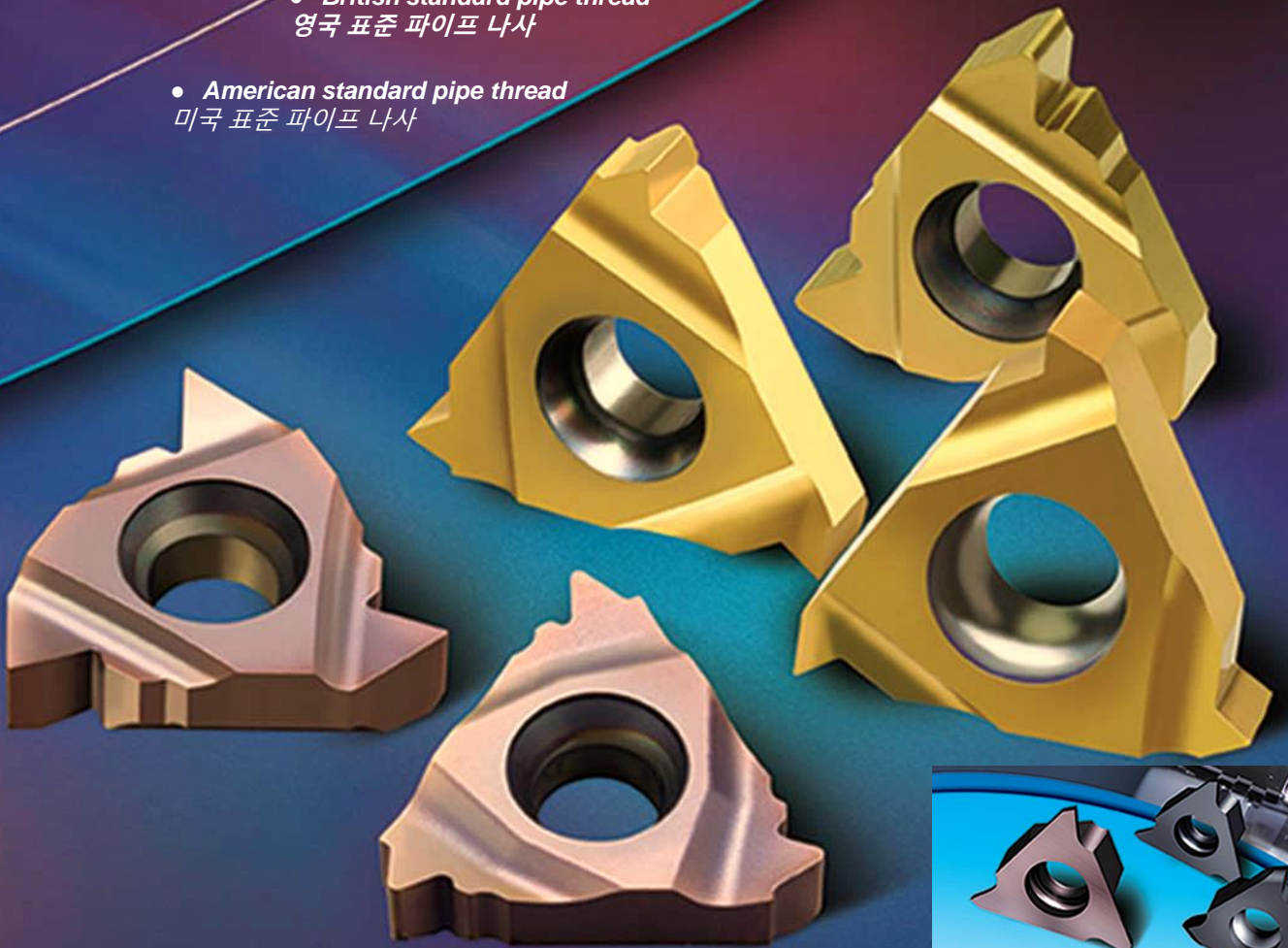


MEGACUT

2022

6series

- ISO metric thread
ISO 미터 나사
- General pitch thread
일반 피치 나사
- Whitworth thread
휘트워스 스레드
- Unified thread
통합 스레드
- British standard pipe thread
영국 표준 파이프 나사
- American standard pipe thread
미국 표준 파이프 나사



Threading and Grooving insert

Fully ground high precision inserts for high quality, high precision threading in a variety of materials e.g. steel, stainless steel, hard-to-machine materials.

다양한 소재의 고품질 고정밀 나사 가공을 위한 완전 연마 고정밀 인서트. 강철, 스테인리스 강, 기계 가공이 어려운 재료.



TURNING

MEGACUT

Threading , Grooving

A1-A2	Threading tools overview
A3	Introduction on threading insert grade and chipbreaker
A4-A12	Threading insert
A5	Threading insert code key
A6-A7	ISO metric external thread
A8	General pitch thread
A9	Whitworth thread
A10	Unified thread
A11	British standard pipe thread
A12	American standard pipe thread
A13-A15	Threading tools
A13	Threading tools code key
A14	External threading tools
A15	Internal threading tools
A16-A26	Application information on threading
A27-A40	Parting and grooving tools



Threading tools overview

General turning

Parting and grooving

Threading

Threading tools overview

Applications		For general use			
Legend					
Thread name		ISO metric thread With end	General pitch thread Without end	General pitch thread Without end	
Profil		GM	60	55	
Shape of insert (length: 11, 16, 22mm)		R style shown A280-281	R style shown A282	R style shown A282	
Tool holder	Pitch	Dimensions (mm) (H×W×L) (Dia×L×Min. dia)	Pitch/mm	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)
	External thread R-type shown A288	16×16×100 20×20×125 25×25×150 32×25×170 32×32×170 40×40×250	0.5~6.0	0.5~5.0 (5~48)	0.5~5.0 (5~48)
Internal thread R-type shown A289	16×125×12 16×150×16 16×150×20 20×150×25 20×180×25 25×150×32 32×200×40 32×250×40 40×300×50 50×350×63	0.5~6.0	0.5~5.0 (5~48)	0.5~5.0 (5~48)	



Threading tools overview

For general use	For aerospace industry	Heater, gas and water pipe thread	For gas and water faucet and pipe connection
			
Whitworth thread	Unified thread (American standard threads)	British standard taper pipe threads	American standard taper pipe threads
W	UN	BSPT	NPT
R style shown	R style shown	R style shown	R style shown
 <p>A283</p>	 <p>A284</p>	 <p>A285</p>	 <p>A286</p>
Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)
8~19	8~24	11~28	8~27
8~19	8~24	11~28	8~27

General turning

Parting and grooving

Threading

Threading tools overview

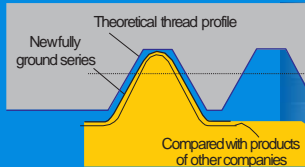


MGU540-MGM720

suitable for threading in a variety of materials

New nano coating grade

- Specially treated edge for superior surface quality
- Sharp nose with small cutting resistance and superior performance
- Full ground inserts with high dimensional precision for high quality threading



Thread type	Grade of tolerance
ISO metric thread	6g/6H
Whitworth thread W	Medium Class A
British standard pipe thread	Standard BSPT
Unified thread	2A/2B
American standard pipe thread	Standard NPT

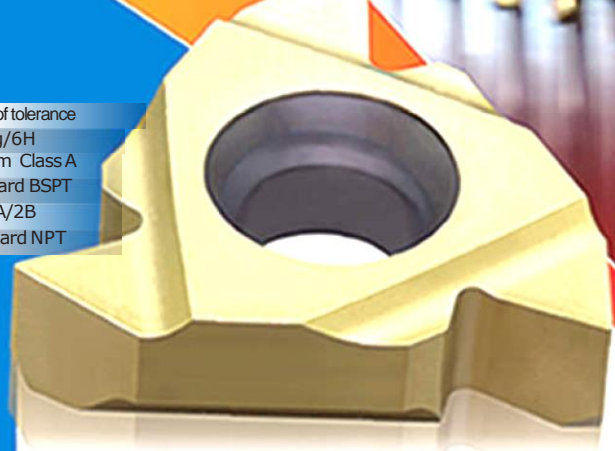
- New nano coating grade specially designed for threading with longer insert life



Advanced surface treatment techniques effectively reduce friction and allows for better wear observation.

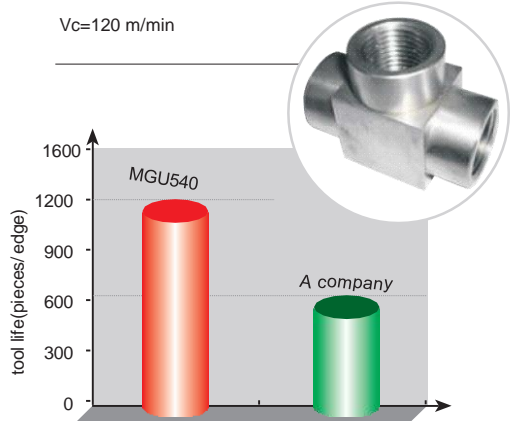
Advanced TiAlN substrate nano coating, in combination with proper coating ingredients, improves the mechanical and thermal properties of coating.

Further optimizing coating structure, improving coating stress, enhancing bond strength of coating and substrate.



Case:

Workpiece material: 42CrMo(HB260) Insert:
16ER 2.0ISO MGU540
Thread pitch: $p=2.0\text{mm}$ Cutting data:
 $V_c=120\text{ m/min}$



84% tool life improvement of MEGACUT product than that of company A under the same cutting condition.



Threading insert

Threading inserts code key

Insert size	
Code	Diameter of IC(mm)
11	ø6.35
16	ø9.525
22	ø12.7

Cutting style
E -External threading inserts
I -Internal threading inserts

Cutting direction
R -Right
L -Left

16 E R 2.0 ISO (P)

Screw pitch		
Full profile (Range of screw pitch is indicated by numbers).		
mm	TPI	
0.5-6.0	48-5	
V profile (Range of screw pitch is indicated by letters).		
	mm	TPI
A	0.5-1.5	48-16
AG	0.5-3.0	48-8
G	1.75-3.0	14-8
N	3.5-5.0	7-5
Thread specification	Range of thread pitch	
ISO metric thread	0.5-6.0	
General pitch thread	0.5-5.0	
Whitworth thread W	8-19	
British standard pipe thread	11-28	
Unified thread	8-24	
American standard pipe thread	8-27	

Profile
ISO—ISO metric 60° thread
60—60° general pitch thread
55—55° general pitch thread
W—Whitworth thread
UN—Unified thread(American standard threads)
BSPT—British standard taper pipe thread
NPT—American standard taper pipe thread

Chip breaker
□-fully ground edge insert
P -3-Dimensional chip-breaking insert

General turning

Parting and grooving

Threading

Threading insert

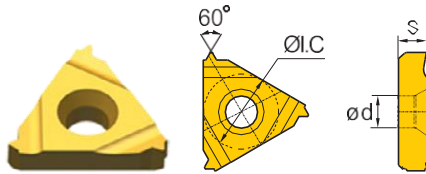
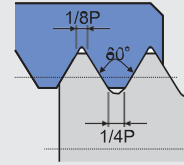


Threading insert

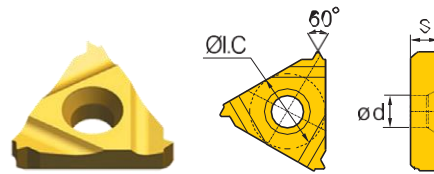
ISO metric thread (with end)

ISO 965-1980
GB/T 197-2003

DIN 13
Tolerance class : 6g/6H



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	Ø.I.C	ød	MGU540	MGM720
External thread	16ER0.5ISO	16EL0.5ISO	0.50	3.52	9.525	4.0	★	○
	16ER0.75ISO	16EL0.75ISO	0.75	3.52	9.525	4.0	★	○
	16ER1.0ISO	16EL1.0ISO	1.00	3.52	9.525	4.0	★	○
	16ER1.25ISO	16EL1.25ISO	1.25	3.52	9.525	4.0	★	○
	16ER1.5ISO	16EL1.5ISO	1.50	3.52	9.525	4.0	★	○
	16ER1.75ISO	16EL1.75ISO	1.75	3.52	9.525	4.0	★	○
	16ER2.0ISO	16EL2.0ISO	2.00	3.52	9.525	4.0	★	○
	16ER2.5ISO	16EL2.5ISO	2.50	3.52	9.525	4.0	★	○
	16ER3.0ISO	16EL3.0ISO	3.00	3.52	9.525	4.0	★	○
	22ER3.5ISO	22EL3.5ISO	3.50	4.65	12.7	5.0	★	○
	22ER4.0ISO	22EL4.0ISO	4.00	4.65	12.7	5.0	★	○
	22ER4.5ISO	22EL4.5ISO	4.50	4.65	12.7	5.0	★	○
	22ER5.0ISO	22EL5.0ISO	5.00	4.65	12.7	5.0	★	○
	22ER5.5ISO	22EL5.5ISO	5.50	4.65	12.7	5.0	★	○
	22ER6.0ISO	22EL6.0ISO	6.00	4.65	12.7	5.0	★	○

