

















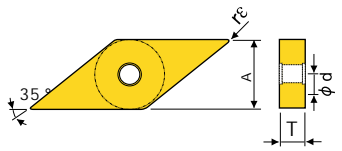




(mm)

VN	35 Rhombus
	Negative angle
	Perforated Blade


Model	A	T	$\phi d$
VN_1604_	9.525	4.76	3.81
VN_2204_	12.7	4.76	5.16



	P	M	K	N	S	H																							
P Free cutting iron Carbon/Alloy steel	○	○	○	○	○	○																							
M Stainless steel	○	○	○	○	○	○																							
K Gray cast iron Nodular cast iron	○	○	○	○	○	○																							
N nonferrous metal	○	○	○	○	○	○																							
S Heat-resisting alloy titanium alloy	○	○	○	○	○	○																							
H Hardening material	○	○	○	○	○	○																							

Use classification criteria:  
 + Discontinuous machining / first selection  
 ○ Discontinuous machining / second selection  
 ● Light intermittent machining / first choice  
 ○ Light intermittent machining / second selection  
 ● Continuous processing / first selection  
 ○ Continuous processing / second options  
 (In the case of Hardening material hardness below 45HRC)

Shape	Model	r <sub>e</sub>	Cermet	Steel used						Stainless steel used		Cast iron	Copper and aluminum		Pure ceramics for cast iron	Pure ceramics for non-ferrous metal	Copper, aluminum, iron metal		Cast coating iron metal CBN	Cast coating iron metal CB	The handle of application	Chip breaker groove																				
				ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1513		ZP1522	ZP3512			ZM1512	ZM3511					ZM3512	ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512	ZK3511	ZPW10	ZK10	ZK10B	ZT550	ZT560	PCD-B	PCD-C	CBN-K	CBN-S			
finish machining	VNMG 160404 -PF 160408 -PF 220404 -PF 220408 -PF	0.4 0.8 0.4 0.8		70	70	70							70																													
	VNMG 160404 -MF 160408 -MF 160412 -MF	0.4 0.8 1.2		59																																						
	VNMG 160404 -PM 160408 -PM 160412 -PM 220408 -PM	0.4 0.8 1.2 0.8			70	70							70																													
	VNMG 160404 -MM 160408 -MM	0.4 0.8		60																																						
Semi finishing	VNMG 160404 160408 160412	0.4 0.8 1.2		60	70	70	70	60	60	60	60	60	60	60	70																											
	VNMG 160404 160408 160412	0.4 0.8 1.2		60	70	70	70	60	60	60	60	60	60	70																												
	VNMG 160404 160408 160412	0.4 0.8 1.2		60	70	70	70	60	60	60	60	60	70																													
Rough machining	VNMA 160404 160408 160412	0.4 0.8 1.2																																								
	VNMA 160404 160408 160412	0.4 0.8 1.2																																								
	VNMA 160404 160408 160412	0.4 0.8 1.2																																								
finish machining	VNGA 160402 160404 160408 160412	0.2 0.4 0.8 1.2												90		100	100	260	200	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260		
	VNGA 160402 160404 160408 160412	0.2 0.4 0.8 1.2												90		100	100	260	200	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260			
	VNGA 160402 160404 160408 160412	0.2 0.4 0.8 1.2												90		100	100	260	200	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260		
	VNGA 160402 160404 160408 160412	0.2 0.4 0.8 1.2												90		100	100	260	200	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260		
finish machining	VNGG 160402R L -Y 160404R L -Y 160408R L -Y	0.2 0.4 0.8	120																																							
	VNGG 160402R L -Y 160404R L -Y 160408R L -Y	0.2 0.4 0.8	120												150																											
	VNGG 160402R L -Y 160404R L -Y 160408R L -Y	0.2 0.4 0.8	120												150																											

 The outer circle of the handle : D12  
 The inner circle of the handle : B25



**RN** Circular  
 Negative angle  
 Perforated Blade

(mm)			
Model	A	T	φd
RN_1204_	12.7	4.76	5.16

	P	M	K	N	S	H	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
P Free cutting iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Carbon/Alloy steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
M Stainless steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Gray cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nodular cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nonferrous metal	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat-resisting alloy	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S titanium alloy	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H Hardening material	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Use classification criteria  
 \* Discontinuous machining / first selection  
 \*\* Discontinuous machining / second selection  
 ○ Light intermittent machining / first choice  
 ⊕ Light intermittent processing / second selection  
 ● Continuous processing / first selection  
 ○ Continuous processing / second options  
 (In the case of Hardening material hardness below 45HRC)

MZG <sup>®</sup> MZG SPAK PLUG CO., LTD.		(mm)	Cermet	Steel used				Stainless steel used	Cast iron	Copper and aluminum	Pure ceramics for cast steel	Pure ceramics for hardening materials	Copper, aluminum, non-ferrous metal PCD	Cast coating iron nitride CBN	Cast coating iron nitride CBN-S	The handle of application	Chip breaker groove																		
Shape	Model			φr	CVD	PVD																													
Semi finishing		RNMG120400	ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1522	ZP3512	ZM1512	ZM3511	ZM3512	ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512	ZK3511	ZPW10	ZK10	ZK10B	ZT550	ZT560	PCD-B	PCD-C	CBN-K	CBN-S					
			Rough machining		KNUX1604	ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1522	ZP3512	ZM1512	ZM3511	ZM3512	ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512	ZK3511	ZPW10	ZK10	ZK10B	ZT550	ZT560	PCD-B	PCD-C	CBN-K	CBN-S		



**WN** 80° Hexagon  
 Negative angle  
 Perforated Blade

(mm)

Model	A	T	φd	Model	A	T	φd
WN_06T3_	9.525	3.96	3.81	WN_0804_	12.70	4.76	5.16
WN_0604_	9.525	4.76	3.81				

	P	M	K	N	S	H
Free cutting iron	○	○	○	○		
Carbon/Alloy steel	○	○	○	○		
Stainless steel	○	○	○	○		
Gray cast iron	○	○	○	○		
Nodular cast iron	○	○	○	○		
nonferrous metal						
Heat-resisting alloy						
titanium alloy						
Hardening material						

Shape	Model	rε (mm)	Steel used						Stainless steel used	Cast iron	Copper and aluminum	Pure ceramics for cast iron	Pure ceramics for non-ferrous metal	Copper, aluminum, non-ferrous metal	Cast iron, iron matrix	CBN	CBN-S	The handle of application	Chip breaker groove								
			Cermet	ZN960	ZC2501	ZC2502	ZC2511	ZC2512												ZP1511	ZP1512	ZP1522	ZP3512	ZM1512	ZM3511	ZM3512	ZP1521
Rough machining	WNMA 06T304	0.4																									
	06T308	0.8																									
	060404	0.4																									
	060408	0.8																									
	060412	1.2																									
	080404	0.4																									
	080408	0.8																									
	080412	1.2																									
	080416	1.6																									
finish machining	WNGA 060402	0.2																									
	060404	0.4																									
	060408	0.8																									
	080402	0.2																									
	080404	0.4																									
	080408	0.8																									

The outer circle of the handle : B13  
 The inner circle of the handle : B25 B37

(mm)

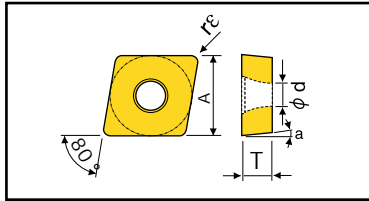
CC

80 Rhombus
Angle
Perforated Blade

Model	A	T	φd	a
CC_0301_	3.5	1.4	1.9	7°
CC_0401_	4.3	1.8	2.3	7°

Model	A	T	φd	a
CC_0602_	6.35	2.38	2.8	7°
CC_09T3_	9.525	3.97	4.4	7°
CC_1204_	12.7	4.76	5.5	7°

Model	A	T	φd	a
CP_0602_	6.35	2.38	2.8	11°
CP_0802_	7.94	2.38	3.3	11°
CP_0903_	9.525	3.18	4.4	11°
CP_09T3_	9.525	3.97	4.4	11°
CP_1204_	12.7	4.76	5.56	11°



Material	P	M	K	N	S	H	Others	Classification
P Free cutting iron Carbon/Alloy steel	○	○	○	○	○	○	○	○ / first selection ⊕ / second selection
M Stainless steel	○	○	○	○	○	○	○	○ / first selection ⊕ / second selection
K Gray cast iron Nodular cast iron	○	○	○	○	○	○	○	○ / first selection ⊕ / second selection
N nonferrous metal	○	○	○	○	○	○	○	○ / first selection ⊕ / second selection
S Heat-resisting alloy titanium alloy	○	○	○	○	○	○	○	○ / first selection ⊕ / second options
H Hardening material	○	○	○	○	○	○	○	○ / first selection ⊕ / second options (In the case of Hardening material hardness below 45HRC)

Shape	Model	rε (mm)	Steel used			Stainless steel used	Cast iron	Copper and aluminum	Copper, aluminum, metal	Cast iron	The handle of application	Chip breaker groove
			CVD	PVD	Others							
finish machining	CCGT 0301003R/L-F 030101R/L-F 030102R/L-F 030104R/L-F 0401003R/L-F 040101R/L-F 040102R/L-F 040104R/L-F 0602005R L-F 060201R L-F 060202R L-F 060204R L-F 09T3005R L-F 09T301R L-F 09T302R L-F 09T304R L-F	0.03	140				160					
		0.1	140				160					
		0.2	140					160				
		0.4	140					160				
		0.03	140					160				
		0.1	140					160				
		0.2	140					160				
		0.4	140					160				
		0.05	140					160				
		0.1	140					160				
		0.2	140					160				
		0.4	140					160				
finish machining	CCGT 060201R L-U 060202R L-U 060204R L-U 09T301R L-U 09T302R L-U 09T304R L-U	0.1	140				160					
		0.2	140				160					
		0.4	140				160					
		0.1	140				160					
		0.2	140				160					
finish machining	CCGT 060201R L-Y 060202R L-Y 060204R L-Y 09T301R L-Y 09T302R L-Y 09T304R L-Y	0.1	140				160					
		0.2	140				160					
		0.4	140				160					
		0.1	140				160					
		0.2	140				160					
finish machining	CCGT 060202Z 060204Z 060208Z 09T302Z 09T304Z 09T308Z 120402Z 120404Z 120408Z	0.2						90 90 29	200 135			
		0.4						90 90 29	200 135			
		0.8						90 90 29	200 135			
		0.2						90 90 32	200 135			
		0.4						90 90 32	200 135			
		0.8						90 90 32	200 135			
		0.2						100 100 43	200 135			
		0.4						100 100 43	200 135			
finish machining	CCGT 060202-GP 060204-GP 060208-GP 09T302-GP 09T304-GP 09T308-GP 120404-GP 120408-GP	0.2	85			89						
		0.4	85			89						
		0.8	85			89						
		0.2	100			105						
		0.4	100			105						
		0.8	100			105						
		0.4	120			117						
		0.8	120			117						
finish machining	CCMT 060202-TF 060204-TF 09T302-TF 09T304-TF 09T308-TF 120404-TF 120408-TF	0.2	38	38			38					
		0.4	38	38			38					
		0.2	48	48			48					
		0.4	48	48			48					
		0.8	48	48			48					
		0.4	68	68			68					



DS toolholders : AB03 Small parts processing : AB07 The outer circle of the handle : B14 B15 Quick change type cutter head : B21 ; The inner circle of the handle : B27 B28 Square handle : B38 Eccentric shank : B39



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# DC.. POSITIVE ANGLE INSERTS

(mm)

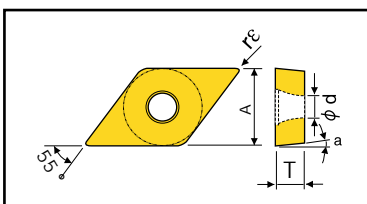
DC

55 Rhombus

Angle

Perforated Blade

Model	A	T	φd	a
DC_0702_	6.35	2.38	2.8	7 °
DC_11T3_	9.525	3.97	4.4	7 °
DC_1504_	12.7	4.76	5.56	7 °



	P	M	K	N	S	H	Free cutting iron Carbon/Alloy steel	Stainless steel	Gray cast iron	Nodular cast iron	nonferrous metal	Heat-resisting alloy	titanium alloy	Hardening material	
	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Use classification criteria ● Discontinuous machining / first selection ○ Discontinuous machining / second selection ⊕ Light intermittent machining / first choice ⊖ Light intermittent processing / second selection ● Continuous processing / first selection ○ Continuous processing / second options (In the case of Hardening material hardness below 45HRC)

Shape	Model	rε (mm)	Steel used													Copper and aluminum	Pure ceramics for cast type	Pure ceramics for non-ferrous metal PCD	Copper, aluminum, iron material PCD-C	Cast cutting iron material CBN-K	Cast cutting iron material CBN-S	The handle of application	Chip breaker groove												
			CVD		PVD		Stainless steel used				Cast iron																								
			ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1513	ZP1522	ZP3512	ZM1512	ZM3511	ZM3512									ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512	ZK3511	ZPW10	ZK10	ZK10B	ZT550	ZT560
Semi finishing 	DCMT 070204 -TM	0.4	50	50										50						50															
	070208 -TM	0.8	50	50										50						50															
	11T304 -TM	0.4	53	53										53						53															
	11T308 -TM	0.8	53	53										53						53															
	11T312 -TM	1.2	53	53										53						53															
Semi finishing 	DCMT 070202 -GP	0.2	40					40	40										40																
	070204 -GP	0.4	40					40	40										40																
	070208 -GP	0.8	40					40	40										40																
	11T302 -GP	0.2	45					45	45										45																
	11T304 -GP	0.4	45					45	45										45																
	11T308 -GP	0.8	45					45	45										45																
	150404 -GP	0.4	65					65	65										65																
Rough machining 	DCMT 070208 -TR	0.8		50	50															50															
	11T304 -TR	0.4		50	50															50															
	11T308 -TR	0.8		53	53															53															
	11T312 -TR	1.2		53	53															53															
Rough machining 	DCMW 070202	0.2																		50															
	070204	0.4																		50															
	070208	0.8																		50															
	11T302	0.2																		53															
	11T304	0.4																		53															
	11T308	0.8																		53															
finish machining 	DCGW 0702005	0.05	100																	100	100					200	135	200	200						
	070201	0.1	100																	100	100					200	135	200	200						
	070202	0.2	100																	100	100					200	135	200	200						
	070204	0.4	100																	100	100					200	135	200	200						
	070208	0.8	100																	100	100					200	135	200	200						
	11T3005	0.05	100																	100	100					200	135	200	200						
	11T301	0.1	100																	100	100					200	135	200	200						
	11T302	0.2	100																	100	100					200	135	200	200						
	11T304	0.4	100																	100	100					200	135	200	200						
	11T308	0.8	100																	100	100					200	135	200	200						
finish machining 	DCGT 0702005	0.05	100																	100						200	135	200	200						
	070201	0.1	100																	100						200	135	200	200						
	070202	0.2	100																	100						200	135	200	200						
	070204	0.4	100																	100						200	135	200	200						
	070208	0.8	100																	100						200	135	200	200						
	11T3005	0.05	100																	100						200	135	200	200						
	11T301	0.1	100																	100						200	135	200	200						
	11T302	0.2	100																	100						200	135	200	200						
	11T304	0.4	100																	100						200	135	200	200						
11T308	0.8	100																	100						200	135	200	200							

DS toolholders : AB03 Small parts processing : AB05-07 The outer circle of the handle : B15 -B16 Quick change type cutter head : B22 ; The inner circle of the handle : B29 -B30 Square handle : B38 Eccentric shank : B39-40

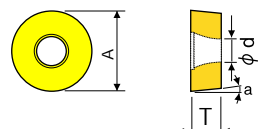


WEB <http://www.mzg.tw>

(mm)

