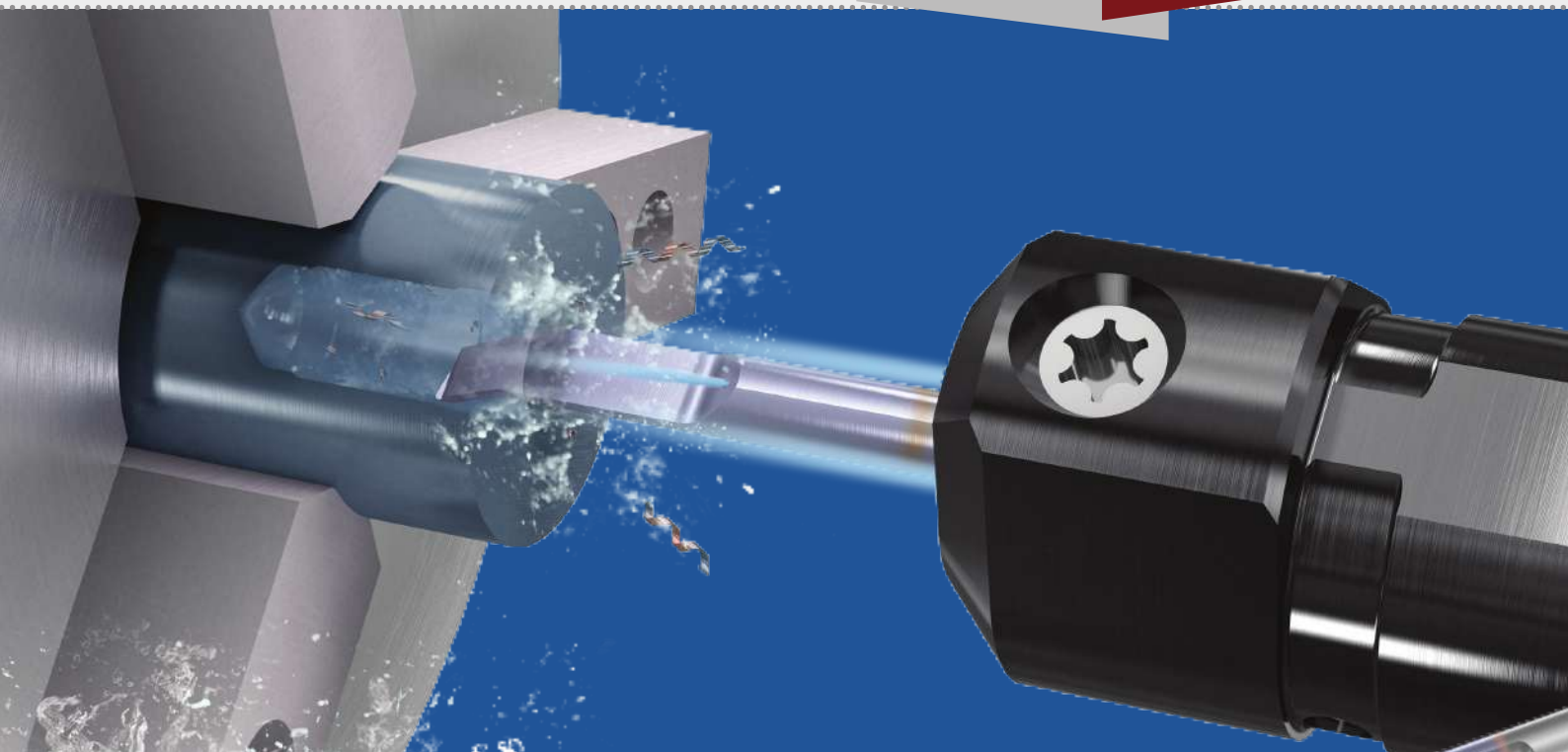




microscope

Мікроінструменти для малих отворів

Купуйте **5 різців** і отримуйте **додаткову** знижку:

знижка 10%
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або

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* Різці нової серії згідно з додатковим переліком.

АКЦІЯ

01 січня -
30 червня 2021

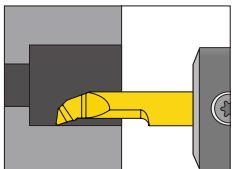
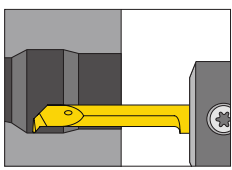
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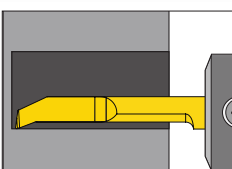
т. +380-50-396-90-96, +380-68-149-39-94

e-mail: info@smarttec.com.ua

Додаткова інформація і умови розміщені
на сайті www.vargus.com.ua

microscope Різці нової серії

Тип обробки	Артикул	Позначення
Розточка (BE)  	063-00297	MC422BER10L14RVTX
	063-00298	MC427BER15L15RVTX
	063-00299	MC427BER05L16RVTX
	063-00300	MC432BER05L16RVTX
	063-00301	MC432BER15L16RVTX
	063-00302	MC432BER05L20RVTX
	063-00303	MC432BER15L20RVTX
	063-00304	MC437BER15L15RVTX
	063-00305	MC437BER15L20RVTX
	063-00306	M442BER05L16RVTX
	063-00307	M442BER15L16RVTX
	063-00308	M442BER05L21RVTX
	063-00309	M442BER15L21RVTX
	063-00310	M552BER20L21RVTX
	063-00311	M552BER20L26RVTX
	063-00312	M662BER20L30RVTX
	063-00313	M662BER20L35RVTX
	063-00314	M772BER20L40RVTX
	063-00315	M772BER20L45RVTX
	063-00402	MC432BER10L23RVTX
	063-00455	MC427BER15L15LVTX
Розточка і контурне точіння з стружколомом (CBLF)  	063-00439	M662CBLFR20L16RC VTX
	063-00440	M662CBLFR20L16LC VTX
	063-00441	M662CBLFR20L21RC VTX
	063-00442	M662CBLFR20L21LC VTX
	063-00443	M662CBLFR20L30RC VTX
	063-00444	M662CBLFR20L30LC VTX
	063-00445	M442CBLFR15 L10RC VTX
	063-00446	M442CBLFR15 L10LC VTX
	063-00447	M442CBLFR15L16RC VTX
	063-00448	M442CBLFR15L16LC VTX
	063-00449	M442CBLFR15L21RC VTX
	063-00450	M442CBLFR15L21LC VTX
	063-00451	M552CBLFR20L16RC VTX
	063-00452	M552CBLFR20L16LC VTX
	063-00453	M552CBLFR20L25RC VTX
	063-00454	M552CBLFR20L25LC VTX

Тип обробки	Артикул	Позначення
Розточка з стружколомом (BCB)  	063-00278	MC422BCBR10L14RVBX
	063-00279	MC427BCBR15L15RVBX
	063-00280	MC427BCBR05L15RVBX
	063-00281	MC432BCBR05L15RVBX
	063-00282	MC432BCBR15L15RVBX
	063-00283	MC432BCBR05L20RVBX
	063-00284	MC432BCBR15L20RVBX
	063-00285	MC437BCBR15L15RVBX
	063-00286	MC437BCBR15L20RVBX
	063-00287	M442BCBR05L15RVBX
	063-00288	M442BCBR15L15RVBX
	063-00289	M442BCBR05L20RVBX
	063-00290	M442BCBR15L20RVBX
	063-00291	M552BCBR20L20RVBX
	063-00292	M552BCBR20L25RVBX
	063-00293	M662BCBR20L30RVBX
	063-00294	M662BCBR20L35RVBX
	063-00295	M772BCBR20L40RVBX
	063-00296	M772BCBR20L45RVBX
	063-00351	M442BCBR15L20RC VTX
	063-00352	M552BCBR20L25RC VTX
	063-00353	M662BCBR20L30RC VTX
	063-00358	M552BCBR20L20RVTX
	063-00406	MC432BCBR15L15RVTX
	063-00461	M442BCBR15L12RVTX
	063-00464	M552BCBR20L15RCVTX
	063-00479	M442BCBR15L15LVTX

АКЦІЯ

01 січня -
30 червня 2021

Контактна інформація:

т. +380-50-396-90-96, +380-68-149-39-94

e-mail: info@smarttec.com.ua

Додаткова інформація і умови розміщені на сайті www.vargus.com.ua



INTERNAL MACHINING | **FINISHING**

microscope

Precise Turning, Grooving, Threading &
Face Grooving

microscope

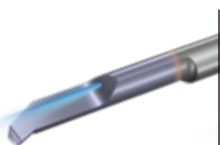
Micro Tools for Small Bores

The **Microscope** line offers new and improved solutions for micro boring, grooving, chamfering and threading in bores as small as 1.0 mm.

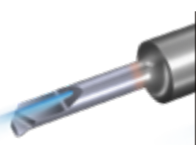
The **Microscope** line offers a large and extended range of single-ended inserts and a full range of toolholders with a simple clamping system.



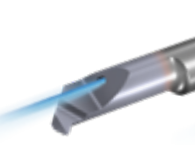
Internal Tools with High Pressure Coolant Thru



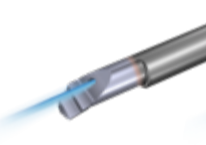
Boring with
Chip Breaker



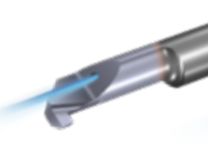
Boring



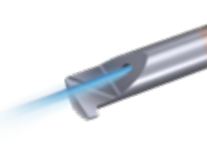
Boring &
Profiling



Boring with
Chip Former



Square
Grooving



Pre-Part Off

Miniature Toolholders



V-Cap Holder with
Shrink Clamping



Shrink
Toolholders



Round Toolholders
without Shoulder

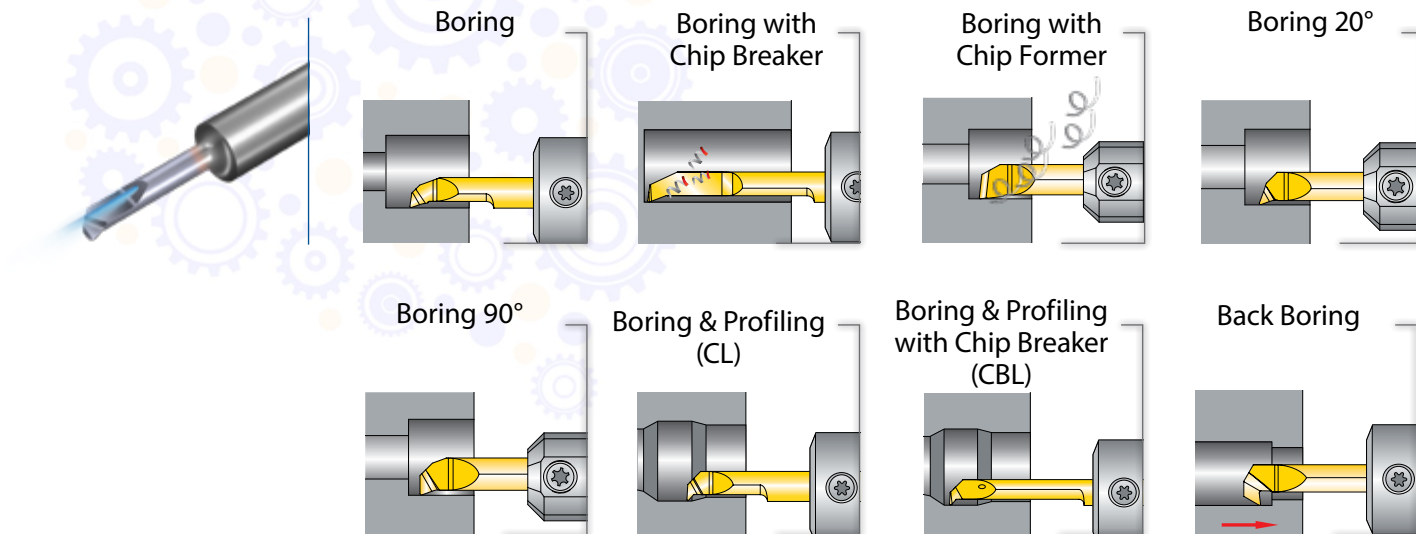


Double Sided Round
Toolholders without
Shoulder

Applications

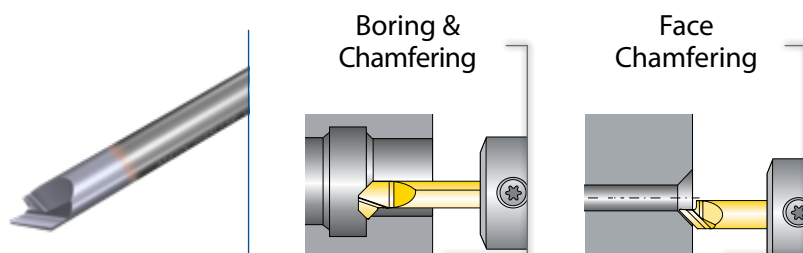
Boring

Pages 104 - 111



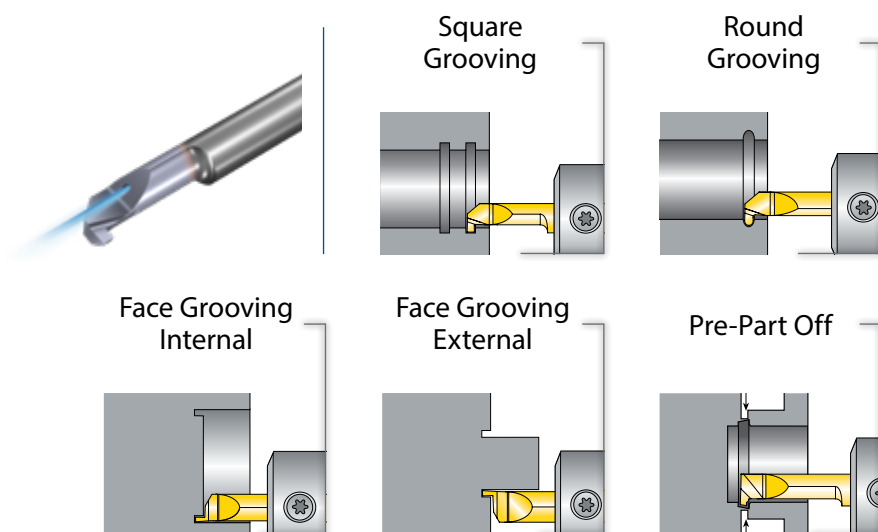
Chamfering

Page 112



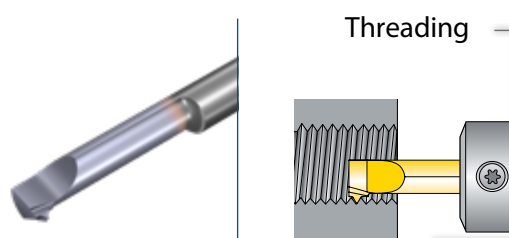
Grooving

Pages 113 - 116



Threading

Pages 117 - 119



Boring Technical Data

Recommended VBX Cutting Speeds Vc [m/min]

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc[m/min] (Coated)
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	80-150
	2		Medium Carbon (C=0.25-0.55%)	150	80-130
	3		High Carbon (C=0.55-0.85%)	170	70-110
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	70-110
	5		Hardened	275	70-100
	6		Hardened	350	70-100
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	80-120
	8		Hardened	325	70-110
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	80-110
	10		High Alloy (alloying elements >5%)	225	80-110
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	80-100
	12		Hardened	330	70-110
	13	Stainless Steel Austenitic	Austenitic	180	80-110
	14		Super Austenitic	200	80-110
	15	Stainless Steel Cast Ferritic	Non Hardened	200	40-60
	16		Hardened	330	30-50
	17	Stainless Steel Cast Austenitic	Austenitic	200	40-60
	18		Hardened	330	30-50
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	80-110
	29		Pearlitic (long chips)	230	80-110
	30	Grey Cast Iron	Low Tensile Strength	180	80-110
	31		High Tensile Strength	260	80-110
	32	Nodular SG Iron	Ferritic	160	80-110
	33		Pearlitic	260	80-110
N(K) Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	100-300
	35		Aged	100	100-150
	36	Aluminium Alloys	Cast	75	100-150
	37		Cast & Aged	90	60-100
	38	Aluminium Alloys	Cast Si 13-22%	130	100-150
	39	Copper and Copper Alloys	Brass	90	60-100
	40		Bronze and non leaded Copper	100	60-100
	S(M) Heat Resistant Material	19	High Temperature Alloys	Annealed (Iron based)	200
20		Aged (Iron based)		280	20-30
21		Annealed (Nickel or Cobalt based)		250	15-20
22		Aged (Nickel or Cobalt based)		350	10-15
23		Titanium Alloys	Pure 99.5 Ti	400Rm	60-100
24			α+β Alloys	1050Rm	40-50
H(K) Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	20-45
	26			51-55HRc	20-40

Carbide Grade



VBX - TiCN PVD coated

VTX - AlTiN PVD coated

VTX

Excellent for Boring applications in medium-to-high cutting speeds and in dry conditions.

Multilayered AlTiN PVD coated, general purpose grade for prevention of peeling and chipping.

* For **VTX Grade**, increase speed by 20%.

VBX

Excellent for all applications and outstanding wear resistance in low-to-medium cutting speeds, combined with good fracture toughness.

TiCN PVD coated.



