



# TMSD

Thread Mill for Deep Holes



METRIC

**VARDEX**

Advanced Threading Solutions

# TMSD

## Thread Mill for Deep Holes

A multi-flute, highly productive and economical solution for milling threads in deep holes

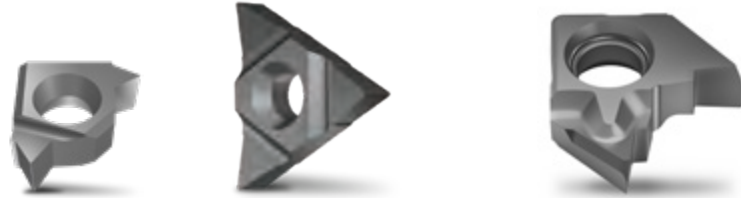


See it in action



### Full Profile Inserts

See pages 12-14, 17



ISO, American UN, NPT

American Buttress

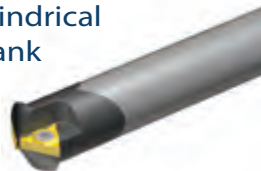
### U Style For Large Pitches

Weldon Shank



Tool Overhang (L1) 40-145  
Cutting Dia. (D2) 14.75-42  
No. of Flutes (Z) 1-4

Carbide Cylindrical Shank



Tool Overhang (L1) max 135  
Cutting Dia. (D2) 14.75-31.0  
No. of Flutes (Z) 1-4

Steel Cylindrical Shank



Tool Overhang (L1) max 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

### L Style (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) max 65  
Cutting Dia. (D2) 13-17.7  
No. of Flutes (Z) 1-3

### Vertical Style (7V, 9V, 11V)

Weldon Shank



Tool Overhang (L1) 25-45  
Cutting Dia. (D2) 10.5-20.8  
No. of Flutes (Z) 3

Carbide Cylindrical Shank



Tool Overhang (L1) max 65  
Cutting Dia. (D2) 10.5-20.8  
No. of Flutes (Z) 3

### L Style (3/8" L) For Large Trapezoid Profiles and ABUT

Weldon Shank



Tool Overhang (L1) 50-105  
Cutting Dia. (D2) 21.6-35.5  
No. of Flutes (Z) 1-3

Carbide Cylindrical Shank



Tool Overhang (L1) max 120  
Cutting Dia. (D2) 21.6-33.5  
No. of Flutes (Z) 1-3

Shell Mill



Tool Overhang (L1) max 200  
Cutting Dia. (D2) 48-80  
No. of Flutes (Z) 5-7

### A Style For Shorter L2

Steel Cylindrical Shank



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

## TMSD CATALOG

■ Vardex Ordering Code System .....	Page 4
<b>INSERTS (Vertical Style)</b>	
■ Partial Profile 60° .....	Page 5
■ Partial Profile 55° .....	Page 6
■ Trapez .....	Page 7
■ Stub ACME .....	Page 7
<b>TOOLHOLDERS (Vertical Style)</b>	
■ Weldon Shank .....	Page 8
■ Carbide Cylindrical Shank .....	Page 9
<b>INSERTS (U, A, L, V Styles)</b>	
■ Partial Profile 60° .....	Page 10
■ Partial Profile 55° .....	Page 11
■ ISO <b>NEW</b> .....	Page 12
■ American UN <b>NEW</b> .....	Page 13
■ NPT <b>NEW</b> .....	Page 14
■ Trapez .....	Page 15
■ American ACME .....	Page 16
■ Stub ACME .....	Page 16
■ American Buttress .....	Page 17
<b>TOOLHOLDERS (U, A, L, V Styles)</b>	
■ Weldon Shank U Style .....	Page 18
■ Carbide Cylindrical Shank U Style .....	Page 20
■ Steel Cylindrical Shank U Style .....	Page 22
■ Shell Mill U Style .....	Page 24
■ Steel Cylindrical Shank A Style .....	Page 25
■ Weldon Shank L Style (Mini L) .....	Page 26
■ Carbide Cylindrical Shank L Style (Mini L) .....	Page 28
■ Weldon Shank L Style (3/8" L) .....	Page 30
■ Carbide Cylindrical Shank L Style (3/8" L) .....	Page 31
■ Shell Mill L Style (3/8" L) .....	Page 32
■ Shell Mill V Style (5/8" V) .....	Page 33
<b>TECHNICAL DATA</b>	
■ Recommended Grades, Cutting Speeds and Feed .....	Page 34

## TMSD Line System Advantages

### Smooth Cut

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

### Wide Range of Profiles

- Full profile: ISO, UN, NPT and ABUT **NEW**
- Partial profile: 60°, 55°
- Semi Partial profile for: TR, ACME, Stub ACME

### 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)

### Coolant Thru

- For improved chip evacuation and cooling at the cutting corner

### New Vertical Inserts

- Reinforced Cutting Corner Support

### Smaller Tool Cutting Diameter with 3 Flutes

- As small as 10.5mm






### Conical Thread Preparation

- Capabilities to machine conical threads from a cylindrical pre-drilled hole

# Vardex Ordering Code System

## TMSD Inserts

<b>2</b>	<b>U</b>	<b>I</b>	<b>DB</b>	<b>60</b>	<b>TM</b>	<b>VBX</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

1 - Insert Size	2 - Insert Style	3 - Type of Insert	4 - Pitch			5 - Standard
5L - IC5.0 mm 2 - IC1/4" 3 - IC3/8" 4 - IC1/2" 5 - IC5/8" 7 - IC6.8 mm 9 - IC8.5 mm 11 - IC10.7 mm 	U -  A -  L -  V - Vertical Style 7, 9, 11 V - V Style 5/8" 	I - Internal EI - External + Internal	Full Profile - Pitch Range		60° - Partial Profile 60° 55° - Partial Profile 55° ISO - ISO Metric UN - American UN NPT - NPT TR - Trapez DIN 103 ACME - ACME STACME - Stub ACME ABUT - American Buttruss	
mm		tpi				
1.0-8.0		18-2.5				
		Partial Profile - U, A, L Styles		Partial Profile - Vertical Style		
	mm	tpi		mm	tpi	
DA	0.5-1.5	48-16	VA	0.5-1.0	28-27	
DB	1.5-2.0	16-12	VB	-	11-9	
DC	2.5-4.0	10-6	VC	-	16-10	
DD	2.0-2.5	9-12	VD	1.0-2.0	24-12	
DE	2.5-3.5	10-7	VE	2.0-3.0	12-8	
DH	4.0-6.0	6-4	VF	1.0-1.5	24-16	
DK	6.0-8.0	4-3	VG	1.5-2	16-12	
DL	-	11-7	VH	-	16-14	
DM	2.5	10	VK	2.0-2.5	12-10	
DN	1.0-2.0	24-11	VJ	-	26-19	
DP	1.5-3.0	16-8	VM	-	8-7	
DR	-	26-14	VN	1.5-2.5	16-11	
DT	2.0-4.0	12-6				

<b>6 - System</b>
TM - TMSD (U, A, L Styles) TM3 - TMSD Vertical

<b>7 - Carbide Grade</b>
VBX, VTX

## TMSD Toolholders (U, A, L Styles)

<b>C</b>	<b>TM</b>	<b>2</b>	<b>S</b>	<b>C</b>	<b>14</b>	<b>C</b>	<b>17</b>	<b>-</b>	<b>65</b>	<b>-</b>	<b>2</b>	<b>U</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>		<b>9</b>		<b>10</b>	<b>11</b>

<b>1 - Shank Style</b>	<b>2 - System</b>	<b>3 - No. of Flutes</b>	<b>4 - Insert Type</b>	<b>5 - Cooling</b>	<b>6 - Shank Dia.</b>	<b>7 - Shank Type</b>	<b>8 - Cutting Dia.</b>
None - Steel C - Carbide Shank	TM	1 - 4	S - Single Point	C - Coolant	9.5 - 40	W - Weldon C - Cylindrical	13 - 42

<b>9 - Max. Tool Overhang</b>	<b>10 - Insert Size</b>	<b>11 - Insert Style</b>	<b>12 - Tool Application</b>
144	5 - IC5.0 mm 2 - IC1/4" 3 - IC3/8" 4 - IC1/2"	U A L	ABUT - For American Buttruss

## TMSD Toolholders (Vertical Style)

<b>C</b>	<b>GM</b>	<b>C</b>	<b>9</b>	<b>C</b>	<b>13</b>	<b>-</b>	<b>45</b>	<b>-</b>	<b>7</b>	<b>-</b>	<b>3</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>		<b>8</b>		<b>9</b>

<b>1 - Holder Type</b>	<b>2 - System</b>	<b>3 - Cooling</b>	<b>4 - Shank Dia.</b>	<b>5 - Shank Style</b>	<b>6 - Cutting Dia.</b>	<b>7 - Tool Overhang</b>	<b>8 - Insert Size</b>
None - Steel Shank C - Carbide Shank	GM - Groove Milling and Thread Milling	C - Coolant	8, 9, 11.5, 12, 14, 15, 20, 25	C - Cylindrical W - Weldon	10.5-22.0	25-65	7 - IC6.8 mm 9 - IC8.5 mm 11 - IC10.7 mm

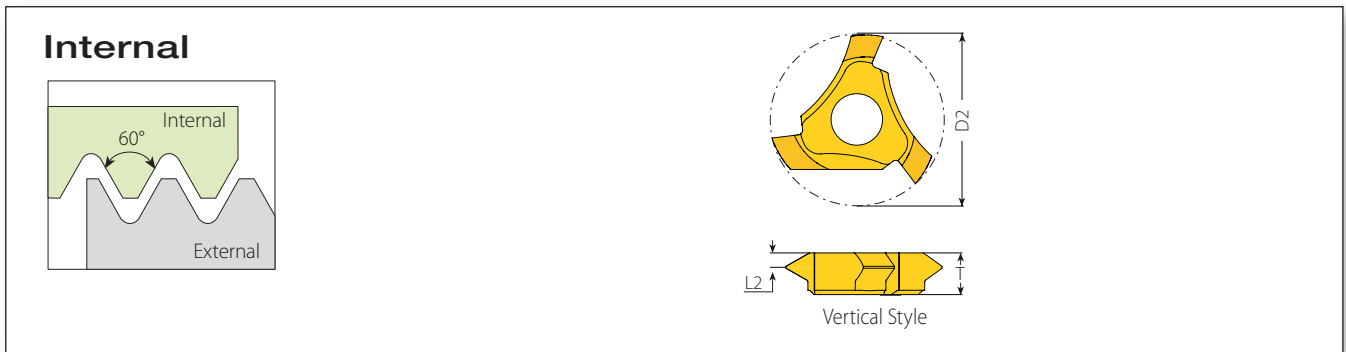
<b>9 - Number of Flutes</b>
3

## TMSD Shell Mill (U, L, V Styles)

<b>TM</b>	<b>4</b>	<b>S</b>	<b>C</b>		<b>D42</b>	<b>-</b>	<b>16</b>	<b>-</b>	<b>3</b>	<b>U</b>	
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>		<b>5</b>		<b>6</b>		<b>7</b>	<b>8</b>	<b>9</b>

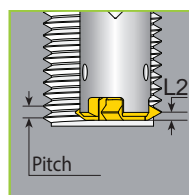
<b>1 - System</b>	<b>2 - No. of Flutes</b>	<b>3 - Insert Type</b>	<b>4 - Cooling</b>	<b>5 - Cutting Dia.</b>	<b>6 - Drive Hole Dia.</b>	<b>7 - Insert Size</b>	<b>8 - Insert Style</b>
TM	4-7	S - Single Point	C - Coolant	42 - 98	16, 22, 27, 32	3 - IC3/8" 4 - IC1/2" 5 - IC5/8"	U, L, V
<b>9 - Tool Application</b>	ABUT - For ABUT Inserts						

# Partial Profile 60°



## Vertical Style

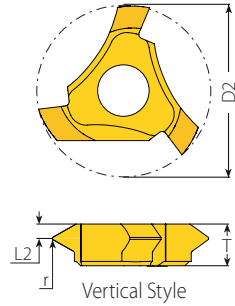
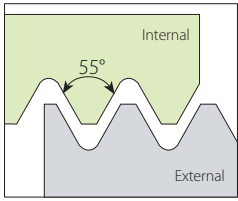
Insert Style	Pitch		Ordering Code	Dimensions (mm)			Application (Min. Thread Size)						Toolholder
	IC	mm		tpi	Internal	D2	T	L2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	
7V		0.5-1.0	28-27	7VIVA60TM3 ...	10.5		0.6	-	M11.5x0.5; M11.5x0.75; M12x1.0		-	½-28UNEF; ½-27UNS	CGMC 8C13-40-7-3 CGMC 9C13-45-7-3 GMC 20W13-25-7-3
		1.0-1.5	24-16	7VIVF60TM3 ...	11.1	2.9	0.8	-	M12.5x1; M13x1.5		-	½-24UNS; ½-20UNF; ⅝-18UNF; ⅝-16UN	
		1.5-2.0	16-12	7VIVG60TM3 ...	11.8		1.0	M14x2.0	M14x1.5		-	⅝-16UN; ⅝-14UNS; ⅝-12UN	
		1.5-2.5	16-11	7VIVN60TM3 ...	12.4		1.1	-	M15x1.5 M16x2		⅝-11; ⅝-12	⅝-14UNS; ⅝-16UN	
9V		0.5-1.0	28-27	9VIVA60TM3 ...	13.1		0.6	-	M14x0.5; M14x0.75; M15x1		-	⅝-28UN; ⅝-27UNS	CGMC 11.5C17-50-9-3 CGMC 12C17-50-9-3 GMC 20W17-30-9-3
		1.0-1.5	24-16	9VIVF60TM3 ...	13.7	4.2	0.8	-	M15x1; M15.5x1.5		-	⅝-24UNEF; ⅝-20UN; ⅝-18UNF; ⅝-16UN	
		1.5-2.0	16-12	9VIVG60TM3 ...	14.4		1.0	-	M16.5x1.5; M17x2		-	⅝-16UN; ⅝-14UNS; ⅝-12UN	
		2.0-2.5	12-10	9VIVK60TM3 ...	15.1		1.4	-	M17.5x2; M18x2.5	¾-10		⅝-12UN;	
11V		1.0-2.0	24-12	11VIVD60TM3 ...	17.9		1.0	-	M19x1, M19.5x1.25; M19.5x1.5; M20x1.75; M20x2		-	¾-24UNS; ⅝-20UNEF; ⅝-18UNS; ⅝-16UN; ⅝-14UNF; ⅝-12UN	CGMC 14C22-60-11-3 CGMC 15C22-65-11-3 GMC 25W22-45-11-3
		2.0-3.0	12-8	11VIVE60TM3 ...	19.5	5.5	1.5	M22x2.5 M24x3	M23x2		1-8	⅝-10UNS; ⅝-12UN	



