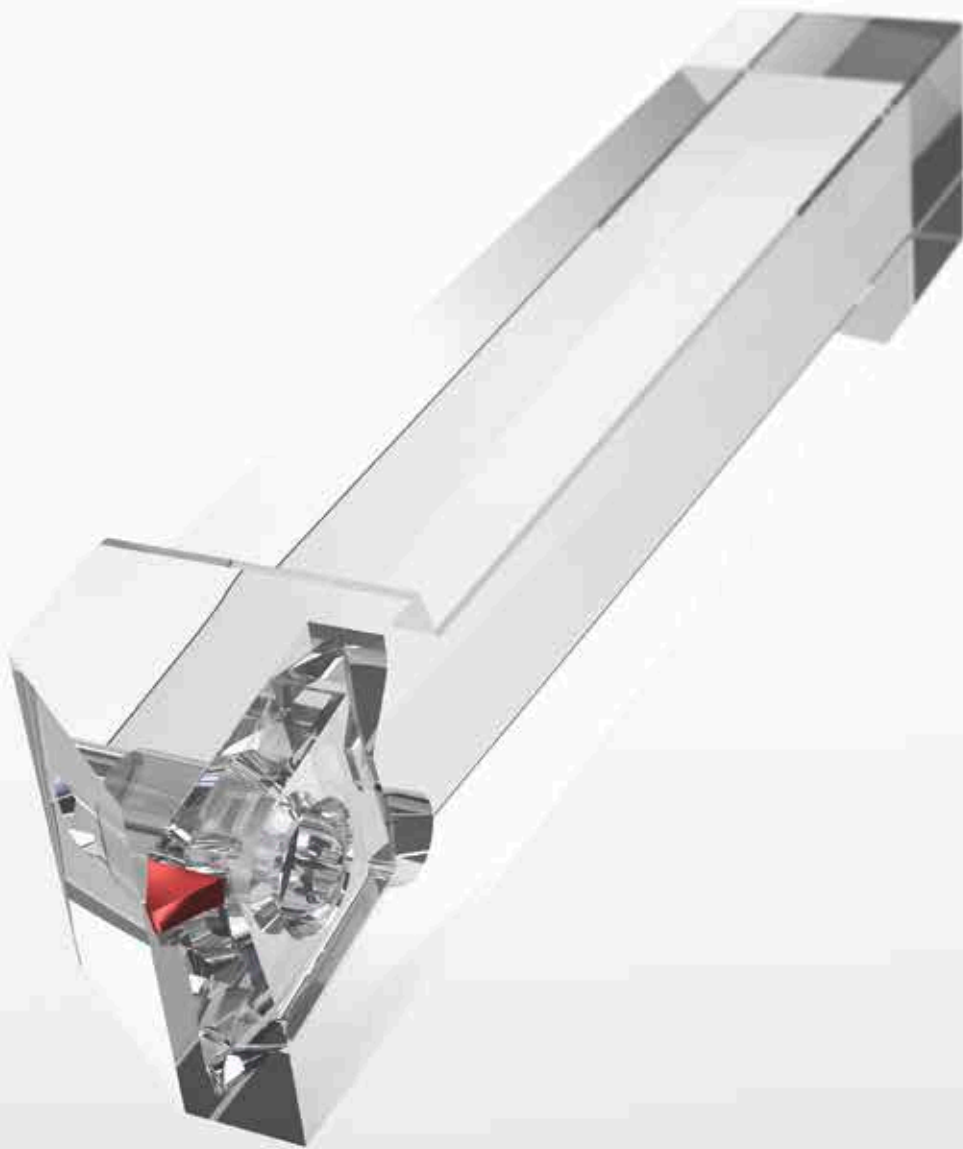


CBN

Hard Threading





PEOPLE

Cooperate in fair partnership



AMBITION

Question yesterday to provide new solutions for today and tomorrow



SYNERGY

Share our strength

Corporate philosophy

PEOPLE – AMBITION – SYNERGY

These 3 components are the foundation for the success of MAS GmbH.

