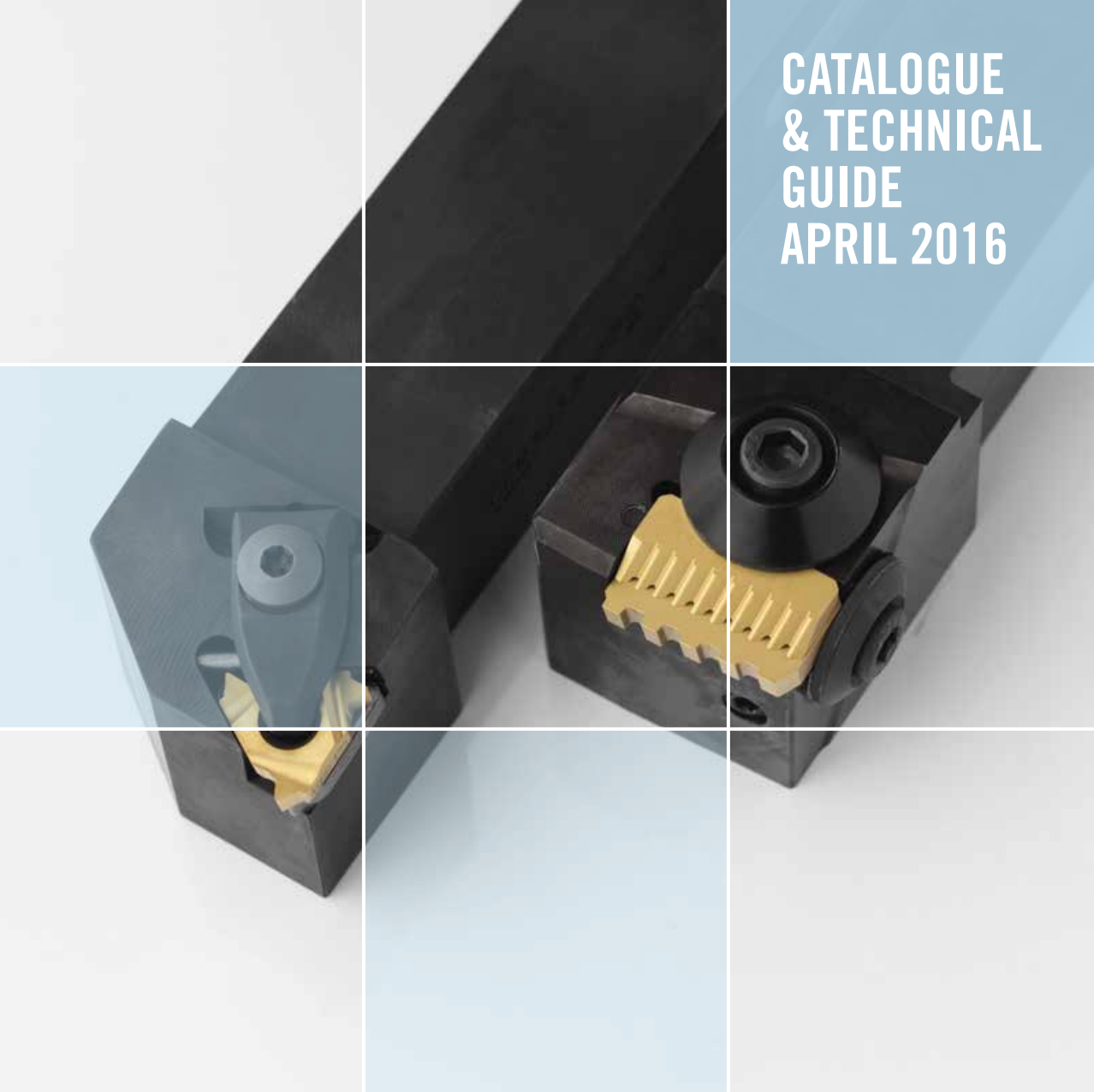


CATALOGUE
& TECHNICAL
GUIDE
APRIL 2016

THREADING

SECO

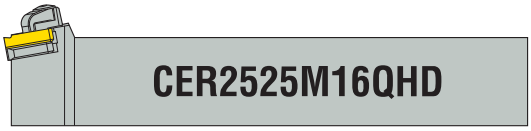
Contents

* SMG = Seco Material Group

Alphanumeric index – Inserts

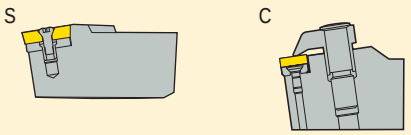
Thread turning – Code keys

Toolholders



C	E	R	25	25	M	16	Q	HD
1	2	3	4	5	6	7	8	9

1. Insert clamping



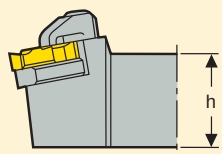
2. External/Internal

E = External
N = Internal

3. Cutting direction

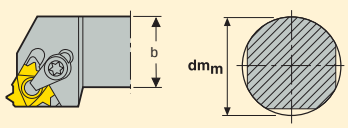
X = Special

4. Shank height



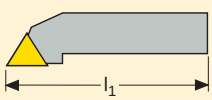
00 = Round toolholders S & C
25 = 25 mm
32 = 32 mm
etc.

5. Shank width/diameter



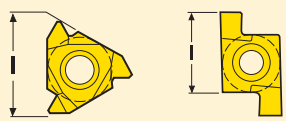
20 = 20 mm
25 = 25mm
etc.

6. Tool length



H = 100 mm R = 200 mm
K = 125 mm S = 250 mm
L = 140 mm T = 300 mm
M = 150 mm U = 350 mm
P = 170 mm V = 400 mm
Q = 180 mm

7. Cutting edge length



If the cutting edge length consists of only one digit, the designation should start with a 0.

Example:

Cutting edge length	= 16,5 mm
Symbol	= 16
Cutting edge length	= 9,525 mm
Symbol	= 09

8. Other information

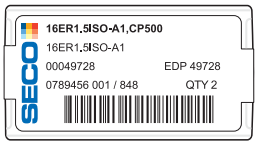
A = Steel with coolant passage
Q = Toolholder/cranked
CQ = For mounting upside down

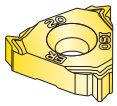
9. Other information

HD = Heavy duty

Thread turning – Code keys

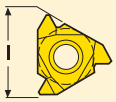
Inserts





16	E	R	1.5	ISO	-	A1
1	2	3	4	5		6

1. Cutting edge length



If the cutting edge length consists of only one digit, the designation should start with a 0.

Example:

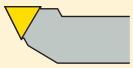
Cutting edge length	= 16,5 mm
Symbol	= 16
Cutting edge length	= 9,525
Symbol	= 09

2. External/Internal

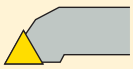
E = External
N = Internal

3. Cutting direction

L



R



X = Special

4. Pitch

Full profile mm: (mm)	0,50	1,25	3,00	6,00	
	0,70	1,50	4,00	8,00	
	0,75	1,75	4,50	10,0	
	0,80	2,00	5,00	12,0	
	1,00	2,50	5,50	14,0	
Full profile: (TPI)	48	18	11	6,0	2,5
	40	16	10	5,0	2,0
	32	14	9	4,5	
	24	13	8	4,0	
	20	12	7	3,0	

Part profile:	A	= 0,50-1,50 mm	48-16 TPI
	AG	= 0,50-3,00 mm	48-8 TPI
	G	= 1,75-3,00 mm	14-8 TPI
	N	= 3,50-5,00 mm	7-5 TPI
	K	= 5,50-10,00 mm	4,5-2,5 TPI

5. Thread

Thread =	
60	= V profile, 60°
55	= V profile, 55°
ISO	= ISO, Metric
UN	= Am. UN
UNJ	= Am. Aerospace
MJ	= Metr. Aerospace
W	= Whitworth, BSW
BSPT	= Whitworth, Taper
NPT	= Am. NPT
NPTF	= Am. NPTF (Dryseal)
RD	= Round, DIN405
TR	= Trapezoidal, DIN103
ACME	= Am. ACME-G
STACME	= Am. Stub-ACME
API 384	= API V 038R 1:4
API 386	= API V 038R 1:6
API 404	= API V 040 1:4
API 504	= API V 050 1:4
API 506	= API V 050 1:6
API RD	= API Round Casing
BUT 2.5	= Buttress, 1°47'
BUT 2.6	= Buttress, 2°23'
VAM	= VAM Vallourec

6. Number of teeth per cutting edge/ Type of chipbreaker

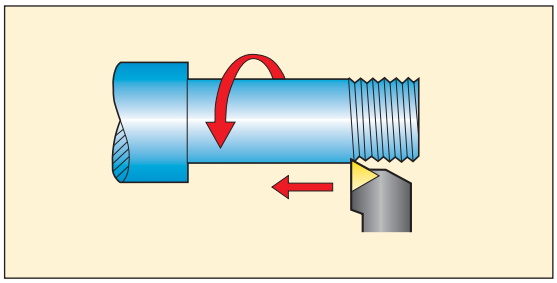
2M = 2 teeth	A = Universal
3M = 3 teeth	A1 = Chipbreaker designation
TT = TWIN THREADER	A2 = Chipbreaker designation

Thread turning – Selection process

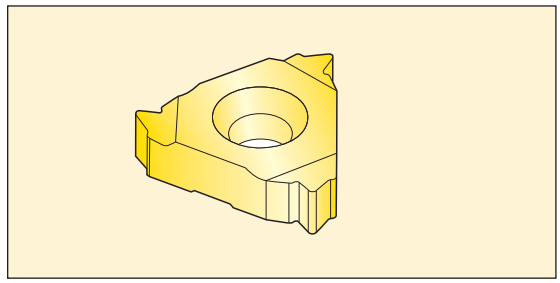
Threading Wizard™

In order to simplify the selection of tools and cutting parameters Seco introduced the Threading Wizard software, which eliminates complicated programming and calculations. The Wizard selects the optimum holder and insert, identifies the best operating parameters and then downloads the information to the CNC machine. The infeed series generated are based on a good control of the OD/ID tolerance for the selected profile. The insert nose radius is relatively small and can be damaged if it is overloaded. The Threading Wizard is free and available at www.Seco Tools/Customer zone/Threading Wizard.
If not using the Wizard use the selection process below to choose a suitable tool, insert, cutting data and production method.

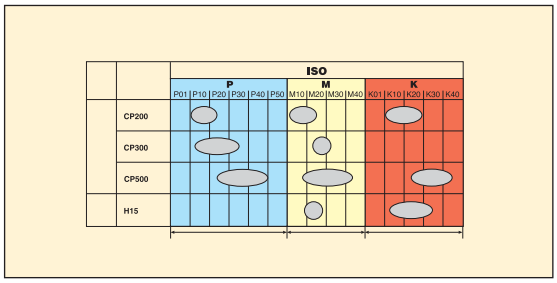
1. Selection of production method, page 7.



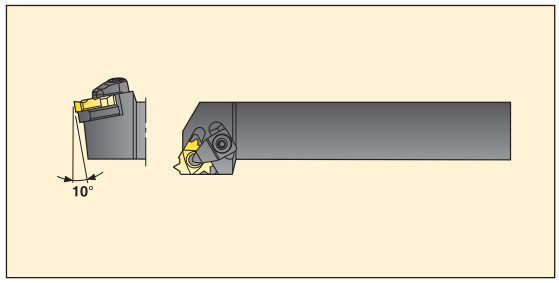
2. Selection of insert type, page 8



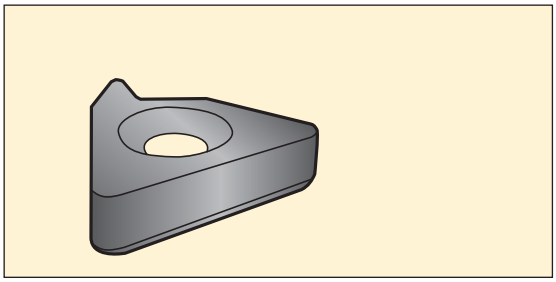
3. Selection of grade, page 10



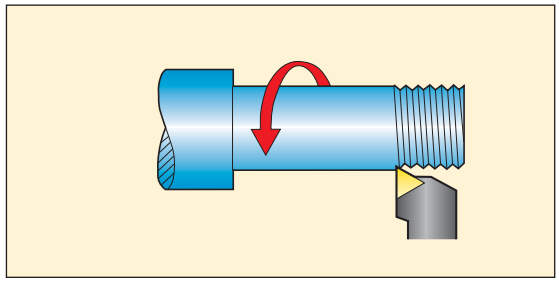
4. Selection of toolholder, page 11



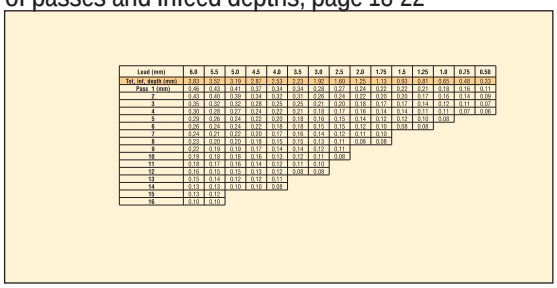
5. Selection of insert shim, page 12-13



6. Selection of cutting speed, page 14-17

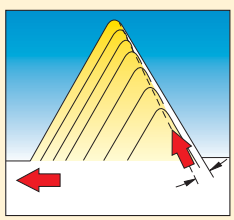


7. Selection of number of passes and infeed depths, page 18-22



Lead (mm)	6.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	0.75	0.50
Tot. ref. depth (mm)	3.00	3.00	3.18	2.92	2.93	2.84	2.60	1.99	1.26	1.13	0.93	0.81	0.65	0.48	0.32
Pass 1 (mm)	0.48	0.43	0.41	0.37	0.34	0.34	0.28	0.27	0.24	0.22	0.22	0.21	0.18	0.16	0.11
2	0.43	0.40	0.39	0.34	0.32	0.31	0.26	0.24	0.22	0.20	0.20	0.17	0.16	0.14	0.09
3	0.35	0.32	0.32	0.28	0.26	0.25	0.21	0.20	0.18	0.17	0.17	0.14	0.12	0.11	0.07
4	0.30	0.28	0.27	0.24	0.22	0.21	0.18	0.17	0.16	0.14	0.14	0.11	0.11	0.07	0.06
5	0.29	0.26	0.24	0.23	0.20	0.19	0.16	0.15	0.14	0.13	0.12	0.10	0.08		
6	0.26	0.24	0.24	0.22	0.18	0.18	0.15	0.15	0.12	0.10	0.08	0.08			
7	0.24	0.21	0.22	0.20	0.17	0.16	0.14	0.12	0.11	0.10					
8	0.23	0.20	0.20	0.18	0.15	0.15	0.13	0.11	0.08	0.08					
9	0.22	0.19	0.19	0.17	0.14	0.14	0.12	0.11							
10	0.19	0.18	0.18	0.16	0.13	0.12	0.11	0.08							
11	0.18	0.17	0.16	0.14	0.12	0.11	0.10								
12	0.16	0.15	0.15	0.13	0.12	0.08	0.08								
13	0.15	0.14	0.12	0.12	0.11										
14	0.13	0.13	0.10	0.10	0.08										
15	0.13	0.12													
16	0.10	0.10													

8. Selection of infeed method, page 23.



Thread turning – Production methods

The choice of production method is influenced by e.g.

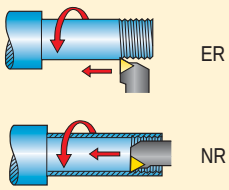
Workpiece
-External or internal thread
-Right or left hand thread
Machine
-Right or left hand tool

Threading towards the chuck

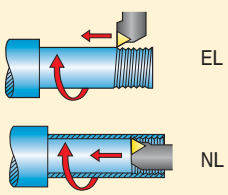
Benefit:
- Best stability
- Originally fitted insert shims can be used for most operations

Note:
- Chip build-up may occur during internal threading, particularly if there is little space between the threading bar and bore of the hole

Right-hand thread – Right-hand tool



Left-hand thread – Left-hand tool



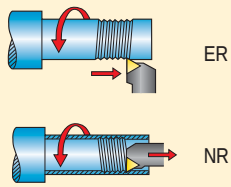
Threading away from the chuck*

Benefit:
- Chip flow is correctly directed during internal threading

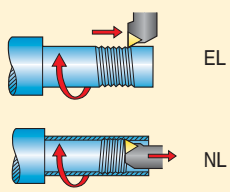
Note:
- Secure clamping of the insert and mounting of the toolholder are necessary

Internal threading:
- Use only CNR/L toolholders

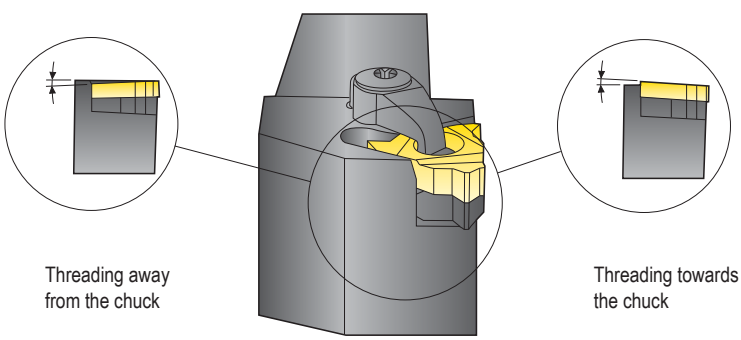
Left-hand thread – Right-hand tool



Right-hand thread – Left-hand tool

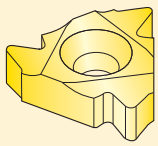
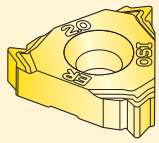
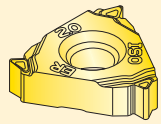
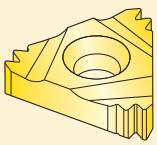
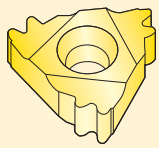
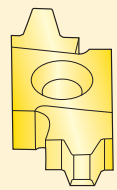


*Notice that the insert shim must be exchanged when threading away from the chuck.

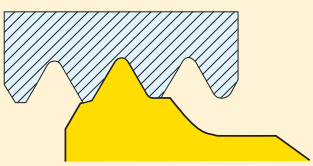
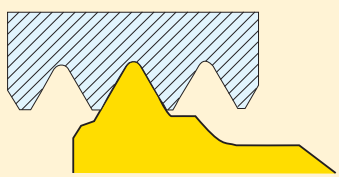


Thread turning – Insert types

For single tooth inserts choose a full profile or partial profile design

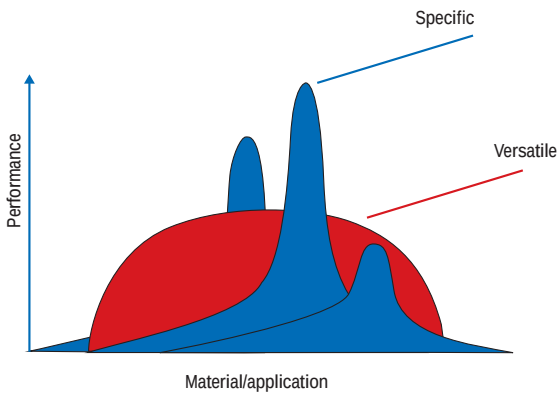
Single-tooth insert (Type S) A or Original  First choice, can be used for applications in a variety of materials.Low cutting forces.	Single-tooth insert (Type S) A1 chipbreaker  First choice for general applications in steel.	Single-tooth insert (Type S) A2 chipbreaker  First choice for general applications in stainless steel.
Multi-tooth insert (Type M)  First choice for mass production, since fewer passes are necessary. Only for radial infeed. 2M = 2 teeth version 3M = 3 teeth version	Multi-tooth insert (TWIN THREADER, TT)  Lower cutting forces than M type. Shorter undercut length than M type. Only for radial infeed. Use insert shim for 2M.	K insert (Type K)  First choice for large/coarse threads.

For single tooth inserts choose a full profile or partial profile design

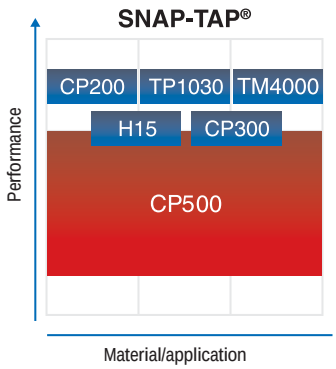
Full profile  By topping the thread, the workpiece need not be pre-machined to the exact diameter and may be a little oversized. The threading operation is simplified since only one tool is needed for the entire thread (no subsequent deburring is needed).	Partial profile  Covers a wide range of thread pitches, which simplifies stock-keeping. Requires a correct workpiece diameter prior to threading. The nose radius of the insert is sized to suit the smallest profile within the pitch range of the insert.

Thread turning – Insert grades

Product strategy



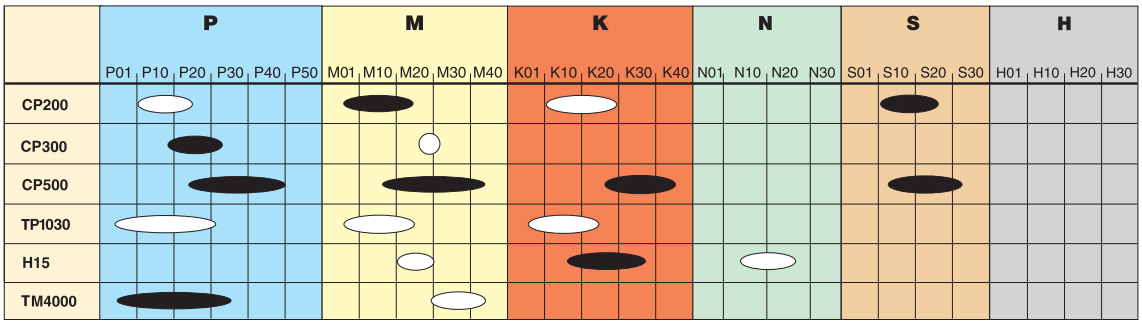
Grade assortment Snap-Tap®



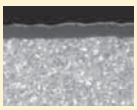
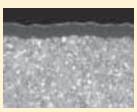
Continuous research and development of better materials, coatings and optimal geometries help fulfil customers requirements. Our product strategy is to provide the market with versatile first choice tools and specific optimized solutions for threading.

Thread turning – Insert grades

Grades
The black areas in the chart indicate a grade's main ISO application groups and the white areas indicate other supplementary application groups.



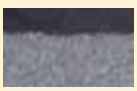
PVD coated grades

	CP200	First choice for high-strength steel, martensitic stainless steel, cast iron with low hardness, superalloys and titanium alloys. First choice for high cutting speeds. Hard micrograin with sharp edge, highly resistant to plastic deformation. (Ti,Al)N + TiN
	CP300	Wear-resistant grade which is principally intended for high cutting speeds. Optimizing grade in steel and stainless steel. (Ti,Al)N + TiN
	CP500	Universal very tough micrograin grade for all types of threading in most materials. Excellent for stainless steel and difficult operations. (Ti,Al)N + TiN
	TP1030	PVD-coated Cermet with very high wear resistance. Primarily intended for high surface finish and productivity requirements with predictability in steel and stainless steel. TiAlSiN nanolaminated coating.

CVD coated grades

	TM4000	Thread turning insert in optimising grade TM4000. Excellent wear resistance with superior edge toughness intended for high cutting speed in steel. Also suitable in difficult stainless steel. CVD coating $Ti(C,N) + Al_2O_3$ DURATOMIC®

Uncoated grades

	H15	First choice for machining normal to hard cast iron. Also suitable for hard steel with a hardness in excess of 350 HB. Micrograin with excellent wear-resistance and sharp edge.

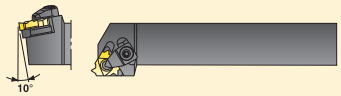
Thread turning – Toolholders

Use the guidelines below to choose a suitable toolholder type.

External threading

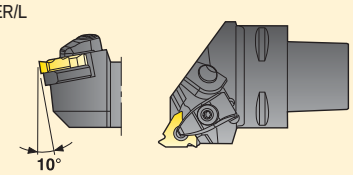
Basic choice
Type C (clamp)

CER/L



Insert size
16, 20, 22, 26, 27
With insert shim

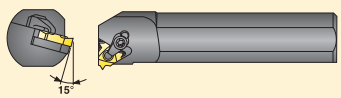
Cx-CER/L



Internal threading

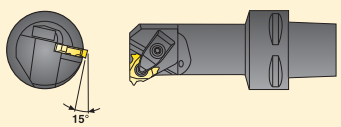
Basic choice
Type C (clamp)

CNR/L



Insert size
16, 20, 22, 26, 27
With insert shim

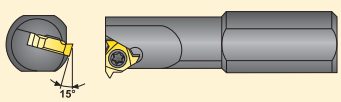
Cx-CNR/L



N.B. On 27 mm inserts this angle is 10°

For small holes
Type-S (screw)

SNR/L



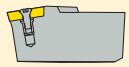
Insert sizes
09,11,16, 22

(No insert shim. To be used only when threading towards the chuck)

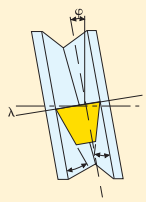
Thread turning – Insert shim

Originally fitted insert shims

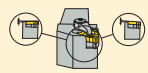
The table below shows the originally fitted insert shims. These insert shims are suitable for most operations when threading towards the chuck.

Toolholder		Clamp  External and internal threading		Screw  Internal threading
Insert type		Single-tooth insert (Type S)	Single-tooth insert (Type K)	Single-tooth insert (Type S)
Insert shim				No insert shim (λ=2°)
Insert size	16	GX 16-1		
	20		KX 20-2	
	22	NX22-1		
	26		KX26-2	
	27	VX27-1		

To receive the correct shape on the thread and uniform wear on the insert the cutting edge helix angle (λ) should be equal to the thread lead angle (φ).



The helix angle can be selected from +5 to -2 by changing the insert shim. The same insert shims are used for both right and left hand holders. The centre height remains constant.



SNR/L toolholders have no exchangeable insert shim and can therefore only be used for threading towards the chuck. The table below shows the available insert shim range.

Insert shim range

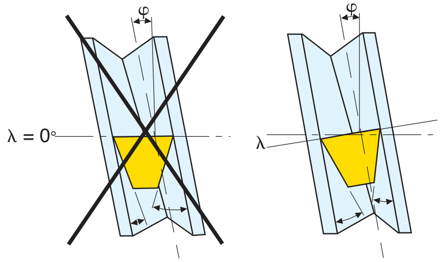
Toolholder		Clamp  External and internal threading				
Insert type		Multi-tooth insert (Type M)	Single-tooth insert (Type S)		Single-tooth insert (Type K)	
Insert shim						
		Threading towards the chuck	Threading towards the chuck	Threading away from the chuck	Threading towards the chuck	Threading away from the chuck
Insert size	16	MX16-1	GX16-0, -1, -2, -3, -4	GX16-0 -99 -98		
	20				KX20-0, -1, -2, -3, -4, -5	KX20-0 -99
	22	MX22-1	NX22-0, -1, -2, -3, -4	NX22-0 -99 -98		
	26				KX26-0, -1, -2, -3, -4, -5	KX26-0 -99
	27	MX27-1	VX27-0, -1, -2, -3, -4	VX27-0 -99 -98		

The helix angle (λ) can also be calculated. See page for formulae.

SECO

Choice of insert shim

Use the graph below to choose the correct insert shim.
The graph gives the last digit in the insert shim code.
Example: GX16-1



Production method

Threading towards the chuck, use right side of the graph.
Threading away from the chuck, use left side of the graph.

Vertical column - lead

Thread with one start, Lead (Ph) = pitch (P).
Thread with several starts, Lead (Ph) = pitch (P) x number of starts.

Horizontal column = pitch diameter (D_2)

Threading away from the chuck

		Pitch diameter D_2 (mm) – threading away from the chuck																																						TPI	P_h mm
		5	15	20	25	30	40	45	50	60	65	70	75	85	90	95	100	110	115	120	130	135	140	150	155	160	165	170	180	190	200	225	250	300									
–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99					0	0	1	80	–
–	3	–	–	–	–	–	–	–	–	–	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99				0	0	0	1	72	–
8,0	–	–	–	–	–	–	–	–	–	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0			0	0	0	0	1	64	–
–	4	–	–	–	–	–	–	–	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0			0	0	0	0	1	2	56	–
6,0	–	–	–	–	–	–	–	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0				0	0	0	0	1	2	–	0,5
–	5	–	–	–	–	–	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0				0	0	0	0	0	1	2	48	–
5,0	–	–	–	–	–	–	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0				0	0	0	0	0	1	1	2	44	–
–	6	–	–	–	–	–	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0					0	0	0	0	0	0	1	1	2	40	–
4,0	–	–	–	–	–	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0					0	0	0	0	0	1	1	1	3	36	–
–	7	–	–	–	–	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0					0	0	0	0	0	0	1	1	1	3	–	0,75
3,5	–	–	–	–	–	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0					0	0	0	0	0	0	0	1	1	1	3	32	–
–	8	–	–	–	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0				0	0	0	0	0	0	0	1	1	1	1	3	28	–
3,0	–	–	–	–	98	98	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	4	–	1,0
–	9	–	–	–	98	98	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	4	24	–
–	10	–	–	98	98	98	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	2	5	–	1,25
2.5	–	–	–	98	98	98	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	2	5	20	–
–	11	–	–	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	5	18	–
–	12	–	–	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	5	–	1,5
2,0	–	–	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	–	16	–
–	13	–	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2	–	–	1,75
–	14	–	98	98	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	2	–	14	–
1,75	–	–	98	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	–	13	–
–	16	–	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	–	–	2,0
1,5	–	–	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3	–	12	–
–	18	–	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3	–	11	–
–	20	–	98	99	99	99	99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	3	–	–	2,5
1,25	–	–	98	99	99	99	99	99	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	3	–	10	–
–	24	–	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	–	9	–
1,0	–	–	99	99	99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	–	–	3,0
–	28	–	99	99	99	99	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	–	8	–
–	32	–	99	99	99	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	4	–	–	3,5
0,75	–	–	99	99	99	0	0	0	0	0	0	0			0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	4	–	7	–
–	36	–	99	99	0	0	0	0	0	0	0				0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5	–	–	4,0
–	40	98	99	99	0	0	0	0	0	0				0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	5	–	6	–
–	44	98	99	0	0	0	0	0	0				0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	4	5	–	–	–	5,0
–	48	98	99	0	0	0	0	0				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	4	5	–	–	5	–
0,5	–	98	99	0	0	0	0				0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	4	4	5	–	–	–	6,0
–	56	98	99	0	0	0	0			0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	4	5	–	–	–	4	–
–	64	99	0	0	0	0			0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	4	5	–	–	–	–	–	8,0
–	72	99	0	0					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	4	5	–	–	–	–	3	–
–	80	99	0						1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5	–	–	–	–	–	–		–
P_h mm	TPI								300	250	225	200	190	180	170	165	160	155	150	140	135	130	120	115	110	100	95	90	85	75	70	65	60	50	45	40	30	25	20	15	5		
									Pitch diameter D_2 (mm) – threading towards the chuck																																		

Threading towards the chuck

SMG version 2 – Introduction

The foundation for SMG v2 is a classification of workpiece materials based on their type rather than their relative machinability and consequently it contains workpiece materials like composites. It is comprehensive enough, but still easy to identify to which SMG a particular material belongs.

Each SMG has a specific material standard in a specific condition assigned as reference to allow easy adjustment of cutting data for any actual material compared to any Seco reference material see page xxx.

As example the reference materials EN C45E for SMG P4 and EN 42 CrMo 4 for both SMG P5 and SMG H5 see further details in the following tables.

In SMG v2 classification of workpiece materials involves a specific material standard in a specific condition assigned as reference for easy and unambigious adjustment of cutting data for any actual material compared to any Seco reference material. As examples the reference materials EN C45E for SMG P4 and EN 42 CrMo 4 for both SMG P5 and SMG H5 shown below in table 1 where the reference level material property is indicated.

