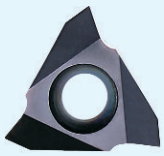
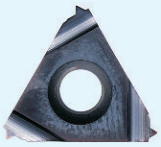
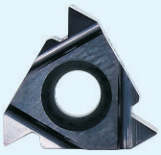
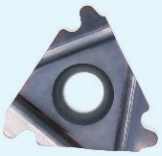
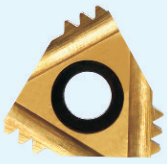
THREAD TURNING TOOLS











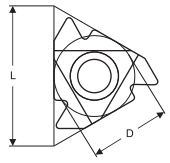
Product Identification

Thread Turning Insert - Ordering Code

1	2	3	4	5	6	7	8
16		E	R	1.5	ISO		

1 Insert Size

L(mm)	D
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"
27	5/8"

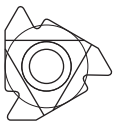


2 Insert Style

U

V

3 Type of Insert



E = External

N = Internal

4 RH/LH Insert

R = Right Hand Insert
L = Left Hand Insert

5 Pitch

Full Profile Pitch Range

mm	TPI
0.5~6	48~4

Partial Profile Pitch Range

	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
Q	5.5~6.0	4.5~4
V	6.0~10	4~2.5

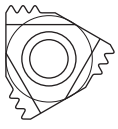
6 Thread Standard

60°	Partial profile 60°
55°	Partial profile 55°
ISO	60° ISO Metric
UN	60° American UN
UNJ	60° Aviation thread
W	55° Whitworth for BSW BSP
NPT	60° NPT
NPTF	60° NPTF
BSPT	55° British Standard Pipe Thread
ACME	29° American ACME
STUB ACME	29° American STUB ACME
TR	30° Trapez DIN 103
ABUT	American Buttress
BBUT	British Buttress
SAGE	Metric Buttress - Sägengewinde
RD	Round DIN 405
RD20400	Round DIN 20400
Pg	DIN 40430

7 No. of Teeth (for Multitooth Style)

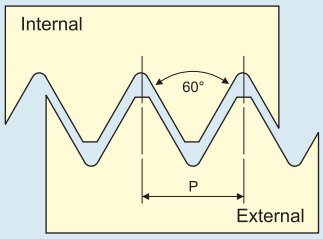
2, 3, 5, 6, 8

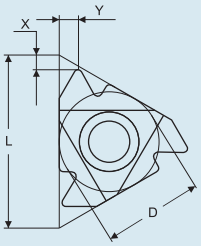
8 Insert Style of Multitooth



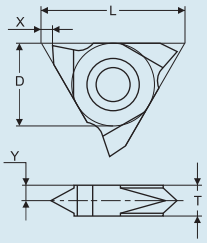
M

Partial Profile 60° - External





Standard

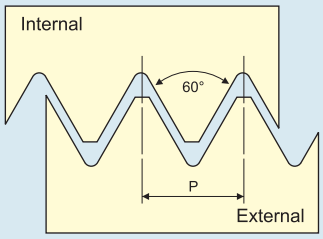


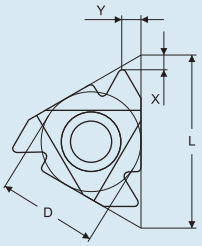
V Style

	IC	Pitch		Ordering Code		Dimension			
	D	mm	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	0.5~1.5	48~16	11ER A60	11EL A60	11	0.8	0.9	3.20
	*3/8"	0.5~1.5	48~16	16ER A60	16EL A60	16	0.8	0.9	3.65
		0.5~3.0	48~8	16ER AG60	16EL AG60	16	1.2	1.7	3.65
		1.75~3.0	14~8	16ER G60	16EL G60	16	1.2	1.7	3.65
	*1/2"	3.5~5.0	7~5	22ER N60	22EL N60	22	1.7	2.5	4.76
	5/8"	5.5~6.0	4.5~4	27ER Q60	27EL Q60	27	2.1	3.1	6.35
V Style	5/8"	6.0~10	4~2.5	27VER V60	27VEL V60	27	0.6	5.2	10.40

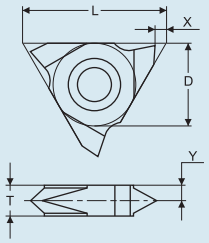
* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16ER A60

Partial Profile 60° - Internal





Standard

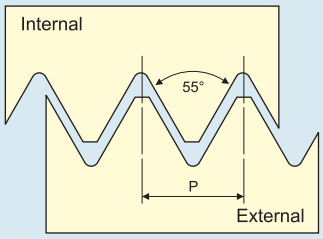


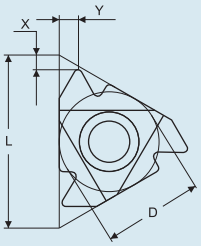
V Style

	IC	Pitch		Ordering Code		Dimension			
	D	mm	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	5/32"	0.5~1.25	48~20	06NR A60	06NL A60	6	0.6	0.6	1.90
	3/16"	0.5~1.5	48~16	08NR A60	08NL A60	8	0.6	0.7	2.20
	1/4"	0.5~1.5	48~16	11NR A60	11NL A60	11	0.8	0.9	3.20
	*3/8 "	0.5~1.5	48~16	16NR A60	16NL A60	16	0.8	0.9	3.65
		0.5~3.0	48~8	16NR AG60	16NL AG60	16	1.2	1.7	3.65
		1.75~3.0	14~8	16NR G60	16NL G60	16	1.2	1.7	3.65
	*1/2"	3.5~5.0	7~5	22NR N60	22NL N60	22	1.7	2.5	4.76
	5/8"	5.5~6.0	4.5~4	27NR Q60	27NL Q60	27	1.8	2.7	6.35
V Style	5/8"	6.0~10	4~2.5	27VNR V60	27VNL V60	27	0.6	5.2	10.40

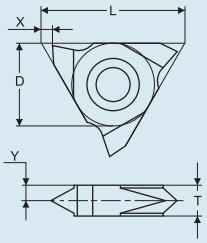
* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16NR A60

Partial Profile 55° - External





Standard

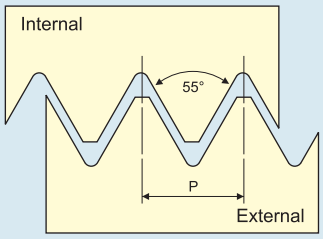


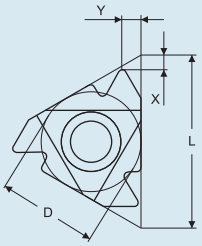
V Style

	IC	Pitch		Ordering Code		Dimension			
	D	mm	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	0.5~1.5	48~16	11ER A55	11EL A55	11	0.8	0.9	3.20
	*3/8"	0.5~1.5	48~16	16ER A55	16EL A55	16	0.8	0.9	3.65
		0.5~3.0	48~8	16ER AG55	16EL AG55	16	1.2	1.7	3.65
		1.75~3.0	14~8	16ER G55	16EL G55	16	1.2	1.7	3.65
	*1/2"	3.5~5.0	7~5	22ER N55	22EL N55	22	1.7	2.5	4.76
	5/8"	5.5~6.0	4.5~4	27ER Q55	27EL Q55	27	2.0	2.9	6.35
V Style	5/8"	6~9	4~2.75	27VER V55	27VEL V55	27	1.0	4.3	8.70

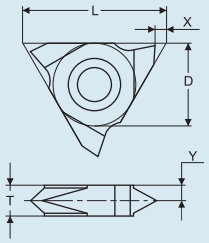
* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16ER A55

Partial Profile 55° - Internal





Standard

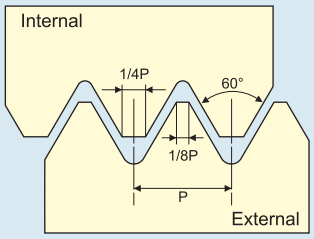


V Style

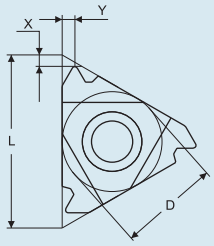
	IC	Pitch		Ordering Code		Dimension			
	D	mm	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	5/32"	0.5~1.25	48~20	06NR A55	06NL A55	6	0.6	0.6	1.90
	3/16"	0.5~1.5	48~16	08NR A60	08NL A55	8	0.6	0.7	2.20
	1/4"	0.5~1.5	48~16	11NR A55	11NL A55	11	0.8	0.9	3.20
	*3/8"	0.5~1.5	48~16	16NR A55	16NL A55	16	0.8	0.9	3.65
		0.5~3.0	48~8	16NR AG55	16NL AG55	16	1.2	1.7	3.65
		1.75~3.0	14~8	16NR G55	16NL G55	16	1.2	1.7	3.65
	*1/2"	3.5~5.0	7~5	22NR N55	22NL N55	22	1.7	2.5	4.76
	5/8"	5.5~6.0	4.5~4	27NR Q55	27NL Q55	27	2.0	2.9	6.35
V Style	5/8"	6~9	4~2.75	27VNR V55	27VNL V55	27	1.0	4.3	8.70

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16NR A55

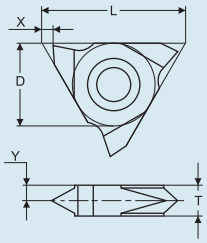
ISO-60° Metric Full Profile - External



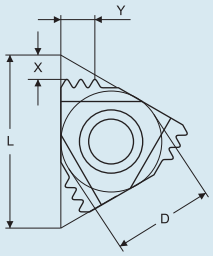
Defined by : R262 (DIN 13)



Standard



V Style



M Style

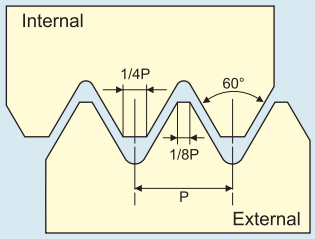
	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	0.50	11ER0.50 ISO	11EL0.50 ISO	11	0.6	0.6	3.2
		0.75	11ER0.75 ISO	11EL0.75 ISO	11	0.6	0.6	3.2
		1.00	11ER1.00 ISO	11EL1.00 ISO	11	0.7	0.7	3.2
		1.25	11ER1.25 ISO	11EL1.25 ISO	11	0.8	0.9	3.2
		1.50	11ER1.50 ISO	11EL1.50 ISO	11	0.8	1.0	3.2
		1.75	11ER1.75 ISO	11EL1.75 ISO	11	0.8	1.1	3.2
	*3/8"	0.50	16ER0.50 ISO	16EL0.50 ISO	16	0.6	0.6	3.65
		0.75	16ER0.75 ISO	16EL0.75 ISO	16	0.6	0.6	3.65
		1.00	16ER1.00 ISO	16EL1.00 ISO	16	0.7	0.7	3.65
		1.25	16ER1.25 ISO	16EL1.25 ISO	16	0.8	0.9	3.65
		1.50	16ER1.50 ISO	16EL1.50 ISO	16	0.8	1.0	3.65
		1.75	16ER1.75 ISO	16EL1.75 ISO	16	0.9	1.2	3.65
		2.00	16ER2.00 ISO	16EL2.00 ISO	16	1.0	1.3	3.65
		2.50	16ER2.50 ISO	16EL2.50 ISO	16	1.1	1.5	3.65
		3.00	16ER3.00 ISO	16EL3.00 ISO	16	1.2	1.6	3.65
	*1/2"	3.50	22ER3.50 ISO	22EL3.50 ISO	22	1.6	2.3	4.76
		4.00	22ER4.00 ISO	22EL4.00 ISO	22	1.6	2.3	4.76
		4.50	22ER4.50 ISO	22EL4.50 ISO	22	1.7	2.4	4.76
		5.00	22ER5.00 ISO	22EL5.00 ISO	22	1.7	2.5	4.76
	5/8"	5.50	27ER5.50 ISO	27EL5.50 ISO	27.5	1.9	2.7	6.35
		6.00	27ER6.00 ISO	27EL6.00 ISO	27.5	2.0	2.9	6.35