Trust the experts with more than 40 years of experience in cutting technologies. The specialists with the most modern equipment for the development, design and manufacture of tools. The partners who discover synergies between man and technology and who are able to harness them for your success.

The utmost objective of every project is our customers' and partners' success. Our own success goes hand in hand.

This is and will remain our guide for the future!



CBN Hard Threading

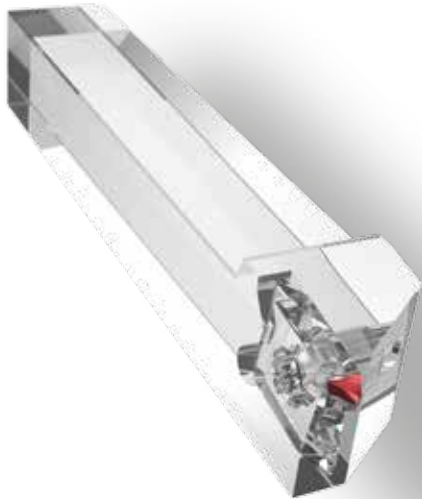


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CBN Hard Threading

Benefits and Features

- Flexible system

- Great time advantage thanks to turning

- Pre-cutting of the threads is not required

- Highest precision due to several machining operations in one set-up

- High thread quality

- Hard/Soft machining of, e.g., case-hardened steels

- Inside and outside thread

- Interrupted cutting possible

Product range

Partial profile inserts

Outside thread

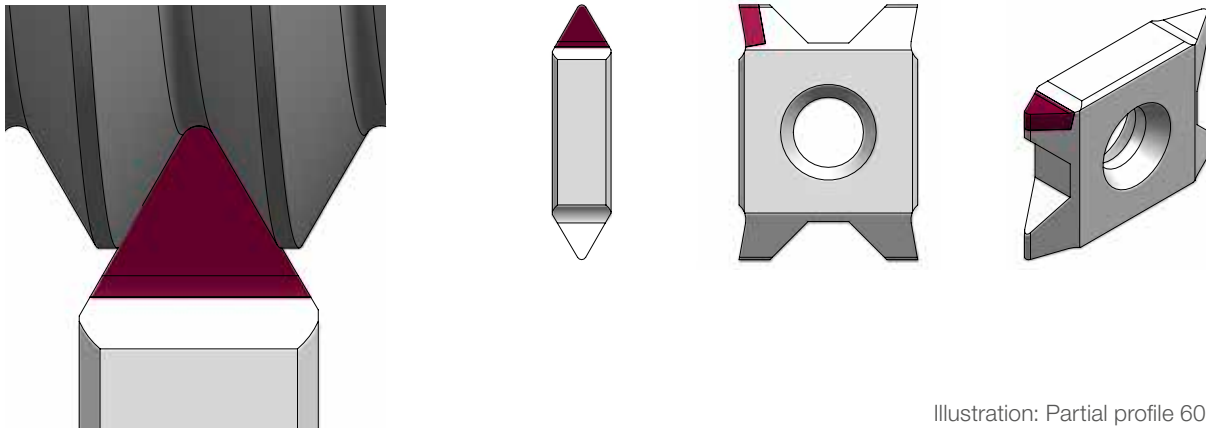


Illustration: Partial profile 60°

Order number	Gradient	Radius	Cutting material CBN
12 E 0.50 ISO BN250 PARTIAL PROFILE	0.50	0,072	BN250
12 E 0.75 ISO BN250 PARTIAL PROFILE	0.75	0,1	BN250
12 E 0.80 ISO BN250 PARTIAL PROFILE	0.80	0,11	BN250
12 E 1.00 ISO BN250 PARTIAL PROFILE	1.00	0,14	BN250
