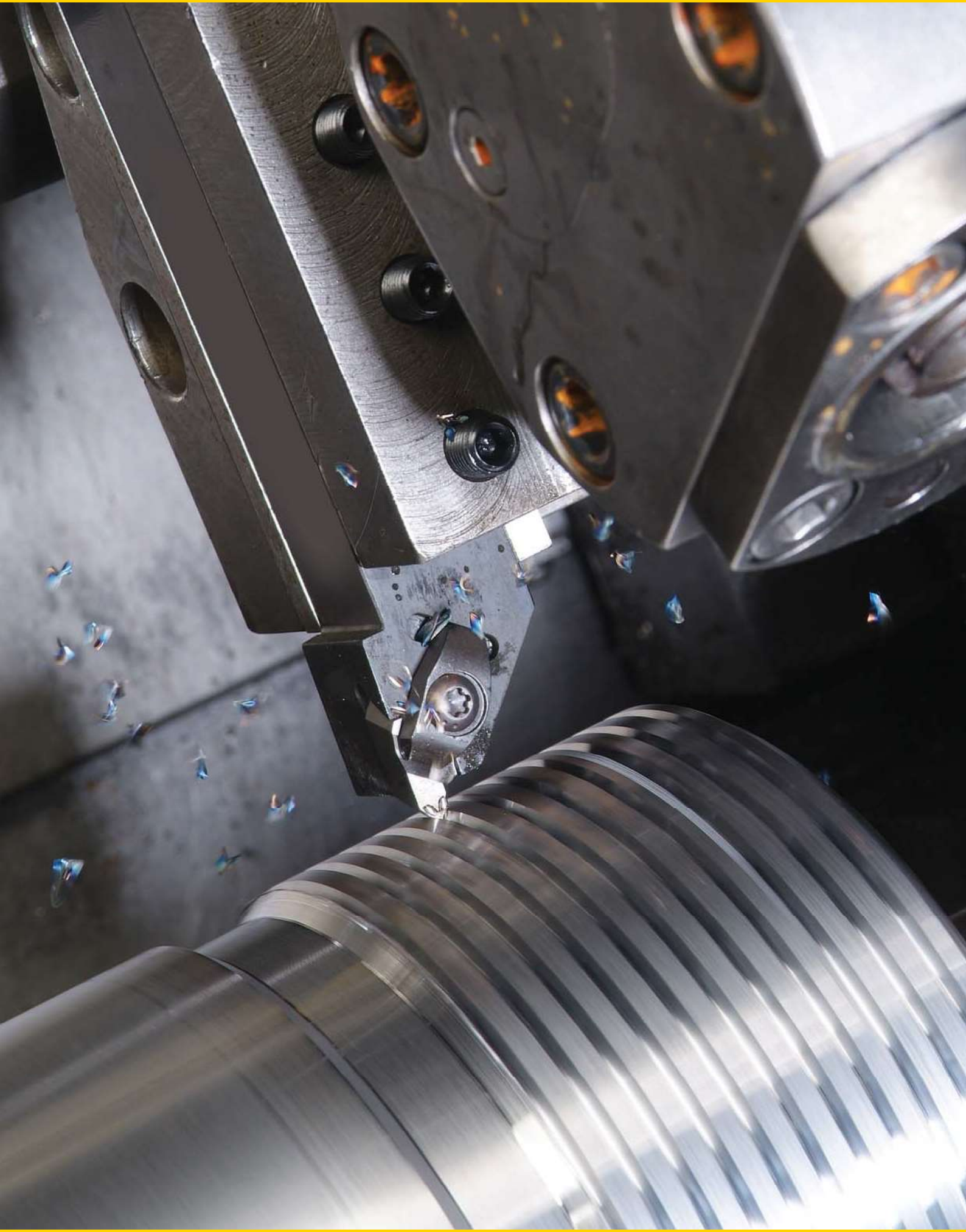
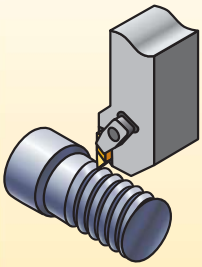


Threading

Top Notch External Threading

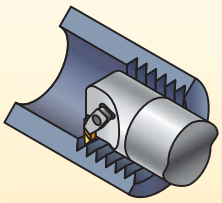


Square Shank Toolholder Sizes:
- Metric — 10–32mm

Cresting (Full Profile):
UN TPI of 32–7
ISO 1,5–3,0mm pitch

60° Partial Profile — Flat Top (NTF and NTK):
UN 44–4.5 TPI
ISO 0,6–5,5mm pitch

Top Notch Internal Threading

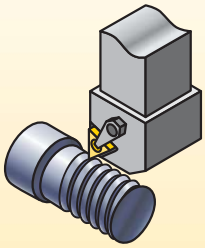


Boring Bar Diameters:
- Metric — 10–50mm
- Minimum bore — 11,5mm
- Steel

Cresting (Full Profile):
UN 16–8 TPI
ISO 1,5–3,0mm pitch

60° Partial Profile — Flat Top (NT-1L, NTF, and NTK):
UN 24–4.5 TPI
ISO 1,0–5,5mm pitch

LT Laydown External Threading

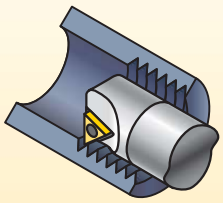


Square Shank Toolholder Sizes:
- Metric — 8–40mm available

Cresting (Full Profile):
UN 48–8 TPI
ISO 0,5–5,0mm pitch

60° Partial Profile:
UN 48–4 TPI
ISO 0,5–6,0mm pitch

LT Laydown Internal Threading



Boring Bar Diameters:
- Metric — 12–50mm
- Minimum bore — 13mm
- Steel and carbide

Cresting (Full Profile) and Partial Profile:
UN 48–8 TPI
ISO 0,5–5,0mm pitch

60° Partial Profile:
UN 48–4 TPI
ISO 0,5–6,0mm pitch

55° Partial Profile:
UN 48–5 TPI
ISO 0,5–5,0mm pitch

Top Notch™ Thread Tooling

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.

Features and Benefits

Choosing the Top Notch Threading System

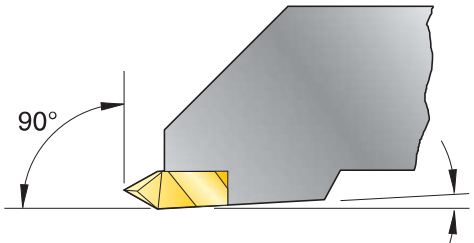
- A superior choice for heavy-duty applications like machining of Acme, Buttress, and API threads. Top Notch is also the best system for coarse pitch and multitooth threading applications.
- Largest selection of insert geometries and grades in the industry.
- A very rigid insert clamping design ensures 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.
- Reduce 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.

Top Notch inserts are available in KCU10™ and KCU25™ grades to withstand the demands placed on the cutting edge of the threading insert.

The versatility of the Top Notch™ steel enables you to use both threading and grooving inserts in the same toolholder.

Precision-Ground Thread Form

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



NOTE: Holders are designed to locate inserts inclined to 3° to provide back clearance down open side.

Superior Chip Control

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

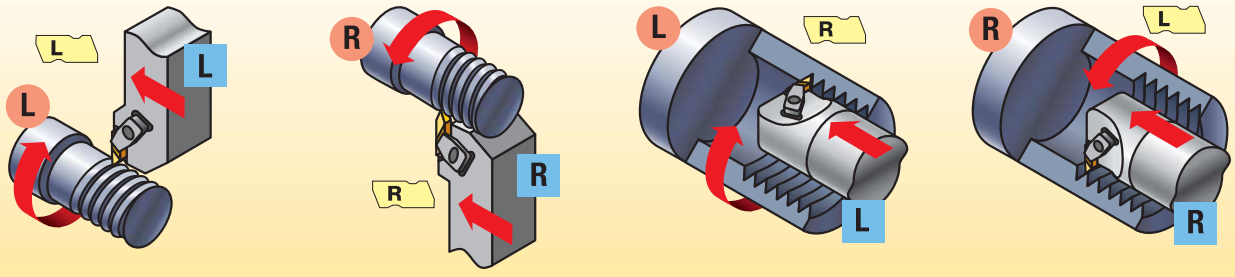
Step 1 • Select Threading Method and Hand of Tooling

Required Information:

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

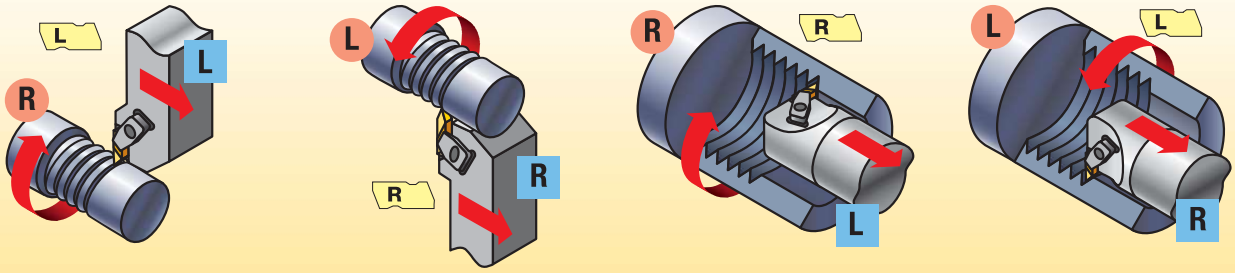
hand of thread | hand of toolholder | hand of insert

Feed direction toward the chuck • RECOMMENDED



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

Feed direction away from the chuck



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

Step 2 • Select Holder from Catalogue Page

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

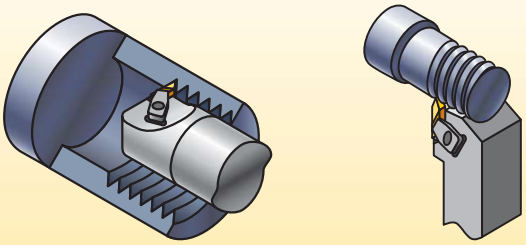
Required Information:

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

catalogue 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:

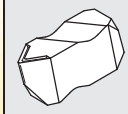


NOTE: Optimise your threading operation by using the proper infeed method and the recommended infeed values.

See the technical section on pages D88–D110 of this catalogue.
For internal threading, minimum bore varies depending on thread type.
See page D102 for details.

Step 3 • Choose Insert for Application

- See threading insert overview on page D11.
- 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.
- Note insert size for toolholder selection.



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

Step 4 • Select Grade and Speed

Recommendations for Grade and Speed Selection — m/min

workpiece material	steel	stainless steel	cast iron	non-ferrous metals	high-temp alloys
insert style	chip control or neutral 	chip control or positive 	neutral 	positive 	positive 
optimum cutting conditions	**KCU10/KC5010** 70–260	**KCU10/KC5010** 90–245	**KCU10/KC5010** 60–245	**KC5410** 90–550	**KCU10/KC5010** 30–150
first choice	**KCU25/KC5025** 50–230	**KCU25/KC5025** 75–230	**KCU25/KC5025** 50–180	**KCU25/KC5025** 60–455	**KCU25/KC5025** 20–120

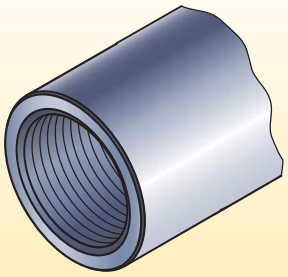
Examples:

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

Top Notch Threading Example:

application: 8 TPI Acme internal right-hand thread
material: alloy steel
workpiece diameter: 114,3mm good cutting conditions feed towards the chuck

Recommendation:
insert: NA3L8
grade: KCU10
insert size: 3
boring bar: A40NER3
gage insert: N.3L
speed: 150 m/min
infeed passes*: 12 passes



*Infeed recommendations provided in technical data section on pages D97–D101.

Recommended Starting Speeds [m/min]

Material Group		K68			KCU10/KC5010			KCU25/KC5025			KC5410		
P	0–1	–	**–**	–	135	**200**	260	105	**165**	230	–	**–**	–
	2	–	**–**	–	130	**190**	245	100	**150**	200	–	**–**	–
	3	–	**–**	–	105	**155**	200	75	**125**	170	–	**–**	–
	4	–	**–**	–	70	**120**	160	60	**95**	130	–	**–**	–
	5	–	**–**	–	105	**155**	200	75	**130**	170	–	**–**	–
	6	–	**–**	–	70	**120**	160	50	**90**	130	–	**–**	–
M	1	45	**75**	105	120	**180**	245	90	**170**	230	–	**–**	–
	2	35	**65**	100	90	**165**	210	75	**140**	200	–	**–**	–
	3	35	**65**	100	90	**165**	210	75	**135**	200	–	**–**	–
K	1	30	**75**	120	120	**180**	245	90	**135**	180	–	**–**	–
	2	25	**60**	100	90	**150**	210	70	**120**	170	–	**–**	–
	3	20	**55**	90	60	**105**	150	50	**85**	120	–	**–**	–
N	1–2	90	**245**	365	150	**365**	550	120	**305**	455	245	**425**	610
	3	45	**75**	105	90	**135**	180	60	**105**	150	90	**150**	210
	4	60	**120**	180	120	**305**	455	100	**200**	305	120	**305**	455
	5	45	**90**	150	90	**165**	245	70	**135**	195	120	**210**	305
	6	35	**75**	120	120	**210**	305	100	**170**	245	120	**245**	365
S	1	8	**25**	45	30	**70**	105	20	**40**	60	–	**–**	–
	2	8	**24**	40	30	**65**	100	20	**35**	45	–	**–**	–
	3	8	**24**	40	30	**65**	100	20	**35**	45	–	**–**	–
	4	9	**60**	105	55	**105**	150	45	**85**	120	–	**–**	–
H	1	–	**–**	–	30	**45**	60	–	**–**	–	–	**–**	–
	2	–	**–**	–	15	**30**	45	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.

NOVO KNOWS CAD/CAM

With the addition of NOVO™ applications to your team, your CAD/CAM capabilities become much more accurate, streamlined, and productive.

Before NOVO: The programmer would be in their CAD/CAM software, programming a part. Using the tedious method of finding a tool in a catalogue, and then manually inputting the tooling information from the catalogue into the CAD/CAM software.

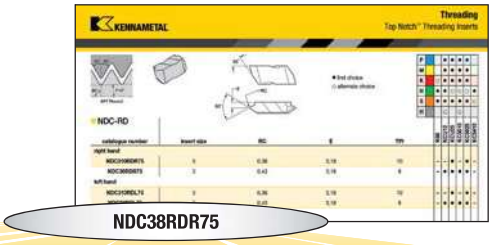
The concern is that assumptions are made, and only partial tooling information is entered.

With NOVO: The powerful digital intelligence of NOVO applications not only help the programmer find the right tool for the metalcutting job, but also automatically integrates all the tooling data into a complete CAD/CAM solution. The integration of all the tooling data increases the viability of the part being programmed, and is delivered quickly — saving you time.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximises every shift. **kennametal.com/novo**

How Do Catalogue Numbers Work?

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



N	D	C	3	8RD	R	75	
Type of Insert	Insert	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

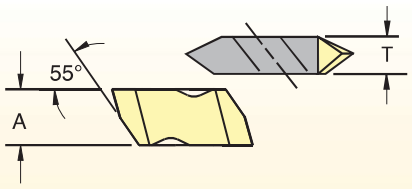
K — Fine pitch, positive

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

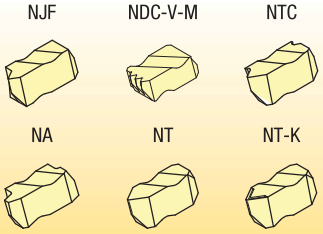
L — Left hand

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



Top Notch insert dimensions

insert size	A mm	T mm
1	2,54	2,54
2	5,56	3,81
3	8,74	4,95
4	11,51	6,48
5	17,48	9,65
6	11,51	9,73
8	7,93	11,13



I — Internal thread

E — External thread (used only if internal and external thread forms are different)

M — Multiple tooth

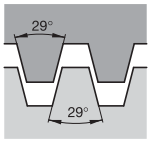
K — Standard chip control

C — Coarse pitch

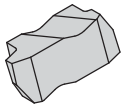
D — Dryseal

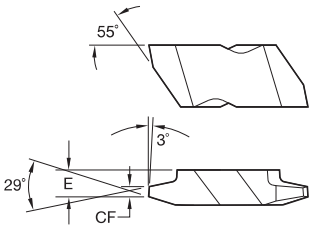
*Kennametal proprietary standard only.

style			thread profile	standard	tolerance class	cresting	application	page(s)
chip control — K	neutral	positive						
NT-K 	NT 	NTP 	Partial Profile 60º	—	—	N	General use for 60° thread forms, such as ISO and UN, where non-cresting inserts are desired to cut a variety of pitches.	D19, D24
NT-CK 			Partial Profile 60º — 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.	D21
	NTF 	NTK 	Partial Profile 60º — 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.	D23
	NTU 		Partial Profile 60º — fine pitch	—	—	N	Four-edged insert for 60º partial profile threading — requires NSU-style toolholder for size 4U insert.	D24
	NTC-M 		Metric ISO	ISO R262, DIN 13	6g/6H	Y	Widely used metric 60° V-form for all industries.	D21
	NTC 		American UN	ANSI B1.1:74	2A/2B	Y	Widely used inch-based 60° V-form for all industries.	D20
	NJ 	NJP 	UNJ	MIL-S-8879C	3A/3B	N	Controlled root radius on external threads for military and aerospace industries.	D17–D18
	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.	D17–D18
	NDC-V 		NPT	ANSI/ACME B1.201: 1983	Standard NPT	Y	National Pipe Thread standard forms for pipe fittings.	D16
	NDC-V-M 		NPT — multi-tooth	ANSI/ACME B1.201: 1983	Standard NPT	Y	High-productivity multi-tooth threading inserts for NPT threads.	D16
	NWC-E 		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.	D25
	ND 		API Rotary Shoulder Connections — partial profile	API SPEC. 7:1990	Standard API	N	60º V-form used for rotary shoulder pipe connections in the oil and gas industry including V-.038R, V-.040, and V-.050 forms.	D14
	NDC 		API Rotary Shoulder Connections — cresting	API SPEC. 7:1990	Standard API	Y	60º 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.	D14
	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.	D15
	NDC-RD-M 		API Round — multi-tooth	API STD. 5B:1979	Standard API RD	Y	High productivity multitooth threading inserts for API round threads.	D15
	NA 		Acme	ANSI B1.5:1988	3G	N	29° truncated thread form for motion applications in a wide variety of industries.	D12
	NAS 		Stub Acme	ANSI B1.8:1988	2G	N	Shallow depth 29° truncated thread form for motion applications in a wide variety of industries.	D13
	NTB-A 		American Buttress — 7° clearance 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° clearance flank is the leading flank.	D19
	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 flank.	D20



Acme



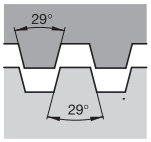


● first choice
○ alternate choice

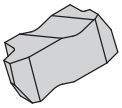
P		●	●	●	●	
M		●	●	●	●	
K	○	●	●	●	●	
N	●	●	○	○	○	●
S	●	●	●	●	●	○
H		○		○		

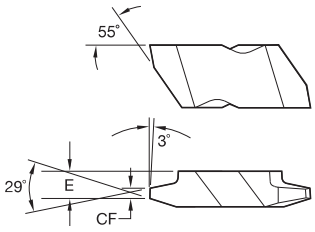
NA

catalogue number	insert size	RC	E	CF	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand											
NA3R10	3	–	3,79	0,810	10	–	●	●	●	●	–
NA3R12	3	–	3,79	0,719	12	–	●	–	–	●	–
NA3R16	3	–	3,79	0,523	16	–	●	–	–	–	–
NA3R4	3	–	3,38	2,222	4	–	–	●	●	●	–
NA3R5	3	–	3,79	1,750	5	–	●	●	●	●	–
NA3R6	3	–	3,79	1,438	6	–	●	●	●	●	–
NA3R8	3	–	3,79	1,044	8	–	●	●	●	●	–
NA4R4	4	–	5,13	2,223	4	–	–	●	●	●	–
NA4R5	4	–	5,13	1,750	5	–	–	–	–	●	–
NA4R6	4	–	5,13	1,438	6	–	–	–	–	●	–
NA6R25	6	–	7,19	3,635	2.5	–	–	–	–	●	–
NA6R2	6	–	7,19	4,577	2	–	●	●	●	●	–
NA6R3	6	–	7,19	3,007	3	–	–	●	–	●	–
left hand											
NA3L8	3	–	3,79	1,044	8	–	●	●	●	●	–
NA3L10	3	–	3,79	0,810	10	–	–	●	–	●	–
NA3L12	3	–	3,79	0,719	12	–	–	–	●	●	–
NA3L4	3	–	3,38	2,222	4	●	●	●	●	●	–
NA3L5	3	–	3,79	1,750	5	–	–	●	●	●	–
NA3L6	3	–	3,79	1,438	6	–	–	●	●	●	–
NA4L5	4	–	5,13	1,750	5	–	–	–	–	●	–
NA4L6	4	–	5,13	1,438	6	–	–	–	–	●	–
NA4L8	4	–	5,13	1,044	8	–	–	●	–	–	–
NA4L4	4	–	5,13	2,223	4	–	●	–	–	●	–
NA6L3	6	–	7,19	3,007	3	–	–	●	–	●	–
NA6L25	6	–	7,19	3,635	2.5	–	–	●	–	–	–
NA6L2	6	–	7,19	4,577	2	–	–	●	●	●	–
NA3L16	3	–	3,79	0,523	16	–	●	–	–	–	–



Stub Acme



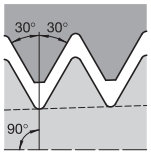


● first choice
○ alternate choice

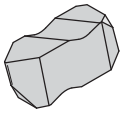
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

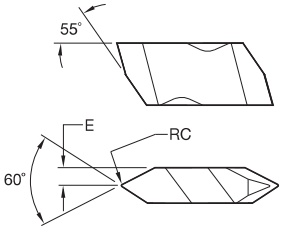
NAS

catalogue number	insert size	RC	E	CF	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand											
NAS3R10	3	–	3,79	0,940	10	–	●	–	●	●	–
NAS3R12	3	–	3,79	0,828	12	–	–	●	–	●	–
NAS3R16	3	–	3,79	0,605	16	–	–	–	–	●	–
NAS3R4	3	–	3,79	2,550	4	–	–	●	–	●	–
NAS3R5	3	–	3,79	2,014	5	–	●	–	–	●	–
NAS3R6	3	–	3,79	1,656	6	–	●	–	●	●	–
NAS3R8	3	–	3,79	1,209	8	–	●	●	●	●	–
left hand											
NAS3L10	3	–	3,79	0,940	10	–	●	–	–	●	–
NAS3L12	3	–	3,79	0,828	12	–	–	–	–	●	–
NAS3L4	3	–	3,79	2,550	4	–	–	●	–	●	–
NAS3L5	3	–	3,79	2,014	5	–	●	–	–	●	–
NAS3L6	3	–	3,79	1,656	6	–	●	●	●	●	–
NAS3L8	3	–	3,79	1,209	8	–	●	●	●	●	–



API Rotary Shoulder Connections



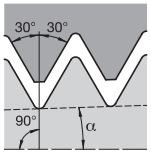


● first choice
○ alternate choice

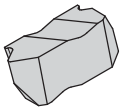
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

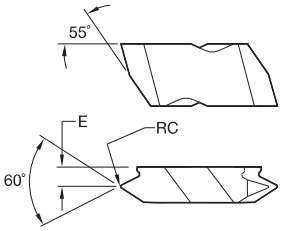
ND • Partial Profile

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
ND3040R	3	0,45	2,08	5	–	–	–	–	●	–
ND3038R	3	0,90	2,08	4	–	–	–	–	●	–
ND4050R	4	0,57	3,25	4	–	–	●	–	–	–
left hand										
ND3038L	3	0,90	2,08	4	–	–	–	–	●	–
ND3040L	3	0,45	2,08	5	–	–	●	–	–	–



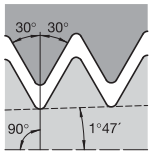
α=1/2arctg (tpf/12)
API Rotary Shoulder Connections



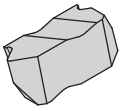


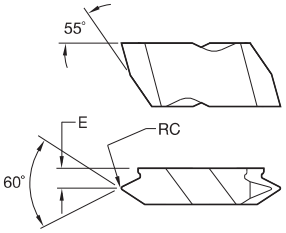
NDC • Cresting

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NDC3040R3	3	0,45	3,73	5	–	–	–	–	●	–
NDC4040R3	4	0,45	3,73	5	–	–	–	–	●	–
NDC4050R2	4	0,57	4,65	4	–	–	–	–	●	–
NDC4050R3	4	0,57	4,65	4	–	–	–	–	●	–
NDC4038R2	4	0,90	4,65	4	–	–	–	–	●	–
left hand										
NDC3040L3	3	0,45	3,73	5	–	–	–	●	–	–
NDC4050L2	4	0,57	4,65	4	–	–	–	–	●	–
NDC4038L2	4	0,90	4,65	4	–	–	–	–	●	–



API Round



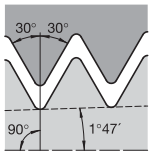


● first choice
○ alternate choice

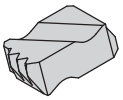
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

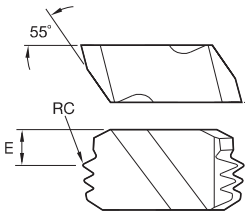
NDC-RD

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NDC310RDR75	3	0,36	3,18	10	–	–	–	–	●	–
NDC38RDR75	3	0,43	3,18	8	–	–	●	●	●	–
left hand										
NDC310RDL75	3	0,36	3,18	10	–	–	–	–	●	–
NDC38RDL75	3	0,43	3,18	8	–	–	●	●	●	–



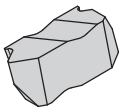
API Round

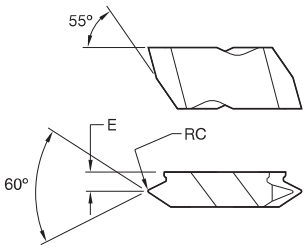




NDC-RD-M • Multitooth

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NDC68RDR75M	6	0,41	2,62	8	–	●	–	–	–	–



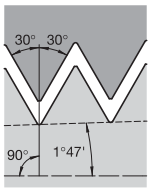


● first choice
○ alternate choice

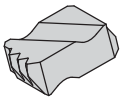
		K68	KCU10	KCU25	KC5010	KC5025	KC5410
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

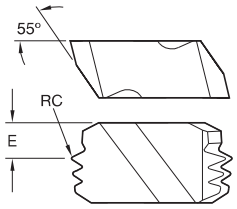
NDC-V

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NDC327VR75	3	0,05	3,66	27	–	●	–	–	–	–
NDC314VR75	3	0,08	3,66	14	–	●	–	–	–	–
NDC3115VR75	3	0,10	3,66	11.5	–	●	–	●	–	–
NDC38VR75	3	0,13	2,54	8	–	–	–	●	–	–
left hand										
NDC3115VL75	3	0,10	3,66	11.5	–	●	–	●	–	–
NDC38VL75	3	0,13	2,54	8	–	–	–	●	–	–