SMG	Description	Properties	Reference
P4	Low alloy general structural steels, 0.25% < C < 0.67%wt Low alloy Quench & Temper steels	520 < R_m < 1200	C 45E R_m = 660 N/mm^2
P5	Structural steels, 0.25% < C < 0.67%wt Quench & Temper steels	550 < R_m < 1200	42 CrMo 4 R_m = 700 N/mm^2

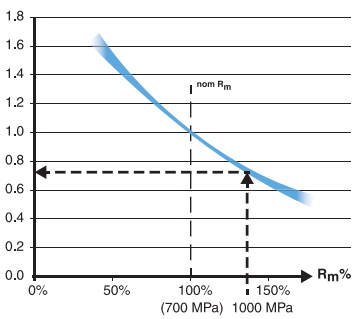
SMG	Description	Properties	Reference
H5	Quenched & Tempered steels	38 < HRC < 56	42 CrMo 4 50 HRC

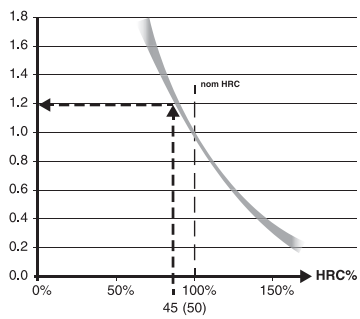
Focusing specifically on EN 42 CrMo 4 in annealed condition, the ultimate tensile strength R_m may typically vary between Rm = 630 N/mm^2 and R_m = 780 N/mm^2, which provide a reference level for SMG P5. In Quenched & Tempered condition, the ultimate tensile strength R_m may typically be between R_m = 900 N/mm^2 and R_m = 1100 N/mm^2 thus still belongs to SMG P5. However, if hardened above R_m = 1200 N/mm^2 it now belongs to SMG H5.

SMG	EN	W.-Nr	AFNOR	BS	UNI	JIS	AISI / ASTM	GOST	Condition	R_{m_nom}	HRC_{nom}
P5	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Annealed	700	
	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Quenched & Tempered	1000	
H5	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Quenched & Tempered		45
	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Quenched & Tempered		50

The EN 42CrMo4 quench & tempered steel could be used to illustrate the machinability dependence of materials' condition.

The graphs below indicate how speed recommendations for a nominal material conditions may be adjusted for relative R_m (left diagram valid for ISO-P) and for relative HRC (valid for ISO-H).





To further illustrate how the SMG v2 SMG P5 nominal v_c can be adjusted to a more accurate recommended v_c we need ultimate tensile strength R_m data and in this case we use the EN 42 CrMo 4 quenched & tempered to R_m = 1000 N/mm^2 according to above table (bold blue arrows).

Assume that we find that the SMG P5 nominal v_c = 280 m/min for a certain product and machining.

Then, actual recommended v_c = 280 m/min x 0,75 = 210 m/min.

Consequently in the SMG H5 the nominal v_c can be adjusted using the hardened EN 42 CrMo 4 at HRC 45 (smaller grey arrows).

Assume that the SMG H5 nominal v_c = 50 m/min for a certain product and machining using a coated cemented carbide tool then, actual recommended v_c = 50 m/min x 1,2 = 60 m/min.

Note that when using PCBN tools cutting data recommendation starts at page xxx.

For further workpiece material details please see page(s) xxx and suggested cutting data at applicable pages.

For more convenient cutting data handling we recommend applicable tools in My Pages – Suggest on www.secotools.com

Thread turning – Cutting data

Cutting speed

Use the SMG tables to classify the workpiece material.
Use the table below to choose cutting speed.

SMG	v_c					
	CP200	CP300	CP500	TP1030	H15	TM4000
P1	—	275	205	205	—	355
P2	—	270	200	200	—	345
P3	—	230	170	170	—	295
P4	—	205	150	150	—	260
P5	—	195	145	145	—	250
P6	—	220	165	165	—	280
P7	—	205	155	155	—	265
P8	—	195	145	145	—	250
P11	—	200	150	150	—	255
M1	150	—	135	135	100	110
M2	120	—	110	110	80	90
M3	90	—	85	85	60	70
M4	70	—	65	65	—	50
M5	55	—	50	50	—	43
K1	130	—	120	120	105	—
K2	110	—	105	105	95	—
K3	95	—	90	90	80	—
K4	90	—	85	85	75	—
K5	55	—	50	50	—	—
K6	80	—	75	75	—	—
K7	70	—	65	65	—	—
N1	—	—	—	—	255	—
N2	—	—	—	—	165	—
N3	—	—	—	—	110	—
N11	—	—	—	—	150	—
S1	20	—	20	—	—	—
S2	15	—	15	—	—	—
S3	15	—	15	—	—	—
S11	46	—	39	—	—	—
S12	35	—	30	—	—	—
S13	27	—	23	—	—	—

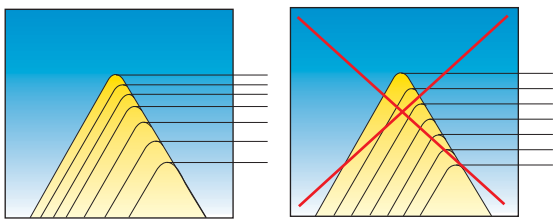
Cutting speeds (v_c) in the table are recommendations for a start value.
Due to machine, material and setup condition it is advisable to optimize cutting data.
Recommended ranges to use for each grade is
CP200, CP300,CP500 and H15 +/-15%
TP1030 and TM4000 +15/-30%

SMG=Seco Material Group
v_c = Cutting speed (m/min)

Note that there is a fixed relationship between rotational speed and feed rate in threading. Check that the chosen cutting speed does not result in a too high feed speed.

Number of passes and infeed depths

A thread cannot be made in one cut because of the relatively brittle cutting edge. The total cutting depth must be divided into several passes. Those passes should all have similar cutting forces (equal chip areas), see figures.



Use the tables on page 18-22 to find recommendations for number of passes and infeed depths. The tables give basic recommendations and are applicable on all geometries - Original, A, A1 and A2.

- The infeed series given is based on a good control of the OD/ID tolerances for the selected profile.
- If insert fracture should occur, the number of passes should be increased.
- The infeed depth should not be less than 0,05 mm/pass.
- On stainless steel, the infeed depth per pass should be greater than 0,08 mm.
- The recommendations can also be used for part-profile inserts. The number of passes should then, in most cases, be increased.
- The threading insert nose radius is relatively small and can easily be damaged if it is overloaded.

Seco Threading Wizard™

In order to simplify the selection of tools and cutting parameters Seco introduced the Threading Wizard software, which eliminates complicated programming and calculations.
The Wizard selects the optimum holder and insert, identifies the best operating parameters and then downloads the information to the CNC machine.
The infeed series generated are based on a good control of the OD/ID tolerance for the selected profile. The insert nose radius is relatively small and can be damaged if it is overloaded. The Threading Wizard is free and available at www.Seco Tools/Customer zone/Threading Wizard.

Cutting speed – MDT

Use the SMG tables to classify the workpiece material.
Use the table below to choose cutting speed.

SMG	v_c		
	CP500		
P1	150		
P2	145		
P3	130		
P4	115		
P5	110		
P6	125		
P7	115		
P8	110		
P11	115		
M1	125		
M2	110		
M3	100		
M4	85		
M5	70		
K1	135		
K2	105		
K3	90		
K4	85		
K5	55		
K6	85		
K7	70		
N11	85		
S1	20		
S2	17		
S3	15		

SMG = Seco Material Group
v_c = m/min
Cutting speeds (v_c) in the table are recommendations for a start value.
Due to machine, material and setup condition it is advisable to optimize cutting data. Recommended ranges to use for CP500 +/-15%

Cutting speed – Mini Shaft

Use the SMG tables to classify the workpiece material.
Use the table below to choose cutting speed.

SMG	v_c		
	CP500		
P1	150		
P2	150		
P3	130		
P4	115		
P5	110		
P6	120		
P7	115		
P8	110		
P11	110		
M1	90		
M2	65		
M3	41		
M4	27		
M5	22		
K1	160		
K2	130		
K3	110		
K4	105		
K5	65		
K6	105		
K7	85		
N11	95		
S1	18		
S2	15		
S3	13		

SMG = Seco Material Group
v_c = m/min
Cutting speeds (v_c) in the table are recommendations for a start value.
Due to machine, material and setup condition it is advisable to optimize cutting data. Recommended ranges to use for CP500 +/-15%

Number of passes and infeed depths

External ISO-metric threads

Ph	6.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	0.80	0.75	0.50
a_p	3,82	3,52	3,19	2,87	2,53	2,23	1,92	1,60	1,25	1,13	0,93	0,81	0,65	0,52	0,48	0,33
1	0,46	0,43	0,41	0,37	0,34	0,34	0,28	0,27	0,24	0,22	0,22	0,21	0,18	0,17	0,16	0,11
2	0,43	0,40	0,39	0,34	0,32	0,31	0,26	0,24	0,22	0,20	0,20	0,17	0,16	0,15	0,14	0,09
3	0,35	0,32	0,32	0,28	0,25	0,25	0,21	0,20	0,18	0,17	0,17	0,14	0,12	0,12	0,11	0,07
4	0,30	0,28	0,27	0,24	0,22	0,21	0,18	0,17	0,16	0,14	0,14	0,11	0,11	0,08	0,07	0,06
5	0,29	0,26	0,24	0,22	0,20	0,18	0,16	0,15	0,14	0,12	0,12	0,10	0,08	–	–	–
6	0,26	0,24	0,24	0,22	0,18	0,18	0,15	0,15	0,12	0,10	0,08	0,08	–	–	–	–
7	0,24	0,21	0,22	0,20	0,17	0,16	0,14	0,12	0,11	0,10	–	–	–	–	–	–
8	0,23	0,20	0,20	0,18	0,15	0,15	0,13	0,11	0,08	0,08	–	–	–	–	–	–
9	0,22	0,19	0,19	0,17	0,14	0,14	0,12	0,11	–	–	–	–	–	–	–	–
10	0,19	0,18	0,18	0,16	0,13	0,12	0,11	0,08	–	–	–	–	–	–	–	–
11	0,18	0,17	0,16	0,14	0,12	0,11	0,10	–	–	–	–	–	–	–	–	–
12	0,16	0,15	0,15	0,13	0,12	0,08	0,08	–	–	–	–	–	–	–	–	–
13	0,15	0,14	0,12	0,12	0,11	–	–	–	–	–	–	–	–	–	–	–
14	0,13	0,13	0,10	0,10	0,08	–	–	–	–	–	–	–	–	–	–	–
15	0,13	0,12	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	0,10	0,10	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Internal ISO-metric threads

Ph	6.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.75	1.5	1.25	1.0	0.80	0.75	0.50
a_p	3,54	3,25	2,96	2,65	2,33	2,05	1,78	1,48	1,17	1,05	0,85	0,75	0,60	0,49	0,46	0,31
1	0,46	0,43	0,42	0,37	0,34	0,32	0,28	0,26	0,23	0,22	0,20	0,17	0,17	0,17	0,16	0,10
2	0,43	0,40	0,40	0,34	0,31	0,30	0,26	0,25	0,21	0,20	0,18	0,17	0,15	0,14	0,13	0,08
3	0,35	0,33	0,32	0,28	0,24	0,24	0,21	0,18	0,17	0,15	0,15	0,14	0,11	0,11	0,10	0,07
4	0,30	0,26	0,26	0,23	0,21	0,19	0,16	0,15	0,15	0,13	0,13	0,10	0,09	0,07	0,07	0,06
5	0,26	0,22	0,22	0,21	0,18	0,17	0,14	0,13	0,12	0,10	0,11	0,09	0,08	-	-	-
6	0,22	0,20	0,20	0,19	0,15	0,15	0,13	0,12	0,11	0,09	0,08	0,08	-	-	-	-
7	0,20	0,18	0,17	0,16	0,14	0,14	0,12	0,11	0,10	0,08	-	-	-	-	-	-
8	0,19	0,17	0,16	0,15	0,13	0,13	0,11	0,10	0,08	0,08	-	-	-	-	-	-
9	0,18	0,16	0,16	0,14	0,12	0,12	0,10	0,10	-	-	-	-	-	-	-	-
10	0,16	0,15	0,15	0,13	0,12	0,11	0,10	0,08	-	-	-	-	-	-	-	-
11	0,15	0,14	0,14	0,12	0,11	0,10	0,09	-	-	-	-	-	-	-	-	-
12	0,15	0,14	0,14	0,12	0,10	0,08	0,08	-	-	-	-	-	-	-	-	-
13	0,14	0,13	0,12	0,11	0,10	-	-	-	-	-	-	-	-	-	-	-
14	0,13	0,12	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-		-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

External/Internal Whitworth threads

TPI	4.0	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	26	28
a_p	4,29	3,82	3,44	2,90	2,50	2,17	1,93	1,76	1,58	1,45	1,20	1,13	1,01	0,96	0,92	0,72	0,69
1	0,49	0,46	0,45	0,38	0,37	0,32	0,30	0,29	0,28	0,28	0,24	0,24	0,23	0,22	0,21	0,19	0,18
2	0,46	0,43	0,43	0,36	0,35	0,30	0,28	0,27	0,26	0,26	0,22	0,22	0,22	0,22	0,21	0,18	0,17
3	0,38	0,38	0,38	0,30	0,29	0,24	0,23	0,22	0,22	0,22	0,18	0,19	0,19	0,18	0,17	0,15	0,14
4	0,36	0,33	0,32	0,26	0,25	0,21	0,20	0,19	0,19	0,18	0,15	0,16	0,16	0,14	0,14	0,12	0,12
5	0,34	0,29	0,28	0,22	0,22	0,19	0,18	0,17	0,16	0,16	0,13	0,13	0,13	0,12	0,11	0,08	0,08
6	0,31	0,25	0,25	0,21	0,19	0,17	0,15	0,15	0,14	0,14	0,11	0,11	0,08	0,08	0,08	-	-
7	0,29	0,24	0,22	0,19	0,18	0,15	0,14	0,14	0,13	0,13	0,09	0,08	-	-	-	-	-
8	0,27	0,22	0,20	0,17	0,16	0,14	0,13	0,13	0,12	0,08	0,08	-	-	-	-	-	-
9	0,24	0,20	0,19	0,16	0,15	0,13	0,12	0,12	0,08	-	-	-	-	-	-	-	-
10	0,22	0,18	0,18	0,15	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-
11	0,20	0,17	0,17	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-	-
12	0,19	0,16	0,15	0,14	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-
13	0,17	0,15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,15	0,14	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Ph = Lead (mm)
a_p = Total infeed depth (mm)
TPI = Threads per inch
Recommendations are for steel with a hardness < 300 HB

Number of passes and infeed depths

External UN threads

TPI	4.0	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
a_p	4,07	3,62	3,29	2,71	2,33	2,08	1,84	1,66	1,52	1,39	1,29	1,19	1,05	0,94	0,84	0,70	0,60	0,53
1	0,47	0,45	0,43	0,36	0,35	0,30	0,28	0,27	0,27	0,27	0,25	0,23	0,22	0,23	0,20	0,19	0,17	0,17
2	0,44	0,41	0,40	0,34	0,33	0,28	0,26	0,26	0,25	0,26	0,24	0,22	0,21	0,21	0,19	0,17	0,15	0,15
3	0,40	0,39	0,36	0,27	0,26	0,25	0,21	0,20	0,20	0,20	0,18	0,17	0,16	0,16	0,15	0,14	0,11	0,13
4	0,36	0,31	0,31	0,23	0,22	0,21	0,20	0,17	0,19	0,18	0,17	0,15	0,14	0,14	0,12	0,12	0,09	0,08
5	0,32	0,26	0,26	0,22	0,21	0,18	0,17	0,16	0,16	0,15	0,14	0,13	0,13	0,12	0,10	0,08	0,08	-
6	0,27	0,23	0,23	0,20	0,19	0,16	0,15	0,15	0,14	0,13	0,12	0,11	0,11	0,08	0,08	-	-	-
7	0,25	0,21	0,20	0,18	0,17	0,14	0,14	0,14	0,12	0,12	0,11	0,10	0,08	-	-	-	-	-
8	0,23	0,20	0,19	0,16	0,15	0,13	0,12	0,12	0,11	0,08	0,08	0,08	-	-	-	-	-	-
9	0,22	0,18	0,19	0,15	0,14	0,12	0,12	0,11	0,08	-	-	-	-	-	-	-	-	-
10	0,21	0,17	0,18	0,14	0,12	0,12	0,11	0,08	-	-	-	-	-	-	-	-	-	-
11	0,19	0,16	0,17	0,13	0,11	0,11	0,08	-	-	-	-	-	-	-	-	-	-	-
12	0,18	0,15	0,15	0,12	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-	-
13	0,16	0,14	0,12	0,11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,15	0,14	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Internal UN threads

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

External multi-tooth inserts

	ISO Metric						UN					Whitworth		NPT		
Type	3M	2M	3M	2M	3M	2M	2M	3M	2M	3M	2M	2M		2M	3M	2M
Ph (mm)	1,0	1,5	1,5	2,0	2,0	3,0	–	–	–	–	–	–		–	–	–
TPI	–	–	–	–	–	–	16	16	12	12	8	11		11,5	11,5	8
a_p (mm)	0,65	0,93	0,93	1,25	1,25	1,92	1,05	1,05	1,39	1,39	2,08	1,58		1,76	1,76	2,54
Pass 1 (mm)	0,36	0,43	0,56	0,57	0,75	0,65	0,49	0,64	0,64	0,84	0,70	0,73		0,59	0,81	0,88
2	0,29	0,30	0,37	0,40	0,50	0,53	0,33	0,41	0,44	0,55	0,57	0,50		0,50	0,57	0,64
3	–	0,20	–	0,28	–	0,42	0,23	–	0,31	–	0,46	0,35		0,37	0,38	0,57
4	–	–	–	–	–	0,32	–	–	–	–	0,35	–		0,30	–	0,45

Internal multi-tooth inserts

	ISO Metric						UN					Whitworth		NPT		
Type	3M	2M	3M	2M	3M	2M	2M	3M	2M	3M	2M	2M		2M	3M	2M
Ph (mm)	1,0	1,5	1,5	2,0	2,0	3,0	–	–	–	–	–	–		–	–	–
TPI	–	–	–	–	–	–	16	16	12	12	8	11		11,5	11,5	8
a_p (mm)	0,60	0,85	0,85	1,17	1,17	1,78	0,93	0,93	1,25	1,25	1,88	1,58		1,76	1,76	2,54
Pass 1 (mm)	0,33	0,38	0,51	0,51	0,70	0,55	0,42	0,56	0,56	0,75	0,58	0,73		0,59	0,81	0,88
2	0,27	0,27	0,34	0,38	0,47	0,49	0,30	0,37	0,40	0,50	0,51	0,50		0,50	0,57	0,64
3	–	0,20	–	0,28	–	0,42	0,21	–	0,29	–	0,44	0,35		0,37	0,38	0,57
4	–	–	–	–	–	0,32	–	–	–	–	0,35	–		0,30	–	0,45

Number of passes and infeed depths

External/Internal NPT threads

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

External Round DIN 405

TPI	4	6	8	10
a_p	3,43	2,23	1,73	1,40
1	0,44	0,33	0,29	0,26
2	0,40	0,29	0,26	0,25
3	0,34	0,25	0,21	0,23
4	0,32	0,23	0,19	0,20
5	0,28	0,20	0,18	0,16
6	0,26	0,18	0,16	0,12
7	0,24	0,16	0,14	0,10
8	0,22	0,15	0,12	0,08
9	0,20	0,14	0,10	–
10	0,19	0,12	0,08	–
11	0,17	0,10	–	–
12	0,15	0,08	–	–
13	0,12	–	–	–
14	0,10	–	–	–

Internal Round DIN 405

TPI	4	6	8	10
a_p	3,59	2,44	1,66	1,49
1	0,46	0,38	0,26	0,27
2	0,43	0,34	0,22	0,26
3	0,40	0,30	0,21	0,25
4	0,35	0,25	0,19	0,22
5	0,30	0,21	0,18	0,18
6	0,26	0,19	0,16	0,13
7	0,24	0,17	0,14	0,10
8	0,22	0,16	0,12	0,08
9	0,20	0,14	0,10	–
10	0,19	0,12	0,08	–
11	0,17	0,10	–	–
12	0,15	0,08	–	–
13	0,12	–	–	–
14	0,10	–	–	–

TPI = Threads per Inch
a_p = Total infeed depth (mm)
Recommendations are for steel with a hardness < 300 HB

Number of passes and infeed depths

External TR thread

Ph	14.0	12.0	10.0	9.0	8.0	7.0	6.0	5.0	4.0	3.0	2.0	1.5
a_p	8,2	6,72	5,7	5,16	4,68	4,17	3,66	2,89	2,38	1,83	1,33	0,97
1	0,40	0,38	0,38	0,38	0,37	0,37	0,37	0,34	0,31	0,27	0,25	0,23
2	0,37	0,36	0,36	0,35	0,35	0,34	0,35	0,33	0,28	0,25	0,24	0,22
3	0,36	0,34	0,34	0,34	0,34	0,33	0,32	0,27	0,24	0,21	0,20	0,18
4	0,36	0,34	0,34	0,33	0,33	0,31	0,29	0,25	0,20	0,17	0,17	0,14
5	0,35	0,32	0,32	0,31	0,31	0,29	0,27	0,23	0,19	0,15	0,14	0,12
6	0,35	0,32	0,32	0,30	0,29	0,26	0,25	0,21	0,18	0,13	0,13	0,08
7	0,34	0,30	0,31	0,29	0,28	0,26	0,23	0,20	0,16	0,13	0,11	–
8	0,34	0,30	0,29	0,28	0,27	0,26	0,22	0,20	0,15	0,12	0,09	–
9	0,34	0,30	0,28	0,26	0,25	0,24	0,22	0,18	0,15	0,12	–	–
10	0,33	0,29	0,27	0,25	0,24	0,23	0,20	0,16	0,15	0,10	–	–
11	0,33	0,29	0,25	0,24	0,23	0,22	0,18	0,15	0,14	0,10	–	–
12	0,32	0,29	0,24	0,23	0,21	0,22	0,17	0,14	0,13	0,08	–	–
13	0,32	0,28	0,23	0,22	0,20	0,20	0,17	0,13	0,10	–	–	–
14	0,31	0,27	0,22	0,21	0,19	0,19	0,16	0,10	–	–	–	–
15	0,31	0,25	0,22	0,21	0,19	0,17	0,14	–	–	–	–	–
16	0,30	0,25	0,20	0,19	0,18	0,16	0,12	–	–	–	–	–
17	0,30	0,24	0,19	0,18	0,17	0,12	–	–	–	–	–	–
18	0,29	0,22	0,18	0,16	0,15	–	–	–	–	–	–	–
19	0,28	0,20	0,17	0,15	0,13	–	–	–	–	–	–	–
20	0,27	0,20	0,16	0,15	–	–	–	–	–	–	–	–
21	0,23	0,19	0,15	0,13	–	–	–	–	–	–	–	–
22	0,23	0,18	0,15	–	–	–	–	–	–	–	–	–
23	0,21	0,17	0,13	–	–	–	–	–	–	–	–	–
24	0,19	0,16	–	–	–	–	–	–	–	–	–	–
25	0,17	0,15	–	–	–	–	–	–	–	–	–	–
26	0,16	0,13	–	–	–	–	–	–	–	–	–	–
27	0,16	–	–	–	–	–	–	–	–	–	–	–
28	0,15	–	–	–	–	–	–	–	–	–	–	–
29	0,13	–	–	–	–	–	–	–	–	–	–	–

Internal TR threads

Ph	14.0	12.0	10.0	9.0	8.0	7.0	6.0	5.0	4.0	3.0	2.0	1.5
a_p	8,47	6,71	5,7	5,19	4,68	4,17	3,65	2,89	2,38	1,85	1,34	0,98
1	0,40	0,38	0,38	0,38	0,37	0,37	0,37	0,34	0,31	0,27	0,25	0,23
2	0,37	0,36	0,36	0,35	0,35	0,34	0,34	0,33	0,28	0,25	0,24	0,22
3	0,36	0,34	0,34	0,34	0,34	0,33	0,32	0,27	0,24	0,22	0,21	0,19
4	0,36	0,34	0,34	0,33	0,33	0,31	0,29	0,25	0,20	0,17	0,17	0,14
5	0,35	0,32	0,32	0,31	0,31	0,29	0,27	0,23	0,19	0,15	0,14	0,12
6	0,35	0,32	0,32	0,31	0,29	0,26	0,25	0,21	0,18	0,14	0,13	0,08
7	0,34	0,30	0,31	0,29	0,28	0,26	0,23	0,20	0,16	0,13	0,11	–
8	0,34	0,30	0,29	0,29	0,27	0,26	0,22	0,20	0,15	0,12	0,09	–
9	0,34	0,30	0,28	0,26	0,25	0,24	0,22	0,18	0,15	0,12	–	–
10	0,33	0,29	0,27	0,25	0,24	0,23	0,20	0,16	0,15	0,10	–	–
11	0,33	0,29	0,25	0,24	0,23	0,22	0,18	0,15	0,14	0,10	–	–
12	0,32	0,28	0,24	0,23	0,21	0,22	0,17	0,14	0,13	0,08	–	–
13	0,32	0,28	0,23	0,22	0,20	0,20	0,17	0,13	0,10	–	–	–
14	0,31	0,27	0,22	0,21	0,19	0,19	0,16	0,10	–	–	–	–
15	0,31	0,25	0,22	0,21	0,19	0,17	0,14	–	–	–	–	–
16	0,30	0,25	0,20	0,19	0,18	0,16	0,12	–	–	–	–	–
17	0,30	0,24	0,19	0,18	0,17	0,12	–	–	–	–	–	–
18	0,29	0,22	0,18	0,16	0,15	–	–	–	–	–	–	–
19	0,28	0,20	0,17	0,15	0,13	–	–	–	–	–	–	–
20	0,27	0,20	0,16	0,15	–	–	–	–	–	–	–	–
21	0,23	0,19	0,15	0,13	–	–	–	–	–	–	–	–
22	0,23	0,18	0,15	–	–	–	–	–	–	–	–	–
23	0,21	0,17	0,13	–	–	–	–	–	–	–	–	–
24	0,19	0,16	–	–	–	–	–	–	–	–	–	–
25	0,17	0,15	–	–	–	–	–	–	–	–	–	–
26	0,16	0,13	–	–	–	–	–	–	–	–	–	–
27	0,16	–	–	–	–	–	–	–	–	–	–	–
28	0,15	–	–	–	–	–	–	–	–	–	–	–
29	0,13	–	–	–	–	–	–	–	–	–	–	–
30	0,13	–	–	–	–	–	–	–	–	–	–	–

a_p = Total infeed depth (mm) Recommendations are for steel with a hardness < 300 HB

Number of passes and infeed depths, multi-tooth insert TWIN THREADER, TT

External 60° threads.

Ph (mm)	2.0	1.5	1.0
a_p (mm)	1,25	0,93	0,65
Pass 1 (mm)	0,25	0,22	0,22
2	0,36	0,31	0,25
3	0,25	0,22	0,18
4	0,21	0,18	–
5	0,18	–	–

Internal 60° threads

Ph (mm)	2.0	1.5	1.0
a_p (mm)	1,17	0,85	0,60
Pass 1 (mm)	0,23	0,20	0,19
2	0,34	0,27	0,23
3	0,23	0,20	0,18
4	0,19	0,18	–
5	0,18	–	–

External and internal Whitworth and BSPT threads

TPI	11	14
a_p (mm)	1,58	1,20
Pass 1 (mm)	0,26	0,22
2	0,38	0,35
3	0,27	0,24
4	0,25	0,21
5	0,22	0,18
6	0,20	–

External UN threads

TPI	12	16
a_p (mm)	1,39	1,05
Pass 1 (mm)	0,28	0,25
2	0,38	0,36
3	0,28	0,26
4	0,25	0,18
5	0,20	–

Internal UN threads

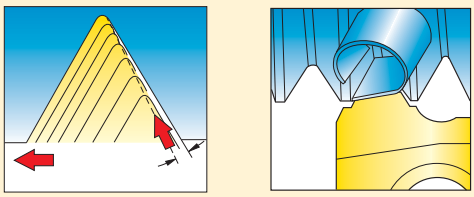
TPI	12	16
a_p (mm)	1,25	0,93
Pass 1 (mm)	0,24	0,21
2	0,35	0,32
3	0,25	0,22
4	0,22	0,18
5	0,19	–

Infeed method

The choice of infeed method is most important for long chipping materials to ensure good chip control.

Modified flank infeed

For CNC machines and conventional machines

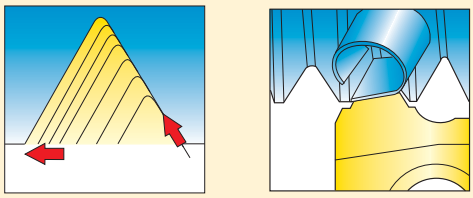


First choice for CNC machines
The infeed angle should be 2,5–5% less than the flank angle

- Good chip control (important for internal threading)
- Good surface finish on thread
- Long tool life

Flank infeed

For CNC machines and conventional machines

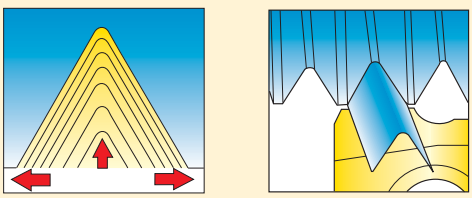


Choose flank infeed when modified flank infeed cannot be used

- Good chip control
- Can result in bad surface on thread
- Not suitable for work hardening materials

Radial infeed

For conventional machines and multi-tooth inserts

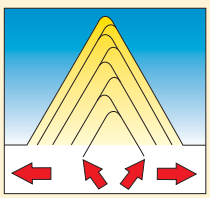


Multitooth inserts demand radial infeed
First choice for work hardening materials

- Difficult to control the chip
- High cutting forces

Alternate flank infeed

For CNC machines



First choice for large coarse threads

- Long tool life
- Chipbreaking problems can arise

Nomenclature and formulae

RPM

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

Cutting speed

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

Slide velocity/ feed rate

$$v_f = \frac{n \cdot P_h}{1000} \quad \text{(m/min)}$$

Lead

$$P_h = P \cdot \text{numbers of starts} \quad \text{(mm)}$$

Helix angle

$$\lambda = \arctan \frac{P_h}{D_2 \cdot \pi} \quad (°)$$

Conversion of P to TPI

$$TPI = \frac{25{,}4}{P}$$

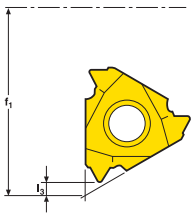
D_c	= Workpiece diameter (mm)
D_2	= Pitch diameter (mean diameter) (mm)
n	= RPM (rev/min)
P	= Pitch (mm)
P_h	= Lead (mm)
v_f	= Slide velocity (feed rate) (m/min)
TPI	= Number of threads per inch
v_c	= Cutting speed (m/min)
λ	= Helix angle (°)

Thread turning – Toolholder modifications to thread small ID

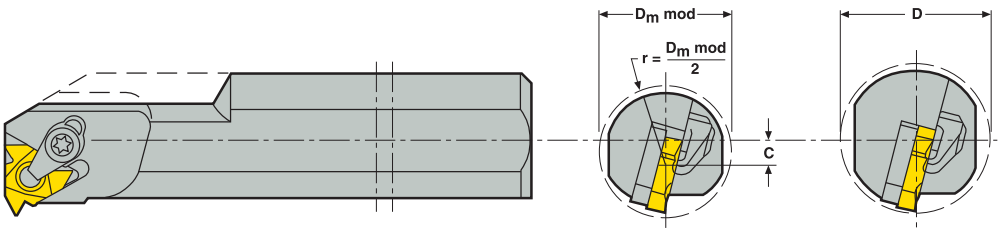
It is often necessary to cut internal threads which are too small to be made with a standard toolholder.
Several standard internal toolholders can be modified by a simple reworking so that threads can be cut in approximately 30% smaller bores.
This modification work can be made on an lathe with a four-jaw chuck. In the dimension table D_m min* at pages 'Toolholders Internal' you will find the dimensions required for the alteration.

