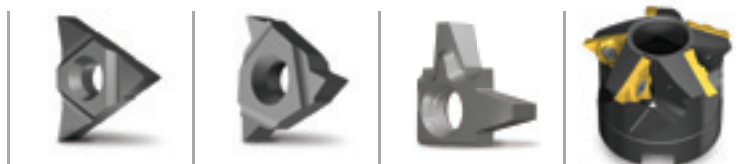




# TMSD

Thread Mill for Deep Holes

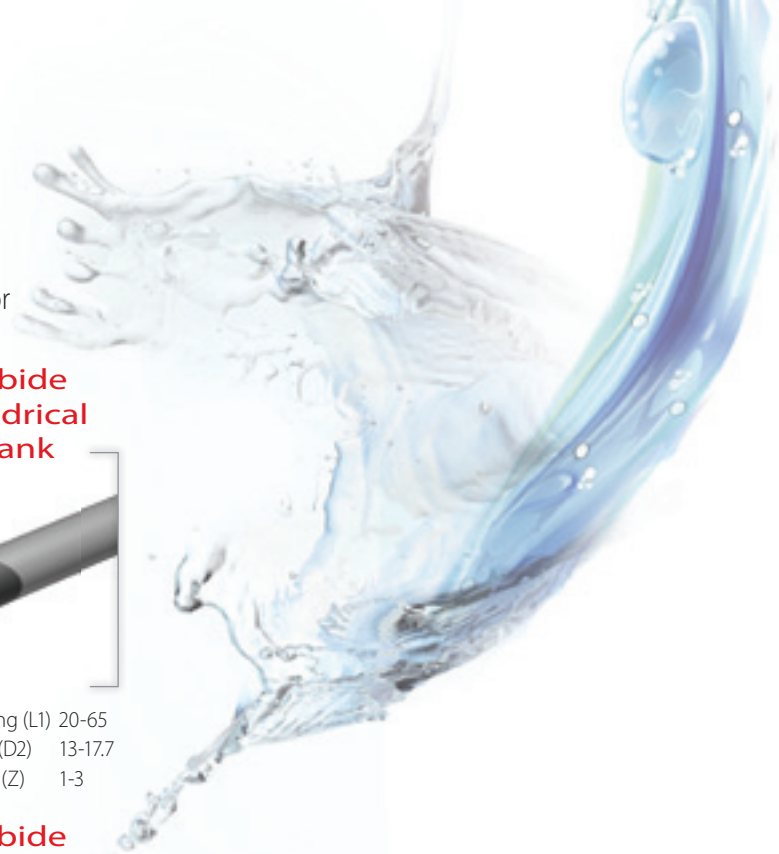


METRIC

# TMSD

## Thread Mill for Deep Holes

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



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

### L Style (3/8" L)

For Large Trapezoid Profiles



Weldon Shank



Tool Overhang (L1) 50-90  
Cutting Dia. (D2) 21.6-33.5  
No. of Flutes (Z) 1-3

Carbide Cylindrical Shank



Tool Overhang (L1) 75-120  
Cutting Dia. (D2) 21.6-33.5  
No. of Flutes (Z) 1-3

Shell Mill



Tool Overhang (L1) Max 200  
Cutting Dia. (D2) 80  
No. of Flutes (Z) 7

### 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) 25-135  
Cutting Dia. (D2) 14.75-31.0  
No. of Flutes (Z) 1-4

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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■ ACME .....	Page 8
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## TOOLHOLDERS

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TM Gen Software and updated versions can be downloaded from [www.vargus.com](http://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 Profiles

- Partial profile for: ISO, UN, W
- 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)

### Tool Cutting Diameter

- As small as 13mm

### Cooling Thru





- For improved chip evacuation and cooling the cutting corner

# 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>

<b>1 - Insert Size</b> 5 - IC5.0 mm 2 - IC1/4" 3 - IC3/8" 4 - IC1/2" 	<b>2 - Insert Style</b> U -  A -  L - 	<b>3 - Type of Insert</b> I - Internal	<b>4 - Pitch</b> Full Profile - Pitch Range <table border="1"> <tr> <td>mm</td> <td>tpi</td> </tr> <tr> <td>2.0-8.0</td> <td>-</td> </tr> </table> Partial Profile - Pitch Range <table border="1"> <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	2.0-8.0	-		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	<b>5 - Standard</b> 60° - Partial Profile 60° 55° - Partial Profile 55° TR - Trapez DIN 103 ACME - ACME Stub ACME - Stub ACME  <b>6 - System</b> TM  <b>7 - Carbide Grade</b> VBX, VTX
mm	tpi																																																	
2.0-8.0	-																																																	
	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																																																

