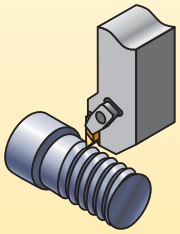
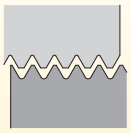
Threading

Top Notch™ External Threading



Square Shank Toolholder Sizes:
- Inch — .375–1.5"
- Metric — 10–32mm

Fine Pitch

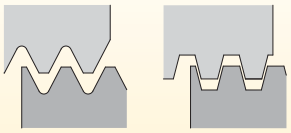


Cresting (Full Profile):
UN maximum TPI of 32
ISO minimum pitch of 1,5mm

**Partial Profile —
Flat Top (NTF and NTK):**
UN maximum TPI of 44
ISO minimum pitch of 0,6mm

**Partial Profile —
Chip Control (NT-K):**
UN maximum TPI of 36
ISO minimum pitch of 0,7mm

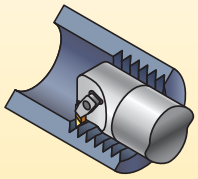
Coarse Pitch/Heavy Duty



Cresting (Full Profile):
UN minimum TPI of 7
ISO maximum pitch of 3mm

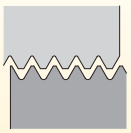
**Partial Profile —
Flat Top and Chip Control
(NT-C and NT-CK):**
UN minimum TPI of 4.5
ISO maximum pitch of 5,5mm

Top Notch Internal Threading



Boring Bar Diameters:
- Inch — .312–2.5"
- Metric — 10–50mm
- Minimum bore — .440" (11,5mm)
- Steel

Fine Pitch

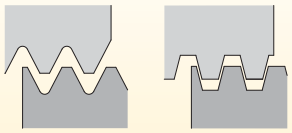


Cresting (Full Profile):
UN maximum TPI of 16
ISO minimum pitch of 1,5mm

**Partial Profile —
Flat Top (NT-1L, NTF and NTK):**
UN maximum TPI of 24
ISO minimum pitch of 1mm

**Partial Profile —
Chip Control (NT-K):**
UN maximum TPI of 20
ISO minimum pitch of 1,25mm

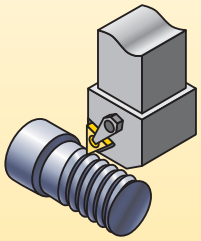
Coarse Pitch/Heavy Duty



Cresting (Full Profile):
UN minimum TPI of 8
ISO maximum pitch of 3mm

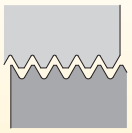
**Partial Profile —
Flat Top and Chip Control
(NT-C and NT-CK):**
UN minimum TPI of 4.5
ISO maximum pitch of 5,5mm

LT Laydown External Threading



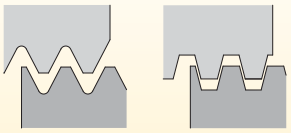
Square Shank Toolholder Sizes:
- Inch — .500–1.25" available
- Metric — 8–40mm available

Fine Pitch



Cresting (Full Profile) and Partial Profile:
UN maximum TPI of 48
ISO minimum pitch of 0,5mm

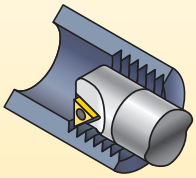
Coarse Pitch/Heavy Duty



Cresting (Full Profile):
UN minimum TPI of 8
ISO maximum pitch of 5mm

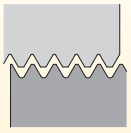
Partial Profile:
UN minimum TPI of 5
ISO maximum pitch of 5mm

LT Laydown Internal Threading



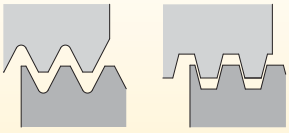
Boring Bar Diameters:
- Inch — .375–1.25"
- Metric — 12–50mm
- Minimum bore — .500" (13mm)
- Steel and carbide

Fine Pitch



Cresting (Full Profile) and Partial Profile:
UN maximum TPI of 48
ISO minimum pitch of 0,5mm

Coarse Pitch/Heavy Duty



Cresting (Full Profile):
UN minimum TPI of 8
ISO maximum pitch of 5mm

Partial Profile:
UN minimum TPI of 5
ISO maximum pitch of 5mm

Top Notch™ Thread Tooling Is the Proven High-Productivity Threading Solution!

Primary Application

Top Notch Threading with Beyond™ Insert technology provides consistent tool performance and superior clamping thread to almost any operation. With the largest selection of grades and geometries in the industry, the Top Notch Threading system is a proven solution.

Features and Benefits

Choosing the Top Notch Threading System

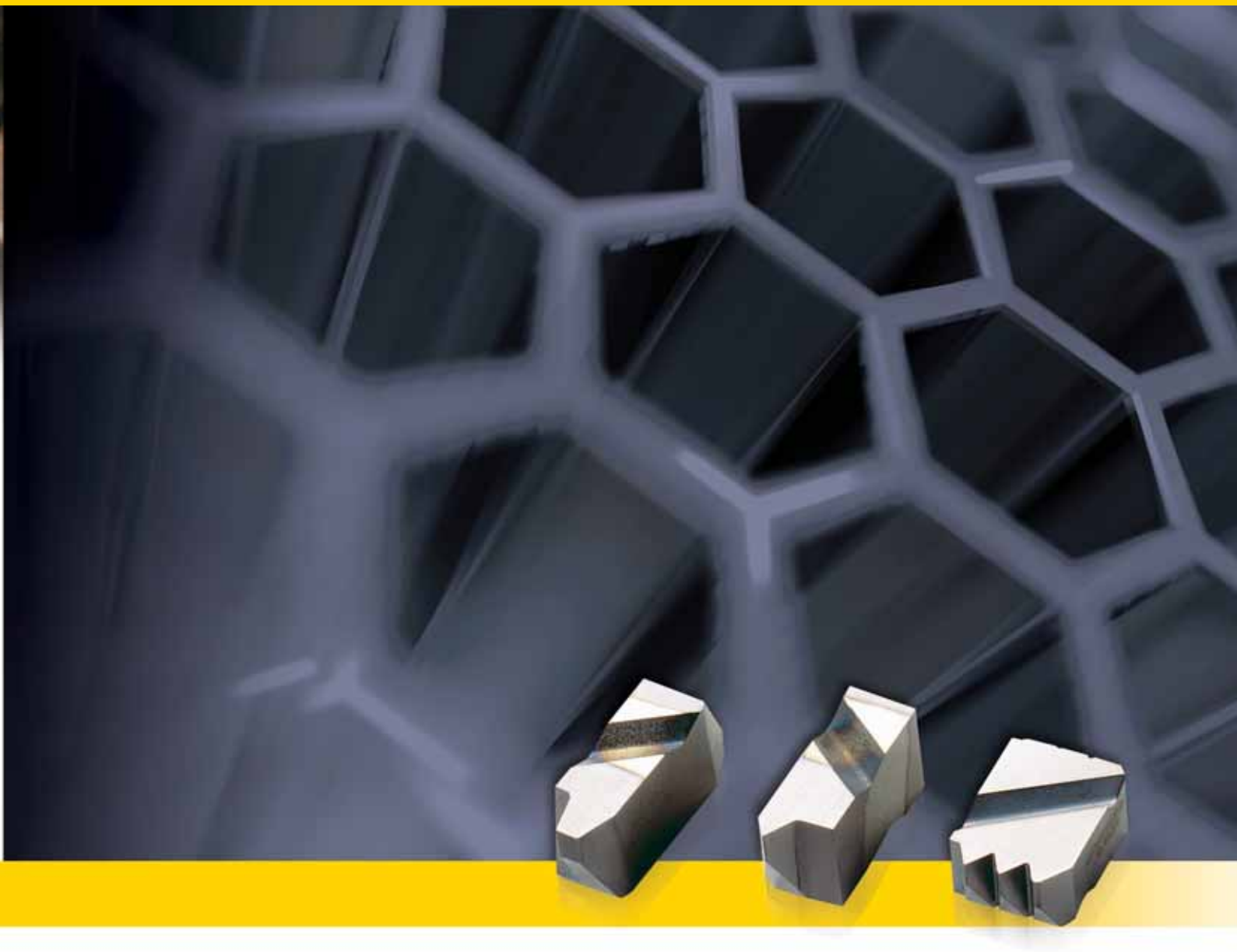
- A superior choice for heavy-duty applications like machining of Acme, Buttress, and API threads. Top Notch is also the best system for coarse pitch and multitooth threading applications.
- Largest selection of insert geometries and grades in the industry.
- A very rigid insert clamping design ensures best tool life, surface finish, and workpiece quality.
- Simplicity of the Top Notch design does not require shim selection for thread helix angles. This helps to avoid mistakes on the shop floor.
- Reduces inventory by using the same Top Notch toolholders and boring bars with either threading or grooving inserts.
- Top Notch chipbreaker inserts eliminate long troublesome coils.
- An excellent choice for special thread forms and toolholder designs.

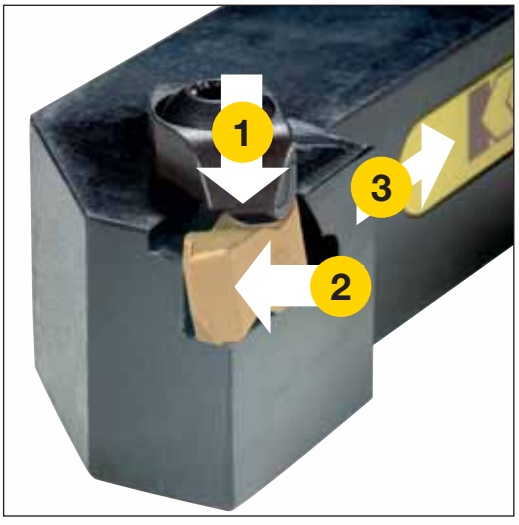
Precision-Ground Thread Form

- Minimizes built-up edge.
- Precisely cuts most common materials.
- Reduces cutting forces.
- Ensures accurate high-quality threads.

Superior Chip Control

- Eliminates long, troublesome coils.
- Excellent for internal threading operations.
- Available in partial profile inserts for 60° thread forms.



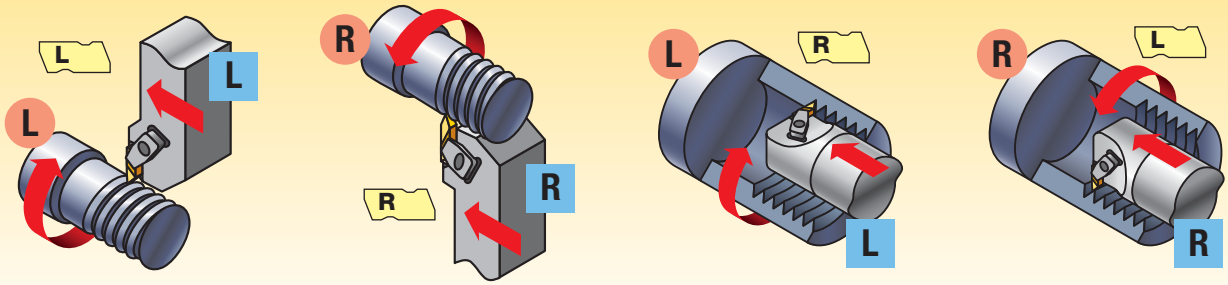

1
2
3

Step 1 • Select threading method and hand of tooling

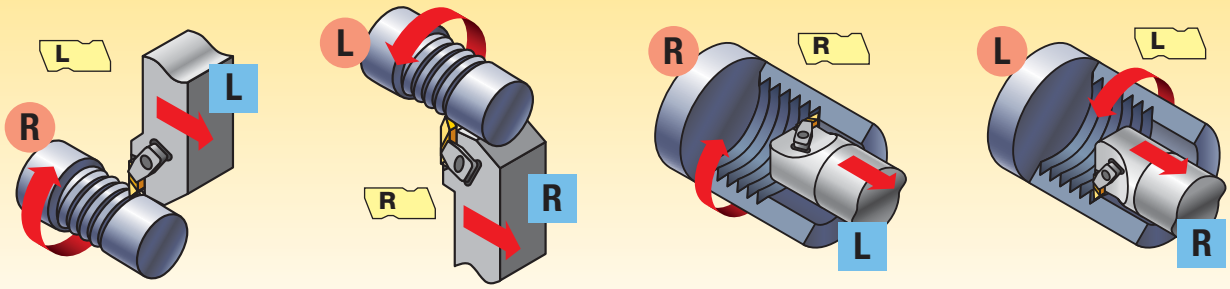
What you need to know:

- External/internal operation.
- Spindle rotation/hand of thread.
- Feed direction.

Feed Direction Toward the Chuck • Standard Helix



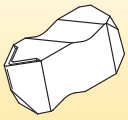
Feed Direction Away from the Chuck • Reverse Helix



NOTE: Top Notch threading bars require opposite hand insert and clamp.
Right-hand bar requires left-hand insert and clamp.
Left-hand bar requires right-hand insert and clamp.

Step 2 • Select insert for application

- See threading insert overview on page E9.
- Select cresting inserts for fully controlled thread form including diameter control. Cresting inserts eliminate the need for deburring.
- Non-cresting partial profile inserts can cut a variety of thread pitches. Chip control is only available with partial profile inserts.
- Note insert size for toolholder selection.



insert size	catalog number	KCU25/KC5025	KCU10/KC5010
2	NT-2RK	•	•
3	NT-3RK	•	•
4	NT-4RK	•	•

Step 3 • Select grade and speed

Recommendations for Grade and Speed Selection • SFM (m/min)

workpiece material	P	M	K	N	S
insert style	chip control or neutral 	chip control or positive 	neutral 	positive 	positive 
optimum cutting conditions	**KCU10/KC5010** 160–750 (50–230)	**KCU10/KC5010** 160–600 (50–185)	**KCU10/KC5010** 230–700 (70–210)	**KC5410** 230–1300 (70–390)	**KCU10/KC5010** 65–400 (20–120)
first choice	**KCU25/KC5025** 130–650 (40–200)	**KCU25/KC5025** 130–450 (40–135)	**KCU25/KC5025** 200–475 (60–145)	**KCU25/KC5025** 160–1150 (50–360)	**KCU25/KC5025** 35–330 (10–100)

Example
Chip control .....NT-K or NT-CK (partial profile only)
Neutral .....NT, NT-C, NTF, NTC, NJ, NJF, NDC-V, NA, NDC, NTB-A/B
Positive .....NTP, NTK, NJP, NJK

Step 4 • Select holder from catalog page

What you need to know:

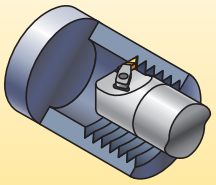
- External/internal operation.
- Minimum bore diameter (for internal operations).
- Hand of tool.
- Insert size (gage insert).

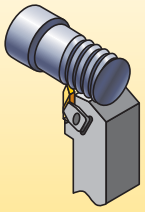
NOTE: The insert size must match the gage insert size of your toolholder selection.

catalog number	gage insert
NSR-163D	N.3R
NSR-164D	N.4R

NOTE: Top Notch toolholders and boring bars are listed with a gage insert to indicate the size and hand required. They are compatible with both grooving and threading inserts of the same size.

Select the Appropriate Holder for the Insert Size and Hand:



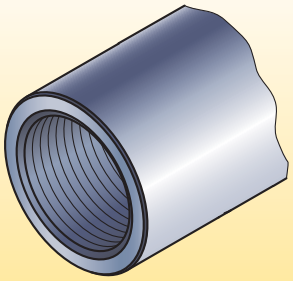


NOTE: Optimize your threading operation by using the proper infeed angle and the recommended infeed values.

Step 5 • Select insert and holder from catalog page

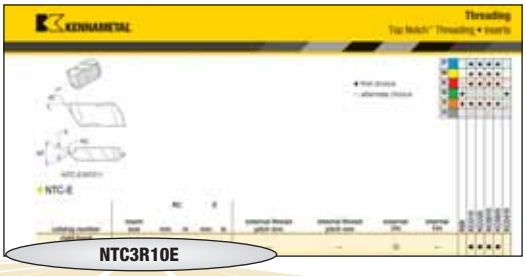
Top Notch Threading Example
Application .....8 TPI Acme internal right-hand thread
Material .....alloy steel
Workpiece diameter .....4.5" (114,3mm) good cutting conditions feed toward the chuck

Recommendation
Insert NA3L8
Grade KC5010
Insert size 3
Boring bar .....A40NER3 (inch) A50UNNTOR4 (metric)
Gage insert.....N.3L
Speed .....500 SFM (150 m/min)
Infeed passes .....12 passes



How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

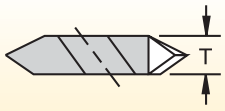


N	T	C	3		R	10	E
Type of Insert	Insert Style	Additional Information	Insert Size	Industry Thread Identification	Hand of Insert	Definition of Insert	Additional Information

N = Top Notch*

A = Acme
D = API or NPT
J = UNJ thread
T = 60° V thread
W = 55° V Whitworth

B = Buttress
F = Fine pitch
S = Stub Acme
C = Cresting
P = Positive rake
K = Fine pitch, positive
U = Utility**



insert size	T (inch)	T (mm)
1	.100	2,54
2	.150	3,81
3	.195	4,95
4	.255	6,48
5	.380	9,65
6	.383	9,73
8	.438	11,13

See full dimension chart below

Position indicates API or drilling industry form designation (e.g.,10RD, 8RD, .038)

or

Controlled root radius threading inserts indicate the root radius in .001" increments (NJ, NJF, NJP, NJK)

or

M indicates metric ISO thread

R = Right hand
L = Left hand

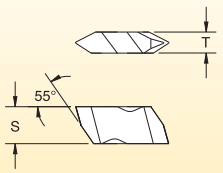
- Threads per inch or pitch (for metric)
- "A" or "B" type Buttress insert
- Taper per foot — API threads

I = Internal thread
E = External thread (used only if internal and external thread forms are different)

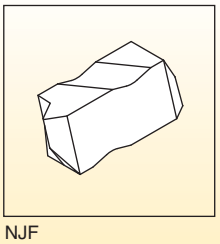
M = Multiple tooth
K = Standard chip control
C = Coarse pitch
D = Dryseal

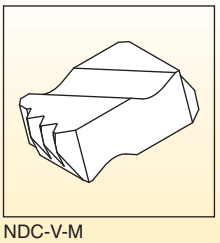
*Kennametal proprietary standard only.
**Utility threading insert can only be used in NSUR/L utility holders.

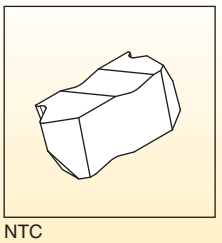
Top Notch Threading and Grooving Insert Dimensions

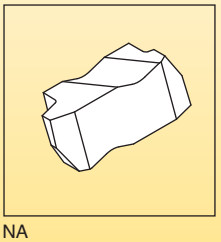


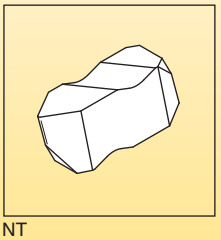
insert size	S inch	S mm	T inch	T mm
1	.100	2,54	.100	2,54
2	.219	5,56	.150	3,81
3	.344	8,74	.195	4,95
4	.453	11,51	.255	6,48
5	.688	17,48	.380	9,65
6	.453	11,51	.383	9,73
8	.312	7,93	.438	11,13

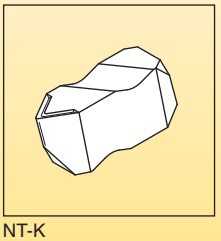

NJF

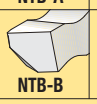

NDC-V-M

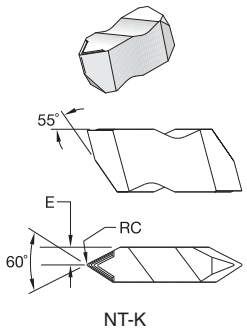

NTC


NA

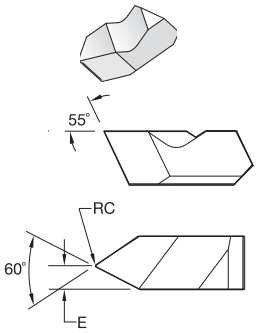

NT


NT-K

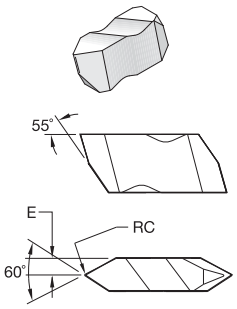
style			thread profile	standard	tolerance class	cresting	application	page(s)
chip control — K	neutral	positive						
 NT-K	 NT	 NTP	Partial Profile 60°	—	—	N	General use for 60° thread forms such as ISO and UN where non-cresting inserts are desired to cut a variety of pitches	E10–E11
 NT-CK			Partial Profile 60° — coarse pitch	—	—	N	Coarse pitch 60° thread forms such as ISO and UN where non-cresting inserts are desired to cut a variety of pitches	E11
	 NTF	 NTK	Partial Profile 60° — fine pitch	—	—	N	Fine pitch 60° thread forms such as ISO and UN where non-cresting inserts are desired to cut a variety of pitches — able to thread close to shoulders	E11–E12
	 NTU		Partial Profile 60° — four-edged insert	—	—	N	Four-edged insert for 60° partial profile threading — requires NSU-style toolholder for size 4U insert	E12
	 NTC-M		Metric ISO	ISO R262, DIN 13	6g/6H	Y	Widely used metric 60° V-form for all industries	E12
	 NTC		American UN	ANSI B1.1:03	2A/2B	Y	Widely used inch-based 60° V-form for all industries	E12–E13
	 NJ	 NJP	UNJ	MIL-S-8879C	3A/3B	N	Controlled root radius on external threads for military and aerospace industries	E14
	 NJF	 NJK	UNJ — fine pitch	MIL-S-8879C	3A/3B	N	Controlled root radius on external threads for military and aerospace industries — able to thread close to shoulders	E15
	 NDC-V		NPT	ANSI B2.1:83	Standard NPT	Y	National Pipe Thread standard forms for pipe fittings	E16
	 NDC-V-M		NPT — multitooth	ANSI B2.1:83	Standard NPT	Y	High productivity multitooth threading inserts for NPT threads	E16
	 NWC		Whitworth, BSW, BSP	BS 84:1956, ISO 228/1:1982, DIN 259	Medium Class A	Y	Widely used 55° form for gas and water connections	E17
	 ND		API Rotary Shoulder Connections — partial profile	API SPEC. 7:1990	Standard API	N	60° V-form used for rotary shoulder pipe connections in the oil and gas industry including V-.038R, V-.040, and V-.050 forms	E17
	 NDC		API Rotary Shoulder Connections — cresting	API SPEC. 7:1990	Standard API	Y	60° V-form used for rotary shoulder pipe connections in the oil and gas industry including V-.038R, V-.040, and V-.050 forms — complete cresting form including taper	E18
	 NDC-RD		API Round	API STD. 5B:1979	Standard API RD	Y	60° V-form with large radius for casing, tubing, and line pipe in the oil and gas industry including 8 and 10 round forms	E18
	 NDC-RD-M		API Round — multitooth	API STD. 5B:1979	Standard API RD	Y	High productivity multitooth threading inserts for API round threads	E18
	 NA		Acme	ANSI B1.5:1988	3G	N	29° truncated thread form for motion applications in a wide variety of industries	E19
	 NAS		Stub Acme	ANSI B1.8:1988	2G	N	Shallow depth 29° truncated thread form for motion applications in a wide variety of industries	E20
	 NTB-A		American Buttress 7° pressure flank leading (Push)	ANSI B1.9:1973	Class 2	N	Sawtooth form for axial load bearing applications in a variety of industries — use the "A" style when the 7° pressure flank is the leading edge	E20
	 NTB-B		American Buttress 45° clearance flank leading (Pull)	ANSI B1.9:1973	Class 2	N	Sawtooth form for axial load bearing applications in a variety of industries — use the "B" style when the 45° clearance flank is the leading edge	E21



NT-K



NT-1L



NT

● first choice
○ alternate choice

		K68	KCU10	KCU25	KC5010	KC5025	KC5410
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	○	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

NT-K

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NT2RK	2	0,10	.0040	1,91	.075	0,70-3,00	1,25-3,50	8-36	7-20		●	●	●	●	
NT3RK	3	0,17	.0065	2,49	.098	1,25-4,00	2,00-5,00	6-20	5-12		●	●	●	●	
NT4RK	4	0,17	.0065	3,25	.128	1,25-6,25	2,00-6,25	4-20	4-12		●	●	●	●	
left hand															
NT2LK	2	0,10	.0040	1,91	.075	0,70-3,00	1,25-3,50	8-36	7-20		●	●	●	●	
NT3LK	3	0,17	.0065	2,49	.098	1,25-4,00	2,00-5,00	6-20	5-12		●	●	●	●	
NT4LK	4	0,17	.0065	3,25	.128	1,25-6,25	2,00-6,25	4-20	4-12		●	●	●	●	

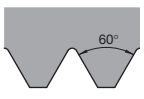
NT-1L

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
left hand															
NT1L	1	0,08	.0030	1,09	.043	–	1,00-2,00	–	12-24	●	●	●	●	●	

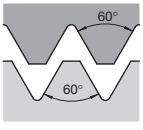
NT

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NT2R	2	0,10	.0040	1,91	.075	0,70-3,00	1,25-3,50	8-36	7-20	●	●	●	●	●	
NT3R	3	0,17	.0065	2,49	.098	1,25-4,00	2,00-5,00	6-20	5-12	●	●	●	●	●	
NT4R	4	0,17	.0065	3,25	.128	1,25-6,25	2,00-6,25	4-20	4-12	●	●	●	●	●	
left hand															
NT2L	2	0,10	.0040	1,91	.075	0,70-3,00	1,25-3,50	8-36	7-20	●	●	●	●	●	
NT3L	3	0,17	.0065	2,49	.098	1,25-4,0	2,0-5,0	6-20	5-12	●	●	●	●	●	
NT4L	4	0,17	.0065	3,25	.128	1,25-6,25	2,0-6,25	4-20	4-12	●	●	●	●	●	

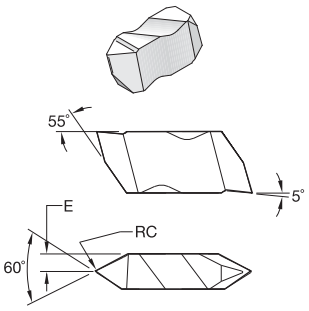
Thread Forms



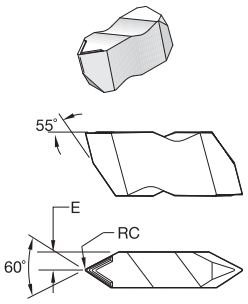
Partial Profile 60°
Internal



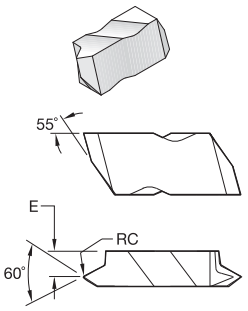
Partial Profile 60°



NTP



NT-CK



NTF

● first choice
○ alternate choice

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

NTP

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NTP2R	2	0,10	.0040	1,91	.075	0,70-3,00	1,25-3,50	8-36	7-20	●	●	●	●	●	●
NTP3R	3	0,17	.0065	2,49	.098	1,25-4,00	2,00-5,00	6-20	5-12	●	●	●	●	●	●
NTP4R	4	0,17	.0065	3,25	.128	1,25-6,25	2,00-6,25	4-20	4-12		●	●	●	●	
left hand															
NTP2L	2	0,10	.0040	1,91	.075	0,70-3,00	1,25-3,50	8-36	7-20	●	●	●	●	●	
NTP3L	3	0,17	.0065	2,49	.098	1,25-4,00	2,00-5,00	6-20	5-12	●	●	●	●	●	
NTP4L	4	0,17	.0065	3,25	.128	1,25-6,25	2,00-6,25	4-20	4-12		●	●	●	●	

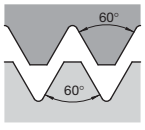
NT-CK

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NT3RCK	3	0,34	.0135	2,46	.097	2,5-4,0	4,0	6-11	6		●	●	●	●	
NT4RCK	4	0,34	.0135	3,23	.127	2,5-5,5	4,0-5,5	4.5-11	4.5-6		●	●	●	●	
left hand															
NT3LCK	3	0,34	.0135	2,46	.097	2,5-4,0	4,0	6-11	6		●	●	●	●	
NT4LCK	4	0,34	.0135	3,23	.127	2,5-5,5	4,0-5,5	4.5-11	4.5-6			●	●	●	

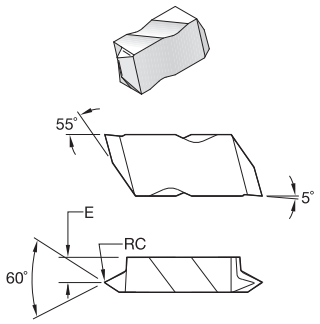
NTF

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NTF2R	2	0,08	.0030	2,79	.110	0,60-1,75	1,0-2,0	14-44	12-24	●	●	●	●	●	
NTF3R	3	0,08	.0030	3,58	.141	0,60-2,5	1,0-2,5	10-44	9-24	●	●	●	●	●	
NTF4R	4	0,08	.0030	5,11	.201	0,60-2,5	1,0-2,5	10-44	9-24	●				●	
left hand															
NTF2L	2	0,08	.0030	2,79	.110	0,60-1,75	1,0-2,0	14-44	12-24	●	●	●	●	●	
NTF3L	3	0,08	.0030	3,58	.141	0,60-2,5	1,0-2,5	10-44	9-24	●	●	●	●	●	
NTF4L	4	0,08	.0030	5,11	.201	0,60-2,5	1,0-2,5	10-44	9-24					●	

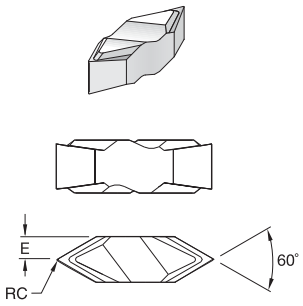
Thread Forms



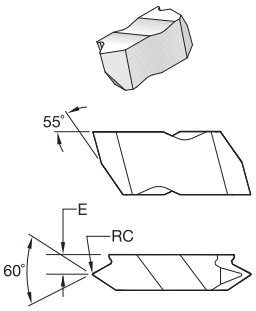
Partial Profile 60°



NTK



NTU



NTC-M-E

● first choice
○ alternate choice

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

NTK

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand **NTK2R**	2	0,08	.0030	2,79	.110	0,60-1,75	1,00-2,00	14-44	12-24	●	●	●	●	●	
NTK3R left hand	3	0,08	.0030	3,58	.141	0,60-2,50	1,00-2,50	10-44	9-24	●	●	●	●	●	
NTK2L	2	0,08	.0030	2,79	.110	0,60-1,75	1,00-2,00	14-44	12-24	●	●	●	●	●	
NTK3L	3	0,08	.0030	3,58	.141	0,60-2,50	1,00-2,50	10-44	9-24	●	●	●	●	●	

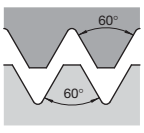
NTU

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand **NTU4R**	4U	0,11	.0045	3,18	.125	1,25-6,25	–	4-20	–			●		●	

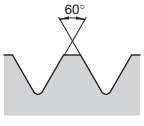
NTC-M-E

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand **NTC3MR150E**	3	0,20	.0080	3,68	.145	1,50	–	–	–		●		●	●	
NTC3MR200E	3	0,27	.0106	3,68	.145	2,00	–	–	–		●		●		

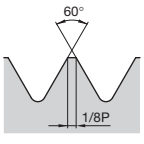
Thread Forms



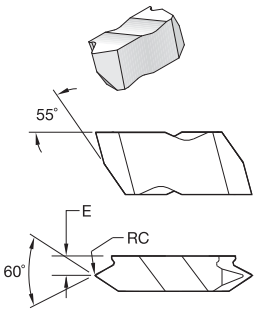
Partial Profile 60°



Partial Profile 60° External



ISO Metric-External



NTC-E/NTC-I

● first choice
○ alternate choice

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

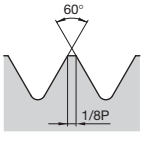
NTC-E

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NTC3R10E	3	0,32	.0124	2,72	.107	–	–	10	–		●	●	●	●	
NTC3R11E	3	0,28	.0111	2,72	.107	–	–	11	–		●		●	●	
NTC3R12E	3	0,25	.0100	3,76	.148	–	–	12	–		●	●	●	●	
NTC3R13E	3	0,24	.0096	3,76	.148	–	–	13	–		●	●	●	●	
NTC3R14E	3	0,22	.0088	3,76	.148	–	–	14	–		●	●	●	●	
NTC3R16E	3	0,19	.0075	3,76	.148	–	–	16	–		●	●	●	●	
NTC3R18E	3	0,18	.0070	3,76	.148	–	–	18	–		●	●	●	●	
NTC3R20E	3	0,16	.0062	3,76	.148	–	–	20	–		●	●	●	●	
NTC3R24E	3	0,13	.0053	3,76	.148	–	–	24	–		●	●	●	●	
NTC3R28E	3	0,12	.0046	3,76	.148	–	–	28	–					●	
NTC3R32E	3	0,10	.0040	3,76	.148	–	–	32	–		●		●	●	
NTC3R7E	3	0,47	.0186	2,72	.107	–	–	7	–					●	
NTC3R8E	3	0,41	.0160	2,72	.107	–	–	8	–		●	●	●	●	
NTC3R9E	3	0,36	.0140	2,72	.107	–	–	9	–		●		●	●	
left hand															
NTC3L10E	3	0,32	.0124	2,72	.107	–	–	10	–		●		●		
NTC3L12E	3	0,25	.0100	3,76	.148	–	–	12	–		●		●	●	
NTC3L16E	3	0,19	.0075	3,76	.148	–	–	16	–		●		●	●	
NTC3L8E	3	0,41	.0160	2,72	.107	–	–	8	–				●		

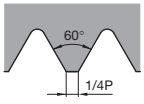
NTC-I

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI						
right hand															
NTC3R12I	3	0,10	.0040	3,76	.148	–	–	–	12			●		●	
NTC3R8I	3	0,18	.0070	2,72	.107	–	–	–	8			●		●	
left hand															
NTC3L10I	3	0,13	.0052	2,72	.107	–	–	–	10			●		●	
NTC3L12I	3	0,10	.0040	3,76	.148	–	–	–	12			●		●	
NTC3L14I	3	0,09	.0037	3,76	.148	–	–	–	14			●		●	
NTC3L16I	3	0,08	.0030	3,76	.148	–	–	–	16			●		●	
NTC3L8I	3	0,18	.0070	2,72	.107	–	–	–	8			●		●	

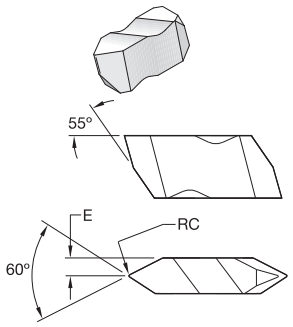
Thread Forms



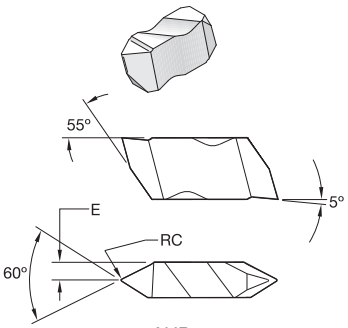
American
UN-External



American
UN-Internal



NJ



NJP

● first choice
○ alternate choice

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

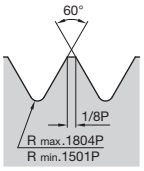
NJ

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NJ3010R16	3	0,25	.0099	2,49	.098	–	–	16	–	●		●		●	
NJ3014R12	3	0,33	.0130	2,49	.098	–	–	12	–		●	●	●	●	
NJ3020R8	3	0,49	.0193	2,49	.098	–	–	8	–		●	●	●	●	
left hand															
NJ3010L16	3	0,25	.0099	2,49	.098	–	–	16	–					●	
NJ3014L12	3	0,33	.0130	2,49	.098	–	–	12	–		●	●	●	●	
NJ3020L8	3	0,49	.0193	2,49	.098	–	–	8	–					●	