On demand, these internal toolholders can also be supplied as special design.

For some holders it is possible to work inside smaller bores than indicated by the Dm mod dimension, here it is necessary "to back off" the bottom corner of the insert (possibly also the insert shim).



f_1 and l_3 dimensions can be found on the pages for internal toolholders (pages 40-43) and threading inserts (pages 54-85).



$$C = f_1 - l_3 + r - D_m mod$$

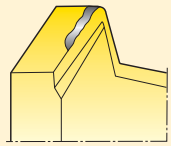
C = Centre-point displacement when modifying the tool.
D = Minimum bore diameter of standard tool.
$D_m$mod = Minimum bore diameter with a modified tool.

Thread turning – Troubleshooting

Troubleshooting

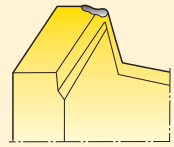
Rapid flank wear

- Reduce the cutting speed
- Increase the infeed per pass
- Use modified flank infeed
- Check that the correct insert shim has been selected
- Select a more wear-resistant grade



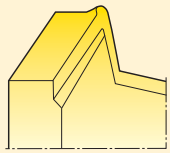
Insert fracture

- Increase the number of passes
- Check the workpiece mounting
- Check the centre height of the cutting edge
- Check for built-up edge
- Select a tougher grade



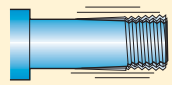
Plastic deformation

- Select a grade with better resistance to plastic deformation
- Reduce the cutting speed
- Increase the number of passes
- Increase the coolant supply
- Check that the workpiece diameter is correct prior to cutting the thread



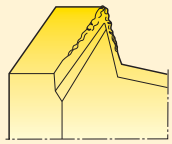
Vibrations

- Change the cutting speed
- Reduce the overhang and use the most stable toolholder
- Check the centre height of the cutting edge
- Check that the workpiece diameter is correct



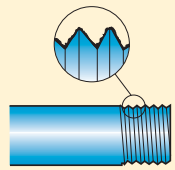
Build-up edge

- Increase the cutting speed
- Do not use coolant



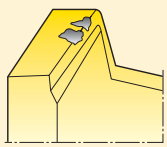
Poor finish

- Increase the cutting speed
- Check that the correct insert shim has been selected
- Use modified flank infeed or radial infeed



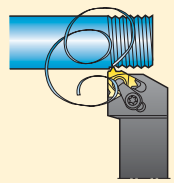
Edge chipping

- Check the workpiece mounting
- Check the cutting speed
- Use modified flank infeed
- Select a tougher grade



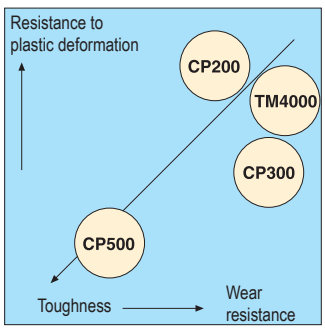
Poor chip control

- Reduce the number of passes
- Increase the cutting speed
- Use modified flank infeed
- Increase the coolant supply

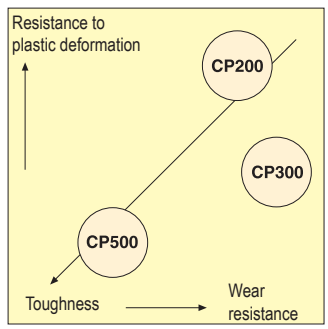


Optimisation

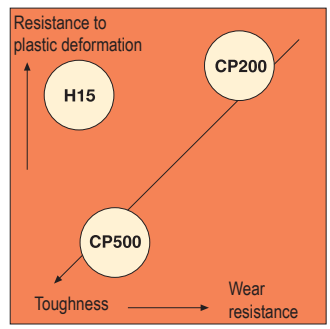
ISO-P (steel)



ISO-M (stainless steel)



ISO-K (cast iron)



Thread turning – Torque for clamping screws

Torque value for each insert locking screw is shown below

Screw designation	Torque Nm	Torque key
110.26-655	10,0	–
117.26-655	4,0	–
117.26-657	3,0	H00-2530
170.26-655	6,0	H00T-4060
C02205-T07P	0,9	T00-07P09
C02505-T07P	0,9	T00-07P09
C02506-T07P	0,9	T00-07P09
C03007-T09P	2,0	T00-09P20
C03508-T15P	3,0	T00-15P30
C03509-T15P	3,0	T00-15P30
C03510-T15P	3,0	T00-15P30
C03511-T09P	3,0	–
C03512-T15P	3,0	T00-15P30
C04008-T15P	3,5	T00-15P35
C04010-T15P	3,5	T00-15P35
C04011-T15P	3,5	T00-15P35
C04014-T15P	3,5	T00-15P35
C04512-T15P	5,0	T00-15P50
C04518-T15P	5,0	T00-15P50
C05010-T20P	5,0	T00-20P50
C05012-T15P	5,0	T00-15P50
C05013-T20P	5,0	T00-20P50
C05018-T20P	5,0	T00-20P50
C11804-T06P	0,5	T00-06P05
C46017-T20P	6,0	T00T-20P60
C82204-T06P	0,5	T00-06P05
CC05	0,9	H00-1509
CC08P-V13	2,0	T00-09P20
CC09P-D11	2,0	T00-09P20
CC12P-S12	3,5	T00-15P35
CC14	6,0	H00T-4060
CC16	10,0	–
CC17P	10,0	–
CC17P-06	10,0	–
CC17P-09	10,0	–
CC20P	10,0	–
CC20P-V13	10,0	–
CD09-S09	2,0	T00-09P20
CD12-S12	3,5	T00-15P35
CD16-C16	5,0	T00-20P50
CD19-S19	5,0	T00-20P50
CD19-V16	5,0	T00-20P50
CSC8015-T20P	5,0	T00-20P50
CSC1015-T20P	5,0	T00-20P50
CSP16-T15P	2,0	T00-15P20
CSP22-T25P	3,0	T00-15P30
CSP27-T25P	6,0	T00T-25P60

Screw designation	Torque Nm	Torque key
L85011-T15P	5,0	T00-15P50
L85017-T09P	2,0	T00-09P20
L85020-T15P	4,0	–
L86025-T20P	6,5	–
LD1035-T25P	6,0	T00T-25P60
LD5020-T09P	2,0	T00-09P20
LD6020-T15P	3,0	T00-15P30
LD6021-T09P	2,0	T00-09P20
LD6024-T20P	2,0	–
LD6025-T15P	3,0	T00-15P30
LD6026-T09P	2,0	T00-09P20
LD8025-T25P	6,0	T00T-25P60
LD8030-T25P	6,0	T00T-25P60
LS0512	2,5	–
LS0613	3,0	H00-2530
LS0616	3,0	H00-2530
LS0818	4,0	–
LS0822	4,0	–
MC6S4X14	3,5	–
MC6S4X18	3,5	–
MC6S5X14	5,0	H00T-4050
MC6S5X18	5,0	H00T-4050
MN0909L-T09P	2,0	T00-09P20
MN1215L-T15P	3,0	T00-15P30
MN1215R-T15P	3,0	T00-15P30
MN1215S-T15P	3,0	T00-15P30
MN1215T-T15P	3,0	T00-15P30
MN1515-T15P	3,0	T00-15P30
MN1515SL-T15P	3,0	T00-15P30
MN1520-T20P	6,0	T00T-20P60
MN1920-T20P	6,0	T00T-20P60
MN1925-T25P	5,0	T00T-25P50
MN2525-T25P	6,0	T00T-25P60
PL1403-T09P	2,5	T00-09P20
TCEI0409	3,5	–
TCEI0509	6,0	H00T-4060
TCEI0513	6,0	H00T-4060
TCEI0609	8,0	H00T-5080
TCEI0613	8,0	H00T-5080
TCEI0614	8,0	H00T-5080
TCEI0620	8,0	H00T-5080
TCEI0815	10,0	H00T-60100
TCEI0825	10,0	H00T-60100
TCEI1020	15,0	–
WS1620-T20P	3,5	T00-20P35
WS1920-T20P	3,5	T00-20P35
WS2325-T25P	5,0	T00T-25P50

For the whole Seco range of Torque key, please see next page.

Thread turning – Torque keys

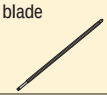
The range of Torque keys with fixed torque values are available in combinations of key grip/torque value for insert locking for most of the Seco products. By using a Torque key you always ensure the correct tightening force when mounting the insert. Torque keys are calibrated according to ISO 6789.

Code key: T00-15P35

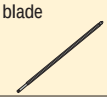
T00 = Torque screw driver type for Torx Plus blade
T00T= Torque T-handle type for Torx Plus blade
H00= Torque screw driver for hexagonal blade
H00T= Torque T-handle type for hexagonal blade

15P= Torx Plus size
35 = Torque value 3,5 Nm

Please observe that blades are not interchangeable between screw driver type and T-handle type.
Torx Plus® is a registered trade mark belonging to Camcar-Textron (USA)

Torque key* 	Replaceable blade 	Torque Plus size	Torque value
T00-06P05	T00-06P	T06P	0,5 Nm
T00-07P09	T00-07P	T07P	0,9 Nm
T00-08P12	T00-08P	T08P	1,2 Nm
T00-09P12	T00-09P	T09P	1,2 Nm
T00-09P20	T00-09P	T09P	2,0 Nm
T00-10P20	T00-10P	T10P	2,0 Nm
T00-10P30	T00-10P	T10P	3,0 Nm
T00-15P20	T00-15P	T15P	2,0 Nm
T00-15P30	T00-15P	T15P	3,0 Nm
T00-15P35	T00-15P	T15P	3,5 Nm
T00-15P50	T00-15P	T15P	5,0 Nm
T00-20P35	T00-20P	T20P	3,5 Nm
T00-20P50	T00-20P	T20P	5,0 Nm

Torque key* 	Replaceable blade 	Torque Plus size	Torque value
T00T-15P50	T00T-15P	T15P	5,0 Nm
T00T-20P50	T00T-20P	T20P	5,0 Nm
T00T-20P60	T00T-20P	T20P	6,0 Nm
T00T-20P80	T00T-20P	T20P	8,0 Nm
T00T-25P50	T00T-25P	T25P	5,0 Nm
T00T-25P60	T00T-25P	T25P	6,0 Nm
T00T-25P80	T00T-25P	T25P	8,0 Nm
T00T-30P80	T00T-30P	T30P	8,0 Nm

Torque key* 	Replaceable blade 	Hexagonal size	Torque value
H00-1305	H00-1.3	1,3 mm	0,5 Nm
H00-1505	H00-1.5	1,5 mm	0,5 Nm
H00-1509	H00-1.5	1,5 mm	0,9 Nm
H00-2009	H00-2.0	2,0 mm	0,9 Nm
H00-2016	H00-2.0	2,0 mm	1,6 Nm
H00-2020	H00-2.0	2,0 mm	2,0 Nm
H00-2512	H00-2.5	2,5 mm	1,2 Nm
H00-2530	H00-2.5	2,5 mm	3,0 Nm
H00-2535	H00-2.5	2,5 mm	3,5 Nm
H00-3020	H00-3.0	3,0 mm	2,0 Nm
H00-4030	H00-4.0	4,0 mm	3,0 Nm

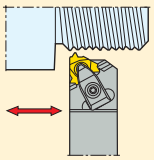
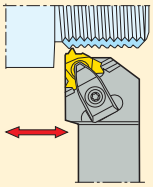
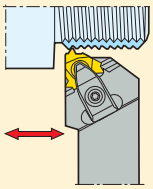
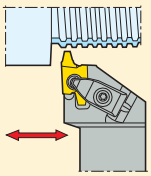
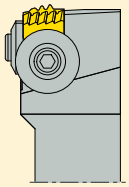
*Including blade

Torque key* 	Replaceable blade 	Hexagonal size	Torque value
H00T-3050	H00T-3.0	3 mm	5,0 Nm
H00T-4050	H00T-4.0	4 mm	5,0 Nm
H00T-4060	H00T-4.0	4 mm	6,0 Nm
H00T-5080	H00T-5.0	5 mm	8,0 Nm
H00T-60100	H00T-6.0	6 mm	10,0 Nm

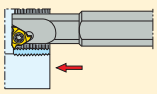
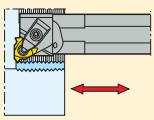
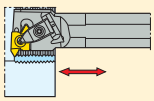
*Including blade

Thread turning – Application overview, toolholders

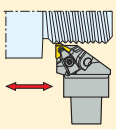
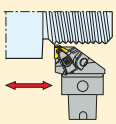
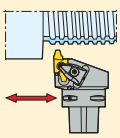
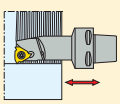
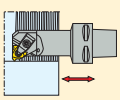
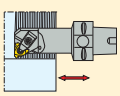
External toolholders

CER/L CER/L...HD	CER/L...Q CER/L...QHD	CER...CQHD	CER/L...QHD	CER
				
page 36	page 37	page 38	page 39	page 53

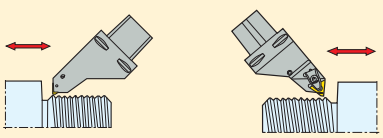
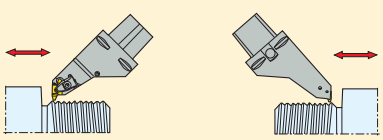
Internal toolholders

SNR/L SNR...A	CNR/L...AHD CNR/L...APIHD	CNR/L...AHD		
				
page 40	page 41-42	page 43		

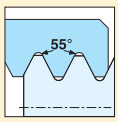
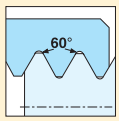
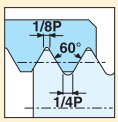
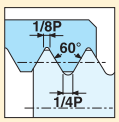
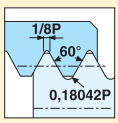
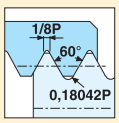
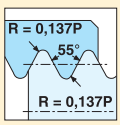
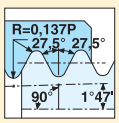
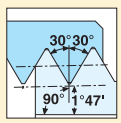
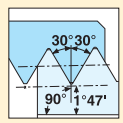
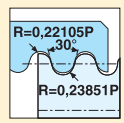
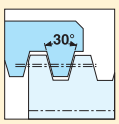
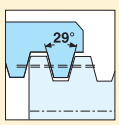
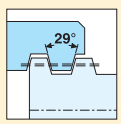
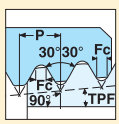
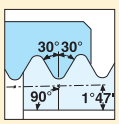
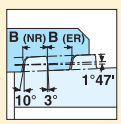
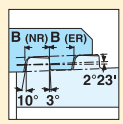
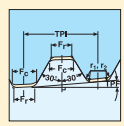
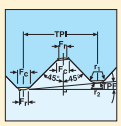
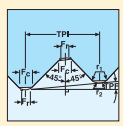
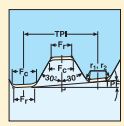
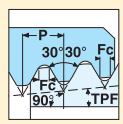
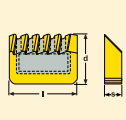
Seco-Capto™

CER/L-..HD Ext.	CER/L-..CHD Ext.	CER/L-..HD Ext.	SNR Int.	CNR/L-..HD Int.	CNR/L-..CHD Int.
					
page 44	page 45	page 46	page 47	page 47-48	page 49-50

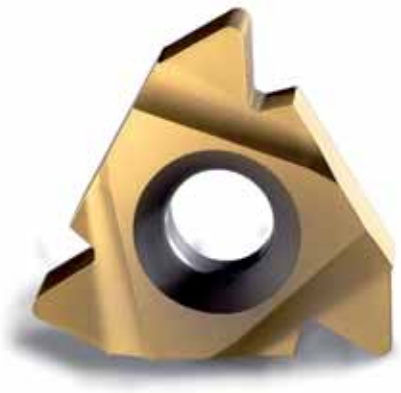
Seco-Capto™ for MTM

CER-..HD	CEL..HD
	
page 51	page 52

Thread turning – Application overview, inserts

Partial profile inserts	55° V profile  page 54-55	60° V profile  page 56-57			
Full profile inserts Reusable threaded joints	ISO metric  page 58-61	UN  page 62-65			
Full profile inserts Reusable threaded joints for the aero-space industry	UNJ  page 66	MJ  page 66	UNJ and MJ, internal use Standard internal UN and ISO M threading inserts can be used for internal UNJ and MJ. The correct turned diameter must be reached before commencing the threading operation.		
Full profile inserts Permanent threaded joints for pipe mountings and couplings	Whitworth, BSW  page 67-68	BSPT  page 69	NPT  page 70-71	NPTF  page 72	Round-DIN405  page 73
Partial profile inserts Motion-transmitting threads	TR-DIN103  page 74-75	ACME  page 76-77	Stub-ACME  page 78-79		
Full profile inserts Threads for the oil industry	API  page 80	API RD  page 81	VAM-API-Buttress 2.5  page 82	API-Buttress 2.6  page 83	Hughes Flush  page 84-85
Full profile inserts Threads for the oil industry	Hughes H90  page 84-85	Hughes Slimline H90  page 84-85	P.A.C  page 84-85	Chasers API/Gost  page 86	Chipformers for chasers  page 87

Seco Snap-Tap® Quality Assurance



1. Metallurgical control of substrate
- Check of substrate regarding Hc, MM and porosity
- Measured according to SPM
- Values stored in a database

2. Dimension check after sintering
- Measuring of IC and thickness
- Measured according to SPM
- Values stored in a database

3. Dimension control after bottom grinding
- Thickness and cutting edge height
- Flatness
- Measured according to SPM

4. Dimension control after grinding
- Profile and radius
- Measured according to SPM

5. Edge measuring
- Edge radius checked during honing
- Measured according to SPM
- Values stored in a database

6. Measuring of coating
- Coating, check of thickness and adhesion
- Measured according to SPM
- Values stored in a database

7. Final Inspection
- Visual Inspection
- Sampling in accordance to AQL

8. Production management system
- SGS (SPM1) - Control specifications
- LS - Production instructions
- Seco Act - System for preventive and corrective actions
- Approved to ISO 9001 and 14001 standard

9. Abbreviations
- LS - Local management Systems - contains local process descriptions, routines, procedures and instructions
- SGS - Seco Global Standards - consists of instructions common for all Seco companies
- SPM - Seco Production Manual - Part of SGS is a collection of instructions and documents with the purpose to guide and maintain the quality level of Seco products
- AQL - Accepted Quality Level (Mil-std)
- MM - Content of Tungsten in binder
- Hc - Coercivity, describing grainsize

Seco Chasers Quality Assurance

1. Metallurgical control of substrate
- Check of substrate regarding Hc, MM and porosity
- Measured according to SPM
- Values stored in a database

2. Dimension control after top and bottom grinding
- Thickness
- Roughness Ra
- Flatness
- Measured according to SPM

3. Measuring after periphery Grinding
- Optical measuring
- Data stored in a database

4. Dimension control after grinding
- Profile and radius
- Measured according to SPM

5. Edge measuring
- Edge radius checked during honing
- Measured according to SPM
- Values stored in a database

6. Measuring of coating
- Coating (PVD), check of thickness and adhesion
- Measured according to SPM
- Values stored in a database

7. Height classification
- Optical measuring of height
- Graphic presentation of values
- Sorted and labelled with height classification

8. Final inspection
- Edge inspection 100%
- Profile check with tolerance drawing, sampling in accordance to AQL

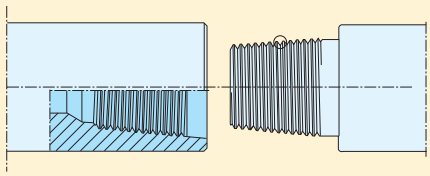
9. Traceability
- Finished products from each order saved for future reference
- Saved 5 years from production date
- Finished product has full traceability

10. Overlay drawings
- Printer for overlays is calibrated with glass scale monthly
- Scaled master printout is saved according to SPM

11. Production management System
- SGS (SPM1) - Control specifications
- LS - Production instructions
- Seco Act - System for preventive and corrective actions
- Approved to ISO 9001 and 14001 standard

12. Abbreviations
- LS - Local management Systems - contains local process descriptions, routines, procedures and instructions
- SGS - Seco Global Standards - consists of instructions common for all Seco companies
- SPM - Seco Production Manual - Part of SGS is a collection of instructions and documents with the purpose to guide and maintain the quality level of Seco products
- AQL - Accepted Quality Level (Mil-std)
- MM - Content of Tungsten in binder
- Hc - Coercivity, describing grainsize

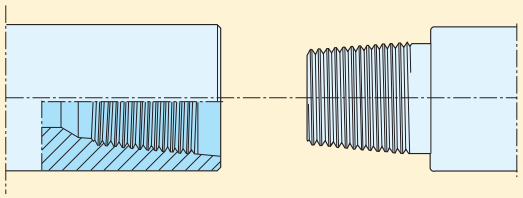
Rotary drilling connections



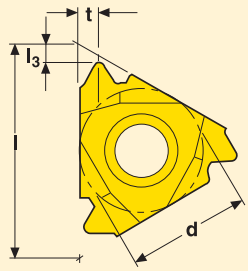
Connections	Pitch TPI	TPF	API code	Snap-Tap code
API Number				
NC10 - NC16	6,0	1,5	V055	6API558
NC23 - NC50	4,0	2,0	V038R	4API386
NC56 - NC77	4,0	3,0	V038R	4API384
API Regular				
1 - 1 1/2 REG	6,0	1,5	V055	6API558
2 3/8 REG - 4 1/2 REG	5,0	3,0	V040	5API404
5 1/2 REG, 7 5/8 REG, 8 5/8 REG	4,0	3,0	V050	4API504
6 5/8 REG	4,0	2,0	V050	4API506
Internal Flush				
2 3/8 IF - 6 5/8 IF	4,0	2,0	V038R	4API386
Full Hole				
3 1/2 FH, 4 1/2 FH	5,0	3,0	V040	5API404
4 FH	4,0	2,0	V038R	4API386
5 1/2 FH, 6 5/8 FH	4,0	2,0	V050	4API506
Hughes External Flush				
2 3/8, 2 7/8	6,0	2,0	–	6HEF
3 1/2, 4 1/2	4,0	2,0	V038R	4API386
Hughes Xtra Hole				
2 7/8 - 5	4,0	2,0	V038R	4API386
Hughes Slim Hole				
2 3/8 - 4 1/2	4,0	2,0	V038R	4API386
Hughes Double Streamline				
3 1/2 - 5 1/2	4,0	2,0	V038R	4API386
Hughes H90				
3 1/2 - 6 5/8	3,5	2,0	90V050	3.5H906
7 - 8 5/8	3,5	3,0	90V050	3.5H904
Hughes Slimline H90				
2 3/8 - 3 1/2	3,0	1,25	90V050	3H90
Hughes ACME Regular				
2 3/8 - 6 5/8	4,0	3,373	–	4HACME
Hughes ACME Streamline				
2 3/8 - 5 1/2	4,0	3,373	–	4HACME
P.A.C.				
2 3/8 PAC - 3 1/2 PAC	4,0	1,5	V076	4PAC
Macaroni				
MT, AMT, AMMT	6,0	1,5	V055	6API558

Rotary drilling connections

Connections

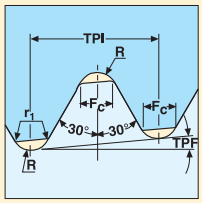
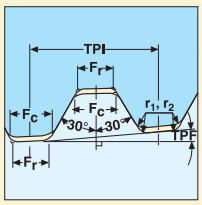
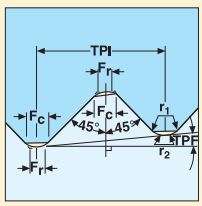
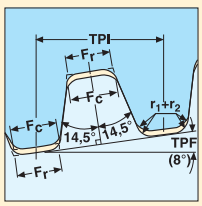


Insert dimensions



Connections				Dimensions in mm			
Snap-Tap code	API code	Pitch TPI	TPF	l	d	t	l_3
6API558	V055	6,0	1,5	22,0	12,700	2,5	2,0
5API404	V040	5,0	3,0	22,0	12,700	2,5	2,0
5API404	V040	5,0	3,0	27,5	15,875	3,2	2,2
4API386	V038R	4,0	2,0	22,0	12,700	2,5	1,9
4API386	V038R	4,0	2,0	27,5	15,875	3,2	2,2
4API384	V038R	4,0	3,0	27,5	15,875	3,2	2,2
4API506	V050	4,0	2,0	27,5	15,875	3,2	2,2
4API504	V050	4,0	3,0	27,5	15,875	3,2	2,2
6HEF	–	6,0	2,0	22,0	12,700	2,5	2,0
4PAC	V076	4,0	1,5	27,5	15,875	3,2	2,2
3,5H906	90V050	3,5	2,0	27,5	15,875	3,2	2,2
3,5H904	90V050	3,5	3,0	27,5	15,875	3,2	2,2
3H90	90V050	3,0	1,25	27,5	15,875	3,2	2,2
4HACME	–	4,0	3,373	27,5	15,875	3,2	2,2

Thread profile

Profile	TPI	TPF	Dimensions in mm				API code	Snap-Tap code
			R/F_r	F_c	r_1	r_2		
	5,0	3,0	0,508	1,016	0,381	–	V040	5API404
	4,0	2,0	0,965	1,651	0,381	–	V038R	4API386
	4,0	3,0	0,965	1,651	0,381	–	V038R	4API384
	4,0	2,0	0,635	1,270	0,381	–	V050	4API506
	4,0	3,0	0,635	1,270	0,381	–	V050	4API504
	6,0	1,5	1,194	1,397	0,381	0,381	V055	6API558
	6,0	2,0	0,559	0,813	0,381	0,381	–	6HEF
	4,0	1,5	1,702	1,930	0,381	0,381	V076	4PAC
	3,5	2,0	0,864	1,270	0,381	0,762	90V050	3,5H906
	3,5	3,0	0,864	1,270	0,381	0,762	90V050	3,5H904
	3,0	1,25	1,727	2,134	0,381	0,762	90V050	3H90
	4,0	3,373	2,253	2,388	0,787	0,787	–	4HACME

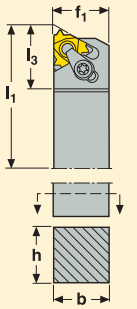
Thread turning – Toolholders, external

Toolholders for S-inserts

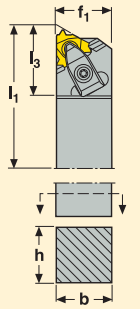
Snap-Tap®

- For inserts programme, see page(s) 54, 56, 58-59, 62-63, 66-67, 69-70, 72-74, 76, 78, 80-84

CER/L

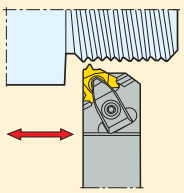


CER/L..HD



Right-hand version shown

Application



Part No.	Dimensions in mm h	b	l_1	f_1	l_3	KG	
CER 1616H16	16	16	100	16	22	0,2	16
2020K16HD	20	20	125	20	32	0,4	16
2525M16HD	25	25	150	25	32	0,8	16
4040R16HD	40	40	200	40	37	2,5	16
CEL 1616H16	16	16	100	16	22	0,2	16
2020K16HD	20	20	125	20	32	0,4	16
2525M16HD	25	25	150	25	32	0,8	16
CER 2525M22HD	25	25	150	25	38	0,8	22
4040R22HD	40	40	200	40	42	2,5	22
CEL 2525M22HD	25	25	150	25	38	0,8	22
CER 4040R27HD	40	40	200	40	44	2,5	27

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Cantilever clamp/ Locking key		Floating wedge clamp	Clamp screw	Spring	Locking key
...16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CSP16-T15P	T15P-2	–	–	–	–
...16HD	GX16-1	MX16-1	CS3507-T09P	T09P-2	–	–	CHD16	L85020-T15P	S6912	T15P-7
...22HD	NX22-1	MX22-1	CS4009-T15P	T15P-2	–	–	CHD22	L86025-T20P	S7616	T20P-7L
...27HD	VX27-1	MX27-1	C05012-T15P	T15P-2	–	–	CHD27	L86025-T20P	S7616	T20P-7L

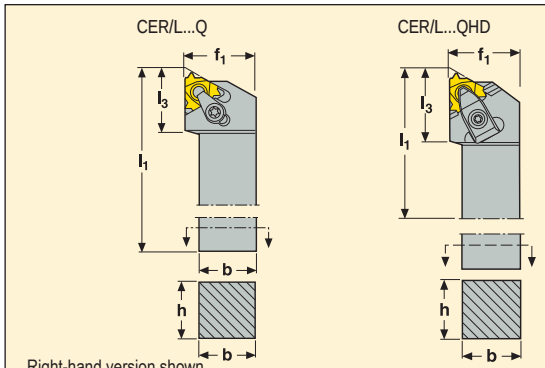
Please check availability in current price and stock-list

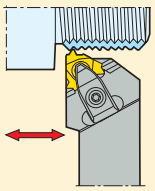
*To be ordered separately

Toolholders for S-inserts

Snap-Tap®

• For inserts programme, see page(s) 54, 56, 58-59, 62-63, 66-67, 69-70, 72-74, 76, 78, 80-84



Application	Part No.	Dimensions in mm h	b	l_1	f_1	l_3	KG	
								
	CER 1212H16Q	12	12	100	16	22	0,2	16
	1616H16Q	16	16	100	20	22	0,2	16
	2020K16QHD	20	20	125	25	32	0,5	16
	2525M16QHD	25	25	150	32	32	0,8	16
	3225P16QHD	32	25	170	32	32	1,1	16
	3232P16QHD	32	32	170	40	32	1,4	16
	CEL 1212H16Q	12	12	100	16	22	0,2	16
	1616H16Q	16	16	100	20	22	0,2	16
	2020K16QHD	20	20	125	25	32	0,5	16
	2525M16QHD	25	25	150	32	32	0,8	16
	3225P16QHD	32	25	170	32	32	1,1	16
	3232P16QHD	32	32	170	40	32	1,4	16
	CER 2525M22QHD	25	25	150	32	38	0,8	22
	3225P22QHD	32	25	170	32	38	1,2	22
	3232P22QHD	32	32	170	40	38	1,4	22
	CEL 2525M22QHD	25	25	150	32	38	0,8	22
	3225P22QHD	32	25	170	32	38	1,1	22
	3232P22QHD	32	32	170	40	38	1,4	22
	CER 2525M27QHD	25	25	150	32	46	0,8	27
	3225P27QHD	32	25	170	32	46	1,2	27
	3232P27QHD	32	32	170	40	46	1,5	27
	CEL 2525M27QHD	25	25	150	32	46	0,8	27
	3225P27QHD	32	25	170	32	46	1,2	27
	3232P27QHD	32	32	170	40	46	1,5	27

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Cantilever clamp/ Locking key		Floating wedge clamp	Clamp screw	Spring	Locking key
										
...16Q	GX16-1	MX16-1	CS3507-T09P	T09P-2	CSP16-T15P	T15P-2	–	–	–	–
...16QHD	GX16-1	MX16-1	CS3507-T09P	T09P-2	–	–	CHD16	L85020-T15P	S6912	T15P-7
...22QHD	NX22-1	MX22-1	CS4009-T15P	T15P-2	–	–	CHD22	L86025-T20P	S7616	T20P-7L
...27QHD	VX27-1	MX27-1	C05012-T15P	T15P-2	–	–	CHD27	L86025-T20P	S7616	T20P-7L

Please check availability in current price and stock-list

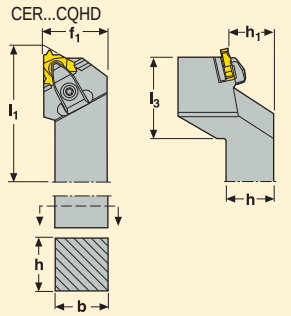
*To be ordered separately

Thread turning – Toolholders, external

Toolholders for S-inserts

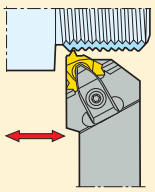
Snap-Tap®

- For inserts programme, see page(s) 54, 56, 58-59, 62-63, 66-67, 69-70, 72-74, 76, 78, 80-84



