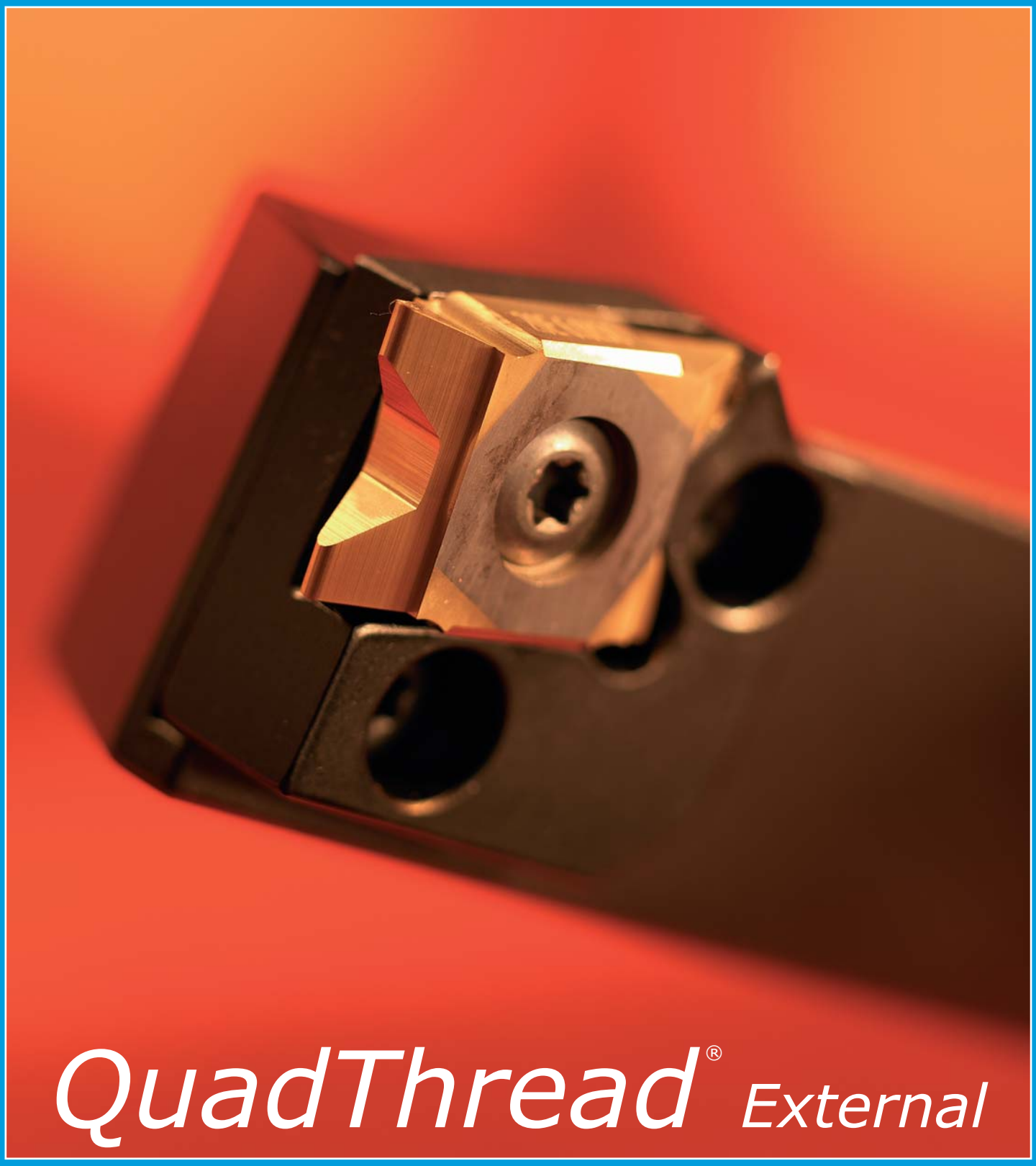


QuadThread® External

For Thread Turning

Scandinavian Tool Systems

Scandinavian Tool Systems AB

Our business idea is to offer the best rigid threading system to our customer and to be in the front line of cutting tool development.

The company

Was founded in 1989 as a company for producing and selling threading tools. QuadThread and QuadThread Off are two products that were developed very early by the company, and during these years ThreadMill was added to the product range. We are represented in 27 countries around the world.

Scandinavian Tool Systems AB

Has had it's present structure since 1995 when the Ostling Group bought it.

Surroundings

Our head office is situated in Insjön in the middle of Sweden in an area called Dalecarlia. There is a big lake called Siljan and the area surrounding the lake is famous for it's old houses, culture and the wooden horses that have been made here since the first part of the 19th century. Painting wooden horses is a very old tradition in Sweden, at least 400 years. The Dala horse became a world celebrity at the 1939 World Exhibition in New York. A lot of Swedes come here to celebrate the Midsummer festival in the end of June. This is the lightest time of the year in Sweden, when the sun is shining for about 22 hours a day in the area.

Table of content

General information 4-11

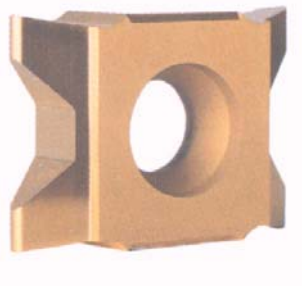
QuadThread inserts

Partial profile 12
ISO Metric (M) 13
MJ 14
ISO Unified (UN) 14-15
UNJ 15-16
Whitworth (BSW, BSP) 16-17
BSPT 17
Pansarrohrgewinde (PG) 17
Trapezoidal DIN 103 18
Round DIN 405 18
Module 18
ACME 19
STUB ACME 19
NPSM 19
NPT 20
NPTF Dryseal 20-21
API RD 21
API 21

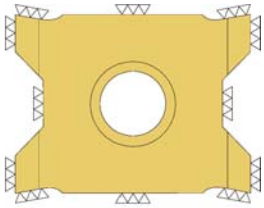
QuadThread toolholders

Small toolholders 22
Cassette-type toolholders 22
Standard cassettes 22
Extended cassettes 23
API cassettes 23
Small axial-type toolholders 24
Cassette-type axial toolholders 24
Blade cassettes 25
Drophead toolholders 25

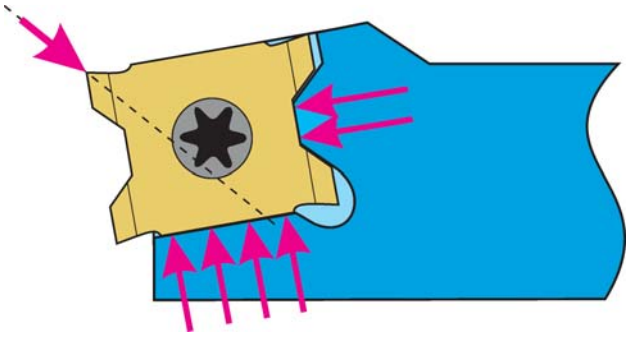
• = Stock standard
*** = Limited stock**



QuadThread is an entirely new type of threading tool. Instead of the traditional horizontal triangular insert, we have set the insert upright and made it square. The benefits are obvious:
1. The insert is much stronger.
2. The insert mounting can be made much more stable.
3. The insert has four cutting edges instead of three.



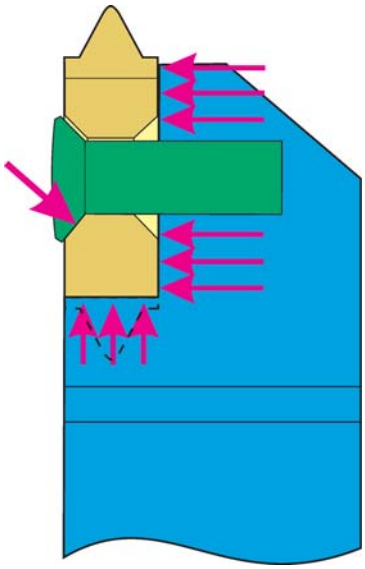
QuadThread offers maximum indexing accuracy, with support points in the right places.



The insert seat serves as a Vee block for the insert. The cutting forces are absorbed by large flat surfaces.

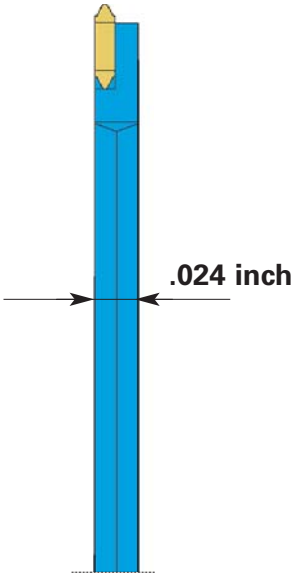
The QuadThread system has very high indexing accuracy. This is principally due to a combination of:
1. The insert being precision ground all round, including the locating surfaces.
2. Large machined surfaces in the insert seat absorb and distribute the cutting forces in an optimized way.
3. The insert is locked in position by means of a large, sturdy centre screw.

Strong and stable



The tool stability demands in threading are stricter than those in virtually any other machining operation. A very high axial load is applied at the instant when the insert enters the workpiece. But if a perfect thread is to be produced, the insert must remain immobile in its seat.

With the QuadThread, you are assured that the insert will be firmly secured in position. The centre screw - which is located a little off centre - draws the insert into the seat and also presses it onto the large rear support surface to ensure that the cutting forces will be securely absorbed.