## TMSD Toolholders

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

<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>

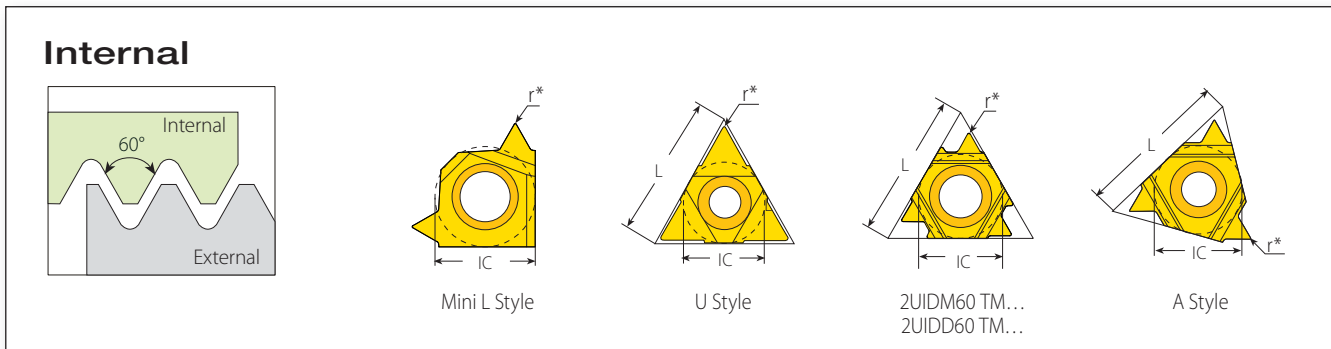
  

<b>1 - System</b> TM	<b>2 - No. of Flutes</b> 4-7	<b>3 - Insert Type</b> S - Single Point	<b>4 - Cooling</b> C - Coolant	<b>5 - Cutting Dia.</b> 42 - 98	<b>6 - Drive Hole Dia.</b> 16, 22, 27, 32	<b>7 - Insert Size</b> 3 - IC3/8" 4 - IC1/2"
-------------------------	---------------------------------	--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

<b>8 - Insert Style</b> U, L
---------------------------------

# Partial Profile 60°



## 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	5LIDA60 TM...	0.04	TM.SC...5L
		1.0-2.0	24-11	5LIDN60 TM...	0.06	CTM.SC...5L

## U Style



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



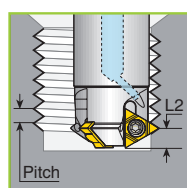
Insert Size		Pitch		Ordering Code	Dimensions (mm)	
IC	L mm	mm	tpi	Internal	r *	Toolholder
1/4"U	11	0.5-1.5	48-16	2UIDA60 TM...	0.05	TM.SC...2U
		1.5-2.0	16-12	2UIDB60 TM...	0.06	CTM.SC...2U
		2.0-2.5	9-12	2UIDD60 TM...	0.11	CTM2SC 14C17-65-2U
		2.5	10	2UIDM60 TM...	0.11	
		2.5-4.0	10-6	2UIDC60 TM...	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

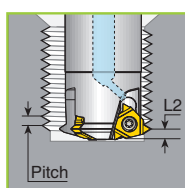


Insert Size		Pitch		Ordering Code	Dimensions (mm)	
IC	L mm	mm	tpi	Internal	r *	Toolholder
1/4"A	11	1.5-3.0	16-8	2AIDP60 TM...	0.06	TM.SC...2A
3/8"A	16	2.0-4.0	12-6	3AIDT60 TM...	0.08	TM.SC...3A

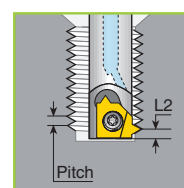
\* The indicated radius (r) refers to the insert nose radius only



U Style  
For Large Pitches



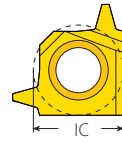
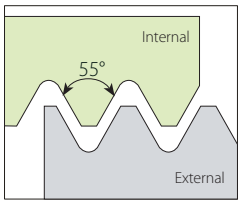
A Style  
For Shorter L2



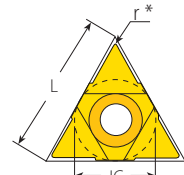
Mini-L Style  
For Small Bores and Short L2

# Partial Profile 55°

## Internal



Mini L Style



U Style

## L Style



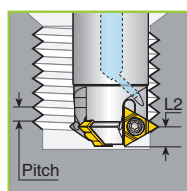
Insert Size	Pitch	Ordering Code	Dimensions (mm)	
IC	tpi	Internal	r*	Toolholder
5.0L (Mini L)	26-14	5LIDR55 TM...	0.10	TM.SC...5L CTM.SC...5L

## U Style

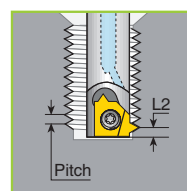


Insert Size		Pitch	Ordering Code	Dimensions (mm)	
IC	L mm	tpi	Internal	r*	Toolholder
1/4"U	11	48-16	2UIDA55 TM...	0.11	TM.SC...2U CTM.SC...2U
		16-12	2UIDB55 TM...	0.08	
		11-7	2UIDL55 TM...	0.24	
3/8"U	16	16-12	3UIDB55 TM...	0.08	TM.SC...3U
		11-7	3UIDL55 TM...	0.24	
		6-4	3UIDH55 TM...	0.27	
1/2"U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