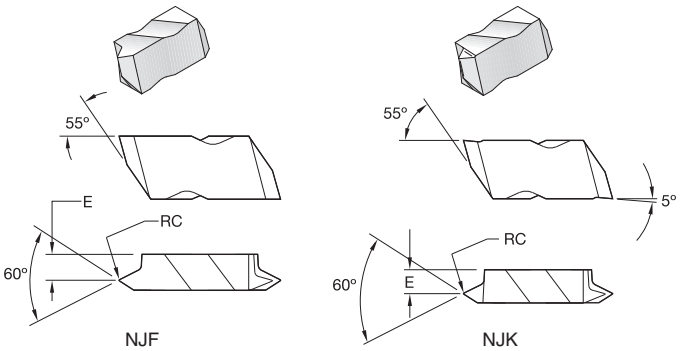
NJP

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NJP3010R16	3	0,25	.0099	2,49	.098	–	–	16	–		●	●	●	●	
NJP3014R12	3	0,33	.0130	2,49	.098	–	–	12	–	●	●	●	●	●	
NJP3020R8	3	0,49	.0193	2,49	.098	–	–	8	–		●	●	●	●	
left hand															
NJP3010L16	3	0,25	.0099	2,49	.098	–	–	16	–					●	
NJP3014L12	3	0,33	.0130	2,49	.098	–	–	12	–		●	●	●	●	
NJP3020L8	3	0,49	.0193	2,49	.098	–	–	8	–			●		●	

Thread Forms



UNJ External



● first choice
○ alternate choice

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

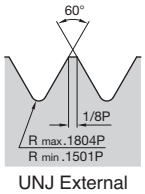
NJF

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NJF3005R32	3	0,13	.0052	3,58	.141	–	–	32	–		●		●		
NJF3006R28	3	0,15	.0059	3,58	.141	–	–	28	–	●	●		●	●	
NJF3007R24	3	0,17	.0068	3,58	.141	–	–	24	–		●	●	●	●	
NJF3008R20	3	0,20	.0078	3,58	.141	–	–	20	–		●	●	●	●	
NJF3009R18	3	0,22	.0088	3,58	.141	–	–	18	–	●	●	●	●	●	
NJF3010R16	3	0,25	.0099	3,58	.141	–	–	16	–	●	●	●	●	●	
NJF3012R14	3	0,28	.0112	3,58	.141	–	–	14	–		●	●	●	●	
left hand															
NJF3007L24	3	0,17	.0068	3,58	.141	–	–	24	–				●		
NJF3008L20	3	0,20	.0078	3,58	.141	–	–	20	–				●		
NJF3009L18	3	0,22	.0088	3,58	.141	–	–	18	–				●		

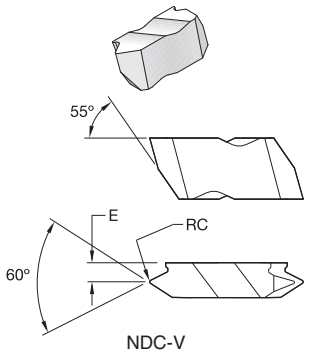
NJK

catalog number	insert size	RC mm	RC in	E mm	E in	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NJK3005R32	3	0,13	.0052	3,58	.141	–	–	32	–		●	●	●	●	
NJK3006R28	3	0,15	.0059	3,58	.141	–	–	28	–		●	●	●	●	
NJK3007R24	3	0,17	.0068	3,58	.141	–	–	24	–		●	●	●	●	
NJK3008R20	3	0,20	.0078	3,58	.141	–	–	20	–		●	●	●	●	
NJK3009R18	3	0,22	.0088	3,58	.141	–	–	18	–		●	●	●	●	
NJK3010R16	3	0,25	.0099	3,58	.141	–	–	16	–	●	●	●	●	●	
NJK3012R14	3	0,28	.0112	3,58	.141	–	–	14	–		●		●	●	
left hand															
NJK3005L32	3	0,13	.0052	3,58	.141	–	–	32	–					●	
NJK3006L28	3	0,15	.0059	3,58	.141	–	–	28	–					●	
NJK3008L20	3	0,20	.0078	3,58	.141	–	–	20	–			●		●	
NJK3012L14	3	0,28	.0112	3,58	.141	–	–	14	–					●	

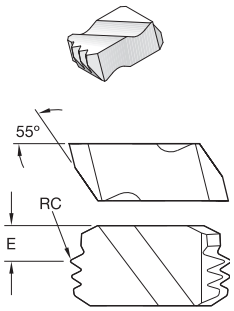
Thread Forms



UNJ External



NDC-V



NDC-V-M • Multitooth

● first choice
○ alternate choice

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

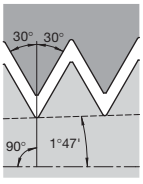
NDC-V

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NDC3115VR75	3	0,10	.0040	3,66	.144	11.5	.750		●		●		
NDC314VR75	3	0,08	.0030	3,66	.144	14	.750		●		●		
NDC327VR75	3	0,05	.0020	3,66	.144	27	.750		●		●		
NDC38VR75	3	0,13	.0050	2,54	.100	8	.750		●		●		
left hand													
NDC3115VL75	3	0,10	.0040	3,66	.144	11.5	.750		●		●		
NDC38VL75	3	0,13	.0050	2,54	.100	8	.750		●		●		

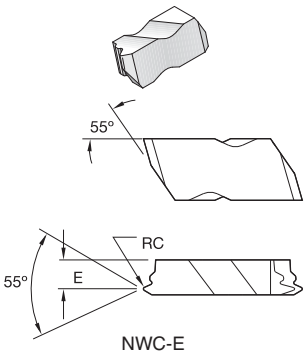
NDC-V-M • Multitooth

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NDC8115VR75M	8	0,10	.0040	2,59	.102	11.5	.750		●		●		
NDC88VR75M	8	0,13	.0050	2,41	.095	8	.750		●		●		
left hand													
NDC8115VL75M	8	0,10	.0040	2,59	.102	11.5	.750				●		
NDC88VL75M	8	0,13	.0050	2,41	.095	8	.750		●		●		

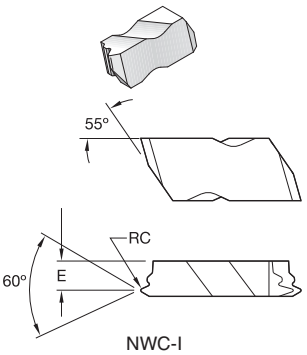
Thread Forms



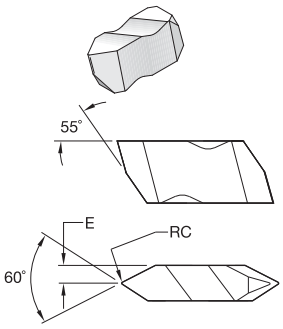
NPT



NWC-E



NWC-I



ND • Partial Profile

● first choice
○ alternate choice

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

NWC-E

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NWC3R11E	3	0,30	.0118	3,43	.135	11	–		●	●	●	●	
NWC3R14E	3	0,24	.0093	3,43	.135	14	–			●	●	●	

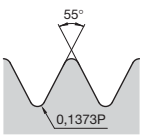
NWC-I

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF
left hand							
NWC3L11I	3	0,30	.0118	3,43	.135	11	–

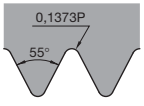
ND • Partial Profile

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF
right hand							
ND3038R	3	0,90	.0355	2,08	.082	4	–
ND3040R	3	0,45	.0175	2,08	.082	5	–
ND4050R	4	0,57	.0225	3,25	.128	4	–
left hand							
ND3038L	3	0,90	.0355	2,08	.082	4	–
ND3040L	3	0,45	.0175	2,08	.082	5	–
ND4040L	4	0,45	.0175	3,25	.128	5	–
ND4050L	4	0,57	.0225	3,25	.128	4	–

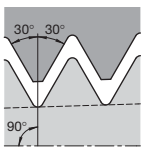
Thread Forms



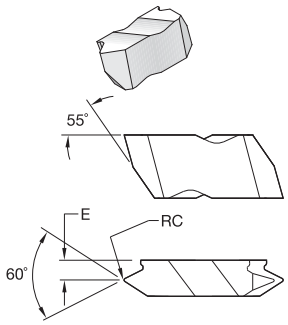
Whitworth BSW, BSP-External



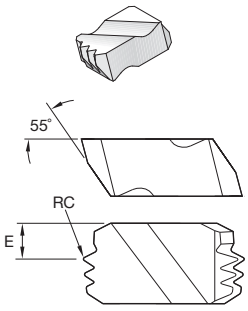
Whitworth BSW, BSP-Internal



API Rotary Shoulder Connections



NDC/NDC-RD



NDC-RD-M • Multitooth

● first choice
○ alternate choice

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

NDC • Cresting

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NDC3040R3	3	0,45	.0175	3,73	.147	5	3.000			●		●	
NDC4038R2	4	0,90	.0355	4,65	.183	4	2.000		●	●	●	●	
NDC4040R3	4	0,45	.0175	3,73	.147	5	3.000					●	
NDC4050R2	4	0,57	.0225	4,65	.183	4	2.000		●	●	●	●	
NDC4050R3	4	0,57	.0225	4,65	.183	4	3.000			●	●	●	
left hand													
NDC3040L3	3	0,45	.0175	3,73	.147	5	3.000		●		●		
NDC4038L2	4	0,90	.0355	4,65	.183	4	2.000		●	●	●	●	
NDC4040L3	4	0,45	.0175	3,73	.147	5	3.000					●	
NDC4050L2	4	0,57	.0225	4,65	.183	4	2.000			●		●	
NDC4050L3	4	0,57	.0225	4,65	.183	4	3.000		●		●		

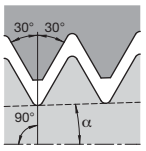
NDC-RD

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NDC310RDR75	3	0,36	.0140	3,18	.125	10	.750		●	●	●	●	
NDC38RDR75	3	0,43	.0170	3,18	.125	8	.750		●	●	●	●	
left hand													
NDC310RDL75	3	0,36	.0140	3,18	.125	10	.750			●	●	●	
NDC38RDL75	3	0,43	.0170	3,18	.125	8	.750		●	●	●	●	

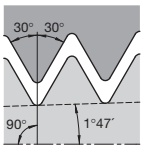
NDC-RD-M • Multitooth

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NDC68RDR75M	6	0,41	.0160	2,62	.103	8	.750		●		●		
left hand													
NDC68RDL75M	6	0,41	.0160	2,62	.103	8	.750		●		●		

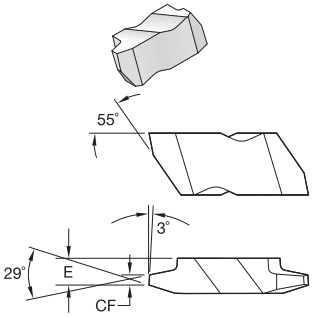
Thread Forms



API Rotary Shoulder Connections



API Round



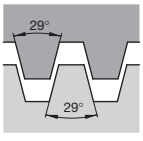
● first choice
○ alternate choice

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

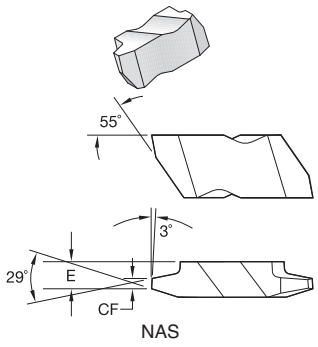
NA

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NA3R10	3	–	–	3,79	.149	10	–		●	●	●	●	
NA3R12	3	–	–	3,79	.149	12	–		●		●	●	
NA3R16	3	–	–	3,79	.149	16	–		●		●		
NA3R4	3	–	–	3,38	.133	4	–		●	●	●	●	
NA3R5	3	–	–	3,79	.149	5	–		●	●	●	●	
NA3R6	3	–	–	3,79	.149	6	–		●	●	●	●	
NA3R8	3	–	–	3,79	.149	8	–		●	●	●	●	
NA4R4	4	–	–	5,13	.202	4	–		●	●	●	●	
NA4R5	4	–	–	5,13	.202	5	–			●		●	
NA4R6	4	–	–	5,13	.202	6	–			●		●	
NA4R8	4	–	–	5,13	.202	8	–					●	
NA6R2	6	–	–	7,19	.283	2	–		●	●	●	●	
NA6R25	6	–	–	7,19	.283	2.5	–			●		●	
NA6R3	6	–	–	7,19	.283	3	–			●		●	
left hand													
NA3L10	3	–	–	3,79	.149	10	–			●		●	
NA3L12	3	–	–	3,79	.149	12	–		●		●	●	
NA3L14	3	–	–	3,79	.149	14	–					●	
NA3L4	3	–	–	3,38	.133	4	–	●	●	●	●	●	
NA3L5	3	–	–	3,79	.149	5	–		●	●	●	●	
NA3L6	3	–	–	3,79	.149	6	–		●	●	●	●	
NA3L8	3	–	–	3,79	.149	8	–		●	●	●	●	
NA4L4	4	–	–	5,13	.202	4	–		●	●	●	●	
NA4L5	4	–	–	5,13	.202	5	–			●		●	
NA4L6	4	–	–	5,13	.202	6	–			●		●	
NA4L8	4	–	–	5,13	.202	8	–			●		●	
NA6L2	6	–	–	7,19	.283	2	–		●	●	●	●	
NA6L25	6	–	–	7,19	.283	2.5	–			●		●	
NA6L3	6	–	–	7,19	.283	3	–			●		●	

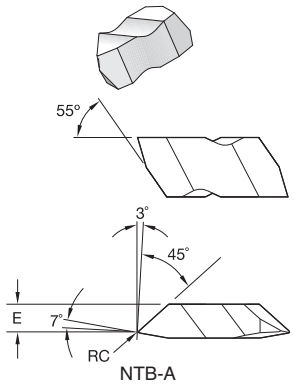
Thread Forms



Acme



NAS



NTB-A

● first choice
○ alternate choice

		K68	KCU10	KCU25	KC5010	KC5025	KC5410
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	○	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

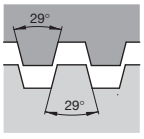
NAS

catalog number	insert size	RC mm	RC in	CF mm	CF in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand															
NAS3R10	3	–	–	0,940	.0370	3,79	.149	10	–		●	●	●	●	
NAS3R12	3	–	–	0,828	.0326	3,79	.149	12	–			●		●	
NAS3R14	3	–	–	0,701	.0276	3,79	.149	14	–					●	
NAS3R16	3	–	–	0,605	.0238	3,79	.149	16	–					●	
NAS3R4	3	–	–	2,550	.1004	3,79	.149	–	–			●		●	
NAS3R5	3	–	–	2,014	.0793	3,79	.149	5	–		●	●	●	●	
NAS3R6	3	–	–	1,656	.0652	3,79	.149	6	–		●	●	●	●	
NAS3R8	3	–	–	1,209	.0476	3,79	.149	8	–		●	●	●	●	
left hand															
NAS3L10	3	–	–	0,940	.0370	3,79	.149	10	–		●	●	●	●	
NAS3L12	3	–	–	0,828	.0326	3,79	.149	12	–			●		●	
NAS3L16	3	–	–	0,605	.0238	3,79	.149	16	–					●	
NAS3L4	3	–	–	2,550	.1004	3,79	.149	–	–			●		●	
NAS3L5	3	–	–	2,014	.0793	3,79	.149	5	–		●		●	●	
NAS3L6	3	–	–	1,656	.0652	3,79	.149	6	–		●	●	●	●	
NAS3L8	3	–	–	1,209	.0476	3,79	.149	8	–		●	●	●	●	

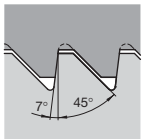
NTB-A

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NTB2RA	2	0,08	.0030	3,20	.126	16-20	–	●	●		●		
NTB3RA	3	0,17	.0065	4,17	.164	8-16	–		●	●	●	●	
NTB4RA	4	0,25	.0100	5,23	.206	4-6	–		●		●		
left hand													
NTB2LA	2	0,08	.0030	3,20	.126	16-20	–					●	
NTB3LA	3	0,17	.0065	4,17	.164	8-16	–	●	●	●	●	●	
NTB4LA	4	0,25	.0100	5,23	.206	4-6	–				●	●	

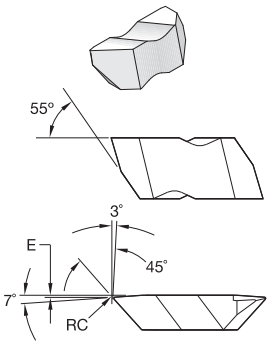
Thread Forms



Stub Acme



American Buttress-Push



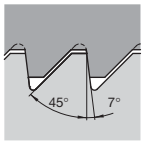
● first choice
○ alternate choice

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

NTB-B

catalog number	insert size	RC mm	RC in	E mm	E in	TPI	TPF	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NTB2RB	2	0,08	.0030	0,25	.010	16-20	–		●		●	●	
NTB3RB	3	0,17	.0065	0,31	.012	8-16	–	●	●	●	●	●	
NTB4RB	4	0,25	.0100	0,41	.016	4-6	–		●	●	●	●	
left hand													
NTB2LB	2	0,08	.0030	0,25	.010	16-20	–		●		●		
NTB3LB	3	0,17	.0065	0,31	.012	8-16	–	●	●	●	●	●	
NTB4LB	4	0,25	.0100	0,41	.016	4-6	–		●	●	●	●	

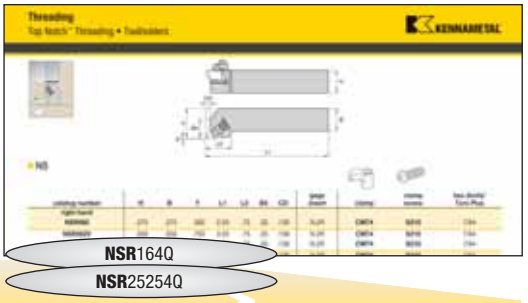
Thread Forms



American
Buttress-Pull

How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

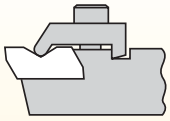


Inch

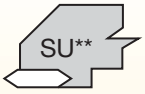
N	S	R	

Metric

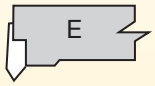
N	S	R	
Insert Holding Loctaion	Insert Mounting Location	Hand of Tool	Drop Head



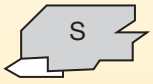
N = Top Notch*



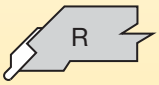
SU = Side mount utility



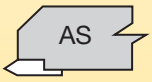
E = End



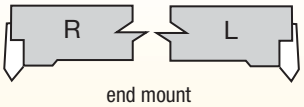
S = Side mount, offset



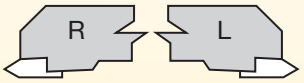
R = Undercut



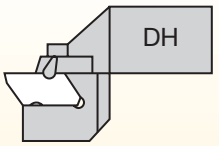
AS = Side mount, no offset



end mount

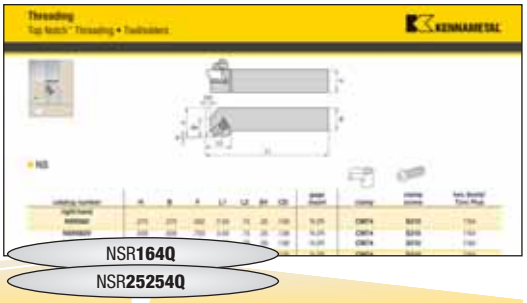


side mount



*Kennametal proprietary standard only.
**Side mount utility holder can only use NTU inserts.

By referencing this easy-to-use guide, you can identify the correct product to meet your needs.



Inch

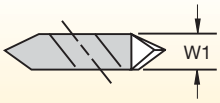
16	4	Q

Metric

2525	4	Q
Shank Size	Insert Size	Qualified Surface and Length

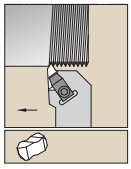
inch:
This position will show a significant two-digit number that indicates the holder cross section. For shanks 5/8" square and larger, the number will represent the number of sixteenths of width and height. For shanks under 5/8" square, the number of sixteenths of cross section will be preceded by a zero. For rectangular holders, the first digit represents the number of eighths of width and the second digit the number of quarters of height, except for a toolholder 1-1/4" x 1-1/2", which is given the number 91.

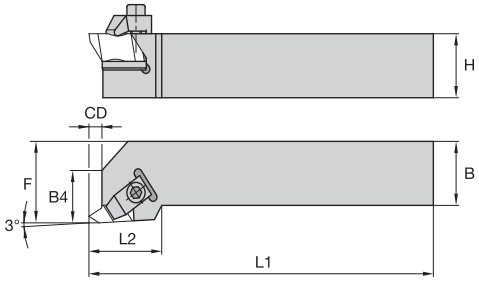
metric:
Shank height and width in mm and holder length according to ISO standard.



insert size	W1
2	.150"
3	.195"
4	.255"
5	.380"
6	.383"
8	.438"

A = Qualified back and end, 4" long
B = Qualified back and end, 4.5" long
C = Qualified back and end, 5" long
D = Qualified back and end, 6" long
E = Qualified back and end, 7" long
V = Qualified back and end, 3.5" long
Q = Qualified metric holder

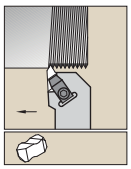


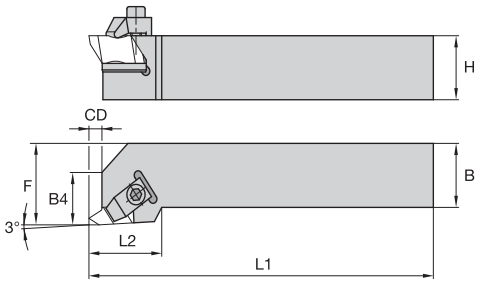


NS


catalog number	H	B	F	L1	L2	B4	CD	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus
right hand											
NSR062	.375	.375	.562	2.50	.75	.35	.138	N.2R	**CM74**	**S310**	7/64
NSR082V	.500	.500	.750	3.50	.75	.35	.138	N.2R	**CM74**	**S310**	7/64
NSR102B	.625	.625	.875	4.50	.75	.35	.138	N.2R	**CM74**	**S310**	7/64
NSR122B	.750	.750	1.000	4.50	.75	.35	.138	N.2R	**CM74**	**S310**	7/64
NSR162C	1.000	1.000	1.250	5.00	.75	.35	.138	N.2R	**CM74**	**S310**	7/64
NSR123A	.750	.750	1.000	4.00	1.25	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR123B	.750	.750	1.000	4.50	1.25	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR163C	1.000	1.000	1.250	5.00	1.25	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR163D	1.000	1.000	1.250	6.00	1.25	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR203D	1.250	1.250	1.500	6.00	1.25	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR853D	1.250	1.000	1.250	6.00	1.25	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR243D	1.500	1.500	2.000	6.00	1.38	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR243E	1.500	1.500	2.000	7.00	1.38	.50	.210	N.3R	**CM72LP**	**S2112**	25 IP
NSR205D	1.250	1.250	1.500	6.00	2.00	.61	.415	N.5R	**CM80**	**S352**	1/4
NSR245D	1.500	1.500	2.000	6.00	2.00	.61	.415	N.5R	**CM80**	**S352**	1/4
left hand											
NSL062	.375	.375	.562	2.50	.75	.35	.138	N.2L	**CM75**	**S310**	7/64
NSL082V	.500	.500	.750	3.50	.75	.35	.138	N.2L	**CM75**	**S310**	7/64
NSL102B	.625	.625	.875	4.50	.75	.35	.138	N.2L	**CM75**	**S310**	7/64
NSL122B	.750	.750	1.000	4.50	.75	.35	.138	N.2L	**CM75**	**S310**	7/64
NSL162C	1.000	1.000	1.250	5.00	.75	.35	.138	N.2L	**CM75**	**S310**	7/64
NSL123A	.750	.750	1.000	4.00	1.25	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL123B	.750	.750	1.000	4.50	1.25	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL163C	1.000	1.000	1.250	5.00	1.25	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL163D	1.000	1.000	1.250	6.00	1.25	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL853D	1.250	1.000	1.250	6.00	1.25	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL203D	1.250	1.250	1.500	6.00	1.25	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL243D	1.500	1.500	2.000	6.00	1.38	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL243E	1.500	1.500	2.000	7.00	1.38	.50	.210	N.3L	**CM73LP**	**S2112**	25 IP
NSL205D	1.250	1.250	1.500	6.00	2.00	.61	.415	N.5L	**CM81**	**S352**	1/4

NOTE: F dimension measured over sharp point of N-style threading insert.



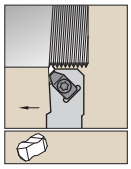


NS (with shim)

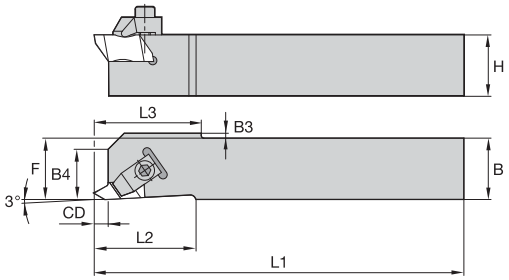



catalog number	H	B	F	L1	L2	B4	CD	gage insert	shim	shim screw	clamp	clamp screw	hex (inch)/ Torx Plus
right hand													
NSR164C	1.000	1.000	1.250	5.00	1.38	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR164D	1.000	1.000	1.250	6.00	1.38	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR854D	1.250	1.000	1.250	6.00	1.38	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR204C	1.250	1.250	1.500	5.00	1.38	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR204D	1.250	1.250	1.500	6.00	1.38	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR864E	1.500	1.000	1.250	7.00	1.38	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR244D	1.500	1.500	2.000	6.00	1.50	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR244E	1.500	1.500	2.000	7.00	1.50	.54	.294	N.4R	**SM420**	**SL344**	**CM72LP**	**S2112**	25 IP
NSR166D	1.000	1.000	1.250	6.00	1.38	.67	.334	N.6R	**SM416**	**S111**	**CM120**	**S412**	5/32
NSR206D	1.250	1.250	1.500	6.00	1.38	.67	.334	N.6R	**SM416**	**S111**	**CM120**	**S412**	5/32
NSR246D	1.500	1.500	2.000	6.00	1.50	.67	.334	N.6R	**SM416**	**S111**	**CM120**	**S412**	5/32
NSR168D	1.000	1.000	1.250	6.00	1.25	.72	.225	N.8R	**SM419**	**S112**	**CM144**	**S422**	3/16
left hand													
NSL164C	1.000	1.000	1.250	5.00	1.38	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL164D	1.000	1.000	1.250	6.00	1.38	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL854D	1.250	1.000	1.250	6.00	1.38	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL204C	1.250	1.250	1.500	5.00	1.38	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL204D	1.250	1.250	1.500	6.00	1.38	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL864E	1.500	1.000	1.250	7.00	1.38	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL244D	1.500	1.500	2.000	6.00	1.50	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL244E	1.500	1.500	2.000	7.00	1.50	.54	.294	N.4L	**SM420**	**SL344**	**CM73LP**	**S2112**	25 IP
NSL166D	1.000	1.000	1.250	6.00	1.38	.67	.334	N.6L	**SM416**	**S111**	**CM121**	**S412**	5/32
NSL206D	1.250	1.250	1.500	6.00	1.38	.67	.334	N.6L	**SM416**	**S111**	**CM121**	**S412**	5/32
NSL246D	1.500	1.500	2.000	6.00	1.50	.67	.334	N.6L	**SM416**	**S111**	**CM121**	**S412**	5/32

NOTE: F dimension measured over sharp point of N-style threading insert.



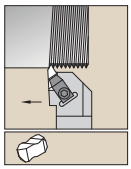
See page E10 for inserts.



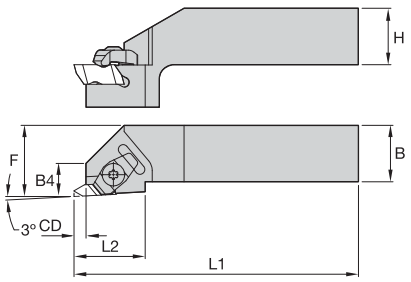
NAS


catalog number	H	B	F	L1	L2	B4	CD	B3	L3	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus
right hand													
NASR062D	.375	.375	.375	6.00	.75	.35	.138	.070	.88	N.2R	**CM182**	**S310**	7/64
NASR082D	.500	.500	.500	6.00	.75	.35	.138	—	—	N.2R	**CM182**	**S310**	7/64
NASR102B	.625	.625	.625	4.50	.75	.35	.138	—	—	N.2R	**CM74**	**S310**	7/64
NASR083D	.500	.500	.500	6.00	1.25	.50	.210	.125	1.32	N.3R	**CM184LP**	**S2112**	25 IP
NASR103B	.625	.625	.625	4.50	1.30	—	.210	—	—	N.3R	**CM184LP**	**S2112**	25 IP
left hand													
NASL062D	.375	.375	.375	6.00	.75	.35	.138	.070	.88	N.2L	**CM183**	**S310**	7/64
NASL082D	.500	.500	.500	6.00	.75	.35	.138	—	—	N.2L	**CM183**	**S310**	7/64
NASL102B	.625	.625	.625	4.50	.75	.35	.138	—	—	N.2L	**CM75**	**S310**	7/64
NASL083D	.500	.500	.500	6.00	1.25	.50	.210	.125	1.32	N.3L	**CM185LP**	**S2112**	25 IP
NASL103B	.625	.625	.625	4.50	1.30	—	.210	—	—	N.3L	**CM185LP**	**S2112**	25 IP

NOTE: F dimension measured over sharp point of N-style threading insert.



See page E10 for inserts.

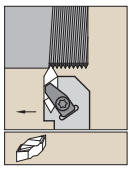


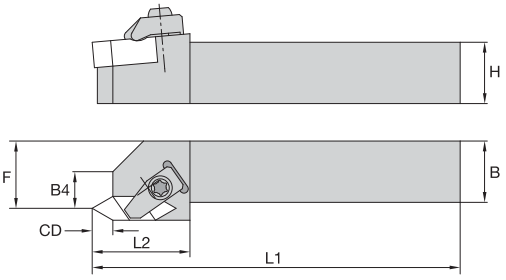
NS-DH



catalog number	H	B	F	L1	L2	B4	CD	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus	jack screw	hex (inch)
right hand													
NSRDH122B	.750	.750	1.000	4.500	.75	.40	.138	N.2R	**CM74**	**S310**	7/64	**S1020**	1/8
NSRDH162C	1.000	1.000	1.250	5.000	.75	.40	.138	N.2R	**CM74**	**S310**	7/64	**S1020**	1/8
NSRDH123A	.750	.750	1.250	4.000	1.25	.58	.210	N.3R	**CM72LP**	**S2112**	25 IP	**—**	—
NSRDH163C	1.000	1.000	1.250	5.000	1.25	.58	.210	N.3R	**CM72LP**	**S2112**	25 IP	**—**	—
NSRDH163D	1.000	1.000	1.250	6.000	1.25	.58	.210	N.3R	**CM72LP**	**S2112**	25 IP	**—**	—
NSRDH203D	1.250	1.250	1.500	6.000	1.25	.62	.210	N.3R	**CM72LP**	**S2112**	25 IP	**S965**	3/16
NSRDH204D	1.250	1.250	1.500	6.000	1.38	.62	.294	N.4R	**CM72LP**	**S2112**	25 IP	**S965**	3/16
left hand													
NSLDH203D	1.250	1.250	1.500	6.000	1.25	.62	.210	N.3L	**CM73LP**	**S2112**	25 IP	**S965**	3/16

NOTE: F dimension measured over sharp point of N-style threading insert.

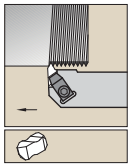


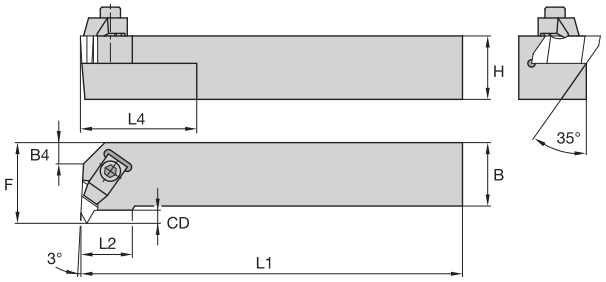


NSU

catalog number	H	B	F	L1	L2	B4	CD	gage insert	clamp	clamp screw	Torx Plus
right hand											
NSUR124C	.750	.750	.875	5.00	1.25	.50	.240	NTU4R	**CM72LP**	**S2112**	25 IP
NSUR164D	1.000	1.000	1.125	6.00	1.25	.50	.240	NTU4R	**CM72LP**	**S2112**	25 IP
left hand											
NSUL124C	.750	.750	.875	5.00	1.25	.50	.240	NTU4L	**CM73LP**	**S2112**	25 IP
NSUL164D	1.000	1.000	1.125	6.00	1.25	.50	.240	NTU4L	**CM73LP**	**S2112**	25 IP

NOTE: Toolholders only for threading inserts NTU4...
F dimension measured over sharp point of Top Notch-style threading insert.





NE


catalog number	H	B	F	L1	L2	B4	CD	L4	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus
right hand												
NER062	.375	.375	.750	2.50	.50	—	.138	1.000	N.2L	**CM75**	**S310**	7/64
NER082V	.500	.500	.750	3.50	.50	—	.138	1.000	N.2L	**CM75**	**S310**	7/64
NER102B	.625	.625	.750	4.50	—	—	.138	1.000	N.2L	**CM75**	**S310**	7/64
NER122B	.750	.750	1.000	4.50	.50	.29	.138	1.000	N.2L	**CM75**	**S310**	7/64
NER162C	1.000	1.000	1.250	5.00	.50	.41	.138	1.000	N.2L	**CM75**	**S310**	7/64
NER123B	.750	.750	1.125	4.50	.75	—	.210	2.000	N.3L	**CM73LP**	**S2112**	25 IP
NER163C	1.000	1.000	1.250	5.00	.75	—	.210	2.000	N.3L	**CM73LP**	**S2112**	25 IP
NER163D	1.000	1.000	1.250	6.00	.75	—	.210	2.000	N.3L	**CM73LP**	**S2112**	25 IP
NER853D	1.250	1.000	1.250	6.00	.75	—	.210	2.000	N.3L	**CM73LP**	**S2112**	25 IP
NER203D	1.250	1.250	1.500	6.00	.75	.26	.210	2.000	N.3L	**CM73LP**	**S2112**	25 IP
NER243D	1.500	1.500	2.000	6.00	.75	.76	.210	2.000	N.3L	**CM73LP**	**S2112**	25 IP
NER164C	1.000	1.000	1.375	5.00	.75	—	.294	2.000	N.4L	**CM73LP**	**S2112**	25 IP
NER164D	1.000	1.000	1.375	6.00	.75	—	.294	2.000	N.4L	**CM73LP**	**S2112**	25 IP
NER204D	1.250	1.250	1.625	6.00	.75	.27	.294	2.000	N.4L	**CM73LP**	**S2112**	25 IP
NER244D	1.500	1.500	2.000	6.00	.75	.65	.294	2.000	N.4L	**CM73LP**	**S2112**	25 IP
NER205D	1.250	1.250	2.000	6.00	1.44	—	.415	2.000	N.5L	**CM81**	**S352**	1/4
NER206D	1.250	1.250	1.625	6.00	.75	.27	.300	2.000	N.6L	**CM121**	**S412**	5/32
left hand												
NEL062	.375	.375	.750	2.50	.50	—	.138	1.000	N.2R	**CM74**	**S310**	7/64
NEL082V	.500	.500	.750	3.50	.50	—	.138	1.000	N.2R	**CM74**	**S310**	7/64
NEL102B	.625	.625	.750	4.50	—	—	.138	1.000	N.2R	**CM74**	**S310**	7/64
NEL122B	.750	.750	1.000	4.50	.50	.29	.138	1.000	N.2R	**CM74**	**S310**	7/64
NEL162C	1.000	1.000	1.250	5.00	.50	.41	.138	1.000	N.2R	**CM74**	**S310**	7/64
NEL123B	.750	.750	1.125	4.50	.75	—	.210	2.000	N.3R	**CM72LP**	**S2112**	25 IP
NEL163C	1.000	1.000	1.250	5.00	.75	—	.210	2.000	N.3R	**CM72LP**	**S2112**	25 IP
NEL163D	1.000	1.000	1.250	6.00	.75	—	.210	2.000	N.3R	**CM72LP**	**S2112**	25 IP
NEL853D	1.250	1.000	1.250	6.00	.75	—	.210	2.000	N.3R	**CM72LP**	**S2112**	25 IP
NEL203D	1.250	1.250	1.500	6.00	.75	.26	.210	2.000	N.3R	**CM72LP**	**S2112**	25 IP
NEL243D	1.500	1.500	2.000	6.00	.75	.76	.210	2.000	N.3R	**CM72LP**	**S2112**	25 IP
NEL164C	1.000	1.000	1.375	5.00	.75	—	.294	2.000	N.4R	**CM72LP**	**S2112**	25 IP
NEL164D	1.000	1.000	1.375	6.00	.75	—	.294	2.000	N.4R	**CM72LP**	**S2112**	25 IP
NEL204D	1.250	1.250	1.625	6.00	.75	.27	.294	2.000	N.4R	**CM72LP**	**S2112**	25 IP
NEL244D	1.500	1.500	2.000	6.00	.75	.65	.294	2.000	N.4R	**CM72LP**	**S2112**	25 IP
NEL205D	1.250	1.250	2.000	6.00	1.44	—	.415	2.000	N.5R	**CM80**	**S352**	1/4
NEL206D	1.250	1.250	1.625	6.00	.75	.27	.300	2.000	N.6R	**CM120**	**S412**	5/32

NOTE: F dimension measured over sharp point of N-style threading insert.

