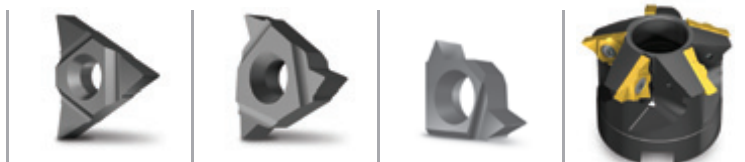


TMSD

Thread Mill for Deep Holes



METRIC

VARDEX

Advanced Threading Solutions

TMSD

Thread Mill for Deep Holes

A multi-flute, high-productivity, and economical solution for milling threads in deep holes

Mini L

For Small Bores and Short L2

Weldon Shank



Tool Overhang (L1) 29-42
Cutting Dia. (D2) 13-17.7
No. of Flutes (Z) 1-3

Carbide Cylindrical Shank



Tool Overhang (L1) 20-65
Cutting Dia. (D2) 13-17.7
No. of Flutes (Z) 1-3

U Style

For Large Pitches

Weldon Shank



Tool Overhang (L1) 40-120
Cutting Dia. (D2) 14.75-42
No. of Flutes (Z) 1-4

Carbide Cylindrical Shank



Tool Overhang (L1) 25-65
Cutting Dia. (D2) 14.75-20.65
No. of Flutes (Z) 1-2

Steel Cylindrical Shank



Tool Overhang (L1) 40-144
Cutting Dia. (D2) 23.3-36.5
No. of Flutes (Z) 2-4

Shell Mill



Tool Overhang (L1) Max. 200
Cutting Dia. (D2) 42-98
No. of Flutes (Z) 4-7

A Style

For Shorter L2

Steel Cylindrical Shank



Tool Overhang (L1) 50-144
Cutting Dia. (D2) 26-35.3
No. of Flutes (Z) 3

TMSD CATALOG

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■ Trapez	Page 7

TOOLHOLDERS

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■ Carbide Cylindrical Shank (Mini L-Style)	Page 9
■ Weldon Shank (U-Style)	Page 10
■ Carbide Cylindrical Shank (U-Style)	Page 11
■ Steel Cylindrical Shank (U-Style)	Page 12
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TECHNICAL DATA

■ Recommended Cutting Speeds and Feed	Page 15
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TM Gen Software and updated versions can be downloaded from www.vargus.com

A multi-flute, high-productivity, and economical solution for milling threads in deep holes

Smooth Cut

- Reduced load on the cutting edges due to single point insert design

Wide Range of Pitches

- Partial profile

Cost Effective

- Up to 3 cutting edges per insert
- Very high feed per tooth

Fast Machining

- Multi-flute, up to 7 cutting edges (inserts)

Long Overhang

- Up to 144mm (200mm in Shell Mill)

Tool Cutting Diameter

- As small as 13mm

Cooling Thru

- For improved chip evacuation and cooling the cutting corner

VarDEX Ordering Code System

TMSD Inserts

2	U	I	DB	60	TM	VBX																																														
1	2	3	4	5	6	7																																														
1 - Insert Size 5L - IC5.0L mm 2 - IC1/4" 3 - IC3/8" 4 - IC1/2" 	2 - Insert Style U -  A -  L - 	3 - Type of Insert I - Internal	4 - Pitch Full Profile - Pitch Range <table><tr><td>mm</td><td>tpi</td></tr><tr><td>2.0-5.0</td><td>-</td></tr></table> Partial Profile - Pitch Range <table><tr><td></td><td>mm</td><td>tpi</td></tr><tr><td>DA</td><td>0.5-1.5</td><td>48-16</td></tr><tr><td>DB</td><td>1.5-2.0</td><td>16-12</td></tr><tr><td>DC</td><td>2.5-4.0</td><td>10-6</td></tr><tr><td>DD</td><td>2.0-2.5</td><td>9-12</td></tr><tr><td>DE</td><td>2.5-3.5</td><td>10-7</td></tr><tr><td>DH</td><td>4.0-6.0</td><td>6-4</td></tr><tr><td>DK</td><td>6.0-8.0</td><td>4-3</td></tr><tr><td>DL</td><td>-</td><td>11-7</td></tr><tr><td>DM</td><td>2.5</td><td>10</td></tr><tr><td>DN</td><td>1.0-2.0</td><td>24-11</td></tr><tr><td>DP</td><td>1.5-3.0</td><td>16-8</td></tr><tr><td>DR</td><td>-</td><td>26-14</td></tr><tr><td>DT</td><td>2.0-4.0</td><td>12-6</td></tr></table>			mm	tpi	2.0-5.0	-		mm	tpi	DA	0.5-1.5	48-16	DB	1.5-2.0	16-12	DC	2.5-4.0	10-6	DD	2.0-2.5	9-12	DE	2.5-3.5	10-7	DH	4.0-6.0	6-4	DK	6.0-8.0	4-3	DL	-	11-7	DM	2.5	10	DN	1.0-2.0	24-11	DP	1.5-3.0	16-8	DR	-	26-14	DT	2.0-4.0	12-6	5 - Standard 60° - Partial Profile 60° 55° - Partial Profile 55° TR - Trapez DIN 103
mm	tpi																																																			
2.0-5.0	-																																																			
	mm	tpi																																																		
DA	0.5-1.5	48-16																																																		
DB	1.5-2.0	16-12																																																		
DC	2.5-4.0	10-6																																																		
DD	2.0-2.5	9-12																																																		
DE	2.5-3.5	10-7																																																		
DH	4.0-6.0	6-4																																																		
DK	6.0-8.0	4-3																																																		
DL	-	11-7																																																		
DM	2.5	10																																																		
DN	1.0-2.0	24-11																																																		
DP	1.5-3.0	16-8																																																		
DR	-	26-14																																																		
DT	2.0-4.0	12-6																																																		
			6 - System TM																																																	
			7 - Carbide Grade VBX, VTX																																																	

TMSD Toolholders

C	TM	2	S	C	14	C	17	-	65	-	2	U			
1	2	3	4	5	6	7	8		9		10	11			
1 - Shank Style		2 - System		3 - No. of Flutes		4 - Insert Type		5 - Cooling		6 - Shank Dia.		7 - Shank Type		8 - Cutting Dia.	
None - Steel C - Carbide Shank		TM		1 - 4		S - Single Point		C - Coolant		9.5 - 40		W - Weldon C - Cylindrical		13 - 42	
9 - Max. Tool Overhang		10 - Insert Size				11 - Insert Style									
29 - 144		5L - IC5.0L mm 2 - IC1/4" 3 - IC3/8" 4 - IC1/2"				U A L									

TMSD Shell Mill

TM	4	S	C		D42	-	16	-	3	U
1	2	3	4		5		6		7	8

1 - System	2 - No. of Flutes	3 - Insert Type	4 - Cooling	5 - Cutting Dia.	6 - Drive Hole Dia.	7 - Insert Size
TM	4-7	S - Single Point	C - Coolant	42 - 98	16, 22, 27, 32	3 - IC3/8" 4 - IC1/2"

8 - Insert Style
U

TMSD - Partial Profile 60°

Internal

Mini L Style

U Style

2UIDB60 TM...
2UIDD60 TM...

