B

Taegu Thread

TaeguTec
Member IMC Group

B CONTENTS

Main Inserts Types

M-Type
16 ERM 1.50 ISO

U-Type
22 UEIRL U60

Regular Type
16 ER 1.50 ISO

M-Type Inserts

High Profile Accuracy

Indexability on the toolholder of ±0.015mm is guaranteed in all inserts.

Cost Advantage

Advanced technology guarantees economical production, high accuracy and improved performance.

Excellent Chip Control

A unique chipbreaker gives excellent performance.

Clear and Easy Identification

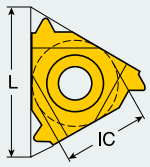
The designation clearly inscribed on the insert surface defines application, thread standard and pitch.

Standard Toolholders

Inserts can be mounted with a standard torx screw on most toolholders used in the threading industry.

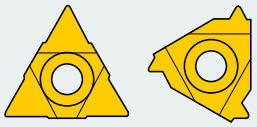
1 Insert Size

L (mm)	IC
06	3.968mm=5/32″
08	4.762mm=3/16″
11	6.350mm=1/4″
16	9.525mm=3/8″
22	12.700mm=1/2″
27	15.875mm=5/8″



2 Application

E – External
I – Internal
UE – U-Type, External
UI – U-Type, Internal
UEI – U-Type, External and Internal



U-Type **Regular Type**

3 Hand of Tool

R – Right-hand
L – Left-hand
RL – Right-hand Left-hand

4 Type

M – Pressed chipbreaker
□ – No indication regular type

16	E	R	M	1.50	ISO	2M	TT9030
1	2	3	4	5	6	7	8

5 Pitch

Full Profile

(Value by number)

0.35 - 9.0 **mm**

72 - 2 **TPI**

Partial Profile

(Range by letter)

	mm	TPI
A	0.5 - 1.5	48 - 16
AG	0.5 - 3.0	48 - 8
G	1.75 - 3.0	14 - 8
N	3.5 - 5.0	7 - 5
U	5.5 - 9.0	4.5 - 2.75
Q	5.5 - 6.0	4.5 - 4

6 Thread Standard

60 - Partial Profile 60°
55 - Partial Profile 55°
ISO - ISO Metric
UN - American UN
W - Whitworth
BSPT - British BSPT
RND - Round DIN 405
TR - Trapeze DIN 103
ACME - ACME
STACME - Stub ACME
ABUT - American Buttress
UNJ - UNJ
NPT - NPT
API RD - API Round
BUT - API Buttress Casing
VAM - VAM
API - API

7 No. of Teeth (Optional)

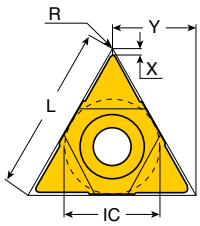
2M - 2 teeth
3M - 3 teeth

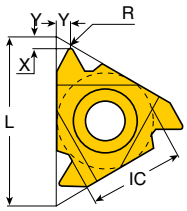
8 Grade

Coated
TT7010
TT8010
TT9030

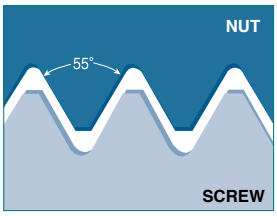
Uncoated
P30
UF10

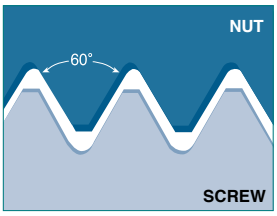
Partial Profile 55° / 60°





Application:
General Industry



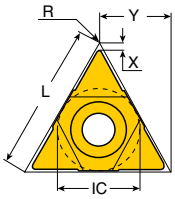


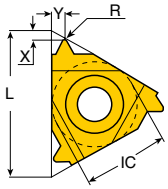
Thread Form	Designation		IC	Pitch		Dimension			
	Right Hand	Left Hand		mm	TPI	L	R	X	Y
External	11 ER A 55	11 EL A 55	1/4″	0.5 - 1.5	48 - 16	11	0.05	0.8	0.9
 Regular Type	16 ER A 55	16 EL A 55	3/8″	0.5 - 1.5	48 - 16	16	0.05	0.8	0.9
	16 ER G 55	16 EL G 55		1.75 - 3.0	14 - 8	16	0.20	1.2	1.7
	16 ERM G 55			1.75 - 3.0	14 - 8	16	0.23	1.2	1.7
	16 ER AG 55	16 EL AG 55		0.5 - 3.0	48 - 8	16	0.05	1.2	1.7
	16 ERM AG55			0.50 - 3.0	48 - 8	16	0.06	1.2	1.7
 M - Type	22 ER N 55	22 EL N 55	1/2″	3.5 - 5.0	7 - 5	22	0.42	1.7	2.5
	27 ER Q 55	27 EL Q 55	5/8″	5.5 - 6.0	4.5 - 4	27	0.60	2.0	2.9
Internal	06 IR A 55	06 IL A 55	5/32″	0.5 - 1.25	48 - 20	6	0.05	0.6	0.6
 Regular Type	08 IR A 55	08 IL A 55	3/16″	0.5 - 1.5	48 - 16	8	0.05	0.6	0.7
	11 IR A 55	11 IL A 55	1/4″	0.5 - 1.5	48 - 16	11	0.05	0.8	0.9
	16 IR A 55	16 IL A 55	3/8″	0.5 - 1.5	48 - 16	16	0.05	0.8	0.9
	16 IR G 55	16 IL G 55		1.75 - 3.0	14 - 8	16	0.20	1.2	1.7
	16 IRM G 55			1.75 - 3.0	14 - 8	16	0.22	1.2	1.7
 M - Type	16 IR AG 55	16 IL AG 55		0.5 - 3.0	48 - 8	16	0.05	1.2	1.7
	16 IRM AG 55			0.50 - 3.0	48 - 8	16	0.07	1.2	1.7
	22 IR N 55	22 IL N 55	1/2″	3.5 - 5.0	7 - 5	22	0.42	1.7	2.5
	27 IR Q 55	27 IL Q 55	5/8″	5.5 - 6.0	4.5 - 4	27	0.60	2.0	2.9
 U - Type	08 U IRL U 55		3/16″	1.75 - 2.0	14 - 11	8	0.10	0.9	4.0
	22 U EIRL U 55		1/2″	5.5 - 8.0	4.5 - 3.25	22	0.60	0.9	11.0
	27 U EIRL U 55		5/8″	6.5 - 9.0	4 - 2.75	27	0.81	1.2	13.7

Thread Form	Designation		IC	Pitch		Dimension			
	Right Hand	Left Hand		mm	TPI	L	R	X	Y
External	11 ER A 60	11 EL A 60	1/4″	0.5 - 1.5	48-16	11	0.05	0.8	0.9
 Regular Type	16 ER A 60	16 EL A 60	3/8″	0.5 - 1.5	48-16	16	0.05	0.8	0.9
	16 ERM A 60			0.5 - 1.5	48-16	16	0.05	0.8	0.9
	16 ER G 60	16 EL G 60		1.75 - 3.0	14-8	16	0.17	1.2	1.7
	16 ERM G 60			1.75 - 3.0	14-8	16	0.17	1.2	1.7
	16 ER AG 60	16 EL AG 60		0.5 - 3.0	48-8	16	0.05	1.2	1.7
 M - Type	16 ERM AG 60			0.5 - 3.0	48-8	16	0.06	1.2	1.7
	22 ER N 60	22 EL N 60	1/2″	3.5 - 5.0	7-5	22	0.32	1.7	2.5
	22 ERM N 60			3.5 - 5.0	7-5	22	0.32	1.7	2.5
	27 ER Q 60	27 EL Q 60	5/8″	5.5 - 6.0	4.5-4	27	0.63	2.1	3.1
Internal	06 IR A 60	06 IL A 60	5/32″	0.5 - 1.25	48-20	6	0.05	0.5	0.6
	06 IRM A 60			0.5 - 1.25	48-20	6	0.05	0.5	0.6
 Regular Type	08 IR A 60	08 IL A 60	3/16″	0.5 - 1.5	48-16	8	0.05	0.6	0.7
	08 IRM A 60			0.5 - 1.5	48-16	8	0.05	0.6	0.7
	11 IR A 60	11 IL A 60	1/4″	0.5 - 1.5	48-16	11	0.05	0.8	0.9
	11 IRM A 60			0.5 - 1.5	48-16	11	0.05	0.8	0.9
	16 IR A 60	16 IL A 60	3/8″	0.5 - 1.5	48-16	16	0.05	0.8	0.9
	16 IRM A 60			0.5 - 1.5	48-16	16	0.05	0.8	0.9
 M - Type	16 IR G 60	16 IL G 60		1.75 - 3.0	14-8	16	0.12	1.2	1.7
	16 IRM G 60			1.75 - 3.0	14-8	16	0.10	1.2	1.7
	16 IR AG 60	16 IL AG 60		0.5 - 3.0	48-8	16	0.05	1.2	1.7
	16 IRM AG 60			0.5 - 3.0	48-8	16	0.05	1.2	1.7
	22 IR N 60	22 IL N 60	1/2″	3.5 - 5.0	7-5	22	0.22	1.7	2.5
	22 IRM N 60			3.5 - 5.0	7-5	22	0.19	1.7	2.5
	27 IR Q 60	27 IR Q 60	5/8″	5.5- 6.0	4.5-4	27	0.31	1.8	2.7
 U - Type	08 U IRL U 60		3/16″	1.75-2.0	14-11	8	0.10	0.8	4.0
	22 U EIRL U 60		1/2″	5.5-8.0	4.5-3.25	22	0.28	0.6	11.0
	27 U EIRL U 60		5/8″	6.5-9.0	4-2.75	27	0.28	1.0	13.7

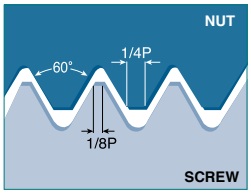
- ERM/IRM with pressed chipbreaker
- Available grades, see page B4

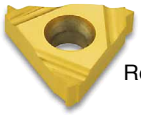
ISO Metric Full Profile





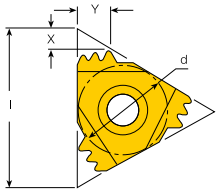
Application:
General Industry

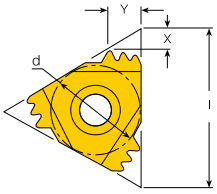


Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		mm	L	R	X	Y
External	11 ER 0.35 ISO	11 EL 0.35 ISO	1/4″	0.35	11	0.04	0.8	0.4
 Regular Type	11 ER 0.40 ISO	11 EL 0.40 ISO		0.40	11	0.04	0.7	0.4
	11 ER 0.45 ISO	11 EL 0.45 ISO		0.45	11	0.05	0.7	0.4
	11 ER 0.50 ISO	11 EL 0.50 ISO		0.50	11	0.04	0.6	0.6
	11 ER 0.60 ISO	11 EL 0.60 ISO		0.60	11	0.07	0.6	0.6
	11 ER 0.70 ISO	11 EL 0.70 ISO		0.70	11	0.07	0.6	0.6
	11 ER 0.75 ISO	11 EL 0.75 ISO		0.75	11	0.08	0.6	0.6
	11 ER 0.80 ISO	11 EL 0.80 ISO		0.80	11	0.09	0.6	0.6
 M - Type	11 ER 1.00 ISO	11 EL 1.00 ISO		1.00	11	0.12	0.7	0.7
	11 ER 1.25 ISO	11 EL 1.25 ISO		1.25	11	0.15	0.8	0.9
	11 ER 1.50 ISO	11 EL 1.50 ISO		1.50	11	0.18	0.8	1.0
	11 ER 1.75 ISO	11 EL 1.75 ISO		1.75	11	0.21	0.8	1.1
	16 ER 0.35 ISO	16 EL 0.35 ISO	3/8″	0.35	16	0.04	0.8	0.4
	16 ER 0.40 ISO	16 EL 0.40 ISO		0.40	16	0.04	0.7	0.4
	16 ER 0.45 ISO	16 EL 0.45 ISO		0.45	16	0.05	0.7	0.4
	16 ER 0.50 ISO	16 EL 0.50 ISO		0.50	16	0.04	0.6	0.6
	16 ER 0.60 ISO	16 EL 0.60 ISO		0.60	16	0.07	0.6	0.6
	16 ER 0.70 ISO	16 EL 0.70 ISO		0.70	16	0.07	0.6	0.6
	16 ER 0.75 ISO	16 EL 0.75 ISO		0.75	16	0.08	0.6	0.6
	16 ERM 0.75 ISO			0.75	16	0.08	0.6	0.6
	16 ER 0.80 ISO	16 EL 0.80 ISO		0.80	16	0.09	0.6	0.6
	16 ER 1.00 ISO	16 EL 1.00 ISO		1.00	16	0.12	0.7	0.7
	16 ERM 1.00 ISO			1.00	16	0.11	0.7	0.7
	16 ER 1.25 ISO	16 EL 1.25 ISO		1.25	16	0.15	0.8	0.9
	16 ERM 1.25 ISO			1.25	16	0.14	0.8	0.9
	16 ER 1.50 ISO	16 EL 1.50 ISO		1.50	16	0.18	0.8	1.0
	16 ERM 1.50 ISO			1.50	16	0.19	0.8	1.0
	16 ER 1.75 ISO	16 EL 1.75 ISO		1.75	16	0.21	0.9	1.2
	16 ERM 1.75 ISO			1.75	16	0.20	0.9	1.2
	16 ER 2.00 ISO	16 EL 2.00 ISO		2.00	16	0.25	1.0	1.3
	16 ERM 2.00 ISO			2.00	16	0.24	1.0	1.3
	16 ER 2.50 ISO	16 EL 2.50 ISO		2.50	16	0.31	1.1	1.5
	16 ERM 2.50 ISO			2.50	16	0.30	1.1	1.5
	16 ER 3.00 ISO	16 EL 3.00 ISO		3.00	16	0.38	1.2	1.6
	16 ERM 3.00 ISO			3.00	16	0.38	1.2	1.6
	22 ER 3.50 ISO	22 ER 3.50 ISO	1/2″	3.50	22	0.44	1.6	2.3
	22 ERM 3.50 ISO			3.50	22	0.45	1.6	2.3
	22 ER 4.00 ISO	22 EL 4.00 ISO		4.00	22	0.52	1.6	2.3
	22 ERM 4.00 ISO			4.00	22	0.55	1.6	2.3
	22 ER 4.50 ISO	22 EL 4.50 ISO		4.50	22	0.58	1.7	2.4
	22 ER 5.00 ISO	22 EL 5.00 ISO		5.00	22	0.64	1.7	2.5
	27 ER 5.50 ISO	27 EL 5.50 ISO	5/8″	5.50	27	0.70	1.9	2.7
	27 ER 6.00 ISO	27 EL 6.00 ISO		6.00	27	0.78	2.0	2.9
 U - Type	22 U ERL 5.50 ISO		1/2″	5.50	22	0.70	2.3	11.0
	22 U ERL 6.00 ISO			6.00	22	0.78	2.6	11.0
	27 U ERL 8.00 ISO		5/8″	8.00	27	1.08	2.4	

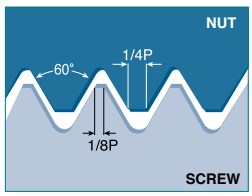
- ERM/IRM with pressed chipbreaker
- Available grades, see page B4