Boring Technical Data

Boring and Profiling in Finishing Operations – Recommended Depth of Cut [a_p max. (mm)] and Feed f [mm/rev]

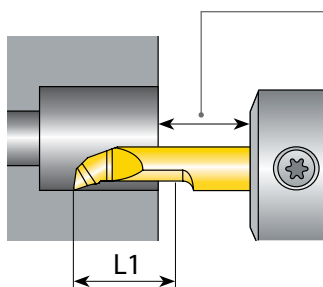
High Alloy Steel, 330 HB, 2100 Kc [N/mm ²]			
D min.	Vmax mm ²	a_p max. (mm)	f mm/rev
1 mm - 1.7 mm	0.0012	0.08	0.015
1.8 mm - 2.7mm	0.0017	0.10	0.017
2.8 mm - 3.2 mm	0.0031	0.18	0.017
3.3 mm - 3.7 mm	0.0040	0.22	0.018
3.8 mm - 4.2 mm	0.0050	0.25	0.020
4.3 mm - 5.2 mm	0.0084	0.30	0.028
5.2 mm - 6.2 mm	0.0150	0.30	0.050
6.3 mm - 7.2 mm	0.0210	0.35	0.060

Austenitic Stainless Steel, 200 HB, 2600 Kc [N/mm ²]			
D min.	Vmax mm ²	a_p max. (mm)	f mm/rev
1 mm - 1.7 mm	0.0009	0.06	0.015
1.8 mm - 2.7mm	0.0015	0.10	0.015
2.8 mm - 3.2 mm	0.0018	0.12	0.015
3.3 mm - 3.7 mm	0.0023	0.15	0.015
3.8 mm - 4.2 mm	0.0027	0.18	0.015
4.3 mm - 5.2 mm	0.0030	0.20	0.015
5.2 mm - 6.2 mm	0.0050	0.20	0.025
6.3 mm - 7.2 mm	0.0063	0.25	0.025

Machining Recommendation

- $V_{max} = \text{Feed mm/rev} \times a_p \text{ (mm)}$
- Exceeding the V_{max} value may cause corner excessive wear and breakage
- Recommendations listed are for average roughness of 0.5 (Ra)
- Lower Hardness and Lower Kc enable to increase the value of V_{max} , for higher metal removal
- Recommendations listed are for medium L1. Increase V_{max} value by using shorter L1 tools

When encountering chip flow evacuation problems, it is recommended to increase the distance between the workpiece and sleeve.

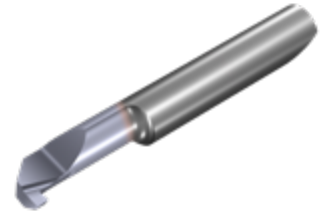


Grooving Technical Data

Recommended VBX Cutting Speeds Vc [m/min] and Feed f [mm/rev]

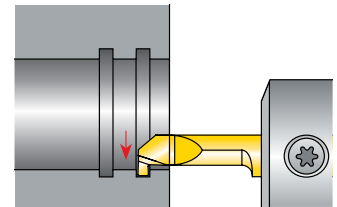
Material Group	Vargus No.	Material		Hardness Brinell HB	Vc[m/min] (Coated)	Feed f [mm/rev]
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	50-120	0.05
	2		Medium Carbon (C=0.25-0.55%)	150	40-100	0.05
	3		High Carbon (C=0.55-0.85%)	170	30-80	0.05
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	50-70	0.05
	5		Hardened	275	40-60	0.05
	6		Hardened	350	30-50	0.05
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	30-50	0.05
	8		Hardened	325	25-40	0.05
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	30-50	0.05
	10		High Alloy (alloying elements >5%)	225	25-40	0.05
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	60-100	0.05
	12		Hardened	330	40-60	0.05
	13	Stainless Steel Austenitic	Austenitic	180	50-90	0.05
	14		Super Austenitic	200	40-60	0.05
	15	Stainless Steel Cast Ferritic	Non Hardened	200	40-60	0.05
	16		Hardened	330	30-50	0.05
	17	Stainless Steel Cast Austenitic	Austenitic	200	40-60	0.05
	18		Hardened	330	30-50	0.05
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	50-70	0.04
	29		Pearlitic (long chips)	230	50-70	0.04
	30	Grey Cast Iron	Low Tensile Strength	180	50-70	0.04
	31		High Tensile Strength	260	40-60	0.04
	32	Nodular SG Iron	Ferritic	160	50-70	0.04
	33		Pearlitic	260	60-80	0.04
N(K) Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	100-300	0.04
	35		Aged	100	100-150	0.04
	36	Aluminium Alloys	Cast	75	100-150	0.04
	37		Cast & Aged	90	60-100	0.04
	38	Aluminium Alloys	Cast Si 13-22%	130	100-150	0.04
	39	Copper and Copper Alloys	Brass	90	60-100	0.03
	40		Bronze and non leaded Copper	100	60-100	0.04
	S(M) Heat Resistant Material	19	High Temperature Alloys	Annealed (Iron based)	200	25-45
20		Aged (Iron based)		280	20-30	0.02
21		Annealed (Nickel or Cobalt based)		250	15-20	0.02
22		Aged (Nickel or Cobalt based)		350	10-15	0.02
23		Titanium Alloys	Pure 99.5 Ti	400Rm	60-100	0.02
24			α+β Alloys	1050Rm	40-50	0.02
H(K) Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	20-40	0.02
	26			51-55HRc	20-35	0.02

Carbide Grade



VBX - TiCN PVD coated
VTX - AlTiN PVD coated

Machining Recommendation



Machine the groove in one motion instead of intervals.

VTX

Excellent for Boring applications in medium-to-high cutting speeds and in dry conditions. Multilayered AlTiN PVD coated, general purpose grade for prevention of peeling and chipping.

* For **VTX Grade**, increase speed by 20%.

VBX

Excellent for all applications and outstanding wear resistance in low-to-medium cutting speeds, combined with good fracture toughness. TiCN PVD coated.

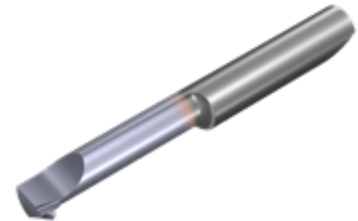


Threading Technical Data

Recommended VBX Cutting Speeds Vc [m/min]

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc[m/min] (Coated)
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	140-200
	2		Medium Carbon (C=0.25-0.55%)	150	120-180
	3		High Carbon (C=0.55-0.85%)	170	110-180
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	100-155
	5		Hardened	275	90-145
	6		Hardened	350	80-135
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	65-115
	8		Hardened	325	50-100
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	30-50
	10		High Alloy (alloying elements >5%)	225	25-40
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	80-120
	12		Hardened	330	55-95
	13	Stainless Steel Austenitic	Austenitic	180	60-100
	14		Super Austenitic	200	50-90
	15	Stainless Steel Cast Ferritic	Non Hardened	200	60-80
	16		Hardened	330	45-65
	17	Stainless Steel Cast Austenitic	Austenitic	200	50-70
	18		Hardened	330	40-60
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	60-80
	29		Pearlitic (long chips)	230	60-80
	30	Grey Cast Iron	Low Tensile Strength	180	60-80
	31		High Tensile Strength	260	40-70
	32	Nodular SG Iron	Ferritic	160	60-80
	33		Pearlitic	260	70-90
N(K) Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	80-240
	35		Aged	100	100-170
	36	Aluminium Alloys	Cast	75	100-150
	37		Cast & Aged	90	60-100
	38	Aluminium Alloys	Cast Si 13-22%	130	100-150
	39	Copper and Copper Alloys	Brass	90	80-200
	40		Bronze and non leaded Copper	100	80-200
S(M) Heat Resistant Material	19	High Temperature Alloys	Annealed (Iron based)	200	25-45
	20		Aged (Iron based)	280	20-30
	21		Annealed (Nickel or Cobalt based)	250	15-20
	22		Aged (Nickel or Cobalt based)	350	10-15
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	60-100
	24		α+β Alloys	1050Rm	40-50
H(K) Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	20-40
	26			51-55HRc	20-40

Carbide Grade

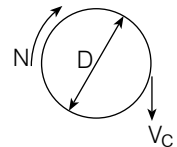


VBX - TiCN PVD coated
VTX - AlTiN PVD coated

Calculation of N [RPM]

$$N = \frac{1000 \times V_c}{\pi \times D}$$

$$V_c = \frac{N \times \pi \times D}{1000}$$



N - Revolution Per Minute [RPM]

V_c - Cutting Speed [m/mm]

D - Workpiece Diameter [mm]

Number of Passes for Threading

Pitch	mm	0.50	0.75	1.00	1.25	1.50	1.75	2.00
TPI		48	32	24	20	16	14	12
No. of Passes (Microscope)		6-9	6-11	6-12	8-14	9-15	11-18	11-18

VTX

Excellent for Boring applications in medium-to-high cutting speeds and in dry conditions. Multilayered AlTiN PVD coated, general purpose grade for prevention of peeling and chipping.

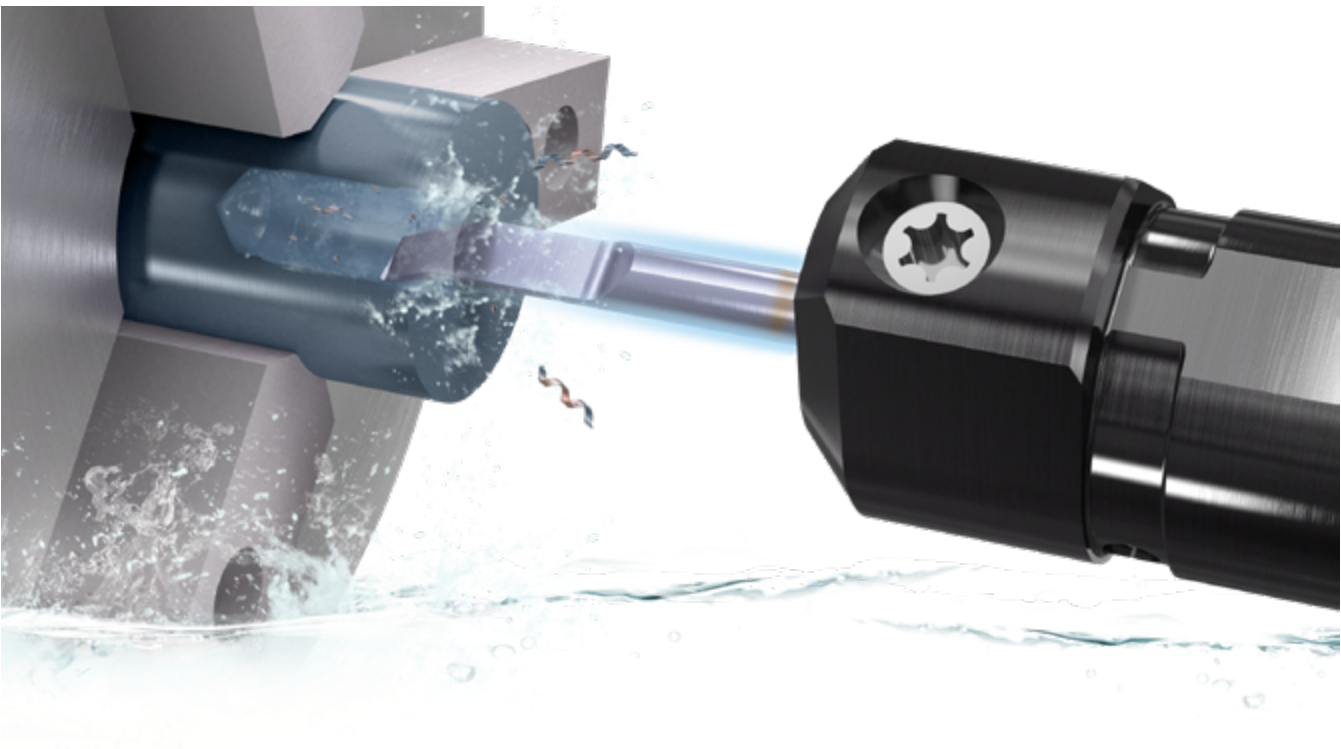
* For **VTX Grade**, increase speed by 20%.

VBX

Excellent for all applications and outstanding wear resistance in low-to-medium cutting speeds, combined with good fracture toughness. TiCN PVD coated.

microscope Inserts

Boring.....	104
Boring with Chip Breaker.....	107
Boring with Chip Former.....	108
Boring 20°.....	109
Boring 90°.....	109
Boring & Profiling with Chip Breaker (CBLF) NEW	110
Boring & Profiling (CL).....	111
Back Boring.....	111
Boring & Chamfering 45°.....	112
Face Chamfering 45°.....	112
Square Grooving.....	113
Round Grooving.....	115
Pre-Part Off.....	115
Face Grooving Internal.....	116
Face Grooving External.....	116
Threading.....	117

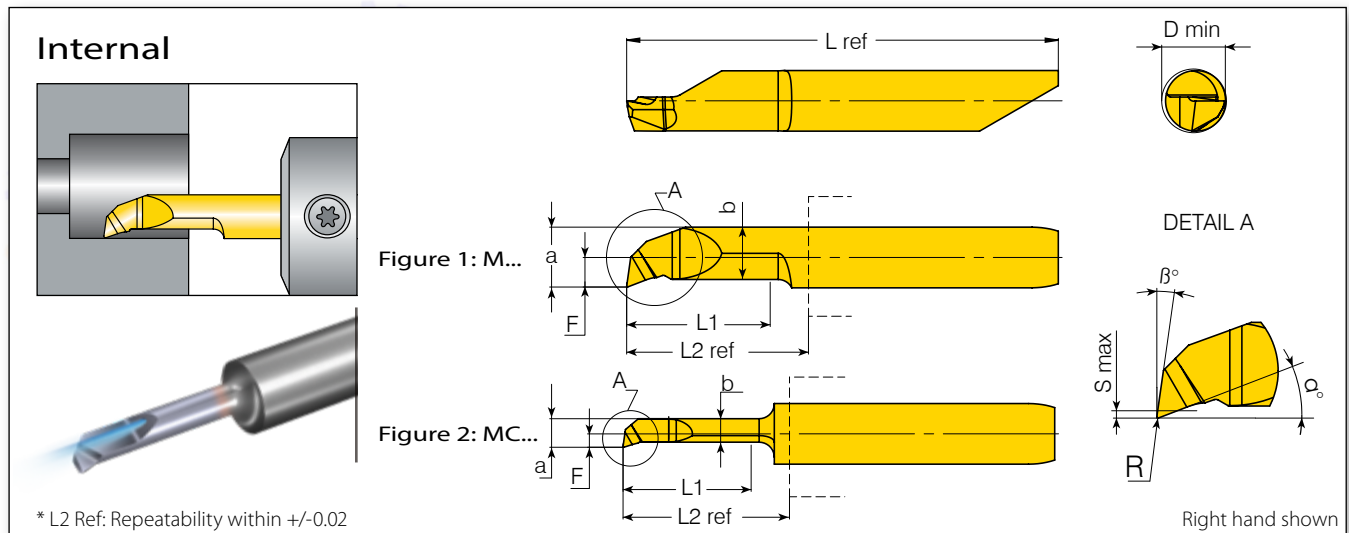


microscope Insert Ordering Code

Boring:	M 1	4 2	42 3	BC 4	R05 5	- 6	L10 7	R 8	C 9	VTX 10
Grooving:	M 1	5 2	52 3	GS 4	W100 5	- 6	L10 7	R 8	C 9	VBX 10
Threading:	M 1	5 2	42 3	TH 4	0.5 5	ISO 6	L16 7	R/L 8	- 9	VBX 10

1 - Product Line M/ MS - Microscope MC - Microscope central location of cutting tip	4 - Application Type BC Boring BE Boring with Edge Prep B20 Boring 20° B90 Boring 90° CBLF Boring & Profiling with Chip Breaker CL Boring & Profiling BCB Boring with Chip Breaker BCF Boring with Chip Former BB Back Boring CH4545 Boring & Chamfering 45° CH45 Face Chamfering 45° GS Square Grooving GR Round Grooving FG Face Grooving Internal FP Face Grooving External PP Pre-Part Off TH Threading	5 - Boring Nose Radius 0.05, 0.1, 0.15, 0.2 (mm) 5 - Grooving Width 079 - 318 (mm) 5 - Threading Pitch Full Profile - Pitch Range mm TPI 0.5 - 1.5 28-18 Partial Profile - Pitch Range mm TPI A 0.5 - 1.5 A 48-16 F 0.5 - 1.0 F 48-24 6 - Threading Standard A60 - Partial Profile 60° A55 - Partial Profile 55° ISO - ISO Metric UN - American UN NPT - NPT W - Whitworth for BSW, BSP TR - Trapez 7 - Maximum Length of Cut (mm) L10 - 10mm, L15 - 15mm... 8 - RH or LH R - RH L - LH 9 - Coolant C - Internal Coolant NONE - Without Coolant 10 - Carbide Grade VBX, VTX
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Boring



