421) and HARD LUBE(DZ421) is available on your request.

Vollhartmetall-Spiralbohrer

Carbide Drills

EXTRA KURZ

STUB



- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

Unit:mm

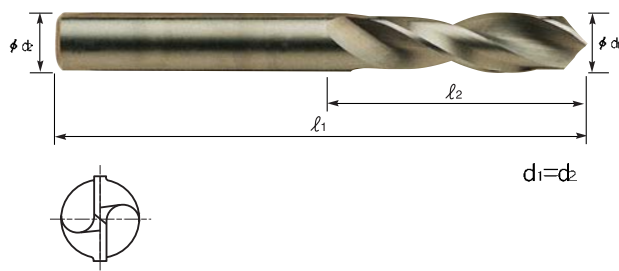
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D5405020	2.0	38	12	D5405047	4.7	58	24
D5405021	2.1	38	12	D5405048	4.8	62	26
D5405022	2.2	40	13	D5405049	4.9	62	26
D5405023	2.3	40	13	D5405050	5.0	62	26
D5405024	2.4	43	14	D5405051	5.1	62	26
D5405025	2.5	43	14	D5405052	5.2	62	26
D5405026	2.6	43	14	D5405053	5.3	62	26
D5405027	2.7	46	16	D5405054	5.4	66	28
D5405028	2.8	46	16	D5405055	5.5	66	28
D5405029	2.9	46	16	D5405056	5.6	66	28
D5405030	3.0	46	16	D5405057	5.7	66	28
D5405031	3.1	49	18	D5405058	5.8	66	28
D5405032	3.2	49	18	D5405059	5.9	66	28
D5405033	3.3	49	18	D5405060	6.0	66	28
D5405034	3.4	52	20	D5405061	6.1	70	31
D5405035	3.5	52	20	D5405062	6.2	70	31
D5405036	3.6	52	20	D5405063	6.3	70	31
D5405037	3.7	52	20	D5405064	6.4	70	31
D5405038	3.8	52	20	D5405065	6.5	70	31
D5405039	3.9	55	22	D5405066	6.6	70	31
D5405040	4.0	55	22	D5405067	6.7	70	31
D5405041	4.1	55	22	D5405068	6.8	74	34
D5405042	4.2	55	22	D5405069	6.9	74	34
D5405043	4.3	58	24	D5405070	7.0	74	34
D5405044	4.4	58	24	D5405071	7.1	74	34
D5405045	4.5	58	24	D5405072	7.2	74	34
D5405046	4.6	58	24	D5405073	7.3	74	34

► The TiN(D6405), TiCN(DG405) and TiAlN(DH405) is available on your request.

Vollhartmetall-Spiralbohrer Carbide Drills

EXTRA KURZ

STUB



DIN
6539

MG



P.579

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D5405074	7.4	74	34
D5405075	7.5	74	34
D5405076	7.6	79	37
D5405077	7.7	79	37
D5405078	7.8	79	37
D5405079	7.9	79	37
D5405080	8.0	79	37
D5405081	8.1	79	37
D5405082	8.2	79	37
D5405083	8.3	79	37
D5405084	8.4	79	37
D5405085	8.5	79	37
D5405086	8.6	84	40
D5405087	8.7	84	40
D5405088	8.8	84	40
D5405089	8.9	84	40
D5405090	9.0	84	40

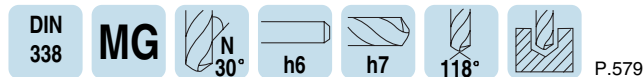
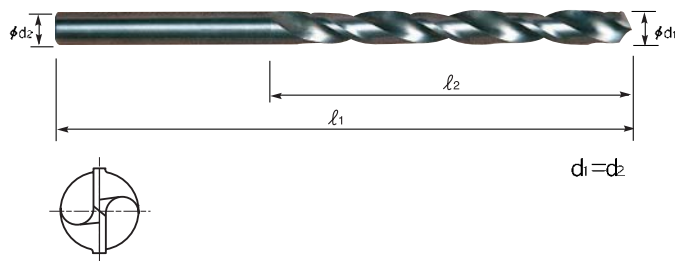
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D5405091	9.1	84	40
D5405092	9.2	84	40
D5405093	9.3	84	40
D5405094	9.4	84	40
D5405095	9.5	84	40
D5405096	9.6	89	43
D5405097	9.7	89	43
D5405098	9.8	89	43
D5405099	9.9	89	43
D5405100	10.0	89	43
D5405102	10.2	89	43
D5405105	10.5	89	43
D5405110	11.0	95	47
D5405115	11.5	95	47
D5405120	12.0	102	51
D5405130	13.0	102	51

► The TiN(D6405), TiCN(DG405) and TiAlN(DH405) is available on your request.

Vollhartmetall-Spiralbohrer

Carbide Drills

KURZ
JOBBER



► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

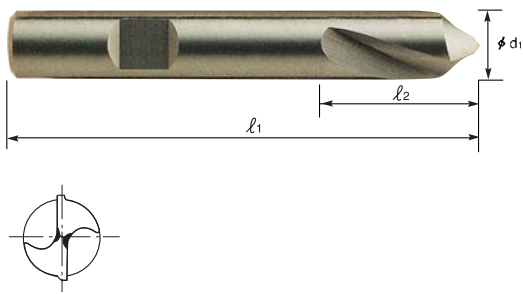
► **Application** : Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metal, non-ferrous light metal, abrasive plastic.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D5407020	2.0	49	24	D5407046	4.6	80	47
D5407021	2.1	49	24	D5407047	4.7	80	47
D5407022	2.2	53	27	D5407048	4.8	86	52
D5407023	2.3	53	27	D5407049	4.9	86	52
D5407024	2.4	57	30	D5407050	5.0	86	52
D5407025	2.5	57	30	D5407051	5.1	86	52
D5407026	2.6	57	30	D5407052	5.2	86	52
D5407027	2.7	61	33	D5407053	5.3	86	52
D5407028	2.8	61	33	D5407054	5.4	93	57
D5407029	2.9	61	33	D5407055	5.5	93	57
D5407030	3.0	61	33	D5407056	5.6	93	57
D5407031	3.1	65	36	D5407057	5.7	93	57
D5407032	3.2	65	36	D5407058	5.8	93	57
D5407033	3.3	65	36	D5407059	5.9	93	57
D5407034	3.4	70	39	D5407060	6.0	93	57
D5407035	3.5	70	39	D5407061	6.1	101	63
D5407036	3.6	70	39	D5407062	6.2	101	63
D5407037	3.7	70	39	D5407063	6.3	101	63
D5407038	3.8	75	43	D5407064	6.4	101	63
D5407039	3.9	75	43	D5407065	6.5	101	63
D5407040	4.0	75	43	D5407068	6.8	109	69
D5407041	4.1	75	43	D5407070	7.0	109	69
D5407042	4.2	75	43	D5407080	8.0	117	75
D5407043	4.3	80	47	D5407085	8.5	117	75
D5407044	4.4	80	47	D5407100	10.0	133	87
D5407045	4.5	80	47	D5407102	10.2	133	87

► The TiN(D6407), TiCN(DG407) and TiAlN(DH407) is available on your request.

Vollhartmetall NC-Anbohrer Carbide NC Spotting Drills



MG

DIN6535HB

h6

90°

120°



P.580

► **Verwendung** : Auf NC-Maschinen, Lehrenbohrwerken u.a. kapitalintensiven Bohrwerken, Zum Zentrieren und Anfasen von Gewindebohrungen in einem Arbeitsgang. Besonders geeignet zum Anbohren von hochfesten Stählen, Stahlguß, Grauguß, Hartguß, Mangan-Hartstahl, CrNi-Stählen, Bronzen, Leicht und Buntmetallen.

► **Application** : For more precise centering work on NC/CNC Machine. A larger diameter in respect to the subsequent drilling tool permits to obtain the centering and chamfering simultaneously.

NC-Anbohrer 90° NC-Spotting drills 90°

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D5306060	6.0	50	13
D5306080	8.0	60	23
D5306100	10.0	70	24
D5306120	12.0	70	24
D5306160	16.0	75	29
D5306200	20.0	100	35

NC-Anbohrer 120° NC-Spotting drills 120°

Unit:mm

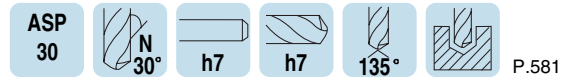
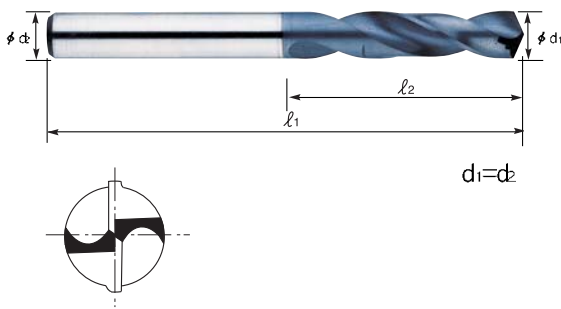
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D5307060	6.0	50	13
D5307080	8.0	60	23
D5307100	10.0	70	24
D5307120	12.0	70	24
D5307160	16.0	75	29
D5307200	20.0	100	35

► The TiN(D6306,D6307), TiCN(DG306, DG307) and TiAlN(DH306, DH307) is available on your request.

Hi-Q Spiralbohrer mit Zylinderschaft Hi-Q Twist Drills

EXTRA KURZ

STUB



- **Verwendung** : Der extra kurze Bohrer ist geeignet fuer Hochgeschwindigkeitsbohrungen, praezises Positionieren und Durchmesser. Sehr nuetzlich bei Materialien von Karbon-und rostfreiem Stahl bis zu Aluminium.
- **Application** : STUB series - high speed drilling, precise positioning and high accuracy.
Designed for general materials, carbon steels, alloy steels, stainless steels and aluminium.



Unit:mm

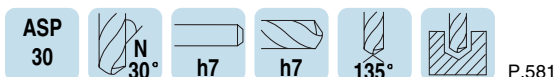
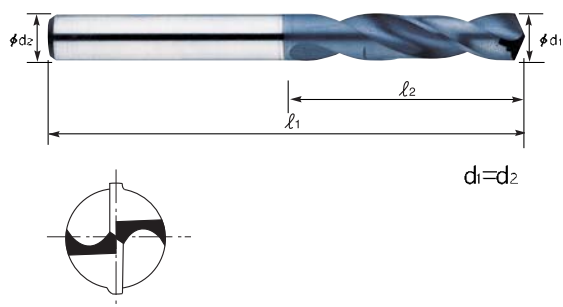
Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6461020	2.0	44	12	H6461044	4.4	68	24
H6461021	2.1	44	12	H6461045	4.5	68	24
H6461022	2.2	45	13	H6461046	4.6	68	24
H6461023	2.3	45	13	H6461047	4.7	68	24
H6461024	2.4	46	14	H6461048	4.8	70	26
H6461025	2.5	46	14	H6461049	4.9	70	26
H6461026	2.6	46	14	H6461050	5.0	70	26
H6461027	2.7	48	16	H6461051	5.1	70	26
H6461028	2.8	48	16	H6461052	5.2	70	26
H6461029	2.9	48	16	H6461053	5.3	70	26
H6461030	3.0	48	16	H6461054	5.4	72	28
H6461031	3.1	50	18	H6461055	5.5	72	28
H6461032	3.2	50	18	H6461056	5.6	72	28
H6461033	3.3	50	18	H6461057	5.7	72	28
H6461034	3.4	52	20	H6461058	5.8	72	28
H6461035	3.5	52	20	H6461059	5.9	72	28
H6461036	3.6	52	20	H6461060	6.0	72	28
H6461037	3.7	52	20	H6461061	6.1	75	31
H6461038	3.8	54	22	H6461062	6.2	75	31
H6461039	3.9	54	22	H6461063	6.3	75	31
H6461040	4.0	54	22	H6461064	6.4	75	31
H6461041	4.1	66	22	H6461065	6.5	75	31
H6461042	4.2	66	22	H6461066	6.6	75	31
H6461043	4.3	68	24	H6461067	6.7	75	31

DRILLS

Hi-Q Spiralbohrer mit Zylinderschaft Hi-Q Twist Drills

EXTRA KURZ

STUB



- **Verwendung** : Der extra kurze Bohrer ist geeignet fuer Hochgeschwindigkeitsbohrungen, praezises Positionieren und Durchmesser. Sehr nuetzlich bei Materialien von Karbon-und rostfreiem Stahl bis zu Aluminium.
- **Application** : STUB series - high speed drilling, precise positioning and high accuracy.
Designed for general materials, carbon steels, alloy steels, stainless steels and aluminium.

NEW

Unit:mm

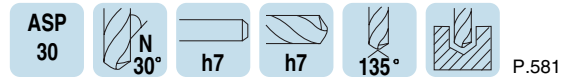
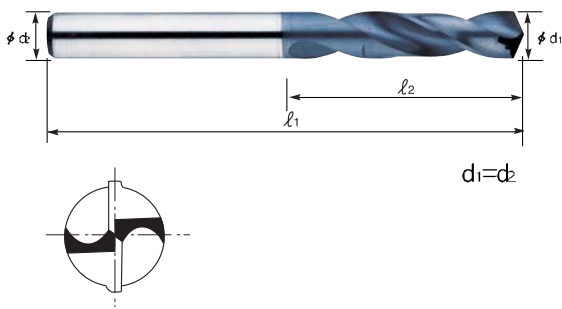
Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6461068	6.8	78	34
H6461069	6.9	78	34
H6461070	7.0	78	34
H6461071	7.1	78	34
H6461072	7.2	78	34
H6461073	7.3	78	34
H6461074	7.4	78	34
H6461075	7.5	78	34
H6461076	7.6	81	37
H6461077	7.7	81	37
H6461078	7.8	81	37
H6461079	7.9	81	37
H6461080	8.0	81	37
H6461081	8.1	87	37
H6461082	8.2	87	37
H6461083	8.3	87	37
H6461084	8.4	87	37
H6461085	8.5	87	37
H6461086	8.6	90	40
H6461087	8.7	90	40
H6461088	8.8	90	40
H6461089	8.9	90	40
H6461090	9.0	90	40
H6461091	9.1	90	40

Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6461092	9.2	90	40
H6461093	9.3	90	40
H6461094	9.4	90	40
H6461095	9.5	90	40
H6461096	9.6	93	43
H6461097	9.7	93	43
H6461098	9.8	93	43
H6461099	9.9	93	43
H6461100	10.0	93	43
H6461101	10.1	100	43
H6461102	10.2	100	43
H6461103	10.3	100	43
H6461104	10.4	100	43
H6461105	10.5	100	43
H6461106	10.6	100	43
H6461107	10.7	104	47
H6461108	10.8	104	47
H6461109	10.9	104	47
H6461110	11.0	104	47
H6461111	11.1	104	47
H6461112	11.2	104	47
H6461113	11.3	104	47
H6461114	11.4	104	47
H6461115	11.5	104	47

Hi-Q Spiralbohrer mit Zylinderschaft Hi-Q Twist Drills

EXTRA KURZ

STUB



- **Verwendung** : Der extra kurze Bohrer ist geeignet fuer Hochgeschwindigkeitsbohrungen, praezises Positionieren und Durchmesser. Sehr nuetzlich bei Materialien von Karbon-und rostfreiem Stahl bis zu Aluminium.
- **Application** : STUB series - high speed drilling, precise positioning and high accuracy.
Designed for general materials, carbon steels, alloy steels, stainless steels and aluminium.

NEW

Unit:mm

Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6461116	11.6	104	47
H6461117	11.7	104	47
H6461118	11.8	104	47
H6461119	11.9	108	51
H6461120	12.0	108	51
H6461121	12.1	108	51
H6461122	12.2	108	51
H6461123	12.3	108	51
H6461124	12.4	108	51
H6461125	12.5	108	51
H6461126	12.6	108	51
H6461127	12.7	108	51
H6461128	12.8	108	51
H6461129	12.9	108	51
H6461130	13.0	108	51

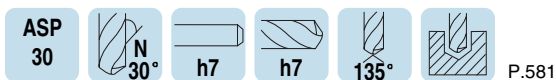
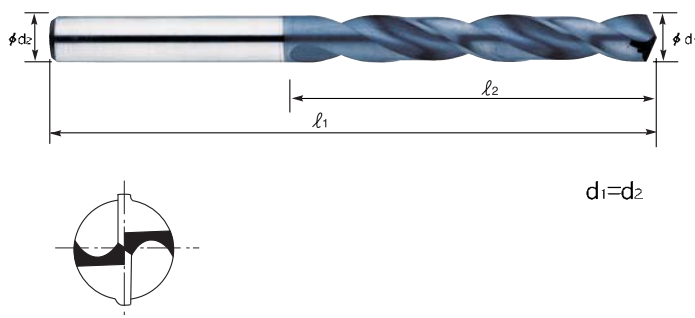
Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6461135	13.5	132	72
H6461140	14.0	132	72
H6461145	14.5	136	76
H6461150	15.0	142	76
H6461155	15.5	146	80
H6461160	16.0	146	80
H6461165	16.5	150	84
H6461170	17.0	150	84
H6461175	17.5	153	87
H6461180	18.0	153	87
H6461185	18.5	156	90
H6461190	19.0	164	90
H6461195	19.5	168	94
H6461200	20.0	168	94

DRILLS

Hi-Q Spiralbohrer mit Zylinderschaft

Hi-Q Twist Drills

KURZ
JOBBER



- **Verwendung** : Der kurze Bohrer ist geeignet fuer
Hochgeschwindigkeitsbohrungen und fuer lange
Standzeit.
- **Application** : Jobber length - 4D~5D drilling in general materials.

NEW

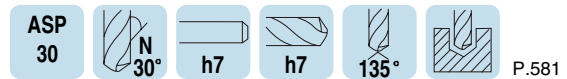
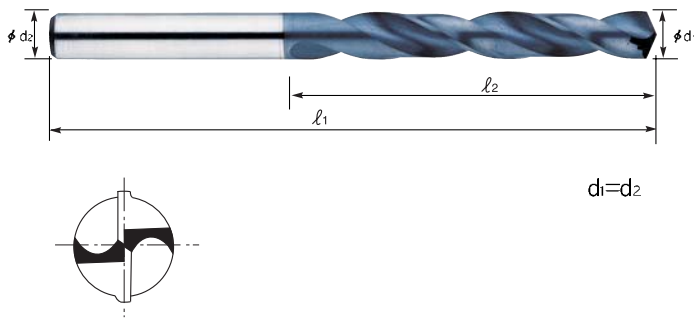
Unit:mm

Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6462020	2.0	56	24	H6462044	4.4	89	47
H6462021	2.1	56	24	H6462045	4.5	89	47
H6462022	2.2	56	25	H6462046	4.6	89	47
H6462023	2.3	56	25	H6462047	4.7	89	47
H6462024	2.4	61	30	H6462048	4.8	94	52
H6462025	2.5	61	30	H6462049	4.9	94	52
H6462026	2.6	61	30	H6462050	5.0	94	52
H6462027	2.7	64	33	H6462051	5.1	94	52
H6462028	2.8	64	33	H6462052	5.2	94	52
H6462029	2.9	64	33	H6462053	5.3	94	52
H6462030	3.0	64	33	H6462054	5.4	99	57
H6462031	3.1	68	36	H6462055	5.5	99	57
H6462032	3.2	68	36	H6462056	5.6	99	57
H6462033	3.3	68	36	H6462057	5.7	99	57
H6462034	3.4	71	39	H6462058	5.8	99	57
H6462035	3.5	71	39	H6462059	5.9	99	57
H6462036	3.6	71	39	H6462060	6.0	99	57
H6462037	3.7	71	39	H6462061	6.1	107	63
H6462038	3.8	75	43	H6462062	6.2	107	63
H6462039	3.9	75	43	H6462063	6.3	107	63
H6462040	4.0	75	43	H6462064	6.4	107	63
H6462041	4.1	85	43	H6462065	6.5	107	63
H6462042	4.2	85	43	H6462066	6.6	107	63
H6462043	4.3	89	47	H6462067	6.7	107	63

Hi-Q Spiralbohrer mit Zylinderschaft

Hi-Q Twist Drills

KURZ
JOBBER



► **Verwendung** : Der kurze Bohrer ist geeignet fuer Hochgeschwindigkeitsbohrung und fuer lange Standzeit.

► **Application** : Jobber length - 4D~5D drilling in general materials.



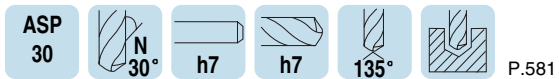
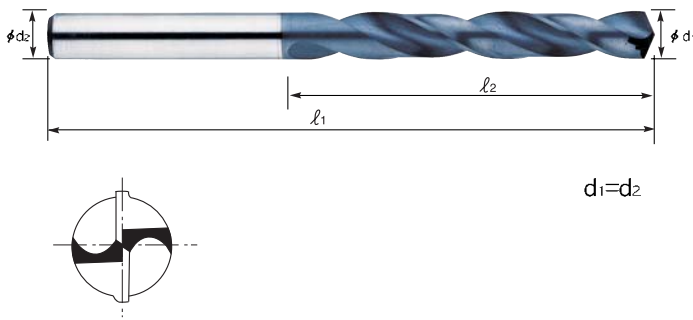
Unit:mm

Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6462068	6.8	113	69	H6462092	9.2	131	81
H6462069	6.9	113	69	H6462093	9.3	131	81
H6462070	7.0	113	69	H6462094	9.4	131	81
H6462071	7.1	113	69	H6462095	9.5	131	81
H6462072	7.2	113	69	H6462096	9.6	137	87
H6462073	7.3	113	69	H6462097	9.7	137	87
H6462074	7.4	113	69	H6462098	9.8	137	87
H6462075	7.5	113	69	H6462099	9.9	137	87
H6462076	7.6	119	75	H6462100	10.0	137	87
H6462077	7.7	119	75	H6462101	10.1	144	87
H6462078	7.8	119	75	H6462102	10.2	144	87
H6462079	7.9	119	75	H6462103	10.3	144	87
H6462080	8.0	119	75	H6462104	10.4	144	87
H6462081	8.1	125	75	H6462105	10.5	144	87
H6462082	8.2	125	75	H6462106	10.6	144	87
H6462083	8.3	125	75	H6462107	10.7	151	94
H6462084	8.4	125	75	H6462108	10.8	151	94
H6462085	8.5	125	75	H6462109	10.9	151	94
H6462086	8.6	131	81	H6462110	11.0	151	94
H6462087	8.7	131	81	H6462111	11.1	151	94
H6462088	8.8	131	81	H6462112	11.2	151	94
H6462089	8.9	131	81	H6462113	11.3	151	94
H6462090	9.0	131	81	H6462114	11.4	151	94
H6462091	9.1	131	81	H6462115	11.5	151	94

Hi-Q Spiralbohrer mit Zylinderschaft

Hi-Q Twist Drills

KURZ
JOBBER



- **Verwendung** : Der kurze Bohrer ist geeignet fuer
Hochgeschwindigkeitsbohrungen und fuer lange
Standzeit.
- **Application** : Jobber length - 4D~5D drilling in general materials.

NEW

Unit:mm

Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6462116	11.6	151	94
H6462117	11.7	151	94
H6462118	11.8	151	94
H6462119	11.9	158	101
H6462120	12.0	158	101
H6462121	12.1	158	101
H6462122	12.2	158	101
H6462123	12.3	158	101
H6462124	12.4	158	101
H6462125	12.5	158	101
H6462126	12.6	158	101
H6462127	12.7	158	101
H6462128	12.8	158	101
H6462129	12.9	158	101
H6462130	13.0	158	101
H6462135	13.5	168	108
H6462140	14.0	168	108
H6462145	14.5	173	114
H6462150	15.0	180	114
H6462155	15.5	185	120
H6462160	16.0	185	120
H6462165	16.5	189	125
H6462170	17.0	189	125
H6462175	17.5	194	130
H6462180	18.0	194	130
H6462185	18.5	198	135
H6462190	19.0	206	135

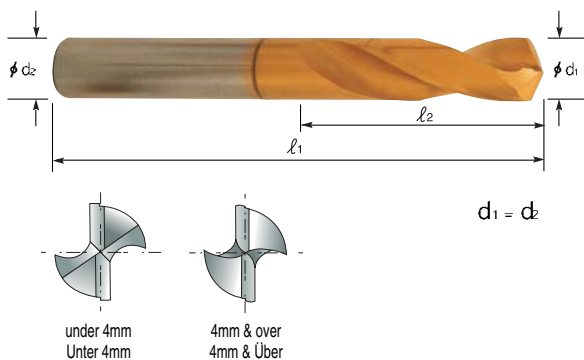
Art.-Nr. EDP No. TiN-CrN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
H6462195	19.5	210	140
H6462200	20.0	210	140
H6462205	20.5	214	145
H6462210	21.0	214	145
H6462215	21.5	218	150
H6462220	22.0	218	150
H6462225	22.5	223	155
H6462230	23.0	223	155
H6462235	23.5	223	155
H6462240	24.0	237	160
H6462245	24.5	237	160
H6462250	25.0	241	165
H6462255	25.5	241	165
H6462260	26.0	241	165
H6462265	26.5	241	165
H6462270	27.0	245	170
H6462275	27.5	245	170
H6462280	28.0	245	170
H6462285	28.5	248	175
H6462290	29.0	248	175
H6462295	29.5	248	175
H6462300	30.0	248	175
H6462305	30.5	252	180
H6462310	31.0	252	180
H6462315	31.5	252	180
H6462320	32.0	255	185

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

EXTRA KURZ

STUB



PREMIUM
HSS-Co

N
25°

h7

h8

130°



P.582

- **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abweichungen, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for accurate drilling on NC/CNC machines. Drilling into hard and tough materials, alloyed, tool steel, inconel, nimonic, cast iron, aluminium die cast, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
D4541020	2.0	44	12
D4541920	2.05	44	12
D4541021	2.1	44	12
D4541921	2.15	45	13
D4541022	2.2	45	13
D4541922	2.25	45	13
D4541023	2.3	45	13
D4541923	2.35	45	13
D4541024	2.4	46	14
D4541924	2.45	46	14
D4541025	2.5	46	14
D4541925	2.55	46	14
D4541026	2.6	46	14
D4541926	2.65	46	14
D4541027	2.7	48	16
D4541927	2.75	48	16
D4541028	2.8	48	16
D4541928	2.85	48	16
D4541029	2.9	48	16
D4541929	2.95	48	16
D4541030	3.0	48	16
D4541930	3.05	50	18
D4541031	3.1	50	18
D4541931	3.15	50	18

Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
D4541032	3.2	50	18
D4541932	3.25	50	18
D4541033	3.3	50	18
D4541933	3.35	50	18
D4541034	3.4	52	20
D4541934	3.45	52	20
D4541035	3.5	52	20
D4541935	3.55	52	20
D4541036	3.6	52	20
D4541936	3.65	52	20
D4541037	3.7	52	20
D4541937	3.75	52	20
D4541038	3.8	54	22
D4541938	3.85	54	22
D4541039	3.9	54	22
D4541939	3.95	54	22
D4541040	4.0	54	22
D4541940	4.05	66	22
D4541041	4.1	66	22
D4541941	4.15	66	22
D4541042	4.2	66	22
D4541942	4.25	66	22
D4541043	4.3	68	24
D4541943	4.35	68	24

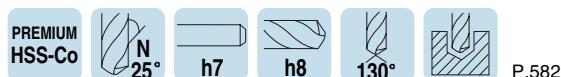
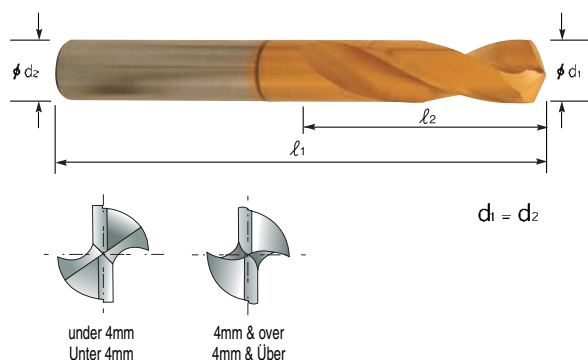
► The TiCN(D7541), TiAlN(DQ541) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

EXTRA KURZ

STUB



- **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abweichungen, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for accurate drilling on NC/CNC machines. Drilling into hard and tough materials, alloyed, tool steel, inconel, nimonic, cast iron, aluminium die cast, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4541044	4.4	68	24
D4541944	4.45	68	24
D4541045	4.5	68	24
D4541945	4.55	68	24
D4541046	4.6	68	24
D4541946	4.65	68	24
D4541047	4.7	68	24
D4541947	4.75	68	24
D4541048	4.8	70	26
D4541948	4.85	70	26
D4541049	4.9	70	26
D4541949	4.95	70	26
D4541050	5.0	70	26
D4541950	5.05	70	26
D4541051	5.1	70	26
D4541951	5.15	70	26
D4541052	5.2	70	26
D4541952	5.25	70	26
D4541053	5.3	70	26
D4541953	5.35	72	28
D4541054	5.4	72	28
D4541954	5.45	72	28
D4541055	5.5	72	28
D4541955	5.55	72	28
D4541056	5.6	72	28

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4541956	5.65	72	28
D4541057	5.7	72	28
D4541957	5.75	72	28
D4541058	5.8	72	28
D4541958	5.85	72	28
D4541059	5.9	72	28
D4541959	5.95	72	28
D4541060	6.0	72	28
D4541061	6.1	75	31
D4541062	6.2	75	31
D4541063	6.3	75	31
D4541064	6.4	75	31
D4541065	6.5	75	31
D4541965	6.55	75	31
D4541066	6.6	75	31
D4541966	6.65	75	31
D4541067	6.7	75	31
D4541068	6.8	78	34
D4541069	6.9	78	34
D4541070	7.0	78	34
D4541071	7.1	78	34
D4541072	7.2	78	34
D4541073	7.3	78	34
D4541973	7.35	78	34

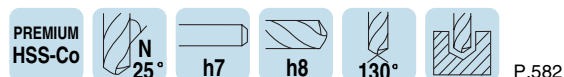
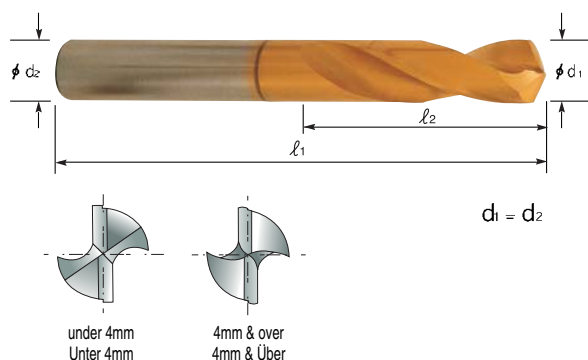
► The TiCN(D7541), TiAlN(DQ541) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

EXTRA KURZ

STUB



- **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abweichungen, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for accurate drilling on NC/CNC machines. Drilling into hard and tough materials, alloyed, tool steel, inconel, nimonic, cast iron, aluminium die cast, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4541074	7.4	78	34
D4541075	7.5	78	34
D4541975	7.55	81	37
D4541076	7.6	81	37
D4541976	7.65	81	37
D4541077	7.7	81	37
D4541078	7.8	81	37
D4541079	7.9	81	37
D4541080	8.0	81	37
D4541081	8.1	87	37
D4541082	8.2	87	37
D4541083	8.3	87	37
D4541983	8.35	87	37
D4541084	8.4	87	37
D4541085	8.5	87	37
D4541985	8.55	90	40
D4541086	8.6	90	40
D4541986	8.65	90	40
D4541087	8.7	90	40
D4541088	8.8	90	40
D4541089	8.9	90	40
D4541090	9.0	90	40
D4541091	9.1	90	40
D4541092	9.2	90	40

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4541992	9.25	90	40
D4541093	9.3	90	40
D4541993	9.35	90	40
D4541094	9.4	90	40
D4541994	9.45	90	40
D4541095	9.5	90	40
D4541995	9.55	93	43
D4541096	9.6	93	43
D4541996	9.65	93	43
D4541097	9.7	93	43
D4541098	9.8	93	43
D4541099	9.9	93	43
D4541999	9.95	93	43
D4541100	10.0	93	43
D4541101	10.1	100	43
D4541102	10.2	100	43
D4541802	10.25	100	43
D4541103	10.3	100	43
D4541803	10.35	100	43
D4541104	10.4	100	43
D4541105	10.5	100	43
D4541805	10.55	100	43
D4541106	10.6	100	43
D4541806	10.65	104	47

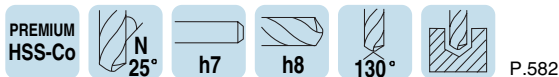
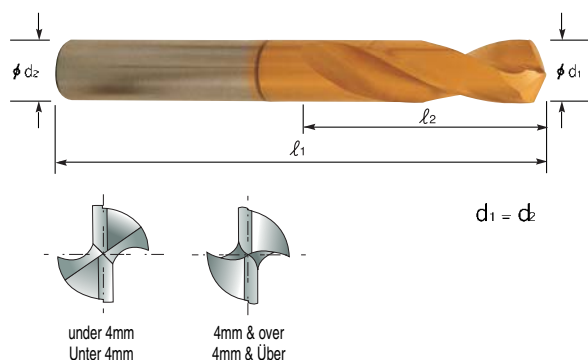
► The TiCN(D7541), TiAlN(DQ541) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

EXTRA KURZ

STUB



- **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abweichungen, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for accurate drilling on NC/CNC machines. Drilling into hard and tough materials, alloyed, tool steel, inconel, nimonic, cast iron, aluminium die cast, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4541107	10.7	104	47
D4541108	10.8	104	47
D4541109	10.9	104	47
D4541809	10.95	104	47
D4541110	11.0	104	47
D4541111	11.1	104	47
D4541112	11.2	104	47
D4541812	11.25	104	47
D4541113	11.3	104	47
D4541813	11.35	104	47
D4541114	11.4	104	47
D4541115	11.5	104	47
D4541815	11.55	104	47
D4541116	11.6	104	47

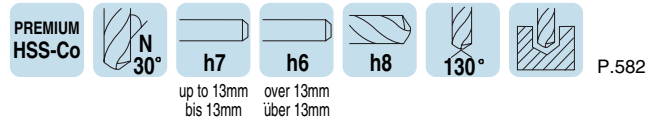
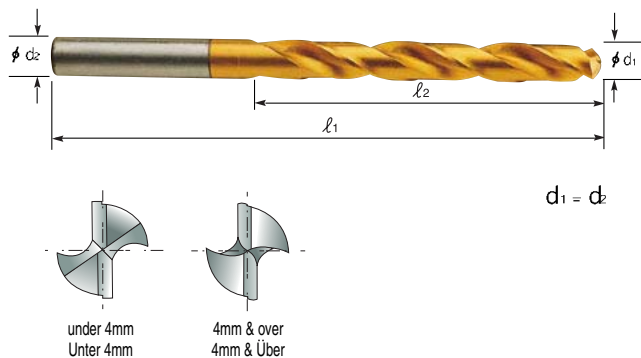
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4541117	11.7	104	47
D4541118	11.8	104	47
D4541119	11.9	108	51
D4541120	12.0	108	51
D4541121	12.1	108	51
D4541122	12.2	108	51
D4541123	12.3	108	51
D4541124	12.4	108	51
D4541125	12.5	108	51
D4541126	12.6	108	51
D4541127	12.7	108	51
D4541128	12.8	108	51
D4541129	12.9	108	51
D4541130	13.0	108	51

► The TiCN(D7541), TiAlN(DQ541) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

KURZ
JOBBER



- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanentfernung, selbstzentriert, geringere Abweichungen und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, Zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit Verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling in mild steel, cast iron, aluminum, alloyed, tool steel, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

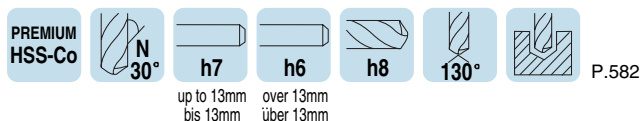
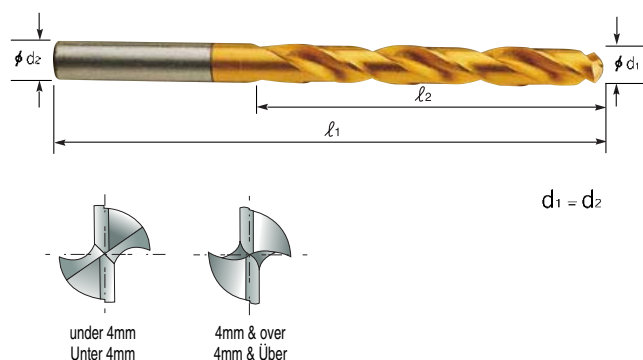
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542020	2.0	56	24	D4542932	3.25	68	36
D4542920	2.05	56	24	D4542033	3.3	68	36
D4542021	2.1	56	24	D4542933	3.35	68	36
D4542921	2.15	59	27	D4542034	3.4	71	39
D4542022	2.2	59	27	D4542934	3.45	71	39
D4542922	2.25	59	27	D4542035	3.5	71	39
D4542023	2.3	59	27	D4542935	3.55	71	39
D4542923	2.35	59	27	D4542036	3.6	71	39
D4542024	2.4	62	30	D4542936	3.65	71	39
D4542924	2.45	62	30	D4542037	3.7	71	39
D4542025	2.5	62	30	D4542937	3.75	71	39
D4542925	2.55	62	30	D4542038	3.8	75	43
D4542026	2.6	62	30	D4542938	3.85	75	43
D4542926	2.65	62	30	D4542039	3.9	75	43
D4542027	2.7	65	33	D4542939	3.95	75	43
D4542927	2.75	65	33	D4542040	4.0	75	43
D4542028	2.8	65	33	D4542940	4.05	87	43
D4542928	2.85	65	33	D4542041	4.1	87	43
D4542029	2.9	65	33	D4542941	4.15	87	43
D4542929	2.95	65	33	D4542042	4.2	87	43
D4542030	3.0	65	33	D4542942	4.25	87	43
D4542930	3.05	68	36	D4542043	4.3	91	47
D4542031	3.1	68	36	D4542943	4.35	91	47
D4542931	3.15	68	36	D4542044	4.4	91	47
D4542032	3.2	68	36	D4542944	4.45	91	47

► The TiCN(D7542), TiAlN(DQ542) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

KURZ
JOBBER



- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~ 5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanentfernung, selbstzentriert, geringere Abweichungen und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, Zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit Verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling in mild steel, cast iron, aluminum, alloyed, tool steel, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542045	4.5	91	47
D4542945	4.55	91	47
D4542046	4.6	91	47
D4542946	4.65	91	47
D4542047	4.7	91	47
D4542947	4.75	91	47
D4542048	4.8	96	52
D4542948	4.85	96	52
D4542049	4.9	96	52
D4542949	4.95	96	52
D4542050	5.0	96	52
D4542950	5.05	96	52
D4542051	5.1	96	52
D4542951	5.15	96	52
D4542052	5.2	96	52
D4542952	5.25	96	52
D4542053	5.3	96	52
D4542953	5.35	101	57
D4542054	5.4	101	57
D4542954	5.45	101	57
D4542055	5.5	101	57
D4542955	5.55	101	57
D4542056	5.6	101	57
D4542956	5.65	101	57
D4542057	5.7	101	57

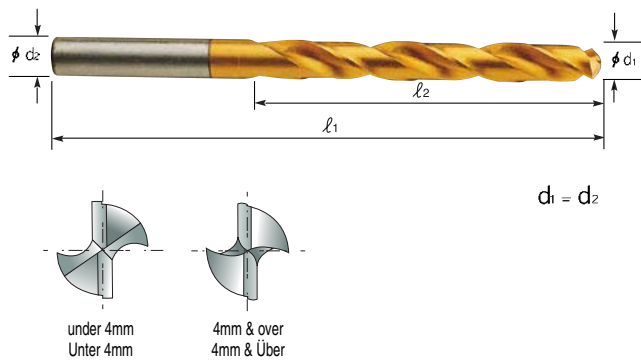
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542957	5.75	101	57
D4542058	5.8	101	57
D4542958	5.85	101	57
D4542059	5.9	101	57
D4542959	5.95	101	57
D4542060	6.0	101	57
D4542960	6.05	107	63
D4542061	6.1	107	63
D4542961	6.15	107	63
D4542062	6.2	107	63
D4542962	6.25	107	63
D4542063	6.3	107	63
D4542963	6.35	107	63
D4542064	6.4	107	63
D4542964	6.45	107	63
D4542065	6.5	107	63
D4542965	6.55	107	63
D4542066	6.6	107	63
D4542966	6.65	107	63
D4542067	6.7	107	63
D4542967	6.75	113	69
D4542068	6.8	113	69
D4542968	6.85	113	69
D4542069	6.9	113	69
D4542969	6.95	113	69

► The TiCN(D7542), TiAlN(DQ542) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

KURZ
JOBBER



PREMIUM
HSS-Co

N
30°

h7

h6

h8

130°

P.582

up to 13mm
bis 13mm

over 13mm
über 13mm

- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanentfernung, selbstzentriert, geringere Abweichungen und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, Zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit Verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling in mild steel, cast iron, aluminum, alloyed, tool steel, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542070	7.0	113	69
D4542970	7.05	113	69
D4542071	7.1	113	69
D4542971	7.15	113	69
D4542072	7.2	113	69
D4542972	7.25	113	69
D4542073	7.3	113	69
D4542973	7.35	113	69
D4542074	7.4	113	69
D4542974	7.45	113	69
D4542075	7.5	113	69
D4542975	7.55	119	75
D4542076	7.6	119	75
D4542976	7.65	119	75
D4542077	7.7	119	75
D4542977	7.75	119	75
D4542078	7.8	119	75
D4542978	7.85	119	75
D4542079	7.9	119	75
D4542979	7.95	119	75
D4542080	8.0	119	75
D4542980	8.05	125	75
D4542081	8.1	125	75
D4542981	8.15	125	75
D4542082	8.2	125	75

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542982	8.25	125	75
D4542083	8.3	125	75
D4542983	8.35	125	75
D4542084	8.4	125	75
D4542984	8.45	125	75
D4542085	8.5	125	75
D4542985	8.55	131	81
D4542086	8.6	131	81
D4542986	8.65	131	81
D4542087	8.7	131	81
D4542987	8.75	131	81
D4542088	8.8	131	81
D4542988	8.85	131	81
D4542089	8.9	131	81
D4542989	8.95	131	81
D4542090	9.0	131	81
D4542990	9.05	131	81
D4542091	9.1	131	81
D4542991	9.15	131	81
D4542092	9.2	131	81
D4542992	9.25	131	81
D4542093	9.3	131	81
D4542993	9.35	131	81
D4542094	9.4	131	81
D4542994	9.45	131	81

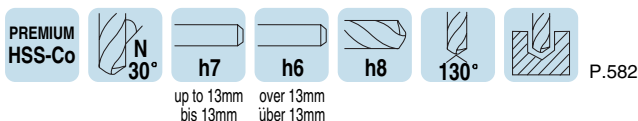
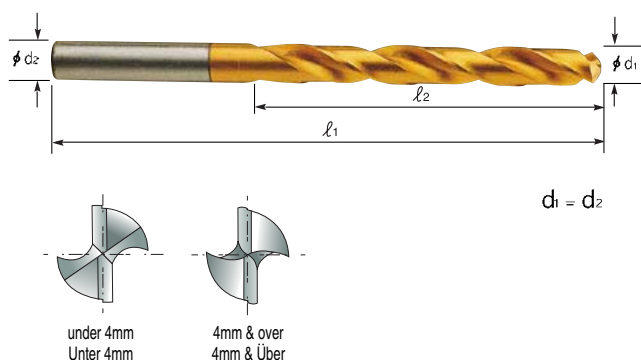
► The TiCN(D7542), TiAlN(DQ542) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

KURZ

JOBBER



► **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~ 5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

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► **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling in mild steel, cast iron, aluminum, alloyed, tool steel, etc.

► **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life. High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542095	9.5	131	81
D4542995	9.55	137	87
D4542096	9.6	137	87
D4542996	9.65	137	87
D4542097	9.7	137	87
D4542997	9.75	137	87
D4542098	9.8	137	87
D4542998	9.85	137	87
D4542099	9.9	137	87
D4542999	9.95	137	87
D4542100	10.0	137	87
D4542800	10.05	144	87
D4542101	10.1	144	87
D4542801	10.15	144	87
D4542102	10.2	144	87
D4542802	10.25	144	87
D4542103	10.3	144	87
D4542803	10.35	144	87
D4542104	10.4	144	87
D4542804	10.45	144	87
D4542105	10.5	144	87
D4542805	10.55	144	87
D4542106	10.6	144	87
D4542806	10.65	151	94
D4542107	10.7	151	94

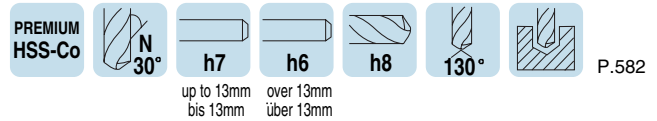
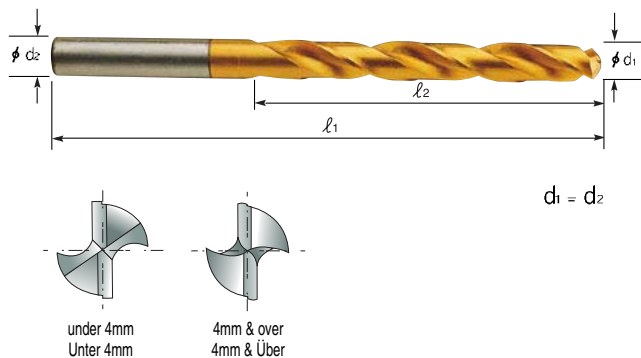
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542807	10.75	151	94
D4542108	10.8	151	94
D4542808	10.85	151	94
D4542109	10.9	151	94
D4542809	10.95	151	94
D4542110	11.0	151	94
D4542810	11.05	151	94
D4542111	11.1	151	94
D4542811	11.15	151	94
D4542112	11.2	151	94
D4542812	11.25	151	94
D4542113	11.3	151	94
D4542813	11.35	151	94
D4542114	11.4	151	94
D4542814	11.45	151	94
D4542115	11.5	151	94
D4542815	11.55	151	94
D4542116	11.6	151	94
D4542816	11.65	151	94
D4542117	11.7	151	94
D4542817	11.75	151	94
D4542118	11.8	151	94
D4542818	11.85	158	101
D4542119	11.9	158	101
D4542819	11.95	158	101

► The TiCN(D7542), TiAlN(DQ542) is available on your request.

HPD Spiralbohrer mit Zylinderschaft

HPD Twist Drills

KURZ
JOBBER



- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
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Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542120	12.0	158	101
D4542121	12.1	158	101
D4542122	12.2	158	101
D4542123	12.3	158	101
D4542124	12.4	158	101
D4542125	12.5	158	101
D4542126	12.6	158	101
D4542127	12.7	158	101
D4542128	12.8	158	101
D4542129	12.9	158	101
D4542130	13.0	158	101
D4542135	13.5	150	90
D4542140	14.0	150	90
D4542141	14.1	155	95
D4542145	14.5	155	95
D4542150	15.0	161	95
D4542155	15.5	166	100
D4542156	15.6	166	100
D4542160	16.0	166	100
D4542165	16.5	172	106
D4542170	17.0	172	106
D4542175	17.5	178	112
D4542176	17.6	178	112
D4542180	18.0	178	112
D4542185	18.5	184	118

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D4542190	19.0	194	118
D4542195	19.5	201	125
D4542196	19.6	201	125
D4542200	20.0	201	125
D4542205	20.5	204	128
D4542210	21.0	204	128
D4542211	21.1	204	128
D4542215	21.5	208	132
D4542220	22.0	208	132
D4542225	22.5	212	136
D4542230	23.0	212	136
D4542235	23.5	212	136
D4542240	24.0	220	140
D4542245	24.5	220	140
D4542250	25.0	220	140
D4542255	25.5	225	145
D4542260	26.0	225	145
D4542265	26.5	225	145
D4542270	27.0	230	150
D4542280	28.0	230	150
D4542290	29.0	235	155
D4542300	30.0	235	155
D4542310	31.0	240	160
D4542320	32.0	245	165

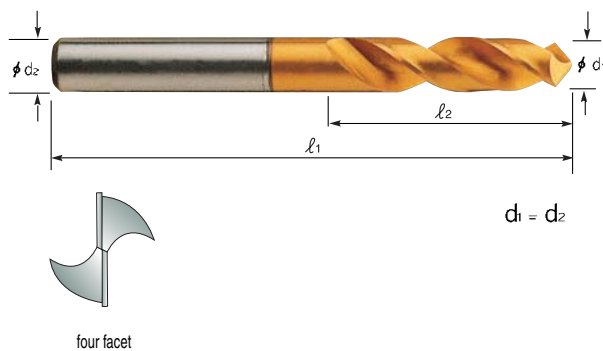
► The TiCN(D7542), TiAlN(DQ542) is available on your request.

HPD-SUS Spiralbohrer mit Zylinderschaft

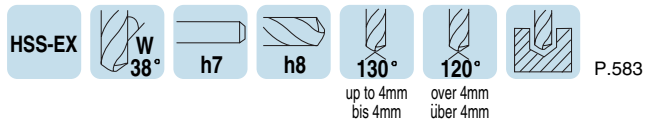
HPD-SUS Twist Drills

EXTRA KURZ

STUB



for STAINLESS STEELS
für Edelstahl



- **Anwendung** : Geeignet zum Bearbeiten von Edelstahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.
- **Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanentfernung erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for drilling in stainless steels, mild steels, aluminium, aluminium alloy, aluminium die cast, copper, copper alloy, etc.
- **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Wide flute and stub length-increasing chip removal and reducing vibration and deflection.
High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DJ543020	2.0	44	12	DJ543044	4.4	68	24
DJ543021	2.1	44	12	DJ543045	4.5	68	24
DJ543022	2.2	45	13	DJ543046	4.6	68	24
DJ543023	2.3	45	13	DJ543047	4.7	68	24
DJ543024	2.4	46	14	DJ543048	4.8	70	26
DJ543025	2.5	46	14	DJ543049	4.9	70	26
DJ543026	2.6	46	14	DJ543050	5.0	70	26
DJ543027	2.7	48	16	DJ543051	5.1	70	26
DJ543028	2.8	48	16	DJ543052	5.2	70	26
DJ543029	2.9	48	16	DJ543053	5.3	70	26
DJ543030	3.0	48	16	DJ543054	5.4	72	28
DJ543031	3.1	50	18	DJ543055	5.5	72	28
DJ543032	3.2	50	18	DJ543056	5.6	72	28
DJ543033	3.3	50	18	DJ543057	5.7	72	28
DJ543034	3.4	52	20	DJ543058	5.8	72	28
DJ543035	3.5	52	20	DJ543059	5.9	72	28
DJ543036	3.6	52	20	DJ543060	6.0	72	28
DJ543037	3.7	52	20	DJ543061	6.1	75	31
DJ543038	3.8	54	22	DJ543062	6.2	75	31
DJ543039	3.9	54	22	DJ543063	6.3	75	31
DJ543040	4.0	54	22	DJ543064	6.4	75	31
DJ543041	4.1	66	22	DJ543065	6.5	75	31
DJ543042	4.2	66	22	DJ543066	6.6	75	31
DJ543043	4.3	68	24	DJ543067	6.7	75	31

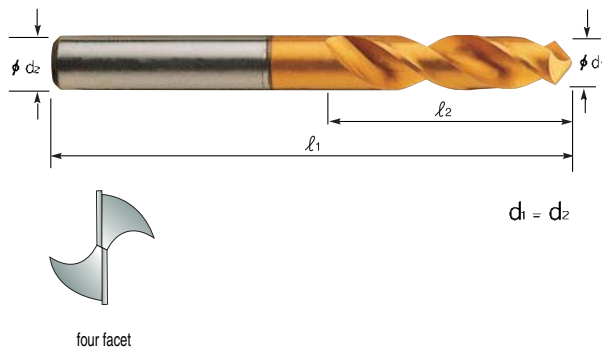
► The TiCN(DW543), TiAIN(DY543) is available on your request.

HPD-SUS Spiralbohrer mit Zylinderschaft

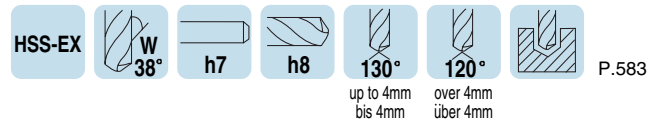
HPD-SUS Twist Drills

EXTRA KURZ

STUB



for STAINLESS STEELS
für Edelstahl



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Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DJ543068	6.8	78	34	DJ543092	9.2	90	40
DJ543069	6.9	78	34	DJ543093	9.3	90	40
DJ543070	7.0	78	34	DJ543094	9.4	90	40
DJ543071	7.1	78	34	DJ543095	9.5	90	40
DJ543072	7.2	78	34	DJ543096	9.6	93	43
DJ543073	7.3	78	34	DJ543097	9.7	93	43
DJ543074	7.4	78	34	DJ543098	9.8	93	43
DJ543075	7.5	78	34	DJ543099	9.9	93	43
DJ543076	7.6	81	37	DJ543100	10.0	93	43
DJ543077	7.7	81	37	DJ543101	10.1	100	43
DJ543078	7.8	81	37	DJ543102	10.2	100	43
DJ543079	7.9	81	37	DJ543103	10.3	100	43
DJ543080	8.0	81	37	DJ543104	10.4	100	43
DJ543081	8.1	87	37	DJ543105	10.5	100	43
DJ543082	8.2	87	37	DJ543106	10.6	100	43
DJ543083	8.3	87	37	DJ543107	10.7	104	47
DJ543084	8.4	87	37	DJ543108	10.8	104	47
DJ543085	8.5	87	37	DJ543109	10.9	104	47
DJ543086	8.6	90	40	DJ543110	11.0	104	47
DJ543087	8.7	90	40	DJ543111	11.1	104	47
DJ543088	8.8	90	40	DJ543112	11.2	104	47
DJ543089	8.9	90	40	DJ543113	11.3	104	47
DJ543090	9.0	90	40	DJ543114	11.4	104	47
DJ543091	9.1	90	40	DJ543115	11.5	104	47

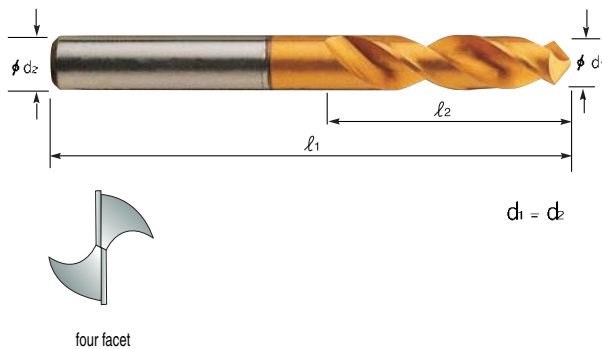
► The TiCN(DW543), TiAlN(DY543) is available on your request.

HPD-SUS Spiralbohrer mit Zylinderschaft

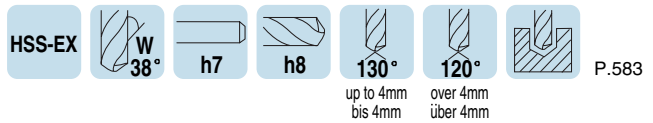
HPD-SUS Twist Drills

EXTRA KURZ

STUB



for STAINLESS STEELS
für Edelstahl



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Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DJ543116	11.6	104	47
DJ543117	11.7	104	47
DJ543118	11.8	104	47
DJ543119	11.9	108	51
DJ543120	12.0	108	51
DJ543121	12.1	108	51
DJ543122	12.2	108	51
DJ543123	12.3	108	51

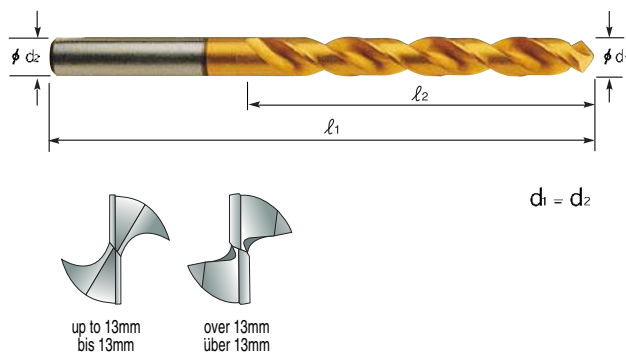
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DJ543124	12.4	108	51
DJ543125	12.5	108	51
DJ543126	12.6	108	51
DJ543127	12.7	108	51
DJ543128	12.8	108	51
DJ543129	12.9	108	51
DJ543130	13.0	108	51

► The TiCN(DW543), TiAlN(DY543) is available on your request.

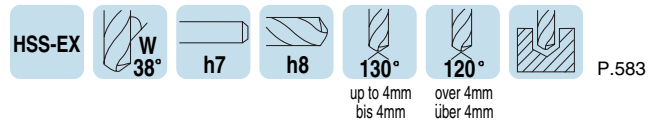
HPD-SUS Spiralbohrer mit Zylinderschaft

HPD-SUS Twist Drills

KURZ
JOBBER



for STAINLESS STEELS
für Edelstahl



- **Anwendung** : Für 4D ~ 5D Bohrtiefe, geeignet für Edelstahl, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.
- **Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.
- **Application** : Designed for 4D ~ 5D drilling in stainless steels, mild steels, aluminium, aluminium alloy, aluminium die cast, copper, copper alloy, etc.
- **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Reinforced web and jobbers length-increasing rigidity and suitable for 4D ~ 5D drilling.
High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

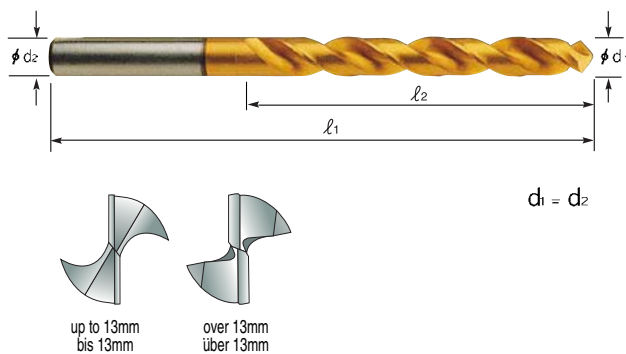
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DJ544020	2.0	56	24	DJ544044	4.4	91	47
DJ544021	2.1	56	24	DJ544045	4.5	91	47
DJ544022	2.2	59	27	DJ544046	4.6	91	47
DJ544023	2.3	59	27	DJ544047	4.7	91	47
DJ544024	2.4	62	30	DJ544048	4.8	96	52
DJ544025	2.5	62	30	DJ544049	4.9	96	52
DJ544026	2.6	62	30	DJ544050	5.0	96	52
DJ544027	2.7	65	33	DJ544051	5.1	96	52
DJ544028	2.8	65	33	DJ544052	5.2	96	52
DJ544029	2.9	65	33	DJ544053	5.3	96	52
DJ544030	3.0	65	33	DJ544054	5.4	101	57
DJ544031	3.1	68	36	DJ544055	5.5	101	57
DJ544032	3.2	68	36	DJ544056	5.6	101	57
DJ544033	3.3	68	36	DJ544057	5.7	101	57
DJ544034	3.4	71	39	DJ544058	5.8	101	57
DJ544035	3.5	71	39	DJ544059	5.9	101	57
DJ544036	3.6	71	39	DJ544060	6.0	101	57
DJ544037	3.7	71	39	DJ544061	6.1	107	63
DJ544038	3.8	75	43	DJ544062	6.2	107	63
DJ544039	3.9	75	43	DJ544063	6.3	107	63
DJ544040	4.0	75	43	DJ544064	6.4	107	63
DJ544041	4.1	87	43	DJ544065	6.5	107	63
DJ544042	4.2	87	43	DJ544066	6.6	107	63
DJ544043	4.3	91	47	DJ544067	6.7	107	63

► The TiCN(DW544), TiAlN(DY544) is available on your request.

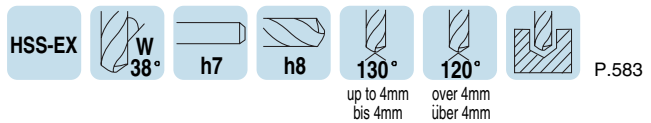
HPD-SUS Spiralbohrer mit Zylinderschaft

HPD-SUS Twist Drills

KURZ
JOBBER



for STAINLESS STEELS
für Edelstahl



- **Anwendung** : Für 4D ~ 5D Bohrtiefe, geeignet für Edelstahl, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.
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High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

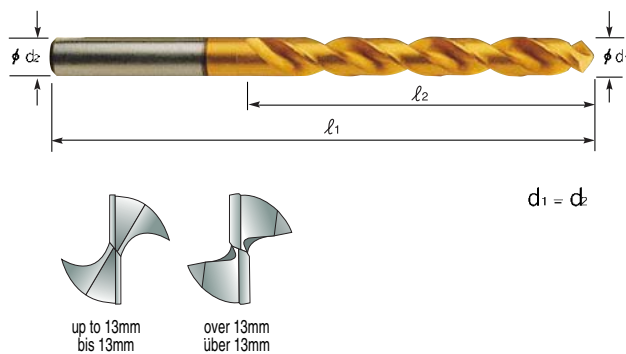
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DJ544068	6.8	113	69	DJ544093	9.3	131	81
DJ544069	6.9	113	69	DJ544094	9.4	131	81
DJ544070	7.0	113	69	DJ544095	9.5	131	81
DJ544071	7.1	113	69	DJ544096	9.6	137	87
DJ544072	7.2	113	69	DJ544097	9.7	137	87
DJ544073	7.3	113	69	DJ544098	9.8	137	87
DJ544074	7.4	113	69	DJ544099	9.9	137	87
DJ544075	7.5	113	69	DJ544100	10.0	137	87
DJ544076	7.6	119	75	DJ544101	10.1	144	87
DJ544077	7.7	119	75	DJ544102	10.2	144	87
DJ544078	7.8	119	75	DJ544103	10.3	144	87
DJ544079	7.9	119	75	DJ544104	10.4	144	87
DJ544080	8.0	119	75	DJ544105	10.5	144	87
DJ544081	8.1	125	75	DJ544106	10.6	144	87
DJ544082	8.2	125	75	DJ544107	10.7	151	94
DJ544083	8.3	125	75	DJ544108	10.8	151	94
DJ544084	8.4	125	75	DJ544109	10.9	151	94
DJ544085	8.5	125	75	DJ544110	11.0	151	94
DJ544086	8.6	131	81	DJ544111	11.1	151	94
DJ544087	8.7	131	81	DJ544112	11.2	151	94
DJ544088	8.8	131	81	DJ544113	11.3	151	94
DJ544089	8.9	131	81	DJ544114	11.4	151	94
DJ544090	9.0	131	81	DJ544115	11.5	151	94
DJ544091	9.1	131	81	DJ544116	11.6	151	94
DJ544092	9.2	131	81	DJ544117	11.7	151	94

► The TiCN(DW544), TiAIN(DY544) is available on your request.

