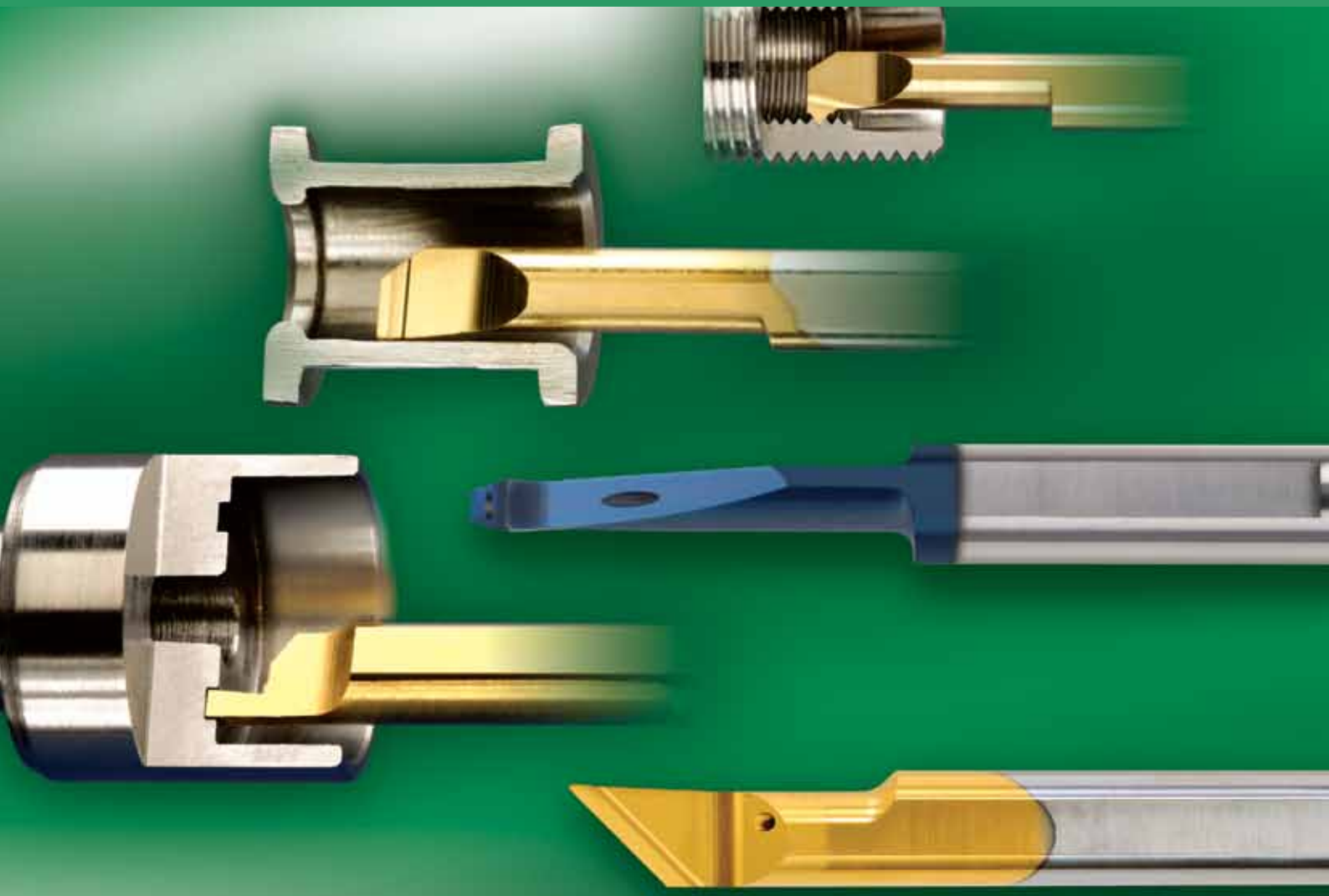
Tiny Tools

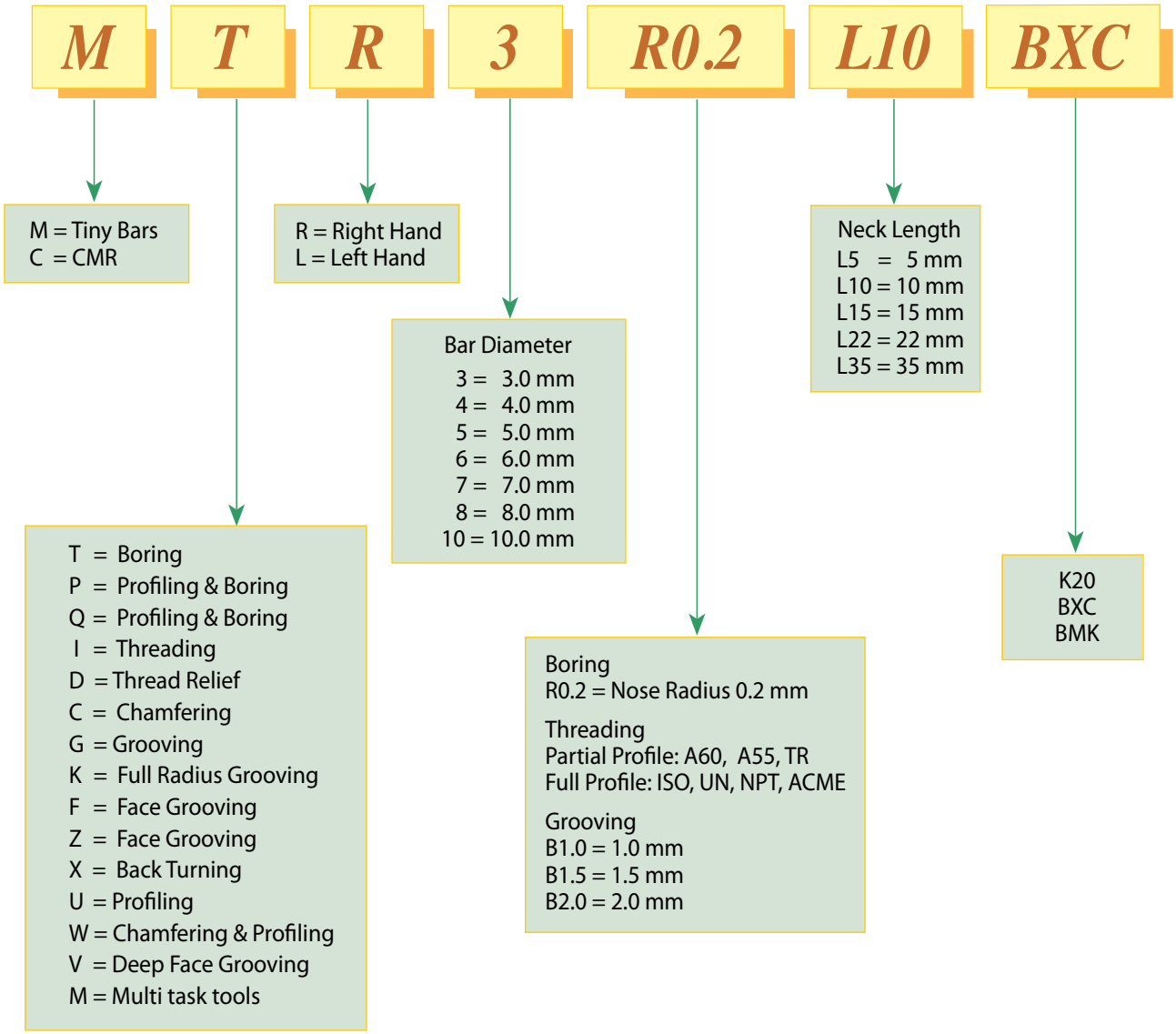


Solid Carbide tools for working in small bores

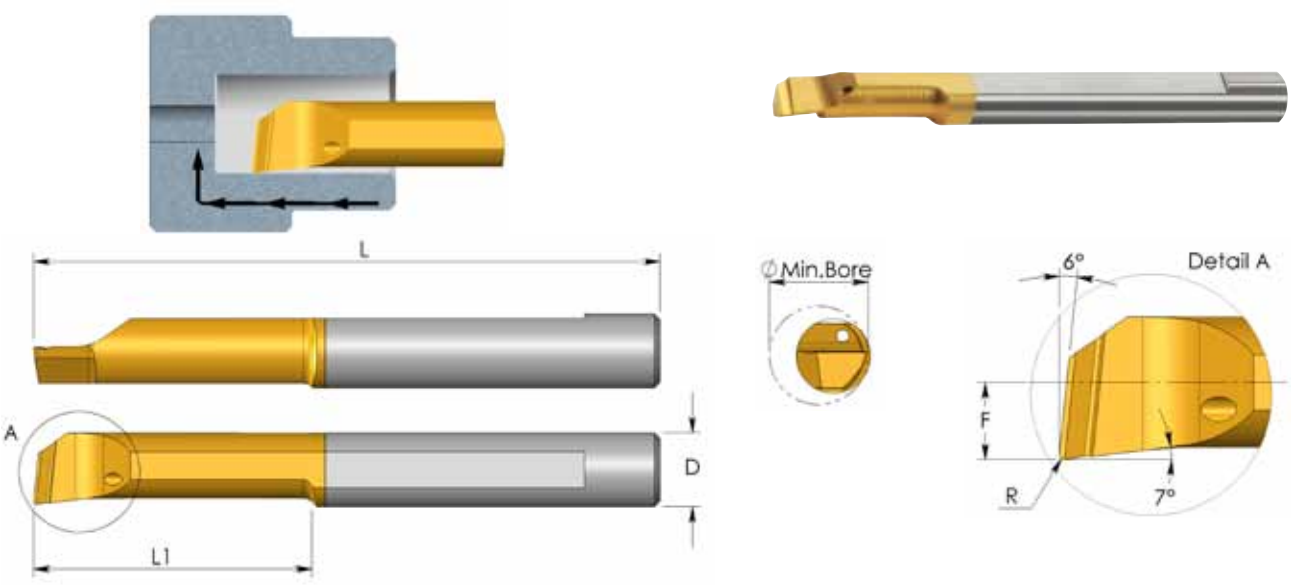
These tools are made for the high-tech, medical and small component industry. All tools include through coolant enabling the cooling fluid to reach the cutting edge efficiently, for easy chip removal and smooth cutting operations.

Product Identification

Tiny Bars Ordering Codes



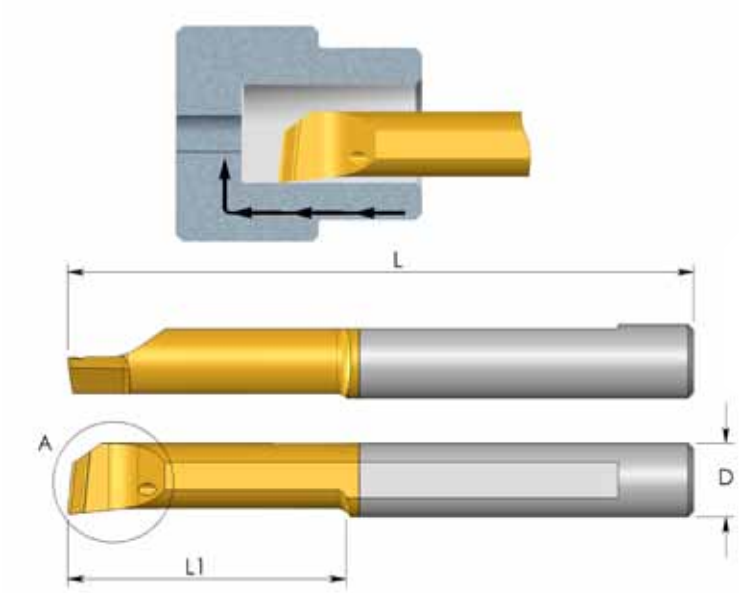
MTR Bars Boring

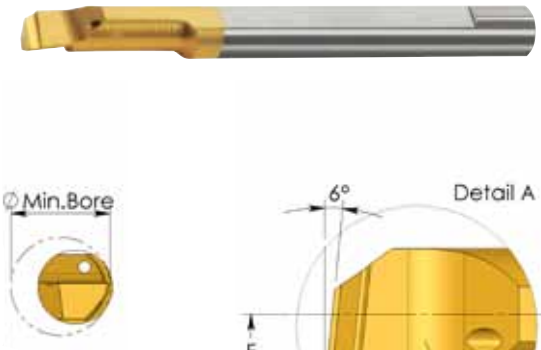


D	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder*
3.0	MTR 1 R0.05 L4	39	4	0.05	0.5	1.0	SIM ... H3
	MTR 1 R0.05 L6	39	6	0.05	0.5	1.0	
	MTR 1.5 R0.1 L6	39	6	0.10	0.7	1.5	
3.0	MTR 2 R0.05 L10	39	10	0.05	0.8	2.1	SIM ... H3
	MTR 2 R0.15 L5	39	5	0.15	0.8	2.1	
	MTR 2 R0.15 L10	39	10	0.15	0.8	2.1	
3.0	MTR 3 R0.05 L10	39	10	0.05	1.3	3.1	SIM ... H3
	MTR 3 R0.05 L15	39	15	0.05	1.3	3.1	
	MTR 3 R0.1 L10	39	10	0.10	1.3	3.1	
	MTR 3 R0.1 L15	39	15	0.10	1.3	3.1	
	MTR 3 R0.2 L10	39	10	0.20	1.3	3.1	
	MTR 3 R0.2 L15	39	15	0.20	1.3	3.1	
4.0	MTR 4 R0.05 L15	51	15	0.05	1.7	4.1	SIM ... H4
	MTR 4 R0.1 L10	51	10	0.10	1.7	4.1	
	MTR 4 R0.1 L15	51	15	0.10	1.7	4.1	
	MTR 4 R0.1 L22	51	22	0.10	1.7	4.1	
	MTR 4 R0.2 L10	51	10	0.20	1.7	4.1	
	MTR 4 R0.2 L15	51	15	0.20	1.7	4.1	
	MTR 4 R0.2 L22	51	22	0.20	1.7	4.1	
	MTR 4 R0.2 L30	59	30	0.20	1.7	4.1	

