

KORLOY®

Threading Solution



Fono: 055 787169
www.itachile.com

THE CUTTING TOOL PIONEER
We Create, You Feel!







Introduction

KORLOY INC. is a total cutting tool manufacturer who makes carbide, coated carbide and etc. Since 1966, constant innovation has led **KORLOY INC.** to be the best carbide cutting tool manufacturer in Korea, who tries to be one of the world top class in the field of cutting tool manufacture.

KORLOY INC. is exporting to over 52 nations through out the world. The products of **KORLOY INC.** have been getting better and better reputation by virtue of creative, progressive and technical human-resource with up-to-date manufacturing machines as well as Technology Oriented and Market Oriented Management Philosophy.

KORLOY INC. will do the best to be a World best cutting-tool Manufacturer hoping constant interest and support from our generous customers.

Threading Insert

KORLOY Code System(Insert)

Partial profile 60° External · Internal

Partial profile 55° External · Internal

ISO Metric External · Internal

American UN External · Internal

Whitworth for BSW, BSP External · Internal

NPT External · Internal

Thread Turning Insert



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Type of Insert

1

E : External
I : Internal

Hand of Insert

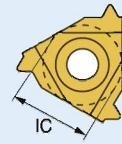
2

R : Right Hand Insert
L : Left Hand Insert

Insert Size

3

11 - IC 6.35
16 - IC 9.525
22 - IC 12.7
27 - IC 15.875



E

1

R

2

16

3

-

4

1.5

5

ISO

5

Pitch

4

Full profile	
mm	TPI
0.35 - 6.0	72 - 4

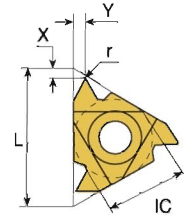
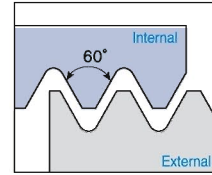
Partial profile		
Code	mm	TPI
A	0.5 - 1.5	48 - 16
AG	0.5 - 3.0	48 - 8
G	1.75 - 3.0	14 - 8
N	3.5 - 5.0	7 - 5
Q	5.5 - 6.0	4.5 - 4

Thread Standard

5

60° - Partial profile 60°
55° - Partial profile 55°
ISO - ISO Metric
UN - American UN
W - Whitworth for BSW, BSP
NPT - NPT

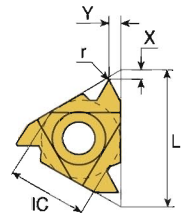
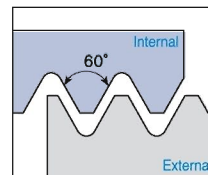
Partial profile 60° External



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	Pitch (mm)	TPI	Dimensions (mm)				
							IC	L	r	X	Y
ER(L)H□□-11(C)	ER11-A60	○	EL11-A60	○	0.5-1.5	48-16	6.35	11	0.05	0.8	0.9
	ER16-A60	●	EL16-A60	○	0.5-1.5	48-16					
ER(L)H□□-16(C)	ER16-G60	●	EL16-G60	○	1.75-3.0	14-8	9.525	16	0.27	1.2	1.7
	ER16-AG60	●	EL16-AG60	○	0.5-3.0	48-8					
ER(L)H□□-22(C)	ER22-N60	●	EL22-N60	○	3.5-5.0	7-5	12.7	22	0.53	1.7	2.5
ER(L)H□□-27(C)	ER27-Q60	○	EL27-Q60	○	5.5-6.0	4.5-4	15.875	27	0.64	2.1	3.1

● : Stock Item ○ : Under preparing for stock

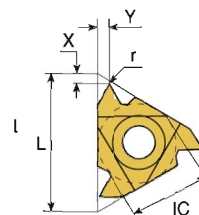
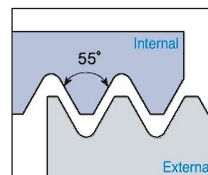
Partial profile 60° Internal



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	Pitch (mm)	TPI	Dimensions (mm)				
							IC	L	r	X	Y
IR(L)H□□-N-11	IR11-A60	●	IL11-A60	○	0.5-1.5	48-16	6.35	11	0.05	0.8	0.9
	IR16-A60	●	IL16-A60	○	0.5-1.5	48-16					
IR(L)H□□-16(C)	IR16-G60	●	IL16-G60	○	1.75-3.0	14-8	9.525	16	0.16	1.2	1.7
	IR16-AG60	●	IL16-AG60	○	0.5-3.0	48-8					
IR(L)H□□-22(C)	IR22-N60	●	IL22-N60	○	3.5-5.0	7-5	12.7	22	0.30	1.7	2.5
IR(L)H□□-27(C)	IR27-Q60	○	IL27-Q60	○	5.5-6.0	4.5-4	15.875	27	0.30	1.8	2.7

● : Stock Item ○ : Under preparing for stock

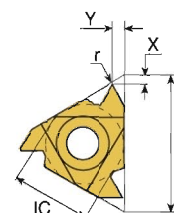
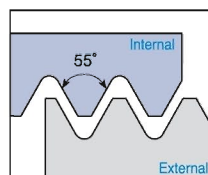
Partial profile 55° External



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	Pitch (mm)	TPI	Dimensions (mm)				
							I.C	L	r	X	Y
ER(L)H□□N-11	ER11-A55	○	EL11-A55	○	0.5-1.5	48-16	6.35	11	0.05	0.8	0.9
	ER16-A55	●	EL16-A55	○	0.5-1.5	48-16					
ER(L)H□□-16(C)	ER16-G55	●	EL16-G55	○	1.75-3.0	14-8	9.525	16	0.21	1.2	1.7
	ER16-AG55	●	EL16-AG55	○	0.5-3.0	48-8					
ER(L)H□□-22(C)	ER22-N55	●	EL22-N55	○	3.5-5.0	7-5	12.7	22	0.43	1.7	2.5
ER(L)H□□-27(C)	ER27-Q55	○	EL27-Q55	○	5.5-6.0	4.5-4	15.875	27	0.6	2	2.9

● : Stock Item ○ : Under preparing for stock

Partial profile 55° Internal



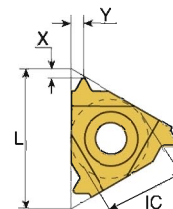
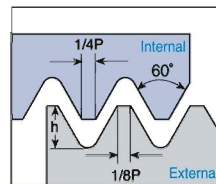
Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	Pitch (mm)	TPI	Dimensions (mm)				
							I.C	L	r	X	Y
IR(L)H□□N-11	IR11-A55	●	IL11-A55	○	0.5-1.5	48-16	6.35	11	0.05	0.8	0.9
	IR16-A55	●	IL16-A55	○	0.5-1.5	48-16					
IR(L)H□□-16(C)	IR16-G55	●	IL16-G55	○	1.75-3.0	14-8	9.525	16	0.21	1.2	1.7
	IR16-AG55	●	IL16-AG55	○	0.5-3.0	48-8					
IR(L)H□□-22(C)	IR22-N55	●	IL22-N55	○	3.5-5.0	7-5	12.7	22	0.43	1.7	2.5
IR(L)H□□-27(C)	IR27-Q55	○	IL27-Q55	○	5.5-6.0	4.5-4	15.875	27	0.60	2.0	2.9

● : Stock Item ○ : Under preparing for stock

Thread Turning Insert

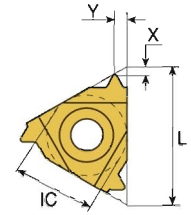
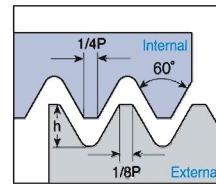
ISO Metric

External



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	Pitch (mm)	Dimensions (mm)				
						IC	L	h _{min.}	X	Y
ER(L)H□□N-11	ER11-0.35ISO	○	EL11-0.35ISO	○	0.35	6.35	11	0.21	0.8	0.4
	ER11-0.4ISO	○	EL11-0.4ISO	○	0.4			0.25	0.7	0.4
	ER11-0.45ISO	○	EL11-0.45ISO	○	0.45			0.28	0.7	0.4
	ER11-0.5ISO	○	EL11-0.5ISO	○	0.5			0.31	0.6	0.4
	ER11-0.6ISO	○	EL11-0.6ISO	○	0.6			0.37	0.6	0.6
	ER11-0.7ISO	○	EL11-0.7ISO	○	0.7			0.43	0.6	0.6
	ER11-0.75ISO	○	EL11-0.75ISO	○	0.75			0.46	0.6	0.6
	ER11-0.8ISO	○	EL11-0.8ISO	○	0.8			0.49	0.6	0.6
	ER11-1.0ISO	○	EL11-1.0ISO	○	1.0			0.61	0.7	0.7
	ER11-1.25ISO	○	EL11-1.25ISO	○	1.25			0.77	0.8	0.9
	ER11-1.5ISO	○	EL11-1.5ISO	○	1.5			0.92	0.8	1.0
	ER11-1.75ISO	○	EL11-1.75ISO	○	1.75			1.07	0.8	1.1
ER(L)H□□16(C)	ER16-0.35ISO	○	EL16-0.35ISO	○	0.35	9.525	16	0.21	0.8	0.4
	ER16-0.4ISO	○	EL16-0.4ISO	○	0.4			0.25	0.7	0.4
	ER16-0.45ISO	○	EL16-0.45ISO	○	0.45			0.28	0.7	0.4
	ER16-0.5ISO	●	EL16-0.5ISO	○	0.5			0.31	0.6	0.4
	ER16-0.6ISO	○	EL16-0.6ISO	○	0.6			0.37	0.6	0.6
	ER16-0.7ISO	○	EL16-0.7ISO	○	0.7			0.43	0.6	0.6
	ER16-0.75ISO	●	EL16-0.75ISO	○	0.75			0.46	0.6	0.6
	ER16-0.8ISO	○	EL16-0.8ISO	○	0.8			0.49	0.6	0.6
	ER16-1.0ISO	●	EL16-1.0ISO	○	1.0			0.61	0.7	0.7
	ER16-1.25ISO	●	EL16-1.25ISO	○	1.25			0.77	0.8	0.9
	ER16-1.5ISO	●	EL16-1.5ISO	○	1.5			0.92	0.8	1.0
	ER16-1.75ISO	●	EL16-1.75ISO	○	1.75			1.07	0.9	1.2
	ER16-2.0ISO	●	EL16-2.0ISO	○	2.0			1.23	1.0	1.3
	ER16-2.5ISO	●	EL16-2.5ISO	○	2.5			1.53	1.1	1.5
ER16-3.0ISO	●	EL16-3.0ISO	○	3.0	1.84	1.2	1.6			
ER(L)H□□22(C)	ER22-3.5ISO	●	EL22-3.5ISO	○	3.5	12.7	22	2.15	1.6	2.3
	ER22-4.0ISO	○	EL22-4.0ISO	○	4.0			2.45	1.6	2.3
	ER22-4.5ISO	●	EL22-4.5ISO	○	4.5			2.76	1.7	2.4
	ER22-5.0ISO	●	EL22-5.0ISO	○	5.0			3.07	1.7	2.5
ER(L)H□□27(C)	ER27-5.5ISO	○	EL27-5.5ISO	○	5.5	15.875	27	3.37	1.9	2.7
	ER27-6.0ISO	○	EL27-6.0ISO	○	6.0			3.68	2.0	2.9