* L2 Ref: Repeatability within +/-0.02

Shank Dia.	Min. Bore Dia.	Ordering Code				Dimensions mm						Grades			
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX	
4.0	1.0	MC410BCR05L04R	4.0	0.05	0.48	0.1	0.96	0.71	16.4	8	8.8	25.75	•	•	
		MC410BCR05L04L	4.0	0.05	0.48	0.1	0.96	0.71	16.4		8.8	25.75	•	◊	
		MC410BCR10L04R/L	4.0	0.1	0.48	0.1	0.96	0.71	17		8.8	25.75	•	◊	
		MC410BCR05L06R	6.0	0.05	0.48	0.15	0.96	0.71	16.4		8.8	25.75	•	•	
		MC410BCR05L06L	6.0	0.05	0.48	0.15	0.96	0.71	16.4		8.8	25.75	•	◊	
		MC410BCR10L06R/L	6.0	0.1	0.48	0.15	0.96	0.81	17		8.8	25.75	•	◊	
	1.5	MC415BCR05L04R	4.0	0.05	0.74	0.15	2.74	1.15	16		11.5	28.5	•	◊	
		MC415BCR10L09R	9.0	0.1	0.74	0.15	1.45	1.22	16		11.5	28.5	•	◊	
		MC415BCR10L09L	9.0	0.1	0.74	0.15	1.45	1.22	16		11.5	28.5	•	•	
	1.7	MC417BCR05L06R/L	6.0	0.05	0.62	0.2	1.43	1.02	16		11.5	28.5	•	◊	
		MC417BCR10L06R/L	6.0	0.1	0.77		1.58	1.18	16		11.5	28.5	•	•	
		MC417BCR05L09R/L	9.0	0.05	0.62		1.43	1.04	16		11.5	28.5	•	◊	
		MC417BCR10L09R/L	9.0	0.1	0.82		1.63	1.3	16		11.5	28.5	•	◊	
	1.9	MC419BCR05L06R**	6.0	0.05	0.72	0.2	1.62	1.2	16		11.5	28.5	•	◊	
		MC419BCR05L09R/L	9.0	0.05	0.72		1.62	1.2	16		11.5	28.5	•	•	
	2.2	MC422BCR05L06R/L	6.0	0.05	0.88	0.2	1.88	1.55	17.7		11.5	28.5	•	◊	
		MC422BCR10L06R/L	6.0	0.1	0.93		1.93	1.55	17.7		11.5	28.5	•	◊	
		MC422BCR05L09R/L	9.0	0.05	0.88		1.88	1.55	17.7		11.5	28.5	•	◊	
		MC422BCR10L09R/L	9.0		0.1		2.06	1.76	17.7		11.5	28.5	•	◊	
		MC422BCR10L14R/L	14.0	0.1	1.04		2.04	1.76	17.7		18.2	35.2	•	•	
		MC422BER10L14R**	14.0		1.04		2.04	1.76	17.7		18.2	35.2	◊	•	
	2.7	MC427BCR05L10R/L	10.0	0.15	0.05	0.2	2.47	2.06	17.5		11.5	28.5	•	◊	
		MC427BCR15L10R/L	10.0		1.19		2.41	2.06	17.5		11.5	28.5	•	◊	
		MC427BCR15L15R/L	15.0		0.15		0.15	2.48	2.06		17.5	18.2	35.2	•	•
		MC427BER15L15R**	15.0	0.15	2.48		2.06	17.5	18.2		35.2	◊	•		
		MC427BCR05L16R/L	16.0	0.05	1.22		2.47	2.06	17.5		18.2	35.2	•	•	
		MC427BER05L16R**	16.0	0.05	1.22		2.47	2.06	17.5		18.2	35.2	◊	•	
	3.0	MC430BCR05L10R**	10.0	0.05	1.33	0.2	2.7	2.25	17.5		11.5	28.7	◊	•	
		MC430BCR05L16R/L	16.0	0.05	1.33		2.7	2.25	17.5		18.2	35.2	•	◊	
		MC430BCR15L20R/L	20.0	0.15	1.36		2.7	2.36	17.5		22.8	39.8	•	◊	
		M430BCR15L20RC**	20.0	0.15	1.36		2.7	2.36	17.5		22.8	39.8	◊	•	
		MC430BCR05L26R/L	26.0	0.05	1.33		2.7	2.25	17.5		28.7	45.7	•	◊	
	3.2	MC432BCR05L10R/L	10.0	0.05	1.43	0.2	2.9	2.45	17.5	8	11.5	28.5	•	◊	
		MC432BCR15L10R/L	10.0	0.15	1.44		2.9	2.5	17.5		11.5	28.5	•	◊	
		M432BCR15L10RC**	10.0	0.15	1.44		2.9	2.5	17.5		11.5	28.5	◊	•	
		MC432BCR05L16R/L	16.0	0.05	1.43		2.9	2.45	17.5		18.2	35.2	•	•	
		MC432BER05L16R**	16.0	0.05	1.43		2.9	2.45	17.5		18.2	35.2	◊	•	
		MC432BCR15L16R/L	16.0	0.15	1.44		2.87	2.5	17.5		18.2	35.2	•	•	

** LH Tools are available upon request.

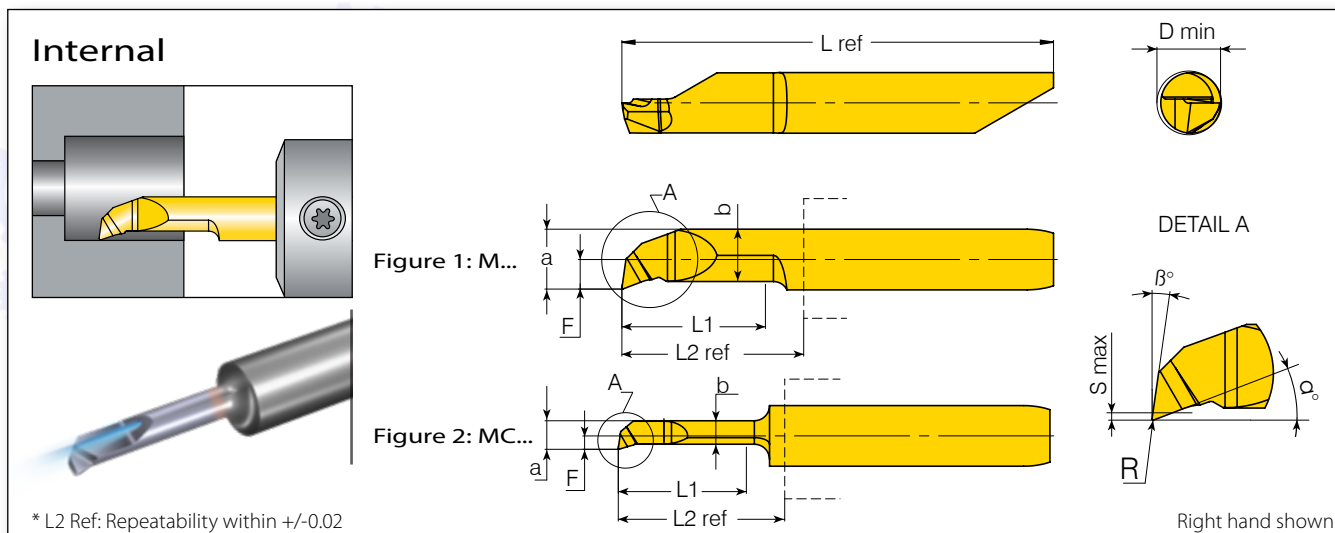
• In stock ◦ Available upon request

Inserts marked with **C** are available with internal coolant.

Inserts marked with **E** are available with edge prep.



Boring (con't)



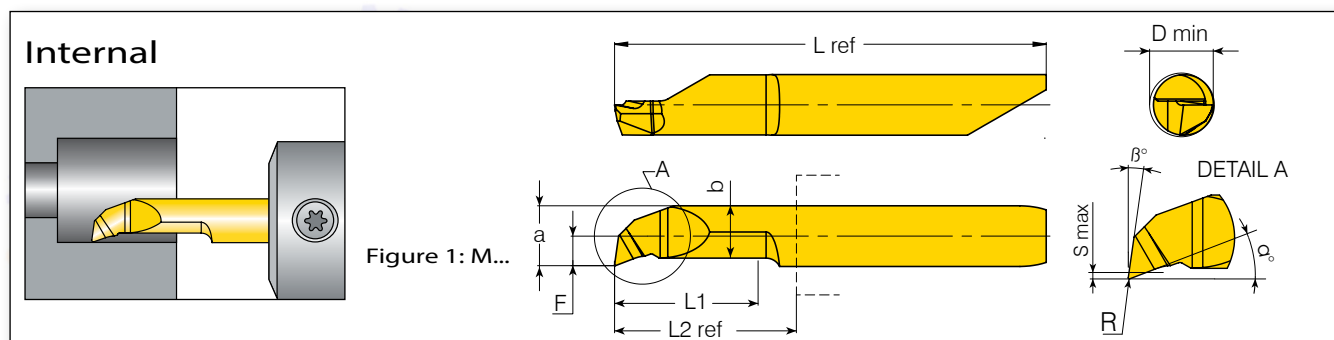
Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm								Grades			
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX
4.0	3.2	MC432BER15L16R**	16.0	0.15	1.44	0.2	2.87	2.5	17.5	8	18.2	35.2	◦	•
		MC432BCR05L20R/L	20.0	0.05	1.43		2.9	2.45	17.5		22.8	39.8	•	•
		MC432BER05L20R**	20.0	0.05	1.43		2.9	2.45	17.5		22.8	39.8	◦	•
		MC432BCR15L20R/L	20.0	0.15	1.4		2.87	2.45	17.5		22.8	39.8	•	•
		MC432BER15L20R**	20.0	0.15	1.4		2.87	2.45	17.5		22.8	39.8	◦	•
		M432BCR15L20RC**	20.0	0.15	1.4		2.87	2.45	17.5		22.8	39.8	◦	•
		MC432BER10L23R	23.0	0.10	1.43		2.90	2.45	17.5		22.8	45.7	◦	•
		MC437BCR05L10R**	10.0	0.05	1.78		3.48	3.05	17.5		11.5	28.5	•	◦
	3.7	MC437BCR15L10R/L	10.0	0.15	1.74	3.44	3.05	17.5	11.5	28.5	•	◦		
		MC437BCR15L15R	15.0	0.15	1.74	3.44	3.05	17.5	18.2	35.2	•	•		
		MC437BCR15L15L	15.0	0.15	1.74	3.44	3.05	17.5	18.2	35.2	•	◦		
		MC437BER15L15R**	15.0	0.15	1.74	3.44	3.05	17.5	18.2	35.2	•	•		
		MC437BCR15L20R	20.0	0.15	1.74	3.44	3.05	17.5	22.8	39.8	◦	•		
		MC437BCR15L20L	20.0	0.15	1.74	3.44	3.05	17.5	22.8	39.8	•	◦		
		MC437BER15L20R**	20.0	0.15	1.74	3.44	3.05	17.5	22.8	39.8	◦	•		
		MC437BCR05L26R**	26.0	0.05	1.78	3.48	3.05	17.5	28.7	45.7	◦	•		
	4.0	M440BCR20L10RC	10.0	0.20	1.90	0.25	3.74	3.35	17.5	11.5	28.5	◦	•	
		M442BCR03L10R**	10.0	0.03	1.98	3.98	3.13	19	11.5	28.5	◦	•		
		M442BCR05L10R**	10.0	0.05	1.95	3.95	3.45	21	11.5	28.5	•	◦		
		MS442BCR15L10R	10.0	0.15	1.93	3.93	3.13	19	11.5	28.5	•	•		
		MS442BCR15L10L	10.0	0.15	1.93	3.93	3.13	19	11.5	28.5	•	◦		
		M442BCR15L10RC**	10.0	0.15	1.93	3.93	3.13	19	11.5	28.5	◦	•		
		M442BCR20L10RC**	10.0	0.20	1.98	3.98	3.13	19	11.5	28.5	◦	•		
		M442BCR05L16R/L	16.0	0.05	1.95	3.95	3.45	21	18.2	35.2	•	◦		
	4.2	M442BER05L16R**	16.0	0.05	1.95	0.3	3.95	3.45	21	18.2	35.2	◦	•	
		M442BCR03L15R**	15.0	0.03	1.98		3.98	3.13	19	18.2	35.2	◦	•	
		MS442BCR15L16R	16.0	0.15	1.93		3.93	3.13	19	18.2	35.2	•	•	
		MS442BCR15L16L	16.0	0.15	1.93		3.93	3.13	19	18.2	35.2	•	◦	
		MS442BER15L16R**	16.0	0.15	1.93		3.93	3.13	19	18.2	35.2	◦	•	
		M442BCR05L21R	21.0	0.05	1.95		3.95	3.45	21	22.8	39.8	•	•	
		M442BCR05L21L	21.0	0.05	1.95		3.95	3.45	21	22.8	39.8	•	◦	
		M442BER05L21R**	21.0	0.05	1.95		3.95	3.45	21	22.8	39.8	◦	•	
		MS442BCR15L21R	21.0	0.15	1.93		3.93	3.13	19	22.8	39.8	•	•	
		MS442BCR15L21L	21.0	0.15	1.93		3.93	3.13	19	22.8	39.8	•	◦	
		MS442BER15L21R**	21.0	0.15	1.98		3.98	3.13	19	24.7	41.7	◦	•	
		M442BCR15L21RC**	21.0	0.15	1.93		3.93	3.13	19	22.8	39.8	◦	•	
		M442BCR03L25R**	25.0	0.03	1.98		3.98	3.13	19	28.7	45.7	◦	•	
		M442BCR05L26R/L	26.0	0.05	1.95		3.95	3.45	21	28.7	45.7	•	◦	
		MS442BCR15L26R/L	26.0	0.15	1.93		3.93	3.13	19	28.7	45.7	•	◦	
		M442BCR05L30R**	30.0	0.05	1.95		3.95	3.45	21	33.7	50.7	•	◦	

** LH Tools are available upon request.

• In stock ◦ Available upon request

Inserts marked with C are available with internal coolant. Inserts marked with E are available with edge prep.

Boring (con't)



Shank Dia.	Min. Bore Dia.	Ordering Code					Dimensions mm						Grades	
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX
5.0	5.2	M552BCR05L10R**	10.0	0.05	2.43	0.5	4.93	4.24	19	8	12.15	35	◦	•
		M552BCR20L10R**	10.0	0.20	2.44		4.94	4.04	12.15		35	•	◦	
		M552BCR20L10R/L	10.0	0.20	2.44		4.94	4.04	12.15		35	•	◦	
		M552BCR03L15R**	15.0	0.03	2.44		4.94	4.24	18.15		41	◦	•	
		M552BCR20L15R	15.0	0.20	2.44		4.94	4.24	18.15		41	◦	•	
		M552BCR20L16R	16.0	0.20	2.44		4.94	4.04	18.15		41	•	•	
		M552BCR20L16L	16.0	0.20	2.44		4.94	4.04	18.15		41	•	◦	
		M552BCR05L20R**	20.0	0.05	2.43		4.93	4.24	23.15		46	•	◦	
		M552BCR20L20R**	20.0	0.20	2.44		4.94	4.04	23.15		46	•	◦	
		M552BCR20L21R**	21.0	0.20	2.44		4.94	4.04	23.15		46	◦	•	
		M552BCR20L21R/L	21.0	0.20	2.44		4.94	4.04	23.15		46	•	•	
		M552BER20L21R**	21.0	0.20	2.44		4.94	4.04	23.15		46	◦	•	
		M552BCR20L26R/L	26.0	0.20	2.44		4.94	4.04	28.15		51	•	•	
		M552BER20L26R**	26.0	0.20	2.44		4.94	4.04	28.15		51	◦	•	
		M552BCR05L30R**	30.0	0.05	2.42		4.92	4.24	32.15		55	•	•	
		M552BCR20L30R/L	30.0	0.20	2.44		4.94	4.04	32.15		55	•	◦	
		M552BCR20L30R**	30.0	0.20	2.44		4.94	4.04	32.15		55	◦	•	
		M552BCR20L35R	35.0	0.20	2.44		4.94	4.04	37.15		60	•	•	
		M552BCR20L35L	35.0	0.20	2.44		4.94	4.04	37.15		60	•	◦	
		M552BCR20L35R**	35.0	0.20	2.44		4.94	4.04	37.15		60	◦	•	
6.0	6.2	M662BCR20L16R/L	16.0	0.20	2.93	0.5	5.93	4.73	22	8	18.3	42	•	◦
		M662BCR05L20R**	20.0	0.05							23.3	47	◦	•
		M662BCR20L21R	21.0	0.20							23.3	47	•	◦
		M662BCR20L21L	21.0	0.20							23.3	47	•	•
		M662BCR20L26R	26.0	0.20							28.3	52	•	•
		M662BCR20L26L	26.0	0.20							28.3	52	•	◦
		M662BCR05L30R**	30.0	0.05							32.3	56	◦	•
		M662BCR20L30R/L	30.0	0.20							32.3	56	•	•
		M662BER20L30R**	30.0	0.20							32.3	56	◦	•
		M662BCR20L35R/L	35.0	0.20							37.3	61	•	•
		M662BER20L35R**	35.0	0.20							37.3	61	◦	•
		M662BCR20L40R/L	40.0	0.20							42.3	66	•	◦
7.0	7.2	M772BCR10L15R**	15.0	0.10	3.44	0.5	6.94	5.74	22	8	16.4	41	◦	•
		M772BCR20L15R/L	15.0	0.20							16.4	41	•	◦
		M772BCR20L25R	25.0								26.4	51	•	•
		M772BCR20L25L	25.0								26.4	51	•	◦
		M772BCR20L30R**	30.0								31.4	56	◦	•
		M772BCR20L35R/L	35.0								36.4	61	•	◦
		M772BCR20L40R/L	40.0								41.4	66	•	•
		M772BER20L40R**	40.0								41.4	66	◦	•
		M772BCR20L45R/L	45.0								46.4	71	•	•
		M772BER20L45R**	45.0								46.4	71	◦	•
		M772BCR20L50R/L	50.0								51.4	76	•	◦

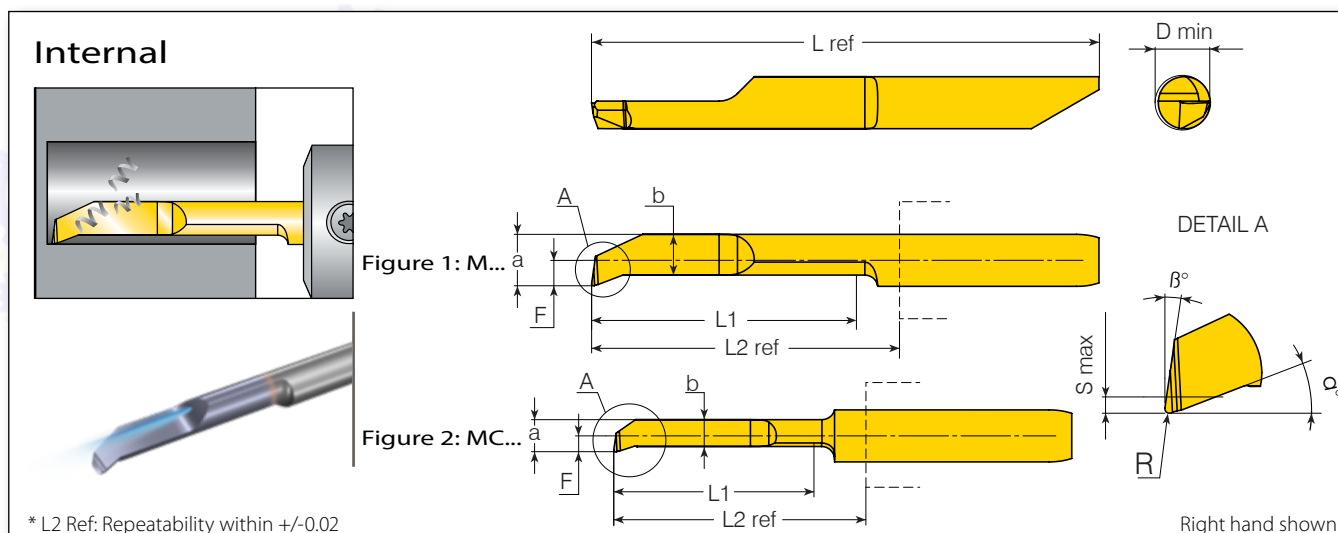
** LH Tools are available upon request.

