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Ningbo Sandhog Precision Tools Manufacturing Co., Ltd.
Ningbo Sanhan Alloy Material Co., Ltd.

Add: Room 1-1, No. 324, Ninghuan Road, Jangdong District,
Ningbo City, Zhejiang 315040 China.

Tel: 0086-574-87370415

Fax: 0086-574-87370421

E-mail: postmaster@sandhogtools.com.cn

Http://www.sandhogtools.com

SANDHOG®

CUTTING TOOLS

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THREADED

Threading & Grooving Tools

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S E R 20 20 - K 16 V

1 Clamping Method or Insert 2 Holder Type 3 Hand of holder 4 Height of shank 5 Width of shank 6 Length of holder 7 Insert Size (mm) 8 Special Features

1 Chipping System
S: Screw-on system
C: Clamp-on system

2 Holder Type
E: For External
I: For Internal

3 Hand of holder
R: Right-handed
L: Left-handed

4 Height of shank
S E R 20 20 - K 16 V

5 Width of shank Bar Diameter
S E R 20 20 - K 16 V

6 Length of holder
S E R 20 20 - K 16 V

7 Insert Size (mm)
08 : d=4.75
11 : d=6.35
16 : d=9.525
22 : d=12.7
27 : d=15.875

8 Special Features
B: Carbide Blade
C: Carbide Shank
CR: Carbide Shank with Coarse Hole
A: As Built
J: J-Ring Insert
V: Vertical Type Insert
G: Gang Tool
VS: 3 in. Insert

None Code
Others

Grooving Style, Insert and Holder Assembled
J-Ring Insert and Holder Assembled

16 □ E R □ 1.50 ISO □ □ SMX30

1 Insert Size (mm) 2 Insert Style 3 Insert Type 4 Hand of Insert 5 Chip Breaker 6 Pitch 7 Standard 8 API Size & Taper 9 Carbide Grade 10

1 Insert Size (mm)
08 : d=4.75
11 : d=6.35
16 : d=9.525
22 : d=12.7
27 : d=15.875

2 Insert Style
U
V

3 Insert Type
16 □ E 10 1.50 ISO □ □ SMX30

4 Hand of Insert
R: Right-handed
L: Left-handed

5 Chip Breaker
None Code
M: With Chip Breaker

6 Pitch
Full pitch: 1.50
Partial pitch: 1.50

7 Standard
ISO: ISO 150
API: API 150
NPT: NPT
NPS: NPS
JIS: JIS
DIN: DIN
BS: BS
ANSI: ANSI
JIS: JIS
DIN: DIN
BS: BS
ANSI: ANSI

8 API Size & Taper
16 □ E 10 1.50 ISO □ □ SMX30

9 Carbide Grade
SMX30

10

Special Features

External Thread

A thread on the external surface of a cylinder, screw or cone

Depth of Thread

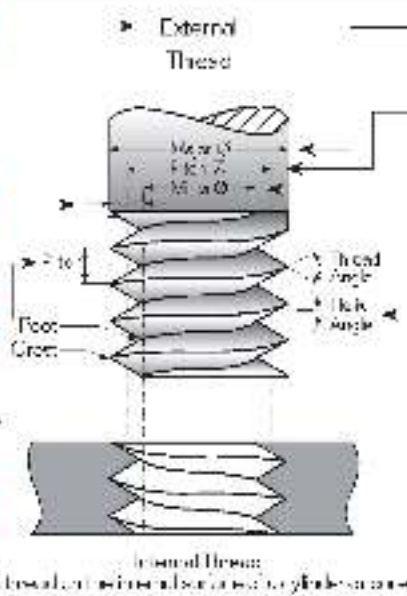
The distance between the crest and root measured from normal to the axis

Pitch

The distance between the corresponding points on adjacent threads, measured parallel to the axis. This distance can be defined in millimeters or in threads per inch (TPI), which is the reciprocal of the pitch

Nominal Diameter

The diameter of a screw thread, usually denoted by the letter 'd', is the distance between the crests of the threads



Major Diameter

The largest diameter of a screw thread

Pitch Diameter

On a single thread, the diameter of an imaginary cylinder on the surface of which the thread crests and the valleys of the thread are generated

Minor Diameter

The smallest diameter of a screw thread

Helix Angle

For a single thread, where the lead of the thread and the pitch diameter are different, the helix angle is the angle opposite of the lead

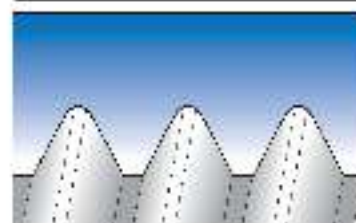
Straight Thread

A thread formed on a cylinder

Taper Thread

A thread formed on a cone

Left-handed thread



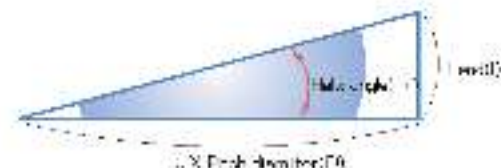
All threads with left-hand threads, which have a left-hand thread, are designated LH

Right-handed thread



A thread with a right-hand thread, which has a right-hand thread, is designated RH

The Helix Angle (α)

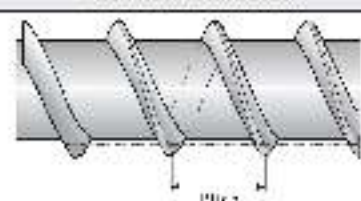


For a straight thread, where the lead of the thread and the pitch diameter are different, the helix angle is the angle opposite of the lead

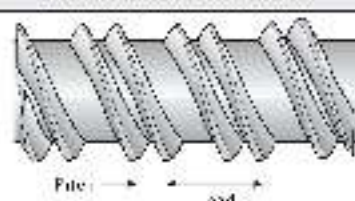
Machining a Multi-start Thread

A thread in which the lead is an integral multiple greater than one of the pitch. A multi-start thread permits a more rapid advance without a coarser (larger) thread form

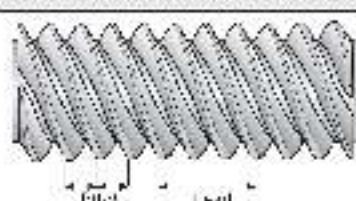
First Start Machined



Second Start Machined

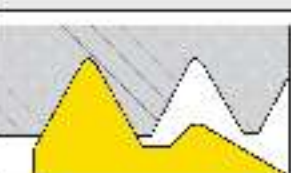


Third Start Machined (Final, 3 Starts Thread)



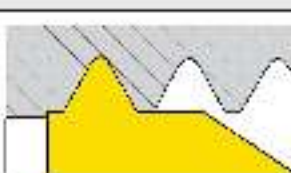
Insert Profile Style

Partial Profile



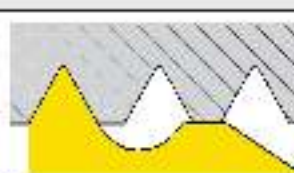
The V part is different from the standard thread profile, but the crest and valley are the same as the standard thread profile

Full Profile



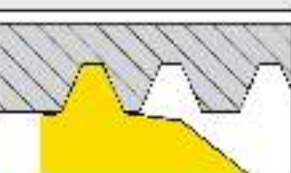
The full profile insert will form a full thread profile, including the crest and valley, for every thread pitch and standard thread angle (not required)

Full Profile for Fine Pitches



The full profile for fine pitches will form a full thread profile, including the crest and valley, for every thread pitch and standard thread angle (not required)

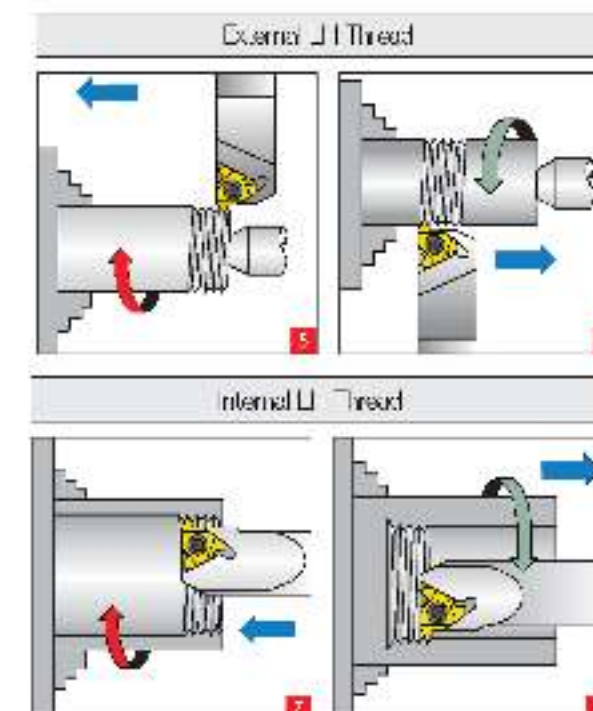
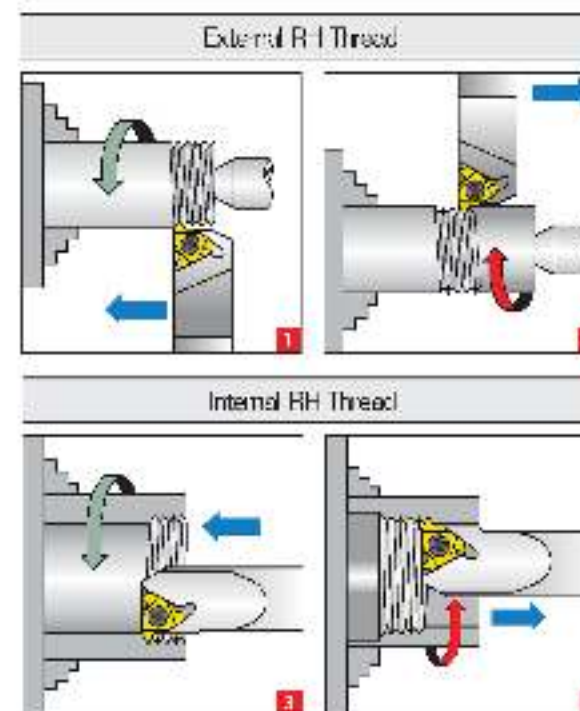
Semi Full



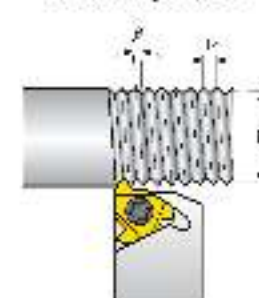
The semi-full profile insert will form a full thread profile, including the crest and valley, for every thread pitch and standard thread angle (not required)

Thread Turning Method

Thread	Inserts & Tool holder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	LX FH	Counter clockwise	Towards chuck	Regular	1
Right Hand External	LS LH	Clockwise	From chuck	Reversed	2
Right Hand Internal	FX FH	Counter clockwise	Towards chuck	Regular	3
Right Hand Internal	FL LH	Clockwise	From chuck	Reversed	4
Left Hand External	FX FH	Counter clockwise	Towards chuck	Regular	5
Left Hand External	FL LH	Clockwise	From chuck	Reversed	6
Left Hand Internal	FX FH	Counter clockwise	Towards chuck	Regular	7
Left Hand Internal	FL LH	Clockwise	From chuck	Reversed	8



Calculating the Helix Angle (α)

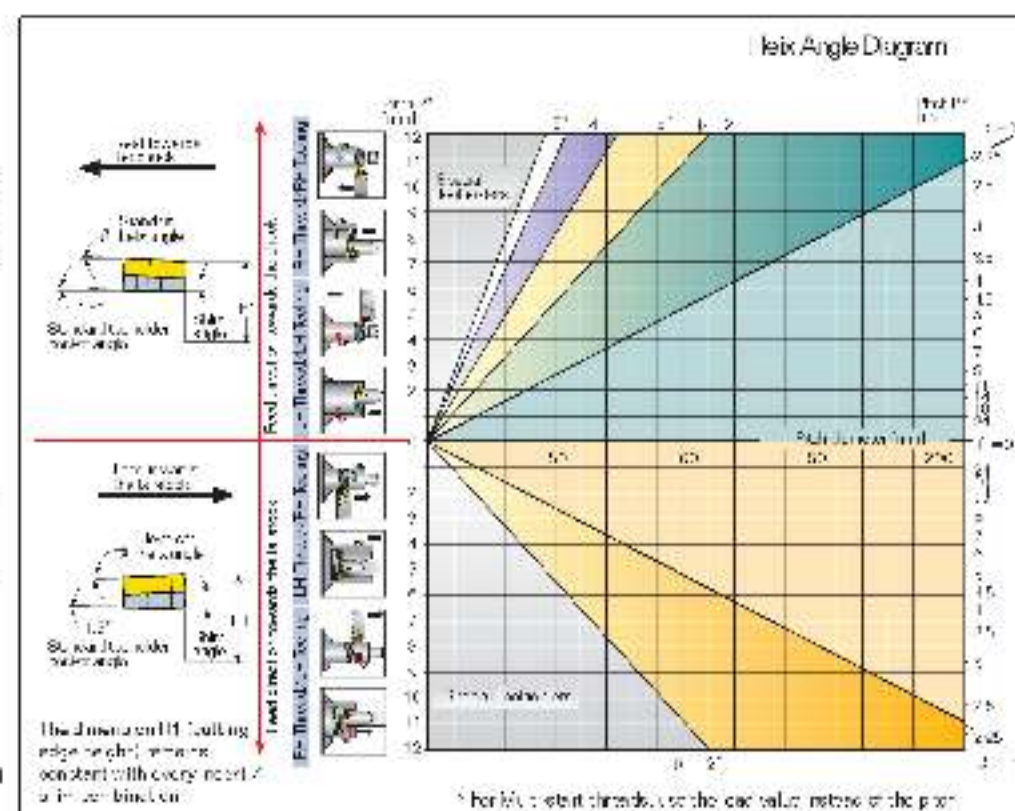


The helix angle is calculated by the following formula:

$$\alpha = \tan^{-1} \frac{P \times N}{D}$$

P: Helix angle
D: Pitch diameter
N: No. of starts
D: Pitch diameter (mm)
Lead = P × N

The helix angle can also be found from the diagram below



Infeed Angle Selection And Chip Formation

Typical Chip Formation

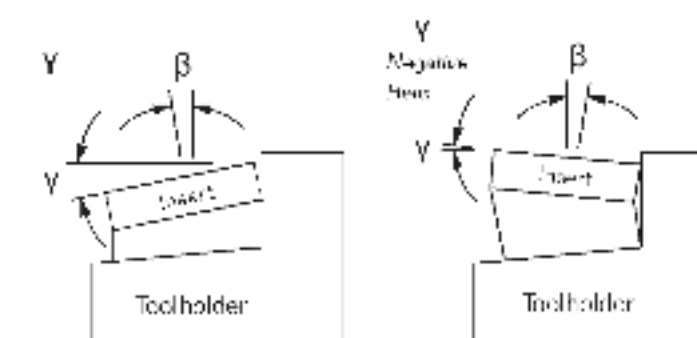
Infeed Angle 0° Benefit: Cutting edge is protected from chipping by both sides in cut. Problem: Both sides of insert are heated by the workpiece. Producing "Vee" chip which can be very difficult to handle.		
Infeed Angle 10° Benefit: Chip is cut off away from thread form. Problem: Trailing edge may dig rather than cut, which may cause chipping.		
Infeed Angle 20° Benefit: Cutting edge is protected from chipping by one side in cut. Chip is buried away from thread form. Built up metal generated is displaced to the trailing edge in cut. Infeed angle should be 0°.		
Alternating Tank Infeed For very large thread forms. Benefit: Increases tool life because both edges are used effectively. Final pass should be 0°.		

The coolant should provide:

Fast heat removal	Good surface coverage	Non-corrosive action	Homogeneity and stability	Good lubricant qualities

Standard and slanted Anvils

SAN DIEGO tool holder and boring bar holders have a built in 1.5° helix compensation angle. This angle may be adjusted to match the helix angle of the thread being produced by replacing the anvil.



Positive Helix Angles

Applicable when turning RH thread with RH holder or LH thread with LH holder.

Negative Helix Angles

Applicable when turning RH thread with LH holder or LH thread with RH holder.

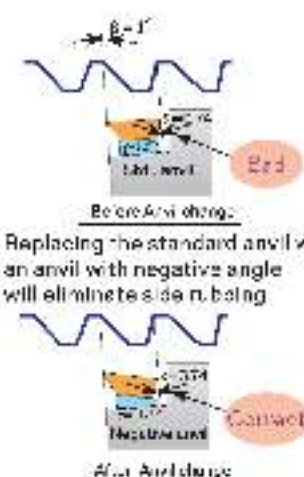
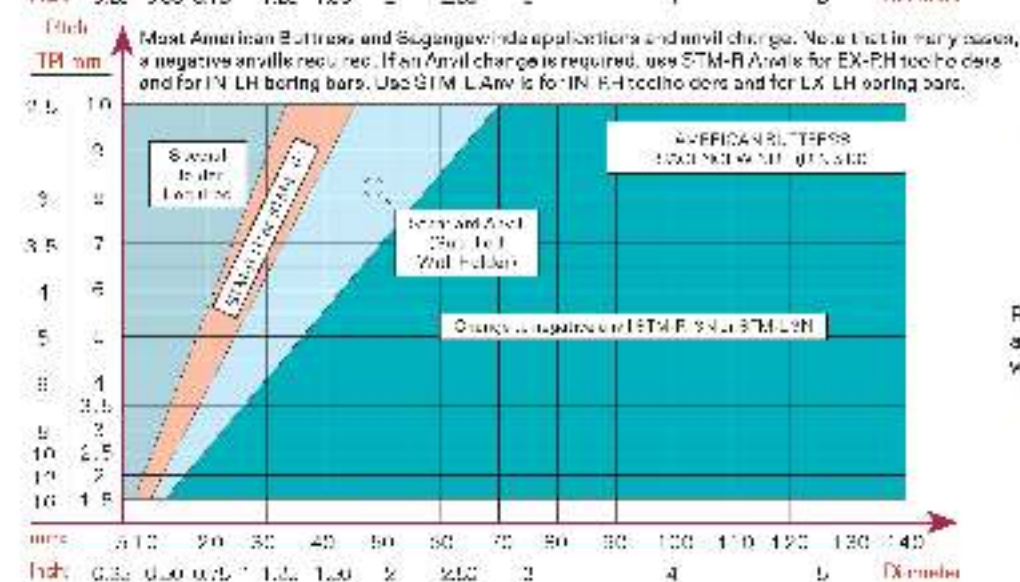
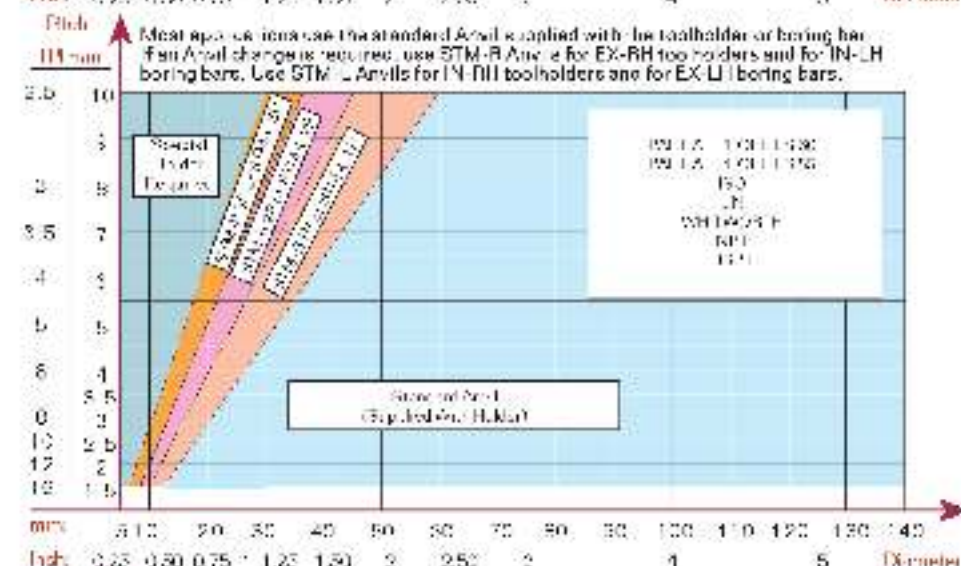
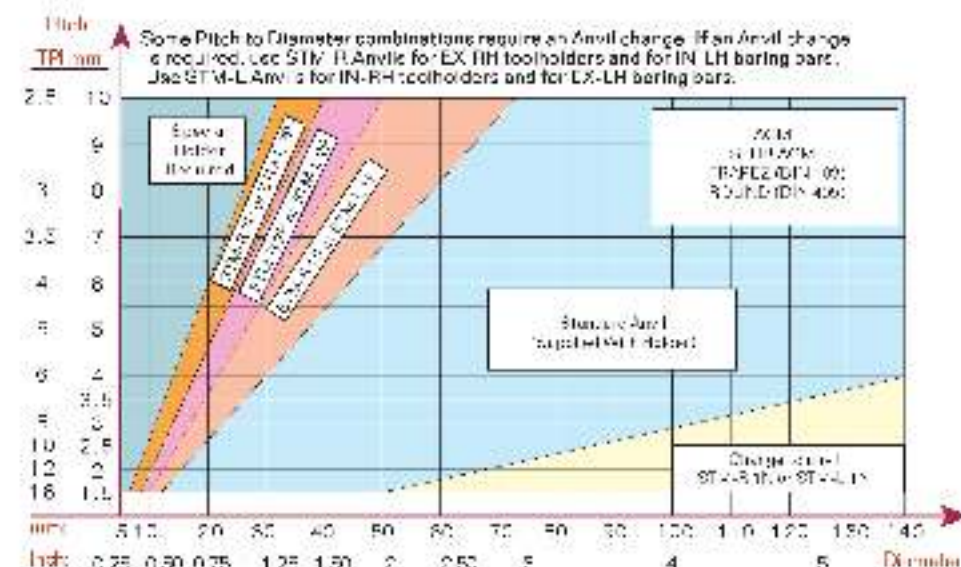
Anvils

