



## E - THREAD MILLING

E - 590 | Inserts

E - 600 | Toolholders

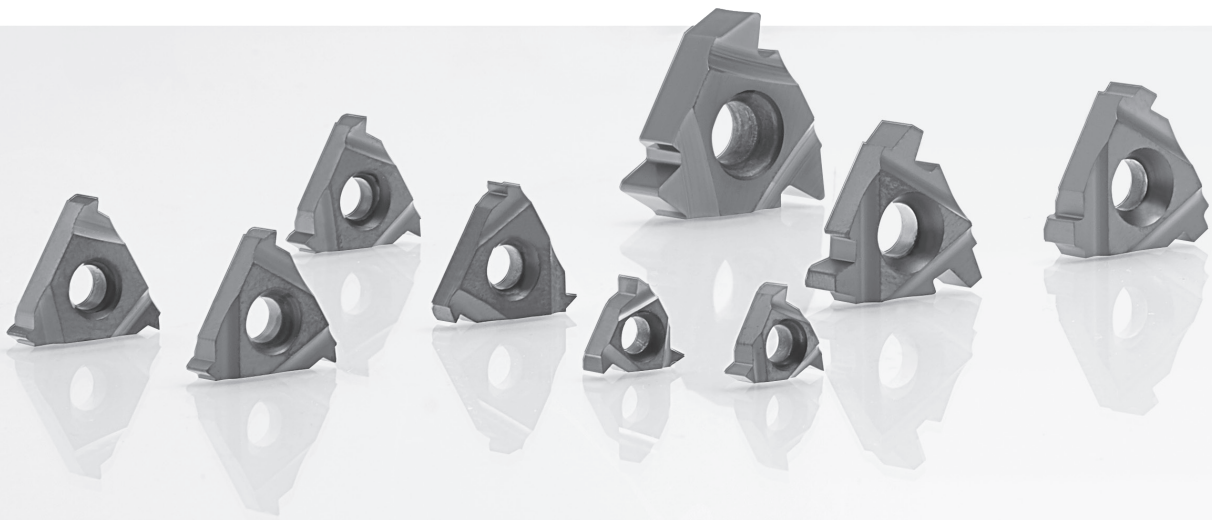
E - 604 | Technical data





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# THREADING



## E - THREAD TURNING

E - 608 | Step by step - example

E - 610 | Inserts Overview

E - 612 | Partial Profile Inserts

E - 616 | Full Profile Inserts

E - 656 | Tangential Profile Inserts

E - 658 | Technical Data

# THREAD MILLING INSERTS CODE KEY

Codificação ISO para pastilhas de fresagem de rosca | Codificación ISO para plaquitas de fresado de rosca



1 - Insert Size	
	12
	14
	21
	30
	40

2 - Insert Hand Type	
E	External
I	Internal
I/E	Internal + External

3 - Pitch
<b>Example : 20 = 20.00</b>

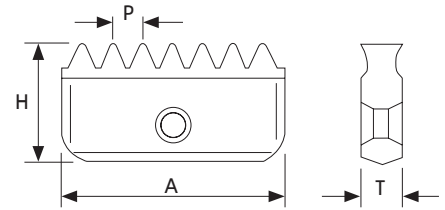
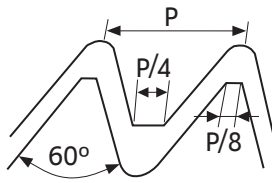
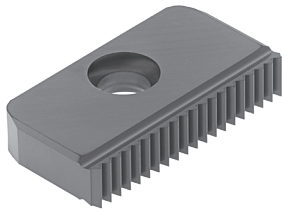
4 - Profile Type					
symbol	profile type	symbol	profile type	symbol	profile type
ISO	ISO METRIC	NPT	NPT	ACME	AMERICAN ACME
UN	AMERICAN UN	NPTF	NPTF	PG	PG
W	WITHWORTH	NPS	NPS	UNJ	UNJ
BSPT	BSPT	NPSF	NPSF	ABUT	AMERICAN BUTTRESS

5 - Grades
PH7920



- E - 596 | Inserts code key
- E - 598 | Inserts program
- E - 606 | Toolholders code key
- E - 607 | Toolholders program
- E - 610 | Technical data

# THREAD MILLING



A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

External

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)								Stock grade code <sup>(2)</sup>
	A 14		A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	(G4) PH7920
0.75 EXT	2123972	14 E 0.75 ISO							☉
0.80 EXT	2124202	14 E 0.80 ISO							☉
1.00 EXT	2123973	14 E 1.00 ISO	2123987	21 E 1.00 ISO					☉
1.25 EXT	2123974	14 E 1.25 ISO							☉
1.50 EXT	2123975	14 E 1.50 ISO	2123988	21 E 1.50 ISO	2123999	30 E 1.50 ISO	2124012	40 E 1.50 ISO	☉
1.75 EXT	2123976	14 E 1.75 ISO							☉
2.00 EXT	2123977	14 E 2.00 ISO	2123989	21 E 2.00 ISO	2124000	30 E 2.00 ISO	2124013	40 E 2.00 ISO	☉
2.50 EXT	2123978	14 E 2.50 ISO	2123990	21 E 2.50 ISO					☉
3.00 EXT			2123991	21 E 3.00 ISO	2124001	30 E 3.00 ISO	2124014	40 E 3.00 ISO	☉
3.50 EXT					2124002	30 E 3.50 ISO			☉
4.00 EXT					2124003	30 E 4.00 ISO	2124015	40 E 4.00 ISO	☉
5.00 EXT							2124016	40 E 5.00 ISO	☉
6.00 EXT							2124017	40 E 6.00 ISO	☉

☉ Stock item | Produto de stock | Itens de stock

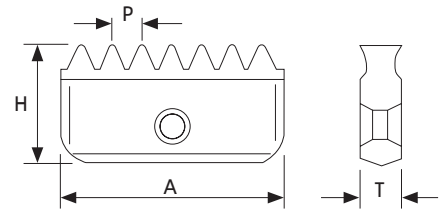
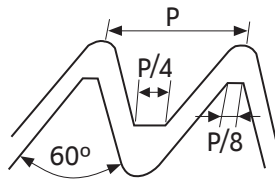
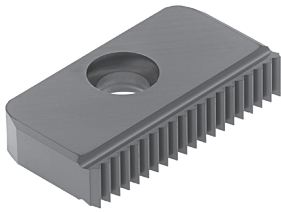
Insert order code = (1) Geometry Code + (2) Grade Code

Internal

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code <sup>(2)</sup>
	A 12		A 14		A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	(G4) PH7920
0.50 INT	2123967	12   0.50 ISO	2123979	14   0.50 ISO							☉
0.75 INT	2123968	12   0.75 ISO	2123980	14   0.75 ISO							☉
1.00 INT	2123969	12   1.00 ISO	2123981	14   1.00 ISO	2123992	21   1.00 ISO					☉
1.25 INT	2123970	12   1.25 ISO	2123982	14   1.25 ISO							☉
1.50 INT	2123971	12   1.50 ISO	2123983	14   1.50 ISO	2123993	21   1.50 ISO	2124004	30   1.50 ISO	2124018	40   1.50 ISO	☉
1.75 INT			2123984	14   1.75 ISO	2123994	21   1.75 ISO					☉
2.00 INT			2123985	14   2.00 ISO	2123995	21   2.00 ISO	2124005	30   2.00 ISO	2124019	40   2.00 ISO	☉
2.50 INT			2123986	14   2.50 ISO	2123996	21   2.50 ISO					☉
3.00 INT					2123997	21   3.00 ISO	2124006	30   3.00 ISO	2124020	40   3.00 ISO	☉
3.50 INT					2123998	21   3.50 ISO	2124007	30   3.50 ISO	2124021	40   3.50 ISO	☉
4.00 INT							2124008	30   4.00 ISO	2124022	40   4.00 ISO	☉
4.50 INT							2124009	30   4.50 ISO	2124023	40   4.50 ISO	☉
5.00 INT							2124010	30   5.00 ISO	2124024	40   5.00 ISO	☉
5.50 INT									2124025	40   5.50 ISO	☉
6.00 INT									2124026	40   6.00 ISO	☉

☉ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code



A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

**External**

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)								Stock grade code <sup>(2)</sup>  (G4) PH7920	
	A 14		A 21		A 30		A 40			
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.		
32.00 EXT	2124033	14 E 32 UN								☉
28.00 EXT	2124034	14 E 28 UN								☉
24.00 EXT	2124035	14 E 24 UN	2124055	21 E 24 UN						☉
20.00 EXT	2124036	14 E 20 UN	2124056	21 E 20 UN	2124072	30 E 20 UN				☉
18.00 EXT	2124037	14 E 18 UN	2124057	21 E 18 UN	2124073	30 E 18 UN				☉
16.00 EXT	2124038	14 E 16 UN	2124058	21 E 16 UN	2124074	30 E 16 UN	2124089	40 E 16 UN		☉
14.00 EXT	2124039	14 E 14 UN	2124059	21 E 14 UN	2124075	30 E 14 UN	2124090	40 E 14 UN		☉
13.00 EXT	2124203	14 E 13 UN								☉
12.00 EXT	2124040	14 E 12 UN	2124060	21 E 12 UN	2124076	30 E 12 UN	2124091	40 E 12 UN		☉
11.00 EXT	2124041	14 E 11 UN								☉
10.00 EXT	2124042	14 E 10 UN	2124062	21 E 10 UN	2124077	30 E 10 UN	2124092	40 E 10 UN		☉
8.00 EXT					2124078	30 E 8.0 UN	2124093	40 E 8.0 UN		☉
6.00 EXT					2124079	30 E 6.0 UN	2124094	40 E 6.0 UN		☉

☉ Stock item | Produto de stock | Itens de stock

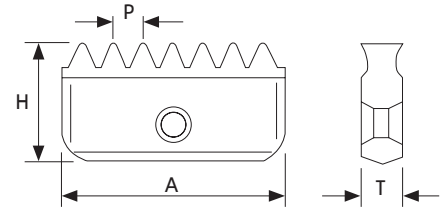
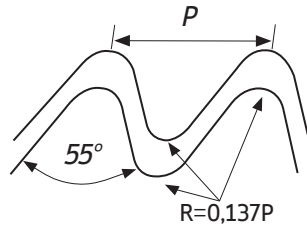
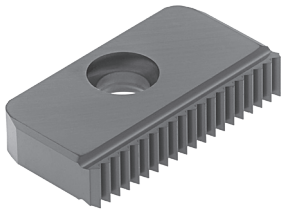
Insert order code = (1) Geometry Code + (2) Grade Code

**Internal**

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code <sup>(2)</sup>  (G4) PH7920
	A 12		A 14		A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	
32.00 INT	2124027	12   32 UN	2124043	14   32 UN							☉
28.00 INT	2124028	12   28 UN	2124044	14   28 UN							☉
27.00 INT			2124045	14   27 UN							☉
24.00 INT	2124029	12   24 UN	2124046	14   24 UN	2124063	21   24 UN					☉
20.00 INT	2124030	12   20 UN	2124047	14   20 UN	2124064	21   20 UN	2124080	30   20 UN			☉
18.00 INT	2124031	12   18 UN	2124048	14   18 UN	2124065	21   18 UN	2124081	30   18 UN			☉
16.00 INT	2124032	12   16 UN	2124049	14   16 UN	2124066	21   16 UN	2124082	30   16 UN	2124095	40   16 UN	☉
14.00 INT			2124050	14   14 UN	2124067	21   14 UN	2124083	30   14 UN	2124096	40   14 UN	☉
12.00 INT			2124051	14   12 UN	2124068	21   12 UN	2124084	30   12 UN	2124097	40   12 UN	☉
11.00 INT			2124052	14   11 UN							☉
10.00 INT			2124053	14   10 UN	2124069	21   10 UN	2124085	30   10 UN	2124098	40   10 UN	☉
9.00 INT			2124054	14   9.0 UN							☉
8.00 INT					2124070	21   8.0 UN	2124086	30   8.0 UN	2124099	40   8.0 UN	☉
7.00 INT					2124071	21   7.0 UN					☉
6.00 INT							2124087	30   6.0 UN	2124100	40   6.0 UN	☉
5.00 INT							2124088	30   5.0 UN			☉
4.50 INT									2124101	40   4.5 UN	☉
4.00 EXT									2124102	40   4.0 UN	☉

☉ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code



A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

Same insert for external and internal thread | Mesma pastilha para rosca externa e interna | Misma plaquita para roscado externo e interno

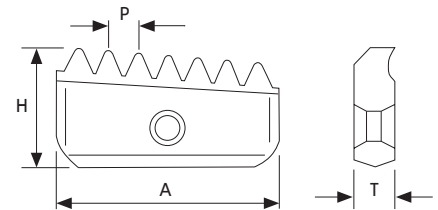
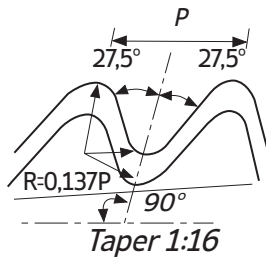
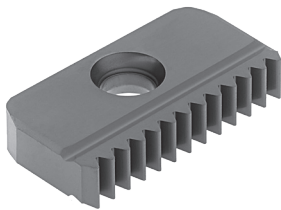
P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code <sup>(2)</sup>
	A 12		A 14		A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	
24.00			2124104	14 I/E 24 W							☉
20.00			2124105	14 I/E 20 W	2124110	21 I/E 20 W					☉
19.00	2124103	12 I/E 19 W*	2124106	14 I/E 19 W	2124111	21 I/E 19 W					☉
16.00			2124107	14 I/E 16 W	2124112	21 I/E 16 W	2124115	30 I/E 16 W			☉
14.00			2124108	14 I/E 14 W	2124113	21 I/E 14 W	2124116	30 I/E 14 W			☉
11.00			2124109	14 I/E 11 W	2124114	21 I/E 11 W	2124117	30 I/E 11 W	2124118	40 I/E 11 W	☉
8.00									2124119	40 I/E 8 W	☉

\*One cutting edge | Uma aresta de corte | Un filo de corte

☉ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code

BSPT One cutting edge | Uma aresta de corte | Un filo de corte



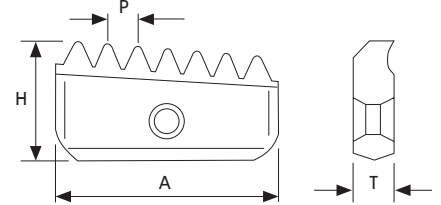
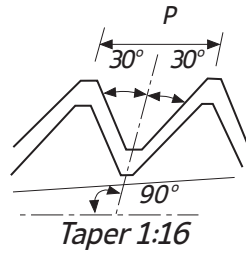
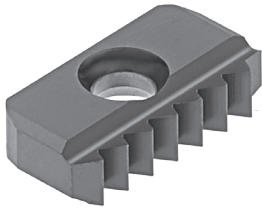
A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

Conical pipe thread milling inserts are one sided and may be used for both external and internal threading | As pastilhas de rosca para tubos cônicos têm uma face e podem ser usadas para rosca externa e interna | Las plaquitas de roscado para tubos cônicos tienen una cara y pueden ser usadas para roscado externo e interno.

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code <sup>(2)</sup>
	A 12		A 14		A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	
19.00	2124120	12 I/E 19 BSPT	2124121	14 I/E 19 BSPT							☉
14.00			2124122	14 I/E 14 BSPT	2124123	21 I/E 14 BSPT					☉
11.00					2124124	21 I/E 11 BSPT	2124125	30 I/E 11 BSPT	2124126	40 I/E 11 BSPT	☉

☉ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code



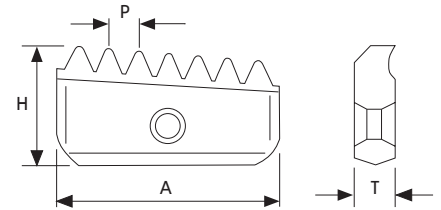
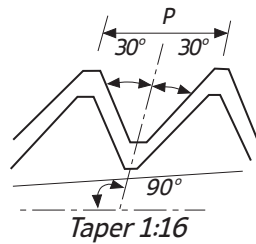
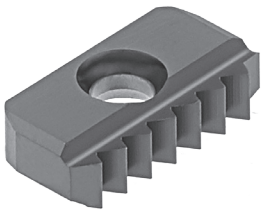
A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

Conical pipe thread milling inserts are one sided and may be used for both external and internal threading | As pastilhas de roscagem para tubos cônicos têm uma face e podem ser usadas para roscagem externa e interna | Las plaquitas de roscado para tubos cônicos tienen una cara y pueden ser usadas para roscado externo e interno.

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code (2)
	A 12		A 14		A 21		A 30		A 40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	
18.00	2124127	12 I/E 18 NPT	2124128	14 I/E 18 NPT							☉
14.00			2124129	14 I/E 14 NPT	2124130	21 I/E 14 NPT					☉
11.50					2124131	21 I/E 11.5 NPT	2124132	30 I/E 11.5 NPT	2124134	40 I/E 11.5 NPT	☉
8.00							2124133	30 I/E 8 NPT	2124135	40 I/E 8 NPT	☉

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Insert order code = (1) Geometry Code + (2) Grade Code



A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

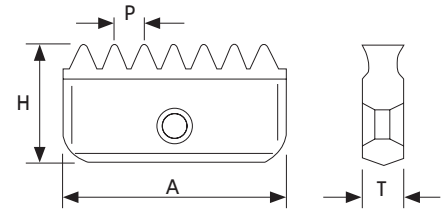
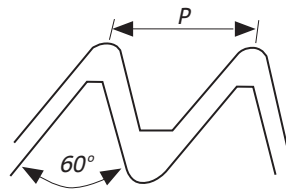
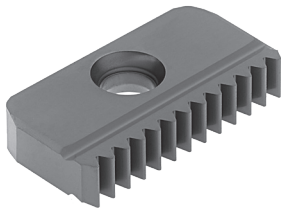
Conical pipe thread milling inserts are one sided and may be used for both external and internal threading | As pastilhas de roscagem para tubos cônicos têm uma face e podem ser usadas para roscagem externa e interna | Las plaquitas de roscado para tubos cônicos tienen una cara y pueden ser usadas para roscado externo e interno.

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code (2)
	A 12		A 14		A 21		A 30		A 40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	
18.00	2124136	12 I/E 18 NPTF	2124137	14 I/E 18 NPTF							☉
14.00			2124138	14 I/E 14 NPTF	2124139	21 I/E 14 NPTF					☉
11.50					2124140	21 I/E 11.5 NPTF	2124141	30 I/E 11.5 NPTF	2124143	40 I/E 11.5 NPTF	☉
8.00							2124142	30 I/E 8 NPTF	2124144	40 I/E 8 NPTF	☉

☉ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code





A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

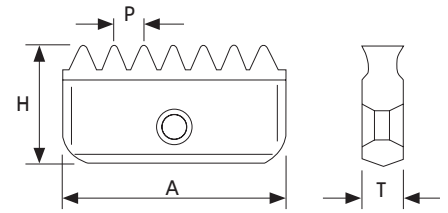
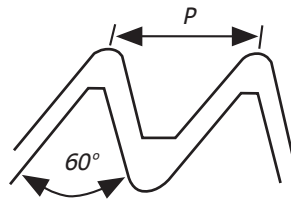
Same insert for external and internal thread | Mesma pastilha para rosca externa e interna | Misma plaquita para roscado externo e interno

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code <sup>(2)</sup>
	A 12		A 14		A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	
18.00	2124145	12 I/E 18 NPS*	2124147	14 I/E 18 NPS							⊗
14.00			2124148	14 I/E 14 NPS	2124149	21 I/E 14 NPS					⊗
11.50					2124150	21 I/E 11.5 NPS	2124151	30 I/E 11.5 NPS	2124153	40 I/E 11.5 NPS	⊗
8.00							2124152	30 I/E 8 NPS	2124154	40 I/E 8 NPS	⊗

\*One cutting edge | Uma aresta de corte | Un filo de corte

⊗ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code



A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

Same insert for external and internal thread | Mesma pastilha para rosca externa e interna | Misma plaquita para roscado externo e interno

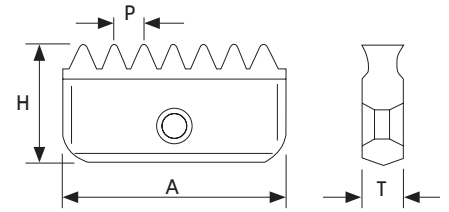
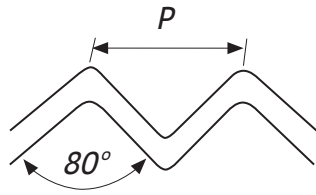
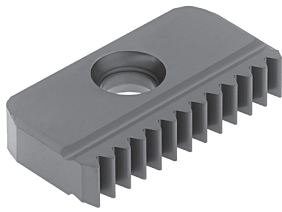
P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)										Stock grade code <sup>(2)</sup>
	A 12		A 14		A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	
18.00	2124155	12 I/E 18 NPSF*	2124156	14 I/E 18 NPSF							⊗
14.00			2124157	14 I/E 14 NPSF	2124158	21 I/E 14 NPSF					⊗
11.50					2124159	21 I/E 11.5 NPSF	2124160	30 I/E 11.5 NPSF	2124162	40 I/E 11.5 NPSF	⊗
8.00							2124161	30 I/E 8 NPSF	2124163	40 I/E 8 NPSF	⊗

\*One cutting edge | Uma aresta de corte | Un filo de corte

⊗ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code

# PG DIN 40430 Two cutting edges | Duas arestas de corte | Dos filos de corte



A	T	H
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16

Same insert for external and internal thread | Mesma pastilha para rosca externa e interna | Misma plaquita para roscado externo e interno

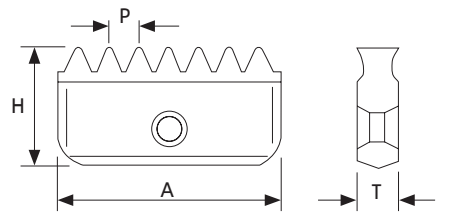
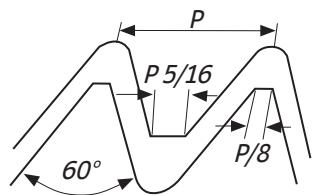
P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)						Stock grade code <sup>(2)</sup>  (G4) PH7920
	A 14		A 21		A 30		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	
18.00	2124164	14 I/E 18 PG	2124165	21 I/E 18 PG			⊗
16.00			2124166	21 I/E 16 PG	2124167	30 I/E 16 PG	⊗

\*One cutting edge | Uma aresta de corte | Un filo de corte

⊗ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code

# UNJ Two cutting edges | Duas arestas de corte | Dos filos de corte



A	T	H
A 14	3,1	7,5
A 21	4,7	12

Same insert for external and internal thread | Mesma pastilha para rosca externa e interna | Misma plaquita para roscado externo e interno

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)				Stock grade code <sup>(2)</sup>  (G4) PH7920
	A 14		A 21		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	
24.00	2124168	14 E 24 UNJ	2124174	21 E 24 UNJ	⊗
20.00	2124169	14 E 20 UNJ	2124175	21 E 20 UNJ	⊗
18.00	2124170	14 E 18 UNJ			⊗
16.00	2124171	14 E 16 UNJ			⊗
14.00	2124172	14 E 14 UNJ			⊗
12.00	2124173	14 E 12 UNJ	2124179	21 E 12 UNJ	⊗

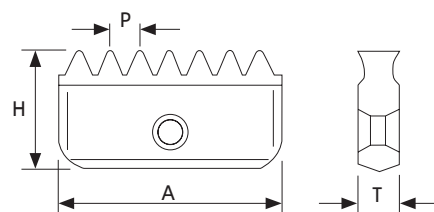
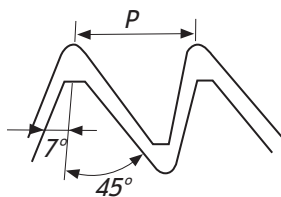
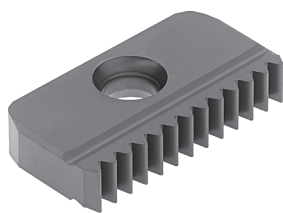
⊗ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code

Note: For internal UNJ threads it is common to use UN inserts as partial profile tool | Para rosca interna UNJ é comum utilizar pastilhas UN como ferramenta de perfil parcial | Para roscado interno UNJ é usual utilizar plaquitas UN como herramienta de perfilado parcial

THREADING  
Thread milling - Inserts  
Thread milling - Toolholders  
Thread turning - Overview  
Thread turning - Inserts  
Technical Data

# AMERICAN BUTTRESS Two cutting edges | Duas arestas de corte | Dos filos de corte **METRIC LINE**



A	T	H
21	4,7	12
30	5,5	16

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaqueta para roscado externo e interno

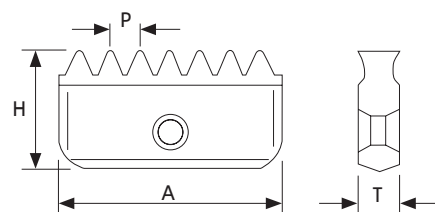
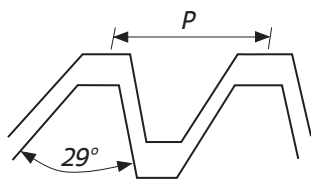
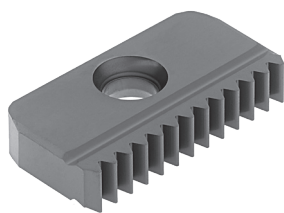
P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)				Stock grade code <sup>(2)</sup>
	A 21		A 30		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	(G4) PH7920
16.00	2124180	21 I/E 16 ABUT	2124184	30 I/E 16 ABUT	⊗
12.00	2124181	21 I/E 12 ABUT	2124185	30 I/E 12 ABUT	⊗
10.00	2124182	21 I/E 10 ABUT	2124186	30 I/E 10 ABUT	⊗
8.00	2124183	21 I/E 8 ABUT	2124187	30 I/E 8 ABUT	⊗
6.00			2124188	30 I/E 6 ABUT	⊗
4.00			2124189	30 I/E 4 ABUT	⊗

⊗ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code

**Note: ABUT thread milling inserts are one-sided and it can be used only on Multi-insert toolholders** | As pastilhas de roscagem ABUT são de uma face e só podem ser utilizadas nos suportes de múltiplas pastilhas | Las plaquetas de roscado ABUT son de una cara y sólo se pueden utilizar en las herramientas de múltiples plaquetas

THREADING  
Thread milling - Inserts  
Thread milling - Toolholders  
Thread turning - Overview  
Thread turning - Inserts  
Technical Data



A	T	H
21	4,7	12
30	5,5	16
40	6,3	20

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaqueta para roscado externo e interno

P (Pitch)	Dimensions   Dimensões   Dimensiones (mm)						Stock grade code <sup>(2)</sup>
	A 21		A 30		A 40		
	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	Geometry code <sup>(1)</sup>	Ref.	(G4) PH7920
12.00	2124191	21   12 ACME					☉
10.00							☉
8.00							☉
6.00			2124197	30   6.0 ACME			☉
4.00							☉
3.50							☉
3.00							☉

☉ Stock item | Produto de stock | Itens de stock

Insert order code = (1) Geometry Code + (2) Grade Code

mm

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# THREAD MILLING TOOLHOLDERS CODE KEY



Codificação ISO para suportes de fresagem de roscar | Codificación ISO para herramientas de fresado de roscar

<b>A</b>	<b>S</b>	<b>S</b>	<b>N</b>	<b>063</b>	<b>050</b>	<b>A21</b>	-	<b>5</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>		<b>8</b>

## 1 - Mounting type

<b>A</b>	Arbor
<b>E</b>	Cylindrical
<b>W</b>	Weldon

## 2 - Toolholder material

<b>S</b>	Steel
<b>C</b>	Carbide

## 3 - Clamping

<b>S</b>	Screw
----------	-------

## 4 - Operation type

<b>N</b>	Internal+External
<b>E</b>	External

## 5 - Cutting diameter ( $\varnothing D_c$ - mm)

**Example : 063 = 63 mm**

## 6 - Toolholder length (L - mm)

**Example : 050 = 50 mm**

## 7 - Insert Pocket Size

<b>A12</b>	12 mm
<b>A14</b>	14 mm
<b>A21</b>	21 mm
<b>A30</b>	30 mm
<b>A40</b>	40 mm

## 8 - Number of inserts

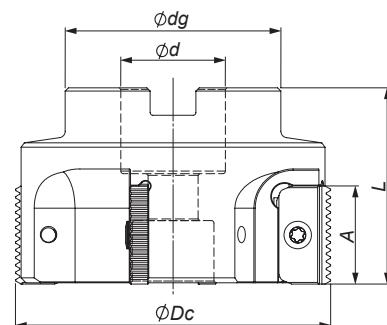
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
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# MULTI INSERT TOOLHOLDERS

Suportes de múltiplas pastilhas | Herramientas de múltiples plaquitas



## INTERNAL TOOLHOLDERS | Suportes internos | Herramientas internas



Order Code Código	Reference Referência Referencia	Dimensions   Dimensões   Dimensiones (mm)					Number of inserts	Stock
		A	$\phi Dc$	$\phi d$	$\phi dg$	L		
182007100	ASSN 063 050 A21-5	21	63	22	40	50	5	⊗
182007200	ASSN 063 050 A30-4	30	63	22	55	50	4	⊗
182004200	ASSN 080 055 A30-4	30	80	27	58	55	4	⊗
182007300	ASSN 100 060 A30-4	30	100	32	66	60	4	⊗
182019100	ASSN 080 065 A40-4	40	80	27	58	65	4	○
182019300	ASSN 100 070 A40-4	40	100	32	66	70	4	○

⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

mm

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

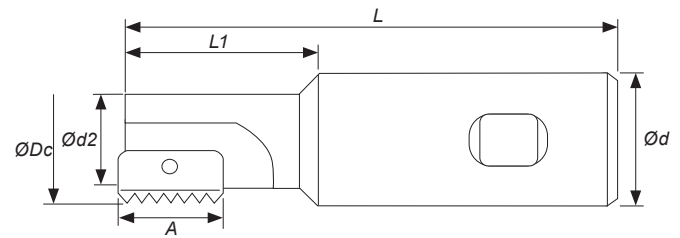
Thread turning - Inserts

Technical Data

# SINGLE INSERT TOOLHOLDERS



## WSSN-1

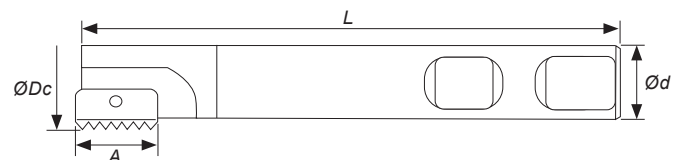


Order Code Código	Reference Referência Referencia	Dimensions   Dimensões   Dimensiones (mm)						Number of inserts	Stock
		A	ØDc	Ød	Ød2	L	L1		
182004400	WSSN 009 085 A12-1	12	9,5	20	7,5	85	14	1	⊗
182008000	WSSN 010 085 A12-1	12	9,9	20	7,6	85	16	1	⊗
182004500	WSSN 012 075 A14-1	14	12,0	20	8,9	75	20	1	⊗
182008100	WSSN 014 085 A14-1	14	14,5	20	11,2	85	25	1	⊗
182008200	WSSN 017 085 A14-1	14	17,0	20	13,4	85	30	1	⊗
182003500	WSSN 018 085 A21-1*	21	18,0	20	14,4	85	30	1	⊗
182003600	WSSN 021 094 A21-1	21	21,0	20	16,5	94	40	1	⊗
182008300	WSSN 029 110 A30-1	30	29,0	25	22,4	110	50	1	⊗
182019600	WSSN 048 153 A40-1	40	48,0	40	35,0	153	78	1	○

⊗ Stock item | Produto de stock | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

\*Can not be used with the following inserts: | Não pode ser usado com as seguintes pastilhas: | No se puede utilizar con las siguientes plaquitas:  
 21 I 3.5 ISO; 21 I 8.0 UN; 21 I 7.0 UN; 21 I/E 11 BSPT; 21 I/E 11.5 NPT; 21 I/E 11.5 NPTF

## WSSN-1 || Long shank

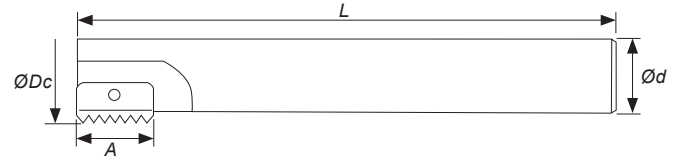


Order Code Código	Reference Referência Referencia	Dimensions   Dimensões   Dimensiones (mm)				Number of inserts	Stock
		A	ØDc	Ød	L		
182008600	WSSN 025 125 A21-1	21	25	20	125	1	⊗
182008700	WSSN 031 150 A30-1	30	31	25	150	1	⊗
182019500	WSSN 038 150 A30-1	30	38	32	150	1	⊗
182019700	WSSN 048 210 A40-1	40	48	40	210	1	○

⊗ Stock item | Produto de stock | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Note: For holders with long overhang reduce the cutting speed by 20-40%, depending on workpiece, material, pitch and overhang | Para suportes com comprimento elevado reduza a velocidade de corte em 20-40%, dependendo da peça a maquinar, do material, do pitch e comprimento | Para herramientas con longitud elevada reduzca la velocidad de corte en 20-40%, dependiendo de la pieza a mecanizar, del material, del pitch y la longitud.