• In stock ◦ Available upon request

Inserts marked with C are available with internal coolant.

Inserts marked with E are available with edge prep.

Boring with Chip Breaker

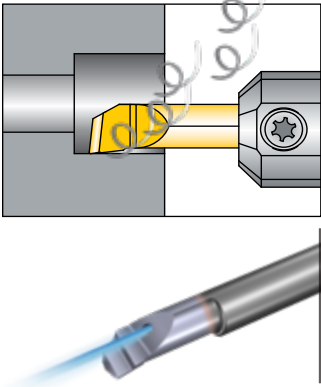


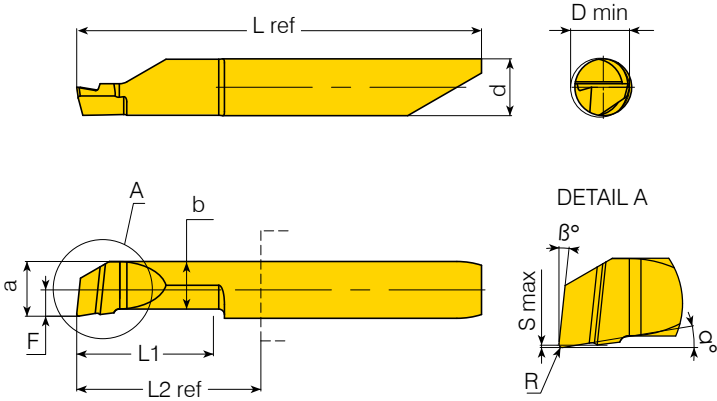
Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm										Grades	
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX
4.0	2.2	MC422BCBR10L14R	14	0.1	1.04	0.2	2.04	1.76	18	8	18.2	35.2	●	○
	2.7	MC427BCBR15L15R	15	0.15	1.22		2.47	2.06			18.2	35.2	●	○
		MC427BCBR05L15R		0.05	1.22		2.47	2.06			18.2	35.2	●	○
	3.2	MC432BCBR05L15R	15	0.05	1.43		2.90	2.45			18.2	35.2	●	○
		MC432BCBR15L15R		0.15	1.43		2.90	2.45			18.2	35.2	●	●
		MC432BCBR05L20R	20	0.05	1.43		2.90	2.45			22.8	39.8	●	○
		MC432BCBR15L20R		0.15	1.43		2.90	2.45			22.8	39.8	●	○
	3.7	MC437BCBR15L15R	15	0.15	1.77		3.47	3.05			18.2	35.2	●	○
		MC437BCBR15L20R	20	0.15	1.77		3.47	3.05			22.8	39.8	●	○
	4.2	M442BCBR15L12R	12	0.15	1.95	0.3	3.95	3.13	21		15.2	32.2	○	●
		M442BCBR05L15R	15	0.05	1.95		3.95	3.13			18.2	35.2	●	○
		M442BCBR15L15R		0.15	1.95		3.95	3.13			18.2	35.2	●	○
		M442BCBR05L20R	20	0.05	1.95		3.95	3.13			22.8	39.8	●	○
		M442BCBR15L20R		0.15	1.95		3.95	3.13			22.8	39.8	●	○
		M442BCBR15L20R		0.15	1.95		3.95	3.13			22.8	39.8	○	●
5.0	5.2	M552BCBR20L15R	15		2.44	0.5	4.94	4.04	22		18.15	41	○	●
		M552BCBR20L20R	20		2.44		4.94	4.04			23.15	46	●	●
		M552BCBR20L25R	25		2.44		4.94	4.04			28.15	51	●	○
		M552BCBR20L25R	25		2.44		4.94	4.04			28.15	51	○	●
6.0	6.2	M662BCBR20L30R	30	0.2	2.93	0.5	5.93	4.73	22		32.3	56	●	○
		M662BCBR20L30R	30		2.93		5.93	4.73			32.3	56	○	●
		M662BCBR20L35R	35		2.93		5.93	4.73			37.3	61	●	○
7.0	7.2	M772BCBR20L40R	40		3.44	0.5	6.94	5.74	22		41.4	66	●	○
		M772BCBR20L45R	45		3.44		6.94	5.74			46.4	71	●	○

- In stock ○ Available upon request
- All tools are available in LH upon request.
- Inserts marked with **C** are available with internal coolant.

Boring with Chip Former

Internal





* L2 Ref: Repeatability within +/-0.02

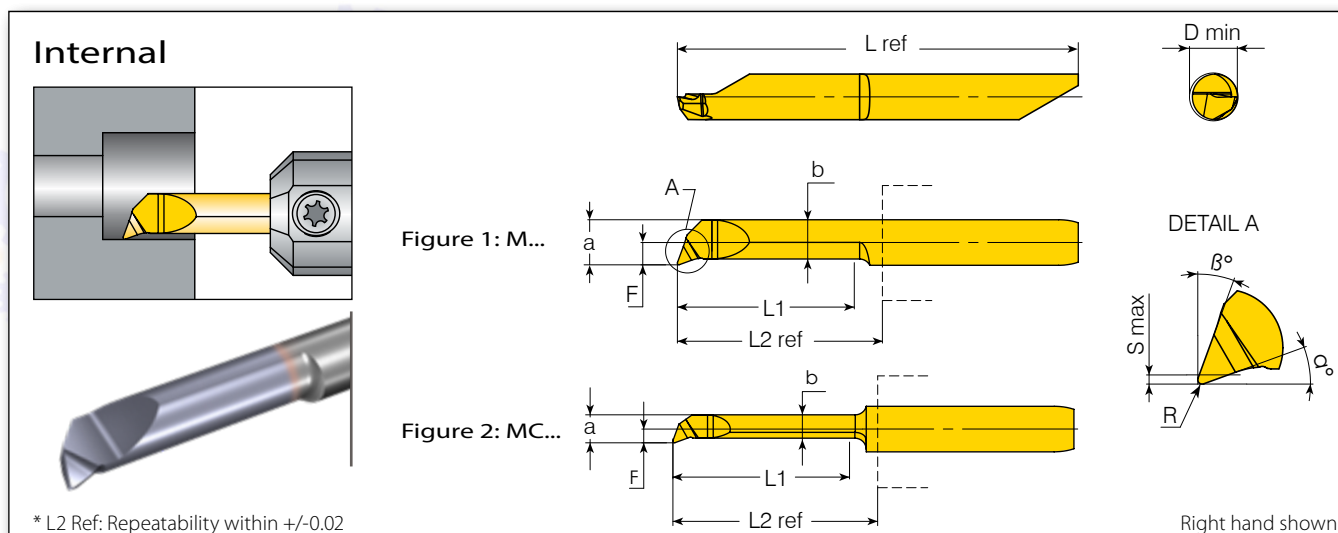
Right hand shown

Shank Dia.	Min. Bore Dia.	Ordering Code				Dimensions mm							Grades			
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX		
4.0	4.2	MS442BCFR15L10R	10.0	0.15	1.85		3.85	3.35	9.47	6	11.50	28.5	●	●		
		MS442BCFR15L10L	10.0	0.15							11.50	28.5	●	○		
		M442BCFR15L10R	10.0	0.15					7.5		11.50	28.5	○	●		
		M442BCFR20L10R	10.0	0.20							11.50	28.5	○	●		
		MS442BCFR15L15R	15.0	0.15					18.20		35.2	●	●			
		MS442BCFR15L15L	15.0	0.15					18.20		35.2	●	○			
		MS442BCFR15L20R	20.0	0.15					22.80		39.8	●	●			
		MS442BCFR15L20L	20.0	0.15					22.80		39.8	●	○			
5.0	5.2	M552BCFR20L10R	10.0	2.35	0.05	4.85	4.25	9.47	6	12.15	35.0	●	●			
		M552BCFR20L15R	15.0							18.15	41.0	●	●			
		M552BCFR20L20R	20.0							23.15	46.0	●	●			
		M552BCFR20L20L	20.0							23.15	46.0	●	○			
		M552BCFR20L25R	25.0							28.15	51.0	●	●			
		M552BCFR20L30R	30.0							32.15	55.0	●	●			
6.0	6.2	M662BCFR20L15R	15.0	0.2	2.85	5.85	5.1	9.47	6	18.30	42.0	●	●			
		M662BCFR20L20R	20.0							23.30	47.0	●	●			
		M662BCFR20L20L	20.0							23.30	47.0	●	○			
		M662BCFR20L25R	25.0							28.30	52.0	●	●			
		M662BCFR20L30R	30.0							32.30	56.0	●	●			
		M662BCFR20L30L	30.0							32.30	56.0	●	○			
		M662BCFR20L35R	35.0							37.30	61.0	●	●			
7.0	7.2	M772BCFR20L15R	15.0	3.4		6.9	6.1	9.47	6	16.40	41.0	●	●			
		M772BCFR20L20R	20.0							26.40	51.0	●	○			
		M772BCFR20L25R	25.0							26.40	51.0	●	○			
		M772BCFR20L30R	30.0							36.40	61.0	●	○			
		M772BCFR20L35R/L	35.0							36.40	61.0	●	○			
		M772BCFR20L40R	40.0							41.40	66.0	●	○			

- In stock ○ Available upon request
- All tools are available in LH upon request.
- Inserts marked with C are available with internal coolant.



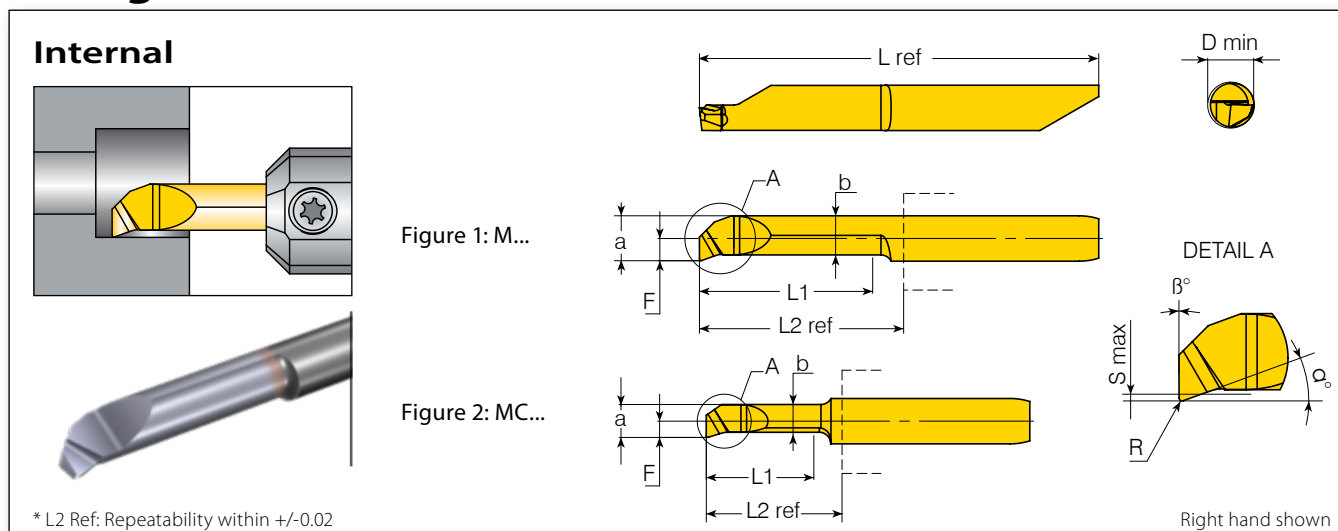
Boring 20°



Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm										Grades	
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX
4.0	2.2	MC422B20R10L09R	9.0	0.1	0.95		1.95	1.55	20	20	11.5	28.5	•	◦
		MC427B20R15L10R	10.0										•	•
	2.7	MC427B20R15L16R	16.0		1.2	0.2	2.45	2.05			18.2	35.2	•	◦
		MC427B20R15L16L	16.0										◦	•
	3.2	MC432B20R15L10R	10.0	0.15	1.45		2.95	2.55			11.5	28.5	•	•
		MC432B20R15L16R/L	16.0								18.2	35.2	•	•
	4.2	M442B20R15L16R	16.0		1.95	0.3	3.95	3.45					•	•
		M442B20R15L21R/L	21.0								22.8	39.8	•	•

• In stock ◦ Available upon request
 All tools are available in LH upon request.

Boring 90°

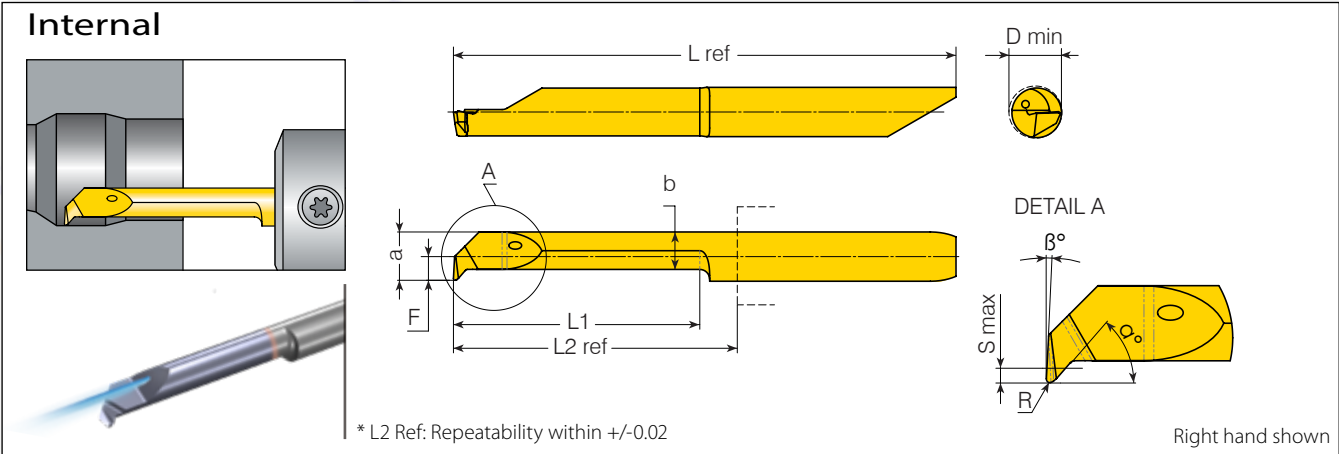


Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm										Grades	
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX
4.0	3.2	MC432B90R15L10R	10.0		1.43	0.2	2.90	2.45	18		11.5	25.8	•	◦
		MC432B90R15L10L	10.0	0.15	1.43	0.2	2.90	2.45	18		11.5	25.8	•	•
	4.2	M442B90R15L16R/L	16.0		1.95	0.3	3.95	3.45			18.2	35.2	•	◦
		M552B90R20L10R/L	10.0						20	0	12.15	35	•	◦
5.0	5.2	M552B90R20L16R/L	16.0	0.2	2.44	0.5	4.94	4.2			18.15	41	•	◦
		M552B90R20L21R/L	21.0								23.15	46	•	

• In stock ◦ Available upon request

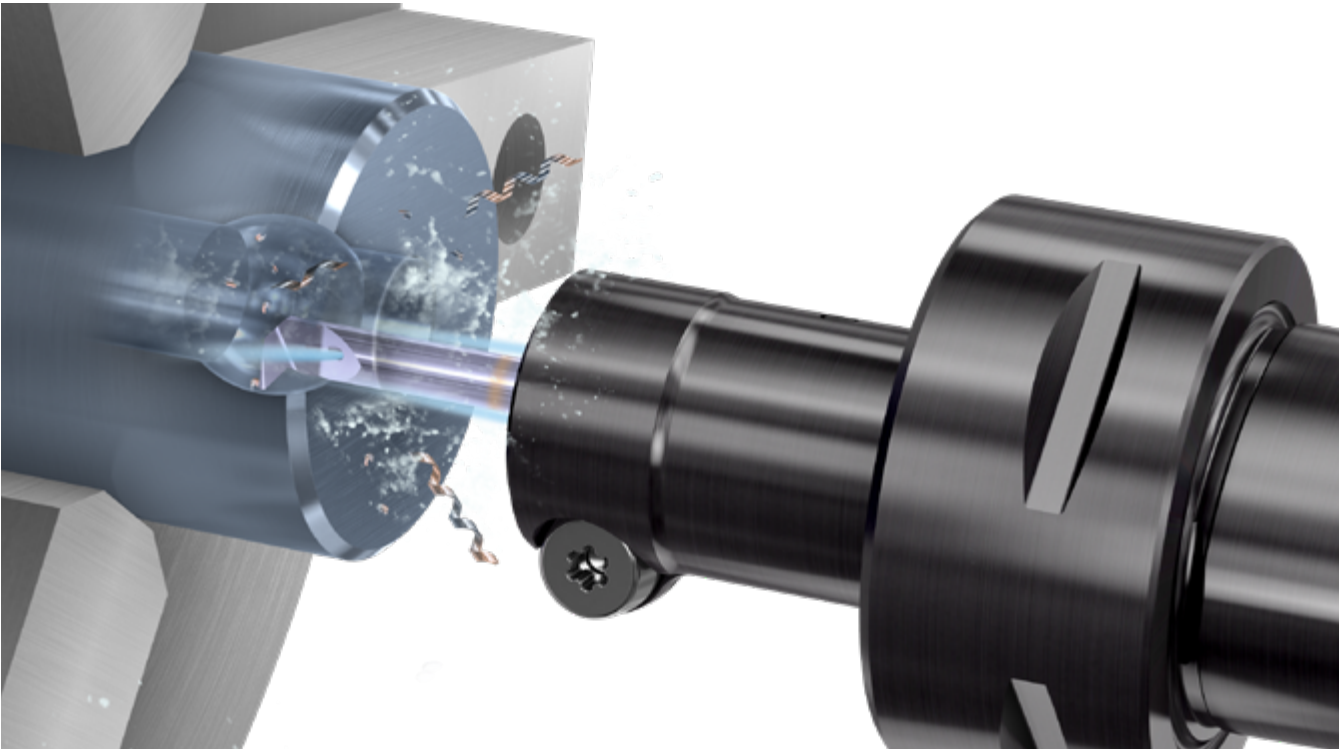
NEW

Boring & Profiling with Chip Breaker (CBLF)