R..	Circular
	Angle
	Perforated Blade

Model	A	T	φd	a	Model	A	T	φd	a
RC_0602_	6	2.38	2.8	7°	RC_1606_	16	6.35	5.5	7°
RC_0803_	8	3.18	3.36	7°	RC_2006_	20	6.35	6.5	7°
RC_1003_	10	3.97	4.4	7°	RC_2507_	25	7.94	7.2	7°
RC_1204_	12	4.76	4.4	7°	RC_3209_	32	9.52	9.5	7°



	P	M	K	N	S	H	Free cutting iron	Carbon/Alloy steel	Stainless steel	Gray cast iron	Nodular cast iron	Nonferrous metal	Heat-resisting alloy	titanium alloy	Hardening material
P	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Use classification criteria

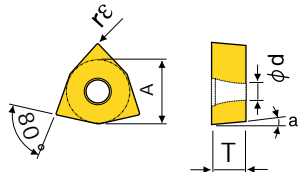
- Discontinuous machining / first selection
- Discontinuous machining / second selection
- Light intermittent machining / first choice
- Light intermittent processing / second selection
- Continuous processing / first selection
- Continuous processing / second options
- (In the case of Hardening material hardness below 45HRC)

Shape	Model	rε	Material													The handle of application	Chip breaker groove																						
			Germet	Steel used						Stainless steel used				Cast iron	Copper and aluminum			Pure ceramics for cast iron	Pure ceramics for hardening materials	Copper, aluminum, non-ferrous metal	Cast iron CBN	Hardening material CBN																	
				ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1513	ZP1522	ZP3512	ZM1512	ZM3511	ZM3512	ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512	ZK3511	ZPW10	ZK10	ZK10B	ZT550	ZT560	PCD-B	PCD-C	CBN-K	CBN-S							
Semi finishing	RCMT 0803MO 1003MO 1204MO 1606MO	0.05																																					
		0.1																																					
		0.2																																					
		0.4																																					
	RCMX 0803MO 1003MO 1204MO 1606MO 2006MO 2507MO 3209MO	0.05																																					
		0.1																																					
		0.2																																					
		0.4																																					
		0.8																																					
		1.6																																					

The outer circle of the handle : B20

WB	80° Hexagon
	Angle
	Perforated Blade

Model	A	T	φd	a
WB_0601_	3.97	1.59	2.3	5°
WB_0802_	4.76	2.38	2.3	5°



	P	M	K	N	S	H	Free cutting iron	Carbon/Alloy steel	Stainless steel	Gray cast iron	Nodular cast iron	Nonferrous metal	Heat-resisting alloy	titanium alloy	Hardening material
P	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

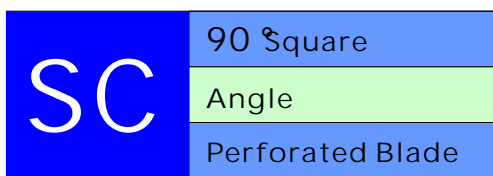
Use classification criteria

- Discontinuous machining / first selection
- Discontinuous machining / second selection
- Light intermittent machining / first choice
- Light intermittent processing / second selection
- Continuous processing / first selection
- Continuous processing / second options
- (In the case of Hardening material hardness below 45HRC)

Shape	Model	rε	Material													The handle of application	Chip breaker groove																						
			Germet	Steel used						Stainless steel used				Cast iron	Copper and aluminum			Pure ceramics for cast iron	Pure ceramics for hardening materials	Copper, aluminum, non-ferrous metal	Cast iron CBN	Hardening material CBN																	
				ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1513	ZP1522	ZP3512	ZM1512	ZM3511	ZM3512	ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512	ZK3511	ZPW10	ZK10	ZK10B	ZT550	ZT560	PCD-B	PCD-C	CBN-K	CBN-S							
finish machining	WBG0601005R/L-F 060101R/L-F 060102R/L-F 060104R/L-F 060108R/L-F	0.05																																					
		0.1																																					
		0.2																																					
		0.4																																					
		0.8																																					
		1.6																																					

The inner circle of the handle : B37

(mm)



Model	A	T	ϕd	a
SC_09T3_	9.525	3.97	4.4	7°
SC_1204_	12.7	4.76	5.56	7°

Shape	Model	rε (mm)	Steel used								Stainless steel used				Cast iron		Copper and aluminum		The handle of application	Chip breaker groove												
			Cermel	CVD			PVD																									
			ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1513	ZP1522	ZP3512	ZM1512	ZM3511	ZM3512	ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512	ZK3511	ZPW10	ZK10	ZK10B	ZT550	ZT560	PCD-B	PCD-C	CBN-K	CBN-S	
finish machining	SCMT 09T302 -TF	0.2		48	48										48																	
	09T304 -TF	0.4		48	48										48								48									
	09T308 -TF	0.8		48	48										48																	
Semi finishing	SCMT 09T304 -TM	0.4		48	48	48	48								48							48										
	09T308 -TM	0.8		48	48	48	48								48							48										
	120404 -TM	0.4		63	63	63	63								63							63										
	120408 -TM	0.8		63	63	63	63								63							63										
	120412 -TM	1.2		63	63	63	63								63							63										
Semi finishing	SCMT 09T304 -GP	0.4	44				44	44	44											44												
	09T308 -GP	0.8	44				44	44	44											44												
	120404 -GP	0.4	65				65	65	65											65												
	120408 -GP	0.8	65				65	65	65											65												
	Rough machining	SCMT 09T304 -TR	0.4		48	48	48															48										
09T308 -TR		0.8		48	48	48															48											
09T312 -TR		1.2		48	48	48															48											
120404 -TR		0.4		63	63	63															63											
120408 -TR		0.8		63	63	63															63											
120412 -TR		1.2		63	63	63															63											
finish machining	SCGW 09T301	0.1	100												110						100	100					200	135	200	200		
	09T302	0.2	100												110						100	100					200	135	200	200		
	09T304	0.4	100												110						100	100					200	135	200	200		
	09T308	0.8	100												110						100	100					200	135	200	200		
	120401	0.1	100												110						100	100					200	135	200	200		
	120402	0.2	100												110						100	100					200	135	200	200		
	120404	0.4	100												110						100	100					200	135	200	200		
	120408	0.8	100												110						100	100					200	135	200	200		
finish machining	SCGT 09T301	0.1	100												110						100	100					200	135	200	200		
	09T302	0.2	100												110						100	100					200	135	200	200		
	09T304	0.4	100												110						100	100					200	135	200	200		
	09T308	0.8	100												110						100	100					200	135	200	200		
	120401	0.1	100												110						100	100					200	135	200	200		
	120402	0.2	100												110						100	100					200	135	200	200		
	120404	0.4	100												110						100	100					200	135	200	200		
	120408	0.8	100												110						100	100					200	135	200	200		
finish machining	SCGT 09T302Z	0.2																			45	35										
	09T304Z	0.4																			45	35										
	09T308Z	0.8																			45	35										
	120402Z	0.2																			70	50										
	120404Z	0.4																			70	50										
	120408Z	0.8																			70	50										
120412Z	1.2																			70	50											



The outer circle of the handle : B17 The inner circle of the handle : B34 Eccentric shank : B40



WEB <http://www.mzg.tw>

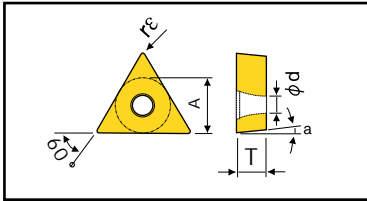
(mm)

**T..** 60° Triangle  
Angle  
Perforated Blade

Model	A	T	φd	a
TB_0601_	3.97	1.59	2.2	5°

Model	A	T	φd	a
TC_06T1_	3.97	1.98	2.2	7°
TC_0902_	5.56	2.38	2.5	7°
TC_1102_	6.35	2.38	2.8	7°
TC_16T3_	9.525	3.97	4.4	7°
TC_2204_	12.7	4.76	5.56	7°

Model	A	T	φd	a
TP_0802_	4.76	2.38	2.3	11°
TP_0902_	5.56	2.38	3.0	11°
TP_1102_	6.35	2.38	3.5	11°
TP_1103_	6.35	3.18	3.3	11°
TP_16T3_	9.525	3.97	4.4	11°



Material	P	M	K	N	S	H	TC_06T1_	TC_0902_	TC_1102_	TC_16T3_	TC_2204_	TP_0802_	TP_0902_	TP_1102_	TP_1103_	TP_16T3_	Classification
Free cutting iron / Carbon/Alloy steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Stainless steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Gray cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nodular cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nonferrous metal	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Heat-resisting alloy	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
titanium alloy	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hardening material	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Use classification criteria:  
 ○ / first selection  
 ○ / second selection  
 ● / first choice  
 ○ / second selection  
 ○ / first selection  
 ○ / second options  
 (In the case of Hardening material hardness below 45HRC)

Shape	Model	r <sub>e</sub>	Cermet	Steel used				Stainless steel used				Cast iron	Copper and aluminum	Pure ceramics for cast type	Pure ceramics for non-ferrous metal	Copper, aluminum, iron metal	Cast coating iron metal	CBN	The handle of application	Chip breaker groove							
				ZN60	ZC2501	ZC2502	ZC2511	ZP1511	ZP1512	ZP1513	ZP1522										ZP3512	ZM1512	ZM3511	ZM3512	ZP1521	ZM826	ZM827
finish machining	TBGT 060101R L	0.1	100										110														
	060102R L	0.2	100										110														
	060104R L	0.4	100										110														
finish machining	TBGT 0601005	0.05	100										110				220	150	220	220							
	060101	0.1	100										110				220	150	220	220							
	060102	0.2	100										110				220	150	220	220							
	060104	0.4	100										110				220	150	220	220							
finish machining	TBGW 060101	0.1	100										110				220	150	220	220							
	060102	0.2	100										110				220	150	220	220							
	060104	0.4	100										110				220	150	220	220							
finish machining	TCGT 090202R L	0.2	100										110														
	090204R L	0.4	100										110														
	110202R L	0.2	100										110														
	110204R L	0.4	100										110														
	110208R L	0.8	100										110														
	16T302R L	0.2	100										110														
	16T304R L	0.4	100										110														
16T308R L	0.8	100										110															
finish machining	TCGT 090202	0.2	100														200	135	200	200							
	090204	0.4	100														200	135	200	200							
	110202	0.2	100														200	135	200	200							
	110204	0.4	100														200	135	200	200							
	110208	0.8	100														200	135	200	200							
	16T302	0.2	100														200	135	200	200							
	16T304	0.4	100														200	135	200	200							
16T308	0.8	100														200	135	200	200								
finish machining	TCGW 090202	0.2	100										110	100			200	135	200	200							
	090204	0.4	100										110	100			200	135	200	200							
	110202	0.2	100										110	100			200	135	200	200							
	110204	0.4	100										110	100			200	135	200	200							
	110208	0.8	100										110	100			200	135	200	200							
	16T302	0.2	100										110	100			200	135	200	200							
Semi finishing	TCGT 090204 -GP	0.4	77																								
	110202 -GP	0.2	88																								
	110204 -GP	0.4	88																								
	110208 -GP	0.8	88																								
	16T304 -GP	0.4	120																								
16T308 -GP	0.8	120																									
finish machining	TCMT 06T104 -TF	0.4	38	38																							
	06T108 -TF	0.8	38	38																							
	090202 -TF	0.2	38	38																							
	090204 -TF	0.4	38	38																							
	090208 -TF	0.8	38	38																							
	110202 -TF	0.2	40	40																							
	110204 -TF	0.4	40	40																							
	110208 -TF	0.8	40	40																							
	16T302 -TF	0.2	50	50																							
	16T304 -TF	0.4	50	50																							
16T308 -TF	0.8	50	50																								



Small parts processing : AB05, AB07 The outer circle of the handle : B18 Quick change type cutter head : B21 ; The inner circle of the handle : B31 - B34 Square handle : B38 Eccentric shank : B40





(mm)

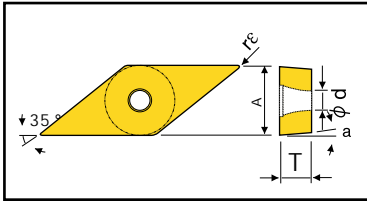
### VB

35 Rhombus

Angle

Perforated Blade

Model	A	T	φd	a
VB_1103_	6.35	3.18	2.8	5°
VB_1604_	9.525	4.76	4.4	5°



	P	M	K	N	S	H																	
P	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Use classification criteria  
 • Discontinuous machining / first selection  
 • Discontinuous machining / second selection  
 • Light intermittent machining / first choice  
 • Light intermittent processing / second selection  
 • Continuous processing / first selection  
 • Continuous processing / second options  
 (In the case of Hardening material hardness below 45HRC)

Shape	Model	rε	Steel used		Stainless steel used	Cast iron	Copper and aluminum	Pure ceramics for cast type	Pure ceramics for hardening material	Copper, aluminum, non-ferrous metal P/D	Cast cutting iron material CBN	Cast cutting iron material CBN	The handle of application	Chip breaker groove
			CVD	PVD										
finish machining	VBGT 1103005R L-F 110301R L-F 110302R L-F 110304R L-F 160402R L-F 160404R L-F 160408R L-F	0.05	100				110							
		0.1	100				110							
		0.2	100				110							
		0.4	100				110							
		0.2	100				120							
		0.4	100				120							
		0.8	100				120							
finish machining	VBGT 1103005R L-U 110301R L-U 110302R L-U 110304R L-U 160402R L-U 160404R L-U 160408R L-U	0.05	100				110							
		0.1	100				110							
		0.2	100				110							
		0.4	100				110							
		0.2	100				120							
		0.4	100				120							
		0.8	100				120							
finish machining	VBGT 110301R L-Y 110302R L-Y 110304R L-Y 160402R L-Y 160404R L-Y 160408R L-Y	0.1	100				110							
		0.2	100				110							
		0.4	100				110							
		0.2	100				120							
		0.4	100				120							
		0.4	100				120							
		0.8	100				120							
finish machining	VBGT 1103005 110301 110302 110304 1604005 160401 160402 160404	0.05	100				110				200	135	200	200
		0.1	100				110				200	135	200	200
		0.2	100				110				200	135	200	200
		0.4	100				110				200	135	200	200
		0.05	100				120				220	150	220	220
		0.1	110				120				220	150	220	220
		0.2	110				120				220	150	220	220
finish machining	VBGT 110302Z 110304Z 110308Z 160402Z 160404Z 160408Z 160412Z	0.2						90	80	32				
		0.4						90	80	32				
		0.8						90	80	32				
		0.2						105	100	45				
		0.4						105	100	45				
		0.8						105	100	45				
		1.2						105	100	45				
finish machining	VBGW 110302 110304 110308 160402 160404 160408	0.2	100				110				200	135	200	200
		0.4	100				110				200	135	200	200
		0.8	100				110				200	135	200	200
		0.2	110				120				220	150	220	220
		0.4	110				120				220	150	220	220
		0.8	110				120				220	150	220	220
		0.8	110				120				220	150	220	220

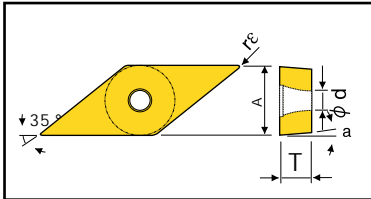
Small parts processing : AB03-AB07 The outer circle of the handle : B19 Quick change type cutter head : B22 ;  
 The inner circle of the handle : B35-B36

# VB.. POSITIVE ANGLE INSERTS

(mm)



Model	A	T	$\phi d$	$a$
VB_1103_	6.35	3.18	2.8	5 °
VB_1604_	9.525	4.76	4.4	5 °



P	M	K	N	S	H	Free cutting iron Carbon/Alloy steel	Stainless steel	Gray cast iron	Nodular cast iron	Nonferrous metal	Heat-resisting alloy	Titanium alloy	Hardening material	Use classification criteria
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
○	○	○	○	○	○	○	○	○	○	○	○	○	○	●