A Style

Mini-L

	Insert Size		Pitch		Ordering Code	Dimensions (mm)	
	IC	L mm	mm	tpi	Internal	r *	Toolholder
	5.0L	-	0.5-1.5	48-16	5LIDA60 TM...	0.04	TM.SC...5L
			1.0-2.0	24-11	5LIDN60 TM...	0.06	CTM. SC...5L

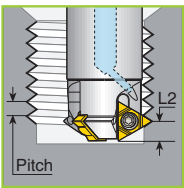
U Style

 2UIDB60 TM... 2UIDD60 TM...	Insert Size		Pitch		Ordering Code	Dimensions (mm)	
	IC	L mm	mm	tpi	Internal	r *	Toolholder
	1/4"U	11	0.5-1.5	48-16	2UIDA60 TM...	0.05	TM.SC...2U
			1.5-2.0	16-12	2UIDB60 TM...	0.06	CTM. SC...2U
			2.0-2.5	9-12	2UIDD60 TM...	0.11	CTM2SC 14C17-65-2U
			2.5	10	2UIDM60 TM...	0.11	
			2.5-4.0	10-6	2UIDC60 TM...	0.14	TM.SC...2U CTM. SC...2U
	3/8"U	16	1.5-2.0	16-12	3UIDB60 TM...	0.06	TM.SC...3U
			2.5-3.5	10-7	3UIDE60 TM...	0.14	
			4.0-6.0	6-4	3UIDH60 TM...	0.25	
	1/2"U	22	6.0-8.0	4-3	4UIDK60 TM...	0.30	TM.SC D...4U

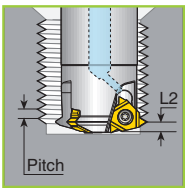
A Style

	Insert Size		Pitch		Ordering Code	Dimensions (mm)	
	IC	L mm	mm	tpi	Internal	r *	Toolholder
	1/4"A	11	1.5-3.0	16-8	2AIDP60 TM...	0.06	TM.SC...2A
	3/8"A	16	2.0-4.0	12-6	3AIDT60 TM...	0.08	TM.SC...3A

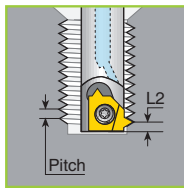
* The indicated radius (r) refers to the insert nose radius only



U Style
For Large Pitches



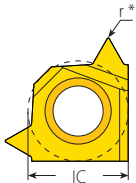
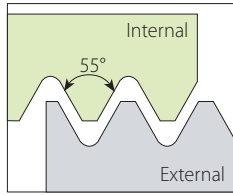
A Style
For Shorter L2



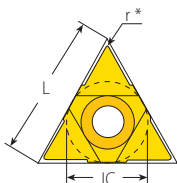
Mini-L Style
For Small Bores and Short L2

TMSD - Partial Profile 55°

Internal



Mini L Style



U Style

Mini-L



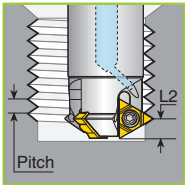
Insert Size	Pitch	Ordering Code	Dimensions (mm)	
IC	tpi	Internal	r*	Toolholder
5.0L	26-14	5LIDR55 TM...	0.10	TM.SC...5L CTM. SC...5L

U Style

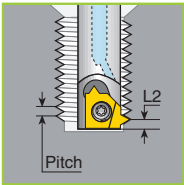


Insert Size		Pitch	Ordering Code	Dimensions (mm)	
IC	L mm	tpi	Internal	r*	Toolholder
1/4"U	11	48-16	2UIDA55 TM...	0.11	TM.SC...2U CTM. SC...2U
		16-12	2UIDB55 TM...	0.08	
		11-7	2UIDL55 TM...	0.24	
3/8"U	16	16-12	3UIDB55 TM...	0.08	TM.SC...3U
		11-7	3UIDL55 TM...	0.24	
		6-4	3UIDH55 TM...	0.27	
1/2"U	22	4-3	4UIDK55 TM...	0.50	TM.SC...4U

* The indicated radius (r) refers to the insert nose radius only



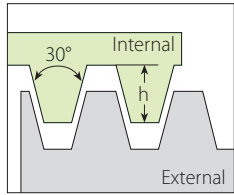
U Style
For Large Pitches



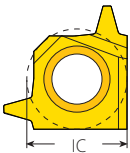
Mini-L Style
For Small Bores and Short L2

TMSD - Trapez

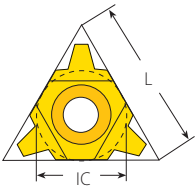
Internal



Defined by: DIN 103
Tolerance class: 7e/7H



Mini L Style



U Style

Mini-L



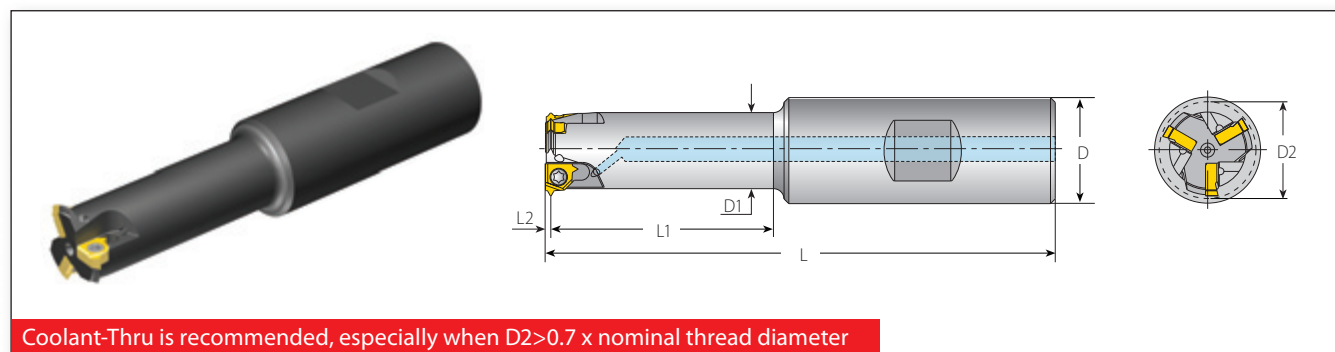
Insert Size	Pitch	Ordering Code	Application	
IC	mm	Internal	Internal	Toolholder
5.0L	2.0	5LI2.0TR-1 TM...	TR16x2, TR20x2	See pages 8-9
		5LI2.0TR-2 TM...	TR18x2	