The LT — Laydown Threading System

Triangle threading inserts and tools that provide the highest accuracy and quality level for daily production needs.

- LT is the system of choice for fine-pitch threads, high-helix/multistart threads, and single-point threading in small-diameter bores.
- Variable shim angles enable proper cutting geometry for high-helix angle and reverse helix angle threading. This maximizes tool life and improves thread quality.
- Increase productivity by outperforming conventional PVD grades with up to a 30% advantage in cutting speeds.

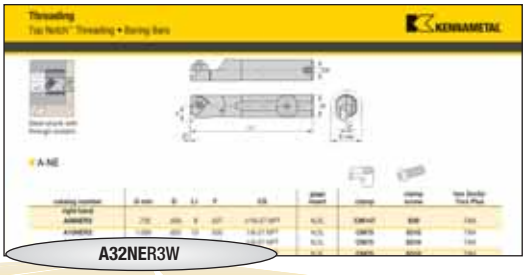
Experience the advantages at your Authorized Kennametal Distributor or at **www.kennametal.com**.

www.kennametal.com

KENNAMETAL®

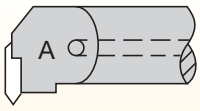
How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

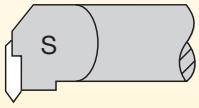


Inch

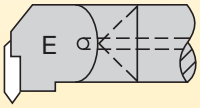
A	32	N	E
Bar Type	Bar Diameter	Insert Holding Method	Insert Location



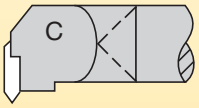
A = Steel with coolant



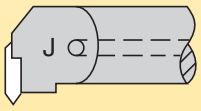
S = Steel without coolant



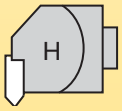
E = Carbide with coolant



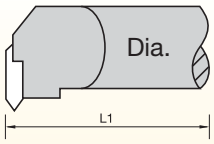
C = Carbide without coolant



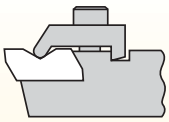
J = Heavy metal with coolant



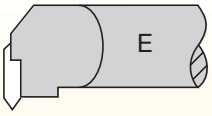
H = Interchangeable head



A two-digit number that increases the bar diameter in 1/16" increments



N* = Top Notch

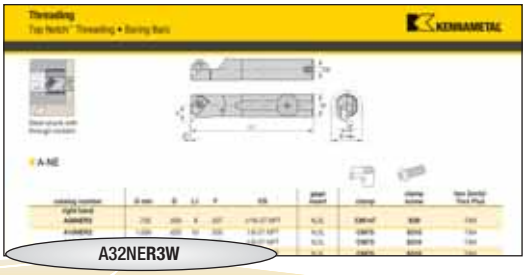


E = End mount

*Kennametal standard only.

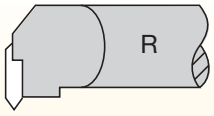
NOTE: Right-hand bars use left-hand inserts and clamps.
Left-hand bars use right-hand inserts and clamps.

By referencing this easy-to-use guide, you can identify the correct product to meet your needs.

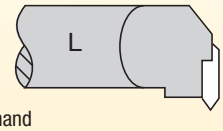


Inch

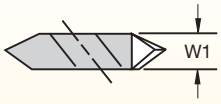
R	3	W
Hand of Bar	Insert Size	Additional Information



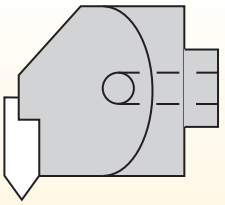
R = Right hand



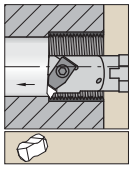
L = Left hand



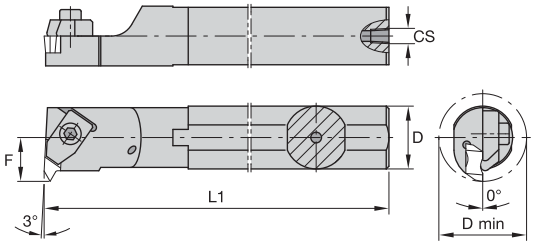
insert size	W1
1	.100"
2	.150"
3	.195"
4	.255"
5	.380"
6	.383"
8	.438"



W = through-coolant interchangeable head



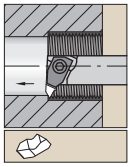
Steel shank with through coolant.



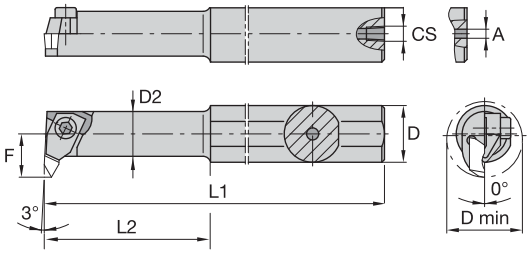
A-NE


catalog number	D min	D	L1	F	CS	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus
right hand									
A08NER2	.730	.500	8	.437	1/16-27 NPT	N.2L	**CM147**	**S39**	7/64
A10NER2	1.000	.625	10	.500	1/8-27 NPT	N.2L	**CM75**	**S310**	7/64
A12NER2	1.125	.750	10	.562	1/8-27 NPT	N.2L	**CM75**	**S310**	7/64
A16NER2	1.375	1.000	12	.688	1/4-18 NPT	N.2L	**CM75**	**S310**	7/64
A16NER3	1.375	1.000	12	.688	1/4-18 NPT	N.3L	**CM73LP**	**S2112**	25 IP
A20NER3	1.750	1.250	14	.875	1/4-18 NPT	N.3L	**CM73LP**	**S2112**	25 IP
A24NER3	2.000	1.500	14	1.000	1/4-18 NPT	N.3L	**CM73LP**	**S2112**	25 IP
A28NER3	2.250	1.750	14	1.125	1/4-18 NPT	N.3L	**CM73LP**	**S2112**	25 IP
A32NER3	2.500	2.000	16	1.250	1/4-18 NPT	N.3L	**CM73LP**	**S2112**	25 IP
A40NER3	3.000	2.500	16	1.500	1/4-18 NPT	N.3L	**CM73LP**	**S2112**	25 IP
A28NER4	2.500	1.750	14	1.250	1/4-18 NPT	N.4L	**CM73LP**	**S2112**	25 IP
A32NER4	2.750	2.000	16	1.375	1/4-18 NPT	N.4L	**CM73LP**	**S2112**	25 IP
A40NER4	3.250	2.500	16	1.625	1/4-18 NPT	N.4L	**CM73LP**	**S2112**	25 IP
A32NER5	2.812	2.000	16	1.406	1/4-18 NPT	N.5L	**CM81**	**S352**	1/4
A32NER6	2.750	2.000	16	1.375	1/4-18 NPT	N.6L	**CM121**	**S2112**	5/32
A40NER6	3.250	2.500	16	1.625	1/4-18 NPT	N.6L	**CM121**	**S2112**	5/32
left hand									
A08NEL2	.730	.500	8	.437	1/16-27 NPT	N.2R	**CM146**	**S39**	7/64
A10NEL2	1.000	.625	10	.500	1/8-27 NPT	N.2R	**CM74**	**S310**	7/64
A12NEL2	1.125	.750	10	.562	1/8-27 NPT	N.2R	**CM74**	**S310**	7/64
A16NEL2	1.375	1.000	12	.688	1/4-18 NPT	N.2R	**CM74**	**S310**	7/64
A16NEL3	1.375	1.000	12	.688	1/4-18 NPT	N.3R	**CM72LP**	**S2112**	25 IP
A20NEL3	1.750	1.250	14	.875	1/4-18 NPT	N.3R	**CM72LP**	**S2112**	25 IP
A24NEL3	2.000	1.500	14	1.000	1/4-18 NPT	N.3R	**CM72LP**	**S2112**	25 IP
A28NEL3	2.250	1.750	14	1.125	1/4-18 NPT	N.3R	**CM72LP**	**S2112**	25 IP
A32NEL3	2.500	2.000	16	1.250	1/4-18 NPT	N.3R	**CM72LP**	**S2112**	25 IP
A40NEL3	3.000	2.500	16	1.500	1/4-18 NPT	N.3R	**CM72LP**	**S2112**	25 IP
A28NEL4	2.500	1.750	14	1.250	1/4-18 NPT	N.4R	**CM72LP**	**S2112**	25 IP
A32NEL4	2.750	2.000	16	1.375	1/4-18 NPT	N.4R	**CM72LP**	**S2112**	25 IP
A40NEL4	3.250	2.500	16	1.625	1/4-18 NPT	N.4R	**CM72LP**	**S2112**	25 IP
A32NEL5	2.812	2.000	16	1.406	1/4-18 NPT	N.5R	**CM80**	**S352**	1/4
A32NEL6	2.750	2.000	16	1.375	1/4-18 NPT	N.6R	**CM120**	**S2112**	5/32

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page E96 for details.
F dimension measured over sharp point of N-style threading insert.



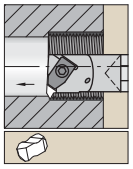
Necked steel shank
with through coolant.



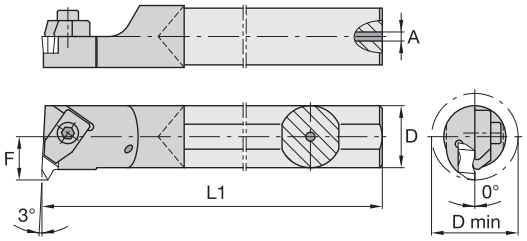
A-NE -1

catalog number	D min	D	D2	L1	L2	F	A	CS	gage insert	clamp	clamp screw	hex (inch)
right hand												
A06NER1	.440	.375	—	6	1.25	.258	.13	—	N.1L	**CM109**	**S304**	5/64
A08NER1	.440	.500	.310	8	1.29	.258	.09	1/16-27 NPT	N.1L	**CM109**	**S304**	5/64
A10NER1	.800	.625	—	10	—	.406	—	1/8-27 NPT	N.1L	**CM109**	**S304**	5/64

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page E96 for details.
F dimension measured over sharp point of N-style threading insert.



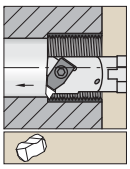
Carbide shank with
through coolant.



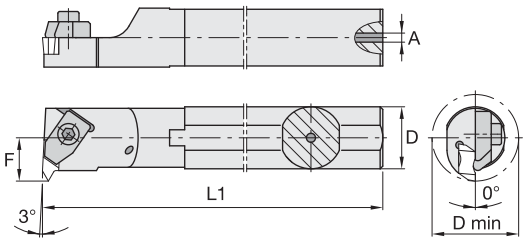
E-NE

catalog number	D min	D	L1	F	A	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus
right hand									
E08NER2	.730	.500	8	.437	.19	N.2L	**CM147**	**S39**	7/64
E10NER2	1.000	.625	10	.500	.22	N.2L	**CM75**	**S310**	7/64
E12NER2	1.125	.750	10	.562	.28	N.2L	**CM75**	**S310**	7/64
E16NER3	1.375	1.000	12	.688	.31	N.3L	**CM73LP**	**S2112**	25 IP
left hand									
E08NEL2	.730	.500	8	.437	.19	N.2R	**CM146**	**S39**	7/64
E10NEL2	1.000	.625	10	.500	.22	N.2R	**CM74**	**S310**	7/64
E12NEL2	1.125	.750	10	.562	.28	N.2R	**CM74**	**S310**	7/64
E16NEL3	1.375	1.000	12	.688	.31	N.3R	**CM72LP**	**S2112**	25 IP

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page E96 for details.
F dimension measured over sharp point of N-style threading insert.



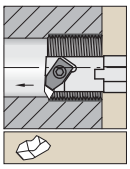
Heavy metal shank
with through coolant.



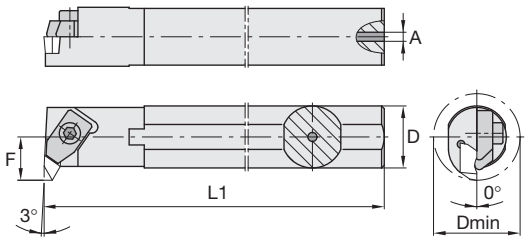
L-NE


catalog number	D min	D	L1	F	A	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus
right hand									
L08RNER2	.730	.500	8	.432	.16	N.2L	**CM147**	**S39**	7/64
L10RNER2	1.000	.625	8	.495	.16	N.2L	**CM75**	**S310**	7/64
L12RNER2	1.125	.750	8	.557	.16	N.2L	**CM75**	**S310**	7/64
L16SNER2	1.375	1.000	10	.683	.25	N.2L	**CM75**	**S310**	7/64
L16SNER3	1.375	1.000	10	.683	.25	N.3L	**CM73LP**	**S2112**	25 IP
left hand									
L08RNEL2	.730	.500	8	.432	.16	N.2R	**CM146**	**S39**	7/64
L10RNEL2	1.000	.625	8	.495	.16	N.2R	**CM74**	**S310**	7/64
L12RNEL2	1.125	.750	8	.557	.16	N.2R	**CM74**	**S310**	7/64
L16SNEL3	1.375	1.000	10	.683	.25	N.3R	**CM72LP**	**S2112**	25 IP

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page E96 for details.
F dimension measured over sharp point of N-style threading insert.



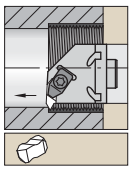
Heavy metal shank
with through coolant.

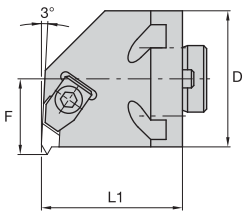


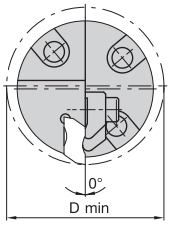
L-NE-S


catalog number	D min	D	L1	F	A	gage insert	clamp	clamp screw	hex (inch)/ Torx Plus
right hand									
L05MNER1S	.440	.313	3	.258	.09	N.1L	**CM109**	**S304**	5/64
L06MNER1S	.480	.375	6	.265	.13	N.1L	**CM109**	**S304**	5/64
L08RNER1S	.600	.500	8	.325	.16	N.1L	**CM109**	**S304**	5/64
L08RNER2	.730	.500	8	.432	.16	N.2L	**CM147**	**S39**	7/64
L10RNER2	1.000	.625	8	.495	.16	N.2L	**CM75**	**S310**	7/64
L12RNER2	1.125	.750	8	.557	.16	N.2L	**CM75**	**S310**	7/64
L16SNER2	1.375	1.000	10	.683	.25	N.2L	**CM75**	**S310**	7/64
L16SNER3	1.375	1.000	10	.683	.25	N.3L	**CM73LP**	**S2112**	25 IP
left hand									
L08RNEL2	.730	.500	8	.432	.16	N.2R	**CM146**	**S39**	7/64
L10RNEL2	1.000	.625	8	.495	.16	N.2R	**CM74**	**S310**	7/64
L12RNEL2	1.125	.750	8	.557	.16	N.2R	**CM74**	**S310**	7/64
L16SNEL3	1.375	1.000	10	.683	.25	N.3R	**CM72LP**	**S2112**	25 IP

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page E96 for details.
F dimension measured over sharp point of N-style threading insert.





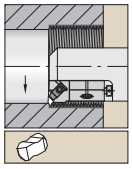


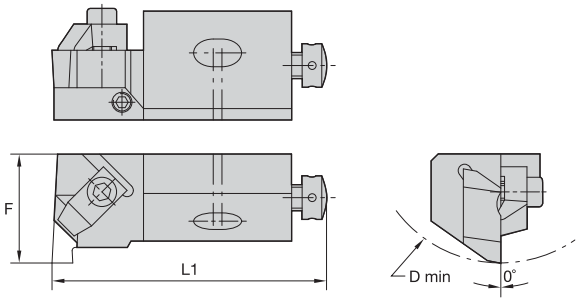
H-NE




catalog number	D min	D	F	L1	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)/ Torx Plus
right hand											
H20NER3W	1.750	1.250	.875	1.625	N.3L	—	—	—	**CM73LP**	**S2112**	25 IP
H24NER3W	2.000	1.500	1.000	1.625	N.3L	—	—	—	**CM73LP**	**S2112**	25 IP
H28NER3W	2.250	1.750	1.125	1.625	N.3L	—	—	—	**CM73LP**	**S2112**	25 IP
H32NER3W	2.500	2.000	1.250	1.625	N.3L	—	—	—	**CM73LP**	**S2112**	25 IP
H40NER3W	3.000	2.500	1.500	1.625	N.3L	—	—	—	**CM73LP**	**S2112**	25 IP
H28NER4W	2.500	1.750	1.250	1.625	N.4L	—	—	—	**CM73LP**	**S2112**	25 IP
H32NER4W	2.750	2.000	1.375	1.625	N.4L	—	—	—	**CM73LP**	**S2112**	25 IP
H36NER4W	3.000	2.250	1.500	1.625	N.4L	—	—	—	**CM73LP**	**S2112**	25 IP
H40NER4W	3.250	2.500	1.625	1.625	N.4L	—	—	—	**CM73LP**	**S2112**	25 IP
H28NER6W	2.500	1.750	1.250	1.625	N.6L	—	—	—	**CM121**	**S412**	5/32
H32NER6W	2.750	2.000	1.375	1.625	N.6L	—	—	—	**CM121**	**S412**	5/32
H40NER6W	3.250	2.500	1.625	1.625	N.6L	—	—	—	**CM121**	**S412**	5/32
H24NER8W	2.000	1.500	1.000	1.625	N.8L	**SM427**	**S111**	1/16	**CM145**	**S422**	3/16
H32NER8W	2.500	2.000	1.250	1.625	N.8L	**SM427**	**S111**	1/16	**CM145**	**S422**	3/16
left hand											
H20NEL3W	1.750	1.250	.875	1.625	N.3R	—	—	—	**CM72LP**	**S2112**	25 IP
H24NEL3W	2.000	1.500	1.000	1.625	N.3R	—	—	—	**CM72LP**	**S2112**	25 IP
H28NEL3W	2.250	1.750	1.125	1.625	N.3R	—	—	—	**CM72LP**	**S2112**	25 IP
H32NEL3W	2.500	2.000	1.250	1.625	N.3R	—	—	—	**CM72LP**	**S2112**	25 IP
H40NEL3W	3.000	2.500	1.500	1.625	N.3R	—	—	—	**CM72LP**	**S2112**	25 IP
H28NEL4W	2.500	1.750	1.250	1.625	N.4R	—	—	—	**CM72LP**	**S2112**	25 IP
H32NEL4W	2.750	2.000	1.375	1.625	N.4R	—	—	—	**CM72LP**	**S2112**	25 IP
H36NEL4W	3.000	2.250	1.500	1.625	N.4R	—	—	—	**CM72LP**	**S2112**	25 IP
H40NEL4W	3.250	2.500	1.625	1.625	N.4R	—	—	—	**CM72LP**	**S2112**	25 IP
H28NEL6W	2.500	1.750	1.250	1.625	N.6R	—	—	—	**CM120**	**S412**	5/32
H32NEL6W	2.750	2.000	1.375	1.625	N.6R	—	—	—	**CM120**	**S412**	5/32
H40NEL6W	3.250	2.500	1.625	1.625	N.6R	—	—	—	**CM120**	**S412**	5/32

NOTE: For boring adapters, see pages C119–C121.
Minimum bore diameter (D min) capability varies with thread type and pitch. See page E96 for details.
F dimension measured over sharp point of N-style threading insert.





NE-CA

catalog number	D min	F	L1	gage insert
right hand				
NER12CA2	1.969	.787	2.19	N.2L
NER20CA2	2.756	.984	2.76	N.2L
NER25CA3	3.937	1.260	3.94	N.3L
NER25CA4	3.937	1.260	3.94	N.4L
left hand				
NEL12CA2	1.969	.787	2.17	N.2R
NEL25CA3	3.937	1.260	3.94	N.3R

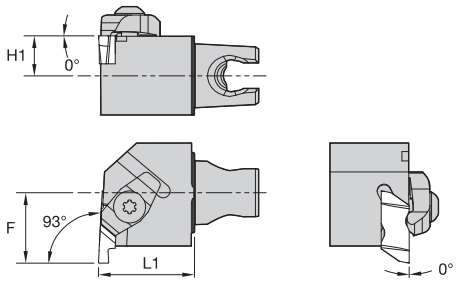
Spare Parts





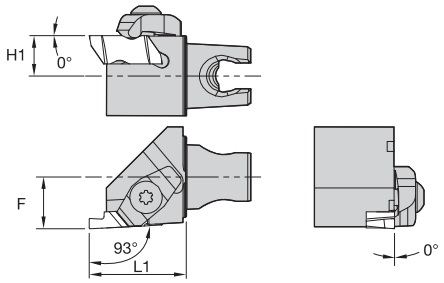

D min	clamp	clamp screw	hex (mm)	radial adjusting screw	hex (mm)	axial screw	hex (mm)	hold down screw	hex (mm)	washer
1.969	**CM75**	**MS1025**	2.5 mm	**KUAM23**	2.5 mm	**KUAM31**	2.5 mm	**191.406**	4 mm	**CSWM 060 050**
2.756	**CM75**	**MS1025**	2.5 mm	**KUAM25**	2.5 mm	**KUAM33**	2.5 mm	**191.407**	5 mm	**CSWM 080 050**
3.937	**CM73LP**	**MS412**	4 mm	**KUAM27**	4 mm	**KUAM33**	4 mm	**—**	6 mm	**CSWM 100 080**
3.937	**CM73LP**	**MS412**	4 mm	**KUAM27**	4 mm	**KUAM33**	4 mm	**—**	6 mm	**CSWM 100 080**
1.969	**CM74**	**MS1025**	2.5 mm	**KUAM23**	2.5 mm	**KUAM31**	2.5 mm	**191.406**	4 mm	**CSWM 060 050**
3.937	**CM72LP**	**MS412**	4 mm	**KUAM26**	4 mm	**KUAM33**	4 mm	**—**	6 mm	**CSWM 100 080**

NOTE: Minimum bore capability varies with depth of groove. See page E97 for details.



NE 93°

order number	catalog number	L1 mm	L1 in	F mm	F in	H1 mm	H1 in	gage insert	clamp	clamp screw
	right hand									
3483036	**KM20NER225**	25	.984	17	.669	9,5	.375	NG2L	**CM75**	**MS1200**
3483034	**KM20NER325**	25	.984	17	.669	9,5	.375	NG3L	**CM73LP**	**–**
2399462	**KM25NER230**	30	1.181	22	.866	12,5	.492	NG2L	**CM75**	**MS1200**
2399494	**KM25NER330**	30	1.181	22	.866	12,5	.492	NG3L	**CM73LP**	**–**
2399496	**KM25NER430**	30	1.181	24	.945	12,5	.492	NG4L	**CM73LP**	**–**
	left hand									
3483035	**KM20NEL225**	25	.984	17	.669	9,5	.375	NG2R	**CM74**	**MS1200**
3483033	**KM20NEL325**	25	.984	17	.669	9,5	.375	NG3R	**CM72LP**	**–**
2399493	**KM25NEL230**	30	1.181	22	.866	12,5	.492	NG2R	**CM74**	**MS1200**
2399495	**KM25NEL330**	30	1.181	22	.866	12,5	.492	NG3R	**CM72LP**	**–**
2399497	**KM25NEL430**	30	1.181	24	.945	12,5	.492	NG4R	**CM72LP**	**–**

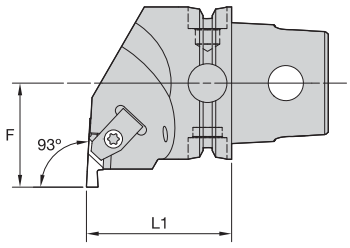


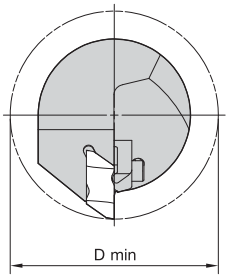
NS 93°

order number	catalog number	L1 mm	L1 in	F mm	F in	H1 mm	H1 in	gage insert	clamp	clamp screw
	right hand									
3483030	**KM20NSR230**	30	1.181	12,50	.492	9,5	.375	NG2R	**CM74**	**MS1200**
3483028	**KM20NSR330**	30	1.181	12,50	.492	9,5	.375	NG3R	**CM72LP**	**MS524**
2399498	**KM25NSR230**	30	1.181	16,00	.630	12,5	.492	NG2R	**CM74**	**MS1200**
2399500	**KM25NSR330**	30	1.181	16,00	.630	12,5	.492	NG3R	**CM72LP**	**MS2111**
2399502	**KM25NSR430**	30	1.181	16,00	.630	12,5	.492	NG4R	**CM212LP**	**MS2111**
	left hand									
3483029	**KM20NSL230**	30	1.181	12,50	.492	9,5	.375	NG2L	**CM75**	**MS1200**
3483027	**KM20NSL330**	30	1.181	12,50	.492	9,5	.375	NG3L	**CM73LP**	**MS524**
2399499	**KM25NSL230**	30	1.181	16,00	.630	12,5	.492	NG2L	**CM75**	**MS1200**
2399501	**KM25NSL330**	30	1.181	16,00	.630	12,5	.492	NG3L	**CM73LP**	**MS2111**
2399503	**KM25NSL430**	30	1.181	16,00	.630	12,5	.492	NG4L	**CM213LP**	**MS2111**

KM QUICK CHANGE

NE 93°

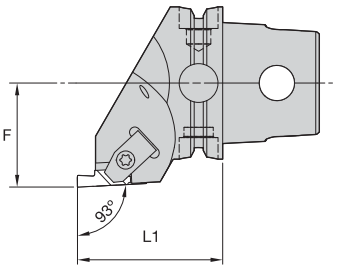


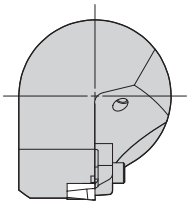


order number	catalog number	L1 mm	L1 in	F mm	F in	D min mm	D min in	gage insert	clamp	clamp screw	kg	lbs
	right hand											
3902285	KM40TSNER2	40	1.575	27	1.063	54	2.126	NG2L	CM75	MS1488	0,31	.68
3902286	KM40TSNER3	40	1.575	27	1.063	54	2.126	NG3L	CM73	MS1489	0,30	.67
3902287	KM40TSNER4	40	1.575	27	1.063	54	2.126	NG4L	CM73	MS1489	0,30	.66
	left hand											
3902132	KM40TSNEL2	40	1.575	27	1.063	54	2.126	NG2R	CM74	MS1488	0,31	.68
3902283	KM40TSNEL3	40	1.575	27	1.063	54	2.126	NG3R	CM72	MS1489	0,31	.67
3902284	KM40TSNEL4	40	1.575	27	1.063	54	2.126	NG4R	CM72	MS1489	0,30	.66

KM QUICK CHANGE

NS 93°

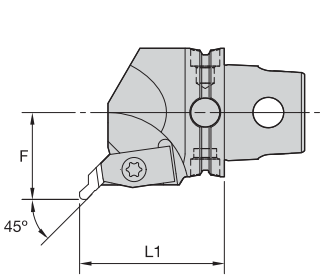


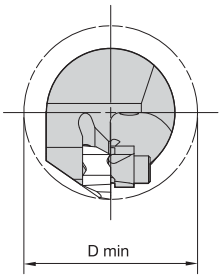


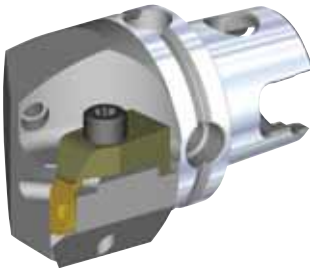
order number	catalog number	L1 mm	L1 in	F mm	F in	gage insert	clamp	clamp screw	kg	lbs
	right hand									
3902293	KM40TSNSR2	40	1.575	27	1.063	NG2R	CM74	MS1488	0,32	.70
3902294	KM40TSNSR3	47	1.850	27	1.063	NG3R	CM72	MS1489	0,32	.71
3902295	KM40TSNSR4	47	1.850	27	1.063	NG4R	CM72	MS1489	0,31	.68
	left hand									
3902290	KM40TSNSL2	40	1.575	27	1.063	NG2L	CM75	MS1488	0,32	.70
3902291	KM40TSNSL3	47	1.850	27	1.063	NG3L	CM73	MS1489	0,33	.72
3902292	KM40TSNSL4	47	1.850	27	1.063	NG4L	CM73	MS1489	0,31	.68

KM QUICK CHANGE

■ NR 45°







order number	catalog number	L1 mm	L1 in	F mm	F in	D min mm	D min in	gage insert	clamp	clamping screw	kg	lbs
	right hand											
3902289	**KM40TSNRR3045M**	45	1.772	27	1.063	54	2.126	NU3L	**CM73**	**MS1489**	0,34	.75
	left hand											
3902288	**KM40TSNRL3045M**	45	1.772	27	1.063	54	2.126	NU3R	**CM72**	**MS1489**	0,33	.74

LT • Laydown Triangle Threading

Primary Application

LT Laydown triangle threading is the system of choice for fine-pitch threads, high-helix/multistart threads, and single-point threading in small-diameter bores. With a wide selection of CB-style chip control inserts, you will receive superior chip management for excellent surface finishes and minimal operator intervention. The low-profile design enables unrestricted chip flow — ideal for I.D. threads, and variable shim angles enable proper cutting geometry for high-helix angle and reverse helix angle threading, maximizing tool life and improving thread quality.

Features and Benefits

Precision-Ground Thread Form on LT and LT-CB

- Minimizes built-up edge.
- Precisely cuts most common materials.
- Reduces cutting forces.
- Ensures accurate, high-quality threads.

Superior Chip Control

- Eliminates long, troublesome coils.
- Excellent for internal threading operations.
- Available in both partial and full profile inserts for all common thread forms.

KC5010™ and KC5025™ Premium PVD TiAlN-Coated Grades

- Increase tool life at existing machining conditions.
- Increase productivity by outperforming conventional PVD grades with up to a 30% advantage in cutting speeds.

Kenna Universal™ Inserts

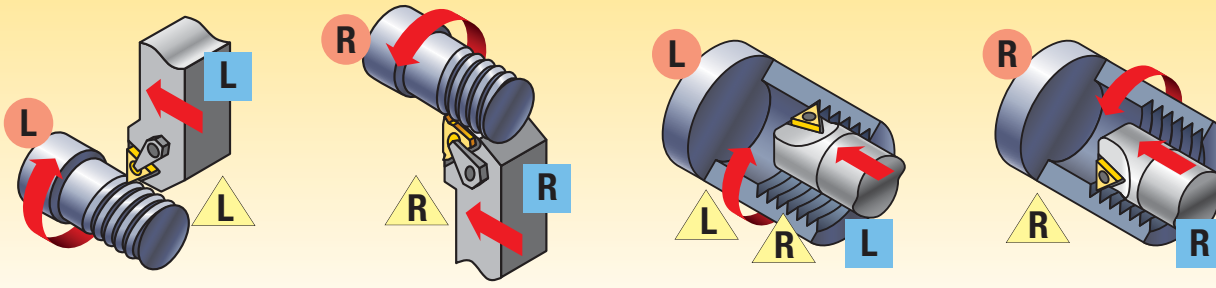
- Precision molded LT-K thread form provides outstanding utility and value.
- Excellent chip control combined with the new KU25T™ grade enables trouble-free threading on a variety of workpiece materials.

Step 1 • Select threading method and hand of tooling

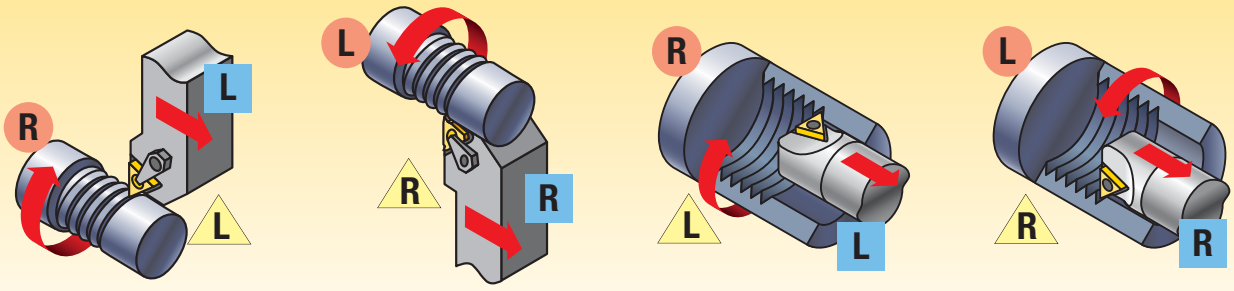
Required Information:

- External/internal operation.
- Spindle rotation/hand of thread.
- Feed direction.

Feed Direction Toward the Chuck • Standard Helix



Feed Direction Away from the Chuck • Reverse Helix



Step 2 • Select threading method and hand of tooling

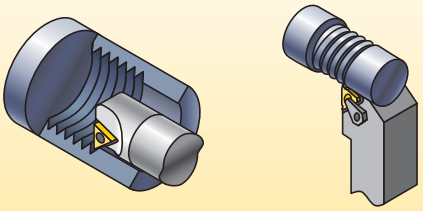
Required Information:

- External/internal operation.
- Minimum bore diameter (for internal operations).
- Hand of tool.
- Insert size (gage insert).

The insert size must match the gage insert size of your toolholder selection:

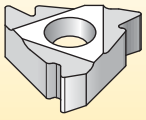
catalog number	gage insert	minimum bore diameter	shim
S1212LSER3	LT16NR	.90"	SM-YI3
A2020LSER16	LT16NR	16mm	SM-YI3

Select the Appropriate Holder for the Insert Size and Hand:



Step 3 • Choose insert for application

- Select cresting inserts for fully controlled thread form including diameter.
- Cresting inserts eliminate the need for deburring and are optimized for the best tool life at that pitch.
- Non-cresting partial profile inserts offer the flexibility to cut a variety of thread pitches with one insert.
- Note insert size for toolholder selection.

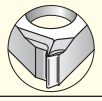
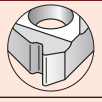
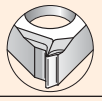
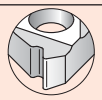


insert size	catalog number	TN6025
11	LT11NRA60	●
16	LT6NRAG60	●

NOTE: See Threading Insert Overview on page E45.

Step 4 • Select grade and speed

Recommendations for Grade and Speed Selection • SFM (m/min)

	workpiece material	P	M	K	N	S
Kenna Perfect™	insert style	CB chipbreaker		Flat Top 	CB Chipbreaker	
	optimum cutting conditions	**KC5010** 160–750 (50–230)	**KC5010** 160–600 (50–185)	**KC5010** 230–700 (70–210)	**KC5010** 230–1300 (70–390)	**KC5010** 65–400 (20–120)
	first choice	**KC5025** 130–650 (40–200)	**KC5025** 130–450 (40–135)	**KC5025** 200–475 (60–145)	**KC5025** 160–1150 (50–360)	**KC5025** 35–330 (10–100)
Kenna Universal™	insert style	-K chipbreaker				
	selection	**KU25T** 80–450 (25–140)	**KU25T** 80–350 (25–100)	**KU25T** 100–360 (30–110)	**KU25T** 100–1000 (30–300)	**KU25T** 35–280 (10–85)

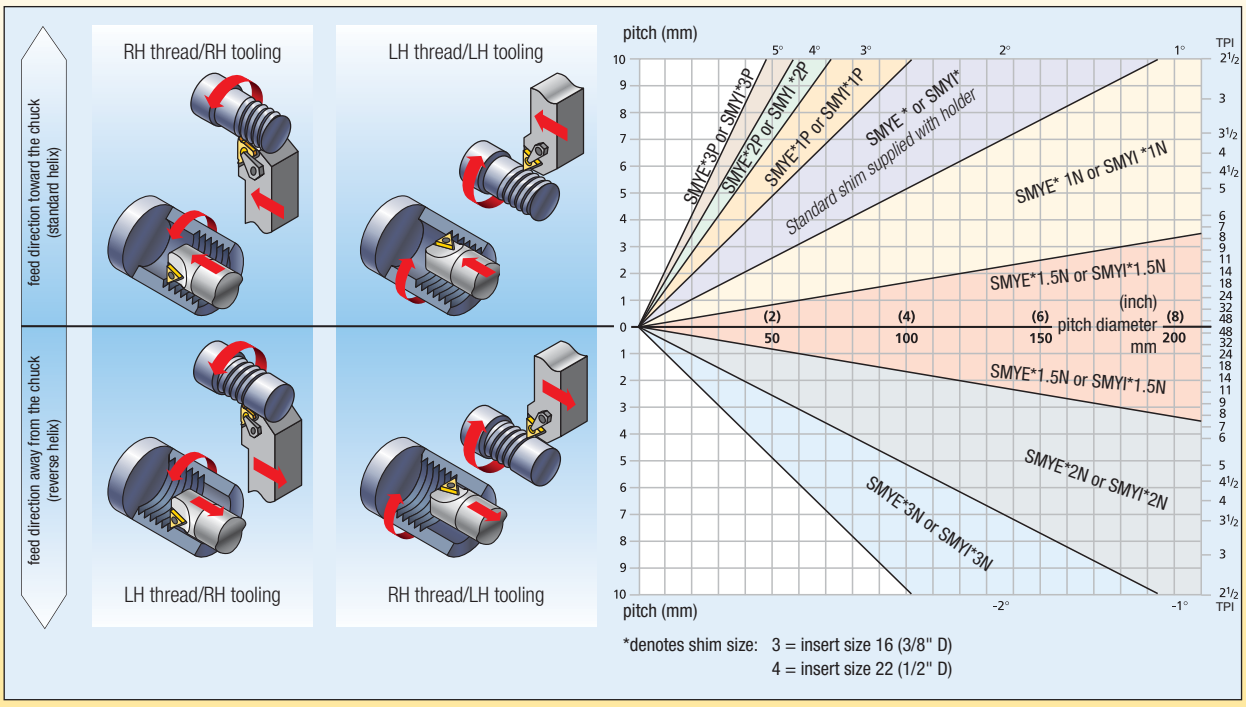
NOTE: CB-style chip control inserts are not available with some thread forms.
In those cases, flat top inserts can be substituted.