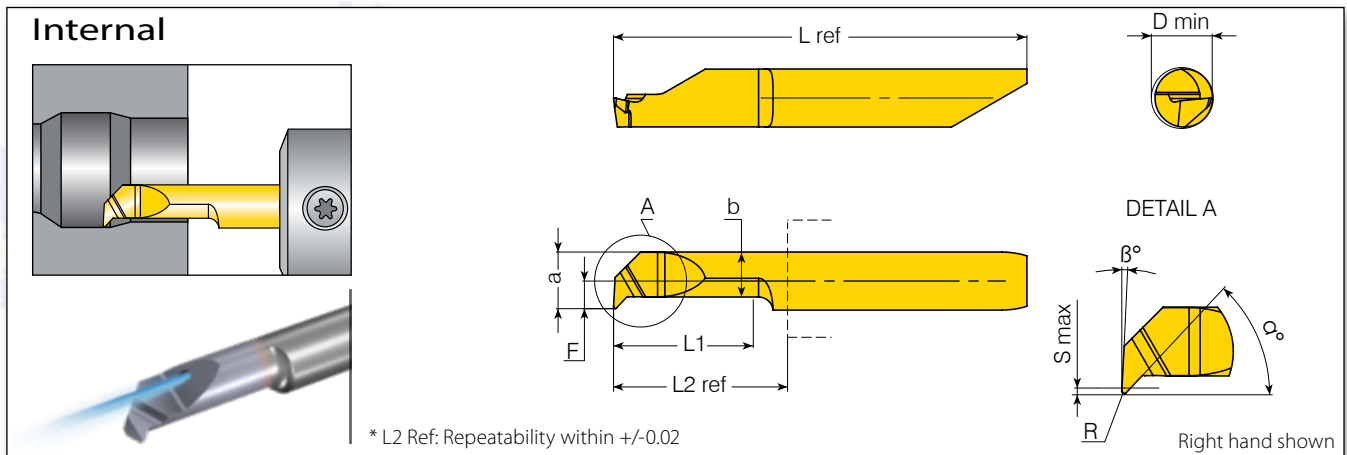


Shank Dia.	Min. Bore Dia.	Ordering Code				Dimensions mm						Grades			
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX	
4.0	4.2	M442CBLFR15 L10R/LC	10	0.15	1.9	0.7	3.9	3.1	47	3	11.5	28.5	○	●	
		M442CBLFR15L16R/LC	16								18.2	35.2	○	●	
		M442CBLFR15L21R/LC	21								22.8	39.8	○	●	
5.0	5.2	M552CBLFR20L16R/LC	16	0.2	2.4	0.95	4.9	3.8	49		18.15	41	○	●	
		M552CBLFR20L25R/LC	25								28.15	51	○	●	
6.0	6.2	M662CBLFR20L16R/LC	16	0.2	2.78	1.75	5.8	3.9	49		18.3	42	○	●	
		M662CBLFR20L21R/LC	21								23.3	47	○	●	
		M662CBLFR20L30R/LC	30								32.3	56	○	●	

● In stock ○ Available upon request
Inserts marked with C are available with internal coolant.



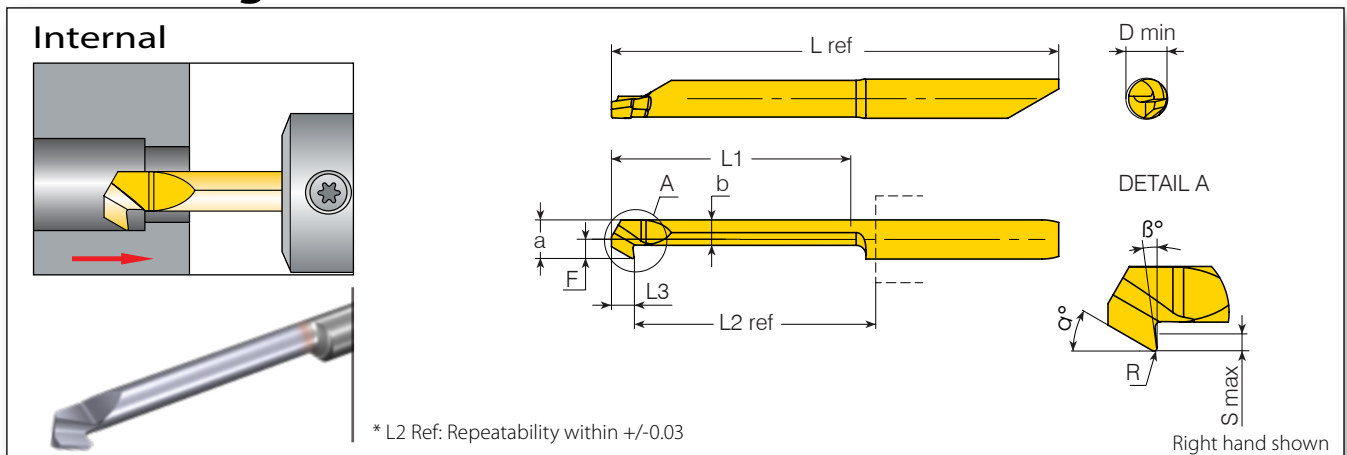
Boring & Profiling (CL)



Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm										Grades	
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L ref	VBX	VTX
4.0	4.2	MS442CLR10L10R	10	0.10							11.5	28.5	•	○
		MS442CLR15L10R	10								11.5	28.5	•	•
		MS442CLR15L10L	10								11.5	28.5	•	○
		M442CLR15L10R	10								11.5	28.5	○	•
		MS442CLR15L16R/L	16	0.15	1.9	0.7	3.9	3.1	47		18.2	35.2	•	○
		M442CLR15L21R	21								18.2	35.2	○	•
		MS442CLR15L21R	21								22.8	39.8	•	•
		MS442CLR15L21L	21								22.8	39.8	•	○
5.0	5.2	M552CLR07L07R	7	0.07	2.4	0.95	4.9	3.75	49		18.2	35.2	○	•
		M552CLR20L16R	16							3	18.15	41	•	•
		M552CLR20L16L	16								18.15	41	•	○
		M552CLR20L25R	25	0.2	2.4	0.95	4.9	3.8			28.15	51	•	•
		M552CLR20L25RL	25								28.15	51	•	○
		M552CLR20L25R	25								28.15	51	○	•
6.0	6.2	M662CLR10L16R	16	0.1	2.78	1.75	5.78	3.9			18.3	42	○	•
		M662CLR20L16R	16								18.3	42	•	•
		M662CLR20L16L	16								18.3	42	•	○
		M662CLR20L21R/L	21	0.2	2.78	1.75	5.78	3.9			23.3	47	•	○
		M662CLR20L30R/L	30								32.3	56	•	○

• In stock ○ Available upon request
 Inserts marked with **C** are available with internal coolant.

Back Boring

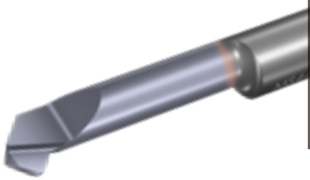
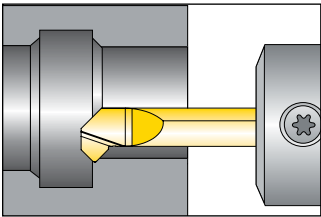


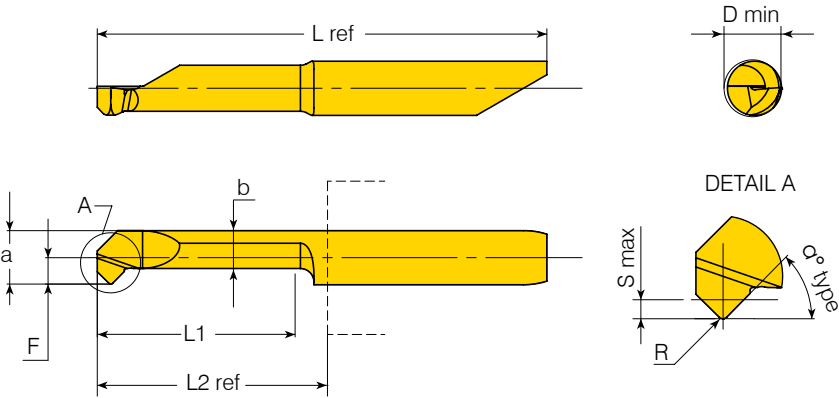
Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm										Grades		
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	β°	L2 ref*	L3	L ref	VBX	VTX
4.0	4.2	M442BBR15L25R/L	25.0	0.15	1.95	0.8	3.95	2.6	30	6	26.4	2.30	45.7	●	○
5.0	5.2	M552BBR15L30R/L	30.0		2.45	1.0	4.95	3.8		29.85	23.0		55.0	●	○
6.0	6.2	M662BBR15L30R/L			2.95	1.8	5.95	4.0		7	29.8	24.5	56.0	●	○
7.0	7.2	M772BBR15L30R/L			3.45	2.5	6.95	4.3		34	24.5	61.0	●	○	

• In stock ○ Available upon request

Boring & Chamfering 45°

Internal





* L2 Ref: Repeatability within +/-0.02

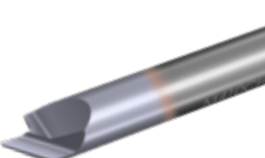
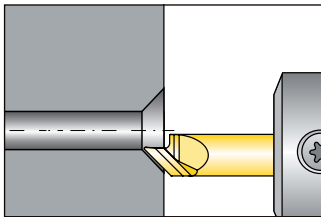
Right hand shown

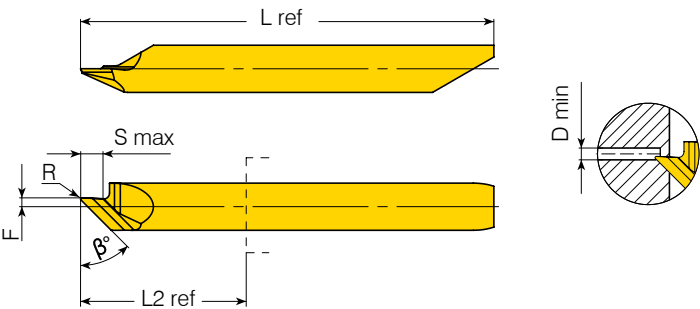
Shank Dia.	Min. Bore Dia.	Ordering Code				Dimensions mm					Grades			
d (mm)	D min. (mm)	RH/LH	L1	R	F	S max	a	b	α°	L2 ref*	L ref	VBX	VTX	
4.0	4.2	MS442CH4545L15R/L	15.0	0.2	1.95	0.7	3.95	2.8	45	18.4	35.4	●	○	
5.0	5.2	M552CH4545L15R/L	15.0		2.45		4.95	3.7		18.35	41.2	●	○	
		M552CH4545L20R/L	20.0							23.35	46.2	●	○	
6.0	6.2	M662CH4545L20R/L	20.0		2.95		5.95	4.0		23.5	47.2	●	○	
		M662CH4545L25R/L	25.0							28.5	52.2	●	○	
7.0	7.2	M772CH4545L20R/L	20.0		3.45		6.95	4.25		26.6	51.2	●	○	
		M772CH4545L40R/L	40.0							41.6	66.2	●	○	

● In stock ○ Available upon request

Face Chamfering 45°

Internal



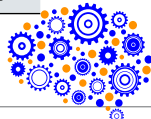


* L2 Ref: Repeatability within +/-0.02

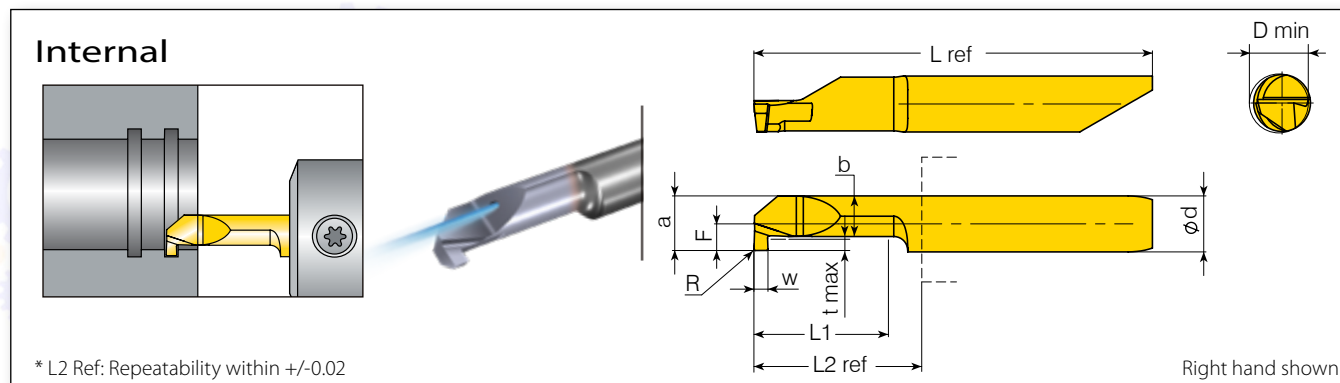
Right hand shown

Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm						Grades	
d (mm)	D min. (mm)	RH/LH	R	F	S max	β°	L2 ref*	L ref	VBX	VTX
4.0	1.0	M410CH45L15R	0.1	0.75	2.4	45	18.2	35.2	●	○
		M410CH45L15L							●	○

● In stock ○ Available upon request



Square Grooving



Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm										Grades	
d (mm)	D min. (mm)	RH/LH	W ± 0.025	t max	L1	F	R	a	b	L2 ref*	L ref	VBX	VTX	
4.0	3.0	MS430GSW070L16R	0.70	0.62	16	1.40	0.1	2.70	1.75	11.5	39.8	○	●	
	4.0	MS440GSW100L10R	1.00	1	10	1.90	0	3.90	2.5	18.2	35.2	○	●	
	4.2	MS442GSW079L10R/L	0.79	0.8	10	1.96	0.1	3.96	2.9	11.5	28.5	●	○	
		MS442GSW100L10R/L	1.00			1.90	0.1	3.90	2.9	11.5	28.5	●	○	
		M442GSW100L10R ^{C**}	1.00				3.90	0.1	3.90	2.9	11.5	28.5	○	●
		MS442GSW150L10R**	1.50					0.1	3.90	2.9	18.2	35.2	●	○
		MS442GSW079L15R/L	0.79		15	1.96	0.1	3.96	2.9	18.2	35.2	●	○	
		MS442GSW100L15R/L	1.00			1.90	0.1	3.90	2.9	18.2	35.2	●	○	
		M442GSW100L15R ^{C**}	1.00				0.1	3.90	2.9	18.2	35.2	○	●	
		MS442GSW100L20R/L	1.00		20	1.90	0.1	3.90	2.9	22.8	39.8	●	○	
		M442GSW100L20R ^{C**}	1.00				0.1	3.90	2.9	22.8	39.8	○	●	
		MS442GSW079L25R/L	0.79		25	1.96	0.1	3.96	2.9	28.7	45.7	●	○	
5.0	5.2	M552GSW070L06L	0.70	1	6	2.40	0.1	4.90	3.7	12.15	32	○	●	
		M552GSW100L10R/L	1.00	1	10	2.40	0.1	4.90	3.7	12.15	35	●	○	
		M552GSW100L10R ^{C**}	1.00	1	10	2.40	0.1	4.90	3.7	12.15	35	○	●	
		M552GSW179L10R	1.79	1.35	10	2.40	0.1	4.90	3.7	12.15	35	○	●	
		M552GSW150L10R**	1.50	1	10	2.40	0.1	4.90	3.7	12.15	35	●	○	
		M552GSW200L10R**	2.00	1	10	2.40	0.1	4.90	3.7	12.15	35	●	○	
		M552GSW100L15R/L	1.00	1	15	2.40	0.1	4.90	3.7	18.15	41	●	○	
		M552GSW100L15R ^{C**}	1.00	1	15	2.40	0.1	4.90	3.7	18.15	41	○	●	
		M552GSW150L15R/L	1.50	1	15	2.40	0.1	4.90	3.7	18.15	41	●	○	
		M552GSW150L15R ^{C**}	1.50	1	15	2.40	0.1	4.90	3.7	18.15	41	○	●	
		M552GSW200L15R**	2.00	1	15	2.40	0.1	4.90	3.7	18.15	41	●	○	
		M552GSW100L20R/L	1.00	1	20	2.40	0.1	4.90	3.7	23.15	46	●	○	
		M552GSW150L20R/L	1.50	1	20	2.40	0.1	4.90	3.7	23.15	46	●	○	
		M552GSW150L20R ^{C**}	1.50	1	20	2.40	0.1	4.90	3.7	23.15	46	○	●	
		M552GSW200L20R**	2.00	1	20	2.40	0.1	4.90	3.7	23.15	46	●	○	
		M552GSW050L21R	0.50	1	21	2.40	0.1	4.90	3.7	23.15	46	○	●	
6.0	5.2	M652GSW160L10R	1.60	1.8	10	2.20	0.1	5.20	2.9	12.3	36	○	●	
	6.2	M662GSW150L06R	1.50	1.8	6	0.40	0.1	3.40	1.7	12.3	40	○	●	
		M662GSW080L09R	0.80	1.8	9	2.96	0.1	5.96	4	11.3	35	○	●	
		M662GSW079L10R**	0.79	1.8	10	2.90	0.1	5.90	4.0	12.3	36	●	○	
		M662GSW100L10R/L	1.00			2.90		5.90		12.3	36	●	○	
		M662GSW117L10R**	1.17			2.90		5.90		12.3	36	●	○	
		M662GSW150L10R	1.50			2.90		5.90		12.3	36	●	○	
		M662GSW150L10L	1.50			2.90		5.90	12.3	36	○	●		
		M662GSW157L10R**	1.57			2.90		5.94	12.3	36	●	○		
		M662GSW198L10R**	1.98			2.90		5.94	12.3	36	●	○		
		M662GSW200L10R/L	2.00			2.90		5.90	12.3	36	●	○		
		M662GSW079L15R**	0.79		15	2.90		5.94	4.0	18.3	42	●	○	
		M662GSW100L15R	1.00			2.90		5.90	18.3	42	●	●		
		M662GSW100L15L	1.00			2.90		5.90	18.3	42	●	○		

** LH Tools are available upon request.

● In stock ○ Available upon request

Inserts marked with C are available with internal coolant.