Resultant Helix Angle	Insert Size	d	Lmm	Holder	4.5°	5.5°	6.5°	1.5°	0.5°	0°	-0.5°	-1.5°
					Ordering Code							
9.325	16	FR/NL	STM16F-3P	STM16F-2P	STM16F-1P	STM16L	STM16L-1N	STM16L-1.5N	STM16L-2N	STM16L-3N		
12.7	20	FR/NL	STM20F-3P	STM20F-2P	STM20F-1P	STM22F	STM22L-1N	STM22L-1.5N	STM22L-2N	STM22L-3N		
12.7	22	FR/NL	STM22F-3P	STM22F-2P	STM22F-1P	STM22UL	STM22UL-1N	STM22UL-1.5N	STM22UL-2N	STM22UL-3N		
15.875	27	FR/NL	STM27F-3P	STM27F-2P	STM27F-1P	STM27L	STM27L-1N	STM27L-1.5N	STM27L-2N	STM27L-3N		
19.050	27	FR/NL	STM27UL-3P	STM27UL-2P	STM27UL-1P	STM27UL	STM27UL-1N	STM27UL-1.5N	STM27UL-2N	STM27UL-3N		

Standard Shim			Insert Size	d	9.525	12.7	15.875			
				L	16	22	27			
				Holder	FE/NI	FE/NI	FE/NI	FE/NI	FE/NI	FE/NI
				Ordering Code	STM16L	STM16L	STM22L	STM22L	STM27L	STM27L

*Standard anvil has lead angle 1.5°

Anvil Change Recommendation



GRADE & THEIR APPLICATIONS

Grade Use			
SMX30	SMU30	SMG30	SMK01
TiN coated, yellow color. It is used for new, recommended for rough cutting conditions.	TiN, TiAlN coated. Multi-layer PVD coated on the insert level.	TiN coated, Speed grade on threading steel and cast steel.	Uncoated grade for non-ferrous materials, high temperature and abrasion usage.

RECOMMENDED SELECT FOR THREADING

Workpieces	P Carbon steel, alloy steel, cast steel					M Stainless steel, Heat treated steel, Titanium alloy steel					K Cast iron, Aluminum, Cast steel, Copper				
ISO	01	10	20	30	40	01	10	20	30	40	01	10	20	30	40
PVD Coating	SMX30					SMU30					SMK01				
Uncoated															

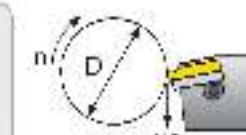
RECOMMENDED CUTTING SPEED FOR THREADING

Material	V (m/min)			
	SMX30	SMU30	SMG30	SMK01
P steel	Cast steel	70-120	80-120	80-120
	Free cutting (Sulphur, Manganese, Lead)	70-120	80-120	80-120
	Alloy steel (Sulphur, Manganese, Lead)	60-100	70-120	80-120
	Free cutting	70-120	80-120	80-120
M Stainless steel	Free cutting (Austenitic)	60-100	70-120	
	Free cutting (Martensitic)	40-100	60-100	
	Free cutting (Ferritic)	60-100	70-120	
	Free cutting (Duplex)	60-100	70-120	
K Cast iron	Grey Cast iron	70-120	80-120	
	Free cutting (Cast iron)	70-120	80-120	
	Aluminum alloy (Aluminum)	80-120	90-120	80-120
	Copper alloy (Copper)	80-120	90-120	80-120

Calculation of N (RPM)

$$n = \frac{V_c \times 1000}{\pi \times D}$$

$$V_c = \frac{\pi \times D \times n}{1000}$$



Vc: Cutting Speed (m/min)
D: Workpiece Diameter (mm)

Number of Passes

Pitch (mm)	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50
No. of passes	4-6	4-7	4-8	5-9	5-10	6-11	7-12	8-13	9-14	10-15	11-16	12-17	13-18	14-19	15-20	16-21

80 One cutting depth is recommended by total cutting depth divided by recommended times.
Example: 1.5mm, 80 times, 1.5mm / 80 = 0.01875mm (0.01875mm)

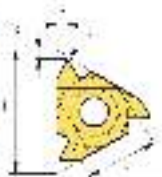
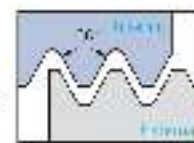
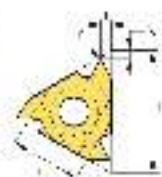
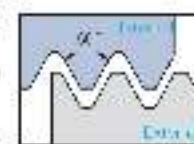
Cutting Condition depending on

Workpiece	Material type	Coolant	Coolant type
	Material Dimension		
	Dimensional Tolerance (Surface Dimension)		
Thread Application	Material Hardness	Hoblers	Hobler Groove Section Area
	Tolerance Internal		Hobler Overhang
	Surface Finish		Through Coolant Option
Machine	Machinability	Insert	Stems type 1 Outside Alloy
	Max. RPM		Carbide Implant Class
	Clamping System Stability		Profile Chase, Pitch and Depth

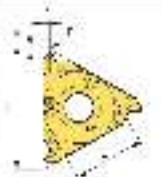
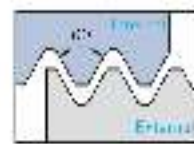
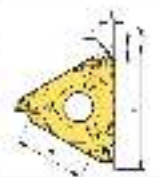
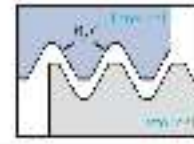
Trouble Shooting

Problem	Possible Cause	Solution
Increased flank wear	Cutting speed too high Depth of cut too high / too many passes Unsuitable work piece grade Insufficient cooling	Reduce cutting speed / Use coated insert Increase the depth of cut per pass Use a coated outside guide Increase coolant flow rate
Uneven cutting edge wear	Incorrect hob angle Wrong feed method	Choose the correct chip Use the Alternating Feed method
Extreme plastic deformation	Depth of cut too large Too few insert passes Cutting speed too high Unsuitable outside guide Nose radius too small	Decrease depth of cut / increase number of passes Increase coolant flow rate Reduce cutting speed Use a longer outside guide Use an insert with a larger radius, if possible
Cutting edge chattering	Depth of cut too large Excessive work piece deformation Vibration during cutting Unsuitable work piece grade Instability	Decrease depth of cut / increase number of passes Use a longer outside guide Increase flow rate and / or coolant flow direction Use a longer outside guide Check stability of the system
Build-up edge	Incorrect cutting speed Unsuitable outside guide	Change the cutting speed Use a coated outside
Thread profile below standard	Excessive depth of the workpiece side height Incorrect machining with thread tool Work piece	Change tool height Measure the workpiece diameter Change the cutting edge position
Poor surface quality	Too low cutting speed Wrong chip Work piece material work appearance	Increase cutting speed Choose even chip Use the alternate feed or peck feed method

Partial profile 60°

Type	Designation (Right)	Designation (Left)	Pitch		Dimensions					Picture
			(mm)	(in)	d	L	r	z	f	
External	ER 1-A60	EL 1-A60	0.5-1.5	40-18	3.575	16	0.05	0.8	0.4	 
	ER-A60	EL-A60	0.5-1.5	40-18	3.575	16	0.05	0.8	0.4	
	ER-D60	EL-D60	1.75-3.0	14-8	3.525	16	0.07	1.0	1.7	
	ER-AG60	EL-AG60	0.5-3.0	40-18	3.575	16	0.08	2	1.7	
	ER-N60	EL-N60	0.5-5.0	14-8	3.525	16	0.05	1.2	2.5	
Internal	IR 1-A60	IL 1-A60	0.5-1.5	40-18	4.78	8	0.05	0.8	0.7	 
	IR-A60	IL-A60	0.5-1.5	40-18	5.00	8	0.05	0.8	0.9	
	IR-D60	IL-D60	1.75-3.0	14-8	3.525	16	0.05	0.8	0.4	
	IR-AG60	IL-AG60	0.5-3.0	40-18	3.525	16	0.05	1.2	1.7	
	IR-N60	IL-N60	0.5-5.0	14-8	12.7	22	0.05	1.7	2.5	

Partial profile 60° (M Chip Breaker)

Type	Designation (Right)	Designation (Left)	Pitch		Dimensions					Picture
			(mm)	(in)	d	L	r	z	f	
External	ERM 6-A60		0.5-1.5	40-18	3.575	16	0.05	0.8	0.3	 
	ERD-600		1.75-3.0	14-8	3.575	16	0.05	2	7	
	ERD-AG60		0.5-3.0	40-18	3.525	16	0.08	2	1.7	
	ERD-N60		0.5-5.0	14-8	12.7	22	0.05	1.7	2.5	
Internal	IRM 11-A60		0.5-1.5	40-18	3.575	17	0.05	0.8	0.3	 
	IRM-A60		0.5-1.5	40-18	3.525	16	0.08	0.8	0.9	
	IRM-D60		1.75-3.0	14-8	3.525	16	0.07	1.0	1.7	
	IRM-AG60		0.5-3.0	40-18	3.525	16	0.08	2	1.7	

Partial profile 60° (U Style)

Type	Designator (Right)	Designation (Left)	Pitch		Dimensions					Figure
			mm	dp	a	L	r	x	f	
External	UFI	60-UFI	0.5~2.0	1.0~1.1	1.380	0	0.15	0.6	4.0	
		10-UFI	1.0~2.0	1.0~1.1	1.380	0	0.15	0.6	4.0	
		22-UFI	3.5~6.0	4.5~5.25	12.70	22	0.20	0.6	11.0	
		27-UFI	3.5~8.0	4~5.25	15.00	27	0.30	1.0	15.0	

Partial profile 55°

Type	Designator (Right)	Designation (Left)	Pitch		Dimensions					Figure
			mm	dp	a	L	r	x	f	
External	FI	55-FI	0.5~5	48~10	0.25	1	0.05	0.9	0.9	
		10-FI	0.5~5	48~10	0.25	10	0.05	0.9	0.9	
		15-FI	1.0~5.0	14~10	0.25	6	0.10	1.2	1.2	
		15-FI-05	0.5~5.0	48~8	0.25	16	0.07	1.2	1.7	
		22-FI	3.5~6.0	7~5	2.7	22	0.48	1.7	2.5	
Internal	FI	55-FI	0.5~5	48~10	0.25	1	0.05	0.9	0.9	
		10-FI	0.5~5	48~10	0.25	10	0.05	0.9	0.9	
		15-FI	1.0~5.0	14~8	0.25	6	0.10	1.2	1.2	
		15-FI-05	0.5~5.0	48~8	0.25	16	0.07	1.2	1.7	
		22-FI	3.5~6.0	7~5	2.7	22	0.48	1.7	2.5	
		27-FI	3.5~8.0	4.5~5	15.00	27	0.30	1.0	15.0	

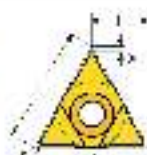
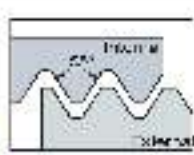
Partial profile 60° (V Style)

Type	Designator (Right)	Designation (Left)	Pitch		Dimensions						Figure
			mm	dp	a	L	r	x	f	t	
External	VFI 11-600	VF 11-600	0.5~1.5	49~15	0.25	11	0.05	0.69	2.3	0.2	
	16-600	16-600	0.5~1.5	40~15	0.25	18	0.05	1.1	2.2	0.5	
	15-600	15-600	1.5~3.0	17~10	0.25	18	0.27	1.1	5	0.5	
	16-600-05	16-600-05	0.5~3.0	40~11	0.25	18	0.08	1.1	1.2	0.5	
	22-600	22-600	3.5~5.0	7~5	12.7	22	0.30	1.1	2.3	4.0	

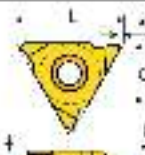
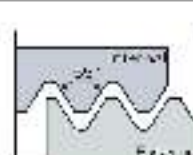
Partial profile 55° (M Chip Breaker)

Type	Designator (Right)	Designation (Left)	Pitch		Dimensions					Figure
			mm	dp	a	L	r	x	f	
External	LFI	55-LFI	0.5~5	48~15	0.25	16	0.08	0.9	0.9	
		10-LFI	0.5~5	15~10	0.25	8	0.10	1.2	1.2	
		15-LFI	0.5~5.0	40~10	0.25	16	0.07	1.2	1.7	
		22-LFI	3.5~6.0	7~5	2.7	22	0.48	1.7	2.5	
Internal	FI	55-FI	0.5~5	48~10	0.25	1	0.05	0.9	0.9	
		10-FI	0.5~5	40~10	0.25	8	0.08	0.9	0.9	
		15-FI	1.0~5.0	15~10	0.25	8	0.10	1.2	1.2	
		15-FI-05	0.5~5.0	48~8	0.25	16	0.08	1.2	1.7	
		22-FI	3.5~6.0	7~5	2.7	22	0.48	1.7	2.5	

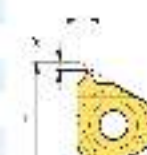
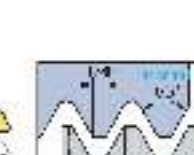
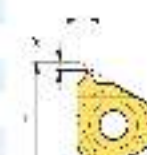
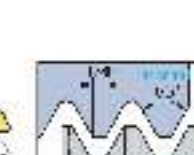
Partial profile 55 (U Style)

Type	Designation (H40)	Pitch		Dimensions					Picture
		(mm)	(in)	d	l	r	s	t	
Internal + External	1.9 double	0.75-0.9	14-11	4.96, 1	8	0.25	0.8	1.9	 
	11 LCO	0.75-0.9	14-11	5.33, 1	1	0.25	0.8	8.5	
	24 Ls	1.5-1.8	11-10.25	12.7, 1	25	0.30	0.9	11.3	
	27 LCO	1.5-1.8	11-10.25	15.875, 1	19	0.30	1.2	13.7	

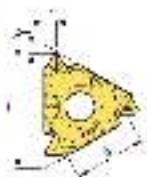
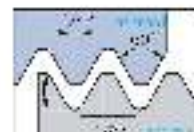
Partial profile 55 (V Style)

Type	Designation (H40)	Designation (L40)	Pitch		Dimensions						Picture
			(mm)	(in)	d	l	r	s	t		
External	VL 1.9 VSE	VL 1.9 VSE	0.5-0.7	18-15	0.35	1	0.35	0.8	2.7	0.2	 
	16 VSE	16 VSE	0.5-0.7	48-15	0.525	6	0.35	1	2.7	0.6	
	16 VSE	16 VSE	1.75-3.0	4-4.8	0.555	6	0.31	1	1.3	0.6	
	16 VSE	16 VSE	0.5-0.7	18-15	0.525	6	0.37	1	1.9	0.6	
External	22 VSE	22 VSE	0.5-0.7	7-5	0.7	25	0.43	1	2.3	4.6	 
	22 VSE	22 VSE	0.5-0.7	7-5	0.7	25	0.43	1	2.3	4.6	

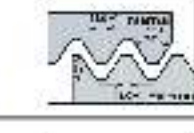
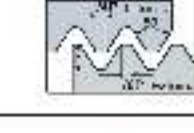
ISO Metric

Type	Designation (H40)	Designation (L40)	Pitch (mm)	Dimensions					Picture
				d	L	hrin	r	t	
Internal	FR 11-0.8530	FR 11-0.8530	0.35	8.25	11	0.01	0.8	0.7	 
	11-0.800	11-0.700	0.7	8.25	11	0.01	0.7	0.7	
	11-0.650	11-0.600	0.45	8.25	11	0.01	0.7	0.7	
	11-0.550	11-0.500	0.5	8.25	11	0.01	0.8	0.7	
	11-0.500	11-0.500	0.8	8.25	11	0.01	0.8	0.8	
	11-0.450	11-0.450	0.7	8.25	11	0.01	0.8	0.8	
	11-0.350	11-0.350	0.75	8.25	11	0.01	0.8	0.8	
	11-0.300	11-0.300	0.9	8.25	11	0.01	0.8	0.8	
	11-0.250	11-0.250	1.0	8.25	11	0.01	0.7	0.7	
	11-0.200	11-0.200	1.25	8.25	11	0.01	0.8	0.8	
	11-0.150	11-0.150	1.5	8.25	11	0.02	0.8	1.0	
	11-0.100	11-0.100	1.75	8.25	11	0.01	0.8	1.1	
	16-0.5530	16-0.5530	0.35	8.525	16	0.1	0.8	0.4	
	16-0.450	16-0.450	0.7	8.525	16	0.05	0.7	0.7	
	16-0.400	16-0.400	0.75	8.525	16	0.05	0.7	0.7	
	16-0.350	16-0.350	0.5	8.525	16	0.01	0.8	0.7	
	16-0.300	16-0.300	0.5	8.525	16	0.01	0.8	0.7	
	16-0.250	16-0.250	0.75	8.525	16	0.05	0.8	0.7	
	16-0.200	16-0.200	0.9	8.525	16	0.05	0.8	0.7	
	16-0.150	16-0.150	1.0	8.525	16	0.01	0.7	0.7	
	16-0.100	16-0.100	1.25	8.525	16	0.01	0.8	0.4	
	16-0.050	16-0.050	1.5	8.525	16	0.02	0.8	1.0	
External	16-0.7530	16-0.7530	1.75	8.525	16	0.01	0.8	1.2	 
	16-0.650	16-0.650	2.0	8.525	16	0.01	1.0	1.0	
	16-0.550	16-0.550	2.5	8.525	16	0.01	1.0	1.0	
	16-0.450	16-0.450	3.0	8.525	16	0.01	1.0	1.0	
	22-0.550	22-0.550	3.5	12.7	22	2.15	1.0	2.0	
	22-0.500	22-0.500	4.0	12.7	22	2.45	1.0	2.0	
	22-0.450	22-0.450	4.5	12.7	22	2.75	1.0	2.4	
	22-0.400	22-0.400	5.0	12.7	22	3.07	1.0	2.5	
	27-0.550	27-0.550	5.5	15.875	27	3.37	1.0	3.0	
	27-0.500	27-0.500	6.0	15.875	27	3.68	2.0	3.0	