## ECSN-1 || Long carbide shank



Order Code Código	Reference Referência Referencia	Dimensions   Dimensões   Dimensiones (mm)				Number of inserts	Stock
		A	ØDc	Ød	L		
182007400	ECSN 010 125 A12-1*	12	9,9	8	125	1	☒
182007600	ECSN 013 155 A14-1	14	13,2	10	155	1	☒
182007700	ECSN 015 175 A14-1	14	15,2	12	175	1	☒
182007800	ECSN 021 130 A21-1	21	21,0	16	130	1	☒
182007900	ECSN 021 200 A21-1	21	21,0	16	200	1	☒

☒ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

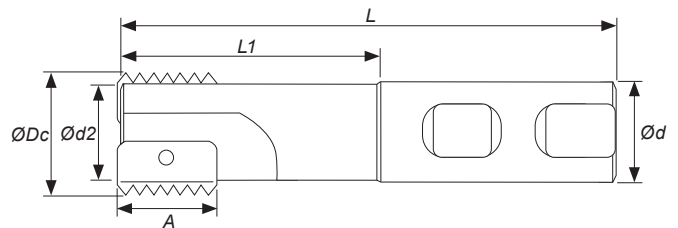
\* Without coolant bore | Sem furo de refrigeração | Sin agujero de refrigeración

Note: For holders with long overhang reduce the cutting speed by 20-40%, depending on workpiece, material, pitch and overhang | Para suportes com comprimento elevado reduza a velocidade de corte em 20-40%, dependendo da peça a maquinar, do material, do pitch e comprimento | Para herramientas con longitud elevada reduzca la velocidad de corte en 20-40%, dependiendo de la pieza a mecanizar, del material, del pitch y la longitud.

## DOUBLE INSERT TOOLHOLDERS

Suportes de duas pastilhas | Herramientas de dos plaquitas

### WSSN-2



Order Code Código	Reference Referência Referencia	Dimensions   Dimensões   Dimensiones (mm)						Number of inserts	Stock
		A	ØDc	Ød	Ød2	L	L1		
182004300	WSSN 020 093 A14-2	14	20	20	16	93	41	2	☒
182008400	WSSN 030 108 A21-2	21	30	25	24	108	52	2	☒
182008500	WSSN 040 130 A30-2	30	40	32	30	130	70	2	☒
182019800	WSSN 050 153 A40-2	40	50	40	38	153	78	2	○

☒ Stock item | Produto de stock | Itens de stock

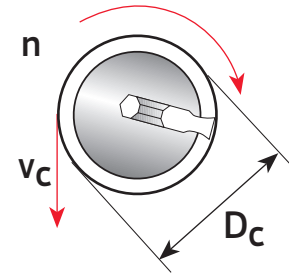
○ Available under request | Disponível sobre consulta | Disponible bajo consulta



Conversion of selected cutting speed to rotational speed is calculated using the following formulas:

**Spindle Speed (rev/min)**

$$n = \frac{v_c \cdot 1000}{\pi \cdot D_c} \quad (\text{RPM})$$



**Cutting Speed (m/min)**

$$v_c = \frac{n \cdot \pi \cdot D_c}{1000} \quad (\text{m/min})$$

**Nomenclature**

- $D_c$  - Cutter diameter (mm)
- $n$  - Spindle Speed (rev/min)
- $V_c$  - Cutting Speed (m/min)

**Example for the following values:**

$V_c = 120$  m/min  
 $D_c = 30$  mm

$$n = \frac{V_c \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$

**SPEED AND FEED SELECTION**

Seleção da velocidade e do avanço | Selección de la velocidad e de avance

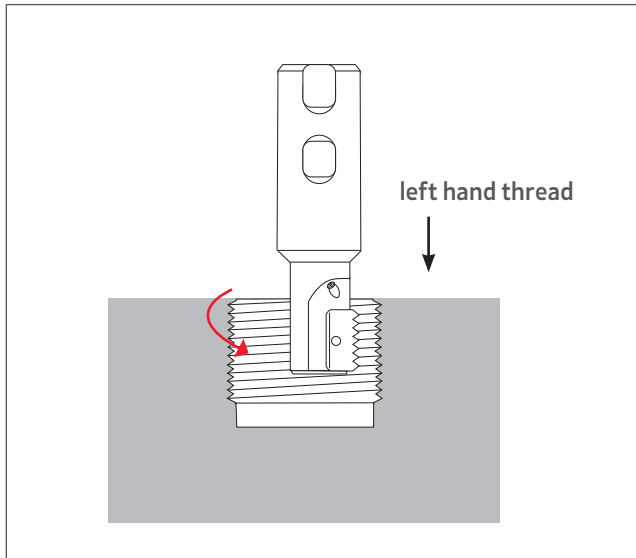
**TiAlN** – Sub-Micron Grade with Titanium Aluminium Nitride multi-layer coating (ISO K10-K20). This is a general purpose grade, which can be used with all materials, it should be run at medium to high cutting speeds.

Recommended Feed Rate: 0.05 - 0.15 mm

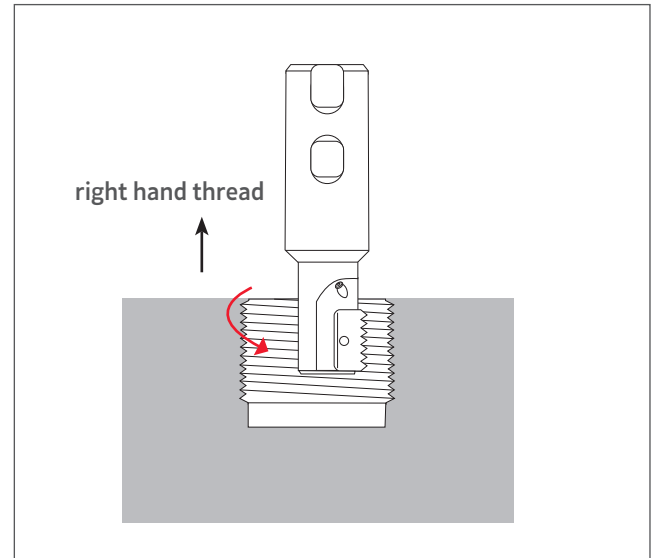
ISO	Material	Cutting Speed $V_c$ (m/min) TiAlN
P	Low and Medium Carbon Steels	115 - 280
	High Carbon Steels	130 - 200
	Treated Steels	105 - 180
M	Stainless Steels, Cast Stainless Steels	130 - 190
	Cast Steels	150 - 190
K	Cast Iron	80 - 170
N	Non-Ferrous and Aluminium	180 - 340
	Synthetics, Duroplastics, Thermoplastics	115 - 460
S	Nickel Alloys, Titanium Alloys	25 - 90

## INTERNAL THREAD | Rosca interna | Roscado interno

Left hand thread | Rosca esquerda | Rosca izquierda

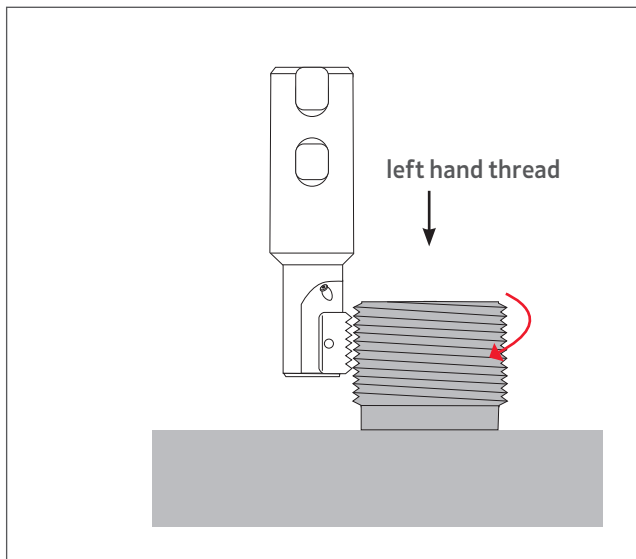


Right hand thread | Rosca direita | Rosca derecha

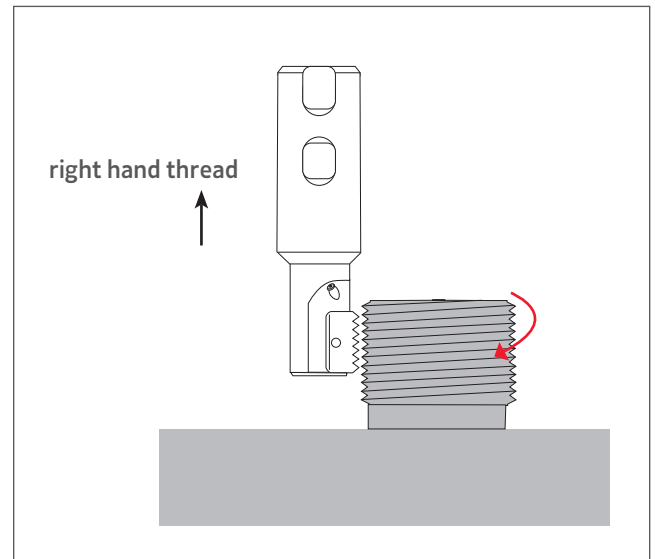


## EXTERNAL THREAD | Rosca externa | Roscado externo

Left hand thread | Rosca esquerda | Rosca izquierda

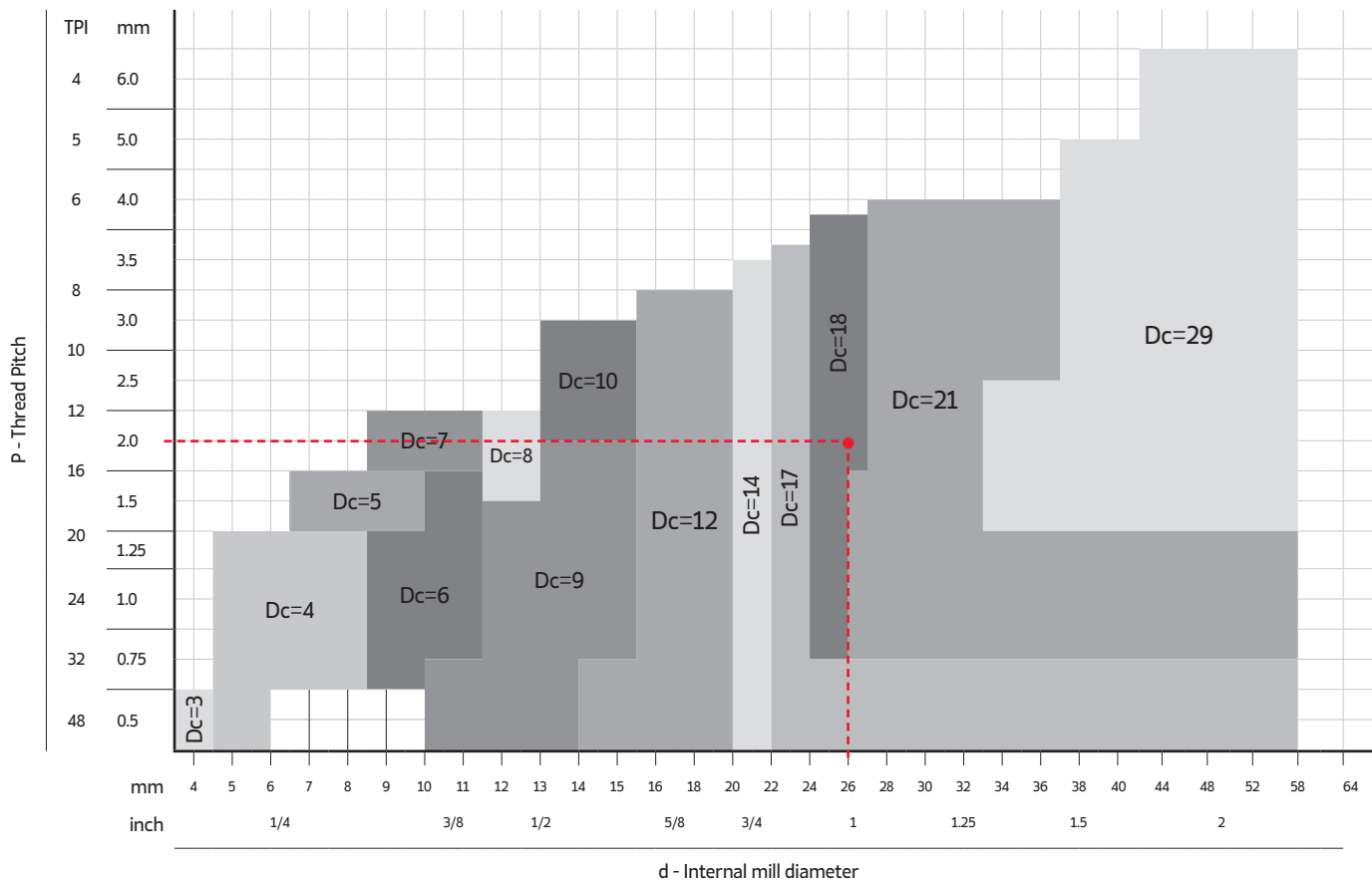


Right hand thread | Rosca direita | Rosca derecha



## TOOL SELECTION | Seleção de ferramenta | Selección de herramienta

The chart below provide a accurate visual selection tool for internal threading.  
(Suitable for the thread forms: ISO, UN, WHIT, NPT, NPTF, BSPT and PG)



**Any tool with a small diameter can produce larger diameter threads.**

**Example:**

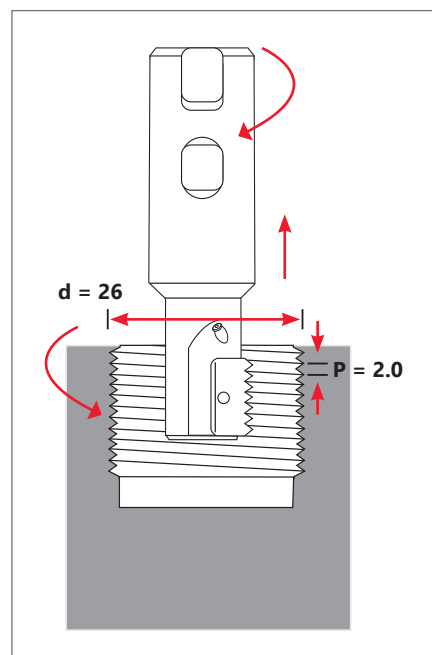
**Internal thread: M26 x 2.0**  
Find a milling tool to produce **d = 26** internal right hand ISO thread with a tread pitch **P = 2.0mm**.

Internal mill diameter **d = 26 mm**  
+  
Thread pitch **P = 2.0 mm**

As you can see above, the two red lines intersect at a selected tool with a cutting diameter of **Dc = 18 mm**

Chosen toolholder - order code: 212395200 | Reference: WSSN 018 085 A21-1  
Chosen insert - order code: 2123995G4 | Reference: 21 | 2.0 ISO PH7920

Right hand Thread  
Rosca direita | Rosca derecha





**E - THREAD TURNING**

E - 614 | Step by step - example

E - 616 | Inserts Overview

E - 618 | Partial Profile Inserts

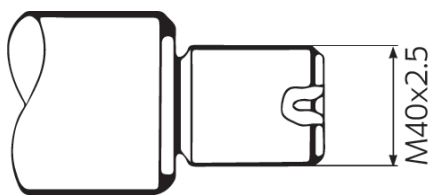
E - 622 | Full Profile Inserts

E - 622 | Tangential Profile Inserts

E - 664 | Technical Data

THREAD  
TURNING

# THREAD TURNING - STEP BY STEP EXAMPLE

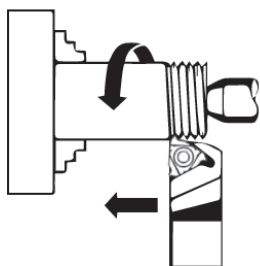


## Application:

**Thread:** External Right Hand  
ISO Metric M40x2,5

**Material:** 4140 (25HRc)

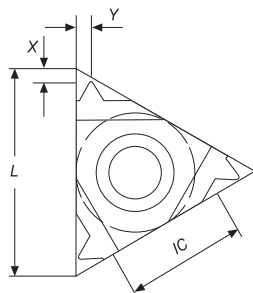
### 1 - Choose the Thread Working Method



**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: **16ER 2.50ISO**

Insert Size	Pitch	Reference	Anvil	Toolholder
IC	L mm	mm	RH	
3/8	16	2.50	16ER 2.50ISO	EA16 STCNL 2525 M16

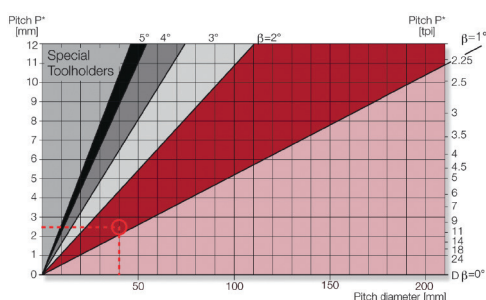
### 3 - Choose the Toolholder



Chosen toolholder: **SXANR 2525 M16**

Insert Size	Reference	Dimensions mm		
IC		H=H1=B	F	L
3/8	SXANR 2525 M16	25	25	150

### 4 - Find the Helix Angle



From the table, using a pitch of 2,5mm (10 tpi) and a workpiece diameter of 40mm (1,57"), we find the helix angle to be **1,5°**

**5 - Choose the Correct Anvil**

Anvil chosen: **EA16**

Resultant Helix Angle		3.5	2.5	<b>1.5</b>	0.5	
Insert Size		Holder				
IC	L mm	ER/IL	EA16+3.5	EA16+2.5	<b>EA16</b>	EA16+0.5
3/8	16					

**6 - Choose the Carbide Grade and Cutting Speed**

Carbide grade chosen: **PH6920**

Cutting Speed: **460 SFM**

Material:		Hardness Brinell HB		<b>PH6920</b>
<b>P</b>	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	<b>279 - 476</b>
		Hardened	275	240 - 460
		Hardened	350	230 - 443

**7 - Determine the Number of Passes**

Number of passes; 10

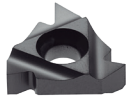
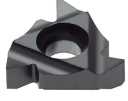
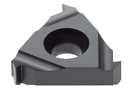
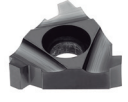
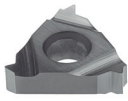
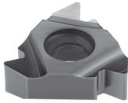
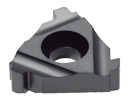
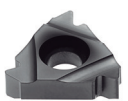
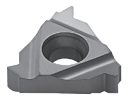
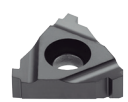
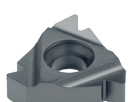
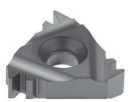
ISO External

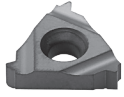
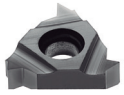
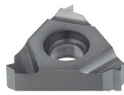
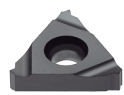
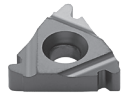

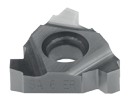
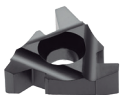
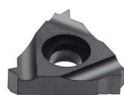
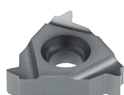
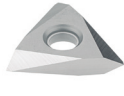
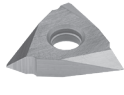
Pitch	mm	1.50	1.75	2.00	<b>2.50</b>	3.00	3.50	4.00
	tpi	16	14	12	10	8	7	6
No. of passes		6-10	7-12	7-12	<b>8-14</b>	9-16	10-18	11-18

**Summary**

	Thread Type	ISO M40x2,5 External Right Hand
1	Feed Direction:	Towards the chuck
2	Insert and Grade:	16ER 2,5ISO PH6920
3	Toolholder:	SXANR 2525 M16
4	Helix Angle:	1,5°
5	Anvil:	EA16
6	Cutting Speed:	460 SFM
7	Number of Passes;	14

# THREAD TURNING INSERTS OVERVIEW

	Insert Image	Description	Page
Partial Profile		PARTIAL PROFILE 60°	613
		PARTIAL PROFILE 55°	614
Full Profile		AMERICAN BUTTRESS   ANSI B1.9-1973	649
		AMERICAN ACME   ANSI/ASME: 1.5-1988	640
		AMERICAN UN (UNC, UNF, UNEF)   ANSI B1.1-1982	621
		API   API SPEC 7:2001 (0.040   0.038R   0.050)	651
		API   BUTTRESS CASING   API SPEC 5B:2008   OIL THREADS	652
		API ROUND CASING & TUBING   API SPEC 5B:2008	653
		BSPT   B.S.21: 1985	631
		EXTREME LINE CASING   API SPEC 5B:2008 - OIL THREADS	654
		ISO METRIC ISO 965-1: 1999-11   DIN 13: 2005-08	617
		METRIC BUTTRESS SAGENGEWINDE (DIN 513:1985) SAW THREAD	650

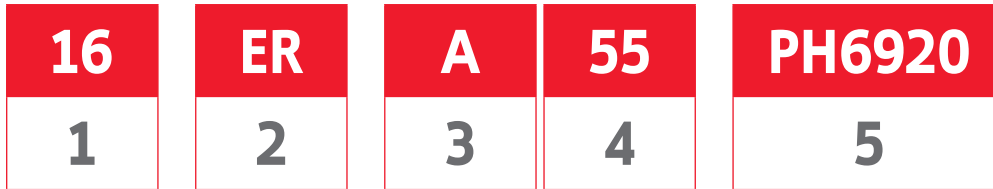
	Insert Image	Description	Page
Full Profile		MJ   ISO 5855-1:1989	648
		NPT   ANSI/ASME B 1.20.1-1983	632
		NPTF   ANSI B 1.20.3-1976	634
		PG   DIN 40430; 1971	655
		ROUND (DIN 20400)   DIN 20400:1990	637
		ROUND (DIN 405)   DIN 405:1997	636
		STUB ACME   ANSI/ASME: 1.8-1988	642
		TRAPEZ   DIN 103:1977   ISO 2901:1993	638
		UNJ   MIL-S-8879A	644
		WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994	626
Tangential Profile		TNMC	657
		TPMC	657



# PARTIAL PROFILE INSERTS CODE KEY

Chave do codificação de pastilhas | Llave de codificación de plaquitas

## Partial Profile Example



### 1 - Insert Size

L (mm)	06	08	11	16	22	27
IC (inch)	0.236	0.315	0.433	0.630	0.866	1.063

### 2 - Insert Hand Type

ER	External Right Holder
EL	External Left Holder
IR	Internal Right Holder
IL	Internal Left Holder

### 3 - Profile Type

symbol	Pitch (mm)	Pitch (TPI)
A	0.5 - 1.5	48 - 16
G	1.75 - 3.0	14 - 8
AG	0.5 - 3.0	48 - 8
N	3.5 - 5.0	7 - 5
Q	5.5 - 6.0	4.5 - 4

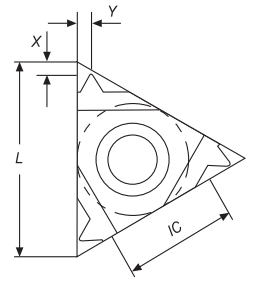
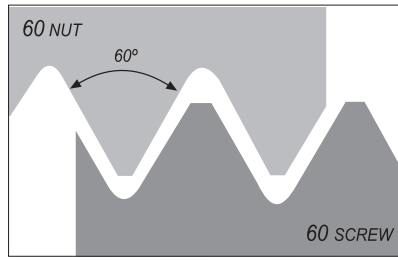
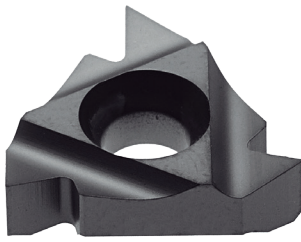
### 4 - Profile Angle

55	55°
60	60°

### 5 - Grades

PH6920

# PARTIAL PROFILE 60°



## External

Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		mm	TPI		IC	X	Y	
1880592	11 ER A60	0.5-1.5	48-16	11	1/4	0.031	0.035	☉
1880429	16 ER A60	0.5-1.5	48-16	16	3/8	0.031	0.035	☉
1880431	16 ER G60	1.75-3.0	14-8	16	3/8	0.047	0.067	☉
1880388	16 ER AG60	0.5-3.0	48-8	16	3/8	0.047	0.067	○
1880046	22 ER N60	3.5-5.0	7-5	22	1/2	0.067	0.098	☉
1882486	27 ER Q60	5.5-6.0	4.5-4	27	5/8	0.083	0.122	○
1881851	11 EL A60	0.5-1.5	48-16	11	1/4	0.031	0.035	○
1880771	16 EL A60	0.5-1.5	48-16	16	3/8	0.031	0.035	☉
1880773	16 EL G60	1.75-3.0	14-8	16	3/8	0.047	0.067	☉
1880524	16 EL AG60	0.5-3.0	48-8	16	3/8	0.047	0.067	☉
1880853	22 EL N60	3.5-5.0	7-5	22	1/2	0.067	0.098	○
1882155	27 EL Q60	5.5-6.0	4.5-4	27	5/8	0.083	0.122	○

☉ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

## Internal

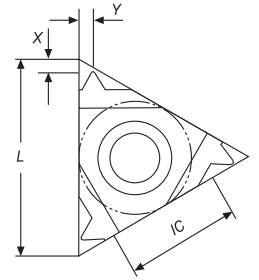
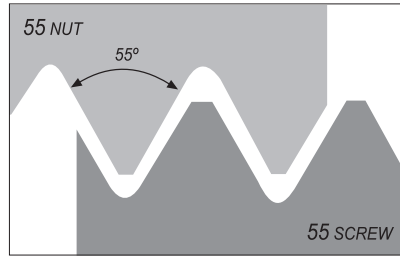
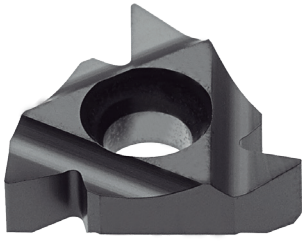
Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		mm	TPI		IC	X	Y	
1881730	06 IR A60	0.5-1.25	48-20	0.236	5/32	0.024	0.024	○
1881773	08 IR A60	0.5-1.5	48-16	0.315	3/16	0.024	0.028	○
1880595	11 IR A60	0.5-1.5	48-16	0.433	1/4	0.031	0.035	○
1880045	16 IR A60	0.5-1.5	48-16	0.630	3/8	0.031	0.035	☉
1880435	16 IR G60	1.75-3.0	14-8	0.630	3/8	0.047	0.067	☉
1880437	16 IR AG60	0.5-3.0	48-8	0.630	3/8	0.047	0.067	☉
1880769	22 IR N60	3.5-5.0	7-5	0.866	1/2	0.067	0.098	☉
1882487	27 IR Q60	5.5-6.0	4.5-4	1.063	5/8	0.083	0.122	○
1881716	06 IL A60	0.5-1.25	48-20	0.236	5/32	0.024	0.024	○
1882199	08 IL A60	0.5-1.5	48-16	0.315	3/16	0.024	0.028	○
1880855	11 IL A60	0.5-1.5	48-16	0.433	1/4	0.031	0.035	☉
1880772	16 IL A60	0.5-1.5	48-16	0.630	3/8	0.031	0.035	☉
1880774	16 IL G60	1.75-3.0	14-8	0.630	3/8	0.047	0.067	☉
1880775	16 IL AG60	0.5-3.0	48-8	0.630	3/8	0.047	0.067	☉
1880854	22 IL N60	3.5-5.0	7-5	0.866	1/2	0.067	0.098	☉
1882179	27 IL Q60	5.5-6.0	4.5-4	1.063	5/8	0.083	0.122	○