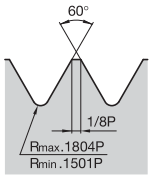
NPT



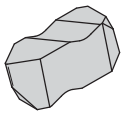


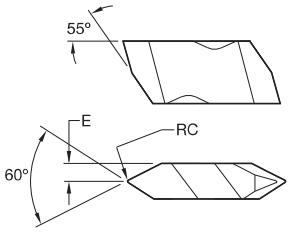
NDC-V-M • Multitooth

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NDC8115VR75M	8	0,10	2,59	11.5	–	●	–	–	–	–
NDC88VR75M	8	0,13	2,41	8	–	●	–	●	–	–
left hand										
NDC88VL75M	8	0,13	2,41	8	–	–	–	●	–	–



UNJ External



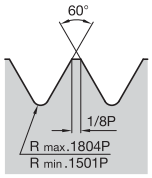


● first choice
○ alternate choice

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

NJ

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



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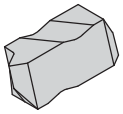
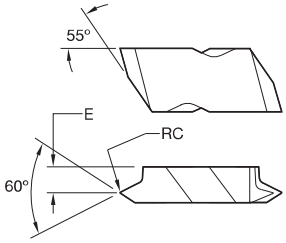


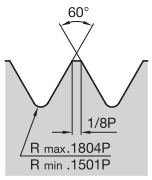


NJF

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NJF3005R32	3	0,13	3,58	–	–	32	–	–	●	–	●	–	–
NJF3006R28	3	0,15	3,58	–	–	28	–	–	–	–	●	●	–
NJF3007R24	3	0,17	3,58	–	–	24	–	–	–	–	●	●	–
NJF3008R20	3	0,20	3,58	–	–	20	–	–	–	–	●	●	–
NJF3009R18	3	0,22	3,58	–	–	18	–	●	–	●	●	●	–
NJF3010R16	3	0,25	3,58	–	–	16	–	–	–	–	●	●	–
NJF3012R14	3	0,28	3,58	–	–	14	–	–	–	●	●	●	–
left hand													
NJF3007L24	3	0,17	3,58	–	–	24	–	–	–	–	●	–	–
NJF3008L20	3	0,20	3,58	–	–	20	–	–	–	–	●	–	–
NJF3010L16	3	0,25	3,58	–	–	16	–	–	–	–	●	–	–

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

● first choice
○ alternate choice



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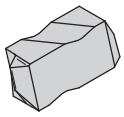
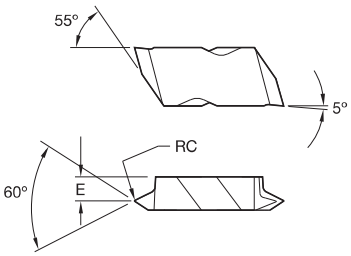
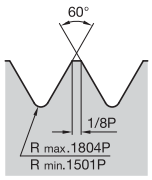


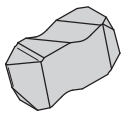


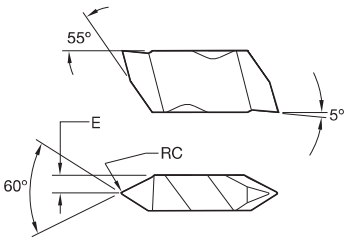
NJK

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NJK3005R32	3	0,13	3,58	–	–	32	–	–	–	–	●	●	–
NJK3006R28	3	0,15	3,58	–	–	28	–	–	–	●	●	–	–
NJK3007R24	3	0,17	3,58	–	–	24	–	–	–	●	●	●	–
NJK3008R20	3	0,20	3,58	–	–	20	–	–	●	●	●	●	–
NJK3009R18	3	0,22	3,58	–	–	18	–	–	–	–	●	●	–
NJK3010R16	3	0,25	3,58	–	–	16	–	–	–	●	●	●	–
NJK3012R14	3	0,28	3,58	–	–	14	–	–	–	–	●	●	–
left hand													
NJK3005L32	3	0,13	3,58	–	–	32	–	–	–	–	–	●	–
NJK3006L28	3	0,15	3,58	–	–	28	–	–	–	–	–	●	–



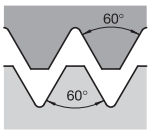
UNJ External



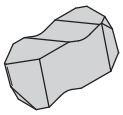


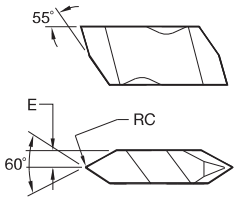
NJP

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



Partial Profile 60°



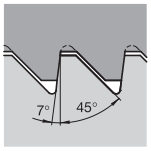


● first choice
○ alternate choice

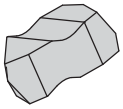
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

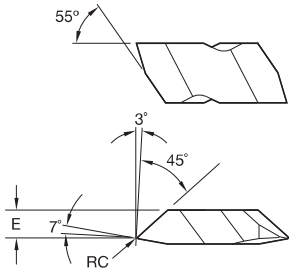
NT

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NT2R	2	0,10	1,90	0,70-3,0	1,25-3,5	8-36	7-20	●	●	●	●	●	–
NT3R	3	0,17	2,49	1,25-4,0	2,0-5,0	6-20	5-12	●	●	●	●	●	–
NT4R	4	0,17	3,25	1,25-6,25	2,0-6,25	4-20	4-12	●	●	●	●	●	–
left hand													
NT2L	2	0,10	1,90	0,70-3,0	1,25-3,5	8-36	7-20	●	●	●	●	●	–
NT3L	3	0,17	2,49	1,25-4,0	2,0-5,0	6-20	5-12	●	●	●	●	●	–
NT4L	4	0,17	3,25	1,25-6,25	2,0-6,25	4-20	4-12	●	●	●	●	●	–



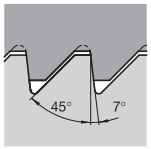
American Buttress-Push



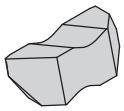


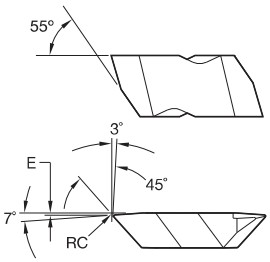
NTB-A

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NTB2RA	2	0,08	3,20	16-20	●	–	–	–	–	–
NTB3RA	3	0,17	4,17	8-16	–	●	–	–	●	–
NTB4RA	4	0,25	5,23	4-6	–	●	–	–	–	–
left hand										
NTB3LA	3	0,17	4,17	8-16	●	–	–	●	●	–



American
Buttress-Pull



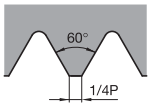


● first choice
○ alternate choice

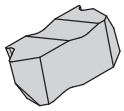
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

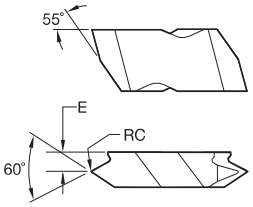
NTB-B

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NTB2RB	2	0,08	0,25	16-20	–	–	–	●	–	–
NTB3R12B	3	0,16	2,49	12	–	–	–	●	–	–
NTB3RB	3	0,17	0,31	8-16	●	●	●	●	●	–
NTB4RB	4	0,25	0,41	4-6	–	●	–	●	●	–
left hand										
NTB2LB	2	0,08	0,25	16-20	–	●	–	●	–	–
NTB3L12B	3	0,16	2,49	12	–	–	–	●	–	–
NTB3LB	3	0,17	0,31	8-16	●	●	–	●	●	–
NTB4LB	4	0,25	0,41	4-6	–	–	–	●	●	–



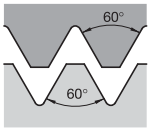
American
UN-Internal



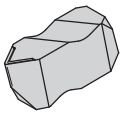


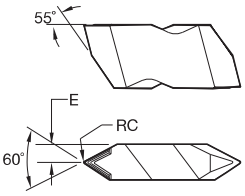
NTC-I

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NTC3R12I	3	0,10	3,76	–	–	–	12	–	–	–	–	●	–
left hand													
NTC3L12I	3	0,10	3,76	–	–	–	12	–	–	–	–	●	–
NTC3L14I	3	0,09	3,76	–	–	–	14	–	–	–	–	●	–
NTC3L16I	3	0,08	3,76	–	–	–	16	–	–	–	–	●	–
NTC3L8I	3	0,18	2,72	–	–	–	8	–	–	–	–	●	–
NTC3L10I	3	0,13	2,72	–	–	–	10	–	–	–	–	●	–



Partial Profile 60°



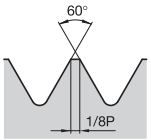


● first choice
○ alternate choice

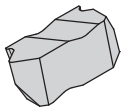
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

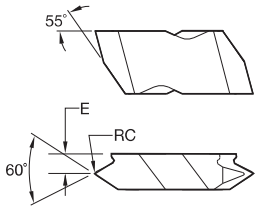
NT-CK

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



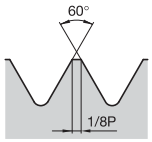
ISO Metric-External



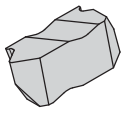


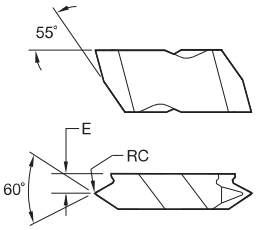
NTC-M-E

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



American
UN-External



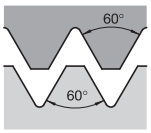


● first choice
○ alternate choice

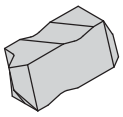
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

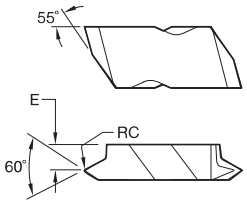
NTC-E

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NTC3R32E	3	0,10	3,76	–	–	32	–	–	●	–	–	●	–
NTC3R28E	3	0,12	3,76	–	–	28	–	–	–	–	–	●	–
NTC3R24E	3	0,13	3,76	–	–	24	–	–	–	–	●	●	–
NTC3R20E	3	0,16	3,76	–	–	20	–	–	●	–	●	●	–
NTC3R18E	3	0,18	3,76	–	–	18	–	–	–	●	●	●	–
NTC3R16E	3	0,19	3,76	–	–	16	–	–	–	–	●	●	–
NTC3R14E	3	0,22	3,76	–	–	14	–	–	–	–	●	●	–
NTC3R13E	3	0,24	3,76	–	–	13	–	–	–	–	●	●	–
NTC3R12E	3	0,25	3,76	–	–	12	–	–	–	●	●	●	–
NTC3R11E	3	0,28	2,72	–	–	11	–	–	●	–	–	●	–
NTC3R10E	3	0,32	2,72	–	–	10	–	–	–	–	●	●	–
NTC3R9E	3	0,36	2,72	–	–	9	–	–	●	–	–	–	–
NTC3R8E	3	0,41	2,72	–	–	8	–	–	●	–	●	●	–
NTC3R7E	3	0,47	2,72	–	–	7	–	–	–	–	–	●	–
left hand													
NTC3L16E	3	0,19	3,76	–	–	16	–	–	●	–	–	–	–
NTC3L12E	3	0,25	3,76	–	–	12	–	–	●	–	–	–	–
NTC3L10E	3	0,32	2,72	–	–	10	–	–	●	–	–	–	–
NTC3L8E	3	0,41	2,72	–	–	8	–	–	–	–	●	–	–



Partial Profile 60°



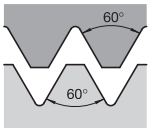


● first choice
○ alternate choice

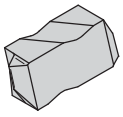
P			●	●	●	●	
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

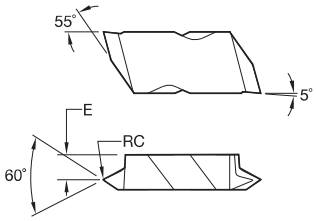
NTF

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



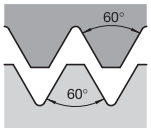
Partial Profile 60°



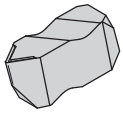


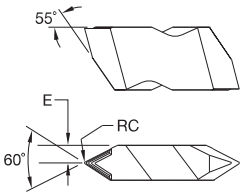
NTK

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NTK2R	2	0,08	2,79	0,60-1,75	1,0-2,0	14-44	12-24	●	●	●	●	●	–
NTK3R	3	0,08	3,58	0,60-2,50	1,0-2,5	10-44	9-24	●	●	●	●	●	–
left hand													
NTK2L	2	0,08	2,79	0,60-1,75	1,0-2,0	14-44	12-24	●	●	●	●	●	–
NTK3L	3	0,08	3,58	0,60-2,50	1,0-2,5	10-44	9-24	●	●	●	●	●	–



Partial Profile 60°



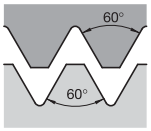


● first choice
○ alternate choice

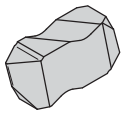
P		●	●	●	●		
M		●	●	●	●		
K	○	●	●	●	●		
N	●	●	○	○	○	●	
S	●	●	●	●	●	○	
H		○		○			

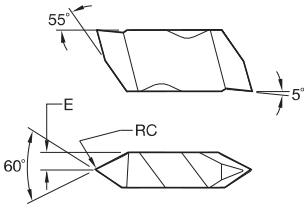
NT-K

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NT2RK	2	0,10	1,90	0,70-3,0	1,25-3,5	8-36	7-20	–	●	●	●	●	–
NT3RK	3	0,17	2,49	1,25-4,0	2,0-5,0	6-20	5-12	–	●	●	●	●	–
NT4RK	4	0,16	3,24	1,25-6,25	2,0-6,25	4-20	4-12	–	●	●	●	●	–
left hand													
NT2LK	2	0,10	1,90	0,70-3,0	1,25-3,5	8-36	7-20	–	●	●	●	●	–
NT3LK	3	0,17	2,49	1,25-4,0	2,0-5,0	6-20	5-12	–	●	●	●	●	–
NT4LK	4	0,16	3,24	1,25-6,25	2,0-6,25	4-20	4-12	–	●	●	●	●	–



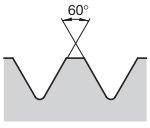
Partial Profile 60°



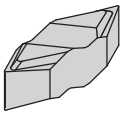


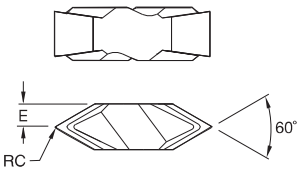
NTP

catalogue number	insert size	RC	E	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand													
NTP2R	2	0,10	1,91	0,70-3,0	1,25-3,5	8-36	7-20	●	●	●	●	●	–
NTP3R	3	0,17	2,49	1,25-4,0	2,0-5,0	6-20	5-12	●	●	●	●	●	●
NTP4R	4	0,17	3,25	1,25-6,25	2,0-6,25	4-20	4-12	–	●	●	●	●	–
left hand													
NTP2L	2	0,10	1,91	0,70-3,0	1,25-3,5	8-36	7-20	●	●	●	●	●	–
NTP3L	3	0,17	2,49	1,25-4,0	2,0-5,0	6-20	5-12	●	●	●	●	●	–
NTP4L	4	0,17	3,25	1,25-6,25	2,0-6,25	4-20	4-12	–	–	–	●	●	–



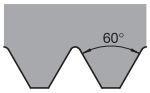
Partial Profile
60° External



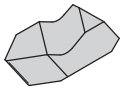


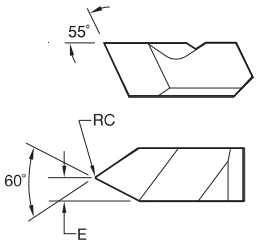
NTU

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



Partial Profile
60° Internal



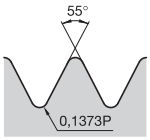


● first choice
○ alternate choice

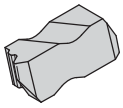
P			●	●	●	●	●
M			●	●	●	●	
K		○	●	●	●	●	
N		●	●	○	○	○	●
S		●	●	●	●	●	○
H			○		○		

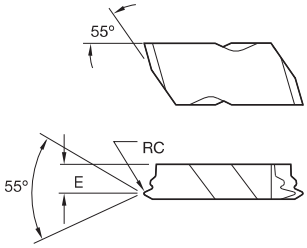
NT-1L

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



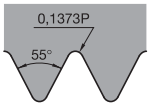
Whitworth BSW,
BSP-External



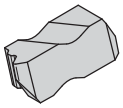


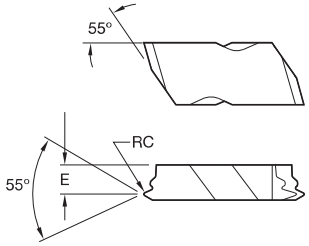
NWC-E

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
right hand										
NWC3R14E	3	0,24	3,43	14	–	–	●	●	–	–
NWC3R11E	3	0,30	3,43	11	–	–	–	●	●	–



Whitworth BSW,
BSP-Internal



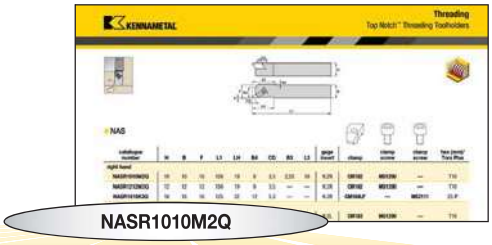


NWC-I

catalogue number	insert size	RC	E	TPI	K68	KCU10	KCU25	KC5010	KC5025	KC5410
left hand										
NWC3L11I	3	0,30	3,43	11	–	–	–	–	●	–

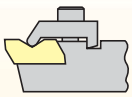
How Do Catalogue Numbers Work?

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



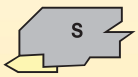
N	AS	R		1010	M	2	Q
Insert Holding Method	Insert Mounting Location	Hand of Tool	Drop Head	Shank Size	Tool Length	Insert Size	Qualified Holder

N — Top Notch™

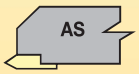


End mount

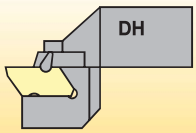
Side mount, offset



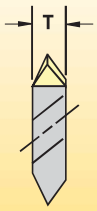
Side mount, no offset



Shank height and width in mm and holder



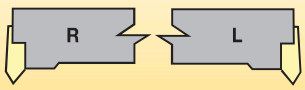
L1	ISO
32	A
40	B
50	C
60	D
70	E
80	F
90	G
100	H
110	J
125	K
140	L
150	M
160	N
170	P
180	Q
200	R
250	S
300	T
350	U
400	V
450	W
500	Y
special length	X



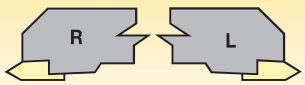
insert size	T
2	3,81
3	4,95
4	6,98
5	9,65
6	9,73
8	11,13

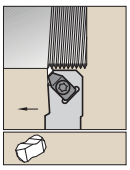
Q — Qualified holder

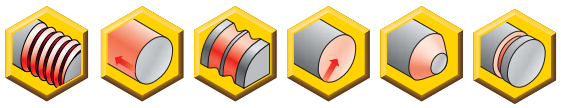
End mount

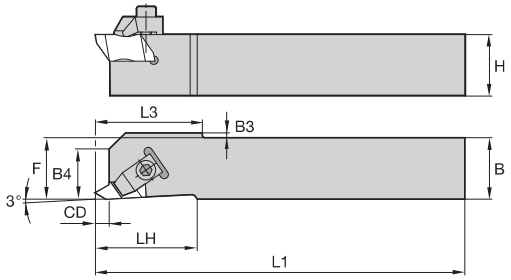


Side mount

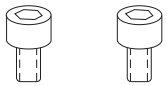






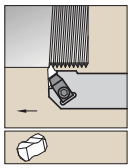


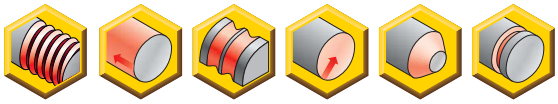
NAS

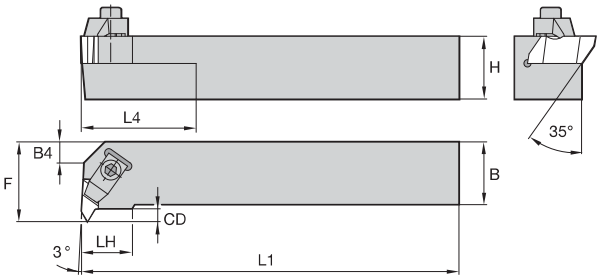


order number	catalogue number	H	B	F	L1	LH	B4	CD	B3	L3	gage insert	clamp screw	clamp screw	clamp	hex (mm)/ Torx Plus
right hand															
1098788	**NASR1010M2Q**	10	10	10	150	19	9	3,5	2,03	19	N.2R	**CM182**	**MS1200**	**–**	T10
1098789	**NASR1212M2Q**	12	12	12	150	19	9	3,5	–	–	N.2R	**CM182**	**MS1200**	**–**	T10
1098786	**NASR1616K3Q**	16	16	16	125	32	13	5,3	–	–	N.3R	**CM184LP**	**–**	**MS2111**	25 IP
left hand															
1098859	**NASL1010M2Q**	10	10	10	150	19	9	3,5	2,03	19	N.2L	**CM183**	**MS1200**	**–**	T10
1098860	**NASL1212M2Q**	12	12	12	150	19	9	6,9	–	–	N.2L	**CM183**	**MS1200**	**–**	T10
1098857	**NASL1616K3Q**	16	16	16	125	32	13	5,3	–	–	N.3L	**CM185LP**	**–**	**MS2111**	25 IP

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



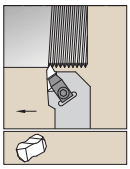


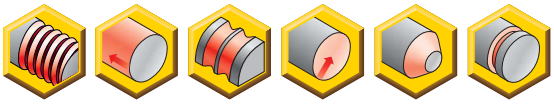


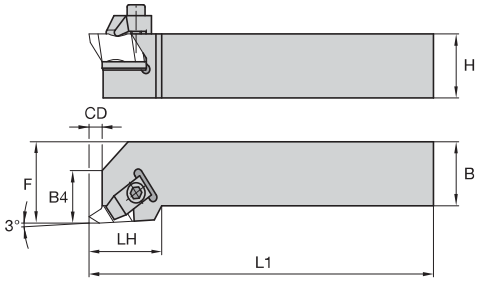
NE


order number	catalogue number	H	B	F	L1	LH	CD	L4	gage insert	clamp screw	clamp screw	clamp	hex (mm)/ Torx Plus
right hand													
1098803	**NER1616H2**	16	16	20	100	15	3,5	–	N.2L	**CM75**	**MS1200**	**–**	T10
1098804	**NER2020K2**	20	20	25	125	15	3,5	–	N.2L	**CM75**	**MS1200**	**–**	T10
1098805	**NER2525M2**	25	25	32	150	15	3,5	25,4	N.2L	**CM75**	**MS1200**	**–**	T10
1098806	**NER2525M3**	25	25	32	150	22	5,3	50,8	N.3L	**CM73LP**	**–**	**MS2111**	25 IP
1098808	**NER2525M4**	25	25	35	150	24	6,4	50,8	N.4L	**CM73LP**	**–**	**MS2111**	25 IP
1098807	**NER3225P3**	32	25	32	170	22	3,8	50,8	N.3L	**CM73LP**	**–**	**MS2111**	25 IP
1098809	**NER3225P4**	32	25	35	170	24	6,4	50,8	N.4L	**CM73LP**	**–**	**MS2111**	25 IP
1098810	**NER3232P4**	32	32	40	170	24	6,4	50,8	N.4L	**CM73LP**	**–**	**MS2111**	25 IP
left hand													
1098874	**NEL1616H2**	16	16	20	100	15	3,5	–	N.2R	**CM74**	**MS1200**	**–**	T10
1098875	**NEL2020K2**	20	20	25	125	15	3,5	–	N.2R	**CM74**	**MS1200**	**–**	T10
1098876	**NEL2525M2**	25	25	32	150	15	3,5	25,4	N.2R	**CM74**	**MS1200**	**–**	T10
1098877	**NEL2525M3**	25	25	32	150	22	5,3	50,8	N.3R	**CM72LP**	**–**	**MS2111**	25 IP
1098879	**NEL2525M4**	25	25	35	150	24	6,4	50,8	N.4R	**CM72LP**	**–**	**MS2111**	25 IP
1098878	**NEL3225P3**	32	25	32	170	22	3,8	50,8	N.3R	**CM72LP**	**–**	**MS2111**	25 IP
1098880	**NEL3225P4**	32	25	35	170	24	6,4	50,8	N.4R	**CM72LP**	**–**	**MS2111**	25 IP
1098881	**NEL3232P4**	32	32	40	170	24	6,4	50,8	N.4R	**CM72LP**	**–**	**MS2111**	25 IP

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



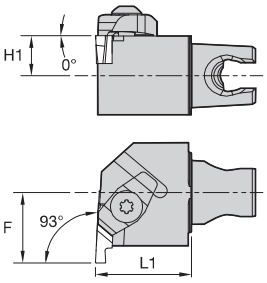


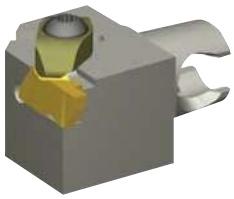


NS

order number	catalogue number	H	B	F	L1	LH	B4	CD	gage insert	clamp	clamp screw	clamp screw	hex (mm)/ Torx Plus
right hand													
1098790	NSR1010E2	10	10	14	70	19	9	3,5	N.2R	CM74	MS1200	–	T10
1098791	NSR1212F2	12	12	16	80	19	9	3,5	N.2R	CM74	MS1200	–	T10
1098792	NSR1616H2	16	16	20	100	19	9	3,5	N.2R	CM74	MS1200	–	T10
1098793	NSR2020K2	20	20	25	125	19	9	3,5	N.2R	CM74	MS1200	–	T10
1098795	NSR2020K3	20	20	25	125	32	13	5,3	N.3R	CM72LP	–	MS2111	25 IP
1098794	NSR2525M2	25	25	32	150	19	9	3,5	N.2R	CM74	MS1200	–	T10
1098796	NSR2525M3	25	25	32	150	32	13	5,3	N.3R	CM72LP	–	MS2111	25 IP
1098799	NSR2525M4	25	25	32	150	35	14	7,5	N.4R	CM72LP	–	MS2111	25 IP
1098797	NSR3225P3	32	25	32	170	32	13	5,3	N.3R	CM72LP	–	MS2111	25 IP
1098800	NSR3225P4	32	25	32	170	35	14	7,5	N.4R	CM72LP	–	MS2111	25 IP
1098798	NSR3232P3	32	32	40	170	32	13	5,3	N.3R	CM72LP	–	MS2111	25 IP
1098801	NSR3232P4	32	32	40	170	35	14	7,5	N.4R	CM72LP	–	MS2111	25 IP
left hand													
1098861	NSL1010E2	10	10	14	70	19	9	3,5	N.2L	CM75	MS1200	–	T10
1098862	NSL1212F2	12	12	16	80	19	9	3,5	N.2L	CM75	MS1200	–	T10
1098863	NSL1616H2	16	16	20	100	19	9	3,5	N.2L	CM75	MS1200	–	T10
1098864	NSL2020K2	20	20	25	125	19	9	3,5	N.2L	CM75	MS1200	–	T10
1098866	NSL2020K3	20	20	25	125	32	13	5,3	N.3L	CM73LP	–	MS2111	25 IP
1098865	NSL2525M2	25	25	32	150	19	9	3,5	N.2L	CM75	MS1200	–	T10
1098867	NSL2525M3	25	25	32	150	32	13	5,3	N.3L	CM73LP	–	MS2111	25 IP
1098870	NSL2525M4	25	25	32	150	35	14	7,5	N.4L	CM73LP	–	MS2111	25 IP
1098868	NSL3225P3	32	25	32	170	32	13	5,3	N.3L	CM73LP	–	MS2111	25 IP
1098871	NSL3225P4	32	25	32	170	35	14	7,5	N.4L	CM73LP	–	MS2111	25 IP
1098869	NSL3232P3	32	32	40	170	32	13	5,3	N.3L	CM73LP	–	MS2111	25 IP
1098872	NSL3232P4	32	32	40	170	35	14	7,5	N.4L	CM73LP	–	MS2111	25 IP

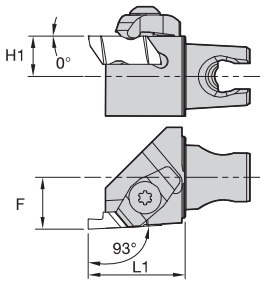
NOTE: F dimension measured over sharp point of Top Notch-style threading and grooving insert.