Shape	Model	r <sub>e</sub>	(mm)	Cermet				Steel used				Stainless steel used		Cast iron	Copper and aluminum	Pure ceramic for cast iron	Pure ceramic for stainless material	Copper, aluminum, non-ferrous metal PCD	Cast from CBN	Hardening material	CBN-S	The handle of application	Chip breaker groove								
				ZN60	ZC2501	ZC2502	ZC2511	ZC2512	ZP1511	ZP1512	ZP1513	ZP1522	ZP3512											ZM1512	ZM3512	ZP1521	ZM826	ZM827	ZM829	ZK1511	ZK1512
				CVD	PVD																										
finish machining	VBGT 110304 -GP 160404 -GP 160408 -GP	0.4	160																												
		0.4	210																												
		0.8	210																												
Semi finishing	VBMT 110302 -TF 110304 -TF 160404 -TF 160408 -TF	0.2	70	70																											
		0.4	70	70																											
		0.4	90	90																											
		0.4	90	90																											
		0.8	90	90																											
Semi finishing	VBMT 110304 -TM 110304 -TM 110308 -TM 160404 -TM 160408 -TM 160412 -TM	0.2	70	70																											
		0.4	70	70																											
		0.8	70	70																											
		0.4	90	90																											
		0.8	90	90																											
Rough machining	VBMT 110304 -GP 160404 -GP 160408 -GP	0.4	70																												
		0.4	70																												
		0.4	70																												
		0.8	70																												
		0.8	70																												
Semi finishing	VBMT 110304 -TR 110308 -TR 160404 -TR 160408 -TR 160412 -TR	0.4	70	70																											
		0.8	70	70																											
		0.4	90	90																											
		0.8	90	90																											
		1.2	90	90																											
Semi finishing	VBMT 110304 110308 160404 160408	0.4	70	70	70																										
		0.8	70	70	70																										
		0.4	90	90	90																										
		0.4	90	90	90																										
		0.8	90	90	90																										

Small parts processing : AB03-AB07 The outer circle of the handle : B19 Quick change type cutter head : B22 ;  
The inner circle of the handle : B35-B36

WEB [http :/ / www mzg tw](http://www.mzg.tw)




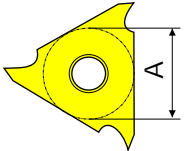
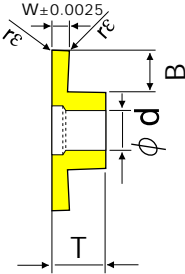








SUMITOMO



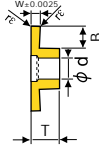
Shape	Model	W	T1500A	AC530U	H1
  	TGA <sup>R/L</sup> 3033	0.33			
	3050	0.50			
	3075	0.75			
	3095	0.95			
	3100	1.00			
	3110	1.10			
	3125	1.25			
	3135	1.35			
	3145	1.45			
	3150	1.50			
	3165	1.65			
	3175	1.75			
	3185	1.85			
	3200	2.00			
	3220	2.20			
	3230	2.30			
	3250	2.50			
	3265	2.65			
	3270	2.70			
	3280	2.80			
	TGA <sup>R/L</sup> 4125	1.25			
	4145	1.45			
	4150	1.50			
	4165	1.65			
	4175	1.75			
	4185	1.85			
	4200	2.00			
	4230	2.30			
4250	2.50				
4265	2.65				
4270	2.70				
4280	2.80				
4300	3.00				
4320	3.20				
4330	3.30				
4350	3.50				
4370	3.70				
4390	3.90				
4400	4.00				
4410	4.10				
4420	4.20				
4430	4.30				
4440	4.40				
4450	4.50				
4480	4.80				



The outer circle of the handle : B52 ;  
The inner circle of the handle : B55



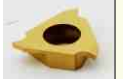

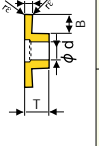

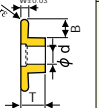
WEB <http://www.mzg.tw>

Shape	Model	W	(mm)		
			NX2525	VP20MF	UTi20T
  	MGTR 33125	1.25			
	33145	1.45			
	33150	1.50			
	33175	1.75			
	33200	2.00			
	33230	2.30			
	33250	2.50			
	33280	2.80			
	33300	3.00			
	33320	3.20			
	33340	3.40			
	33350	3.50			
	33400	4.00			
	33470	4.70			
	MGTR 43125	1.25			
43145	1.45				
43150	1.50				
43175	1.75				
43200	2.00				
43230	2.30				
43250	2.50				
43260	2.60				
43270	2.70				
43280	2.80				
43300	3.00				
43320	3.20				
43330	3.30				
43350	3.50				
43400	4.00				
43420	4.20				
43430	4.30				
43450	4.50				
43470	4.70				




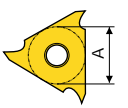
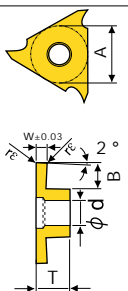
The outer circle of the handle : B52

● NTK

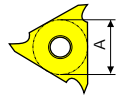
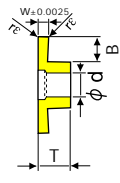
Shape	Model	W	B	r <sub>e</sub>	(mm)		
					ZM3	QM3	ZM930
    	GTMX 32030 <sup>*/T</sup>	0.30	0.6				
	32033 <sup>*/T</sup>	0.33	0.6				
	32043 <sup>*/T</sup>	0.43	1.2				
	32050 <sup>*/T</sup>	0.50	1.2				
	32053 <sup>*/T</sup>	0.53	1.2				
	32065 <sup>*/T</sup>	0.65	1.2				
	32075 <sup>*/T</sup>	0.75					
	32080 <sup>*/T</sup>	0.80					
	32095 <sup>*/T</sup>	0.95					
	32098 <sup>*/T</sup>	0.98					
	32100 <sup>*/T</sup>	1.00					
	32110 <sup>*/T</sup>	1.10					
	32120 <sup>*/T</sup>	1.20					
	32125 <sup>*/T</sup>	1.25					
	32130 <sup>*/T</sup>	1.30					
	32140 <sup>*/T</sup>	1.40					
	32145 <sup>*/T</sup>	1.45					
	32150 <sup>*/T</sup>	1.50					
	32160 <sup>*/T</sup>	1.60					
	32175 <sup>*/T</sup>	1.75					
	32180 <sup>*/T</sup>	1.80					
	32200 <sup>*/T</sup>	2.00					
	32225 <sup>*/T</sup>	2.25					
	32250 <sup>*/T</sup>	2.50					
	32275 <sup>*/T</sup>	2.75					
	32300 <sup>*/T</sup>	3.00					
	GTMH 32100 <sup>*/E01</sup>	1.00	2.0	0.05			
	32120 <sup>*/E01</sup>	1.20					
32150 <sup>*/E01</sup>	1.50	3.0	0.1				
32200 <sup>*/E01</sup>	2.00						
GTMH 32030 <sup>*/U</sup>	0.30	0.6	0.03				
32050 <sup>*/U</sup>	0.50	1.2					
32075 <sup>*/U</sup>	0.75						
32095 <sup>*/U</sup>	0.95						
32100 <sup>*/U</sup>	1.00						
32103 <sup>*/U</sup>	1.03						
32125 <sup>*/U</sup>	1.25						
32145 <sup>*/U</sup>	1.45						
32150 <sup>*/U</sup>	1.50						
32175 <sup>*/U</sup>	1.75						
32200 <sup>*/U</sup>	2.00						
32250 <sup>*/U</sup>	2.50						
全角R型							
GTMH 32050RE025	0.50	1.2	0.25				
32070RE035	0.70	2.0	0.35				
32100RE05	1.00	3.0	0.50				
32200RE10	2.00	3.0	1.00				
32300RE15	3.00	3.0	1.50				



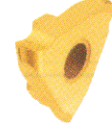
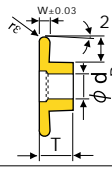
The outer circle of the handle :  
AB04-AB06 B54

Shape	Model	(mm)			TN90	PR930	PR1115	KW10
		W	B	r <sub>e</sub>				
	GBA32 <sup>R/L</sup> 033-005	0.33	0.4	0.05	-	-	-	-
	050-005	0.50	0.8		80	112	-	80
	050-005	0.50	1.2		-	-	112	-
	075-005	0.75	2.0		80	112	112	80
	095-005	0.95			80	112	112	80
	100-005	1.00	80		112	112	80	
	110-005	1.10	-		-	112	-	-
	120-005	1.20	-		-	112	-	-
	125-020	1.25	80		112	112	80	
	130-020	1.30	-		-	112	-	-
	140-020	1.40	-		-	112	-	-
	145-020	1.45	80		112	-	80	-
	145-020	1.45	2.5		-	-	112	-
	150-020	1.50	2.0		80	112	-	80
	150-020	1.50	2.5		-	-	112	-
	160-020	1.60	0.2		-	-	112	-
	170-020	1.70			80	112	-	80
	175-020	1.75	80		112	-	80	
	175-020	1.75	-		-	112	-	-
	200-020	2.00	80		112	112	80	
	225-020	2.25	2.5		-	-	112	-
	250-020	2.50	80		112	112	80	
	300-020	3.00	-		-	112	-	-
		GBA43 <sup>R/L</sup> 125-010	1.25		2.0	0.1	-	-
125-020		1.25	142	142		142	142	
140-020		1.40	-	-	142	-	-	
145-020		1.45	142	142	-	142	-	
145-020		1.45	-	-	142	-	-	
150-010		1.50	0.1	-	-	142	-	
150-020		1.50	142	142	142	142		
170-020		1.70	-	-	142	-	-	
175-020		1.75	0.2	142	142	142	142	
185-020		1.85	3.5	142	142	142	142	
195-020		1.95		-	-	142	-	
200-010		2.00	0.1	-	-	120	-	
200-020		2.00	120	120	120	120		
225-020		2.25	0.2	-	-	120	-	
230-020		2.30	120	120	120	120		
250-010		2.50	5.0	0.1	-	-	120	-
250-030		2.50	4.0	120	120	-	120	
250-030		2.50	5.0	-	-	120	-	
265-030		2.65	4.0	120	120	-	120	
265-030		2.65	5.0	-	-	120	-	
280-030		2.80	4.0	120	120	-	120	
280-030		2.80	5.0	-	-	120	-	
300-010		3.00	5.0	0.1	-	-	120	-
300-030		3.00	4.0	120	120	-	120	
300-030		3.00	5.0	-	-	120	-	
325-030		3.25	4.0	0.3	-	-	120	-
330-030		3.30	5.0	120	120	-	120	
330-030		3.30	-	-	-	120	-	
350-010		3.50	5.0	0.1	-	-	120	-
350-030		3.50		0.3	120	120	120	120
400-010	4.00	0.1	-	-	120	-		
400-040	4.00	120	120	120	120			
430-040	4.30	0.4	120	120	120	120		
450-040	4.50	120	120	120	120			
480-040	4.80	120	120	120	120			
	TGF32 <sup>R/L</sup> 033-005	0.33	0.8	0.05	135	135	85	
	050-005	0.50	1.2		135	135	85	
	075-010	0.75	2.0		110	110	85	
	095-010	0.95			110	110	85	
	100-010	1.00	110		110	85		
	125-010	1.25	110		110	85		
	145-010	1.45	110		110	85		
	150-010	1.50	110		110	85		
	175-010	1.75	2.5		110	110	85	
	200-010	2.00			110	110	85	
	250-010	2.50	110		110	85		

The outer circle of the handle : B52 -B53

Shape	Model	W	T730	T9025	GH730	NS530	NS730
 	JTG <sup>R/L</sup> 3033F	0.33					
	3043F	0.43					
	3050F	0.50					
	3065F	0.65					
	3075F	0.75					
	3080F	0.80					
	3085F	0.85					
	3095F	0.95					
	3100F	1.00					
	3110F	1.10					
	3125F	1.25					
	3130F	1.30					
	3140F	1.40					
	3145F	1.45					
	3150F	1.50					
	3180F	1.80					
	3200F	2.00					
	3225F	2.25					
3250F	2.50						
3275F	2.75						
3300F	3.00						

The outer circle of the handle : B53 ,  
The inner circle of the handle : B55

Shape	Model	(mm)			TN90	PR930	PR1115	KW10	
		W	B	r <sub>e</sub>					
 	GBA32 <sup>R/L</sup> 200-100R	2.00	2.5	1.00	135	180	180	135	
	300-150R	3.00		1.50	135	180	180	135	
	GBA43 <sup>R/L</sup>	100-050R	1.00	2.0	0.50	150	200	200	150
		150-075R	1.50	3.5	0.75	150	200	200	150
		200-100R	2.00		1.00	150	200	200	150
		250-125R	2.50	4.0	1.25	150	200	200	150
		300-150R	3.00		1.50	150	200	200	150
		400-200R	4.00	5.0	2.00	150	200	200	150
		GB32 <sup>R/L</sup>	050	0.50	1.0	C0.05	80	110	-
	075		0.75	80			110	-	-
095	0.95		2.0	C0.10	80	110	-	-	
100	1.00				80	110	-	-	
125	1.25		2.0	C0.10	80	110	-	-	
145	1.45				80	110	-	-	
150	1.50		2.5	C面 角 機	80	110	-	-	
200	2.00				80	110	-	-	
250	2.50		2.5	80	110	-	-		
GB43 <sup>R/L</sup>	125		1.25	20	0.1	-	-	200	-
	125		1.25		0.2	100	200	-	-
	145		1.45	0.2	100	200	-	-	
	150	1.50	0.1	-	-	200	-		
	150	1.50	0.2	100	200	-	-		
	175	1.75	3.5	0.2	100	200	-	-	
	185	1.75		0.2	100	200	-	-	
	200	2.00	0.1	-	-	200	-		
	200	2.00	0.2	100	200	-	-		
	230	2.30	0.2	100	200	-	-		
	250	2.50	0.1	-	-	200	-		
	250	2.50	0.3	100	200	-	-		
	265	2.65	0.3	100	200	-	-		
	280	2.80	0.3	100	200	-	-		
	300	3.00	0.1	-	-	200	-		
	300	3.00	0.3	100	200	-	-		
	330	3.30	0.3	100	200	-	-		
	350	3.50	0.1	-	-	200	-		
350	3.50	0.3	100	200	-	-			
400	4.00	0.1	-	-	200	-			
400	4.00	0.4	100	200	-	-			
430	4.30	0.4	100	200	-	-			
450	4.50	0.4	100	200	-	-			
480	4.80	0.4	100	200	-	-			

The outer circle of the handle : B52 -B53



CTP

Small parts processing

grooving

Cut-off

### MZG Small diameter cutting

Cutting diameter range  $\varnothing 8 - \varnothing 23\text{mm}$



- Use classification criteria
- ✳ Discontinuous machining/ first selection
  - ✳✳ Discontinuous machining/ second selection
  - Light intermittent machining/ first choice
  - ⊙ Light intermittent processing/ second selection
  - Continuous processing/ first selection
  - Continuous processing/ second options
- (In the case of Hardening material hardness below 45HRC)

P	Free cutting iron Carbon/Alloy steel	⊙	⊙	⊙	⊙	⊙	⊙													
M	Stainless steel	●	●	●	●	⊙	⊙													
K	Gray cast iron	⊙	⊙	⊙	⊙	⊙	⊙													
	Nodular cast iron	⊙	⊙	⊙	⊙	⊙	⊙													
N	nonferrous metal					●	●	●												
S	Heat-resisting alloy																			●
	titanium alloy																			●
H	Hardening material																			●