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



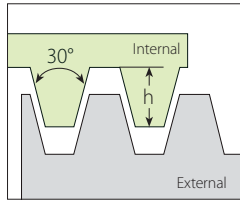
U Style  
For Large Pitches



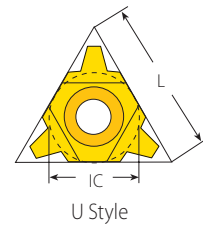
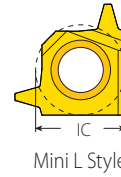
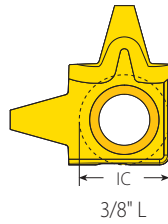
Mini-L Style  
For Small Bores and Short L2

# Trapez

## Internal



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



## L Style



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

## U Style

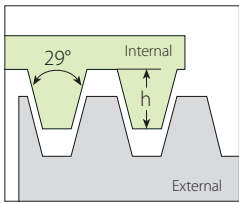


Insert Size	Pitch	Ordering Code		Application	Toolholder
		Internal	Internal		
1/4"U	11	3.0	2UI3.0TR-1 TM...	(TR22-TR30)x3	See pages 14-15
			2UI3.0TR-2 TM...	(TR32-TR60)x3	
		4.0	2UI4.0TR-1 TM...	(TR20-TR28)x4	
			2UI4.0TR-2 TM...	(TR65-TR110)x4	
		5.0	2UI5.0TR-1 TM...	TR22x5; TR28x5	
			2UI5.0TR-2 TM...	TR24x5; TR26x5	

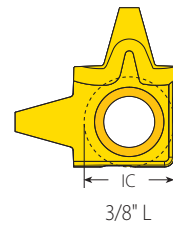
# American ACME



## Internal



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



## L Style

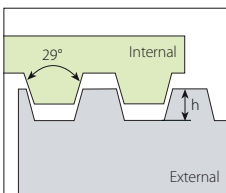


Insert Size	Pitch	Ordering Code	Application	Toolholder
IC	tpi	Internal	Internal	
3/8" L	5	3LI5ACME TM...	1 1/4-5ACME	
		3LI4ACME-1 TM...	1 3/8-4ACME	TM1SC 25W21-50-3L; CTM1SC 1/2"C21-75-3L
		3LI4ACME-2 TM...	1 1/2-4ACME	
	4	3LI4ACME-3 TM...	1 3/4-4ACME	TM2SC 25W28-75-3L; CTM2SC 18C28-100-3L
		3LI4ACME-4 TM...	2-4ACME	
		3LI3ACME-1 TM...	2 1/4-3ACME	TM3SC 32W33-90-3L; CTM3SC 20C33-120-3L
	3	3LI3ACME-2 TM...	2 1/2-3ACME	
		3LI3ACME-3 TM...	2 3/4-3ACME	

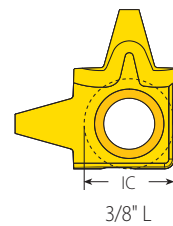
# Stub ACME



## Internal



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

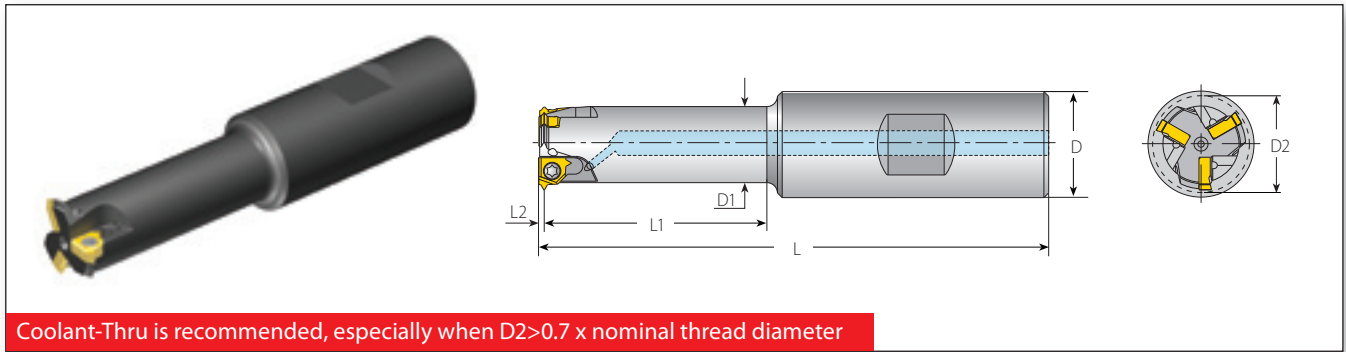


## L Style





Insert Size	Pitch	Ordering Code	Application	Toolholder
IC	mm	Internal	Internal	
3/8" L	5	3LI5STACME TM...	1 1/4-5STACME	
		3LI4STACME-1 TM...	1 3/8-4STACME	TM1SC 25W21-50-3L; CTM1SC 1/2"C21-75-3L
		3LI4STACME-2 TM...	1 1/2-4STACME	
	4	3LI4STACME-3 TM...	2-4STACME	
		3LI3STACME-1 TM...	2 1/4-3STACME	TM3SC 32W33-90-3L; CTM3SC 20C33-120-3L
		3LI3STACME-2 TM...	2 1/2-3STACME	
	3	3LI3STACME-3 TM...	2 3/4-3STACME	