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16ER0.50 ISO

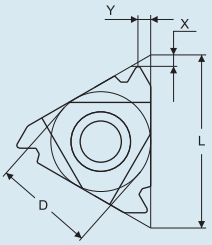
ISO-60° Metric Full Profile - External

	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
V Style	1/4"	0.50	16VER0.50 ISO	16VEL0.50 ISO	16	1.1	3.0	3.65
		0.75	16VER0.75 ISO	16VEL0.75 ISO	16	1.1	3.0	3.65
		1.00	16VER1.00 ISO	16VEL1.00 ISO	16	1.1	2.9	3.65
		1.25	16VER1.25 ISO	16VEL1.25 ISO	16	1.1	2.7	3.65
		1.50	16VER1.50 ISO	16VEL1.50 ISO	16	1.1	2.6	3.65
		1.75	16VER1.75 ISO	16VEL1.75 ISO	16	1.1	2.45	3.65
	3/8"	2.00	16VER2.00 ISO	16VEL2.00 ISO	16	1.1	2.3	3.65
		2.50	16VER2.50 ISO	16VEL2.50 ISO	16	1.1	2.1	3.65
		3.00	16VER3.00 ISO	16VEL3.00 ISO	16	1.1	2.0	3.65
		6.00	27VER6.00 ISO	27VEL6.00 ISO	27	1.0	3.3	6.35
		8.00	27VER8.00 ISO	27VEL8.00 ISO	27	1.0	4.3	8.70
		10.0	27VER10.0 ISO	27VEL10.0 ISO	27	1.0	5.2	10.0
M Style	1/2"	1.00	16ER1.0 ISO3M		16	1.7	2.6	3.65
		1.50	16ER1.5 ISO2M		16	1.6	2.4	3.65
	5/8"	1.50	22ER1.5 ISO3M		22	2.4	3.8	4.76
		2.00	22ER2.0 ISO2M		22	2.0	3.0	4.76
		2.00	22ER2.0 ISO3M		22	3.1	4.9	4.76
		3.00	27ER3.0 ISO2M		27	2.7	4.3	6.35

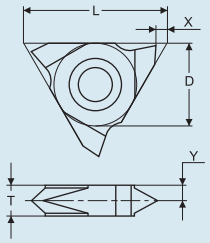
ISO-60° Metric Full Profile - Internal



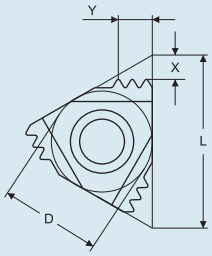
Defined by : R262 (DIN 13)



Standard



V Style



M Style

	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
Standard	5/32"	0.50	06NR0.50 ISO	06NL0.50 ISO	6	0.9	0.5	1.90
		0.75	06NR0.75 ISO	06NL0.75 ISO	6	0.8	0.5	1.90
		1.00	06NR1.00 ISO	06NL1.00 ISO	6	0.7	0.6	1.90
		1.25	06NR1.25 ISO	06NL1.25 ISO	6	0.6	0.6	1.90
	3/16"	0.50	08NR0.50 ISO	08NL0.50 ISO	8	0.6	0.5	2.20
		0.75	08NR0.75 ISO	08NL0.75 ISO	8	0.6	0.5	2.20
		1.00	08NR1.00 ISO	08NL1.00 ISO	8	0.6	0.6	2.20
		1.25	08NR1.25 ISO	08NL1.25 ISO	8	0.6	0.7	2.20
		1.50	08NR1.50 ISO	08NL1.50 ISO	8	0.6	0.7	2.20
		1.75	08NR1.75 ISO	08NL1.75 ISO	8	0.6	0.8	2.20
	1/4"	0.50	11NR0.50 ISO	11NL0.50 ISO	11	0.6	0.6	3.20
		0.75	11NR0.75 ISO	11NL0.75 ISO	11	0.6	0.6	3.20
		1.00	11NR1.00 ISO	11NL1.00 ISO	11	0.6	0.7	3.20
		1.25	11NR1.25 ISO	11NL1.25 ISO	11	0.8	0.9	3.20
		1.50	11NR1.50 ISO	11NL1.50 ISO	11	0.8	1.0	3.20
		1.75	11NR1.75 ISO	11NL1.75 ISO	11	0.9	1.1	3.20
		2.00	11NR2.00 ISO	11NL2.00 ISO	11	1.0	1.3	3.20
	*3/8"	0.50	16NR0.50 ISO	16NL0.50 ISO	16	0.6	0.6	3.65
		0.75	16NR0.75 ISO	16NL0.75 ISO	16	0.6	0.6	3.65
		1.00	16NR1.00 ISO	16NL1.00 ISO	16	0.6	0.7	3.65
		1.25	16NR1.25 ISO	16NL1.25 ISO	16	0.8	0.9	3.65
		1.50	16NR1.50 ISO	16NL1.50 ISO	16	0.8	1.0	3.65

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16NR0.50 ISO

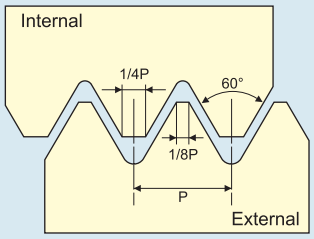
ISO-60° Metric Full Profile - Internal

	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
Standard	*3/8"	1.75	16NR1.75 ISO	16NL1.75 ISO	16	0.9	1.2	3.65
		2.00	16NR2.00 ISO	16NL2.00 ISO	16	1.0	1.3	3.65
		2.50	16NR2.50 ISO	16NL2.50 ISO	16	1.1	1.5	3.65
		3.00	16NR3.00 ISO	16NL3.00 ISO	16	1.1	1.5	3.65
	*1/2"	3.50	22NR3.50 ISO	22NL3.50 ISO	22	1.6	2.3	4.76
		4.00	22NR4.00 ISO	22NL4.00 ISO	22	1.6	2.3	4.76
		4.50	22NR4.50 ISO	22NL4.50 ISO	22	1.6	2.4	4.76
		5.00	22NR5.00 ISO	22NL5.00 ISO	22	1.6	2.5	4.76
	5/8"	5.50	27NR5.50 ISO	27NL5.50 ISO	27	1.9	2.7	6.65
		6.00	27NR6.00 ISO	27NL6.00 ISO	27	2.0	2.9	6.65
V Style	3/8"	0.50	16VNR0.50 ISO	16VNL0.50 ISO	16	1.1	3.0	3.65
		0.75	16VNR0.75 ISO	16VNL0.75 ISO	16	1.1	3.0	3.65
		1.00	16VNR1.00 ISO	16VNL1.00 ISO	16	1.1	2.9	3.65
		1.25	16VNR1.25 ISO	16VNL1.25 ISO	16	1.1	2.7	3.65
		1.50	16VNR1.50 ISO	16VNL1.50 ISO	16	1.1	2.6	3.65
		1.75	16VNR1.75 ISO	16VNL1.75 ISO	16	1.1	2.45	3.65
		2.00	16VNR2.00 ISO	16VNL2.00 ISO	16	1.1	2.3	3.65
		2.50	16VNR2.50 ISO	16VNL2.50 ISO	16	1.1	2.1	3.65
		3.00	16VNR3.00 ISO	16VNL3.00 ISO	16	1.1	2.0	3.65
	5/8"	6.00	27VNR6.00 ISO	27VNL6.00 ISO	27	1.0	3.3	6.35
		8.00	27VNR8.00 ISO	27VNL8.00 ISO	27	1.0	4.3	8.70
		10.0	27VNR10.0 ISO	27VNL10.0 ISO	27	1.0	5.2	10.0
M Style	3/8"	1.00	16NR1.0 ISO3M		16	1.8	2.6	3.65
		1.50	16NR1.5 ISO2M		16	1.6	2.4	3.65
	1/2"	1.50	22NR1.5 ISO3M		22	2.5	3.8	4.76
		2.00	22NR2.0 ISO2M		22	2.1	3.1	4.76
		2.00	22NR2.0 ISO3M		22	3.2	5.1	4.76
	5/8"	3.00	27NR3.0 ISO2M		27	3.0	4.6	6.35

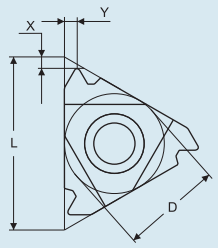
* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16NR1.75 ISO

UN-60° American UN Full Profile - External

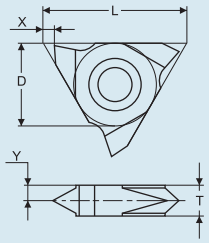
UNC UNF UNEF UNS



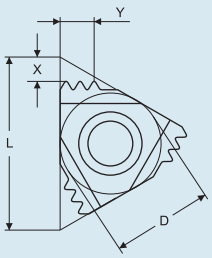
Defined by : ANSI B 1.1:74
Tolerance Class : 2A/2B



Standard



V Style



M Style

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	32	11ER32 UN	11EL32 UN	11	0.6	0.6	3.20
		28	11ER28 UN	11EL28 UN	11	0.6	0.7	3.20
		24	11ER24 UN	11EL24 UN	11	0.7	0.8	3.20
		20	11ER20 UN	11EL20 UN	11	0.8	0.9	3.20
		18	11ER18 UN	11EL18 UN	11	0.8	1.0	3.20
		16	11ER16 UN	11EL16 UN	11	0.9	1.1	3.20
	*3/8"	32	16ER32 UN	16EL32 UN	16	0.6	0.6	3.65
		28	16ER28 UN	16EL28 UN	16	0.6	0.7	3.65
		24	16ER24 UN	16EL24 UN	16	0.7	0.8	3.65
		20	16ER20 UN	16EL20 UN	16	0.8	0.9	3.65
		18	16ER18 UN	16EL18 UN	16	0.8	1.0	3.65
		16	16ER16 UN	16EL16 UN	16	0.9	1.1	3.65
		14	16ER14 UN	16EL14 UN	16	1.0	1.2	3.65
		13	16ER13 UN	16EL13 UN	16	1.1	1.3	3.65
		12	16ER12 UN	16EL12 UN	16	1.1	1.4	3.65
		11.5	16ER11.5 UN	16EL11.5 UN	16	1.1	1.4	3.65
		11	16ER11 UN	16EL11 UN	16	1.1	1.5	3.65
		10	16ER10 UN	16EL10 UN	16	1.1	1.5	3.65
		9	16ER9 UN	16EL9 UN	16	1.2	1.7	3.65
		8	16ER8 UN	16EL8 UN	16	1.2	2.0	3.65
	1/2"	7	22ER7 UN	22EL7 UN	22	1.6	2.3	4.76
		6	22ER6 UN	22EL6 UN	22	1.6	2.3	4.76
		5	22ER5 UN	22EL5 UN	22	1.7	2.5	4.76
	5/8"	4.5	27ER4.5 UN	27EL4.5 UN	27	1.9	2.7	6.35
		4	27ER4 UN	27EL4 UN	27	2.1	3.0	6.35

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16EL32 UN

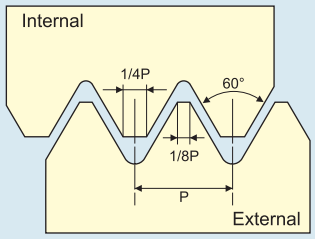
UN-60° American UN Full Profile - External

UNC UNF UNEF UNS

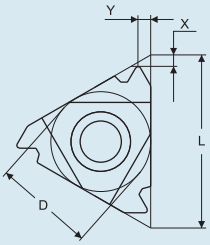
	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
V Style	3/8"	32	16VER32 UN	16VEL32 UN	16	1.1	3.0	3.65
		28	16VER28 UN	16VEL28 UN	16	1.1	3.0	3.65
		24	16VER24 UN	16VEL24 UN	16	1.1	2.9	3.65
		20	16VER20 UN	16VEL20 UN	16	1.1	2.7	3.65
		18	16VER18 UN	16VEL18 UN	16	1.1	2.6	3.65
		16	16VER16 UN	16VEL16 UN	16	1.1	2.5	3.65
		14	16VER14 UN	16VEL14 UN	16	1.1	2.4	3.65
		12	16VER12 UN	16VEL12 UN	16	1.1	2.2	3.65
		10	16VER10 UN	16VEL10 UN	16	1.1	2.1	3.65
		8	16VER8 UN	16VEL8 UN	16	1.1	2.0	3.65
	1/2"	7	22VER7 UN	22VEL7 UN	22	1.1	2.5	4.76
M Style	3/8"	16	16ER16 UN 2M		16	1.7	2.5	3.65
	1/2"	16	22ER16 UN 3M		22	2.6	4.1	4.76
		12	22ER16 UN 2M		22	2.1	3.2	4.76
		12	22ER16 UN 3M		22	3.4	5.3	4.76
	5/8"	8	27ER8 UN 2M		27	3.2	5.0	6.35