U Style



Insert Size		Pitch	Ordering Code	Application	
IC	L mm	mm	Internal	Internal	Toolholder
1/4"U	11	3.0	2UI3TR-1 TM...	(TR22-TR30)x3	See pages 10-11
			2UI3TR-2 TM...	(TR32-TR60)x3	
		4.0	2UI4TR-1 TM...	(TR20-TR28)x4	
			2UI4TR-2 TM...	(TR65-TR110)x4	
		5.0	2UI5TR-1 TM...	TR22x5; TR28x5	
			2UI5TR-2 TM...	TR24x5; TR26x5	

TMSD Standard Toolholder - Weldon Shank (Mini L-Style)



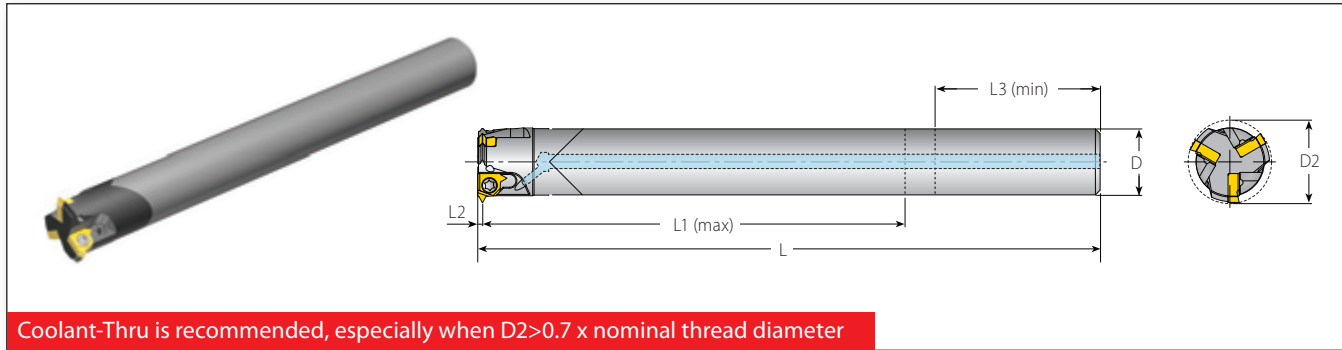
Weldon Shank for Mini-L Style Inserts

Weldon Shank for Mini-L Style Inserts									Spare Parts	
Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	
IC		L	L1	L2	D	D1	D2	Z		
5.0L	TM1SC 16W13-29-5L	81	29	1.1	16	9.8	13	1	SN5LTR	Torx Key
	TM2SC 16W14-33-5L	85	33		16	10.3	13.5	2		
	TM3SC 20W18-42-5L	96	42		20	14.3	17.7	3		

Thread Applications for Mini-L Style Toolholders (Weldon Shank)

Toolholder		Min. Thread Ø						
	D2	ISO Coarse	ISO Fine	UN/UNF/UNEF/UNS		BSP (G)	Partial 55°	Trapez
TM1SC 16W13-29-5L	13	M16x2	M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0	$\frac{1}{16}$ -32UN; $\frac{1}{16}$ -28UN; $\frac{1}{16}$ -27UNS; $\frac{1}{16}$ -24UNEF; $\frac{5}{16}$ -20UN; $\frac{5}{16}$ -18UNF; $\frac{5}{16}$ -16UN; $\frac{5}{16}$ -14UNS; $\frac{5}{16}$ -12UN		$\frac{3}{8}$ -19	$\frac{5}{16}$ -14	TR16X2; TR18X2
TM2SC 16W14-33-5L	13.5	M16x2	M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0	$\frac{5}{16}$ -32UN; $\frac{5}{16}$ -28UN; $\frac{5}{16}$ -27UNS; $\frac{1}{16}$ -24UNEF; $\frac{5}{16}$ -20UN; $\frac{5}{16}$ -18UNF; $\frac{5}{16}$ -16UN; $\frac{5}{16}$ -14UNS; $\frac{11}{16}$ -12UN		$\frac{3}{8}$ -19	$\frac{11}{16}$ -14	TR16X2; TR18X2
TM3SC 20W18-42-5L	17.7	-	M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0	$\frac{3}{4}$ -32UN; $\frac{3}{4}$ -28UN; $\frac{7}{8}$ -27UNS; $\frac{3}{4}$ -24UNS; $\frac{13}{16}$ -20UNEF; $\frac{7}{8}$ -18UNS; $\frac{13}{16}$ -16UN; $\frac{7}{8}$ -14UNF; $\frac{13}{16}$ -12UN		$\frac{1}{2}$ -14	-	TR20X2

TMSD Standard Toolholder - Carbide Cylindrical Shank (Mini L-Style)



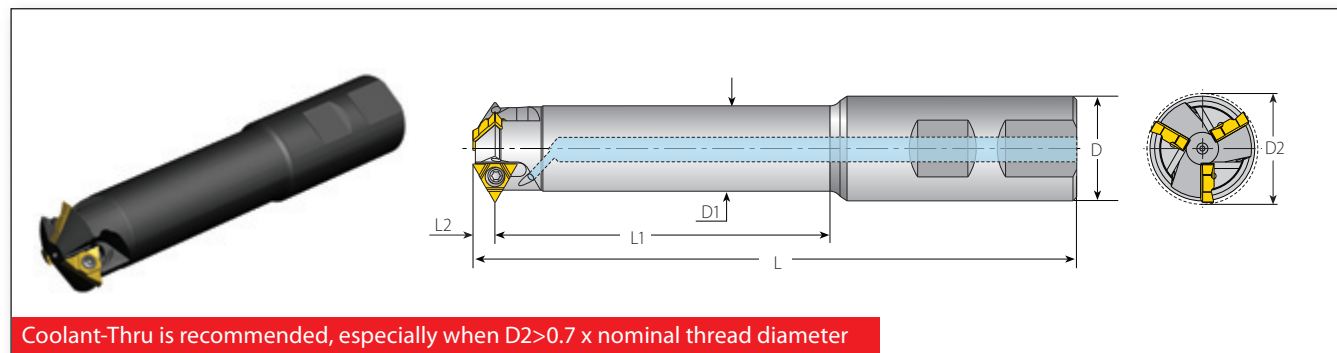
Carbide Cylindrical Shank for Mini-L Style Inserts

Carbide Cylindrical Shank for Mini-L Style Inserts									Spare Parts	
Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	
IC		L	L1 (max)	L2	L3 (min)	D	D2	Z		
5.0L	CTM1SC 09C13-43-5L	109	43	1.1	20	9.5	13	1	SN5LTR	K7T
	CTM2SC 10C14-50-5L	116	50		22	10	13.5	2		
	CTM3SC 14C18-65-5L	132	65		30	14	17.7	3		