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



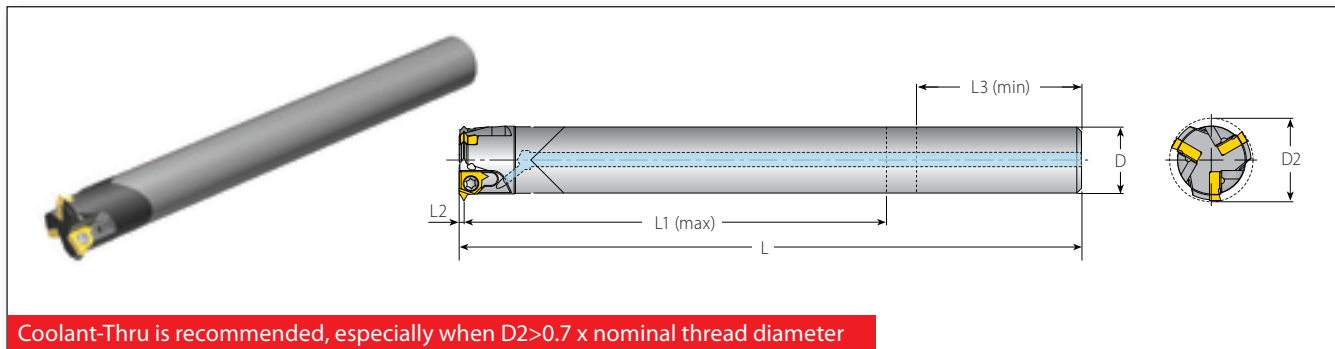
### Weldon Shank for Mini-L Style Inserts

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)	TM1SC 16W13-29-5L	81	29		16	9.8	13	1	SN5LTR	K7T	
	TM2SC 16W14-33-5L	85	33	1.1	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	5/16-32UN; 5/16-28UN; 5/16-27UNS; 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
TM2SC 16W14-33-5L	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
TM3SC 20W18-42-5L	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

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



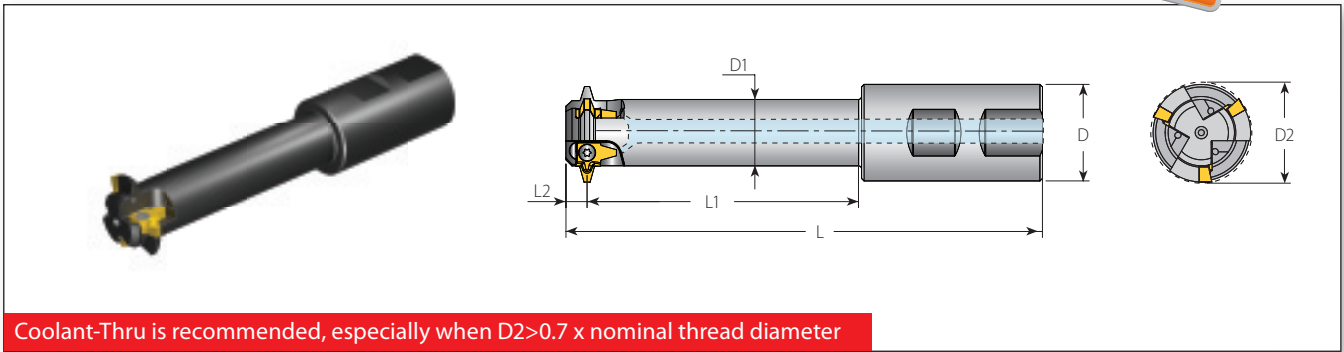
### Carbide Cylindrical Shank for Mini-L Style Inserts

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	Insert Screw	Torx Key
5.0L (Mini L)	CTM1SC 09C13-43-5L	109	43		20	9.5	13	1	SN5LTR	K7T
	CTM2SC 10C14-50-5L	116	50	1.1	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	5/16-32UN; 5/16-28UN; 5/16-27UNS; 5/16-24UNEF; 5/16-20UN; 5/16-18UNF; 5/16-16UN; 5/16-14UNS; 5/16-12UN	3/8-19	5/8-14	TR16X2; TR18X2
CTM2SC 10C14-50-5L	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; 11/16-12UN	3/8-19	11/16-14	TR16X2; TR18X2
CTM3SC 14C18-65-5L	17.7	-	M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0	3/4-32UN; 3/4-28UN; 7/8-27UNS; 3/4-24UNS; 13/16-20UNEF; 7/8-18UNS; 13/16-16UN; 7/8-14UNF; 13/16-12UN	1/2-14	-	TR20X2