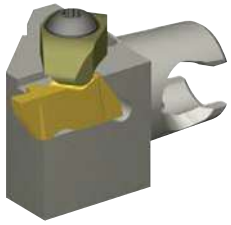




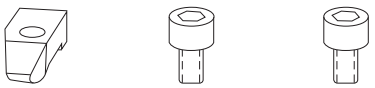
NE 93°

order number	catalogue number	L1	F	H1	gage insert	clamp	clamp screw	clamp screw
right hand								
2399462	**KM25NER230**	30	22	12,5	NG2L	**CM75**	**–**	**MS1200**
2399494	**KM25NER330**	30	22	12,5	NG3L	**CM73LP**	**MS2111**	**–**
2399496	**KM25NER430**	30	24	12,5	NG4L	**CM73LP**	**MS2111**	**–**
left hand								
2399495	**KM25NEL330**	30	22	12,5	NG3R	**CM72LP**	**MS2111**	**–**
2399497	**KM25NEL430**	30	24	12,5	NG4R	**CM72LP**	**MS2111**	**–**

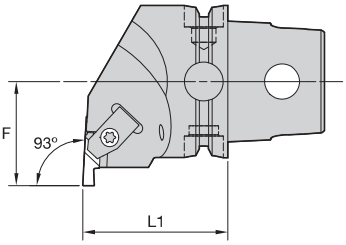


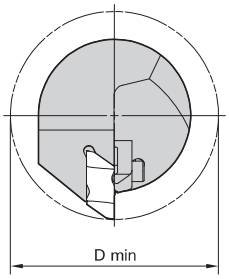


NS 93°



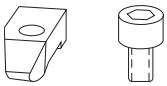
order number	catalogue number	L1	F	H1	gage insert	clamp	clamp screw	clamp screw
right hand								
2399498	**KM25NSR230**	30	16	12,5	NG2R	**CM74**	**–**	**MS1200**
2399500	**KM25NSR330**	30	16	12,5	NG3R	**CM72LP**	**MS2111**	**–**
left hand								
2399499	**KM25NSL230**	30	16	12,5	NG2L	**CM75**	**–**	**MS1200**
2399501	**KM25NSL330**	30	16	12,5	NG3L	**CM73LP**	**MS2111**	**–**
2399503	**KM25NSL430**	30	16	12,5	NG4L	**CM213LP**	**MS2111**	**–**



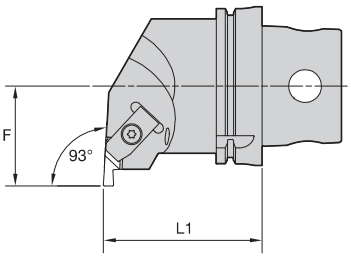


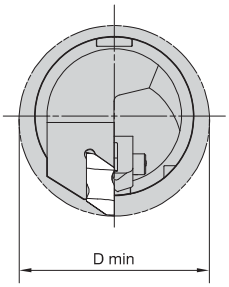
KM QUICK CHANGE

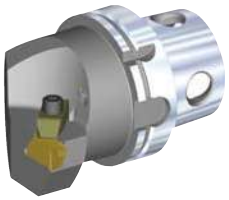
NE 93°



order number	catalogue 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**	0,30	.66
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	.65
left hand												
3902132	**KM40TSNEL2**	40	1.575	27	1.063	54	2.126	NG2R	**CM74**	**MS1488**	0,30	.66
3902283	**KM40TSNEL3**	40	1.575	27	1.063	54	2.126	NG3R	**CM-72**	**MS1489**	0,30	.67
3902284	**KM40TSNEL4**	40	1.575	27	1.063	54	2.126	NG4R	**CM-72**	**MS1489**	0,30	.65

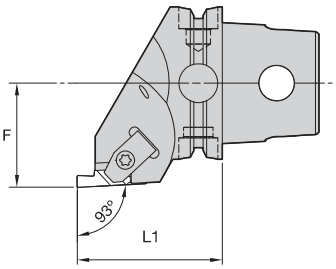


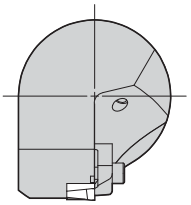




NE

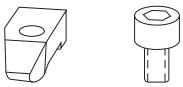
order number	catalogue number	L1 mm	L1 in	F mm	F in	D min mm	D min in	gage insert	clamp	clamp screw	kg	lbs
right hand												
5337758	**KM4X100NER3**	100	3.937	63	2.480	120	4.724	NG3L	**CM73**	**MS1489**	4,45	9.80
5337759	**KM4X100NER4**	100	3.937	63	2.480	120	4.724	NG4L	**CM73**	**MS1489**	4,51	9.93
5337770	**KM4X100NER5**	100	3.937	63	2.480	120	4.724	NG5L	**CM81**	**MS1490**	4,65	10.25
5337771	**KM4X100NER6**	100	3.937	63	2.480	120	4.724	NG6L	**CM121**	**MS1489**	4,48	9.88
left hand												
5337754	**KM4X100NEL3**	100	3.937	63	2.480	120	4.724	NG3R	**CM-72**	**MS1489**	4,45	9.80
5337755	**KM4X100NEL4**	100	3.937	63	2.480	120	4.724	NG4R	**CM-72**	**MS1489**	4,51	9.93
5337756	**KM4X100NEL5**	100	3.937	63	2.480	120	4.724	NG5R	**CM80**	**MS1490**	4,65	10.25
5337757	**KM4X100NEL6**	100	3.937	63	2.480	120	4.724	NG6R	**CM120**	**MS1489**	4,48	9.88



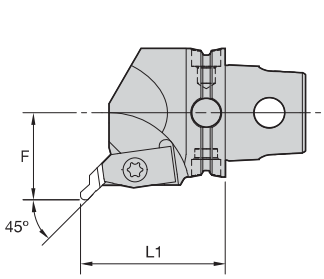


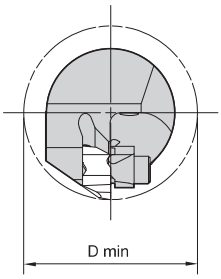
KM QUICK CHANGE

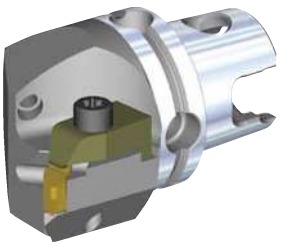
NS 93°



order number	catalogue 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	**CM-72**	**MS1489**	0,32	.71
3902295	**KM40TSNSR4**	47	1.850	27	1.063	NG4R	**CM-72**	**MS1489**	0,30	.66
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**	0,30	.66

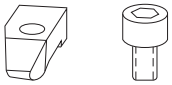






KM QUICK CHANGE

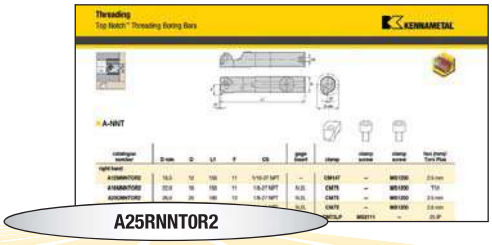
NR 45°



order number	catalogue number	L1 mm	L1 in	F mm	F in	D min mm	D min in	gage insert	clamp	clamp 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	**CM-72**	**MS1489**	0,33	.74

How Do Catalogue Numbers Work?

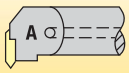
Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



A	25	R	N	N	T	0	R	2
Bar Type	Bar Diameter	Bar Length	Insert Holding Method	Insert Shape	Insert Location	Rake Angle 0 = 0°	Hand of Tool	Insert Size

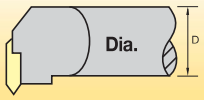
Bar Type

Steel with coolant



Bar Diameter

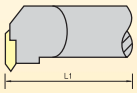
Bar in millimetres



Bar Length

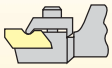
Bars

K	=	125,0mm
M	=	150,0mm
Q	=	180,0mm
R	=	200,0mm
S	=	250,0mm
T	=	300,0mm
U	=	350,0mm



Insert Holding Method

N —
Top Notch*

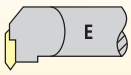


*Proprietary standard only.

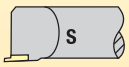
Insert Shape

Insert Location

End mount



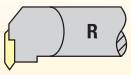
Side mount



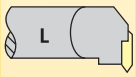
Rake Angle 0 = 0°

Hand of Tool

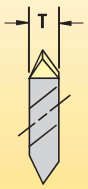
Right hand



Left hand



Insert Size



insert size	T
2	3,81
3	4,95
4	6,98
5	9,65
6	9,73
8	11,13

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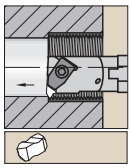
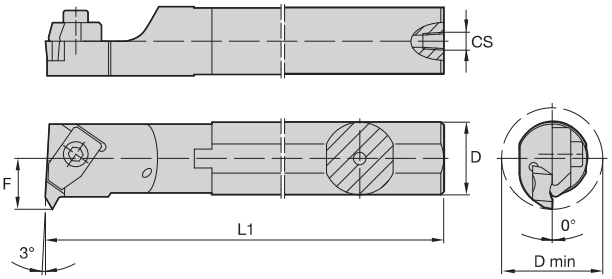
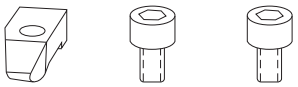


Steel shank with through coolant.

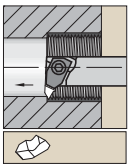


A-NNT

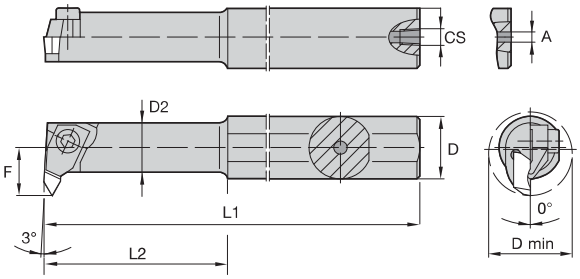


order number	catalogue number	D min	D	L1	F	CS	gage insert	clamp	clamp screw	clamp screw	hex (mm)/ Torx Plus
right hand											
1098945	**A12MNNTOR2**	18,5	12	150	11	1/16-27 NPT	–	**CM147**	–	**MS1200**	2.5 mm
1098947	**A16MNNTOR2**	22,0	16	150	11	1/8-27 NPT	N.2L	**CM75**	–	**MS1200**	T10
1098949	**A20QNNTOR2**	26,0	20	180	13	1/8-27 NPT	N.2L	**CM75**	–	**MS1200**	2.5 mm
1098951	**A25RNNTOR2**	34,0	25	200	17	1/4-18 NPT	N.2L	**CM75**	–	**MS1200**	2.5 mm
1098953	**A25RNNTOR3**	34,0	25	200	17	1/8 - 27 NPT	N.3L	**CM73LP**	**MS2111**	–	25 IP
1098955	**A32SNNTOR3**	44,0	32	250	22	1/4-18 NPT	N.3L	**CM73LP**	**MS2111**	–	25 IP
1098957	**A40TNNTOR3**	54,0	40	300	27	1/4-18 NPT	N.3L	**CM73LP**	**MS2111**	–	25 IP
1099001	**A40TNNTOR4**	54,0	40	300	27	1/4-18 NPT	N.4L	**CM73LP**	**MS2111**	–	25 IP
1099003	**A50UNNTOR4**	70,0	50	350	35	1/4-18 NPT	N.4L	**CM73LP**	**MS2111**	–	25 IP
left hand											
1098946	**A12MNNTOL2**	18,5	12	150	11	1/16-27 NPT	NG2R	**CM146**	–	**MS1200**	2.5 mm
1098948	**A16MNNTOL2**	22,0	16	150	11	1/8-27 NPT	N.2R	**CM74**	–	**MS1200**	T10
1098950	**A20QNNTOL2**	26,0	20	180	13	1/8-27 NPT	NG2R	**CM74**	–	**MS1200**	2.5 mm
1098952	**A25RNNTOL2**	34,0	25	200	17	1/4-18 NPT	N.2R	**CM74**	–	**MS1200**	2.5 mm
1098954	**A25RNNTOL3**	34,0	25	200	17	1/4-18 NPT	N.3R	**CM72LP**	**MS2111**	–	25 IP
1098956	**A32SNNTOL3**	44,0	32	250	22	1/4-18 NPT	N.3R	**CM72LP**	**MS2111**	–	25 IP
1098958	**A40TNNTOL3**	54,0	40	300	27	1/4-18 NPT	N.3R	**CM72LP**	**MS2111**	–	25 IP
1099002	**A40TNNTOL4**	54,0	40	300	27	1/4-18 NPT	N.4R	**CM72LP**	**MS2111**	–	25 IP

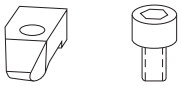
NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page D102 for details.
F dimension measured over sharp point of NG-style grooving insert.



Necked steel shank with through coolant.

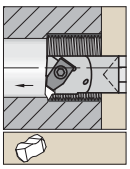


A-NNT -1

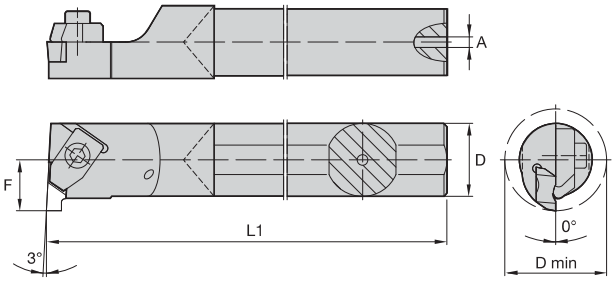


order number	catalogue number	D min	D	HDD	L1	L2	F	A	CS	gage insert	clamp	clamp screw	hex (mm)
right hand													
1098943	**A10KNNTOR1**	11,5	10	10,0	125	—	7	3,2	—	NG1L	**CM109**	**MS1034**	1.5 mm
1098944	**A12MNNTOR1**	11,5	12	10,0	150	31,30	7	4,0	1/16-27 NPT	N.1L	**CM109**	**MS1034**	1.5 mm

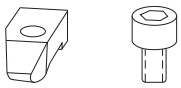
NOTE: F dimension measured over sharp point of Top Notch style threading insert.



Carbide shank with through coolant.

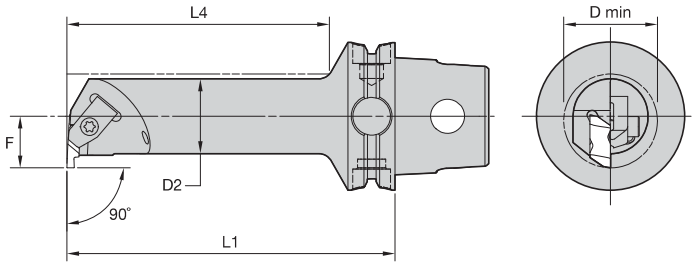


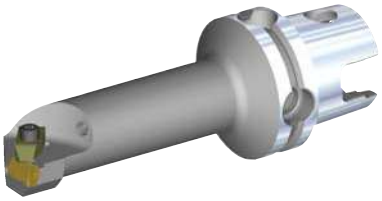
E-NNT



order number	catalogue number	D min	D	L1	F	A	gage insert	clamp	clamp screw	Torx/ Torx Plus
right hand										
1152834	**E16RNNTOR2**	22	16	200	11	5,5	N.2L	**CM75**	**MS1200**	T10
1152836	**E20SNNTOR2**	26	20	250	13	7,1	N.2L	**CM75**	**MS1200**	T10
left hand										
1152835	**E16RNNTOL2**	22	16	200	11	5,5	N.2R	**CM74**	**MS1200**	T10

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page D102 for details.
F dimension measured over sharp point of Top Notch style threading insert.





KM QUICK CHANGE

NE 90° • Steel

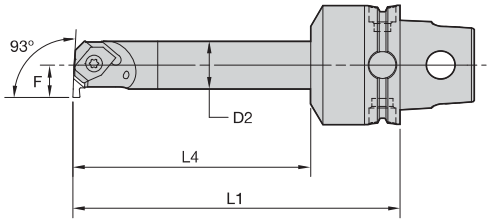
order number	catalogue number	D2 mm	D2 in	D min mm	D min in	F mm	F in	L4 mm	L4 in	L1 mm	L1 in	gage insert	kg	lbs
right hand														
3955481	**KM40TSS12ENER2**	12	.472	19	.73	11	.433	42	1.655	70	2.756	NG2L	0,27	.58
3955483	**KM40TSS16FNER2**	16	.630	20	.79	11	.433	56	2.209	80	3.150	NG2L	0,28	.62
3955485	**KM40TSS20GNER2**	20	.787	25	.98	13	.512	70	2.757	90	3.543	NG2L	0,35	.76
3955487	**KM40TSS25ENER2**	25	.984	32	1.26	17	.669	55	2.169	70	2.756	NG2L	0,34	.75
3955491	**KM40TSS25ENER3**	25	.984	34	1.34	17	.669	55	2.169	70	2.756	NG3L	0,35	.77
3955489	**KM40TSS25HNER2**	25	.984	32	1.26	17	.669	75	2.954	100	3.937	NG2L	0,49	1.08
3955493	**KM40TSS25HNER3**	25	.984	34	1.34	17	.669	75	2.954	100	3.937	NG3L	0,49	1.09
3955497	**KM40TSS32GNER3**	32	1.260	40	1.57	22	.866	76	2.993	90	3.543	NG3L	0,55	1.21
3955495	**KM40TSS32JNER3**	32	1.260	40	1.57	22	.866	96	3.780	110	4.331	NG3L	0,67	1.48
left hand														
3955480	**KM40TSS12ENEL2**	12	.472	19	.73	11	.433	42	1.655	70	2.756	NG2R	0,27	.59
3955482	**KM40TSS16FNEL2**	16	.630	20	.79	11	.433	56	2.209	80	3.150	NG2R	0,28	.62
3955484	**KM40TSS20GNEL2**	20	.787	25	.98	13	.512	70	2.757	90	3.543	NG2R	0,35	.76
3955486	**KM40TSS25ENEL2**	25	.984	32	1.26	17	.669	55	2.169	70	2.756	NG2R	0,34	.75
3955490	**KM40TSS25ENEL3**	25	.984	34	1.34	17	.669	55	2.169	70	2.756	NG3R	0,35	.77
3955492	**KM40TSS25HNEL3**	25	.984	34	1.34	17	.669	75	2.954	100	3.937	NG3R	0,49	1.09
3955496	**KM40TSS32GNEL3**	32	1.260	40	1.57	22	.866	76	2.993	90	3.543	NG3R	0,55	1.21

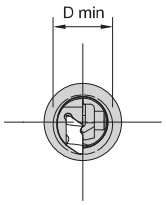
(continued)

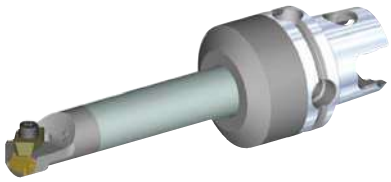
(NE 90° • Steel — continued)

Spare Parts


catalogue number	clamp	clamp screw
right hand		
KM40TSS12ENER2	CM147	MS1488
KM40TSS16FNER2	CM147	MS1488
KM40TSS20GNER2	CM75	MS1488
KM40TSS25ENER2	CM75	MS1488
KM40TSS25ENER3	CM73	MS1489
KM40TSS25HNER2	CM75	MS1488
KM40TSS25HNER3	CM73	MS1489
KM40TSS32GNER3	CM73	MS1489
KM40TSS32JNER3	CM73	MS1489
left hand		
KM40TSS12ENEL2	CM146	MS1488
KM40TSS16FNEL2	CM146	MS1488
KM40TSS20GNEL2	CM74	MS1488
KM40TSS25ENEL2	CM74	MS1488
KM40TSS25ENEL3	CM-72	MS1489
KM40TSS25HNEL3	CM-72	MS1489
KM40TSS32GNEL3	CM-72	MS1489





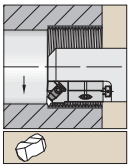


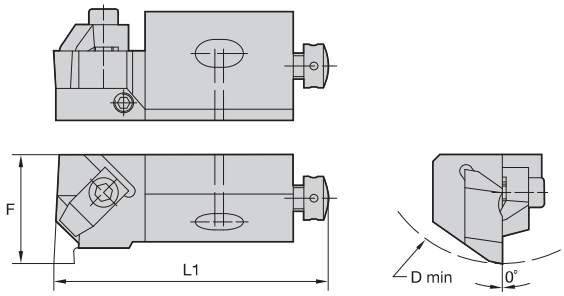
NE 90° • Carbide

order number	catalogue 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														
3951836	KM40TSE16JNER2	16	.630	20	.79	11	.433	80	3.15	110	4.331	NG2L	0,41	.90
left hand														
3951835	KM40TSE16JNEL2	16	.630	20	.79	11	.433	80	3.15	110	4.331	NG2R	0,41	.90

Spare Parts

catalogue number	clamp	clamp screw
right hand		
KM40TSE16JNER2	CM146	MS1488
left hand		
KM40TSE16JNEL2	CM147	MS1488

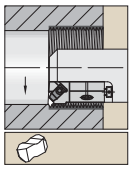


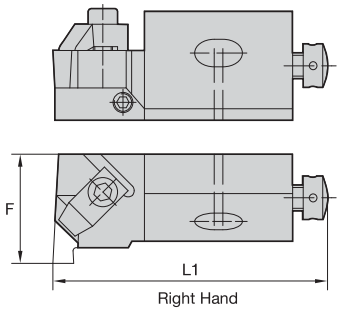


Steel Boring Cartridge

order number	catalogue number	D min	F	L1	gage insert	clamp	clamp screw	hex (mm)	radial adjusting screw	hex (mm)	axial screw	hex (mm)	washer
right hand													
1098380	**NER12CA2**	50	20	55,7	N.2L	**CM75**	**MS1025**	2.5 mm	**KUAM23**	2.5 mm	**KUAM31**	2.5 mm	**CSWM 060 050**
left hand													
1098624	**NEL12CA2**	50	20	55,0	N.2R	**CM74**	**MS1025**	2.5 mm	**KUAM23**	2.5 mm	**KUAM31**	2.5 mm	**CSWM 060 050**
1098626	**NEL25CA3**	100	32	100,0	N.3R	**CM72LP**	**MS412**	4 mm	**KUAM26**	4 mm	**KUAM33**	4 mm	**CSWM 100 080**

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page D102 for details.
F dimension measured over sharp point of Top Notch-style threading insert.



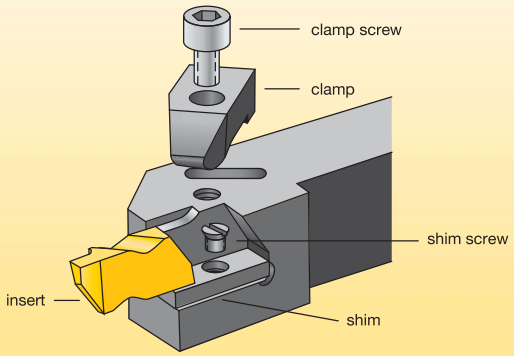


Steel Boring Cartridge

order number	catalogue number	D min	F	L1	gage insert	clamp	clamp screw	hex (mm)	radial adjusting screw	hex (mm)	axial screw	hex (mm)	washer
right hand													
1098380	**NER12CA2**	50	20	55,7	N.2L	**CM75**	**MS1025**	2.5 mm	**KUAM23**	2.5 mm	**KUAM31**	2.5 mm	**CSWM 060 050**
left hand													
1098624	**NEL12CA2**	50	20	55,0	N.2R	**CM74**	**MS1025**	2.5 mm	**KUAM23**	2.5 mm	**KUAM31**	2.5 mm	**CSWM 060 050**
1098626	**NEL25CA3**	100	32	100,0	N.3R	**CM72LP**	**MS412**	4 mm	**KUAM26**	4 mm	**KUAM33**	4 mm	**CSWM 100 080**

NOTE: Minimum bore diameter (D min) capability varies with thread type and pitch. See page D102 for details.
F dimension measured over sharp point of Top Notch style threading insert.

Toolholders and Boring Bars



insert size and style	clamp	clamp screw	shim	shim screw
NG-1L	CM-109	S-304	–	–
NG-2R	CM-182	S-310	–	–
NG-2L	CM-183	S-310	–	–
NG-2R	CM-74	S-310	–	–
NG-2L	CM-75	S-310	–	–
NG-3R	CM-184	S-412	–	–
NG-3L	CM-185	S-412	–	–
NG-3R	CM-72	S-412	–	–
NG-3L	CM-73	S-412	–	–
NG-3R*	CM-78	S-412	–	–
NG-3L*	CM-70	S-412	–	–
NG-4R	CM-72	S-412	SM-420	SL-344
NG-4L	CM-73	S-412	SM-420	SL-344
NG-5R	CM-80	S-352	–	–
NG-5L	CM-81	S-352	–	–
NG-6R	CM-120	S-412	SM-416	S-111
NG-6L	CM-121	S-412	SM-416	S-111
NG-8R	CM-144	S-422	SM-419	S-112
NG-8L	CM-145	S-422	SM-419	S-112
NG-8R**	CM-144	S-422	SM-427	S-111
NG-8L**	CM-145	S-422	SM-427	S-111
Top Notch relief grooving				
NU-3125R	CM-72	S-412	–	–
NU-3125L	CM-73	S-412	–	–
NU-3125R**	CM-72	S-618	–	–
NU-3125L**	CM-73	S-618	–	–

*25mm diameter boring head.
**Boring head.

LT • Laydown Triangle Threading

Primary Application

Laydown triangle (LT) 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. Variable shim angles enable proper cutting geometry for high-helix angle and reverse helix angle threading, maximising tool life and improving thread quality.

Features and Benefits

Precision-Ground Thread Form on LT and LT-CB

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

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.

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.