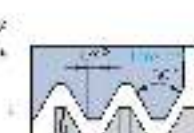
ISO Metric (M Chip Breaker)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	hmin	s	r	
External	LM 10-0.80		1.0	8.50	18	0.81	0.4	0.4	 
	10-1.00		1.25	8.50	18	0.44	0.4	0.4	
	10-1.25		1.5	9.50	16	0.90	0.8	1.0	
	10-1.50		1.75	9.50	16	1.09	0.8	1.2	
	10-2.00		2.0	9.50	16	1.23	1.0	1.0	
	10-2.50		2.5	9.50	16	1.55	1.0	1.0	
	10-3.00		3.0	9.50	16	1.87	2.0	1.0	

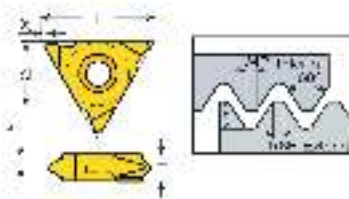
ISO Metric (U Style)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	hmin	s	r	
Internal	10-0.80		0.8	12.70	22	3.07	2.2	11.0	 
	22-0.80		0.8	12.70	22	3.07	2.2	11.0	
	10-1.00		1.0	12.70	22	3.48	1.2	11.0	
	10-1.25		1.25	15.875	27	4.5	2.4	13.7	
External	10-0.80		0.8	12.70	22	3.17	2.4	11.0	 
	10-1.00		1.0	12.70	22	3.48	1.1	11.0	
	27-0.80		0.8	15.875	27	4.20	2.4	13.7	

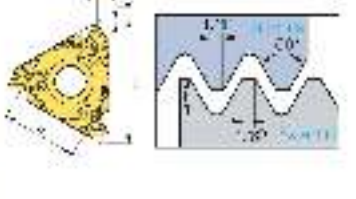
ISO Metric

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	hmin	s	r	
Internal	10-0.35		0.35	5.35	11	0.35	0.3	0.3	 
	10-0.50		0.4	5.35	11	0.35	0.3	0.4	
	10-0.60		0.45	5.35	11	0.35	0.3	0.4	
	10-0.80		0.5	5.35	11	0.35	0.3	0.4	
	10-1.00		0.6	5.35	11	0.35	0.3	0.6	
	10-1.25		0.7	5.35	11	0.40	0.3	0.6	
	10-1.50		0.75	5.35	11	0.40	0.3	0.6	
	10-1.75		0.8	5.35	11	0.40	0.3	0.6	
	10-2.00		1.0	5.35	11	0.40	0.3	0.7	
	10-2.50		1.25	5.35	11	0.40	0.3	0.8	
	10-3.00		1.5	5.35	11	0.87	0.8	0	
	10-3.50		1.75	5.35	11	1.01	0.8	1.1	
	10-4.00		2.0	5.35	11	1.15	0.8	1.1	
	10-4.50		2.5	5.35	11	1.44	0.8	1	
	10-5.00		3.0	5.35	16	3.30	0.8	0.8	
	10-5.50		3.45	5.35	16	3.30	0.8	0.4	
	10-6.00		3.6	5.35	16	3.30	0.8	0.4	
	10-6.50		3.8	5.35	16	3.30	0.8	0.4	
	10-7.00		4.0	5.35	16	3.30	0.8	0.6	
	10-7.50		4.25	5.35	16	3.30	0.8	0.6	
	10-8.00		4.5	5.35	16	3.30	0.8	0.6	
	10-8.50		4.75	5.35	16	3.30	0.8	0.6	
	10-9.00		5.0	5.35	16	3.30	0.8	0.6	
	10-9.50		5.25	5.35	16	3.30	0.8	0.6	
	10-10.00		5.5	5.35	16	3.30	0.8	0.6	
	10-11.00		6.0	5.35	16	3.30	0.8	0.6	
	10-12.00		6.5	5.35	16	3.30	0.8	0.6	
	10-13.00		7.0	5.35	16	3.30	0.8	0.6	
	10-14.00		7.5	5.35	16	3.30	0.8	0.6	
	10-15.00		8.0	5.35	16	3.30	0.8	0.6	
	10-16.00		8.5	5.35	16	3.30	0.8	0.6	
	10-17.00		9.0	5.35	16	3.30	0.8	0.6	
	10-18.00		9.5	5.35	16	3.30	0.8	0.6	
	10-19.00		10.0	5.35	16	3.30	0.8	0.6	
	10-20.00		10.5	5.35	16	3.30	0.8	0.6	
	10-22.00		11.0	5.35	16	3.30	0.8	0.6	
	10-24.00		12.0	5.35	16	3.30	0.8	0.6	
	10-26.00		13.0	5.35	16	3.30	0.8	0.6	
	10-28.00		14.0	5.35	16	3.30	0.8	0.6	
	10-30.00		15.0	5.35	16	3.30	0.8	0.6	
	10-32.00		16.0	5.35	16	3.30	0.8	0.6	
	10-36.00		18.0	5.35	16	3.30	0.8	0.6	
	10-40.00		20.0	5.35	16	3.30	0.8	0.6	
	10-45.00		22.5	5.35	16	3.30	0.8	0.6	
	10-50.00		25.0	5.35	16	3.30	0.8	0.6	
	10-55.00		27.5	5.35	16	3.30	0.8	0.6	
	10-60.00		30.0	5.35	16	3.30	0.8	0.6	

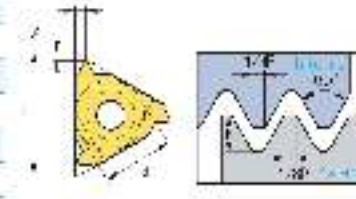
ISO Metric (V Style)

Type	Designation (Fig. 1)	Designation (Fig. 2)	Pitch	Dimensions					Picture	
			(mm)	d	L (mm)	s	r	t		
External	VL4-1.0-0.75 ISO	VL4-1.0-0.75	0.75	6.35	1	0.46	0.7	2.0	3.0	
	VL4-1.0 ISO	VL4-1.0 ISO	1.0	6.35	1	0.6	0.7	2.0	3.0	
	VL4-1.0 ISO	VL4-1.0 ISO	1.5	6.35	1	0.8	0.7	2.0	3.0	
	VL4-1.75 ISO	VL4-1.75 ISO	1.75	6.35	1.1	1.0	0.7	2.1	3.0	
	VL4-2.0 ISO	VL4-2.0 ISO	2.0	6.35	1.1	1.2	0.7	2.4	3.0	
	VL4-2.5 ISO	VL4-2.5 ISO	2.5	8.45	1.6	1.4	1.1	2.5	3.0	
	VL4-3.0 ISO	VL4-3.0 ISO	3.0	9.025	1.6	1.6	1.1	3.2	3.0	
	VL4-3.5 ISO	VL4-3.5 ISO	3.5	9.025	1.6	1.8	1.1	3.0	3.0	
	VL4-4.0 ISO	VL4-4.0 ISO	4.0	9.025	1.6	2.0	1.1	3.0	3.0	
	VL4-4.5 ISO	VL4-4.5 ISO	4.5	9.025	1.6	2.2	1.1	3.0	3.0	
	VL4-5.0 ISO	VL4-5.0 ISO	5.0	9.025	1.6	2.4	1.1	3.0	3.0	
	VL4-5.5 ISO	VL4-5.5 ISO	5.5	9.025	1.6	2.6	1.1	3.0	3.0	
	VL4-6.0 ISO	VL4-6.0 ISO	6.0	9.025	1.6	2.8	1.1	3.0	3.0	
	VL4-6.5 ISO	VL4-6.5 ISO	6.5	9.025	1.6	3.0	1.1	3.0	3.0	
	VL4-7.0 ISO	VL4-7.0 ISO	7.0	9.025	1.6	3.2	1.1	3.0	3.0	
	VL4-7.5 ISO	VL4-7.5 ISO	7.5	9.025	1.6	3.4	1.1	3.0	3.0	
	VL4-8.0 ISO	VL4-8.0 ISO	8.0	9.025	1.6	3.6	1.1	3.0	3.0	

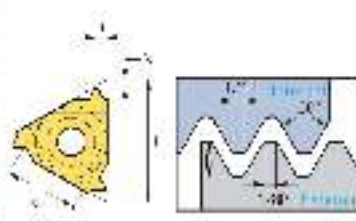
ISO Metric (M Chip Breaker)

Type	Designation (Fig. 1)	Designation (Fig. 2)	Pitch (mm)	Dimensions					Picture
				d	L (mm)	s	r	t	
Internal	IM4-1.0-1.0 ISO		1.0	6.35	1	0.6	0.8	1.0	
	IM4-1.0 ISO		1.0	6.35	1.0	0.8	0.8	0.7	
	IM4-1.5 ISO		1.5	6.35	1.0	0.7	0.8	0.9	
	IM4-2.0 ISO		2.0	6.35	1.0	0.6	0.8	1.0	
	IM4-2.5 ISO		2.5	6.35	1.0	1.0	0.8	1.2	
	IM4-3.0 ISO		3.0	6.35	1.0	1.2	1.0	1.0	
	IM4-3.5 ISO		3.5	6.35	1.0	1.4	1.1	1.0	

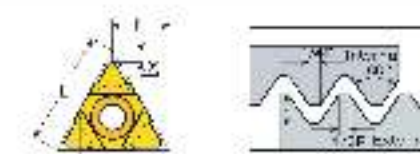
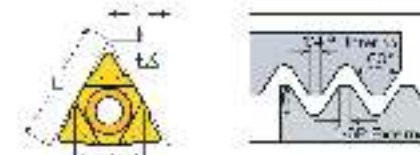
American UN (UN, UNC, UNE, UNF, UNS)

Type	Designation (Fig. 1)	Designation (Fig. 2)	Pitch (in)	Dimensions					Picture
				d	L (in)	s	r	t	
External	UN-1.75UN	UN-1.75UN	.07	6.35	1	0.22	0.6	0.4	
	UN-1.0UN	UN-1.0UN	.06	6.35	1	0.24	0.8	0.4	
	UN-1.5UN	UN-1.5UN	.05	6.35	1	0.28	0.7	0.4	
	UN-1.0UN	UN-1.0UN	.04	6.35	1	0.32	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.03	6.35	1	0.36	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.02	6.35	1	0.40	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.01	6.35	1	0.44	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.005	6.35	1	0.48	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.002	6.35	1	0.52	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.001	6.35	1	0.56	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0005	6.35	1	0.60	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0002	6.35	1	0.64	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0001	6.35	1	0.68	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00005	6.35	1	0.72	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00002	6.35	1	0.76	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00001	6.35	1	0.80	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000005	6.35	1	0.84	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000002	6.35	1	0.88	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000001	6.35	1	0.92	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000005	6.35	1	0.96	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000002	6.35	1	1.00	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000001	6.35	1	1.04	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000005	6.35	1	1.08	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000002	6.35	1	1.12	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000001	6.35	1	1.16	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000005	6.35	1	1.20	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000002	6.35	1	1.24	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000001	6.35	1	1.28	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000005	6.35	1	1.32	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000002	6.35	1	1.36	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000001	6.35	1	1.40	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000000005	6.35	1	1.44	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000000002	6.35	1	1.48	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000000001	6.35	1	1.52	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000000005	6.35	1	1.56	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000000002	6.35	1	1.60	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000000001	6.35	1	1.64	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000000005	6.35	1	1.68	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000000002	6.35	1	1.72	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000000001	6.35	1	1.76	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000000000005	6.35	1	1.80	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000000000002	6.35	1	1.84	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.00000000000001	6.35	1	1.88	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000000000005	6.35	1	1.92	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000000000002	6.35	1	1.96	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.000000000000001	6.35	1	2.00	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000000000005	6.35	1	2.04	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000000000002	6.35	1	2.08	0.6	0.6	
	UN-1.0UN	UN-1.0UN	.0000000000000001	6.35	1	2.12	0.6	0.6	

American UN (UN, UNC, UNE, UNF, UNS)

Type	Designation (Right)	Designation (Left)	Pitch (p)	Dimensions					Picture
				d	L	Minor	s	l	
External	1/4-11.72UN	1/4-11.72UN	22	6.35	11	0.20	0.9	0.3	
	1/4-8UN	1/4-8UN	64	6.35	11	0.28	0.8	0.4	
	1/4-6UN	1/4-6UN	66	6.35	11	0.36	0.7	0.4	
	1/4-4UN	1/4-4UN	48	6.35	11	0.51	0.5	0.3	
	1/4-3UN	1/4-3UN	44	6.35	11	0.62	0.4	0.3	
	1/4-2UN	1/4-2UN	40	6.35	11	0.67	0.3	0.3	
	1/4-1.5UN	1/4-1.5UN	36	6.35	11	0.61	0.3	0.3	
	1/4-1.2UN	1/4-1.2UN	35	6.35	11	0.66	0.3	0.3	
	1/4-1UN	1/4-1UN	32	6.35	11	0.66	0.3	0.3	
	1/4-9/16UN	1/4-9/16UN	28	6.35	11	0.54	0.7	0.3	
	1/4-7/8UN	1/4-7/8UN	24	6.35	11	0.51	0.7	0.3	
	1/2-2UN	1/2-2UN	20	6.35	11	0.73	0.3	0.3	
	1/2-1.5UN	1/2-1.5UN	16	6.35	11	0.81	0.3	0.3	
	1/2-1UN	1/2-1UN	16	6.35	11	0.92	0.3	0.3	
	1/2-3/4UN	1/2-3/4UN	14	6.35	11	1.06	0.3	0.3	
	1/2-5/8UN	1/2-5/8UN	12	6.35	11	1.25	0.3	0.3	
	1/2-1/2UN	1/2-1/2UN	11	6.35	11	1.32	0.3	0.3	
	3/4-1UN	3/4-1UN	10	8.525	15	0.70	0.8	0.3	
	3/4-9/8UN	3/4-9/8UN	8	8.525	15	0.73	0.8	0.3	
	3/4-7/8UN	3/4-7/8UN	66	8.525	15	0.26	0.7	0.4	
Internal	3/4-6UN	3/4-6UN	48	8.525	15	0.51	0.5	0.3	
	3/4-4UN	3/4-4UN	44	8.525	15	0.62	0.5	0.3	
	3/4-3UN	3/4-3UN	40	8.525	15	0.67	0.5	0.3	
	3/4-2UN	3/4-2UN	36	8.525	15	0.71	0.5	0.3	
	3/4-1.5UN	3/4-1.5UN	32	8.525	15	0.81	0.5	0.3	
	3/4-1.2UN	3/4-1.2UN	30	8.525	15	0.81	0.5	0.3	
	3/4-1UN	3/4-1UN	28	8.525	15	0.80	0.5	0.3	
	3/4-9/8UN	3/4-9/8UN	24	8.525	15	0.80	0.5	0.3	
	3/4-7/8UN	3/4-7/8UN	22	8.525	15	0.84	0.7	0.3	
	3/4-3/4UN	3/4-3/4UN	20	8.525	15	0.92	0.8	0.3	
	3/4-5/8UN	3/4-5/8UN	18	8.525	15	1.06	0.8	0.3	
	3/4-1/2UN	3/4-1/2UN	16	8.525	15	1.12	1.0	0.3	
	3/4-9/16UN	3/4-9/16UN	14	8.525	15	1.25	1.1	0.3	
	3/4-7/16UN	3/4-7/16UN	12	8.525	15	1.38	1.1	0.3	
	3/4-1/4UN	3/4-1/4UN	11	8.525	15	1.50	1.1	0.3	
	3/4-3/8UN	3/4-3/8UN	10	8.525	15	1.67	1.1	0.3	
	3/4-1/8UN	3/4-1/8UN	8	8.525	15	1.93	1.2	0.3	
	1/2-3/4UN	1/2-3/4UN	8	8.525	15	1.93	1.2	0.3	
	1/2-3/8UN	1/2-3/8UN	7	10.7	22	1.38	1.3	2.5	
	1/2-1/4UN	1/2-1/4UN	6	10.7	22	1.54	1.3	2.5	
	1/2-1/8UN	1/2-1/8UN	5	10.7	22	1.90	1.7	2.5	
	3/8-1/2UN	3/8-1/2UN	4.5	8.525	21	2.28	1.8	2.6	
	3/8-1/4UN	3/8-1/4UN	4	10.875	27	3.37	2.1	2.7	

American UN (U Style)

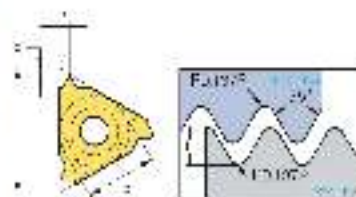
Type	Designation (Right+Left)	Pitch (p)	Dimensions					Picture
			d	L	Minor	s	l	
External	1/4-9/16UN	4.5	11.71	22	0.46	0.5	11.0	
	1/4-8UN	4	12.70	22	0.50	0.5	11.0	
	1/4-6UN	3	15.875	27	0.10	0.5	10.7	
Internal	1/4-9/16UN	4.5	12.71	22	0.46	0.4	11.0	
	1/4-8UN	4	12.70	22	0.50	0.4	11.0	
	1/4-6UN	3	15.875	27	0.10	0.4	10.7	

American UN (V Style)

Type	Designation (Right)	Designation (Left)	Pitch (p)	Dimensions					Picture
				d	L	Minor	s	l	
External	VER 1/4-11.72UN	VER 1/4-11.72UN	22	6.35	11	0.78	0.84	0.5	
	1/4-8UN	1/4-8UN	8	6.35	11	0.67	0.84	0.2	
	1/4-6UN	1/4-6UN	6	6.35	11	0.67	0.60	0.2	
	1/4-4UN	1/4-4UN	4	6.35	11	1.1	0.89	0.2	
	1/4-3UN	1/4-3UN	3	6.35	11	1.50	0.89	0.1	
	1/2-2UN	1/2-2UN	20	8.525	15	0.78	1.1	0.2	
	1/2-1.5UN	1/2-1.5UN	16	8.525	15	0.78	1.1	0.2	
	1/2-1UN	1/2-1UN	14	8.525	15	0.78	1.1	0.2	
	1/2-9/8UN	1/2-9/8UN	12	8.525	15	0.78	1.1	0.2	
	1/2-7/8UN	1/2-7/8UN	10	8.525	15	0.78	1.1	0.2	
	1/2-3/4UN	1/2-3/4UN	8	8.525	15	0.78	1.1	0.2	
	1/2-5/8UN	1/2-5/8UN	6	8.525	15	0.78	1.1	0.2	
	1/2-1/2UN	1/2-1/2UN	5	8.525	15	0.78	1.1	0.2	
	1/2-9/16UN	1/2-9/16UN	4	8.525	15	0.78	1.1	0.2	
	1/2-7/16UN	1/2-7/16UN	3	8.525	15	0.78	1.1	0.2	
	1/2-1/4UN	1/2-1/4UN	2	8.525	15	0.78	1.1	0.2	
	1/2-1/8UN	1/2-1/8UN	1	8.525	15	0.78	1.1	0.2	