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



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

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

Spare Parts

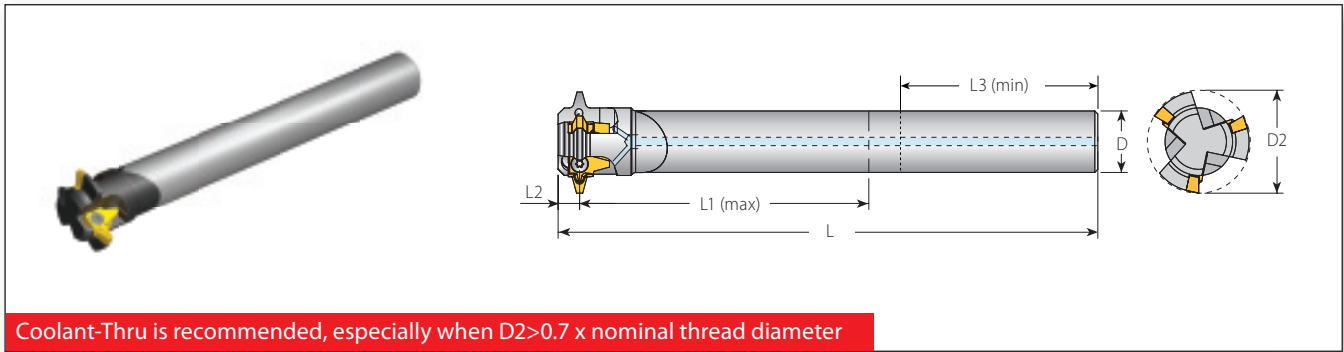
Insert Size	Ordering Code	Dimensions (mm)							
IC	Toolholder	L	L1	L2	D	D1	D2	Insert Screw	Torx Key
3/8L	TM1SC 25W21-50-3L	115	50	7.0	25	12.7	21.6	SN3T	HK3T
	TM2SC 25W28-70-3L	135	70	7.0	25	18.1	28.5	SA3T	
	TM3SC 32W33-90-3L	158	90	7.0	32	22.0	33.5	SN3T	

## Thread Applications for 3/8" L Style Toolholders (Weldon Shank)

Toolholder	Min. Thread Ø			
	D2	Trapez	American ACME	Stub ACME
TM1SC 25W21-50-3L	21.6	(TR30-36)x6	1¼-5; 1⅝-4; 1½-4	1¼-5; 1⅝-4; 1½-4
TM2SC 25W28-70-3L	28.5	(TR38-44)x7	1¼-4	-
TM3SC 32W33-90-3L	33.5	(TR46-52)x8	2-4; 2¼-3; 2½-3; 2¾-3	2-4; 2¼-3; 2½-3; 2¾-3



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



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

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

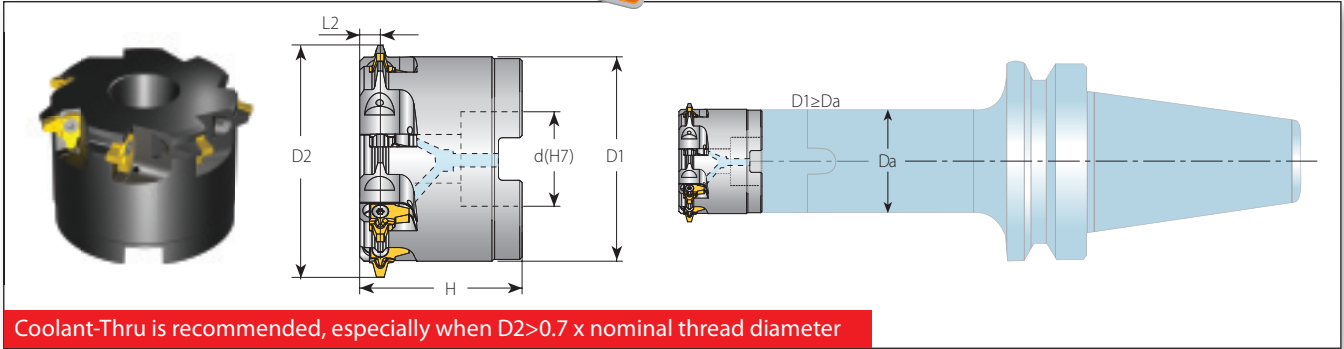
#### Spare Parts

Insert Size	Ordering Code	Dimensions (mm)						Spare Parts	
IC	Toolholder	L	L1(max)	L2	L3(min)	D	D2	Insert Screw	Torx Key
3/8L	CTM1SC 1/2"C21-75-3L	115	75	7.0	40	12.7	21.6	SN3T	HK3T
	CTM2SC 18C28-100-3L	155	100	7.0	46	18	28.5	SA3T	
	CTM3SC 20C33-120-3L	176	120	7.0	46	20	33.5	SN3T	

### Thread Applications for 3/8" L Style Toolholders (Carbide Cylindrical Shank)

Toolholder	Min. Thread Ø			
	D2	Trapez	American ACME	Stub ACME
CTM1SC 1/2"C21-75-3L	21.6	(TR30-36)x6	1 1/4-5; 1 1/8-4; 1 1/2-4	1 1/4-5; 1 1/8-4; 1 1/2-4
CTM2SC 18C28-100-3L	28.5	(TR38-44)x7	1 3/4-4	-
CTM3SC 20C33-120-3L	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

