

CUTTING TOOL CATALOGUE

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Thread Profile Overview

Industry	General Machinery						
Thread Profile	Partial Profile 55°	Partial Profile 60°	ISO Metric	American UN	Whitworth	NPT Taper Pipe Thread	British BSPT
	Pitch: mm / TPI (Threads Per Inch)						
Pitch TPI	0.50-1.5 0.50-3.0 1.75-3.0 3.50-5.0	0.50-1.5 0.50-3.0 1.75-3.0 3.50-5.0	0.50 2.0 0.75 2.5 1.00 3.0 1.25 1.50	48 16 44 14 40 13 36 12 32 11.5 28 11 24 10 20 9 18 8	36 14 32 12 28 11 26 10 10 9 19 8	27 18 14 11.5 8	28 19 14 11

Industry	General Machinery		Aerospace		Petroleum		
Thread Profile	ACME	Stub ACME	MJ ISO 5855	UNJ	API	API Round	BUT Buttress casing thread
	Pitch: mm / TPI (Threads Per Inch)						
Pitch TPI	16 8 14 6 12 5 10	16 8 14 6 12 5 10 4	0.75 2.0 1.00 2.5 1.25 3.0 1.50	48 16 44 14 40 13 36 12 32 11 28 10 24 9 20 8 18	4 (V-0.038R) 4 (V-0.050) 5 (V-0.040) 6 (V-0.055)	10 8	5

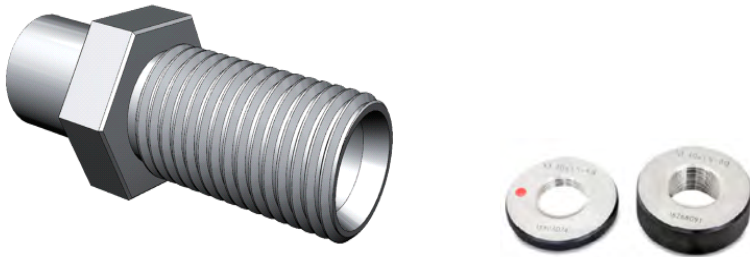
* A wide range of thread types, including thread turning for general machinery, aerospace and petroleum industries

* All ground inserts, better control of thread profile dimensional accuracy and consistency after insert indexing

* Uniform edge honing and sharp cutting edges, more suitable for thread turning characteristics, resulting in superior thread surface quality

Test Cases

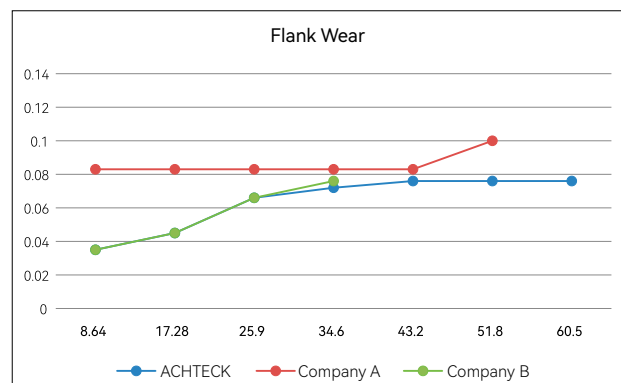
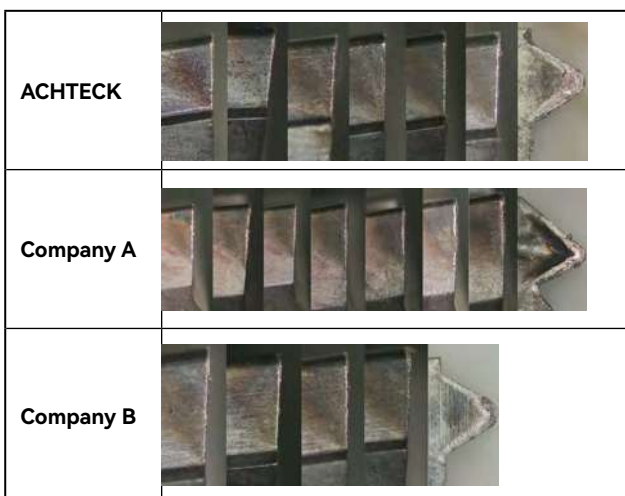
Material	4140
Insert	16ER 150ISO AP220E
Machining type	External Thread Turning
Cutting Data	Vc=140m/min fn=1.5mm/rev; ap=0.22/0.2/0.17/0.16/0.12/0.08 Wet cutting, Radial infeed



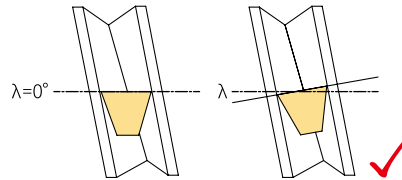
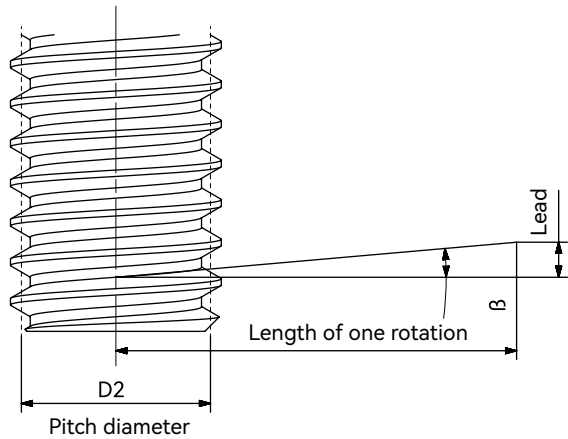
- * When workpiece materials with high elastic modulus (e.g., stainless steel, heat-resistant stainless steel, high-temperature alloys), it is necessary to increase the number of passes appropriately, with each depth of cut more than 0.08mm, to achieve better thread accuracy and insert life.
- * To prevent tip chipping during the first cut, a pre-chamfering of C0.3-C0.5 can be applied to the workpiece.
- * To ensure correct tool alignment and precise thread dimensions during thread machining, perform a preliminary transverse cut with a depth of approximately 0.1mm to confirm tool alignment before starting thread turning.

Thread Machining Life Test

Material	SUS316L
Insert	16ER 150ISO AP220E
Machining type	External Thread Turning
Cutting Data	Vc=120m/min fn=1.5mm/rev; ap=0.16/0.15/0.14/0.12/0.1/0.1/0.1/0.08 Wet cutting, Radial infeed



Calculation Method for Helix Angle



$$\beta = \arctan \frac{PxN}{\pi \times D2}$$

β ... Helix angle
 P ... Pitch
 $D2$... Pitch diameter
 N ... Number of threading starts

* When λ approaches β , it can effectively improve the precision of threading and prevent cutting edge breakage. Through calculation, it is very important to choose the appropriate Angle of the shim.

Recommended Cutting Parameters

	Materials	Brinell Hardness (HB)	Cutting speed (m/min)			
			AP220E	AP220U	AP020H	AP120S
P	Unalloyed steel	120-170	60-200	60-200		
	Low-alloyed steel	180-350	60-160	60-160		
	High-alloyed steel	200-325	50-120	50-120		
M	Ferritic, Stainless steel	200-325	60-130	60-130		
	Austenitic, Stainless steel	180-200	40-140	40-140		
K	Malleable cast iron	130-230	60-150	60-150		
	Grey cast iron	180-260	70-130	70-130		
	Nodular cast iron	160-250	90-160	90-160		
S	Titanium alloy	200-375				50-70
	Heat resistant alloys	200-350				15-50
H	Hardened steels	45-55HRC			40-50	

Infeed & Depth of Cutting

ISO- Metric External Threads

Ph	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.8	0.75	0.5
a p	3,82	3,52	3,19	2,87	2,53	2,23	1,92	1,60	1,25	1,13	0,93	0,81	0,65	0,52	0,48	0,33
1	0,46	0,43	0,41	0,37	0,34	0,34	0,28	0,27	0,24	0,22	0,22	0,21	0,18	0,17	0,16	0,11
2	0,43	0,40	0,39	0,34	0,32	0,31	0,26	0,24	0,22	0,20	0,20	0,17	0,16	0,15	0,14	0,09
3	0,35	0,32	0,32	0,28	0,25	0,25	0,21	0,20	0,18	0,17	0,17	0,14	0,12	0,12	0,11	0,07
4	0,30	0,28	0,27	0,24	0,22	0,21	0,18	0,17	0,16	0,14	0,14	0,11	0,11	0,08	0,07	0,06
5	0,29	0,26	0,24	0,22	0,20	0,18	0,16	0,15	0,14	0,12	0,12	0,10	0,08	-	-	-
6	0,26	0,24	0,24	0,22	0,18	0,18	0,15	0,15	0,12	0,10	0,08	0,08	-	-	-	-
7	0,24	0,21	0,22	0,20	0,17	0,16	0,14	0,12	0,11	0,10	-	-	-	-	-	-
8	0,23	0,20	0,20	0,18	0,15	0,15	0,13	0,11	0,08	0,08	-	-	-	-	-	-
9	0,22	0,19	0,19	0,17	0,14	0,14	0,12	0,11	-	-	-	-	-	-	-	-
10	0,19	0,18	0,18	0,16	0,13	0,12	0,11	0,08	-	-	-	-	-	-	-	-
11	0,18	0,17	0,16	0,14	0,12	0,11	0,10	-	-	-	-	-	-	-	-	-
12	0,16	0,15	0,15	0,13	0,12	0,08	0,08	-	-	-	-	-	-	-	-	-
13	0,15	0,14	0,12	0,12	0,11	-	-	-	-	-	-	-	-	-	-	-
14	0,13	0,13	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-	-	-
15	0,13	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ISO- Metric Internal Threads

Ph	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.8	0.75	0.5
a p	3,54	3,25	2,96	2,65	2,33	2,05	1,78	1,48	1,17	1,05	0,85	0,75	0,60	0,49	0,46	0,31
1	0,46	0,43	0,42	0,37	0,34	0,32	0,28	0,26	0,23	0,22	0,20	0,17	0,17	0,17	0,16	0,10
2	0,43	0,40	0,40	0,34	0,31	0,30	0,26	0,25	0,21	0,20	0,18	0,17	0,15	0,14	0,13	0,08
3	0,35	0,33	0,32	0,28	0,24	0,24	0,21	0,18	0,17	0,15	0,15	0,14	0,11	0,11	0,10	0,07
4	0,30	0,26	0,26	0,23	0,21	0,19	0,16	0,15	0,15	0,13	0,13	0,10	0,09	0,07	0,07	0,06
5	0,26	0,22	0,22	0,21	0,18	0,17	0,14	0,13	0,12	0,10	0,11	0,09	0,08	-	-	-
6	0,22	0,20	0,20	0,19	0,15	0,15	0,13	0,12	0,11	0,09	0,08	0,08	-	-	-	-
7	0,20	0,18	0,17	0,16	0,14	0,14	0,12	0,11	0,10	0,08	-	-	-	-	-	-
8	0,19	0,17	0,16	0,15	0,13	0,13	0,11	0,10	0,08	0,08	-	-	-	-	-	-
9	0,18	0,16	0,16	0,14	0,12	0,12	0,10	0,10	-	-	-	-	-	-	-	-
10	0,16	0,15	0,15	0,13	0,12	0,11	0,10	0,08	-	-	-	-	-	-	-	-
11	0,15	0,14	0,14	0,12	0,11	0,10	0,09	-	-	-	-	-	-	-	-	-
12	0,15	0,14	0,14	0,12	0,10	0,08	0,08	-	-	-	-	-	-	-	-	-
13	0,14	0,13	0,12	0,11	0,10	-	-	-	-	-	-	-	-	-	-	-
14	0,13	0,12	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Whitworth External/Internal Threads