Step 5 • Select appropriate shim

Required Information:

- Thread form (TPI or pitch).
- Pitch diameter.
- Helix method (hand of tool, feed direction, hand of thread).

Select the proper shim: SMYE... for external RH or internal LH
SMYI... for internal RH or external LH

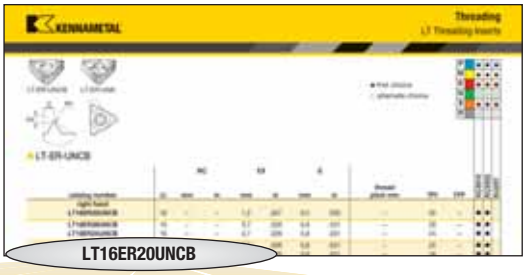


*denotes shim size: 3 = insert size 16 (3/8" D)
4 = insert size 22 (1/2" D)

NOTE: If recommended shim is different from shim supplied with toolholder, order shim separately.
Optimize your threading operation by using the proper infeed angle and the recommended infeed values.
See the Technical Section on pages E85–E87.
Also see detailed shim selection information on pages E105–E107.

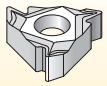
How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



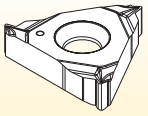
Inch

LT	16	ER	20	UN	CB
Type of Insert	Cutting Edge Length (Size)	Hand of Insert	Thread Pitch	Thread Profile	Chip Control



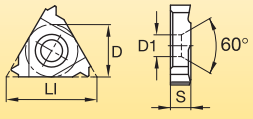
LT = Laydown triangle threading

ER = External right hand
EL = External left hand
NR = Internal right hand
NL = Internal left hand



□ = Flat top
CB = Chipbreaker
K = Kenna Universal™ chipbreaker

insert size	LI (mm)	D (inch)	D (mm)	S (inch)	S (mm)	D1 (inch)	D1 (mm)
11	11,0	.250	6,35	.126	3,20	.128	3,25
16	16,5	.375	9,52	.143	3,63	.155	3,94
22	22,0	.500	12,70	.188	4,78	.192	4,88



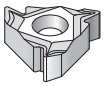
ISO = ISO metric 60°
UN = American UN 60°
60 = Partial profile non-cresting 60°
55 = Partial profile non-cresting 55°
W = Whitworth 55°
BSPT = British Standard Pipe Thread 55°
NPT = American National Pipe Thread 60°
ACME = American Acme
STACME = American Stub Acme
TR = Trapez DIN 103
RD = Round DIN 405
UNJ = Controlled root radius 60°
NPTF = Dryseal 60°
API = American Petroleum Institute Threads
BUT = API Buttress Casing
APIRD = API Round

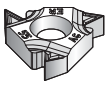
partial profile		
designation	**thread pitch (mm)**	**TPI**
A	0,50–1,5	48–16
AG	0,50–3,0	48–8
G	1,75–3,0	14–8
N	3,50–5,0	7–5
full profile		
actual TPI or pitch in mm is designated	0,5–4,0	48–8

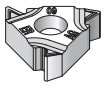
The Kennametal LT Advantage

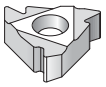
Every box of 10 inserts includes a free Torx wrench and spare locking screw, except LT-K inserts.

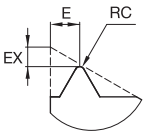
style			thread profile	standard	tolerance class	cresting	application	page(s)
CB	K	flat top						
 LT-60CB	 LT-60K	 LT-60	Partial Profile 60°	—	—	N	General use for 60° thread forms such as ISO and UN where non-cresting inserts are desired to cut a variety of pitches	E46
 LT-ISOCB	 LT-ISOK	 LT-ISO	Metric ISO	ISO R262, DIN 13	6g / 6H	Y	Widely used metric 60° V-form for all industries	E49–E51
 LT-UNCB	 LT-UNK	 LT-UN	American UN	ANSI B1.1:74	2A / 2B	Y	Widely used inch-based 60° V-form for all industries	E52–E53
		 LT-UNJ	UNJ	MIL-S-8879C	3A / 3B	Y	Controlled root radius on external threads for military and aerospace industries, 60° thread form	E55
 LT-NPTCB		 LT-NPT	NPT	USAS B2.1:1968	Standard NPT	Y	National Pipe thread standard 60° thread form for pipe fittings	E56
 LT- NPTFCB		 LT-NPTF	NPTF	ANSI B1.20.3-1976	Class 2	Y	Dryseal-type NPT 60° thread form for pipe fittings	E57
	 LT-55K	 LT-55	Partial Profile 55°	—	—	N	General use for 55° thread forms such as Whitworth, BSW, and BSP where non-cresting inserts are desired to cut a variety of pitches	E46, E58
		 LT-BSPT	BSPT	BS 21:1985	Standard BSPT	Y	55° form for pipe fittings	E61
 LT-WCB	 LT-WK	 LT-W	Whitworth, BSW, BSF, BSP	BS 84:1956, ISO 228/1:1982, DIN 259	Medium Class A	Y	Widely used 55° form for gas and water connections	E59–E60
		 LT-API	API Rotary Shoulder Connections	API SPEC. 7:1990	Standard API	Y	60° V-form used for rotary shoulder pipe connections in the oil and gas industry including V-.038R, V-.040, and V-.050 forms	E62
		 LT-APIRD	API Round	API STD. 5B:1979	Standard API RD	Y	60° V-form with large radius for casing, tubing, and line pipe in the oil and gas industry including 8 and 10 round forms	E63–E64
		 LT-BUT	API Buttress Casing	API SPEC. 7:1990	Standard API	Y	45° buttress-style form used for pipe casing connections in the oil and gas industry	E63
		 LT-ACME	Acme	ANSI B1.5:1988	3G	N	29° truncated thread form for motion applications in a wide variety of industries	E64–E65
		 LT-STACME	Stub Acme	ANSI B1.8:1988	2G	N	Shallow depth 29° truncated thread form for motion applications in a wide variety of industries	E65–E66
		 LT-RD	Round	DIN 405	7h / 7H	Y	Round thread form for tube fittings in the chemical and food industries	E67
		 LT-TR	Trapez	DIN 103	7e / 7H	N	30° truncated metric thread form for motion applications	E66


LT-ER-60CB


LT-ER-55K


LT-ER-60K


LT-ER/L-60



● first choice
○ alternate choice

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

LT-ER-60CB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ERAG60CB	16	0,08	.003	0,9	.035	1,5	.059	0,50-3,0	48-8	–	●	●	

LT-ER-55K

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ERAG55K	16	0,07	.003	1,2	.047	1,7	.067	0,50-3,0	48-8	–			●

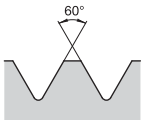
LT-ER-60K

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ERAG60K	16	0,08	.003	1,2	.047	1,7	.067	0,50-3,0	48-8	–			●
LT16ERG60K	16	0,18	.007	1,2	.047	1,7	.067	1,75-3,0	14-8	–			●

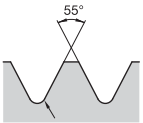
LT-ER/L-60

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ERA60	16	0,05	.002	0,8	.031	0,9	.035	0,50-1,5	48-16	–	●	●	
LT16ERAG60	16	0,08	.003	1,2	.047	1,7	.067	0,50-3,0	48-8	–	●	●	
LT16ERG60	16	0,28	.011	1,2	.047	1,7	.067	1,75-3,0	14-8	–	●	●	
LT22ERN60	22	0,53	.021	1,7	.067	2,5	.098	3,5-5,0	7-5	–		●	
left hand													
LT16ELA60	16	0,05	.002	0,8	.031	0,9	.035	0,50-1,5	48-16	–		●	
LT16ELAG60	16	0,08	.003	1,2	.047	1,7	.067	0,50-3,0	48-8	–		●	
LT16ELG60	16	0,28	.011	1,2	.047	1,7	.067	1,75-3,0	14-8	–		●	
LT22ELN60	22	0,53	.021	1,7	.067	2,5	.098	3,5-5,0	7-5	–		●	

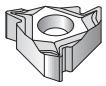
Thread Forms

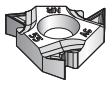


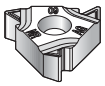
Partial Profile
60° External

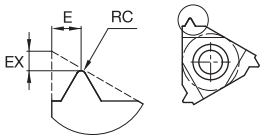


Partial Profile
55° External


LT-NR-60CB


LT-NR-55K


LT-NR-60K



● first choice
○ alternate choice

		KC5010	KC5025	KU25T
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

LT-NR-60CB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NRA60CB	11	0,05	.002	0,6	.024	0,8	.031	0,50-1,5	48-16	–		●	
LT16NRAG60CB	16	0,05	.002	0,9	.035	1,5	.059	0,50-3,0	48-8	–		●	
LT16NRG60CB	16	0,16	.006	1,0	.039	1,5	.059	1,75-3,0	14-8	–		●	

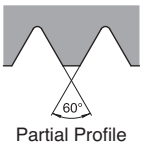
LT-NR-55K

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NRAG55K	16	0,07	.003	1,2	.047	1,7	.067	0,50-3,0	48-8	–			●

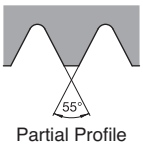
LT-NR-60K

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NRA60K	11	0,03	.001	0,8	.031	0,9	.035	0,50-1,5	48-16	–			●
LT16NRAG60K	16	0,04	.002	1,2	.047	1,7	.067	0,50-3,0	48-8	–			●
LT16NRG60K	16	0,08	.003	1,2	.047	1,7	.067	1,75-3,0	14-8	–			●

Thread Forms

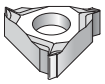


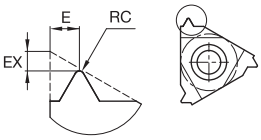
Partial Profile
60° Internal



Partial Profile
55° Internal


LT-NR/L-60


LT-ER-ISOCB



● first choice
○ alternate choice

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

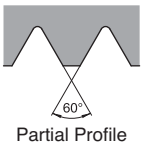
LT-NR/L-60

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NRA60	11	0,05	.002	0,8	.031	0,9	.035	0,50-1,5	48-16	–	●	●	
LT16NRA60	16	0,05	.002	0,8	.031	0,9	.035	0,50-1,5	48-16	–	●	●	
LT16NRAG60	16	0,05	.002	1,2	.047	1,7	.067	0,50-3,0	48-8	–	●	●	
LT16NRG60	16	0,15	.006	1,2	.047	1,7	.067	1,75-3,0	14-8	–	●	●	
LT22NRN60	22	0,31	.012	1,7	.067	2,5	.098	3,5-5,0	7-5	–		●	
left hand													
LT11NLA60	11	0,05	.002	0,8	.031	0,9	.035	0,50-1,5	48-16	–		●	
LT16NLA60	16	0,05	.002	0,8	.031	0,9	.035	0,50-1,5	48-16	–		●	
LT16NLAG60	16	0,05	.002	1,2	.047	1,7	.067	0,50-3,0	48-8	–		●	
LT16NLG60	16	0,15	.006	1,2	.047	1,7	.067	1,75-3,0	14-8	–		●	
LT22NLN60	22	0,31	.012	1,7	.067	2,5	.098	3,5-5,0	7-5	–		●	

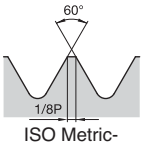
LT-ER-ISOCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF			
right hand													
LT16ER05ISOCB	16	–	–	1,2	.047	0,5	.020	0,50	–	–	●	●	
LT16ER075ISOCB	16	–	–	1,2	.047	0,6	.024	0,75	–	–	●	●	
LT16ER10ISOCB	16	–	–	0,7	.028	0,8	.031	1,0	–	–	●	●	
LT16ER125ISOCB	16	–	–	0,7	.028	0,8	.031	1,25	–	–	●	●	
LT16ER15ISOCB	16	–	–	0,7	.028	0,8	.031	1,5	–	–	●	●	
LT16ER175ISOCB	16	–	–	1,2	.047	1,5	.059	1,75	–	–	●	●	
LT16ER20ISOCB	16	–	–	1,2	.047	1,5	.059	2,0	–	–	●	●	
LT16ER25ISOCB	16	–	–	1,2	.047	1,5	.059	2,5	–	–		●	
LT16ER30ISOCB	16	–	–	1,3	.051	1,5	.059	3,0	–	–	●	●	

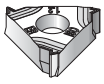
Thread Forms

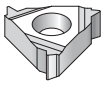


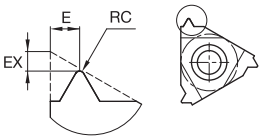
Partial Profile
60° Internal



ISO Metric-
External


LT-ER-ISOK


LT-ER/L-ISO



● first choice
○ alternate choice

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

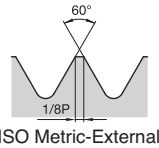
LT-ER-ISOK

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER10ISOK	16	0,14	.005	0,7	.028	0,7	.028	1,0	–	–			●
LT16ER125ISOK	16	0,16	.006	1,1	.043	0,8	.031	1,25	–	–			●
LT16ER15ISOK	16	0,20	.008	0,8	.031	1,0	.039	1,5	–	–			●
LT16ER175ISOK	16	0,22	.009	1,2	.047	1,5	.059	1,75	–	–			●
LT16ER20ISOK	16	0,27	.011	1,0	.039	1,3	.051	2,0	–	–			●
LT16ER25ISOK	16	0,32	.013	1,2	.047	1,5	.059	2,5	–	–			●
LT16ER30ISOK	16	0,38	.015	1,3	.051	1,5	.059	3,0	–	–			●

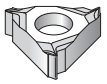
LT-ER/L-ISO

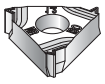
catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER05ISO	16	–	–	0,6	.024	0,4	.016	0,50	–	–		●	
LT16ER075ISO	16	–	–	0,6	.024	0,6	.024	0,75	–	–		●	
LT16ER10ISO	16	–	–	0,7	.027	0,7	.027	1,0	–	–	●	●	
LT16ER125ISO	16	–	–	0,8	.031	0,9	.035	1,25	–	–	●	●	
LT16ER15ISO	16	–	–	0,8	.031	1,0	.039	1,5	–	–	●	●	
LT16ER175ISO	16	–	–	0,9	.035	1,2	.047	1,75	–	–	●	●	
LT16ER20ISO	16	–	–	1,0	.039	1,3	.051	2,0	–	–	●	●	
LT16ER25ISO	16	–	–	1,1	.043	1,5	.059	2,5	–	–	●	●	
LT16ER30ISO	16	–	–	1,2	.047	1,6	.063	3,0	–	–	●	●	
LT22ER35ISO	22	–	–	1,6	.063	2,3	.090	3,5	–	–		●	
LT22ER40ISO	22	–	–	1,6	.063	2,3	.090	4,0	–	–		●	
LT22ER45ISO	22	–	–	1,7	.067	2,4	.094	4,5	–	–		●	
LT22ER50ISO	22	–	–	1,7	.067	2,5	.098	5,0	–	–		●	
left hand													
LT16EL05ISO	16	–	–	0,6	.024	0,4	.016	0,50	–	–		●	
LT16EL075ISO	16	–	–	0,6	.024	0,6	.024	0,75	–	–		●	
LT16EL10ISO	16	–	–	0,7	.027	0,7	.027	1,0	–	–		●	
LT16EL125ISO	16	–	–	0,8	.031	0,9	.035	1,25	–	–		●	
LT16EL15ISO	16	–	–	0,8	.031	1,0	.039	1,5	–	–	●	●	
LT16EL175ISO	16	–	–	0,9	.035	1,2	.047	1,75	–	–		●	
LT16EL20ISO	16	–	–	1,0	.039	1,3	.051	2,0	–	–		●	
LT16EL25ISO	16	–	–	1,1	.043	1,5	.059	2,5	–	–		●	
LT16EL30ISO	16	–	–	1,2	.047	1,6	.063	3,0	–	–		●	
LT22EL35ISO	22	–	–	1,6	.063	2,3	.090	3,5	–	–		●	

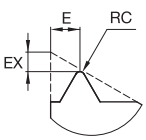
Thread Forms



ISO Metric-External


LT-NR-ISOCB


LT-NR-ISOK



● first choice
○ alternate choice

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

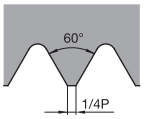
LT-NR-ISOCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NR075ISOCB	11	–	–	1,194	.0	0,500	.0	0,75	–	–		●	
LT11NR10ISOCB	11	–	–	0,711	.0	0,787	.0	1,0	–	–		●	
LT16NR10ISOCB	16	–	–	0,711	.0	0,787	.0	1,0	–	–		●	
LT11NR125ISOCB	11	–	–	0,711	.0	0,787	.0	1,25	–	–		●	
LT11NR15ISOCB	11	–	–	0,711	.0	0,787	.0	1,5	–	–		●	
LT16NR15ISOCB	16	–	–	0,711	.0	0,787	.0	1,5	–	–		●	
LT16NR20ISOCB	16	–	–	1,100	.0	1,499	.1	2,0	–	–		●	
LT16NR25ISOCB	16	–	–	1,100	.0	1,499	.1	2,5	–	–		●	

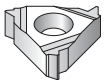
LT-NR-ISOK

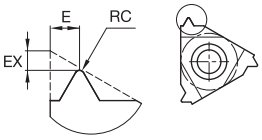
catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NR10ISOK	11	0,06	.002	0,7	.028	0,8	.031	1,0	–	–			●
LT16NR10ISOK	16	0,05	.002	0,7	.028	0,7	.028	1,0	–	–			●
LT16NR15ISOK	16	0,08	.003	0,8	.031	1,0	.039	1,5	–	–			●
LT16NR175ISOK	16	0,10	.004	1,2	.047	1,5	.059	1,75	–	–			●
LT16NR20ISOK	16	0,10	.004	1,0	.039	1,3	.051	2,0	–	–			●
LT16NR25ISOK	16	0,14	.005	1,2	.047	1,5	.059	2,5	–	–			●
LT16NR30ISOK	16	0,17	.007	1,3	.051	1,5	.059	3,0	–	–			●

Thread Forms



ISO Metric-Internal





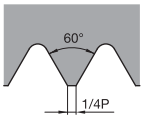
● first choice
○ alternate choice

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

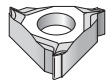
LT-NR/L-ISO

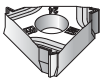
catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NR05ISO	11	–	–	0,6	.024	0,4	.016	0,50	–	–		●	
LT16NR05ISO	16	–	–	0,6	.024	0,4	.016	0,50	–	–		●	
LT11NR075ISO	11	–	–	0,6	.024	0,6	.024	0,75	–	–		●	
LT16NR075ISO	16	–	–	0,6	.024	0,6	.024	0,75	–	–		●	
LT11NR10ISO	11	–	–	0,6	.024	0,7	.027	1,0	–	–		●	
LT16NR10ISO	16	–	–	0,6	.024	0,7	.027	1,0	–	–	●	●	
LT11NR125ISO	11	–	–	0,8	.031	0,9	.035	1,25	–	–		●	
LT16NR125ISO	16	–	–	0,8	.031	0,9	.035	1,25	–	–		●	
LT11NR15ISO	11	–	–	0,8	.031	1,0	.039	1,5	–	–	●	●	
LT16NR15ISO	16	–	–	0,8	.031	1,0	.039	1,5	–	–	●	●	
LT11NR175ISO	11	–	–	0,9	.035	1,1	.043	1,75	–	–		●	
LT16NR175ISO	16	–	–	0,9	.035	1,2	.047	1,75	–	–		●	
LT11NR20ISO	11	–	–	0,9	.035	1,1	.043	2,0	–	–		●	
LT16NR20ISO	16	–	–	1,0	.039	1,3	.051	2,0	–	–	●	●	
LT16NR25ISO	16	–	–	1,1	.043	1,5	.059	2,5	–	–		●	
LT16NR30ISO	16	–	–	1,1	.043	1,5	.059	3,0	–	–	●	●	
LT22NR35ISO	22	–	–	1,6	.063	2,3	.090	3,5	–	–		●	
LT22NR40ISO	22	–	–	1,6	.063	2,3	.090	4,0	–	–		●	
LT22NR45ISO	22	–	–	1,6	.063	2,4	.094	4,5	–	–		●	
LT22NR50ISO	22	–	–	1,6	.063	2,3	.090	5,0	–	–		●	
left hand													
LT11NL10ISO	11	–	–	0,6	.024	0,7	.027	1,0	–	–		●	
LT16NL10ISO	16	–	–	0,6	.024	0,7	.027	1,0	–	–		●	
LT11NL15ISO	11	–	–	0,8	.031	1,0	.039	1,5	–	–		●	
LT16NL15ISO	16	–	–	0,8	.031	1,0	.039	1,5	–	–		●	
LT16NL20ISO	16	–	–	1,0	.039	1,3	.051	2,0	–	–		●	
LT16NL25ISO	16	–	–	1,1	.043	1,5	.059	2,5	–	–		●	
LT16NL30ISO	16	–	–	1,1	.043	1,5	.059	3,0	–	–		●	
LT22NL40ISO	22	–	–	1,6	.063	2,3	.090	4,0	–	–		●	

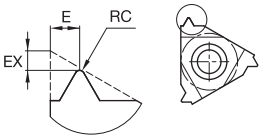
Thread Forms



ISO Metric-Internal


LT-ER-UNCB


LT-ER-UNK



● first choice
○ alternate choice

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

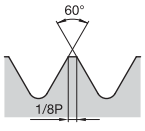
LT-ER-UNCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER32UNCB	16	–	–	1,2	.047	0,5	.020	–	32	–	●	●	
LT16ER28UNCB	16	–	–	0,7	.028	0,8	.031	–	28	–	●	●	
LT16ER24UNCB	16	–	–	0,7	.028	0,8	.031	–	24	–	●	●	
LT16ER20UNCB	16	–	–	0,7	.028	0,8	.031	–	20	–	●	●	
LT16ER18UNCB	16	–	–	0,7	.028	0,8	.031	–	18	–	●	●	
LT16ER16UNCB	16	–	–	0,8	.032	0,8	.031	–	16	–	●	●	
LT16ER14UNCB	16	–	–	1,2	.047	1,5	.059	–	14	–	●	●	
LT16ER12UNCB	16	–	–	1,2	.047	1,5	.059	–	12	–	●	●	
LT16ER10UNCB	16	–	–	1,2	.047	1,5	.059	–	10	–		●	
LT16ER8UNCB	16	–	–	1,3	.051	1,5	.059	–	8	–	●	●	

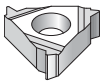
LT-ER-UNK

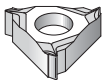
catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF			
right hand													
LT16ER24UNK	16	0,14	.005	0,7	.028	0,8	.031	–	24	–			●
LT16ER20UNK	16	0,16	.006	0,7	.028	0,8	.031	–	20	–			●
LT16ER18UNK	16	0,18	.007	0,7	.028	0,8	.031	–	18	–			●
LT16ER16UNK	16	0,19	.008	0,9	.035	1,1	.043	–	16	–			●
LT16ER14UNK	16	0,23	.009	1,2	.047	1,5	.059	–	14	–			●
LT16ER12UNK	16	0,25	.010	1,1	.043	1,4	.055	–	12	–			●
LT16ER8UNK	16	0,40	.016	1,3	.051	1,5	.059	–	8	–			●

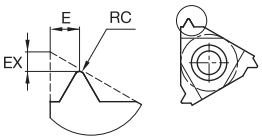
Thread Forms



American
UN-External


LT-ER/L-UN


LT-NR-UNCB



● first choice
○ alternate choice

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

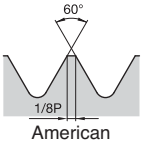
LT-ER/L-UN

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER48UN	16	–	–	0,6	.024	0,6	.024	–	48	–		●	
LT16ER40UN	16	–	–	0,6	.024	0,6	.024	–	40	–		●	
LT16ER36UN	16	–	–	0,6	.024	0,6	.024	–	36	–		●	
LT16ER32UN	16	–	–	0,6	.024	0,6	.024	–	32	–	●	●	
LT16ER28UN	16	–	–	0,6	.024	0,7	.027	–	28	–	●	●	
LT16ER24UN	16	–	–	0,7	.027	0,8	.031	–	24	–	●	●	
LT16ER20UN	16	–	–	0,8	.031	0,9	.035	–	20	–	●	●	
LT16ER18UN	16	–	–	0,8	.031	1,0	.039	–	18	–	●	●	
LT16ER16UN	16	–	–	0,9	.035	1,1	.043	–	16	–	●	●	
LT16ER14UN	16	–	–	1,0	.039	1,2	.047	–	14	–	●	●	
LT16ER12UN	16	–	–	1,1	.043	1,4	.055	–	12	–	●	●	
LT16ER10UN	16	–	–	1,1	.043	1,5	.059	–	10	–		●	
LT16ER8UN	16	–	–	1,2	.047	1,6	.063	–	8	–		●	
left hand													
LT16EL28UN	16	–	–	0,6	.024	0,7	.027	–	28	–		●	
LT16EL24UN	16	–	–	0,7	.027	0,8	.031	–	24	–		●	
LT16EL20UN	16	–	–	0,8	.031	0,9	.035	–	20	–		●	
LT16EL18UN	16	–	–	0,8	.031	1,0	.039	–	18	–		●	
LT16EL16UN	16	–	–	0,9	.035	1,1	.043	–	16	–		●	
LT16EL14UN	16	–	–	1,0	.039	1,2	.047	–	14	–		●	
LT16EL12UN	16	–	–	1,1	.043	1,4	.055	–	12	–		●	
LT16EL11UN	16	–	–	1,1	.043	1,4	.057	–	11	–		●	
LT16EL8UN	16	–	–	1,2	.047	1,6	.063	–	8	–		●	

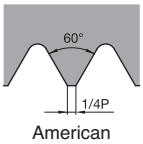
LT-NR-UNCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF
right hand										
LT11NR32UNCB	11	–	–	1,2	.047	0,5	.020	–	32	–
LT11NR24UNCB	11	–	–	0,7	.028	0,8	.031	–	24	–
LT16NR20UNCB	16	–	–	0,7	.028	0,6	.024	–	20	–
LT11NR20UNCB	11	–	–	0,6	.024	0,8	.031	–	20	–
LT16NR18UNCB	16	–	–	0,6	.024	0,8	.031	–	18	–
LT11NR18UNCB	11	–	–	0,6	.024	0,8	.031	–	18	–
LT11NR16UNCB	11	–	–	0,7	.028	0,8	.031	–	16	–
LT16NR16UNCB	16	–	–	0,7	.028	0,8	.031	–	16	–
LT16NR14UNCB	16	–	–	1,1	.043	1,5	.059	–	14	–
LT16NR12UNCB	16	–	–	1,1	.043	1,5	.059	–	12	–
LT16NR10UNCB	16	–	–	1,1	.043	1,5	.059	–	10	–
LT16NR8UNCB	16	–	–	1,1	.043	1,5	.059	–	8	–

Thread Forms

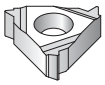


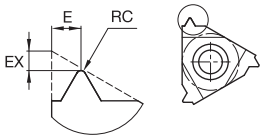
American
UN-External



American
UN-Internal


LT-NR-UNK


LT-NR/L-UN



● first choice
○ alternate choice

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

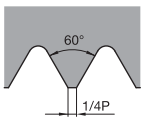
LT-NR-UNK

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR16UNK	16	0,08	.003	0,9	.035	1,1	.043	–	16	–			●
LT16NR12UNK	16	0,10	.004	1,1	.043	1,4	.055	–	12	–			●
LT16NR8UNK	16	0,17	.007	1,3	.051	1,5	.059	–	8	–			●

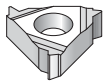
LT-NR/L-UN

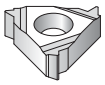
catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NR40UN	11	–	–	0,6	.024	0,6	.024	–	40	–		●	
LT11NR32UN	11	–	–	0,6	.024	0,6	.024	–	32	–		●	
LT11NR28UN	11	–	–	0,6	.024	0,7	.027	–	28	–		●	
LT11NR24UN	11	–	–	0,7	.027	0,8	.031	–	24	–		●	
LT11NR20UN	11	–	–	0,8	.031	0,9	.035	–	20	–		●	
LT11NR18UN	11	–	–	0,8	.031	1,0	.039	–	18	–		●	
LT11NR16UN	11	–	–	0,9	.035	1,1	.043	–	16	–	●	●	
LT16NR28UN	16	–	–	0,6	.024	0,7	.027	–	28	–		●	
LT16NR32UN	16	–	–	0,6	.024	0,6	.024	–	32	–		●	
LT16NR24UN	16	–	–	0,7	.027	0,8	.031	–	24	–		●	
LT16NR20UN	16	–	–	0,8	.031	0,9	.035	–	20	–		●	
LT16NR18UN	16	–	–	0,8	.031	1,0	.039	–	18	–		●	
LT16NR16UN	16	–	–	0,9	.035	1,1	.043	–	16	–		●	
LT16NR14UN	16	–	–	0,9	.035	1,2	.047	–	14	–		●	
LT16NR12UN	16	–	–	1,1	.043	1,4	.055	–	12	–	●	●	
LT16NR10UN	16	–	–	1,1	.043	1,5	.059	–	10	–		●	
LT16NR8UN	16	–	–	1,1	.043	1,5	.059	–	8	–		●	
left hand													
LT11NL32UN	11	–	–	0,6	.024	0,6	.024	–	32	–		●	
LT16NL16UN	16	–	–	0,9	.035	1,1	.043	–	16	–		●	
LT16NL12UN	16	–	–	1,1	.043	1,4	.055	–	12	–		●	
LT16NL10UN	16	–	–	1,1	.043	1,5	.059	–	10	–		●	
LT16NL8UN	16	–	–	1,1	.043	1,5	.059	–	8	–		●	

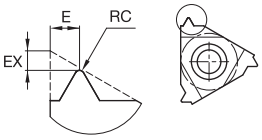
Thread Forms



American
UN-Internal


LT-ER/L-UNJ


LT-NR/L-UNJ



● first choice
○ alternate choice

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

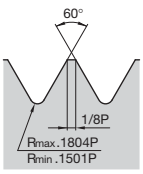
LT-ER/L-UNJ

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER32UNJ	16	–	–	0,6	.024	0,7	.027	–	32	–		●	
LT16ER28UNJ	16	–	–	0,7	.027	0,7	.027	–	28	–		●	
LT16ER24UNJ	16	–	–	0,7	.027	0,8	.031	–	24	–		●	
LT16ER20UNJ	16	–	–	0,8	.031	0,9	.035	–	20	–	●	●	
LT16ER18UNJ	16	–	–	0,8	.031	1,0	.039	–	18	–	●	●	
LT16ER16UNJ	16	–	–	0,9	.035	1,1	.043	–	16	–	●	●	
LT16ER14UNJ	16	–	–	1,0	.039	1,2	.047	–	14	–	●	●	
LT16ER12UNJ	16	–	–	1,1	.043	1,3	.051	–	12	–	●	●	
left hand													
LT16EL16UNJ	16	–	–	0,9	.035	1,1	.043	–	16	–		●	

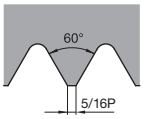
LT-NR/L-UNJ

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF			
right hand													
LT11NR18UNJ	11	–	–	0,8	.031	1,0	.039	–	18	–		●	
LT11NR16UNJ	11	–	–	0,9	.035	1,1	.043	–	16	–		●	
LT16NR16UNJ	16	–	–	0,9	.035	1,1	.043	–	16	–		●	
LT11NR14UNJ	11	–	–	1,0	.039	1,2	.047	–	14	–		●	
LT16NR12UNJ	16	–	–	1,1	.043	1,3	.051	–	12	–		●	

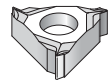
Thread Forms

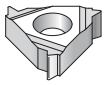


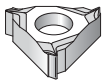
UNJ-External

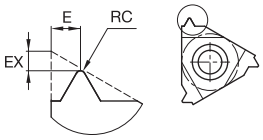


UNJ-Internal


LT-ER-NPTCB


LT-ER/L-NPT


LT-NR-NPTCB



● first choice
○ alternate choice

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

LT-ER-NPTCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER14NPTCB	16	–	–	1,1	.043	1,5	.059	–	14	.7500	●	●	

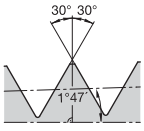
LT-ER/L-NPT

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER27NPT	16	–	–	0,7	.027	0,8	.031	–	27	.7500		●	
LT16ER18NPT	16	–	–	0,8	.031	1,0	.039	–	18	.7500	●	●	
LT16ER14NPT	16	–	–	0,9	.035	1,2	.047	–	14	.7500	●	●	
LT16ER115NPT	16	–	–	1,1	.043	1,5	.059	–	11.5	.7500	●	●	
LT16ER8NPT	16	–	–	1,3	.051	1,8	.071	–	8	.7500		●	

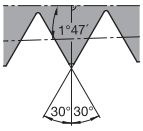
LT-NR-NPTCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR14NPTCB	16	–	–	1,35	.053	1,20	.047	–	14	.7500		●	
LT16NR115NPTCB	16	–	–	1,10	.043	1,50	.059	–	11.5	.7500		●	

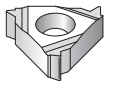
Thread Forms

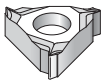


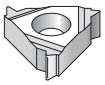
NPT-External

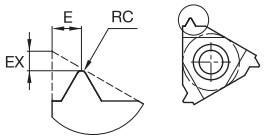


NPT-Internal


LT-NR/L-NPT


LT-ER-NPTFCB


LT-ER/L-NPTF



● first choice
○ alternate choice

		KC5010	KC5025	KU25T
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

LT-NR/L-NPT

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NR18NPT	11	–	–	0,8	.031	1,0	.039	–	18	.7500		●	
LT11NR14NPT	11	–	–	0,8	.031	1,0	.039	–	14	.7500	●	●	
LT16NR14NPT	16	–	–	0,9	.035	1,2	.047	–	14	.7500		●	
LT16NR115NPT	16	–	–	1,1	.043	1,5	.059	–	11.5	.7500	●	●	
LT16NR8NPT	16	–	–	1,3	.051	1,8	.071	–	8	.7500		●	

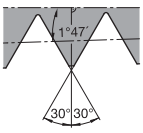
LT-ER-NPTFCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
LT16ER115NPTFCB	16	–	–	1,1	.043	1,5	.059	–	11.5	.7500		●	

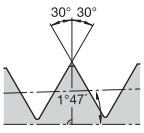
LT-ER/L-NPTF

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER14NPTF	16	–	–	0,9	.035	1,2	.047	–	14	.7500		●	
LT16ER115NPTF	16	–	–	1,1	.043	1,5	.059	–	11.5	.7500		●	