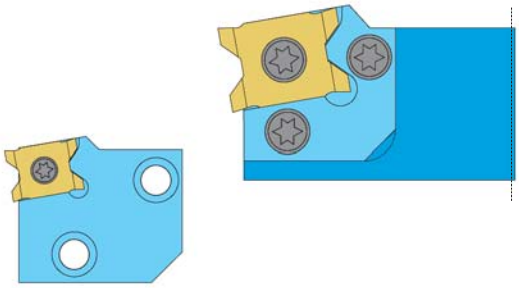


The slender toolholders for breadth of range

The threading operation must often be carried out in confined spaces, such as at workpiece shoulders or close to the chuck in bar automatics. In these situations, you can use the "blade toolholder".
In view of the fact that the QuadThread insert is mounted upright, we can make the toolholder no more than 6 mm wide - with unimpaired stability. This is invaluable in confined spaces.

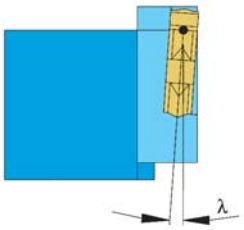
The cassette system - economical and convenient

Another economical and convenient refinement of the QuadThread toolholders is the cassette system (from .675 x .675 upwards). You can use the same basic toolholder from from 48 TPI up to
4 TPI. Only the cassette will then need to be changed for different pitches.



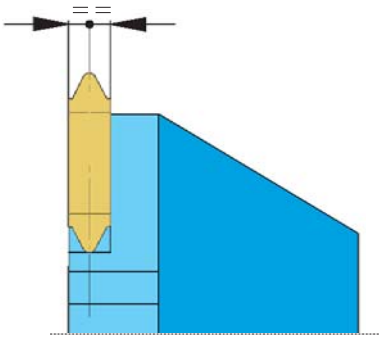
Helix angles

The seat gives the insert a helix angle of 1.5° as standard. Almost all the threads we produce (90%) have a helix angle of between 0.5° and 2.0°, for which the standard angle can be used. But if you need other angles, we can accommodate those too.



Same insert for right-hand and left-hand threads

A further economic and practical benefit of the QuadThread inserts is that they can be used, in most cases, for both the right-hand and left-hand threading.

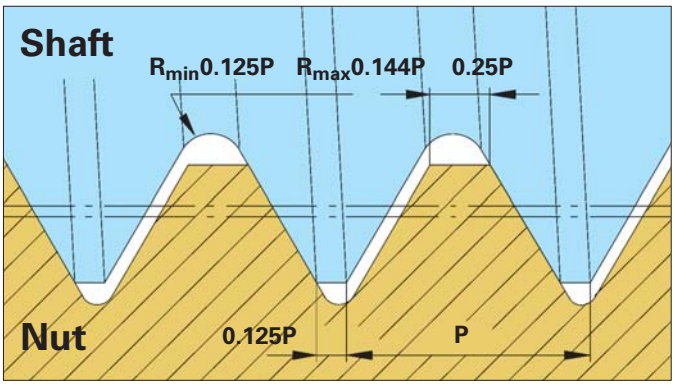


THREADING TOLERANCES

All thread standards have dimensional tolerances to achive the required fit between the shaft and the nut.

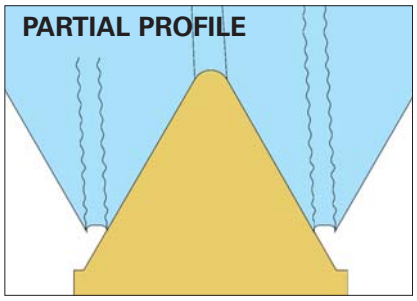
The shaft (in most cases) has a larger root radius and closer tolerance than the nut, which is designed to prevent shaft breakage.

The standards for the ISO and UN (Unified) thread profiles are shown here.

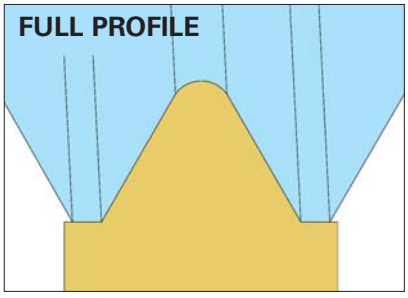


PROFILES

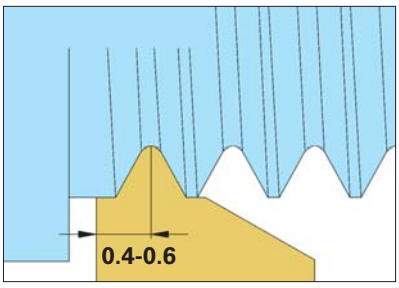
Partial profile inserts can be used for a variety of thread pitches and standards, providing the included angle is the same, however, incorrect nose radius on the insert can result in rejection of the component. This style of insert will not deburr the major diameter of the thread and will, therefore, require a secondary operation.



Full profile inserts are designed to produce the correct root radius and depth requirements for an individual pitch. Tool life and thread quality are always improved when selecting this style of insert, because the thread profile and depth is dedicated to that pitch, therefore, fewer passes are required to complete the thread.

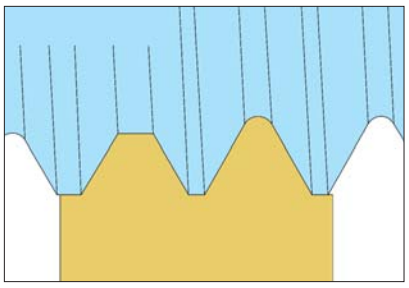


WITH SMALL PITCHES

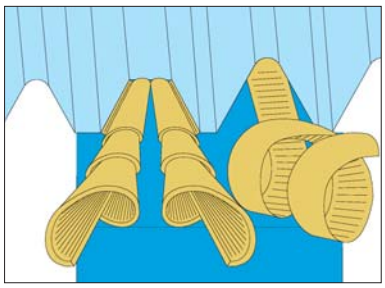


With this insert threading can be produced much closer to the shoulder. Available for pitches 1mm (24TPI) and finer, and also produced in partial and full profile styles.

MULTI-TOOTH

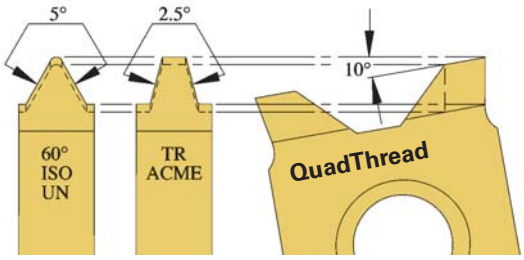


Threading cycle times can be redused up to 50% with this style of insert, and tool life is greatly increased due to fewer passes. More HP is required when using this type of insert, therefore, a stable component and rigid set-up are necessary.



Chip control is much easier with this new insert geometry, chips are divided into 3 manageable portions. The first tooth cuts the flanks of the thread, and the following tooth generates the root radius.

CLEARANCE ANGLES



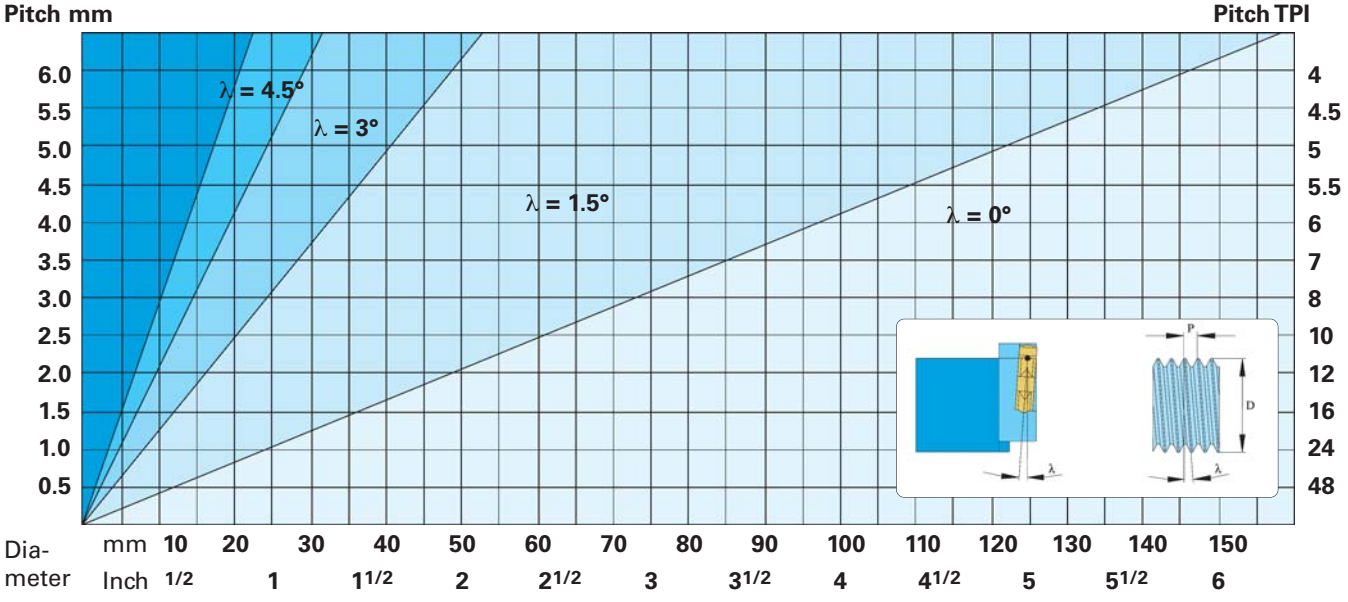
The side clearance angles on QuadThread and are generated by tipping the insert 10° and 15°, respectively. Note that the clearance angle is larger for ISO Metric, UN and Whitworth profiles than it is for Trapezoidal and ACME.

More care is required when selecting cassettes for Trapezoidal and ACME profiles, to ensure that the helix angle is as close as possible.