UN-60° American UN Full Profile - Internal

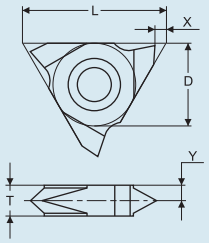
UNC UNF UNEF UNS



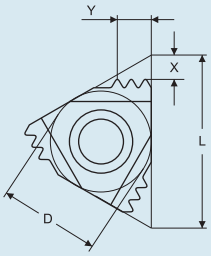
Defined by : ANSI B 1.1:74
Tolerance Class : 2A/2B



Standard



V Style



M Style

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	5/32"	32	06NR32 UN	06NL32 UN	6	0.8	0.5	1.90
		28	06NR28 UN	06NL28 UN	6	0.8	0.6	1.90
		24	06NR24 UN	06NL24 UN	6	0.7	0.6	1.90
		20	06NR20 UN	06NL20 UN	6	0.6	0.6	1.90
		18	06NR18 UN	06NL18 UN	6	0.6	0.7	1.90
	3/16"	32	08NR32 UN	08NL32 UN	8	0.6	0.5	1.90
		28	08NR28 UN	08NL28 UN	8	0.6	0.6	2.20
		24	08NR24 UN	08NL24 UN	8	0.6	0.6	2.20
		20	08NR20 UN	08NL20 UN	8	0.6	0.7	2.20
		18	08NR18 UN	08NL18 UN	8	0.6	0.7	2.20
		16	08NR16 UN	08NL16 UN	8	0.6	0.7	2.20
		14	08NR14 UN	08NL14 UN	8	0.6	0.8	2.20
	1/4"	32	11NR32 UN	11NL32 UN	11	0.6	0.6	3.20
		28	11NR28 UN	11NL28 UN	11	0.6	0.7	3.20
		24	11NR24 UN	11NL24 UN	11	0.7	0.8	3.20
		20	11NR20 UN	11NL20 UN	11	0.8	0.9	3.20
		18	11NR18 UN	11NL18 UN	11	0.8	1.0	3.20
		16	11NR16 UN	11NL16 UN	11	0.9	1.1	3.20
	*3/8"	32	16NR32 UN	16NL32 UN	16	0.6	0.6	3.65
		28	16NR28 UN	16NL28 UN	16	0.6	0.7	3.65
		24	16NR24 UN	16NL24 UN	16	0.7	0.8	3.65
		20	16NR20 UN	16NL20 UN	16	0.8	0.9	3.65
		18	16NR18 UN	16NL18 UN	16	0.8	1.0	3.65
		16	16NR16 UN	16NL16 UN	16	0.9	1.1	3.65
		14	16NR14 UN	16NL14 UN	16	1.0	1.2	3.65

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X11NR32 UN

UN-60° American UN Full Profile - Internal

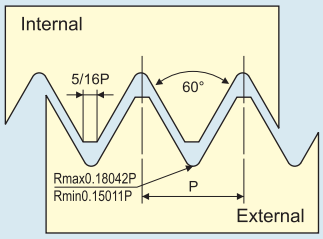
UNC UNF UNEF UNS

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	*3/8"	13	16NR13 UN	16NL13 UN	16	1.0	1.3	3.65
		12	16NR12 UN	16NL12 UN	16	1.1	1.4	3.65
		11	16NR11 UN	16NL11 UN	16	1.1	1.5	3.65
		10	16NR10 UN	16NL10 UN	16	1.1	1.5	3.65
		9	16NR9 UN	16NL9 UN	16	1.2	1.7	3.65
		8	16NR8 UN	16NL8 UN	16	1.2	2.0	3.65
	1/2"	7	22NR7 UN	22NL7 UN	22	1.6	2.3	4.76
		6	22NR6 UN	22NL6 UN	22	1.6	2.3	4.76
		5	22NR5 UN	22NL5 UN	22	1.7	2.5	4.76
	5/8"	4.5	27NR4.5 UN	27NL4.5 UN	27	1.9	2.7	6.35
		4	27NR4 UN	27NL4 UN	27	2.1	3.0	6.35
V Style	5/8"	4	27VNR4 UN	27VNL4 UN	27	1.0	3.3	6.35
		3	27VNR3 UN	27VNL3 UN	27	1.0	4.3	8.70
M Style	3/8"	16	16NR16 UN 2M		16	1.7	2.4	3.65
	1/2"	16	22NR16 UN 3M		22	2.5	4.0	4.76
		12	22NR12 UN 2M		22	2.1	3.2	4.76
		12	22NR12 UN 3M		22	3.3	5.2	4.76
	5/8"	8	27NR8 UN 2M		27	3.0	4.8	6.35

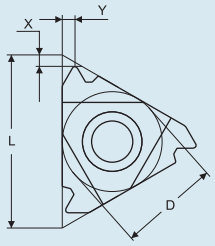
* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16NR13 UN

UNJ - Aviation Thread - External

UNJC UNJF UNJEF UNJS



Defined by : MIL-S-58879C
Tolerance Class : 3A/3B

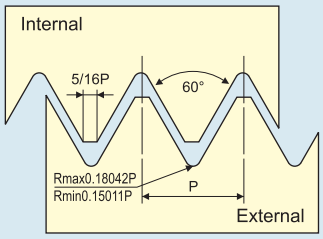


Standard

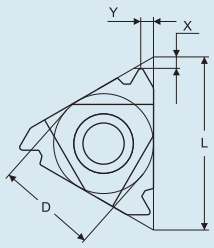
	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	28	11ER28 UNJ	11EL28 UNJ	11	0.7	0.7	3.20
		24	11ER24 UNJ	11EL24 UNJ	11	0.7	0.8	3.20
		20	11ER20 UNJ	11EL20 UNJ	11	0.8	0.9	3.20
		18	11ER18 UNJ	11EL18 UNJ	11	0.8	1.0	3.20
		16	11ER16 UNJ	11EL16 UNJ	11	0.9	1.1	3.20
		14	11ER14 UNJ	11EL14 UNJ	11	1.0	1.2	3.20
	3/8"	28	16ER28 UNJ	16EL28 UNJ	16	0.7	0.7	3.65
		24	16ER24 UNJ	16EL24 UNJ	16	0.7	0.8	3.65
		20	16ER20 UNJ	16EL20 UNJ	16	0.8	0.9	3.65
		18	16ER18 UNJ	16EL18 UNJ	16	0.8	1.0	3.65
		16	16ER16 UNJ	16EL16 UNJ	16	0.9	1.1	3.65
		14	16ER14 UNJ	16EL14 UNJ	16	1.0	1.2	3.65
		13	16ER13 UNJ	16EL13 UNJ	16	1.0	1.3	3.65
		12	16ER12 UNJ	16EL12 UNJ	16	1.1	1.3	3.65
		11	16ER11 UNJ	16EL11 UNJ	16	1.2	1.5	3.65
		10	16ER10 UNJ	16EL10 UNJ	16	1.2	1.5	3.65
		9	16ER9 UNJ	16EL9 UNJ	16	1.3	1.7	3.65
		8	16ER8 UNJ	16EL8 UNJ	16	1.2	1.6	3.65
	1/2"	7	22ER7 UNJ	22EL7 UNJ	22	1.7	2.3	4.76
		6	22ER6 UNJ	22EL6 UNJ	22	1.6	2.3	4.76
		5	22ER5 UNJ	22EL5 UNJ	22	1.8	2.5	4.76
	5/8"	4.5	27ER4.5 UNJ	27EL4.5 UNJ	27	2.0	2.7	6.35
		4.5	27ER4.5 UNJ	27EL4.5 UNJ	27	2.2	3.0	6.35

UNJ - Aviation Thread - Internal

UNJC UNJF UNJEF UNJS



Defined by : MIL-S-58879C
Tolerance Class : 3A/3B

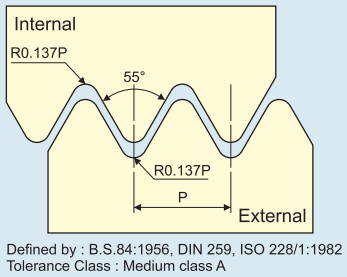


Standard

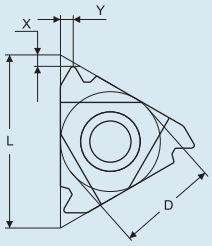
	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	28	11NR28 UNJ	11NL28 UNJ	11	0.7	0.7	3.20
		24	11NR24 UNJ	11NL24 UNJ	11	0.7	0.8	3.20
		20	11NR20 UNJ	11NL20 UNJ	11	0.8	0.9	3.20
		18	11NR18 UNJ	11NL18 UNJ	11	0.8	1.0	3.20
		16	11NR16 UNJ	11NL16 UNJ	11	0.9	1.1	3.20
		14	11NR14 UNJ	11NL14 UNJ	11	1.0	1.2	3.20
	3/8"	28	16NR28 UNJ	16NL28 UNJ	16	0.7	0.7	3.65
		24	16NR24 UNJ	16NL24 UNJ	16	0.7	0.8	3.65
		20	16NR20 UNJ	16NL20 UNJ	16	0.8	0.9	3.65
		18	16NR18 UNJ	16NL18 UNJ	16	0.8	1.0	3.65
		16	16NR16 UNJ	16NL16 UNJ	16	0.9	1.1	3.65
		14	16NR14 UNJ	16NL14 UNJ	16	1.0	1.2	3.65
		13	16NR13 UNJ	16NL13 UNJ	16	1.0	1.3	3.65
		12	16NR12 UNJ	16NL12 UNJ	16	1.1	1.3	3.65
		11	16NR11 UNJ	16NL11 UNJ	16	1.2	1.5	3.65
		10	16NR10 UNJ	16NL10 UNJ	16	1.2	1.5	3.65
		9	16NR9 UNJ	16NL9 UNJ	16	1.3	1.7	3.65
		8	16NR8 UNJ	16NL8 UNJ	16	1.2	1.6	3.65
	1/2"	7	22NR7 UNJ	22NL7 UNJ	22	1.7	2.3	4.76
		6	22NR6 UNJ	22NL6 UNJ	22	1.6	2.3	4.76
		5	22NR5 UNJ	22NL5 UNJ	22	1.8	2.5	4.76
	5/8"	4.5	27NR4.5 UNJ	27NL4.5 UNJ	27	2.0	2.7	6.35
		4.5	27NR4.5 UNJ	27NL4.5 UNJ	27	2.2	3.0	6.35

W-55° Whitworth Full Profile - External

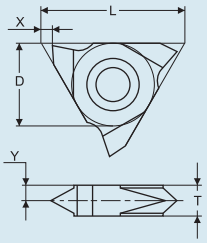
BSW BSF BSP BSB



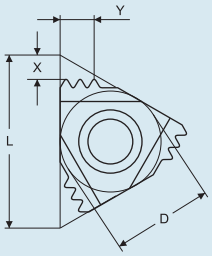
Defined by : B.S.84:1956, DIN 259, ISO 228/1:1982
Tolerance Class : Medium class A