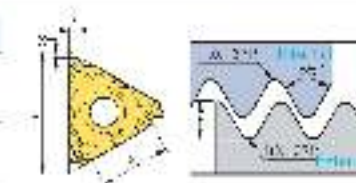
Whitworth (BSW, BSF, BSP, BSF)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Pitch
				d	L	mm	s	t	
External	LL 11.72W	LL 11.72W	73	9.35	11	0.23	0.7	0.4	
	11.67W	11.67W	60	9.35	11	0.27	0.7	0.4	
	11.60W	11.60W	48	9.35	11	0.29	0.7	0.4	
	11.48W	11.48W	48	9.35	11	0.34	0.6	0.6	
	11.43W	11.43W	40	9.35	11	0.41	0.6	0.6	
	11.30W	11.30W	36	9.35	11	0.5	0.6	0.6	
	11.25W	11.25W	32	9.35	11	0.51	0.6	0.6	
	11.28W	11.28W	38	9.35	11	0.58	0.6	0.7	
	11.23W	11.23W	30	9.35	11	0.63	0.7	0.8	
	11.24W	11.24W	27	9.35	11	0.64	0.7	0.8	
	11.22W	11.22W	23	9.35	11	0.74	0.8	0.9	
	11.27W	11.27W	20	9.35	11	0.81	0.8	0.9	
	11.13W	11.13W	19	9.35	11	0.98	0.8	1.0	
	11.18W	11.18W	18	9.35	11	1.00	0.8	1.0	
	11.12W	11.12W	16	9.35	11	1.02	0.8	1.1	
	11.14W	11.14W	17	9.35	11	1.15	1.0	1.2	
	15.72W	15.72W	72	9.525	16	0.23	0.7	0.4	
	15.67W	15.67W	60	9.525	16	0.27	0.7	0.4	
	15.60W	15.60W	48	9.525	16	0.29	0.7	0.4	
	15.48W	15.48W	48	9.525	16	0.34	0.6	0.6	
	15.43W	15.43W	40	9.525	16	0.41	0.6	0.6	
Internal	15.30W	15.30W	36	9.525	16	0.5	0.6	0.6	
	15.25W	15.25W	32	9.525	16	0.51	0.6	0.6	
	15.28W	15.28W	38	9.525	16	0.58	0.6	0.7	
	15.23W	15.23W	30	9.525	16	0.63	0.6	0.7	
	15.24W	15.24W	27	9.525	16	0.64	0.6	0.7	
	15.22W	15.22W	23	9.525	16	0.74	0.6	0.8	
	15.27W	15.27W	20	9.525	16	0.81	0.6	0.8	
	15.13W	15.13W	19	9.525	16	0.98	0.6	1.0	
	15.18W	15.18W	18	9.525	16	1.00	0.6	1.0	
	15.12W	15.12W	16	9.525	16	1.02	0.6	1.1	
	15.14W	15.14W	17	9.525	16	1.15	1.0	1.2	
	15.13W	15.13W	12	9.525	16	1.38	1.1	1.4	
	15.11W	15.11W	11	9.525	16	1.43	1.1	1.5	
	15.12W	15.12W	10	9.525	16	1.55	1.1	1.6	
	15.06W	15.06W	8	9.525	16	1.90	1.2	1.9	
	15.06W	15.06W	6	9.525	16	2.05	1.2	1.9	
	22.74W	22.74W	7	12.7	22	3.32	1.0	3.0	
	22.62W	22.62W	5	12.7	22	3.71	1.0	3.0	
	22.62W	22.62W	5	12.7	22	3.75	1.1	3.1	
	27.14W	27.14W	40	15.875	27	0.51	1.8	3.0	
	27.14W	27.14W	5	15.875	27	4.97	2.0	2.8	



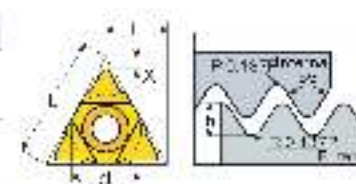
Whitworth (M Chip Breaker)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Pitch
				d	L	mm	s	t	
External	FFM 13.4W		14	9.525	16	1.16	1.0	1.3	
	13.11W		11	9.525	16	1.48	1.1	1.5	



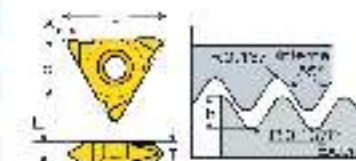
Whitworth (U Style)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Pitch
				d	L	mm	s	t	
External	LL 22.40W		4.5	12.7	27	3.81	2.5	11.3	
	22.40W		4	12.7	27	3.81	2.5	11.3	
	22.35W		5.0	12.7	27	4.05	2.5	11.3	
	22.320W		3.20	12.7	27	5.08	2.0	11.3	
	27.05W		5.0	15.875	27	4.05	2.5	12.7	
	27.050W		3.20	15.875	27	5.08	2.0	12.7	
	27.20W		3	15.875	27	5.40	2.5	12.7	
	27.10W		3.20	15.875	27	5.81	2.4	12.7	

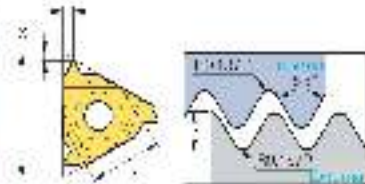


Whitworth (V Style)

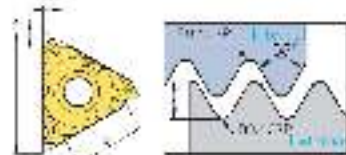
Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Pitch
				d	L	mm	s	t	
External	VPS 11.18W	VPS 11.18W	6	9.35	11	0.63	0.32	2.5	0.2
	11.14W	11.14W	4	9.35	11	1.5	0.59	2.0	0.2
	11.11W	11.11W	11	9.35	11	1.49	0.32	1.1	0.2
	16.16W	16.16W	9	9.525	16	0.63	1.1	2.7	0.3
	16.18W	16.18W	14	9.525	16	0.63	1.31	2.6	0.3
	16.18W	16.18W	6	9.525	16	1.02	1.1	2.6	0.3
	16.14W	16.14W	11	9.525	16	1.13	1.1	2.1	0.3
	16.12W	16.12W	12	9.525	16	1.35	1.1	2.2	0.3
	16.11W	16.11W	11	9.525	16	1.49	1.1	2.1	0.3



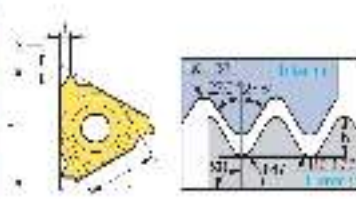
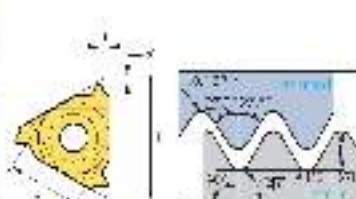
Whitworth (BSW, BSF, BSP, BSD)

VDA VDA	Designation (Right)	Designation (Left)	Flank (°)	Dimensions					Picture
				d	L	minor	s	r	
Interne	IP 11-25W	11-11-25W	72	8.35	11	0.25	0.7	0.4	
	11-40W	11-40W	80	8.35	11	0.27	0.7	0.4	
	11-50W	11-50W	80	8.35	11	0.29	0.7	0.4	
	11-60W	11-60W	70	8.35	11	0.31	0.8	0.6	
	11-80W	11-80W	70	8.35	11	0.33	0.8	0.6	
	11-90W	11-90W	88	8.35	11	0.45	0.9	0.8	
	11-100W	11-100W	92	8.35	11	0.51	0.8	0.6	
	11-140W	11-140W	24	8.35	11	0.59	0.8	0.7	
	11-160W	11-160W	26	8.35	11	0.63	0.7	0.6	
	11-180W	11-180W	27	8.35	11	0.69	0.7	0.8	
	11-200W	11-200W	22	8.35	11	0.77	0.8	0.8	
	11-250W	11-250W	20	8.35	11	0.90	0.8	0.8	
	11-300W	11-300W	19	8.35	11	0.95	0.8	1.0	
	11-360W	11-360W	18	8.35	11	0.99	0.9	1.0	
	11-400W	11-400W	15	8.35	11	1.02	0.8	1.1	
	11-450W	11-450W	14	8.35	11	1.18	1.0	1.2	
	16-25W	16-25W	72	8.525	15	0.25	0.7	0.4	
	16-40W	16-40W	80	8.525	15	0.27	0.7	0.4	
	16-50W	16-50W	88	8.525	15	0.29	0.7	0.4	
	16-60W	16-60W	48	8.525	15	0.34	0.6	0.6	
	16-80W	16-80W	70	8.525	15	0.33	0.8	0.6	
	16-90W	16-90W	88	8.525	15	0.45	0.9	0.8	
	16-100W	16-100W	92	8.525	15	0.51	0.8	0.6	
	16-120W	16-120W	30	8.525	15	0.53	0.8	0.7	
	16-140W	16-140W	24	8.525	15	0.59	0.8	0.7	
	16-160W	16-160W	23	8.525	15	0.60	0.7	0.8	
	16-180W	16-180W	24	8.525	15	0.68	0.7	0.8	
	16-200W	16-200W	22	8.525	15	0.71	0.9	0.9	
	16-250W	16-250W	20	8.525	15	0.81	0.8	0.8	
	16-300W	16-300W	19	8.525	15	0.90	0.8	1.0	
	16-360W	16-360W	18	8.525	15	0.90	0.9	1.0	
	16-400W	16-400W	15	8.525	15	1.02	0.8	1.1	
	16-450W	16-450W	14	8.525	15	1.15	1.0	1.2	
	16-500W	16-500W	12	8.525	15	1.35	1.1	1.4	
	16-550W	16-550W	11	8.525	15	1.39	1.1	1.5	
	16-600W	16-600W	10	8.525	15	1.60	1.1	1.5	
	16-650W	16-650W	9	8.525	15	1.81	1.2	1.7	
	16-700W	16-700W	8	8.525	15	2.05	1.3	1.5	
	22-7W	22-7W	7	12.7	23	0.93	1.6	2.8	
	22-9W	22-9W	5	12.7	23	2.71	1.6	3.8	
	22-11W	22-11W	3	12.7	23	3.23	1.7	3.4	
	27-4.5W	27-4.5W	4.5	19.05	27	3.91	1.8	2.6	
	27-6W	27-6W	4	19.05	27	4.07	2.0	2.9	

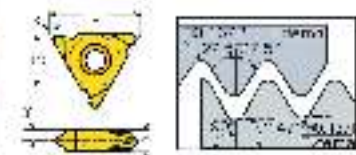
Whitworth (M Chip Breaker)

VDA VDA	Designation (Right)	Designation (Left)	Flank (°)	Dimensions					Picture
				d	L	minor	s	r	
Interne	HM 10-14W		14	8.525	13	1.13	1.0	1.2	
	13-11W		11	8.525	13	1.48	1.1	1.5	

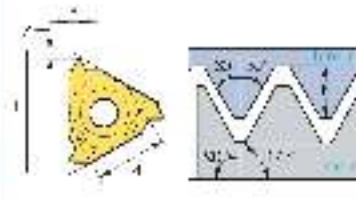
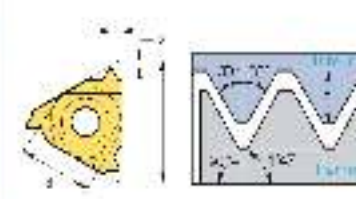
British Standard Pipe Thread (BSPT)

Type	Designation (Right)	Designation (Left)	Pitch (tp)	Dimensions					Picture
				d	min	s	t		
External	DN 11-200PT	FL 11-200PT	26	3.05	11	3.08	0.0	0.0	
	11-195PT	11-195PT	16	3.05	11	3.08	0.8	0.9	
	11-175PT	11-175PT	14	3.05	11	1.18	0.8	1.0	
	16-185PT	16-185PT	26	9.325	15	9.38	0.0	0.0	
	16-180PT	16-180PT	16	9.325	15	3.08	0.8	0.9	
	16-145PT	16-145PT	14	9.325	15	1.18	1.0	1.2	
	18-155PT	18-155PT	17	9.325	15	1.48	1.2	1.5	
Internal	11-195PT	11-195PT	26	3.05	11	3.08	0.8	0.9	
	11-190PT	11-190PT	16	3.05	11	3.08	0.8	0.9	
	11-175PT	11-175PT	14	3.05	11	1.18	0.8	1.0	
	16-185PT	16-185PT	26	9.325	15	9.38	0.0	0.0	
	16-180PT	16-180PT	16	9.325	15	3.08	0.8	0.9	
	16-145PT	16-145PT	14	9.325	15	1.18	1.0	1.2	
	18-155PT	18-155PT	17	9.325	15	1.48	1.2	1.5	

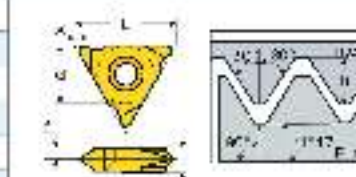
British Standard Pipe Thread (V Style)

Type	Designation (Right)	Designation (Left)	Pitch (tp)	Dimensions					Picture
				d	t	min	s	t	
External	16-185PT	16-185PT	26	9.325	15	9.38	1.10	2.0	
	16-180PT	16-180PT	16	9.325	15	9.38	1.10	2.7	
	16-145PT	16-145PT	14	9.325	15	1.18	1.10	2.4	
	18-155PT	18-155PT	17	9.325	15	1.48	1.10	2.7	

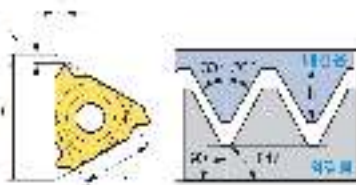
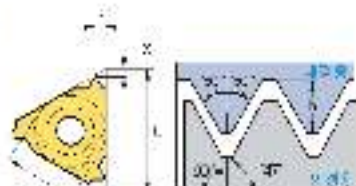
National Pipe Thread (NPT)

Type	Designation (Right)	Designation (Left)	Pitch (tp)	Dimensions					Picture
				d	L	min	s	t	
External	DN 11-20NPT	EL 11-20NPT	27	0.85	11	0.86	0.7	0.8	
	11-18NPT	11-18NPT	18	0.85	11	1.01	0.8	1.0	
	11-14NPT	11-14NPT	14	0.85	11	1.03	0.8	1.0	
	16-20NPT	16-20NPT	27	9.325	16	9.36	0.7	0.8	
	16-18NPT	16-18NPT	18	9.325	16	1.01	0.8	1.0	
	16-14NPT	16-14NPT	14	9.325	16	1.03	0.8	1.0	
	18-11.5NPT	18-11.5NPT	11.5	9.325	16	1.04	1.1	1.5	
Internal	11-18NPT	11-18NPT	18	0.85	11	0.98	0.7	0.8	
	11-14NPT	11-14NPT	14	0.85	11	1.03	0.8	1.0	
	16-20NPT	16-20NPT	27	9.325	16	9.36	0.7	0.8	
	16-18NPT	16-18NPT	18	9.325	16	1.01	0.8	1.0	
	16-14NPT	16-14NPT	14	9.325	16	1.03	0.8	1.0	
	18-11.5NPT	18-11.5NPT	11.5	9.325	16	1.04	1.1	1.5	
	18-11NPT	18-11NPT	11	9.325	16	2.40	1.2	1.8	

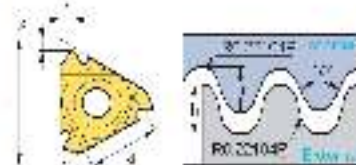
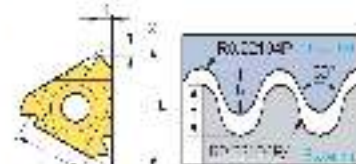
National Pipe Thread (V Style)

Type	Designation (Right)	Designation (Left)	Pitch (tp)	Dimensions					Picture
				d	t	min	s	t	
External	16-185PT	16-185PT	27	0.85	11	0.86	0.70	2.0	
	11-18NPT	11-18NPT	18	0.85	11	1.01	0.70	3	
	11-14NPT	11-14NPT	14	0.85	11	1.03	0.70	3	
	16-20NPT	16-20NPT	27	9.325	16	9.36	1.00	2.0	
	16-18NPT	16-18NPT	18	9.325	16	1.01	1.00	2.0	
	18-11.5NPT	18-11.5NPT	11.5	9.325	16	1.04	1.10	2.1	

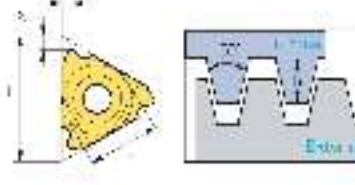
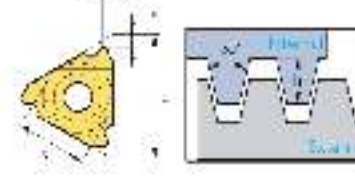
National Pipe Threads-Dryseal (NPTF)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	mm	z	f	
External	1/8" (27NPTF)	1/8" (27NPTF)	27	9.73	11	0.64	0.7	0.9	
	1/4" (18NPTF)	1/4" (18NPTF)	18	12.7	14	0.64	0.8	1.0	
	3/8" (14NPTF)	3/8" (14NPTF)	14	19.05	21	0.64	0.9	1.0	
	1/2" (11NPTF)	1/2" (11NPTF)	11	25.4	27	0.64	0.7	0.9	
	5/8" (9NPTF)	5/8" (9NPTF)	9	31.75	33	0.64	0.8	1.0	
	3/4" (7NPTF)	3/4" (7NPTF)	7	39.67	41	0.64	0.9	1.0	
	7/8" (6NPTF)	7/8" (6NPTF)	6	47.63	49	0.64	0.8	1.0	
	1" (5NPTF)	1" (5NPTF)	5	50.8	52	0.64	0.9	1.0	
Internal	1/8" (27NPTF)	1/8" (27NPTF)	27	9.73	11	0.64	0.7	0.9	
	1/4" (18NPTF)	1/4" (18NPTF)	18	12.7	14	0.64	0.8	1.0	
	3/8" (14NPTF)	3/8" (14NPTF)	14	19.05	21	0.64	0.9	1.0	
	1/2" (11NPTF)	1/2" (11NPTF)	11	25.4	27	0.64	0.7	0.9	
	5/8" (9NPTF)	5/8" (9NPTF)	9	31.75	33	0.64	0.8	1.0	
	3/4" (7NPTF)	3/4" (7NPTF)	7	39.67	41	0.64	0.9	1.0	
	7/8" (6NPTF)	7/8" (6NPTF)	6	47.63	49	0.64	0.8	1.0	
	1" (5NPTF)	1" (5NPTF)	5	50.8	52	0.64	0.9	1.0	

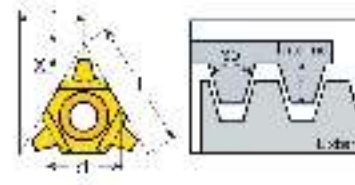
Round DIN 405

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	mm	z	f	
External	1/8" (10RD)	1/8" (10RD)	10	9.525	10	1.0	1.1	1.2	
	1/4" (8RD)	1/4" (8RD)	8	12.7	14	1.0	1.1	1.2	
	3/8" (6RD)	3/8" (6RD)	6	19.05	21	1.0	1.1	1.2	
	1/2" (5RD)	1/2" (5RD)	5	25.4	27	1.0	1.1	1.2	
	5/8" (4RD)	5/8" (4RD)	4	31.75	33	1.0	1.1	1.2	
	3/4" (3RD)	3/4" (3RD)	3	39.67	41	1.0	1.1	1.2	
Internal	1/8" (10RD)	1/8" (10RD)	10	9.525	10	1.0	1.1	1.2	
	1/4" (8RD)	1/4" (8RD)	8	12.7	14	1.0	1.1	1.2	
	3/8" (6RD)	3/8" (6RD)	6	19.05	21	1.0	1.1	1.2	
	1/2" (5RD)	1/2" (5RD)	5	25.4	27	1.0	1.1	1.2	
	5/8" (4RD)	5/8" (4RD)	4	31.75	33	1.0	1.1	1.2	
	3/4" (3RD)	3/4" (3RD)	3	39.67	41	1.0	1.1	1.2	