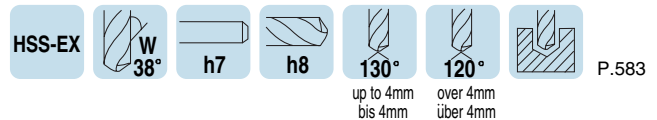
HPD-SUS Spiralbohrer mit Zylinderschaft

HPD-SUS Twist Drills

KURZ
JOBBER



for STAINLESS STEELS
für Edelstahl



- **Anwendung** : Für 4D ~ 5D Bohrtiefe, geeignet für Edelstahl, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.
- **Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.
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High quality-good surface finishes, high productivity and weeding second operation.

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DJ544118	11.8	151	94
DJ544119	11.9	158	101
DJ544120	12.0	158	101
DJ544121	12.1	158	101
DJ544122	12.2	158	101
DJ544123	12.3	158	101
DJ544124	12.4	158	101
DJ544125	12.5	158	101
DJ544126	12.6	158	101
DJ544127	12.7	158	101
DJ544128	12.8	158	101
DJ544129	12.9	158	101
DJ544130	13.0	158	101
DJ544135	13.5	166	106
DJ544140	14.0	166	106
DJ544141	14.1	169	109

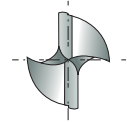
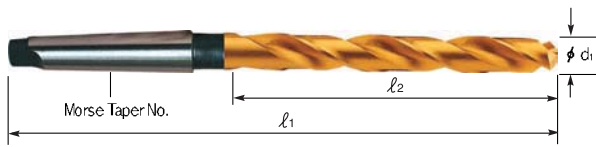
Art.-Nr. EDP No. TiN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DJ544145	14.5	169	109
DJ544150	15.0	169	109
DJ544155	15.5	172	112
DJ544156	15.6	172	112
DJ544160	16.0	172	112
DJ544165	16.5	181	115
DJ544170	17.0	181	115
DJ544175	17.5	184	118
DJ544176	17.6	184	118
DJ544180	18.0	184	118
DJ544185	18.5	188	122
DJ544190	19.0	188	122
DJ544195	19.5	191	125
DJ544196	19.6	191	125
DJ544200	20.0	191	125

► The TiCN(DW544), TiAlN(DY544) is available on your request.

HPD Spiralbohrer mit Morsekegelschaft

HPD Morse Taper Shank Twist Drills

KURZ
JOBBER



PREMIUM
HSS-Co



P.583

- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~ 5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanentfernung, selbstzentriert, geringere Abweichungen und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, Zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit Verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling in mild steel, cast iron, aluminum, alloyed, tool steel, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy.
Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling
Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity and weeding second operation.

NEW

Unit:mm

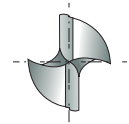
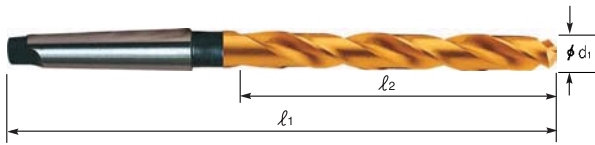
Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D4642130	13.0	184	101	1
D4642135	13.5	189	106	1
D4642140	14.0	189	106	1
D4642141	14.1	209	109	2
D4642142	14.2	209	109	2
D4642143	14.3	209	109	2
D4642144	14.4	209	109	2
D4642145	14.5	209	109	2
D4642146	14.6	209	109	2
D4642147	14.7	209	109	2
D4642148	14.8	209	109	2
D4642149	14.9	209	109	2
D4642150	15.0	209	109	2
D4642151	15.1	212	112	2
D4642152	15.2	212	112	2
D4642153	15.3	212	112	2
D4642154	15.4	212	112	2
D4642155	15.5	212	112	2
D4642156	15.6	212	112	2
D4642157	15.7	212	112	2
D4642158	15.8	212	112	2
D4642159	15.9	212	112	2
D4642160	16.0	212	112	2
D4642161	16.1	215	115	2
D4642162	16.2	215	115	2
D4642163	16.3	215	115	2
D4642164	16.4	215	115	2
D4642165	16.5	215	115	2
D4642166	16.6	215	115	2

Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D4642167	16.7	215	115	2
D4642168	16.8	215	115	2
D4642169	16.9	215	115	2
D4642170	17.0	215	115	2
D4642171	17.1	218	118	2
D4642172	17.2	218	118	2
D4642173	17.3	218	118	2
D4642174	17.4	218	118	2
D4642175	17.5	218	118	2
D4642176	17.6	218	118	2
D4642177	17.7	218	118	2
D4642178	17.8	218	118	2
D4642179	17.9	218	118	2
D4642180	18.0	218	118	2
D4642181	18.1	222	122	2
D4642182	18.2	222	122	2
D4642183	18.3	222	122	2
D4642184	18.4	222	122	2
D4642185	18.5	222	122	2
D4642186	18.6	222	122	2
D4642187	18.7	222	122	2
D4642188	18.8	222	122	2
D4642189	18.9	222	122	2
D4642190	19.0	222	122	2
D4642191	19.1	225	125	2
D4642192	19.2	225	125	2
D4642193	19.3	225	125	2
D4642194	19.4	225	125	2
D4642195	19.5	225	125	2

HPD Spiralbohrer mit Morsekegelschaft

HPD Morse Taper Shank Twist Drills

KURZ
JOBBER



PREMIUM
HSS-Co



P.583

- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanentfernung, selbstzentriert, geringere Abweichungen und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, Zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit Verbesserte Oberflächengüte und Produktivität.
- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling in mild steel, cast iron, aluminum, alloyed, tool steel, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy.
Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling
Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity and weeding second operation.

NEW

Unit:mm

Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D4642196	19.6	225	125	2
D4642197	19.7	225	125	2
D4642198	19.8	225	125	2
D4642199	19.9	225	125	2
D4642200	20.0	225	125	2
D4642201	20.1	228	128	2
D4642202	20.2	228	128	2
D4642203	20.3	228	128	2
D4642204	20.4	228	128	2
D4642205	20.5	228	128	2
D4642206	20.6	228	128	2
D4642207	20.7	228	128	2
D4642208	20.8	228	128	2
D4642209	20.9	228	128	2
D4642210	21.0	228	128	2
D4642211	21.1	228	128	2
D4642212	21.2	228	128	2
D4642213	21.3	232	132	2
D4642214	21.4	232	132	2
D4642215	21.5	232	132	2
D4642216	21.6	232	132	2
D4642217	21.7	232	132	2
D4642218	21.8	232	132	2
D4642219	21.9	232	132	2
D4642220	22.0	232	132	2
D4642221	22.1	232	132	2
D4642222	22.2	232	132	2
D4642223	22.3	232	132	2
D4642224	22.4	232	132	2
D4642225	22.5	236	136	2

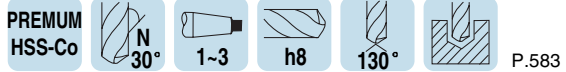
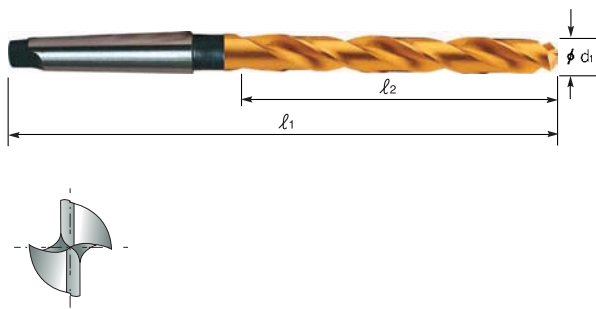
Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D4642226	22.6	236	136	2
D4642227	22.7	236	136	2
D4642228	22.8	236	136	2
D4642229	22.9	236	136	2
D4642230	23.0	236	136	2
D4642231	23.1	256	136	3
D4642232	23.2	256	136	3
D4642233	23.3	256	136	3
D4642234	23.4	256	136	3
D4642235	23.5	256	136	3
D4642236	23.6	256	136	3
D4642237	23.7	260	140	3
D4642238	23.8	260	140	3
D4642239	23.9	260	140	3
D4642240	24.0	260	140	3
D4642241	24.1	260	140	3
D4642242	24.2	260	140	3
D4642243	24.3	260	140	3
D4642244	24.4	260	140	3
D4642245	24.5	260	140	3
D4642246	24.6	260	140	3
D4642247	24.7	260	140	3
D4642248	24.8	260	140	3
D4642249	24.9	260	140	3
D4642250	25.0	260	140	3
D4642251	25.1	265	145	3
D4642252	25.2	265	145	3
D4642253	25.3	265	145	3
D4642254	25.4	265	145	3

DRILLS

HPD Spiralbohrer mit Morsekegelschaft

HPD Morse Taper Shank Twist Drills

KURZ
JOBBER



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NEW

Unit:mm

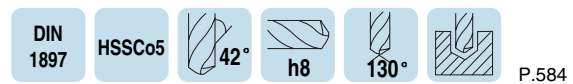
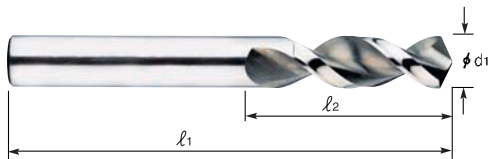
Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D4642255	25.5	265	145	3
D4642256	25.6	265	145	3
D4642257	25.7	265	145	3
D4642258	25.8	265	145	3
D4642259	25.9	265	145	3
D4642260	26.0	265	145	3
D4642261	26.1	265	145	3
D4642262	26.2	265	145	3
D4642263	26.3	265	145	3
D4642264	26.4	265	145	3
D4642265	26.5	265	145	3
D4642266	26.6	270	150	3
D4642267	26.7	270	150	3
D4642268	26.8	270	150	3
D4642269	26.9	270	150	3
D4642270	27.0	270	150	3
D4642271	27.1	270	150	3
D4642272	27.2	270	150	3
D4642273	27.3	270	150	3
D4642274	27.4	270	150	3
D4642275	27.5	270	150	3
D4642276	27.6	270	150	3
D4642277	27.7	270	150	3
D4642278	27.8	270	150	3
D4642279	27.9	270	150	3

Art.-Nr. EDP No. TiN	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D4642280	28.0	270	150	3
D4642281	28.1	275	155	3
D4642282	28.2	275	155	3
D4642283	28.3	275	155	3
D4642284	28.4	275	155	3
D4642285	28.5	275	155	3
D4642286	28.6	275	155	3
D4642287	28.7	275	155	3
D4642288	28.8	275	155	3
D4642289	28.9	275	155	3
D4642290	29.0	275	155	3
D4642291	29.1	275	155	3
D4642292	29.2	275	155	3
D4642293	29.3	275	155	3
D4642294	29.4	275	155	3
D4642295	29.5	275	155	3
D4642296	29.6	275	155	3
D4642297	29.7	275	155	3
D4642298	29.8	275	155	3
D4642299	29.9	275	155	3
D4642300	30.0	275	155	3
D4642305	30.5	280	160	3
D4642310	31.0	280	160	3
D4642315	31.5	280	160	3
D4642320	32.0	285	165	3

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

EXTRA KURZ

STUB



► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

NEW

Unit:mm

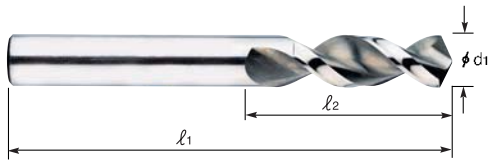
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL510020	2.0	38	12	DL510047	4.7	62	24
DL510021	2.1	38	12	DL510048	4.8	62	26
DL510022	2.2	40	13	DL510049	4.9	62	26
DL510023	2.3	40	13	DL510050	5.0	62	26
DL510024	2.4	43	14	DL510051	5.1	62	26
DL510025	2.5	43	14	DL510052	5.2	62	26
DL510026	2.6	43	14	DL510053	5.3	66	26
DL510027	2.7	46	16	DL510054	5.4	66	28
DL510028	2.8	46	16	DL510055	5.5	66	28
DL510029	2.9	46	16	DL510056	5.6	66	28
DL510030	3.0	46	16	DL510057	5.7	66	28
DL510031	3.1	49	18	DL510058	5.8	66	28
DL510032	3.2	49	18	DL510059	5.9	66	28
DL510033	3.3	49	18	DL510060	6.0	70	28
DL510034	3.4	52	20	DL510061	6.1	70	31
DL510035	3.5	52	20	DL510062	6.2	70	31
DL510036	3.6	52	20	DL510063	6.3	70	31
DL510037	3.7	55	20	DL510064	6.4	70	31
DL510038	3.8	55	22	DL510065	6.5	70	31
DL510039	3.9	55	22	DL510066	6.6	70	31
DL510040	4.0	55	22	DL510067	6.7	74	31
DL510041	4.1	55	22	DL510068	6.8	74	34
DL510042	4.2	58	22	DL510069	6.9	74	34
DL510043	4.3	58	24	DL510070	7.0	74	34
DL510044	4.4	58	24	DL510071	7.1	74	34
DL510045	4.5	58	24	DL510072	7.2	74	34
DL510046	4.6	58	24	DL510073	7.3	74	34

DRILLS

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

EXTRA KURZ

STUB



DIN
1897

HSSCo5

42°

h8

130°



P.584

► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

NEW

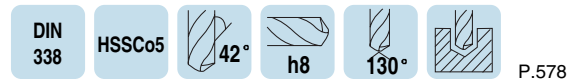
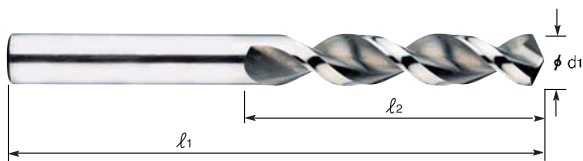
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DL510074	7.4	74	34
DL510075	7.5	79	34
DL510076	7.6	79	37
DL510077	7.7	79	37
DL510078	7.8	79	37
DL510079	7.9	79	37
DL510080	8.0	79	37
DL510081	8.1	79	37
DL510082	8.2	79	37
DL510083	8.3	79	37
DL510084	8.4	79	37
DL510085	8.5	79	37
DL510086	8.6	84	40
DL510087	8.7	84	40
DL510088	8.8	84	40
DL510089	8.9	84	40
DL510090	9.0	84	40
DL510091	9.1	84	40
DL510092	9.2	84	40
DL510093	9.3	84	40
DL510094	9.4	84	40
DL510095	9.5	89	40
DL510096	9.6	89	43
DL510097	9.7	89	43
DL510098	9.8	89	43
DL510099	9.9	89	43

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DL510100	10.0	89	43
DL510102	10.2	89	43
DL510105	10.5	95	43
DL510108	10.8	95	47
DL510110	11.0	95	47
DL510112	11.2	95	47
DL510115	11.5	95	47
DL510118	11.8	95	47
DL510120	12.0	102	51
DL510125	12.5	102	51
DL510130	13.0	102	51
DL510135	13.5	107	54
DL510140	14.0	107	54
DL510145	14.5	111	56
DL510150	15.0	111	56
DL510155	15.5	115	58
DL510160	16.0	115	58
DL510165	16.5	119	60
DL510170	17.0	119	60
DL510175	17.5	123	62
DL510180	18.0	123	62
DL510185	18.5	127	64
DL510190	19.0	127	64
DL510195	19.5	131	66
DL510200	20.0	131	66

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

KURZ
JOBBER



► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

NEW

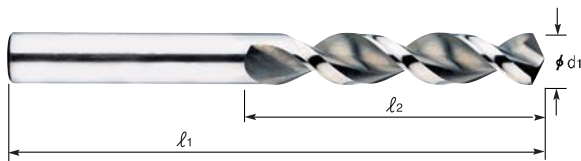
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL508020	2.0	49	24	DL508047	4.7	80	47
DL508021	2.1	49	24	DL508048	4.8	86	52
DL508022	2.2	53	27	DL508049	4.9	86	52
DL508023	2.3	53	27	DL508050	5.0	86	52
DL508024	2.4	57	30	DL508051	5.1	86	52
DL508025	2.5	57	30	DL508052	5.2	86	52
DL508026	2.6	57	30	DL508053	5.3	86	52
DL508027	2.7	61	33	DL508054	5.4	93	57
DL508028	2.8	61	33	DL508055	5.5	93	57
DL508029	2.9	61	33	DL508056	5.6	93	57
DL508030	3.0	61	33	DL508057	5.7	93	57
DL508031	3.1	65	36	DL508058	5.8	93	57
DL508032	3.2	65	36	DL508059	5.9	93	57
DL508033	3.3	65	36	DL508060	6.0	93	57
DL508034	3.4	70	39	DL508061	6.1	101	63
DL508035	3.5	70	39	DL508062	6.2	101	63
DL508036	3.6	70	39	DL508063	6.3	101	63
DL508037	3.7	70	39	DL508064	6.4	101	63
DL508038	3.8	75	43	DL508065	6.5	101	63
DL508039	3.9	75	43	DL508066	6.6	101	63
DL508040	4.0	75	43	DL508067	6.7	101	63
DL508041	4.1	75	43	DL508068	6.8	109	69
DL508042	4.2	75	43	DL508069	6.9	109	69
DL508043	4.3	80	47	DL508070	7.0	109	69
DL508044	4.4	80	47	DL508071	7.1	109	69
DL508045	4.5	80	47	DL508072	7.2	109	69
DL508046	4.6	80	47	DL508073	7.3	109	69

DRILLS

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

**KURZ
JOBBER**



DIN
338

HSSCo5



P.578

► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

NEW

Unit:mm

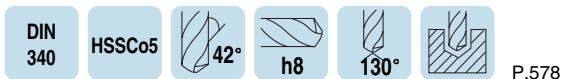
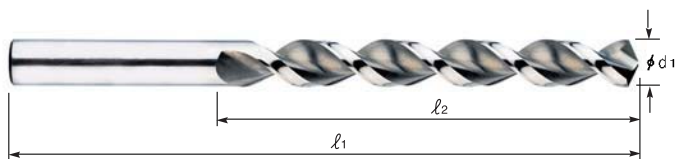
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL508074	7.4	109	69
DL508075	7.5	109	69
DL508076	7.6	117	75
DL508077	7.7	117	75
DL508078	7.8	117	75
DL508079	7.9	117	75
DL508080	8.0	117	75
DL508081	8.1	117	75
DL508082	8.2	117	75
DL508083	8.3	117	75
DL508084	8.4	117	75
DL508085	8.5	117	75
DL508086	8.6	125	81
DL508087	8.7	125	81
DL508088	8.8	125	81
DL508089	8.9	125	81
DL508090	9.0	125	81
DL508091	9.1	125	81
DL508092	9.2	125	81
DL508093	9.3	125	81
DL508094	9.4	125	81

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL508095	9.5	125	81
DL508096	9.6	133	87
DL508097	9.7	133	87
DL508098	9.8	133	87
DL508099	9.9	133	87
DL508100	10.0	133	87
DL508102	10.2	133	87
DL508105	10.5	133	87
DL508110	11.0	142	94
DL508112	11.2	142	94
DL508115	11.5	142	94
DL508120	12.0	151	101
DL508125	12.5	151	101
DL508130	13.0	151	101
DL508135	13.5	160	108
DL508140	14.0	160	108
DL508145	14.5	169	114
DL508150	15.0	169	114
DL508155	15.5	178	120
DL508160	16.0	178	120

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

LANG

LONG



► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.



Unit:mm

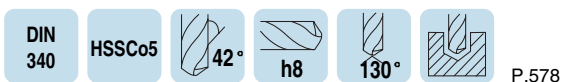
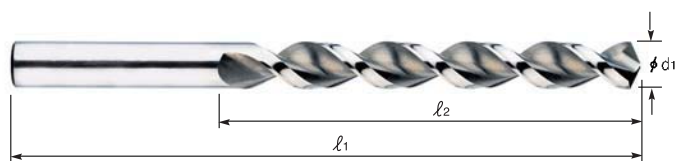
Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DL509020	2.0	85	56	DL509047	4.7	126	82
DL509021	2.1	85	56	DL509048	4.8	132	87
DL509022	2.2	90	59	DL509049	4.9	132	87
DL509023	2.3	90	59	DL509050	5.0	132	87
DL509024	2.4	95	62	DL509051	5.1	132	87
DL509025	2.5	95	62	DL509052	5.2	132	87
DL509026	2.6	95	62	DL509053	5.3	132	87
DL509027	2.7	100	66	DL509054	5.4	139	91
DL509028	2.8	100	66	DL509055	5.5	139	91
DL509029	2.9	100	66	DL509056	5.6	139	91
DL509030	3.0	100	66	DL509057	5.7	139	91
DL509031	3.1	106	69	DL509058	5.8	139	91
DL509032	3.2	106	69	DL509059	5.9	139	91
DL509033	3.3	106	69	DL509060	6.0	139	91
DL509034	3.4	112	73	DL509061	6.1	148	97
DL509035	3.5	112	73	DL509062	6.2	148	97
DL509036	3.6	112	73	DL509063	6.3	148	97
DL509037	3.7	112	73	DL509064	6.4	148	97
DL509038	3.8	119	78	DL509065	6.5	148	97
DL509039	3.9	119	78	DL509066	6.6	148	97
DL509040	4.0	119	78	DL509067	6.7	148	97
DL509041	4.1	119	78	DL509068	6.8	156	102
DL509042	4.2	119	78	DL509069	6.9	156	102
DL509043	4.3	126	82	DL509070	7.0	156	102
DL509044	4.4	126	82	DL509071	7.1	156	102
DL509045	4.5	126	82	DL509072	7.2	156	102
DL509046	4.6	126	82	DL509073	7.3	156	102

DRILLS

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

LANG

LONG



► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

NEW

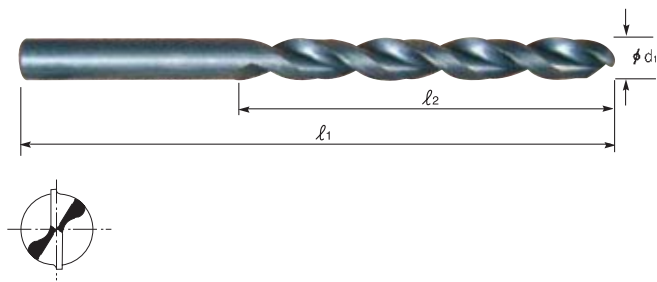
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL509074	7.4	156	102
DL509075	7.5	156	102
DL509076	7.6	165	109
DL509077	7.7	165	109
DL509078	7.8	165	109
DL509079	7.9	165	109
DL509080	8.0	165	109
DL509081	8.1	165	109
DL509082	8.2	165	109
DL509083	8.3	165	109
DL509084	8.4	165	109
DL509085	8.5	165	109
DL509086	8.6	175	115
DL509087	8.7	175	115
DL509088	8.8	175	115
DL509089	8.9	175	115

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL509090	9.0	175	115
DL509091	9.1	175	115
DL509092	9.2	175	115
DL509093	9.3	175	115
DL509094	9.4	175	115
DL509095	9.5	175	115
DL509096	9.6	184	121
DL509097	9.7	184	121
DL509098	9.8	184	121
DL509099	9.9	184	121
DL509100	10.0	184	121
DL509102	10.2	184	121
DL509105	10.5	184	121
DL509110	11.0	195	128
DL509115	11.5	195	128
DL509120	12.0	205	134

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

KURZ
JOBBER



DIN
338

HSSCo5



P.584

► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

Unit:mm

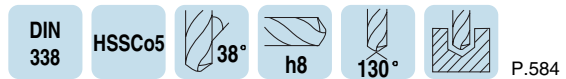
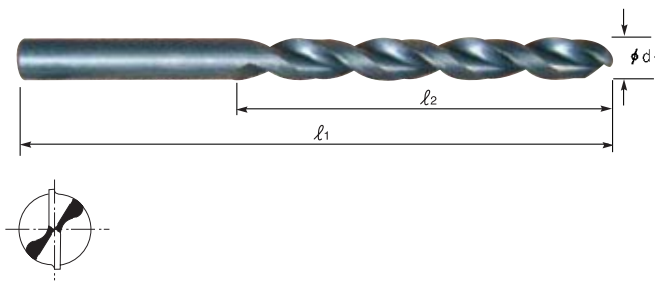
Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DL505020	2.0	49	24
DL505021	2.1	49	24
DL505022	2.2	53	27
DL505023	2.3	53	27
DL505024	2.4	57	30
DL505025	2.5	57	30
DL505026	2.6	57	30
DL505027	2.7	61	33
DL505028	2.8	61	33
DL505029	2.9	61	33
DL505030	3.0	61	33
DL505031	3.1	65	36
DL505032	3.2	65	36
DL505033	3.3	65	36
DL505034	3.4	70	39
DL505035	3.5	70	39
DL505036	3.6	70	39
DL505037	3.7	70	39
DL505038	3.8	75	43
DL505039	3.9	75	43
DL505040	4.0	75	43
DL505041	4.1	75	43
DL505042	4.2	75	43
DL505043	4.3	80	47
DL505044	4.4	80	47
DL505045	4.5	80	47
DL505046	4.6	80	47

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DL505047	4.7	80	47
DL505048	4.8	86	52
DL505049	4.9	86	52
DL505050	5.0	86	52
DL505051	5.1	86	52
DL505052	5.2	86	52
DL505053	5.3	86	52
DL505054	5.4	93	57
DL505055	5.5	93	57
DL505056	5.6	93	57
DL505057	5.7	93	57
DL505058	5.8	93	57
DL505059	5.9	93	57
DL505060	6.0	93	57
DL505061	6.1	101	63
DL505062	6.2	101	63
DL505063	6.3	101	63
DL505064	6.4	101	63
DL505065	6.5	101	63
DL505066	6.6	101	63
DL505067	6.7	101	63
DL505068	6.8	109	69
DL505069	6.9	109	69
DL505070	7.0	109	69
DL505071	7.1	109	69
DL505072	7.2	109	69
DL505073	7.3	109	69

► The TiN(DN505), TiCN(DX505) and TiAlN(DT505) is available on your request.

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

KURZ
JOBBER



► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

Unit:mm

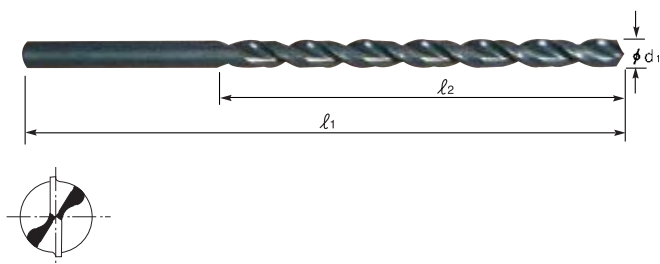
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL505074	7.4	109	69	DL505094	9.4	125	81
DL505075	7.5	109	69	DL505095	9.5	125	81
DL505076	7.6	117	75	DL505096	9.6	133	87
DL505077	7.7	117	75	DL505097	9.7	133	87
DL505078	7.8	117	75	DL505098	9.8	133	87
DL505079	7.9	117	75	DL505099	9.9	133	87
DL505080	8.0	117	75	DL505100	10.0	133	87
DL505081	8.1	117	75	DL505101	10.1	133	87
DL505082	8.2	117	75	DL505102	10.2	133	87
DL505083	8.3	117	75	DL505105	10.5	133	87
DL505084	8.4	117	75	DL505108	10.8	142	94
DL505085	8.5	117	75	DL505110	11.0	142	94
DL505086	8.6	125	81	DL505112	11.2	142	94
DL505087	8.7	125	81	DL505115	11.5	142	94
DL505088	8.8	125	81	DL505118	11.8	142	94
DL505089	8.9	125	81	DL505120	12.0	151	101
DL505090	9.0	125	81	DL505122	12.2	151	101
DL505091	9.1	125	81	DL505125	12.5	151	101
DL505092	9.2	125	81	DL505128	12.8	151	101
DL505093	9.3	125	81	DL505130	13.0	151	101

► The TiN(DN505), TiCN(DX505) and TiAlN(DT505) is available on your request.

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

LANG

LONG



DIN
340

HSSCo5

38°

h8

130°



P.584

► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

Unit:mm

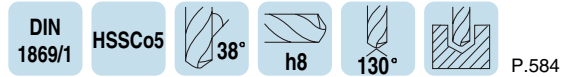
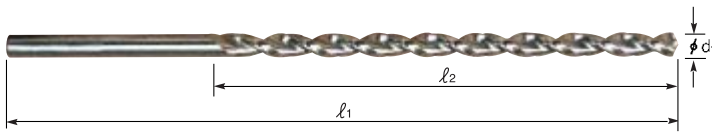
Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DL504020	2.0	85	56
DL504021	2.1	85	56
DL504022	2.2	90	59
DL504023	2.3	90	59
DL504024	2.4	95	62
DL504025	2.5	95	62
DL504026	2.6	95	62
DL504027	2.7	100	66
DL504028	2.8	100	66
DL504029	2.9	100	66
DL504030	3.0	100	66
DL504031	3.1	106	69
DL504032	3.2	106	69
DL504033	3.3	106	69
DL504034	3.4	112	73
DL504035	3.5	112	73
DL504036	3.6	112	73
DL504037	3.7	112	73
DL504038	3.8	119	78
DL504039	3.9	119	78
DL504040	4.0	119	78
DL504042	4.2	119	78
DL504045	4.5	126	82
DL504048	4.8	132	87
DL504050	5.0	132	87

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂
DL504052	5.2	132	87
DL504055	5.5	139	91
DL504058	5.8	139	91
DL504060	6.0	139	91
DL504062	6.2	148	97
DL504065	6.5	148	97
DL504068	6.8	156	102
DL504070	7.0	156	102
DL504072	7.2	156	102
DL504075	7.5	156	102
DL504078	7.8	165	109
DL504080	8.0	165	109
DL504082	8.2	165	109
DL504085	8.5	165	109
DL504090	9.0	175	115
DL504095	9.5	175	115
DL504098	9.8	184	121
DL504100	10.0	184	121
DL504105	10.5	184	121
DL504110	11.0	195	128
DL504115	11.5	195	128
DL504120	12.0	205	134
DL504125	12.5	205	134
DL504130	13.0	205	134

► The TiN(DN504), TiCN(DX504) and TiAlN(DT504) is available on your request.

Spiralbohrer für tiefloch mit Zylinderschaft Straight Shank Twist Drills for deep hole

ÜBERLANG
EXTRA LONG



► DH100 worm pattern drills

- **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.
- **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

Unit:mm

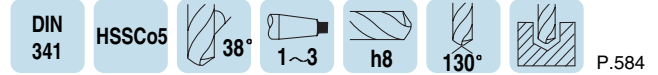
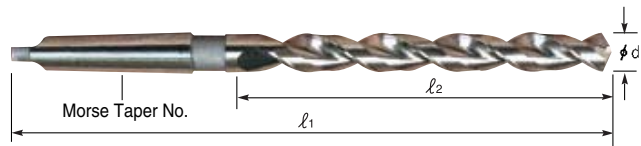
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL600020	2.0	125	85	DL600070	7.0	225	155
DL600922	2.25	135	90	DL600972	7.25	225	155
DL600025	2.5	140	95	DL600075	7.5	225	155
DL600927	2.75	150	100	DL600977	7.75	240	165
DL600030	3.0	150	100	DL600080	8.0	240	165
DL600932	3.25	155	105	DL600982	8.25	240	165
DL600035	3.5	165	115	DL600085	8.5	240	165
DL600937	3.75	165	115	DL600987	8.75	250	175
DL600040	4.0	175	120	DL600090	9.0	250	175
DL600942	4.25	175	120	DL600992	9.25	250	175
DL600045	4.5	185	125	DL600095	9.5	250	175
DL600947	4.75	185	125	DL600975	9.75	265	185
DL600050	5.0	195	135	DL600100	10.0	265	185
DL600952	5.25	195	135	DL600105	10.5	265	185
DL600055	5.5	205	140	DL600110	11.0	280	195
DL600957	5.75	205	140	DL600115	11.5	280	195
DL600060	6.0	205	140	DL600120	12.0	295	205
DL600962	6.25	215	150	DL600125	12.5	295	205
DL600065	6.5	215	150	DL600130	13.0	295	205
DL600967	6.75	225	155				

► The TiN(DN600), TiCN(DX600) and TiAlN(DT600) is available on your request.

Spiralbohrer für tiefloch mit Morsekegelschaft Morse Taper Shank Twist Drills for deep hole

LANG

LONG



► DH100 worm pattern drills

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

Unit:mm

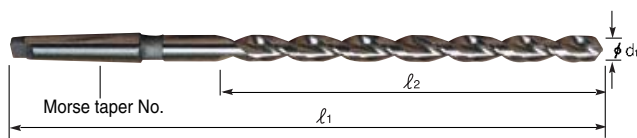
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
DL608130	13.0	215	134	1
DL608135	13.5	223	142	1
DL608140	14.0	223	142	1
DL608145	14.5	245	147	2
DL608150	15.0	245	147	2
DL608155	15.5	251	153	2
DL608160	16.0	251	153	2
DL608165	16.5	257	159	2
DL608170	17.0	257	159	2
DL608175	17.5	263	165	2
DL608180	18.0	263	165	2
DL608185	18.5	269	171	2
DL608190	19.0	269	171	2

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
DL608195	19.5	275	177	2
DL608200	20.0	275	177	2
DL608210	21.0	282	184	2
DL608220	22.0	289	191	2
DL608230	23.0	296	198	2
DL608240	24.0	327	206	3
DL608250	25.0	327	206	3
DL608260	26.0	335	214	3
DL608270	27.0	343	222	3
DL608280	28.0	343	222	3
DL608290	29.0	351	230	3
DL608300	30.0	351	230	3

DRILLS

Spiralbohrer für tiefloch mit Morsekegelschaft Morse Taper Shank Twist Drills for deep hole

ÜBERLANG
EXTRA LONG



DIN
1870/1

HSSCo5

38°

1~3

h8

130°



P.584

► DH100 worm pattern drills

► **Verwendung** : Standardbohrer zum Bohren extreme tiefer Löcher
Zum Bohren von legiertem und unlegiertem stahl,
Grauguß, Temperguß, Sphäroguß, Druckguß,
Alu-Legierungen kurzspanend, Bronze, Messing zäh,
Neusilber.

► **Application** : Designed for drilling deep holes or deeply located
holes.
Drilling deep holes in non alloy steels, alloy steels, grey
cast iron, malleable cast iron, Special aluminum or
magnesium alloys.

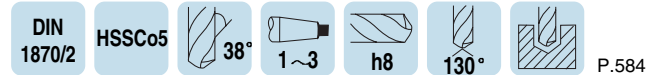
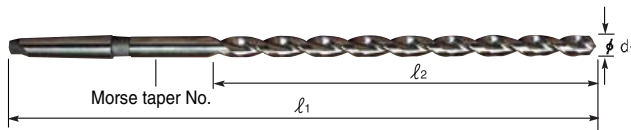
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
DL609130	13.0	310	205	1
DL609135	13.5	325	220	1
DL609140	14.0	325	220	1
DL609145	14.5	340	220	2
DL609150	15.0	340	220	2
DL609155	15.5	355	230	2
DL609160	16.0	355	230	2
DL609165	16.5	355	230	2
DL609170	17.0	355	230	2
DL609175	17.5	370	245	2
DL609180	18.0	370	245	2
DL609185	18.5	370	245	2
DL609190	19.0	370	245	2
DL609195	19.5	385	260	2
DL609200	20.0	385	260	2
DL609205	20.5	385	260	2
DL609210	21.0	385	260	2
DL609215	21.5	405	270	2

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
DL609220	22.0	405	270	2
DL609225	22.5	405	270	2
DL609230	23.0	405	270	2
DL609235	23.5	425	270	3
DL609240	24.0	440	290	3
DL609245	24.5	440	290	3
DL609250	25.0	440	290	3
DL609255	25.5	440	290	3
DL609260	26.0	440	290	3
DL609265	26.5	440	290	3
DL609270	27.0	460	305	3
DL609275	27.5	460	305	3
DL609280	28.0	460	305	3
DL609285	28.5	460	305	3
DL609290	29.0	460	305	3
DL609295	29.5	460	305	3
DL609300	30.0	460	305	3
DL609310	31.0	480	320	3

Spiralbohrer für tiefloch mit Morsekegelschaft Morse Taper Shank Twist Drills for deep hole

ÜBERLANG
EXTRA LONG



► DH100 worm pattern drills

► **Verwendung** : Standardbohrer zum Bohren extreme tiefer Löcher
Zum Bohren von legiertem und unlegiertem stahl,
Grauguß, Temperguß, Sphäroguß, Druckguß,
Alu-Legierungen kurzspanend, Bronze, Messing zäh,
Neusilber.

► **Application** : Designed for drilling deep holes or deeply located
holes.
Drilling deep holes in non alloy steels, alloy steels, grey
cast iron, malleable cast iron, Special aluminum or
magnesium alloys.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
DL610130	13.0	395	260	1
DL610135	13.5	410	275	1
DL610140	14.0	410	275	1
DL610145	14.5	425	275	2
DL610150	15.0	425	275	2
DL610155	15.5	445	295	2
DL610160	16.0	445	295	2
DL610165	16.5	445	295	2
DL610170	17.0	445	295	2
DL610175	17.5	465	310	2
DL610180	18.0	465	310	2
DL610185	18.5	465	310	2
DL610190	19.0	465	310	2
DL610195	19.5	490	325	2
DL610200	20.0	490	325	2
DL610205	20.5	490	325	2
DL610210	21.0	490	325	2
DL610215	21.5	515	345	2

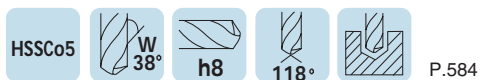
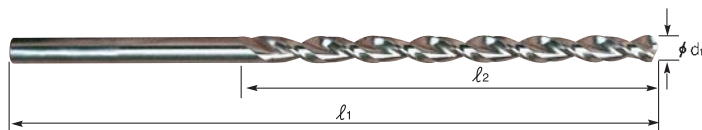
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
DL610220	22.0	515	345	2
DL610225	22.5	515	345	2
DL610230	23.0	515	345	2
DL610235	23.5	535	345	3
DL610240	24.0	555	365	3
DL610245	24.5	555	365	3
DL610250	25.0	555	365	3
DL610255	25.5	555	365	3
DL610260	26.0	555	365	3
DL610265	26.5	555	365	3
DL610270	27.0	580	385	3
DL610275	27.5	580	385	3
DL610280	28.0	580	385	3
DL610285	28.5	580	385	3
DL610290	29.0	580	385	3
DL610295	29.5	580	385	3
DL610300	30.0	580	385	3

DRILLS

Spiralbohrer für Aluminium tiefloch mit Zylinderschaft Straight Shank Twist Drills for Aluminium deep hole

LANG

LONG



► DH50 worm pattern drills

- **Verwendung** : Zum Bohren von weichen und langspanenden Werkstoffen wie Aluminium-Lehierungen, Zink, Hitten-Kupfer, Kunststoffe und holz.
- **Application** : Drilling into aluminium and its alloy, silumin, Zinc, refined copper, wood and other soft synthetic materials.

NEW

Unit:mm

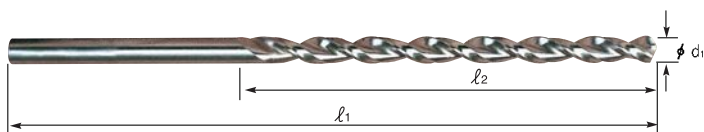
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL507120	2.0	75	40
DL507121	2.1	75	40
DL507220	2.0	100	50
DL507221	2.1	100	50
DL507225	2.5	100	50
DL507227	2.7	100	50
DL507230	3.0	100	50
DL507233	3.3	100	50
DL507235	3.5	100	50
DL507320	2.0	150	75
DL507321	2.1	150	75
DL507325	2.5	150	75
DL507327	2.7	150	75
DL507330	3.0	150	75
DL507333	3.3	150	75
DL507335	3.5	150	75
DL507340	4.0	150	75
DL507342	4.2	150	75
DL507345	4.5	150	75
DL507350	5.0	150	75
DL507353	5.3	150	75
DL507355	5.5	150	75
DL507360	6.0	150	75
DL507430	3.0	200	100

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL507433	3.3	200	100
DL507435	3.5	200	100
DL507440	4.0	200	100
DL507442	4.2	200	100
DL507445	4.5	200	100
DL507450	5.0	200	100
DL507453	5.3	200	100
DL507455	5.5	200	100
DL507460	6.0	200	100
DL507465	6.5	200	100
DL507468	6.8	200	100
DL507470	7.0	200	100
DL507475	7.5	200	100
DL507480	8.0	200	100
DL507485	8.5	200	100
DL507488	8.8	200	100
DL507490	9.0	200	100
DL507495	9.5	200	100
DL507700	10.0	200	100
DL507540	4.0	250	150
DL507542	4.2	250	150
DL507545	4.5	250	150
DL507550	5.0	250	150
DL507553	5.3	250	150

Spiralbohrer für Aluminium tiefloch mit Zylinderschaft Straight Shank Twist Drills for Aluminium deep hole

LANG

LONG



► DH50 worm pattern drills

- **Verwendung** : Zum Bohren von weichen und langspanenden Werkstoffen wie Aluminium Lehierungen, Zink, Hitten-Kupfer, Kunststoffe und holz.
- **Application** : Drilling into aluminium and its alloy, silumin, Zinc, refined copper, wood and other soft synthetic materials.



Unit:mm

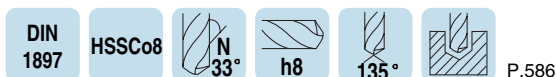
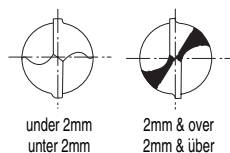
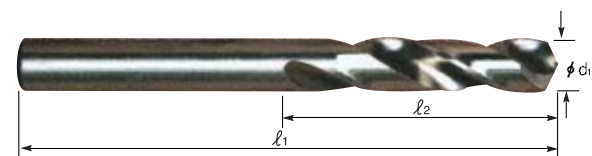
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL507555	5.5	250	150	DL507653	5.3	300	180
DL507560	6.0	250	150	DL507655	5.5	300	180
DL507565	6.5	250	150	DL507660	6.0	300	180
DL507568	6.8	250	150	DL507665	6.5	300	180
DL507570	7.0	250	150	DL507668	6.8	300	180
DL507575	7.5	250	150	DL507670	7.0	300	180
DL507580	8.0	250	150	DL507675	7.5	300	180
DL507585	8.5	250	150	DL507680	8.0	300	180
DL507588	8.8	250	150	DL507685	8.5	300	180
DL507590	9.0	250	150	DL507688	8.8	300	180
DL507595	9.5	250	150	DL507690	9.0	300	180
DL507800	10.0	250	150	DL507695	9.5	300	180
DL507803	10.3	250	150	DL507900	10.0	300	180
DL507805	10.5	250	150	DL507903	10.3	300	180
DL507810	11.0	250	150	DL507905	10.5	300	180
DL507815	11.5	250	150	DL507910	11.0	300	180
DL507820	12.0	250	150	DL507915	11.5	300	180
DL507825	12.5	250	150	DL507920	12.0	300	180
DL507830	13.0	250	150	DL507925	12.5	300	180
DL507650	5.0	300	180	DL507930	13.0	300	180

DRILLS

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

EXTRA KURZ

STUB



- **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.
- **Application** : Drills suitable for drilling in thin materials with portable drills.
Special twist drills for automatic and turret lathes.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2107010	1.0	26	6
D2107011	1.1	28	7
D2107012	1.2	30	8
D2107912	1.25	30	8
D2107013	1.3	30	8
D2107014	1.4	32	9
D2107015	1.5	32	9
D2107016	1.6	34	10
D2107017	1.7	34	10
D2107917	1.75	36	11
D2107018	1.8	36	11
D2107019	1.9	36	11
D2107020	2.0	38	12
D2107021	2.1	38	12
D2107022	2.2	40	13
D2107925	2.25	40	13
D2107023	2.3	40	13
D2107024	2.4	43	14
D2107025	2.5	43	14
D2107026	2.6	43	14
D2107027	2.7	46	16
D2107927	2.75	46	16
D2107028	2.8	46	16
D2107029	2.9	46	16
D2107030	3.0	46	16
D2107031	3.1	49	18
D2107032	3.2	49	18
D2107932	3.25	49	18
D2107033	3.3	49	18
D2107034	3.4	52	20
D2107035	3.5	52	20
D2107036	3.6	52	20
D2107037	3.7	52	20

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2107937	3.75	52	20
D2107038	3.8	55	22
D2107039	3.9	55	22
D2107040	4.0	55	22
D2107041	4.1	55	22
D2107042	4.2	55	22
D2107942	4.25	55	22
D2107043	4.3	58	24
D2107044	4.4	58	24
D2107045	4.5	58	24
D2107046	4.6	58	24
D2107946	4.65	58	24
D2107047	4.7	58	24
D2107947	4.75	58	24
D2107048	4.8	62	26
D2107049	4.9	62	26
D2107050	5.0	62	26
D2107051	5.1	62	26
D2107052	5.2	62	26
D2107952	5.25	62	26
D2107053	5.3	62	26
D2107054	5.4	66	28
D2107055	5.5	66	28
D2107955	5.55	66	28
D2107056	5.6	66	28
D2107057	5.7	66	28
D2107957	5.75	66	28
D2107058	5.8	66	28
D2107059	5.9	66	28
D2107060	6.0	66	28
D2107061	6.1	70	31
D2107062	6.2	70	31
D2107962	6.25	70	31

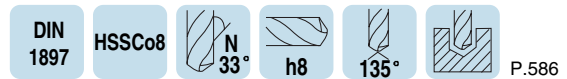
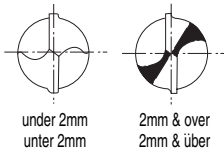
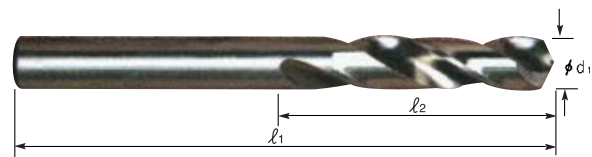
►The HSSCo5(DL107) is available when you need.

►The TiN(D4107), TiCN(D7107) and TiAlN(DQ107) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

EXTRA KURZ

STUB



- **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.
- **Application** : Drills suitable for drilling in thin materials with portable drills.
Special twist drills for automatic and turret lathes.

Unit:mm

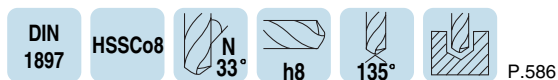
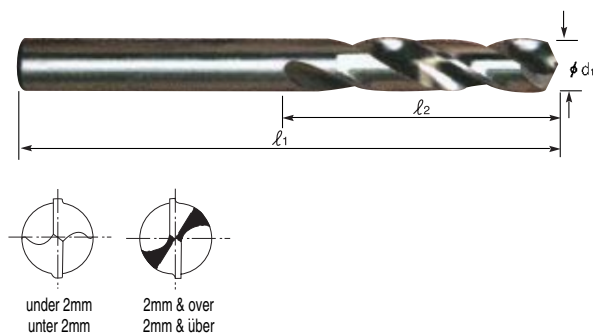
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2107063	6.3	70	31	D2107090	9.0	84	40
D2107064	6.4	70	31	D2107091	9.1	84	40
D2107065	6.5	70	31	D2107092	9.2	84	40
D2107066	6.6	70	31	D2107992	9.25	84	40
D2107067	6.7	70	31	D2107093	9.3	84	40
D2107967	6.75	74	34	D2107993	9.35	84	40
D2107068	6.8	74	34	D2107094	9.4	84	40
D2107069	6.9	74	34	D2107095	9.5	84	40
D2107070	7.0	74	34	D2107096	9.6	89	43
D2107071	7.1	74	34	D2107097	9.7	89	43
D2107072	7.2	74	34	D2107997	9.75	89	43
D2107972	7.25	74	34	D2107098	9.8	89	43
D2107073	7.3	74	34	D2107099	9.9	89	43
D2107074	7.4	74	34	D2107100	10.0	89	43
D2107974	7.45	74	34	D2107102	10.2	89	43
D2107075	7.5	74	34	D2107802	10.25	89	43
D2107076	7.6	79	37	D2107105	10.5	89	43
D2107077	7.7	79	37	D2107807	10.75	95	47
D2107977	7.75	79	37	D2107110	11.0	95	47
D2107078	7.8	79	37	D2107812	11.25	95	47
D2107079	7.9	79	37	D2107115	11.5	95	47
D2107080	8.0	79	37	D2107817	11.75	95	47
D2107081	8.1	79	37	D2107118	11.8	95	47
D2107082	8.2	79	37	D2107120	12.0	102	51
D2107982	8.25	79	37	D2107822	12.25	102	51
D2107083	8.3	79	37	D2107125	12.5	102	51
D2107084	8.4	79	37	D2107827	12.75	102	51
D2107085	8.5	79	37	D2107130	13.0	102	51
D2107086	8.6	84	40	D2107832	13.25	107	54
D2107087	8.7	84	40	D2107135	13.5	107	54
D2107987	8.75	84	40	D2107837	13.75	107	54
D2107088	8.8	84	40	D2107138	13.8	107	54
D2107089	8.9	84	40	D2107140	14.0	107	54

- The HSSCo5(DL107) is available when you need.
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Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

EXTRA KURZ

STUB



- **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.
- **Application** : Drills suitable for drilling in thin materials with portable drills.
Special twist drills for automatic and turret lathes.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2107842	14.25	111	56
D2107145	14.5	111	56
D2107847	14.75	111	56
D2107150	15.0	111	56
D2107852	15.25	115	58
D2107155	15.5	115	58
D2107857	15.75	115	58
D2107160	16.0	115	58
D2107862	16.25	119	60
D2107165	16.5	119	60
D2107867	16.75	119	60
D2107170	17.0	119	60
D2107872	17.25	123	62
D2107175	17.5	123	62
D2107877	17.75	123	62
D2107180	18.0	123	62
D2107882	18.25	127	64
D2107185	18.5	127	64
D2107887	18.75	127	64
D2107190	19.0	127	64

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2107892	19.25	131	66
D2107195	19.5	131	66
D2107897	19.75	131	66
D2107200	20.0	131	66
D2107205	20.5	136	68
D2107210	21.0	136	68
D2107215	21.5	141	70
D2107220	22.0	141	70
D2107225	22.5	146	72
D2107230	23.0	146	72
D2107235	23.5	146	72
D2107240	24.0	151	75
D2107245	24.5	151	75
D2107250	25.0	151	75
D2107260	26.0	156	78
D2107270	27.0	162	81
D2107280	28.0	162	81
D2107290	29.0	168	84
D2107300	30.0	168	84
D2107310	31.0	174	87

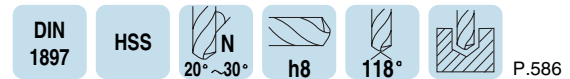
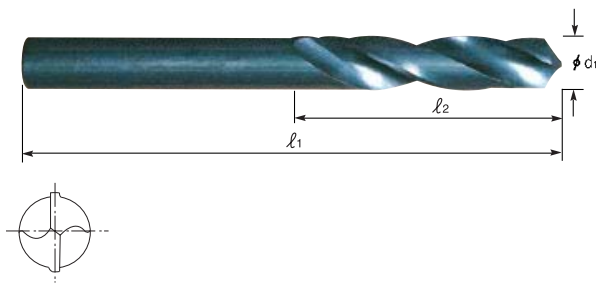
► The HSSCo5(DL107) is available when you need.

► The TiN(D4107), TiCN(D7107) and TiAlN(DQ107) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

EXTRA KURZ

STUB



- **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.
- **Application** : Drills suitable for drilling in thin materials with portable drills.
Special twist drills for automatic and turret lathes.

Unit:mm

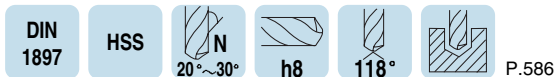
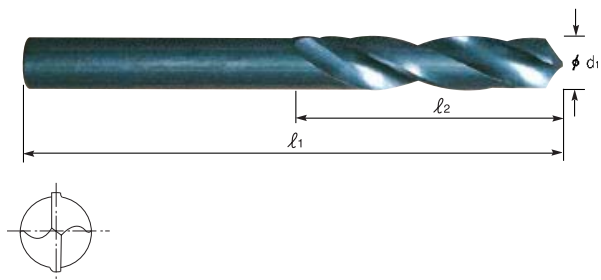
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1107010	1.0	26	6	D1107937	3.75	52	20
D1107011	1.1	28	7	D1107038	3.8	55	22
D1107012	1.2	30	8	D1107039	3.9	55	22
D1107912	1.25	30	8	D1107040	4.0	55	22
D1107013	1.3	30	8	D1107041	4.1	55	22
D1107014	1.4	32	9	D1107042	4.2	55	22
D1107015	1.5	32	9	D1107942	4.25	55	22
D1107016	1.6	34	9	D1107043	4.3	58	24
D1107017	1.7	34	10	D1107044	4.4	58	24
D1107917	1.75	36	11	D1107045	4.5	58	24
D1107018	1.8	36	11	D1107046	4.6	58	24
D1107019	1.9	36	11	D1107047	4.7	58	24
D1107020	2.0	38	12	D1107947	4.75	58	24
D1107021	2.1	38	12	D1107048	4.8	62	26
D1107022	2.2	40	13	D1107049	4.9	62	26
D1107922	2.25	40	13	D1107050	5.0	62	26
D1107023	2.3	40	13	D1107051	5.1	62	26
D1107024	2.4	43	14	D1107052	5.2	62	26
D1107025	2.5	43	14	D1107952	5.25	62	26
D1107026	2.6	43	14	D1107053	5.3	62	26
D1107027	2.7	46	16	D1107054	5.4	66	28
D1107927	2.75	46	16	D1107055	5.5	66	28
D1107028	2.8	46	16	D1107056	5.6	66	28
D1107029	2.9	46	16	D1107057	5.7	66	28
D1107030	3.0	46	16	D1107957	5.75	66	28
D1107031	3.1	49	18	D1107058	5.8	66	28
D1107032	3.2	49	18	D1107059	5.9	66	28
D1107932	3.25	49	18	D1107060	6.0	66	28
D1107033	3.3	49	18	D1107061	6.1	70	31
D1107034	3.4	52	20	D1107062	6.2	70	31
D1107035	3.5	52	20	D1107962	6.25	70	31
D1107036	3.6	52	20	D1107063	6.3	70	31
D1107037	3.7	52	20	D1107064	6.4	70	31

DRILLS

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

EXTRA KURZ

STUB



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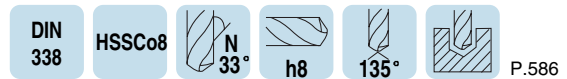
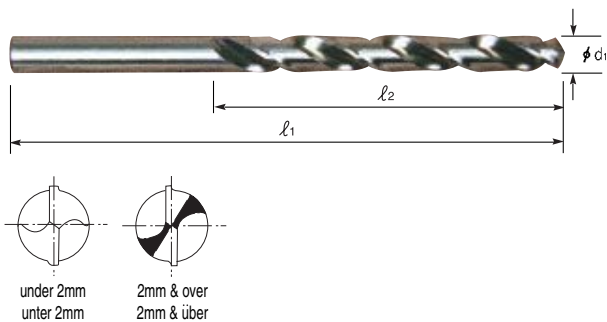
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1107065	6.5	70	31
D1107066	6.6	70	31
D1107067	6.7	70	31
D1107967	6.75	74	34
D1107068	6.8	74	34
D1107069	6.9	74	34
D1107070	7.0	74	34
D1107071	7.1	74	34
D1107072	7.2	74	34
D1107972	7.25	74	34
D1107073	7.3	74	34
D1107074	7.4	74	34
D1107075	7.5	74	34
D1107076	7.6	79	37
D1107077	7.7	79	37
D1107977	7.75	79	37
D1107078	7.8	79	37
D1107079	7.9	79	37
D1107080	8.0	79	37
D1107081	8.1	79	37
D1107082	8.2	79	37
D1107982	8.25	79	37
D1107083	8.3	79	37
D1107084	8.4	79	37
D1107085	8.5	79	37
D1107086	8.6	84	40
D1107087	8.7	84	40
D1107987	8.75	84	40

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1107088	8.8	84	40
D1107089	8.9	84	40
D1107090	9.0	84	40
D1107091	9.1	84	40
D1107092	9.2	84	40
D1107992	9.25	84	40
D1107093	9.3	84	40
D1107094	9.4	84	40
D1107095	9.5	84	40
D1107096	9.6	89	43
D1107097	9.7	89	43
D1107997	9.75	89	43
D1107098	9.8	89	43
D1107099	9.9	89	43
D1107100	10.0	89	43
D1107802	10.25	89	43
D1107105	10.5	89	43
D1107807	10.75	95	47
D1107110	11.0	95	47
D1107812	11.25	95	47
D1107115	11.5	95	47
D1107817	11.75	95	47
D1107120	12.0	102	51
D1107822	12.25	102	51
D1107125	12.5	102	51
D1107827	12.75	102	51
D1107130	13.0	102	51

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

**KURZ
JOBBER**



► **Verwendung** : Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.

► **Application** : Drilling in stainless steels, materials of difficult machinability such as titanium and inconel.

Unit:mm

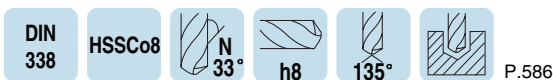
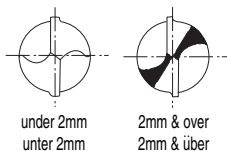
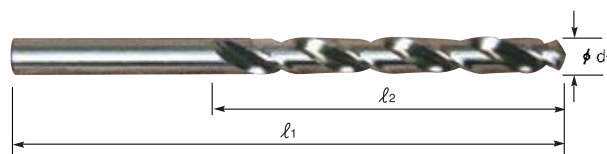
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2105010	1.0	34	12	D2105932	3.25	65	36
D2105011	1.1	36	14	D2105033	3.3	65	36
D2105012	1.2	38	16	D2105034	3.4	70	39
D2105912	1.25	38	16	D2105035	3.5	70	39
D2105013	1.3	38	16	D2105036	3.6	70	39
D2105014	1.4	40	18	D2105037	3.7	70	39
D2105015	1.5	40	18	D2105937	3.75	70	39
D2105016	1.6	43	20	D2105038	3.8	75	43
D2105017	1.7	43	20	D2105039	3.9	75	43
D2105917	1.75	46	22	D2105040	4.0	75	43
D2105018	1.8	46	22	D2105041	4.1	75	43
D2105019	1.9	46	22	D2105042	4.2	75	43
D2105020	2.0	49	24	D2105942	4.25	75	43
D2105021	2.1	49	24	D2105043	4.3	80	47
D2105022	2.2	53	27	D2105044	4.4	80	47
D2105922	2.25	53	27	D2105045	4.5	80	47
D2105023	2.3	53	27	D2105046	4.6	80	47
D2105024	2.4	57	30	D2105047	4.7	80	47
D2105025	2.5	57	30	D2105947	4.75	80	47
D2105026	2.6	57	30	D2105048	4.8	86	52
D2105027	2.7	61	33	D2105049	4.9	86	52
D2105927	2.75	61	33	D2105050	5.0	86	52
D2105028	2.8	61	33	D2105051	5.1	86	52
D2105029	2.9	61	33	D2105052	5.2	86	52
D2105030	3.0	61	33	D2105952	5.25	86	52
D2105031	3.1	65	36	D2105053	5.3	86	52
D2105032	3.2	65	36	D2105054	5.4	93	57

► The TiN(D4105), TiCN(D7105) and TiAlN(DQ107) is available on your request.

DRILLS

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

KURZ
JOBBER



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- **Application** : Drilling in stainless steels, materials of difficult machinability such as titanium and inconel.

Unit:mm

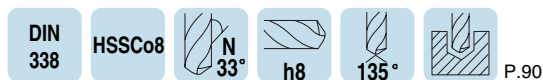
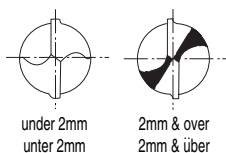
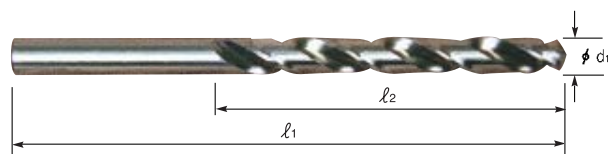
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2105055	5.5	93	57
D2105056	5.6	93	57
D2105057	5.7	93	57
D2105957	5.75	93	57
D2105058	5.8	93	57
D2105059	5.9	93	57
D2105060	6.0	93	57
D2105061	6.1	101	63
D2105062	6.2	101	63
D2105962	6.25	101	63
D2105063	6.3	101	63
D2105064	6.4	101	63
D2105065	6.5	101	63
D2105066	6.6	101	63
D2105067	6.7	101	63
D2105967	6.75	109	69
D2105068	6.8	109	69
D2105069	6.9	109	69
D2105070	7.0	109	69
D2105071	7.1	109	69
D2105072	7.2	109	69
D2105972	7.25	109	69
D2105073	7.3	109	69
D2105074	7.4	109	69
D2105075	7.5	109	69
D2105076	7.6	117	75
D2105077	7.7	117	75

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2105977	7.75	117	75
D2105078	7.8	117	75
D2105079	7.9	117	75
D2105080	8.0	117	75
D2105081	8.1	117	75
D2105082	8.2	117	75
D2105982	8.25	117	75
D2105083	8.3	117	75
D2105084	8.4	117	75
D2105085	8.5	117	75
D2105086	8.6	125	81
D2105087	8.7	125	81
D2105987	8.75	125	81
D2105088	8.8	125	81
D2105089	8.9	125	81
D2105090	9.0	125	81
D2105091	9.1	125	81
D2105092	9.2	125	81
D2105992	9.25	125	81
D2105093	9.3	125	81
D2105094	9.4	125	81
D2105095	9.5	125	81
D2105096	9.6	133	87
D2105097	9.7	133	87
D2105997	9.75	133	87
D2105098	9.8	133	87
D2105099	9.9	133	87

► The TiN(D4105), TiCN(D7105) and TiAlN(DQ105) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

**KURZ
JOBBER**



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► **Application** : Drilling in stainless steels, materials of difficult machinability such as titanium and inconel.

