

FOCUS PRODUCTS

MINI CARBIDE BORING TOOLS

Features Overview

- ▲ from Ø 5.5 mm
- ▲ stable three-rib interface
- ▲ easy handling
- ▲ coolant supply to the cutting edge
- ▲ precise cutting edge position



Technical Information for Tiny Tools

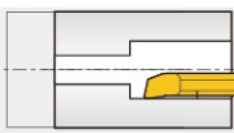
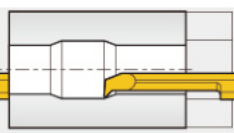
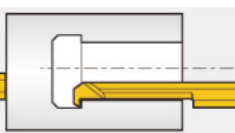
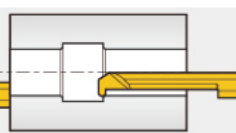
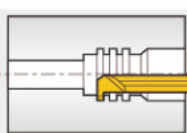
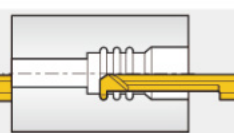
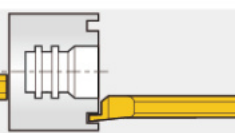
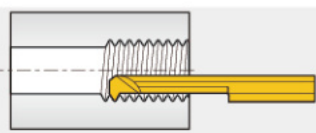
Turning tiny tool code system

1	2	3	4	5	6	7	8	9
Main code	Insert size	Type of operation	Hand of Insert	Max. Depth	Process Figure	Thread Profile	Cutting edge	Carbide Grades
1 Main Code TT 060 T R 15 150 ISO 2 TTIM45 TT = Tiny Tool	2 Insert Size TT 060 T R 15 150 ISO 2 TTIM45 010: 1.0mm 015: 1.5mm 020: 2.0mm 030: 3.0mm 040: 4.0mm 050: 5.0mm 060: 6.0mm 070: 7.0mm 080: 8.0mm 100: 10.0mm 0XX: Special size	3 Type of operation TT 060 T R 15 150 ISO 2 TTIM45 B= Boring BP= Profiling & Boring BB= Back Boring BF= Chamfering BU= FaceCutting BC= Copying BW= Chamfering & Profiling G= Square Grooving GR= Round Grooving GF= Face Grooving GRF= Round Face Grooving T= Threading TD= Threading Relief GV= Deep Face Grooving	4 Hand of Insert TT 060 T R 15 150 ISO 2 TTIM45 R = Right hand style L = Left hand style	5 Max. Depth TT 060 T R 15 150 ISO 2 TTIM45 05: 5.0mm 10: 10.0mm 15: 15.0mm 20: 20.0mm 25: 25.0mm 30: 30.0mm 35: 35.0mm	6 Process Figure TT 060 T R 15 150 ISO 2 TTIM45 Boring: Nose radius Grooving: Grooving width Threading: Partial profile: F60 Full profile: A60 or A55 AG60 or Ag55 ISO Metric American UN Tarpez DIN 103 ACME	7 Thread Profile TT 060 T R 15 150 ISO 2 TTIM45 ISO - ISO Metric UN - American UN (UNC, UNF, UNEF, UNS) ACME - ACME TR - Tarpez DIN103	8 Cutting Edge TT 060 T R 15 150 ISO 2 TTIM45 None: Single ended 2: Double ended	9 Carbide Grades TT 060 T R 15 150 ISO 2 TTIM45 TTIP30 TTIM45 TTIS30 N400

Recommended Grade & Their Applications

Grade	Application Type	Sample
TTIM45	P20-P30 K20-K30, general use carbide grade for tiny tool medium to low cutting speed, TiAlN coated	
TTIS30	K10-K20, premium multipurpose submicron grade for stronger wear resistance and improved productivity. Ideal for steel and stainless steel in unstable cutting conditions. AlTiN alloyed PVD coated.	
N400	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.	

Types

Boring				
	Boring Min. dia. of machining : Ø3.2	Copying Min. dia. of machining : Ø4.2	Back Boring Min. dia. of machining : Ø3.2	Chamfering Min. dia. of machining : Ø4.2
				
	Square Grooving Min. dia. of machining : Ø3.2	Round Grooving Min. dia. of machining : Ø3.2	Face Grooving Min. dia. of machining : Ø6.0	
Threading				
	Threading Min. dia. of machining : Ø3.3			

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

DRILL LINE

TOOL LINE

Technical Information for Tiny Tools

Recommended Grades, Cutting Speeds Vc [m/min]

Material Group			Material	Hardness Brinell HB	Vc [m/min]		
					TTIM45	TTIS30	N400
P Steel	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	50-120	140-200	30-80	
		Medium Carbon (C=0.25-0.55%)	150	40-100	120-180		
		High Carbon (C=0.55-0.85%)	170	30-80	110-180		
	Low Alloy Steel (alloying elements ≤5%)	Non Hardened	180	50-70	100-155	25-50	
		Hardened	275	40-60	90-145		
		Hardened	350	30-50	80-135		
	Cast Steel	Annealed	200	30-50	65-115	25-50	
		Hardened	325	25-40	50-100		
		Low Alloy (alloying elements <5%)	200	30-50	30-50		
		High Alloy (alloying elements >5%)	225	25-40	25-40		
M Stainless steel	Stainless SteelFerritic	Non Hardened	200	60-100	80-120	30-60	
		Hardened	330	40-60	55-95		
	Stainless SteelAustenitic	Austenitic	180	50-90	60-100		
		Super Austenitic	200	40-60	50-90		
	Stainless Steel Cast Ferritic	Non Hardened	200	40-60	60-80		
		Hardened	330	30-50	45-65		
	Stainless Steel Cast Austenitic	Austenitic	200	40-60	50-70		
		Hardened	330	30-50	40-60		
K Cast iron	Malleable Cast Iron	Ferritic (short chips)	130	50-70	60-80	20-50	
		Pearlitic (long chips)	230	50-70	60-80		
	Grey Cast Iron	Low Tensile Strength	180	50-70	60-80	30-80	
		High Tensile Strength	260	40-60	40-70		
	Nodular Sg Iron	Ferritic	160	50-70	60-80	30-80	
		Pearlitic	260	60-80	70-90		
N (K) Non-Ferrous material	Aluminum Alloys Wrought	Non Aging	60	100-300	80-240	60-120	
		Aged	100	100-150	100-170		
	Aluminum Alloys	Cast	75	100-150	100-150	50-90	
		Cast & Aged	90	60-100	60-100		
	Aluminum Alloys	Cast Si 13-22%	130	100-150	100-150	30-70	
		Brass	90	60-100	80-200		
	Copper and Copper Alloys	Bronze and Non Leaded Copper	100	60-100	80-200		
S Heat Resistant material	High Temperature Alloys	Annealed (iron based)	200	25-45	25-45	15-40	
		Aged (iron based)	280	20-30	20-30		
		Annealed (nickel or cobalt based)	250	15-20	15-20		
		Aged (nickel or cobalt based)	350	10-15	10-15		
	Titanium Alloys	Pure 99.5 Ti	400Rm	60-100	60-100	10-30	
			1050Rm	40-50	40-50		
H Hardened Material	Extra Hard Steel	Hardened & Tempered	45-50HRC	20-45	20-40	15-40	
			51-55HRC	20-40	20-40	15-40	

Recommended Feed f [mm/rev] and Max Depth [mm]

Material Group		Material	Hardness Brinell HB	Feed [mm/rev]		Max Depth [mm/rev]
				Boring	Grooving	Boring
P Steel	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	0.05	0.03	0.40
		Medium Carbon (C=0.25-0.55%)	150	0.04	0.02	0.40
		High Carbon (C=0.55-0.85%)	170	0.03	0.01	0.40
	Low Alloy Steel (alloying elements≤ 5%)	Non Hardened	180	0.04	0.02	0.30
		Hardened	275	0.04	0.01	0.30
		Hardened	350	0.03	0.01	0.30
	High Alloy Steel (alloying elements> 5%)	Annealed	200	0.04	0.02	0.15
		Hardened	325	0.03	0.01	0.15
	Cast Steel	Low Alloy (alloying elements <5%)	200	0.04	0.02	0.15
		High Alloy (alloying elements >5%)	225	0.04	0.02	0.15
M Stainless steel	Stainless Steel Ferritic	Non Hardened	200	0.04	0.01	0.20
		Hardened	330	0.03	0.01	0.15
	Stainless Steel Austenitic	Austenitic	180	0.04	0.01	0.20
		Super Austenitic	200	0.04	0.01	0.15
	Stainless Steel Cast Ferritic	Non Hardened	200	0.04	0.02	0.20
		Hardened	330	0.03	0.01	0.15
	Stainless Steel Cast Austenitic	Austenitic	200	0.04	0.02	0.20
		Hardened	330	0.03	0.01	0.15
K Cast iron	Malleable Cast Iron	Ferritic (short chips)	130	0.02	0.02	0.25
		Pearlitic (long chips)	230	0.01	0.01	0.25
	Grey Cast Iron	Low Tensile Strength	180	0.02	0.02	0.40
		High Tensile Strength	260	0.01	0.01	0.40
	Nodular Sg Iron	Ferritic	160	0.02	0.02	0.40
		Pearlitic	260	0.01	0.01	0.40
N (K) Non-Ferrous material	Aluminum Alloys Wrought	Non Aging	60	0.03	0.03	0.50
		Aged	100	0.03	0.03	0.50
	Aluminum Alloys	Cast	75	0.03	0.03	0.50
		Cast & Aged	90	0.03	0.03	0.50
	Aluminum Alloys	Cast Si 13-22%	130	0.02	0.02	0.50
	Copper and Copper Alloys	Brass	90	0.03	0.03	0.50
		Bronze and Non Leaded Copper	100	0.03	0.03	0.50
	S Heat Resistant material	High Temperature Alloys	Annealed (iron based)	200	0.04	0.01
Aged (iron based)			280	0.03	0.01	0.15
Annealed (nickel or cobalt based)			250	0.01	0.01	0.15
Aged (nickel or cobalt based)			350	0.01	0.01	0.15
Titanium Alloys		Pure 99.5 Ti	400Rm	0.02	0.02	0.15
		α+β alloys	1050Rm	0.02	0.02	0.15
H Hardened Material	Extra Hard Steel	Hardened & Tempered	45-50HRC	0.01	0.01	0.05
			51-55HRC	0.01	0.01	0.05

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

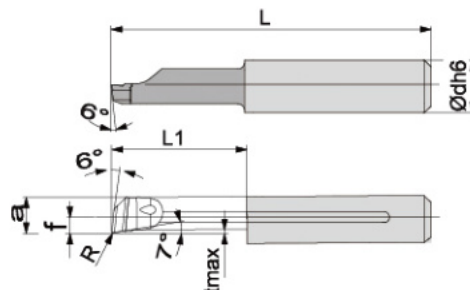
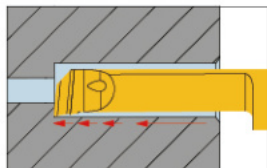
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

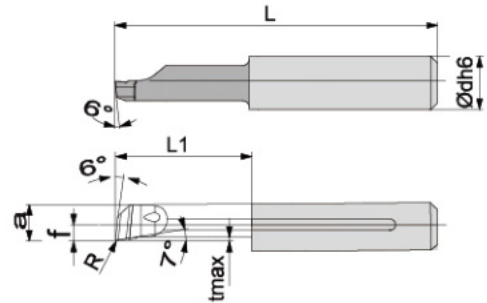
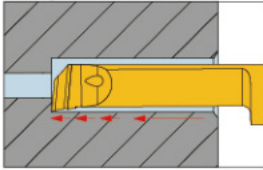
TT□BR/L

For Micro Diameter Boring



Designation	a	d	f	L1	L	tmax	R	Dmin
TT 006BR/L03-R0.03	0.50	3	0.25	3	40	0.01	0.03	0.7
008BR/L04-R0.05	0.70	3	0.35	4	40	0.02	0.05	0.9
010BR/L04-R0.05	0.90	3	0.45	4	40	0.03	0.05	1.1
015BR/L06-R0.15	1.35	3	0.75	6	40	0.05	0.15	1.6
015BR/L09-R0.15	1.35	3	0.75	9	40	0.05	0.15	1.6
020BR/L06-R0.05	1.80	3	0.90	6	40	0.10	0.05	2.1
020BR/L10-R0.05	1.80	3	0.90	10	40	0.10	0.05	2.1
020BR/L10-R0.10	1.80	3	0.90	10	40	0.10	0.10	2.1
020BR/L15-R0.10	1.80	3	0.90	15	40	0.10	0.10	2.1
020BR/L06-R0.15	1.80	3	0.90	6	40	0.10	0.15	2.1
020BR/L10-R0.15	1.80	3	0.90	10	40	0.10	0.15	2.1
020BR/L15-R0.15	1.80	3	0.90	15	40	0.10	0.15	2.1
025BR/L10-R0.15	2.30	3	1.15	10	40	0.12	0.15	2.6
025BR/L15-R0.15	2.30	3	1.15	15	40	0.12	0.15	2.6
030BR/L10-R0.05	2.70	3	1.40	10	40	0.15	0.05	3.1
030BR/L15-R0.05	2.70	3	1.40	15	40	0.15	0.05	3.1
030BR/L10-R0.10	2.70	3	1.40	10	40	0.15	0.10	3.1
030BR/L15-R0.10	2.70	3	1.40	15	40	0.15	0.10	3.1
030BR/L10-R0.20	2.70	3	1.40	10	40	0.15	0.20	3.1
030BR/L15-R0.20	2.70	3	1.40	15	40	0.15	0.20	3.1
035BR/L10-R0.05	3.10	4	1.65	10	50	0.18	0.05	3.6
035BR/L22-R0.05	3.10	4	1.65	22	50	0.18	0.05	3.6
035BR/L10-R0.20	3.10	4	1.65	10	50	0.18	0.20	3.6
035BR/L15-R0.20	3.10	4	1.65	15	50	0.18	0.20	3.6
035BR/L22-R0.20	3.10	4	1.65	22	50	0.18	0.20	3.6
040BR/L10-R0.05	3.60	4	1.90	10	50	0.20	0.05	4.1
040BR/L15-R0.05	3.60	4	1.90	15	50	0.20	0.05	4.1
040BR/L22-R0.05	3.60	4	1.90	22	50	0.20	0.05	4.1
040BR/L10-R0.10	3.60	4	1.90	10	50	0.20	0.10	4.1
040BR/L15-R0.10	3.60	4	1.90	15	50	0.20	0.10	4.1
040BR/L22-R0.10	3.60	4	1.90	22	50	0.20	0.10	4.1
040BR/L10-R0.20	3.60	4	1.90	10	50	0.20	0.20	4.1

※ Ordering code example: TT060BR22-R0.20 TTIM45 for without coolant style. TT060BR22-R0.20-C TTIM45 for coolant style
Additional sizes available by request.