ISO Metric Full Profile Multi-Tooth



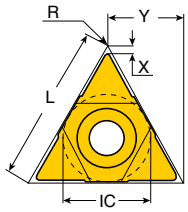


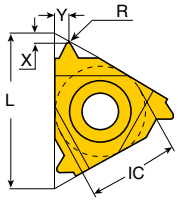
Application:
General Industry



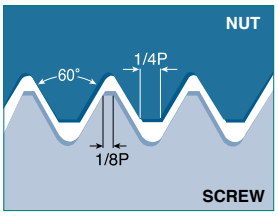
Thread Form	Designation		IC	Pitch	No. of Teeth	Dimension			
	External	Internal		mm		l	X	Y	No. of Passes
Internal / External	16 ER 1.0 ISO 3M	16 IR 1.0 ISO 3M	3/8″	1.0	3	16	1.7	2.5	2
	16 ER 1.5 ISO 2M	16 IR 1.5 ISO 2M		1.5	2	16	1.5	2.3	3
	22 ER 1.5 ISO 3M	22 IR 1.5 ISO 3M	1/2″	1.5	3	22	2.3	3.7	2
	22 ER 2.0 ISO 2M	22 IR 2.0 ISO 2M		2.0	2	22	2.0	3.0	3
	22 ER 2.0 ISO 3M	22 IR 2.0 ISO 3M		2.0	3	22	3.1	5.0	2
	27 ER 3.0 ISO 2M	27 IR 3.0 ISO 2M	5/8″	3.0	2	27	2.9	4.5	4

ISO Metric Full Profile





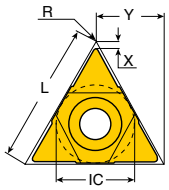
Application:
General Industry

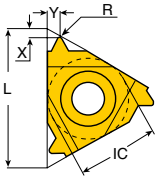


Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		mm	L	R	X	Y
Internal	06 IR 0.50 ISO	06 IL 0.50 ISO	5/32″	0.5	6	0.03	0.5	0.5
	06 IR 0.75 ISO	06 IL 0.75 ISO		0.75	6	0.04	0.5	0.5
	06 IR 1.00 ISO	06 IL 1.00 ISO		1.0	6	0.05	0.5	0.6
	06 IR 1.25 ISO	06 IL 1.25 ISO		1.25	6	0.07	0.6	0.6
	08 IR 0.50 ISO	08 IL 0.50 ISO	3/16″	0.5	8	0.05	0.6	0.5
	08 IR 0.75 ISO	08 IL 0.75 ISO		0.75	8	0.04	0.6	0.5
	08 IR 1.00 ISO	08 IL 1.00 ISO		1.0	8	0.05	0.6	0.6
	08 IR 1.25 ISO	08 IL 1.25 ISO		1.25	8	0.07	0.6	0.7
	08 IR 1.50 ISO	08 IL 1.50 ISO		1.5	8	0.08	0.6	0.7
	08 IR 1.75 ISO	08 IL 1.75 ISO		1.75	8	0.10	0.6	0.8
	08 U IRL 2.00 ISO			2.0	8	0.12	1.0	4.0
	11 IR 0.35 ISO	11 IL 0.35 ISO	1/4″	0.35	11	0.02	0.8	0.3
	11 IR 0.40 ISO	11 IL 0.40 ISO		0.40	11	0.02	0.8	0.4
	11 IR 0.45 ISO	11 IL 0.45 ISO		0.45	11	0.02	0.8	0.4
	11 IR 0.50 ISO	11 IL 0.50 ISO		0.50	11	0.03	0.6	0.6
	11 IR 0.60 ISO	11 IL 0.60 ISO		0.60	11	0.03	0.6	0.6
	11 IR 0.70 ISO	11 IL 0.70 ISO		0.70	11	0.04	0.6	0.6
	11 IR 0.75 ISO	11 IL 0.75 ISO		0.75	11	0.04	0.6	0.6
	11 IR 0.80 ISO	11 IL 0.80 ISO		0.80	11	0.04	0.6	0.6
	11 IR 1.00 ISO	11 IL 1.00 ISO		1.00	11	0.05	0.6	0.7
	11 IR 1.25 ISO	11 IL 1.25 ISO		1.25	11	0.07	0.8	0.9
	11 IR 1.50 ISO	11 IL 1.50 ISO		1.50	11	0.08	0.8	1.0
	11 IRM 1.50 ISO			1.50	11	0.08	0.8	1.0
	11 IR 1.75 ISO	11 IL 1.75 ISO		1.75	11	0.10	0.9	1.1
	11 IR 2.00 ISO	11 IL 2.00 ISO		2.00	11	0.12	0.8	1.6
	16 IR 0.35 ISO	16 IL 0.35 ISO	3/8″	0.35	16	0.02	0.8	0.3
	16 IR 0.40 ISO	16 IL 0.40 ISO		0.40	16	0.02	0.8	0.4
	16 IR 0.45 ISO	16 IL 0.45 ISO		0.45	16	0.02	0.8	0.4
	16 IR 0.50 ISO	16 IL 0.50 ISO		0.50	16	0.03	0.6	0.6
	16 IR 0.60 ISO	16 IL 0.60 ISO		0.60	16	0.03	0.6	0.6
	16 IR 0.70 ISO	16 IL 0.70 ISO		0.70	16	0.04	0.6	0.6
	16 IR 0.75 ISO	16 IL 0.75 ISO		0.75	16	0.04	0.6	0.6
	16 IR 0.80 ISO	16 IL 0.80 ISO		0.80	16	0.04	0.6	0.6
	16 IR 1.00 ISO	16 IL 1.00 ISO		1.00	16	0.05	0.6	0.7
	16 IRM 1.00 ISO			1.00	16	0.05	0.6	0.7
	16 IR 1.25 ISO	16 IL 1.25 ISO		1.25	16	0.07	0.8	0.9
	16 IRM 1.25 ISO			1.25	16	0.06	0.8	0.9
	16 IR 1.50 ISO	16 IL 1.50 ISO		1.50	16	0.08	0.8	1.0
	16 IRM 1.50 ISO			1.50	16	0.08	0.8	1.0
	16 IR 1.75 ISO	16 IL 1.75 ISO		1.75	16	0.10	0.9	1.2
	16 IRM 1.75 ISO			1.75	16	0.10	0.9	1.2
	16 IR 2.00 ISO	16 IL 2.00 ISO		2.00	16	0.12	1.0	1.3
	16 IRM 2.00 ISO			2.00	16	0.11	1.0	1.3
	16 IR 2.50 ISO	16 IL 2.50 ISO		2.50	16	0.15	1.1	1.5
	16 IRM 2.50 ISO			2.50	16	0.14	1.1	1.5
	16 IR 3.00 ISO	16 IL 3.00 ISO		3.00	16	0.18	1.1	1.5
	16 IRM 3.00 ISO			3.00	16	0.17	1.1	1.5
	22 IR 3.50 ISO	22 IL 3.50 ISO	1/2″	3.50	22	0.22	1.6	2.3
	22 IR 4.00 ISO	22 IL 4.00 ISO		4.00	22	0.25	1.6	2.3
	22 IR 4.50 ISO	22 IL 4.50 ISO		4.50	22	0.29	1.6	2.4
	22 IR 5.00 ISO	22 IL 5.00 ISO		5.00	22	0.32	1.6	2.3
	27 IR 5.50 ISO	27 IL 5.50 ISO	5/8″	5.50	27	0.35	1.6	2.3
	27 IR 6.00 ISO	27 IL 6.00 ISO		6.00	27	0.39	1.8	2.5
U - Type	22 U IRL 5.50 ISO		1/2″	5.50	22	0.35	2.4	11.0
	22 U IRL 6.00 ISO			6.00	22	0.39	2.1	11.0
	27 U IRL 8.00 ISO		5/8″	8.00	27	0.53	2.4	13.7

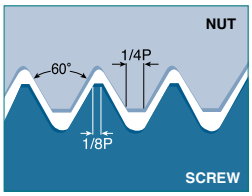
- IRM with pressed chipbreaker
- Available grades, see page B4

American UN Full Profile (UN, UNC, UNF, UNEF)





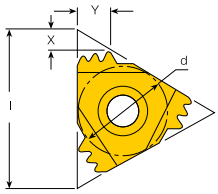
Application:
General Industry

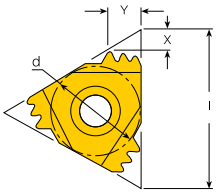


Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		TPI	L	R	X	Y
External Regular Type	11 ER 56 UN	11 EL 56 UN	1/4″	56	11	0.04	0.7	0.4
	11 ER 48 UN	11 EL 48 UN		48	11	0.05	0.6	0.6
	11 ER 44 UN	11 EL 44 UN		44	11	0.05	0.6	0.6
	11 ER 40 UN	11 EL 40 UN		40	11	0.06	0.6	0.6
	11 ER 36 UN	11 EL 36 UN		36	11	0.07	0.6	0.6
	11 ER 32 UN	11 EL 32 UN		32	11	0.09	0.6	0.6
	11 ER 28 UN	11 EL 28 UN		28	11	0.10	0.6	0.7
	11 ER 24 UN	11 EL 24 UN		24	11	0.12	0.7	0.8
	11 ER 20 UN	11 EL 20 UN		20	11	0.15	0.8	0.9
	11 ER 18 UN	11 EL 18 UN		18	11	0.17	0.8	1.0
	11 ER 16 UN	11 EL 16 UN		16	11	0.18	0.9	1.1
M - Type	16 ER 56 UN	16 EL 56 UN	3/8″	56	16	0.04	0.7	0.4
	16 ER 48 UN	16 EL 48 UN		48	16	0.05	0.6	0.6
	16 ER 40 UN	16 EL 40 UN		40	16	0.06	0.6	0.6
	16 ER 36 UN	16 EL 36 UN		36	16	0.07	0.6	0.6
	16 ER 32 UN	16 EL 32 UN		32	16	0.09	0.6	0.6
	16 ER 28 UN	16 EL 28 UN		28	16	0.10	0.6	0.7
	16 ER 24 UN	16 EL 24 UN		24	16	0.12	0.7	0.8
	16 ERM 24 UN			24	16	0.11	0.7	0.8
	16 ER 20 UN	16 EL 20 UN		20	16	0.15	0.8	0.9
	16 ERM 20 UN			20	16	0.14	0.8	0.9
	16 ER 18 UN	16 EL 18 UN		18	16	0.18	0.8	1.0
	16 ERM 18 UN			18	16	0.15	0.8	1.0
	16 ER 16 UN	16 EL 16 UN		16	16	0.18	0.9	1.1
	16 ERM 16 UN			16	16	0.19	0.9	1.1
	16 ER 14 UN	16 EL 14 UN		14	16	0.22	1.0	1.2
	16 ERM 14 UN			14	16	0.22	1.0	1.2
	16 ER 13 UN	16 EL 13 UN		13	16	0.24	1.0	1.3
	16 ERM 13 UN			13	16	0.24	1.0	1.3
	16 ER 12 UN	16 EL 12 UN		12	16	0.26	1.1	1.4
	16 ERM 12 UN			12	16	0.25	1.1	1.4
	16 ER 11.5 UN	16 EL 11.5 UN		11.5	16	0.27	1.1	1.5
	16 ER 11 UN	16 EL 11 UN		11	16	0.28	1.1	1.5
	16 ER 10 UN	16 EL 10 UN		10	16	0.32	1.1	1.5
	16 ER 9 UN	16 EL 9 UN		9	16	0.36	1.2	1.7
	16 ER 8 UN	16 EL 8 UN		8	16	0.41	1.2	1.6
	16 ERM 8 UN			8	16	0.41	1.2	1.6
	22 ER 7 UN	22 EL 7 UN	1/2″	7	22	0.47	1.6	2.3
	22 ER 6 UN	22 EL 6 UN		6	22	0.56	1.6	2.3
	22 ER 5 UN	22 EL 5 UN		5	22	0.67	1.7	2.5
	27 ER 4.5 UN	27 EL 4.5 UN	5/8″	4.5	27	0.75	1.9	2.7
	27 ER 4 UN	27 EL 4 UN		4	27	0.85	2.1	3.0
U - Type	22 U ERL 4.5 UN		1/2″	4.5	22	0.75	2.0	11.0
	22 U ERL 4 UN			4	22	0.85	2.0	11.0
	27 U ERL 3 UN		5/8″	3	27	1.15	2.5	13.7

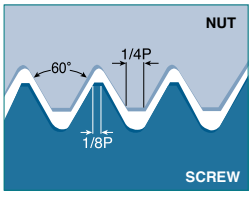
- ERM with pressed chipbreaker
- Available grades, see page B4

American UN Full Profile Multi-Tooth (UN, UNC, UNF, UNEF)



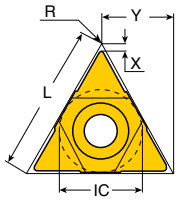


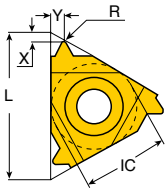
Application:
General Industry



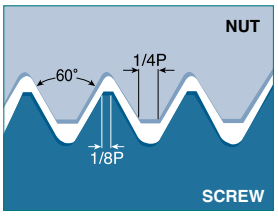
Thread Form	Designation		IC	Pitch	No. of	Dimension			
	External	Internal		mm	Teeth	l	X	Y	No. of Passes
Internal / External	16 ER 16 UN 2M	16 IR 16 UN 2M	3/8″	16	2	16	1.5	2.3	3
	22 ER 16 UN 3M	22 IR 16 UN 3M		16	3	22	2.5	4.0	2
	22 ER 12 UN 2M	22 IR 12 UN 2M	1/2″	12	2	22	2.2	3.4	3
	22 ER 12 UN 3M	22 IR 12 UN 3M		12	3	22	3.3	5.3	2
	27 ER 3.0 UN 2M	27 IR 8 UN 2M	5/8″	8	2	27	3.1	4.9	4

American UN Full Profile (UN, UNC, UNF, UNEF)