Unit:mm

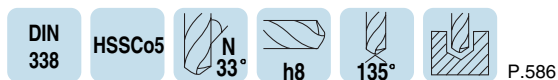
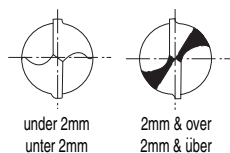
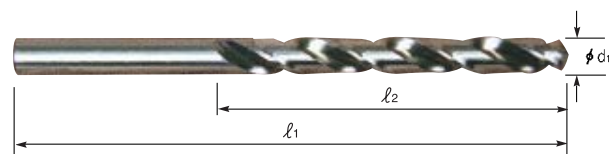
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2105100	10.0	133	87
D2105102	10.2	133	87
D2105105	10.5	133	87
D2105110	11.0	142	94
D2105115	11.5	142	94
D2105120	12.0	151	101
D2105125	12.5	151	101
D2105130	13.0	151	101
D2105135	13.5	160	108
D2105140	14.0	160	108
D2105145	14.5	169	114

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2105150	15.0	169	114
D2105155	15.5	178	120
D2105160	16.0	178	120
D2105165	16.5	184	125
D2105170	17.0	184	125
D2105175	17.5	191	130
D2105180	18.0	191	130
D2105185	18.5	198	135
D2105190	19.0	198	135
D2105195	19.5	205	140
D2105200	20.0	205	140

► The TiN(D4105), TiCN(D7105) and TiAlN(DQ105) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

**KURZ
JOBBER**



► **Verwendung** : Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.

► **Application** : Drilling in stainless steels, materials of difficult machinability such as titanium and inconel.

Unit:mm

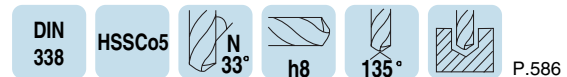
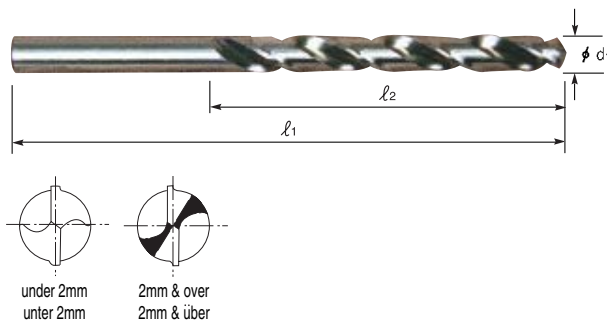
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL105010	1.0	34	12
DL105011	1.1	36	14
DL105012	1.2	38	16
DL105912	1.25	38	16
DL105013	1.3	38	16
DL105014	1.4	40	18
DL105015	1.5	40	18
DL105016	1.6	43	20
DL105017	1.7	43	20
DL105917	1.75	46	22
DL105018	1.8	46	22
DL105019	1.9	46	22
DL105020	2.0	49	24
DL105021	2.1	49	24
DL105022	2.2	53	27
DL105922	2.25	53	27
DL105023	2.3	53	27
DL105024	2.4	57	30
DL105025	2.5	57	30
DL105026	2.6	57	30
DL105027	2.7	61	33
DL105927	2.75	61	33
DL105028	2.8	61	33
DL105029	2.9	61	33
DL105030	3.0	61	33
DL105031	3.1	65	36
DL105032	3.2	65	36

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL105932	3.25	65	36
DL105033	3.3	65	36
DL105034	3.4	70	39
DL105035	3.5	70	39
DL105036	3.6	70	39
DL105037	3.7	70	39
DL105937	3.75	70	39
DL105038	3.8	75	43
DL105039	3.9	75	43
DL105040	4.0	75	43
DL105041	4.1	75	43
DL105042	4.2	75	43
DL105942	4.25	75	43
DL105043	4.3	80	47
DL105044	4.4	80	47
DL105045	4.5	80	47
DL105046	4.6	80	47
DL105047	4.7	80	47
DL105947	4.75	80	47
DL105048	4.8	86	52
DL105049	4.9	86	52
DL105050	5.0	86	52
DL105051	5.1	86	52
DL105052	5.2	86	52
DL105952	5.25	86	52
DL105053	5.3	86	52
DL105054	5.4	93	57

► The TiN(DN105), TiCN(DX105) and TiAlN(DT105) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

**KURZ
JOBBER**



► **Verwendung** : Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.

► **Application** : Drilling in stainless steels, materials of difficult machinability such as titanium and inconel.

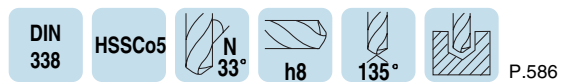
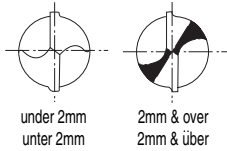
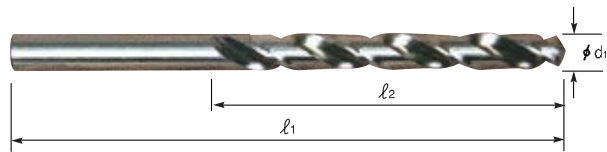
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL105055	5.5	93	57	DL105977	7.75	117	75
DL105056	5.6	93	57	DL105078	7.8	117	75
DL105057	5.7	93	57	DL105079	7.9	117	75
DL105957	5.75	93	57	DL105080	8.0	117	75
DL105058	5.8	93	57	DL105081	8.1	117	75
DL105059	5.9	93	57	DL105082	8.2	117	75
DL105060	6.0	93	57	DL105982	8.25	117	75
DL105061	6.1	101	63	DL105083	8.3	117	75
DL105062	6.2	101	63	DL105084	8.4	117	75
DL105962	6.25	101	63	DL105085	8.5	117	75
DL105063	6.3	101	63	DL105086	8.6	125	81
DL105064	6.4	101	63	DL105087	8.7	125	81
DL105065	6.5	101	63	DL105987	8.75	125	81
DL105066	6.6	101	63	DL105088	8.8	125	81
DL105067	6.7	101	63	DL105089	8.9	125	81
DL105967	6.75	109	69	DL105090	9.0	125	81
DL105068	6.8	109	69	DL105091	9.1	125	81
DL105069	6.9	109	69	DL105092	9.2	125	81
DL105070	7.0	109	69	DL105992	9.25	125	81
DL105071	7.1	109	69	DL105093	9.3	125	81
DL105072	7.2	109	69	DL105094	9.4	125	81
DL105972	7.25	109	69	DL105095	9.5	125	81
DL105073	7.3	109	69	DL105096	9.6	133	87
DL105074	7.4	109	69	DL105097	9.7	133	87
DL105075	7.5	109	69	DL105997	9.75	133	87
DL105076	7.6	117	75	DL105098	9.8	133	87
DL105077	7.7	117	75	DL105099	9.9	133	87

► The TiN(DN105), TiCN(DX105) and TiAlN(DT105) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

**KURZ
JOBBER**



► **Verwendung** : Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.

► **Application** : Drilling in stainless steels, materials of difficult machinability such as titanium and inconel.

Unit:mm

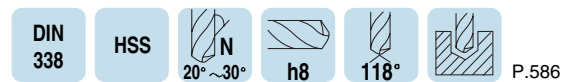
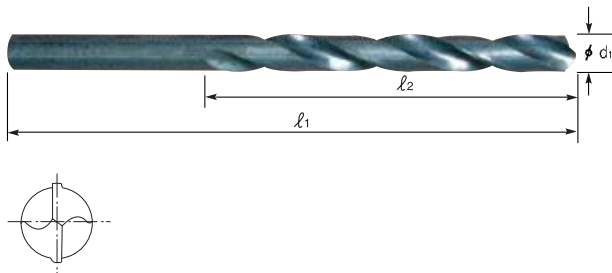
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL105100	10.0	133	87
DL105102	10.2	133	87
DL105105	10.5	133	87
DL105110	11.0	142	94
DL105115	11.5	142	94
DL105120	12.0	151	101
DL105125	12.5	151	101
DL105130	13.0	151	101
DL105135	13.5	160	108
DL105140	14.0	160	108
DL105145	14.5	169	114

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL105150	15.0	169	114
DL105155	15.5	178	120
DL105160	16.0	178	120
DL105165	16.5	184	125
DL105170	17.0	184	125
DL105175	17.5	191	130
DL105180	18.0	191	130
DL105185	18.5	198	135
DL105190	19.0	198	135
DL105195	19.5	205	140
DL105200	20.0	205	140

► The TiN(DN105), TiCN(DX105) and TiAlN(DT105) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

**KURZ
JOBBER**



- **Verwendung** : Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, sinterisen, Graphite.
 ► **Application** : Drilling in steel, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

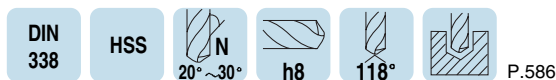
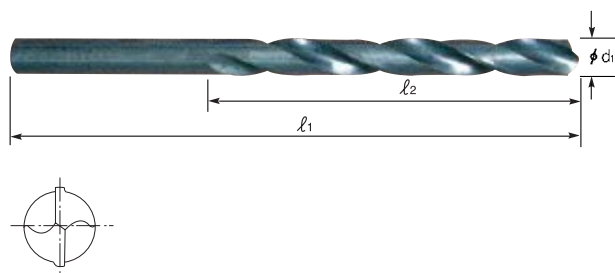
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1105010	1.0	34	12	D1105925	2.55	57	30
D1105910	1.05	34	12	D1105026	2.6	57	30
D1105011	1.1	36	14	D1105926	2.65	57	30
D1105911	1.15	36	14	D1105027	2.7	61	33
D1105012	1.2	38	16	D1105927	2.75	61	33
D1105912	1.25	38	16	D1105028	2.8	61	33
D1105013	1.3	38	16	D1105928	2.85	61	33
D1105913	1.35	40	18	D1105029	2.9	61	33
D1105014	1.4	40	18	D1105929	2.95	61	33
D1105914	1.45	40	18	D1105030	3.0	61	33
D1105015	1.5	40	18	D1105930	3.05	65	36
D1105915	1.55	43	20	D1105031	3.1	65	36
D1105016	1.6	43	20	D1105931	3.15	65	36
D1105916	1.65	43	20	D1105032	3.2	65	36
D1105017	1.7	43	20	D1105932	3.25	65	36
D1105917	1.75	46	22	D1105033	3.3	65	36
D1105018	1.8	46	22	D1105933	3.35	65	36
D1105918	1.85	46	22	D1105034	3.4	70	39
D1105019	1.9	46	22	D1105934	3.45	70	39
D1105919	1.95	49	24	D1105035	3.5	70	39
D1105020	2.0	49	24	D1105935	3.55	70	39
D1105920	2.05	49	24	D1105036	3.6	70	39
D1105021	2.1	49	24	D1105936	3.65	70	39
D1105921	2.15	53	27	D1105037	3.7	70	39
D1105022	2.2	53	27	D1105937	3.75	70	39
D1105922	2.25	53	27	D1105038	3.8	75	43
D1105023	2.3	53	27	D1105938	3.85	75	43
D1105923	2.35	53	27	D1105039	3.9	75	43
D1105024	2.4	57	30	D1105939	3.95	75	43
D1105924	2.45	57	30	D1105040	4.0	75	43
D1105025	2.5	57	30	D1105940	4.05	75	43

DRILLS

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

KURZ
JOBBER



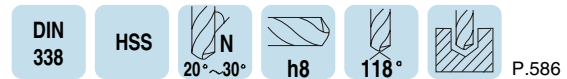
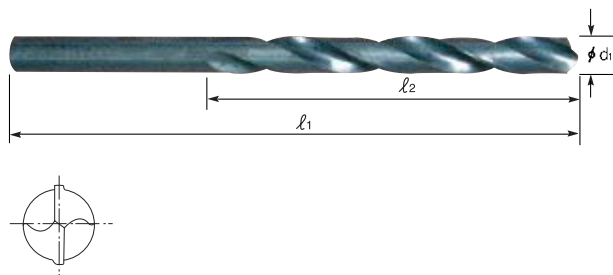
- **Verwendung** : Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, sinterisen, Graphite.
 ► **Application** : Drilling in steel, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1105041	4.1	75	43	D1105956	5.65	93	57
D1105941	4.15	75	43	D1105057	5.7	93	57
D1105042	4.2	75	43	D1105957	5.75	93	57
D1105942	4.25	75	43	D1105058	5.8	93	57
D1105043	4.3	80	47	D1105958	5.85	93	57
D1105943	4.35	80	47	D1105059	5.9	93	57
D1105044	4.4	80	47	D1105959	5.95	93	57
D1105944	4.45	80	47	D1105060	6.0	93	57
D1105045	4.5	80	47	D1105960	6.05	101	63
D1105945	4.55	80	47	D1105061	6.1	101	63
D1105046	4.6	80	47	D1105961	6.15	101	63
D1105946	4.65	80	47	D1105062	6.2	101	63
D1105047	4.7	80	47	D1105962	6.25	101	63
D1105947	4.75	80	47	D1105063	6.3	101	63
D1105048	4.8	86	52	D1105963	6.35	101	63
D1105948	4.85	86	52	D1105064	6.4	101	63
D1105049	4.9	86	52	D1105964	6.45	101	63
D1105949	4.95	86	52	D1105065	6.5	101	63
D1105050	5.0	86	52	D1105965	6.55	101	63
D1105950	5.05	86	52	D1105066	6.6	101	63
D1105051	5.1	86	52	D1105966	6.65	101	63
D1105951	5.15	86	52	D1105067	6.7	101	63
D1105052	5.2	86	52	D1105967	6.75	109	69
D1105952	5.25	86	52	D1105068	6.8	109	69
D1105053	5.3	86	52	D1105968	6.85	109	69
D1105953	5.35	93	57	D1105069	6.9	109	69
D1105054	5.4	93	57	D1105969	6.95	109	69
D1105954	5.45	93	57	D1105070	7.0	109	69
D1105055	5.5	93	57	D1105970	7.05	109	69
D1105955	5.55	93	57	D1105071	7.1	109	69
D1105056	5.6	93	57	D1105971	7.15	109	69

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

KURZ
JOBBER



- **Verwendung** : Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, sintereisen, Graphite.
 ► **Application** : Drilling in steel, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

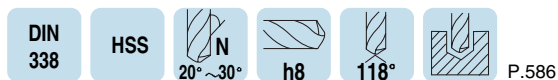
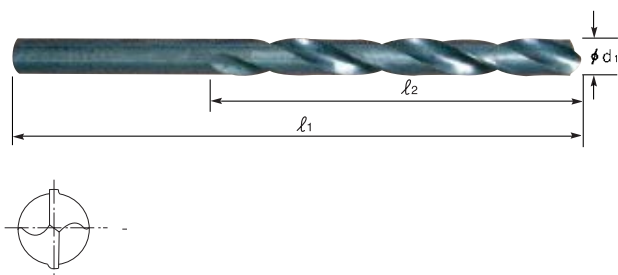
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1105072	7.2	109	69	D1105992	9.25	125	81
D1105972	7.25	109	69	D1105093	9.3	125	81
D1105073	7.3	109	69	D1105094	9.4	125	81
D1105973	7.35	109	69	D1105095	9.5	125	81
D1105074	7.4	109	69	D1105096	9.6	133	87
D1105974	7.45	109	69	D1105097	9.7	133	87
D1105075	7.5	109	69	D1105997	9.75	133	87
D1105975	7.55	117	75	D1105098	9.8	133	87
D1105076	7.6	117	75	D1105099	9.9	133	87
D1105976	7.65	117	75	D1105100	10.0	133	87
D1105077	7.7	117	75	D1105101	10.1	133	87
D1105977	7.75	117	75	D1105102	10.2	133	87
D1105078	7.8	117	75	D1105802	10.25	133	87
D1105978	7.85	117	75	D1105103	10.3	133	87
D1105079	7.9	117	75	D1105104	10.4	133	87
D1105979	7.95	117	75	D1105105	10.5	133	87
D1105080	8.0	117	75	D1105106	10.6	133	87
D1105081	8.1	117	75	D1105107	10.7	142	94
D1105082	8.2	117	75	D1105807	10.75	142	94
D1105982	8.25	117	75	D1105108	10.8	142	94
D1105083	8.3	117	75	D1105109	10.9	142	94
D1105084	8.4	117	75	D1105110	11.0	142	94
D1105085	8.5	117	75	D1105111	11.1	142	94
D1105086	8.6	125	81	D1105112	11.2	142	94
D1105087	8.7	125	81	D1105812	11.25	142	94
D1105987	8.75	125	81	D1105113	11.3	142	94
D1105088	8.8	125	81	D1105114	11.4	142	94
D1105089	8.9	125	81	D1105115	11.5	142	94
D1105090	9.0	125	81	D1105116	11.6	142	94
D1105091	9.1	125	81	D1105117	11.7	142	94
D1105092	9.2	125	81	D1105817	11.75	142	94

DRILLS

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

**KURZ
JOBBER**



- **Verwendung** : Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, sintereisen, Graphite.
 ► **Application** : Drilling in steel, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

Unit:mm

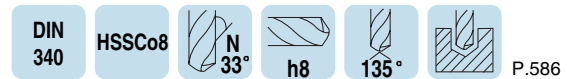
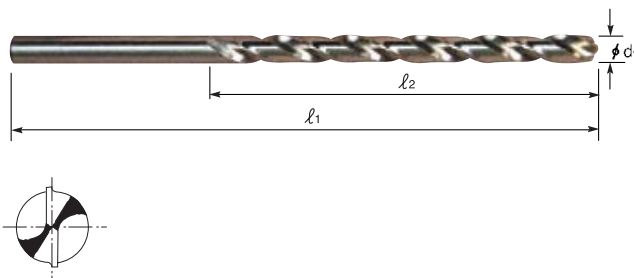
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1105118	11.8	142	94
D1105119	11.9	151	101
D1105120	12.0	151	101
D1105121	12.1	151	101
D1105122	12.2	151	101
D1105822	12.25	151	101
D1105123	12.3	151	101
D1105124	12.4	151	101
D1105125	12.5	151	101
D1105126	12.6	151	101
D1105127	12.7	151	101
D1105927	12.75	151	101
D1105128	12.8	151	101
D1105129	12.9	151	101
D1105130	13.0	151	101
D1105832	13.25	160	108
D1105135	13.5	160	108
D1105837	13.75	160	108
D1105140	14.0	160	108
D1105842	14.25	169	114
D1105145	14.5	169	114
D1105847	14.75	169	114

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1105150	15.0	169	114
D1105852	15.25	178	120
D1105155	15.5	178	120
D1105857	15.75	178	120
D1105160	16.0	178	120
D1105862	16.25	184	125
D1105165	16.5	184	125
D1105867	16.75	184	125
D1105170	17.0	184	125
D1105872	17.25	191	130
D1105175	17.5	191	130
D1105877	17.75	191	130
D1105180	18.0	191	130
D1105882	18.25	198	135
D1105185	18.5	198	135
D1105887	18.75	198	135
D1105190	19.0	198	135
D1105892	19.25	205	140
D1105195	19.5	205	140
D1105897	19.75	205	140
D1105200	20.0	205	140

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

LANG

LONG



- **Verwendung** : Für Bohrarbeiten mit Bohrbuchsen oder an tief liegenden Stellen.
Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.
- **Application** : Drilling deep holes in stainless steels, materials of difficult machinability such as titanium and inconel.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2104020	2.0	85	56	D2104047	4.7	126	82
D2104021	2.1	85	56	D2104048	4.8	132	87
D2104022	2.2	90	59	D2104049	4.9	132	87
D2104023	2.3	90	59	D2104050	5.0	132	87
D2104024	2.4	95	62	D2104051	5.1	132	87
D2104025	2.5	95	62	D2104052	5.2	132	87
D2104026	2.6	95	62	D2104053	5.3	139	87
D2104027	2.7	100	66	D2104054	5.4	139	91
D2104028	2.8	100	66	D2104055	5.5	139	91
D2104029	2.9	100	66	D2104056	5.6	139	91
D2104030	3.0	100	66	D2104057	5.7	139	91
D2104031	3.1	106	69	D2104058	5.8	139	91
D2104032	3.2	106	69	D2104059	5.9	139	91
D2104033	3.3	106	69	D2104060	6.0	139	91
D2104034	3.4	112	73	D2104061	6.1	148	97
D2104035	3.5	112	73	D2104062	6.2	148	97
D2104036	3.6	112	73	D2104063	6.3	148	97
D2104037	3.7	112	73	D2104064	6.4	148	97
D2104038	3.8	119	78	D2104065	6.5	148	97
D2104039	3.9	119	78	D2104066	6.6	148	97
D2104040	4.0	119	78	D2104067	6.7	148	97
D2104041	4.1	119	78	D2104068	6.8	156	102
D2104042	4.2	119	78	D2104069	6.9	156	102
D2104043	4.3	126	82	D2104070	7.0	156	102
D2104044	4.4	126	82	D2104071	7.1	156	102
D2104045	4.5	126	82	D2104072	7.2	156	102
D2104046	4.6	126	82	D2104073	7.3	156	102

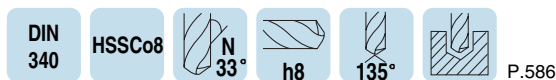
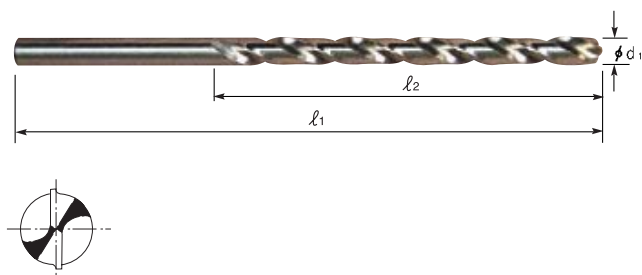
- The HSSCo5(DL104) is available when you need.
- The TiN(D4104), TiCN(D7104) and TiAlN(DQ104) is available on your request.

DRILLS

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

LANG

LONG



- **Verwendung** : Für Bohrarbeiten mit Bohrbuchsen oder an tief liegenden Stellen.
Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.
- **Application** : Drilling deep holes in stainless steels, materials of difficult machinability such as titanium and inconel.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2104074	7.4	156	102
D2104075	7.5	156	102
D2104076	7.6	165	109
D2104077	7.7	165	109
D2104078	7.8	165	109
D2104079	7.9	165	109
D2104080	8.0	165	109
D2104081	8.1	165	109
D2104082	8.2	165	109
D2104083	8.3	165	109
D2104084	8.4	165	109
D2104085	8.5	165	109
D2104086	8.6	175	115
D2104087	8.7	175	115
D2104088	8.8	175	115
D2104089	8.9	175	115
D2104090	9.0	175	115
D2104091	9.1	175	115

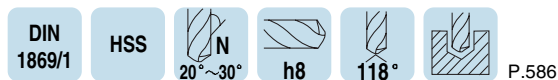
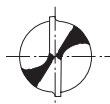
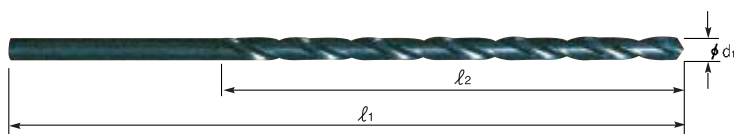
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2104092	9.2	175	115
D2104093	9.3	175	115
D2104094	9.4	175	115
D2104095	9.5	175	115
D2104096	9.6	184	121
D2104097	9.7	184	121
D2104098	9.8	184	121
D2104099	9.9	184	121
D2104100	10.0	184	121
D2104102	10.2	184	121
D2104105	10.5	184	121
D2104108	10.8	195	128
D2104110	11.0	195	128
D2104112	11.2	195	128
D2104115	11.5	195	128
D2104118	11.8	195	128
D2104120	12.0	205	134

►The HSSCo5(DL104) is available when you need.

►The TiN(D4104), TiCN(D7104) and TiAlN(DQ104) is available on your request.

Spiralbohrer mit Zylinderschaft Straight Shank Twist Drills

ÜBERLANG
EXTRA LONG



- **Verwendung** : Standardbohrer zum Bohren extreme tiefer Löcher
Zum Bohren von stahl und stahlguß, Grauguß,
Temperguß, Sphäroguß, sintereisen, Graphite.
- **Application** : Designed for drilling deep holes or deeply located
holes.
Drills in steel, cast steel alloyed and non-alloyed,
grey castiron, malleable castiron, graphite.

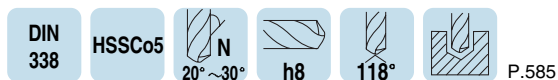
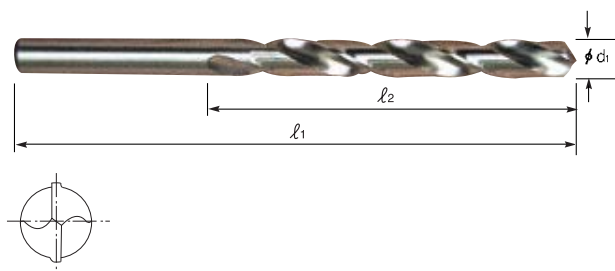
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1121020	2.0	125	85	D1121070	7.0	225	155
D1121922	2.25	135	90	D1121972	7.25	225	155
D1121025	2.5	140	95	D1121075	7.5	225	155
D1121927	2.75	150	100	D1121977	7.75	240	165
D1121030	3.0	150	100	D1121080	8.0	240	165
D1121932	3.25	155	105	D1121982	8.25	240	165
D1121035	3.5	165	115	D1121085	8.5	240	165
D1121937	3.75	165	115	D1121987	8.75	250	175
D1121040	4.0	175	120	D1121090	9.0	250	175
D1121942	4.25	175	120	D1121992	9.25	250	175
D1121045	4.5	185	125	D1121095	9.5	250	175
D1121947	4.75	185	125	D1121997	9.75	265	185
D1121050	5.0	195	135	D1121100	10.0	265	185
D1121952	5.25	195	135	D1121105	10.5	265	185
D1121055	5.5	205	140	D1121110	11.0	280	195
D1121957	5.75	205	140	D1121115	11.5	280	195
D1121060	6.0	205	140	D1121120	12.0	295	205
D1121962	6.25	215	150	D1121125	12.5	295	205
D1121065	6.5	215	150	D1121130	13.0	295	205
D1121967	6.75	225	155				

DRILLS

Spiralbohrer für hoheleistungen mit Zylinderschaft Straight Shank Twist Drills for heavy duty

KURZ
JOBBER



- **Verwendung** : Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, sintereisen, Graphite.
► **Application** : Drilling in steels, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

Unit:mm

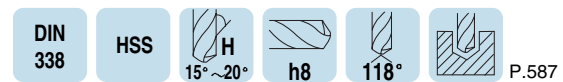
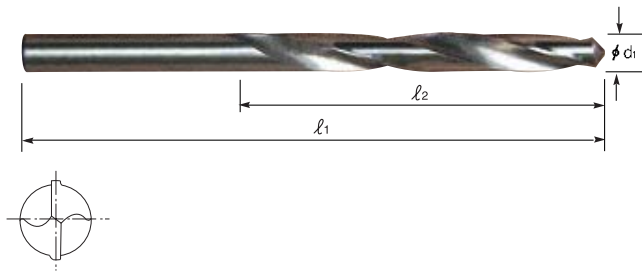
Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL109015	1.5	40	18
DL109917	1.75	46	22
DL109020	2.0	49	24
DL109922	2.25	53	27
DL109025	2.5	57	30
DL109927	2.75	61	33
DL109030	3.0	61	33
DL109932	3.25	65	36
DL109035	3.5	70	39
DL109937	3.75	70	39
DL109040	4.0	75	43
DL109942	4.25	75	43
DL109045	4.5	80	47
DL109947	4.75	80	47
DL109050	5.0	86	52
DL109952	5.25	86	52
DL109055	5.5	93	57
DL109957	5.75	93	57
DL109060	6.0	93	57
DL109962	6.25	101	63
DL109065	6.5	101	63

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
DL109967	6.75	109	69
DL109070	7.0	109	69
DL109972	7.25	109	69
DL109075	7.5	109	69
DL109977	7.75	117	75
DL109080	8.0	117	75
DL109982	8.25	117	75
DL109085	8.5	117	75
DL109987	8.75	125	81
DL109090	9.0	125	81
DL109992	9.25	125	81
DL109095	9.5	125	81
DL109997	9.75	133	87
DL109100	10.0	133	87
DL109105	10.5	133	87
DL109110	11.0	142	94
DL109115	11.5	142	94
DL109120	12.0	151	101
DL109125	12.5	151	101
DL109130	13.0	151	101

►The TiN(DN109), TiCN(DX109) and TiAlN(DT109) is available on your request.

Spiralbohrer für hoheleistungen mit Zylinderschaft Straight Shank Twist Drills for Brass

**KURZ
JOBBER**



► **Verwendung** : Zum Bohren harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.

► **Application** : Drilling into hard, brittle, short-chip materials. i.e., brass, bronze, phosphor bronze, magnesium alloys.

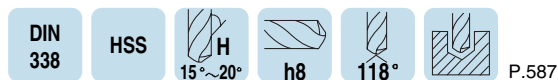
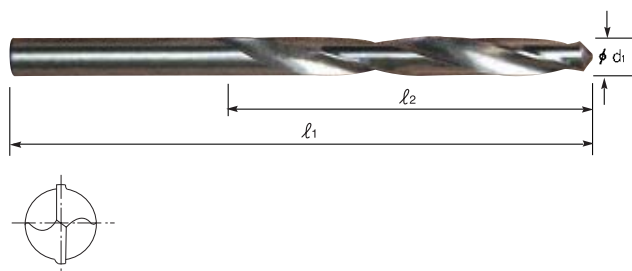
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1100015	1.5	40	18	D1100046	4.6	80	47
D1100016	1.6	43	20	D1100047	4.7	80	47
D1100017	1.7	43	20	D1100048	4.8	86	52
D1100018	1.8	46	22	D1100049	4.9	86	52
D1100019	1.9	46	22	D1100050	5.0	86	52
D1100020	2.0	49	24	D1100051	5.1	86	52
D1100021	2.1	49	24	D1100052	5.2	86	52
D1100022	2.2	53	27	D1100053	5.3	86	52
D1100023	2.3	53	27	D1100054	5.4	93	57
D1100024	2.4	57	30	D1100055	5.5	93	57
D1100025	2.5	57	30	D1100056	5.6	93	57
D1100026	2.6	57	30	D1100057	5.7	93	57
D1100027	2.7	61	33	D1100058	5.8	93	57
D1100028	2.8	61	33	D1100059	5.9	93	57
D1100029	2.9	61	33	D1100060	6.0	93	57
D1100030	3.0	61	33	D1100061	6.1	101	63
D1100031	3.1	65	36	D1100062	6.2	101	63
D1100032	3.2	65	36	D1100063	6.3	101	63
D1100033	3.3	65	36	D1100064	6.4	101	63
D1100034	3.4	70	39	D1100065	6.5	101	63
D1100035	3.5	70	39	D1100066	6.6	101	63
D1100036	3.6	70	39	D1100067	6.7	101	63
D1100037	3.7	70	39	D1100068	6.8	109	69
D1100038	3.8	75	43	D1100069	6.9	109	69
D1100039	3.9	75	43	D1100070	7.0	109	69
D1100040	4.0	75	43	D1100071	7.1	109	69
D1100041	4.1	75	43	D1100072	7.2	109	69
D1100042	4.2	75	43	D1100073	7.3	109	69
D1100043	4.3	80	47	D1100074	7.4	109	69
D1100044	4.4	80	47	D1100075	7.5	109	69
D1100045	4.5	80	47	D1100076	7.6	117	75

DRILLS

Spiralbohrer für hoheleistungen mit Zylinderschaft Straight Shank Twist Drills for Brass

KURZ
JOBBER



Verwendung : Zum Bohren harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.

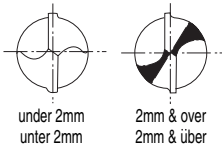
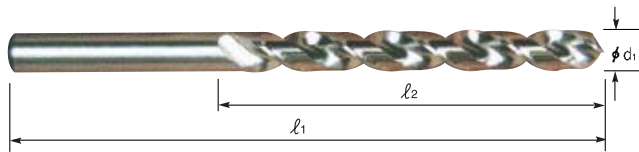
Application : Drilling into hard, brittle, short-chip materials. i.e., brass, bronze, phosphor bronze, magnesium alloys.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1100077	7.7	117	75	D1100092	9.2	125	81
D1100078	7.8	117	75	D1100093	9.3	125	81
D1100079	7.9	117	75	D1100094	9.4	125	81
D1100080	8.0	117	75	D1100095	9.5	125	81
D1100081	8.1	117	75	D1100096	9.6	133	87
D1100082	8.2	117	75	D1100097	9.7	133	87
D1100083	8.3	117	75	D1100098	9.8	133	87
D1100084	8.4	117	75	D1100099	9.9	133	87
D1100085	8.5	117	75	D1100100	10.0	133	87
D1100086	8.6	125	81	D1100105	10.5	133	87
D1100087	8.7	125	81	D1100110	11.0	142	94
D1100088	8.8	125	81	D1100115	11.5	142	94
D1100089	8.9	125	81	D1100120	12.0	151	101
D1100090	9.0	125	81	D1100125	12.5	151	101
D1100091	9.1	125	81	D1100130	13.0	151	101

Spiralbohrer für Aluminium mit Zylinderschaft Straight Shank Twist Drills for Aluminium

**KURZ
JOBBER**



DIN
338

HSS



P.587

► **Verwendung** : Zum Bohren von weichen und langspanenden Werkstoffen wie Aluminium-Legierungen, Zink, Hitten-Kupfer, Kunststoffe und Holz.

► **Application** : Drilling into aluminium and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.

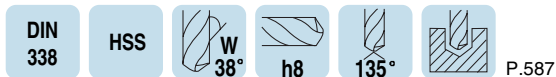
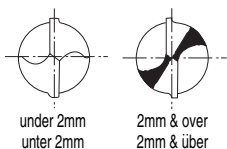
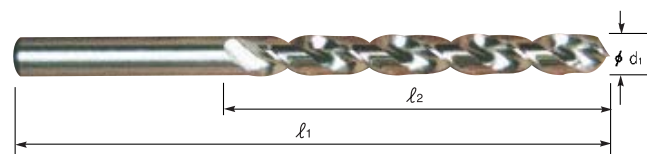
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1106015	1.5	40	18	D1106046	4.6	80	47
D1106016	1.6	43	20	D1106047	4.7	80	47
D1106017	1.7	43	20	D1106048	4.8	86	52
D1106018	1.8	46	22	D1106049	4.9	86	52
D1106019	1.9	46	22	D1106050	5.0	86	52
D1106020	2.0	49	24	D1106051	5.1	86	52
D1106021	2.1	49	24	D1106052	5.2	86	52
D1106022	2.2	53	27	D1106053	5.3	86	52
D1106023	2.3	53	27	D1106054	5.4	93	57
D1106024	2.4	57	30	D1106055	5.5	93	57
D1106025	2.5	57	30	D1106056	5.6	93	57
D1106026	2.6	57	30	D1106057	5.7	93	57
D1106027	2.7	61	33	D1106058	5.8	93	57
D1106028	2.8	61	33	D1106059	5.9	93	57
D1106029	2.9	61	33	D1106060	6.0	93	57
D1106030	3.0	61	33	D1106061	6.1	101	63
D1106031	3.1	65	36	D1106062	6.2	101	63
D1106032	3.2	65	36	D1106063	6.3	101	63
D1106033	3.3	65	36	D1106064	6.4	101	63
D1106034	3.4	70	39	D1106065	6.5	101	63
D1106035	3.5	70	39	D1106066	6.6	101	63
D1106036	3.6	70	39	D1106067	6.7	101	63
D1106037	3.7	70	39	D1106068	6.8	109	69
D1106038	3.8	75	43	D1106069	6.9	109	69
D1106039	3.9	75	43	D1106070	7.0	109	69
D1106040	4.0	75	43	D1106071	7.1	109	69
D1106041	4.1	75	43	D1106072	7.2	109	69
D1106042	4.2	75	43	D1106073	7.3	109	69
D1106043	4.3	80	47	D1106074	7.4	109	69
D1106044	4.4	80	47	D1106075	7.5	109	69
D1106045	4.5	80	47	D1106076	7.6	117	75

DRILLS

Spiralbohrer für Aluminium mit Zylinderschaft Straight Shank Twist Drills for Aluminium

**KURZ
JOBBER**

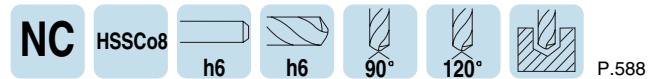
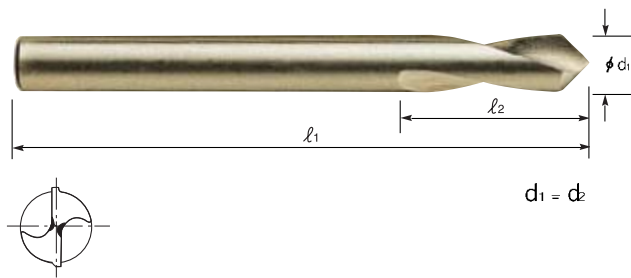


- **Verwendung** : Zum Bohren von weichen und langspanenden Werkstoffen wie Aluminium-Legierungen, Zink, Hitten-Kupfer, Kunststoffe und holz.
- **Application** : Drilling into aluminium and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D1106077	7.7	117	75	D1106092	9.2	125	81
D1106078	7.8	117	75	D1106093	9.3	125	81
D1106079	7.9	117	75	D1106094	9.4	125	81
D1106080	8.0	117	75	D1106095	9.5	125	81
D1106081	8.1	117	75	D1106096	9.6	133	87
D1106082	8.2	117	75	D1106097	9.7	133	87
D1106083	8.3	117	75	D1106098	9.8	133	87
D1106084	8.4	117	75	D1106099	9.9	133	87
D1106085	8.5	117	75	D1106100	10.0	133	87
D1106086	8.6	125	81	D1106105	10.5	133	87
D1106087	8.7	125	81	D1106110	11.0	142	94
D1106088	8.8	125	81	D1106115	11.5	142	94
D1106089	8.9	125	81	D1106120	12.0	151	101
D1106090	9.0	125	81	D1106125	12.5	151	101
D1106091	9.1	125	81	D1106130	13.0	151	101

NC-Anbohrer NC Spotting Drills



- **Verwendung** : Für positionsgenaueres und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, Die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.
- **Application** : For more precise centering work on NC/CNC Machine. A larger diameter in respect to the subsequent drilling tool permits to obtain the centering and chamfering simultaneously.

NC-Anbohrer 90° NC-Spotting drills 90°

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2306030	3.0	46	12
D2306040	4.0	55	12
D2306050	5.0	60	15
D2306060	6.0	66	20
D2306080	8.0	79	25
D2306100	10.0	89	25
D2306120	12.0	102	30
D2306160	16.0	115	35
D2306200	20.0	131	40

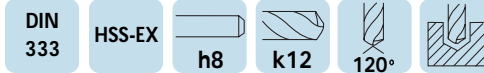
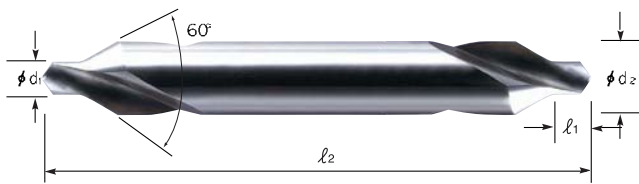
NC-Anbohrer 120° NC-Spotting drills 120°

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2
D2307030	3.0	46	12
D2307040	4.0	55	12
D2307050	5.0	60	15
D2307060	6.0	66	20
D2307080	8.0	79	25
D2307100	10.0	89	25
D2307120	12.0	102	30
D2307160	16.0	115	35
D2307200	20.0	131	40

► The TiN(D4306, D4307), TiCN(D7306, D7307) and TiAlN(DQ306, DQ307) is available on your request.

Zentrierbohrer CENTER DRILLS



SERIES DV303

- **Verwendung** : Zentrierbohrer ausgeprägter Warm-härtebeständigkeit. Besonders geeignet bei hoher thermischer Beanspruchung.
- **Application** : High heat resistant centering drill. Especially suitable for high thermal load applications.

FORM A (60°)

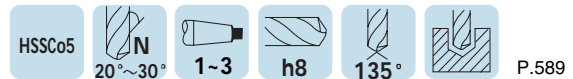
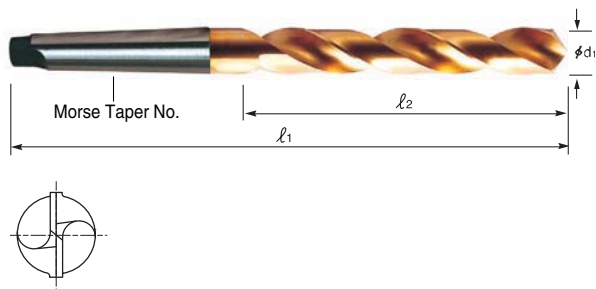
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	SHANK DIAMETER d_2	PILOT LENGTH l_1	OVERALL LENGTH l_2
DV303010	1.0	3.15	1.3	31.5
DV303012	1.25	3.15	1.6	31.5
DV303016	1.6	4.0	2.0	35.5
DV303020	2.0	5.0	2.5	40
DV303025	2.5	6.3	3.1	45
DV303931	3.15	8.0	3.9	50
DV303040	4.0	10.0	5.0	56
DV303050	5.0	12.5	6.3	63

Spiralbohrer mit Morsekegelschaft Morse Taper Shank Twist Drills

KURZ

SHORT



- **Verwendung** : Der kurze Bohrer ist geeignet fuer Hochgeschwindigkeitsbohrungen, praezises Positionieren und Durchmesser. Sehr nuetzlich bei Materialien von Karbon-und rostfreiem Stahl bis zu Aluminium.
- **Application** : Short length - designed for high speed drilling in wide materials, carbon steels, stainless steels and aluminum.

Unit:mm

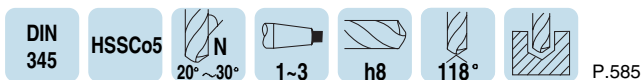
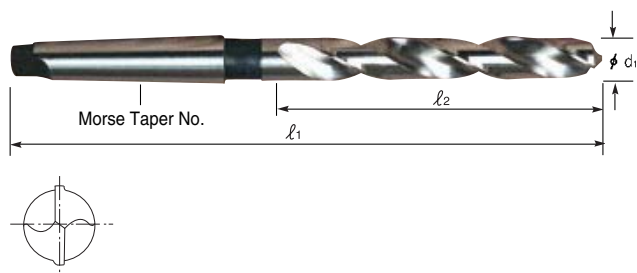
Art.-Nr. EDP No. TIN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
DN221070	7.0	125.5	44.5	1
DN221075	7.5	125.5	44.5	1
DN221080	8.0	129.5	48.5	1
DN221085	8.5	129.5	48.5	1
DN221090	9.0	133	52	1
DN221095	9.5	133	52	1
DN221100	10.0	137	56	1
DN221105	10.5	137	56	1
DN221110	11.0	142	61	1
DN221115	11.5	142	61	1
DN221120	12.0	146.5	65.5	1
DN221125	12.5	146.5	65.5	1
DN221130	13.0	146.5	65.5	1
DN221135	13.5	150.5	69.5	1
DN221140	14.0	150.5	69.5	1
DN221145	14.5	171	73	2
DN221150	15.0	171	73	2
DN221155	15.5	175	77	2
DN221160	16.0	175	77	2
DN221165	16.5	178.5	80.5	2
DN221170	17.0	178.5	80.5	2
DN221175	17.5	181.5	83.5	2
DN221180	18.0	181.5	83.5	2
DN221185	18.5	184.5	86.5	2
DN221190	19.0	184.5	86.5	2
DN221195	19.5	188	90	2

Art.-Nr. EDP No. TIN	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
DN221200	20.0	188	90	2
DN221205	20.5	191	93	2
DN221210	21.0	191	93	2
DN221215	21.5	193.5	95.5	2
DN221220	22.0	193.5	95.5	2
DN221225	22.5	197.5	99.5	2
DN221230	23.0	197.5	99.5	2
DN221235	23.5	223.5	102.5	3
DN221240	24.0	223.5	102.5	3
DN221245	24.5	223.5	102.5	3
DN221250	25.0	223.5	102.5	3
DN221255	25.5	226	105	3
DN221260	26.0	226	105	3
DN221265	26.5	226	105	3
DN221270	27.0	229.5	108.5	3
DN221275	27.5	229.5	108.5	3
DN221280	28.0	229.5	108.5	3
DN221285	28.5	232	111	3
DN221290	29.0	232	111	3
DN221295	29.5	232	111	3
DN221300	30.0	232	111	3
DN221305	30.5	235	114	3
DN221310	31.0	235	114	3
DN221315	31.5	235	114	3
DN221320	32.0	235	114	3

DRILLS

Spiralbohrer für hoheleistungen mit Morsekegelschaft Morse Taper Shank Twist Drills for heavy duty

**KURZ
JOBBER**



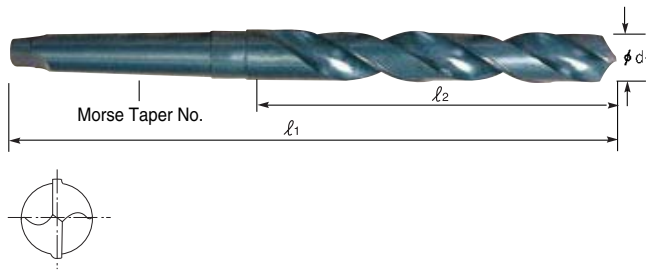
- **Verwendung** : Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, sinterisen, Graphite.
► **Application** : Drilling in steels, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
DL205130	13.0	182	101	1	DL205220	22.0	248	150	2
DL205135	13.5	189	108	1	DL205225	22.5	253	155	2
DL205140	14.0	189	108	1	DL205230	23.0	253	155	2
DL205145	14.5	212	114	2	DL205235	23.5	276	155	3
DL205150	15.0	212	114	2	DL205240	24.0	281	160	3
DL205155	15.5	218	120	2	DL205245	24.5	281	160	3
DL205160	16.0	218	120	2	DL205250	25.0	281	160	3
DL205165	16.5	223	125	2	DL205255	25.5	286	165	3
DL205170	17.0	223	125	2	DL205260	26.0	286	165	3
DL205175	17.5	228	130	2	DL205265	26.5	286	165	3
DL205180	18.0	228	130	2	DL205270	27.0	291	170	3
DL205185	18.5	233	135	2	DL205275	27.5	291	170	3
DL205190	19.0	233	135	2	DL205280	28.0	291	170	3
DL205195	19.5	238	140	2	DL205285	28.5	296	175	3
DL205200	20.0	238	140	2	DL205290	29.0	296	175	3
DL205205	20.5	243	145	2	DL205295	29.5	296	175	3
DL205210	21.0	243	145	2	DL205300	30.0	296	175	3
DL205215	21.5	248	150	2					

Spiralbohrer mit Morsekegelschaft Morse Taper Shank Twist Drills

**KURZ
JOBBER**



DIN
345

HSS

N
20°~30°

1~5

h8

118°



P.586

► **Verwendung** : Zum Bohren von stahl und stahlguß Grauguß, Temperguß, Sphäroguß, sintereisen, Graphite.

► **Application** : Drilling in steels, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D1205130	13.0	182	101	1
D1205132	13.2	182	101	1
D120513A	13.25	189	108	1
D1205135	13.5	189	108	1
D120513B	13.75	189	108	1
D1205138	13.8	189	108	1
D1205140	14.0	189	108	1
D120514A	14.25	212	114	2
D1205145	14.5	212	114	2
D120514B	14.75	212	114	2
D1205150	15.0	212	114	2
D120515A	15.25	218	120	2
D1205155	15.5	218	120	2
D120515B	15.75	218	120	2
D1205160	16.0	218	120	2
D120516A	16.25	223	125	2
D1205165	16.5	223	125	2
D120516B	16.75	223	125	2
D1205170	17.0	223	125	2
D120517A	17.25	228	130	2
D1205175	17.5	228	130	2
D120517B	17.75	228	130	2
D1205180	18.0	228	130	2
D120518A	18.25	233	135	2
D1205185	18.5	233	135	2
D120518B	18.75	233	135	2
D1205190	19.0	233	135	2
D120519A	19.25	238	140	2
D1205195	19.5	238	140	2
D120519B	19.75	238	140	2
D1205200	20.0	238	140	2
D120520A	20.25	243	145	2

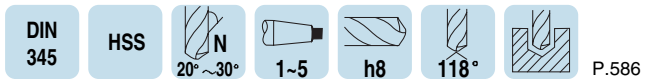
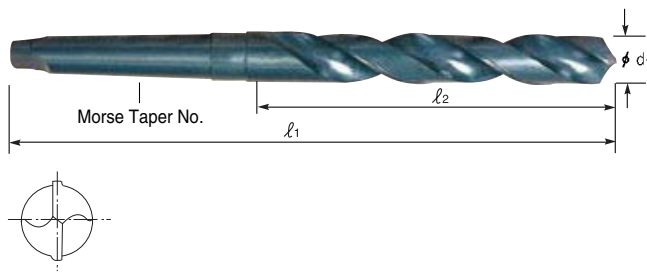
Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D1205205	20.5	243	145	2
D120520B	20.75	243	145	2
D1205210	21.0	243	145	2
D120521A	21.25	248	150	2
D1205215	21.5	248	150	2
D120521B	21.75	248	150	2
D1205220	22.0	248	150	2
D120522A	22.25	248	150	2
D1205225	22.5	253	155	2
D120522B	22.75	253	155	2
D1205230	23.0	253	155	2
D120523A	23.25	276	155	3
D1205235	23.5	276	155	3
D120523B	23.75	281	160	3
D1205240	24.0	281	160	3
D120524A	24.25	281	160	3
D1205245	24.5	281	160	3
D120524B	24.75	281	160	3
D1205250	25.0	281	160	3
D120525A	25.25	286	165	3
D1205255	25.5	286	165	3
D120525B	25.75	286	165	3
D1205260	26.0	286	165	3
D120526A	26.25	286	165	3
D1205265	26.5	286	165	3
D120526B	26.75	291	170	3
D1205270	27.0	291	170	3
D120527A	27.25	291	170	3
D1205275	27.5	291	170	3
D120527B	27.75	291	170	3
D1205280	28.0	291	170	3
D120528A	28.25	296	175	3

DRILLS

Spiralbohrer mit Morsekegelschaft

Morse Taper Shank Twist Drills

KURZ
JOBBER



- **Verwendung** : Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, sintereisen, Graphite.
- **Application** : Drilling in steels, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

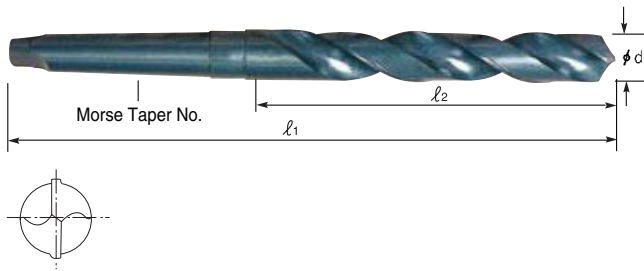
Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
D1205285	28.5	296	175	3	D1205405	40.5	354	205	4
D120528B	28.75	296	175	3	D1205410	41.0	354	205	4
D1205290	29.0	296	175	3	D1205415	41.5	354	205	4
D120529A	29.25	296	175	3	D1205420	42.0	354	205	4
D1205295	29.5	296	175	3	D1205425	42.5	354	205	4
D120529B	29.75	296	175	3	D1205430	43.0	359	210	4
D1205300	30.0	296	175	3	D1205435	43.5	359	210	4
D120530A	30.25	301	180	3	D1205440	44.0	359	210	4
D1205305	30.5	301	180	3	D1205445	44.5	359	210	4
D120530B	30.75	301	180	3	D1205450	45.0	359	210	4
D1205310	31.0	301	180	3	D1205455	45.5	364	215	4
D120531A	31.25	301	180	3	D1205460	46.0	364	215	4
D1205315	31.5	301	180	3	D1205465	46.5	364	215	4
D120531B	31.75	306	185	3	D1205470	47.0	364	215	4
D1205320	32.0	334	185	4	D1205475	47.5	364	215	4
D1205325	32.5	334	185	4	D1205480	48.0	369	220	4
D1205330	33.0	334	185	4	D1205485	48.5	369	220	4
D1205335	33.5	334	185	4	D1205490	49.0	369	220	4
D1205340	34.0	339	190	4	D1205495	49.5	369	220	4
D1205345	34.5	339	190	4	D1205500	50.0	369	220	4
D1205350	35.0	339	190	4	D1205505	50.5	374	225	4
D1205355	35.5	339	190	4	D1205510	51.0	412	225	5
D1205360	36.0	344	195	4	D1205520	52.0	412	225	5
D1205365	36.5	344	195	4	D1205530	53.0	412	225	5
D1205370	37.0	344	195	4	D1205540	54.0	417	230	5
D1205375	37.5	344	195	4	D1205550	55.0	417	230	5
D1205380	38.0	349	200	4	D1205560	56.0	417	230	5
D1205385	38.5	349	200	4	D1205570	57.0	422	235	5
D1205390	39.0	349	200	4	D1205580	58.0	422	235	5
D1205395	39.5	349	200	4	D1205590	59.0	422	235	5
D1205400	40.0	349	200	4	D1205600	60.0	422	235	5

Spiralbohrer mit Morsekegelschaft Morse Taper Shank Twist Drills

LANG

LONG



DIN
341

HSS

N
20°~30°

1~3

h8

118°



P.586

► **Verwendung :** Für Bohrarbeiten mit Bohrbuchsen oder an tief liegenden Stellen.

Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Neusilber und Graphite.

► **Application :** Drilling deep holes in steel, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, graphite.

Unit:mm

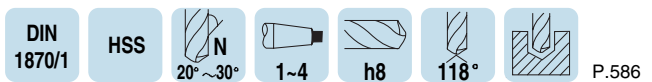
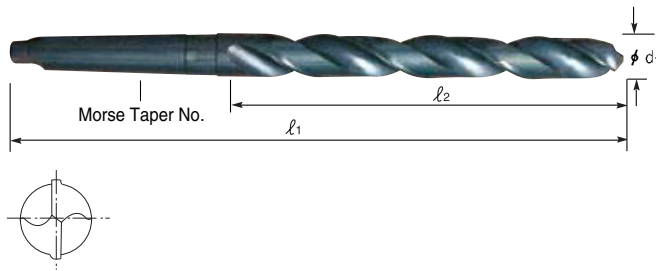
Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D1206130	13.0	215	134	1
D1206135	13.5	223	142	1
D1206140	14.0	223	142	1
D1206145	14.5	245	147	2
D1206150	15.0	245	147	2
D1206155	15.5	251	153	2
D1206160	16.0	251	153	2
D1206165	16.5	257	159	2
D1206170	17.0	257	159	2
D1206175	17.5	263	165	2
D1206180	18.0	263	165	2
D1206185	18.5	269	171	2
D1206190	19.0	269	171	2

Art.-Nr. EDP No.	DRILL DIAMETER d ₁	OVERALL LENGTH l ₁	FLUTE LENGTH l ₂	Morse Taper No.
D1206195	19.5	275	177	2
D1206200	20.0	275	177	2
D1206210	21.0	282	184	2
D1206220	22.0	289	191	2
D1206230	23.0	296	198	2
D1206240	24.0	327	206	3
D1206250	25.0	327	206	3
D1206260	26.0	335	214	3
D1206270	27.0	343	222	3
D1206280	28.0	343	222	3
D1206290	29.0	351	230	3
D1206300	30.0	351	230	3

DRILLS

Spiralbohrer mit Morsekegelschaft Morse Taper Shank Twist Drills

ÜBERLANG
EXTRA LONG



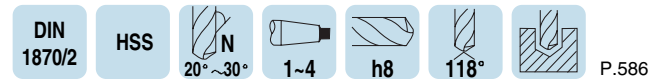
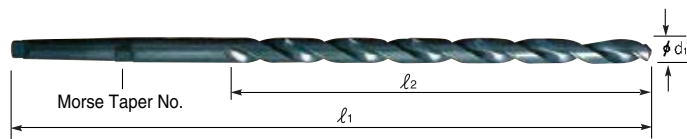
- **Verwendung** : Standardbohrer zum Bohren extreme tiefer Löcher.
Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen und Graphite.
- **Application** : Designed for drilling deep holes or deeply located holes.
Drilling into steel, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, Spheriodal graphite castiron, sintered iron, aluminium and aluminium alloys.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
D1209130	13.0	310	205	1	D1209270	27.0	460	305	3
D1209135	13.5	325	220	1	D1209275	27.5	460	305	3
D1209140	14.0	325	220	1	D1209280	28.0	460	305	3
D1209145	14.5	340	220	2	D1209285	28.5	460	305	3
D1209150	15.0	340	220	2	D1209290	29.0	460	305	3
D1209155	15.5	355	230	2	D1209295	29.5	460	305	3
D1209160	16.0	355	230	2	D1209300	30.0	460	305	3
D1209165	16.5	355	230	2	D1209305	30.5	480	320	3
D1209170	17.0	355	230	2	D1209310	31.0	480	320	3
D1209175	17.5	370	245	2	D1209320	32.0	505	320	4
D1209180	18.0	370	245	2	D1209330	33.0	505	320	4
D1209185	18.5	370	245	2	D1209340	34.0	530	340	4
D1209190	19.0	370	245	2	D1209350	35.0	530	340	4
D1209195	19.5	385	260	2	D1209360	36.0	530	340	4
D1209200	20.0	385	260	2	D1209370	37.0	530	340	4
D1209205	20.5	385	260	2	D1209380	38.0	555	360	4
D1209210	21.0	385	260	2	D1209390	39.0	555	360	4
D1209215	21.5	405	270	2	D1209400	40.0	555	360	4
D1209220	22.0	405	270	2	D1209410	41.0	555	360	4
D1209225	22.5	405	270	2	D1209420	42.0	555	360	4
D1209230	23.0	405	270	2	D1209430	43.0	585	385	4
D1209235	23.5	425	270	3	D1209440	44.0	585	385	4
D1209240	24.0	440	290	3	D1209450	45.0	585	385	4
D1209245	24.5	440	290	3	D1209460	46.0	585	385	4
D1209250	25.0	440	290	3	D1209470	47.0	585	385	4
D1209255	25.5	440	290	3	D1209480	48.0	605	405	4
D1209260	26.0	440	290	3	D1209490	49.0	605	405	4
D1209265	26.5	440	290	3	D1209500	50.0	605	405	4

Spiralbohrer mit Morsekegelschaft Morse Taper Shank Twist Drills

ÜBERLANG
EXTRA LONG



- **Verwendung** : Standardbohrer zum Bohren extreme tiefer Löcher.
Zum Bohren von stahl und stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen und Graphite.
- **Application** : Designed for drilling deep holes or deeply located holes.
Drilling into steel, cast steel alloyed and non-alloyed, grey castiron, malleable castiron, Spheriodal graphite castiron, sintered iron, aluminium and aluminium alloys.