Kenna Universal™ Inserts

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

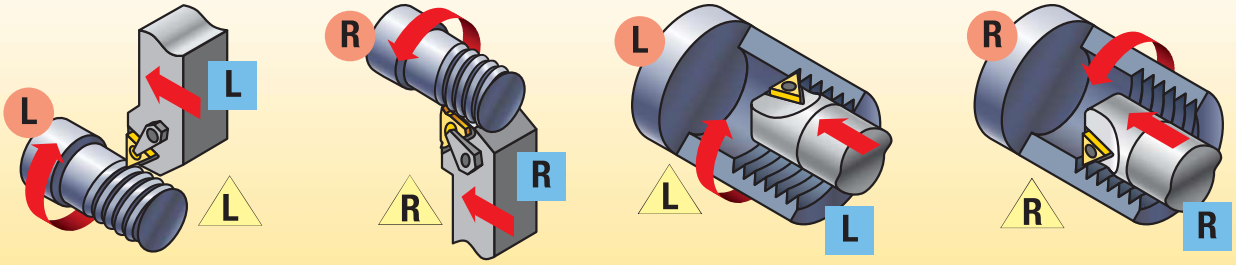

KENNAMETAL

Step 1 • Select Threading Method and Hand of Tooling

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

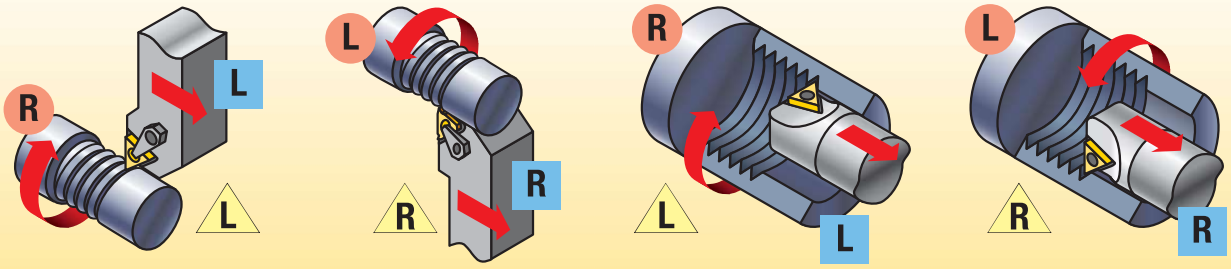
hand of thread | hand of toolholder | hand of insert

Feed direction toward the chuck • standard helix • RECOMMENDED



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

**Negative shim required*

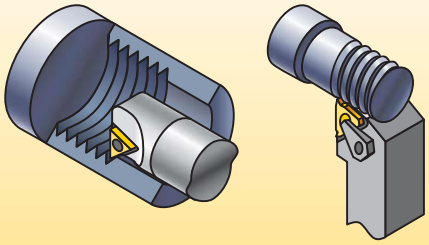
Step 2 • Select Holder from Catalogue Page

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:

catalogue number	gage insert	minimum bore diameter	shim
S0812LSER2	2IRA60	16,5mm	SM-YI3
S2020LSER3	3IR...	36,8mm	SM-YI3

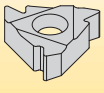
Select the appropriate holder for the insert size and hand:



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 optimised 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.

NOTE: See threading insert overview on page D50.



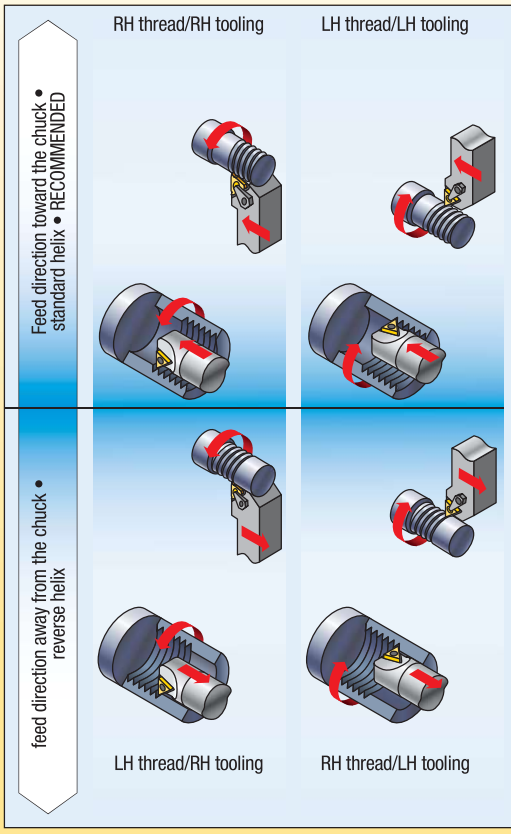
insert size	catalogue number	KCU25/KC5025
11	**2IRA60**	•
16	**3IRAG60**	•

Step 4 • Select Appropriate Shim

Required Information:

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

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

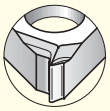
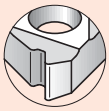
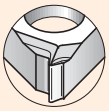
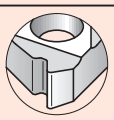


insert size	toolholder external	toolholder internal	shim ordering code (inch)							
						standard				
3 (3/8")	RH	LH	SM-YE3-3P	SM-YE3-2P	SM-YE3-1P	SM-YE3	SM-YE3-1N	SM-YE3-1.5N	SM-YE3-2N	SM-YE3-3N
3 (3/8")	LH	RH	SM-YI3-3P	SM-YI3-2P	SM-YI3-1P	SM-YI3	SM-YI3-1N	SM-YI3-1.5N	SM-YI3-2N	SM-YI3-3N
4 (1/2")	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
4 (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
			standard helix (feed toward the chuck)						reverse helix (feed away from the chuck)	

If recommended shim is different from shim supplied with toolholder, order shim separately.
NOTE: Optimise your threading operation by using the proper infeed angle and the recommended infeed values.
See the Technical Section on pages D88–D110.
Also see detailed shim selection information on pages D109–D110.

Step 5 • Select Grade and Speed

Recommendations for Grade and Speed Selection – m/min

	workpiece material	P	M	K	N	S
Kenna Perfect™	insert style	CB chipbreaker			CB chipbreaker	
	optimum cutting conditions	**KC5010** 70–260	**KC5010** 90–245	**KC5010** 60–245	**KC5010** 90–550	**KC5010** 30–150
	first choice	**KC5025** 50–230	**KC5025** 75–230	**KC5025** 50–180	**KC5025** 60–455	**KC5025** 20–120
Kenna Universal™	insert style	-K chipbreaker				
	selection	**KU25T** 45–210	**KU25T** 70–205	**KU25T** 45–160	**KU25T** 55–410	**KU25T** 20–110

NOTE: See threading insert overview on page D50.

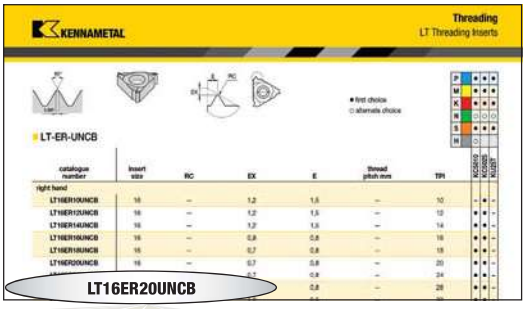
Recommended Starting Speeds [m/min]

Material Group		KC5010			KC5025			KU25T		
P	0–1	135	**200**	260	105	**165**	230	95	**150**	210
	2	130	**190**	245	100	**150**	200	90	**135**	180
	3	105	**155**	200	75	**125**	170	70	**115**	155
	4	70	**120**	160	60	**95**	130	55	**85**	115
	5	105	**155**	200	75	**130**	170	70	**115**	155
	6	70	**120**	160	50	**90**	130	45	**80**	115
M	1	120	**180**	245	90	**170**	230	80	**155**	205
	2	90	**165**	210	75	**140**	200	70	**125**	180
	3	90	**165**	210	75	**135**	200	70	**120**	180
K	1	120	**180**	245	90	**135**	180	80	**120**	160
	2	90	**150**	210	70	**120**	170	65	**110**	155
	3	60	**105**	150	50	**85**	120	45	**75**	110
N	1–2	150	**365**	550	120	**305**	455	110	**275**	410
	3	90	**135**	180	60	**105**	150	55	**95**	135
	4	120	**305**	455	100	**200**	305	90	**180**	275
	5	90	**165**	245	70	**135**	195	65	**120**	175
	6	120	**210**	305	100	**170**	245	90	**155**	220
S	1	30	**70**	105	20	**40**	60	20	**35**	55
	2	30	**65**	100	20	**35**	45	20	**30**	40
	3	30	**65**	100	20	**35**	45	20	**30**	40
	4	55	**105**	150	45	**85**	120	40	**75**	110
H	1	30	**45**	60	–	**–**	–	–	**–**	–
	2	15	**30**	45	–	**–**	–	–	**–**	–
	3	**–**	**–**	–	–	**–**	–	–	**–**	–
	4	**–**	**–**	–	–	**–**	–	–	**–**	–

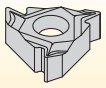
NOTE: FIRST choice starting speeds are in **bold** type.

How Do Catalogue Numbers Work?

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



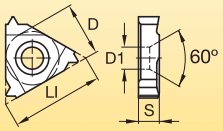
LT — Type of Insert



LT = Laydown triangle threading

16 — Cutting Edge Length *(Size)*

insert size	LI (mm)	D (mm)	S (mm)	D1 (mm)
11	11,0	6,35	3,20	3,25
16	16,5	9,52	3,63	3,94
22	22,0	12,70	4,78	4,88



ER — Hand of Insert

ER = External right hand

EL = External left hand

NR = Internal right hand

NL = Internal left hand

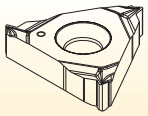
20 — Thread Pitch

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

UN — Thread Profile

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

CB — Chip Control



☐ = Flat top

CB = Chipbreaker

K = Kenna Universal™ chipbreaker

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 60º	—	—	N	General use for 60° thread forms, such as ISO and UN, where non-cresting inserts are desired to cut a variety of pitches.	D53–D54, D66–D67
 LT-ISOCB	 LT-ISOK	 LT-ISO	Metric ISO	ISO R262, DIN 13	6g/6H	Y	Widely used metric 60° V-form for all industries.	D57–D58, D70–D71
 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.	D62–D63, D74–D75
		 LT-UNJ	UNJ	MIL-S-8879C	3A/3B	Y	Controlled root radius on external threads for military and aerospace industries, 60° thread form.	D63, D75
 LT-NPTCB		 LT-NPT	NPT	USAS B2.1:1968	Standard NPT	Y	National Pipe Thread standard 60° thread form for pipe fittings.	D59, D72
 LT-NPTFCB		 LT-NPTF	NPTF	ANSI B1.20.3-1976	Class 2	Y	Dryseal-type NPT 60° thread form for pipe fittings.	D60, D72
	 LT-55K	 LT-55	Partial profile 55º	—	—	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.	D52, D65–D66
		 LT-BSPT	BSPT	BS 21:1985	Standard BSPT	Y	55° form for pipe fittings.	D56, D69
 LT-WCB	 LT-WK	 LT-W	Whitworth, BSW, BSF, BSP	BS 84:1956, ISO 228/1:1985, DIN 259	Medium Class A	Y	Widely used 55° form for gas and water connections.	D64–D65, D76
		 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.	D55, D68
		 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.	D55, D69
		 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.	D56, D69
		 LT-ACME	Acme	ANSI B1.5:1988	3G	N	29° truncated thread form for motion applications in a wide variety of industries.	D54, D68
		 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.	D61, D73
		 LT-RD	Round	DIN 405	7h/7H	Y	Round thread form for tube fittings in the chemical and food industries.	D60, D73
		 LT-TR	Trapez	DIN 103	7e/7H	N	30° truncated metric thread form for motion applications.	D61, D73

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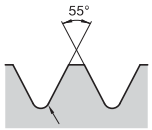
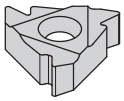
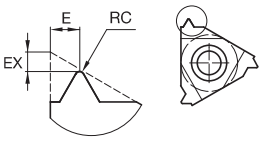


Partial Profile 55°
External



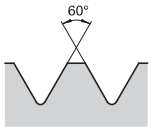


● first choice
○ alternate choice

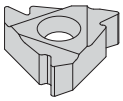
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

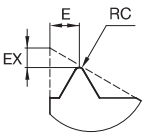
LT-ER/L-55

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ERA55	16	0,05	0,8	0,89	0,50-1,50	16-48	–	●	–
LT16ERAG55	16	0,08	1,2	1,70	0,50-3,00	8-48	●	●	–
16ERG55	16	0,20	1,2	1,70	1,75-3,00	8-14	–	●	–
LT22ERN55	22	0,43	1,7	2,49	3,50-5,00	5-7	–	●	–
left hand									
LT16ELAG55	16	0,08	1,2	1,70	0,50-3,00	8-48	–	●	–



Partial Profile 60°
External



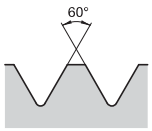


● first choice
○ alternate choice

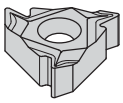
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

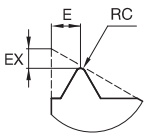
LT-ER/L-60

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ERA60	16	0,05	0,8	0,9	0,50-1,50	16-48	●	●	–
16ERAG60	16	0,08	1,2	1,7	0,50-3,0	8-48	–	●	–
LT16ERAG60	16	0,08	1,2	1,7	0,50-3,0	8-48	●	–	–
LT16ERG60	16	0,28	1,2	1,7	1,75-3,0	8-14	●	●	–
LT22ERN60	22	0,53	1,7	2,5	3,5-5,0	5-7	–	●	–
left hand									
LT16ELA60	16	0,05	0,8	0,9	0,50-1,50	16-48	–	●	–
LT16ELAG60	16	0,08	1,2	1,7	0,50-3,0	8-48	–	●	–
LT16ELG60	16	0,28	1,2	1,7	1,75-3,0	8-14	–	●	–
LT22ELN60	22	0,53	1,7	2,5	3,5-5,0	5-7	–	●	–



Partial Profile 60°
External



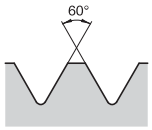


LT-ER-60CB

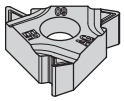
catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ERAG60CB	16	0,08	0,9	1,5	0,50-3,0	8-48	●	●	–

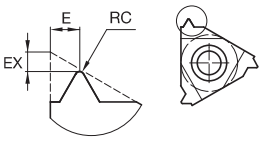
		KC5010	KC5025	KU25T
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

● first choice
○ alternate choice



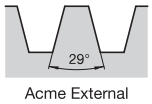
Partial Profile 60° External



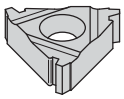


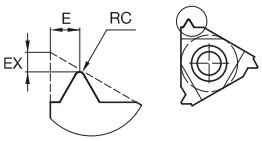
LT-ER-60K

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ERAG60K	16	0,08	1,2	1,7	0,50-3,0	8-48	–	–	●



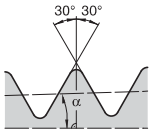
Acme External



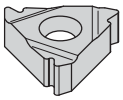


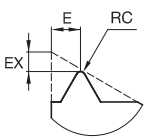
LT-ER/L-ACME

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER10ACME	16	–	1,3	1,40	–	10	–	●	–
LT16ER12ACME	16	–	1,1	1,19	–	12	–	●	–
LT16ER16ACME	16	–	1,0	1,09	–	16	–	●	–
LT16ER8ACME	16	–	1,4	1,50	–	8	–	●	–
LT22ER5ACME	22	–	2,0	2,29	–	5	–	●	–
LT22ER6ACME	22	–	1,8	2,11	–	6	–	●	–



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



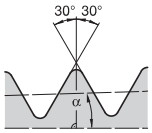


● first choice
○ alternate choice

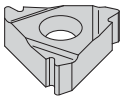
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

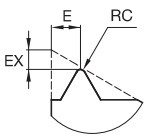
LT-ER/L-API

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT22ER4API382	22	–	2,1	2,79	–	4	–	●	–
LT22ER4API502	22	–	2,0	2,90	–	4	●	●	–
LT22ER4API503	22	–	2,0	2,90	–	4	●	–	–
LT22ER5API403	22	–	1,8	2,60	–	5	●	–	–
LT27ER4API502	28	0,64	2,0	2,79	–	4	–	●	–
LT27ER4API382	28	0,97	2,0	2,79	–	4	–	●	–



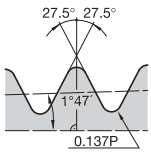
API Round-External



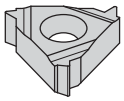


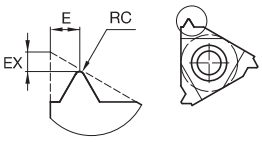
LT-ER/L-APIRD

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER10APIRD	16	–	1,2	1,40	–	10	–	●	–
LT16ER8APIRD	16	–	1,3	1,50	–	8	–	●	–
left hand									
LT16EL8APIRD	16	–	1,3	1,50	–	8	–	●	–



BSPT-External



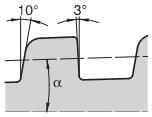


● first choice
○ alternate choice

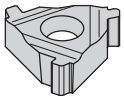
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

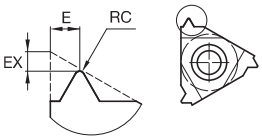
LT-ER/L-BSPT

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER11BSPT	16	–	1,1	1,50	–	11	–	●	–
LT16ER14BSPT	16	–	1,0	1,19	–	14	–	●	–



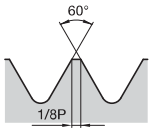
API Buttress
Casing-External
α = 1/2 arctan
(TPF/12)



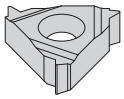


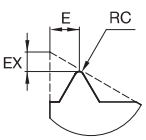
LT-ER/L-BUT

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT22ER5BUT75	22	–	3,1	1,91	–	5	–	●	–



ISO Metric-External



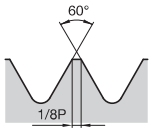


● first choice
○ alternate choice

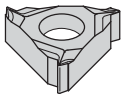
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

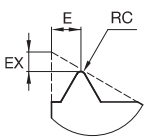
LT-ER/L-ISO

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER05ISO	16	–	0,6	0,4	0,50	–	–	●	–
LT16ER075ISO	16	–	0,6	0,6	0,75	–	–	●	–
LT16ER10ISO	16	–	0,7	0,7	1,0	–	●	●	–
LT16ER125ISO	16	–	0,8	0,9	1,25	–	●	●	–
LT16ER15ISO	16	–	0,8	1,0	1,5	–	●	●	–
LT16ER175ISO	16	–	0,9	1,2	1,75	–	●	●	–
LT16ER20ISO	16	–	1,0	1,3	2,0	–	●	●	–
LT16ER25ISO	16	–	1,1	1,5	2,5	–	●	●	–
LT16ER30ISO	16	–	1,2	1,6	3,0	–	●	●	–
LT22ER35ISO	22	–	1,6	2,3	3,5	–	–	●	–
LT22ER40ISO	22	–	1,6	2,3	4,0	–	–	●	–
LT22ER45ISO	22	–	1,7	2,4	4,5	–	–	●	–
LT22ER50ISO	22	–	1,7	2,5	5,0	–	–	●	–
left hand									
LT16EL15ISO	16	–	0,8	1,0	1,5	–	●	●	–
LT16EL175ISO	16	–	0,9	1,2	1,75	–	–	●	–
LT16EL20ISO	16	–	1,0	1,3	2,0	–	–	●	–
LT16EL25ISO	16	–	1,1	1,5	2,5	–	–	●	–
LT16EL30ISO	16	–	1,2	1,6	3,0	–	–	●	–
LT16EL05ISO	16	–	0,6	0,4	0,50	–	–	●	–
LT16EL075ISO	16	–	0,6	0,6	0,75	–	–	●	–
LT16EL10ISO	16	–	0,7	0,7	1,0	–	–	●	–
LT16EL125ISO	16	–	0,8	0,9	1,25	–	–	●	–
LT22EL35ISO	22	–	1,6	2,3	3,5	–	–	●	–



ISO Metric-External



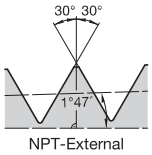


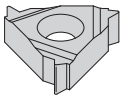
● first choice
○ alternate choice

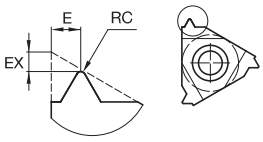
		KC5010	KC5025	KU25T
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

LT-ER-ISOCB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER05ISOCB	16	–	1,2	0,5	0,50	–	●	●	–
LT16ER075ISOCB	16	–	1,2	0,6	0,75	–	●	●	–
LT16ER10ISOCB	16	–	0,7	0,8	1,0	–	●	●	–
LT16ER125ISOCB	16	–	0,7	0,8	1,25	–	●	●	–
LT16ER15ISOCB	16	–	0,7	0,8	1,5	–	●	●	–
LT16ER175ISOCB	16	–	1,2	1,5	1,75	–	●	●	–
LT16ER20ISOCB	16	–	1,2	1,5	2,0	–	●	●	–
LT16ER25ISOCB	16	–	1,2	1,5	2,5	–	–	●	–
LT16ER30ISOCB	16	–	1,3	1,5	3,0	–	●	●	–





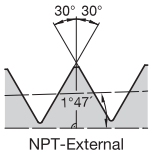


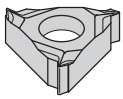
● first choice
○ alternate choice

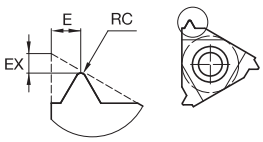
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

LT-ER/L-NPT

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER115NPT	16	–	1,1	1,5	–	11.5	●	●	–
LT16ER14NPT	16	–	0,9	1,2	–	14	●	●	–
LT16ER18NPT	16	–	0,8	1,0	–	18	●	●	–
LT16ER27NPT	16	–	0,7	0,8	–	27	–	●	–
LT16ER8NPT	16	–	1,3	1,8	–	8	–	●	–





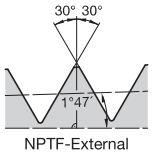


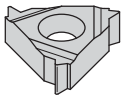
LT-ER-NPTCB

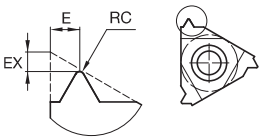
catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER14NPTCB	16	–	1,1	1,5	–	14	●	●	–

● first choice
○ alternate choice

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

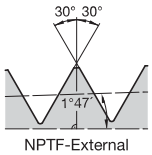


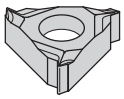


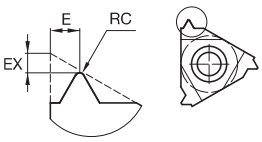


LT-ER/L-NPTF

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER115NPTF	16	–	1,1	1,5	–	11.5	–	●	–
LT16ER14NPTF	16	–	0,9	1,2	–	14	–	●	–

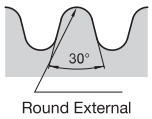


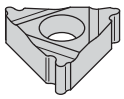


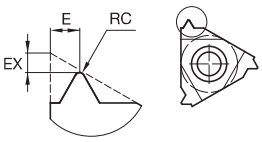


LT-ER-NPTFCB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER115NPTFCB	16	–	1,1	1,5	–	11.5	–	●	–

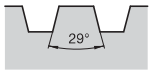




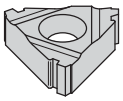


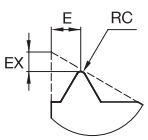
LT-ER/L-RD

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER8RD	16	0,76	1,4	1,30	–	8	–	●	–
LT22ER6RD	22	1,01	1,5	1,70	–	6	–	●	–



Stub Acme-External



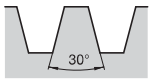


● first choice
○ alternate choice

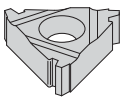
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

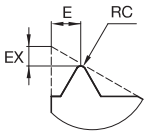
LT-ER/L-STACME

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER10STACME	16	–	1,2	1,30	–	10	–	●	–
LT16ER12STACME	16	–	1,2	1,19	–	12	–	●	–
LT16ER16STACME	16	–	1,0	0,99	–	16	–	●	–
LT16ER6STACME	16	–	1,7	1,80	–	6	–	●	–
LT16ER8STACME	16	–	1,4	1,50	–	8	–	●	–
LT22ER5STACME	22	–	2,1	2,29	–	5	–	●	–



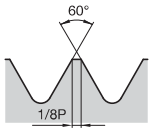
Trapez-External



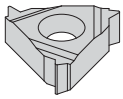


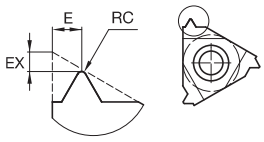
LT-ER/L-TR

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER2TR	16	–	1,1	1,30	2,0	–	–	●	–
LT16ER3TR	16	–	1,3	1,50	3,0	–	–	●	–
LT22ER4TR	22	–	1,7	1,91	4,0	–	–	●	–
LT22ER5TR	22	–	2,1	2,50	5,0	–	–	●	–



American
UN-External



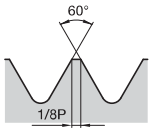


● first choice
○ alternate choice

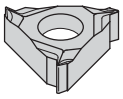
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
H	○		

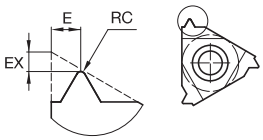
LT-ER/L-UN

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER10UN	16	–	1,1	1,5	–	10	–	●	–
LT16ER12UN	16	–	1,1	1,4	–	12	●	●	–
LT16ER14UN	16	–	1,0	1,2	–	14	●	●	–
LT16ER16UN	16	–	0,9	1,1	–	16	●	●	–
LT16ER18UN	16	–	0,8	1,0	–	18	●	●	–
LT16ER20UN	16	–	0,8	0,9	–	20	●	●	–
LT16ER24UN	16	–	0,7	0,8	–	24	●	●	–
LT16ER28UN	16	–	0,6	0,7	–	28	●	●	–
LT16ER32UN	16	–	0,6	0,6	–	32	●	●	–
LT16ER36UN	16	–	0,6	0,6	–	36	–	●	–
LT16ER40UN	16	–	0,6	0,6	–	40	–	●	–
LT16ER48UN	16	–	0,6	0,6	–	48	–	●	–
LT16ER8UN	16	–	1,2	1,6	–	8	–	●	–
left hand									
LT16EL24UN	16	–	0,7	0,8	–	24	–	●	–
LT16EL28UN	16	–	0,6	0,7	–	28	–	●	–
LT16EL8UN	16	–	1,2	1,6	–	8	–	●	–
LT16EL12UN	16	–	1,1	1,4	–	12	–	●	–
LT16EL14UN	16	–	1,0	1,2	–	14	–	●	–
LT16EL16UN	16	–	0,9	1,1	–	16	–	●	–
LT16EL18UN	16	–	0,8	1,0	–	18	–	●	–
LT16EL20UN	16	–	0,8	0,9	–	20	–	●	–



American
UN-External



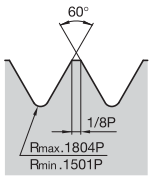


● first choice
○ alternate choice

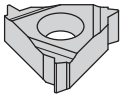
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

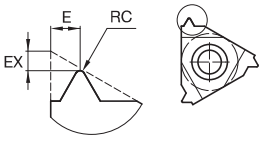
LT-ER-UNCB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER10UNCB	16	–	1,2	1,5	–	10	–	●	–
LT16ER12UNCB	16	–	1,2	1,5	–	12	●	●	–
LT16ER14UNCB	16	–	1,2	1,5	–	14	●	●	–
LT16ER16UNCB	16	–	0,8	0,8	–	16	●	●	–
LT16ER18UNCB	16	–	0,7	0,8	–	18	●	●	–
LT16ER20UNCB	16	–	0,7	0,8	–	20	●	●	–
LT16ER24UNCB	16	–	0,7	0,8	–	24	●	●	–
LT16ER28UNCB	16	–	0,7	0,8	–	28	●	●	–
LT16ER32UNCB	16	–	1,2	0,5	–	32	●	●	–
LT16ER8UNCB	16	–	1,3	1,5	–	8	●	●	–