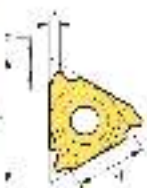
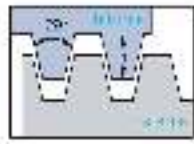
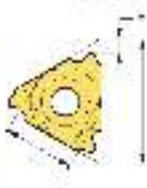
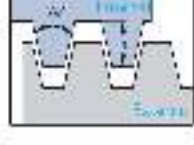
Trapez DIN 103 (TR)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	mm	z	f	
External	1/8" (11.5TR)	1/8" (11.5TR)	5	9.525	11	0.53	0.6	0.9	
	1/4" (8.5TR)	1/4" (8.5TR)	4	12.7	14	0.53	0.6	0.9	
	3/8" (6.5TR)	3/8" (6.5TR)	3	19.05	21	0.53	0.6	0.9	
	1/2" (5.5TR)	1/2" (5.5TR)	2	25.4	27	0.53	0.6	0.9	
	5/8" (4.5TR)	5/8" (4.5TR)	2	31.75	33	0.53	0.6	0.9	
	3/4" (3.5TR)	3/4" (3.5TR)	2	39.67	41	0.53	0.6	0.9	
	7/8" (2.5TR)	7/8" (2.5TR)	2	47.63	49	0.53	0.6	0.9	
	1" (2.5TR)	1" (2.5TR)	2	50.8	52	0.53	0.6	0.9	
Internal	1/8" (11.5TR)	1/8" (11.5TR)	5	9.525	11	0.53	0.6	0.9	
	1/4" (8.5TR)	1/4" (8.5TR)	4	12.7	14	0.53	0.6	0.9	
	3/8" (6.5TR)	3/8" (6.5TR)	3	19.05	21	0.53	0.6	0.9	
	1/2" (5.5TR)	1/2" (5.5TR)	2	25.4	27	0.53	0.6	0.9	
	5/8" (4.5TR)	5/8" (4.5TR)	2	31.75	33	0.53	0.6	0.9	
	3/4" (3.5TR)	3/4" (3.5TR)	2	39.67	41	0.53	0.6	0.9	
	7/8" (2.5TR)	7/8" (2.5TR)	2	47.63	49	0.53	0.6	0.9	
	1" (2.5TR)	1" (2.5TR)	2	50.8	52	0.53	0.6	0.9	

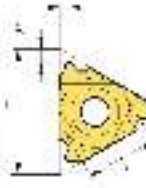
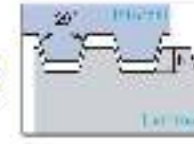
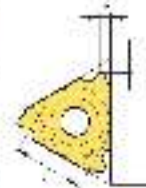
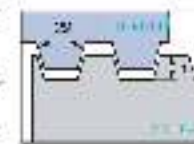
Trapez DIN 103 (U Style)

Type	Designation (Right+Left)	Pitch (mm)	Dimensions					Picture
			d	L	mm	z	f	
Internal/External	1/8" (22.001H)	0.5	9.525	11	0.53	0.6	0.9	
	1/4" (22.001H)	0.5	12.7	14	0.53	0.6	0.9	
	3/8" (22.001H)	0.5	19.05	21	0.53	0.6	0.9	
	1/2" (22.001H)	0.5	25.4	27	0.53	0.6	0.9	
	5/8" (22.001H)	0.5	31.75	33	0.53	0.6	0.9	

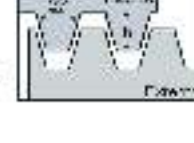
American ACME (ACME)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	h min	x	F	
External	LR11 10ACME	LL11 10ACME	10	0.03	11	0.03	0	0	 
	10 10ACME	10 10ACME	10	0.03	10	0.03	0	0	
	10 14ACME	10 14ACME	14	0.03	10	0.03	0	0	
	10 12ACME	10 12ACME	12	0.03	10	0.03	0	0	
	10 16ACME	10 16ACME	16	0.03	10	0.03	0	0	
	10 24ACME	10 24ACME	8	0.03	10	0.03	0	0	
	10 36ACME	10 36ACME	6	0.03	10	0.03	0	0	
	22 36ACME	22 36ACME	6	0.03	22	0.03	0	0	
	22 54ACME	22 54ACME	6	0.03	22	0.03	0	0	
	27 48ACME	27 48ACME	4	0.03	27	0.03	0	0	
Internal	IR11 10ACME	IL11 10ACME	10	0.03	11	0.03	0.9	0.6	 
	10 10ACME	10 10ACME	10	0.03	10	0.03	0.9	0.6	
	10 14ACME	10 14ACME	14	0.03	10	0.03	0.9	0.6	
	10 12ACME	10 12ACME	12	0.03	10	0.03	0.9	0.6	
	10 16ACME	10 16ACME	16	0.03	10	0.03	0.9	0.6	
	10 24ACME	10 24ACME	8	0.03	10	0.03	0.9	0.6	
	10 36ACME	10 36ACME	6	0.03	10	0.03	0.9	0.6	
	22 36ACME	22 36ACME	6	0.03	22	0.03	0.9	0.6	
	22 54ACME	22 54ACME	6	0.03	22	0.03	0.9	0.6	
	27 48ACME	27 48ACME	4	0.03	27	0.03	0.9	0.6	

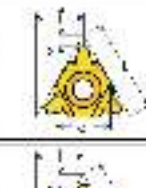
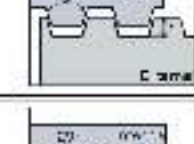
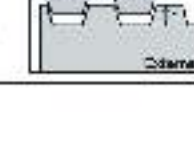
Stub ACME (STACME)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	h min	x	F	
External	FR11 10STACME	FL11 10STACME	10	0.03	11	0.03	0	0	 
	10 10STACME	10 10STACME	10	0.03	10	0.03	0	0	
	10 14STACME	10 14STACME	14	0.03	10	0.03	0	0	
	10 12STACME	10 12STACME	12	0.03	10	0.03	0	0	
	10 16STACME	10 16STACME	16	0.03	10	0.03	0	0	
	10 24STACME	10 24STACME	8	0.03	10	0.03	0	0	
	10 36STACME	10 36STACME	6	0.03	10	0.03	0	0	
	22 36STACME	22 36STACME	6	0.03	22	0.03	0	0	
	22 54STACME	22 54STACME	6	0.03	22	0.03	0	0	
	27 48STACME	27 48STACME	4	0.03	27	0.03	0	0	
Internal	IR11 10STACME	IL11 10STACME	10	0.03	11	0.03	0	0	 
	10 10STACME	10 10STACME	10	0.03	10	0.03	0	0	
	10 14STACME	10 14STACME	14	0.03	10	0.03	0	0	
	10 12STACME	10 12STACME	12	0.03	10	0.03	0	0	
	10 16STACME	10 16STACME	16	0.03	10	0.03	0	0	
	10 24STACME	10 24STACME	8	0.03	10	0.03	0	0	
	10 36STACME	10 36STACME	6	0.03	10	0.03	0	0	
	22 36STACME	22 36STACME	6	0.03	22	0.03	0	0	
	22 54STACME	22 54STACME	6	0.03	22	0.03	0	0	
	27 48STACME	27 48STACME	4	0.03	27	0.03	0	0	

American ACME (U Style)

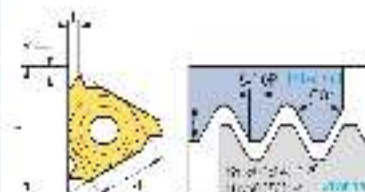
Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	h min	x	F	
Internal/External	JUL1 1ACME	JLL1 1ACME	9	0.03	11	0.03	0	0	 
	22 36ACME	22 36ACME	6	0.03	22	0.03	0	0	
	22 54ACME	22 54ACME	6	0.03	22	0.03	0	0	
	27 48ACME	27 48ACME	4	0.03	27	0.03	0	0	

Stub ACME (U Style)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions					Picture
				d	L	h min	x	F	
External	FR1 1STACME	FL1 1STACME	9	0.03	11	0.03	0	0	 
	22 36STACME	22 36STACME	6	0.03	22	0.03	0	0	
Internal	IR1 1STACME	IL1 1STACME	9	0.03	11	0.03	0	0	 
	22 36STACME	22 36STACME	6	0.03	22	0.03	0	0	

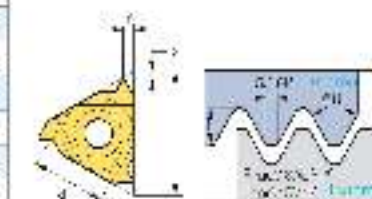
UNJ (Unified Constant Thread)

Type	Designation (Fig.)	Designation (Fig.)	Pitch (mm)	Dimensions					Pitch
				d	L	Form	d ₂	d ₃	
External	10-10UNJ	10-10UNJ	1.0	6.35	11	0.6	0.6	0.5	
	11-11UNJ	11-11UNJ	1.1	6.35	11	0.68	0.6	0.5	
	11-12UNJ	11-12UNJ	1.2	6.35	11	0.67	0.6	0.5	
	11-14UNJ	11-14UNJ	1.4	6.35	11	0.67	0.6	0.5	
	11-16UNJ	11-16UNJ	1.6	6.35	11	0.67	0.6	0.5	
	11-18UNJ	11-18UNJ	1.8	6.35	11	0.68	0.6	0.7	
	11-20UNJ	11-20UNJ	2.0	6.35	11	0.68	0.6	0.7	
	11-22UNJ	11-22UNJ	2.2	6.35	11	0.68	0.6	0.7	
	11-24UNJ	11-24UNJ	2.4	6.35	11	0.67	0.6	0.7	
	11-26UNJ	11-26UNJ	2.6	6.35	11	0.67	0.6	0.7	
	11-28UNJ	11-28UNJ	2.8	6.35	11	0.67	0.6	0.7	
	11-30UNJ	11-30UNJ	3.0	6.35	11	0.67	0.6	0.7	
	11-32UNJ	11-32UNJ	3.2	6.35	11	0.67	0.6	0.7	
	11-34UNJ	11-34UNJ	3.4	6.35	11	0.67	0.6	0.7	
	11-36UNJ	11-36UNJ	3.6	6.35	11	0.67	0.6	0.7	
	11-38UNJ	11-38UNJ	3.8	6.35	11	0.67	0.6	0.7	
	11-40UNJ	11-40UNJ	4.0	6.35	11	0.67	0.6	0.7	
	11-42UNJ	11-42UNJ	4.2	6.35	11	0.67	0.6	0.7	
	11-44UNJ	11-44UNJ	4.4	6.35	11	0.67	0.6	0.7	
	11-46UNJ	11-46UNJ	4.6	6.35	11	0.67	0.6	0.7	
	11-48UNJ	11-48UNJ	4.8	6.35	11	0.67	0.6	0.7	
Internal	10-10UNJ	10-10UNJ	1.0	6.35	13	0.67	0.6	0.8	
	11-11UNJ	11-11UNJ	1.1	6.35	13	0.67	0.6	0.8	
	11-12UNJ	11-12UNJ	1.2	6.35	13	0.67	0.6	0.8	
	11-14UNJ	11-14UNJ	1.4	6.35	13	0.67	0.6	0.8	
	11-16UNJ	11-16UNJ	1.6	6.35	13	0.67	0.6	0.8	
	11-18UNJ	11-18UNJ	1.8	6.35	13	0.67	0.6	0.8	
	11-20UNJ	11-20UNJ	2.0	6.35	13	0.67	0.6	0.8	
	11-22UNJ	11-22UNJ	2.2	6.35	13	0.67	0.6	0.8	
	11-24UNJ	11-24UNJ	2.4	6.35	13	0.67	0.6	0.8	
	11-26UNJ	11-26UNJ	2.6	6.35	13	0.67	0.6	0.8	
	11-28UNJ	11-28UNJ	2.8	6.35	13	0.67	0.6	0.8	
	11-30UNJ	11-30UNJ	3.0	6.35	13	0.67	0.6	0.8	
	11-32UNJ	11-32UNJ	3.2	6.35	13	0.67	0.6	0.8	
	11-34UNJ	11-34UNJ	3.4	6.35	13	0.67	0.6	0.8	
	11-36UNJ	11-36UNJ	3.6	6.35	13	0.67	0.6	0.8	
	11-38UNJ	11-38UNJ	3.8	6.35	13	0.67	0.6	0.8	
	11-40UNJ	11-40UNJ	4.0	6.35	13	0.67	0.6	0.8	
	11-42UNJ	11-42UNJ	4.2	6.35	13	0.67	0.6	0.8	
	11-44UNJ	11-44UNJ	4.4	6.35	13	0.67	0.6	0.8	
	11-46UNJ	11-46UNJ	4.6	6.35	13	0.67	0.6	0.8	



UNJ (Unified Constant Thread)

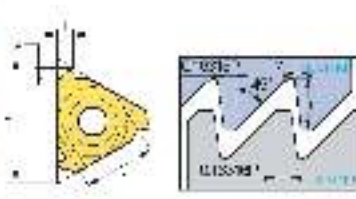
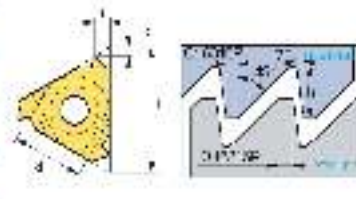
Type	Designation (Fig.)	Designation (Fig.)	Pitch (mm)	Dimensions					Pitch
				d	L	Form	d ₂	d ₃	
External	10-10UNJ	10-10UNJ	1.0	6.35	11	0.6	0.6	0.5	
	11-11UNJ	11-11UNJ	1.1	6.35	11	0.68	0.6	0.5	
	11-12UNJ	11-12UNJ	1.2	6.35	11	0.67	0.6	0.5	
	11-14UNJ	11-14UNJ	1.4	6.35	11	0.67	0.6	0.5	
	11-16UNJ	11-16UNJ	1.6	6.35	11	0.67	0.6	0.5	
	11-18UNJ	11-18UNJ	1.8	6.35	11	0.68	0.6	0.7	
	11-20UNJ	11-20UNJ	2.0	6.35	11	0.68	0.6	0.7	
	11-22UNJ	11-22UNJ	2.2	6.35	11	0.68	0.6	0.7	
	11-24UNJ	11-24UNJ	2.4	6.35	11	0.67	0.6	0.7	
	11-26UNJ	11-26UNJ	2.6	6.35	11	0.67	0.6	0.7	
	11-28UNJ	11-28UNJ	2.8	6.35	11	0.67	0.6	0.7	
	11-30UNJ	11-30UNJ	3.0	6.35	11	0.67	0.6	0.7	
	11-32UNJ	11-32UNJ	3.2	6.35	11	0.67	0.6	0.7	
	11-34UNJ	11-34UNJ	3.4	6.35	11	0.67	0.6	0.7	
	11-36UNJ	11-36UNJ	3.6	6.35	11	0.67	0.6	0.7	
	11-38UNJ	11-38UNJ	3.8	6.35	11	0.67	0.6	0.7	
	11-40UNJ	11-40UNJ	4.0	6.35	11	0.67	0.6	0.7	
	11-42UNJ	11-42UNJ	4.2	6.35	11	0.67	0.6	0.7	
	11-44UNJ	11-44UNJ	4.4	6.35	11	0.67	0.6	0.7	
	11-46UNJ	11-46UNJ	4.6	6.35	11	0.67	0.6	0.7	
	11-48UNJ	11-48UNJ	4.8	6.35	11	0.67	0.6	0.7	
Internal	10-10UNJ	10-10UNJ	1.0	6.35	13	0.67	0.6	0.8	
	11-11UNJ	11-11UNJ	1.1	6.35	13	0.67	0.6	0.8	
	11-12UNJ	11-12UNJ	1.2	6.35	13	0.67	0.6	0.8	
	11-14UNJ	11-14UNJ	1.4	6.35	13	0.67	0.6	0.8	
	11-16UNJ	11-16UNJ	1.6	6.35	13	0.67	0.6	0.8	
	11-18UNJ	11-18UNJ	1.8	6.35	13	0.67	0.6	0.8	
	11-20UNJ	11-20UNJ	2.0	6.35	13	0.67	0.6	0.8	
	11-22UNJ	11-22UNJ	2.2	6.35	13	0.67	0.6	0.8	
	11-24UNJ	11-24UNJ	2.4	6.35	13	0.67	0.6	0.8	
	11-26UNJ	11-26UNJ	2.6	6.35	13	0.67	0.6	0.8	
	11-28UNJ	11-28UNJ	2.8	6.35	13	0.67	0.6	0.8	
	11-30UNJ	11-30UNJ	3.0	6.35	13	0.67	0.6	0.8	
	11-32UNJ	11-32UNJ	3.2	6.35	13	0.67	0.6	0.8	
	11-34UNJ	11-34UNJ	3.4	6.35	13	0.67	0.6	0.8	
	11-36UNJ	11-36UNJ	3.6	6.35	13	0.67	0.6	0.8	
	11-38UNJ	11-38UNJ	3.8	6.35	13	0.67	0.6	0.8	
	11-40UNJ	11-40UNJ	4.0	6.35	13	0.67	0.6	0.8	
	11-42UNJ	11-42UNJ	4.2	6.35	13	0.67	0.6	0.8	
	11-44UNJ	11-44UNJ	4.4	6.35	13	0.67	0.6	0.8	
	11-46UNJ	11-46UNJ	4.6	6.35	13	0.67	0.6	0.8	



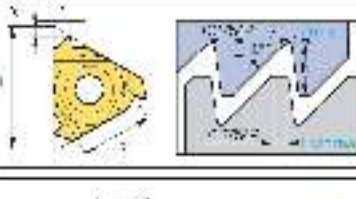
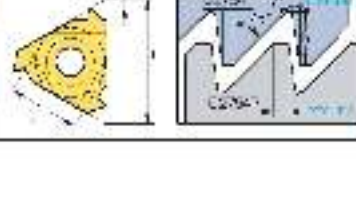
UNJ (U Style)

Type	Designation (Fig.)	Pitch (mm)	Dimensions					Pitch
			d	L	Form	d ₂	d ₃	
External	10-10UNJ	1.0	6.35	11	0.6	0.6	0.5	
	11-11UNJ	1.1	6.35	11	0.68	0.6	0.5	
Internal	10-10UNJ	1.0	6.35	13	0.67	0.6	0.8	
	11-11UNJ	1.1	6.35	13	0.67	0.6	0.8	

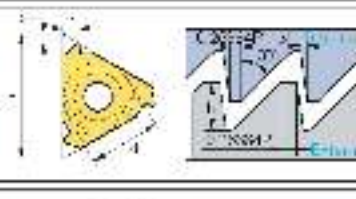
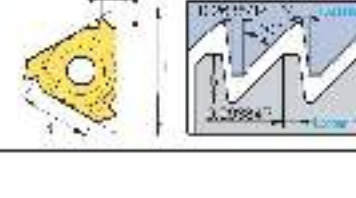
American Buttress (ABUT)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions						Picture
				d	L	Inner	x	T		
External	ER 20ABUT	EL 20ABUT	20	9.35	1	0.94	1.0	1.4		
	10ABUT	10ABUT	10	9.35	1	1.05	1.0	1.0		
	16ABUT	16ABUT	20	9.525	10	0.94	1.0	1.4		
	18ABUT	18ABUT	10	9.525	10	1.05	1.0	1.0		
	18-12ABUT	18-12ABUT	12	9.525	10	1.40	1.4	2.0		
	6-10ABUT	6-10ABUT	6	9.525	6	1.05	1.0	2.0		
	22ABUT	22ABUT	9	12.7	22	0.90	2.0	3.2		
Internal	IF 11-10ABUT	IL 11-10ABUT	20	9.35	1	0.94	1.0	1.4		
	11ABUT	11ABUT	10	9.35	1	1.05	1.0	1.0		
	16ABUT	16ABUT	20	9.525	6	0.94	1.0	1.4		
	18ABUT	18ABUT	10	9.525	10	1.05	1.0	1.0		
	18-12ABUT	18-12ABUT	12	9.525	10	1.40	1.4	2.0		
	6-10ABUT	6-10ABUT	6	9.525	6	1.05	1.0	2.0		
	22ABUT	22ABUT	9	12.7	22	0.90	2.0	3.2		