TPI	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	26	28
a p	4,29	3,82	3,44	2,90	2,50	2,17	1,93	1,76	1,58	1,45	1,20	1,13	1,01	0,96	0,92	0,72	0,69
1	0,49	0,46	0,45	0,38	0,37	0,32	0,30	0,29	0,28	0,28	0,24	0,24	0,23	0,22	0,21	0,19	0,18
2	0,46	0,43	0,43	0,36	0,35	0,30	0,28	0,27	0,26	0,26	0,22	0,22	0,22	0,22	0,21	0,18	0,17
3	0,38	0,38	0,38	0,30	0,29	0,24	0,23	0,22	0,22	0,22	0,18	0,19	0,19	0,18	0,17	0,15	0,14
4	0,36	0,33	0,32	0,26	0,25	0,21	0,20	0,19	0,19	0,18	0,15	0,16	0,16	0,14	0,14	0,12	0,12
5	0,34	0,29	0,28	0,22	0,22	0,19	0,18	0,17	0,16	0,16	0,13	0,13	0,13	0,12	0,11	0,08	0,08
6	0,31	0,25	0,25	0,21	0,19	0,17	0,15	0,15	0,14	0,14	0,11	0,11	0,08	0,08	0,08	-	-
7	0,29	0,24	0,22	0,19	0,18	0,15	0,14	0,14	0,13	0,13	0,09	0,08	-	-	-	-	-
8	0,27	0,22	0,20	0,17	0,16	0,14	0,13	0,13	0,12	0,08	0,08	-	-	-	-	-	-
9	0,24	0,20	0,19	0,16	0,15	0,13	0,12	0,12	0,08	-	-	-	-	-	-	-	-
10	0,22	0,18	0,18	0,15	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-
11	0,20	0,17	0,17	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-	-
12	0,19	0,16	0,15	0,14	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-
13	0,17	0,15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,15	0,14	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Ph = Lead (mm)

* ap = Total depth of cutting (mm)

* TPI = Threads Per Inch

* The above recommended values are used for steel with hardness < 300 HB, if the insert breakage, it is recommended to increase the number of infeed.

Infeed & Depth of Cutting

UN External Threads

TPI	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
a p	4,07	3,62	3,29	2,71	2,33	2,08	1,84	1,66	1,52	1,39	1,29	1,19	1,05	0,94	0,84	0,70	0,60	0,53
1	0,47	0,45	0,43	0,36	0,35	0,30	0,28	0,27	0,27	0,27	0,25	0,23	0,22	0,23	0,20	0,19	0,17	0,17
2	0,44	0,41	0,40	0,34	0,33	0,28	0,26	0,26	0,25	0,26	0,24	0,22	0,21	0,21	0,19	0,17	0,15	0,15
3	0,40	0,39	0,36	0,27	0,26	0,25	0,21	0,20	0,20	0,20	0,18	0,17	0,16	0,16	0,15	0,14	0,11	0,13
4	0,36	0,31	0,31	0,23	0,22	0,21	0,20	0,17	0,19	0,18	0,17	0,15	0,14	0,14	0,12	0,12	0,09	0,08
5	0,32	0,26	0,26	0,22	0,21	0,18	0,17	0,16	0,16	0,15	0,14	0,13	0,13	0,12	0,10	0,08	0,08	-
6	0,27	0,23	0,23	0,20	0,19	0,16	0,15	0,15	0,14	0,13	0,12	0,11	0,11	0,08	0,08	-	-	-
7	0,25	0,21	0,20	0,18	0,17	0,14	0,14	0,14	0,12	0,12	0,11	0,10	0,08	-	-	-	-	-
8	0,23	0,20	0,19	0,16	0,15	0,13	0,12	0,12	0,11	0,08	0,08	0,08	-	-	-	-	-	-
9	0,22	0,18	0,19	0,15	0,14	0,12	0,12	0,11	0,08	-	-	-	-	-	-	-	-	-
10	0,21	0,17	0,18	0,14	0,12	0,12	0,11	0,08	-	-	-	-	-	-	-	-	-	-
11	0,19	0,16	0,17	0,13	0,11	0,11	0,08	-	-	-	-	-	-	-	-	-	-	-
12	0,18	0,15	0,15	0,12	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-	-
13	0,16	0,14	0,12	0,11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,15	0,14	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

UN Internal Threads

TPI	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
a p	3,74	3,32	2,99	2,46	2,13	1,88	1,66	1,49	1,36	1,25	1,14	1,06	0,93	0,84	0,76	0,64	0,56	0,49
1	0,44	0,41	0,42	0,35	0,34	0,30	0,28	0,27	0,27	0,27	0,25	0,23	0,22	0,23	0,20	0,18	0,17	0,17
2	0,41	0,38	0,38	0,33	0,32	0,28	0,26	0,25	0,23	0,23	0,20	0,18	0,18	0,17	0,16	0,15	0,14	0,14
3	0,39	0,34	0,33	0,25	0,24	0,22	0,19	0,18	0,18	0,18	0,15	0,14	0,14	0,14	0,13	0,13	0,09	0,10
4	0,33	0,28	0,27	0,21	0,21	0,18	0,16	0,15	0,15	0,15	0,13	0,13	0,12	0,12	0,10	0,10	0,08	0,08
5	0,28	0,23	0,23	0,18	0,17	0,15	0,14	0,13	0,13	0,13	0,12	0,11	0,10	0,10	0,09	0,08	0,08	-
6	0,24	0,20	0,20	0,16	0,15	0,13	0,13	0,12	0,11	0,11	0,11	0,10	0,09	0,08	0,08	-	-	-
7	0,22	0,19	0,18	0,15	0,14	0,12	0,12	0,11	0,11	0,10	0,10	0,09	0,08	-	-	-	-	-
8	0,21	0,18	0,17	0,14	0,13	0,11	0,11	0,10	0,10	0,08	0,08	0,08	-	-	-	-	-	-
9	0,20	0,17	0,16	0,13	0,12	0,11	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-
10	0,18	0,16	0,15	0,12	0,12	0,10	0,09	0,08	-	-	-	-	-	-	-	-	-	-
11	0,17	0,15	0,14	0,12	0,11	0,10	0,08	-	-	-	-	-	-	-	-	-	-	-
12	0,16	0,14	0,14	0,11	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-	-
13	0,15	0,14	0,12	0,11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,14	0,13	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NPT Internal/ External Threads

TPI	8	11,5	14	18	27
a p	2,54	1,76	1,45	1,12	0,75
1	0,28	0,25	0,24	0,22	0,19
2	0,25	0,22	0,22	0,18	0,15
3	0,22	0,18	0,17	0,15	0,13
4	0,19	0,16	0,15	0,14	0,11
5	0,18	0,16	0,14	0,13	0,09
6	0,18	0,14	0,13	0,12	0,08
7	0,17	0,14	0,12	0,10	-
8	0,17	0,12	0,10	0,08	-
9	0,16	0,12	0,10	-	-
10	0,16	0,10	0,08	-	-
11	0,14	0,09	-	-	-
12	0,13	0,08	-	-	-
13	0,12	-	-	-	-
14	0,11	-	-	-	-
15	0,08	-	-	-	-

* Ph = Lead (mm)

* ap = Total depth of cutting (mm)

* TPI = Threads Per Inch

* The above recommended values are used for steel with hardness < 300 HB, if the insert breakage, it is recommended to increase the number of infeed.

Threading Insert Denomination System

16	E	R	200	ISO	-		AP220U
1	2	3	4	5		6	7

1- Insert Size	
L (mm)	IC (mm)
08	4.76
11	6.35
16	9.525
22	12.7
27	15.875

2- Insert Type
E: Laydown External Thread
I: Laydown Internal Thread
VE: Vertical External Thread
VI: Vertical Internal Thread
UE: U-Type External Thread
UI: U-Type Internal Thread

3- Hand of Insert
R: Right hand
L: Left hand

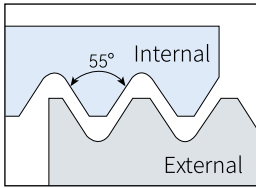
4- Pitch & TPI	
Pitch	
100	1mm
150	1.5mm
TPI	
24	24 threads per inch
20	20 threads per inch

5- Thread Type	
55	Partial profile 55°
60	Partial profile 60°
ISO	ISO Metric (Full Profile)
UN	American UN (Full Profile)
W	Whitworth (Full Profile)
NPT	NPT(National Pipe Thread)
BSPT	British Standard Pipe thread
ACME	American ACME
ST ACME	Stub ACME
MJ	MJ ISO5855
UNJ	UNJ
API	API

6- Number of Teeth & Chip Breaker
"None"----- Standard
TQ----- With TQ chip breaker
2M----- Two teeth per corner

7- Insert Grades		
AP220E	Economical, Combining pressing and grinding	P/M
AP220U	All Ground, High-Precision General grade	P/M/S
AP120S	All Ground, High-Temperature Alloy grade	M/S
AP020H	All Ground, Hardened Steel grade	H

Partial profile 55° --External

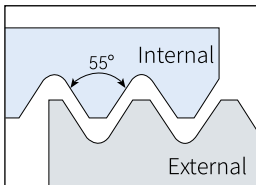


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	55°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades		
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H
	11ER A55	11EL A55	0.5-1.5	48-16	0.9		●	○
	16ER A55	16EL A55	0.5-1.5	48-16	0.9	●	●	○
	16ER AG55	16EL AG55	0.5-3.0	48-8	1.7	●	●	○
	16ER G55	16EL G55	1.75-3.0	14-8	1.7	●	●	○
	22ER N55	22EL N55	3.5-5.0	7-5	2.5		●	○