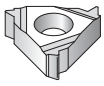
Thread Forms

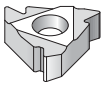


NPT-Internal

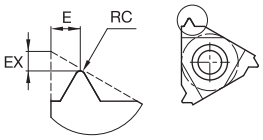


NPTF-External


LT-NR/L-NPTF


LT-ER/L-55


LT-NR/L-55



● first choice
○ alternate choice

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

LT-NR/L-NPTF

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NR14NPTF	11	–	–	0,8	.031	1,0	.039	–	14	.7500		●	
LT16NR14NPTF	16	–	–	0,9	.035	1,2	.047	–	14	.7500		●	
LT16NR115NPTF	16	–	–	1,1	.043	1,5	.059	–	11.5	.7500		●	

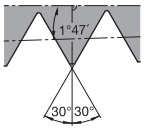
LT-ER/L-55

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF			
right hand													
LT16ERA55	16	0,05	.002	0,8	.031	0,9	.035	0,50-1,50	48-16	–		●	
LT16ERAG55	16	0,08	.003	1,2	.047	1,7	.067	0,50-3,00	48-8	–	●	●	
LT16ERG55	16	0,20	.008	1,2	.047	1,7	.067	1,75-3,00	14-8	–		●	
LT22ERN55	22	0,43	.017	1,7	.067	2,5	.098	3,50-5,00	7-5	–		●	
left hand													
LT16ELAG55	16	0,08	.003	1,2	.047	1,7	.067	0,50-3,00	48-8	–		●	

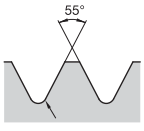
LT-NR/L-55

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF			
right hand													
LT11NRA55	11	0,05	.002	0,8	.031	0,9	.035	0,50-1,50	48-16	–		●	
LT16NRA55	16	0,05	.002	0,8	.031	0,9	.035	0,50-1,50	48-16	–		●	
LT16NRAG55	16	0,07	.003	1,2	.047	1,7	.067	0,50-3,00	48-8	–		●	
LT16NRG55	16	0,21	.008	1,2	.047	1,7	.067	1,75-3,00	14-8	–		●	
LT22NRN55	22	0,43	.017	1,7	.067	2,5	.098	3,50-5,00	7-5	–		●	

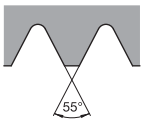
Thread Forms



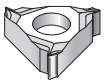
NPTF-Internal

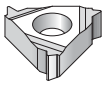


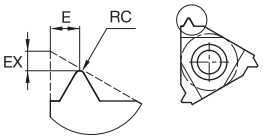
Partial Profile
55° External



Partial Profile
55° Internal


LT-ER-WCB


LT-ER/L-W



● first choice
○ alternate choice

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

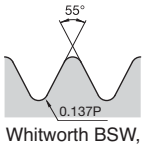
LT-ER-WCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER14WCB	16	–	–	1,3	.051	1,5	.059	–	14	–	●	●	
LT16ER11WCB	16	–	–	1,3	.051	1,5	.059	–	11	–		●	

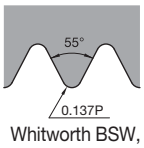
LT-ER/L-W

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF			
right hand													
LT16ER28W	16	–	–	0,6	.024	0,7	.027	–	28	–		●	
LT16ER24W	16	–	–	0,7	.028	0,8	.031	–	24	–		●	
LT16ER20W	16	–	–	0,8	.031	0,9	.035	–	20	–		●	
LT16ER19W	16	–	–	0,8	.031	1,0	.039	–	19	–	●	●	
LT16ER18W	16	–	–	0,8	.031	1,0	.039	–	18	–		●	
LT16ER16W	16	–	–	0,9	.035	1,1	.043	–	16	–		●	
LT16ER14W	16	–	–	1,0	.039	1,2	.047	–	14	–	●	●	
LT16ER12W	16	–	–	1,1	.043	1,4	.055	–	12	–		●	
LT16ER11W	16	–	–	1,1	.043	1,5	.059	–	11	–	●	●	
LT16ER10W	16	–	–	1,1	.043	1,5	.059	–	10	–		●	
LT16ER9W	16	–	–	1,2	.047	1,7	.067	–	9	–		●	
LT16ER8W	16	–	–	1,2	.047	1,5	.059	–	8	–		●	
LT22ER6W	22	–	–	1,6	.063	2,3	.090	–	6	–		●	
LT22ER7W	22	–	–	1,6	.063	2,3	.090	–	7	–		●	
left hand													
LT16EL14W	16	–	–	1,0	.039	1,2	.047	–	14	–		●	
LT16EL11W	16	–	–	1,1	.043	1,5	.059	–	11	–		●	

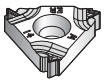
Thread Forms

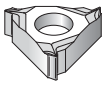


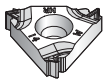
Whitworth BSW, BSF, BSP-External

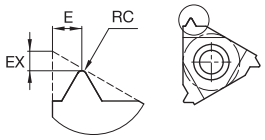


Whitworth BSW, BSF, BSP-Internal


LT-ER/L-WK


LT-NR-WCB


LT-NR/L-WK



● first choice
○ alternate choice

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

LT-ER/L-WK

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER11WK	16	0,29	.012	1,1	.043	1,5	.059	–	11	–			●

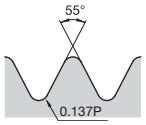
LT-NR-WCB

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR14WCB	16	–	–	1,3	.051	1,5	.059	–	14	–		●	
LT16NR11WCB	16	–	–	1,3	.051	1,5	.059	–	11	–		●	

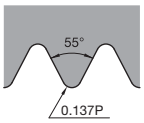
LT-NR/L-WK

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR11WK	16	0,28	.011	1,1	.043	1,5	.059	–	11	–			●

Thread Forms

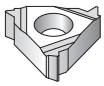


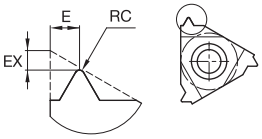
Whitworth BSW, BSF, BSP-External



Whitworth BSW, BSF, BSP-Internal


LT-NR/L-W


LT-ER/L-BSPT



● first choice
○ alternate choice

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

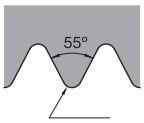
LT-NR/L-W

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR20W	16	–	–	0,8	.031	0,9	.035	–	20	–		●	
LT11NR19W	11	–	–	0,8	.031	1,0	.039	–	19	–		●	
LT16NR19W	16	–	–	0,8	.031	1,0	.039	–	19	–		●	
LT16NR16W	16	–	–	0,9	.035	1,1	.043	–	16	–		●	
LT11NR14W	11	–	–	0,9	.035	1,1	.043	–	14	–		●	
LT16NR14W	16	–	–	1,0	.039	1,2	.047	–	14	–		●	
LT16NR12W	16	–	–	1,1	.043	1,4	.055	–	12	–		●	
LT16NR11W	16	–	–	1,1	.043	1,5	.059	–	11	–	●	●	
LT16NR10W	16	–	–	1,1	.043	1,5	.059	–	10	–		●	
LT16NR8W	16	–	–	1,2	.047	1,5	.059	–	8	–		●	
LT22NR6W	22	–	–	1,6	.063	2,3	.090	–	6	–		●	
LT22NR7W	22	–	–	1,6	.063	2,3	.090	–	7	–		●	
left hand													
LT16NL11W	16	–	–	1,1	.043	1,5	.059	–	11	–		●	

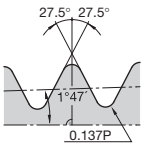
LT-ER/L-BSPT

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER14BSPT	16	–	–	1,0	.039	1,2	.047	–	14	.7500		●	
LT16ER11BSPT	16	–	–	1,1	.043	1,5	.059	–	11	.7500		●	

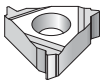
Thread Forms

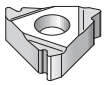


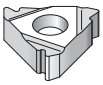
Whitworth BSW, BSF, BSP-Internal

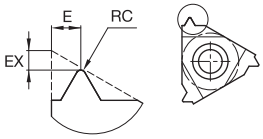


BSPT-External


LT-ER/L-BSPT


LT-ER/L-API


LT-NR/L-API



● first choice
○ alternate choice

	KC5010	KC5025	KU25T
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
H	○		

LT-NR/L-BSPT

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT11NR14BSPT	11	–	–	0,9	.035	1,0	.039	–	14	.7500		●	
LT16NR14BSPT	16	–	–	1,0	.039	1,2	.047	–	14	.7500		●	
LT16NR11BSPT	16	–	–	1,1	.043	1,5	.059	–	11	.7500		●	

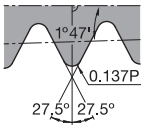
LT-ER/L-API

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT27ER5API403	28	0,51	.020	2,0	.080	2,8	.110	–	5	–		●	
LT22ER5API403	22	–	–	1,8	.071	2,6	.102	–	5	3.0000	●		
LT27ER4API383	28	0,97	.038	2,0	.080	2,8	.110	–	4	–		●	
LT27ER4API382	28	0,97	.038	2,0	.080	2,8	.110	–	4	–		●	
LT22ER4API382	22	–	–	2,1	.083	2,8	.110	–	4	2.0000		●	
LT27ER4API503	28	0,64	.025	2,0	.080	2,8	.110	–	4	–		●	
LT27ER4API502	28	0,64	.025	2,0	.080	2,8	.110	–	4	–		●	
LT22ER4API503	22	–	–	2,0	.079	2,9	.114	–	4	3.0000	●		
LT22ER4API502	22	–	–	2,0	.079	2,9	.114	–	4	2.0000	●	●	

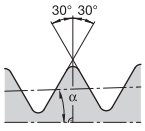
LT-NR/L-API

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT27NR5API403	28	0,52	.020	2,0	.080	2,8	.110	–	5	–		●	
LT27NR4API383	28	0,99	.039	2,0	.080	2,8	.110	–	4	–		●	
LT27NR4API382	28	0,99	.039	2,0	.080	2,8	.110	–	4	–		●	
LT22NR5API403	22	–	–	1,8	.071	2,6	.102	–	5	3.0000		●	
LT22NR4API382	22	–	–	2,1	.083	2,8	.110	–	4	2.0000		●	
LT27NR4API503	28	0,65	.026	2,0	.080	2,8	.114	–	4	–		●	
LT27NR4API502	28	0,65	.026	2,0	.080	3,8	.110	–	4	–		●	
LT22NR4API502	22	–	–	2,1	.083	3,1	.122	–	4	2.0000		●	

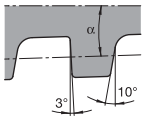
Thread Forms



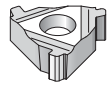
BSPT-Internal

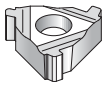


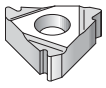
API Rotary Shoulder Connections-External
a = 1/2 arctan (TPF/12)

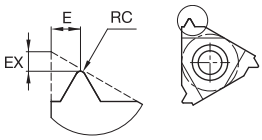


API Rotary Shoulder Connections-Internal
a = 1/2 arctan (TPF/12)


LT-ER/L-BUT


LT-NR/L-BUT


LT-ER/L-APIRD



● first choice
○ alternate choice

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

LT-ER/L-BUT

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand **LT22ER5BUT75**	22	–	–	3,10	.122	1,9	.075	–	5	.7500		●	

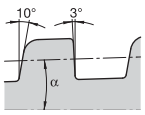
LT-NR/L-BUT

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand **LT22NR5BUT1**	22	–	–	2,8	.110	1,9	.075	–	5	1.0000		●	
LT22NR5BUT75	22	–	–	2,8	.110	1,9	.075	–	5	.7500		●	

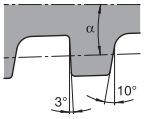
LT-ER/L-APIRD

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand **LT16ER10APIRD**	16	–	–	1,2	.047	1,4	.055	–	10	.7500		●	
LT16ER8APIRD left hand	16	–	–	1,3	.051	1,5	.059	–	8	.7500		●	
LT16EL8APIRD	16	–	–	1,3	.051	1,5	.059	–	8	.7500		●	

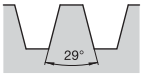
Thread Forms



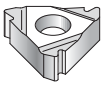
API Buttress Casing-External
a = 1/2 arctan (TPF/12)

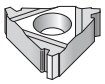


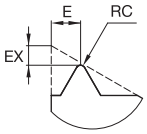
API Buttress Casing-Internal
a = 1/2 arctan (TPF/12)



API Round-External


LT-NR/L-APIRD


LT-ER/L-ACME



● first choice
○ alternate choice

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

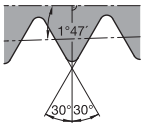
LT-NR/L-APIRD

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR10APIRD	16	–	–	1,2	.047	1,4	.055	–	10	.7500		●	
LT16NR8APIRD	16	–	–	1,3	.051	1,5	.059	–	8	.7500		●	

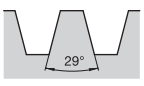
LT-ER/L-ACME

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER16ACME	16	–	–	1,0	.039	1,1	.043	–	16	–		●	
LT16ER12ACME	16	–	–	1,1	.043	1,2	.047	–	12	–		●	
LT16ER10ACME	16	–	–	1,3	.051	1,4	.055	–	10	–		●	
LT16ER8ACME	16	–	–	1,4	.055	1,5	.059	–	8	–		●	
LT22ER6ACME	22	–	–	1,8	.071	2,1	.083	–	6	–		●	
LT22ER5ACME	22	–	–	2,0	.079	2,3	.090	–	5	–		●	
LT27ER4ACME	–	–	–	–	–	–	–	–	–	–		●	

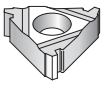
Thread Forms

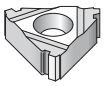


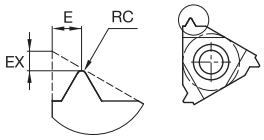
API Round-Internal



Acme External


LT-NR/L-ACME


LT-ER/L-STACME



● first choice
○ alternate choice

		KC5010	KC5025	KU25T
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

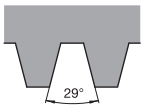
LT-NR/L-ACME

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR12ACME	16	–	–	1,2	.047	1,3	.051	–	12	–		●	
LT16NR10ACME	16	–	–	1,2	.047	1,3	.051	–	10	–		●	
LT16NR8ACME	16	–	–	1,4	.055	1,5	.059	–	8	–		●	
LT22NR6ACME	22	–	–	1,8	.071	2,1	.083	–	6	–		●	
LT22NR5ACME	22	–	–	2,0	.079	2,3	.090	–	5	–		●	
left hand													
LT16NL10ACME	16	–	–	1,2	.047	1,3	.051	–	10	–		●	
LT16NL8ACME	16	–	–	1,4	.055	1,5	.059	–	8	–		●	

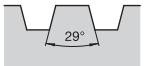
LT-ER/L-STACME

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER16STACME	16	–	–	1,0	.039	1,0	.039	–	16	–		●	
LT16ER12STACME	16	–	–	1,2	.047	1,2	.047	–	12	–		●	
LT16ER10STACME	16	–	–	1,2	.047	1,3	.051	–	10	–		●	
LT16ER8STACME	16	–	–	1,4	.055	1,5	.059	–	8	–		●	
LT16ER6STACME	16	–	–	1,7	.067	1,8	.071	–	6	–		●	
LT22ER5STACME	22	–	–	2,1	.083	2,3	.090	–	5	–		●	
LT27ER4STACME	–	–	–	–	–	–	–	–	–	–		●	
LT27EL4STACME	–	–	–	–	–	–	–	–	–	–		●	

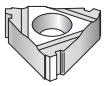
Thread Forms

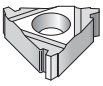


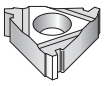
Acme Internal

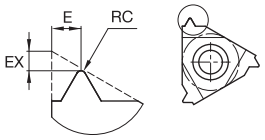


Stub Acme-External


LT-NR/L-STACME


LT-ER/L-TR


LT-NR/L-TR



● first choice
○ alternate choice

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

LT-NR/L-STACME

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR16STACME	16	–	–	1,0	.039	1,0	.039	–	16	–		●	
LT16NR14STACME	16	–	–	1,1	.043	1,1	.043	–	14	–		●	
LT16NR12STACME	16	–	–	1,1	.043	1,2	.047	–	12	–		●	
LT16NR10STACME	16	–	–	1,2	.047	1,3	.051	–	10	–		●	
LT16NR8STACME	16	–	–	1,4	.055	1,5	.059	–	8	–		●	
LT16NR6STACME	16	–	–	1,7	.067	1,8	.071	–	6	–		●	
LT22NR6STACME	22	–	–	1,8	.071	1,8	.071	–	6	–		●	
LT27NL4STACME	–	–	–	–	–	–	–	–	–	–		●	
LT27NR4STACME	–	–	–	–	–	–	–	–	–	–		●	

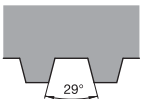
LT-ER/L-TR

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER2TR	16	–	–	1,1	.043	1,3	.051	2,0	–	–		●	
LT16ER3TR	16	–	–	1,3	.051	1,5	.059	3,0	–	–		●	
LT22ER4TR	22	–	–	1,7	.067	1,9	.075	4,0	–	–		●	
LT22ER5TR	22	–	–	2,1	.083	2,5	.098	5,0	–	–		●	

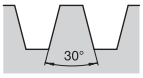
LT-NR/L-TR

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR2TR	16	–	–	1,1	.043	1,3	.051	2,0	–	–		●	
LT16NR3TR	16	–	–	1,3	.051	1,5	.059	3,0	–	–		●	
LT22NR4TR	22	–	–	1,7	.067	1,9	.075	4,0	–	–		●	
LT22NR5TR	22	–	–	2,1	.083	2,5	.098	5,0	–	–		●	

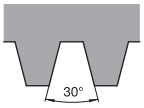
Thread Forms



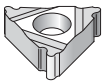
Stub Acme-Internal

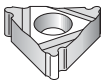


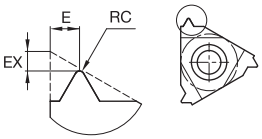
Trapez-External



Trapez-Internal


LT-ER/L-RD


LT-NR/L-RD



● first choice
○ alternate choice

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

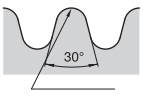
LT-ER/L-RD

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16ER8RD	16	0,76	.030	1,4	.055	1,3	.051	–	8	–		●	
LT22ER6RD	22	1,01	.040	1,5	.059	1,7	.067	–	6	–		●	

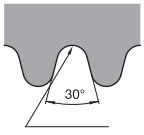
LT-NR/L-RD

catalog number	insert size	RC mm	RC in	EX mm	EX in	E mm	E in	thread pitch mm	TPI	TPF	KC5010	KC5025	KU25T
right hand													
LT16NR8RD	16	0,70	.028	1,4	.055	1,4	.055	–	8	–		●	
LT22NR6RD	22	0,93	.037	1,5	.059	1,7	.067	–	6	–		●	

Thread Forms



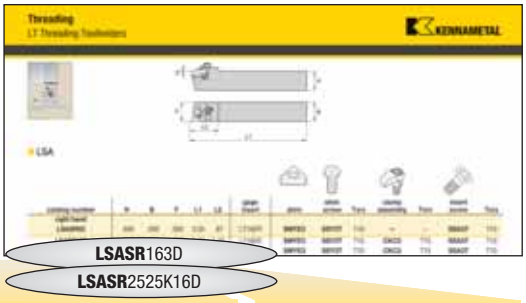
Round External



Round-Internal

How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

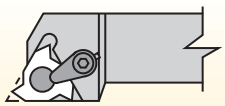


Inch

L	S	AS	R

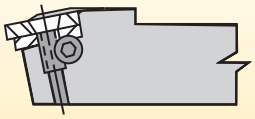
Metric

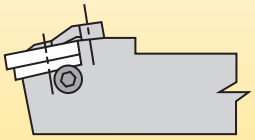
L	S	AS	R
Insert Style	Insert Holding Method	Tool Style	Hand of Tool

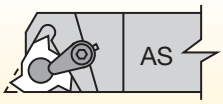


L = Laydown triangle

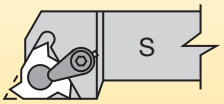
S = Insert screw or clamp only





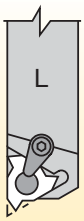


AS = Straight shank

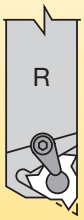


S = Offset shank

L = Left hand



R = Right hand



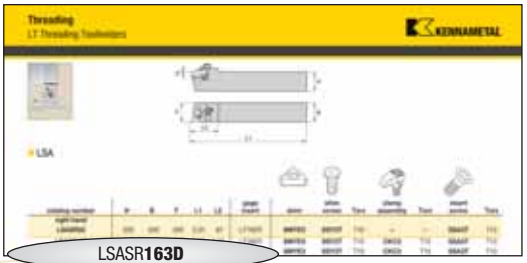
NOTE: Toolholders with primary shank sizes larger than 1/2" or 12mm are supplied with clamp and insert screw. Secure the insert with either the clamp or insert screw. **Do not use both.**

LT Threading Shim Catalog Numbering System

SM	Y	E	3	2P
Shim	Shim for LT Standard Inserts	Insert Threading	Insert Size	Shim Angle
		E = External **I** = Internal	D value in 1/8"	**2P** = 2° positive **1P** = 1° positive __ = 0° neutral **1N** = 1° negative **2N** = 2° negative **3N** = 3° negative

NOTE: For shims and shim kits, see pages E105–E107.

By referencing this easy-to-use guide, you can identify the correct product to meet your needs.

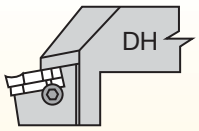


Inch

	16	3	D

Metric

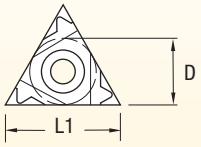
	2525K	16	D
Drop Head	Shank Size	Insert Size	Qualified Surface and Length



inch:
This position will show a significant two-digit number that indicates the holder cross section. For shanks 5/8" square and over, the number will represent the number of sixteenths of width and height. For shanks under 5/8" square, the number of sixteenths of cross section will be preceded by a zero. For rectangular holders, the first digit represents the number of eighths of width, and the second digit the number of quarters of height, except for a toolholder 1-1/4" x 1-1/2", which is given the number 91.

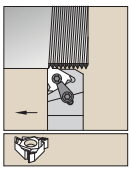
metric:
Shank height and width in mm and holder length according to ISO standard.

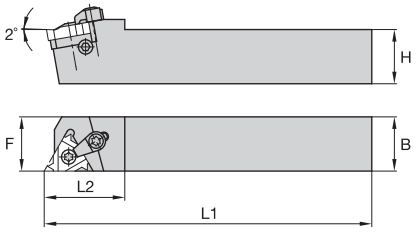
Size equals number of 1/8" increments of IC.



insert size (inch)	insert size (mm)	D (inch)	L1 (mm)
2	11	1/4	11,0
3	16	3/8	16,5
4	22	1/2	22,0

C = Qualified back and end, 5" long
D = Qualified back and end, 6" long
E = Qualified back and end, 7" long
T = Qualified back and end, 3.250" long
Q = Qualified metric holder

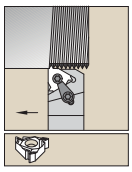


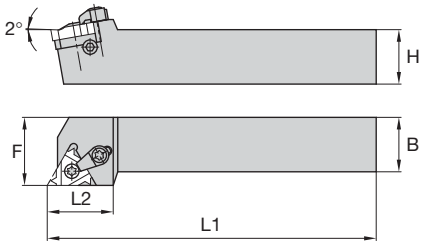


LSA



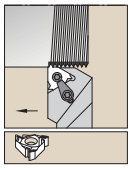

catalog number	H	B	F	L1	L2	gage insert	shim	shim screw	Torx	clamp assembly	Torx	insert screw	Torx
right hand													
LSASR83	.500	.500	.500	3.25	.87	LT16ER	**SMYE3**	**SSY3T**	T10	**—**	—	**SSA3T**	T10
LSASR103	.625	.625	.630	5.00	1.20	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSASR123	.750	.750	.750	5.00	1.20	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSASR163	1.000	1.000	1.000	6.00	1.20	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSASR203	1.250	1.250	1.250	7.00	1.18	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSASR164	1.000	1.000	1.000	6.00	1.42	LT22ER	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
left hand													
LSASL83	.500	.500	.500	3.25	.87	LT16EL	**SMYI3**	**SSY3T**	T10	**—**	—	**SSA3T**	T10
LSASL103	.625	.625	.630	5.00	1.20	LT16EL	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSASL123	.750	.750	.750	5.00	1.20	LT16EL	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSASL163	1.000	1.000	1.000	6.00	1.20	LT16EL	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSASL164	1.000	1.000	1.000	6.00	1.42	LT22EL	**SMYI4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20

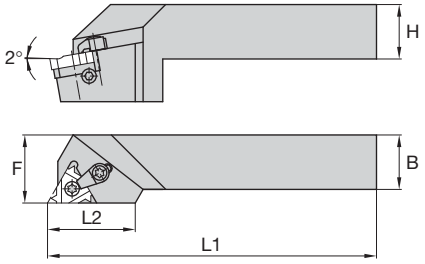




LSS

catalog number	H	B	F	L1	L2	gage insert	shim	shim screw	Torx	clamp assembly	Torx	insert screw	Torx
right hand													
LSSR123D	.750	.750	1.000	6.00	1.00	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSSR163D	1.000	1.000	1.250	6.00	1.00	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSSR203D	1.250	1.250	1.500	6.00	1.00	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSSR164D	1.000	1.000	1.250	6.00	1.20	LT22ER	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
LSSR204D	1.250	1.250	1.500	6.00	1.20	LT22ER	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
left hand													
LSSL123D	.750	.750	1.000	6.00	1.00	LT16EL	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSSL163D	1.000	1.000	1.250	6.00	1.00	LT16EL	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSSL164D	1.000	1.000	1.250	6.00	1.20	LT22EL	**SMYI4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20



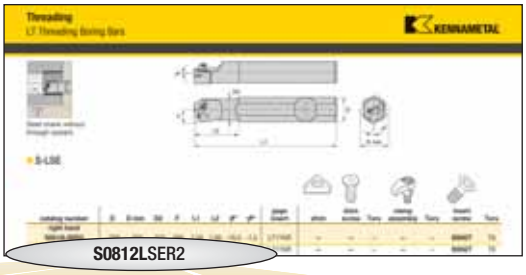


LSS-DH

catalog number	H	B	F	L1	L2	gage insert	shim	shim screw	Torx	clamp assembly	Torx	insert screw	Torx
right hand													
LSSRDH123C	.750	.750	1.000	5.00	1.50	LT16ER	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
LSSRDH164D	1.000	1.000	1.250	6.00	1.50	LT22ER	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20

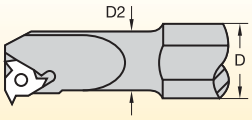
How Do Catalog Numbers Work?

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



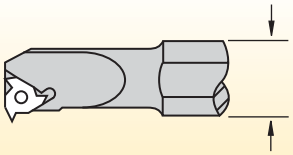
S — Bar Type

08 — Primary Necked Shank Bar Diameter



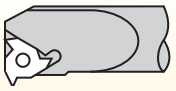
A two-digit number that indicates the primary bar diameter in 1/16" increments. Metric diameter in mm.

12 — Secondary (Mounting) Bar Dlameter

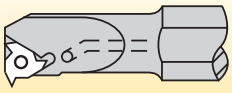


A two-digit number that indicates the secondary bar diameter in 1/16" increments. Metric diameter in mm.

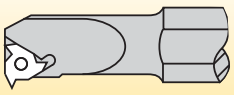
L — Insert Style



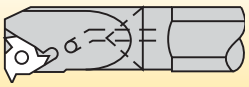
L = Laydown triangle



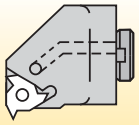
A = Steel with coolant



S = Steel without coolant



E = Carbide with coolant



H = Interchangeable head with coolant

NOTE: Boring bars with primary bar diameters larger than 5/8" or 16mm are supplied with clamp and insert screw. Secure the insert with either the clamp or insert screw. **Do not use both.**

LT Threading Shim Catalog Numbering System

SM — Shim

Y — Shim for LT Standard Inserts

E — Insert Threading

E = External
I = Internal

3 — Insert Size

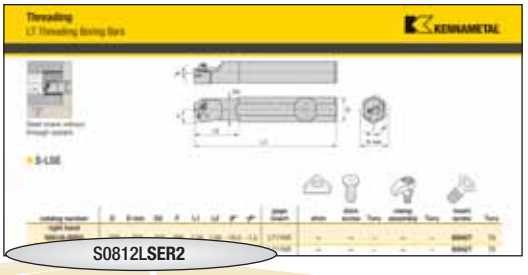
D value in 1/8"

2P — Shim Angle

2P = 2° positive
1P = 1° positive
__ = 0° neutral
1N = 1° negative
2N = 2° negative
3N = 3° negative

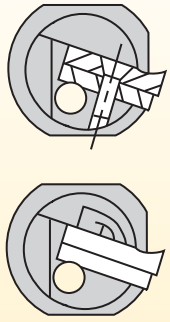
NOTE: For shims and shim kits, see pages E105–E107.

By referencing this easy-to-use guide, you can identify the correct product to meet your needs.



S
Insert Holding Method

S = Insert screw or clamp

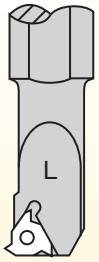


E
Bar Style

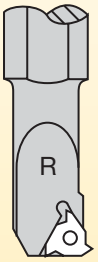
E = End cutting edge mount

R
Hand of Bar

L = Left hand

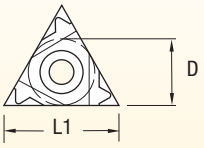


R = Right hand



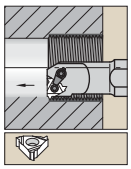
2
Insert Size

Size equals number of 1/8" increments of IC.

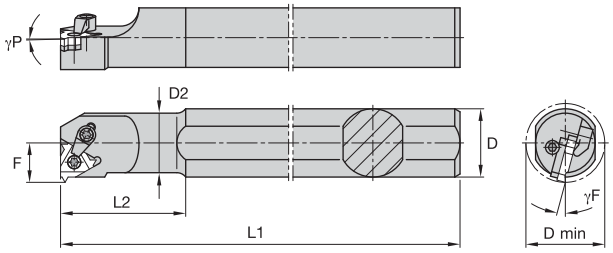


insert size (inch)	insert size (mm)	D (inch)	L1 (mm)
2	11	1/4	11,0
3	16	3/8	16,5
4	22	1/2	22,0

NOTE: Boring bars with primary bar diameters larger than 5/8" or 16mm are supplied with clamp and insert screw. Secure the insert with either the clamp or insert screw. **Do not use both.**



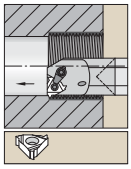
Steel shank without through coolant.



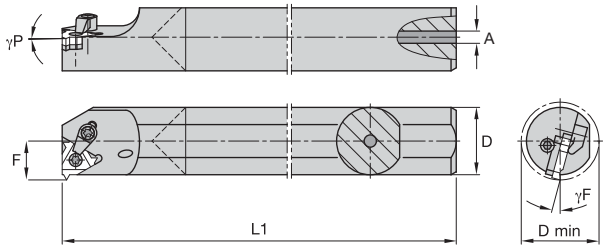
S-LSE

catalog number	D	D min	D2	F	L1	L2	γF°	γP°	gage insert	shim	shim screw	Torx	clamp assembly	Torx	insert screw	Torx
right hand																
S0612LSER2	.750	.500	.375	.280	7.00	1.00	-15.0	-1.5	LT11NR	**–**	**–**	–	**–**	–	**SSN2T**	T8
S0812LSER2	.750	.650	.500	.350	7.00	1.25	-15.0	-1.5	LT11NR	**–**	**–**	–	**–**	–	**SSN2T**	T8
S1012LSER3	.750	.800	.625	.460	7.00	1.50	-15.0	-1.5	LT16NR	**–**	**–**	–	**–**	–	**SN3TPKG**	T10
S1212LSER3	.750	.900	–	.510	7.00	–	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
S1620LSER3	1.250	1.200	1.000	.650	10.00	2.50	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
S2020LSER3	1.250	1.450	–	.770	10.00	–	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
S1620LSER4	1.250	1.250	1.000	.710	10.00	2.50	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
S2020LSER4	1.250	1.500	–	.850	10.00	–	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
left hand																
S0612LSEL2	.750	.500	.375	.280	7.00	1.00	-15.0	-1.5	LT11NL	**–**	**–**	–	**–**	–	**SSN2T**	T8
S0812LSEL2	.750	.650	.500	.350	7.00	1.25	-15.0	-1.5	LT11NL	**–**	**–**	–	**–**	–	**SSN2T**	T8
S1012LSEL3	.750	.800	.625	.460	7.00	1.50	-15.0	-1.5	LT16NL	**–**	**–**	–	**–**	–	**SN3TPKG**	T10
S1212LSEL3	.750	.900	–	.510	7.00	–	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
S1620LSEL3	1.250	1.200	1.000	.650	10.00	2.50	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
S1620LSEL4	1.250	1.250	1.000	.710	10.00	2.50	-15.0	-1.5	LT22NL	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20

NOTE: Items listed without a shim are designed for a 1.5° inclination angle.



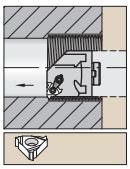
Carbide shank with through coolant.



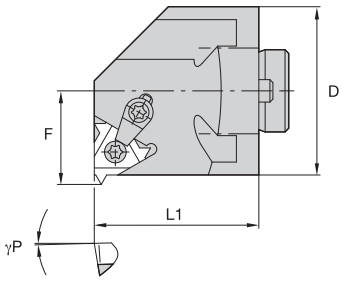
E-LSE

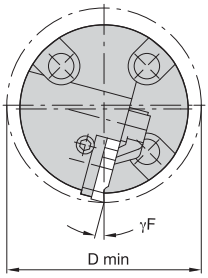
catalog number	D	D min	F	L1	A	γF°	γP°	gage insert	shim	shim screw	Torx	clamp assembly	Torx	insert screw	Torx
right hand															
E06LSER2	.375	.500	.280	6.00	.13	-15.0	-1.5	LT11NR	**–**	**–**	–	**–**	–	**SSN2T**	T8
E08LSER2	.500	.650	.350	8.00	.19	-15.0	-1.5	LT11NR	**–**	**–**	–	**–**	–	**SSN2T**	T8
E10LSER3	.625	.800	.460	10.00	.22	-15.0	-1.5	LT16NR	**–**	**–**	–	**–**	–	**SN3TPKG**	T10
E12LSER3	.750	.900	.510	10.00	.28	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
E16LSER3	1.000	1.200	.650	12.00	.31	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
E16LSER4	1.000	1.250	.710	12.00	.31	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
left hand															
E06LSEL2	.375	.500	.280	6.00	.13	-15.0	-1.5	LT11NL	**–**	**–**	–	**–**	–	**SSN2T**	T8
E08LSEL2	.500	.650	.350	8.00	.19	-15.0	-1.5	LT11NL	**–**	**–**	–	**–**	–	**SSN2T**	T8
E10LSEL3	.625	.800	.460	10.00	.22	-15.0	-1.5	LT16NL	**–**	**–**	–	**–**	–	**SN3TPKG**	T10
E12LSEL3	.750	.900	.510	10.00	.28	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
E16LSEL3	1.000	1.200	.650	12.00	.31	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
E16LSEL4	1.000	1.250	.710	12.00	.31	-15.0	-1.5	LT22NL	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20

NOTE: Items listed without a shim are designed for a 1.5° inclination angle.



With through coolant.