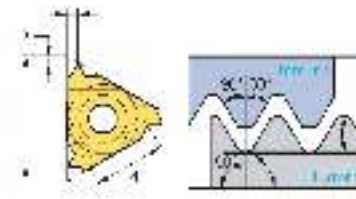
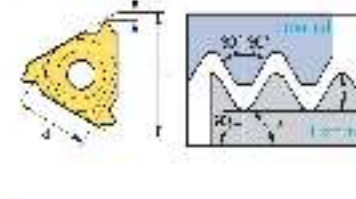
British Buttress (BRUT)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions						Picture
				d	L	Inner	x	T		
External	ER10-10BRUT	EL10-10BRUT	10	9.525	10	0.90	1.0	1.0		
	15-10BRUT	15-10BRUT	12	9.525	16	0.90	1.4	1.0		
	15-10-50BRUT	15-10-50BRUT	9	9.525	10	1.28	1.4	2.0		
	15-10-50-10BRUT	15-10-50-10BRUT	6	9.525	10	1.61	1.4	2.0		
	15-10-50-10-10BRUT	15-10-50-10-10BRUT	6	12.7	22	1.61	1.4	2.0		
Internal	IR10-10BRUT	IL10-10BRUT	10	9.525	16	0.90	1.4	1.0		
	15-10BRUT	15-10BRUT	12	9.525	16	0.90	1.4	1.0		
	15-10-50BRUT	15-10-50BRUT	9	9.525	10	1.28	1.4	2.0		
	15-10-50-10BRUT	15-10-50-10BRUT	6	9.525	16	1.61	1.4	1.0		
	15-10-50-10-10BRUT	15-10-50-10-10BRUT	6	12.7	22	1.61	1.4	1.0		

Metric Buttress (SAGE)

Type	Designation (Right)	Designation (Left)	Pitch (mm)	Dimensions						Picture
				d	L	Inner	x	T		
External	ER10-20SAGE	EL10-20SAGE	20	9.525	10	1.74	1.47	2.08		
	22-20SAGE	22-20SAGE	20	12.7	22	1.74	1.47	2.08		
	22-50SAGE	22-50SAGE	6.0	12.7	22	2.90	1.79	2.00		
	22-40SAGE	22-40SAGE	4.0	19.05	27	3.35	1.90	2.20		
Internal	IR10-20SAGE	IL10-20SAGE	20	9.525	16	1.90	1.57	2.0		
	22-50SAGE	22-50SAGE	6.0	19.05	27	3.35	1.90	2.0		
	22-40SAGE	22-40SAGE	4.0	19.05	27	3.35	1.90	2.0		

API

Type	Designation (Right)	Designation (Left)	Pitch (in)	Size	Dimensions						Picture
					d	L	Inner	x	T		
External	ER 22-40H382	EL 22-40H382	4	NO. 40 H382	12.7	22	0.69	2.1	2.8		
	22-40H382	22-40H382	4	NO. 40 H382	12.7	22	0.69	2.1	2.8		
	22-40H382	22-40H382	4	NO. 40 H382	12.7	22	0.75	2.1	2.8		
	22-40H382	22-40H382	4	51/32" 75/8" 85/8" H382	12.7	22	0.74	2.0	2.8		
	22-50H403	22-50H403	5	NO. 50 H403	12.7	22	0.69	1.8	2.0		
	22-60H551	22-60H551	6	NO. 60 H551	12.7	22	0.41	2.0	2.0		
	27-40H382	27-40H382	4	NO. 40 H382	19.05	27	0.69	2.1	2.8		
	27-40H382	27-40H382	4	NO. 40 H382	19.05	27	0.69	2.1	2.8		
	27-50H403	27-50H403	5	NO. 50 H403	19.05	27	0.75	2.1	2.7		
	27-60H551	27-60H551	6	51/32" 75/8" 85/8" H551	19.05	27	0.74	2.1	2.7		
Internal	IR 22-40H382	IL 22-40H382	4	NO. 40 H382	12.7	22	0.69	2.1	2.8		
	22-40H382	22-40H382	4	NO. 40 H382	12.7	22	0.69	1.8	2.0		
	22-40H382	22-40H382	4	NO. 40 H382	12.7	22	0.75	2.1	2.8		
	22-40H382	22-40H382	4	51/32" 75/8" 85/8" H382	12.7	22	0.74	2.0	2.8		
	22-50H403	22-50H403	5	NO. 50 H403	12.7	22	0.69	1.8	2.0		
	22-60H551	22-60H551	6	NO. 60 H551	12.7	22	0.41	2.0	2.0		
	27-40H382	27-40H382	4	NO. 40 H382	19.05	27	0.69	2.1	2.8		
	27-40H382	27-40H382	4	NO. 40 H382	19.05	27	0.69	2.1	2.8		
	27-50H403	27-50H403	5	NO. 50 H403	19.05	27	0.75	2.1	2.7		
	27-60H551	27-60H551	6	51/32" 75/8" 85/8" H551	19.05	27	0.74	2.1	2.7		

API Buttress Casing (BUT)

Type	Designation (Right)	Designation (Left)	Pitch		Dimensions					Picture
			tpd	PR	d	L	h	x	f	
External	BT 22x25-BUT-15	BT 10x16-BUT-15	5	0.75	12.7	25	1.25	3.1	1.5	
	BT 22x25-BUT-11	BT 10x16-BUT-11	3	1	12.7	25	1.25	3.1	1.5	
Internal	BT 22x25-BUT-15	BT 10x16-BUT-15	5	0.75	12.7	25	1.25	3.1	1.5	
	BT 22x25-BUT-11	BT 10x16-BUT-11	3	1	12.7	25	1.25	3.1	1.5	

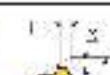
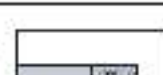
API Round Casing & Tubing (APIRD)

Type	Designation (Right)	Designation (Left)	Pitch		Dimensions					Picture
			tpd	PR	d	L	h	x	f	
External	ER 16-10-APIRD	ER 16-10-APIRD	10		9.375	16	1.1	1.2	1.4	
	ER 16-6-APIRD	ER 16-6-APIRD	6		9.375	16	1.1	1.2	1.4	
Internal	IR 16-10-APIRD	IR 16-10-APIRD	10		9.375	16	1.1	1.2	1.4	
	IR 16-6-APIRD	IR 16-6-APIRD	6		9.375	16	1.1	1.2	1.4	

Extreme Line Casing (EL)

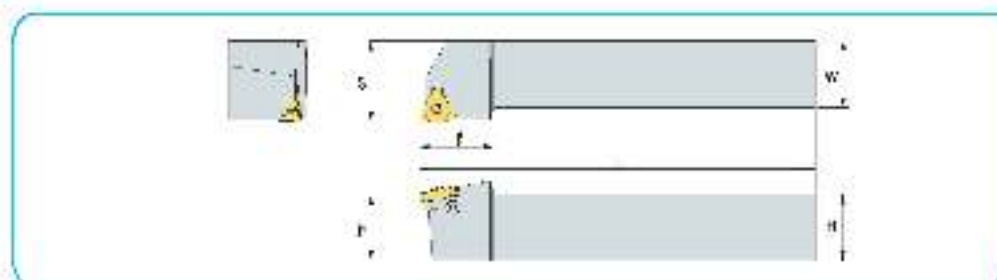
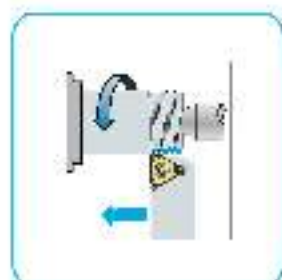
Type	Designation (Right)	Designation (Left)	Pitch		Dimensions					Picture
			tpd	PR	d	L	h	x	f	
External	EL 22x25-EL-15	EL 22x25-EL-15	5	1.5	27	22	1.5	8	8	
	EL 22x25-EL-11	EL 22x25-EL-11	3	20	27	22	1.5	8	8	
Internal	EL 22x25-EL-15	EL 22x25-EL-15	5	1.5	27	22	1.5	8	8	
	EL 22x25-EL-11	EL 22x25-EL-11	3	20	27	22	1.5	8	8	

VAM

Type	Designation (Right)	Designation (Left)	Pitch		Dimensions					Picture	
			tpd	PR	d	L	h	x	f		
External	EL 10-8-VAM 22-8-VAM 22-6-VAM	EL 10-8-VAM 22-8-VAM 22-6-VAM	8	0.75	25.4" 27/8	0.375	16	0.97	7	8	 
			8	0.75	25.4"	0.375	16	0.97	24	24	
			8	0.75	25.4" 27/8	0.375	16	0.97	24	24	
Internal	IL 10-8-VAM 22-8-VAM 22-6-VAM	IL 10-8-VAM 22-8-VAM 22-6-VAM	8	0.75	25.4" 27/8	0.375	16	0.97	7	8	 
			8	0.75	25.4"	0.375	16	0.97	24	24	
			8	0.75	25.4" 27/8	0.375	16	0.97	24	24	

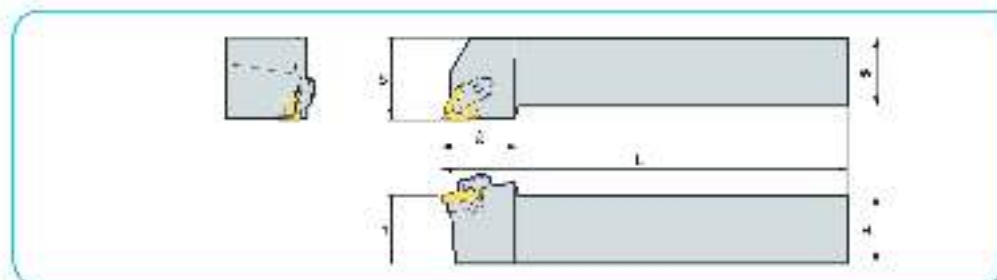
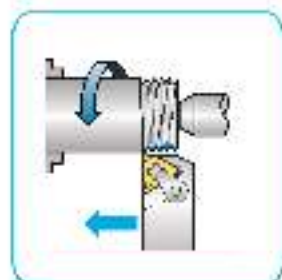
Pc

Type	Designation (Right)	Designation (Left)	Pitch		Dimensions					Picture
			tpd	PR	d	L	h	x	f	
External	EP 11-8-Pc	EP 11-8-Pc	20	Pc	11	11	0.5	0.8	0.8	
	EP 11-8-Pc	EP 11-8-Pc	10	Pc	11	11	0.5	0.8	0.8	
Internal	IP 11-8-Pc	IP 11-8-Pc	20	Pc	11	11	0.5	0.8	0.8	
	IP 11-8-Pc	IP 11-8-Pc	10	Pc	11	11	0.5	0.8	0.8	



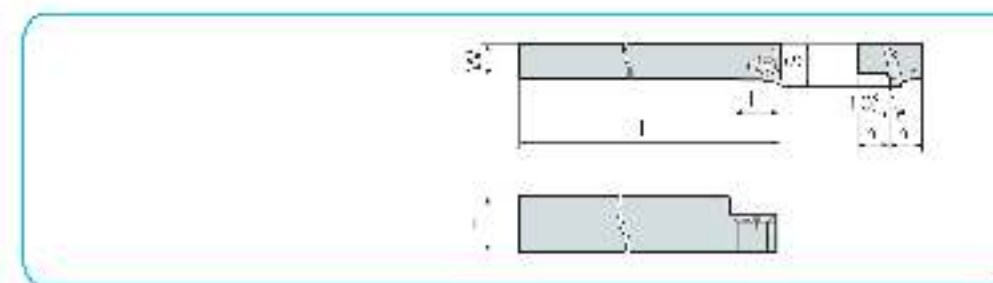
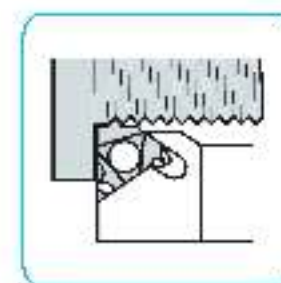
SER/L

Designation	Dimensions (mm)					Available Length	Shim 	Cover 	Cover 	Channel 	
	H	W	L	S	R						
304/L 0806-H	8	8	100	11	9	7.5	1124/L	X	1/2500	X	76
1010-H	10	8	90	11	10	7.5			75		
1512-H	12	8	90	12	12	7.5					
1510-H-E	12	8	90	10	12	22	1014/L	STIMON 3-M15L	1/2500	M100N	75
1010-H-E	10	8	100	23	10	22.5					
1510-L10	10	10	75	26	10	20					
2510-M10	25	10	70	30	25	20					
3510-L10	35	10	70	40	30	20					
1512-M22	25	15	100	30	25	28	2214/L	STIMON 3-M22L	1/2518	M100N	75
2512-M22	32	22	170	40	32	35					
4010-L20	40	20	200	50	40	35					
1510-M27	27	27	130	32	27	35	2714/L	STIMON	1/2500	M100N	75
3512-M27	37	27	130	40	37	40					
4510-M27	45	40	200	50	45	40					
5510-L27	55	30	200	60	55	40					



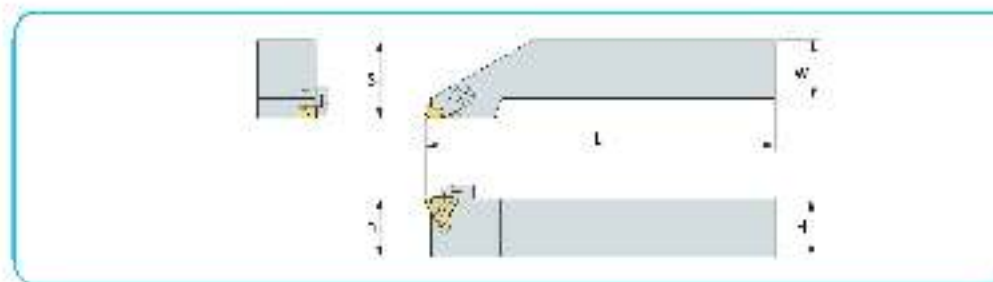
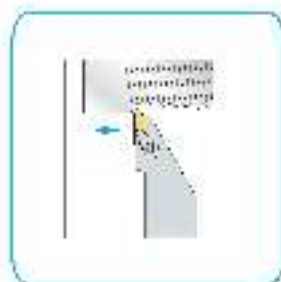
CER/L

Designation	Dimensions (mm)						Available Items	Specialized				
	H	W	L	S	F	I		Other	Other	Complex	Other	Other
OP3-1 1004-H04	6	15	100	6	16	20.5	CLP/L	S10 6H ST40L	CH-70	C-X0000	OTS-5	1.00
2020 K16	20	20	130	20	30	30						
2020 J04	5	15	100	5	25	30						
3200 P15	57	27	140	37	57	30						
2020 M32	25	15	100	15	25	35						
3200 P32	32	22	170	32	32	30	20ED/L	S10 M32 S10 M2L	CH-43	C-X0000	OTS-5	1.00
4040 H25	70	40	200	40	70	25						
2020 M27	25	25	130	25	25	30						
3200 P27	27	27	140	27	27	30						
4040 H27	40	40	200	40	40	30						
5050 M37	30	50	200	50	30	40	20ED/L	S10 M27 S10 M2L	CH-43	C-X0000	OTS-5	1.00



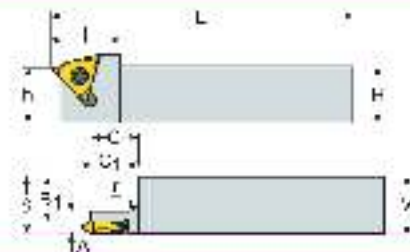
SFH/1-G

Designation	Dimensions (mm)					Applicable Notes	Exam points				
	H	W	L	S	h		1st 	2nd 	3rd 	4th 	
50H-300H-10	8	30	100	12	3	10	1100-1		1000-2		1100-4
60H-100	10	10	100	14	10	10					
60H-30	10	10	100	14	12	10					
20H-100	12	12	100	17.5	12	100					
40H-30	14	14	100	17.5	14	100	1000-1		1000-2		1100-4
60H-30	16	16	100	20	16	10					
20H-100	20	20	100	25	20	10					



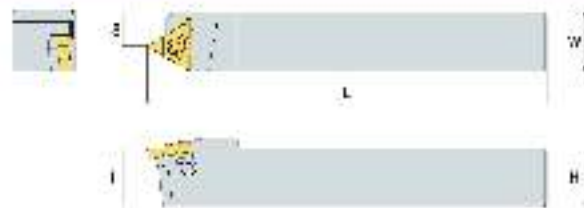
CER/LV

Designation	Dimensions (mm)					Aperture (mm)	Spacings (mm)				
	L	W	T	S	H		Clearance	Chump Spacing	Rebar Spacing	Weld Spacing	
CRB-1	100x100x7	18	8	100	20	18	100x100x7	CRB-1	M-20/25	M-20/25	T-18/20
	200x100x7	20	10	120	25	20					
	200x150x7	20	25	130	30	25					
	100x150x7	22	22	130	30	22					
	200x120x7	20	20	120	25	20					
CRB-2	200x140x7	25	25	130	30	25	220x140x7	CRB-1	M-20/25	M-20/25	T-20/25
	200x120x7	20	20	120	25	20					

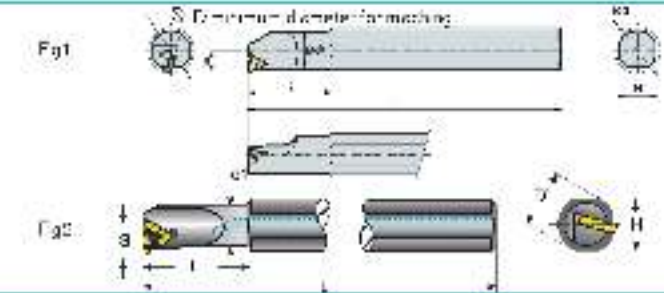
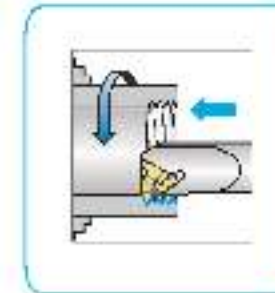


SF-R/I-VS

Designation	Dimensions (mm)											Applicable Code	Spec. notes	
	H	W	L	A	B	C	C1	E	F	G	J		Remarks	Quantity
GRIP-100011111	10	10	10	7	40	100	11.5	10	10	14.0	5	WJH/L	V&S/D	18
10101111111	10	10	10	7	40	120	11.5	10	10	14.0	5			
10121111111	12	12	80	7	60	140	11.5	12	12	14.0	5			
10131111111	10	10	100	7	100	140	11.5	10	10	14.0	5			
10101111111	10	10	80	7	60	140	11.5	10	10	14.0	5	WJH/L	V&S/D	10
10121111111	12	12	80	7	60	140	11.5	12	12	14.0	5			
10131111111	10	10	100	7	100	140	11.5	10	10	14.0	5			
10141111111	20	20	120	7	140	160	11.5	20	20	16.0	5			
10151111111	20	20	150	7	160	160	11.5	20	20	16.0	5	WJH/L	V&S/D	10
10161111111	20	20	170	7	180	160	11.5	20	20	16.0	5			
10171111111	30	30	200	7	200	160	11.5	30	30	16.0	5			
10181111111	40	40	250	7	250	160	11.5	40	40	16.0	5			
10191111111	15	20	150	10	100	160	11.5	15	20	16.0	5	WJH/L	V&S/D	20
10201111111	20	20	170	10	200	160	11.5	20	20	16.0	5			
10211111111	40	40	200	2	300	160	11.5	40	40	16.0	5			