Right-hand version shown

Application



Part No.	Dimensions in mm h	b	l_1	h_1	f_1	l_3	KG	
CER 2525M16CQHD	25	25	150	25	32	45	0,9	16
3232P16CQHD	32	32	170	32	40	45	1,5	16
CER 2525M22CQHD	25	25	150	25	32	50	0,9	22
3232P22CQHD	32	32	170	32	40	50	1,5	22

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
..16CQHD	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	L85020-T15P	S6912	T15P-7
..22CQHD	NX22-1	MX22-1	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7L

Please check availability in current price and stock-list

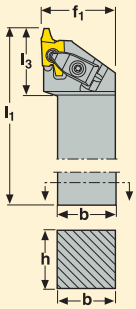
*To be ordered separately

Toolholders for K-inserts

Snap-Tap®

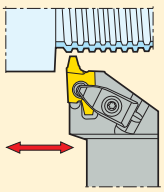
• For inserts programme, see page(s) 54-57, 74, 76, 78

CER/L..QHD



Right-hand version shown

Application



Part No.	h	b	l_1	f_1	l_3	KG	
	Dimensions in mm						
CER 2525M20QHD	25	25	150	32	34	0,8	20
3225P20QHD	32	25	170	32	34	1,1	20
3232P20QHD	32	32	170	40	34	1,4	20
4040R20HD	40	40	200	42	34	2,5	20
CEL 2525M20QHD	25	25	150	32	34	0,8	20
3225P20QHD	32	25	170	32	34	1,1	20
3232P20QHD	32	32	170	40	34	1,4	20
CER 2525M26QHD	25	25	150	40	44	0,9	26
3225P26QHD	32	25	170	40	44	1,2	26
3232P26QHD	32	32	170	40	44	1,4	26
4040R26HD	40	40	200	42	44	2,5	26
CEL 2525M26QHD	25	25	150	40	44	0,9	26
3225P26QHD	32	25	170	40	44	1,2	26
3232P26QHD	32	32	170	40	44	1,4	26

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (K)	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
...20HD/QHD	KX20-2	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7L
...26HD/QHD	KX26-2	C05012-T15P	T15P-2	CHD27	L86025-T20P	S7616	T20P-7L

Please check availability in current price and stock-list

*To be ordered separately

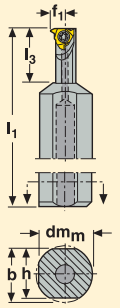
Thread turning – Toolholders, internal

Toolholders for S-inserts

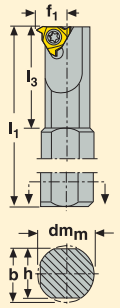
Snap-Tap®

- For inserts programme, see page(s) 55, 57, 60-61, 64-65, 68-69, 71-73, 75, 77, 79-83, 85

SNR...09A

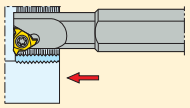


SNR/L



Right-hand version shown

Application



Part No.	dm_m	h	b	l_1	l_3	f_1	D_m min	D_m min*	KG	
	Dimensions in mm									
SNR 0020L09A	20	18	19,0	140	20	5,1	10,2	–	0,3	09
SNR 0010H11	10	–	9,5	100		7,5	13,0	11	0,1	11
0010K11	16	14	15,5	125	30	6,5	12,0	11	0,2	11
0013L11	16	14	15,5	140	32	8,0	15,0	13	0,2	11
SNL 0010H11	10	–	9,5	100		7,5	13,0	11	0,1	11
0010K11	16	14	15,5	125	30	6,5	12,0	11	0,2	11
0013L11	16	14	15,5	140	32	8,0	15,0	13	0,2	11
SNR 0016M16	16	14	15,5	150	40	10,3	19,0	16	0,3	16
SNL 0016M16	16	14	15,5	150	40	10,3	19,0	16	0,3	16
SNR 0020Q22	20	18	19,0	180	45	13,0	24,0	22	0,4	22
SNL 0020Q22	20	18	19,0	180	45	13,0	24,0	22	0,4	22

*D_m min, modified. Please see page 25, 25

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Locking screw/ Key		Coolant adapter*
...09A	C02205-T07P	T07P-2	SEAL20
...11	C02506-T07P	T07P-2	–
...16	C03508-T15P	T15P-2	–
...22	C04011-T15P	T15P-2	–

Please check availability in current price and stock-list

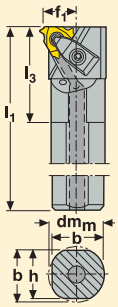
*To be ordered separately

Toolholders for S-inserts

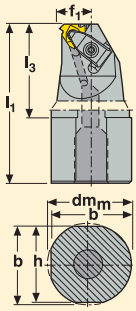
Snap-Tap®

- For inserts programme, see page(s) 55, 57, 60-61, 64-65, 68-69, 71-73, 75, 77, 79-83, 85

CNR/L...AHD

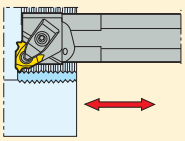


CNR/L...APIHD



Right-hand version shown

Application



Part No.		dm_m	h	b	l_1	l_3	f_1	D_m min	D_m min*	KG	
		Dimensions in mm									
CNR	0020P16AHD	20	18	19,0	170	41	13,8	24	–	0,4	16..
	0025R16AHD	25	23	24,0	200	40	16,3	29	26	0,7	16..
	0032S16AHD	32	30	31,0	250	47	19,8	36	32	1,4	16..
	0040T16AHD	40	37	38,5	300	47	23,8	44	40	2,6	16..
	0050U16AHD	50	47	48,5	350	45	28,8	54	50	4,8	16..
CNL	0020P16AHD	20	18	19,0	170	41	13,8	24	–	0,4	16..
	0025R16AHD	25	23	24,0	200	40	16,3	29	26	0,7	16..
	0032S16AHD	32	30	31,0	250	47	19,8	36	32	1,4	16..
	0040T16AHD	40	37	38,5	300	47	23,8	44	40	2,6	16..
CNR	0025R22AHD	25	23	24,0	200	45	17,8	30	–	0,7	22..
	0032S22AHD	32	60	31,0	250	46	21,3	38	32	1,5	22..
	0040T22AHD	40	37	38,5	300	53	25,3	46	40	2,6	22..
	0050U22AHD	50	47	48,5	350	51	30,3	56	–	4,8	22..
	0063V22AHD	63	60	61,5	400	56	36,8	69	63	9,0	22..
CNL	0025R22AHD	25	23	24,0	200	45	17,8	30	–	0,7	22..
	0032S22AHD	32	30	31,0	250	46	21,3	38	32	1,4	22..
	0040T22AHD	40	37	38,5	300	53	25,3	46	40	2,6	22..
	0050U22AHD	50	47	48,5	350	51	30,3	56	50	4,8	22..
CNR	0050T22APIHD	50	47	48,5	300	114	20,5	49,0	–	3,7	22..
	0063T22APIHD	63	60	61,5	300	119	22,6	50,5	–	5,4	22..
CNL	0063T22APIHD	63	60	61,5	300	119	22,6	50,5	–	5,4	22..

*D_m min, modified. Please see page 25, 25

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
...P16AHD, ...R16AHD	GX16-1	MX16-1	CS3507-T09P	T09P-2	CSP16HD-T15P	–	–	T15P-2
...S16AHD	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	L85020-T15P	S6912	T15P-2
...T16AHD, ...U16AHD	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	L85020-T15P	S6912	T15P-2
...R22AHD, ...S22AHD	NX22-1	MX22-1	CS4009-T15P	T15P-2	CSP22HD-T15P	–	–	T15P-2
...U22AHD, ...V22AHD	NX22-1	MX22-1	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7L
...T22APIHD	NX22-1	MX22-1	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7L

Please check availability in current price and stock-list

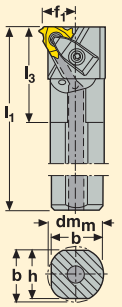
*To be ordered separately

Toolholders for S-inserts

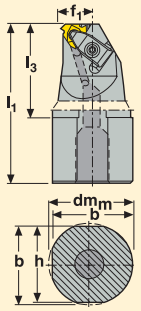
Snap-Tap®

- For inserts programme, see page(s) 60-61, 64, 73, 75, 77, 79-81, 85

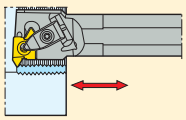
CNR/L...AHD



CNR/L... APIHD



Right-hand version shown

Application	Part No.	Dimensions in mm								KG	
		dm_m	h	b	l_1	l_3	f_1	D_m min	D_m min*		
	CNR 0040T27AHD	40	37	38,5	300	62	26,8	48	44	2,6	27..
	0050U27AHD	50	47	48,5	350	61	31,8	58	–	4,8	27..
	0063V27AHD	63	60	61,5	400	70	38,3	70	63	8,9	27..
	CNL 0040T27AHD	40	37	38,5	300	62	26,8	48	44	2,6	27..
	0050U27AHD	50	47	48,5	350	61	31,8	58	50	4,8	27..
	CNR 0063T27APIHD	63	60	61,5	300	119	23,1	50,5	–	5,6	27..
	CNL 0063T27APIHD	63	60	61,5	300	119	23,1	50,5	–	5,4	27..

*D_m min, modified. Please see page 25, 25

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
								
...27AHD	VX27-1	MX27-1	C05012-T15P	T15P-2	CHD27	L86025-T20P	S7616	T20P-7L

Please check availability in current price and stock-list

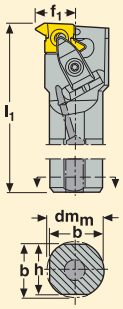
*To be ordered separately

Toolholders for K-inserts

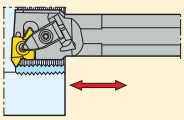
Snap-Tap®

• For inserts programme, see page(s) 54-57, 75, 77, 79

CNR/L...AHD



Right-hand version shown

Application	Part No.	Dimensions in mm								KG	
		dm_m	h	b	l_1	l_3	f_1	D_m min	D_m min*		
	CNR 0025R20AHD	25	23	24,0	200	50	20,5	38	–	0,7	20
	0032S20AHD	32	30	31,0	250	50	24,0	44	38	1,5	20
	0040T20AHD	40	37	38,5	300	50	28,0	51	40	2,6	20
	CNL 0025R20AHD	25	23	24,0	200	50	20,5	38	–	0,7	20
	0032S20AHD	32	30	31,0	250	50	24,0	44	38	1,4	20
	CNR 0032S26AHD	32	30	31,0	250	61	27,0	50	50	1,5	26
	0040T26AHD	40	37	38,5	300	60	31,0	55	50	2,6	26
	0050U26AHD	50	47	48,5	350	62	36,0	65	–	4,8	26
	0063V26AHD	63	60	61,5	400	64	42,5	80	63	8,9	26
	CNL 0040T26AHD	40	37	38,5	300	60	31,0	55	50	2,6	26

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (K)	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
...20HD/AHD	KX20-2	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7L
...26HD/AHD	KX26-2	C05012-T15P	T15P-2	CHD27	L86025-T20P	S7616	T20P-7L

Please check availability in current price and stock-list

*To be ordered separately

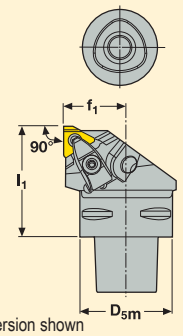
Thread turning, Seco-Capto™ - Toolholders, external

Toolholders for S-inserts

Snap-Tap®

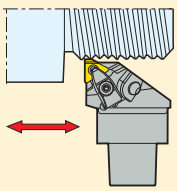
- For inserts programme, see page(s) 54, 56, 58-59, 62-63, 66-67, 69-70, 72-74, 76, 78, 80-84

CER/L-..HD



Right-hand version shown

Application



Part No.	Dimensions in mm D_{5m}	l_1	f_1	KG	
C4-CER -27050-16HD	40	50	27	0,5	16..
C4-CEL -27050-16HD	40	50	27	0,5	16..
C4-CER -27050-22HD	40	50	27	0,5	22..
C4-CEL -27050-22HD	40	50	27	0,5	22..
C5-CER -35060-16HD	50	60	35	0,8	16..
C5-CEL -35060-16HD	50	60	35	0,8	16..
C5-CER -35060-22HD	50	60	35	0,8	22..
C5-CEL -35060-22HD	50	60	35	0,8	22..
C5-CER -35060-27HD	50	60	35	0,8	27..
C5-CEL -35060-27HD	50	60	35	0,8	27..
C6-CER -45065-16HD	63	65	45	1,3	16..
C6-CEL -45065-16HD	63	65	45	1,3	16..
C6-CER -45065-22HD	63	65	45	1,3	22..
C6-CEL -45065-22HD	63	65	45	1,3	22..
C6-CER -45065-27HD	63	65	45	1,3	27..
C6-CEL -45065-27HD	63	65	45	1,3	27..

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	L85020-T15P	S6912	T15P-2
-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7
-27	VX27-1	MX27-1	CO5012-T15P	T15P-2	CHD27	L86025-T20P	S7616	T20P-7

Please check availability in current price and stock-list

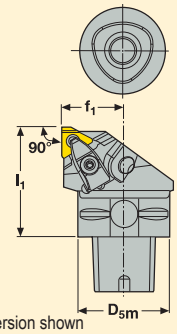
*To be ordered separately

Toolholders for S-inserts

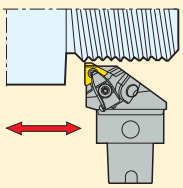
Snap-Tap®

- For inserts programme, see page(s) 54, 56, 58-59, 62-63, 66-67, 69-70, 72-74, 76, 78, 80-84

CER/L-..CHD



Right-hand version shown

Application	Part No.	Dimensions in mm			KG	
		D_{5m}	l_1	f_1		
						
	C4-CER -27050-16CHD	40	50	27	0,5	16
	C4-CEL -27050-16CHD	40	50	27	0,5	16
	C4-CER -27050-22CHD	40	50	27	0,5	22
	C4-CEL -27050-22CHD	40	50	27	0,5	22
	C5-CER -35060-16CHD	50	60	35	0,8	16
	C5-CEL -35060-16CHD	50	60	35	0,8	16
	C5-CER -35060-22CHD	50	60	35	0,8	22
	C5-CEL -35060-22CHD	50	60	35	0,8	22
	C6-CER -45065-16CHD	63	65	45	1,3	16
	C6-CEL -45065-16CHD	63	65	45	1,3	16
	C6-CER -45065-22CHD	63	65	45	1,3	22
	C6-CEL -45065-22CHD	63	65	45	1,3	22
	C6-CER -45065-27CHD	63	65	45	1,3	27
	C6-CEL -45065-27CHD	63	65	45	1,3	27

For size	Cantilever clamp	Clamp key	Clamp screw	Insert shim (S)	Shim screw	Spring
						
..-16	CHD16	T15P-7	L85020-T15P	GX16-1	CS3507-T09P	S6912
..-22	CHD22	T20P-7L	L86025-T20P	NX22-1	CS4009-T15P	S7616
..-27	CHD27	T20P-7	L86025-T20P	VX27-1	C05012-T15P	S7616
..-27	CHD27	T20P-7L	L86025-T20P	VX27-1	C05012-T15P	S7616

Please check availability in current price and stock-list

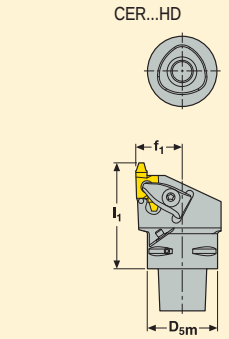
*To be ordered separately

Thread turning, Seco-Capto™ - Toolholders, external

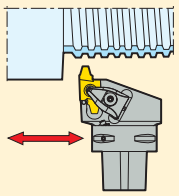
Toolholders for K-inserts

Snap-Tap®

- For inserts programme, see page(s) 54-57, 74, 76, 78



Right-hand version shown

Application	Part No.	Dimensions in mm D_{5m}	l_1	f_1	KG	
						
	C4-CER -27060-20HD	40	60	27	0,6	20..
	-27065-26HD	40	65	27	0,6	26..
	C5-CER -35060-20HD	50	60	35	0,8	20..
	-35065-26HD	50	65	35	0,8	26..
	C6-CER -45065-20HD	63	65	45	1,3	20..
	-45070-26HD	63	70	45	1,5	26..

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Anvil for insert type K	Anvil screw/ Key*		Clamp	Clamp screw	Spring	Key
...20HD	KX20-2	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7L
...26HD	KX26-2	C05012-T15P	T15P-2	CHD27	L86025-T20P	S7616	T20P-7L

Please check availability in current price and stock-list

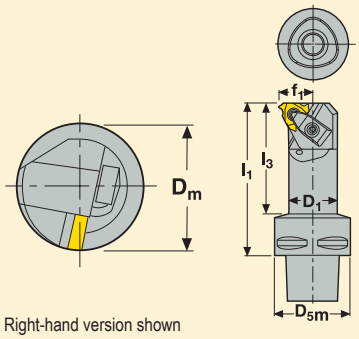
*To be ordered separately

Toolholders for S-inserts

Snap-Tap®

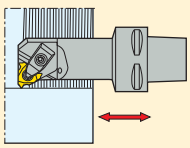
• For inserts programme, see page(s) 55, 57, 60-61, 64-65, 68-69, 71-73, 75, 77, 79-83, 85

CNR/L..HD



Right-hand version shown

Application



Part No.	Dimensions in mm D_1	D_{5m}	f_1	D_m min	l_1	l_3	KG	
C4-SNR -10060-16	16	40	10,0	19	60	37	0,3	16..
C4-CNR -14060-16HD	20	40	13,8	24	60	36	0,4	16..
-17070-16HD	25	40	16,3	29	70	48	0,5	16..
-20090-16HD	32	40	19,8	36	90	69	0,7	16..
C4-CNL -14060-16HD	20	40	13,8	24	60	36	0,4	16..
-17070-16HD	25	40	16,3	29	70	48	0,5	16..
-20090-16HD	32	40	19,8	36	90	69	0,7	16..
C4-CNR -22090-22HD	32	40	21,3	38	90	69	0,6	22..
C4-CNL -22090-22HD	32	40	21,3	38	90	69	0,6	22..
C5-CNR -14060-16HD	20	50	13,8	24	60	36	0,6	16..
-17070-16HD	25	50	16,3	29	70	47	0,6	16..
-20090-16HD	32	50	19,8	36	90	68	0,8	16..
C5-CNL -14060-16HD	20	50	13,8	24	60	36	0,6	16..
-17070-16HD	25	50	16,3	29	70	47	0,6	16..
-20090-16HD	32	50	19,8	36	90	68	0,8	16..
C5-CNR -18070-22HD	25	50	17,8	30	70	47	0,6	22..
-22090-22HD	32	50	21,3	38	90	68	0,8	22..
C5-CNL -18070-22HD	25	50	17,8	30	70	47	0,6	22..
-22090-22HD	32	50	21,3	38	90	68	0,8	22..
C5-CNR -26105-27HD	40	50	24,78	46	105	83	1,2	27..
C5-CNL -26105-27HD	40	50	24,78	46	105	83	1,2	27..

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Spring	Clamp screw	Insert screw	Cantilever clamp/Locking key	
SNR..-16	–	–	–	–	–	–	–	C03508-T15P	–	T15P-2
CNR/L-14..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	–	–	–	–	CSP16HD-T15P	T15P-2
CNR/L-17..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	–	–	–	–	CSP16HD-T15P	T15P-2
CNR/L-20..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	S6912	L85020-T15P	–	–	T15P-2
CNR/L..-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	–	–	–	–	CSP22HD-T15P	T15P-2
CNR/L..-27	VX27-1	MX27-1	C05012-T15P	T15P-2	CHD27	S7616	L86025-T20P	–	–	T20P-7L

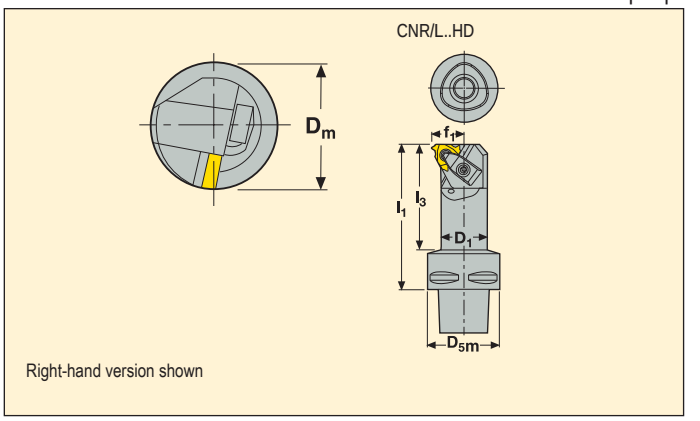
Please check availability in current price and stock-list

*To be ordered separately

Toolholders for S-inserts

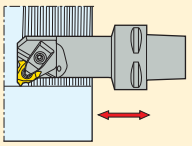
Snap-Tap®

- For inserts programme, see page(s) 55, 57, 60-61, 64-65, 68-69, 71-73, 75, 77, 79-83, 85



Right-hand version shown

Application



Part No.	Dimensions in mm						KG	
	D_1	D_{5m}	f_1	D_m min	l_1	l_3		
C6-CNR -17075-16HD	25	63	16,3	29	75	53	0,9	16
-20090-16HD	32	63	19,8	36	90	68	1,1	16
-24105-16HD	40	63	23,8	44	105	80	1,5	16
C6-CNL -17075-16HD	25	63	16,3	29	75	53	0,9	16
-20090-16HD	32	63	19,8	36	90	68	1,1	16
-24105-16HD	40	63	23,8	44	105	80	1,5	16
C6-CNR -18075-22HD	25	63	17,8	30	75	53	0,9	22
-22090-22HD	32	63	21,3	38	90	68	1,1	22
-26105-22HD	40	63	25,3	46	105	80	1,5	22
C6-CNL -18075-22HD	25	63	17,8	30	75	53	0,9	22
-22090-22HD	32	63	21,3	38	90	68	1,1	22
-26105-22HD	40	63	25,3	46	105	80	1,5	22
C6-CNR -26105-27HD	40	63	25,3	46	105	77	1,6	27
-36182-27HD	63	63	36,0	70	182	–	4,1	27
C6-CNL -26105-27HD	40	63	25,3	46	105	77	1,6	27
-36182-27HD	63	63	36,0	70	182	–	4,1	27
C8-CNR -36190-27HD	63	80	36,0	70	190	160	4,9	27
C8-CNL -36190-27HD	63	80	36,0	70	190	160	4,9	27

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Spring	Clamp screw	Cantilever clamp/Locking key	
CNR/L-17..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	–	–	–	CSP16HD-T15P	T15P-2
CNR/L-20..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	S6912	L85020-T15P	–	T15P-2
CNR/L-24..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	S6912	L85020-T15P	–	T15P-2
CNR/L-18..-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	–	–	–	CSP22HD-T15P	T15P-2
CNR/L-22..-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	–	–	–	CSP22HD-T15P	T15P-2
CNR/L-26..-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	CHD22	S7616	L86025-T20P	–	T20P-7
CNR/L..-27	VX27-1	MX27-1	C05012-T15P	T15P-2	CHD27	S7616	L86025-T20P	–	T20P-7

Please check availability in current price and stock-list

*To be ordered separately

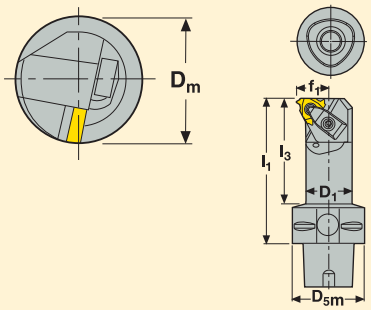
Thread turning, Seco-Capto™ - Toolholders, internal

Toolholders for S-inserts

Snap-Tap®

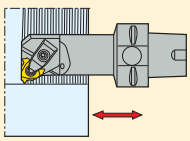
- For inserts programme, see page(s) 55, 57, 60-61, 64-65, 68-69, 71-73, 75, 77, 79-83, 85

CNR/L..CHD



Right-hand version shown

Application



Part No.	D_1	D_{5m}	f_1	D_m min	l_1	l_3	KG	
C4-CNR -14060-16CHD	20	40	13,8	24	60	36	0,4	16
C4-CNL -14060-16CHD	20	40	13,8	24	60	36	0,4	16
C5-CNR -17070-16CHD	25	50	16,3	29	70	47	0,6	16
-20090-16CHD	32	50	19,8	36	90	68	0,8	16
C5-CNL -17070-16CHD	25	50	16,3	29	70	47	0,6	16
-20090-16CHD	32	50	19,8	36	90	68	0,8	16
C5-CNR -18070-22CHD	25	50	17,8	30	70	47	0,6	22
C5-CNL -18070-22CHD	25	50	17,8	30	70	47	0,6	22
C6-CNR -20090-16CHD	32	63	19,8	36	90	68	1,1	16
-24105-16CHD	40	63	23,8	44	105	80	1,5	16
C6-CNL -20090-16CHD	32	63	19,8	36	90	68	1,1	16
-24105-16CHD	40	63	23,8	44	105	80	1,5	16
C6-CNR -22090-22CHD	32	63	21,3	38	90	68	1,1	22
-26105-22CHD	40	63	25,3	46	105	80	1,5	22
C6-CNL -22090-22CHD	32	63	21,3	38	90	68	1,1	22
-26105-22CHD	40	63	25,3	46	105	80	1,5	22

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Spring	Clamp screw	Cantilever clamp/Locking key	
CNR/L-14..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	–	–	–	CSP16HD-T15P	T15P-2
CNR/L-17..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	–	–	–	CSP16HD-T15P	T15P-2
CNR/L-20..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	S6912	L85020-T15P	–	T15P-2
CNR/L-24..-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	S6912	L85020-T15P	–	T15P-2
CNR/L-18..-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	–	–	–	CSP22HD-T15P	T15P-2
CNR/L-22..-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	–	–	–	CSP22HD-T15P	T15P-2
CNR/L-26..-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	CHD22	S7616	L86025-T20P	–	T20P-7

Please check availability in current price and stock-list

*To be ordered separately

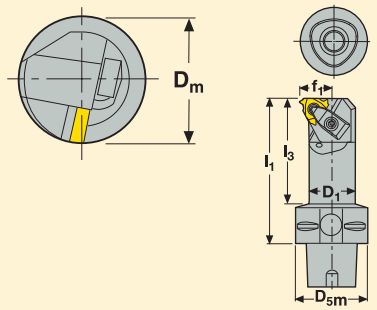
Thread turning, Seco-Capto™ - Toolholders, internal

Toolholders for S-inserts

Snap-Tap®

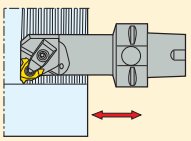
- For inserts programme, see page(s) 60-61, 64, 73, 75, 77, 79-81, 85

CNR/L..HD



Right-hand version shown

Application



Part No.	Dimensions in mm						KG	
	D_1	D_{5m}	f_1	D_m min	l_1	l_3		
C6-CNR -26105-27CHD	40	63	25,3	46	105	80	1,5	27
-36182-27CHD	63	63	36,0	70	182	–	4,1	27
C6-CNL -26105-27CHD	40	63	25,3	46	105	80	1,5	27
-36182-27CHD	63	63	36,0	70	182	–	4,1	27
C8-CNL -36190-27CHD	63	80	36,0	70	190	160	5,0	27
C8-CNR -36190-27CHD	63	80	36,0	70	190	160	5,0	27

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Spring	Cantilever clamp/Locking key	
-27	VX27-1	MX27-1	C05012-T15P	T15P-2	CHD27	S7616	L86025-T20P	T20P-7

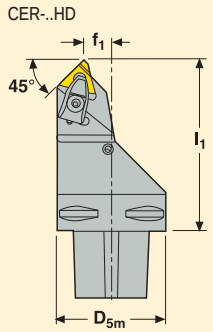
Please check availability in current price and stock-list

*To be ordered separately

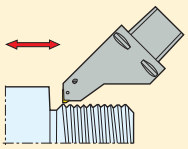
Toolholders for S-inserts

Snap-Tap®

- For inserts programme, see page(s) 54, 56, 58-59, 62-63, 66-67, 69-70, 72-73, 76, 78, 80-84



Right-hand version shown

Application	Part No.	Dimensions in mm D_{5m}	l_1	f_1	KG	
	C6-CER -18100-16HD	63	100	18	1,6	16
	-16100-22HD	63	100	16	1,6	22
	-12100-27HD	63	100	12	1,6	27

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Insert shim (M)*	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
-16	GX16-1	MX16-1	CS3507-T09P	T09P-2	CHD16	L85020-T15P	S6912	T15P-7
-22	NX22-1	MX22-1	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7
-27	VX27-1	MX27-1	C05012-T15P	T15P-2	CHD27	L86025-T20P	S7616	T20P-7

Please check availability in current price and stock-list

*To be ordered separately

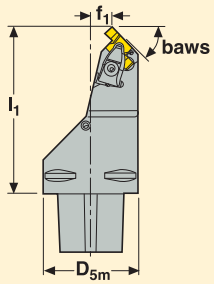
Thread turning, Seco-Capto™ - Toolholders for MTM

Toolholders for K-inserts

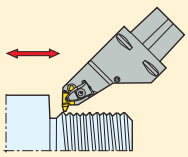
Snap-Tap®

- For inserts programme, see page(s) 54-57, 74, 76, 78

CEL-..HD



Right-hand version shown

Application	Part No.	Dimensions in mm				KG	
		D_{5m}	l_1	f_1	baws°		
	C6-CEL -14110-20HD	63	110	14	45	1,7	20..
	C6-CEL -07110-26HD	63	110	7	45	1,7	26..

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Insert shim (S)	Shim screw/Key*		Floating wedge clamp	Clamp screw	Spring	Locking key
							
-20HD	KX20-2	CS4009-T15P	T15P-2	CHD22	L86025-T20P	S7616	T20P-7
-26HD	KX26-2	C05012-T15P	T15P-2	CHD27	L86025-T20P	S7616	T20P-7

Please check availability in current price and stock-list

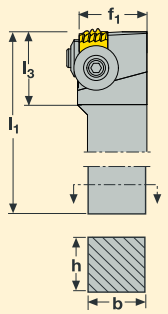
*To be ordered separately

Toolholders for chasers

Snap-Tap®

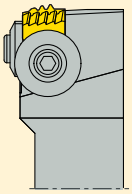
• For inserts programme, see page(s) 86

CER



Right-hand version shown

Application



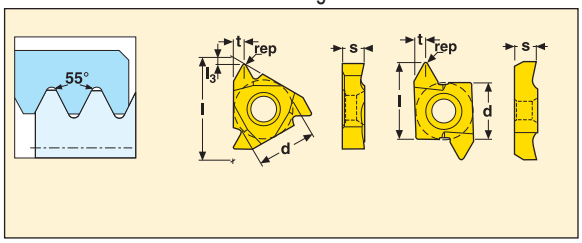
Part No.		Dimensions in mm b	f_1	h	l_1	l_3	KG	l
CER	3232P1-I	32	37,25	32	170,24	47,54	1,4	15,875
	3232P1-M	32	37,25	32	170,24	47,54	1,4	15,875
CER	3232P5-I	32	37,25	32	170,24	47,54	1,4	25,000
	3232P5-M	32	37,25	32	170,24	47,54	1,4	25,000

Toolholder/ Insert dimension	Plug	Key, top clamp	Key, side clamp	Clamp kit top	Clamp kit side
CER	JET-P1/8-5MM	T25P-7	T20P-7	W240618-T25P	W200613-T20P

Please check availability in current price and stock-list

Partial Profile 55° – External Threading

Snap-Tap®



Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
26	15,875	26,0	7,88

16Ex/22Ex

16ER..A

16ER..A1

16ER..A2

26ER/26NR..

