C.P.T.

Single Insert Toolholders

With internal
coolant bore
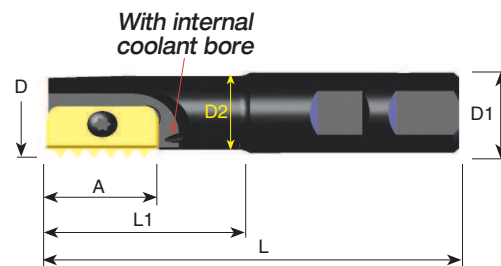
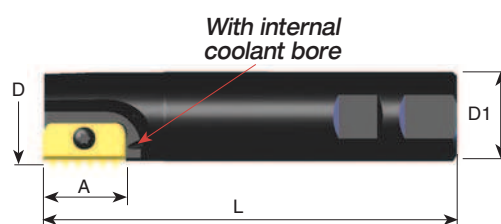| Ordering Code	A	D	D1	D2	L	L1	Insert Screw	Torx Key
SR0009H12	12	9.5	20	7.5	85	14	S12	K12
* SR0010H12	12	9.9	20	7.6	85	16	S12	K12
SR0012F14	14	12.0	20	8.9	75	20	S14	K14
SR0014H14	14	14.5	20	11.2	85	25	S14	K14
SR0017H14	14	17.0	20	13.4	85	30	S14	K14
** SR0018H21	21	18.0	20	14.4	85	30	S21	K21
SR0021H21	21	21.0	20	16.5	94	40	S21	K21
SR0029J30	30	29.0	25	22.4	110	50	S30	K30
SR0048M40	40	48.0	40	35.0	153	78	S40	K40

Order example: SR0029J30
* For conic inserts: 12-18 NPT, 12-18 NPTF, 12-19 BSPT
** Cannot be used with the following inserts:
21 I 3.5 ISO, 21I 8 UN, 21I 7 UN, 21-11 BSPT, 21-11.5 NPT, 21-11.5 NPTF

Long Shank Toolholders

With internal
coolant bore

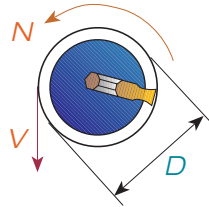| Ordering Code	A	D	D1	L	Insert Screw	Torx Key
SR0025K21	21	25	20	125	S21	K21
SR0031M30	30	31	25	150	S30	K30
SR0038M30	30	38	32	150	S30	K30
SR0048R40	40	48	40	210	S40	K40

Order example: SR0031M30

For holders with long overhang reduce the cutting speed and feed rate
between 20% to 40% (depends on workpiece material, pitch and overhang)

Conversion of Cutting Speed to Rotational Speed

Conversion of selected cutting speed to rotational speed is calculated by the following formula:
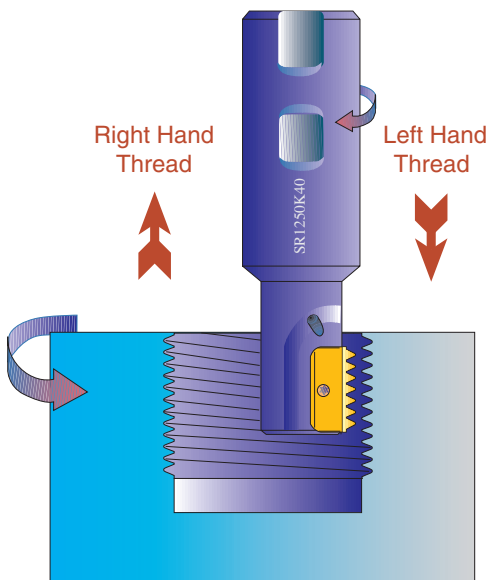
$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$
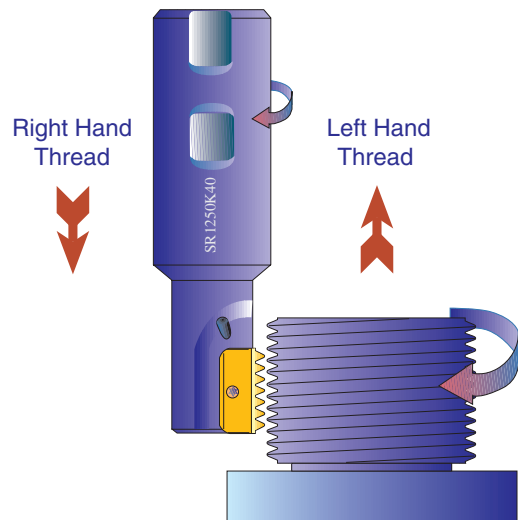
N

