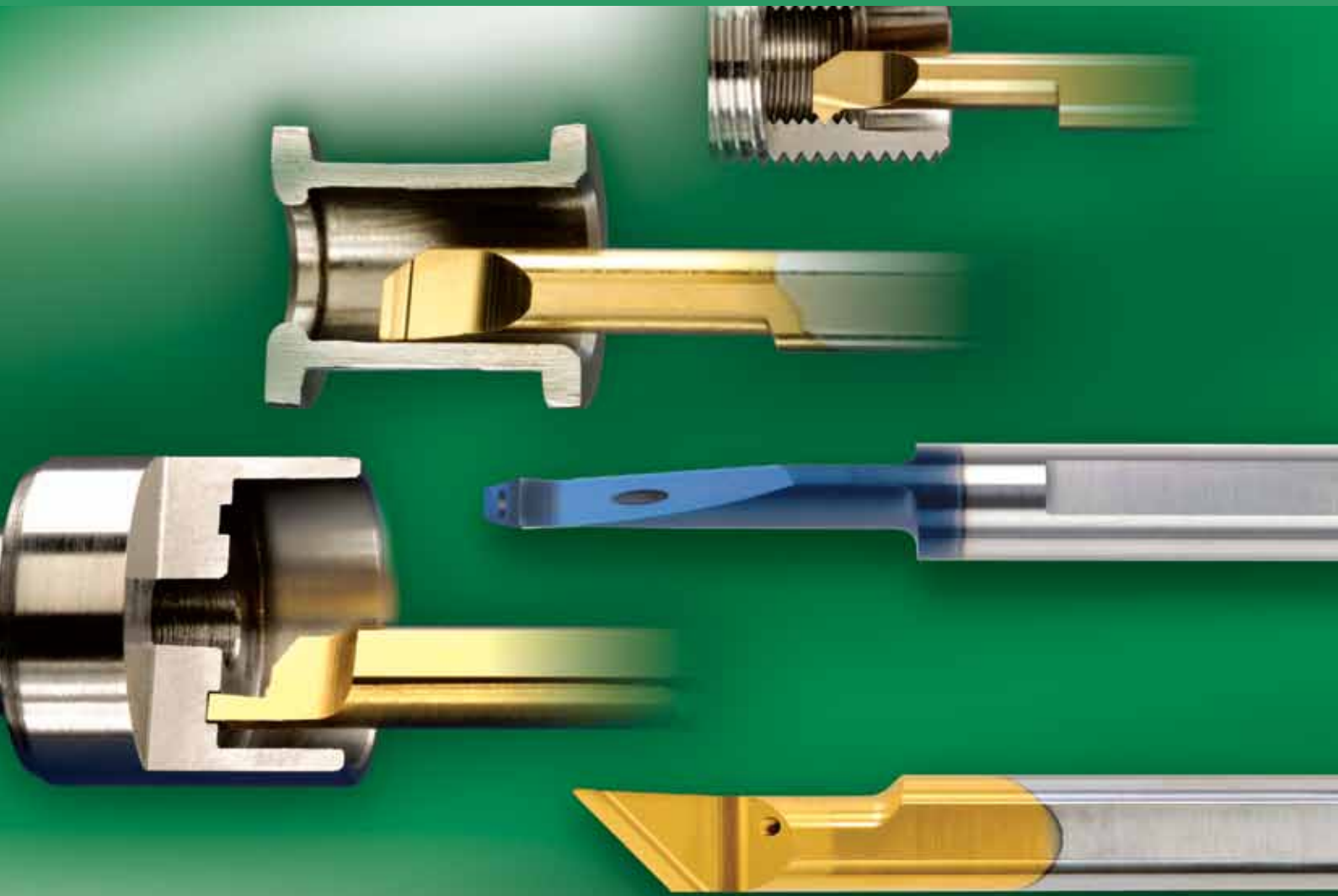


Tiny Tools



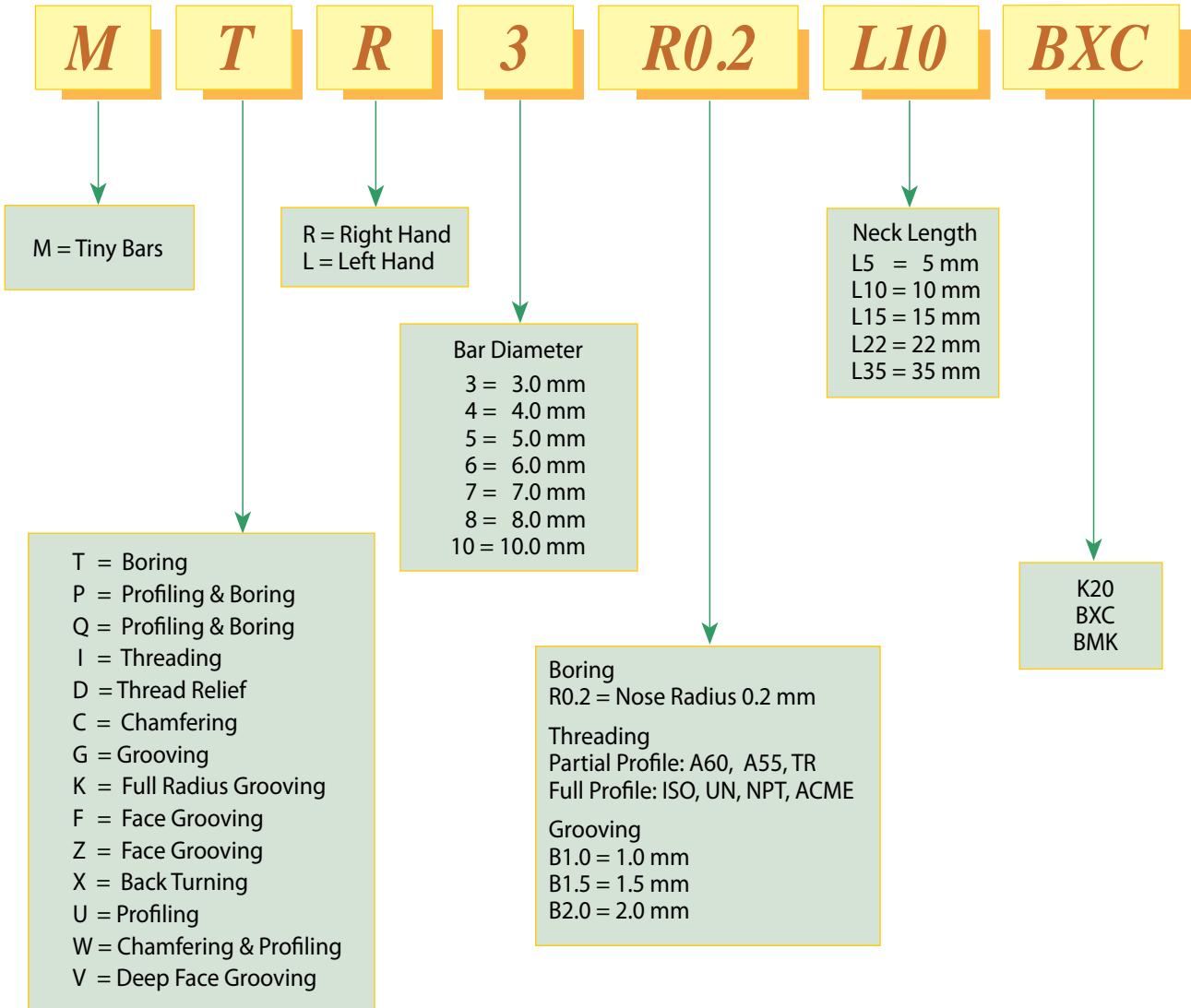
Solid Carbide tools for working in small bores

These tools are made for the high-tech, medical and small component industry. All tools include through coolant enabling the cooling fluid to reach the cutting edge efficiently, for easy chip removal and smooth cutting operations.

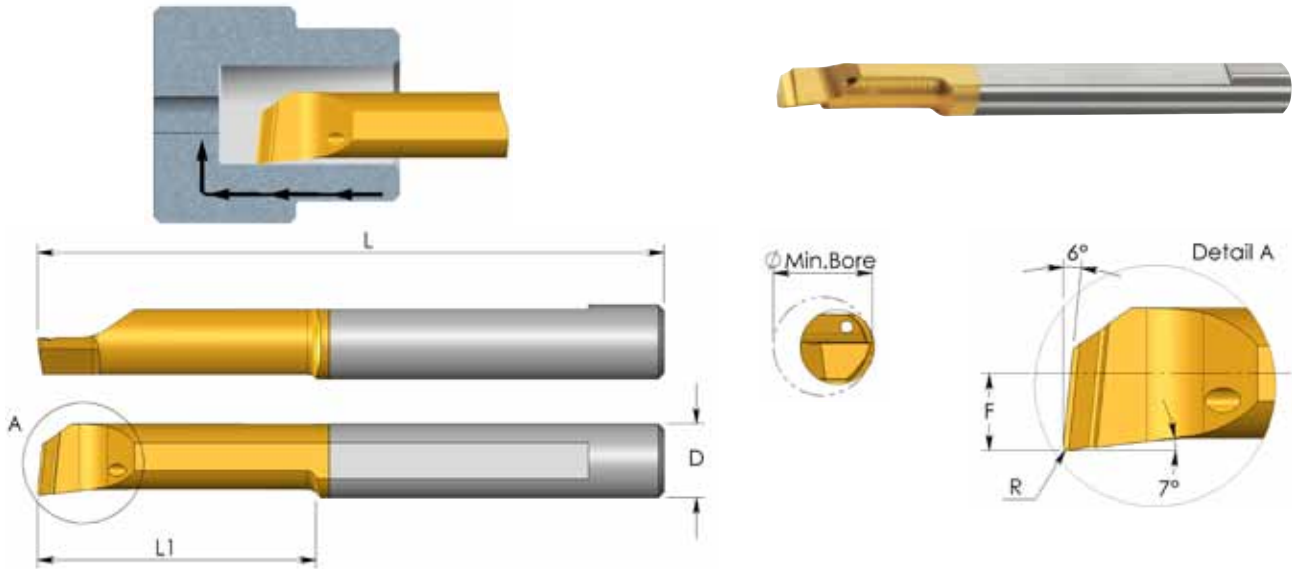
Contents:	Page:	Contents:	Page:
Product Identification	74	MFR Face Grooving Bars	91
MTR Boring Bars	75-76	MFL Face Grooving Bars	92
MXR Back Turning Bars	77	MVR Deep Face Grooving Bars	93
MPR Profiling and Boring Bars	78-79	MZR Face Grooving Bars	94
MUR Profiling, 90° Face Cutting Bars	80	MZL Face Grooving Bars	95
MQR Profiling and Boring Bars	81	CMR	96
MIR Threading Bars	82-85	HK	97
MDR Thread Relief, Chamfering and Grooving	86	Tiny Tools Bar Holders	98-99
MCR Threading Bars	87	Square Shank Holders	100
MWR Chamfering and Profiling Bars	88	Tiny Tools Kits	101
MGR Grooving Bars	89	Tiny Tools Technical Section	102-103
MKR Full Radius Grooving Bars	90		

Product Identification

Tiny Bars Ordering Codes



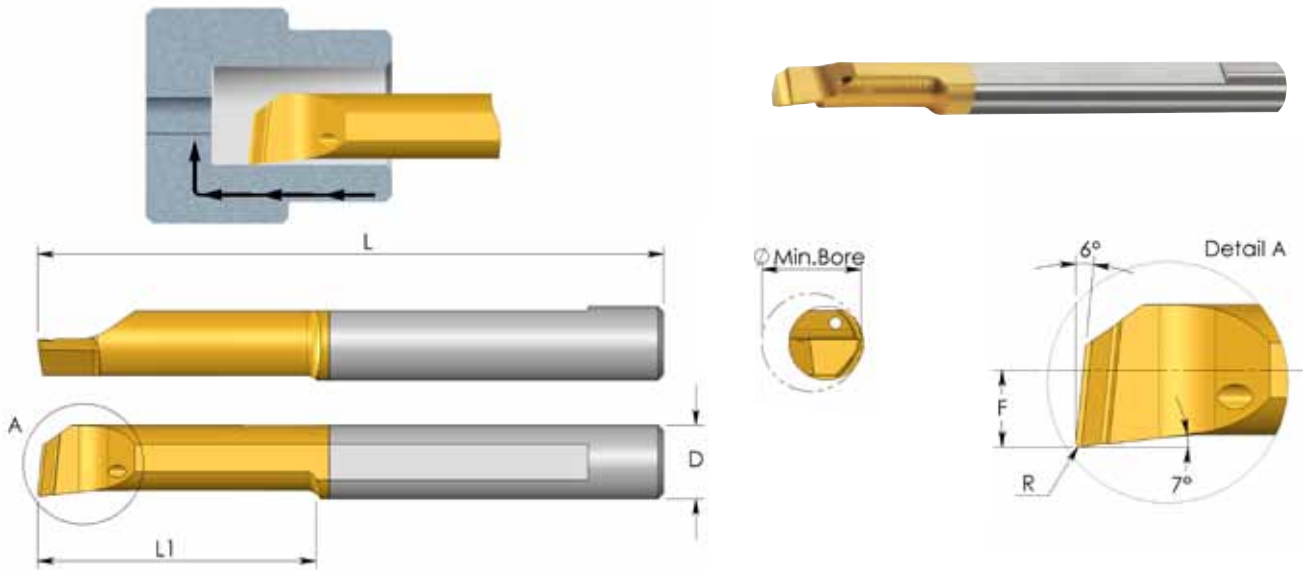
MTR Bars Boring



D	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder**
3.0	MTR 1 R0.05 L4	39	4	0.05	0.5	1.0	SIM ... H3
3.0	MTR 1 R0.05 L6	39	6	0.05	0.5	1.0	SIM ... H3
3.0	MTR 1.5 R0.1 L6	39	6	0.10	0.7	1.5	SIM ... H3
3.0	MTR 2 R0.05 L10	39	10	0.05	0.8	2.1	SIM ... H3
	MTR 2 R0.15 L5		5	0.15	0.8		
	MTR 2 R0.15 L10		10	0.15	0.8		
3.0	MTR 3 R0.05 L10	39	10	0.05	1.3	3.1	SIM ... H3
	MTR 3 R0.05 L15		15	0.05	1.3		
	MTR 3 R0.1 L10		10	0.10	1.3		
	MTR 3 R0.1 L15		15	0.10	1.3		
	MTR 3 R0.2 L10		10	0.20	1.3		
	MTR 3 R0.2 L15		15	0.20	1.3		
4.0	MTR 4 R0.05 L15	51	15	0.05	1.7	4.1	SIM ... H4
	MTR 4 R0.1 L10		10	0.10	1.7		
	MTR 4 R0.1 L15		15	0.10	1.7		
	MTR 4 R0.1 L22		22	0.10	1.7		
	MTR 4 R0.2 L10		10	0.20	1.7		
	MTR 4 R0.2 L15		15	0.20	1.7		
	MTR 4 R0.2 L22		22	0.20	1.7		
4.0	MTR 4 R0.2 L30	76	30	0.20	1.7	4.1	SIM ... H4