● : Standard stock ○ : Made-to-Order

Partial profile 55° --Internal

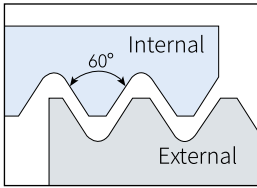


Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	55°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades		
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H
	08IR A55	08IL A55	0.5-1.5	48-16	0.7		○	○
	11IR A55	11IL A55	0.5-1.5	48-16	0.9		●	○
	16IR A55	16IL A55	0.5-1.5	48-16	0.9	●	●	○
	16IR AG55	16IL AG55	0.5-3.0	48-8	1.7	●	●	○
	16IR G55	16IL G55	1.75-3.0	14-8	1.7	●	●	○
	22IR N55	22IL N55	3.5-5.0	7-5	2.5		●	○

● : Standard stock ○ : Made-to-Order

Partial profile 60° --External

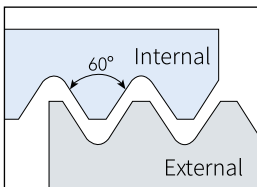


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades			
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11ER A60	11EL A60	0.5-1.5	48-16	0.9		●	○	○
	16ER A60	16EL A60	0.5-1.5	48-16	0.9	●	●	○	○
	16ER AG60	16EL AG60	0.5-3.0	48-8	1.7	●	●	○	○
	16ER G60	16EL G60	1.75-3.0	14-8	1.7	●	●	○	○
	22ER N60	22EL N60	3.5-5.0	7-5	2.5		●	○	○

● : Standard stock ○ : Made-to-Order

Partial profile 60° --Internal



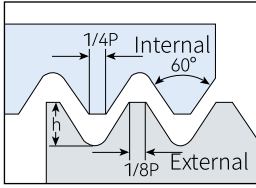
Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	60°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades			
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	08IR A60	08IL A60	0.5-1.5	48-16	0.6		○	○	○
	11IR A60	11IL A60	0.5-1.5	48-16	0.9		●	○	○
	16IR A60	16IL A60	0.5-1.5	48-16	0.9	●	●	○	○
	16IR AG60	16IL AG60	0.5-3.0	48-8	1.7	●	●	○	○
	16IR G60	16IL G60	1.75-3.0	14-8	1.7	●	●	○	○
	22IR N60	22IL N60	3.5-5.0	7-5	2.4		●	○	○

● : Standard stock ○ : Made-to-Order

Thread Turning

ISO Metric (Full Profile)--External

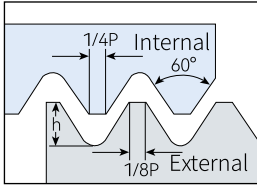


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	11ER 050ISO	11EL 050ISO	0.50	0.4		●	○	○
	11ER 075ISO	11EL 075ISO	0.75	0.6		●	○	○
	11ER 080ISO	11EL 080ISO	0.80	0.6		●	○	○
	11ER 100ISO	11EL 100ISO	1.00	0.7		●	○	○
	11ER 125ISO	11EL 125ISO	1.25	0.9		●	○	○
	11ER 150ISO	11EL 150ISO	1.50	1.0		●	○	○
	16ER 050ISO	16EL 050ISO	0.50	0.6	●	●	○	○
	16ER 075ISO	16EL 075ISO	0.75	0.6	●	●	○	○
	16ER 100ISO	16EL 100ISO	1.00	0.7	●	●	○	○
	16ER 125ISO	16EL 125ISO	1.25	0.9	●	●	○	○
	16ER 150ISO	16EL 150ISO	1.50	1.0	●	●	○	○
	16ER 175ISO	16EL 175ISO	1.75	1.2	●	●	○	○
	16ER 200ISO	16EL 200ISO	2.00	1.3	●	●	○	○
	16ER 250ISO	16EL 250ISO	2.50	1.5	●	●	○	○
	16ER 300ISO	16EL 300ISO	3.00	1.6	●	●	○	○
	22ER 350ISO	22EL 350ISO	3.50	2.3		●	○	○
	22ER 400ISO	22EL 400ISO	4.00	2.3		●	○	○
	22ER 450ISO	22EL 450ISO	4.50	2.4		●	○	○
	22ER 500ISO	22EL 500ISO	5.00	2.5		●	○	○

● : Standard stock ○ : Made-to-Order

ISO Metric (Full Profile)--Internal



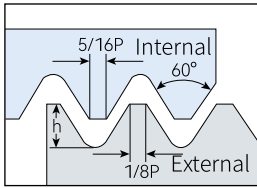
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	11IR 050ISO	11IL 050ISO	0.50	0.6		●	○	○
	11IR 075ISO	11IL 075ISO	0.75	0.6		●	○	○
	11IR 100ISO	11IL 100ISO	1.00	0.6		●	○	○
	11IR 125ISO	11IL 125ISO	1.25	0.7		●	○	○
	11IR 150ISO	11IL 150ISO	1.50	0.9		●	○	○
	11IR 175ISO	11IL 175ISO	1.75	1.0		●	○	○
	11IR 200ISO	11IL 200ISO	2.00	1.2		●	○	○
	16IR 050ISO	16IL 050ISO	0.50	1.3	●	●	○	○
	16IR 075ISO	16IL 075ISO	0.75	0.6	●	●	○	○
	16IR 100ISO	16IL 100ISO	1.00	0.7	●	●	○	○
	16IR 125ISO	16IL 125ISO	1.25	0.9	●	●	○	○
	16IR 150ISO	16IL 150ISO	1.50	1.0	●	●	○	○
	16IR 175ISO	16IL 175ISO	1.75	1.2	●	●	○	○
	16IR 200ISO	16IL 200ISO	2.00	1.3	●	●	○	○
	16IR 250ISO	16IL 250ISO	2.50	1.5	●	●	○	○
	16IR 300ISO	16IL 300ISO	3.00	1.5	●	●	○	○
	22IR 350ISO	22IL 350ISO	3.50	2.3		●	○	○
	22IR 400ISO	22IL 400ISO	4.00	2.3		●	○	○
	22IR 450ISO	22IL 450ISO	4.50	2.4		●	○	○
	22IR 500ISO	22IL 500ISO	5.00	2.5		●	○	○

● : Standard stock ○ : Made-to-Order

MJ ISO 5855--External

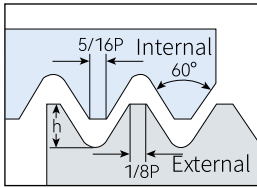


(mm)				
Product code	IC	S	D1	PNA
11..	9.525	3.52	4.0	60°
16..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	11ER 100MJ	11EL 100MJ	1.00	0.7		●		●
	11ER 125MJ	11EL 125MJ	1.25	0.9		●		●
	11ER 150MJ	11EL 150MJ	1.50	1.0		●		●
	11ER 200MJ	11EL 200MJ	2.00	1.0		●		●
	16ER 075MJ	16EL 075MJ	0.75	0.6		●		●
	16ER 100MJ	16EL 100MJ	1.00	0.7		●		●
	16ER 125MJ	16EL 125MJ	1.25	0.9		●		●
	16ER 150MJ	16EL 150MJ	1.50	1.0		●		●
	16ER 200MJ	16EL 200MJ	2.00	1.3		●		●
	16ER 250MJ	16EL 250MJ	2.50	1.5		●		●
	16ER 300MJ	16EL 300MJ	3.00	1.6		●		●

● : Standard stock ○ : Made-to-Order

MJ ISO 5855--Internal

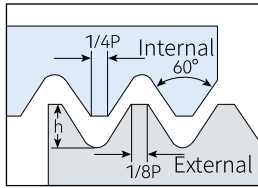


(mm)				
Product code	IC	S	D1	PNA
11..	9.525	3.52	4.0	60°
16..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	11R 100MJ	11IL 100MJ	1.00	0.7		●		●
	11R 125MJ	11IL 125MJ	1.25	0.9		●		●
	11R 150MJ	11IL 150MJ	1.50	1.0		●		●
	11R 200MJ	11IL 200MJ	2.00	1.0		●		●
	16R 075MJ	16IL 075MJ	0.75	0.6		●		●
	16R 100MJ	16IL 100MJ	1.00	0.7		●		●
	16R 125MJ	16IL 125MJ	1.25	0.9		●		●
	16R 150MJ	16IL 150MJ	1.50	1.0		●		●
	16R 200MJ	16IL 200MJ	2.00	1.3		●		●
	16R 250MJ	16IL 250MJ	2.50	1.5		●		●
	16R 300MJ	16IL 300MJ	3.00	1.6		●		●

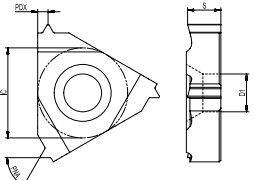
● : Standard stock ○ : Made-to-Order

American UN (Full Profile)--External



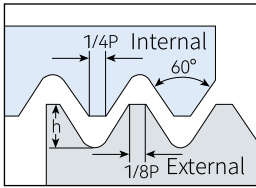
Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11ER 48UN	11EL 48UN	48	0.6		●	○	○
	11ER 44UN	11EL 44UN	44	0.6		●	○	○
	11ER 40UN	11EL 40UN	40	0.6		●	○	○
	11ER 36UN	11EL 36UN	36	0.6		●	○	○
	11ER 32UN	11EL 32UN	32	0.6		●	○	○
	11ER 28UN	11EL 28UN	28	0.7		●	○	○
	11ER 24UN	11EL 24UN	24	0.8		●	○	○
	11ER 20UN	11EL 20UN	20	0.9		●	○	○
	11ER 18UN	11EL 18UN	18	1.0		●	○	○
	11ER 16UN	11EL 16UN	16	1.1		●	○	○
	16ER 48UN	16EL 48UN	48	0.6	●	●	○	○
	16ER 44UN	16EL 44UN	44	0.6	●	●	○	○
	16ER 40UN	16EL 40UN	40	0.6	●	●	○	○
	16ER 36UN	16EL 36UN	36	0.6	●	●	○	○
	16ER 32UN	16EL 32UN	32	0.6	●	●	○	○
	16ER 28UN	16EL 28UN	28	0.7	●	●	○	○
	16ER 24UN	16EL 24UN	24	0.8	●	●	○	○
	16ER 20UN	16EL 20UN	20	0.9	●	●	○	○
	16ER 18UN	16EL 18UN	18	1.0	●	●	○	○
	16ER 16UN	16EL 16UN	16	1.1	●	●	○	○
	16ER 14UN	16EL 14UN	14	1.2	●	●	○	○
	16ER 13UN	16EL 13UN	13	1.3	●	●	○	○
	16ER 12UN	16EL 12UN	12	1.4	●	●	○	○
	16ER 11.5UN	16EL 11.5UN	11.5	1.4	●	●	○	○
	16ER 11UN	16EL 11UN	11	1.5	●	●	○	○
	16ER 10UN	16EL 10UN	10	1.5	●	●	○	○
	16ER 9UN	16EL 9UN	9	1.7	●	●	○	○
	16ER 8UN	16EL 8UN	8	2.0	●	●	○	○
	22ER 7UN	22EL 7UN	7	2.3		●	○	○
	22ER 6UN	22EL 6UN	6	2.3		●	○	○
	22ER 5UN	22EL 5UN	5	2.5		●	○	○