Square Grooving (con't)

Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm										Grades			
d (mm)	D min. (mm)	RH/LH	W±0.025	t max	L1	F	R	a	b	L2 ref*	L ref	VBX	VTX			
6.0	6.2	M662GSW117L15R**	1.17	1.8	15	2.96	0.1	5.96	4.0	18.3	42	●	○			
		M662GSW150L15R/L	1.50			2.90		5.90				●	○			
		M662GSW157L15R**	1.57			2.96		5.96				●	○			
		M662GSW198L15R**	1.98			2.96		5.96				●	○			
		M662GSW200L15R	2.00			2.96		5.96				●	●			
		M662GSW200L15L	2.00			2.96		5.96				●	○			
		M662GSW100L20R	1.00			20		2.90				5.90	23.3	47	●	●
		M662GSW100L20L	1.00					2.90				5.90			●	○
		M662GSW150L20R/L	1.50	1.8	20	2.90	5.90	4.0	23.3	47	●	○				
		M662GSW200L20R	2.00			4.0		●			●					
		M662GSW200L20L	2.00			4.0		●			○					
		M662GSW079L25R**	0.79		25	2.96	5.96	4.0	28.3	52	●	○				
		M662GSW100L25R	1.00			2.90	5.90	3.1		56	○	●				
		M662GSW117L25R**	1.17			2.96	5.96	4.0		52	●	○				
		M662GSW157L25R**	1.57			2.96	5.96	4.0		52	●	○				
		M662GSW198L25R**	1.98			2.96	5.96	4.0		52	●	○				
		M662GSW200L25R	2.00			2.90	5.90	3.2		56	○	●				
		M665GSW350L25R	3.50			2.96	5.96	4.0		52	○	●				
		M662GSW100L30R/L	1.00		30	2.90	5.90	4.0	32.3	56	●	○				
		M662GSW150L30R/L	1.50					4.0			●	○				
		M662GSW200L30R/L	2.00					4.0			●	○				
		M662GSW079L35R**	0.79		35	2.96	5.96	4.0	37.3	61	●	○				
		M662GSW117L35R**	1.17			2.96	5.96	4.0		61	●	○				
		M662GSW150L35R	1.50			2.95	5.90	3.95		59.85	○	●				
		M662GSW157L35R**	1.57			2.96	5.96	4.0		61	●	○				
		7.0	6.2		M762GSW250L15R	2.50	15	3.40	6.90	4.1	18.3	42	○	●		
7.2	M772GSW079L10R**		0.79	2.5	10	3.46	6.96	4.1	11.4	36	●	○				
	M772GSW100L10R/L		1.00			3.40					6.90	●	○			
	M772GSW150L10R/L		1.50			3.40					6.90	●	○			
	M772GSW200L10R/L		2.00			3.40					6.90	●	○			
	M772GSW600L10R		6.00		10	3.20	6.90		11.4	36	○	●				
	M772GSW079L15R**		0.79		15	3.46	6.96		16.4	41	●	○				
	M772GSW100L15R**		1.00			3.40	6.90				●	○				
	M772GSW117L15R**		1.17			3.46	6.96				●	○				
	M772GSW150L15R/L		1.50			3.40	6.90				●	○				
	M772GSW157L15R**		1.57			3.46	6.96				●	○				
	M772GSW198L15R**		1.98			3.46	6.96				●	○				
	M772GSW200L15R/L		2.00			3.40	6.90				●	○				
	M772GSW150L16R		1.50		16	3.4	6.90		17.4	42	○	●				
	M772GSW079L20R**		0.79			3.46	6.96				●	○				
	M772GSW117L20R**		1.17		20	3.46	6.96		26.4	51	●	○				
	M772GSW157L20R**		1.57			3.46				6.96	51	●	○			
	M772GSW198L20R**		1.98			3.46				6.96	51	●	○			
	M772GSW150L20R		1.50			3.40				6.90	46	○	●			
	M772GSW100L25R**		1.00		25	3.40	6.90		36.4	51	●	○				
	M772GSW150L25R/L		1.50							51	●	○				
	M772GSW200L25R/L		2.00							51	●	○				
	M772GSW100L35R**		1.00							51	●	○				
	M772GSW150L35R/L		1.50		35	3.40	6.90		36.4	61	●	○				
	M772GSW200L35R/L		2.00							61	●	○				

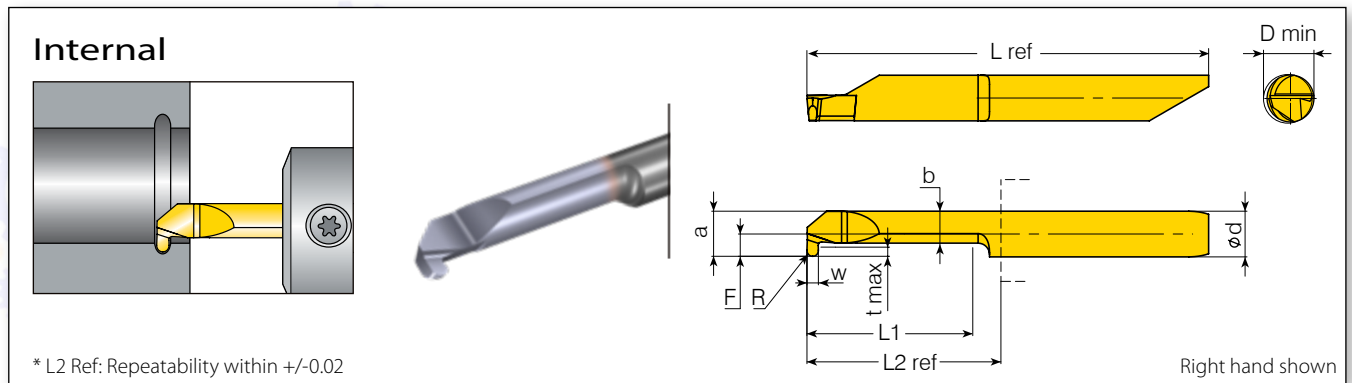
** LH Tools are available upon request.

● In stock ○ Available upon request

Inserts marked with C are available with internal coolant.



Round Grooving

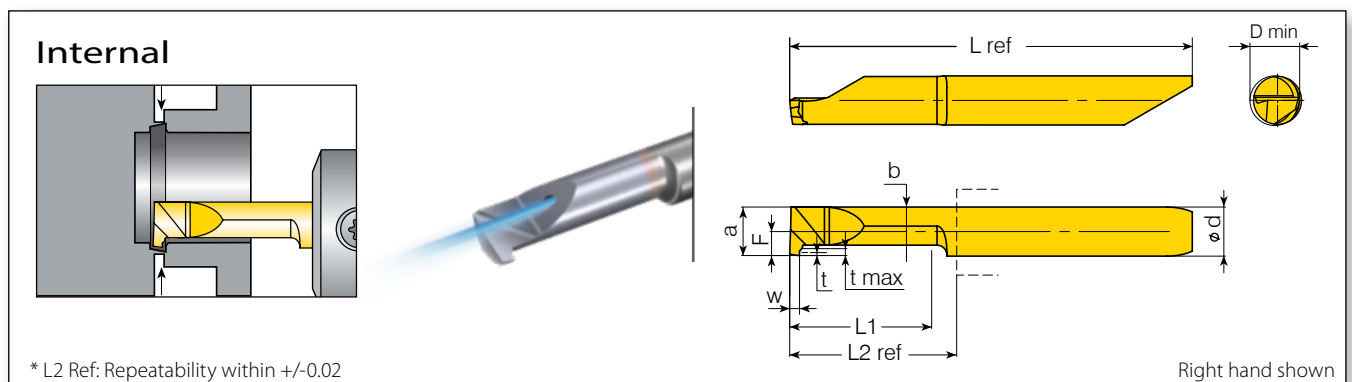


Shank Dia.	Min. Bore Dia.	Ordering Code				Dimensions mm						Grades	
d (mm)	D min. (mm)	RH/LH	W±0.025	t max	L1	F	R	a	b	L2 ref*	L ref	VBX	VTX
4.0	4.2	MS442GRR050L15R/L	1.0	0.8	15	1.95	0.5	3.95	2.8	18.2	35.2	●	○
5.0	5.2	M552GRR050L20R	1.0	1	20	2.45		4.95	3.7	23.15	46	●	●
		M552GRR050L20L	1.0									●	○
		M552GRR075L20R/L	1.5									●	○
		M552GRR100L20R/L	2.0									●	○
6.0	6.2	M662GRR100L05R	2.0	1.6	5	2.95	1	5.95	4	18.3	42	○	●
		M662GRR050L15R	0.5		15							○	●
		M662GRR050L25R/L	1.0	1.8	25	2.95	0.5	5.95	4	28.3	52	●	○
		M662GRR075L25R/L	1.5									●	○
		M662GRR100L25R/L	2.0									1	●
7.0	7.2	M772GRR050L30R	1	2.5	30	3.45	0.5	6.95	4.15	26.4	51	○	●
		M772GRR100L30R**	2.0	2.5	30	3.45	1	6.95	4.1	36.4	61	●	○

** LH Tools are available upon request.

● In stock ○ Available upon request

Pre-Part Off

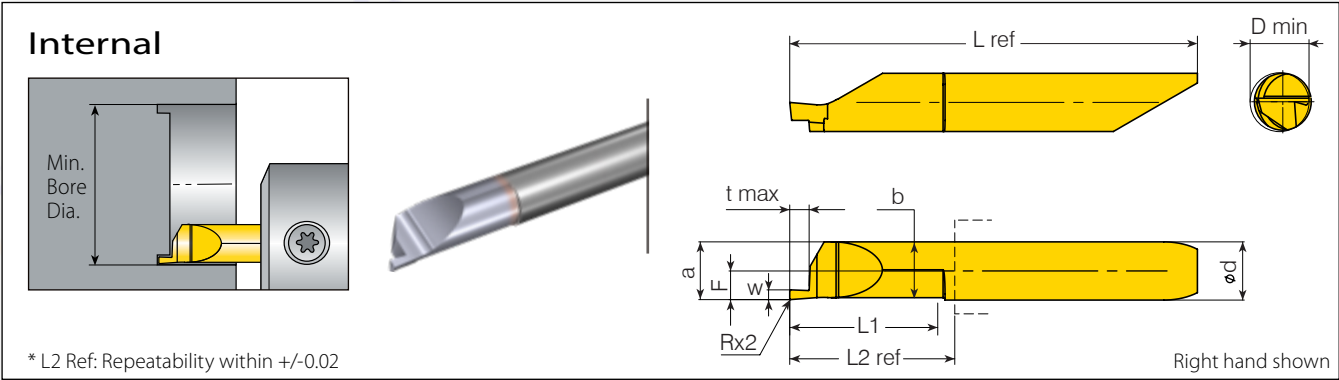


Shank Dia.	Min. Bore Dia.	Ordering Code	Dimensions mm								Grades			
d (mm)	D min. (mm)	RH/LH	W±0.025	t max	L1	F	t	a	b	L2 ref*	L ref	VBX	VTX	
5.0	5.2	M552PPW100L15R/L	1.0	0.7	15	2.44	0.3	4.94	3.88	18.15	41	●	○	
		M552PPW100L20R/L			20					23.15	46	●	○	
		M552PPW100L20R**			20					23.15	46	○	●	
		M552PPW100L25R/L			25					28.15	51	●	○	
		M552PPW100L30R**			30					32.15	55	●	○	

** LH Tools are available upon request.

● In stock ○ Available upon request

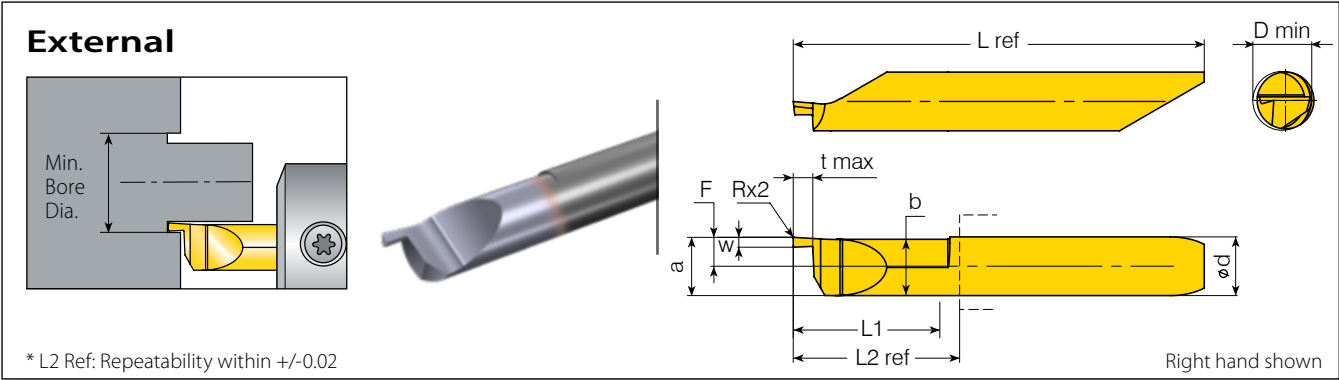
Face Grooving Internal



Shank Dia.	Min. Bore Dia.	Ordering Code			Dimensions mm							Grades	
d (mm)	D min. (mm)	RH/LH	W±0.025	t max	L1	F	R	a	b	L2 ref*	L ref	VBX	VTX
6.0	6.2	M662FGW10L15R/L	1.00	2.0	15	2.95	0.10	5.95	5.75	18.3	42.0	●	○
		M662FGW117L15R/L	1.17				0.15					●	○
		M662FGW15L15R/L	1.50	3.0			0.10					●	○
		M662FGW157L15R/L	1.57				0.15					●	○
		M662FGW198L15R/L	1.98	4.0			0.15					●	○
		M662FGW20L15R/L	2.00				0.10					●	○
		M662FGW239L15R/L	2.39	5.0			0.15					●	○
		M662FGW25L15R/L	2.50				0.10					●	○
		M662FGW30L15R/L	3.00	6.0			0.10					●	○
		M662FGW318L15R/L	3.18				0.15					●	○

• In stock ◦ Available upon request

Face Grooving External

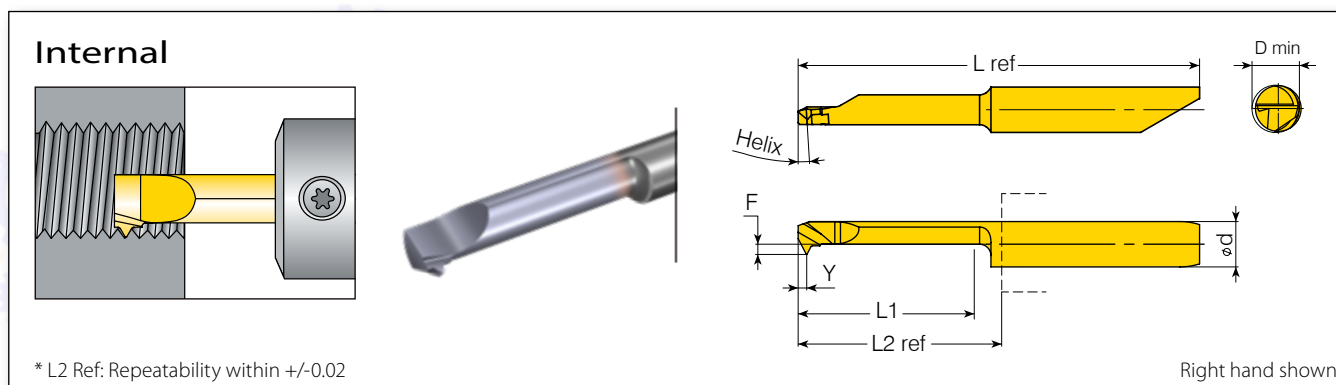


Shank Dia.	Min. Bore Dia.	Ordering Code				Dimensions mm						Grades	
d (mm)	D min. (mm)	RH/LH	W ± 0.025	t max	L1	F	R	a	b	L2 ref*	L ref	VBX	VTX
6.0	6.2	M662FPW10L15R/L	1.00	2.0	15	2.95	0.10	5.95	5.75	18.3	42	●	○
		M662FPW117L15R/L	1.17				0.15					●	○
		M662FPW15L15R/L	1.50	3.0			0.10					●	○
		M662FPW157L15R/L	1.57				0.15					●	○
		M662FPW198L15R/L	1.98	4.0			0.15					●	○
		M662FPW20L15R/L	2.00				0.10					●	○
		M662FPW239L15R/L	2.39	5.0			0.15					●	○
		M662FPW25L15R/L	2.50				0.10					●	○
		M662FPW30L15R/L	3.00	6.0			0.10					●	○
		M662FPW318L15R/L	3.18				0.15					●	○