12 E 1.25 ISO BN250 PARTIAL PROFILE	1.25	0,17	BN250
12 E 1.50 ISO BN250 PARTIAL PROFILE	1.50	0,21	BN250
12 E 1.75 ISO BN250 PARTIAL PROFILE	1.75	0,26	BN250
12 E 2.00 ISO BN250 PARTIAL PROFILE	2.00	0,29	BN250
12 E 2.50 ISO BN250 PARTIAL PROFILE	2.50	0,36	BN250
20 E 2.00 ISO BN250 PARTIAL PROFILE	2.00	0,29	BN250
20 E 2.50 ISO BN250 PARTIAL PROFILE	2.50	0,36	BN250
20 E 3.00 ISO BN250 PARTIAL PROFILE	3.00	0,43	BN250

- Special solutions and further versions available upon request.
- Find the matching tool holder system e.g. in our MAS catalog MODUL®turn.

Product range

Partial profile inserts

Inside thread

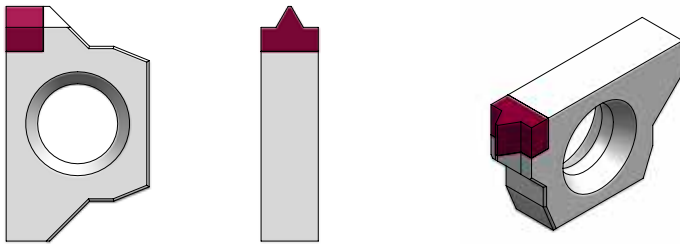


Illustration: ISO metric 60°

Order number	Gradient	Radius	Cutting material CBN
10 N 0.5 ISO BN250 PARTIAL PROFILE	0.50	0,036	BN250
10 N 0.75 ISO BN250 PARTIAL PROFILE	0.75	0,054	BN250
10 N 1.0 ISO BN250 PARTIAL PROFILE	1.00	0,072	BN250
10 N 1.25 ISO BN250 PARTIAL PROFILE	1.25	0,17	BN250
10 N 1.5 ISO BN250 PARTIAL PROFILE	1.50	0,1	BN250
10 N 2.0 ISO BN250 PARTIAL PROFILE	2.00	0,144	BN250
11 N 0.5 ISO BN250 PARTIAL PROFILE	0.50	0,036	BN250
11 N 1.0 ISO BN250 PARTIAL PROFILE	1.00	0,072	BN250
11 N 1.5 ISO BN250 PARTIAL PROFILE	1.50	0,1	BN250
11 N 2.0 ISO BN250 PARTIAL PROFILE	2.00	0,144	BN250

Product range

Holders

Outside thread

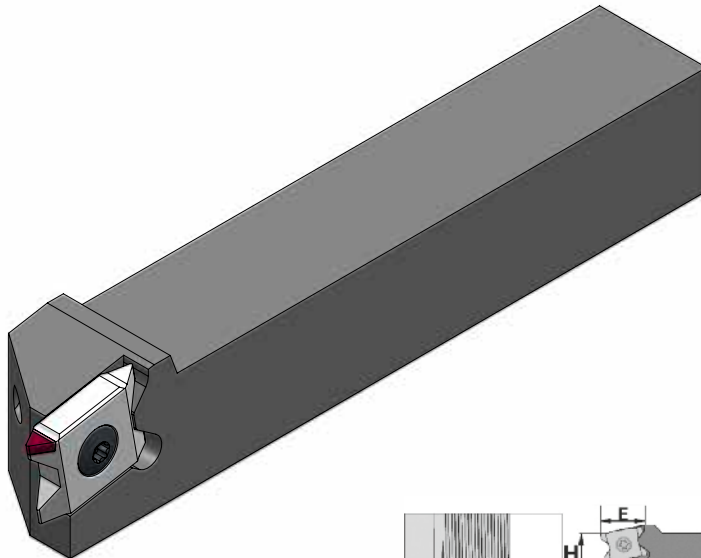
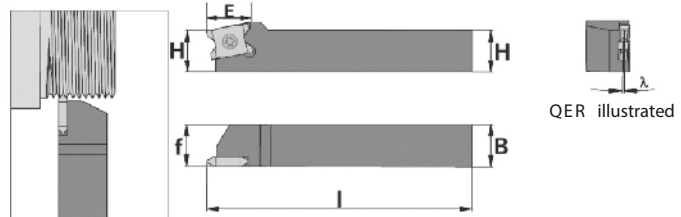