** For additional holders see pages 98-101

MTR Bars Boring



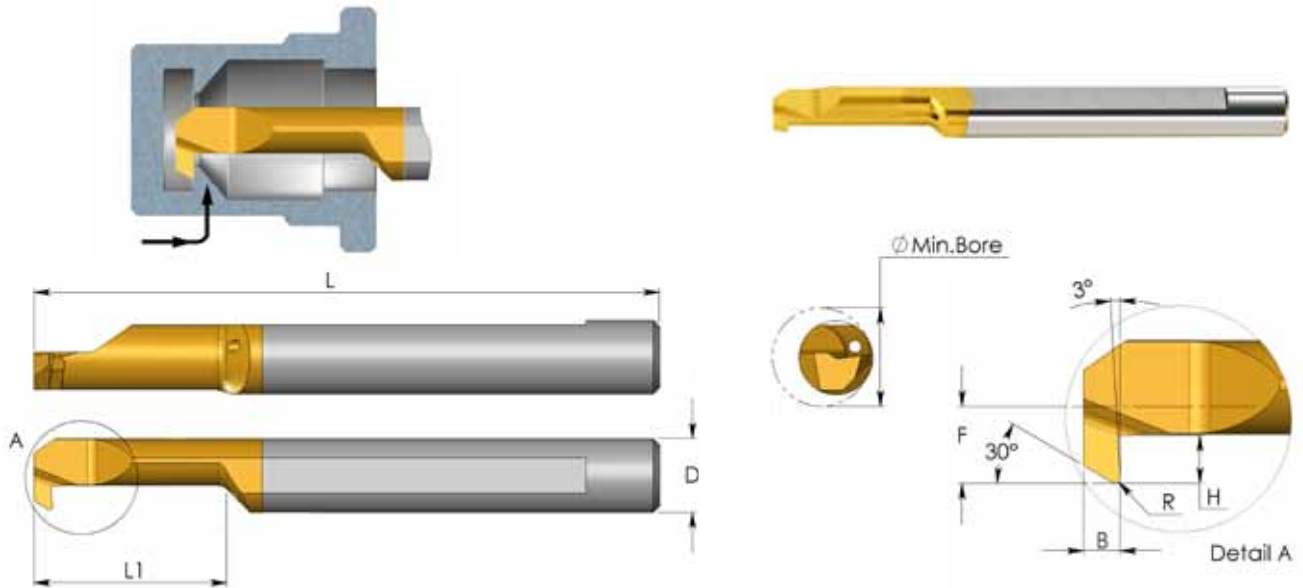
D	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder**
5.0	MTR 5 R0.05 L15	51	15	0.05	2.1	5.1	SIM ... H5
	MTR 5 R0.1 L15		15	0.10			
	MTR 5 R0.1 L22		22	0.10			
	MTR 5 R0.1 L30	76	30	0.10			
	MTR 5 R0.2 L15	51	15	0.20			
	MTR 5 R0.2 L22		22	0.20			
	MTR 5 R0.2 L30		76	30			
6.0	MTR 6 R0.05 L15	51	15	0.05	2.8	6.1	SIM ... H6
	MTR 6 R0.1 L15		15	0.10			
	MTR 6 R0.2 L15		15	0.20			
	MTR 6 R0.2 L22	58	22	0.20			
	MTR 6 R0.2 L30		30	0.20			
	MTR 6 R0.2 L35		76	35			
7.0	MTR 7 R0.2 L22	62	22	0.20	3.3	7.1	SIM ... H7
	MTR 7 R0.2 L30		30				
8.0	MTR 8 R0.2 L15	64	15	0.20	3.8	8.1	SIM ... H8
	MTR 8 R0.2 L22		22				
	MTR 8 R0.2 L35		76				
10.0	MTR10R0.2 L35	73	35	0.20	4.8	10.1	SIM ... H10

Order example: MTR 4 R0.2 L15 BXC

For L.H. bars specify MTL instead of MTR

** For additional holders see pages 98-101

MXR Bars Back Turning

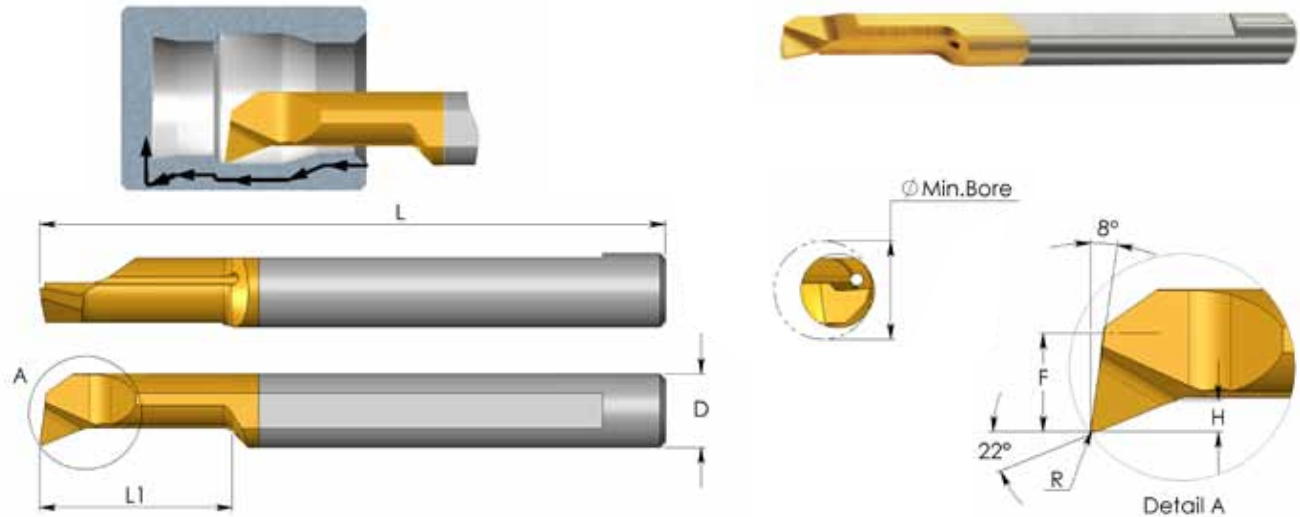


D	Ordering Code	L	L1	R	H	F	B	Min. Bore Dia.	Holder*
4.0	MXR 4 R0.1 L10	51	10	0.10	0.5	1.3	1.3	3.1	SIM ... H4
4.0	MXR 4 R0.15 L10	51	10	0.15	0.8	1.7	1.3	4.1	SIM ... H4
	MXR 4 R0.15 L15		15						
5.0	MXR 5 R0.2 L15	51	15	0.20	1.0	2.3	1.5	5.1	SIM ... H5
	MXR 5 R0.2 L22		22						
6.0	MXR 6 R0.2 L15	51	15	0.20	1.8	2.8	1.5	6.1	SIM ... H6
	MXR 6 R0.2 L22		22						

Order example: MXR 4 R0.15 L15 BXC

* For additional holders see pages 98-101

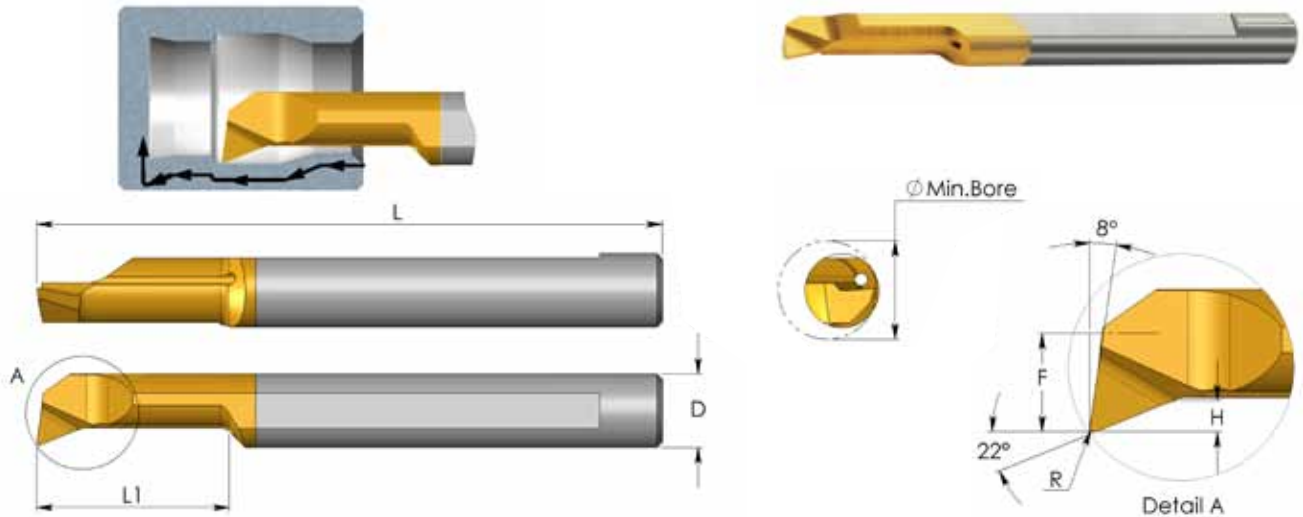
MPR Bars Profiling and Boring



D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder**
3.0	MPR 1 R0.05 L4	39	4	0.05	0.2	0.5	1.0	SIM ... H3
3.0	MPR 1 R0.05 L8	39	8	0.05	0.2	0.5	1.0	SIM ... H3
3.0	MPR 1.5 R0.1 L6	39	6	0.10	0.3	0.7	1.5	SIM ... H3
	MPR 1.5 R0.1 L10		10					
3.0	MPR 2 R0.05 L10	39	10	0.05	0.5	0.8	2.1	SIM ... H3
	MPR 2 R0.1 L10		10	0.10				
	MPR 2 R0.15 L5		5	0.15				
	MPR 2 R0.15 L10		10	0.15				
3.0	MPR 2 R0.15 L15	39	15	0.15	0.7	1.3	3.1	SIM ... H3
	MPR 3 R0.05 L10		10	0.05				
	MPR 3 R0.05 L15		15	0.05				
	MPR 3 R0.1 L15		15	0.10				
	MPR 3 R0.1 L22		22	0.10				
	MPR 3 R0.2 L10		10	0.20				
3.0	MPR 3 R0.2 L15	39	15	0.20	0.8	1.7	4.1	SIM ... H4
	MPR 3 R0.2 L22		22	0.20				
4.0	MPR 4 R0.1 L10	51	10	0.10	0.8	1.7	4.1	SIM ... H4
	MPR 4 R0.1 L15		15	0.10				
	MPR 4 R0.1 L22		22	0.10				
	MPR 4 R0.2 L10		10	0.20				
	MPR 4 R0.2 L15		15	0.20				
	MPR 4 R0.2 L22		22	0.20				