* For additional holders see page 100

MTR Bars Boring

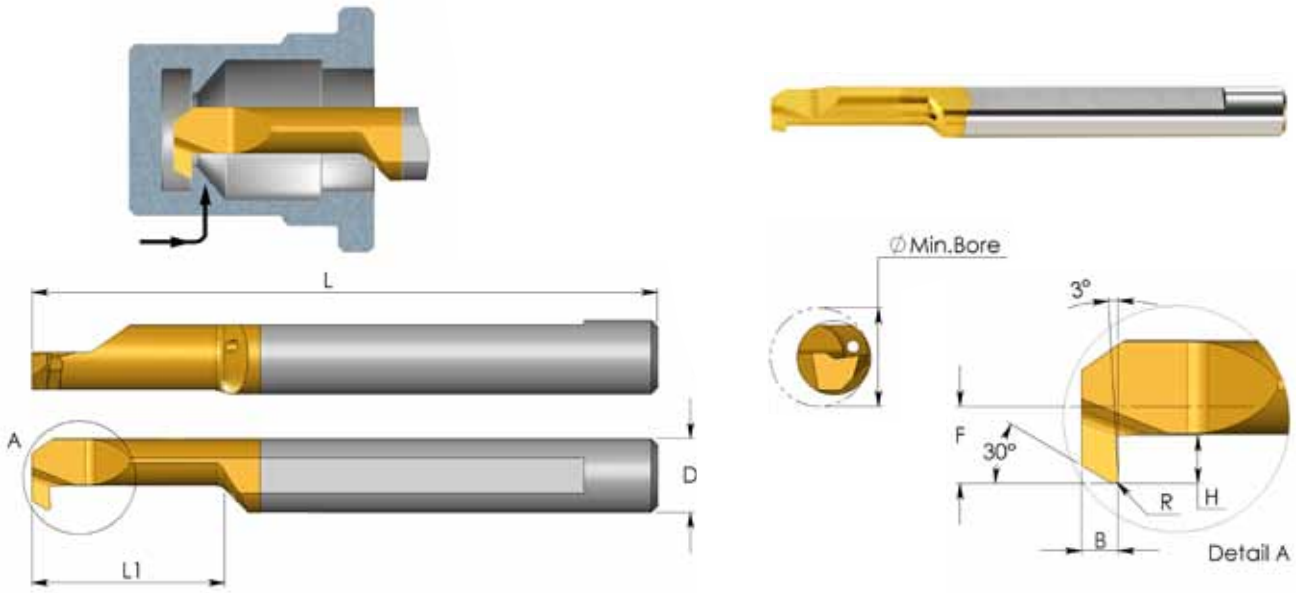




D	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder*
5.0	MTR 5 R0.05 L15	51	15	0.05	2.1	5.1	SIM ... H5
	MTR 5 R0.1 L15	51	15	0.10	2.1	5.1	
	MTR 5 R0.1 L22	51	22	0.10	2.1	5.1	
	MTR 5 R0.1 L30	76	30	0.10	2.1	5.1	
	MTR 5 R0.2 L15	51	15	0.20	2.1	5.1	
	MTR 5 R0.2 L22	51	22	0.20	2.1	5.1	
	MTR 5 R0.2 L30	76	30	0.20	2.1	5.1	
6.0	MTR 6 R0.05 L15	51	15	0.05	2.8	6.1	SIM ... H6
	MTR 6 R0.05 L22	51	22	0.05	2.8	6.1	
	MTR 6 R0.1 L15	51	15	0.10	2.8	6.1	
	MTR 6 R0.1 L22	51	22	0.10	2.8	6.1	
	MTR 6 R0.2 L15	51	15	0.20	2.8	6.1	
	MTR 6 R0.2 L22	51	22	0.20	2.8	6.1	
	MTR 6 R0.2 L30	58	30	0.20	2.8	6.1	
	MTR 6 R0.2 L35	76	35	0.20	2.8	6.1	
7.0	MTR 7 R0.2 L22	62	22	0.20	3.3	7.1	SIM ... H7
	MTR 7 R0.2 L30	62	30	0.20	3.3	7.1	
8.0	MTR 8 R0.2 L15	64	15	0.20	3.8	8.1	SIM ... H8
	MTR 8 R0.2 L22	64	22	0.20	3.8	8.1	
	MTR 8 R0.2 L35	76	35	0.20	3.8	8.1	
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 page 100

MXR Bars *Back Turning*



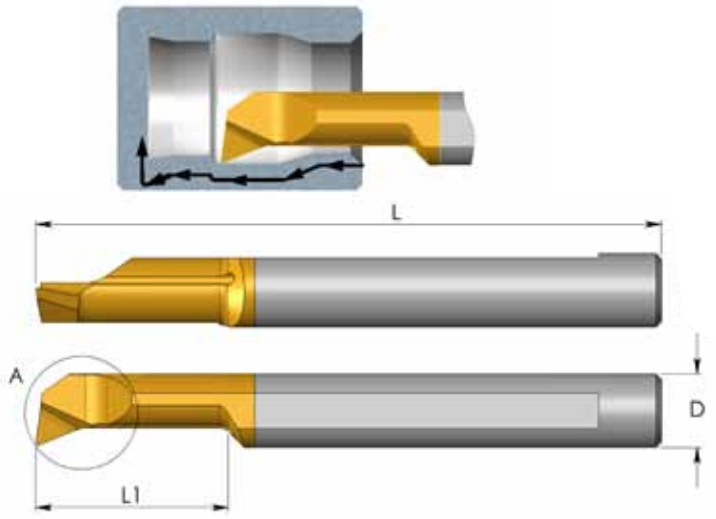
D	Ordering Code	L	L1	B	R	H	F	Min. Bore Dia.	Holder*
4.0	**MXR 4 R0.1 L10**	51	10	1.3	0.10	0.5	1.3	3.1	SIM ... H4
4.0	**MXR 4 R0.15 L10**	51	10	1.3	0.15	0.8	1.7	4.1	SIM ... H4
	MXR 4 R0.15 L15	51	15	1.3	0.15	0.8	1.7	4.1	
5.0	**MXR 5 R0.2 L15**	51	15	1.5	0.20	1.0	2.3	5.1	SIM ... H5
	MXR 5 R0.2 L22	51	22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

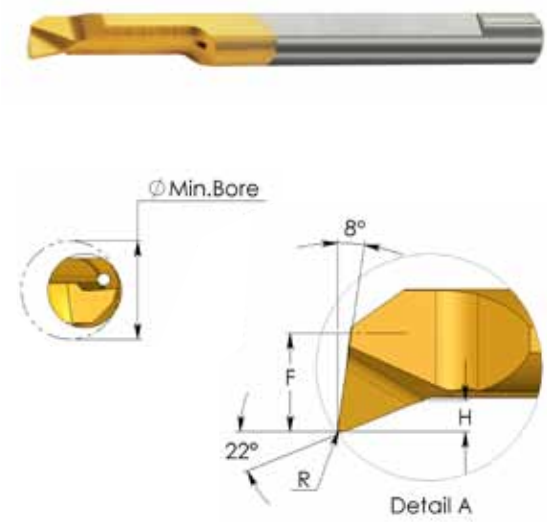
Order example: MXR 4 R0.15 L15 BXC

For L.H. bars specify MXL instead of MXR

* For additional holders see page 100

MPR Bars *Profiling and Boring*

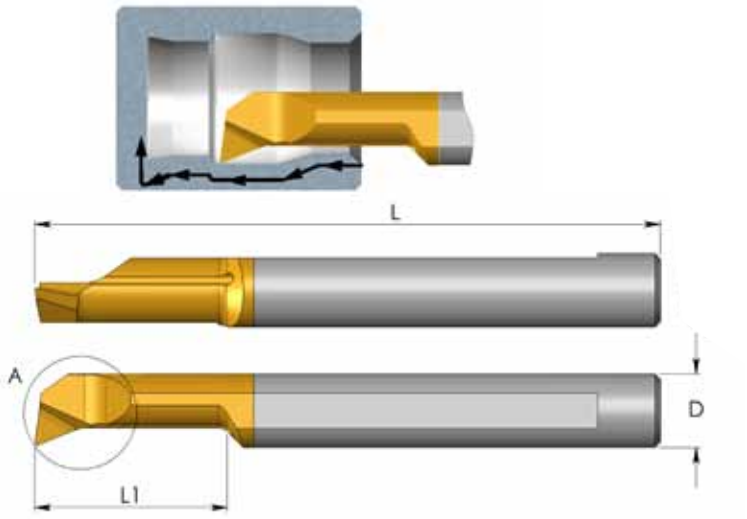


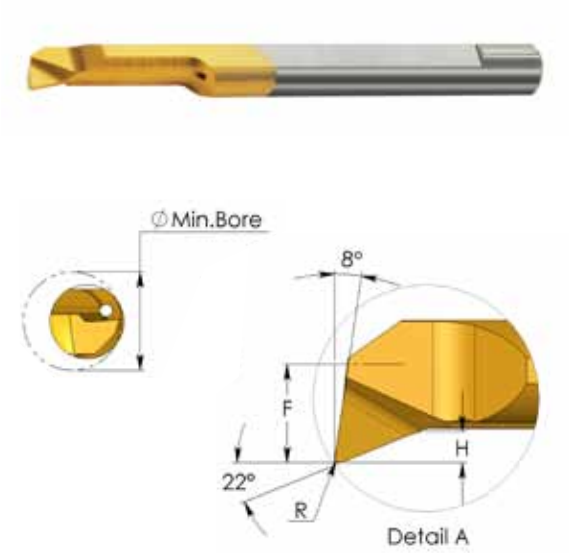


D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
3.0	MPR 1 R0.05 L4	39	4	0.05	0.2	0.5	1.0	SIM ... H3
	MPR 1 R0.05 L8	39	8	0.05	0.2	0.5	1.0	
3.0	MPR 1.5 R0.05 L10	39	10	0.05	0.3	0.7	1.5	SIM ... H3
	MPR 1.5 R0.1 L6	39	6	0.10	0.3	0.7	1.5	
	MPR 1.5 R0.1 L10	39	10	0.10	0.3	0.7	1.5	
3.0	MPR 2 R0.05 L10	39	10	0.05	0.5	0.8	2.1	SIM ... H3
	MPR 2 R0.1 L10	39	10	0.10	0.5	0.8	2.1	
	MPR 2 R0.15 L5	39	5	0.15	0.5	0.8	2.1	
	MPR 2 R0.15 L10	39	10	0.15	0.5	0.8	2.1	
	MPR 2 R0.15 L15	39	15	0.15	0.5	0.8	2.1	
3.0	MPR 3 R0.05 L10	39	10	0.05	0.7	1.3	3.1	SIM ... H3
	MPR 3 R0.05 L15	39	15	0.05	0.7	1.3	3.1	
	MPR 3 R0.1 L15	39	15	0.10	0.7	1.3	3.1	
	MPR 3 R0.1 L22	47	22	0.10	0.7	1.3	3.1	
	MPR 3 R0.2 L10	39	10	0.20	0.7	1.3	3.1	
	MPR 3 R0.2 L15	39	15	0.20	0.7	1.3	3.1	
	MPR 3 R0.2 L22	47	22	0.20	0.7	1.3	3.1	
4.0	MPR 4 R0.1 L10	51	10	0.10	0.8	1.7	4.1	SIM ... H4
	MPR 4 R0.1 L15	51	15	0.10	0.8	1.7	4.1	
	MPR 4 R0.1 L22	51	22	0.10	0.8	1.7	4.1	
	MPR 4 R0.2 L10	51	10	0.20	0.8	1.7	4.1	
	MPR 4 R0.2 L15	51	15	0.20	0.8	1.7	4.1	
	MPR 4 R0.2 L22	51	22	0.20	0.8	1.7	4.1	