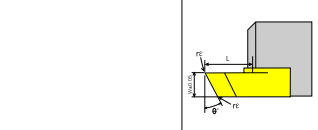
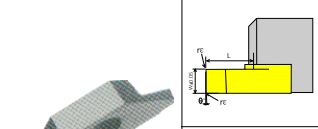
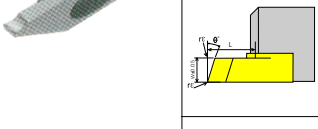
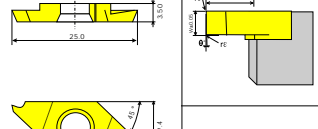

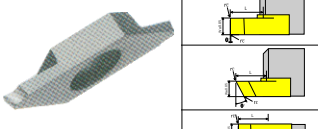
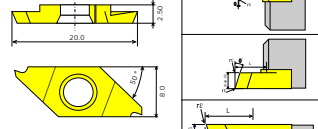

Shape		Model	(mm)				Stainless steel used				Copper and aluminum			The handle of application	Chip breaker groove				
			W±0.03	L	Install Angle $\theta$	r $\epsilon$	ZM856	ZM826	ZM827	ZM829	ZK10	ZK110	PCD-B			CBN-K	CBN-S		
Cutting and cutting of small parts	<p>Chip removing groove</p>	CTP 07FR	0.7	4.5	16°	0.05	150	150			150	150	400	400	400				
			10FR				1.0	150	150			150	150	400	400			400	
			15FR				1.5	150	150			150	150	400	400			400	
			20FR				2.0	150	150			150	150	400	400			400	
		CTP 10FRN	1.0	6.7			0°	150	150			150	150	400	400			400	
			15FRN					1.5	150	150			150	150	400			400	400
			20FRN					2.0	150	150			150	150	400			400	400
			10FRK					1.0	16°	150	150			150	150			400	400
		15FRK	1.5	150				150				150	150	400	400			400	
		20FRK	2.0	150				150				150	150	400	400			400	
		CTP 07FL	0.7	4.5				16°		150	150			150	150			400	400
			10FL						1.0	150	150			150	150			400	400
	15FL		1.5		150	150					150	150	400	400	400				
	20FL		2.0		150	150					150	150	400	400	400				
	CTP 10FLN	1.0	6.7	0°	150	150					150	150	400	400	400				
		15FLN			1.5	150			150			150	150	400	400	400			
		20FLN			2.0	150	150				150	150	400	400	400				
		CTP 10FLK			1.0	6.7	16°		150	150			150	150	400	400	400		
15FLK	1.5		150		150						150	150	400	400	400				
20FLK	2.0		150		150						150	150	400	400	400				
15FLKB	1.5		150		150						150	150	400	400	400				
<p>No chip groove Mirror polishing</p>	CTP 10FRV	1.0	6.7		20°	0.0			150	150			150	150	400	400	400		
		15FRV						1.5	150	150			150	150	400	400	400		
		20FRV						2.0	150	150			150	150	400	400	400		
		15FRNV						1.5	0°	150	150			150	150	400	400		
	20FRNV	2.0			150			150				150	150	400	400	400			
	CTP 10FLV	1.0		20°	150			150				150	150	400	400	400			
		15FLV			1.5			150		150			150	150	400	400	400		
		20FLV			2.0			150	150			150	150	400	400	400			
		15FLNV			1.5		0°	150	150			150	150	400	400	400			
	20FLNV	2.0		150	150					150	150	400	400	400					
	CTP 15FLKV	1.5		20°	150			150			150	150	400	400	400				

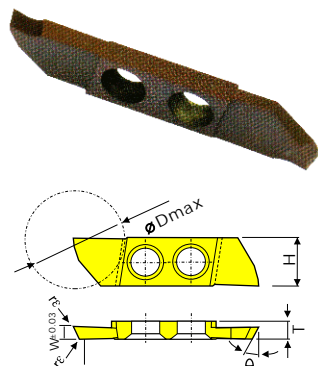


Small parts : AB06 AB12





MZG <sup>®</sup> MZG SPAK PLUG CO., LTD.		Cutting and grooving for small parts		(mm)			Stainless steel used		Copper and aluminum		Copper, aluminum, non-ferrous metal RD	Cast iron CBN	Harding material CBN	The handle of application	Chip breaker groove	
Shape	Model	W±0.03	L	Install Angle θ	rε	ZM856	ZM826	ZM827	ZM829	ZK10	ZK110	PCD-B	CBN-K	CBN-S		
Cutting and cutting of small parts  Chip removing groove		CTPA07FR	0.7	4.5	16°	0.05	160	160			160	160	400	400	400	
		10FR	1.0	6.7			160	160			160	160	400	400	400	
		15FR	1.5	9.2			160	160			160	160	400	400	400	
		20FR	2.0				160	160			160	160	400	400	400	
		CTPA07FRN	0.7	4.5	0°	0.05	160	160			160	160	400	400	400	
		10FRN	1.0	6.7			160	160			160	160	400	400	400	
		15FRN	1.5	9.2			160	160			160	160	400	400	400	
		20FRN	2.0				160	160			160	160	400	400	400	
		CTPA07FL	0.7		16°	0.05	160	160			160	160	400	400	400	
		10FL	1.0	4.5			160	160			160	160	400	400	400	
		15FL	1.5	6.7			160	160			160	160	400	400	400	
		20FL	2.0	9.2			160	160			160	160	400	400	400	
		CTPA10FLN	1.0		0°	0.05	160	160			160	160	400	400	400	
		10FLN091	1.0	6.7			160	160			160	160	400	400	400	
		15FLN	1.5	9.2			160	160			160	160	400	400	400	
		20FLN	2.0				160	160			160	160	400	400	400	
	CTPA07FLK	0.7	9.2	16°	0.05	160	160			160	160	400	400	400		
	10FLK	1.0	4.5			160	160			160	160	400	400	400		
	10FLK090	1.0	6.7			160	160			160	160	400	400	400		
	15FLK	1.5	9.2			160	160			160	160	400	400	400		
20FLK	2.0	160		160			160	160	400	400	400					
Cutting and cutting of small parts (light trimming blade)  No chip groove		CTPA20FRS	2.0	9.2	0°	0.05	160	160			160	160	400	400	400	
		Mirror polishing	CTPA20FRV	2.0	20°	0.0	160	160			160	160	400	400	400	
		20FRNV	2.0	0°			0.05	160	160			160	160	400	400	
		CTPA20FLS	2.0	9.2	20°	0.0	160	160			160	160	400	400	400	
		Mirror polishing	CTPA20FLV		2.0		0°	0.0	160	160			160	160	400	
		CTPA20FLV	2.0	9.2	20°	0.0	160	160			160	160	400	400	400	
Mirror polishing		20FLNV	2.0		0°		0.0	160	160			160	160	400	400	400
	CTPA20FLKV	2.0		20°		160	160			160	160	400	400	400		

MZG <sup>®</sup> MZG SPAK PLUG CO., LTD.		Cutting and grooving for small parts		(mm)			Stainless steel used		Copper and aluminum		Copper, aluminum, non-ferrous metal RD	Cast iron CBN	Harding material CBN	The handle of application	Chip breaker groove
Shape	Model	W±0.03	L	Install Angle θ	rε	ZM856	ZM826	ZM827	ZM829	ZK10	ZK110	PCD-B	CBN-K	CBN-S	
	CTPWR L 10CE	10	0.06	0°	3.04 7.94	200	200			200	200	600	600	600	
	10CE15R	10		15°		200	200			200	200	600	600	600	
	15CE	15		0°		200	200			200	200	600	600	600	
	15CE15R	15		17°		200	200			200	200	600	600	600	
	20CE	20	0°	200	200			200	200	600	600	600			
	20CE15R	20	15°	200	200			200	200	600	600	600			
	20CN	20	0°	200	200			200	200	600	600	600			
	20CU15R	20	15°	200	200			200	200	600	600	600			
	25CE	25	0°	200	200			200	200	600	600	600			
	25CE15R	25	15°	200	200			200	200	600	600	600			
	25CN	25	0°	200	200			200	200	600	600	600			
	25CU15R	25	15°	200	200			200	200	600	600	600			
	30CE	30	0°	200	200			200	200	600	600	600			
	30CE15R	30	15°	200	200			200	200	600	600	600			
	30CN	30	0°	200	200			200	200	600	600	600			
	30CU15R	30	15°	200	200			200	200	600	600	600			

The outer circle of the handle : AB12

# TKF

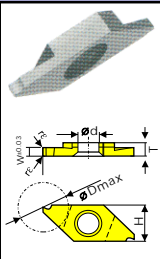
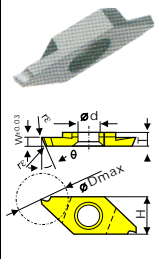
Small parts processing

Cut-off

Grooving Cutter

- Use classification criteria
- ✳ Discontinuous machining/ first selection
  - ✳ Discontinuous machining/ second selection
  - Light intermittent machining/ first choice
  - ☺ Light intermittent processing/ second selection
  - Continuous processing/ first selection
  - Continuous processing/ second options
- (In the case of Hardening material hardness below 45HRC)

P	Free cutting iron Carbon/Alloy steel	☺	☺	☺	☺	☺	☺	☺	☺											
M	Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	Gray cast iron	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
N	Nodular cast iron	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
B	nonferrous metal																			
S	Heat-resisting alloy																			
S	titanium alloy																			
H	Hardening material																			

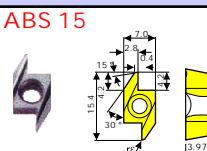
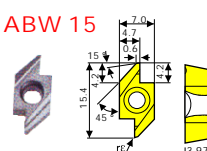
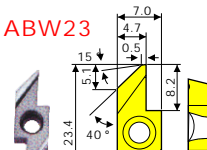
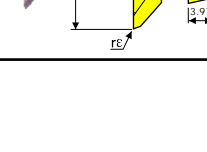
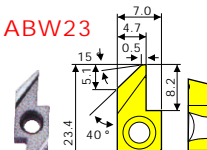
Shape		Model		(mm)					Stainless steel used		Copper and aluminum		Copper, aluminum, non-ferrous metal RCD		Cast iron CBN		Hardening material CBN		The handle of application	Chip breaker groove
				W±0.03	L	Install Angle	re	150	150	150	150	150	150	400	400	400	400	400		
Cutting and cutting of small parts		TKF12R L 050-S 070-S 100-S 150-S 200-S	05	5	0.03	0°	3	8.7	5	150	150	150	150	400	400	400	400	400		
			07	8						150	150	150	150	400	400	400	400			
			10							150	150	150	150	400	400	400	400			
			15	12						150	150	150	150	400	400	400	400			
			20							150	150	150	150	400	400	400	400			
	TKF16R L 150-S 200-S 250-S 300-S	15		0.05	0°	3	9.5	5	150	150	150	150	400	400	400	400	400			
		20	16						150	150	150	150	400	400	400	400				
		25							150	150	150	150	400	400	400	400				
		250-S							150	150	150	150	400	400	400	400				
		300-S							150	150	150	150	400	400	400	400				
	TKF12R L 050-16DR 070-16DR 100-16DR 150-16DR 200-16DR	05	5	0.05	16°	4	8.7	5	150	150	150	150	400	400	400	400	400			
		07	8						150	150	150	150	400	400	400	400				
		10							150	150	150	150	400	400	400	400				
		15	12						150	150	150	150	400	400	400	400				
		20							150	150	150	150	400	400	400	400				
	TKF16R L 150-16DR 200-16DR 250-16DR 300-16DR	15		0.05	16°	4	9.5	5	160	160	160	160	500	500	500	500	500			
		20	16						160	160	160	160	500	500	500	500				
		25							160	160	160	160	500	500	500	500				
		250-16DR							160	160	160	160	500	500	500	500				
		300-16DR							160	160	160	160	500	500	500	500				

 The outer circle of the handle : AB11

# AB

Small parts processing

Rear turning blade

Shape		Model		re		Stainless steel专用		硬质合金		铝铁金属用 RCD		铸铁用 CBN		淬硬材料用 CBN		
						150	150	150	150	400	400	400	400			
	ABS 15	ABS 15R4005	0.05	125	125	125	125	125	125	400	400	400	400	400		
		ABS 15R4015	0.15	125	125	125	125	125	125	400	400	400	400	400		
		ABW 15	ABS 15R4005M	<0.05	125	125	125	125	125	125	400	400	400	400		
			ABS 15R4015M	<0.15	125	125	125	125	125	125	400	400	400	400		
				ABW 15	ABW 15R4005	0.05	125	125	125	125	125	125	400	400	400	400
					ABW 15R4015	0.15	125	125	125	125	125	125	400	400	400	400
	ABW 23	ABW 23R5005	0.05	150	150	150	150	150	150	500	500	500	500			
		ABW 23R5015	0.15	150	150	150	150	150	150	500	500	500	500			
			ABW 23	ABW 23R5005M	<0.05	150	150	150	150	150	150	500	500	500	500	
				ABW 23R5015M	<0.15	150	150	150	150	150	150	500	500	500	500	

 The outer circle of the handle : AB10



TBP TBPA	Small parts processing
	Backward turning



Shape		Model		(mm)			Stainless steel used		Copper and aluminum		Copper, aluminum, non-ferrous metal RD	Cast iron CBN	Hardening material CBN	The handle of application	Chip breaker groove
				W±0.03	L	Install Angle $\theta$	re	W	W	W	W	W	W		
Backward turning of small parts	<p>Chip removing groove</p> <p>No chip groove</p>	TBP 55F <sup>R</sup> /L00	55°	0.00	2.8	-	140	140	140	140	400	400	400		
			55F <sup>R</sup> /L10	0.10			140	140	140	140	400	400	400		
		TBP 60F <sup>R</sup> /L00	60°	0.00	140		140	140	140	400	400	400			
				0.10	140		140	140	140	400	400	400			
				*0.08	140		140	140	140	400	400	400			
				0.00	140		140	140	140	400	400	400			
	TBP 60F <sup>R</sup> /LV	60°	0.05	5.0	140	140	140	140	400	400	400				
			0.10	140	140	140	140	400	400	400					
	<p>Chip removing groove</p> <p>No chip groove</p>	TBPA 60F <sup>R</sup> /LVB	60°	0.0	4.5	0.2	160	160	160	160	500	500	500		
				60F <sup>R</sup> /LPB10			0.1	160	160	160	160	500	500		
		TBPA 60F <sup>R</sup> /LV		60°	*0.08	0.3	160	160	160	160	500	500	500		
					*0.08		160	160	160	160	500	500	500		
*0.18					160		160	160	160	500	500	500			
0.0					6.0		0.2	160	160	160	160	500	500	500	

刀柄 : AB04 AB06 AB09

TKFB	Small parts processing
	Backward turning



Shape		Model		(mm)			Stainless steel used		Copper and aluminum		Copper, aluminum, non-ferrous metal RD	Cast iron CBN	Hardening material CBN	The handle of application	Chip breaker groove		
				W±0.03	L	Install Angle $\theta$	re	W	W	W	W	W	W				
Backward turning of small parts		TKFB12R 15005M	28005M	1.5	2.6	<0.05	0.25	3	8.7	5	140	140	140	140	400	400	400
				2.8	4.6	<0.05	0.3				140	140	140	140	400	400	400
				2.8	4.6	<0.1	0.3				140	140	140	140	400	400	400
		TKFB16R 38005M	38010M	3.8	6.3	<0.05	0.3	4	9.5		150	150	150	150	500	500	500
				3.8	6.3	<0.1	0.3				150	150	150	150	500	500	500

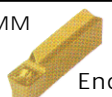



刀柄 : AB11


WEB <http://www.mzg.tw>

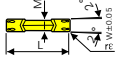






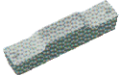
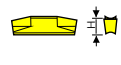
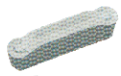