TT□BR/L
For Micro Diameter Boring


	Designation	a	d	f	L1	L	tmax	R	Dmin
TT	040BR/L15-R0.20	3.60	4	1.90	15	50	0.20	0.20	4.1
	040BR/L22-R0.20	3.60	4	1.90	22	50	0.20	0.20	4.1
	040BR/L30-R0.20	3.60	4	1.90	30	65	0.20	0.20	4.1
	050BR/L15-R0.05	4.60	5	2.40	15	50	0.30	0.05	5.1
	050BR/L22-R0.05	4.60	5	2.40	22	50	0.30	0.05	5.1
	050BR/L15-R0.10	4.60	5	2.40	15	50	0.30	0.10	5.1
	050BR/L22-R0.10	4.60	5	2.40	22	50	0.30	0.10	5.1
	050BR/L30-R0.10	4.60	5	2.40	30	65	0.30	0.10	5.1
	050BR/L15-R0.20	4.60	5	2.40	15	50	0.30	0.20	5.1
	050BR/L22-R0.20	4.60	5	2.40	22	50	0.30	0.20	5.1
	050BR/L30-R0.20	4.60	5	2.40	30	65	0.30	0.20	5.1
	050BR/L35-R0.20	4.60	5	2.40	35	65	0.30	0.20	5.1
	050BR/L15-R0.40	4.60	5	2.40	15	50	0.30	0.40	5.1
	050BR/L22-R0.40	4.60	5	2.40	22	50	0.30	0.40	5.1
	050BR/L30-R0.40	4.60	5	2.40	30	65	0.30	0.40	5.1
	060BR/L15-R0.05	5.50	6	2.90	15	50	0.40	0.05	6.1
	060BR/L22-R0.05	5.50	6	2.90	22	50	0.40	0.05	6.1
	060BR/L15-R0.10	5.50	6	2.90	15	50	0.40	0.10	6.1
	060BR/L22-R0.10	5.50	6	2.90	22	50	0.40	0.10	6.1
	060BR/L15-R0.20	5.50	6	2.90	15	50	0.40	0.10	6.1
	060BR/L22-R0.20	5.50	6	2.90	22	50	0.40	0.20	6.1
	060BR/L30-R0.20	5.50	6	2.90	30	65	0.40	0.20	6.1
	060BR/L35-R0.20	5.50	6	2.90	35	65	0.40	0.20	6.1
	060BR/L40-R0.20	5.50	6	2.90	40	65	0.40	0.20	6.1
	060BR/L15-R0.40	5.50	6	2.90	15	50	0.40	0.40	6.1
	060BR/L22-R0.40	5.50	6	2.90	22	50	0.40	0.40	6.1
	060BR/L30-R0.40	5.50	6	2.90	30	65	0.40	0.40	6.1
	070BR/L15-R0.20	6.50	7	3.40	15	50	0.50	0.20	7.1
	070BR/L22-R0.20	6.50	7	3.40	22	50	0.50	0.20	7.1
	070BR/L30-R0.20	6.50	7	3.40	30	65	0.50	0.20	7.1
	070BR/L35-R0.20	6.50	7	3.40	35	65	0.50	0.20	7.1
	070BR/L42-R0.20	6.50	7	3.40	42	80	0.50	0.20	7.1

※ Ordering code example: TT060BR22-R0.20 TTIM45 for without coolant style. TT060BR22-R0.20-C TTIM45 for coolant style
Additional sizes available by request.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

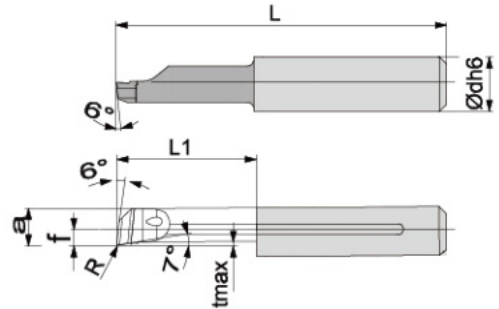
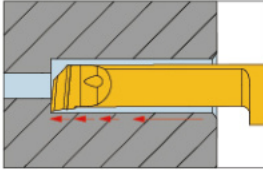
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT□BR/L

For Micro Diameter Boring

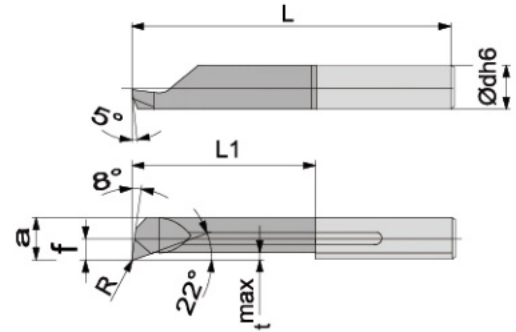
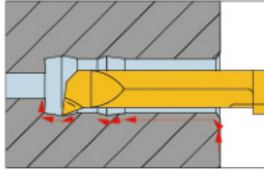


Designation	a	d	f	L1	L	tmax	R	Dmin
TT 070BR/L50-R0.20	6.50	7	3.40	50	80	0.50	0.20	7.1
070BR/L22-R0.40	6.50	7	3.40	22	50	0.50	0.40	7.1
070BR/L30-R0.40	6.50	7	3.40	30	65	0.50	0.40	7.1
080BR/L22-R0.20	7.50	8	3.90	22	50	0.60	0.20	8.1
080BR/L30-R0.20	7.50	8	3.90	30	65	0.60	0.20	8.1
080BR/L40-R0.20	7.50	8	3.90	40	80	0.60	0.20	8.1
080BR/L55-R0.20	7.50	8	3.90	55	80	0.60	0.20	8.1
080BR/L22-R0.40	7.50	8	3.90	22	50	0.60	0.40	8.1
080BR/L30-R0.40	7.50	8	3.90	30	65	0.60	0.40	8.1
100BR/L35-R0.20	9.50	10	4.90	35	65	0.80	0.20	10.1
100BR/L50-R0.20	9.50	10	4.90	50	80	0.80	0.20	10.1
100BR/L35-R0.40	9.50	10	4.90	35	65	0.80	0.40	10.1
100BR/L50-R0.40	9.50	10	4.90	50	80	0.80	0.40	10.1

※ Ordering code example: TT060BR22-R0.20 TTIM45 for without coolant style. TT060BR22-R0.20-C TTIM45 for coolant style
Additional sizes available by request.

TT□BPR/L

For Micro Diameter Boring & Profiling



	Designation	a	d	f	L1	L	tmax	R	Dmin
TT	010BPR/L04-R0.05	0.90	3	0.45	4	40	0.20	0.05	1.1
	015BPR/L06-R0.10	1.30	3	0.75	6	40	0.30	0.10	1.6
	020BPR/L05-R0.15	1.70	3	0.90	5	40	0.50	0.15	2.1
	020BPR/L10-R0.15	1.70	3	0.90	10	40	0.50	0.15	2.1
	030BPR/L10-R0.05	2.60	3	1.40	10	40	0.70	0.05	3.1
	030BPR/L15-R0.05	2.60	3	1.40	15	40	0.70	0.05	3.1
	030BPR/L10-R0.10	2.60	3	1.40	10	40	0.70	0.10	3.1
	030BPR/L15-R0.10	2.60	3	1.40	15	40	0.70	0.10	3.1
	030BPR/L10-R0.20	2.60	3	1.40	10	40	0.70	0.20	3.1
	030BPR/L15-R0.20	2.60	3	1.40	15	40	0.70	0.20	3.1
	040BPR/L10-R0.10	3.50	4	1.90	10	50	0.80	0.10	4.1
	040BPR/L15-R0.10	3.50	4	1.90	15	50	0.80	0.10	4.1
	040BPR/L22-R0.10	3.50	4	1.90	22	50	0.80	0.10	4.1
	040BPR/L10-R0.20	3.50	4	1.90	10	50	0.80	0.20	4.1
	040BPR/L15-R0.20	3.50	4	1.90	15	50	0.80	0.20	4.1
	040BPR/L22-R0.20	3.50	4	1.90	22	50	0.80	0.20	4.1
	050BPR/L15-R0.10	4.40	5	2.40	15	50	1.20	0.10	5.1
	050BPR/L22-R0.10	4.40	5	2.40	22	50	1.20	0.10	5.1
	050BPR/L30-R0.10	4.40	5	2.40	30	65	1.20	0.10	5.1
	050BPR/L15-R0.20	4.40	5	2.40	15	50	1.20	0.20	5.1
	050BPR/L22-R0.20	4.40	5	2.40	22	50	1.20	0.20	5.1
	050BPR/L30-R0.20	4.40	5	2.40	30	65	1.20	0.20	5.1
	060BPR/L15-R0.20	5.30	6	2.90	15	50	1.40	0.20	6.1
	060BPR/L22-R0.20	5.30	6	2.90	22	50	1.40	0.20	6.1
	060BPR/L30-R0.20	5.30	6	2.90	30	65	1.40	0.20	6.1
	070BPR/L22-R0.20	6.30	7	3.40	22	50	1.50	0.20	7.1
	070BPR/L30-R0.20	6.30	7	3.40	30	65	1.50	0.20	7.1
	080BPR/L22-R0.20	7.30	8	3.90	22	50	1.60	0.20	8.1
	080BPR/L35-R0.20	7.30	8	3.90	35	65	1.60	0.20	8.1
	100BPR/L35-R0.20	9.20	10	4.90	35	65	2.00	0.20	10.1

※ Ordering code example: TT040BPR22-R0.10 TTIM45 for without coolant style. TT040BPR22-R0.10-C TTIM45 for coolant style
Additional sizes available by request.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

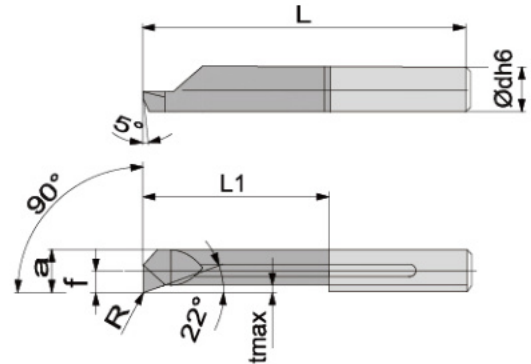
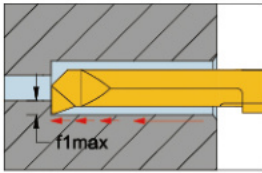
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT□BUR/L

For Micro Diameter Boring & Profiling with geometry 90°

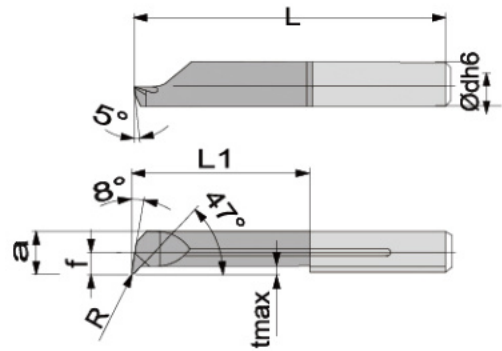
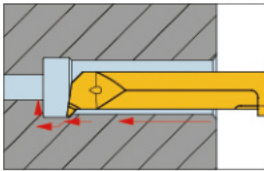


Designation	a	d	f	f1 max	L1	L	tmax	R	Dmin
TT 030BUR/L10-R0.05	2.60	3	1.40	1.40	10	40	0.40	0.05	3.1
030BUR/L15-R0.05	2.60	3	1.40	1.40	15	40	0.40	0.05	3.1
040BUR/L10-R0.10	3.50	4	1.90	1.90	10	50	0.50	0.10	4.1
040BUR/L15-R0.10	3.50	4	1.90	1.90	15	50	0.50	0.10	4.1
050BUR/L15-R0.15	4.40	5	2.40	2.30	15	50	0.70	0.15	5.1
050BUR/L22-R0.15	4.40	5	2.40	2.30	22	50	0.70	0.15	5.1
060BUR/L15-R0.15	5.30	6	2.90	2.80	15	50	0.90	0.15	6.1
060BUR/L22-R0.15	5.30	6	2.90	2.80	22	50	0.90	0.15	6.1
080BUR/L22-R0.20	7.30	8	3.90	3.80	22	50	1.10	0.20	8.1

※ Ordering code example: TT040BUR15-R0.10 TTIM45 for without coolant style. TT040BUR15-R0.10-C TTIM45 for coolant style
Additional sizes available by request.