Unit:mm

Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.	Art.-Nr. EDP No.	DRILL DIAMETER d_1	OVERALL LENGTH l_1	FLUTE LENGTH l_2	Morse Taper No.
D1210130	13.0	395	260	1	D1210270	27.0	580	385	3
D1210135	13.5	410	275	1	D1210275	27.5	580	385	3
D1210140	14.0	410	275	1	D1210280	28.0	580	385	3
D1210145	14.5	425	275	2	D1210285	28.5	580	385	3
D1210150	15.0	425	275	2	D1210290	29.0	580	385	3
D1210155	15.5	445	295	2	D1210295	29.5	580	385	3
D1210160	16.0	445	295	2	D1210300	30.0	580	385	3
D1210165	16.5	445	295	2	D1210310	31.0	610	410	3
D1210170	17.0	445	295	2	D1210320	32.0	635	410	4
D1210175	17.5	465	310	2	D1210330	33.0	635	410	4
D1210180	18.0	465	310	2	D1210340	34.0	665	430	4
D1210185	18.5	465	310	2	D1210350	35.0	665	430	4
D1210190	19.0	465	310	2	D1210360	36.0	665	430	4
D1210195	19.5	490	325	2	D1210370	37.0	665	430	4
D1210200	20.0	490	325	2	D1210380	38.0	695	460	4
D1210205	20.5	490	325	2	D1210390	39.0	695	460	4
D1210210	21.0	490	325	2	D1210400	40.0	695	460	4
D1210215	21.5	515	345	2	D1210410	41.0	695	460	4
D1210220	22.0	515	345	2	D1210420	42.0	695	460	4
D1210225	22.5	515	345	2	D1210430	43.0	735	490	4
D1210230	23.0	515	345	2	D1210440	44.0	735	490	4
D1210235	23.5	535	345	3	D1210450	45.0	735	490	4
D1210240	24.0	555	365	3	D1210460	46.0	735	490	4
D1210245	24.5	555	365	3	D1210470	47.0	735	490	4
D1210250	25.0	555	365	3	D1210480	48.0	765	510	4
D1210255	25.5	555	365	3	D1210490	49.0	765	510	4
D1210260	26.0	555	365	3	D1210500	50.0	765	510	4
D1210265	26.5	555	365	3					

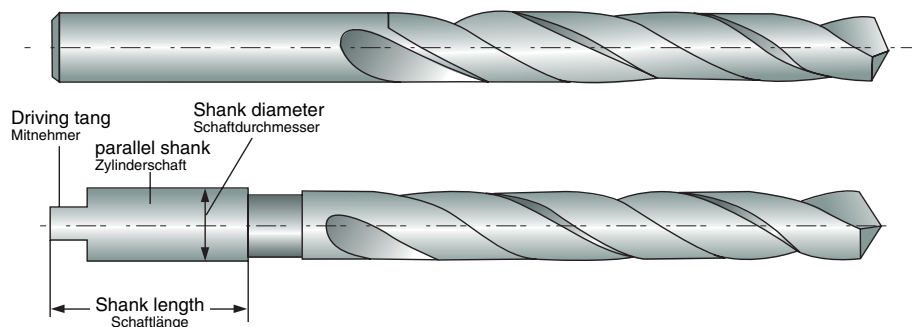
DRILLS

TECHNICAL DATA

TECHNISCHE DATEN

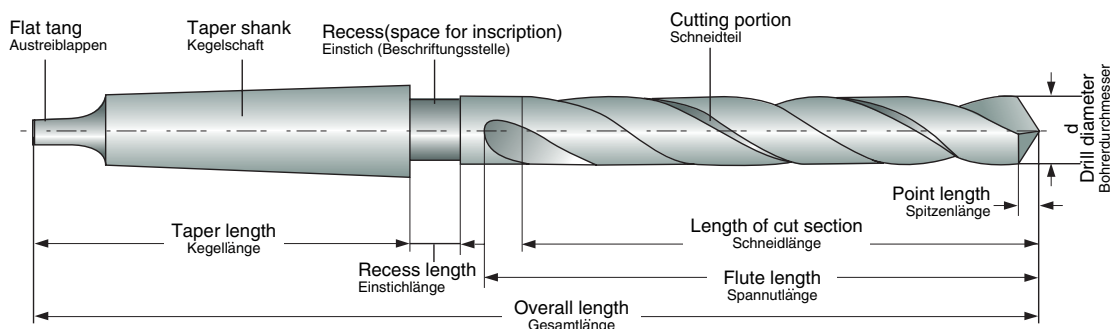
Twist Drill with parallel shank

Spiralbohrer mit Zylinderschaft



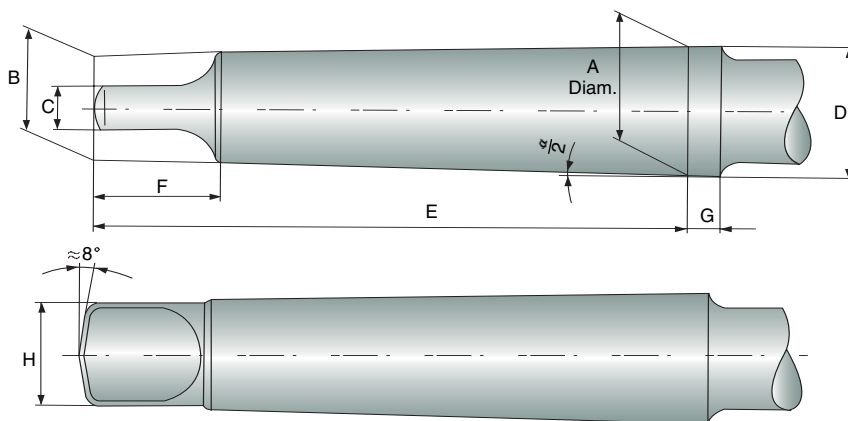
Twist Drill with taper shank

Spiralbohrer mit kegelschaft



General dimensions of morse taper shanks

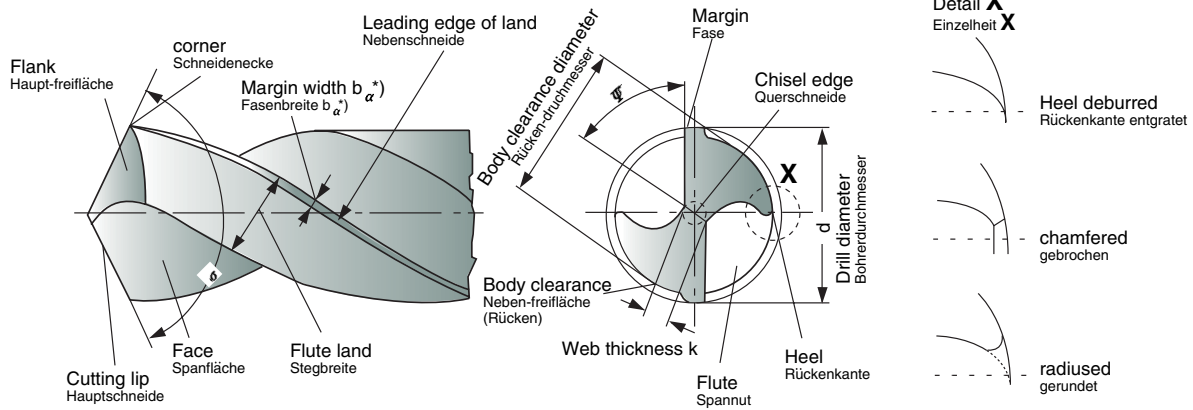
Toleranzen des kegelschaftes



Morse Taper Shank Morsekegelschaft	A mm	B mm	C(h13) mm	D mm	E mm	F(max.) mm	G mm	H(max.) mm	$\alpha/2$
No.1	12.065	9	5.2	12.2	62	13.5	3.5	8.7	1°25'43"
No.2	17.780	14	6.3	18.0	75	16	5	13.5	1°25'50"
No.3	23.825	19.1	7.9	24.1	94	20	5	18.5	1°26'16"
No.4	31.267	25.2	11.9	31.6	117.5	24	6.5	24.5	1°29'15"
No.5	44.399	36.5	15.9	44.7	149.5	29	6.5	35.7	1°30'26"
No.6	63.348	52.4	19	63.8	210	40	8	51	1°29'36"

Cutting portion

Schneidteil



σ = Point angle (sigma) Spitzenwinkel (Sigma)

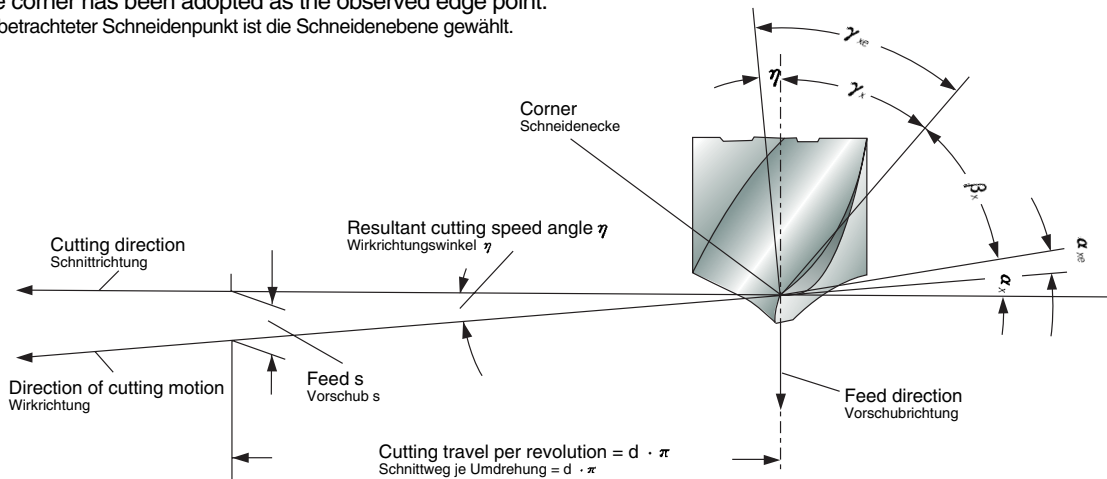
Ψ = Chisel edge angle (psi) Querschneidenwinkel (Psi)

* In the context of cutting technology, land width b is the body clearance land width which is to be by b_{fan} , see DIN 6581.
Die Fasenbreite b_{α} ist bei zerspanungstechnischen Betrachtungen die Fasenbreite der Nebenfreesfläche und mit b_{fan} zu bezeichnen, siehe DIN 6581.

Angle at the cutting edges

Winkel an den Schneiden

The corner has been adopted as the observed edge point.
Als betrachteter Schneidenpunkt ist die Schneidenebene gewählt.



α_x = Side clearance angle (alpha) Seitenfreiwinkel (Alpa)

α_{xe} = Effective side clearance angle Wirk-Seitenfreiwinkel

β_x = Side wedge angle (beta) Seitenkeilwinkel (Beta)

γ_x = Front rake angle (gamma) Seitenspanwinkel (Gamma)

γ_{xe} = Working front rake angle Wirk-Seitenspanwinkel

η = Resultant cutting speed angle (eta) Wirkrichtungswinkel (Eta)

Clearance angle α , wedge angle β and rake angle γ are measured in the tool orthogonal plane. For details, see DIN 6581, definitions of metal-cutting technology; geometry at the tool edge.

Freiwinkel α keilwinkel β und Spanwinkel γ werden in der keilmeßebene gemessen.
Einzelheiten siehe DIN 6581, Begriffe der Zerspanntechnik; Geometrie am Schneidkeil des Werkzeuges.

Web thickness k

kerndicke k

Test values : The web thickness according to Fig. 1 shall not be less than the minimum value k_{\min} indicated in Fig. 2.

Prüfwerte : Die kerndicke nach Bild 1 soll den Bild 2 angegebenen Mindestwert k_{\min} nicht unterschreiten.

Test point : At the point of the drill. **Prüfstelle :** An der Bohrerspitze

Testing equipment : Slide gauge with measuring points. **Prüfmittel :** Meßschieber (Schieblehre) mit Messerspitzen

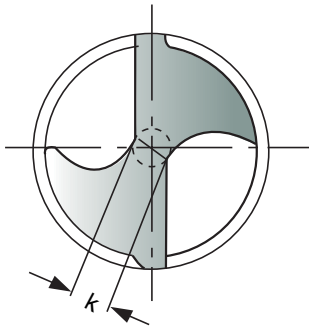


Figure 1. Web thickness k

Bild 1. kerndicke k

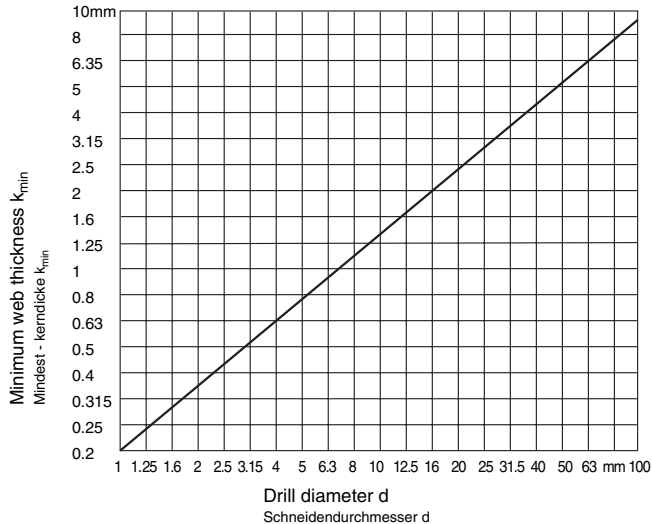


Figure 2. Web thickness k_{\min}

Bild 2. Kerndicke k_{\min}

margin width b_{α}

Fasenbreite b_{α}

Test values : The land width as in Fig. 3 shall lie within the limiting values indicated in Fig. 4.

Prüfwerte : Die Fasenbreite nach Bild 3 soll im Bereich der Grenzwerte liegen, die im Bild 4 angegeben sind.

Test point : 5mm behind the corner **Prüfstell :** 5mm hinter der Schneidenecke

Testing equipment : Slide gauge **Prüfmittel :** Meßschieber

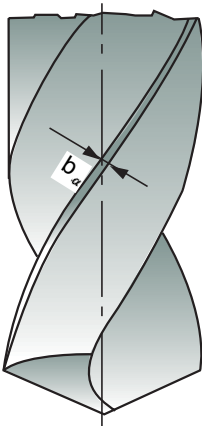


Figure 3. Margin width b_{α}

Bild 3. Fasenbreite b_{α}

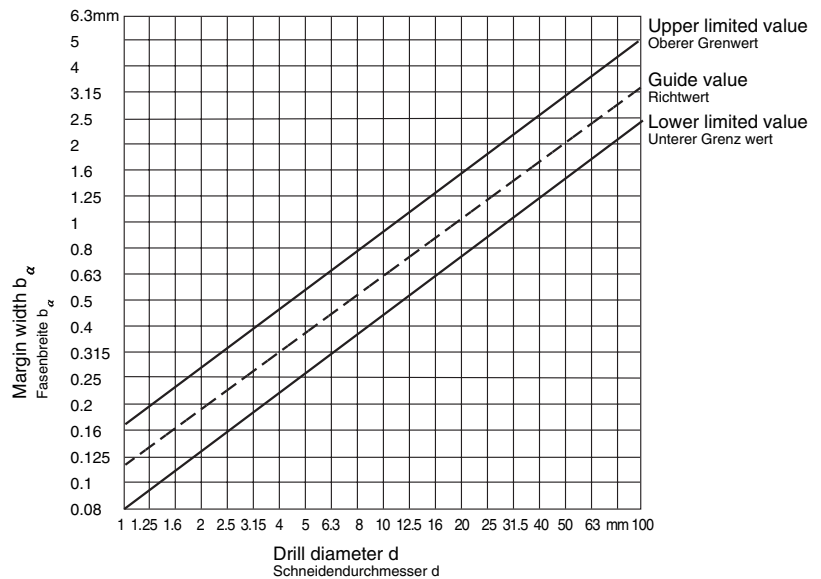


Figure 4. Margin width b_{α}

Bild 4. Fasenbreite b_{α}

Angle on twist drills

Winkel an Spiralbohrern

(1) Side rake angle γ_f (Helix angle)

Seitenspanwinkel (Spiralwinkel) γ_f

Recommended test value : Recommended ranges depending on the tool types N,H and W according to DIN 1836 and the diameter of the drill included in Fig. 5.

Empfohlene Prüfwerte : Empfohlene Bereiche in Abhängigkeit der Werkzeugtypen N, H und W nach DIN 1836 und des Schneidendurchmessers sind in Bild 5.

Test point : At the corner, see Fig. 6.

Prufstell : An der Schneidenecke, siehe Bild 6

Testing equipment : According to VDI Guideline 3331 Part 1, Section Margin width b_α

Prüfmittel : Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite b_α

Note : The side rake angle γ_f is measured in place of the orthonagonal rake angle γ_o found in the wedge measuring plane (see DIN 6581), as this changes along the cutting edge (becoming smaller towards the point of the drill).

Anmerkung : Der Seitenspanwinkel γ_f wird an Stelle des in der Keilmeßebene befindlichen Orthogonal-Spanwinkels γ_o (Siehe DIN 6581) gemessen, da sich dieser entlang der Hauptschneide verändert (er wird zur Bohrspitze hin kleiner)

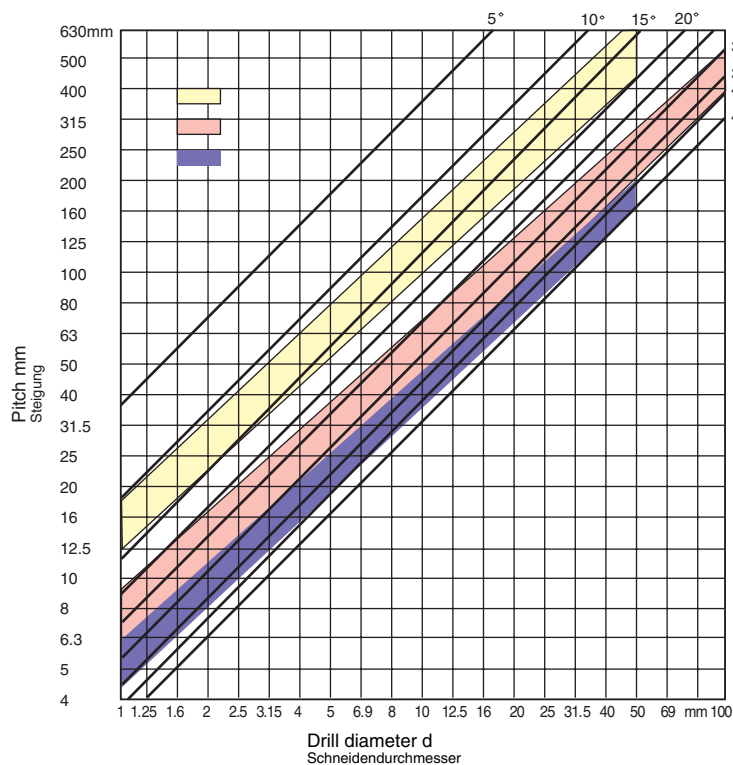


Figure 6. Side rake angle γ_f

Build 6. Seitenspanwinkel γ_f

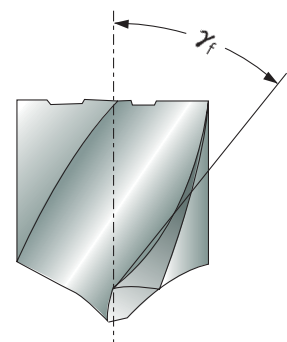


Figure 5. Side rake angle γ_f

Build 5. Seitenspanwinkel γ_f

(2) Point angle σ

Spitzenwinkel σ

test value : Usual executin for tool types N and H : $\sigma=118^\circ$, for tool type W : $\sigma=130^\circ$

Prüfwerte : Regelausführung bei Werkzeugtyp N und H : $\sigma=118^\circ$ bei Werkzeugtyp W : $\sigma=130^\circ$

Test point : At the cutting , see Fig. 7.

Prüfstelle : An den Hauptschneiden, siehe Bild 7.

Testing equipment : According to VDI Guideline 3331 Part 1, Section Margin width b_α

Prüfmittel : Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite b_α

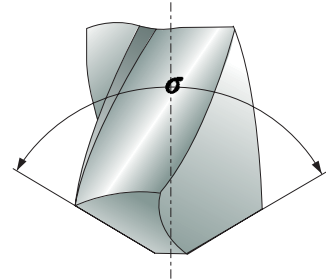


Figure 7. Point angle σ

Bild 7. Spitzenwinkel σ

RESHARPENING TWIST DRILLS

Nachschleifen von Spiralbohrern

(1) Drills are worn off irregularly. It should be sharpened prior to developing into excessive wear.
Unregelmäßiger Verschleiß von Bohrern. Bohrer soll vor übermäßigem Verschleiß nachgeschliffen werden.

(2) Resharpener Nachschleifen

- ① Grind the correct point angle to suit your application.(figure 8)
 Den für Ihre Anwendung passenden korrekten Spitzenwinkel schleifen (Bild 8)
- ② Check that both cutting lips have the same angle. On a 130° point, each lip should be 65° toward the axis. The point must be on center, i.e., the chisel edge must produce cutting lips of equal length.(figure 8)
 Überprüfen, dass beide Hauptschneiden den gleichen Winkel haben. Bei einem 130° Spitzenwinkel, sollte jede Hauptschneide 65° haben (Bild 8)
- ③ Grind Primary relief and Secondary clearance.(figure 9)
 Primärer Hinterschliff und Sekundärer Freiwinkel (Bild 9)
- ④ Grind web thinning. (figure 10)
 Den ausgespitzten Kern schleifen (Bild 10)

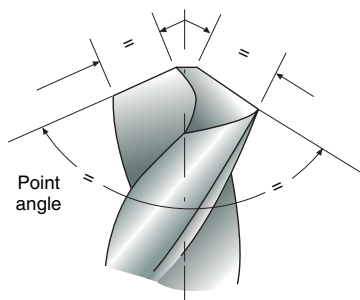


Figure 7
Bild 7

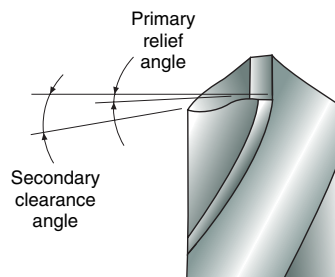


Figure 8
Bild 8

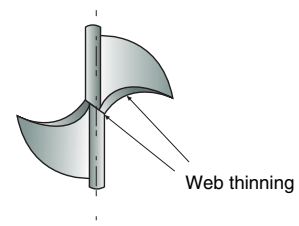


Figure 9
Bild 9

WEB THINNING

Kegelmantelschliff

(1) Without thinning

Normalanschliff

Suitable for drill of general purpose.

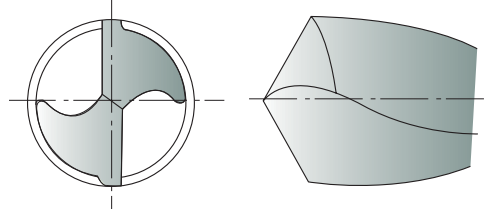
Thanks to thin web thickness, web thinning is not need.

This without web thinning type is applied to design of drills for mild steel, alloy steels, cast iron, stainless steel, titanium, inconel, etc. and conventional cutting conditions.

Zum Bohren für allgemeine Zwecke.

Dank dünner Kerndicke, ist Kegelmantelschliff nicht nötig.

Geeignet für Stahl, Stahl-Legierungen, Gusseisen, Edestahl, Tian, Inconel usw, und für konventionelle Schneidbedingungen



(2) type C thinning (DIN1412 FORM C, SPLIT POINT)

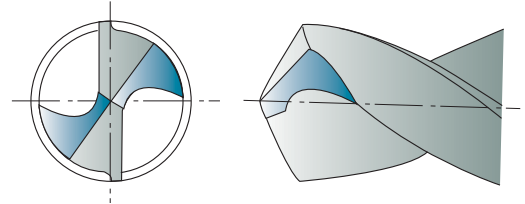
DiN 1412 Form C kegelmantelschliff mit Kreuzanschliff

Because Split point enables good centering when drilling and breaks the chips, chip removals is easy.

Suitable for drill design in high hardened tough materials, i.e. heat treated steel, titanium alloy, stainless steel, incoroy inconel, nimonic, etc.

Da Kreuzanschliff gute Zentrierung und Spanbruch während des Bohrens ermöglicht, wird die Spanentfernung erleichtert.

Geeignet für zähe Werkstücke oder Werkstücke mit hoher Härte, z.B. hitzebehandelten Stahl, Titan-Legierungen, Edelstahl, Incoroy Inconel, Nimonic usw.

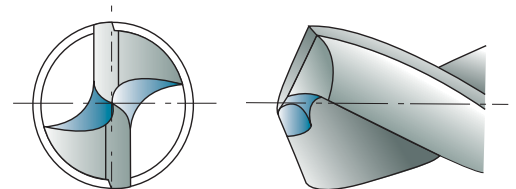


(3) Type R thinning (HELICAL THINNING)

Form R Kegelmantelschliff (Spiralanschliff)

Helical thinning ensure to frequent chip breaking and removal. The different direction force of cutting edges and helical thinning parts enables that chips curl, break and remove through the flutes. In addition, helical thinning makes the chip room up to center, remove the chip and enables good centering

Häufiger Spanbruch und Spanentfernung durch Spiralanschliff, es wird ausreichend Raum für Späne geschaffen, und gute Zentrierung ist möglich.



(4) Type A thinning (DIN1412 FORM A)

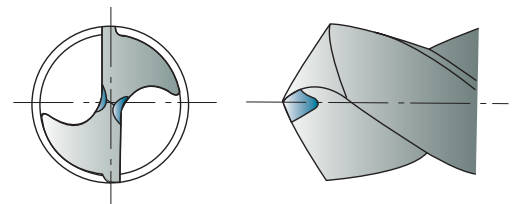
DiN 1412 Form A Kegelmantelschliff mit ausgespitzter Querschneide

A type thinning makes thin chisel, good chip removal and favorable centering.

This type is the easiest type to grind the thinning. In narrow web and wide fluted drills, keeping of the rigidity and smooth chip removal are possible.

Diese Form hat eine dünne Querschneide, dadurch ist gute Spanentfernung und Zentrierung möglich.

Der Kegelmantelschliff ist bei dieser Form am einfachsten nachzuschleifen, Ein enger Kern und breite Schneiden erhalten die Stabilität.



(5) Type B thinning (DIN1412 FORM B)

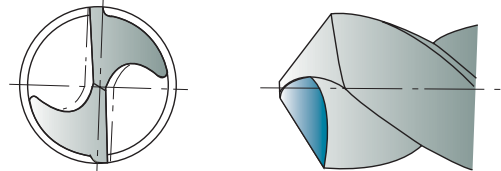
DIN 1412 Form B Kegelmantelanschliff mit ausgespitzter Querschneide

In case of work materials with low cutting resistance and good chip removal, ie, cast iron, aluminium, plastic etc., B type thinning is suitable.

Especially when drills for high hardened steels are designed, this type is applied to decrease rake angle and avoid chipping of cutting lips.

Geeignet für Werkstücke mit geringem Schneidwiderstand und guter Spanentfernung, z.B. Gusseisen, Aluminium, Plastik usw.

Diese Form wird besonders dann angewendet, wenn der Bohrer für Stähle mit hoher Härte produziert wurde, da dadurch der Seitenspanwinkel verkleinert wird und Brüche an der Schneidkante vermieden werden.



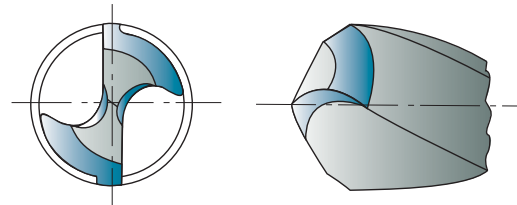
(6) Type D thinning (DIN1412 FORM D)

DIN 1412 Form D Kegelmantelanschliff mit ausgespitztem Kern

Gray Castiron thinning; bevelling of external edges strengthens the cutting edge.

Used for medium to high gray cast iron hardness and for abrasives.

GG-Anschliff; Fasen auf dem Steg verstärken die Schneidkante. Geeignet für medium bis hohe Härte GG und für abrasive Materialien.



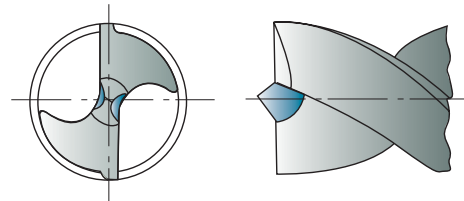
(7) Type E thinning (DIN1412 FORM E)

DIN 1412 Form E Zentrumspitze

Centre drill bit thinning; ensures optimal centre drilling and does not leave burrs in through-holes.

As the bit and cutting edges are delicate, this bit should be used for drilling thin sheet metal.

Zentrisches Bohren, Niedrige Gratbildung, Geeignet zum Bohren von dünnen Blechen und Rohren.



Surface Finishes for high speed steel Twist Drills

Oberflächenbeschaffenheit von HSS-Spiralbohrern

(1) Bright Finish

Helle Beschaffenheit

Drills with a bright finish is without Surface treatment and ground condition.

Especially bright finished drills is used in machining of non ferrous materials.

Ohne Oberflächenbehandlung, geeignet zum Bearbeiten von Nichteisen Materialien.

(2) COLOURING (Amber colour)

Farbe (Bernstein)

The colouring is a thin oxide layer formed on the tool surfaces.

This is often applied to cobalt high speed steel twist drills.

Dies ist eine dünne Oxidschicht.

Geeignet für Kobalt-HSS-Spiralbohrer.

(3) STEAM HOMO

Dampfoxidierte Ausführung

This is a black oxide layer 1-2 μm formed on the tool surfaces.

Steam homo treated drill is the result of a steam tempering operation. Because the oxide layer retains some coolant on the tool surface, and aids chip flow, helps to dissipate heat, steam homo treated drills are recommended for ferrous applications.

Eine schwarze Oxidschicht 1-2 μm .

Da die Oxidschicht Kühlmittleigenschaften auf der Werkzeugoberfläche beinhaltet und den Spanfluss verbessert und die Hitze verteilt, sind diese Bohrer für die Bearbeitung von Metal-Werkstücken empfohlen.

Coating

Beschichtungen

The use of coated cutting tools reduce production costs.

For example

- Avoidance of machine downtime due to premature tool wear.
- Higher cutting capabilities to reduce actual machining times.
- Reproducible tool life.
- Improvement of component surface quality.

Durch den Gebrauch von beschichteten Werkzeugen werden Produktionskosten reduziert, z.B.

- Vermeidung von Maschinen-Ausfallzeiten wegen frühzeitigem Verschleiß des Bohrers.
- Höhere Bohrleistung, dadurch Verminderung von Arbeitszeit.
- Längere Standzeit.
- Verbesserte Oberflächengüte des Werkstücks.

(1) TiN (titanium nitride) coating

TiN (Titan-Nitrid) Beschichtung

Titanium Nitride gives the tool a higher performance in comparison to traditional non-coated drills.

TiN coating, with good all-around properties, is recommended for the general application, i.e., attack by abrasive, adhesive and chemical wear in equal proportions.

Bessere Leistung im Vergleich zu unbeschichteten Werkzeugen

TiN-Beschichtung wird für allgemeine Anwendungen empfohlen.

(2) TiCN(titanium carbon nitride) coating

TiCN(Titan karbon Nitrid) Beschichtung

TiCN coating should be employed when severe thermodynamic stress is expected, for example when drilling in high hardened steels or in mild steels with high speed and feed.

Diese Beschichtung soll bei extremen thermodynamischen Bedingungen verwendet werden, z.B. bei Bohren von Stählen mit hoher Härte und Stähle mit hoher Geschwindigkeit und Vorschub.

(3) TiAlN(titanium aluminium nitride) coating

TiAlN(Titan Aluminium Nitrid) Beschichtung

The addition of Aluminium to the Titanium Nitride produces an increase in hardness and an exceptional increase in resistance to oxidation at high temperature.

TiAlN coating is applied to drilling with severe thermal stress on cutting edges when continuous non-step feed, dry cutting or high speed cutting.

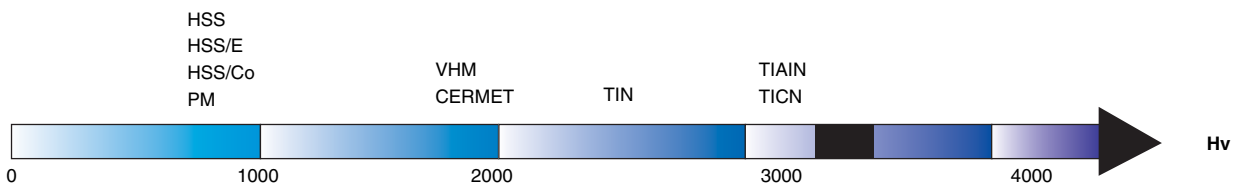
Der Zusatz von Aluminium zum Titan-Nitrid ermöglicht eine höhere Härte und einen außerordentlich guten Widerstand gegen Oxidation und hohe Temperaturen.

Geeignet zum Bohren unter extremen thermischen Bedingungen auf der Hauptschneide bei kontinuierlichem Vorschub, Trockenschnitt oder Hochgeschwindigkeitsbohren.

(4) Properties of coating

Beschichtungs-Eigenschaften

Properties Eigenschaften	TiN	TiCN	TiAlN
coating colour Beschichtungsfarbe	gold - yellow	blue - grey	violet - grey
hardness (Hv 0.05) härtegrad (Hv 0.05)	2300	3000	3000
coating thickness (μm) Beschichtungsdicke (μm)	1~4	1~4	1~5
max. working temperature ($^{\circ}\text{C}$) max. Arbeitstemperatur ($^{\circ}\text{C}$)	600	400	800
coefficient of friction against steel(dry) Reibungskoeffizient für stahl (trocken)	0.4	0.4	0.4



(5) Selection of coating

Verschiedene Beschichtungen

Work-material Werkstück	HSS TWIST DRILLS HSS Bohrer	CARBIDE DRILLS VHM Bohrer
Unalloyed steel Unlegierter Stahl	TiCN, TiAlN	TiCN, TiAlN
Steel < 1000 N/mm ² Stahl < 10000 N/mm	TiCN, TiAlN	TiCN, TiAlN
Steel > 1000 N/mm ² Stahl > 10000 N/mm	TiCN, TiAlN	TiCN, TiAlN
Stainless steel Edelstähle	TiCN, TiAlN	TiCN, TiAlN
Cast iron Gusseisen	TiCN, TiAlN	TiAlN
Al-wrought alloys Al-Knetlegierungen	TiN	TiN
Al-cast alloys Al-Gusslegierungen	TiCN	TiCN
Copper (pure) Kupfer (pur)	CrN	CrN
Brass Messing	TiCN	TiCN
Bronze Bronze	TiCN	TiCN

TECHNICAL DATA

TECHNISCHE DATEN

Drill sizes before Tapping

Durchmesser für Bohrwerkzeuge für Gewindekernlöcher

(1) Metric - ISO threads coarse pitch

Metrisch - ISO Gewinde, grobverzahnt

Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter
		M3	2.5	M11	9.5	M30	26.5
M1	0.75	M3.5	2.9	M12	10.2	M33	29.5
M1.2	0.95	M4	3.3	M14	12.0	M36	32.0
M1.4	1.1	M5	4.2	M16	14.0	M39	35.0
M1.6	1.25	M6	5.0	M18	15.5	M42	37.5
M1.8	1.45	M7	6.0	M20	17.5	M45	40.5
M2	1.6	M8	6.8	M22	19.5	M48	43.0
M2.2	1.75	M9	7.8	M24	21.0	M52	47.0
M2.5	2.05	M10	8.5	M27	24.0	M56	50.5

(2) Metric ISO threads fine pitch

Metrisch - ISO Gewinde, feinverzahnt

Nominal size inches	Drill diameter mm
0.35	0.4
0.5	0.5
0.75	0.8
1.0	1.0
1.25	1.2
1.5	1.5
2.0	2.0
3.0	3.0
4.0	4.0

(3) WITHWORTH pipe threads (BSP)

WITHWORTH Rohrgewinde (BSP)

Nominal size inches	Drill diameter mm	Nominal size inches	Drill diameter mm
G1/8	8.8	G1 1/4	39.5
G1/4	11.8	G1 3/8	42.0
G3/8	15.25	G1 1/2	45.0
G1/2	19.0	G1 3/4	51.0
G5/8	21.0	G2	57.0
G3/4	24.5	G2 1/4	63.0
G7/8	28.25	G2 1/2	73.0
G1	30.75	G2 3/4	79.0
G1 1/8	35.5	G3	85.0

(4) American unified coarse threads Amerikanischer Standard, Grobverzahnung

UNC	Drill diameter		UNC	Drill diameter	
	inches	mm		inches	mm
No. 1	53	1.51	7/16	U	9.35
No. 2	50	1.78	1/2	27/64	10.71
No. 3	47	1.99	9/16	31/64	12.30
No. 4	43	2.26	5/8	17/32	13.49
No. 5	38	2.58	3/4	21/32	16.67
No. 6	36	2.71	7/8	49/64	19.44
No. 8	29	3.45	1	7/8	22.22
No. 10	25	3.8	1 1/8	63/64	25.00
No. 12	16	4.5	1 1/4	17/64	28.18
1/4	7	5.11	1 3/8	17/32	30.95
5/16	F	6.53	1 1/2	111/32	34.13
3/8	5/16	7.94			

(5) American unified fine threads Amerikanischer Standard, Feinverzahnung

NF	Drill diameter		NF	Drill diameter	
	inches	mm		inches	mm
No. 0	3/64	1.19	3/8	Q	8.43
No. 1	53	1.51	7/16	25/64	9.92
No. 2	50	1.78	1/2	29/64	11.51
No. 3	45	2.08	9/16	33/64	13.10
No. 4	42	2.37	5/8	37/64	14.86
No. 5	37	2.64	3/4	11/16	17.46
No. 6	33	2.87	7/8	13/16	20.64
No. 8	29	3.45	1	59/64	23.42
No. 10	21	4.04	1 1/8	13/64	26.59
No. 12	14	4.62	1 1/4	111/32	29.76
1/4	3	5.41	1 3/8	119/32	32.94
5/16	1	6.91	1 1/2	127/64	36.11

TECHNICAL DATA

TECHNISCHE DATEN

ISO TOLERANCE

ISO TOLERANZ

$\mu\text{m} = 1/1000\text{mm}$

diameter (mm)	1 - 3 from to von bis	3 - 6 over to über bis	6 - 10 over to über bis	10 - 18 over to über bis	18 - 30 over to über bis	30 - 50 over to über bis
tolerance	μm					
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16
h7	0 -10	0 -12	0 -15	0 -18	0 -21	0 -25
h8	0 -14	0 -18	0 -22	0 -27	0 -33	0 -39
m7	+12 +2	+16 +4	+21 +6	+25 +7	+29 +8	+34 +9

TROUBLE SHOOTING IN DRILLING

Probleme und Abhilfe

Occurrence of trouble Problem	Cause of trouble Ursache	Countermeasures Mögliche Abhilfe
Drill will not enter work Bohrer dringt nicht durch werkstück	1. Drill is dull. 2. Lip relief too small. 3. Too thick a web. 1. Bohrer ist stumpf 2. Hauptschneide ist zu klein 3. Kern ist zu dick	1. Grind lip relief sufficiently. 2. Grind web thinning. 3. Choose a drill with narrow web. 1. Schleifen der Hauptschneide 2. Kegeimantel schleifen 3. Bohrer mit engerem kern wählen
Margin chipping Fasenbruch	1. Oversized jig bushing. 1. Bohrbuchse ist zu ungleich.	1. Choose the suitable jig bushing for drill diameter 1. Den passenden Bohrbuchse wählen.
Cutting lip breaks Bruch der Hauptschneide	1. Lip relief too much. 2. Feed too heavy. 1. Zu große Entlastung der Hauptschneide 2. Vorschub zu stark	1. Grind lip relief sufficiently. 2. Decrease feed rate. 1. Schleifen der Hauptschneide 2. Vorschub verringern
Tang breaks Bruch der Austrieklappen am Kagelschaft	1. Imperfect fit between taper shank and socket. 2. Burred or Badly worn sockets. 1. Befestigung zwischen Morsekegel und Aufnahme ungenügend 2. Verschleiß der Aufnahme	1. Clean the dirt or chips in sockets. 2. Change the worn sockets to new ones. 1. Schmutz oder Späne in der Aufnahme entfernen 2. Aufnahme wechseln

TECHNICAL DATA

TECHNISCHE DATEN

Occurrence of trouble Problem	Cause of trouble Ursache	Countermeasures Mögliche Abhilfe
Drill breaks in brass Bohrer bricht in Messing	1. Unsuitable drill 2. Flutes clogged with chips 1. Unpassender Bohrer 2. Schneiden durch Späne verstopft	1. Choose the suitable drill for work material. 1. Den passenden Bohrer wählen
Chipping of drill center Brüche auf der Querschneide	1. Lip relief too much. 2. Feed too heavy. 1. Zu große Entlastung der Hauptschneide 2. Vorschub zu stark	1. Grind lip relief sufficiently. 2. Decrease feed rate. 1. Schleifen der Hauptschneide 2. Vorschub verringern
Hole oversize Übergröße des Lochs	1. Unequal angle or length of cutting edges. 2. Loosen spindle. 1. Ungleiches Winkel oder Länge der Hauptschneiden 2. Lockere Spindel	1. Resharpener point, choose correct drills. 2. Tighten spindle sufficiently. 1. Nachschleifen der Bohrspitze, passenden Bohrer wählen 2. Spindel ausreichend befestigen
Outer corners break down. Brüche in der Schneidenecke	1. Cutting speed too high. 2. Hard spots in work material. 3. Flutes clogged with chips. 4. Too wear of drills. 1. Schnittgeschwindigkeit zu hoch 2. Harte Flächen im Werkstück 3. Schneiden durch Späne verstopft 4. Verschleiß des Bohrers zu groß	1. Grind point to suit work material. 2. Decrease the feed rates. 3. Resharpener early before too wear. 1. Bohrspitze nachschleifen und ans Werkstück anpassen 2. Vorschub verringern 3. Nachschleifen vor zu groß ern Verschleiß
Large chip of one flute and small chip of other flute Ungleiche Späne auf den Schneiden	1. Improperly ground point. 2. Only one lip doing all the cutting 1. Bohrspitze nicht richtig geschliffen 2. Nur eine Schneide bohrt	1. Properly grind point. 2. Grind point with same point angle and length of lip 3. Grind with small lip height. 1. Bohrspitze richtig schleifen 2. Bohrspitze mit dem gleichen Spitzenwinkel und Länge nachschleifen 3. Schleifen mit geringer Hauptschneidenhöhe
Hole rough Grobes Loch	1. Improperly ground point. 2. Unenough coolant supply 3. Too much feed. 4. Fixture not rigid. 1. Bohrspitze nicht richtig geschliffen 2. Ungenügende Kühlmittelzufuhr 3. Vorschub zu hoch 4. Befestigung nicht stabil	1. Properly grind point. 2. Supply coolant enoughly. 3. Decrease the feed rate. 4. Tighten the fixture or replace. 1. Bohrspitze richtig schleifen 2. Genügend Kühlmittel zuführen 3. Vorschub verringern 4. Befestigung stabilisieren oder erneuern

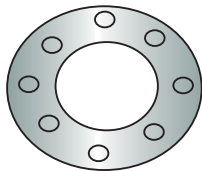
Characteristic of DREAM DRILL

Merkmale von DREAM BOHRER

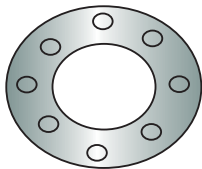
- YG-1's Dream Drill Series are suitable for high speed and accurate drilling operations by special design and high quality.
YG-1's DREAM Bohrer Serien sind durch ihre spezielle konstruktion und höchste Genauigkeit geeignet zum Hochgeschwindigkeitsbohren und für genaue Bohrvorgänge.
- Good performance for Steels, Cast Irons, Tool steels, Alloy steels and Steels and Stainless steels.
Gute Leistung bei Stählen, Grauguss, Werkzeugstählen, Stahllegierungen sowie bei Rost- und Säurebeständigen Stählen.
- Rapid chip evacuation and excellent chip breaking can be achieved by special designed cutting edges on point and chip breakers on leading edges.
Schnelle Spanabfuhr und hervorragender Spanbruch durch speziell entwickelte Schneidengeometrien und Spanbrechern.
- High accuracy and stability.
Hohe Genauigkeit und Stabilität.
- Longer tool life by TiN, TiCN, TiAlN coating.
Höhere Standzeiten durch TiN-, TiCN-, TiAlN-Beschichtungen.
- Self-centering
Selbstzentrierend

Drilling Parameters of DREAM DRILL

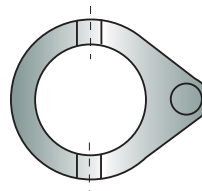
Bohr-Parameter von DREAM BOHRER



- CAST STEELS, HRc 20
- D6404081, 8.1mm dia. DREAM DRILL, TiN
- Hole Depth = 30 mm, Blind Hole
- 3000 RPM
- 0.20 mm/min.
- Soluble oil
- 15,000 Holes Drilling



- SUS 304 (STAINLESS STEELS)
- D6406160, 16.0 mm dia. DREAM DRILL with Colant Holes, TiN
- Hole Depth = 25 mm Blind Hole
- 850RPM
- 0.20 mm/min.
- Soluble oil
- 400 Holes Drilling

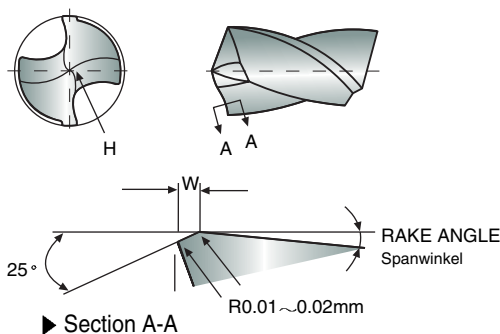


- SUM 41 (HARDENED STEELS), HRc20
- DG404078, 7.8 mm dia. DREAM DRILL, TiCN
- Hole Depth = 12 mm Both Side, Thru Hole
- 2000 RPM
- 0.15 mm/min.
- Soluble oil
- 2,400 Holes Drilling

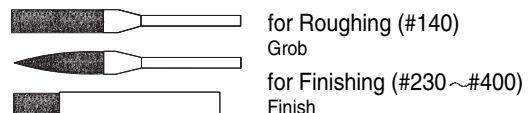
HONING GUIDE of DREAM DRILL

Hinweis zum Honen von DREAM BOHRER

■ Dimension of Honing Abmessung beim Honen



■ Scraper Schaben

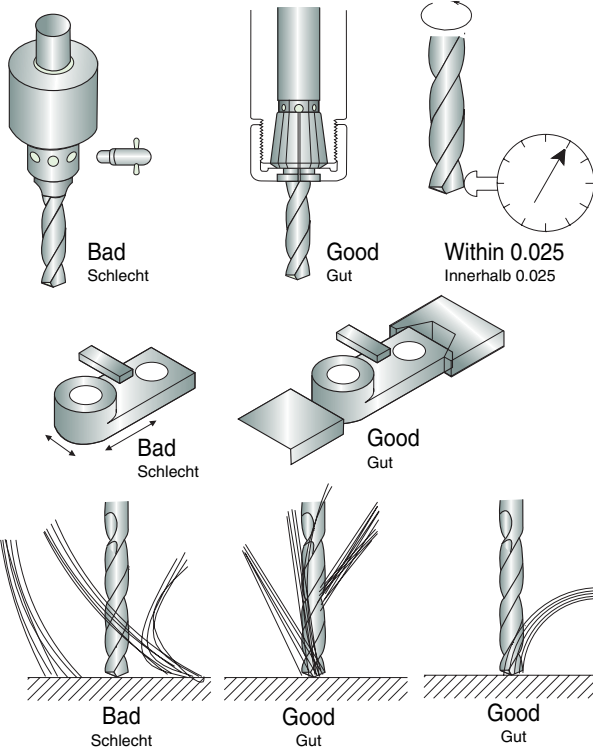


Work Material Werkstoff	Alloy Steel Stahl-Legierungen	Mild Steel Weich Stähle	Cast Iron Grauguss
W (mm)	0.15~0.2	0.1~0.15	0.03

- The dimension w of stocked products is 0.1~0.15.
Das Maß w ist bei lagerhaltigen Produkten 0.1~0.15.

Use of DREAM DRILL

Verwendung von DREAM BOHRER



► Chucking with spring collet correctly.
Richtiges Spannen mit Spannzangen.

► Radial run out at cutting lip must not exceed 0.025 mm.
Radialer Rundlauf und der Schneidlippe darf nicht 0.025 überschreiten.

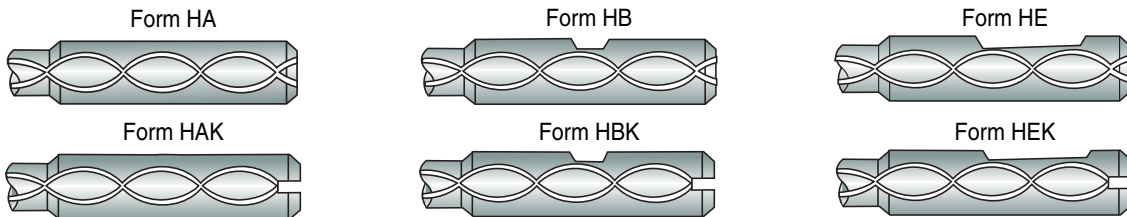
► Tighten clamp of work piece.
Sicheres Spannen des Werkstückes

► Supply coolant enough to the entrance of hole.
Ausreichend Kühlmittelzufluss am Bohrloch.

► In using Dream Drill with Coolant need high pressure coolant.
Beim Verwenden von DREAM BOHRER mit Kühlkanal wird Hochdruckkühlung benötigt.

Shank Type DREAM DRILL with Coolant Holes

Schaftausführung DREAM BOHRER mit Kühlkanal



- Shank Type of stocked products is Form HA.
Schaftausführung von lagerhaltigen Produkten ist HA.
- If you need other Shank Type, we can supply them.
Andere Schaftausführungen können geliefert werden.

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



SOLID CARBIDE DREAM DRILLS, TIN COATED

VOLLHARTMETALL DREAM BOHRER, TIN-BESCHICHTET

D6404, D6423, D6424 SERIES

MATERIAL WERKSTOFF	DIAMETER(mm)											
	3~5		5.1~8		8.1~10		10.1~12		12.1~14		14.1~20	
	N	S	N	S	N	S	N	S	N	S	N	S
NON-ALLOY STEELS < 700 N/mm ² Non-stahl-Legierungen	7640	0.13	4600	0.16	3200	0.23	2610	0.28	2210	0.31	1730	0.35
ALLOY STEELS < 1000 N/mm ² stahl-Legierungen	6790	0.13	4090	0.16	2850	0.23	2320	0.28	1960	0.31	1540	0.35
SOFT GREY CAST IRON < HB240, GG25 Weicher Grauguss	12730	0.16	7670	0.21	5330	0.29	4350	0.35	3680	0.40	2890	0.45
HARD GREY CAST IRON < HB300, GG40 Harter Grauguss	8490	0.13	5110	0.16	3560	0.23	2900	0.28	2450	0.31	1920	0.35
STAINLESS STEELS Edelstähle	2970	0.06	1790	0.08	1240	0.11	1020	0.14	860	0.16	670	0.18

► We recommend you to reduce the feed rate to Kf when you use D6424 drills
Wir empfehlen den Vorschub gemäß Kf zu reduzieren, wenn Sie Bohrer D6424 verwenden.

N = R.P.M
S=Feed per Revolution (mm/rev.)

Kf	D6404	D6423	D6424
	1.0	1.0	0.85

DRILLS



SOLID CARBIDE DREAM DRILLS TiAIN COATED

VOLLHARTMETALL DREAM BOHRER TiAIN-BESCHICHTET

DH404, DH423, DH424, SERIES

MATERIAL WERKSTOFF	DIAMETER(mm)											
	3~5		5.1~8		8.1~10		10.1~12		12.1~14		14.1~20	
	N	S	N	S	N	S	N	S	N	S	N	S
NON-ALLOY STEELS < 700 N/mm ² Non-stahl-Legierungen	8330	0.13	5020	0.16	3490	0.23	2850	0.25	2410	0.31	1890	0.35
ALLOY STEELS < 1000 N/mm ² stahl-Legierungen	7410	0.13	4460	0.16	3110	0.23	2530	0.28	2140	0.31	1680	0.35
SOFT GREY CAST IRON < HB240, GG25 Weicher Grauguss	13890	0.16	8370	0.21	2810	0.29	4750	0.35	4010	0.40	3150	0.45
HARD GREY CAST IRON < HB300, GG40 Harter Grauguss	9260	0.13	5570	0.16	3880	0.23	3160	0.28	2670	0.31	2090	0.35
STAINLESS STEELS Edelstähle	340	0.06	1950	0.08	1350	0.11	1110	0.14	940	0.16	730	0.18

► We recommend you to reduce the feed rate to Kf when you use DH424 drills
Wir empfehlen den Vorschub gemäß Kf zu reduzieren, wenn Sie Bohrer DH424 verwenden.

N = R.P.M
S=Feed per Revolution (mm/rev.)

Kf	DH404	DH423	DH424
	1.0	1.0	0.85

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



SOLID CARBIDE DREAM DRILLS WITH COOLANT HOLES DIN6537, TiN COATED

VOLLHARTMETALL DREAM BOHRER MIT KÜHLKANAL DIN6537, TiN-BESCHICHTET

D6406, D6408, D6421 SERIES

MATERIAL WERKSTOFF	DIAMETER(mm)											
	3~5		5.1~8		8.1~10		10.1~12		12.1~14		14.1~20	
	N	S	N	S	N	S	N	S	N	S	N	S
NON-ALLOY STEELS < 700 N/mm ² Non-stahl-Legierungen	8490	0.16	5110	0.21	3560	0.29	2900	0.35	2450	0.40	1920	0.45
ALLOY STEELS < 1000 N/mm ² stahl-Legierungen	7640	0.13	4600	0.16	3200	0.23	2910	0.28	2210	0.31	1730	0.35
SOFT GREY CAST IRON < HB240, GG25 Weicher Grauguss	14430	0.16	8690	0.21	6050	0.29	4930	0.35	4170	0.40	3170	0.45
HARD GREY CAST IRON < HB300, GG40 Harter Grauguss	9340	0.16	5620	0.21	3910	0.29	3190	0.35	2700	0.40	2120	0.45
STAINLESS STEELS Edeistähle	3400	0.06	2040	0.08	1420	0.11	1160	0.14	980	0.16	770	0.28

► We recommend you to reduce the feed rate to Kf when you use D6408, D6421 drills.
Wir empfehlen den Vorschub gemäß Kf zu reduzieren, wenn Sie Bohrer D6408, D6421 verwenden.

N = R.P.M
S=Feed per Revolution (mm/rev.)

Kf $\frac{D6406 \quad D6408 \quad D6421}{1.0 \quad 0.85 \quad 0.70}$

DRILLS



SOLID CARBIDE DREAM DRILLS WITH COOLANT HOLES DIN6537, TiAIN COATED

VOLLHARTMETALL DREAM BOHRER MIT KÜHLKANAL DIN6537, TiAIN-BESCHICHTET

DH406, DH408, DH421 SERIES

MATERIAL WERKSTOFF	DIAMETER(mm)											
	3~5		5.1~8		8.1~10		10.1~12		12.1~14		14.1~20	
	N	S	N	S	N	S	N	S	N	S	N	S
NON-ALLOY STEELS < 700 N/mm ² Non-stahl-Legierungen	9260	0.16	5570	0.21	3880	0.29	3160	0.35	2670	0.40	2090	0.45
ALLOY STEELS < 1000 N/mm ² stahl-Legierungen	8330	0.13	5020	0.16	3490	0.23	2850	0.28	2410	0.31	1890	0.35
SOFT GREY CAST IRON < HB240, GG25 Weicher Grauguss	15740	0.16	9480	0.21	6600	0.29	5380	0.35	4550	0.40	3570	0.45
HARD GREY CAST IRON < HB300, GG40 Harter Grauguss	10190	0.16	6130	0.21	4270	0.29	3480	0.35	2950	0.40	2310	0.45
STAINLESS STEELS Edeistähle	3710	0.06	2230	0.08	1550	0.11	1270	0.14	1070	0.16	840	0.18

► We recommend you to reduce the feed rate to Kf when you use DH408, DH421 drills.
Wir empfehlen den Vorschub gemäß Kf zu reduzieren, wenn Sie Bohrer DH408, DH421 verwenden.

N = R.P.M
S=Feed per Revolution (mm/rev.)

Kf $\frac{DH406 \quad DH408 \quad DH421}{1.0 \quad 0.85 \quad 0.70}$

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



CARBIDE DRILLS, DIN6539, DIN338

VOLLHARTMETALL SPIRALBOHRER, DIN 6539, DIN 338

D5405, D5407 SERIES

MATERIAL WERKSTOFF	DIAMETER(mm)											
	2~2.9		3~5		5.1~8		8.1~10		10.1~12		12.1~13	
	N	S	N	S	N	S	N	S	N	S	N	S
NON-ALLOY STEELS < 700 N/mm ² Non-stahl-Legierungen	8070	0.04	5090	0.06	3070	0.08	2130	0.11	1740	0.14	1520	0.16
ALLOY STEELS < 1000 N/mm ² stahl-Legierungen	6050	0.04	3820	0.06	2300	0.08	1600	0.11	1310	0.14	1140	0.16
SOFT GREY CAST IRON < HB240, GG25 Weicher Grauguss	10760	0.05	6790	0.08	4090	0.10	2850	0.14	2320	0.18	2030	0.20
HARD GREY CAST IRON < HB300, GG40 Harter Grauguss	8070	0.05	5090	0.08	3070	0.10	2130	0.14	1740	0.18	1520	0.20
STAINLESS STEELS Edestähle	4300	0.03	2720	0.05	1640	0.07	1140	0.09	930	0.11	810	0.13
AL-Si ALLOY, Si < 10% AL-Si Legierungen Si > 10%	18340	0.06	11570	0.10	6970	0.13	4850	0.18	3960	0.22	3460	0.25
AL-Si ALLOY, Si < 10% AL-Si Legierungen Si > 10%	14670	0.06	9260	0.10	5570	0.13	3880	0.18	3170	0.22	2770	0.25
Ti, Ni ALLOY STEELS Ti-Ni Legierungen Stähle	4030	0.03	2550	0.05	1530	0.07	1070	0.09	870	0.11	760	0.13

N = R.P.M

S=Feed per Revolution (mm/rev.)

DRILLS

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



CARBIDE NC - SPOTTING DRILLS 90°, 120° with FLATTED SHANK

VOLLHARTMETALL NC-ANBOHRER 90°, 120° mit MITNAHME FLÄCHE

D5306, D5307 SERIES

MATERIAL WERKSTOFF	DIAMETER(mm)									
	3~5		5.1~8		8.1~10		10.1~12		12.1~13	
	N	S	N	S	N	S	N	S	N	S
NON-ALLOY STEELS < 700 N/mm ² Non-stahl-Legierungen	5090	0.06	3070	0.08	2130	0.11	1740	0.14	1520	0.16
ALLOY STEELS < 1000 N/mm ² stahl-Legierungen	3820	0.06	2300	0.08	1600	0.11	1310	0.14	1140	0.16
SOFT GREY CAST IRON < HB240, GG25 Weicher Grauguss	6790	0.08	4090	0.10	2850	0.14	2320	0.18	2030	0.20
HARD GREY CAST IRON < HB300, GG40 Harter Grauguss	5090	0.08	3070	0.10	2130	0.14	1740	0.18	1520	0.20
STAINLESS STEELS Edestähle	2720	0.05	1640	0.07	1140	0.09	930	0.11	810	0.13
AL-Si ALLOY, Si < 10% AL-Si Legierungen Si >10%	11570	0.10	3970	0.13	4850	0.18	3960	0.22	3460	0.25
AL-Si ALLOY, Si < 10% AL-Si Legierungen Si >10%	9260	0.10	5570	0.13	3880	0.18	3170	0.22	2770	0.25
Ti, Ni ALLOY STEELS Ti-Ni Legierungen Stähle	2550	0.05	1530	0.07	1070	0.09	870	0.11	760	0.13

N = R.P.M

S=Feed per Revolution (mm/rev.)

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



ASP30, Hi-Q TWIST DRILLS, TiN-CrN COATED

ASP30, Hi-Q SPIRALBOHRER, TiN-CrN Beschichtet

H6461, H6462 SERIES

Please decrease the feed rate in H6462 SERIES Hi-Q drills.

Den Vorschub in der H6462 Gruppe Hi-Q Bohrer bitte verringern.

WORK MATERIAL Werkstück	CARBON STEELS Stähle		ALLOY STEELS Stahl-Legierungen		TOOL STEEL, ALLOY STEELS Werkzeugstähle Stahl-Legierungen		CAST IRON TOOL STEEL Gusseisen Werkzeugstähle		ALUMINIUM ALLOY MAGNESIUM ALLOY Aluminium-Legierungen Magnesium-Legierungen	
DIAMETER (mm)	N	S	N	S	N	S	N	S	N	S
2	4620	0.09	3960	0.09	1870	0.09	11550	0.12	11550	0.18
3	3190	0.14	2750	0.14	1100	0.14	11550	0.15	11550	0.28
4	2310	0.15	2090	0.15	935	0.15	8800	0.19	8800	0.33
5	1870	0.18	1650	0.18	715	0.18	7150	0.22	7150	0.40
6	1430	0.19	1430	0.19	605	0.19	5720	0.25	5720	0.46
8	1100	0.23	1045	0.23	440	0.23	4620	0.29	4620	0.52
10	935	0.28	825	0.28	330	0.28	3740	0.35	3740	0.62
12	770	0.33	715	0.33	308	0.33	2970	0.42	2970	0.74
14	605	0.39	550	0.39	264	0.39	2640	0.44	2640	0.79
16	572	0.42	517	0.42	231	0.42	2310	0.46	2310	0.85
18	495	0.48	462	0.48	209	0.48	2090	0.50	2090	0.88
20	440	0.50	385	0.50	187	0.50	1760	0.56	1760	0.96
22	407	0.55	374	0.55	176	0.55	1650	0.57	1650	1.05
24	385	0.57	330	0.57	165	0.57	1540	0.64	1540	1.10
26	352	0.61	308	0.61	143	0.61	1430	0.66	1430	1.16
28	330	0.66	286	0.66	132	0.66	1320	0.69	1320	1.21
30	308	0.69	264	0.69	115.5	0.69	1210	0.81	1210	1.27
32	286	0.75	253	0.75	115.5	0.75	1045	0.81	1045	1.32

N=R.P.M
S=Feed per Revolution(mm/rev.)

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



PREMIUM COBALT HSS, HPD TWIST DRILLS, TiN COATED

PREMIUM KOBALT HSS, HPD SPIRALBOHRER, TiN-beschichtet

D4541, D4542, D4642 SERIES

Please decrease the feed rate in D4542, D4642 SERIES HPD drills.

Den Vorschub in der D4542, D4642 Gruppe HPD Bohrer bitte verringern.

WORK MATERIAL Werkstück	CARBON STEELS (S45C-S50C) <900N/mm ² Stähle		ALLOY STEELS (SCM-SNC —SNCM) >1100N/mm ² Stahl-Legierungen		TOOL STEEL, ALLOY STEELS (SKD11) >180 HB 30 Werkzeugstähle Stahl-Legierungen		CAST IRON TOOL STEEL <180 HB 30 Gusseisen Werkzeugstähle		ALUMINIUM ALLOY MAGNESIUM ALLOY Aluminium-Legierungen Magnesium-Legierungen	
DIAMETER (mm)	N	S	N	S	N	S	N	S	N	S
2	4200	0.08	3600	0.08	1700	0.08	5800	0.11	10500	0.16
3	2900	0.13	2500	0.13	1000	0.13	4000	0.14	10500	0.25
4	2100	0.14	1900	0.14	850	0.14	3000	0.17	8000	0.30
5	1700	0.16	1500	0.16	650	0.16	2400	0.20	6500	0.36
6	1300	0.17	1300	0.17	550	0.17	2100	0.23	5200	0.42
8	1000	0.21	950	0.21	400	0.21	1500	0.26	4200	0.47
10	850	0.25	750	0.25	300	0.25	1100	0.32	3400	0.56
12	700	0.30	650	0.30	280	0.30	1000	0.38	2700	0.67
14	550	0.35	500	0.35	240	0.35	850	0.40	2400	0.72
16	520	0.38	470	0.38	210	0.38	750	0.42	2100	0.77
18	450	0.44	420	0.44	190	0.44	700	0.45	1900	0.80
20	400	0.45	350	0.45	170	0.45	600	0.51	1600	0.87
22	370	0.50	340	0.50	160	0.50	550	0.52	1500	0.95
24	350	0.52	300	0.52	150	0.52	500	0.58	1400	1.00
26	320	0.55	280	0.55	130	0.55	450	0.60	1300	1.05
28	300	0.60	260	0.60	120	0.60	420	0.63	1200	1.10
30	280	0.63	240	0.63	105	0.63	400	0.74	1100	1.15
32	260	0.68	230	0.68	105	0.68	380	0.74	950	1.20

N=R.P.M

S=Feed per Revolution(mm/rev.)

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



HSS-EX, HPD-SUS TWIST DRILLS, TIN COATED

HSS-EX, HPD-SUS SPIRALBOHRER, TiN-beschichtet

DJ543, DJ544 SERIES

Please decrease the feed rate in DJ544 SERIES HPD-SUS drills.

Den Vorschub in der DJ544 Gruppe HPD-SUS Bohrer bitte verringern

WORK MATERIAL Werkstück	STAINLESS STEELS (SUS304, 200) Edelstähle		STAINLESS STEELS (SUS420, 440) Edelstähle		ALUMINIUM & ALUMINIUM ALLOY Aluminium und Aluminium-Legierungen		PLASTICS COPPER COPPER ALLOYS Plastik, Kupfer, Kupfer-Legierungen		MILD STEELS LOW CARBON STEELS Stähle, Weich stähle	
DIAMETER (mm)	N	S	N	S	N	S	N	S	N	S
2	2600	0.07	3100	0.07	11,000	0.09	5600	0.06	6300	0.08
3	1800	0.08	2100	0.08	7350	0.13	3750	0.08	4200	0.13
4	1300	0.10	1600	0.10	7050	0.18	2800	0.10	3200	0.14
5	1050	0.14	1250	0.15	5500	0.22	2250	0.13	2500	0.16
6	900	0.17	1050	0.18	4600	0.26	1850	0.15	2100	0.18
8	650	0.22	800	0.24	3500	0.34	1350	0.20	1550	0.22
10	550	0.26	630	0.30	2800	0.40	1100	0.25	1250	0.26
12	450	0.33	530	0.36	2300	0.50	950	0.30	1050	0.32
14	400	0.36	450	0.44	2050	0.55	800	0.33	900	0.36
16	350	0.40	390	0.48	1750	0.62	700	0.35	790	0.40
18	300	0.43	350	0.50	1600	0.70	620	0.40	700	0.45
20	260	0.46	320	0.53	1450	0.75	56	0.40	620	0.47

N=R.P.M

S=Feed per Revolution(mm/rev.)