KORLOY®									
Shape	Model	W		NC3030	PC9030	H01	ZP1521	ZP1521H	
 FMM End	FMM	300R-03	3.00						
		400R-04	4.00						
		500R-04	5.00						
 MGMN	MGMN	150-G	1.50				50	50	
		200-G	2.00				50	50	
		250-G	2.50				50	50	
		300-G	3.00				50	50	
		400-G	4.00				60	60	
		500-G	5.00				70	70	
		600-G	6.00				80	80	
		MGMN	200-M	2.00				50	50
			250-M	2.50				50	50
			300-M	3.00				50	50
 MRMN	MRMN	200-M	2.00				60	60	
		300-M	3.00				60	60	
		400-M	4.00				60	60	
		500-M	5.00				70	70	
		600-M	6.00				80	80	
		800-M	8.00				90	90	
 SP	SP	200	2.2				40	40	
		300	3.1				40	40	
		400	4.1				40	40	
		500	5.1				45	45	
		600	6.4				50	50	

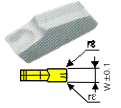
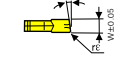
 The outer circle of the handle : B45,B47,B55,B59;  
 The inner circle of the handle : B56


MITSUBISHI MATERIALS								
Shape	Model	W		NX2525	US735	VP20MF	UTi20T	
 DGM DGJ	DGM	20CE	2.0					
		30CE	3.0					
		40CE	4.0					
		50CE	5.0					
		60CE	6.0					
		70CE	7.0					
		80CE	8.0					
		Cutting and copying machining with						
 DGM DGJ	DGM	30CT	3.0					
		40CT	4.0					
		50CT	5.0					
	DGJ	50CT1	5.0					
	DGM	40CTB	4.0					
	50CTB	5.0						
	60CTB	6.0						

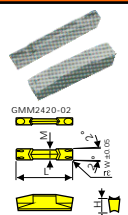
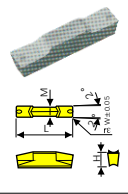
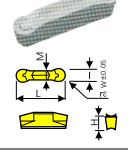
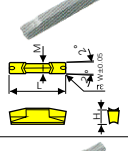
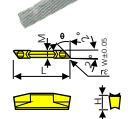
 The outer circle of the handle : B47 ;  
 The inner circle of the handle : B56

MITSUBISHI MATERIALS				(mm)					
Shape	Model	W	re	ar (Max)	L	VP10RT	VP20RT		
 GY2M	Low speed feed								
	GY2M	0200D020N-GS	2.00	0.2	18.7	20.7			
		0239E020N-GS	2.39	0.2	18.5	20.7			
		0250E020N-GS	2.50	0.2	18.5	20.7			
		0300F020N-GS	3.00	0.2	18.5	20.7			
		0318F020N-GS	3.18	0.2	18.5	20.7			
		0400G020N-GS	4.00	0.2	23.9	25.65			
		0475H030N-GS	4.75	0.3	23.9	25.65			
		0500H030N-GS	5.00	0.3	24.0	25.65			
		0600J030N-GS	6.00	0.3	24.1	25.65			
		0635J030N-GS	6.35	0.3	24.1	25.65			
	General feed processing								
	GY2M	0200D020N-GM	2.00	0.2	19.4	20.7			
		0239E020N-GM	2.39	0.2	19.4	20.7			
		0250E020N-GM	2.50	0.2	19.4	20.7			
	0300F030N-GM	3.00	0.3	19.4	20.7				
	0318F030N-GM	3.18	0.3	19.4	20.7				
	0400G030N-GM	4.00	0.3	24.4	25.65				
	0475H040N-GM	4.75	0.4	24.3	25.65				
	0500H040N-GM	5.00	0.4	24.3	25.65				
	0600J040N-GM	6.00	0.4	24.3	25.65				
	0635J040N-GM	6.35	0.4	24.3	25.65				
 GY2M	Low speed feed								
	GY2M	0300F020N-MS	3.00	0.2	19.2	20.7			
		0300F040N-MS	3.00	0.4	18.9	20.7			
		0400G020N-MS	4.00	0.2	24.2	25.65			
		0400G040N-MS	4.00	0.4	23.9	25.65			
		0500H040N-MS	5.00	0.4	23.9	25.65			
		0500H080N-MS	5.00	0.8	23.5	25.65			
		0600J040N-MS	6.00	0.4	23.9	25.65			
		0600J080N-MS	6.00	0.8	23.5	25.65			
	General feed processing								
GY2M	0300F020N-MM	3.00	0.2	19.1	20.7				
	0300F040N-MM	3.00	0.4	18.9	20.7				
	0400G040N-MM	4.00	0.4	23.9	25.65				
	0400G080N-MM	4.00	0.8	23.5	25.65				
	0500H040N-MM	5.00	0.4	23.9	25.65				
	0500H080N-MM	5.00	0.8	23.5	25.65				
	0600J040N-MM	6.00	0.4	23.9	25.65				
	0600J080N-MM	6.00	0.8	23.5	25.65				
 GY2M	Copying processing								
	GY2M	0300F150N-BM	3.00	1.5	19.0	20.9			
		0318F159N-BM	3.18	1.59	18.9	20.9			
		0400G200N-BM	4.00	2.00	23.4	25.8			
		0475H238N-BM	4.75	2.38	22.9	25.8			
		0500H250N-BM	5.00	2.50	22.8	25.8			
		0600J200N-BM	6.00	3.00	22.5	25.8			
		0635J318N-BM	6.35	3.18	22.3	25.8			

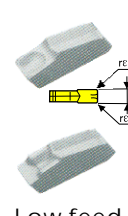

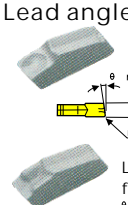
 The outer circle of the handle : B47 ;  
 The inner circle of the handle : B56

MITSUBISHI MATERIALS				(mm)				
Shape	Model	W	rε	TN90	CR9025	PR660	KW10	
 KGT	2N	3N	2.2	0.2				
		4N	3.1	0.2				
		5N	4.1	0.2				
		5N	5.1	0.2				
 KGT	2 <sup>R</sup> / <sub>L</sub>	3 <sup>R</sup> / <sub>L</sub>	2.2	0.2				
		4 <sup>R</sup> / <sub>L</sub>	3.1	0.2				
		4 <sup>R</sup> / <sub>L</sub>	4.1	0.2				
		5 <sup>R</sup> / <sub>L</sub>	5.1	0.2				

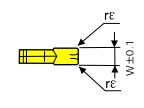



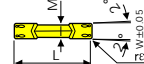
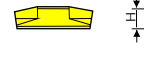

 The outer circle of the handle : B45 ;  
 Cutting template : B51

KY CER		(mm)						TN90	PR930	PR1115	KW10
Shape	Model	W	rE	M	L	H	θ				
	GMM 2420-020MT	2.4	0.2	1.9	20	4.3		86	118	118	86
	3020-020MT	3.0	0.2	2.3				90	124	124	90
	3020-040MT		0.4					90	124	124	90
	4020-020MT	4.0	0.2					95	138	138	95
	4020-040MT		0.4	3.3				95	138	138	95
	4020-080MT		0.8					95	138	138	95
	5020-040MT	5.0	0.4	4.2				109	150	150	109
	5020-080MT		0.8					109	150	150	109
	6020-040MT	6.0	0.4	5.2				118	170	170	118
	6020-080MT		0.8					118	170	170	118
8030-080MT	8.0	0.8	6.0	30	5.5		-	200	200	-	
	GMG 3020-000MS	3.0	0.0		20	4.3		125	180	180	125
	3020-020MS	3.0	0.2	2.3				125	180	180	125
	3020-040MS		0.4					125	180	180	125
	4020-020MS	4.0	0.2					133	195	195	133
	4020-040MS		0.4	3.3				133	195	195	133
	4020-080MS		0.8					133	195	195	133
	5020-040MS	5.0	0.4	4.2				144	215	215	144
	5020-080MS		0.8					144	215	215	144
	6020-040MS	6.0	0.4	5.2				162	238	238	162
	6020-080MS		0.8					162	238	238	162
	GMM 3020-150R	3.0	1.5	2.3	20	4.3		109	150	150	109
	4020-200R	4.0	2.0	3.3				115	164	164	115
	5020-250R	5.0	2.5	4.2				122	180	180	122
	6020-300R	6.0	3.0	5.2				140	202	202	140
	GMG 3020-150R	3.0	1.5	2.3				150	215	215	150
	4020-200R	4.0	2.0	3.3				160	235	235	160
	5020-250R	5.0	2.5	4.2				-	258	258	-
	6020-300R	6.0	3.0	5.2				-	284	284	-
	GMM1520-MT	1.5	0.0	1.2	20	4.3		-	81	81	60
	2020-MT	2.0	0.0	1.5				-	84	84	60
	2520-MT	2.5	0.0	1.9				84	84	65	84
	3020-MT	3.0	0.0	2.3				86	86	70	86
	GMM1520 <sup>R</sup> /L-MT-15D	1.5	0.0	1.2	20	4.3	15	-	81	81	60
	2020 <sup>R</sup> /L-MT-15D	2.0	0.0	1.5				-	84	84	60
	2520 <sup>R</sup> /L-MT-15D	2.5	0.0	1.9				-	84	84	65
	3020 <sup>R</sup> /L-MT-15D	3.0	0.0	2.3				84	84	65	84
			0.05					86	86	70	86

The outer circle of the handle : B50;  
The inner circle of the handle : B56

Shape	Model	W	rE	θ	TN90	CR9025	PR660	KW10
	TKN 1.6	1.6	0.15	-	59	76	76	59
	2	2.2	0.20		54	66	66	54
	2.4	2.4	0.20		54	66	66	54
	3	3.1	0.25		56	66	66	56
	4	4.1	0.30		61	73	73	61
	4.8	4.8	0.30		-	78	-	-
	5	5.1	0.30		-	78	78	66
	6	6.4	0.35		-	83	83	71
	8	8.0	0.40		-	110	110	-
	9	9.6	0.45		-	138	138	-
	TKN 1.6-P	1.6	0.20	-	-	76	76	59
	2-P	2.2	0.20		54	66	66	54
	3-P	3.1	0.25		56	68	68	56
	TK <sup>R</sup> /L 1.6	1.6	0.15	8°	-	76	76	59
	2	2.2	0.20		54	66	66	54
	2.4	2.4	0.20		-	66	66	54
	3	3.1	0.25		56	68	68	56
	4	4.1	0.30		61	73	73	61
	5	5.1	0.30		-	78	78	66
	TK <sup>R</sup> /L 1.6-P	1.6	0.20		-	76	76	59
	2-P	2.2	0.20		-	66	66	54
	3-P	3.1	0.25		56	68	68	56

The outer circle of the handle : B46; Cutting template : B51

TaeguTec								
Shape	Model	W	CT3000	TT8020	TT9080	TT9100	K10	
	TIMC 1.6	1.60						
	2	2.00						
	2.4	2.40						
	3	3.00						
	4	4.00						
	4.8	4.80						
		TDC 2						2.00
		3						3.00
		4						4.00
		5						5.00
6		6.00						
8		8.00						
		TSC 2	2.00					
		3	3.00					
	4	4.00						
	5	5.00						
	6	6.00						
	8	8.00						
	TDJ 1.4	1.40						
	2	2.00						
	3	3.00						
	4	4.00						
	5	5.00						
	6	6.00						
	TDXU 3E-0.3	3.00						
	4E-0.4	4.00						
	4E-0.8	4.00						
	5E-0.4	5.00						
	5E-0.8	5.00						
	6E-0.4	6.00						
	6E-0.8	6.00						
	8E-0.8	8.00						
	TDT 3E-0.4	3.00						
	4E-0.4	4.00						
	TDT 2.65E-0.15	2.65						
	3.00E-0.20	3.00						
	3.00E-0.40	3.00						
	3.15E-0.15	3.15						
	4.00E-0.80	4.00						
	4.15E-0.15	4.15						
	4.78E-0.55	4.78						
	5.00E-0.40	5.00						
	5.00E-0.80	5.00						
	5.15E-0.15	5.15						
6.00E-0.80	6.00							
6.00E-1.20	6.00							
8.00E-0.80	8.00							
8.00E-1.20	8.00							
10.00E-0.80	10.0							
10.00E-1.20	10.0							
10.00E-2.00	10.0							

The outer circle of the handle : B49;  
The inner circle of the handle : B56



toolholders : B41 -B44  
Cutting parameters : R07 -R10



Shape	Model	W						
			T730	T9025	GH730	NS530	NS730	
	GT	30 40 50	3.00 4.00 5.00					
	CTD	3 4 5	3.0 4.0 5.0					
	WGE	20 30 40 50	2.0 3.0 4.0 5.0					
	JXG <sup>R</sup> /L	8070FA 8100FA 8120FA 8150FA 8180FA 8200FA 8200FN	0.70 1.00 1.20 1.50 1.80 2.00 2.00					
	6G <sup>R</sup> /L	100 150 200	1.0 1.5 2.0					
	7G <sup>R</sup> /L	100 150 200	1.0 1.5 2.0					
	8G <sup>R</sup> /L	100 150 200 250 300 350	1.0 1.5 2.0 2.5 3.0 3.5					
	9G <sup>R</sup> /L	100 150 200 250 300 350	1.0 1.5 2.0 2.5 3.0 3.5					
	15G <sup>R</sup> /L	100 150 200 250 300 400 450 500	1.0 1.5 2.0 2.5 3.0 4.0 4.5 5.0					

Shape	Model	(mm)				TN6020	PR1025	KW10
		W	B	C	rE			
	GE <sup>R</sup> /L 100-005A 120-005A 125-005A 150-010A 200-010A	1.00 1.20 1.25 1.50 2.00	1.5	1.8	0.05 0.1	180 220 180 160 200 160 160 200 160 160 200 160 160 200 160		
	GE <sup>R</sup> /L 100-005B 120-005B 125-005B 145-010B 150-010B 200-010B 250-020B 300-020B	1.00 1.20 1.25 1.45 1.50 2.00 2.50 3.00	2.2	2.6	0.05 0.1 0.2	180 210 180 160 200 160 160 200 160 160 200 160 160 200 160 160 200 160 160 200 160 160 200 160		
	GER 100-050AR 200-100AR	1.00 2.00	1.5	1.8	0.5 1.0	220 260 220 220 260 220		
	GER 100-050BR 200-100BR	1.00 2.00	2.2	2.6	0.5 1.0	220 260 220 220 260 220		
	GE <sup>R</sup> /L 100-005C 120-005C 125-005C 140-005C 145-010C 150-010C 170-185C 185-010C 195-010C 200-010C 250-020C 300-020C 350-020C	1.00 1.20 1.25 1.40 1.45 1.50 1.70 1.85 1.95 2.00 2.50 3.00 3.50	2.5	2.7	0.05 0.1 0.2	180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180 180 200 180		
	GER 200-100CR 250-125CR 300-150CR	2.00 2.50 3.00	2.5	2.7	1.0 1.25 1.5	260 300 260 260 300 260 260 300 260		
	GER 200-100DR 300-150DR	2.00 3.00	3.2 4.5	4.8	1.0 1.5	260 300 260 260 300 260		
	GV <sup>R</sup> /L 100-020A 125-020A 145-020A 185-020A 200-020A 250-020A 300-020A 340-020A	1.00 1.25 1.45 1.85 2.00 2.50 3.00 3.40	2.3	0.2		98 135 98 98 135 98 98 135 98 98 135 98 98 135 98 98 135 98 98 135 98 98 135 98		
	GV <sup>R</sup> /L 145-020B 185-020B 200-020B 230-020B 250-020B 280-020B 300-020B 340-020B 400-020B	1.45 1.85 2.00 2.30 2.50 2.80 3.00 3.40 4.00	2.8	0.2		106 142 106 106 142 106 106 142 106 106 142 106 106 142 106 106 142 106 106 142 106 106 142 106 106 142 106		
	GV <sup>R</sup> /L 280-020C 300-020C 340-020C 400-020C 430-020C 460-020C 500-020C	2.80 3.00 3.40 4.00 4.30 4.60 5.00	4.5	0.2		120 165 120 120 165 120 120 165 120 120 165 120 120 165 120 120 165 120 120 165 120		
	GV <sup>R</sup> /L 200-100AR 250-125AR 300-150AR	2.00 2.50 3.00	2.3	1.00 1.25 1.50		126 168 136 126 168 136 126 168 136		
	GV <sup>R</sup> /L 200-100BR 300-150BR	2.00 3.00	3.2 4.2	1.00 1.50		126 185 136 126 185 136		