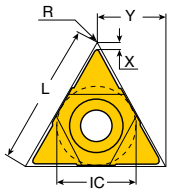
Application:
General Industry

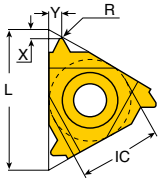


Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		TPI	L	R	X	Y
Internal	06 IR 32 UN	06 IL 32 UN		32	6	0.04	0.5	0.5
	06 IR 28 UN	06 IL 28 UN		28	6	0.04	0.5	0.5
	06 IR 24 UN	06 IL 24 UN	5/32″	24	6	0.05	0.5	0.6
	06 IR 20 UN	06 IL 20 UN		20	6	0.06	0.6	0.6
Regular Type	06 IR 18 UN	06 IL 18 UN		18	6	0.07	0.6	0.6
	08 IR 32 UN	08 IL 32 UN		32	8	0.04	0.6	0.5
	08 IR 28 UN	08 IL 28 UN		28	8	0.04	0.6	0.6
	08 IR 24 UN	08 IL 24 UN		24	8	0.05	0.6	0.6
	08 IR 20 UN	08 IL 20 UN		20	8	0.06	0.6	0.7
	08 IR 18 UN	08 IL 18 UN		18	8	0.07	0.6	0.7
M - Type	08 IR 16 UN	08 IL 16 UN	3/16″	16	8	0.09	0.6	0.7
	08 IR 14 UN	08 IL 14 UN		14	8	0.10	0.6	0.8
	08 U IRL 13 UN			13	8	0.11	1.0	4.0
	08 U IRL 12 UN			12	8	0.12	0.9	4.0
	08 U IRL 11 UN			11	8	0.14	0.9	4.0
	11 IR 72 UN	11 IL 72 UN		72	11	0.02	0.8	0.3
	11 IR 64 UN	11 IL 64 UN		64	11	0.02	0.8	0.4
	11 IR 56 UN	11 IL 56 UN		56	11	0.02	0.7	0.4
	11 IR 48 UN	11 IL 48 UN		48	11	0.03	0.6	0.6
	11 IR 40 UN	11 IL 40 UN		40	11	0.03	0.6	0.6
	11 IR 36 UN	11 IL 36 UN		36	11	0.04	0.6	0.6
	11 IR 32 UN	11 IL 32 UN	1/4″	32	11	0.04	0.6	0.6
	11 IR 28 UN	11 IL 28 UN		28	11	0.04	0.6	0.7
	11 IR 24 UN	11 IL 24 UN		24	11	0.05	0.7	0.8
	11 IR 20 UN	11 IL 20 UN		20	11	0.06	0.8	0.9
	11 IR 18 UN	11 IL 18 UN		18	11	0.07	0.8	1.0
	11 IR 16 UN	11 IL 16 UN		16	11	0.09	0.9	1.1
	11 IR 14 UN	11 IL 14 UN		14	11	0.10	0.9	1.1
	16 IR 56 UN	16 IL 56 UN		56	16	0.02	0.7	0.4
	16 IR 44 UN	16 IL 44 UN		44	16	0.03	0.6	0.6
	16 IR 40 UN	16 IL 40 UN		40	16	0.03	0.6	0.6
	16 IR 36 UN	16 IL 36 UN		36	16	0.04	0.6	0.6
	16 IR 32 UN	16 IL 32 UN		32	16	0.04	0.6	0.6
	16 IR 28 UN	16 IL 28 UN		28	16	0.04	0.6	0.7
	16 IR 24 UN	16 IL 24 UN		24	16	0.05	0.7	0.8
	16 IR 20 UN	16 IL 20 UN		20	16	0.06	0.8	0.9
	16 IRM 20 UN			20	16	0.06	0.8	0.9
	16 IR 18 UN	16 IL 18 UN		18	16	0.07	0.8	1.0
	16 IRM 18 UN			18	16	0.08	0.8	1.0
	16 IR 16 UN	16 IL 16 UN		16	16	0.09	0.9	1.1
	16 IRM 16 UN		3/8″	16	16	0.09	0.9	1.1
	16 IR 14 UN	16 IL 14 UN		14	16	0.10	0.9	1.2
	16 IRM 14 UN			14	16	0.11	0.9	1.2
	16 IR 13 UN	16 IL 13 UN		13	16	0.11	1.0	1.3
	16 IR 12 UN	16 IL 12 UN		12	16	0.12	1.1	1.4
	16 IRM 12 UN			12	16	0.12	1.1	1.4
	16 IR 11.5 UN	16 IL 11.5 UN		11.5	16	0.13	1.1	1.5
	16 IR 11 UN	16 IL 11 UN		11	16	0.14	1.1	1.5
	16 IR 10 UN	16 IL 10 UN		10	16	0.15	1.1	1.5
	16 IR 9 UN	16 IL 9 UN		9	16	0.17	1.2	1.7
	16 IR 8 UN	16 IL 8 UN		8	16	0.19	1.1	1.5
	16 IRM 8 UN			8	16	0.20	1.1	1.5
	22 IR 7 UN	22 IL 7 UN		7	22	0.22	1.6	2.3
	22 IR 6 UN	22 IL 6 UN	1/2″	6	22	0.26	1.6	2.3
	22 IR 5 UN	22 IL 5 UN		5	22	0.32	1.6	2.3
	27 IR 4.5 UN	27 IL 4.5 UN	5/8″	4.5	27	0.36	1.7	2.4
	27 IR 4 UN	27 IL 4 UN		4	27	0.41	1.8	2.7
	22 U IRL 4.5 UN		1/2″	4.5	22	0.36	2.4	11.0
U - Type	22 U IRL 4 UN			4	22	0.41	2.4	11.0
	27 U IRL 3 UN		5/8″	3	27	0.55	2.7	13.7

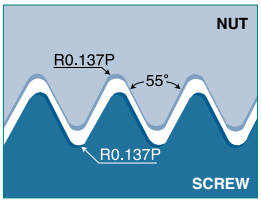
• Available grades, see page B4

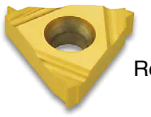
Whitworth Full Profile (BSW, BSF, BSP)





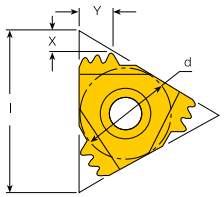
Application: General Industry, Fittings and Pipe Coupings

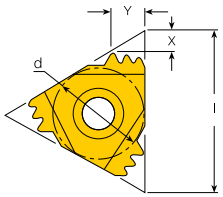


Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		TPI	L	R	X	Y
External  Regular Type	11 ER 48 W	11 EL 48 W	1/4″	48	11	0.04	0.6	0.6
	11 ER 36 W	11 EL 36 W		36	11	0.07	0.6	0.6
	11 ER 32 W	11 EL 32 W		32	11	0.09	0.6	0.6
	11 ER 28 W	11 EL 28 W		28	11	0.09	0.6	0.7
	11 ER 26 W	11 EL 26 W		26	11	0.10	0.7	0.8
	11 ER 24 W	11 EL 24 W		24	11	0.11	0.7	0.8
	11 ER 22 W	11 EL 22 W		22	11	0.13	0.8	0.9
	11 ER 20 W	11 EL 20 W		20	11	0.14	0.8	0.9
	11 ER 19 W	11 EL 19 W		19	11	0.15	0.8	1.0
	11 ER 18 W	11 EL 18 W		18	11	0.16	0.8	1.0
 M - Type	11 ER 16 W	11 EL 16 W		16	11	0.18	0.9	1.1
	11 ER 14 W	11 EL 14 W		14	11	0.21	1.0	1.2
	16 ER 56 W	16 EL 56 W	3/8″	56	16	0.04	0.7	0.4
	16 ER 40 W	16 EL 40 W		40	16	0.06	0.6	0.6
	16 ER 32 W	16 EL 32 W		32	16	0.09	0.6	0.6
	16 ER 28 W	16 EL 28 W		28	16	0.09	0.6	0.7
	16 ER 26 W	16 EL 26 W		26	16	0.10	0.7	0.8
	16 ER 24 W	16 EL 24 W		24	16	0.11	0.7	0.8
	16 ER 22 W	16 EL 22 W		22	16	0.13	0.8	0.9
	16 ER 20 W	16 EL 20 W		20	16	0.14	0.8	0.9
	16 ER 19 W	16 EL 19 W		19	16	0.15	0.8	1.0
	16 ERM 19 W			19	16	0.08	0.8	1.0
	16 ER 18 W	16 EL 18 W		18	16	0.16	0.8	1.0
	16 ER 16 W	16 EL 16 W		16	16	0.18	0.9	1.1
	16 ERM 16 W			16	16	0.20	0.9	1.1
	16 ER 14 W	16 EL 14 W		14	16	0.21	1.0	1.2
	16 ERM 14 W			14	16	0.23	1.0	1.2
	16 ER 12 W	16 EL 12 W		12	16	0.25	1.1	1.4
	16 ER 11 W	16 EL 11 W		11	16	0.27	1.1	1.5
	16 ERM 11 W			11	16	0.30	1.1	1.5
	16 ER 10 W	16 EL 10 W		10	16	0.31	1.1	1.5
	16 ER 9 W	16 EL 9 W		9	16	0.34	1.2	1.7
	16 ER 8 W	16 EL 8 W		8	16	0.39	1.2	1.5
	22 ER 7 W	22 EL 7 W	1/2″	7	22	0.45	1.6	2.3
	22 ER 6 W	22 EL 6 W		6	22	0.52	1.6	2.3
	22 ER 5 W	22 EL 5 W		5	22	0.65	1.7	2.4
	27 ER 4.5 W	27 EL 4.5 W	5/8″	4.5	27	0.73	1.8	2.6
	27 ER 4 W	27 EL 4 W		4	27	0.82	2.0	2.9
 U - Type	22 U EIRL 4.5 W		1/2″	4.5	22	0.73	2.3	11.0
	22 U EIRL 4 W			4	22		1.8	11.0
	27 U EIRL 3.50 W		5/8″	3.5	27	0.95	2.1	13.7
	27 U EIRL 3.25 W			3.25	27	1.04	2.0	13.7
	27 U EIRL 3.00 W			3	27	1.12	2.3	13.7
	27 U EIRL 2.75 W			2.75	27	1.21	2.4	13.7

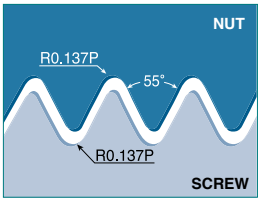
- ERM with pressed chipbreaker
- Available grades, see page B4

Whitworth Full Profile Multi-Tooth (BSW, BSF, BSP)



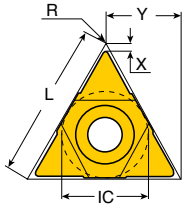


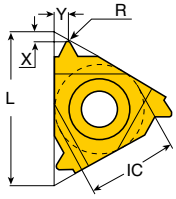
Application: General Industry, Fittings and Pipe Coupings



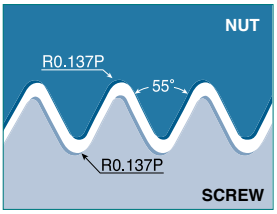
Thread Form	Designation		IC	TPI	No. of Teeth	Dimension			
	External	Internal				l	X	Y	No. of Passes
Internal / External 	16 ER 14 W 2M	16 IR 14 W 2M	3/8″	14	2	16	1.7	2.7	3
	22 ER 14 W 3M	22 IR 14 W 3M	1/2″	14	3	22	2.8	4.5	2
	22 ER 11 W 2M	22 IR 11 W 2M		11	2	22	2.3	3.4	3

Whitworth Full Profile (BSW, BSF, BSP)





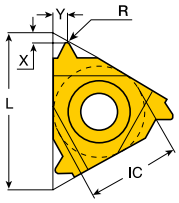
Application: General Industry, Fittings and Pipe Coupings



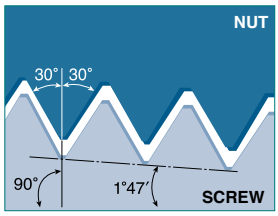
Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		TPI	L	R	X	Y
Internal	06 IR 26 W	06 IL 26 W	5/32″	26	6	0.10	0.7	0.6
	06 IR 22 W	06 IL 22 W		22	6	0.13	0.6	0.6
	06 IR 20 W	06 IL 20 W		20	6	0.14	0.6	0.7
	06 IR 18 W	06 IL 18 W		18	6	0.16	0.6	0.7
Regular Type	08 IR 28 W	08 IL 28 W	3/16″	28	8	0.09	0.6	0.6
	08 IR 24 W	08 IL 24 W		24	8	0.11	0.6	0.6
	08 IR 20 W	08 IL 20 W		20	8	0.14	0.6	0.7
	08 IR 19 W	08 IL 19 W		19	8	0.15	0.6	0.7
	08 IR 18 W	08 IL 18 W		18	8	0.16	0.6	0.7
	08 IR 16 W	08 IL 16 W		16	8	0.18	0.6	0.7
M - Type	08 U IRL 14 W		3/16″	14	8	0.21	1.0	4.0
	08 U IRL 12 W			12	8	0.25	0.9	4.0
	08 U IRL 11 W			11	8	0.27	0.9	4.0
	11 IR 48 W	11 IL 48 W	1/4″	48	11	0.04	0.6	0.6
	11 IR 36 W	11 IL 36 W		36	11	0.07	0.6	0.6
	11 IR 32 W	11 IL 32 W		32	11	0.09	0.6	0.6
	11 IR 28 W	11 IL 28 W		28	11	0.09	0.6	0.7
	11 IR 26 W	11 IL 26 W		26	11	0.10	0.7	0.8
	11 IR 24 W	11 IL 24 W		24	11	0.11	0.7	0.8
	11 IR 22 W	11 IL 22 W		22	11	0.13	0.8	0.9
	11 IR 20 W	11 IL 20 W		20	11	0.14	0.8	0.9
	11 IR 19 W	11 IL 19 W		19	11	0.15	0.8	1.0
	11 IR 18 W	11 IL 18 W		18	11	0.16	0.8	1.0
	11 IR 16 W	11 IL 16 W		16	11	0.18	0.9	1.1
	11 IR 14 W	11 IL 14 W		14	11	0.21	0.9	1.1
	16 IR 56 W	16 IL 56 W	3/8″	56	16	0.04	0.7	0.4
	16 IR 40 W	16 IL 40 W		40	16	0.06	0.6	0.6
	16 IR 32 W	16 IL 32 W		32	16	0.09	0.6	0.6
	16 IR 28 W	16 IL 28 W		28	16	0.09	0.6	0.7
	16 IR 26 W	16 IL 26 W		26	16	0.10	0.7	0.8
	16 IR 24 W	16 IL 24 W		24	16	0.11	0.7	0.8
	16 IR 22 W	16 IL 22 W		22	16	0.13	0.8	0.9
	16 IR 20 W	16 IL 20 W		20	16	0.14	0.8	0.9
	16 IR 19 W	16 IL 19 W		19	16	0.15	0.8	1.0
	16 IRM 19 W			19	16	0.08	0.8	1.0
	16 IR 18 W	16 IL 18 W		18	16	0.16	0.8	1.0
	16 IR 16 W	16 IL 16 W		16	16	0.18	0.9	1.1
	16 IRM 16 W			16	16	0.20	0.9	1.1
	16 IR 14 W	16 IL 14 W		14	16	0.21	1.0	1.2
	16 IRM 14 W			14	16	0.23	1.0	1.2
	16 IR 12 W	16 IL 12 W		12	16	0.25	1.1	1.4
	16 IR 11 W	16 IL 11 W		11	16	0.27	1.1	1.5
	16 IRM 11 W			11	16	0.30	1.1	1.5
	16 IR 10 W	16 IL 10 W		10	16	0.31	1.1	1.5
	16 IR 9 W	16 IL 9 W		9	16	0.34	1.2	1.7
	16 IR 8 W	16 IL 8 W		8	16	0.39	1.2	1.5
	22 IR 7 W	22 IL 7 W	1/2″	7	22	0.45	1.6	2.3
	22 IR 6 W	22 IL 6 W		6	22	0.52	1.6	2.3
	22 IR 5 W	22 IL 5 W		5	22	0.65	1.7	2.4
	27 IR 4.5 W	27 IL 4.5 W	5/8″	4.5	27	0.73	1.8	2.6
	27 IR 4 W	27 IL 4 W		4	27	0.82	2.0	2.9
U - Type	22 U EIRL 4.5 W		1/2″	4.5	22	0.73	2.3	11.0
	22 U EIRL 4 W			4	22		1.8	11.0
	27 U EIRL 3.50 W		5/8″	3.5	27	0.95	2.1	13.7
	27 U EIRL 3.25 W			3.25	27	1.04	2.0	13.7
	27 U EIRL 3.00 W			3	27	1.12	2.3	13.7
	27 U EIRL 2.75 W			2.75	27	1.21	2.4	13.7

