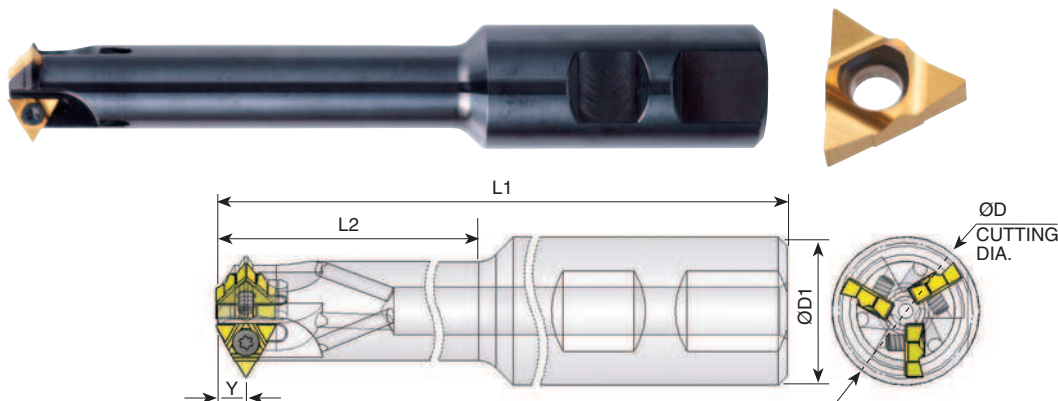


## D-Thread Mill-Thread Inserts & Toolholders for machining deep threads



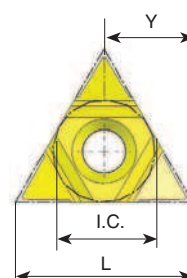
| Ordering Code     | Insert Size |      | Y | D  | D1 | L1  | L2 | No. of Inserts | Insert Screw | Torx Key |
|-------------------|-------------|------|---|----|----|-----|----|----------------|--------------|----------|
|                   | L           | I.C. |   |    |    |     |    |                |              |          |
| <b>SR0023Q11U</b> | 11U         | 1/4U | 5 | 23 | 25 | 150 | 88 | 3              | SE11         | K11      |

### Partial 60° Size 11U

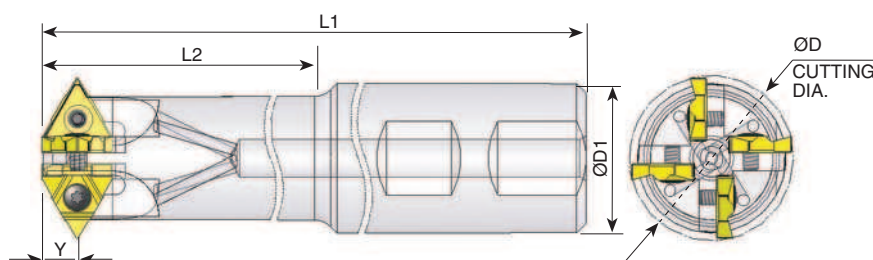
| Ordering Code |             | Pitch   |      |
|---------------|-------------|---------|------|
|               |             | mm      | TPI  |
| <b>11U60D</b> | <b>INT.</b> | 2.5-4.0 | 10-6 |
|               | <b>EX.</b>  | 2.0-3.0 | 12-8 |

### Partial 55° Size 11U

| Ordering Code |                 | Pitch TPI |
|---------------|-----------------|-----------|
| <b>11U55D</b> | <b>INT./EX.</b> | 10-7      |



Coated Grade: BMA



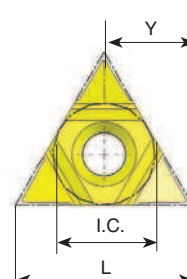
| Ordering Code     | Insert Size |      | Y   | D    | D1 | L1  | L2  | No. of Inserts | Insert Screw | Torx Key |
|-------------------|-------------|------|-----|------|----|-----|-----|----------------|--------------|----------|
|                   | L           | I.C. |     |      |    |     |     |                |              |          |
| <b>SR0035R16U</b> | 16U         | 3/8U | 7.6 | 33.5 | 32 | 220 | 155 | 4              | SE16         | K16      |

### Partial 60° Size 16U

| Ordering Code |             | Pitch   |     |
|---------------|-------------|---------|-----|
|               |             | mm      | TPI |
| <b>16U60D</b> | <b>INT.</b> | 4.0-6.0 | 6-4 |
|               | <b>EX.</b>  | 3.0-5.0 | 8-5 |

### Partial 55° Size 16U

| Ordering Code |                 | Pitch TPI |
|---------------|-----------------|-----------|
| <b>16U55D</b> | <b>INT./EX.</b> | 6-4.5     |

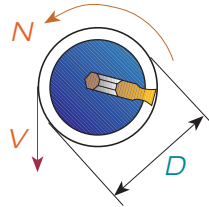


Coated Grade: BMA

## Conversion of Cutting Speed to Rotational Speed

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

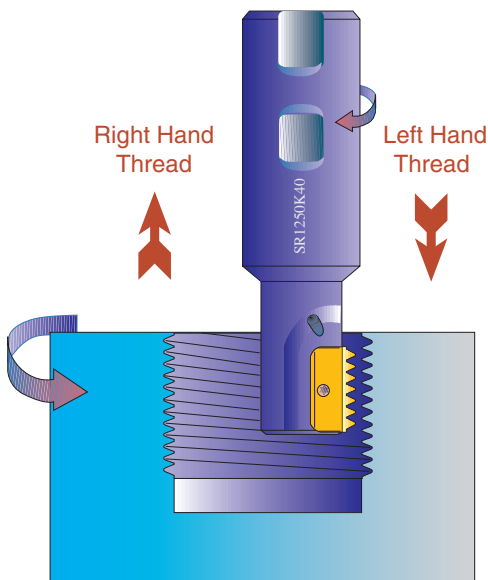
$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$