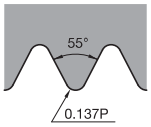
UNJ-External



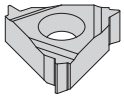


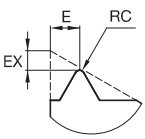
LT-ER/L-UNJ

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER12UNJ	16	–	1,1	1,3	–	12	●	●	–
LT16ER14UNJ	16	–	1,0	1,2	–	14	●	●	–
LT16ER16UNJ	16	–	0,9	1,1	–	16	●	●	–
LT16ER18UNJ	16	–	0,8	1,0	–	18	●	●	–
LT16ER20UNJ	16	–	0,8	0,9	–	20	●	●	–
LT16ER24UNJ	16	–	0,7	0,8	–	24	–	●	–
LT16ER28UNJ	16	–	0,7	0,7	–	28	–	●	–
LT16ER32UNJ	16	–	0,6	0,7	–	32	–	●	–
left hand									
LT16EL16UNJ	16	–	0,9	1,1	–	16	–	●	–



Whitworth BSW,
BSF, BSP-Internal



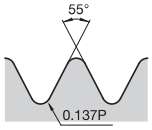


● first choice
○ alternate choice

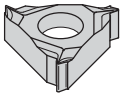
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

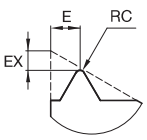
LT-ER/L-W

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER10W	16	–	1,1	1,50	–	10	–	●	–
LT16ER11W	16	–	1,1	1,50	–	11	●	●	–
LT16ER12W	16	–	1,1	1,40	–	12	–	●	–
LT16ER14W	16	–	1,0	1,19	–	14	●	●	–
LT16ER16W	16	–	0,9	1,09	–	16	–	●	–
LT16ER18W	16	–	0,8	0,99	–	18	–	●	–
LT16ER19W	16	–	0,8	0,99	–	19	●	●	–
LT16ER20W	16	–	0,8	0,89	–	20	–	●	–
LT16ER24W	16	–	0,7	0,79	–	24	–	●	–
LT16ER28W	16	–	0,6	0,69	–	28	–	●	–
LT16ER8W	16	–	1,2	1,50	–	8	–	●	–
LT16ER9W	16	–	1,2	1,70	–	9	–	●	–
LT22ER6W	22	–	1,6	2,29	–	6	–	●	–
LT22ER7W	22	–	1,6	2,29	–	7	–	●	–
left hand									
LT16EL11W	16	–	1,1	1,50	–	11	–	●	–
LT16EL14W	16	–	1,0	1,19	–	14	–	●	–



Whitworth BSW,
BSF, BSP-External



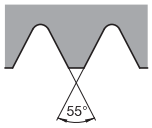


● first choice
○ alternate choice

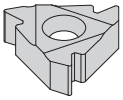
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

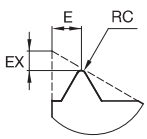
LT-ER-WCB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16ER11WCB	16	–	1,3	1,50	–	11	–	●	–
LT16ER14WCB	16	–	1,3	1,50	–	14	●	●	–



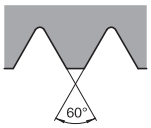
Partial Profile 55°
Internal



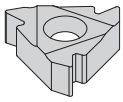


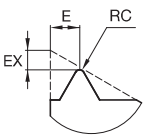
LT-NR/L-55

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NRA55	11	0,05	0,8	0,89	0,50-1,50	16-48	–	●	–
LT16NRA55	16	0,05	0,8	0,89	0,50-1,50	16-48	–	●	–
LT16NRAG55	16	0,07	1,2	1,70	0,50-3,00	8-48	–	●	–
LT16NRG55	16	0,21	1,2	1,70	1,75-3,00	8-14	–	●	–
LT22NRN55	22	0,43	1,7	2,49	3,50-5,00	5-7	–	●	–



Partial Profile 60°
Internal





● first choice
○ alternate choice

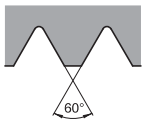
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

LT-NR/L-60

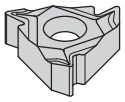
catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NRA60	11	0,05	0,8	0,9	0,50-1,5	48-16	●	●	–
LT16NRA60	16	0,05	0,8	0,9	0,50-1,5	48-16	●	●	–
LT16NRAG60	16	0,05	1,2	1,7	0,50-3,0	48-8	●	●	–
LT16NRG60	16	0,15	1,2	1,7	1,75-3,0	14-8	●	●	–
LT22NRN60	22	0,31	1,7	2,5	3,5-5,0	7-5	–	●	–
left hand									
LT11NLA60	11	0,05	0,8	0,9	0,50-1,5	48-16	–	●	–
LT16NLA60	16	0,05	0,8	0,9	0,50-1,5	48-16	–	●	–
LT16NLAG60	16	0,05	1,2	1,7	0,50-3,0	48-8	–	●	–
LT16NLG60	16	0,15	1,2	1,7	1,75-3,0	14-8	–	●	–
LT22NLN60	22	0,31	1,7	2,5	3,5-5,0	7-5	–	●	–

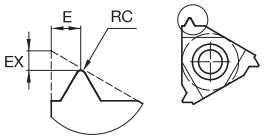
● first choice
○ alternate choice

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



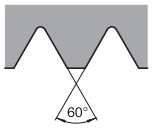
Partial Profile 60°
Internal



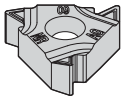


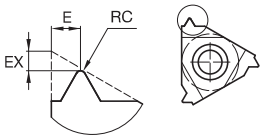
LT-NR-60CB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NRA60CB	11	0,05	0,6	0,8	0,50-1,50	48-16	–	●	–
LT16NRAG60CB	16	0,05	0,9	1,5	0,50-3,0	48-8	–	●	–
LT16NRG60CB	16	0,16	1,0	1,5	1,75-3,0	14-8	–	●	–



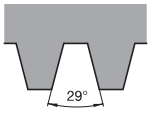
Partial Profile 60°
Internal



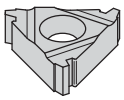


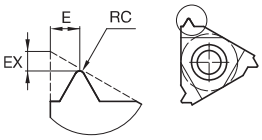
LT-NR-60K

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NRAG60K	16	0,04	1,2	1,7	0,50-3,0	48-8	–	–	●



Acme Internal



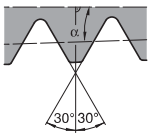


● first choice
○ alternate choice

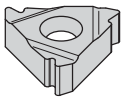
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

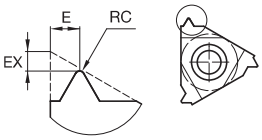
LT-NR/L-ACME

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NR10ACME	16	–	1,2	1,30	–	10	–	●	–
LT16NR12ACME	16	–	1,2	1,30	–	12	–	●	–
LT16NR8ACME	16	–	1,4	1,50	–	8	–	●	–
LT22NR5ACME	22	–	2,0	2,29	–	5	–	●	–
LT22NR6ACME	22	–	1,8	2,11	–	6	–	●	–



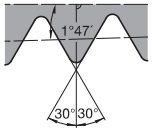
API Rotary Shoulder Connections-Internal
α = 1/2 arctan (TPF/12)



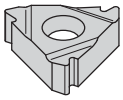


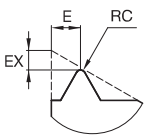
LT-NR/L-API

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT22NR4API382	22	–	2,1	2,79	–	4	–	●	–
LT22NR4API502	22	–	2,1	3,10	–	4	–	●	–
LT22NR5API403	22	–	1,8	2,60	–	5	–	●	–
LT27NR4API502	28	0,65	2,0	3,79	–	4	–	●	–
LT27NR4API382	28	0,99	2,0	2,79	–	4	–	●	–



API Round-Internal



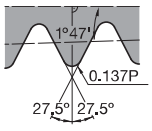


● first choice
○ alternate choice

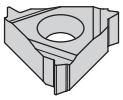
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

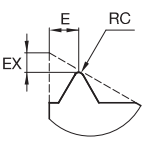
LT-NR/L-APIRD

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NR10APIRD	16	–	1,2	1,40	–	10	–	●	–
LT16NR8APIRD	16	–	1,3	1,50	–	8	–	●	–



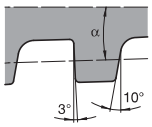
BSPT-Internal



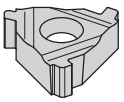


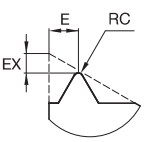
LT-NR/L-BSPT

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR14BSPT	11	–	0,9	0,99	–	14	–	●	–
LT16NR11BSPT	16	–	1,1	1,50	–	11	–	●	–
LT16NR14BSPT	16	–	1,0	1,19	–	14	–	●	–



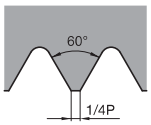
API Buttress Casing-Internal
α = 1/2 arctan (TPF/12)



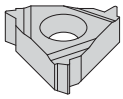


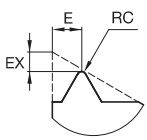
LT-NR/L-BUT

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT22NR5BUT1	22	–	2,8	1,91	–	5	–	●	–
LT22NR5BUT75	22	–	2,8	1,91	–	5	–	●	–



ISO Metric-Internal



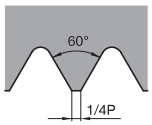


● first choice
○ alternate choice

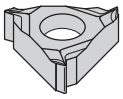
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

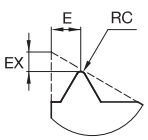
LT-NR/L-ISO

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR05ISO	11	–	0,6	0,4	0,50	–	–	●	–
LT11NR075ISO	11	–	0,6	0,6	0,75	–	–	●	–
LT11NR10ISO	11	–	0,6	0,7	1,0	–	–	●	–
LT11NR125ISO	11	–	0,8	0,9	1,25	–	–	●	–
LT11NR15ISO	11	–	0,8	1,0	1,5	–	●	●	–
LT11NR175ISO	11	–	0,9	1,1	1,75	–	–	●	–
LT11NR20ISO	11	–	0,9	1,1	2,0	–	–	●	–
LT16NR05ISO	16	–	0,6	0,4	0,50	–	–	●	–
LT16NR075ISO	16	–	0,6	0,6	0,75	–	–	●	–
LT16NR10ISO	16	–	0,6	0,7	1,0	–	●	●	–
LT16NR125ISO	16	–	0,8	0,9	1,25	–	–	●	–
LT16NR15ISO	16	–	0,8	1,0	1,5	–	●	●	–
LT16NR175ISO	16	–	0,9	1,2	1,75	–	–	●	–
LT16NR20ISO	16	–	1,0	1,3	2,0	–	●	●	–
LT16NR25ISO	16	–	1,1	1,5	2,5	–	–	●	–
LT16NR30ISO	16	–	1,1	1,5	3,0	–	●	●	–
LT22NR35ISO	22	–	1,6	2,3	3,5	–	–	●	–
LT22NR40ISO	22	–	1,6	2,3	4,0	–	–	●	–
LT22NR45ISO	22	–	1,6	2,4	4,5	–	–	●	–
LT22NR50ISO	22	–	1,6	2,3	5,0	–	–	●	–
left hand									
LT11NL15ISO	11	–	0,8	1,0	1,5	–	–	●	–
LT11NL10ISO	11	–	0,6	0,7	1,0	–	–	●	–
LT16NL30ISO	16	–	1,1	1,5	3,0	–	–	●	–
LT16NL10ISO	16	–	0,6	0,7	1,0	–	–	●	–
LT16NL15ISO	16	–	0,8	1,0	1,5	–	–	●	–
LT16NL20ISO	16	–	1,0	1,3	2,0	–	–	●	–
LT16NL25ISO	16	–	1,1	1,5	2,5	–	–	●	–



ISO Metric-Internal





● first choice
○ alternate choice

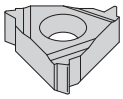
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

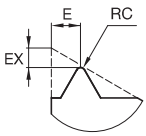
LT-NR-ISOCB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR075ISOCB	11	–	1,2	0,5	0,75	–	–	●	–
LT11NR10ISOCB	11	–	0,7	0,8	1,0	–	–	●	–
LT11NR125ISOCB	11	–	0,7	0,8	1,25	–	–	●	–
LT11NR15ISOCB	11	–	0,7	0,8	1,5	–	–	●	–
LT16NR10ISOCB	16	–	0,7	0,8	1,0	–	–	●	–
LT16NR15ISOCB	16	–	0,7	0,8	1,5	–	–	●	–
LT16NR20ISOCB	16	–	1,1	1,5	2,0	–	–	●	–
LT16NR25ISOCB	16	–	1,1	1,5	2,5	–	–	●	–

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

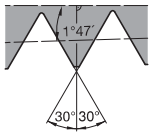
● first choice
○ alternate choice



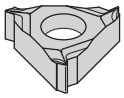


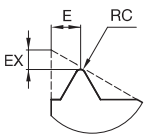
LT-NR/L-NPT

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR14NPT	11	–	0,8	1,0	–	14	●	●	–
LT11NR18NPT	11	–	0,8	1,0	–	18	–	●	–
LT16NR115NPT	16	–	1,1	1,5	–	11.5	●	●	–
LT16NR14NPT	16	–	0,9	1,2	–	14	–	●	–
LT16NR8NPT	16	–	1,3	1,8	–	8	–	●	–



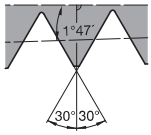
NPT-Internal



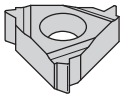


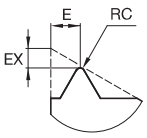
LT-NR-NPTCB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NR115NPTCB	16	–	1,1	1,5	–	11.5	–	●	–
LT16NR14NPTCB	16	–	1,4	1,2	–	14	–	●	–



NPTF-Internal



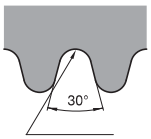


LT-NR/L-NPTF

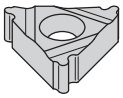
catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR14NPTF	11	–	0,8	0,99	–	14	–	●	–
LT16NR14NPTF	16	–	0,9	1,19	–	14	–	●	–

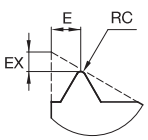
● first choice
○ alternate choice

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



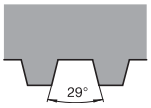
Round-Internal



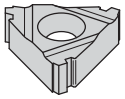


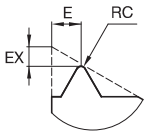
LT-NR/L-RD

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NR8RD	16	0,70	1,4	1,40	–	8	–	●	–
LT22NR6RD	22	0,93	1,5	1,70	–	6	–	●	–



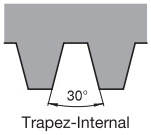
Stub Acme-Internal



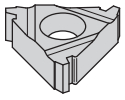


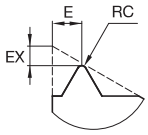
LT-NR/L-STACME

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NR10STACME	16	–	1,2	1,30	–	10	–	●	–
LT16NR12STACME	16	–	1,1	1,19	–	12	–	●	–
LT16NR14STACME	16	–	1,1	1,09	–	14	–	●	–
LT16NR16STACME	16	–	1,0	0,99	–	16	–	●	–
LT16NR6STACME	16	–	1,7	1,80	–	6	–	●	–
LT16NR8STACME	16	–	1,4	1,50	–	8	–	●	–



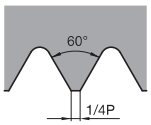
Trapez-Internal



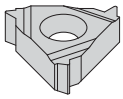


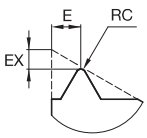
LT-NR/L-TR

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NR2TR	16	–	1,1	1,30	2,0	–	–	●	–
LT16NR3TR	16	–	1,3	1,50	3,0	–	–	●	–
LT22NR4TR	22	–	1,7	1,91	4,0	–	–	●	–
LT22NR5TR	22	–	2,1	2,50	5,0	–	–	●	–



American
UN-Internal



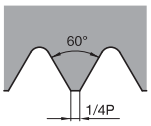


● first choice
○ alternate choice

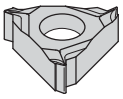
		KC5010	KC5025	KU25T
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

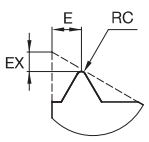
LT-NR/L-UN

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



American
UN-Internal



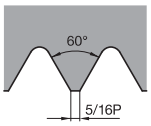


● first choice
○ alternate choice

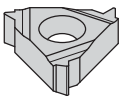
P	●	●	●	
M	●	●	●	
K	●	●	●	
N	○	○	○	
S	●	●	●	
H	○			

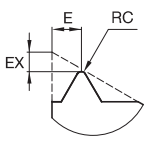
LT-NR-UNCB

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR16UNCB	11	–	0,7	0,8	–	16	–	●	–
LT11NR18UNCB	11	–	0,6	0,8	–	18	–	●	–
LT11NR20UNCB	11	–	0,6	0,8	–	20	–	●	–
LT11NR24UNCB	11	–	0,7	0,8	–	24	–	●	–
LT11NR32UNCB	11	–	1,2	0,5	–	32	–	●	–
LT16NR10UNCB	16	–	1,1	1,5	–	10	–	●	–
LT16NR12UNCB	16	–	1,1	1,5	–	12	–	●	–
LT16NR14UNCB	16	–	1,1	1,5	–	14	–	●	–
LT16NR16UNCB	16	–	0,7	0,8	–	16	–	●	–
LT16NR18UNCB	16	–	0,6	0,8	–	18	–	●	–
LT16NR20UNCB	16	–	0,7	0,6	–	20	–	●	–
LT16NR8UNCB	16	–	1,1	1,5	–	8	–	●	–



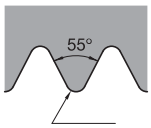
UNJ-Internal



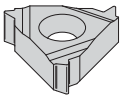


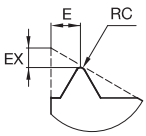
LT-NR/L-UNJ

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR14UNJ	11	–	1,0	1,2	–	14	–	●	–
LT11NR16UNJ	11	–	0,9	1,1	–	16	–	●	–
LT11NR18UNJ	11	–	0,8	1,0	–	18	–	●	–
LT16NR12UNJ	16	–	1,1	1,3	–	12	–	●	–
LT16NR16UNJ	16	–	0,9	1,1	–	16	–	●	–



Whitworth BSW,
BSF, BSP-Internal



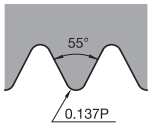


● first choice
○ alternate choice

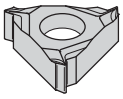
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○		

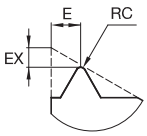
LT-NR/L-W

catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT11NR14W	11	–	0,9	1,09	–	14	–	●	–
LT11NR19W	11	–	0,8	0,99	–	19	–	●	–
LT16NR10W	16	–	1,1	1,50	–	10	–	●	–
LT16NR11W	16	–	1,1	1,50	–	11	●	●	–
LT16NR12W	16	–	1,1	1,40	–	12	–	●	–
LT16NR14W	16	–	1,0	1,19	–	14	–	●	–
LT16NR16W	16	–	0,9	1,09	–	16	–	●	–
LT16NR19W	16	–	0,8	0,99	–	19	–	●	–
LT16NR20W	16	–	0,8	0,89	–	20	–	●	–
LT16NR8W	16	–	1,2	1,50	–	8	–	●	–
LT22NR7W	22	–	1,6	2,29	–	7	–	●	–
left hand									
LT16NL11W	16	–	1,1	1,50	–	11	–	●	–



Whitworth BSW,
BSF, BSP-Internal





LT-NR-WCB

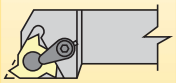
catalogue number	insert size	RC	EX	E	thread pitch mm	TPI	KC5010	KC5025	KU25T
right hand									
LT16NR11WCB	16	–	1,3	1,50	–	11	–	●	–
LT16NR14WCB	16	–	1,3	1,50	–	14	–	●	–

How Do Catalogue Numbers Work?

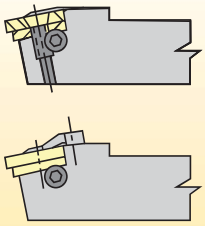
Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding image to easily identify which attributes apply.

L	S	AS	R		2525M	16	
Insert Style	Insert Holding Method	Tool Style	Hand of Tool	Drop Head	Shank Size	Insert Size	Qualified Surface and Length

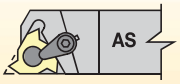
L —
Laydown triangle



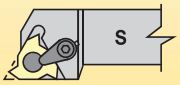
S —
Insert screw or clamp only



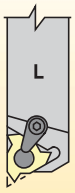
Straight shank



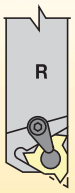
Offset shank

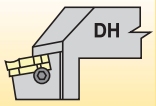


Left hand



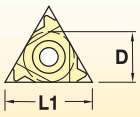
Right hand





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

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



inch insert size	metric insert size	D mm	L1 mm
2	11	6,4	11,0
3	16	9,5	16,5
4	22	12,7	22,0

C —
qualified back and end, 5" long

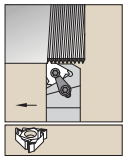
D —
qualified back and end, 6" long

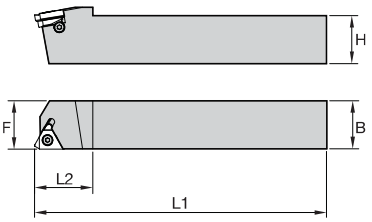
E —
qualified back and end, 7" long

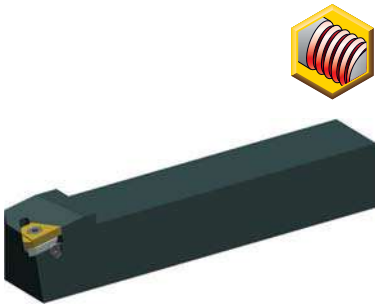
T —
qualified back and end, 3.25" long

Q —
qualified metric holder

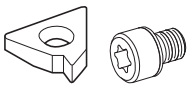
NOTE: Toolholders with primary shank sizes larger than 1/2" or 12mm are supplied with clamp and insert screw. Secure the insert with either the clamp or insert screw. **Do not use both.**
For Threading Shim Catalogue Numbering System, please see page D80.



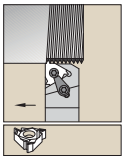


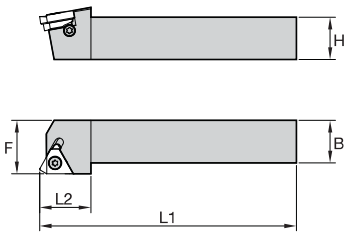


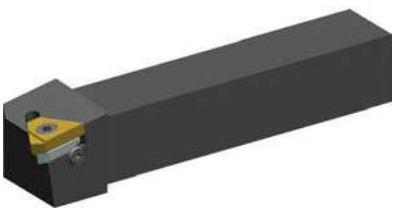
LSA



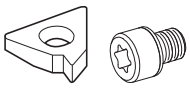
order number	catalogue number	H	B	F	L1	gage insert	shim	shim screw	Torx	Torx	insert screw	Torx
right hand												
1136965	**LSASR1212N16**	12	12	16	85	LT16ER	–	–	–	–	**SSA3T**	T10
1136984	**LSASR1616H16**	16	16	16	100	LT16ER	**SMYE3**	**SSY3T**	T10	T15	**SSA3T**	T10
1136992	**LSASR2020K16**	20	20	20	125	LT16ER	**SMYE3**	**SSY3T**	T10	T15	**SSA3T**	T10
1137000	**LSASR2525M16**	25	25	25	150	LT16ER	**SMYE3**	**SSY3T**	T10	T15	**SSA3T**	T10
1137007	**LSASR2525M22**	25	25	25	150	LT22ER	**SMYE4**	**SSY4T**	T20	T20	**SSA4T**	T20
1125454	**LSASR3232P16**	32	32	32	170	LT16ER	**SMYE3**	**SSY3T**	T10	T15	**SSA3T**	T10
1611931	**LSASR3232P22**	32	32	32	170	LT22ER	**SMYE4**	**SSY4T**	T20	T20	**SSA4T**	T20
left hand												
1136926	**LSASL1212N16**	12	12	16	85	LT16EL	–	–	–	–	**SSA3T**	T10
1136935	**LSASL1616H16**	16	16	16	100	LT16EL	**SMYI3**	**SSY3T**	T10	T15	**SSA3T**	T10
1136943	**LSASL2020K16**	20	20	20	125	LT16EL	**SMYI3**	**SSY3T**	T10	T15	**SSA3T**	T10
1136951	**LSASL2525M16**	25	25	25	150	LT16EL	**SMYI3**	**SSY3T**	T10	T15	**SSA3T**	T10
1136959	**LSASL2525M22**	25	25	25	150	LT22EL	**SMYI4**	**SSY4T**	T20	T20	**SSA4T**	T20



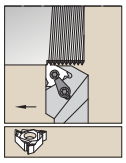


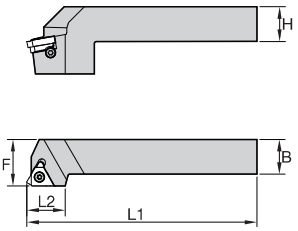


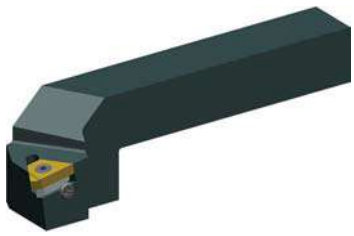
LSS



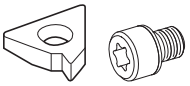
order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	Torx	insert screw	Torx
right hand												
1137054	**LSSR2020K16Q**	20	20	25	125	25	LT16ER	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1137063	**LSSR2525M16Q**	25	25	32	150	25	LT16ER	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1137069	**LSSR2525M22Q**	25	25	32	150	30	LT22ER	**SMYE4**	**SSY4T**	T20	**SSA4T**	T20
1611933	**LSSR3232P16Q**	32	32	40	170	32	LT16ER	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1611935	**LSSR3232P22Q**	32	32	40	170	30	LT22ER	**SMYE4**	**SSY4T**	T20	**SSA4T**	T20
left hand												
1192325	**LSSL2020K16Q**	20	20	25	125	25	LT16EL	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1137022	**LSSL2525M16Q**	25	25	32	150	25	LT16EL	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1137029	**LSSL2525M22Q**	25	25	32	150	30	LT22EL	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
1611934	**LSSL3232P16Q**	32	32	40	170	32	LT16EL	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10







LSS-DH



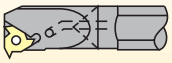
order number	catalogue number	H	B	F	L1	LH	gage insert	shim	shim screw	Torx	insert screw	Torx
right hand												
1174502	**LSSRDH2020K16Q**	20	20	25	125	38	LT16ER	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1611938	**LSSRDH2525M16**	25	25	32	150	38	LT16ER	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1137036	**LSSRDH2525M22Q**	25	25	32	150	38	LT22ER	**SMYE4**	**SSY4T**	T20	**SSA4T**	T20
left hand												
1611939	**LSSLDH2525M16**	25	25	32	150	38	LT16EL	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10

How Do Catalogue Numbers Work?

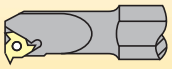
Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding image to easily identify which attributes apply.