TT□BCR/L

For Micro Diameter Copying & Boring with geometry 47°



	Designation	a	d	f	L1	L	tmax	R	Dmin
TT	020BCR/L10-R0.05	1.70	2	0.90	10	40	0.50	0.05	2.1
	030BCR/L10-R0.10	2.60	3	1.40	10	40	0.70	0.10	3.1
	030BCR/L15-R0.10	2.60	3	1.40	15	40	0.70	0.10	3.1
	030BCR/L10-R0.20	2.60	3	1.40	10	40	0.70	0.20	3.1
	030BCR/L15-R0.20	2.60	3	1.40	15	40	0.70	0.20	3.1
	040BCR/L10-R0.20	3.50	4	1.90	10	50	0.80	0.20	4.1
	040BCR/L15-R0.20	3.50	4	1.90	15	50	0.80	0.20	4.1
	040BCR/L22-R0.20	3.50	4	1.90	22	50	0.80	0.20	4.1
	050BCR/L15-R0.20	4.40	5	2.40	15	50	1.00	0.20	5.1
	050BCR/L22-R0.20	4.40	5	2.40	22	50	1.00	0.20	5.1
	060BCR/L15-R0.20	5.30	6	2.90	15	50	1.40	0.20	6.1
	060BCR/L22-R0.20	5.30	6	2.90	22	50	1.40	0.20	6.1
	080BCR/L22-R0.20	5.30	8	3.90	22	50	1.80	0.20	8.1
	080BCR/L27-R0.20	7.30	8	3.90	27	65	2.00	0.20	8.1

※ Ordering code example: TT040BCR15-R0.20 TTIM45 for without coolant style. TT040BCR15-R0.20-C TTIM45 for coolant style
Additional sizes available by request.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

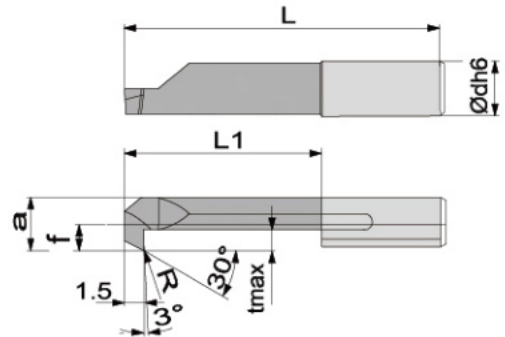
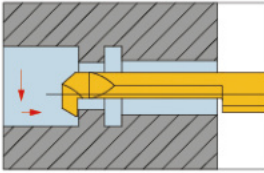
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT□BBR/L

For Micro Diameter Back Boring

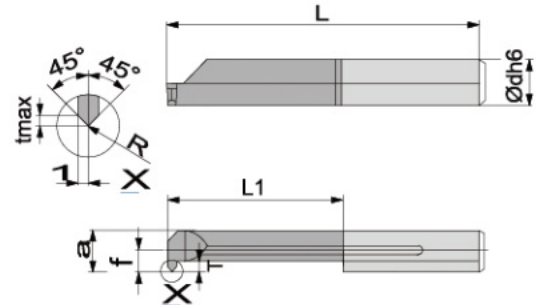
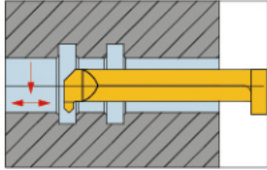


Designation	a	d	f	L1	L	tmax	R	Dmin
TT 030BBR/L10-R0.10	2.60	3	1.40	10	40	0.50	0.10	3.1
040BBR/L10-R0.15	3.50	4	1.90	10	50	0.80	0.15	4.1
040BBR/L15-R0.15	3.50	4	1.90	15	50	0.80	0.15	4.1
050BBR/L15-R0.20	4.40	5	2.40	15	50	1.00	0.20	5.1
050BBR/L22-R0.20	4.40	5	2.40	22	50	1.00	0.20	5.1
060BBR/L15-R0.20	5.30	6	2.90	15	50	1.80	0.20	6.1
060BBR/L22-R0.20	5.30	6	2.90	22	50	1.80	0.20	6.1
070BBR/L22-R0.20	6.30	7	3.40	22	50	2.50	0.20	7.1
070BBR/L30-R0.20	6.30	7	3.40	30	65	2.50	0.20	7.1

※ Ordering code example: TT040BBR15-R0.15 TTIM45 for without coolant style. TT040BBR15-R0.15-C TTIM45 for coolant style
Additional sizes available by request.

TT□BFR/L

For Micro Diameter Chamfering & Boring

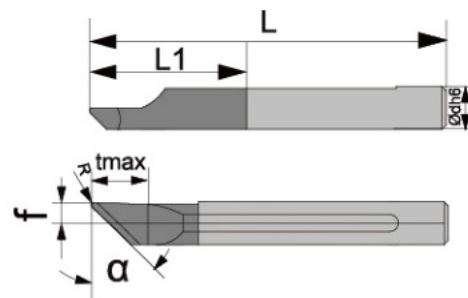
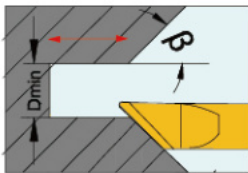


	Designation	a	d	f	L1	L	tmax	T	R	Dmin
TT	030BFR/L10-R0.20	2.70	3	1.40	10	40	0.30	0.70	0.20	3.1
	040BFR/L15-R0.20	3.50	4	1.90	15	50	0.40	0.80	0.20	4.1
	050BFR/L15-R0.20	4.40	5	2.40	15	50	0.70	1.20	0.20	5.1
	060BFR/L15-R0.20	5.30	6	2.90	15	50	0.70	1.40	0.20	6.1

※ Ordering code example: TT040BFR15-R0.20 TTIM45 for without coolant style. TT040BFR15-R0.20-C TTIM45 for coolant style
Additional sizes available by request.

TT□BWR/L

For Micro Diameter Chamfering & Profiling



	Designation	α	β	d	f	L1	L	tmax	R	Dmin
TT	060BWR/L15-R0.20-A45	45°	45°	6	2.3	15	50	3.50	0.20	1.0
	060BWR/L15-R0.20-A60	60°	30°	6	2.3	15	50	4.00	0.20	1.0
	060BWR/L22-R0.20-A45	45°	45°	6	2.3	22	50	3.50	0.20	6.0
	060BWR/L22-R0.20-A60	60°	30°	6	2.3	22	50	4.00	0.20	6.0

※ Ordering code example: TT060BWR15-0.20 A45 TTIM45 for without coolant style. TT060BWR15-0.20 A45 -C TTIM45 for coolant style
Can be used also for boring.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

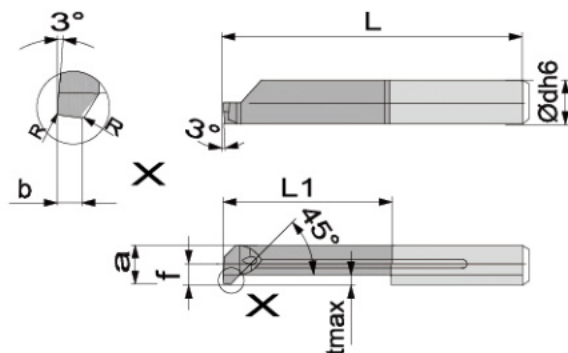
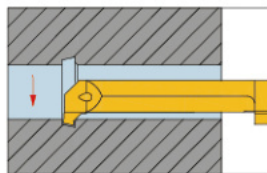
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT□TDR/L

For Thread Relief, Chamfering and Grooving

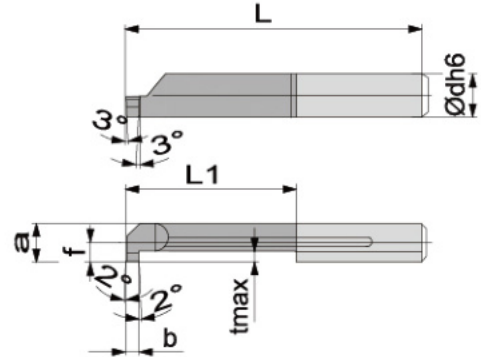
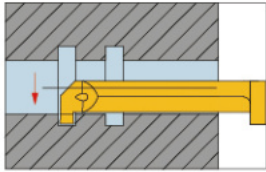


Designation	b	a	d	L1	L	f	tmax	R	Dmin
TT 040TDR/L16-B100	1.0	3.50	4	16	50	1.9	0.8	0.50	4.1
040TDR/L18-B150	1.5	3.50	4	18	50	1.9	0.8	0.50	4.1
050TDR/L20-B100	1.0	4.40	5	20	50	2.4	1.0	0.50	5.1
050TDR/L24-B150	1.5	4.40	5	24	50	2.4	1.2	0.50	5.1
060TDR/L30-B100	1.0	5.30	6	30	50	2.9	1.0	0.50	6.1
060TDR/L27-B150	1.5	5.30	6	27	50	2.9	1.4	0.50	6.1

※ Ordering code example: TT060TDR27-B150 TTIM45 for without coolant style. TT060TDR27-B150-C TTIM45 for coolant style
Additional sizes available by request.

TT GR/L

For Micro Diameter Grooving



TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

DRILL LINE

TOOL LINE

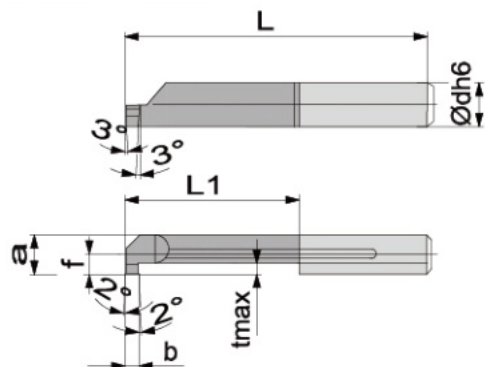
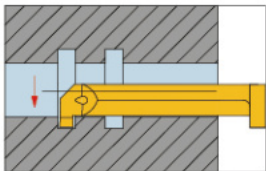
Designation	b	a	d	f	L1	L	tmax	Dmin
TT 010GR/L04-B030	0.3	0.9	3	0.45	4	40	0.2	1.1
010GR/L07-B030	0.3	0.9	3	0.45	7	40	0.2	1.1
015GR/L05-B040	0.4	1.4	3	0.75	5	40	0.4	1.6
015GR/L10-B040	0.4	1.4	3	0.75	10	40	0.4	1.6
015GR/L12-B040	0.4	1.4	3	0.75	12	40	0.4	1.6
020GR/L06-B050	0.5	1.8	3	0.95	6	40	0.4	2.1
020GR/L10-B050	0.5	1.8	3	0.95	10	40	0.4	2.1
020GR/L15-B050	0.5	1.8	3	0.95	15	40	0.4	2.1
030GR/L10-B070	0.7	2.7	3	1.40	10	40	0.6	3.1
030GR/L15-B070	0.7	2.7	3	1.40	15	40	0.6	3.1
040GR/L10-B100	1.0	3.5	4	1.90	10	50	1.0	4.1
040GR/L10-B150	1.5	3.5	4	1.90	10	50	1.0	4.1
040GR/L15-B100	1.0	3.5	4	1.90	15	50	1.0	4.1
040GR/L15-B150	1.5	3.5	4	1.90	15	50	1.0	4.1
040GR/L22-B100	1.0	3.5	4	1.90	22	50	1.0	4.1
040GR/L22-B150	1.5	3.5	4	1.90	22	50	1.0	4.1
050GR/L10-B100	1.0	4.4	5	2.40	10	50	1.2	5.1
050GR/L10-B150	1.5	4.4	5	2.40	10	50	1.2	5.1
050GR/L10-B200	2.0	4.4	5	2.40	10	50	1.2	5.1
050GR/L15-B100	1.0	4.4	5	2.40	15	50	1.2	5.1
050GR/L15-B150	1.5	4.4	5	2.40	15	50	1.2	5.1
050GR/L15-B200	2.0	4.4	5	2.40	15	50	1.2	5.1
050GR/L22-B100	1.0	4.4	5	2.40	22	50	1.2	5.1
050GR/L22-B150	1.5	4.4	5	2.40	22	50	1.2	5.1
050GR/L22-B200	2.0	4.4	5	2.40	22	50	1.2	5.1
050GR/L30-B100	1.0	4.4	5	2.40	30	65	1.2	5.1
050GR/L30-B150	1.5	4.4	5	2.40	30	65	1.2	5.1
050GR/L30-B200	2.0	4.4	5	2.40	30	65	1.2	5.1
050GR/L35-B100	1.0	4.4	5	2.40	35	65	1.2	5.1
050GR/L35-B150	1.5	4.4	5	2.40	35	65	1.2	5.1

※ Ordering code example: TT060GR22-B100 TTIM45 for without coolant style. TT060GR22-B100-C TTIM45 for coolant style
Additional sizes available by request.

Auto Tools for Mini-system

TT GR/L

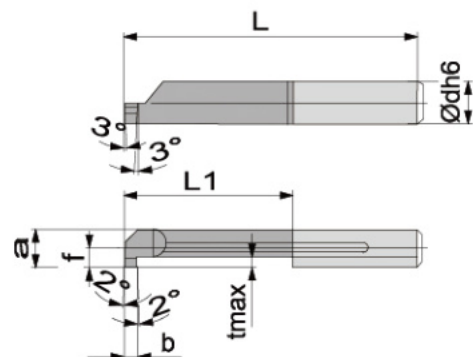
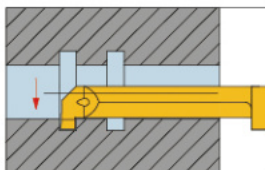
For Micro Diameter Grooving



Designation	b	a	d	f	L1	L	tmax	Dmin
TT 050GR/L35-B200	2.0	4.4	5	2.40	35	65	1.2	5.1
060GR/L10-B100	1.0	5.3	6	2.90	10	50	1.8	6.1
060GR/L10-B150	1.5	5.3	6	2.90	10	50	1.8	6.1
060GR/L10-B200	2.0	5.3	6	2.90	10	50	1.8	6.1
060GR/L15-B100	1.0	5.3	6	2.90	15	50	1.8	6.1
060GR/L15-B150	1.5	5.3	6	2.90	15	50	1.8	6.1
060GR/L15-B200	2.0	5.3	6	2.90	15	50	1.8	6.1
060GR/L22-B100	1.0	5.3	6	2.90	22	50	1.8	6.1
060GR/L22-B150	1.5	5.3	6	2.90	22	50	1.8	6.1
060GR/L22-B200	2.0	5.3	6	2.90	22	50	1.8	6.1
060GR/L30-B100	1.0	5.3	6	2.90	30	65	1.8	6.1
060GR/L30-B150	1.5	5.3	6	2.90	30	65	1.8	6.1
060GR/L30-B200	2.0	5.3	6	2.90	30	65	1.8	6.1
060GR/L35-B100	1.0	5.3	6	2.90	35	65	1.8	6.1
060GR/L35-B150	1.5	5.3	6	2.90	35	65	1.8	6.1
060GR/L35-B200	2.0	5.3	6	2.90	35	65	1.8	6.1
070GR/L15-B100	1.0	6.3	7	3.40	15	50	2.5	7.1
070GR/L15-B150	1.5	6.3	7	3.40	15	50	2.5	7.1
070GR/L15-B200	2.0	6.3	7	3.40	15	50	2.5	7.1
070GR/L22-B100	1.0	6.3	7	3.40	22	50	2.5	7.1
070GR/L22-B150	1.5	6.3	7	3.40	22	50	2.5	7.1
070GR/L22-B200	2.0	6.3	7	3.40	22	50	2.5	7.1
070GR/L30-B100	1.0	6.3	7	3.40	30	65	2.5	7.1
070GR/L30-B150	1.5	6.3	7	3.40	30	65	2.5	7.1
070GR/L30-B200	2.0	6.3	7	3.40	30	65	2.5	7.1
070GR/L40-B100	1.0	6.3	7	3.40	40	65	2.5	7.1
070GR/L40-B150	1.5	6.3	7	3.40	40	65	2.5	7.1
070GR/L40-B200	2.0	6.3	7	3.40	40	65	2.5	7.1
080GR/L22-B100	1.0	7.3	8	3.90	22	50	3.1	8.1
080GR/L22-B150	1.5	7.3	8	3.90	22	50	3.1	8.1