* For additional holders see page 100

MPR Bars *Profiling and Boring*

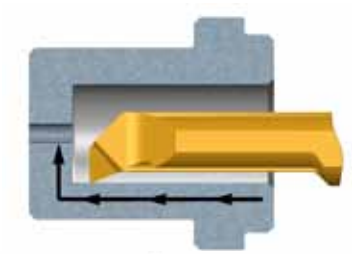


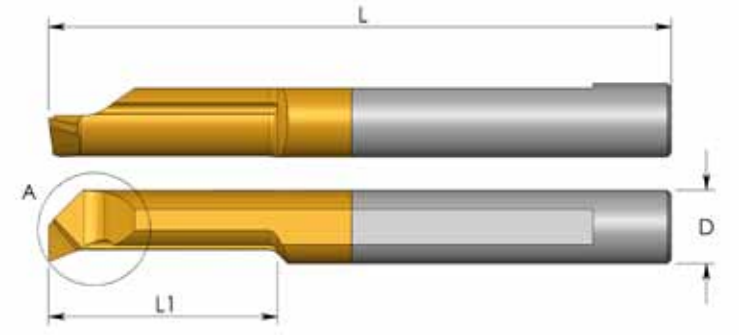


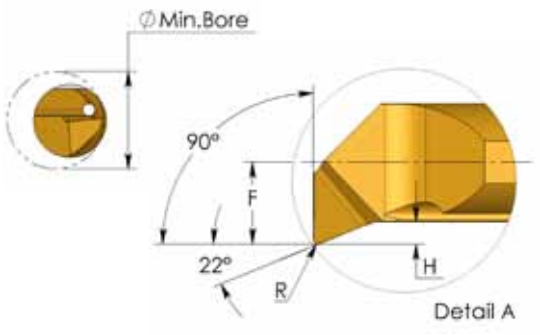
D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
5.0	**MPR 5 R0.1 L22**	51	22	0.10	1.2	2.1	5.1	SIM ... H5
	MPR 5 R0.1 L30	76	30	0.10	1.2	2.1	5.1	
	MPR 5 R0.2 L10	51	10	0.20	1.2	2.1	5.1	
	MPR 5 R0.2 L15	51	15	0.20	1.2	2.1	5.1	
	MPR 5 R0.2 L22	51	22	0.20	1.2	2.1	5.1	
	MPR 5 R0.2 L30	76	30	0.20	1.2	2.1	5.1	
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	1.4	2.8	6.1	
	MPR 6 R0.2 L30	76	30	0.20	1.4	2.8	6.1	
7.0	**MPR 7 R0.2 L22**	62	22	0.20	1.5	3.3	7.1	SIM ... H7
	MPR 7 R0.2 L30	62	30	0.20	1.5	3.3	7.1	
	MPR 7 R0.2 L35	62	35	0.20	1.5	3.3	7.1	
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	1.6	3.8	8.1	
	MPR 8 R0.2 L35	76	35	0.20	1.6	3.8	8.1	
10.0	**MPR 10 R0.2 L35**	73	35	0.20	2.0	4.8	10.1	SIM ... H10

Order example: MPR 4 R0.2 L15 BXC
For L.H. Bars specify MPL instead of MPR
* For additional holders see page 100

MUR Bars *Profiling, 90° Face Cutting*



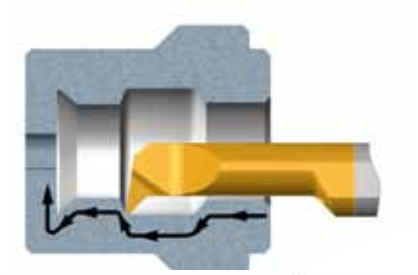


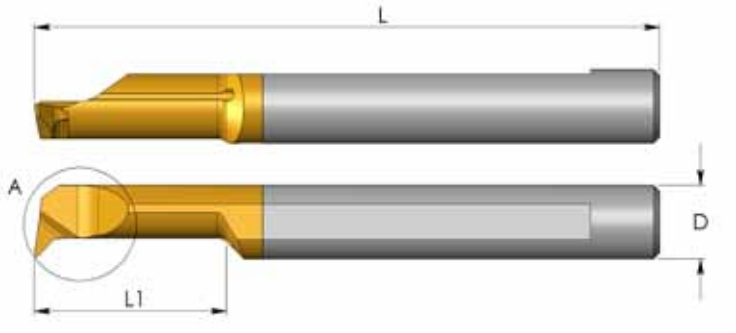


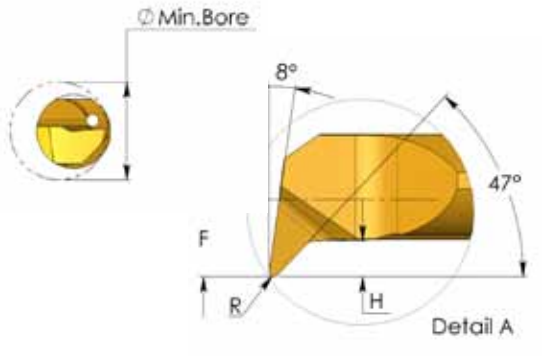
D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
3.0	**MUR 3 R0.05 L10**	39	10	0.05	0.4	1.3	3.1	SIM ... H3
	MUR 3 R0.05 L15	39	15	0.05	0.4	1.3	3.1	
4.0	**MUR 4 R0.1 L10**	51	10	0.10	0.5	1.7	4.1	SIM ... H4
	MUR 4 R0.1 L15	51	15	0.10	0.5	1.7	4.1	
5.0	**MUR 5 R0.15 L15**	51	15	0.15	0.7	2.1	5.1	SIM ... H5
	MUR 5 R0.15 L22	51	22	0.15	0.7	2.1	5.1	
6.0	**MUR 6 R0.15 L15**	51	15	0.15	0.9	2.8	6.1	SIM ... H6
	MUR 6 R0.15 L22	51	22	0.15	0.9	2.8	6.1	
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 L.H. bars specify MUL instead of MUR
* For additional holders see page 100

MQR Bars *Profiling and Boring*



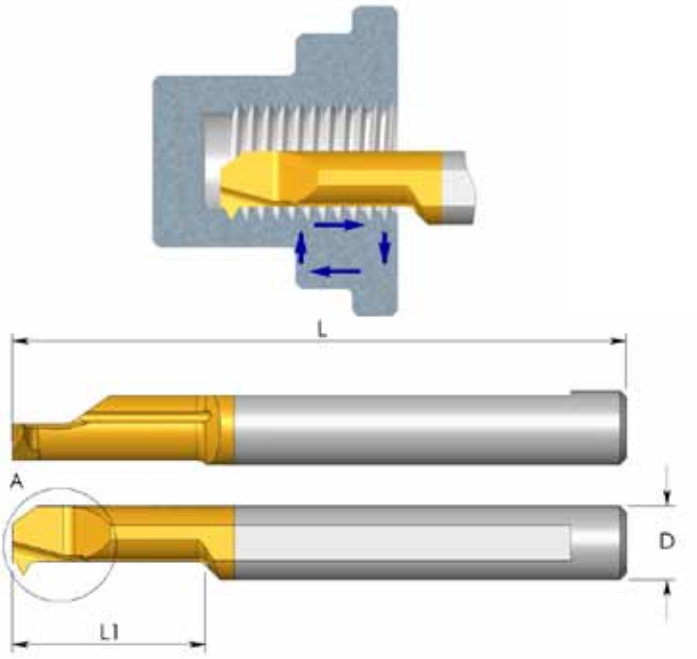


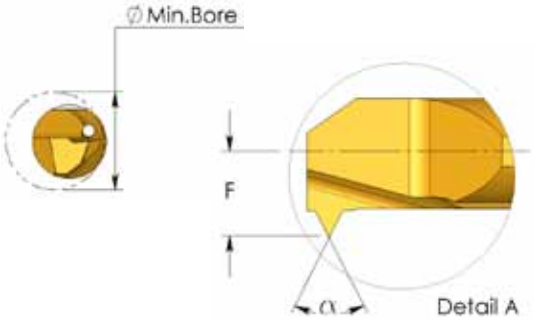


D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
4.0	**MQR 4 R0.1 L22**	51	22	0.10	0.8	1.8	4.1	SIM ... H4
	MQR 4 R0.2 L10	51	10	0.20	0.8	1.8	4.1	
	MQR 4 R0.2 L15	51	15	0.20	0.8	1.8	4.1	
	MQR 4 R0.2 L22	51	22	0.20	0.8	1.8	4.1	
5.0	**MQR 5 R0.2 L15**	51	15	0.20	1.0	2.3	5.1	SIM ... H5
	MQR 5 R0.2 L22	51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

Order example: MQR 5 R0.2 L15 BXC
For L.H. bars specify MQR instead of MQL
* For additional holders see page 100

MIR Bars *Threading*





Partial Profile 55°

D	Ordering Code	L	L1	α	Pitch Range mm	Pitch Range TPI	F	Min. Bore Dia.	Holder*
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	51	22	55	0.5 - 1.25	48 - 20	2.3	5.1	
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	51	22	55	0.5 - 1.5	48 - 16	2.6	6.0	

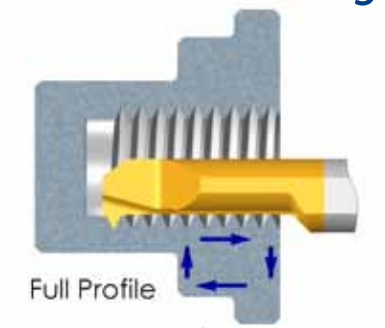
Order example: MIR 5 L15 A55 BXC

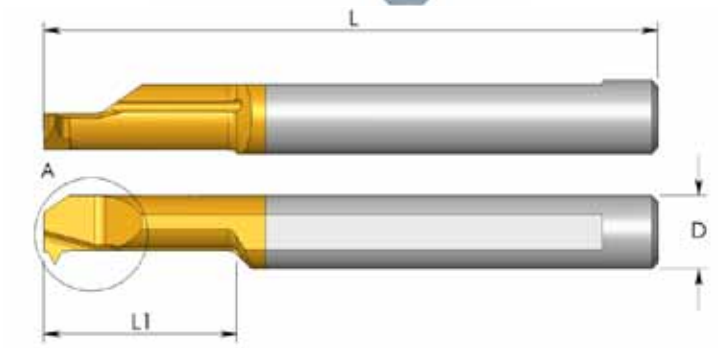
Partial Profile 60°

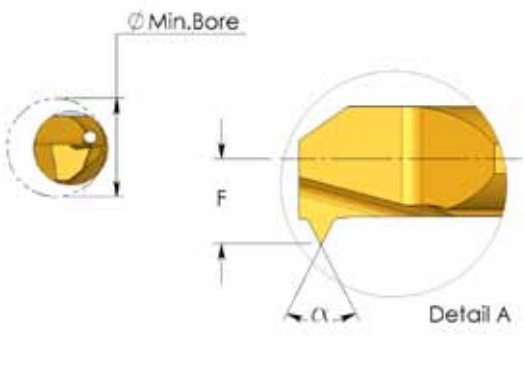
D	Ordering Code	L	L1	α	Pitch Range mm	Pitch Range TPI	F	Min. Bore Dia.	Holder*
3.0	**MIR 1 L5 A60**	39	4.8	60	0.25 - 0.35	100 - 72	0.55	1.2	SIM ... H3
	MIR 1.5 L6 A60	39	6.3	60	0.35 - 0.45	72 - 56	0.65	1.4	
3.0	**MIR 2 L8 A60**	39	8	60	0.45 - 0.7	56 - 32	1.0	2.1	SIM ... H3
3.0	**MIR 3 L15 A60**	39	15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