Standard



V Style



M Style

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	28	11ER28 W	11EL28 W	11	0.6	0.7	3.20
		26	11ER26 W	11EL26 W	11	0.7	0.8	3.20
		20	11ER20 W	11EL20 W	11	0.8	0.9	3.20
		19	11ER19 W	11EL19 W	11	0.8	1.0	3.20
		18	11ER18 W	11EL18 W	11	0.8	1.0	3.20
		16	11ER16 W	11EL16 W	11	0.9	1.1	3.20
		14	11ER14 W	11EL14 W	11	1.0	1.2	3.20
	*3/8"	28	16ER28 W	16EL28 W	16	0.6	0.7	3.65
		26	11ER26 W	16EL26 W	16	0.7	0.8	3.65
		20	16ER20 W	16EL20 W	16	0.8	0.9	3.65
		19	16ER19 W	16EL19 W	16	0.8	1.0	3.65
		18	16ER18 W	16EL18 W	16	0.8	0.9	3.65
		16	16ER16 W	16EL16 W	16	0.9	1.1	3.65
		14	16ER14 W	16EL14 W	16	1.0	1.2	3.65
		12	16ER12 W	16EL12 W	16	1.1	1.4	3.65
		11	16ER11 W	16EL11 W	16	1.1	1.5	3.65
		10	16ER10 W	16EL10 W	16	1.1	1.5	3.65
		9	16ER9 W	16EL9 W	16	1.2	1.5	3.65
		8	16ER8 W	16EL8 W	16	1.2	1.7	3.65
	1/2"	7	22ER7 W	22EL7 W	22	1.6	2.3	4.76
		6	22ER6 W	22EL6 W	22	1.6	2.3	4.76
		5	22ER5 W	22EL5 W	22	1.7	2.4	4.76
	5/8"	4.5	27ER4.5 W	27EL4.5 W	27	1.8	2.6	6.35
		4	27ER4 W	27EL4 W	27	2.0	2.9	6.35

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16ER28 W

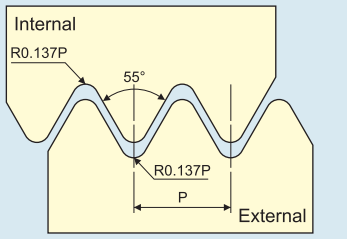
W-55° Whitworth Full Profile - External

BSW BSF BSP BSB

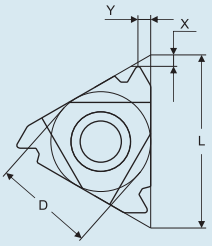
	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
V Style	3/8"	19	16VER19 W	16VEL19 W	16	1.1	2.7	3.65
		18	16VER18 W	16VEL18 W	16	1.1	2.6	3.65
		16	16VER16 W	16VEL16 W	16	1.1	2.6	3.65
		14	16VER14 W	16VEL14 W	16	1.1	2.4	3.65
		12	16VER12 W	16VEL12 W	16	1.1	2.4	3.65
		11	16VER11 W	16VEL11 W	16	1.1	2.1	3.65
	5/8"	4	27VER4 W	27VEL4 W	27	1.0	3.3	6.35
		3	27VER3 W	27VEL3 W	27	1.0	4.3	8.70
		2.5	27VER2.5 W	27VEL2.5 W	27	1.0	5.2	10.40
M Style	3/8"	14	16ER14 W 2M		16	1.9	2.8	3.65
	1/2"	14	22ER14 W 3M		22	2.9	4.6	4.76
		11	22ER11 W 2M		22	2.3	3.5	4.76

W-55° Whitworth Full Profile - Internal

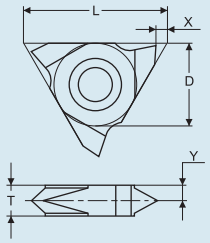
BSW BSF BSP BSB



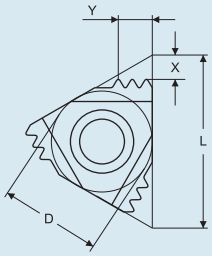
Defined by : B.S.84:1956, DIN 259, ISO 228/1:1982
Tolerance Class : Medium class A



Standard



V Style



M Style

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	5/32"	26	06NR26 W	06NL26 W	6	0.7	0.6	1.90
		22	06NR22 W	06NL22 W	6	0.6	0.6	1.90
		20	06NR20 W	06NL20 W	6	0.6	0.7	1.90
		18	06NR18 W	06NL18 W	6	0.6	0.7	1.90
	3/16"	28	08NR28 W	08NL28 W	8	0.6	0.6	2.20
		24	08NR24 W	08NL24 W	8	0.6	0.6	2.20
		20	08NR20 W	08NL20 W	8	0.6	0.7	2.20
		19	08NR19 W	08NL19 W	8	0.6	0.7	2.20
		18	08NR18 W	08NL18 W	8	0.6	0.7	2.20
		16	08NR16 W	08NL16 W	8	0.6	0.7	2.20
	1/4"	28	11NR28 W	11NL28 W	11	0.6	0.6	3.20
		26	11NR26 W	11NL26 W	11	0.6	0.7	3.20
		20	11NR20 W	11NL20 W	11	0.7	0.9	3.20
		19	11NR19 W	11NL19 W	11	0.8	1.0	3.20
		18	11NR18 W	11NL18 W	11	0.8	1.0	3.20
		16	11NR16 W	11NL16 W	11	0.9	1.1	3.20
		14	11NR14 W	11NL14 W	11	1.0	1.2	3.20
	*3/8"	28	16NR28 W	16NL28 W	16	0.6	0.7	3.65
		26	16NR26 W	16NL26 W	16	0.7	0.8	3.65
		20	16NR20 W	16NL20 W	16	0.8	0.9	3.65
		19	16NR19 W	16NL19 W	16	0.8	1.0	3.65
		18	16NR18 W	16NL18 W	16	0.8	1.0	3.65
		16	16NR16 W	16NL16 W	16	0.9	1.1	3.65
		14	16NR14 W	16NL14 W	16	1.0	1.2	3.65
		12	16NR12 W	16NL12 W	16	1.1	1.4	3.65

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X11NR28 W

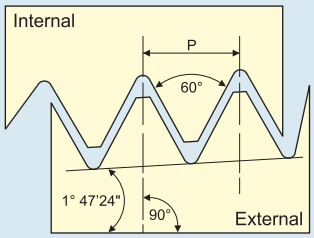
W-55° Whitworth Full Profile - Internal

BSW BSF BSP BSB

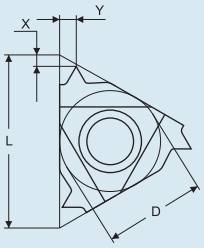
	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	*3/8"	11	16NR11 W	16NL11 W	16	1.1	1.5	3.65
		10	16NR10 W	16NL10 W	16	1.1	1.5	3.65
		9	16NR9 W	16NL9 W	16	1.2	1.5	3.65
		8	16NR8 W	16NL8 W	16	1.2	1.7	3.65
	1/2"	7	22NR7 W	22NL7 W	22	1.6	2.3	4.76
		6	22NR6 W	22NL6 W	22	1.6	2.3	4.76
		5	22NR5 W	22NL5 W	22	1.7	2.4	4.76
	5/8"	4.5	27NR4.5 W	27NL4.5 W	27	1.8	2.6	6.35
		4	27NR4 W	27NL4 W	27	2.0	2.9	6.35
V Style	5/8"	4	27VNR4 W	27VNL4 W	27	1.0	3.3	6.35
		3	27VNR3 W	27VNL3 W	27	1.0	4.3	8.70
		2.5	27VNR2.5 W	27VNL2.5 W	27	1.0	5.2	10.40
M Style	3/8"	14	16NR14 W 2M		16	1.9	2.8	3.65
	1/2"	14	22NR14 W 3M		22	2.9	4.6	4.76
		11	22NR11 W 2M		22	2.3	3.5	4.76

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16NR11 W

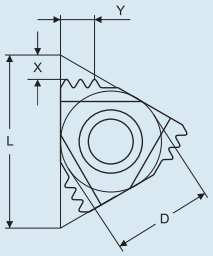
NPTF - External



Defined by : ANSI B1.20.3-1976
Tolerance Class : Standard NPTF



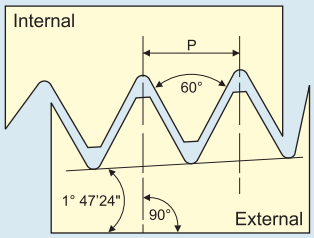
Standard



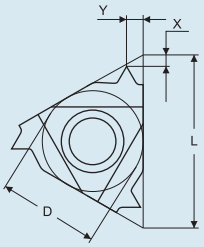
M Style

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	27	11ER27 NPTF	11NL27 NPTF	11	0.7	0.8	3.20
		18	11ER18 NPTF	11NL18 NPTF	11	0.8	1.0	3.20
		14	11ER14 NPTF	11NL14 NPTF	11	0.8	1.0	3.20
	3/8"	27	16ER27 NPTF	16NL27 NPTF	16	0.7	0.8	3.65
		18	16ER18 NPTF	16NL18 NPTF	16	0.8	1.0	3.65
		14	16ER14 NPTF	16NL14 NPTF	16	0.9	1.2	3.65
		11.5	16ER11.5 NPTF	16NL11.5 NPTF	16	1.1	1.5	3.65
		8	16ER8 NPTF	16NL8 NPTF	16	1.3	1.8	3.65
M Style	1/2"	11.5	22ER11.5 NPTF 2M		22	3.4	2.2	4.76

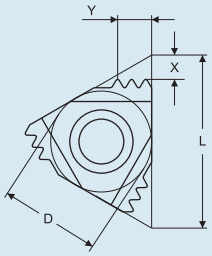
NPTF - Internal



Defined by : ANSI B1.20.3-1976
Tolerance Class : Standard NPTF



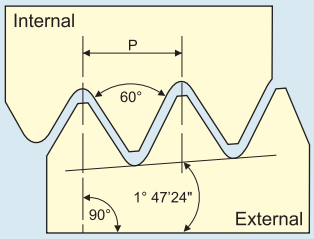
Standard



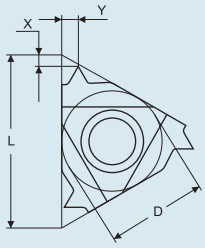
M Style

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	X
Standard	5/32"	27	06NR27 NPTF	06NL27 NPTF	6	0.7	0.6	1.90
	3/16"	27	08NR27 NPTF	08NL27 NPTF	8	0.6	0.6	2.20
		18	08NR18 NPTF	08NL18 NPTF	8	0.6	0.6	2.20
	1/4"	27	11NR27 NPTF	11NL27 NPTF	11	0.7	0.8	3.20
		18	11NR18 NPTF	11NL18 NPTF	11	0.8	1.0	3.20
		14	11NR14 NPTF	11NL14 NPTF	11	0.8	1.0	3.20
	3/8"	27	16NR27 NPTF	16NL27 NPTF	16	0.7	0.8	3.65
		18	16NR18 NPTF	16NL18 NPTF	16	0.8	1.0	3.65
		14	16NR14 NPTF	16NL14 NPTF	16	0.9	1.2	3.65
		11.5	16NR11.5 NPTF	16NL11.5 NPTF	16	1.1	1.5	3.65
		8	16NR8 NPTF	16NL8 NPTF	16	1.3	1.8	3.65
M Style	1/2"	11.5	22NR11.5 NPTF 2M		22	3.4	2.2	4.76
	5/8"	11.5	27NR11.5 NPTF 3M		27	3.5	2.2	6.35

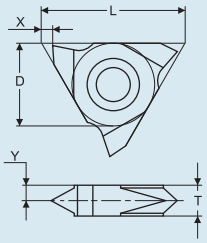
NPT-60° National Pipe Threads - External



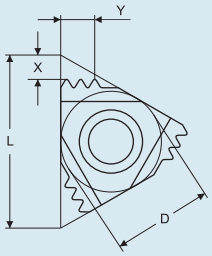
Defined by : USAS B2.1:1968
Tolerance Class : Standard NPT