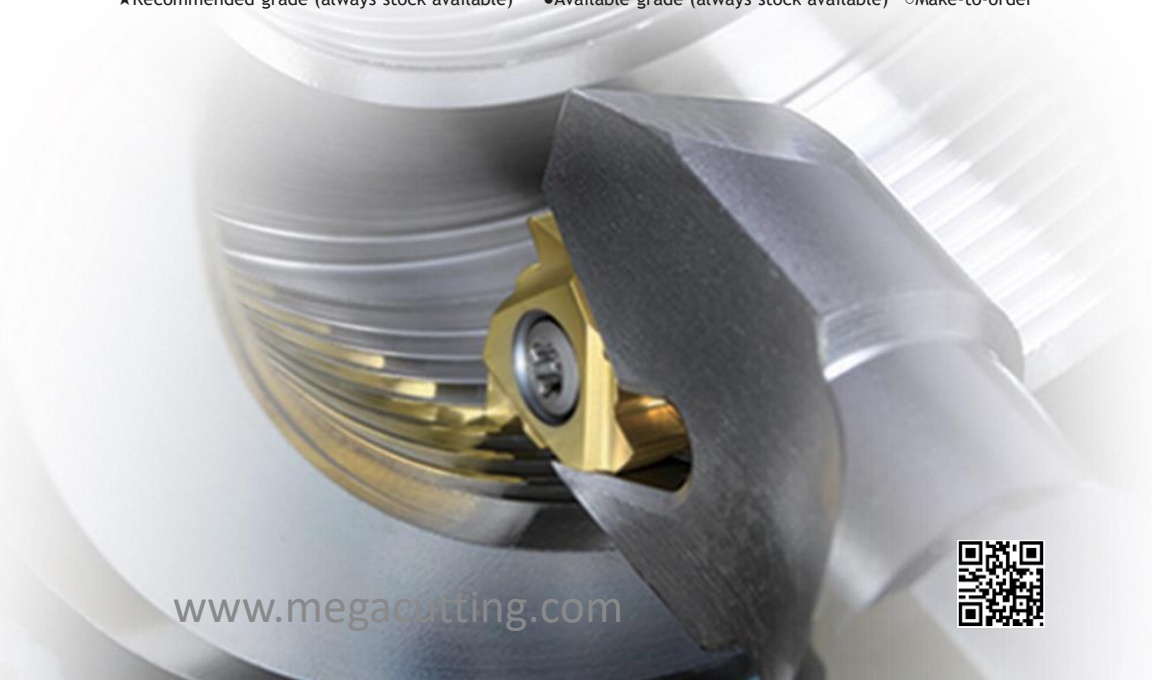
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Parting and grooving

Threading

Threading insert

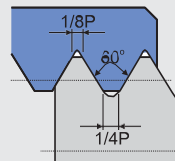


Threading insert

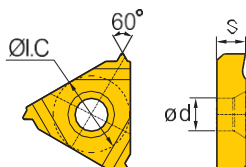
ISO metric thread (with end)

ISO 965-1980
GB/T 197-2003

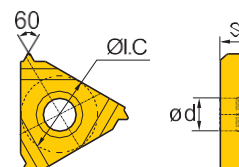
DIN 13
Tolerance class : 6g/6H



R type



L type



	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	ØI.C	ød	MGU540	MGM720
Internal thread	11IR0.5ISO	11IL0.5ISO	0.50	3.05	6.35	3.2	★	○
	11IR0.75ISO	11IL0.75ISO	0.75	3.05	6.35	3.2	★	○
	11IR1.0ISO	11IL1.0ISO	1.00	3.05	6.35	3.2	★	○
	11IR1.25ISO	11IL1.25ISO	1.25	3.05	6.35	3.2	★	○
	11IR1.5ISO	11IL1.5ISO	1.50	3.05	6.35	3.2	★	○
	11IR1.75ISO	11IL1.75ISO	1.75	3.05	6.35	3.2	★	○
	11IR2.0ISO	11IL2.0ISO	2.00	3.05	6.35	3.2	★	○
	16IR0.5ISO	16IL0.5ISO	0.50	3.52	9.525	4.0	★	○
	16IR0.75ISO	16IL0.75ISO	0.75	3.52	9.525	4.0	★	○
	16IR1.0ISO	16IL1.0ISO	1.00	3.52	9.525	4.0	★	○
	16IR1.25ISO	16IL1.25ISO	1.25	3.52	9.525	4.0	★	○
	16IR1.5ISO	16IL1.5ISO	1.50	3.52	9.525	4.0	★	○
	16IR1.75ISO	16IL1.75ISO	1.75	3.52	9.525	4.0	★	○
	16IR2.0ISO	16IL2.0ISO	2.00	3.52	9.525	4.0	★	○
	16IR2.5ISO	16IL2.5ISO	2.50	3.52	9.525	4.0	★	○
	16IR3.0ISO	16IL3.0ISO	3.00	3.52	9.525	4.0	★	○
	22IR3.5ISO	22IL3.5ISO	3.50	4.65	12.7	5.0	★	○
	22IR4.0ISO	22IL4.0ISO	4.00	4.65	12.7	5.0	★	○
	22IR4.5ISO	22IL4.5ISO	4.50	4.65	12.7	5.0	★	○
	22IR5.0ISO	22IL5.0ISO	5.00	4.65	12.7	5.0	★	○
22IR5.5ISO	22IL5.5ISO	5.50	4.65	12.7	5.0	★	○	
22IR6.0ISO	22IL6.0ISO	6.00	4.65	12.7	5.0	★	○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



General turning

Parting and grooving

Threading

Threading insert

Threading insert

General pitch thread (without end)



R type

L type

	Type		Basic dimensions(mm)					Recommended coating grade		
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	α°	MGU540	MGM720	
External thread	55°	16ERA55	16ELA55	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★	○
		16ERG55	16ELG55	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★	○
		16ERAG55	16ELAG55	0.5-3.0(48-8)	3.52	9.525	4.0	55°	★	○
		22ERN55	22ELN55	3.5-5.0(7-5)	4.65	12.7	5.0	55°	★	○
	60°	16ERA60	16ELA60	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★	○
		16ERG60	16ELG60	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★	○
		16ERAG60	16ELAG60	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★	○
		22ERN60	22ELN60	3.5-5.0(7-5)	4.65	12.7	5.0	60°	★	○

★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order



R type

L type

	Type		Basic dimensions(mm)					Recommended coating grade		
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	α°	MGU540	MGM720	
Internal thread	55°	11IRA55	11ILA55	0.5-1.5(48-16)	3.05	6.35	3.2	55°	★	○
		16IRA55	16ILA55	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★	○
		16IRG55	16ILG55	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★	○
		16IRAG55	16ILAG55	0.5-3.0(48-8)	3.52	9.525	4.0	55°	★	○
		22IRN55	22ILN55	3.5-5.0(7-5)	4.65	12.7	5.0	55°	★	○
	60°	11IRA60	11ILA60	0.5-1.5(48-16)	3.05	6.35	3.2	60°	★	○
		16IRA60	16ILA60	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★	○
		16IRG60	16ILG60	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★	○
		16IRAG60	16ILAG60	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★	○
		22IRN60	22ILN60	3.5-5.0(7-5)	4.65	12.7	5.0	60°	★	○

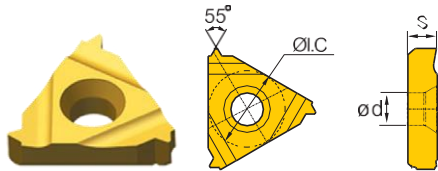
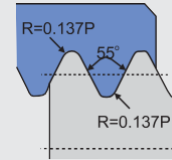
★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order



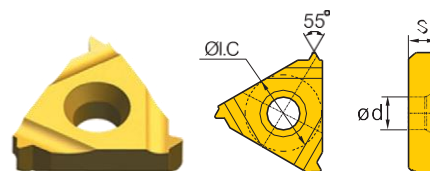
Threading insert

Whitworth thread (with end)

ISO 228/1:1982, DIN
259, B.S.84:1956
Tolerance class : Medium class A



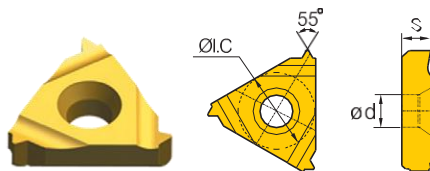
R type



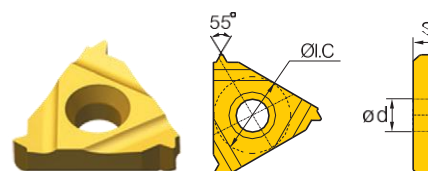
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	MGU540	MGM720
External thread	16ER8W	16EL8W	8	3.52	9.525	4.0	★	○
	16ER9W	16EL9W	9	3.52	9.525	4.0	★	○
	16ER10W	16EL10W	10	3.52	9.525	4.0	★	○
	16ER11W	16EL11W	11	3.52	9.525	4.0	★	○
	16ER12W	16EL12W	12	3.52	9.525	4.0	★	○
	16ER14W	16EL14W	14	3.52	9.525	4.0	★	○
	16ER16W	16EL16W	16	3.52	9.525	4.0	★	○
	16ER18W	16EL18W	18	3.52	9.525	4.0	★	○
	16ER19W	16EL19W	19	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	MGU540	MGM720
Internal thread	16IR8W	16IL8W	8	3.52	9.525	4.0	★	○
	16IR9W	16IL9W	9	3.52	9.525	4.0	★	○
	16IR10W	16IL10W	10	3.52	9.525	4.0	★	○
	16IR11W	16IL11W	11	3.52	9.525	4.0	★	○
	16IR12W	16IL12W	12	3.52	9.525	4.0	★	○
	16IR14W	16IL14W	14	3.52	9.525	4.0	★	○
	16IR16W	16IL16W	16	3.52	9.525	4.0	★	○
	16IR18W	16IL18W	18	3.52	9.525	4.0	★	○
	16IR19W	16IL19W	19	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order



General turning

Parting and grooving

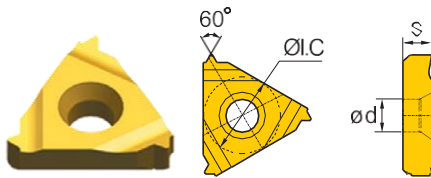
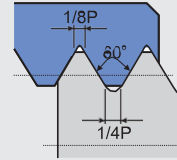
Threading

Threading insert

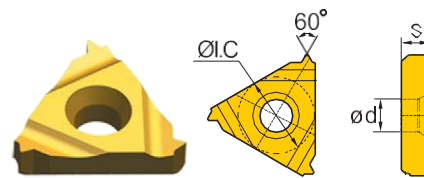
Threading insert

Unified thread (with end)

ASME B1.1-1989
Tolerance class : 2A/2B



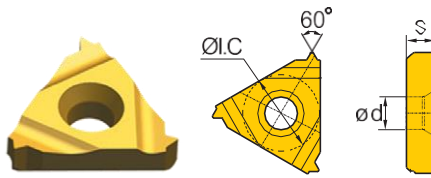
R type



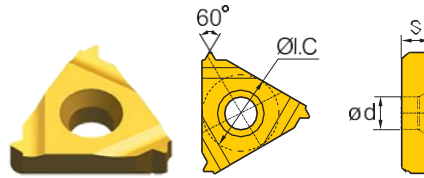
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	MGU540	MGM720
External thread	16ER8UN	16EL8UN	8	3.52	9.525	4.0	★	○
	16ER10UN	16EL10UN	10	3.52	9.525	4.0	★	○
	16ER12UN	16EL12UN	12	3.52	9.525	4.0	★	○
	16ER14UN	16EL14UN	14	3.52	9.525	4.0	★	○
	16ER16UN	16EL16UN	16	3.52	9.525	4.0	★	○
	16ER18UN	16EL18UN	18	3.52	9.525	4.0	★	○
	16ER20UN	16EL20UN	20	3.52	9.525	4.0	★	○
	16ER24UN	16EL24UN	24	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	MGU540	MGM720
Internal thread	16IR8UN	16IL8UN	8	3.52	9.525	4.0	★	○
	16IR10UN	16IL10UN	10	3.52	9.525	4.0	★	○
	16IR12UN	16IL12UN	12	3.52	9.525	4.0	★	○
	16IR14UN	16IL14UN	14	3.52	9.525	4.0	★	○
	16IR16UN	16IL16UN	16	3.52	9.525	4.0	★	○
	16IR18UN	16IL18UN	18	3.52	9.525	4.0	★	○
	16IR20UN	16IL20UN	20	3.52	9.525	4.0	★	○
	16IR24UN	16IL24UN	24	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

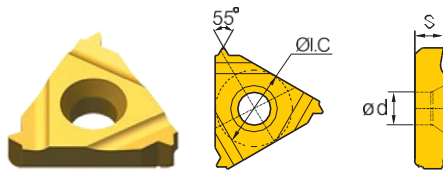
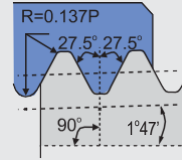


General turning
 Parting and grooving
 Threading
 Threading insert

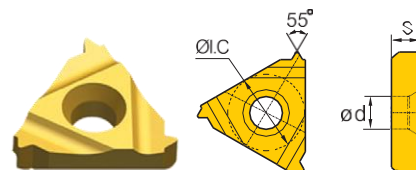
Threading insert

British standard taper piper thread (with end)

ISO 7/1:1994
B.S.21:1985
Standard BSPT



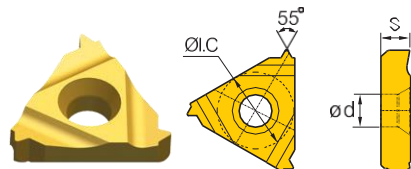
R type



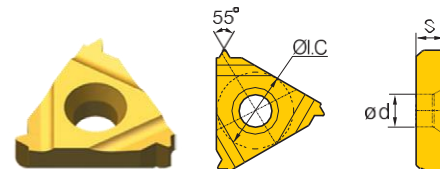
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	MGU540	MGM720
External thread	16ER11BSPT	16EL11BSPT	11	3.52	9.525	4.0	★	○
	16ER14BSPT	16EL14BSPT	14	3.52	9.525	4.0	★	○
	16ER19BSPT	16EL19BSPT	19	3.52	9.525	4.0	★	○
	16ER28BSPT	16EL28BSPT	28	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	ød	MGU540	MGM720
Internal thread	16IR11BSPT	16IL11BSPT	11	3.52	9.525	4.0	★	○
	16IR14BSPT	16IL14BSPT	14	3.52	9.525	4.0	★	○
	16IR19BSPT	16IL19BSPT	19	3.52	9.525	4.0	★	○
	16IR28BSPT	16IL28BSPT	28	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order