MIR Bars *Threading*







Full Profile - ISO 60°

D	Ordering Code	Thread	L	L1	F	Min. Bore Dia.	Holder*
3.0	**MIR 3 L10 0.5ISO**	M3x0.5	39	10	1.0	2.4	SIM ... H3
3.0	**MIR 3 L15 0.5 ISO**	M4 x 0.5	39	15	1.4	3.2	
	MIR 3 L15 0.7 ISO	M4 x 0.7	39	15	1.4	3.2	
	MIR 3 L15 0.75 ISO	M4.5 x 0.75	39	15	1.4	3.2	
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	51	15	1.8	4.1	
	MIR 4 L15 0.8 ISO	M5 x 0.8	51	15	1.8	4.1	
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

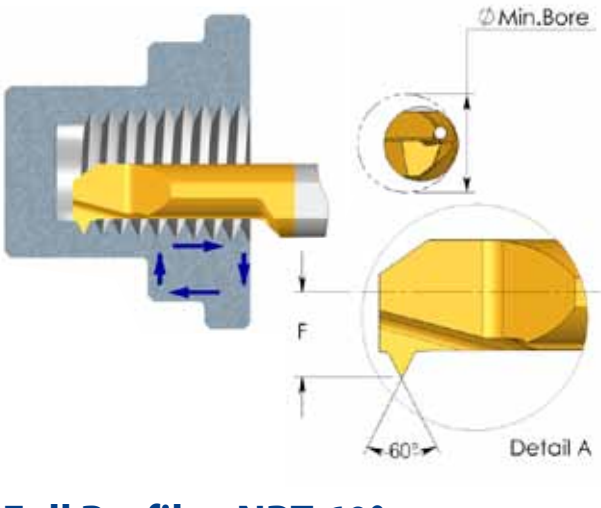
Order example: MIR 5 L15 1.0 ISO BXC

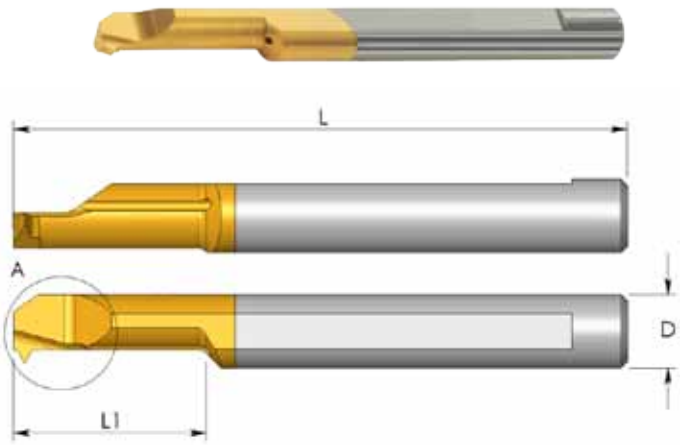
Full Profile - UN 60°

D	Ordering Code	Thread	L	L1	F	Min. Bore Dia.	Holder*
3.0	**MIR 3 L10 32 UN**	6-32 UNC	39	10	1.0	2.7	SIM ... H3
3.0	**MIR 3 L15 36 UN**	8-36 UNF	39	15	1.4	3.2	
	MIR 3 L15 32 UN	8-32 UNC	39	15	1.4	3.2	
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	51	15	1.8	4.1	
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	51	18	2.3	5.0	
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	51	18	2.8	6.2	

Order example: MIR 4 L15 36 UN BXC
For L.H. bars specify MIL instead of MIR
* For additional holders see page 100

MIR Bars *Threading*

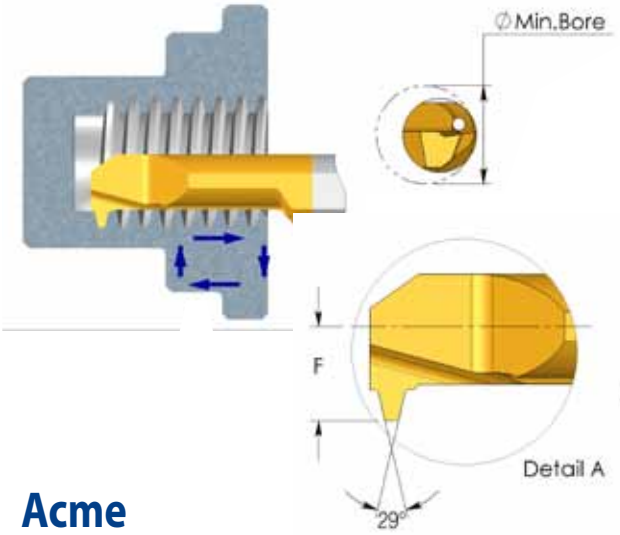


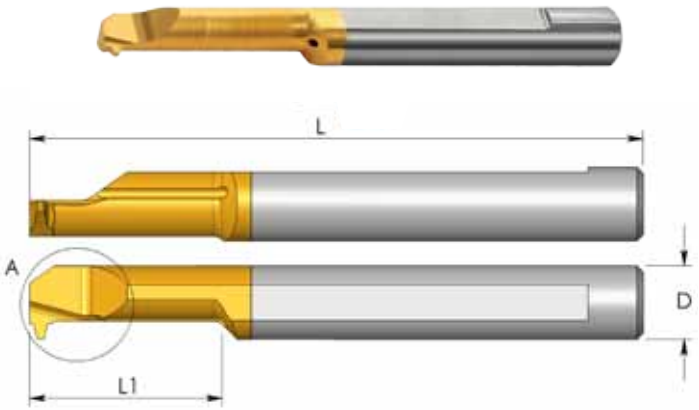


Full Profile - NPT 60°

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	2.8	5.9	SIM ... H6

Order example: MIR 6 L15 27 NPT BXC





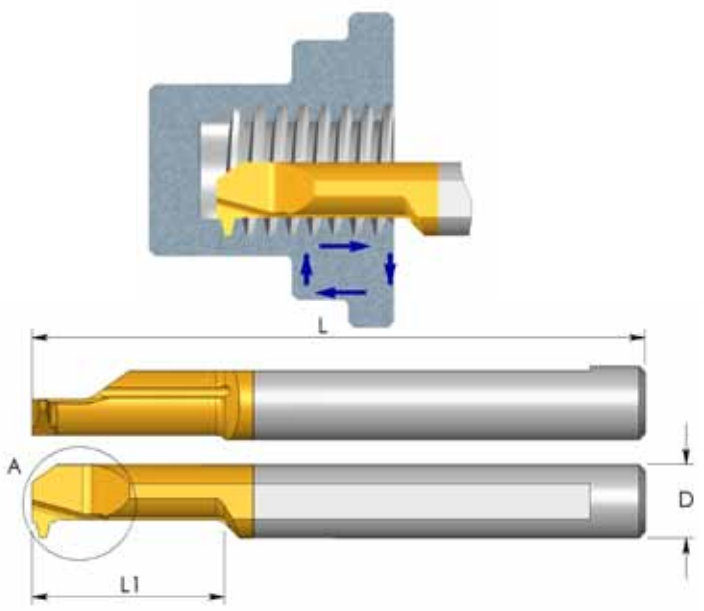
Acme

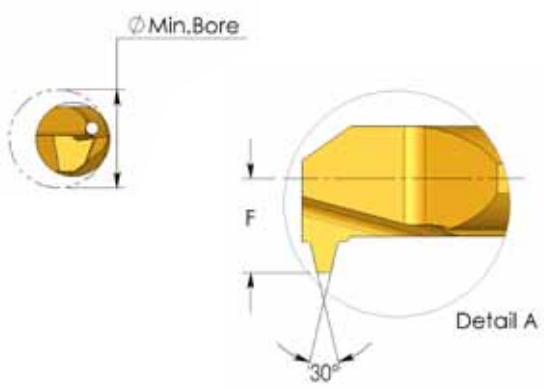
D	Ordering Code	Pitch TPI	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
4.0	**MIR 4 L15 16 ACME**	16	1/4 x 16	51	15	1.8	4.6	SIM ... H4
6.0	**MIR 6 L20 14 ACME**	14	5/16 x 14	51	20	2.8	6.0	SIM ... H6
7.0	**MIR 7 L22 12 ACME**	12	3/8 x 12 7/16 x 12	62	22	3.3	7.2	SIM ... H7
8.0	**MIR 8 L30 10 ACME**	10	1/2 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
10.0	**MIR 10 L52 5 ACME**	5	1x5	105	52	4.8	20.0	SIM ... H10

Order example: MIR 6 L 20 14 ACME BXC

* For additional holders see page 100

MIR Bars *Threading*



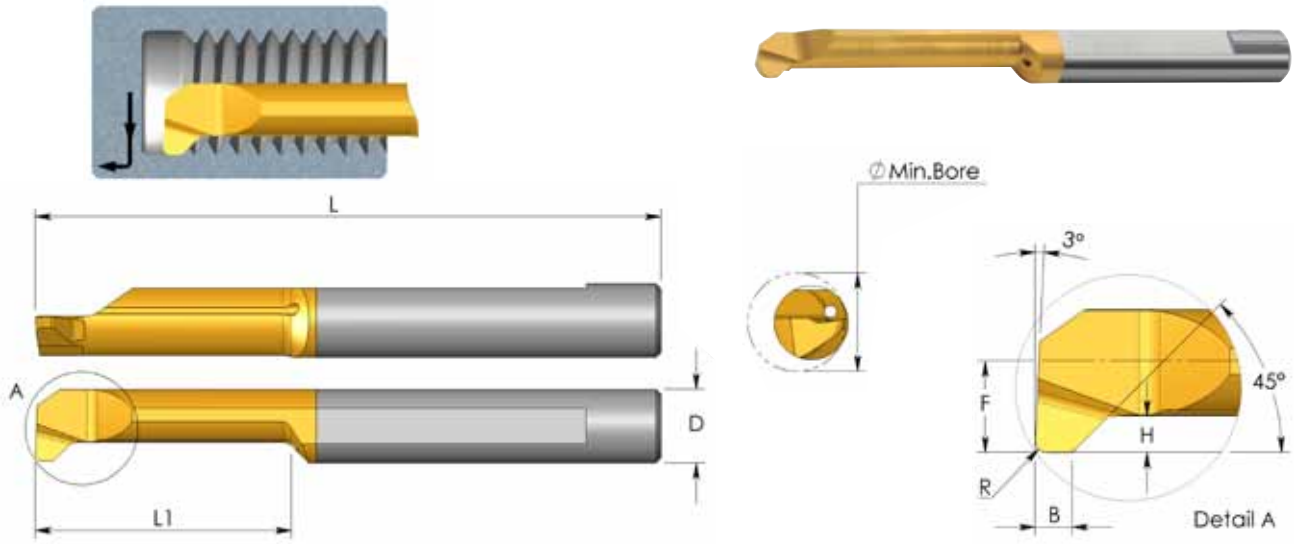


Partial Profile Trapez - DIN 103

D	Ordering Code	Pitch mm	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
6.0	**MIR 6 L22 1.5 TR**	1.5	Tr8x1.5 Tr9x1.5 Tr10x1.5	51	22	2.8	6.4	SIM ... H6
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 L.H. bars specify MIL instead of MIR
* For additional holders see page 100