Illustration shows the right-hand version



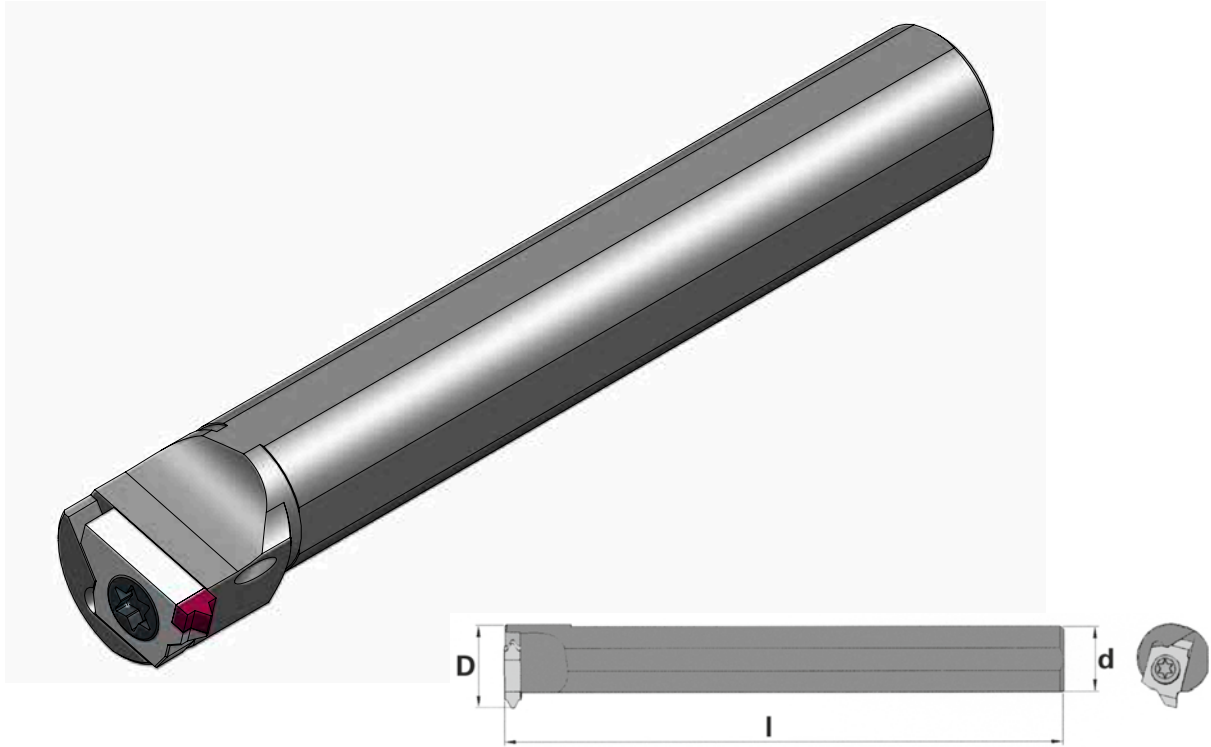
Order number	Dimensions				Insert	Gradient angle				
	H/B	l	f	E		3	1.5	0	98.5	97
QER 1010H-12	10	100	10	17.5	12...	●	●	●	●	●
QER 1212H-12	12	100	12	17.5	12...	●	●	●	●	●
QER 1616H-12	16	100	16	17.5	12...		●			
QER 2020K-12	20	125	20	17.5	12...		●			
QER 2525M-12	25	150	25	17.5	12...		●			
QER 2020K-20	20	125	20	25.5	20...		●			
QER 2525M-20	25	150	25	25.5	20...		●			
QER 3232P-20	32	170	32	25.5	20...		●			
QEL 1010H-12	10	100	10	17.5	12...	●	●	●	●	●
QEL 1212H-12	12	100	12	17.5	12...	●	●	●	●	●
QEL 1616H-12	16	100	16	17.5	12...		●			
QEL 2020K-12	20	100	20	17.5	12...		●			
QEL 2525M-12	25	150	25	17.5	12...		●			