General turning

Parting and grooving

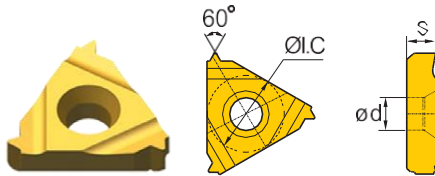
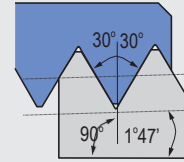
Threading

Threading insert

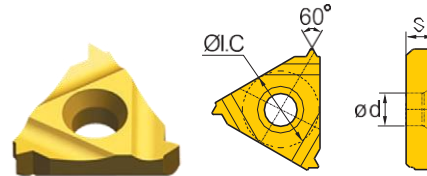
Threading insert

American standard taper pipe thread (with end)

ASME B1.20.1-1983
Standard NPT



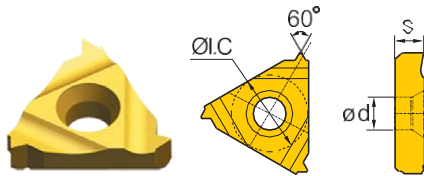
R type



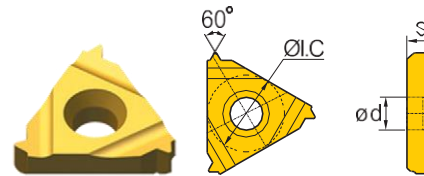
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	Ød	MGU540	MGM720
External thread	16ER8NPT	16EL8NPT	8	3.52	9.525	4.0	★	○
	16ER11.5NPT	16EL11.5NPT	11.5	3.52	9.525	4.0	★	○
	16ER14NPT	16EL14NPT	14	3.52	9.525	4.0	★	○
	16ER18NPT	16EL18NPT	18	3.52	9.525	4.0	★	○
	16ER27NPT	16EL27NPT	27	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	ØI.C	Ød	MGU540	MGM720
Internal thread	16IR8NPT	16IL8NPT	8	3.52	9.525	4.0	★	○
	16IR11.5NPT	16IL11.5NPT	11.5	3.52	9.525	4.0	★	○
	16IR14NPT	16IL14NPT	14	3.52	9.525	4.0	★	○
	16IR18NPT	16IL18NPT	18	3.52	9.525	4.0	★	○
	16IR27NPT	16IL27NPT	27	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) • Available grade (always stock available) ○ Make-to-order

General turning

Parting and grooving

Threading

Threading insert



Threading tools code key

Clamping system

Top clamping Screw clamping

ZC **ZS**

Thread type

I Internal thread
E External thread

Cutting direction

Right hand Left hand

R **L**

S E R 20 20 K 16

Nose height

Note: 00 for round tool holder.
 Only to integer, for example:
 h=8mm is labeled as 08.

Shank width

Note: Diameter for round tool holder
 for example: b=8mm is labeled as 08.

Tool length

Code	H	K	M	P	Q	R	S	T	U
Length	100	125	150	170	180	200	250	300	350

Insert size

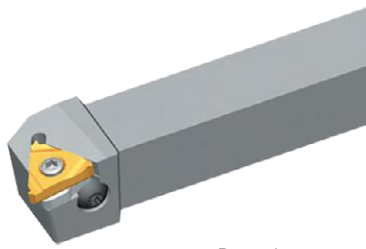
Code	11	16	22
Triangle side length	11	16	22
Inscribed circle	6.35	9.525	12.70

General turning
 Parting and grooving
Threading
 Threading tools

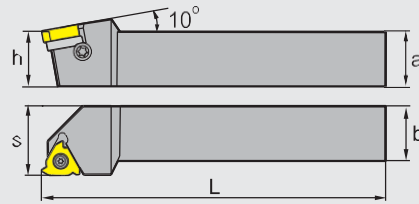


Threading Tools

External threading tools



R-type shown



General turning
Parting and grooving
Threading
Threading tools

Type	Stock	Basic dimensions(mm)					Applicable inserts	Inserts screw	Shim	Shim screw	Wrench	
		a	h	b	L	s						
SER	1616H16	▲	16	16	16	100	16ER	710-U5-40x12.2	ATS-16E	AAV-11-U5-40x4.5	08-T15	
	2020K16	▲	20	20	20	125						25
	2525M16	▲	25	25	25	150						32
	3225P16	▲	32	32	25	170						32
	3232P16	▲	32	32	32	170						40
	2525M22	▲	25	25	25	150						32
	3225P22	▲	32	32	25	170						32
	3232P22	▲	32	32	32	170						40
	4040S22	△	40	40	40	250						50
SEL	1616H16	▲	16	16	16	100	16EL	710-U5-40x12.2	ATS-16I	AAV-11-U5-40x4.5	08-T15	
	2020K16	▲	20	20	20	125						25
	2525M16	▲	25	25	25	150						32
	3225P16	▲	32	32	25	170						32
	3232P16	▲	32	32	32	170						40
	2525M22	▲	25	25	25	150						32
	3225P22	▲	32	32	25	170						32
	3232P22	▲	32	32	32	170						40
	4040S22	△	40	40	40	250						50

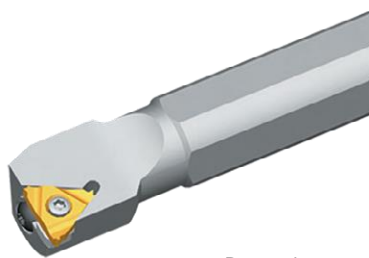
▲ Stock available

△ Make-to-order

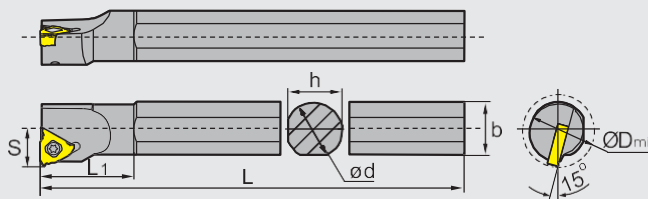


Threading Tools

Internal threading tools



R-type shown



Type	Stock	Basic dimensions(mm)							Applicable inserts	Inserts screw	Shim	Shim screw	Wrench						
		d	L	b	D _{min}	s	h	L ₁											
SIR	0016K11	▲	16	125	16	12	10	15	20.9	11IR□□□□	4008-M2.5x6	---	---	08-T8					
	0016M11	▲	16	150	15.5	16	10.5	15	25.9										
	0016M16	▲	16	150	15.5	20	12	15	27	16IR□□□□	M3.5x114015	---	---	08-T15					
	0020M16	▲	20	150	19	25	14	18	28.7										
	0020Q16	▲	20	180	19	25	14	18	34										
	0025M16	▲	25	150	24	32	17	23	28.8										
	0032R16	▲	32	200	31	40	22	30	30.9										
	0032S16	▲	32	250	31	40	22	30	30.9										
	0040T16	▲	40	300	38.5	50	27	37	31.5										
	0050U16	▲	50	350	49.5	63	35	49	40.2										
	0020Q22	▲	20	180	21.5	25	15	18	35						22IR□□□□	U8-32x151720	---	---	08-T20
	0025R22	▲	25	200	24	32	19	23	39										
	0032S22	▲	32	250	31	40	22	30	36.4										
	0040T22	▲	40	300	38.5	50	27	37	37.2										
0050U22	▲	50	350	48.5	63	35	47	42.6											
SIL	0016K11	▲	16	125	16	12	10	15	20.9	11IL□□□□	4008-M2.5x6	---	---	08-T8					
	0016M11	▲	16	150	15.5	16	10.5	15	25.9										
	0016M16	▲	16	150	15.5	20	12	15	27	16IL□□□□	M3.5x114015	---	---	08-T15					
	0020M16	▲	20	150	19	25	14	18	28.7										
	0020Q16	▲	20	180	19	25	14	18	34										
	0025M16	▲	25	150	24	32	17	23	28.8										
	0032R16	▲	32	200	31	40	22	30	30.9										
	0032S16	▲	32	250	31	40	22	30	30.9										
	0040T16	▲	40	300	38.5	50	27	37	31.5										
	0050U16	▲	50	350	49.5	63	35	49	40.2										
	0020Q22	▲	20	180	21.5	25	15	18	35						22IL□□□□	U8-32x15172	---	---	08-T20
	0025R22	▲	25	200	24	32	19	23	39										
	0032S22	▲	32	250	31	40	22	30	36.4										
	0040T22	▲	40	300	38.5	50	27	37	37.2										
0050U22	▲	50	350	48.5	63	35	47	42.6											

▲ Stock available

△ Make-to-order



General turning
Parting and grooving
Threading

Threading tools

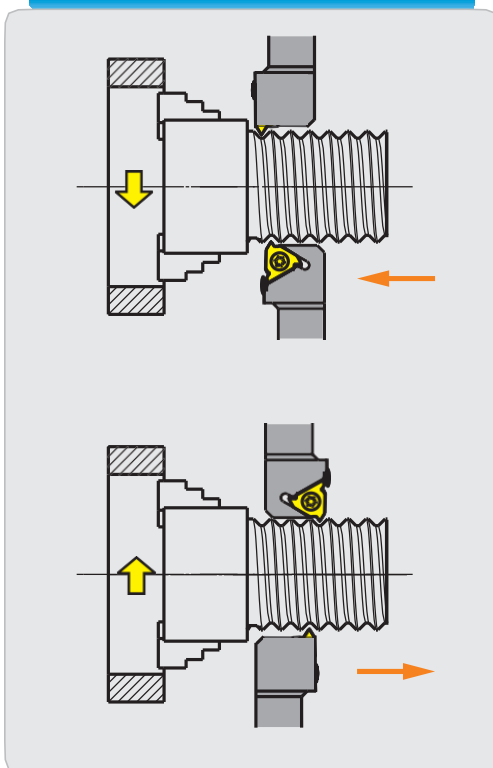
Threading Tools

Please follow the following steps to get the best threading result:

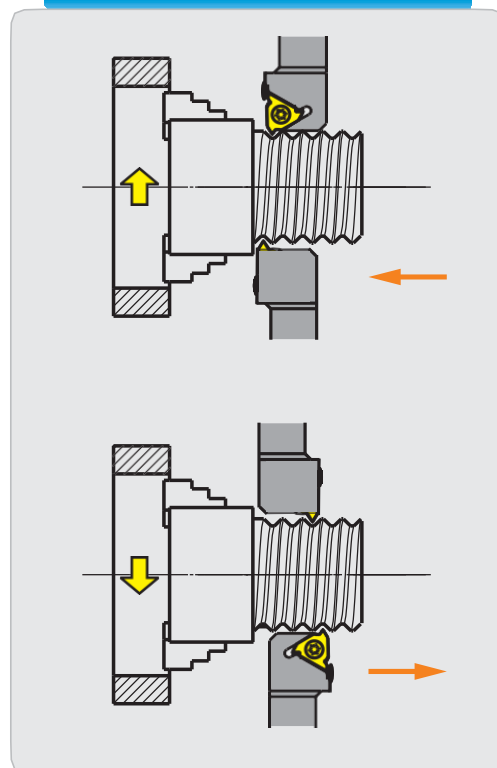
- 1 Select proper thread machining method.
- 2 Define helical angle and select shim.
- 3 Select proper insert and tool holder size.
- 4 By checking reference table of standard threading programs, select feasible cutting parameters.
- 5 Select feed way.

Machining method of threading tools

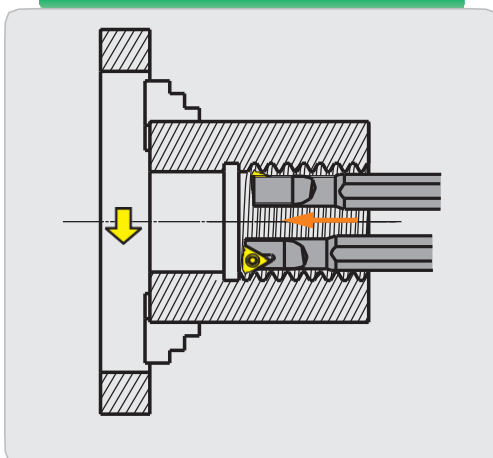
External threading machining (Right thread)



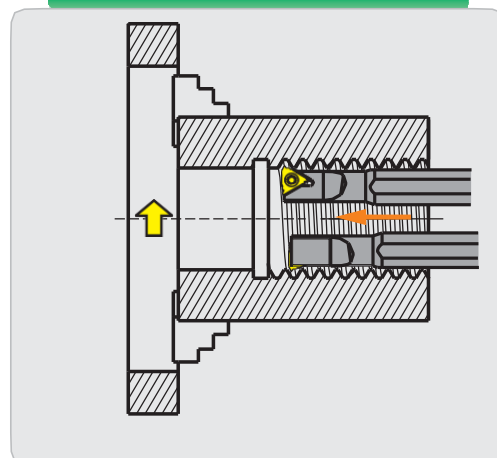
External threading machining (Left thread)



Internal threading machining (Right thread)



Internal threading machining (Left thread)



Application information of threading

Decide helical angle and select shim

The clearance angle of threading inserts is actually along the edge (flank). This has significant effect on heat diffusion, spread of abrasion as well as tool life, security and pitch quality. The clearance angle of threading pitch on clearance face is determined by thread helical angle. These two angles are similar to each other to some extent. If inclined angle of insert is different from the helical angle, then the clearance angle won't be the same either.

The helical angle of pitch has to be the same with the inclined angle of insert to prevent over wearing on the clearance face which could affect tool life. the helical angle is calculated as below:

$$e = \arctan \frac{p}{d_2 \times \pi}$$

P = Pitch

d₂ = pitch diameter

The most common inclined angle is 1°. MT standard shim and its inclined angle is also 1°.

Calculation of clearance angle:

Clearance angle is calculated as below:

$$\beta = \arctan (\tan \theta \times \tan \alpha)$$

2θ = Thread profile angle

α = The rake angle of external standard threading tools is 10°; the rake angle of internal standard threading tools is 15°.

The shim has to be changed when helical angle of thread is ≤ clearance angle of tool, which could cause intervene on insert flank.