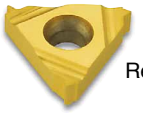
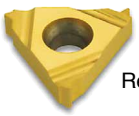
- IRM with pressed chipbreaker
- Available grades, see page B4

NPT (National Pipe Threads) Full Profile



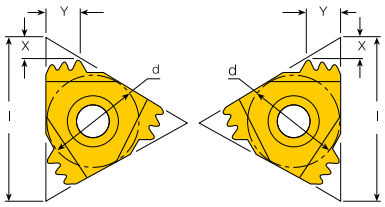
Application: Steam, gas and water pipes



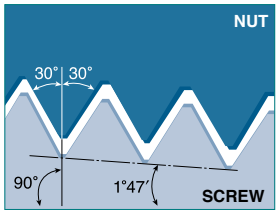
Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		TPI	L	R	X	Y
External	16 ER 27 NPT	16 EL 27 NPT	3/8″	27	16	0.04	0.7	0.8
	16 ER 18 NPT	16 EL 18 NPT		18	16	0.06	0.8	1.0
	16 ERM 18 NPT			18	16	0.05	0.8	1.0
 Regular Type	16 ER 14 NPT	16 EL 14 NPT		14	16	0.07	0.9	1.2
	16 ERM 14 NPT			14	16	0.05	0.9	1.2
	16 ER 11.5 NPT	16 EL 11.5 NPT		11.5	16	0.09	1.1	1.5
	16 ERM 11.5 NPT			11.5	16	0.09	1.1	1.5
 M - Type	16 ER 8 NPT	16 EL 8 NPT		8	16	0.12	1.3	1.8
	16 ERM 8 NPT			8	16	0.15	1.2	1.8
Internal	06 IR 27 NPT	06 IL 27 NPT	5/32″	27	6	0.04	0.6	0.6
	08 IR 27 NPT	08 IL 27 NPT	3/16″	27	8	0.04	0.6	0.6
	08 IR 18 NPT	08 IL 18 NPT		18	8	0.06	0.6	0.6
 Regular Type	11 IR 27 NPT	11 IL 27 NPT	1/4″	27	11	0.04	0.7	0.8
	11 IR 18 NPT	11 IL 18 NPT		18	11	0.06	0.8	1.0
	11 IR 14 NPT	11 IL 14 NPT		14	11	0.07	0.8	1.0
	16 IR 27 NPT	16 IL 27 NPT	3/8″	27	16	0.04	0.7	0.8
	16 IR 18 NPT	16 IL 18 NPT		18	16	0.06	0.8	1.0
	16 IR 14 NPT	16 IL 14 NPT		14	16	0.07	0.9	1.2
 M - Type	16 IRM 14 NPT			14	16	0.05	0.9	1.2
	16 IR 11.5 NPT	16 IL 11.5 NPT		11.5	16	0.09	1.1	1.5
	16 IRM 11.5 NPT			11.5	16	0.09	1.1	1.5
	16 IR 8 NPT	16 IL 8 NPT		8	16	0.12	1.2	1.8
	16 IRM 8 NPT			8	16	0.15	1.2	1.8

- ERM/IRM with pressed chipbreaker
- Available grades, see page B4

NPT (National Pipe Threads) Full Profile Multi-Tooth

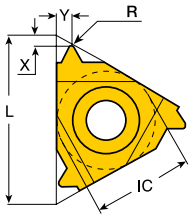


Application: Steam, gas and water pipes

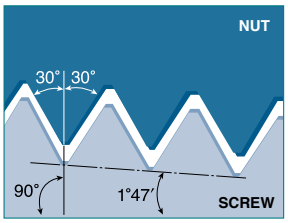


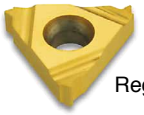
Thread Form	Designation		IC	Pitch	No. of Teeth	Dimension			
	External	Internal		TPI		l	X	Y	No. of Passes
Internal / External 	22 ER 11.5 NPT 2M	22 IR 11.5 NPT 2M	1/2″	11.5	2	22	2.3	3.5	4
	27 ER 11.5 NPT 3M	27 IR 11.5 NPT 2M	5/8″	11.5	3	27	3.3	5.5	3
	27 ER 8 NPT 2M	27 IR 8 NPT 2M		8	2	27	3.1	5.0	4

NPTF (National Pipe Threads-Dryseal) Full Profile

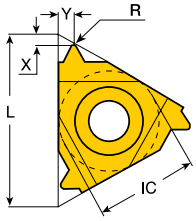


Application: Steam, gas and water pipes

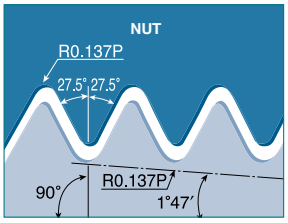


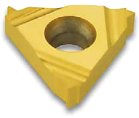
Thread Form	Designation		IC	Pitch	Dimension		
	Right Hand	Left Hand		TPI	L	X	Y
External  Regular Type	11 ER 27 NPTF	11 EL 27 NPTF	1/4″	27	11	0.7	0.7
	11 ER 18 NPTF	11 EL 18 NPTF		18	11	0.8	1.0
	11 ER 14 NPTF	11 EL 14 NPTF		14	11	0.8	1.0
	16 ER 27 NPTF	16 EL 27 NPTF	3/8″	27	16	0.7	0.7
	16 ER 18 NPTF	16 EL 18 NPTF		18	16	0.8	1.0
	16 ER 14 NPTF	16 EL 14 NPTF		14	16	0.9	1.2
	16 ER 11.5 NPTF	16 EL 11.5 NPTF		11.5	16	1.1	1.5
	16 ER 8 NPTF	16 EL 8 NPTF		8	16	1.3	1.8
Internal  Regular Type	06 IR 27 NPTF	06 IL 27 NPTF	5/32″	27	6	0.7	0.6
	08 IR 27 NPTF	08 IL 27 NPTF	3/16″	27	8	0.6	0.6
	08 IR 18 NPTF	08 IL 18 NPTF		18	8	0.6	0.6
	11 IR 27 NPTF	11 IL 27 NPTF	1/4″	27	11	0.7	0.7
	11 IR 18 NPTF	11 IL 18 NPTF		18	11	0.8	1.0
	11 IR 14 NPTF	11 IL 14 NPTF		14	11	0.8	1.0
	16 IR 27 NPTF	16 IL 27 NPTF	3/8″	27	16	0.7	0.7
	16 IR 18 NPTF	16 IL 18 NPTF		18	16	0.8	1.0
	16 IR 14 NPTF	16 IL 14 NPTF		14	16	0.9	1.2
	16 IR 11.5 NPTF	16 IL 11.5 NPTF		11.5	16	1.1	1.5
	16 IR 8 NPTF	16 IL 8 NPTF		8	16	1.3	1.8

BSPT (British Standard pipe) Full Profile



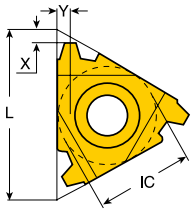
Application: Steam, gas and water pipes



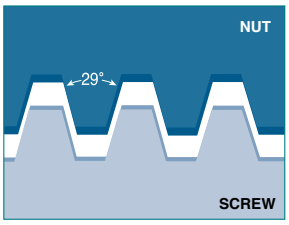
Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		TPI	L	R	X	Y
External 	16 ER 28 BSPT	16 EL 28 BSPT	3/8″	28	16	0.11	0.6	0.6
	16 ER 19 BSPT	16 EL 19 BSPT		19	16	0.16	0.8	0.9
	16 ER 14 BSPT	16 EL 14 BSPT		14	16	0.21	1.0	1.2
	16 ER 11 BSPT	16 EL 11 BSPT		11	16	0.28	1.1	1.5
Internal 	06 IR 28 BSPT	06 IL 28 BSPT	5/32″	8	6	0.11	0.7	0.6
	08 IR 28 BSPT	08 IL 28 BSPT	3/16″	28	8	0.11	0.6	0.6
	08 IR 19 BSPT	08 IL 19 BSPT		19	8	0.16	0.6	0.6
	11 IR 28 BSPT	11 IL 28 BSPT	1/4″	28	11	0.11	0.6	0.6
	11 IR 19 BSPT	11 IL 19 BSPT		19	11	0.16	0.8	0.9
	11 IR 14 BSPT	11 IL 14 BSPT		14	11	0.21	0.9	1.0
	16 IR 28 BSPT	16 IL 28 BSPT	3/8″	28	16	0.11	0.6	0.6
	16 IR 19 BSPT	16 IL 19 BSPT		19	16	0.16	0.8	0.9
	16 IR 14 BSPT	16 IL 14 BSPT		14	16	0.21	1.0	1.2
	16 IR 11 BSPT	16 IL 11 BSPT		11	16	0.28	1.1	1.5
	16 IRM 11 BSPT			11	16	0.28	1.1	1.5

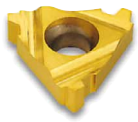
● Available grades, see page B4

STUB ACME



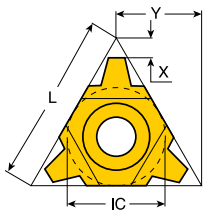
Application: Control Valves and modified ACME thread forms

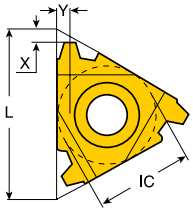


Thread Form	Designation		IC	Pitch	Dimension		
	Right Hand	Left Hand		TPI	L	X	Y
External 	16 ER 16 STACME	16 EL 16 STACME	3/8″	16	16	1.0	1.0
	16 ER 14 STACME	16 EL 14 STACME		14	16	1.1	1.1
	16 ER 12 STACME	16 EL 12 STACME		12	16	1.2	1.2
	16 ER 10 STACME	16 EL 10 STACME		10	16	1.3	1.3
	16 ER 8 STACME	16 EL 8 STACME		8	16	1.5	1.5
	16 ER 6 STACME	16 EL 6 STACME		6	16	1.8	1.8
	22 ER 5 STACME	22 EL 5 STACME	1/2″	5	22	2.0	2.3
	27 ER 4 STACME	27 EL 4 STACME	5/8″	4	27	2.3	2.4
	27 ER 3 STACME	27 EL 3 STACME		3	27	2.8	2.9
Internal 	16 IR 16 STACME	16 IL 16 STACME	3/8″	16	16	1.0	1.1
	16 IR 14 STACME	16 IL 14 STACME		14	16	1.1	1.1
	16 IR 12 STACME	16 IL 12 STACME		12	16	1.2	1.2
	16 IR 10 STACME	16 IL 10 STACME		10	16	1.3	1.3
	16 IR 8 STACME	16 IL 8 STACME		8	16	1.5	1.5
	16 IR 6 STACME	16 IL 6 STACME		6	16	1.8	1.8
	22 IR 5 STACME	22 IL 5 STACME	1/2″	5	22	2.0	2.3
	27 IR 4 STACME	27 IL 4 STACME	5/8″	4	27	2.3	2.4
	27 IR 3 STACME	27 IL 3 STACME		3	27	2.8	2.9

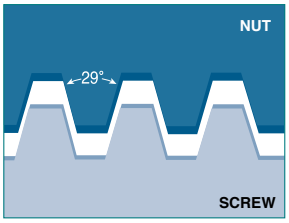
• Available grades, see page B4

ACME





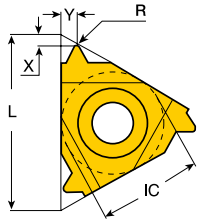
Application: Feed Screws



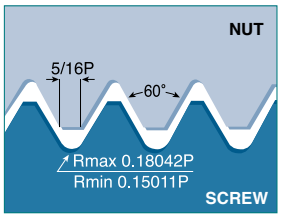
Thread Form	Designation		IC	Pitch	Dimension		
	Right Hand	Left Hand		TPI	L	X	Y
External 	16 ER 16 ACME	16 EL 16 ACME	3/8″	16	16	1.0	1.1
	16 ER 14 ACME	16 EL 14 ACME		14	16	1.0	1.2
	16 ER 12 ACME	16 EL 12 ACME		12	16	1.1	1.2
	16 ER 10 ACME	16 EL 10 ACME		10	16	1.3	1.3
	16 ER 8 ACME	16 EL 8 ACME		8	16	1.4	1.5
	22 ER 6 ACME	22 EL 6 ACME	1/2″	6	22	1.8	2.1
	22 ER 5 ACME	22 EL 5 ACME		5	22	2.0	2.3
	27 ER 4 ACME	27 EL 4 ACME	5/8″	4	27	2.4	2.7
Internal 	16 IR 16 ACME	16 IL 16 ACME	3/8″	16	16	1.0	1.1
	16 IR 14 ACME	16 IL 14 ACME		14	16	1.1	1.2
	16 IR 12 ACME	16 IL 12 ACME		12	16	1.2	1.2
	16 IR 10 ACME	16 IL 10 ACME		10	16	1.2	1.3
	16 IR 8 ACME	16 IL 8 ACME		8	16	1.4	1.5
	22 IR 6 ACME	22 IL 6 ACME	1/2″	6	22	1.8	2.1
	22 IR 5 ACME	22 IL 5 ACME		5	22	2.0	2.3
	27 IR 4 ACME	27 IL 4 ACME	5/8″	4	27	2.3	2.7
External / Internal  U - Type	22 U ERL 4 ACME		1/2″	4	22	2.3	11
	27 U ERL 3 ACME		5/8″	3	27	2.8	13.7
	22 U IRL 4 ACME		1/2″	4	22	2.3	11
	27 U IRL 3 ACME		5/8″	3	27	2.8	13.7

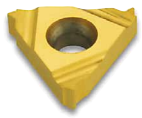
• Available grades, see page B4

UNJ



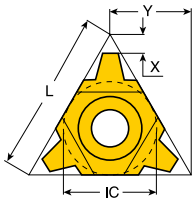
Application: Aircraft and Aerospace Industry