DRILLS

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



HSSCo5, DH100 type WORM PATTERN DRILLS, DIN1897, DIN338, DIN340, DIN1869, DIN341, DIN1870

HSSCo5, DH100 typ WORM PATTERN SPIRALBOHRER, DIN1897, DIN 338, DIN 340, DIN 1869, DIN 341, DIN 1870

DL510, DL508, DL509, DL505, DL504, DL600, DL608, DL609, DL610 SERIES

MATERIAL Werkstück	CARBON STEELS ALLOY STEELS Stähle Stahl-Legierungen		TOOL STEELS HARDENED STEELS Werkzeugstähle, gehartete Stähle		SOFT GREY CAST IRON Weicher Grauguss		HARD GREY CAST IRON Harter Grauguss	
HARDNESS	HRc15 ~ HRc30		HRc20 ~ HRc40					
STRENGTH	700 ~ 1000N/mm ²		800 ~ 1200N/mm ²					
DIAMETER(mm)	N	S	N	S	N	S	N	S
2.0	2630	0.03	2100	0.025	4200	0.06	1680	0.05
2.5	2100	0.04	1680	0.03	3300	0.08	1310	0.06
3.0	1680	0.05	1310	0.04	2630	0.10	1050	0.08
4.0	1310	0.06	1050	0.05	2100	0.13	840	0.10
5.0	1050	0.06	840	0.05	1680	0.13	660	0.10
6.0	840	0.08	660	0.06	1310	0.16	530	0.13
8.0	660	0.10	530	0.08	1050	0.20	420	0.17
10.0	530	0.13	420	0.10	840	0.25	330	0.21
13.0	420	0.13	330	0.10	660	0.25	260	0.21
16.0	330	0.15	260	0.13	530	0.30	210	0.25
20.0	260	0.20	210	0.15	420	0.40	170	0.30
25.0	210	0.25	170	0.20	330	0.50	130	0.50
30.0	170	0.25	130	0.20	260	0.50	110	0.50

N=R.P.M

S=Feed per Revolution(mm/rev.)

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



HSSCo5, DH50 type WORM PATTERN DRILLS for Aluminium

HSSCo5, DH50 type WORM PATTERN SPRALBOHRER für Aluminium

DL507 SERIES

WORK MATERIAL Werkstück	DIAMETER(mm)											
	2		4		6		8		10		12	
	N	S	N	S	N	S	N	S	N	S	N	S
ALUMINUM &ALUMINIUM ALLOYS	12500	0.05	5250	0.10	4170	0.13	3130	0.16	2600	0.18	2250	0.20
COPPER LOW CARBON STEELS	6250	0.05	3130	0.10	2080	0.13	1560	0.15	1250	0.20	1000	0.22
SOFT PLASTICS THERMOPLASTICS	5000	0.08	2500	0.13	1670	0.2	1250	0.25	1000	0.25	800	0.30

N=R.P.M

S=Feedper Revolution (mm/rev.)



HSSCo5, TWIST DRILLS for Heavy Duty, DIN338, DIN345

HSSCo5, SPIRALBOHRER für hoheleistungen, DIN 338, DIN 345

DL109, DL205 SERIES

MATERIAL Werkstück	HARDNESS	STRENGTH	DIAMETER(mm)															
			2.5		3		5		8		11		19		32		50	
			N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S
CARBON STEELS Stähle		~ 570 N/mm ²	4030	0.025	3280	0.050	2030	0.063	1270	0.130	900	0.150	530	0.230	310	0.280	195	0.330
CARBON STEELS Stähle	~ HRc 23	~ 830 N/mm ²	3040	0.025	2430	0.050	1530	0.063	950	0.130	680	0.150	400	0.230	230	0.280	150	0.330
CARBON STEELS Stähle	HRc 23~28	830~ 950 N/mm ²	2270	0.015	1820	0.025	1150	0.038	710	0.076	510	0.076	310	0.130	170	0.180	110	0.200
ALLOY STEELS Stähle - Legierungen	HRc 23~34	830~ 1110 N/mm ²	2840	0.020	2280	0.050	1420	0.063	880	0.130	630	0.180	360	0.230	220	0.180	140	0.200
ALLOY STEELS Stähle - Legierungen	HRc 34~38	1110~ 1260 N/mm ²	1670	0.015	1340	0.020	840	0.025	520	0.038	370	0.050	220	0.050	130	0.176	80	0.076
STAINLESS STEELS Edelstähle	HRc 23	830 N/mm ²	3040	0.025	2430	0.050	1530	0.063	950	0.130	680	0.150	400	0.150	230	0.280	150	0.330
CAST IRON Gusseisen	HRc 21	800 N/mm ²	2680	0.025	2430	0.050	1530	0.063	950	0.130	680	0.150	400	0.150	230	0.280	150	0.330

N= R.P.M

S= Feedper Revolution (mm/rev.)

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



HSS & HSSCo8 DRILLS, DIN1897, DIN338, DIN340, DIN1869, DIN345, DIN341, DIN1870

HSS & HSSCo8 SPIRALBOHRER, DIN 1897, DIN 338, DIN 340, DIN 1869, DIN 345, DIN 341, DIN 1870

D1107, D2107, D1105, D2105, DL105, D2104, D1121, D1205, D1206, D1209, D1210 SERIES

MATERIAL Werkstück	HARDNESS	STRENGTH	DIAMETER(mm)															
			2.5		3		5		8		11		19		32		50	
			N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S
CARBON STEELS Stähle		~ 570 N/mm ²	3380	0.025	2700	0.050	1700	0.063	1050	0.130	750	0.150	440	0.230	260	0.280	165	0.330
CARBON STEELS Stähle	~ HRc 23	~ 830 N/mm ²	2550	0.025	2000	0.050	1280	0.063	780	0.130	560	0.150	330	0.230	195	0.280	125	0.330
CARBON STEELS Stähle	HRc 23~28	830~ 950 N/mm ²	1900	0.015	1500	0.025	960	0.038	590	0.076	425	0.076	255	0.130	145	0.180	93	0.200
ALLOY STEELS Stahl - Legierungen	HRc 23~34	830~ 1110 N/mm ²	2380	0.020	1880	0.050	1190	0.063	730	0.130	520	0.180	300	0.230	180	0.180	115	0.200
ALLOY STEELS Stahl - Legierungen	HRc 34~38	1110~ 1260 N/mm ²	1400	0.015	1100	0.020	700	0.025	430	0.038	310	0.050	180	0.050	107	0.076	68	0.076
STAINLESS STEELS Edelstähle	HRc 23	830 N/mm ²	2550	0.025	2000	0.050	1280	0.063	780	0.130	560	0.150	330	0.230	195	0.280	125	0.330
TITANIUM ALLOYS Titan-Legierungen		410 N/mm ²	1400	0.020	1100	0.025	700	0.038	430	0.076	430	0.076	180	0.130	107	0.180	68	0.200
TOOL STEELS Erzeugstähle		270 N/mm ²	3180	0.042	2500	0.050	1590	0.063	970	0.130	700	0.180	440	0.230	240	0.300	150	0.430
CAST IRON Gusseisen	HRc 21	800 N/mm ²	2250	0.025	2000	0.050	1280	0.063	780	0.130	560	0.150	330	0.230	195	0.280	125	0.330
ALUMINUM ALLOYS Aluminium-Legierungen			6400	0.038	5000	0.063	3200	0.076	2000	0.180	1400	0.200	820	0.300	490	0.380	310	0.460
MAGNESIUM ALLOYS Magnesium-Legierungen			8600	0.038	6800	0.063	4300	0.076	2600	0.180	1900	0.200	1100	0.300	660	0.380	415	0.460
ZINC ALLOYS Zink-Legierungen			6400	0.038	5000	0.063	3200	0.076	2000	0.180	1400	0.200	820	0.300	490	0.380	310	0.460
PLASTIC Plastik			3380	0.025	2700	0.050	1700	0.063	1050	0.130	750	0.150	440	0.230	260	0.280	165	0.330

N=R.P.M

S=Feed per Revolution(mm/rev.)

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



HSS TWIST DRILLS for BRASS, DIN 338

HSS SPIRALBOHRER für Messing, DIN338

D1100 SERIES



HSS TWIST DRILLS for ALUMINIUM, DIN338

HSS SPIRALBOHRER für Aluminium, DIN338

D1106 SERIES

DIAMETER(mm)		WORK MATERIAL Werkstück
		BRASS Messing
2	N	8750
	S	0.08
4	N	4350
	S	0.12
6	N	2900
	S	0.16
8	N	2200
	S	0.20
10	N	1750
	S	0.25
12	N	1450
	S	0.28
14	N	1250
	S	0.32

DIAMETER(mm)		WORK MATERIAL Werkstück	
		LONG CHIP ALUMINIUM ALLOY Lange Späne Aluminium-Legierungen	SHORT CHIP ALUMINIUM ALLOY Kurze Späne Aluminium-Legierungen
2	N	7950	5550
	S	0.08	0.05
4	N	4000	2800
	S	0.12	0.08
6	N	2650	1850
	S	0.16	0.10
8	N	2000	1400
	S	0.20	0.12
10	N	1600	1100
	S	0.25	0.16
12	N	1330	930
	S	0.32	0.20
14	N	1150	800
	S	0.36	0.25

N= R.P.M
S= Feedper Revolution (mm/rev.)

DRILLS

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



HSS-E NC SPOTTING DRILLS 90°, 120°

HSS-E NC ANBOHRER 90°, 120°

(D2306, D2307 SERIES)

WORK MATERIAL Werkstück	CARBON STEELS Stähle		ALLOY STEELS Stahl-Legierungen		ALLOY STEELS TOOL STEELS HARDENED STEELS Stahl-Legierungen, Werkzeugstähle, gehartete Stähle		STAINLESS STEELS Edelstähle		ALUMINUM ALUMINUM ALLOY Aluminium, Aluminium-Legierungen	
	N	S	N	S	N	S	N	S	N	S
DIAMETER(mm)										
3	2460	0.06	2110	0.06	1080	0.06	940	0.06	7040	0.14
4	1850	0.07	1580	0.07	800	0.07	700	0.07	5280	0.15
6	1170	0.08	1030	0.08	540	0.08	460	0.08	3520	0.19
8	880	0.11	790	0.11	400	0.11	350	0.11	2640	0.22
10	700	0.12	630	0.12	320	0.12	290	0.12	2110	0.25
12	590	0.14	530	0.14	260	0.14	240	0.14	1760	0.28
14	530	0.17	460	0.17	230	0.17	210	0.17	1540	0.32
16	460	0.20	400	0.20	200	0.20	180	0.20	1320	0.33
18	410	0.22	350	0.22	180	0.22	150	0.22	1190	0.40
20	350	0.24	320	0.24	150	0.24	140	0.24	1060	0.45
25	290	0.33	250	0.33	130	0.33	110	0.33	850	0.55

N=R.P.M

S=Feed per Revolution(mm/rev.)

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDKONDITIONEN



HSSCo5, MORSE TAPER SHANK TWIST DRILLS, TIN COATED

HSSCo5, SPIRALBOHTER MIT MORSEKEGEL SCHAFT, TiN-beschichtet

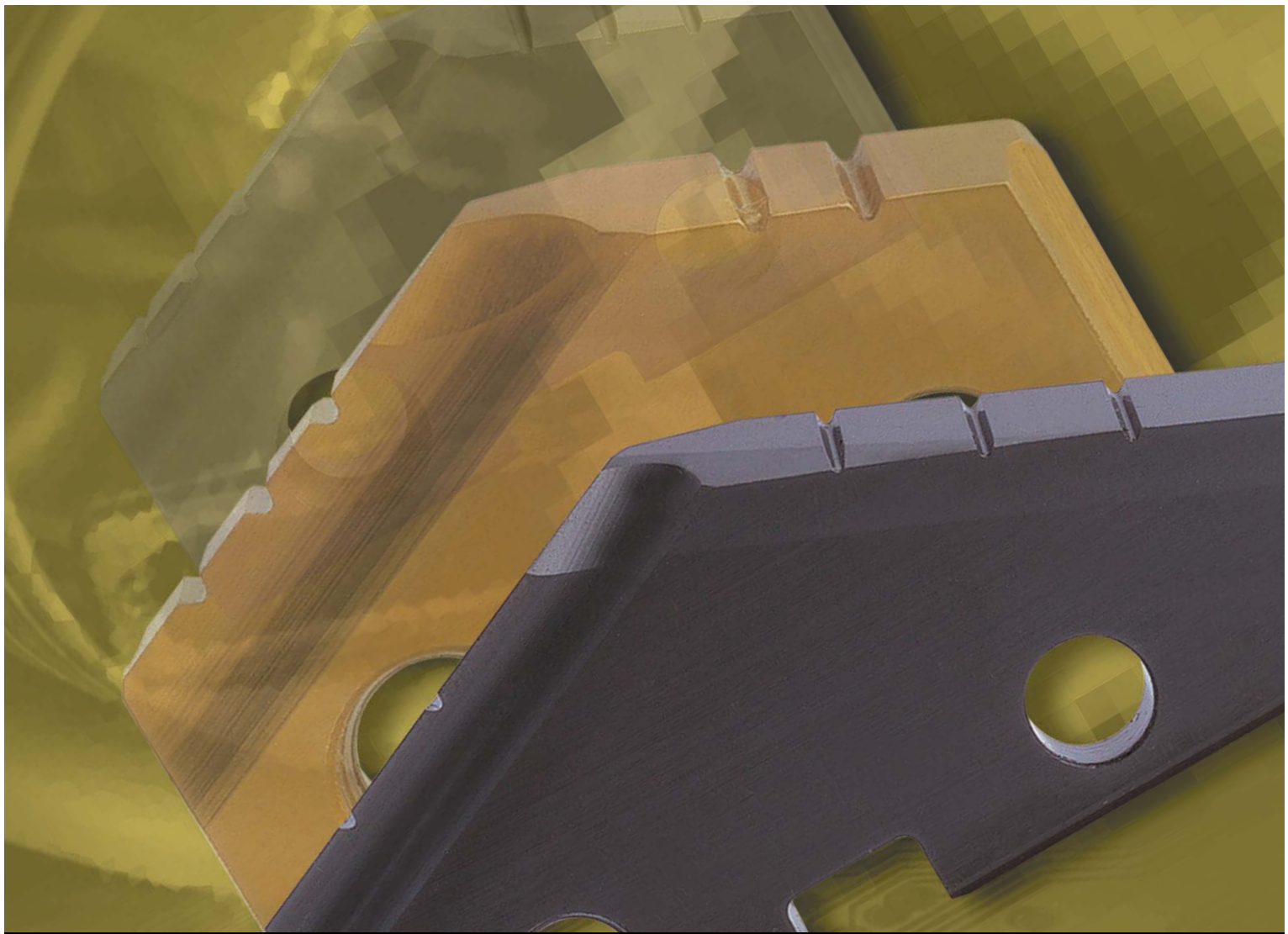
(D2306, D2307 SERIES)

WORK MATERIAL Werkstück	CARBON STEELS Stähle		ALLOY STEELS Stahl-Legierungen		TOOL STEEL, ALLOY STEELS Werkzeugstähle Stahl-Legierungen		CAST IRON TOOL STEEL Gusseisen Werkzeugstähle		ALUMINIUM ALLOY MAGNESIUM ALLOY Aluminium-Legierungen Magnesium-Legierungen	
DIAMETER(mm)	N	S	N	S	N	S	N	S	N	S
8	825	0.15	785	0.15	330	0.15	3460	0.19	3460	0.34
10	700	0.18	620	0.18	250	0.18	2800	0.23	2800	0.40
12	580	0.21	535	0.21	230	0.21	2230	0.27	2230	0.48
14	455	0.25	415	0.25	200	0.25	1980	0.29	1980	0.51
16	430	0.27	390	0.27	175	0.27	1730	0.30	1730	0.55
18	370	0.31	350	0.31	155	0.31	1570	0.33	1570	0.57
20	330	0.33	290	0.33	140	0.33	1320	0.36	1320	0.62
22	305	0.36	280	0.36	132	0.36	1240	0.37	1240	0.68
24	290	0.37	250	0.37	125	0.37	1150	0.42	1150	0.72
26	265	0.40	230	0.40	105	0.40	1070	0.43	1070	0.75
28	250	0.43	215	0.43	100	0.43	990	0.45	990	0.79
30	230	0.45	200	0.45	88	0.45	910	0.53	910	0.83
32	215	0.49	190	0.49	88	0.49	785	0.53	785	0.86

N=R.P.M
















S=Feed per Revolution(mm/rev.)

DRILLS



DRILL INSERTS

Bohreinsatz

SERIES Y, Z, 0		Throw-Away Drill Inserts- HSS TiN Coated	593
SERIES 1, 2		Throw-Away Drill Inserts- HSS TiN Coated	594
SERIES Y, Z, 0		Throw-Away Drill Inserts- HSS TiN Coated	595
SERIES 4		Throw-Away Drill Inserts- HSS TiN Coated	596
SERIES 5, 6		Throw-Away Drill Inserts- HSS TiN Coated	597
SERIES 7, 8		Throw-Away Drill Inserts- HSS TiN Coated	598
SERIES Y, Z, 0		Throw-Away Drill Inserts Hardslick Coated	599
SERIES 1, 2		Throw-Away Drill Inserts Hardslick Coated	600
SERIES 3		Throw-Away Drill Inserts Hardslick Coated	601
SERIES 4		Throw-Away Drill Inserts Hardslick Coated	602
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SERIES Y, Z, 0		Throw-Away Drill Inserts- HSS TiAlN Coated	605
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DRILL INSERTS

SELECTION GUIDE

SERIES
4



Throw-Away Drill Inserts- HSS TiAlN Coated

608

SERIES
5, 6



Throw-Away Drill Inserts- HSS TiAlN Coated

609

SERIES
7, 8



Throw-Away Drill Inserts- HSS TiAlN Coated

610

SERIES
Y, Z, 0



Throw-Away Drill Inserts- Carbide (K20)
TiN, Hardslick, TiAlN Coated

611

SERIES
1, 2



Throw-Away Drill Inserts- Carbide (K20)
TiN, Hardslick, TiAlN Coated

612

SERIES
3



Throw-Away Drill Inserts- Carbide (K20)
TiN, Hardslick, TiAlN Coated

613

SERIES
Y, Z, 0



Throw-Away Drill Inserts- Carbide (P40)
TiN, Hardslick, TiAlN Coated

614

SERIES
1, 2



Throw-Away Drill Inserts- Carbide (P40)
TiN, Hardslick, TiAlN Coated

615

SERIES
3



Throw-Away Drill Inserts- Carbide (P40)
TiN, Hardslick, TiAlN Coated

616

SERIES
Y, Z, 0



Throw-Away Drill Inserts- Carbide (K10) for Cast Iron
TiN, Hardslick, TiAlN Coated

617

SERIES
1, 2



Throw-Away Drill Inserts- Carbide (K10) for Cast Iron
TiN, Hardslick, TiAlN Coated

618

SERIES
Y, Z, 0



Throw-Away Flat Bottom Drill Inserts- Super Hss(T15)
TiN, Hardslick, TiAlN Coated

619

SERIES
Y, Z, 0



Throw-Away Flat Bottom Drill Inserts- Super Hss(T15)
TiN, Hardslick, TiAlN Coated

620

Throw-Away Drill Inserts - HSS TiN Coated



SIZE SERIES Y, Z, O

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	-	S1155095	S1555095
		9.53	.3750"		-	S1105024	S1505024
		9.80	.3860"		-	S1155098	S1555098
	25/64"	9.92	.3906"		-	S1105025	S1505025
		10.00	.3937"		-	S1155100	S1555100
		10.20	.4016"		-	S1155102	S1555102
	13/32"	10.32	.4063"		-	S1105026	S1505026
		10.50	.4134"		-	S1155105	S1555105
		10.72	.4219"		-	S1105027	S1505027
	27/64"	10.80	.4252"		-	S1155108	S1555108
		11.00	.4331"		-	S1155110	S1555110
					-	S1105028	S1505028
Z 11.11 (.437") to 12.95 (.510")	7/16"	11.11	.4375"	2.4 (3/32")	-	S1155115	S1555115
		11.50	.4528"		-	S1105029	S1505029
	29/64"	11.51	.4531"		-	S1105030	S1505030
		11.91	.4688"		-	S1155120	S1555120
	15/32"	12.00	.4724"		-	S1105031	S1505031
		12.30	.4844"		-	S1155125	S1555125
	31/64"	12.50	.4921"		-	S1105032	S1505032
		12.70	.5000"		-	S1155130	S1555130
O 12.98 (.511") to 17.65 (.695")	33/64"	13.00	.5118"	2.4 (3/32")	-	S1105033	S1505033
		13.10	.5156"		-	S1155135	S1555135
		13.49	.5313"		-	S1105034	S1505034
	17/32"	13.50	.5315"		-	S1155135	S1555135
		13.89	.5469"		-	S1105035	S1505035
		14.00	.5512"		-	S1155140	S1555140
	9/16"	14.29	.5625"		-	S1105036	S1505036
		14.50	.5709"		-	S1155145	S1555145
		14.68	.5781"		-	S1105037	S1505037
	37/64"	14.68	.5781"		-	S1155150	S1555150
		15.00	.5906"		-	S1105038	S1505038
		15.08	.5938"		-	S1155155	S1555155
	19/32"	15.48	.6094"		-	S1105039	S1505039
		15.50	.6102"		-	S1155155	S1555155
		15.88	.6250"		-	S1105040	S1505040
	5/8"	16.00	.6299"		-	S1155160	S1555160
		16.27	.6406"		-	S1105041	S1505041
		16.50	.6496"		-	S1155165	S1555165
	41/64"	16.67	.6563"		-	S1105042	S1505042
		17.00	.6693"		-	S1155170	S1555170
		17.07	.6719"		-	S1105043	S1505043
	21/32"	17.46	.6875"		-	S1105044	S1505044
		17.50	.6890"		-	S1155175	S1555175
					-		
	43/64"				-		
					-		
					-		
	11/16"				-		
					-		
					-		

Throw-Away Drill Inserts - HSS TiN Coated



SIZE SERIES 1, 2

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN Coated		
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S1405045	S1105045	S1505045
		18.00	.7087"		S1455180	S1155180	S1555180
	23/32"	18.26	.7188"		S1405046	S1105046	S1505046
		18.50	.7283"		S1455185	S1155185	S1555185
	47/64"	18.65	.7344"		S1405047	S1105047	S1505047
		19.00	.7480"		S1455190	S1155190	S1555190
	3/4"	19.05	.7500"		S1405048	S1105048	S1505048
	49/64"	19.45	.7656"		S1405049	S1105049	S1505049
		19.50	.7677"		S1455195	S1155195	S1555195
	25/32"	19.84	.7813"		S1405050	S1105050	S1505050
		20.00	.7874"		S1455200	S1155200	S1555200
	51/64"	20.24	.7969"		S1405051	S1105051	S1505051
		20.50	.8071"		S1455205	S1155205	S1555205
	13/16"	20.64	.8125"		S1405052	S1105052	S1505052
		21.00	.8268"		S1455210	S1155210	S1555210
	27/32"	21.43	.8438"		S1405054	S1105054	S1505054
	55/64"	21.83	.8594"		S1405055	S1105055	S1505055
		22.00	.8661"		S1455220	S1155220	S1555220
	7/8"	22.23	.8750"		S1405056	S1105056	S1505056
	57/64"	22.62	.8906"		S1405057	S1105057	S1505057
2 24.41 (.961") to 35.05 (1.380")		23.00	.9055"	4.8 (3/16")	S1455230	S1155230	S1555230
	29/32"	23.02	.9063"		S1405058	S1105058	S1505058
	59/64"	23.42	.9219"		S1405059	S1105059	S1505059
	15/16"	23.81	.9375"		S1405060	S1105060	S1505060
		24.00	.9449"		S1455240	S1155240	S1555240
	31/32"	24.61	.9688"		S1405062	S1105062	S1505062
	63/64"	25.00	.9843"		S1405063	S1105063	S1505063
	1"	25.40	1.0000"		S1405100	S1105100	S1505100
	1-1/64"	25.80	1.0156"		S1405101	S1105101	S1505101
		26.00	1.0236"		S1455260	S1155260	S1555260
	1-1/32"	26.19	1.0313"		S1405102	S1105102	S1505102
	1-3/64"	26.59	1.0469"		S1405103	S1105103	S1505103
	1-1/16"	26.99	1.0625"		S1405104	S1105104	S1505104
		27.00	1.0630"		S1455270	S1155270	S1555270
	1-3/32"	27.78	1.0938"		S1405106	S1105106	S1505106
		28.00	1.1024"		S1455280	S1155280	S1555280
	1-7/64"	28.18	1.1094"		S1405107	S1105107	S1505107
	1-1/8"	28.58	1.1250"		S1405108	S1105108	S1505108
		29.00	1.1417"		S1455290	S1155290	S1555290
	1-5/32"	29.37	1.1563"		S1405110	S1105110	S1505110
		30.00	1.1811"		S1455300	S1155300	S1555300
	1-3/16"	30.16	1.1875"		S1405112	S1105112	S1505112
	1-7/32"	30.96	1.2188"		S1405114	S1105114	S1505114
		31.00	1.2205"		S1455310	S1155310	S1555310
	1-1/4"	31.75	1.2500"		S1405116	S1105116	S1505116
		32.00	1.2598"		S1455320	S1155320	S1555320
	1-9/32"	32.54	1.2813"		S1405118	S1105118	S1505118
		33.00	1.2992"		S1455330	S1155330	S1555330
	1-5/16"	33.34	1.3125"		S1405120	S1105120	S1505120
		34.00	1.3386"		S1455340	S1155340	S1555340
	1-11/32"	34.13	1.3438"		S1405122	S1105122	S1505122
	1-3/8"	34.93	1.3750"		S1405124	S1105124	S1505124
		35.00	1.3780"		S1455350	S1155350	S1555350

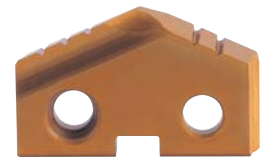
Throw-Away Drill Inserts - HSS TiN Coated



SIZE SERIES 3

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		Hardslick Coated		
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1405126	S1105126	-
		36.00	1.4173"		S1455360	S1155360	-
	1-7/16"	36.51	1.4375"		S1405128	S1105128	-
		37.00	1.4567"		S1455370	S1155370	-
	1-15/32"	37.31	1.4688"		S1405130	S1105130	-
		38.00	1.4961"		S1455380	S1155380	-
	1-1/2"	38.10	1.5000"		S1405132	S1105132	-
	1-17/32"	38.89	1.5313"		S1405134	S1105134	-
		39.00	1.5354"		S1455390	S1155390	-
	1-9/16"	39.69	1.5625"		S1405136	S1105136	-
		40.00	1.5748"		S1455400	S1155400	-
	1-19/32"	40.48	1.5938"		S1405138	S1105138	-
		41.00	1.6142"		S1455410	S1155410	-
	1-5/8"	41.28	1.6250"		S1405140	S1105140	-
		42.00	1.6535"		S1455420	S1155420	-
	1-21/32"	42.07	1.6563"		S1405142	S1105142	-
	1-11/16"	42.86	1.6875"		S1405144	S1105144	-
		43.00	1.6929"		S1455430	S1155430	-
	1-23/32"	43.66	1.7188"		S1405146	S1105146	-
		44.00	1.7323"		S1455440	S1155440	-
	1-3/4"	44.45	1.7500"		S1405148	S1105148	-
		45.00	1.7717"		S1455450	S1155450	-
	1-25/32"	45.24	1.7813"		S1405150	S1105150	-
		46.00	1.8110"		S1455460	S1155460	-
	1-13/16"	46.04	1.8125"		S1405152	S1105152	-
	1-27/32"	46.83	1.8438"		S1405154	S1105154	-
		47.00	1.8504"		S1455470	S1155470	-
	1-7/8"	47.63	1.8750"		S1405156	S1105156	-

Throw-Away Drill Inserts - HSS TiN Coated



SIZE SERIES 4

Series Min. to Max. (mm/inch)	Diameter			Thickness	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN Coated		
				Metric (inch)	HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
4 46.99 (1.850 ") to 65.28 (2.570 ")		48.00	1.8898"	7.9 (5/16")	S1455480	S1155480	-
	1-29/32"	48.42	1.9063"		S1405158	S1105158	-
		49.00	1.9291"		S1455490	S1155490	-
	1-15/16"	49.21	1.9375"		S1405160	S1105160	-
		50.00	1.9685"		S1455500	S1155500	-
	1-31/32"	50.01	1.9688"		S1405162	S1105162	-
	2"	50.80	2.0000"		S1405200	S1105200	-
		51.00	2.0079"		S1455510	S1155510	-
	2-1/32"	51.59	2.0313"		S1405202	S1105202	-
	2-3/64"	52.00	2.0472"		S1405203	S1105203	-
	2-1/16"	52.39	2.0625"		S1405204	S1105204	-
		53.00	2.0866"		S1455530	S1155530	-
	2-3/32"	53.18	2.0938"		S1405206	S1105206	-
	2-1/8"	53.98	2.1250"		S1405208	S1105208	-
		54.00	2.1260"		S1455540	S1155540	-
	2-5/32"	54.79	2.1563"		S1405210	S1105210	-
		55.00	2.1654"		S1455550	S1155550	-
	2-3/16"	55.56	2.1875"		S1405212	S1105212	-
		56.00	2.2047"		S1455560	S1155560	-
	2-7/32"	56.36	2.2188"		S1405214	S1105214	-
		57.00	2.2441"		S1455570	S1155570	-
	2-1/4"	57.15	2.2500"		S1405216	S1105216	-
	2-9/32"	57.94	2.2813"		S1405218	S1105218	-
		58.00	2.2835"		S1455580	S1155580	-
	2-5/16"	58.74	2.3125"		S1405220	S1105220	-
		59.00	2.3228"		S1455590	S1155590	-
	2-11/32"	59.53	2.3438"		S1405222	S1105222	-
		60.00	2.3622"		S1455600	S1155600	-
	2-3/8"	60.33	2.3750"		S1405224	S1105224	-
		61.00	2.4016"		S1455610	S1155610	-
	2-13/32"	61.12	2.4063"		S1405226	S1105226	-
	2-7/16"	61.91	2.4375"		S1405228	S1105228	-
		62.00	2.4409"		S1455620	S1155620	-
	2-15/32"	62.71	2.4688"		S1405230	S1105230	-
		63.00	2.4803"		S1455630	S1155630	-
	2-1/2"	63.50	2.5000"		S1405232	S1105232	-
		64.00	2.5197"		S1455640	S1155640	-
	2-17/32"	64.29	2.5313"		S1405234	S1105234	-
		65.00	2.5591"		S1455650	S1155650	-
	2-9/16"	65.09	2.5625"		S1405236	S1105236	-

Throw-Away Drill Inserts - HSS TiN Coated

SIZE SERIES 5, 6



Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
5 62.38 (2.456") to 76.20 (3.000")	2-1/2"	63.50	2.5000"	11.1 (7/16")	S14052D2	-	-
		64.00	2.5197"		S145564A	-	-
	2-17/32"	64.29	2.5313"		S14052D4	-	-
	2-9/16"	65.09	2.5625"		S14052D6	-	-
	2-19/32"	65.88	2.5938"		S1405238	-	-
		66.00	2.5984"		S1455660	-	-
	2-5/8"	66.68	2.6250"		S1405240	-	-
	2-21/32"	67.47	2.6563"		S1405242	-	-
		68.00	2.6772"		S1455680	-	-
	2-11/16"	68.26	2.6875"		S1405244	-	-
	2-23/32"	69.05	2.7188"		S1405246	-	-
	2-3/4"	69.85	2.7500"		S1405248	-	-
		70.00	2.7559"		S1455700	-	-
	2-25/32"	70.64	2.7813"		S1405250	-	-
	2-13/16"	71.44	2.8125"		S1405252	-	-
		72.00	2.8346"		S1455720	-	-
	2-27/32"	72.23	2.8438"		S1405254	-	-
	2-7/8"	73.03	2.8750"		S1405256	-	-
	2-29/32"	73.82	2.9063"		S1405258	-	-
		74.00	2.9134"		S1455740	-	-
6 76.23 (3.001") to 89.08 (3.507")	2-15/16"	74.61	2.9375"	11.1 (7/16")	S1405260	-	-
	2-31/32"	75.41	2.9688"		S1405262	-	-
		76.00	2.9921"		S1455760	-	-
	3"	76.20	3.0000"		S1405300	-	-
	3-1/32"	76.99	3.0313"		S1405302	-	-
	3-1/16"	77.79	3.0625"		S1405304	-	-
		78.00	3.0709"		S1455780	-	-
	3-3/32"	78.58	3.0938"		S1405306	-	-
	3-1/8"	79.38	3.1250"		S1405308	-	-
		80.00	3.1496"		S1455800	-	-
	3-5/32"	80.17	3.1563"		S1405310	-	-
	3-3/16"	80.96	3.1875"		S1405312	-	-
	3-7/32"	81.76	3.2188"		S1405314	-	-
		82.00	3.2283"		S1455820	-	-
	3-1/4"	82.55	3.2500"		S1405316	-	-
	3-9/32"	83.34	3.2813"		S1405318	-	-
		84.00	3.3071"		S1455840	-	-
	3-5/16"	84.14	3.3125"		S1405320	-	-
	3-11/32"	84.93	3.3438"		S1405322	-	-
	3-3/8"	85.73	3.3750"		S1405324	-	-
		86.00	3.3858"		S1455860	-	-
	3-13/32"	86.52	3.4063"		S1405326	-	-
	3-7/16"	87.31	3.4375"		S1405328	-	-
		88.00	3.4646"		S1455880	-	-
	3-15/32"	88.11	3.4688"		S1405330	-	-
	3-1/2"	88.90	3.5000"		S1405332	-	-

Throw-Away Drill Inserts - HSS TiN Coated

SIZE SERIES 7, 8



Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN Coated		
7 87.76 (3.455") to 101.60 (4.000")	3-17/32"	89.69	3.5313"	11.1 (7/16")	S1405334	-	-
		90.00	3.5433"		S1455900	-	-
	3-9/16"	90.49	3.5625"		S1405336	-	-
	3-19/32"	91.28	3.5938"		S1405338	-	-
		92.00	3.6221"		S1455920	-	-
	3-5/8"	92.08	3.6250"		S1405340	-	-
	3-21/32"	92.87	6.6563"		S1405342	-	-
	3-11/16"	93.66	3.6875"		S1405344	-	-
		94.00	3.7008"		S1455940	-	-
	3-23/32"	94.46	3.7188"		S1405346	-	-
	3-3/4"	95.25	3.7500"		S1405348	-	-
		96.00	3.7795"		S1455960	-	-
	3-25/32"	96.04	3.7813"		S1405350	-	-
	3-13/16"	96.84	3.8125"		S1405352	-	-
	3-27/32"	97.63	3.8438"		S1405354	-	-
		98.00	3.8583"		S1455980	-	-
	3-7/8"	98.43	3.8750"		S1405356	-	-
	3-29/32"	99.22	3.9063"		S1405358	-	-
		100.00	3.9370"		S1455A00	-	-
	3-15/16"	100.01	3.9375"		S1405360	-	-
8 101.63 (4.001") to 114.48 (4.507")	3-31/32"	100.81	3.9688"	11.1 (7/16")	S1405362	-	-
	4"	101.60	4.0000"		S1405400	-	-
	4-1/64"	102.00	4.0157"		S1405401	-	-
	4-1/16"	103.19	4.0625"		S1405404	-	-
	4-3/32"	104.00	4.0945"		S1405406	-	-
	4-1/8"	104.78	4.1250"		S1405408	-	-
		106.00	4.1732"		S1455A60	-	-
	4-3/16"	106.36	4.1875"		S1405412	-	-
	4-1/4"	107.95	4.2500"		S1405416	-	-
		108.00	4.2520"		S1455A80	-	-
	4-5/16"	109.54	4.3125"		S1405420	-	-
		110.00	4.3307"		S1455B00	-	-
	4-3/8"	111.13	4.3750"		S1405424	-	-
		112.00	4.4094"		S1455B20	-	-
	4-7/16"	112.71	4.4375"		S1405428	-	-
		114.00	4.4882"		S1455B40	-	-
	4-1/2"	114.30	4.5000"		S1405432	-	-

Throw-Away Drill Inserts - HSS Hardslick Coated



SIZE SERIES Y, Z, O

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		Hardslick Coated		
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	-	S1170095	S1570095
		9.53	.3750"		-	S1120024	S1520024
		9.80	.3860"		-	S1170098	S1570098
	25/64"	9.92	.3906"		-	S1120025	S1520025
		10.00	.3937"		-	S1170100	S1570100
		10.20	.4016"		-	S1170102	S1570102
	13/32"	10.32	.4063"		-	S1120026	S1520026
		10.50	.4134"		-	S1170105	S1570105
		10.72	.4219"		-	S1120027	S1520027
	27/64"	10.80	.4252"		-	S1170108	S1570108
		11.00	.4331"		-	S1170110	S1570110
					-	S1120028	S1520028
Z 11.11 (.437") to 12.95 (.510")	7/16"	11.11	.4375"	2.4 (3/32")	-	S1120028	S1520028
		11.50	.4528"		-	S1170115	S1570115
	29/64"	11.51	.4531"		-	S1120029	S1520029
		11.91	.4688"		-	S1120030	S1520030
	15/32"	12.00	.4724"		-	S1170120	S1570120
		12.30	.4844"		-	S1120031	S1520031
	31/64"	12.50	.4921"		-	S1170125	S1570125
		12.70	.5000"		-	S1120032	S1520032
O 12.98 (.511") to 17.65 (.695")	1/2"	13.00	.5118"	3.2 (1/8")	-	S1170130	S1570130
		13.10	.5156"		-	S1120033	S1520033
	33/64"	13.49	.5313"		-	S1120034	S1520034
		13.50	.5315"		-	S1170135	S1570135
	35/64"	13.89	.5469"		-	S1120035	S1520035
		14.00	.5512"		-	S1170140	S1570140
	9/16"	14.29	.5625"		-	S1120036	S1520036
		14.50	.5709"		-	S1170145	S1570145
	37/64"	14.68	.5781"		-	S1120037	S1520037
		15.00	.5906"		-	S1170150	S1570150
	19/32"	15.08	.5938"		-	S1120038	S1520038
		15.48	.6094"		-	S1120039	S1520039
	39/64"	15.50	.6102"		-	S1170155	S1570155
		15.88	.6250"		-	S1120040	S1520040
	5/8"	16.00	.6299"		-	S1170160	S1570160
		16.27	.6406"		-	S1120041	S1520041
	41/64"	16.50	.6496"		-	S1170165	S1570165
		16.67	.6563"		-	S1120042	S1520042
	21/32"	17.00	.6693"		-	S1170170	S1570170
		17.07	.6719"		-	S1120043	S1520043
	43/64"	17.46	.6875"		-	S1120044	S1520044
		17.50	.6890"		-	S1170175	S1570175

Throw-Away Drill Inserts - HSS Hardslick Coated



SIZE SERIES 1, 2

Series Min. to Max. (mm/inch)	Diameter			Thickness	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		Hardslick Coated		
				Metric (inch)	HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S1420045	S1120045	S1520045
		18.00	.7087"		S1470180	S1170180	S1570180
	23/32"	18.26	.7188"		S1420046	S1120046	S1520046
		18.50	.7283"		S1470185	S1170185	S1570185
	47/64"	18.65	.7344"		S1420047	S1120047	S1520047
		19.00	.7480"		S1470190	S1170190	S1570190
	3/4"	19.05	.7500"		S1420048	S1120048	S1520048
	49/64"	19.45	.7656"		S1420049	S1170049	S1520049
		19.50	.7677"		S1470195	S1170195	S1570195
	25/32"	19.84	.7813"		S1420050	S1120050	S1520050
		20.00	.7874"		S1470200	S1170200	S1570200
	51/64"	20.24	.7969"		S1420051	S1120051	S1520051
		20.50	.8071"		S1470205	S1170205	S1570205
	13/16"	20.64	.8125"		S1420052	S1120052	S1520052
		21.00	.8268"		S1470210	S1170210	S1570210
	27/32"	21.43	.8438"		S1420054	S1120054	S1520054
	55/64"	21.83	.8594"		S1420055	S1120055	S1520055
		22.00	.8661"		S1470220	S1170220	S1570220
	7/8"	22.23	.8750"		S1420056	S1120056	S1520056
	57/64"	22.62	.8906"		S1420057	S1120057	S1520057
2 24.41 (.961") to 35.05 (1.380")		23.00	.9055"	4.8 (3/16")	S1470230	S1170230	S1570230
	29/32"	23.02	.9063"		S1420058	S1120058	S1520058
	59/64"	23.42	.9219"		S1420059	S1120059	S1520059
	15/16"	23.81	.9375"		S1420060	S1120060	S1520060
		24.00	.9449"		S1470240	S1170240	S1570240
	31/32"	24.61	.9688"		S1420062	S1120062	S1520062
	63/64"	25.00	.9843"		S1420063	S1120063	S1520063
	1"	25.40	1.0000"		S1420100	S1120100	S1520100
	1-1/64"	25.80	1.0156"		S1420101	S1120101	S1520101
		26.00	1.0236"		S1470260	S1170260	S1570260
	1-1/32"	26.19	1.0313"		S1420102	S1120102	S1520102
	1-3/64"	26.59	1.0469"		S1420103	S1120103	S1520103
	1-1/16"	26.99	1.0625"		S1420104	S1120104	S1520104
		27.00	1.0630"		S1470270	S1170270	S1570270
	1-3/32"	27.78	1.0938"		S1420106	S1120106	S1520106
		28.00	1.1024"		S1470280	S1170280	S1570280
	1-7/64"	28.18	1.1094"		S1420107	S1120107	S1520107
	1-1/8"	28.58	1.1250"		S1420108	S1120108	S1520108
		29.00	1.1417"		S1470290	S1170290	S1570290
	1-5/32"	29.37	1.1563"		S1420110	S1120110	S1520110
		30.00	1.1811"		S1470300	S1170300	S1570300
	1-3/16"	30.16	1.1875"		S1420112	S1120112	S1520112
	1-7/32"	30.96	1.2188"		S1420114	S1120114	S1520114
		31.00	1.2205"		S1470310	S1170310	S1570310
	1-1/4"	31.75	1.2500"		S1420116	S1120116	S1520116
		32.00	1.2598"		S1470320	S1170320	S1570320
	1-9/32"	32.54	1.2813"		S1420118	S1120118	S1520118
		33.00	1.2992"		S1470330	S1170330	S1570330
	1-5/16"	33.34	1.3125"		S1420120	S1120120	S1520120
		34.00	1.3386"		S1470340	S1170340	S1570340
	1-11/32"	34.13	1.3438"		S1420122	S1120122	S1520122
	1-3/8"	34.93	1.3750"		S1420124	S1120124	S1520124
		35.00	1.3780"		S14670350	S1170350	S1570350

Throw-Away Drill Inserts - HSS Hardslick Coated

SIZE SERIES 3



Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		Hardslick Coated		
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1420126	S1120126	-
		36.00	1.4173"		S1470360	S1170360	-
	1-7/16"	36.51	1.4375"		S1420128	S1120128	-
		37.00	1.4567"		S1470370	S1170370	-
	1-15/32"	37.31	1.4688"		S1420130	S1120130	-
		38.00	1.4961"		S1470380	S1170380	-
	1-1/2"	38.10	1.5000"		S1420132	S1120132	-
	1-17/32"	38.89	1.5313"		S1420134	S1120134	-
		39.00	1.5354"		S1470390	S1170390	-
	1-9/16"	39.69	1.5625"		S1420136	S1120136	-
		40.00	1.5748"		S1470400	S1170400	-
	1-19/32"	40.48	1.5938"		S1420138	S1120138	-
		41.00	1.6142"		S1470410	S1170410	-
	1-5/8"	41.28	1.6250"		S1420140	S1120140	-
		42.00	1.6535"		S1470420	S1170420	-
	1-21/32"	42.07	1.6563"		S1420142	S1120142	-
	1-11/16"	42.86	1.6875"		S1420144	S1120144	-
		43.00	1.6929"		S1470430	S1170430	-
	1-23/32"	43.66	1.7188"		S1420146	S1120146	-
		44.00	1.7323"		S1470440	S1170440	-
	1-3/4"	44.45	1.7500"		S1420148	S1120148	-
		45.00	1.7717"		S1470450	S1170450	-
	1-25/32"	45.24	1.7813"		S1420150	S1120150	-
		46.00	1.8110"		S1470460	S1170460	-
	1-13/16"	46.04	1.8125"		S1420152	S1120152	-
	1-27/32"	46.83	1.8438"		S1420154	S1120154	-
		47.00	1.8504"		S1470470	S1170470	-
	1-7/8"	47.63	1.8750"		S1420156	S1120156	-

Throw-Away Drill Inserts

- HSS Hardslick Coated



SIZE SERIES 4

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		Hardslick Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
4 46.99 (1.850") to 65.28 (2.570")		48.00	1.8898"	7.9 (5/16")	S1470480	S1170480	-
	1-29/32"	48.42	1.9063"		S1420158	S1120158	-
		49.00	1.9291"		S1470490	S1170490	-
	1-15/16"	49.21	1.9375"		S1420160	S1120160	-
		50.00	1.9685"		S1470500	S1170500	-
	1-31/32"	50.01	1.9688"		S1420162	S1120162	-
	2"	50.80	2.0000"		S1420200	S1120200	-
		51.00	2.0079"		S1470510	S1170510	-
	2-1/32"	51.59	2.0313"		S1420202	S1120202	-
	2-3/64"	52.00	2.0472"		S1420203	S1120203	-
	2-1/16"	52.39	2.0625"		S1420204	S1120204	-
		53.00	2.0866"		S1470530	S1170530	-
	2-3/32"	53.18	2.0938"		S1420206	S1120206	-
	2-1/8"	53.98	2.1250"		S1420208	S1120208	-
		54.00	2.1260"		S1470540	S1170540	-
	2-5/32"	54.79	2.1563"		S1420210	S1120210	-
		55.00	2.1654"		S1470550	S1170550	-
	2-3/16"	55.56	2.1875"		S1420212	S1120212	-
		56.00	2.2047"		S1470560	S1170560	-
	2-7/32"	56.36	2.2188"		S1420214	S1120214	-
		57.00	2.2441"		S1470570	S1170570	-
	2-1/4"	57.15	2.2500"		S1420216	S1120216	-
	2-9/32"	57.94	2.2813"		S1420218	S1120218	-
		58.00	2.2835"		S1470580	S1170580	-
	2-5/16"	58.74	2.3125"		S1420220	S1120220	-
		59.00	2.3228"		S1470590	S1170590	-
	2-11/32"	59.53	2.3438"		S1420222	S1120222	-
		60.00	2.3622"		S1470600	S1170600	-
	2-3/8"	60.33	2.3750"		S1420224	S1120224	-
		61.00	2.4016"		S1470610	S1170610	-
	2-13/32"	61.12	2.4063"		S1420226	S1120226	-
	2-7/16"	61.91	2.4375"		S1420228	S1120228	-
		62.00	2.4409"		S1470620	S1170620	-
	2-15/32"	62.71	2.4688"		S1420230	S1120230	-
		63.00	2.4803"		S1470630	S1170630	-
	2-1/2"	63.50	2.5000"		S1420232	S1120232	-
		64.00	2.5197"		S1470640	S1170640	-
	2-17/32"	64.29	2.5313"		S1420234	S1120234	-
		65.00	2.5591"		S1470650	S1170650	-
	2-9/16"	65.09	2.5625"		S1420236	S1120236	-

Throw-Away Drill Inserts - HSS Hardslick Coated

SIZE SERIES 5, 6



Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		Hardslick Coated		
5 62.38 (2.456") to 76.20 (3.000")	2-1/2"	63.50	2.5000"	11.1 (7/16")	S14202D2	-	-
		64.00	2.5197"		S147064A	-	-
	2-17/32"	64.29	2.5313"		S14202D4	-	-
	2-9/16"	65.09	2.5625"		S14202D6	-	-
	2-19/32"	65.88	2.5938"		S1420238	-	-
	2-5/8"	66.00	2.5984"		S1470660	-	-
		66.68	2.6250"		S1420240	-	-
	2-21/32"	67.47	2.6563"		S1420242	-	-
	2-11/16"	68.00	2.6772"		S1470680	-	-
		68.26	2.6875"		S1420244	-	-
	2-23/32"	69.05	2.7188"		S1420246	-	-
	2-3/4"	69.85	2.7500"		S1420248	-	-
	2-25/32"	70.00	2.7559"		S1470700	-	-
		70.64	2.7813"		S1420250	-	-
	2-13/16"	71.44	2.8125"		S1420252	-	-
	2-27/32"	72.00	2.8346"		S1470720	-	-
		72.23	2.8438"		S1420254	-	-
	2-7/8"	73.03	2.8750"		S1420256	-	-
	2-29/32"	73.82	2.9063"		S1420258	-	-
	2-15/16"	74.00	2.9134"		S1470740	-	-
		74.61	2.9375"		S1420260	-	-
6 76.23 (3.001") to 89.08 (3.507")	2-31/32"	75.41	2.9688"	11.1 (7/16")	S1420262	-	-
	3"	76.00	2.9921"		S1470760	-	-
		76.20	3.0000"		S1420300	-	-
	3-1/32"	76.99	3.0313"		S1420302	-	-
	3-1/16"	77.79	3.0625"		S1420304	-	-
	3-3/32"	78.00	3.0709"		S1470780	-	-
		78.58	3.0938"		S1420306	-	-
	3-1/8"	79.38	3.1250"		S1420308	-	-
	3-5/32"	80.00	3.1496"		S1470800	-	-
		80.17	3.1563"		S1420310	-	-
	3-3/16"	80.96	3.1875"		S1420312	-	-
	3-7/32"	81.76	3.2188"		S1420314	-	-
	3-1/4"	82.00	3.2283"		S1470820	-	-
		82.55	3.2500"		S1420316	-	-
	3-9/32"	83.34	3.2813"		S1420318	-	-
	3-5/16"	84.00	3.3071"		S1470840	-	-
		84.14	3.3125"		S1420320	-	-
	3-11/32"	84.93	3.3438"		S1420322	-	-
	3-3/8"	85.73	3.3750"		S1420324	-	-
	3-13/32"	86.00	3.3858"		S1470860	-	-
		86.52	3.4063"		S1420326	-	-
	3-7/16"	87.31	3.4375"		S1420328	-	-
	3-15/32"	88.00	3.4646"		S1470880	-	-
		88.11	3.4688"		S1420330	-	-
	3-1/2"	88.90	3.5000"		S1420332	-	-

Throw-Away Drill Inserts - HSS Hardslick Coated



SIZE SERIES 7, 8

Series Min. to Max. (mm/inch)	Diameter			Thickness	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		Hardslick Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
7 87.76 (3.455") to 101.60 (4.000")	3-17/32"	89.69	3.5313"	11.1 (7/16")	S1420334	-	-
		90.00	3.5433"		S1470900	-	-
	3-9/16"	90.49	3.5625"		S1420336	-	-
	3-19/32"	91.28	3.5938"		S1420338	-	-
		92.00	3.6221"		S1470920	-	-
	3-5/8"	92.08	3.6250"		S1420340	-	-
	3-21/32"	92.87	3.6563"		S1420342	-	-
	3-11/16"	93.66	3.6875"		S1420344	-	-
		94.00	3.7008"		S1470940	-	-
	3-23/32"	94.46	3.7188"		S1420346	-	-
	3-3/4"	95.25	3.7500"		S1420348	-	-
		96.00	3.7795"		S1470960	-	-
	3-25/32"	96.04	3.7813"		S1420350	-	-
	3-13/16"	96.84	3.8125"		S1420352	-	-
	3-27/32"	97.63	3.8438"		S1420354	-	-
		98.00	3.8583"		S1470980	-	-
	3-7/8"	98.43	3.8750"		S1420356	-	-
	3-29/32"	99.22	3.9063"		S1420358	-	-
		100.00	3.9370"		S1470A00	-	-
	3-15/16"	100.01	3.9375"		S1420360	-	-
8 101.63 (4.001") to 114.48 (4.507")	3-31/32"	100.81	3.9688"	11.1 (7/16")	S1420362	-	-
	4"	101.60	4.0000"		S1420400	-	-
	4-1/64"	102.00	4.0157"		S1420401	-	-
	4-1/16"	103.19	4.0625"		S1420404	-	-
	4-3/32"	104.00	4.0945"		S1420406	-	-
	4-1/8"	104.78	4.1250"		S1420408	-	-
		106.00	4.1732"		S1470A60	-	-
	4-3/16"	106.36	4.1875"		S1420412	-	-
	4-1/4"	107.95	4.2500"		S1420416	-	-
		108.00	4.2520"		S1470A80	-	-
	4-5/16"	109.54	4.3125"		S1420420	-	-
		110.00	4.3307"		S1460B00	-	-
	4-3/8"	111.13	4.3750"		S1420424	-	-
		112.00	4.4094"		S1470B20	-	-
	4-7/16"	112.71	4.4375"		S1420428	-	-
		114.00	4.4882"		S1470B40	-	-
	4-1/2"	114.30	4.5000"		S1420432	-	-

Throw-Away Drill Inserts - HSS TiAlN Coated



SIZE SERIES Y, Z, O

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiAlN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	-	S1165095	S1565095
		9.53	.3750"		-	S1115024	S1515024
		9.80	.3860"		-	S1165098	S1565098
	25/64"	9.92	.3906"		-	S1115025	S1515025
		10.00	.3937"		-	S1165100	S1565100
		10.20	.4016"		-	S1165102	S1565102
	13/32"	10.32	.4063"		-	S1115026	S1515026
		10.50	.4134"		-	S1165105	S1565105
		10.72	.4219"		-	S1115027	S1515027
	27/64"	10.80	.4252"		-	S1165108	S1565108
		11.00	.4331"		-	S1165110	S1565110
					-	S1165110	S1565110
Z 11.11 (.437") to 12.95 (.510")	7/16"	11.11	.4375"	2.4 (3/32")	-	S1115028	S1515028
		11.50	.4528"		-	S1165115	S1565115
	29/64"	11.51	.4531"		-	S1115029	S1515029
		11.91	.4688"		-	S1115030	S1515030
	15/32"	12.00	.4724"		-	S1165120	S1565120
		12.30	.4844"		-	S1115031	S1515031
	31/64"	12.50	.4921"		-	S1165125	S1565125
		12.70	.5000"		-	S1115032	S1515032
O 12.98 (.511") to 17.65 (.695")	1/2"	13.00	.5118"	3.2 (1/8")	-	S1165130	S1565130
		33/64"	13.10		-	S1115033	S1515033
		17/32"	13.49		-	S1115034	S1515034
	9/16"	13.50	.5313"		-	S1165135	S1565135
		35/64"	13.89		-	S1115035	S1515035
		14.00	.5512"		-	S1165140	S1565140
	7/8"	14.29	.5625"		-	S1115036	S1515036
		14.50	.5709"		-	S1165145	S1565145
		37/64"	14.68		-	S1115037	S1515037
	1 1/8"	15.00	.5906"		-	S1165150	S1565150
		19/32"	15.08		-	S1115038	S1515038
		39/64"	15.48		-	S1115039	S1515039
	1 1/4"	15.50	.6102"		-	S1165155	S1565155
		5/8"	15.88		-	S1115040	S1515040
		16.00	.6299"		-	S1165160	S1565160
	1 1/2"	41/64"	16.27		-	S1115041	S1515041
		16.50	.6496"		-	S1165165	S1565165
		21/32"	16.67		-	S1115042	S1515042
	1 3/8"	17.00	.6693"		-	S1165170	S1565170
		43/64"	17.07		-	S1115043	S1515043
		11/16"	17.46		-	S1115044	S1515044
	1 1/2"	17.50	.6890"		-	S1165175	S1565175

Throw-Away Drill Inserts - HSS TiAlN Coated



SIZE SERIES 1, 2

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiAlN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S1415045	S1115045	S1515045
		18.00	.7087"		S1465180	S1165180	S1565180
	23/32"	18.26	.7188"		S1415046	S1115046	S1515046
		18.50	.7283"		S1465185	S1165185	S1565185
	47/64"	18.65	.7344"		S1415047	S1115047	S1515047
		19.00	.7480"		S1465190	S1165190	S1565190
	3/4"	19.05	.7500"		S1415048	S1115048	S1515048
	49/64"	19.45	.7656"		S1415049	S1115049	S1515049
		19.50	.7677"		S1465195	S1165195	S1565195
	25/32"	19.84	.7813"		S1415050	S1115050	S1515050
		20.00	.7874"		S1465200	S1165200	S1565200
	51/64"	20.24	.7969"		S1415051	S1115051	S1515051
		20.50	.8071"		S1465205	S1165205	S1565205
	13/16"	20.64	.8125"		S1415052	S1115052	S1515052
		21.00	.8268"		S1465210	S1165210	S1565210
	27/32"	21.43	.8438"		S1415054	S1115054	S1515054
	55/64"	21.83	.8594"		S1415055	S1115055	S1515055
		22.00	.8661"		S1465220	S1165220	S1565220
	7/8"	22.23	.8750"		S1415056	S1115056	S1515056
	57/64"	22.62	.8906"		S1415057	S1115057	S1515057
2 24.41 (.961") to 35.05 (1.380")		23.00	.9055"	4.8 (3/16")	S1465230	S1165230	S1565230
	29/32"	23.02	.9063"		S1415058	S1115058	S1515058
	59/64"	23.42	.9219"		S1415059	S1165059	S1515059
	15/16"	23.81	.9375"		S1415060	S1115060	S1515060
		24.00	.9449"		S1465240	S1165240	S1565240
	31/32"	24.61	.9688"		S1415062	S1115062	S1515062
	63/64"	25.00	.9843"		S1415063	S1115063	S1515063
	1"	25.40	1.0000"		S1415100	S1115100	S1515100
	1-1/64"	25.80	1.0156"		S1415101	S1115101	S1515101
		26.00	1.0236"		S1465260	S1165260	S1565260
	1-1/32"	26.19	1.0313"		S1415102	S1115102	S1515102
	1-3/64"	26.59	1.0469"		S1415103	S1115103	S1515103
	1-1/16"	26.99	1.0625"		S1415104	S1115104	S1515104
		27.00	1.0630"		S1465270	S1165270	S1565270
	1-3/32"	27.78	1.0938"		S1415106	S1115106	S1515106
		28.00	1.1024"		S1465280	S1165280	S1565280
	1-7/64"	28.18	1.1094"		S1415107	S1115107	S1515107
	1-1/8"	28.58	1.1250"		S1415108	S1115108	S1515108
		29.00	1.1417"		S1465290	S1165290	S1565290
	1-5/32"	29.37	1.1563"		S1415110	S1115110	S1515110
		30.00	1.1811"		S1465300	S1165300	S1565300
	1-3/16"	30.16	1.1875"		S1415112	S1115112	S1515112
	1-7/32"	30.96	1.2188"		S1415114	S1115114	S1515114
		31.00	1.2205"		S1465310	S1165310	S1565310
	1-1/4"	31.75	1.2500"		S1415116	S1115116	S1515116
		32.00	1.2598"		S1465320	S1165320	S1565320
	1-9/32"	32.54	1.2813"		S1415118	S1115118	S1515118
		33.00	1.2992"		S1465330	S1165330	S1565330
	1-5/16"	33.34	1.3125"		S1415120	S1115120	S1515120
		34.00	1.3386"		S1465340	S1165340	S1565340
	1-11/32"	34.13	1.3438"		S1415122	S1115122	S1515122
	1-3/8"	34.93	1.3750"		S1415124	S1115124	S1515124
		35.00	1.3780"		S1465350	S1165350	S1565350

Throw-Away Drill Inserts - HSS TiAlN Coated



SIZE SERIES 3

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiAlN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1415126	S1115126	-
		36.00	1.4173"		S1465360	S1165360	-
	1-7/16"	36.51	1.4375"		S1415128	S1115128	-
		37.00	1.4567"		S1465370	S1165370	-
	1-15/32"	37.31	1.4688"		S1415130	S1115130	-
		38.00	1.4961"		S1465380	S1165380	-
	1-1/2"	38.10	1.5000"		S1415132	S1115132	-
	1-17/32"	38.89	1.5313"		S1415134	S1115134	-
		39.00	1.5354"		S1465390	S1165390	-
	1-9/16"	39.69	1.5625"		S1415136	S1115136	-
		40.00	1.5748"		S1465400	S1165400	-
	1-19/32"	40.48	1.5938"		S1415138	S1115138	-
		41.00	1.6142"		S1465410	S1165410	-
	1-5/8"	41.28	1.6250"		S1415140	S1115140	-
		42.00	1.6535"		S1465420	S1165420	-
	1-21/32"	42.07	1.6563"		S1415142	S1115142	-
	1-11/16"	42.86	1.6875"		S1415144	S1115144	-
		43.00	1.6929"		S1465430	S1165430	-
	1-23/32"	43.66	1.7188"		S1415146	S1115146	-
		44.00	1.7323"		S1465440	S1165440	-
	1-3/4"	44.45	1.7500"		S1415148	S1115148	-
		45.00	1.7717"		S1465450	S1165450	-
	1-25/32"	45.24	1.7813"		S1415150	S1115150	-
		46.00	1.8110"		S1465460	S1165460	-
	1-13/16"	46.04	1.8125"		S1415152	S1115152	-
	1-27/32"	46.83	1.8438"		S1415154	S1115154	-
		47.00	1.8504"		S1465470	S1165470	-
	1-7/8"	47.63	1.8750"		S1415156	S1115156	-