HELIX ANGLES

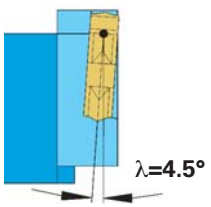
Over 90% of all common profiles have a helix angle between 0.5° and 2°. We have chosen 1.5° as the standard angle for QuadThread and, where no other angle is specified. In the diagram below the helix angle (l) is shown as a function of the diameter (D_2) and the thread pitch (P).

$$\tan \lambda = \frac{P}{\pi \times D_2}$$

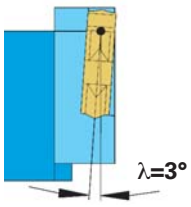


OTHER HELIX ANGLES

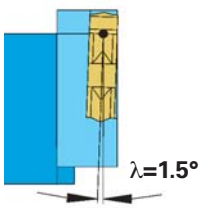
When threading Trapezoidal and ACME profiles, or when producing a left hand thread with a right hand toolholder, cassettes other than the standard may be required. QuadThread cassettes are available in increments of 1,5° helix.



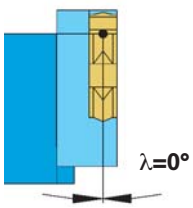
QER 25-12- **4.5**



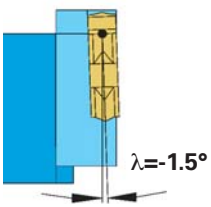
QER 25-12- **3**



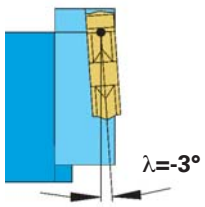
QER 25-12



QER 25-12- **0**



QER 25-12- **98.5**

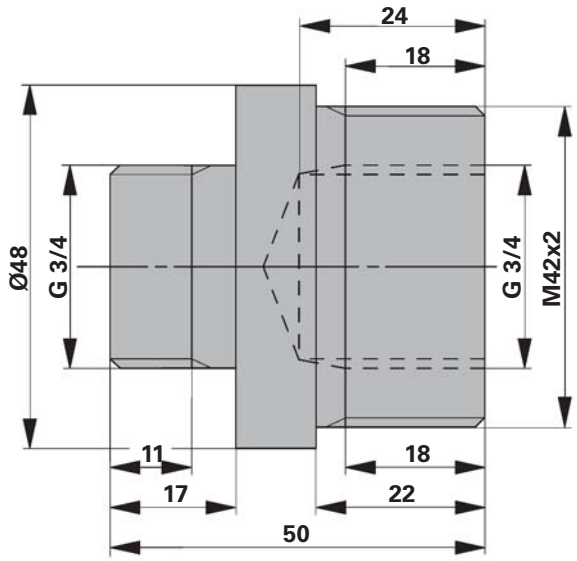


QER 25-12- **97**

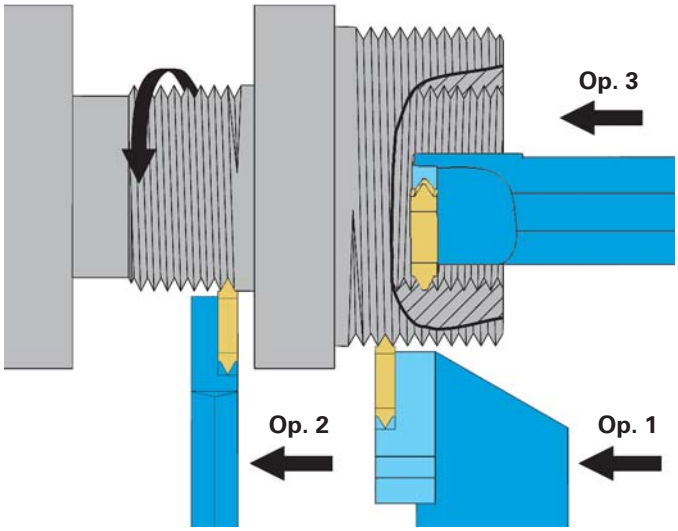
How to produce a thread

Scandinavian Tool Systems

DRAWING



THREADING OPERATIONS



1. CHOICE OF THREADING METHOD
In this example the machine is rotating in a anti-clockwise direction with tools moving from right to left. This method will produce a right hand thread.

2. CHOICE OF CARBIDE GRADE
The most suitable grade for stainless steel is K20C, because of it´s resistance to loose edge build-up. As this is an excellent all-round grade it will reduce your stock requirements.

3. CHOICE OF INSERT
Operation 1 See page 13. Choose 12E 2.0ISO K20C
Operation 2 See page 16. Choose 12X 14W K20C
Operation 3 See QuadThread Inner folder

4. CHOICE OF HELIX ANGLE
See the diagram on page 7. All threads lie within the field for helix angle 1.5°.
Op. 1 Cassette with helix angle1.5° should be used.
Op. 2 NOTE! Here a left-hand toolholder is used to make a right-hand thread. A cassette with negative helix angle must be used, i.e. 98.5.
Op. 3 Toolholder with helix angle 1.5° should be used.

5. CHOICE OF TOOLHOLDER AND CASSETTE
Op. 1 See page 22. The toolblock dimension is 1 inch. Choose cassette-type toolholder 100 6-C-25. For cassette see page 22. Holder shank is 1 inch, insert is 12E and helix angle 1.5°. Choose cassette QER 25-12.
Op. 2 See page 25. A left-hand blade cassette is chosen with negative helix to make a right-hand thread.
A block for standard cut-off blade 32mm is available. Use QEL 3206D-12-98.5
Op. 3 See QuadThread Inner folder

6. CHOICE OF INFEED METHOD
See page 9. The material is long-chipping, and risk for cold hardening exists, so choice of correct infeed method is important. The machine is equipped with a G-function for alternating flank infeed, which should therefore be chosen.

7. CHOICE OF NUMBER OF PASSES
See the table on page 10. For the external threads use 7 passes and for the internal 10 passes, since the stability is lower. When programming the thread depth, see the respective catalog page for the thread form being used.

8. CHOICE OF CUTTING DATA
The table on page 10 shows that the carbide grade K20C can be run between 330-560 ft/min in stainless steel.

$V_c = \frac{0.262xDxn}{}$ V_c = surface speed in ft/min
n = spindle speed in rpm

Op. 1 The lathe specifications show that N_{max} = 2200 rpm with pitch 2.0 and braking distance 0.0984 inch.

$V_{max} = \frac{0.262x2200x1.6535}{}$ = 963 ft/min Choose 560 ft/min

Op. 2 The lathe specifications show that N_{max} = 950 rpm with pitch 14 TPI and starting distance 0.1771 ft/min.

$V_{max} = \frac{0.262x950x0.9527}{}$ = 237 ft/min Choose 230 ft/min

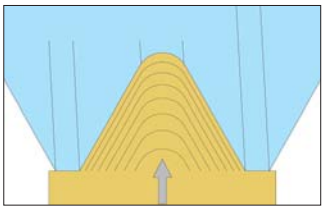
The low surface speed can give a problem with loose-edge buildup.

Op. 3 Here there is no problem with start or braking distance, so maximum spindle speed can be utilized. The lathe specifications give N_{max}= 4400 rpm with pitch 14 TPI.

$V_{max} = \frac{0.262x440x0.9527}{}$ = 1098 ft/min Choose 560 ft/min.

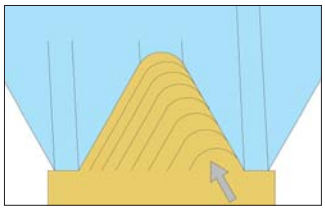
Technical information

RADIAL INFEED



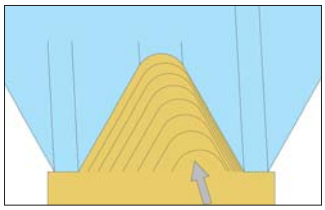
This is the most common method of in-feed on short chipping materials.
On long chipping materials it is difficult to break or control the chip as it shears from the flanks of the thread.
The high heat generated from this method of in-feed on the tool nose radius causes premature tool failure.

FLANK INFEED



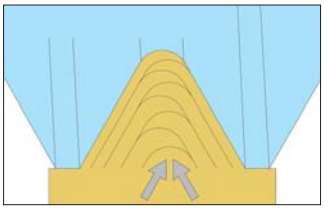
Angular in-feed programmed at the same angle as the thread flank.
Although the heat generated from this method is greatly reduced, the rear flank of the insert removes very little material, which can cause work hardening in some materials, and unsatisfactory surface finish on the rear flank of the thread.

MODIFIED FLANK INFEED



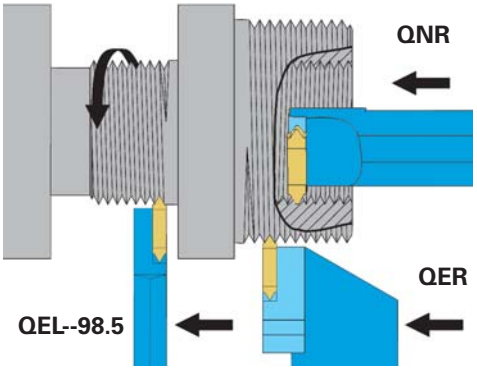
Angular in-feed modified to generate additional work by the trailing insert edge and still maintain a smooth chip flow with reduced heat at the tool nose.
Highly recommendes for most types of material, however, the in-feed angle should be reduced on more abrasive materials to prevent work hardening.
Recommended range 27-10^{o}

ALTERNATING FLANK INFEED

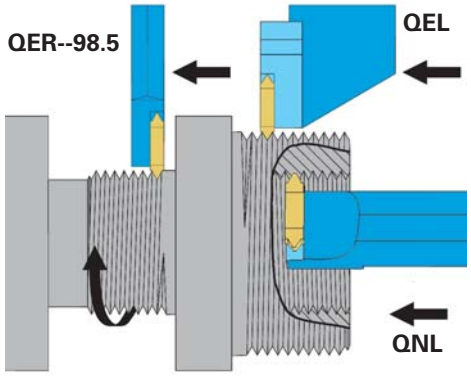


An excellent for optimizing tool life.
Many of the latest CNC machines offer this canned cycle sub-routines and it´s use is highly recommended for most materials.
The one disadvantage is loss of chip control in certain applications.