The outer circle of the handle : B51 , B45 , B49 ;  
The inner circle of the handle : B58

The outer circle of the handle : Custom specifications ;  
The inner circle of the handle : B58



● Cutter for cutting edge of small end face

Model	Minimum diameter $\phi A$	Minimum diameter $\phi A$	(mm)							PR930KW 10	For the handle Number of references	Chip breaker Application scope
			$r\epsilon$	H	L1	L2	F	T				
 VNFR 0810-10 0820-10 0830-10	8	1.0	0.05	3.9	29.6	10	7.3	2.0	230	200		
	8	2.0							230	200		
	8	3.0							230	200		

● Blade for small hole cutting

Model	Minimum diameter $\phi A$	Minimum diameter $\phi A$	(mm)										PR930KW 10	For the handle Number of references	Chip breaker Application scope								
			$r\epsilon$	$\phi D$	H	L1	L2	L3	L4	F	T												
 HPG <sup>R/L</sup> 0404-10 0404-20 0505-10 0505-20 0606-10 0606-20 0707-10 0707-20	4	1	0.05	4	3.35	60	15	8	0	3.65	1	120	100										
	4	2										120	100										
	5	1										5	4.3			70	20	0	4.55	1.5	120	100	
		2																			120	100	
	6	1										6	5.2			80	25	10	0	5.5	2	120	100
		2																				120	100
	7	1										7	6.2			80	25	10	0	6.45	2	120	100
2		120	100																				

 VNGR 0410-11 0420-11 0510-11 0520-11 0610-20 0620-20 0710-20 0720-20 VNGR0410-11NB 0420-11NB 0510-11NB 0520-11NB 0610-20NB 0620-20NB 0710-20NB 0720-20NB	4	1.0	0.05	-	3.9	30.8	11	-	0.1	3.5	0.8	220	215										
	4	2.0	0.10									220	215										
	5	1.0	0.50									5	3.9			30.8	20	-	0.3	4.4	1.0	250	240
		2.0	0.10																			250	240
	6	1.0	0.05									6	3.9			30.8	20	-	0.3	5.2	1.8	286	275
		2.0	0.10																			286	275
	7	1.0	0.50									7	3.9			30.8	20	-	0.3	5.2	2.0	320	305
		2.0	0.10																			320	305

● PCD diamond tools (inner hole boring hole / slot cutter)

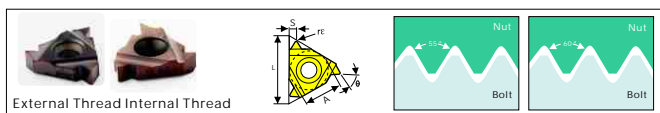
Model	Minimum diameter $\phi A$	(mm)								For the handle Number of references	Chip breaker Application scope						
		W	$r\epsilon$	H	L1	L2	F	S									
 VNBR 0411-02NB 0420-02NB VNBR 0511-02NB 0520-02NB VNBR 0620-02NB 0630-02NB VNBR 0720-02NB 0730-02NB	4	-	-	3.9	30.8	11	-	-	3.5	0.5							
	5												0.2	30.8	11	4.5	0.7
													0.2	39.8	20	5.3	1.0
	6												0.2	39.8	20	6.2	1.0
													0.2	49.8	30	6.2	1.0
	7												0.2	39.8	20	6.2	1.0
0.2		49.8	30	6.2	1.0												

 VNGR 0410-11NB 0420-11NB VNGR 0510-11NB 0520-11NB VNGR 0610-11NB 0620-11NB VNGR 0710-11NB 0720-11NB VNFR 0820-10NB 0830-10NB PSBR/L 0404-60NBS 0505-70NBS 0606-70NBS 0707-80NBS	4	1.0	0.05	-	3.9	30.8	11	-	3.5	0.8											
	4	2.0	0.10										250	240							
	5	1.0	0.05										5	3.9	30.8	20	-	4.4	1.0	250	240
		2.0	0.10																	250	240
	6	1.0	0.05										6	3.9	30.8	20	-	5.2	1.8	286	275
		2.0	0.10																	286	275
	7	1.0	0.05										7	3.9	30.8	20	-	6.2	2.0	320	305
		2.0	0.10																	320	305
	8	2.0	0.05										8	3.9	30.8	20	-	7.3	3.0	320	305
		3.0	0.05																	320	305



### 55° 60° Tooth thread inserts (ISO thread inserts)



#### Scope of application: general industry

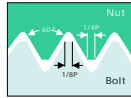
Thread profile	Model	Pitch of screw		A	L	rE	S	θ	ZP680	ZM861	ZM860	ZM856	ZK110		
		M	UN/UNF												
		mm	TPJ												
55° External Thread	11E <sup>R</sup> /L A55	0.50-1.5	48 - 16	1/4"	11	0.05	0.9	55	80	110	75	80			
	16E <sup>R</sup> /L A55	0.50-1.5	48 - 16		16	0.05	0.9		80	110	75	80			
	16E <sup>R</sup> /L G55	1.75-3.0	14 - 8		16	0.20	1.7		80	110	75	80			
	16ERM G55	1.75-3.0	14 - 8	3/8"	16	0.23	1.7		80	110	75	80			
	16E <sup>R</sup> /L AG55	0.50-3.0	48 - 8		16	0.05	1.7		80	110	75	80			
	16ERM AG55	0.50-3.0	48 - 8		16	0.06	1.7		55	55	75	55			
	22E <sup>R</sup> /L N55	3.50-5.0	7 - 5	1/2"	22	0.42	2.5		225	240	130	225			
	27E <sup>R</sup> /L Q55	5.50-6.0	4.5 - 4	5/8"	27	0.60	2.9					225			
	55° Internal Thread	06I <sup>R</sup> /L A55	0.5-1.25	48 - 20	5/32"	6	0.05		0.6	55	175	175	175		
		08I <sup>R</sup> /L A55	0.50-1.5	48 - 16	3/16"	8	0.05		0.7		175	175	175		
11I <sup>R</sup> /L A55		0.50-1.5	48 - 16	1/4"	11	0.05	0.9	80	110		75	80			
16I <sup>R</sup> /L A55		0.50-1.5	48 - 16		16	0.05	0.9	80	110		75	80			
16I <sup>R</sup> /L G55		1.75-3.0	14 - 8		16	0.20	1.7	80	110		75	80			
16IRM G55		1.75-3.0	14 - 8	3/8"	16	0.22	1.7	55	55		75	55			
16I <sup>R</sup> /L AG55		0.50-3.0	48 - 8		16	0.05	1.7	80	110		75	80			
16IRM AG55		0.50-3.0	48 - 8		16	0.07	1.7	55	55		75	55			
22I <sup>R</sup> /L N55		3.50-5.0	7 - 5	1/2"	22	0.42	2.5	225	240		130	225			
27I <sup>R</sup> /L Q55		5.50-6.0	4.5 - 4	5/8"	27	0.60	2.9					225			
60° External Thread	08 U IRL U55	1.75-2.0	14 - 11	3/16"	8	0.10	4.0	60°							
	22 U EIRL U55	5.50-8.0	4.5-3.25	1/2"	22	0.60	11.0								
	27 U EIRL U55	6.50-9.0	4 - 2.75	5/8"	27	0.81	13.7								
60° External Thread	11E <sup>R</sup> /L A60	0.50-1.5	48 - 16	1/4"	11	0.05	0.9	60°	80	110	75	80			
	16E <sup>R</sup> /L A60	0.50-1.5	48 - 16		16	0.05	0.9		80	110	75	80			
	16ERM A60	0.50-1.5	48 - 16		16	0.05	0.9		55	55	75	55			
	16E <sup>R</sup> /L G60	1.75-3.0	14 - 8		16	0.17	1.7		80	110	75	80			
	16ERM G60	1.75-3.0	14 - 8	3/8"	16	0.17	1.7		55	55	75	55			
	16E <sup>R</sup> /L AG60	0.5-3.0	48 - 8		16	0.05	1.7		80	110	75	80			
	16ERM AG60	0.5-3.0	48 - 8		16	0.06	1.7		55	55	75	55			
	22E <sup>R</sup> /L N60	3.5-5.0	7 - 5	1/2"	22	0.32	2.5		225	240	130	225			
	22ERM N60	3.5-5.0	7 - 5	1/2"	22	0.32	2.5		195	195	130	195			
	27E <sup>R</sup> /L Q60	5.5-6.0	4.5 - 4	5/8"	27	0.63	3.1					225			
60° Internal Thread	06I <sup>R</sup> /L A60	0.5-1.25	48 - 20	5/32"	6	0.05	0.6	60°	175	175	175				
	06IRM A60	0.5-1.25	48 - 20	5/32"	6	0.05	0.6		175	175	175				
	08I <sup>R</sup> /L A60	0.50-1.5	48 - 16	3/16"	8	0.05	0.7		175	175	175				
	08IRM A60	0.50-1.5	48 - 16	3/16"	8	0.05	0.7		175	175	175				
	11I <sup>R</sup> /L A60	0.50-1.5	48 - 16	1/4"	11	0.05	0.9		80	110	75	80			
	11IRM A60	0.50-1.5	48 - 16	1/4"	11	0.05	0.9		55	55	75	55			
	16I <sup>R</sup> /L A60	0.50-1.5	48 - 16		16	0.05	0.9		80	110	75	80			
	16IRM A60	0.50-1.5	48 - 16		16	0.05	0.9		55	55	75	55			
	16I <sup>R</sup> /L G60	1.75-3.0	14 - 8		16	0.12	1.7		80	110	75	80			
	16IRM G60	1.75-3.0	14 - 8	3/8"	16	0.10	1.7		55	55	75	55			
16I <sup>R</sup> /L AG60	0.50-3.0	48 - 8		16	0.05	1.7	80	110	75	80					
16IRM AG60	0.50-3.0	48 - 8		16	0.05	1.7	55	55	75	55					
22I <sup>R</sup> /L N60	3.50-5.0	7 - 5	1/2"	22	0.22	2.5	225	240	130	225					
22IRM N60	3.50-5.0	7 - 5	1/2"	22	0.19	2.5	225	195	130	225					
27I <sup>R</sup> /L Q60	5.50-6.0	4.5 - 4	5/8"	27	0.31	2.7				225					
60° Internal Thread	08 U IRL U60	1.75-2.0	14 - 11	3/16"	8	0.10	4.0	60°							
	22 U EIRL U60	5.50-8.0	4.5-3.25	1/2"	22	0.28	11.0								
	27 U EIRL U60	6.50-9.0	4 - 2.75	5/8"	27	0.28	13.7								
0° External Thread	11E <sup>R</sup> /L 0.35 ISO	0.35						60°	80	110	75	80			
	0.40 ISO	0.40							80	110	75	80			
	0.45 ISO	0.45							80	110	75	80			
	0.50 ISO	0.50							80	110	75	80			
	0.60 ISO	0.60							80	110	75	80			
	0.70 ISO	0.70			1/4"	11			80	110	75	80			
	0.75 ISO	0.75							80	110	75	80			
	0.80 ISO	0.80							80	110	75	80			
	1.00 ISO	1.00							80	110	75	80			
	1.25 ISO	1.25							80	110	75	80			
1.50 ISO	1.50						80	110	75	80					
1.75 ISO	1.75						80	110	75	80					

Thread profile	Model	Pitch of screw		A	L	rE	S	θ	ZP680	ZM861	ZM860	ZM856	ZK110		
		M	UN/UNF												
		mm	TPJ												
0° External Thread	16E <sup>R</sup> /L 0.35 ISO	0.35						60°	80	110	75	80			
	0.40 ISO	0.40							80	110	75	80			
	0.45 ISO	0.45							80	110	75	80			
	0.50 ISO	0.50							80	110	75	80			
	0.60 ISO	0.60							80	110	75	80			
	0.70 ISO	0.70							80	110	75	80			
	0.75 ISO	0.75							80	110	75	80			
	0.80 ISO	0.80							80	110	75	80			
	1.00 ISO	1.00			3/8"	16				80	110	75	80		
	1.25 ISO	1.25								80	110	75	80		
0° External Thread	22E <sup>R</sup> /L 3.50 ISO	3.50						60°	225	240	130	225			
	4.00 ISO	4.00							225	240	130	225			
	4.50 ISO	4.50			1/2"	22				225	240	130	225		
	5.00 ISO	5.00							225	240	130	225			
	5.50 ISO	5.50			5/8"	27						225			
	6.00 ISO	6.00										225			
	0° External Thread	06I <sup>R</sup> /L 0.50 ISO	0.50							60°	175	175	175	175	
		0.75 ISO	0.75								175	175	175	175	
		1.00 ISO	1.00			5/32"	6					175	175	175	175
		1.25 ISO	1.25								175	175	175	175	
0.50 ISO		0.50							175		175	175	175		
0.75 ISO		0.75			3/16"	8			175		175	175	175		
1.00 ISO		1.00							175		175	175	175		
1.25 ISO		1.25							175		175	175	175		
1.50 ISO		1.50							175		175	175	175		
1.75 ISO		1.75							175		175	175	175		
0° External Thread	08 U IRL 2.00 ISO	2.00						60°	80	110	75	80			
	11I <sup>R</sup> /L 0.35 ISO	0.35							80	110	75	80			
	0.40 ISO	0.40							80	110	75	80			
	0.45 ISO	0.45							80	110	75	80			
	0.50 ISO	0.50							80	110	75	80			
	0.60 ISO	0.60							80	110	75	80			
	0.70 ISO	0.70			1/4"	11				80	110	75	80		
	0.80 ISO	0.80							80	110	75	80			
	1.00 ISO	1.00							80	110	75	80			
	1.25 ISO	1.25							80	110	75	80			
0° External Thread	16I <sup>R</sup> /L 0.35 ISO	0.35						60°	80	110	75	80			
	0.40 ISO	0.40							80	110	75	80			
	0.45 ISO	0.45							80	110	75	80			
	0.50 ISO	0.50							80	110	75	80			
	0.60 ISO	0.60							80	110	75	80			
	0.70 ISO	0.70							80	110	75	80			
	0.75 ISO	0.75							80	110	75	80			
	0.80 ISO	0.80							80	110	75	80			
	0.80 ISO	0.80			3/8"	16				80	110	75	80		
	1.00 ISO	1.00							80	110	75	80			
0° External															

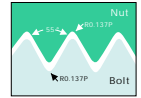
Scope of application: general industry

Application scope: industrial machinery pipe thread

**US Threading Indexable Inserts**  
(UN,UNC,UNF,UNEF )



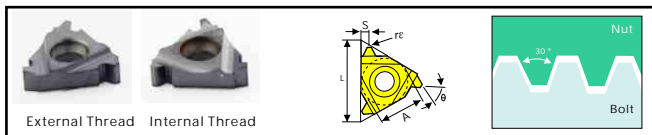
**Inch Threading Indexable Inserts** (BSW,BSF,BSP )