SER/LU

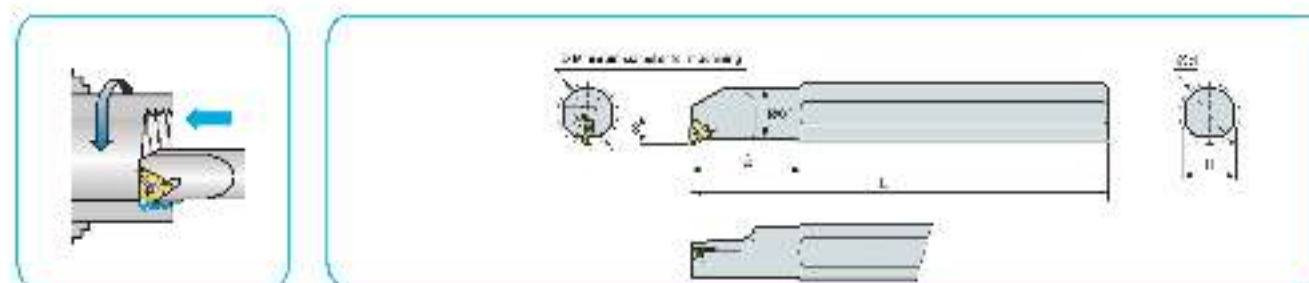
[illegible]

SNR/I

Designation	Dimensions (mm)							Approx. weight (kg)	Span (mm)				
	dim1	a	b1	b2	c	d	dim2		dim3	dim4	dim5	dim6	dim7
20H/L 0008-008	8.8	0	9.0	7	125	5.0	21	20H/L		M20.5		1.6	1
0008-008-010	8.8	10	9.0	9	125	5.0	21	11H/L		M20.5		1.6	1
0008-008-015	8.8	15	9.0	15	125	5.0	21						1
0010-011	10	10	10.0	8	125	7.0	20						1
0010-011-010	10	10	10.0	10	125	7.0	20						1
0010-011	10	10	10.0	10	125	7.0	20						1
0010-011-015	10	15	10.0	10	125	7.0	20	10H/L		M20.5		1.0	1
0010-015	10	15	10.0	15	125	7.0	20						1
0010-015-010	10	15	10.0	10	125	7.0	20						1
0010-015	10	15	10.0	15	125	7.0	20						1
0010-015-015	10	15	10.0	15	125	7.0	20						1
20H/L 0030-016	30	00	30.0	18	180	13.4	40	18H/L	G1/2" x 1.5"	M16.5	M20.5	1.45	1
0030-016	30	15	30.0	23	180	13.4	40						1
0030-016	30	30	30.0	29	180	13.4	40						1
0030-016	30	45	30.0	35	180	13.4	40						1
0030-016	30	60	30.0	40	180	13.4	40						1
0030-016	30	75	30.0	45	180	13.4	40	12H/L	G1/2" x 1.5"	M16.5	M20.5	1.45	1
0030-016	30	90	30.0	50	180	13.4	40						1
0030-016	30	105	30.0	55	180	13.4	40						1
0030-016	30	120	30.0	60	180	13.4	40						1
0030-016	30	135	30.0	65	180	13.4	40						1
0030-016	30	150	30.0	70	180	13.4	40	12H/L	G1/2" x 1.5"	M16.5	M20.5	1.45	1
0030-016	30	165	30.0	75	180	13.4	40						1
0030-016	30	180	30.0	80	180	13.4	40						1
0030-016	30	195	30.0	85	180	13.4	40						1
0030-016	30	210	30.0	90	180	13.4	40						1
0030-016	30	225	30.0	95	180	13.4	40	20H/L	G1/2" x 1.5"	M16.5	M20.5	1.45	1
0030-016	30	240	30.0	100	180	13.4	40						1
0030-016	30	255	30.0	105	180	13.4	40						1
0030-016	30	270	30.0	110	180	13.4	40						1
0030-016	30	285	30.0	115	180	13.4	40						1
0030-016	30	300	30.0	120	180	13.4	40	20H/L	G1/2" x 1.5"	M16.5	M20.5	1.45	1
0030-016	30	315	30.0	125	180	13.4	40						1
0030-016	30	330	30.0	130	180	13.4	40						1
0030-016	30	345	30.0	135	180	13.4	40						1
0030-016	30	360	30.0	140	180	13.4	40						1

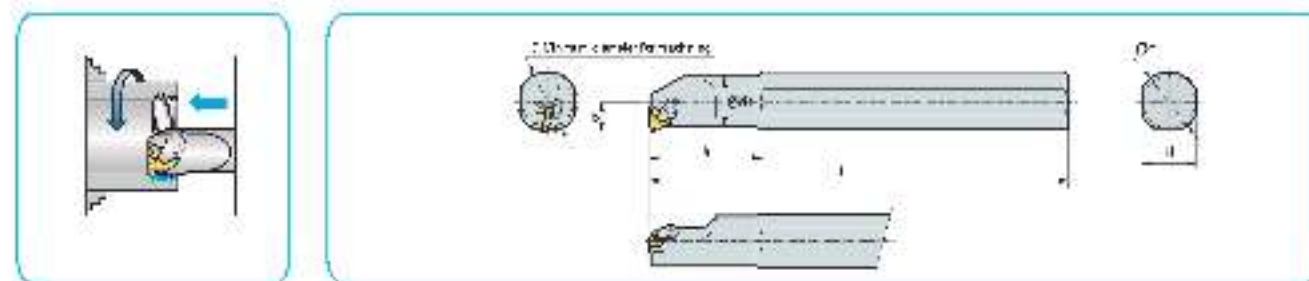
Standard With Coolant Hose

Designation	Dimensions (mm)							App. code mm	Space series				
	dim	c	el	H	L	S	I		Slam 	Slam 	Slam 	Slam 	Eq.
SRM-00010-P	10	10	0.0	9	25	7.0	25	11 Ry		B/0.000		T-0	0
0012-K1-B	10	10	2.0	1	25	8.4	26						1
0010-M-GU	17	15	2.7	5	30	0.3	32	10 Ry		B/2.5-0		T-15	2
0016-Q-UCU	20	15	16.0	15	60	1.5	40						3
0020-Q-UCU	24	20	30.0	6	60	1.4	40	20H/L	BTW18 SW154	B/0.5-12	B/280H	T-15	4
0025-R1ER	20	20	24.5	28	300	0.0	45						5
0020-Q1R	17	20	30.0	6	60	4.0	40						6
0025-R20R	27	25	24.5	20	400	10.0	45						7
													8



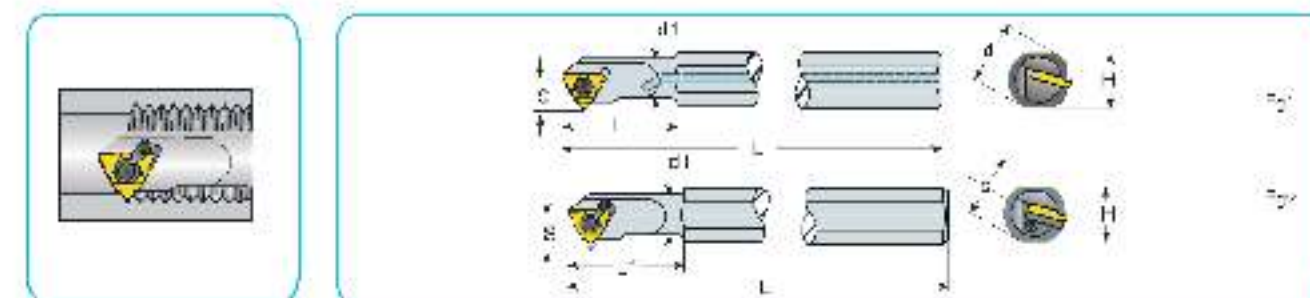
SNR/L-C With Carbide Shank

Designation	Dimensions (mm)							Applicable tool	Supports			
	d	d1	L	S	...	...	...		...	...	...	...
SNR/L-0008-K001	8	8	8	7	25	5.0	21	SNR/L	X	M20x1.5	A	T4
SNR/L-0010-K001	10	10	10	9	30	7.0	22	SNR/L	X	M20x1.5	X	T4
SNR/L-0012-K001	12	12	12	11	35	8.0	23	SNR/L	X	M20x1.5	X	T4
SNR/L-0015-K001	15	15	15	14	40	11.0	24	SNR/L	X	M20x1.5	X	T4
SNR/L-0020-K001	20	20	20	19	50	13.4	25	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
SNR/L-0025-K001	25	25	25	24	60	15.8	26	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
SNR/L-0030-K001	30	30	30	29	70	18.2	27	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
SNR/L-0035-K001	35	35	35	34	80	20.6	28	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4



CNR/L

Designation	Dimensions (mm)							Applicable tool	Supports			
	d	d1	L	S	...	...	...		...	...	...	...
CNR/L-0008-K001	8	8	8	7	25	5.0	21	CNR/L	X	M20x1.5	A	T4
CNR/L-0010-K001	10	10	10	9	30	7.0	22	CNR/L	X	M20x1.5	X	T4
CNR/L-0012-K001	12	12	12	11	35	8.0	23	CNR/L	X	M20x1.5	X	T4
CNR/L-0015-K001	15	15	15	14	40	11.0	24	CNR/L	X	M20x1.5	X	T4
CNR/L-0020-K001	20	20	20	19	50	13.4	25	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
CNR/L-0025-K001	25	25	25	24	60	15.8	26	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
CNR/L-0030-K001	30	30	30	29	70	18.2	27	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
CNR/L-0035-K001	35	35	35	34	80	20.6	28	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4



SNR/L-UB

Designation	Dimensions (mm)							Applicable tool	Supports			
	d	d1	L	S	...	...	...		...	...	...	...
SNR/L-0008-K001-UB	8	8	8	7	25	5.0	21	SNR/L	X	M20x1.5	A	T4
SNR/L-0010-K001-UB	10	10	10	9	30	7.0	22	SNR/L	X	M20x1.5	X	T4
SNR/L-0012-K001-UB	12	12	12	11	35	8.0	23	SNR/L	X	M20x1.5	X	T4
SNR/L-0015-K001-UB	15	15	15	14	40	11.0	24	SNR/L	X	M20x1.5	X	T4
SNR/L-0020-K001-UB	20	20	20	19	50	13.4	25	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
SNR/L-0025-K001-UB	25	25	25	24	60	15.8	26	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
SNR/L-0030-K001-UB	30	30	30	29	70	18.2	27	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
SNR/L-0035-K001-UB	35	35	35	34	80	20.6	28	SNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4

CNR/L-U

Designation	Dimensions (mm)							Applicable tool	Supports			
	d	d1	L	S	...	...	...		...	...	...	...
CNR/L-0008-K001-U	8	8	8	7	25	5.0	21	CNR/L	X	M20x1.5	A	T4
CNR/L-0010-K001-U	10	10	10	9	30	7.0	22	CNR/L	X	M20x1.5	X	T4
CNR/L-0012-K001-U	12	12	12	11	35	8.0	23	CNR/L	X	M20x1.5	X	T4
CNR/L-0015-K001-U	15	15	15	14	40	11.0	24	CNR/L	X	M20x1.5	X	T4
CNR/L-0020-K001-U	20	20	20	19	50	13.4	25	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
CNR/L-0025-K001-U	25	25	25	24	60	15.8	26	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
CNR/L-0030-K001-U	30	30	30	29	70	18.2	27	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4
CNR/L-0035-K001-U	35	35	35	34	80	20.6	28	CNR/L	STM/CL STM/CH	M20x1.2	M20x1.5	T4

16 E R 1.10 C D471 0.35 SMX30

1 2 3 4 5 6 7 8
Insert Size Insert Type Hand of Insert Groove Width Profile Style Groove Standard Groove Depth Carbide Grade

1 Insert Size(mm)

16 E R 1.10 C D471 0.35 SMX30

16 d = 16.025



2 Insert Type

16 E R 1.10 C D471 0.35 SMX30

E - External L - Internal

3 Hand of Insert

16 E R 1.10 C D471 0.35 SMX30

R - Right hand L - Left hand

4 Groove Width

16 E R 1.10 C D471 0.35 SMX30

0.8 ~ 2.25mm

5 Profile Style

16 E R 1.10 C D471 0.35 SMX30

None Groove Partial Profile
C: Full Profile

6 Groove Standard

16 E R 1.10 C D471 0.35 SMX30

DIN471 Partial
DIN471
DIN472 Partial
DIN472
DIN7993 Partial
DIN7993
DIN7687, DIN768H
DIN3770

7 Groove Depth

16 E R 1.10 C D471 0.35 SMX30

0.33 ~ 2.25mm

8 Carbide Grade

16 E R 1.10 C D471 0.35 SMX30

SMX30, SMU30

QC 43 R 200 R SMU30

1 2 3 4 5 6
Insert Name Insert Size Hand of Insert Groove Width Groove Standard Carbide Grade

1 Insert Name

QC 43 R 200 R SMU30

Shallow V groove

3 Hand of Insert

QC 43 R 200 R SMU30

R - Right L - Left

5 Groove Standard

QC 43 R 200 R SMU30

None Groove Square Style
F: Round Style

2 Insert Size

QC 43 R 200 R SMU30

22 d = 22.0
Wd = 9.5
42 d = 12.70



4 Groove Width

QC 43 R 200 R SMU30

0.5 ~ 4.8mm

6 Carbide Grade

QC 43 R 200 R SMU30

SMX30, SMU30

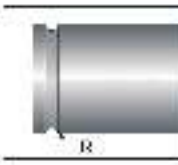
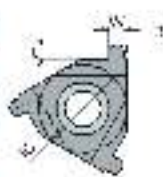
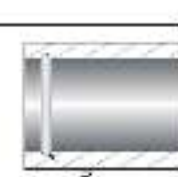
DIN 471/472 Standard (Partial Profile)

Type	Designation (Right)	Designation (Left)	Groove Width mm (1/2)	Dimensions			Picture
				d1	C	W	
External	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	9.525	1.00	1.00	
Internal	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	9.525	1.00	1.00	

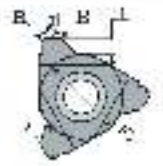
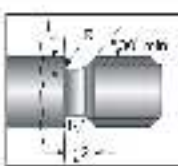
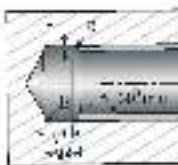
DIN 471/472 Standard (Full Profile)

Type	Designation (Right)	Designation (Left)	Groove Width mm (1/2)	Dimensions				Picture
				d1	C	W	H	
External	EL 16-1.00-D471-0.35	EL 16-1.00-D471-0.35	1.00	16	9.525	1.00	0.35	
	EL 16-1.00-D471-0.40	EL 16-1.00-D471-0.40	1.00	16.17	9.525	1.00	0.40	
	EL 16-1.00-D471-0.50	EL 16-1.00-D471-0.50	1.00	16.47	9.525	1.00	0.50	
	EL 16-1.00-D471-0.65	EL 16-1.00-D471-0.65	1.00	16.77	9.525	1.00	0.65	
	EL 16-1.00-D471-0.75	EL 16-1.00-D471-0.75	1.00	16.93	9.525	1.00	0.75	
	EL 16-1.00-D471-0.85	EL 16-1.00-D471-0.85	1.00	17.17	9.525	1.00	0.85	
	EL 16-1.00-D471-1.00	EL 16-1.00-D471-1.00	1.00	17.47	9.525	1.00	1.00	
	EL 16-1.00-D471-1.25	EL 16-1.00-D471-1.25	1.00	17.77	9.525	1.00	1.25	
	EL 16-1.00-D471-1.50	EL 16-1.00-D471-1.50	1.00	18.07	9.525	1.00	1.50	
	EL 16-1.00-D471-1.75	EL 16-1.00-D471-1.75	1.00	18.37	9.525	1.00	1.75	
Internal	IL 16-1.00-D472-0.35	IL 16-1.00-D472-0.35	1.00	16.17	9.525	1.00	0.35	
	IL 16-1.00-D472-0.40	IL 16-1.00-D472-0.40	1.00	16.47	9.525	1.00	0.40	
	IL 16-1.00-D472-0.50	IL 16-1.00-D472-0.50	1.00	16.77	9.525	1.00	0.50	
	IL 16-1.00-D472-0.65	IL 16-1.00-D472-0.65	1.00	17.07	9.525	1.00	0.65	
	IL 16-1.00-D472-0.75	IL 16-1.00-D472-0.75	1.00	17.27	9.525	1.00	0.75	
	IL 16-1.00-D472-0.85	IL 16-1.00-D472-0.85	1.00	17.47	9.525	1.00	0.85	
	IL 16-1.00-D472-1.00	IL 16-1.00-D472-1.00	1.00	17.67	9.525	1.00	1.00	
	IL 16-1.00-D472-1.25	IL 16-1.00-D472-1.25	1.00	17.87	9.525	1.00	1.25	
	IL 16-1.00-D472-1.50	IL 16-1.00-D472-1.50	1.00	18.07	9.525	1.00	1.50	
	IL 16-1.00-D472-1.75	IL 16-1.00-D472-1.75	1.00	18.27	9.525	1.00	1.75	

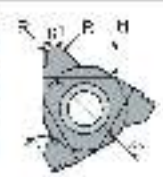
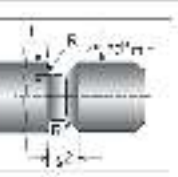
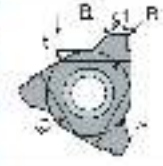
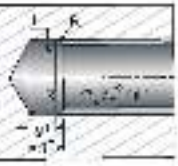
DIN 7993 Standard (Partial Profile)

Type	Designation (Right)	Designation (Left)	Pitch Width mm	Dimensions				Pitch	Profile
				C	W	L	d		
External	FR 16-0.40-D7993-0.30	FR 16-0.40-D7993-0.30	0.40	0.025	0.30	0.30			 
	16-0.30-D7993-1.40	16-0.30-D7993-1.40	0.30	0.025	1.40	1.40			
	16-0.30-D7993-0.90	16-0.30-D7993-0.90	0.30	0.025	1.20	0.90			
	16-0.30-D7993-1.90	16-0.30-D7993-1.90	0.30	0.025	1.20	1.90			
	16-0.30-D7993-1.10	16-0.30-D7993-1.10	0.30	0.025	1.30	1.10			
	16-0.30-D7993-2.00	16-0.30-D7993-2.00	0.30	0.025	1.30	2.00			
	16-1.00-D7993-1.20	16-1.00-D7993-1.20	1.00	0.025	0.90	1.20			
	16-1.00-D7993-2.10	16-1.00-D7993-2.10	1.00	0.025	2.00	2.10			
	16-1.10-D7993-2.10	16-1.10-D7993-2.10	1.10	0.025	2.00	2.10			
	16-1.20-D7993-2.20	16-1.20-D7993-2.20	1.20	0.025	2.10	2.20			
Internal	IR 16-0.30-D7993-1.40	IR 16-0.30-D7993-1.40	0.30	0.025	1.40	1.40			 
	16-0.30-D7993-0.90	16-0.30-D7993-0.90	0.30	0.025	1.20	0.90			
	16-0.30-D7993-1.90	16-0.30-D7993-1.90	0.30	0.025	1.20	1.90			
	16-0.30-D7993-1.10	16-0.30-D7993-1.10	0.30	0.025	1.30	1.10			
	16-0.30-D7993-2.00	16-0.30-D7993-2.00	0.30	0.025	1.30	2.00			
	16-1.00-D7993-1.20	16-1.00-D7993-1.20	1.00	0.025	0.90	1.20			
	16-1.00-D7993-2.10	16-1.00-D7993-2.10	1.00	0.025	2.00	2.10			
	16-1.10-D7993-2.10	16-1.10-D7993-2.10	1.10	0.025	2.00	2.10			
	16-1.20-D7993-2.20	16-1.20-D7993-2.20	1.20	0.025	2.10	2.20			

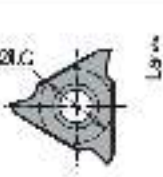
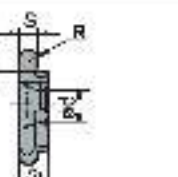
DIN 76 Standard (Short Type)