TT GR/L

For Micro Diameter Grooving



Designation	b	a	d	f	L1	L	tmax	Dmin
TT 080GR/L22-B200	2.0	7.3	8	3.90	22	50	3.1	8.1
080GR/L30-B100	1.0	7.3	8	3.90	30	65	3.1	8.1
080GR/L30-B150	1.5	7.3	8	3.90	30	65	3.1	8.1
080GR/L30-B200	2.0	7.3	8	3.90	30	65	3.1	8.1
080GR/L40-B100	1.0	7.3	8	3.90	40	65	3.1	8.1
080GR/L40-B150	1.5	7.3	8	3.90	40	65	3.1	8.1
080GR/L40-B200	2.0	7.3	8	3.90	40	65	3.1	8.1
100GR/L30-B100	1.0	9.9	10	4.90	30	65	4.0	10.1
100GR/L30-B200	2.0	9.9	10	4.90	30	65	4.0	10.1
100GR/L30-B300	3.0	9.9	10	4.90	30	65	4.0	10.1
100GR/L50-B100	1.0	9.9	10	4.90	50	80	4.0	10.1
100GR/L50-B200	2.0	9.9	10	4.90	50	80	4.0	10.1
100GR/L50-B300	3.0	9.9	10	4.90	50	80	4.0	10.1

※ Ordering code example: TT060GR22-B100 TTIM45 for without coolant style. TT060GR22-B100-C TTIM45 for coolant style
Additional sizes available by request.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

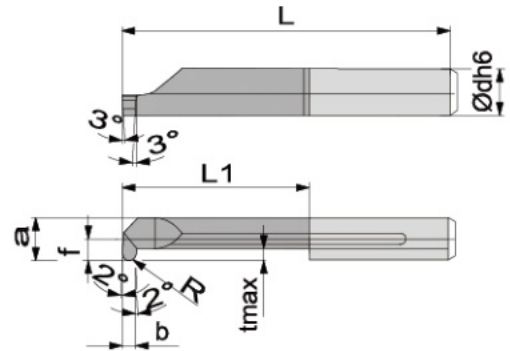
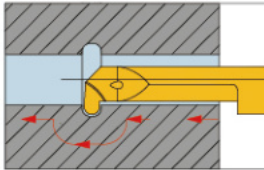
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT□GRR/L

For Micro Diameter Grooving with Full Radius

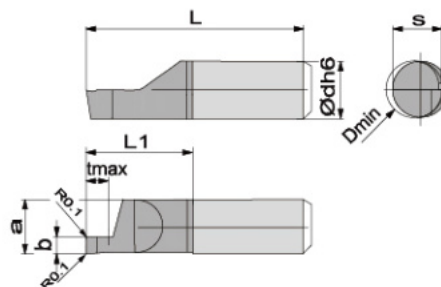
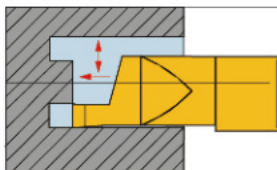


Designation	b	a	d	f	L1	L	tmax	Dmin	R
TT 030GRR/L10-B100	1.00	2.70	3	1.40	10	50	0.60	3.1	0.50
040GRR/L10-B100	1.00	3.50	4	1.90	10	50	1.00	4.1	0.50
040GRR/L10-B150	1.50	3.50	4	1.90	10	50	1.00	4.1	0.75
050GRR/L15-B100	1.00	4.40	5	2.40	15	50	1.20	5.1	0.50
050GRR/L15-B150	1.50	4.40	5	2.40	15	50	1.20	5.1	0.75
050GRR/L15-B200	2.00	4.40	5	2.40	15	50	1.20	5.1	1.00
060GRR/L15-B100	1.00	5.30	6	2.90	15	50	1.60	6.1	0.50
060GRR/L15-B150	1.50	5.30	6	2.90	15	50	1.60	6.1	0.75
060GRR/L15-B200	2.00	5.30	6	2.90	15	50	1.60	6.1	1.00
070GRR/L22-B100	1.00	6.30	7	3.40	22	50	2.50	7.1	0.50
070GRR/L22-B150	1.50	6.30	7	3.40	22	50	2.50	7.1	0.75
070GRR/L22-B200	2.00	6.30	7	3.40	22	50	2.50	7.1	1.00

※ Ordering code example: TT060GRR15-B150 TTIM45 for without coolant style. TT060GRR15-B150-C TTIM45 for coolant style
Additional sizes available by request.

TT □ GFR

For Micro Diameter Face Grooving



Designation	b	a	d	S	L1	L	tmax	Dmin
TT 040GFR15-B075	0.75	3.50	4	3.3	15	50	1.20	5.0
040GFR15-B100	1.00	3.50	4	3.3	15	50	1.50	5.0
040GFR15-B150	1.50	3.50	4	3.3	15	50	2.80	5.0
050GFR22-B075	0.75	4.30	5	4.3	22	50	1.20	6.0
050GFR22-B100	1.00	4.30	5	4.3	22	50	1.50	6.0
050GFR22-B150	1.50	4.30	5	4.3	22	50	2.50	6.0
050GFR22-B200	2.00	4.30	5	4.3	22	50	3.80	6.0
060GFR22-B100	1.00	5.20	6	5.3	22	50	1.50	8.0
060GFR22-B150	1.50	5.20	6	5.3	22	50	2.50	8.0
060GFR22-B200	2.00	5.20	6	5.3	22	50	3.00	8.0
060GFR22-B250	2.50	5.20	6	5.3	22	50	4.80	8.0
060GFR30-B300	3.00	5.20	6	5.3	30	65	6.00	8.0
080GFR22-B250	2.50	6.90	8	6.3	22	50	3.50	10.0

※ Ordering code example: TT040GFR15-B150 TTIM45 for without coolant style. TT040GFR15-B150-C TTIM45 for coolant style
Additional sizes available by request.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

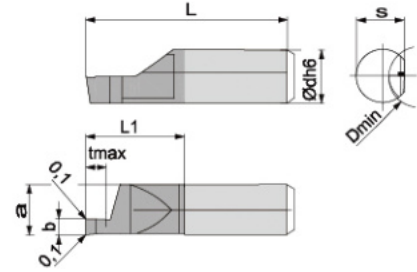
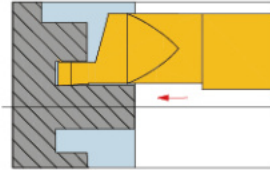
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT □ GFL

For Micro Diameter Face Grooving in Pivots

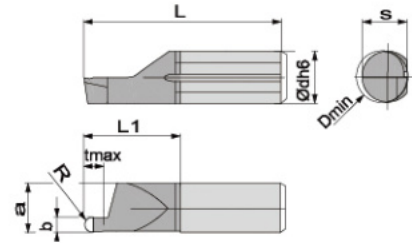
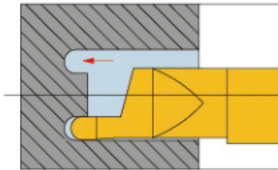


Designation	b	a	d	S	L1	L	tmax	Dmin
TT 040GFL15-B075	0.75	3.50	4	4.3	15	50	1.20	5.0
040GFL15-B100	1.00	3.50	4	3.3	15	50	1.50	5.0
040GFL15-B150	1.50	3.50	4	3.3	15	50	2.80	5.0
050GFL22-B075	0.75	4.30	5	4.3	22	50	1.20	6.0
050GFL22-B100	1.00	4.30	5	4.3	22	50	1.50	6.0
050GFL22-B150	1.50	4.30	5	4.3	22	50	2.50	6.0
050GFL22-B200	2.00	4.30	5	4.3	22	50	3.80	6.0
060GFL22-B100	1.00	5.20	6	5.3	22	50	1.50	8.0
060GFL22-B150	1.50	5.20	6	5.3	22	50	2.50	8.0
060GFL22-B200	2.00	5.20	6	5.3	22	50	3.00	8.0
060GFL22-B250	2.50	5.20	6	5.3	22	50	4.80	8.0
060GFL30-B300	3.00	5.20	6	5.3	30	65	6.00	8.0
080GFL22-B250	2.50	6.90	8	7.0	22	50	3.50	10.0

※ Ordering code example: TT050GFL22-B150 TTIM45 for without coolant style. TT050GFL22-B150-C TTIM45 for coolant style
Additional sizes available by request.

TT GRFR

For Micro Diameter Face Grooving with Full Radius



Designation	b	a	d	S	L1	L	tmax	Dmin	R
TT 040GRFR15-B100	1.00	3.50	4	3.3	15	50	1.20	5.0	0.50
040GRFR15-B150	1.50	3.50	4	3.3	15	50	1.50	5.0	0.75
050GRFR22-B100	1.00	4.30	5	4.3	22	50	1.20	6.0	0.50
050GRFR22-B150	1.50	4.30	5	4.3	22	50	1.50	6.0	0.75
050GRFR22-B200	2.00	4.30	5	4.3	22	50	2.50	6.0	1.00
060GRFR22-B100	1.00	5.20	6	5.3	22	50	1.20	8.0	0.50
060GRFR22-B150	1.50	5.20	6	5.3	22	50	1.50	8.0	0.75
060GRFR22-B200	2.00	5.20	6	5.3	22	50	2.50	8.0	1.00

※ Ordering code example: TT040GRFR15-B100 TTIM45 for without coolant style. TT040GRFR15-B100-C TTIM45 for coolant style
Additional sizes available by request.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

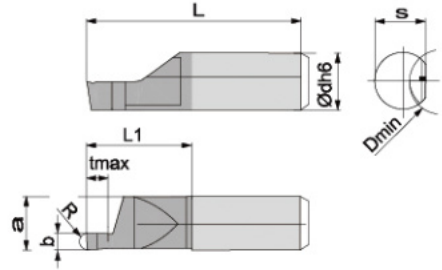
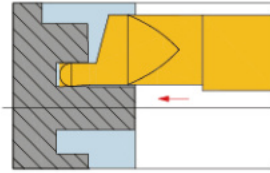
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT GRFL

For Micro Diameter Face Grooving in Pivots with Full Radius

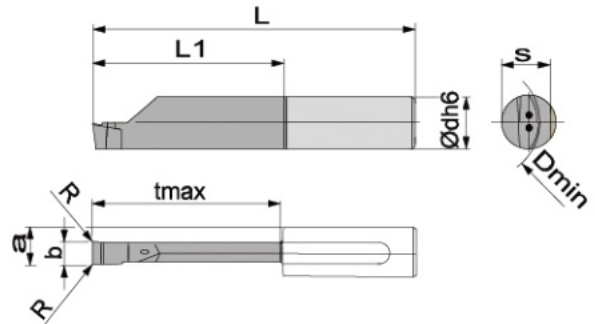
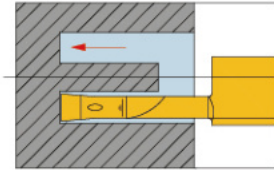


Designation	b	a	d	S	L1	L	tmax	R	Dmin
TT 040GRFL15-B100	1.0	3.50	4	3.3	15	50	1.2	0.50	5.0
040GRFL15-B150	1.5	3.50	4	3.3	15	50	1.5	0.75	5.0
050GRFL22-B100	1.0	4.30	5	4.3	22	50	1.2	0.50	6.0
050GRFL22-B150	1.5	4.30	5	4.3	22	50	1.5	0.75	6.0
050GRFL22-B200	2.0	4.30	5	4.3	22	50	2.5	1.00	6.0
060GRFL22-B100	1.0	5.20	6	5.3	22	50	1.2	0.50	8.0
060GRFL22-B150	1.5	5.20	6	5.3	22	50	1.5	0.75	8.0
060GRFL22-B200	2.0	5.20	6	5.3	22	50	2.5	1.00	8.0

※ Ordering code example: TT060GRFL22-B100 TTIM45 for without coolant style. TT060GRFL22-B100-C TTIM45 for coolant style
Additional sizes available by request.