Standard



V Style

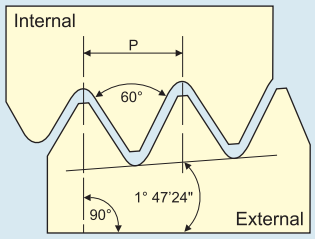


M Style

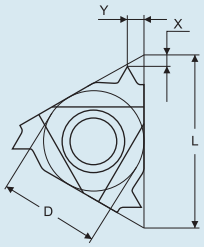
	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	27	11ER27 NPT	11EL27 NPT	11	0.7	0.8	3.20
		18	11ER18 NPT	11EL18 NPT	11	0.8	1.0	3.20
		14	11ER14 NPT	11EL14 NPT	11	0.8	1.0	3.20
	*3/8"	27	16ER27 NPT	16EL27 NPT	16	0.7	0.8	3.20
		18	16ER18 NPT	16EL18 NPT	16	0.8	1.0	3.65
		14	16ER14 NPT	16EL14 NPT	16	0.8	1.0	3.65
		11.5	16ER11.5 NPT	16NL11.5 NPT	16	1.1	1.5	3.65
		8	16ER8 NPT	16EL8 NPT	16	1.2	1.8	3.65
V Style	3/8"	27	16VER27 NPT	16VEL27 NPT	16	1.1	2.9	3.65
		18	16VER18 NPT	16VEL18 NPT	16	1.1	2.6	3.65
		14	16VER14 NPT	16VEL14 NPT	16	1.1	2.3	3.65
		11.5	16VER11.5 NPT	16VEL11.5 NPT	16	1.1	2.1	3.65
M Style	1/2"	11.5	22ER11.5 NPT 2M		22	3.4	2.2	4.76
	5/8"	11.5	27ER11.5 NPT 3M		27	3.5	5.6	4.76
		8	27ER8 NPT 2M		27	2.9	4.7	6.35

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X16ER27 NPT

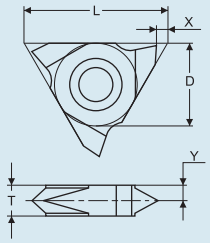
NPT-60° National Pipe Threads - Internal



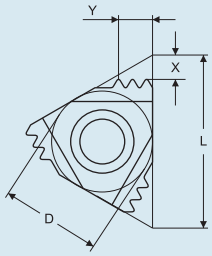
Defined by : USAS B2.1:1968
Tolerance Class : Standard NPT



Standard



V Style

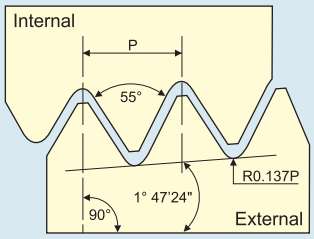


M Style

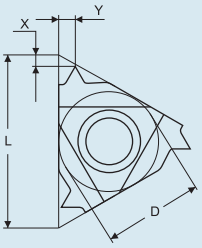
	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	5/32"	27	06NR27 NPT	06NL27 NPT	6	0.6	0.6	1.90
	3/16"	27	08NR27 NPT	08NL27 NPT	8	0.6	0.6	2.20
		18	08NR18 NPT	08NL18 NPT	8	0.6	0.6	2.20
	1/4"	27	11NR27 NPT	11NL27 NPT	11	0.7	0.8	3.20
		18	11NR18 NPT	11NL18 NPT	11	0.8	1.0	3.20
		14	11NR14 NPT	11NL14 NPT	11	0.8	1.0	3.20
	*3/8"	27	16NR27 NPT	16NL27 NPT	16	0.7	0.8	3.65
		18	16NR18 NPT	16NL18 NPT	16	0.8	1.0	3.65
		14	16NR14 NPT	16NL14 NPT	16	0.8	1.0	3.65
		11.5	16NR11.5 NPT	16NL11.5 NPT	16	1.1	1.5	3.65
		8	16NR8 NPT	16NL8 NPT	16	1.2	1.8	3.65
M Style	1/2"	11.5	22NR11.5 NPT 2M		22	3.4	2.2	4.76
	5/8"	11.5	27NR11.5 NPT 3M		27	3.5	5.6	6.35
		8	27NR8 NPT 2M		27	2.9	4.7	6.35

* Also available in extra thick style (3/8" - 4.30mm & 1/2" - 5.90mm). When ordering prefix 'X' before ordering code - eg. X11NR27 NPT

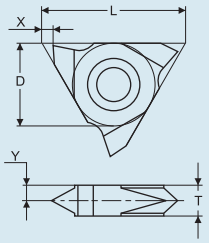
BSPT-55° British Standard Pipe Full Profile - External



Defined by : B.S. 21:1985
Tolerance Class : Standard BSPT



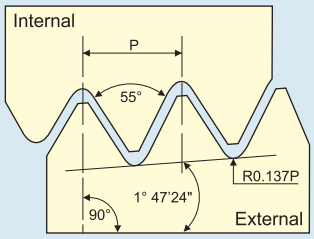
Standard



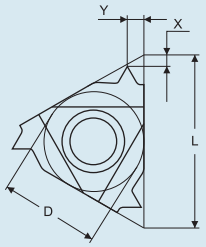
V Style

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	1/4"	28	11ER28 BSPT	11EL28 BSPT	11	0.6	0.6	3.20
		19	11ER19 BSPT	11EL19 BSPT	11	0.8	0.9	3.20
		14	11ER14 BSPT	11EL14 BSPT	11	0.9	1.0	3.20
	3/8"	28	16ER28 BSPT	16EL28 BSPT	16	0.6	0.6	3.65
		19	16ER19 BSPT	16EL19 BSPT	16	0.8	0.9	3.65
		14	16ER14 BSPT	16EL14 BSPT	16	1.0	1.2	3.65
		11	16ER11 BSPT	16EL11 BSPT	16	1.1	1.5	3.65
V Style	3/8"	28	16VER28 BSPT	16VEL28B SPT	16	1.1	3.0	3.65
		19	16VER19 BSPT	16VEL19 BSPT	16	1.1	2.7	3.65
		14	16VER14 BSPT	16VEL14 BSPT	16	1.1	2.4	3.65
		11	16VER11 BSPT	16VEL11 BSPT	16	1.1	2.1	3.65

BSPT-55° British Standard Pipe Full Profile - Internal



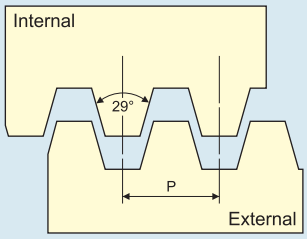
Defined by : B.S. 21:1985
Tolerance Class : Standard BSPT



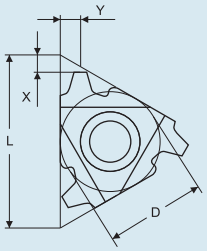
Standard

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
Standard	5/32"	28	06NR28 BSPT	06NL28 BSPT	6	0.7	0.6	1.90
	3/16"	28	08NR28 BSPT	08NL28 BSPT	8	0.6	0.6	2.20
		19	08NR19 BSPT	08NL19 BSPT	8	0.6	0.6	2.20
	1/4"	28	11NR28 BSPT	11NL28 BSPT	11	0.6	0.8	3.20
		19	11NR19 BSPT	11NL19 BSPT	11	0.8	0.9	3.20
		14	11NR14 BSPT	11NL14 BSPT	11	0.9	1.0	3.20
	3/8"	28	16NR28 BSPT	16NL28 BSPT	16	0.6	0.6	3.65
		19	16NR19 BSPT	16NL19 BSPT	16	0.8	0.9	3.65
		14	16NR14 BSPT	16NL14 BSPT	16	1.0	1.2	3.65
		11	16NR11 BSPT	16NL11 BSPT	16	1.1	1.5	3.65

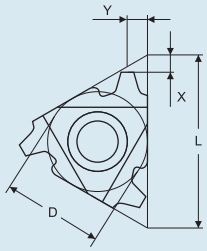
ACME-29° American ACME



Defined by : ANSI B 1.5:1988



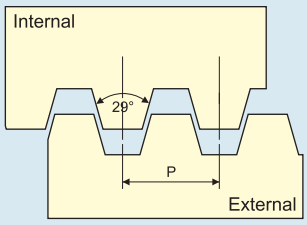
Standard External



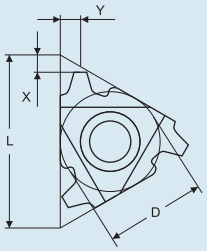
Standard Internal

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
External	3/8"	16	16ER16 ACME	16EL16 ACME	16	1.0	1.1	3.65
		14	16ER14 ACME	16EL14 ACME	16	1.0	1.2	3.65
		12	16ER12 ACME	16EL12 ACME	16	1.1	1.2	3.65
		10	16ER10 ACME	16EL10 ACME	16	1.3	1.3	3.65
		8	16ER8 ACME	16EL8 ACME	16	1.4	1.5	3.65
	1/2"	6	22ER6 ACME	22EL6 ACME	22	1.8	2.1	4.76
		5	22ER5 ACME	22EL5 ACME	22	2.0	2.3	4.76
	5/8"	4	27ER4 ACME	27EL4 ACME	27	2.4	2.7	6.35
Internal	3/8"	16	16NR16 ACME	16NL16 ACME	16	1.0	1.1	3.65
		14	16NR14 ACME	16NL14 ACME	16	1.0	1.2	3.65
		12	16NR12 ACME	16NL12 ACME	16	1.1	1.2	3.65
		10	16NR10 ACME	16NL10 ACME	16	1.3	1.3	3.65
		8	16NR8 ACME	16NL8 ACME	16	1.4	1.5	3.65
	1/2"	6	22NR6 ACME	22NL6 ACME	22	1.8	2.1	4.76
		5	22NR5 ACME	22NL5 ACME	22	2.0	2.3	4.76
	5/8"	4	27NR4 ACME	27NL4 ACME	27	2.4	2.7	6.35

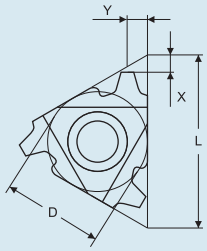
STUB ACME-29°



Defined by : ANSI B 1.8:1988



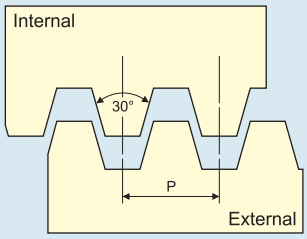
Standard External



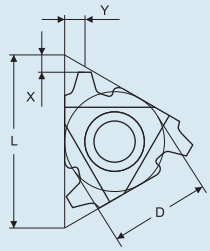
Standard Internal

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
External	3/8"	16	16ER16 STACME	16EL16 STACME	16	1.0	1.1	3.65
		14	16ER14 STACME	16EL14 STACME	16	1.1	1.1	3.65
		12	16ER12 STACME	16EL12 STACME	16	1.2	1.2	3.65
		10	16ER10 STACME	16EL10 STACME	16	1.2	1.3	3.65
		8	16ER8 STACME	16EL8 STACME	16	1.4	1.5	3.65
		6	16ER6 STACME	16EL6 STACME	16	1.7	1.8	3.65
	1/2"	5	22ER5 STACME	22EL5 STACME	22	2.1	2.3	4.76
	5/8"	4	27ER4 STACME	27EL4 STACME	27	2.3	2.4	6.35
		3	27ER3 STACME	27EL3 STACME	27	2.9	2.9	6.35
Internal	3/8"	16	16NR16 STACME	16NL16 STACME	16	1.0	1.1	3.65
		14	16NR14 STACME	16NL14 STACME	16	1.1	1.1	3.65
		12	16NR12 STACME	16NL12 STACME	16	1.2	1.2	3.65
		10	16NR10 STACME	16NL10 STACME	16	1.2	1.3	3.65
		8	16NR8 STACME	16NL8 STACME	16	1.4	1.4	3.65
		6	16NR6 STACME	16NL6 STACME	16	1.7	1.8	3.65
	1/2"	5	22NR5 STACME	22NL5 STACME	22	2.1	2.3	4.76
	5/8"	4	27NR4 STACME	27NL4 STACME	27	2.3	2.4	6.35
		3	27NR3 STACME	27NL3 STACME	27	2.9	2.9	6.35