16V55*

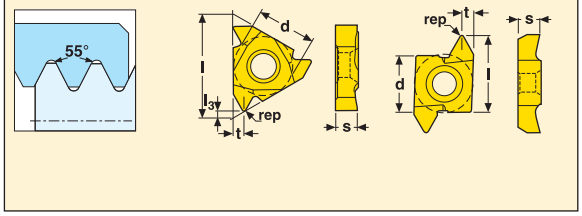
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
0,50-1,50	48-16	0,6	0,8	0,08	16ER A55			■			■			16EL A55			■					
0,50-3,00	48-8	1,1	1,5	0,08	AG55	■		■		■	■			AG55			■					
1,75-3,00	14-8	1,1	1,5	0,20	G55	■		■			■			G55			■					
3,50-5,00	7-5	1,8	2,5	0,40	22ER N55			■			■			22EL N55			■					
0,50-3,00	48-8	1,1	1,5	0,08	16ER AG55-A			■														
1,75-3,00	14-8	1,2	1,5	0,20	G55-A			■														
0,50-3,00	48-8	1,1	1,5	0,08	16ER AG55-A1			■														
1,75-3,00	14-8	1,2	1,5	0,20	G55-A1			■														
0,50-3,00	48-8	1,1	1,5	0,08	16ER AG55-A2			■														
1,75-3,00	14-8	1,2	1,5	0,20	G55-A2			■														
5,50-10,00	4,5-2,5	–	5,0	0,70	26ER K55			■						26NR K55			■					
–	–	–	–	–	16V55			■														

■ Stock standard
Subject to change refer to current price- and stock-list

* Toolset contents:
3 pcs 16ERG55, CP500, 3 pcs 16NRG55, CP500,
2 pcs 16ERA55, CP500 and 2 pcs 16NRA55, CP500

Partial Profile 55° – Internal Threading

Snap-Tap®



Size	Dimensions in mm d	l	s
09	5,560	9,6	2,40
11	6,350	11,0	3,00
16	9,525	16,5	3,47
22	12,700	22,0	4,71
26	15,875	26,0	7,88

09NR/11Nx/16Nx/22Nx.. 16NR..A 16NR..A1 16NR..A2 26ER/26NR..

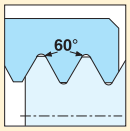
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
0,50-1,50	48-16	0,7	0,8	0,08	09NR A55			■		■												
0,50-1,50	48-16	0,6	0,8	0,08	11NR A55			■		■	■			11NL A55			■					
0,50-1,50	48-16	0,6	0,8	0,08	16NR A55			■			■			16NL A55			■					
0,50-3,00	48-8	1,1	1,5	0,08	AG55	■		■		■	■			AG55			■					
1,75-3,00	14-8	1,1	1,5	0,20	G55	■		■			■			G55			■					
3,50-5,00	7-5	1,8	2,5	0,40	22NR N55			■			■			22NL N55			■					
0,50-3,00	48-8	1,1	1,5	0,08	16NR AG55-A			■														
1,75-3,00	14-8	1,1	1,5	0,20	G55-A			■														
0,50-3,00	48-8	1,1	1,5	0,08	16NR AG55-A1			■														
1,75-3,00	14-8	1,1	1,5	0,20	G55-A1			■														
0,50-3,00	48-8	1,1	1,5	0,08	16NR AG55-A2			■														
1,75-3,00	14-8	1,1	1,5	0,20	G55-A2			■														
5,50-10,00	4,5-2,5	–	5,0	0,70	26NR K55			■						26ER K55			■					

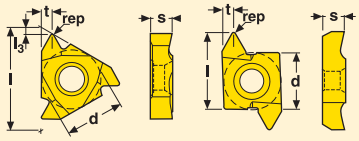
■ Stock standard

Subject to change refer to current price- and stock-list

Partial Profile 60° – External Threading

Snap-Tap®





Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
26	15,875	26,0	7,88

16Ex/22Ex.. | 16ER..A | 16ER..A1 | 16ER..A2 | 26ER/26NR.. | 16V60*







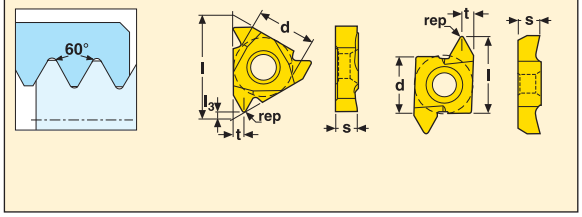
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
0,50-1,50	48-16	0,6	0,8	0,08	16ER A60	■		■	■	■	■			16EL A60			■		■			
0,50-3,00	48-8	1,1	1,5	0,08	AG60	■		■	■	■	■			AG60			■					
1,75-3,00	14-8	1,1	1,5	0,18	G60	■		■		■	■			G60			■					
3,50-5,00	7-5	1,8	2,5	0,40	22ER N60	■		■		■	■			22EL N60			■					
0,50-1,50	48-16	0,6	0,8	0,08	16ER A60-A			■														
0,50-3,00	48-8	1,1	1,5	0,08	AG60-A			■														
1,75-3,00	14-8	1,2	1,5	0,18	G60-A			■														
0,50-1,50	48-16	0,6	0,8	0,08	16ER A60-A1			■														
0,50-3,00	48-8	1,1	1,5	0,08	AG60-A1			■														
1,75-3,00	14-8	1,2	1,5	0,18	G60-A1			■														
0,50-1,50	48-16	0,6	0,8	0,08	16ER A60-A2			■														
0,50-3,00	48-8	1,1	1,5	0,08	AG60-A2			■														
1,75-3,00	14-8	1,2	1,5	0,18	G60-A2			■														
5,50-10,00	4,5-2,5	–	5,0	0,40	26ER K60			■		■				26NR K60			■		■			
–	–	–	–	–	16V60			■														

■ Stock standard
Subject to change refer to current price- and stock-list

* Toolset contents:
3 pcs 16ERG60, CP500, 3 pcs 16NRG60, CP500,
2 pcs 16ERA60, CP500 and 2 pcs 16NRA60, CP500

Partial Profile 60° – Internal Threading

Snap-Tap®



Size	Dimensions in mm d	l	s
09	5,560	9,6	2,40
11	6,350	11,0	3,00
16	9,525	16,5	3,47
22	12,700	22,0	4,71
26	15,875	26,0	7,88

09NR/11Nx/16Nx/22Nx

11NR/16NR..A

11NR/16NR..A1

11NR/16NR..A2

26ER/26NR..

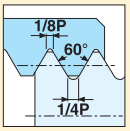
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
0,50-1,50	48-16	0,7	0,8	0,08	09NR A60			■		■												
0,50-1,50	48-16	0,7	0,8	0,08	11NR A60	■		■	■	■	■			11NL A60			■					
0,50-1,50	48-16	0,7	0,8	0,08	16NR A60			■		■	■			16NL A60			■		■			
0,50-3,00	48-8	1,1	1,5	0,08	AG60	■		■	■	■	■			AG60			■					
1,75-3,00	14-8	1,1	1,5	0,12	G60	■		■		■	■			G60			■					
3,50-5,00	7-5	1,8	2,5	0,25	22NR N60	■		■		■	■			22NL N60			■					
0,50-1,50	48-16	0,7	0,8	0,08	11NR A60-A			■														
0,50-3,00	48-8	1,1	1,5	0,08	16NR AG60-A			■														
1,75-3,00	14-8	1,2	1,5	0,12	G60-A			■														
0,50-1,50	48-16	0,7	0,8	0,08	11NR A60-A1			■														
0,50-3,00	48-8	1,1	1,5	0,08	16NR AG60-A1			■														
1,75-3,00	14-8	1,2	1,5	0,12	G60-A1			■														
0,50-1,50	48-16	0,7	0,8	0,08	11NR A60-A2			■														
0,50-3,00	48-8	1,1	1,5	0,08	16NR AG60-A2			■														
1,75-3,00	14-8	1,2	1,5	0,12	G60-A2			■														
5,50-10,00	4,5-2,5	–	5,0	0,40	26NR K60			■		■				26ER K60			■		■			

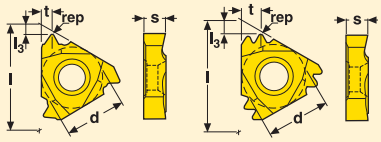
■ Stock standard

Subject to change refer to current price- and stock-list

ISO Metric – External Threading

Snap-Tap®





ISO965/1 - 1980
3h/4h

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

16Ex/22Ex/27ER

16ER..A

16ER..A1

16ER..A2

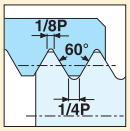
Pitch		Dimensions in mm				Grades									Grades							
						Coated					Uncoated				Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
0,50	–	0,8	0,8	0,06	16ER 0.5ISO			■		■	■			16EL 0.5ISO			■					
0,75	–	0,8	0,8	0,11	0.75ISO			■		■	■			0.75ISO			■					
0,80	–	0,8	0,6	0,11	0.8ISO			■						0.8ISO			■					
1,00	–	0,8	0,8	0,14	1.0ISO	■		■	■	■	■			1.0ISO			■					
1,25	–	0,8	0,8	0,17	1.25ISO	■		■	■	■	■			1.25ISO			■					
1,50	–	0,8	0,8	0,22	1.5ISO	■		■	■	■	■			1.5ISO			■		■			
1,75	–	1,2	1,5	0,25	1.75ISO	■		■	■	■	■			1.75ISO			■					
2,00	–	1,2	1,5	0,29	2.0ISO	■		■	■	■	■			2.0ISO			■		■			
2,50	–	1,2	1,5	0,34	2.5ISO	■		■	■	■	■			2.5ISO			■					
3,00	–	1,2	1,5	0,42	3.0ISO	■		■	■	■	■			3.0ISO			■					
3,50	–	1,8	2,5	0,47	22ER 3.5ISO	■		■			■			22EL 3.5ISO			■					
4,00	–	1,8	2,5	0,53	4.0ISO	■		■		■	■			4.0ISO			■					
4,50	–	1,8	2,5	0,59	4.5ISO			■			■			4.5ISO			■					
5,00	–	1,8	2,5	0,66	5.0ISO	■		■			■			5.0ISO			■					
5,50	–	2,2	3,2	0,72	27ER 5.5ISO			■														
6,00	–	2,2	3,2	0,79	6.0ISO			■		■												
1,00	–	0,8	0,8	0,14	16ER 1.0ISO-A			■														
1,25	–	0,8	0,8	0,17	1.25ISO-A			■														
1,50	–	0,8	0,8	0,22	1.5ISO-A			■														
1,75	–	1,2	1,5	0,25	1.75ISO-A			■														
2,00	–	1,2	1,5	0,29	2.0ISO-A			■														
2,50	–	1,2	1,5	0,34	2.5ISO-A			■														
3,00	–	1,2	1,5	0,42	3.0ISO-A			■														
1,00	–	0,8	0,8	0,14	16ER 1.0ISO-A1			■														
1,25	–	0,8	0,8	0,17	1.25ISO-A1			■														
1,50	–	0,8	0,8	0,22	1.5ISO-A1			■														
1,75	–	1,2	1,5	0,25	1.75ISO-A1			■														
2,00	–	1,2	1,5	0,29	2.0ISO-A1			■														
2,50	–	1,2	1,5	0,34	2.5ISO-A1			■														
3,00	–	1,2	1,5	0,42	3.0ISO-A1			■														
1,00	–	0,8	0,8	0,14	16ER 1.0ISO-A2			■														
1,25	–	0,8	0,8	0,17	1.25ISO-A2			■														
1,50	–	0,8	0,8	0,22	1.5ISO-A2			■														
1,75	–	1,2	1,5	0,25	1.75ISO-A2			■														
2,00	–	1,2	1,5	0,29	2.0ISO-A2			■														
2,50	–	1,2	1,5	0,34	2.5ISO-A2			■														
3,00	–	1,2	1,5	0,42	3.0ISO-A2			■														

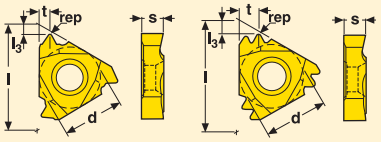
■ Stock standard

Subject to change refer to current price- and stock-list

ISO Metric – External Threading

Snap-Tap®





ISO965/1 - 1980
3h/4h

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

16ER..TT

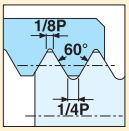
16ER/22ER/27ER..M

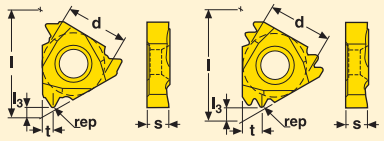
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
1,00	–	1,3	1,3	0,14	16ER 1.0ISO-TT			■														
1,50	–	1,3	1,8	0,22	1.5ISO-TT			■														
2,00	–	1,6	2,4	0,29	2.0ISO-TT			■														
1,00	–	1,5	2,4	0,14	16ER 1.0ISO3M			■														
1,50	–	1,5	2,2	0,22	1.5ISO2M			■														
1,50	–	2,3	3,6	0,22	22ER 1.5ISO3M			■														
2,00	–	2,0	2,9	0,29	2.0ISO2M			■														
2,00	–	3,0	4,8	0,29	2.0ISO3M			■														
3,00	–	2,8	4,3	0,42	27ER 3.0ISO2M			■														

■ Stock standard
Subject to change refer to current price- and stock-list

ISO Metric – Internal Threading

Snap-Tap®





ISO965/1 - 1980
4h

Size	Dimensions in mm d	l	s
09	5,560	9,6	2,40
11	6,350	11,0	3,00
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

09NR/11Nx/16Nx/22Nx/27NR

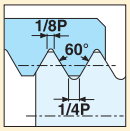
Pitch		Dimensions in mm				Grades									Grades							
						Coated					Uncoated				Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
0,50	–	0,7	0,6	0,04	09NR 0.5ISO			■														
0,80	–	0,7	0,6	0,07	0.8ISO			■														
1,00	–	0,7	0,8	0,07	1.0ISO			■		■												
1,25	–	0,7	0,8	0,11	1.25ISO			■		■												
1,50	–	0,7	0,8	0,12	1.5ISO			■		■												
1,75	–	0,7	0,8	0,12	1.75ISO			■														
2,00	–	0,7	0,9	0,17	2.0ISO			■														
0,50	–	0,8	0,8	0,03	11NR 0.5ISO			■			■			11NL 0.5ISO			■					
0,75	–	0,8	0,8	0,04	0.75ISO			■			■			0.75ISO			■					
1,00	–	0,8	0,8	0,08	1.0ISO	■		■	■	■	■			1.0ISO			■					
1,25	–	0,8	0,8	0,09	1.25ISO			■			■			1.25ISO			■					
1,50	–	0,8	0,8	0,12	1.5ISO	■		■	■	■	■			1.5ISO			■					
1,75	–	0,8	0,8	0,12	1.75ISO			■			■											
2,00	–	0,8	0,9	0,17	2.0ISO	■		■	■	■	■											
0,50	–	0,8	0,8	0,03	16NR 0.5ISO			■			■			16NL 0.5ISO			■					
0,75	–	0,8	0,8	0,04	0.75ISO			■			■			0.75ISO			■					
1,00	–	0,8	0,8	0,08	1.0ISO	■		■	■	■	■			1.0ISO	■		■					
1,25	–	0,8	0,8	0,09	1.25ISO	■		■			■			1.25ISO			■					
1,50	–	0,8	0,8	0,12	1.5ISO	■		■	■	■	■			1.5ISO	■		■		■			
1,75	–	1,2	1,5	0,12	1.75ISO			■	■		■			1.75ISO			■					
2,00	–	1,2	1,5	0,17	2.0ISO	■		■	■	■	■			2.0ISO			■		■			
2,50	–	1,2	1,5	0,18	2.5ISO	■		■	■	■	■			2.5ISO			■					
3,00	–	1,2	1,5	0,21	3.0ISO	■		■	■	■	■			3.0ISO			■					
3,50	–	1,9	2,3	0,25	22NR 3.5ISO	■		■			■			22NL 3.5ISO			■					
4,00	–	2,0	2,5	0,28	4.0ISO	■		■		■	■			4.0ISO			■					
4,50	–	2,1	2,5	0,32	4.5ISO			■			■			4.5ISO			■					
5,00	–	1,8	2,5	0,35	5.0ISO	■		■			■			5.0ISO			■					
5,50	–	2,2	3,2	0,38	27NR 5.5ISO			■														
6,00	–	2,2	3,2	0,42	6.0ISO			■		■												

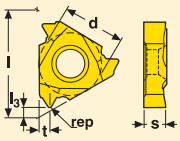
■ Stock standard

Subject to change refer to current price- and stock-list

ISO Metric – Internal Threading

Snap-Tap®





ISO965/1 - 1980
4h

Size	Dimensions in mm d	l	s
11	6,350	11,0	3,00
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

11NR/16NR..A

11NR/16NR..A1

11NR/16NR..A2

16NR..TT

16NR/22NR..M

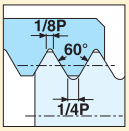
Pitch		Dimensions in mm				Grades								Grades							
						Coated					Uncoated			Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
1,00	–	0,8	0,8	0,08	11NR 1.0ISO-A			■													
1,50	–	0,8	0,8	0,12	1.5ISO-A			■													
2,00	–	0,8	0,9	0,17	2.0ISO-A			■													
1,00	–	0,8	0,8	0,09	16NR 1.0ISO-A			■													
1,50	–	0,8	0,8	0,12	1.5ISO-A			■													
2,00	–	1,2	1,5	0,16	2.0ISO-A			■													
2,50	–	1,2	1,5	0,18	2.5ISO-A			■													
3,00	–	1,2	1,5	0,21	3.0ISO-A			■													
1,00	–	0,8	0,8	0,08	11NR 1.0ISO-A1			■													
1,50	–	0,8	0,8	0,12	1.5ISO-A1			■													
2,00	–	0,8	0,9	0,17	2.0ISO-A1			■													
1,00	–	0,8	0,8	0,09	16NR 1.0ISO-A1			■													
1,50	–	0,8	0,8	0,12	1.5ISO-A1			■													
2,00	–	1,2	1,5	0,16	2.0ISO-A1			■													
2,50	–	1,2	1,5	0,18	2.5ISO-A1			■													
3,00	–	1,2	1,5	0,21	3.0ISO-A1			■													
1,00	–	0,8	0,8	0,08	11NR 1.0ISO-A2			■													
1,50	–	0,8	0,8	0,12	1.5ISO-A2			■													
2,00	–	0,8	0,9	0,17	2.0ISO-A2			■													
1,00	–	0,8	0,8	0,09	16NR 1.0ISO-A2			■													
1,50	–	0,8	0,8	0,12	1.5ISO-A2			■													
2,00	–	1,2	1,5	0,16	2.0ISO-A2			■													
2,50	–	1,2	1,5	0,18	2.5ISO-A2			■													
3,00	–	1,2	1,5	0,21	3.0ISO-A2			■													
1,00	–	1,3	1,2	0,09	16NR 1.0ISO-TT			■													
1,50	–	1,3	1,8	0,12	1.5ISO-TT			■													
2,00	–	1,6	2,4	0,18	2.0ISO-TT			■													
1,00	–	1,5	2,4	0,08	16NR 1.0ISO3M			■													
1,50	–	1,4	2,1	0,12	1.5ISO2M			■													
1,50	–	2,3	3,6	0,12	22NR 1.5ISO3M			■													
2,00	–	2,0	2,9	0,17	2.0ISO2M			■													
2,00	–	3,0	4,8	0,17	2.0ISO3M			■													
3,00	–	2,8	4,3	0,21	27NR 3.0ISO2M			■													

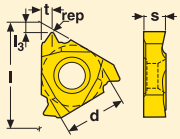
■ Stock standard

Subject to change refer to current price- and stock-list

UN – External Threading

Snap-Tap®





ANSI B1.1 - 1983
3A

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

16Ex/22Ex/27ER

16ER..A

16ER..A1

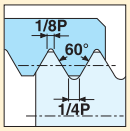
16ER..A2

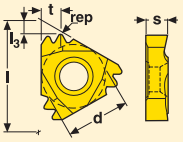
Pitch		Dimensions in mm				Grades									Grades							
						Coated					Uncoated				Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
–	40	1,2	0,5	0,08	16ER 40UN			■														
–	32	0,8	0,8	0,09	32UN			■		■	■			16EL 32UN			■					
–	28	0,8	0,8	0,11	28UN			■		■	■			28UN			■					
–	24	0,8	0,8	0,13	24UN			■		■	■			24UN			■					
–	20	0,8	0,8	0,16	20UN			■	■	■	■			20UN			■					
–	18	1,2	0,8	0,18	18UN			■	■	■	■			18UN			■					
–	16	1,2	0,8	0,22	16UN	■		■	■	■	■			16UN			■					
–	14	1,2	1,5	0,22	14UN	■		■	■	■	■			14UN			■					
–	13	1,2	1,5	0,24	13UN			■														
–	12	1,2	1,5	0,26	12UN	■		■	■	■	■			16EL 12UN			■					
–	11	1,2	1,5	0,28	11UN			■			■			11UN			■					
–	10	1,2	1,5	0,34	10UN			■	■	■	■			10UN			■					
–	9	1,2	1,5	0,34	9UN			■			■			9UN			■					
–	8	1,2	1,5	0,38	8UN	■		■	■	■	■			8UN			■					
–	7	1,8	2,5	0,47	22ER 7UN			■			■			22EL 7UN			■					
–	6	2,0	2,5	0,52	6UN			■			■			6UN			■					
–	5	1,8	2,5	0,60	5UN			■						5UN			■					
–	4	2,2	3,2	0,79	27ER 4UN			■														
–	20	0,8	0,8	0,16	16ER 20UN-A			■														
–	18	0,8	0,8	0,18	18UN-A			■														
–	16	0,8	0,8	0,22	16UN-A			■														
–	14	1,2	1,5	0,22	14UN-A			■														
–	12	1,2	1,5	0,29	12UN-A			■														
–	8	1,2	1,5	0,43	8UN-A			■														
–	20	0,8	0,8	0,16	16ER 20UN-A1			■														
–	18	0,8	0,8	0,18	18UN-A1			■														
–	16	0,8	0,8	0,22	16UN-A1			■														
–	14	1,2	1,5	0,22	14UN-A1			■														
–	12	1,2	1,5	0,29	12UN-A1			■														
–	8	1,2	1,5	0,43	8UN-A1			■														
–	20	0,8	0,8	0,16	16ER 20UN-A2			■														
–	18	0,8	0,8	0,18	18UN-A2			■														
–	16	0,8	0,8	0,22	16UN-A2			■														
–	14	1,2	1,5	0,22	14UN-A2			■														
–	12	1,2	1,5	0,29	12UN-A2			■														
–	8	1,2	1,5	0,43	8UN-A2			■														

■ Stock standard
Subject to change refer to current price- and stock-list

UN – External Threading

Snap-Tap®





ANSI B1.1 - 1983
3A

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71

16ER..TT

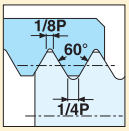
22ER..M

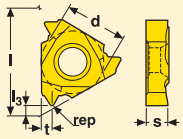
Pitch		Dimensions in mm			Insert Part No. Right	Grades Coated					Grades Uncoated			Insert Part No. Left	Grades Coated					Grades Uncoated		
mm	TPI	l_3	t	rep		CP200	CP300	CP500	TP1030	TM4000	H15				CP200	CP300	CP500	TP1030	TM4000	H15		
–	16	1,4	1,9	0,21	16ER 16UN-TT			■														
–	12	1,7	2,6	0,29	12UN-TT			■														
–	16	2,5	4,0	0,21	22ER 16UN3M			■														
–	12	2,0	3,1	0,26	12UN2M			■														

■ Stock standard
Subject to change refer to current price- and stock-list

UN – Internal Threading

Snap-Tap®





ANSI B1.1 - 1983
3B

Size	Dimensions in mm d	l	s
09	5,560	9,6	2,40
11	6,350	11,0	3,00
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

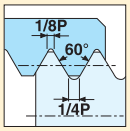
09NR/11Nx/16Nx/22Nx/27NR

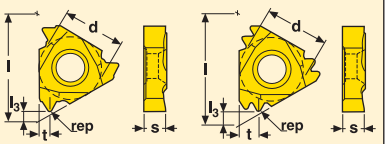
Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	20	0,7	0,8	0,09	09NR 20UN			■		■													
–	18	0,7	0,8	0,10	18UN			■															
–	13	0,7	0,9	0,15	13UN			■															
–	32	0,8	0,8	0,04	11NR 32UN			■			■												
–	28	0,8	0,8	0,05	28UN			■			■												
–	24	0,8	0,8	0,07	24UN			■			■			11NL 24UN			■						
–	20	0,8	0,8	0,09	20UN			■		■	■			20UN			■						
–	18	0,8	0,8	0,10	18UN			■		■	■			18UN			■						
–	16	0,8	0,8	0,13	16UN			■		■	■			16UN			■						
–	14	0,8	0,9	0,14	14UN			■			■			14UN			■						
–	40	1,2	0,5	0,04	16NR 40UN			■															
–	32	0,8	0,8	0,04	32UN	■		■			■			16NL 32UN			■						
–	28	0,8	0,8	0,05	28UN	■		■						28UN			■						
–	24	0,8	0,8	0,07	24UN	■		■			■			24UN			■						
–	20	0,8	0,8	0,09	20UN	■		■	■	■	■			20UN			■						
–	18	0,8	0,8	0,10	18UN	■		■	■	■	■			18UN			■						
–	16	0,8	0,8	0,13	16UN	■		■	■	■	■			16UN	■		■						
–	14	1,2	1,5	0,14	14UN	■		■	■		■			14UN	■		■						
–	13	1,2	1,5	0,15	13UN			■															
–	12	1,2	1,5	0,15	12UN	■		■	■	■	■			16NL 12UN			■						
–	11	1,2	1,5	0,16	11UN			■			■			11UN			■						
–	10	1,2	1,5	0,18	10UN	■		■	■	■	■			10UN			■						
–	9	1,2	1,5	0,19	9UN			■															
–	8	1,2	1,5	0,25	8UN	■		■	■	■	■			16NL 8UN			■						
–	7	2,0	2,4	0,25	22NR 7UN			■						22NL 7UN			■						
–	6	2,2	2,5	0,30	6UN			■			■			6UN			■						
–	5	1,8	2,5	0,36	5UN			■			■												
–	4	2,2	3,2	0,45	27NR 4UN			■															

■ Stock standard
Subject to change refer to current price- and stock-list

UN – Internal Threading

Snap-Tap®





ANSI B1.1 - 1983
3B

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71

16NR..A

16NR..A1

16NR..A2

16NR..TT

16NR/22NR..M

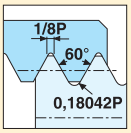
Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	20	0,8	0,8	0,09	16NR 20UN-A			■															
–	18	0,8	0,8	0,10	18UN-A			■															
–	16	0,8	0,8	0,12	16UN-A			■															
–	14	1,2	1,3	0,14	14UN-A			■															
–	12	1,2	1,5	0,15	12UN-A			■															
–	8	1,2	1,5	0,25	8UN-A			■															
–	20	0,8	0,8	0,09	16NR 20UN-A1			■															
–	18	0,8	0,8	0,10	18UN-A1			■															
–	16	0,8	0,8	0,12	16UN-A1			■															
–	14	1,2	1,3	0,14	14UN-A1			■															
–	12	1,2	1,5	0,15	12UN-A1			■															
–	8	1,2	1,5	0,25	8UN-A1			■															
–	20	0,8	0,8	0,09	16NR 20UN-A2			■															
–	18	0,8	0,8	0,10	18UN-A2			■															
–	16	0,8	0,8	0,12	16UN-A2			■															
–	14	1,2	1,3	0,14	14UN-A2			■															
–	12	1,5	1,5	0,15	12UN-A2			■															
–	8	1,2	1,5	0,25	8UN-A2			■															
–	16	1,4	1,9	0,13	16NR 16UN-TT			■															
–	12	1,65	2,45	0,16	12UN-TT			■															
–	16	1,5	2,3	0,13	16NR 16UN2M			■															
–	16	2,4	3,8	0,13	22NR 16UN3M			■															
–	12	2,0	3,0	0,15	12UN2M			■															
–	12	3,0	5,0	0,15	12UN3M			■															

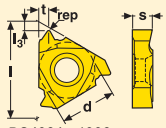
■ Stock standard

Subject to change refer to current price- and stock-list

UNJ – External threading (Internal Threading*)

Snap-Tap®





BS4084 - 1996
MIL-SPECS - 8879A
3A

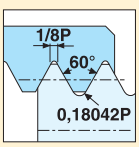
Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47

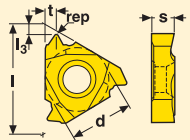
16ER..UNJ

Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	32	0,8	0,8	0,11	16ER 32UNJ			■														
–	28	0,8	0,8	0,14	28UNJ	■		■														
–	24	0,8	0,8	0,16	24UNJ	■		■														
–	20	0,8	0,8	0,21	20UNJ	■		■		■	■											
–	18	1,2	0,8	0,24	18UNJ	■		■		■												
–	16	1,2	0,8	0,27	16UNJ	■		■		■	■											
–	14	1,2	1,5	0,30	14UNJ	■		■														
–	12	1,2	1,5	0,32	12UNJ			■		■	■			16EL 12UNJ	■		■					
–	10	1,2	1,5	,34	10UNJ	■																
–	8	1,2	1,5	0,45	8UNJ	■		■														

*Internal use, please see page

MJ – External Threading (Internal Threading*)





ISO5855 - 1983
4h/6h

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47

16ER..MJ

16ER..MJ

Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
1,0	–	0,8	0,8	0,16	16ER 1.0MJ	■		■			■			16EL 1.0MJ	■							
1,25	–	0,8	0,8	0,21	1.25MJ	■																
1,5	–	0,8	0,8	0,25	1.5MJ	■		■			■			16EL 1.5MJ	■							
2,0	–	1,2	1,5	0,32	2.0MJ	■																

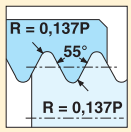
■ Stock standard

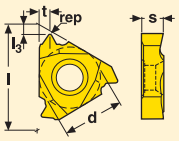
*Internal use, please see page

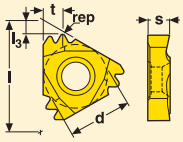
Subject to change refer to current price- and stock-list

Whitworth, BSW – External Threading

Snap-Tap®







BS84 -1956
ISO228 - 1982
BS2779 - 1973

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71

16Ex/22Ex

16ER..A

16ER..A1

16ER..A2

16ER..TT

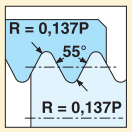
22ER..M

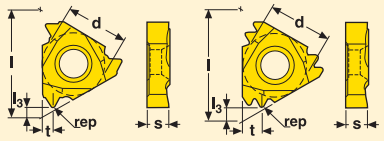
Pitch		Dimensions in mm				Grades									Grades							
						Coated					Uncoated				Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
–	28	0,8	0,8	0,09	16ER 28W			■		■	■			16EL 28W			■					
–	20	0,8	0,8	0,14	20W			■		■	■			20W			■					
–	19	0,8	0,8	0,15	19W	■		■	■	■	■			19W			■					
–	18	0,8	0,8	0,16	18W			■														
–	16	0,8	0,8	0,20	16W			■			■			16EL 16W			■					
–	14	1,2	1,5	0,24	14W	■		■	■	■	■			14W			■					
–	12	1,2	1,5	0,24	12W			■			■			12W			■					
–	11	1,2	1,5	0,30	11W	■		■	■	■	■			11W			■					
–	10	1,2	1,5	0,27	10W			■			■			10W			■					
–	9	1,2	1,5	0,31	9W			■						9W			■					
–	8	1,2	1,5	0,42	8W			■			■			8W			■					
–	7	1,8	2,5	0,43	22ER 7W			■			■			22EL 7W			■					
–	6	1,8	2,5	0,50	6W			■			■			6W			■					
–	5	1,7	2,5	0,63	5W			■			■			5W			■					
–	19	0,8	0,8	0,16	16ER 19W-A			■														
–	14	1,2	1,5	0,24	14W-A			■														
–	11	1,2	1,5	0,30	11W-A			■														
–	19	0,8	0,8	0,16	16ER 19W-A1			■														
–	14	1,2	1,5	0,24	14W-A1			■														
–	11	1,2	1,5	0,30	11W-A1			■														
–	19	0,8	0,8	0,16	16ER 19W-A2			■														
–	14	1,2	1,5	0,24	14W-A2			■														
–	11	1,2	1,5	0,30	11W-A2			■														
–	14	1,5	2,2	0,24	16ER 14W-TT			■														
–	11	1,8	2,8	0,30	11W-TT			■														
–	11	2,3	3,5	0,30	22ER 11W2M			■														

■ Stock standard
Subject to change refer to current price- and stock-list

Whitworth, BSW – Internal Threading

Snap-Tap®





BS84 -1956
ISO228 - 1982
BS2779 - 1973

Size	Dimensions in mm d	l	s
09	5,560	9,6	2,40
11	6,350	11,0	3,00
16	9,525	16,5	3,47
22	12,700	22,0	4,71

09NR/11Nx/16Nx/22Nx

11NR/16NR..A

11NR/16NR..A1

11NR/16NR..A2

16NR..TT

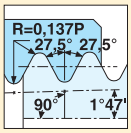
22NR..M

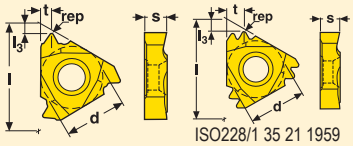
Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	14	0,7	0,9	0,24	09NR 14W			■															
–	19	0,7	0,8	0,15	19W			■															
–	19	0,8	0,8	0,15	11NR 19W	■		■	■	■	■			11NL 19W			■						
–	14	0,7	0,9	0,24	14W	■		■	■		■			14W			■						
–	28	0,8	0,8	0,09	16NR 28W			■						16NL 28W			■						
–	20	0,8	0,8	0,14	20W			■			■			20W			■						
–	19	0,8	0,8	0,15	19W	■		■			■			19W			■						
–	16	0,8	0,8	0,20	16W			■			■			16W			■						
–	14	1,2	1,5	0,24	14W	■		■		■	■			14W			■						
–	12	1,2	1,5	0,24	12W			■			■			12W			■						
–	11	1,2	1,5	0,30	11W	■		■	■	■	■			11W			■						
–	10	1,2	1,5	0,27	10W	■		■			■			10W			■						
–	9	1,2	1,5	0,31	9W			■			■			9W			■						
–	8	1,2	1,5	0,42	8W			■			■			8W			■						
–	7	1,8	2,5	0,43	22NR 7W			■						22NL 7W			■						
–	6	1,8	2,5	0,50	6W			■			■			6W			■						
–	5	1,7	2,5	0,63	5W			■			■			5W			■						
–	19	0,8	0,8	0,15	11NR 19W-A			■															
–	14	0,7	0,9	0,24	14W-A			■															
–	14	1,2	1,1	0,23	16NR 14W-A			■															
–	11	1,2	1,5	0,30	11W-A			■															
–	19	0,8	0,8	0,15	11NR 19W-A1			■															
–	14	0,7	0,9	0,24	14W-A1			■															
–	14	1,2	1,1	0,23	16NR 14W-A1			■															
–	11	1,2	1,5	0,30	11W-A1			■															
–	19	0,8	0,8	0,15	11NR 19W-A2			■															
–	14	0,7	0,9	0,24	14W-A2			■															
–	14	1,2	1,1	0,23	16NR 14W-A2			■															
–	11	1,2	1,5	0,30	11W-A2			■															
–	14	1,5	2,2	0,23	16NR 14W-TT			■															
–	11	1,8	2,8	0,31	11W-TT			■															
–	11	2,3	3,5	0,30	22NR 11W2M			■															

■ Stock standard
Subject to change refer to current price- and stock-list

BSPT – External Threading

Snap-Tap®





ISO228/1 35 21 1959
ISO7/1

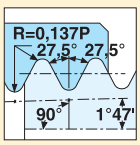
Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47

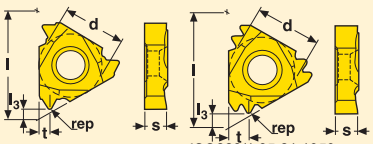
16Ex..