** For additional holders see pages 98-101

MPR Bars Profiling and Boring



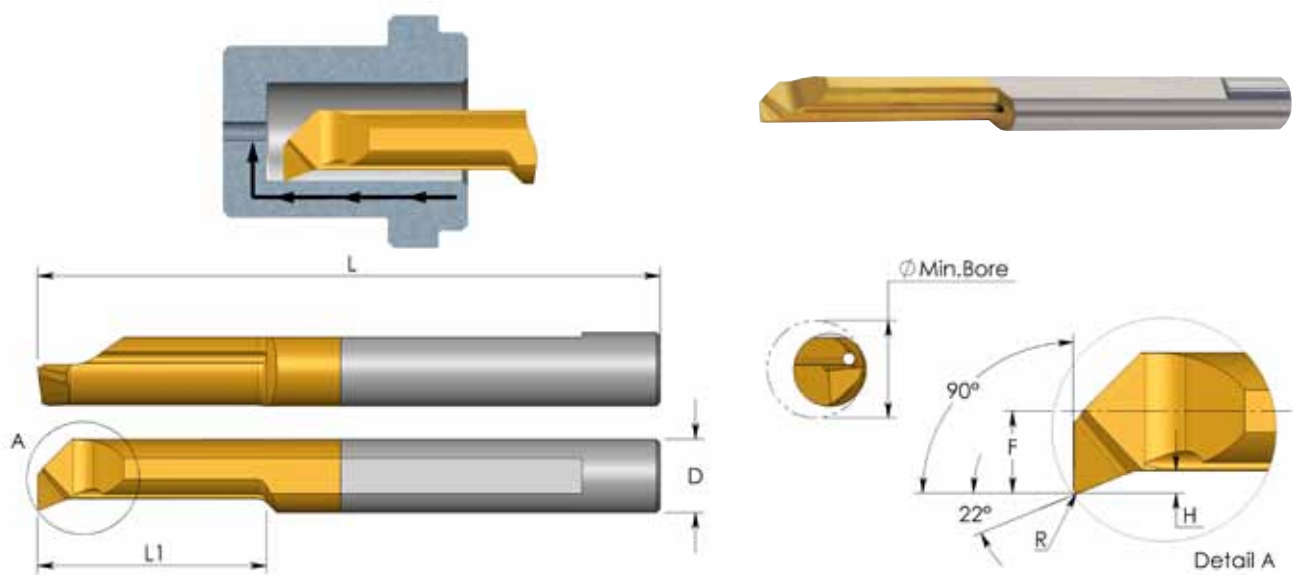
D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
5.0	MPR 5 R0.1 L22	51	22	0.10	1.2	2.1	5.1	SIM ... H5
	MPR 5 R0.1 L30	76	30	0.10				
	MPR 5 R0.2 L10	51	10	0.2				
	MPR 5 R0.2 L15	51	15	0.20				
	MPR 5 R0.2 L22	51	22	0.20				
	MPR 5 R0.2 L30	76	30	0.20				
6.0	MPR 6 R0.2 L15	51	15	0.20	1.4	2.8	6.1	SIM ... H6
	MPR 6 R0.2 L22	51	22	0.20				
	MPR 6 R0.2 L30	76	30	0.20				
7.0	MPR 7 R0.2 L22	62	22	0.20	1.5	3.3	7.1	SIM ... H7
	MPR 7 R0.2 L30		30	0.20				
	MPR 7 R0.2 L35		35	0.20				
8.0	MPR 8 R0.2 L15	64	15	0.20	1.6	3.8	8.1	SIM ... H8
	MPR 8 R0.2 L22	64	22	0.20				
	MPR 8 R0.2 L35	76	35	0.20				
10.0	MPR 10 R0.2 L35	73	35	0.20	2.0	4.8	10.0	SIM ... H10

Order example: MPR 4 R0.2 L15 BXC

* For additional holders see pages 98-101

For L.H. Bars specify MPL instead of MPR

MUR Bars Profiling, 90° Face Cutting

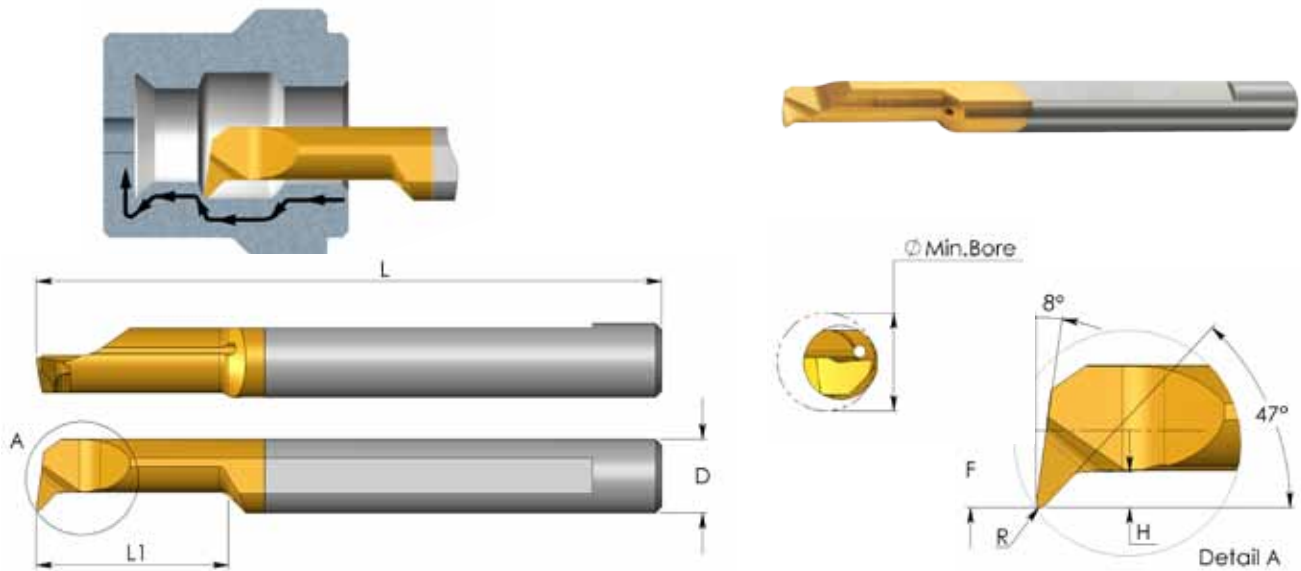


D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
3.0	MUR 3 R0.05 L10	39	10	0.05	0.4	1.3	3.1	SIM ... H3
	MUR 3 R0.05 L15		15					
4.0	MUR 4 R0.1 L10	51	10	0.10	0.5	1.7	4.1	SIM ... H4
	MUR 4 R0.1 L15		15					
5.0	MUR 5 R0.15 L15	51	15	0.15	0.7	2.1	5.1	SIM ... H5
	MUR 5 R0.15 L22		22					
6.0	MUR 6 R0.15 L15	51	15	0.15	0.9	2.8	6.1	SIM ... H6
	MUR 6 R0.15 L22		22					
8.0	MUR 8 R0.2 L22	64	22	0.20	1.1	3.8	8.1	SIM ... H8

Order example: MUR 5 R0.15 L15 BXC

* For additional holders see pages 98-101

MQR Bars Profiling and Boring



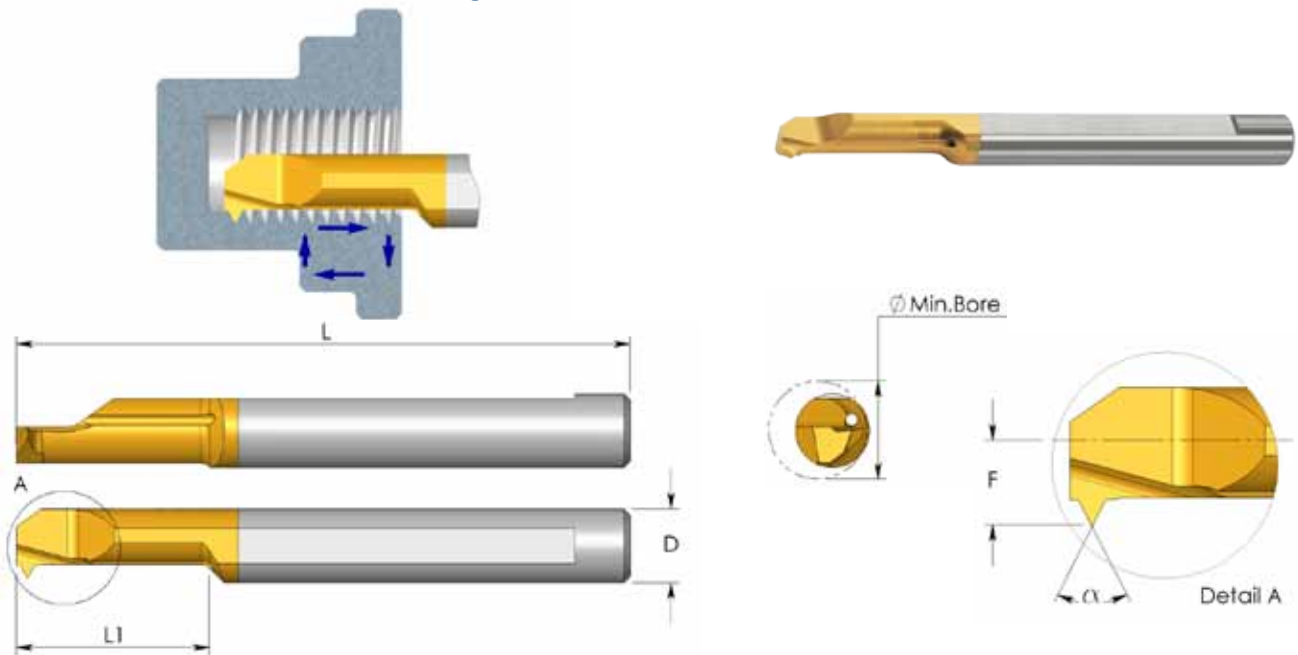
D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
4.0	MQR 4 R0.1 L22	51	22	0.10	0.8	1.8	4.1	SIM ... H4
	MQR 4 R0.2 L10		10					
	MQR 4 R0.2 L15		15	0.20				
	MQR 4 R0.2 L22		22					
5.0	MQR 5 R0.2 L15	51	15	0.20	1.0	2.3	5.1	SIM ... H5
	MQR 5 R0.2 L22		22					
6.0	MQR 6 R0.2 L15	51	15	0.20	1.4	2.8	6.1	SIM ... H6
	MQR 6 R0.2 L22	51	22					
	MQR 6 R0.2 L30	58	30					
8.0	MQR 8 R0.2 L22	64	22	0.20	1.6	3.8	8.1	SIM ... H8
	MQR 8 R0.2 L27		27		2.0			

Order example: MQR 5 R0.2 L15 BXC

For L.H. bars specify MQL instead of MQR

* For additional holders see pages 98-101

MIR Bars Threading



Partial Profile 55°

D	Ordering Code	L	L1	α	Pitch Range		F	Min. Bore Dia.	Holder**
					mm	TPI			
3.0	MIR 3 L15 A55	39	15	55	0.5 - 1.0	48 - 24	1.4	3.2	SIM ... H3
4.0	MIR 4 L15 A55	51	15	55	0.5 - 1.0	48 - 24	1.8	4.1	SIM ... H4
5.0	MIR 5 L15 A55	51	15	55	0.5 - 1.25	48 - 20	2.3	5.1	SIM ... H5
	MIR 5 L22 A55		22						
6.0	MIR 6 L15 A55	51	15	55	0.5 - 1.5	48 - 16	2.6	6.0	SIM ... H6
	MIR 6 L22 A55		22						

Order example: [MIR 5 L15 A55 BXC](#)

Partial Profile 60°

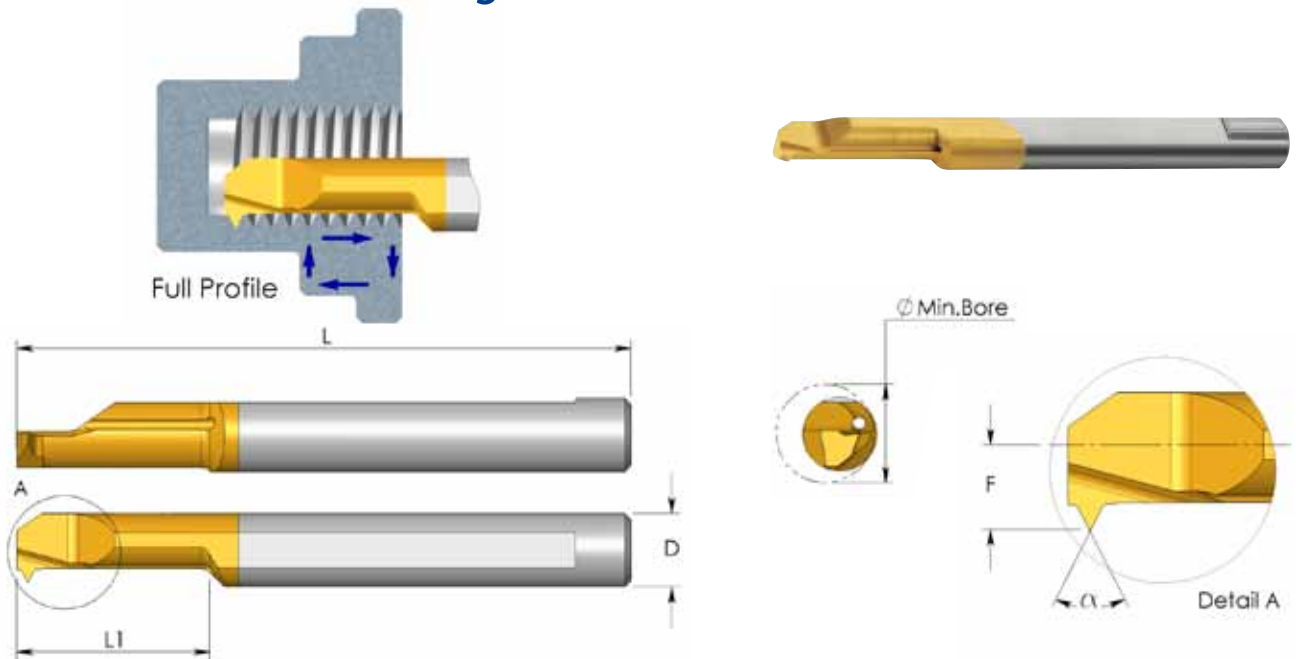
D	Ordering Code	L	L1	α	Pitch Range		F	Min. Bore Dia.	Holder**
					mm	TPI			
3.0	MIR 1 L5 A60	39	4.8	60	0.25 - 0.35	100 - 72	0.55	1.2	SIM ... H3
	MIR 1.5 L6 A60		6.3		0.35 - 0.45	72 - 56	0.65	1.4	
3.0	MIR 2 L8 A60	39	8	60	0.45 - 0.7	56 - 32	1.0	2.1	SIM ... H3
3.0	MIR 3 L15 A60	39	15	60	0.8 - 1.0	32 - 24	1.4	3.2	SIM ... H3
4.0	MIR 4 L15 A60	51	15	60			1.8	4.1	SIM ... H4
5.0	MIR 5 L15 A60	51	15	60	1.0 - 1.25	24 - 20	2.3	5.1	SIM ... H5
	MIR 5 L22 A60		22						
6.0	MIR 6 L15 A60	51	15	60	1.0 - 1.5	24 - 16	2.6	6.0	SIM ... H6
	MIR 6 L22 A60		22						
8.0	MIR 8 L22 A60	64	22	60	1.0 - 2.0	24 - 13	3.6	8.0	SIM ... H8