● : Stock Item ○ : Under preparing for stock



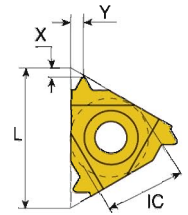
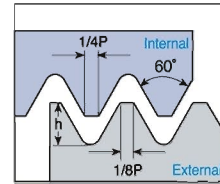
Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	Pitch (mm)	Dimensions (mm)				
						IC	L	h _{min.}	X	Y
IR(L)H□□N-11	IR11-0.35ISO	○	IL11-0.35ISO	○	0.35	6.35	11	0.20	0.8	0.3
	IR11-0.4ISO	○	IL11-0.4ISO	○	0.4			0.23	0.8	0.4
	IR11-0.45ISO	○	IL11-0.45ISO	○	0.45			0.26	0.8	0.4
	IR11-0.5ISO	●	IL11-0.5ISO	○	0.5			0.29	0.6	0.4
	IR11-0.6ISO	○	IL11-0.6ISO	○	0.6			0.35	0.6	0.6
	IR11-0.7ISO	○	IL11-0.7ISO	○	0.7			0.40	0.6	0.6
	IR11-0.75ISO	●	IL11-0.75ISO	○	0.75			0.43	0.6	0.6
	IR11-0.8ISO	○	IL11-0.8ISO	○	0.8			0.46	0.6	0.6
	IR11-1.0ISO	●	IL11-1.0ISO	○	1.0			0.58	0.6	0.7
	IR11-1.25ISO	●	IL11-1.25ISO	○	1.25			0.72	0.8	0.9
	IR11-1.5ISO	●	IL11-1.5ISO	○	1.5			0.87	0.8	1.0
	IR11-1.75ISO	●	IL11-1.75ISO	○	1.75			1.01	0.9	1.1
	IR11-2.0ISO	○	IL11-2.0ISO	○	2.0			1.15	0.9	1.1
	IR11-2.5ISO	○	IL11-2.5ISO	○	2.5			1.44	0.8	1.1
IR(L)H□□-16(C)	IR16-0.35ISO	○	IL16-0.35ISO	○	0.35	9.525	16	0.20	0.8	0.3
	IR16-0.4ISO	○	IL16-0.4ISO	○	0.4			0.23	0.8	0.4
	IR16-0.45ISO	○	IL16-0.45ISO	○	0.45			0.26	0.8	0.4
	IR16-0.5ISO	●	IL16-0.5ISO	○	0.5			0.29	0.6	0.4
	IR16-0.6ISO	○	IL16-0.6ISO	○	0.6			0.35	0.6	0.6
	IR16-0.7ISO	○	IL16-0.7ISO	○	0.7			0.40	0.6	0.6
	IR16-0.75ISO	●	IL16-0.75ISO	○	0.75			0.43	0.6	0.6
	IR16-0.8ISO	○	IL16-0.8ISO	○	0.8			0.46	0.6	0.6
	IR16-1.0ISO	●	IL16-1.0ISO	○	1.0			0.58	0.6	0.7
	IR16-1.25ISO	●	IL16-1.25ISO	○	1.25			0.72	0.8	0.9
	IR16-1.5ISO	●	IL16-1.5ISO	○	1.5			0.87	0.8	1.0
	IR16-1.75ISO	●	IL16-1.75ISO	○	1.75			1.01	0.9	1.2
	IR16-2.0ISO	●	IL16-2.0ISO	○	2.0			1.15	1.0	1.3
	IR16-2.5ISO	●	IL16-2.5ISO	○	2.5			1.44	1.1	1.5
IR16-3.0ISO	●	IL16-3.0ISO	○	3.0	1.73	1.1	1.5			
IR(L)H□□-22(C)	IR22-3.5ISO	●	IL22-3.5ISO	○	3.5	12.7	22	2.02	1.6	2.3
	IR22-4.0ISO	●	IL22-4.0ISO	○	4.0			2.31	1.6	2.3
	IR22-4.5ISO	●	IL22-4.5ISO	○	4.5			2.60	1.6	2.4
	IR22-5.0ISO	●	IL22-5.0ISO	○	5.0			2.89	1.6	2.3
IR(L)H□□-27(C)	IR27-5.5ISO	○	IL27-5.5ISO	○	5.5	15.875	27	3.17	1.6	2.3
	IR27-6.0ISO	○	IL27-6.0ISO	○	6.0			3.46	1.8	2.5

Thread Turning Insert

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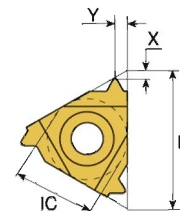
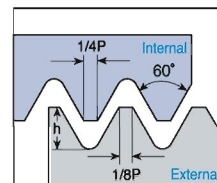


American UN External



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	TPI	Dimensions (mm)				
						IC	L	h _{min.}	X	Y
ER(L)H□□N-11	ER11-72UN	○	EL11-72UN	○	72	6.35	11	0.22	0.8	0.4
	ER11-64UN	○	EL11-64UN	○	64			0.24	0.8	0.4
	ER11-56UN	○	EL11-56UN	○	56			0.28	0.7	0.4
	ER11-48UN	○	EL11-48UN	○	48			0.32	0.6	0.6
	ER11-44UN	○	EL11-44UN	○	44			0.35	0.6	0.6
	ER11-40UN	○	EL11-40UN	○	40			0.39	0.6	0.6
	ER11-36UN	○	EL11-36UN	○	36			0.43	0.6	0.6
	ER11-32UN	○	EL11-32UN	○	32			0.49	0.6	0.6
	ER11-28UN	○	EL11-28UN	○	28			0.56	0.6	0.7
	ER11-27UN	○	EL11-27UN	○	27			0.58	0.7	0.8
	ER11-24UN	○	EL11-24UN	○	24			0.65	0.7	0.8
	ER11-20UN	○	EL11-20UN	○	20			0.78	0.8	0.9
	ER11-18UN	○	EL11-18UN	○	18			0.87	0.8	1.0
	ER11-16UN	○	EL11-16UN	○	16			0.97	0.9	1.1
	ER11-14UN	○	EL11-14UN	○	14			1.11	0.9	1.1
ER(L)H□□16(C)	ER16-72UN	○	EL16-72UN	○	72	9.525	16	0.22	0.8	0.4
	ER16-64UN	○	EL16-64UN	○	64			0.24	0.8	0.4
	ER16-56UN	○	EL16-56UN	○	56			0.28	0.7	0.4
	ER16-48UN	○	EL16-48UN	○	48			0.32	0.6	0.6
	ER16-44UN	○	EL16-44UN	○	44			0.35	0.6	0.6
	ER16-40UN	○	EL16-40UN	○	40			0.39	0.6	0.6
	ER16-36UN	○	EL16-36UN	○	36			0.43	0.6	0.6
	ER16-32UN	○	EL16-32UN	○	32			0.49	0.6	0.6
	ER16-28UN	●	EL16-28UN	○	28			0.56	0.6	0.7
	ER16-27UN	○	EL16-27UN	○	27			0.58	0.7	0.8
	ER16-24UN	●	EL16-24UN	○	24			0.65	0.7	0.8
	ER16-20UN	●	EL16-20UN	○	20			0.78	0.8	0.9
	ER16-18UN	●	EL16-18UN	○	18			0.87	0.8	1.0
	ER16-16UN	●	EL16-16UN	○	16			0.97	0.9	1.1
	ER16-14UN	●	EL16-14UN	○	14			1.11	1.0	1.2
	ER16-13UN	○	EL16-13UN	○	13			1.20	1.0	1.3
	ER16-12UN	●	EL16-12UN	○	12			1.30	1.1	1.4
	ER16-11.5UN	○	EL16-11.5UN	○	11.5			1.35	1.1	1.5
	ER16-11UN	●	EL16-11UN	○	11			1.42	1.1	1.5
ER16-10UN	●	EL16-10UN	○	10	1.56	1.1	1.5			
ER16-9UN	●	EL16-9UN	○	9	1.73	1.2	1.7			
ER16-8UN	●	EL16-8UN	○	8	1.95	1.2	1.6			
ER(L)H□□22(C)	ER22-7UN	○	EL22-7UN	○	7	12.7	22	2.22	1.6	2.3
	ER22-6UN	○	EL22-6UN	○	6			2.60	1.6	2.3
	ER22-5UN	○	EL22-5UN	○	5			3.12	1.7	2.5
ER(L)H□□27(C)	ER27-4.5UN	○	EL27-4.5UN	○	4.5	15.875	27	3.46	1.9	2.7
	ER27-4UN	○	EL27-4UN	○	4			3.89	2.1	3.0