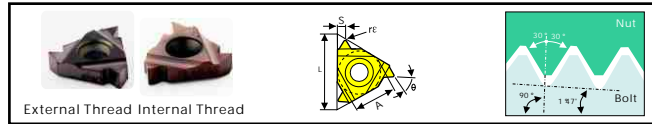
Thread profile	Model	Pitch of screw UN/UNF TPI	A	L	re	S	θ															
								ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S							
60° External Thread	11E <sup>R</sup> /L 56 UN 48 UN 44 UN 40 UN 36 UN 32 UN 28 UN 24 UN 20 UN 18 UN 16 UN	56 48 44 40 36 32 28 24 20 18 16	1/4"	11	0.04	0.4		80	110	75	300	300	300	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S
					0.05	0.6		80	110	75	300	300	300									
					0.06	0.6		80	110	75	300	300	300									
					0.07	0.6		80	110	75	300	300	300									
					0.09	0.6		80	110	75	300	300	300									
					0.10	0.7		80	110	75	300	300	300									
					0.12	0.8		80	110	75	300	300	300									
					0.15	0.9		80	110	75	300	300	300									
					0.17	1.0		80	110	75	300	300	300									
					0.18	1.1		80	110	75	300	300	300									
	16E <sup>R</sup> /L 56 UN 48 UN 40 UN 36 UN 32 UN 28 UN 24 UN 20 UN 18 UN 16 UN 14 UN 13 UN 12 UN 11.5 UN 11 UN 10 UN 9 UN 8 UN	56 48 40 36 32 28 24 20 18 16 14 13 12 11.5 11 10 9 8	3/8"	16	0.04	0.4		80	110	75	300	300	300	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S
					0.05	0.6		80	110	75	300	300	300									
					0.06	0.6		80	110	75	300	300	300									
					0.07	0.6		80	110	75	300	300	300									
					0.09	0.6		80	110	75	300	300	300									
					0.10	0.7		80	110	75	300	300	300									
					0.12	0.8		80	110	75	300	300	300									
					0.15	0.9		80	110	75	300	300	300									
					0.17	1.0		80	110	75	300	300	300									
					0.18	1.1		80	110	75	300	300	300									
					0.22	1.2		80	110	75	300	300	300									
					0.24	1.3		80	110	75	300	300	300									
					0.26	1.4		80	110	75	300	300	300									
					0.27	1.5		80	110	75	300	300	300									
0.28	1.5		80	110	75	300	300	300														
0.32	1.5		80	110	75	300	300	300														
0.36	1.7		80	110	75	300	300	300														
0.41	1.6		80	110	75	300	300	300														
22E <sup>R</sup> /L 7 UN 6 UN 5 UN	7 6 5	1/2"	22	0.47	2.3		225	240	130	400	400	400	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S	
				0.56	2.3		225	240	130	400	400	400										
				0.67	2.5		225	240	130	400	400	400										
27E <sup>R</sup> /L 4.5 UN 4 UN	4.5 4	5/8"	27	0.75	2.7		60°			500	500	500	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S	
				0.85	3.0				500	500	500											
0° Internal Thread	06 I <sup>R</sup> /L 32 UN 28 UN 24 UN 20 UN 18 UN	32 28 24 20 18	5/32"	6	0.04	0.5		175	175		400	400	400	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S
					0.04	0.5		175	175		400	400	400									
					0.05	0.6		175	175		400	400	400									
					0.06	0.6		175	175		400	400	400									
					0.07	0.6		175	175		400	400	400									
					0.07	0.6		175	175		400	400	400									
	08 I <sup>R</sup> /L 32 UN 28 UN 24 UN 20 UN 18 UN 16 UN 14 UN	32 28 24 20 18 16 14	3/16"	8	0.04	0.5		175	175		400	400	400	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S
					0.04	0.6		175	175		400	400	400									
					0.05	0.6		175	175		400	400	400									
					0.06	0.7		175	175		400	400	400									
					0.07	0.7		175	175		400	400	400									
					0.09	0.7		175	175		400	400	400									
	11 I <sup>R</sup> /L 72 UN 64 UN 56 UN 48 UN 40 UN 36 UN 32 UN 28 UN 24 UN 20 UN 18 UN 16 UN 14 UN	72 64 56 48 40 36 32 28 24 20 18 16 14	1/4"	11	0.02	0.3		80	110	75	300	300	300	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S
					0.02	0.4		80	110	75	300	300	300									
					0.02	0.4		80	110	75	300	300	300									
					0.03	0.6		80	110	75	300	300	300									
					0.03	0.6		80	110	75	300	300	300									
					0.04	0.6		80	110	75	300	300	300									
					0.04	0.6		80	110	75	300	300	300									
					0.04	0.7		80	110	75	300	300	300									
					0.05	0.8		80	110	75	300	300	300									
					0.06	0.9		80	110	75	300	300	300									
					0.07	1.0		80	110	75	300	300	300									
					0.09	1.1		80	110	75	300	300	300									
0.10	1.1		80	110	75	300	300	300														
16 I <sup>R</sup> /L 56 UN 44 UN 40 UN 36 UN 32 UN 28 UN 24 UN 20 UN 18 UN 16 UN 14 UN 13 UN 12 UN 11.5 UN 11 UN 10 UN 9 UN 8 UN	56 44 40 36 32 28 24 20 18 16 14 13 12 11.5 11 10 9 8	3/8"	16	0.02	0.4		80	110	75	300	300	300	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S	
				0.03	0.6		80	110	75	300	300	300										
				0.03	0.6		80	110	75	300	300	300										
				0.04	0.6		80	110	75	300	300	300										
				0.04	0.6		80	110	75	300	300	300										
				0.04	0.7		80	110	75	300	300	300										
				0.05	0.8		80	110	75	300	300	300										
				0.06	0.9		80	110	75	300	300	300										
				0.07	1.0		80	110	75	300	300	300										
				0.09	1.1		80	110	75	300	300	300										
				0.10	1.2		80	110	75	300	300	300										
				0.11	1.3		80	110	75	300	300	300										
				0.12	1.4		80	110	75	300	300	300										
				0.13	1.5		80	110	75	300	300	300										
				0.14	1.5		80	110	75	300	300	300										
				0.15	1.5		80	110	75	300	300	300										
				0.17	1.7		80	110	75	300	300	300										
				0.19	1.5		80	110	75	300	300	300										
22 I <sup>R</sup> /L 7 UN 6 UN 5 UN	7 6 5	1/2"	22	0.22	2.3		225	240	130	400	400	400	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S	
				0.26	2.3		225	240	130	400	400	400										
				0.32	2.3		225	240	130	400	400	400										
27 I <sup>R</sup> /L 4.5 UN 4 UN	4.5 4	5/8"	27	0.36	2.4		60°			500	500	500	60°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S	
				0.41	2.7				500	500	500											

Thread profile	Model	Pitch of screw TPI	A	L	re	S	θ																
								ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S								
55° External Thread	11E <sup>R</sup> /L 48W 36W 32W 28W 26W 24W 22W 20W 19W 18W 16W 14W	48 36 32 28 26 24 22 20 19 18 16 14	1/4"	11	0.04	0.6		80	110	75	80	300	300	300	55°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S
					0.07	0.6		80	110	75	80	300	300	300									
					0.09	0.6		80	110	75	80	300	300	300									
					0.09	0.7		80	110	75	80	300	300	300									
					0.10	0.8		80	110	75	80	300	300	300									
					0.11	0.8		80	110	75	80	300	300	300									
					0.13	0.9		80	110	75	80	300	300	300									
					0.14	0.9		80	110	75	80	300	300	300									
					0.15	1.0		80	110	75	80	300	300	300									
					0.16	1.0		80	110	75	80	300	300	300									
	16E <sup>R</sup> /L 56W 40W 32W 28W 26W 24W 22W 20W 19W 18W 16W 14W 12W 11W 10W 9W 8W	56 40 32 28 26 24 22 20 19 18 16 14 12 11 10 9 8	3/8"	16	0.04	0.4		80	110	75	80	300	300	300	55°	ZP680	ZM861	ZM860	ZM856	ZK110	PCD-B	CBN-K	CBN-S
					0.06	0.4		80	110	75	80	300	300	300									
					0.09	0.6		80	110	75	80	300	300	300									
					0.09	0.7		80	110	75	80	300	300	300									
					0.10	0.8		80	110	75	80	300	300	300									
					0.11	0.8		80	110	75	80	300	300	300									
					0.13	0.9		80	110	75	80	300	300	300									
					0.14	0.9		80	110	75	80	300	300	300									
					0.15	1.0		80	110	75	80	300	300	300									
					0.16	1.0		80	110	75	80	300	300	300									
					0.18	1.1		80	110	75	80	300	300	300									
					0.21	1.2		80	110	75	80	300	300	300									
					0.25	1.4		80	110	75	80	300	300	300									
					0.27	1.5		80	110	75	80	300	300	300									
0.31	1.5		80	110	75	80	300	300	300														
0.34	1.7		80	110	75	80	300	300	300														
0.39	1.5		80	110	75	80	300	300	300														
22E <sup>R</sup> /L 7W 6W 5W	7 6 5	1/2"	22	0.45	2.3		225	240	130	225	400	400	400	55°	ZP680	ZM861	ZM860</						

### DIN103 Ladder type for power transmission Threading Indexable Inserts



### NPT Total tooth type Pipe Threading Indexable Inserts



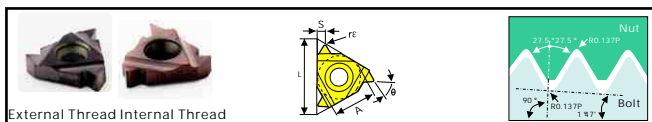
Application scope: transmission power trapezoidal thread

Application scope: steam / gas / water pipe thread

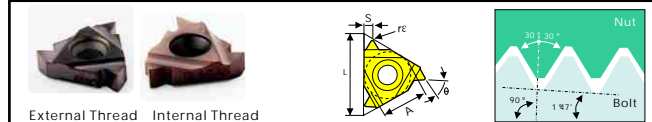
Thread profile	Model	Pitch of screw	A	L	S	ZP680	ZM861	ZM860	ZM856	ZK110
		mm								
DIN 103 External Thread	16E <sup>R/L</sup> 1.5 TR	1.5	3/8"	16	1.1	90		110	85	85
	2.0 TR	2.0			1.3	90		110	85	85
	3.0 TR	3.0			1.5	90		110	85	85
	22E <sup>R/L</sup> 4.0 TR	4.0	1/2"	22	1.9	250		290	145	145
	5.0 TR	5.0			2.5	250		290	145	145
	27E <sup>R/L</sup> 6.0 TR	6.0	5/8"	27	2.7				250	250
7.0 TR	7.0			2.6				250	250	
DIN 103 Internal Thread	08I <sup>R/L</sup> 1.5 TR	1.5	3/16"	8	0.6					
	16I <sup>R/L</sup> 2.0 TR	2.0	3/8"	16	1.3	90		110	85	85
	3.0 TR	3.0			1.5	90		110	85	85
	22I <sup>R/L</sup> 4.0 TR	4.0	1/2"	22	1.9	250		290	145	145
	5.0 TR	5.0			2.5	250		290	145	145
	27I <sup>R/L</sup> 6.0 TR	6.0	5/8"	27	2.7				250	250
7.0 TR	7.0			2.6				250	250	

Thread profile	Model	Pitch of screw	A	L	r <sub>e</sub>	S	ZP680	ZM861	ZM860	ZM856	ZK110
		NPT TPI									
NPT External Thread	16E <sup>R/L</sup> 27 NPT	27	3/8"	16	0.04	0.8	80		110	75	80
	18 NPT	18			0.06	1.0	80		110	75	80
	14 NPT	14			0.07	1.2	80		110	75	80
	11.5 NPT	11.5			0.09	1.5	80		110	75	80
	8 NPT	8			0.12	1.8	80		110	75	80
	06I <sup>R/L</sup> 27 NPT	27			5/32"	6	0.04	0.6	175		175
08I <sup>R/L</sup> 27 NPT	27	3/16"	8	0.04	0.6	175		175	175		
18 NPT	18			0.06	0.6	175		175	175		
NPT Internal Thread	11I <sup>R/L</sup> 27 NPT	27	1/4"	11	0.04	0.8	175		175	175	
	18 NPT	18			0.06	1.0	175		175	175	
	14 NPT	14			0.07	1.0	175		175	175	
	16I <sup>R/L</sup> 27 NPT	27	3/8"	16	0.04	0.8	80		110	75	80
	18 NPT	18			0.06	1.0	80		110	75	80
	14 NPT	14			0.07	1.2	80		110	75	80
11.5 NPT	11.5	0.09	1.5	80		110	75	80			
8 NPT	8	0.12	1.8	80		110	75	80			

### BSPT Inch Cone tube Threading Indexable Inserts



### NPTF Total tooth type Pipe Threading Indexable Inserts



Application scope: steam / gas / water pipe thread

Application scope: steam / gas / water pipe thread

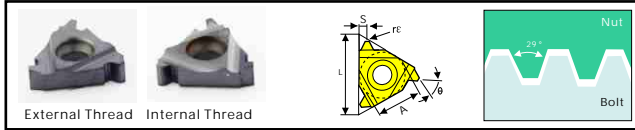
Thread profile	Model	Pitch of screw	A	L	r <sub>e</sub>	S	ZP680	ZM861	ZM860	ZM856	ZK110
		BSPT TPI									
BSPT External Thread	16E <sup>R/L</sup> 28 BSPT	28	3/8"	16	0.11	0.6	80		110	75	80
	19 BSPT	19			0.16	0.9	80		110	75	80
	14 BSPT	14			0.21	1.2	80		110	75	80
	11 BSPT	11			0.28	1.5	80		110	75	80
BSPT Internal Thread	06I <sup>R/L</sup> 28 BSPT	28	5/32"	6	0.11	0.6	175		175	175	
	08I <sup>R/L</sup> 28 BSPT	28	3/16"	8	0.11	0.6	175		175	175	
	19 BSPT	19			0.16	0.6	175		175	175	
	11I <sup>R/L</sup> 28 BSPT	28	1/4"	11	0.11	0.6	80		110	75	80
	19 BSPT	19			0.16	0.9	80		110	75	80
	14 BSPT	14			0.21	1.0	80		110	75	80
	16I <sup>R/L</sup> 28 BSPT	28	3/8"	16	0.11	0.6	80		110	75	80
	19 BSPT	19			0.16	0.9	80		110	75	80
	14 BSPT	14			0.21	1.2	80		110	75	80
	11 BSPT	11			0.28	1.5	80		110	75	80

Thread profile	Model	Pitch of screw	A	L	S	ZP680	ZM861	ZM860	ZM856	ZK110
		NPTF TPI								
NPTF External Thread	11E <sup>R/L</sup> 27 NPTF	27	3/8"	16	0.7	120		140	100	120
	18 NPTF	18			1.0	120		140	100	120
	14 NPTF	14			1.0	120		140	100	120
	16E <sup>R/L</sup> 27 NPTF	27			0.7	120		140	100	120
	18 NPTF	18			1.0	120		140	100	120
	14 NPTF	14			1.2	120		140	100	120
NPTF Internal Thread	11.5 NPTF	11.5	1/4"	11	1.5	120		140	100	120
	8 NPTF	8			1.8	120		140	100	120
	06I <sup>R/L</sup> 27 NPTF	27			5/32"	6	0.6	175		175
	08I <sup>R/L</sup> 27 NPTF	27	3/16"	8	0.6	175		175	175	
	18 NPTF	18			0.6	175		175	175	
	11I <sup>R/L</sup> 27 NPTF	27	3/8"	16	0.7	120		140	100	120
	18 NPTF	18			1.0	120		140	100	120
	14 NPTF	14			1.0	120		140	100	120
	16I <sup>R/L</sup> 27 NPTF	27	3/8"	16	0.7	120		140	100	120
	18 NPTF	18			1.0	120		140	100	120
14 NPTF	14	1.2			120		140	100	120	
11.5 NPTF	11.5	1.5			120		140	100	120	
8 NPTF	8	1.8	120		140	100	120			