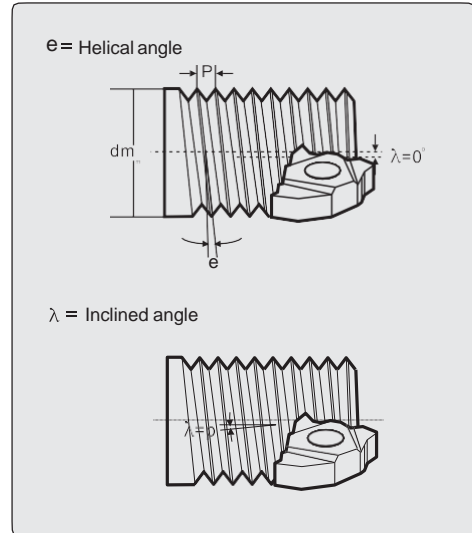
Please change the shim to adjust the difference between helical angle of thread and inclined angle of shim to be within 2° - 0°.

For example: when P=1.5, d₂=24mm, helical angle 1.14° - (2° - 0°) = inclined angle (-0.86° - 1.14°) it is feasible to use standard shim 1°.

Shim specification table is as follows:

Screw pitch range	Insert dimensions	Inclined angle	Shim
0.5-3.0	16	0	MT16-00MN
		1	MT16-01MN
		2	MT16-02MN
		3	MT16-03MN
3.5-6.0	22	0	MT22-00MN
		1	MT22-01MN
		2	MT22-02MN
		3	MT22-03MN

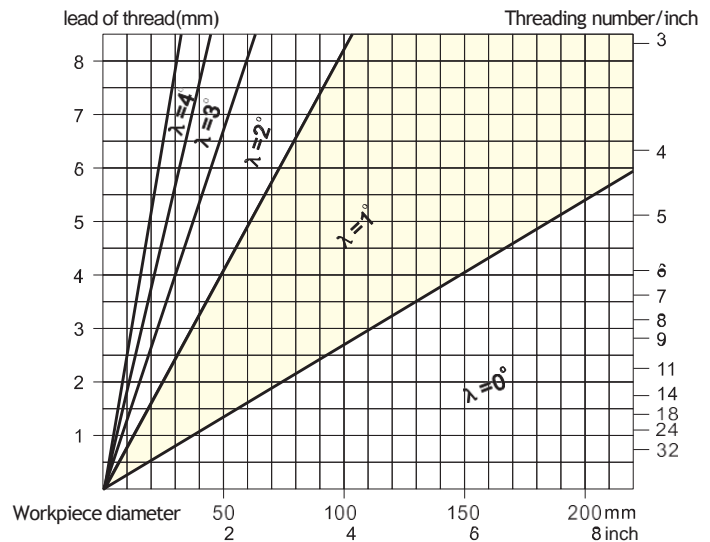
Note: the standard angle of shim for our threading tools is 1°. ((MT16-01MN or MT22-01MN))



Please refer to the table below for actual value:

Thread profile angle 2θ	β	
	External thread	Internal thread
60°	5.8°	8.79°
55°	5.24°	7.94°
30°	2.7°	4.1°
29°	2.6°	3.96°

Select shim:



Application information of threading

Select proper inserts and size of tool holder (Please refer to detailed table of threading tools and inserts)

Parameter table for threading program under different standards

Table of recommended in-feed for metric ISO external threading with wiper edge

Screw pitch	1.0	1.25	1.5	1.75	2.0	2.5	3.0	4.0	5.0
Total in-feed	0.72	0.86	1.02	1.17	1.33	1.63	1.94	2.58	3.21
Number of passes	5	6	7	8	9		13	15	17
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)								
	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.20/-	0.20/-	0.21/-	0.22/-	0.24/-	0.25/-	0.28/-	0.35/-	0.40/-
	0.18/0.10	0.18/0.10	0.18/0.10						
3	0.18/0.09	0.14/0.09	0.18/0.10	0.18/0.10	0.20/0.12	0.21/0.12	0.20/0.12	0.25/0.14	0.30/0.17
	0.10/0.08	0.10/0.08	0.15/0.09	0.15/0.09	0.15/0.09	0.18/0.10			
5	0.08/-	0.08/0.06	0.12/0.07	0.13/0.08	0.12/0.07	0.15/0.09	0.18/0.10	0.18/0.10	0.25/0.14
			0.10/0.06	0.11/0.06			0.15/0.09	0.18/0.10	
7			0.08/-	0.10/0.06	0.10/0.06	0.12/0.07	0.13/0.08	0.18/0.09	0.18/0.10
					0.10/0.06	0.10/0.06		0.15/0.09	0.16/0.09
9					0.08/-	0.10/0.06	0.10/0.06	0.15/0.09	0.15/0.09
							0.10/0.06	0.13/0.08	0.15/0.09
11						0.08/-	0.08/0.06	0.12/0.07	0.13/0.08
									0.13/0.08
13								0.11/0.06	0.12/0.07
14								0.10/0.06	
15								0.08/-	0.11/0.06
									0.10/0.06
17									0.08/-

General turning

Parting and grooving

Threading

Application information of threading



Application information of threading

Table of recommended in-feed for metric ISO internal threading with wiper edge

Screw pitch	1.00	1.25	1.5	1.75	2.0	2.5	3.0	4.0	5.0
Total in-feed	0.62	0.77	0.92	1.06	1.21	0.15	1.79	2.36	2.95
Number of passes	5						13	15	
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)								
	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.18/-	0.20/-	0.22/-	0.23/-	0.24/-	0.25/-	0.26/-	0.30/-	0.32/-
		0.15/0.09	0.16/0.09	0.16/0.09	0.18/0.10				
3	0.12/0.07	0.12/0.07	0.14/0.08	0.14/0.08	0.15/0.09	0.15/0.09	0.20/0.12	0.22/0.13	0.25/0.14
	0.10/0.06			0.13/0.08		0.15/0.09	0.18/0.10		
5	0.08/-	0.10/0.06	0.11/0.06	0.12/0.07	0.12/0.07	0.13/0.08	0.15/0.09	0.18/0.10	0.21/0.12
				0.10/0.06	0.11/0.06			0.15/0.09	
7			0.08/-	0.10/0.06	0.10/0.06	0.12/0.07	0.12/0.07	0.15/0.09	0.18/0.10
						0.10/0.06	0.10/0.06	0.15/0.09	0.18/0.10
9					0.08/-	0.10/0.06	0.10/0.06	0.12/0.07	0.15/0.09
							0.10/0.06		0.15/0.09
11						0.08/-	0.10/0.06	0.12/0.07	0.15/0.09
								0.11/0.06	0.15/0.09
13								0.11/0.06	0.12/0.07
14								0.10/0.06	0.11/0.06
15								0.08/-	0.10/0.06
									0.10/0.06
17									0.08/-

General turning

Parting and grooving

Threading

Application information of threading



Application information of threading

Table of recommended in-feed for American unified standard external threading with wiper edge

Screw pitch	24	20	18	16	14	12							5
Total in-feed	0.649	0.779	0.866	0.974	1.113	1.299	1.416	1.558	1.731	1.948	2.226	2.597	3.116
Number of passes	5		6	7	9				12		14	15	
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)												
	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.206 / 0.086	0.210 / 0.094	0.233 / 0.104	0.226 / 0.109	0.196 / 0.110	0.229 / 0.128	0.220 / 0.132	0.214 / 0.139	0.210 / 0.148	0.211 / 0.160	0.213 / 0.176	0.218 / 0.198	0.229 / 0.230
3	0.114 / 0.066	0.125 / 0.072	0.139 / 0.080	0.145 / 0.083	0.146 / 0.084	0.170 / 0.098	0.176 / 0.102	0.184 / 0.106	0.196 / 0.113	0.212 / 0.122	0.234 / 0.135	0.263 / 0.152	0.306 / 0.177
5	0.085 / 0.049	0.093 / 0.054	0.103 / 0.059	0.107 / 0.062	0.108 / 0.062	0.126 / 0.073	0.131 / 0.075	0.137 / 0.079	0.146 / 0.084	0.158 / 0.091	0.173 / 0.100	0.195 / 0.113	0.227 / 0.131
7		0.084 / 0.048	0.093 / 0.054	0.097 / 0.056	0.098 / 0.056	0.114 / 0.066	0.118 / 0.068	0.124 / 0.072	0.132 / 0.076	0.142 / 0.082	0.157 / 0.091	0.177 / 0.102	0.205 / 0.119
9				0.089 / 0.052	0.090 / 0.052	0.105 / 0.061	0.109 / 0.063	0.114 / 0.066	0.121 / 0.070	0.131 / 0.076	0.144 / 0.083	0.163 / 0.094	0.189 / 0.109
11					0.084 / 0.048	0.098 / 0.056	0.101 / 0.058	0.106 / 0.061	0.113 / 0.065	0.122 / 0.070	0.134 / 0.078	0.151 / 0.087	0.176 / 0.101
13					0.079 / 0.045	0.092 / 0.053	0.095 / 0.055	0.100 / 0.057	0.106 / 0.061	0.114 / 0.066	0.126 / 0.073	0.142 / 0.082	0.165 / 0.095
14							0.090 / 0.052	0.094 / 0.054	0.100 / 0.058	0.108 / 0.063	0.119 / 0.069	0.134 / 0.078	0.156 / 0.090
15								0.090 / 0.052	0.095 / 0.055	0.103 / 0.059	0.113 / 0.065	0.128 / 0.074	0.149 / 0.086
									0.091 / 0.053	0.098 / 0.057	0.108 / 0.063	0.122 / 0.071	0.142 / 0.082
										0.094 / 0.054	0.104 / 0.060	0.117 / 0.068	0.136 / 0.079
											0.100 / 0.058	0.113 / 0.065	0.131 / 0.076
												0.109 / 0.063	0.126 / 0.073
													0.122 / 0.071

General turning

Parting and grooving

Threading

Application information of threading



Application information of threading

Table of recommended in-feed for American unified standard internal threading with wiper edge

Screw pitch	24	20	18	16	14	12	11	10	9	8	7		5
Total in-feed	0.573	0.687	0.764	0.860	0.982	1.146	1.250	1.375	1.528	1.719	1.964	2.291	2.750
Number of passes	5							10	11	12	13	14	15
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)												
	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.193 /— —	0.200 /— —	0.222 /— —	0.219 /— —	0.220 /— —	0.228 /— —	0.250 /— —	0.247 /— —	0.246 /— —	0.252 /— —	0.262 /— —	0.278 /— —	0.302 /— —
	0.127 /0.073	0.239 /0.081	0.155 /0.089	0.161 /0.093	0.173 /0.100	0.190 /0.110	0.207 /0.120	0.216 /0.125	0.229 /0.132	0.247 /0.142	0.271 /0.156	0.304 /0.176	0.353 /0.204
3	0.098 /0.056	0.107 /0.062	0.119 /0.069	0.124 /0.072	0.132 /0.076	0.146 /0.084	0.159 /0.092	0.166 /0.096	0.176 /0.101	0.189 /0.109	0.208 /0.120	0.234 /0.135	0.271 /0.156
	0.082 /0.048	0.090 /0.052	0.100 /0.058	0.104 /0.060	0.112 /0.064	0.123 /0.071	0.134 /0.077	0.140 /0.081	0.148 /0.086	0.160 /0.092	0.175 /0.101	0.197 /0.114	0.228 /0.132
5	0.073 /0.042	0.079 /0.046	0.088 /0.051	0.092 /0.053	0.098 /0.057	0.108 /0.062	0.118 /0.068	0.123 /0.071	0.130 /0.075	0.141 /0.081	0.1543 /0.089	0.173 /0.100	0.201 /0.116
		0.072 /0.041	0.080 /0.046	0.083 /0.048	0.089 /0.051	0.098 /0.056	0.107 /0.062	0.111 /0.064	0.118 /0.068	0.127 /0.073	0.140 /0.081	0.157 /0.091	0.182 /0.105
7				0.077 /0.044	0.082 /0.047	0.090 /0.052	0.098 /0.057	0.102 /0.059	0.108 /0.063	0.117 /0.067	0.128 /0.074	0.144 /0.083	0.167 /0.097
					0.076 /0.044	0.084 /0.048	0.091 /0.053	0.095 /0.055	0.101 /0.058	0.109 /0.063	0.119 /0.069	0.134 /0.078	0.156 /0.090
9						0.079 /0.045	0.086 /0.050	0.090 /0.052	0.095 /0.055	0.102 /0.059	0.112 /0.065	0.126 /0.073	0.146 /0.084
								0.085 /0.049	0.090 /0.052	0.097 /0.056	0.106 /0.061	0.119 /0.069	0.138 /0.080
11									0.085 /0.049	0.092 /0.053	0.101 /0.058	0.113 /0.065	0.131 /0.076
										0.088 /0.051	0.096 /0.056	0.108 /0.063	0.126 /0.073
13											0.092 /0.053	0.101 /0.060	0.121 /0.070
14												0.100 /0.058	0.116 /0.067
15													0.112 /0.065

General turning

Parting and grooving

Threading

Application information of threading



Application information of threading

Table of recommended in-feed for British standard internal and external threading with wiper edge