Throw-Away Drill Inserts - HSS TiAlN Coated



SIZE SERIES 4

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiAlN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
4 46.99 (1.850") to 65.28 (2.570")	1-29/32"	48.00	1.8898"	7.9 (5/16")	S1465480	S1165480	-
		48.42	1.9063"		S1415158	S1115158	-
		49.00	1.9291"		S1465490	S1165490	-
	1-15/16"	49.21	1.9375"		S1415160	S1115160	-
		50.00	1.9685"		S1465500	S1165500	-
		50.01	1.9688"		S1415162	S1115162	-
	2"	50.80	2.0000"		S1415200	S1115200	-
		51.00	2.0079"		S1465510	S1165510	-
		51.59	2.0313"		S1415202	S1115202	-
	2-1/32"	52.00	2.0472"		S1415203	S1115203	-
		52.39	2.0625"		S1415204	S1115204	-
		53.00	2.0866"		S1465530	S1165530	-
	2-3/32"	53.18	2.0938"		S1415206	S1115206	-
		53.98	2.1250"		S1415208	S1115208	-
		54.00	2.1260"		S1465540	S1165540	-
	2-5/32"	54.79	2.1563"		S1415210	S1115210	-
		55.00	2.1654"		S1465550	S1165550	-
		55.56	2.1875"		S1415212	S1115212	-
	2-3/16"	56.00	2.2047"		S1465560	S1165560	-
		56.36	2.2188"		S1415214	S1115214	-
		57.00	2.2441"		S1465570	S1165570	-
	2-1/4"	57.15	2.2500"		S1415216	S1115216	-
		57.94	2.2813"		S1415218	S1115218	-
		58.00	2.2835"		S1465580	S1165580	-
	2-5/16"	58.74	2.3125"		S1415220	S1115220	-
		59.00	2.3228"		S1465590	S1165590	-
		59.53	2.3438"		S1415222	S1115222	-
	2-11/32"	60.00	2.3622"		S1465600	S1165600	-
		60.33	2.3750"		S1415224	S1115224	-
		61.00	2.4016"		S1465610	S1165610	-
	2-13/32"	61.12	2.4063"		S1415226	S1115226	-
		61.91	2.4375"		S1415228	S1115228	-
		62.00	2.4409"		S1465620	S1165620	-
	2-15/32"	62.71	2.4688"		S1415230	S1115230	-
		63.00	2.4803"		S1465630	S1165630	-
		63.50	2.5000"		S1415232	S1115232	-
	2-1/2"	64.00	2.5197"		S1465640	S1165640	-
		64.29	2.5313"		S1415234	S1115234	-
		65.00	2.5591"		S1465650	S1165650	-
	2-9/16"	65.09	2.5625"		S1415236	S1115236	-

Throw-Away Drill Inserts - HSS TiAlN Coated

SIZE SERIES 5, 6



Series Min. to Max. (mm/inch)	Diameter			Thickness (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiAlN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
5 62.38 (2.456") to 76.20 (3.000")	2-1/2"	63.50	2.5000"	11.1 (7/16")	S14152D2	-	-
		64.00	2.5197"		S146564A	-	-
	2-17/32"	64.29	2.5313"		S14152D4	-	-
	2-9/16"	65.09	2.5625"		S14152D6	-	-
	2-19/32"	65.88	2.5938"		S1415238	-	-
		66.00	2.5984"		S1465660	-	-
	2-5/8"	66.68	2.6250"		S1415240	-	-
	2-21/32"	67.47	2.6563"		S1415242	-	-
		68.00	2.6772"		S1465680	-	-
	2-11/16"	68.26	2.6875"		S1415244	-	-
	2-23/32"	69.05	2.7188"		S1415246	-	-
	2-3/4"	69.85	2.7500"		S1415248	-	-
		70.00	2.7559"		S1465700	-	-
	2-25/32"	70.64	2.7813"		S1415250	-	-
	2-13/16"	71.44	2.8125"		S1415252	-	-
		72.00	2.8346"		S1465720	-	-
	2-27/32"	72.23	2.8438"		S1415254	-	-
	2-7/8"	73.03	2.8750"		S1415256	-	-
	2-29/32"	73.82	2.9063"		S1415258	-	-
		74.00	2.9134"		S1465740	-	-
6 76.23 (3.001") to 89.08 (3.507")	2-15/16"	74.61	2.9375"	11.1 (7/16")	S1415260	-	-
	2-31/32"	75.41	2.9688"		S1415262	-	-
		76.00	2.9921"		S1465760	-	-
	3"	76.20	3.0000"		S1415300	-	-
	3-1/32"	76.99	3.0313"		S1415302	-	-
	3-1/16"	77.79	3.0625"		S1415304	-	-
		78.00	3.0709"		S1465780	-	-
	3-3/32"	78.58	3.0938"		S1415306	-	-
	3-1/8"	79.38	3.1250"		S1415308	-	-
		80.00	3.1496"		S1465800	-	-
	3-5/32"	80.17	3.1563"		S1415310	-	-
	3-3/16"	80.96	3.1875"		S1415312	-	-
	3-7/32"	81.76	3.2188"		S1415314	-	-
		82.00	3.2283"		S1465820	-	-
	3-1/4"	82.55	3.2500"		S1415316	-	-
	3-9/32"	83.34	3.2813"		S1415318	-	-
		84.00	3.3071"		S1465840	-	-
	3-5/16"	84.14	3.3125"		S1415320	-	-
	3-11/32"	84.93	3.3438"		S1415322	-	-
	3-3/8"	85.73	3.3750"		S1415324	-	-
		86.00	3.3858"	11.1 (7/16")	S1465860	-	-
	3-13/32"	86.52	3.4063"		S1415326	-	-
	3-7/16"	87.31	3.4375"		S1415328	-	-
		88.00	3.4646"		S1465880	-	-
	3-15/32"	88.11	3.4688"		S1415330	-	-
	3-1/2"	88.90	3.5000"		S1415332	-	-

Throw-Away Drill Inserts - HSS TiAlN Coated

SIZE SERIES 7, 8



Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiAlN Coated		
					HSS (M4)	Super HSS (T-15)	Primium HSS (M48)
7 87.76 (3.455") to 101.60 (4.000")	3-17/32"	89.69	3.5313"	11.1 (7/16")	S1415334	-	-
		90.00	3.5433"		S1465900	-	-
	3-9/16"	90.49	3.5625"		S1415336	-	-
	3-19/32"	91.28	3.5938"		S1415338	-	-
		92.00	3.6221"		S1465920	-	-
	3-5/8"	92.08	3.6250"		S1415340	-	-
	3-21/32"	92.87	3.6563"		S1415342	-	-
	3-11/16"	93.66	3.6875"		S1415344	-	-
		94.00	3.7008"		S1465940	-	-
	3-23/32"	94.46	3.7188"		S1415346	-	-
	3-3/4"	95.25	3.7500"		S1415348	-	-
		96.00	3.7795"		S1465960	-	-
	3-25/32"	96.04	3.7813"		S1415350	-	-
	3-13/16"	96.84	3.8125"		S1415352	-	-
	3-27/32"	97.63	3.8438"		S1415354	-	-
		98.00	3.8583"		S1465980	-	-
	3-7/8"	98.43	3.8750"		S1415356	-	-
	3-29/32"	99.22	3.9063"		S1415358	-	-
		100.00	3.9370"		S1465A00	-	-
	3-15/16"	100.01	3.9375"		S1415360	-	-
8 101.63 (4.001") to 114.48 (4.507")	3-31/32"	100.81	3.9688"	11.1 (7/16")	S1415362	-	-
	4"	101.60	4.0000"		S1415400	-	-
	4-1/64"	102.00	4.0157"		S1415401	-	-
	4-1/16"	103.19	4.0625"		S1415404	-	-
	4-3/32"	104.00	4.0945"		S1415406	-	-
	4-1/8"	104.78	4.1250"		S1415408	-	-
		106.00	4.1732"		S1465A60	-	-
	4-3/16"	106.36	4.1875"		S1415412	-	-
	4-1/4"	107.95	4.2500"		S1415416	-	-
		108.00	4.2520"		S1465A80	-	-
	4-5/16"	109.54	4.3125"		S1415420	-	-
		110.00	4.3307"		S1465B00	-	-
	4-3/8"	111.13	4.3750"		S1415424	-	-
		112.00	4.4094"		S1465B20	-	-
	4-7/16"	112.71	4.4375"		S1415428	-	-
		114.00	4.4882"		S1465B40	-	-
	4-1/2"	114.30	4.5000"		S1415432	-	-

Throw-Away Drill Inserts - Carbide (K20)



SIZE SERIES Y, Z, O

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardstick	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1755095	S1770095	S1765095
		9.53	.3750"		S1705024	S1720024	S1715024
		9.80	.3860"		S1755098	S1770098	S1765098
	25/64"	9.92	.3906"		S1705025	S1720025	S1715025
		10.00	.3937"		S1755100	S1770100	S1765100
		10.20	.4016"		S1755102	S1770102	S1765102
	13/32"	10.32	.4063"		S1705026	S1720026	S1715026
		10.50	.4134"		S1755105	S1770105	S1765105
		10.72	.4219"		S1705027	S1720027	S1715027
	27/64"	10.80	.4252"		S1755108	S1770108	S1765108
		11.00	.4331"		S1755110	S1770110	S1765110
					S1705028	S1720028	S1715028
Z 11.11 (.437") to 12.95 (.510")	7/16"	11.11	.4375"	2.4 (3/32")	S1755115	S1770115	S1765115
		11.50	.4528"		S1705029	S1720029	S1715029
	29/64"	11.51	.4531"		S1705030	S1720030	S1715030
		11.91	.4688"		S1755120	S1770120	S1765120
	15/32"	12.00	.4724"		S1705031	S1720031	S1715031
		12.30	.4844"		S1755125	S1770125	S1765125
	31/64"	12.50	.4921"		S1705032	S1720032	S1715032
		12.70	.5000"		S1755130	S1770130	S1765130
O 12.98 (.511") to 17.65 (.695")	33/64"	13.00	.5118"	3.2 (1/8")	S1705033	S1720033	S1715033
		13.10	.5156"		S1755034	S1720034	S1715034
	17/32"	13.49	.5313"		S1755135	S1770135	S1765135
		13.50	.5315"		S1705035	S1720035	S1715035
	35/64"	13.89	.5469"		S1755140	S1770140	S1765140
		14.00	.5512"		S1705036	S1720036	S1715036
		14.29	.5625"		S1755145	S1770145	S1765145
	9/16"	14.50	.5709"		S1705037	S1720037	S1715037
		14.68	.5781"		S1755150	S1770150	S1765150
		15.00	.5906"		S1705038	S1720038	S1715038
	37/64"	15.08	.5938"		S1705039	S1720039	S1715039
		15.48	.6094"		S1755155	S1770155	S1765155
		15.50	.6102"		S1705040	S1720040	S1715040
	19/32"	15.88	.6250"		S1755160	S1770160	S1765160
		16.00	.6299"		S1705041	S1720041	S1715041
		16.27	.6406"		S1755165	S1770165	S1765165
	5/8"	16.50	.6496"		S1705042	S1720042	S1715042
		16.67	.6563"		S1755170	S1770170	S1765170
		17.00	.6693"		S1705043	S1720043	S1715043
	41/64"	17.07	.6719"		S1705044	S1720044	S1715044
		17.46	.6875"		S1755175	S1770175	S1765175
		17.50	.6890"				

Throw-Away Drill Inserts - Carbide (K20)



SIZE SERIES 1, 2

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAIN
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S1705045	S1720045	S1715045
		18.00	.7087"		S1755180	S1770180	S1765180
	23/32"	18.26	.7188"		S1705046	S1720046	S1715046
		18.50	.7283"		S1755185	S1770185	S1765185
	47/64"	18.65	.7344"		S1705047	S1720047	S1715047
		19.00	.7480"		S1755190	S1770190	S1765190
	3/4"	19.05	.7500"		S1705048	S1720048	S1715048
	49/64"	19.45	.7656"		S1705049	S1720049	S1715049
		19.50	.7677"		S1755195	S1770195	S1765195
	25/32"	19.84	.7813"		S1705050	S1720050	S1715050
		20.00	.7874"		S1755200	S1770200	S1765200
	51/64"	20.24	.7969"		S1705051	S1720051	S1715051
		20.50	.8071"		S1755205	S1770205	S1765205
	13/16"	20.64	.8125"		S1705052	S1720052	S1715052
		21.00	.8268"		S1755210	S1770210	S1765210
	27/32"	21.43	.8438"		S1705054	S1720054	S1715054
	55/64"	21.83	.8594"		S1705055	S1720055	S1715055
		22.00	.8661"		S1755220	S1770220	S1765220
	7/8"	22.23	.8750"		S1705056	S1720056	S1715056
	57/64"	22.62	.8906"		S1705057	S1720057	S1715057
2 24.41 (.961") to 35.05 (1.380")		23.00	.9055"	4.8 (3/16")	S1755230	S1770230	S1765230
	29/32"	23.02	.9063"		S1705058	S1720058	S1715058
	59/64"	23.42	.9219"		S1705059	S1720059	S1715059
	15/16"	23.81	.9375"		S1705060	S1720060	S1715060
		24.00	.9449"		S1755240	S1770240	S1765240
	31/32"	24.61	.9688"		S1705062	S1720062	S1715062
	63/64"	25.00	.9843"		S1705063	S1720063	S1715063
	1"	25.40	1.0000"		S1705100	S1720100	S1715100
	1-1/64"	25.80	1.0156"		S1705101	S1720101	S1715101
		26.00	1.0236"		S1755260	S1770260	S1765260
	1-1/32"	26.19	1.0313"		S1705102	S1720102	S1715102
	1-3/64"	26.59	1.0469"		S1705103	S1720103	S1715103
	1-1/16"	26.99	1.0625"		S1705104	S1720104	S1715104
		27.00	1.0630"		S1755270	S1770270	S1765270
	1-3/32"	27.78	1.0938"		S1705106	S1720106	S1715106
		28.00	1.1024"		S1755280	S1770280	S1765280
	1-7/64"	28.18	1.1094"		S1705107	S1720107	S1715107
	1-1/8"	28.58	1.1250"		S1705108	S1720108	S1715108
		29.00	1.1417"		S1755290	S1770290	S1765290
	1-5/32"	29.37	1.1563"		S1705110	S1720110	S1715110
		30.00	1.1811"		S1755300	S1770300	S1765300
	1-3/16"	30.16	1.1875"		S1705112	S1720112	S1715112
	1-7/32"	30.96	1.2188"		S1705114	S1720114	S1715114
		31.00	1.2205"		S1755310	S1770310	S1765310
	1-1/4"	31.75	1.2500"		S1705116	S1720116	S1715116
		32.00	1.2598"		S1755320	S1770320	S1765320
	1-9/32"	32.54	1.2813"		S1705118	S1720118	S1715118
		33.00	1.2992"		S1755330	S1770330	S1765330
	1-5/16"	33.34	1.3125"		S1705120	S1720120	S1715120
		34.00	1.3386"		S1755340	S1770340	S1765340
	1-11/32"	34.13	1.3438"		S1705122	S1720122	S1715122
	1-3/8"	34.93	1.3750"		S1705124	S1720124	S1715124
		35.00	1.3780"		S1755350	S1770350	S1765350

Throw-Away Drill Inserts - Carbide (K20)



SIZE SERIES 3

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAIN
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1705126	S1720126	S1715126
		36.00	1.4173"		S1755360	S1770360	S1765360
	1-7/16"	36.51	1.4375"		S1705128	S1720128	S1715128
		37.00	1.4567"		S1755370	S1770370	S1765370
	1-15/32"	37.31	1.4688"		S1705130	S1720130	S1715130
		38.00	1.4961"		S1755380	S1770380	S1765380
	1-1/2"	38.10	1.5000"		S1705132	S1720132	S1715132
	1-17/32"	38.89	1.5313"		S1705134	S1720134	S1715134
		39.00	1.5354"		S1755390	S1770390	S1765390
	1-9/16"	39.69	1.5625"		S1705136	S1720136	S1715136
		40.00	1.5748"		S1755400	S1770400	S1765400
	1-19/32"	40.48	1.5938"		S1705138	S1720138	S1715138
		41.00	1.6142"		S1755410	S1770410	S1765410
	1-5/8"	41.28	1.6250"		S1705140	S1720140	S1715140
		42.00	1.6535"		S1755420	S1770420	S1765420
	1-21/32"	42.07	1.6563"		S1705142	S1720142	S1715142
	1-11/16"	42.86	1.6875"		S1705144	S1720144	S1715144
		43.00	1.6929"		S1755430	S1770430	S1765430
	1-23/32"	43.66	1.7188"		S1705146	S1720146	S1715146
		44.00	1.7323"		S1755440	S1770440	S1765440
	1-3/4"	44.45	1.7500"		S1705148	S1720148	S1715148
		45.00	1.7717"		S1755450	S1770450	S1765450
	1-25/32"	45.24	1.7813"		S1705150	S1720150	S1715150
		46.00	1.8110"		S1755460	S1770460	S1765460
	1-13/16"	46.04	1.8125"		S1705152	S1720152	S1715152
	1-27/32"	46.83	1.8438"		S1705154	S1720154	S1715154
		47.00	1.8504"		S1755470	S1770470	S1765470
	1-7/8"	47.63	1.8750"		S1705156	S1720156	S1715156

Throw-Away Drill Inserts - Carbide (P40)



SIZE SERIES Y, Z, O

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAIN
					Carbide (P40)		
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1855095	S1870095	S1865095
		9.53	.3750"		S1805024	S1820024	S1815024
		9.80	.3860"		S1855098	S1870098	S1865098
	25/64"	9.92	.3906"		S1805025	S1820025	S1815025
		10.00	.3937"		S1855100	S1870100	S1865100
	13/32"	10.20	.4016"		S1855102	S1870102	S1865102
		10.32	.4063"		S1805026	S1820026	S1815026
		10.50	.4134"		S1855105	S1870105	S1865105
	27/64"	10.72	.4219"		S1805027	S1820027	S1815027
		10.80	.4252"		S1855108	S1870108	S1865108
Z 11.11 (.437") to 12.95 (.510")	7/16"	11.00	.4331"		S1855110	S1870110	S1865110
		11.11	.4375"		S1805028	S1820028	S1815028
	29/64"	11.50	.4528"		S1855115	S1870115	S1865115
		11.51	.4531"		S1805029	S1820029	S1815029
	15/32"	11.91	.4688"		S1805030	S1820030	S1815030
		12.00	.4724"		S1855120	S1870120	S1865120
	31/64"	12.30	.4844"		S1805031	S1820031	S1815031
		12.50	.4921"		S1855125	S1870125	S1865125
	1/2"	12.70	.5000"		S1805032	S1820032	S1815032
		13.00	.5118"		S1855130	S1870130	S1865130
O 12.98 (.511") to 17.65 (.695")	33/64"	13.10	.5156"	3.2 (1/8")	S1805033	S1820033	S1815033
		13.49	.5313"		S1805034	S1820034	S1815034
	17/32"	13.50	.5315"		S1855135	S1870135	S1865135
		13.89	.5469"		S1805035	S1820035	S1815035
	35/64"	14.00	.5512"		S1855140	S1870140	S1865140
		14.29	.5625"		S1805036	S1820036	S1815036
	9/16"	14.50	.5709"		S1855145	S1870145	S1865145
		14.68	.5781"		S1805037	S1820037	S1815037
	37/64"	15.00	.5906"		S1855150	S1870150	S1865150
		15.08	.5938"		S1805038	S1820038	S1815038
	19/32"	15.48	.6094"		S1805039	S1820039	S1815039
		15.50	.6102"		S1855155	S1870155	S1865155
	39/64"	15.88	.6250"		S1805040	S1820040	S1815040
		16.00	.6299"		S1855160	S1870160	S1865160
	5/8"	16.27	.6406"		S1805041	S1820041	S1815041
		16.50	.6496"		S1855165	S1870165	S1865165
	41/64"	16.67	.6563"		S1805042	S1820042	S1815042
		17.00	.6693"		S1855170	S1870170	S1865170
	21/32"	17.07	.6719"		S1805043	S1820043	S1815043
		17.46	.6875"		S1805044	S1820044	S1815044
	43/64"	17.50	.6890"		S1855175	S1870175	S1865175

Throw-Away Drill Inserts - Carbide (P40)



SIZE SERIES 1, 2

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAlN
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S1805045	S1820045	S1815045
		18.00	.7087"		S1855180	S1870180	S1865180
	23/32"	18.26	.7188"		S1805046	S1820046	S1815046
		18.50	.7283"		S1855185	S1870185	S1865185
	47/64"	18.65	.7344"		S1805047	S1820047	S1815047
		19.00	.7480"		S1855190	S1870190	S1865190
	3/4"	19.05	.7500"		S1805048	S1820048	S1815048
	49/64"	19.45	.7656"		S1805049	S1820049	S1815049
		19.50	.7677"		S1855195	S1870195	S1865195
	25/32"	19.84	.7813"		S1805050	S1820050	S1815050
		20.00	.7874"		S1855200	S1870200	S1865200
	51/64"	20.24	.7969"		S1805051	S1820051	S1815051
		20.50	.8071"		S1855205	S1870205	S1865205
	13/16"	20.64	.8125"		S1805052	S1820052	S1815052
		21.00	.8268"		S1855210	S1870210	S1865210
	27/32"	21.43	.8438"		S1805054	S1820054	S1815054
	55/64"	21.83	.8594"		S1805055	S1820055	S1815055
		22.00	.8661"		S1855220	S1870220	S1865220
	7/8"	22.23	.8750"		S1805056	S1820056	S1815056
	57/64"	22.62	.8906"		S1805057	S1820057	S1815057
2 24.41 (.961") to 35.05 (1.380")		23.00	.9055"	4.8 (3/16")	S1855230	S1870230	S1865230
	29/32"	23.02	.9063"		S1805058	S1820058	S1815058
	59/64"	23.42	.9219"		S1805059	S1820059	S1815059
	15/16"	23.81	.9375"		S1805060	S1820060	S1815060
		24.00	.9449"		S1855240	S1870240	S1865240
	31/32"	24.61	.9688"		S1805062	S1820062	S1815062
	63/64"	25.00	.9843"		S1805063	S1820063	S1815063
	1"	25.40	1.0000"		S1805100	S1820100	S1815100
	1-1/64"	25.80	1.0156"		S1805101	S1820101	S1815101
		26.00	1.0236"		S1855260	S1870260	S1865260
	1-1/32"	26.19	1.0313"		S1805102	S1820102	S1815102
	1-3/64"	26.59	1.0469"		S1805103	S1820103	S1815103
	1-1/16"	26.99	1.0625"		S1805104	S1820104	S1815104
		27.00	1.0630"		S1855270	S1870270	S1865270
	1-3/32"	27.78	1.0938"		S1805106	S1820106	S1815106
		28.00	1.1024"		S1855280	S1870280	S1865280
	1-7/64"	28.18	1.1094"		S1805107	S1820107	S1815107
	1-1/8"	28.58	1.1250"		S1805108	S1820108	S1815108
		29.00	1.1417"		S1855290	S1870290	S1865290
	1-5/32"	29.37	1.1563"		S1805110	S1820110	S1815110
		30.00	1.1811"		S1855300	S1870300	S1865300
	1-3/16"	30.16	1.1875"		S1805112	S1820112	S1815112
	1-7/32"	30.96	1.2188"		S1805114	S1820114	S1815114
		31.00	1.2205"		S1855310	S1870310	S1865310
	1-1/4"	31.75	1.2500"		S1805116	S1820116	S1815116
		32.00	1.2598"		S1855320	S1870320	S1865320
	1-9/32"	32.54	1.2813"		S1805118	S1820118	S1815118
		33.00	1.2992"		S1855330	S1870330	S1865330
	1-5/16"	33.34	1.3125"		S1805120	S1820120	S1815120
		34.00	1.3386"		S1855340	S1870340	S1865340
	1-11/32"	34.13	1.3438"		S1805122	S1820122	S1815122
	1-3/8"	34.93	1.3750"		S1805124	S1820124	S1815124
		35.00	1.3780"		S1855350	S1870350	S1865350

Throw-Away Drill Inserts - Carbide (P40)



SIZE SERIES 3

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAlN
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1805126	S1820126	S1815126
		36.00	1.4173"		S1855360	S1870360	S1865360
	1-7/16"	36.51	1.4375"		S1805128	S1820128	S1815128
		37.00	1.4567"		S1855370	S1870370	S1865370
	1-15/32"	37.31	1.4688"		S1805130	S1820130	S1815130
		38.00	1.4961"		S1855380	S1870380	S1865380
	1-1/2"	38.10	1.5000"		S1805132	S1820132	S1815132
	1-17/32"	38.89	1.5313"		S1805134	S1820134	S1815134
		39.00	1.5354"		S1855390	S1870390	S1865390
	1-9/16"	39.69	1.5625"		S1805136	S1820136	S1815136
		40.00	1.5748"		S1855400	S1870400	S1865400
	1-19/32"	40.48	1.5938"		S1805138	S1820138	S1815138
		41.00	1.6142"		S1855410	S1870410	S1865410
	1-5/8"	41.28	1.6250"		S1805140	S1820140	S1815140
		42.00	1.6535"		S1855420	S1870420	S1865420
	1-21/32"	42.07	1.6563"		S1805142	S1820142	S1815142
	1-11/16"	42.86	1.6875"		S1805144	S1820144	S1815144
		43.00	1.6929"		S1855430	S1870430	S1865430
	1-23/32"	43.66	1.7188"		S1805146	S1820146	S1815146
		44.00	1.7323"		S1855440	S1870440	S1865440
	1-3/4"	44.45	1.7500"		S1805148	S1820148	S1815148
		45.00	1.7717"		S1855450	S1870450	S1865450
	1-25/32"	45.24	1.7813"		S1805150	S1820150	S1815150
		46.00	1.8110"		S1855460	S1870460	S1865460
	1-13/16"	46.04	1.8125"		S1805152	S1820152	S1815152
	1-27/32"	46.83	1.8438"		S1805154	S1820154	S1865154
		47.00	1.8504"		S1855470	S1870470	S1865470
	1-7/8"	47.63	1.8750"		S1805150	S1820150	S1815150

Throw-Away Drill Inserts for Cast Iron - Carbide (K10)



SIZE SERIES Y, Z, O

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardstick	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1655095	S1670095	S1665095
		9.53	.3750"		S1605024	S1620024	S1615024
		9.80	.3860"		S1655098	S1670098	S1665098
	25/64"	9.92	.3906"		S1605025	S1620025	S1615025
		10.00	.3937"		S1655100	S1670100	S1665100
		10.20	.4016"		S1655102	S1670102	S1665102
	13/32"	10.32	.4063"		S1605026	S1620026	S1615026
		10.50	.4134"		S1655105	S1670105	S1665105
		10.72	.4219"		S1605027	S1620027	S1615027
	27/64"	10.80	.4252"		S1655108	S1670108	S1665108
		11.00	.4331"		S1655110	S1670110	S1665110
		11.11	.4375"		S1605028	S1620028	S1615028
	7/16"	11.50	.4528"		S1655115	S1670115	S1665115
		11.51	.4531"		S1605029	S1620029	S1615029
Z 11.11 (.437") to 12.95 (.510")	15/32"	11.91	.4688"	2.4 (3/32")	S1605030	S1620030	S1615030
		12.00	.4724"		S1655120	S1670120	S1665120
		12.30	.4844"		S1605031	S1620031	S1615031
	31/64"	12.50	.4921"		S1655125	S1670125	S1665125
		12.70	.5000"		S1605032	S1620032	S1615032
		13.00	.5118"		S1655130	S1670130	S1665130
O 12.98 (.511") to 17.65 (.695")	33/64"	13.10	.5156"	3.2 (1/8")	S1605033	S1620033	S1615033
		13.49	.5313"		S1605034	S1620034	S1615034
		13.50	.5315"		S1655135	S1670135	S1665135
	35/64"	13.89	.5469"		S1605035	S1620035	S1615035
		14.00	.5512"		S1655140	S1670140	S1665140
		14.29	.5625"		S1605036	S1620036	S1615036
	9/16"	14.50	.5709"		S1655145	S1670145	S1665145
		14.68	.5781"		S1605037	S1620037	S1615037
		15.00	.5906"		S1655150	S1670150	S1665150
	19/32"	15.08	.5938"		S1605038	S1620038	S1615038
		15.48	.6094"		S1605039	S1620039	S1615039
		15.50	.6102"		S1655155	S1670155	S1665155
	5/8"	15.88	.6250"		S1605040	S1620040	S1615040
		16.00	.6299"		S1655160	S1670160	S1665160
		16.27	.6406"		S1605041	S1620041	S1615041
	41/64"	16.50	.6496"		S1655165	S1670165	S1665165
		16.67	.6563"		S1605042	S1620042	S1615042
		17.00	.6693"		S1655170	S1670170	S1665170
	21/32"	17.07	.6719"		S1605043	S1620043	S1615043
		17.46	.6875"		S1605044	S1620044	S1615044
		17.50	.6890"		S1655175	S1670175	S1665175

Throw-Away Drill Inserts for Cast Iron - Carbide (K10)



SIZE SERIES 1, 2

Series Min. to Max. (mm/inch)	Diameter			Thickness	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAIN
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S1605045	S1620045	S1615045
		18.00	.7087"		S1655180	S1670180	S1665180
	23/32"	18.26	.7188"		S1605046	S1620046	S1615046
		18.50	.7283"		S1655185	S1670185	S1665185
	47/64"	18.65	.7344"		S1605047	S1620047	S1615047
		19.00	.7480"		S1655190	S1670190	S1665190
	3/4"	19.05	.7500"		S1605048	S1620048	S1615048
	49/64"	19.45	.7656"		S1605049	S1620049	S1615049
		19.50	.7677"		S1655195	S1670195	S1665195
	25/32"	19.84	.7813"		S1605050	S1620050	S1615050
		20.00	.7874"		S1655200	S1670200	S1665200
	51/64"	20.24	.7969"		S1605051	S1620051	S1615051
		20.50	.8071"		S1655205	S1670205	S1665205
	13/16"	20.64	.8125"		S1605052	S1620052	S1615052
		21.00	.8268"		S1655210	S1670210	S1665210
	27/32"	21.43	.8438"		S1605054	S1620054	S1615054
	55/64"	21.83	.8594"		S1605055	S1620055	S1615055
		22.00	.8661"		S1655220	S1670220	S1665220
	7/8"	22.23	.8750"		S1605056	S1620056	S1615056
	57/64"	22.62	.8906"		S1605057	S1620057	S1615057
2 24.41 (.961") to 35.05 (1.380")		23.00	.9055"	4.8 (3/16")	S1655230	S1670230	S1665230
	29/32"	23.02	.9063"		S1605058	S1620058	S1615058
	59/64"	23.42	.9219"		S1605059	S1620059	S1615059
	15/16"	23.81	.9375"		S1605060	S1620060	S1615060
		24.00	.9449"		S1655240	S1670240	S1665240
	31/32"	24.61	.9688"		S1605062	S1620062	S1615062
	63/64"	25.00	.9843"		S1605063	S1620063	S1615063
	1"	25.40	1.0000"		S1605100	S1620100	S1615100
	1-1/64"	25.80	1.0156"		S1605101	S1620101	S1615101
		26.00	1.0236"		S1655260	S1670260	S1665260
	1-1/32"	26.19	1.0313"		S1605102	S1620102	S1615102
	1-3/64"	26.59	1.0469"		S1605103	S1620103	S1615103
	1-1/16"	26.99	1.0625"		S1605104	S1620104	S1615104
		27.00	1.0630"		S1655270	S1670270	S1665270
	1-3/32"	27.78	1.0938"		S1605106	S1620106	S1615106
		28.00	1.1024"		S1655280	S1670280	S1665280
	1-7/64"	28.18	1.1094"		S1605107	S1620107	S1615107
	1-1/8"	28.58	1.1250"		S1605108	S1620108	S1615108
		29.00	1.1417"		S1655290	S1670290	S1665290
	1-5/32"	29.37	1.1563"		S1605110	S1620110	S1615110
		30.00	1.1811"		S1655300	S1670300	S1665300
	1-3/16"	30.16	1.1875"		S1605112	S1620112	S1615112
	1-7/32"	30.96	1.2188"		S1605114	S1610114	S1615114
		31.00	1.2205"		S1655310	S1670310	S1665310
	1-1/4"	31.75	1.2500"		S1605116	S1620116	S1615116
		32.00	1.2598"		S1655320	S1670320	S1665320
	1-9/32"	32.54	1.2813"		S1605118	S1620118	S1615118
		33.00	1.2992"		S1655330	S1670330	S1665330
	1-5/16"	33.34	1.3125"		S1605120	S1620120	S1615120
		34.00	1.3386"		S1655340	S1670340	S1665340
	1-11/32"	34.13	1.3438"		S1605122	S1620122	S1615122
	1-3/8"	34.93	1.3750"		S1605124	S1620124	S1615124
		35.00	1.3780"		S1655350	S1670350	S1665350

Throw-Away Flat Bottom Drill Inserts - Super HSS



SIZE SERIES Y, Z, O

Series Min. to Max. (mm/inch)	Diameter			Thickness	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardslick	TiAlN
				Metric (inch)	Super HSS (T-15)		
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S2155095	S2170095	S2165095
		9.53	.3750"		S2105024	S2120024	S2115024
		9.80	.3860"		S2155098	S2170098	S2165098
	25/64"	9.92	.3906"		S2105025	S2120025	S2115025
		10.00	.3937"		S2155100	S2170100	S2165100
		10.20	.4016"		S2155102	S2170102	S2165102
	13/32"	10.32	.4063"		S2105026	S2120026	S2115026
		10.50	.4134"		S2155105	S2170105	S2165105
		10.72	.4219"		S2105027	S2120027	S2115027
	27/64"	10.80	.4252"		S2155108	S2170108	S2165108
		11.00	.4331"		S2155110	S2170110	S2165110
Z 11.11 (.437") to 12.95 (.510")	7/16"	11.11	.4375"	2.4 (3/32")	S2105028	S2120028	S2115028
		11.50	.4528"		S2155115	S2170115	S2165115
	29/64"	11.51	.4531"		S2105029	S2120029	S2115029
		11.91	.4688"		S2105030	S2120030	S2115030
	15/32"	12.00	.4724"		S2155120	S2170120	S2165120
		12.30	.4844"		S2105031	S2120031	S2115031
	31/64"	12.50	.4921"		S2155125	S2170125	S2165125
		12.70	.5000"		S2105032	S2120032	S2115032
	1/2"	13.00	.5118"		S2155130	S2170130	S2165130
		13.10	.5156"		S2105033	S2120033	S2115033
	O 12.98 (.511") to 17.65 (.695")	17/32"	13.49		.5313"	S2105034	S2120034
13.50			.5315"	S2155135	S2170135	S2165135	
35/64"		13.89	.5469"	S2105035	S2120035	S2115035	
		14.00	.5512"	S2155140	S2170140	S2165140	
9/16"		14.29	.5625"	S2105036	S2120036	S2115036	
		14.50	.5709"	S2155145	S2170145	S2165145	
37/64"		14.68	.5781"	S2105037	S2120037	S2115037	
		15.00	.5906"	S2155150	S2170150	S2165150	
19/32"		15.08	.5938"	S2105038	S2120038	S2115038	
		15.48	.6094"	S2105039	S2120039	S2115039	
39/64"		15.50	.6102"	S2155155	S2170155	S2165155	
		15.88	.6250"	S2105040	S2120040	S2115040	
5/8"		16.00	.6299"	S2155160	S2170160	S2165160	
		16.27	.6406"	S2105041	S2120041	S2115041	
41/64"		16.50	.6496"	S2155165	S2170165	S2165165	
		16.67	.6563"	S2105042	S2120042	S2115042	
21/32"		17.00	.6693"	S2155170	S2170170	S2165170	
		17.07	.6719"	S2105043	S2120043	S2115043	
43/64"		17.46	.6875"	S2105044	S2120044	S2115044	
		17.50	.6890"	S2155175	S2170175	S2165175	

Throw-Away Flat Bottom Drill Inserts - Super HSS



SIZE SERIES 1, 2

Series Min. to Max. (mm/inch)	Diameter			Thickness Metric (inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	Hardstick	TiAlN
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S2105045	S2120045	S2115045
		18.00	.7087"		S2155180	S2170180	S2165180
	23/32"	18.26	.7188"		S2105046	S2120046	S2115046
		18.50	.7283"		S2155185	S2170185	S2165185
	47/64"	18.65	.7344"		S2105047	S2120047	S2115047
		19.00	.7480"		S2155190	S2170190	S2165190
	3/4"	19.05	.7500"		S2105048	S2120048	S2115048
	49/64"	19.45	.7656"		S2105049	S2120049	S2115049
		19.50	.7677"		S2155195	S2170195	S2165195
	25/32"	19.84	.7813"		S2105050	S2120050	S2115050
		20.00	.7874"		S2155200	S2170200	S2165200
	51/64"	20.24	.7969"		S2105051	S2120051	S2115051
		20.50	.8071"		S2155205	S2170205	S2165205
	13/16"	20.64	.8125"		S2105052	S2120052	S2115052
		21.00	.8268"		S2155210	S2170210	S2165210
	27/32"	21.43	.8438"		S2105054	S2120054	S2115054
	55/64"	21.83	.8594"		S2105055	S2120055	S2115055
		22.00	.8661"		S2155220	S2170220	S2165220
	7/8"	22.23	.8750"		S2105056	S2120056	S2115056
	57/64"	22.62	.8906"		S2105057	S2120057	S2115057
		23.00	.9055"		S2155230	S2170230	S2165230
	29/32"	23.02	.9063"		S2105058	S2120058	S2115058
	59/64"	23.42	.9219"		S2105059	S2120059	S2115059
	15/16"	23.81	.9375"		S2105060	S2120060	S2115060
2 24.41 (.961") to 35.05 (1.380")		24.00	.9449"	4.8 (3/16")	S2155240	S2170240	S2165240
	31/32"	24.61	.9688"		S2105062	S2120062	S2115062
	63/64"	25.00	.9843"		S2105063	S2120063	S2115063
	1"	25.40	1.0000"		S2105100	S2120100	S2115100
	1-1/64"	25.80	1.0156"		S2105101	S2120101	S2115101
		26.00	1.0236"		S2155260	S2170260	S2165260
	1-1/32"	26.19	1.0313"		S2105102	S2120102	S2115102
	1-3/64"	26.59	1.0469"		S2105103	S2120103	S2115103
	1-1/16"	26.99	1.0625"		S2105104	S2120104	S2115104
		27.00	1.0630"		S2155270	S2170270	S2165270
	1-3/32"	27.78	1.0938"		S2105106	S2120106	S2115106
		28.00	1.1024"		S2155280	S2170280	S2165280
	1-7/64"	28.18	1.1094"		S2105107	S2120107	S2115107
	1-1/8"	28.58	1.1250"		S2105108	S2120108	S2115108
		29.00	1.1417"		S2155290	S2170290	S2165290
	1-5/32"	29.37	1.1563"		S2105110	S2120110	S2115110
		30.00	1.1811"		S2155300	S2170300	S2165300
	1-3/16"	30.16	1.1875"		S2105112	S2120112	S2115112
	1-7/32"	30.96	1.2188"		S2105114	S2120114	S2115114
		31.00	1.2205"		S2155310	S2170310	S2165310
	1-1/4"	31.75	1.2500"		S2105116	S2120116	S2115116
		32.00	1.2598"		S2155320	S2170320	S2165320
	1-9/32"	32.54	1.2813"		S2105118	S2120118	S2115118
		33.00	1.2992"		S2155330	S2170330	S2165330
	1-5/16"	33.34	1.3125"		S2105120	S2120120	S2115120
		34.00	1.3386"		S2155340	S2170340	S2165340
	1-11/32"	34.13	1.3438"		S2105122	S2120122	S2115122
	1-3/8"	34.93	1.3750"		S2105124	S2120124	S2115124
		35.00	1.3780"		S2155350	S2170350	S2165350



SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

R1101



CYLINDER SHAPE TYPE SA(Form A)

624

R1102



CYLINDER SHAPE WITH END CUT TYPE SB(Form B)

625

R1103



CYLINDER SHAPE WITH RADIUS END TYPE SC(Form C)

626

R1104



BALL SHAPE TYPE SD(Form D)

627

R1105



OVAL SHAPE TYPE SE(Form E)

628

R1106



TREE SHAPE WITH RADIUS END TYPE SF(Form F)

629

R1107



TREE SHAPE WITH POINTED END TYPE SG(Form G)

630

R1108



FLAME SHAPE TYPE SH(Form H)

631

R1109



60° CONE SHAPE TYPE SJ(Form J)

632

R1110



90° CONE SHAPE TYPE SK(Form K)

633

R1111



TAPER WITH RADIUS END TYPE SL(Form L)

634

R1112



CONE SHAPE TYPE SM(Form M)

635

R1113



INVERTED CONE SHAPE TYPE SN(Form N)

636

TECHNICAL INFORMATION FOR CARBIDE BURRS

637

BURR APPLICATION INFORMATION & SPEED RECOMMENDATION

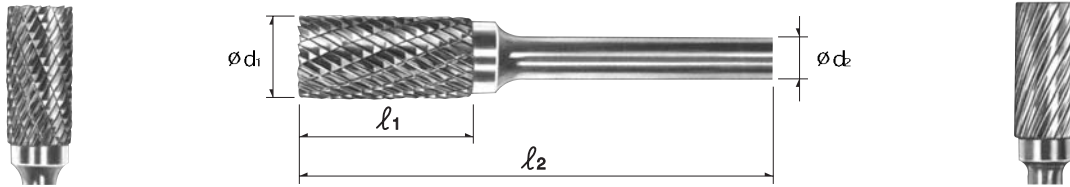
638

SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

CYLINDER SHAPE

Zylinder, Form A

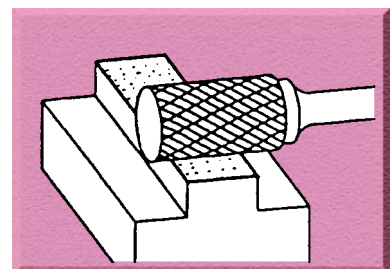


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1101001	SA-41M	1.5	3	6	38	R1201001	SA-41MP
R1101002	SA-41ML2	1.5	3	6	50	R1201002	SA-41ML2P
R1101003	SA-41ML3	1.5	3	6	75	R1201003	SA-41ML3P
R1101004	SA-42M	2.5	3	11	38	R1201004	SA-42MP
R1101005	SA-42ML2	2.5	3	11	50	R1201005	SA-42ML2P
R1101006	SA-42ML3	2.5	3	11	75	R1201006	SA-42ML3P
R1101007	SA-43M	3	3	14	38	R1201007	SA-43MP
R1101008	SA-43ML2	3	3	14	50	R1201008	SA-43ML2P
R1101009	SA-43ML3	3	3	14	75	R1201009	SA-43ML3P
R1101010	SA-11M	3	6	12	56	R1201010	SA-11MP
R1101011	SA-12M	3	6	12.7	60	R1201011	SA-12MP
R1101012	SA-52M	4	3	12.7	38	R1201012	SA-52MP
R1101013	SA-13M	4	6	16	50	R1201013	SA-13MP
R1101014	SA-53M	5	3	12.7	38	R1201014	SA-53MP
R1101015	SA-14M	5	6	16	50	R1201015	SA-14MP
R1101017	SA-1ML	6	6	25	50	R1201017	SA-1MLP
R1101019	SA-1M	6	6	16	50	R1201019	SA-1MP
R1101020	SA-51M	6.3	3	12.7	50	R1201020	SA-51MP
R1101021	SA-2M	8	6	19	63	R1201021	SA-2MP
R1101022	SA-3M	9.5	6	19	63	R1201022	SA-3MP
R1101025	SA-3ML	9.5	6	25	69	R1201025	SA-3MLP
R1101027	SA-4M	11	6	25	69	R1201027	SA-4MP
R1101029	SA-5M	12.7	6	25	69	R1201029	SA-5MP
R1101032	SA-6M	16	6	25	69	R1201032	SA-6MP
R1101034	SA-7M	19	6	25	69	R1201034	SA-7MP
R1101037	SA-9M	25	6	25	69	R1201037	SA-9MP



ALUMA CUT		d ₁	d ₂	l ₁	l ₂
EDP No.	ITEM No.				
R1301018	SA-1MNF	6	6	19	50
R1301024	SA-3MNF	9.5	6	19	63
R1301030	SA-5MNF	12.7	6	25	69
R1301033	SA-6MNF	16	6	25	69
R1301035	SA-7MNF	19	6	25	69

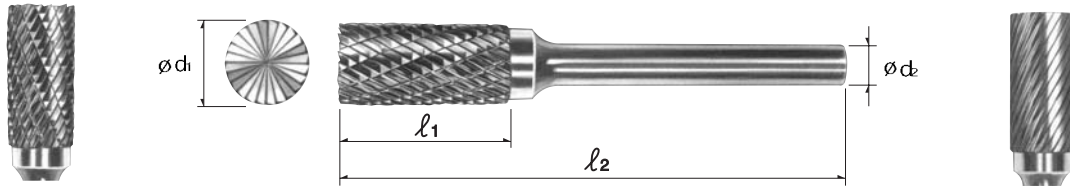
► Chip Breaker Type, Diamond Cut Type is available on your request.



SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

CYLINDER SHAPE WITH END CUT Zylinder, Form B

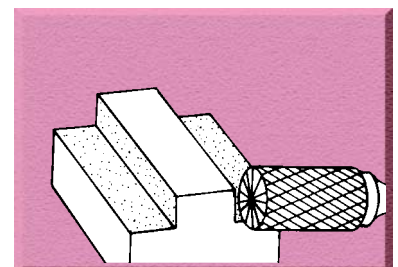


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1102001	SB-41M	1.5	3	6	38	R1202001	SB-41MP
R1102002	SB-41ML2	1.5	3	6	50	R1202002	SB-41ML2P
R1102003	SB-41ML3	1.5	3	6	75	R1202003	SB-41ML3P
R1102004	SB-42M	2.5	3	11	38	R1202004	SB-42MP
R1102005	SB-42ML2	2.5	3	11	50	R1202005	SB-42ML2P
R1102006	SB-42ML3	2.5	3	11	75	R1202006	SB-42ML3P
R1102007	SB-ECOM	3	3	-	38	-	-
R1102008	SB-43M	3	3	14	38	R1202008	SB-43MP
R1102026	SB-43ML2	3	3	14	50	R1202026	SB-43ML2P
R1102027	SB-43ML3	3	3	14	75	R1202027	SB-43ML3P
R1102009	SB-11M	3	6	12	56	R1202009	SB-11MP
R1102010	SB-12M	3	6	12.7	60	R1202010	SB-12MP
R1102011	SB-13M	4	6	16	50	R1202011	SB-13MP
R1102012	SB-14M	5	6	16	50	R1202012	SB-14MP
R1102013	SB-1M	6	6	16	50	R1202013	SB-1MP
R1102014	SB-1ML	6	6	25	50	R1202014	SB-1MLP
R1102015	SB-51M	6.3	3	4.7	43	R1202015	SB-51MP
R1102016	SB-2M	8	6	19	63	R1202016	SB-2MP
R1102017	SB-3M	9.5	6	19	63	R1202017	SB-3MP
R1102018	SB-3ML	9.5	6	25	69	R1202018	SB-3MLP
R1102020	SB-4M	11	6	25	69	R1202020	SB-4MP
R1102022	SB-5M	12.7	6	25	69	R1202022	SB-5MP
R1102023	SB-6M	16	6	25	69	R1202023	SB-6MP
R1102024	SB-7M	19	6	25	69	R1202024	SB-7MP
R1102025	SB-9M	25	6	25	69	R1202025	SB-9MP



ALUMA CUT		d ₁	d ₂	l ₁	l ₂
EDP No.	ITEM No.				
R1302018	SB-1MNF	6	6	19	50
R1302024	SB-3MNF	9.5	6	19	63
R1302030	SB-5MNF	12.7	6	25	69
R1302033	SB-6MNF	16	6	25	69
R1302035	SB-7MNF	19	6	25	69

► Chip Breaker Type, Diamond Cut Type is available on your request.

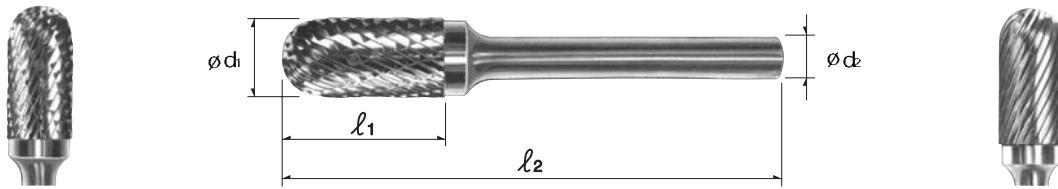


SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

CYLINDER SHAPE WITH RADIUS END

Walzenrund, Form C

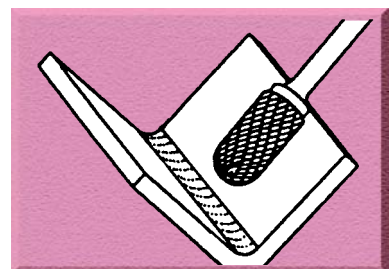


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1103001	SC-41M	2.5	3	11	38	R1203001	SC-41MP
R1103002	SC-42M	3	3	14	38	R1203002	SC-42MP
R1103003	SC-42ML2	3	3	14	50	R1203003	SC-42ML2P
R1103004	SC-42ML3	3	3	14	75	R1203004	SC-42ML3P
R1103005	SC-11M	3	6	12	56	R1203005	SC-11MP
R1103006	SC-12M	3	6	16	60	R1203006	SC-12MP
R1103007	SC-52M	4	3	12.7	38	R1203007	SC-52MP
R1103008	SC-13M	4	6	16	50	R1203008	SC-13MP
R1103009	SC-53M	5	3	12.7	38	R1203009	SC-53MP
R1103010	SC-14M	5	6	16	50	R1203010	SC-14MP
R1103011	SC-1M	6	6	16	50	R1203011	SC-1MP
R1103014	SC-1ML	6	6	25	50	R1203014	SC-1MLP
R1103015	SC-51M	6.3	3	12.7	50	R1203015	SC-51MP
R1103016	SC-2M	8	6	19	63	R1203016	SC-2MP
R1103017	SC-3M	9.5	6	19	63	R1203017	SC-3MP
R1103021	SC-3ML	9.5	6	25	69	R1203021	SC-3MLP
R1103022	SC-4M	11	6	25	69	R1203022	SC-4MP
R1103024	SC-5M	12.7	6	25	69	R1203024	SC-5MP
R1103027	SC-6M	16	6	25	69	R1203027	SC-6MP
R1103028	SC-7M	19	6	25	69	R1203028	SC-7MP
R1103031	SC-9M	25	6	25	69	R1203031	SC-9MP



ALUMA CUT		d ₁	d ₂	l ₁	l ₂
EDP No.	ITEM No.				
R1303013	SC-1MNF	6	6	19	50
R1303019	SC-3MNF	9.5	6	19	63
R1303026	SC-5MNF	12.7	6	25	69
R1303029	SC-7MNF	19	6	25	69

► Chip Breaker Type, Diamond Cut Type is available on your request.

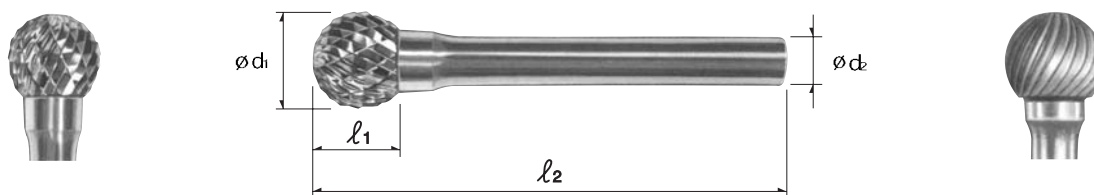


SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

BALL SHAPE

Kugel, Form D

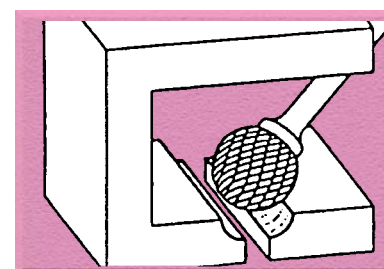


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1104001	SD-41M	2.5	3	2.3	38	R1204001	SD-41MP
R1104002	SD-42M	3	3	2.8	38	R1204002	SD-42MP
R1104003	SD-42ML2	3	3	2.8	50	R1204003	SD-42ML2P
R1104004	SD-42ML3	3	3	2.8	75	R1204004	SD-42ML3P
R1104005	SD-11M	3	6	2.8	50	R1204005	SD-11MP
R1104007	SD-53M	5	3	4	38	R1204007	SD-53MP
R1104008	SD-14M	5	6	4	50	R1204008	SD-14MP
R1104010	SD-1M	6	6	5	50	R1204010	SD-1MP
R1104012	SD-51M	6.3	3	5	44	R1204012	SD-51MP
R1104013	SD-2M	8	6	6.4	50	R1204013	SD-2MP
R1104014	SD-3M	9.5	6	8	52	R1204014	SD-3MP
R1104018	SD-4M	11	6	9.5	54	R1204018	SD-4MP
R1104020	SD-5M	12.7	6	11	55	R1204020	SD-5MP
R1104023	SD-6M	16	6	14	58	R1204023	SD-6MP
R1104025	SD-7M	19	6	16	62	R1204025	SD-7MP
R1104028	SD-9M	25	6	23	68	R1204028	SD-9MP



ALUMA CUT		d ₁	d ₂	l ₁	l ₂
EDP No.	ITEM No.				
R1304011	SD-1MNF	6	6	5	50
R1304015	SD-3MNF	9.5	6	8	52
R1304021	SD-5MNF	12.7	6	11	55
R1304024	SD-6MNF	16	6	14	58
R1304026	SD-7MNF	19	6	16	62

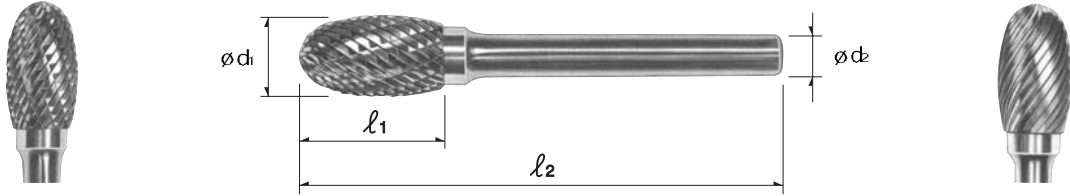
► Chip Breaker Type, Diamond Cut Type is available on your request.



SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

OVAL SHAPE Tropfen, Form E

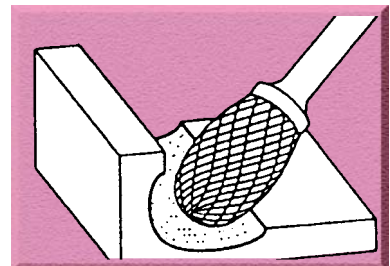


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1105001	SE-41M	3	3	5.5	38	R1205001	SE-41MP
R1105002	SE-41ML2	3	3	5.5	50	R1205002	SE-41ML2P
R1105003	SE-41ML3	3	3	5.5	75	R1205003	SE-41ML3P
R1105004	SE-53M	5	3	7.1	38	R1205004	SE-53MP
R1105005	SE-1M	6	6	9.5	50	R1205005	SE-1MP
R1105007	SE-51M	6.3	3	9.5	47	R1205007	SE-51MP
R1105008	SE-3M	9.5	6	16	60	R1205008	SE-3MP
R1105011	SE-5M	12.7	6	22	66	R1205011	SE-5MP
R1105014	SE-6M	16	6	25	69	R1205014	SE-6MP
R1105016	SE-7M	19	6	25	69	R1205016	SE-7MP



ALUMA CUT		d ₁	d ₂	l ₁	l ₂
EDP No.	ITEM No.				
R1305010	SE-3MNF	9.5	6	16	60
R1305013	SE-5MNF	12.7	6	22	66
R1305015	SE-6MNF	16	6	25	69
R1305017	SE-7MNF	19	6	25	69

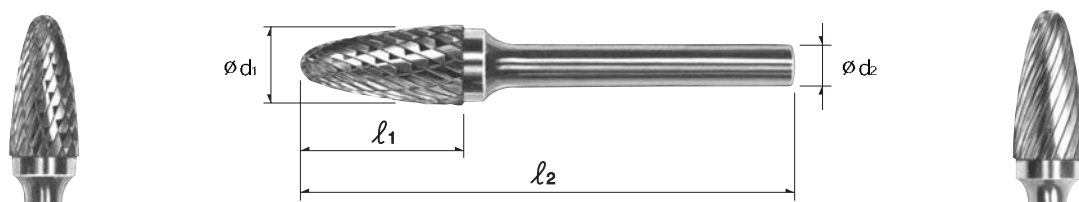
► Chip Breaker Type, Diamond Cut Type is available on your request.



SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

TREE SHAPE WITH RADIUS END Rundbogen, Form F

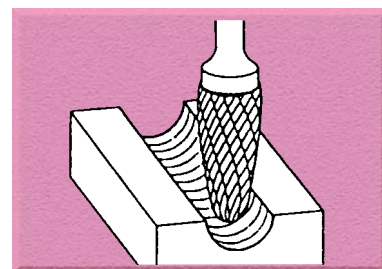


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1106001	SF-41M	3	3	6	38	R1206001	SF-41MP
R1106002	SF-42M	3	3	12.7	38	R1206002	SF-42MP
R1106003	SF-11M	3	6	12.7	56	R1206003	SF-11MP
R1106004	SF-42ML2	3	3	12.7	50	R1206004	SF-42ML2P
R1106005	SF-42ML3	3	3	12.7	75	R1206005	SF-42ML3P
R1106006	SF-53M	5	3	12.7	38	R1206006	SF-53MP
R1106008	SF-1M	6	6	16	50	R1206008	SF-1MP
R1106010	SF-51M	6.3	3	12.7	50	R1206010	SF-51MP
R1106011	SF-3M	9.5	6	19	63	R1206011	SF-3MP
R1106014	SF-4M	11	6	25	69	R1206014	SF-4MP
R1106016	SF-13M	12.7	6	19	63	R1206016	SF-13MP
R1106017	SF-5M	12.7	6	25	69	R1206017	SF-5MP
R1106020	SF-6M	16	6	25	69	R1206020	SF-6MP
R1106022	SF-7M	19	6	25	69	R1206022	SF-7MP
R1106023	SF-14M	19	6	32	76	R1206023	SF-14MP
R1106026	SF-15M	19	6	38	82	R1206026	SF-15MP



ALUMA CUT		d ₁	d ₂	l ₁	l ₂
EDP No.	ITEM No.				
R1306009	SF-1MNF	6	6	19	50
R1306013	SF-3MNF	9.5	6	19	63
R1306019	SF-5MNF	12.7	6	25	69
R1306021	SF-6MNF	16	6	25	69
R1306024	SF-14MNF	19	6	32	76

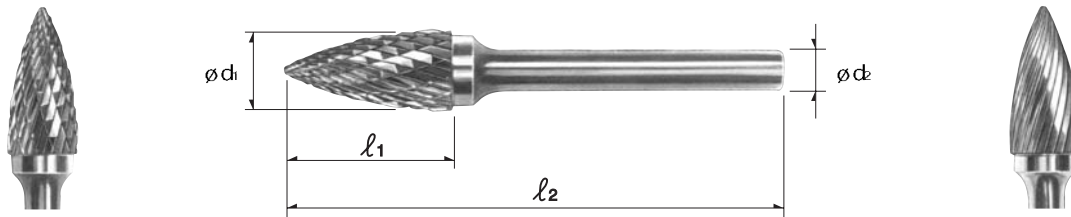
► Chip Breaker Type, Diamond Cut Type is available on your request.



SOLID CARBIDE ROTARY BURRS

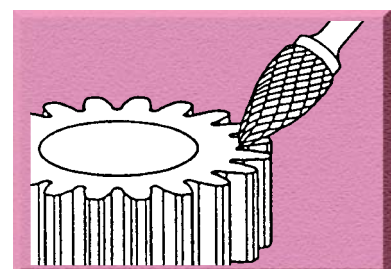
Frässtifte aus Hartmetall

TREE SHAPE WITH POINTED END Spitzbogen, Form G



DOUBLE CUT		d_1	d_2	l_1	l_2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1107001	SG-41M	3	3	6	38	R1207001	SG-41MP
R1107002	SG-43M	3	3	9.5	38	R1207002	SG-43MP
R1107003	SG-44M	3	3	12.7	38	R1207003	SG-44MP
R1107004	SG-44ML2	3	3	12.7	50	R1207004	SG-44ML2P
R1107005	SG-44ML3	3	3	12.7	75	R1207005	SG-44ML3P
R1107006	SG-53M	5	3	12.7	38	R1207006	SG-53MP
R1107008	SG-1M	6	6	16	50	R1207008	SG-1MP
R1107009	SG-51M	6.3	3	12.7	50	R1207009	SG-51MP
R1107010	SG-2M	8	6	19	63	R1207010	SG-2MP
R1107011	SG-3M	9.5	6	19	63	R1207011	SG-3MP
R1107015	SG-13M	12.7	6	19	63	R1207015	SG-13MP
R1107016	SG-5M	12.7	6	25	69	R1207016	SG-5MP
R1107018	SG-6M	16	6	25	69	R1207018	SG-6MP
R1107019	SG-7M	19	6	25	69	R1207019	SG-7MP
R1107020	SG-15M	19	6	38	82	R1207020	SG-15MP

► Chip Breaker Type, Diamond Cut Type is available on your request.

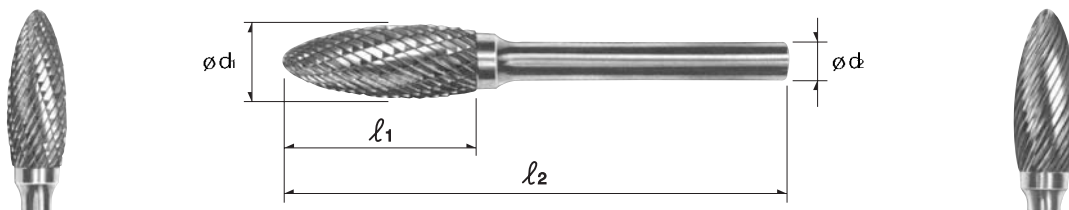


SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

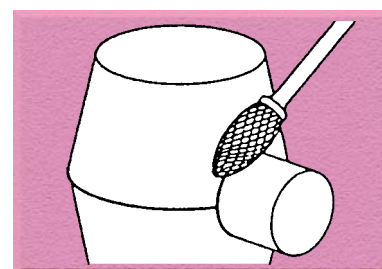
FLAME SHAPE

Flammen, Form H



DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1108001	SH-41M	3	3	6.3	38	R1208001	SH-41MP
R1108002	SH-41ML2	3	3	6.3	50	R1208002	SH-41ML2P
R1108003	SH-41ML3	3	3	6.3	75	R1208003	SH-41ML3P
R1108004	SH-53M	5	3	9.5	38	R1208004	SH-53MP
R1108005	SH-2M	8	6	19	63	R1208005	SH-2MP
R1108007	SH-5M	12.7	6	32	76	R1208007	SH-5MP
R1108009	SH-6M	16	6	36	80	R1208009	SH-6MP
R1108010	SH-7M	19	6	41	85	R1208010	SH-7MP

► Chip Breaker Type, Diamond Cut Type is available on your request.