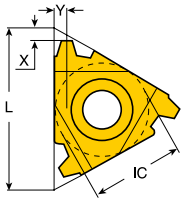


Thread Form	Designation		IC	Pitch	Dimension			
	Right Hand	Left Hand		TPI	L	R	X	Y
External 	11 ER 48 UNJ	11 EL 48 UNJ	1/4″	48	11	0.08	0.6	0.5
	11 ER 44 UNJ	11 EL 44 UNJ		44	11	0.09	0.6	0.6
	11 ER 40 UNJ	11 EL 40 UNJ		40	11	0.10	0.6	0.6
	11 ER 36 UNJ	11 EL 36 UNJ		36	11	0.11	0.6	0.6
	11 ER 32 UNJ	11 EL 32 UNJ		32	11	0.12	0.6	0.7
	11 ER 28 UNJ	11 EL 28 UNJ		28	11	0.14	0.7	0.7
	11 ER 24 UNJ	11 EL 24 UNJ		24	11	0.17	0.7	0.8
	11 ER 20 UNJ	11 EL 20 UNJ		20	11	0.20	0.8	0.9
	11 ER 18 UNJ	11 EL 18 UNJ		18	11	0.22	0.8	1.0
	11 ER 16 UNJ	11 EL 16 UNJ		16	11	0.26	0.9	1.1
	11 ER 14 UNJ	11 EL 14 UNJ	3/8″	14	11	0.29	1.0	1.2
	16 ER 48 UNJ	16 EL 48 UNJ		48	16	0.08	0.6	0.5
	16 ER 44 UNJ	16 EL 44 UNJ		44	16	0.09	0.6	0.6
	16 ER 40 UNJ	16 EL 40 UNJ		40	16	0.10	0.6	0.6
	16 ER 36 UNJ	16 EL 36 UNJ		36	16	0.11	0.6	0.6
	16 ER 32 UNJ	16 EL 32 UNJ		32	16	0.12	0.6	0.7
	16 ER 28 UNJ	16 EL 28 UNJ		28	16	0.14	0.7	0.7
	16 ER 24 UNJ	16 EL 24 UNJ		24	16	0.17	0.7	0.8
	16 ER 20 UNJ	16 EL 20 UNJ		20	16	0.20	0.8	0.9
	16 ER 18 UNJ	16 EL 18 UNJ		18	16	0.22	0.8	1.0
	16 ER 16 UNJ	16 EL 16 UNJ		16	16	0.26	0.9	1.1
	16 ER 14 UNJ	16 EL 14 UNJ		14	16	0.29	1.0	1.2
	16 ER 13 UNJ	16 EL 13 UNJ		13	16	0.31	1.0	1.3
	16 ER 12 UNJ	16 EL 12 UNJ		12	16	0.34	1.1	1.3
	16 ER 11 UNJ	16 EL 11 UNJ		11	16	0.36	1.2	1.5
	16 ER 10 UNJ	16 EL 10 UNJ		10	16	0.41	1.2	1.5
	16 ER 9 UNJ	16 EL 9 UNJ		9	16	0.44	1.3	1.7
	16 ER 8 UNJ	16 EL 8 UNJ		8	16	0.51	1.2	1.6
Internal 	11 ER 48 UNJ	11 EL 48 UNJ	1/4″	48	11	0.03	0.6	0.5
	11 ER 44 UNJ	11 EL 44 UNJ		44	11	0.03	0.6	0.6
	11 ER 40 UNJ	11 EL 40 UNJ		40	11	0.03	0.6	0.6
	11 ER 36 UNJ	11 EL 36 UNJ		36	11	0.04	0.6	0.6
	11 ER 32 UNJ	11 EL 32 UNJ		32	11	0.04	0.6	0.7
	11 ER 28 UNJ	11 EL 28 UNJ		28	11	0.04	0.7	0.7
	11 ER 24 UNJ	11 EL 24 UNJ		24	11	0.05	0.7	0.8
	11 ER 20 UNJ	11 EL 20 UNJ		20	11	0.06	0.8	0.9
	11 ER 18 UNJ	11 EL 18 UNJ		18	11	0.07	0.8	1.0
	11 ER 16 UNJ	11 EL 16 UNJ		16	11	0.09	0.9	1.1
	11 ER 14 UNJ	11 EL 14 UNJ		14	11	0.10	1.0	1.2
	16 ER 48 UNJ	16 EL 48 UNJ	3/8″	48	16	0.03	0.6	0.5
	16 ER 44 UNJ	16 EL 44 UNJ		44	16	0.03	0.6	0.6
	16 ER 40 UNJ	16 EL 40 UNJ		40	16	0.03	0.6	0.6
	16 ER 36 UNJ	16 EL 36 UNJ		36	16	0.04	0.6	0.6
	16 ER 32 UNJ	16 EL 32 UNJ		32	16	0.04	0.6	0.7
	16 ER 28 UNJ	16 EL 28 UNJ		28	16	0.04	0.7	0.7
	16 ER 24 UNJ	16 EL 24 UNJ		24	16	0.05	0.7	0.8
	16 ER 20 UNJ	16 EL 20 UNJ		20	16	0.06	0.8	0.9
	16 ER 18 UNJ	16 EL 18 UNJ		18	16	0.07	0.8	1.0
	16 ER 16 UNJ	16 EL 16 UNJ		16	16	0.09	0.9	1.1
	16 ER 14 UNJ	16 EL 14 UNJ		14	16	0.10	1.0	1.2
	16 ER 13 UNJ	16 EL 13 UNJ		13	16	0.11	1.0	1.3
	16 ER 12 UNJ	16 EL 12 UNJ		12	16	0.12	1.1	1.3
	16 ER 11 UNJ	16 EL 11 UNJ		11	16	0.12	1.2	1.5
	16 ER 10 UNJ	16 EL 10 UNJ		10	16	0.15	1.2	1.5
	16 ER 9 UNJ	16 EL 9 UNJ		9	16	0.17	1.3	1.7
	16 ER 8 UNJ	16 EL 8 UNJ		8	16	0.19	1.2	1.6

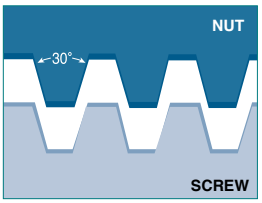
• Available grades, see page B4

Trapez DIN 103





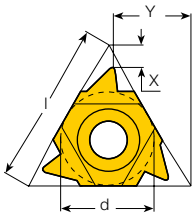
Application: Feed Screws

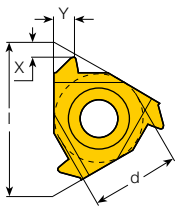


Thread Form	Designation		IC	Pitch	Dimension		
	Right Hand	Left Hand		mm	L	X	Y
External 	16 ER 1.5 TR	16 EL 1.5 TR	3/8″	1.5	16	1.0	1.1
	16 ER 2 TR	16 EL 2 TR		2.0	16	1.1	1.3
	16 ER 3 TR	16 EL 3 TR		3.0	16	1.3	1.5
	22 ER 4 TR	22 EL 4 TR	1/2″	4.0	22	1.7	1.9
	22 ER 5 TR	22 EL 5 TR		5.0	22	2.1	2.5
	27 ER 6 TR	27 EL 6 TR	5/8″	6.0	27	2.3	2.7
	27 ER 7 TR	27 EL 7 TR		7.0	27	2.2	2.6
Internal 	08 IR 1.5 TR	08 IL 1.5 TR	3/16″	1.5	8	0.6	0.6
	16 IR 2 TR	16 IL 2 TR	3/8″	2.0	16	1.1	1.3
	16 IR 3 TR	16 IL 3 TR		3.0	16	1.3	1.5
	22 IR 4 TR	22 IL 4 TR	1/2″	4.0	22	1.7	1.9
	22 IR 5 TR	22 IL 5 TR		5.0	22	2.1	2.5
	27 IR 6 TR	27 IL 6 TR	5/8″	6.0	27	2.3	2.7
	27 IR 7 TR	27 IL 7 TR		7.0	27	2.2	2.6
External / Internal  U - Type	22U ERL 6 TR		1/2″	6.0	22	2.0	11.0
	22U ERL 7 TR			7.0	22	2.3	11.0
	27U ERL 8 TR		5/8″	8.0	27	2.6	13.7
	27U ERL 9 TR			9.0	27	3.0	13.7
	08U IRL 2 TR		3/16″	2.0	8	0.9	4.0
	22U IRL 6 TR		1/2″	6.0	22	2.0	11.0
	22U IRL 7 TR			7.0	22	2.3	11.0
	27U IRL 8 TR		5/8″	8.0	27	2.6	13.7
	27U IRL 9 TR			9.0	27	3.0	13.7

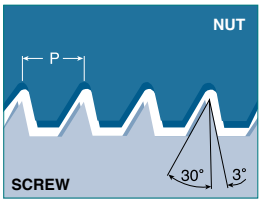
● Available grades, see page B4

Sagengenwinde DIN 513





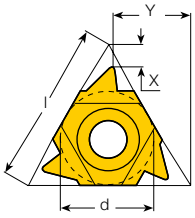
Application: For high forces in one direction

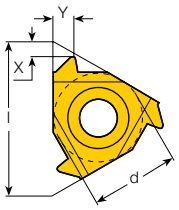


Thread Form	Designation		IC	Pitch	Dimension		
	Right Hand	Left Hand		mm	L	X	Y
External 	16 ER 2 SAGE	16 EL 2 SAGE	3/8″	2.0	16	1.1	1.6
	22 ER 3 SAGE	22 EL 3 SAGE	1/2″	3.0	22	1.5	2.4
	22 ER 4 SAGE	22 EL 4 SAGE		4.0	22	1.9	3.1
External  U - Type	22 U ER 5 SAGE	22 U EL 5 SAGE	1/2″	5.0*	22	1.2	11.6
	22 U ER 6 SAGE	22 U EL 6 SAGE		6.0*	22	1.2	11.7
Internal 	16 IR 2 SAGE	16 IL 2 SAGE	3/8″	2.0	16	1.2	1.7
	22 IR 3 SAGE	22 IL 3 SAGE	1/2″	3.0	22	1.9	2.9
	22 IR 4 SAGE	22 IL 4 SAGE		4.0	22	2.3	3.5
Internal  U - Type	22 U IR 5 SAGE	22 U IL 5 SAGE	1/2″	5.0*	22	1.9	11.7
	22 U IR 6 SAGE	22 U IL 6 SAGE		6.0*	22	2.1	11.9

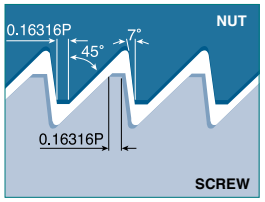
*Requires special anvil

American Buttress





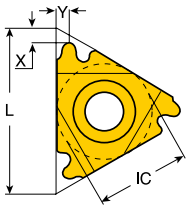
Application: For high forces in one direction



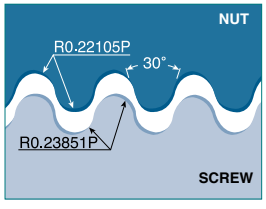
Thread Form	Designation		IC	Pitch	Dimension		
	Right Hand	Left Hand		TPI	L	X	Y
External 	11 ER 20 ABUT	11 EL 20 ABUT	1/4″	20	11	1.0	1.4
	11 ER 16 ABUT	11 EL 16 ABUT		16	11	1.3	1.9
	16 ER 20 ABUT	16 EL 20 ABUT	3/8″	20	16	1.0	1.4
	16 ER 16 ABUT	16 EL 16 ABUT		16	16	1.3	1.9
	16 ER 12 ABUT	16 EL 12 ABUT		12	16	1.4	2.0
	16 ER 10 ABUT	16 EL 10 ABUT		10	16	1.5	2.3
	22 ER 8 ABUT	22 EL 8 ABUT	1/2″	8	22	2.0	3.2
	22 ER 6 ABUT	22 EL 6 ABUT		6	22	2.2	3.5
Internal 	11 IR 20 ABUT	11 IL 20 ABUT	1/4″	20	11	1.0	1.4
	11 IR 16 ABUT	11 IL 16 ABUT		16	11	1.3	1.9
	16 IR 20 ABUT	16 IL 20 ABUT	3/8″	20	16	1.0	1.4
	16 IR 16 ABUT	16 IL 16 ABUT		16	16	1.3	1.9
	16 IR 12 ABUT	16 IL 12 ABUT		12	16	1.4	2.0
	16 IR 10 ABUT	16 IL 10 ABUT		10	16	1.5	2.3
	22 IR 8 ABUT	22 IL 8 ABUT	1/2″	8	22	2.0	3.2
	22 IR 6 ABUT	22 IL 6 ABUT		6	22	2.2	3.5
External U - Type 	22 U ER 4 ABUT	22 U EL 4 ABUT	1/2″	4	22	2.4	9.8
	27 U ER 3 ABUT	27 U EL 3 ABUT	5/8″	3	27	3.1	12.1
Internal U - Type 	22 U IR 4 ABUT	22 U IL 4 ABUT	1/2″	4	22	2.4	9.8
	27 U IR 3 ABUT	27 U IL 3 ABUT	5/8″	3	27	3.1	12.1

● Available grades, see page B4

Round DIN 405



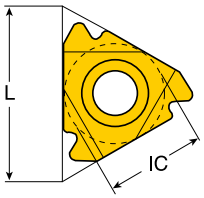
Application: Pipe Coupings in Fire Fighting and Food Industries



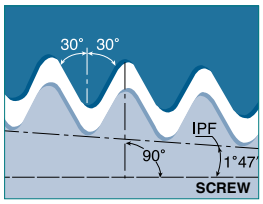
Thread Form	Designation		IC	Pitch	Dimension		
	Right Hand	Left Hand		TPI	L	X	Y
External 	16 ER 10 RND	16 EL 10 RND	3/8″	10	16	1.1	1.2
	16 ER 8 RND	16 EL 8 RND		8	16	1.4	1.3
	16 ER 6 RND	16 EL 6 RND		6	16	1.5	1.7
	16 ERM 6 RND			6	16	1.5	1.7
	22 ER 6 RND	22 EL 6 RND	1/2″	6	22	1.5	1.7
	22 ER 4 RND	22 EL 4 RND		4	22	2.2	2.3
	27 ER 4 RND	27 EL 4 RND	5/8″	4	27	2.2	2.3
Internal 	16 IR 10 RND	16 IL 10 RND	3/8″	10	16	1.1	1.2
	16 IR 8 RND	16 IL 8 RND		8	16	1.4	1.4
	16 IR 6 RND	16 IL 6 RND		6	16	1.4	1.5
	16 IRM 6 RND			6	16	1.4	1.5
	22 IR 6 RND	22 IL 6 RND	1/2″	6	22	1.5	1.7
	22 IR 4 RND	22 IL 4 RND		4	22	2.2	2.3
	27 IR 4 RND	27 IL 4 RND	5/8″	4	27	2.2	2.3

● ERM/IRM with pressed chipbreaker
● Available grades, see page B4

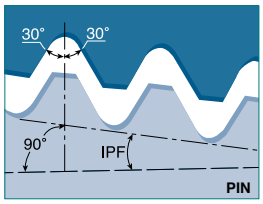
API - Oil Threads



API Round
Application: Oil & Gas Industry

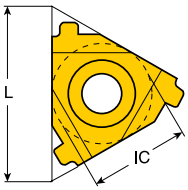


V 0.038

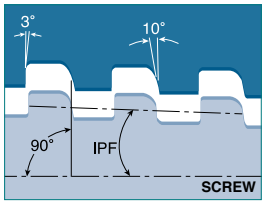


Thread Form	Designation		IC	Pitch	Dimension		
	External	Internal		TPI	L	Taper IPF	Connection No. or Size
 API Round	16 ER 10 API RD	16 IR 10 API RD	3/8″	10	16	0.75	-
	16 ER 8 API RD	16 IR 8 API RD		8	16	0.75	-
 V-0.040 V-0.038R V-0.038R V-0.050 V-0.050	22 ER 5 API 403	22 IR 5 API 403	1/2″	5	22	3	2-3/8″÷4-1/2″REG
	27 ER 4 API 382	27 IR 4 API 382	5/8″	4	27	2	NC23÷NC50
	27 ER 4 API 383	27 IR 4 API 383		4	27	3	NC56÷NC77
	27 ER 4 API 502	27 IR 4 API 502		4	27	2	6-5/8″REG
	27 ER 4 API 503	27 IR 4 API 503		4	27	3	5-1/2″7-5/8″ 8-5/8″REG