● : Standard stock ○ : Made-to-Order

American UN (Full Profile)--Internal



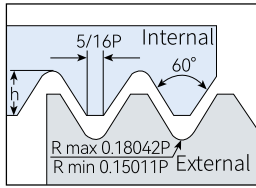
Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	60°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	08IR 48UN	08IL 48UN	48	0.6		○	○	○
	08IR 44UN	08IL 44UN	44	0.6		○	○	○
	08IR 40UN	08IL 40UN	40	0.6		○	○	○
	08IR 36UN	08IL 36UN	36	0.6		○	○	○
	08IR 32UN	08IL 32UN	32	0.5		○	○	○
	08IR 28UN	08IL 28UN	28	0.6		○	○	○
	08IR 24UN	08IL 24UN	24	0.6		○	○	○
	08IR 20UN	08IL 20UN	20	0.7		○	○	○
	08IR 18UN	08IL 18UN	18	0.7		○	○	○
	08IR 16UN	08IL 16UN	16	0.7		○	○	○
	11IR 48UN	11IL 48UN	48	0.6		●	○	○
	11IR 44UN	11IL 44UN	44	0.6		●	○	○
	11IR 40UN	11IL 40UN	40	0.6		●	○	○
	11IR 36UN	11IL 36UN	36	0.6		●	○	○
	11IR 32UN	11IL 32UN	32	0.6		●	○	○
	11IR 28UN	11IL 28UN	28	0.7		●	○	○
	11IR 24UN	11IL 24UN	24	0.8		●	○	○
	11IR 20UN	11IL 20UN	20	0.9		●	○	○
	11IR 18UN	11IL 18UN	18	1.0		●	○	○
	11IR 16UN	11IL 16UN	16	1.1		●	○	○
	16IR 48UN	16IL 48UN	48	0.6		●	○	○
	16IR 44UN	16IL 44UN	44	0.6		●	○	○
	16IR 40UN	16IL 40UN	40	0.6		●	○	○
	16IR 36UN	16IL 36UN	36	0.6		●	○	○
	16IR 32UN	16IL 32UN	32	0.6		●	●	○
	16IR 28UN	16IL 28UN	28	0.7		●	●	○
	16IR 24UN	16IL 24UN	24	0.8		●	●	○
	16IR 20UN	16IL 20UN	20	0.9		●	●	○
	16IR 18UN	16IL 18UN	18	1.0		●	●	○
	16IR 16UN	16IL 16UN	16	1.1		●	●	○
	16IR 14UN	16IL 14UN	14	1.2		●	●	○
	16IR 12UN	16IL 12UN	12	1.4		●	●	○
	16IR 11UN	16IL 11UN	11	1.5		●	●	○
	16IR 10UN	16IL 10UN	10	1.5		●	●	○
	16IR 9UN	16IL 9UN	9	1.7		●	●	○
	16IR 8UN	16IL 8UN	8	1.5		●	●	○
	22IR 7UN	22IL 7UN	7	2.3			●	○
	22IR 6UN	22IL 6UN	6	2.3			●	○
	22IR 5UN	22IL 5UN	5	2.3			●	○

● : Standard stock ○ : Made-to-Order

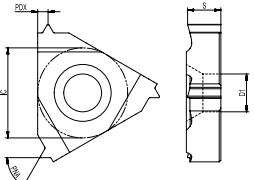
Thread Turning

UNJ--External



(mm)				
Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

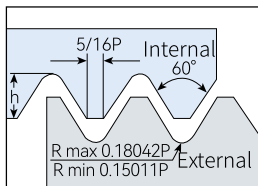
Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11ER 48UNJ	11EL 48UNJ	48	0.5		●		●
	11ER 44UNJ	11EL 44UNJ	44	0.6		●		●
	11ER 40UNJ	11EL 40UNJ	40	0.6		●		●
	11ER 36UNJ	11EL 36UNJ	36	0.6		●		●
	11ER 32UNJ	11EL 32UNJ	32	0.7		●		●
	11ER 28UNJ	11EL 28UNJ	28	0.7		●		●
	11ER 24UNJ	11EL 24UNJ	24	0.8		●		●
	11ER 20UNJ	11EL 20UNJ	20	0.9		●		●
	11ER 18UNJ	11EL 18UNJ	18	1.0		●		●
	11ER 16UNJ	11EL 16UNJ	16	1.0		●		●
	11ER 14UNJ	11EL 14UNJ	14	1.2		●		●
	16ER 48UNJ	16EL 48UNJ	48	0.5		●		●
	16ER 44UNJ	16EL 44UNJ	44	0.6		●		●
	16ER 40UNJ	16EL 40UNJ	40	0.6		●		●
	16ER 36UNJ	16EL 36UNJ	36	0.6		●		●
	16ER 32UNJ	16EL 32UNJ	32	0.7		●		●
	16ER 28UNJ	16EL 28UNJ	28	0.7		●		●
	16ER 24UNJ	16EL 24UNJ	24	0.8		●		●
	16ER 20UNJ	16EL 20UNJ	20	0.9		●		●
	16ER 18UNJ	16EL 18UNJ	18	1.0		●		●
	16ER 16UNJ	16EL 16UNJ	16	1.0		●		●
	16ER 14UNJ	16EL 14UNJ	14	1.2		●		●
	16ER 13UNJ	16EL 13UNJ	13	1.3		●		●
	16ER 12UNJ	16EL 12UNJ	12	1.3		●		●
	16ER 11UNJ	16EL 11UNJ	11	1.5		●		●
	16ER 10UNJ	16EL 10UNJ	10	1.5		●		●
	16ER 9UNJ	16EL 9UNJ	9	1.7		●		●
	16ER 8UNJ	16EL 8UNJ	8	1.6		●		●
	22ER 7UNJ	22EL 7UNJ	7	2.3		●		●
	22ER 6UNJ	22EL 6UNJ	6	2.3		●		●
	22ER 5UNJ	22EL 5UNJ	5	2.5		●		●



● : Standard stock ○ : Made-to-Order

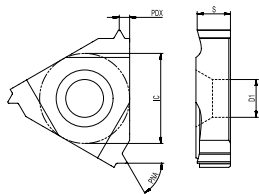
UNJ--Internal

(mm)



Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

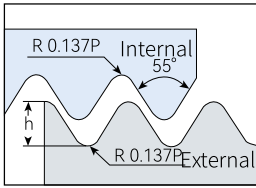
Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11IR 48UNJ	11IL 48UNJ	48	0.5		●		●
	11IR 44UNJ	11IL 44UNJ	44	0.6		●		●
	11IR 40UNJ	11IL 40UNJ	40	0.6		●		●
	11IR 36UNJ	11IL 36UNJ	36	0.6		●		●
	11IR 32UNJ	11IL 32UNJ	32	0.7		●		●
	11IR 28UNJ	11IL 28UNJ	28	0.7		●		●
	11IR 24UNJ	11IL 24UNJ	24	0.8		●		●
	11IR 20UNJ	11IL 20UNJ	20	0.9		●		●
	11IR 18UNJ	11IL 18UNJ	18	1.0		●		●
	11IR 16UNJ	11IL 16UNJ	16	1.0		●		●
	11IR 14UNJ	11IL 14UNJ	14	1.2		●		●
	16IR 48UNJ	16IL 48UNJ	48	0.5		●		●
	16IR 44UNJ	16IL 44UNJ	44	0.6		●		●
	16IR 40UNJ	16IL 40UNJ	40	0.6		●		●
	16IR 36UNJ	16IL 36UNJ	36	0.6		●		●
	16IR 32UNJ	16IL 32UNJ	32	0.7		●		●
	16IR 28UNJ	16IL 28UNJ	28	0.7		●		●
	16IR 24UNJ	16IL 24UNJ	24	0.8		●		●
	16IR 20UNJ	16IL 20UNJ	20	0.9		●		●
	16IR 18UNJ	16IL 18UNJ	18	1.0		●		●
	16IR 16UNJ	16IL 16UNJ	16	1.0		●		●
	16IR 14UNJ	16IL 14UNJ	14	1.2		●		●
	16IR 13UNJ	16IL 13UNJ	13	1.3		●		●
	16IR 12UNJ	16IL 12UNJ	12	1.3		●		●
	16IR 11UNJ	16IL 11UNJ	11	1.5		●		●
	16IR 10UNJ	16IL 10UNJ	10	1.5		●		●
	16IR 9UNJ	16IL 9UNJ	9	1.7		●		●
	16IR 8UNJ	16IL 8UNJ	8	1.6		●		●
	22IR 7UNJ	22IL 7UNJ	7	2.3		●		●
	22IR 6UNJ	22IL 6UNJ	6	2.3		●		●
	22IR 5UNJ	22IL 5UNJ	5	2.5		●		●



● : Standard stock ○ : Made-to-Order

Thread Turning

Whitworth (Full Profile)--External



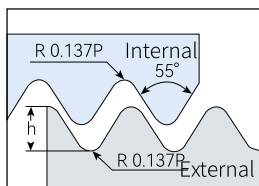
Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	55°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11ER 36W	11EL 36W	36	0.6		●	○	○
	11ER 32W	11EL 32W	32	0.6		●	○	○
	11ER 28W	11EL 28W	28	0.6		●	○	○
	11ER 26W	11EL 26W	26	0.7		●	○	○
	11ER 20W	11EL 20W	20	0.8		●	○	○
	11ER 19W	11EL 19W	19	0.9		●	○	○
	11ER 16W	11EL 16W	16	1.1		●	○	○
	11ER 14W	11EL 14W	14	0.6		●	○	○
	16ER 36W	16EL 36W	36	0.6	●	●	○	○
	16ER 32W	16EL 32W	32	0.6	●	●	○	○
	16ER 28W	16EL 28W	28	0.7	●	●	○	○
	16ER 26W	16EL 26W	26	0.8	●	●	○	○
	16ER 20W	16EL 20W	20	0.9	●	●	○	○
	16ER 19W	16EL 19W	19	1.0	●	●	○	○
	16ER 14W	16EL 14W	14	1.2	●	●	○	○
	16ER 12W	16EL 12W	12	1.4	●	●	○	○
	16ER 11W	16EL 11W	11	1.5	●	●	○	○
	16ER 10W	16EL 10W	10	1.5	●	●	○	○
	16ER 9W	16EL 9W	9	1.7	●	●	○	○
	16ER 8W	16EL 8W	8	2.0	●	●	○	○
22ER 7W	22EL 7W	7	2.3		●	○	○	
22ER 6W	22EL 6W	6	2.3		●	○	○	
22ER 5W	22EL 5W	5	2.5		●	○	○	