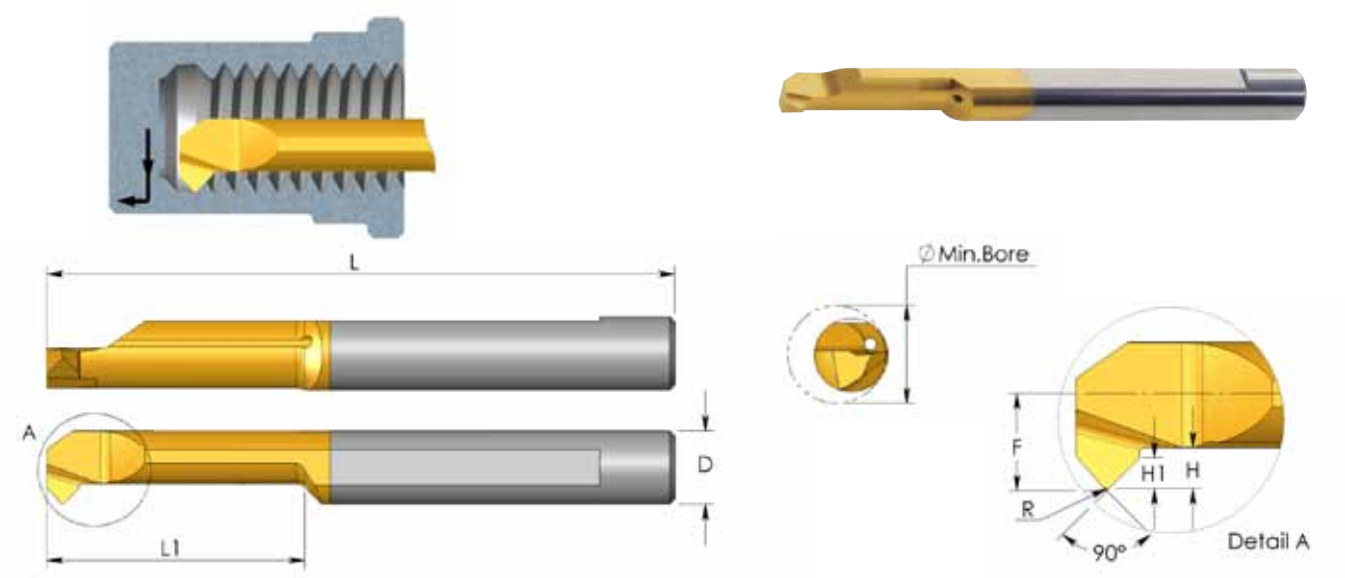
MDR Bars *Thread Relief, Chamfering and Grooving*



D	Ordering Code	L	L1	B	R	H	F	Min. Bore Dia.	Holder*
4.0	**MDR 4 R0.5 L18**	51	18	1.5	0.5	0.8	1.8	4.1	SIM ... H4
5.0	**MDR 5 R0.5 L24**	51	24	1.5	0.5	1.2	2.3	5.1	SIM ... H5
6.0	**MDR 6 R0.5 L27**	58	27	1.5	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 page 100

MCR Bars *Chamfering and Boring*



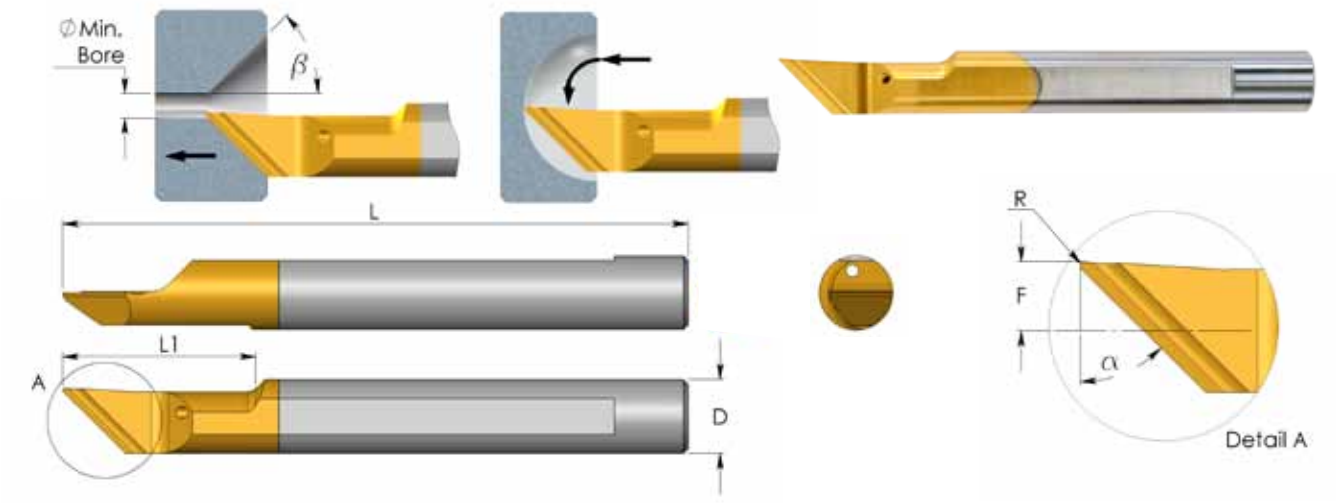
D	Ordering Code	L	L1	R	H	H1	F	Min. Bore Dia.	Holder*
3.0	**MCR 3 R0.2 L10**	39	10	0.2	0.7	0.3	1.3	3.1	SIM ... H3
4.0	**MCR 4 R0.2 L15**	51	15	0.2	0.8	0.4	1.7	4.1	SIM ... H4
5.0	**MCR 5 R0.2 L15**	51	15	0.2	1.2	0.7	2.1	5.1	SIM ... H5
6.0	**MCR 6 R0.2 L15**	51	15	0.2	1.4	0.7	2.8	6.1	SIM ... H6
7.0	**MCR 7 R0.2 L20**	62	20	0.2	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 page 100

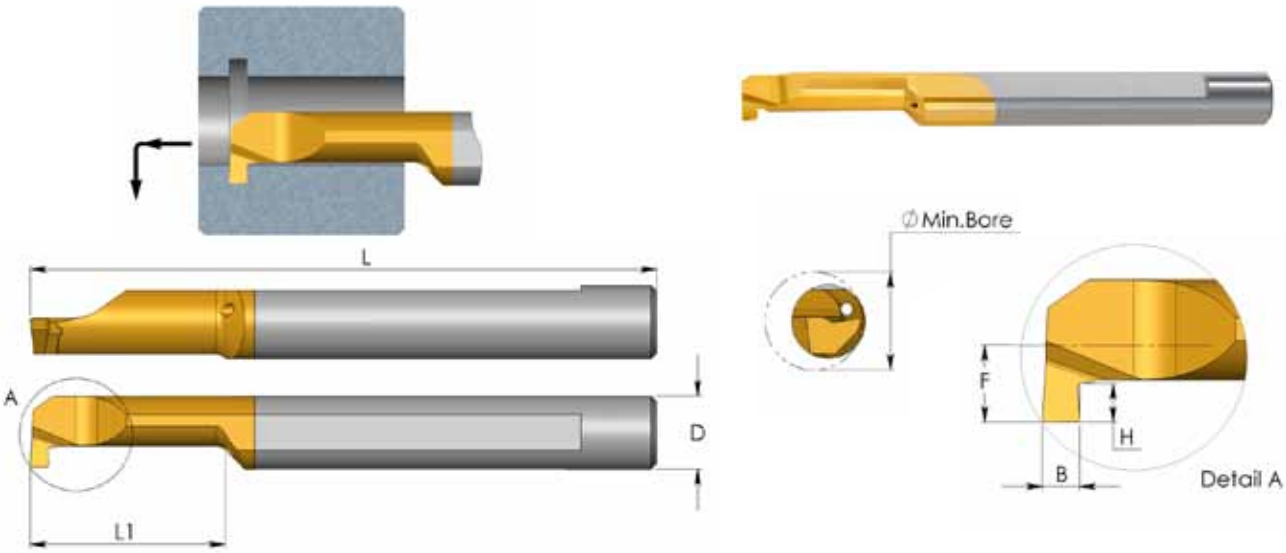
MWR Bars *Chamfering and Profiling*



D	Ordering Code	L	L1	R	α	β	F	Min. Bore Dia.	Holder*
6.0	**MWR 6 R0.2 A90**	51	15.0	0.2	45°	45°	2.3	1.0	SIM ... H6
	MWR 6 R0.2 A60	51	15.0	0.2	60°	30°	2.3	1.0	
	*** MWR 6 R0.4 A90**	51	22.0	0.4	45°	45°	2.3	6.0	
	*** MWR 6 R0.4 A60**	51	22.0	0.4	60°	30°	2.3	6.0	

Order example: MWR 6 R0.2 A90 BXC
For L.H. bars specify MWL instead of MWR
*Can be used also for boring
** For additional holders see page 100

MGR Bars Grooving



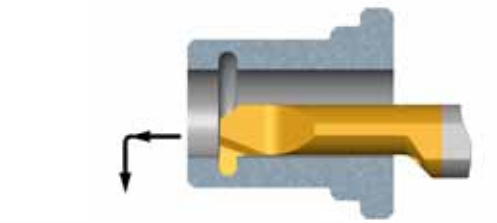
D	Ordering Code	L	L1	B	H	F	Min. Bore Dia.	Holder*
3.0	MGR 3 B0.7 L10	39	10	0.7	0.6	1.3	1.3	SIM ... H3
4.0	MGR 4 B 0.5 L10	51	10	0.5	0.5	1.7	4.1	SIM ... H4
	MGR 4 B 0.7 L10	51	10	0.7	0.6	1.7	4.1	
	MGR 4 B1.0 L10	51	10	1.0	1.0	1.7	4.1	
	MGR 4 B1.0 L15	51	15	1.0	1.0	1.7	4.1	
	MGR 4 B1.5 L10	51	10	1.5	1.0	1.7	4.1	
5.0	MGR 5 B1.0 L15	51	15	1.0	1.2	2.3	5.1	SIM ... H5
	MGR 5 B1.0 L22	51	22	1.0	1.2	2.3	5.1	
	MGR 5 B1.5 L15	51	15	1.5	1.2	2.3	5.1	
	MGR 5 B1.5 L22	51	22	1.5	1.2	2.3	5.1	
	MGR 5 B2.0 L15	51	15	2.0	1.2	2.3	5.1	
	MGR 5 B2.0 L22	51	22	2.0	1.2	2.3	5.1	
6.0	MGR 6 B1.0 L15	51	15	1.0	1.4	2.8	6.1	SIM ... H6
	MGR 6 B1.0 L22	51	22	1.0	1.4	2.8	6.1	
	MGR 6 B1.5 L15	51	15	1.5	1.4	2.8	6.1	
	MGR 6 B1.5 L22	51	22	1.5	1.4	2.8	6.1	
	MGR 6 B2.0 L15	51	15	2.0	1.4	2.8	6.1	
	MGR 6 B2.0 L22	51	22	2.0	1.4	2.8	6.1	
6.0	MGR 6 B1.0 L17	51	17	1.0	1.8	2.8	6.1	SIM ... H6
	MGR 6 B1.5 L17	51	17	1.5	1.8	2.8	6.1	
	MGR 6 B2.0 L17	51	17	2.0	1.8	2.8	6.1	
7.0	MGR 7 B1.0 L15	62	15	1.0	2.5	3.3	7.1	SIM ... H7
	MGR 7 B1.0 L22	62	22	1.0	2.5	3.3	7.1	
	MGR 7 B1.0 L30	62	30	1.0	2.5	3.3	7.1	
	MGR 7 B1.5 L15	62	15	1.5	2.5	3.3	7.1	
	MGR 7 B1.5 L22	62	22	1.5	2.5	3.3	7.1	
	MGR 7 B1.5 L30	62	30	1.5	2.5	3.3	7.1	
	MGR 7 B2.0 L15	62	15	2.0	2.5	3.3	7.1	
	MGR 7 B2.0 L22	62	22	2.0	2.5	3.3	7.1	
	MGR 7 B2.0 L30	62	30	2.0	2.5	3.3	7.1	
8.0	MGR 8 B1.0 L22	64	22	1.0	1.7	3.8	8.1	SIM ... H8
	MGR 8 B1.5 L22	64	22	1.5	1.7	3.8	8.1	
	MGR 8 B2.0 L22	64	22	2.0	2.6	3.8	8.1	

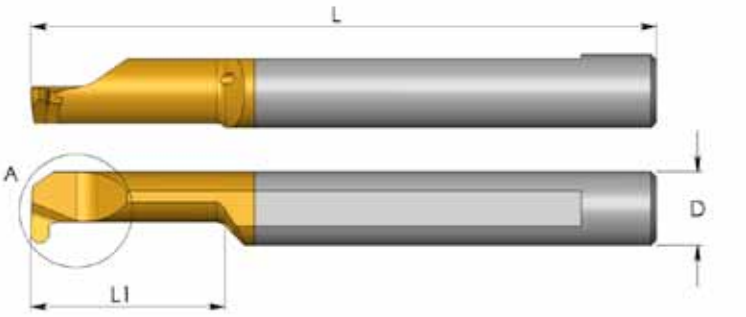
Order example: MGR 5 B1.5 L15 BXC

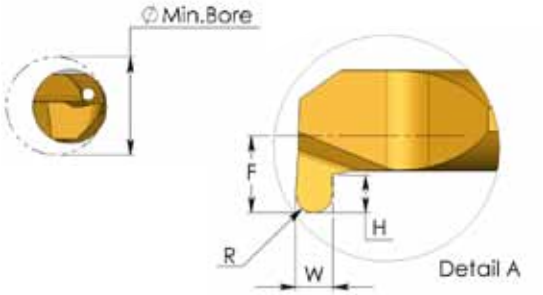
For L.H. bars specify MGL instead of MGR