● in stock

Product range

Drill rods

Inside thread



Order number	Dimensions			Gradient angle			
	d	l	D _{min}	3	1.5	0	98.5
QNR 0010J-10	10	110	14	●	●	●	●
QNR 0012K-10	12	125	16	●	●	●	●
QNR 0016K-10	16	125	20	●	●	●	●
QNR 0020M-10	20	150	24	●	●	●	●
QNL 0010J-10	10	110	14	●	●	●	●
QNL 0012K-10	12	125	16	●	●	●	●
QNL 0016K-10	16	125	20	●	●	●	●
QNL 0020M-10	20	150	24	●	●	●	●
QNR 0010M-D-10*	10	150	14		●		
QNR 0012M-D-10*	12	150	16		●		
QNR 0016Q-D-10*	16	180	20		●		
QNR 0025P-11	25	170	30	●	●	●	●
QNL 0025P-11	25	170	30	●	●	●	●

● in stock ● at short notice

*These drill rods can be used with a large projection length where vibration and high cutting forces may occur.

Product range

Magazine holders

For standard magazines

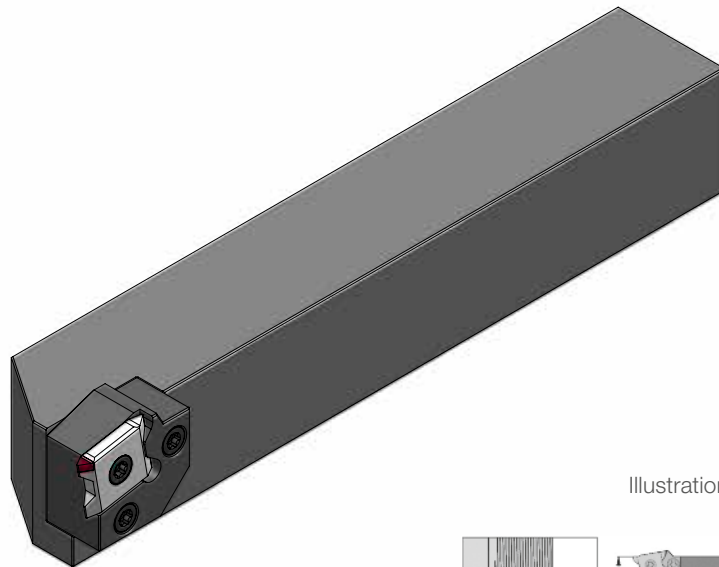
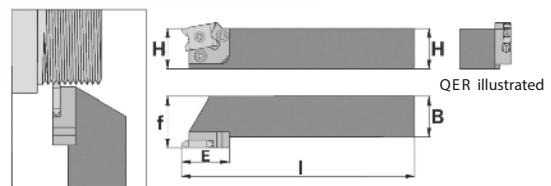


Illustration shows the right-hand version

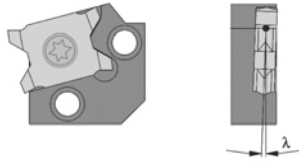


Order number	Dimensions				Magazine		
	H/B	l	f	E	Insert 12...	Insert 20...	
QER 1616H-C20	16	100	20	22.5	QER 20-12		●
QER 2020K-C20	20	125	25	22.5	QER 20-12		●
QER 2525M-C25	25	150	32	29.5	QER 25-12	QER 25-20	●
QER 3232P-C25	32	170	40	29.5	QER 25-12	QER 25-20	●
QER 4040R-C25	40	200	50	29.5	QER 25-12	QER 25-20	●
QEL 1616H-C20	16	100	20	22.5	QEL 20-12		●
QEL 2020K-C20	20	125	25	22.5	QEL 20-12		●
QEL 2525M-C25	25	150	32	29.5	QEL 25-12	QEL 25-20	●
QEL 3232P-C25	32	170	40	29.5	QEL 25-12	QEL 25-20	●
QEL 4040R-C25	40	200	50	29.5	QEL 25-12	QEL 25-20	●