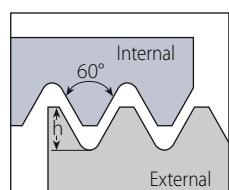
• In stock ◦ Available upon request



Threading



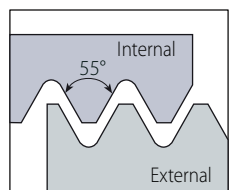
Partial Profile 60°



	Shank Dia.	Min. Bore Dia.	Ordering Code	Pitch	Dimensions mm										Grades	
Thread	d (mm)	D min. (mm)	RH/LH	mm	TPI	Helix °	L1	F	Y	h (min)	L2 ref*	L ref	VBX	VTX		
M1-M2x0.25	4.0	0.73	M407TH0.25P60L02R	0.25		4.9	2.5		0.14	0.29			○	●		
M1.6-M3x0.35		1.22	M412TH0.35P60L04R	0.35		3.8	4	1.95	0.18	0.29			○	●		
M2x0.4		1.57	M416TH0.40P60L05R	0.4		4.2	5		0.2	0.41	13.0	29.8	○	●		
M2.2-M2.5x0.45		1.71	M417TH0.45P60L06R	0.45		4.0	6		0.22	0.46			○	●		
-	4.0	3.2	MS429THF60L16R	0.5-1.0	48-24		16	0.9					●	○		
		3.2	MS429THF60L16L	0.5-1.0	48-24		16	0.9			18.4	35.4	○	●		
		4.2	MS439THF60L16R	0.5-1.0	48-24		16	1.9					●	○		
		4.2	MS439THF60L16L	0.5-1.0	48-24		16	1.9	0.9	-			○	●		
	6.0	6.2	M659THA60L06R	0.5-1.5	48-16		6	2.9			8.5	36.2	○	●		
		6.2	M659THA60L16R	0.5-1.5	48-16		16						●	●		
		6.2	M659THA60L16L	0.5-1.5	48-16		16	2.9			18.5	42.2	●	○		

● In stock ○ Available upon request

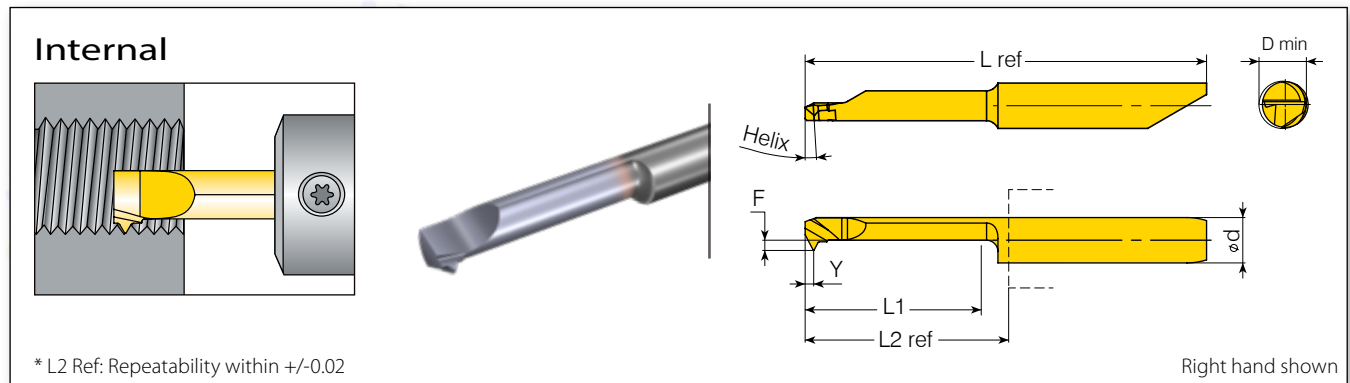
Partial Profile 55°



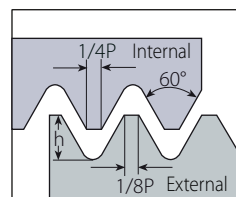
Shank Dia.	Min. Bore Dia.	Ordering Code	Pitch			Dimensions mm					Grades	
d (mm)	D min. (mm)	RH/LH	mm	TPI	Helix	L1	F	Y	L2 ref*	L ref	VBX	VTX
4.0	3.2	MS429THF55L16R/L	0.5-1.0	48-24	3.5	16	0.9	0.75	18.4	35.4	●	○
	4.2	MS439THF55L16R/L	0.5-1.0	48-24			1.9				●	○
6.0	6.2	M659THA55L16R/L	0.5-1.5	48-16			2.9	0.9	18.5	42.2	●	○

● In stock ○ Available upon request

Threading



ISO Metric

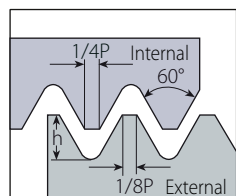


Defined by: R262 (DIN 13)
Tolerance Class: 6g/6H

	Shank Dia.	Min. Bore Dia.	Ordering Code	Pitch		Dimensions mm						Grades			
Thread	d (mm)	D min. (mm)	RH/LH	mm	Helix °	L1	F	Y	h (min)	L2 ref*	L ref	VBX	VTX		
M3-M5x0.5	4.0	2.46	M425TH0.50ISOL08R	0.50	3.0	7.6	1.95	0.40	0.58	13.0	29.8	○	●		
M4x0.7		3.24	M432TH0.70ISOL10R	0.70	3.6	10.2		0.60	0.29			○	●		
M4x0.5		3.4	MS429TH0.50ISOL16R/L	0.50	3.5	16	0.9	0.4	0.29	18.4	35.4	●	○		
M5x0.5		4.4	MS439TH0.50ISOL16R/L	0.50			1.9	0.4	0.29			●	○		
M4x0.7		3.2	MS429TH0.70ISOL16R/L	0.70			0.9	0.6	0.41			●	○		
M4.5-M6x0.75		3.1	M429TH0.75ISOL16R	0.75			1.9	0.6	0.44			○	●		
M5x0.8		4.0	MS429TH0.80ISOL16R/L	0.80			0.9	0.6	0.46			●	○		
M6x1.0		4.8	MS439TH1.00ISOL16R/L	1.00			1.9	0.7	0.58			●	○		
M5.5x0.5	5.0	4.9	M542TH0.50ISOL16R/L	0.50			1.7	0.4	0.29			18.35	41.2	●	○
M5.5x0.75		4.6	M542TH0.75ISOL16R/L	0.75			1.7	0.6	0.43					●	○
M7x1.0		5.8	M549TH1.00ISOL16R/L	1.00	2.4	0.7	0.58	●	○						
M6x0.5		5.4	M649TH0.50ISOL16R/L	0.50	1.9	0.4	0.29	●	○						
M6.5x0.75	6.0	5.6	M649TH0.75ISOL16R/L	0.75	1.9	0.6	0.43	18.5	42.2	●	○				
M7.5x1.0		6.3	M659TH1.00ISOL16R/L	1.00	2.9	0.7	0.58			●	○				
M8x1.25		6.5	M659TH1.25ISOL16R/L	1.25	2.9	0.9	0.72			●	○				
M10x1.5		8.3	M659TH1.50ISOL16R/L	1.50	3.0	2.9	1.0			0.87	●	○			

● In stock ○ Available upon request
All tools are available in LH upon request.

American UN

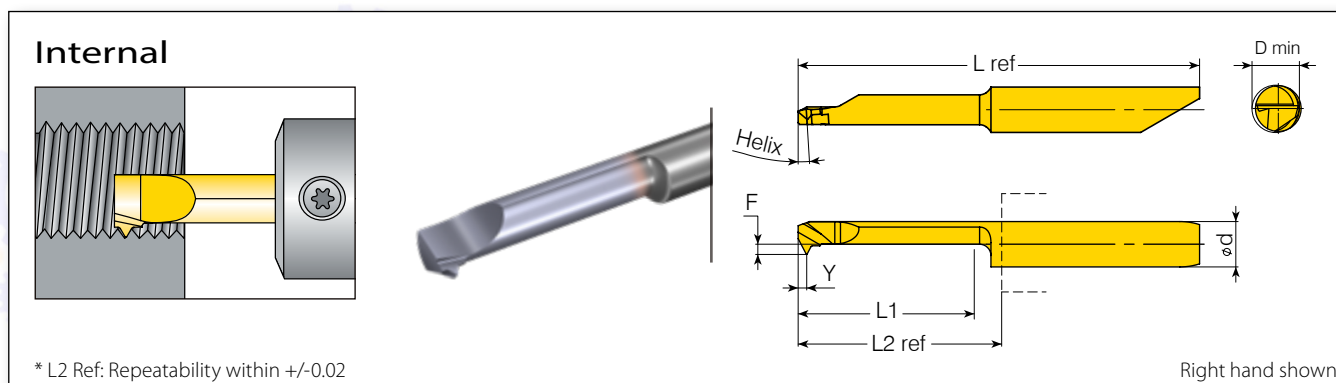


Defined by: ANSI B1.1:74
Tolerance Class: 2A/2B

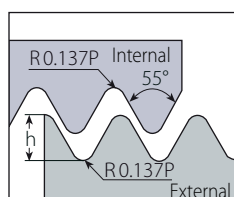
	Shank Dia.	Min. Bore Dia.	Ordering Code	Pitch	Dimensions mm							Grades	
Thread	d (mm)	D min. (mm)	RH/LH	TPI	Helix °	L1	F	Y	h (min)	L2 ref*	L ref	VBX	VTX
No.8-32UNC	4.0	3.3	MS429TH32UNL16R/L	32	3.5	16	0.92	0.6	0.46	18.4	35.4	●	○
No.10-28UNS		3.6	MS429TH28UNL16R/L	28			0.92	0.65	0.52			●	○
1/4"-27UNS	5.0	5.3	M549TH27UNL16R**	27			2.4	0.75	0.54	18.35	41.2	●	○
1/4"-24UNS		5.1	M542TH24UNL16R**	24			1.7	0.75	0.61			●	○
1/4"-20UNC	6.0	4.6	M542TH20UNL16R**	20			1.7	0.9	0.73	18.5	42.2	●	○
5/16"-18UNC		6.3	M659TH18UNL16R**	18			2.9	1.05	0.81			●	○
3/8"-16UNC		7.7	M659TH16UNL16R**	16			2.9	1	0.92			●	○

** LH Tools are available upon request.
● In stock ○ Available upon request

Threading



Whitworth for BSW, BSP



Defined by:

B.S.84:1956, DIN 259,
ISO228/1:1982

Tolerance Class:

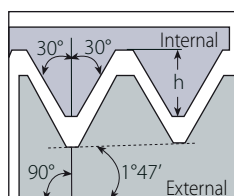
Medium Class A

	Shank Dia.	Min. Bore Dia.	Ordering Code	Pitch	Dimensions mm							Grades	
Thread	d (mm)	D min. (mm)	RH/LH	TPI	Helix °	L1	F	Y	h (min)	L2 ref*	L ref	VBX	VTX
1/16"-28BSP	6.0	6.5	M659TH28WL16R**	28	3.5	16	2.9	0.65	0.58	18.5	42.2	•	◦
1/4"-19BSP		11.4	M659TH19WL16R**	19				0.95	0.86			•	◦

** LH Tools are available upon request.

• In stock ◦ Available upon request

NPT



Defined by:

USAS B2.1:1968

Tolerance Class:

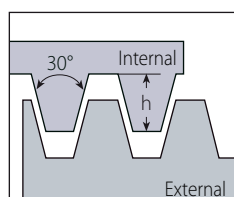
Standard NPT

	Shank Dia.	Min. Bore Dia.	Ordering Code	Pitch	Dimensions mm							Grades	
Thread	d (mm)	D min. (mm)	RH/LH	TPI	Helix °	L1	F	Y	h (min)	L2 ref*	L ref	VBX	VTX
1/16"-27NPT	6.0	6.1	M659TH27NPTL16R**	27	3.5	16	2.9	0.75	0.66	18.5	42.2	•	◦
1/4"-18NPT		10.7	M659TH18NPTL16R/L	18				1	1.01			•	◦
1/2"-14NPT		17	M659TH14NPTL16R**	14				1.05	1.33			•	◦

** LH Tools are available upon request.

• In stock ◦ Available upon request

Trapez



Defined by: DIN 103

Tolerance class: 7e/7H

	Shank Dia.	Min. Bore Dia.	Ordering Code	Pitch	Dimensions mm							Grades	
Thread	d (mm)	D min. (mm)	RH/LH	mm	Helix °	L1	F	Y	h (min)	L2 ref*	L ref	VBX	VTX
TR8-TR10x1.5	6.0	6.2	M662TH1.5TRL20R	1.5	3.3	20.3	2.95	1.1	0.9	23	46.7	◦	•
TR9-TR12x2.0		6.2	M662TH2.0TRL20R	2.0	4		2.95	1.3	1.25			◦	•
TR10-TR14x2.0	7.0	7.2	M772TH2.0TRL20R	2.0	3.4	20.3	3.45	1.5	1.75	23	46.7	◦	•
TR11-TR16x3.0		7.2	M772TH3.0TRL20R	3.0	4.75		3.45	1.5	1.75			◦	•

• In stock ◦ Available upon request

All tools are available in LH upon request.

microscope Toolholders

V-Cap Holders	121
Shrink Toolholders	122
Round Tools without Shoulder	123
Round Double Sided Tools	123
Holder with Round Shank - 4 Flats	124
Holder with Round Shank - 2 Flats	125
Holder with Square Shank	126
Holder with Drop Head	127

microscope Toolholders Ordering Code

Holders

MH	C	R	22	-	4	-	5	-	4F
1	2	3	4		5		6		7

V-CAP Holders

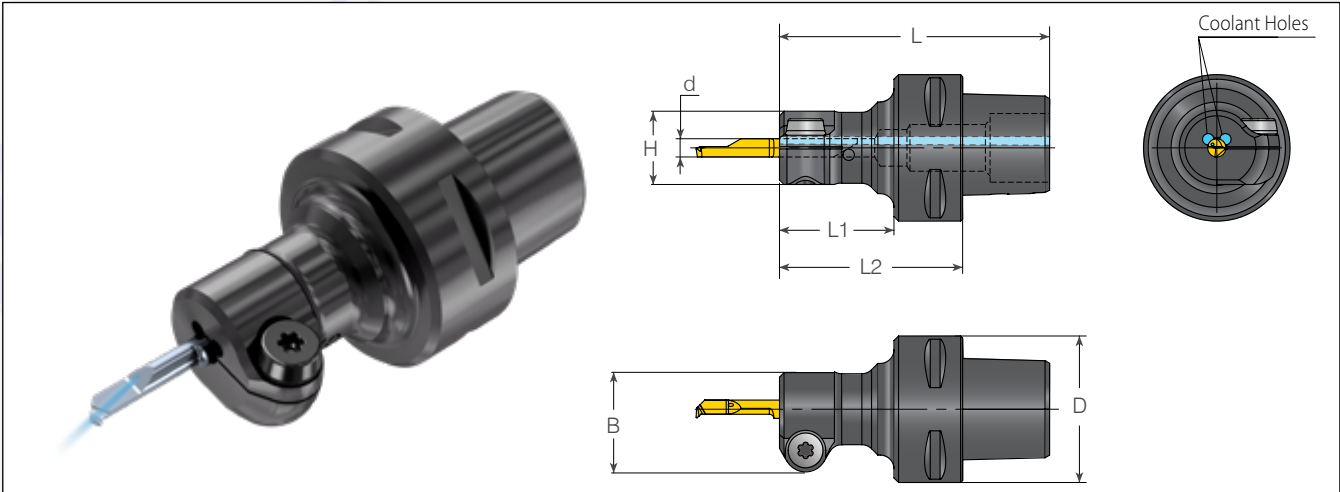
MH	C	S	-	4	-	C3
1	2	3		5		8

1 - Product Line	2 - Coolant	3 - Round Tools	4 - Shank Size (mm)
MH - Microscope Round Holder MHS - Microscope Holder with Square Shank MHD - Microscope with Drop Head	C or D - Coolant Thru	R - Round Bore S - Shrink by Screw	10 - 28
5 - Bore Size (mm)	6 - Bore Size (mm) for Double Bore	7 - 4 Flats	8 - Polygon Size (V-CAP)
4, 5, 6, 7	4, 5, 6, 7	4F - Four Flats None - Two Flats	C3, C4



V-CAP Holders

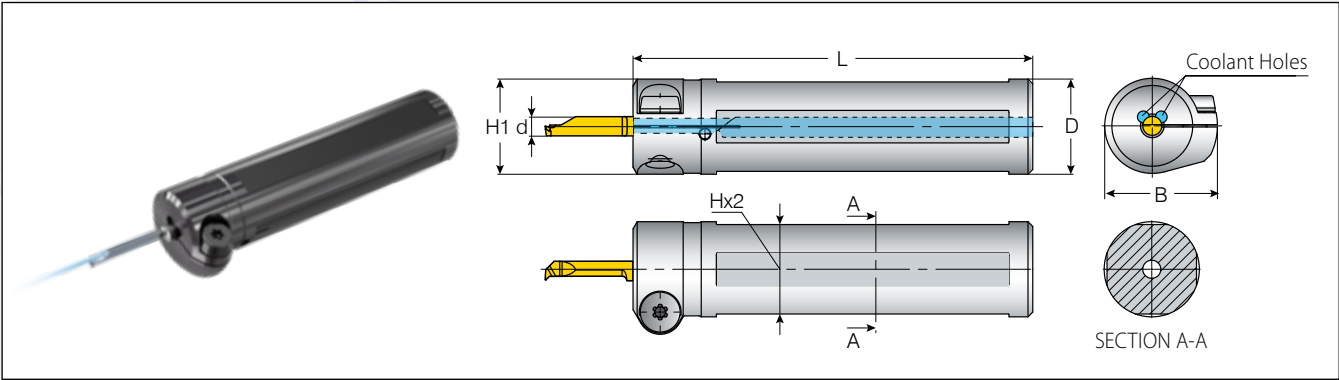
NEW



								Spare Parts	
Micro Insert Dia.	Ordering Code	Dimensions mm							
d (mm)		D	B	H	L1	L2	L	Shrink Screw*	Key
4.0	MHCS-4-C3	32.0	21.7	16.0	25.0	40.0	59.0	SM5X10-15IPX2**	L15IP / LX15IP
	MHCS-4-C4	40.0	21.7	16.0	25.0	45.0	69.0		
5.0	MHCS-5-C3	32.0	23.7	20.0	30.0	45.0	64.0		
	MHCS-5-C4	40.0	23.7	20.0	30.0	50.0	74.0		
6.0	MHCS-6-C3	32.0	23.7	20.0	30.0	45.0	64.0		
	MHCS-6-C4	40.0	23.7	20.0	30.0	50.0	74.0		
7.0	MHCS-7-C3	32.0	23.7	20.0	30.0	45.0	64.0		
	MHCS-7-C4	40.0	23.7	20.0	30.0	50.0	74.0		

- I** V-CAP holders are according to ISO 26623.
- * Tightening Torque: 7 Nm max.
- ** SM5X10-15IPX2 is a special, double-sided screw. For an alternative screw, please use MS5X10 (key: S4).

