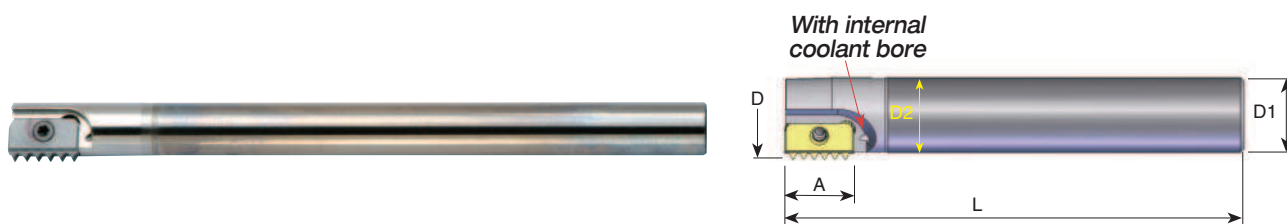


## Long Carbide Shank Toolholders



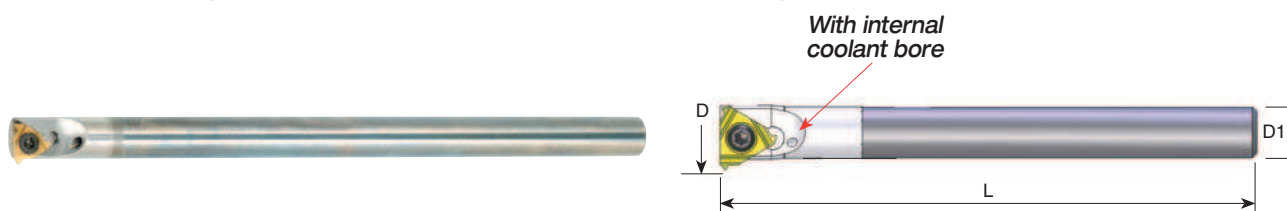
Ordering Code	A	D	D1	D2	L	Insert Screw	Torx Key
*SR0010K12C	12	9.9	8	8	125	S12	K12
SR0013H14C	14	13.2	10	10	110	S14	K14
SR0013J14C	14	13.2	10	10	150	S14	K14
SR0015K14C	14	15.2	12	12	175	S14	K14
SR0021K21C	21	21.0	16	16	130	S21	K21
SR0021M21C	21	21.0	16	16	200	S21	K21
SR0027S30C	30	27.0	20	20	270	S30	K30


Order example: SR0015K14C

\* Without coolant bore

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

## Carbide Shank Toolholders for Single Point Threading



Ordering Code		Pitch Range		D	D1	L	Insert Screw	Torx Key
		mm	TPI					
* SR0005D06C	6	0.5-1.25	48-20	6.8	5.0	63	S06	K06
SR0006H08C	8	0.5-1.75	48-14	8.8	6.0	100	S08	K08
** SR0010M11C	11	0.5-2.00	48-11	13.2	10.0	150	S11	K11

For Inserts see the Threading Tools section of this Catalogue  
For an internal application use an internal R.H. insert.

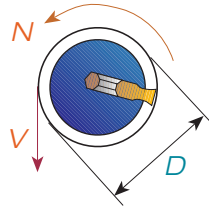
\* Without coolant bore

\*\* For an external application use an external L.H. insert.

## Conversion of Cutting Speed to Rotational Speed

Conversion of selected cutting speed to rotational speed is calculated by the following formula:

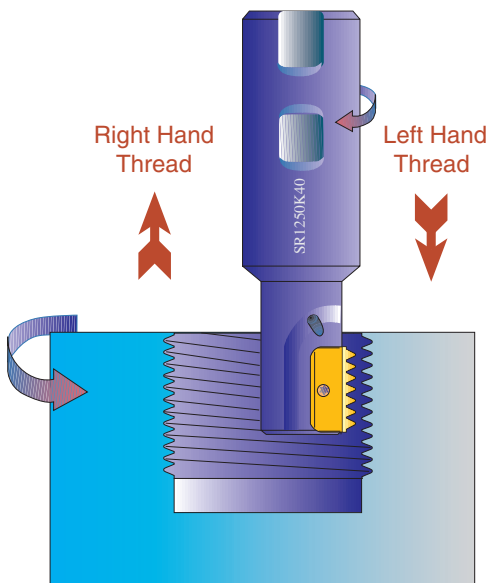
$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$



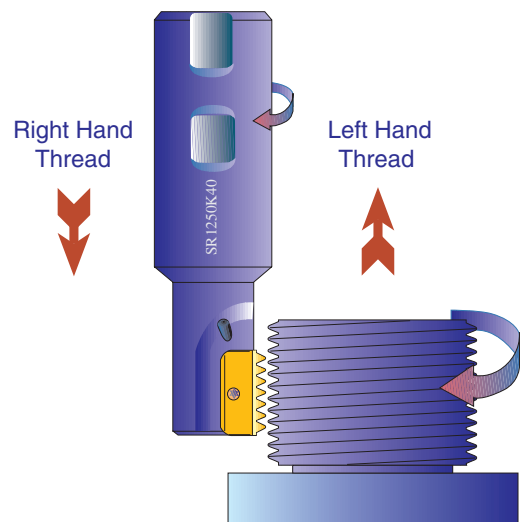
**Example:**  $V=120 \text{ m/min}$   
 $D=30 \text{ mm}$