* For additional holders see page 100

MKR Bars *Full Radius Grooving*



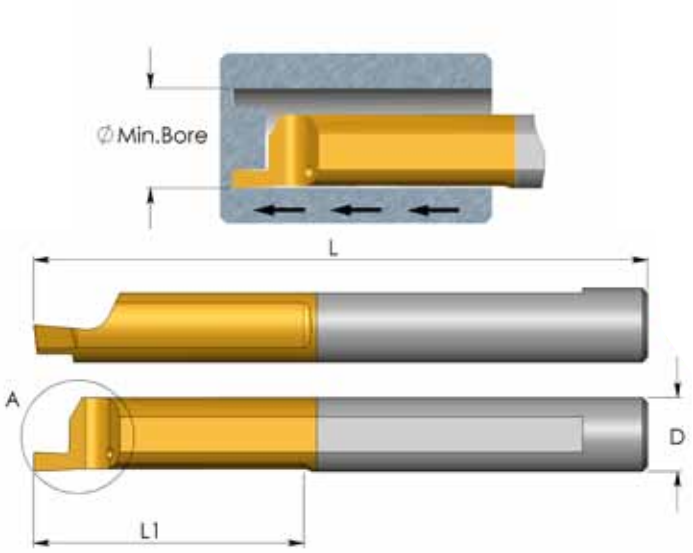


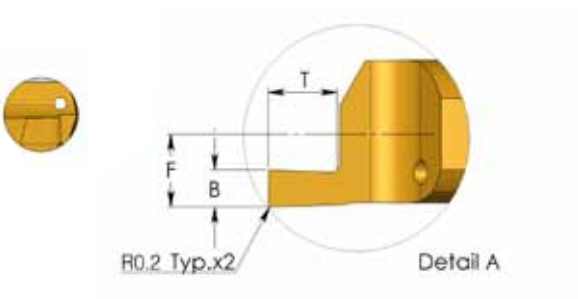


D	Ordering Code	L	L1	R	W	H	F	Min. Bore Dia.	Holder*
4.0	**MKR 4 R0.5 L10**	51	10	0.50	1.0	1.0	1.7	4.1	SIM ... H4
	MKR 4 R0.75 L10	51	10	0.75	1.5	1.0	1.7	4.1	
5.0	**MKR 5 R0.5 L15**	51	15	0.50	1.0	1.2	2.3	5.1	SIM ... H5
	MKR 5 R0.75 L15	51	15	0.75	1.5	1.2	2.3	5.1	
	MKR 5 R1.0 L15	51	15	1.00	2.0	1.2	2.3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

Order example: MKR 5 R1.0 L15 BXC
For L.H. bars specify MKL instead of MKR
* For additional holders see page 100

MFR Bars Face Grooving



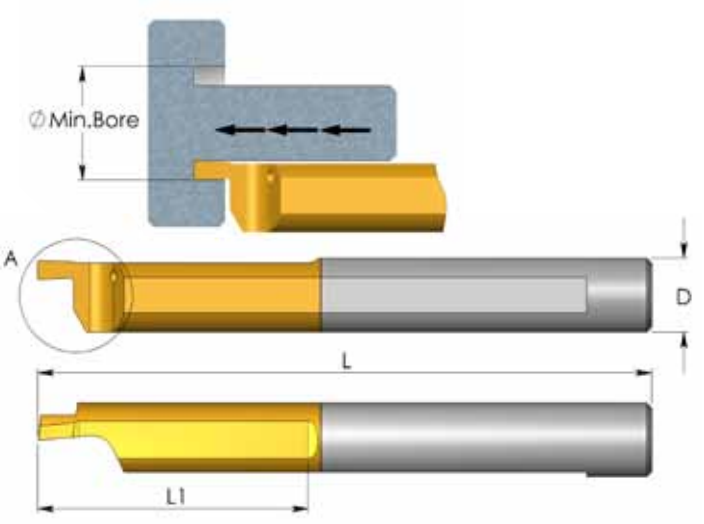


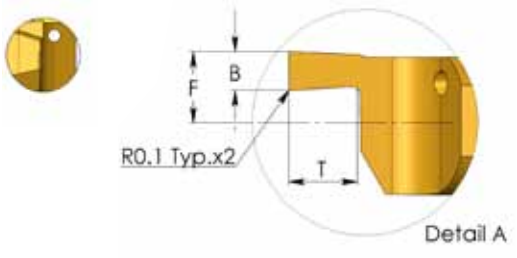
D	Ordering Code	L	L1	B	T	F	Min. Bore Dia.	Holder*
4.0	**MFR 4 B0.75 L15**	51	15	0.75	1.2	1.95	5.0	SIM ... H4
	MFR 4 B1.0 L15	51	15	1.0	1.5	1.95	5.0	
	MFR 4 B1.5 L15	51	15	1.5	2.8	1.95	5.0	
5.0	**MFR 5 B0.75 L22**	51	22	0.75	1.2	2.45	6.0	SIM ... H5
	MFR 5 B1.0 L22	51	22	1.0	1.5	2.45	6.0	
	MFR 5 B1.5 L22	51	22	1.5	2.5	2.45	6.0	
	MFR 5 B2.0 L22	51	22	2.0	3.8	2.45	6.0	
6.0	**MFR 6 B1.0 L22**	51	22	1.0	1.5	2.95	8.0	SIM ... H6
	MFR 6 B1.5 L22	51	22	1.5	2.5	2.95	8.0	
	MFR 6 B2.0 L22	51	22	2.0	3.0	2.95	8.0	
	MFR 6 B2.5 L22	51	22	2.5	4.8	2.95	8.0	
	MFR 6 B3.0 L30	58	30	3.0	6.0	2.95	8.0	
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 page 100

MFL Bars *Face Grooving*



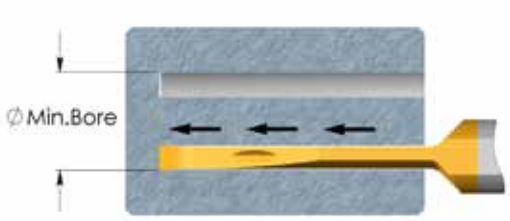


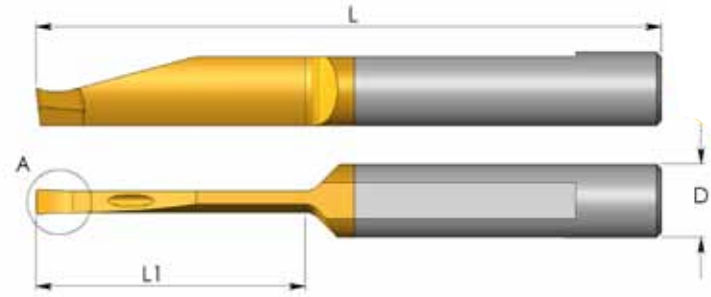
D	Ordering Code	L	L1	B	T	F	Min. Bore Dia.	Holder*
4.0	**MFL 4 B0.75 L15**	51	15	0.75	1.2	1.75	5.0	SIM ... H4
	MFL 4 B1.0 L15	51	15	1.0	1.5	1.75	5.0	
	MFL 4 B1.5 L15	51	15	1.5	2.8	1.75	5.0	
5.0	**MFL 5 B0.75 L22**	51	22	0.75	1.2	2.25	6.0	SIM ... H5
	MFL 5 B1.0 L22	51	22	1.0	1.5	2.25	6.0	
	MFL 5 B1.5 L22	51	22	1.5	2.5	2.25	6.0	
	MFL 5 B2.0 L22	51	22	2.0	3.8	2.25	6.0	
6.0	**MFL 6 B1.0 L22**	51	22	1.0	1.5	2.75	8.0	SIM ... H6
	MFL 6 B1.5 L22	51	22	1.5	2.5	2.75	8.0	
	MFL 6 B2.0 L22	51	22	2.0	3.0	2.75	8.0	
	MFL 6 B2.5 L22	51	22	2.5	4.8	2.75	8.0	
	MFL 6 B3.0 L30	58	30	3.0	6.0	2.75	8.0	
8.0	**MFL 8 B2.5 L22**	64	22	2.5	3.5	3.75	10.0	SIM ... H8

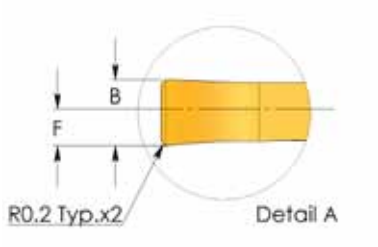
Order example: MFL 6 B1.0 L22 BXC

* For additional holders see page 100

MVR Bars *Deep Face Grooving - with 2 Coolant Bores*





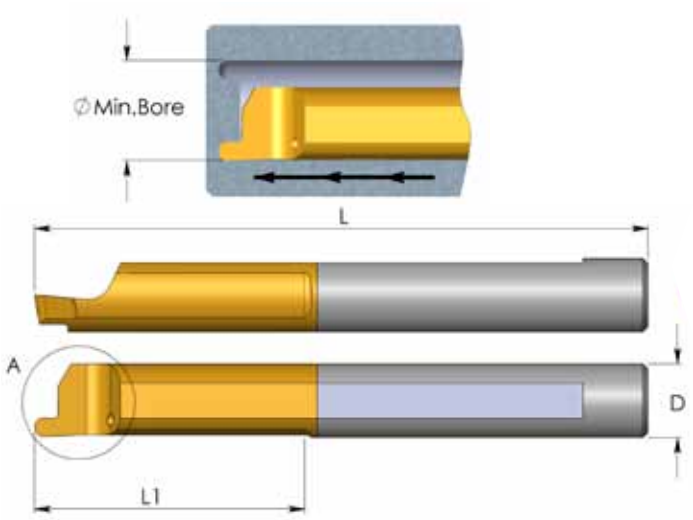


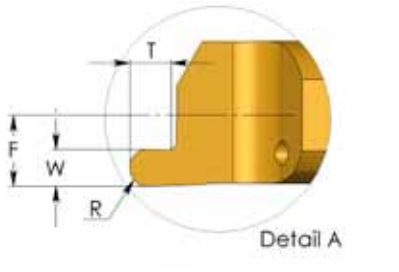
D	Ordering Code	L	L1	B	F	Min. Bore Dia.	Holder*
6.0	**MVR 6 B2.0 L15**	64	15	2.0	1.1	12.0	SIM ... H6
	MVR 6 B2.0 L22	64	22	2.0	1.1	12.0	
	MVR 6 B2.5 L22	64	22	2.5	1.4	12.0	
8.0	**MVR 8 B3.0 L27**	64	27	3.0	1.6	15.0	SIM ... H8
	MVR 8 B3.0 L43	80	43	3.0	1.6	15.0	
8.0	**MVR 8 B4.0 L43**	80	43	4.0	2.1	20.0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