Order example: [MIR 5 L15 A60 BXC](#)

For L.H. bars specify MIL instead of MIR

** For additional holders see pages 98-101

MIR Bars Threading



Full Profile - ISO 60°

D	Ordering Code	Thread	L	L1	F	Min. Bore Dia.	Holder*
3.0	MIR 3 L15 0.5 ISO	M4 x 0.5	39	15	1.4	3.2	SIM ... H3
	MIR 3 L15 0.7 ISO	M4 x 0.7					
	MIR 3 L15 0.75 ISO	M4.5 x 0.75					
4.0	MIR 4 L15 0.5 ISO	M5 x 0.5	51	15	1.8	4.1	SIM ... H4
	MIR 4 L15 0.75 ISO	M5 x 0.75					
	MIR 4 L15 0.8 ISO	M5 x 0.8					
5.0	MIR 5 L15 1.0 ISO	M6 x 1.0	51	15	2.2	4.9	SIM ... H5
6.0	MIR 6 L22 1.25 ISO	M8 x 1.25	51	22	2.8	6.1	SIM ... H6

Order example: MIR 5 L15 1.0 ISO BXC

Full Profile - UN 60°

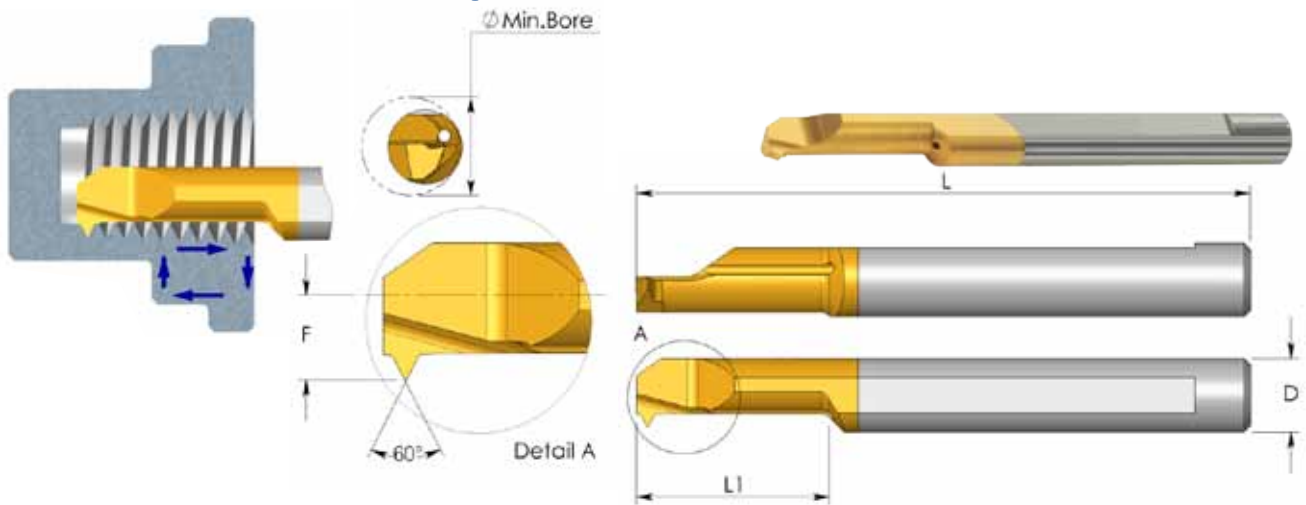
D	Ordering Code	Thread	L	L1	F	Min. Bore Dia.	Holder*
3.0	MIR 3 L15 36 UN	8-36 UNF	39	15	1.4	3.2	SIM ... H3
	MIR 3 L15 32 UN	8-32 UNC					
4.0	MIR 4 L15 36 UN	12-36 UNS	51	15	1.8	4.1	SIM ... H4
	MIR 4 L15 32 UN	12-32 UNEF					
5.0	MIR 5 L15 28 UN	1/4-28 UNF	51	15	2.2	4.9	SIM ... H5
	MIR 5 L18 20 UN	1/4-20 UNC		18			
6.0	MIR 6 L18 24 UN	5/16-24UNF	51	18	2.8	6.5	SIM ... H6
	MIR 6 L18 18 UN	5/16-18UNC				6.2	

Order example: MIR 4 L15 36 UN BXC

For L.H. bars specify MIL instead of MIR

* For additional holders see pages 98-101

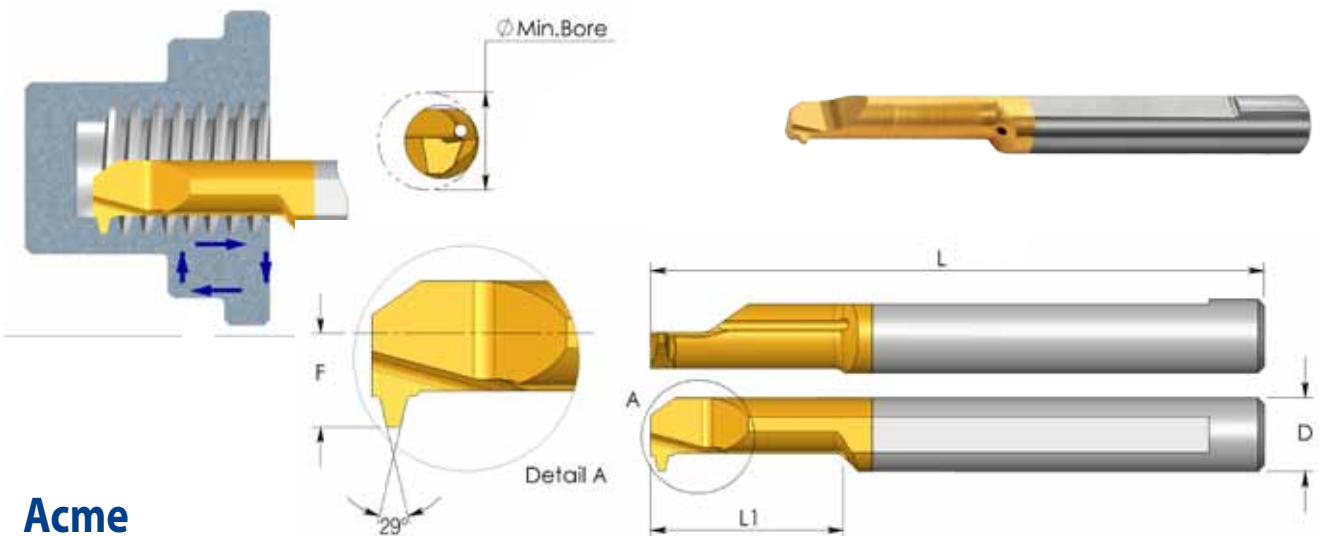
MIR Bars Threading



Full Profile - NPT 60°

D	Ordering Code	Pitch TPI	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
6.0	MIR 6 L15 27 NPT	27	1/16 x 27 NPT 1/8 x 27 NPT	51	15	2.6	5.9	SIM ... H6

Order example: MIR 6 L15 27 NPT BXC



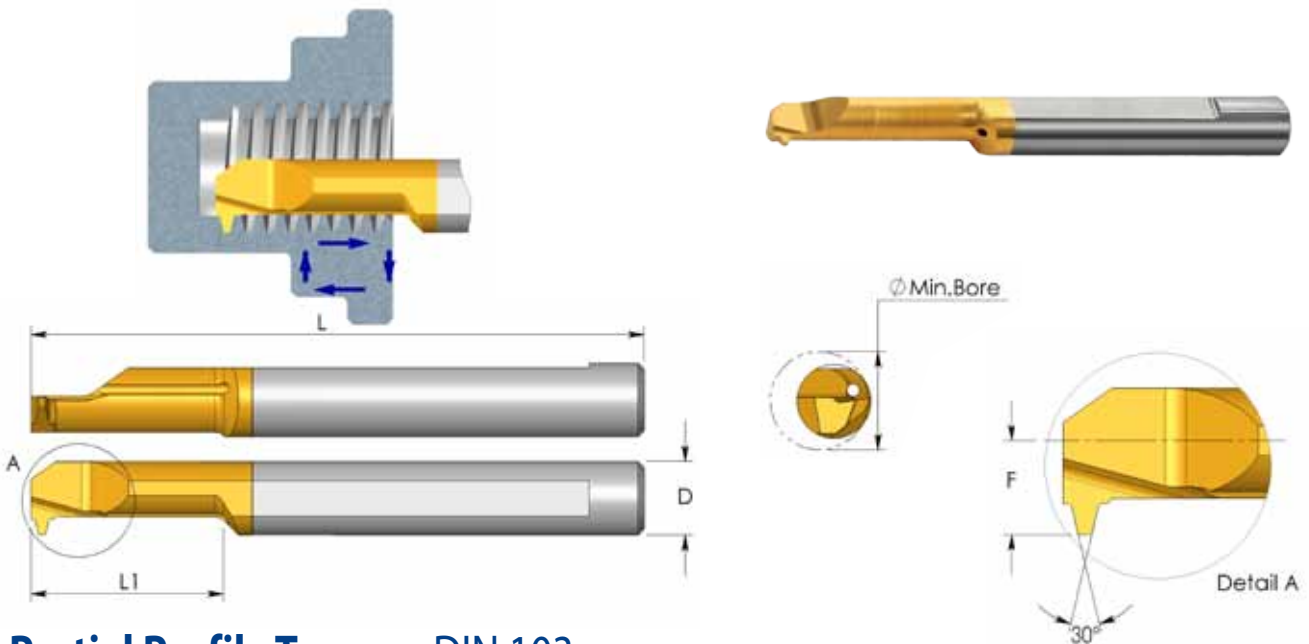
Acme

D	Ordering Code	Pitch TPI	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
4.0	MIR 4 L15 16 ACME	16	1/4 x 16	51	15	1.8	4.6	SIM ... H4
6.0	MIR 6 L20 14 ACME	14	5/16 x 14	51	20	2.8	6.0	SIM ... H6
7.0	MIR 7 L22 12 ACME	12	3/8 x 12 7/16 x 12	62	22	3.3	7.2	SIM ... H7
8.0	MIR 8 L30 10 ACME	10	1/2 x 10	76	30	3.8	10.0	SIM ... H8
10.0	MIR 10 L35 8 ACME	8	5/8 x 8	73	35	4.8	12.5	SIM ... H10
10.0	MIR 10 L45 6 ACME	6	3/4 x 6 7/8 x 6	105	45	4.8	14.6	SIM ... H10

Order example: MIR 6 L 20 14 ACME BXC

* For additional holders see pages 98-101

MIR Bars Threading



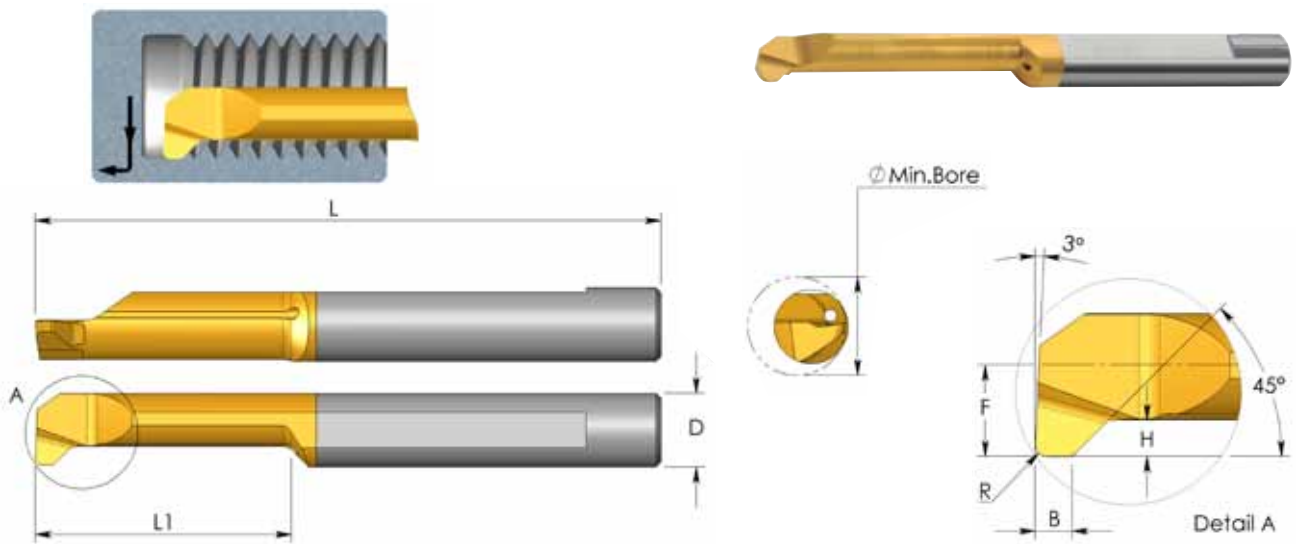
Partial Profile Trapez - DIN 103

D	Ordering Code	Pitch mm	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
7.0	MIR 7 L25 2 TR	2	TR 9 x 2 TR10 x 2 TR11 x 2 TR12 x 2	62	25	3.2	6.9	SIM ... H7
10.0	MIR 10 L35 2 TR	2	TR14 x 2 TR16 x 2 TR18 x 2 TR20 x 2	73	35	4.8	11.0	SIM ... H10
7.0	MIR 7 L35 3 TR	3	TR11 x 3 TR12 x 3	62	35	3.3	7.5	SIM ... H7
10.0	MIR 10 L35 3 TR	3	TR14 x 3 TR22 x 3 TR24 x 3 TR26 x 3 TR28 x 3	73	35	4.8	10.5	SIM ... H10
10.0	MIR 10 L45 4 TR	4	TR16 x 4 TR18 x 4 TR20 x 4	105	45	4.8	11.5	SIM ... H10
10.0	MIR 10 L55 5 TR	5	TR22 x 5 TR24 x 5 TR28 x 5	105	55	4.8	11.0	SIM ... H10