● : Standard stock ○ : Made-to-Order

Whitworth (Full Profile)--Internal

(mm)

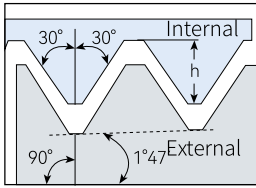


Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	55°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	08IR 36W	08IL 36W	36	0.6		○	○	○
	08IR 32W	08IL 32W	32	0.6		○	○	○
	08IR 28W	08IL 28W	28	0.6		○	○	○
	08IR 26W	08IL 26W	26	0.6		○	○	○
	08IR 24W	08IL 24W	24	0.7		○	○	○
	08IR 20W	08IL 20W	20	0.7		○	○	○
	08IR 19W	08IL 19W	19	0.7		○	○	○
	08IR 16W	08IL 16W	16	0.7		○	○	○
	11IR 36W	11IL 36W	36	0.6		●	○	○
	11IR 32W	11IL 32W	32	0.6		●	○	○
	11IR 28W	11IL 28W	28	0.6		●	○	○
	11IR 26W	11IL 26W	26	0.7		●	○	○
	11IR 20W	11IL 20W	20	0.8		●	○	○
	11IR 19W	11IL 19W	19	0.9		●	○	○
	11IR 16W	11IL 16W	16	1.1		●	○	○
	11IR 14W	11IL 14W	14	0.6		●	○	○
	16IR 36W	16IL 36W	36	0.6		●	●	○
	16IR 32W	16IL 32W	32	0.6		●	●	○
	16IR 28W	16IL 28W	28	0.7		●	●	○
	16IR 26W	16IL 26W	26	0.8		●	●	○
	16IR 20W	16IL 20W	20	0.9		●	●	○
	16IR 19W	16IL 19W	19	1.0		●	●	○
	16IR 14W	16IL 14W	14	1.2		●	●	○
	16IR 12W	16IL 12W	12	1.4		●	●	○
	16IR 11W	16IL 11W	11	1.5		●	●	○
	16IR 10W	16IL 10W	10	1.5		●	●	○
	16IR 9W	16IL 9W	9	1.7		●	●	○
	16IR 8W	16IL 8W	8	2.0		●	●	○
22IR 7W	22IL 7W	7	2.3			●	○	
22IR 6W	22IL 6W	6	2.3			●	○	
22IR 5W	22IL 5W	5	2.5			●	○	

● : Standard stock ○ : Made-to-Order

NPT (National Pipe Thread)--External

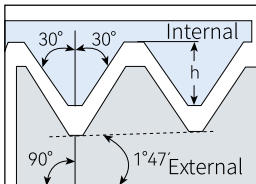


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11ER 27NPT	11EL 27NPT	27	0.8		●	○	○
	11ER 18NPT	11EL 18NPT	18	1.0		●	○	○
	11ER 14NPT	11EL 14NPT	14	1.0		●	○	○
	16ER 27NPT	16EL 27NPT	27	0.8	●	●	○	○
	16ER 18NPT	16EL 18NPT	18	1.0	●	●	○	○
	16ER 14NPT	16EL 14NPT	14	1.2	●	●	○	○
	16ER 11.5NPT	16EL 11.5NPT	11.5	1.5	●	●	○	○
	16ER 8NPT	16EL 8NPT	8	1.8	●	●	○	○

● : Standard stock ○ : Made-to-Order

NPT (National Pipe Thread)--Internal

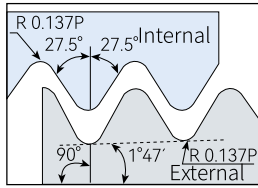


Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	60°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	08IR 27NPT	08IL 27NPT	27	0.6		○	○	○
	08IR 18NPT	08IL 18NPT	18	0.6		○	○	○
	11IR 27NPT	11IL 27NPT	27	0.8		●	○	○
	11IR 18NPT	11IL 18NPT	18	1.0		●	○	○
	11IR 14NPT	11IL 14NPT	14	1.0		●	○	○
	16IR 27NPT	16IL 27NPT	27	0.8	●	●	○	○
	16IR 18NPT	16IL 18NPT	18	1.0	●	●	○	○
	16IR 14NPT	16IL 14NPT	14	1.2	●	●	○	○
	16IR 11.5NPT	16IL 11.5NPT	11.5	1.5	●	●	○	○
	16IR 8NPT	16IL 8NPT	8	1.8	●	●	○	○

● : Standard stock ○ : Made-to-Order

British Standard Pipe Thread--External

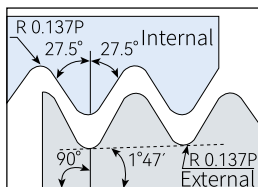


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	55°
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11ER 28BSPT	11EL 28BSPT	28	0.6		●	○	○
	11ER 19BSPT	11EL 19BSPT	19	0.9		●	○	○
	11ER 14BSPT	11EL 14BSPT	14	1.0		●	○	○
	16ER 28BSPT	16EL 28BSPT	28	0.6	●	●	○	○
	16ER 19BSPT	16EL 19BSPT	19	0.9	●	●	○	○
	16ER 14BSPT	16EL 14BSPT	14	1.2	●	●	○	○
	16ER 11BSPT	16EL 11BSPT	11	1.5	●	●	○	○

● : Standard stock ○ : Made-to-Order

British Standard Pipe Thread--Internal

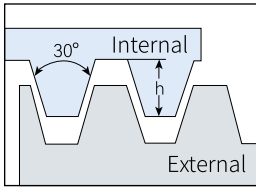


Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	55°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	08IR 28BSPT	08IL 28BSPT	28	0.6		○	○	○
	08IR 19BSPT	08IL 19BSPT	19	0.6		○	○	○
	11IR 28BSPT	11IL 28BSPT	28	0.6		●	○	○
	11IR 19BSPT	11IL 19BSPT	19	0.9		●	○	○
	11IR 14BSPT	11IL 14BSPT	14	1.0		●	○	○
	16IR 28BSPT	16IL 28BSPT	28	0.6	●	●	○	○
	16IR 19BSPT	16IL 19BSPT	19	0.9	●	●	○	○
	16IR 14BSPT	16IL 14BSPT	14	1.2	●	●	○	○
	16IR 11BSPT	16IL 11BSPT	11	1.5	●	●	○	○

● : Standard stock ○ : Made-to-Order

Trapez DIN 103--External

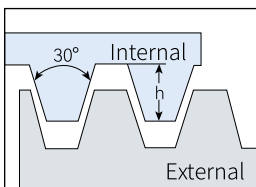


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	30°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	11ER 150TR	11EL 150TR	1.50	0.9		●	●	○
	16ER 150TR	16EL 150TR	1.50	1.1	●	○	●	○
	16ER 200TR	16EL 200TR	2.00	1.3	●	○	●	○
	16ER 250TR	16EL 250TR	2.50	1.4	●	○	●	○
	16ER 300TR	16EL 300TR	3.00	1.5	●	○	●	○
	22ER 400TR	22EL 400TR	4.00	1.9		●	●	○
	22ER 500TR	22EL 500TR	5.00	2.5		●	●	○
	22ER 600TR	22EL 600TR	6.00	2.7		●	●	○

● : Standard stock ○ : Made-to-Order

Trapez DIN 103--Internal

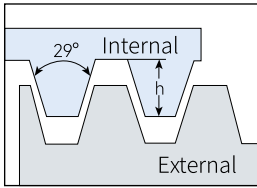


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	30°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	11IR 150TR	11IL 150TR	1.50	0.9		●	●	○
	16IR 150TR	16IL 150TR	1.50	1.1	●	○	●	○
	16IR 200TR	16IL 200TR	2.00	1.3	●	○	●	○
	16IR 250TR	16IL 250TR	2.50	1.4	●	○	●	○
	16IR 300TR	16IL 300TR	3.00	1.5	●	○	●	○
	22IR 400TR	22IL 400TR	4.00	1.9		●	●	○
	22IR 500TR	22IL 500TR	5.00	2.5		●	●	○
	22IR 600TR	22IL 600TR	6.00	2.7		●	●	○

● : Standard stock ○ : Made-to-Order

American ACME--External

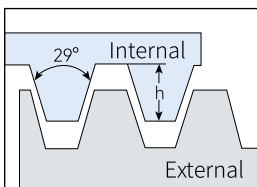


Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	29°
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	16ER 16ACME	16EL 16ACME	16	1.1		●	●	
	16ER 14ACME	16EL 14ACME	14	1.2		●	●	
	16ER 12ACME	16EL 12ACME	12	1.2		●	●	
	16ER 10ACME	16EL 10ACME	10	1.4		●	●	
	16ER 8ACME	16EL 8ACME	8	1.5		●	●	
	22ER 6ACME	22EL 6ACME	6	1.9		●	●	
	22ER 5ACME	22EL 5ACME	5	2.1		●	●	

● : Standard stock ○ : Made-to-Order

American ACME--Internal



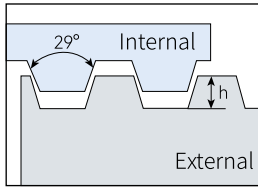
Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	29°
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	16IR 16ACME	16IL 16ACME	16	1.1		●	●	
	16IR 14ACME	16IL 14ACME	14	1.2		●	●	
	16IR 12ACME	16IL 12ACME	12	1.2		●	●	
	16IR 10ACME	16IL 10ACME	10	1.4		●	●	
	16IR 8ACME	16IL 8ACME	8	1.5		●	●	
	22IR 6ACME	22IL 6ACME	6	1.9		●	●	
	22IR 5ACME	22IL 5ACME	5	2.1		●	●	

● : Standard stock ○ : Made-to-Order

Thread Turning

Stub ACME--External

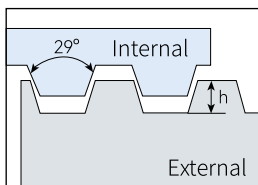


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	29°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11ER 16STACME	11EL 16STACME	16	1.0		●	●	●
	16ER 16STACME	16EL 16STACME	16	1.0		●	●	●
	16ER 14STACME	16EL 14STACME	14	1.1		●	●	●
	16ER 12STACME	16EL 12STACME	12	1.2		●	●	●
	16ER 10STACME	16EL 10STACME	10	1.3		●	●	●
	16ER 8STACME	16EL 8STACME	8	1.5		●	●	●
	16ER 6STACME	16EL 6STACME	6	1.8		●	●	●
	22ER 6STACME	22EL 6STACME	6	1.8		●	●	●
	22ER 5STACME	22EL 5STACME	5	2.3		●	●	●
	22ER 4STACME	22EL 4STACME	4	2.3		●	●	●