☉ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# PARTIAL PROFILE 55°



## External

Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		mm	TPI		IC	X	Y	
1880598	11 ER A55	0.5-1.5	48-16	11	1/4	0.031	0.035	○
1880430	16 ER A55	0.5-1.5	48-16	16	3/8	0.031	0.035	⊗
1880432	16 ER G55	1.75-3.0	14-8	16	3/8	0.047	0.067	⊗
1880433	16 ER AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	⊗
1880770	22 ER N55	3.5-5.0	7-5	22	1/2	0.067	0.098	⊗
1882167	27 ER Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○
1881850	11 EL A55	0.5-1.5	48-16	11	1/4	0.031	0.035	○
1880776	16 EL A55	0.5-1.5	48-16	16	3/8	0.031	0.035	⊗
1880778	16 EL G55	1.75-3.0	14-8	16	3/8	0.047	0.067	⊗
1880780	16 EL AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	⊗
1880858	22 EL N55	3.5-5.0	7-5	22	1/2	0.067	0.098	○
1882154	27 EL Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# PARTIAL PROFILE 55°

## Internal

Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)  (68) PH6920
		mm	TPI		IC	X	Y	
1881729	06 IR A55	0.5-1.25	48-20	06	5/32	0.020	0.024	○
1881772	08 IR A55	0.5-1.5	48-16	08	3/16	0.024	0.028	○
1880006	11 IR A55	0.5-1.5	48-16	11	1/4	0.031	0.035	⊗
1880434	16 IR A55	0.5-1.5	48-16	16	3/8	0.031	0.035	○
1880436	16 IR G55	1.75-3.0	14-8	16	3/8	0.047	0.067	⊗
1880438	16 IR AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	⊗
1880047	22 IR N55	3.5-5.0	7-5	22	1/2	0.067	0.098	⊗
1882189	27 IR Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○
1881715	06 IL A55	0.5-1.25	48-20	06	5/32	0.020	0.024	○
1881751	08 IL A55	0.5-1.5	48-16	08	3/16	0.024	0.028	○
1880856	11 IL A55	0.5-1.5	48-16	11	1/4	0.031	0.035	⊗
1880777	16 IL A55	0.5-1.5	48-16	16	3/8	0.031	0.035	⊗
1880779	16 IL G55	1.75-3.0	14-8	16	3/8	0.047	0.067	⊗
1880781	16 IL AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	⊗
1880857	22 IL N55	3.5-5.0	7-5	22	1/2	0.067	0.098	○
1882178	27 IL Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup> Geometry code + <sup>(2)</sup> Grade code

# FULL PROFILE INSERTS CODE KEY

Chave do codificação de pastilhas | Llave de codificación de plaquitas

## Full Profile Example



### 1 - Insert Size

L (mm)	06	08	11	16	22	27
IC (inch)	0.236	0.315	0.433	0.630	0.866	1.063

### 2 - Insert Hand Type

<b>ER</b>	External Right Holder
<b>EL</b>	External Left Holder
<b>IR</b>	Internal Right Holder
<b>IL</b>	Internal Left Holder

### 3 - Pitch

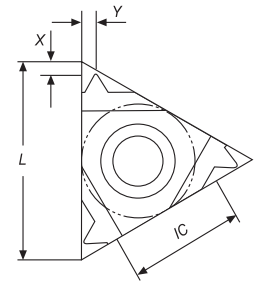
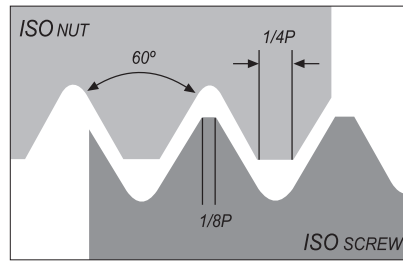
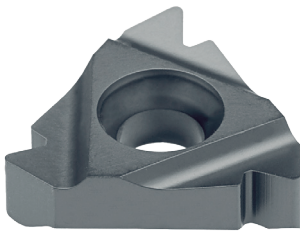
mm	TPI
0.35 - 7.0	72 - 3

### 4 - Profile Type

symbol	profile type	symbol	profile type	symbol	profile type	symbol	profile type
<b>ISO</b>	ISO METRIC	<b>NPTF</b>	NPTF	<b>STACME</b>	STUB ACME	<b>API</b>	API
<b>UN</b>	AMERICAN UN	<b>RD</b>	ROUND (DIN 405)	<b>UNJ</b>	UNJ	<b>BUT</b>	API BUTTRESS CASING
<b>W</b>	WITHWORTH	<b>RD20400</b>	ROUND (DIN 20400)	<b>MJ</b>	MJ	<b>API RD</b>	API ROUND CAS. & TUBING
<b>BSPT</b>	BSPT	<b>TR</b>	TRAPEZ	<b>ABUT</b>	AMERICAN BUTTRESS	<b>EL</b>	EXTREME LINE CASING
<b>NPT</b>	NPT	<b>ACME</b>	AMERICAN ACME	<b>SAGE</b>	METRIC BUT. SAGENGWINDE	<b>PG</b>	PG

### 5 - Grades

**PH6920**



External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		mm		IC	X	Y	(68) PH6920
1881852	11 ER 0.35 ISO	0.35	11	1/4	0.031	0.016	○
1881853	11 ER 0.40 ISO	0.40	11	1/4	0.028	0.016	○
1881854	11 ER 0.45 ISO	0.45	11	1/4	0.028	0.016	○
1881855	11 ER 0.50 ISO	0.50	11	1/4	0.024	0.024	○
1881856	11 ER 0.60 ISO	0.60	11	1/4	0.024	0.024	○
1881857	11 ER 0.70 ISO	0.70	11	1/4	0.024	0.024	○
1881858	11 ER 0.75 ISO	0.75	11	1/4	0.024	0.024	○
1881859	11 ER 0.80 ISO	0.80	11	1/4	0.024	0.024	○
1880602	11 ER 1.00 ISO	1.00	11	1/4	0.028	0.028	⊗
1881861	11 ER 1.25 ISO	1.25	11	1/4	0.031	0.035	○
1880603	11 ER 1.50 ISO	1.50	11	1/4	0.031	0.039	⊗
1881864	11 ER 1.75 ISO	1.75	11	1/4	0.031	0.043	⊗
1881881	11 ER 2.00 ISO	2.00	11	1/4	0.031	0.043	⊗
1882030	16 ER 0.35 ISO	0.35	16	3/8	0.031	0.016	○
1882031	16 ER 0.40 ISO	0.40	16	3/8	0.028	0.016	○
1882032	16 ER 0.45 ISO	0.45	16	3/8	0.028	0.016	○
1880819	16 ER 0.50 ISO	0.50	16	3/8	0.024	0.024	⊗
1882033	16 ER 0.60 ISO	0.60	16	3/8	0.024	0.024	○
1882034	16 ER 0.70 ISO	0.70	16	3/8	0.024	0.024	○
1880447	16 ER 0.75 ISO	0.75	16	3/8	0.024	0.024	○
1880804	16 ER 0.80 ISO	0.80	16	3/8	0.024	0.024	○
1880479	16 ER 1.00 ISO	1.00	16	3/8	0.028	0.028	⊗
1880007	16 ER 1.25 ISO	1.25	16	3/8	0.031	0.035	⊗
1880262	16 ER 1.50 ISO	1.50	16	3/8	0.031	0.039	⊗
1880732	16 ER 1.75 ISO	1.75	16	3/8	0.035	0.047	⊗
1880018	16 ER 2.00 ISO	2.00	16	3/8	0.039	0.051	⊗
1880020	16 ER 2.50 ISO	2.50	16	3/8	0.043	0.059	⊗
1880022	16 ER 3.00 ISO	3.00	16	3/8	0.047	0.063	⊗
1883740	16 ER 3.50 ISO	3.50	16	3/8	0.047	0.067	○
1880823	22 ER 3.50 ISO	3.50	22	1/2	0.063	0.091	⊗
1880811	22 ER 4.00 ISO	4.00	22	1/2	0.063	0.091	⊗
1880824	22 ER 4.50 ISO	4.50	22	1/2	0.067	0.094	⊗
1880649	22 ER 5.00 ISO	5.00	22	1/2	0.067	0.098	⊗
1883741	22 ER 5.50 ISO	5.50	22	1/2	0.067	0.102	○
1883742	22 ER 6.00 ISO	6.00	22	1/2	0.075	0.106	○
1882163	27 ER 5.50 ISO	5.50	27	5/8	0.063	0.091	○
1882164	27 ER 6.00 ISO	6.00	27	5/8	0.071	0.098	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08

## External

Geometry code <sup>(1)</sup>	Reference Referência Referencia	Pitch	Dimensions   Dimensões   Dimensiones (in)				Stock - Grade Code <sup>(2)</sup>
		mm	IC	L	X	Y	(68) PH6920
1881794	11 EL 0.35 ISO	0.35	0,250	0,433	0,031	0,016	○
1881795	11 EL 0.40 ISO	0.40	0,250	0,433	0,028	0,016	○
1881796	11 EL 0.45 ISO	0.45	0,250	0,433	0,028	0,016	○
1881797	11 EL 0.50 ISO	0.50	0,250	0,433	0,024	0,024	○
1881798	11 EL 0.60 ISO	0.60	0,250	0,433	0,024	0,024	○
1881799	11 EL 0.70 ISO	0.70	0,250	0,433	0,024	0,024	○
1881800	11 EL 0.75 ISO	0.75	0,250	0,433	0,024	0,024	○
1881801	11 EL 0.80 ISO	0.80	0,250	0,433	0,024	0,024	○
1881802	11 EL 1.00 ISO	1.00	0,250	0,433	0,028	0,028	○
1881803	11 EL 1.25 ISO	1.25	0,250	0,433	0,031	0,035	○
1881804	11 EL 1.50 ISO	1.50	0,250	0,433	0,031	0,039	○
1881806	11 EL 1.75 ISO	1.75	0,250	0,433	0,031	0,043	○
1880654	11 EL 2.00 ISO	2.00	0,250	0,433	0,031	0,043	⊗
1881977	16 EL 0.35 ISO	0.35	0,375	0,630	0,031	0,016	○
1881978	16 EL 0.40 ISO	0.40	0,375	0,630	0,028	0,016	○
1881979	16 EL 0.45 ISO	0.45	0,375	0,630	0,028	0,016	○
1881980	16 EL 0.50 ISO	0.50	0,375	0,630	0,024	0,024	○
1881981	16 EL 0.60 ISO	0.60	0,375	0,630	0,024	0,024	○
1881982	16 EL 0.70 ISO	0.70	0,375	0,630	0,024	0,024	○
1881983	16 EL 0.75 ISO	0.75	0,375	0,630	0,024	0,024	○
1881984	16 EL 0.80 ISO	0.80	0,375	0,630	0,024	0,024	○
1880782	16 EL 1.00 ISO	1.00	0,375	0,630	0,028	0,028	⊗
1880651	16 EL 1.25 ISO	1.25	0,375	0,630	0,031	0,035	⊗
1880652	16 EL 1.50 ISO	1.50	0,375	0,630	0,031	0,039	⊗
1880653	16 EL 1.75 ISO	1.75	0,375	0,630	0,035	0,047	⊗
1882519	16 EL 2.00 ISO	2.00	0,375	0,630	0,039	0,051	○
1880788	16 EL 2.50 ISO	2.50	0,375	0,630	0,043	0,059	⊗
1880488	16 EL 3.00 ISO	3.00	0,375	0,630	0,047	0,063	⊗
1883743	16 EL 3.50 ISO	3.50	0,375	0,630	0,047	0,067	○
1880844	22 EL 3.50 ISO	3.50	0,500	0,866	0,063	0,091	⊗
1880845	22 EL 4.00 ISO	4.00	0,500	0,866	0,063	0,091	⊗
1880846	22 EL 4.50 ISO	4.50	0,500	0,866	0,067	0,094	⊗
1880847	22 EL 5.00 ISO	5.00	0,500	0,866	0,067	0,098	⊗
1883744	22 EL 5.50 ISO	5.50	0,500	0,866	0,067	0,102	○
1883745	22 EL 6.00 ISO	6.00	0,500	0,866	0,075	0,106	○
1882150	27 EL 5.50 ISO	5.50	0,625	1,063	0,063	0,091	○
1882151	27 EL 6.00 ISO	6.00	0,625	1,063	0,071	0,098	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		mm		IC	X	Y	(68) PH6920
1881717	06 IR 0.50 ISO	0.50	06	5/32	0.035	0.020	○
1881718	06 IR 0.75 ISO	0.75	06	5/32	0.031	0.020	○
1881719	06 IR 1.00 ISO	1.00	06	5/32	0.028	0.024	⊗
1881720	06 IR 1.25 ISO	1.25	06	5/32	0.024	0.024	○
1881752	08 IR 0.35 ISO	0.35	08	3/16	0.028	0.016	○
1881753	08 IR 0.50 ISO	0.50	08	3/16	0.024	0.020	○
1881754	08 IR 0.75 ISO	0.75	08	3/16	0.024	0.020	○
1881755	08 IR 1.00 ISO	1.00	08	3/16	0.024	0.024	⊗
1881756	08 IR 1.25 ISO	1.25	08	3/16	0.024	0.028	○
1881757	08 IR 1.50 ISO	1.50	08	3/16	0.024	0.028	○
1881758	08 IR 1.75 ISO	1.75	08	3/16	0.024	0.031	○
1881937	11 IR 0.35 ISO	0.35	11	1/4	0.031	0.012	○
1881938	11 IR 0.40 ISO	0.40	11	1/4	0.031	0.016	○
1881939	11 IR 0.45 ISO	0.45	11	1/4	0.031	0.016	○
1880825	11 IR 0.50 ISO	0.50	11	1/4	0.024	0.024	⊗
1881940	11 IR 0.60 ISO	0.60	11	1/4	0.024	0.024	○
1881941	11 IR 0.70 ISO	0.70	11	1/4	0.024	0.024	○
1880762	11 IR 0.75 ISO	0.75	11	1/4	0.024	0.024	⊗
1881942	11 IR 0.80 ISO	0.80	11	1/4	0.024	0.024	○
1880604	11 IR 1.00 ISO	1.00	11	1/4	0.031	0.028	⊗
1880827	11 IR 1.25 ISO	1.25	11	1/4	0.031	0.031	⊗
1880605	11 IR 1.50 ISO	1.50	11	1/4	0.031	0.039	⊗
1880828	11 IR 1.75 ISO	1.75	11	1/4	0.031	0.043	⊗
1880829	11 IR 2.00 ISO	2.00	11	1/4	0.031	0.035	⊗
1883746	11 IR 2.50 ISO	2.50	11	1/4	0.031	0.047	○
1882108	16 IR 0.35 ISO	0.35	16	3/8	0.031	0.012	○
1882109	16 IR 0.40 ISO	0.40	16	3/8	0.031	0.016	○
1882110	16 IR 0.45 ISO	0.45	16	3/8	0.031	0.016	⊗
1880830	16 IR 0.50 ISO	0.50	16	3/8	0.024	0.024	○
1882112	16 IR 0.60 ISO	0.60	16	3/8	0.024	0.024	○
1882113	16 IR 0.70 ISO	0.70	16	3/8	0.024	0.024	○
1880831	16 IR 0.75 ISO	0.75	16	3/8	0.024	0.024	⊗
1880832	16 IR 0.80 ISO	0.80	16	3/8	0.024	0.024	⊗
1880025	16 IR 1.00 ISO	1.00	16	3/8	0.024	0.028	⊗
1880026	16 IR 1.25 ISO	1.25	16	3/8	0.031	0.035	⊗
1880619	16 IR 1.50 ISO	1.50	16	3/8	0.031	0.039	⊗
1880733	16 IR 1.75 ISO	1.75	16	3/8	0.035	0.047	⊗
1880039	16 IR 2.00 ISO	2.00	16	3/8	0.039	0.051	⊗
1880041	16 IR 2.50 ISO	2.50	16	3/8	0.043	0.059	⊗
1880042	16 IR 3.00 ISO	3.00	16	3/8	0.043	0.059	⊗
1883747	16 IR 3.50 ISO	3.50	16	3/8	0.047	0.067	○
1880834	22 IR 3.50 ISO	3.50	22	1/2	0.063	0.091	⊗
1880818	22 IR 4.00 ISO	4.00	22	1/2	0.063	0.091	⊗
1880835	22 IR 4.50 ISO	4.50	22	1/2	0.063	0.094	⊗
1880650	22 IR 5.00 ISO	5.00	22	1/2	0.063	0.091	⊗
1883748	22 IR 5.50 ISO	5.50	22	1/2	0.063	0.091	○
1883749	22 IR 6.00 ISO	6.00	22	1/2	0.063	0.094	○
1882185	27 IR 5.50 ISO	5.50	27	5/8	0.063	0.091	○
1882186	27 IR 6.00 ISO	6.00	27	5/8	0.071	0.098	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

mm  
THREADING  
Thread milling - Inserts  
Thread milling - Toolholders  
Thread turning - Overview  
Thread turning - Inserts  
Technical Data



# ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08

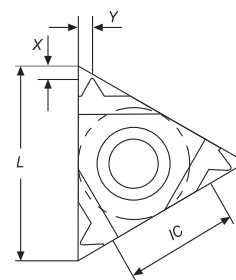
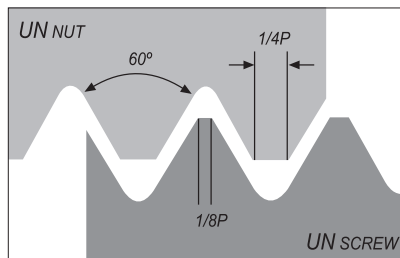
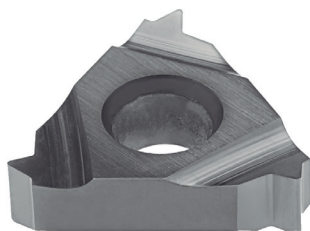
## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		mm		IC	X	Y	(68) PH6920
1881703	06 IL 0.50 ISO	0.50	06	5/32	0.035	0.020	○
1881704	06 IL 0.75 ISO	0.75	06	5/32	0.031	0.020	○
1881705	06 IL 1.00 ISO	1.00	06	5/32	0.028	0.024	○
1881706	06 IL 1.25 ISO	1.25	06	5/32	0.024	0.024	○
1881732	08 IL 0.50 ISO	0.50	08	3/16	0.024	0.020	○
1881733	08 IL 0.75 ISO	0.75	08	3/16	0.024	0.020	○
1881734	08 IL 1.00 ISO	1.00	08	3/16	0.024	0.024	○
1881735	08 IL 1.25 ISO	1.25	08	3/16	0.024	0.028	○
1881736	08 IL 1.50 ISO	1.50	08	3/16	0.024	0.028	○
1881737	08 IL 1.75 ISO	1.75	08	3/16	0.024	0.031	○
1881911	11 IL 0.35 ISO	0.35	11	1/4	0.031	0.012	○
1881912	11 IL 0.40 ISO	0.40	11	1/4	0.031	0.016	○
1881913	11 IL 0.45 ISO	0.45	11	1/4	0.031	0.016	○
1880837	11 IL 0.50 ISO	0.50	11	1/4	0.024	0.024	⊗
1881914	11 IL 0.60 ISO	0.60	11	1/4	0.024	0.024	○
1881915	11 IL 0.70 ISO	0.70	11	1/4	0.024	0.024	○
1880838	11 IL 0.75 ISO	0.75	11	1/4	0.024	0.024	⊗
1881916	11 IL 0.80 ISO	0.80	11	1/4	0.024	0.024	○
1880839	11 IL 1.00 ISO	1.00	11	1/4	0.031	0.028	⊗
1880840	11 IL 1.25 ISO	1.25	11	1/4	0.031	0.031	⊗
1880841	11 IL 1.50 ISO	1.50	11	1/4	0.031	0.039	⊗
1880842	11 IL 1.75 ISO	1.75	11	1/4	0.031	0.043	⊗
1880843	11 IL 2.00 ISO	2.00	11	1/4	0.031	0.035	⊗
1883750	11 IL 2.50 ISO	2.50	11	1/4	0.031	0.047	○
1882058	16 IL 0.35 ISO	0.35	16	3/8	0.031	0.012	○
1882059	16 IL 0.40 ISO	0.40	16	3/8	0.031	0.016	○
1882060	16 IL 0.45 ISO	0.45	16	3/8	0.031	0.016	○
1882061	16 IL 0.50 ISO	0.50	16	3/8	0.024	0.024	○
1882062	16 IL 0.60 ISO	0.60	16	3/8	0.024	0.024	○
1882063	16 IL 0.70 ISO	0.70	16	3/8	0.024	0.024	○
1882064	16 IL 0.75 ISO	0.75	16	3/8	0.024	0.024	○
1882065	16 IL 0.80 ISO	0.80	16	3/8	0.024	0.024	○
1880783	16 IL 1.00 ISO	1.00	16	3/8	0.024	0.028	⊗
1880784	16 IL 1.25 ISO	1.25	16	3/8	0.031	0.035	⊗
1880785	16 IL 1.50 ISO	1.50	16	3/8	0.031	0.039	⊗
1880786	16 IL 1.75 ISO	1.75	16	3/8	0.035	0.047	⊗
1880787	16 IL 2.00 ISO	2.00	16	3/8	0.039	0.051	⊗
1880789	16 IL 2.50 ISO	2.50	16	3/8	0.043	0.059	⊗
1880790	16 IL 3.00 ISO	3.00	16	3/8	0.043	0.059	⊗
1883751	16 IL 3.50 ISO	3.50	16	3/8	0.047	0.067	○
1880848	22 IL 3.50 ISO	3.50	22	1/2	0.063	0.091	⊗
1880849	22 IL 4.00 ISO	4.00	22	1/2	0.063	0.091	⊗
1880850	22 IL 4.50 ISO	4.50	22	1/2	0.063	0.094	⊗
1880851	22 IL 5.00 ISO	5.00	22	1/2	0.063	0.091	○
1883752	22 IL 5.50 ISO	5.50	22	1/2	0.063	0.091	○
1883753	22 IL 6.00 ISO	6.00	22	1/2	0.063	0.094	○
1882174	27 IL 5.50 ISO	5.50	27	5/8	0.063	0.091	○
1882175	27 IL 6.00 ISO	6.00	27	5/8	0.071	0.098	○

⊗ Stock Items | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
				IC	X	Y	
1881907	11 ER 72 UN	72	11	1/4	0.031	0.016	○
1881906	11 ER 64 UN	64	11	1/4	0.031	0.016	○
1881903	11 ER 56 UN	56	11	1/4	0.028	0.016	⊗
1881901	11 ER 48 UN	48	11	1/4	0.024	0.024	○
1881900	11 ER 44 UN	44	11	1/4	0.024	0.024	○
1881898	11 ER 40 UN	40	11	1/4	0.024	0.024	○
1881896	11 ER 36 UN	36	11	1/4	0.024	0.024	⊗
1881894	11 ER 32 UN	32	11	1/4	0.024	0.024	○
1881892	11 ER 28 UN	28	11	1/4	0.024	0.028	○
1881890	11 ER 27 UN	27	11	1/4	0.028	0.031	○
1881885	11 ER 24 UN	24	11	1/4	0.028	0.031	○
1881882	11 ER 20 UN	20	11	1/4	0.031	0.035	○
1881877	11 ER 18 UN	18	11	1/4	0.031	0.039	○
1881873	11 ER 16 UN	16	11	1/4	0.035	0.043	⊗
1881869	11 ER 14 UN	14	11	1/4	0.035	0.043	○
1882055	16 ER 72 UN	72	16	3/8	0.031	0.012	○
1882054	16 ER 64 UN	64	16	3/8	0.031	0.016	○
1882051	16 ER 56 UN	56	16	3/8	0.028	0.016	○
1882049	16 ER 48 UN	48	16	3/8	0.024	0.024	○
1882048	16 ER 44 UN	44	16	3/8	0.024	0.024	○
1882046	16 ER 40 UN	40	16	3/8	0.024	0.024	○
1882044	16 ER 36 UN	36	16	3/8	0.024	0.024	○
1880870	16 ER 32 UN	32	16	3/8	0.024	0.024	⊗
1880869	16 ER 28 UN	28	16	3/8	0.024	0.028	⊗
1882041	16 ER 27 UN	27	16	3/8	0.028	0.031	○
1880868	16 ER 24 UN	24	16	3/8	0.028	0.031	⊗
1880021	16 ER 20 UN	20	16	3/8	0.031	0.035	⊗
1880867	16 ER 18 UN	18	16	3/8	0.031	0.039	⊗
1880616	16 ER 16 UN	16	16	3/8	0.035	0.043	⊗
1880014	16 ER 14 UN	14	16	3/8	0.039	0.047	⊗
1880866	16 ER 13 UN	13	16	3/8	0.039	0.051	⊗
1880865	16 ER 12 UN	12	16	3/8	0.043	0.055	⊗
1883754	16 ER 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880864	16 ER 11 UN	11	16	3/8	0.043	0.059	⊗
1880863	16 ER 10 UN	10	16	3/8	0.043	0.059	⊗
1880862	16 ER 9 UN	9	16	3/8	0.047	0.067	⊗

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982

## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1880024	16 ER 8 UN	8	16	3/8	0.047	0.063	⊗
1880861	22 ER 7 UN	7	22	1/2	0.063	0.091	⊗
1880860	22 ER 6 UN	6	22	1/2	0.063	0.091	⊗
1880859	22 ER 5 UN	5	22	1/2	0.067	0.098	○
1882157	27 ER 4.5 UN	4.5	27	5/8	0.075	0.106	○
1882161	27 ER 4 UN	4	27	5/8	0.083	0.118	○
1881848	11 EL 72 UN	72	11	1/4	0.031	0.016	○
1881847	11 EL 64 UN	64	11	1/4	0.031	0.016	○
1882200	11 EL 56 UN	56	11	1/4	0.028	0.016	○
1881843	11 EL 48 UN	48	11	1/4	0.024	0.024	○
1881842	11 EL 44 UN	44	11	1/4	0.024	0.024	○
1881840	11 EL 40 UN	40	11	1/4	0.024	0.024	○
1881838	11 EL 36 UN	36	11	1/4	0.024	0.024	○
1881836	11 EL 32 UN	32	11	1/4	0.024	0.024	○
1881834	11 EL 28 UN	28	11	1/4	0.024	0.028	⊗
1881832	11 EL 27 UN	27	11	1/4	0.028	0.031	⊗
1881827	11 EL 24 UN	24	11	1/4	0.028	0.031	○
1881824	11 EL 20 UN	20	11	1/4	0.031	0.035	○
1881819	11 EL 18 UN	18	11	1/4	0.031	0.039	⊗
1881815	11 EL 16 UN	16	11	1/4	0.035	0.043	○
1881811	11 EL 14 UN	14	11	1/4	0.035	0.043	⊗
1882022	16 EL 72 UN	72	16	3/8	0.031	0.012	○
1882020	16 EL 64 UN	64	16	3/8	0.031	0.016	○
1882017	16 EL 56 UN	56	16	3/8	0.028	0.016	○
1882015	16 EL 48 UN	48	16	3/8	0.024	0.024	○
1882014	16 EL 44 UN	44	16	3/8	0.024	0.024	○
1882012	16 EL 40 UN	40	16	3/8	0.024	0.024	○
1882010	16 EL 36 UN	36	16	3/8	0.024	0.024	○
1880886	16 EL 32 UN	32	16	3/8	0.024	0.024	○
1880885	16 EL 28 UN	28	16	3/8	0.024	0.028	○
1882007	16 EL 27 UN	27	16	3/8	0.028	0.031	○
1880884	16 EL 24 UN	24	16	3/8	0.028	0.031	⊗
1880883	16 EL 20 UN	20	16	3/8	0.031	0.035	⊗
1880882	16 EL 18 UN	18	16	3/8	0.031	0.039	⊗
1880881	16 EL 16 UN	16	16	3/8	0.035	0.043	⊗
1880880	16 EL 14 UN	14	16	3/8	0.039	0.047	⊗
1880879	16 EL 13 UN	13	16	3/8	0.039	0.051	⊗
1880878	16 EL 12 UN	12	16	3/8	0.043	0.055	⊗
1883755	16 EL 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880877	16 EL 11 UN	11	16	3/8	0.043	0.059	⊗
1880876	16 EL 10 UN	10	16	3/8	0.043	0.059	⊗
1880875	16 EL 9 UN	9	16	3/8	0.047	0.067	○
1880874	16 EL 8 UN	8	16	3/8	0.047	0.063	○
1880873	22 EL 7U N	7	22	1/2	0.063	0.091	○
1880872	22 EL 6 UN	6	22	1/2	0.063	0.091	○
1880871	22 EL 5 UN	5	22	1/2	0.067	0.098	○
1882144	27 EL 4.5 UN	4.5	27	5/8	0.075	0.106	○
1882148	27 EL 4 UN	4	27	5/8	0.083	0.118	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