Screw pitch	28	20	19	16	14	12	11	10	9	8	7	6	5
Total in-feed	0.581	0.813	0.856	1.017	1.162	1.355	1.479	1.626	1.807	2.033	2.324	2.711	3.253
Number of passes	5							10	11	12	14	15	
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)												
	x/z	x/z	x/z	x/z	x/z	x/z	x/z	x/z	x/z	x/z	x/z	x/z	x/z
1	0.179 /— —	0.211 /— —	0.223 /— —	0.196 /— —	0.223 /— —	0.226 /— —	0.246 /— —	0.236 /— —	0.230 /— —	0.255 /— —	0.195 /— —	0.197 /— —	0.204 /— —
3	0.134 /0.070	0.172 /0.089	0.181 /0.094	0.186 /0.097	0.213 /0.111	0.234 /0.122	0.255 /0.133	0.226 /0.139	0.282 /0.147	0.304 /0.158	0.322 /0.167	0.361 /0.189	0.421 /0.219
	0.104 /0.054	0.132 /0.069	0.139 /0.072	0.143 /0.074	0.163 /0.085	0.180 /0.093	0.197 /0.102	0.206 /0.106	0.216 /0.113	0.233 /0.121	0.247 /0.128	0.278 /0.145	0.323 /0.168
5	0.087 /0.045	0.111 /0.058	0.117 /0.061	0.120 /0.063	0.138 /0.072	0.151 /0.079	0.165 /0.086	0.172 /0.090	0.182 /0.095	0.197 /0.102	0.208 /0.108	0.234 /0.122	0.272 /0.142
	0.077 /0.040	0.098 /0.051	0.103 /0.054	0.106 /0.055	0.121 /0.063	0.133 /0.069	0.145 /0.076	0.152 /0.079	0.161 /0.084	0.173 /0.090	0.183 /0.095	0.207 /0.108	0.240 /0.125
7		0.089 /0.046	0.093 /0.049	0.096 /0.050	0.110 /0.057	0.121 /0.063	0.131 /0.068	0.137 /0.071	0.145 /0.076	0.157 /0.082	0.166 /0.086	0.187 /0.097	0.217 /0.113
				0.088 /0.046	0.101 /0.052	0.111 /0.058	0.121 /0.063	0.126 /0.066	0.134 /0.070	0.144 /0.075	0.152 /0.079	0.172 /0.089	0.200 /0.104
9				0.082 /0.043	0.093 /0.049	0.103 /0.054	0.113 /0.059	0.117 /0.061	0.124 /0.065	0.134 /0.070	0.142 /0.074	0.160 /0.083	0.186 /0.097
						0.097 /0.050	0.106 /0.055	0.110 /0.057	0.117 /0.061	0.126 /0.066	0.133 /0.069	0.150 /0.078	0.174 /0.091
11								0.104 /0.054	0.111 /0.058	0.119 /0.062	0.126 /0.066	0.142 /0.074	0.165 /0.086
									0.105 /0.055	0.113 /0.059	0.120 /0.062	0.135 /0.070	0.157 /0.082
13										0.108 /0.056	0.114 /0.060	0.129 /0.067	0.150 /0.078
											0.110 /0.055	0.124 /0.064	0.144 /0.075
14												0.119 /0.062	0.138 /0.072
15												0.115 /0.060	0.133 /0.069
													0.129 /0.067

General turning

Parting and grooving

Threading

Application information of threading



■ Table of recommended in-feed for NPT internal and external threading with wiper edge

Screw pitch	27		14	11.5	
Total in-feed	0.75	1.129	1.451	1.767	2.54
Number of passes				12	14
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)				
	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.19/-	0.22/-	0.240/-	0.24/-	0.255/-
	0.15/0.087	0.181/0.104			
3	0.13/0.075	0.152/0.088	0.170/0.098	0.182/0.105	0.245/0.141
	0.11/0.063		0.150/0.086	0.168/0.097	0.230/0.133
5	0.09/0.052	0.131/0.075	0.140/0.081	0.155/0.089	0.210/0.121
			0.130/0.075		0.195/0.112
7		0.101/0.058	0.120/0.069	0.138/0.079	0.180/0.104
			0.110/0.063		0.175/0.101
9			0.100/0.058	0.117/0.067	0.170/0.098
				0.105/0.060	0.155/0.089
11				0.095/0.055	0.140/0.080
				0.090/0.052	
13					0.110/0.063
14					0.100/0.058

■ Table of recommended in-feed for BSPT internal and external threading with wiper edge

Screw pitch	28		14	
Total in-feed	0.581	0.856	1.162	1.479
Number of passes	5			
Order to follow in threading operation	Value of radial in-feed (X) and flank in-feed (Z)			
	X/Z	X/Z	X/Z	X/Z
1	0.179/-	0.223/-	0.222/-	0.214/-
	0.134/0.070	0.181/0.094	0.213/0.111	
3	0.103/0.054	0.139/0.072	0.163/0.085	0.186/0.097
		0.117/0.061	0.138/0.072	0.157/0.082
5	0.078/0.040	0.103/0.054	0.121/0.063	0.138/0.072
		0.093/0.049	0.110/0.057	
7			0.101/0.052	0.115/0.060
				0.107/0.056
9				0.100/0.052
				0.095/0.049



General turning
Parting and grooving
Threading
Application information of threading

Application information of threading

General turning

Parting and grooving

Threading

Application information of threading

ISO	Material		Unit cutting force Kc0.4 N/mm ²	Hardness HB	Grade
					MGU540 MGM720
					Cutting speed(m/min)
P	Carbon steel	C=0.15%	1900	125	150-175
		C=0.35%	2100	150	140-155
		C=0.60%	2250	200	130-145
	Alloy steel	Anneal	2100	180	110-130
		Hardened	2600	275	80-100
		Hardened	2700	300	70-90
	High alloy steel	Hardened	2850	350	60-80
		Anneal	2600	200	90-115
	Cast steel	Hardened	3900	325	70-90
		Non-alloy	2000	180	180-210
low alloy		2500	200	90-115	
high alloy		2700	225	90-115	
M	Stainless steel	Martensite steel 12%Mn	3600	250	40-50
		Austenite	2450	180	110-130
K	Malleable cast iron	Martensite/Ferrite	2300	200	130-170
		Ferrite	1100	130	110-140
	Gray cast iron	Pearlite	1100	230	85-105
		Low tensile-strength	1100	180	110-140
	Nodular cast iron	High tensile-strength	1500	260	90-115
		Ferrite	1100	160	110-130
N	Al alloy	Pearlite	1800	250	80-100
		Non-aging treatment	500	60	1300-1450
	Cast aluminum alloy	Aging treatment	800	100	450-500
		Non-aging treatment	750	75	430-470
S	Heat resistant alloy	Aging treatment	900	90	250-290
		Iron base	Anneal	3000	200
	Ni- or Co-base	Aging	3050	280	25-35
		Anneal	3500	250	15-25
		Aging	4150	350	10-20
H	Hardened steel	Casting	4150	320	10-15
		Hardened steel	4500	HRC55	40-50

Note: •The values in the above table are range values. High values in the range could be considered in actual cutting. When trying new cutting speed, please check the cutting edge condition before operation.

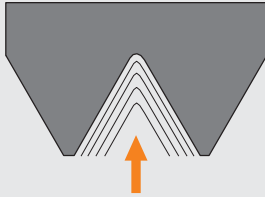
- In stainless steel threading, high cutting speed should be used to prevent built-up edge.
- The cutting parameters should be reduced when cutting small pitch thread and when using tools with small nose radius.
- When cutting thread by tools with small nose radius, such as NPT standard thread, it is advisable to use tools with big nose radius first to rough, so as to improve the life of tools with small nose radius.



Application information of threading

In-feed way of threading tools

Radial in-feed



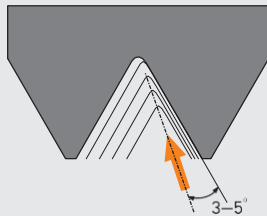
- Easy operating, high general.
- V-shape chip caused by long chip steel workpiece will produce big bend stress on cutting edge.
- It requires low cutting depth, sharp cutting edge and good tough material.
- Big quantity of heat when cutting ,V-shape chip is hard to control.
- Because the interface of cutting chips on the right and left side is long, so it is easy to cause vibration and make the cutting edge suffer more overloading.

Flank in-feed



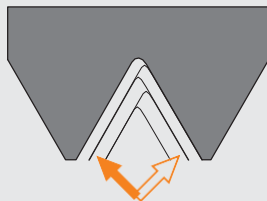
- Cutting edge suffer small bend stress, stable estate, it is easy for chips formation in deep cutting depth.
- There are enough space to leave chips flow when flank in-feed.
- Big abrasion on right flank.

Modified flank in-feed



- Right Cutting Edge also engage on cutting depth to a certain extent, it can reduce the abrasion on right side of clearance face.
- Cutting edge suffer small bend stress, stable estate, it is easy for chips formation in deep cutting depth.
- Good Cutting Performance.

Alternate flank in-feed



- Cutting edge trade off when machining, equality abrasion on left and right side of clearance face on cutting edge, it can improve the life of tools.
- Chips are flowing from both of right and left side, good chips flowing.
- Recommend using in big screw-pitch thread cutting.



Recommend adopting flank in-feed or alternate flank in-feed under allowable range of machining equipment or programmer, it can eliminate the machining vibration effectively, and it has enough space discharge the chips between pitch. Cutting edge suffer a small stress, machining stable, it likes the general turning process when machining thread, good chip control without extra chips.



Application information of threading

Common problems in threading and solutions

Problem	Cause	Solutions
Wear on clearance face	Cutting speed too high.	Reduce cutting speed.
	Low cutting depth, abrasion.	Reduce frequency of feed and friction of cutting edge.
	Inserts are over the center line.	Adopt correct center height.
Asymmetric wear on right and left cutting edge	The inclined angle of insert is different from the helical angle of thread.	Change to proper shim to get correct inclined angle.
	Flank in-feed is not correct.	Change the way of flank in-feed.
Breakage	Cutting speed too low.	Increase cutting speed.
	Cutting force too high.	Increase frequency of feed and reduce Max in-feed.
	Unstable clamping.	Check if workpiece vibrates. Reduce overhang of tool. Verify clamping of workpiece and tool.
	Chip twisting.	Increase the pressure of cooling liquid to blow away chips.
Plastic deformation	High cutting speed, high temperature on cutting area.	Reduce cutting speed. Increase feed frequency and reduce Max cutting depth.
	Insufficient cooling fluid.	Increase cooling fluid supply.
Low thread surface quality	Cutting speed too low. The insert is over the center line. Chips are not under control.	Increase cutting speed. Adjust centre height. Change the operation way of tools to well control chips.
Incorrect profile	Incorrect center height.	Adjust centre height.
	Pitch on machine is not correct.	Adjust machine.
Shallow profile	Cutting speed set wrong.	Adjust cutting depth.
Surface damage	Chips involved or contacted.	Change to flank in-feed to control chip flow direction.
Built-up edge	Temperature of cutting edge is too low. Usually occur when machining stainless steel and low carbon steel.	Increase cutting speed as well as pressure and concentration of cooling fluid. Choose inserts with good toughness.
Crack on surface	Cutting force too high	Reduce the cutting depth of each feed.
Vibration	Incorrect clamping of workpiece or tool	Verify clamping of workpiece and tool. Minimize overhang of tool.
	Incorrect cutting parameters	Increase cutting speed or reduce it substantially.
	Incorrect tool clamping	Adjust center height.



*Parting and
grooving tools*

MEGACUT



-MG

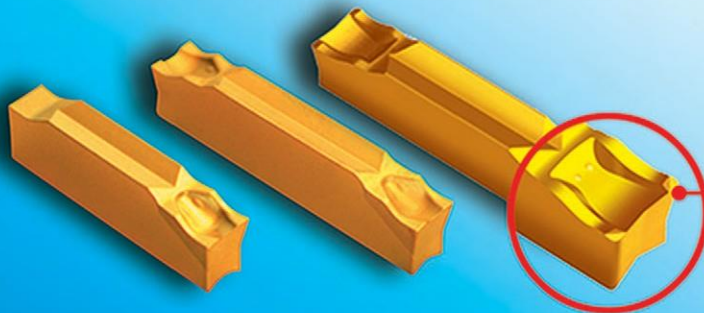
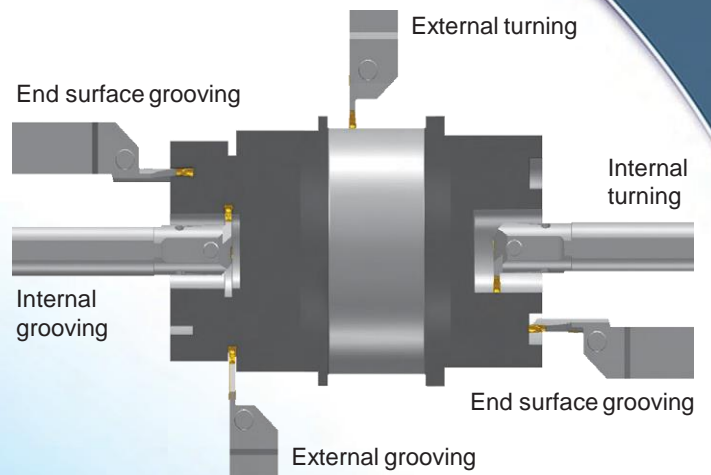
Chipbreaker

Customized -MG chipbreaker series

Suitable for parting ,grooving, profile turning and turning, etc. Easy machining and unobstructed chip flow lead to improved surface quality.

Human-centered design realizes various application of one single insert, reducing number of tools needed

Inserts of the same edge with can work with corresponding tool holders to satisfy the requirements of external, internal and surface grooving and turning by using minimum numbers of inserts and tool holders, effectively reducing cost of tool storage and management.



The cutting force is reduced by 20%, and the vibration is diminished.

Unique and professional structure design of parting inserts

- A special flank structure is designed to reduce cutting resistant force by 20% and diminish vibration, which improves the surface quality.
- A special edge design requires less rigidity of machine. It can be used on low power machines.