16ER..TT

Pitch		Dimensions in mm				Grades									Grades							
						Coated					Uncoated				Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
–	14	1,2	1,5	0,24	16ER 14BSPT			■			■			16EL 14BSPT			■					
–	11	1,2	1,5	0,30	11BSPT			■		■	■			11BSPT			■					
–	14	1,5	2,2	0,24	16ER 14BSPT-TT			■														
–	11	1,8	2,8	0,30	11BSPT-TT			■														

BSPT – Internal Threading





ISO228/1 35 21 1959
ISO7/1

Size	Dimensions in mm d	l	s
09	5,560	9,6	2,40
16	9,525	16,5	3,47

09NR/16Nx..

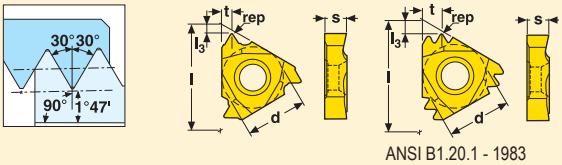
16NR..TT

Pitch		Dimensions in mm				Grades									Grades							
						Coated					Uncoated				Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
–	19	0,8	0,8	0,15	09NR 19BSPT			■														
–	14	1,2	1,5	0,24	16NR 14BSPT			■			■			16NL 14BSPT			■					
–	11	1,2	1,5	0,30	11BSPT			■		■	■			11BSPT			■					
–	14	1,5	2,2	0,24	16NR 14BSPT-TT			■														
–	11	1,8	2,8	0,30	11BSPT-TT			■														

■ Stock standard
Subject to change refer to current price- and stock-list

NPT– External Threading

Snap-Tap®



Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71

16Ex..

16ER..A1

16ER..A2

22ER..M

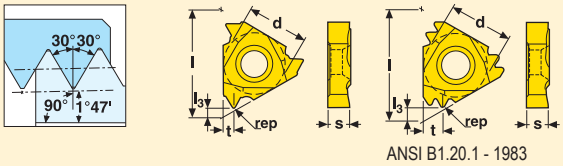
Pitch		Dimensions in mm			Insert Part No. Right	Grades Coated					Grades Uncoated			Insert Part No. Left	Grades Coated					Grades Uncoated		
mm	TPI	l_3	t	rep		CP200	CP300	CP500	TP1030	TM4000	H15				CP200	CP300	CP500	TP1030	TM4000	H15		
–	27	0,7	0,8	0,04	16ER 27NPT			■		■	■											
–	18	0,7	0,8	0,06	18NPT			■		■	■			16EL 18NPT			■					
–	14	1,1	1,5	0,07	14NPT			■		■	■			14NPT			■					
–	11,5	1,1	1,5	0,07	11.5NPT			■		■	■			11.5NPT			■					
–	8	1,1	1,6	0,07	8NPT			■		■	■			8NPT			■					
–	11,5	1,1	1,5	0,09	16ER 11.5NPT-A1			■														
–	11,5	1,1	1,5	0,09	16ER 11.5NPT-A2			■														
–	11,5	2,1	3,3	0,07	22ER 11.5NPT2M			■														

■ Stock standard

Subject to change refer to current price- and stock-list

NPT– Internal Threading

Snap-Tap®



Size	Dimensions in mm d	l	s
09	5,560	9,6	2,40
11	6,350	11,0	3,00
16	9,525	16,5	3,47
22	12,700	22,0	4,71

09NR/11NR/16Nx

16NR..A1

16NR..A2

22NR..M

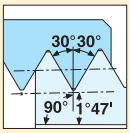
Pitch		Dimensions in mm				Grades								Grades							
						Coated					Uncoated			Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
–	27	0,7	0,8	0,04	09NR 27NPT			■														
–	18	0,7	0,8	0,06	18NPT			■		■												
–	18	0,7	0,8	0,06	11NR 18NPT			■		■												
–	14	0,7	1,0	0,07	14NPT			■		■												
–	14	1,1	1,5	0,08	16NR 14NPT			■		■	■			16NL 14NPT			■					
–	11,5	1,1	1,5	0,09	11.5NPT			■		■	■			11.5NPT			■					
–	8	1,1	1,6	0,10	8NPT			■		■	■			8NPT			■					
–	11,5	1,1	1,5	0,10	16NR 11.5NPT-A1			■														
–	14	1,1	1,5	0,08	16NR 14NPT-A2			■														
–	11,5	1,1	1,5	0,10	11.5NPT-A2			■														
–	8	1,1	1,6	0,12	8NPT-A2			■														
–	11,5	2,1	3,3	0,05	22NR 11.5NPT2M			■														

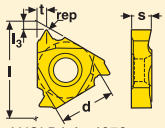
■ Stock standard

Subject to change refer to current price- and stock-list

NPTF– External Threading

Snap-Tap®





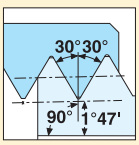
ANSI B1.4 - 1976
ANSI B1.20.3 - 1976

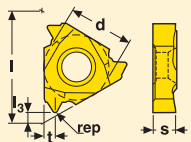
Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47

16ER..

Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	27	0,7	0,8	0,04	16ER 27NPTF			■														
–	18	0,7	0,8	0,04	18NPTF			■														
–	14	1,1	1,5	0,05	14NPTF			■														
–	11,5	1,1	1,5	0,06	11.5NPTF			■														

NPTF– Internal Threading





ANSI B1.4 - 1976
ANSI B1.20.3 - 1976

Size	Dimensions in mm d	l	s
11	6,350	11,0	3,00
16	9,525	16,5	3,47

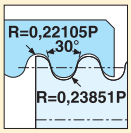
11NR/16Nx

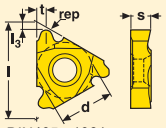
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	18	0,7	0,8	0,04	11NR 18NPTF			■														
–	14	1,1	1,5	0,05	16NR 14NPTF			■														
–	11,5	1,1	1,5	0,06	11.5NPTF			■						16NL 11.5NPTF			■					

■ Stock standard
Subject to change refer to current price- and stock-list

Round-DIN405 – External Threading

Snap-Tap®





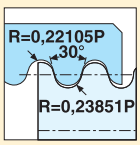
DIN405 - 1981
7h/6h

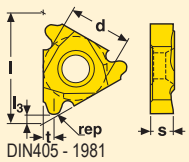
Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

16ER/22Ex/27ER

Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	10	1,3	1,5	0,58	16ER 10RD			■														
–	8	1,3	1,5	0,73	8RD			■														
–	6	1,3	1,8	0,97	6RD			■		■												
–	6	2,0	2,5	0,97	22ER 6RD			■						22EL 6RD			■					
–	4	2,2	3,2	1,46	27ER 4RD			■														

Round-DIN405 – Internal Threading





DIN405 - 1981
7H/6H

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

16NR/22Nx/27NR

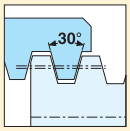
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15			Insert Part No. Left	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	10	1,3	1,5	0,51	16NR 10RD			■														
–	8	1,3	1,5	0,69	8RD			■														
–	6	1,3	1,8	0,87	6RD			■		■												
–	6	2,0	2,5	0,87	22NR 6RD			■						22NL 6RD			■					
–	4	2,2	3,2	1,31	27NR 4RD			■														

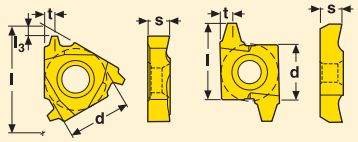
■ Stock standard
Subject to change refer to current price- and stock-list

TR-DIN103 – External Threading

Snap-Tap®

Partial profile





DIN103 - 1977
ISO2901/3 - 1977
7e

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15
20	12,700	20,0	6,30
26	15,875	26,0	7,88

16Ex/22Ex27ER

20ER/26ER

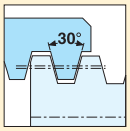
Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
1,5	–	0,9	0,8	–	16ER 1.5TR			■			■			16EL 1.5TR			■						
2,0	–	1,3	1,5	–	2.0TR			■			■			2.0TR			■						
3,0	–	1,3	1,6	–	3.0TR			■		■				3.0TR			■						
4,0	–	2,0	2,5	–	22ER 4.0TR			■		■				22EL 4.0TR			■						
5,0	–	2,0	2,3	–	5.0TR			■		■				5.0TR			■						
6,0	–	2,5	3,2	–	27ER 6.0TR			■															
7,0	–		3,2	–	20ER 7.0TR			■															
8,0	–		3,2	–	8.0TR			■															
9,0	–		5,0	–	26ER 9.0TR			■															
10,0	–		5,0	–	10.0TR			■		■													
12,0	–		5,0	–	12.0TR			■		■													
14,0	–		5,1	–	14.0TR			■		■													

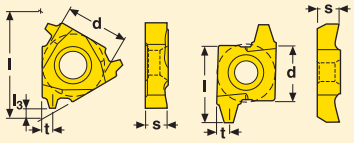
■ Stock standard
Subject to change refer to current price- and stock-list

TR-DIN103 – Internal Threading

Snap-Tap®

Partial profile





DIN103 - 1977
ISO2901/3 - 1977
7H

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15
20	12,700	20,0	6,30
26	15,875	26,0	7,88

16Nx/22Nx/27NR

20NR/26NR

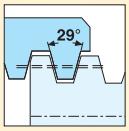
Pitch		Dimensions in mm				Grades									Grades							
						Coated					Uncoated				Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
1,5	–	0,9	0,8	–	16NR 1.5TR			■			■			16NL 1.5TR			■					
2,0	–	1,3	1,5	–	2.0TR			■			■			2.0TR			■					
3,0	–	1,3	1,6	–	3.0TR			■		■				3.0TR			■					
4,0	–	2,0	2,5	–	22NR 4.0TR			■		■				22NL 4.0TR			■					
5,0	–	2,0	2,3	–	5.0TR			■		■				5.0TR			■					
6,0	–	2,5	3,2	–	27NR 6.0TR			■														
7,0	–		3,2	–	20NR 7.0TR			■														
8,0	–		3,2	–	8.0TR			■														
9,0	–		5,0	–	26NR 9.0TR			■														
10,0	–		5,0	–	10.0TR			■		■												
12,0	–		5,0	–	12.0TR			■		■												
14,0	–		5,1	–	14.0TR			■		■												

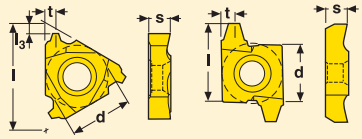
■ Stock standard
Subject to change refer to current price- and stock-list

ACME – External Threading

Snap-Tap®

Partial profile





ANSI B1.5 - 1988
3G

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15
20	12,700	20,0	6,30
26	15,875	26,0	7,88

16Ex/22Ex/27Ex

20ER/26ER

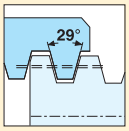
Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	16	0,9	0,8	–	16ER 16ACME			■															
–	14	1,3	1,5	–	14ACME			■															
–	12	1,3	1,5	–	12ACME			■															
–	10	1,4	1,5	–	10ACME			■															
–	8	1,3	1,5	–	8ACME			■		■				16EL 8ACME			■						
–	6	2,0	2,5	–	22ER 6ACME			■		■				22EL 6ACME			■						
–	5	2,0	2,3	–	5ACME			■						5ACME			■						
–	4	2,5	3,0	–	27ER 4ACME			■		■				27EL 4ACME			■						
–	3		3,2	–	20ER 3ACME			■		■													
–	2		5,0	–	26ER 2ACME			■		■													

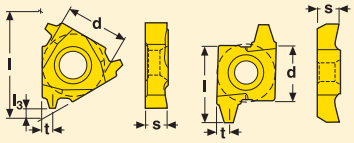
■ Stock standard
Subject to change refer to current price- and stock-list

ACME – Internal Threading

Snap-Tap®

Partial profile





ANSI B1.5 - 1988
3G

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15
20	12,700	20,0	6,30
26	15,875	26,0	7,88

16NR/22Nx/27NR

20NR/26NR

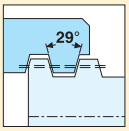
Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	16	0,9	0,8	–	16NR 16ACME			■															
–	12	1,3	1,5	–	12ACME			■															
–	10	1,3	1,5	–	10ACME			■															
–	8	1,3	1,5	–	8ACME			■															
–	6	2,0	2,5	–	22NR 6ACME			■		■													
–	5	2,0	2,3	–	5ACME			■						22NL 5ACME			■						
–	4	2,5	3,0	–	27NR 4ACME			■		■													
–	3,5		3,2	–	20NR 3.5ACME			■		■													
–	3		3,2	–	20NR 3ACME			■		■													
–	2		5,0	–	26NR 2ACME					■													

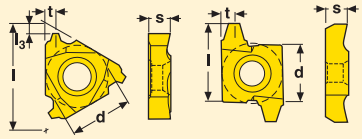
■ Stock standard
Subject to change refer to current price- and stock-list

Stub-ACME – External Threading

Snap-Tap®

Partial profile





ANSI B1.8 - 1988
2G

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15
20	12,700	20,0	6,30
26	15,875	26,0	7,88

16ER/22Ex/27ER

20ER/26ER

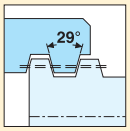
Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	12	1,5	1,5	–	16ER 12STACME			■		■													
–	10	1,5	1,5	–	10STACME			■		■													
–	8	1,8	1,5	–	8STACME			■		■													
–	6	2,4	2,5	–	22ER 6STACME			■						22EL 6STACME			■						
–	5	2,0	2,1	–	5STACME			■															
–	4	2,6	2,8	–	27ER 4STACME			■		■													
–	3		3,2	–	20ER 3STACME			■															
–	2		5,0	–	26ER 2STACME			■															

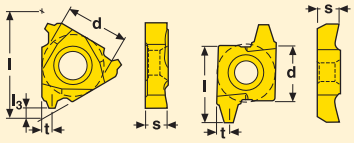
■ Stock standard
Subject to change refer to current price- and stock-list

Stub-ACME – Internal Threading

Snap-Tap®

Partial profile





ANSI B1.8 - 1988
2G

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15
20	12,700	20,0	6,30

16NR/22NR/27NR

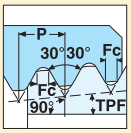
20NR

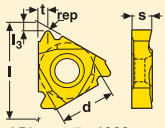
Pitch		Dimensions in mm				Grades								Grades							
						Coated					Uncoated			Coated					Uncoated		
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15		
–	12	1,5	1,5	–	16NR 12STACME			■													
–	10	1,5	1,5	–	10STACME			■		■											
–	8	1,8	1,5	–	8STACME			■		■											
–	6	2,4	2,5	–	22NR 6STACME			■													
–	5	2,0	2,1	–	5STACME			■													
–	4	2,6	2,8	–	27NR 4STACME			■		■											
–	3		3,2	–	20NR 3STACME			■													

■ Stock standard
Subject to change refer to current price- and stock-list

API – External Threading

Snap-Tap®





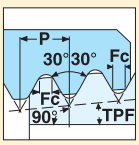
API spec.7 - 1998

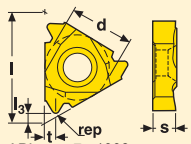
Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71
27	15,875	27,0	6,15

22ER/27ER

Pitch	Dimensions in mm							Grades							
								Coated					Uncoated		
TPI	l_3	t	API Code	Taper TPF	rep	f_c	Part No.	CP200	CP300	CP500	TP1030	TM4000	H15		
5	2,00	2,50	V040	3	0,508	1,016	22ER 5API404			■		■			
4	1,95	2,55	V038R	2	0,965	1,651	4API386			■		■			
5	2,20	3,20	V040	3	0,508	1,016	27ER 5API404			■		■			
4	2,20	3,20	V038R	3	0,965	1,651	4API384	■		■					
4	2,20	3,20	V038R	2	0,965	1,651	4API386	■		■		■			
4	2,20	3,20	V050	3	0,635	1,270	4API504	■		■		■			
4	2,20	3,20	V050	2	0,635	1,270	4API506	■		■		■			

API – Internal Threading





API spec.7 - 1998

Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71
27	15,875	27,0	6,15

22NR/27NR

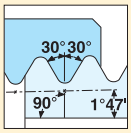
Pitch	Dimensions in mm							Grades							
								Coated					Uncoated		
TPI	l_3	t	API Code	Taper TPF	rep	f_c	Part No.	CP200	CP300	CP500	TP1030	TM4000	H15		
5	2,00	2,50	V040	3	0,508	1,016	22NR 5API404			■		■			
4	1,90	2,50	V038R	2	0,965	1,651	4API386			■		■	■		
5	2,20	3,20	V040	3	0,508	1,016	27NR 5API404					■			
4	2,20	3,20	V038R	3	0,965	1,651	4API384	■		■					
4	2,20	3,20	V038R	2	0,965	1,651	4API386	■		■		■			
4	2,20	3,20	V050	3	0,635	1,270	4API504	■		■		■			
4	2,20	3,20	V050	2	0,635	1,270	4API506	■		■		■			

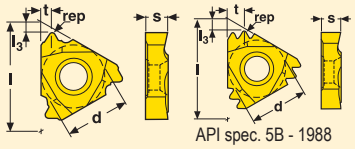
■ Stock standard

Subject to change refer to current price- and stock-list

API RD– External Threading

Snap-Tap®





API spec. 5B - 1988

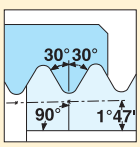
Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
22	12,700	22,0	4,71
27	15,875	27,0	6,15

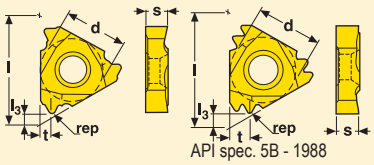
16ER

22ER/27ER

Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	10	1,50	1,50	0,38	16ER 10APIRD			■															
–	8	1,50	1,50	0,46	8APIRD			■		■													
–	10	2,40	3,70	0,38	22ER 10APIRD2M			■															
–	8	2,90	4,50	0,460	27ER 8APIRD2M					■													

API RD– Internal Threading





API spec. 5B - 1988

Size	Dimensions in mm d	l	s
16	9,525	16,5	3,47
27	15,875	27,0	6,15

16NR

27NR

Pitch		Dimensions in mm				Grades									Grades								
						Coated					Uncoated				Coated					Uncoated			
mm	TPI	l_3	t	rep	Insert Part No. Right	CP200	CP300	CP500	TP1030	TM4000	H15			Insert Part No. Left	CP200	CP300	CP500	TP1030	TM4000	H15			
–	10	1,50	1,50	0,38	16NR 10APIRD			■															
–	8	1,50	1,50	0,46	8APIRD			■		■													
–	8	2,90	4,50	0,460	27NR 8APIRD2M					■													

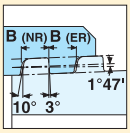
■ Stock standard

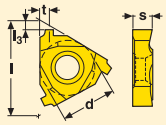
Subject to change refer to current price- and stock-list

VAM-API-BUTTRESS 2.5 – External Threading

Snap-Tap®

Crest and root are parallel to taper





Vallourec ST-D453.02
API spec. 5B - 1988

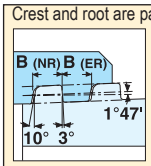
Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71

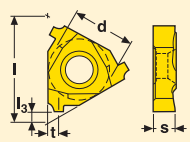
22ER

Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Taper TPF	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	6	2,20	2,50	–	3/4"	22ER 6VAM			■					
–	5	2,20	2,50	–	3/4"	5BUT2.5			■					

VAM-API-BUTTRESS 2.5 – Internal Threading

Crest and root are parallel to taper





Vallourec ST-D453.02
API spec. 5B - 1988

Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71

22NR

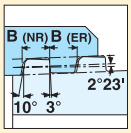
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Taper TPF	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	5	2,00	2,00	–	3/4"	22NR 5VAM			■					
–	6	2,00	2,00	–	3/4"	6VAM			■					
–	5	2,00	2,10	–	3/4"	5BUT2.5			■					

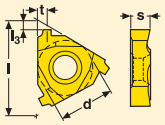
■ Stock standard
Subject to change refer to current price- and stock-list

API-BUTTRESS 2.6 – External Threading

Snap-Tap®

Crest and root are parallel to axis





API spec. 5B - 1988

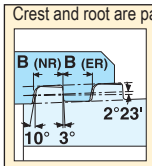
Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71

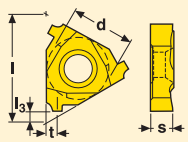
22ER

Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Taper TPF	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	5	2,20	2,50	–	1	22ER 5BUT2.6			■					

API-BUTTRESS 2.6 – Internal Threading

Crest and root are parallel to axis





API spec. 5B - 1988

Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71

22NR

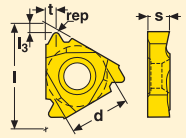
Pitch mm	Pitch TPI	Dimensions in mm l_3	t	rep	Taper TPF	Insert Part No. Right	Grades Coated CP200	CP300	CP500	TP1030	TM4000	Uncoated H15		
–	5	2,00	2,10	–	1	22NR 5BUT2.6			■					

■ Stock standard

Subject to change refer to current price- and stock-list

Rotary drill connection - External threading

Snap-Tap®



Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71
27	15,875	27,0	6,15

HEF

904/906

H90

PAC

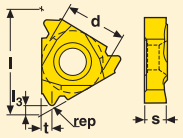
Pitch	Dimensions in mm					Grades							
						Coated					Uncoated		
TPI	l_3	t	API Code	Taper TPF	Part No.	CP200	CP300	CP500	TP1030	TM4000	H15		
6	2,00	2,50		2	22ER 6HEF			■					
3,5	2,70	3,50	90V050	3	27ER 3.5H904		■	■					
3,5	2,70	3,50	90V050	2	3.5H906		■	■					
3	3,50	3,60	90V050	1,25	27ER 3H90		■	■					
4	2,40	2,63	V076	1,5	22ER 4PAC			■					
4	2,75	3,20	V076	1,5	27ER 4PAC		■	■					

■ Stock standard

Subject to change refer to current price- and stock-list

Rotary drill connection - Internal threading

Snap-Tap®



Size	Dimensions in mm d	l	s
22	12,700	22,0	4,71
27	15,875	27,0	6,15

HEF

904/906

H90

PAC

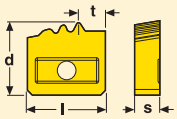
Pitch	Dimensions in mm					Grades							
						Coated					Uncoated		
TPI	l_3	t	API Code	Taper TPF	Part No.	CP200	CP300	CP500	TP1030	TM4000	H15		
6	2,00	2,50		2	22NR 6HEF			■					
3,5	2,70	3,50	90V050	3	27NR 3.5H904		■	■					
3,5	2,70	3,50	90V050	2	3.5H906		■	■					
3	3,50	3,60	90V050	1,25	27NR 3H90		■	■					
4	2,40	2,60	V076	1,5	22NR 4PAC			■					
4	2,75	3,20	V076	1,5	27NR 4PAC		■	■					

■ Stock standard

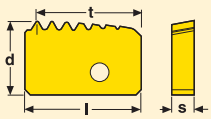
Subject to change refer to current price- and stock-list

Chasers

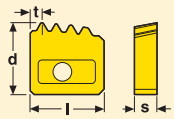
Type 1



Type 2



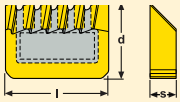
Type 3



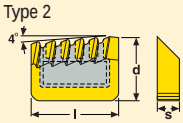
Pitch	Int./Ext.	Type	Dimensions in mm				No. of teeth	Part No.	Thread Form Product	Grades		
			l	d	s	t				Coated		
										CP250T	CP500T	TP150T
8	Internal	3	15,875	15,875	4,76	2,500	4	8- 1128	API_RD_8TPI_INT,	■		
8	External	1	15,875	15,875	4,76	5,600	3	1116	API_RD_CAS_8TPI_EXT,	■		
8	External	1	16,000	14,620	5,20	7,697	3	2115-1	API_RD_8TPI_CAS_3/4_TPF_1PMC	■		
8	External	1	16,000	14,870	5,20	6,638	3	2115-2	API_RD_8TPI_CAS_3/4_TPF_2PMC	■		
8	External	1	16,000	15,000	5,20	5,580	3	2115-3	API_RD_8TPI_CAS_3/4_TPF_3PMC	■		
8	External	1	20,000	15,875	4,76	10,190	3	4133-1	API_RD_8TPI_EXT_CASING_1	■		
8	External	1	20,000	15,875	4,76	8,600	3	4133-2	API_RD_8TPI_EXT_CASING_2	■		
8	External	1	16,000	14,620	5,20	7,697	3	8- 2118-1	API_RD_8TPI_TUB_3/4_TPF_1PMC	■		
8	External	1	16,000	14,870	5,20	6,638	3	2118-2	API_RD_8TPI_TUB_3/4_TPF_2PMC	■		
8	External	1	16,000	15,000	5,20	5,580	3	2118-3	API_RD_8TPI_TUB_3/4_TPF_3PMC	■		
8	External	1	15,875	15,875	4,76	5,600	3	1117	API_RD_TUBING_8TPI_EXT,	■		
8	External	1	15,875	15,540	4,76	5,990	3	1132-1	API_RD_8TPI_TUBING_EXT_1	■		
8	External	1	15,875	15,840	4,76	4,400	3	1132-2	API_RD_8TPI_TUBING_EXT_2	■		
8	Internal	3	25,000	15,875	5,00	2,500	7	5111	API_RD_8TPI_INT	■		
8	Internal	2	25,000	15,875	5,00	22,500	7	5114	API_RD_8TPI_INTPULLING	■		
10	External	1	15,875	15,150	4,76	5,670	3	10- 1133-1	API_RD_10TPI_TUB_EXT_1	■		
10	External	1	15,875	15,875	4,76	4,400	3	1133-2	API_RD_10TPI_TUB_EXT_2	■		
10	Internal	3	15,875	15,875	4,76	5,000	4	1120	API_RD_10TPI_TUB_INT	■		
5	External	1	15,875	15,875	4,76	2,100	3	5- 1102	API_BUTT_5TPI_1/16_EXT	■		
5	Internal	2	15,875	15,875	4,76	13,375	3	1134	API_BUTT_5TPI_CAS_1/16_INTPUL	■		
5	Internal	3	15,875	15,875	4,76	2,500	3	1113	API_BUTTRESS_5TPI_1/16_INT,	■		
5	External	1	17,000	14,570	4,76	5,552	3	3105-1	API_BUTTRESS_5TPI_1/16_EXT_1	■		
5	External	1	17,000	14,825	4,76	3,858	3	3105-2	API_BUTTRESS_5TPI_1/16_EXT_2	■		
5	External	1	17,000	14,980	4,76	2,165	3	3105-3	API_BUTTRESS_5TPI_1/16_EXT_3	■		
5	External	1	20,000	15,692	4,76	4,840	3	4131-1	API_BUTTRESS_1/16_5TPI_EXT_1	■		
5	External	1	20,000	15,875	4,76	2,300	4	4131-2	API_BUTTRESS_1/16_5TPI_EXT_2	■		
5	External	1	20,000	15,669	4,76	4,82	3	4135-1	API_BUTTRESS_5TPI_1/12_EXT_1	■		
5	External	1	20,000	15,875	4,76	2,280	4	4135-2	API_BUTTRESS_5TPI_1/12_EXT_2	■		
5	Internal	3	25,000	15,875	5,00	1,964	5	5112-C	API_BUTTRESS_5TPI_1/16_INT	■	■	
5	Internal	3	25,000	15,875	5,00	2,500	5	5108	API_BUTTRESS_5TPI_1/16_INT	■		
5	Internal	2	25,000	15,875	5,00	22,500	5	5110	API_BUTT_5TPI_1/16_INTPULLING	■		
5	External	1	25,000	15,875	5,00	2,000	5	5101	API_BUTTRESS_5TPI_1/16_EXT	■		
5	External		25,000	15,875	5,00	2,000	5	5102	API_BUTRESS_5_TPI_1/16_EXT,	■	■	■
5	Internal	3	15,875	15,875	4,76	2,500	3	5- 1703	GOSTOTTM5TPIINT,	■		
5	Internal	2	15,875	15,875	4,76	13,375	3	1705	GOSTOTTM5TPIINT,PULLING	■		
5	External	1	15,875	15,875	4,76	2,100	3	1706	GOSTOTTM5TPIEXT,	■		
5	External	1	25,000	15,875	5,00	2,000	5	5704	GOSTOTTM5TPIEXT,	■		
5	External	1	20,000	15,692	4,76	4,840	3	4701-1	GOSTOTTM5TPIEXT,1	■		
5	External	1	20,000	15,875	4,76	2,300	4	4701-2	GOSTOTTM5TPIEXT,2	■		

Chipformers

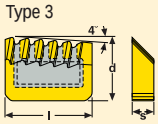
Type 1



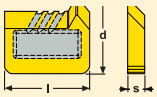
Type 2



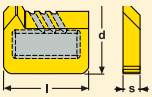
Type 3



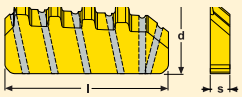
Type 4



Type 5



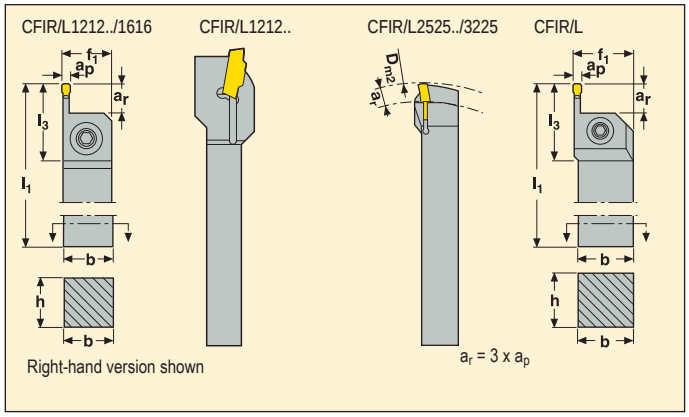
Type 6



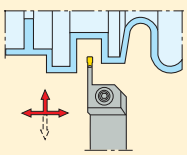
Type	Part No.	Dimensions in mm		
		l	d	s
1	C-1001	15,7	11,50	3,97
2	C-1001-4	15,7	11,50	3,97
3	C-1001-96	15,7	11,50	3,97
2	C-1002-4	15,7	11,50	3,97
3	C-1002-96	15,7	11,50	3,97
2	C-1004-4	15,7	11,50	3,97
3	C-1004-96	15,7	11,50	3,97
2	C-1005-4	15,7	11,50	3,97
3	C-1005-96	15,7	11,50	3,97
2	C-1006-4	15,7	11,50	3,97
1	C-1009	15,7	11,50	3,97
3	C-1009-96	15,7	11,50	3,97
1	C-1010	15,7	11,50	3,97
2	C-1010-4	15,7	11,50	3,97
3	C-1010-96	15,7	11,50	3,97
3	C-1013-96	15,7	11,50	3,97
1	C-1018	15,7	11,50	3,97
3	C-1018-96	15,7	11,50	3,97
3	C-1021-96	15,7	11,50	3,97
4	C-1022	15,7	11,50	3,18
5	C-1023	15,7	11,50	3,18
4	C-1024	15,7	11,50	3,97
5	C-1025	15,7	11,50	3,97
4	C-1032	15,7	11,50	3,18
5	C-1033	15,7	11,50	3,18
4	C-1034	15,7	11,50	3,18
5	C-1035	15,7	11,50	3,18
3	C-1601-96	15,7	12,50	3,97
2	C-1604-4	15,7	12,50	3,97
2	C-4001-4	19,8	11,50	3,97
2	C-4003-4	19,7	11,50	3,97
2	C-5001-4	24,8	11,50	3,97
2	C-5002-4	24,8	11,50	3,97
3	C-5002-96	24,8	11,50	3,97
1	C-5003	24,8	11,50	3,97
2	C-5003-4	24,8	11,50	3,97
3	C-5003-96	24,8	11,50	3,97
1	C-5005	24,8	11,50	3,00
1	C-5006	24,8	11,50	3,00
6	C-5705-G	24,8	13,00	3,00
6	C-5803-4	24,8	13,50	3,97
6	C-5805-G	24,8	13,50	3,00
6	C-5905-G	24,8	14,00	3,00

Toolholders for inserts LCGN

- For inserts programme, see page(s) 164-193



Application



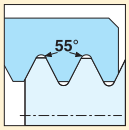
Part No.	h	b	l_1	f_1	l_3	a_r	D_{m2}	KG	
				Dimensions in mm					
CFIR 1212M03	12	12	150	12,0	31	9	–	0,2	LC..1603..
1616H03	16	16	100	16,0	28	9	–	0,2	LC..1603..
2020K03	20	20	125	21,5	28	9	–	0,4	LC..1603..
2525M03	25	25	150	26,5	28	9	195	0,7	LC..1603..
3225P03	32	25	170	26,5	28	9	195	1,0	LC..1603..
CFIL 1212M03	12	12	150	12,0	31	9	–	0,2	LC..1603..
1616H03	16	16	100	16,0	28	9	–	0,2	LC..1603..
2020K03	20	20	125	21,5	28	9	–	0,4	LC..1603..
2525M03	25	25	150	26,5	28	9	195	0,7	LC..1603..
3225P03	32	25	170	26,5	28	9	195	1,0	LC..1603..