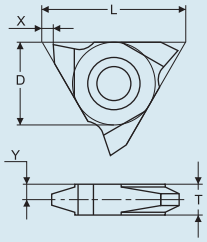
TR-30° Trapeze DIN 103 - External



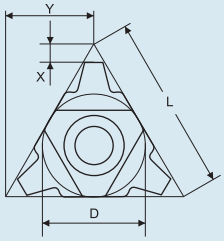
Defined by : DIN 103



Standard



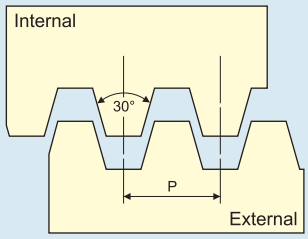
V Style



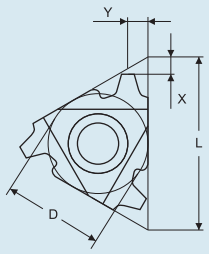
U Style

	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
Standard	3/8"	1.5	16ER1.5 TR	16EL1.5 TR	16	1.0	1.1	3.65
		2.0	16ER2.0 TR	16EL2.0 TR	16	1.1	1.3	3.65
		3.0	16ER3.0 TR	16EL3.0 TR	16	1.3	1.5	3.65
	1/2"	4.0	22ER4.0 TR	22EL4.0 TR	22	1.7	1.9	4.76
		5.0	22ER5.0 TR	22EL5.0 TR	22	2.1	2.5	4.76
	5/8"	6.0	27ER6.0 TR	27EL6.0 TR	27	2.2	2.6	6.35
		7.0	27ER7.0 TR	27EL7.0 TR	27	2.3	2.7	6.35
V Style	5/8"	6.0	27VER6.0 TR	27VEL6.0 TR	27	1.0	3.3	3.65
		7.0	27VER7.0 TR	27VEL7.0 TR	27	1.0	3.3	3.65
		8.0	27VER8.0 TR	27VEL8.0 TR	27	1.0	3.3	3.65
		9.0	27VER9.0 TR	27VEL9.0 TR	27	1.0	4.3	8.70
		10	27VER10 TR	27VEL10 TR	27	1.0	4.3	8.70
		12	27VER12 TR	27VEL12 TR	27	1.0	5.2	10.0
U Style	5/8"	8.0	27UE8.0 TR		27	2.6	13.7	6.35
		9.0	27UE9.0 TR		27	3.0	13.7	6.35

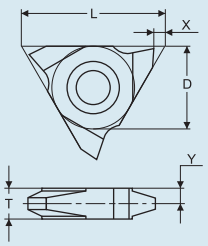
TR-30° Trapeze DIN 103 - Internal



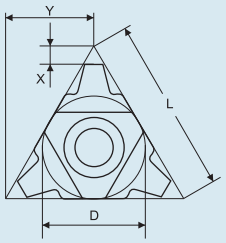
Defined by : DIN 103



Standard



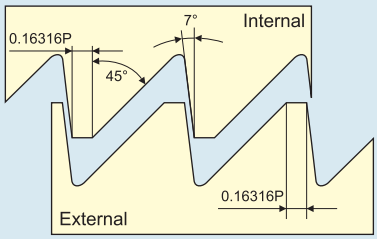
V Style



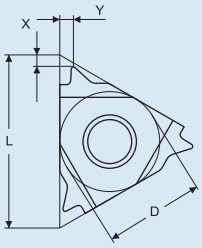
U Style

	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
Standard	3/8"	1.5	16NR1.5 TR	16NL1.5 TR	16	1.0	1.1	3.65
		2.0	16NR2.0 TR	16NL2.0 TR	16	1.1	1.3	3.65
		3.0	16NR3.0 TR	16NL3.0 TR	16	1.3	1.5	3.65
	1/2"	4.0	22NR4.0 TR	22NL4.0 TR	22	1.7	1.9	4.76
		5.0	22NR5.0 TR	22NL5.0 TR	22	2.1	2.5	4.76
	5/8"	6.0	27NR6.0 TR	27NL6.0 TR	27	2.2	2.6	6.35
		7.0	27NR7.0 TR	27NL7.0 TR	27	2.3	2.7	6.35
V Style	5/8"	6.0	27VNR6.0 TR	27VNL6.0 TR	27	1.0	3.3	6.35
		7.0	27VNR7.0 TR	27VNL7.0 TR	27	1.0	3.3	6.35
		8.0	27VNR8.0 TR	27VNL8.0 TR	27	1.0	3.3	6.35
		9.0	27VNR9.0 TR	27VNL9.0 TR	27	1.0	4.3	8.70
		10	27VNR10 TR	27VNL10 TR	27	1.0	4.3	8.70
		12	27VNR12 TR	27VNL12 TR	27	1.0	5.2	10.0
U Style	5/8"	8.0	27UN8.0 TR		27	2.6	13.7	6.35
		9.0	27UN9.0 TR		27	3.0	13.7	6.35

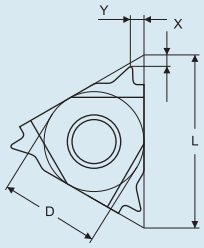
ABUT- American Buttress



Defined by : ANSI 1.9.1973
Tolerance Class : Class 2



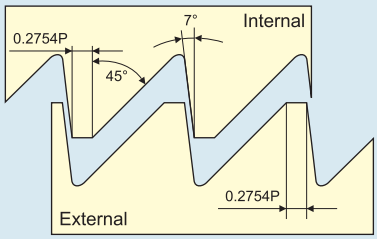
Standard External



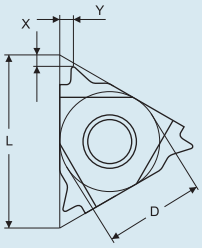
Standard Internal

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
External	1/4"	20	11ER20 ABUT	11EL20 ABUT	11	1.0	1.4	3.20
		16	11ER16 ABUT	11EL16 ABUT	11	1.3	1.9	3.20
	3/8"	20	16ER20 ABUT	16EL20 ABUT	16	1.0	1.4	3.65
		16	16ER16 ABUT	16EL16 ABUT	16	1.3	1.9	3.65
		12	16ER12 ABUT	16EL12 ABUT	16	1.4	2.0	3.65
		10	16ER10 ABUT	16EL10 ABUT	16	1.5	2.3	3.65
	1/2"	8	22ER8 ABUT	22EL8 ABUT	22	2.0	3.2	4.76
		6	22ER6 ABUT	22EL6 ABUT	22	2.2	3.5	4.76
Internal	1/4"	20	11NR20 ABUT	11NL20 ABUT	11	1.0	1.4	3.20
		16	11NR16 ABUT	11NL16 ABUT	11	1.3	1.9	3.20
	3/8"	20	16NR20 ABUT	16NL20 ABUT	16	1.0	1.4	3.65
		16	16NR16 ABUT	16NL16 ABUT	16	1.3	1.9	3.65
		12	16NR12 ABUT	16NL12 ABUT	16	1.4	2.0	3.65
		10	16NR10 ABUT	16NL10 ABUT	16	1.5	2.3	3.65
	1/2"	8	22NR8 ABUT	22NL8 ABUT	22	2.0	3.2	4.76
		6	22NR6 ABUT	22NL6 ABUT	22	2.2	3.5	4.76

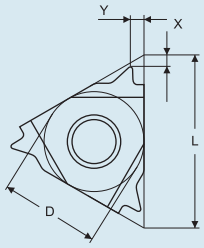
BBUT - British Buttress



Defined by : B.S.1657:1950
Tolerance Class : Medium Class



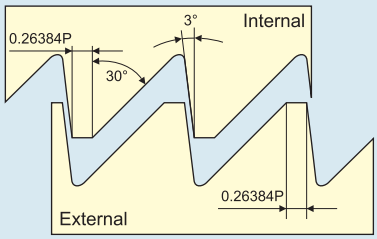
Standard External



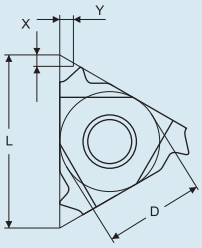
Standard Internal

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
External	3/8"	16	16ER16 BBUT	16EL16 BBUT	16	1.1	1.6	3.65
		12	16ER12 BBUT	16EL12 BBUT	16	1.4	2.1	3.65
		10	16ER10 BBUT	16EL10 BBUT	16	1.4	2.2	3.65
		8	16ER8 BBUT	16EL8 BBUT	16	1.6	2.5	3.65
	1/2"	8	22ER8 BBUT	22EL8 BBUT	22	1.6	2.5	4.76
Internal	3/8"	16	16NR16 BBUT	16NL16 BBUT	16	1.1	1.6	3.65
		12	16NR12 BBUT	16NL12 BBUT	16	1.4	2.1	3.65
		10	16NR10 BBUT	16NL10 BBUT	16	1.4	2.2	3.65
		8	16NR8 BBUT	16NL8 BBUT	16	1.6	2.5	3.65
	1/2"	8	22NR8 BBUT	22NL8 BBUT	22	1.6	2.5	4.76

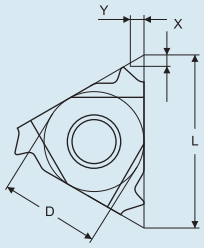
SAGE- Metric Buttress (Sägengewinde)



Defined by : DIN 513
Tolerance Class : Medium Class



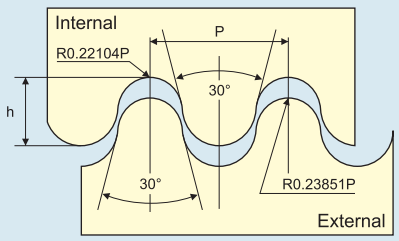
Standard External

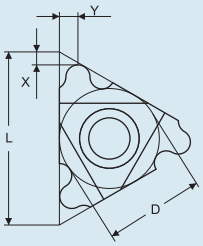


Standard Internal

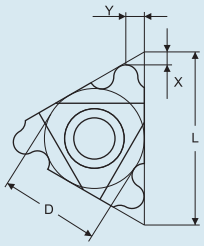
	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
External	3/8"	2.0	16ER2.0 SAGE	16EL2.0 SAGE	16	1.47	2.08	3.65
	1/2"	2.0	22ER2.0 SAGE	22EL2.0 SAGE	22	1.47	2.08	4.76
		3.0	22ER3.0 SAGE	22EL3.0 SAGE	22	1.79	2.60	4.76
	5/8"	4.0	27ER4.0 SAGE	27EL4.0 SAGE	27	1.93	3.20	6.35
Internal	3/8"	2.0	16NR2.0 SAGE	16NL2.0 SAGE	16	1.52	2.20	3.65
	1/2"	3.0	22NR3.0 SAGE	22NL3.0 SAGE	22	1.66	2.90	4.76
	5/8"	4.0	27NR4.0 SAGE	27NL4.0 SAGE	27	2.12	3.20	6.35

ROUND - DIN 405





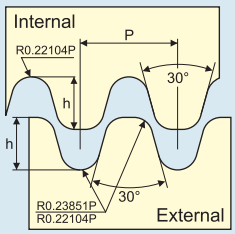
Standard External



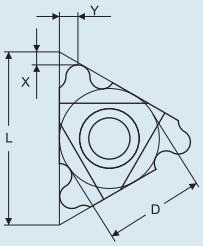
Standard Internal

	IC	Pitch	Ordering Code		Dimension			
	D	TPI	Right Hand	Left Hand	L	X	Y	T
External	3/8"	10	16ER10RD	16EL10RD	16	1.1	1.2	3.65
		8	16ER8RD	16EL8RD	16	1.3	1.4	3.65
		6	16ER6RD	16EL6RD	16	1.5	1.7	3.65
	1/2"	6	22ER6RD	22EL6RD	22	1.5	1.7	4.76
		4	22ER4RD	22EL4RD	22	1.7	2.3	4.76
	5/8"	4	27ER4RD	27EL4RD	27	1.7	2.3	6.35
Internal	3/8"	10	16NR10RD	16NL10RD	16	1.1	1.2	3.65
		8	16NR8RD	16NL8RD	16	1.3	1.4	3.65
		6	16NR6RD	16NL6RD	16	1.5	1.7	3.65
	1/2"	6	22NR6RD	22NL6RD	22	1.5	1.7	4.76
		4	22NR4RD	22NL4RD	22	1.7	2.3	4.76
	5/8"	4	27NR4RD	27NL4RD	27	1.7	2.3	6.35