Thread Applications for Mini-L Style Toolholders (Carbide Cylindrical Shank)

Toolholder		Min. Thread Ø						
	D2	ISO Coarse	ISO Fine	UN/UNF/UNEF/UNS		BSP (G)	Partial 55°	Trapez
CTM1SC 09C13-43-5L	13	M16x2	M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0	$\frac{7}{16}$ -32UN; $\frac{7}{16}$ -28UN; $\frac{7}{16}$ -27UNS; $\frac{7}{16}$ -24UNEF; $\frac{7}{8}$ -20UN; $\frac{7}{8}$ -18UNF; $\frac{7}{8}$ -16UN; $\frac{7}{8}$ -14UNS; $\frac{7}{8}$ -12UN		$\frac{3}{8}$ -19	$\frac{7}{8}$ -14	TR16X2; TR18X2
CTM2SC 10C14-50-5L	13.5	M16x2	M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0	$\frac{7}{8}$ -32UN; $\frac{7}{8}$ -28UN; $\frac{7}{8}$ -27UNS; $\frac{7}{8}$ -24UNEF; $\frac{7}{8}$ -20UN; $\frac{7}{8}$ -18UNF; $\frac{7}{8}$ -16UN; $\frac{7}{8}$ -14UNS; $\frac{11}{16}$ -12UN		$\frac{3}{8}$ -19	$\frac{11}{16}$ -14	TR16X2; TR18X2
CTM3SC 14C18-65-5L	17.7	-	M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0	$\frac{3}{4}$ -32UN; $\frac{3}{4}$ -28UN; $\frac{7}{8}$ -27UNS; $\frac{3}{4}$ -24UNS; $\frac{13}{16}$ -20UNEF; $\frac{7}{8}$ -18UNS; $\frac{13}{16}$ -16UN; $\frac{7}{8}$ -14UNF; $\frac{13}{16}$ -12UN		$\frac{1}{2}$ -14	-	TR20X2

TMSD Standard Toolholder - Weldon Shank (U-Style)



Weldon Shank for U-Style Inserts

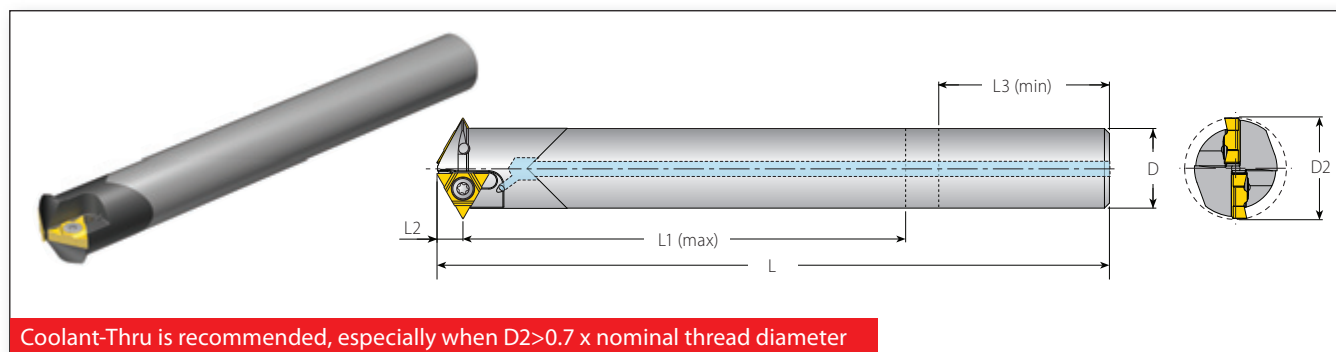
Weldon Shank for U-Style Inserts									Spare Parts	
Insert Size	Ordering Code	Dimensions (mm)				No. of Flutes				
IC		L	L1	L2	D	D1	D2	Z	Insert Screw	Torx Key
1/4"U	TM1SC 16W15-40-2U	95	40	5.4	16	11	14.75*	1	SN2T	HK2T
	TM2SC 25W21-60-2U	123	60		25	16	20.65*	2		
	TM2SC 25W23-70-2U	135	70		25	17.7	23	2		
	TM3SC 25W26-80-2U	147	80		25	20.4	26	3		
	TM4SC 32W31-95-2U	164	95		32	25.7	31	4		
3/8"U	TM3SC 32W36-95-3U	166	95	8.0	32	29	36.5	3	SA3T	HK3T
	TM4SC 40W42-120-3U	201	120		40	34.2	42	4	SN3T	

Thread Application for U-Style Toolholders (Weldon Shank)