Order example: MVR 6 B2.0 L22 BXC

* For additional holders see page 100

MZR Bars *Face Grooving*



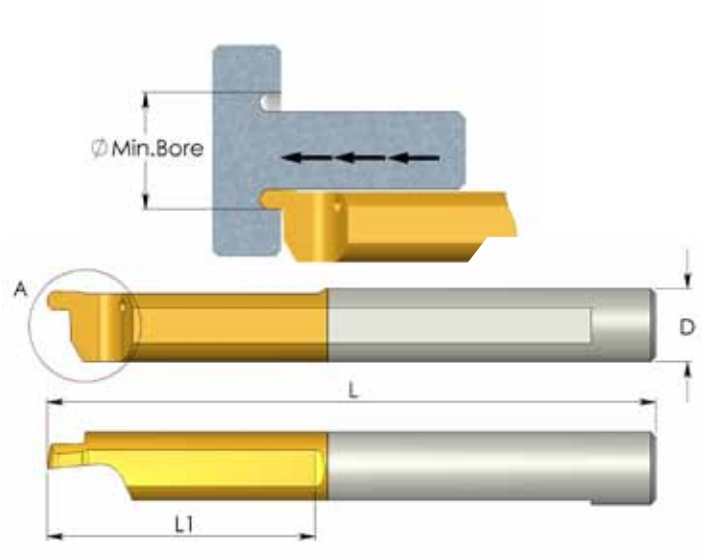


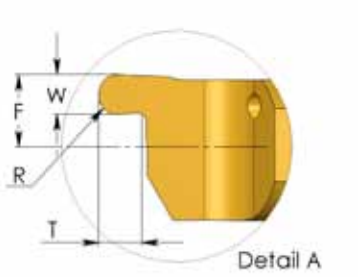
D	Ordering Code	L	L1	R	W	T	F	Min. Bore Dia.	Holder*
4.0	**MZR 4 R0.5 L15**	51	15	0.50	1.0	1.2	1.95	5.0	SIM ... H4
	MZR 4 R0.75 L15	51	15	0.75	1.5	1.5	1.95	5.0	
5.0	**MZR 5 R0.5 L22**	51	22	0.50	1.0	1.2	2.45	6.0	SIM ... H5
	MZR 5 R0.75 L22	51	22	0.75	1.5	1.5	2.45	6.0	
	MZR 5 R1.0 L22	51	22	1.00	2.0	2.5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

Order example: MZR 5 R0.5 L22 BXC

* For additional holders see page 100

MZL Bars *Face Grooving*



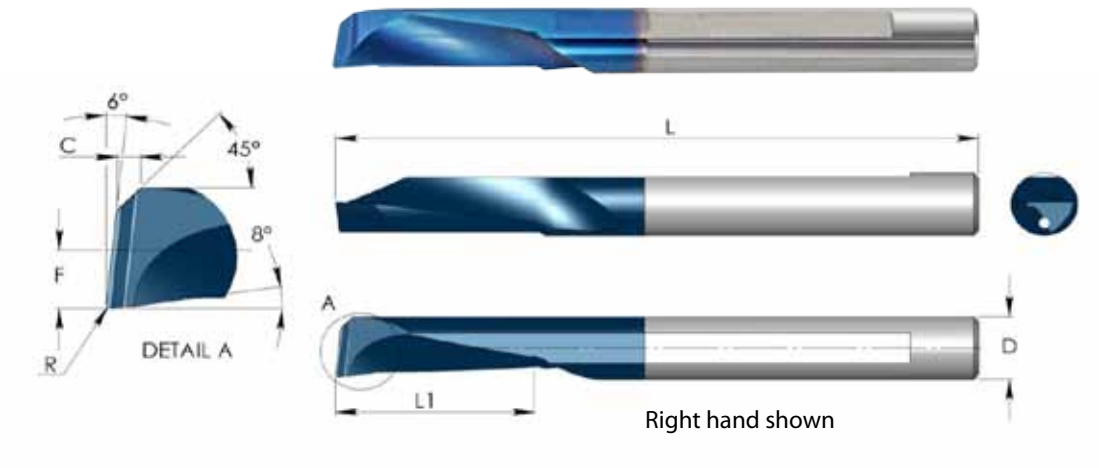


D	Ordering Code	L	L1	R	W	T	F	Min. Bore Dia.	Holder*
4.0	**MZL 4 R0.5 L15**	51	15	0.50	1.0	1.2	1.75	5.0	SIM ... H4
	MZL 4 R0.75 L15	51	15	0.75	1.5	1.5	1.75	5.0	
5.0	**MZL 5 R0.5 L22**	51	22	0.50	1.0	1.2	2.25	6.0	SIM ... H5
	MZL 5 R0.75 L22	51	22	0.75	1.5	1.5	2.25	6.0	
	MZL 5 R1.0 L22	51	22	1.00	2.0	2.5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

Order example: MZL 5 R0.5 L22 BXC

* For additional holders see page 100

CMR C.P.T. Multi-Task Tiny Tools



Right hand shown

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	51	15	0.1	1.8	1.1	4	
5	**CMR 5 R0.2 L10**	51	10	0.2	2.3	1.3	5	SIM...H5
	CMR 5 R0.2 L15	51	15	0.2	2.3	1.3	5	
6	**CMR 6 R0.2 L12**	58	12	0.2	2.8	1.5	6	SIM...H6
	CMR 6 R0.2 L18	58	18	0.2	2.8	1.5	6	

BMK	
P	*
M	*
K	*
N	*
S	*
H	

* The minimum 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	51	15	0.1	1.8	1.1	4	
5	**CML 5 R0.2 L10**	51	10	0.2	2.3	1.3	5	SIM...H5
	CML 5 R0.2 L15	51	15	0.2	2.3	1.3	5	
6	**CML 6 R0.2 L12**	58	12	0.2	2.8	1.5	6	SIM...H6
	CML 6 R0.2 L18	58	18	0.2	2.8	1.5	6	

BMK	
P	*
M	*
K	*
N	*
S	*
H	

* The minimum diameter the tool can produce from full material
** For additional holders see page 100

Product Identification

HK — Hexagon Keys

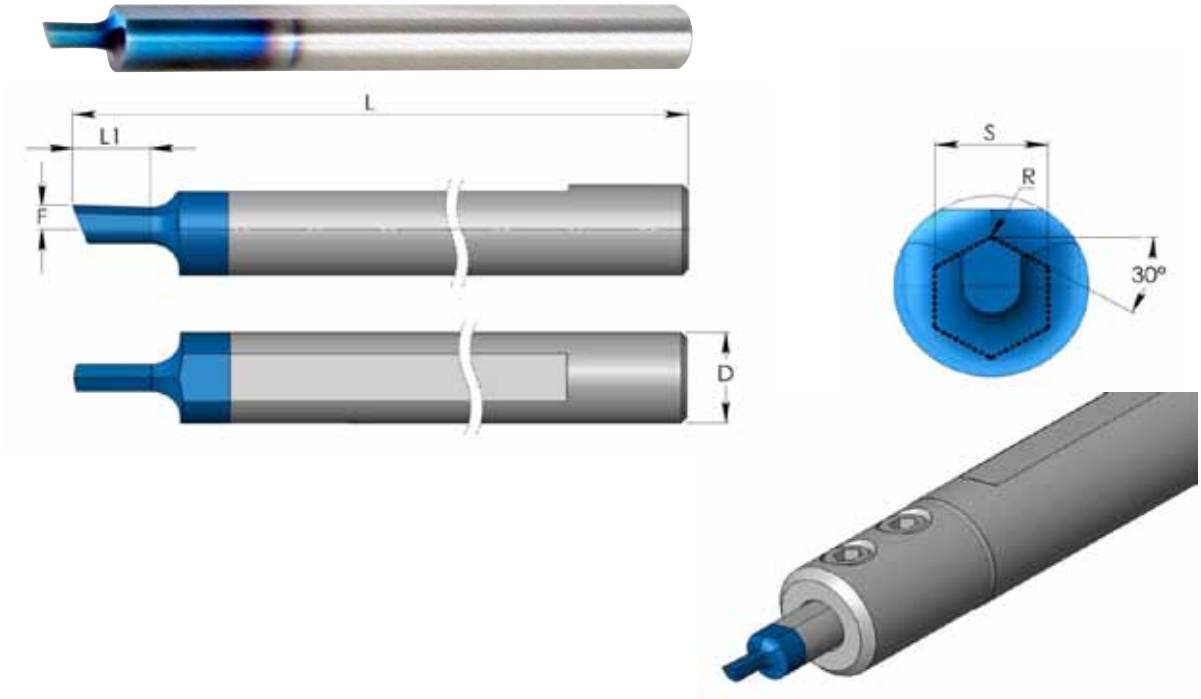
3 — Min. Bore Dia.
2 = 2.2 mm
3 = 2.9 mm
4 = 3.9 mm
5 = 4.9 mm

S30 — Socket Size
S23 = 2.3 - 2.9 mm
S30 = 3.0 - 4.0 mm
S40 = 4.0 - 5.0 mm
S50 = 5.0 - 8.0 mm

L5 — Maximum Cutting depth
L4 = 4.0 mm
L5 = 5.5 mm
L6 = 6.5 mm
L9 = 9.5 mm

BMK — Grade

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

BMK	
P	*
M	*
K	*
N	*
S	*
H	

S = Socket Size

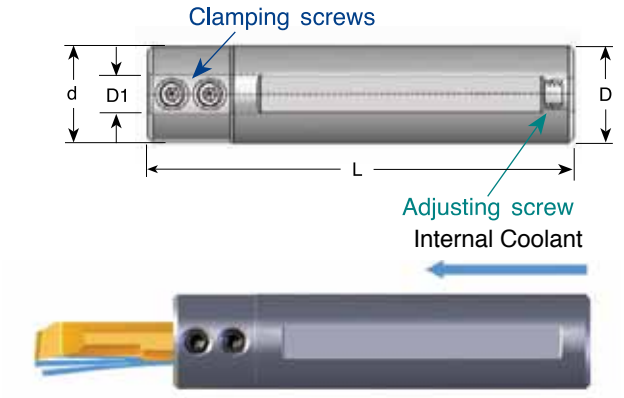
* For additional holders see page 100

Product Identification

Tiny Bar Holders Ordering Codes

S	I	M	0020	H3	S
Clamping Method S = Screw	I = Internal	M = Tiny Bars	Shank Cross Section Metric 0012 = 12 mm 0016 = 16 mm 0020 = 20 mm 0022 = 22 mm 0025 = 25 mm	Bar Diameter 3 = 3.0 mm 4 = 4.0 mm 5 = 5.0 mm 6 = 6.0 mm 7 = 7.0 mm 8 = 8.0 mm 10 = 10.0 mm	Swiss Type

Tiny Tools Bar Holders

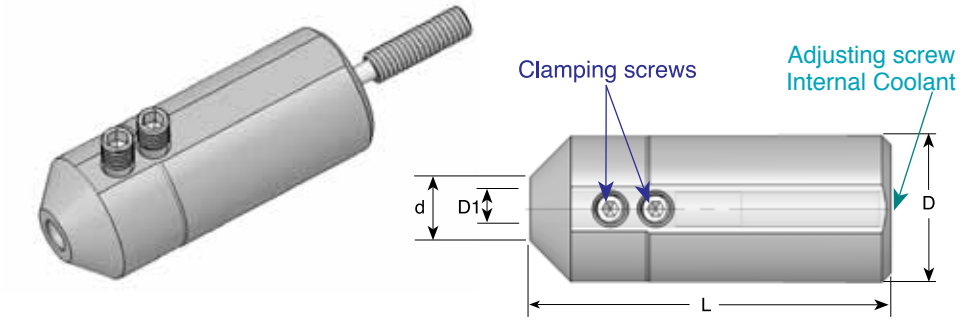


D1	Ordering Code	L	D	d	Key	Clamping Screw	Adjusting Screw
3.0	SIM 0012 H3	88	12	12	K25	S24	S35
	SIM 0016 H3S	75	16	20	K25	S25	S35S
	SIM 0016 H3	88	16	20	K25	S25	S35
	SIM 0020 H3	88	20	20	K25	S25	S35
	SIM 0022 H3	88	22	22	K25	S25	S35
4.0	SIM 0012 H4	88	12	12	K25	S24	S35
	SIM 0016 H4S	75	16	20	K25	S25	S35S
	SIM 0016 H4	88	16	20	K25	S25	S35
	SIM 0020 H4	88	20	20	K25	S25	S35
	SIM 0022 H4	88	22	22	K25	S25	S35