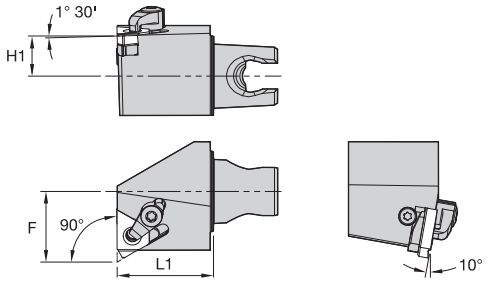


H-LSE



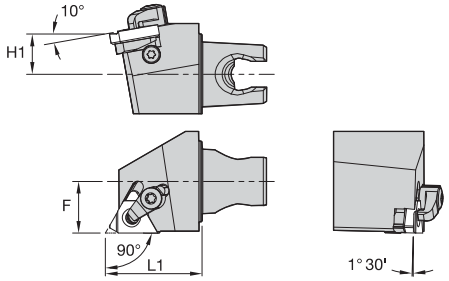

catalog number	D	D min	L1	F	γF°	γP°	gage insert	shim	shim screw	Torx	clamp assembly	Torx	insert screw	Torx
right hand														
H16LSER3	1.000	1.200	1.63	.645	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
H20LSER3	1.250	1.450	1.63	.760	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
H24LSER3	1.500	1.760	1.63	.885	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
H32LSER3	2.000	2.400	1.63	1.276	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
H24LSER4	1.500	1.782	1.63	.973	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
H32LSER4	2.000	2.400	1.63	1.276	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
H32LSER5	2.000	2.400	1.63	1.281	-15.0	-1.5	LT27NR	**SMYI5**	**SSY5T**	T25	**CKC5**	—	**SSA5T**	—
H40LSER5	2.500	3.030	1.63	1.531	-15.0	-1.5	LT27NR	**SMYI5**	**SSY5T**	T25	**CKC5**	—	**SSA5T**	—
left hand														
H16LSEL3	1.000	1.200	1.63	.645	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
H20LSEL3	1.250	1.450	1.63	.760	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
H24LSEL3	1.500	1.760	1.63	.885	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**CKC3**	T15	**SSA3T**	T10
H24LSEL4	1.500	1.782	1.63	.973	-15.0	-1.5	LT22NL	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
H32LSEL4	2.000	2.400	1.63	1.276	-15.0	-1.5	LT22NL	**SMYE4**	**SSY4T**	T20	**CKC4**	T20	**SSA4T**	T20
H32LSEL5	2.000	2.400	1.63	1.281	-15.0	-1.5	LT27NL	**SMYE5**	**SSY5T**	T25	**CKC5**	—	**SSA5T**	—
H40LSEL5	2.500	3.030	1.63	1.531	-15.0	-1.5	LT27NL	**SMYE5**	**SSY5T**	T25	**CKC5**	—	**SSA5T**	—

NOTE: For boring adapters, see pages C119–C121.



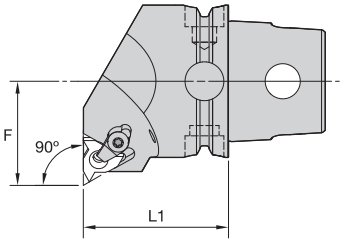
LSE • End Mount

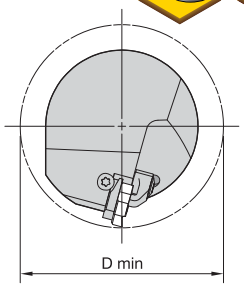
order number	catalog number	L1 mm	L1 in	F mm	F in	H1 mm	H1 in	gage insert	insert screw	shim	shim screw	clamp assembly
	right hand											
3482966	KM20LSER1625	25	.984	17	.669	9,5	.375	LT16EL	SSA3T	SMYI3	SSY3T	CKC3
2399506	KM25LSER1630	30	1.181	22	.866	12,5	.492	LT16EL	SSA3T	SMYI3	SSY3T	CKC3
	left hand											
3482965	KM20LSEL1625	25	.984	17	.669	9,5	.375	LT16ER	SSA3T	SMYE3	SSY3T	CKC3
2399507	KM25LSEL1630	30	1.181	22	.866	12,5	.492	LT16ER	SSA3T	SMYE3	SSY3T	CKC3



LSS • Side Mount

order number	catalog number	L1 mm	L1 in	F mm	F in	H1 mm	H1 in	gage insert	insert screw	shim	shim screw	clamp assembly
	right hand											
3482968	KM20LSSR1625	25	.984	12,50	.492	9,5	.375	LT16ER	SSA3T	SMYE3	SSY3T	CKC3
2399504	KM25LSSR1630	30	1.181	16,00	.630	12,5	.492	LT16ER	SSA3T	SMYE3	SSY3T	CKC3
3176219	KM25LSSR2230	30	1.181	16,00	.630	12,5	.492	LT22ER	SSA4T	SMYE4	SSY4T	CKC4
	left hand											
3482967	KM20LSSL1625	25	.984	12,50	.492	9,5	.375	LT16EL	SSA3T	SMYI3	SSY3T	CKC3
2399505	KM25LSSL1630	30	1.181	16,00	.630	12,5	.492	LT16EL	SSA3T	SMYI3	SSY3T	CKC3
3176220	KM25LSSL2230	30	1.181	16,00	.630	12,5	.492	LT22EL	SSA4T	SMYI4	SSY4T	CKC4



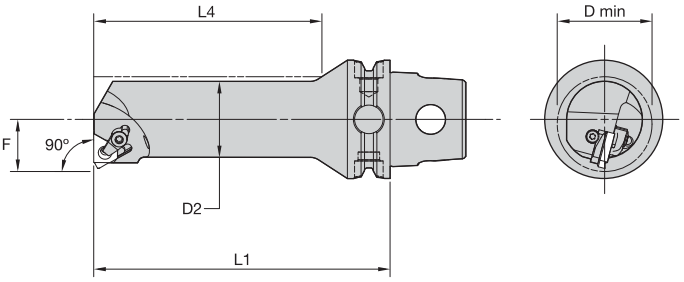


KM QUICK CHANGE

LSE-N 90° • Internal Only

order number	catalog number	L1 mm	L1 in	F mm	F in	D min mm	D min in	gage insert	insert screw	shim	shim screw	clamp assembly	kg	lbs
	right hand													
3950832	**KM40TSLSER16N**	40	1.575	27	1.063	54	2.126	LT16NR	**SSA3T**	**SMYI3**	**SSY3T**	**CKC3**	0,35	.77
3950854	**KM40TSLSER22N**	40	1.575	27	1.063	54	2.126	LT22NR	**SSA4T**	**SMYI4**	**SSY4T**	**CKC4**	0,35	.77
3959399	**KM40TSLSER27N**	45	1.772	27	1.063	54	2.126	LT27NR	**SSA5T**	**SMYI5**	**SSY5T**	**CKC5**	0,39	.86
	left hand													
3950831	**KM40TSLSEL16N**	40	1.575	27	1.063	54	2.126	LT16NL	**SSA3T**	**SMYE3**	**SSY3T**	**CKC3**	0,35	.77
3950853	**KM40TSLSEL22N**	40	1.575	27	1.063	54	2.126	LT22NL	**SSA4T**	**SMYE4**	**SSY4T**	**CKC4**	0,35	.77
3959398	**KM40TSLSEL27N**	45	1.772	27	1.063	54	2.126	LT27NL	**SSA5T**	**SMYE5**	**SSY5T**	**CKC5**	0,39	.86

NOTE: Cutting units are supplied with insert screw and clamp assembly. However, tools are designed to use either the insert screw or the clamp assembly, not both.



KM QUICK CHANGE

LSE 90°

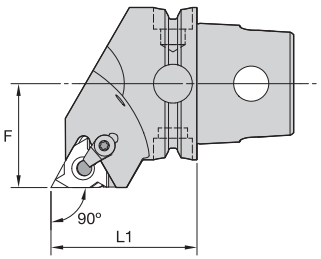
order number	catalog number	D2 mm	D2 in	D min mm	D min in	F mm	F in	L4 mm	L4 in	L1 mm	L1 in	gage insert	kg	lbs
	right hand													
3955464	**KM40TSS10DLSER11**	10	.39	13	.51	7	.276	35	1.38	60	2.362	LT11NR	0,22	.49
3955466	**KM40TSS12ELSER11**	12	.47	16	.63	9	.354	42	1.66	70	2.756	LT11NR	0,25	.56
3955468	**KM40TSS16FLSER16**	16	.63	20	.79	11	.433	56	2.21	80	3.150	LT16NR	0,28	.61
3955470	**KM40TSS20GLSER16**	20	.79	25	.98	13	.512	70	2.76	90	3.543	LT16NR	0,34	.75
3955472	**KM40TSS25HLSER16**	25	.98	32	1.26	17	.669	75	2.95	100	3.937	LT16NR	0,50	1.11
3955474	**KM40TSS32JLSER16**	32	1.26	40	1.57	22	.866	96	3.78	110	4.331	LT16NR	0,72	1.58
3955476	**KM40TSS32JLSER22**	32	1.26	40	1.57	22	.866	96	3.78	110	4.331	LT22NR	0,71	1.56
	left hand													
3955463	**KM40TSS10DLSEL11**	10	.39	13	.51	7	.276	35	1.38	60	2.362	LT11NL	0,22	.49
3955465	**KM40TSS12ELSEL11**	12	.47	16	.63	9	.354	42	1.65	70	2.756	LT11NL	0,25	.55
3955467	**KM40TSS16FLSEL16**	16	.63	20	.79	11	.433	56	2.21	80	3.150	LT16NL	0,28	.61
3955469	**KM40TSS20GLSEL16**	20	.79	25	.98	13	.512	70	2.76	90	3.543	LT16NL	0,34	.75
3955471	**KM40TSS25HLSEL16**	25	.98	32	1.26	17	.669	75	2.95	100	3.937	LT16NL	0,50	1.11
3955473	**KM40TSS32JLSEL16**	32	1.26	40	1.57	22	.866	96	3.78	110	4.331	LT16NL	0,72	1.58
3955475	**KM40TSS32JLSEL22**	32	1.26	40	1.57	22	.866	96	3.78	110	4.331	LT22NL	0,71	1.56

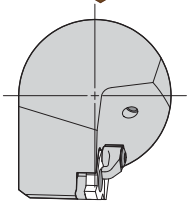
Spare Parts




catalog number	insert screw	shim	shim screw	clamp assembly
right hand				
KM40TSS10DLSER11	**SSN2T**	**–**	**–**	**–**
KM40TSS12ELSER11	**SSN2T**	**–**	**–**	**–**
KM40TSS16FLSER16	**SN3TPKG**	**–**	**–**	**–**
KM40TSS20GLSER16	**SSA3T**	**SMYI3**	**SSY3T**	**CKC3**
KM40TSS25HLSER16	**SSA3T**	**SMYI3**	**SSY3T**	**CKC3**
KM40TSS32JLSER16	**SSA3T**	**SMYI3**	**SSY3T**	**CKC3**
KM40TSS32JLSER22	**SSA4T**	**SMYI4**	**SSY4T**	**CKC4**
left hand				
KM40TSS10DLSEL11	**SSN2T**	**–**	**–**	**–**
KM40TSS12ELSEL11	**SSN2T**	**–**	**–**	**–**
KM40TSS16FLSEL16	**SN3TPKG**	**–**	**–**	**–**
KM40TSS20GLSEL16	**SSA3T**	**SMYE3**	**SSY3T**	**CKC3**
KM40TSS25HLSEL16	**SSA3T**	**SMYE3**	**SSY3T**	**CKC3**
KM40TSS32JLSEL16	**SSA3T**	**SMYE3**	**SSY3T**	**CKC3**
KM40TSS32JLSEL22	**SSA4T**	**SMYE4**	**SSY4T**	**CKC4**

NOTE: Items listed without a shim are designed for a 1.5° inclination angle.
Cutting units are supplied with insert screw and clamp assembly. However, tools are designed to use either the insert screw or the clamp assembly, not both.





KM QUICK CHANGE

■ LSS 90°

order number	catalog number	L1 mm	L1 in	F mm	F in	gage insert	insert screw	shim	shim screw	clamp assembly	kg	lbs
	right hand											
3950857	**KM40TSLSSR16**	40	1.575	27	1.063	LT16ER	**SSA3T**	**SMYE3**	**SSY3T**	**CKC3**	0,31	.68
3950858	**KM40TSLSSR22**	40	1.575	27	1.063	LT22ER	**SSA4T**	**SMYE4**	**SSY4T**	**CKC4**	0,30	.66
3959401	**KM40TSLSSR27**	45	1.772	27	1.063	LT27ER	**SSA5T**	**SMYE5**	**SSY5T**	**CKC5**	0,37	.82
	left hand											
3950855	**KM40TSLSSL16**	40	1.575	27	1.063	LT16EL	**SSA3T**	**SMYI3**	**SSY3T**	**CKC3**	0,32	.70
3950856	**KM40TSLSSL22**	40	1.575	27	1.063	LT22EL	**SSA4T**	**SMYI4**	**SSY4T**	**CKC4**	0,31	.68
3959400	**KM40TSLSSL27**	45	1.772	27	1.063	LT27EL	**SSA5T**	**SMYI5**	**SSY5T**	**CKC5**	0,37	.82

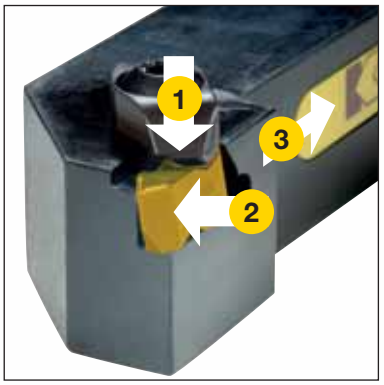
NOTE: Cutting units are supplied with insert screw and clamp assembly. However, tools are designed to use either the insert screw or the clamp assembly, not both.

Top Notch™ Thread Tooling

Is the proven high productivity threading solution.

Top Notch Threading with Beyond™ Insert technology provides consistent tool performance and superior clamping thread to almost any operation. With the largest selection of grades and geometries in the industry, the Top Notch Threading system is a proven solution.

- Superior choice for heavy-duty applications.
- Rigid insert clamping design ensures best tool life, surface finish, and workpiece quality.
- Excellent choice for special thread forms and toolholder designs.
- Minimizes built-up edge.
- Precisely cuts most common materials.
- Ensures accurate high-quality threads.
- Eliminates long, troublesome coils.
- Excellent for internal threading operations.
- Available in partial profile inserts for 60° thread forms.



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www.kennametal.com

KENNAMETAL®

Suggested Grade and Speeds for Threading Various Workpiece Materials

workpiece group	workpiece material	recommendations surface speed – SFM				
		uncoated	PVD coated			
		K68	KC5010	KC5025	KC5410	KU25T
free-machining carbon steel	10L18, 10L45, 1213, 12L13, 12L14, 1140, 1141, 11L44, 1151, 10L50	—	300–650	150–650	—	300–450
plain carbon steel	10063, 1008, 1010, 1015, 1018, 1020, 1025, 1026, 1108, 1117	—	250–650	150–575	—	250–400
alloy steels/tool steels 150–325 HB (up to 35 HRC)	1042, 1045, 1070, 1080, 1085, 1090, 1095, 1541, 1561, 1572, 5140, 8620, W1, O1, S1, P20, H13, D2, A6, H13, L6	—	250–650	125–550	—	250–400
alloy steels/tool steels 330–450 HB (36–47 HRC)		—	200–525	—	—	200–350
martensitic/ferritic stainless/precipitation hardening	416, 420F, 440F, 405, 409, 429, 430, 434, 436, 442, PH	—	150–525	100–400	—	80–200
austenitic stainless steel	201, 202, 301, 302, 303, 304, 304, 305, 321, 347, 348, 310, 314, 316, 316L, 330	200–350	200–350	150–450	—	80–350
gray cast iron 135–270 HB	class 20, 30, 35, 45	200–300	200–780	150–400	—	100–355
gray cast iron 275–450 HB	class 50, 55, 60	150–250	150–575	50–250	—	100–355
alloy/ductile iron	A536, J434C, 60-40-18, 80-55-06, 100-70-03	150–250	150–650	100–525	—	100–355
free-machining aluminum alloys	2024-T4, 2014-T6, 6061-T6 2011-T3, 3003-H18, A2, Alcan, Alcoa 510, Duralumin	400–800	400–1200	—	500–1500	100–1000
high-silicon aluminum alloys	A380, A390, A380-1, A390-1, A380-2	—	—	—	—	—
copper/zinc/brass		250–600	250–1000	150–775	—	100–800
non-metallics	Graphite, Nylon, Plastics, Rubbers, Phenolics, Carbon	400–1500	400–1300	150–1000	—	100–1000
high-temperature alloys 125–269 HB (up to 27 HRC)	Nickel 200, Monel, R405, Monel K500, INCONEL 600, INCONEL 625/901x750/718, Waspaloy, Hastelloy C	80–120	80–400	40–250	—	45–270
high-temperature alloys 260–450 HB (26–47 HRC)	Rene 95, Waspaloy A286, Incoloy 800, Haynes 188, Stellite F, Haynes 25	80–100	100–250	20–200	—	45–200
titanium alloys	Ti-6Al-4V, Ti-5Al-2.5Sn	110–180	110–325	—	—	45–250

NOTE: When workpiece hardness levels are at the top of a range, starting SFM should be at the lower end. Regularly inspect insert clamps for worn flats.

Edge preparation:
Uncoated — sharp
PVD coated — light hone except positive top rake, top rake-sharp

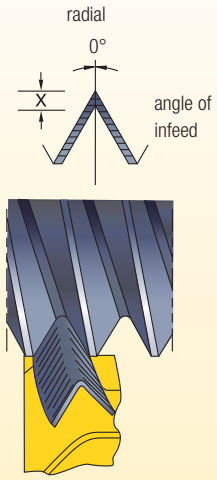
Tool Detective

problem	cause	possible solution
thread with torn finish 	• Burrs. • Torn finish. • Steps.	• Use positive rake or full profile insert. • Increase coolant concentration. • Alter infeed. • Increases SFM. • Check machine “Z” travel axis. • Check insert form. • Check for correct shim in LT system.
chatter 	• Poor rigidity. • Incorrect speed. • Insert movement. • Improper infeed. • Off centerline. • Wrong edge prep.	• Minimize tool overhang. • Check for workpiece deflection. • Adjust SFM. • Check insert and clamp. • Use modified feed angle. • Verify that tool cutting position is at workpiece centerline. • Adjust hone level by ordering special insert.
built-up edge 	• Speed too low. • Insufficient coolant. • Chip load. • Wrong edge prep.	• Increase SFM. • Increase coolant concentration and/or flow. • Adjust infeed angle. • Increase depth of cut per pass. • Adjust hone level by ordering special insert.
deformation 	• Wrong grade. • Speed too high. • Improper infeed angle. • Insufficient coolant.	• Use a more wear-resistant grade (e.g., KC5010™). • Reduce SFM. • Alter infeed method/angle. • Increase coolant flow.
chipping  	• Improper infeed. • Chip load. • Wrong grade. • Incorrect speed. • Poor rigidity. • Wrong edge prep.	• Alter infeed to modified flank. • Adjust chip load. • Increase or decrease number of passes. • Eliminate spring passes. • Use tougher grade (e.g., KC5025™). • Increase SFM if chipping on trailing edge. • Decrease SFM if chipping on leading edge. • Minimize tool overhang. • Check for insert movement/check clamp. • Check for possible part deflection. • Adjust hone size by ordering special insert.
broken nose 	• Heavy chip load. • Small nose radius. • Wrong grade. • Improper infeed. • Wrong edge prep.	• Decrease chip load. • Use large nose radius if allowable. • Use tougher grade (e.g., KC5025). • Alter infeed to modified flank. • Adjust hone size by ordering special insert.
flank wear 	• Wrong grade. • Insufficient coolant. • Off centerline.	• Use a more wear-resistant grade (e.g., KC5025). • Increase coolant flow. • Check the centerline height of the tool. (The smaller the diameter, the more critical the need for centerline accuracy.)

Troubleshooting Matrix

problem	possible solutions															
	increase SFM	reduce SFM	increase chip load	decrease chip load where failure occurs	use tougher carbide grade	use harder carbide grade	apply coolant	use coated carbide	use topping insert	change infeed angle	check for insert movement and reseat	reduce tool overhang	reselect shim	apply chipbreaker style	reduce DOC	adjust center height	begin cutting threads 12mm before workpiece
chatter	●			●							●	●				●	
burr on crest	●								●								
short tool life		●	●	●		●		●									
chipped leading edge			●	●	●												
chipped trailing edge					●					●							
broken nose (first pass)	●														●	●	
broken nose (after first pass)				●	●					●			●				
built-up on cutting edge	●		●				●	●									
premature topping													●				
splitting threads																	●
poor chip evacuation														●			

Radial



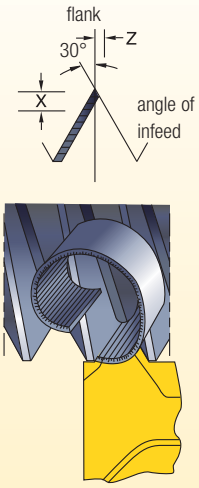
Advantage —

- Cutting on both sides of the thread form places all of the cutting edge in the cut and protects edge from chipping.
- Even wear on the insert.

Disadvantage —

- Tool develops a channel chip that may be difficult to handle.
- Tip chipping occurs when cutting high-tensile materials.
- Burr condition is increased.
- Entire cutting edge is engaged at finish of thread, causing increased tendency to chatter.

Flank



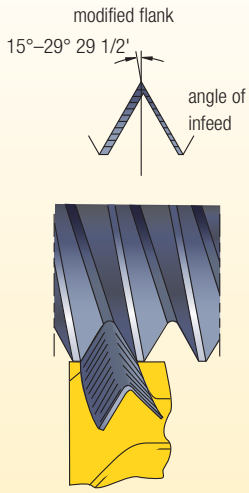
Advantage —

- Cutting with the leading edge of the threading tool gives the chip a definite flow out of the thread form area. This reduces the burr problem on the trailing edge of the tool. To avoid bad surface finish, chipping, or excessive flank wear due to rubbing of the trailing edge, the infeed angle should be 3° to 5° smaller than the angle of the thread. This is a type of modified flank.

Disadvantage —

- Trailing edge of threading insert may drag or rub and tends to chip.
- Torn or poor surface finish threads result when cutting soft, gummy materials like low-carbon steels, aluminum, and stainless steels.

Modified flank



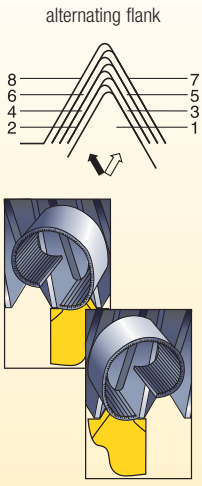
Advantage —

- Tool cuts both sides of thread form, so it is protected from chipping similar to 0° infeed. Channel-type chip develops, but uneven chip thickness helps remove the chip similar to flank infeed.
- This is the preferred method, especially when used with a chip control insert.
- Combined radial and/or alternating flank infeed.
- Results in good tool life, with wear evenly distributed over both flanks.

Disadvantage —

- Similar disadvantages as with 0° infeed, although reduced somewhat in magnitude as cutting forces are better equalized and chip flow is much less of a problem.

Alternating flank



Advantage —

- Increased tool life because both edges are used equally.

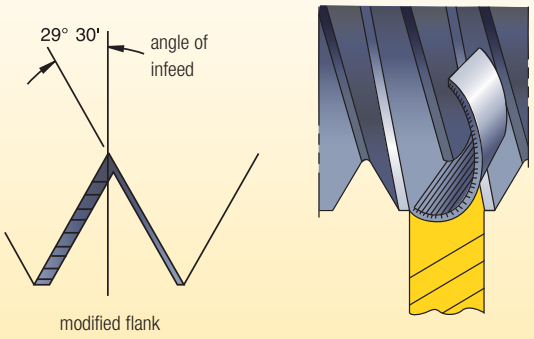
NOTE: Some machine tools may require special programming techniques to achieve this method of infeed.

Disadvantage —

- Difficult to cut on conventional machinery.

Machining Guidelines When Using Chop Control Inserts

Kennametal insert technology brings chip control to your threading operations with the Top Notch™ platform. The proprietary Kennametal recessed chip groove, when used according to our recommendations, breaks the chip in most applications. Our positive rake design lowers cutting pressures, which in turn lowers damaging heat generation thus providing better tool life. Long, stringy chips no longer mar the workpiece surface finish. The danger to operators when removing long chips from the workpiece and chuck is eliminated. All of these benefits combine to improve the productivity of your threading operations.



Machine Programming

Modern CNC controls allow the programmer to easily adjust infeed angle, the number of passes, and depth of cut for each pass. The chip control threading insert performs best at an infeed angle of 29° 30', although 15° to 30° is acceptable. Also, it is important to maintain a minimum of .005" (0,127mm) depth of cut on every pass. In most applications, use of CNC canned cycles produce only marginally successful results. Custom written programs are better and are recommended.

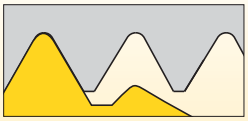
The Last Pass

Some CNC controls require the last pass to be at a 0° infeed angle because the chip will not break on the last pass. On most carbon and alloy steels, the last pass can remain at .005" (0,127mm) depth of cut and produce an acceptable finish. For some materials, a .001" (0,025mm) to .003" (0,076mm) (spring) pass may be used to improve surface finish, however, chip breaking action may be compromised.

Infeed Angle

In order to effectively and consistently break the chip, it is important to use an infeed angle between 28° and 29° 30'. Do not apply chip control inserts at infeed angles less than 15°.

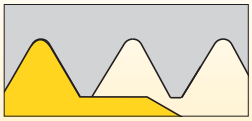
Partial Profile



Tooth profile with universal profile shape:

- 55° or 60° without cutting edges for the tooth tapers.
- Reduced inventory.
- For various pitches in a limited range.
- Preferably one time production.
- Outside/core diameters must be accurately pre-turned.

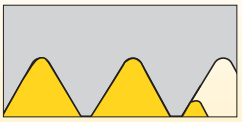
Full Profile



Tooth profile with full profile shape including tooth height:

- For burr-free, precise threads in the specified pitch.
- General application.
- Machining allowance for outside/core diameter around 0.004–0.006".

Multitooth Profile



Multitooth full profile generally with 2–3 teeth:

- Highly productive threading with fewer passes and longer tool life.
- Requires a rigid setup and long thread runout.
- Minimum clearance width approximately 1.25 x E as per indexable insert dimensions table.

Formulas

inch formula		
to find	**given**	**formula**
SFM	D (inch) RPM	$SFM = \frac{\pi \times D}{12"} \times RPM$
RPM	D (inch) SFM	$RPM = \frac{SFM \times 12"}{D \times \pi}$
metric formula		
to find	**given**	**formula**
m/min	D (mm) RPM	$m/min = \frac{\pi \times D}{1000} \times RPM$
RPM	D (mm) m/min	$RPM = \frac{m/min \times 1000}{D \times \pi}$

Legend

IPM = inch per minute
SFM = surface feet per minute
m/min = meters per minute
RPM = revolutions per minute
D = part diameter
π = 3.1416

Maximum Cutting Speeds

Maximum cutting speed is often limited by the maximum travel speed (IPM or mm/min) of the tool allowed by the machine. Check your maximum speed with the following formulas:

inch formula: maximum cutting speed (SFM) = part diameter (inch) x 3.14 x TPI x $\frac{\text{max IPM}}{12"}$

metric formula: maximum cutting speed (m/min) = part diameter (mm) x 3.14 x (1/pitch) x $\frac{\text{max mm/min}}{1000mm}$

Recommendation for Threading Infeed Passes

TPI	48–32	28–24	20–16	14–12	11.5–9	8–6	5–4	3–2
metric pitch (mm)	0,50–0,75	0,80–1,0	1,25–1,5	1,75–2,0	2,5–3,0	3,5–4,0	4,5–6,0	8,0

thread type	recommended number of passes							
Common V-thread forms ISO, UN, UNJ, NPT, Whitworth, BSPT, API Rotary Shoulder	4–5	5–6	6–8	8–10	9–12	12–15	14–16	15–25
Acme, Trapez, Round, API Round	—	—	5–6	7–8	10–11	12–13	13–15	18–20
Stub Acme, API Buttress	—	—	5	5–6	7–8	8–10	10–12	14–16
American Buttress	—	—	7–8	9–10	11–12	13–15	17–19	22–24

NOTE: Maintain minimum .002" (0,05mm) infeed on last passes to avoid workhardening and excessive abrasion of the threading tool.

Constant Volume Infeed Values for Threading Operations

In most applications, use of CNC canned cycles produces only marginally successful results. This is the case as these programs do not satisfy the .002" (0,05mm) minimum depth of cut specification recommended.

Example:

Infeed per pass formula: accumulated depth = initial DOC x √ # pass

For example, an 8-pitch external thread has a depth of .0789" (2mm).
25% of .0789" (2mm) = approximately .0197" (0,50mm)
(This is the infeed/DOC for the first pass.)

.0197" (0,500mm) x √ 2 = .0278" (0,708mm)

.0278" (0,708) - .0197" (0,500mm) = .0082" (0,207mm)
(This is the infeed/DOC for the second pass.)

.0197" (0,500mm) x √ 3 = .0341" (0,867mm)

.0341" (0,867mm) - .0278" (0,708mm) = .0063" (0,159mm)
(This is the infeed/DOC for the third pass.)

.0197" (0,500mm) x √ 4 = .0394" (1,001mm)

.0394" (1,001mm) - .0341" (0,867mm) = .0053" (0,134mm)
(This is the infeed/DOC for the fourth pass.)

Using Radial Infeed

Bending stress on the cutting edge caused by V-shaped chips from long-chipping steel workpiece materials.

High cutting forces with small cutting thicknesses require sharp edges with high strength.

Its application is recommended for tough and hard, wear-resistant carbides with good resistance to thermal and mechanical shocks.

Using Flank Infeed

Lower bending stress and stabilized cutting edges produce more favorable chip shapes and larger cutting thicknesses.

Carbides with high hardness, good wear resistance, and temperature stability are advantageous.

When turning short threads with short engagement times, there is a good resistance to thermal and mechanical shocks.

Guidelines for Infeeds: How to Determine the Number and the Size of Passes

The number of passes “s” per thread is decisive for successful threading and crest turning. The following tables give standard values for the application condition when machining steel. The proper number of passes must be determined empirically.

If insert breakage occurs, the number of passes must be increased.
With increased wear, we recommend decreasing the number of passes.
The chip thickness should not be less than .0019" (0,05mm).
The allowance at the diameter should not exceed .0078" (0,2mm).

Metric ISO, External Thread Cutting

thread pitch P (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
depth h1	.012	.018	.024	.030	.036	.042	.048	.060	.072	.085	.097	.109	.121
number of passes	4	4	5	6	6	8	8	10	12	14	15	15	16
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.005/-	.007/-	.008/-	.008/-	.01/-	.009/-	.01/-	.009/-	.009/-	.008/-	.008/-	.009/-	.009/-
2	.003/.002	.005/.003	.006/.003	.006/.004	.008/.004	.008/.004	.009/.005	.01/.006	.011/.006	.012/.007	.013/.007	.014/.008	.015/.009
3	.002/.001	.004/.002	.004/.002	.005/.003	.006/.003	.006/.039	.007/.004	.007/.004	.008/.005	.009/.005	.01/.006	.011/.006	.012/.007
4	.002/.001	.003/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004	.007/.004	.008/.005	.009/.005	.01/.006
5			.003/.002	.004/.002	.004/.002	.004/.003	.005/.003	.006/.003	.006/.004	.007/.004	.007/.004	.008/.005	.009/.005
6				.003/.002	.004/.002	.004/.002	.004/.003	.005/.003	.006/0.003	.006/.003	.007/.004	.007/.004	.008/.005
7						.004/.002	.004/.002	.005/.003	.005/0.003	.005/.003	.006/.004	.007/.004	.007/.004
8						.003/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004
9								.004/.002	.004/.003	.005/.003	.005/.003	.006/.003	.006/.004
10								.004/.002	.004/.002	.005/.003	.005/.003	.006/.003	.006/.004
11									.004/.002	.004/.002	.005/.003	.005/.003	.006/.003
12									.004/.002	.004/.002	.005/.003	.005/.003	.006/.003
13										.004/.002	.004/.003	.005/.003	.005/.003
14										.004/.002	.004/.002	.005/.003	.005/.003
15											.004/.002	.005/.003	.005/.003
16													.005/.003

Metric ISO, Internal Thread Cutting

thread pitch P (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
depth h1	.011	.016	.021	.027	.032	.037	.043	.053	.064	.075	.085	.096	.107
number of passes	4	4	5	6	6	8	8	10	11	12	14	15	16
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.004/-	.006/-	.007/-	.008/-	.009/-	.008/-	.01/-	.01/-	.01/-	.011/-	.01/-	.011/-	.011/-
2	.003/.002	.004/.002	.005/.003	.005/.003	.006/.004	.007/.004	.007/.004	.008/.005	.01/.006	.011/.006	.011/.007	.012/.007	.013/.008
3	.002/.001	.003/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004	.008/.005	.009/.005	.009/.005	.01/.006
4	.002/.001	.003/.001	.003/.002	.004/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.004	.007/.004	.007/.004	.008/.005	.009/.005
5			.003/.002	.003/.002	.037/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.004	.006/.004	.007/.004	.008/.004
6				.003/.002	.003/.002	.003/.002	.004/.002	.004/.002	.005/.003	.006/.003	.006/.003	.006/.004	.007/.004
7						.003/.002	.004/.002	.004/.002	.005/.003	.005/.003	.005/.003	.006/.003	.006/.004
8						.003/.002	.003/.002	.004/.002	.004/.002	.005/.003	.005/.003	.005/.003	.006/.003
9								.003/.002	.004/.002	.004/.003	.005/.003	.005/.003	.005/.003
10								.003/.002	.004/.002	.004/.002	.004/.003	.005/.003	.005/.003
11									.004/.002	.004/.002	.004/.002	.005/.003	.005/.003
12										.004/.002	.004/.002	.005/.003	.005/.003
13											.004/.002	.004/.002	.005/.003
14											.004/.002	.004/.002	.004/.003
15												.004/.002	.004/.002
16													.004/.002

UN Thread, External Thread Cutting

TPI	24	20	18	16	14	12	11	10	9	8	7	6	5
depth	.026	.031	.034	.038	.044	.051	.056	.061	.068	.077	.088	.102	.123
number of passes	5	6	6	7	9	9	10	11	12	13	14	15	16
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.008/-	.008/-	.009/-	.009/-	.008/-	.009/-	.009/-	.008/-	.008/-	.008/-	.008/-	.009/-	.009/-
2	.006/.003	.006/.004	.007/.004	.007/.004	.007/.004	.009/.005	.009/.005	.009/.005	.01/.006	.011/.006	.012/.007	.014/.008	.016/.009
3	.004/.003	.005/.003	.005/.003	.006/.003	.006/.003	.007/.004	.007/.004	.007/.004	.008/.004	.008/.005	.009/.005	.01/.006	.012/.007
4	.004/.002	.004/.002	.005/.003	.005/.003	.005/.003	.006/.003	.006/.003	.006/.004	.006/.004	.007/.004	.008/.004	.009/.005	.01/.006
5	.003/.002	.004/.002	.004/.002	.004/.002	.004/.002	.005/.003	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004	.008/.004	.009/.005
6		.003/.002	.004/.002	.004/.002	.004/.002	.004/.003	.005/.003	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004	.008/.005
7				.004/.002	.004/.002	.004/.002	.004/.002	.004/.003	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004
8					.003/.002	.004/.002	.004/.002	.004/.002	.004/.003	.005/.003	.005/.003	.006/.003	.007/.004
9					.003/.002	.004/.002	.004/.002	.004/.002	.004/.002	.004/.003	.005/.003	.006/.003	.006/.004
10							.004/.002	.004/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.004
11								.004/.002	.004/.002	.004/.002	.004/.003	.005/.003	.006/.003
12									.004/.002	.004/.002	.004/.002	.005/.003	.006/.003
13										.004/.002	.004/.002	.005/.003	.005/.003
14											.004/.002	.004/.003	.005/.003
15												.004/.002	.005/.003
16													.005/.003

UN Thread, Internal Thread Cutting

TPI	24	20	18	16	14	12	11	10	9	8	7	6	5
depth	.023	.027	.030	.034	.039	.045	.049	.054	.060	0.68	.077	.090	.108
number of passes	5	6	6	7	8	9	9	10	11	12	13	14	15
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.008/-	.008/-	.009/-	.009/-	.009/-	.009/-	.01/-	.01/-	.01/-	.01/-	.01/-	.011/-	.012/-
2	.005/.003	.009/.003	.006/.004	.006/.004	.007/.004	.007/.004	.008/.005	.009/.005	.009/.005	.01/.006	.011/.006	.012/.007	.014/.008
3	.004/.002	.004/.002	.005/.003	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004	.007/.004	.007/.004	.008/.005	.009/.005	.011/.006
4	.003/.002	.004/.002	.004/.002	.004/.002	.004/.003	.005/.003	.005/.003	.006/.003	.006/.003	.006/.004	.007/.004	.008/.004	.009/.005
5	.003/.002	.003/.002	.003/.002	.004/.002	.004/.002	.004/.002	.005/.003	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004	.008/.005
6			.003/.002	.003/.002	.004/.002	.004/.002	.004/.002	.004/.003	.005/.003	.005/.003	.006/.003	.006/.004	.007/.004
7				.003/.002	.003/.002	.004/.002	.004/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.003	.007/.004
8					.003/.002	.003/.002	.004/.002	.004/.002	.004/.002	.004/.002	.005/.003	.005/.003	.006/.004
9						.003/.002	.003/.002	.004/.002	.004/0.002	.004/.002	.004/.003	.005/.003	.006/.003
10								.003/.002	.004/.002	.004/.002	.004/.002	.005/.003	.005/.003
11									.003/.002	.004/.002	.004/.002	.004/.003	.005/.003
12										.003/.002	.004/.002	.004/.002	.005/.003
13											.004/.002	.004/.002	.005/.003
14												.004/.002	.005/.003
15													.004/.003