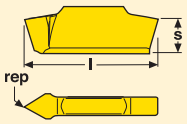
Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Clamp screw/Key		Torque value Nm
..1212M03	TCEI0409	3 SMS795	2,5
..1616H03	TCEI0509	4 SMS795	6,0
..2020K03	TCEI0513	4 SMS795	6,0
..2525M03	TCEI0513	4 SMS795	6,0
..3225P03	TCEI0513	4 SMS795	6,0

Please check availability in current price and stock-list

LCGN – Partial profile 55°





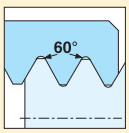
Tolerances:
l = ±0,025
rep = ±0,025

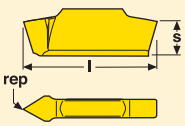
Size	Dimensions in mm l	s	rep
-A55	16,60	4,50	0,080
-G55	16,60	4,50	0,180

Pitch mm	Pitch TPI	Insert Part No. Right	Grades Coated CP500	CP600	TK150	TGP25	
0,50-1,50	16-48	LCGN 1603-A55	■				
1,75-3,00	8-14	1603-G55	■				

Helix angle not to exceed λ +2°

LCGN – Partial profile 60°





Tolerances:
l = ±0,025
rep = ±0,025

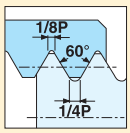
Size	Dimensions in mm l	s	rep
-A60	16,60	4,50	0,080
-G60	16,60	4,50	0,180

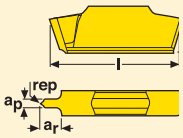
Pitch mm	Pitch TPI	Insert Part No. Right	Grades Coated CP500	CP600	TK150	TGP25	
0,50-1,50	16-48	LCGN 1603-A60	■				
1,75-3,00	8-14	1603-G60	■				

■ Stock standard
Subject to change refer to current price- and stock-list

Helix angle not to exceed λ +2°

LCGN – ISO Metric





Tolerances:
l = ±0,025

Size	Dimensions in mm				
	a_p	l	s	a_r	rep
-E0.5	0,750	16,600	4,500	1,900	0,070
-E0.8	1,200	16,600	4,500	3,000	0,110
-E1.0	1,500	16,600	4,500	3,750	0,130
-E1.25	1,880	16,600	4,500	4,200	0,170
-E1.5	2,400	16,600	4,500	–	0,210

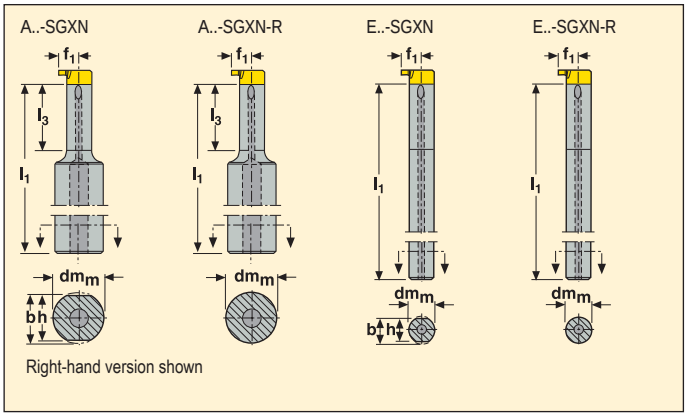
Pitch mm	Insert Part No. Right	Note	Grades					
			Coated					
			CP500	CP600	TK150	TGP25		
0,50	LCGN 1603-E0.5ISO	*	■					
0,80	1603-E0.8ISO	*	■					
1,00	1603-E1.0ISO	*	■					
1,25	1603-E1.25ISO	*	■					
1,50	1603-E1.5ISO		■					

■ Stock standard
Subject to change refer to current price- and stock-list

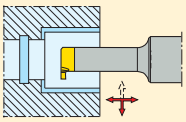
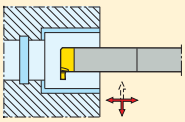
Helix angle not to exceed λ +2°
*Toolholders have to be modified

Toolholders for inserts LCEX

• For inserts programme, see page(s) 164-193



Right-hand version shown

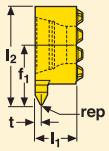
Application	Part No.	Dimensions in mm							KG	
		dm_m	h	b	l_1	f_1	l_3	D_{m1}		
	A12G- SGXN08-20	12	11,0	11,50	86,5	4,8	16,5	8	0,1	LCEX08..
	SGXN08-20-R	12	–	–	86,5	4,8	16,5	8	0,1	LCEX08..
	A16H- SGXN11-25	16	15,0	15,50	96,0	6,7	21,0	11	0,2	LCEX11..
	SGXN11-25-R	16	–	–	96,0	6,7	21,0	11	0,2	LCEX11..
	E06G- SGXN08	6	5,5	5,75	86,5	4,8	–	8	0,1	LCEX08..
	SGXN08-R	6	–	–	86,5	4,8	–	8	0,1	LCEX08..
	E08H- SGXN11	8	7,3	7,65	96,0	6,7	–	11	0,1	LCEX11..
	SGXN11-R	8	–	–	96,0	6,7	–	11	0,1	LCEX11..

Spare Parts, Parts included in delivery

Toolholder/ Insert dimension	Clamp screw/Key	
		
..1212M03	TCEI0409	3 SMS795
..1616H03	TCEI0509	4 SMS795
..2020K03	TCEI0513	4 SMS795
..2525M03	TCEI0513	4 SMS795
..3225P03	TCEI0513	4 SMS795

Please check availability in current price and stock-list

Threading – Partial Profile 60°



Size	Dimensions in mm f_1	l_2	l_1
8	4,78	7,78	3,30
11	6,70	10,70	4,00

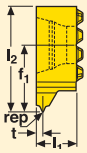
..R

..L

Pitch mm	Pitch TPI	Dimensions in mm t	Dimensions in mm rep	Part No.	Grades Coated CP200	CP300	CP500	TP1030		Uncoated H15		
0,50-0,75	36-48	0,48	0,03	LCEX 0804-A60R			■					
0,50-0,75	36-48	0,48	0,03	0804-A60L			■					
0,75-1,25	20-36	0,73	0,07	0804-AG60R			■					
0,75-1,25	20-36	0,73	0,07	0804-AG60L			■					
1,25-1,75	16-20	0,98	0,12	0804-G60R			■					
1,25-1,75	16-20	0,98	0,12	0804-G60L			■					
0,50-0,75	36-48	0,48	0,03	LCEX 1105-A60R			■					
0,50-0,75	36-48	0,48	0,03	1105-A60L			■					
0,75-1,25	20-36	0,73	0,07	1105-AG60R			■					
0,75-1,25	20-36	0,73	0,07	1105-AG60L			■					
1,25-1,75	16-20	0,98	0,12	1105-G60R			■					
1,25-1,75	16-20	0,98	0,12	1105-G60L			■					

■ Stock standard
Subject to change refer to current price- and stock-list

Threading – ISO Metric



Size	Dimensions in mm f_1	l_2	l_1
11	6,70	10,70	4,00

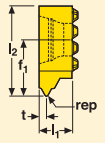
..R

..L

Pitch mm	Pitch TPI	Dimensions in mm t	Dimensions in mm rep	Part No.	Grades Coated CP200	CP300	CP500	TP1030		Uncoated H15		
1,00	–	0,60	0,07	LCEX 1105-1.0ISOR			■					
1,00	–	0,60	0,07	1105-1.0ISOL			■					
1,50	–	0,80	0,12	1105-1.5ISOR			■					
1,50	–	0,80	0,12	1105-1.5ISOL			■					
2,00	–	1,10	0,17	1105-2.0ISOR			■					
2,00	–	1,10	0,17	1105-2.0ISOL			■					
2,50	–	1,35	0,18	1105-2.5ISOR			■					
2,50	–	1,35	0,18	1105-2.5ISOL			■					
3,00	–	1,60	0,21	1105-3.0ISOR			■					
3,00	–	1,60	0,21	1105-3.0ISOL			■					

■ Stock standard
Subject to change refer to current price- and stock-list

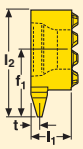
Threading – Whitworth, BSW



Size	Dimensions in mm f_1	l_2	l_1
11	6,70	10,70	4,00

Pitch mm	Pitch TPI	Dimensions in mm t	Dimensions in mm rep	Part No.	Grades Coated CP200	CP300	CP500	TP1030		Uncoated H15		
–	19	0,77	0,15	LCEX 1105-19WR			■					
–	19	0,77	0,15	1105-19WL			■					
–	14	1,00	0,24	1105-14WR			■					
–	14	1,00	0,24	1105-14WL			■					

Threading – TR-DIN103

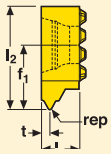


Size	Dimensions in mm f_1	l_2	l_1
11	6,70	10,70	4,00

Pitch mm	Pitch TPI	Dimensions in mm t	Part No.	Grades Coated CP200	CP300	CP500	TP1030		Uncoated H15		
1,50	–	0,80	LCEX 1105-1.5TRR			■					
1,50	–	0,80	1105-1.5TRL			■					
2,00	–	1,10	1105-2.0TRR			■					
2,00	–	1,10	1105-2.0TRL			■					
3,00	–	1,60	1105-3.0TRR			■					
3,00	–	1,60	1105-3.0TRL			■					

■ Stock standard
Subject to change refer to current price- and stock-list

Threading - UN



Size	Dimensions in mm f_1	l_2	l_1
8	4,78	7,78	3,30

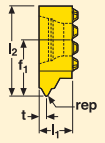
..R

..L

Pitch		Dimensions in mm			Grades							
					Coated					Uncoated		
mm	TPI	t	rep	Part No.	CP200	CP300	CP500	TP1030		H15		
–	32	0,5	0,04	LCEX 0804-32UNR			■					
–	32	0,5	0,04	0804-32UNL			■					
–	24	0,6	0,07	0804-24UNR			■					
–	24	0,6	0,07	0804-24UNL			■					
–	20	0,7	0,09	0804-20UNR			■					
–	20	0,7	0,09	0804-20UNL			■					
–	16	0,9	0,13	0804-16UNR			■					
–	16	0,9	0,13	0804-16UNL			■					

■ Stock standard
Subject to change refer to current price- and stock-list

Threading – NPT

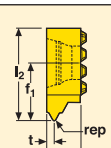


Size	Dimensions in mm f_1	l_2	l_1
8	4,78	7,78	3,30

..R  ..L 

Pitch mm	Pitch TPI	Dimensions in mm t	Dimensions in mm rep	Part No.	Grades Coated CP200	CP300	CP500	TP1030		Uncoated H15		
–	27	0,57	0,03	LCEX 0804-27NPTR			■					
–	27	0,57	0,03	0804-27NPTL			■					

Threading – NPTF

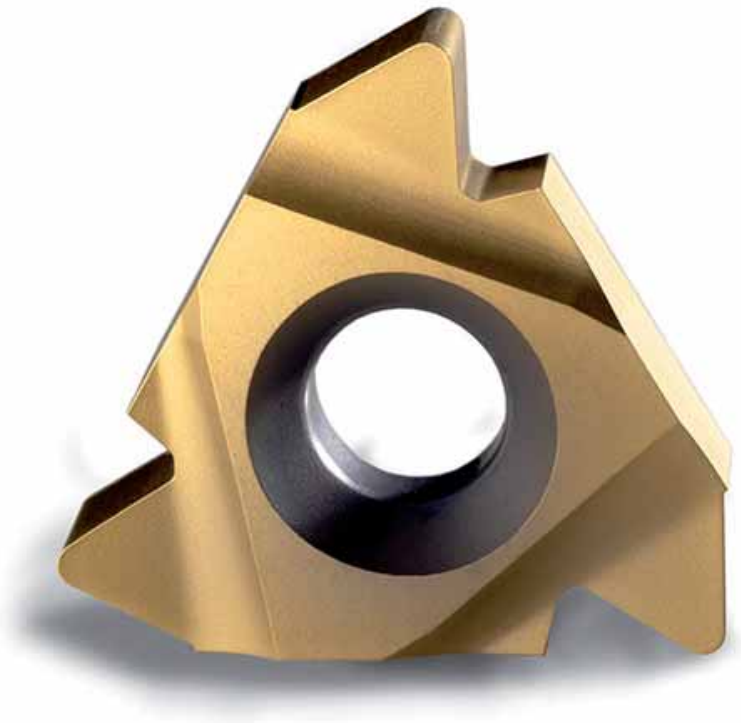


Size	Dimensions in mm f_1	l_2	l_1
8	4,78	7,78	3,30

..R  ..L 

Pitch mm	Pitch TPI	Dimensions in mm t	Dimensions in mm rep	Part No.	Grades Coated CP200	CP300	CP500	TP1030		Uncoated H15		
–	27	0,57	0,04	LCEX 0804-27NPTFR			■					
–	27	0,57	0,04	0804-27NPTFL			■					

■ Stock standard
Subject to change refer to current price- and stock-list



Workpiece materials – Classification, SMG (ver. 2)

Steels, ferritic and martensitic stainless steels

SMG	Description	Properties	Reference
P1	Free-cutting steels	$360 < R_m < 880$	11 SMn30 $R_m = 385$ N/mm^2
P2	Low alloy ferritic steels, C < 0.25%wt Low alloy weldable general structural steels	$320 < R_m < 600$	S235JRG2 $R_m = 420$ N/mm^2
P3	Ferritic & ferritic/pearlitic steels, C < 0.25%wt Weldable general structural steels Case hardening steels	$430 < R_m < 610$	16 MnCr 5 $R_m = 550$ N/mm^2
P4	Low alloy general structural steels, 0.25% < C < 0.67%wt Low alloy Quench & Temper steels	$520 < R_m < 1200$	C 45E $R_m = 660$ N/mm^2
P5	Structural steels, 0.25% < C < 0.67%wt Quench & Temper steels	$550 < R_m < 1200$	42 CrMo 4 $R_m = 700$ N/mm^2
P6	Low alloy through hardening steels, C > 0.67%wt Low alloy spring and bearing steels	$520 < R_m < 1200$	C 100S $R_m = 600$ N/mm^2
P7	Through hardening steels, C > 0.67%wt Spring and bearing steels	$600 < R_m < 1200$	100 Cr 6 $R_m = 650$ N/mm^2
P8	Tool steels High Speed Steels (HSS)	$600 < R_m < 1200$	X 40 CrMoV 5 1 $R_m = 700$ N/mm^2
P11	Ferritic & martensitic stainless steels	$415 < R_m < 1200$	X 20 Cr 13 $R_m = 675$ N/mm^2

Free-cutting, austenitic and duplex stainless steels

SMG	Description	Properties	Reference
M1	Free-cutting austenitic stainless steels		X 10 CrNiS 18 9
M2	Low alloy austenitic stainless steels		X 5 CrNi 18 9
M3	Medium alloy austenitic stainless steels		X 2 CrNiMo 18 14 3
M4	High alloy austenitic and duplex stainless steels		X 2 CrNiMoN 22 5 3
M5	Difficult high alloy austenitic and duplex stainless steels		X 2 CrNiMoN 25 7 4

Cast irons

SMG	Description	Properties	Reference
K1	Grey cast irons (GCI)		EN-GJL-250
K2	Compacted graphite irons (CGI)		EN-GJV-400
K3	Malleable cast irons (MCI)		EN-GJMB-550-4
K4	Nodular cast irons (SGI)		EN-GJS-500-7
K5	Austempered ductile irons (ADI)		EN-GJS-1000-5
K6	Austenitic lamellar cast irons		EN-GJLA-XNiCuCr15-6-2
K7	Austenitic nodular cast irons		EN-GJSA-XNiMn23-4

Non-ferrous metals

SMG	Description	Properties	Reference
N1	Aluminium alloys, Si < 9%		AW-7075
N2	Aluminium alloys, 9% < Si < 16%		AC-44200 Si = 12%
N3	Aluminium alloys, Si >16%		AlSi17Cu5
N11	Copper alloys		CW614N

Superalloys and titanium

SMG	Description	Properties	Reference
S1	Iron based superalloys		Discalloy
S2	Cobalt based superalloys		Stellite 21
S3	Nickel based superalloys		Inconel 718
S11	Titanium, low alloyed, (α)		Ti
S12	Titanium, medium alloyed, (α+β)		TiAl6V4
S13	Titanium, high alloyed, (near β and β)		Ti10V2Fe3Al

Workpiece materials – Classification, SMG (ver. 2)

Hard materials

SMG	Description	Properties	Reference
H3	Case hardened steels	58 < HRC < 62	16 MnCr 5 60 HRC
H5	Quenched & Tempered steels	38 < HRC < 56	42 CrMo 4 50 HRC
H7	Quenched & Tempered steels Bearing steels	56 < HRC < 64	100 Cr 6 60 HRC
H8	Tool steels High Speed Steels	38 < HRC < 64	X 40 CrMoV 5 1 50 HRC
H11	Martensitic stainless steels	38 < HRC < 50	X 20 Cr 13 45 HRC
H12	Precipitation hardened stainless steels	33 < HRC < 50	X 5 CrNiCuNb 16 4 35 HRC
H21	Manganese steels	23 < HRC < 64	X 120 Mn 12 50 HRC
H31	White cast irons	50 < HRC < 64	EN-GJN-HV600(XCr11) 55 HRC

Other difficult materials

SMG	Description	Properties	Reference
PM1	Low alloy PM materials		F-0008 Fe-0.7C
PM2	Medium alloy PM materials		FLC-4608 Fe2Cu1.8Ni0.5Mo0.2Mn0.8C
PM3	High alloy PM materials Exhaust valve seat materials		
HF1	Hard facing alloys Welded or plasma deposited iron based alloys		
HF2	Hard facing alloys Welded or plasma deposited cubalt and nickel based alloys		
CC1	Sintered tungsten carbide, Co >13%		G50

Plastics and Composites

SMG	Description	Properties	Reference
TS1	Thermosetting polymers		Urea formaldehyde (UF)
TS2	Thermosetting Carbon fibre composites		T300 T700 T800 HTA-S IMA - Epoxy (M21)...
TS3	Thermosetting Glass fibre composites		Epoxy - HX..(42..)/E glass (7781...)...
TS4	Thermosetting Aramide fibre composites		Kevlar 49
TP1	Thermoplastic polymers		Polycarbonate (PC)
TP2	Thermoplastic Carbon fibre composites		PPS/PEEK - T300..
TP3	Thermoplastic Glass fibre composites		PPS/PEEK - E glass or A glass...
TP4	Thermoplastic Aramide fibre composites		

Graphite

SMG	Description	Properties	Reference
GR1	Graphite		R 8500

Workpiece materials – Classification, SMG (ver. 2)

SECO

SMG

SMG	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
	11 SMn30	1.0715	1.0715	9 SMn 28	S 250	230 M 07	CF 9 SMn 28	SUM 22	1912	G12130
	11 SMnPb30	1.0718	1.0718	9 SMnPb 28	S 250 Pb		CF 9 SMnPb 28	SUM 22 L	1914	G12134
	10 S 20	1.0721	1.0721	10 S 20	10 F 1	210 M 15	CF 10 S 20			
			1.0722	10 SPb 20	10 PbF 2		CF 10 SPb 20			
P1	15 SMn13	1.0725	1.0723	15 S 20		210 A 15		SUM 32	1922	
	35 S20	1.0726	1.0726	35 S 20	35 MF 4	212 M 36			1957	G11400
	46 S20	1.0727	1.0727	46 S 20	45 MF 4	212 M 44			1973	G11460
	11 SMn37	1.0736	1.0736	9 SMn 36	S 300	240 M 07	CF 9 SMn 36			G12150
	11 SMnPb 37	1.0737	1.0737	9 SMnPb 36	S 300 Pb		CF 9 SMnPb 36		1926	G12144
	S235JR	1.0037	1.0037	St 37-2	E 24-2		Fe 360 B	STKM 12 C	1311	
	S235JRG2	1.0038	1.0116	St 37-3	E 24-3, E 24-4	4360-40 C	Fe 360 D FF		1312, 1313	
	S275J2G3	1.0144	1.0144	St 44-3 N	E 28-3, E 28-4	4360-43 C	Fe 430 D FF	SM 41 C	1412, 1414	
	C 10	1.0301	1.0301	C 10	AF 34 C 10, XC 10	045 M 10	C 10	S 10 C		G10100
P2			1.0401	C 15	AF3 7 C 12, XC 18	080 M 15	C 15, C 16		1350	G10170
	C22+N	1.0402	1.0402	C 22	C 20	050 A 20	C 20, C 21		1450	G10200
	S355JR	1.0570	1.0570	St 52-3	E 36-3, E 36-4	4360-50 C	Fe 510 B	SM 50 YA	2172, 2132	
	C 15R	1.1141	1.1141	Ck 15	XC 15, XC 18	080 M 15	C 15, C 16	S 15 C, S 15 CK	1370	G10170
			1.1158	Ck 25	XC 25	060 A 25	C 25	S 25 C		G10250
			1.2162	21 MnCr 5	20 NC 5			SCR 420 H		
	16 Mo 3	1.5415	1.5415	15 Mo 3	15 D 3	1501-240	16 Mo 3		2912	
			1.5423	16 Mo 5		1503-245-420	16 Mo 5	SB 450 M		G45200
	14 NiCr 14	1.5752	1.5752	14 NiCr 14	12 NC 15	655 M 13		SNC 815 (H)		G33106
			1.5919	15 CrNi 6	16 NC 6	S 107	16 CrNi 4			
	18 NiCrMo 7 6	1.6587	1.6587	18 CrNiMo 7 6	18 NCD 6	820 A 16	18 NiCrMo 7			
P3	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511	G51170
	16 MnCrS 5	1.7139	1.7139	16 MnCrS 5						
	20 MnCr 5	1.7147	1.7147	20 MnCr 5	20 MC 5		20 MnCr 5	SMnC 420 (H)		G51200
	20 MnCrS 5	1.7149	1.7149	20 MnCrS 5	20 MnCrS 5			SMnC 21 H		
	13 CrMo 4 5	1.7335	1.7335	13 CrMo 4 4	15 CD 3.5	1501-620 Gr. 27	14 CrMo 4 5		2216	
			1.7337	16 CrMo 4 4	15 CD 4.5	1501-620 Gr. 27	14 CrMo 4 5		2216	
	10 CrMo 9 10	1.7380	1.7380	10 CrMo 9 10	10 CD 9.10	1501-622 Gr. 31	12 CrMo 9 10		2218	J21890
	C35+N		1.0501	C 35	AF 55 C 35	060 A 35	C 35		1550	G10350
	E 335	1.0503	1.0503	C 45	AF 65 C 45	80 M 46	C 45	S 45 C	1650	G10430
	C40+N		1.0511	C 40	AF 60 C 40	080 M 40	C 40	S 40 C		
	E 360	1.0070	1.0535	St 70-2	A 70-2		Fe 690		1655	
	C60+N	1.0601	1.0601	C 60	CC 55	080 A 62	C 60			G10600
P4			1.1157	40 Mn 4	35 M 5	150 M 36				G10390
	G 28 Mn6	1.1165	1.1165	30 Mn 5		120 M 36		SMn 1 H, SCMn 2		G13300
	G 28 Mn6+QT	1.1165	1.1167	36 Mn 5	40 M 5	150 M 36		SMn 438 (H), SCMn 3	2120	G13350
	C 35E	1.1181	1.1181	Ck 35	XC 38 H1	080 M 36	C 35	S 35 C	1572	G10340
	C 45E	1.1191	1.1191	Ck 45	XC 42	080 M 46	C 45	S 45 C	1672	G10420
	C 60E	1.1221	1.1221	Ck 60	XC 60	080 A 62	C 60	S 58 C	1665, 1678	G10640
			1.1740	C 60 W	Y3 55			SK 7		
	55 SiCr7	1.7100	1.0904	55 Si 7	55 S 7	250 A 53	55 Si 8		2085, 2090	
	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244	G41400
	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244	G41400
			1.2330	35 CrMo 4	34 CD 4	708 A 37	35 CrMo 4		2234	T51620
			1.2542	45 WCrV 7		BS 1	45 WCrV 8 KU		2710	T41901
		1.2714	1.2714	56 NiCrMoV 7		BH 224-5	56 NiCrMoV7-KU	SKT 4		T61206
			1.5121	46 MnSi 4						
			1.5710	36 NiCr 6	35 NC 6	640 A 35		SNC 236		
P5			1.5736	36 NiCr 10	35 NC 11		35 NiCr 9	SNC 631 (H)		
	36CrNiMo4+TA		1.6511	36 CrNiMo 4	40 NCD 3	816 M 40	38 NiCrMo 4 (KB)			G98400
	34 CrNiMo 6	1.6582	1.6582	34 CrNiMo 6	35 NCD 6	817 M 40	35 NiCrMo 6 (KW)	SNCM 447	2541	
	34 Cr 4	1.7033	1.7033	34 Cr 4	32 C 4	530 A 32	34 Cr 4 (KB)	SCr 430 (H)		G51320
	41 Cr 4	1.7035	1.7035	41 Cr 4	42 C 4	530 M 40	41 Cr 4	SCr 440 (H)		G51400
	25 CrMo 4	1.7218	1.7218	25 CrMo 4	25 CD 4 S	708 M 25	25 CrMo 4 (KB)	SCM 425	2225	G41300
			1.7361	32 CrMo 12	30 CD 12	722 M 24	32 CrMo 12		2240	
	50 CrV 4	1.8159	1.8159	50 CrV 4	50 CV 4	735 A 50	51 CrV 4	SUP 10	2230	H61500
	41 CrAlMo 7 10	1.8509	1.8509	41 CrAlMo 7	40 CAD 6.12	905 M 39	41 CrAlMo 7	SACM 645	2940	K24065
	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770	G10700
	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870	G10950
P6	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU		1880	
			1.1645	C 105 W2	Y1 105		C 100 KU	SK 3		
			1.1663	C 125 W	Y2 120		C 120 KU	SK 2		

SMG

U.N.E./ I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
	1213			Annealed	
	12 L 13			Annealed	
	1108			Annealed	
	11 L 08			Annealed	
				Annealed	
	1140	40		Annealed	
	1146			Annealed	
	1215			Annealed	
	12 L 14			Annealed	
		16D		Annealed	
	A 573 Gr. 58	18kp		Annealed	
	A 573 Gr. 70	St14kP		Annealed	
	1010	10		Annealed	
F.1110	1015	15		Annealed	
	1023	20		Annealed	
		17G1S		Annealed	
F.1511	1015	15		Annealed	
F.1120	1025	25		Annealed	
				Annealed	
	A 204 Gr. A			Annealed	
	4520			Annealed	
	3310, 9314	20X2H4A		Annealed	
	4320			Annealed	
				Annealed	
F.1516	5115	12KHN2		Annealed	
		18HG		Annealed	
	5120	20KH		Annealed	
	5120 H	20KH		Annealed	
	A 182-F11, F12	12KHM		Annealed	
	A 387 Gr. 12 Cl. 2			Annealed	
F.155	A 182-F22	12KH8		Annealed	
F.1130	1035	35		Annealed	
F.5110	1045	45		Annealed	
	1040	40		Annealed	
F.1150	1055	55		Annealed	
	1060	60		Annealed	
	1039	40G		Annealed	
	1330	30G2		Annealed	
F.411	1335	35G2		Annealed	
F.1135	1035	35		Annealed	
F.1140	1045	45		Annealed	
F.1150	1064	60		Annealed	
	1060	60		Annealed	
F.144	9255	55S2		Annealed	
F.1252	4142, 4140	38HM		Annealed	
F.1252	4142, 4140	38HM		Quenched & Tempered	
F.1250	4135	35KHM		Annealed	
F.5241	S1	5KHV2S		Annealed	
	L6	5KHNV		Annealed	
	5045			Annealed	
	3135			Quenched & Tempered	
	3435			Annealed	
	9840			Quenched & Tempered	
F.1280	4340	38H2N2MA		Annealed	
	5132	35KH		Quenched & Tempered	
	5140	40H		Quenched & Tempered	
F.1251	4130	20KHM		Quenched & Tempered	
				Quenched & Tempered	
F.143	6150	50KHFA		Quenched & Tempered	
F.1740	A 355 Cl. A			Annealed	
F.5103	1070	70		Annealed	
F.5117	1095			Annealed	
F.5118	W1	U10A		Annealed	
		U10		Annealed	
	W1	U13		Annealed	