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# AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881726	06 IR 32 UN	32	06	5/32	0.031	0.020	○
1881725	06 IR 28 UN	28	06	5/32	0.031	0.024	○
1881722	06 IR 24 UN	24	06	5/32	0.028	0.024	○
1883756	06 IR 20 UN	20	06	5/32	0.024	0.024	○
1881721	06 IR 18 UN	18	06	5/32	0.024	0.028	○
1881769	08 IR 32 UN	32	08	3/16	0.024	0.020	○
1881768	08 IR 28 UN	28	08	3/16	0.024	0.024	○
1881765	08 IR 24 UN	24	08	3/16	0.024	0.024	○
1881764	08 IR 20 UN	20	08	3/16	0.024	0.028	○
1881762	08 IR 18 UN	18	08	3/16	0.024	0.028	○
1881760	08 IR 16 UN	16	08	3/16	0.024	0.028	○
1881759	08 IR 14 UN	14	08	3/16	0.024	0.031	○
1881956	11 IR 72 UN	72	11	1/4	0.031	0.012	○
1881955	11 IR 64 UN	64	11	1/4	0.031	0.016	○
1881954	11 IR 56 UN	56	11	1/4	0.028	0.016	○
1881953	11 IR 48 UN	48	11	1/4	0.024	0.024	○
1881952	11 IR 44 UN	44	11	1/4	0.024	0.024	○
1881951	11 IR 40 UN	40	11	1/4	0.024	0.024	○
1881950	11 IR 36 UN	36	11	1/4	0.024	0.024	○
1880910	11 IR 32 UN	32	11	1/4	0.024	0.024	○
1880909	11 IR 28 UN	28	11	1/4	0.024	0.028	○
1881948	11 IR 27 UN	27	11	1/4	0.028	0.031	○
1880908	11 IR 24 UN	24	11	1/4	0.028	0.031	○
1880907	11 IR 20 UN	20	11	1/4	0.031	0.035	⊗
1880906	11 IR 18 UN	18	11	1/4	0.031	0.039	⊗
1880905	11 IR 16 UN	16	11	1/4	0.035	0.043	⊗
1880904	11 IR 14 UN	14	11	1/4	0.035	0.043	⊗
1880903	11 IR 13 UN	13	11	1/4	0.031	0.039	⊗
1880902	11 IR 12 UN	12	11	1/4	0.035	0.043	○
1880901	11 IR 11 UN	11	11	1/4	0.031	0.043	⊗
1882126	16 IR 72 UN	72	16	3/8	0.031	0.012	○
1882124	16 IR 64 UN	64	16	3/8	0.031	0.016	○
1882123	16 IR 56 UN	56	16	3/8	0.028	0.016	○
1882122	16 IR 48 UN	48	16	3/8	0.024	0.024	○
1882121	16 IR 44 UN	44	16	3/8	0.024	0.024	○
1882120	16 IR 40 UN	40	16	3/8	0.024	0.024	○
1882118	16 IR 36 UN	36	16	3/8	0.024	0.024	⊗
1880900	16 IR 32 UN	32	16	3/8	0.024	0.024	⊗
1880899	16 IR 28 UN	28	16	3/8	0.024	0.028	⊗
1882117	16 IR 27 UN	27	16	3/8	0.028	0.031	○
1880898	16 IR 24 UN	24	16	3/8	0.028	0.031	⊗
1880618	16 IR 20 UN	20	16	3/8	0.031	0.035	⊗
1880897	16 IR 18 UN	18	16	3/8	0.031	0.039	⊗
1880037	16 IR 16 UN	16	16	3/8	0.035	0.043	○
1880034	16 IR 14 UN	14	16	3/8	0.039	0.047	⊗
1882116	16 IR 13 UN	13	16	3/8	0.039	0.051	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1880894	16 IR 12 UN	12	16	3/8	0.043	0.055	⊗
1883757	16 IR 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880893	16 IR 11 UN	11	16	3/8	0.043	0.059	⊗
1880892	16 IR 10 UN	10	16	3/8	0.043	0.059	⊗
1880891	16 IR 9 UN	9	16	3/8	0.047	0.067	⊗
1880044	16 IR 8 UN	8	16	3/8	0.047	0.063	⊗
1880889	22 IR 7 UN	7	22	1/2	0.063	0.091	⊗
1880888	22 IR 6 UN	6	22	1/2	0.063	0.091	⊗
1880887	22 IR 5 UN	5	22	1/2	0.063	0.091	⊗
1882181	27 IR 4.5 UN	4.5	27	5/8	0.067	0.094	○
1882184	27 IR 4 UN	4	27	5/8	0.071	0.106	○
1881712	06 IL 32 UN	32	06	5/32	0.031	0.020	○
1881711	06 IL 28 UN	28	06	5/32	0.031	0.024	○
1881708	06 IL 24 UN	24	06	5/32	0.028	0.024	○
1883758	06 IL 20 UN	20	06	5/32	0.024	0.024	○
1881707	06 IL 18 UN	18	06	5/32	0.024	0.028	○
1881748	08 IL 32 UN	32	08	3/16	0.024	0.020	○
1881747	08 IL 28 UN	28	08	3/16	0.024	0.024	○
1881744	08 IL 24 UN	24	08	3/16	0.024	0.024	○
1881743	08 IL 20 UN	20	08	3/16	0.024	0.028	○
1881741	08 IL 18 UN	18	08	3/16	0.024	0.028	○
1881739	08 IL 16 UN	16	08	3/16	0.024	0.028	○
1881738	08 IL 14 UN	14	08	3/16	0.024	0.031	○
1881936	11 IL 72 UN	72	11	1/4	0.031	0.012	○
1881935	11 IL 64 UN	64	11	1/4	0.031	0.016	○
1881934	11 IL 56 UN	56	11	1/4	0.028	0.016	○
1881933	11 IL 48 UN	48	11	1/4	0.024	0.024	○
1881932	11 IL 44 UN	44	11	1/4	0.024	0.024	○
1881931	11 IL 40 UN	40	11	1/4	0.024	0.024	○
1881930	11 IL 36 UN	36	11	1/4	0.024	0.024	○
1880935	11 IL 32 UN	32	11	1/4	0.024	0.024	○
1880934	11 IL 28 UN	28	11	1/4	0.024	0.028	⊗
1881928	11 IL 27 UN	27	11	1/4	0.028	0.031	○
1880933	11 IL 24 UN	24	11	1/4	0.028	0.031	○
1880932	11 IL 20 UN	20	11	1/4	0.031	0.035	○
1880931	11 IL 18 UN	18	11	1/4	0.031	0.039	○
1880930	11 IL 16 UN	16	11	1/4	0.035	0.043	○
1880929	11 IL 14 UN	14	11	1/4	0.035	0.043	⊗
1880928	11 IL 13 UN	13	11	1/4	0.031	0.039	⊗
1880927	11 IL 12 UN	12	11	1/4	0.035	0.043	⊗
1880926	11 IL 11 UN	11	11	1/4	0.031	0.043	○
1882101	16 IL 72 UN	72	16	3/8	0.031	0.012	○
1882098	16 IL 64 UN	64	16	3/8	0.031	0.016	○
1882097	16 IL 56 UN	56	16	3/8	0.028	0.016	○
1882096	16 IL 48 UN	48	16	3/8	0.024	0.024	○
1882095	16 IL 44 UN	44	16	3/8	0.024	0.024	○

⊗ Stock Items | Itens de stock      ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982

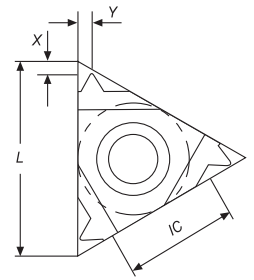
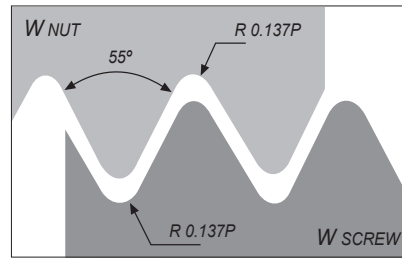
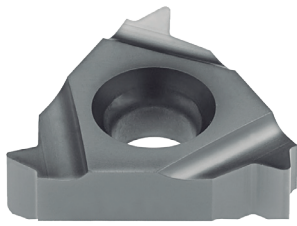
## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882094	16 IL 40 UN	40	16	3/8	0.024	0.024	○
1882092	16 IL 36 UN	36	16	3/8	0.024	0.024	○
1880925	16 IL 32 UN	32	16	3/8	0.024	0.024	○
1880924	16 IL 28 UN	28	16	3/8	0.024	0.028	○
1882089	16 IL 27 UN	27	16	3/8	0.028	0.031	○
1880923	16 IL 24 UN	24	16	3/8	0.028	0.031	○
1880922	16 IL 20 UN	20	16	3/8	0.031	0.035	○
1880921	16 IL 18 UN	18	16	3/8	0.031	0.039	○
1880920	16 IL 16 UN	16	16	3/8	0.035	0.043	○
1880919	16 IL 14 UN	14	16	3/8	0.039	0.047	○
1882074	16 IL 13 UN	13	16	3/8	0.039	0.051	○
1880918	16 IL 12 UN	12	16	3/8	0.043	0.055	⊗
1883759	16 IL 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880917	16 IL 11 UN	11	16	3/8	0.043	0.059	○
1880916	16 IL 10 UN	10	16	3/8	0.043	0.059	○
1880915	16 IL 9 UN	9	16	3/8	0.047	0.067	○
1880914	16 IL 8 UN	8	16	3/8	0.047	0.063	○
1880913	22 IL 7 UN	7	22	1/2	0.063	0.091	○
1880912	22 IL 6 UN	6	22	1/2	0.063	0.091	○
1880911	22 IL 5 UN	5	22	1/2	0.063	0.091	⊗
1882170	27 IL 4.5 UN	4.5	27	5/8	0.067	0.094	○
1882173	27 IL 4 UN	4	27	5/8	0.071	0.106	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code



External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881908	11 ER 72 W	72	11	1/4	0.028	0.016	○
1881905	11 ER 60 W	60	11	1/4	0.028	0.016	○
1881904	11 ER 56 W	56	11	1/4	0.028	0.016	○
1881902	11 ER 48 W	48	11	1/4	0.024	0.024	○
1881899	11 ER 40 W	40	11	1/4	0.024	0.024	○
1881897	11 ER 36 W	36	11	1/4	0.024	0.024	○
1881895	11 ER 32 W	32	11	1/4	0.024	0.024	○
1881893	11 ER 28 W	28	11	1/4	0.024	0.028	○
1881887	11 ER 26 W	26	11	1/4	0.028	0.028	○
1881886	11 ER 24 W	24	11	1/4	0.028	0.031	○
1881884	11 ER 22 W	22	11	1/4	0.031	0.035	○
1881883	11 ER 20 W	20	11	1/4	0.031	0.035	○
1881880	11 ER 19 W	19	11	1/4	0.031	0.039	○
1881878	11 ER 18 W	18	11	1/4	0.031	0.039	○
1881874	11 ER 16 W	16	11	1/4	0.035	0.043	○
1881870	11 ER 14 W	14	11	1/4	0.035	0.043	○
1882056	16 ER 72 W	72	16	3/8	0.028	0.016	○
1882053	16 ER 60 W	60	16	3/8	0.028	0.016	○
1882052	16 ER 56 W	56	16	3/8	0.028	0.016	○
1882050	16 ER 48 W	48	16	3/8	0.024	0.024	○
1882047	16 ER 40 W	40	16	3/8	0.024	0.024	○
1882045	16 ER 36 W	36	16	3/8	0.024	0.024	○
1882043	16 ER 32 W	32	16	3/8	0.024	0.024	○
1880940	16 ER 28 W	28	16	3/8	0.024	0.028	○
1882040	16 ER 26 W	26	16	3/8	0.028	0.028	○
1880939	16 ER 24 W	24	16	3/8	0.028	0.031	○
1882039	16 ER 22 W	22	16	3/8	0.031	0.035	○
1880938	16 ER 20 W	20	16	3/8	0.031	0.035	○
1880017	16 ER 19 W	19	16	3/8	0.031	0.039	⊗
1880937	16 ER 18 W	18	16	3/8	0.031	0.039	⊗
1880609	16 ER 16 W	16	16	3/8	0.035	0.043	⊗
1880015	16 ER 14 W	14	16	3/8	0.039	0.047	⊗
1880611	16 ER 12 W	12	16	3/8	0.043	0.055	⊗
1880613	16 ER 11 W	11	16	3/8	0.043	0.059	⊗
1880614	16 ER 10 W	10	16	3/8	0.043	0.059	⊗
1880936	16 ER 9 W	9	16	3/8	0.047	0.067	⊗

⊗ Stock Items | Itens de stock      ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994

## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1880646	16 ER 8 W	8	16	3/8	0.047	0.059	⊗
1880941	22 ER 7 W	7	22	1/2	0.063	0.091	⊗
1880942	22 ER 6 W	6	22	1/2	0.063	0.091	⊗
1880943	22 ER 5 W	5	22	1/2	0.067	0.094	⊗
1882158	27 ER 4.5 W	4.5	27	5/8	0.071	0.102	○
1882162	27 ER 4 W	4	27	5/8	0.079	0.114	○
1881849	11 EL 72 W	72	11	1/4	0.028	0.016	○
1881846	11 EL 60 W	60	11	1/4	0.028	0.016	○
1881845	11 EL 56 W	56	11	1/4	0.028	0.016	○
1881844	11 EL 48 W	48	11	1/4	0.024	0.024	○
1881841	11 EL 40 W	40	11	1/4	0.024	0.024	○
1881839	11 EL 36 W	36	11	1/4	0.024	0.024	○
1881837	11 EL 32 W	32	11	1/4	0.024	0.024	○
1881835	11 EL 28 W	28	11	1/4	0.024	0.028	○
1881829	11 EL 26 W	26	11	1/4	0.028	0.028	○
1881828	11 EL 24 W	24	11	1/4	0.028	0.031	○
1881826	11 EL 22 W	22	11	1/4	0.031	0.035	○
1881825	11 EL 20 W	20	11	1/4	0.031	0.035	○
1881822	11 EL 19 W	19	11	1/4	0.031	0.039	⊗
1881820	11 EL 18 W	18	11	1/4	0.031	0.039	⊗
1881816	11 EL 16 W	16	11	1/4	0.035	0.043	⊗
1881812	11 EL 14 W	14	11	1/4	0.035	0.043	○
1882023	16 EL 72 W	72	16	3/8	0.028	0.016	○
1882019	16 EL 60 W	60	16	3/8	0.028	0.016	○
1882018	16 EL 56 W	56	16	3/8	0.028	0.016	○
1882016	16 EL 48 W	48	16	3/8	0.024	0.024	○
1882013	16 EL 40 W	40	16	3/8	0.024	0.024	○
1882011	16 EL 36 W	36	16	3/8	0.024	0.024	○
1882009	16 EL 32 W	32	16	3/8	0.024	0.024	○
1880955	16 EL 28 W	28	16	3/8	0.024	0.028	○
1882004	16 EL 26 W	26	16	3/8	0.024	0.028	○
1880954	16 EL 24 W	24	16	3/8	0.028	0.031	○
1882003	16 EL 22 W	22	16	3/8	0.031	0.035	⊗
1880953	16 EL 20 W	20	16	3/8	0.031	0.035	○
1880952	16 EL 19 W	19	16	3/8	0.031	0.039	○
1880951	16 EL 18 W	18	16	3/8	0.031	0.039	○
1880950	16 EL 16 W	16	16	3/8	0.035	0.043	○
1880949	16 EL 14 W	14	16	3/8	0.039	0.047	○
1880948	16 EL 12 W	12	16	3/8	0.043	0.055	○
1880947	16 EL 11 W	11	16	3/8	0.043	0.059	○
1880946	16 EL 10 W	10	16	3/8	0.043	0.059	⊗
1880945	16 EL 9 W	9	16	3/8	0.047	0.067	⊗
1880944	16 EL 8 W	8	16	3/8	0.047	0.059	⊗
1880956	22 EL 7 W	7	22	1/2	0.063	0.091	○
1880957	22 EL 6 W	6	22	1/2	0.063	0.091	○
1880958	22 EL 5 W	5	22	1/2	0.067	0.094	○
1882145	27 EL 4.5 W	4.5	27	5/8	0.071	0.102	○
1882149	27 EL 4 W	4	27	5/8	0.079	0.114	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code



# WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882203	06 IR 26 W	26	06	5/32	0.028	0.024	○
1882207	06 IR 22 W	22	06	5/32	0.024	0.024	○
1883760	06 IR 20 W	20	06	5/32	0.024	0.028	○
1882211	06 IR 18 W	18	06	5/32	0.024	0.028	○
1882213	08 IR 28 W	28	08	3/16	0.024	0.024	○
1882217	08 IR 24 W	24	08	3/16	0.024	0.024	○
1882219	08 IR 20 W	20	08	3/16	0.024	0.028	○
1882221	08 IR 19 W	19	08	3/16	0.024	0.028	○
1882223	08 IR 18 W	18	08	3/16	0.024	0.028	○
1882225	08 IR 16 W	16	08	3/16	0.024	0.028	○
1882227	11 IR 72 W	72	11	1/4	0.028	0.016	○
1882229	11 IR 60 W	60	11	1/4	0.028	0.016	○
1882231	11 IR 56 W	56	11	1/4	0.028	0.016	○
1882233	11 IR 48 W	48	11	1/4	0.024	0.024	○
1882235	11 IR 40 W	40	11	1/4	0.024	0.024	○
1883761	11 IR 36 W	36	11	1/4	0.024	0.024	○
1882237	11 IR 32 W	32	11	1/4	0.024	0.024	○
1880972	11 IR 28 W	28	11	1/4	0.024	0.028	○
1882239	11 IR 26 W	26	11	1/4	0.028	0.028	○
1880971	11 IR 24 W	24	11	1/4	0.028	0.031	○
1883762	11 IR 22 W	22	11	1/4	0.031	0.035	○
1880970	11 IR 20 W	20	11	1/4	0.031	0.035	○
1880005	11 IR 19 W	19	11	1/4	0.031	0.039	⊗
1880968	11 IR 18 W	18	11	1/4	0.031	0.039	○
1880967	11 IR 16 W	16	11	1/4	0.035	0.043	⊗
1880004	11 IR 14 W	14	11	1/4	0.035	0.043	⊗
1883763	11 IR 12 W	12	11	1/4	0.039	0.043	○
1883764	11 IR 11 W	11	11	1/4	0.035	0.047	○
1882241	16 IR 72 W	72	16	3/8	0.028	0.016	○
1882498	16 IR 60 W	60	16	3/8	0.028	0.016	○
1882244	16 IR 56 W	56	16	3/8	0.028	0.016	○
1882246	16 IR 48 W	48	16	3/8	0.024	0.024	○
1882248	16 IR 40 W	40	16	3/8	0.024	0.024	○
1882250	16 IR 36 W	36	16	3/8	0.024	0.024	○
1882252	16 IR 32 W	32	16	3/8	0.024	0.024	○
1880965	16 IR 28 W	28	16	3/8	0.024	0.028	○
1882254	16 IR 26 W	26	16	3/8	0.024	0.028	○
1880964	16 IR 24 W	24	16	3/8	0.028	0.031	○
1882256	16 IR 22 W	22	16	3/8	0.031	0.035	○
1880963	16 IR 20 W	20	16	3/8	0.031	0.035	○
1880608	16 IR 19 W	19	16	3/8	0.031	0.039	⊗
1880962	16 IR 18 W	18	16	3/8	0.031	0.039	○
1880610	16 IR 16 W	16	16	3/8	0.035	0.043	⊗
1880035	16 IR 14 W	14	16	3/8	0.039	0.047	⊗
1880612	16 IR 12 W	12	16	3/8	0.043	0.055	⊗
1880031	16 IR 11 W	11	16	3/8	0.043	0.059	⊗

⊗ Stock Items | Itens de stock      ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1880615	16 IR 10 W	10	16	3/8	0.043	0.059	⊗
1882258	16 IR 9 W	9	16	3/8	0.047	0.067	○
1880672	16 IR 8 W	8	16	3/8	0.047	0.059	○
1880959	22 IR 7 W	7	22	1/2	0.063	0.091	○
1880960	22 IR 6 W	6	22	1/2	0.063	0.091	○
1880961	22 IR 5 W	5	22	1/2	0.067	0.094	○
1882259	27 IR 4.5 W	4.5	27	5/8	0.071	0.102	○
1882261	27 IR 4 W	4	27	5/8	0.079	0.114	○
1882204	06 IL 26 W	26	06	5/32	0.028	0.024	○
1882208	06 IL 22 W	22	06	5/32	0.024	0.024	○
1883765	06 IL 20 W	20	06	5/32	0.024	0.028	○
1882212	06 IL 18 W	18	06	5/32	0.024	0.028	○
1882214	08 IL 28 W	28	08	3/16	0.028	0.028	○
1882218	08 IL 24 W	24	08	3/16	0.028	0.028	○
1882220	08 IL 20 W	20	08	3/16	0.028	0.028	○
1882222	08 IL 19 W	19	08	3/16	0.028	0.028	○
1882224	08 IL 18 W	18	08	3/16	0.028	0.028	○
1882226	08 IL 16 W	16	08	3/16	0.028	0.028	○
1882228	11 IL 72 W	72	11	1/4	0.028	0.016	○
1882230	11 IL 60 W	60	11	1/4	0.028	0.016	○
1882232	11 IL 56 W	56	11	1/4	0.028	0.016	○
1882234	11 IL 48 W	48	11	1/4	0.024	0.024	○
1882236	11 IL 40 W	40	11	1/4	0.024	0.024	○
1883766	11 IL 36 W	36	11	1/4	0.024	0.024	○
1882238	11 IL 32 W	32	11	1/4	0.024	0.024	○
1880994	11 IL 28 W	28	11	1/4	0.024	0.028	○
1882240	11 IL 26 W	26	11	1/4	0.028	0.028	○
1880993	11 IL 24 W	24	11	1/4	0.028	0.031	○
1883767	11 IL 22 W	22	11	1/4	0.031	0.035	○
1880992	11 IL 20 W	20	11	1/4	0.031	0.035	○
1880991	11 IL 19 W	19	11	1/4	0.031	0.039	○
1880990	11 IL 18 W	18	11	1/4	0.031	0.039	○
1880989	11 IL 16 W	16	11	1/4	0.035	0.043	○
1880988	11 IL 14 W	14	11	1/4	0.035	0.043	○
1883768	11 IL 12 W	12	11	1/4	0.039	0.043	○
1883769	11 IL 11 W	11	11	1/4	0.035	0.047	○
1882242	16 IL 72 W	72	16	3/8	0.028	0.016	○
1882243	16 IL 60 W	60	16	3/8	0.028	0.016	○
1882245	16 IL 56 W	56	16	3/8	0.028	0.016	○
1882247	16 IL 48 W	48	16	3/8	0.024	0.024	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882249	16 IL 40 W	40	16	3/8	0.024	0.024	⊗
1882251	16 IL 36 W	36	16	3/8	0.024	0.024	○
1882253	16 IL 32 W	32	16	3/8	0.024	0.024	○
1880987	16 IL 28 W	28	16	3/8	0.024	0.028	○
1882255	16 IL 26 W	26	16	3/8	0.024	0.028	⊗
1880986	16 IL 24 W	24	16	3/8	0.028	0.031	○
1882257	16 IL 22 W	22	16	3/8	0.031	0.035	○
1880985	16 IL 20 W	20	16	3/8	0.031	0.035	○
1880984	16 IL 19 W	19	16	3/8	0.031	0.039	○
1880983	16 IL 18 W	18	16	3/8	0.031	0.039	⊗
1880982	16 IL 16 W	16	16	3/8	0.035	0.043	⊗
1880981	16 IL 14 W	14	16	3/8	0.039	0.047	○
1880980	16 IL 12 W	12	16	3/8	0.043	0.055	⊗
1880979	16 IL 11 W	11	16	3/8	0.043	0.059	○
1880978	16 IL 10 W	10	16	3/8	0.043	0.059	○
1880977	16 IL 9 W	9	16	3/8	0.047	0.067	○
1880976	16 IL 8 W	8	16	3/8	0.047	0.059	○
1880975	22 IL 7 W	7	22	1/2	0.063	0.091	⊗
1880974	22 IL 6 W	6	22	1/2	0.063	0.091	⊗
1880973	22 IL 5 W	5	22	1/2	0.067	0.094	○
1882260	27 IL 4.5 W	4.5	27	5/8	0.071	0.102	○
1882262	27 IL 4 W	4	27	5/8	0.079	0.114	○

⊗ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

THREADING

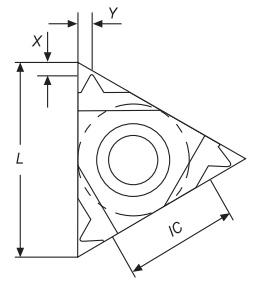
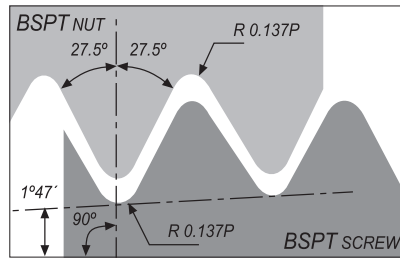
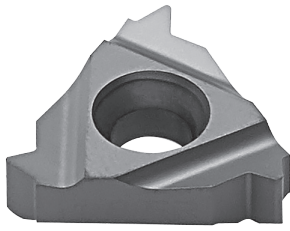
Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data



External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1880998	16 ER 28 BSPT	28	16	3/8	0.024	0.024	○
1880997	16 ER 19 BSPT	19	16	3/8	0.031	0.035	○
1880996	16 ER 14 BSPT	14	16	3/8	0.039	0.047	○
1880995	16 ER 11 BSPT	11	16	3/8	0.043	0.059	○
1882008	16 EL 28 BSPT	28	16	3/8	0.024	0.024	○
1882001	16 EL 19 BSPT	19	16	3/8	0.031	0.035	○
1881993	16 EL 14 BSPT	14	16	3/8	0.039	0.047	⊗
1881989	16 EL 11 BSPT	11	16	3/8	0.043	0.059	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

Internal

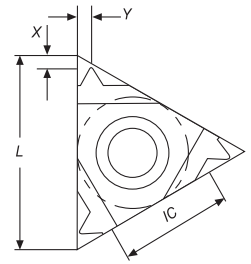
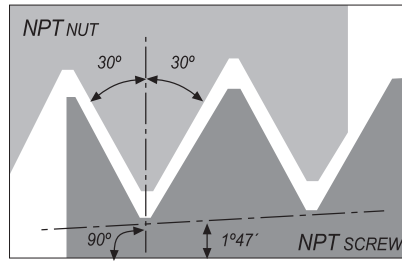
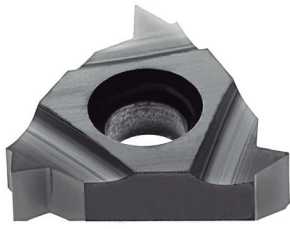
Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881724	06 IR 28 BSPT	28	06	5/32	0.028	0.024	○
1881767	08 IR 28 BSPT	28	08	3/16	0.024	0.024	○
1881763	08 IR 19 BSPT	19	08	3/16	0.024	0.024	○
1881949	11 IR 28 BSPT	28	11	1/4	0.024	0.024	○
1881004	11 IR 19 BSPT	19	11	1/4	0.031	0.035	○
1881003	11 IR 14 BSPT	14	11	1/4	0.035	0.039	○
1883770	11 IR 11 BSPT	11	11	1/4	0.035	0.047	○
1881002	16 IR 28 BSPT	28	16	3/8	0.024	0.024	○
1881001	16 IR 19 BSPT	19	16	3/8	0.031	0.035	○
1881000	16 IR 14 BSPT	14	16	3/8	0.039	0.047	○
1880999	16 IR 11 BSPT	11	16	3/8	0.043	0.059	○
1881710	06 IL 28 BSPT	28	06	5/32	0.028	0.024	○
1881746	08 IL 28 BSPT	28	08	3/16	0.024	0.024	○
1881742	08 IL 19 BSPT	19	08	3/16	0.024	0.024	○
1881929	11 IL 28 BSPT	28	11	1/4	0.024	0.024	○
1881925	11 IL 19 BSPT	19	11	1/4	0.031	0.035	○
1881918	11 IL 14 BSPT	14	11	1/4	0.035	0.039	○
1883771	11 IL 11 BSPT	11	11	1/4	0.035	0.047	○
1882090	16 IL 28 BSPT	28	16	3/8	0.024	0.024	○
1882084	16 IL 19 BSPT	19	16	3/8	0.031	0.035	○
1882076	16 IL 14 BSPT	14	16	3/8	0.039	0.047	○
1882071	16 IL 11 BSPT	11	16	3/8	0.043	0.059	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# NPT | ANSI/ASME B 1.20.1-1983



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI		IC	X	Y	
1881888	11 ER 27 NPT	27	11	1/4	0.028	0.031	○
1881875	11 ER 18 NPT	18	11	1/4	0.031	0.039	⊗
1881867	11 ER 14 NPT	14	11	1/4	0.031	0.039	○
1881017	16 ER 27 NPT	27	16	3/8	0.028	0.031	⊗
1881016	16 ER 18 NPT	18	16	3/8	0.031	0.039	○
1880013	16 ER 14 NPT	14	16	3/8	0.035	0.047	⊗
1880009	16 ER 11.5 NPT	11.5	16	3/8	0.043	0.059	⊗
1880023	16 ER 8 NPT	8	16	3/8	0.051	0.071	⊗
1881830	11 EL 27 NPT	27	11	1/4	0.028	0.031	○
1881817	11 EL 18 NPT	18	11	1/4	0.031	0.039	○
1881809	11 EL 14 NPT	14	11	1/4	0.031	0.039	○
1882005	16 EL 27 NPT	27	16	3/8	0.028	0.031	○
1881999	16 EL 18 NPT	18	16	3/8	0.031	0.039	○
1881994	16 EL 14 NPT	14	16	3/8	0.035	0.047	○
1881987	16 EL 11.5 NPT	11.5	16	3/8	0.043	0.059	○
1882025	16 EL 8 NPT	8	16	3/8	0.051	0.071	○

⊗ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

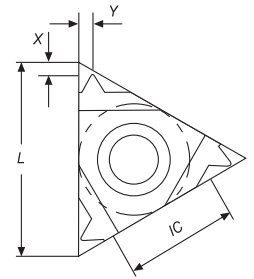
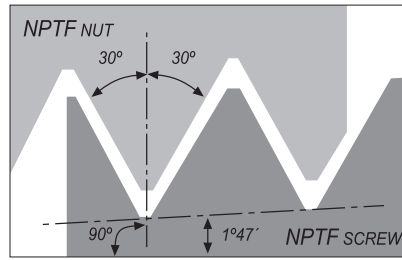
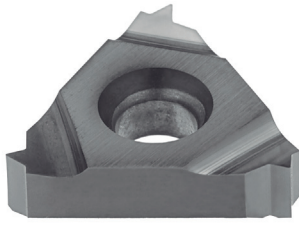
**Internal**