● : Standard stock ○ : Made-to-Order

Stub ACME--Internal

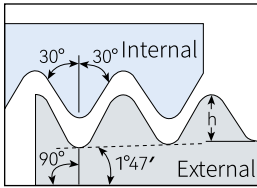


Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	29°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	11IR 16STACME	11IL 16STACME	16	1.0		●	●	●
	16IR 16STACME	16IL 16STACME	16	1.0		●	●	●
	16IR 14STACME	16IL 14STACME	14	1.1		●	●	●
	16IR 12STACME	16IL 12STACME	12	1.2		●	●	●
	16IR 10STACME	16IL 10STACME	10	1.3		●	●	●
	16IR 8STACME	16IL 8STACME	8	1.5		●	●	●
	16IR 6STACME	16IL 6STACME	6	1.8		●	●	●
	22IR 6STACME	22IL 6STACME	6	1.8		●	●	●
	22IR 5STACME	22IL 5STACME	5	2.3		●	●	●
	22IR 4STACME	22IL 4STACME	4	2.3		●	●	●

● : Standard stock ○ : Made-to-Order

APIRD Round Casing & Tubing--External

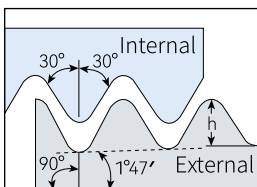


(mm)				
Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	16ER 10API RD	10	1.4	○	●	○	
	16ER 8API RD	8	1.5	○	●	○	

● : Standard stock ○ : Made-to-Order

APIRD Round Casing & Tubing--Internal



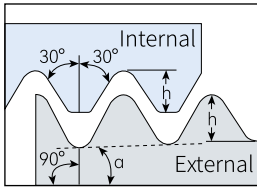
(mm)				
Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	16IR 10API RD	10	1.4	○	●	○	
	16IR 8API RD	8	1.5	○	●	○	

● : Standard stock ○ : Made-to-Order

Thread Turning

API--External



$$\alpha = \arctan(IPF/24)$$

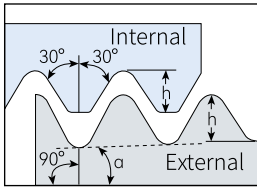
(mm)

Product code	IC	S	D1	PNA
22..	12.7	4.72	5.1	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Taper	API Code	Dimension (mm)	Insert Grades			
	Right hand	TPI	IPF		PDX	AP220E	AP220U	AP020H	AP120S
	22ER 4API384	4	3	V-0.038R	2.8		○	●	●
	22ER 4API384-1/8	4	1.5	V-0.038R	2.8		○	○	○
	22ER 4API386	4	2	V-0.038R	2.8		○	●	●
	22ER 4API386-1/12	4	1	V-0.038R	2.8		○	○	○
	22ER 4API504	4	3	V-0.050	2.9		○	●	●
	22ER 4API504-1/8	4	1.5	V-0.050	2.9		○	○	○
	22ER 4API506	4	2	V-0.050	2.9		○	●	●
	22ER 4API506-1/12	4	1	V-0.050	2.9		○	○	○
	22ER 5API404	5	3	V-0.040	2.6		○	○	○
	22ER 5API404-1/8	5	1.5	V-0.040	2.6		○	○	○
	22ER 6API558	6	1.5	V-0.055	2.0		○	○	○
	22ER 6API558-1/16	6	0.75	V-0.055	2.0		○	○	○

● : Standard stock ○ : Made-to-Order

API--Internal



$\alpha = \arctan(IPF/24)$

(mm)

Product code	IC	S	D1	PNA
22..	12.7	4.72	5.1	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Taper	API Code	Dimension (mm)	Insert Grades			
	Right hand	TPI	IPF		PDX	AP220E	AP220U	AP020H	AP120S
	22IR 4API384	4	3	V-0.038R	2.8		○	●	●
	22IR 4API384-1/8	4	1.5	V-0.038R	2.8		○	○	○
	22IR 4API386	4	2	V-0.038R	2.8		○	●	●
	22IR 4API386-1/12	4	1	V-0.038R	2.8		○	○	○
	22IR 4API504	4	3	V-0.050	2.9		○	●	●
	22IR 4API504-1/8	4	1.5	V-0.050	2.9		○	○	○
	22IR 4API506	4	2	V-0.050	2.9		○	●	●
	22IR 4API506-1/12	4	1	V-0.050	2.9		○	○	○
	22IR 5API404	5	3	V-0.040	2.6		○	○	○
	22IR 5API404-1/8	5	1.5	V-0.040	2.6		○	○	○
	22IR 6API558	6	1.5	V-0.055	2.0		○	○	○
	22IR 6API558-1/16	6	0.75	V-0.055	2.0		○	○	○

● : Standard stock ○ : Made-to-Order

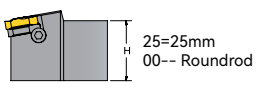
Threading Holder Denomination System

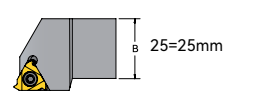
ATT	E	R	25	25	M	-	16	C
1	2	3	4	5	6		7	8

1- Serial Code
Thread Turning holder

2- Holder Type
E-- For External
N-- For Internal

3- Holder
R-- Right hand
L-- Left hand

4- Height of Holder


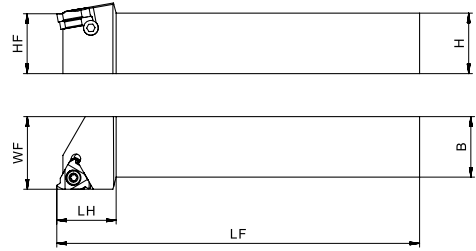
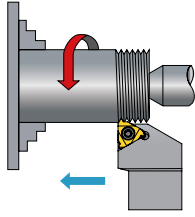
5- Breadth of Holder Or Dcon


6- Length of Holder (mm)
H=100mm
K=125mm
L=140mm
M=150mm
P=170mm
Q=180mm
R=200mm
S=250mm
T=300mm
U=350mm
V=400mm

7- Insert Size
16-- L=16mm / IC=9.525mm

8- Clamping System
None -- Steel with screw lock
E -- Carbide with screw lock
C -- Steel with Clamp
J -- Cooling channel & Steel with screw lock
JE -- Cooling channel & Carbide with screw lock
CS -- Steel with Clamp & Deflection 90°

External Thread Holders

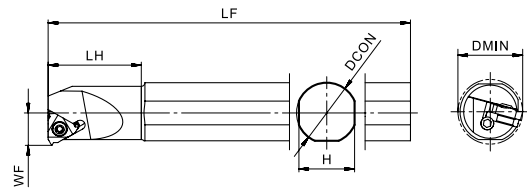
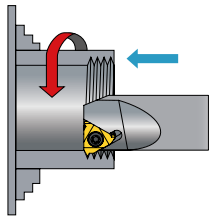


Product code	Right hand	Left hand	Dimension (mm)					Insert	Screw	Shim	Screw of shim	Wrench
			H*B	HF	WF	LF	LH					
ATTER/L-1212H-11	●	●	12*12	12	16	100	15	11ER/L..	ST025080	-	-	FT-T08
ATTER/L-1212F-16	●	-	12*12	12	16	80	22	16ER/L..	ST035090	-	-	FT-T15
ATTER/L-1616H-16	○	○	16*16	16	20	100	22		ST035120	S-MTN16	SH030080	
ATTER/L-2020K-16	●	●	20*20	20	25	125	27					
ATTER/L-2525M-16	●	●	25*25	25	32	150	30					
ATTER/L-3225P-16	●	-	32*25	32	32	170	32					
ATTER/L-3232P-16	●	●	32*32	32	40	170	32					
ATTER/L-2525M-22	○	○	25*25	25	32	150	31	22ER/L..	ST040160	S-MTN22	SH040080	FT-T20
ATTER/L-3225P-22	○	-	32*25	32	32	170	31					
ATTER/L-3232P-22	○	○	32*32	32	40	170	31					
ATTER/L-4040R-22	○	-	40*40	40	50	200	31					
ATTER/L-3232P-27	○	○	32*32	32	40	170	34	27ER/L..	ST050200	S-MTN27		
ATTER/L-4040S-27	○	-	40*40	40	50	250	34					

● : Standard stock ○ : Made-to-Order

*Threading holders equipped with 0° shim, screw and wrench ; Insert need to be ordered.

Internal Thread Holders



Product code	Right hand	Left hand	Dimension (mm)						Insert	Screw	Shim	Screw of shim	Wrench
			DMIN	DCON	H	WF	LF	LH					
ATTIR/L-0008K-08	○	-	9.9	8	7	5.5	125	20	08IR/L ..	ST022050			FT-T06
ATTIR/L-0010K-11	○	○	13	10	9	7.3	125	25	11IR/L ..	ST025060	-	-	FT-T08
ATTIR/L-0012K-11	○	○	15	12	11	8.2	125	28					
ATTIR/L-0013M-16	○	○	17	16	15	9.4	150	32	16IR/L ..	ST035090	S-STN16	SH030080	FT-T15
ATTIR/L-0016Q-16	●	●	20	16	15	11.7	180	40					
ATTIR/L-0020Q-16	●	●	24	20	18	13.7	180	40					
ATTIR/L-0025R-16	●	●	29	25	23	16.2	200	45					
ATTIR/L-0032S-16	●	●	36	32	30	19.7	250	50					
ATTIR/L-0040T-16	○	○	44	40	38	23.1	300	55					
ATTIR/L-0050U-16	○	○	56	50	48	28.7	350	60					
ATTIR/L-0025R-22	○	○	32	25	23	18.1	200	45	22IR/L ..	ST040160	S-STN22	SH040080	FT-T20
ATTIR/L-0032S-22	○	○	39	32	30	21.5	250	50					
ATTIR/L-0040T-22	○	○	47	40	38	25.6	300	55					
ATTIR/L-0050U-22	○	○	57	50	48	30.6	350	70	27IR/L ..		S-STN27		
ATTIR/L-0032S-27	○	○	40	32	30	22.4	250	60					
ATTIR/L-0040T-27	○	○	48	40	38	26.4	300	60					
ATTIR/L-0050U-27	○	-	58	50	48	32.2	350	70					

● : Standard stock ○ : Made-to-Order

*Threading holders equipped with 0° shim, screw and wrench ; Insert need to be ordered.