SMG

SMG	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
P7	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU			T61202
			1.2510	100 MnCrW 4	90 MWCV 5	BO 1	95 MnWCr 5 KU	SKS 3	2140	T31501
	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU			T31502
	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986
P8	X 210 Cr 12	1.2080	1.2080	X 210 Cr 12	Z 200 C 12	BD 3	X 210 Cr 13 KU	SKD 1		T30403
			1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	BH 11	X 37 CrMoV 5 1 KU	SKD 6		T20811
	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242	T20813
	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260	T30102
			1.2365	X 32 CrMoV 3 3	32 DCV 28	BH 10	30 CrMoV 12 27 KU	SKD 7		T20810
			1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312	
			1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310	
			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4		T61206
	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723	
	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51		T11342
	HS 18-1-2-5	1.3255	1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-01	BT 4	HS 18-1-1-5	SKH 3		T12004
	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2	HS 6-5-2	SKH 9, SKH 51	2722	T11302
	HS 2-9-2	1.3348	1.3348	S 2-9-2	Z 100 DCWV 09-04-02-02		HS 2-9-2	SKH 58	2782	T11307
	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2		T12001
P11	X 6 Cr 13	1.4000	1.4000	X 6 Cr 13	Z 6 C 12	403 S 17	X 6 Cr 13	SUS 403	2301	S41008
	X 12 Cr 13	1.4006	1.4006	X 10 Cr 13	Z 10 C 13	410 S 21	X 12 Cr 13	SUS 410	2302	S41000
	X 6 Cr 17	1.4016	1.4016	X 6 Cr 17	Z 8 C 17	430 S 15	X 8 Cr 17	SUS 430	2320	S43000
	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303	S42000
	X 39 Cr 13	1.4031	1.4031	X 40 Cr 13	Z 40 C 14	420 S 45	X 40 Cr 14	SUS 420	2304	S40280
	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A		S44002
	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327	S44003
	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C		S44004
	X 3 CrNiMo 13 3	1.4313	1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	425 C 11	X 6 CrNi 13 04	SCS 5	2385	J91540
	X 18 CrN 28	1.4749	1.4749	X 18 CrN 28	Z 18 C 25				2322	S44600
M1	X 10 CrNiS 18 9	1.4305	1.4305	X 10 CrNiS 18 9	Z 10 CNF 18.09	303 S 31	X 10 CrNi 18 09	SUS 303	2346	S30300
M2	X 12 CrNi 18 8	1.4300	1.4300	X 12 CrNi 18 8	Z 12 CN 18	302 S 25		SUS 302	2331	S30200
	X 5 CrNi 18 9	1.4301	1.4301	X 6 CrNi 18 10	Z 6 CN 18.09	304 S 31	X 5 CrNi 18 11	SUS 304	2333	S30400
	X 2 CrNi 19 11	1.4306	1.4306	X 2 CrNi 19 11	Z 2 CN 18.10	304 S 12	X 3 Cr Ni 18 11	SUS 304 L	2352	S30403
	X 9 CrNi 18 8	1.4310	1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	301 S 21	X 12 CrNi 17 07	SUS 301	(2331)	S30100
	X 5 CrNiMo 17 12 2	1.4401	1.4401	X 5 CrNiMo 17 12 2	Z 3 CND 17.11.1	316 S 31	X 5 CrNiMo 17 12	SUS 316	2347	S31600
	X 6 CrNiNb 18 10	1.4550	1.4550	X 6 CrNiNb 18 10	Z 6 CNNb 18.10	347 S 31	X 6 CrNiNb 18 11	SUS 347	2338	S34700
M3	X 2 CrNiN 18 10	1.4311	1.4311	X 2 CrNiN 19 11	Z 2 CN 18 .10 Az	304 S 62	X 2 CrNiN 18 11	SUS 304 LN	2371	S30453
	X 12 CrNi 25 21	1.4335	1.4335	X 12 CrNi 25 21	Z 12 CN 25.20	310 S 24	X 6 CrNi 26 20	SUH 310, SUS 310 S	2361	S31008
	X 2 CrNiMoN 17 13 3	1.4429	1.4429	X 2 CrNiMoN 17 13 3	Z 2 CND 17.13 Az	316 S 62	X 2 CrNiMoN 17 13 3	SUS 316 LN	2375	S31653
	X 2 CrNiMo 18 14 3	1.4435	1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	316 S 12	X 2 CrNiMo 17 13 2	SCS 16, SUS 316 L	2353	S31603
	X 3 CrNiMo 18 12 3	1.4466	1.4466	X 5 CrNi 18 15		317 S 16	X 5 CrNi 18 15	SUS 317	2366	S31700
	X 9 CrNiSiNCe 21 11 2	1.4835	1.4893	X 9 CrNiSiNCe 21 11 2		310 S 31			2368	S30815
M4	X 2 CrNiMoSi 19 5	1.4424	1.4417	X 2 CrNiMoSi 19 5	Z 2 CND 18.05.03				2376	S31500
	X 3 CrNiMo 27 5 2	1.4460	1.4460	X 4 CrNiMo 27 5 2	Z 3 CND 25.7 Az		X 3 CrNiMo 27 5 2	SUS 329 J 1	2324	S32900
	X 2 CrNiMoN 22 5 3	1.4462	1.4462	X 2 CrNiMoN 22 5	Z 2 CND 22.05 Az	332 S 15	X 2 CrNiMoN 22 5		2377	S31803
	X 2 NiCrMoCu 25 20 5	1.4539	1.4539	X 2 NiCrMoCu 25 20 5	Z 2 NCDU 25 20	904 S 13			2562	N08904
M5	X 2 CrNiMoN 25 7 4	1.4410	1.4410	X 2 CrNiMoN 25 7 4	Z 3 CND 25.07 Az		X 2 CrNiMoN 25 7 4		2328	S32750
	X 1 CrNiMoN 20 18 7	1.4547	1.4529	X 1 CrNiMoN 20 18 7	Z 1 CNDU 20.18.05 Az		X 1 CrNiMoN 20 18 7		2778	S31254
	X 6 NiCrTiMoV 25 15	1.4534	1.4534	X 3 CrNiMoAl 13 8 2						S13800
		1.4540	1.4540	X 4 CrNiCuNb 16 4	Z 4 CNUNb 16.4 M					S15500
	X 3 CrNiMoAl 13 8 2	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388	S17700
	X 1 CrNiMoN 25 22 8	1.4652	1.4652	X 2 CrNiMoN 25 22 7						S32654
	X 10 NiCrAlTi 32 20	1.4876	1.4876	X 10 NiCrAlTi 32 20	Z 10 NC 32.21			NCF 800		N08800
	X 5 CrNiCuNb 16 4	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15	HR 51		SUH 660	2570	S66286

SMG

U.N.E./ I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
F.520L	L2	11KHF		Annealed	
F.5220	O1	9KHVG		Annealed	
	O2	9G2F		Annealed	
F.5230	52100	SHKH15		Annealed	
F.5212	D3	KH12		Annealed	
	H11	4KH5MFS		Annealed	
F.5318	H13	4KH5MF1S		Annealed	
F.5227	A2	9KH5VF		Annealed	
	H10	3KH3M3F		Annealed	
F.5213		KH12		Annealed	
		KH12MF		Annealed	
F.520.S	L6	5KHNM		Annealed	
F.5613	M35	R6M5K5		Annealed	
	M42	R2AM9K5		Annealed	
	T4	R18K5F2		Annealed	
F.5603	M2	R6M5		Annealed	
	M7			Annealed	
	T1	R18		Annealed	
	403	08KH13		Annealed	Ferrite
F.3401	410, CA-15	12KH13, 08KH13		Annealed	Martensite
F.3113	430	12KH17		Annealed	Ferrite
F.5261	420	20KH13		Annealed	Martensite
F.3404	420	40KH13		Annealed	Martensite
	440 A			Annealed	Martensite
	440 B	95KH18		Annealed	Martensite
	440 C	95KH18		Annealed	Martensite
			F6NM	Annealed	Martensite
	446	15KH28		Annealed	Ferrite
F.3508	303	12KH19N9		Annealed	Austenite
	302	12KH18N9		Annealed	Austenite
F.3504	304, 304 H	08KH18N10		Annealed	Austenite
F.3504	304 L	03KH18N11		Annealed	Austenite
F.3517	301	07KH16N6		Annealed	Austenite
F.3534	316	08KH17H13M2T		Annealed	Austenite
F.3524	347	08KH18N12B		Annealed	Austenite
F.3541	304 LN	03KH18N11		Annealed	Austenite
	310 S	12KH25N20		Annealed	Austenite
	316 LN	03KH16N15M3		Annealed	Austenite
F.3533	316 L	03KH17N14M3		Annealed	Austenite
	317	08KH17H15M3T		Annealed	Austenite
			253 MA	Annealed	Austenite
			3RE60	Annealed	Duplex
	329			Annealed	Duplex
	329 LN		SAF 2205	Annealed	Duplex
	904L			Annealed	Super austenite
	F 53		SAF 2507	Annealed	Super duplex
			254 SMO	Annealed	Super austenite
	XM-13		PH13-8Mo	Solution treated	Austenite
	XM-12		15-5-PH	Solution treated	Martensite
	AMS 5528	09KH17N7YU1	17-7-PH	Solution treated	Austenite/ferrite
			654 SMO	Annealed	Super austenite
			Alloy 800	Annealed	Austenite
	660		A286	Solution treated	Austenite

SMG

SMG	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
K1	EN-GJL-150	0.6150	0.6150	GG-15	Ft 15 D	Grade 150	G15	FC 150	01 15-00	F11601
	EN-GJL-200	0.6200	0.6200	GG-20	Ft 20 D	Grade 220	G20	FC 200	01 20-00	F12101
	EN-GJL-215			GG-220 HB					02 19	
	EN-GJL-250	0.6250	0.6250	GG-25	Ft 25 D	Grade 260	G25	FC 250	01 25-00	F12401
	EN-GJL-300	0.6300	0.6300	GG-30	Ft 30 D	Grade 300	G30	FC 300	01 30-00	F13101
	EN-GJL-350	0.6350	0.6350	GG-35	Ft 35 D	Grade 350	G35	FC 350	01 35-00	F13502
K2	EN-GJV-300			GJV-300						
	EN-GJV-350			GJV-350						
	EN-GJV-400			GJV-400						
	EN-GJV-450			GJV-450						
	EN-GJV-500			GJV-500						
K3	EN-GJMB-550-4	0.8155		GTS-55-04	P 540/5	P 540/5	P 55-04	PCMP55-04	08 54-00	F24130
K4	EN-GJS-350-22	0.7033	0.7033	GGG-35.3	FGS 370-17	Grade 350/22		FCD 350-22L	07 17-15	
	EN-GJS-400-15	0.7040	0.7040	GGG-40	FGS 400-12	Grade 420/12	GS 400-12	FCD 400-18L	07 17-02	F32800
	EN-GJS-400-18	0.7043	0.7043	GGG-40.3	FGS-370-17	Grade 370/17	GSO 42/17		07 17-12	F32800
	EN-GJS-500-7	0.7050	0.7050	GGG-50	FGS 500-7	Grade 500/7	GS 500-7	FCD 500-7	07 27-02	F33800
	EN-GJS-600-3	0.7060	0.7060	GGG-60	FGS 600-3	Grade 600/3	GS 600-3	FCD 600-3	07 32-03	F34100
	EN-GJS-700-2	0.7070	0.7070	GGG-70	FGS 700-2	Grade 700/2	GS 700-2	FCD 700-2	07 37-01	F34800
K5	-									ADI grade 5
	EN-GJS-1000-5			GJS-1000-5						ADI grade 2
	EN-GJS-1200-2			GJS-1200-2						ADI grade 3
	EN-GJS-1400-1			GJS-1400-1						ADI grade 4
	EN-GJS-800-8			GJS-800-8						ADI grade 1
K6	EN-GJLA-XNiCr 20-2	0.6660	0.6660	GGL-NiCr 20 2	FGL Ni20 Cr2	Grade F2			05 23-00	F41002
	EN-GJLA-XNiCr 30-3	0.6676	0.6676	GGL-NiCr 30 3	FGL Ni30 Cr3	Grade F3				F41004
	EN-GJLA-XNiCuCr15-6-2	0.6655	0.6655	GGL-NiCuCr 15 6 2	FGL Ni15 Cu6 Cr2	Grade F1				F41000
K7	EN-GJSA-XNi35	0.7683	0.7683	GGG-Ni 35	FGS Ni35					F43006
	EN-GJSA-XNiCr20-2	0.7660	0.7660	GGG-NiCr 20 2	FGS Ni20 Cr2	Grade S2				F43000
	EN-GJSA-XNiCr30-3	0.7676	0.7676	GGG-NiCr 30 3	FGS Ni30 Cr3	Grade S3				F43003
	EN-GJSA-XNiMn13-7	0.7652	0.7652	GGG-NiMn 13 7	FGS Ni13 Mn7	Grade S6			07 72-00	-
	EN-GJSA-XNiMn23-4	0.7673	0.7673	GGG-NiMn 23 4	FGS Ni23 Mn4	Grade S2M				F43010
N1	AW-1050A	Al99.5	3.0255	Al99.5	A-5/1050A	1B		(A1050)	4007	AA1050A
	AW-3103	AlMn1	3.0515	AlMn1		N3			4054	AA3103
	AW-3003	AlMn1Cu	3.0517	AlMn1Cu	A-M1/3003			A3003		AA3003
	AW-2014	AlCuSiMn	3.1255	AlCuSiMn	A-U4SG/2014	H15			4338	AA2014
	AW-2011	AlCuBiPb	3.1655	AlCuBiPb	A-U5PbBi/2011	FC1		A2011	4355	AA2011
	AC-46200	AlSi8Cu3(Si)	3.2161	G-AlSi8Cu3					4251	A13800
	AC-42000		3.2341	G-AlSi5Mg	A-S7G	LM25	3599	AC 4C	4244	
	AW-6060	AlMgSi0.5	3.3206	AlMgSi0.5	A-GS/6060	(H9)			4103	AA6060
	AW-6063	AlMgSi0.7	3.3210	AlMgSi0.7	A-GSUC/6061	(H10)		(A6063)	4104,4107	AA6005
	AW-5005	AlMg1	3.3315	AlMg1	A-G0.6	N41			4106	AA5005
	AW-7020	AlZn4.5Mg1	3.4335	AlZn4.5Mg1	A-Z5G/7020	H17			4425	AA7020
	AW-7075		3.4365	AlZnMgCu1.5	A-Z5GU/7075	2L95/2L96		A7075		AA7075
	MN65120	MgSe3Zn2Zr1	3.5103	G-MgSe3Zn2Zr1	ZRE1	MAG6-TE				M12330
	MG-P-63	MgAl6Zn	3.5612	G-MgAl6Zn	G-A6-Z1	MAG-E-121				M11600
	MG-P-61	MgAl8Zn	3.5812	G-MgAl8Zn	(G-A7-Z1)					
N2	AW-6082	AlMgSi1	3.2315	AlMgSi1	A-SGM0.7/6082	H30			4212	AA6082
	AC-43400	AlSi10Mg(Fe)	3.2381	G-AlSi10Mg	A-S10G	LM9			4253	A13600
	AC-44200	AlSi12	3.2382	GD-AlSi12						
N3		AlSi17Cu5						ADC14		
N11	CC331G		2.0940.01	CuAl10Fe	CuAl10Fe	AB1			5710	C95200
	CC333G		2.0975.01	CuAl10Ni	CuAl10Ni5Fe5	AB2			5716	C95500
		CuNi10Fe1Mn	2.0872	CuNi10Fe1Mn	CuNi10Fe1Mn	CN102			5667	C70600
				CuNi10Zn45						
		CW408J	2.0790	CuNi18Zn19Pb	CuNi18Zn19Pb1					C76300
	CW352H		2.1176	CuPb10Sn	CuSn10Pb10	LB2			5640	C93700
	CC480K		2.1050.01	CuSn10	CuSn10	CT1			5443	C90700
			2.1087	CuSn10Zn					5458	C90500
	CW452K	CuSn6	2.1020	CuSn6	CuSn6	PB103		C5191	5428	C51900
	CW502L	CuZn15	2.0240	CuZn15	CuZn15	CZ102		C2300	5112	C23000
	CW706R	CuZn28Sn1	2.0470	CuZn28Sn1	CuZn29Sn1				5220	C44300
	CW508L	CuZn37	2.0321	CuZn37	CuZn37	CZ108			5150	C27200
	CW717R	CuZn38Sn1	2.0530	CuZn38Sn1						C46400
	CW614N	CuZn39Pb3	2.0401	CuZn39Pb3	CuZn39Pb3	CZ121			5170	C38500
	CW612N	CuZn40Pb2	2.0402	CuZn40Pb2	CuZn39Pb2	CZ120			5168	C37800
	CW622N	CuZn44Pb2	2.0410	CuZn44Pb2		CZ104			5272	C68700

SMG

U.N.E./ I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
	A48 25 B	Sc 15			Grey cast iron (GCI)
	A48 30 B	Sc 20			Grey cast iron (GCI)
	G 3500				Grey cast iron (GCI)
	A48 35 B	Sc 25			Grey cast iron (GCI)
	A48 45 B	Sc 30			Grey cast iron (GCI)
	A48 50 B	Sc 35			Grey cast iron (GCI)
	Grade 350				Compacted graphite irons (CGI)
	Grade 400				Compacted graphite irons (CGI)
	Grade 400-15				Compacted graphite irons (CGI)
	Grade 450				Compacted graphite irons (CGI)
	Grade 500				Compacted graphite irons (CGI)
	A220 60004			Tempered	Malleable cast irons (MCI)
					Nodular cast irons (SGI)
FGE 38-17	60-40-18	Vc 42-12			Nodular cast irons (SGI)
	60-40-18	Vc 42-12			Nodular cast irons (SGI)
FGE 50-7	A536 80-55-6	Vc 50-2			Nodular cast irons (SGI)
FGE 60-2	A476 80-60-03	Vc 60-2			Nodular cast irons (SGI)
FGE 70-2	A536 100-70-03	Vc 70-2			Nodular cast irons (SGI)
	1600/1300/-				Austempered cast irons (ADI)
	1050/700/7				Austempered cast irons (ADI)
	1200/850/4				Austempered cast irons (ADI)
	1400/1100/1				Austempered cast irons (ADI)
	850/550/10				Austempered cast irons (ADI)
	A436 Type 2		Ni-Resist 2		Austenitic lamellar cast irons
	A436 Type 3		Ni-Resist 3		Austenitic lamellar cast irons
	A436 Type 1		Ni-Resist 1		Austenitic lamellar cast irons
	A439 Type D-5		Ni-Resist D-5		Austenitic nodular cast irons
	A436 Type D-2		Ni-Resist D-2		Austenitic nodular cast irons
	A436 Type D-3		Ni-Resist D-3		Austenitic nodular cast irons
	-		Nodumag		Austenitic nodular cast irons
	A439 Type D-2M		Ni-Resist D-2M		Austenitic nodular cast irons
	A380				
	B26				
	AMS 4442				
	AZ61A				
	AZ80A				
	B85				
	A413.2				
	B390.0				
	CA952	BrA9ZH3L			
	CA955	BrA10ZH4N4L			
	CA937				
		BrOF6.5-0.15			
		L90			
		LOMsh70-1-0.05			
		LO60-1			
		LAMsh77-2-0.05			

Workpiece materials – Classification, SMG (ver. 2)

SECO

SMG

SMG	EN	EN-Nr	W.-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
S1										
S2										
S3	NiMo30		2.4810							N10002
	NiMo16Cr15W		2.4819							N10276
	NiCr19Fe19Nb5Mo3		2.4668							N07718
			2.4669							N07750
	NiCr20TiAl		2.4631							N07080
	NiCr19Co18Mo4Ti3Al3									N07500
	NiCr20Co13Mo4Ti3Al		2.4654							N07001
S11			3.7024							
										R54620
S12										R56320
	TiAl6V4		3.7164							R56400
S13				TiV10Fe2Al3						
H3	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511	G51170
H5	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M40	42 CrMo 4	SCM 440 (H)	2244	G41400
	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770	G10700
	C 75S	1.1248	1.1248	Ck 75	XC 75	060 A 78	C 75		1774, 1778	G10780
	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870	G10950
	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU		1880	
			1.2550	60 WCrV 7	55 WC 20		55 WCrV 8 KU			
	55 Cr 3	1.7176	1.7176	55 Cr 3	55 C 3	527 A 60	55 Cr 3	SUP 9 (A)	2253	G51550
H7	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU			T61202
			1.2510	100 MnCrW 4	90 MWCV 5	BO 1	95 MnWCr 5 KU	SKS 3	2140	T31501
	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU			T31502
	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986
H8	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242	T20813
	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260	T30102
	X 155 CrVMo 12 1		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	BD 2	X 155 CrVMo 12 1 KU	SKD 11		T30402
			1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312	
			1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310	
			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4		T61206
	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723	
	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51		T11342
	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	BM 2	HS 6-5-2	SKH 9, SKH 51	2722	T11302
	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2		T12001
H11	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303	S42000
	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A		S44002
	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327	S44003
	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C		S44004
H12	X 3 CrNiMoAl 13 8 2	1.4534	1.4534	X 3 CrNiMoAl 13 8 2						S13800
	X 5 CrNiCuNb 16 4	1.4548	1.4542	X 5 CrNiCuNb 17 4	Z 6 CNU 17.4			SCS 24, SUS 630		S17400
	X 7 CrNiAl 17 7	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388	S17700
	X 6 NiCrTiMoV 25 15	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15	HR 51		SUH 660	2570	S66286
H21	X 120 Mn 12	1.3401	1.3401	X 120 Mn 12	Z 120 M 12	BW 10		SC MnH 1	2183	
H31	EN-GJN-HV520	0.9620	G-X330 NiCr 4 2	FB Ni4 Cr2 BC	Grade 2 A	Grade 2 A			05 12-00	F45001
	EN-GJN-HV550	0.9625	G-X260 NiCr 4 2	FB Ni4 Cr2 HC	Grade 2 B	Grade 2 B			05 13-00	F45000
	EN-GJN-HV600(XCr11)	0.9630	G-X300 CrNiSi 9 5 2	FB Cr9 Ni5	Grade 2 C, D, E	Grade 2 C, D, E			04 57-00	F45003

SMG

U.N.E./ I.H.A.	AISI / ASTM	GOST	Misc. Brands	Condition	Structure
			Discalloy	Precipitation hardened	
			Haynes 25		
			Stellite 21		
			Stellite 31		
			Hastelloy C		
		KHN65MV	Hastelloy C-276		
			IN 100		
			Inconel 718		
			Inconel X-750	Solution treated	
			Nimonic 80A		
			René 41		
			Udimet 500		
			Waspalloy		
			Ti	Commercially pure	Ti (α)
	AMS 4919		Ti 6-2-4-2	Annealed	Ti (α)
	AMS 4943		Ti 3Al-2.5V (grd 9)	Annealed	Ti (α+β)
	AMS 4920, Grd 5	VT6	Ti 6Al-4V	Annealed	Ti (α+β)
	AMS 4986		Ti 10V-2Fe-3Al	Annealed	Ti (β)
F.1516	5115	12KHN2		Case hardened	
F.1252	4142, 4140	38HM		Quenched & Tempered	
F.5103	1070	70		Quenched & Tempered	
F.5107	1078, 1080	75		Quenched & Tempered	
F.5117	1095			Quenched & Tempered	
F.5118	W 1	U10A		Quenched & Tempered	
	S1	5KHV2SF		Quenched & Tempered	
	5155			Quenched & Tempered	
F.520L	L2	11KHF		Quenched & Tempered	
F.5220	O1	9KHVG		Quenched & Tempered	
	O2	9G2F		Quenched & Tempered	
F.5230	52100	SHKH15		Quenched & Tempered	
F.5318	H13	4KH5MF1S		Quenched & Tempered	
F.5227	A2	9KH5VF		Quenched & Tempered	
F.5211	D2	KH12MF		Quenched & Tempered	
F.5213		KH12		Quenched & Tempered	
		KH12MF		Quenched & Tempered	
F.520.S	L6	5KHNM		Quenched & Tempered	
F.5613	M35	R6M5K5		Quenched & Tempered	
	M42	R2AM9K5		Quenched & Tempered	
F.5603	M2	R6M5		Quenched & Tempered	
	T1	R18		Quenched & Tempered	
F.5261	420	20KH13		Quenched & Tempered	Martensite
	440 A			Quenched & Tempered	Martensite
	440 B	95KH18		Quenched & Tempered	Martensite
	440 C	95KH18		Quenched & Tempered	Martensite
	XM-13		PH13-8Mo	Precipitation hardened	Martensite
	630		17-4-PH	Precipitation hardened	Martensite
	AMS 5528	09KH17N7YU1	17-7-PH	Precipitation hardened	Austenite/ferrite
	660		A286	Precipitation hardened	Austenite
	A128 Grade A				
	A532 IB (NiCr-LC		Ni-Hard 2		White cast iron
	A532 IA (NiCr-HC)		Ni-Hard 1		White cast iron
	A532 ID (Ni-HiCr)		Ni-Hard 4		White cast iron

Declaration of conformity

Cemented carbide inserts and insert carriers

Cemented carbide inserts and cemented carbide insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
These products meet all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Regrinding:

Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:

Seco Tools will buy back used inserts and solid carbide tools for recycling. Inserts and solid carbide tools should be separated from other metal waste (steel, aluminium, copper etc).
All packing material is fully recyclable.

CBN and PCD inserts

Inserts from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Regrinding:

Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:

Seco Tools will buy back used CBN- or PCD-tipped inserts for recycling. Inserts should be separated from other metal waste (steel, aluminium, copper etc). Solid CBN-inserts may be discarded as landfill waste.
All packing material is fully recyclable.

Black oxide insert carriers

Insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.

Disposal:

Used insert carriers may be sent for recycling together with ordinary steel waste (swarf and discarded steel scrap) for recycling.
All packing material is fully recyclable.

Declaration of conformity

Cermet inserts

Inserts from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Cermet grade C15M inserts do contain nickel and will leach nickel when in contact with the skin. Amount of leaching is higher than specified in norm SS-EN 1811 Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin.
These norms are intended for products that are in direct and prolonged contact with the skin and are therefore not directly applicable for cermet inserts. Persons with known allergic reactions to nickel are advised to wear protective gloves when handling cermet inserts.

Regrinding:

Wet or dry grinding can produce potentially hazardous dusts or mists that can irritate skin, eyes, nose, throat and result in lung damage or disease. To avoid injury use proper safety precautions and protective equipment.

Disposal:

Used inserts may be recycled. Inserts should be separated from other metal waste (steel, aluminium, copper, etc) including cemented carbide inserts.
All packing material is fully recyclable.

Nickel coated insert carriers

Insert carriers from Seco Tools are not included in the product range intended for the following requirements. Nevertheless Seco Tools can make the following declaration.
This product meets all requirements in RoHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment), WEEE (Waste Electrical & Electronic Equipment) and ELV (End of Life Vehicles) requirements.
Products do not contain mercury, lead, hexavalent chromium, cadmium, CFC, HCFC, flame retardants or solvents in concentrations that exceed specifications in the regulations.
Insert carriers do contain nickel and will leach nickel when in contact with the skin. Amount of leaching is not higher then norm SS-EN 1811 Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin.
These norms are intended for products that are in direct and prolonged contact with the skin and are therefore not directly applicable for insert carriers. Persons with known allergic reactions to nickel are advised to wear protective gloves when handling nickel coated insert carriers.

Disposal:

Used tools maybe sent for recycling together with ordinary steel waste (swarf and discarded steel scrap) for recycling.
All packing material is fully recyclable.

Intentionally added alloying elements

Grade	Cemented carbide										Coating						
	W	Ti	Ta	Nb	Co	Cr	Ni	Mo	C	N	Ti	Al	C	N	O	Si	Nb
CP20	■				■				■		■			■			
CP30																	
CP200	■				■	■			■		■	■		■			
CP300	■	■	■	■	■				■		■	■		■			
CP500	■				■	■			■		■	■		■			
CP600	■				■	■			■		■	■		■			
C15M	■	■	■	■	■		■	■	■	■							
CF	■		■		■		■	■	■								
CM	■		■		■		■	■	■								
DP2000	■		■	■	■				■		■	■	■	■	■		
DP3000	■	■	■	■	■				■	■	■	■	■	■	■		
F15M	■				■	■			■		■	■		■			
F25M	■	■	■	■	■				■		■	■		■			
F30M	■				■	■			■		■	■		■			
F40M	■				■	■			■		■	■		■			
HX	■		■		■				■								
H02	■		■		■	■			■								
H15	■				■	■			■								
H25	■				■	■			■								
KX	■				■	■			■								
MH1000	■				■	■			■		■	■		■			
MK1500	■		■		■				■		■	■	■	■	■		
MK2050	■		■		■	■			■		■	■		■		■	
MM4500	■				■	■			■		■	■	■	■	■		
MP1020	■	■	■	■	■				■								
MP1500	■		■	■	■				■		■	■	■	■	■		
MP2500	■		■	■	■				■		■	■	■	■	■		
MP3000	■				■	■			■		■	■		■			
MS2500	■		■	■	■				■		■	■	■	■	■		
MS2050	■				■	■			■		■	■		■			■
RX1500	■		■		■		■	■	■		■	■		■			
RX2000	■		■		■	■			■		■	■		■			
S25M																	
T350M	■		■	■	■				■		■	■	■	■	■		
T25M	■		■	■	■				■		■		■	■			
TGH1050	■				■	■			■		■	■		■		■	
TGK1500	■		■		■				■		■	■	■	■	■		
TGP25	■	■	■	■	■				■		■	■	■	■	■		
TGP35	■		■	■	■				■		■	■	■	■	■		
TGP45	■		■	■	■				■		■	■	■	■	■		
TH1000	■				■	■			■		■	■		■		■	
TH1500	■				■	■			■		■	■	■	■	■		
TK1001	■				■	■			■		■	■	■	■	■		
TK2001	■		■		■	■			■		■	■	■	■	■		
TM2000	■	■	■	■	■				■	■	■	■	■	■	■		
TM4000	■	■	■	■	■				■	■	■	■	■	■	■		
TP0501	■	■	■	■	■	■			■		■	■	■	■	■		
TP1020	■	■	■	■	■				■	■							
TP1030	■	■	■	■	■				■	■	■	■		■		■	
TP1500	■	■	■	■	■				■	■	■	■	■	■	■		
TP1501	■	■	■	■	■				■	■	■	■	■	■	■		
TP200	■	■	■	■	■				■	■	■	■	■	■	■		
TP2500	■	■	■	■	■				■	■	■	■	■	■	■		
TP3500	■	■	■	■	■				■	■	■	■	■	■	■		
TP2501	■	■	■	■	■	■			■	■	■	■	■	■	■		
TP40	■		■	■	■				■		■		■	■			
TS2000	■				■	■			■		■	■		■			
TS2050	■				■	■			■		■	■		■		■	
TS2500	■		■		■				■		■	■		■			
T250D	■				■	■			■		■	■		■			
T400D	■				■	■			■		■	■		■			
T100R	■		■		■	■			■		■	■		■			
T60M	■	■	■	■	■				■		■	■		■			
883	■		■		■				■								