NPT Thread, External, and Internal Machining

pitch, Gg/Z	27.0	18.0	14.0	11.5	8.0
depth	.003	.044	.057	.070	.100
number of passes	6	8	10	12	14
	values for flank infeed (X/Z)				
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z
1	.007/-	.009/-	.009/-	.009/-	.01/-
2	.006/.003	.007/.004	.008/.005	.008/.005	.01/.006
3	.005/.003	.006/.003	.007/.004	.007/.004	.01/.006
4	.004/.002	.006/.003	.006/.003	.007/.004	.009/.005
5	.004/.002	.005/.003	.006/.003	.006/.004	.008/.005
6	.003/.002	.005/.003	.005/.003	.006/.003	.008/.004
7		.004/.002	.005/.003	.005/.003	.007/.004
8		.003/.002	.004/.002	.005/.003	.007/.004
9			.004/.002	.005/.003	.007/.004
10			.004/.002	.004/.002	.006/.004
11				.004/.002	.006/.003
12				.004/.002	.005/.003
13					.004/.002
14					.004/.002

BSPT Thread, External, and Internal Machining

pitch, Gg/Z	28	19	14	11
depth	.023	.034	.046	BSPT thread
number of passes	5	6	8	10
	values for flank infeed (X/Z)			
order of passes	X/Z	X/Z	X/Z	X/Z
1	.007/-	.009/-	.009/-	.008/-
2	.005/.003	.007/.004	.008/.004	.01/.005
3	.004/.002	.005/.003	.006/.003	.007/.004
4	.003/.002	.005/.002	.005/.003	.006/.003
5	.003/.002	.004/.002	.005/.002	.005/.003
6		.004/.002	.004/.002	.005/.003
7			.004/.002	.005/.002
8			.004/.002	.004/.002
9				.004/.002
10				.004/.002

Trapezoid Thread to DIN 103, External, and Internal Machining

pitch	1.5	2.0	3.0	4.0	5.0
depth	.004	.049	.069	.089	.108
number of passes	6	8	10	12	14
	values for flank infeed (X/Z)				
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z
1	.009/-	.01/-	.01/-	.01/-	.011/-
2	.007/.002	.009/.002	.01/.003	.011/.003	.012/.003
3	.005/.001	.007/.002	.009/.002	.01/.003	.011/.003
4	.005/.001	.006/.002	.008/.002	.009/.002	.01/.003
5	.004/.001	.005/.001	.007/.002	.008/.002	.009/.002
6	.004/.001	.004/.001	.006/.002	.007/.002	.008/.002
7		.004/.001	.006/.002	.007/.002	.008/.002
8		.004/.001	.004/.001	.006/.002	.007/.002
9			.005/.001	.006/.002	.007/.002
10			.004/.001	.005/.001	.006/.002
11				.005/.001	.006/.001
12				.004/.001	.005/.001
13					.005/.001
14					.004/.001

Round Thread to DIN 405, External, and Internal Machining

pitch, Gg/Z	10	8	6
depth	.052	.064	.085
number of passes	8	10	12
	values for flank infeed (X/Z)		
order of passes	X/Z	X/Z	X/Z
1	.008/-	.009/-	.008/-
2	.008/.002	.008/.002	.01/.003
3	.008/.002	.008/.002	.001/.003
4	.007/.002	.007/.002	.009/.002
5	.006/.002	.007/.002	.008/.002
6	.006/.001	.006/.002	.008/.021
7	.005/.001	.006/.002	.007/.002
8	.004/.001	.005/.001	.006/.002
9		.004/.001	.006/.001
10		.006/.001	.005/.001
11			.004/.001
12			.003/.001

Whitworth, External, and Internal Thread Cutting

pitch, TPI	28	20	19	16	14	12	11	10	9	8	7	6	5
depth	.023	.032	.032	.034	.040	.053	.058	.064	.071	.080	.091	.107	0.128
number of passes	5	6	6	8	8	9	9	10	11	12	14	15	16
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.007/-	.008/-	.009/-	.008/-	.009/-	.009/-	.01/-	.009/-	.009/-	.01/-	.008/-	.008/-	.008/-
2	.005/.003	.007/.004	.007/-	.007/.004	.008/.004	.009/.005	.01/5.236	.01/.005	.011/.006	.012/.006	.013/.007	.014/.007	.017/.009
3	.004/.002	.005/.003	.005/.003	.006/.003	.006/.003	.007/.004	.008/.004	.008/.004	.009/.004	.009/.005	.01/.005	.011/.006	.013/.007
4	.003/.002	.004/.002	.005/.002	.005/.002	.005/.003	.006/.003	.006/.003	.007/.004	.007/.004	.008/.004	.008/.004	.009/.005	.011/.006
5	.003/.002	.004/.002	.004/.002	.006/.002	.005/.002	.005/.003	.006/.003	.006/.003	.006/.003	.007/.004	.007/.004	.008/.004	.009/.005
6		.004/.002	.004/.002	.004/.002	.004/.002	.005/.002	.005/.003	.005/.003	.006/.003	.006/.003	.007/.003	.007/.004	.009/.004
7				.003/.002	.004/.002	.004/.002	.005/.002	.005/.003	.005/.003	.006/.003	.006/.003	.007/.004	.008/.004
8				.003/.002	.004/.002	.004/.002	.004/.002	.005/.002	.005/0	.005/.003	.006/.003	.006/.003	.007/.004
9						.038/.002	.004/.002	.004/.002	.005/.002	.005/.003	.005/.003	.006/.003	.007/.004
10								.004/.002	.004/.002	.005/.002	.005/.003	.005/.003	.006/.003
11									.004/.002	.004/.002	.005/.002	.005/.003	.006/.003
12										.004/.002	.004/.002	.005/.003	.006/.003
13											.004/.002	.005/.003	.006/.003
14											.004/.002	.005/.002	.005/.003
15												.005/.002	.005/.003
16													.005/.003

Multitooth Threads, Internal

	ISO metric						ISO UN					Whitworth	NPT		
type	3M	2M	3M	2M	3M	2M	2M	3M	2M	3M	2M	2M	2M	3M	2M
pitch (mm)	1.0	1.5	1.5	2.0	2.0	3.0	—	—	—	—	—	—	—	—	—
TPI	—	—	—	—	—	—	16	16	12	12	8	11	11.5	11.5	8
total depth	.024	.033	.033	.460	.460	.070	.037	.037	.490	.490	.740	.620	.690	.690	.100
1	.013	.015	.020	.020	.028	.022	.017	.022	.022	.030	.023	.029	.023	.032	.035
2	.011	.010	.013	.015	.018	.019	.012	.015	.016	.019	.020	.019	.020	.022	.025
3	—	.008	—	.011	—	.017	.008	—	.011	—	.017	.014	.014	.015	.022
4	—	—	—	—	—	.012	—	—	—	—	.014	—	.012	—	.018

Recommendations for Steel Workpieces (<300 BHN)

catalog number	insert size	TPI profile	total depth — on radius		
			1st pass	2nd pass	3rd pass
NTC-8R/L8EM	8	8 UN	.048	.064	.079
NTC-8R/L8IM	8	8 UN	.047	.061	.074
NTC-8R/L10EM	8	10 UN	.036	.050	.063
NTC-8R/L10IM	8	10 UN	.035	.048	.060
NTC-8R/L12EM	8	12 UN	.030	.041	.052
NTC-8R/L12IM	8	12 UN	.030	.037	.047
NTC-8R/L14EM	8	14 UN	.027	.037	.044
NTC-8R/L14IM	8	14 UN	.024	.031	.041
NTC-8R/L16EM	8	16 UN	.023	.032	.038
NTC-8R/L16IM	8	16 UN	.020	.027	.037
NTC-8R/L18EM	8	18 UN	.019	.026	.034
NTC-8R/L18IM	8	18 UN	.019	.024	.033
NDC-68RDR/L-75M	8	8 round	.058	.065	.073
NDC-61RDR/L-75M	8	10 round	.044	.051	.057
NDC-88RDRD/L-75M	8	8 round	.051	.069	.073
NDC-88VR/L-75M	8	8 NPT	.040	.068	.096
NDC-8115VR/L-75M	8	11.5 NPT	.038	.054	.067
NDN-814VR/L-75M	8	14 NPT	.038	.048	.054

Recommendations for Steel Workpieces (<300 BHN)

catalog number	insert size	TPI profile	total depth — on radius		
			1st pass	2nd pass	3rd pass
NTC-8R/L8EM	8	8 UN	0.05	0.06	0.08
NTC-8R/L8IM	8	8 UN	0.05	0.06	0.07
NTC-8R/L10EM	8	10 UN	0.04	0.05	0.06
NTC-8R/L10IM	8	10 UN	0.04	0.04	0.06
NTC-8R/L12EM	8	12 UN	0.03	0.04	0.05
NTC-8R/L12IM	8	12 UN	0.03	0.04	0.05
NTC-8R/L14EM	8	14 UN	0.03	0.04	0.04
NTC-8R/L14IM	8	14 UN	0.02	0.03	0.04
NTC-8R/L16EM	8	16 UN	0.02	0.03	0.04
NTC-8R/L16IM	8	16 UN	0.02	0.03	0.04
NTC-8R/L18EM	8	18 UN	0.02	0.03	0.03
NTC-8R/L18IM	8	18 UN	0.02	0.02	0.03
NDC-68RDR/L-75M	8	8 round	0.06	0.06	0.07
NDC-61RDR/L-75M	8	10 round	0.04	0.05	0.06
NDC-88RDRD/L-75M	8	8 round	0.05	0.07	0.07
NDC-88VR/L-75M	8	8 NPT	0.04	0.07	0.10
NDC-8115VR/L-75M	8	11.5 NPT	0.04	0.05	0.07
NDN-814VR/L-75M	8	14 NPT	0.04	0.05	0.05

ACME, External

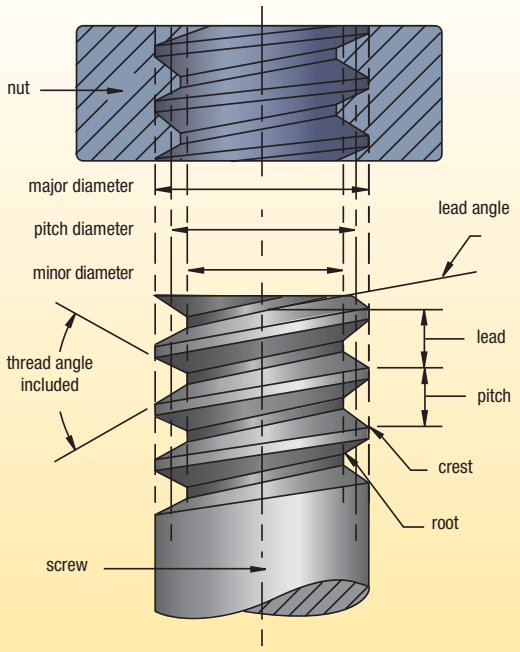
pitch, TPI	28	20	19	16	14	12	11	10	9	8	7	6	5
depth	.023	.032	.032	.034	.040	.053	.058	.064	.071	.080	.091	.107	0.128
number of passes	5	6	6	8	8	9	9	10	11	12	14	15	16
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.039	.041	.050	.063	.074	.095	.112	.138	.180	.265	.008/-	.008/-	.008/-
2	.009	.008	.009	.010	.010	.011	.012	.013	.019	.028	.013/.007	.014/.007	.017/.009
3	.009	.008	.009	.009	.010	.011	.011	.012	.018	.026	.01/.005	.011/.006	.013/.007
4	.007	.007	.007	.009	.009	.010	.010	.011	.016	.023	.008/.004	.009/.005	.011/.006
5	.006	.006	.007	.007	.007	.009	.010	.011	.015	.022	.007/.004	.008/.004	.009/.005
6	.005	.005	.005	.006	.006	.008	.009	.010	.013	.019	.007/.003	.007/.004	.009/.004
7	.003	.004	.005	.005	.005	.007	.008	.010	.011	.017	.006/.003	.007/.004	.008/.004
8		.003	.004	.005	.005	.006	.007	.009	.011	.015	.006/.003	.006/.003	.007/.004
9			.004	.004	.005	.006	.007	.008	.009	.013	.005/.003	.006/.003	.007/.004
10				.004	.005	.006	.007	.008	.009	.013	.005/.003	.005/.003	.006/.003
11				.004	.004	.006	.006	.007	.009	.011	.005/.002	.005/.003	.006/.003
12					.004	.006	.006	.007	.008	.011	.004/.002	.005/.003	.006/.003
13					.004	.005	.006	.006	.007	.010	.004/.002	.005/.003	.006/.003
14						.004	.005	.006	.007	.009	.004/.002	.005/.002	.005/.003
15							.004	.006	.007	.009		.005/.002	.005/.003
16							.004	.006	.006	.008			.005/.003
17								.004	.005	.007	.004/.002	.005/.003	.006/.003
18								.004	.005	.007	.004/.002	.005/.002	.005/.003
19									.005	.006		.005/.002	.005/.003
20										.006			.005/.003

ACME, Internal

pitch, TPI	28	20	19	16	14	12	11	10	9	8	7	6	5
depth	.023	.032	.032	.034	.040	.053	.058	.064	.071	.080	.091	.107	0.128
number of passes	5	6	6	8	8	9	9	10	11	12	14	15	16
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.039	.041	.050	.063	.074	.095	.112	.138	.180	.265	.008/-	.008/-	.008/-
2	.009	.008	.009	.010	.010	.011	.012	.013	.019	.028	.013/.007	.014/.007	.017/.009
3	.009	.008	.009	.009	.010	.011	.011	.012	.018	.026	.01/.005	.011/.006	.013/.007
4	.007	.007	.007	.009	.009	.010	.010	.011	.016	.023	.008/.004	.009/.005	.011/.006
5	.006	.006	.007	.007	.007	.009	.010	.011	.015	.022	.007/.004	.008/.004	.009/.005
6	.005	.005	.005	.006	.006	.008	.009	.010	.013	.019	.007/.003	.007/.004	.009/.004
7	.003	.004	.005	.005	.005	.007	.008	.010	.011	.017	.006/.003	.007/.004	.008/.004
8		.003	.004	.005	.005	.006	.007	.009	.011	.015	.006/.003	.006/.003	.007/.004
9			.004	.004	.005	.006	.007	.008	.009	.013	.005/.003	.006/.003	.007/.004
10				.004	.005	.006	.007	.008	.009	.013	.005/.003	.005/.003	.006/.003
11				.004	.004	.006	.006	.007	.009	.011	.005/.002	.005/.003	.006/.003
12					.004	.006	.006	.007	.008	.011	.004/.002	.005/.003	.006/.003
13					.004	.005	.006	.006	.007	.010	.004/.002	.005/.003	.006/.003
14						.004	.005	.006	.007	.009	.004/.002	.005/.002	.005/.003
15							.004	.006	.007	.009		.005/.002	.005/.003
16							.004	.006	.006	.008			.005/.003
17								.004	.005	.007	.004/.002	.005/.003	.006/.003
18								.004	.005	.007	.004/.002	.005/.002	.005/.003
19									.005	.006		.005/.002	.005/.003
20										.006			.005/.003

Screw Thread Definitions

1. **Major diameter —** The largest diameter of a straight screw thread. This applies to both internal and external threads.
2. **Pitch diameter —** On a straight thread, it is the diameter which passes through the thread profiles at such points which make the thread width of the groove equal to one-half of the basic pitch. On a "perfect thread," this occurs at the point where the widths of the thread and groove are equal.
3. **Thread angle (included) —** The included angle between the individual flanks of the thread form.
4. **Minor diameter —** The smallest diameter of a straight screw thread. This applies to both internal and external threads.
5. **Lead angle —** On a straight thread, the lead angle is the angle created by the helix of the thread at the pitch diameter with a plane perpendicular to the axis.
6. **Lead —** The distance a screw thread advances axially in one revolution. On a single start, the pitch and lead are identical. The lead is equal to the pitch times the number of starts.
7. **Pitch —** The distance from a point on a screw thread to a corresponding point on the next thread measured parallel to the thread axis.
8. **Crest —** The outer most surface of the thread form which joins the flanks.
9. **Root —** The inner most surface of the thread form which joins the flanks.

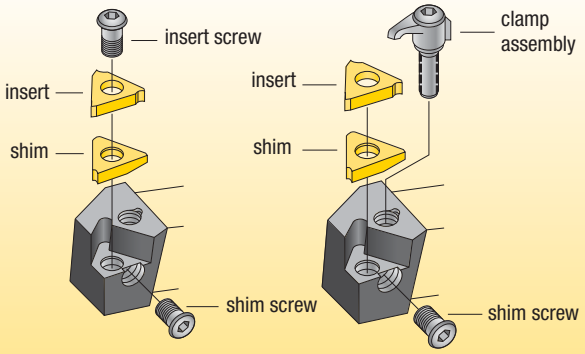


NOTE: Threads per inch (TPI) not shown:
The number of threads per inch measured axially.
The terms pitch and TPI are often used interchangeably.
TPI = 1/pitch

LT Threading Toolholders

In all cases, the proper shim selection is important.

Kennametal toolholders are supplied with a shim for a 1.5° lead angle. Change the shim if your thread is more than 1° different. For more details on proper shim selections, see pages E105–E107.



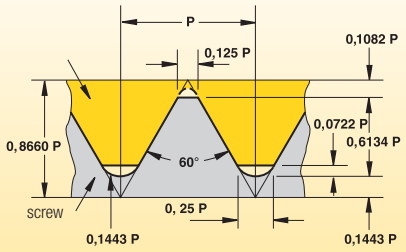
LT Threading Shim Catalog Numbering System

1-1/4	8	UNX	2	A	LH	(21)
Thread Size	Number of threads per inch	Thread form, series, and tolerance formulation symbol	Thread Class **1** = Allowance and tolerance **2** = Allowance and tolerance **3** = Tolerance only **4** = Interference fit	**A** = External thread **B** = Internal thread	**LH** = Left-hand thread (threads are right hand unless specified	Thread Gaging System **21** = **22** = Per ANSI B1.3 **23** =

NOTE: For shims and shim kits, see pages E105–E107.

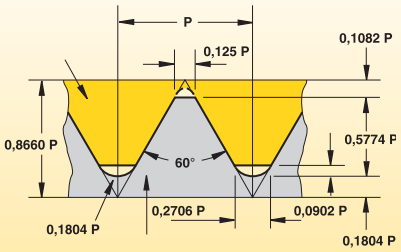
Common Thread Forms

ISO M (Metric) and UN (Unified National)



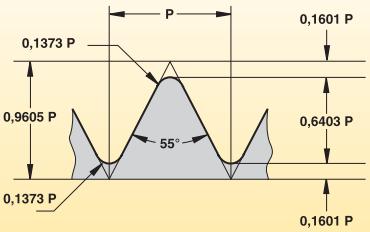
Use: All branches of mechanical industry.

UNJ (controlled root radius)



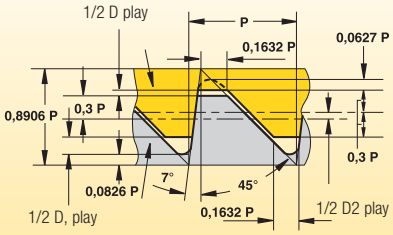
Use: Aircraft and space industry.

Whitworth (BSW)



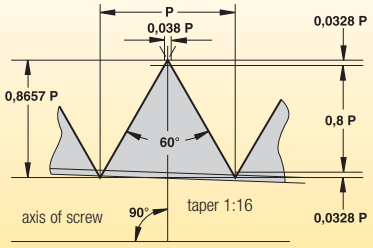
Use: Fittings and pipe couplings for gas, water, and sewer lines (replaced by ISO).

American Buttress



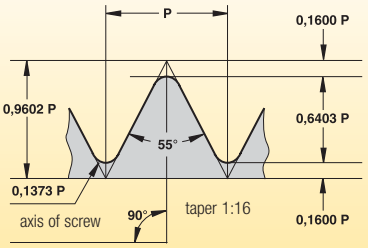
Use: Fittings and pipe couplings.

NPT (American National Pipe Thread)



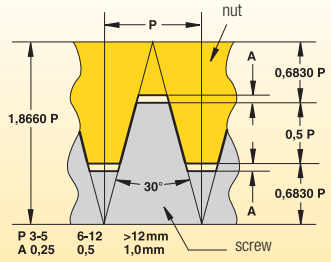
Use: Fittings and pipe couplings.

BSPT (British Standard Pipe Thread)



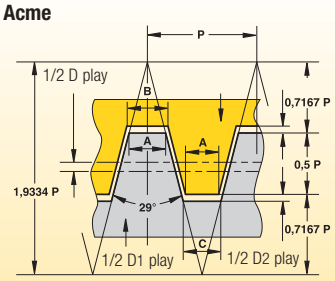
Use: Pipe thread for steam, gas, and water lines.

TR DIN 103



Use: Mechanical industry for motion transmission screws.

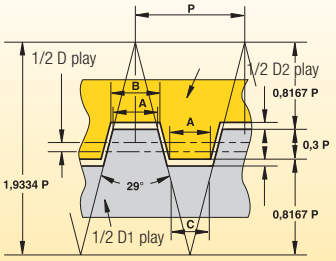
Acme



A = 0,0307 P
B = 0,3707 P—x D play
C = 0,3707 P—(D1 play—D2 play)

Use: Acme-General is used in mechanical industry for motion transmission screws.

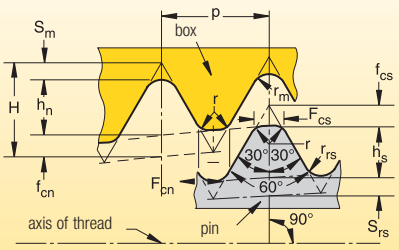
Acme, truncated (Stub)



A = 0,4224 P
B = 0,4224 P—x D play
C = 0,4224 P—(D1 play—D2 play)

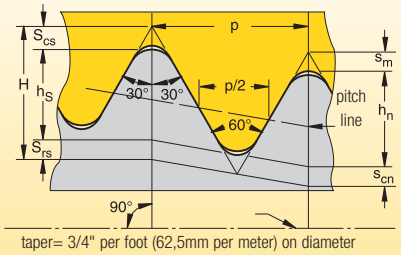
Use: Where normal Acme is too deep.

API Rotary Shoulder Connection



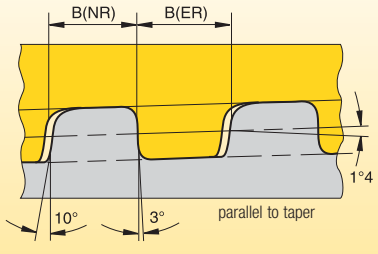
NOTE: Taper shown exaggerated.

API Casing and Tubing Round Thread Form



NOTE: Taper shown exaggerated.

API Buttress



Threading

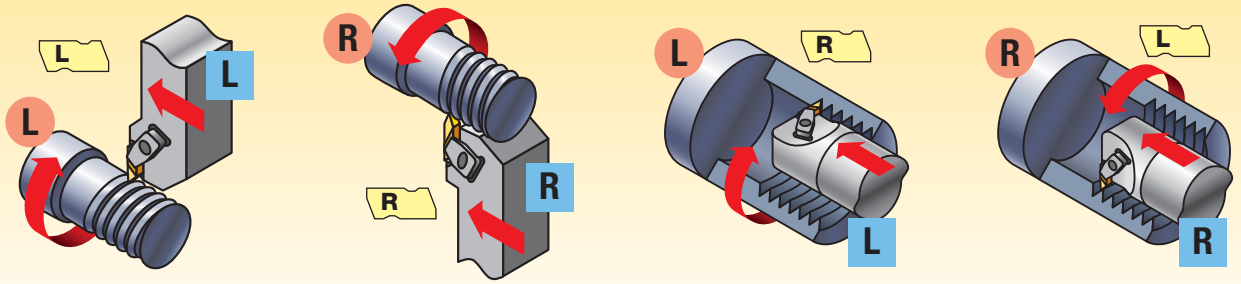
Threading Method and Hand of Tooling

Required Information:

- External/internal operation.
- Spindle rotation/hand of thread.
- Feed direction.

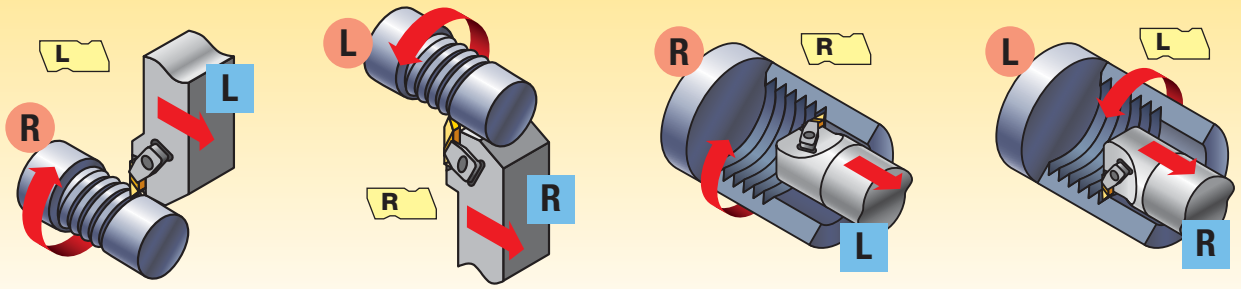
hand of thread | hand of toolholder | hand of insert

Feed Direction Toward the Chuck • Standard Helix



external left-hand thread | external right-hand thread | internal left-hand thread | internal right-hand thread

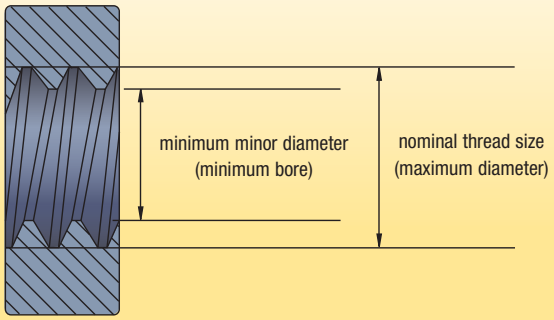
Feed Direction Away from the Chuck • Reverse Helix



external right-hand thread | external left-hand thread | internal right-hand thread | internal left-hand thread

NOTE: Top Notch threading bars require opposite hand insert and clamp.
Right-hand bar requires left-hand insert and clamp.
Left-hand bar requires right-hand insert and clamp.

The following charts list the largest thread pitch that can be applied on internal applications using Top Notch threading inserts for 60° V-threading and Acme threading.



Inch-Sized 60° V-Threading Limits

internal threading limitations
NT-1, NT-2 V-threading inserts

TPI	nominal thread size		minimum minor diameter (inch)	
	NT-1	NT-2	NT-1	NT-2
6	1-7/8	—	1.695	—
7	1-3/4	—	1.595	—
8	1-5/8	—	1.490	—
9	1-9/16	—	1.442	—
10	1-1/2	15/16	1.392	.830
11	1-7/16	15/16	1.339	.830
11-1/2	1-3/8	15/16	1.281	.830
12	1-3/8	9/16	1.285	.472
13	1-5/16	9/16	1.229	.472
14	1-1/4	9/16	1.173	.472
16	1-1/4	9/16	1.182	.472
18	1-1/8	9/16	1.065	.472
20	1-1/8	1/2	1.071	.440
24*	1-1/16	1/2	1.017	.440

*Twenty-four threads per inch and finer can be cut with an NT-2 insert provided the minor diameter is 1.000" or larger (.440" or larger with NT-1).

internal threading limitations
NT-3, NT-4 V-threading inserts

TPI	nominal thread size	minimum minor diameter (inch)
4**	3	2.729
4-1/2**	2-7/8	2.634
5	2-3/4	2.534
6	2-1/2	2.320
7	2-1/4	2.095
8	2	1.865
9	1-15/16	1.817
10	1-7/8	1.767
11	1-13/16	1.714
11-1/2	1-3/4	1.656
12	1-3/4	1.660
13	1-5/8	1.542
14	1-9/16	1.485
16*	1-7/16	1.370

*Sixteen threads per inch and finer can be cut provided minor diameter is 1.370" or larger.
**NT-4 insert only.

Metric-sized 60° V-Threading Limits

internal threading limitations
NT-1, NT-2 60° V-threading inserts

TPI	nominal thread size		minimum thread diameter (mm)	
	NT-1	NT-2	NT-1	NT-2
4,00	M48 x 4.00	—	43,67	—
3,00	M42 x 3.00	—	38,75	—
2,50	M39 x 2.50	M24 x 2,50	36,29	21,29
2,00	M33 x 2.00	M15 x 2,00	30,84	12,84
1,75	M32 x 1.75	M15 x 1,75	30,11	13,11
1,50	M32 x 1.50	M15 x 1,50	30,38	13,38
1,25	M29 x 1.29	M14 x 1,25	27,65	12,65
1,00*	M27 x 1.00	M14 x 1,00	25,92	12,92
0,75	M22 x 0.75	M12 x 0,75	21,19	11,19

*Thread pitch of 1mm and less can be cut with an NT-2 insert provided the core thread diameter is 25mm or larger (11mm or larger with NT-1).

internal threading limitations
NT-3, NT-4 60° V-threading inserts

TP	nominal thread size	minimum thread diameter (mm)
6,00**	M76 x 6.00	69,50
5,50**	M73 x 5.50	67,05
5,00	M70 x 5.00	64,59
4,00	M64 x 4.00	59,67
3,00	M52 x 3.00	48,75
2,50	M48 x 2.50	45,29
2,00	M42 x 2.00	39,84
1,75	M40 x 1.75	38,11
1,50*	M38 x 1.50	36,38

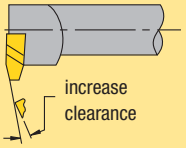
*Thread pitch of 1,5mm and less can be cut provided core thread diameter is 35mm or larger.
**NT-4-insert only.

Acme Threading Limits

internal threading limitations
NA and NAS-2, -3, -4, and -6 Acme threading inserts

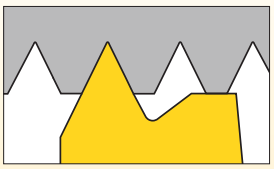
TPI	nominal thread size	minimum thread diameter	
		NT-1	NT-2
2**	5	4.500	114,3
2-1/2**	4-1/2	4.100	104,1
3**	4	3.665	93,1
4	3-1/2	3.250	82,6
5	3	2.800	71,1
6	2-1/2	2.333	59,3
8	2-1/4	2.125	54,0
10	2	1.900	48,3
12	1-3/4	1.667	42,4
14	1-5/8	1.554	39,5
16*	1-1/2	1.438	36,5

*Sixteen threads per inch and finer can be cut provided minor diameter is 36,5mm (1.438") or larger.
**NA-6 insert only.



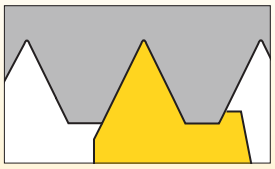
Additional secondary clearance can be ground on leading edge of insert to provide sufficient helical clearance for machining coarser threads and multistart threads. Modified standard inserts may be furnished for machining threads outside of the limits shown.

60° V-Thread Crest Turning Application Data



feed direction

NTC crest turning insert for 12 threads per inch and finer (P ≤2mm)



feed direction

NTC crest turning insert for 11 threads per inch and coarser (P ≥3mm)

"J" thread note for catalog

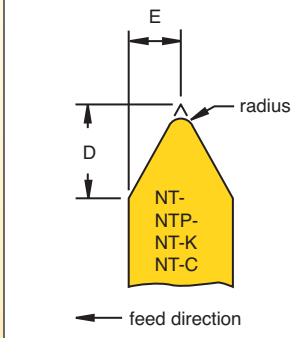
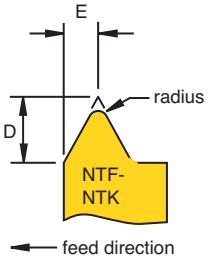
The controlled root radius thread form (SAE8879C) is defined for the external thread only. To machine the corresponding internal thread, choose any insert that will cut a unified class 2B thread, then bore the minor diameter to size. Refer to SAE8879C and MIL-S-8879C and SAEAS8879D for the correct "J" thread minor diameter values.

Controlled Root Radius Specifications for UNJ Threads

insert catalog number	nose radius on insert	thread radius per MIL-S-8879A
NJ-3020R/L8 NJP-3020R/L8	.0188/.0198	.0188/.0226
NJ-3014R/L12 NJP-3014R/L12	.0125/.0135	.0125/.0150
NJ-3010R/L16 NJP-3010R/L16	.0094/.0104	.0094/.0113
NJF-3012R/L14 NJK-3012R/L14	.0107/.0117	.0107/.0129
NJF-3010R/L16 NJK-3010R/L16	.0094/.0104	.0094/.0113
NJF-3009R/L18 NJK-3009R/L18	.0083/.0093	.0083/.0100
NJF-3008R/L20 NJK-3008R/L20	.0075/.0085	.0075/.0090
NJF-3007R/L24 NJK-3007R/L24	.0063/.0073	.0063/.0075
NJF-3006R/L28 NJK-3006R/L28	.0054/.0064	.0054/.0064
NJF-3005R/L32 NJK-3005R/L32	.0047/.0056	.0047/.0056

NOTE: NTC inserts automatically control root to crest dimensions. Therefore, in setting up threading operations with NTC inserts, check the O.D. or I.D. at the thread crest for correct dimensions.

60° V-Thread Application Data

insert description	insert	D** (inch)	E** (inch)	recommended TPI* external	recommended TPI* internal	recommended TP* external	recommended TP* internal
	NT-1	.075	.044	—	24–12	—	1,00–2,00
	NT-2	.113	.075	36–8	20–7	0,70–3,00	1,25–3,50
	NT-2-K	.113	.075	36–8	20–7	0,70–3,00	1,25–3,50
	NTF-2	.062	.040	44–14	24–12	0,60–1,75	1,00–2,00
	NTK-2	.062	.040	44–14	24–12	0,60–1,75	1,00–2,00
	NTP-2	.113	.075	36–8	20–7	0,70–3,0	1,25–3,50
	NT-3	.148	.097	20–6	12–5	1,25–4,00	2,00–5,00
	NT-3-K	.148	.097	20–6	12–5	1,25–4,00	2,00–5,00
	NT-3-C	.148	.097	11–6	6 (only)	2,50–4,00	4,00 (only)
	NT-3-CK	.148	.097	11–6	6 (only)	2,50–4,00	4,00 (only)
	NTF-3	.083	.054	44–10	24–9	0,60–2,50	1,00–2,50
	NTK-3	.083	.054	44–10	24–9	0,60–2,50	1,00–2,50
	NTP-3	.148	.097	20–6	12–5	1,25–4,00	2,00–5,00
	NT-4	.196	.127	20–4	12–4	1,25–6,25	2,00–6,25
	NT-4-K	.196	.127	20–4	12–4	1,25–6,25	2,00–6,25
	NT-4-C	.196	.127	11–4-1/2	6–4-1/2	2,50–5,50	4,00–5,50
	NT-4-CK	.196	.127	11–4-1/2	6–4-1/2	2,50–5,50	4,00–5,50
	NTF-4	.083	.054	44–10	24–9	0,60–2,50	1,00–2,50
	NTK-4	.083	.054	44–10	24–9	0,60–2,50	1,00–2,50
	NTP-4	.196	.127	20–4	12–4	1,25–6,25	2,00–6,25

*Based on maximum insert radius size and class 2A and 2B thread specifications.
**For metric D and E dimensions, multiply by 25,4.

API Thread Forms • Insert Applications Chart for API Rotary Shouldered Connections

thread form	Kennametal insert		tool joint application	minimum box size*
	cresting	non-cresting		
V-.038R 2" TPF 4 TPI	NDC-4038R/L2 4-E/IR4API382	ND-3038R/L	2-3/8 API internal flush 2-7/8 API internal flush 3-1/2 API internal flush 4 API internal flush 4-1/2 API internal flush 5-1/2 API internal flush 6-5/8 API internal flush 4 API full hole API #23, API #26, API #31, API #35, API #38, API #40, API #44, API #46, API #50	API #31 2-7/8 IF
V-.038R 3" TPF 4 TPI	NDC-4038R/L3 4-E/IR4API383	ND-3038R/L	API #56 API #61 API #70 API #77	API #56
V-.050 2" TPF 4 TPI	NDC-4050R/L2 4-E/IRAPI502	ND-4050R/L	5-1/2 API full hole 6-5/8 API regular 6-5/8 API full hole	5-1/2 API full hole
V-.050 3" TPF 4 TPI	NDC-4050R/L3 4-E/IR4API503	ND-4050R/L	5-1/2 API regular 7-5/8 API regular 8-5/8 API regular	5-1/2 API regular
V-.040 3" TPF 5 TPI	NDC-3040R/L3 NDC-4040R/L3 4-E/IR5API403	ND-3040R/L ND-4040R/L	2-3/8 API regular 2-7/8 API regular 3-1/2 API regular 4-1/2 API regular	3-1/2 API regular

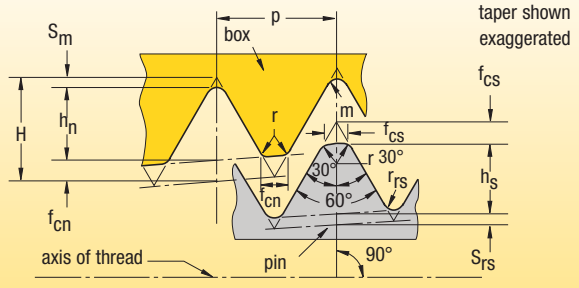
*Minimum box size that can be threaded with a standard Top Notch insert due to minimum bore equipment.