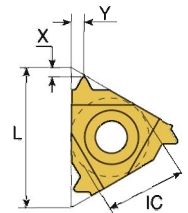
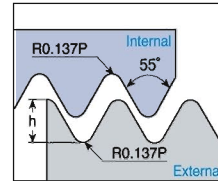
● : Stock Item ○ : Under preparing for stock



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	TPI	Dimensions (mm)				
						IC	L	h _{min.}	X	Y
IR(L)H□□N-11	IR11-72UN	○	IL11-72UN	○	72	6.35	11	0.20	0.8	0.3
	IR11-64UN	○	IL11-64UN	○	64			0.23	0.8	0.4
	IR11-56UN	○	IL11-56UN	○	56			0.26	0.7	0.4
	IR11-48UN	○	IL11-48UN	○	48			0.31	0.6	0.6
	IR11-44UN	○	IL11-44UN	○	44			0.33	0.6	0.6
	IR11-40UN	○	IL11-40UN	○	40			0.37	0.6	0.6
	IR11-36UN	○	IL11-36UN	○	36			0.41	0.6	0.6
	IR11-32UN	○	IL11-32UN	○	32			0.46	0.6	0.6
	IR11-28UN	○	IL11-28UN	○	28			0.52	0.6	0.7
	IR11-27UN	○	IL11-27UN	○	27			0.54	0.7	0.8
	IR11-24UN	○	IL11-24UN	○	24			0.61	0.7	0.8
	IR11-20UN	○	IL11-20UN	○	20			0.73	0.8	0.9
	IR11-18UN	○	IL11-18UN	○	18			0.81	0.8	1.0
	IR11-16UN	○	IL11-16UN	○	16			0.92	0.9	1.1
	IR11-14UN	○	IL11-14UN	○	14			1.05	0.9	1.1
	IR11-12UN	○	IL11-12UN	○	12			1.22	0.8	1.1
	IR11-11UN	○	IL11-11UN	○	11			1.33	0.8	1.1
IR(L)H□□-16(C)	IR16-72UN	○	IL16-72UN	○	72	9.525	16	0.20	0.8	0.3
	IR16-64UN	○	IL16-64UN	○	64			0.23	0.8	0.4
	IR16-56UN	○	IL16-56UN	○	56			0.26	0.7	0.4
	IR16-48UN	○	IL16-48UN	○	48			0.31	0.6	0.6
	IR16-44UN	○	IL16-44UN	○	44			0.33	0.6	0.6
	IR16-40UN	○	IL16-40UN	○	40			0.37	0.6	0.6
	IR16-36UN	○	IL16-36UN	○	36			0.41	0.6	0.6
	IR16-32UN	○	IL16-32UN	○	32			0.51	0.6	0.6
	IR16-28UN	○	IL16-28UN	○	28			0.52	0.6	0.7
	IR16-27UN	○	IL16-27UN	○	27			0.54	0.7	0.8
	IR16-24UN	○	IL16-24UN	○	24			0.61	0.7	0.8
	IR16-20UN	●	IL16-20UN	○	20			0.73	0.8	0.9
	IR16-18UN	●	IL16-18UN	○	18			0.81	0.8	1.0
	IR16-16UN	●	IL16-16UN	○	16			0.92	0.9	1.1
	IR16-14UN	●	IL16-14UN	○	14			1.05	0.9	1.2
	IR16-13UN	○	IL16-13UN	○	13			1.13	1.0	1.3
	IR16-12UN	●	IL16-12UN	○	12			1.22	1.1	1.4
IR16-11.5UN	○	IL16-11.5UN	○	11.5	1.28	1.1	1.5			
IR16-11UN	○	IL16-11UN	○	11	1.33	1.1	1.5			
IR16-10UN	○	IL16-10UN	○	10	1.47	1.1	1.5			
IR16-9UN	○	IL16-9UN	○	9	1.63	1.2	1.7			
IR16-8UN	●	IL16-8UN	○	8	1.83	1.1	1.5			
IR(L)H□□-22(C)	IR22-7UN	○	IL22-7UN	○	7	12.7	22	2.09	1.6	2.3
	IR22-6UN	○	IL22-6UN	○	6			2.44	1.6	2.3
	IR22-5UN	○	IL22-5UN	○	5			2.93	1.6	2.3
IR(L)H□□-27(C)	IR27-4.5UN	○	IL27-4.5UN	○	4.5	15.875	27	3.26	1.7	2.4
	IR27-4UN	○	IL27-4UN	○	4			3.67	1.8	2.7

Thread Turning Insert

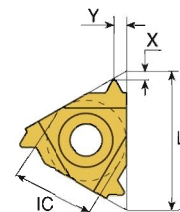
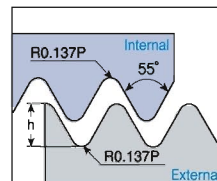
Whitworth for BSW, BSP External



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	TPI	Dimensions (mm)				
						IC	L	h _{min.}	X	Y
ER(L)H□□N-11	ER11-72W	○	EL11-72W	○	72	6.35	11	0.23	0.7	0.4
	ER11-60W	○	EL11-60W	○	60			0.27	0.7	0.4
	ER11-56W	○	EL11-56W	○	56			0.29	0.7	0.4
	ER11-48W	○	EL11-48W	○	48			0.34	0.6	0.6
	ER11-40W	○	EL11-40W	○	40			0.41	0.6	0.6
	ER11-36W	○	EL11-36W	○	36			0.45	0.6	0.6
	ER11-32W	○	EL11-32W	○	32			0.51	0.6	0.6
	ER11-28W	○	EL11-28W	○	28			0.58	0.6	0.7
	ER11-26W	○	EL11-26W	○	26			0.63	0.7	0.8
	ER11-24W	○	EL11-24W	○	24			0.68	0.7	0.8
	ER11-22W	○	EL11-22W	○	22			0.74	0.8	0.9
	ER11-20W	○	EL11-20W	○	20			0.81	0.8	0.9
	ER11-19W	○	EL11-19W	○	19			0.86	0.8	1.0
	ER11-18W	○	EL11-18W	○	18			0.90	0.8	1.0
	ER11-16W	○	EL11-16W	○	16			1.02	0.9	1.1
ER11-14W	○	EL11-14W	○	14	1.16	1.0	1.2			
ER(L)H□□16(C)	ER16-72W	○	EL16-72W	○	72	9.525	16	0.23	0.7	0.4
	ER16-60W	○	EL16-60W	○	60			0.27	0.7	0.4
	ER16-56W	○	EL16-56W	○	56			0.29	0.7	0.4
	ER16-48W	○	EL16-48W	○	48			0.34	0.6	0.6
	ER16-40W	○	EL16-40W	○	40			0.41	0.6	0.6
	ER16-36W	○	EL16-36W	○	36			0.45	0.6	0.6
	ER16-32W	○	EL16-32W	○	32			0.51	0.6	0.6
	ER16-30W	○	EL16-30W	○	30			0.55	0.6	0.7
	ER16-28W	●	EL16-28W	○	28			0.58	0.6	0.7
	ER16-26W	○	EL16-26W	○	26			0.63	0.7	0.8
	ER16-24W	○	EL16-24W	○	24			0.68	0.7	0.8
	ER16-22W	○	EL16-22W	○	22			0.74	0.8	0.9
	ER16-20W	●	EL16-20W	○	20			0.81	0.8	0.9
	ER16-19W	●	EL16-19W	○	19			0.86	0.8	1.0
	ER16-18W	○	EL16-18W	○	18			0.90	0.8	1.0
	ER16-16W	●	EL16-16W	○	16			1.02	0.9	1.1
	ER16-14W	●	EL16-14W	○	14			1.16	1.0	1.2
	ER16-12W	○	EL16-12W	○	12			1.36	1.1	1.4
ER16-11W	●	EL16-11W	○	11	1.48	1.1	1.5			
ER16-10W	○	EL16-10W	○	10	1.63	1.1	1.5			
ER16-9W	○	EL16-9W	○	9	1.81	1.2	1.7			
ER16-8W	○	EL16-8W	○	8	2.03	1.2	1.5			
ER(L)H□□22(C)	ER22-7W	○	EL22-7W	○	7	12.7	22	3.32	1.6	2.3
	ER22-6W	○	EL22-6W	○	6			2.71	1.6	2.3
	ER22-5W	○	EL22-5W	○	5			3.25	1.7	2.4
ER(L)H□□27(C)	ER27-4.5W	○	EL27-4.5W	○	4.5	15.875	27	3.61	1.8	2.6
	ER27-4W	○	EL27-4W	○	4			4.07	2.0	2.9

● : Stock Item ○ : Under preparing for stock

Whitworth for BSW, BSP Internal

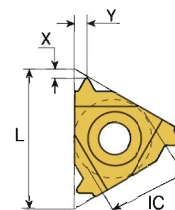
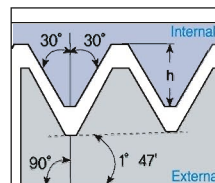


Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	TPI	Dimensions (mm)				
						IC	L	h _{min.}	X	Y
IR(L)H□□N-11	IR11-72W	○	IL11-72W	○	72	6.35	11	0.23	0.7	0.4
	IR11-60W	○	IL11-60W	○	60			0.27	0.7	0.4
	IR11-56W	○	IL11-56W	○	56			0.29	0.7	0.4
	IR11-48W	○	IL11-48W	○	48			0.34	0.6	0.6
	IR11-40W	○	IL11-40W	○	40			0.41	0.6	0.6
	IR11-36W	○	IL11-36W	○	36			0.45	0.6	0.6
	IR11-32W	○	IL11-32W	○	32			0.51	0.6	0.6
	IR11-28W	○	IL11-28W	○	28			0.58	0.6	0.7
	IR11-26W	○	IL11-26W	○	26			0.63	0.7	0.8
	IR11-24W	○	IL11-24W	○	24			0.68	0.7	0.8
	IR11-22W	○	IL11-22W	○	22			0.74	0.8	0.9
	IR11-20W	○	IL11-20W	○	20			0.81	0.8	0.9
	IR11-19W	●	IL11-19W	○	19			0.86	0.8	1.0
	IR11-18W	○	IL11-18W	○	18			0.90	0.8	1.0
	IR11-16W	○	IL11-16W	○	16			1.02	0.9	1.1
	IR11-14W	●	IL11-14W	○	14			1.16	0.9	1.1
IR11-12W	○	IL11-12W	○	12	1.32	0.9	1.2			
IR(L)H□□16(C)	IR16-72W	○	IL16-72W	○	72	9.525	16	0.23	0.7	0.4
	IR16-60W	○	IL16-60W	○	60			0.27	0.7	0.4
	IR16-56W	○	IL16-56W	○	56			0.29	0.7	0.4
	IR16-48W	○	IL16-48W	○	48			0.34	0.6	0.6
	IR16-40W	○	IL16-40W	○	40			0.41	0.6	0.6
	IR16-36W	○	IL16-36W	○	36			0.45	0.6	0.6
	IR16-32W	○	IL16-32W	○	32			0.51	0.6	0.6
	IR16-30W	○	IL16-30W	○	30			0.55	0.6	0.7
	IR16-28W	○	IL16-28W	○	28			0.58	0.6	0.7
	IR16-26W	○	IL16-26W	○	26			0.63	0.7	0.8
	IR16-24W	○	IL16-24W	○	24			0.68	0.7	0.8
	IR16-22W	○	IL16-22W	○	22			0.74	0.8	0.9
	IR16-20W	○	IL16-20W	○	20			0.81	0.8	0.9
	IR16-19W	●	IL16-19W	○	19			0.86	0.8	1.0
	IR16-18W	○	IL16-18W	○	18			0.90	0.8	1.0
	IR16-16W	●	IL16-16W	○	16			1.02	0.9	1.1
IR16-14W	●	IL16-14W	○	14	1.16	1.0	1.2			
IR16-12W	○	IL16-12W	○	12	1.36	1.1	1.4			
IR16-11W	●	IL16-11W	○	11	1.48	1.1	1.5			
IR16-10W	○	IL16-10W	○	10	1.63	1.1	1.5			
IR16-9W	○	IL16-9W	○	9	1.81	1.2	1.7			
IR16-8W	○	IL16-8W	○	8	2.03	1.2	1.5			
IR(L)H□□22(C)	IR22-7W	○	IL22-7W	○	7	12.7	22	3.32	1.6	2.3
	IR22-6W	○	IL22-6W	○	6			2.71	1.6	2.3
	IR22-5W	○	IL22-5W	○	5			3.25	1.7	2.4
IR(L)H□□27(C)	IR27-4.5W	○	IL27-4.5W	○	4.5	15.875	27	3.61	1.8	2.6
	IR27-4W	○	IL27-4W	○	4			4.07	2.0	2.9

● : Stock Item ○ : Under preparing for stock

NPT

External

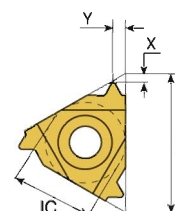
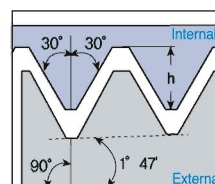


Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	TPI	Dimensions (mm)				
						I.C	L	h _{min.}	X	Y
ER(L)H□□N-11	ER11-27NPT	○	EL11-27NPT	○	27	6.35	11	0.66	0.7	0.8
	ER11-18NPT	○	EL11-18NPT	○	18			1.01	0.8	1.0
	ER11-14NPT	○	EL11-14NPT	○	14			1.33	0.8	1.0
ER(L)H□□-16(C)	ER16-27NPT	○	EL16-27NPT	○	27	9.525	16	0.66	0.7	0.8
	ER16-18NPT	●	EL16-18NPT	○	18			1.01	0.8	1.0
	ER16-14NPT	●	EL16-14NPT	○	14			1.33	0.9	1.2
	ER16-11.5NPT	●	EL16-11.5NPT	○	11.5			1.64	1.1	1.5
	ER16-8NPT	●	EL16-8NPT	○	8			2.42	1.3	1.8

● : Stock Item ○ : Under preparing for stock

NPT

Internal



Applicable Holder	Designation (R)	PC3030T	Designation (L)	PC3030T	TPI	Dimensions (mm)				
						I.C	L	h _{min.}	X	Y
IR(L)H□□N-11	IR11-27NPT	○	IL11-27NPT	○	27	6.35	11	0.66	0.7	0.8
	IR11-18NPT	○	IL11-18NPT	○	18			1.01	0.8	1.0
	IR11-14NPT	○	IL11-14NPT	○	14			1.33	0.8	1.0
IR(L)H□□-16(C)	IR16-27NPT	○	IL16-27NPT	○	27	9.525	16	0.66	0.7	0.8
	IR16-18NPT	○	IL16-18NPT	○	18			1.01	0.8	1.0
	IR16-14NPT	●	IL16-14NPT	○	14			1.33	0.9	1.2
	IR16-11.5NPT	●	IL16-11.5NPT	○	11.5			1.64	1.1	1.5
	IR16-8NPT	●	IL16-8NPT	○	8			2.42	1.3	1.8

● : Stock Item ○ : Under preparing for stock

Threading Holder & Boring Bar

KORLOY Code System (Tool Holder & Boring Bar)

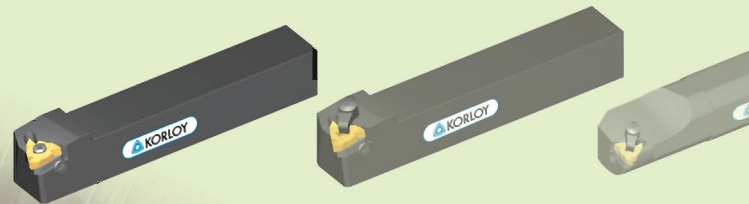
Tool Holder, Screw on system

Tool Holder, Clamp on system

Boring Bar, Screw on system

Boring Bar, Clamp on system

Thread Turning Tool Holder



Fono: 055 787169
www.itachile.com

www.itachile.com
Type of Insert

1 E : External threading I/S

Hand of Tool

2 R : Right Hand
L : Left Hand

Name

3 H : Holder

E R H 10 (N) - 11 (C)

1

2

3

4

5

6

7

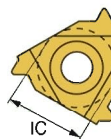
Shank Size(Height and Width) (mm)

4 8, 10, 12, 16,
20, 25, 32, 40, 50

Insert Size

6

11 - IC 6.35
16 - IC 9.525
22 - IC 12.7
27 - IC 15.875



Clamping System

7 Not shown : Screw-on system
C : Clamp-on system

Shim

5 N : No shim required
Not shown : Shim required

ER16-11.5NPT

EL16-11.5NPT

11.5

KORLOY Code System(Boring Bar)

Type of Insert

1 I : Internal threading I/S

Hand of Tool

2 R : Right Hand
L : Left Hand

Name

3 H : Holder

I R H 10 (N) - 11 (C)

1

2

3

4

5

6

7

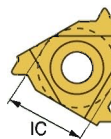
Shank Front Diameter(mm)

4 10, 12, 13, 16, 20,
25, 32, 40, 50, 60

Insert Size

6

11 - IC 6.35
16 - IC 9.525
22 - IC 12.7
27 - IC 15.875



Clamping system

7 Not shown : Screw-on system
C : Clamp-on system

Shim

5 N : No shim required
Not shown : Shim required

Note

Please note that 'Shank front diameter' and 'Shank diameter' can be differed. For more information about 'Shank diameter', see 'D size' in page 19 & 20.

IR(L)H□□-16(C)

IR16-14NPT

IL16-14NPT

14

9.525

16

1.33

0.9

1.2

16

IR16-11.5NPT

IL16-11.5NPT

11.5

1.64

1.1

1.5

IR16-8NPT

IL16-8NPT

8

2.42

1.3

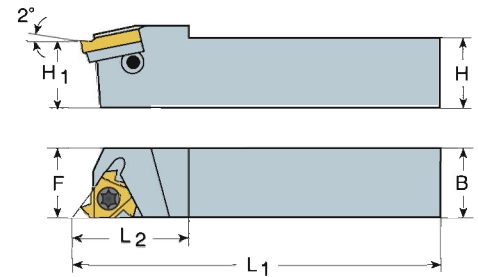
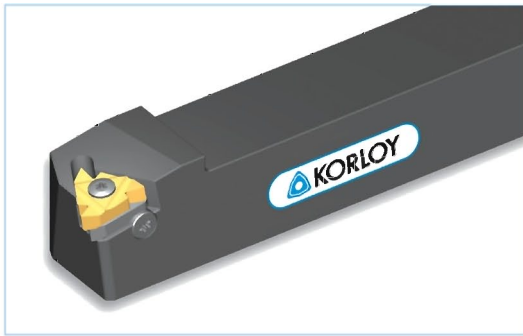
1.8