Order example: MIR 10 L35 3 TR BXC

* For additional holders see pages 98-101

MDR Bars Thread Relief, Chamfering and Grooving



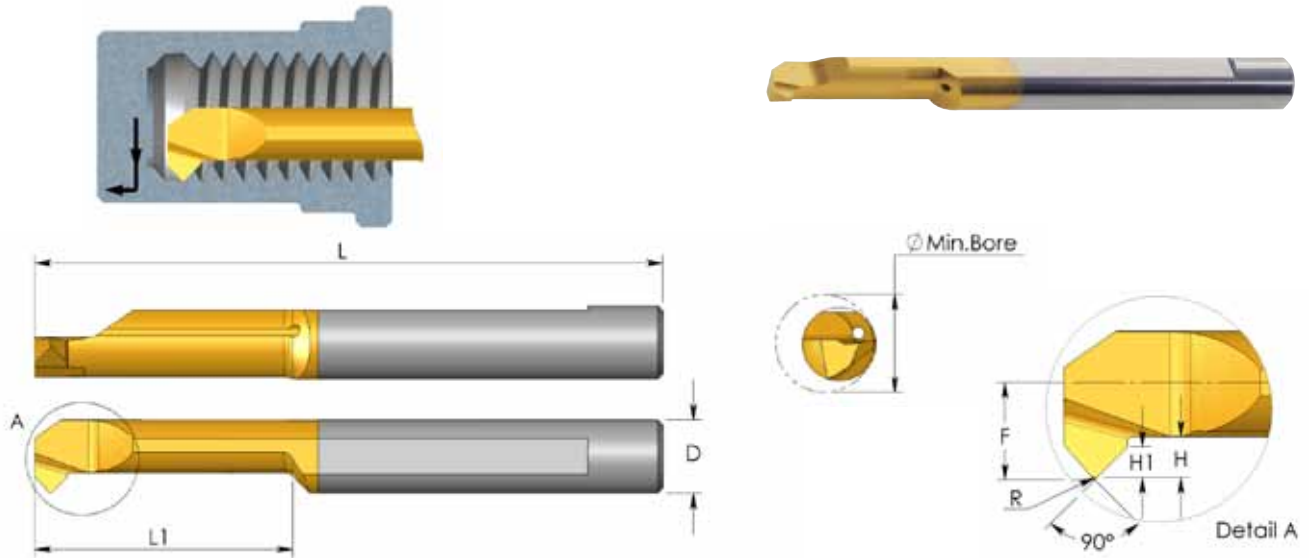
D	Ordering Code	L	L1	B	R	H	F	Min. Bore Dia.	Holder*
4.0	MDR 4 R0.5 L18	51	18	1.50	0.5	0.8	1.8	4.1	SIM ... H4
5.0	MDR 5 R0.5 L24	51	24	1.50	0.5	1.2	2.3	5.1	SIM ... H5
6.0	MDR 6 R0.5 L27	58	27	1.50	0.5	1.4	2.8	6.1	SIM ... H6

Order example: MDR 5 R0.5 L24 BXC

For L.H. bars specify MDL instead of MDR

* For additional holders see pages 98-101

MCR Bars Chamfering and Boring



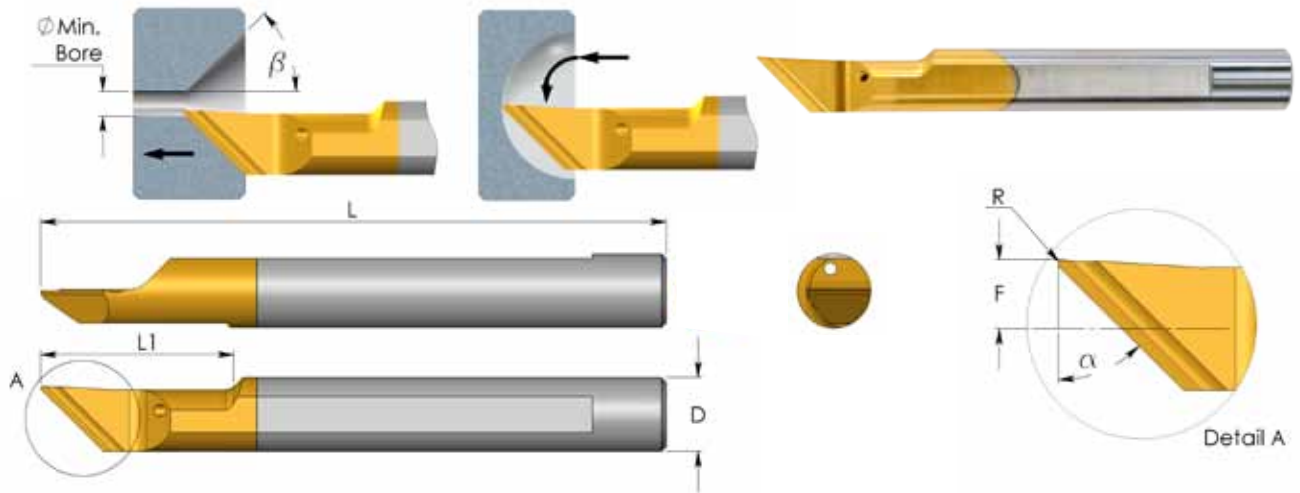
D	Ordering Code	L	L1	R	H	H1	F	Min. Bore Dia.	Holder*
3.0	MCR 3 R0.2 L10	39	10	0.20	0.7	0.3	1.3	3.1	SIM ... H3
4.0	MCR 4 R0.2 L15	51	15	0.20	0.8	0.4	1.7	4.1	SIM ... H4
5.0	MCR 5 R0.2 L15	51	15	0.20	1.2	0.7	2.1	5.1	SIM ... H5
6.0	MCR 6 R0.2 L15	51	15	0.20	1.4	0.7	2.8	6.1	SIM ... H6
7.0	MCR 7 R0.2 L20	62	20	0.20	1.5	0.8	3.3	7.1	SIM ... H7

Order example: MCR 4 R0.2 L15 BXC

For L.H. bars specify MCL instead of MCR

* For additional holders see pages 98-101

MWR Bars Chamfering and Profiling



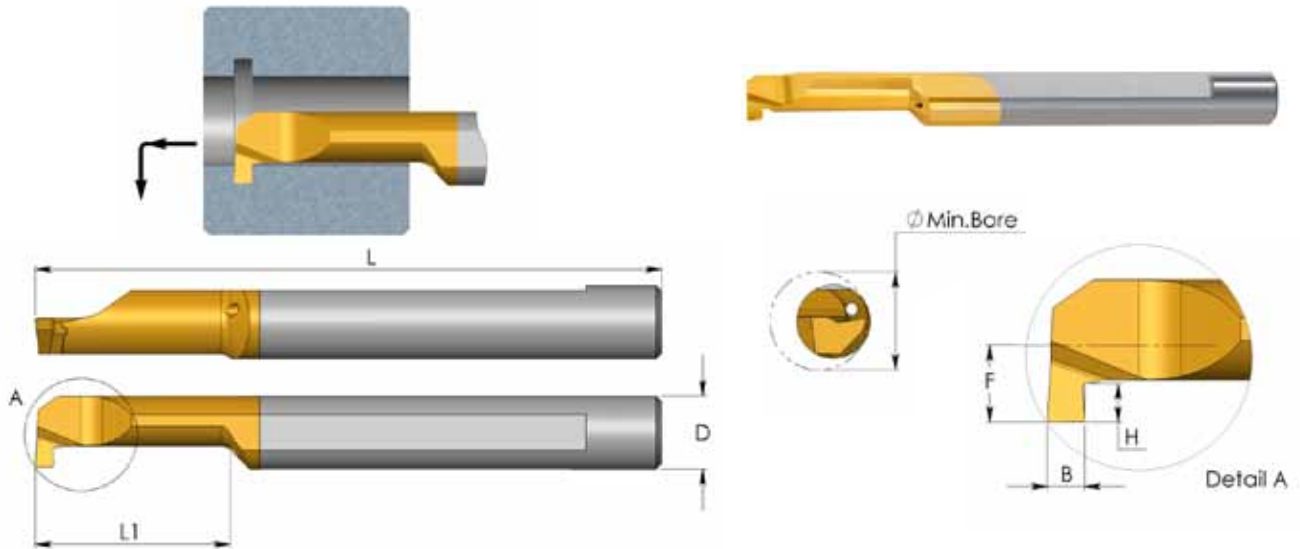
D	Ordering Code	L	L1	R	α	β	F	Min. Bore Dia.	Holder*
6.0	MWR 6 R0.2 A90	51	15.0	0.20	45°	45°	2.3	1.0	SIM ... H6
	MWR 6 R0.2 A60				60°	30°			

Order example: MWR 6 R0.2 A90 BXC

For L.H. bars specify MWL instead of MWR

* For additional holders see pages 98-101

MGR Bars Grooving



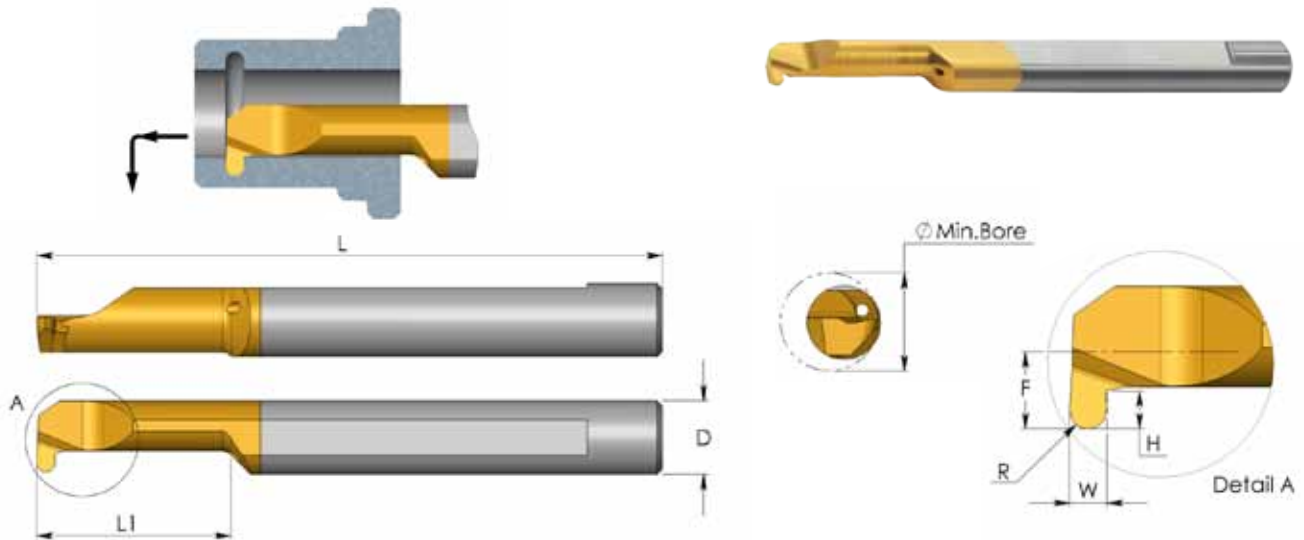
D	Ordering Code	L	L1	B	H	F	Min. Bore Dia.	Holder*
3.0	MGR 3 B0.7 L10	39	10	0.7	0.6	1.3	1.3	SIM ... H3
	MGR 4 B1.0 L10		10	1.0				
4.0	MGR 4 B1.0 L15	51	15	1.0	1.0	1.7	4.1	SIM ... H4
	MGR 4 B1.5 L10		10	1.5				
	MGR 5 B1.0 L15		15	1.0				
5.0	MGR 5 B1.0 L22	51	22	1.5	1.2	2.3	5.1	SIM ... H5
	MGR 5 B1.5 L15		15	1.5				
	MGR 5 B1.5 L22		22	1.5				
	MGR 5 B2.0 L15		15	2.0				
	MGR 5 B2.0 L22		22	2.0				
	MGR 6 B1.0 L15		15	1.0				
6.0	MGR 6 B1.0 L22	51	22	1.0	1.4	2.8	6.1	SIM ... H6
	MGR 6 B1.5 L15		15	1.5				
	MGR 6 B1.5 L22		22	1.5				
	MGR 6 B2.0 L15		15	2.0				
	MGR 6 B2.0 L22		22	2.0				
6.0	MGR 6 B1.0 L17	51	17	1.0	1.8	2.8	6.1	SIM ... H6
	MGR 6 B1.5 L17		17	1.5				
	MGR 6 B2.0 L17		17	2.0				
7.0	MGR 7 B1.0 L15	62	15	1.0	2.5	3.3	7.1	SIM ... H7
	MGR 7 B1.0 L22		22	1.0				
	MGR 7 B1.0 L30		30	1.0				
	MGR 7 B1.5 L15		15	1.5				
	MGR 7 B1.5 L22		22	1.5				
	MGR 7 B1.5 L30		30	1.5				
	MGR 7 B2.0 L15		15	2.0				
	MGR 7 B2.0 L22		22	2.0				
MGR 7 B2.0 L30	30	2.0						
8.0	MGR 8 B1.0 L22	64	22	1.0	1.7	3.8	8.1	SIM ... H8
	MGR 8 B1.5 L22		22	1.5	1.7			
	MGR 8 B2.0 L22		22	2.0	2.6			

