THREADMILLING
TUNGALOY

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed per tooth fz (mm/t)
P	Low carbon steel	AH725	100 - 200	0.1 - 0.3
	High carbon steel	AH725	70 - 150	0.1 - 0.3
	High carbon steels	AH725	70 - 170	0.1 - 0.3
	Cast steel	AH725	70 - 170	0.1 - 0.3
M	Stainless steel	AH725	90 - 140	0.1 - 0.3
K	Cast iron	AH725	60 - 130	0.05 - 0.3
N	Aluminium alloys	AH725	80 - 400	0.1 - 0.4
S	Heat-resistant alloys	AH725	10 - 30	0.02 - 0.1
	Titanium alloy	AH725	20 - 90	0.02 - 0.1

• Climb milling is recommended.

Insert installation

1. Use airgun or rag to thoroughly clean all the insert pockets free from dust or chips.

2. Lightly tighten Screw "A" first, then Screw "B" until the insert becomes stationary.

3. Lightly tighten the screws for other insert(s) in the same matter as mentioned in #2 above.

4. Firmly tighten Screw "A", then Screw "B".
   Use the recommended torque strengths when tightening the screws.

5. Firmly tighten the screws for other insert(s) in the same manner as mentioned in #4 above.

6. Inspect to make sure there is no gap between the insert and the insert seat. Measure the radial runout before use.
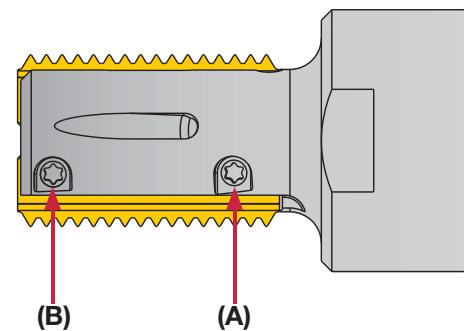
(B)   (A)

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Grade	Cutting speed V_c (m/min)	Feed per tooth f_z (mm/t)
P	Mild steels / Unhardened steels < 200HB	GH330	150 ~ 200	0.3 ~ 0.4
	Carbon steels / Alloy steels < 300HB	GH330	150 ~ 200	0.17 ~ 0.26
	Die steels < 50HRC	GH330	30 ~ 50	0.14 ~ 0.2
M	Stainless steels < 300HB	GH330	150 - 200	0.05 - 0.12

• Climb milling is recommended.
• When threading a blind hole, use a right hand cutter in right-hand rotation. Cut up from the bottom to prevent chip recutting.
• When machining internal threads from the mouth, use the left-hand cutter in left-hand rotation.
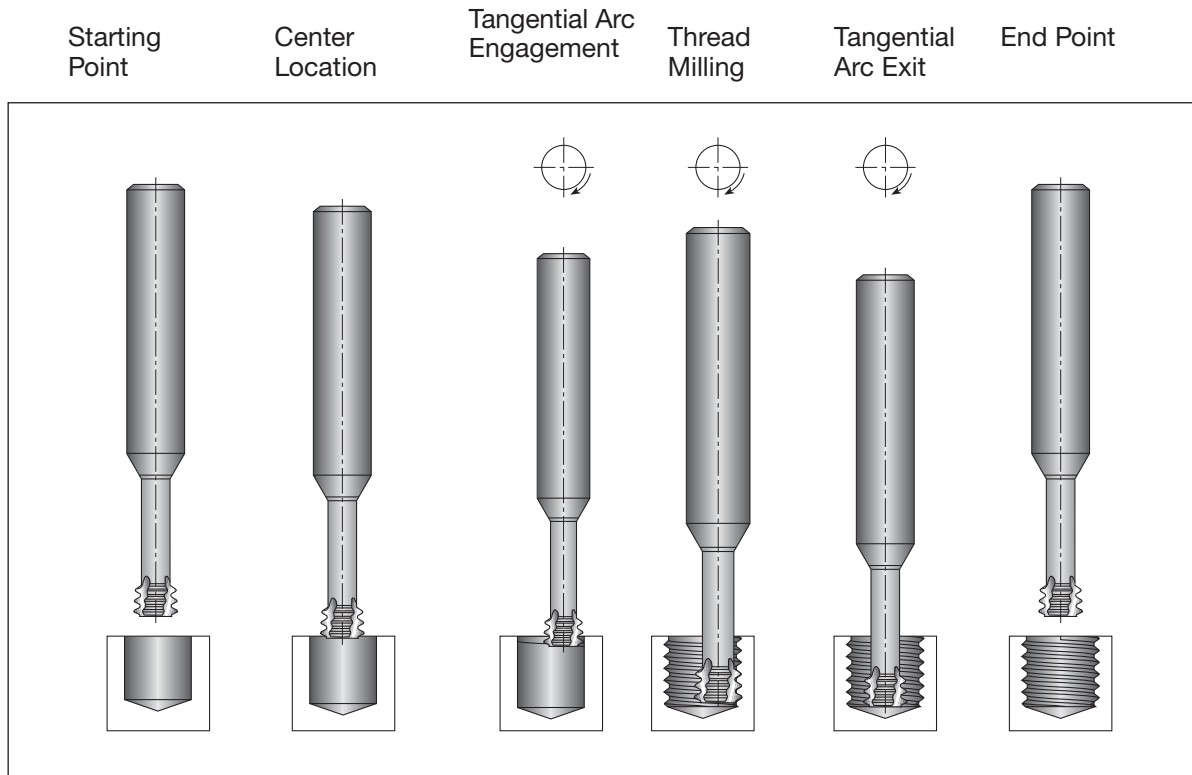
THREADING MILLS AND APPLICABLE THREADS