● in stock

Product range

Standard magazines



Order number	Insert	Gradient angle					
		4.5	3	1.5	0	98.5	97
QER 20-12	12...	●	●	●	○	●	○
QER 25-12	12...	○	●	●	○	●	○
QER 25-20	20...	○	●	●	○	●	○
QEL 20-12	12...	○	●	●	○	●	○
QEL 25-12	12...	○	●	●	○	●	○
QEL 25-20	20...	○	●	●	○	●	○

● in stock ○ at short notice

Spare parts

Screws and keys

Screws

Order number	for..
STS T15xM5	Insert 20
STS T9xM3	Insert 12

Keys

Order number	for..
WiHA 365 Torx T15	STS T15xM5
WiHA 365 Torx T9	STS T9xM3

Special solutions

Inserts

Trapezoidal screw thread

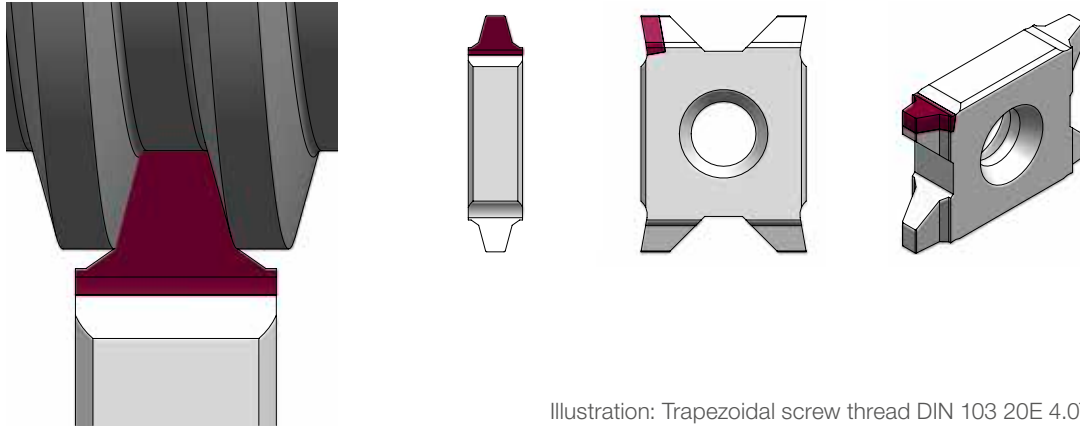


Illustration: Trapezoidal screw thread DIN 103 20E 4.0TR...