Toolholder		Min. Thread Ø						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
TM1SC 16W15-40-2U	14.75*	M18x2.5, M24x3.0	M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0	3/4-10	5/8-32UN, 5/8-28UN, 5/8-27UNS, 1 1/16-24UN, 1 1/16-20UN, 1 1/16-16UN, 3/4-14UNS, 3/4-12UN	3/8-19, 1/2-14, 1-11	1 1/4-14; 3/4-12; 7/8-11; 3/4-10; 7/8-9; 1-8; 1 1/8-7	TR22x3, TR24x3
TM2SC 25W21-60-2U	20.65*	M24x3.0, M30x3.5	M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0	1-8UNC, 1 1/8UNC, 1 1/8UNC	7/8-32UN, 7/8-28UN, 7/8-27UNS, 7/8-24UNS, 7/8-20UNEF, 1-18UNS, 1 1/16-16UN, 1-14UNS, 1 1/16-12UN, 1-10UNS	3/4-14, 1-11	1-26, 1-20, 1-16, 1-12, 1-10, 1 1/8-9, 1-8, 1 1/8-7	TR26-TR60x3
TM2SC 25W23-70-2U	23	M27x3.0, M30x3.5, M36x4.0	M24x0.5, M24x0.75, M25x1.0, M25x1.25, M26x1.5, M26x2.0, M27x2.5	1 1/8-7	1-32UN, 1-28UN, 1-27UNS, 1-24UNS, 1-20UNEF, 1-18UNS, 1-16UN, 1-14UNS, 1-12UNF, 1 1/8-10UNS, 1 1/8-8UN	3/4-14, 1-11	1-26, 1-20, 1-16, 1 1/8-12, 1 1/8-9, 1 1/8-7	-
TM3SC 25W26-80-2U	26	M30x3.5, M36x4.0	M27x0.5, M27x0.75, M28x1.0, M28x1.25, M28x1.5, M29x2.0, M30x2.5, M30x3.0	1 1/4-7, 1 3/8-6	1 1/8-28UN, 1 1/8-24UNS, 1 1/8-20UN, 1 1/8-18UNEF, 1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UNF, 1 1/4-10UNS, 1 3/8-8UN	7/8-14, 1-11	1 1/8-26, 1 1/8-20, 1 3/8-16, 1 3/8-12, 1 3/8-8, 1 1/4-7	-
TM4SC 32W31-95-2U	31	M36x4.0	M32x0.5, M32x0.75, M33x1.0, M33x1.25, M33x1.5, M34x2.0, M34x2.5, M35x3.0, M36x3.5	1 1/2-6	1 1/8-28UN, 1 3/8-24UNS, 1 3/8-20UN, 1 3/8-18UNEF, 1 3/8-16UN, 1 3/8-14UNS, 1 3/8-12UNF, 1 3/8-10UNS, 1 3/8-8UN	1 1/8-11	1 3/8-26, 1 3/8-20, 1 3/8-16, 1 3/8-12, 1 3/8-8	-
TM3SC 32W36-95-3U	36.5	M42x4.5, M48x5.0, M56x5.5, M64x6.0	M39x1.5, M39x2.0, M40x2.5, M41x3.0, M42x3.5, M42x4.0	1 3/4-5, 2-4.5, 2 1/2-4	1 1/8-16UN, 1 3/8-14UNS, 1 3/8-12UN, 1 3/8-10UNS, 1 3/8-8UN, 1 3/8-6UN	1 1/4-11	1 5/8-16, 1 5/8-12, 1 5/8-8, 2 1/4-6, 1 3/4-5	-
TM4SC 40W42-120-3U	42	M48x5.0, M56x5.5, M64x6.0	M45x1.5, M45x2.0, M46x2.5, M48x3.0, M48x3.5, M48x4.0	2-4.5, 2 1/2-4	1 3/4-16UN, 1 3/4-14UNS, 1 3/4-12UN, 1 3/4-10UNS, 1 3/4-8UN, 1 3/4-6UN	1 1/2-11	1 7/8-16, 1 7/8-12, 1 7/8-8, 1 7/8-6, 2-4.5	-

* For TR inserts use for the CNC program (D2+0.25mm)

TMSD Standard Toolholder - Carbide Cylindrical Shank (U-Style)



Carbide Cylindrical Shank for U-Style Inserts

Carbide Cylindrical Shank for U-Style Inserts									Spare Parts	
Insert Size	Ordering Code	Dimensions (mm)				No. of Flutes				
IC		L	L1 (max)	L2	L3 (min)	D	D2	Z	Insert Screw	Torx Key
1/4"U	CTM1SC 08C15-40-2U	109	40	5.4	18	8	14.75*	1	SN2T	HK2T
	CTM1SC 11C15-60-2U	120	60	5.4	25	10.7	14.75*	1		
	CTM2SC 14C17-65-2U**	132	65	3.4	30	14	17.2**	2		
	CTM2SC 14C21-65-2U	136	65	5.4	30	14	20.65*	2		
	CTM2SC 16C21-80-2U	135	80	5.4	34	16	20.65*	2		

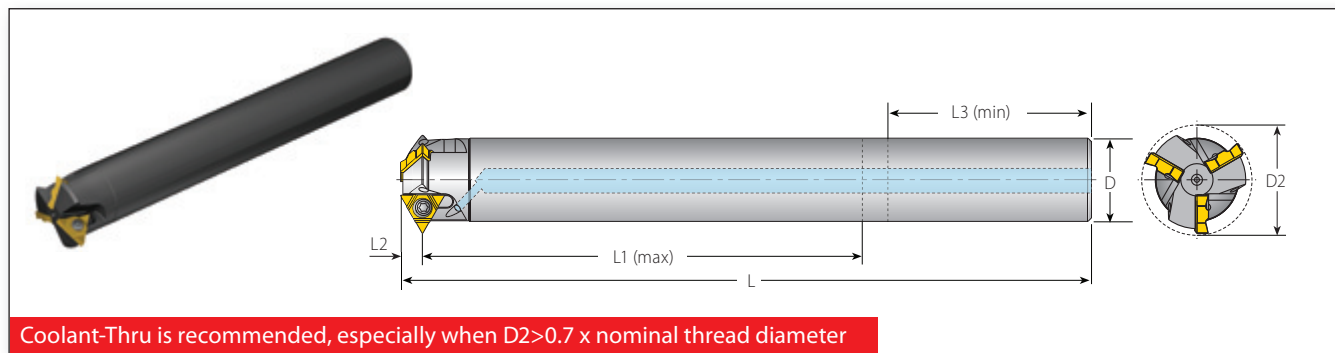
Thread Applications for U-Style Toolholder (Carbide Cylindrical Shank)

Toolholder		Min. Thread Ø						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
CTM1SC 08C15-40-2U	14.75*	M18x2.5, M24x3.0, M30x3.5, M36x4.0	M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0	3/4-10, 7/8-9, 1-8, 1 1/8-7, 1 3/8-6	5/8-32UN, 5/8-28UN, 5/8-27UNS, 1 1/16-24UNEF, 1 1/16-20UN, 1 1/16-16UN, 3/4-14UNS, 1 1/16-12UN	1/2-14, 1-11	1 1/16-26, 1 1/16-20, 1 1/16-16, 1 1/16-14, 3/4-12, 7/8-11, 3/4-10, 7/8-9, 1-8, 1 1/8-7	TR22x3, TR24x3, TR20x4, TR22x5, TR24x5, TR26x5, TR28x5
CTM1SC 11C15-60-2U	14.75*	M18x2.5, M24x3.0	M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0	3/4-10, 7/8-9, 1-8	5/8-32UN, 5/8-28UN, 5/8-27UNS, 1 1/16-24UNEF, 1 1/16-20UN, 1 1/16-16UN, 3/4-14UNS, 1 1/16-12UN	1/2-14, 1-11	1 1/16-26, 1 1/16-20, 1 1/16-16, 1 1/16-14, 3/4-12, 7/8-11, 3/4-10, 7/8-9	TR22x3, TR24x3
CTM2SC 14C17-65-2U	17.2**	M20x2.5, M22x2.5	M21x2.0	7/8-9	7/8-10UNS, 1 1/16-12UN	-	-	-
CTM2SC 14C21-65-2U	20.65*	M24x3.0, M30x3.5, M36x4.0	M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0	1-8, 1 1/8-7, 1 3/8-6	7/8-32UN, 7/8-28UN, 7/8-27UNS, 7/8-24UNS, 7/8-20UNEF, 1-18UNS, 1 1/16-16UN, 1-14UNS, 1 1/16-12UN, 1-10UNS	3/4-14, 1-11	1-26, 1-20, 1-16, 1-12, 1-10, 1 1/8-9, 1-8, 1 1/8-7	(TR26-TR60)x3, TR28x4, (TR65-TR110)x4, TR28x5
CTM2SC 16C21-80-2U	20.65*	M24x3.0, M30x3.5	M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0	1-8, 1 1/8-7, 1 3/8-6	7/8-32UN, 7/8-28UN, 7/8-27UNS, 7/8-24UNS, 7/8-20UNEF, 1-18UNS, 1 1/16-16UN, 1-14UNS, 1 1/16-12UN, 1-10UNS	3/4-14, 1-11	1-26, 1-20, 1-16, 1-12, 1-10, 1 1/8-9, 1-8, 1 1/8-7	(TR26-TR60)x3