Vertical Style

# Partial Profile 55°

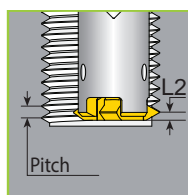
## Internal



## Vertical Style



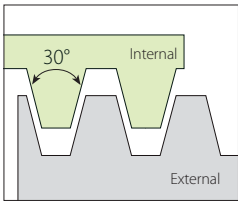
Insert Style	Ordering Code		Dimensions (mm)				Application (Min. Thread Size)			
	IC	tpi	Internal	D2	T	L2	r	BSP (G)	Partial 55°	Toolholder
7V	26-19	7VIVJ55TM3 ...	11.35	2.9	0.8	0.07	0.07	¼-19; ⅜-19	-	CGMC 8C13-40-7-3 CCGMC 9C13-45-7-3
	16-14	7VIVH55TM3 ...	12.0		1.0	0.13		½-14; ⅝-14; ¾-14; 7/8-14;	⅝-16; ⅝-14	GMC 20W13-25-7-3
9V	26-19	9VIVJ55TM3 ...	13.35	4.2	0.8	0.09	0.09	⅜-19	⅝-26; ⅜-16	CGMC 11.5C17-50-9-3 CGMC 12C17-50-9-3
	16-10	9VIVC55TM3 ...	15.4		1.2	0.15		½-14	¾-16; ⅞-14; ¾-12; 7/8-11; ¾-10	GMC 20W17-30-9-3
11V	16-12	11VIVG55TM3 ...	17.8	5.5	0.9	0.16	0.16	½-14	1⅜-16; 1⅝-12	CGMC 14C22-60-11-3 CGMC 15C22-65-11-3 GMC 25W22-45-11-3
	11-9	11VIVB55TM3 ...	19.1		1.3	0.21		1-11	7/8-11; 1-10; 1⅝-9	
	8-7	11VIVM55TM3 ...	19.6		1.5	0.36		-	1-8; 1⅝-7;	



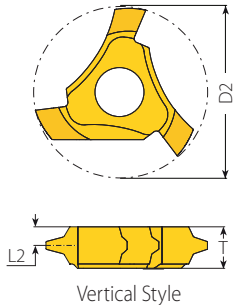
Vertical Style

# Trapez


### Internal



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

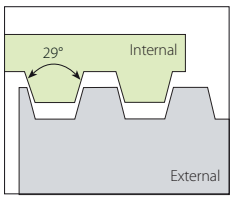


## Vertical Style

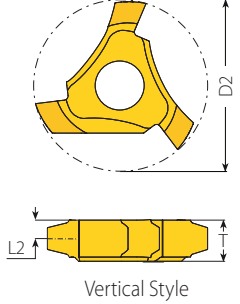
	Insert Style		Ordering Code	Dimensions (mm)			Application	
	IC	mm	Internal	D2	T	L2	Trapez	Toolholder
	7V	2.0	7VI2.0TR-1TM3 ...	12.3	2.9	1.3	TR16x2	CGMC 8C13-40-7-3 CGMC 9C13-45-7-3 GMC 20W13-25-7-3
			7VI2.0TR-2TM3 ...				TR18x2	
			7VI2.0TR-3TM3 ...				TR20x2	
	9V	3.0	9VI3.0TR-1TM3 ...	15.4	4.2	1.95	TR22x3	CGMC 11.5C17-50-9-3 CGMC 12C17-50-9-3 GMC 20W17-30-9-3
			9VI3.0TR-2TM3 ...				TR24x3	

# Stub ACME


### Internal



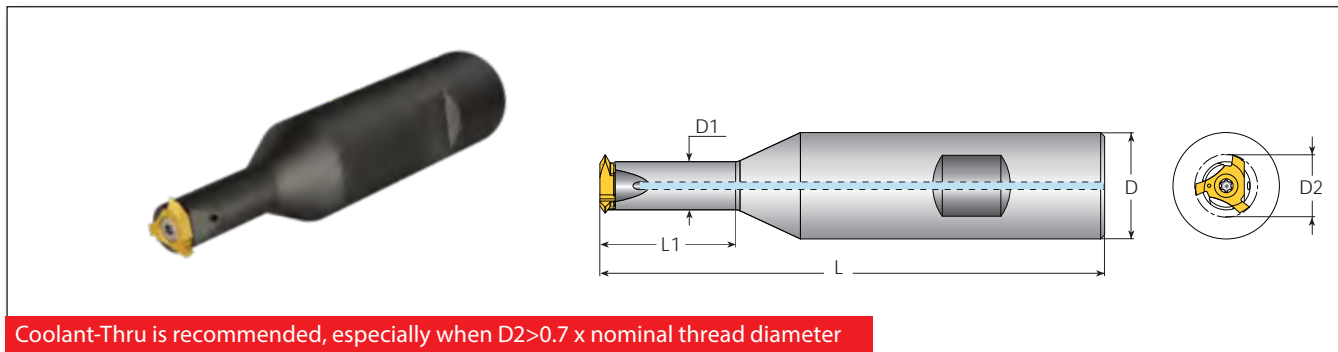
Defined by: ANSI B1.8: 1988  
Tolerance class: 2G



## Vertical Style

	Insert Style		Ordering Code	Dimensions (mm)			Application	
	IC	tpi	Internal	D2	T	L2	Stub ACME	Toolholder
	7V	8	7VI8STACMETM3 ...	12.3	2.9	1.3	3/8-8	CGMC 8C13-40-7-3 CGMC 9C13-45-7-3 GMC 20W13-25-7-3
		6	7VI6STACME-1TM3 ...				3/4-6	
			7VI6STACME-2TM3 ...				5/8-6	
	9V		9VI5STACME-1TM3 ...	16.7	4.2	1.95	1-5	CGMC 11.5C17-50-9-3 CGMC 12C17-50-9-3 GMC 20W17-30-9-3
			9VI5STACME-2TM3 ...				1 1/8-5	
			9VI5STACME-3TM3 ...				1 1/4-5	
	11V	4	11VI4STACME-1TM3 ...	20.8	5.5	2.6	1 3/8-4	CGMC 14C22-60-11-3 CGMC 15C22-65-11-3 GMC 25W22-45-11-3
			11VI4STACME-2TM3 ...				1 1/2-4	
			11VI4STACME-3TM3 ...				1 3/4-4	
			11VI4STACME-4TM3 ...				2-4	

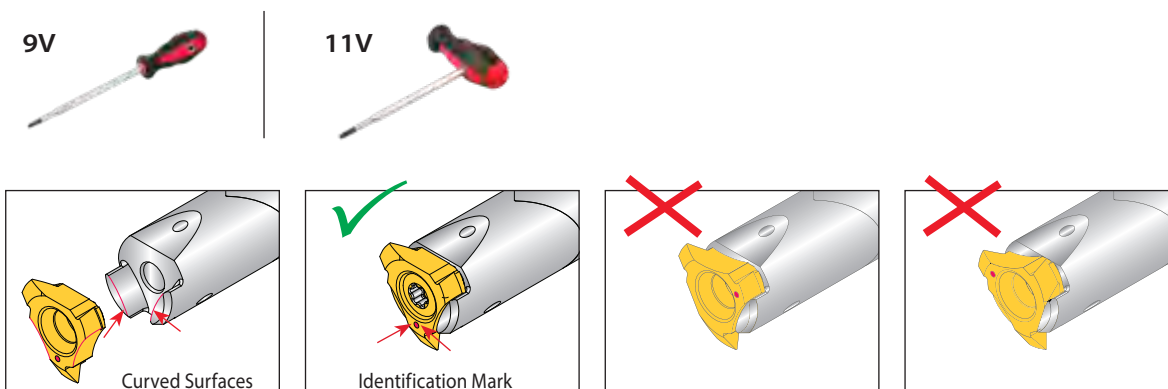
## Vertical Toolholders - Weldon Shank



Insert Style	Ordering Code	Dimensions mm					Spare Parts			
		L	L1	D	D1	D2*	Insert Screw	Torx Key	Blade	Handle
7V	GMC20W13-25-7-3	95	25	20	9	10.5-12.7	SN2T8-M1 (M3.0x0.5x9)	K2T	-	-
9V	GMC20W17-30-9-3	105	30	20	11.5	13.1-16.7	SN3T15-M2 (M4x0.7x13.5)	-	Blade T15-1/4	Smart Handle 1/4x2
11V	GMC25W22-45-11-3	115	45	25	15	17.8-20.8	SN4T20-M3 (M5x0.8x15.5)	-	Blade T20-1/4	Smart Handle 1/4x2

\* The tool cutting diameter (D2) is defined by the insert (See pages 5-7).

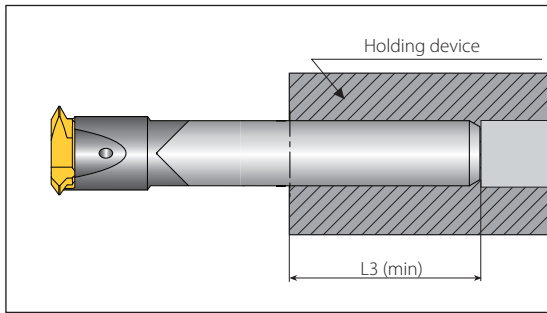
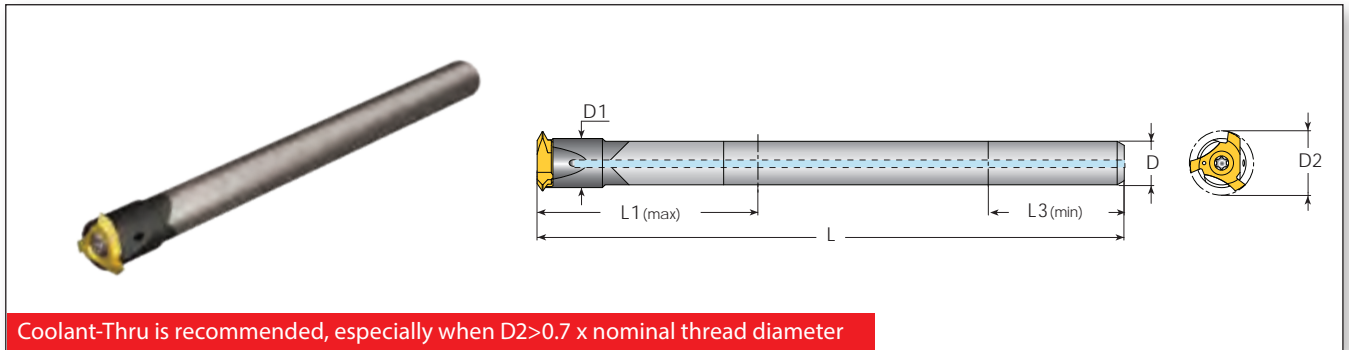
### For Correct Clamping:



Always mount insert with the identification mark between the two curved surfaces on the toolholder.



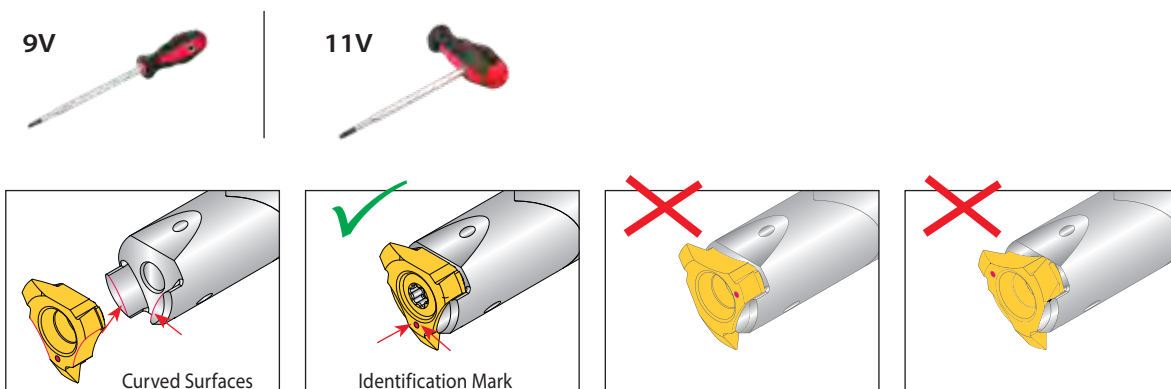
# Vertical Toolholders - Carbide Cylindrical Shank



Insert Style	Ordering Code	Dimensions mm						Spare Parts			
		L	L1	L3 (min)	D	D1	D2*	Insert Screw	Torx Key	Blade	Handle
7V	CGMC8C13-40-7-3	115	40	18	8	9	10.5-12.7	SN2T8-M1 (M3.0x0.5x9)	K2T	-	-
	CGMC9C13-45-7-3		45	20	9						
9V	CGMC11.5C17-50-9-3	125	50	25	11.5	11.5	13.1-16.7	SN3T15-M2 (M4x0.7x13.5)	-	Blade T15-1/4	Smart Handle 1/4x2
	CGMC12C17-50-9-3		50	26	12						
11V	CGMC14C22-60-11-3	135	60	30	14	15	17.8-20.8	SN4T20-M3 (M5x0.8x15.5)	-	Blade T20-1/4	Smart Handle 1/4x2
	CGMC15C22-65-11-3		65	32	15						

\* The tool cutting diameter (D2) is defined by the insert (See pages 5-7).