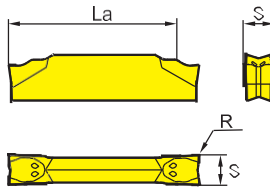


Little squirrel series parting and grooving inserts

Parting inserts



Double edges



General turning

Parting and grooving

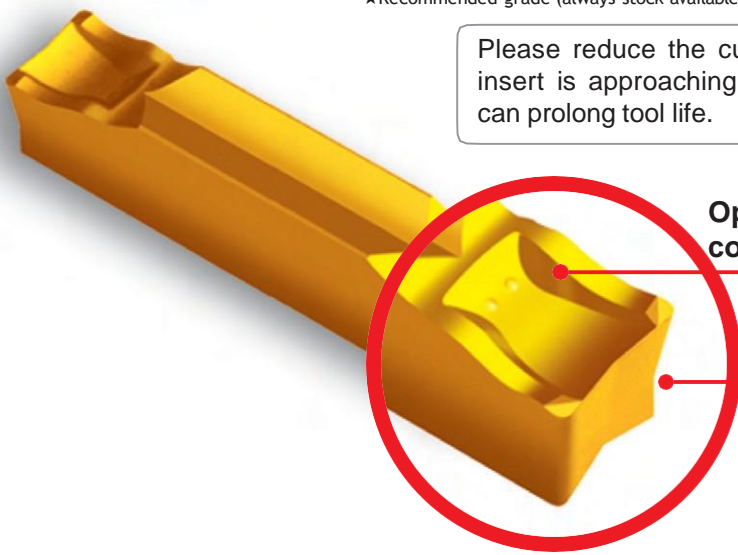
Little squirrel series parting and grooving inserts

Type	Basic dimensions(mm)			Grade					
	S ^{+0.1} ₀	R±0.1	Cutting depth L _{amax}	CVD Coating		PVD Coating		Cemented carbide	
				MGU515	MGU540	MGM720	MGK510	MGN010	
Double edges	MGGN01502-MG	1.5	0.2	16	○	○	★	○	○
	MGGN0202-MG	2.0	0.2	16	○	○	★	○	○
	MGGN02502-MG	2.5	0.2	18.5	○	○	★	★	○
	MGGN0302-MG	3.0	0.2	21	○	○	★	○	○
	MGGN0404-MG	4.0	0.4	21	○	○	★	○	○
	MGGN0504-MG	5.0	0.4	26	○	○	★	○	○
	MGGN0604-MG	6.0	0.4	26	○	○	★	○	○

The single-edge insert is only mounted on parting blade.

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Please reduce the cutting speed by 30% when the insert is approaching the centre of workpiece. This can prolong tool life.



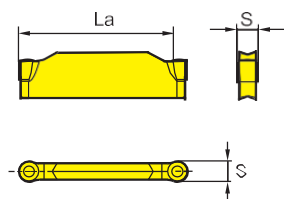
Optimal chipbreaker structure can well control chip flow and curling.

Cutting resistant force is reduced by 20% and vibration is diminished.



Little squirrel series parting and grooving inserts

Profiling inserts



Type	Basic dimensions(mm)		Grade					
			CVD Coating		PVD Coating		Cemented carbide	
	S ^{+0.1} ₀	Cutting depth L _{max}	MGU515	MGU540	MGM720	MGK510	MGN010	
Double edges	MGRN020-MG	2.0	16.0	○	○	●	★	○
	MGRN03-MG	3.0	21	○	○	●	★	○
	MGRN04-MG	4.0	21	○	○	●	★	○
	MGRN05-MG	5.0	26	○	○	○	★	○
	MGRN06-MG	6.0	16	○	○	●	★	○

★Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

The cutting parameters recommended are suitable for wet machining.

Insert size	Recommended feed rate(mm/r)						
	Insert width(mm)	Parting	Grooving	Grooving(-MM)	Turning	Turning(-MM)	Profiling
1.5-2.5		0.05-0.15	0.05-0.15	0.05-0.2	0.05-0.15	0.05-0.2	0.05-0.15
3		0.05-0.15	0.05-0.15	0.05-0.2	0.07-0.15	0.07-0.2	0.1-0.2
4		0.05-0.2	0.05-0.2	0.05-0.25	0.07-0.25	0.07-0.3	0.1-0.2
5		0.07-0.2	0.07-0.22	0.07-0.25	0.1-0.25	0.1-0.3	0.15-0.3
6		0.1-0.3	0.07-0.25	0.07-0.3	0.1-0.3	0.1-0.35	0.15-0.3

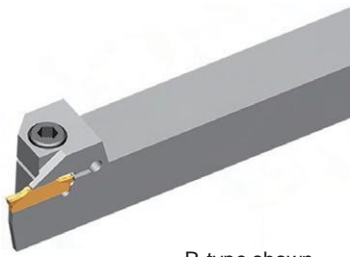
Workpiece material		Hardness	MGU515	MGU540	MGM720	MGK510	MGN010
P	Carbon steel	125≤HB≤170	120-260	140-280	150-280		
	Low alloy steel	180≤HB≤275	80-175	100-240	110-200		
	High alloy steel	180≤HB≤325	80-160	100-220	110-190		
	Cast steel	180≤HB≤250	75-140	80-160	100-170		
M	Ferite, Martensite	200≤HB≤300		70-170	100-200		
	Austenite	180≤HB≤300		80-200	110-220		
K	Malleable cast iron	130≤HB≤230		100-200	130-220	90-160	
	Grey cast iron	180≤HB≤220		90-170	120-200	80-140	
	Nodular cast iron	160≤HB≤250		80-150	110-180	60-140	
N	Al alloy	--					200-400
S	High temperature alloy	≤400			20-70		30-60

The cutting parameters recommended are suitable for wet machining.
Advice: internal machining and end machining, The cutting speed should be reduced by 30%-40%.

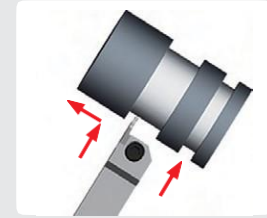
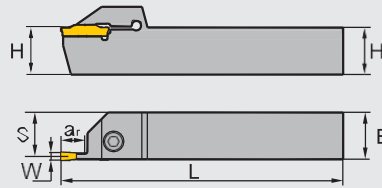


Little squirrel series parting and grooving inserts

External parting, grooving and turning tools



R-type shown



General turning

Parting and grooving

Little squirrel series parting and grooving tools

Type		Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
		R	L	H×B	L	S	W	ar max			
MGKT	1212R/L-1.5-T15	▲	▲	12×12	100	12.15	1.5	15	MGGN015	AKV-02-M6x22	AAL-03-3
	1616R/L-1.5-T15	▲	▲	16×16	125	16.15	1.5	15	MGGN015		
	2020R/L-1.5-T15	▲	▲	20×20	125	20.15	1.5	15	MGGN015		
MGKT	1212R/L-2.0-T15	▲	▲	12×12	100	12.165	2	15	MGGN-MGRN020	AKV-02-M6x22	AAL-03-3
	1616R/L-2.0-T10	▲	▲	16×16	125	16.165	2	10	MGGN-MGRN020		
	1616R/L-2.0-T15	▲	▲	16×16	125	16.165	2	15	MGGN-MGRN020		
	2020R/L-2.0-T15	▲	▲	20×20	150	20.165	2	15	MGGN-MGRN020		
	2525R/L-2.0-T15	▲	▲	25×25	150	25.165	2	15	MGGN-MGRN020		
	3232R/L-2.0-T15	▲	▲	32×32	170	32.165	2	15	MGGN-MGRN020		
	1616R/L-2.5-T15	▲	▲	16×16	125	16.165	2.5	15	MGGN025		
	2020R/L-2.5-T15	▲	▲	20×20	150	20.165	2.5	15	MGGN025		
2525R/L-2.5-T15	▲	▲	25×25	150	25.165	2.5	15	MGGN025			
MGKT	1212R/L-3.0-T15	▲	▲	12×12	100	12.165	3	15	MGGN-MGRN030	2004-M8X1X20	AAL-05-4
	1616R/L-3.0-T15	▲	▲	16×16	125	16.165	3	15	MGGN-MGRN030		
	2020R/L-3.0-T10	▲	▲	20×20	150	20.165	3	10	MGGN-MGRN030		
	2020R/L-3.0-T20	▲	▲	20×20	150	20.165	3	20	MGGN-MGRN030		
	2020R/L-3.0-R28	▲	▲	25×25	150	20.165	3	28	MGGN-MGRN030		
	2525R/L-3.0-T10	▲	▲	25×25	150	25.165	3	10	MGGN-MGRN030		
	2525R/L-3.0-R15	▲	▲	25×25	150	25.165	3	15	MGGN-MGRN030		
	2525R/L-3.0-T22	▲	▲	25×25	150	25.165	3	22	MGGN-MGRN030		
	3232R/L-3.0-T22	▲	▲	32×32	170	32.165	3	22	MGGN-MGRN030		
MGKT	2020R/L-4.0-T10	▲	▲	20×20	150	20.165	4	10	MGGN-MGRN030	2004-M8X1X20	AAL-05-4
	2020R/L-4.0-T20	▲	▲	20×20	150	20.165	4	20	MGGN-MGRN040		
	2020R/L-4.0-R25	▲	▲	25×25	150	20.165	4	25	MGGN-MGRN040		
	2525R/L-4.0-T10	▲	▲	25×25	150	25.165	4	10	MGGN-MGRN040		
	2525R/L-4.0-T18	▲	▲	25×25	150	25.165	4	15	MGGN-MGRN040		
	2525R/L-4.0-T22	▲	▲	25×25	150	25.165	4	22	MGGN-MGRN040		
	3232R/L-4.0-T22	▲	▲	32×32	170	32.165	4	22	MGGN-MGRN040		

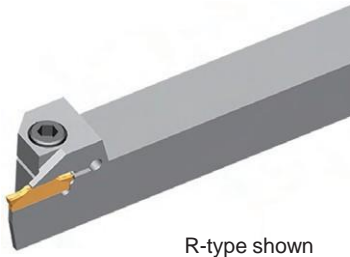
▲ Stock available

△ Make-to-order

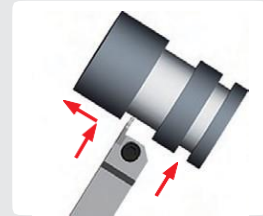
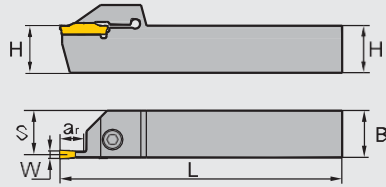





Little squirrel series parting and grooving inserts

External parting, grooving and turning tools



R-type shown



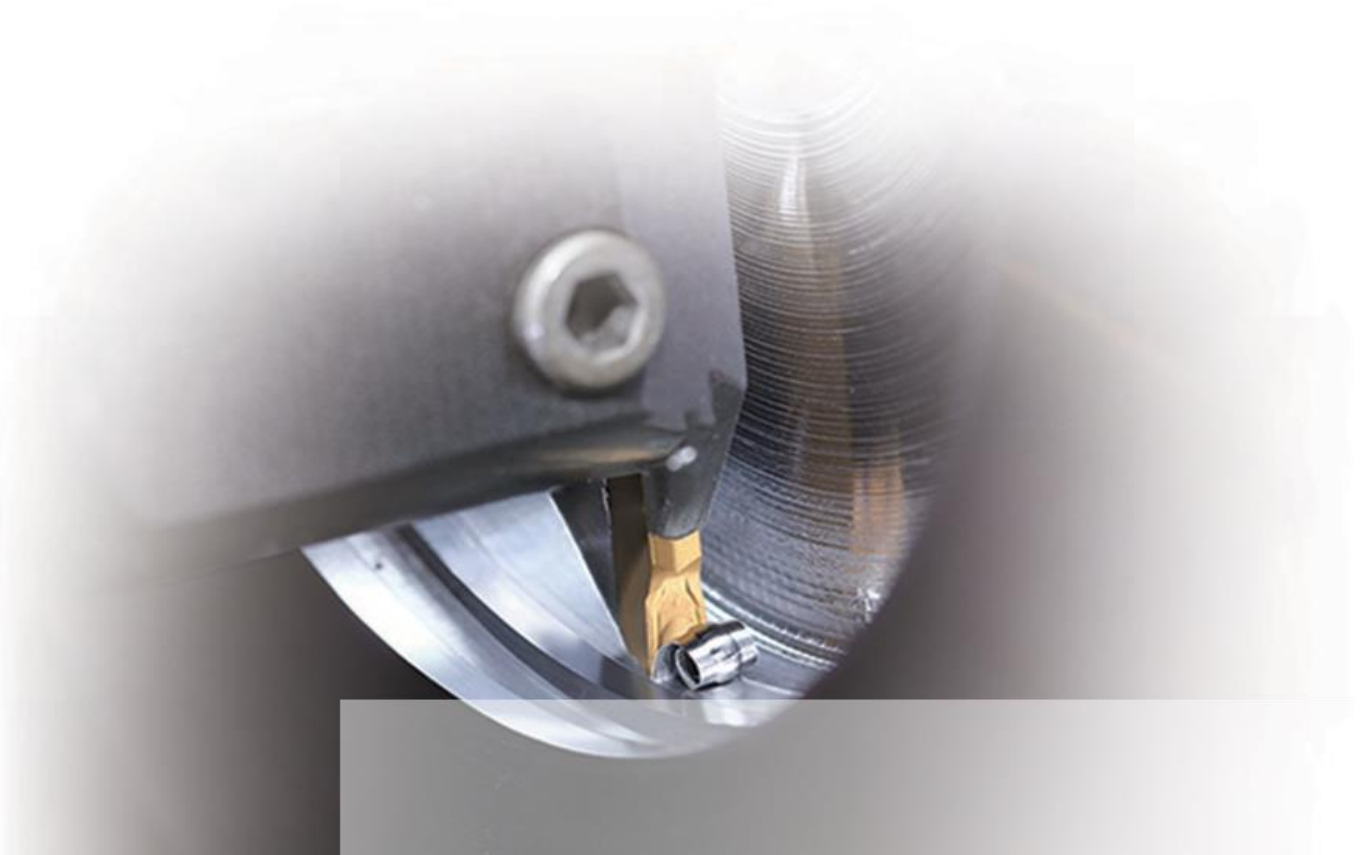
Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench								
	R	L	H×B	L	S	W	ar max											
MGKT	▲	▲	20×20	125	20.165	5	20											
	2020R/L-5.0-T20	2525R/L-5.0-T15	2525R/L-5.0-T18	2525R/L-5.0-T25	3232R/L-5.0-T25	2525R/L-6.0-T15	2525R/L-6.0-T25	3232R/L-6.0-T25			MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060
	2525R/L-5.0-T15	2525R/L-5.0-T18	2525R/L-5.0-T25	3232R/L-5.0-T25	2525R/L-6.0-T15	2525R/L-6.0-T25	3232R/L-6.0-T25	MGGN-MGRN050			MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	
	2525R/L-5.0-T18	2525R/L-5.0-T25	3232R/L-5.0-T25	2525R/L-6.0-T15	2525R/L-6.0-T25	3232R/L-6.0-T25	MGGN-MGRN050	MGGN-MGRN050			MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060		
	2525R/L-5.0-T25	3232R/L-5.0-T25	2525R/L-6.0-T15	2525R/L-6.0-T25	3232R/L-6.0-T25	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050			MGGN-MGRN050	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060			
	2525R/L-6.0-T15	2525R/L-6.0-T25	3232R/L-6.0-T25	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN060	MGGN-MGRN060			MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060			
	2525R/L-6.0-T25	3232R/L-6.0-T25	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060			MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060			
	3232R/L-6.0-T25	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN050	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060			MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060	MGGN-MGRN060			