* For TR inserts use for CNC program (D2+0.25mm)

** For insert 2UIDD60 TM... use for CNC program (D2+0.7mm)

TMSD Standard Toolholder - Steel Cylindrical Shank (U-Style)

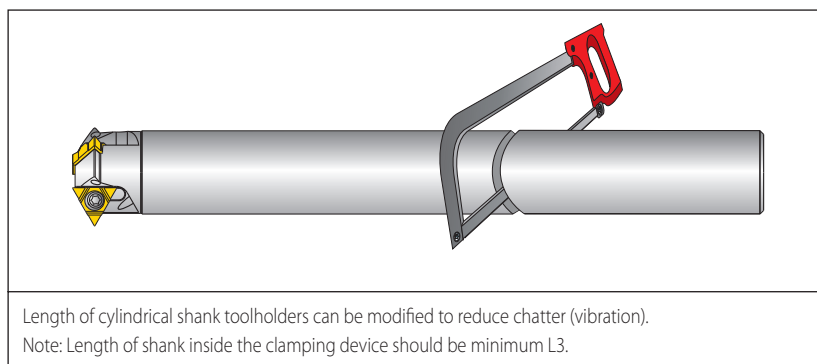


Steel Cylindrical Shank for U-Style Inserts

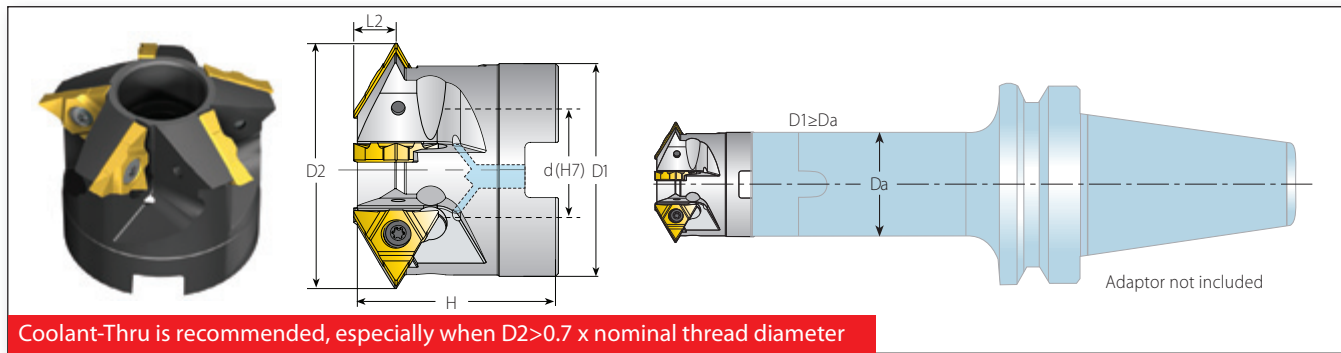
Steel Cylindrical Shank for U-Style Inserts									Spare Parts	
Insert Size	Ordering Code	Dimensions (mm)				No. of Flutes				
IC		L	L1 (max)	L2	L3 (min)	D	D2	Z	Insert Screw	Torx Key
1/4"U	TM2SC 18C23-86-2U	166	86	5.4	40	18	23.3	2	SN2T	HK2T
	TM3SC 20C26-105-2U	186	105	5.4	40	20	26	3		
	TM4SC 25C31-115-2U	196	115	5.4	46	25	31	4		
3/8"U	TM3SC 28C36-144-3U	222	144	8.0	60	28	36.5	3	SA3T	HK3T

Thread Application for U-Style Toolholders (Steel Cylindrical Shank)

Toolholder		Min. Thread Ø					
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°
TM2SC 18C23-86-2U	23.3	M27x3.0, M30x3.5, M36x4.0	M24x0.5, M25x0.75, M25x1.0, M25x1.25, M26x1.5, M26x2.0, M27x2.5	1 $\frac{1}{8}$ -7	1-32UN, 1-28UN, 1-27UN, 1-24UNS, 1-20UNEF, 1-18UNS, 1-16UN, 1-14UNS, 1 $\frac{1}{16}$ -12UN, 1 $\frac{1}{8}$ -10UNS, 1 $\frac{1}{8}$ -8UN	$\frac{3}{4}$ -14, 1-11	1-26, 1-20, 1 $\frac{1}{8}$ -16, 1 $\frac{1}{8}$ -12, 1 $\frac{1}{8}$ -9, 1 $\frac{1}{8}$ -7
TM3SC 20C26-105-2U	26	M30x3.5, M36x4.0	M27x0.5, M27x0.75, M28x1.0, M28x1.25, M28x1.5, M29x2.0, M30x2.5, M30x3.0	1 $\frac{1}{4}$ -7, 1 $\frac{3}{8}$ -6	1 $\frac{1}{8}$ -28UN, 1 $\frac{1}{8}$ -24UNS, 1 $\frac{1}{8}$ -20UN, 1 $\frac{1}{8}$ -18UNEF, 1 $\frac{1}{8}$ -16UN, 1 $\frac{1}{8}$ -14UNS, 1 $\frac{1}{8}$ -12UNF, 1 $\frac{1}{8}$ -10UNS, 1 $\frac{1}{16}$ -8UN	$\frac{7}{8}$ -14, 1-11	1 $\frac{1}{8}$ -26, 1 $\frac{1}{8}$ -20, 1 $\frac{3}{16}$ -16, 1 $\frac{3}{16}$ -12, 1 $\frac{3}{16}$ -8, 1 $\frac{1}{4}$ -7
TM4SC 25C31-115-2U	31	M36x4.0	M32x0.5, M32x0.75, M33x1.0, M33x1.25, M33x1.5, M34x2.0, M34x2.5, M35x3.0, M36x3.5	1 $\frac{1}{2}$ -6	1 $\frac{1}{16}$ -28UN, 1 $\frac{1}{2}$ -24UNS, 1 $\frac{1}{2}$ -20UN, 1 $\frac{1}{2}$ -18UNEF, 1 $\frac{3}{8}$ -16UN, 1 $\frac{3}{8}$ -14UNS, 1 $\frac{3}{8}$ -12UNF, 1 $\frac{3}{8}$ -10UNS, 1 $\frac{1}{16}$ -8UN	1 $\frac{1}{8}$ -11	1 $\frac{1}{8}$ -26, 1 $\frac{1}{8}$ -20, 1 $\frac{3}{8}$ -16, 1 $\frac{3}{8}$ -12, 1 $\frac{1}{16}$ -8
TM3SC 28C36-144-3U	36.5	M42.5x4.5, M48x5.0, M56x5.5, M64x6.0	M39x1.5, M40x2.5, M41x3.0, M42x3.5, M42x4.0	1 $\frac{3}{4}$ -5, 2-4.5, 2 $\frac{1}{2}$ -4	1 $\frac{1}{8}$ -16UN, 1 $\frac{1}{8}$ -14UNS, 1 $\frac{1}{8}$ -12UN, 1 $\frac{1}{8}$ -10UNS, 1 $\frac{1}{8}$ -8UN, 1 $\frac{1}{8}$ -6UN	1 $\frac{1}{4}$ -11	1 $\frac{1}{8}$ -16, 1 $\frac{1}{8}$ -12, 1 $\frac{1}{8}$ -8, 2 $\frac{1}{4}$ -6, 1 $\frac{1}{4}$ -5