TT VR/L

For deep face grooving



Designation	b	a	d	S	L1	L	tmax	Dmin	R
TT 060GVR/L10-B200	2.0	4.00	6	5.3	10	50	10	10.0	0.20
060GVR/L15-B200	2.0	4.00	6	5.3	15	50	15	12.0	0.20
060GVR/L22-B200	2.0	4.00	6	5.3	22	50	22	12.0	0.20
060GVR/L15-B250	2.5	4.25	6	5.3	15	50	15	10.0	0.20
060GVR/L22-B250	2.5	4.25	6	5.3	22	50	22	12.0	0.20
060GVR/L22-B300	3.0	4.50	6	5.3	22	50	22	10.0	0.20
070GVR/L10-B150	1.5	5.90	7	6.3	10	50	10	8.0	0.20
070GVR/L15-B200	2.0	5.90	7	6.3	15	50	15	8.0	0.20
070GVR/L22-B300	3.0	5.90	7	6.3	22	50	22	8.0	0.20
080GVR/L10-B200	2.0	5.00	8	7.3	10	50	10	12.0	0.20
080GVR/L15-B200	2.0	5.00	8	7.3	15	50	15	12.0	0.20
080GVR/L10-B300	3.0	5.50	8	7.3	10	50	10	12.0	0.20
080GVR/L15-B300	3.0	5.50	8	7.3	15	50	15	12.0	0.20
080GVR/L27-B300	3.0	5.50	8	7.3	27	65	27	15.0	0.20
080GVR/L43-B300	3.0	5.50	8	7.3	43	80	43	15.0	0.20
080GVR/L25-B400	4.0	6.00	8	7.3	25	65	25	20.0	0.20
080GVR/L43-B400	4.0	6.00	8	7.3	43	80	43	20.0	0.20

※ Ordering code example: TT060GVR22-B200 TTIM45 for without coolant style. TT060GVR22-B200-C TTIM45 for coolant style
Additional sizes available by request.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

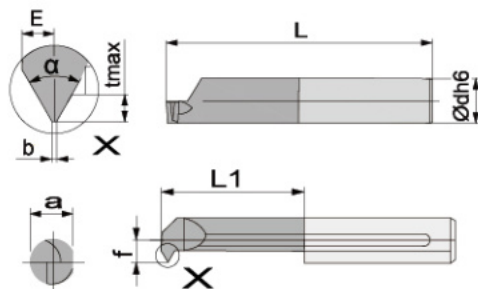
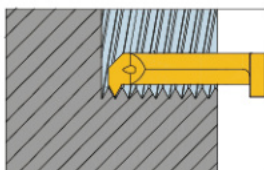
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

TT□TR/L

For Micro Diameter Threading - Partial Profile

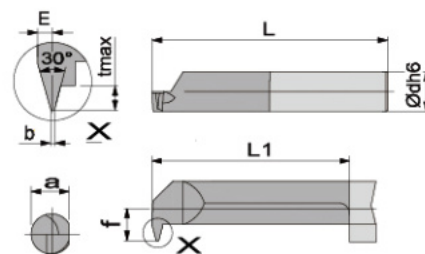
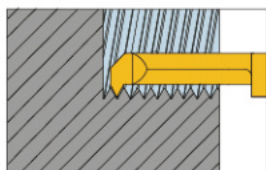


Designation	α	Pitch		a	d	f	L1	L	tmax	E	b	Dmin
		mm	TPI									
TT 020TR/L08-A60	60°	0.45-0.70	56-32	1.45	2	0.90	8	40	0.24	0.22	0.06	2.1
030TR/L15-A55	55°	0.50-1.00	48-24	2.30	3	1.40	15	40	0.27	0.33	0.04	3.2
030TR/L15-A60	60°	0.70-1.00	32-24	2.30	3	1.40	15	40	0.27	0.33	0.04	3.2
040TR/L15-A55	55°	0.50-1.00	48-24	3.50	4	1.90	15	50	0.43	0.45	0.10	4.1
040TR/L15-A60	60°	0.80-1.00	32-24	3.50	4	1.90	15	50	0.43	0.45	0.10	4.1
050TR/L15-A55	55°	0.50-1.25	48-20	4.40	5	2.40	15	50	0.40	0.45	0.06	5.1
050TR/L22-A55	55°	0.50-1.25	48-20	4.40	5	2.40	22	50	0.40	0.45	0.06	5.1
050TR/L15-A60	60°	1.00-1.25	24-20	4.40	5	2.40	15	50	0.55	0.55	0.12	5.1
050TR/L22-A60	60°	1.00-1.25	24-20	4.40	5	2.40	22	50	0.55	0.55	0.12	5.1
060TR/L15-A55	55°	0.50-1.50	48-16	5.30	6	2.90	15	50	0.81	0.75	0.12	6.0
060TR/L22-A55	55°	0.50-1.50	48-16	5.30	6	2.90	22	50	0.81	0.75	0.12	6.0
060TR/L15-A60	60°	1.00-1.50	24-16	5.30	6	2.90	15	50	0.68	0.65	0.15	6.0
060TR/L22-A60	60°	1.00-1.50	24-16	5.30	6	2.90	22	50	0.68	0.65	0.15	6.0
080TR/L22-A60	60°	1.00-2.00	24-13	7.30	8	3.90	22	50	0.94	0.85	0.21	8.0

※ Ordering code example: TT050TR22-A60 TTIM45 for without coolant style. TT050TR22-A60-C TTIM45 for coolant style
Additional sizes available by request.

TT□TR/L

For Micro Diameter Threading - Trapezoidal Thread



Designation	α	Pitch		a	d	f	L1	L	tmax	E	b	Dmin
		mm	TPI									
TT 060TR/L22-150TR	30°	1.5	-	5.70	6	2.90	22	50	0.90	0.60	0.42	6.1
070TR/L25-200TR	30°	2.0	-	6.30	7	3.50	25	65	1.25	0.75	0.60	6.9
070TR/L22-300TR	30°	3.0	-	6.30	7	4.90	22	65	1.75	0.75	0.60	6.9
070TR/L35-300TR	30°	3.0	-	6.30	7	4.90	35	65	1.75	1.10	0.96	11.0
100TR/L35-200TR	30°	2.0	-	9.20	10	4.90	35	65	1.25	0.75	0.60	7.5
100TR/L35-300TR	30°	3.0	-	9.20	10	4.90	35	65	1.75	1.10	0.96	10.5

※ Ordering code example: TT070TR25-200TR TTIM45 for without coolant style. TT070TR25-200TR-C TTIM45 for coolant style
Can be used also for boring.

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

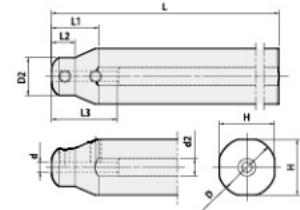
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

Sleeve

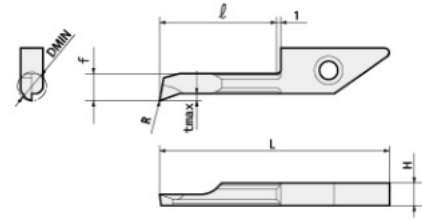
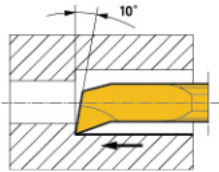
For Micro Diameter Tools



Designation	d	D	H	d2	D2	L1	L2	L3	L	Spare Parts	
										 Screw	 Wrench
TCL 1203-100L-2N	3	12	11	6.0	12.0	16	8	21	100	HS3040P	HW15L
1204-100L-2N	4	12	11	6.0	12.0	16	8	24	100	HS4040P	HW20L
1205-100L-2N	5	12	11	8.0	12.0	-	-	29	100	HS4040P	HW20L
1206-100L-2N	6	12	11	8.0	12.0	-	-	31	100	HS5050P	HW25L
1603-100L-2N	3	16	15	6.0	12.0	16	8	21	100	HS3040P	HW15L
1604-100L-2N	4	16	15	6.0	13.0	16	8	24	100	HS4040P	HW20L
1605-100L-2N	5	16	15	8.0	14.7	-	-	29	100	HS4040P	HW20L
1606-100L-2N	6	16	15	8.0	15.0	-	-	31	100	HS5050P	HW25L
1607-100L-2N	7	16	15	8.0	15.7	-	-	33	100	HS6060P	HW30L
1608-100L-2N	8	16	15	8.4	15.7	-	-	37	100	HS6060P	HW30L
2003-100L-2N	3	20	19	6.0	13.0	16	8	21	100	HS4040P	HW20L
2004-100L-2N	4	20	19	6.0	13.0	16	8	24	100	HS4040P	HW20L
2005-100L-2N	5	20	19	8.0	16.0	-	-	29	100	HS4040P	HW20L
2006-100L-2N	6	20	19	8.0	17.0	18	9	31	100	HS5050P	HW25L
2007-100L-2N	7	20	19	8.0	17.5	18	9	33	100	HS6060P	HW30L
2008-100L-2N	8	20	19	8.4	19.0	18	9	37	100	HS6060P	HW30L
2010-100L-2N	10	20	19	8.4	19.7	-	10	45	100	HS6060P	HW30L
2012-100L-2N	12	20	19	8.4	19.7	-	10	48	100	HS6060P	HW30L
2504-100L-2N	4	25	23	6.0	18.0	16	8	24	100	HS4040P	HW20L
2505-100L-2N	5	25	23	8.0	18.0	18	9	29	100	HS5050P	HW25L
2506-100L-2N	6	25	23	8.0	18.0	18	9	31	100	HS5050P	HW25L
2507-100L-2N	7	25	23	8.0	18.0	18	9	33	100	HS6060P	HW30L
2508-100L-2N	8	25	23	8.4	18.0	18	9	37	100	HS6060P	HW30L
2510-100L-2N	10	25	23	8.4	18.0	18	9	45	100	HS6060P	HW30L
2512-100L-2N	12	25	23	8.4	18.0	20	10	48	100	HS6060P	HW30L

VN□BR

For Small Internal Boring & Profiling



TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

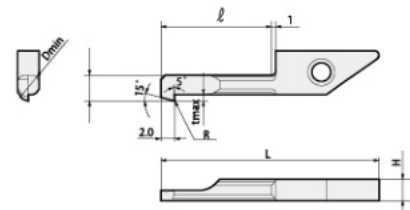
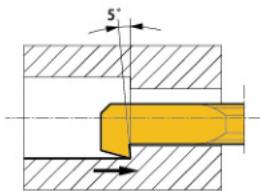
DRILL LINE

TOOL LINE

Designation	ℓ	L	H	f	tmax	Dmin	R
VN 020BR06-R0.10	6	25.80	3.9	1.80	0.25	2.0	0.10-0.15
030BR11-R0.10	11	30.80	3.9	2.60	0.40	3.0	0.10-0.15
040BR11-R0.20	11	30.80	3.9	3.50	0.50	4.0	0.20
050BR11-R0.20	11	30.80	3.9	4.50	0.70	5.0	0.20
050BR20-R0.20	20	39.80	3.9	4.50	0.70	5.0	0.20
060BR20-R0.20	20	39.80	3.9	5.30	1.00	6.0	0.20
060BR30-R0.20	30	49.80	3.9	5.30	1.00	6.0	0.20
070BR30-R0.20	30	49.80	3.9	6.20	1.00	7.0	0.20

VN□BBR

For Small Internal Back Boring

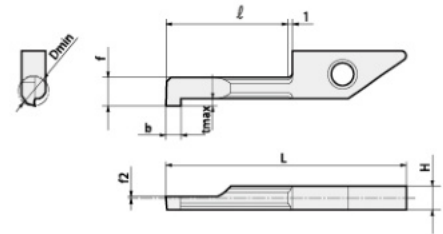
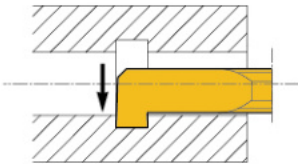


Designation	ℓ	L	H	f	tmax	Dmin	R
VN 040BBR11-R0.15	11	30.80	3.9	3.60	1.00	4.0	0.15
050BBR11-R0.20	11	30.80	3.9	4.60	1.30	5.0	0.20
050BBR20-R0.20	20	39.80	3.9	4.60	1.30	5.0	0.20
060BBR11-R0.20	11	30.80	3.9	5.40	1.80	6.0	0.20
060BBR20-R0.20	20	39.80	3.9	5.40	1.80	6.0	0.20

Auto Tools for Mini-system

VN GR

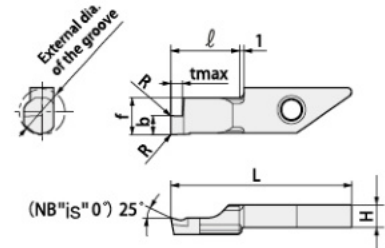
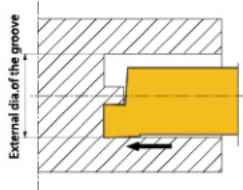
For Small Internal Grooving



Designation	b	l	L	H	f	f_2	t_{max}	D_{min}
VN 040GR11-B100	1.00	11	30.8	3.9	3.50	0.1	1.00	4.0
040GR11-B150	1.50	11	30.8	3.9	3.50	0.1	1.00	4.0
050GR11-B100	1.00	11	30.8	3.9	4.40	0.1	1.20	5.0
050GR11-B150	1.50	11	30.8	3.9	4.40	0.1	1.20	5.0
050GR11-B200	2.00	11	30.8	3.9	4.40	0.1	1.20	5.0
060GR20-B100	1.00	20	39.8	3.9	5.20	0.3	1.40	6.0
060GR20-B150	1.50	20	39.8	3.9	5.20	0.3	1.40	6.0
060GR20-B200	2.00	20	39.8	3.9	5.20	0.3	1.40	6.0
070GR20-B100	1.00	20	39.8	3.9	6.20	0.3	2.00	7.0
070GR20-B150	1.50	20	39.8	3.9	6.20	0.3	2.00	7.0
070GR20-B200	2.00	20	39.8	3.9	6.20	0.3	2.00	7.0

VN□GFR

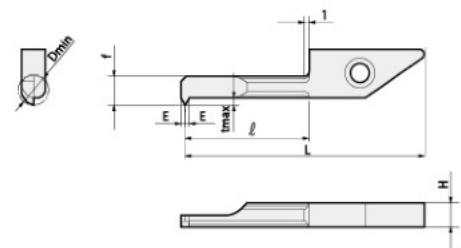
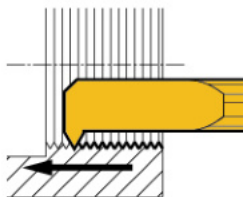
For Small Internal Face Grooving



Designation	b	ℓ	L	H	f	tmax	Dmin	Dmax	R
VN 050GFR11-B100	1.00	11	30.8	3.9	4.40	2.0	6.00	∞	0.03-0.05
050GFR11-B200	2.00	11	30.8	3.9	4.40	4.0	6.00	∞	0.03-0.05
050GFR11-B300	3.00	11	30.8	3.9	4.40	6.0	6.00	∞	0.03-0.05
060GFR20-B100	1.00	20	39.8	3.9	5.20	1.5	7.00	∞	0.03-0.05
060GFR20-B200	2.00	20	39.8	3.9	5.20	3.0	7.00	∞	0.03-0.05
060GFR20-B300	3.00	20	39.8	3.9	5.20	4.0	7.00	∞	0.03-0.05