▲ Stock available △ Make-to-order

General turning

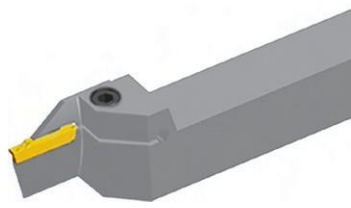
Parting and grooving

Little squirrel series parting and grooving tools

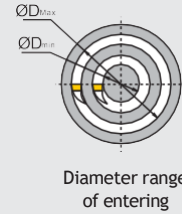
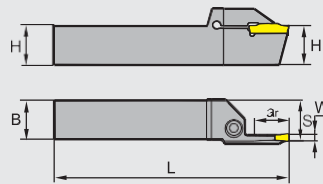


Little squirrel series parting and grooving inserts

End surface grooving and turning tools



L-type shown



Diameter range of entering



General turning

Parting and grooving

Little squirrel series parting and grooving tools

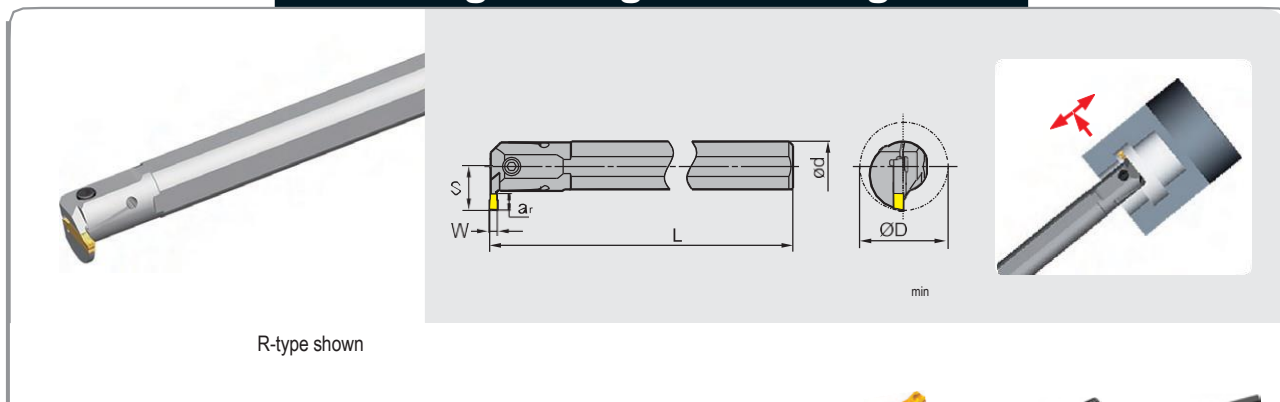
Type	Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench		
	R	L	H×B	L	S	W	ar max	ØD (min-max)					
MGKT	2525R/L-34/45-3-T17	▲	▲	25×25	150	26	3	17	34-45	MGGN-MGRN030	2004-M8X1X20	AAL-05-4	
	2525R/L-39/55-3-T17	▲	▲	25×25	150	26	3	17	39-55				
	2525R/L-49/80-3-T17	▲	▲	25×25	150	26	3	17	49-80				
	2525R/L-70/110-3-T17	▲	▲	25×25	150	26	3	17	70-110				
	2525R/L-100/150-3-T17	△	△	25×25	150	26	3	17	100-150				
	2525R/L-80/180-3-T32	△	△	25×25	150	26	3	32	80-180				
	2525R/L-175/215-3-T22	▲	▲	25×25	150	26	3	22	175-215				
	2525R/L-700/800-3-T17	▲	▲	25×25	150	26	3	17	700-800				
	2525R/L-40/85-4-T22	▲	▲	25×25	150	26	4	22	40-85				MGGN-MGRN040
	2525R/L-70/110-4-T22	▲	▲	25×25	150	26	4	22	70-110				
	2525R/L-100/150-4-T22	▲	▲	25×25	150	26	4	22	100-150				
	2525R/L-80/180-4-T32	▲	▲	25×25	150	26	4	32	80-180				
	2525R/L-180/800-4-T32	▲	▲	25×25	150	26	4	32	180-800	MGGN-MGRN050			
	2525R/L-70/110-5-T25	▲	▲	25×25	150	26	5	25	70-110				
	2525R/L-100/150-5-T25	▲	▲	25×25	150	26	5	25	100-150				
	2525R/L-80/180-5-T32	▲	▲	25×25	150	26	5	32	80-180				
	2525R/L-140/200-5-T25	▲	▲	25×25	150	26	5	25	140-200				
	2525R/L-180/800-5-T32	▲	▲	25×25	150	26	5	32	180-800				
	2525R/L-60/100-6-T25	△	△	25×25	150	26	6	25	60-100	MGGN-MGRN060			
	2525R/L-60/100-6-T35	▲	▲	25×25	150	26	6	35	60-100				
2525R/L-100/200-6-T25	△	△	25×25	150	26	6	25	100-200					
2525R/L-100/200-6-T35	▲	▲	25×25	150	26	6	35	100-200					
2525R/L-100/200-6-T45	△	△	25×25	150	26	6	45	100-200					
2525R/L-140/300-6-T35	▲	▲	25×25	150	26	6	35	140-300					

▲ Stock available △ Make-to-order



Little squirrel series parting and grooving inserts

Internal grooving and turning tools



R-type shown

Type	Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench	
	R	L	ød	L	S	W	ar _{max}	ØD _{min}				
MGIT-R/L-16-2-T4	▲	▲	16	150	12	2.0	4	21	MGGN-MGRN020	2503-M4x10	AAL-03-3	
MGIT-R/L-20-2-T4	▲	▲	20	170	14	2.0	4	25		2503-M4x10		
MGIT-R/L-25-2-T6	▲	▲	25	200	18.5	2.0	6	32		2504-M5x10	MGGN-MGRN030	
MGIT-R/L-20-3-T6	▲	▲	20	170	16	3	6	27	2504-M5x12			
MGIT-R/L-20-3-T7	▲	▲	20	170	13	3	7	25	2504-M5x16			
MGIT-R/L-25-3-T6	▲	▲	25	200	18.5	3	6	32				
MGIT-R/L-25-3-T10	▲	▲	25	200	17.0	3	10	32	2004-M8x1x20			
MGIT-R/L-32-3-T6	▲	▲	32	250	22.0	3	6	39				
MGIT-R/L-32-3-T12	▲	▲	32	250	22.0	3	12	39				
MGIT-R/L-40-3-T6	▲	▲	40	300	26.0	3	6	47	MGGN-MGRN040	2504-M5x12		AAL-05-4
MGIT-R/L-40-3-T12	▲	▲	40	300	27.0	3	12	48				
MGIT-R/L-20-4-T6	▲	▲	20	170	16.0	4	6	27		2504-M5x12		
MGIT-R/L-20-4-T7	▲	▲	20	170	13.0	4	7	25	2504-M5x16			
MGIT-R/L-25-4-T6	▲	▲	25	200	18.5	4	6	32				
MGIT-R/L-25-4-T10	▲	▲	25	200	17.0	4	10	32	2004-M8x1x20			
MGIT-R/L-32-4-T6	▲	▲	32	250	22.0	4	6	39				
MGIT-R/L-32-4-T12	▲	▲	32	250	22.0	4	12	39				
MGIT-R/L-40-4-T6	▲	▲	40	300	26.0	4	6	47	MGGN-MGRN040	2504-M5x12		
MGIT-R/L-40-4-T12	▲	▲	40	300	27.0	4	12	48				
MGIT-R/L-25-5-T7	▲	▲	25	200	19.5	5	7	33		2504-M5x16		
MGIT-R/L-32-5-T7	▲	▲	32	250	23.0	5	7	40	2004-M8x1x20			
MGIT-R/L-40-5-T6	▲	▲	40	300	27.0	5	7	48				
MGIT-R/L-40-5-T12	▲	▲	40	300	27.0	5	12	48				

▲ Stock available

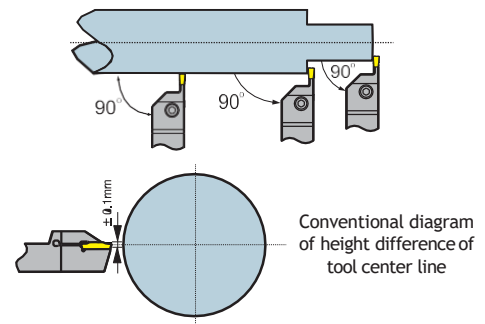
△ Make-to-order



Little squirrel series parting and grooving inserts

Center height control of parting and grooving tools

- No matter which parting or grooving tools you select, the ideal surface quality is only achieved by ensuring that insert is vertical from the center line of workpiece, which can also effectively reduce vibration during machining.
- The height tolerance between insert edge bottom and the center height of workpiece should be remained in $\pm 0.1\text{mm}$, especially for lever parting and grooving workpieces with small diameter. This can improve tool life, reduce cutting resistant force, and diminish burrs.



Parting

- When the insert is approaching the center of workpiece, the cutting speed should be reduced by 30%, which is good for improving life and surface quality.
- As long as conditions allow, try to shorten the overhang of tools as much as possible to ensure good stability.

External grooving, turning and profiling

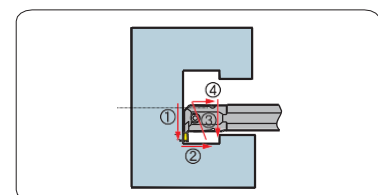
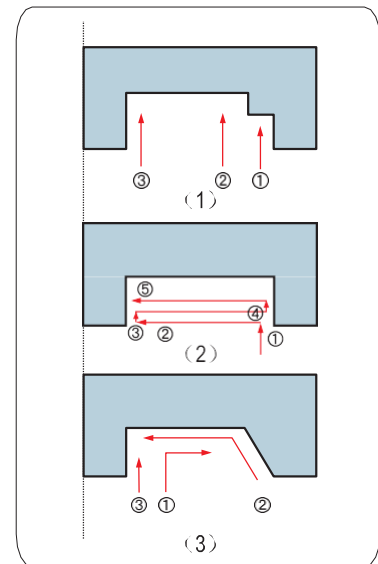
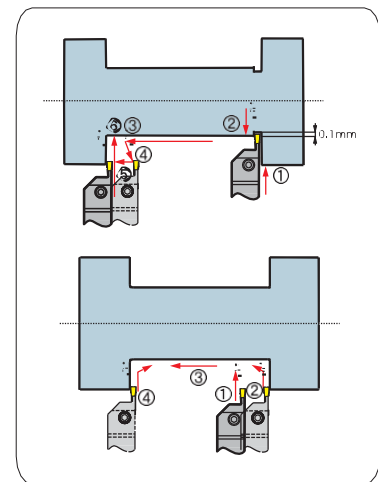
- In-feed sequence: When cutting depth $> 0.5\text{mm}$, radial in-feed (Max. cutting depth can be $0.75 \times \text{insert edge width } S$) \rightarrow radial out-feed about 0.1mm \rightarrow flank out-feed \rightarrow axial in-feed \rightarrow radial machining to required depth.
- When finishing, adopt the sequence shown in the diagram. It can reduce vibration caused by the friction between tools and chips.

Surface grooving and turning

- Finishing (Multi-slot cutting)
Cut inwards from Max. diameter. Inserts offset to inward flange when retracting, as is shown in diagram (1).
- Recess turning
Axial turning depth should not exceed $0.75 \times S$ (cutting edge width).
If slot width is larger than slot depth, it is recommended to adopt recess turning, as is shown in diagram (2).
If slot depth is larger than slot depth, it is recommended to adopt multi-slot cutting.
- Finish machining
First finish bottom and external diameter fringe, then finish the internal diameter to required size, as is shown in diagram (3).

Internal grooving and turning

- To facilitate chip flow, always feed along the direction of moving from the deepest in the hole to outside.