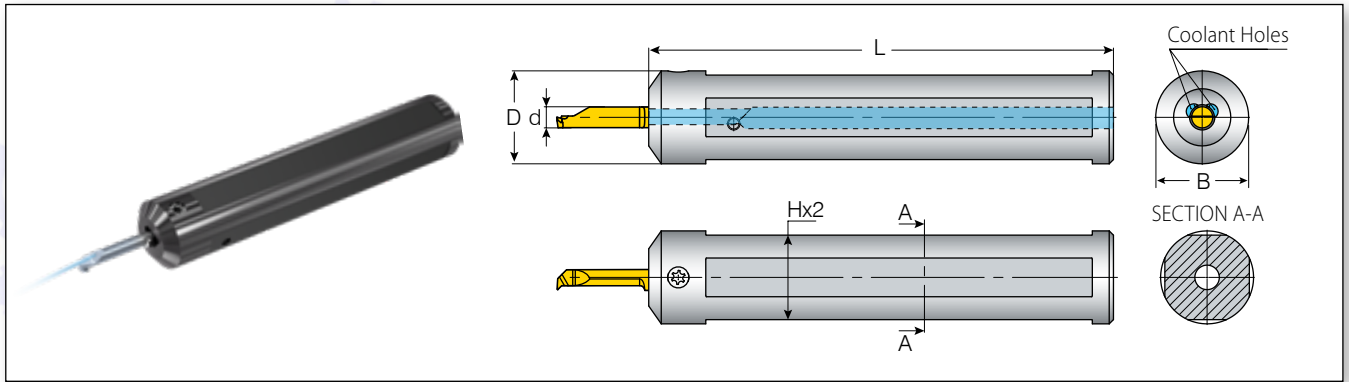
Shrink Toolholders



							Spare Parts	
Micro Insert Dia.	Ordering Code	Dimensions mm						
d (mm)		D	B	H1	H	L	Shrink Screw*	Key
4.0	MHCS10-4-4F	10.0	19.7	13.3	8.8	65.0	SM5X10-15IPX2**	L15IP / LX15IP
	MHCS12-4-4F	12.0	19.7	13.8	10.8	70.0		
	MHCS16-4-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-4-4F	20.0	23.7	20.0	18.8	84.0		
	MHCS22-4-4F	22.0	24.7	22.0	20.0	110.0		
5.0	MHCS16-5-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-5-4F	20.0	23.7	20.0	18.8	84.0		
6.0	MHCS12-6-4F	12.0	19.7	13.8	10.8	70.0		
	MHCS16-6-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-6-4F	20.0	23.7	20.0	18.8	84.0		
	MHCS22-6-4F	22.0	24.7	22.0	20.0	110.0		
7.0	MHCS16-7-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-7-4F	20.0	23.7	20.0	18.8	84.0		

* Tightening Torque: 7 Nm max.
** SM5X10-15IPX2 is a special, double-sided screw. For an alternative screw, please use M5X10 (key: S4).

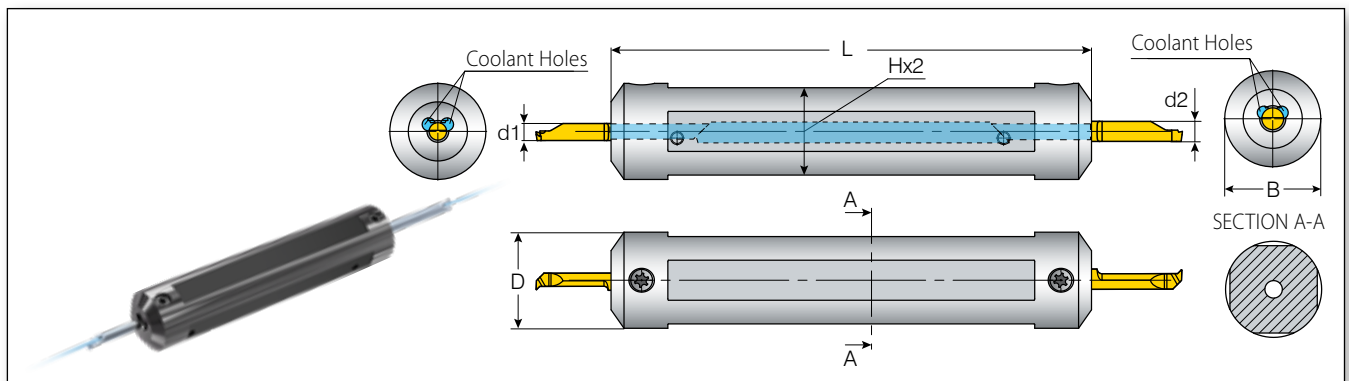
Round Tools without Shoulder



Micro Insert Dia.	Ordering Code	Dimensions mm			Spare Parts	
d (mm)		B=D	H	L	Clamping Screw*	Key
4.0	MHCR20-4-4F	20	18.8	83.5	SLDBT15IP	F15IP
	MHCR22-4-4F	22	20.0	110.0		
5.0	MHCR20-5-4F	20	18.8	83.5		
	MHCR22-5-4F	22	20.0	110.0		
6.0	MHCR20-6-4F	20	18.8	83.5		
	MHCR22-6-4F	22	20.0	110.0		
7.0	MHCR25-7-4F	25	20.0	110.0		

* Tightening Torque: 7 Nm max.

Round Double Sided Toolholders

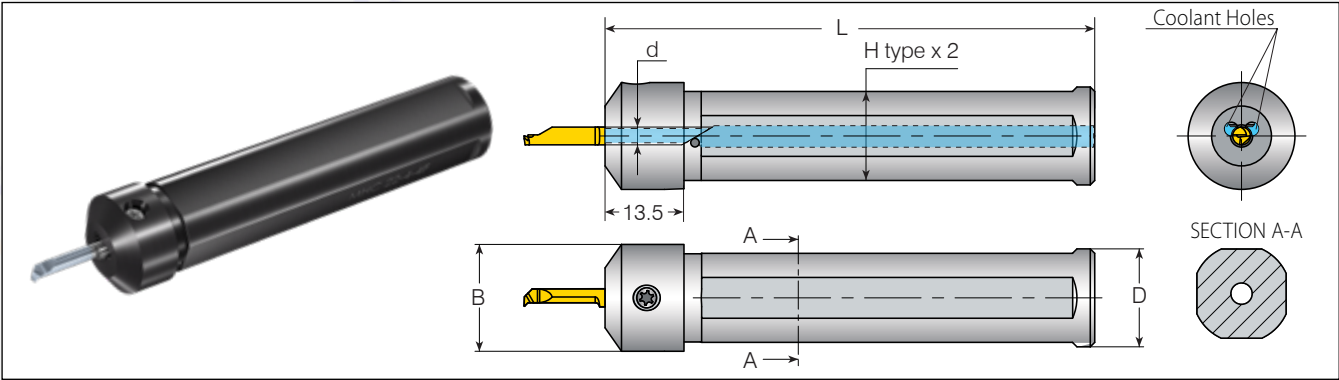


Micro Insert Dia.	Ordering Code	Dimensions mm			Spare Parts	
d1 - d2 (mm)		B=D	H	L	Clamping Screw*	Key
4.0 - 5.0	MHCR075-4-5-4F**	19.05	17.8	83.5	SLDBT15IP	F15IP
	MHCR20-4-5-4F**	20	18.8	83.5		
	MHCR22-4-5-4F	22	20.0	110.0		
	MHCR25-4-5-4F	25	23.0	110.0		
6.0 - 7.0	MHCR20-6-7-4F**	20	18.8	83.5		
	MHCR25-6-7-4F	25	23.0	110.0		

* Tightening Torque: 7 Nm max.

** Front screw must be removed in order to mount the toolholder on the machine. Once mounted, set the screw back in place and secure the insert.

Holder with Round Shank - 4 Flats

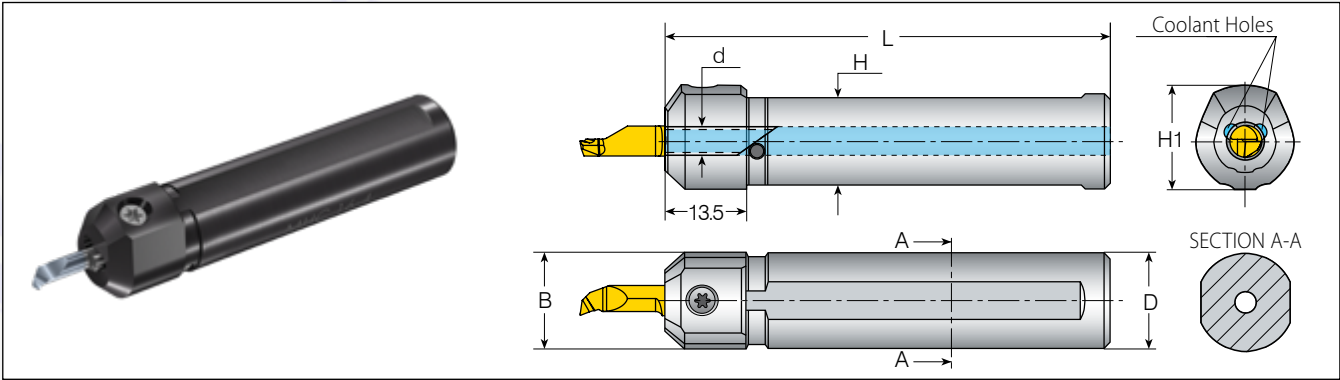


						Spare Parts	
Micro Insert Dia.	Ordering Code	Dimensions mm					
d (mm)		D	B	H	L	Clamping Screw*	Key
4.0	MHC20-4-4F	20.0	22.0	18.8	83.5	SL7DT15 or SL7DBT15IP**	KT15 or F15IP**
	MHC22-4-4F	22.0	24.0	20.0	110		
	MHC23-4-4F	23.0	25.0	21.0			
	MHC25-4-4F	25.0	27.0	23.0			
	MHC28-4-4F	28.0	30.0	26.0			
5.0	MHC20-5-4F	20.0	22.0	18.8	83.5		
	MHC22-5-4F	22.0	24.0	20.0	110		
	MHC23-5-4F	23.0	25.0	21.0			
	MHC25-5-4F	25.0	27.0	23.0			
	MHC28-5-4F	28.0	30.0	26.0			
6.0	MHC20-6-4F	20.0	22.0	18.8	83.5		
	MHC22-6-4F	22.0	24.0	20.0	110		
	MHC23-6-4F	23.0	25.0	21.0			
	MHC25-6-4F	25.0	27.0	23.0			
	MHC28-6-4F	28.0	30.0	26.0			
7.0	MHC22-7-4F	22.0	24.0	20.0	110		
	MHC23-7-4F	23.0	25.0	21.0			
	MHC25-7-4F	25.0	27.0	23.0			
	MHC28-7-4F	28.0	30.0	26.0			

* Tightening Torque: 8 Nm max.
** Torx+ screw and key are now available for improved clamping.

Holder with Round Shank - 2 Flats

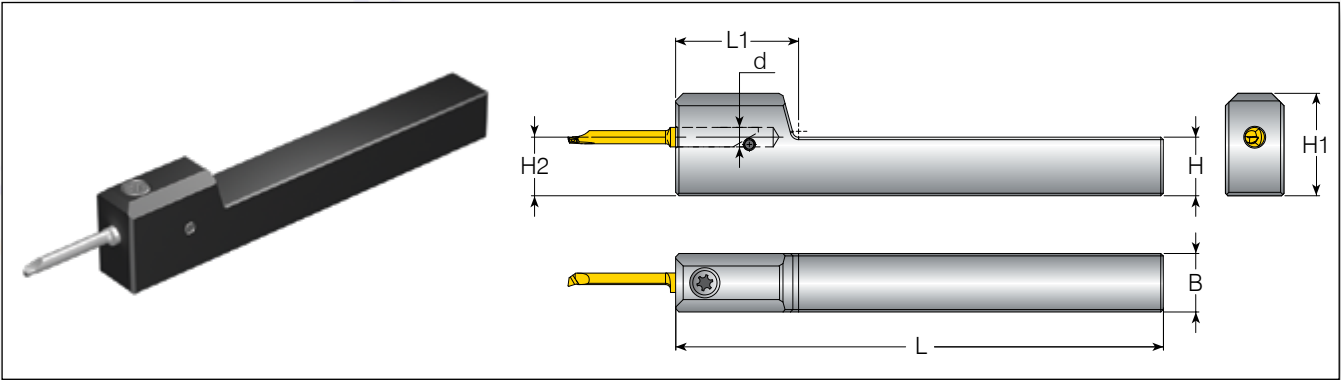
microscope



Micro Insert Dia. Ordering Code Dimensions mm						Spare Parts	
d (mm)		D=B	H1	H	L	 Clamping Screw*	 Key
4.0	MHC 10-4	10.0	14.0	8.8	65.0	SL7DT15 or SL7DBT15IP**	KT15 or F15IP**
	MHC 12-4	12.0	16.0	10.8	70.0		
	MHC 16-4	16.0	17.6	14.8	75.0		
	MHC 20-4	20.0	22.0	18.8	84.0		
5.0	MHC 10-5	10.0	14.0	8.8	65.0		
	MHC 12-5	12.0	16.0	10.8	70.0		
	MHC 16-5	16.0	18.6	14.8	75.0		
	MHC 20-5	20.0	22.0	18.8	84.0		
6.0	MHC 12-6	12.0	16.0	10.8	70.0		
	MHC 16-6	16.0	18.6	14.8	75.0		
	MHC 20-6	20.0	22.0	18.8	84.0		
7.0	MHC 16-7	16.0	18.6	14.8	75.0		
	MHC 20-7	20.0	22.0	18.8	84.0		

* Tightening Torque: 8 Nm max.
** Torx+ screw and key are now available for improved clamping.

Holder with Square Shank

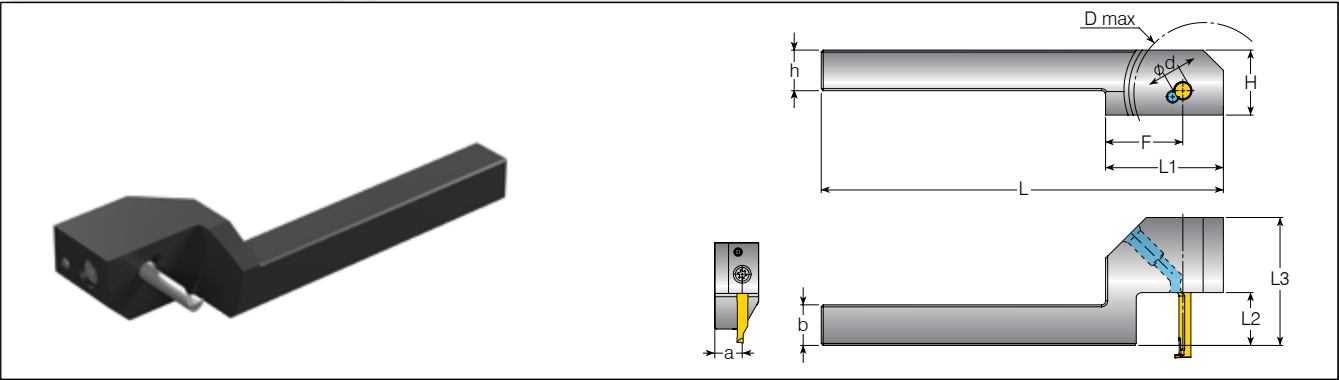


						Spare Parts	
Micro Insert Dia.	Ordering Code	Dimensions mm					
d (mm)		H=H2=B	H1	L	L1	Clamping Screw*	Key
4.0	MHS 1010-4	10.0	19.0	100.0	25.0	SL7DT15 or SL7DBT15IP**	KT15 or F15IP**
5.0	MHS 1010-5	10.0	19.5	100.0	25.0		
4.0	MHS 1212-4	12.0	21.0	100.0	25.0		
5.0	MHS 1212-5	12.0	21.5	100.0	27.0		
6.0	MHS 1212-6	12.0	22.0	100.0	27.0		

* Tightening Torque: 8 Nm max.

** Torx+ screw and key are now available for improved clamping.

Holder with Drop Head



										Spare Parts					
Micro Insert Dia.	Ordering Code		Dimensions mm												
d (mm)		a=b=h	L3	H	L	L1	F	D max	L2	Clamping Screw*	Key				
4.0	MHD 1010-4 L0500	10.0	31.5	16.0	99.0	29.0	19.0	26.0	13.0	SL7DT15 or SL7DBT15IP**	KT15 or F15IP**				
5.0	MHD 1010-5 L0800		48.0						23.0						
6.0	MHD 1010-6 L1000		53.0						28.0						
4.0	MHD 1212-4 L0700	12.0	36.5	18.0					18.0						
5.0	MHD 1212-5 L0800		48.0						23.0						
6.0	MHD 1212-6 L1000		53.0						28.0						

* Tightening Torque: 8 Nm max.
** Torx+ screw and key are now available for improved clamping.