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881723	06 IR 27 NPT	27	06	5/32	0.024	0.024	○
1881766	08 IR 27 NPT	27	08	3/16	0.024	0.024	○
1881761	08 IR 18 NPT	18	08	3/16	0.024	0.024	○
1881946	11 IR 27 NPT	27	11	1/4	0.028	0.031	○
1881020	11 IR 18 NPT	18	11	1/4	0.031	0.039	⊗
1880003	11 IR 14 NPT	14	11	1/4	0.031	0.039	⊗
1881019	16 IR 27 NPT	27	16	3/8	0.028	0.031	⊗
1881018	16 IR 18 NPT	18	16	3/8	0.031	0.039	⊗
1880033	16 IR 14 NPT	14	16	3/8	0.035	0.047	⊗
1880029	16 IR 11.5 NPT	11.5	16	3/8	0.043	0.059	⊗
1880043	16 IR 8 NPT	8	16	3/8	0.051	0.071	○
1881709	06 IL 27 NPT	27	06	5/32	0.024	0.024	○
1881745	08 IL 27 NPT	27	08	3/16	0.024	0.024	○
1881740	08 IL 18 NPT	18	08	3/16	0.024	0.024	○
1881926	11 IL 27 NPT	27	11	1/4	0.028	0.031	○
1881923	11 IL 18 NPT	18	11	1/4	0.031	0.039	○
1881919	11 IL 14 NPT	14	11	1/4	0.031	0.039	○
1882087	16 IL 27 NPT	27	16	3/8	0.028	0.031	○
1882082	16 IL 18 NPT	18	16	3/8	0.031	0.039	○
1882077	16 IL 14 NPT	14	16	3/8	0.035	0.047	○
1882069	16 IL 11.5 NPT	11.5	16	3/8	0.043	0.059	○
1882103	16 IL 8 NPT	8	16	3/8	0.051	0.071	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881889	11 ER 27 NPTF	27	11	1/4	0.028	0.028	○
1881876	11 ER 18 NPTF	18	11	1/4	0.031	0.039	○
1881868	11 ER 14 NPTF	14	11	1/4	0.031	0.039	○
1881030	16 ER 27 NPTF	27	16	3/8	0.028	0.028	○
1881029	16 ER 18 NPTF	18	16	3/8	0.031	0.039	○
1881028	16 ER 14 NPTF	14	16	3/8	0.035	0.047	⊗
1881027	16 ER 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882057	16 ER 8 NPTF	8	16	3/8	0.051	0.071	○
1881831	11 EL 27 NPTF	27	11	1/4	0.028	0.028	⊗
1881818	11 EL 18 NPTF	18	11	1/4	0.031	0.039	⊗
1881810	11 EL 14 NPTF	14	11	1/4	0.031	0.039	○
1882006	16 EL 27 NPTF	27	16	3/8	0.028	0.031	○
1882000	16 EL 18 NPTF	18	16	3/8	0.031	0.039	⊗
1881995	16 EL 14 NPTF	14	16	3/8	0.035	0.047	○
1881988	16 EL 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882026	16 EL 8 NPTF	8	16	3/8	0.051	0.071	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

**Internal**

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883772	06 IR 27 NPTF	27	06	5/32	0.028	0.024	○
1883773	08 IR 18 NPTF	18	08	3/16	0.024	0.024	○
1883774	08 IR 14 NPTF	14	08	3/16	0.024	0.024	○
1881947	11 IR 27 NPTF	27	11	1/4	0.028	0.028	○
1881026	11 IR 18 NPTF	18	11	1/4	0.031	0.039	○
1881025	11 IR 14 NPTF	14	11	1/4	0.031	0.039	○
1881024	16 IR 27 NPTF	27	16	3/8	0.028	0.028	○
1881023	16 IR 18 NPTF	18	16	3/8	0.031	0.039	○
1881022	16 IR 14 NPTF	14	16	3/8	0.035	0.047	○
1881021	16 IR 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882127	16 IR 8 NPTF	8	16	3/8	0.051	0.071	○
1883775	06 IL 27 NPTF	27	06	5/32	0.028	0.024	○
1883776	08 IL 18 NPTF	18	08	3/16	0.024	0.024	○
1883777	08 IL 14 NPTF	14	08	3/16	0.024	0.024	○
1881927	11 IL 27 NPTF	27	11	1/4	0.028	0.028	○
1881924	11 IL 18 NPTF	18	11	1/4	0.031	0.039	○
1881920	11 IL 14 NPTF	14	11	1/4	0.031	0.039	○
1882088	16 IL 27 NPTF	27	16	3/8	0.028	0.028	○
1882083	16 IL 18 NPTF	18	16	3/8	0.031	0.039	○
1882078	16 IL 14 NPTF	14	16	3/8	0.035	0.047	○
1882070	16 IL 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882104	16 IL 8 NPTF	8	16	3/8	0.051	0.071	○

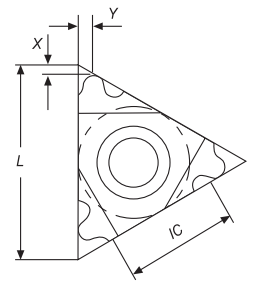
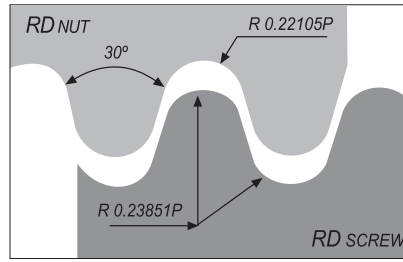
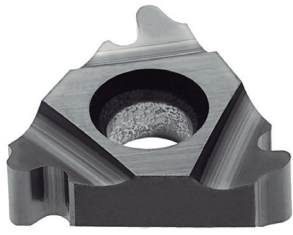
Stock Items | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

 Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code



# ROUND (DIN 405) | DIN 405:1997



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881031	16 ER 10 RD	10	16	3/8	0.043	0.047	○
1881032	16 ER 8 RD	8	16	3/8	0.055	0.055	○
1881033	16 ER 6 RD	6	16	3/8	0.055	0.059	○
1881034	22 ER 6 RD	6	22	1/2	0.059	0.067	○
1881035	22 ER 4 RD	4	22	1/2	0.087	0.091	○
1882332	27 ER 4 RD	4	27	5/8	0.087	0.091	○
1882333	16 EL 10 RD	10	16	3/8	0.043	0.047	○
1882334	16 EL 8 RD	8	16	3/8	0.055	0.055	⊗
1882335	16 EL 6 RD	6	16	3/8	0.055	0.059	○
1882336	22 EL 6 RD	6	22	1/2	0.059	0.067	⊗
1882337	22 EL 4 RD	4	22	1/2	0.087	0.091	○
1882338	27 EL 4 RD	4	27	5/8	0.087	0.091	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881039	16 IR 10 RD	10	16	3/8	0.043	0.047	○
1881040	16 IR 8 RD	8	16	3/8	0.055	0.055	○
1881041	16 IR 6 RD	6	16	3/8	0.055	0.059	○
1881042	22 IR 6 RD	6	22	1/2	0.059	0.067	○
1881043	22 IR 4 RD	4	22	1/2	0.087	0.091	○
1882339	27 IR 4 RD	4	27	5/8	0.087	0.091	○
1882340	16 IL 10 RD	10	16	3/8	0.043	0.047	○
1882341	16 IL 8 RD	8	16	3/8	0.055	0.055	⊗
1882342	16 IL 6 RD	6	16	3/8	0.055	0.059	○
1882343	22 IL 6 RD	6	22	1/2	0.059	0.067	○
1882344	22 IL 4 RD	4	22	1/2	0.087	0.091	○
1882345	27 IL 4 RD	4	27	5/8	0.087	0.091	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

Thread milling - Inserts

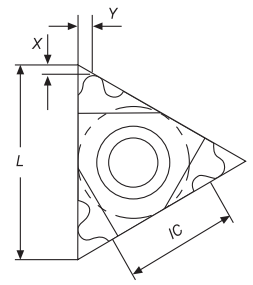
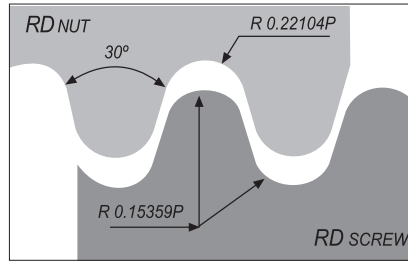
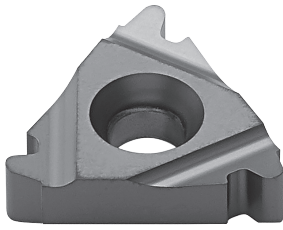
Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# ROUND (DIN 20400) | DIN 20400:1990



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		mm		IC	X	Y	
1882347	22 ER 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882348	22 ER 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882349	22 ER 6.0 RD20400	6.0	22	1/2	0.067	0.079	○
1882351	22 EL 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882352	22 EL 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882353	22 EL 6.0 RD20400	6.0	22	1/2	0.067	0.079	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

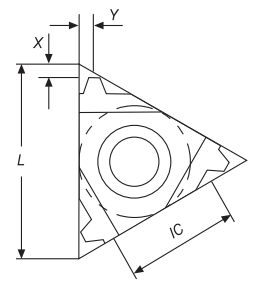
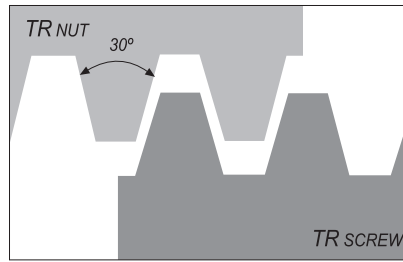
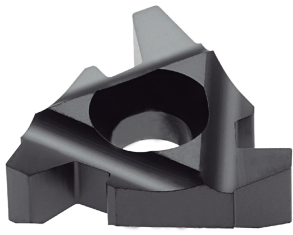
## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		mm		IC	X	Y	
1882355	22 IR 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882356	22 IR 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882357	22 IR 6.0 RD20400	6.0	22	1/2	0.067	0.079	○
1882359	22 IL 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882360	22 IL 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882361	22 IL 6.0 RD20400	6.0	22	1/2	0.067	0.079	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code



External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		mm		IC	X	Y	(68) PH6920
1881044	16 ER 1.5 TR	1.5	16	3/8	0.039	0.043	☉
1881045	16 ER 2.0 TR	2.0	16	3/8	0.039	0.051	☉
1881046	16 ER 3.0 TR	3.0	16	3/8	0.051	0.059	○
1883778	16 ER 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881047	22 ER 4.0 TR	4.0	22	1/2	0.071	0.075	○
1881049	22 ER 5.0 TR	5.0	22	1/2	0.079	0.094	○
1883779	22 ER 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882165	27 ER 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882166	27 ER 7.0 TR	7.0	27	5/8	0.087	0.102	○
1881050	16 EL 1.5 TR	1.5	16	3/8	0.039	0.043	☉
1881051	16 EL 2.0 TR	2.0	16	3/8	0.043	0.051	○
1881052	16 EL 3.0 TR	3.0	16	3/8	0.051	0.059	○
1883780	16 EL 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881053	22 EL 4.0 TR	4.0	22	1/2	0.071	0.075	○
1882130	22 EL 5.0 TR	5.0	22	1/2	0.079	0.094	○
1883781	22 EL 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882152	27 EL 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882153	27 EL 7.0 TR	7.0	27	5/8	0.087	0.102	○

☉ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

**Internal**

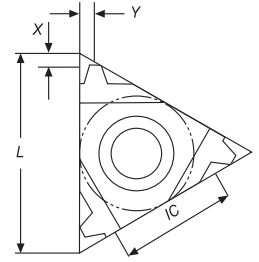
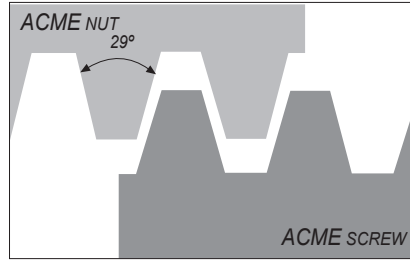
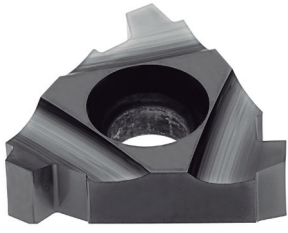
Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		mm		IC	X	Y	(68) PH6920
1883782	08 IR 1.5 TR	1.5	08	3/16	0.024	0.024	○
1881055	16 IR 1.5 TR	1.5	16	3/8	0.039	0.043	⊗
1881056	16 IR 2.0 TR	2.0	16	3/8	0.039	0.051	○
1881057	16 IR 3.0 TR	3.0	16	3/8	0.051	0.059	○
1882119	16 IR 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881058	22 IR 4.0 TR	4.0	22	1/2	0.071	0.075	○
1881059	22 IR 5.0 TR	5.0	22	1/2	0.079	0.094	○
1881060	22 IR 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882187	27 IR 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882188	27 IR 7.0 TR	7.0	27	5/8	0.087	0.102	○
1883783	08 IL 1.5 TR	1.5	08	3/16	0.024	0.024	○
1881062	16 IL 2.0 TR	2.0	16	3/8	0.039	0.051	○
1881063	16 IL 3.0 TR	3.0	16	3/8	0.051	0.059	○
1882093	16 IL 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881064	22 IL 4.0 TR	4.0	22	1/2	0.071	0.075	○
1881065	22 IL 5.0 TR	5.0	22	1/2	0.079	0.094	○
1881066	22 IL 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882176	27 IL 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882177	27 IL 7.0 TR	7.0	27	5/8	0.087	0.102	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# AMERICAN ACME | ANSI/ASME: 1.5-1988



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881871	11 ER 16 ACME	16	11	1/4	0.035	0.039	○
1881078	16 ER 16 ACME	16	16	3/8	0.035	0.039	○
1881077	16 ER 14 ACME	14	16	3/8	0.039	0.047	⊗
1881076	16 ER 12 ACME	12	16	3/8	0.043	0.047	○
1881075	16 ER 10 ACME	10	16	3/8	0.051	0.051	○
1881079	16 ER 8 ACME	8	16	3/8	0.059	0.059	○
1883784	16 ER 6 ACME	6	16	3/8	0.067	0.071	○
1881080	22 ER 6 ACME	6	22	1/2	0.071	0.083	○
1881081	22 ER 5 ACME	5	22	1/2	0.079	0.091	○
1883826	22 ER 4 ACME	4	22	1/2	0.083	0.087	○
1882159	27 ER 4 ACME	4	27	5/8	0.091	0.106	○
1881813	11 EL 16 ACME	16	11	1/4	0.035	0.039	○
1881997	16 EL 16 ACME	16	16	3/8	0.035	0.039	○
1881992	16 EL 14 ACME	14	16	3/8	0.039	0.047	○
1881990	16 EL 12 ACME	12	16	3/8	0.043	0.047	○
1881985	16 EL 10 ACME	10	16	3/8	0.051	0.051	○
1882024	16 EL 8 ACME	8	16	3/8	0.059	0.059	○
1883827	16 EL 6 ACME	6	16	3/8	0.067	0.071	○
1882133	22 EL 6 ACME	6	22	1/2	0.071	0.083	○
1882131	22 EL 5 ACME	5	22	1/2	0.079	0.091	○
1883785	22 EL 4 ACME	4	22	1/2	0.083	0.087	○
1882146	27 EL 4 ACME	4	27	5/8	0.091	0.106	○

⊗ Stock items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

Internal

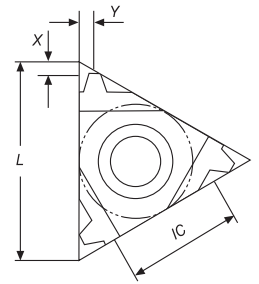
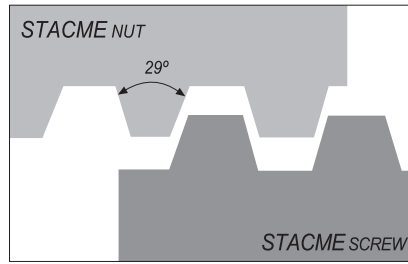
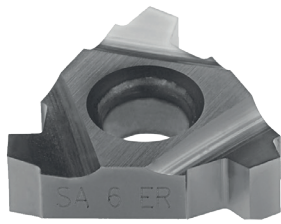
Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883786	08 IR 16 ACME	16	08	3/16	0.024	0.024	○
1881944	11 IR 16 ACME	16	11	1/4	0.035	0.039	○
1881107	16 IR 16 ACME	16	0.9	3/8	0.039	0.043	○
1881106	16 IR 14 ACME	14	1.0	3/8	0.047	0.047	○
1881105	16 IR 12 ACME	12	1.1	3/8	0.047	0.047	○
1881104	16 IR 10 ACME	10	1.3	3/8	0.051	0.055	○
1881103	16 IR 8 ACME	8	1.5	3/8	0.059	0.059	○
1881885	16 IR 6 ACME	6	1.7	3/8	0.071	0.059	○
1881083	22 IR 6 ACME	6	22	1/2	0.071	0.083	○
1881082	22 IR 5 ACME	5	22	1/2	0.079	0.091	○
1881102	22 IR 4 ACME	4	22	1/2	0.083	0.087	○
1882182	27 IR 4 ACME	4	27	5/8	0.091	0.106	○
1883787	08 IL 16 ACME	16	08	3/16	0.024	0.024	⊗
1881921	11 IL 16 ACME	16	11	1/4	0.035	0.039	○
1882080	16 IL 16 ACME	16	0.9	3/8	0.039	0.043	○
1882075	16 IL 14 ACME	14	1.0	3/8	0.047	0.047	○
1882072	16 IL 12 ACME	12	1.1	3/8	0.047	0.047	○
1882067	16 IL 10 ACME	10	1.3	3/8	0.051	0.055	○
1882102	16 IL 8 ACME	8	1.5	3/8	0.059	0.059	○
1882099	16 IL 6 ACME	6	1.7	3/8	0.071	0.059	○
1882140	22 IL 6 ACME	6	22	1/2	0.071	0.083	○
1882138	22 IL 5 ACME	5	22	1/2	0.079	0.091	○
1882136	22 IL 4 ACME	4	22	1/2	0.083	0.087	○
1882171	27 IL 4 ACME	4	27	5/8	0.091	0.106	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# STUB ACME | ANSI/ASME: 1.8-1988



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI		IC	X	Y	
1881872	11 ER 16 STACME	16	11	3/16	0.039	0.039	○
1881116	16 ER 16 STACME	16	16	1/4	0.039	0.039	○
1881117	16 ER 14 STACME	14	16	3/8	0.043	0.043	○
1881118	16 ER 12 STACME	12	16	3/8	0.047	0.047	⊗
1881119	16 ER 10 STACME	10	16	3/8	0.051	0.051	○
1881120	16 ER 8 STACME	8	16	3/8	0.059	0.059	⊗
1881121	16 ER 6 STACME	6	16	3/8	0.071	0.071	⊗
1882135	22 ER 6 STACME	6	22	3/8	0.071	0.083	○
1881122	22 ER 5 STACME	5	22	1/2	0.079	0.091	⊗
1881123	22 ER 4 STACME	4	22	1/2	0.091	0.094	○
1882160	27 ER 4 STACME	4	27	1/2	0.091	0.094	○
1882156	27 ER 3 STACME	3	27	5/8	0.110	0.114	○
1881814	11 EL 16 STACME	16	11	3/16	0.039	0.039	○
1881998	16 EL 16 STACME	16	16	1/4	0.039	0.039	○
1881996	16 EL 14 STACME	14	16	3/8	0.043	0.043	○
1881991	16 EL 12 STACME	12	16	3/8	0.047	0.047	○
1881986	16 EL 10 STACME	10	16	3/8	0.051	0.051	○
1882027	16 EL 8 STACME	8	16	3/8	0.059	0.059	○
1882021	16 EL 6 STACME	6	16	3/8	0.071	0.071	○
1882134	22 EL 6 STACME	6	22	3/8	0.071	0.083	○
1882132	22 EL 5 STACME	5	22	1/2	0.079	0.091	○
1881889	22 EL 4 STACME	4	22	1/2	0.091	0.094	○
1882147	27 EL 4 STACME	4	27	1/2	0.091	0.094	○
1882143	27 EL 3 STACME	3	27	5/8	0.110	0.114	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# STUB ACME | ANSI/ASME: 1.8-1988

mm

THREADING

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883788	08 IR 16 STACME	16	08	3/16	0.024	0.024	⊗
1881108	16 IR 16 STACME	16	16	3/8	0.039	0.039	○
1881109	16 IR 14 STACME	14	16	3/8	0.043	0.043	○
1881110	16 IR 12 STACME	12	16	3/8	0.047	0.047	○
1881111	16 IR 10 STACME	10	16	3/8	0.051	0.051	○
1881112	16 IR 8 STACME	8	16	3/8	0.059	0.059	○
1881113	16 IR 6 STACME	6	16	3/8	0.071	0.071	○
1882142	22 IR 6 STACME	6	22	1/2	0.071	0.083	○
1881114	22 IR 5 STACME	5	22	1/2	0.079	0.091	○
1881115	22 IR 4 STACME	4	22	1/2	0.091	0.094	○
1882183	27 IR 4 STACME	4	27	5/8	0.091	0.094	○
1882180	27 IR 3 STACME	3	27	5/8	0.110	0.114	○
1883789	08 IL 16 STACME	16	08	3/16	0.024	0.024	⊗
1882081	16 IL 16 STACME	16	16	3/8	0.039	0.039	○
1882079	16 IL 14 STACME	14	16	3/8	0.043	0.043	○
1882073	16 IL 12 STACME	12	16	3/8	0.047	0.047	○
1882068	16 IL 10 STACME	10	16	3/8	0.051	0.051	○
1882105	16 IL 8 STACME	8	16	3/8	0.059	0.059	○
1882100	16 IL 6 STACME	6	16	3/8	0.071	0.071	○
1882141	22 IL 6 STACME	6	22	1/2	0.071	0.083	○
1882139	22 IL 5 STACME	5	22	1/2	0.079	0.091	○
1882137	22 IL 4 STACME	4	22	1/2	0.091	0.094	○
1882172	27 IL 4 STACME	4	27	5/8	0.091	0.094	○
1882169	27 IL 3 STACME	3	27	5/8	0.110	0.114	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup> Geometry code + <sup>(2)</sup> Grade code

Thread milling - Inserts

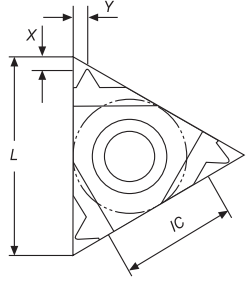
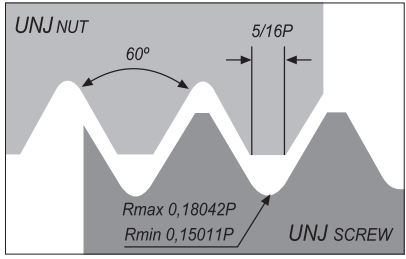
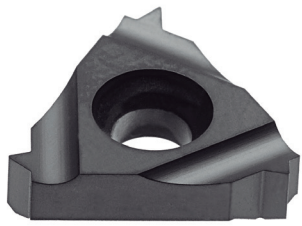
Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data





External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883790	11 ER 48 UNJ	48	11	1/4	0.024	0.024	○
1883791	11 ER 44 UNJ	44	11	1/4	0.024	0.024	○
1883792	11 ER 40 UNJ	40	11	1/4	0.024	0.024	○
1883793	11 ER 36 UNJ	36	11	1/4	0.024	0.024	○
1882318	11 ER 32 UNJ	32	11	1/4	0.024	0.024	○
1882319	11 ER 28 UNJ	28	11	1/4	0.024	0.024	○
1882320	11 ER 24 UNJ	24	11	1/4	0.028	0.031	○
1882321	11 ER 20 UNJ	20	11	1/4	0.031	0.035	○
1882322	11 ER 18 UNJ	18	11	1/4	0.031	0.039	○
1882323	11 ER 16 UNJ	16	11	1/4	0.031	0.039	○
1882324	11 ER 14 UNJ	14	11	1/4	0.035	0.039	○
1883794	16 ER 48 UNJ	48	16	3/8	0.024	0.024	○
1883795	16 ER 44 UNJ	44	16	3/8	0.024	0.024	○
1883796	16 ER 40 UNJ	40	16	3/8	0.024	0.024	⊗
1883797	16 ER 36 UNJ	36	16	3/8	0.024	0.024	⊗
1881165	16 ER 32 UNJ	32	16	3/8	0.024	0.024	○
1881164	16 ER 28 UNJ	28	16	3/8	0.024	0.024	○
1881163	16 ER 24 UNJ	24	16	3/8	0.028	0.031	⊗
1881162	16 ER 20 UNJ	20	16	3/8	0.031	0.035	○
1881161	16 ER 18 UNJ	18	16	3/8	0.031	0.039	○
1881160	16 ER 16 UNJ	16	16	3/8	0.031	0.039	○
1881159	16 ER 14 UNJ	14	16	3/8	0.039	0.047	○
1881158	16 ER 13 UNJ	13	16	3/8	0.039	0.051	○
1881157	16 ER 12 UNJ	12	16	3/8	0.043	0.055	○
1881156	16 ER 11 UNJ	11	16	3/8	0.043	0.059	○
1881155	16 ER 10 UNJ	10	16	3/8	0.043	0.059	○
1881154	16 ER 9 UNJ	9	16	3/8	0.047	0.063	○
1881153	16 ER 8 UNJ	8	16	3/8	0.047	0.063	⊗
1883798	11 EL 48 UNJ	48	11	1/4	0.024	0.024	○
1883799	11 EL 44 UNJ	44	11	1/4	0.024	0.024	○
1883800	11 EL 40 UNJ	40	11	1/4	0.024	0.024	○
1883801	11 EL 36 UNJ	36	11	1/4	0.024	0.024	○
1882325	11 EL 32 UNJ	32	11	1/4	0.024	0.024	○
1882326	11 EL 28 UNJ	28	11	1/4	0.024	0.024	○
1882327	11 EL 24 UNJ	24	11	1/4	0.028	0.031	○
1882328	11 EL 20 UNJ	20	11	1/4	0.031	0.035	○

⊗ Stock Items | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta    Insert Order Code: (1) Geometry code + (2) Grade code

External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882329	11 EL 18 UNJ	18	11	1/4	0.031	0.039	○
1882330	11 EL 16 UNJ	16	11	1/4	0.031	0.039	○
1882331	11 EL 14 UNJ	14	11	1/4	0.035	0.039	○
1883802	16 ER 48 UNJ	48	16	3/8	0.024	0.024	○
1883803	16 ER 44 UNJ	44	16	3/8	0.024	0.024	○
1883804	16 ER 40 UNJ	40	16	3/8	0.024	0.024	○
1883805	16 ER 36 UNJ	36	16	3/8	0.024	0.024	○
1881179	16 EL 32 UNJ	32	16	3/8	0.024	0.024	⊗
1881178	16 EL 28 UNJ	28	16	3/8	0.024	0.024	⊗
1881177	16 EL 24 UNJ	24	16	3/8	0.028	0.031	⊗
1881176	16 EL 20 UNJ	20	16	3/8	0.031	0.035	○
1881175	16 EL 18 UNJ	18	16	3/8	0.031	0.039	○
1881174	16 EL 16 UNJ	16	16	3/8	0.031	0.039	○
1881173	16 EL 14 UNJ	14	16	3/8	0.039	0.047	○
1881172	16 EL 13 UNJ	13	16	3/8	0.039	0.051	○
1881170	16 EL 12 UNJ	12	16	3/8	0.043	0.055	⊗
1881169	16 EL 11 UNJ	11	16	3/8	0.043	0.059	⊗
1881168	16 EL 10 UNJ	10	16	3/8	0.043	0.059	○
1881167	16 EL 9 UNJ	9	16	3/8	0.047	0.063	○
1881166	16 EL 8 UNJ	8	16	3/8	0.047	0.063	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883806	11 IR 48 UNJ	48	11	1/4	0.024	0.024	○
1883807	11 IR 44 UNJ	44	11	1/4	0.024	0.024	○
1883808	11 IR 40 UNJ	40	11	1/4	0.024	0.024	○
1883809	11 IR 36 UNJ	36	11	1/4	0.024	0.024	○
1881198	11 IR 32 UNJ	32	11	1/4	0.024	0.024	○
1881197	11 IR 28 UNJ	28	11	1/4	0.024	0.024	⊗
1881196	11 IR 24 UNJ	24	11	1/4	0.028	0.031	○
1881195	11 IR 20 UNJ	20	11	1/4	0.031	0.035	⊗
1881194	11 IR 18 UNJ	18	11	1/4	0.031	0.039	⊗
1881193	11 IR 16 UNJ	16	11	1/4	0.031	0.039	⊗
1881192	11 IR 14 UNJ	14	11	1/4	0.035	0.039	⊗
1883810	16 IR 48 UNJ	48	16	3/8	0.024	0.024	○
1883811	16 IR 44 UNJ	44	16	3/8	0.024	0.024	○
1883812	16 IR 40 UNJ	40	16	3/8	0.024	0.024	○
1883813	16 IR 36 UNJ	36	16	3/8	0.024	0.024	○
1881191	16 IR 32 UNJ	32	16	3/8	0.024	0.024	○
1881190	16 IR 28 UNJ	28	16	3/8	0.024	0.024	○
1881189	16 IR 24 UNJ	24	16	3/8	0.028	0.031	○
1881188	16 IR 20 UNJ	20	16	3/8	0.031	0.035	○
1881187	16 IR 18 UNJ	18	16	3/8	0.031	0.039	○
1881186	16 IR 16 UNJ	16	16	3/8	0.031	0.039	○
1881185	16 IR 14 UNJ	14	16	3/8	0.039	0.047	⊗
1883814	16 IR 13 UNJ	13	16	3/8	0.039	0.051	⊗
1881184	16 IR 12 UNJ	12	16	3/8	0.043	0.055	⊗
1881183	16 IR 11 UNJ	11	16	3/8	0.043	0.059	⊗
1881182	16 IR 10 UNJ	10	16	3/8	0.043	0.059	⊗
1881181	16 IR 9 UNJ	9	16	3/8	0.047	0.063	⊗
1881180	16 IR 8 UNJ	8	16	3/8	0.047	0.063	⊗
1883815	11 IL 48 UNJ	48	11	1/4	0.024	0.024	⊗
1883816	11 IL 44 UNJ	44	11	1/4	0.024	0.024	○
1883817	11 IL 40 UNJ	40	11	1/4	0.024	0.024	⊗
1883818	11 IL 36 UNJ	36	11	1/4	0.024	0.024	○
1881217	11 IL 32 UNJ	32	11	1/4	0.024	0.024	○
1881216	11 IL 28 UNJ	28	11	1/4	0.024	0.024	○
1881215	11 IL 24 UNJ	24	11	1/4	0.028	0.031	○
1881214	11 IL 20 UNJ	20	11	1/4	0.031	0.035	○
1881213	11 IL 18 UNJ	18	11	1/4	0.031	0.039	⊗
1881188	11 IL 16 UNJ	16	11	1/4	0.031	0.039	○
1881211	11 IL 14 UNJ	14	11	1/4	0.035	0.039	○
1883819	16 IL 48 UNJ	48	16	3/8	0.024	0.024	○
1883820	16 IL 44 UNJ	44	16	3/8	0.024	0.024	○
1883821	16 IL 40 UNJ	40	16	3/8	0.024	0.024	⊗
1883822	16 IL 36 UNJ	36	16	3/8	0.024	0.024	○
1881210	16 IL 32 UNJ	32	16	3/8	0.024	0.024	○
1881209	16 IL 28 UNJ	28	16	3/8	0.024	0.024	○
1881208	16 IL 24 UNJ	24	16	3/8	0.028	0.031	○