● : Stock Item ○ : Under preparing for stock

Thread Turning Tool Holder

www.itachile.com

Screw on system

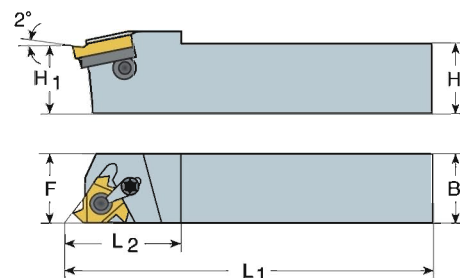


Designation	Stock		Dimensions (mm)					Parts				
								Insert Screw	Shim Screw	Wrench	Shim RH	Shim LH
	RH	LH	Inscribed circle	H=H1=B	F	L1	L2					
ER(L)H08N-11	○	○		8	11	136.4	17.5					
ER(L)H10N-11	○	○	6.35	10	11	70.0	17.5	ST11N	-	TW08P	-	-
ER(L)H12N-11	○	○		12	12	80.0	17.5					
ER(L)H12N-16	○	○		12	16	83.2	22	ST16N	-	TW10P	-	-
ER(L)H09-16	○	○		9.52	16	63.6	20.5					
ER(L)H12-16	●	○		12	16	83.2	22					
ER(L)H16-16	●	○	9.525	16	16	100.0	20.5	ST16	STA16	TW10P	ATE16	ATI16
ER(L)H20-16	●	○		20	20	128.6	30					
ER(L)H25-16	●	○		25	25	153.6	30					
ER(L)H32-16	●	○		32	32	173.6	30					
ER(L)H25-22	●	○		25	25	155.7	36					
ER(L)H32-22	●	○	12.7	32	32	175.7	36	ST22	STA22	TW20P	ATE22	ATI22
ER(L)H40-22	●	○		40	40	205.7	36					
ER(L)H25-27	○	○		25	32	151.6	35					
ER(L)H32-27	○	○	15.875	32	32	176.6	40	ST27	STA27	TW25L	ATE27	ATI27
ER(L)H40-27	○	○		40	40	206.6	40					
ER(L)H50-27	○	○		50	50	256.6	40					

- No Shim needed for N type holder.
- Helix angle is 1.5° for all holders.

● : Stock Item ○ : Under preparing for stock

Clamp on system

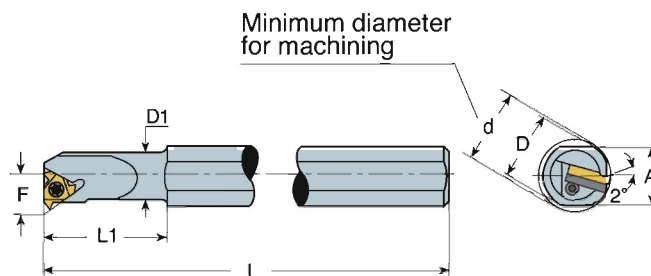


Designation	Stock		Dimensions (mm)					Parts				
	RH	LH	Inscribed circle	H=H1=B	F	L1	L2	Shim Screw	Wrench	Clamp	Shim RH	Shim LH
ER(L)H20-16C	●	○		20	20	128.6	30					
ER(L)H25-16C	●	○	9.525	25	25	153.6	30	STA16	TW10P TW15P	CTH16	ATE16	ATI16
ER(L)H32-16C	●	○		32	32	173.6	30					
ER(L)H25-22C	●	○		25	25	155.7	36					
ER(L)H32-22C	●	○	12.7	32	32	175.7	36	STA22	TW20P	CTH22	ATE22	ATI22
ER(L)H40-22C	●	○		40	40	205.7	36					
ER(L)H25-27C	○	○		25	32	151.6	35					
ER(L)H32-27C	○	○	15.875	32	32	176.6	40	STA27	TW25L	CTH27	ATE27	ATI27
ER(L)H40-27C	○	○		40	40	206.6	40					
ER(L)H50-27C	○	○		50	50	256.6	40					

• Helix angle is 1.5° for all holders.

● : Stock Item ○ : Under preparing for stock

Screw on system

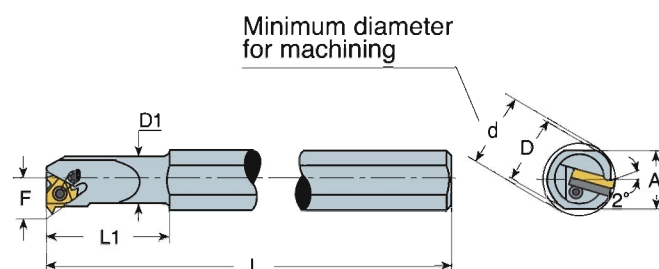


Designation	Stock		Dimensions (mm)								Parts				
											Insert Screw	Shim Screw	Wrench	Shim RH	Shim LH
	RH	LH	Inscribed circle	A	L	L1	D	D1	F	d					
IR(L)H10DN-11	●	○	6.35	18.0	100		10	10.0	7.3	13					
IR(L)H10N-11	●	○		18.0	180	25	20	10.0	7.3	13	ST11N	-	TW08P	-	-
IR(L)H13N-11	●	○		18.0	180	32	20	13.0	8.9	16					
IR(L)H13N-16	●	○	9.525	18.0	180	32	20	12.7	10.3	17					
IR(L)H16N-16	●	○		18.0	180	40	20	16.0	11.5	20	ST16N	-	TW10P	-	-
IR(L)H16DN-16	●	○		15.2	150	32	16	16.0	11.3	20					
IR(L)H20-16	●	○		18.0	180	40	20	20.0	13.4	24					
IR(L)H25-16	●	○		29.0	250	60	32	25.0	16.3	29					
IR(L)H25D-16	●	○	22.6	200	45	25	24.6	16.1	29	ST16	STA16	TW10P	ATI16	ATE16	
IR(L)H32-16	●	○	29.0	250	60	32	32.0	19.6	36						
IR(L)H40-16	●	○	36.0	300	60	40	40.0	23.8	44						
IR(L)H20N-22	●	○	12.7	18.0	180	50	20	20.0	15.6	27	ST22N	-	TW20P	-	-
IR(L)H25-22	●	○		29.0	250	60	32	25.0	17.4	32					
IR(L)H25D-22	●	○		22.6	200	45	25	24.6	17.2	32	ST22	STA22	TW20P	ATI22	ATE22
IR(L)H32-22	●	○		29.0	250	60	32	32.0	21.5	39					
IR(L)H40-22	●	○		36.0	300	60	40	40.0	25.8	47					
IR(L)H32-27	○	○	15.875	29.0	250	60	32	32.0	22.4	40					
IR(L)H40-27	○	○		36.0	300	60	40	40.0	26.4	48	ST27	STA27	TW25L	ATI27	ATE27
IR(L)H50-27	○	○		45.0	350	75	50	50.0	31.4	58					
IR(L)H60-27	○	○		54.0	400	75	60	60.0	36.4	69					

• No Shim needed for N type holder.
 • Helix angle is 1.5° for all holders.

● : Stock Item ○ : Under preparing for stock

Clamp on system



Designation	Stock		Dimensions (mm)								Parts				
	RH	LH	Inscribed circle	A	L	L1	D	D1	F	d	Shim Screw	Clamp	Wrench	Shim RH	Shim LH
IR(L)H20-16C	●	○	9.525	18.0	180	50	20	20.0	13.4	24	STA16	CTH16	TW10P TW15P	ATI16	ATE16
IR(L)H25-16C	●	○		28.0	250	60	32	25.0	16.3	29					
IR(L)H25D-16C	●	○		22.6	200	45	25	24.6	16.1	29					
IR(L)H32-16C	●	○		29.0	250	60	32	32.0	19.6	36					
IR(L)H40-16C	●	○		36.0	300	60	40	40.0	23.8	44					
IR(L)H25-22C	●	○	12.7	29.0	250	60	32	25.0	17.4	32	STA22	CTH22	TW20P	ATI22	ATE22
IR(L)H25D-22C	●	○		22.6	200	45	25	24.6	17.2	32					
IR(L)H32-22C	●	○		29.0	250	60	32	32.0	21.5	39					
IR(L)H40-22C	●	○		36.0	300	60	40	40.0	25.8	47					
IR(L)H32-27C	○	○	15.875	29.0	250	60	32	32.0	22.4	40	STA27	CTH27	TW25L	ATI27	ATE27
IR(L)H40-27C	○	○		36.0	300	60	40	40.0	26.4	48					
IR(L)H50-27C	○	○		45.0	350	75	50	50.0	31.4	58					
IR(L)H60-27C	○	○		54.0	400	75	60	60.0	36.4	69					

• Helix angle is 1.5° for all holders.

● : Stock Item ○ : Under preparing for stock

Thread Turning Technical Data

Special Features

Machining a Multi-Start Thread

Insert Profile Style

Thread Turning Method

Calculating the Helix Angle β

Helix Angle Diagram

Thread Infeed Methods

Shim

Grade and Application

Recommended Cutting Speed as per workpiece [Vc]

Calculation of N [RPM]

Number of Passes

Cutting Condition Depends on

Step by Step Thread Turning - Example

Trouble Shooting

TECHNICAL DATA



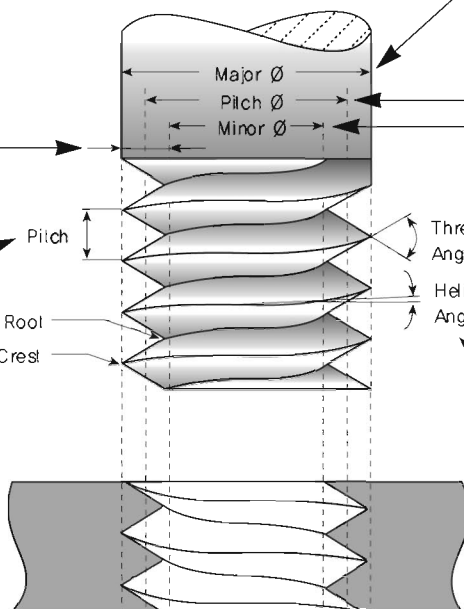
Fono: 055 787169
www.itachile.com

Special Features

External Thread

A thread on the external surface of a cylinder screw or cone

External Thread



Major Diameter

The largest diameter of a screw thread.

Pitch Diameter

On a straight thread, the diameter of an imaginary cylinder, the surface of which cuts the thread forms where the width of the thread and groove are equal.

Minor Diameter

The smallest diameter of a screw thread.

Helix Angle

For a straight thread, where the lead of the thread and the pitch diameter circle circumference form a right angled triangle, the helix angle is the angle opposite the lead.

