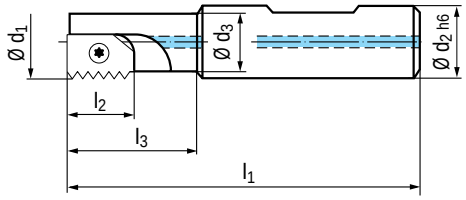
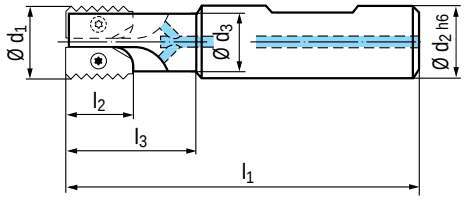
Tool Description Of Circular Thread Mills Type WSP



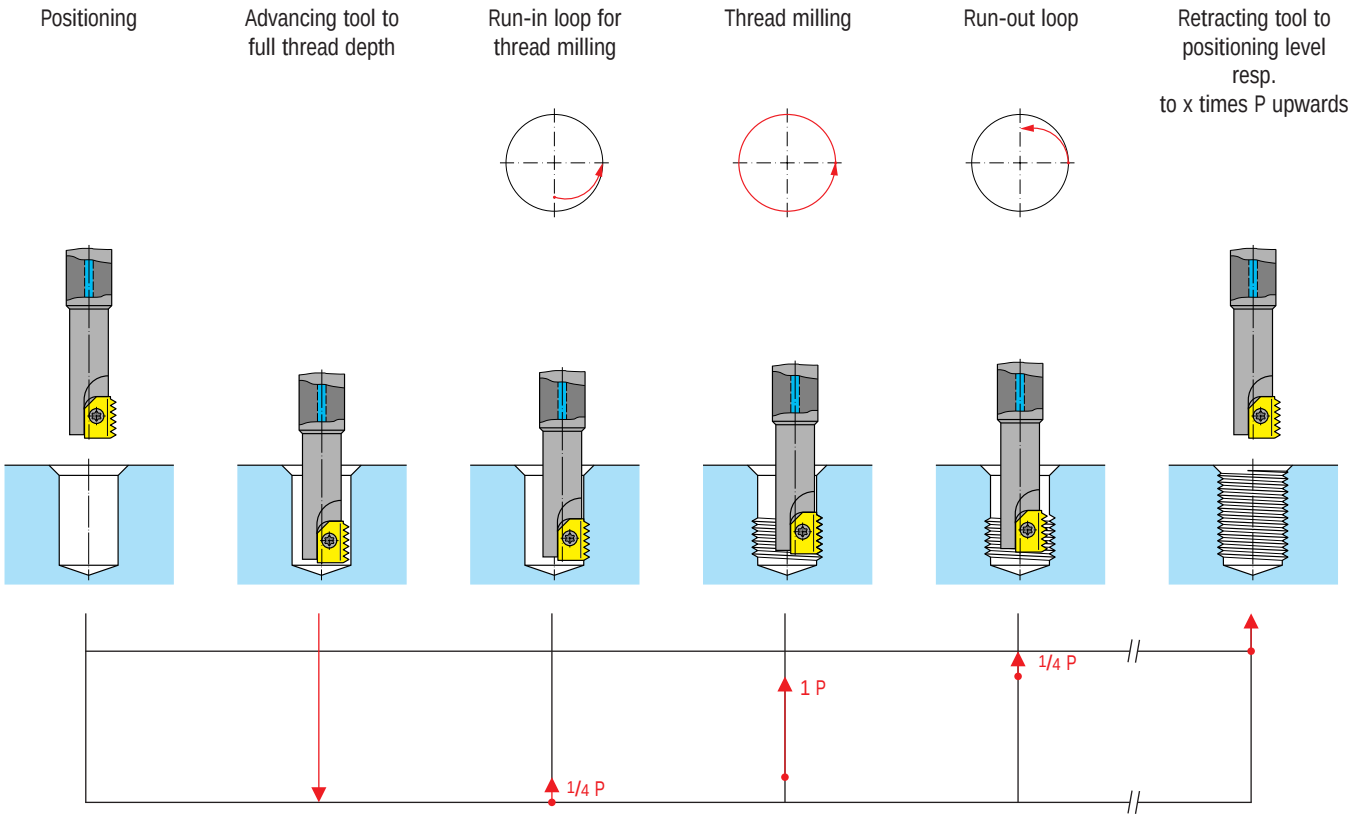


Description:

- For the production of large threads
- Inexpensive, but slow alternative to a thread end mill
- Wherever thread lengths exceed the length of the insert, multiple cutting processes are necessary

Application areas: All materials

Preparatory work: Drilling of thread hole and countersinking



Programming Instruction
CNC Thread Milling With Circular Thread Mills Type WSP

EMUGE

Dimension: _____ Company: _____

Nominal thread diameter D: _____ Inch Workpiece: _____

Thread pitch P: _____ Inch Material: _____

Drilled hole diameter D_1: _____ Inch Date: _____

Tool: _____ Cutting material: _____

Article no.: _____ Coating: _____

Flutes z: _____

Cutter diameter d_1: _____ Inch (measured on the cutting part)

Cutting length l_2: _____ Inch

Cutter radius compensation k [1]: _____ Inch 0.05 x P

Cutter radius to be programmed [2]: _____ Inch ($1/2\ d_1 - k$)

Thread depth b: _____ Inch

Cutting speed v_c: _____ SFM ($n = \frac{v_c \times 12}{d_1 \times \pi}$) S = _____

Feed (milling) f_z: _____ Inch ($v_f = f_z \times z \times n$) F = _____ (contour)

Please note: For milling feed related to the path of the tool axis: $v_f = \frac{v_{f\ contour} \times (D - d_1)}{D}$. F = _____ (axis)

Then, in block N40 1/2 F (tool axis) and in block N60 F (tool axis).

Required parameters:

E1	=	1/2 nominal thread diameter	1/2 D	=	_____	Inch
E2	=	thread pitch [3]	P	=	_____	Inch
E3	=	thread depth	b	=	_____	Inch
E4	=	1/4 P (for climb milling and right-hand threads)	1/4 P	=	_____	Inch
E5	=	beginning of contour in y	0.5 x P	=	_____	Inch
E6	=	run-in loop	(E1 – E5)	=	_____	Inch

CNC internal thread milling (climb milling, on the contour, incremental, acc. DIN 66025)

N 10	G 54	G 90	G 00	X	Y	Z 2	S	T 01 [2]	M 03
N 20	G 91	G 00	Z– . . . . (**E3**+2)					
N 30	Y . . . . . (**E5**)							
N 40	G 41	G 01		X . . . . . (**E6**)	F . . . . . **(milling, contour)**			
N 50	G 03	X– . . . . (**E6**)		Y . . . . . (**E6**)	Z . . . . . (**E4**)	I– . . . . (**E6**)	J 0	
N 60	G 03	X 0		Y 0	Z . . . . . (**E2**)	I 0	J– . . . . (**E1**)	
N 70	G 03	X– . . . . (**E6**)		Y– . . . . (**E6**)	Z . . . . . (**E4**)	I 0	J– . . . . (**E6**)	
N 80	G 00	X . . . . . (**E6**)		Y– . . . . (**E5**)				
N 90	G 00	Z . . . . . (shift to second thread step)						
……[4]								
N 170	G 40	G 90						

1) The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).

2) The cutter radius to be programmed is normally included in the tool memory.

3) For right-hand threads + (screwing out); for left-hand threads – (screwing in).

5) The block numbers N 30 to N 90 must be repeated with the number of thread steps.