Full profile

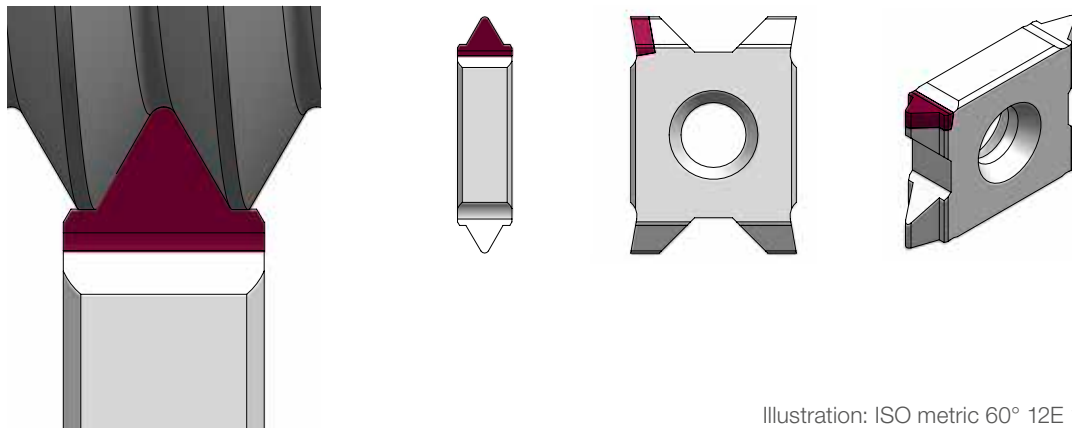


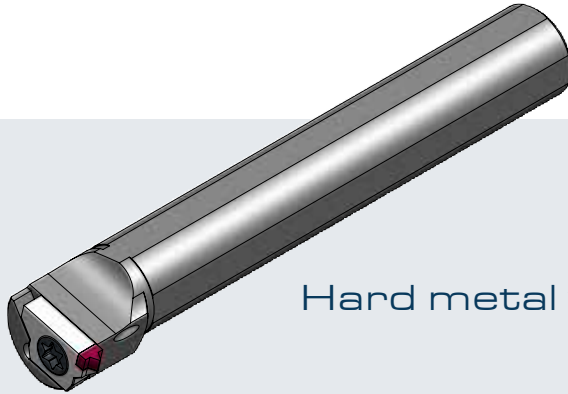
Illustration: ISO metric 60° 12E 1,5...

Benefits:

- Production of the complete thread
- Longer tool life and higher quality compared to partial profiles
- Less tool passes

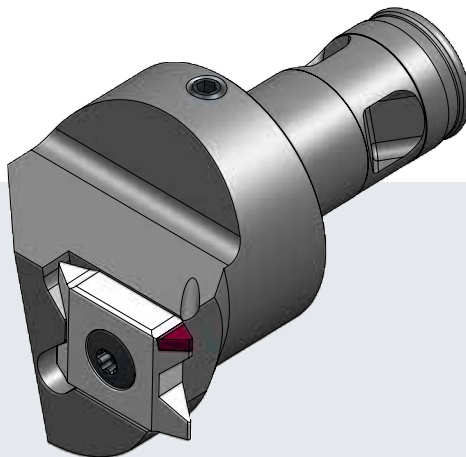
Special holders

Examples



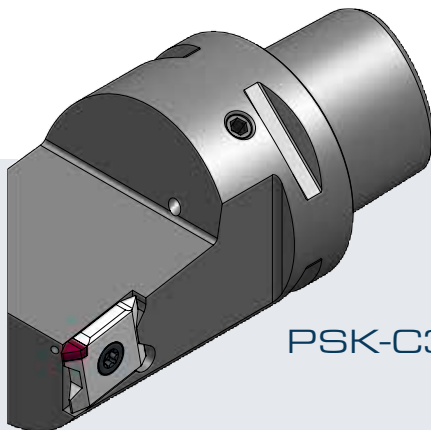
Hard metal with internal cooling

Illustration shows the right-hand version



MODUL[®]turn head fitting system

Illustration shows the right-hand version



PSK-C3 holder with internal cooling

Illustration shows the right-hand version

- We manufacture drill rods and holders, e.g. HSK or Capto.

Technology

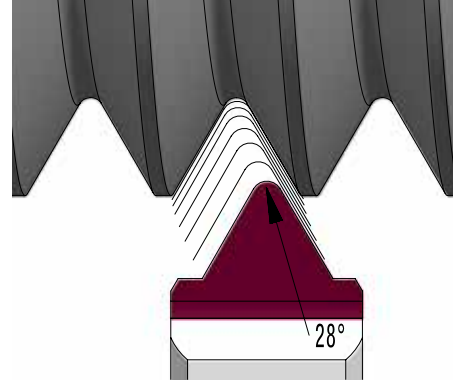
Hard Threading

Machinable materials

- Case-hardened and through-hardened steels
- HRC 52-65

Type of threads

- Metric threads as partial and full profile
- Gradients between 0.5 – 3.0 mm
- Threads with cut interruptions