Type	Designation (Right)	Designation (Left)	Pitch mm	Dimensions						Pitch	Profile
				W	C	d1	d2	L	d		
External	FR 16-1.00-D76SH-0.90	FR 16-1.00-D76SH-0.90	1.00	0.6	0.525	1.20	0.90	0.90	2.50		 
	16-1.00-D76S-1.00	16-1.00-D76SH-1.00	1.00	0.6	0.525	1.50	1.40	1.00	2.50		
	16-1.00-D76S-1.10	16-1.00-D76SH-1.10	1.00	0.6	0.525	1.60	1.50	1.10	2.50		
	16-1.75-D76S-1.00	16-1.75-D76SH-1.00	1.75	0.6	0.525	2.20	2.00	1.00	1.50		
Internal	IR 16-1.00-D76SH-0.90	IR 16-1.00-D76S-0.90	1.00	0.6	0.525	1.20	0.90	0.90	2.50		 
	16-1.00-D76S-1.00	16-1.00-D76SH-1.00	1.00	0.6	0.525	1.50	1.40	1.00	2.50		
	16-1.00-D76S-1.10	16-1.00-D76SH-1.10	1.00	0.6	0.525	1.60	1.50	1.10	2.50		
	16-1.75-D76S-1.00	16-1.75-D76SH-1.00	1.75	0.6	0.525	2.20	2.00	1.00	1.50		

DIN 76 Standard (Normal Type)

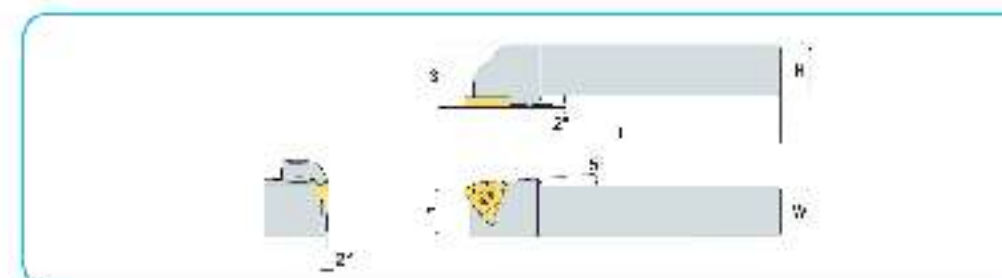
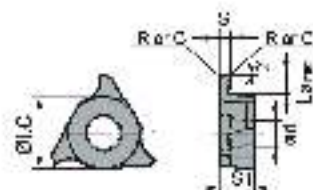
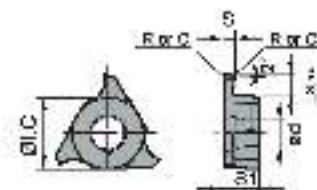
Type	Designation (Right)	Designation (Left)	Pitch mm	Dimensions						Pitch	Profile
				W	C	d1	d2	L	d		
External	FR 16-0.30-D76T4-0.30	FR 16-0.30-D76T4-0.30	0.30	0.2	0.525	1.10	1.00	0.10	0.30		 
	16-0.30-D76T4-0.50	16-0.30-D76T4-0.50	0.30	0.4	0.525	1.30	1.20	0.10	1.00		
	16-0.70-D76T4-0.30	16-0.70-D76T4-0.30	0.70	0.4	0.525	1.00	0.90	0.30	2.20		
	16-0.30-D76T4-0.50	16-0.30-D76T4-0.50	0.30	0.4	0.525	1.20	1.10	0.10	1.10		
	16-1.00-D76T4-0.30	16-1.00-D76T4-0.30	1.00	0.6	0.525	0.90	0.80	0.10	1.20		
Internal	IR 16-0.30-D76T4-0.30	IR 16-0.30-D76T4-0.30	0.30	0.2	0.525	1.10	1.00	0.10	0.30		 
	16-0.30-D76T4-0.50	16-0.30-D76T4-0.50	0.30	0.4	0.525	1.30	1.20	0.30	2.40		
	16-0.70-D76T4-0.30	16-0.70-D76T4-0.30	0.70	0.4	0.525	1.00	0.90	0.30	2.50		
	16-0.30-D76T4-0.50	16-0.30-D76T4-0.50	0.30	0.4	0.525	1.20	1.10	0.10	1.10		
	16-1.00-D76T4-0.30	16-1.00-D76T4-0.30	1.00	0.6	0.525	0.90	0.80	0.10	1.20		

On Edge Round Shallow Groove

Designation	S = 0.025	Dimensions					Pitch	Profile
		W	C	d1	d2	L		
QD824/L	20R	2.00	2.50	1.00	0.525	3.15	44	 
	40R	2.00	2.50	1.00	0.525	3.15	44	
QD404/L	100R	1.00	1.00	0.40	0.25	4.75	55	
	150R	1.50	1.50	0.60	0.35	4.75	55	
	200R	2.00	2.50	1.00	0.50	4.75	55	
	250R	2.50	3.00	1.25	0.75	4.75	55	
	300R	3.00	4.00	1.50	1.00	4.75	55	
	400R	4.00	5.00	2.00	1.25	4.75	55	

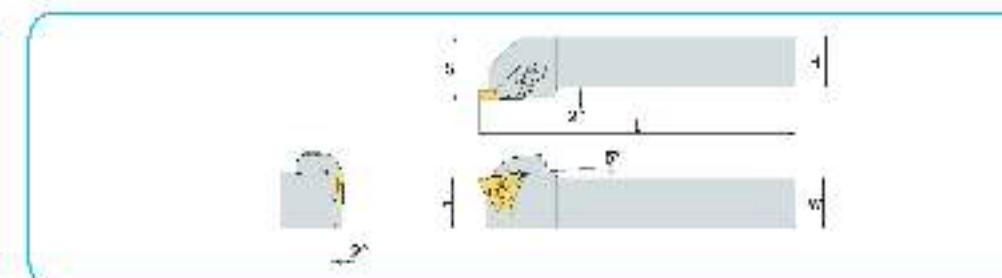
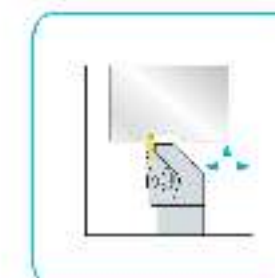
On-Edge Square Shallow Groove

Designation	Dimensions (mm)						Figure
	S	W	T	h	d	d ₁	
CQ3R/L	75	60	100	0.25	5.45	5.18	2.8
	100	80	150	0.25	5.35	5.18	2.8
	150	120	200	0.25	5.35	5.18	2.8
	125	100	150	0.25	5.35	5.18	2.8
	145	115	165	0.25	5.35	5.18	2.8
	165	135	185	0.25	5.35	5.18	2.8
	200	170	220	0.25	5.35	5.18	2.8
	225	195	245	0.25	5.35	5.18	2.8
	250	220	270	0.25	5.35	5.18	2.8
	275	245	295	0.25	5.35	5.18	2.8
CQ3R/L	100	80	150	0.25	5.35	5.18	4.4
	110	90	160	0.25	5.35	5.18	4.4
	120	100	170	0.25	5.35	5.18	4.4
	130	110	180	0.25	5.35	5.18	4.4
	145	125	195	0.25	5.35	5.18	4.4
	165	145	215	0.25	5.35	5.18	4.4
	185	165	235	0.25	5.35	5.18	4.4
	205	185	255	0.25	5.35	5.18	4.4
	225	205	275	0.25	5.35	5.18	4.4
	245	225	295	0.25	5.35	5.18	4.4
CQ3R/L	125	100	150	0.25	5.35	5.18	4.4
	135	110	160	0.25	5.35	5.18	4.4
	145	120	170	0.25	5.35	5.18	4.4
	155	130	180	0.25	5.35	5.18	4.4
	165	140	190	0.25	5.35	5.18	4.4
	175	150	200	0.25	5.35	5.18	4.4
	185	160	210	0.25	5.35	5.18	4.4
	195	170	220	0.25	5.35	5.18	4.4
	205	180	230	0.25	5.35	5.18	4.4
	215	190	240	0.25	5.35	5.18	4.4



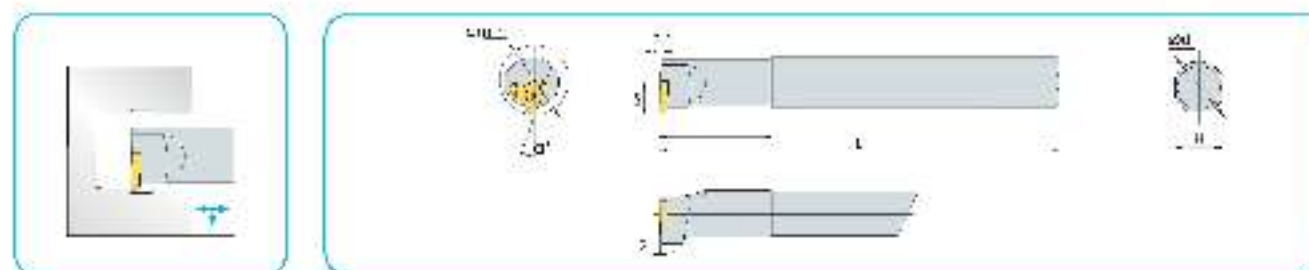
SQCR/L

Designation	Dimensions (mm)						Applicable tool	Remarks	
	W	T	S	L	h	d		Form	Wear
SQCR/L 010-K0-0	10	10	21	125	15	25.0	CQ3R/L050-100	M10-4	T15
SQCR/L 020-K0-0	20	20	25	125	20	25.0			
SQCR/L 030-K0-0	30	30	30	140	25	25.0			
SQCR/L 040-K0-0	40	40	35	140	30	25.0			
SQCR/L 050-K0-0	50	50	40	140	35	25.0			
SQCR/L 060-K0-0	60	60	45	140	40	25.0	CQ3R/L100-100	M10-4	T15
SQCR/L 070-K0-0	70	70	50	140	45	25.0			
SQCR/L 080-K0-0	80	80	55	140	50	25.0			
SQCR/L 090-K0-0	90	90	60	140	55	25.0			
SQCR/L 100-K0-0	100	100	65	140	60	25.0			
SQCR/L 120-K0-0	120	120	75	140	70	25.0	CQ3R/L150-100	M10-4	T15
SQCR/L 140-K0-0	140	140	85	140	80	25.0			
SQCR/L 160-K0-0	160	160	95	140	90	25.0			
SQCR/L 180-K0-0	180	180	105	140	100	25.0			
SQCR/L 200-K0-0	200	200	115	140	110	25.0			



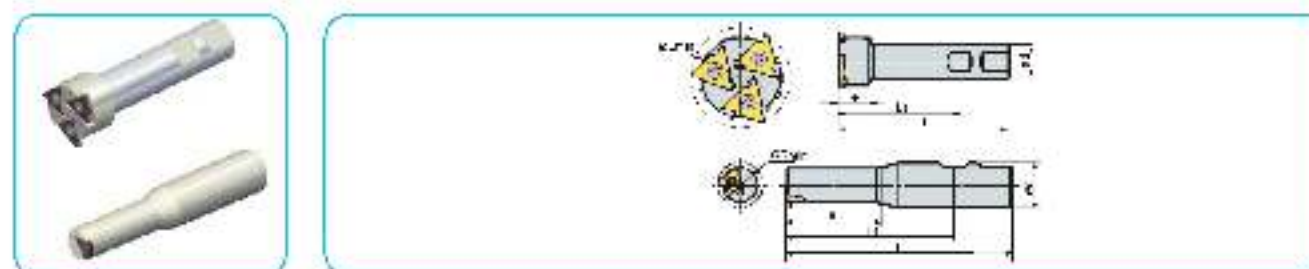
CQGH/L

Designation	Dimensions (mm)						Applicable tool	Remarks			
	W	T	S	L	h	d		Form	Wear	Wear	Wear
CQGH/L 010-K0-0	10	10	21	125	15	25.0	CQ3R/L050-100	M10-4	T15	T15	T15
CQGH/L 020-K0-0	20	20	25	125	20	25.0					
CQGH/L 030-K0-0	30	30	30	140	25	25.0					
CQGH/L 040-K0-0	40	40	35	140	30	25.0					
CQGH/L 050-K0-0	50	50	40	140	35	25.0					
CQGH/L 060-K0-0	60	60	45	140	40	25.0	CQ3R/L100-100	M10-4	T15	T15	T15
CQGH/L 070-K0-0	70	70	50	140	45	25.0					
CQGH/L 080-K0-0	80	80	55	140	50	25.0					
CQGH/L 090-K0-0	90	90	60	140	55	25.0					
CQGH/L 100-K0-0	100	100	65	140	60	25.0					
CQGH/L 120-K0-0	120	120	75	140	70	25.0	CQ3R/L150-100	M10-4	T15	T15	T15
CQGH/L 140-K0-0	140	140	85	140	80	25.0					
CQGH/L 160-K0-0	160	160	95	140	90	25.0					
CQGH/L 180-K0-0	180	180	105	140	100	25.0					
CQGH/L 200-K0-0	200	200	115	140	110	25.0					



SQGR/L

Designation	Dmm	d	Dimensions (mm)				Appl. tool steel	Grade	Material
			d1	L	d2	L1			
SQGR-030-1/2-15	20	15	11.5	190	40	15	QJ22H/L100-100	M2-15	T15
SQGR-030-1/2-15	25	20	11.5	190	40	15			
SQGR-030-1/2-15	30	25	11.5	190	40	15			
SQGR-030-1/2-15	35	30	11.5	190	40	15			
SQGR-030-1/2-15	40	35	11.5	190	40	15	QJ22H/L100-200	M2-15	T15
SQGR-030-1/2-15	45	40	11.5	190	40	15			
SQGR-030-1/2-15	50	45	11.5	190	40	15			
SQGR-030-1/2-15	55	50	11.5	190	40	15			
SQGR-030-1/2-15	60	55	11.5	190	40	15	QJ22H/L100-300	M2-15	T15
SQGR-030-1/2-15	65	60	11.5	190	40	15			
SQGR-030-1/2-15	70	65	11.5	190	40	15			
SQGR-030-1/2-15	75	70	11.5	190	40	15			
SQGR-030-1/2-15	80	75	11.5	190	40	15	QJ22H/L100-400	M2-15	T15
SQGR-030-1/2-15	85	80	11.5	190	40	15			
SQGR-030-1/2-15	90	85	11.5	190	40	15			
SQGR-030-1/2-15	95	90	11.5	190	40	15			



Milling Cutter for Grooving

Designation	Dmm	d	Dimensions (mm)				Appl. tool steel	Grade	Material
			d1	L	L1	Z			
M11-QJ22H/L100-100	25	20	11.5	190	40	15	QJ22H/L100-100	M2-15	T15
M11-QJ22H/L100-200	30	25	11.5	190	40	15			
M11-QJ22H/L100-300	35	30	11.5	190	40	15	QJ22H/L100-300	M2-15	T15
M11-QJ22H/L100-400	40	35	11.5	190	40	15			
M11-QJ22H/L100-500	45	40	11.5	190	40	15	QJ22H/L100-500	M2-15	T15
M11-QJ22H/L100-600	50	45	11.5	190	40	15			
M11-QJ22H/L100-700	55	50	11.5	190	40	15	QJ22H/L100-700	M2-15	T15
M11-QJ22H/L100-800	60	55	11.5	190	40	15			
M11-QJ22H/L100-900	65	60	11.5	190	40	15	QJ22H/L100-900	M2-15	T15
M11-QJ22H/L100-1000	70	65	11.5	190	40	15			

ACME (Special On-Edge)

Designation	Dmm	d	Dimensions (mm)				Appl. tool steel	Grade	Material
			d1	L	L1	Z			
M11-QJ22H/L100-100	25	20	11.5	190	40	15	QJ22H/L100-100	M2-15	T15
	30	25	11.5	190	40	15			
	35	30	11.5	190	40	15			
	40	35	11.5	190	40	15			
M11-QJ22H/L100-200	45	40	11.5	190	40	15	QJ22H/L100-200	M2-15	T15
	50	45	11.5	190	40	15			
	55	50	11.5	190	40	15			
	60	55	11.5	190	40	15			
M11-QJ22H/L100-300	65	60	11.5	190	40	15	QJ22H/L100-300	M2-15	T15
	70	65	11.5	190	40	15			
	75	70	11.5	190	40	15			
	80	75	11.5	190	40	15			
M11-QJ22H/L100-400	85	80	11.5	190	40	15	QJ22H/L100-400	M2-15	T15
	90	85	11.5	190	40	15			
	95	90	11.5	190	40	15			
	100	95	11.5	190	40	15			

ACME (Special On-Edge)

Designation	Dmm	d	Dimensions (mm)				Appl. tool steel	Grade	Material
			d1	L	L1	Z			
M11-QJ22H/L100-100	25	20	11.5	190	40	15	QJ22H/L100-100	M2-15	T15
	30	25	11.5	190	40	15			
	35	30	11.5	190	40	15			
	40	35	11.5	190	40	15			
M11-QJ22H/L100-200	45	40	11.5	190	40	15	QJ22H/L100-200	M2-15	T15
	50	45	11.5	190	40	15			
	55	50	11.5	190	40	15			
	60	55	11.5	190	40	15			
M11-QJ22H/L100-300	65	60	11.5	190	40	15	QJ22H/L100-300	M2-15	T15
	70	65	11.5	190	40	15			
	75	70	11.5	190	40	15			
	80	75	11.5	190	40	15			
M11-QJ22H/L100-400	85	80	11.5	190	40	15	QJ22H/L100-400	M2-15	T15
	90	85	11.5	190	40	15			
	95	90	11.5	190	40	15			
	100	95	11.5	190	40	15			

Stub ACME (Special On-Edge)

Designation		Ht	IC	Dimensions		Picture
				W	T	
TMA 30	6TACME	6	9.875	.39	4.75	
	8TACME	8	9.875	.51	4.75	
	10TACME	10	9.875	.63	4.75	
	12TACME	12	9.875	.75	4.75	
	14TACME	14	9.875	.87	4.75	
TMA 40	16TACME	16	9.875	1.00	4.75	
	4TACME	4	12.7	.25	4.75	
	6TACME	6	12.7	.37	4.75	
	8TACME	8	12.7	.50	4.75	
	10TACME	10	12.7	.63	4.75	
	12TACME	12	12.7	.75	4.75	
	14TACME	14	12.7	.87	4.75	
TMA 50	16TACME	16	12.7	1.00	4.75	
	3TACME	3	15.875	.34	5.25	
	4TACME	4	15.875	.46	5.25	
	5TACME	5	15.875	.58	5.25	

API Buttress (Special On Edge)

Designation		Ht	IC	Dimensions		Size	Picture
				W	T		
TMA 40	4BUT	4	10.7	0.5	4.75	4.25" x 15.5/8"	
TMA 50	5BUT	5	15.875	0.75	5.25		
TMA 40	6BUT	6	10.7	1	5.25		
TMA 50	8BUT	8	15.875	1.25	5.25		
						8" x 20"	

Stub ACME (Special On-Edge)

Designation		Ht	IC	Dimensions		Picture
				W	T	
TMA 30	6TACME	6	9.875	.39	4.75	
	8TACME	8	9.875	.51	4.75	
	10TACME	10	9.875	.63	4.75	
	12TACME	12	9.875	.75	4.75	
	14TACME	14	9.875	.87	4.75	
TMA 40	16TACME	16	9.875	1.00	4.75	
	4TACME	4	12.7	.25	4.75	
	6TACME	6	12.7	.37	4.75	
	8TACME	8	12.7	.50	4.75	
	10TACME	10	12.7	.63	4.75	
	12TACME	12	12.7	.75	4.75	
	14TACME	14	12.7	.87	4.75	
TMA 50	16TACME	16	12.7	1.00	4.75	
	3TACME	3	15.875	.34	5.25	
	4TACME	4	15.875	.46	5.25	
	5TACME	5	15.875	.58	5.25	

API Round (Special On Edge)

Designation		Ht	Dimensions			Picture
			IC	W	T	
TMA 40	4APIR	4	10.7	0.5	4.75	
TMA 50	5APIR	5	15.875	0.75	5.25	
TMA 40	6APIR	6	10.7	1	5.25	
TMA 50	8APIR	8	15.875	1.25	5.25	