Order example: MGR 5 B1.5 L15 BXC

For L.H. bars specify MGL instead of MGR

* For additional holders see pages 98-101

MKR Bars Full Radius Grooving



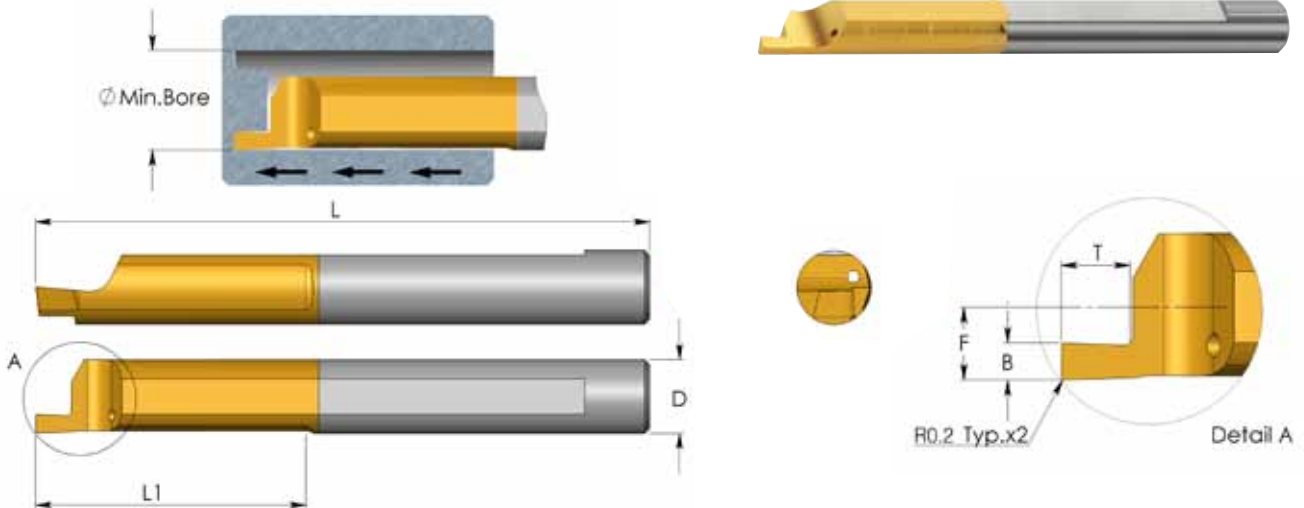
D	Ordering Code	L	L1	R	W	H	F	Min. Bore Dia.	Holder*
4.0	MKR 4 R0.5 L10	51	10	0.50	1.0	1.0	1.7	4.1	SIM ... H4
	MKR 4 R0.75 L10			0.75	1.5				
5.0	MKR 5 R0.5 L15	51	15	0.50	1.0	1.2	2.3	5.1	SIM ... H5
	MKR 5 R0.75 L15			0.75	1.5				
	MKR 5 R1.0 L15			1.00	2.0				
6.0	MKR 6 R0.5 L15	51	15	0.50	1.0	1.6	2.8	6.1	SIM ... H6
	MKR 6 R0.75 L15			0.75	1.5				
	MKR 6 R1.0 L15			1.00	2.0				
7.0	MKR 7 R0.5 L22	62	22	0.50	1.0	2.5	3.3	7.1	SIM ... H7
	MKR 7 R0.75 L22			0.75	1.5				
	MKR 7 R1.0 L22			1.00	2.0				

Order example: MKR 5 R1.0 L15 BXC

For L.H. bars specify MKL instead of MKR

* For additional holders see pages 98-101

MFR Bars Face Grooving

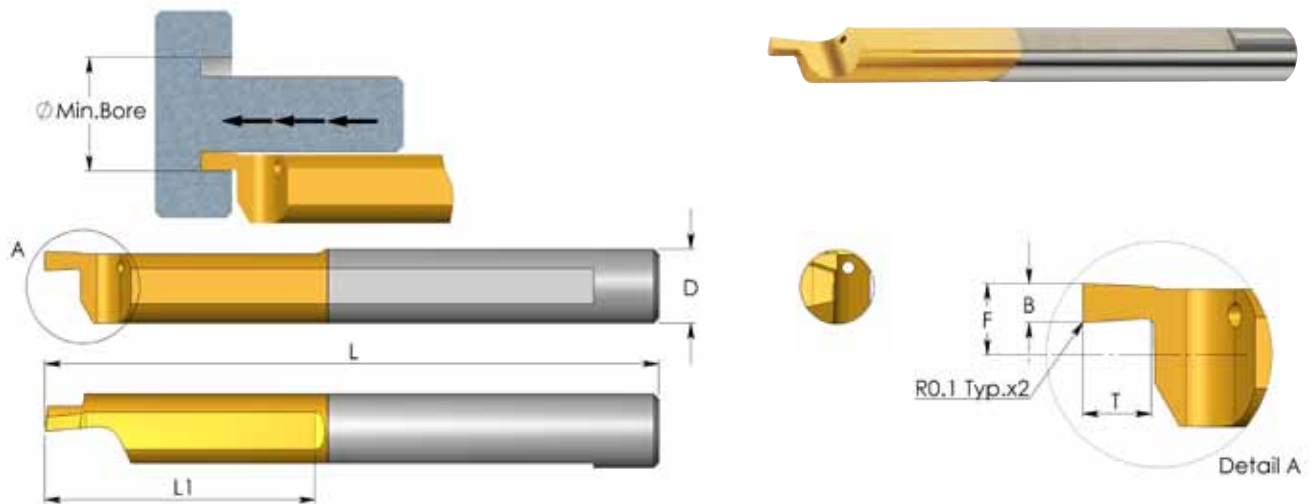


D	Ordering Code	L	L1	B	T	F	Min. Bore Dia.	Holder*
4.0	MFR 4 B0.75 L15	51	15	0.75	1.2	1.95	5.0	SIM ... H4
	MFR 4 B1.0 L15			1.0	1.5			
	MFR 4 B1.5 L15			1.5	2.8			
5.0	MFR 5 B0.75 L22	51	22	0.75	1.2	2.45	6.0	SIM ... H5
	MFR 5 B1.0 L22			1.0	1.5			
	MFR 5 B1.5 L22			1.5	2.5			
	MFR 5 B2.0 L22			2.0	3.8			
6.0	MFR 6 B1.0 L22	51	22	1.0	1.5	2.95	8.0	SIM ... H6
	MFR 6 B1.5 L22			1.5	2.5			
	MFR 6 B2.0 L22			2.0	3.0			
	MFR 6 B2.5 L22			2.5	4.8			
8.0	MFR 8 B2.5 L22	64	22	2.5	3.5	3.95	10.0	SIM ... H8

Order example: MFR 5 B1.0 L22 BXC

* For additional holders see pages 98-101

MFL Bars Face Grooving

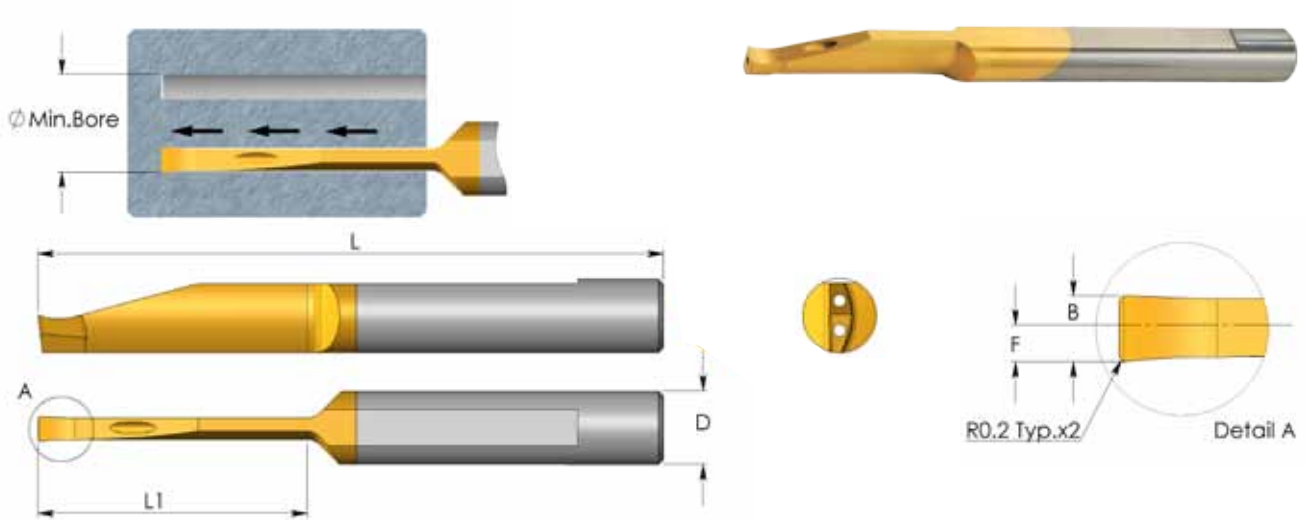


D	Ordering Code	L	L1	B	T	F	Min. Bore Dia.	Holder*
4.0	MFL 4 B0.75 L15	51	15	0.75	1.2	1.75	5.0	SIM ... H4
	MFL 4 B1.0 L15			1.0	1.5			
	MFL 4 B1.5 L15			1.5	2.8			
5.0	MFL 5 B0.75 L22	51	22	0.75	1.2	2.25	6.0	SIM ... H5
	MFL 5 B1.0 L22			1.0	1.5			
	MFL 5 B1.5 L22			1.5	2.5			
	MFL 5 B2.0 L22			2.0	3.8			
6.0	MFL 6 B1.0 L22	51	22	1.0	1.5	2.75	8.0	SIM ... H6
	MFL 6 B1.5 L22			1.5	2.5			
	MFL 6 B2.0 L22			2.0	3.0			
	MFL 6 B2.5 L22			2.5	4.8			
8.0	MFL 8 B2.5 L22	64	22	2.5	3.5	3.75	10.0	SIM ... H8

Order example: MFL 6 B1.0 L22 BXC

* For additional holders see pages 98-101

MVR Bars Deep Face Grooving - with 2 Coolant Bores

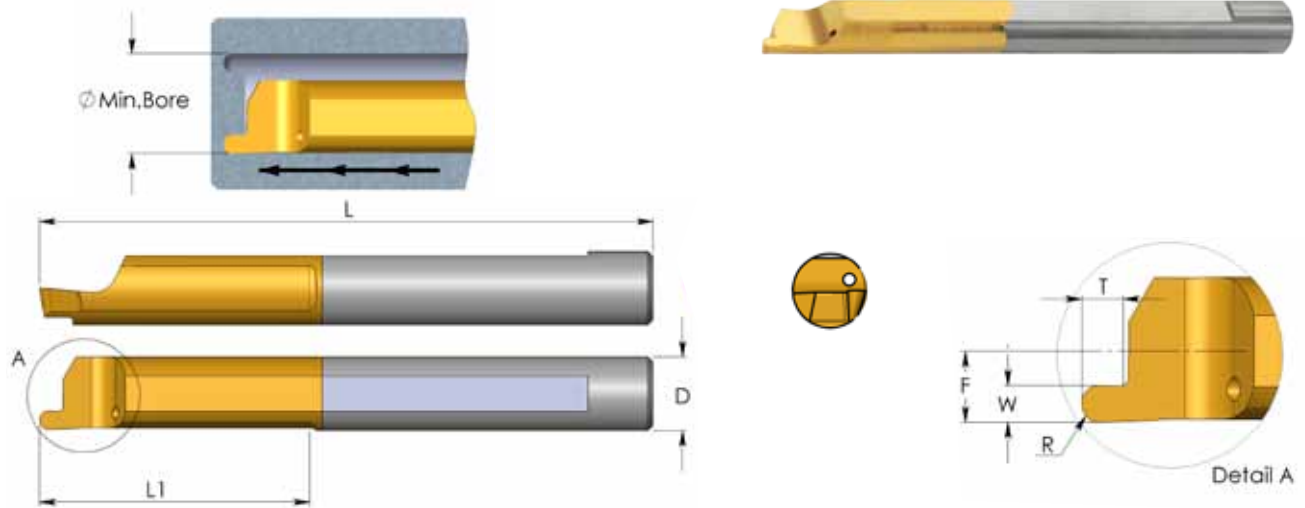


D	Ordering Code	L	L1	B	F	Min. Bore Dia.	Holder*
6.0	MVR 6 B2.0 L15	64	15	2.0	1.1	12.0	SIM ... H6
	MVR 6 B2.0 L22		22	2.0	1.1		
	MVR 6 B2.5 L22		22	2.5	1.4		
8.0	MVR 8 B3.0 L27	64	27	3.0	1.6	15.0	SIM ... H8
	MVR 8 B3.0 L43	80	43	3.0	1.6		
8.0	MVR 8 B4.0 L43	80	43	4.0	2.1	20.0	SIM ... H8