Tiny Tools Bar Holders

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

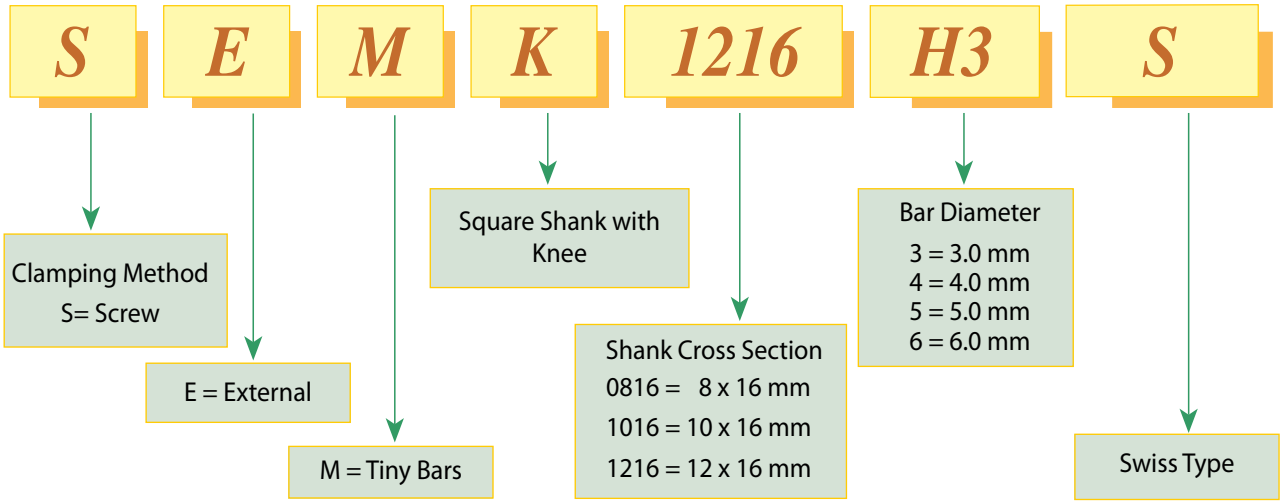
Tiny Tools Bar Holders



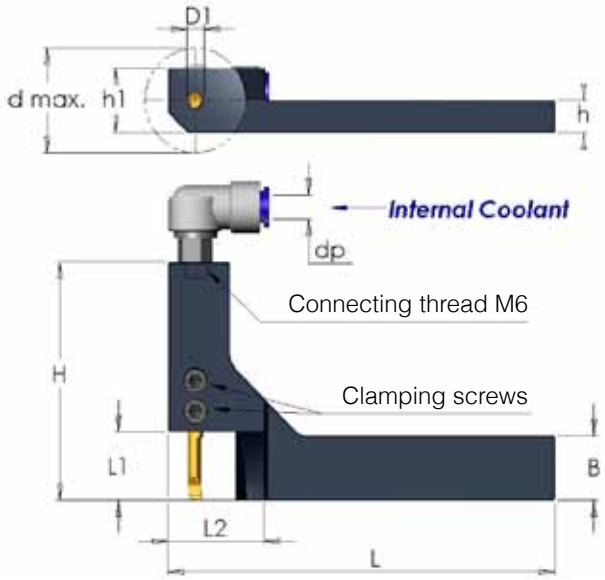
D1	Ordering Code	D	d	L	Key	Clamping Screw	Adjusting Screw
3.0	SIM 0025 H3	25	10.8	62	K25	S25	S35M
4.0	SIM 0025 H4	25	10.8	62	K25	S25	S35M
5.0	SIM 0025 H5	25	10.8	62	K25	S25	S35M
6.0	SIM 0025 H6	25	10.8	62	K25	S25	S35M
8.0	SIM 0025 H8	25	10.8	62	K25	S25	S35M

Product Identification

Tiny Bar Holders Ordering Codes



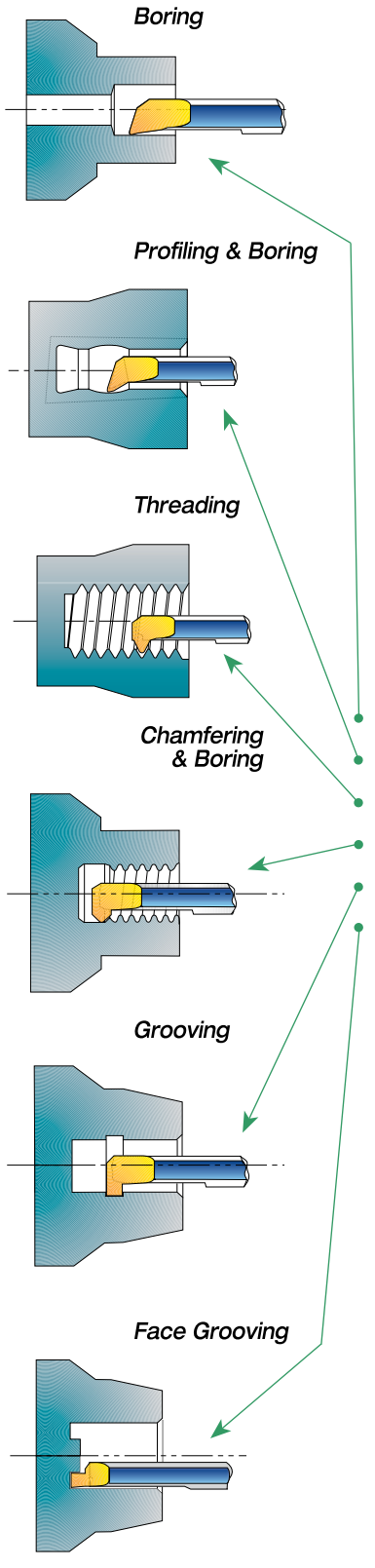
Square Shank Holders



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	16	100	17	25	46	10	18	26	4/6	K25	
	SEMK 1216 H3S	16	100	17	25	46	12	20	26	4/6	K25	
4.0	SEMK 0816 H4S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H4S	16	100	17	25	58	10	18	26	4/6	K25	
	SEMK 1216 H4S	16	100	17	25	58	12	20	26	4/6	K25	
5.0	SEMK 0816 H5S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H5S	16	100	17	25	58	10	18	26	4/6	K25	
	SEMK 1216 H5S	16	100	17	25	58	12	20	26	4/6	K25	
6.0	SEMK 0816 H6S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H6S	16	100	17	25	58	10	18	26	4/6	K25	
	SEMK 1216 H6S	16	100	17	25	58	12	20	26	4/6	K25	

* Optional

Tiny Tools Kits

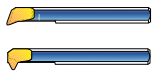


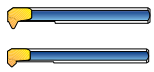
KT4-20	KT5-20
MTR 4 R0.2 L10	MTR 5 R0.2 L15
MPR 4 R0.2 L10	MPR 5 R0.2 L15
MIR 4 L15 A60	MIR 5 L15 A60
MCR 4 R0.2 L15	MCR 5 R0.2 L15
MGR 4 B1.5 L10	MGR 5 B1.5 L15
MFR 4 B1.0 L15	MFR 5 B1.0 L22
SIM 0020 H4	SIM 0020 H5
K25	K25

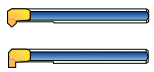
Order example: KT4-20

Also available are kits with a
16mm or 22mm shank diameter bar holder.
Order example: KT4-16


Boring


Profiling


Threading


Chamfering


Grooving


Face Grooving

Tiny Tools Bar Holder

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	25-70	30-80	15-30
		≥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	20-40	25-50	10-20
			Quenched and tempered			
	High alloy steel, cast steel, and tool steel		Annealed	20-40	25-50	10-20
			Quenched and tempered			
M	Stainless steel and cast steel		Ferritic/martensitic	25-40	30-60	15-25
			Martensitic			
			Austenitic			
K	Cast iron nodular (GGG)		Ferritic/pearlitic	25-60	30-80	15-30
			Pearlitic			
	Grey cast iron (GG)		Ferritic	30-70	30-80	20-40
			Pearlitic			
	Malleable cast iron		Ferritic	20-40	20-50	10-20
			Pearlitic			
N	Aluminum-wrought alloy		Not cureable	50-100	60-120	30-50
			Cured			
	Aluminum-cast, alloyed	<=12% Si	Not cureable	40-80	50-90	20-40
			Cured			
		>12% Si	High temperature			
	Copper alloys	>1% Pb	Free cutting	30-60	30-70	20-40
			Brass			
			Electrolytic copper			
	Non metalic		Duroplastics, fiber plastics	40-80		20-40
			Hard rubber			
S	High temp. alloys, Super alloys	Fe based	Annealed	15-30	15-40	10-20
			Cured			
		Ni or Co based	Annealed			
			Cured			
			Cast			
	Titanium alloys		Alpha+beta alloys cured	10-30	10-30	5-15
H	Hardened steel		Hardened 45-50 HRc	10-30	15-40	5-15
			Hardened 51-55 HRc			
			Hardened 56-62 HRc			
	Chilled cast iron		Cast	10-30	10-30	5-15
	Cast iron		Hardened	10-20	10-20	5-15

* For CMR see page 104

Recommended Feed Rate: 0.01 - 0.03 mm/rev

Threading Passes

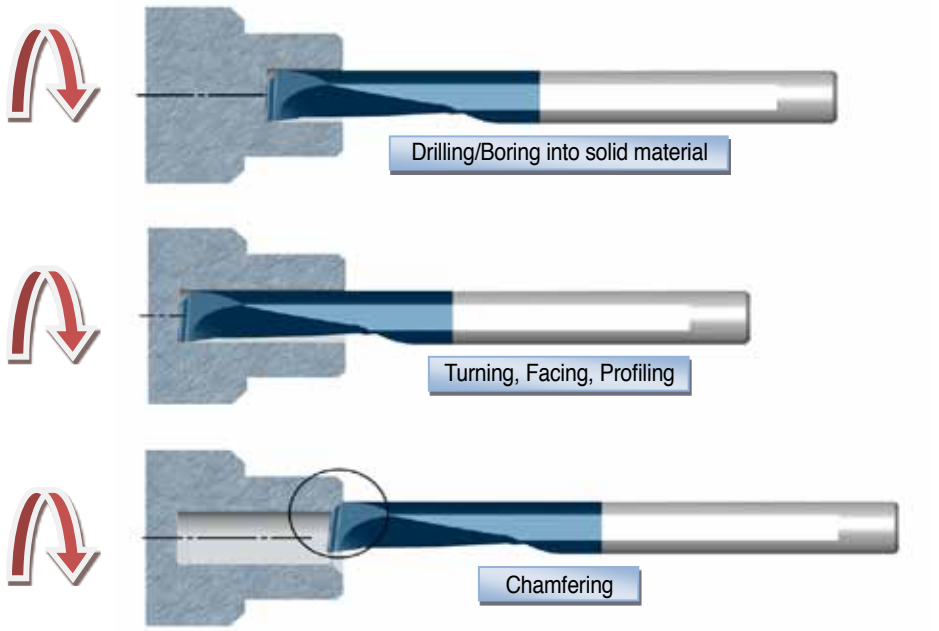
Pitch:	mm TPI	0.5 48	0.7 36	0.8 32	1.0 24	1.25 20	1.5 16	2-5 14-5
Number of Passes		6-12	7-14	7-16	8-18	8-20	10-22	20-38

CMR C.P.T. Multi-Task Tiny Tools

- C.P.T. is introducing a new and innovative Multi-Task Tiny Tool **CMR** for Boring, Turning, Facing and Chamfering with a single tool.
- The unique design enables machining of the material without the need for a pilot hole.
- The new tool shortens the machining cycle time and the number of tools required - providing **High Productivity**.
- Effective through 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.

Working Method

- The tool penetrates the work piece and produces the hole compliant with the minimum diameter the tool allows.
- The tool can penetrate the material in one pass or several passes depending on the work piece material, coolant pressure, machine power etc.
- The hole can be enlarged by multi radial passes.



Rear view of the cutting chamfer

The tool is equipped with an additional cutting edge, which is located across the main front edge. This allows production of an additional 45° chamfer on the work piece without the need to stop the spindle or processing operation.

CMR Cutting Data and General Recommendations

Coolant fluid

Dry machining should not be performed under any circumstances.
It is necessary to use an internal coolant in all applications.
Oil or Emulsion lubricants are recommended for best performance.
In the event of low coolant pressure, adding an external coolant can improve the tool operation.

The cooling stream is designed to provide three benefits:
1. Cooling the cutting edge of the tool, and the contact area.
2. Pushing the chip away from the tool quickly, thereby reducing wear of the edge.
3. Helping to break the chip into smaller pieces and evacuating them from the cutting area.

ISO Standard	Materials	Cutting Speed m/min
P	Low and Medium Carbon Steels <0.55%C	20- 75
	High Carbon Steels ≥0.55%C	20- 75
	Alloy Steels, Treated Steels	20- 60
M	Stainless Steels - Free Cutting	20- 60
	Stainless Steels - Austenitic	20- 50
	Cast Steels	20- 70
K	Cast Iron	20- 90
N	Aluminum ≤12%Si, Copper	40-150
	Aluminum >12% Si	20-100
	Synthetics, Duroplastics, Thermoplastics	40-150
S	Nickel Alloys, Titanium Alloys	15- 60
H	Hardened Steels	

Recommended Feed Rate: 0.01 - 0.03 mm/rev

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 C.P.T. 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