V

D

Example: V=120 m/min
D=30 mm

D=Cutting diameter

Internal Thread

Right Hand
Thread

Left Hand
Thread

SR 1250K40

External Thread

Right Hand
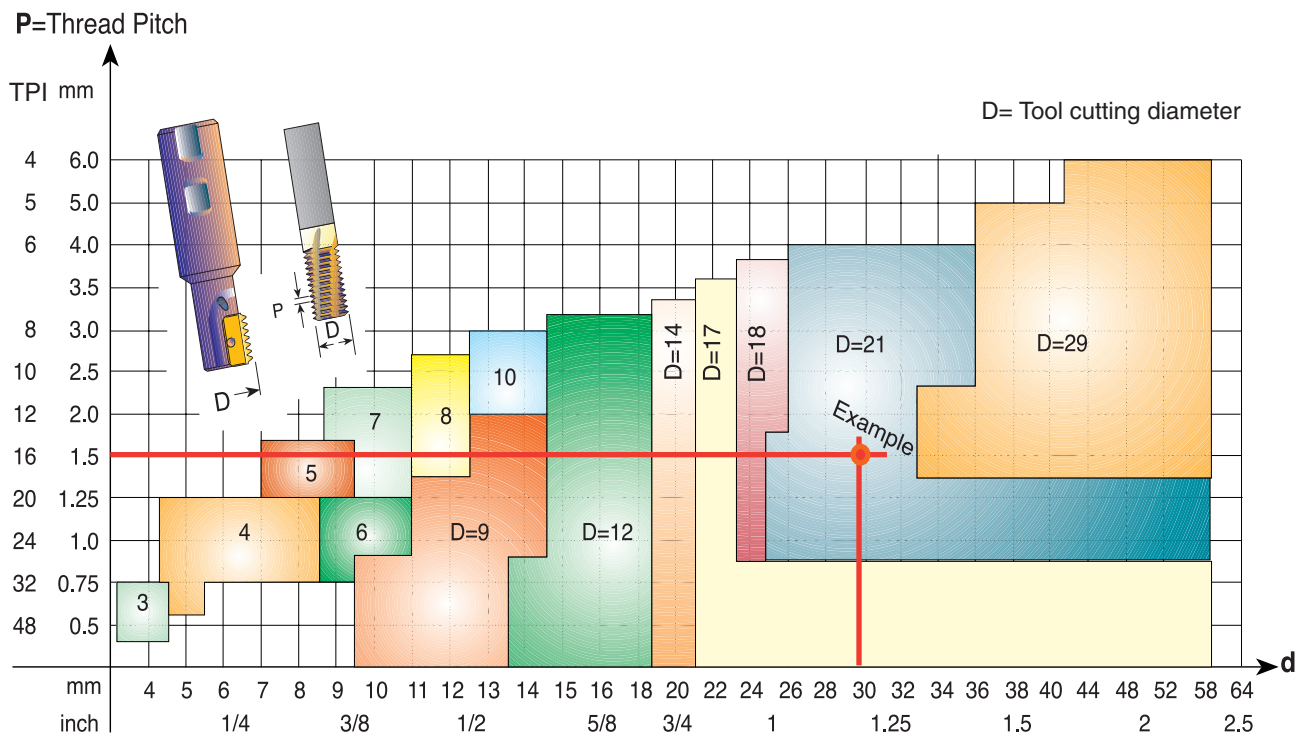Thread

Left Hand
Thread

SR 1250K40

Tool Selection

For indexable and solid carbide Mill Threads

The following chart provides a fairly accurate visual selection tool for Internal Threading.