TMSD - Shell Mill (U-Style)



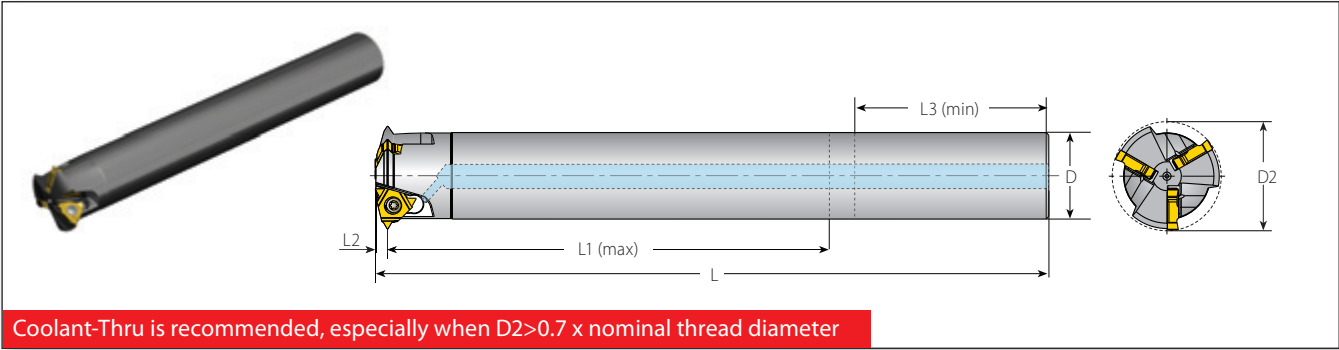
Shell Mill for U-style Inserts

Shell Mill for U-style Inserts								Spare Parts			
Insert Size	Ordering Code	Dimensions (mm)						Insert Screw	Torx Key	Holder Screw	Holder Screwdriver
IC		D1	D2	d(H7)	H	L2	Z				
3/8"U	TM4SC D42-16-3U	34	42	16	40	8.0	4	SN3T	HK3T	SA5T-C5 (M8x1.25x28)	TK5T
	TM5SC D48-22-3U	40	48	22	40	8.0	5			M10x1.50x35	-
	TM6SC D56-22-3U	48	56	22	40	8.0	6				-
1/2"U	TM6SC D88-27-4U	76	88	27	50	10.8	6	SA4T	HK4T	M12x1.75x40	-
	TM7SC D98-32-4U	85	98	32	55	10.8	7			M16x2.00x40	

Thread Application U-Style Shell Mill

Toolholder		Min. Thread Ø						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	
TM4SC D42-16-3U	42	M48x5.0, M56x5.5, M64x6.0,	M45x1.5, M45x2.0, M46x2.5, M48x3.0, M48x3.5, M48x4.0	2-4.5, 2½ - 4	1¾-16UN, 1¾-14UNS, 1⅜-12UN, 1⅜-8UN, 1⅝-6UN	1½ - 11	1⅞-16, 1⅞-12, 1⅞-8, 1⅞-6, 2-4.5	
TM5SC D48-22-3U	48	M56x5.5, M64x6.0	M52x1.5, M52x2.0, M52x2.5, M52x3.0, M55x4.0	2¼ - 4.5, 2½ - 4	2-16UN, 2-14UN, 2-12UN, 2¼-10UNS, 2⅝-8UN, 2⅝-6UN	1¾ - 11	2-16, 2¼-12, 2¼-8, 2¼-6, 3-5, 3½-4.5, 2¼-4	
TM6SC D56-22-3U	56	M64x6.0	M60x1.5, M60x2.0, M60x2.5, M60x3.0, M64x4.0	2½ - 4	2⅝-16UN, 2⅝-14UN, 2⅝-12UN, 2½-10UNS, 2⅝-8UN, 2½-6UN	2 - 11	2½-16, 2½-12, 2½-8, 2¾-6, 3-5, 3½-4.5, 4¼-4	
TM6SC D88-27-4U	88	-	M95x6.0, M130x8	4- 4	4¼-4UN	3½ - 11	4-3, 4¼-4	
TM7SC D98-32-4U	98	-	M105x6.0, M130x8	-	4¼-4UN	4 - 11	4¼-4	

TMSD Standard Toolholder - Steel Cylindrical Shank (A-Style)

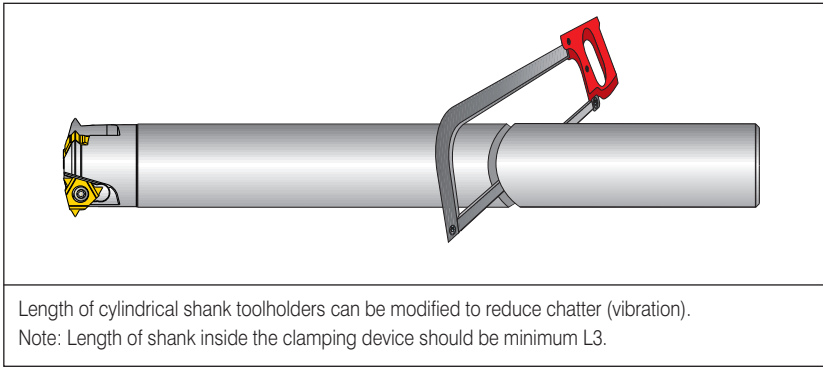


Steel Cylindrical Shank for A-Style Inserts

Steel Cylindrical Shank for A-Style Inserts									Spare Parts	
Insert Size	Ordering Code	Dimensions (mm)						No. of Flutes		
IC		L	L1 (max)	L2	L3 (min)	D	D2	Z	Insert Screw	Torx Key
1/4"A	TM3SC 20C26-105-2A	184	105	3.0	40	20	26	3	SN2T	HK2T
3/8"A	TM3SC 28C35-144-3A	218	144	4.0	46	28	35.3	3	SA3T	HK3T