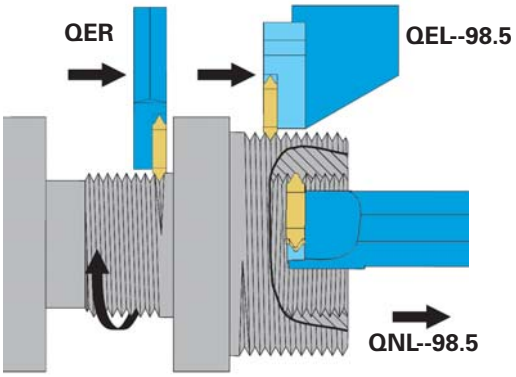
RIGHT-HAND THREAD COUNTER-CLOCKWISE ROTATION



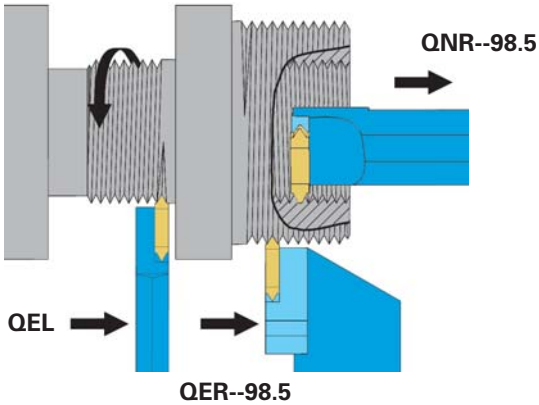
LEFT-HAND THREAD CLOCKWISE ROTATION



RIGHT-HAND THREAD CLOCKWISE ROTATION



LEFT-HAND THREAD COUNTER-CLOCKWISE ROTATION



CUTTING DATA

The table gives recommended cutting speeds in feet/min., for different materials and carbide grades.

Material	T10 / K20	T10C / K20C	T10R / K20R	C20
Low-carbon steel ≤ 650N/mm^2		590-720	690-820	590-1300
Carbon steel 650-850N/mm^2		430-620	490-690	490-1150
Alloyed tool steel and heat-resistant steel		400-530	460-590	490-1150
Stainless steel	230-295	330-560	360-650	490-1150
Cast iron HB 180-250	230-295		420-560	
Non-ferrous materials	-1300		-1900	

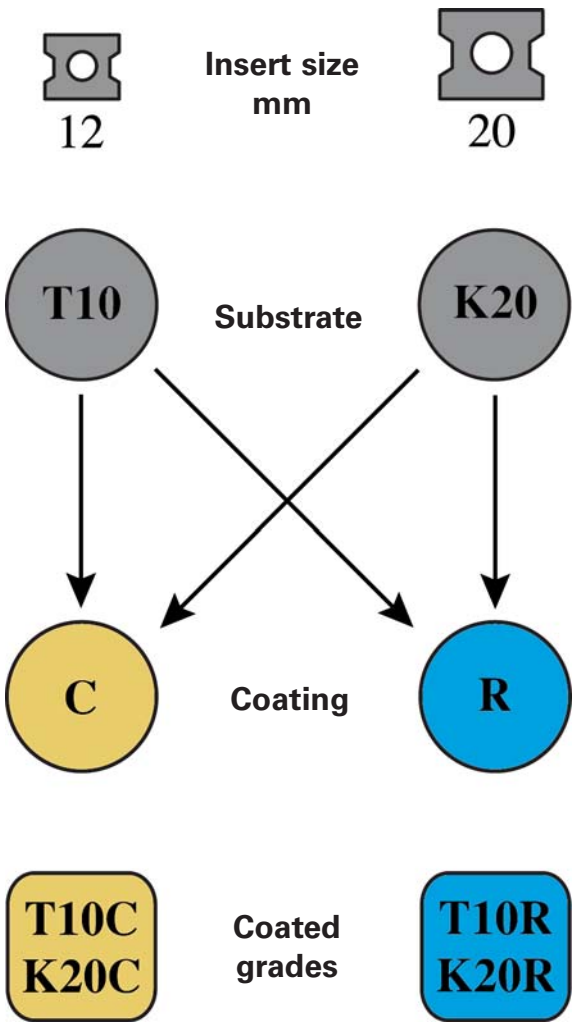
NUMBER OF PASSES

The table gives only general recommendations. Many times fewer passes can be used, depending on material and setup.

Pitch mm	0.5	0.75	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
Pitch TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4
Nr. of passes	4-6	4-7	4-8	5-9	6-10	7-12	7-12	8-14	10-16	11-18	11-18	11-19	12-20	12-20	12-20

The above recommendations are for full profile UN, ISO and Withworth external forms. For Trapezoidal, ACME, NPT and internal profiles please contact your local STS distributor.

CARBIDE GRADES



Our threading inserts are available in carbide grades T10 and K20. These two grades have an optimum combination of toughness and wear resistance, particulary for threading operations. T10 is a micrograin grade that has excellent cutting edge sharpness, also on the smallest profiles.

Coatings

Both of the basic grades are available with two different coatings. The most universal coating is designated C and is an ordinary TiN coating that performs very well on most materials. Our new R coating is TiAlN based and has been specially developed for threading operations. Excellent results have been achieved, particularly in stainless steels and other long-chipmaterials. This is usually the universial problemsolver.

Simple designations

As shown in the figure, the designations to the left describe logically both the basic grade and the coating type.

Avoid edge build-up

Edge build-up generally causes excessively rapid wear of the cutting edge. Edge build-up is usually due to incorrect temperature at the cutting area, which is known as the edge build-up area. The solution may be either to raise or lower the temperature. The coating prevents welding of the chip to the insert and reduces friction, thus also lowering the temperature. If this fails to solve the problem, the cutting speed can be reset to an area outside the edge build-up area. Fewer passes may also be a solution, since this affects the temperature.

Code keys

THREADING INSERTS

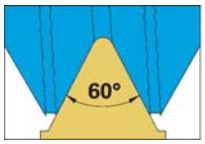
12	X		11	W		T10C
Insert size 12 20	**External or internal** E=external N=internal X=neutral	**Hand** Blank=neutral R=right L=left	**Pitch** mm TPI Partial profile AA A AG G, GN N, NV V	**Profile** ISO UN W TR RD et. al. Partial profile 60° 55°	**Teeth** Blank=1 tooth 2M=2 teeth	**Grade** T10 T10C T10R K20 K20C K20R C20

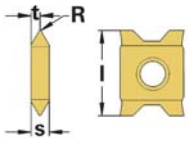
TOOLHOLDERS

Q	E	R		500	4	-	C25
QuadThread threading system	**External or internal** E=external N=internal	**Hand** R=right L=left	**Height or round** 00=round 10=10mm 12=12mm 16=16mm 20=20mm 25=25mm 32=32mm 40=40mm	**Width or diameter** 0375=.375" 0500=.500" 0625=.625" 0750=.750" 100=1.000" 125=1.250" 150=1.500"	**Length** 3=3" 4=4" 5=5" 6=6" 7=7"		**Cassette or insert size** C20 C25 12 20

CASSETTES

Q	E	R	25	-	12	-	
QuadThread Threading system	**External or internal** E=external N=internal	**Hand** R=right L=left	**Cassette size** 20 25		**Insert size** 12 20		**Helix angle** 4.5 = +4.5° 3 = +3° 1.5 = Blank 0.7 = +0.7° 0 = 0° 98.5 = -1.5° 97 = -3°

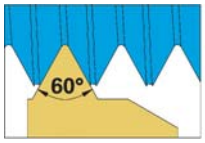


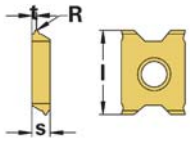


Partial Profile 60°

External and internal threading

Pitch mm	Pitch TPI	Catalogue number	Dimensions l	s	t	R	Uncoated T10	Uncoated K20	Price-group	Coated Cermet T10C	Coated Cermet K20C	Coated Cermet C20	Coated T10R	Coated K20R	Price-group
0.5-2.0	48-12	12X A60	.472	.094	.047	.003	•		1	•		*	*		11
0.5-3.0	48-8	12X AG60	.472	.142	.071	.005	•		2	•		*	*		12
1.75-3.0	14-8	12X G60	.472	.142	.071	.008	•		2	•		*	*		12
3.5-5.0	7-5	20X N60	.787	.181	.091	.016		*	3		•			*	13
5.5-6.0	4.5-5	20X V60	.787	.268	.134	.031		*	4		•			*	14

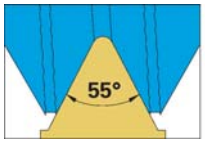


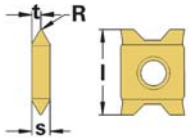


Partial Profile 60°

External and internal threading

Pitch mm	Pitch TPI	Catalogue number	Dimensions l	s	t	R	Uncoated K20	Price-group	Coated K20C	Coated K20R	Price-group
0.35-1.0	72-24	12ER AA60	.472	.094	.024	.002	*	1	•	*	11

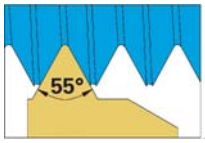


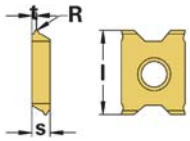


Partial Profile 55°

External and internal threading

Pitch mm	Pitch TPI	Catalogue number	Dimensions l	s	t	R	Uncoated T10	Price-group	Coated T10C	Coated T10R	Coated K20C	Coated K20R	Price-group
0.5-2.0	48-12	12X A55	.472	.094	.047	.003	*	1	•	*			11
0.5-3.0	48-8	12X AG55	.472	.142	.071	.003	*	2	•	*			12
1.75-3.0	14-8	12X G55	.472	.142	.071	.008	*	2					12
5.5-5.0	7-5	20X N55	.787	.181	.091	.019	*	3			*	*	13
5.5-6.0	4.5-5	20X V55	.787	.268	.134	.029	*	4			*	*	14