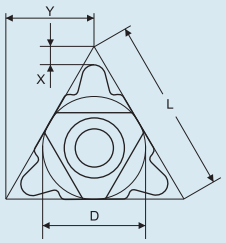
ROUND - DIN 20400 - External



Defined by : DIN 20400
Tolerance Class : Standard



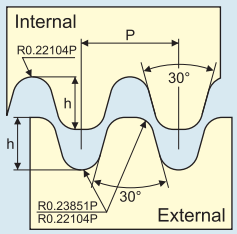
Standard



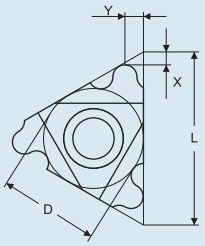
U Style

	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
Standard	1/2"	3.0	22ER3.0 RD	22EL3.0 RD	22	1.28	1.70	4.76
		4.0	22ER4.0 RD	22EL4.0 RD	22	1.60	2.20	4.76
		5.0	22ER5.0 RD	22EL5.0 RD	22	1.36	1.75	4.76
		6.0	22ER6.0 RD	22EL6.0 RD	22	1.70	2.10	4.76
U Style	5/8"	8.0	27UE8.0 RD		27	2.95	13.5	6.35

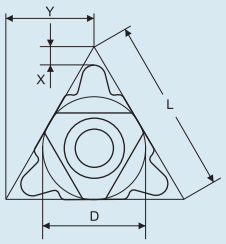
ROUND - DIN 20400 - Internal



Defined by : DIN 20400
Tolerance Class : Standard



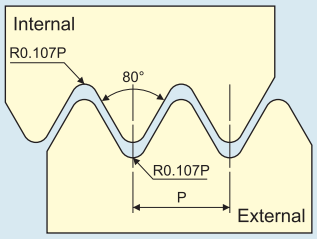
Standard



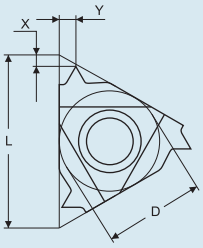
U Style

	IC	Pitch	Ordering Code		Dimension			
	D	mm	Right Hand	Left Hand	L	X	Y	T
Standard	1/2"	3.0	22NR3.0 RD	22NL3.0 RD	22	1.32	1.70	4.76
		4.0	22NR4.0 RD	22NL4.0 RD	22	1.64	2.20	4.76
		5.0	22NR5.0 RD	22NL5.0 RD	22	1.41	1.75	4.76
		6.0	22NR6.0 RD	22NL6.0 RD	22	1.75	2.10	4.76
U Style	5/8"	8.0	27UE8.0 RD		27	2.95	13.5	6.35

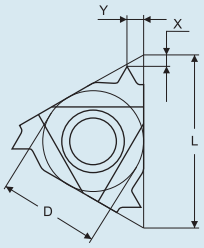
Pg - DIN 40430



Defined by : DIN 40430
Tolerance Class : Standard



Standard External



Standard Internal

	IC	Pitch		Ordering Code		Dimension			
	D	TPI	Thread	Right Hand	Left Hand	L	X	Y	T
External	1/4"	20	Pg7	11ER20 PG	11EL20 PG	11	0.8	0.9	3.20
		18	Pg9/11/13.5/16	11ER18 PG	11EL18 PG	11	0.8	1.0	3.20
		16	Pg21/29/36/42/48	11ER16 PG	11EL16 PG	11	0.9	1.1	3.20
	3/8"	20	Pg7	16ER20 PG	16EL20 PG	16	0.8	0.9	3.65
		18	Pg9/11/13.5/16	16ER18 PG	16EL18 PG	16	0.8	1.0	3.65
		16	Pg21/29/36/42/48	16ER16 PG	16EL16 PG	16	0.9	1.1	3.65
Internal	1/4"	20	Pg7	11NR20 PG	11NL20 PG	11	0.8	0.9	3.20
		18	Pg9/11/13.5/16	11NR18 PG	11NL18 PG	11	0.8	1.0	3.20
		16	Pg21/29/36/42/48	11NR16 PG	11NL16 PG	11	0.9	1.1	3.20
	3/8"	20	Pg7	16NR20 PG	16NL20 PG	16	0.8	0.9	3.65
		18	Pg9/11/13.5/16	16NR18 PG	16NL18 PG	16	0.8	1.0	3.65
		16	Pg21/29/36/42/48	16NR16 PG	16NL16 PG	16	0.9	1.1	3.65

Product Identification

Thread Turning Toolholder - Ordering Code

1	2	3	4	5	6	7
S	E	R	2020	K	16	

1 Clamping Method

D = Clamp
S = Screw

2 Type of Insert

E = External
N = Internal

3 RH/LH Insert

R = Right Hand Insert
L = Left Hand Insert

4 Shank Cross Section

External toolholders square shank
2020=20 mm x 20 mm

Internal toolholders & boring bars round shank
0020 = Diam. of 20 mm

5 Length of Toolholder

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

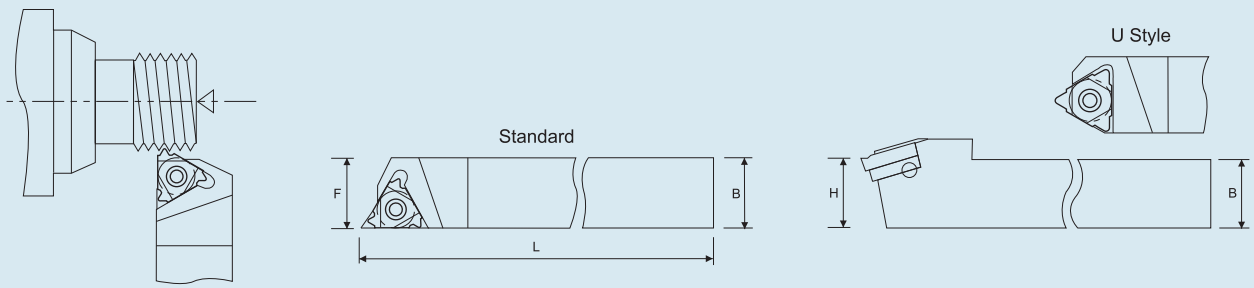
6 Insert Pocket Size

L	I.C.
06	5/32"
08	3/16"
08U	3/16"U
11	1/4"
16	3/8"
22	1/2"
22U	1/2"U
27	5/8"
27U	5/8"U
33U	3/4"U

7

V = Vertical (on edge)
U = U type

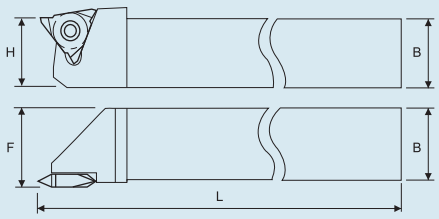
External Toolholders



Ordering Code Right Hand	Size	B = H	L	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
SER1616H16	16	16	100	16	S16	Y16	K16	YE16	YN16
SER2020K16	16	20	125	20	S16	Y16	K16	YE16	YN16
SER2525M16	16	25	150	25	S16	Y16	K16	YE16	YN16
SER3232P16	16	32	170	32	S16	Y16	K16	YE16	YN16
SER2525M22	22	25	150	25	S22	Y22	K22	YE22	YN22
SER3232P22	22	32	170	32	S22	Y22	K22	YE22U	YN22U
SER4040R22	22	40	200	40	S22	Y22	K22	YE22U	YN22U
SER2525M22U	22U	25	150	28	S22	Y22	K22	YE22U	YN22U
SER3232P22U	22U	32	170	32	S22	Y22	K22	YE22	YN22
SER4040R22U	22U	40	200	40	S22	Y22	K22	YE22	YN22
SER2525M27	27	25	150	32	S27	Y27	K27	YE27	YN27
SER3232P27	27	32	170	32	S27	Y27	K27	YE27U	YN27U
SER4040R27	27	40	200	40	S27	Y27	K27	YE27U	YN27U
SER2525M27U	27U	25	150	32	S27	Y27	K27	YE27U	YN27U
SER3232P27U	27U	32	170	32	S27	Y27	K27	YE27	YN27
SER4040R27U	27U	40	200	40	S27	Y27	K27	YE27	YN27

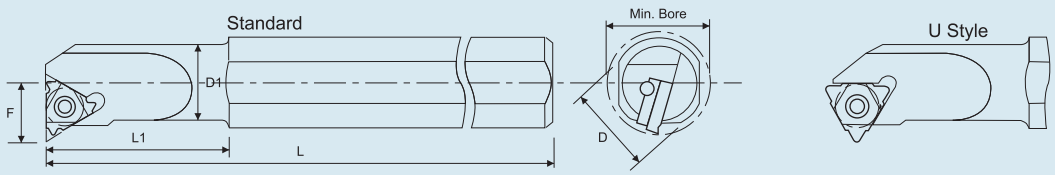
For **LEFT HAND** toolholders specify SEL instead of SER Toolholders are made with a **1.5° Helix Angle**.
For other Helix Angles please consult helix angle chart in the technical section of this catalogue.

External Toolholders - 'V' Style



Ordering Code Right Hand	Size	B = H	L	F	Insert Screw	Torx Key
SER1616H16V	16	16	100	18	S16S	K16
SER 2020 K16V	16	20	125	22	S16S	K16
SER 2525 M16V	16	25	150	27	S16S	K16
SER 2525 M22V	22	25	150	27.5	S22S	K22
SER 3232 P27V-T10	27	32	170	36	S27S	K27

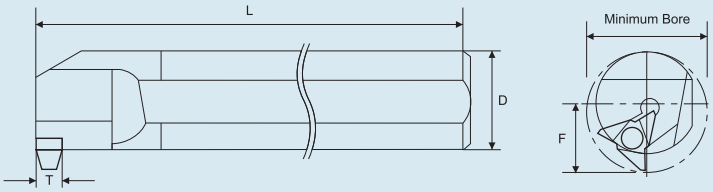
Internal Toolholders



Ordering Code Right Hand	Size	D	D1	Min. Bore Diam.	L	L1	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
*SNR0007K08	8	16	6.6	7.8	125	18	5.3	S06	-	K08	-	-
*SNR0008K08U	8U	16	7.3	9.0	125	21	6.6	S06	-	K08	-	-
*SNR0010H11	11	10	10	12	100	-	7.4	S11	-	K11	-	-
*SNR0010K11	11	16	10	12	125	25	7.4	S11	-	K11		-
*SNR0013L11	11	16	13	15	140	32	8.9	S11	-	K11	-	-
*SNR0013M16	16	16	13	16	150	32	10.2	S16S	-	K16	-	-
*SNR0016P16	16	20	16	19	170	40	11.7	S16S	-	K16	-	-
SNR0020P16	16	20	20	24	170	-	13.7	S16	Y16	K16	YN16	YE16
SNR0025R16	16	25	25	29	200	-	16.2	S16	Y16	K16	YN16	YE16
SNR0032S16	16	32	32	36	250	-	19.7	S16	Y16	K16	YN16	YE16
SNR0040T16	16	40	40	44	300	-	23.7	S16	Y16	K16	YN16	YE16
SNR0050U16	16	50	50	54	350	-	28.7	S16	Y16	K16	YN16	YE16
*SNR0020P22	22	20	20	24	170	-	15.6	S22S	-	K22	-	-
SNR0025R22	22	25	25	29	200	-	18.1	S22	Y22	K22	YN22	YE22
SNR0032S22	22	32	32	38	250	-	21.6	S22	Y22	K22	YN22	YE22
SNR0040T22	22	40	40	46	300	-	25.6	S22	Y22	K22	YN22	YE22
SNR0050U22	22	50	50	56	350	-	30.6	S22	Y22	K22	YN22	YE22
SNR0032S22U	22U	32	32	38	250	-	24.4	S22	Y22	K22	YN22U	YE22U
SNR0040T22U	22U	40	40	46	300	-	28.1	S22	Y22	K22	YN22U	YE22U
SNR0050U22U	22U	50	50	57	350	-	30.8	S22	Y22	K22	YN22U	YE22U
SNR0032S27	27	32	32	40	250	-	22.6	S27	Y27	K27	YN27	YE27
SNR0040T27	27	40	40	48	300	-	26.6	S27	Y27	K27	YN27	YE27
SNR0050U27	27	50	50	58	350	-	31.6	S27	Y27	K27	YN27	YE27
SNR0060V27	27	60	60	68	400	-	36.6	S27	Y27	K27	YN27	YE27
SNR0032S27U	27U	32	32	40	250	-	25.8	S27	Y27	K27	YN27U	YE27U
SNR0040T27U	27U	40	40	48	300	-	29.4	S27	Y27	K27	YN27U	YE27U
SNR0050U27U	27U	50	50	58	350	-	34.3	S27	Y27	K27	YN27U	YE27U
SNR0060V27U	27U	60	60	68	400	-	39.7	S27	Y27	K27	YN27U	YE27U

* Toolholders with no anvil.
For **LEFT HAND** toolholders specify SNL instead of SNR Toolholders are made with a **1.5° Helix Angle**.
For other Helix Angles please consult Helix Angle chart in the technical section of this catalogue.