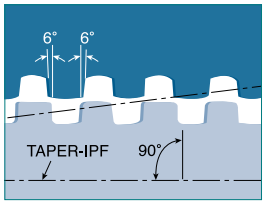
● Available grades, see page B4

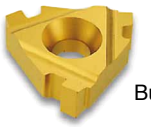


Buttress Casing
Application: Oil & Gas Industry



Extreme Line Casing



Thread Form	Designation		IC	Pitch	Dimension		
	External	Internal		TPI	L	Taper IPF	Connection No. or Size
 Buttress	22 ER 5 BUT 0.75	22 IR 5 BUT 0.75	1/2″	5	22	0.75	4-1/2″÷13-3/8″
	22 ER 5 BUT 1.0	22 IR 5 BUT 1.0		5	22	1.0	16″÷20″
 Extreme Line Casing	22 ER 6 EL 1.5	22 IR 6 EL 1.5	1/2″	6	22	1.5	5″÷7-5/8″
	22 ER 5 EL 1.25	22 IR 5 EL 1.25		5	22	1.25	8-5/8″÷10-3/4″

1 Clamping System

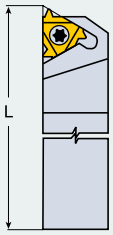
S - Screw Clamping

2 Application

E - External
I - Internal

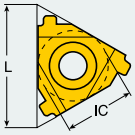
5 Tool Length

	mm
D	60
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300
U	350
V	400



6 Insert Size

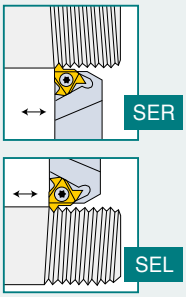
L (mm)	IC
06	3.968mm = 5/32″
08	4.762mm = 3/16″
08U	4.762mm = 3/16″
11	6.350mm = 1/4″
16	9.525mm = 3/8″
22	12.700mm = 1/2″
22U	12.700mm = 1/2″
27	15.875mm = 5/8″
27U	15.875mm = 5/8″



S	E	R	2020	K	16	□
1	2	3	4	5	6	7

3 Hand of Tool

R - Right-hand
L - Left-hand



4 Shank Size

External Toolholders
Shank: h×b

2020: 20×20mm

Internal Toolholders
Shank: Diameter d

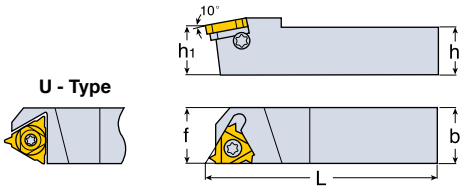
0025: Diameter 25mm

7 Optional Specifications

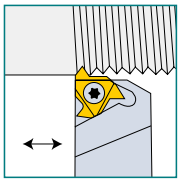
U - For U-type inserts
B - Bore for coolant
C - Carbide shank
SP - Special

External Toolholders - SER/L

U - Type



Right-hand shown

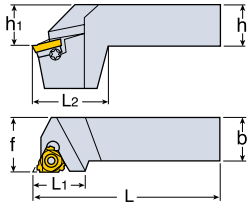


Designation	Dimension (mm)				Insert (2)
	h=h1	b	L	f	
SER/L 0808 H11(1)	8	8	100	11	11 ER/L...
SER/L 1010 H11(1)	10	10	100	11	
SER/L 1212 F16	12	12	80	16	16 ER/L...
SER/L 1616 H16	16	16	100	16	
SER/L 2020 K16	20	20	125	20	
SER/L 2525 M16	25	25	150	25	
SER/L 3232 P16	32	32	170	32	
SER/L 2525 M22	25	25	150	25	22 ER/L...
SER/L 3232 P22	32	32	170	32	

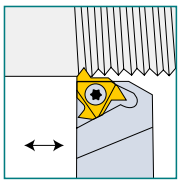
Designation	Dimension (mm)				Insert (2)
	h=h1	b	L	f	
SER/L 4040 R22	40	40	200	40	22 ER/L...
SER/L 3232 P22U	32	32	170	32	22 UERL...
SER/L 4040 R22U	40	40	200	40	
SER/L 2525 M27	25	25	150	25	27 ER/L...
SER/L 3232 P27	32	32	170	32	
SER/L 4040 R27	40	40	200	40	
SER/L 3232 P27U	32	32	170	32	27 UERL...
SER/L 4040 R27U	40	40	200	40	

- (1)Toolholders without anvil (2)Right-hand inserts (ER) for right-hand tools (SER)
- All toolholders are made with 1.5° helix angle
- For other helix angles, please see ANVIL SELECTION TABLE, page B23
- For spare parts see page B21

External Drophead Toolholders - SER...D



Right-hand shown

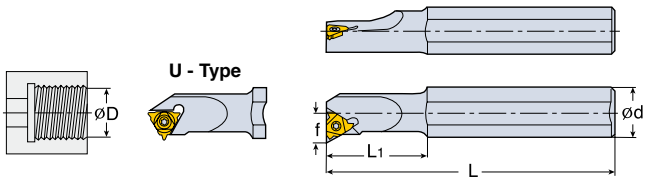


Designation	Dimension (mm)						Insert (2)
	h=h1	b	L	f	L1	L2	
SER/L 2020 K16D	20	20	125	25	21	38	16 ER/L...
SER/L 2525 M16D	25	25	150	32	21	38	16 ER/L...
SER/L 2525 M22D	25	25	150	32	25	38	22 ER/L...

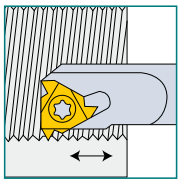
- (2)Right-hand inserts (ER) for right-hand tools (SER)
- All toolholders are made with 1.5° helix angle
- For other helix angles, please see ANVIL SELECTION TABLE, page B23
- For spare parts see page B21

Internal Toolholders - SIR/L

U - Type



Right-hand shown

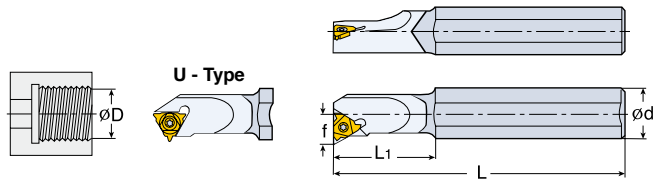


Designation	Dimension (mm)					Insert (2)
	d	L	L1	Dmin	f	
SIR 0005 H06(1)	12	100	12	6.4	4.3	06 IR...
SIL 0005 H06(1)	12	100	12	6.4	4.3	06 IL...
SIR 0007 K08(1)	16	125	18	7.8	5.3	08 IR...
SIL 0007 K08(1)	16	125	18	7.8	5.3	08 IL...
SIR 0008 K08U(1)	16	125	21	9.0	6.4	08 UIRL...
SIL 0008 K08U(1)	16	125	21	9.0	6.4	08 UIRL...
SIR/L 0010 H11(1)	10	100	-	12	7.4	
SIR/L 0010 K11(1)	16	125	25	12	6.5	11 IR/L...
SIR/L 0013 L11(1)	16	140	32	15	8.0	
SIR/L 0013 M16(1)	16	150	32	16	10.0	
SIR/L 0016 P16(1)	20	170	40	19	11.4	16 IR/L...
SIR 0020-16-AD	20	80	-	24	13.4	
SIR 0025-16-AD	25	100	-	29	16.3	
SIR/L 0020 P16	20	170	-	24	13.4	
SIR/L 0025 R16	25	200	-	29	16.3	16 IR/L...
SIR/L 0032 S16	32	250	-	36	19.6	
SIR/L 0040 T16	40	300	-	44	23.8	

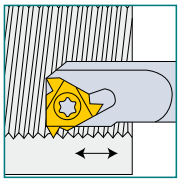
Designation	Dimension (mm)					Insert (2)
	d	L	L1	Dmin	f	
SIR/L 0050 U16	50	350	-	54	28.7	16 IR/L...
SIR/L 0020 P22(1)	20	170	-	24	13.0	22 IR/L...
SIR/L 0025 R22	25	200	-	29	17.2	
SIR/L 0032 S22	32	250	-	38	21.5	22 IR/L...
SIR/L 0040 T22	40	300	-	46	25.8	
SIR/L 0050 U22	50	350	-	56	30.6	
SIR/L 0032 S22U	32	250	-	38	25.5	22 UIRL...
SIR/L 0040 T22U	40	300	-	46	29.5	
SIR/L 0032 S27	32	250	-	40	22.4	
SIR/L 0040 T27	40	300	-	48	26.4	27 IR/L...
SIR/L 0050 U27	50	350	-	58	31.4	
SIR/L 0060 V27	60	400	-	68	36.4	
SIR/L 0032 S27U	32	250	-	40	24.7	
SIR/L 0040 T27U	40	300	-	48	29.4	27 UIRL...
SIR/L 0050 U27U	50	350	-	58	34.3	
SIR/L 0060 V27U	60	400	-	68	39.3	

- (1)Toolholders without anvil
- (2)Right-hand inserts (IR) for right-hand tools (SIR)
- All toolholders are made with 1.5° helix angle
- For additional helix angles, please see ANVIL SELECTION TABLE, page B23
- For spare parts see page B21

Solid Carbide Threading Bars for High Rigidity - SIR/L



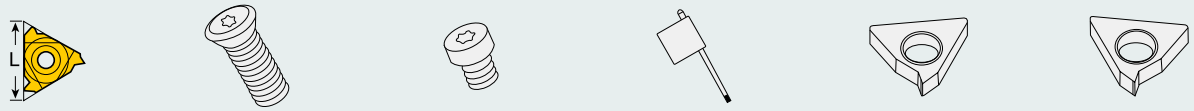
Right-hand shown



Designation	Dimension (mm)					Insert (2)
	d	L	L_1	Dmin	f	
SIR/L 0005 H06C	6	100	25	6.4	4.3	06 IR...
SIR/L 0007 K08C	8	125	30	7.8	5.3	08 IR...
SIR/L 0008 K08UC	8	125	35	9.0	6.4	08 UIRL...
SIR/L 0010 M11C (1)	10	150	-	12	7.4	11 IR/L...
SIR/L 0012 P11C (1)	12	170	-	15	8.5	
SIR/L 0016 R16C (1)	16	200	-	19	11.7	16 IR/L...
SIR/L 0020 S16C	16	250	-	23	13.7	16 IR/L...
SIR/L 0025 S16C	16	250	-	28	16.2	16 IR/L...

- (1)All carbide shank toolholders are without anvil
- (2)Right-hand inserts (IR) for right-hand tools (SIR)
- For spare parts see page B21
- All toolholders are made with 1.5° helix angle
- SELECTION TABLE, pages B23

Spare Parts



External Toolholder

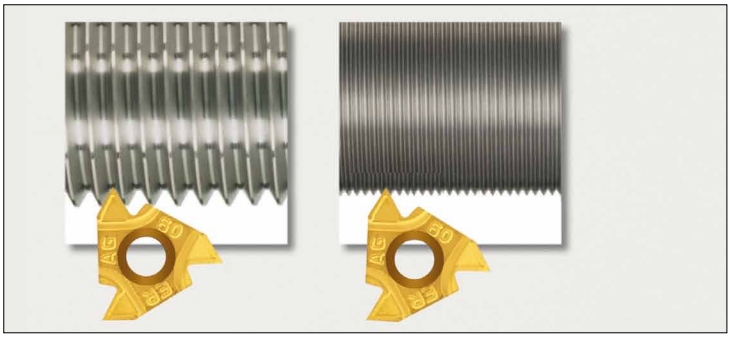
Insert Size	Insert Screw	Anvil Screw	Torx Key	Anvil EX. Right	Anvil EX. Left
11	S11	-	T-8/5	-	-
16	S16	A16	T-10/5	AE16	AI16
22	S22	A22	T-20/5	AE22	AI22
22U	S22	A22	T-20/5	AE22U	AI22U
27	S27	A27	T-25	AE27	AI27
27U	S27	A27	T-25	AE27U	AI27U

Internal Toolholder

Insert Size	Insert Screw	Anvil Screw	Torx Key	Anvil EX. Right	Anvil EX. Left
06	TS 20038I	-	T-6/5	-	-
08	TS 20054I	-	T-6/5	-	-
11	S11	-	T-8/5	-	-
16	S16S	-	T-10/5	-	-
16	S16	A16	T-10/5	AI16	AE16
22	S22S	-	T-20/5	-	-
22	S22	A22	T-20/5	AI22	AE22
22U	S22	A22	T-20/5	AI22U	AE22U
27	S27	A27	T-25	AI27	AE27
27U	S27	A27	T-25	AI27U	AE27U

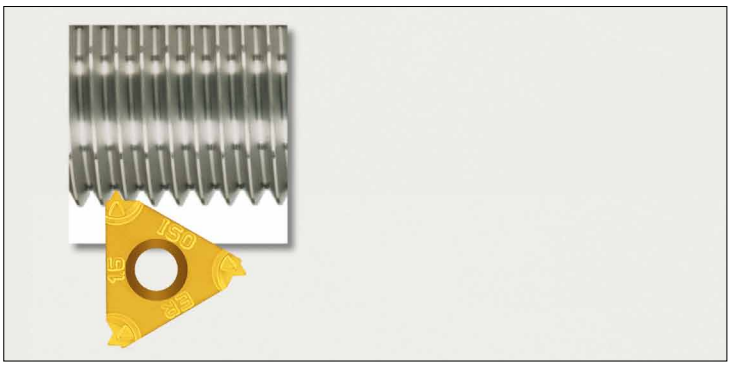
- Torx Key: use only flag type

Threading Inserts - Types and Profiles



Partial Profile

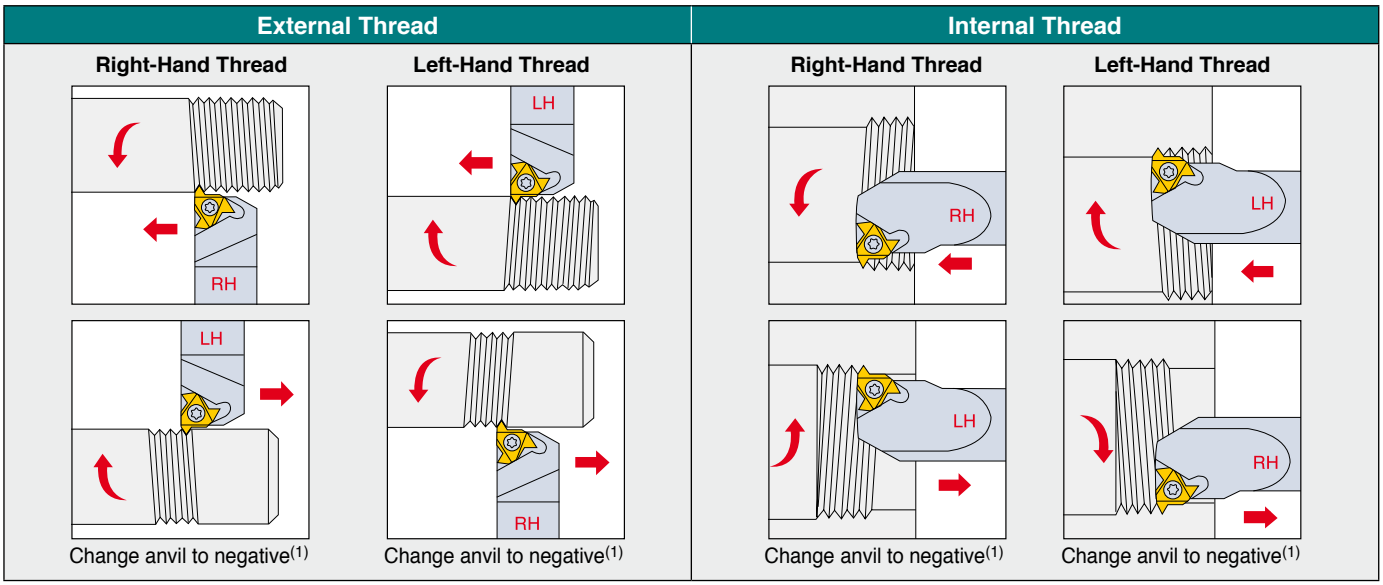
- Suitable for a wide range of pitches with a common angle (60°or 55°)
- Inserts with small root-corner radius suitable for the smallest pitch range.
- Additional operations to complete the outer/internal diameter is necessary.
- Not recommended for mass production.
- Eliminates the need for different inserts.