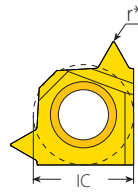
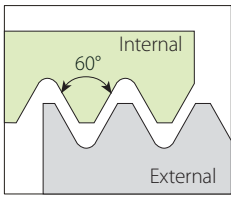
## For Correct Clamping:



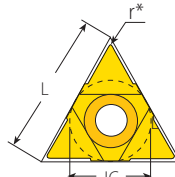
Always mount insert with the identification mark between the two curved surfaces on the toolholder.

# Partial Profile 60°

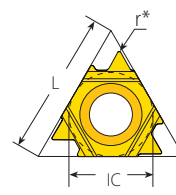
## Internal



Mini L Style

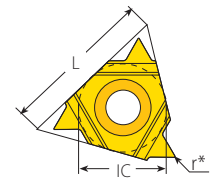


U Style



U Style

2UIDM60 TM...  
2UIDD60 TM...



A Style

## L Style



Insert Size		Pitch		Ordering Code	Dimensions (mm)	
IC	L mm	mm	tpi	Internal	r *	Toolholder
5.0L (Mini L)		0.5-1.5	48-16	5LIDA60TM...	0.04	TM.SC...5L
		1.0-2.0	24-11	5LIDN60TM...	0.06	CTM.SC...5L

## U Style



2UIDM60 TM...  
2UIDD60 TM...

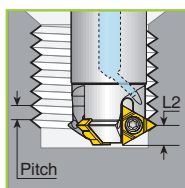
Insert Size		Pitch		Ordering Code	Dimensions (mm)		
IC	L mm	mm	tpi	Internal	r *	Toolholder	
1/4"U	11	0.5-1.5	48-16	2UIDA60TM...	0.05	TM.SC...2U	
		1.5-2.0	16-12	2UIDB60TM...	0.06	CTM.SC...2U	
		2.0-2.5	9-12	2UIDD60TM...			CTM2SC 14C17-65-2U
		2.5	10	2UIDM60TM...	0.11		
		2.5-4.0	10-6	2UIDC60TM...	0.14	TM.SC...2U CTM.SC...2U	
3/8"U	16	1.5-2.0	16-12	3UIDB60TM...	0.06		
		2.5-3.5	10-7	3UIDE60TM...	0.14	TM.SC...3U	
		4.0-6.0	6-4	3UIDH60TM...	0.25		
1/2"U	22	6.0-8.0	4-3	4UIDK60TM...	0.30	TM.SC D..4U	

## A Style

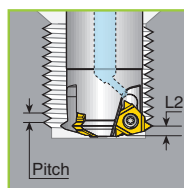


Insert Size		Pitch		Ordering Code	Dimensions (mm)	
IC	L mm	mm	tpi	Internal	r *	Toolholder
1/4"A	11	1.5-3.0	16-8	2AIDP60TM...	0.06	TM.SC...2A
3/8"A	16	2.0-4.0	12-6	3AIDT60TM...	0.08	TM.SC...3A

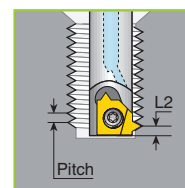
\* The indicated radius (r) refers to the insert nose radius only.



U Style  
For Large Pitches

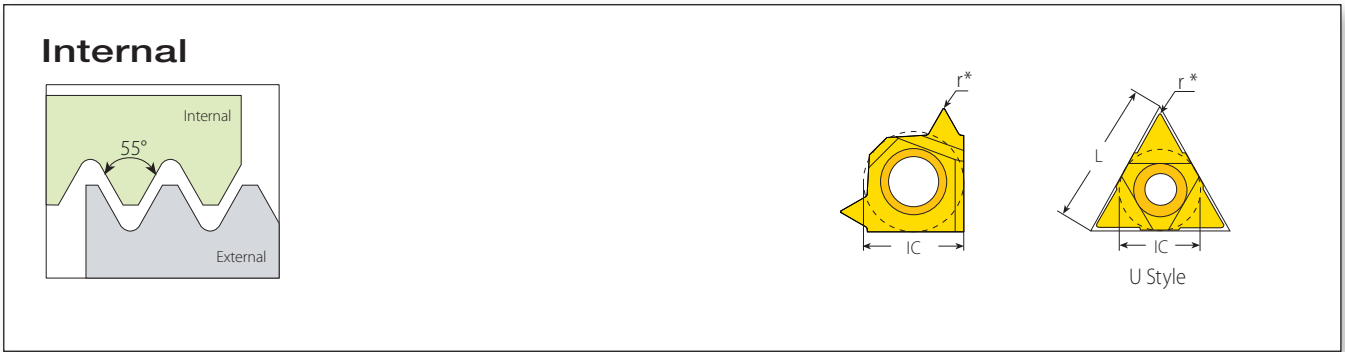


A Style  
For Shorter L2



Mini-L Style  
For Small Bores and Short L2


# Partial Profile 55°



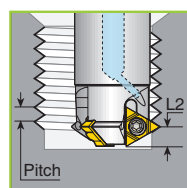
## L Style

	Insert Size	Pitch	Ordering Code	Dimensions (mm)	Toolholder
	IC	tpi	Internal	r*	
	5.0L (Mini L)	26-14	5LIDR55TM...	0.10	TM.SC...5L CTM. SC...5L

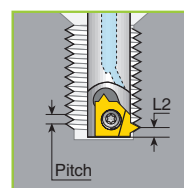
## U Style

	Insert Size		Pitch	Ordering Code	Dimensions (mm)	Toolholder
	IC	L mm	tpi	Internal	r*	
1/4"U		11	48-16	2UIDA55TM...	0.11	TM.SC...2U CTM. SC...2U
			16-12	2UIDB55TM...	0.08	
			11-7	2UIDL55TM...	0.24	
3/8"U		16	16-12	3UIDB55TM...	0.08	TM.SC...3U
			11-7	3UIDL55TM...	0.24	
			6-4	3UIDH55TM...	0.27	
1/2"U		22	4-3	4UIDK55TM...	0.50	TM.SC D..4U

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



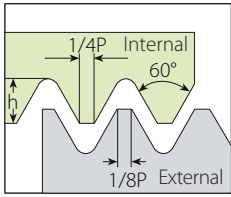
U Style  
For Large Pitches



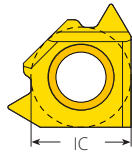
Mini-L Style  
For Small Bores and Short L2



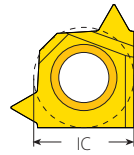
**Internal**



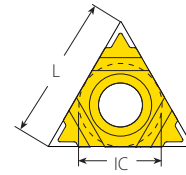
Defined by: R262 (DIN 13)  
Tolerance class: 6g/6H



Mini L Style  
5LI2.0ISOTM...



Mini L Style



U Style

**L Style**



5LI2.0ISO TM...

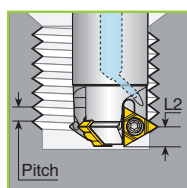
Insert Size	Pitch	Ordering Code	Toolholder	Toolholder Cutting Diameter D2 (mm)
IC	mm	Internal		D2 Adjustment
5.0L (Mini L)	1.0	5LI1.0ISOTM...	TM.SC...5L CTM.SC...5L	-
	1.5	5LI1.5ISOTM...		-
	2.0	5LI2.0ISOTM...		-

**U Style**

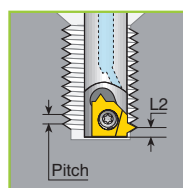


Insert Size	Pitch	Ordering Code	Toolholder	Toolholder Cutting Diameter D2 (mm)
IC	L mm	mm	Internal	* D2 Adjustment
1/4"U	11	1.5	2UI1.5ISOTM...	For 1.5ISO change D2 to D2-1.0
		2.0	2UI2.0ISOTM...	For 2.0ISO change D2 to D2-1.15

\* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.



U Style  
For Large Pitches

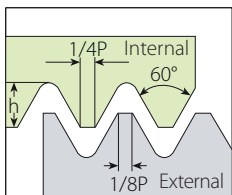


Mini-L Style  
For Small Bores and Short L2

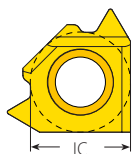
# American UN - UNC; UNF; UNEF; UNS



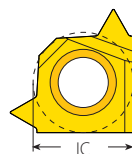
## Internal



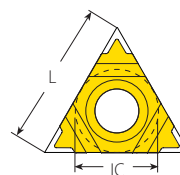
Defined by: ANSI B1.1:74  
Tolerance class: 2A/2B



Mini L Style  
5LI14UNTM...  
5LI12UNTM...



Mini L Style



U Style

## L Style



5LI14UNTM...  
5LI12UNTM...

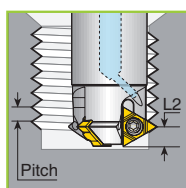
Insert Size	Pitch	Ordering Code	Toolholder	Toolholder Cutting Diameter D2 (mm)
IC	tpi	Internal		D2 Adjustment
5.0L (Mini L)	18	5LI18UNTM...	TM.SC...5L CTM.SC...5L	-
	16	5LI16UNTM...		
	14	5LI14UNTM...		
	12	5LI12UNTM...		

## U Style

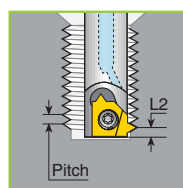


Insert Size	Pitch	Ordering Code	Toolholder	Toolholder Cutting Diameter D2 (mm)
IC	L mm	tpi	Internal	* D2 Adjustment
1/4"U	11	14	2UI14UNTM...	For 14UN change D2 to D2-1.06
		12	2UI12UNTM...	For 12UN change D2 to D2-1.15

\* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.



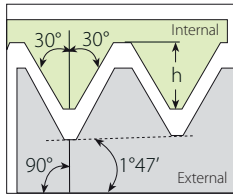
U Style  
For Large Pitches



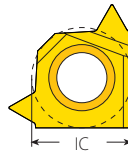
Mini-L Style  
For Small Bores and Short L2



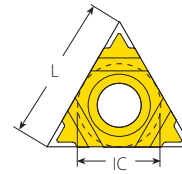
External / Internal



Defined by: USAS B2.1:1968  
Tolerance class: Standard NPT



Mini L Style



U Style

L Style



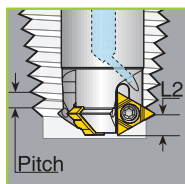
Insert Size	Pitch	Ordering Code	Toolholder	Toolholder Cutting Diameter D2 (mm)
IC	tpi	External/Internal		D2 Adjustment
5.0L (Mini L)	18	5LEI18NPTTM...	TM.SC...5L CTM.SC...5L	-

U Style

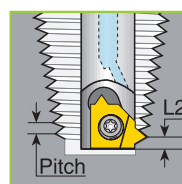


Insert Size	Pitch	Ordering Code	Toolholder	Toolholder Cutting Diameter D2 (mm)	
IC	L mm	tpi	Internal/External	* Adjusted D2	
1/4"U	11	14	2UEI14NPTTM...	TM1SC16W15-40-2U; CTM1SC08C15-40-2U; CTM1SC11C15-60-2U	14.59
				TM2SC25W21-60-2U; CTM2SC14C21-65-2U; CTM2SC16C21-80-2U	20.49
	11	11.5	2UEI11.5NPTTM...	TM2SC25W23-70-2U; TM2SC18C23-86-2U	22.63
				TM3SC25W26-80-2U; TM3SC20C26-105-2U; CTM3SC20C26-110-2U	25.63
3/8"U	16	11.5	3UEI11.5NPTTM...	TM4SC32W31-95-2U; TM4SC25C31-115-2U; CTM4SC25C31-135-2U	30.63
				TM3SC32W36-95-3U; TM3SC32W36-145-3U; TM3SC25C36-125-3U; TM3SC28C36-144-3U	35.65
	16	8	3UEI8NPTTM...	TM4SC40W42-120-3U; TM4SCD42-16-3U	41.15
				TM5SCD48-22-3U	47.15
1/2"U	22	8	4UEI8NPTTM...	TM6SC-D56-22-3U	55.15
				TM6SC-D88-27-4U	88.06
				TM7SC-D98-32-4U	98.06

\* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.