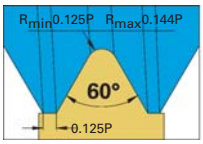


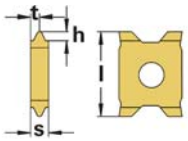


Partial Profile 55°

External and internal threading

Pitch mm	Pitch TPI	Catalogue number	Dimensions l	s	t	R	Uncoated K20	Price-group	Coated K20C	Coated K20R	Price-group
0.35-1.0	72-24	12ER AA55	.472	.094	.024	.002	*	1	*	*	11

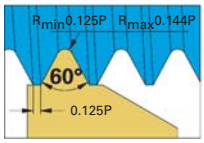


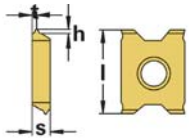


ISO Metric (M)

External threading

Pitch mm	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated Cermet T10C	K20C	C20	Coated T10R	K20R	Price-group
0.5	12E 0.5ISO	.472	.094	.047	.012	*		1	•			•		11
0.75	12E 0.75ISO	.472	.094	.047	.019	*		1	•			•		11
1.0	12E 1.0ISO	.472	.094	.047	.025	*		1	•		*	•		11
1.25	12E 1.25ISO	.472	.094	.047	.031	*		1	•			•		11
1.5	12E 1.5ISO	.472	.094	.047	.037	*		1	•		*	•		11
1.75	12E 1.75ISO	.472	.094	.047	.043	*		1	•			•		11
2.0	12E 2.0ISO	.472	.094	.047	.049	*		1	•		*	•		11
2.5	12E 2.5ISO	.472	.142	.071	.061	*		2	•			•		12
3.0	12E 3.0ISO	.472	.142	.071	.074	*		2	•			•		12
3.5	20E 3.5ISO	.787	.181	.091	.086		*	3		•			•	13
4.0	20E 4.0ISO	.787	.181	.091	.099		*	3		•			•	13
4.5	20E 4.5ISO	.787	.268	.134	.111		*	4		•			•	14
5.0	20E 5.0ISO	.787	.268	.134	.123		*	4		•			•	14
5.5	20E 5.5ISO	.787	.268	.134	.135		*	4		•			•	14
6.0	20E 6.0ISO	.787	.268	.134	.148		*	4		•			•	14

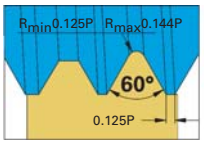


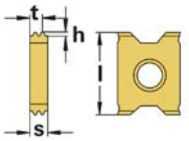


ISO Metric (M)

External threading with small pitches

Pitch mm	Catalogue number	Dimensions l	s	t	h	Uncoated K20	Price-group	Coated K20C	K20R	Price-group
0.35	12ER 0.35ISO	.472	.094	.016	.009	*	1	*	*	11
0.4	12ER 0.4ISO	.472	.094	.016	.010	*	1	*	*	11
0.45	12ER 0.45ISO	.472	.094	.016	.011	*	1	*	*	11
0.5	12ER 0.5ISO	.472	.094	.016	.012	*	1	•	*	11
0.6	12ER 0.6ISO	.472	.094	.024	.015	*	1	*	*	11
0.7	12ER 0.7ISO	.472	.094	.024	.017	*	1	*	*	11
0.75	12ER 0.75ISO	.472	.094	.024	.019	*	1	•	*	11
0.8	12ER 0.8ISO	.472	.094	.024	.020	*	1	•	*	11
1.0	12ER 1.0ISO	.472	.094	.024	.025	*	1	•	*	11

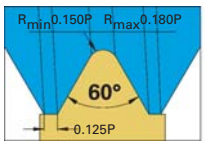


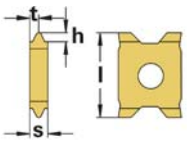


ISO Metric (M)

External threading multitooth

Pitch mm	Catalogue number	Dimensions l	s	t	h	No. teeth	Radial infeed per pass 1	2	3	4	5	Coated T10C	T10R	K20C	K20R	Price-group
1.0	12ER 1.0ISO2M	.472	.094	.067	.025	2	.0094	.0082	.0070			*	*			51
1.5	12ER 1.5ISO2M	.472	.142	.100	.037	2	.0169	.0118	.0082			*	*			52
2.0	20ER 2.0ISO2M	.787	.181	.130	.049	2	.0224	.0157	.0110					*	*	53
2.5	20ER 2.5ISO2M	.787	.268	.193	.074	2	.0232	.0165	.0118	.0098				*	*	54
3.0	20ER 3.0ISO2M	.787	.268	.203	.008	2	.0102	.0204	.0165	.0159				*	*	54
3.5	20ER 3.5ISO2M	.787	.268	.212	.009	2	.0275	.0255	.0204	.0159				*	*	54
4.0	20ER 4.0ISO2M	.787	.268	.213	.010	2	.0275	.0232	.0192	.0157	.0129			*	*	54

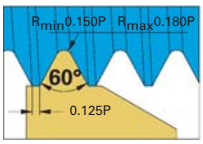


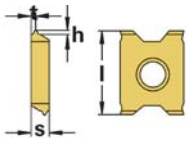


MJ

External threading

Pitch mm	Catalogue number	Dimensions l	s	t	h	Coated T10C	T10R	Price-group
1.5	12E 1.5MJ	.472	.094	.047	.035	*	*	31
2.0	12E 2.0MJ	.472	.094	.047	.047	*	*	31

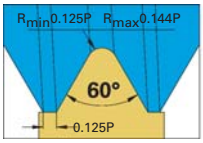


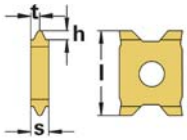


MJ

External threading

Pitch mm	Catalogue number	Dimensions l	s	t	h	Coated K20C	K20R	Price-group
1.0	12ER 1.0MJ	.472	.094	.024	.024	*	*	31

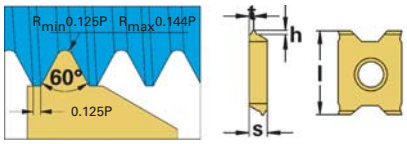




ISO Unified (UN)

External threading

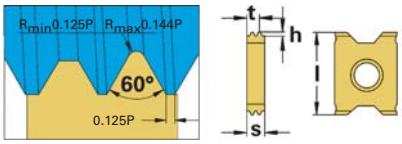
Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated Cermet T10C	K20C	C20	Coated T10R	K20R	Price-group
32	12E 32UN	.472	.094	.047	.020	*		1	*			*		11
28	12E 28UN	.472	.094	.047	.0202	*		1	*			*		11
24	12E 24UN	.472	.094	.047	.026	*		1	*			*		11
20	12E 20UN	.472	.094	.047	.031	*		1	•		*	*		11
18	12E 18UN	.472	.094	.047	.035	*		1	•		*	*		11
16	12E 16UN	.472	.094	.047	.039	*		1	•		*	*		11
14	12E 14UN	.472	.094	.047	.045	*		1	*		*	*		11
13	12E 13UN	.472	.094	.047	.048	*		1	*			*		11
12	12E 12UN	.472	.094	.047	.052	*		1	*			*		11
11	12E 11UN	.472	.142	.071	.057	*		2	*		*	*		12
10	12E 10UN	.472	.142	.071	.063	*		2	*			*		12
9	12E 9UN	.472	.142	.071	.070	*		2	*			*		12
8	12E 8UN	.472	.142	.071	.078	*		2	*			*		12
7	20E 7UN	.787	.181	.091	.089		*	3		*			*	13
6	20E 6UN	.787	.181	.091	.104		*	3		*			*	13
5	20E 5UN	.787	.268	.134	.125		*	4		*			*	14
4.5	20E 4.5UN	.787	.268	.134	.139		*	4		*			*	14
4	20E 4UN	.787	.268	.134	.157		*	4		*			*	14



ISO Unified (UN)

External threading with small pitches

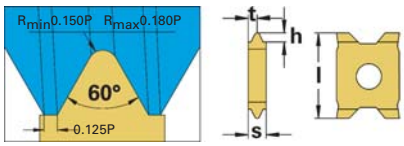
Pitch TPI	Catalogue number	Dimensions l	s	t	h	Coated K20C	K20R	Price-group
72	12ER 72UN	.472	.094	.016	.009	*	*	11
64	12ER 64UN	.472	.094	.016	.010	*	*	11
56	12ER 56UN	.472	.094	.016	.011	*	*	11
48	12ER 48UN	.472	.094	.024	.013	*	*	11
44	12ER 44UN	.472	.094	.024	.014	*	*	11
40	12ER 40UN	.472	.094	.024	.016	*	*	11
36	12ER 36UN	.472	.094	.024	.017	*	*	11
32	12ER 32UN	.472	.094	.024	.020	*	*	11
28	12ER 28UN	.472	.094	.024	.022	*	*	11
24	12ER 24UN	.472	.094	.024	.026	*	*	11



ISO Unified (UN)

External threading multitooth

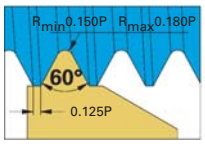
Pitch TPI	Catalogue number	Dimensions l	s	t	h	No. teeth	Radial infeed per pass 1	2	3	4	Coated T10C	T10R	K20C	K20R	Price-group
16	12ER 16UN2M	.472	.142	.102	.039	2	.0177	.0125	.0087		*	*			52
12	20ER 12UN2M	.787	.181	.132	.052	2	.0236	.0169	.0118				*	*	53
8	20ER 8UN2M	.787	.268	.196	.078	2	.0256	.0216	.0177	.0134			*	*	54