Full Profile

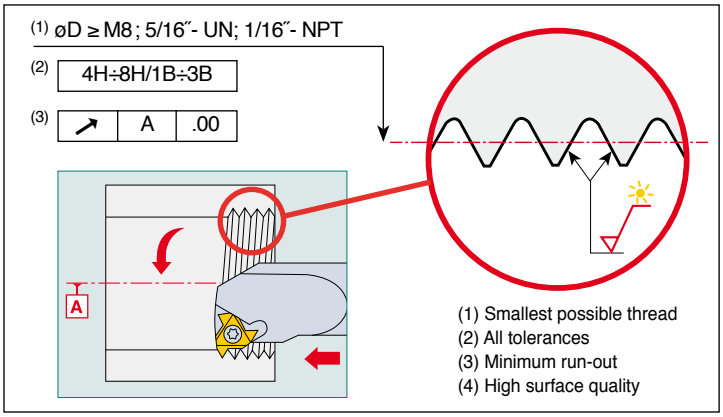
- Performs complete thread profile.
- Root corner radius is suitable only for the relevant pitch.
- Recommended for mass production.
- Suitable for one profile only.

Thread Turning Methods

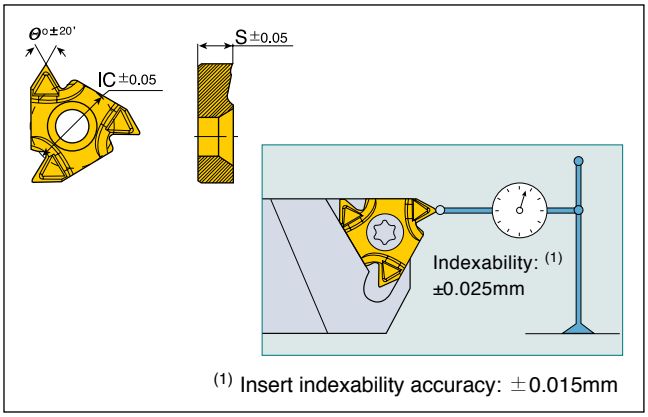


• (1)See page C24

Mini - Tool Features



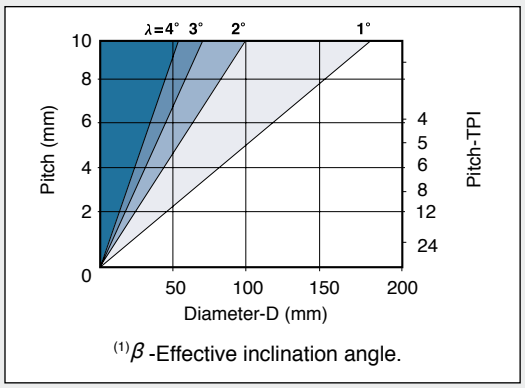
M-Type Threading Insert - Accuracy



(1) Insert indexability accuracy: ±0.015mm

Thread Helix Angle and Anvil Selection

Helix Angle λ Evaluation

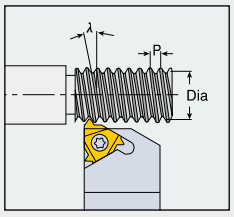


$^{(1)}\beta$ -Effective inclination angle.

$\beta_{(1)} = 4.5°$
$\beta_{(1)} = 3.5°$
$\beta_{(1)} = 2.5°$
$\beta_{(1)} = 1.5°$
$\beta_{(1)} = 0.5°$

$$tg\ \lambda = \frac{1 \times P}{3.14 \cdot D}$$

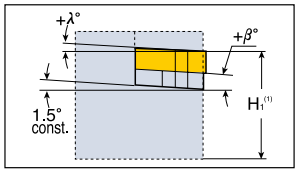
$$\lambda° = \frac{20 \times P}{D}$$



P - Pitch (mm)
D - Effective diameter of thread (mm)
λ - Angle of inclination

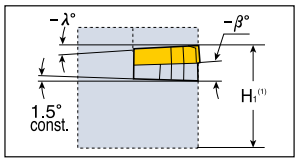
Anvil Selection According to Thread Helix Angle λ

Standard								
Thread Helix Angle λ		> 4°	3°- 4°	2°- 3°	1°- 2°	0°- 1°	Negative Anvils	
	Inclination Angle β	4.5°	3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
I(IC)	Toolholder	Anvil Designation						
16	EX RH OR IN LH	AE 16 +4.5	AE 16 +3.5	AE 16 +2.5	AE 16	AE 16 +0.5	AE 16 -0.5	AE 16 -1.5
(3/8)	EX LH OR IN RH	AI 16 +4.5	AI 16 +3.5	AI 16 +2.5	AI 16	AI 16 +0.5	AI 16 -0.5	AI 16 -1.5
22	EX RH OR IN LH	AE 22 +4.5	AE 22 +3.5	AE 22 +2.5	AE 22	AE 22 +0.5	AE 22 -0.5	AE 22 -1.5
(1/2)	EX LH OR IN RH	AI 22 +4.5	AI 22 +3.5	AI 22 +2.5	AI 22	AI 22 +0.5	AI 22 -0.5	AI 22 -1.5
27	EX RH OR IN LH	AE 27 +4.5	AE 27 +3.5	AE 27 +2.5	AE 27	AE 27 +0.5	AE 27 -0.5	AE 27 -1.5
(5/8)	EX LH OR IN RH	AI 27 +4.5	AI 27 +3.5	AI 27 +2.5	AI 27	AI 27 +0.5	AI 27 -0.5	AI 27 -1.5
22U	EX RH OR IN LH	AE 22U +4.5	AE 22U +3.5	AE 22U +2.5	AE 22U	AE 22U +0.5	AE 22U -0.5	AE 22U -1.5
(1/2U)	EX LH OR IN RH	AI 22U +4.5	AI 22U +3.5	AI 22U +2.5	AI 22U	AI 22U +0.5	AI 22U -0.5	AI 22U -1.5
27U	EX RH OR IN LH	AE 27U +4.5	AE 27U +3.5	AE 27U +2.5	AE 27U	AE 27U +0.5	AE 27U -0.5	AE 27U -1.5
(5/8U)	EX LH OR IN RH	AI 27U +4.5	AI 27U +3.5	AI 27U +2.5	AI 27U	AI 27U +0.5	AI 27U -0.5	AI 27U -1.5



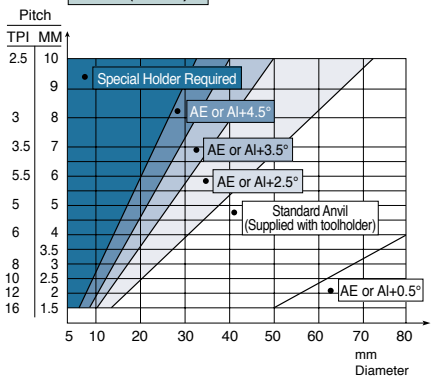
Anvils for negative inclination β used when turning **RH** thread with **LH** holder or **LH** thread with **RH** holder.

(1) **H_1** remains constant for every anvil combination.



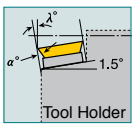
Anvils for positive inclination angle β applicable when turning **RH** thread with **RH** holder or **LH** thread with **LH** holders.

ACME
STUB ACME
TRAPEZE (DIN 103)
ROUND (DIN 405)

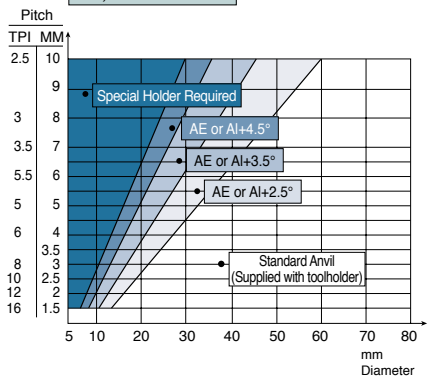


AE Anvils: EX-RH and IN-LH Toolholders

AI Anvils: IN-RH and EX-LH Toolholders.



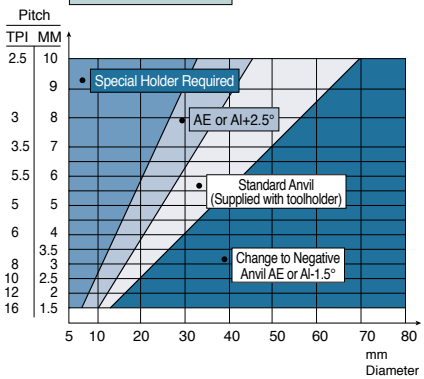
PARTIAL PROFILES 60°
PARTIAL PROFILES 55°
ISO, UN,WHITWORTH,
NPT, BSPT



AE Anvils: EX-RH and IN-LH Toolholders

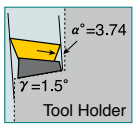
AI Anvils: IN-RH and EX-LH Toolholders.

AMERICAN BUTTRESS
SAGENGEWINDE
(DIN-513)



AE Anvils: EX-RH and IN-LH Toolholders

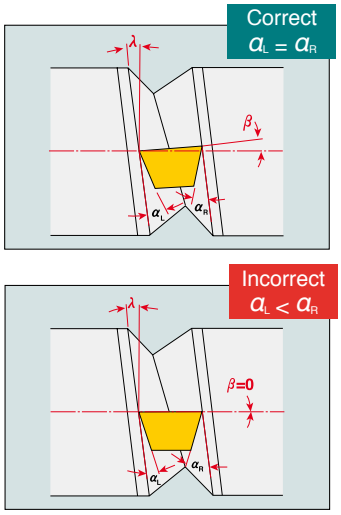
AI Anvils: IN-RH and EX-LH Toolholders.



Replacing the standard anvil with a negative angle anvil will eliminate side rubbing

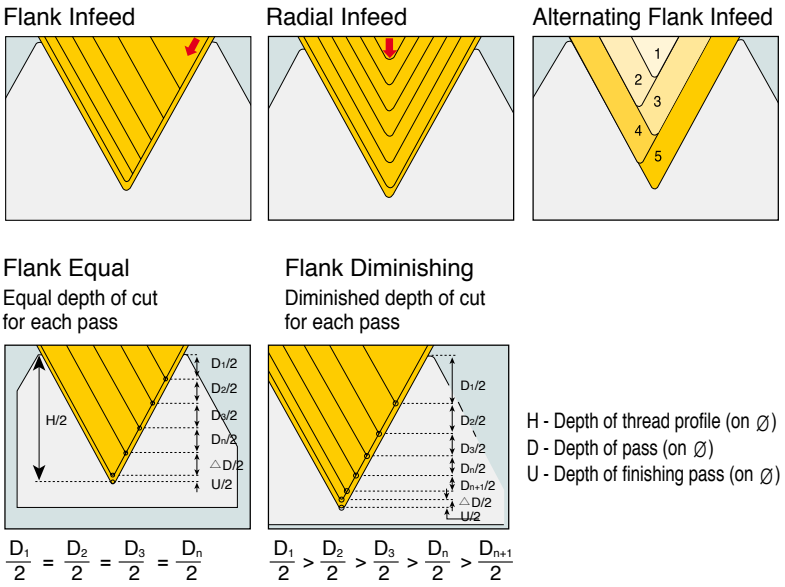
Flank Clearance and Effective Inclination Angle

Inclination angle β of the cutting edges correspond to a specific thread helix angle λ and insures equal clearance angle on both sides of insert.



α - Flank clearance angle
λ - Helix angle
β - Effective inclination angle is achieved by selecting the suitable anvil

Infeed Methods for Threading Operations



H - Depth of thread profile (on Ø)
D - Depth of pass (on Ø)
U - Depth of finishing pass (on Ø)

Cutting Data

Cutting Speed Range by Workpiece

		Brinell HB	Coated			Uncoated	
			TT7010	TT9030	TT8010	P30	UF10
MATERIAL		Hardness	Cutting Speed (m/min)				
Carbon Steel	0.2 %C	150	160	180	104	104	
	0.45%C	190	150	160	98	98	
	0.83%C	250	130	140	85	85	
Alloy Steel		<200	130	130	85	85	
		200 - 250	120	120	78	78	
		275 - 325	95	100	62	62	
		325 - 375	80	80	52	52	
		375 - 425	60	60	39	39	
Stainless Steel	Mart.	175 - 225	150	160	98	98	105
		275 - 325	105	110	52	52	55
		135 - 175	80	100	68	68	70
	Aust.	375 - 425	70	80	46	46	50
Cast Steel	Carbon	<150	150	170	98	98	
		150 - 200	110	110	72	72	
	Alloyed	200 - 250	100	100	65	65	
		250-300	80	50	52	52	
Malleable Iron	Short chip	110 - 145		80			55
	Long chip	200 - 250		100			50
Cast Iron	Low tensile	180		130			100
	High tensile	250		100			70
Nodular Iron	Ferritic	160		130			75
	Pearlitic	250		100			70
Chilled Cast Iron		400		20			
Bronze Alloy		120 - 200		120			85
Lead Alloy		80 - 150		150			115
Brass & Red		60 - 110		120			85
Phosphor Bronze		85 - 110		100			60
Aluminum Alloys		150 - 200		250			170
Aluminum Alloys, Cast				300			240