⊗ Stock Items | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

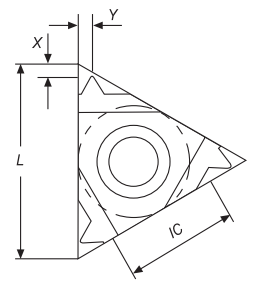
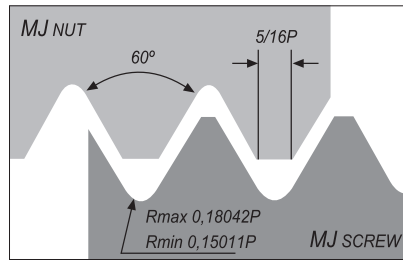
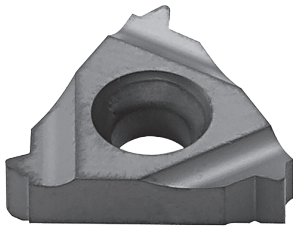
## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881207	16 IL 20 UNJ	20	16	3/8	0.031	0.035	○
1881206	16 IL 18 UNJ	18	16	3/8	0.031	0.039	○
1881205	16 IL 16 UNJ	16	16	3/8	0.031	0.039	○
1881204	16 IL 14 UNJ	14	16	3/8	0.039	0.047	○
1883823	16 IR 13 UNJ	13	16	3/8	0.039	0.051	○
1881203	16 IL 12 UNJ	12	16	3/8	0.043	0.055	⊗
1881202	16 IL 11 UNJ	11	16	3/8	0.043	0.059	⊗
1881201	16 IL 10 UNJ	10	16	3/8	0.043	0.059	⊗
1881200	16 IL 9 UNJ	9	16	3/8	0.047	0.063	⊗
1881199	16 IL 8 UNJ	8	16	3/8	0.047	0.063	⊗

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI		IC	X	Y	
1881067	16 ER 1.0 MJ	1.0	16	3/8	0.028	0.031	○
1881068	16 ER 1.25 MJ	1.25	16	3/8	0.031	0.035	○
1881069	16 ER 1.5 MJ	1.5	16	3/8	0.031	0.039	○
1881070	16 ER 2.0 MJ	2.0	16	3/8	0.039	0.051	○

⊗ Stock Items | Itens de stock      ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

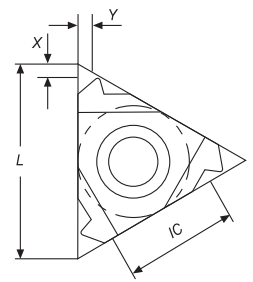
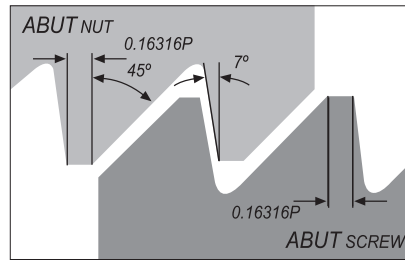
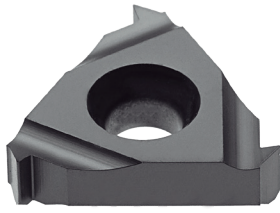
## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI		IC	X	Y	
1882370	11 IR 1.0 MJ	1.0	11	1/4	0.028	0.031	○
1882371	11 IR 1.25 MJ	1.25	11	1/4	0.031	0.035	○
1882372	11 IR 1.5 MJ	1.5	11	1/4	0.031	0.039	○
1883824	11 IR 2.0 MJ	2.0	11	1/4	0.035	0.039	○
1881071	16 IR 1.0 MJ	1.0	16	3/8	0.028	0.031	○
1881072	16 IR 1.25 MJ	1.25	16	3/8	0.031	0.035	○
1881073	16 IR 1.5 MJ	1.5	16	3/8	0.031	0.039	○
1881074	16 IR 2.0 MJ	2.0	16	3/8	0.039	0.051	○

⊗ Stock Items | Itens de stock      ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

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## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882298	11 ER 20 ABUT	20	11	1/4	0.039	0.051	○
1882299	11 ER 16 ABUT	16	11	1/4	0.039	0.059	○
1881007	16 ER 20 ABUT	20	16	3/8	0.039	0.051	○
1880754	16 ER 16 ABUT	16	16	3/8	0.039	0.059	⊗
1881006	16 ER 12 ABUT	12	16	3/8	0.055	0.079	○
1881005	16 ER 10 ABUT	10	16	3/8	0.059	0.091	○
1881008	22 ER 8 ABUT	8	22	1/2	0.083	0.130	○
1881009	22 ER 6 ABUT	6	22	1/2	0.083	0.134	○
1882300	11 EL 20 ABUT	20	11	1/4	0.039	0.055	○
1882301	11 EL 16 ABUT	16	11	1/4	0.043	0.063	○
1882302	16 EL 20 ABUT	20	16	3/8	0.039	0.051	○
1882303	16 EL 16 ABUT	16	16	3/8	0.039	0.059	○
1882304	16 EL 12 ABUT	12	16	3/8	0.055	0.079	○
1882305	16 EL 10 ABUT	10	16	3/8	0.059	0.091	○
1882306	22 EL 8 ABUT	8	22	1/2	0.083	0.130	○
1882307	22 EL 6 ABUT	6	22	1/2	0.083	0.134	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

## Internal

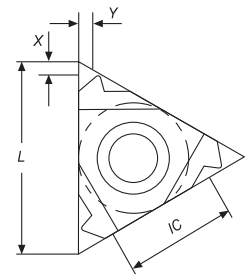
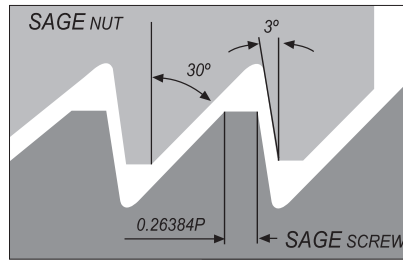
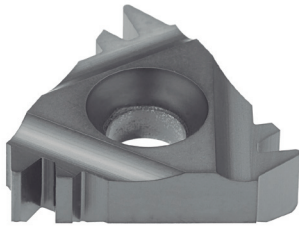
Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882308	11 IR 20 ABUT	20	11	1/4	0.039	0.055	○
1882309	11 IR 16 ABUT	16	11	1/4	0.043	0.063	○
1881015	16 IR 20 ABUT	20	16	3/8	0.039	0.051	⊗
1881014	16 IR 16 ABUT	16	16	3/8	0.039	0.059	○
1881013	16 IR 12 ABUT	12	16	3/8	0.055	0.079	○
1881012	16 IR 10 ABUT	10	16	3/8	0.059	0.091	○
1881011	22 IR 8 ABUT	8	22	1/2	0.083	0.130	○
1881010	22 IR 6 ABUT	6	22	1/2	0.083	0.134	○
1882310	11 IL 20 ABUT	20	11	1/4	0.039	0.055	○
1882311	11 IL 16 ABUT	16	11	1/4	0.043	0.063	○
1882312	16 IL 20 ABUT	20	16	3/8	0.039	0.051	⊗
1882313	16 IL 16 ABUT	16	16	3/8	0.039	0.059	○
1882314	16 IL 12 ABUT	12	16	3/8	0.055	0.079	○
1882315	16 IL 10 ABUT	10	16	3/8	0.059	0.091	○
1882316	22 IL 8 ABUT	8	22	1/2	0.083	0.130	○
1882317	22 IL 6 ABUT	6	22	1/2	0.083	0.134	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# METRIC BUTTRESS SAGENGWINDE (DIN 513:1985) SAW THREAD



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI		IC	X	Y	
1882384	16 ER 2.0 SAGE	2.0	16	3/8	0.043	0.063	○
1882385	22 ER 3.0 SAGE	3.0	22	1/2	0.059	0.094	○
1882386	22 ER 4.0 SAGE	4.0	22	1/2	0.075	0.122	○
1882387	16 EL 2.0 SAGE	2.0	16	3/8	0.043	0.063	○
1882388	22 EL 3.0 SAGE	3.0	22	1/2	0.059	0.094	○
1882389	22 EL 4.0 SAGE	4.0	22	1/2	0.075	0.122	○

⊗ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

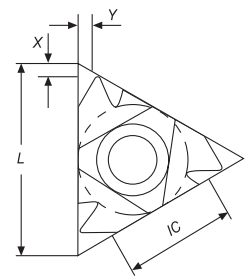
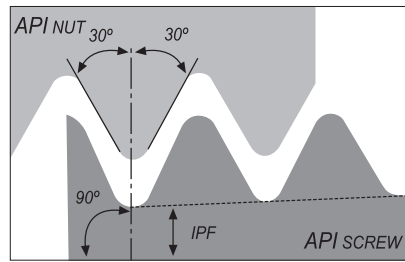
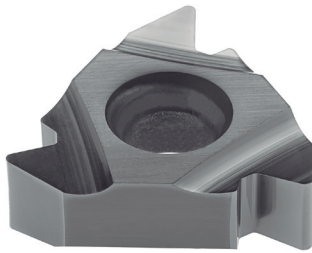
## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI		IC	X	Y	
1882390	16 IR 2.0 SAGE	2.0	16	3/8	0.047	0.067	○
1882391	22 IR 3.0 SAGE	3.0	22	1/2	0.075	0.114	○
1882392	22 IR 4.0 SAGE	4.0	22	1/2	0.091	0.138	○
1882393	16 IL 2.0 SAGE	2.0	16	3/8	0.047	0.067	○
1882394	22 IL 3.0 SAGE	3.0	22	1/2	0.075	0.114	○
1882395	22 IL 4.0 SAGE	4.0	22	1/2	0.091	0.138	○

⊗ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code



**External**

Geometry code (1) Código	Reference Referência Referencia	Pitch	Thread	Taper	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)  (68) PH6920
		TPI		IPF			IC	X	Y	
1881326	22 ER 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	22	1/2	0.071	0.098	○
1881322	22 ER 4.00 API 382	4	V-0.038R	2	NC23-NC50	22	1/2	0.079	0.102	⊗
1881323	22 ER 4.00 API 383	4	V-0.038R	3	NC56-NC77	1/2	1/2	0.078	0.102	⊗
1881324	22 ER 4.00 API 502	4	V-0.050	2	6 5/8" REG	22	1/2	0.075	0.110	⊗
1882396	27 ER 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	27	5/8	0.075	0.106	○
1882397	27 ER 4.00 API 382	4	V-0.038R	2	NC23-NC50	27	5/8	0.083	0.110	○
1882398	27 ER 4.00 API 383	4	V-0.038R	3	NC56-NC77	27	5/8	0.083	0.110	○
1882399	27 ER 4.00 API 502	4	V-0.050	2	6 5/8" REG	27	5/8	0.079	0.118	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

**Internal**

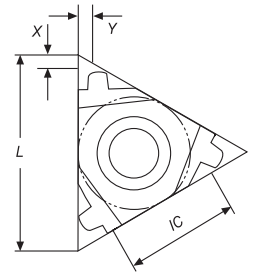
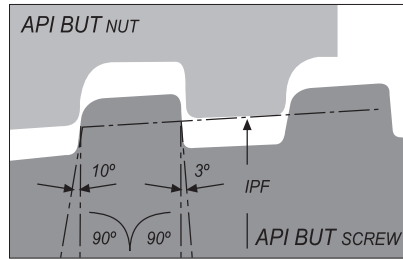
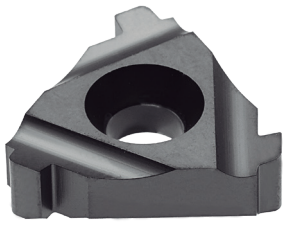
Geometry code (1) Código	Reference Referência Referencia	Pitch	Thread	Taper	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)  (68) PH6920
		TPI		IPF			IC	X	Y	
1881335	22 IR 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	22	1/2	0.071	0.098	⊗
1881331	22 IR 4.00 API 382	4	V-0.038R	2	NC23-NC50	22	1/2	0.079	0.102	⊗
1881333	22 IR 4.00 API 502	4	V-0.050	2	6 5/8" REG	22	1/2	0.075	0.110	⊗
1882401	27 IR 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	27	5/8	0.075	0.106	○
1882402	27 IR 4.00 API 382	4	V-0.038R	2	NC23-NC50	27	5/8	0.083	0.110	○
1882403	27 IR 4.00 API 383	4	V-0.038R	3	NC56-NC77	27	5/8	0.083	0.110	○
1882404	27 IR 4.00 API 502	4	V-0.050	2	6 5/8" REG	27	5/8	0.079	0.118	○
1882405	27 IR 4.00 API 503	4	V-0.050	3	5 1/2" . 7 5/8" . 8 5/8" REG	27	5/8	0.079	0.118	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code





## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI	IPF			IC	X	Y	
1881327	22 ER 5 BUT 0.75	5	0.75	4 1/2" - 13 3/8"	22	1/2	0.087	0.094	☉
1881328	22 ER 5 BUT 1.00	5	1.00	16" - 20"	22	1/2	0.091	0.094	☉

☉ Stock Itens | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI	IPF			IC	X	Y	
1881336	22 IR 5 BUT 0.75	5	0.75	4 1/2" - 13 3/8"	22	1/2	0.087	0.094	○
1881337	22 IR 5 BUT 1.00	5	1.00	16" - 20"	22	1/2	0.091	0.094	○

☉ Stock Itens | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

THREADING

Thread milling - Inserts

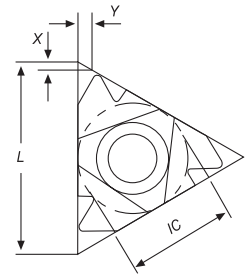
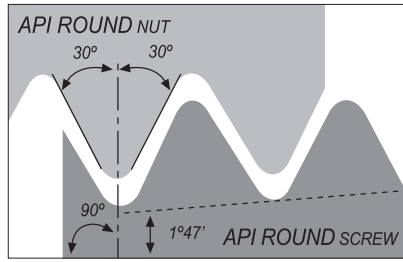
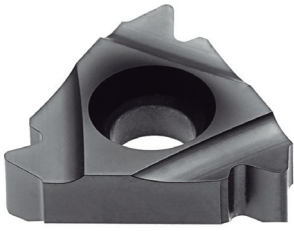
Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# API ROUND CASING & TUBING | API SPEC 5B:2008



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF		IC	X	Y	(68) PH6920
1881318	16 ER 10 API RD	10	0.75	16	3/8	0.059	0.055	⊗
1881320	16 ER 8 API RD	8	0.75	16	3/8	0.051	0.063	○

⊗ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

## Internal

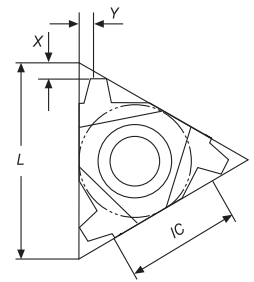
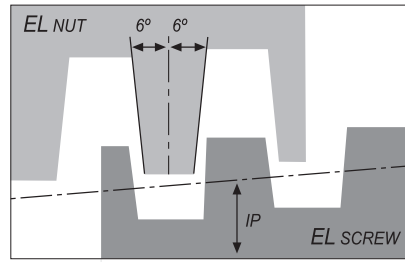
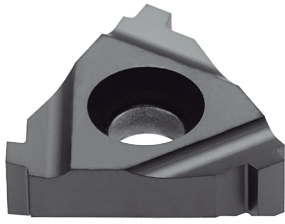
Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF		IC	X	Y	(68) PH6920
1881319	16 IR 10 API RD	10	0.75	16	3/8	0.059	0.055	○
1881321	16 IR 8 API RD	8	0.75	16	3/8	0.051	0.063	⊗

⊗ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# EXTREME LINE CASING | API SPEC 5B:2008 - OIL THREADS



## External

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI	IPF			IC	X	Y	
1881329	22 ER 6 EL 1.5	6	1.5	5" - 7 5/8"	22	1/2	0.075	0.075	☉
1881330	22 ER 5 EL 1.25	5	1.25	8 5/8" - 10 3/4"	22	1/2	0.094	0.091	☉

☉ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

## Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI	IPF			IC	X	Y	
1881339	22 IR 6 EL 1.5	6	1.5	5" - 7 5/8"	22	1/2	0.075	0.075	○
1881338	22 IR 5 EL 1.25	5	1.25	8 5/8" - 10 3/4"	22	1/2	0.094	0.091	☉

☉ Stock Itens | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

THREADING

THREADING

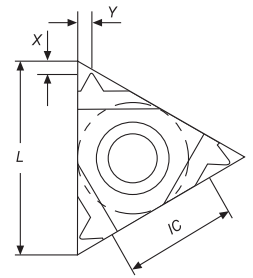
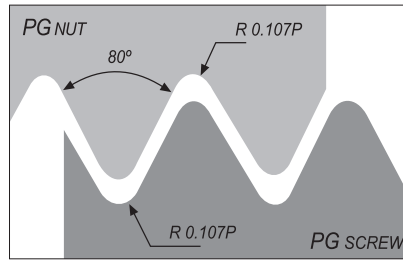
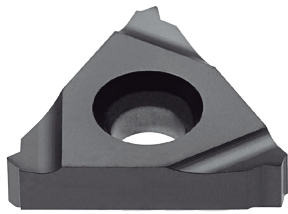
Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data



**External**

Geometry code (1) Código	Reference Referência Referencia	Pitch	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI			IC	X	Y	
1882290	16 ER 20 PG	20	PG7	16	3/8	0.028	0.031	○
1882291	16 ER 18 PG	18	PG9, PG11, PG13.5, PG16	16	3/8	0.031	0.035	○
1882292	16 ER 16 PG	16	PG21, PG29, PG36, PG42, PG48	16	3/8	0.031	0.039	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

**Internal**

Geometry code (1) Código	Reference Referência Referencia	Pitch	Size	L (mm)	Dimensions   Dimensões   Dimensiones (in)			Stock - Grade Code (2) (68) PH6920
		TPI			IC	X	Y	
1883825	08 IR 20 PG	20	PG7	8	3/16	0.024	0.028	○
1882294	11 IR 18 PG	18	PG9, PG11, PG13.5, PG16	11	1/4	0.031	0.035	○
1882296	16 IR 18 PG	18	PG9, PG11, PG13.5, PG16	16	3/8	0.031	0.035	○
1882297	16 IR 16 PG	16	PG21, PG29, PG36, PG42, PG48	16	3/8	0.031	0.039	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# TANGENTIAL PROFILE INSERTS CODE KEY

Chave do codificação de pastilhas | Llave de codificación de plaquitas

## Tangential Profile Example



### 1 - Insert Type

TNMC

TPMC

### 2 - Insert Size (L - mm)

16

16.50

22

22.00

### 3 - Insert Size (S - mm)

03

3.18

04

4.76

### 4 - Profile Angle

55

55°

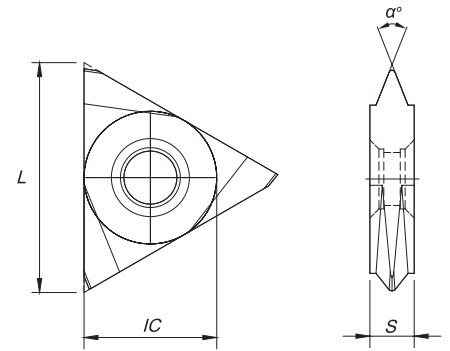
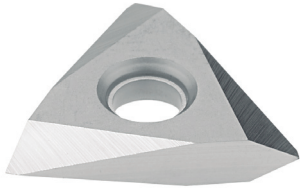
60

60°

### 5 - Grades

PH6920

# TNMC (TANGENTIAL INSERTS)



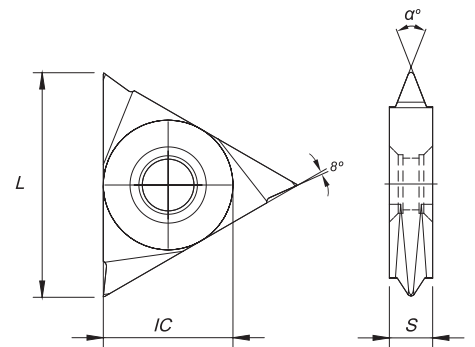
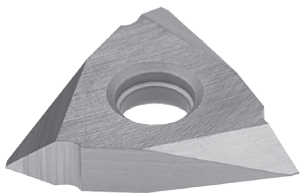
Geometry code (1) Código	Reference Referência Referencia	L (mm)	Dimensions   Dimensões   Dimensiones (in)		Stock - Grade Code (2)
			IC	S	(68) PH6920
1110401	TNMC 1603 55	16.50	3/8	0.125	○
1110402	TNMC 1603 60	16.50	3/8	0.125	○
1110530	TNMC 2204 55	22.00	1/2	0.187	○
1110404	TNMC 2204 60	22.00	1/2	0.187	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# TPMC (TANGENTIAL INSERTS)



Geometry code (1) Código	Reference Referência Referencia	L (mm)	Dimensions   Dimensões   Dimensiones (in)		Stock - Grade Code (2)
			IC	S	(68) PH6920
1110481	TPMC 1603 55	16.50	3/8	0.125	○
1110480	TPMC 1603 60	16.50	3/8	0.125	○
1110541	TPMC 2204 55	22.00	1/2	0.187	○
1110542	TPMC 2204 60	22.00	1/2	0.187	○

⊗ Stock Items | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert Order Code: <sup>(1)</sup>Geometry code + <sup>(2)</sup>Grade code

# THREADING TECHNICAL DATA

## THREADING GRADES | Graus de roscagem | Calidades para roscado

	1	5	10	15	20	25	30	35	40	45	50				
THREADING	<b>P</b> STEEL				PH6920						PVD				
		<b>M</b> STAINLESS STEEL				PH6920									PVD
			<b>K</b> CAST IRON				PH6920						PVD		
				<b>N</b> ALUMINIUM & NON FERROUS			PH6920								PVD
					<b>S</b> HEAT RESISTENT / TITANIUM ALLOYS				PH6920						PVD

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# GRADES DESCRIPTION | Descrição de graus | Descripción de calidades

**PH6920**

P10-P35  
M10-M25  
K10-K30  
N05-N15  
S10-S30

Multi purpose PVD coated grade with good balance between wear resistance and toughness.

## RECOMMENDED GRADES AND CUTTING SPEEDS (SFM)

Graus recomendados e velocidades de corte (SFM) | Calidades recomendadas y velocidades de corte (SFM)

ISO	Material	Hardness HB	Coated
			PH6920 Vc (SFM)
<b>P</b>	UNALLOYED STEEL	130	394-656
	LOW-ALLOYED STEEL	200	361-591
	HIGH-ALLOY STEEL	240	328-558
	STEEL CASTINGS	270	230-394
	HEAT TREATED STEEL	400	164-296
<b>M</b>	300 STAINLESS STEEL: (303,304,316)	200	230-460
	400 STAINLESS STEEL: (420,440)	240	263-394
	17-4 PH, 15-5 PH, 13-8MO PH	400	164-361
<b>K</b>	GREY CAST IRON	190	230-492
	NODULAR CAST IRON	180	328-460
	MALLEABLE CAST IRON	240	296-492
<b>N</b>	WROUGHT ALUMINIUM: (2024, 6061, 7075...)	80	328-1312
	CAST ALUMINIUM:	90	492-1312
	COPPER & COPPER: BRASS, BRONZE, COPPER SILICON	100	263-591
	NON METALIC: Rubber, Polypropylene, Thermoplastics (PVC), Thermoplastics Plastics (FIBERGLASS), Polyamides		656-1640
<b>S</b>	TITANIUM:		-
	PURE TITANIUM: 99,0Ti		328-492
	ALPHA ALLOYS: Ti5A12.5Sn		132-197
	BETA ALLOYS: Ti 13V11Cr3A1		99-164
	ALPHA - BETA ALLOYS: Ti 6A14V		99-164
	COBALT BASE ALLOYS: STELLITE		66-132
	NIKEL BASE ALLOYS: INCONEL, HASTELLOY, WASPALLOY, KOVAR		66-132
	HIGH TEMPERATURE ALLOYS: IRON BASED: INCOLOY		99-197
<b>H</b>	HARDENED STEEL	56 HRc	-
	HARDENED CAST IRON	50 HRc	-



# THREADING TECHNICAL DATA

## THREAD TERMINOLOGY | Terminologia da roscagem | Terminología del roscado

**External Thread**  
A thread on the external surface of a cylinder screw or cone.

**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.

**EXTERNAL THREAD**

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

**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.

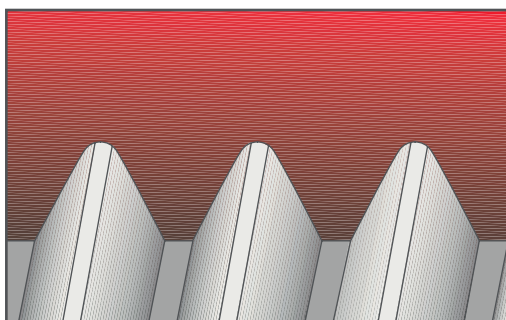
**Minor Diameter**  
The smallest diameter of a screw thread.

**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.

**Straight Thread**  
A thread formed on a cylinder.

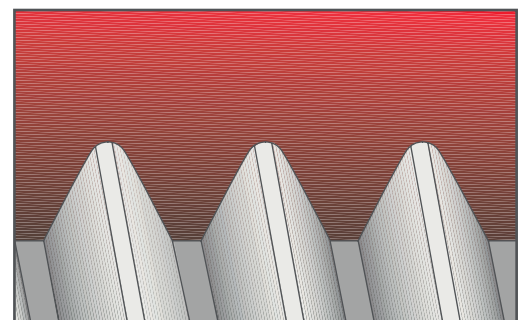
**Taper Thread**  
A thread formed on a cone.

### LEFT-HAND THREAD



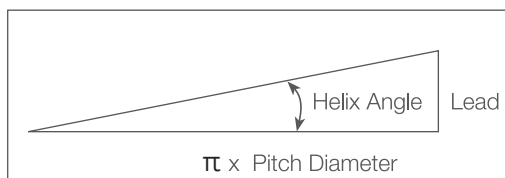
A thread which, when viewed axially, winds in a counter-clockwise and receding direction. All left-hand threads are designated LH.

### 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

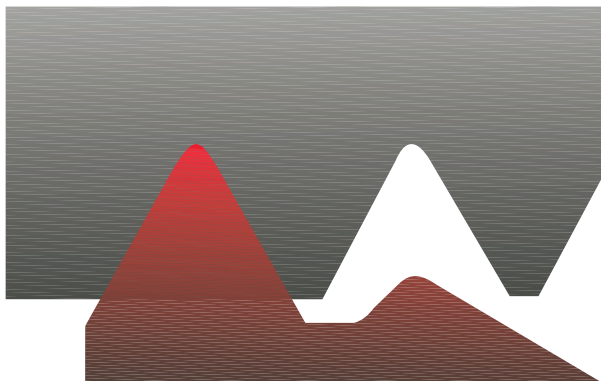


**Lead**

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.

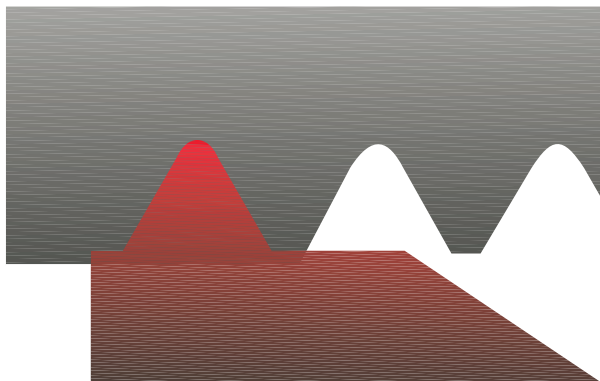
# INSERT PROFILE STYLES | Estilos de perfis das pastilhas | Estilos de perfiles de las plaquitas

## PARTIAL PROFILE



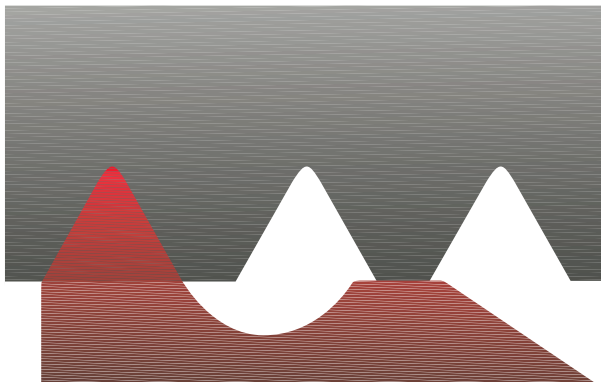
The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle.