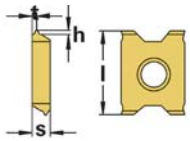


UNJ

External threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	Price-group	Coated T10C	T10R	Price-group
28	12E 28UNJ	.472	.094	.047	.021	*	21	*	*	31
24	12E 24UNJ	.472	.094	.047	.025	*	21	*	*	31
20	12E 20UNJ	.472	.094	.047	.030	*	21	*	*	31
18	12E 18UNJ	.472	.094	.047	.033	*	21	*	*	31
16	12E 16UNJ	.472	.094	.047	.037	*	21	*	*	31
14	12E 14UNJ	.472	.094	.047	.043	*	21	*	*	31
12	12E 12UNJ	.472	.094	.047	.050	*	21	*	*	31
10	12E 10UNJ	.472	.142	.071	.060	*	22	*	*	32
8	12E 8UNJ	.472	.142	.071	.075	*	22	*	*	32



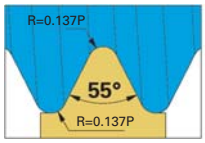


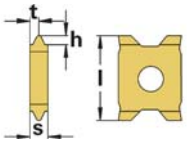
UNJ

External threading with small pitches

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Coated K20C	K20R	Price-group
32	12ER 32UNJ	.472	.094	.024	.019	*	*	31
28	12ER 28UNJ	.472	.094	.024	.021	*	*	31
24	12ER 24UNJ	.472	.094	.024	.025	*	*	31

UN Round - QuadThread UN-profiles meet the requirement of tighter tolerances and rounded crests for UN round profiles.

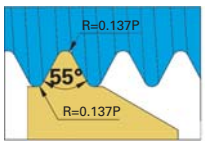


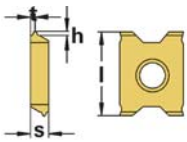


Whitworth (BSW, BSP)

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated Cermet T10C	K20C	C20	Coated T10R	K20R	Price-group
28	12X 28W	.472	.094	.047	.023	*		1	*			*		11
24	12X 24W	.472	.094	.047	.027	*		1	*			*		11
22	12X 22W	.472	.094	.047	.030	*		1	*			*		11
20	12X 20W	.472	.094	.047	.032	*		1	*			*		11
19	12X 19W	.472	.094	.047	.034	*		1	•		*	•		11
18	12X 18W	.472	.094	.047	.036	*		1	*			*		11
16	12X 16W	.472	.094	.047	.041	*		1	*			*		11
14	12X 14W	.472	.094	.047	.046	*		1	•		*	•		11
12	12X 12W	.472	.094	.047	.054	*		1	*			*		11
11	12X 11W	.472	.142	.071	.059	*		2	•		*	•		12
10	12X 10W	.472	.142	.071	.065	*		2	*			*		12
9	12X 9W	.472	.142	.071	.071	*		2	*			*		12
8	12X 8W	.472	.142	.071	.081	*		2	*			*		12
7	20X 7W	.787	.181	.091	.093		*	3		*			*	13
6	20X 6W	.787	.181	.091	.108		*	3		*			*	13
5	20X 5W	.787	.181	.091	.130		*	3		*			*	13
4.5	20X 4.5W	.787	.268	.134	.144		*	4		*			*	14
4	20X 4W	.787	.268	.134	.162		*	4		*			*	14

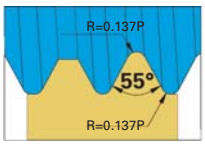


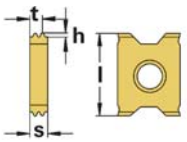


Whitworth (BSW, BSP)

External threading with small pitches

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Coated K20C	K20R	Price-group
32	12ER 32W	.472	.094	.024	.020	*	*	11
28	12ER 28W	.472	.094	.024	.023	*	*	11
26	12ER 26W	.472	.094	.024	.025	*	*	11
24	12ER 24W	.472	.094	.024	.027	*	*	11

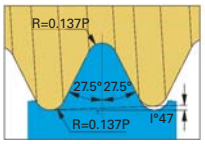


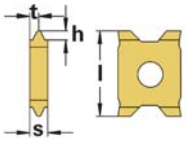


Whitworth (BSW, BSP)

External threading multitooth

Pitch TPI	Catalogue number	Dimensions l	s	t	h	No. teeth	Radial infeed per pass 1	2	3	4	Coated T10C	T10R	K20C	K20R	Price-group
14	12ER 14W2M	.472	.142	.107	.046	2	.0212	.0150	.0098		*	*			52
11	20ER 11W2M	.787	.181	.136	.059	2	.0212	.0150	.0126	.0098			*	*	53

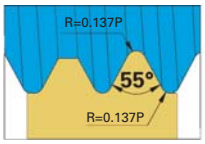


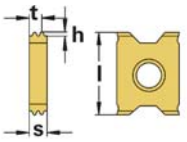


BSPT

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Coated T10C	T10R	Price-group
14	12X 14BSPT	.472	.142	.071	.048	*	*	32
11	12X 11BSPT	.472	.142	.071	.061	*	*	32

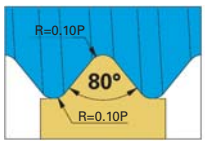


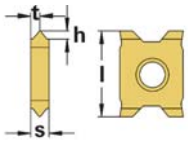


BSPT

External threading multitooth

Pitch TPI	Catalogue number	Dimensions l	s	t	h	No. teeth	Radial infeed per pass 1	2	3	4	Coated T10C	T10R	K20C	K20R	Price-group
14	12ER 14BSPT2M	.472	.142	.107	.048	2	.0220	.0153	.0102		*	*			51
11	20ER 11BSPT2M	.787	.181	.136	.061	2	.0220	.0153	.0130	.0102			*	*	53

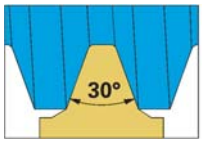


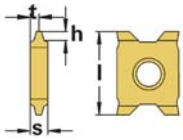


Pansarrohrgewinde (PG)

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Coated T10C	T10R	Price-group
20	12X 20PG	.472	.094	.047	.024	*	*	31
18	12X 18PG	.472	.094	.047	.026	*	*	31
16	12X 16PG	.472	.094	.047	.030	*	*	31

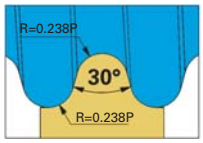


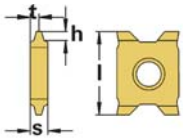


Trapezoidal DIN 103

External and internal threading

Pitch mm	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated T10C	T10R	K20C	K20R	Price-group
1.5	12X 1.5TR	.472	.094	.047	.035	*		21	*	*			31
2.0	12X 2.0TR	.472	.094	.047	.049	*		21	*	*			31
3.0	12X 3.0TR	.472	.142	.071	.069	*		22	*	*			32
4.0	20X 4.0TR	.787	.181	.091	.089		*	23			*	*	33
5.0	20X 5.0TR	.787	.268	.134	.108		*	24			*	*	34
6.0	20X 6.0TR	.787	.268	.134	.138		*	24			*	*	34

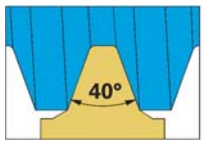


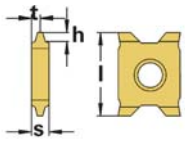


Round DIN 405

External threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated T10C	T10R	K20C	K20R	Price-group
10	12E 10RD	.472	.142	.071	.050	*		22	*	*			32
8	12E 8RD	.472	.142	.071	.063	*		22	*	*			32
6	20E 6RD	.787	.181	.091	.083		*	23			*	*	33
4	20E 4RD	.787	.268	.134	.125		*	24			*	*	34

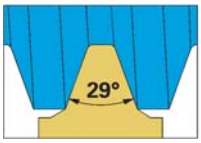


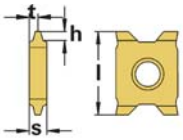


Modul

External threading

Pitch mm	Catalogue number	Dimensions l	s	t	h	Coated T10C	T10R	K20C	K20R	Price-group
1.57	12E 0.5MOD	.472	.094	.047	.044	*	*			31
2.36	12E 0.75MOD	.472	.142	.071	.067	*	*			32
3.14	20E 1.0MOD	.787	.181	.091	.089			*	*	33
3.93	20E 1.25MOD	.787	.181	.091	.111			*	*	33
4.71	20E 1.5MOD	.787	.268	.134	.133			*	*	34
6.28	20E 2.0MOD	.787	.268	.134	.177			*	*	34

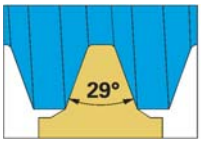


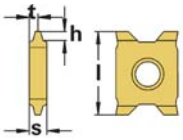


ACME

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated T10C	T10R	K20C	K20R	Price-group
16	12X 16ACME	.472	.094	.047	.040	*		21	*	*			31
14	12X 14ACME	.472	.094	.047	.044	*		21	*	*			31
12	12X 12ACME	.472	.094	.047	.052	*		21	*	*			31
10	12X 10ACME	.472	.142	.071	.065	*		22	*	*			32
8	12X 8ACME	.472	.142	.071	.079	*		22	*	*			32
6	20X 6ACME	.787	.181	.091	.100		*	23			*	*	33
5	20X 5ACME	.787	.181	.091	.118		*	24			*	*	34
4	20X 4ACME	.787	.181	.091	.143		*	24			*	*	34