Cutting Data

Maximum depth of first cut for CNC control / External Threading - M-Type Inserts

Full Profile	Pitch mm	Pitch TPI	Insert Designation	No. of passes Min.	No. of passes Max.	Max. Depth for First Pass (D1) mm – Low Carbon Steel Eq.	Low Carbon Steel Dim.	High Carbon Steel Eq.	High Carbon Steel Dim.	Alloy Steel Eq.	Alloy Steel Dim.	Stainless Steel Eq.	Stainless Steel Dim.	Nonferrous Aluminum Eq.	Nonferrous Aluminum Dim.
ISO Metric	1.00		16 ERM 1.00 ISO	5	9	0.34	0.51	0.31	0.46	0.27	0.41	0.22	0.33	0.48	0.71
	1.25		16 ERM 1.25 ISO	6	11	0.42	0.63	0.38	0.57	0.34	0.50	0.27	0.41	0.59	0.88
	1.50		16 ERM 1.50 ISO	6	12	0.46	0.69	0.41	0.62	0.37	0.55	0.30	0.45	0.64	0.97
	1.75		16 ERM 1.75 ISO	8	13	0.48	0.72	0.43	0.65	0.38	0.58	0.31	0.47	0.67	1.01
	2.00		16 ERM 2.00 ISO	8	14	0.50	0.75	0.45	0.68	0.40	0.60	0.33	0.49	0.70	1.05
	2.50		16 ERM 2.50 ISO	10	15	0.53	0.80	0.48	0.72	0.42	0.64	0.34	0.52	0.74	1.12
	3.00		16 ERM 3.00 ISO	12	17	0.56	0.84	0.50	0.76	0.45	0.67	0.36	0.55	0.78	1.18
American UN		24	16 ERM 24 UN	5	9	0.34	0.51	0.31	0.46	0.27	0.41	0.22	0.33	0.48	0.71
		20	16 ERM 20 UN	6	10	0.42	0.63	0.38	0.57	0.34	0.50	0.27	0.41	0.59	0.88
		18	16 ERM 18 UN	6	11	0.46	0.69	0.41	0.62	0.37	0.55	0.30	0.45	0.64	0.97
		16	16 ERM 16 UN	7	12	0.47	0.71	0.42	0.64	0.38	0.57	0.31	0.46	0.66	0.99
			16 ERM 16 UN	6	13	0.46	0.69	0.41	0.62	0.37	0.55	0.28	0.41	0.64	0.97
		12	16 ERM 12 UN	8	14	0.50	0.75	0.45	0.68	0.40	0.60	0.33	0.49	0.70	1.05
		8	16 ERM 8 UN	12	17	0.56	0.84	0.50	0.76	0.45	0.67	0.36	0.55	0.78	1.18
British BSW		19	16 ERM 19 W	6	11	0.35	0.52	0.32	0.47	0.28	0.42	0.21	0.31	0.49	0.73
		16	16 ERM 16 W	7	12	0.47	0.71	0.42	0.64	0.38	0.57	0.31	0.46	0.66	0.99
		14	16 ERM 14 W	8	13	0.50	0.75	0.45	0.68	0.40	0.60	0.33	0.49	0.70	1.05
		11	16 ERM 11 W	9	14	0.44	0.66	0.40	0.59	0.35	0.53	0.29	0.43	0.62	0.92
NPT		18	16 ERM 18 NPT	10	20	0.24	0.36	0.22	0.32	0.19	0.29	0.16	0.23	0.34	0.50
		14	16 ERM 14 NPT	13	26	0.24	0.36	0.22	0.32	0.19	0.29	0.14	0.22	0.34	0.50
		11.5	16 ERM 11.5 NPT	15	24	0.27	0.40	0.24	0.36	0.22	0.32	0.18	0.26	0.38	0.56
		8	16 ERM 8 NPT	17	30	0.31	0.46	0.28	0.41	0.25	0.37	0.20	0.30	0.43	0.64
Round		6	16 ERM 6 RND	9	20	0.42	0.63	0.38	0.57	0.34	0.50	0.27	0.41	0.59	0.88
Partial Profile 60°	0.50-1.50	48-16	16 ERM A 60	(1)	0.22	0.33	0.20	0.30	0.18	0.26	0.14	0.21	0.31	0.46	
	1.75-3.00	14-8	16 ERM G 60			0.50	0.75	0.45	0.68	0.40	0.60	0.33	0.49	0.70	1.05
	0.50-3.00	48-8	16 ERM AG 60			0.24	0.36	0.22	0.32	0.19	0.29	0.16	0.23	0.34	0.50
	3.50-5.00	7-5	22 ERM N 60			0.41	0.62	0.37	0.56	0.33	0.50	0.27	0.40	0.57	0.87
Partial Profile 55°	1.75-3.00	14-8	16 ERM G 55			0.50	0.75	0.45	0.68	0.40	0.60	0.33	0.49	0.70	1.05
	0.50-3.00	48-8	16 ERM AG 55			0.22	0.33	0.20	0.30	0.18	0.26	0.14	0.21	0.31	0.46

Maximum depth of first cut for CNC control / Internal Threading - M-Type Inserts

Full Profile	Pitch mm	Pitch TPI	Insert Designation	No. of passes Min.	No. of passes Max.	Max. Depth for First Pass (D1)mm – Low Carbon Steel Eq.	Low Carbon Steel Dim.	High Carbon Steel Eq.	High Carbon Steel Dim.	Alloy Steel Eq.	Alloy Steel Dim.	Stainless Steel Eq.	Stainless Steel Dim.	Nonferrous Aluminum Eq.	Nonferrous Aluminum Dim.
ISO Metric	1.50		11 IRM 1.50 ISO	10	20	0.20	0.30	0.18	0.27	0.16	0.24	0.12	0.18	0.28	0.42
	1.00		16 IRM 1.00 ISO	9	16	0.14	0.20	0.13	0.18	0.11	0.16	0.09	0.13	0.20	0.28
	1.25		16 IRM 1.25 ISO	9	16	0.19	0.28	0.17	0.25	0.15	0.22	0.12	0.18	0.27	0.39
	1.50		16 IRM 1.50 ISO	10	20	0.20	0.30	0.18	0.27	0.16	0.24	0.12	0.18	0.28	0.42
	1.75		16 IRM 1.75 ISO	11	18	0.21	0.32	0.19	0.29	0.17	0.26	0.14	0.21	0.29	0.45
	2.00		16 IRM 2.00 ISO	12	21	0.22	0.33	0.20	0.30	0.18	0.26	0.14	0.21	0.31	0.46
	2.50		16 IRM 2.50 ISO	14	21	0.23	0.34	0.21	0.31	0.18	0.27	0.15	0.22	0.32	0.48
	3.00		16 IRM 3.00 ISO	16	22	0.24	0.35	0.22	0.32	0.19	0.29	0.16	0.23	0.34	0.50
American UN		20	16 IRM 20 UN	7	13	0.20	0.30	0.18	0.27	0.16	0.24	0.12	0.18	0.28	0.42
		18	16 IRM 18 UN	8	15	0.20	0.30	0.18	0.27	0.16	0.24	0.12	0.18	0.28	0.42
		16	16 IRM 16 UN	11	19	0.20	0.30	0.18	0.27	0.16	0.24	0.13	0.20	0.28	0.42
		14	16 IRM 14 UN	11	20	0.21	0.31	0.19	0.28	0.17	0.25	0.13	0.19	0.29	0.43
		12	16 IRM 12 UN	12	21	0.23	0.34	0.21	0.31	0.18	0.27	0.15	0.22	0.32	0.48
		8	16 IRM 8 UN	14	20	0.24	0.36	0.22	0.32	0.19	0.29	0.16	0.23	0.34	0.50
British BSW		19	16 IRM 19 W	7	12	0.28	0.42	0.25	0.38	0.22	0.34	0.17	0.25	0.39	0.59
		16	16 IRM 16 W	9	14	0.26	0.39	0.23	0.35	0.21	0.31	0.17	0.25	0.36	0.55
		14	16 IRM 14 W	10	16	0.27	0.41	0.24	0.37	0.22	0.33	0.18	0.27	0.38	0.57
		11	16 IRM 11 W	12	19	0.31	0.46	0.28	0.41	0.25	0.37	0.20	0.30	0.43	0.64
NPT		14	16 IRM 14 NPT	21	35	0.13	0.20	0.12	0.18	0.10	0.16	0.08	0.12	0.18	0.28
		11.5	16 IRM 11.5 NPT	21	33	0.17	0.25	0.15	0.23	0.14	0.20	0.11	0.16	0.24	0.35
		8	16 IRM 8 NPT	20	34	0.23	0.34	0.21	0.31	0.18	0.27	0.14	0.20	0.32	0.48
Round		6	16 IRM 6 RND	12	24	0.30	0.46	0.27	0.41	0.24	0.37	0.20	0.30	0.42	0.64
Partial Profile 60°	0.50-1.25	48-16	06 IRM A 60			0.22	0.33	0.20	0.30	0.18	0.26	0.14	0.21	0.31	0.46
	0.50-1.50	48-16	08 IRM A 60		(1)	0.13	0.20	0.12	0.18	0.10	0.16	0.08	0.13	0.18	0.28
	0.50-1.50	48-16	11 IRM A 60			0.13	0.20	0.12	0.18	0.10	0.16	0.08	0.13	0.18	0.28
	0.50-1.50	48-16	16 IRM A 60			0.13	0.20	0.12	0.18	0.10	0.16	0.08	0.13	0.18	0.28
	1.75-3.00	14-8	16 IRM G 60			0.22	0.33	0.20	0.30	0.18	0.26	0.14	0.21	0.31	0.46
	0.50-3.00	48-8	16 IRM AG 60			0.14	0.21	0.13	0.19	0.11	0.17	0.09	0.14	0.20	0.29
	3.50-5.00	7-5	22 IRM N 60			0.23	0.34	0.21	0.31	0.18	0.27	0.15	0.22	0.32	0.48
Partial Profile 55°	1.75-3.00	14-8	16 IRM G 55			0.34	0.50	0.31	0.45	0.27	0.40	0.22	0.33	0.48	0.70
	0.50-3.00	48-8	16 IRM AG 55			0.14	0.20	0.13	0.18	0.11	0.16	0.09	0.13	0.20	0.28

- (1) As per the number of passes for the relevant pitch.

Number of Cutting Passes for Regular Type Inserts

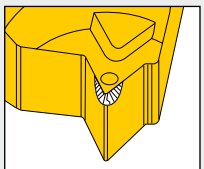
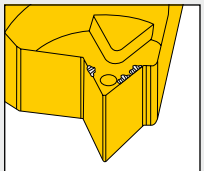
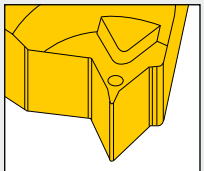
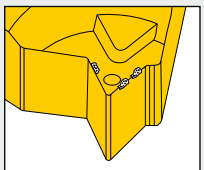
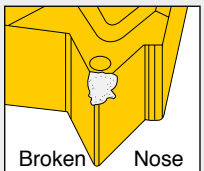
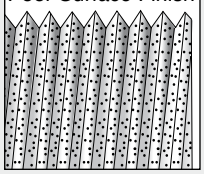
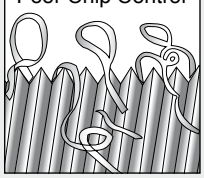
Pitch	mm	0.5	1.0	1.5	2.0	2.5	3.0	4.0	6.0
	TPI	48	24	16	12	10	8	6	4
Number of Passes		4-6	5-9	5-12	6-14	7-15	8-17	10-20	11-22

- For mini-tools (06IR or 08IR) add 1÷3 passes. Increase for hard materials.

Recommended Cutting Condition / For Therading

ISO	Material		Condition	Tensile Strength (N/mm2)	Hardness HB	Material No.	Coated			Uncoated
							TT7010	TT9030	TT8010	P30
							Cutting Speed (m/min)			
P	Non-alloy steel, cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	160	180	105	100
		>= 0.25 %C	Annealed	650	190	2	160	180	105	100
		< 0.55 %C	Quenched and tempered	850	250	3	150	160	100	90
		>= 0.55 %C	Annealed	750	220	4	150	160	100	90
			Quenched and tempered	1000	300	5	130	140	85	85
	Low alloy steel and cast steel (less than 5% alloying elements)		Annealed	600	200	6	80	80	60	60
				930	275	7	130	130	85	85
			Quenched and tempered	1000	300	8	120	120	80	80
				1200	350	9	95	100	60	60
	High alloy steel, cast steel and tool steel.		Annealed	680	200	10	80	80	50	5
			Quenched and tempered	1100	325	11	60	60	40	40
M	Stainless steel and cast steel		Ferritic/martensitic	680	200	12	105	110	50	50
			Martensitic	820	240	13	150	160	100	100
			Austenitic	600	180	14	70	80	45	45
K	Malleable cast iron		Ferritic/pearlitic		180	15		130	100	
			Pearlitic		260	16		100	80	
	Gray cast iron (GG)		Ferritic		160	17		120	100	
			Pearlitic		250	18		130	100	
	Cast iron nodular (GGG)		Ferritic		130	19		130	70	
			Pearlitic		230	20		100	50	
N	Aluminum-wrought alloy		Not cureable		60	21		1400	800	
			Cured		100	22		500	380	
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23		700	400	
			Cured		90	24		420	330	
		>12% Si	High temperature		130	25		240	180	
	Copper alloys	>1% Pb	Free cutting		110	26		300	200	
			Brass		90	27		400	280	
			Electrolitic copper		100	28		120	100	
	Non metallic		Duroplastics, fiber plastics			29		300	180	
			Hard rubber			30		300	180	
S	High temp. alloys	Fe based	Annealed		200	31		60	30	
			Cured		280	32		50	30	
		Ni or Co based	Annealed		250	33		30	20	
			Cured		350	34		20	10	
			Cast		320	35		20	10	
	Titanium, Ti alloys			RM 400		36		140	100	
			Alpha+beta alloys cured	RM 1050		37		50	30	
H	Hardened steel		Hardened		55 HRC	38		40	25	
			Hardened		60 HRc	39		30	20	
	Chilled cast iron		Cast		400	40		30	20	
	Cast iron		Hardened		55 HRc	41		20	15	

Trouble Shooting

Problem	Caused by	Solution
 Premature Wear	• Cutting speed too high	Reduce RPM
	• Infeed depth too small	Increase depth of cut
		Modify flank infeed
	• Highly abrasive material	Use coated grade
	• Inadequate coolant supply	Apply coolant
	• Wrong inclination anvil	Reselect anvil
	• Wrong turned dia. prior to threading	Check turned dia.
	• Insert is above center line	Check center height
 Chipped Edge	• Cutting speed too high	Reduce RPM
	• Depth of cut too large	Reduce depth of cut
	• Wrong grade	Use coated grade
		Use tougher grade
	• Poor chip control	Modify flank infeed
	• Inadequate coolant supply	Apply coolant
	• Center height incorrect	Adjust center height
 Plastic Deformation	• Excessive heat in cutting zone	Reduce RPM
		Reduce depth of cut
		Check turned dia.
	• Wrong grade	Use coated grade
		Use harder grade
	• Inadequate coolant supply	Apply more coolant
 Built-Up Edge	• Cutting edge too cold	Increase RPM
		Increase depth of cut
	• Wrong grade	Use coated grade
	• Inadequate coolant supply	Apply coolant
 Broken Nose during 1st Pass	• Cutting edge too cold	Increase RPM
	• Depth of cut too large	Reduce depth of cut
		Increase number of infeed passes
	• Wrong grade	Use tougher grade
	• Wrong turned dia. prior to threading	Check turned dia.
	• Corner height incorrect	Adjust center height
	• Infeed depth too shallow	Modify flank infeed
	• Wrong inclination anvil	Reselect anvil
	• Tool overhang too long	Reduce tool overhang
Poor Surface Finish 	• Wrong cutting speed	Increase RPM
		Reduce RPM
	• Excessive heat in cutting zone	Reduce depth of cut
	• Poor chip control	Modify flank infeed
	• Inadequate coolant supply	Apply coolant
	• Wrong inclination anvil	Reselect anvil
	• Tool overhang too long	Reduce tool overhang
	• Center height incorrect	Check center height
Poor Chip Control 	• Excessive heat in cutting zone	Reduce RPM
		Change depth of cut
		Check turned dia.
	• Wrong grade	Use coated grade
		Check turned dia.
		Use M-type insert
	• Inadequate coolant supply	Apply coolant
	• Wrong turned dia. prior to threading	Check turned dia.