E	16		L	S	E	R	16
Bar Type	Primary Necked Shank Bar Diameter	Secondary (mounting) Bar Diameter	Insert Style	Insert Holding Method	Bar Style	Hand of Tool	Insert Size

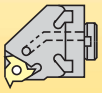
E — Carbide with coolant



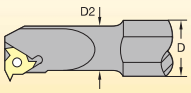
S — Steel shank without coolant



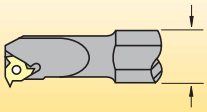
H — Interchangeable head with coolant



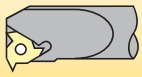
Metric diameter in mm.



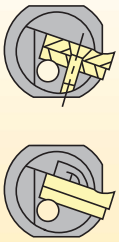
Metric diameter in mm.



L — Laydown triangle

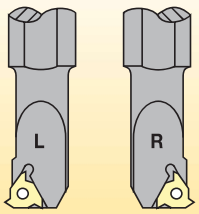


S — Insert screw

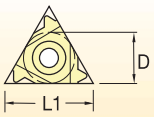


End cutting edge mount

Left Hand / Right Hand



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

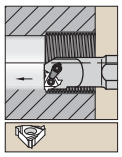


inch insert size	metric insert size	D mm	L1 mm
2	11	6,4	11,0
3	16	9,5	16,5
4	22	12,7	22,0

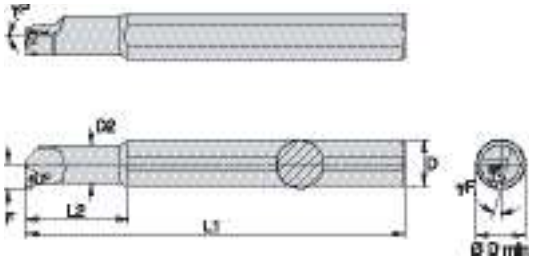
LT Threading Shim Catalogue Numbering System

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** = 2º positive **1P** = 1º positive **—** = 0º neutral **1N** = 1º negative **2N** = 2º negative **3N** = 3º negative

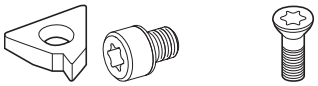
For shims and shim kits, see pages D109–D110.



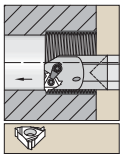
Steel shank with through coolant.



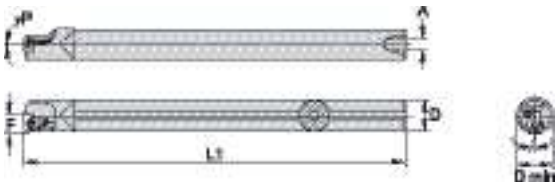
A-LSE



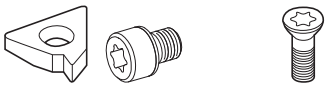
order number	catalogue number	D	D min	D2	F	L1	L2	γF°	γP°	gage insert	shim	shim screw	Torx	insert screw	Torx
right hand															
1131468	**A1020LSER11**	20	13	–	7,3	180	25	-15.0	-1.5	LT11NR	–	–	–	**SSN2T**	T8
1131481	**A1320LSER11**	20	16	–	8,9	180	32	-15.0	-1.5	LT11NR	–	–	–	**SSN2T**	T8
1612581	**A1320LSER16**	20	17	–	10,3	180	32	-15.0	-1.5	LT16NR	–	–	–	**SSA3T**	T10
1798921	**A1616LSER16**	16	20	16,0	11,3	150	32	-15.0	-1.5	LT16NR	–	–	–	**SSA3T**	T10
1131509	**A1620LSER16**	20	20	–	11,7	180	36	-15.0	-1.5	LT16NR	–	–	–	**SSA3T**	T10
1131524	**A2020LSER16**	20	24	20,0	13,4	180	40	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1131547	**A2525LSER16**	25	29	–	16,1	200	45	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1131566	**A2525LSER22**	25	32	–	17,2	200	45	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
1612584	**A2020LSER22**	20	27	20,0	15,6	180	50	-15.0	-1.5	LT22NR	–	–	–	**SSA4T**	T20
1131574	**A2532LSER16**	32	29	–	16,3	250	60	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1131582	**A2532LSER22**	32	32	–	17,4	250	60	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
1612587	**A3232LSER22**	32	39	32,0	21,5	250	60	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
1798922	**A4040LSER22**	40	47	40,0	25,8	300	60	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
1798920	**A1010LSER11**	10	13	10,0	7,3	100	100	-15.0	-1.5	LT11NR	–	–	–	**SSN2T**	T8
left hand															
1612586	**A2532LSEL16**	32	29	–	16,3	250	–	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1131458	**A1020LSEL11**	20	13	–	7,3	180	25	-15.0	-1.5	LT11NL	–	–	–	**SSN2T**	T8
1131476	**A1320LSEL11**	20	16	–	8,9	180	32	-15.0	-1.5	LT11NL	–	–	–	**SSN2T**	T8
1798980	**A1616LSEL16**	16	20	16,0	11,3	150	32	-15.0	-1.5	LT16NL	–	–	–	**SSA3T**	T10
1131499	**A1620LSEL16**	20	20	–	11,5	180	40	-15.0	-1.5	LT16NL	–	–	–	**SSA3T**	T10
1131516	**A2020LSEL16**	20	24	20,0	13,4	180	40	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1131532	**A2525LSEL16**	25	29	–	16,1	200	45	-15.0	-1.5	LT16NL	**SMYE3**	**SSY3T**	T10	**SSA3T**	T10
1131540	**A2525LSEL22**	25	32	–	17,2	200	45	-15.0	-1.5	LT22NL	**SMYE4**	**SSY4T**	T20	**SSA4T**	T20
1612585	**A2020LSEL22**	20	27	20,0	15,6	180	50	-15.0	-1.5	LT22NL	–	–	–	**SSA4T**	T20
1612588	**A3232LSEL22**	32	39	32,0	21,5	250	60	-15.0	-1.5	LT22NL	**SMYE4**	**SSY4T**	T20	**SSA4T**	T20
1799093	**A4040LSEL22**	40	47	40,0	25,8	300	60	-15.0	-1.5	LT22NL	**SMYE4**	**SSY4T**	T20	**SSA4T**	T20
1798979	**A1010LSEL11**	10	13	10,0	7,3	100	100	-15.0	-1.5	LT11NL	–	–	–	**SSN2T**	T8



Carbide shank with through coolant.

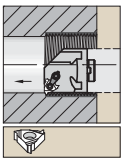


E-LSE

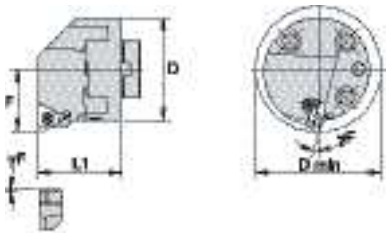


order number	catalogue number	D	D min	F	L1	A	γF°	γP°	gage insert	shim	shim screw	Torx	insert screw	Torx
right hand														
1152844	**E16RLSER16**	16	20	11,5	200,0	6	-15	-1.5	LT16NR	**–**	**–**	**–**	**SN3TPKG**	T10
1152846	**E20SLSER16**	20	24	13,4	250,0	7	-15	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1152848	**E25TLSER16**	25	29	15,8	300,0	8	-15	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10

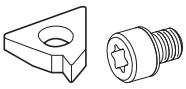
NOTE: Items listed without a shim are designed for a 1.5° inclination angle.



With through coolant.

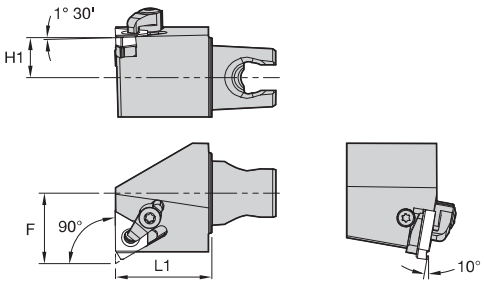


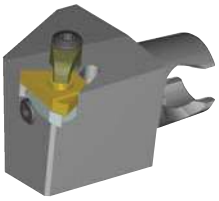
H-LSE



order number	catalogue number	D	D min	L1	F	γF°	γP°	gage insert	shim	shim screw	Torx	insert screw	Torx
right hand													
1095216	**H16LSER3**	25	30,5	41,3	16,4	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1095218	**H20LSER3**	32	36,8	41,3	19,3	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1095220	**H24LSER3**	38	44,7	41,3	22,5	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1095224	**H24LSER4**	38	45,3	41,3	24,7	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
1803997	**H40LSER22**	40	47,0	41,3	25,9	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
1803995	**H50LSER16**	50	54,0	41,3	28,6	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1803999	**H50LSER22**	50	56,0	41,3	30,5	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
3842905	**H50LSER27**	50	58,0	41,3	31,4	-15.0	-1.5	LT27NR	**SMYI5**	**SSY5T**	T25	**SSA5T**	T25
1095222	**H32LSER3**	51	61,0	41,3	32,4	-15.0	-1.5	LT16NR	**SMYI3**	**SSY3T**	T10	**SSA3T**	T10
1095226	**H32LSER4**	51	61,0	41,3	32,4	-15.0	-1.5	LT22NR	**SMYI4**	**SSY4T**	T20	**SSA4T**	T20
3842895	**H32LSER5**	51	61,0	41,3	32,5	-15.0	-1.5	LT27NR	**SMYI5**	**SSY5T**	T25	**SSA5T**	T25
3842897	**H40LSER5**	64	77,0	41,3	38,9	-15.0	-1.5	LT27NR	**SMYI5**	**SSY5T**	T25	**SSA5T**	T25

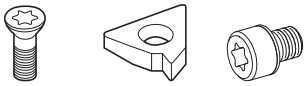
NOTE: For boring adaptors, see pages B386.



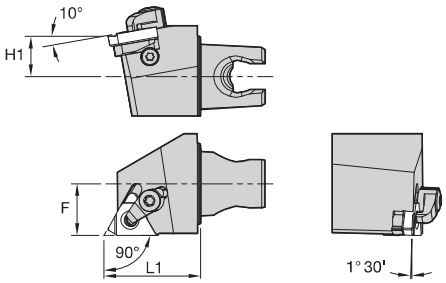


Clamp shown in images is no longer available.

LSE • End Mount

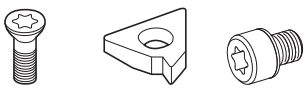


order number	catalogue number	L1	F	H1	gage insert	insert screw	shim	shim screw
right hand								
2399506	**KM25LSER1630**	30	22	12,5	LT16EL	**SSA3T**	**SMYI3**	**SSY3T**
left hand								
2399507	**KM25LSEL1630**	30	22	12,5	LT16ER	**SSA3T**	**SMYE3**	**SSY3T**



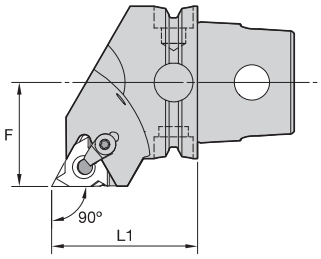
Clamp shown in images is no longer available.

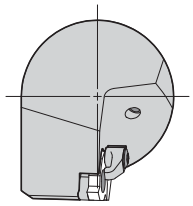
LSS • Side Mount



order number	catalogue number	L1	F	H1	gage insert	insert screw	shim	shim screw
right hand								
2399504	**KM25LSSR1630**	30	16	12,5	LT16ER	**SSA3T**	**SMYE3**	**SSY3T**
3176219	**KM25LSSR2230**	30	16	12,5	LT22ER	**SSA4T**	**SMYE4**	**SSY4T**
left hand								
2399505	**KM25LSSL1630**	30	16	12,5	LT16EL	**SSA3T**	**SMYI3**	**SSY3T**
3176220	**KM25LSSL2230**	30	16	12,5	LT22EL	**SSA4T**	**SMYI4**	**SSY4T**

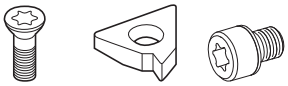
KM QUICK CHANGE



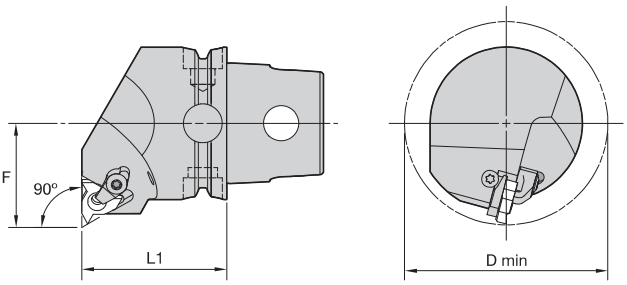


Clamp shown in images is no longer available.

LSS 90°



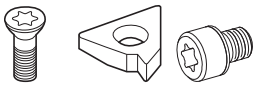
order number	catalogue number	L1 mm	L1 in	F mm	F in	gage insert	insert screw	shim	shim screw	kg	lbs
right hand											
3950857	**KM40TSLSSR16**	40	1.575	27	1.063	LT16ER	**SSA3T**	**SMYE3**	**SSY3T**	0,31	.68
3950858	**KM40TSLSSR22**	40	1.575	27	1.063	LT22ER	**SSA4T**	**SMYE4**	**SSY4T**	0,30	.66
3959401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



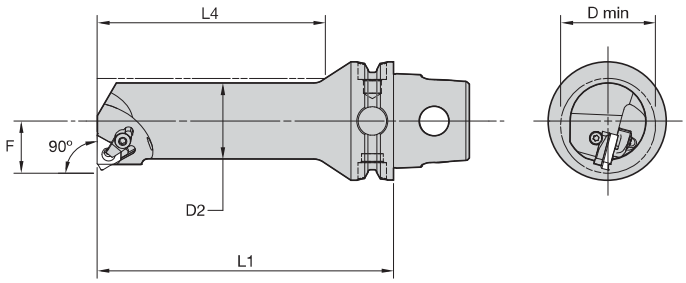
Clamp shown in images is no longer available.

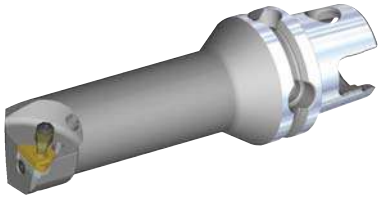
KM QUICK CHANGE

LSE-N 90° • Internal Only



order number	catalogue number	L1 mm	L1 in	F mm	F in	D min mm	D min in	gage insert	insert screw	shim	shim screw	kg	lbs
right hand													
3950832	**KM40TSLSER16N**	40	1.575	27	1.063	54	2.126	LT16NR	**SSA3T**	**SMYI3**	**SSY3T**	0,35	.77
3950854	**KM40TSLSER22N**	40	1.575	27	1.063	54	2.126	LT22NR	**SSA4T**	**SMYI4**	**SSY4T**	0,35	.77
3959399	**KM40TSLSER27N**	45	1.772	27	1.063	54	2.126	LT27NR	**SSA5T**	**SMYI5**	**SSY5T**	0,39	.86
left hand													
3950831	**KM40TSLSEL16N**	40	1.575	27	1.063	54	2.126	LT16NL	**SSA3T**	**SMYE3**	**SSY3T**	0,35	.77





Clamp shown in images is no longer available.

KM QUICK CHANGE

LSE 90°

order number	catalogue 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
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

NOTE: Items listed without a shim are designed for a 1,5° inclination angle.

Spare Parts

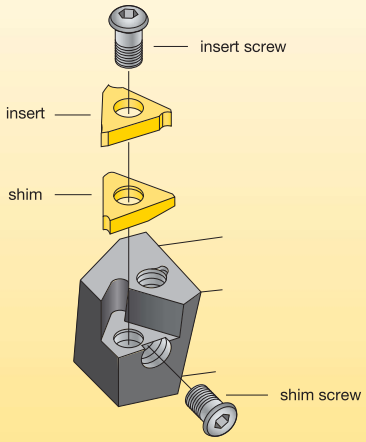


catalogue number	insert screw	shim	shim screw
right hand			
KM40TSS10DLSER11	**SSN2T**	**–**	**–**
KM40TSS12ELSER11	**SSN2T**	**–**	**–**
KM40TSS16FLSER16	**SN3TPKG**	**–**	**–**
KM40TSS20GLSER16	**SSA3T**	**SMYI3**	**SSY3T**
KM40TSS25HLSER16	**SSA3T**	**SMYI3**	**SSY3T**
KM40TSS32JLSER16	**SSA3T**	**SMYI3**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

Laydown 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 D109–D110.



insert size and screw	insert screw	shim	shim screw and washer
3ER	SS-A3T	SM-YIE3	SS-Y3T
3EL	SS-A3T	SM-YI3	SS-Y3T
4ER	SS-A4T	SM-YIE4	SS-Y4T
4EL	SS-A4T	SM-YI4	SS-Y4T
Laydown Threading boring bars			
2IR	SS-N2T	–	–
2IL	SS-N2T	–	–
3IR	SS-A3T	SM-YI3	SS-Y3T
3IL	SS-A3T	SM-YIE3	SS-Y3T
4IR	SS-A4T	SM-YI4	SS-Y4T
4IL	SS-A4T	SM-YIE4	SS-Y4T

SM	—	Y	E	3	—	2N
Shim		Y-shim for Laydown standard inserts	E – External I – Internal	IC –16mm		Shim Angle

2P	2° positive
1P	1° positive
–	0°
1N	1° negative
2N	2° negative
3N	3° negative

resultant angle		3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
insert size (IC)	toolholder	shim ordering code					
16mm	ex. RH/in. LH ex. LH/in. RH	SM-YE3-2P SM-YI3-2P	SM-YE3-1P SM-YI3-1P	SM-YE3 SM-YI3	SM-YE3-1N SM-YI3-1N	SM-YE3-2N SM-YI3-2N	SM-YE3-3N SM-YI3-3N
22mm	ex. RH/in. LH ex. LH/in. RH	SM-YE4-2P SM-YI4-2P	SM-YE4-1P SM-YI4-1P	SM-YE4 SM-YI4	SM-YE4-1N SM-YI4-1N	SM-YE4-2N SM-YI4-2N	SM-YE4-3N SM-YI4-3N

Slanted Shim Kit

Because you might occasionally need different shims than those supplied with our standard toolholders, we strongly recommend that shim kits be readily available in every tool shop.

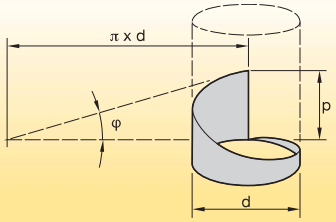
insert size	shim size (D)	ordering code	contains slanted shims
3x	16mm	ABY3SET	SM-YE3-2P, 1P, 1N, 2N, 3N SM-YI3-2P, 1P, 1N, 2N, 3N
4x	22mm	ABY4	SM-YE4-2P, 1P, 1N, 2N, 3N SM-YI4-2P, 1P, 1N, 2N, 3N

The Helix Angle

Example:
d = 48,06mm (1.892")
p = 3,175mm (.125")

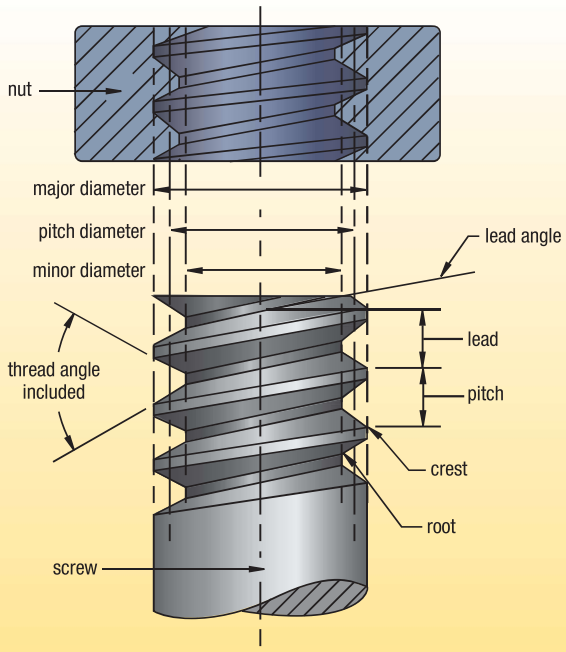
ϕ = Helix angle
p = pitch
d = pitch diameter

$$\phi = \arctan\left(\frac{p * starts}{\pi * \varnothing}\right) = 1.13°$$



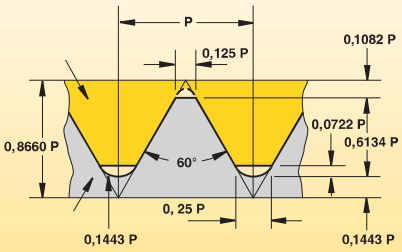
Screw Thread Definitions

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.



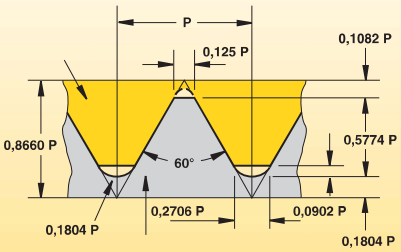
NOTE: Threads per inch (TPI) not shown:
The number of threads per inch measured axially.
The terms pitch and TPI are often used interchangeably. TPI = 1/pitch

ISO M (Metric) and UN (Unified National)



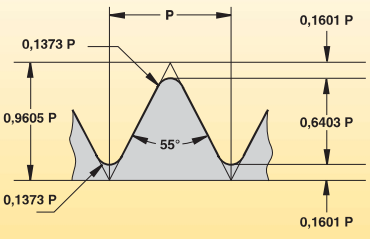
Use: All branches of mechanical industry.

UNJ (controlled root radius)



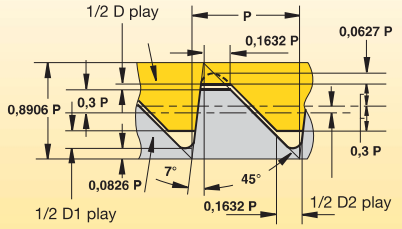
Use: Aircraft and space industry.

Whitworth (BSW)



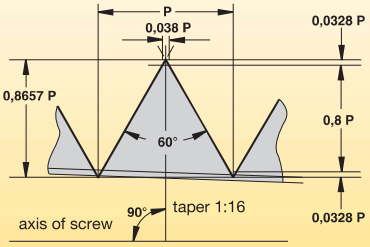
Use: Fittings and pipe couplings for gas, water, and sewer lines (replaced by ISO).

American Buttress



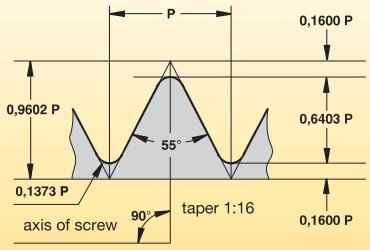
Use: Fittings and pipe couplings.

NPT (American National Pipe Thread)



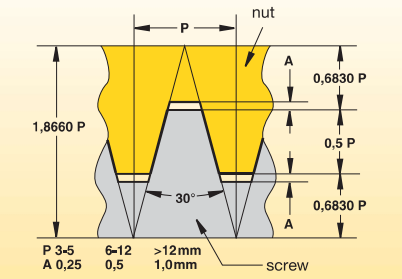
Use: Fittings and pipe couplings.

BSPT (British Standard Pipe Thread)



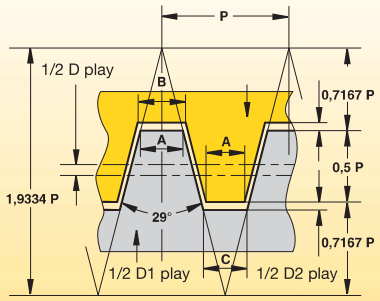
Use: Pipe thread for steam, gas, and water lines.

TR DIN 103



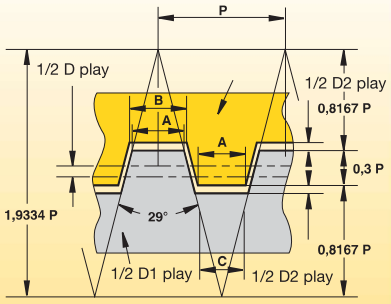
Use: Mechanical industry for motion transmission screws.

Acme



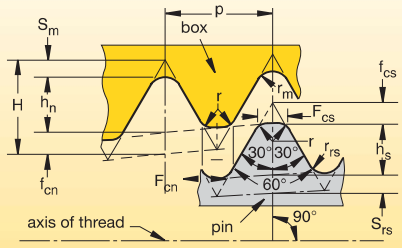
A = 0,0307 P
B = 0,3707 P—x D play
C = 0,3707 P—(D1 play—D2 play)
Use: Acme-General is used in mechanical industry for motion transmission screws.

Acme, truncated (Stub)



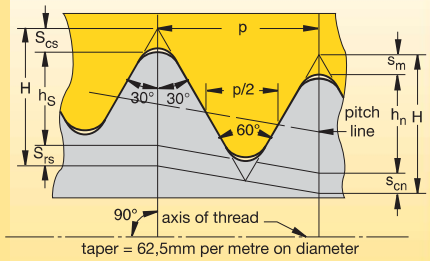
A = 0,4224 P
B = 0,4224 P—x D play
C = 0,4224 P—(D1 play—D2 play)
Use: Where normal Acme is too deep.

API Rotary Shoulder Connection



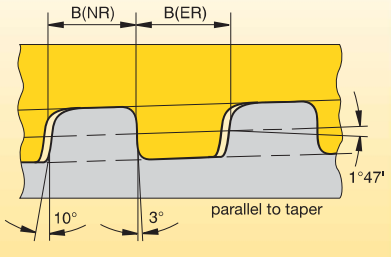
NOTE: Taper shown exaggerated.

API Casing and Tubing Round Thread Form



NOTE: Taper shown exaggerated.