Depth of Thread

The distance between crest and root measured normal to the axis.

Pitch

The distance between corresponding points on adjacent thread forms measured parallel to the axis. This distance can be defined in millimeters or by the tpi (threads per inch), which is the reciprocal of the pitch.

Nominal Diameter

The diameter from which the diameter limits are derived by the application of deviation allowances and tolerances.

Internal Thread

A thread on the internal surface of a cylinder or cone.

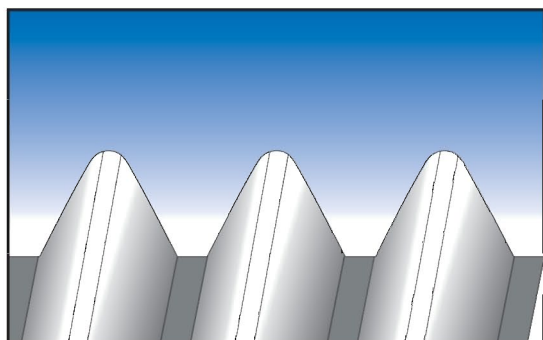
Straight Thread

A thread formed on a cylinder

Taper Thread

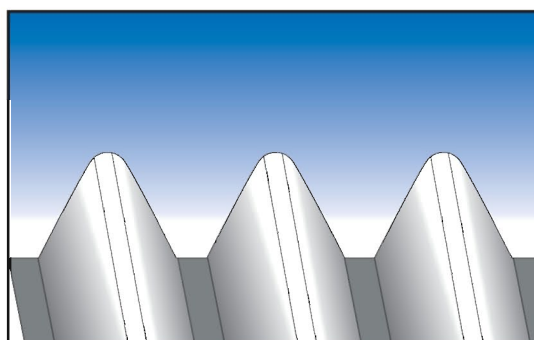
A thread formed on a cone

● Left-hand thread



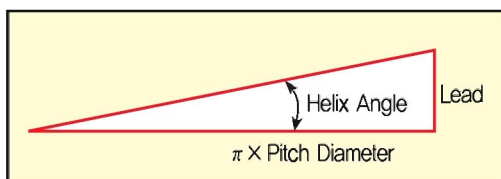
A thread which, when viewed axially, winds in a counterclockwise and receding direction. All left-hand threads are designated LH.

● Right-hand thread



A thread which, when viewed axially, winds in a clockwise and receding direction. Threads are always right-hand unless otherwise specified.

● The Helix Angle β



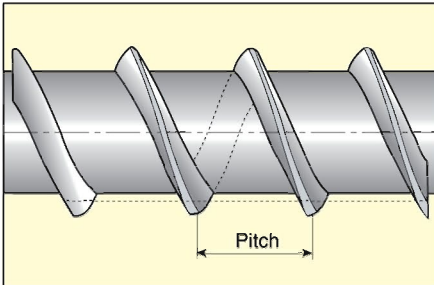
Lead

The distance a threaded part moves axially, with respect to a fixed mating part, in one complete revolution. The lead is equal to the pitch multiplied by the number of thread starts.

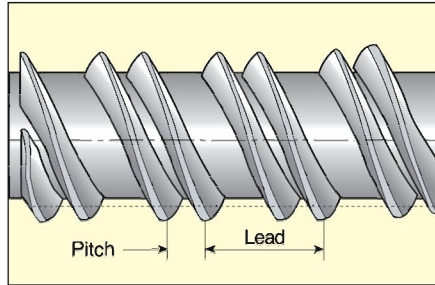
Machining a Multi-Start Thread

A thread in which the lead is an integral multiple, greater than one, of the pitch. A multi-start thread permits a more rapid advance without a coarser (larger) thread form.

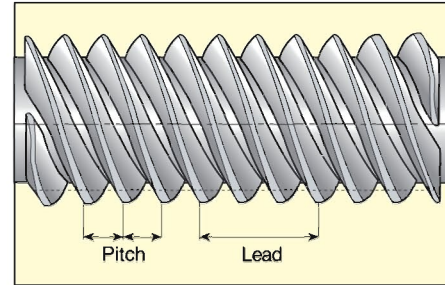
● First Start Machined



● Second Start Machined

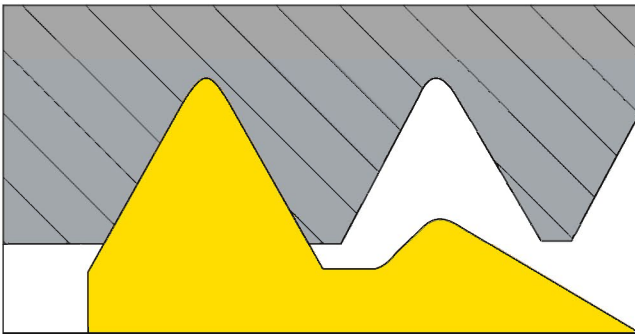


● Third Start Machined (Final, 3 Starts Thread)



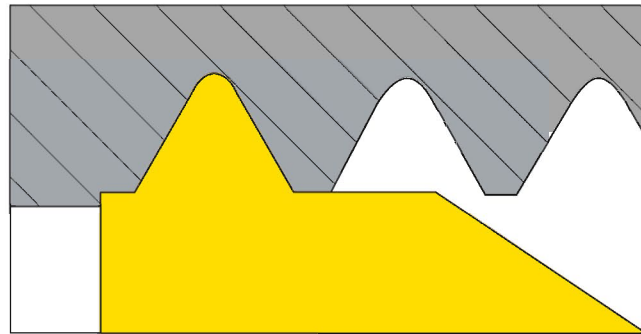
Insert Profile Style

● Partial Profile



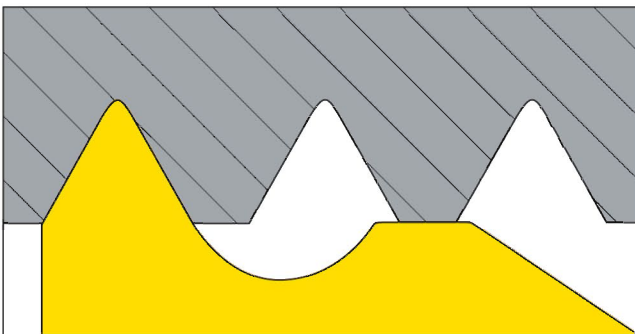
The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle.

● Full Profile



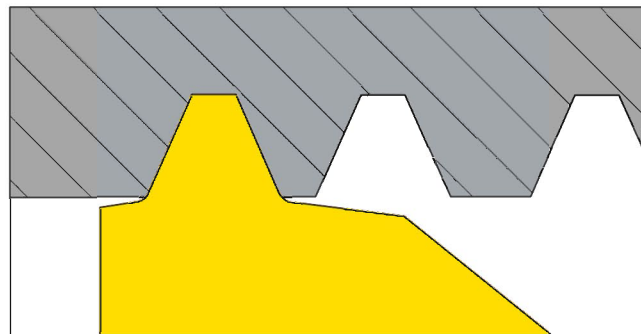
The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required.

● Full Profile for Fine Pitches



The full profile for Fine Pitches will form a complete thread. The topping of the outer diameter is generated by second tooth.

● Semi Full

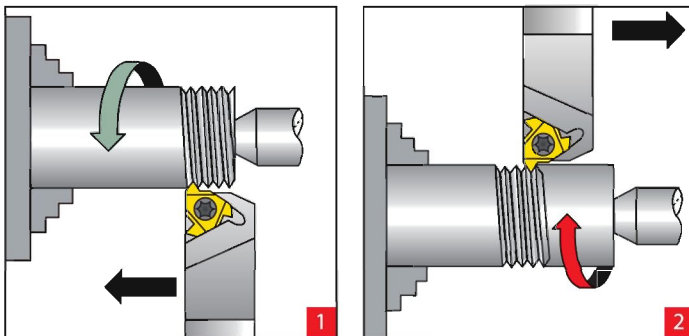


The Semi profile insert will form a complete thread including crest radius but without topping the outer diameter. Mainly used for trapezoidal profiles.

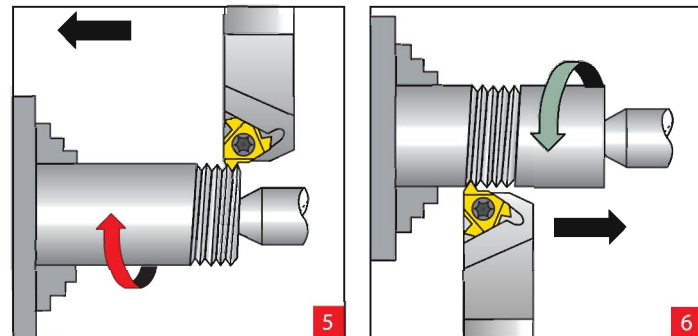
Thread Turning Method

Thread	Inserts & Toolholder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	EX RH	Counterclockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reversed	2
Right Hand Internal	IN RH	Counterclockwise	Towards chuck	Regular	3
	IN LH	Clockwise	From chuck	Reversed	4
Left Hand External	EX LH	Counterclockwise	Towards chuck	Regular	5
	EX RH	Clockwise	From chuck	Reversed	6
Left Hand Internal	IN LH	Counterclockwise	Towards chuck	Regular	7
	IN RH	Clockwise	From chuck	Reversed	8