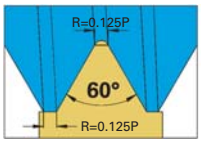


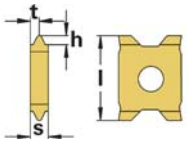


STUB ACME

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated T10C	T10R	K20C	K20R	Price-group
16	12X 16STACME	.472	.094	.047	.028	*		21	*	*			31
14	12X 14STACME	.472	.094	.047	.030	*		21	*	*			31
12	12X 12STACME	.472	.094	.047	.035	*		21	*	*			31
10	12X 10STACME	.472	.142	.071	.045	*		22	*	*			32
8	12X 8STACME	.472	.142	.071	.054	*		22	*	*			32
6	20X 6STACME	.787	.181	.091	.067		*	23			*	*	33
5	20X 5STACME	.787	.268	.134	.078		*	24			*	*	34
4	20X 4STACME	.787	.268	.134	.093		*	24			*	*	34

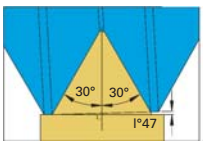


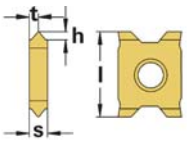


NPSM

External threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Coated T10C	T10R	K20C	K20R	Price-group
27	12E 27NPSM	.472	.094	.047	.026	*	*			31
18	12E 18NPSM	.472	.094	.047	.038	*	*			31
14	12E 14NPSM	.472	.094	.047	.049	*	*			31
11.5	12E 11.5NPSM	.472	.142	.071	.060	*	*			32
8	20E 8NPSM	.787	.181	.091	.086			*	*	33

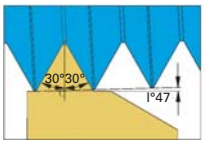


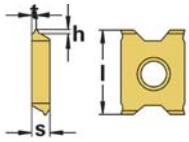


NPT

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated Cermet T10C	K20C	C20	Coated T10R	K20R	Price-group
27	12X 27NPT	.472	.094	.047	.028	*		21	*			*		31
18	12X 18NPT	.472	.094	.047	.041	*		21	*			*		31
14	12X 14NPT	.472	.094	.047	.054	*		21	*		*	*		31
11.5	12X 11.5NPT	.472	.142	.071	.066	*		22	*		*	*		32
8	20X 8NPT	.787	.181	.091	.096		*	23		*			*	33

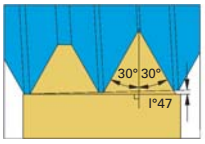


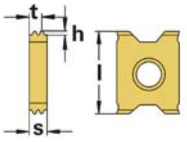


NPT

External threading with small pitches

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated K20	Price-group	Coated K20C	K20R	Price-group
27	12ER 27NPT	.472	.094	.024	.028	*	21	*	*	31

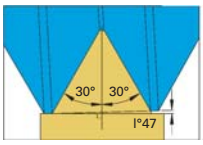


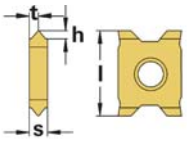


NPT

External threading multitooth

Pitch TPI	Catalogue number	Dimensions l	s	t	h	No. teeth	Radial infeed per pass 1	2	3	4	Coated K20C	K20R	Price-group
11.5	20ER 11.5NPT2M	.787	.181	.134	.066	23	.0236	.0177	.0149	.0098	*	*	33
8	20ER 8NPT2M	.787	.286	.196	.096	24	.0295	.0275	.0275	.0110	*	*	34

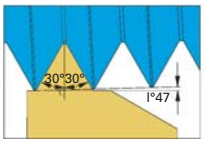


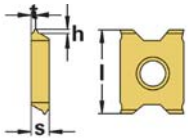


NPTF Dryseal

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated T10C	T10R	K20C	K20R	Price-group
27	12X 27NPTF	.472	.094	.047	.026	*		21	*	*			31
18	12X 18NPTF	.472	.094	.047	.040	*		21	*	*			31
14	12X 14NPTF	.472	.094	.047	.054	*		21	*	*			31
11.5	12X 11.5NPTF	.472	.142	.071	.065	*		22	*	*			32
8	20X 8NPTF	.787	.181	.091	.095		*	23			*	*	33





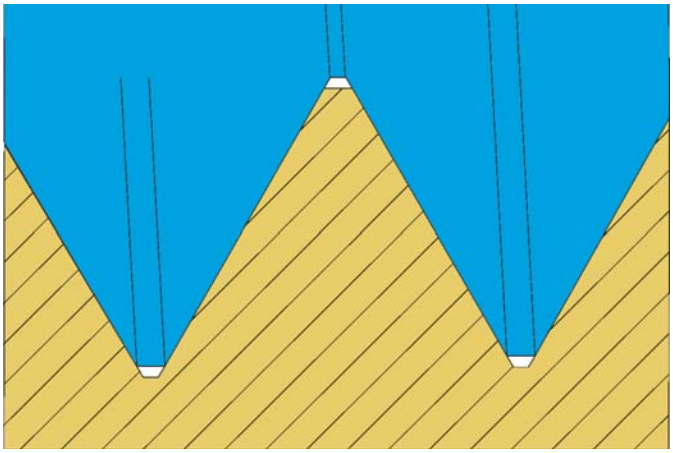
NPTF Dryseal

External threading with small pitches

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated K20	Price-group	Coated K20C	K20R	Price-group
27	12ER 27NPTF	.472	.094	.024	.026	*	21	*	*	31

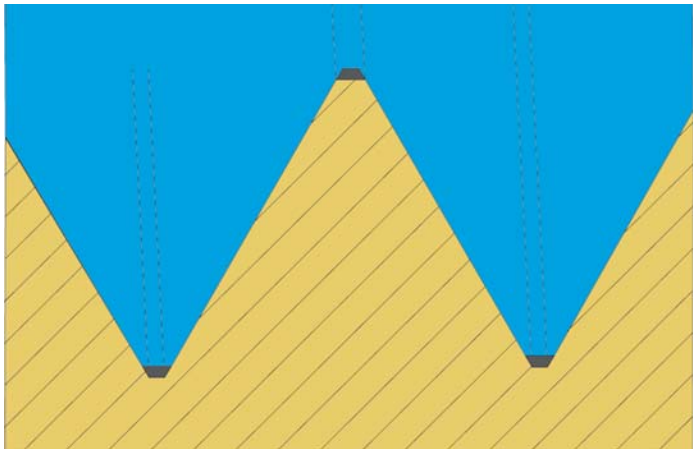
Warning! Always determine if NPT or NPTF profile should be used. Be sure you use the right one.

NPT, Line Pipe

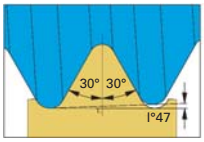


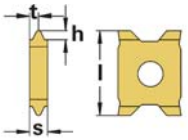
NPT and Line Pipe have clearance on the top and bottom of the thread. QuadThread NPT profiles also fit the tolerances for Line Pipe profiles.

NPTF Dryseal



NPTF Dryseal gives a tight fit. This is accomplished when the pipe components are fitted together, as the top of the thread is deformed by the corressponding thread root.

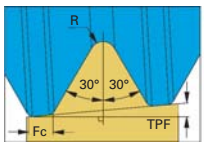


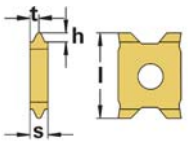


API RD

External and internal threading

Pitch TPI	Catalogue number	Dimensions l	s	t	h	Uncoated T10	K20	Price-group	Coated T10C	T10R	K20C	K20R	Price-group
10	12X 10APIRD	.472	.142	.071	.057	*		22	*	*			32
8	20X 8APIRD	.787	.181	.091	.073		*	23			*	*	33

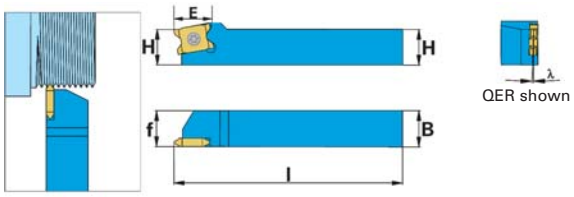




API

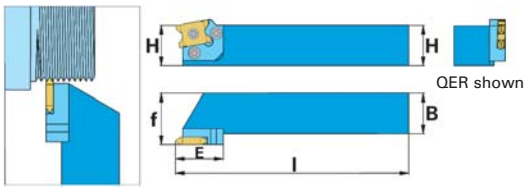
External threading. Cassette QER25-20API must be used.