## FULL PROFILE



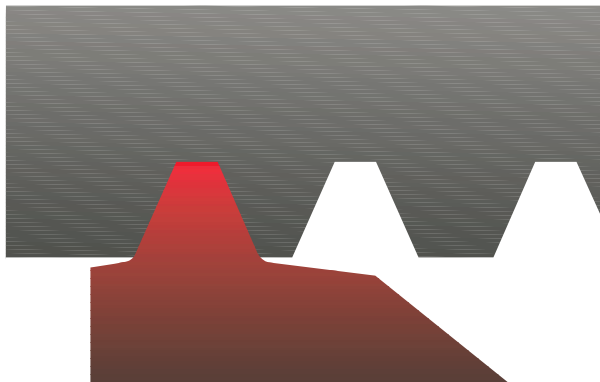
The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required.

## 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

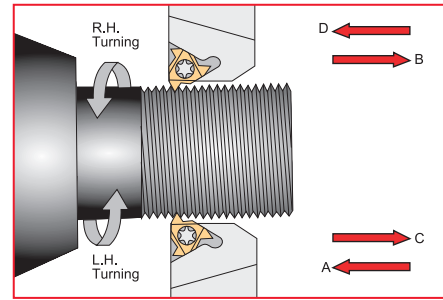
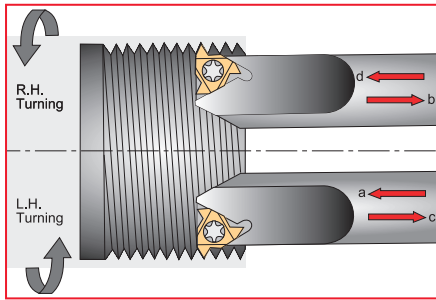


The Semi profile insert will form a complete thread including crest radius but without topping the outer diameter. Mainly used for trapezoidal profiles.

# THREADING TECHNICAL DATA

## THREAD WORK METHODS | Métodos de trabalho de roscagem | Métodos de trabajo de roscado

THREADING



Thread milling - Inserts

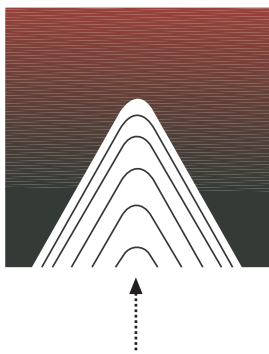
Thread	Inserts & Toolholders	Rotation	Feed Direction	Helix Method	Method
Right Hand external	EX RH	Anticlockwise	Towards chuck	Regular	A
	EX LH	Clockwise	From chuck	Reversed	B
Right Hand Internal	IN RH	Anticlockwise	Towards chuck	Regular	a
	IN LH	Clockwise	From chuck	Reversed	b
Left Hand External	EX LH	Clockwise	Towards chuck	Regular	D
	EX RH	Anticlockwise	From chuck	Reversed	C
Left Hand Internal	IN LH	Clockwise	Towards chuck	Regular	d
	IN RH	Anticlockwise	From chuck	Reversed	c

Thread milling - Toolholders

## THREAD INFEEED METHODS | Métodos de roscagem infeed | Métodos de roscado infeed

Thread turning - Overview

### RADIAL INFEEED



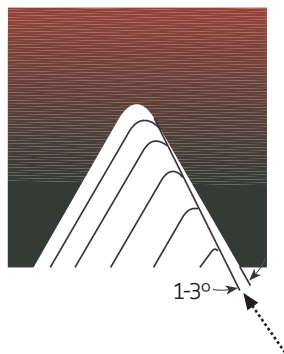
Radial infeed is the simplest and quickest method.

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

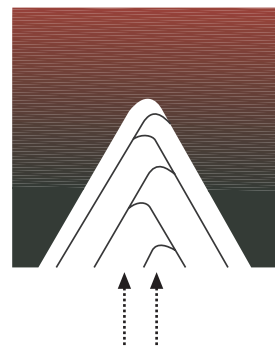
### FLANK INFEEED (modified)



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 INFEEED



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

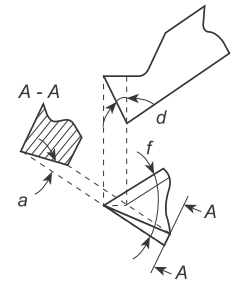
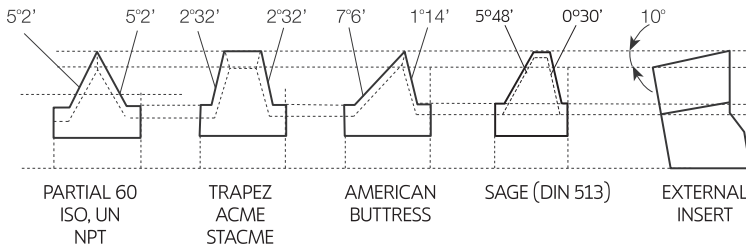
Thread turning - Inserts

Technical Data

## CALCULATE THE HELIX ANGLE AND CHOOSE THE RIGHT ANVIL

Calcular o ângulo de hélice e escolher o colchão adequado | Calcular el ángulo de hélice y elegir el colchón adecuado

### FLANK CLEARANCE ANGLE (a)



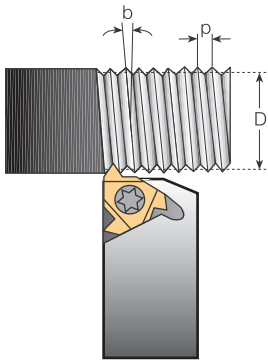
$$a = \arctan(\tan\phi / 2 \times \tan d)$$

Where: a - flank clearance angle  
d - Tilt angle  
φ - Enclosed flank angle

Palbit toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling). This results in the differing flank clearance angles, based on the geometry of insert. To ensure that the side of the insert cutting edge will not rub on the workpiece, it is most important that the insert helix angle be correct - especially in profiles with small enclosed flank angles. This correction is provided by Palbit anvils.

### CALCULATING THE HELIX ANGLE (b)

#### FORMULA



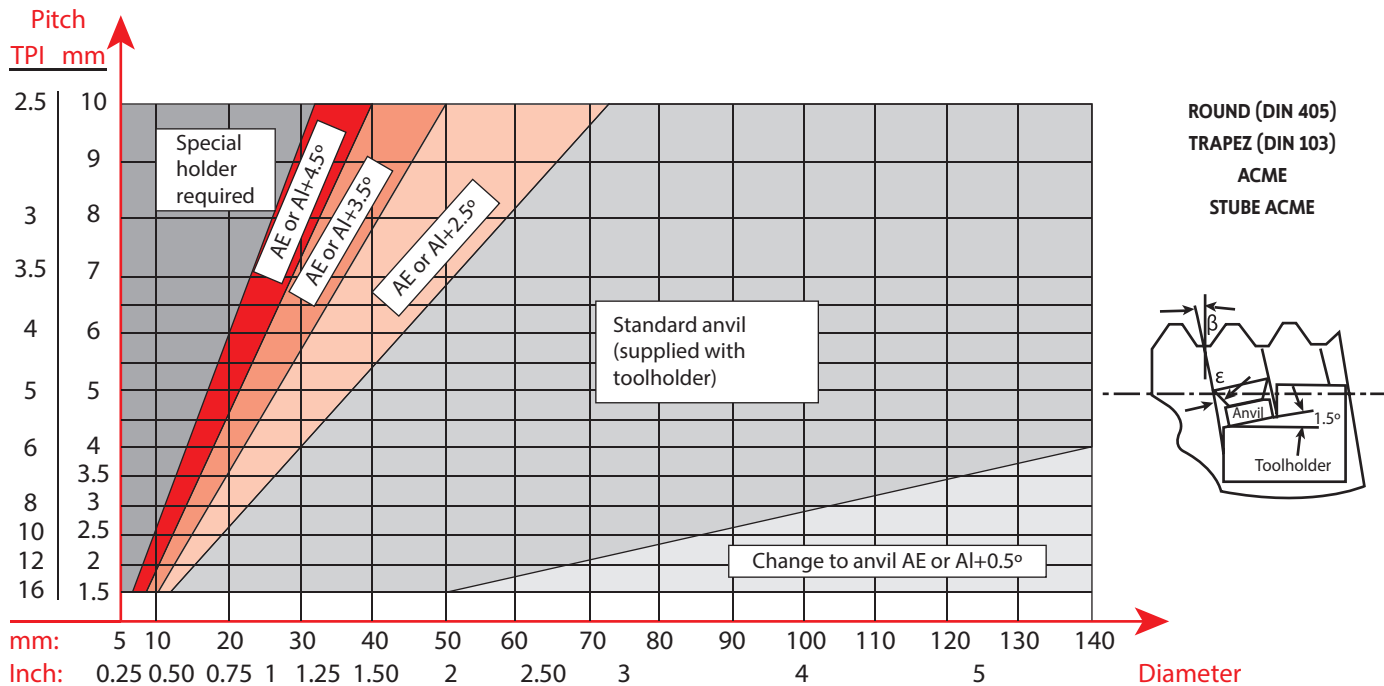
The helix angle is calculated by the following formula:

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

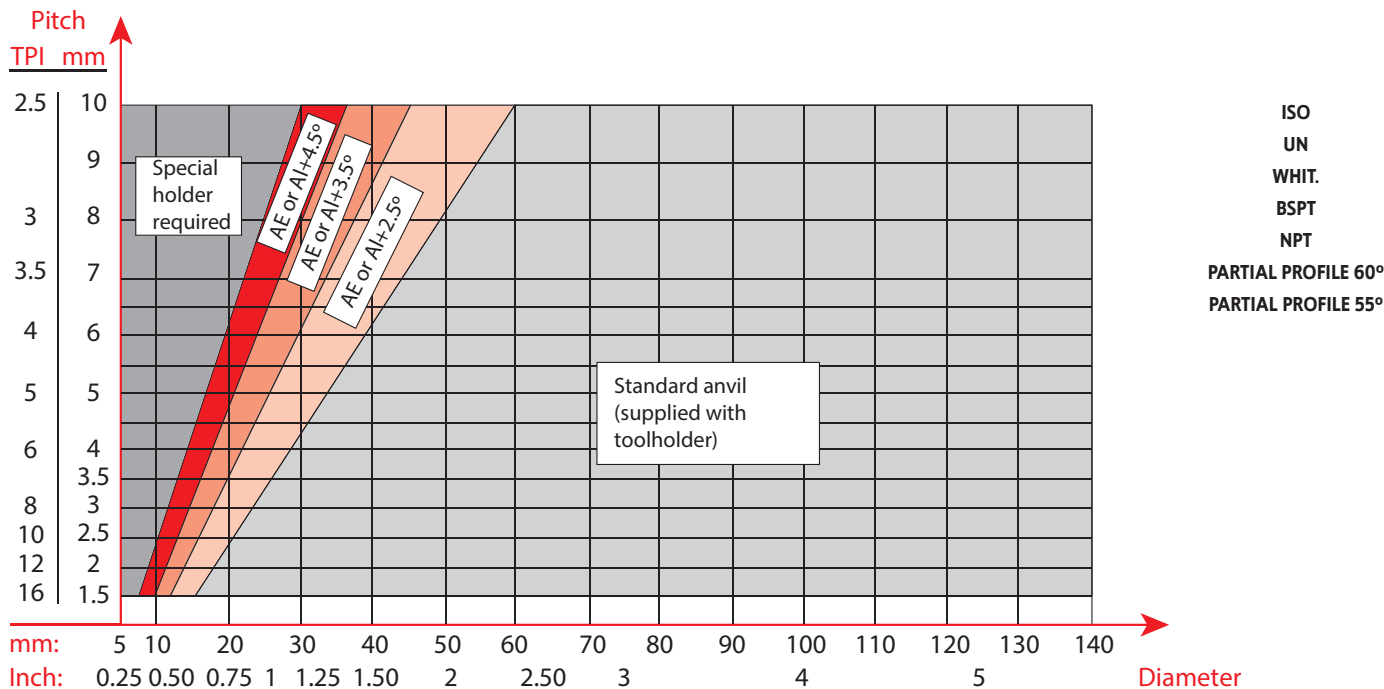
b - Helix angle (°)  
P - Pitch (1/TPI)  
N - No. of starts  
D - Pitch diameter (in)  
Lead = P × N  
TPI = Threads per inches

# THREADING TECHNICAL DATA

The chart below represents the relation between diameter, pitch and anvil choice. When change of anvil is required, use EA anvils for ER and IL toolholders and IA anvils for IR and EL toolholders.

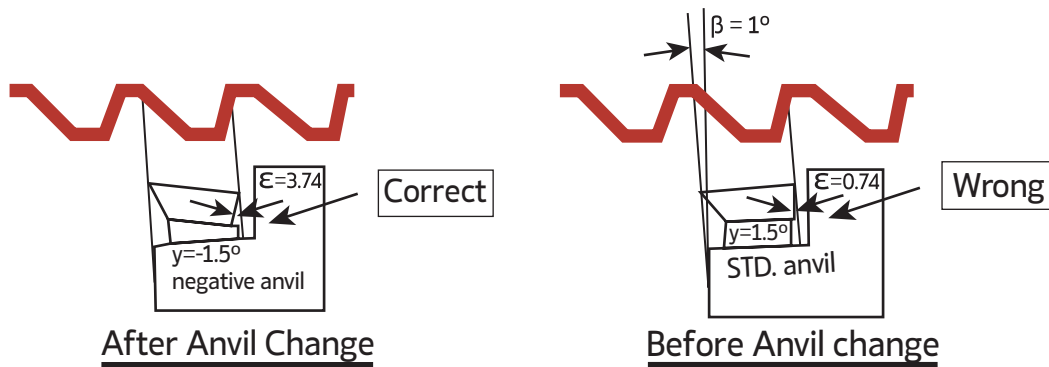
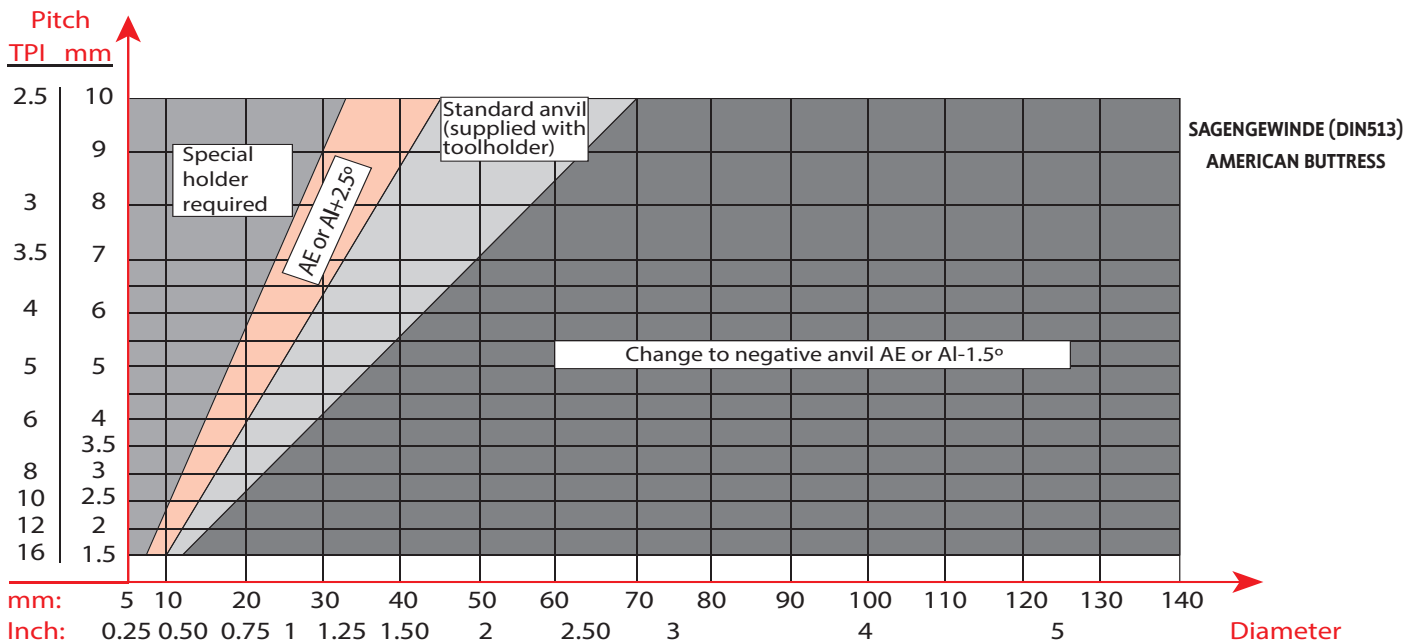


The majority of applications do not require an anvil change as it can be seen in the chart below. When change is required, use EA anvils for ER and IL toolholders and IA anvils for IR and EL toolholders.



Note: ER=External Right | IR=Internal Right | EL=External Left | IL=Internal Left

The chart below shows that most applications require an anvil change. In most cases a negative anvil is required. Use EA anvils for ER and IL toolholders and IA anvils for IR and EL toolholders.














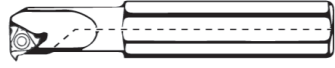
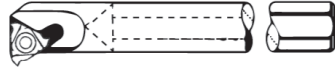






Change from a standard anvil to a negative angle anvil will eliminate the side rubbing.

Note: ER=External Right | IR=Internal Right | EL=External Left | IL=Internal Left

# THREADING TECHNICAL DATA

CUTTING CONDITIONS DEPENDS ON | | Condições de corte dependem de | Las condiciones de corte dependen de

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

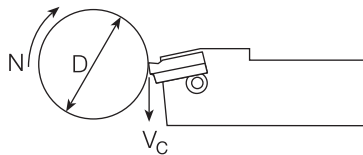
## NUMBER OF CUTTING PASSES || Número de passos de corte | Número de pasos de corte

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

## CALCULATE THE N (RPM) || Calcular o N (RPM) | Calcular el N (RPM)

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

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



N - Revolution Per Minute [RPM]  
 V<sub>c</sub> - Cutting Speed [SFM]  
 D - Workpiece Diameter [in]

## ANVILS || Colchões | Colchones

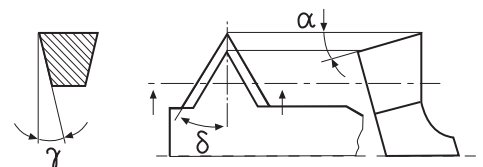
Insert Size		Holder Type	Resultant Helix Angle							
IC	L (mm)		4.5	3.5	2.5	1.5 standard	0.5	0	-0.5	-1.5
3/8"	16	ER/IL	EA16 3P	EA16 2P	EA16 1P	EA16	EA16 1N	EA16 1,5N	EA16 2N	EA16 3N
		EL/IR	IA16 3P	IA16 2P	IA16 1P	IA16	IA16 1N	IA16 1,5N	IA16 2N	IA16 3N
1/2"	22	ER/IL	EA22 3P	EA22 2P	EA22 1P	EA22	EA22 1N	EA22 1,5N	EA22 2N	EA22 3N
		EL/IR	IA22 3P	IA22 2P	IA22 1P	IA22	IA22 1N	IA22 1,5N	IA22 2N	IA22 3N
5/8"	27	ER/IL	EA27 3P	EA27 2P	EA27 1P	EA27	EA27 1N	EA27 1,5N	EA27 2N	EA27 3N
		EL/IR	IA27 3P	IA27 2P	IA27 1P	IA27	IA27 1N	IA27 1,5N	IA27 2N	IA27 3N

### FLANK CLEARANCE ANGLE - $\gamma$

$$\gamma = \text{tg}^{-1}[\text{tg}\alpha \times \text{tg}\delta]$$

$\alpha = 10^\circ$  for external

$\alpha = 15^\circ$  for internal





# THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

## ISO METRIC EXTERNAL THREAD

No. of Passes	Pitch (mm)															
	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.75	0.5	0.35
1	0.45	0.43	0.42	0.39	0.34	0.34	0.27	0.26	0.24	0.23	0.23	0.20	0.19	0.17	0.11	0.10
2	0.37	0.36	0.37	0.33	0.30	0.31	0.23	0.22	0.23	0.21	0.21	0.18	0.16	0.15	0.09	0.08
3	0.33	0.31	0.31	0.29	0.25	0.24	0.20	0.20	0.19	0.16	0.18	0.14	0.13	0.11	0.08	0.06
4	0.28	0.27	0.28	0.25	0.21	0.20	0.18	0.17	0.17	0.14	0.16	0.12	0.10	0.06		
5	0.26	0.25	0.25	0.23	0.19	0.19	0.17	0.16	0.15	0.12	0.11	0.10	0.06			
6	0.24	0.23	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.10	0.06	0.06				
7	0.23	0.22	0.21	0.19	0.16	0.16	0.15	0.13	0.10	0.08						
8	0.22	0.20	0.20	0.18	0.15	0.15	0.13	0.12	0.06	0.06						
9	0.20	0.19	0.19	0.16	0.15	0.14	0.12	0.10								
10	0.19	0.18	0.18	0.15	0.14	0.12	0.11	0.06								
11	0.18	0.17	0.16	0.14	0.13	0.10	0.09									
12	0.17	0.16	0.14	0.12	0.12	0.06	0.06									
13	0.16	0.15	0.10	0.10	0.10											
14	0.14	0.12	0.06	0.06	0.06											
15	0.13	0.10														
16	0.10	0.06														
17	0.06															
18																
Total	3.71	3.40	3.10	2.79	2.48	2.18	1.87	1.56	1.26	1.10	0.95	0.80	0.64	0.49	0.34	0.24

## ISO METRIC INTERNAL THREAD

No. of Passes	Pitch (mm)															
	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.75	0.5	0.35
1	0.44	0.43	0.42	0.36	0.32	0.32	0.25	0.25	0.23	0.22	0.22	0.19	0.18	0.16	0.10	0.09
2	0.36	0.34	0.37	0.32	0.27	0.29	0.22	0.21	0.21	0.20	0.20	0.16	0.15	0.14	0.09	0.08
3	0.32	0.29	0.28	0.28	0.22	0.23	0.19	0.19	0.18	0.15	0.17	0.13	0.12	0.10	0.07	0.06
4	0.27	0.24	0.26	0.25	0.20	0.19	0.17	0.16	0.16	0.13	0.15	0.11	0.10	0.06	0.06	
5	0.25	0.23	0.24	0.22	0.19	0.18	0.16	0.15	0.14	0.11	0.10	0.10	0.06			
6	0.23	0.22	0.21	0.19	0.18	0.16	0.16	0.13	0.11	0.09	0.06	0.06				
7	0.22	0.21	0.20	0.18	0.16	0.15	0.14	0.12	0.09	0.08						
8	0.21	0.20	0.19	0.17	0.15	0.14	0.12	0.11	0.06	0.06						
9	0.19	0.18	0.18	0.15	0.14	0.13	0.11	0.09								
10	0.17	0.16	0.16	0.14	0.14	0.11	0.10	0.06								
11	0.16	0.16	0.14	0.12	0.12	0.09	0.08									
12	0.15	0.15	0.12	0.10	0.10	0.06	0.06									
13	0.14	0.14	0.09	0.09	0.09											
14	0.13	0.11	0.06	0.06	0.06											
15	0.11	0.09														
16	0.09	0.06														
17	0.06															
18																
Total	3.50	3.21	2.92	2.63	2.34	2.05	1.76	1.47	1.18	1.04	0.90	0.75	0.61	0.46	0.32	0.23

## UN EXTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32	48
1	0.44	0.43	0.42	0.37	0.33	0.29	0.29	0.26	0.25	0.25	0.24	0.23	0.22	0.21	0.20	0.20	0.18	0.18	0.13
2	0.38	0.35	0.37	0.32	0.28	0.22	0.24	0.22	0.22	0.23	0.22	0.20	0.20	0.19	0.16	0.17	0.15	0.16	0.09
3	0.33	0.30	0.32	0.27	0.23	0.20	0.23	0.20	0.19	0.20	0.18	0.18	0.18	0.17	0.15	0.14	0.11	0.12	0.07
4	0.29	0.28	0.27	0.25	0.22	0.18	0.22	0.17	0.17	0.18	0.16	0.14	0.14	0.16	0.13	0.11	0.09	0.06	0.06
5	0.27	0.26	0.26	0.24	0.21	0.17	0.18	0.16	0.16	0.16	0.14	0.12	0.11	0.11	0.11	0.06	0.06		
6	0.26	0.23	0.24	0.18	0.19	0.16	0.16	0.15	0.15	0.14	0.13	0.11	0.09	0.06	0.06				
7	0.24	0.22	0.22	0.17	0.18	0.16	0.15	0.14	0.13	0.11	0.10	0.10	0.06						
8	0.23	0.21	0.20	0.16	0.15	0.15	0.12	0.12	0.12	0.06	0.06	0.06							
9	0.21	0.20	0.19	0.15	0.14	0.14	0.11	0.11	0.06										
10	0.20	0.19	0.18	0.13	0.14	0.14	0.06	0.06											
11	0.19	0.18	0.17	0.12	0.12	0.11													
12	0.18	0.17	0.14	0.10	0.06	0.06													
13	0.18	0.15	0.11	0.11															
14	0.17	0.14	0.06	0.06															
15	0.16	0.12																	
16	0.13	0.06																	
17	0.06																		
Total	3.92	3.49	3.15	2.63	2.25	1.98	1.76	1.59	1.45	1.33	1.23	1.14	1.00	0.90	0.81	0.68	0.59	0.52	0.35

## UN INTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32	48
1	0.43	0.43	0.42	0.34	0.31	0.29	0.29	0.25	0.24	0.24	0.23	0.22	0.21	0.20	0.19	0.19	0.17	0.17	0.12
2	0.34	0.35	0.37	0.28	0.27	0.22	0.23	0.21	0.20	0.21	0.21	0.20	0.19	0.18	0.16	0.16	0.14	0.15	0.09
3	0.32	0.29	0.28	0.26	0.22	0.19	0.20	0.19	0.18	0.19	0.17	0.17	0.17	0.16	0.14	0.13	0.10	0.11	0.07
4	0.28	0.24	0.26	0.22	0.20	0.17	0.20	0.16	0.16	0.17	0.15	0.13	0.13	0.15	0.11	0.10	0.08	0.06	0.06
5	0.26	0.23	0.24	0.21	0.19	0.16	0.16	0.15	0.15	0.15	0.13	0.11	0.10	0.09	0.10	0.06	0.06		
6	0.25	0.22	0.21	0.18	0.18	0.16	0.15	0.13	0.14	0.13	0.12	0.10	0.09	0.06	0.06				
7	0.23	0.21	0.20	0.17	0.16	0.14	0.14	0.12	0.12	0.10	0.09	0.09	0.06						
8	0.21	0.20	0.19	0.16	0.15	0.14	0.13	0.12	0.10	0.06	0.06	0.06							
9	0.20	0.19	0.18	0.15	0.14	0.13	0.11	0.11	0.06										
10	0.19	0.18	0.16	0.13	0.14	0.12	0.06	0.06											
11	0.18	0.17	0.16	0.12	0.10	0.08													
12	0.17	0.16	0.13	0.10	0.06	0.06													
13	0.16	0.14	0.10	0.09															
14	0.16	0.12	0.06	0.06															
15	0.14	0.10																	
16	0.12	0.06																	
17	0.06																		
Total	3.70	3.29	2.96	2.47	2.12	1.86	1.67	1.50	1.35	1.25	1.16	1.08	0.95	0.84	0.76	0.64	0.55	0.49	0.34

mm

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

## W. EXTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	24	28	32	48
1	0.45	0.44	0.43	0.38	0.34	0.30	0.28	0.27	0.26	0.26	0.24	0.22	0.24	0.22	0.21	0.20	0.18	0.19	0.16
2	0.40	0.36	0.38	0.33	0.29	0.24	0.25	0.23	0.23	0.23	0.21	0.18	0.21	0.19	0.19	0.18	0.15	0.16	0.14
3	0.35	0.31	0.33	0.28	0.24	0.21	0.22	0.21	0.20	0.21	0.17	0.15	0.16	0.17	0.15	0.16	0.12	0.13	0.06
4	0.31	0.29	0.28	0.27	0.23	0.19	0.21	0.18	0.18	0.19	0.15	0.13	0.15	0.14	0.13	0.11	0.10	0.06	
5	0.28	0.27	0.27	0.25	0.22	0.18	0.20	0.17	0.17	0.17	0.14	0.12	0.11	0.11	0.10	0.06	0.06		
6	0.27	0.24	0.25	0.19	0.20	0.17	0.17	0.16	0.16	0.15	0.12	0.10	0.06	0.06	0.06				
7	0.25	0.23	0.23	0.18	0.19	0.17	0.17	0.14	0.13	0.12	0.10	0.09							
8	0.24	0.22	0.21	0.17	0.16	0.16	0.15	0.13	0.12	0.06	0.06	0.06							
9	0.22	0.21	0.20	0.16	0.15	0.14	0.13	0.11	0.06										
10	0.21	0.20	0.19	0.14	0.15	0.13	0.06	0.06											
11	0.20	0.19	0.18	0.12	0.12	0.11													
12	0.19	0.18	0.15	0.10	0.06	0.06													
13	0.18	0.16	0.12	0.11															
14	0.18	0.15	0.06	0.06															
15	0.17	0.13																	
16	0.13	0.06																	
17	0.06																		
Total	4.09	3.64	3.28	2.74	2.35	2.06	1.84	1.66	1.51	1.39	1.19	1.05	0.93	0.89	0.84	0.71	0.61	0.54	0.36