Order example: MVR 6 B2.0 L22 BXC

* For additional holders see pages 98-101

MZR Bars Face Grooving

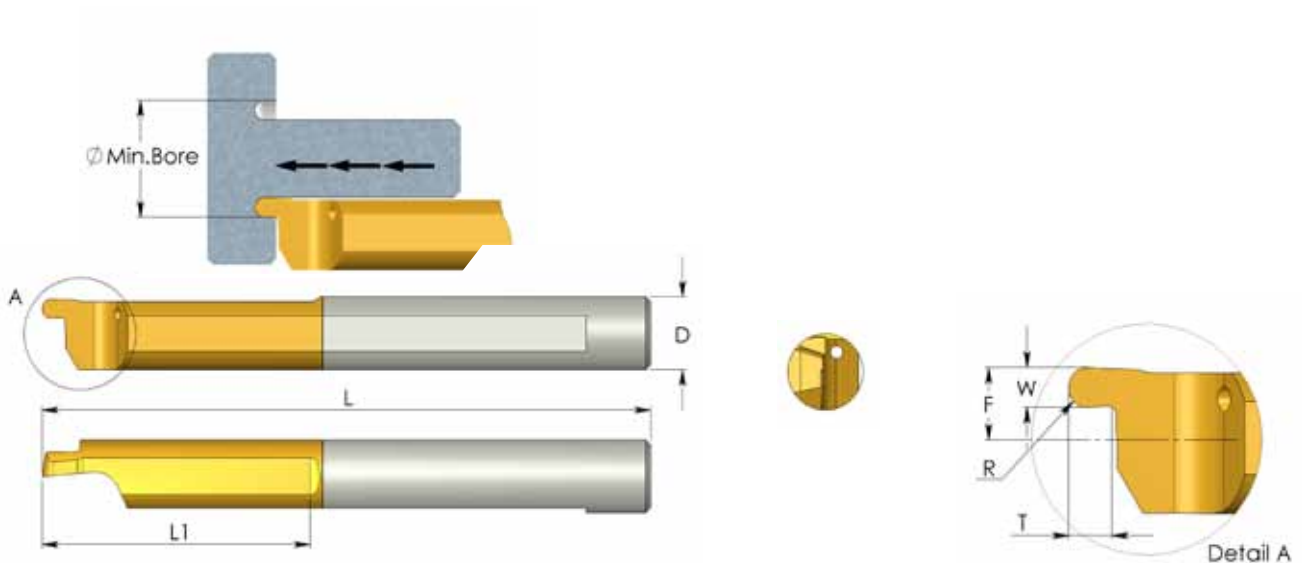


D	Ordering Code	L	L1	R	W	T	F	Min. Bore Dia.	Holder*
4.0	MZR 4 R0.5 L15	51	15	0.50	1.0	1.2	1.95	5.0	SIM ... H4
	MZR 4 R0.75 L15			0.75	1.5	1.5			
5.0	MZR 5 R0.5 L22	51	22	0.50	1.0	1.2	2.45	6.0	SIM ... H5
	MZR 5 R0.75 L22			0.75	1.5	1.5			
	MZR 5 R1.0 L22			1.00	2.0	2.5			
6.0	MZR 6 R0.5 L22	51	22	0.50	1.0	1.2	2.95	8.0	SIM ... H6
	MZR 6 R0.75 L22			0.75	1.5	1.5			
	MZR 6 R1.0 L22			1.00	2.0	2.5			

Order example: MZR 5 R0.5 L22 BXC

* For additional holders see pages 98-101

MZL Bars Face Grooving

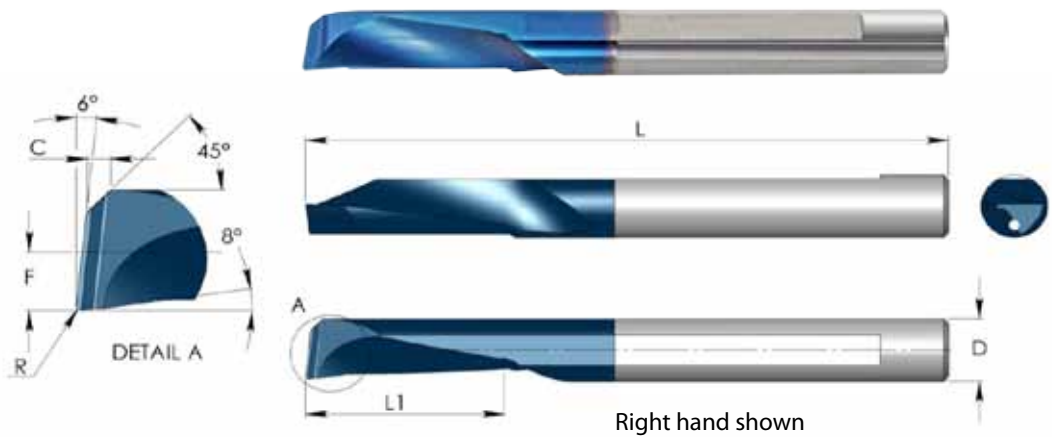


D	Ordering Code	L	L1	R	W	T	F	Min. Bore Dia.	Holder*
4.0	MZL 4 R0.5 L15	51	15	0.50	1.0	1.2	1.75	5.0	SIM ... H4
	MZL 4 R0.75 L15			0.75	1.5	1.5			
5.0	MZL 5 R0.5 L22	51	22	0.50	1.0	1.2	2.25	6.0	SIM ... H5
	MZL 5 R0.75 L22			0.75	1.5	1.5			
	MZL 5 R1.0 L22			1.00	2.0	2.5			
6.0	MZL 6 R0.5 L22	51	22	0.50	1.0	1.2	2.75	8.0	SIM ... H6
	MZL 6 R0.75 L22			0.75	1.5	1.5			
	MZL 6 R1.0 L22			1.00	2.0	2.5			

Order example: MZL 5 R0.5 L22 BXC

* For additional holders see pages 98-101

CMR Carmex Multi-Task Tiny Tools



Right hand

D	Ordering Code	L	L1	R	F	C	Hole Dia.*	Holder **
4	CMR 4 R0.1 L10	51	10	0.1	1.8	1.1	4	SIM...H4
	CMR 4 R0.1 L15		15					
5	CMR 5 R0.2 L10	51	10	0.2	2.3	1.3	5	SIM...H5
	CMR 5 R0.2 L15		15					
6	CMR 6 R0.2 L12	58	12	0.2	2.8	1.5	6	SIM...H6
	CMR 6 R0.2 L18		18					

* The minimum hole diameter the tool can produce from full material

Left hand

D	Ordering Code	L	L1	R	F	C	Hole Dia.*	Holder
4	CML 4 R0.1 L10	51	10	0.1	1.8	1.1	4	SIM...H4
	CML 4 R0.1 L15		15					
5	CML 5 R0.2 L10	51	10	0.2	2.3	1.3	5	SIM...H5
	CML 5 R0.2 L15		15					
6	CML 6 R0.2 L12	58	12	0.2	2.8	1.5	6	SIM...H6
	CML 6 R0.2 L18		18					

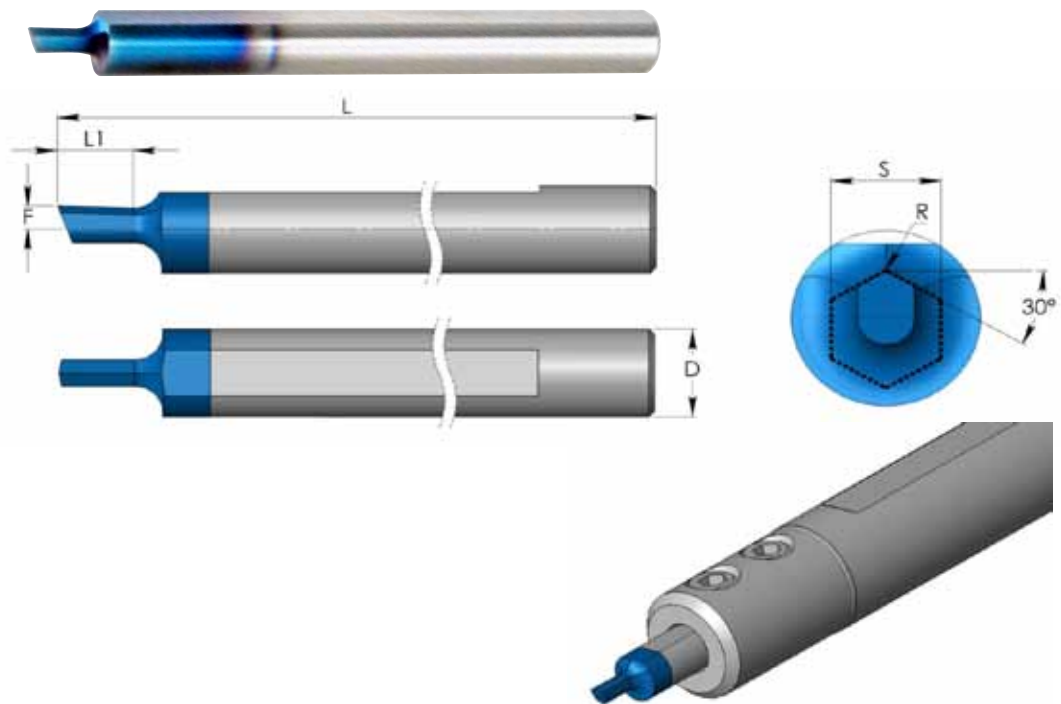
* The minimum hole diameter the tool can produce from full material

** For additional holders see pages 98-101

Product Identification



HK Broaching Tools for Hexagon Keys

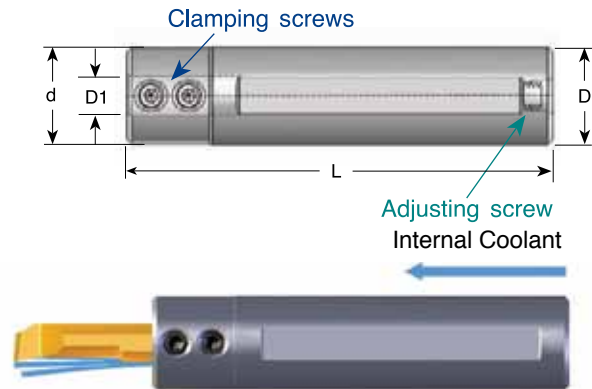


D	S	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder *
5.0	2.3-2.9	HK 2 S23 L4	51	4.0	0.05	1.35	2.2	SIM...H5
	3.0-4.0	HK 3 S30 L5	51	5.5	0.05	1.35	2.9	
	4.0-5.0	HK 4 S40 L6	51	6.5	0.10	1.35	3.9	
7.0	5.0-8.0	HK 5 S50 L9	62	9.5	0.10	1.35	4.9	SIM...H7

S = Socket Size

* For additional holders see pages 98-101

Tiny Tools Bar Holders



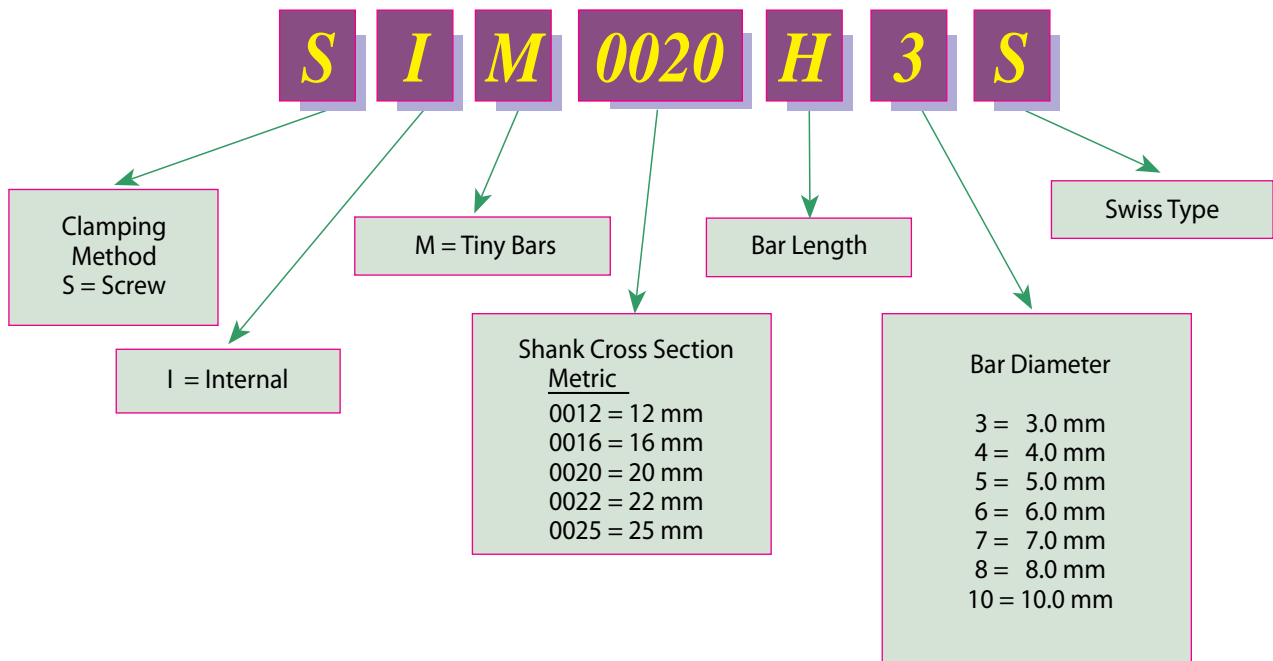
Metric Shank Version

D1	Ordering Code	L	D	d	Key	Clamping Screw	Adjusting Screw
3.0	SIM 0012 H3	88	12	12	K25	S24	S35
	* SIM 0016 H3S	75	16	20			S35S
	SIM 0016 H3	88	16	20		S25	S35
	SIM 0020 H3	88	20	20			S35
4.0	* SIM 0022 H3	88	22	22	K25	S24	S35
	SIM 0012 H4	88	12	12			S35S
	* SIM 0016 H4S	75	16	20		S25	S35
	SIM 0016 H4	88	16	20			S35
	SIM 0020 H4	88	20	20			S35
5.0	* SIM 0022 H4	88	22	22	K25	S24	S35
	SIM 0012 H5	88	12	12			S35S
	* SIM 0016 H5S	75	16	20		S25	S35
	SIM 0016 H5	88	16	20			S35
	SIM 0020 H5	88	20	20			S35
6.0	* SIM 0022 H5	88	22	22	K25	S25	S35
	* SIM 0016 H6S	75	16	20			S35S
	SIM 0016 H6	88	16	20			S35
	SIM 0020 H6	88	20	20			S35
7.0	* SIM 0022 H6	88	22	22	K25	S25	S35
	SIM 0016 H7	88	16	20			S35
	SIM 0020 H7	88	20	20			S35
8.0	* SIM 0022 H7	88	22	22	K25	S25	S35S
	SIM 0016 H8	88	16	20			S35
10.0	SIM 0020 H8	88	20	20	K25	S25S	S35
	SIM 0016 H10	88	16	20			S35
	SIM 0020 H10	88	20	20			S35