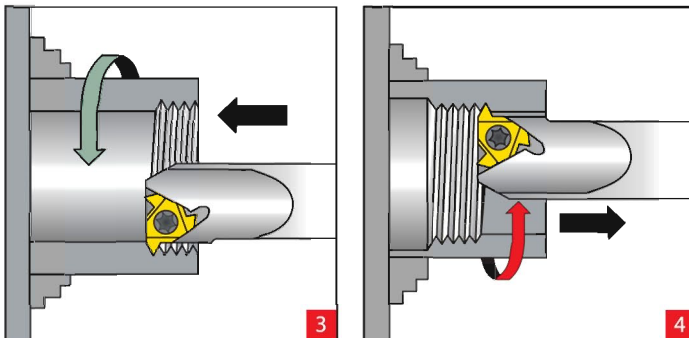
External RH Thread



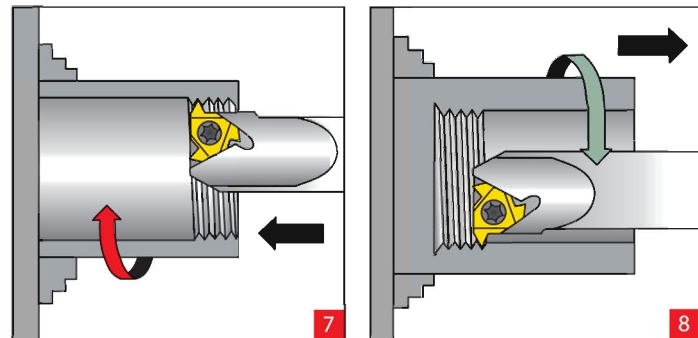
External LH Thread



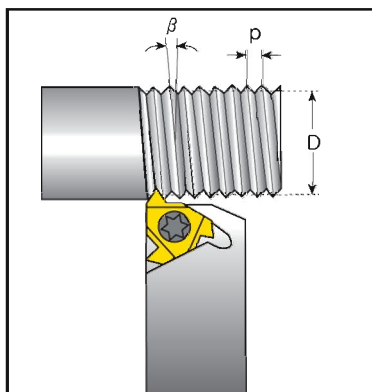
Internal RH Thread



Internal LH Thread



Calculating the Helix Angle β



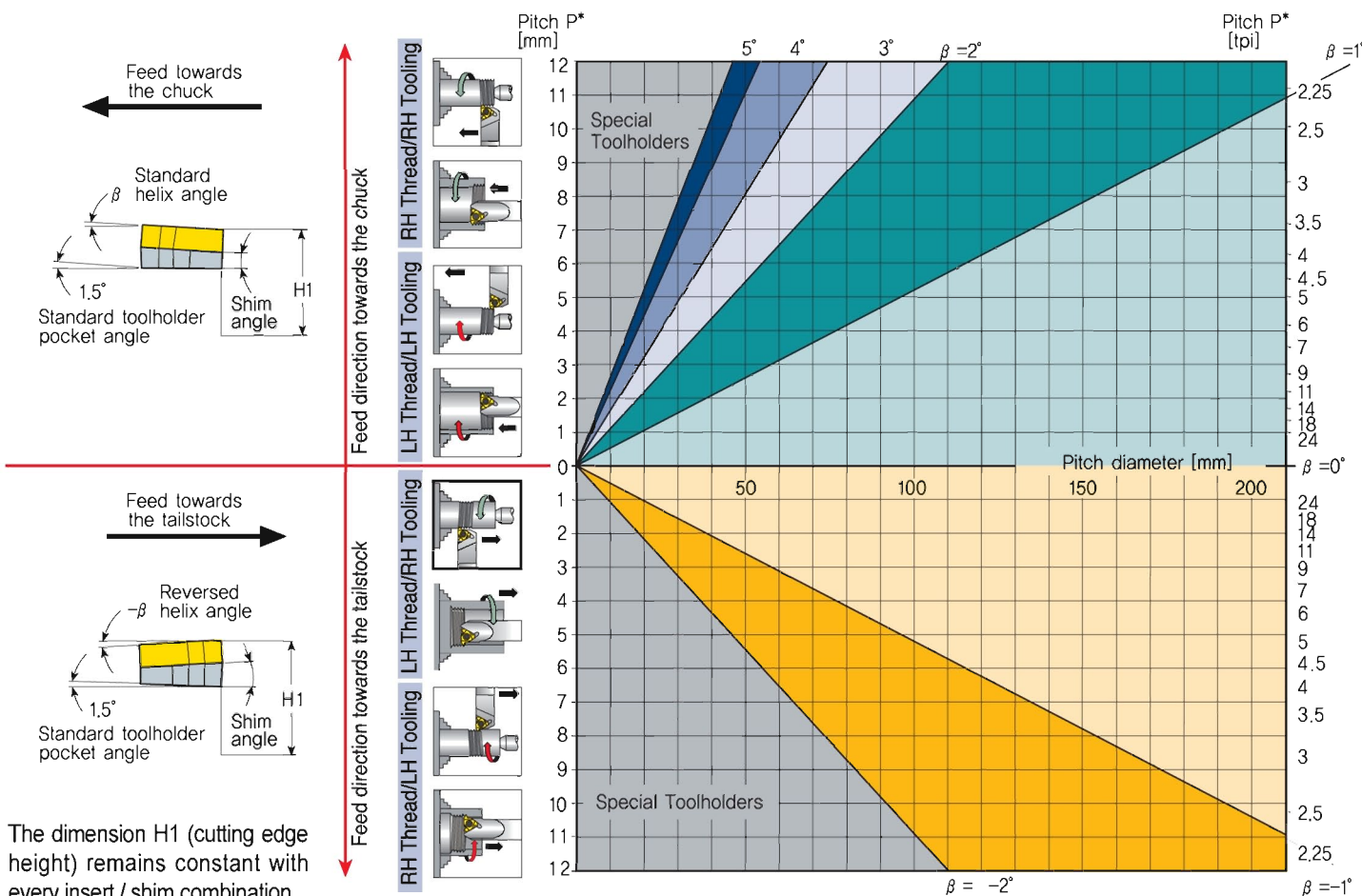
The helix angle is calculated by the following formula:

$$\beta = \tan^{-1} \frac{P \times N}{\pi \times D}$$

- 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

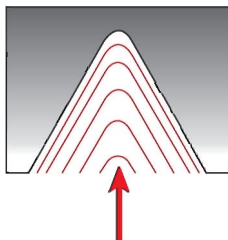


The dimension H1 (cutting edge height) remains constant with every insert / shim combination.

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

Thread Infeed Method

● Radial Infeed



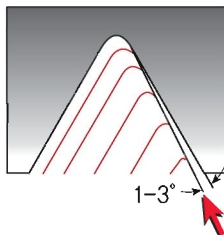
Radial infeed is the simplest and quickest method.

The feed is perpendicular to the turning axis, and both flanks of the insert perform the cutting operation.

Radial infeed is recommended in 3 cases:

- when the pitch is smaller than 16 tpi
- for material with short chips
- for work with hardened material

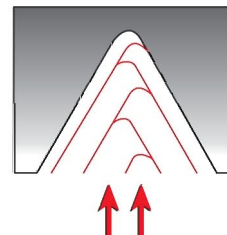
● Flank Infeed (modified)



Flank infeed is recommended in the following cases:

- when the thread pitch is greater than 16 tpi, using the radial method, the effective cutting edge length is too large, resulting in chatter.
- for TRAPEZ and ACME. The radial method result in three cutting edges, making chip flow very difficult.

● Alternate Flank Infeed



Use of the alternate flank method is recommended especially in large pitches and for materials with long chills.

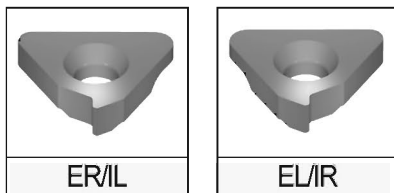
This method divides the load equally on both flanks, resulting in equal wear along the cutting edges.

Alternate flank infeed requires more complicated programming, and is not available on all lathes.

Shim

Resultant Helix Angle		1.5°	
Insert Size		Holder	Ordering Code
IC	L(mm)		
3/8"	16	ER/IL	ATE16
		EL/IR	ATI16
1/2"	22	ER/IL	ATE22
		EL/IR	ATI22
5/8"	27	ER/IL	ATE27
		EL/IR	ATI27

● Standard Shim



Grade and Application

Grade	Application	Sample
PC3030T	A tough sub-micron substrate with TiAlN coating provides good fracture toughness and excellent wear resistance.	

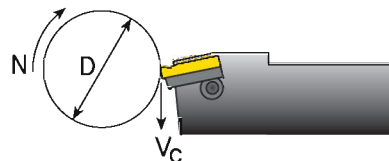
Recommended Cutting Speed as per workpiece [Vc]

	Material	Hardness Brinell HB	Vc		
			PC3030T		
			ISO(m/min.)	ASA(sfm)	
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	115-190	380-627
		Medium carbon (C=0.25-0.55 %)	150	100-175	330-578
		High carbon (C=0.55-0.85 %)	170	90-165	297-545
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	85-145	281-479
		Hardened	275	75-140	248-462
		Hardened	350	70-135	231-446
	High alloy steel (alloying elements > 5%)	Annealed	200	70-110	231-363
		Hardened	325	50-100	165-330
	Cast steel	Low alloy (alloying elements <5%)	200	75-140	248-462
High alloy (alloying elements >5%)		225	60-120	198-396	
M	Stainless steel Feritic	Non hardened	200	70-130	231-429
		Hardened	330	60-115	198-380
	Stainless steel Austenitic	Austenitic	180	90-140	297-462
		Super austenitic	200	40-110	132-363
	Stainless steel Cast feritic	Non hardened	200	90-120	297-396
		Hardened	330	65-110	215-363
	Stainless steel Cast austenitic	Austenitic	200	85-110	281-363
		Hardened	330	60-100	198-330
	High temperature alloy	Annealed (Iron based)	200	45-60	149-198
		Aged (Iron based)	280	30-50	99-165
		Annealed (Nickel or Cobalt based)	250	20-30	66-99
		Aged (Nickel or Cobalt based)	350	15-25	50-83
	Titanium alloy	Pure 99.5 Ti	400Rm	140-170	462-561
		a+b alloys	1050Rm	50-70	165-231
	K	Extra hard steel	Hardened & tempered	55HRC	45-60
Malleable cast iron		Ferritic (short chips)	130	70-160	231-528
		Pearlitic (long chips)	230	60-145	198-479
Grey cast iron		Low tensile strength	180	70-130	231-429
		High tensile strength	260	60-115	198-380
Nodular SG iron		Feritic	160	125-160	413-528
		Pearlitic	260	90-120	297-396
Aluminum alloy Wrought		non aging	60	100-365	330-1205
		Aged	100	80-220	264-726
Aluminum alloy		Cast	75	200-400	660-1320
		Cast & aged	90	200-280	660-924
		Cast Si 13-22%	130	60-180	198-594
Copper and copper alloy	Brass	90	80-225	264-743	
	Bronze and non leaded copper	100	80-225	264-743	