## W. INTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	24	28	32	48
1	0.45	0.44	0.43	0.38	0.34	0.30	0.28	0.27	0.26	0.26	0.24	0.22	0.24	0.22	0.21	0.20	0.18	0.19	0.16
2	0.40	0.36	0.38	0.33	0.29	0.24	0.25	0.23	0.23	0.23	0.21	0.18	0.21	0.19	0.19	0.18	0.15	0.16	0.14
3	0.35	0.31	0.33	0.28	0.24	0.21	0.22	0.21	0.20	0.21	0.17	0.15	0.16	0.17	0.15	0.16	0.12	0.13	0.06
4	0.31	0.29	0.28	0.27	0.23	0.19	0.21	0.18	0.18	0.19	0.15	0.13	0.15	0.14	0.13	0.11	0.10	0.06	
5	0.28	0.27	0.27	0.25	0.22	0.18	0.20	0.17	0.17	0.17	0.14	0.12	0.11	0.11	0.10	0.06	0.06		
6	0.27	0.24	0.25	0.19	0.20	0.17	0.17	0.16	0.16	0.15	0.12	0.10	0.06	0.06	0.06				
7	0.25	0.23	0.23	0.18	0.19	0.17	0.17	0.14	0.13	0.12	0.10	0.09							
8	0.24	0.22	0.21	0.17	0.16	0.16	0.15	0.13	0.12	0.06	0.06	0.06							
9	0.22	0.21	0.20	0.16	0.15	0.14	0.13	0.11	0.06										
10	0.21	0.20	0.19	0.14	0.15	0.13	0.06	0.06											
11	0.20	0.19	0.18	0.12	0.12	0.11													
12	0.19	0.18	0.15	0.10	0.06	0.06													
13	0.18	0.16	0.12	0.11															
14	0.18	0.15	0.06	0.06															
15	0.17	0.13																	
16	0.13	0.06																	
17	0.06																		
Total	4.09	3.64	3.28	2.74	2.35	2.06	1.84	1.66	1.51	1.39	1.19	1.05	0.93	0.89	0.84	0.71	0.61	0.54	0.36

### NPT EXTERNAL & INTERNAL

### NPTF EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)				
	4	11.5	14	18	27
1	0.32	0.23	0.22	0.18	0.14
2	0.25	0.19	0.18	0.15	0.11
3	0.21	0.17	0.15	0.13	0.11
4	0.17	0.16	0.14	0.13	0.10
5	0.16	0.15	0.13	0.12	0.09
6	0.16	0.13	0.12	0.11	0.08
7	0.15	0.12	0.10	0.09	0.06
8	0.15	0.10	0.10	0.08	
9	0.14	0.10	0.09	0.06	
10	0.13	0.10	0.08		
11	0.13	0.09	0.06		
12	0.12	0.08			
13	0.12	0.06			
14	0.10				
15	0.08				
16	0.06				
Total	2.45	1.68	1.37	1.05	0.69

No. of Passes	Pitch (TPI)				
	8	11.5	14	18	27
1	0.31	0.22	0.21	0.17	0.14
2	0.24	0.17	0.17	0.14	0.10
3	0.20	0.16	0.14	0.13	0.09
4	0.16	0.16	0.14	0.12	0.09
5	0.16	0.14	0.14	0.11	0.08
6	0.15	0.13	0.12	0.10	0.08
7	0.15	0.12	0.10	0.09	0.06
8	0.14	0.11	0.10	0.08	
9	0.14	0.10	0.09	0.06	
10	0.13	0.10	0.08		
11	0.13	0.09	0.06		
12	0.12	0.08			
13	0.12	0.06			
14	0.10				
15	0.08				
16	0.06				
Total	2.39	1.64	1.35	1.00	0.64

### TR EXTERNAL & INTERNAL

No. of Passes	Pitch (mm)						
	7.0	6.0	5.0	4.0	3.0	2.0	1.5
1	0.38	0.36	0.34	0.32	0.31	0.30	0.24
2	0.34	0.32	0.30	0.28	0.26	0.26	0.22
3	0.28	0.28	0.25	0.23	0.23	0.22	0.17
4	0.26	0.25	0.23	0.20	0.19	0.18	0.14
5	0.25	0.24	0.22	0.19	0.19	0.16	0.12
6	0.23	0.23	0.21	0.18	0.18	0.12	0.06
7	0.22	0.22	0.19	0.17	0.15	0.06	
8	0.21	0.20	0.18	0.16	0.12		
9	0.20	0.19	0.17	0.15	0.11		
10	0.19	0.17	0.16	0.14	0.06		
11	0.19	0.16	0.14	0.12			
12	0.18	0.15	0.13	0.10			
13	0.18	0.13	0.12	0.06			
14	0.16	0.13	0.10				
15	0.16	0.12	0.06				
16	0.15	0.12					
17	0.15	0.11					
18	0.14	0.11					
19	0.12	0.06					
20	0.06						
Total	4.05	3.55	2.80	2.30	1.80	1.30	0.95

# THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

## ACME EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)							
	4	5	6	8	10	12	14	16
1	0.36	0.34	0.31	0.27	0.26	0.26	0.25	0.24
2	0.32	0.30	0.29	0.23	0.23	0.22	0.21	0.22
3	0.28	0.25	0.25	0.19	0.20	0.18	0.18	0.18
4	0.25	0.23	0.21	0.18	0.19	0.16	0.15	0.15
5	0.24	0.22	0.18	0.17	0.16	0.14	0.13	0.12
6	0.23	0.21	0.17	0.16	0.14	0.12	0.10	0.06
7	0.22	0.19	0.16	0.15	0.12	0.10	0.06	
8	0.20	0.19	0.15	0.14	0.11	0.06		
9	0.19	0.18	0.15	0.12	0.10			
10	0.17	0.17	0.14	0.12	0.06			
11	0.15	0.15	0.13	0.10				
12	0.14	0.13	0.12	0.06				
13	0.13	0.12	0.10					
14	0.12	0.10	0.06					
15	0.11	0.06						
16	0.11							
17	0.10							
18	0.10							
19	0.06							
Total	3.48	2.84	2.42	1.89	1.57	1.24	1.08	0.97

## STUB ACME EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)							
	4	5	6	8	10	12	14	16
1	0.31	0.30	0.27	0.23	0.23	0.22	0.21	0.18
2	0.26	0.26	0.23	0.19	0.17	0.17	0.18	0.16
3	0.21	0.21	0.20	0.16	0.14	0.14	0.15	0.13
4	0.19	0.18	0.16	0.15	0.13	0.12	0.12	0.12
5	0.17	0.16	0.15	0.13	0.12	0.10	0.06	0.06
6	0.17	0.15	0.14	0.12	0.11	0.06		
7	0.16	0.15	0.13	0.11	0.10			
8	0.15	0.13	0.12	0.10	0.06			
9	0.15	0.12	0.10	0.06				
10	0.14	0.10	0.06					
11	0.13	0.06						
12	0.11							
13	0.06							
Total	2.21	1.82	1.56	1.25	1.06	0.81	0.72	0.65

## UNJ EXTERNAL THREAD

No. of Passes	Pitch (TPI)												
	8	9	10	11	12	13	14	16	18	20	24	28	32
1	0.29	0.29	0.26	0.25	0.25	0.24	0.23	0.22	0.21	0.20	0.20	0.18	0.18
2	0.22	0.24	0.22	0.22	0.23	0.22	0.20	0.20	0.19	0.16	0.17	0.14	0.15
3	0.20	0.22	0.19	0.19	0.19	0.18	0.17	0.17	0.16	0.14	0.13	0.10	0.11
4	0.18	0.20	0.17	0.16	0.17	0.15	0.14	0.13	0.15	0.12	0.10	0.09	0.06
5	0.16	0.17	0.15	0.15	0.15	0.13	0.11	0.10	0.10	0.10	0.06	0.06	
6	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.09	0.06	0.06			
7	0.15	0.14	0.13	0.12	0.10	0.09	0.09	0.06					
8	0.14	0.12	0.11	0.11	0.06	0.06	0.06						
9	0.13	0.10	0.10	0.06									
10	0.12	0.06	0.06										
11	0.10												
12	0.06												
Total	1.91	1.70	1.53	1.40	1.28	1.19	1.10	0.97	0.87	0.78	0.66	0.57	0.50

## UNJ INTERNAL THREAD

No. of Passes	Pitch (TPI)												
	8	9	10	11	12	13	14	16	18	20	24	28	32
1	0.29	0.29	0.26	0.25	0.25	0.24	0.23	0.22	0.21	0.20	0.20	0.18	0.18
2	0.22	0.24	0.22	0.22	0.23	0.22	0.20	0.20	0.19	0.16	0.17	0.14	0.15
3	0.20	0.22	0.19	0.19	0.19	0.18	0.17	0.17	0.16	0.14	0.13	0.10	0.11
4	0.18	0.20	0.17	0.16	0.17	0.15	0.14	0.13	0.15	0.12	0.10	0.09	0.06
5	0.16	0.17	0.15	0.15	0.15	0.13	0.11	0.10	0.10	0.10	0.06	0.06	
6	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.09	0.06	0.06			
7	0.15	0.14	0.13	0.12	0.10	0.09	0.09	0.06					
8	0.14	0.12	0.11	0.11	0.06	0.06	0.06						
9	0.13	0.10	0.10	0.06									
10	0.12	0.06	0.06										
11	0.10												
12	0.06												
Total	1.91	1.70	1.53	1.40	1.28	1.19	1.10	0.97	0.87	0.78	0.66	0.57	0.50

mm

THREADING

Thread milling - Inserts

Thread milling - Toolholders

Thread turning - Overview

Thread turning - Inserts

Technical Data

# THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

## MJ INTERNAL THREAD

No. of Passes	Pitch (mm)					
	1.0	1.25	1.5	2.0	2.5	3.0
1	0.16	0.17	0.22	0.23	0.24	0.24
2	0.13	0.14	0.19	0.21	0.21	0.20
3	0.11	0.12	0.14	0.18	0.18	0.18
4	0.09	0.10	0.11	0.16	0.16	0.17
5	0.06	0.09	0.09	0.14	0.14	0.16
6		0.06	0.06	0.10	0.13	0.15
7				0.06	0.12	0.13
8					0.10	0.12
9					0.06	0.10
10						0.09
11						0.06
12						
Total	0.55	0.68	0.81	1.08	1.34	1.60

## MJ EXTERNAL THREAD

No. of Passes	Pitch (mm)					
	1.0	1.25	1.5	2.0	2.5	3.0
1	0.18	0.18	0.22	0.23	0.25	0.26
2	0.15	0.16	0.20	0.22	0.21	0.22
3	0.13	0.14	0.18	0.18	0.19	0.19
4	0.10	0.12	0.15	0.16	0.16	0.17
5	0.06	0.10	0.11	0.14	0.15	0.16
6		0.06	0.06	0.12	0.14	0.15
7				0.10	0.13	0.14
8				0.06	0.12	0.13
9					0.10	0.12
10					0.06	0.11
11						0.09
12						0.06
Total	0.62	0.76	0.92	1.21	1.51	1.80

## RD (DIN 20400) EXTERNAL & INTERNAL THREAD

No. of Passes	Pitch (mm)			
	6.0	5.0	4.0	3.0
1	0.35	0.32	0.25	0.24
2	0.33	0.28	0.24	0.23
3	0.32	0.27	0.23	0.21
4	0.31	0.26	0.22	0.20
5	0.30	0.25	0.21	0.19
6	0.29	0.24	0.20	0.18
7	0.26	0.22	0.19	0.14
8	0.23	0.20	0.18	0.11
9	0.22	0.19	0.16	0.10
10	0.19	0.16	0.14	0.09
11	0.17	0.15	0.12	0.06
12	0.15	0.13	0.10	
13	0.12	0.12	0.06	
14	0.10	0.06		
15	0.06			
Total	3.40	2.85	2.30	1.75

## RD (DIN 405) EXTERNAL & INTERNAL THREAD

No. of Passes	Pitch (TPI)			
	4	6	8	10
1	0.35	0.25	0.24	0.23
2	0.32	0.24	0.22	0.21
3	0.31	0.22	0.20	0.19
4	0.30	0.21	0.19	0.18
5	0.29	0.20	0.18	0.16
6	0.28	0.19	0.16	0.14
7	0.25	0.18	0.14	0.11
8	0.22	0.16	0.11	0.09
9	0.21	0.15	0.10	0.06
10	0.18	0.13	0.09	
11	0.16	0.12	0.06	
12	0.13	0.11		
13	0.12	0.06		
14	0.10			
15	0.06			
Total	3.28	2.22	1.69	1.37

## PG INTERNAL & EXTERNAL

No. of Passes	Pitch (TPI)		
	20	18	16
1	0.17	0.18	0.19
2	0.15	0.14	0.16
3	0.14	0.12	0.13
4	0.10	0.10	0.11
5	0.06	0.09	0.10
6		0.06	0.09
7			0.06
Total	0.62	0.69	0.78

## AMERICAN BUTTRESS EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)					
	6	8	10	12	16	20
1	0.28	0.25	0.22	0.21	0.20	0.18
2	0.24	0.22	0.20	0.19	0.18	0.16
3	0.21	0.19	0.19	0.18	0.17	0.14
4	0.20	0.19	0.17	0.16	0.14	0.13
5	0.20	0.17	0.16	0.15	0.13	0.12
6	0.19	0.16	0.15	0.14	0.12	0.10
7	0.19	0.16	0.13	0.13	0.10	0.06
8	0.18	0.15	0.12	0.12	0.06	
9	0.17	0.14	0.12	0.11		
10	0.16	0.13	0.11	0.06		
11	0.15	0.12	0.10			
12	0.14	0.11	0.06			
13	0.14	0.10				
14	0.13	0.06				
15	0.12					
16	0.10					
17	0.06					
Total	2.86	2.15	1.73	1.45	1.10	0.89



# THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

## SAGENGWINDE (DIN 513) EXTERNAL

No. of Passes	Pitch (mm)		
	4.0	3.0	2.0
1	0.32	0.30	0.29
2	0.30	0.28	0.26
3	0.27	0.26	0.24
4	0.25	0.24	0.19
5	0.23	0.22	0.18
6	0.21	0.21	0.17
7	0.20	0.20	0.15
8	0.19	0.18	0.14
9	0.18	0.17	0.11
10	0.17	0.15	0.06
11	0.16	0.14	
12	0.15	0.13	
13	0.15	0.11	
14	0.15	0.06	
15	0.14		
16	0.14		
17	0.13		
18	0.12		
19	0.06		
Total	3.52	2.65	1.79

## SAGENGWINDE (DIN 513) INTERNAL

No. of Passes	Pitch (mm)		
	4.0	3.0	2.0
1	0.32	0.31	0.29
2	0.30	0.29	0.27
3	0.27	0.27	0.25
4	0.24	0.24	0.21
5	0.23	0.23	0.18
6	0.21	0.22	0.16
7	0.20	0.20	0.12
8	0.19	0.19	0.06
9	0.18	0.16	
10	0.17	0.13	
11	0.16	0.06	
12	0.15		
13	0.14		
14	0.13		
15	0.10		
16	0.06		
Total	3.05	2.30	1.54

## API EXTERNAL & INTERNAL

No. of Passes	VO.038R 4 TPI		VO.050 4 TPI		VO.040 5 TPI	Buttress casing 5 TPI	
	2 IPF	3 IPF	2 IPF	3 IPF	3 IPF	0.75 IPF	1.0 IPF
1	0.45	0.45	0.44	0.44	0.41	0.24	0.24
2	0.38	0.38	0.39	0.39	0.36	0.22	0.22
3	0.33	0.33	0.34	0.34	0.32	0.18	0.18
4	0.30	0.30	0.31	0.31	0.28	0.14	0.14
5	0.28	0.28	0.28	0.28	0.26	0.12	0.12
6	0.24	0.24	0.26	0.26	0.24	0.12	0.12
7	0.22	0.22	0.24	0.24	0.22	0.12	0.12
8	0.20	0.20	0.23	0.23	0.20	0.10	0.10
9	0.18	0.18	0.21	0.21	0.18	0.10	0.10
10	0.14	0.14	0.19	0.19	0.14	0.10	0.10
11	0.13	0.13	0.18	0.18	0.13	0.10	0.10
12	0.12	0.12	0.16	0.16	0.12	0.06	0.06
13	0.11	0.10	0.14	0.14	0.11		
14	0.06	0.06	0.13	0.13	0.06		
15			0.12	0.12			
16			0.10	0.11			
17			0.06	0.06			
Total	3.14	3.13	3.79	3.78	3.03	1.60	1.60

## API EXTERNAL & INTERNAL

No. of Passes	Extreme Line Casing 6 TPI 1.5 IPF		Extreme Line Casing 5 TPI 1.5 IPF		Round API 0.75 IPF 8 TPI		Round API 0.75 IPF 10 TPI	
	External	Internal	External	Internal	External	Internal	External	Internal
1	0.23	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2	0.20	0.20	0.22	0.23	0.22	0.22	0.20	0.20
3	0.16	0.17	0.20	0.21	0.20	0.20	0.17	0.17
4	0.15	0.15	0.18	0.19	0.18	0.18	0.15	0.15
5	0.13	0.14	0.15	0.16	0.16	0.16	0.14	0.14
6	0.12	0.13	0.14	0.15	0.15	0.15	0.13	0.13
7	0.11	0.12	0.13	0.14	0.14	0.14	0.12	0.12
8	0.10	0.12	0.12	0.13	0.13	0.13	0.12	0.12
9	0.06	0.10	0.11	0.12	0.12	0.12	0.10	0.10
10		0.06	0.10	0.11	0.11	0.11	0.06	0.06
11			0.10	0.11	0.11	0.11		
12			0.06	0.10	0.06	0.06		
13				0.06				
Total	1.26	1.44	1.76	1.96	1.83	1.83	1.44	1.44

# THREADING TECHNICAL DATA

## TAPER PIPE THREAD: NPT / ANSI/ASME B 1.20.1-1983 - INTERNAL THREAD AMERICAN NATIONAL STANDARD TAPER PIPE THREADS

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Recommended Tools	
				Insert	Toolholder
NPT 1/16	27	0.941	0.69	06IR 27NPT	S12H SXFNR 06
NPT 1/8	27	0.941	0.69	08IR 27NPT	S16K SXFNR 08
NPT 1/4	18	1,411	1.05	08IR 18NPT	S16K SXFNR 08
NPT 3/8	18	1,411	1.05	11IR 18NPT	S10K SXFNR 11
NPT 1/2	14	1,814	1.37	16IR 14NPT	S13M SXFNR 16
NPT 3/4	14	1,814	1.37	16IR 14NPT	S16P SXFNR 16
NPT 1	11.5	2,209	1.68	16IR 11.5NPT	S20P SXFNR 16
NPT 1 1/4	11.5	2,209	1.68	16IR 11.5NPT	S25R SXFNR 16
NPT 1 1/2	11.5	2,209	1.68	16IR 11.5NPT	S32S SXFNR 16
NPT 2	11.5	2,209	1.68	16IR 11.5NPT	S32S SXFNR 16
NPT 2 1/2	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 3	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 3 1/2	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 4	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 5	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16

## TAPER PIPE THREAD: NPTF / ANSI B 1.20.3-1976 - INTERNAL THREAD AMERICAN NATIONAL STANDARD DRYSEAL PIPE THREADS

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Recommended Tools	
				Insert	Toolholder
NPTF 1/16	27	0.941	0.64	06IR 27NPTF	S12H SXFNR 06
NPTF 1/8	27	0.941	0.64	08IR 27NPTF	S16K SXFNR 08
NPTF 1/4	18	1,411	1.00	08IR 18NPTF	S16K SXFNR 08
NPTF 3/8	18	1,411	1.00	11IR 18NPTF	S10K SXFNR 11
NPTF 1/2	14	1,814	1.35	16IR 14NPTF	S13M SXFNR 16
NPTF 3/4	14	1,814	1.35	16IR 14NPTF	S16P SXFNR 16
NPTF 1	11.5	2,209	1.64	16IR 11.5NPTF	S20P SXFNR 16
NPTF 1 1/4	11.5	2,209	1.64	16IR 11.5NPTF	S25R SXFNR 16
NPTF 1 1/2	11.5	2,209	1.64	16IR 11.5NPTF	S32S SXFNR 16
NPTF 2	11.5	2,209	1.64	16IR 11.5NPTF	S32S SXFNR 16
NPTF 2 1/2	8	3,175	2.39	16IR 08NPTF	S40T SXFNR 16
NPTF 3	8	3,175	2.39	16IR 08NPTF	S40T SXFNR 16

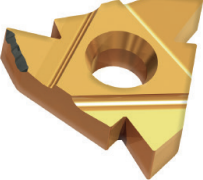

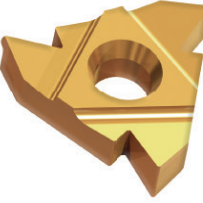
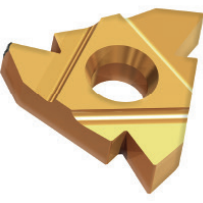

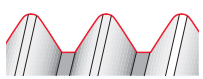
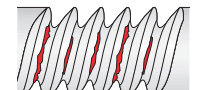
mm  
THREADING  
Thread milling - Inserts  
Thread milling - Toolholders  
Thread turning - Overview  
Thread turning - Inserts  
Technical Data

## PARALLEL PIPE THREAD / BSP (G) - INTERNAL THREAD

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Bore Diameter	Recommended Tools	
					Insert	Toolholder
G1/16	28	0.907	0.581	6,561	06IR 28W	S12H SXFNR 06
G1/8	28	0.907	0.581	8,556	08IR 28W	S16K SXFNR 08
G1/4	19	1,337	0.856	11,445	08IR 19W	S16K SXFNR 08
G3/8	19	1,337	0.856	14,950	11IR 19W	S10K SXFNR 11
G1/2	14	1,814	1,162	18,631	16IR 14W	S13M SXFNR 16
G5/8	14	1,814	1,162	20,587	16IR 14W	S16P SXFNR 16
G3/4	14	1,814	1,162	24,117	16IR 14W	S16P SXFNR 16
G7/8	11	1,814	1,162	27,877	16IR 14W	S20P SXFNR 16
G1	11	2,309	1,479	30,291	16IR 11W	S20P SXFNR 16
G1 1/8	11	2,309	1,479	34,939	16IR 11W	S25R SXFNR 16
G1 1/4	11	2,309	1,479	38,952	16IR 11W	S25R SXFNR 16
G1 1/2	11	2,309	1,479	44,845	16IR 11W	S32S SXFNR 16
G1 3/4	11	2,309	1,479	50,788	16IR 11W	S32S SXFNR 16
G2	11	2,309	1,479	56,656	16IR 11W	S32S SXFNR 16

## TAPER PIPE THREAD / B SPT (RC) - INTERNAL THREAD

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Bore Diameter	Recommended Tools	
					Insert	Toolholder
Rc 1/16	28	0.907	0.581	6,561	06IR 28BSPT	S12H SXFNR 06
Rc 1/8	28	0.907	0.581	8,556	08IR 28BSPT	S16K SXFNR 08
Rc 1/4	19	1,337	0.856	11,445	08IR 19BSPT	S16K SXFNR 08
Rc 3/8	19	1,337	0.856	14,950	11IR 19BSPT	S10K SXFNR 11
Rc 1/2	14	1,814	1,162	18,631	16IR 14BSPT	S13M SXFNR 16
Rc 5/8	14	1,814	1,162	20,587	16IR 14BSPT	S16P SXFNR 16
Rc 3/4	14	1,814	1,162	24,117	16IR 14BSPT	S16P SXFNR 16
Rc 7/8	14	1,814	1,162	27,877	16IR 14BSPT	S20P SXFNR 16
Rc 1	11	2,309	1,479	30,291	16IR 11BSPT	S20P SXFNR 16
Rc 1 1/8	11	2,309	1,479	34,939	16IR 11BSPT	S25R SXFNR 16
Rc 1 1/4	11	2,309	1,479	38,952	16IR 11BSPT	S25R SXFNR 16
Rc 1 1/2	11	2,309	1,479	44,845	16IR 11BSPT	S32S SXFNR 16
Rc 1 3/4	11	2,309	1,479	50,788	16IR 11BSPT	S32S SXFNR 16
Rc 2	11	2,309	1,479	56,656	16IR 11BSPT	S32S SXFNR 16

Problem   Problema	Possible Cause   Causa Possível   Causa Posible	Solution   Solução   Solución
<p>Increased flank wear Desgaste da aresta Desgaste del flanco</p> 	<ul style="list-style-type: none"> <li>• Cutting speed too high • Velocidade de corte alta • Alta velocidad de corte</li> <li>• Depth of cut too low/ too many passes • Profundidade de corte demasiado baixa / demasiados passos • Profundidad de corte demasiado baja / demasiados pasos</li> <li>• Unsuitable carbide grade • Grau desajustado • Grado desajustado</li> <li>• Insufficient cooling • Refrigeração insuficiente • Insuficiente refrigeración</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce cutting speed / Use coated insert • Reduza a velocidade de corte / Use uma pastilha revestida • Reducir la velocidad de corte / Utilice un inserto recubierto</li> <li>• Increase the depth of cut per pass • Aumente a profundidade de corte por passo • Aumento de la profundidad de corte por paso</li> <li>• Use a coated carbide grade • Use um grau revestido • Utilice un grado recubierto</li> <li>• Increase coolant flow rate • Aumente o fluxo de refrigeração • Aumentar el flujo de refrigeración</li> </ul>
<p>Uneven cutting edge wear Deformação da aresta de corte Deformación del flanco de corte</p> 	<ul style="list-style-type: none"> <li>• Incorrect helix angle • Ângulo da helice incorrecto • Ângulo de hélice incorrecta</li> <li>• Wrong infeed method • Método de avanço incorrecto • Método incorrecto de avance</li> </ul>	<ul style="list-style-type: none"> <li>• Choose the correct anvil • Escolha o ângulo correcto • Elija el ángulo correcto</li> <li>• Use the Alternating Flank Infeed method • Use um método alternativo de avanço • Utilizar un método alternativo de avance</li> </ul>
<p>Extreme plastic deformation Deformação plástica extrema Deformación plástica extrema</p> 	<ul style="list-style-type: none"> <li>• Depth of cut too large • Profundidade de corte demasiado larga • Profundidad de corte demasiado grande</li> <li>• Insufficient cooling • Refrigeração insuficiente • Insuficiente refrigeración</li> <li>• Cutting speed too high • Velocidade de corte alta • Alta velocidad de corte</li> <li>• Unsuitable carbide grade • Grau não aconselhável • Grado no es aconsejable</li> <li>• Nose radius too small • Raio demasiado pequeno • Radio demasiado pequeno</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease depth of cut / Increase number of passes • Diminua a profundidade de corte / Aumente o número de passos • Reducir la profundidad de corte / Aumentar el número de pasos</li> <li>• Increase coolant flow rate • Aumente o fluxo de refrigeração • Aumentar el flujo de refrigeración</li> <li>• Reduce cutting speed • Reduza a velocidade de corte • Reducir la velocidad de corte</li> <li>• Use a tougher carbide • Use um grau mais macio • Usar un grado más suave</li> <li>• Use an insert with a larger radius, if possible • Use uma pastilha com um raio mais largo, se possível • Utilice un inserto con un radio más amplio, si es posible</li> </ul>
<p>Cutting edge breakage Quebra da aresta de corte Rotura del flanco de corte</p> 	<ul style="list-style-type: none"> <li>• Depth of cut too large • Profundidade de corte demasiado larga • Profundidad de corte demasiado grande</li> <li>• Extreme plastic deformation • Deformação plástica extrema • Deformación plástica extrema</li> <li>• Insufficient cooling • Refrigeração insuficiente • Insuficiente refrigeración</li> <li>• Unsuitable carbide grade • Grau não aconselhável • Grado no es aconsejable</li> <li>• Instability • Instabilidade • Inestabilidad</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease depth of cut / Increase number of passes • Diminua a profundidade de corte / Aumente o número de passos • Reducir la profundidad de corte / Aumentar el número de pasos</li> <li>• Use a tougher carbide • Use um grau mais macio • Usar un grado más suave</li> <li>• Increase flow rate and/ or correct flow direction • Aumento o fluxo ou melhore o direcionamento da refrigeração • Aumentar o mejorar la dirección del flujo de la refrigeración</li> <li>• Use a tougher carbide • Use um grau mais macio • Usar un grado más suave</li> <li>• Check stability of the system • Verifique a estabilidade do sistema • Compruebe la estabilidad del sistema</li> </ul>
<p>Built-up edge Aresta postica Filos recrescidos</p> 	<ul style="list-style-type: none"> <li>• Incorrect cutting speed • Velocidade de corte incorrecta • Velocidad de corte incorrecta</li> <li>• Unsuitable carbide grade • Grau não aconselhável • Grado no es aconsejable</li> </ul>	<ul style="list-style-type: none"> <li>• Change the cutting speed • Altere a velocidade de corte • Cambiar la velocidad de corte</li> <li>• Use a coated carbide • Utilize um grau revestido • Utilice un grado recubierto</li> </ul>
<p>Thread profile is too shallow Perfil da rosca muito irregular Perfil de la rosca muy irregular</p> 	<ul style="list-style-type: none"> <li>• The tool is not at the workpiece axis height • A pastilha não está a maquinar a crista da rosca • El inserto no está mecanizando</li> <li>• Insert is not machining the thread crest • A ferramenta não está posicionada correctamente • La herramienta no está colocada correctamente a cresta de la rosca</li> <li>• Worn insert • Pastilha gasta • Inserto pasado</li> </ul>	<ul style="list-style-type: none"> <li>• Change tool height • Altere o posicionamento em altura da ferramenta • Cambiar la posición en la altura de la herramienta</li> <li>• Measure the workpiece diameter • Medir o diâmetro correcto da peça de trabalho • Medir el diámetro de la pieza de trabajo</li> <li>• Change the cutting edge sooner • Mudar antecipadamente a aresta de corte • Cambiar el flanco de corte en anticipo</li> </ul>
<p>Thread profile is too shallow Má qualidade superfície Acabado de superficie malo</p> 	<ul style="list-style-type: none"> <li>• Cutting speed too low • Velocidade de corte baixa • Velocidad de corte baja</li> <li>• Wrong anvil • Colchão errado • Colchón cambiado</li> <li>• Flank infeed method is not appropriate • Posição de avanço inapropriada • Posición de avance inadecuada</li> </ul>	<ul style="list-style-type: none"> <li>• Increase cutting speed • Aumente a velocidade de corte • Aumentar la velocidad de corte</li> <li>• Choose correct anvil • Escolha um colchão mais apropriado • Elija un colchón más apropiado</li> <li>• Use the alternate flank or radial infeed method • Use um método de flanqueamento ou radial alternativo • Utilice un método flanqueamento o radial alternativo</li> </ul>