

Thread Mill GTM21

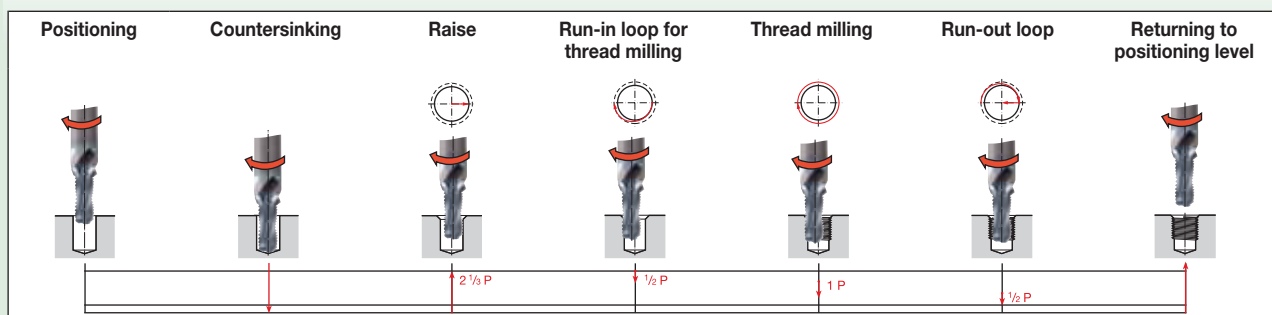
Preparation

Drilling of thread hole

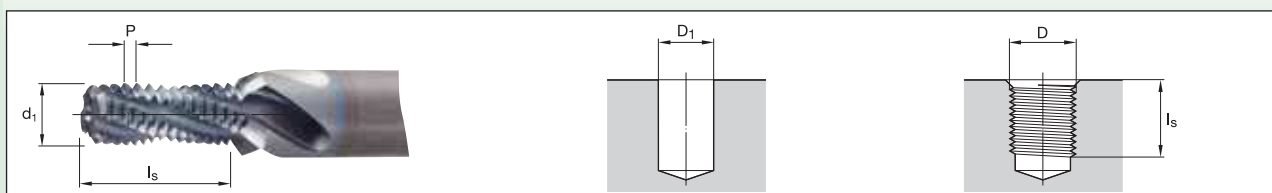
Process Principle

Countersinking, thread milling (conventional milling)

Cycle



Required Specification Values



Example

Size — M10-6H Thread diameter D 10mm Pitch 1,5mm Core hole diameter D ₁ 8,5mm Material — Cast aluminium Grade — WU12PV	Tool — GTM21 Catalogue number GTM215004 Number of teeth Z 3 Tool diameter d ₁ 8,2mm* Tool radius compensation k ¹ 0,1mm** Tool radius to be programmed ² 4mm*** Countersink depth l _s 21,2mm Cutting speed v _c 250 m/min Feed (countersinking) f _s 0,3 mm/U Feed (milling) f _z 0,09 mm/tooth	$N = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \quad S = 9709$
		$v_s = f_s \cdot n \quad F = 2913 \text{ (countersinking)}$
		$v_f = f_z \cdot Z \cdot n \quad F = 2622 \text{ (contour)}$
		$v_f = \frac{v_f \text{ contour} \cdot (D - d_1)}{D} \quad F = 472 \text{ (centre point)}$
*(measured on the cutting part)	**(0.01 x D)	***($\frac{1}{2} d_1 - k$)

Program to DIN 66025 (conventional milling, on the contour, incremental)

Positioning the tool	N 10	G 54	G 90	G 00	X...	Y...	Z 2	S 9709	T01 ²	M03
Advancing tool to full thread depth	N 20	G 91	Z-21.200							
Countersinking	N 30	G 01	Z-2	F 2913	(countersink)					
Raise	N 40	G 00	Z 3.450							
Moving sideways to the starting point	N 50	G 42	G01	X 4.250	F 1311	(milling, 1/2 contour)	[F 236] ³	(milling, 1/2 centre point)		
Run-in loop in arc	N 60	G 02	X-9.25	Y 0.000	Z-0.750	I-4.625	J 0			
Thread milling	N 70	G 02	X 0	Y 0	Z-1.500	I 5	J 0.000	F2622	[F 472] ³	(centre point)
Run-out loop in arc	N 80	G 02	X 9.25	Y 0.000	Z-0.750	I 4.625	J 0			
Exit	N 90	G 40	G 01	X-4.25						
Retracting tool to positioning level	N 100	G 90	G 00	Z 2						

Cutting time t_h

1.4 seconds

NOTES:

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 The feed values in brackets must be used for controllers, which do not calculate the centre point feed themselves.