The chart is suitable for the following thread forms: ISO, UN, WHIT, NPT, NPTF, BSPT and PG.

P=Thread Pitch

D= Tool cutting diameter

Any tool with a small cutting diameter can produce large diameter threads.
Example: Internal thread M30 x 1.5:
Find a Milling Tool to produce d=30 mm Internal
right hand ISO thread with a thread pitch P=1.5 mm.
As can be seen from the chart above, the two red lines
intersect at a selected tool with a cutting diameter of D=21 mm.

Chosen toolholder: SR0021H21
        Insert: 21 I 1.5 ISO MT7

d=Thread Diameter

Right Hand Thread

d=30

P=1.5
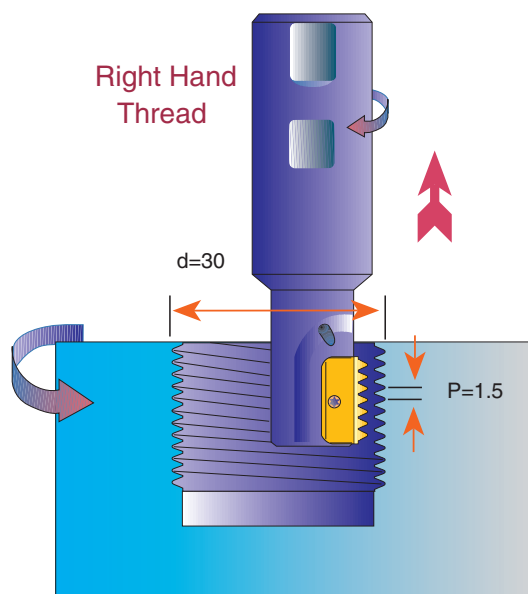
If you need assistance, please call your local
distributor and ask for help in selecting the appropriate
tool as well as for a CNC program to suit your CNC milling
machine.

C.P.T.

C.P.T. Mill-Thread catalogue and CNC programming Software

This software is provided by C.P.T. to assist you, the thread milling user, to select and apply the correct tool to machine threads on CNC machining centers. The program will find tools and inserts which are suitable for your application, calculate cutting data and generate a CNC program for a variety of controls.

The software is available at our web site - www.cpt-werkzeuge.de

Example of Thread Milling CNC Program for Internal Threading

Right hand thread (climb milling) from bottom up.
Program is based on tool center.
This method of programming needs no tool radius compensation value other than an offset for wear.

$$A = \frac{Do - D}{2}$$

A = Radius of tool path
Do = Major thread dia.
D = Cutting dia.

General Program

```
G90  G00 G54 G43 H1X0 Y0 Z10 S---
G00  Z- ( TO THREAD DEPTH )
G01  G91 G41 D1 X(A/2) Y-(A/2) Z0  F---
G03  X(A/2) Y(A/2)  R(A/2) Z(1/8 PITCH)
G03  X0 Y0 I-(A) J0 Z(PITCH)
G03  X-(A/2) Y(A/2) R(A/2) Z(1/8 PITCH)
G01  G40 X-(A/2) Y-(A/2) Z0
G90  X0 Y0 Z0
```

Internal Thread

```
EXAMPLE :          M 32 X 2.0      (Thread depth 18 mm )
TOOLHOLDER :       SR0021 H21    (Cutting dia.  21 mm )
INSERT:            21 I 2.0 ISO
A = ( 32-21 )/2 = 5.5
```

```
G90  G00 G54 G43 H1X0 Y0 Z10  S2800
G00  Z-18
G01  G91 G41X 2.75 Y-2.75  Z0 F85  D1
G03  X2.75 Y2.75 R2.75 Z0.25
G03  X0 Y0 I-5.5  J0  Z2
G03  X-2.75 Y2.75 R2.75 Z0.25
G01  G40 X-2.75 Y-2.75  Z0
G90  G0 X0 Y0 Z0
```


TOOL PATH