$D=\text{Cutting diameter}$

### Internal Thread



### External Thread

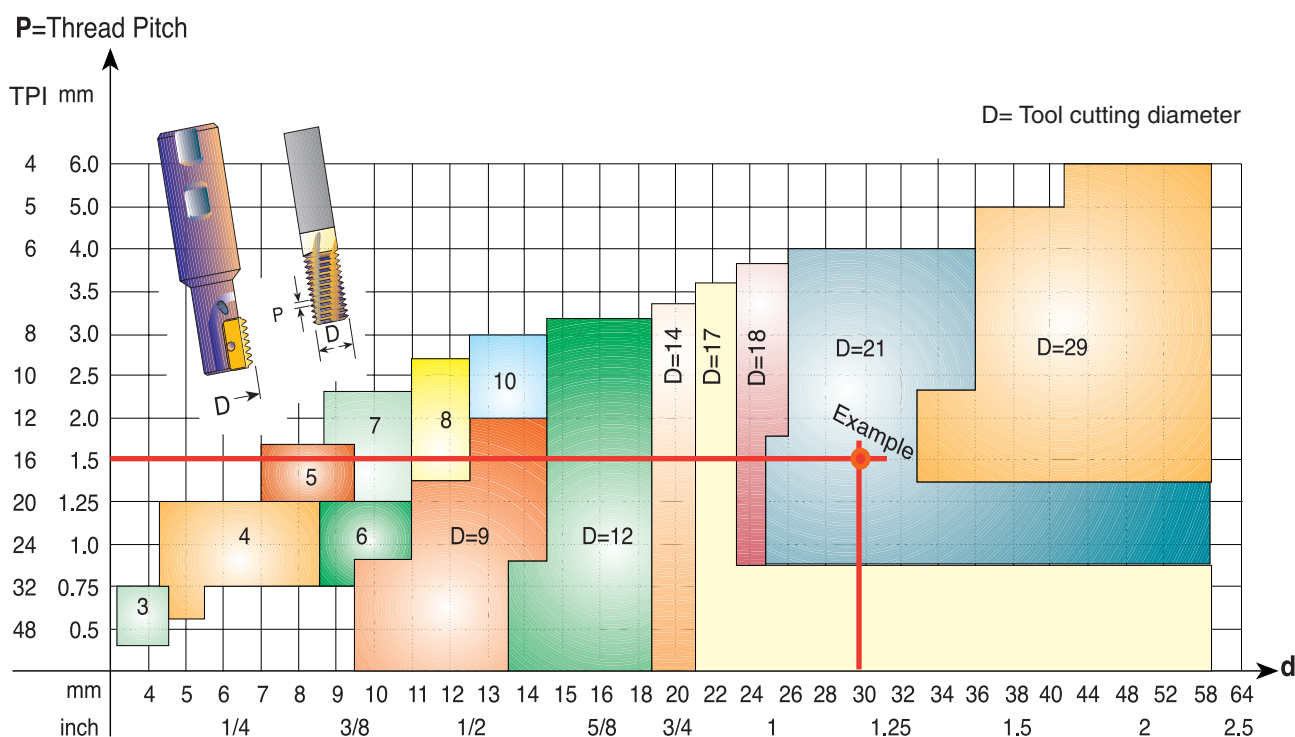


## Tool Selection

### 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.



Any tool with a small cutting diameter can produce large diameter threads.

**Example:** Internal thread M30 x 1.5:

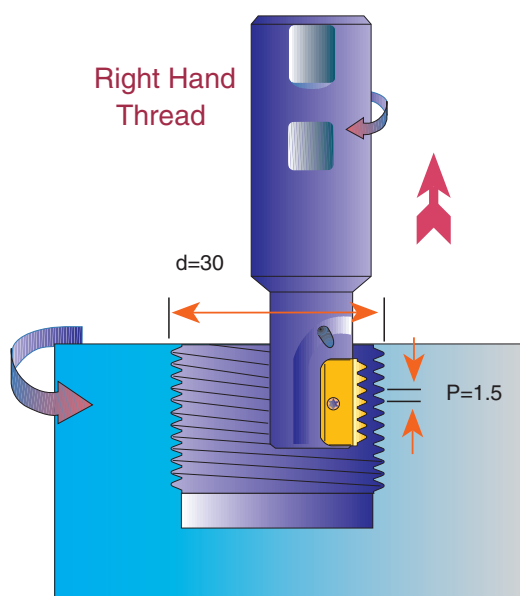
Find a Milling Tool to produce d=30 mm Internal right hand ISO thread with a thread pitch P=1.5 mm.

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**



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. 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](http://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.

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

A = Radius of tool path  
D<sub>o</sub> = 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
```