Internal Toolholders - 'V' Style

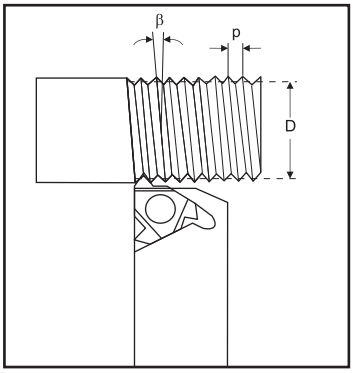


Ordering Code Right Hand	Size	D	Min. Bore Diam.	L	F	Insert Screw	Torx Key
SNR0040T22V-T04	22	40	48	300	29	S22	K22
SNR0050T27V-T04	22	50	58	350	34	S22	K22
SNR0040T27V-T10	27	40	48	300	29	S27	K27
SNR0050T27V-T10	27	50	58	350	34	S27	K27

For **LEFT HAND** toolholders specify SNL instead of SNR

Calculating the Helix Angle and choosing the Right Anvil

Calculating the helix angle β



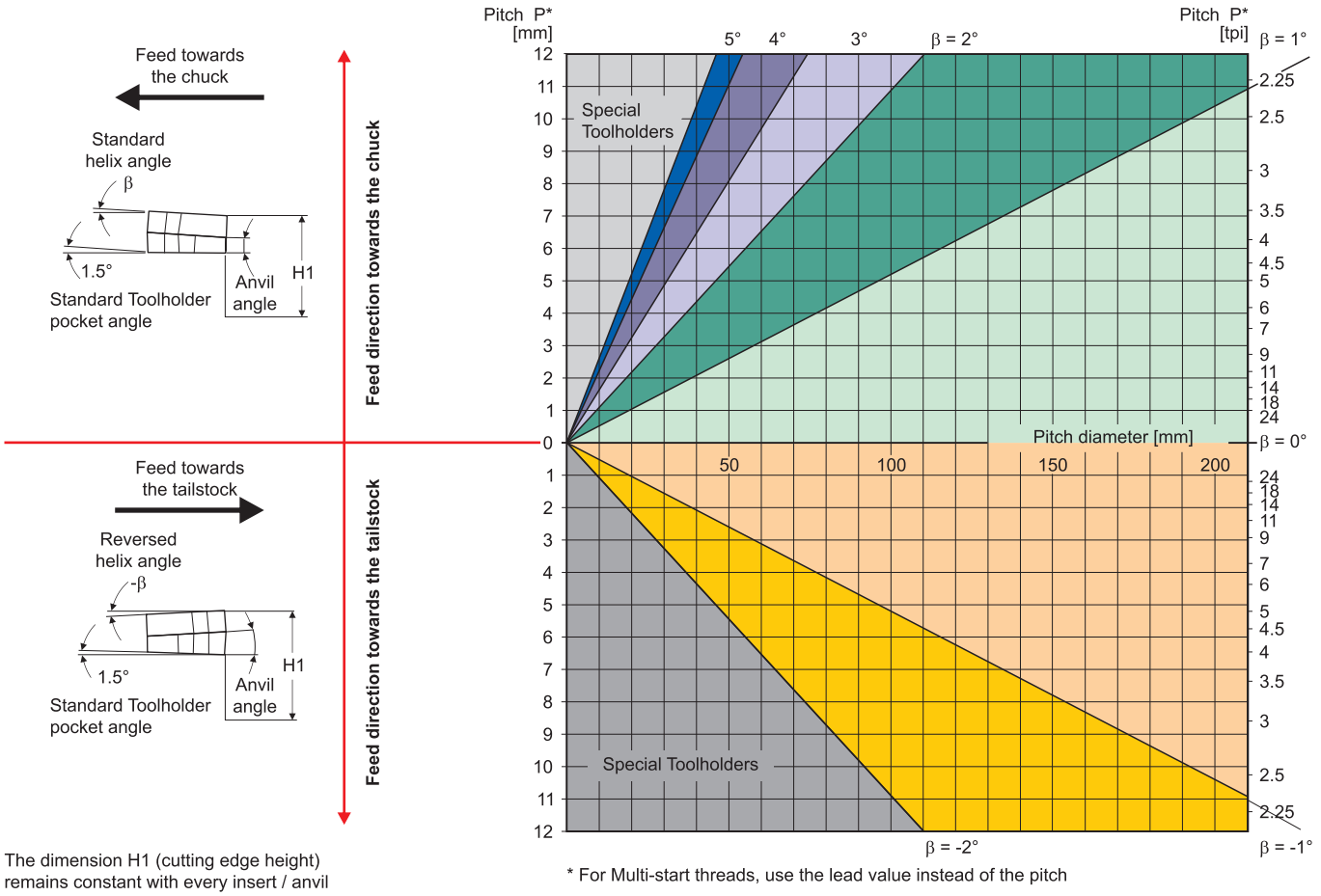
The helix angle is calculated by the following formula :

$$\beta = \arctan \frac{P \times N}{\pi \times D}$$

β - Helix angle [°]
P - Pitch [mm]
N - No. of starts
D - Pitch diameter [mm]
Lead = P x N

The helix angle can also be found from the diagram below.

Helix angle Diagram



The dimension H1 (cutting edge height) remains constant with every insert / anvil combination.

* For Multi-start threads, use the lead value instead of the pitch

Anvils - for Laydown Style Inserts (Standard, U, M)

IC	L	Holder	Resultant Helix Angle						
			4.5°	3.5°	2.5°	1.5°	0°	-0.5°	-1.5°
			Anvil Ordering Code						
3/8"	16	ER/NL	YE16-3P	YE16-2P	YE16-1P	YE16	YE16-1N	YE16-2N	YE16-3N
	16	ER/NL	YN16-3P	YN16-2P	YN16-1P	YN16	YN16-1N	YN16-2N	YN16-3N
1/2"	22	ER/NL	YE22-3P	YE22-2P	YE22-1P	YE22	YE22-1N	YE22-2N	YE22-3N
	22	ER/NL	YN22-3P	YN22-2P	YN22-1P	YN22	YN22-1N	YN22-2N	YN22-3N
5/8"	27	ER/NL	YE27-3P	YE27-2P	YE27-1P	YE27	YE27-1N	YE27-2N	YE27-3N
	27	ER/NL	YN27-3P	YN27-2P	YN27-1P	YN27	YN27-1N	YN27-2N	YN27-3N
1/2"U	22	ER/NL	YE22U-3P	YE22U-2P	YE22U-1P	YE22U	YE22U-1N	YE22U-2N	YE22U-3N
	22	ER/NL	YN22U-3P	YN22U-2P	YN22U-1P	YN22U	YN22U-1N	YN22U-2N	YN22U-3N
5/8"U	27	ER/NL	YE27U-3P	YE27U-2P	YE27U-1P	YE27U	YE27U-1N	YE27U-2N	YE27U-3N
	27	ER/NL	YN27U-3P	YN27U-2P	YN27U-1P	YN27U	YN27U-1N	YN27U-2N	YN27U-3N

Technical Section

Carbide Grade Selection

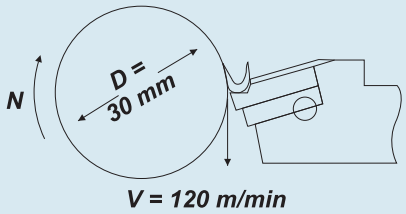
Coated Grades	Machining Materials
CG140	PVD TIALN coated sub-micron grade for steel, stainless steel, cast steel, cast iron at medium to high cutting speed
CG120	PVD TIN coated sub-micron grade for carbon steel, stainless steel, cast steel, cast iron at medium to low cutting speed

Recommended cutting speed (m/min) for Thread Turning Inserts

Machining Materials	Insert Grades	
	CG140	CG120
Low medium carbon steel	120 - 180	90 - 130
High carbon steel	90 - 130	70 - 100
Alloy Steel or Quenched and Tempered Steel	60 - 90	50 - 70
Stainless Steel	90 - 130	60 - 90
Cast Steel	100 - 130	60 - 90
Cast Iron	120 - 140	60 - 100
Aluminum Alloy, Copper Alloy	-	150 - 350

Conversion of Cutting Speed to Rotation Speed

Conversion of a selected cutting speed to rotation speed is calculated by the following formula :



Example

$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274\ RPM$$

No of threading passes selection for single point inserts

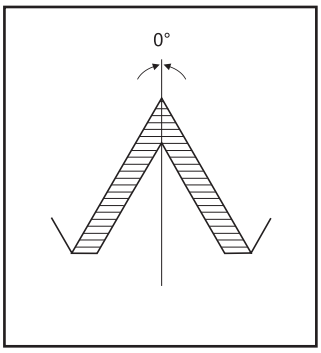
Pitch	mm	0.5	0.8	1.0	1.25	1.50	1.75	2.0	2.5	3.0	4.0	6.0
	TPI	48	32	24	20	16	14	12	10	8	6	4
Number of passes		3-6	4-7	4-9	6-10	5-11	9-12	6-13	7-15	8-17	10-20	11-22

Notes :

1. For most applications the middle of the range is a good starting point.
2. For most materials, the tougher the material, the higher the number of passes should be selected.
3. As a general rule, less passes are better than more speed.

Optional Infeed Angles for Threading Applications

Radial Infeed



Advantage :

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

Disadvantage :

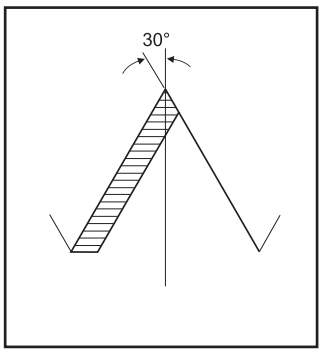
Tool develops a channel chip which may be difficult to handle.

Tip chipping occurs when cutting high-tensile materials.

Burr condition is increased.

Entire cutting edge is engaged at finish of thread, causing increased tendency to chatter.

Flank Infeed



Advantage :

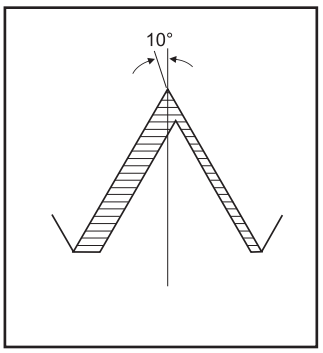
Cutting with the leading edge of the threading tool gives the chip a definate flow out of the thread form area. This reduces the burr problem on the trailing edge of the tool. To avoid bad surface finish, chipping, or excessive flank wear due to rubbing of the trailing edge, the infeed angle should be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

Disadvantage :

Trailing edge of threading insert may drag or rub, and tends to chip.

Torn or poor surface finish threads result when cutting soft, gummy materials such as low carbon steels, aluminum, and stainless steels.

Modified Infeed



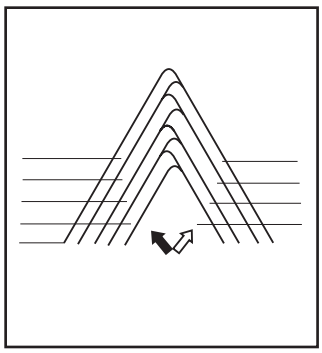
Advantage :

Tool cuts both sides of tread form and, therefore, is protected from chipping similar to 0° infeed. Channel-type chip develops but uneven chip thickness helps remove the chip similar to flank infeed.

Disadvantage :

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

Alternate Flank Infeed



Advantage :

Increased tool life because both edges are used equally.

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

Disadvantage :

Difficult to cut on conventional machines.