The outer circle of the handle : B43 Quick change type cutter head : B22 The inner circle of the handle : B41 -B42  
Cutting parameters : R07 -R10



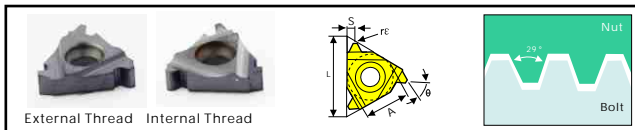
## STUB ACME



Scope of application: control valves and improved forming threads with ACME

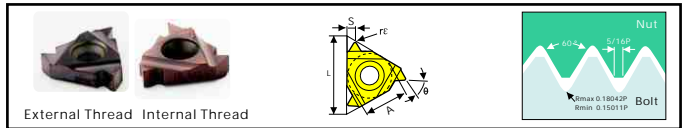
Thread profile	Model	Pitch of screw TPI	A	L	S	Model						
						ZP680	ZM861	ZM860	ZM856	ZK110		
STUB ACME External Thread	16 <sup>R/L</sup> 16 STACME	16	3/8"	16	1.0			140	85	85		
	14 STACME	14			1.1			140	85	85		
	12 STACME	12			1.2			140	85	85		
	10 STACME	10			1.3			140	85	85		
	8 STACME	8			1.5			140	85	85		
	6 STACME	6			1.8			140	85	85		
	22 <sup>R/L</sup> 5 STACME	5			1/2"	22	2.3			290	145	145
	27 <sup>R/L</sup> 4 STACME	4			5/8"	27	2.4			250	250	250
	3 STACME	3			2.9			250	250			
STUB ACME Internal Thread	16 <sup>R/L</sup> 16 STACME	16	3/8"	16	1.1			140	85	85		
	14 STACME	14			1.1			140	85	85		
	12 STACME	12			1.2			140	85	85		
	10 STACME	10			1.3			140	85	85		
	8 STACME	8			1.5			140	85	85		
	6 STACME	6			1.8			140	85	85		
	22 <sup>R/L</sup> 5 STACME	5			1/2"	22	2.3			290	145	145
	27 <sup>R/L</sup> 4 STACME	4			5/8"	27	2.4			250	250	250
	3 STACME	3			2.9			250	250			

## ACME Application scope: transmission power trapezoidal thread



Thread profile	Model	Pitch of screw TPI	A	L	S	Model						
						ZP680	ZM861	ZM860	ZM856	ZK110		
ACME External Thread	16 <sup>R/L</sup> 16 ACME	16	3/8"	16	1.1			140	85	85		
	14 ACME	14			1.2			140	85	85		
	12 ACME	12			1.2			140	85	85		
	10 ACME	10			1.3			140	85	85		
	8 ACME	8			1.5			140	85	85		
	22 <sup>R/L</sup> 6 ACME	6			1/2"	22	2.1			290	145	145
	5 ACME	5					2.3			290	145	145
	27 <sup>R/L</sup> 4 ACME	4			5/8"	27	2.7			250	250	250
ACME Internal Thread	16 <sup>R/L</sup> 16 ACME	16	3/8"	16	1.1			140	85	85		
	14 ACME	14			1.2			140	85	85		
	12 ACME	12			1.2			140	85	85		
	10 ACME	10			1.3			140	85	85		
	8 ACME	8			1.5			140	85	85		
	22 <sup>R/L</sup> 6 ACME	6			1/2"	22	2.1			290	145	145
	5 ACME	5					2.3			290	145	145
	27 <sup>R/L</sup> 4 ACME	4			5/8"	27	2.7			250	250	250

## UNJ



Scope of application: Aviation Industry

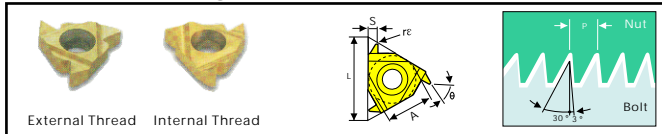
Thread profile	Model	Pitch of screw NPT TPI	A	L	re	S	Model				
							ZP680	ZM861	ZM860	ZM856	ZK110
UNJ External Thread	11 <sup>R/L</sup> 48 UNJ	48	1/4"	11	0.08	0.5			140	85	140
	44 UNJ	44			0.09	0.6			140	85	140
	40 UNJ	40			0.10	0.6			140	85	140
	36 UNJ	36			0.11	0.6			140	85	140
	32 UNJ	32			0.12	0.7			140	85	140
	28 UNJ	28			0.14	0.7			140	85	140
	24 UNJ	24			0.17	0.8			140	85	140
	20 UNJ	20			0.20	0.9			140	85	140
	18 UNJ	18			0.22	1.0			140	85	140
	16 UNJ	16			0.26	1.1			140	85	140
	14 UNJ	14			0.29	1.2			140	85	140
	16 <sup>R/L</sup> 48 UNJ	48			0.08	0.5			140	85	140
	44 UNJ	44			0.09	0.6			140	85	140
	40 UNJ	40			0.10	0.6			140	85	140
	36 UNJ	36			0.11	0.6			140	85	140
	32 UNJ	32			0.12	0.7			140	85	140
28 UNJ	28	0.14	0.7			140	85	140			
24 UNJ	24	0.17	0.8			140	85	140			
20 UNJ	20	0.20	0.9			140	85	140			
18 UNJ	18	0.22	1.0			140	85	140			
16 UNJ	16	0.26	1.1			140	85	140			
14 UNJ	14	0.29	1.2			140	85	140			
13 UNJ	13	0.31	1.3			140	85	140			
12 UNJ	12	0.34	1.3			140	85	140			
11 UNJ	11	0.36	1.5			140	85	140			
10 UNJ	10	0.41	1.5			140	85	140			
9 UNJ	9	0.44	1.7			140	85	140			
8 UNJ	8	0.51	1.6			140	85	140			
UNJ Internal Thread	11 <sup>R/L</sup> 48 UNJ	48	3/8"	16	0.03	0.5			140	85	140
	44 UNJ	44			0.03	0.6			140	85	140
	40 UNJ	40			0.03	0.6			140	85	140
	36 UNJ	36			0.04	0.6			140	85	140
	32 UNJ	32			0.04	0.7			140	85	140
	28 UNJ	28			0.04	0.7			140	85	140
	24 UNJ	24			0.05	0.8			140	85	140
	20 UNJ	20			0.06	0.9			140	85	140
	18 UNJ	18			0.07	1.0			140	85	140
	16 UNJ	16			0.09	1.1			140	85	140
	14 UNJ	14			0.10	1.2			140	85	140
	16 <sup>R/L</sup> 48 UNJ	48			0.03	0.5			140	85	140
	44 UNJ	44			0.03	0.6			140	85	140
	40 UNJ	40			0.03	0.6			140	85	140
	36 UNJ	36			0.04	0.6			140	85	140
	32 UNJ	32			0.04	0.7			140	85	140
	28 UNJ	28			0.04	0.7			140	85	140
	24 UNJ	24			0.05	0.8			140	85	140
	20 UNJ	20			0.06	0.9			140	85	140
	18 UNJ	18			0.07	1.0			140	85	140
	16 UNJ	16			0.09	1.1			140	85	140
	14 UNJ	14			0.10	1.2			140	85	140
	13 UNJ	13			0.11	1.3			140	85	140
	12 UNJ	12			0.12	1.3			140	85	140
11 UNJ	11	0.12	1.5			140	85	140			
10 UNJ	10	0.15	1.5			140	85	140			
9 UNJ	9	0.17	1.7			140	85	140			
8 UNJ	8	0.19	1.6			140	85	140			

The outer circle of the handle : B43 Quick change type cutter head : B22 The inner circle of the handle : B41 -B42  
Cutting parameters : R07 R10



WEB <http://www.mzg.tw>

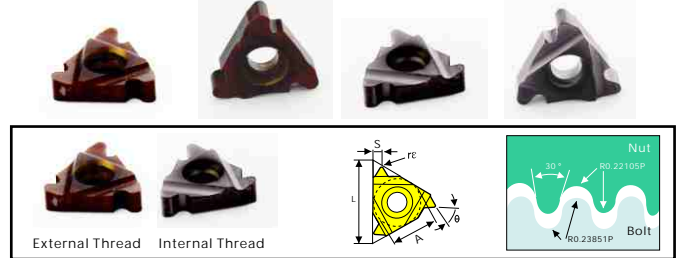
### DIN513 Metric serration Threading Indexable Inserts



Scope of application: unidirectional processing

Thread profile	Model	Pitch of screw	A	L	S	ZP680	ZM861	ZM860	ZM856	ZK110
		mm								
External Thread	16E <sup>R</sup> /L 2.0 SAGE	2.0	3/8"	16	1.6			140	85	140
	22E <sup>R</sup> /L 3.0 SAGE	3.0			2.4			290	145	290
	4.0 SAGE	4.0	1/2"	22	3.1			290	145	290
Internal Thread	16I <sup>R</sup> /L 2.0 SAGE	2.0	3/8"	16	1.7			140	85	140
	22I <sup>R</sup> /L 3.0 SAGE	3.0			2.9			290	85	290
	4.0 SAGE	4.0	1/2"	22	3.5			290	145	290

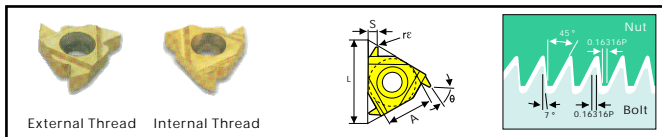
### DIN405 Round pipe Threading Indexable Inserts



Applications: fire resistant pipe fittings and food industry threads

Thread profile	Model	Pitch of screw	A	L	S	ZP680	ZM861	ZM860	ZM856	ZK110
		TPI								
External Thread	16E <sup>R</sup> /L 10 RND	10			1.2			140	100	
	8 RND	8	3/8"	16	1.3			140	100	
	6 RND	6			1.7			140	100	
	22E <sup>R</sup> /L 6 RND	6	1/2"	22	1.7			290	160	
	4 RND	4			2.3			290	160	
	27E <sup>R</sup> /L 4 RND	4	5/8"	27	2.3					
Internal Thread	16I <sup>R</sup> /L 10 RND	10	3/8"	16	1.2			140	100	
	8 RND	8			1.4			140	100	
	6 RND	6			1.5			140	100	
	22I <sup>R</sup> /L 6 RND	6	1/2"	22	1.7			290	160	
	4 RND	4			2.3			290	160	
	27I <sup>R</sup> /L 4 RND	4	5/8"	27	2.3					

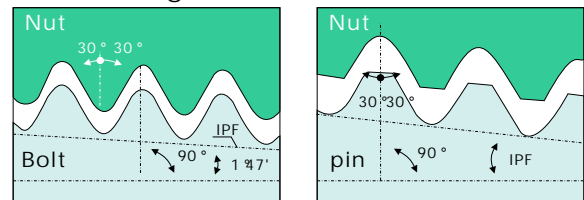
### ABUT American self-locking sawtooth pattern Threading Indexable Inserts



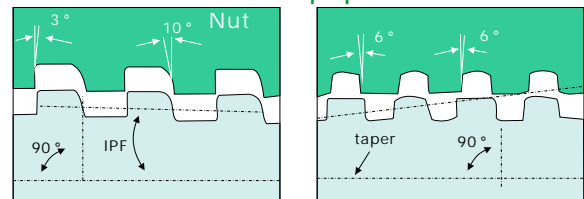
Scope of application: unidirectional processing

Thread profile	Model	Pitch of screw	A	L	S	ZP680	ZM861	ZM860	ZM856	ZK110
		TPI								
ABUT External Thread	11E <sup>R</sup> /L 20 ABUT	20	1/4"	11	1.4			140	85	140
	16 ABUT	16			1.9			140	85	140
	16E <sup>R</sup> /L 20 ABUT	20	3/8"	16	1.4			140	85	140
	16 ABUT	16			1.9		140	85	140	
	12 ABUT	12			2.0		140	85	140	
	22E <sup>R</sup> /L 8 ABUT	8	10	1/2"	22	3.2		290	145	290
6 ABUT	6	2.3				290	145	290		
ABUT Internal Thread	11I <sup>R</sup> /L 20 ABUT	20	1/4"	11	1.4			140	85	140
	16 ABUT	16			1.9			140	85	140
	16I <sup>R</sup> /L 20 ABUT	20	3/8"	16	1.4			140	85	140
	16 ABUT	16			1.9		140	85	140	
	12 ABUT	12			2.0		140	85	140	
	10 ABUT	10	2.3		140	85	140			
22I <sup>R</sup> /L 8 ABUT	8	8	1/2"	22	3.2		290	145	290	
6 ABUT	6	2.3				290	145	290		

### API Round pipe for petroleum industry Threading Indexable Inserts



#### API round pipe thread



#### Trapezoidal thread

#### Straight thread

API round thread blade applications: oil and gas industry

Thread profile	Model	Pitch of screw	A	L	taper IPF	hyphen or	ZP680	ZM861	ZM860	ZM856	ZK110
		TPI									
API	16 <sup>E</sup> /I/R 10 API RD	10	3/8"	16	0.75						100
	8 API RD	8			0.75						160
	22 <sup>E</sup> /I/R 5 API 403	5	1/2"	22	2	3/8" 4 1/2 REG					145
	27 <sup>E</sup> /I/R 4 API 382	4			2	NCS-MCS					250
	4 API 383	4	5/8"	27	3	NCS-MCT					250
	4 API 502	4			2	65° REG					250
4 API 503	4	3			5 1/2 15°					250	
	22 <sup>E</sup> /I/R 5 BUT 0.75	5	1/2"	22	0.75	4 1/2 13 3/8"					180
	22 <sup>E</sup> /I/R 5 BUT 1.0	5			1.0	16" 20"					180
	22 <sup>E</sup> /I/R 6EL 1.5	6	1/2"	22	1.5	5 1/2 15°					180
	22 <sup>E</sup> /I/R 5EL 1.25	5			1.25	6 5/8 10 3/4"					180



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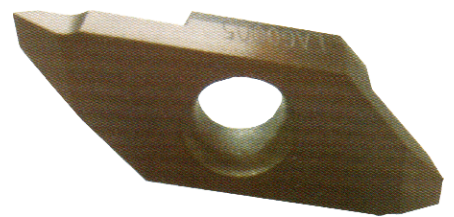
Threading Tools

Full range of standard inventory!



■ TTP Vertical tooth cutter series (for small parts processing)

NTK		(mm)					NTK		MZG		
Shape	Model	Geometry of Edges	$\theta$	f	r $\epsilon$	pitch	Teeth per inch	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
<p>Chip removing groove</p>	TTP60F <sup>R</sup> /L.4A	A	60°	0.4	0.05 max	0.2 - 0.75		150	150	180	150
	60F <sup>R</sup> /L.4AS	A						150	150	180	150
	60F <sup>R</sup> /L.4B	B						150	150	180	150
	60F <sup>R</sup> /L.4BS	B						150	150	180	150
	60F <sup>R</sup> /L.8A	A	60°	0.8	R0.05	0.5 - 1.25		150	150	180	150
	60F <sup>R</sup> /L.8AS	A						150	150	180	150
	60F <sup>R</sup> /L.8B	B						150	150	180	150
	60F <sup>R</sup> /L.8BS	B						150	150	180	150
	60F <sup>R</sup> /L-N	N	60°	1.25	R0.1	1.0 - 1.5		150	150	180	150
	60F <sup>R</sup> /L-NS							150	150	180	150
	60F <sup>R</sup> /L-NO2							150	150	180	150
	TTP55F <sup>R</sup> /L.8A							A	55°	0.8	R0.05
55F <sup>R</sup> /L.8B	B	160	160	180	160						
		160	160	180	160						



Toolholders : AB04 , AB10  
Cutting parameters : R03 R05