Thread Application for A-Style Toolholders (Steel Cylindrical Shank)

Toolholder		Min. Thread Ø				
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)
TM3SC 20C26-105-2A	26	-	M28x1.5, M29x2.0, M30x2.5, M30x3.0	-	1½-16UN, 1½-14UNS, 1½-12UN, 1¼-10UNS, 1¼-8UN	-
TM3SC 28C35-144-3A	35.3	-	M38x2.0, M39x2.5, M39x3.0, M40x4.0	-	1½-12UN, 1½-10UNS, 1½-8UN, 1½-6UN	-



Length of cylindrical shank toolholders can be modified to reduce chatter (vibration).
Note: Length of shank inside the clamping device should be minimum L3.

Recommended Grades, Cutting Speeds Vc [m/min] and Feed f [mm/tooth]

Material Group	Vardex No.	Material		Hardness Brinell HB	Vc [mm/min]		Feed* f [mm/tooth] by Cutting Dia. (D2)		
					VBX	VTX	13-23	24-42	Shell Mill
P Steel	1	Unalloyed steel	Low carbon (C=0.1-0.25%)	125	100-210	90-180	0.20-0.32	0.30-0.50	0.30-0.75
	2		Medium carbon (C=0.25-0.55%)	150	100-180	90-170	0.20-0.32	0.30-0.50	0.30-0.75
	3		High Carbon (C=0.55-0.85%)	170	100-170	90-160	0.15-0.23	0.25-0.35	0.25-0.52
	4	Low alloy steel (alloying elements ≤5%)	Non hardened	180	60-90	90-155	0.17-0.28	0.28-0.45	0.28-0.67
	5		Hardened	275	80-150	80-160	0.15-0.28	0.25-0.45	0.25-0.67
	6		Hardened	350	70-140	70-150	0.15-0.25	0.25-0.40	0.25-0.60
	7	High alloy steel (alloying elements >5%)	Annealed	200	60-130	70-115	0.15-0.22	0.20-0.30	0.20-0.45
	8		Hardened	325	70-110	60-100	0.13-0.21	0.18-0.30	0.18-0.45
	9	Cast steel	Low alloy (alloying elements <5%)	200	100-170	100-170	0.15-0.22	0.20-0.30	0.20-0.45
	10		High alloy (alloying elements >5%)	225	70-120	70-130	0.12-0.22	0.17-0.30	0.17-0.45
M Stainless Steel	11	Stainless steel Ferritic	Non hardened	200	100-170	120-180	0.15-0.22	0.22-0.34	0.22-0.50
	12		Hardened	330	100-170	120-180	0.16-0.23	0.21-0.32	0.21-0.48
	13	Stainless steel Austenitic	Austenitic	180	70-140	100-140	0.15-0.25	0.25-0.40	0.25-0.60
	14		Super Austenitic	200	70-140	100-140	0.12-0.20	0.17-0.26	0.17-0.39
	15	Stainless steel Cast Ferritic	Non hardened	200	70-140	100-140	0.16-0.24	0.25-0.37	0.25-0.55
	16		Hardened	330	70-140	100-140	0.12-0.20	0.17-0.26	0.17-0.39
	17	Stainless steel Cast austenitic	Austenitic	200	70-120	100-120	0.15-0.22	0.20-0.30	0.20-0.45
	18		Hardened	330	70-120	100-120	0.12-0.20	0.17-0.26	0.17-0.39
K Cast Iron	28	Malleable Cast iron	Ferritic (short chips)	130	60-130	100-120	0.16-0.24	0.25-0.37	0.25-0.55
	29		Pearlitic (long chips)	230	60-120	80-100	0.15-0.22	0.20-0.30	0.20-0.45
	30	Grey cast iron	Low tensile strength	180	60-130	80-100	0.15-0.22	0.22-0.34	0.22-0.50
	31		High tensile strength	260	60-100	80-100	0.15-0.22	0.20-0.30	0.20-0.45
	32	Nodular SG iron	Ferritic	160	60-125	80-100	0.10-0.20	0.15-0.25	0.15-0.37
	33		Pearlitic	260	50-90	60-90	0.15-0.22	0.20-0.30	0.20-0.45
N(K) Non-Ferrous Metals	34	Aluminium alloys Wrought	Non aging	60	100-250		0.30-0.50	0.60-1.00	0.60-1.50
	35		Aged	100	100-180		0.28-0.50	0.50-0.90	0.50-1.20
	36	Aluminium alloys	Cast	75	150-400		0.28-0.50	0.50-0.90	0.50-1.20
	37		Cast & aged	90	150-280		0.25-0.40	0.40-0.60	0.40-0.90
	38	Aluminium alloys	Cast Si 13-22%	130	80-150		0.28-0.50	0.50-0.90	0.50-1.20
	39	Copper and Copper alloys	Brass	90	120-210	100-200	0.30-0.50	0.60-1.00	0.60-1.50
	40		Bronze and non leaded copper	100	120-210	100-200	0.28-0.50	0.50-0.90	0.50-1.20
S(M) Heat Resistant Material	19	High temperature alloys	Annealed (Iron based)	200	20-45	20-40	0.09-0.15	0.12-0.22	0.12-0.33
	20		Aged (Iron based)	280	20-30	20-30	0.07-0.13	0.10-0.20	0.10-0.30
	21		Annealed (Nickel or Cobalt based)	250	15-20	15-20	0.08-0.15	0.08-0.20	0.08-0.30
	22		Aged (Nickel or Cobalt based)	350	10-15	10-15	0.08-0.15	0.08-0.20	0.08-0.30
	23	Titanium alloys	Pure 99.5 Ti	400Rm	70-140	70-120	0.07-0.13	0.10-0.20	0.10-0.30
	24		α+β alloys	1050Rm	20-50	20-50	0.07-0.13	0.10-0.20	0.10-0.30
H(K) Hardened Material	25	Extra hard steel	Hardened & tempered	45-50HRc	15-45	15-45	0.05-0.12	0.05-0.18	0.05-0.27
	26			51-55HRc	15-40	15-40	0.05-0.12	0.05-0.18	0.05-0.27

* When using a Shell Mill holder, Feed can be increased by 50%

Grades

Grade	Application
VBX	TiCN coated carbide grade. Excellent grade for steels and general use .
VTX	TiAlN coated carbide grade. Ideal for Stainless Steels .

U Style



A Style



Mini-L Style





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