ACHTTECK

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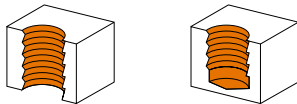
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CUTTING TOOL CATALOGUE

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Thread Milling Product Range Overview

Tools	Series	ATM60
	Thread depth	2.5XDN
	Designation	Single/multi-row tooth thread milling cutters with indexable inserts
	Insert grade	AP320U
	Insert code	TM60、TM55
	Coolant supply	External/Internal
	Milling thread type	M ; MF ; MJ ; UNC ; UNF ; UNEF ; UN ; UNJ ; G ;
	Hole with thread	

Indexable Thread Milling Cutter Denomination System - Tool Holder

A	TM	60	-	024	-	Z01	-	068	-	W	25	R	-	09	-	007
1	2	3	-	4	-	5	-	6	-	7	8	9	-	10	-	11

1-Company Name	2-Product Group	3-Insert Shape	4-Cutter Diameter	5-Number of Teeth	6-Effective Length of Holder
ACHTECK	Thread milling	T-Type	16	01	52
			19	03	55
			24	04	80
			30		90
			35	
				

7:8-Shank Type and Size
W16 Weldon 16
W20 Weldon 20
W25 Weldon 25
W32 Weldon 32
W40 Weldon 40

9-Tool Rotation Direction
R: Right

10-Insert Size
06
09
11
14

11-Axial Distance Between Rows
006
007
012
.....
Without mark means single row

Indexable Thread Milling Cutter Denomination System - Inserts

TM	60	G	-	09	02	02	E	-	MU1	AP320U
1	2	3	-	4	5	6	7	-	8	9

1-Category
Thread milling inserts

2-Insert Code
60 Positive triangle insert 60° thread angle
55 Positive triangle insert 55° thread angle
.....

3-Process
G Ground insert
M Pressed insert

4-Dimensions
06
09
11
14

5-Thickness
T1=1.98
02=2.38
03=3.18

6-Corner Radius
01
02
04

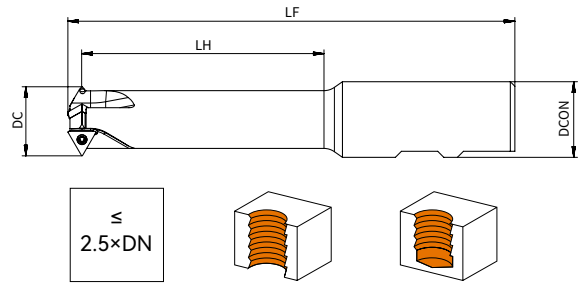
7-Edge Type
E-type

8-Chip Breaker
MU1 Universal

9-Grade
AP320U

Thread Machining Thread Milling

Indexable Thread Milling Holder ATM60 Single-Row Tooth Holder

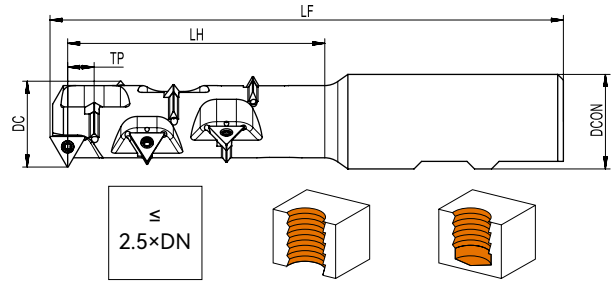


Product code	Dimension (mm)						Z	Coolant	No. of inserts	Insert code
	DN	Pmax mm	DC mm	LH mm	LF mm	DCON mm				
ATM60-016-Z03-052-W16R-06	M20	2.5	16	52	108	16	3		3	TM-06
ATM60-019-Z03-055-W20R-06	M24	3	19	55	115	20	3		3	TM-06
ATM60-024-Z03-080-W25R-09	M30	3.5	24	80	148	25	3		3	TM-09
ATM60-030-Z03-090-W32R-09	M36	4	30	90	162	32	3		3	TM-09
ATM60-035-Z03-110-W32R-11	M42	4.5	35	110	180	32	3		3	TM-11
ATM60-040-Z03-125-W40R-14	M48	5	40	125	208	40	3		3	TM-14
ATM60-044-Z03-150-W40R-14	M56	5.5	44	150	232	40	3		3	TM-14
ATM60-052-Z04-165-W40R-14	M64	6	52	165	248	40	4		4	TM-14

Note: With internal coolant
 Without internal coolant

Dimension (mm)	Spare parts		
D mm	Screw	Wrench	Locking torque
16-19	SP020043	DT-TP06	0.6Nm
24-30	SP022049H	DT-TP07	0.9Nm
35	SP025066	DT-TP07	0.9Nm
40-52	SP030077	DT-TP09	2.0Nm

Indexable Thread Milling Holder ATM60
Multi-Row Tooth Holder

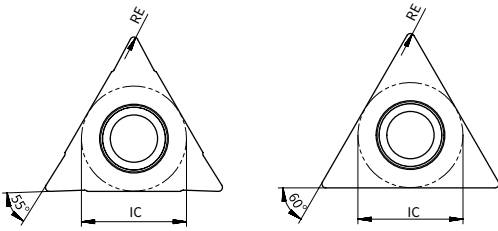



Product code	Dimension (mm)							Z	Coolant	No. of inserts	Insert code
	DN	Pitch P mm	DC mm	LH mm	TP mm	LF mm	DCON mm				
ATM60-013-Z01-035-W12R-06-010	M16/M18	2.5/2	13	35	10	86	12	1		3	TM-06
ATM60-013-Z01-038-W12R-06-009	M16/M18	1.5	13	38	9	88	12	1		4	TM-06
ATM60-017-Z01-047-W16R-06-007.5	M20/M22	2.5/1.5	16.5	47	7.5	103	16	1		6	TM-06
ATM60-017-Z01-053-W16R-06-010	M20/M22	2.5/2	16.5	53	10	109	16	1		5	TM-06
ATM60-019-Z01-054-W20R-06-009	M24/M27	3/1.5	19	54	9	114	20	1		6	TM-06
ATM60-019-Z01-063-W20R-06-012	M24/M27	3/2	19	63	12	123	20	1		5	TM-06
ATM60-024-Z01-064-W25R-09-010.5	M30/M33	3.5/1.5	24	64	10.5	131	25	1		6	TM-06
ATM60-024-Z01-079-W25R-09-014	M30/M33	3.5/2	24	79	14	146	25	1		6	TM-09
ATM60-030-Z01-076-W32R-09-008	M36/M39	4/2	30	76	8	147	32	1		9	TM-09
ATM60-030-Z01-095-W32R-09-012	M36/M39	4/3/2/1.5	30	95	12	166	32	1		8	TM-09
ATM60-035-Z01-089-W32R-11-009	M42/M45	4.5/3/1.5	35	89	9	159	32	1		9	TM-11
ATM60-035-Z01-110-W32R-11-009	M42/M45	4.5/3/1.5	35	110	9	180	32	1		10	TM-11
ATM60-040-Z01-102-W40R-14-010	M48/M52	5/2	40	102	10	186	40	1		10	TM-14
ATM60-040-Z01-122-W40R-14-015	M48/M52	5/3/1.5	40	122	15	206	40	1		8	TM-14
ATM60-044-Z01-119-W40R-14-011	M56/M60	5.5	44	119	11	201	40	1		10	TM-14
ATM60-044-Z01-146-W40R-14-011	M56/M60	5.5	44	146	11	228	40	1		10	TM-14
ATM60-052-Z01-135-W40R-14-012	M64/M68	6/3/2	52	135	12	218	40	1		11	TM-14

Note: With internal coolant
 Without internal coolant

Dimension (mm)	Spare parts		
D mm	Screw	Wrench	Locking torque
13-19	SP020043	DT-TP06	0.6Nm
24-30	SP022049H	DT-TP07	0.9Nm
35	SP025066	DT-TP07	0.9Nm
40-52	SP030077	DT-TP09	2.0Nm

Thread Milling Insert TM60G, TM55G



Inserts	Product code	RE mm	Pitch P mm	Pitch P inch	Grade
					AP320U
	TM60G-06T101E-MU1	0.1	1.5-2.9	18-9	●
	TM60G-06T102E-MU1	0.2	3	8	●
	TM60G-090201E-MU1	0.1	1.5-2.9	18-9	●
	TM60G-090202E-MU1	0.2	3.0-4.0	8-6	●
	TM60G-110201E-MU1	0.1	1.5-2.9	18-9	●
	TM60G-110202E-MU1	0.2	3.0-4.5	8-6	●
	TM60G-140301E-MU1	0.1	1.5-2.9	18-9	●
	TM60G-140302E-MU1	0.2	3.0-5.0	8-5	●
	TM60G-140304E-MU1	0.4	5.0-6.0	5-4	●
	TM55G-090202E-MU1	0.2		11	●
	TM55G-140302E-MU1	0.2		11	●

● : Standard stock ○ : Made-to-Order

Tool Selection - Single-Row Teeth

Metric thread

Tool holder code	D mm	Inserts	Coarse pitch	Fine pitch
ATM60-016-Z03-052-W16R-06	16	TM60G-06T101	M20;M22;	M20x1.5;M20x2;
ATM60-019-Z03-055-W20R-06	19	TM60G-06T101		M22x1.5;M22x2;M24x1.5;M24x2;M25x1.5;M26x1.5;
		TM60G-06T102	M24;M27;	
ATM60-024-Z03-080-W25R-09	24	TM60G-090201		M27x1.5;M27x2;M28x1.5;M28x2;M30x1.5;M30x2;M32x1.5;M32x2;M33x1.5;M33x2;
		TM60G-090202	M30;M33;	
ATM60-030-Z03-090-W32R-09	30	TM60G-090201		M34x1.5;M35x1.5;M36x1.5;M36x2;M38x1.5;M39x1.5;M39x2;
		TM60G-090202	M36;M39;	M36x3;M39x3;
ATM60-035-Z03-110-W32R-11	35	TM60G-110201		M39x1.5;M39x2;M40x1.5;M40x2;M42x1.5;M42x2;
		TM60G-110202	M42;M45;	M40x3;M42x3;
ATM60-040-Z03-125-W40R-14	40	TM60G-140301		M45x1.5;M45x2;M48x2;
		TM60G-140302	M48;M52;	M45x3;M48x3;
ATM60-044-Z03-150-W40R-14	44	TM60G-140301		M50x1.5;M50x2;M52x1.5;M52x2;M56x1.5;M56x2;M58x1.5;M60x1.5;M60x2;
		TM60G-140302		M50x3;M52x3;M56x3;M60x3;M64x3;M68x3;
		TM60G-140304	M56;M60;M64;M68;	
ATM60-052-Z04-165-W40R-14	52	TM60G-140301		M62x1.5;M62x2;M64x2;M68x1.5;M68x2;
		TM60G-140302		M62x3;M62x4;M64x3;M64x4;M68x3;M68x4;
		TM60G-140304	M64;M68;	M70x6;M72x6;