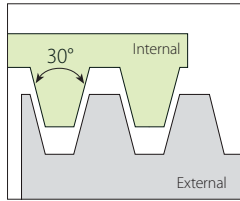
U Style  
For Large Pitches



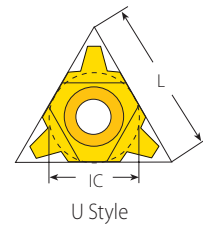
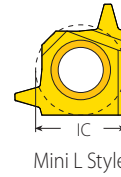
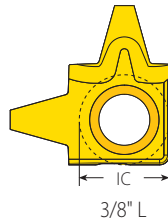
Mini-L Style  
For Small Bores and Short L2

# Trapez



## Internal




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



## L Style

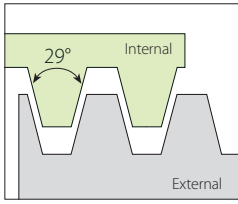
	Insert Size		Pitch	Ordering Code	Application	Toolholder	
	IC	mm	mm	Internal	Internal		
	5.0L (Mini L)		2.0	5LI2.0TR-1TM...	TR16x2, TR20x2	TM.SC...5L CTM.SC...5L	
			2.0	5LI2.0TR-2TM...	TR18x2		
	3/8"L		6.0	3LI6.0TR-1TM...	(TR30-36)x6	TM1SC 25W21-50-3L; CTM1SC 1/2"C21-75-3L	
			6.0	3LI6.0TR-2TM...	(TR115-130)x6		TM7SC D80-32-3L
			7.0	3LI7.0TRTM...	(TR38-44)x7	TM2SC 25W28-75-3L; CTM2SC 18C28-100-3L	
			8.0	3LI8.0TR-1TM...	(TR46-52)x8		TM3SC 32W33-90-3L; CTM3SC 20C33-120-3L
			8.0	3LI8.0TR-2TM...	(TR175-240)x8		

## U Style

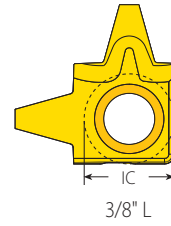
	Insert Size		Pitch	Ordering Code	Application	Toolholder
	IC	L mm	mm	Internal	Internal	
	1/4"U	11	3.0	2UI3.0TR-1TM...	(TR22-TR30)x3	See pages 18-21
				2UI3.0TR-2TM...	(TR32-TR60)x3	
			4.0	2UI4.0TR-1TM...	(TR20-TR28)x4	
				2UI4.0TR-2TM...	(TR65-TR110)x4	
			5.0	2UI5.0TR-1TM...	TR22x5; TR28x5	
				2UI5.0TR-2TM...	TR24x5; TR26x5	

# American ACME

## Internal



Defined by: ANSI B1.5: 1988  
Tolerance class: 3G



## L Style

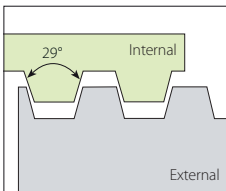


3/8" L

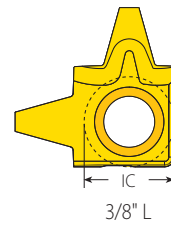
Insert Size	Pitch	Ordering Code	Application		
IC	tpi	Internal	Internal	Toolholder	
3/8" L	5	3LI5ACMETM...	1¼-5ACME		
		3LI4ACME-1TM...	1⅝-4ACME	TM1SC 25W21-50-3L; CTM1SC ½"C21-75-3L	
		3LI4ACME-2TM...	1½-4ACME		
	4	3LI4ACME-3TM...	1¾-4ACME		TM2SC 25W28-75-3L; CTM2SC 18C28-100-3L
		3LI4ACME-4TM...	2-4ACME		
		3LI3ACME-1TM...	2¼-3ACME		TM3SC 32W33-90-3L; CTM3SC 20C33-120-3L
	3	3LI3ACME-2TM...	2½-3ACME		
		3LI3ACME-3TM...	2¾-3ACME		

# Stub ACME

## Internal



Defined by: ANSI B1.8: 1988  
Tolerance class: 2G



## L Style



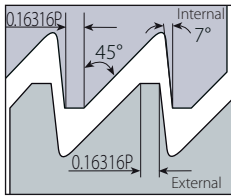
3/8" L

Insert Size	Pitch	Ordering Code	Application		
IC	tpi	Internal	Internal	Toolholder	
3/8" L	5	3LI5STACMETM...	1¼-5STACME		
		3LI4STACME-1TM...	1⅝-4STACME	TM1SC 25W21-50-3L; CTM1SC ½"C21-75-3L	
		3LI4STACME-2TM...	1½-4STACME		
	4	3LI4STACME-3TM...	2-4STACME		
		3LI3STACME-1TM...	2¼-3STACME		TM3SC 32W33-90-3L; CTM3SC 20C33-120-3L
		3LI3STACME-2TM...	2½-3STACME		
	3	3LI3STACME-3TM...	2¾-3STACME		

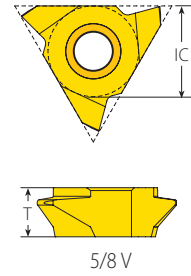
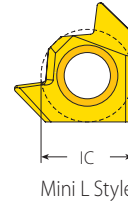
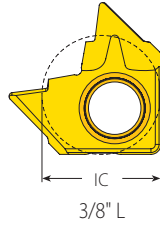


# American Buttress

## Internal




Defined by: ANSI B1.9.1973  
Tolerance class: Class 2



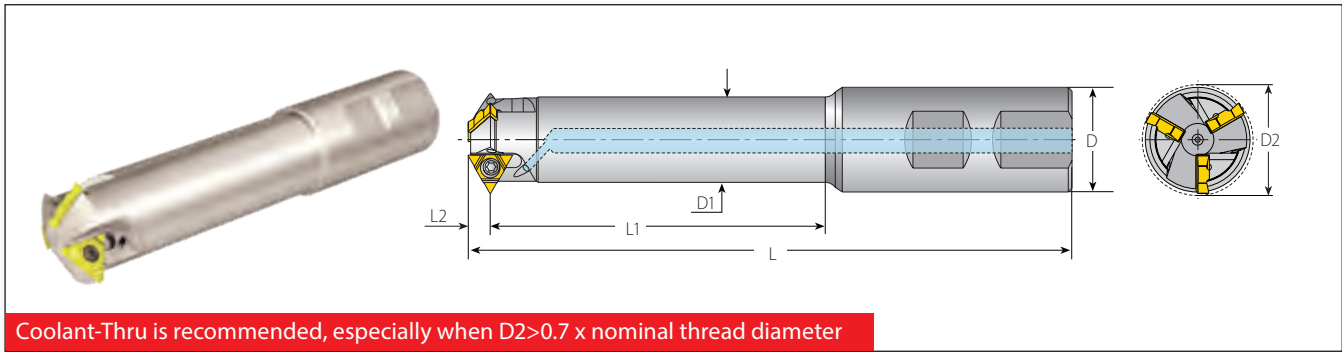
## L Style

	Insert Size		Ordering Code		Application		
	IC	tpi	Internal	Internal	Internal	Toolholder	
 5.0L (Mini L)		16	5LI16ABUT-TM ...	0.875"-4.0" ABUT	TM2SC 16W14-35-5L-ABUT CTM2SC 10C14-50-5L-ABUT		
				1.25"-4.0" ABUT	TM3SC 20W18-45-5L-ABUT CTM3SC 14C18-65-5L-ABUT		
			12	5LI12ABUT-TM ...	0.875"-6.0" ABUT	TM2SC 16W14-35-5L-ABUT CTM2SC 10C14-50-5L-ABUT	
					1.25"-6.0" ABUT	TM3SC 20W18-45-5L-ABUT CTM3SC 14C18-65-5L-ABUT	
			10	5LI10ABUT-TM ...	0.875"-16.0" ABUT	TM2SC 16W14-35-5L-ABUT CTM2SC 10C14-50-5L-ABUT	
					1.25"-16.0" ABUT	TM3SC 20W18-45-5L-ABUT CTM3SC 14C18-65-5L-ABUT	
			 3/8" L	16	3LI16ABUT-TM ...	1.75"-4.0" ABUT	TM2SC 25W26-80-3L-ABUT CTM2SC 20C26-105-3L-ABUT
						2.5"-4.0" ABUT	TM3SC 32W35-105-3L-ABUT
12	3LI12ABUT-TM ...	1.75"-6.0" ABUT		TM2SC 25W26-80-3L-ABUT CTM2SC 20C26-105-3L-ABUT			
		2.5"-6.0" ABUT		TM3SC 32W35-105-3L-ABUT			
		3.0"-6.0" ABUT		TM5SC D48-22-3L-ABUT			
		4.0"-6.0" ABUT		TM6SC D58-27-3L-ABUT			
10	3LI10ABUT-TM ...	1.75"-6.0" ABUT		TM2SC 25W26-80-3L-ABUT CTM2SC 20C26-105-3L-ABUT			
		2.5"-6.0" ABUT		TM3SC 32W35-105-3L-ABUT			
		3.0"-6.0" ABUT		TM5SC D48-22-3L-ABUT			
		4.0"-6.0" ABUT		TM6SC D58-27-3L-ABUT			
8	3LI8ABUT-TM ...	1.75"-6.0" ABUT		TM2SC 25W26-80-3L-ABUT CTM2SC 20C26-105-3L-ABUT			
		2.5"-6.0" ABUT		TM3SC 32W35-105-3L-ABUT			
		3.0"-6.0" ABUT	TM5SC D48-22-3L-ABUT				
		4.0"-6.0" ABUT	TM6SC D58-27-3L-ABUT				
6	3LI6ABUT-TM ...	1.75"-6.0" ABUT	TM2SC 25W26-80-3L-ABUT CTM2SC 20C26-105-3L-ABUT				
		2.5"-6.0" ABUT	TM3SC 32W35-105-3L-ABUT				
		3.0"-6.0" ABUT	TM5SC D48-22-3L-ABUT				
		4.0"-6.0" ABUT	TM6SC D58-27-3L-ABUT				

## V Style

	Insert Size		Ordering Code		Application	
	IC	tpi	Internal	T	Internal	Toolholder
 5/8" V		4	5VI4ABUT-TM ...	6	5.5"-24.0" ABUT	TM6SC D88-32-5V6-ABUT
		3	5VI3ABUT-TM ...	8	6.0"-24.0" ABUT	TM6SC D88-32-5V8-ABUT
		2.5	5VI2.5ABUT-TM ...	10	7.0"-24.0" ABUT	

## Standard Toolholders - 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	TM1SC16W15-40-2U	95	40		16	11	14.75*	1	SN2T	HK2T
	TM2SC25W21-60-2U	123	60		25	16	20.65*	2		
	TM2SC25W23-70-2U	135	70	5.4	25	17.7	23	2		
	TM3SC25W26-80-2U	147	80		25	20.4	26	3		
3/8"U	TM4SC32W31-95-2U	164	95		32	25.7	31	4	SA3T	HK3T
	TM3SC32W36-95-3U	166	95		32	29	36.5	3		
	TM3SC32W36-145-3U	225	145	8.0	32	28	36.5	3		
	TM4SC40W42-120-3U	201	120		40	34.2	42	4	SN3T	

## Weldon Shank (U Style) Applications

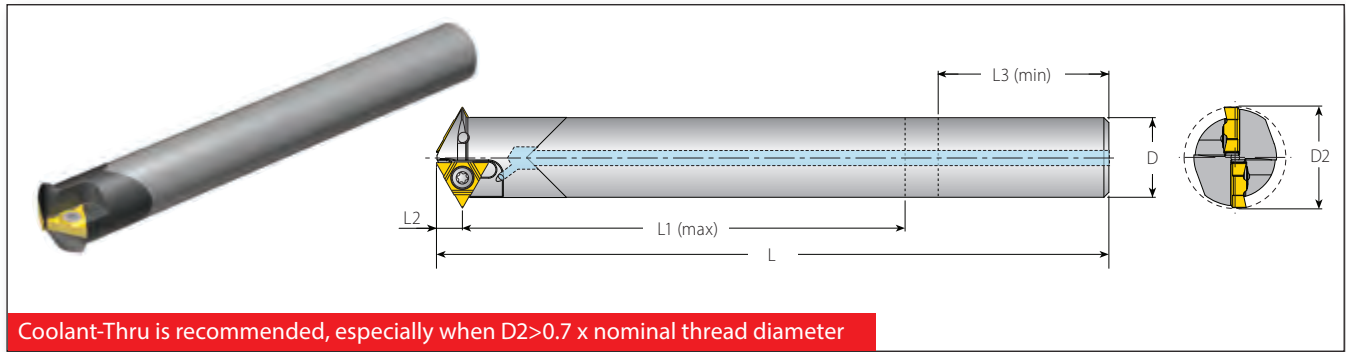
### Thread Applications for Partial Profile Inserts

Toolholder		Min. Thread Dia.								
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez		
TM1SC16W15-40-2U	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, 11/16-24UN, 11/16-20UN, 11/16-16UN, 3/4-14UNS, 3/4-12UN	3/8-19, 1/2-14, 1-11	11/16-14; 3/4-12; 7/8-11; 3/4-10; 7/8-9; 1-8; 1 1/8-7	TR22x3, TR24x3		
TM2SC25W21-60-2U	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-TR60x3		
TM2SC25W23-70-2U	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 1/16-12, 1 1/8-9, 1 1/8-7	-		
TM3SC25W26-80-2U	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 1/16-8, 1 1/4-7	-		
TM4SC32W31-95-2U	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 1/16-28UN, 1 3/8-24UNS, 1 1/16-20UN, 1 1/16-18UNEF, 1 1/16-16UN, 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 1/16-8	-		
TM3SC32W36-95-3U TM3SC32W36-145-3U	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 1/16-16UN, 1 1/8-14UNS, 1 1/16-12UN, 1 1/8-10UNS, 1 1/8-8UN, 1 1/8-6UN	1 1/4-11	1 3/8-16, 1 3/8-12, 1 3/8-8, 1 1/4-6, 1 3/4-5	-		
TM4SC40W42-120-3U	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 13/16-12UN, 1 13/16-8UN, 1 13/16-6UN	1 1/2-11	1 3/8-16, 1 3/8-12, 1 3/8-8, 2 1/4-6, 2-4.5	-		