VN□TR

For Small Internal Threading



Designation	Pitch		ℓ	L	H	f	tmax	E	Dmin
	mm	TPI							
VN 050TR11-A60	1.00-1.25	24-20	11	30.8	3.90	3.8	1.30	0.6	5.00
060TR11-A60	1.00-1.50	24-16	11	30.8	3.90	4.6	1.60	0.8	6.00
060TR20-A60	1.00-1.50	24-16	20	39.8	3.90	4.6	1.60	0.8	6.00
050TR11-A55	0.50-1.25	48-20	11	30.8	3.90	3.8	1.30	0.6	5.00
060TR11-A55	0.50-1.25	48-20	11	30.8	3.90	4.6	1.60	0.8	6.00
060TR20-A55	0.50-1.25	48-20	20	39.8	3.90	4.6	1.60	0.8	6.00

TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

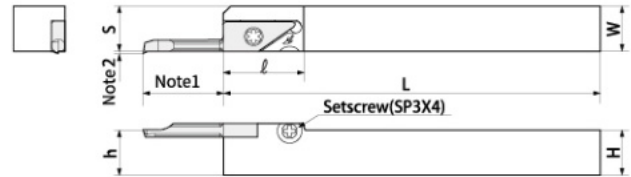
DRILL LINE

TOOL LINE

Auto Tools for Mini-system

SVNR-N

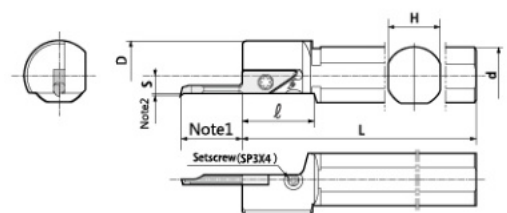
Without side stopper



Designation	H	W	L	S	h	l	Spare Parts	
							Screw	Wrench
SVNR 1010-H12N	10	10	100	10	10	22	BFTX30080-Y50	TPF-08
1212-X12N	12	12	120	12	12	22		
1616-X12N	16	16	120	16	16	22		
2020-X12N	20	20	120	20	20	22		
2525-M12N	25	25	150	25	25	22		

S-SVNR-N

Without side stopper



Designation	D	d	L	S	H	l	Spare Parts	
							Screw	Wrench
S12F-SVNR12N	20	12	80	4	11	23	BFTX30080-Y50	TPF-08
S14G-SVNR12N	20	14	90	4	13	23		
S16H-SVNR12N	24	16	100	6	15	23		
S20H-SVNR12N	24	20	100	6	18	24		
S25H-SVNR12N	30	25	100	6	23	24		

Mini Carbide Boring Tools Code System

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

1 2 3 4 5 6 7 8

1 Connector size

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

2 Type of operation

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

GR: Grooving
QR: Copying
IR: Threading
FR: Face cutting

PR: Profiling & boring
XR: Back boring
CR: Chamfering

3 Hand

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

R: right hand
L: left hand

4 Width of cutting edge (Pitch of thread insert)

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

B: Square groove
R: Round groove

5 Max. processing length

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

6 Min. boring dia

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

7 Radius

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

8 Grade

05 G R - B100 - 1.5 D07 - R0.50 TTIM45B

TURN LINE

THREAD LINE

GROOVE LINE

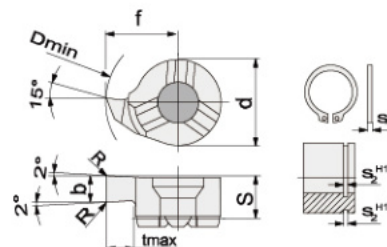
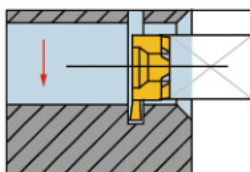
MILL LINE

DRILL LINE

TOOL LINE

Mini Carbide Boring Tools

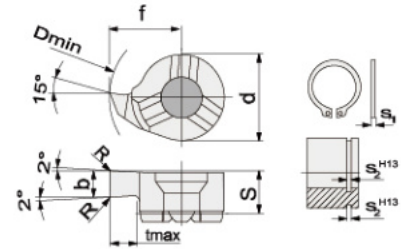
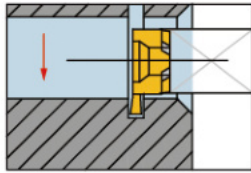
Internal Grooving (Square)



Designation (Internal)	S1	S2	b	S	f	a	d	tmax	Dmin	R
MB 04GR-B050-1.0D055			0.50	2.6	3.2	5.2	4	1.0	5.5	-
04GR-B070-1.0D055			0.70	2.6	3.2	5.2	4	1.0	5.5	-
04GR-B100-1.0D055			1.00	2.6	3.2	5.2	4	1.0	5.5	-
04GR-B150-1.0D055			1.50	2.6	3.2	5.2	4	1.0	5.5	-
04GR-B200-1.0D055			2.00	2.6	3.2	5.2	4	1.0	5.5	-
04GR-B100-1.4D06			1.00	2.6	3.7	5.7	4	1.4	6.0	-
04GR-B120-1.4D06	1.00	1.10	1.20	2.6	3.7	5.7	4	1.4	6.0	-
04GR-B150-1.4D06			1.50	2.6	3.7	5.7	4	1.4	6.0	-
04GR-B200-1.4D06			2.00	2.6	3.7	5.7	4	1.4	6.0	-
04GR-B100-2.3D07			1.00	2.6	4.7	6.7	4	2.3	6.0	-
04GR-B150-2.3D07			1.50	2.6	4.7	6.7	4	2.3	6.0	-
04GR-B200-2.3D07			2.00	2.6	4.7	6.7	4	2.3	6.0	-
05GR/L-B050-1.4D07			0.50	3.3	4.3	6.8	4	1.4	7.0	-
05GR/L-B075-1.4D07	0.60	0.70	0.75	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B080-1.4D07	0.70	0.80	0.83	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B090-1.4D07	0.80	0.90	0.93	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B100-1.4D07			1.00	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B120-1.4D07	1.00	1.10	1.20	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B140-1.4D07	1.20	1.30	1.40	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B150-1.4D07			1.50	3.3	4.3	6.8	4	1.4	7.0	-
05GR/L-B170-1.4D07	1.50	1.60	1.70	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B200-1.4D07			2.00	3.3	4.3	6.8	5	1.4	7.0	-
05GR/L-B100-2.3D08			1.00	3.3	5.2	7.7	5	2.3	8.0	-
05GR/L-B150-2.3D08			1.50	3.3	5.2	7.7	5	2.3	8.0	-
05GR/L-B200-2.3D08			2.00	3.3	5.2	7.7	5	2.3	8.0	-
05GR/L-B100-2.8D09			1.00	3.3	5.8	8.3	5	2.8	9.0	-
05GR/L-B150-2.8D09			1.50	3.3	5.8	8.3	5	2.8	9.0	-
05GR/L-B200-2.8D09			2.00	3.3	5.8	8.3	5	2.8	9.0	-
05GR/L-B250-2.8D09			2.50	3.3	5.8	8.3	5	2.8	9.0	-
05GR/L-B300-2.8D09			3.00	3.3	5.8	8.3	5	2.8	9.0	-
07GR/L-B075-2.0D10	0.60	0.70	0.73	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B080-2.0D10	0.70	0.80	0.83	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B090-2.0D10	0.80	0.90	0.93	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B100-2.0D10			1.00	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B120-2.0D10			1.20	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B140-2.0D10			1.40	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B150-2.0D10			1.50	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B170-2.0D10			1.70	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B200-2.0D10			2.00	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B250-2.0D10			2.50	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B300-2.0D10			3.00	3.5	6.0	9.5	7	2.0	10.0	-
07GR/L-B100-3.0D11			1.00	3.5	7.0	10.5	7	3.0	11.0	-
07GR/L-B150-3.0D11			1.50	3.5	7.0	10.5	7	3.0	11.0	-
07GR/L-B200-3.0D11			2.00	3.5	7.0	10.5	7	3.0	11.0	-
07GR/L-B250-3.0D11			2.50	3.5	7.0	10.5	7	3.0	11.0	-
07GR/L-B300-3.0D11			3.00	3.5	7.0	10.5	7	3.0	11.0	-
07GR/L-B100-3.5D12			1.00	3.5	7.5	11.0	7	3.5	12.0	-
07GR/L-B150-3.5D12			1.50	3.5	7.5	11.0	7	3.5	12.0	-

※ Note: 1. 05GR type insert is not in the standard inventory, for deeper and smaller sizes, please contact the supplier to ask whether can be grinded or not
 2. 09 type insert can be drilled 16mm hole by grinding the insert and the holder, the cutting depth can reach 6.0mm, and 17mm hole can cut the depth up to 7.0mm. When using the insert, try to choose the holder with a short and thick overhang and the wider insert
 3. You can contact the supplier if you have special requirements for the radius.

Internal Grooving (Square)



TURN LINE

THREAD LINE

GROOVE LINE

MILL LINE

DRILL LINE

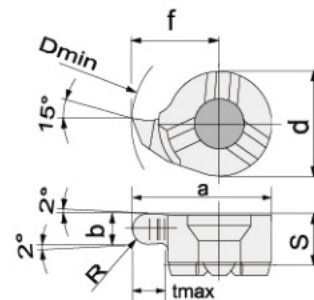
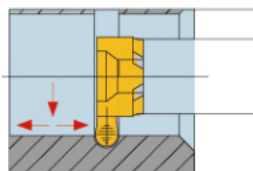
TOOL LINE

Designation (Internal)	S1	S2	b	S	f	a	d	tmax	Dmin	R
MB 07GR/L-B200-3.5D12			2.00	3.5	7.5	11.0	7	3.5	12.0	-
07GR/L-B250-3.5D12			2.50	3.5	7.5	11.0	7	3.5	12.0	-
07GR/L-B300-3.5D12			3.00	3.5	7.5	11.0	7	3.5	12.0	-
09GR/L-B100-4.0D14			1.00	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B120-4.0D14			1.20	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B140-4.0D14			1.40	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B150-4.0D14			1.50	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B170-4.0D14			1.70	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B200-4.0D14			2.00	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B250-4.0D14			2.50	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B300-4.0D14			3.00	4.7	9.0	13.5	9	4.0	14.0	-
09GR/L-B200-4.0D14-R0.20			2.00	4.7	9.0	13.5	9	4.0	14.0	0.2
09GR/L-B150-5.5D16			1.50	4.7	10.5	15.0	9	5.5	16.0	-
09GR/L-B200-5.5D16			2.00	4.7	10.5	15.0	9	5.5	16.0	-
09GR/L-B250-5.5D16			2.50	4.7	10.5	15.0	9	5.5	16.0	-
09GR/L-B300-5.5D16			3.00	4.7	10.5	15.0	9	5.5	16.0	-
09GR/L-B150-5.5D16-R0.20			1.50	4.7	10.5	15.0	9	5.5	16.0	0.2
09GR/L-B200-5.5D16-R0.20			2.00	4.7	10.5	15.0	9	5.5	16.0	0.2
09GR/L-B250-5.5D16-R0.20			2.50	4.7	10.5	15.0	9	5.5	16.0	0.2
09GR/L-B300-5.5D16-R0.20			3.00	4.7	10.5	15.0	9	5.5	16.0	0.2
09GR/L-B150-6.5D17			1.50	4.7	11.5	16.0	9	6.5	17.0	-
09GR/L-B200-6.5D17			2.00	4.7	11.5	16.0	9	6.5	17.0	-
09GR/L-B250-6.5D17			2.50	4.7	11.5	16.0	9	6.5	17.0	-
09GR/L-B300-6.5D17			3.00	4.7	11.5	16.0	9	6.5	17.0	-
11GR/L-B120-4.3D16-R0.20	1.00	1.10	1.20	5.3	10.2	15.7	11	4.3	16.0	-
11GR/L-B140-4.3D16-R0.20	1.20	1.30	1.40	5.3	10.2	15.7	11	4.3	16.0	-
11GR/L-B150-4.3D16-R0.20			1.50	5.3	10.2	15.7	11	4.3	16.0	0.2
11GR/L-B170-4.3D16-R0.20	1.50	1.60	1.70	5.3	10.2	15.7	11	4.3	16.0	0.2
11GR/L-B200-4.3D16-R0.20			2.00	5.3	10.2	15.7	11	4.3	16.0	0.2
11GR/L-B250-4.3D16-R0.20			2.50	5.3	10.2	15.7	11	4.3	16.0	0.2
11GR/L-B300-4.3D16-R0.20			3.00	5.3	10.2	15.7	11	4.3	16.0	0.2
11GR/L-B400-4.3D16-R0.20			4.00	5.3	10.2	15.7	11	4.3	16.0	0.2
11GR/L-B150-6.0D18-R0.20			1.50	5.3	12.0	17.5	11	6.0	18.0	0.2
11GR/L-B200-6.0D18-R0.20			2.00	5.3	12.0	17.5	11	6.0	18.0	0.2
11GR/L-B250-6.0D18-R0.20			2.50	5.3	12.0	17.5	11	6.0	18.0	0.2
11GR/L-B300-6.0D18-R0.20			3.00	5.3	12.0	17.5	11	6.0	18.0	0.2
11GR/L-B400-6.0D18-R0.20			4.00	5.3	12.0	17.5	11	6.0	18.0	0.2
11GR/L-B150-8.0D20-R0.20			1.50	5.3	14.0	19.5	11	8.0	20.0	0.2
11GR/L-B200-8.0D20-R0.20			2.00	5.3	14.0	19.5	11	8.0	20.0	0.2
11GR/L-B250-8.0D20-R0.20			2.50	5.3	14.0	19.5	11	8.0	20.0	0.2
11GR/L-B300-8.0D20-R0.20			3.00	5.3	14.0	19.5	11	8.0	20.0	0.2
11GR/L-B400-8.0D20-R0.20			4.00	5.3	14.0	19.5	11	8.0	20.0	0.2

※ Note: 1. 05GR type insert is not in the standard inventory, for deeper and smaller sizes, please contact the supplier to ask whether can be grinded or not
2. 09 type insert can be drilled 16mm hole by grinding the insert and the holder, the cutting depth can reach 6.0mm, and 17mm hole can cut the depth up to 7.0mm. When using the insert, try to choose the holder with a short and thick overhang and the wider insert
3. You can contact the supplier if you have special requirements for the radius.