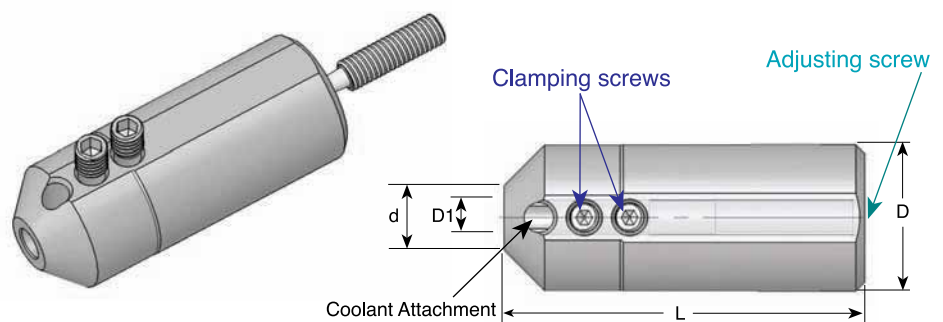
* Can also be used with Swiss type lathe machines

Product Identification

Tiny Bar Holders Ordering Codes



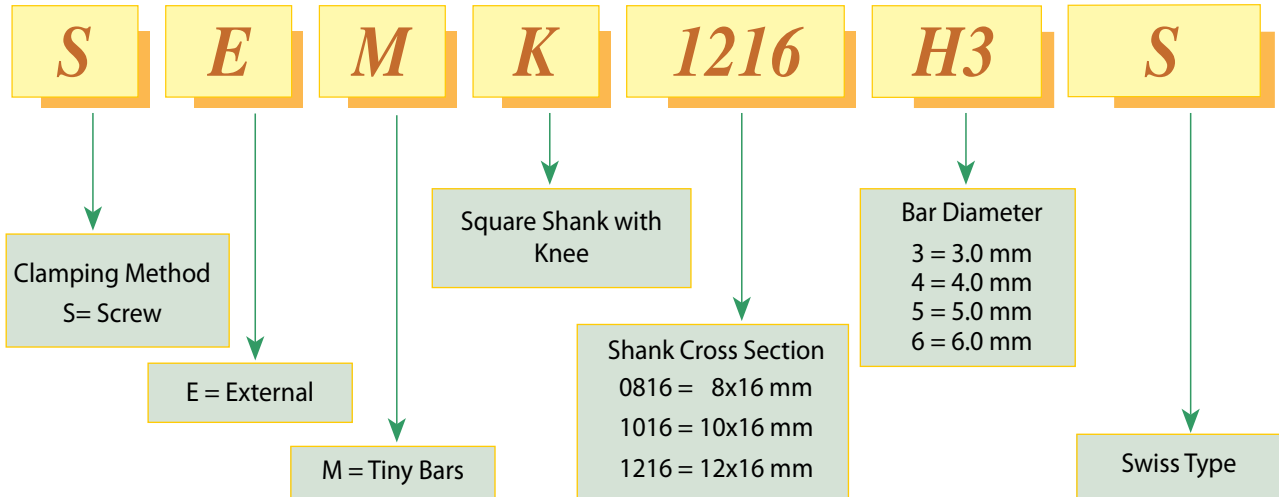
Tools Bar Holders



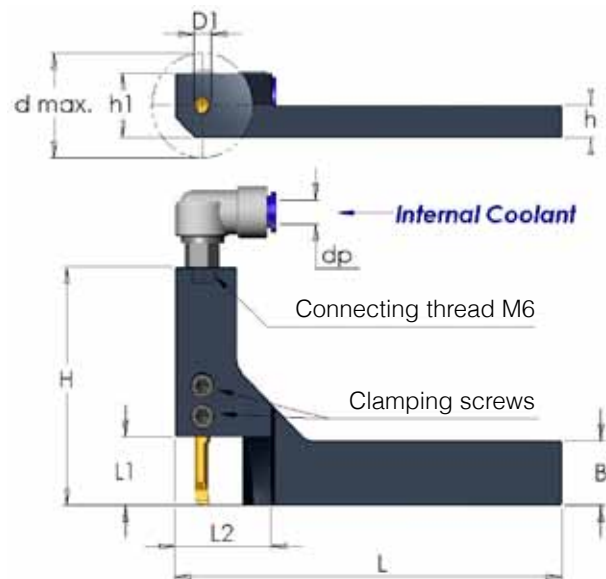
D1	Ordering Code	D	d	L	Key	Clamping Screw	Adjusting Screw
3.0	SIM 0025 H3	25	10.8	62	K25	S25	S35M
4.0	SIM 0025 H4						
5.0	SIM 0025 H5						
6.0	SIM 0025 H6						
8.0	SIM 0025 H8						

Product Identification

Tiny Bar Holders Ordering Codes



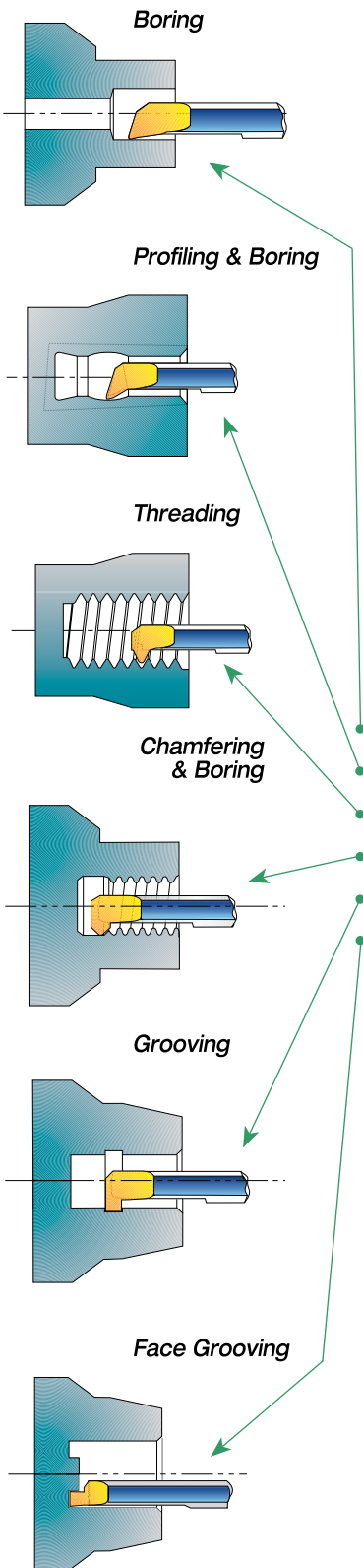
Square Shank Holders





D1	Ordering Code	B	L	L1	L2	H	h	h1	d max.	*dp	Key	Clamping Screw
3.0	SEMK 0816 H3S	16	100	17	25	46	8	16	26	4/6	K25	S25
	SEMK 1016 H3S						10	18				
	SEMK 1216 H3S						12	20				
4.0	SEMK 0816 H4S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H4S						10	18				
	SEMK 1216 H4S						12	20				
5.0	SEMK 0816 H5S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H5S						10	18				
	SEMK 1216 H5S						12	20				
6.0	SEMK 0816 H6S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H6S						10	18				
	SEMK 1216 H6S						12	20				

* Optional

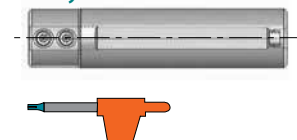
Tiny Tools Kits



KT4-020	KT5-020
MTR 4 R0.2 L10	MTR 5 R0.2 L15
MPR 4 R0.2 L10	MPR 5 R0.2 L15
MIR 4 L15 A60	MIR 5 L15 A60
MCR 4 R0.2 L15	MCR 5 R0.2 L15
MGR 4 B1.5 L10	MGR 5 B1.5 L15
MFR 4 B1.0 L15	MFR 5 B1.0 L22
SIM 0020 H4	SIM 0020 H5
K25	K25

-  Boring
-  Profiling
-  Threading
-  Chamfering
-  Grooving
-  Face Grooving

Tiny Tools Bar Holder



Order example: KT4-20

Also available kits with metric shank diameter bar holder.
Order example: KT4-16

Technical Section

Carbide Grades:

BXC (P30 - P50, K25 - K40)

PVD TiN coated grade for low cutting speed.
Works well with a wide range of stainless steels.

BMK (K10 - K20)

Sub-micron grade with advanced PVD triple coating. Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials.

K20 (K10 - K30)

Uncoated Carbide grade for non ferrous metals, aluminum and cast iron.



Cutting speed for Tiny Tools

ISO Standard	Material		Condition	Cutting Speed m/min		
				BXC	BMK	K20
P	Non-Alloy steel and cast steel, free cutting steel	<0.25%C	Annealed	25-50	30-60	23-45
		≥0.25%C	Annealed			
		< 0.55%C	Quenched and tempered			
		≥0.55%C	Annealed			
		≥0.55%C	Quenched and tempered			
	Low alloy steel and cast steel (less than 5% alloying elements)		Annealed	20-25	24-30	18-23
High alloy steel, cast steel, and tool steel		Annealed	18-20	22-24	16-18	
		Quenched and tempered				
M	Stainless steel and cast steel		Ferritic/martensitic	25-30	30-42	23-32
			Martensitic			
			Austenitic			
K	Cast iron nodular (GGG)		Ferritic/pearlitic	17-23	20-28	15-22
			Pearlitic			
	Grey cast iron (GG)		Ferritic	17-23	20-28	15-22
			Pearlitic			
	Malleable cast iron		Ferritic	17-23	20-28	15-22
			Pearlitic			
N	Aluminum-wrought alloy		Not cureable	50-70	60-84	45-63
			Cured			
	Aluminum-cast, alloyed	<= 12% Si	Not cureable	30-40	36-48	27-36
			Cured			
		> 12% Si	High temperature			
	Copper alloys	> 1% Pb	Free cutting	22-25	24-30	18-23
			Brass			
		Electrolytic copper				
Non metallic		Duroplastics, fiber plastics	34-45		30-42	
		Hard rubber				
S	High temp. alloys, Super alloys	Fe based	Annealed	15-20	18-24	14-18
			Cured			
		Ni or Co based	Annealed			
			Cured			
	Titanium alloys		Cast			
			Alpha+beta alloys cured	12-18	15-20	12-16
H	Hardened steel		Hardened 45-50 HRc	15-20	18-24	14-18
			Hardened 51-55 HRc			
			Hardened 56-62 HRc			
	Chilled cast iron		Cast	10-14	12-16	8-15
	Cast iron		Hardened	8-12	10-14	8-11

Recommended Feed Rate: 0.01 - 0.03 mm/rev

Threading Passes

Pitch:	mm TPI	0.5 48	0.7 36	0.8 32	1.0 24	1.25 20	1.5 16	2-5
Number of Passes		6-12	7-14	7-16	8-18	8-20	10-22	20-38

CMR Carmex Multi-Task Tiny Tools

- Carmex is introducing a new and innovative Multi-Task Tiny Tool **CMR** for Boring, Turning, Facing and Chamfering with a single tool.
- A unique design enables to machine the material with no need for a pilot hole.
- The new tool shortens the machining cycle time and the number of tools required - providing "**High Productivity**".
- Using a very effective vertical coolant hole with a spiral flute, evacuates the chips out of the hole uninterruptedly.
- Unique chip breaker and flute design.
- To use with standard SIM toolholders on Swiss Type or CNC lathe machines.
- Available in **BMK** Grade only.

HK Broaching Tools for Hexagon Keys

The HK broaching system have been developed to machine internal keyways inside blind or through holes, using CNC machines.

- To use with Carmex standard SIM Bar Holders
- The holder can be located directly in the turret or the machine spindle
- Holder with rear clamping screw for full support during operation
- Available in **BMK** Grade only.

Working Demo