API Thread Forms • Product Thread Dimensions • Rotary Shouldered Connections (Inch)

thread form	taper inch per ft	thread height, not truncated H	thread height, truncated $h_n=h_s$	root truncation $S_m=S_{rs}$ $f_m=f_{rs}$	crest truncation $f_{cn}=f_{cs}$	width of flat		root radius $r_m=r_{rs}$	radius at thread corners r	pitch p
						crest $f_{cn}=f_{cs}$	crest $f_m=f_{rs}$			
V-.038R	2	.216005	.121844	.038000	.056161	.065	—	.038	.015	.250
V-.038R	3	.215379	.121381	.038000	.055998	.065	—	.038	.015	
V-.040	3	.172303	.117842	.020000	.034461	.040	—	.020	.015	.250
V-.050	3	.215379	.147303	.025000	.043076	.050	—	.025	.015	
V-.050	2	.216005	.147804	.025000	.043201	.050	—	.025	.015	.250

NOTE: All dimensions in inches.

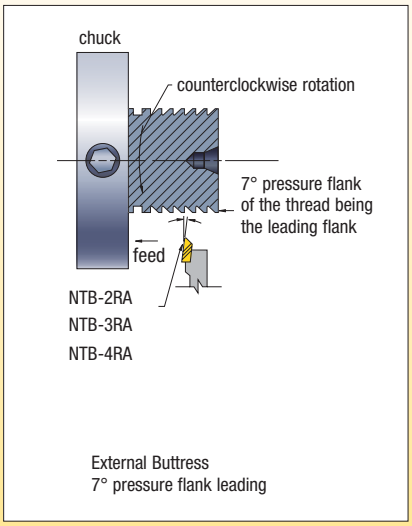
V-.040 and V-.050 Product Thread Form

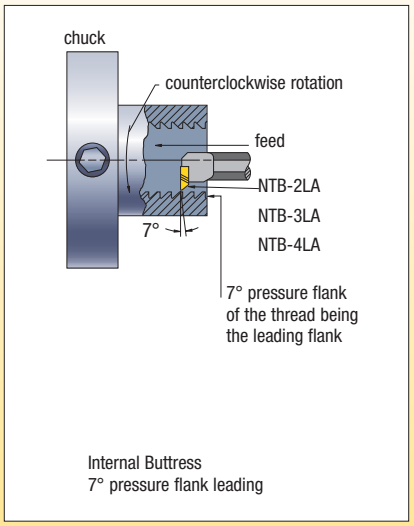


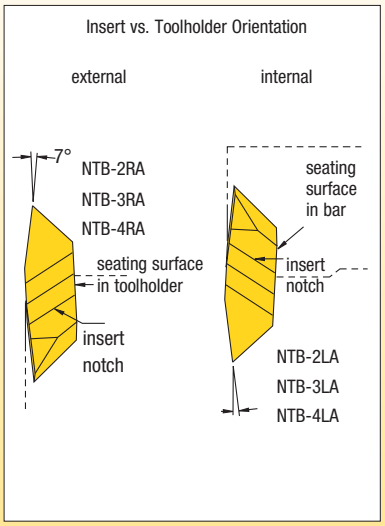
Casing and Tubing Round Thread (Height Dimensions)

thread element		10 TPI p=.1000	8 TPI p=.1250
H	=.866p	.08660	.10825
$H_s = h_n$	=.626p-.007	.05560	.07125
$S_{rs} = S_m$	=.120p+.002	.01400	.01700
$S_{cs} = S_{cn}$	=.120p+.005	.01700	.02000

American Buttress (7° Pressure Flank Leading) NTB-A Inserts • Push Type

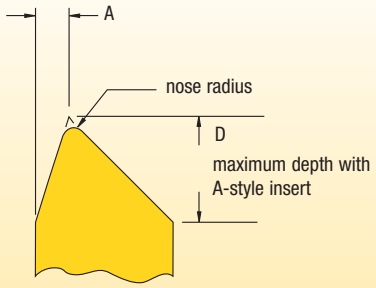




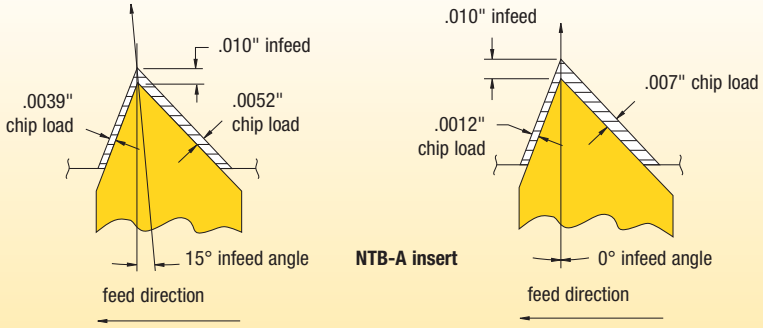


Threading

Reference Dimensions



Infeed Angle vs. Chip Load: 7° Pressure Flank Leading



insert	D (inch)	A (inch)	nose radius (inch)	pitch based on maximum radius
NTB-2A	.133	.024	.002–.004	16–20 TPI
NTB-3A	.171	.031	.005–.008	8–16 TPI
NTB-4A	.218	.049	.008–.012	4–6 TPI

NOTE: For balanced chip load, 15° infeed angle is suggested.

Internal Threading Limitations

internal threading limitations
NTB-2A Buttress threading inserts

TPI	nominal thread size	minimum minor diameter (inch)
8	1-3/4	1.600
10	1-5/8	1.505
12	1-1/2	1.400
16	1-1/4	1.175
20	1-1/16	1.002

internal threading limitations
NTB-3 and NTB-4A Buttress threading inserts

TPI	nominal thread size	minimum minor diameter (inch)
4*	2-1/2	2.200
5	2-1/4	2.010
6	2	1.800
8	1-3/4	1.600
10	1-5/8	1.505
12**	1-1/2	1.400

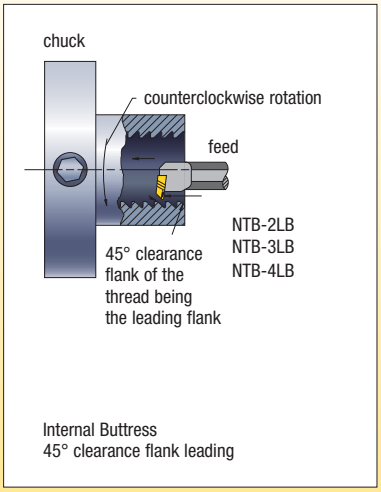
*NTB-4A insert only.
**Can cut 16 or 20 threads per inch provided minor diameter is 1.375" or larger.

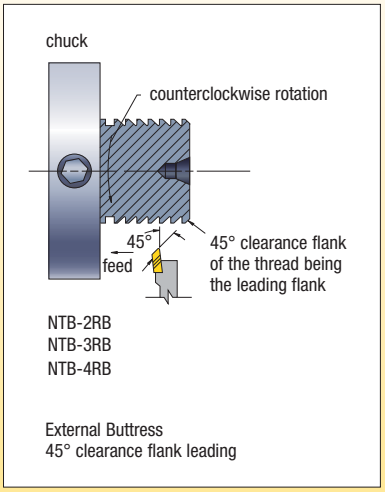
Threads per Inch vs. Maximum Root Radius Chart (Inch)

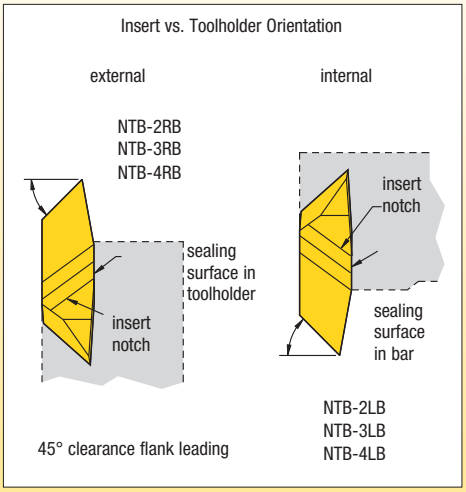
TPI	20	16	12	10	8	6	5	4	3	2-1/2	2	1-1/2	1-1/4	1
maximum root radius	.0036	.0045	.0059	.0071	.0089	0.119	.0143	.0179	.0238	.0286	0.375	.0476	.0572	.0714

NOTE: Special Buttress forms are available upon request.

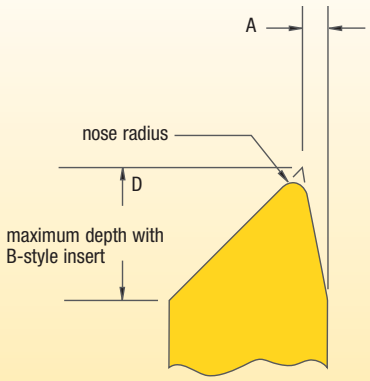
American Buttress (45° Clearance Flank Leading): NTB-B Inserts • PULL-type



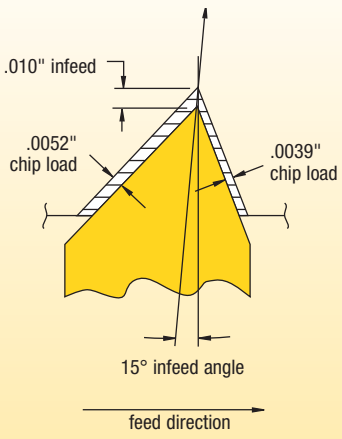


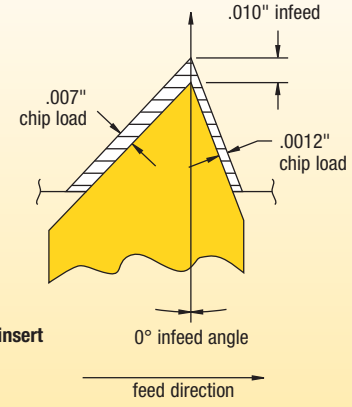


Reference Dimensions



Infeed Angle vs. Chip Load: 45° Clearance Flank Leading





NTB-B insert

insert	D (inch)	A (inch)	nose radius (inch)	pitch based on maximum radius
NTB-2B	.133	.024	.002–.004	16–20 TPI
NTB-3B	.171	.031	.005–.008	8–16 TPI
NTB-4B	.218	.049	.008–.012	4–6 TPI

NOTE: For balanced chip load, a reverse 15° infeed angle is suggested.

Internal Threading Limitations

internal threading limitations
NTB-2B Buttress threading inserts

TPI	nominal thread size	minimum minor diameter (inch)
8	1-3/4	1.600
10	1-5/8	1.505
12	1-1/2	1.400
16	1-1/4	1.175
20	1-1/16	1.002

internal threading limitations
NTB-3 and NTB-4B Buttress threading inserts

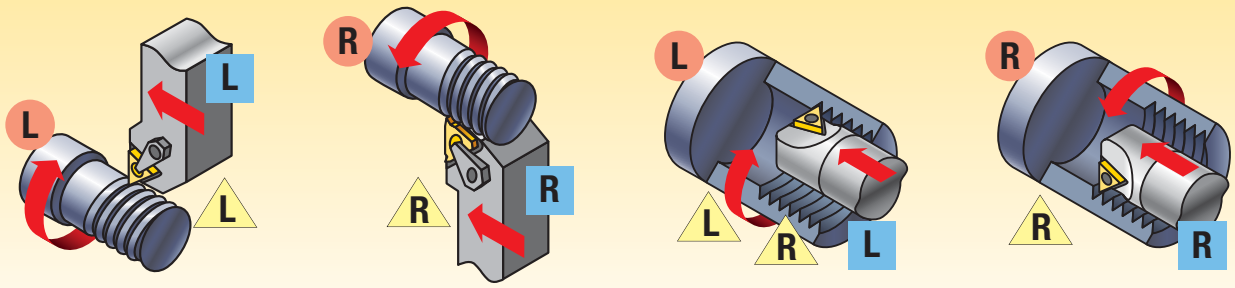
TPI	nominal thread size	minimum minor diameter (inch)
4*	2-7/8	2.575
5	2-3/4	2.510
6	2-3/8	2.175
8	2-1/8	1.975
10	1-7/8	1.755
12	1-5/8	1.525
16	1-1/2	1.407
20	1-7/16	1.378

*NTB-4B insert only.

Required Information:

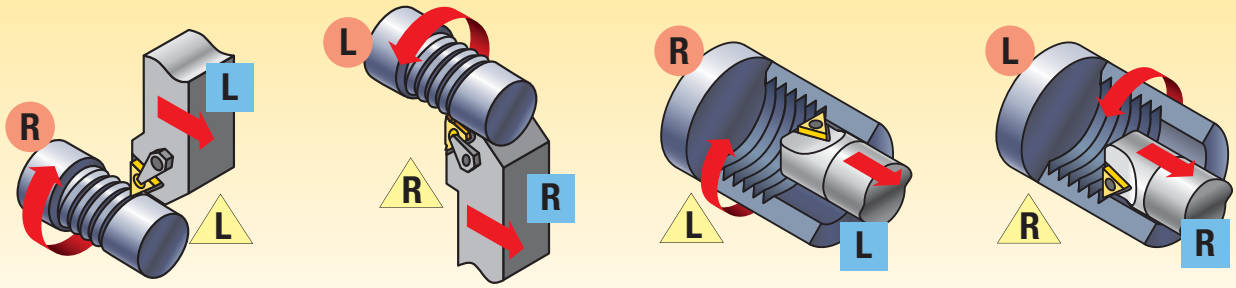
- External/internal operation.
- Spindle rotation/hand of thread.
- Feed direction.

Feed Direction Toward the Chuck • Standard Helix



external left-hand thread | external right-hand thread | internal left-hand thread | internal right-hand thread

Feed Direction Away from the Chuck • Reverse Helix



external right-hand thread | external left-hand thread | internal right-hand thread | internal left-hand thread

NOTE: Right-hand toolholders and bars use right-hand inserts.
Left-hand toolholders and bars use left-hand inserts.

External Threading Operation Example

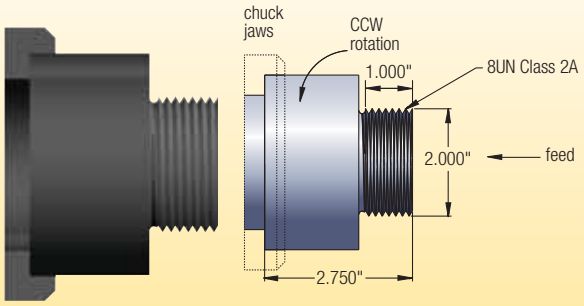
Required Information

From Part Drawing:

material: 316SS, 200 HB
thread form: 8UN Class 2A
operation: external threading
pitch diameter: 2.00" x 1.00" deep

From Machine Setup Data:

tooling: .750" x .750"
spindle rotation: counterclockwise
feed: toward chuck

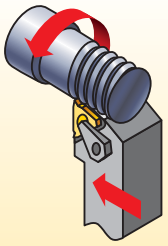


Steps for a Successful Threading Operation

Step 1 • Determine Threading Method

Need to Know:

- Operation (external).
- Spindle rotation (CCW).
  Counterclockwise rotation.
- Feed direction (toward chuck).
- Right-hand toolholder.
- Right-hand insert (ER).
- Standard helix method.



Step 2 • Select Insert

Need to Know:

- Thread form (8 UN Class 2A).
- Hand of insert (right hand — ER).

Choose the High-Performance Solution

catalog number	insert size	KC5010
3ER8UN	3"	●

High-Performance Selection

NOTE: Use insert with largest IC available.

insert: LT-16ER-8UNCB
grade: KC5010
speed: 500 SFM

Step 3 • Select the Grade and Speed

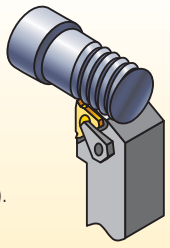
Need to Know:

- Workpiece material (316SS-200HB).
- Operation (external).

Options: Grade and Speed Selection Guidelines

threading operation	stainless steel	
external	general purpose	style
	KC5025	CB
	150–450 SFM	
	high-performance	style
	KC5010	CB
	200–650 SFM	

Step 4 • Select Toolholder



Need to Know:

- External or internal operation (external).
- Pitch diameter to determine minimum bore diameter (N/A).
- Type of tooling — toolholder, boring bar (toolholder).
- Hand of tool (right hand).
- Insert size (3/8").

Options:

catalog number	gage insert	shim
LSASR-123	LT-16ER	SM–YE3
LSSR-123	LT-16ER	SM–YE3

First choice: LSASR-123 holder

Step 5 • Select Shim

Need to Know:

- Thread form — TPI or pitch (8 TPI).
- Pitch diameter (2").
- Helix method (standard).
  See LT shim selection chart.

Select SM-YE3 shim

NOTE: The SM-YE3 shim is supplied with the selected toolholder.

NOTE: Optimize your operation by using a constant infeed or the constant volume method with a minimum infeed of .005 and an infeed angle of 29-1/2°.

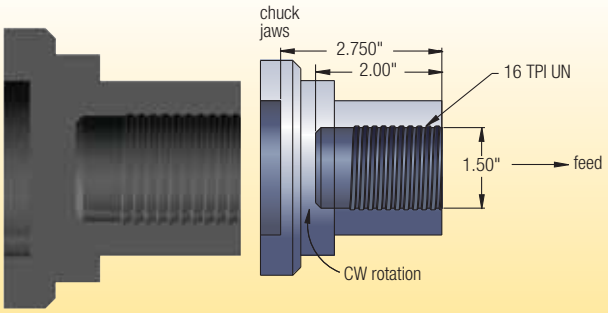
Required Information

From Part Drawing:

material: 4140 steel
thread form: 16 TPI UN
operation: internal threading
pitch diameter: 1.5" x 2" deep

From Machine Setup Data:

tooling: .075" boring bar
spindle rotation: clockwise
feed: away from chuck

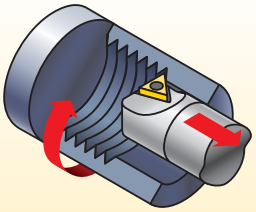


Steps for a Successful Threading Operation

Step 1 • Determine Threading Method

Need to Know:

- Operation (internal).
- Spindle rotation (CW).
  Clockwise rotation.
- Feed direction (away from chuck).
- Left-hand toolholder.
- Left-hand insert (NL).
- Reverse helix method.



Step 2 • Select Insert

Need to Know:

- Thread form (16UN Class 2A).
- Hand of insert (left hand — NL).

Choose the High-Performance Solution

catalog number	insert size	KC5025
LT-11NL-16UN	1/4"	●
LT-16NL-16UN	3/8"	●

High-Performance Selection

NOTE: Use insert with largest possible IC to go into the bore.

insert: LT-16NL-16UN
grade: KC5025
speed: 450 SFM

Step 3 • Select the Grade and Speed

Need to Know:

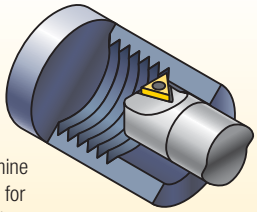
- Workpiece material (4010 steel).
- Operation (internal).

Options: Grade and Speed Selection Guidelines

threading operation	steel
internal	general purpose and high performance
	KC5025
	100–550 SFM

Optimize your operation by using a constant infeed or the constant volume method with a minimum infeed of .005 and an infeed angle of 29-1/2°.

Step 4 • Select Toolholder



Need to Know:

- External or internal operation (internal).
- Pitch diameter to determine minimum bore diameter for internal operations (1.5").
- Type of tooling — toolholder, boring bar (boring bar).
- Hand of tool (left hand).
- Insert size (3/8").

Options:

catalog number	insert size	minimum bore diameter	shim
S1212-LSEL3	3"	.90	SM-YE3
S0812-LSEL2	2"	.65	—

First choice: S1212-LSEL3 bar

Step 5 • Select Shim

Need to Know:

- Thread form — TPI or pitch (16 TPI).
- Pitch diameter (1.5").
- Helix method (reverse).
  See LT shim selection chart.

Select SM-YE3-2N shim

NOTE: Shim supplied with selected boring bar is not correct; order correct shim.

LT Threading Shim Selection Guidelines

The following questions must be answered before a successful threading operation can begin:

A — Select your method of thread cutting:
- Machining toward the chuck (standard helix).
- Machining away from the chuck (reverse helix).

B — Select lead angle and choose shim.

C — Select insert and toolholder size.

D — Select insert grade.

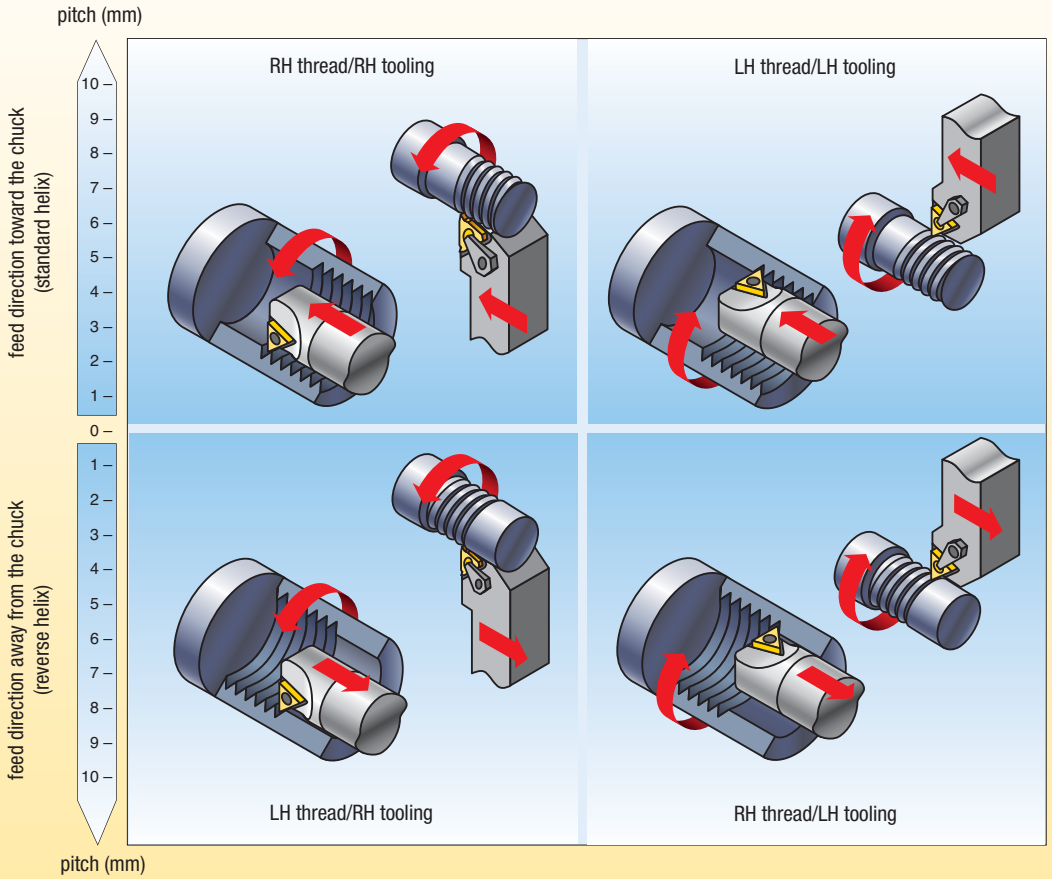
E — Select speed.

F — Select number of thread passes.

G — Select infeed method.

NOTE: When considering method of thread cutting, the part's shape and stability and the flow of chips are determining factors in your decision.

LT Selection Chart



NOTE: For multistart threads, use the lead value instead of the pitch.

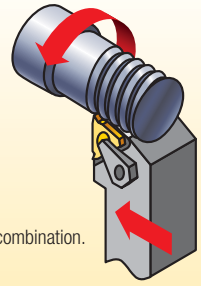
Diagram of Thread Lead Angles

To calculate the lead angle of a given thread, use this formula:

$$\beta = \text{Arctan}\ \frac{P \bullet S}{\pi\ D_e}$$

ß = thread lead angle
De = effective pitch diameter of thread wear
P = 1/TPI
TPI = threads per inch
S = number of starts
single-start, lead = pitch
multistart, lead = pitch (x) number of starts

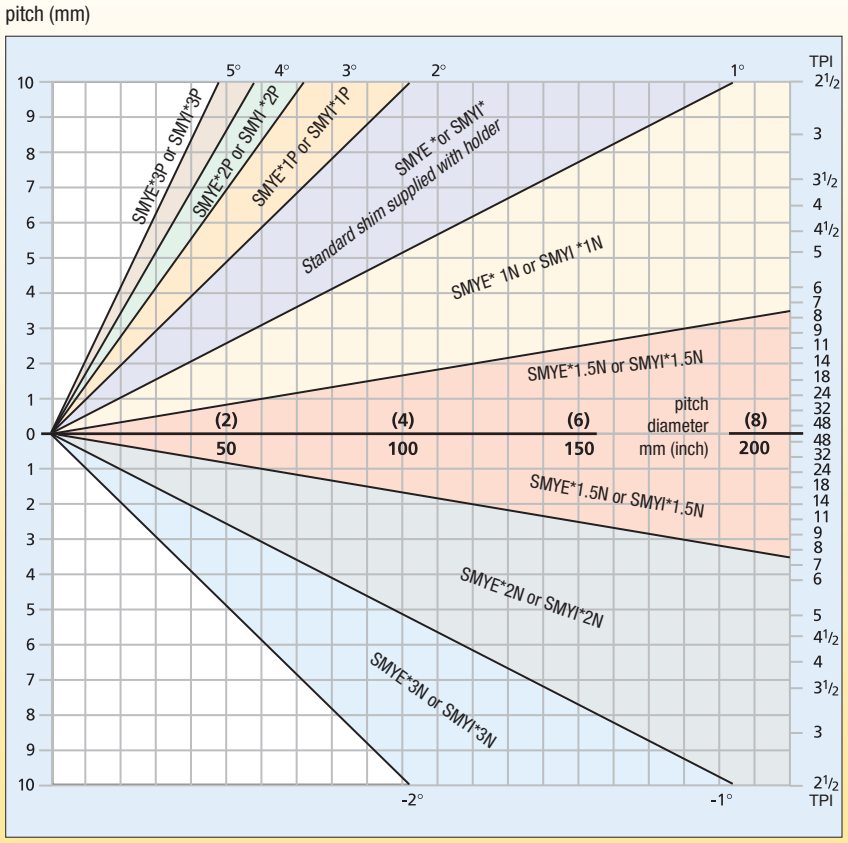
NOTE: Arctan equals Tan-1 (see chart below for approximate lead angles).



All toolholders are designed with an inclination angle = 1.5°. When turning standard threads with a lead angle of 1–2°, this guarantees adequate clearance at the flanks of the insert's thread tooth. The thread lead angle and the required inclination angle of the insert are given by ß.

Cutting edge height is constant at every shim and insert combination. All toolholders are supplied with 1-1/2° lead angle.

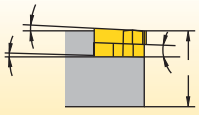
LT Selection Chart



*denotes shim size: 3 = insert size 16 (3/8" D)
4 = insert size 22 (1/2" D)

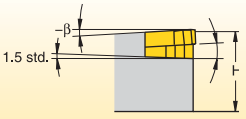
Standard Helix Method:

Used when RH thread is cut with RH tool or LH thread with LH tool.



Reverse Helix Method:

Used when RH thread is cut with LH tool or when LH thread is cut with RH tool. Dimension "H" is constant at every shim and insert combination. All toolholders are supplied with 1.5º lead angle.



LT Threading Shim Selection Table • Inch

	toolholder		shim ordering code (inch)							
insert size	external	internal				standard				
LT-16 (3/8")	RH	LH	SM–YE3–3P	SM–YE3–2P	SM–YE3–1P	SM–YE3	SM–YE3–1N	SM–YE3–1.5N	SM–YE3–2N	SM–YE3–3N
LT-16 (3/8")	LH	RH	SM–YI3–3P	SM–YI3–2P	SM–YI3–1P	SM–YI3	SM–YI3–1N	SM–YI3–1.5N	SM–YI3–2N	SM–YI3–3N
LT-22 (1/2")	RH	LH	SM–YE4–3P	SM–YE4–2P	SM–YE4–1P	SM–YE4	SM–YE4–1N	SM–YE4–1.5N	SM–YE4–2N	SM–YE4–3N
LT-22 (1/2")	LH	RH	SM–YI4–3P	SM–YI4–2P	SM–YI4–1P	SM–YI4	SM–YI4–1N	SM–YI4–1.5N	SM–YI4–2N	SM–YI4–3N
TPI		pitch (mm)	pitch diameter (inch)							
72		–	–	–	–	0.12–0.31	0.32–0.84	>0.84	0.84–0.32	0.31–0.12
–		0,35	–	–	–	0.12–0.3	0.31–0.84	>0.84	0.84–0.31	0.3–0.12
64		–	–	–	–	0.14–0.35	0.36–0.95	>0.95	0.95–0.36	0.35–0.14
–		0,40	–	–	–	0.14–0.35	0.36–0.96	>0.96	0.96–0.36	0.35–0.14
56		0,45	–	–	–	0.16–0.4	0.41–1.09	>1.09	1.09–0.41	0.4–0.16
–		0,50	–	–	0.11–0.16	0.17–0.44	0.45–1.2	>1.20	1.2–0.45	0.44–0.17
48		–	–	–	0.12–0.17	0.18–0.46	0.47–1.27	>1.27	1.27–0.47	0.46–0.18
44		–	–	–	0.13–0.19	0.2–0.51	0.52–1.38	>1.38	1.38–0.52	0.51–0.2
–		0,60	–	0.1–0.12	0.13–0.2	0.21–0.53	0.54–1.44	>1.44	1.44–0.54	0.53–0.21
40		–	–	0.11–0.13	0.14–0.21	0.22–0.56	0.57–1.52	>1.52	1.52–0.57	0.56–0.22
–		0,70	–	0.12–0.15	0.16–0.23	0.24–0.62	0.63–1.68	>1.68	1.68–0.63	0.62–0.24
36		–	–	0.12–0.15	0.16–0.23	0.24–0.62	0.63–1.69	>1.69	1.69–0.63	0.62–0.24
–		0,75	0.11–0.12	0.13–0.16	0.17–0.25	0.26–0.66	0.67–1.8	>1.80	1.8–0.67	0.66–0.26
32		–	0.12–0.13	0.14–0.17	0.18–0.26	0.27–0.7	0.71–1.9	>1.90	1.9–0.71	0.7–0.27
–		0,80	0.12–0.13	0.14–0.17	0.18–0.26	0.27–0.71	0.72–1.91	>1.91	1.91–0.72	0.71–0.27
28		–	0.14–0.14	0.15–0.19	0.2–0.3	0.31–0.8	0.81–2.17	>2.17	2.17–0.81	0.8–0.31
27		–	0.14–0.15	0.16–0.2	0.21–0.31	0.32–0.83	0.84–2.25	>2.25	2.25–0.84	0.83–0.32
–		1,00	0.15–0.16	0.17–0.21	0.22–0.33	0.34–0.89	0.9–2.39	>2.39	2.39–0.9	0.89–0.34
24		–	0.16–0.17	0.18–0.23	0.24–0.35	0.36–0.94	0.95–2.53	>2.53	2.53–0.95	0.94–0.36
–		1,25	0.19–0.2	0.21–0.27	0.28–0.42	0.43–1.11	1.12–2.99	>2.99	2.99–1.12	1.11–0.43
20		–	0.19–0.21	0.22–0.27	0.28–0.42	0.43–1.13	1.14–3.04	>3.04	3.04–1.14	1.13–0.43
18		–	0.21–0.23	0.24–0.31	0.32–0.47	0.48–1.26	1.277–3.38	>3.38	3.38–1.27	1.26–0.48
–		1,50	0.22–0.25	0.26–0.33	0.34–0.5	0.51–1.34	1.35–3.59	>3.59	3.59–1.35	1.34–0.51
16		–	0.24–0.26	0.27–0.35	0.36–0.53	0.54–1.41	1.42–3.8	>3.80	3.8–1.42	1.41–0.54
–		1,75	0.26–0.29	0.3–0.38	0.39–0.59	0.6–1.56	1.57–4.19	>4.19	4.19–1.57	1.56–0.6
14		–	0.27–0.3	0.31–0.4	0.41–0.61	0.62–1.62	1.63–4.34	>4.34	4.34–1.63	1.62–0.62
13		–	0.29–0.32	0.33–0.43	0.44–0.66	0.67–1.74	1.75–4.68	>4.68	4.68–1.75	1.74–0.67
–		2,00	0.3–0.33	0.34–0.44	0.45–0.67	0.68–1.78	1.79–4.79	>4.79	4.79–1.79	1.78–0.68
12		–	0.32–0.35	0.36–0.46	0.47–0.71	0.72–1.89	1.9–5.07	>5.07	5.07–1.9	1.89–0.72
11.5		–	0.33–0.37	0.38–0.49	0.5–0.74	0.75–1.97	1.98–5.29	>5.29	5.29–1.98	1.97–0.75
11		–	0.34–0.38	0.39–0.51	0.52–0.78	0.79–2.06	2.07–5.53	>5.53	5.53–2.07	2.06–0.79
–		2,50	0.37–0.42	0.43–0.55	0.56–0.84	0.85–2.23	2.24–5.98	>5.98	5.98–2.24	2.23–0.85
10		–	0.38–0.42	0.43–0.56	0.57–0.86	0.87–2.27	2.28–6.08	>6.08	6.08–2.28	2.27–0.87
9		–	0.42–0.47	0.48–0.62	0.63–0.95	0.96–2.52	2.53–6.75	>6.75	6.75–2.53	2.52–0.96
–		3,00	0.45–0.5	0.51–0.66	0.67–1.02	1.03–2.68	2.69–7.18	>7.18	7.18–2.69	2.68–1.03
8		–	0.47–0.53	0.54–0.7	0.71–1.08	1.09–2.84	2.85–7.6	>7.60	7.6–2.85	2.84–1.09
–		3,50	0.52–0.59	0.6–0.77	0.78–1.19	1.2–3.13	3.14–8.38	>8.38	8.38–3.14	3.13–1.2
7		–	0.524–0.61	0.62–0.8	0.81–1.23	1.24–3.25	3.26–8.68	>8.68	8.68–3.26	3.25–1.24
–		4,00	0.6–0.67	0.68–0.89	0.9–1.36	1.37–3.58	3.59–9.57	>9.57	9.57–3.59	3.58–1.37
6		–	0.63–0.71	0.72–0.94	0.95–1.44	1.45–3.79	3.8–10.13	>10.13	10.13–3.8	3.79–1.45
–		5,00	0.75–0.84	0.85–1.11	1.12–1.7	1.71–4.48	4.49–11.97	>11.97	11.97–4.49	4.48–1.71
5		–	0.76–0.86	0.87–1.13	1.14–1.73	1.74–4.55	4.56–12.16	>12.16	12.16–4.56	4.55–1.74
4.5		–	0.84–0.95	0.96–1.26	1.27–1.92	1.93–5.06	5.07–13.51	>13.51	13.51–5.07	5.06–1.93
–		6,00	0.9–1.01	1.02–1.33	1.34–2.04	2.05–5.37	5.38–14.36	>14.36	14.36–5.38	5.37–2.05
4		–	0.95–1.07	1.08–1.41	1.42–2.16	2.17–5.69	5.7–15.2	>15.20	15.2–5.7	5.69–2.17
inclination angle			4.5	3.5	2.5	1.5	0.5	0.0	-0.5	-1.5
feed direction			standard helix (feed toward the chuck)						reverse helix (feed away from the chuck)	

1. Select TPI or pitch from the left-hand columns.
2. Follow row to specified pitch diameter and the correct feed direction.
3. Follow the column to the top for the required shim based on the toolholder and insert size.