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



# Standard Toolholders - Carbide Cylindrical Shank (U Style)

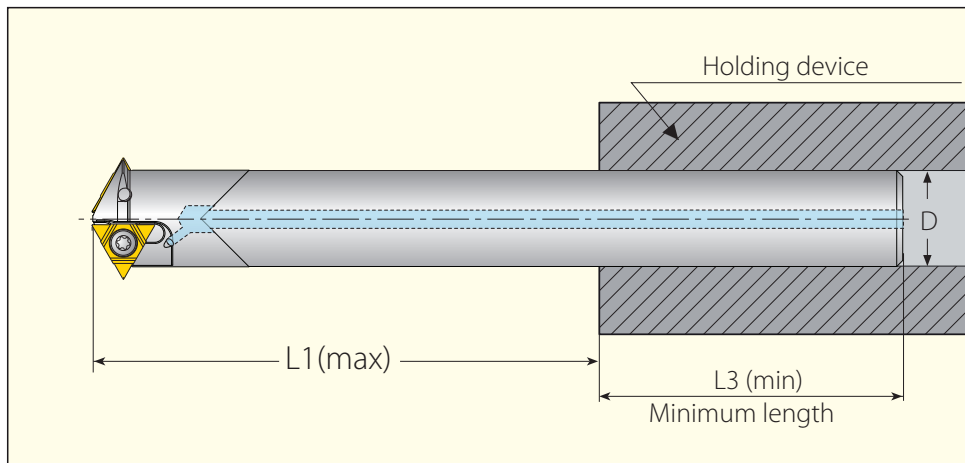


## Carbide Cylindrical Shank for U Style Inserts

Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1 (max)	L2	L3 (min)	D	D2	Z		Insert Screw	Torx Key
1/4"U	CTM1SC08C15-40-2U	109	40	5.4	18	8	14.75*	1	SN2T	HK2T	
	CTM1SC11C15-60-2U	120	60		25	10.7	14.75*	1			
	CTM2SC14C17-65-2U**	132	65	5.4	30	14	17.9**	2			
	CTM2SC14C21-65-2U	136	65		30	14	20.65*	2			
	CTM2SC16C21-80-2U	135	80	5.4	34	16	20.65*	2			
	CTM3SC20C26-110-2U	165	110		40	20	26.0*	3			
	CTM4SC25C31-135-2U	186	135		46	25	31.0*	4			

\* For TR inserts use the CNC program (D2+0.25mm).  
 \*\* To be used only with inserts 2UIDD60TM... or 2UIDM60TM...  
 For insert 2UIDD60 TM... use the CNC program (D2+0.7mm).

The overhang-to-bar diameter ratio should be as small as possible to eliminate the chance of chatter (vibration). The minimum length inside a holding device should be 2 times the diameter of the bar shank.



# Carbide Cylindrical Shank (U Style) Applications

## Thread Applications for Partial Profile Inserts

Toolholder		Min. Thread Dia.						
D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez	
CTM1SC08C15-40-2U	14.75*	M18x2.5, M24x3.0, M30x3.5, M36x4.0	M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0	¾-10, ⅞-9, 1-8, 1⅞-7, 1⅜-6	⅝-32UN, ⅞-28UN, ⅝-27UNS, 1⅞-24UNEF, 1⅞-20UN, 1⅞-16UN, ¾-14UNS, 1⅞-12UN	½-14, 1-11	1⅞-26, 1⅞-20, 1⅞-16, 1⅞-14, ¾-12, ⅞-11, ¾-10, ⅞-9, 1-8, 1⅞-7	TR22x3, TR24x3, TR20x4, TR22x5, TR24x5, TR26x5, TR28x5
CTM1SC11C15-60-2U	14.75*	M18x2.5, M24x3.0	M16x0.5, M16x0.75, M16x1.0, M17x1.25, M17x1.5, M17x2.0	¾-10, ⅞-9, 1-8	⅝-32UN, ⅞-28UN, ⅝-27UNS, 1⅞-24UNEF, 1⅞-20UN, 1⅞-16UN, ¾-14UNS, 1⅞-12UN	½-14, 1-11	1⅞-26, 1⅞-20, 1⅞-16, 1⅞-14, ¾-12, ⅞-11, ¾-10, ⅞-9	TR22x3, TR24x3
CTM2SC14C17-65-2U	17.2**	M20x2.5, M22x2.5	M21x2.0	⅞-9	⅞-10UNS, 1⅞-12UN	-	-	-
CTM2SC14C21-65-2U	20.65*	M24x3.0, M30x3.5, M36x4.0	M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0	1-8, 1⅞-7, 1⅜-6	⅞-32UN, ⅞-28UN, ⅞-27UNS, ⅞-24UNS, ⅞-20UNEF, 1-18UNS, 1⅞-16UN, 1-14UNS, 1⅞-12UN, 1-10UNS	¾-14, 1-11	1-26, 1-20, 1-16, 1-12, 1-10, 1⅞-9, 1-8, 1⅞-7	(TR26-TR60)x3, TR28x4, (TR65-TR110)x4, TR28x5
CTM2SC16C21-80-2U	20.65*	M24x3.0, M30x3.5	M22x0.5, M22x0.75, M22x1.0, M23x1.25, M23x1.5, M23x2.0	1-8, 1⅞-7, 1⅜-6	⅞-32UN, ⅞-28UN, ⅞-27UNS, ⅞-24UNS, ⅞-20UNEF, 1-18UNS, 1⅞-16UN, 1-14UNS, 1⅞-12UN, 1-10UNS	¾-14, 1-11	1-26, 1-20, 1-16, 1-12, 1-10, 1⅞-9, 1-8, 1⅞-7	(TR26-TR60)x3
CTM3SC20C26-110-2U	26	M30x3.5, M36x4.0	M27x0.5, M27x0.75, M28x1.0, M28x1.25, M28x1.5, M29x2.0, M30x2.5, M30x3.0	1¼-7, 1⅜-6	1⅞-28UN, 1⅞-24UNS, 1⅞-20UN, 1⅞-18UNEF, 1⅞-16UN, 1⅞-14UNS, 1⅞-12UNF, 1⅞-10UNS, 1⅞-8UN	⅞-14, 1-11	1⅞-26, 1⅞-20, 1⅞-16, 1⅞-12, 1⅞-8, 1¼-7	(TR40-TR60)x3 (TR65-TR110)x4
CTM4SC25C31-135-2U	31	M36x4.0	M32x0.5, M32x0.75, M33x1.0, M33x1.25, M33x1.5, M34x2.0, M34x2.5, M35x3.0, M36x3.5	1½-6	1⅞-28UN, 1½-24UNS, 1½-20UN, 1½-18UNEF, 1⅞-16UN, 1⅞-14UNS, 1⅞-12UNF, 1⅞-10UNS, 1⅞-8UN	1⅞-11	1⅞-26, 1⅞-20, 1⅞-16, 1⅞-12, 1⅞-8	(TR50-TR60)x3 (TR65-TR110)x4

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

\*\* To be used only with inserts 2UIDD60TM... or 2UIDM60TM...  
For insert 2UIDD60 TM... use the CNC program (D2+0.7mm).

## Thread Applications for Full Profile Inserts (ISO & UN)

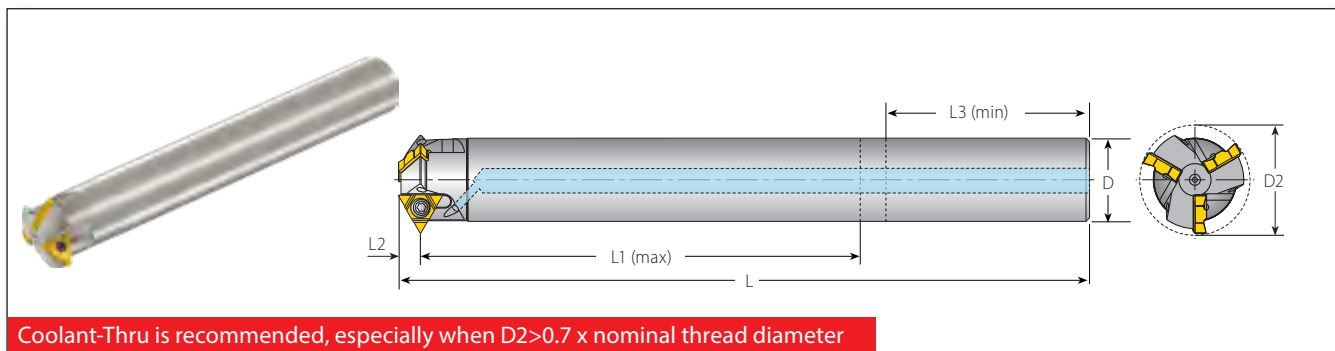
Toolholder	Pitch		Toolholder cutting diameter D2 (mm)	Min. Thread Dia.	
	mm	tpi		ISO Fine	UN/UNF/UNEF/UNS
CTM3SC 20C26-110-2U	1.5	-	25.0	M28x1.5	-
	2.0	-	24.85	M29x2.0	-
	-	14	24.94	-	1 1/8-14UNS
	-	12	24.85	-	1 1/8-12UNF
CTM4SC 25C31-135-2U	1.5	-	30.0	M33x1.5	-
	2.0	-	29.85	M34x2.0	-
	-	14	29.94	-	1 3/8-14UNS
	-	12	29.85	-	1 3/8-12UNF

## Thread Applications for Full Profile Inserts (NPT)



Toolholder	Toolholder cutting diameter D2 (mm)	Pitch	Cylindrical or Conical pre-drilled hole	
			NPT Threading by 1 Radial Pass	NPT Threading by 2 Radial Passes (50% / 50%)
CTM1SC08C15-40-2U	14.59	14	1/2-14NPT; 3/4-14NPT	
CTM1SC11C15-60-2U			-	
CTM2SC14C21-65-2U	20.49	14	3/4-14NPT	
CTM2SC16C21-80-2U			-	
CTM3SC20C26-110-2U	25.63	11.5	1-11.5NPT; 1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	
CTM4SC25C31-135-2U	30.63	11.5	1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	

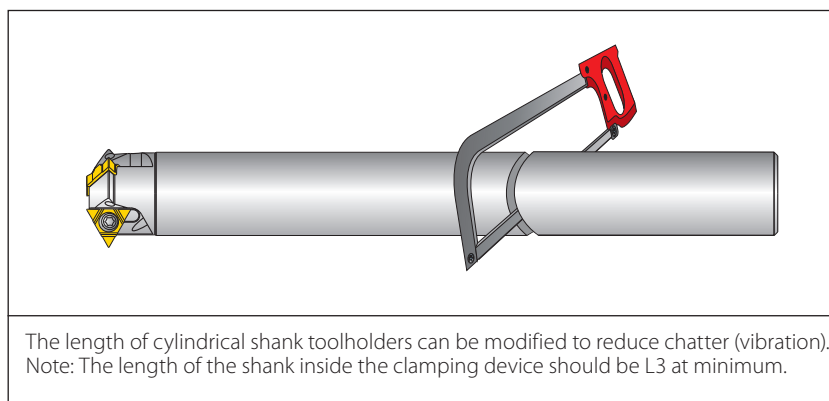
\* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

## Standard Toolholders - Steel Cylindrical Shank (U Style)



### Steel Cylindrical Shank for U Style Inserts

Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1 (max)	L2	L3 (min)	D	D2	Z		 Insert Screw	 Torx Key
1/4"U	TM2SC18C23-86-2U	166	86	5.4	40	18	23.3	2	SN2T	HK2T	
	TM3SC20C26-105-2U	186	105		40	20	26	3			
	TM4SC25C31-115-2U	196	115		46	25	31	4			
3/8"U	TM3SC25C36-125-3U	193	125	8.0	46	25	36.5	3	SA3T	HK3T	
	TM3SC28C36-144-3U	222	144		60	28	36.5	3			



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

# Steel Cylindrical Shank (U Style) Applications

## Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°
TM2SC18C23-86-2U	23.3	M27x3.0, M30x3.5, M36x4.0	M24x0.5, M25x0.75, M25x1.0, M25x1.25, M26x1.5, M26x2.0, M27x2.5	1/8-7	1-32UN, 1-28UN, 1-27UN, 1-24UNS, 1-20UNEF, 1-18UNS, 1-16UN, 1-14UNS, 1 1/16-12UN, 1 1/8-10UNS, 1 1/8-8UN	3/4-14, 1-11	1-26, 1-20, 1 1/8-16, 1 1/8-12, 1 1/8-9, 1 1/8-7
TM3SC20C26-105-2U	26	M30x3.5, M36x4.0	M27x0.5, M27x0.75, M28x1.0, M28x1.25, M28x1.5, M29x2.0, M30x2.5, M30x3.0	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 1/8-10UNS, 1 1/8-8UN	7/8-14, 1-11	1 1/8-26, 1 1/8-20, 1 3/16-16, 1 3/16-12, 1 3/16-8, 1 1/4-7
TM4SC25C31-115-2U	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 1/16-28UN, 1 1/2-24UNS, 1 1/2-20UN, 1 1/2-18UNEF, 1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UNF, 1 1/8-10UNS, 1 1/8-8UN	1 1/8-11	1 1/16-26, 1 1/16-20, 1 3/8-16, 1 3/8-12, 1 1/16-8
TM3SC25C36-125-3U TM3SC28C36-144-3U	36.5	M42.5x4.5, M48x5.0, M56x5.5, M64x6.0	M39x1.5, M40x2.5, M41x3.0, M42x3.5, M42x4.0	1 3/4-5, 2-4.5, 2 1/2-4	1 1/16-16UN, 1 1/8-14UNS, 1 1/16-12UN, 1 1/8-10UNS, 1 1/8-8UN, 1 1/8-6UN	1 1/4-11	1 1/8-16, 1 1/8-12, 1 1/8-8, 1 1/8-6, 1 1/4-5