Little squirrel series

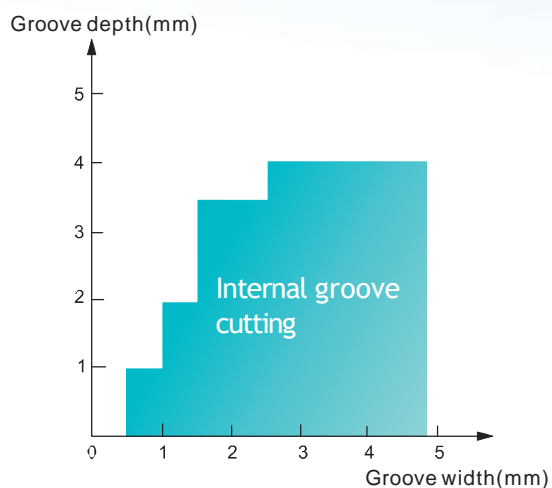
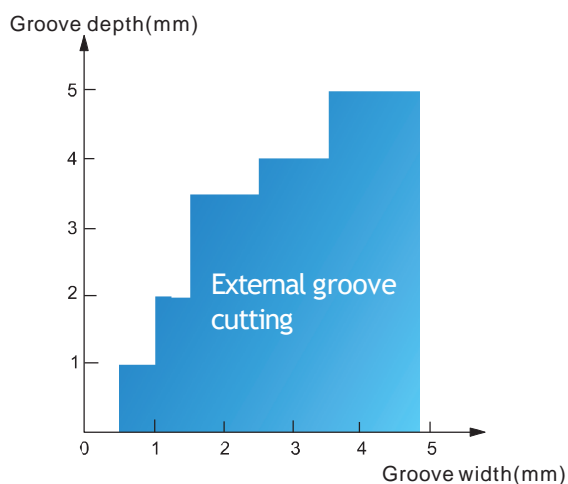


GBA series shallow grooving tools

Machine industry shallow groove processing tool

Widely used for shallow groove machining of shaft and ring parts in machinery industry

 **Shallow groove series tool grooving range**

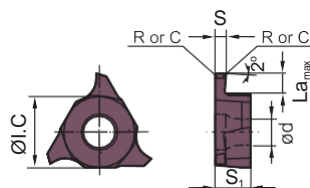


GBA series shallow grooving inserts

Square head shallow groove inserts



R-type shown



Type		Basic dimensions(mm)						Grade	
								PVD Coating	
		S±0.025	La _{max}	R/C	ØI.C	S ₁	ød	MGC500	MGM720
GBA11R/L	120-R02	1.20	1.50	R0.2	6.35	3.18	2.8	○	○
	125-R02	1.25	1.50	R0.2	6.35	3.18	2.8	○	○
	145-R02	1.45	1.50	R0.2	6.35	3.18	2.8	○	○
	150-R02	1.50	1.50	R0.2	6.35	3.18	2.8	○	○
	200-R02	2.00	2.00	R0.2	6.35	3.18	2.8	○	○
	225-R02	2.25	2.00	R0.2	6.35	3.18	2.8	○	○
GBA16R/L	110-R01	1.10	2.00	R0.1	9.525	3.18	4.4	○	○
	125-R02	1.25	2.00	R0.2	9.525	3.18	4.4	○	○
	145-R02	1.45	2.00	R0.2	9.525	3.18	4.4	○	○
	150-R02	1.50	2.00	R0.2	9.525	3.18	4.4	○	★
	175-R02	1.75	2.00	R0.2	9.525	3.18	4.4	○	○
	185-R02	1.85	2.50	R0.2	9.525	3.18	4.4	○	○
	200-R02	2.00	2.50	R0.2	9.525	3.18	4.4	○	★
	250-R02	2.50	2.50	R0.2	9.525	3.18	4.4	○	★
	300-R02	3.00	3.00	R0.2	9.525	3.18	4.4	○	★
GBA43R/L	125-R02	1.25	2.00	R0.2	12.70	4.76	5.5	○	○
	145-R02	1.45	2.00	R0.2	12.70	4.76	5.5	○	○
	150-R02	1.50	3.50	R0.2	12.70	4.76	5.5	○	★
	175-R02	1.75	3.50	R0.2	12.70	4.76	5.5	○	○
	185-R02	1.85	3.50	R0.2	12.70	4.76	5.5	○	○
	200-R02	2.00	3.50	R0.2	12.70	4.76	5.5	○	★
	230-R02	2.30	3.50	R0.2	12.70	4.76	5.5	○	○
	250-R03	2.50	4.00	R0.3	12.70	4.76	5.5	○	★
	265-R03	2.65	4.00	R0.3	12.70	4.76	5.5	○	○
	280-R03	2.80	4.00	R0.3	12.70	4.76	5.5	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Parting and grooving

GBA series shallow grooving inserts

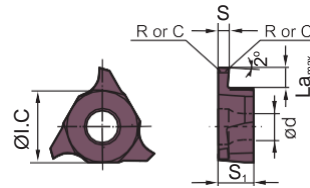


GBA series shallow grooving inserts

Square head shallow groove inserts



R-type shown



Type	Basic dimensions(mm)							Grade	
								PVD Coating	
	S ^{±0.025}	La _{max}	R/C	ØI.C	S ₁	ød	MGC500	MGM720	
GBA43R/L	300-R03	3.00	4.00	R0.3	12.70	4.76	5.5	○	★
	320-R03	3.20	4.00	R0.3	12.70	4.76	5.5	○	○
	330-R03	3.30	4.00	R0.3	12.70	4.76	5.5	○	○
	350-R03	3.50	5.00	R0.3	12.70	4.76	5.5	○	★
	400-R04	4.00	5.00	R0.4	12.70	4.76	5.5	○	★
	430-R04	4.30	5.00	R0.4	12.70	4.76	5.5	○	○
	450-R04	4.50	5.00	R0.4	12.70	4.76	5.5	○	○
480-R04	4.80	5.00	R0.4	12.70	5.06	5.5	○	○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○ Make-to-order

Example of special specification customization:

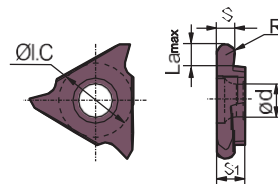
1. Custom-made insert width of 1.6mm, the tip form of the arc form, arc radius of 0.3mm right blade, I.C value of 12.7mm, then the custom-made insert model is GBA43R160-R03.

2. Customized edge width range: GBA11 : 0.50~3.0mm ; GBA16 : 0.50~3.0mm ; GBA43 : 1.0~4.8mm。

Round head shallow groove inserts



R-type shown



Type	Basic dimensions(mm)							Grade	
								PVD Coating	
	S ^{±0.025}	La _{max}	R/C	ØI.C	S ₁	ød	MGC500	MGM720	
GBA16R/L	200R	2.00	2.50	1.00	12.70	3.18	4.4	○	○
	300R	3.00	2.50	1.50	12.70	3.18	4.4	○	○
GBA43R/L	100R	1.00	2.00	0.50	12.70	4.76	5.5	○	○
	150R	1.50	3.50	0.75	12.70	4.76	5.5	○	○
	200R	2.00	3.50	1.00	12.70	4.76	5.5	○	○
	250R	2.50	4.00	1.25	12.70	4.76	5.5	○	○
	300R	3.00	4.00	1.50	12.70	4.76	5.5	○	○
	400R	4.00	5.00	2.00	12.70	4.76	5.5	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

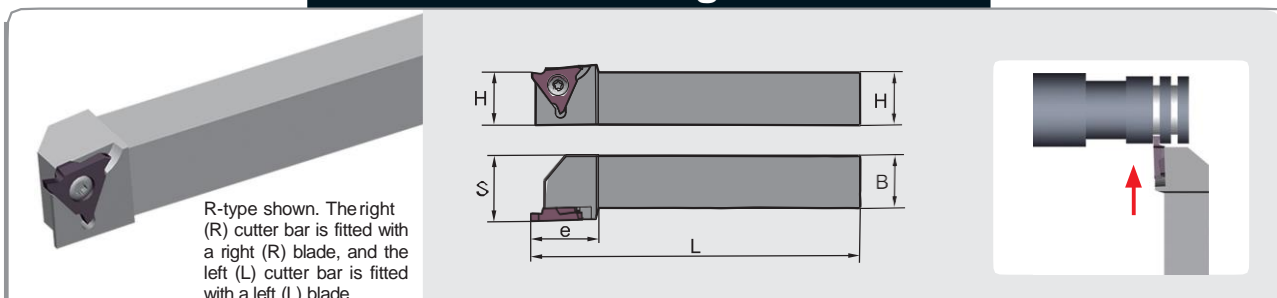
Example of special specification customization:

Custom-made inserts width of 1.6mm, the tip form of the arc form, the arc radius of 0.8mm right insert, then the custom-made insert model is GBA43R160R.



GBA series shallow grooving inserts

External shallow groove tools

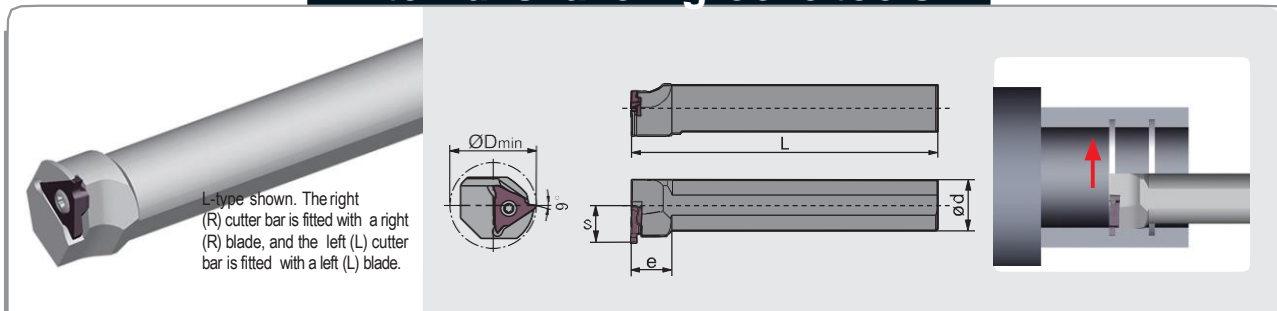


Type	Stock	Basic dimensions(mm)					Width (mm)	Applicable inserts	Screw	Wrench
		H	B	S	e	L				
MGBR/L	1616K16-15	▲	16	16	21	25.5	125	GBA16R/L 110~180	4015- M3.5x10	80-T15
	2020K16-15	▲	20	20	25		125			
	2525M16-15	▲	25	25	30		150			
	1616K16-25	▲	16	16	21		125			
	2020K16-25	▲	20	20	25		125			
	2525M16-25	▲	25	25	30		150			
	2020K43-15	▲	20	20	25		125	GBA43R/L 100~230	1020 M5x11	80-T20
	2525M43-15	▲	25	25	30		150			
	2020K43-25	▲	20	20	25		125			
	2525M43-25	▲	25	25	30		150	GBA43R/L 230~330		
	2020K43-35	▲	20	20	25		125			
	2525M43-35	▲	25	25	30		150	GBA43R/L 330~480		

▲ Stock available

△ Make-to-order

Internal shallow groove tools



Type	Stock	Basic dimensions(mm)					Width (mm)	Applicable inserts	Screw	Wrench
		ØDmin	ød	S	e	L				
S16M-GBA1118R/L 20	▲	16	20	12.0	40	150	0.5-1.8	GBA11R/L 050-180	3008 M2.5x6	08-T8
S20M-GBA1618R/L 20	▲	25	20	13.5	35	150	0.5-1.8	GBA16R/L 050-180	4015-M3.5x10	08-T15
S20M-GBA1625R/L 20	▲	25	20	13.5	35	150	0.5-2.5	GBA16R/L 050-250		
S25M-GBA4323R/L 25	▲	35	25	18.2	35	150	1.0-2.3	GBA43R/L 100-230	1020 M5x11	08-T20
S25M-GBA4333R/L 25	▲	35	25	18.2	35	150	2.5-3.3	GBA43R/L 100-230		
S25M-GBA4348R/L 25	▲	35	25	18.2	35	150	3.3-4.8	GBA43R/L 250-330		
S32M-GBA4323R/L 32	▲	45	32	23.2	35	150	1.0-2.3	GBA43R/L 100-230		

▲ Stock available

△ Make-to-order

General turning

Parting and grooving

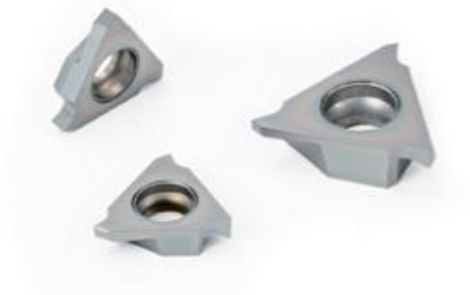
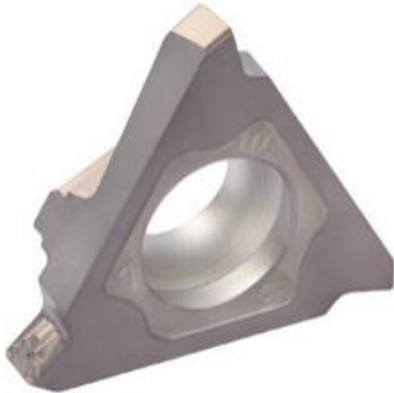
GBA series shallow grooving inserts



● Recommended cutting parameters for GBA series shallow groove tools

Processed material	Recommended insert material (cutting speed m/min)		A: Tool feed for grooving(mm/r)				
	PVD Coating		B: Tool feed for transverse machining(mm/r)				
	MGC500	MGM720	C: Depth of cut for transverse machining(mm)				
			GBA..R/L050-120	GBA..R/L125-225	GBA..R/L230-325	GBA..R/L30-400	GBA..R/L400-480
Carbon Steel	80-180	80-180	A: 0.03-0.08	A: 0.04-0.09	A: 0.05-0.1	A: 0.05-0.12	A: 0.05-0.12
			Non-horizontal processing	B: 0.04-0.09	B: 0.05-0.1	B: 0.05-0.1	B: 0.05-1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.8(MAX)
Alloy Steel	80-160	80-160	A: 0.03-0.07	A: 0.04-0.08	A: 0.05-0.09	A: 0.05-0.1	A: 0.05-0.1
			Non-horizontal processing	B: 0.04-0.08	B: 0.05-0.09	B: 0.05-0.1	B: 0.05-1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.5(MAX)
Stainless Steel	60-130	60-130	A: 0.03-0.07	A: 0.04-0.08	A: 0.05-0.09	A: 0.05-0.1	A: 0.05-0.1
			Non-horizontal processing	B: 0.04-0.08	B: 0.05-0.09	B: 0.05-0.1	B: 0.05-1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.5(MAX)

The cutting parameters above are applicable to external grooving. When machining internal hole grooves, please reduce the cutting speed and feed by 10%.



General turning
 Parting and grooving
 Application information of parting and grooving