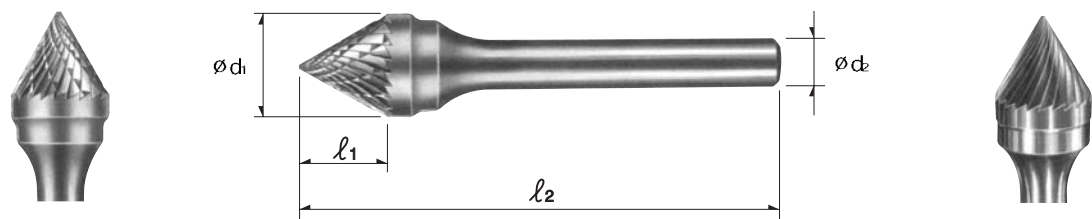


SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

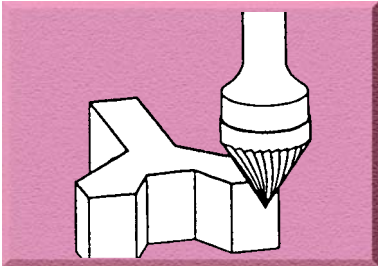
60° CONE SHAPE

60° Kegelsenk, Form J



DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1109001	SJ-42M	3	3	2.5	38	R1209001	SJ-42MP
R1109002	SJ-1M	6	6	4	50	R1209002	SJ-1MP
R1109003	SJ-3M	9.5	6	8	55	R1209003	SJ-3MP
R1109004	SJ-5M	12.7	6	11	58	R1209004	SJ-5MP
R1109005	SJ-6M	16	6	13.5	61	R1209005	SJ-6MP
R1109006	SJ-7M	19	6	16.5	65	R1209006	SJ-7MP
R1109007	SJ-9M	25	6	21.5	68	R1209007	SJ-9MP

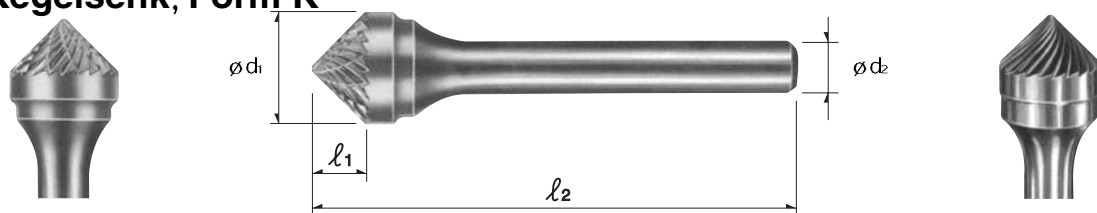
► Chip Breaker Type, Diamond Cut Type is available on your request.



SOLID CARBIDE ROTARY BURRS

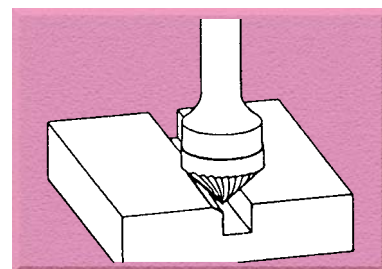
Frässtifte aus Hartmetall

90° CONE SHAPE 90° Kegelsenk, Form K



DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1110001	SK-42M	3	3	1.5	38	R1210001	SK-42MP
R1110002	SK-1M	6	6	3	50	R1210002	SK-1MP
R1110003	SK-3M	9.5	6	4.7	52	R1210003	SK-3MP
R1110004	SK-5M	12.7	6	6.3	54	R1210004	SK-5MP
R1110005	SK-6M	16	6	8	57	R1210005	SK-6MP
R1110006	SK-7M	19	6	9.5	58	R1210006	SK-7MP
R1110007	SK-9M	25	6	12.7	60	R1210007	SK-9MP

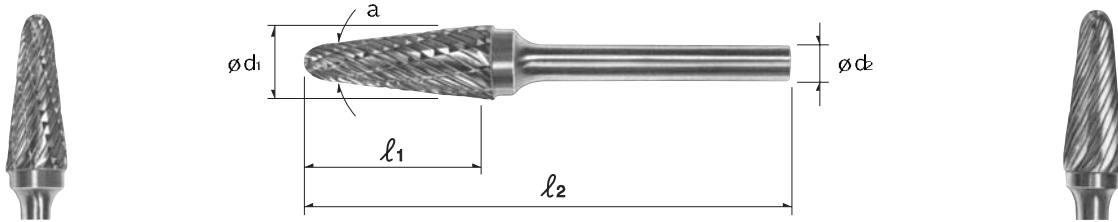
► Chip Breaker Type, Diamond Cut Type is available on your request.



SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

TAPER WITH RADIUS END Rundkegel, Form L

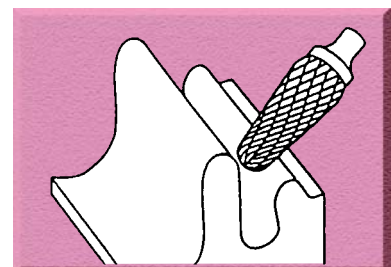


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	a	PLAIN CUT	
EDP No.	ITEM No.						EDP No.	ITEM No.
R1111001	SL-41M	3	3	9.5	38	8°	R1211001	SL-41MP
R1111002	SL-42M	3	3	12.7	38	8°	R1211002	SL-42MP
R1111003	SL-42ML2	3	3	12.7	50	8°	R1211003	SL-42ML2P
R1111004	SL-42ML3	3	3	12.7	75	8°	R1211004	SL-42ML3P
R1111005	SL-53M	5	3	12.7	38	14°	R1211005	SL-53MP
R1111006	SL-1M	6	6	16	50	14°	R1211006	SL-1MP
R1111008	SL-2M	8	6	22	69	14°	R1211008	SL-2MP
R1111009	SL-3M	9.5	6	27	74	14°	R1211009	SL-3MP
R1111012	SL-4M	12.7	6	28	76	14°	R1211012	SL-4MP
R1111015	SL-5M	16	6	30	77	14°	R1211015	SL-5MP
R1111017	SL-7M	19	6	38	85	14°	R1211017	SL-7MP



ALUMA CUT		d ₁	d ₂	l ₁	l ₂	a
EDP No.	ITEM No.					
R1311010	SL-3MNF	9.5	6	27	74	14°
R1311013	SL-4MNF	12.7	6	28	76	14°
R1311016	SL-5MNF	16	6	30	77	14°
R1311018	SL-7MNF	19	6	38	85	14°

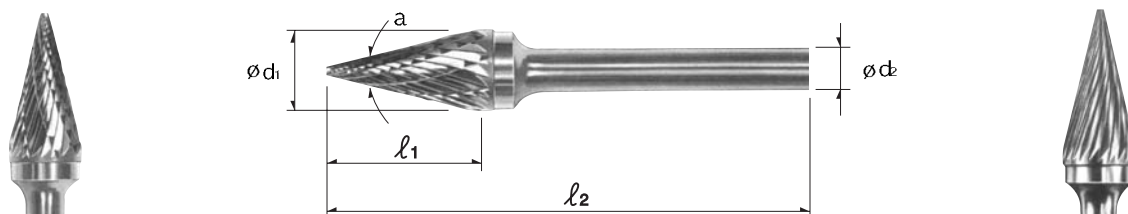
► Chip Breaker Type, Diamond Cut Type is available on your request.



SOLID CARBIDE ROTARY BURRS

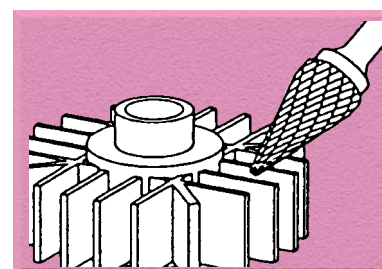
Frässtifte aus Hartmetall

CONE SHAPE Spitzkegel, Form M



DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	a	PLAIN CUT	
EDP No.	ITEM No.						EDP No.	ITEM No.
R1112001	SM-41M	3	3	8.9	38	12°	R1212001	SM-41MP
R1112002	SM-42M	3	3	11	38	14°	R1212002	SM-42MP
R1112003	SM-42ML2	3	3	11	50	14°	R1212003	SM-42ML2P
R1112004	SM-42ML3	3	3	11	75	14°	R1212004	SM-42ML3P
R1112005	SM-43M	3	3	16	38	7°	R1212005	SM-43MP
R1112006	SM-53M	5	3	12.7	38	16°	R1212006	SM-53MP
R1112007	SM-1M	6	6	12.7	50	22°	R1212007	SM-1MP
R1112008	SM-2M	6	6	19	50	14°	R1212008	SM-2MP
R1112009	SM-3M	6	6	25	50	10°	R1212009	SM-3MP
R1112010	SM-51M	6.3	3	12.7	53	22°	R1212010	SM-51MP
R1112011	SM-4M	9.5	6	16	63	28°	R1212011	SM-4MP
R1112012	SM-5M	12.7	6	22	69	28°	R1212012	SM-5MP
R1112013	SM-6M	16	6	25	73	31°	R1212013	SM-6MP

► Chip Breaker Type, Diamond Cut Type is available on your request.

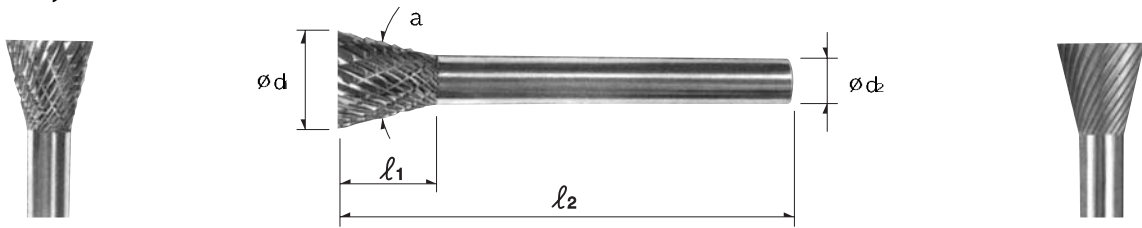


SOLID CARBIDE ROTARY BURRS

Frässtifte aus Hartmetall

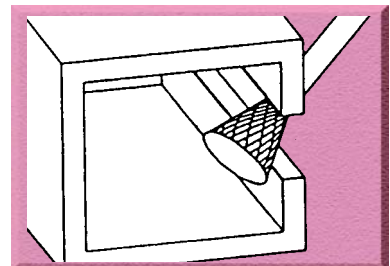
INVERTED CONE SHAPE

Winkel, Form N

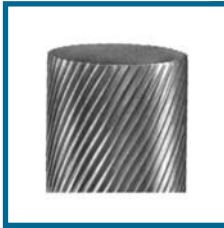


DOUBLE CUT		d ₁	d ₂	l ₁	l ₂	a	PLAIN CUT	
EDP No.	ITEM No.						EDP No.	ITEM No.
R1113001	SN-41M	2.5	3	3	38	10°	R1213001	SN-41MP
R1113002	SN-42M	3	3	4	38	10°	R1213002	SN-42MP
R1113003	SN-53M	5	3	6.3	38	10°	R1213003	SN-53MP
R1113004	SN-1M	6	6	8	50	10°	R1213004	SN-1MP
R1113005	SN-51M	6.3	3	6	44	10°	R1213005	SN-51MP
R1113006	SN-2M	9.5	6	9.5	53	13°	R1213006	SN-2MP
R1113007	SN-4M	12.7	6	12.7	57	28°	R1213007	SN-4MP
R1113008	SN-6M	16	6	19	63	18°	R1213008	SN-6MP
R1113009	SN-7M	19	6	16	60	30°	R1213009	SN-7MP

► Chip Breaker Type, Diamond Cut Type is available on your request.

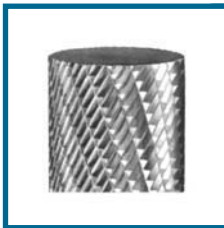


TECHNICAL INFORMATION FOR CARBIDE BURRS



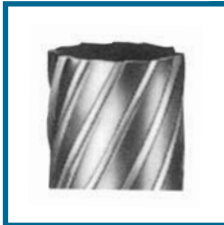
Plain Cut

- The general use of “Plain Cut” is on steel, steel alloys, cast iron, copper and brass.
- Designed for rapid stock removal and good workpiece finishes.
- Produces long chips.



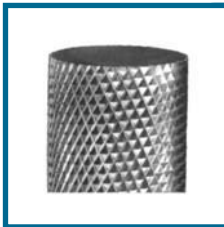
Double Cut

- The double cut burr allows rapid stock removal in the harder materials.
- Designed for creating a small chip and excellent workpiece finishes.
- The small chip helps to eliminate loading of the flutes.
- Exceedingly convenient application by user.



Aluma Cut

- Designed to be wider chip space with relief angle.
- More suitable application to non-ferrous metals.



Diamond Cut

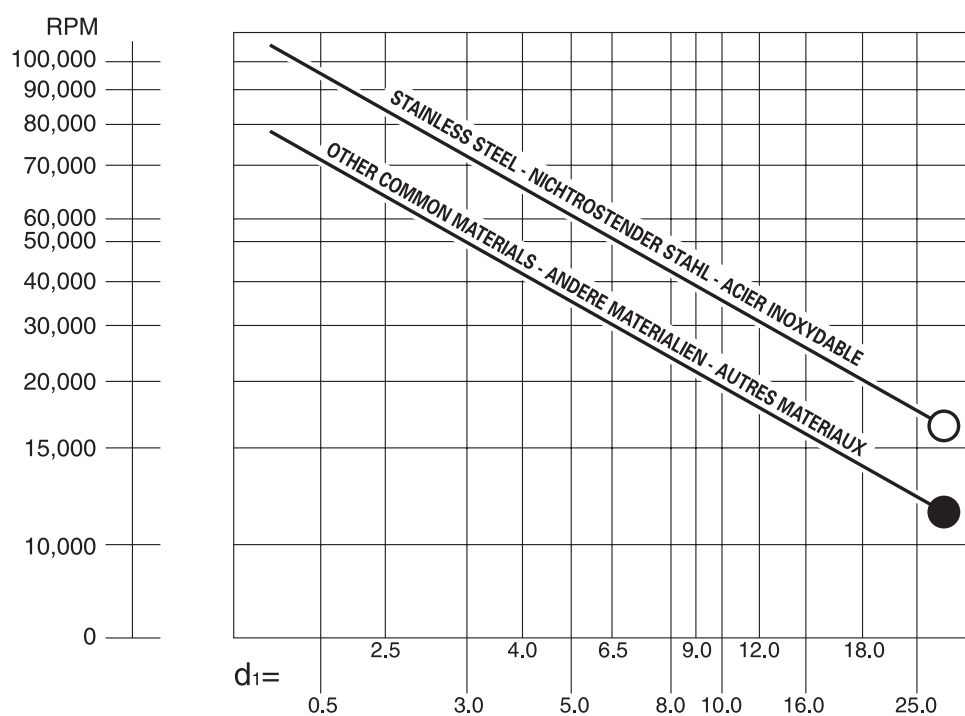
- Designed for creating extremely small chips as powder-like chip.
- Excellent operator control on heat treated and tough alloy steels.
- Excellent finishes.

BURR APPLICATION INFORMATION & SPEED RECOMMENDATION

BURR APPLICATION INFORMATION

MATERIALS	PLAIN CUT	DOUBLE CUT	ALUMA CUT	DIAMOND CUT
ALUMINUM			●	
BRASS, BRONZE, COPPER	●	●		
FIBER GLASS				●
CAST IRON	●	●		
PLASTICS			●	
STEEL, HRc 40-55	●	●		●
STEEL, HRc 55-60	●	●		●
STEEL, CARBON	●	●		
STEEL, NICKEL CHROME	●	●		●
STEEL, WELDMENTS	●	●		
TITANIUM	●	●		
ZINC			●	

BURR SPEED RECOMMENDATIONS





TOOL HOLDERS

WERKZEUGAUFNAHME

ISO END MILL HOLDER-EMH	644
ISO MORSE TAPER ADAPTER "A" TYPE-MTA	646
ISO MORSE TAPER ADAPTER "B" TYPE-MTB	647
ISO COMBI SHELL END MILL ARBOR-CMA	649
ISO SHELL END MILL ARBOR-SMA	651
ISO MILLING CHUCK-C	653
ISO ER COLLET CHUCK-ER	655
ISO DRILL CHUCK ARBOR-B	657
ISO TAPER SLEEVE-TSA	658
ISO TAPPING CHUCK-TC	660
SK END MILL HOLDER-EMH	661
SK(ADB) END MILL HOLDER-EMH	663
SK MORSE TAPER ADAPTER "A" TYPE-MTA	665
SK MORSE TAPER ADAPTER "B" TYPE-MTB	666
SK COMBI SHELL END MILL ARBOR-CMA	668

SK SHELL END MILL ARBOR-SMA 670

SK MILLING CHUCK-C 672

SK ER COLLET CHUCK-ER 674

SK(ADB) ER COLLET CHUCK-ER 676

SK DRILL CHUCK ARBOR-B 678

SK TAPER SLEEVE-TSA 679

SK TAPPING CHUCK-TC 680

BT END MILL HOLDER-EMH 681

BT MORSE TAPER ADAPTER "A" TYPE-MTA 683

BT MORSE TAPER ADAPTER "B" TYPE-MTB 684

BT COMBI SHELL END MILL ARBOR-CMA 685

BT SHELL END MILL ARBOR-SMA 687

BT MILLING CHUCK-C 689

BT ER COLLET CHUCK-ER 691

BT DRILL CHUCK ARBOR-B 693

BT TAPER SLEEVE-TSA	694
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BT TAPPING CHUCK-TC	695
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MTA MILLING CHUCK-C	696
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MTB MILLING CHUCK-C	697
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MTA ER COLLET CHUCK-ER	698
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MTB ER COLLET CHUCK-ER	699
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END MILL COLLET-K, CK	700
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TOOL CLAMP-TBT, TCT	701
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PULL STUD BOLT-PS, PSS	702
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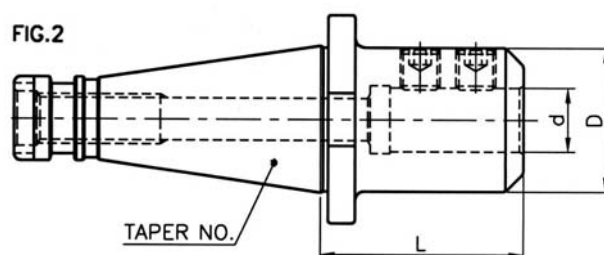
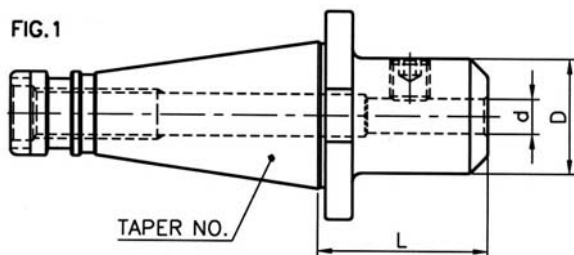
K ER COLLET CHUCK-ER, ER/M	703
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NC ER COLLET CHUCK-ER	704
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MILLING CHUCK STANDARD SET	705
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DIN2080-ISO

END MILL HOLDER-EMH



STUB

TYPE	TAPER No.	d	L	D	FIG.	PART No.
ISO30-EMH16-20	30	16	20	32	1	5
ISO30-EMH20-34	30	20	34	36	1	8
ISO40-EMH16-21.6	40	16	21.6	44	1	5
ISO40-EMH20-21.6	40	20	21.6	44	1	8
ISO40-EMH25-21.6	40	25	21.6	44	1	7
ISO50-EMH16-16	50	16	16	-	1	5
ISO50-EMH20-16	50	20	16	-	1	8
ISO50-EMH25-16	50	25	16	-	1	7
ISO50-EMH32-16	50	32	16	-	1	12

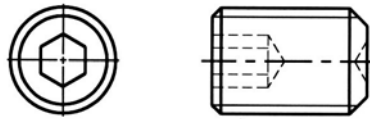
- End-Mill Holder-EMH
- Weldon-Aufnahme-EMH
- Mandrins Porte-Fraises-EMH
- Mandrino Porta frese tipo Weldon-EMH
- Porta Fresas tipo Weldon-EMH

STANDARD

TYPE	TAPER No.	d	L	D	FIG.	PART No.
ISO30-EMH6-40	30	6	40	25	1	1
ISO30-EMH8-40	30	8	40	28	1	2
ISO30-EMH10-40	30	10	40	35	1	3
ISO30-EMH12-40	30	12	40	42	1	4
ISO30-EMH16-50	30	16	50	48	1	6
ISO30-EMH20-63	30	20	63	52	1	9
ISO40-EMH6-50	40	6	50	25	1	1
ISO40-EMH8-50	40	8	50	28	1	2
ISO40-EMH10-50	40	10	50	35	1	3
ISO40-EMH12-50	40	12	50	42	1	4
ISO40-EMH16-63	40	16	63	48	1	6
ISO40-EMH20-63	40	20	63	52	1	9
ISO40-EMH25-80	40	25	80	65	2	11
ISO40-EMH32-80	40	32	80	72	2	12
ISO50-EMH6-63	50	6	63	25	1	1
ISO50-EMH8-63	50	8	63	28	1	2
ISO50-EMH10-63	50	10	63	35	1	3
ISO50-EMH12-63	50	12	63	42	1	4
ISO50-EMH16-63	50	16	63	48	1	6
ISO50-EMH20-63	50	20	63	52	1	9
ISO50-EMH25-80	50	25	80	65	2	11
ISO50-EMH32-80	50	32	80	72	2	12
ISO50-EMH40-90	50	40	90	90	2	12
ISO50-EMH50-100	50	50	100	98	2	13

EMH-PART

SIDE LOCK BOLT

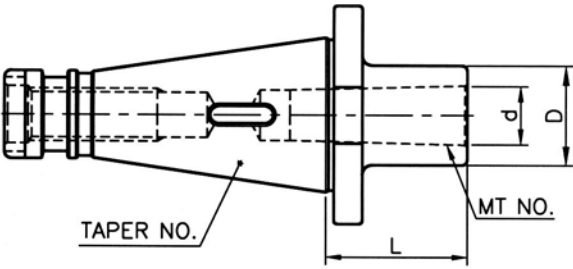


No.	BOLT SIZE	Q'TY	END MILL DIA.
①	M6 × 1.0 × 10L	1	6
②	M8 × 1.25 × 10L	1	8
③	M10 × 1.5 × 12L	1	10
④	M12 × 1.75 × 16L	1	12
⑤	M14 × 2.0 × 12L	1	16
⑥	M14 × 2.0 × 16L	1	16
⑦	M16 × 2.0 × 12L	1	25

No.	BOLT SIZE	Q'TY	END MILL DIA.
⑧	M16 × 2.0 × 14L	1	20
⑨	M16 × 2.0 × 16L	1	20
⑩	M18 × 2.0 × 12L	1	25
⑪	M18 × 2.0 × 20L	2	25
⑫	M20 × 2.0 × 20L	2	32,40
⑬	M24 × 2.0 × 25L	2	50

DIN2080-ISO

MORSE TAPER ADAPTER A TYPE-MTA



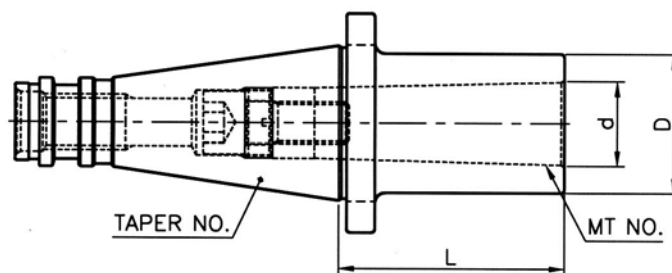
STANDARD

TYPE	TAPER NO.	MT No.	L	d	D
ISO30-MTA1-50	30	#1	50	12.065	25
ISO30-MTA2-50	30	#2	50	17.78	32
ISO30-MTA3-76	30	#3	76	23.825	40
ISO40-MTA1-50	40	#1	50	12.065	25
ISO40-MTA2-50	40	#2	50	17.78	32
ISO40-MTA3-65	40	#3	65	23.825	40
ISO40-MTA4-95	40	#4	95	31.267	48
ISO50-MTA1-45	50	#1	45	12.065	25
ISO50-MTA2-60	50	#2	60	17.78	32
ISO50-MTA3-65	50	#3	65	23.825	40
ISO50-MTA4-70	50	#4	70	31.267	48
ISO50-MTA5-105	50	#5	105	44.399	63

- Morse Taper Adapter A Type-MTA
- Einsatzhülsen für Morsekegel Form A-MTA
- Reductores a Morse tipo A-MTA

DIN2080-ISO

MORSE TAPER ADAPTER B TYPE-MTB



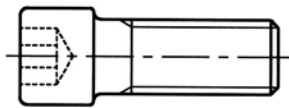
STANDARD

TYPE	TAPER NO.	MT No.	L	d	D	PART No.
ISO30-MTB1-50	30	#1	50	12.065	25	14,22
ISO30-MTB2-50	30	#2	50	17.78	32	15,23
ISO30-MTB3-76	30	#3	76	23.825	40	17,24
ISO40-MTB1-50	40	#1	50	12.065	25	14,22
ISO40-MTB2-50	40	#2	50	17.78	32	16,23
ISO40-MTB3-65	40	#3	65	23.825	40	18,24
ISO40-MTB4-95	40	#4	95	31.267	48	20,25
ISO50-MTB1-60	50	#1	60	12.065	25	14,22
ISO50-MTB2-60	50	#2	60	17.78	32	16,23
ISO50-MTB3-65	50	#3	65	23.825	40	18,24
ISO50-MTB4-65	50	#4	65	31.267	48	19,25
ISO50-MTB5-100	50	#5	100	44.399	63	21,26

- Morse Taper Adapter B Type-MTB
- Einsatzhülsen für Morsekegel Form B-MTB
- Reductores a Morse tipo B-MTB

MTB-PART

HEXAGON SOCKET HEAD SCREW & WASHER BOLT

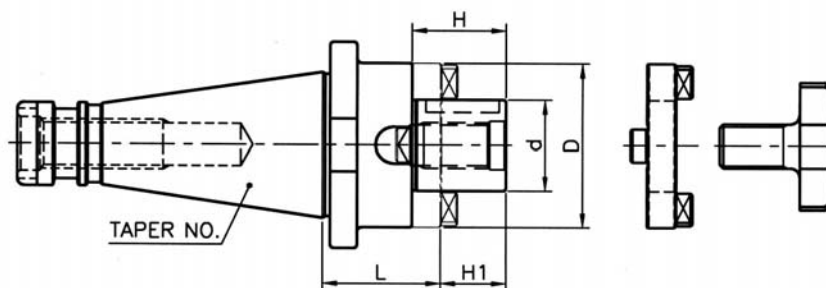


No.	HEXAGON SOCKET HEAD SCREW	Q' TY
⑭	M6 ×1.0 ×25L(STANDARD)	1
⑮	M10 ×1.5 ×30L(STANDARD)	1
⑯	M10 ×1.5 ×30L(SHORT TYPE)	1
⑰	M12 ×1.75 ×35L(#30)	1
⑱	M12 ×1.75 ×35L(STANDARD)	1
⑲	M16 ×2.0 ×40L(STANDARD)	1
⑳	M16 ×2.0 ×40L(SHORT TYPE)	1
㉑	M20 ×2.5 ×45L(STANDARD)	1

No.	WASHER BOLT	Q' TY	MT No.
㉒	-	-	MTB1
㉓	M15 ×1.0 ×6L	1	MTB2
㉔	M20 ×1.5 ×8L	1	MTB3
㉕	M26 ×1.5 ×8L	1	MTB4
㉖	M36 ×2.0 ×8L	1	MTB5

DIN2080-ISO

COMBI SHELL END MILL ARBOR-CMA



STANDARD

TYPE	TAPER No.	d	L	D	H1	H	PART No.
ISO30-CMA16-35	30	16	35	32	17	27	26,32,38
ISO30-CMA22-35	30	22	35	40	19	31	27,33,39
ISO30-CMA27-35	30	27	35	48	21	33	28,34,40
ISO40-CMA16-52	40	16	52	32	17	27	26,32,38
ISO40-CMA22-52	40	22	52	40	19	31	27,33,39
ISO40-CMA27-52	40	27	52	48	21	33	28,34,40
ISO40-CMA32-52	40	32	52	58	24	38	29,35,41
ISO40-CMA40-52	40	40	52	70	27	41	30,36,42
ISO50-CMA16-55	50	16	55	32	17	27	26,32,38
ISO50-CMA22-55	50	22	55	40	19	31	27,33,39
ISO50-CMA27-55	50	27	55	48	21	33	28,34,40
ISO50-CMA32-55	50	32	55	58	24	38	29,35,41
ISO50-CMA40-55	50	40	55	70	27	41	30,36,42
ISO50-CMA50-55	50	50	55	90	30	46	31,37,43

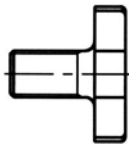
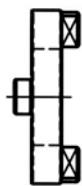
EXTENDED

TYPE	TAPER No.	d	L	D	H1	H	PART No.
ISO40-CMA16-125	40	16	125	32	17	27	26,32,38
ISO40-CMA22-125	40	22	125	40	19	31	27,33,39
ISO40-CMA27-125	40	27	125	48	21	33	28,34,40
ISO40-CMA32-125	40	32	125	58	24	38	29,35,41
ISO50-CMA16-125	50	16	125	32	17	27	26,32,38
ISO50-CMA22-125	50	22	125	40	19	31	27,33,39
ISO50-CMA27-125	50	27	125	48	21	33	28,34,40
ISO50-CMA32-125	50	32	125	58	24	38	29,35,41
ISO50-CMA40-125	50	40	125	70	27	41	30,36,42

- Combi-Shell Mill Arbor-CMA
- Kombi-Aufsteckfräserdorne-CMA
- Mandrino porta frese-CMA
- Portafresas combinado-CMA

CMA-PART

CLUTCH DRIVE RING, COLLAR BOLT & KEY



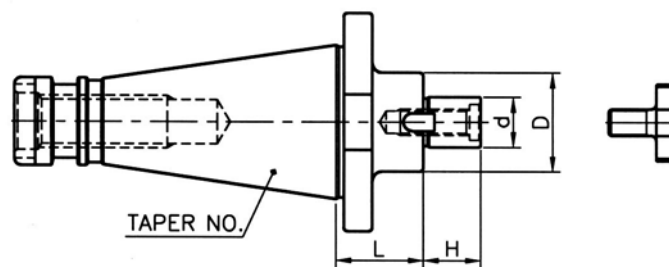
No.	CLUTCH DRIVE RING	Q' TY
②6	#16	1
②7	#22	1
②8	#27	1
②9	#32	1
③0	#40	1
③1	#50	1

No.	COLLAR BOLT	Q' TY
③2	M8 ×1.25	1
③3	M10 ×1.5	1
③4	M12 ×1.75	1
③5	M16 ×2.0	1
③6	M20 ×2.5	1
③7	M24 ×3.0	1

No.	KEY	Q' TY	CMA DIA.
③8	4 ×4 ×20	1	16
③9	6 ×6 ×25	1	22
④0	7 ×7 ×25	1	27
④1	8 ×7 ×28	1	32
④2	10 ×8 ×32	1	40
④3	12 ×8 ×36	1	50

DIN2080-ISO

SHELL END MILL ARBOR-SMA



STANDARD

TYPE	TAPER No.	d	L	D	H	PART No.
ISO30-SMA16-35	30	16	35	32	17	27,33,39
ISO30-SMA22-35	30	22	35	40	19	28,34,40
ISO30-SMA27-35	30	27	35	48	21	29,35,41
ISO30-SMA32-35	30	32	35	58	24	30,36,42
ISO40-SMA16-37	40	16	37	32	17	27,33,39
ISO40-SMA22-37	40	22	37	40	19	28,34,40
ISO40-SMA27-37	40	27	37	48	21	29,35,41
ISO40-SMA32-37	40	32	37	58	24	30,36,42
ISO40-SMA40-38	40	40	38	70	27	31,37,43
ISO50-SMA16-40	50	16	40	32	17	27,33,39
ISO50-SMA22-40	50	22	40	40	19	28,34,40
ISO50-SMA27-40	50	27	40	48	21	29,35,41
ISO50-SMA32-40	50	32	40	58	24	30,36,42
ISO50-SMA40-40	50	40	40	70	27	31,37,43
ISO50-SMA50-40	50	50	40	90	30	32,38,44

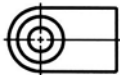
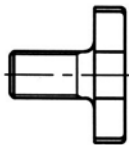
EXTENDED

TYPE	TAPER No.	d	L	D	H	PART No.
ISO40-SMA16-100	40	16	100	32	17	27,33,39
ISO40-SMA22-100	40	22	100	40	19	28,34,40
ISO40-SMA27-100	40	27	100	48	21	29,35,41
ISO40-SMA32-125	40	32	125	58	24	30,36,42
ISO50-SMA16-150	50	16	150	32	17	27,33,39
ISO50-SMA22-150	50	22	150	40	19	28,34,40
ISO50-SMA27-150	50	27	150	48	21	29,35,41
ISO50-SMA32-150	50	32	150	58	24	30,36,42
ISO50-SMA40-150	50	40	150	70	27	31,37,43

- Shell Mill Arbor-SMA
- Aufsteckfräserdorne-SMA
- Mandrins porte-fraises-SMA
- Mandrino con trascinamento fisso-SMA
- Portafresas-SMA

SMA-PART

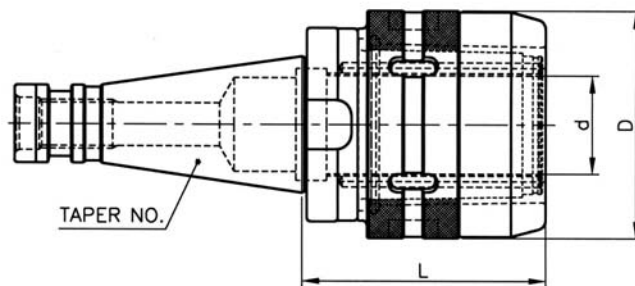
COLLAR BOLT, DRIVE KEY & KEY BOLT



No.	COLLAR BOLT	Q' TY	No.	DRIVE KEY	Q' TY	No.	KEY BOLT	Q' TY	SMA DIA.
②7	M8 × 1.25	1	③3	8 × 7 × 12.8	2	③9	M3 × 0.5 × 8L	2	16
②8	M10 × 1.5	1	③4	10 × 7.8 × 15.5	2	④0	M4 × 0.7 × 10L	2	22
②9	M12 × 1.75	1	③5	12 × 9 × 18.5	2	④1	M5 × 0.8 × 12L	2	27
③0	M16 × 2.0	1	③6	14 × 11.5 × 20.5	2	④2	M6 × 1.0 × 15L	2	32
③1	M20 × 2.5	1	③7	16 × 13.5 × 23.5	2	④3	M6 × 1.0 × 15L	2	40
③2	M24 × 3.0	1	③8	18 × 18 × 28.5	2	④4	M6 × 1.0 × 20L	2	50

DIN2080-ISO

MILLING CHUCK-C



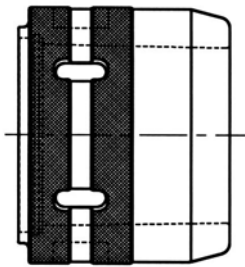
STANDARD

TYPE	TAPER No.	d	L	D	PART No.
ISO30-C20-67	40	20	67	54	45,49
ISO40-C25-78	40	25	78	62.5	46,50
ISO40-C32-78	40	32	78	74	47,51
ISO50-C25-80	50	25	80	62.5	46,50
ISO50-C32-85	50	32	85	74	47,51
ISO50-C42-102	50	42	102	92	48,52

- Milling Chuck-C
- Fräaserspannfutter-C
- Mandrins à pinces-C
- Mandrino a forte serraggio-C
- Portapinzas de gran apriete-C

C-PART

CAP & WRENCH

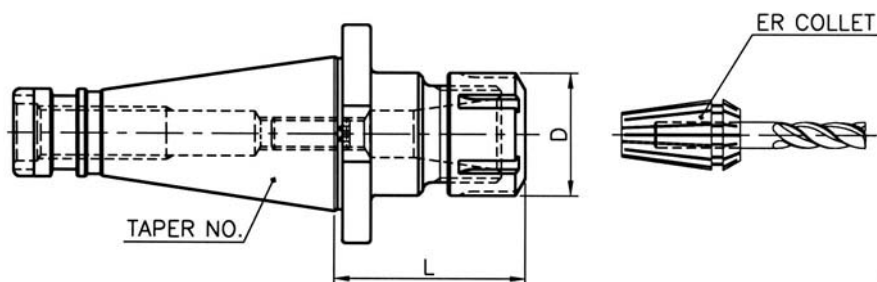


No.	CAP	Q'TY
④⑤	C20	1
④⑥	C25	1
④⑦	C32	1
④⑧	C42	1

No.	WRENCH	Q'TY
⑤⑨	C20	1
⑤⑩	C25	1
⑤⑪	C32	1
⑤⑫	C42	1

DIN2080-ISO

ER CHUCK-ER



STANDARD

TYPE	TAPER No.	RANGE	L	D	PART No.
ISO30-ER11-42	30	0.5- 7.0	42	19	53,59
ISO30-ER16-42	30	0.5-10.0	42	28	54,60
ISO30-ER20-42	30	1.0-13.0	42	34	55,61
ISO30-ER25-42	30	1.0-16.0	42	42	56,62
ISO30-ER32-50	30	2.0-20.0	50	50	57,63
ISO40-ER11-50	40	0.5- 7.0	50	19	53,59
ISO40-ER16-50	40	0.5-10.0	50	28	54,60
ISO40-ER20-50	40	1.0-13.0	50	34	55,61
ISO40-ER25-50	40	1.0-16.0	50	42	56,62
ISO40-ER32-50	40	2.0-20.0	50	50	57,63
ISO40-ER40-63	40	3.0-26.0	63	63	58,64
ISO50-ER16-63	50	0.5- 7.0	63	28	54,60
ISO50-ER20-63	50	0.5-10.0	63	34	55,61
ISO50-ER25-63	50	1.0-13.0	63	42	56,62
ISO50-ER32-63	50	1.0-16.0	63	50	57,63
ISO50-ER40-63	50	2.0-20.0	63	63	58,64
ISO50-ER50-65	50	3.0-26.0	65	78	59,65

EXTENDED

TYPE	TAPER No.	RANGE	L	D	PART No.
ISO40-ER16-100	40	0.5-10.0	100	28	54,60
ISO40-ER20-100	40	1.0-13.0	100	34	55,61
ISO40-ER25-100	40	1.0-16.0	100	42	56,62
ISO40-ER32-100	40	2.0-20.0	100	50	57,63
ISO50-ER16-100	50	0.5- 7.0	100	28	54,60
ISO50-ER20-100	50	0.5-10.0	100	34	55,61
ISO50-ER25-100	50	1.0-13.0	100	42	56,62
ISO50-ER32-100	50	1.0-16.0	100	50	57,63
ISO50-ER40-100	50	2.0-20.0	100	63	58,64

- ER Collet Chuck-ER
- Fräterspannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

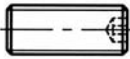
ER-PART

NUT & ADJUST BOLT

FIG.1



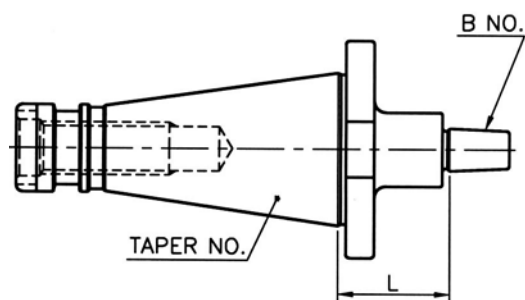
FIG.2



No.	NUT	FIG.	Q`TY	No.	ADJUST BOLT	Q`TY	ER
⑤③	ER11	FIG.1	1	⑤⑨	M6 ×1.0 ×15L	1	ER11
⑤④	ER16	FIG.1	1	⑥⑩	M10 ×1.5 ×15L	1	ER16
⑤⑤	ER20	FIG.1	1	⑥①	M12 ×1.75 ×15L	1	ER20
⑤⑥	ER25	FIG.2	1	⑥②	M12 ×1.75 ×20L	1	ER25
⑤⑦	ER32	FIG.2	1	⑥③	M12 ×1.75 ×25L	1	ER32
⑤⑧	ER40	FIG.2	1	⑥④	M12 ×1.75 ×30L	1	ER40
⑤⑨	ER50	FIG.2	1	⑥⑤	M12 ×1.75 ×40L	1	ER50

DIN2080-ISO

DRILL CHUCK ARBOR-B



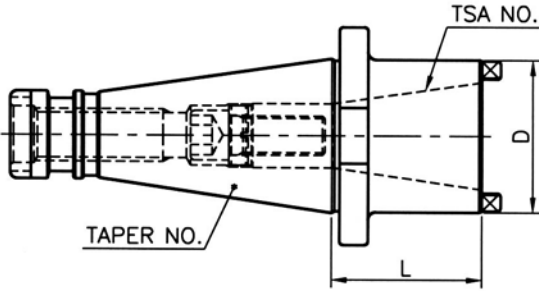
STANDARD

TYPE	TAPER No.	B No.	L
ISO30-B12-15	30	B12	15
ISO30-B16-15	30	B16	15
ISO40-B12-17	40	B12	17
ISO40-B16-17	40	B16	17
ISO40-B18-17	40	B18	17
ISO50-B16-20	50	B16	20
ISO50-B18-20	50	B18	20

- Drill Chuck Arbor-B
- Bohrfutter-Aufnahme-B
- Arbres pour mandrins de perçage-B
- Attaco per mandrino porte punte-B
- Adaptadores para portabrocas-B

DIN2080-ISO

TAPER SLEEVE-TSA



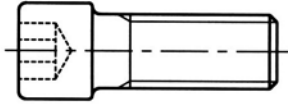
STANDARD

TYPE	TAPER No.	TSA No.	L	D	PART No.
ISO40-TSA30-50	40	TSA30	50	50	65,67
ISO50-TSA40-50	50	TSA40	50	63	60,64

- Taper Sleeve-TSA
- Zwischenhülsen-TSA
- Douilles de Réduction à cône ISO-TSA
- Reductores a Cono ISO-TSA

TSA-PART

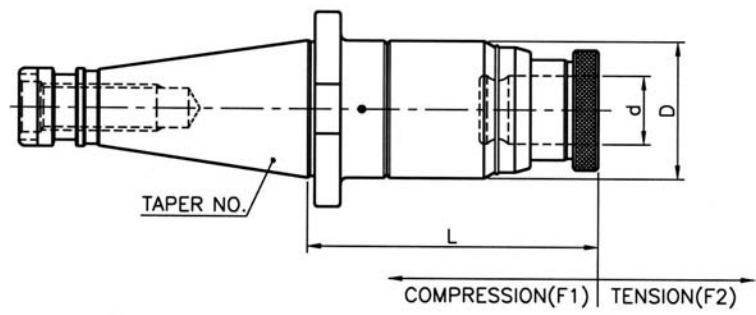
HEXAGON SOCKET HEAD SCREW & WASHER BOLT



No.	HEXAGON SOCKET HEAD SCREW	Q' TY	No.	WASHER BOLT	Q' TY	TSA No.
⑥5	M12 × 1.75 × 30L (SHORT TYPE)	1	⑥7	M20 × 1.5 × 8L	1	TSA30
⑥6	M16 × 2.0 × 40L (STANDARD)	1	⑥8	M26 × 1.5 × 8L	1	TSA40

DIN2080-ISO

TAPPING CHUCK-TC



STANDARD

TYPE	TAPER No.	TAP SIZE	d	L	D	F1	F2
ISO40-TC12-90	40	M3-M12	19	90	45	5	15
ISO40-TC24-100	40	M8-M24	31	100	63	5	20
ISO50-TC12-100	50	M3-M12	19	100	45	5	15
ISO50-TC24-100	50	M8-M24	31	100	63	5	20
ISO50-TC38-150	50	M18-M38	48	150	98	10	25

- Tapping Chuck-TC
- Gewindeschneid-Schnellwechselfutter-TC
- Tarauder à changement rapide-TC
- Mandrino per maschiare-TC
- Portamachos de cambio rapido-TC

DIN69871/A-SK

END MILL HOLDER-EMH

FIG.1

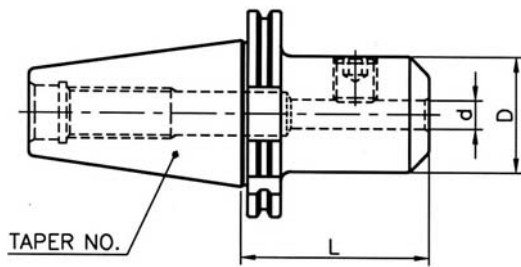
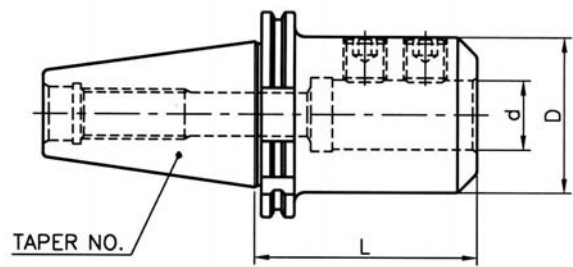


FIG.2



STUB

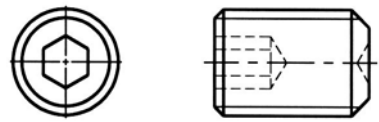
TYPE	TAPER No.	d	L	D	FIG	PART No.
SK40-EMH16-35	40	16	35	44	1	5
SK40-EMH20-36	40	20	36	44	1	8
SK40-EMH25-60	40	25	60	50	1	7,10

- End-Mill Holder-EMH
- Weldon-Aufnahme-EMH
- Mandrins Porte-Fraises-EMH
- Mandrino Porta frese tipo Weldon-EMH
- Porta Fresas tipo Weldon-EMH

STANDARD

TYPE	TAPER No.	d	L	D	FIG	PART No.
SK30-EMH6-50	30	6	50	25	1	1
SK30-EMH8-50	30	8	50	28	1	2
SK30-EMH10-50	30	10	50	35	1	3
SK30-EMH12-50	30	12	50	42	1	4
SK30-EMH16-63	30	16	63	48	1	6
SK40-EMH6-50	40	6	50	25	1	1
SK40-EMH8-50	40	8	50	28	1	2
SK40-EMH10-50	40	10	50	35	1	3
SK40-EMH12-50	40	12	50	42	1	4
SK40-EMH16-63	40	16	63	48	1	6
SK40-EMH20-63	40	20	63	52	1	9
SK40-EMH25-100	40	25	100	65	2	11
SK40-EMH32-100	40	32	100	72	2	12
SK50-EMH6-63	50	6	63	25	1	1
SK50-EMH8-63	50	8	63	28	1	2
SK50-EMH10-63	50	10	63	35	1	3
SK50-EMH12-63	50	12	63	42	1	4
SK50-EMH16-63	50	16	63	48	1	6
SK50-EMH20-63	50	20	63	52	1	9
SK50-EMH25-80	50	25	80	65	2	11
SK50-EMH32-100	50	32	100	72	2	12
SK50-EMH40-120	50	40	120	90	2	12
SK50-EMH50-120	50	50	120	98	2	13

EMH-PART SIDE LOCK BOLT

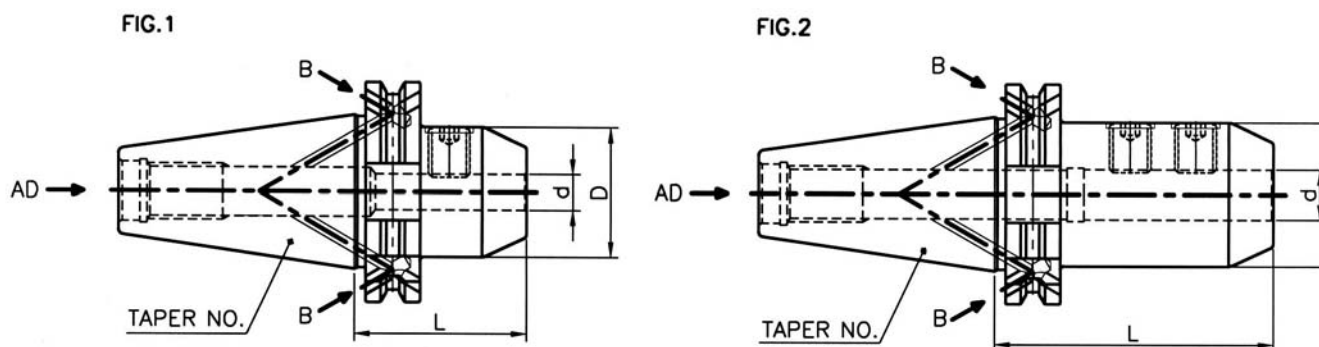


No.	BOLT SIZE	Q'TY	END MILL DIA.
①	M6 ×1.0 ×10L	1	6
②	M8 ×1.25 ×10L	1	8
③	M10 ×1.5 ×12L	1	10
④	M12 ×1.75 ×16L	1	12
⑤	M14 ×2.0 ×12L	1	16
⑥	M14 ×2.0 ×16L	1	16
⑦	M16 ×2.0 ×12L	1	25

No.	BOLT SIZE	Q'TY	END MILL DIA.
⑧	M16 ×2.0 ×14L	1	20
⑨	M16 ×2.0 ×16L	1	20
⑩	M18 ×2.0 ×12L	1	25
⑪	M18 ×2.0 ×20L	2	25
⑫	M20 ×2.0 ×20L	2	32,40
⑬	M24 ×2.0 ×25L	2	50

DIN69871/AD+B-SK

END MILL HOLDER-EMH



STANDARD

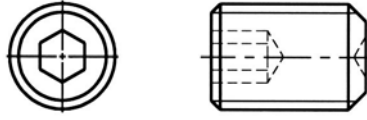
TYPE	TAPER No.	d	L	D	FIG.	PART No.
SK40AD/B-EMH6-50	40	6	50	25	1	1
SK40AD/B-EMH8-50	40	8	50	28	1	2
SK40AD/B-EMH10-50	40	10	50	35	1	3
SK40AD/B-EMH12-50	40	12	50	42	1	4
SK40AD/B-EMH16-63	40	16	63	48	1	6
SK40AD/B-EMH20-63	40	20	63	52	1	9
SK40AD/B-EMH25-100	40	25	100	65	2	11
SK40AD/B-EMH32-100	40	32	100	72	2	12
SK50AD/B-EMH6-63	50	6	63	25	1	1
SK50AD/B-EMH8-63	50	8	63	28	1	2
SK50AD/B-EMH10-63	50	10	63	35	1	3
SK50AD/B-EMH12-63	50	12	63	42	1	4
SK50AD/B-EMH16-63	50	16	63	48	1	6
SK50AD/B-EMH20-63	50	20	63	52	1	9
SK50AD/B-EMH25-80	50	25	80	65	2	11
SK50AD/B-EMH32-100	50	32	100	72	2	12
SK50AD/B-EMH40-100	50	40	100	90	2	12
SK50AD/B-EMH50-120	50	50	120	98	2	13

► BALANCED END MILL HOLDER(20,000RPM) ARE AVAILABLE DEPENDING ON YOUR REQUEST.

- End-Mill Holder-EMH
- Weldon-Aufnahme-EMH
- Mandrins Porte-Fraises-EMH
- Mandrino Porta frese tipo Weldon-EMH
- Porta Fresas tipo Weldon-EMH

EMH-PART

SIDE LOCK BOLT

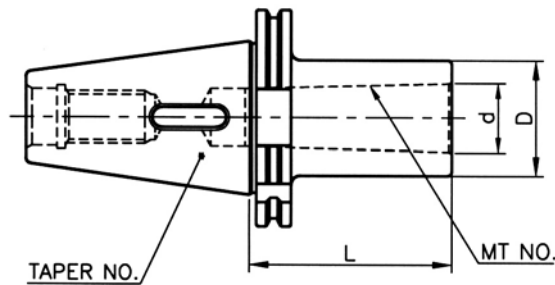


No.	BOLT SIZE	Q'TY	END MILL DIA.
①	M6 × 1.0 × 10L	1	6
②	M8 × 1.25 × 10L	1	8
③	M10 × 1.5 × 12L	1	10
④	M12 × 1.75 × 16L	1	12
⑤	M14 × 2.0 × 12L	1	16
⑥	M14 × 2.0 × 16L	1	16
⑦	M16 × 2.0 × 12L	1	25

No.	BOLT SIZE	Q'TY	END MILL DIA.
⑧	M16 × 2.0 × 14L	1	20
⑨	M16 × 2.0 × 16L	1	20
⑩	M18 × 2.0 × 12L	1	25
⑪	M18 × 2.0 × 20L	2	25
⑫	M20 × 2.0 × 20L	2	32,40
⑬	M24 × 2.0 × 25L	2	50

DIN69871/A-SK

MORSE TAPER ADAPTER A TYPE-MTA



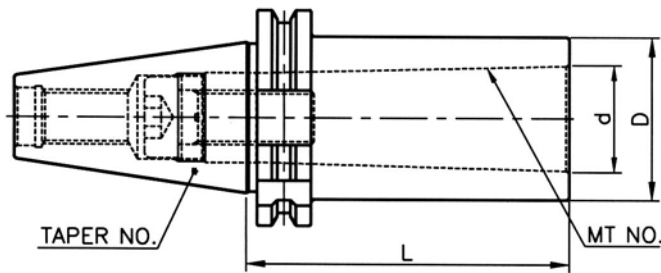
STANDARD

TYPE	TAPER No.	MT No.	L	d	D
SK30-MTA1-50	30	#1	50	12.065	25
SK30-MTA2-60	30	#2	60	17.78	32
SK30-MTA3-80	30	#3	80	23.825	40
SK40-MTA1-50	40	#1	50	12.065	25
SK40-MTA2-50	40	#2	50	17.78	32
SK40-MTA3-70	40	#3	70	23.825	40
SK40-MTA4-95	40	#4	95	31.267	48
SK50-MTA1-45	50	#1	45	12.065	25
SK50-MTA2-60	50	#2	60	17.78	32
SK50-MTA3-65	50	#3	65	23.825	40
SK50-MTA4-95	50	#4	95	31.267	48
SK50-MTA5-105	50	#5	105	44.399	63

- Morse Taper Adapter A Type-MTA
- Einsatzhülsen für Morsekegel Form A-MTA
- Reductores a Morse tipo A-MTA

DIN69871/A-SK

MORSE TAPER ADAPTER B TYPE-MTB



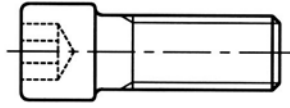
STANDARD

TYPE	TAPER No.	MT No.	L	d	D	PART No.
SK30-MTB1-50	30	#1	30	12.065	25	14,22
SK30-MTB2-70	30	#2	30	17.78	32	16,23
SK30-MTB3-100	30	#3	30	23.825	40	17,24
SK40-MTB1-50	40	#1	40	12.065	25	14,22
SK40-MTB2-50	40	#2	40	17.78	32	16,23
SK40-MTB3-70	40	#3	40	23.825	40	18,24
SK40-MTB4-95	40	#4	40	31.267	48	20,25
SK50-MTB1-45	50	#1	50	12.065	25	14,22
SK50-MTB2-60	50	#2	50	17.78	32	15,23
SK50-MTB3-65	50	#3	50	23.825	40	18,24
SK50-MTB4-70	50	#4	50	31.267	48	19,25
SK50-MTB5-100	50	#5	50	44.399	63	21,26

- Morse Taper Adapter B Type-MTB
- Einsatzhülsen für Morsekegel Form B-MTB
- Reductores a Morse tipo B-MTB

MTB-PART

HEXAGON SOCKET HEAD SCREW WASHER BOLT

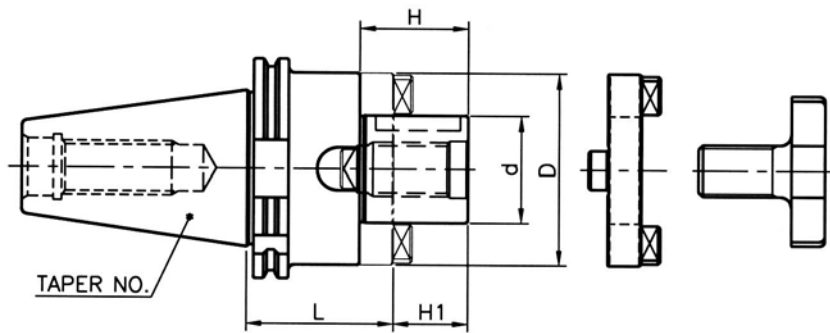


No.	HEXAGON SOCKET HEAD SCREW	Q'TY
⑭	M6 × 1.0 × 25L(STANDARD)	1
⑮	M10 × 1.5 × 30L(STANDARD)	1
⑯	M10 × 1.5 × 30L(SHORT TYPE)	1
⑰	M12 × 1.75 × 35L(#30)	1
⑱	M12 × 1.75 × 35L(STANDARD)	1
⑲	M16 × 2.0 × 40L(STANDARD)	1
⑳	M16 × 2.0 × 40L(SHORT TYPE)	1
㉑	M20 × 2.5 × 45L(STANDARD)	1

No.	WASHER BOLT	Q'TY	MT No.
㉒	-	-	MTB1
㉓	M15 × 1.0 × 6L	1	MTB2
㉔	M20 × 1.5 × 8L	1	MTB3
㉕	M26 × 1.5 × 8L	1	MTB4
㉖	M36 × 2.0 × 8L	1	MTB5

DIN69871/A-SK

COMBI SHELL END MILL ARBOR-CMA



STANDARD

TYPE	TAPER No.	d	L	D	H1	H	PART No.
SK30-CMA16-50	30	16	50	32	17	27	26,32,38
SK30-CMA22-50	30	22	50	40	19	31	27,33,39
SK30-CMA27-55	30	27	55	48	21	33	28,34,40
SK40-CMA16-55	40	16	55	32	17	27	26,32,38
SK40-CMA22-55	40	22	55	40	19	31	27,33,39
SK40-CMA27-55	40	27	55	48	21	33	28,34,40
SK40-CMA32-60	40	32	60	58	24	38	29,35,41
SK40-CMA40-60	40	40	60	70	27	41	30,36,42
SK50-CMA16-55	50	16	55	32	17	27	26,32,38
SK50-CMA22-55	50	22	55	40	19	31	27,33,39
SK50-CMA27-55	50	27	55	48	21	33	28,34,40
SK50-CMA32-55	50	32	55	58	24	38	29,35,41
SK50-CMA40-55	50	40	55	70	27	41	30,36,42
SK50-CMA50-70	50	50	70	90	30	46	31,37,43

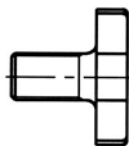
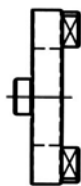
EXETNDED

TYPE	TAPER No.	d	L	D	H1	H	PART No.
SK40-CMA16-100	40	16	100	32	17	27	26,32,38
SK40-CMA22-100	40	22	100	40	19	31	27,33,39
SK40-CMA27-100	40	27	100	48	21	33	28,34,40
SK40-CMA32-100	40	32	100	58	24	38	29,35,41
SK50-CMA16-100	50	16	100	32	17	27	26,32,38
SK50-CMA22-100	50	22	100	40	19	31	27,33,39
SK50-CMA27-100	50	27	100	48	21	33	28,34,40
SK50-CMA32-100	50	32	100	58	24	38	29,35,41
SK50-CMA40-100	50	40	100	70	27	41	30,36,42

- Combi-Shell Mill Arbor-CMA
- Kombi-Aufsteckfräserdorne-CMA
- Mandrino porta frese-CMA
- Portafresas combinado-CMA

CMA-PART

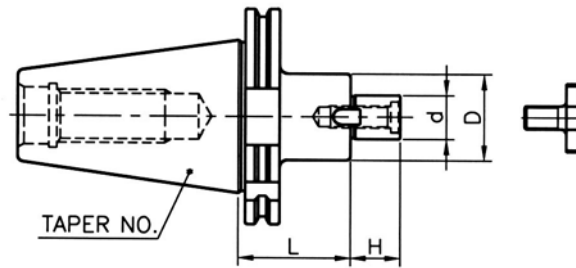
CLUTCH DRIVE RING, COLLAR BOLT & KEY



No.	CLUTCH DRIVE RING	Q'TY	No.	COLLAR BOLT	Q'TY	No.	KEY	Q'TY	CMA DIA.
②⑥	#16	1	③②	M8 × 1.25	1	③⑧	4 × 4 × 20	1	16
②⑦	#22	1	③③	M10 × 1.5	1	③⑨	6 × 6 × 25	1	22
②⑧	#27	1	③④	M12 × 1.75	1	④①	7 × 7 × 25	1	27
②⑨	#32	1	③⑤	M16 × 2.0	1	④②	8 × 7 × 28	1	32
③①	#40	1	③⑥	M20 × 2.5	1	④③	10 × 8 × 32	1	40
③①	#50	1	③⑦	M24 × 3.0	1	④③	12 × 8 × 36	1	50

DIN69871/A-SK

SHELL END MILL ARBOR-SMA



STANDARD

TYPE	TAPER No.	d	L	D	H	PART No.
SK30-SMA16-50	30	16	50	32	17	27,33,39
SK30-SMA22-50	30	22	50	40	19	28,34,40
SK30-SMA27-50	30	27	50	48	21	29,35,41
SK40-SMA16-60	40	16	60	32	17	27,33,39
SK40-SMA22-60	40	22	60	40	19	28,34,40
SK40-SMA27-60	40	27	60	48	21	29,35,41
SK40-SMA32-60	40	32	60	58	24	30,36,42
SK40-SMA40-60	40	40	60	70	27	31,37,43
SK50-SMA16-75	50	16	75	32	17	27,33,39
SK50-SMA22-75	50	22	75	40	19	28,34,40
SK50-SMA27-75	50	27	75	48	21	29,35,41
SK50-SMA32-75	50	32	75	58	24	30,36,42
SK50-SMA40-75	50	40	75	70	27	31,37,43
SK50-SMA50-75	50	50	75	90	30	32,38,44

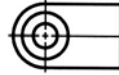
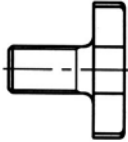
EXTENDED

TYPE	TAPER No.	d	L	D	H	PART No.
SK40-SMA16-120	40	16	120	32	17	27,33,39
SK40-SMA22-120	40	22	120	40	19	28,34,40
SK40-SMA27-120	40	27	120	48	21	29,35,41
SK40-SMA32-120	40	32	120	58	24	30,36,42
SK50-SMA16-120	50	16	120	32	17	27,33,39
SK50-SMA22-120	50	22	120	40	19	28,34,40
SK50-SMA27-120	50	27	120	48	21	29,35,41
SK50-SMA32-120	50	32	120	58	24	30,36,42
SK50-SMA40-120	50	40	120	70	27	31,37,43

- Shell Mill Arbor-SMA
- Aufsteckfräserdorne-SMA
- Mandrins porte-fraises-SMA
- Mandrino con trascinamento fisso-SMA
- Portafresas-SMA

SMA-PART

COLLAR BOLT, DRIVE KEY & KEY BOLT



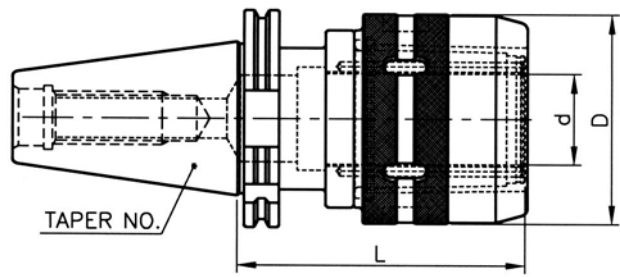
No.	COLLAR BOLT	Q'TY
②⑦	M8 × 1.25	1
②⑧	M10 × 1.5	1
②⑨	M12 × 1.75	1
③⑩	M16 × 2.0	1
③①	M20 × 2.5	1
③②	M24 × 3.0	1

No.	DRIVE KEY	Q'TY
③③	8 × 7 × 12.8	2
③④	10 × 7.8 × 15.5	2
③⑤	12 × 9 × 18.5	2
③⑥	14 × 11.5 × 20.5	2
③⑦	16 × 13.5 × 23.5	2
③⑧	18 × 18 × 28.5	2

No.	KEY BOLT	Q'TY	SMA DIA.
③⑨	M3 × 0.5 × 8L	2	16
④⑩	M4 × 0.7 × 10L	2	22
④①	M5 × 0.8 × 12L	2	27
④②	M6 × 1.0 × 15L	2	32
④③	M6 × 1.0 × 15L	2	40
④④	M6 × 1.0 × 20L	2	50

DIN69871/A-SK

MILLING CHUCK-C



STUB

TYPE	TAPER No.	d	L	D	PART No.
SK30-C20-80	30	20	80	54	45,49
SK40-C20-80	40	20	80	54	45,49
SK40-C25-90	40	25	90	62.5	46,50
SK40-C32-90	40	32	90	74	47,51
SK50-C20-80	50	20	80	54	45,49
SK50-C25-90	50	25	90	62.5	46,50
SK50-C32-90	50	32	90	74	47,51

STANDARD

TYPE	TAPER No.	d	L	D	PART No.
SK40-C20-105	40	20	105	54	45,49
SK40-C25-105	40	25	105	62.5	46,50
SK40-C32-105	40	32	105	74	47,51
SK50-C20-105	50	20	105	54	45,49
SK50-C25-105	50	25	105	62.5	46,50
SK50-C32-105	50	32	105	74	47,51
SK50-C42-115	50	42	115	92	48,52

EXTENDED

TYPE	TAPER No.	d	L	D	PART No.
SK40-C32-135	40	32	135	74	47,51
SK50-C32-115	50	32	115	74	47,51
SK50-C42-135	50	42	135	92	48,52

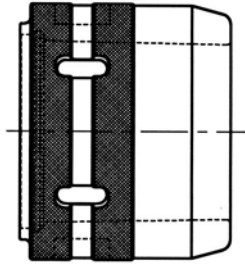
EXTRA EXTENDED

TYPE	TAPER No.	d	L	D	PART No.
SK50-C32-135	50	32	135	74	47,51
SK50-C42-165	50	42	165	92	48,52

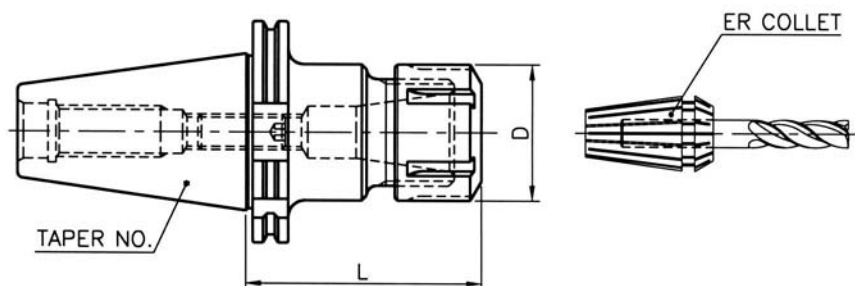
- Milling Chuck-C
- Fräaserspannfutter-C
- Mandrins à pincers-C
- Mandrino a forte serraggio-C
- Portapinzas de gran apriete-C

C-PART

CAP WRENCH



No.	CAP	Q'TY	No.	WRENCH	Q'TY
④⑤	C20	1	④⑨	C20	1
④⑥	C25	1	⑤⑩	C25	1
④⑦	C32	1	⑤⑪	C32	1
④⑧	C42	1	⑤⑫	C42	1

DIN69871/A-SK**ER CHUCK-ER****STANDARD**

TYPE	TAPER No.	RANGE	L	D	PART No.
SK30-ER11-55	30	0.5-7.0	55	19	53,59
SK30-ER16-55	30	0.5-10.0	55	28	54,60
SK30-ER20-55	30	1.0-13.0	55	34	55,61
SK30-ER25-55	30	1.0-16.0	55	42	56,62
SK30-ER32-60	30	2.0-20.0	60	50	57,63
SK40-ER11-70	40	0.5-7.0	70	19	53,59
SK40-ER16-75	40	0.5-10.0	75	28	54,60
SK40-ER20-75	40	1.0-13.0	75	34	55,61
SK40-ER25-70	40	1.0-16.0	70	42	56,62
SK40-ER32-75	40	2.0-20.0	75	50	57,63
SK40-ER40-80	40	3.0-26.0	80	63	58,64
SK50-ER16-70	50	0.5-7.0	70	28	54,60
SK50-ER20-75	50	0.5-10.0	75	34	55,61
SK50-ER25-80	50	1.0-13.0	80	42	56,62
SK50-ER32-75	50	1.0-16.0	75	50	57,63
SK50-ER40-80	50	2.0-20.0	80	63	58,64

EXTENDED

TYPE	TAPER No.	RANGE	L	D	PART No.
SK40-ER16-100	40	0.5-10.0	100	28	54,60
SK40-ER20-100	40	1.0-13.0	100	34	55,61
SK40-ER25-100	40	1.0-16.0	100	42	56,62
SK40-ER32-100	40	2.0-20.0	100	50	57,63
SK50-ER16-100	50	0.5-7.0	100	28	54,60
SK50-ER20-100	50	0.5-10.0	100	34	55,61
SK50-ER25-100	50	1.0-13.0	100	42	56,62
SK50-ER32-100	50	1.0-16.0	100	50	57,63
SK50-ER40-100	50	2.0-20.0	100	63	58,64

► BALANCED ER COLLET CHUCKS(TAPER No.40,50)-20,000RPM ARE AVAILABLE DEPENDING ON REQUEST.