## Thread Applications for Full Profile Inserts (ISO & UN)

Toolholder	Pitch		Toolholder cutting diameter D2 (mm)	Min. Thread Dia.	
	mm	tpi		ISO Fine	UN/UNF/UNEF/UNS
TM2SC18C23-86-2U	1.5	-	22.00	M26x1.5	-
	2.0	-	21.85	M26x2.0	-
	-	14	21.94	-	1-14UNS
	-	12	21.85	-	1-12UNF
TM3SC20C26-105-2U	1.5	-	25.00	M28x1.5	-
	2.0	-	24.85	M29x2.0	-
	-	14	24.94	-	1 1/8-14UNS
	-	12	24.85	-	1 1/8-12UNF
TM4SC25C31-115-2U	1.5	-	30.00	M33x1.5	-
	2.0	-	29.85	M34x2.0	-
	-	14	29.94	-	1 3/8-14UNS
	-	12	29.85	-	1 3/8-12UNF

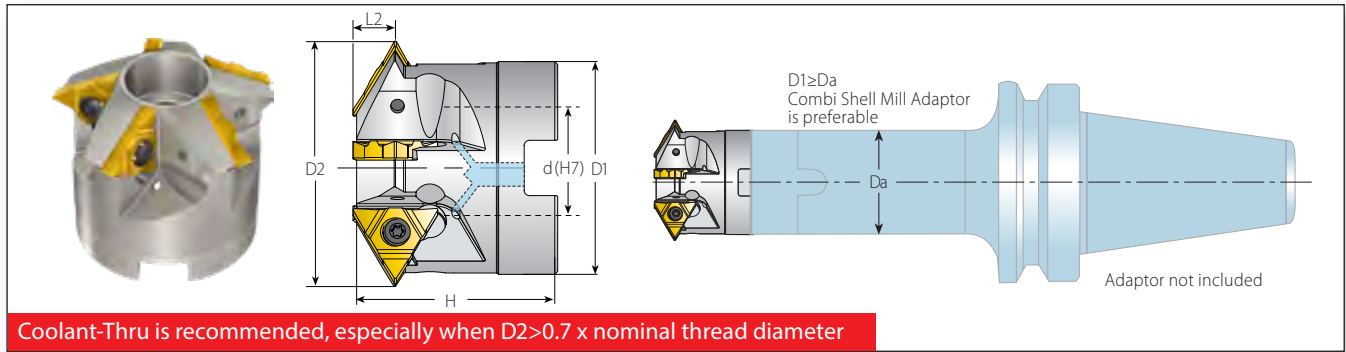
## Thread Applications for Full Profile Inserts (NPT)

Toolholder	Toolholder cutting diameter D2 (mm)	Pitch	Cylindrical or Conical pre-drilled hole	
			*D2 Adjustment	tpi
			NPT Threading by 1 Radial Pass	
			**NPT Threading by 2 Radial Passes (50% / 50%)	
TM2SC18C23-86-2U	22.63	11.5	1-11.5NPT; 1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM3SC20C26-105-2U	25.63	11.5	1-11.5NPT; 1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM4SC25C31-115-2U	30.63	11.5	1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM3SC25C36-125-3U	35.65	11.5	1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM3SC28C36-144-3U				
TM3SC25C36-125-3U	35.65	8	-	2 1/2...10-8NPT
TM3SC28C36-144-3U				

\* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

\*\* Note: When the pre-drilled hole for 8 NPT is conical, the thread can be machined in one pass.

## Shell Mill (U Style)



### Shell Mill for U Style Inserts

Insert Size	Ordering Code	Dimensions (mm)						No. of Flutes	Spare Parts			
		D1	D2	d(H7)	H	L2	Z		Insert Screw	Torx Key	Holder Screw	Holder Screwdriver
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			M12x1.75x40	-	
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			M16x2.0x40	-	

## Shell Mill (U Style) Applications

### Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.						
	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	1¼-16UN, 1¼-14UNS, 1½-12UN, 1½-8UN, 1½-6UN	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, 2½-8UN, 2½-6UN	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, M125x8	4 - 4	4¼-4UN	-	4-3, 4¼-4
TM7SC-D98-32-4U	98	-	M105x6.0, M125x8	-	4¼-4UN	-	4¼-4

### Thread Applications for Full Profile Inserts (NPT)

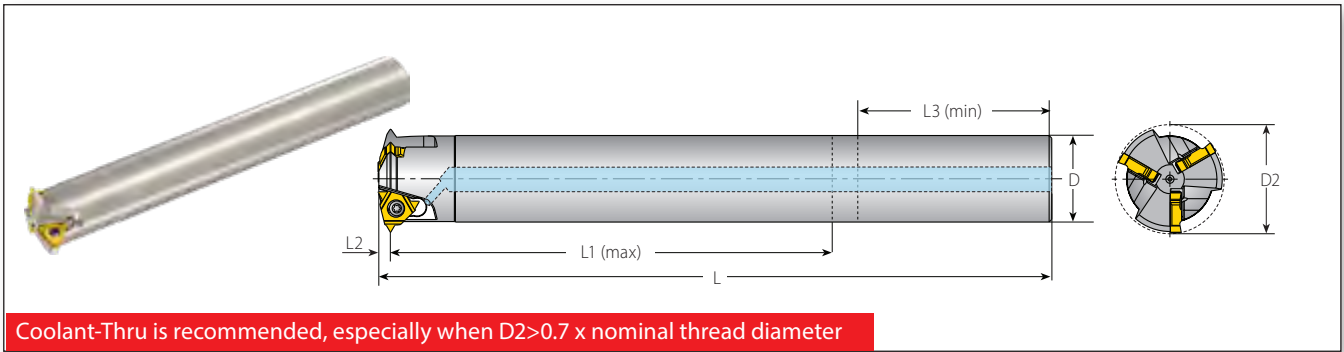
Toolholder	Toolholder cutting diameter D2 (mm)	Pitch	Cylindrical or Conical pre-drilled hole	
			*D2 Adjustment	tpi
			NPT Threading by 1 Radial Pass	
			**NPT Threading by 2 Radial Passes (50% / 50%)	
TM4SC D42-16-3U	41.15	11.5	1 1/2-11.5NPT; 2-11.5NPT	
TM4SC D42-16-3U	41.15	8	2 1/2...10-8NPT	
TM5SC D48-22-3U	47.15	11.5	2-11.5NPT	
TM5SC D48-22-3U	47.15	8	2 1/2...10-8NPT	
TM6SC D56-22-3U	55.15	8	2 1/2...10-8NPT	
TM6SC D88-27-4U	88.06	8	3 1/2 ...160D-8NPT	
TM7SC D98-32-4U	98.06	8	4 ...160D-8NPT	

\* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.



\*\* Note: When the pre-drilled hole for 8 NPT is conical, the thread can be machined in one pass.



## Standard Toolholders - Steel Cylindrical Shank (A Style)



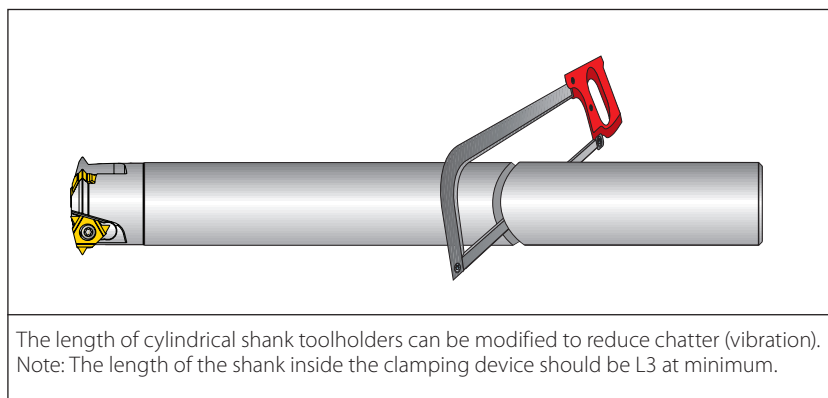
### Steel Cylindrical Shank for A-Style Inserts

Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1 (max)	L2	L3 (min)	D	D2	Z			
1/4"A	TM3SC20C26-105-2A	184	105	3.0	40	20	26	3	Insert Screw	Torx Key	
3/8"A	TM3SC28C35-144-3A	218	144	4.0	46	28	35.3	3	SA3T	HK3T	

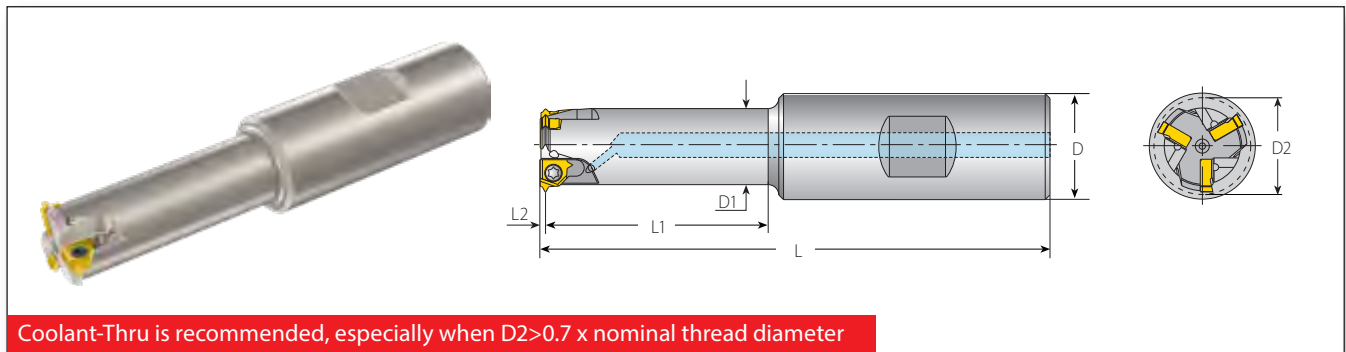
## Steel Cylindrical Shank (A Style) Applications

### Thread Applications for Partial Profile Inserts



Toolholder	D2	Min. Thread Dia.				
		ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)
TM3SC20C26-105-2A	26	-	M28x1.5, M29x2.0, M30x2.5, M30x3.0	-	1½-16UN, 1½-14UNS, 1¾-12UN, 1¼-10UNS, 1¾-8UN	-
TM3SC28C35-144-3A	35.3	-	M38x2.0, M39x2.5, M39x3.0, M40x4.0	-	1¾-12UN, 1¾-10UNS, 1¾-8UN, 1¾-6UN	-



## Standard Toolholders - Weldon Shank (L Style - Mini L)



### 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	Insert Screw	Torx Key
5.0L (Mini L)	TM1SC16W13-29-5L	81	29	1.1	16	9.8	13	1	SN5LTR	K7T
	TM2SC16W14-33-5L	85	33		16	10.3	13.5	2		
	TM3SC20W18-42-5L	96	42	1.87	20	14.3	17.7	3		
	TM2SC16W14-35-5L-ABUT	88	35		16	10.3	14.0	2		
	TM3SC20W18-45-5L-ABUT	100	45		20	14.3	18.2	3		

## Weldon Shank (L Style - Mini L) Applications

### Thread Applications for Partial Profile Inserts

Toolholder		Min. Thread Dia.						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
TM1SC16W13-29-5L	13	M16x2	M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0	<sup>5</sup> / <sub>8</sub> -11	<sup>5</sup> / <sub>16</sub> -32UN; <sup>5</sup> / <sub>16</sub> -28UN; <sup>9</sup> / <sub>16</sub> -27UNS; <sup>5</sup> / <sub>16</sub> -24UNEF; <sup>5</sup> / <sub>8</sub> -20UN; <sup>5</sup> / <sub>8</sub> -18UNF; <sup>5</sup> / <sub>8</sub> -16UN; <sup>5</sup> / <sub>8</sub> -14UNS; <sup>5</sup> / <sub>8</sub> -12UN	<sup>3</sup> / <sub>8</sub> -19	<sup>5</sup> / <sub>8</sub> -14	TR16X2; TR18X2
TM2SC16W14-33-5L	13.5	M16x2	M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0	-	<sup>5</sup> / <sub>16</sub> -32UN; <sup>5</sup> / <sub>16</sub> -28UN; <sup>5</sup> / <sub>8</sub> -27UNS; <sup>5</sup> / <sub>16</sub> -24UNEF; <sup>5</sup> / <sub>8</sub> -20UN; <sup>5</sup> / <sub>8</sub> -18UNF; <sup>5</sup> / <sub>8</sub> -16UN; <sup>5</sup> / <sub>8</sub> -14UNS; <sup>11</sup> / <sub>16</sub> -12UN	<sup>3</sup> / <sub>8</sub> -19	<sup>11</sup> / <sub>16</sub> -14	TR16X2; TR18X2
TM3SC20W18-42-5L	17.7	-	M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0	-	<sup>3</sup> / <sub>4</sub> -32UN; <sup>3</sup> / <sub>4</sub> -28UN; <sup>7</sup> / <sub>8</sub> -27UNS; <sup>3</sup> / <sub>4</sub> -24UNS; <sup>13</sup> / <sub>16</sub> -20UNEF; <sup>7</sup> / <sub>8</sub> -18UNS; <sup>13</sup> / <sub>16</sub> -16UN; <sup>7</sup> / <sub>8</sub> -14UNF; <sup>13</sup> / <sub>16</sub> -12UN	<sup>1</sup> / <sub>2</sub> -14	-	TR20X2