# 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

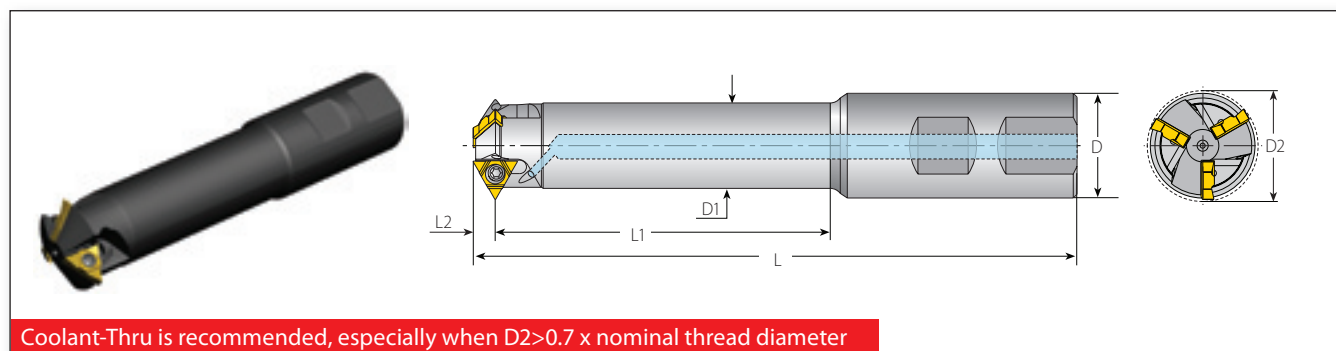
### Spare Parts

Insert Size	Ordering Code		Dimensions (mm)					Spare Parts		
IC	Toolholder	D1	D2	d(H7)	H	L2	Z	Insert Screw	Torx Key	Holder Screw
3/8L	TM7SC D80-32-3L	69.2	80	32	55	7.0	7	SA3T	HK3T	M8x1.25x30

## Thread Applications for 3/8" L Style Toolholders (Shell Mill)

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

## Standard Toolholder - Weldon Shank (U Style)



### Weldon Shank for U-Style Inserts

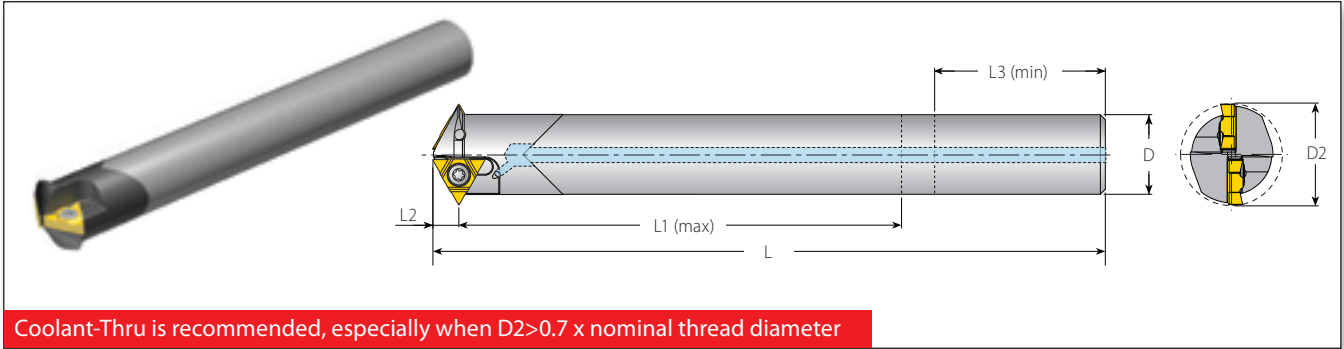
Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1	L2	D	D1	D2	Z		Insert Screw	Torx Key
1/4"U	TM1SC 16W15-40-2U	95	40	5.4	16	11	14.75*	1	SN2T	HK2T	
	TM2SC 25W21-60-2U	123	60		25	16	20.65*	2			
	TM2SC 25W23-70-2U	135	70		25	17.7	23	2			
	TM3SC 25W26-80-2U	147	80		25	20.4	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	
	<b>NEW</b> TM3SC 32W36-145-3U	225	145		32	28	36.5	3			
	TM4SC 40W42-120-3U	201	120		40	34.2	42	4			

### 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	3/8-10	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 1/16-14; 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	1-8, 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
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 1/16-12, 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 1/16-28UN, 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 TM3SC 32W36-145-3U	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 1/8-12UN, 1 1/8-10UNS, 1 1/8-8UN, 1 3/8-6UN	1 1/4-11	1 3/8-16, 1 3/8-12, 1 3/8-8, 1 3/8-6, 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 13/16-12UN, 1 13/16-8UN, 1 15/16-6UN	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 for the CNC program (D2+0.25mm)