Pitch TPI	Catalogue number	Dimensions l	s	t	h	R	Fc	TPF	API Code	Coated K20C	K20R	Price-group
5	20ER 5API404	.787	.268	.134	.1214	.038	.065	3	V-0.040	*	*	34
4	20ER 4API384	.787	.268	.134	.1218	.038	.065	3	V-0.038R	*	*	34
4	20ER 4API386	.787	.268	.134	.1218	.038	.065	2	V-0.038R	*	*	34
4	20ER 4API504	.787	.268	.134	.1473	.025	.050	3	V-0.050	*	*	34
4	20ER 4API506	.787	.268	.134	.1478	.025	.050	2	V-0.050	*	*	34



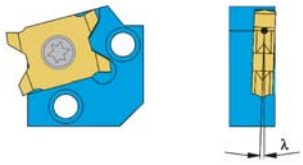
External toolholders

Catalogue number	Dimensions H/B	l	f	E	Insert	Stock standard (λ) 3	1.5	0	98.5	97	Price-group
QER 0375 3-12	.375	3.0	.500	.77	12...	•	•	•	•	•	226
QER 0375 6-12	.375	6.0	.375	.77	12...	•	•	•	•	•	226
QER 050 3-12	.500	3.0	.625	.77	12...		•				226
QER 050 6-12	.500	6.0	.500	.77	12...		•				226
QEL 0375 3-12	.375	3.0	.500	.77	12...		•				226
QEL 0375 6-12	.375	6.0	.375	.77	12...		•				226
QEL 050 3-12	.500	3.0	.625	.77	12...		•				226
QEL 050 6-12	.500	6.0	.500	.77	12...	•	•	•	•	•	226



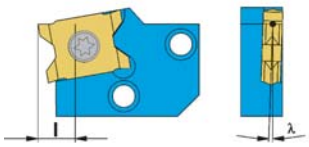
Cassette type toolholders

Catalogue number	Dimensions H/B	l	f	E	Cassettes Insert 12...	Insert 20...	Stock standard (λ)	Price-group
QER 0625 4-C20	.625	4.0	.750	.89	QER 20-12		•	224
QER 075 5-C20	.750	5.0	1.00	.89	QER 20-12		•	224
QER 100 6-C25	1.00	6.0	1.25	1.16	QER 25-12	QER 25-20	•	225
QER 125 7-C25	1.25	7.0	1.50	1.16	QER 25-12	QER 25-20	•	228
QER 150 7-C25	1.50	7.0	1.75	1.16	QER 25-12	QER 25-20	•	231
QEL 0625 4-C20	.625	4.0	.750	.89	QEL 20-12		•	224
QEL 075 5-C20	.750	5.0	1.00	.89	QEL 20-12		•	224
QEL 100 6-C25	1.00	6.0	1.25	1.16	QEL 25-12	QEL 25-20	•	225
QEL 125 7-C25	1.25	7.0	1.50	1.16	QEL 25-12	QEL 25-20	•	228
QEL 150 7-C25	1.50	7.0	1.75	1.16	QEL 25-12	QEL 25-20	•	231



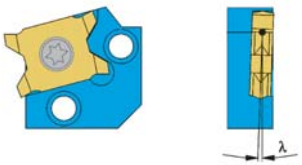
Standard cassettes

Catalogue number	Insert	Stock standard (λ) 4.5	3	1.5	0	98.5	97	Price-group
QER 20-12	12...	*	•	•	*	•	*	223
QER 25-12	12...	*	•	•	*	•	*	223
QER 25-20	20...	*	•	•	*	•	*	223
QEL 20-12	12...	*	*	•	*	*	*	223
QEL 25-12	12...	*	*	•	*	*	*	223
QEL 25-20	20...	*	*	•	*	*	*	223



Extended cassettes

Catalogue number	Insert	l	Stock standard (λ)			Price-group
			1.5	0	98.5	
QER 20-12FL	12...	.24	•	*	*	225
QER 25-12FL	12...	.39	•	*	*	225
QER 25-20FL	20...	.39	•	*	*	225
QEL 20-12FL	12...	.24	*	*	*	225
QEL 25-12FL	12...	.39	*	*	*	225
QEL 25-20FL	20...	.39	*	*	*	225



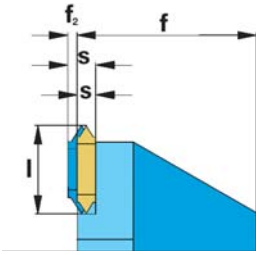
API cassettes

Catalogue number	Insert	Stock standard (λ)			Price-group
		1.5	0	98.5	
QER 25-20API	20E	*	*		223
QEL 25-20API	20E	*	*		223

This cassette is used only for certain API inserts.

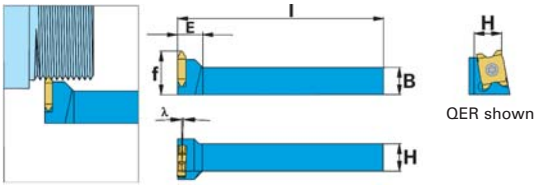
f-Dimension

For some inserts the f-dimension is displaced according to the f_2-dimension in the table.



Dimensions		
l	s	f_2
.472	.094	0
.472	.142	.047
.787	.181	0
.787	.268	.087

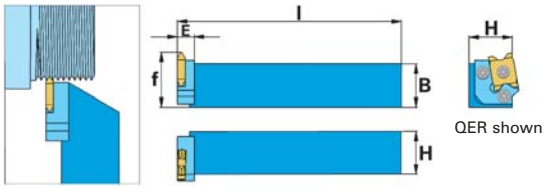
Helix angle 1.5° is standard and does not need to be shown when ordering cassettes, for instance, QER 25-12. All other helix angles should be shown after the cassette catalog number, for instance, QER 25-12-98.5



QER shown

Small axial-type toolholders

Catalogue number	Dimensions H/B	l	f	E	Insert	Stock standard (λ) 3	1.5	0	98.5	97	Price-group
QER 0375 3F-12	.375	3.0	.63	.39	12...	*	*	*	*	*	226
QER 050 3F-12	.50	3.0	.63	.39	12...	*	*	*	*	*	226
QEL 0375 3F-12	.375	3.0	.63	.39	12...	*	*	*	*	*	226
QEL 050 3F-12	.50	3.0	.63	.39	12...	*	*	*	*	*	226



QER shown

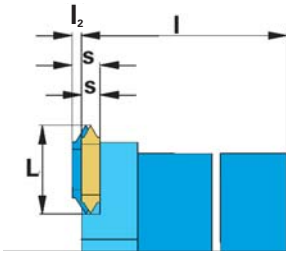
Cassette type axial toolholders

Catalogue number	Dimensions H/B	l	f	E	Cassettes Insert 12...	Insert 20...	Stock standard (λ)	Price-group
QER 0625 4F-C20	.625	4.0	.95	.32	QER 20-12	-	*	224
QER 075 5F-C20	.75	5.0	.95	.32	QER 20-12	-	*	224
QER 100 6F-C25	1.00	6.0	1.25	.40	QER 25-12	QER 25-20	*	225
QEL 0625 4F-C20	.625	4.0	.95	.32	QEL 20-12	-	*	224
QEL 075 5F-C20	.75	5.0	.95	.32	QEL 20-12	-	*	224
QEL 100 6F-C25	1.00	6.0	1.25	.40	QEL 25-12	QEL 25-20	*	225

Toolholders delivered wiyhout cassette, to be ordered separately.

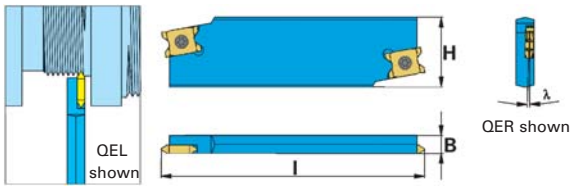
l-Dimension

For some inserts the l-dimension is displaced according to the l_2-dimension in the table.



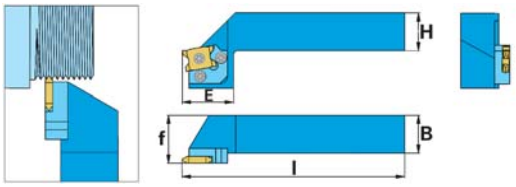
Dimensions L	s	l_2
.472	.094	0
.472	.142	.047
.787	.181	0
.787	.268	.087

QuadThread toolholders



Blade cassette toolholders

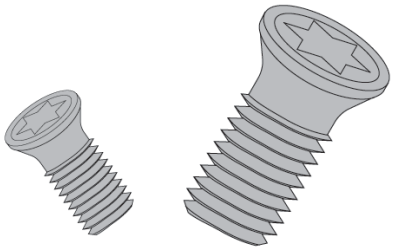
Catalogue number	Dimensions H	l	B	Insert	Stock standard (λ) 1.5	0	98.5	Price-group
QER 2606D-12	1.02	3.94	.24	12...	•	*	•	227
QER 3206D-12	1.26	4.72	.24	12...	•	*	•	227
QEL 2606D-12	1.02	3.94	.24	12...	•	*	•	227
QEL 3206D-12	1.26	4.72	.24	12...	•	*	•	227



Drophead toolholders

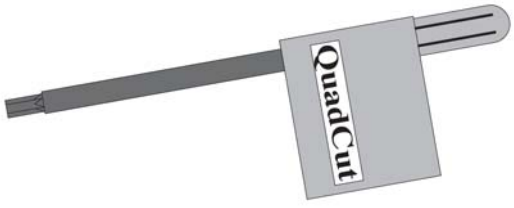
Catalogue number	Dimensions H/B	l	f	E	Cassettes Insert 12...	Insert 20...	Stock standard (λ)	Price-group
QER 075 5C-C20	.75	5.0	1.00	1.02	QER 20-12	-	•	229
QER 100 6C-C25	1.00	6.0	1.25	1.30	QER 25-12	QER 25-20	•	230
QER 125 7C-C25	1.25	7.0	1.50	1.30	QER 25-12	QER 25-20	•	232
QEL 075 5C-C20	.75	5.0	1.00	1.02	QEL 20-12	-	*	229
QEL 100 6C-C25	1.00	6.0	1.25	1.30	QEL 25-12	QEL 25-20	*	230
QEL 125 7C-C25	1.25	7.0	1.50	1.30	QEL 25-12	QEL 25-20	*	232

Toolholders delivered wiyhout cassette, to be ordered separately.



Screws

Catalogue number	Used for	Price-group
STS T9xM3	Insert 10...	221
STS T9xM3	Insert 11...	221
STS T9xM3	Insert 12...	221
STS T15xM5	Insert 20...	221



Keys

Catalogue number	Used for	Price-group
Torx T9	STS T9xM3	222
Torx T15	STS T15xM5	222

Scandinavian Tool Systems

Scandinavian Tool Systems AB
Box 59, SE-793 12 Insjön, Sweden
Phone +46 (0)247 410 20
Fax +46 (0)247 415 71
info@scandinavian-tool.se · www.scandinavian-tool.se

Scandinavian Tool Systems
PO Box 917, 931 East Water Street
Chillicothe, OH 45601
Phone: 800-722-6874 · Fax: 740-775-2314
sales@ststooling.com