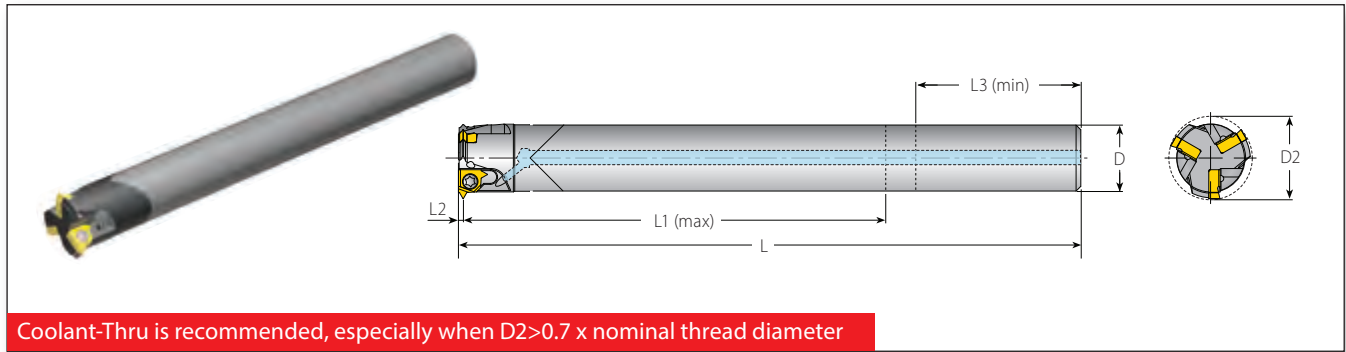
### Thread Applications for Full Profile Inserts

Toolholder		Min. Thread Dia.		
	D2	ISO Fine	UN/UNF/UNEF/UNS	NPT
TM1SC16W13-29-5L	13	M14.5x1.0; M15x1.5; M17x2.0	<sup>5</sup> / <sub>8</sub> -18UNF; <sup>5</sup> / <sub>8</sub> -16UN; <sup>5</sup> / <sub>8</sub> -14UNS; <sup>5</sup> / <sub>8</sub> -12UN	<sup>3</sup> / <sub>8</sub> -18NPT
TM2SC16W14-33-5L	13.5	M15x1.0; M16x1.5; M17x2.0	<sup>5</sup> / <sub>8</sub> -18UNF; <sup>5</sup> / <sub>8</sub> -16UN; <sup>5</sup> / <sub>8</sub> -14UNS; <sup>11</sup> / <sub>16</sub> -12UN	<sup>3</sup> / <sub>8</sub> -18NPT
TM3SC20W18-42-5L	17.7	M19x1.0; M20x1.5; M20x2.0	<sup>7</sup> / <sub>8</sub> -18UNS; <sup>13</sup> / <sub>16</sub> -16UN; <sup>7</sup> / <sub>8</sub> -14UNF; <sup>13</sup> / <sub>16</sub> -12UN	-



### Thread Applications for Full Profile American Buttress Inserts

Toolholder		Thread Dia.	
	D2	American Buttress	
TM2SC16W14-35-5L-ABUT	14.0	(0.875"-4")-16; (0.875"-6")-12; (0.875"-16")-10	
TM3SC20W18-45-5L-ABUT	18.2	(1.25"-4")-16; (1.25"-6")-12; (1.25"-16")-10	

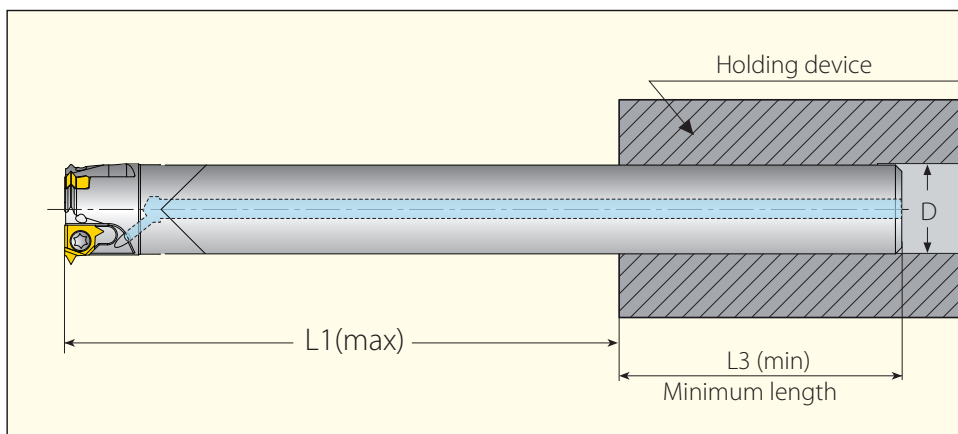
## Standard Toolholders - Carbide Cylindrical Shank (L Style - Mini L)



### Carbide Cylindrical Shank for Mini-L Style Inserts

Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1 (max)	L2	L3 (min)	D	D2	Z			
5.0L (Mini L)	CTM1SC09C13-43-5L	109	43	1.1	20	9.5	13	1	SN5LTR	K7T	
	CTM2SC10C14-50-5L	116	50		22	10	13.5	2			
	CTM3SC14C18-65-5L	132	65	30	14	17.7	3				
	CTM2SC10C14-50-5L-ABUT	116	50	1.87	22	10	14	2			
	CTM3SC14C18-65-5L-ABUT	132	65		30	14	18.2	3			

The overhang-to-bar diameter ratio should be as small as possible to eliminate the chance of chatter (vibration). The minimum length inside a holding device should be 2 times the diameter of the bar shank.



## Carbide Cylindrical Shank (L Style - Mini L) Applications

### Thread Applications for Partial Profile Inserts

Toolholder		Min. Thread Dia.						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
CTM1SC09C13-43-5L	13	M16x2	M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0	5/8-11	5/16-32UN; 5/16-28UN; 9/16-27UNS; 5/16-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN; 5/8-14UNS; 5/8-12UN	3/8-19	5/8-14	TR16X2; TR18X2
CTM2SC10C14-50-5L	13.5	M16x2	M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0	-	5/8-32UN; 5/8-28UN; 5/8-27UNS; 5/8-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN; 5/8-14UNS; 1 1/16-12UN	3/8-19	1 1/16-14	TR16X2; TR18X2
CTM3SC14C18-65-5L	17.7	-	M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0	-	3/4-32UN; 3/4-28UN; 7/8-27UNS; 3/4-24UNS; 1 3/16-20UNEF; 7/8-18UNS; 1 3/16-16UN; 7/8-14UNF; 1 3/16-12UN	1/2-14	-	TR20X2

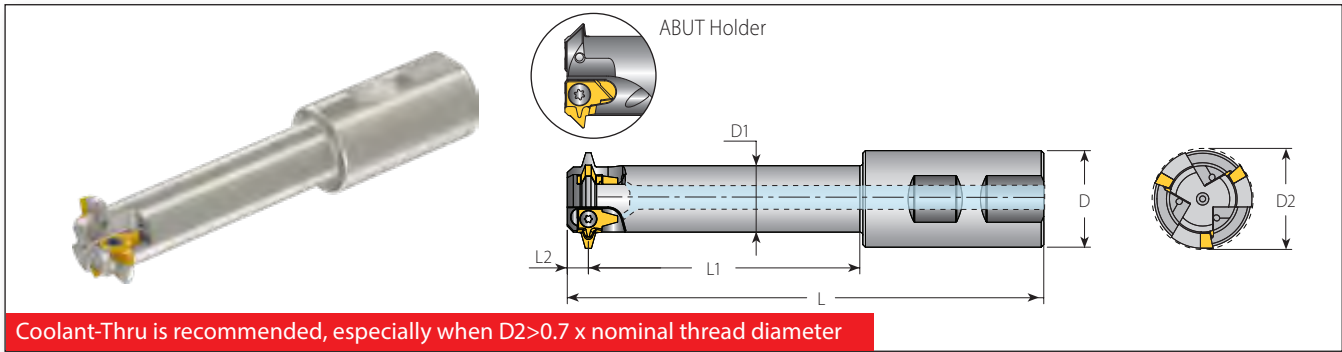
### Thread Applications for Full Profile Inserts

Toolholder		Min. Thread Dia.		
	D2	ISO Fine	UN/UNF/UNEF/UNS	NPT
CTM1SC09C13-43-5L	13	M14.5x1.0; M15x1.5; M17x2.0	5/8-18UNF; 5/8-16UN; 5/8-14UNS; 5/8-12UN	3/8-18NPT
CTM2SC10C14-50-5L	13.5	M15x1.0; M16x1.5; M17x2.0	5/8-18UNF; 5/8-16UN; 5/8-14UNS; 1 1/16-12UN	3/8-18NPT
CTM3SC14C18-65-5L	17.7	M19x1.0; M20x1.5; M20x2.0	7/8-18UNS; 1 3/16-16UN; 7/8-14UNF; 1 3/16-12UN	-

### Thread Applications for Full Profile American Buttress Inserts

Toolholder		Thread Dia.
	D2	American Buttress
CTM2SC10C14-50-5L-ABUT	14.0	(0.875"-4")-16; (0.875"-6")-12; (0.875"-16")-10
CTM3SC14C18-65-5L-ABUT	18.2	(1.25"-4")-16; (1.25"-6")-12; (1.25"-16")-10

## Standard Toolholders - Weldon Shank (L Style - 3/8" L)



### Weldon Shank for 3/8" L Style Inserts

Weldon Shank for 3/8" L Style Inserts									Spare Parts	
Insert Size	Ordering Code	Dimensions (mm)						No. of Flutes		
IC	Toolholder	L	L1	L2	D	D1	D2	Z	Insert Screw	Torx Key
3/8"L	TM1SC25W21-50-3L	115	50	7.0	25	12.7	21.6	1	SN3T	HK3T
	TM2SC25W28-70-3L	135	70		25	18.1	28.5	2	SA3T	
	TM3SC32W33-90-3L	158	90	32	22.0	33.5	3	SN3T		
	TM2SC25W26-80-3L-ABUT	143	80	4.7	25	20.1	26.4	2	SA3T	
	TM3SC32W35-105-3L-ABUT	172	105		32	28	35.5	3		

## Weldon Shank (L Style - 3/8" L) Applications

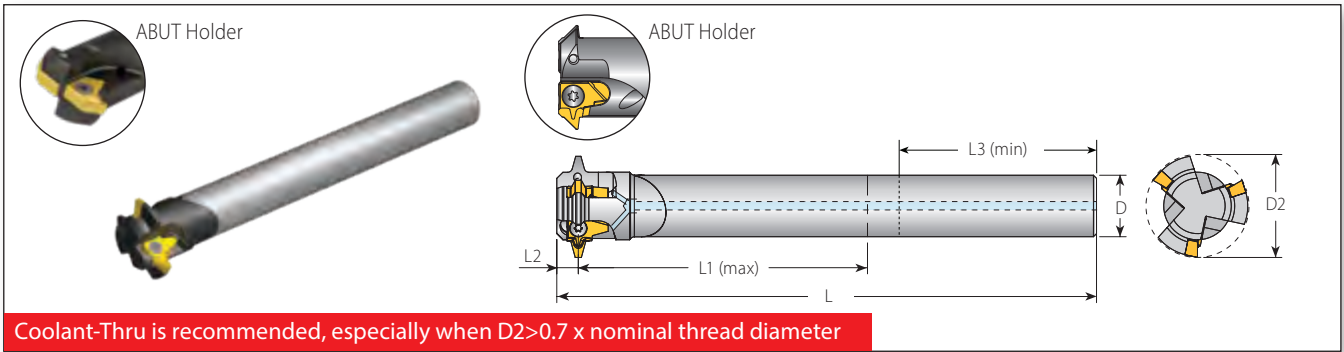
### Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.			
	D2	Trapez	American ACME	Stub ACME
TM1SC25W21-50-3L	21.6	(TR30-36)x6	1¼-5; 1⅜-4; 1½-4	1¼-5; 1⅜-4; 1½-4
TM2SC25W28-70-3L	28.5	(TR38-44)x7	1¾-4	-
TM3SC32W33-90-3L	33.5	(TR46-52)x8	2-4; 2¼-3; 2½-3; 2¾-3	2-4; 2¼-3; 2½-3; 2¾-3

### Thread Applications for Full Profile American Buttress Inserts

Toolholder	Thread Dia.	
	D2	American Buttress
TM2SC25W26-80-3L-ABUT	26.4	(1.75"-4")-16; (1.75"-6")-12; (1.75"-6")-10; (1.75"-6")-8; (1.75"-6")-6
TM3SC32W35-105-3L-ABUT	35.5	(2.5"-4")-16; (2.5"-6")-12; (2.5"-6")-10; (2.5"-6")-8; (2.5"-6")-6

# Standard Toolholders - Carbide Cylindrical Shank (L Style - 3/8" L)



## Carbide Cylindrical Shank for 3/8" L Style Inserts

Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1(max)	L2	L3(min)	D	D2	Z		Insert Screw	Torx Key
3/8"L	CTM1SC1/2"C21-75-3L	115	75		40	12.7	21.6	1	SN3T	HK3T	
	CTM2SC18C28-100-3L	155	100	7.0	46	18	28.5	2	SA3T		
	CTM3SC20C33-120-3L	176	120		46	20	33.5	3	SN3T		
	CTM2SC20C26-105-3L-ABUT	172.5	105	4.7	40	20	26.4	2	SA3T		