API Buttress

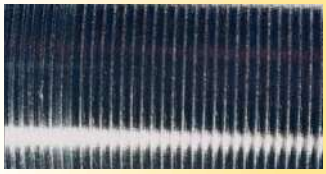


Suggested Grades and Speeds for Threading Various Workpiece Materials

workpiece group	workpiece material	recommended surface speed — m/mm				
		uncoated	PVD coated			
		K68	KC5010	KC5025	KC5410	KU25T
free-machining carbon steel	10L18, 10L45, 1213, 12L13, 12L14, 1140, 1141, 11L44, 1151, 10L50	—	91–198	45–198	—	91–137
plain carbon steel	10063, 1008, 1010, 1015, 1018, 1020, 1025, 1026, 1108, 1117	—	76–198	45–175	—	76–122
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	—	76–198	38–167	—	73–122
alloy steels/tool steels 330–450 HB (36–47 HRC)		—	61–160	—	—	61–106
martensitic/ferritic stainless/precipitation hardening	416, 420F, 440F, 405, 409, 429, 430, 434, 436, 442, PH	—	45–160	30–122	—	24–61
austenitic stainless steel	201, 202, 301, 302, 303, 304, 304, 305, 321, 347, 348, 310, 314, 316, 316L, 330	61–106	61–198	46–137	—	24–106
grey cast iron 135–270 HB	class 20, 30, 35, 45	61–91	61–237	46–122	—	30–110
grey cast iron 275–450 HB	class 50, 55, 60	45–76	45–175	15–76	—	30–110
alloy/ductile iron	A536, J434C, 60-40-18, 80-55-06, 100-70-03	45–76	45–198	30–160	—	30–110
free-machining aluminium alloys	2024-T4, 2014-T6, 6061-T6 2011-T3, 3003-H18, A2, Alcan, Alcoa 510, Duralumin	122–244	122–365	—	152–457	30–305
high-silicon aluminium alloys	A380, A390, A380-1, A390-1, A380-2	—	—	—	—	—
copper/zinc/brass		76–183	76–304	46–236	—	30–244
non-metallics	Graphite, Nylon, Plastics, Rubbers, Phenolics, Carbon	122–457	122–396	46–305	—	30–244
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	24–37	24–122	13–76	—	11–85
high-temperature alloys 260–450 HB (26–47 HRC)	Rene 95, Waspaloy A286, Incoloy 800, Haynes 188, Stellite F, Haynes 25	24–30	30–76	6–61	—	11–61
titanium alloys	Ti-6Al-4V, TI-5Al-2.5Sn	34–55	34–99	—	—	11–76

NOTE: When workpiece hardness levels are at the top of a range, starting m/mm 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

problem	cause	possible solution
thread with torn finish 	• Burs. • Torn finish. • Steps. • Improper shim. • Improper infeed.	• Use modified flank infeed. • Use full profile insert. • Increase coolant concentration. • Increases m/min. • Check machine “Z” travel axis. • Check insert form. • Check for correct shim in LT system. • Calculate flank clearance.
chatter 	• Poor rigidity. • Insert movement. • Improper infeed. • Off centreline.	• Use modified flank infeed. • Minimise tool overhang. • Check for workpiece deflection. • Check insert and clamp. • Verify that tool cutting position is at workpiece centreline. • Adjust number of passes. Fewer passes reduce chatter.
built-up edge 	• Speed too low. • Insufficient coolant. • Chip load.	• Increase m/min. • Increase coolant concentration and/or flow. • Adjust infeed angle. • Increase depth of cut per pass.
deformation 	• Wrong grade. • Speed too high. • Improper infeed angle. • Insufficient coolant.	• Use modified flank infeed. • Use a more wear-resistant grade (e.g., KC5010™). • Reduce m/mm. • Increase coolant flow.
chipping  	• Improper infeed. • Chip load. • Wrong grade. • Incorrect speed. • Poor rigidity.	• Use modified flank infeed. • Increase or decrease number of passes. • Eliminate spring passes. • Use tougher grade (e.g., KC5025™). • Increase m/mm if chipping on trailing edge. • Decrease m/mm if chipping on leading edge. • Minimise tool overhang. • Check for insert movement/check clamp. Torque screw or clamp to correct value. • Check for possible part deflection. • Calculate flank clearance. • Ensure correct shim.
broken nose 	• Heavy chip load. • Small nose radius. • Wrong grade. • Improper infeed.	• Use modified flank infeed. • Decrease chip load. • Use large nose radius if possible. • Use tougher grade (e.g., KC5025).
flank wear 	• Improper shim. • Wrong grade. • Insufficient coolant. • Off centreline. • Insufficient flank clearance. • Improper infeed angle.	• Ensure correct shim. • Use a more wear-resistant grade (e.g., KC5025). • Increase coolant flow. • Check the centreline height of the tool. (The smaller the diameter, the more critical the need for centreline accuracy.) • Calculate flank clearance and change shim to increase clearance on worn flank. • If wear is on trailing flank, increase infeed angle clearance.

(continued)

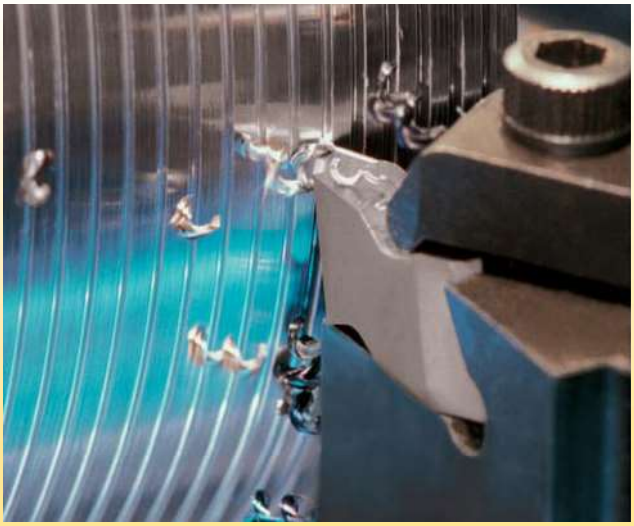
(Technical Information • Failure and Solution Guide — continued)

problem	possible solution																	
	increase m/min	reduce m/min	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 centre height	begin cutting threads 12mm before workpiece	change infeed method
chatter	•			•							•	•				•		•
bur 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														•				•

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, controls 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.

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 0,127mm depth of cut and produce an acceptable finish. For some materials, a 0,025mm to 0,076mm (spring) pass may be used to improve surface finish, however, chip breaking action may be compromised.

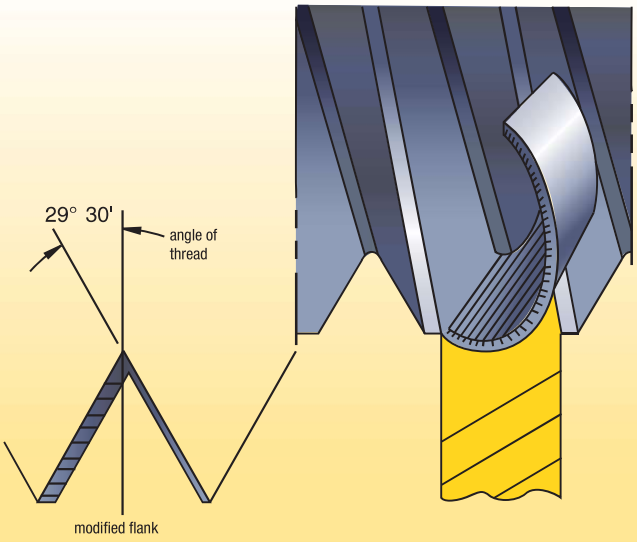


Machine Programming

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 0,127mm depth of cut on every pass. In most applications, use of CNC canned cycles produce only marginally successful results. Custom written programmes are better and are recommended.

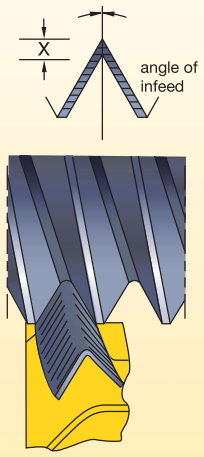
Infeed Angle

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°.



Radial

modified flank



Advantage —

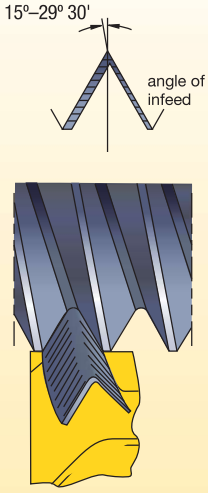
- Cutting on both sides of the thread form places all of the cutting edge in the cut and protects edge from chipping.
- Even wear on the insert.

Disadvantage —

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

Modified flank

modified flank



Advantage —

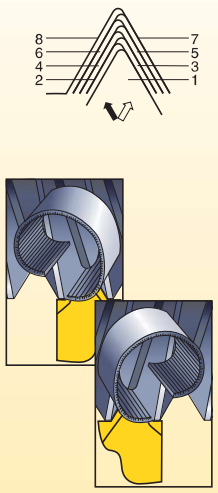
- Tool cuts both sides of thread form, so it is protected from chipping similar to 0° infeed. Channel-type chip develops, but uneven chip thickness helps remove the chip similar to flank infeed.
- This is the preferred method, especially when used with a chip control insert.
- Combined radial and/or 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 equalised and chip flow is much less of a problem.

Alternating flank

alternating flank



Advantage —

- Increased tool life because both edges are used equally.

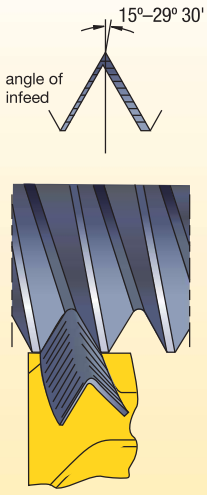
NOTE: Some machine tools may require special programming techniques to achieve this method of infeed.

Disadvantage —

- Difficult to cut on conventional machinery.

Reversed modified flank

modified flank



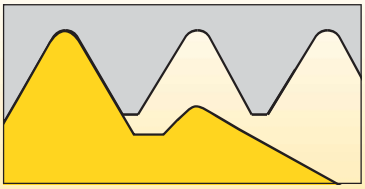
Advantage —

- 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.
- As chip flow is the reversed feed direction, it is an excellent choice for internal threading.

Disadvantage —

- Programming needs to be done line by line.

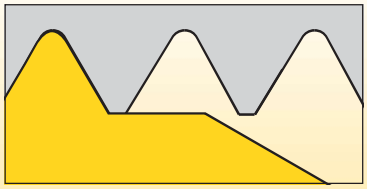
Partial Profile



Tooth profile with universal profile shape:

- Reduced inventory.
- For various pitches in a limited range.
- Major/minor diameters must be accurately pre-turned.

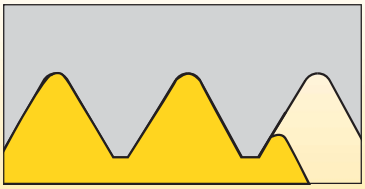
Full Profile



Tooth profile with full profile shape including tooth height:

- For bur-free, precise threads in the specified pitch.
- General application.
- Machining allowance for outside/core diameter around .004–.006".

Multi-Tooth Profile



Multi-tooth full profile generally with 2–3 teeth:

- Highly productive threading with fewer passes and longer tool life.
- Requires a rigid setup and long thread pass through.

Formulas

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

m/min	=	metres per minute
RPM	=	revolutions per minute
D	=	part diameter
π	=	3.1416

Maximum Cutting Speeds

On older machines 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:

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

Flank clearance

γ = arctan (sin (β/2) * tan(α))
γ = side (flank) clearance
β = included angle of thread form
α = radial inclination angle

Thread	Angle	External	Internal
UN & ISO	60	5.3	8
BSW	55	4.8	7.3
TR	30	2.6	4
ACME	29	2.6	3.9
AMBUT	7	.6	.9
AMBUT	45	4	6

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	1,25–1,5	1,75–2	2,5–3	3,5–4	4,5–6	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 .0,05mm infeed on last passes to avoid work hardening 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. For example, an 8-pitch external thread has a depth of 2mm (.0789").

$$\Delta ap_x = \frac{ap}{\sqrt{nap-1}} * \sqrt{\phi}$$

Formula for constant chip load infeed

Δap = radial infeed
x = actual pass (from 1 to the nap)
nap = number of passes
ϕ = 1st pass, 0.3
2nd pass, 1
3rd pass and up, x-1

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.

Using Flank Infeed

Lower bending stress and stabilised cutting edges produce more favourable chip shapes and larger cutting thicknesses.

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

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 0,05mm. The allowance at the diameter should not exceed 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
T Ap (mm)	0,305	0,457	0,610	0,762	0,914	1,067	1,219	1,524	1,829	2,159	2,464	2,769	3,073
N Ap	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	0,096	0,145	0,167	0,187	0,224	0,221	0,252	0,278	0,302	0,328	0,361	0,405	0,435
2	0,080	0,119	0,138	0,154	0,185	0,182	0,208	0,230	0,249	0,271	0,298	0,335	0,359
3	0,073	0,109	0,126	0,141	0,169	0,167	0,191	0,210	0,228	0,248	0,273	0,306	0,329
4	0,056	0,084	0,097	0,108	0,130	0,128	0,146	0,161	0,175	0,190	0,209	0,235	0,252
5			0,082	0,091	0,110	0,108	0,123	0,136	0,148	0,160	0,176	0,198	0,213
6				0,080	0,097	0,095	0,109	0,120	0,130	0,141	0,155	0,175	0,187
7						0,086	0,098	0,108	0,118	0,128	0,141	0,158	0,169
8						0,079	0,090	0,100	0,108	0,118	0,129	0,145	0,156
9								0,093	0,101	0,109	0,120	0,135	0,145
10								0,087	0,095	0,103	0,113	0,127	0,136
11									0,089	0,097	0,107	0,120	0,129
12									0,085	0,092	0,102	0,114	0,122
13										0,088	0,097	0,109	0,117
14										0,085	0,093	0,105	0,112
15											0,090	0,101	0,108
16													0,104
T Ap (mm)	0,305	0,457	0,610	0,762	0,914	1,067	1,219	1,524	1,829	2,159	2,464	2,769	3,073

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

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
T Ap (mm)	0,279	0,406	0,533	0,686	0,813	0,940	1,092	1,346	1,626	1,905	2,159	2,438	2,718
N Ap	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	0,088	0,129	0,146	0,168	0,199	0,195	0,226	0,246	0,282	0,315	0,328	0,357	0,384
2	0,073	0,106	0,121	0,139	0,164	0,161	0,187	0,203	0,232	0,260	0,271	0,295	0,317
3	0,067	0,097	0,110	0,127	0,151	0,147	0,171	0,186	0,213	0,238	0,248	0,270	0,291
4	0,051	0,075	0,085	0,097	0,116	0,113	0,131	0,143	0,163	0,183	0,190	0,207	0,223
5			0,071	0,082	0,097	0,095	0,111	0,120	0,138	0,154	0,160	0,175	0,188
6				0,072	0,086	0,084	0,097	0,106	0,121	0,136	0,141	0,154	0,166
7						0,076	0,088	0,096	0,110	0,123	0,128	0,139	0,150
8						0,070	0,081	0,088	0,101	0,113	0,118	0,128	0,138
9								0,082	0,094	0,105	0,109	0,119	0,128
10								0,077	0,088	0,099	0,103	0,112	0,120
11									0,083	0,093	0,097	0,106	0,114
12									0,000	0,089	0,092	0,101	0,108
13										0,000	0,088	0,096	0,103
14										0,000	0,085	0,092	0,099
15											0,000	0,089	0,096
16													0,092
T Ap (mm)	0,279	0,406	0,533	0,686	0,813	0,940	1,092	1,346	1,626	1,905	2,159	2,438	2,718

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

UN Thread, External Thread Cutting

TPI	24	20	18	16	14	12	11	10	9	8	7	6	5
T Ap (mm)	0,660	0,787	0,864	0,965	0,914	1,067	1,219	1,524	1,829	2,159	2,464	2,769	3,073
N Ap	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	0,181	0,193	0,212	0,216	0,177	0,207	0,223	0,264	0,302	0,341	0,374	0,405	0,435
2	0,149	0,159	0,175	0,178	0,146	0,171	0,184	0,218	0,249	0,282	0,309	0,335	0,359
3	0,137	0,146	0,160	0,163	0,134	0,156	0,168	0,200	0,228	0,258	0,283	0,306	0,329
4	0,105	0,112	0,123	0,125	0,103	0,120	0,129	0,153	0,175	0,198	0,217	0,235	0,252
5	0,088	0,094	0,103	0,106	0,087	0,101	0,109	0,129	0,148	0,167	0,183	0,198	0,213
6		0,083	0,091	0,093	0,076	0,089	0,096	0,114	0,130	0,147	0,161	0,175	0,187
7				0,084	0,069	0,080	0,087	0,103	0,118	0,133	0,146	0,158	0,169
8					0,063	0,074	0,080	0,095	0,108	0,122	0,134	0,145	0,156
9					0,059	0,069	0,074	0,088	0,101	0,114	0,125	0,135	0,145
10							0,070	0,083	0,095	0,107	0,117	0,127	0,136
11								0,078	0,089	0,101	0,111	0,120	0,129
12									0,085	0,096	0,105	0,114	0,122
13										0,092	0,101	0,109	0,117
14											0,097	0,105	0,112
15												0,101	0,108
16													0,104
T Ap (mm)	0,660	0,787	0,864	0,965	0,914	1,067	1,219	1,524	1,829	2,159	2,464	2,769	3,073

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

UN Thread, Internal Thread Cutting

TPI	24	20	18	16	14	12	11	10	9	8	7	6	5
T Ap (mm)	0,584	0,686	0,762	0,864	0,991	1,143	1,245	1,372	1,524	1,727	1,956	2,286	2,743
N Ap	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	0,160	0,168	0,187	0,193	0,205	0,221	0,241	0,250	0,264	0,285	0,309	0,347	0,402
2	0,132	0,139	0,154	0,159	0,169	0,183	0,199	0,207	0,218	0,236	0,255	0,287	0,332
3	0,121	0,127	0,141	0,146	0,155	0,167	0,182	0,189	0,200	0,216	0,234	0,263	0,304
4	0,093	0,097	0,108	0,112	0,119	0,128	0,140	0,145	0,153	0,166	0,179	0,202	0,233
5	0,078	0,082	0,091	0,094	0,100	0,108	0,118	0,123	0,129	0,140	0,151	0,170	0,196
6		0,072	0,080	0,083	0,088	0,095	0,104	0,108	0,114	0,123	0,133	0,150	0,173
7				0,075	0,080	0,086	0,094	0,098	0,103	0,111	0,120	0,135	0,156
8					0,073	0,079	0,086	0,090	0,095	0,102	0,111	0,124	0,144
9						0,074	0,080	0,084	0,088	0,095	0,103	0,116	0,134
10								0,078	0,083	0,089	0,097	0,109	0,126
11									0,078	0,085	0,092	0,103	0,119
12										0,080	0,087	0,098	0,113
13											0,083	0,094	0,108
14											0,080	0,090	0,104
15													0,100
16													
T Ap (mm)	0,584	0,686	0,762	0,864	0,991	1,143	1,245	1,372	1,524	1,727	2,036	2,286	2,743

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

NPT Thread, External, and Internal Machining

TPI	27	18	14	11.5	8
T Ap (mm)	0,762	1,118	1,422	1,727	2,489
N Ap	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	0,187	0,231	0,260	0,285	0,378
2	0,154	0,191	0,214	0,236	0,312
3	0,141	0,175	0,196	0,216	0,286
4	0,108	0,134	0,151	0,166	0,219
5	0,091	0,113	0,127	0,140	0,185
6	0,080	0,100	0,112	0,123	0,163
7		0,090	0,101	0,111	0,147
8		0,083	0,093	0,102	0,135
9			0,087	0,095	0,126
10			0,081	0,089	0,118
11				0,085	0,112
12				0,080	0,107
13					0,102
14					0,098
15					
16					
T Ap (mm)	0,762	1,118	1,422	1,727	2,489

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

BSPT Thread, External, and Internal Machining

TPI	28	19	14	11
T Ap (mm)	0,584	0,864	1,168	1,448
N Ap	5	8	10	12
	values for flank infeed (X/Z)			
order of passes	X/Z	X/Z	X/Z	X/Z
1	0,160	0,179	0,213	0,239
2	0,132	0,148	0,176	0,197
3	0,121	0,135	0,161	0,181
4	0,093	0,104	0,124	0,139
5	0,078	0,087	0,104	0,117
6		0,077	0,092	0,103
7		0,070	0,083	0,093
8		0,064	0,076	0,086
9			0,071	0,080
10			0,067	0,075
11				0,071
12				0,067
13				
14				
15				
16				
T Ap (mm)	0,584	0,864	1,168	1,448

Trapezoid Thread to DIN 103, External, and Internal Machining

pitch	1,5	2	3	4	5
T Ap (mm)	1,016	1,245	1,753	2,261	2,743
N Ap	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	0,249	0,258	0,320	0,373	0,417
2	0,206	0,213	0,264	0,308	0,344
3	0,188	0,195	0,242	0,282	0,315
4	0,144	0,150	0,186	0,217	0,242
5	0,122	0,126	0,157	0,183	0,204
6	0,107	0,111	0,138	0,161	0,180
7		0,100	0,125	0,145	0,162
8		0,092	0,115	0,134	0,149
9			0,107	0,125	0,139
10			0,100	0,117	0,131
11				0,111	0,123
12				0,105	0,117
13					0,112
14					0,108
15					
16					
T Ap (mm)	1,016	1,245	1,753	2,261	2,743

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

Round Thread to DIN 405, External, and Internal Machining

pitch	10	8	6
T Ap (mm)	1,321	1,626	2,159
N Ap	8	10	12
	values for flank infeed (X/Z)		
order of passes	X/Z	X/Z	X/Z
1	0,273	0,297	0,357
2	0,226	0,245	0,294
3	0,207	0,224	0,270
4	0,159	0,172	0,207
5	0,134	0,145	0,174
6	0,118	0,128	0,154
7	0,107	0,116	0,139
8	0,098	0,106	0,128
9		0,099	0,119
10		0,093	0,112
11			0,106
12			0,100
13			
14			
15			
16			
T Ap (mm)	1,321	1,626	2,159

Whitworth, External, and Internal Thread Cutting

TPI	28	20	19	16	14	12	11	10	9	8	7	6	5
T Ap (mm)	0,584	0,813	0,813	0,864	1,016	1,346	1,473	1,626	1,803	2,032	2,311	2,718	3,251
N Ap	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	0,160	0,199	0,199	0,179	0,210	0,261	0,285	0,297	0,312	0,336	0,351	0,398	0,460
2	0,132	0,164	0,164	0,148	0,174	0,215	0,236	0,245	0,258	0,277	0,290	0,329	0,380
3	0,121	0,151	0,151	0,135	0,159	0,197	0,216	0,224	0,236	0,254	0,266	0,301	0,348
4	0,093	0,116	0,116	0,104	0,122	0,151	0,166	0,172	0,181	0,195	0,204	0,231	0,267
5	0,078	0,097	0,097	0,087	0,103	0,128	0,140	0,145	0,153	0,164	0,172	0,195	0,225
6		0,086	0,086	0,077	0,091	0,112	0,123	0,128	0,135	0,145	0,151	0,171	0,198
7				0,070	0,082	0,102	0,111	0,116	0,122	0,131	0,137	0,155	0,179
8				0,064	0,075	0,093	0,102	0,106	0,112	0,120	0,126	0,143	0,165
9						0,087	0,095	0,099	0,104	0,112	0,117	0,133	0,153
10								0,093	0,098	0,105	0,110	0,125	0,144
11									0,093	0,099	0,104	0,118	0,136
12										0,095	0,099	0,112	0,130
13											0,095	0,107	0,124
14											0,091	0,103	0,119
15												0,099	0,114
16													0,110
T Ap (mm)	0,584	0,813	0,813	0,864	1,016	1,346	1,473	1,626	1,803	2,032	2,311	2,718	3,251

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

Multi-Tooth 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	0,609	0,838	0,838	1,168	1,168	1,778	0,939	0,939	1,245	1,245	1,880	1,575	1,753	1,753	2,540
1	0,330	0,381	0,508	0,508	0,711	0,558	0,431	0,558	0,558	0,762	0,584	0,736	0,584	0,812	0,889
2	0,279	0,254	0,330	0,381	0,457	0,482	0,304	0,381	0,406	0,482	0,508	0,482	0,508	0,558	0,635
3	—	0,203	—	0,279	—	0,431	0,203	—	0,279	—	0,431	0,355	0,355	0,3815	0,558
4	—	—	—	—	—	0,304	—	—	—	—	0,355	—	0,304	—	0,457

Recommendations for Steel Workpieces (<300 BHN)

			total depth — on radius		
catalogue number	insert size	TPI profile	1st pass	2nd pass	3rd pass
NTC-8R/L8EM	8	8 UN	1,21	1,63	2,00
NTC-8R/L8IM	8	8 UN	1,19	1,55	1,88
NTC-8R/L10EM	8	10 UN	0,92	1,27	1,60
NTC-8R/L10IM	8	10 UN	0,90	1,22	1,52
NTC-8R/L12EM	8	12 UN	0,76	1,04	1,32
NTC-8R/L12IM	8	12 UN	0,76	0,93	1,20
NTC-8R/L14EM	8	14 UN	0,68	0,95	1,12
NTC-8R/L14IM	8	14 UN	0,60	0,78	1,04
NTC-8R/L16EM 8	8	16 UN	0,58	0,81	0,96
NTC-8R/L16IM	8	16 UN	0,50	0,68	0,93
NTC-8R/L18EM	8	18 UN	0,48	0,66	0,86
NTC-8R/L18IM	8	18 UN	0,48	0,60	0,83
NDC-68RDR/L-75M	8	8 round	1,47	1,65	1,85
NDC-61RDR/L-75M	8	10 round	1,11	1,29	1,45
NDC-88RDRD/L-75M	8	8 round	1,29	1,75	1,85
NDC-88VR/L-75M	8	8 NPT	1,01	1,72	2,45
NDC-8115VR/L-75M	8	11.5 NPT	0,96	1,37	1,70
NDN-814VR/L-75M	8	14 NPT	0,96	1,22	1,36

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

ACME, External

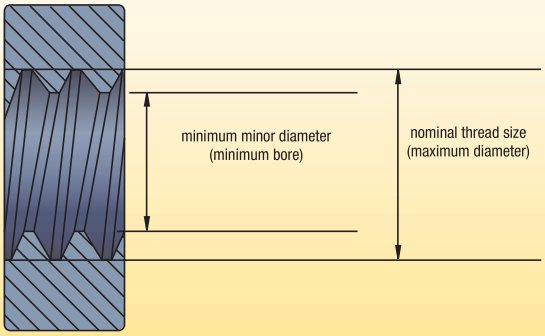
pitch, TPI	28	20	19	16	14	12	11	10	9	8	7	6	5
depth	.028	.032	.032	.034	.040	.053	.058	.064	.071	.080	.091	.107	0.128
number of passes	5	6	6	8	8	9	9	10	11	12	14	15	16
	values for flank infeed (X/Z)												
order of passes	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	.039	.041	.050	.063	.074	.095	.112	.138	.180	.256	.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

NOTE: Always allow 0,08–0,13mm extra stock for full profile inserts.

ACME, Internal

pitch, TPI	28	20	19	16	14	12	11	10	9	8	7	6	5
depth	.028	.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	.256	.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

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.



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 and NT-4 60° V-threading inserts

TPI	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

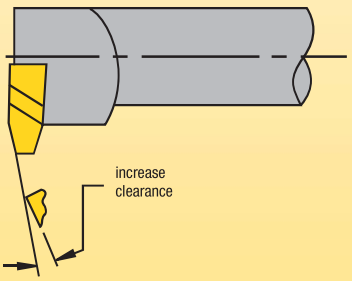
*Thread pitch of 1,5mm and less can be cut provided core thread diameter is 35mm or larger.
**NT-4-insert only.

Acme Threading Limits

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

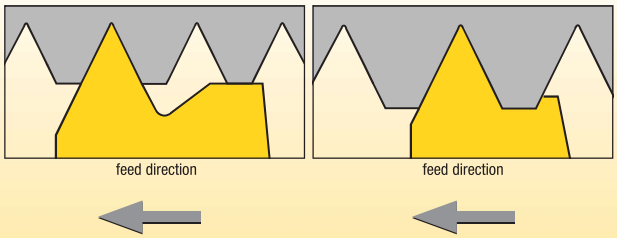
TPI	nominal thread size	minimum thread diameter (mm)	
	NT-1	NT-1	NT-2
2**	5	4.500	114.3
2-1/2**	4-1/2	4.100	104.1
3**	4	3.665	93.1
4	3-1/2	3.250	82.6
5	3	2.800	71.1
6	2-1/2	2.333	59.3
8	2-1/4	2.125	54.0
10	2	1.900	48.3
12	1-3/4	1.667	42.4
14	1-5/8	1.554	39.5
16*	1-1/2	1.438	36.5

*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 multiple start threads. Modified standard inserts may be furnished for machining threads outside of the limits shown.