Cutter dia.	Thread type	Coarse screw thread	Fine screw thread					Minor dia. Coarse screw thread	Minor dia. Fine screw thread
D23 X 1 tooth T1-type of inserts	M28					2	1.5		25.835
	M30	3.5			3	2	1.5	26.211	
D25 X 1 tooth T1-type of inserts	M32					2	1.5		29.835
	M33	3.5			3	2	1.5	29.211	
	M35						1.5		33.376
	M36	4			3	2	1.5	31.670	
	M38						1.5		36.376
	M39	4			3	2	1.5	34.670	
	M40				3	2	1.5		36.752
	M42	4.5		4	3	2	1.5	37.129	
D38 X 2 teeth T1-type of inserts	M45				3	2	1.5		40.152
	M48			4	3	2	1.5		43.670
	M50				3	2	1.5		46.752
	M52			4	3	2	1.5		47.670
	M55			4	3	2	1.5		50.670
	M56			4	3	2	1.5		51.670
D50 X 4 teeth T1-type of inserts	M58			4	3	2	1.5		53.670
	M60			4	3	2	1.5		55.670
	M62			4	3	2	1.5		57.670
	M64			4	3	2	1.5		59.670
	M65			4	3	2	1.5		60.670
	M68			4	3	2	1.5		63.670
D55 X 4 teeth T2-type of inserts	M64			4	3	2	1.5		59.670
	M65			4	3	2	1.5		60.670
	M68	6		4	3	2	1.5	61.505	
D60 X 4 teeth T2-type of inserts	M70			4	3	2	1.5		63.505
	M72		6	4	3	2	1.5		65.505
	M75			4	3	2	1.5		70.670
	M76		6	4	3	2	1.5		69.505
	M78					2			75.835
	M80		6	4	3	2	1.5		73.505
	M82					2			79.835
	M85		6	4	3	2			78.505
D80 X 6 teeth T2-type of inserts	M90		6	4	3	2			83.505
	M95		6	4	3	2			88.505

THREADMILLING
TUNGALOY

STANDARD CUTTING CONDITIONS

ISO	Material		Condition	Tensile strength [N/mm2]	Hardness HB
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125
		≥ 0.25 %C	Annealed	650	190
		< 0.55 %C	Quenched and tempered	850	250
		≥ 0.55 %C	Annealed	750	220
			Quenched and tempered	1000	300
	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	600	200
			Quenched and tempered	930	275
				1000	300
				1200	350
	High alloyed steel, cast steel, and tool steel		Annealed	680	200
			Quenched and tempered	1100	325
	Stainless steel and cast steel		Ferritic/martensitic	680	200
			Martensitic	820	240
M	Stainless steel		Annealed	600	180
K	Cast iron nodular (GGG)		Ferritic/martensitic		180
			Pearlitic		260
	Grey cast iron (GG)		Ferritic		160
			Pearlitic		250
	Malleable cast iron		Ferritic		130
			Pearlitic		230
N	Aluminum- wrought alloy		Not cureable		60
			Cured		100
	Aluminum-cast, alloyed	=<12% Si	Not cureable		75
			Cured		90
		>12% Si	High temperature		130
	Copper alloys	>1% Pb	Free cutting		110
			Brass		90
			Electrolitic copper		100
	Non-metallic		Duroplastics, fiber plastics		
			Hard rubber		
S	High temp. alloys	Fe based	Annealed		200
			Cured		280
		Ni or Co based	Annealed		250
			Cured		350
			Cast		320
	Titanium Ti alloys			RM 400	
			Alpha+beta alloys cured	RM 1050	
H	Hardened steel		Hardened		55 HRC
			Hardened		60 HRC
	Chilled cast iron		Cast		400
	Cast iron		Hardened		55 HRC

MTECS
Small Diameter, Short type

Thread Milling - Recommended Procedure

Starting Point	Center Location	Tangential Arc Engagement	Thread Milling	Tangential Arc Exit	End Point

STANDARD CUTTING CONDITIONS

ISO	Material	Cutting speed m/min	Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø1.5
P	Low & medium carbon steels	60 - 120	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	High carbon steels	60 - 90	0.04	0.05	0.06	0.08	0.09	0.1	0.12	0.13	0.14	0.14	0.16	0.17	0.18
	Alloy steels, treated steels	50 - 80	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
	Cast steels	70 - 90	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
M	Stainless steels	60 - 90	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.1	0.11	0.12	0.13
S	Nickel alloys, titanium alloys	20 - 40	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
K	Cast iron	40 - 80	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
N	Aluminum	80 - 150	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	Synthetics, duroplastics, thermoplastics	50 - 200	0.1	0.11	0.12	0.14	0.16	0.18	0.19	0.19	0.19	0.19	0.19	0.2	0.2