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



## Carbide Cylindrical Shank for U-Style Inserts

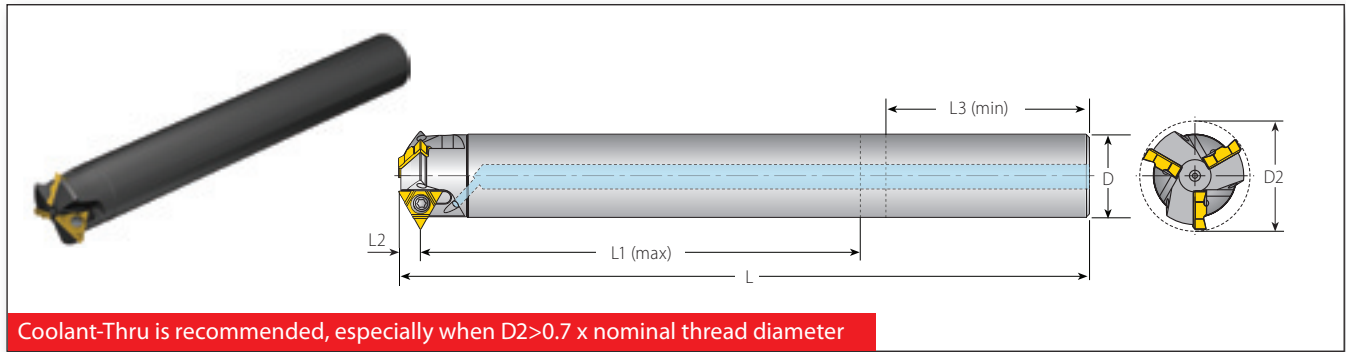
Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1 (max)	L2	L3 (min)	D	D2	Z		Insert Screw	Torx Key
1/4"U	CTM1SC 08C15-40-2U	109	40	5.4	18	8	14.75*	1	SN2T	HK2T	
	CTM1SC 11C15-60-2U	120	60	5.4	25	10.7	14.75*	1			
	CTM2SC 14C17-65-2U**	132	65	3.4	30	14	17.2**	2			
	CTM2SC 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			
	<b>NEW</b> CTM3SC 20C26-110-2U	165	110	5.4	40	20	26.0*	3			
	<b>NEW</b> CTM4SC 25C31-135-2U	193	135	5.4	46	25	31.0*	4			

## 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	¾-10, ⅞-9, 1-8, 1⅞-7, 1⅜-6	⅝-32UN, ⅞-28UN, ⅞-27UNS, 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
CTM1SC 11C15-60-2U	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, ⅞-27UNS, 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
CTM2SC 14C17-65-2U	17.2**	M20x2.5, M22x2.5	M21x2.0	⅞-9	⅞-10UNS; 1⅜-12UN	-	-	-
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, 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
CTM2SC 16C21-80-2U	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
CTM3SC 20C26-110-2U	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, 1⅞-7	(TR40-TR60)x3 (TR65-TR110)x4
CTM4SC 25C31-135-2U	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 for CNC program (D2+0.25mm)  
 \*\* To be used only with inserts 2UIDD60TM... or 2UIDM60TM...  
 For insert 2UIDD60 TM... use for CNC program (D2+0.7mm)

# Standard Toolholder - Steel Cylindrical Shank (U Style)



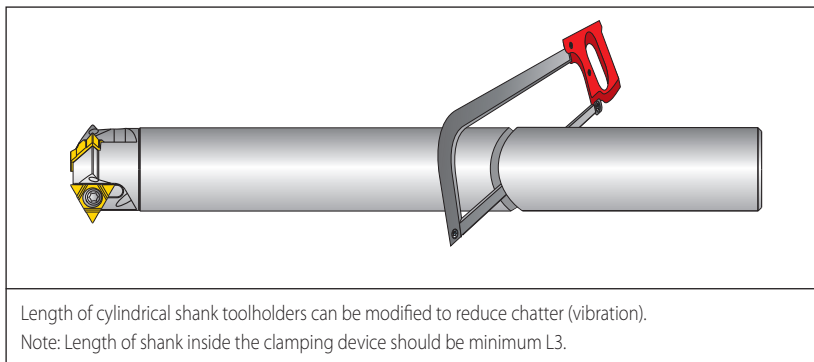
## Steel Cylindrical Shank for U-Style Inserts

Spare Parts

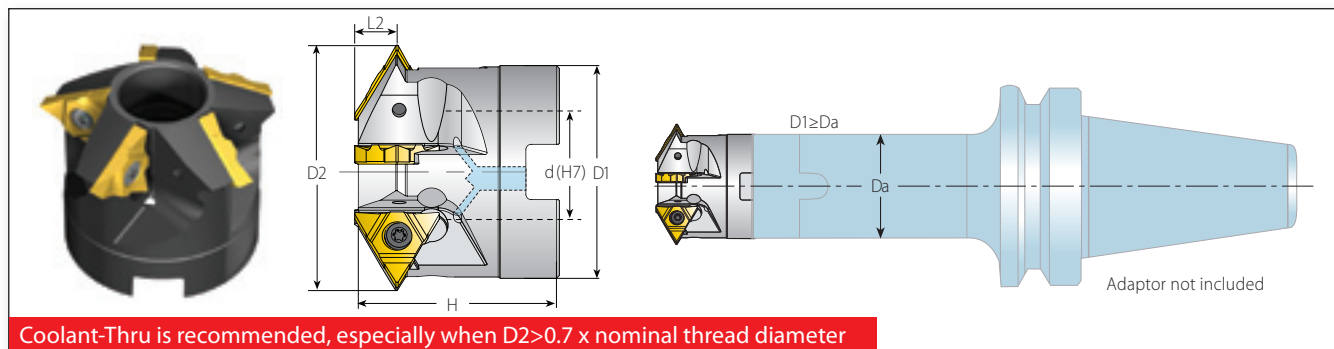
Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1 (max)	L2	L3 (min)	D	D2	Z			
1/4"U	TM2SC 18C23-86-2U	166	86	5.4	40	18	23.3	2	SN2T	HK2T	
	TM3SC 20C26-105-2U	186	105		40	20	26	3			
	TM4SC 25C31-115-2U	196	115		46	25	31	4			
3/8"U	<b>NEW</b> TM3SC 25C36-125-3U	193	125	8.0	46	25	36.5	3	SA3T	HK3T	
	TM3SC 28C36-144-3U	222	144		60	28	36.5	3			