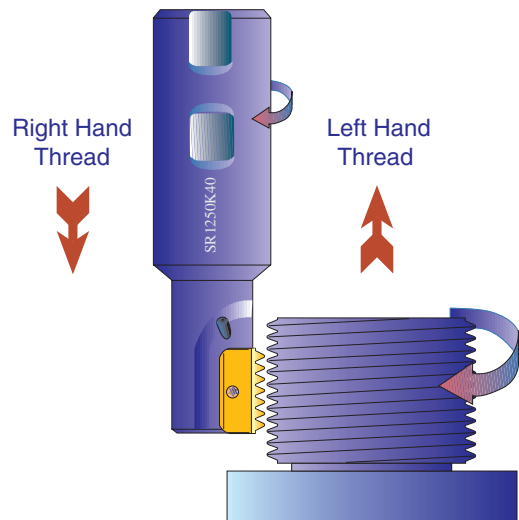
**Example:**  $V=120 \text{ m/min}$   
 $D=30 \text{ mm}$

$D$ =Cutting diameter

### Internal Thread



### External Thread

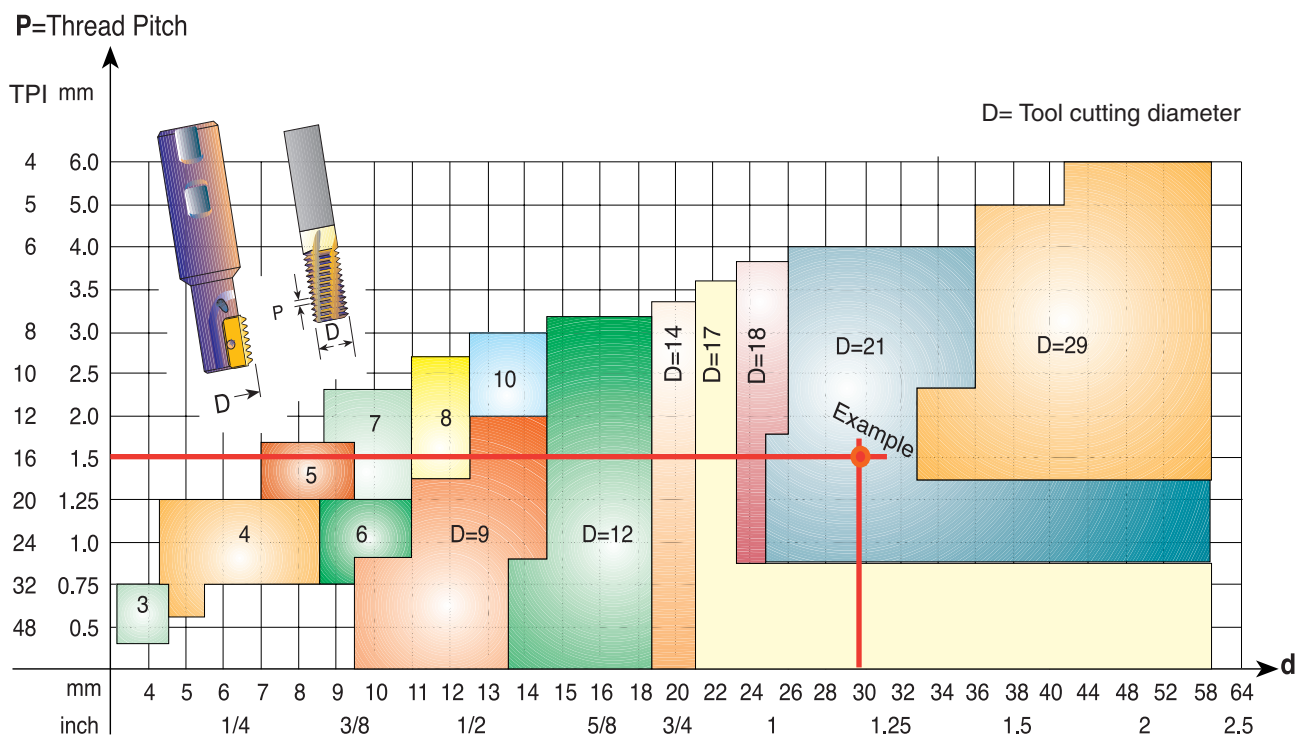


## Tool Selection

### 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:

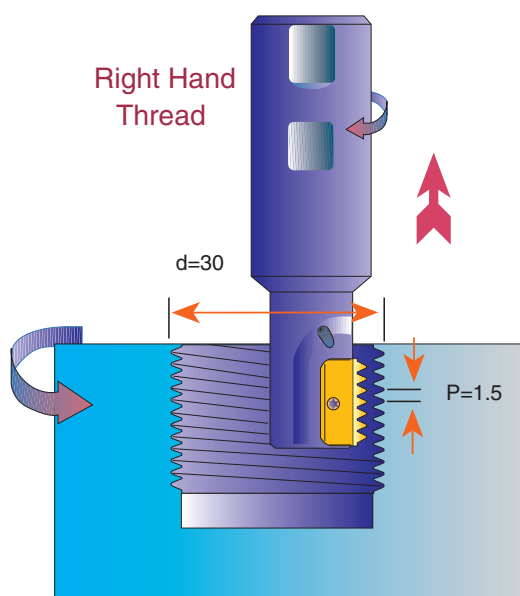
Find a Milling Tool to produce d=30 mm Internal right hand ISO thread with a thread pitch P=1.5 mm.

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
```