- ER Collet Chuck-ER
- Fräterspannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

ER-PART

NUT & ADJUST BOLT

FIG.1



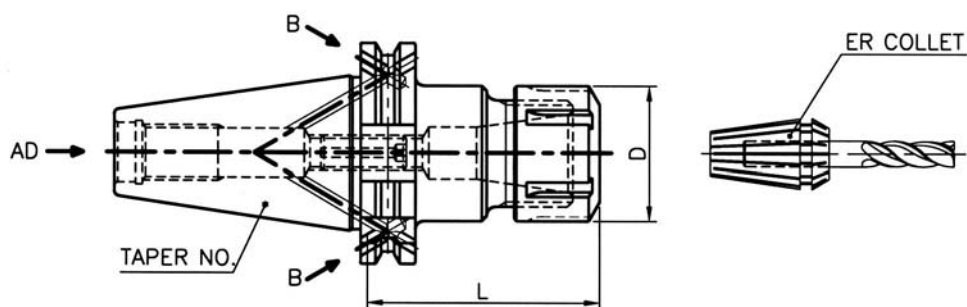
FIG.2



No.	NUT	FIG.	Q'TY	No.	ADJUST BOLT	Q'TY	ER
⑤③	ER11	FIG.1	1	⑤⑨	M6 ×1.0 ×15L	1	ER11
⑤④	ER16	FIG.1	1	⑥⑩	M10 ×1.5 ×15L	1	ER16
⑤⑤	ER20	FIG.1	1	⑥①	M12 ×1.75 ×15L	1	ER20
⑤⑥	ER25	FIG.2	1	⑥②	M12 ×1.75 ×20L	1	ER25
⑤⑦	ER32	FIG.2	1	⑥③	M12 ×1.75 ×25L	1	ER32
⑤⑧	ER40	FIG.2	1	⑥④	M12 ×1.75 ×30L	1	ER40

DIN69871 / AD+B-SK

ER CHUCK - ER



STANDARD

TYPE	TAPER No.	RANGE	L	D	PART No.
SK40AD/B-ER11-70	40	0.5-7.0	70	19	53,59
SK40AD/B-ER16-75	40	0.5-10.0	75	28	54,60
SK40AD/B-ER20-75	40	1.0-13.0	75	34	55,61
SK40AD/B-ER25-70	40	1.0-16.0	70	42	56,62
SK40AD/B-ER32-75	40	2.0-20.0	75	50	57,63
SK40AD/B-ER40-80	40	3.0-26.0	80	63	58,64
SK50AD/B-ER16-70	50	0.5-7.0	70	28	54,60
SK50AD/B-ER20-75	50	0.5-10.0	75	34	55,61
SK50AD/B-ER25-80	50	1.0-13.0	80	42	56,62
SK50AD/B-ER32-75	50	1.0-16.0	75	50	57,63
SK50AD/B-ER40-80	50	2.0-20.0	80	63	58,64

EXTENDED

TYPE	TAPER No.	RANGE	L	D	PART No.
SK40AD/B-ER16-100	40	0.5-10.0	100	28	54,60
SK40AD/B-ER20-100	40	1.0-13.0	100	34	55,61
SK40AD/B-ER25-100	40	1.0-16.0	100	42	56,62
SK40AD/B-ER32-100	40	2.0-20.0	100	60	57,63
SK50AD/B-ER16-100	50	0.5-7.0	100	28	54,60
SK50AD/B-ER20-100	50	0.5-10.0	100	34	55,61
SK50AD/B-ER25-100	50	1.0-13.0	100	42	56,62
SK50AD/B-ER32-100	50	1.0-16.0	100	50	57,63
SK50AD/B-ER40-100	50	2.0-20.0	100	63	58,64

► BALANCED ER COLLET CHUCKS(20,000RPM) ARE AVAILABLE DEPENDING ON REQUEST.

- ER Collet Chuck-ER
- Fräuserspannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

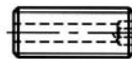
ER-PART(AD+B)

NUT & ADJUST BOLT

FIG.1



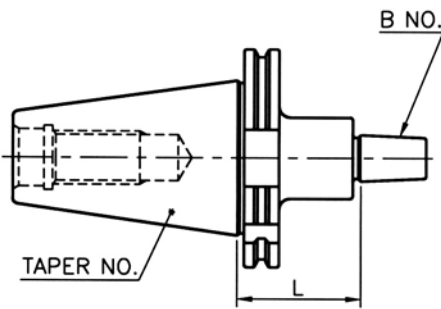
FIG.2



No.	NUT	FIG.	Q'TY	No.	ADJUST BOLT	Q'TY	ER
⑤③	ER11	FIG.1	1	⑤⑨	M6 ×1.0 ×15L	1	ER11
⑤④	ER16	FIG.1	1	⑥⑩	M10 ×1.5 ×15L	1	ER16
⑤⑤	ER20	FIG.1	1	⑥①	M12 ×1.75 ×15L	1	ER20
⑤⑥	ER25	FIG.2	1	⑥②	M12 ×1.75 ×20L	1	ER25
⑤⑦	ER32	FIG.2	1	⑥③	M12 ×1.75 ×25L	1	ER32
⑤⑧	ER40	FIG.2	1	⑥④	M12 ×1.75 ×30L	1	ER40

DIN69871 / A-SK

DRILL CHUCK ARBOR



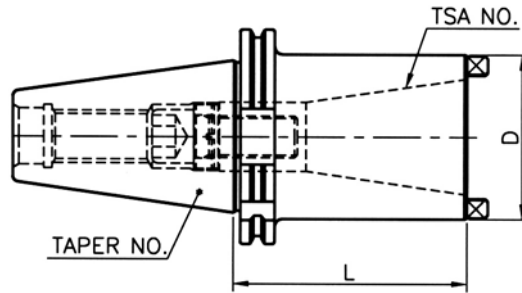
STANDARD

TYPE	TAPER No.	B No.	L
SK30-B12-25	30	B12	25
SK30-B16-25	30	B16	25
SK40-B12-25	40	B12	25
SK40-B16-25	40	B16	25
SK40-B18-25	40	B18	25
SK50-B16-25	50	B16	25
SK50-B18-25	50	B18	25

- Drill Chuck Arbor-B
- Bohrfutter-Aufnahme-B
- Arbres pour mandrins de perçage-B
- Attaco per mandrino porte punte-B
- Adaptadores para portabrocas-B

DIN69871 / A-SK

TAPER SLEEVE



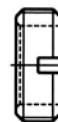
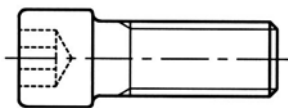
STANDARD

TYPE	TAPER No.	TSA No.	L	D	PART No.
SK40-TSA30-50	40	TSA30	50	50	65,67
SK50-TSA40-70	50	TSA40	70	63	66,68

- Taper Sleeve-TSA
- Zwischenhülsen-TSA
- Douilles de Réduction à cône ISO-TSA
- Reductores a Cono ISO-TSA

TSA-PART

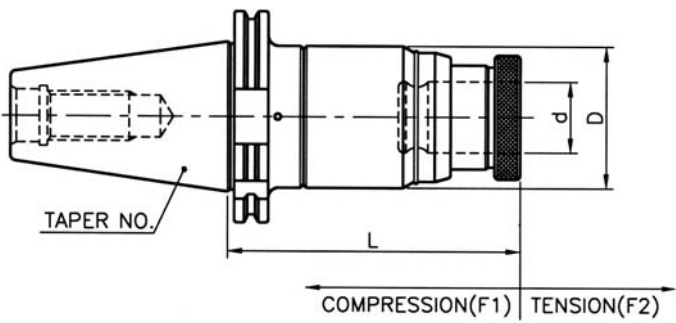
HEXAGON SOCKET HEAD SCREW & WASHER BOLT



No.	HEXAGON SOCKET HEAD SCREW	Q'TY	No.	ADJUST BOLT	Q'TY	ER
⑥⑤	M12 × 1.75 × 30L (SHORT TYPE)	1	⑥⑦	M20 × 1.5 × 8L	1	TSA 30
⑥⑥	M16 × 2.0 × 40L (STANDARD)	1	⑥⑧	M26 × 1.5 × 8L	1	TSA 40

DIN69871 / A-SK

TAPING CHUCK



STANDARD

TYPE	TAPER No.	TAP SIZE	d	L	D	F1	F2
SK40-TC12-90	40	M3-M12	19	90	45	5	15
SK40-TC24-120	40	M8-M24	31	120	63	5	20
SK50-TC12-130	50	M3-M12	19	130	45	5	15
SK50-TC24-142	50	M8-M24	31	142	63	5	20
SK50-TC38-175	50	M18-M38	48	175	98	10	25

EXTENDED

TYPE	TAPER No.	TAP SIZE	d	L	D	F1	F2
SK40-TC12-130	40	M3-M12	19	130	45	5	15
SK40-TC24-142	40	M8-M24	31	142	63	5	20
SK50-TC12-175	50	M3-M12	19	175	45	5	15
SK50-TC24-187	50	M8-M24	31	187	63	5	20

- Tapping Chuck-TC
- Gewindeschneid-Schnellwechselfutter-TC
- Tarauder à changement rapide-TC
- Mandrino per maschiare-TC
- Portamachos de cambio rapido-TC

MAS 403-BT

END MILL HOLDER-EMH

FIG.1

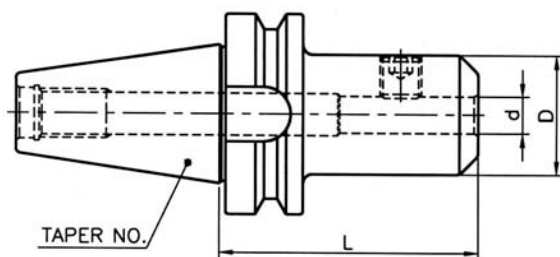
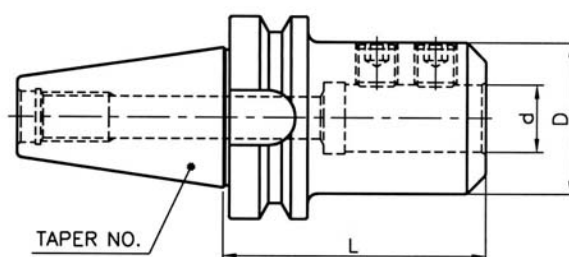


FIG.2



STUB

TYPE	TAPER No.	d	L	D	FIG.	PART No.
BT30-EMH16-32	30	16	32	32	1	5
BT30-EMH20-34	30	20	34	36	1	8
BT40-EMH16-35	40	16	35	44.5	1	5
BT40-EMH20-35	40	20	35	44.5	1	8
BT40-EMH25-35	40	25	35	44.5	1	7
BT50-EMH16-44	50	16	44	70	1	5
BT50-EMH20-44	50	20	44	70	1	8
BT50-EMH25-44	50	25	44	70	1	7
BT50-EMH32-44	50	32	44	70	1	12

STANDARD

TYPE	TAPER No.	d	L	D	FIG.	PART No.
BT30-EMH6-50	30	6	50	25	1	1
BT30-EMH8-50	30	8	50	28	1	2
BT30-EMH10-50	30	10	50	35	1	3
BT30-EMH12-50	30	12	50	42	1	4
BT30-EMH16-50	30	16	50	48	1	6
BT40-EMH6-50	40	6	50	25	1	1
BT40-EMH8-50	40	8	50	28	1	2
BT40-EMH10-63	40	10	63	35	1	3
BT40-EMH12-63	40	12	63	42	1	4
BT40-EMH16-63	40	16	63	48	1	6
BT40-EMH20-63	40	20	63	52	1	9
BT40-EMH25-90	40	25	90	65	2	11
BT40-EMH32-100	40	32	100	72	2	12
BT50-EMH6-63	50	6	63	25	1	1
BT50-EMH8-63	50	8	63	28	1	2
BT50-EMH10-65	50	10	65	35	1	3
BT50-EMH12-80	50	12	80	42	1	4
BT50-EMH16-80	50	16	80	48	1	6
BT50-EMH20-80	50	20	80	52	1	9
BT50-EMH25-100	50	25	100	65	2	11
BT50-EMH32-105	50	32	105	72	2	12
BT50-EMH40-120	50	40	120	90	2	12
BT50-EMH50-120	50	50	120	98	2	13

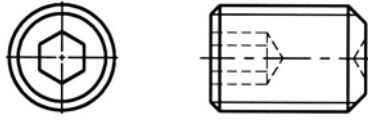
► BALANCED ER COLLET CHUCKS(20,000RPM) ARE AVAILABLE DEPENDING ON REQUEST.

- End-Mill Holder-EMH
- Weldon-Aufnahme-EMH
- Mandrins Porte-Fraises-EMH
- Mandrino Porta frese tipo Weldon-EMH
- Porta Fresas tipo Weldon-EMH

EMH-PART

SIDE LOCK BOLT

TOOL HOLDERS

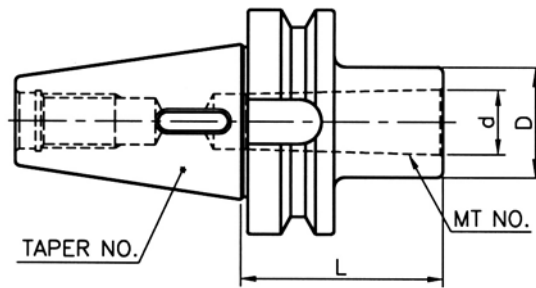


No.	BOLT SIZE	Q'TY	END MILL DIA.
①	M6 ×1.0 ×10L	1	6
②	M8 ×1.25 ×10L	1	8
③	M10 ×1.5 ×12L	1	10
④	M12 ×1.75 ×16L	1	12
⑤	M14 ×2.0 ×12L	1	16
⑥	M14 ×2.0 ×16L	1	16
7	M16 ×2.0 ×12L	1	25

No.	BOLT SIZE	Q'TY	END MILL DIA.
⑧	M16 ×2.0 ×14L	1	20
⑨	M16 ×2.0 ×16L	1	20
⑩	M18 ×2.0 ×12L	1	25
⑪	M18 ×2.0 ×20L	2	25
⑫	M20 ×2.0 ×20L	2	32, 40
⑬	M24 ×2.0 ×25L	2	50

MAS 403-BT

MORSE TAPER ADAPTER A TYPE-MTA



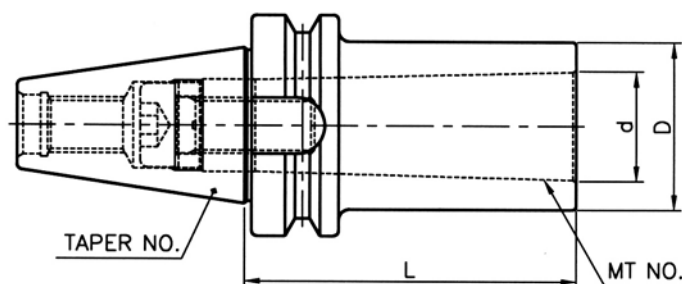
STANDARD

TYPE	TAPER No.	MT No.	L	d	D
BT30-MTA1-50	30	#1	50	12.065	25
BT30-MTA2-62	30	#2	62	17.78	32
BT30-MTA3-78	30	#3	78	23.825	40
BT40-MTA1-50	40	#1	50	12.065	25
BT40-MTA2-50	40	#2	50	17.78	32
BT40-MTA3-70	40	#3	70	23.825	40
BT40-MTA4-95	40	#4	95	31.267	48
BT50-MTA1-45	50	#1	45	12.065	25
BT50-MTA2-60	50	#2	60	17.78	32
BT50-MTA3-65	50	#3	65	23.825	40
BT50-MTA4-95	50	#4	95	31.267	48
BT50-MTA5-105	50	#5	105	44.399	63

- Morse Taper Adapter A Type-MTA
- Einsatzhülsen für Morsekegel Form A-MTA
- Reductores a Morse tipo A-MTA

MAS 403-BT

MORSE TAPER ADAPTER B TYPE-MTB



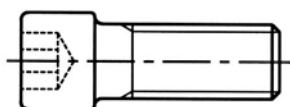
STUB

TYPE	TAPER No.	MT No.	L	d	D	PART No.
BT30-MTB1-50	30	#1	50	12.065	25	14,22
BT30-MTB2-65	30	#2	65	17.78	32	16,23
BT30-MTB3-80	30	#3	80	23.825	40	17,24
BT40-MTB1-50	40	#1	50	12.065	25	14,22
BT40-MTB2-50	40	#2	50	17.78	32	16,23
BT40-MTB3-70	40	#3	70	23.825	40	18,24
BT40-MTB4-90	40	#4	90	31.267	48	20,25
BT50-MTB1-45	50	#1	45	12.065	25	14,22
BT50-MTB2-60	50	#2	60	17.78	32	15,23
BT50-MTB3-65	50	#3	65	23.825	40	18,24
BT50-MTB4-70	50	#4	70	31.267	48	19,25
BT50-MTB5-100	50	#5	100	44.399	63	21,26

- Morse Taper Adapter B Type-MTB
- Einsatzhülsen für Morsekegel Form B-MTB
- Reductores a Morse tipo B-MTB

MTB-PART

HEXAGON SOCKET HEAD SCREW & WASHER BOLT

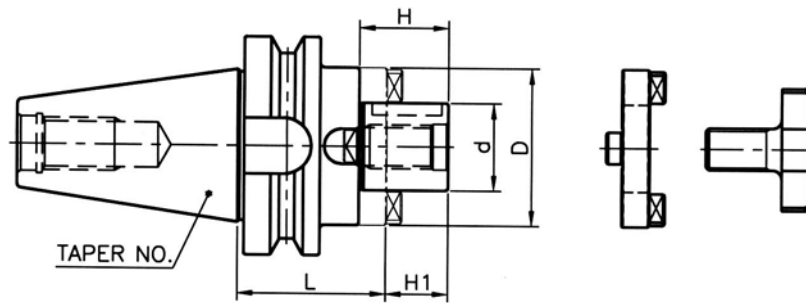


No.	BOLT SIZE	Q'TY
(14)	M6 × 1.0 × 25L (STANDARD)	1
(15)	M10 × 1.5 × 30L (STANDARD)	1
(16)	M10 × 1.5 × 30L (SHORT TYPE)	1
(17)	M12 × 1.75 × 35L (#30)	1
(18)	M12 × 1.75 × 35L (STANDARD)	1
(19)	M16 × 2.0 × 40L (STANDARD)	1
(20)	M16 × 2.0 × 40L (SHORT TYPE)	1
(21)	M20 × 2.5 × 45L (STANDARD)	1

No.	WASHER BOLT	Q'TY	MT No.
(22)	-	-	MTB1
(23)	M15 × 1.0 × 6L	1	MTB2
(24)	M20 × 1.5 × 8L	1	MTB3
(25)	M26 × 1.5 × 8L	1	MTB4
(26)	M36 × 2.0 × 8L	1	MTB5

MAS 403-BT

COMBI SHELL END MILL ARBOR-CMA



STANDARD

TYPE	TAPER No.	d	L	D	H1	H	PART No.
BT30-CMA16-50	30	16	50	32	17	27	26,32,38
BT30-CMA22-50	30	22	50	40	19	31	27,33,39
BT30-CMA27-55	30	27	55	48	21	33	28,34,40
BT40-CMA16-55	40	16	55	32	17	27	26,32,38
BT40-CMA22-55	40	22	55	40	19	31	27,33,39
BT40-CMA27-55	40	27	55	48	21	33	28,34,40
BT40-CMA32-60	40	32	60	58	24	38	29,35,41
BT40-CMA40-60	40	40	60	70	27	41	30,36,42
BT50-CMA16-70	50	16	70	32	17	27	26,32,38
BT50-CMA22-70	50	22	70	40	19	31	27,33,39
BT50-CMA27-70	50	27	70	48	21	33	28,34,40
BT50-CMA32-70	50	32	70	58	24	38	29,35,41
BT50-CMA40-70	50	40	70	70	27	41	30,36,42
BT50-CMA50-70	50	50	70	90	30	46	31,37,43

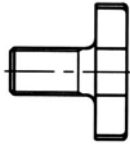
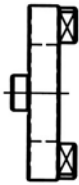
EXTENDED

TYPE	TAPER No.	d	L	D	H1	H	PART No.
BT40-CMA16-100	40	16	100	32	17	27	26,32,38
BT40-CMA22-100	40	22	100	40	19	31	27,33,39
BT40-CMA27-100	40	27	100	48	21	33	28,34,40
BT40-CMA32-100	40	32	100	58	24	38	29,35,41
BT50-CMA16-100	50	16	100	32	17	27	26,32,38
BT50-CMA22-100	50	22	100	40	19	31	27,33,39
BT50-CMA27-100	50	27	100	48	21	33	28,34,40
BT50-CMA32-100	50	32	100	58	24	38	29,35,41
BT50-CMA40-100	50	40	100	70	27	41	30,36,42

- Combi-Shell Mill Arbor-CMA
- Kombi-Aufsteckfräserdorne-CMA
- Mandrino porta frese-CMA
- Portafresas combinado-CMA

CMA-PART

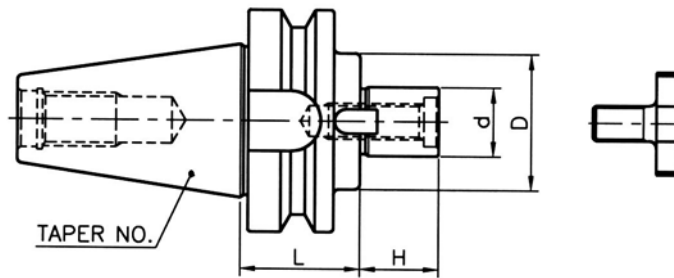
CLUTCH DRIVE RING COLLAR BOLT & KEY



No.	CLUTCH DRIVE RING	Q'TY	No.	COLLAR BOLT	Q'TY	No.	KEY	Q'TY	CMA DIA.
②⑥	#16	1	③②	M8 × 1.25	1	③⑧	4 × 4 × 20	1	16
②⑦	#22	1	③③	M10 × 1.5	1	③⑨	6 × 6 × 25	1	22
②⑧	#27	1	③④	M12 × 1.75	1	④①	7 × 7 × 25	1	27
②⑨	#32	1	③⑤	M16 × 2.0	1	④②	8 × 7 × 28	1	32
③①	#40	1	③⑥	M20 × 2.5	1	④③	10 × 8 × 32	1	40
③①	#50	1	③⑦	M24 × 3.0	1	④③	12 × 8 × 36	1	50

MAS 403-BT

SHELL END MILL ARBOR-SMA



STANDARD

TYPE	TAPER No.	d	L	D	H	PART No.
BT30-SMA16-50	30	16	50	32	17	27,33,39
BT30-SMA22-50	30	22	50	40	19	28,34,40
BT30-SMA27-50	30	27	50	48	21	29,35,41
BT40-SMA16-60	40	16	60	32	17	27,33,39
BT40-SMA22-60	40	22	60	40	19	28,34,40
BT40-SMA27-60	40	27	60	48	21	29,35,41
BT40-SMA32-60	40	32	60	58	24	30,36,42
BT40-SMA40-60	40	40	60	70	27	31,37,43
BT50-SMA16-75	50	16	75	32	17	27,33,39
BT50-SMA22-75	50	22	75	40	19	28,34,40
BT50-SMA27-75	50	27	75	48	21	29,35,41
BT50-SMA32-75	50	32	75	58	24	30,36,42
BT50-SMA40-75	50	40	75	70	27	31,37,43
BT50-SMA50-75	50	50	75	90	30	32,38,44

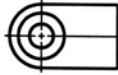
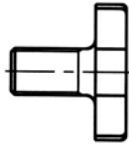
EXTENDED

TYPE	TAPER No.	d	L	D	H	PART No.
BT40-SMA16-120	40	16	120	32	17	27,33,39
BT40-SMA22-120	40	22	120	40	19	28,34,40
BT40-SMA27-120	40	27	120	48	21	29,35,41
BT40-SMA32-120	40	32	120	58	24	30,36,42
BT50-SMA16-120	50	16	120	32	17	27,33,39
BT50-SMA22-120	50	22	120	40	19	28,34,40
BT50-SMA27-120	50	27	120	48	21	29,35,41
BT50-SMA32-120	50	32	120	58	24	30,36,42
BT50-SMA40-120	50	40	120	70	27	31,37,43

- Shell Mill Arbor-SMA
- Aufsteckfräserdorne-SMA
- Mandrins porte-fraises-SMA
- Mandrino con trascinamento fisso-SMA
- Portafresas-SMA

SMA-PART

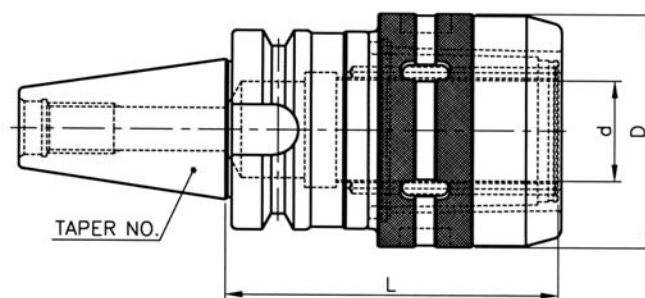
COLLAR BOLT, DRIVE KEY & KEY BOLT



No.	COLLAR BOLT	Q'TY	No.	DRIVE KEY	Q'TY	No.	KEY	Q'TY	SMA DIA.
②⑦	M8 × 1.25	1	③③	8 × 7 × 12.8	2	③⑨	M3 × 0.5 × 8L	2	16
②⑧	M10 × 1.5	1	③④	10 × 7.8 × 15.5	2	④①	M4 × 0.7 × 210L	2	22
②⑨	M12 × 1.75	1	③⑤	12 × 9 × 18.5	2	④②	M5 × 0.8 × 12L	2	27
③①	M16 × 2.0	1	③⑥	14 × 11.5 × 20.5	2	④③	M6 × 1.0 × 15L	2	32
③②	M20 × 2.5	1	③⑦	16 × 13.5 × 23.5	2	④④	M6 × 1.0 × 20L	2	40
③③	M24 × 3.0	1	③⑧	18 × 18 × 28.5	2				50

MAS 403-BT

MILLING CHUCK-C



STUB

TYPE	TAPER No.	d	L	D	PART No.
BT30-C20-75	30	20	75	54	45,49
BT40-C20-80	40	20	80	54	45,49
BT40-C25-90	40	25	90	62.5	46,50
BT40-C32-90	40	32	90	74	47,51
BT50-C20-90	50	20	90	54	45,49
BT50-C25-90	50	25	90	62.5	46,50
BT50-C32-90	50	32	90	74	47,51

STANDARD

TYPE	TAPER No.	d	L	D	PART No.
BT40-C20-105	40	20	105	54	45,49
BT40-C25-105	40	25	105	62.5	46,50
BT40-C32-105	40	32	105	74	47,51
BT50-C20-105	50	20	105	54	45,49
BT50-C25-105	50	25	105	62.5	46,50
BT50-C32-105	50	32	105	74	47,51
BT50-C42-115	50	42	115	92	48,52

EXTENDED

TYPE	TAPER No.	d	L	D	PART No.
BT40-C32-135	40	32	135	74	47,51
BT50-C32-115	50	32	115	74	47,51
BT50-C42-135	50	42	135	92	48,52

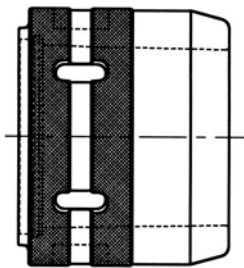
EXTRA EXTENDED

TYPE	TAPER No.	d	L	D	PART No.
BT50-C32-135	50	32	135	74	47,51
BT50-C42-165	50	42	165	92	48,52

- Milling Chuck-C
- Fräsespannfutter-C
- Mandrins à pinces-C
- Mandrino a forte serraggio-C
- Portapinzas de gran apriete-C

C-PART

CAP & WRENCH

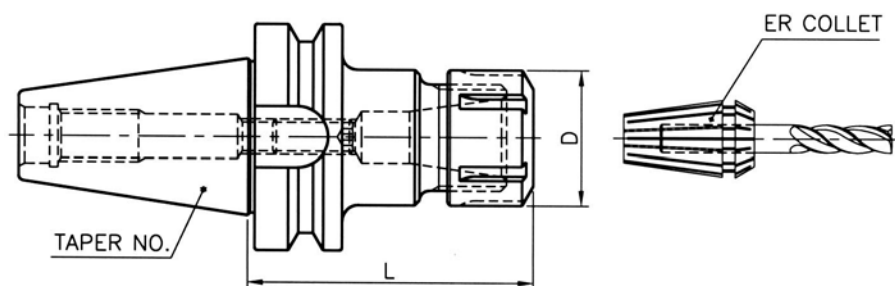


No.	CAP	Q'TY
④5	C20	1
④6	C25	1
④7	C32	1
④8	C42	1

No.	WRENCH	Q'TY
④9	C20	1
⑤0	C25	1
⑤1	C32	1
⑤2	C42	1

MAS 403-BT

ER CHUCK-ER



STANDARD

TYPE	TAPER No.	RANGE	L	D	PART No.
BT30-ER11-55	30	0.5-7.0	55	19	53,59
BT30-ER16-55	30	0.5-10.0	55	28	54,60
BT30-ER20-55	30	1.0-13.0	55	35	55,61
BT30-ER25-55	30	1.0-16.0	55	42	56,62
BT30-ER32-60	30	2.0-20.0	60	50	57,63
BT40-ER11-70	40	0.5-7.0	70	19	53,59
BT40-ER16-70	40	0.5-10.0	70	28	54,60
BT40-ER20-70	40	1.0-13.0	70	35	55,61
BT40-ER25-70	40	1.0-16.0	70	42	56,62
BT40-ER32-70	40	2.0-20.0	70	50	57,63
BT40-ER40-70	40	3.0-26.0	70	63	58,64
BT50-ER16-70	50	0.5-7.0	70	28	54,60
BT50-ER20-70	50	0.5-10.0	70	35	55,61
BT50-ER25-70	50	1.0-13.0	70	42	56,62
BT50-ER32-70	50	1.0-16.0	70	50	57,63
BT50-ER40-80	50	2.0-20.0	80	63	58,64
BT50-ER50-90	50	3.0-26.0	90	78	

EXTENDED

TYPE	TAPER No.	RANGE	L	D	PART No.
BT40-ER16-100	40	0.5-10.0	100	28	54,60
BT40-ER20-100	40	1.0-13.0	100	35	55,61
BT40-ER25-100	40	1.0-16.0	100	42	56,62
BT40-ER32-100	40	2.0-20.0	100	50	57,63
BT50-ER16-100	50	0.5-7.0	100	28	54,60
BT50-ER20-100	50	0.5-10.0	100	35	55,61
BT50-ER25-100	50	1.0-13.0	100	42	56,62
BT50-ER32-100	50	1.0-16.0	100	50	57,63
BT50-ER40-100	50	2.0-20.0	100	63	58,64

► BALANCED ER COLLET CHUCKS(TAPER No. 40, 50) -20,000RPM ARE AVAILABLE DEPENDING ON YOUR REQUEST.

- ER Collet Chuck-ER
- Fräsespannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

ER-PART

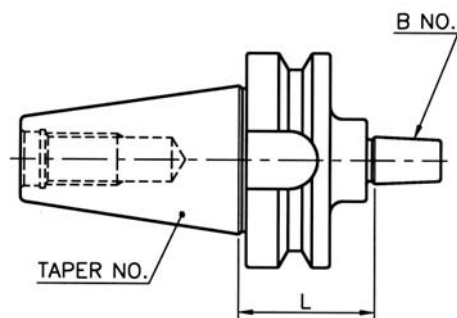
NUT & ADJUST BOLT



No.	NUT	FIG.	Q'TY	No.	ADJUST BOLT	Q'TY	ER
⑤③	ER11	FIG.1	1	⑤⑨	M6 × 1.0 × 15L	1	ER11
⑤④	ER16	FIG.1	1	⑥⑩	M10 × 1.5 × 15L	1	ER16
⑤⑤	ER20	FIG.1	1	⑥①	M12 × 1.75 × 15L	1	ER20
⑤⑥	ER25	FIG.2	1	⑥②	M12 × 1.75 × 20L	1	ER25
⑤⑦	ER32	FIG.2	1	⑥③	M12 × 1.75 × 25L	1	ER32
⑤⑧	ER40	FIG.2	1	⑥④	M12 × 1.75 × 30L	1	ER40

MAS 403-BT

DRILL CHUCK ARBOR-B



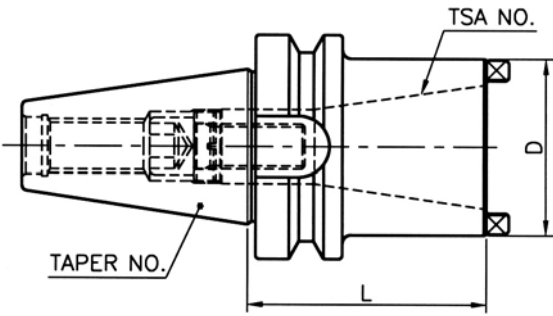
STANDARD

TYPE	TAPER No.	B No.	L
BT30-B12-27	30	B12	27
BT30-B16-27	30	B16	27
BT40-B12-32	40	B12	32
BT40-B16-32	40	B16	32
BT40-B18-32	40	B18	32
BT50-B16-43	50	B16	43
BT50-B18-43	50	B18	43

- Drill Chuck Arbor-B
- Bohrfutter-Aufnahme-B
- Arbres pour mandrins de perçage-B
- Attaco per mandrino porte punte-B
- Adaptadores para portabrocas-B

MAS 403-BT

TAPER SLEEVE-TSA



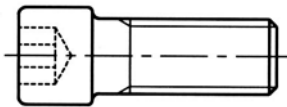
STANDARD

TYPE	TAPER No.	TSA NO.	L	D	PART No.
BT40-TSA30-50	40	TSA30	50	50	65,67
BT50-TSA40-70	50	TSA40	70	63	66,68

- Taper Sleeve-TSA
- Zwischenhülsen-TSA
- Douilles de Réduction à cône ISO-TSA
- Reductores a Cono ISO-TSA

TSA-PART

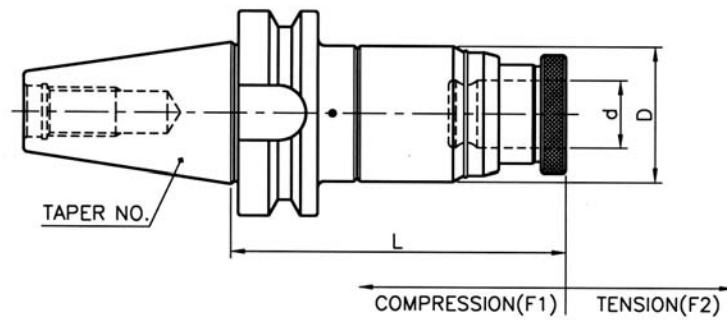
HEXAGON SOCKET HEAD SCREW & WASHER BOLT



No.	HEXAGON SOCKET HEAD SCREW	Q'TY	No.	WASHER BOLT	Q'TY	TSA No.
⑥⑤	M12 × 1.75 × 30L (SHORT TYPE)	1	⑥⑦	M20 × 1.5 × 8L	1	TSA30
⑥⑥	M16 × 2.0 × 40L (STANDARD)	1	⑥⑧	M26 × 1.5 × 8L	1	TSA40

MAS 403-BT

TAPPING CHUCK-TC



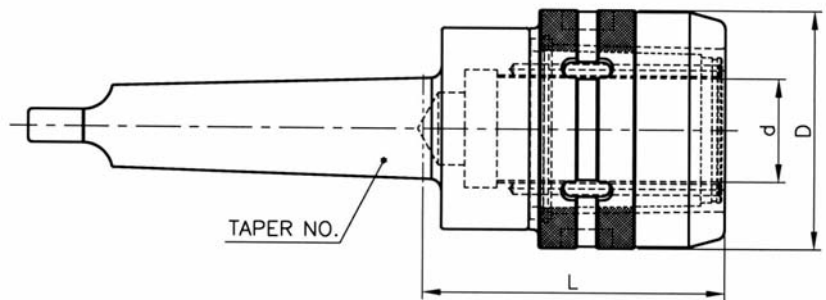
STANDARD

TYPE	TAPER No.	TAP SIZE	d	L	D	F1	F2
BT40-TC12-95	40	M3-M12	19	95	45	5	15
BT40-TC24-100	40	M8-M24	31	100	63	5	20
BT50-TC12-130	50	M3-M12	19	130	45	5	15
BT50-TC24-142	50	M8-M24	31	142	63	5	20
BT50-TC38-175	50	M18-M38	48	175	98	10	25

- Tapping Chuck-TC
- Gewindeschneid-Schnellwechselfutter-TC
- Tarauder à changement rapide-TC
- Mandrino per maschiare-TC
- Portamachos de cambio rapido-TC

DIN 228-MTA

MILLING CHUCK-C



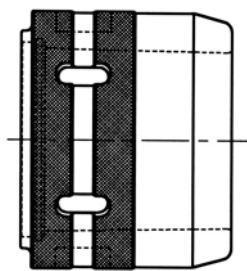
STANDARD

TYPE	TAPER No.	d	L	D	PART No.
MTA4-C32	MT4	32	98	74	47,51
MTA5-C32	MT5	32	85	74	47,51
MTA5-C42	MT5	42	114	92	48,52
MTA6-C42	MT6	42	99	92	48,52

- Milling Chuck-C
- Fräaserspannfutter-C
- Mandrins à pinces-C
- Mandrino a forte serraggio-C
- Portapinzas de gran apriete-C

C-PART

CAP WRENCH

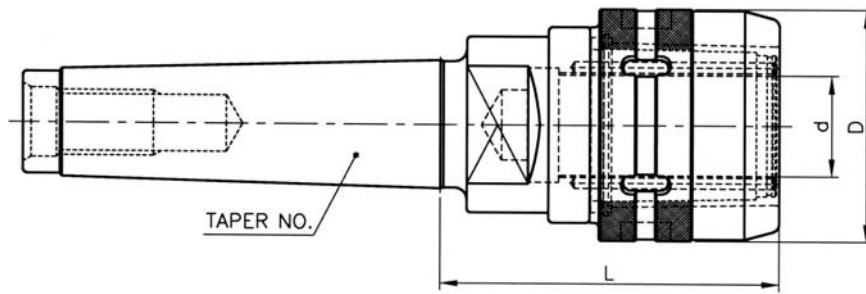


No.	CAP	Q'TY
④⑤	C20	1
④⑥	C25	1
④⑦	C32	1
④⑧	C42	1

No.	WRENCH	Q'TY
④⑨	C20	1
⑤⑩	C25	1
⑤①	C32	1
⑤②	C42	1

DIN228-MTB

MILLING CHUCK-C



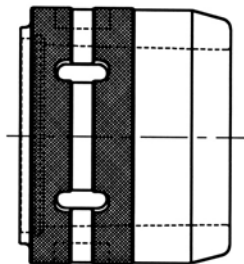
STANDARD

TYPE	TAPER No.	d	L	D	PART No.
MTB3-C20	MT3	20	74	54	45,49
MTB4-C32	MT4	32	110	74	47,51
MTB5-C32	MT5	32	85	74	47,51
MTB5-C42	MT5	42	114	92	48,52

- Milling Chuck-C
- Fräaserspannfutter-C
- Mandrins à pinces-C
- Mandrino a forte serraggio-C
- Portapinzas de gran apriete-C

C-PART

CAP & WRENCH

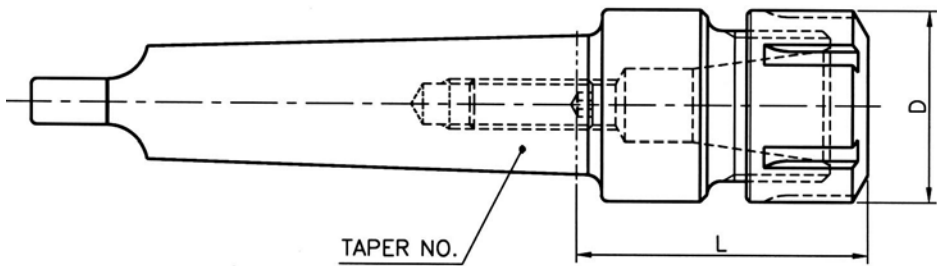


No.	CAP	Q'TY
④⑤	C20	1
④⑥	C25	1
④⑦	C32	1
④⑧	C42	1

No.	WRENCH	Q'TY
④⑨	C20	1
⑤⑩	C25	1
⑤①	C32	1
⑤②	C42	1

DIN228-MTA

ER CHUCK-ER



STANDARD

TYPE	TAPER No.	RANGE	L	D	PART No.
MTA1-ER11	MT1	0.5-7.0	35	19	53,59
MTA1-ER16	MT1	0.5-10.0	40	28	54,60
MTA2-ER20	MT2	1.0-13.0	50	34	55,61
MTA2-ER25	MT2	1.0-16.0	50	42	56,62
MTA3-ER25	MT3	1.0-16.0	60	42	56,62
MTA3-ER32	MT3	2.0-20.0	70	50	57,63
MTA4-ER20	MT4	0.5-10.0	40	34	55,61
MTA4-ER25	MT4	1.0-13.0	60	42	56,62
MTA4-ER32	MT4	2.0-20.0	65	50	57,63
MTA4-ER40	MT4	3.0-26.0	80	63	58,64
MTA5-ER32	MT5	2.0-20.0	70	50	57,63
MTA5-ER32	MT5	2.0-20.0	80	63	57,63
MTA5-ER40	MT5	3.0-26.0	80	78	58,64

- ER Collet Chuck-ER
- Fräuserspannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

ER-PART

NUT & ADJUST BOLT

FIG.1



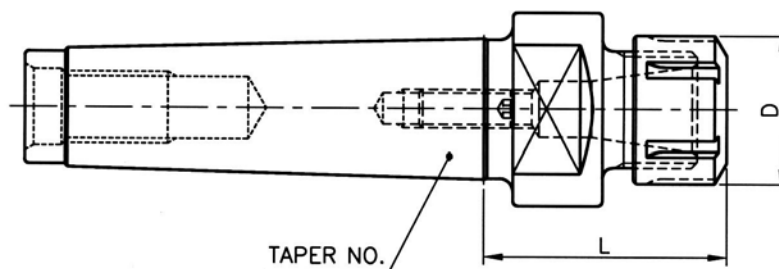
FIG.2



No.	NUT	FIG.	Q'TY	No.	ADJUST BOLT	Q'TY	ER
⑤③	ER11	FIG.1	1	⑤⑨	M6 × 1.0 × 15L	1	ER11
⑤④	ER16	FIG.1	1	⑥⑩	M10 × 1.5 × 15L	1	ER16
⑤⑤	ER20	FIG.1	1	⑥①	M12 × 1.75 × 15L	1	ER20
⑤⑥	ER25	FIG.2	1	⑥②	M12 × 1.75 × 20L	1	ER25
⑤⑦	ER32	FIG.2	1	⑥③	M12 × 1.75 × 25L	1	ER32
⑤⑧	ER40	FIG.2	1	⑥④	M12 × 1.75 × 30L	1	ER40

DIN228-MTB

ER CHUCK-ER



STANDARD

TYPE	TAPER No.	RANGE	L	D	PART No.
MTB1-ER16	MT1	0.5-10.0	40	28	54,60
MTB2-ER20	MT2	1.0-13.0	54	34	55,61
MTB2-ER25	MT2	1.0-16.0	50	42	56,62
MTB3-ER25	MT3	1.0-16.0	60	42	56,62
MTB3-ER32	MT3	2.0-20.0	70	50	57,63
MTB4-ER32	MT4	2.0-20.0	70	50	57,63
MTB4-ER40	MT4	3.0-26.0	80	63	58,64
MTB5-ER40	MT5	3.0-26.0	80	63	58,64

- ER Collet Chuck-ER
- Fräterspannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

ER-PART

NUT & ADJUST BOLT

FIG.1



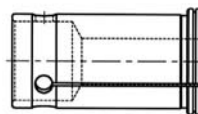
FIG.2



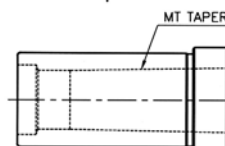
No.	NUT	FIG.	Q'TY	No.	ADJUST BOLT	Q'TY	ER
53	ER11	FIG.1	1	59	M6 x1.0 x15L	1	ER11
54	ER16	FIG.1	1	60	M10 x1.5 x15L	1	ER16
55	ER20	FIG.1	1	61	M12 x1.75 x15L	1	ER20
56	ER25	FIG.2	1	62	M12 x1.75 x20L	1	ER25
57	ER32	FIG.2	1	63	M12 x1.75 x25L	1	ER32
58	ER40	FIG.2	1	64	M12 x1.75 x30L	1	ER40

K**INSERTING TOOLS MILLING CHUCK****END MILL COLLET**

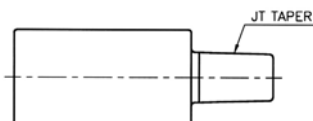
TYPE
K20-6, 8, 10, 12, 16
K32-6, 8, 10, 12, 16, 20, 25
K42-6, 8, 10, 12, 16, 20, 25, 32

**TAPER COLLET**

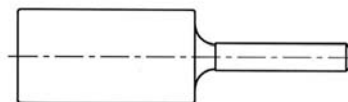
TYPE
K20-MT1, 2
K32-MT1, 2, 3
K42-MT1,2, 3, 4

**DRILL CHUCK ARBOR**

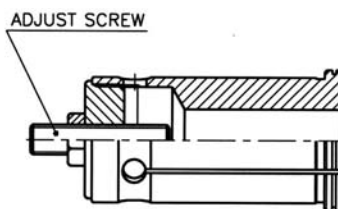
TYPE
K20-J6
K32-J6
K42-J6

**CENTERING BAR**

TYPE
K20-C10
K32-C10
K42-C16

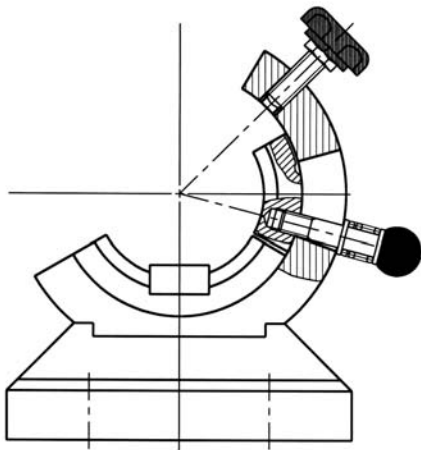
**CK****INSERTING TOOLS MILLING CHUCK****END MILL COLLET**

TYPE
CK20-6, 8, 10, 12, 16
CK25-6, 8, 10, 12, 16, 20
CK32-6, 8, 10, 12, 16, 20, 25
CK42-6, 8, 10, 12, 16, 20, 25, 32



TBT, TCT

TOOL CLAMP



TYPE	SHANK FLANGE TYPE
TBT-40	BT40
TBT-50	BT50
TCT-40	CAT40
TCT-50	CAT50

▷ AVAILABLE IN ALL TAPERS.

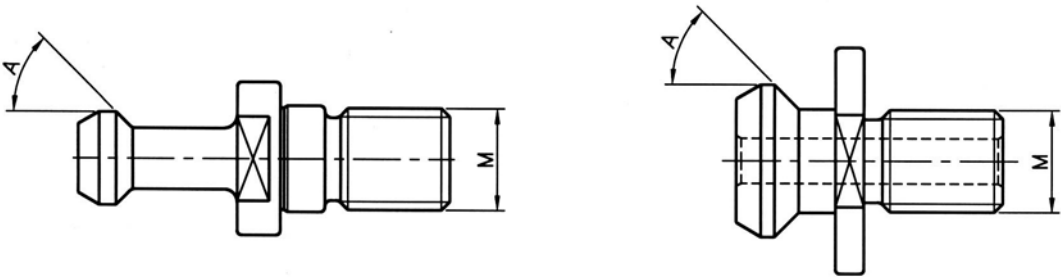
FEATURES :

- ACCESS BOTH ENDS OF YOUR TOOL HOLDERS SIMULTANEOUSLY.
- MINIMIZES TOOL HOLDERS HANDLING.
- SPEEDS UP YOUR OPERATIONS.
- CONVENIENT.

- Tool Clamp
- Montagevorrichtungen
- Dispositif de montage
- Attrezzo per il montaggio di mandrini
- Soporte para montaje

PS

PULL STUD BOLT

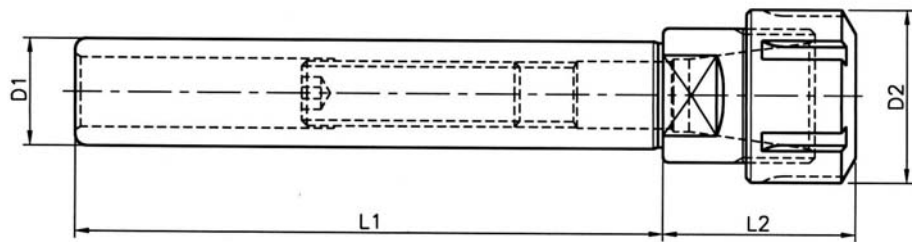


TYPE	TAPER No.	ANGLE	D
PS-1	BT40	45°	M16 × 2.0
PS-2	BT40	60°	M16 × 2.0
PS-08	BT40	90°	M16 × 2.0
PS-5	BT50	45°	M24 × 3.0
PS-6	BT50	60°	M24 × 3.0
PS-0	BT50	90°	M24 × 3.0
PSS-1	SK40	15°	M16 × 2.0
PSS-5	SK50	15°	M24 × 3.0

- Pull Stud Bolt
- Anzugbolzen
- Boulons de serrage
- Tiranti per mandrini universali
- Tirantes para portaherramientas

STRAIGHT-K

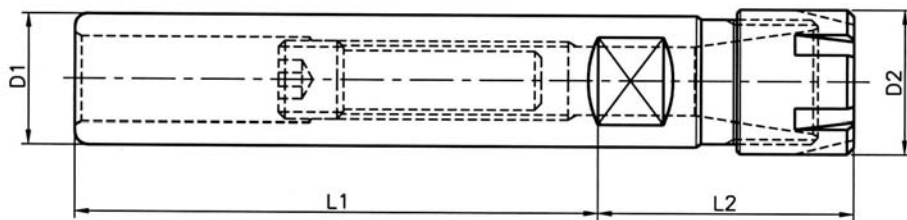
EXTENSION ER CHUCK-ER



STANDARD TYPE

TYPE	RANGE	D1	D2	L1	L2	PART No.
K16-ER11-100	0.5-7.0	16	19	100	32	53,63
K16-ER16-100	0.5-10.0	16	28	100	36	54,64
K20-ER16-100	0.5-10.0	20	28	100	36	54,64
K20-ER20-100	1.0-13.0	20	34	100	40	55,65
K20-ER25-100	1.0-16.0	20	42	100	50	56,66
K25-ER20-100	1.0-13.0	25	34	100	40	55,65
K25-ER25-100	1.0-16.0	25	42	100	50	56,66
K32-ER16-100	0.5-10.0	32	28	100	36	54,64
K32-ER20-100	1.0-13.0	32	34	100	40	55,65
K32-ER25-100	1.0-16.0	32	42	100	50	56,66
K32-ER32-100	2.0-20.0	32	50	100	58	57,67

- ER Collet Chuck-ER
- Fräaserspannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER



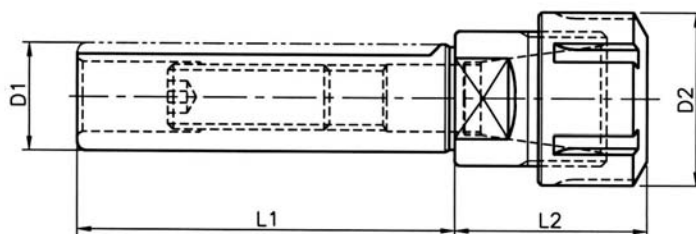
SLIM TYPE

TYPE	RANGE	D1	D2	L1	L2	PART No.
K16-ER11M-140	0.5-7.0	16	18	140	33	59,69
K20-ER16M-140	0.5-10.0	20	22	140	41	60,70
K20-ER20M-140	1.0-13.0	20	28	140	41	61,71
K25-ER16M-140	0.5-10.0	25	22	140	41	60,70
K25-ER20M-140	1.0-13.0	25	28	140	45	61,71
K25-ER25M-140	1.0-16.0	25	35	140	45	62,72

- ER Collet Chuck-ER
- Fräaserspannfutter-ER
- Mandrins à pinces-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

CNC LATHE - NC

ER CHUCK-ER



STANDARD TYPE

TYPE	RANGE	D1	D2	L1	L2	PART No.
NC16-ER16	0.5-10.0	16	28	55	32	54,60
NC20-ER16	0.5-10.0	20	28	60	32	54,60
NC25-ER11	0.5-7.0	25	19	65	32	53,59
NC25-ER16	0.5-10.0	25	28	65	32	54,60
NC25-ER20	1.0-13.0	25	34	65	32	55,61
NC25-ER25	1.0-16.0	25	42	65	32	56,62
NC25-ER32	2.0-20.0	25	42	50	32	57,63
NC32-ER20	1.0-13.0	32	34	70	32	55,61
NC32-ER25	1.0-16.0	32	42	70	32	56,62
NC32-ER32	2.0-20.0	32	50	60	38	57,63
NC40-ER32	2.0-20.0	40	50	75	38	57,63
NC40-ER40	3.0-26.0	40	63	75	53	58,64
NC45-ER32	2.0-20.0	45	50	120	53	57,63
NC45-ER40	3.0-26.0	45	63	120	53	58,64

- ER Collet Chuck-ER
- Fräuserspannfutter-ER
- Mandrins à pincers-ER
- Mandrino porta pinze-ER
- Portapinzas-ER

ER-PART

NUT & ADJUST BOLT

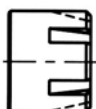
FIG.1



FIG.2



FIG.3



No.	NUT	FIG.	Q'TY	No.	ADJUST BOLT	Q'TY	ER
⑤3	ER11	FIG.1	1	⑥3	M6 × 1.0 × 15L	1	ER11
⑤4	ER16	FIG.1	1	⑥4	M10 × 1.5 × 15L	1	ER16
⑤5	ER20	FIG.1	1	⑥5	M12 × 1.75 × 15L	1	ER20
⑤6	ER25	FIG.2	1	⑥6	M12 × 1.75 × 20L	1	ER25
⑤7	ER32	FIG.2	1	⑥7	M12 × 1.75 × 25L	1	ER32
⑤8	ER40	FIG.2	1	⑥8	M12 × 1.75 × 30L	1	ER40
⑤9	ER11M	FIG.3	1	⑥9	M8 × 1.25 × 50L (φ6)	1	ER11M
⑥0	ER16M	FIG.3	1	⑦0	M12 × 1.75 × 50L (φ9)	1	ER16M
⑥1	ER20M	FIG.3	1	⑦1	M12 × 1.75 × 50L	1	ER20M
⑥2	ER25M	FIG.3	1	⑦2	M12 × 1.75 × 50L	1	ER25M

MAS 403-BT

DIN2080-ISO MILLING CHUCK STANDARD SET



TYPE	MILLING CHUCK	END MILL COLLET
S-BT40-C32	BT40-C32	K32-6,8,10,12,16,20,25(7PS)
S-BT50-C32	BT50-C32	K32-6,8,10,12,16,20,25(7PS)
S-BT50-C42	BT50-C42	K42-6,8,10,12,16,20,25,32(8PS)
S-ISO40-C32	ISO40-C32	K32-6,8,10,12,16,20,25(7PS)
S-ISO50-C32	ISO50-C32	K32-6,8,10,12,16,20,25(7PS)
S-ISO50-C42	ISO50-C42	K42-6,8,10,12,16,20,25,32(8PS)

- Milling Chuck Standard Set
- Gegenstück für Fräterspannfutter
- Etui avec Porte-Pinces, pinces et clef
- Cassetta completa di mandrino, chiave e pinze
- Estuche con Portapinzas, pinzas y llave

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