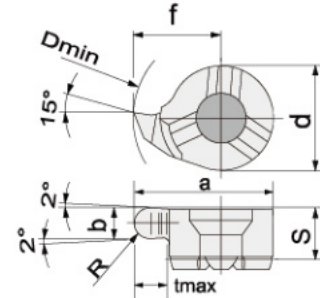
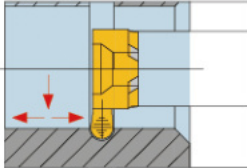
Mini Carbide Boring Tools

Internal Grooving (Round)



Designation (Internal)	b	S	f	a	d	tmax	Dmin	R
MB 04GR-B100-1.4D06-R0.50	1.00	2.6	3.7	5.7	4	1.4	6.0	0.50
04GR-B150-1.4D06-R0.75	1.50	2.6	3.7	5.7	4	1.4	6.0	0.75
04GR-B200-1.4D06-R1.00	2.00	2.6	3.7	5.7	4	1.4	6.0	1.00
04GR-B100-2.3D07-R0.50	1.00	2.6	4.7	6.7	4	2.3	6.0	0.50
04GR-B150-2.3D07-R0.75	1.50	2.6	4.7	6.7	4	2.3	6.0	0.75
04GR-B200-2.3D07-R1.00	2.00	2.6	4.7	6.7	4	2.3	6.0	1.00
05GR/L-B100-1.4D07-R0.50	1.00	3.3	4.3	6.8	5	1.4	7.0	0.50
05GR/L-B150-1.4D07-R0.75	1.50	3.3	4.3	6.8	4	1.4	7.0	0.75
05GR/L-B200-1.4D07-R1.00	2.00	3.3	4.3	6.8	5	1.4	7.0	1.00
05GR/L-B100-2.3D08-R0.50	1.00	3.3	5.2	7.7	5	2.3	8.0	0.50
05GR/L-B150-2.3D08-R0.75	1.50	3.3	5.2	7.7	5	2.3	8.0	0.75
05GR/L-B200-2.3D08-R1.00	2.00	3.3	5.2	7.7	5	2.3	8.0	1.00
05GR/L-B100-2.8D09-R0.50	1.00	3.3	5.8	8.3	5	2.8	9.0	0.50
05GR/L-B150-2.8D09-R0.75	1.50	3.3	5.8	8.3	5	2.8	9.0	0.75
05GR/L-B200-2.8D09-R1.00	2.00	3.3	5.8	8.3	5	2.8	9.0	1.00
07GR/L-B100-2.0D10-R0.50	1.00	3.5	6.0	9.5	7	2.0	10.0	0.50
07GR/L-B150-2.0D10-R0.75	1.50	3.5	6.0	9.5	7	2.0	10.0	0.75
07GR/L-B200-2.0D10-R1.00	2.00	3.5	6.0	9.5	7	2.0	10.0	1.00
07GR/L-B300-2.0D10-R1.50	3.00	3.5	6.0	9.5	7	2.0	10.0	1.50
07GR/L-B100-3.0D11-R0.50	1.00	3.5	7.0	10.5	7	3.0	11.0	0.50
07GR/L-B150-3.0D11-R0.75	1.50	3.5	7.0	10.5	7	3.0	11.0	0.75
07GR/L-B200-3.0D11-R1.00	2.00	3.5	7.0	10.5	7	3.0	11.0	1.00
07GR/L-B300-3.0D11-R1.50	3.00	3.5	7.0	10.5	7	3.0	11.0	1.50
07GR/L-B100-3.5D12-R0.50	1.00	3.5	7.5	11.0	7	3.5	12.0	0.50
07GR/L-B150-3.5D12-R0.75	1.50	3.5	7.5	11.0	7	3.5	12.0	0.75
07GR/L-B200-3.5D12-R1.00	2.00	3.5	7.5	11.0	7	3.5	12.0	1.00
07GR/L-B300-3.5D12-R1.50	3.00	3.5	7.5	11.0	7	3.5	12.0	1.50
09GR/L-B100-4.0D14-R0.50	1.00	4.7	9.0	13.5	9	4.0	14.0	0.50
09GR/L-B150-4.0D14-R0.75	1.50	4.7	9.0	13.5	9	4.0	14.0	0.75
09GR/L-B200-4.0D14-R1.00	2.00	4.7	9.0	13.5	9	4.0	14.0	1.00
09GR/L-B300-4.0D14-R1.50	3.00	4.7	9.0	13.5	9	4.0	14.0	1.50

Internal Grooving (Round)



Designation (Internal)	b	S	f	a	d	tmax	Dmin	R
MB 09GR/L-B150-5.5D16-R0.75	1.50	4.7	10.5	15.0	9	5.5	16.0	0.75
09GR/L-B200-5.5D16-R1.00	2.00	4.7	10.5	15.0	9	5.5	16.0	1.00
09GR/L-B300-5.5D16-R1.50	3.00	4.7	10.5	15.0	9	5.5	16.0	1.50
09GR/L-B150-6.5D17-R0.75	1.50	4.7	11.5	16.0	9	6.5	17.0	0.75
09GR/L-B200-6.5D17-R1.00	2.00	4.7	11.5	16.0	9	6.5	17.0	1.00
09GR/L-B300-6.5D17-R1.50	3.00	4.7	11.5	16.0	9	6.5	17.0	1.50
11GR/L-B150-4.3D16-R0.75	1.50	5.3	10.2	15.7	11	4.3	16.0	0.75
11GR/L-B200-4.3D16-R1.00	2.00	5.3	10.2	15.7	11	4.3	16.0	1.00
11GR/L-B250-4.3D16-R1.25	2.50	5.3	10.2	15.7	11	4.3	16.0	1.25
11GR/L-B300-4.3D16-R1.50	3.00	5.3	10.2	15.7	11	4.3	16.0	1.50
11GR/L-B400-4.3D16-R2.00	4.00	5.3	10.2	15.7	11	4.3	16.0	2.00
11GR/L-B150-6.0D18-R0.75	1.50	5.3	12.0	17.5	11	6.0	18.0	0.75
11GR/L-B200-6.0D18-R1.00	2.00	5.3	12.0	17.5	11	6.0	18.0	1.00
11GR/L-B250-6.0D18-R1.25	2.50	5.3	12.0	17.5	11	6.0	18.0	1.25
11GR/L-B300-6.0D18-R1.50	3.00	5.3	12.0	17.5	11	6.0	18.0	1.50
11GR/L-B400-6.0D18-R2.00	4.00	5.3	12.0	17.5	11	6.0	18.0	2.00
11GR/L-B150-8.0D20-R0.75	1.50	5.3	14.0	19.5	11	8.0	20.0	0.75
11GR/L-B200-8.0D20-R1.00	2.00	5.3	14.0	19.5	11	8.0	20.0	1.00
11GR/L-B250-8.0D20-R1.25	2.50	5.3	14.0	19.5	11	8.0	20.0	1.25
11GR/L-B300-8.0D20-R1.50	3.00	5.3	14.0	19.5	11	8.0	20.0	1.50
11GR/L-B400-8.0D20-R2.00	4.00	5.3	14.0	19.5	11	8.0	20.0	2.00

TURN LINE

THREAD LINE

GROOVE LINE

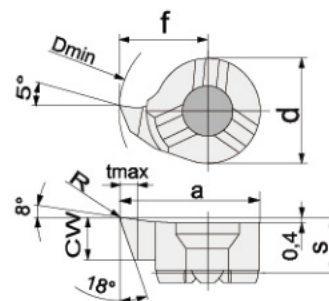
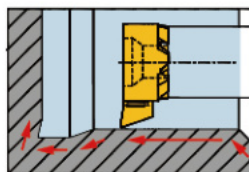
MILL LINE

DRILL LINE

TOOL LINE

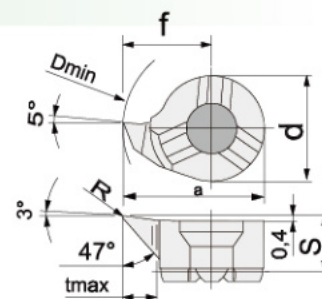
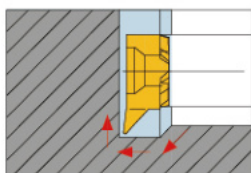
Mini Carbide Boring Tools

Boring and Profiling



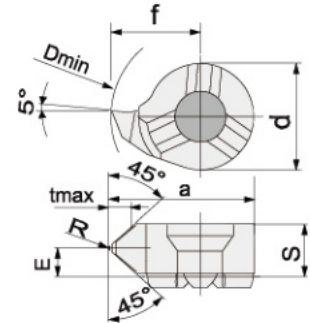
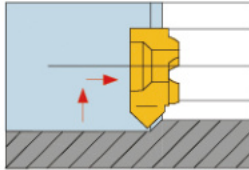
Designation (Internal)	d	S	a	f	tmax	Dmin	R
MB 04PR/L-D06-R0.20	4	2.6	5.0	3.0	0.8	5.5	0.2
05PR/L-D07-R0.20	5	3.3	6.1	3.6	1.0	6.5	0.2
07PR/L-D10-R0.20	7	3.5	9.5	6.0	2.0	10.0	0.2
09PR/L-D14-R0.20	9	4.7	13.2	8.7	4.0	13.8	0.2

Copying



Designation (Internal)	d	S	a	f	tmax	Dmin	R
MB 04QR/L-4D06-R0.20	4	2.6	5.7	3.7	1.4	6.0	0.2
05QR/L-1.5D07-R0.20	5	3.3	6.8	4.3	1.5	7.0	0.2
05QR/L-3.5D09-R0.20	5	3.3	8.5	5.5	3.5	9.0	0.2
07QR/L-2.0D10-R0.20	7	3.5	9.5	6.0	2.0	10.0	0.2
07QR/L-3.5D12-R0.20	7	3.5	11.0	7.5	3.5	12.0	0.2
09QR/L-4.0D14-R0.20	9	4.7	13.5	9.0	4.0	14.0	0.2
09QR/L-6.0D16-R0.20	9	4.7	15.5	11.0	6.0	16.0	0.2
09QR/L-7.0D17-R0.20	9	4.7	16.5	12.0	7.0	17.0	0.2
11QR/L-4.0D16-R0.20	11	5.3	15.5	10.0	4.0	16.0	0.2
11QR/L-8.0D20-R0.20	11	5.3	19.5	14.0	8.0	20.0	0.2

Internal Chamfering



TURN LINE

THREAD LINE

GROOVE LINE

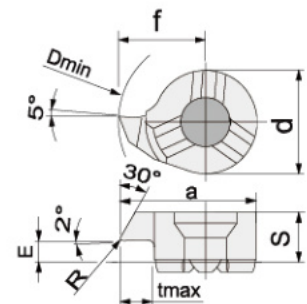
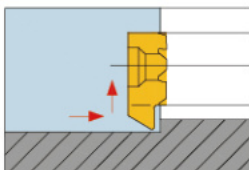
MILL LINE

DRILL LINE

TOOL LINE

Designation (Internal)	d	S	a	f	E	tmax	Dmin	R
MB 04CR-0.8D06-R0.20	4	2.6	5.2	3.2	1.1	0.8	5.7	0.2
05CR-1.0D07-R0.20	5	3.3	6.5	3.7	1.4	1.0	7.0	0.2
07CR-2.0D09-R0.20	7	3.5	9.5	6.0	1.6	2.0	10.0	0.2

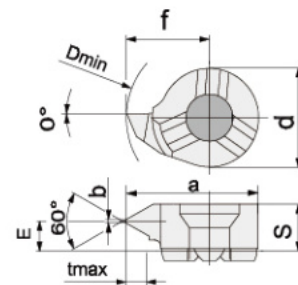
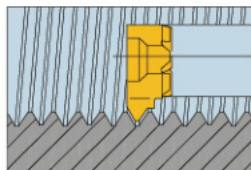
Back Boring



Designation (Internal)	d	S	E	a	f	tmax	Dmin	R
MB 04XR/L-1.4D06-R0.20	4	2.6	2.3	5.7	3.7	1.4	6.0	0.2
05XR/L-1.5D07-R0.20	5	3.3	2.3	6.8	4.3	1.5	7.0	0.2
05XR/L-3.5D09-R0.20	5	3.3	2.3	8.5	5.5	3.5	9.0	0.2
07XR/L-2.0D10-R0.20	7	3.5	2.6	9.5	6.0	2.0	10.0	0.2
07XR/L-3.5D12-R0.20	7	3.5	2.6	11.0	7.5	3.5	12.0	0.2
09XR/L-4.0D14-R0.20	9	4.7	3.0	13.5	9.0	4.0	14.0	0.2
09XR/L-6.0D16-R0.20	9	4.7	3.0	15.5	11.0	6.0	16.0	0.2
09XR/L-7.0D17-R0.20	9	4.7	3.0	16.5	12.0	7.0	17.0	0.2
11XR/L-4.0D16-R0.20	11	5.3	3.5	15.5	10.0	4.0	16.0	0.2
11XR/L-8.0D20-R0.20	11	5.3	3.5	19.5	14.0	8.0	20.0	0.2

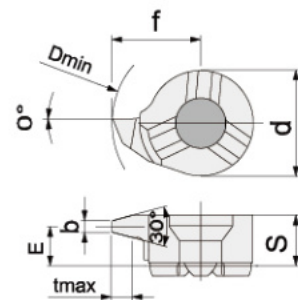
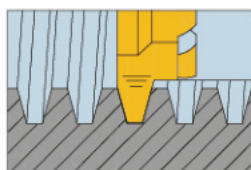
Mini Carbide Boring Tools