Modified flank infeed

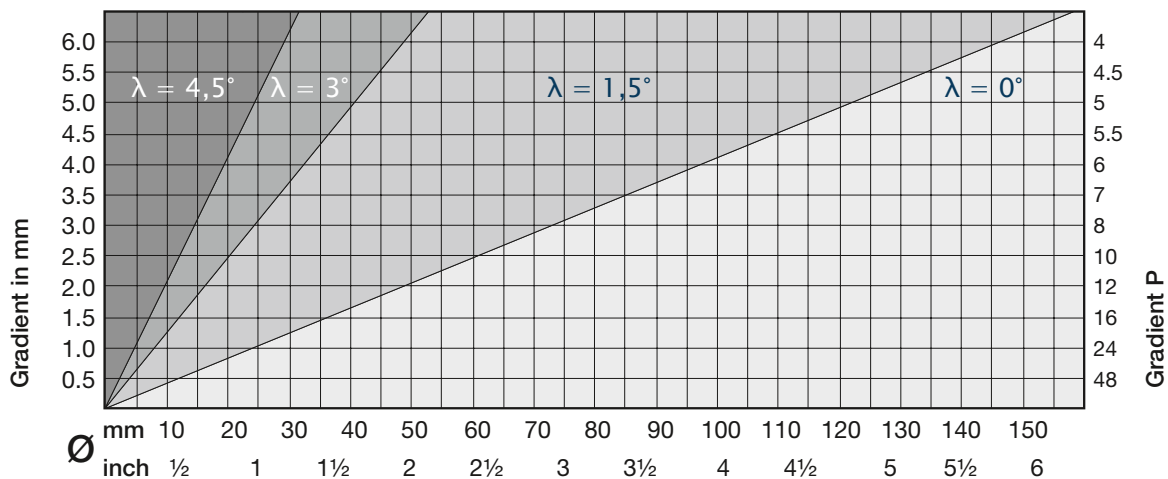
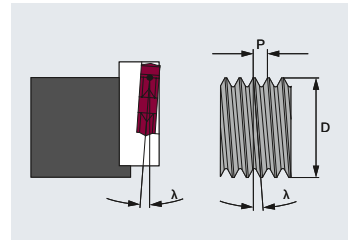
Machining

- Cutting speed: $v_c = 80 - 120$ m/min
- Constant radial infeed in X between 0.03 and 0.06 mm in the radius per pass with 28° flank infeed in Z. The number of passes is calculated based on the thread depth.
- With smooth cuts, it is possible to machine in wet and dry conditions. With interrupted cuts, machining should only occur in dry conditions.

Gradient angle

- 98% of all threads have a gradient angle between 0.5° and 2.0°.
- The gradient angle (λ) according to diameter (D) and gradient (P) of the thread is shown in the diagram.

$$\tan \lambda = \frac{P}{\pi \times D}$$





PEOPLE

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AMBITION

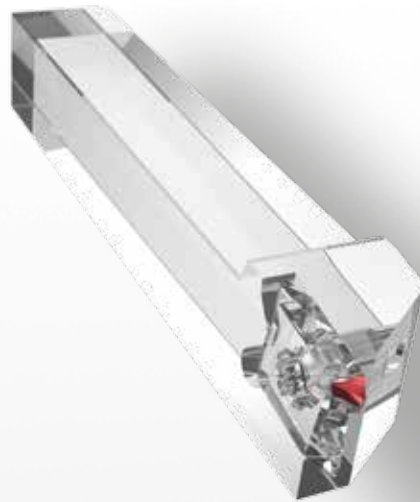
Question yesterday's, in order to develop new solutions for today and tomorrow



SYNERGY

Share our strength

CBN



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 MAS CBN HardThreading 9.2018

Changes / Errors excepted

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