## 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 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
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 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 7/16-8UN	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
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 1/2-6	1 1/8-28UN, 1 1/2-24UNS, 1 1/2-20UN, 1 1/2-18UNEF, 1 3/8-16UN, 1 3/8-14UNS, 1 3/8-12UNF, 1 3/8-10UNS, 1 7/16-8UN	1 1/8-11	1 1/8-26, 1 1/8-20, 1 3/8-16, 1 3/8-12, 1 7/16-8
TM3SC 25C36-125-3U 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 3/4-5, 2-4.5, 2 1/2-4	1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UN, 1 1/8-10UNS, 1 1/8-8UN, 1 3/8-6UN	1 1/4-11	1 1/8-16, 1 1/8-12, 1 5/8-8, 1 7/8-6, 1 3/4-5



## Shell Mill (U Style)



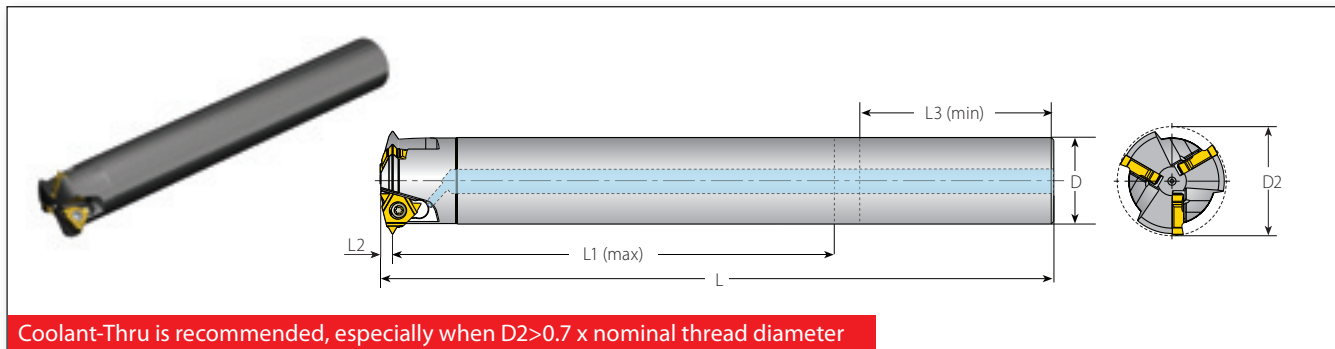
### Shell Mill for U-style Inserts

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					
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, 1⅜-6UN	1½ - 11	1⅜-16, 1⅜-12, 1⅜-8, 1⅜-6, 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	2¾-16UN, 2¾-14UN, 2¾-12UN, 2½-10UNS, 2¾-8UN, 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	3½ - 11	4-3, 4¼-4
TM7SC D98-32-4U	98	-	M105x6.0, M125x8	-	4¼-4UN	4 - 11	4¼-4

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

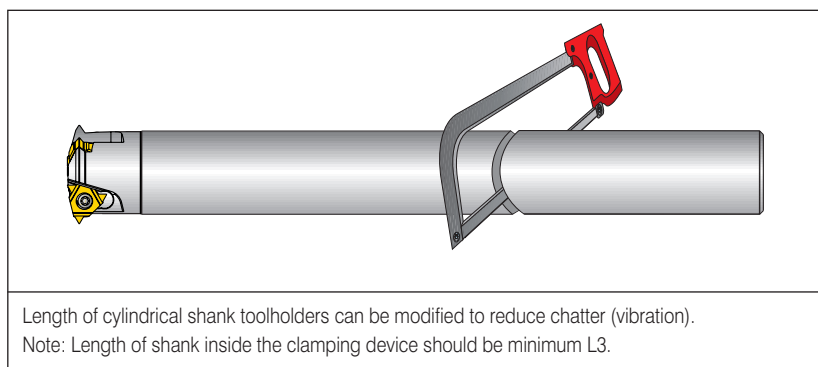


### Steel Cylindrical Shank for A-Style Inserts

Insert Size	Ordering Code	Dimensions (mm)							No. of Flutes	Spare Parts	
		L	L1 (max)	L2	L3 (min)	D	D2	Z			
IC										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	-	1 1/8-16UN, 1 1/8-14UNS, 1 1/8-12UN, 1 1/4-10UNS, 1 3/8-8UN	-
TM3SC 28C35-144-3A	35.3	-	M38x2.0, M39x2.5, M39x3.0, M40x4.0	-	1 3/8-12UN, 1 3/8-10UNS, 1 3/8-8UN, 1 3/8-6UN	-



## 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	
<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	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 holder, Feed can be increased by 50%

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

### Grades

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

U Style



A Style



Mini-L Style



3/8" L Style





**TMSD**   
Thread Mill for Deep Holes

**VARD****EX**  
Advanced Threading Solutions