60° V-Thread Crest Turning Application Data



NTC crest turning insert for (P ≤ 2mm) and finer.

NTC crest turning insert for (P ≥ 3mm) and coarser.

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.

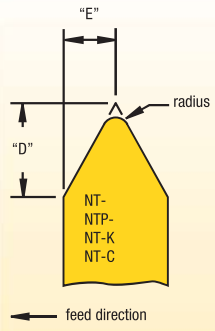
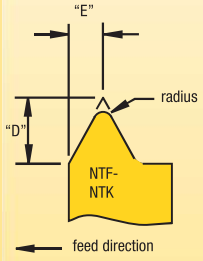
60° V-Thread Crest Turning Application Data

insert catalogue number	nose radius on insert (mm)	thread radius per MIL-S-8879A (mm)
NJ-3014R/L12	0,317/0,342	0,317/0,381
NJK-3008R/L20	0,190/0,215	0,190/0,0228

"J" thread note for catalogue

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.

60° V-Thread Application Data

insert description	insert	D (mm)	E (mm)	recommended TPI*		recommended TP*	
				external	internal	external	internal
	NT-1	1,90	1,11	–	24–12	–	1,00–2,00
	NT-2	28,70	1,90	36–8	20–7	0,70–3,00	1,25–3,50
	NT-2-K	28,70	1,90	36–8	20–7	0,70–3,00	1,25–3,50
	NTF-2	15,75	1,01	44–14	24–12	0,60–1,75	1,00–2,00
	NTK-2	15,75	1,01	44–14	24–12	0,60–1,75	1,00–2,00
	NTP-2	28,70	1,90	36–8	20–7	0,70–3,0	1,25–3,50
	NT-3	37,59	2,46	20–6	12–5	1,25–4,00	2,00–5,00
	NT-3-K	37,59	2,46	20–6	12–5	1,25–4,00	2,00–5,00
	NT-3-C	37,59	2,46	11–6	6 (only)	2,50–4,00	4,00 (only)
	NT-3-CK	37,59	2,46	11–6	6 (only)	2,50–4,00	4,00 (only)
	NTF-3	21,08	1,37	44–10	24–9	0,60–2,50	1,00–2,50
	NTK-3	21,08	1,37	44–10	24–9	0,60–2,50	1,00–2,50
	NTP-3	37,59	2,46	20–6	12–5	1,25–4,00	2,00–5,00
	NT-4	49,78	3,22	20–4	12–4	1,25–6,25	2,00–6,25
	NT-4-K	49,78	3,22	20–4	12–4	1,25–6,25	2,00–6,25
	NT-4-C	49,78	3,22	11–4 1/2	6–4 1/2	2,50–5,50	4,00–5,50
	NT-4-CK	49,78	3,22	11–4 1/2	6–4 1/2	2,50–5,50	4,00–5,50
	NTF-4	21,08	1,37	44–10	24–9	0,60–2,50	1,00–2,50
	NTK-4	21,08	1,37	44–10	24–9	0,60–2,50	1,00–2,50
	NTP-4	49,78	3,22	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.

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

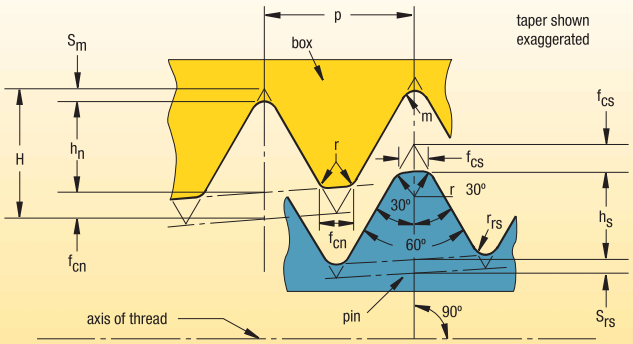
*Minimum box size that can be threaded with a standard Top Notch insert due to minimum bore equipment.

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.

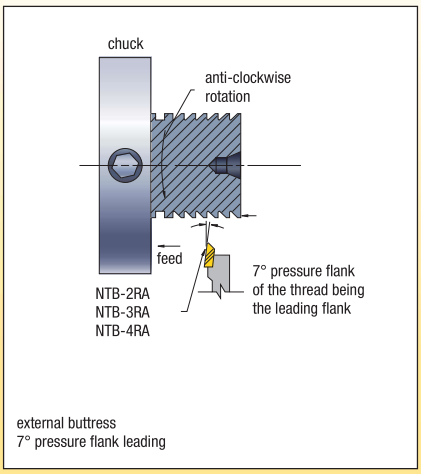
V-.040 and V-.050 Product Thread Form

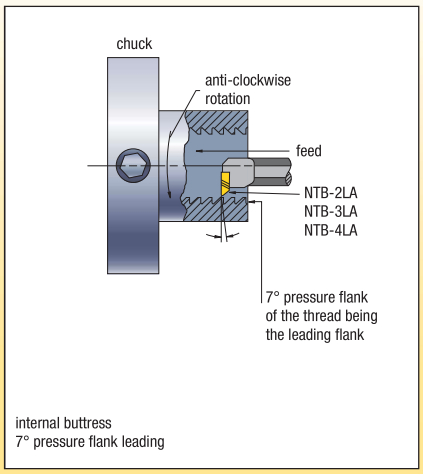


Casing and Tubing Round Thread (Height Dimensions)

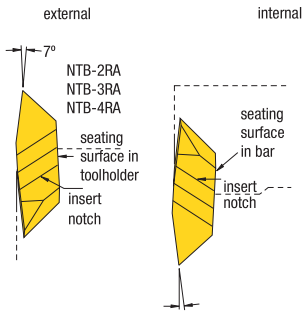
thread element		10 TPI p = .1000	8 TPI p = .1250
H	= .866p	.08660	.10825
$H_s = h_n$	= .626p - .007	.05560	.07125
$S_{rs} = S_m$	= .120p + .002	.01400	.01700
$S_{cs} = S_{cn}$	= .120p + .005	.01700	.02000

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

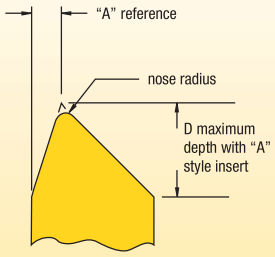




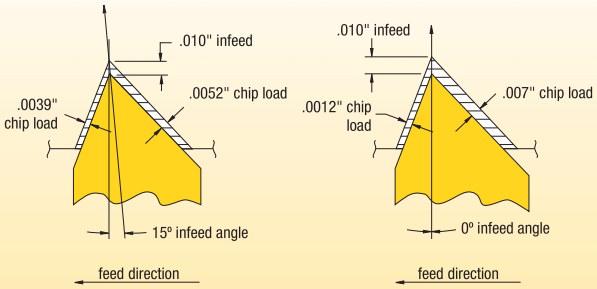
Insert vs. Toolholder Orientation



Reference Dimensions



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



NTB-A insert

insert	D (inch)	"A" ref. (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

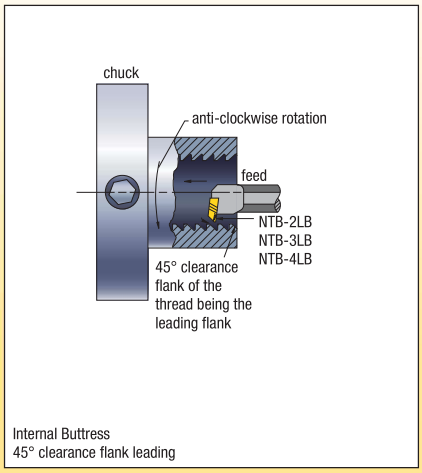
*NTB-4A insert only.
**Can cut 16 or 20 threads per inch provided minor diameter is 1.375" or larger.

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

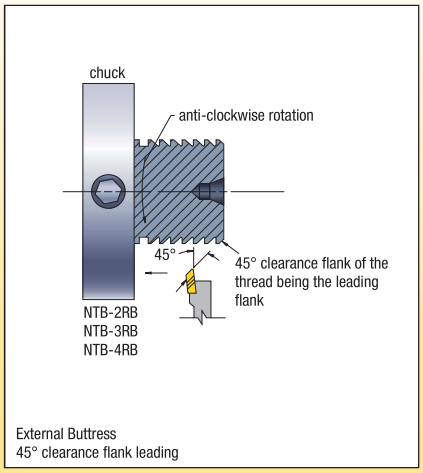
TPI	20	16	12	10	8	6	5	4	3	2-1/2	2	1-1/2	1-1/4	1
maximum root radius	.0036	.0045	.0059	.0071	.0089	.0119	.0143	.0179	.0238	.0268	.0375	.0476	.0572	.0714

NOTE: Special Buttress forms are available upon request.

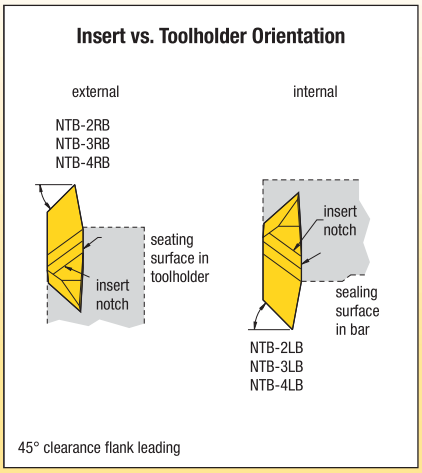
American Buttress (45° Clearance Flank Leading): NTB-B Inserts • PULL-type



Internal Buttress
45° clearance flank leading

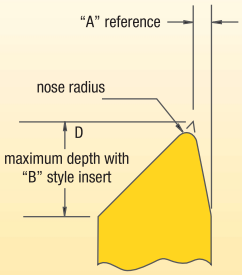


External Buttress
45° clearance flank leading

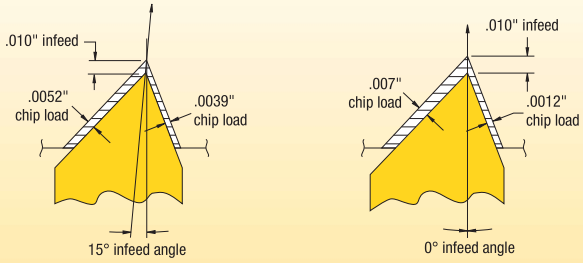


45° clearance flank leading

Reference Dimensions



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



NTB-B insert

insert	D (inch)	"A" reference (inch)	nose radius (inch)	pitch based on maximum radius
NTB-3B	.171	.031	.005–.004	8–16 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.

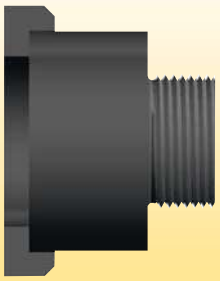
Required Information

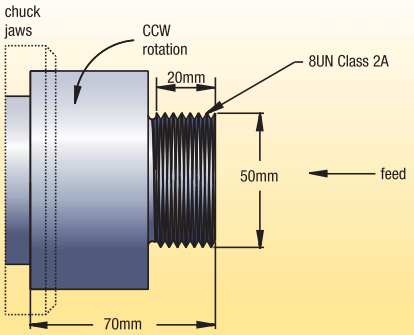
From Part Drawing:

material: 316SS, 200 HB
thread form: 8UN
tolerance: class 2A
operation: external threading
pitch diameter: 50mm x 25mm deep

From Machine Setup Data:

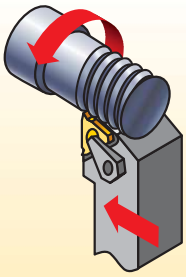
tooling: 20mm x 20mm
spindle rotation: anti-clockwise
feed: toward chuck





Steps for a Successful Threading Operation

Step 1 • Determine Threading Method



Need to Know:

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

Step 2 • Select Insert

Need to Know:

- Thread form (ISO R262 1mm pitch).
- Hand of insert (right hand — ER).

Choose the High-Performance Solution

catalogue number	insert size	KCU25/ KC5025
3ER10ISO	3	•

High-Performance Selection

NOTE: Use insert with largest insert size available.
insert: 3ER10ISO
grade: KCU25/KC5025
speed: 150 m/min

Step 3 • Select the Grade and Speed

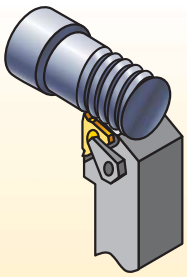
Need to Know:

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

Options: Grade and Speed Selection Guidelines

threading operation	stainless steel
external	general purpose and high performance
	KC5025
	50–360 m/min

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 (16).

Options:

catalogue number	insert size	shim
AL203R	3	SM-YE3

First choice: LSASR-123 holder

Step 5 • Select Shim

Need to Know:

- Thread form — TPI or pitch (8 TPI).
- Pitch diameter (50mm).
- Helix method (standard).
  See Laydown Threading (LT) shim selection chart.

Select SM-YE3 shim

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

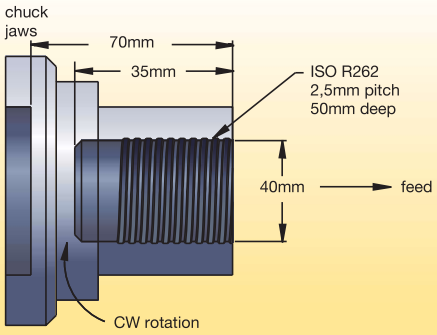
Required Information

From Part Drawing:

material: 4140 steel
thread form: ISO R262 2,5mm pitch
tolerance: ISO Metric Class 6G/6H
operation: internal threading
pitch diameter: 40mm x 35mm deep

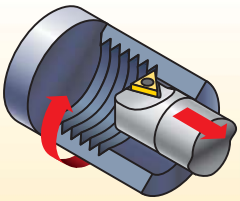
From Machine Setup Data:

tooling: 20mm 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 (ISO Metric Class 6G/6H).
- Hand of insert (left hand — NL).

Choose the High-Performance Solution

catalogue number	insert size	KCU25/ KC5025
3IL25ISO	3	•

High-Performance Selection

NOTE: Use insert with largest possible insert size to go into the bore.
insert: 3IL25ISO
grade: KCU25/KC5025
speed: 130 m/min

Step 3 • Select the Grade and Speed

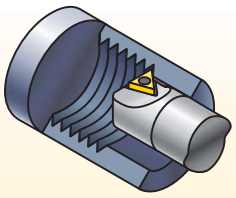
Need to Know:

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

Options: Grade and Speed Selection Guidelines

threading operation	steel
internal	general purpose and high performance
	KC5025
	40–200 m/min

Step 4 • Select Toolholder



Need to Know:

- External or internal operation (internal).
- Pitch diameter to determine minimum bore diameter for internal operations (40mm).
- Type of tooling — toolholder, boring bar (boring bar).
- Hand of tool (left hand).
- Insert size (16).

Options:

catalogue number	insert size	shim
AVR32D3R	3	SM-YE3

First choice: LSASR-123 holder

Step 5 • Select Shim

Need to Know:

- Thread form — TPI or pitch (2,5mm pitch).
- Pitch diameter (50mm).
- Helix method (standard). See Laydown Threading (LT) shim selection chart.

Select SM-YE3 shim

NOTE: For this application, the standard shim supplied should be replaced with the recommended shim, SM-YE3.

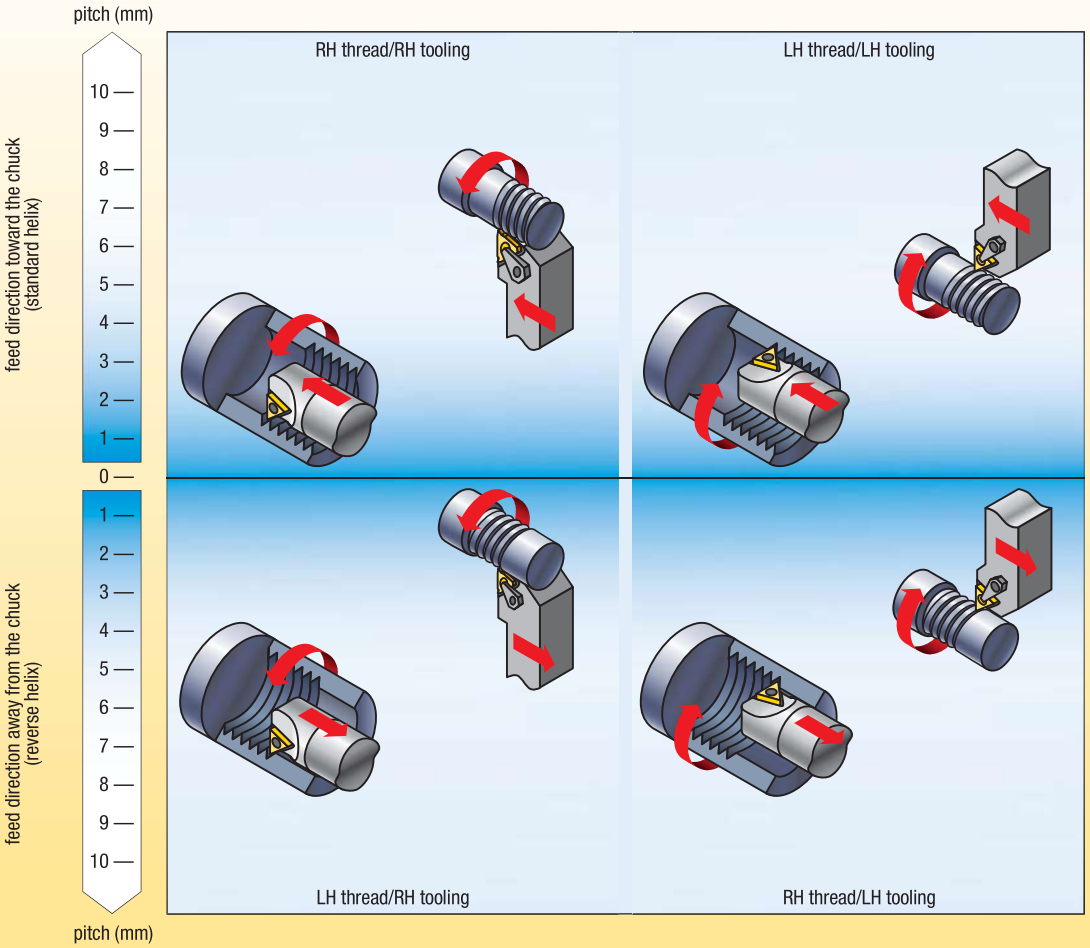
Laydown Threading Shim Selection Guidelines

It is essential to select the correct shim to ensure thread quality and maximum tool life. These parameters are needed:

- Pitch
- Pitch diameter
- Number of starts
- Feed direction

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

Laydown Selection Chart



NOTE: For multi-start threads, use the lead value instead of the pitch.

Diagram of Thread Lead Angles

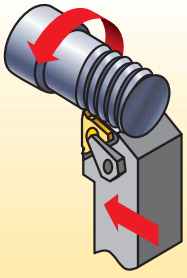
To calculate the lead angle of a given thread, use this formula:

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

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

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.

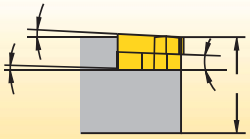


Laydown Threading Shim Selection Table • Metric

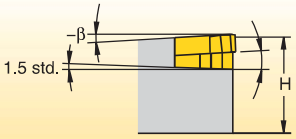
insert size	toolholder external	toolholder internal	shim ordering code (mm)							
3 (9,52)	RH	LH	SM–YE3–3P	SM–YE3–2P	SM–YE3–1P	SM–YE3	SM–YE3–1N	SM–YE3–1.5N	SM–YE3–2N	SM–YE3–3N
3 (9,52)	LH	RH	SM–YI3–3P	SM–YI3–2P	SM–YI3–1P	SM–YI3	SM–YI3–1N	SM–YI3–1.5N	SM–YI3–2N	SM–YI3–3N
4 (12,7)	RH	LH	SM–YE4–3P	SM–YE4–2P	SM–YE4–1P	SM–YE4	SM–YE4–1N	SM–YE4–1.5N	SM–YE4–2N	SM–YE4–3N
4 (12,7)	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 (mm)**							
72		—	—	—	—	3,1–8	8–21,4	>21,4	21,4–8	8–3,1
—		0,35	—	—	—	3,0–8	8–21,3	>21,3	21,3–8	3–8
64		—	—	—	—	3,4–9	9–24,1	>24,1	24,1–9	9–3,4
—		0,40	—	—	—	3,5–9,1	9,1–24,3	>24,3	24,3–9,1	9,1–3,5
56		0,45	—	—	—	3,9–10,3	10,3–27,6	>27,6	27,6–10,3	10,3–3,9
—		0,50	—	—	2,8–4,3	4,3–11,4	11,4–30,4	>30,4	30,4–11,4	11,4–4,3
48		—	—	—	3–4,6	4,6–12,1	12,1–32,2	>32,2	32,2–12,1	12,1–4,6
44		—	—	—	3,3–5	5–13,2	13,2–35,1	>35,1	35,1–13,2	13,2–5
—		0,60	—	2,6–3,4	3,4–5,2	5,2–13,7	13,7–36,5	>36,5	36,5–13,7	13,7–5,2
40		—	—	2,8–3,6	3,6–5,5	5,5–14,5	14,5–38,6	>38,6	38,6–14,5	14,5–5,5
—		0,70	—	3,0–4	4–6,1	6,1–16	16–42,6	>42,6	42,6–16	16–6,1
36		—	—	3,1–4	4–6,1	6,1–16,1	16,1–42,9	>42,9	42,9–16,1	16,1–6,1
—		0,75	2,8–3,2	3,3–4,3	4,3–6,5	6,5–17,1	17,1–45,6	>45,6	45,6–17,1	17,1–6,5
32		—	3–3,4	3,4–4,5	4,5–6,9	6,9–18,1	18,1–48,3	>48,3	48,3–18,1	18,1–6,9
—		0,80	3–3,5	3,5–4,6	4,6–6,9	6,9–18,2	18,2–48,6	>48,6	48,6–18,2	18,2–6,9
28		—	3,4–3,9	3,9–5,2	5,2–7,9	7,9–20,7	20,7–55,1	>55,1	55,1–20,7	20,7–7,9
27		—	3,6–4,1	4,1–5,4	5,4–8,2	8,2–21,4	21,4–57,2	>57,2	57,2–21,4	21,4–8,2
—		1,00	3,8–4,3	4,3–5,7	5,7–8,7	8,7–22,8	22,8–60,8	>60,8	60,8–22,8	22,8–8,7
24		—	4–4,6	4,6–6	6–9,2	9,2–24,1	24,1–64,3	>64,3	64,3–24,1	24,1–9,2
—		1,25	4,7–5,4	5,4–7,1	7,1–10,8	10,9–28,5	28,5–76	>76,0	76–28,5	28,5–10,8
20		—	4,8–5,5	5,5–7,2	7,2–11	11–28,9	29–77,2	>77,2	77,2–28,9	29–11
18		—	5,3–6,1	6,1–8	8–12,2	12,2–32,2	32,2–85,8	>85,8	85,8–32,2	32,2–12,2
—		1,50	5,7–6,5	6,5–8,5	8,5–13	13–34,2	34,2–91,2	>91,2	91,2–34,2	34,2–13
16		—	6–6,9	6,9–9	9–13,8	13,8–36,2	36,2–96,5	>96,5	96,5–36,2	36,2–13,8
—		1,75	6,6–7,96	7,6–10	10–15,2	15,2–39,9	39,9–106,4	>106,4	106,4–39,9	39,9–15,2
14		—	6,9–7,9	7,9–10,3	10,3–15,7	15,7–41,4	41,4–110,3	>110,3	110,3–41,4	41,4–15,7
13		—	7,4–8,5	8,5–11,1	11,1–17	17–44,5	44,5–118,8	>118,8	118,8–44,5	44,5–17
—		2,00	7,6–8,7	8,7–11,4	11,4–17,4	17,4–45,6	45,6–121,6	>121,6	121,6–45,6	45,6–17,4
12		—	8–9,2	9,2–12	12,1–18,4	18,4–48,2	48,3–128,7	>128,7	128,7–48,2	48,2–18,4
11.5		—	8,4–9,6	9,6–12,6	12,6–19,2	19,2–50,3	50,3–134,3	>134,3	134,3–50,3	50,3–19,2
11		—	8,8–10	10–13,1	13,1–20	20–52,6	52,6–140,4	>140,4	140,4–52,6	52,6–20
—		2,50	9,5–10,8	10,8–14,2	14,2–21,7	21,7–57	57–152	>152,0	152–57	57–21,7
10		—	9,6–11	11–14,5	14,5–22	22–57,9	57,9–154,4	>154,4	154,4–57,9	57,9–22
9		—	10,7–12,2	12,2–16,1	16,1–24,5	24,5–64,3	64,3–171,6	>171,6	171,6–64,3	64,3–24,5
—		3,00	11,4–13	13–17,1	17,1–26	26–68,4	68,4–182,4	>182,4	182,4–68,4	68,4–26
8		—	12–13,8	13,8–18,1	18,1–27,6	27,6–72,4	72,4–193	>193,0	193–72,4	72,4–27,6
—		3,50	13,3–15,2	15,2–19,9	19,9–30,4	30,4–79,8	79,8–212,8	>212,8	212,8–79,8	79,8–30,4
7		—	13,8–15,7	15,7–20,7	20,7–31,5	31,5–82,7	82,7–220,6	>220,6	220,6–82,7	82,7–31,5
—		4,00	15,2–17,3	17,3–22,8	22,8–34,7	34,7–91,2	91,2–243,2	>243,2	243,2–91,2	91,2–34,7
6		—	16–18,3	18,3–24,1	24,1–36,7	36,7–96,5	96,5–257,4	>257,4	257,4–96,5	96,5–36,7
—		5,00	19–21,7	21,7–28,5	28,5–43,4	43,4–114	114–304	>304,0	304–114	114–43,4
5		—	19,3–22	22–28,9	28,9–44,1	44,1–115,8	115,8–308,8	>308,8	308,8–115,8	115,8–44,1
4,5		—	21,4–24,5	24,5–32,1	32,1–49	49–128,7	128,7–343,1	>343,1	343,1–128,7	128,7–49
—		6,00	22,7–26	26–34,2	34,2–52,1	52,1–136,8	136,8–364,8	>364,8	364,8–136,8	136,8–52,1
4		—	24,1–27,5	27,5–36,2	36,2–55,1	55,1–144,8	144,8–386	>386	386–144,8	144,8–55,1
inclination angle			4.5	3.5	2.5	1.5	0.5	0.0	-0.5	-1.5
			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.

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.



NOVO KNOWS SEARCH

Searching for a tool has been enhanced by Advise and Select functions from NOVO™ applications — saving you time and money.

ADVISE

Uses a rules-based approach to provide cutting tool recommendations:

- Define Machining Feature (face milling, slotting, blind hole, etc.)
- Apply Constraint Requirements (geometric, material, tolerance, etc.)
- Set Machining Sequence (single or multi-step operations, rough then finish, etc.)
- Receive Ranked Results

SELECT

A method of selecting cutting tools from a tree structure via a hierarchy or parametric search:

- If you know which product you are looking for, a quick search can be performed by just the catalogue number or product description.
- Smart filters significantly reduce the amount of potential tooling solutions.
- After the tool is selected, NOVO also provides cutting and adaptive item options that fit with your solution.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximises every shift. **kennametal.com/novo**