## Carbide Cylindrical Shank (L Style - 3/8" L) Applications

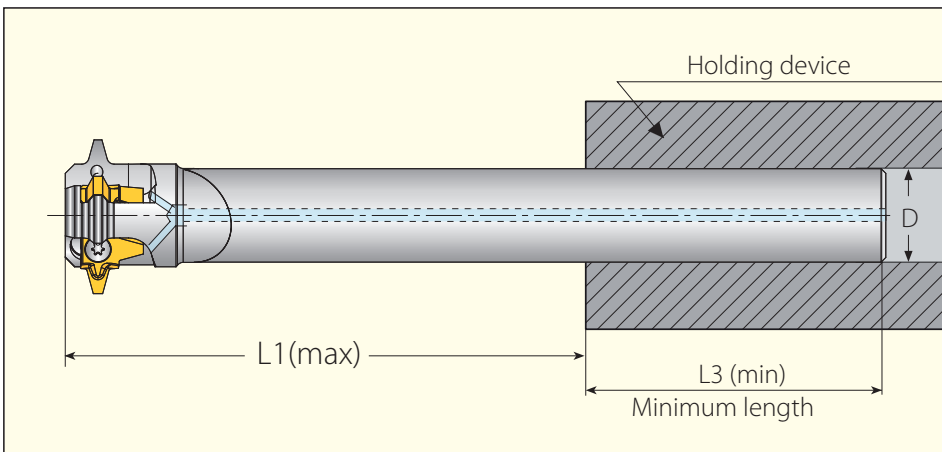
### Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.			
	D2	Trapez	American ACME	Stub ACME
CTM1SC1/2"C21-75-3L	21.6	(TR30-36)x6	1 1/4-5; 1 3/8-4; 1 1/2-4	1 1/4-5; 1 3/8-4; 1 1/2-4
CTM2SC18C28-100-3L	28.5	(TR38-44)x7	1 3/4-4	-
CTM3SC20C33-120-3L	33.5	(TR46-52)x8	2-4; 2 1/4-3; 2 1/2-3; 2 3/4-3	2-4; 2 1/4-3; 2 1/2-3; 2 3/4-3

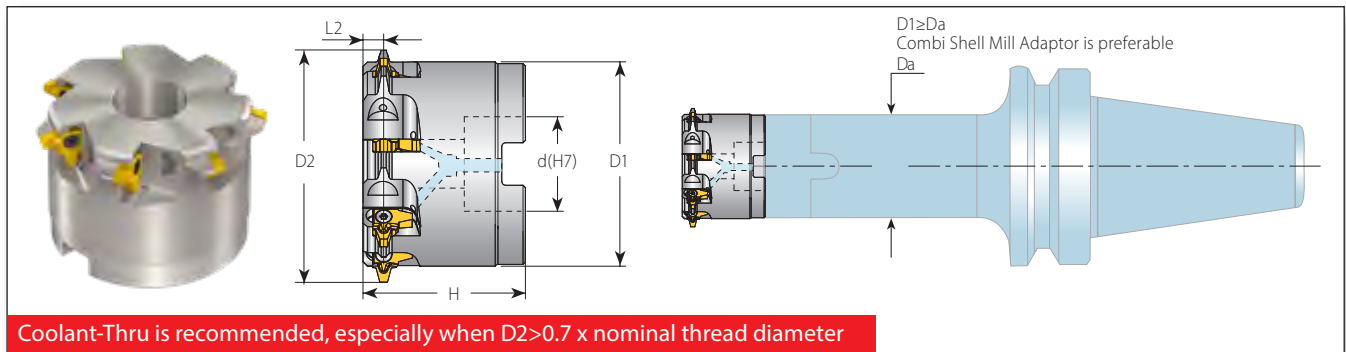
### Thread Applications for Full Profile American Buttress Inserts

Toolholder	Thread Dia.	
	D2	American Buttress
CTM2SC20C26-105-3L-ABUT	26.4	(1.75"-4")-16; (1.75"-6")-12; (1.75"-6")-10; (1.75"-6")-8; (1.75"-6")-6

The overhang-to-bar diameter ratio should be as small as possible to eliminate the chance of chatter (vibration). The minimum length inside a holding device should be 2 times the diameter of the bar shank.






## Shell Mill (L Style - 3/8" L)



Coolant-Thru is recommended, especially when  $D2 > 0.7 \times$  nominal thread diameter

### Shell Mill for 3/8" L Style Inserts

Shell Mill for 3/8" L Style Inserts								Spare Parts		
Insert Size	Ordering Code	Dimensions (mm)					No. of Flutes			
IC	Toolholder	D1	D2	d(H7)	H	L2	Z	Insert Screw	Torx Key	Holder Screw
3/8"L	TM7SC-D80-32-3L	69.2	80	32	55	7.0	7	SA3T	HK3T	M16x2.0x40
	TM5SC-D48-22-3L-ABUT	41	48	22	40	4.7	5			M10x1.50x35
	TM6SC-D58-27-3L-ABUT	51	58	27			6			M12x1.75x40

## Shell Mill (L Style - 3/8" L) Applications

### Thread Applications for Partial Profile Inserts

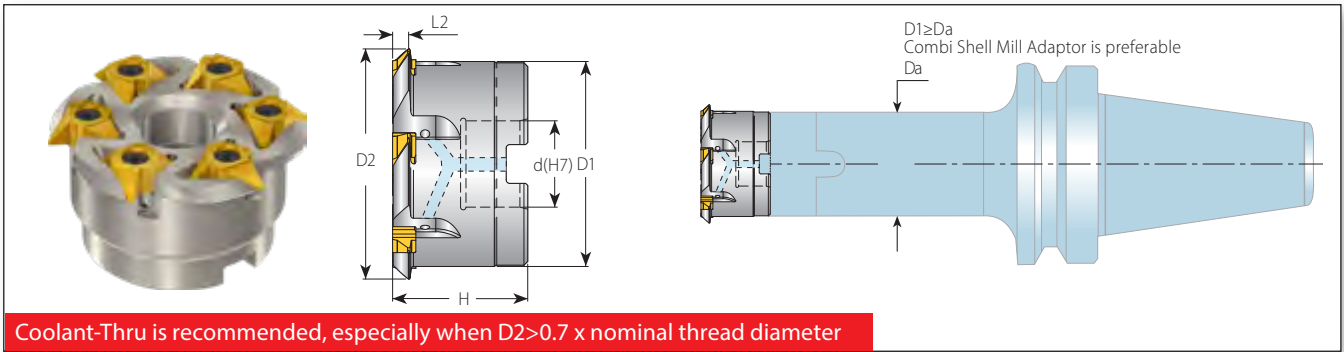
Toolholder	Min. Thread Dia.			
D2	Trapez	American ACME	Stub ACME	
TM7SC-D80-32-3L	80	(TR115-130)x6; (TR175-240)x8	-	-

### Thread Applications for Full Profile American Buttress Inserts

Toolholder	Thread Dia.	
D2	American Buttress	
TM5SC-D48-22-3L-ABUT	48	(3.0"-6")-12; (3.0"-6")-10; (3.0"-6")-8; (3.0"-6")-6
TM6SC-D58-27-3L-ABUT	58	(4.0"-6")-12; (4.0"-6")-10; (4.0"-6")-8; (4.0"-6")-6






## Shell Mill (5/8" V Style)



Coolant-Thru is recommended, especially when  $D2 > 0.7 \times$  nominal thread diameter

### Shell Mill for 5/8" V Style Inserts

Shell Mill for 5/8" V Style Inserts								Spare Parts			
Insert Size	Ordering Code	Dimensions (mm)					No. of Flutes				
IC	Toolholder	D1	D2	d(H7)	H	L2	Z	Insert	Insert Screw	Torx Key	Holder Screw
5/8"V	TM6SC-D88-32-5V6-ABUT	72.5	88	32	47.9	5.35	6	5VI4ABUT TM ...	SA5T	HK5T	M16x2.0x40
	TM6SC-D88-32-5V8-ABUT	72.5	88	32	51.7	8.50		5VI2.5ABUT TM ...			
					50.0	7.10	6	5VI3ABUT TM ...			

## Shell Mill (5/8" V Style) Applications

### Thread Applications for Full Profile American Buttress Inserts

Toolholder	Thread Dia.
	<b>American Buttress</b>
TM6SC-D88-32-5V6-ABUT	(5.0"-24")-4
TM6SC-D88-32-5V8-ABUT	(6.0"-24")-3; (7.0"-24")-2.5

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

Material Group	Vardex No.	Material	Hardness Brinell HB	Vc [m/min]		Feed* f [mm/tooth] by Cutting Dia. (D2)			
				VBX	VTX	13-23	24-42	Shell Mill	
<b>P</b> 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
<b>M</b> 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
<b>K</b> 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
<b>N(K)</b> 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	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
<b>S(M)</b> 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
<b>H(K)</b> 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 toolholder, the feed can be increased by 50%

\* For 3/8" L it is recommended to machine in two passes and decrease the feed by 40%

### Grades

Grade	Application
<b>VBX</b>	TiCN coated carbide grade. Excellent grade for <b>Steels and General Use.</b>
<b>VTX</b>	TiAlN coated carbide grade. Ideal for <b>Stainless Steels.</b>

U Style



A Style



Mini-L Style



3/8" L Style

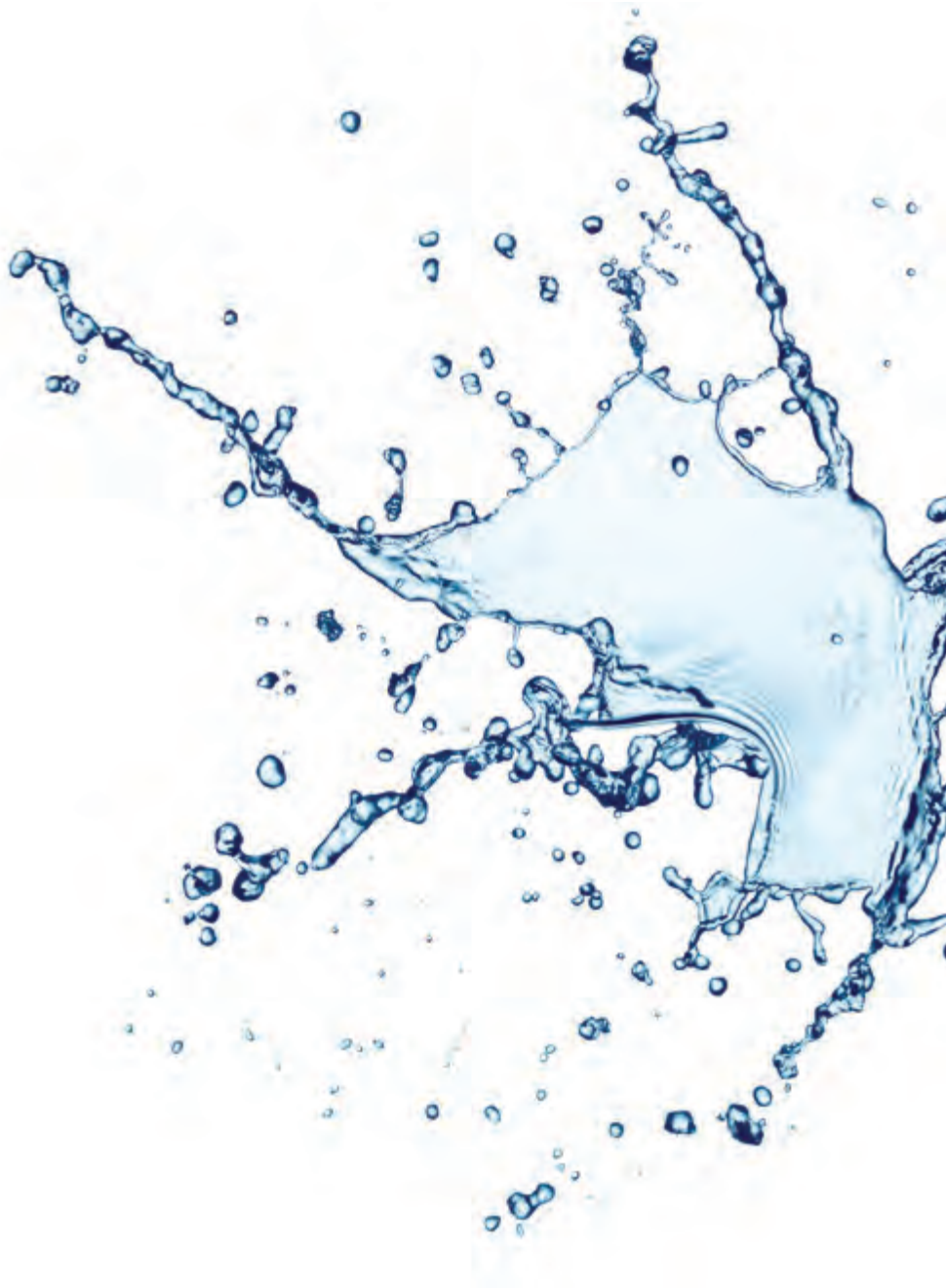


Vertical Style



V Style





# VARGUS | Tool Selector and GENius™ CNC Program Generator

The most popular and advanced thread turning and thread milling software on the market today.

Now available in 4 versions at [www.vargus.com](http://www.vargus.com)



VARGUS  
GENius™  
ONLINE

VARGUS  
GENius™  
DESKTOP

VARGUS  
GENius™  
setup.exe

VARGUS  
GENius™

APP

Download on the  
App Store

GET IT ON  
Google Play



**TMSD**   
Thread Mill for Deep Holes

**VARDEx**  
Advanced Threading Solutions