Calculation of N [RPM]

$$N = \frac{1000 \times Vc}{\pi \times D}$$

$$Vc = \frac{N \times \pi \times D}{1000}$$



N - Revolution Per Minute [RPM]
 Vc - Cutting Speed [m/min]
 D - Workpiece Diameter [mm]

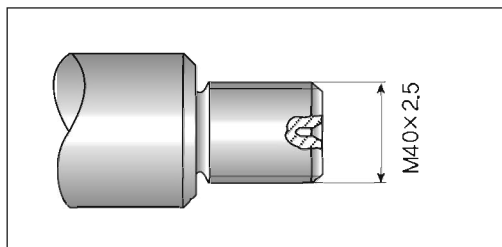
Number of Passes

Pitch	(mm)	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	8.00
	TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
No. of passes		4-6	4-7	4-8	5-9	6-10	7-12	7-12	8-14	9-16	10-18	11-18	11-19	12-20	12-20	12-20	15-24

Cutting Condition Depends on:

Workpiece	Material Type	
	Material Dimension: Diameter and Length	
	Chipflow Character	
	Material Hardness	
Thread Application	External or Internal	
	Profile Shape	
	Surface Finish	
Machine	Machine Stability	
	Max. RPM	
	Clamping System Stability	
Coolant	Coolant Type	
Holder	Holder Cross Section Area	
	Holder Overhang	
	Through Coolant Option	
	Shank Type: Carbide, Alloy, Carbide Implant	
Insert	Grade	
	Profile Shape: Pitch and Depth	
	Nose Radius	
	Chipbreaker Style	

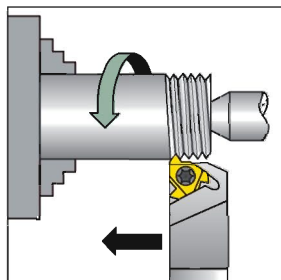
Step by Step Thread Turning - Example



Application:

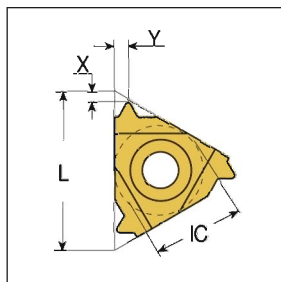
Thread : External Right Hand
 ISO Metric M40x2.5
 Material : 4140 (25 HRC)

1 Choose the Thread Turning Method



Feed direction towards the chuck was chosen.
 Therefore an external right hand insert and an external right hand holder will be used.

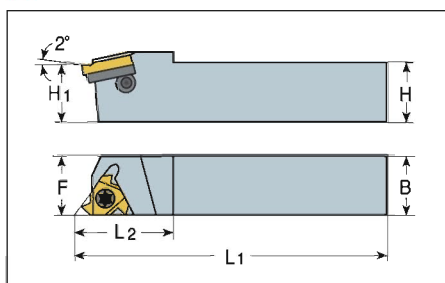
2 Choose the Insert Size



Chosen insert : **ER16 - 2.5 ISO**

Insert	Size	Pitch	Ordering Code	Shim	Toolholder
IC	L(mm)	mm	RH	RH	
9.525	16	2.5	ER16-2.5 ISO	ATE16	ERH□□-16

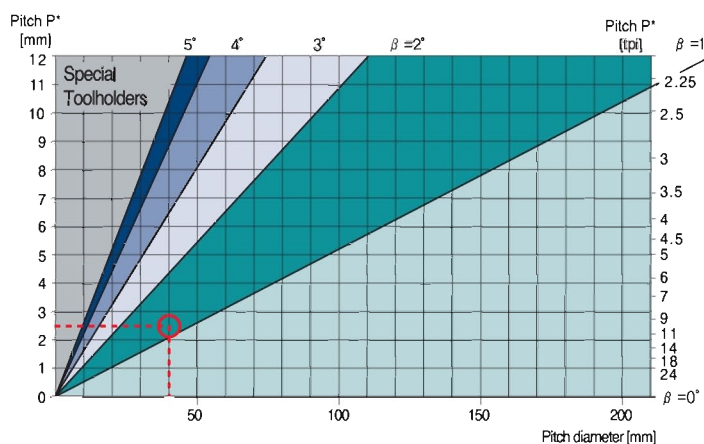
3 Choose the Toolholder



Chosen toolholder : **ERH 25 - 16**

Insert Size	Ordering Code	Dimensions (mm)			
IC	RH	H=H1=B	F	L ₁	L ₂
9.525	ERH 25-16	25	25	153.6	30

4 Determine the Helix Angle



From the table, using a pitch of 2.5 mm (10 tpi) and a workpiece diameter of 40mm (1.57"), we find the helix angle to be 1.5°.

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5 Choose the Correct Shim

Shim Chosen : **ATE16**

Resultant Helix Angle		1.5°
Insert Size		Odering Code
IC	L(mm)	
3/8"	16	ATE16

6 Choose the Carbide Grade and Cutting Speed

Carbide grade chosen : **PC3030T**

Cutting speed : **140 m /min**

: 460 sfm

Material		Hardness Brinell HB	Vc		
			m/min	sfm	
P	Low alloy steel (alloying elements ≤5%)	Non hardened	180	85-145	280-475
		Hardened	275	75-140	245-460
		Hardened	350	70-135	230-445

7 Determine the Number of Passes

Number of passes : 10

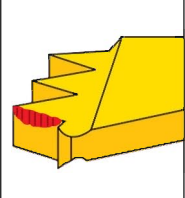
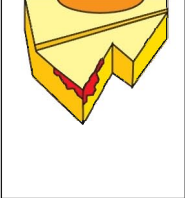
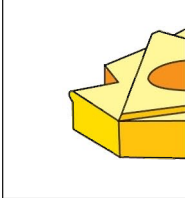
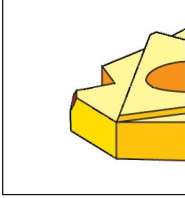
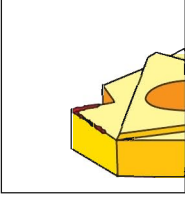
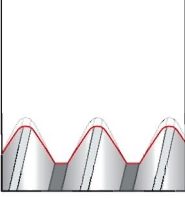
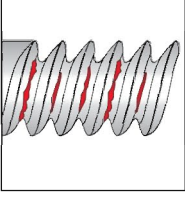
ISO External

Pitch	(mm)	1.50	1.75	2.00	2.50	3.00	3.50	4.00
	TPI	16	14	12	10	8	7	6
No. of passes		6-10	7-12	7-12	8-14	9-16	10-18	11-18

Summary

Thread Type	ISO M40x2.5 External Right Hand	
1 Feed Direction:	Towards the chuck	
2 Insert and Grade:	ER16-2.5ISO, PC3030T	
3 Toolholder:	ERH25-16	
4 Helix Angle:	1.5°	
5 Shim	ATE16	
6 Cutting Speed:	140 m/min	460 sfm
7 Number of Passes:	10	

Trouble Shooting

	Problem	Possible Cause	Solution
	<p>Increased flank wear</p>	<ul style="list-style-type: none"> Cutting speed too high ➤ Depth of cut too low/too many passes ➤ Unsuitable carbide grade ➤ Insufficient cooling ➤ 	<ul style="list-style-type: none"> Reduce cutting speed/ use coated insert Increase the depth of cut per pass Use a coated carbide grade Increase coolant flow rate
	<p>Uneven cutting edge wear</p>	<ul style="list-style-type: none"> Incorrect helix angle ➤ Wrong infeed method ➤ 	<ul style="list-style-type: none"> Choose the correct shim Use the Alternating Flank Infeed method
	<p>Extreme plastic deformation</p>	<ul style="list-style-type: none"> Depth of cut too large ➤ Insufficient cooling ➤ Cutting speed too high ➤ Unsuitable carbide grade ➤ Nose radius too small ➤ 	<ul style="list-style-type: none"> Decrease depth of cut/ increase number of passes Increase coolant flow rate Reduce cutting speed Use a tougher carbide Use an insert with a larger radius, if possible
	<p>Cutting edge breakage</p>	<ul style="list-style-type: none"> Depth of cut too large ➤ Extreme plastic deformation ➤ Insufficient cooling ➤ Unsuitable carbide grade ➤ Instability ➤ 	<ul style="list-style-type: none"> Decrease depth of cut/ increase number of passes Use a tougher carbide Increase flow rate and/ or correct flow direction Use a tougher carbide Check stability of the system
	<p>Built-up edge</p>	<ul style="list-style-type: none"> Incorrect cutting speed ➤ Unsuitable carbide grade ➤ 	<ul style="list-style-type: none"> Change the cutting speed Use a coated carbide
	<p>Thread profile is too shallow</p>	<ul style="list-style-type: none"> The tool is not at the workpiece axis height ➤ Insert is not machining the thread crest ➤ Worn insert ➤ 	<ul style="list-style-type: none"> Change tool height Measure the workpiece diameter Change the cutting edge sooner
	<p>Poor surface quality</p>	<ul style="list-style-type: none"> Cutting speed too low ➤ Wrong shim ➤ Flank infeed method is not appropriate ➤ 	<ul style="list-style-type: none"> Increase cutting speed Choose correct shim Use the alternate flank or radial infeed method



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