Tool Selection - Multi-Row Teeth

Metric thread

Tool holder code	Pitch P	D mm	Insert	Coarse pitch	Fine pitch
ATM60-013-Z01-035-W12R-06-010	2.5/2	13	TM60G-06T101	M16;M17;M18;	M18x2;M17x2;
ATM60-013-Z01-038-W12R-06-009	1.5	13	TM60G-06T101		M16x1.5;M17x1.5;M18x1.5;
ATM60-017-Z01-047-W16R-06-007.5	2.5/1.5	16.5	TM60G-06T101	M20;M22;	M20x1.5;M22x1.5;
ATM60-017-Z01-053-W16R-06-010	2.5/2	16.5	TM60G-06T101	M20;M22;	M20x2;M22x2;
ATM60-019-Z01-054-W20R-06-009	3/1.5	19	TM60G-06T101		M22x1.5;M24x1.5;M25x1.5;M26x1.5;M27x1.5;
			TM60G-06T102	M24;M27;	
ATM60-019-Z01-063-W20R-06-012	3/2	19	TM60G-06T101		M24x2;M25x2;M27x2;
			TM60G-06T102	M24;M27;	
ATM60-024-Z01-064-W25R-09-010.5	3.5/1.5	24	TM60G-090201		M27x1.5;M28x1.5;M30x1.5;M32x1.5;M33x1.5;
			TM60G-090202	M30;M33;	
ATM60-024-Z01-079-W25-09-014	3.5/2	24	TM60G-090201		M28x2;M30x2;M32x2;M33x2;
			TM60G-090202	M30;M33;	
ATM60-030-Z01-076-W32R-09-008	4/2	30	TM60G-090201		M36x2;M39x2;M40x2;M42x2;
			TM60G-090202	M36;M39;	
ATM60-030-Z01-095-W32R-09-012	4/3/2/1.5	30	TM60G-090201		M35x1.5;M36x1.5;M38x1.5;M39x1.5; M36x2;M39x2;M40x2;M42x2;
			TM60G-090202	M36;M39;	M36x3;M39x3;M40x3;
ATM60-035-Z01-089-W32R-11-009	4.5/3/1.5	35	TM60G-110201		M39x1.5;M40x1.5;M42x1.5;M45x1.5;
			TM60G-110202	M42;M45;	M42x3;M45x3;
ATM60-035-Z01-110-W32R-11-009	4.5/3/1.5	35	TM60G-110201		M39x1.5;M40x1.5;M42x1.5;M45x1.5;
			TM60G-110202	M42;M45;	M42x3;M45x3;
ATM60-040-Z01-102-W40R-14-010	5/2	40	TM60G-140301		M45x2;M48x2;M50x2;M52x2;M55x2;M56x2;
			TM60G-140302	M48;M52;	
ATM60-040-Z01-122-W40R-14-015	5/3/1.5	40	TM60G-140301		M45x1.5;M48x1.5;M50x1.5;M52x1.5;M55x1.5; M56x1.5;M58x1.5;M60x1.5;M62x1.5;M64x1.5;
			TM60G-140302	M48;M52;	M48x3;M50x3;M52x3;M55x3;M56x3;
ATM60-044-Z01-119-W40R-14-011	5.5	44	TM60G-140304	M56;M60;	
ATM60-044-Z01-146-W40R-14-011	5.5	44	TM60G-140304	M56;M60;	
ATM60-052-Z01-135-W40R-14-012	6/3/2	52	TM60G-140301		M58x2;M60x2;M62x2;M64x2;M65x2;M68x2; M70x2;M72x2;
			TM60G-140302		M58x3;M60x3;M62x3;M64x3;M65x3;M68x3; M70x3;M72x3;
			TM60G-140304	M64;M68;	M70x6;M72x6;

Tool Selection - Single-Row Teeth

ANSI UN thread

Tool holder code	D mm	Insert	UNC	UNF	UNEF	UN
ATM60-016-Z03-052-W16R-06	16	TM60G-06T101	7/8-9;	3/4-16;7/8-14; 1-12;		7/8-12;7/8-16;
		TM60G-06T102				
ATM60-019-Z03-055-W20R-06	19	TM60G-06T101		1-12;1 1/8-12; 1 1/4-12;	1 1/16-18;	1-16;
		TM60G-06T102	1-8;			1 1/16-8;
ATM60-024-Z03-080-W25R-09	24	TM60G-090201		1 1/8-12; 1 1/4-12;	1 1/8-18; 1 1/4-18;	1 1/8-16;1 1/4-16;
		TM60G-090202	1 1/8-7;1 1/4-7; 1 3/8-6;			1 1/8-8;1 1/4-8;
ATM60-030-Z03-090-W32R-09	30	TM60G-090201		1 3/8-12; 1 1/2-12;	1 3/8-18; 1 1/2-18;	1 3/8-16;1 1/2-16;
		TM60G-090202	1 1/2-6;			1 3/8-8;1 1/2-8;
ATM60-035-Z03-110-W32R-11	35	TM60G-110201			1 5/8-18;	1 5/8-12;1 5/8-16;
		TM60G-110202				1 5/8-6;1 5/8-8;1 3/4-6;1 3/4-8;
ATM60-040-Z03-125-W40R-14	40	TM60G-140301				1 3/4-12;1 3/4-16;1 7/8-12; 1 7/8-16;
		TM60G-140302				1 7/8-6;1 7/8-8;
ATM60-044-Z03-150-W40R-14	44	TM60G-140301				2-12;2-16;2 1/8-12;2 1/8-16; 2 1/4-12;2 1/4-16;2 1/2-12; 2 1/2-16;
		TM60G-140302				2-6;2-8;2 1/8-6;2 1/8-8;2 1/4-6; 2 1/4-8;2 1/2-6;2 1/2-8;
		TM60G-140304	2-4.5;2 1/4-4.5; 2 1/2-4;			
ATM60-052-Z04-165-W40R-14	52	TM60G-140301				2 1/2-12;2 1/2-16;2 3/4-12; 2 3/4-16;3-12;3-16;3 1/4-12; 3 1/4-16;3 1/2-12;3 1/2-16;
		TM60G-140302				2 1/2-6;2 1/2-8;2 3/4-6;2 3/4-8; 3-6;3-8;3 1/4-6;3 1/4-8;3 1/2-6; 3 1/2-8;
		TM60G-140304	2 3/4-4;3-4; 3 1/4-4;3 1/2-4;			

Tool Selection - Single-Row Teeth

G-Thread (BSP)

Tool holder code	D mm	Insert	G
ATM60-024-Z03-080-W25R-09	24	TM55G-090202	G1-11;G1 1/8-11;G1 1/4-11;
ATM60-030-Z03-090-W32R-09	30	TM55G-090202	G1 1/8-11;G1 1/4-11;G1 3/8-11;G1 1/2-11;
ATM60-040-Z03-125-W40R-14	40	TM55G-140302	G1 1/2-11;G1 3/4-11;G2-11;
ATM60-044-Z03-150-W40R-14	44	TM55G-140302	G1 3/4-11;G2-11;G2 1/4-11;G2 1/2-11;G3-11;

Indexable Thread Milling Cutting Data Recommendation

		Materials				ATM60			
ISO	Workpiece Materials		Brinell Hardness (HB/HRC)	Tensile strength Rm (N/mm ²)	Cutting speed Vc (m/min)	fz(mm) Insert dimension			
						06	09	11/14	
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	180	0.3	0.35	0.4
		0.25 < C ≤ 0.55%	Annealed	190	639	180	0.3	0.35	0.4
		0.25 < C ≤ 0.55%	Heat-treated	210	708	180	0.3	0.35	0.4
		C > 0.55%	Annealed	190	639	180	0.3	0.35	0.4
		C > 0.55%	Heat-treated	300	1013	180	0.25	0.3	0.35
		Free cutting steel (short chip)	Annealed	220	745	180	0.3	0.35	0.4
	Low-alloyed steel	Annealed		175	591	180	0.3	0.35	0.4
		Heat-treated		300	1013	180	0.3	0.35	0.4
		Heat-treated		380	1282	130	0.2	0.3	0.35
		Heat-treated		430	1477	80	0.15	0.2	0.3
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	180	0.25	0.35	0.4
		Hardened and tempered		300	1013	180	0.25	0.35	0.4
		Hardened and tempered		400	1361	130	0.25	0.3	0.35
	Stainless steel	Ferritic/Martensite, Annealed		200	675	180	0.25	0.3	0.35
		Martensite, Heat-treated		330	1114	130	0.25	0.3	0.35
M	Stainless steel	Austenitic, hardened		200	675	180	0.2	0.3	0.35
		Austenitic, precipitation hardened stainless steel (PH stainless steel)		300	1013	130	0.2	0.3	0.35
		Austenitic, ferritic, duplex		230	778	80	0.2	0.3	0.35
K	Malleable cast iron	Ferritic		200	400	180	0.3	0.35	0.4
		Pearlitic		260	700	180	0.3	0.35	0.4
	Grey cast iron	Low tensile strength		180	200	250	0.3	0.35	0.4
		High tensile strength/Austenitic		245	350	180	0.3	0.35	0.4
	Nodular cast iron	Ferritic		155	400	180	0.3	0.35	0.4
		Pearlitic		265	700	180	0.3	0.35	0.4
GGV (CGI)				230	400	180	0.3	0.35	0.4
N	Wrought aluminum alloy	Non-aging alloy		30	-				
		Aged alloy		100	340				
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260				
		≤ 12% Si, aged alloy		90	310	200	0.3	0.35	0.4
		> 12% Si, non-aging alloy		130	450	240	0.3	0.35	0.4
	Magnesium alloy			70	250				
	Copper and copper alloy (bronze/brass)	Unalloyed, electrolytic copper		100	340				
		Brass, bronze, red brass		90	310				
		Cu alloy, short chip		110	380				
		High tensile, Ampco alloy		300	1010				
S	Heat-resistant alloy	Fe-based	Annealed	200	680	35	0.2	0.2	0.2
			Aged	280	940	20	0.1	0.1	0.1
		Ni or Co based	Annealed	250	840	35	0.2	0.2	0.2
			Aged	350	1180	20	0.1	0.1	0.1
	Titanium alloy	Cast		320	1080	30	0.2	0.2	0.2
		Pure Titanium		200	680	35	0.2	0.2	0.2
		α and β alloy, aged		375	1260	35	0.2	0.2	0.2
	Tungsten alloy	β alloy		410	1400	25	0.2	0.2	0.2
				300	1010	35	0.2	0.2	0.2
	Molybdenum alloy				300	1010	35	0.2	0.2
H	Hardened steel	Hardened and tempered		50HRC		40	0.15	0.2	0.2
		Hardened and tempered		55HRC					
		Hardened and tempered		60HRC					
	Chilled cast iron	Hardened and tempered		55HRC		40	0.15	0.2	0.2

The cutting data are average recommended values. For special applications, adjustment is needed.