Internal Threading (Partial profile)



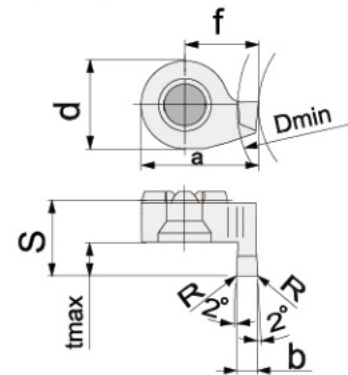
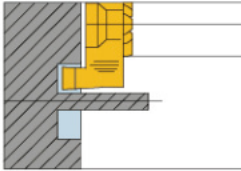
Designation (Internal)	Pitch		d	S	a	f	Size	E	tmax
	mm	TPI							
MB 04IR0.50-1.50-D07	0.50-1.50	48-16	4	2.6	5.3	3.7		2.8	0.81
05IR1.00-1.75-D07	1.00-1.75	24-14	5	3.3	6.8	4.3	M10x1.5, M12x1.5, M12x1.75	2.8	0.95
07IR1.00-2.00-D09	1.00-2.00	24-14	7	3.5	9.5	6.0	M12x1.75, M14x2	2.8	1.08
09IR1.50-3.00-D12	1.50-3.00	16-8	9	4.7	12.5	8.0	M20x2.5, M22x2.5, M24x3	3.55	1.35

Internal Threading (Trapez DIN103)



Designation (Internal)	Pitch	b	d	S	a	f	tmax	Size	E
MB 05IR/L-15TR-07R	1.5	0.47	5	3.3	6.8	4.3	0.90	Tr10x1.5	2.90
05IR/L-20TR-08R	2.0	0.60	5	3.3	7.2	4.7	1.25	Tr10x2, Tr11x2, Tr12x2	2.70
05IR/L-30TR-08R	3.0	0.96	5	3.3	7.5	5.0	1.75	Tr11x3, Tr12x3	2.40
07IR/L-30TR-10R	3.0	0.96	7	3.5	9.7	6.2	1.75	Tr14x3, Tr22x3, Tr26x3, Tr28x3	2.70
07IR/L-40TR-11R	4.0	1.33	7	3.5	10.2	6.7	2.25	Tr16x4, Tr18x4, Tr20x4	2.20
09IR/L-40TR-14R	4.0	1.33	9	4.7	12.5	8.0	2.25	Tr18x4, Tr20x4	2.20
09IR/L-50TR-14R	5.0	1.69	9	4.7	13.5	9.0	2.75	Tr22x5, Tr24x5, Tr26x5, Tr28x5	3.55
11IR/L-40TR-15R	4.0	1.33	11	5.3	14.5	9.0	2.25	Tr18x4, Tr20x4	4.00
11IR/L-50TR-16R	5.0	1.69	11	5.3	15.5	10.0	2.75	Tr22x5, Tr24x5, Tr26x5, Tr28x5	3.60
11IR/L-60TR-16R	6.0	1.92	11	5.3	15.7	10.2	3.50	Tr30x6, Tr36x6	3.30

Face Grooving in Pivots(Square)



TURN LINE

THREAD LINE

GROOVE LINE

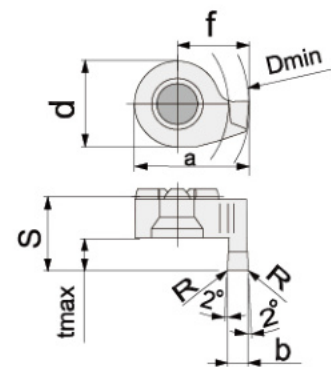
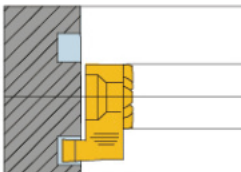
MILL LINE

DRILL LINE

TOOL LINE

Designation (Internal)	b	S	f	a	d	tmax	Dmin	r
MB 09FER/L-B100-1.5D12	1.0	8.3	7.0	11.5	9	1.5	12	-
09FER/L-B150-2.5D12-R0.20	1.5	8.3	7.5	12.0	9	2.5	12	0.2
09FER/L-B200-3.0D12-R0.20	2.0	8.3	8.0	12.5	9	3.0	12	0.2
09FER/L-B300-3.0D12-R0.20	3.0	8.3	9.0	13.5	9	3.0	12	0.2
09FER/L-B200-5.0D12-R0.20	2.0	10.3	8.0	12.5	9	5.0	12	0.2
09FER/L-B300-5.0D12-R0.20	3.0	10.3	9.0	13.5	9	5.0	12	0.2
09FER/L-B300-6.0D12-R0.20	3.0	11.3	9.0	13.5	9	6.0	12	0.2

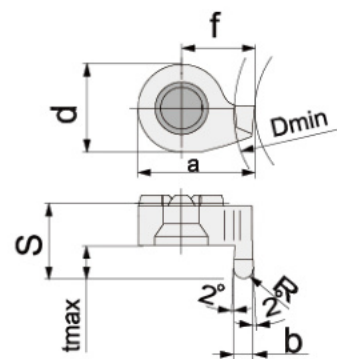
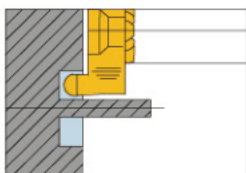
Face Grooving(Square)



Designation (Internal)	b	S	f	a	d	tmax	Dmin	r
MB 09FNR/L-B100-3.0D14	1.0	8.2	7.0	11.5	9	3	14	-
09FNR/L-B150-3.0D14-R0.20	1.5	8.2	7.5	12.0	9	3	14	0.2
09FNR/L-B200-3.0D14-R0.20	2.0	8.2	8.0	12.5	9	3	14	0.2
09FNR/L-B300-3.0D14-R0.20	3.0	8.2	9.0	13.5	9	3	14	0.2
09FNR/L-B200-5.0D14-R0.20	2.0	10.2	8.0	12.5	9	5	14	0.2
09FNR/L-B300-5.0D14-R0.20	3.0	10.2	9.0	13.5	9	5	14	0.2
09FNR/L-B300-6.0D14-R0.20	3.0	11.2	9.0	13.5	9	6	14	0.2

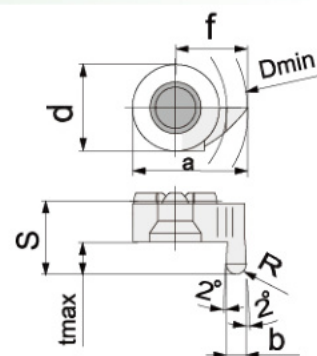
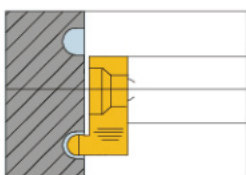
Mini Carbide Boring Tools

Face Grooving in Pivots (Round)



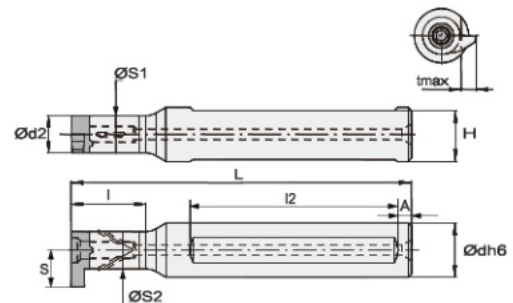
Designation (Internal)	b	S	f	a	d	tmax	Dmin	r
MB 09FER/L-R100-1.5D12	1.0	8.3	7.0	11.5	9	1.5	12	0.50
09FER/L-R150-2.0D12	1.5	8.3	7.5	12.0	9	2.5	12	0.75
09FER/L-R200-3.0D12	2.0	8.3	8.0	12.5	9	3.0	12	1.00
09FER/L-R300-3.0D12	3.0	8.3	9.0	13.5	9	3.0	12	1.50
09FER/L-R200-5.0D12	2.0	10.3	8.0	12.5	9	5.0	12	1.00
09FER/L-R300-5.0D12	3.0	10.3	9.0	13.5	9	5.0	12	1.50
09FER/L-R300-6.0D12	3.0	11.3	9.0	13.5	9	6.0	12	1.50

Face Grooving(Round)



Designation (Internal)	b	S	f	a	d	tmax	Dmin	r
MB 09FNR/L-R100-3.0D14	1.0	8.3	7	11.5	9	3	14	0.50
09FNR/L-R150-3.0D14	1.5	8.3	7.5	12.0	9	3	14	0.75
09FNR/L-R200-3.0D14	2.0	8.3	8	12.5	9	3	14	1.00
09FNR/L-R300-3.0D14	3.0	8.3	9	13.5	9	3	14	1.50
09FNR/L-R200-5.0D14	2.0	10.3	8	12.5	9	5	14	1.00
09FNR/L-R300-5.0D14	3.0	10.3	9	13.5	9	5	14	1.50
09FNR/L-R300-6.0D14	3.0	10.3	9	13.5	9	6	14	1.50

Mini Carbide Boring Holder



Internal grooving holder of steel shank

Designation	Stock		Dimensions(mm)										Insert	Spare parts	
	R	L	Dmin	d	d2-S1	S2	H	I	I2	L	S	A		 screw	 Wrench
MG H16-20-07R	●		10.0	16	7	7.0	15.0	20.0	50	120	6.0	5.0	MB-07	L0755SSTX3.0-4.0P	TPF-08
H16-30-09R	●		14.0	16	9	9.0	15.0	30.0	50	120	9.0	5.0	MB-09	L0960SSTX4.0-5.7P	TPF-15
H20-40-11R	●		18.0	20	11	11.0	19.0	40.0	50	130	12.0	5.0	MB-11	L1260SSTX5.0-7.0P	TPF-20
H12-18-05ST	●		7.0	12	5	6.7	11.0	18.0	45	80	4.3	5.0	MB-05	L0560SSTX2.2-3.0P	TPF-06
H16-20-07ST	●		10.0	16	7	8.5	15.0	20.0	50	120	6.0	5.0	MB-07	L0755SSTX3.0-4.0P	TPF-08
H16-30-09ST	●		14.0	16	9	11.0	15.0	30.0	50	120	9.0	5.0	MB-09	L0960SSTX4.0-5.7P	TPF-15
H20-40-11ST	●		18.0	20.0	11	13.5	19.0	40.0	50	130	12.0	5.0	MB-11	L1260SSTX5.0-7.0P	TPF-20
H12-16-04ST-N	●		6.0	12.0	4	5.2	11.0	16.0	45	80	3.7	5.0	MB-04	L0455SSTX1.8-2.7P	TPF-06
H12-18-05ST-N	●		7.0	12.0	5	6.7	11.0	18.0	45	80	4.3	5.0	MB-05	L0560SSTX2.2-3.0P	TPF-06
H16-20-07ST-N	●		10.0	16.0	7	8.5	15.0	20.0	50	120	6.0	5.0	MB-07	L0755SSTX3.0-4.0P	TPF-08
H16-30-09ST-N	●		14.0	16.0	9	11.0	15.0	30.0	50	120	9.0	5.0	MB-09	L0960SSTX4.0-5.7P	TPF-15
H20-40-11ST-N	●		18.0	20.0	11	13.5	19.0	40.0	50	130	12.0	5.0	MB-11	L1260SSTX5.0-7.0P	TPF-20

TURN LINE

THREAD LINE

GROOVE LINE

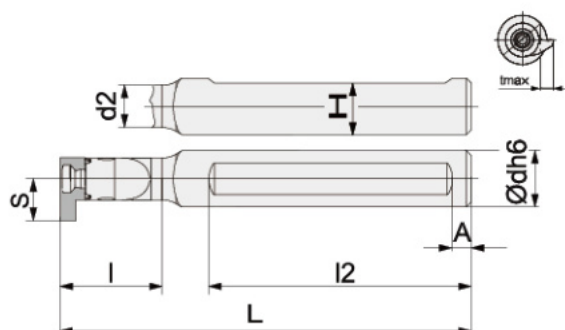
MILL LINE

DRILL LINE

TOOL LINE

Mini Carbide Boring Tools

Mini Carbide Boring Holder



Internal grooving holder of carbide shank

Designation		Stock		Dimensions(mm)							Insert	Spare parts		
		R	L	d	d2	H	I	I2	L	S		A	 screw	 Wrench
MG	E12-28-05C	○		12	5	11	28	45	90	4.3	5.0	MB-05	L0560SSTX2.2-3.0P	TPF-06
	E12-36-05C	○		12	5	11	36	50	100	4.3	5.0	MB-05	L0560SSTX2.2-3.0P	TPF-06
	E12-33-07C	○		12	7	11	33	50	90	6.0	5.0	MB-07	L0755SSTX3.0-4.0P	TPF-08
	E12-49-07C	○		12	7	11	49	50	110	6.0	5.0	MB-07	L0755SSTX3.0-4.0P	TPF-08
	E12-45-09C	○		12	9	11	45	50	110	9.0	5.0	MB-09	L0960SSTX4.0-5.7P	TPF-15
	E12-56-09C	○		12	9	11	56	50	120	9.0	5.0	MB-09	L0960SSTX4.0-5.7P	TPF-15
	E12-50-11C	○		12	11	11	50	50	110	12.0	5.0	MB-11	L1260SSTX5.0-7.0P	TPF-20
	E12-80-11C	○		12	11	11	80	50	150	12.0	5.0	MB-11	L1260SSTX5.0-7.0P	TPF-20
	E04-00-04C	●		4	4	3.8	-	-	95	3.7	-	MB-04	L0455SSTX1.8-2.7P	TPF-06
	E05-00-05C	●		5	5	4.7	-	-	95	4.3	-	MB-05	L0560SSTX2.2-3.0P	TPF-06
	E07-00-07C	●		7	7	6.6	-	-	95	6.0	-	MB-07	L0755SSTX3.0-4.0P	TPF-08
	E09-00-09C	●		9	9	8.5	-	-	125	9.0	-	MB-09	L0960SSTX4.0-5.7P	TPF-15
	E11-00-11C	●		11	11	11.5	-	-	125	12.0	-	MB-11	L1260SSTX5.0-7.0P	TPF-20