

Table 61

鎢鋼銑牙刀 切削條件表

SOLID CARBIDE THREAD MILLS- THREADING CONDITION TABLE

材質 Material Group		加工材質 Material	布氏硬度 HB	直刃 Straight		螺旋刃 Helix	
				切削速度 Vc (m/min)	每刃進給量 fz (mm)	切削速度 Vc (m/min)	每刃進給量 fz (mm)
P	非合金鋼 Unalloyed steels	低碳(C=0.1~0.25%) Low carbon	125	40~140	0.008~0.08	65~200	0.024~0.12
		中碳(C=0.25~0.55%) Medium carbon	150	40~110	0.008~0.064	65~185	0.024~0.08
		高碳(C=0.55~0.85%) High carbon	170	40~100	0.008~0.04	65~160	0.024~0.064
	低合金鋼(含量5%) Low alloy steels	易切的 Non hardened	180	50~140	0.024~0.06	50~145	0.024~0.08
		調質的 Hardened	275	50~130	0.024~0.06	50~135	0.024~0.056
		調質的 Hardened	350	50~130	0.004~0.008	50~130	0.008~0.024
	高合金鋼(含量5>%) High alloy steels	退火的 Annealed	200	30~70	0.008~0.024	30~80	0.024~0.04
		淬硬的 Hardened	325	20~60	0.004~0.008	25~65	0.008~0.024
鑄鋼 Cast steels	低合金鋼(含量≤5%) Low alloy	200	60~160	0.008~0.024	65~200	0.024~0.08	
	高合金鋼(含量>5%) Hight alloy	225	50~120	0.004~0.008	50~135	0.008~0.024	
M	鐵素不銹鋼 Stainless steels Ferritic	易切的 Non hardened	200	40~110	0.008~0.04	50~120	0.032~0.08
		淬硬的 Hardened	330	40~90	0.004~0.008	50~95	0.008~0.04
	奧氏不銹鋼 Stainless steels Austenitic	奧氏 Austenitic	180	50~100	0.006~0.016	50~110	0.032~0.08
		優良奧氏 Super Austenitic	200	40~100	0.006~0.016	50~105	0.032~0.08
	鐵素鑄造不銹鋼 Stainless steels Cast Ferritic	易切的 Non hardened	200	40~120	0.008~0.024	50~130	0.032~0.08
		淬硬的 Hardened	330	40~80	0.004~0.008	50~90	0.024~0.04
	奧氏鑄造不銹鋼 Stainless steels Cast Austenitic	奧氏 Austenitic	200	40~110	0.008~0.024	50~120	0.032~0.08
		淬硬的 Hardened	330	40~70	0.008~0.024	50~80	0.024~0.04
K	球墨鑄鐵 Malleabe Cast Iron	鐵素(短屑) Ferritic(short chips)	130	50~120	0.004~0.008	50~55	0.008~0.024
		珠光(長屑) Pearlitic(long chips)	230	40~110	0.004~0.008	50~120	0.024~0.04
	灰鑄鐵 Grey Cast Iron	低抗拉強度 Low tensile strength	180	40~110	0.006~0.016	55~130	0.02~0.08
		高抗拉強度 Hight tensile strength	260	30~90	0.004~0.008	30~95	0.024~0.04
	可鍛造鑄鐵 Nodular SG Iron	鐵素 Ferritic	160	30~80	0.006~0.016	30~90	0.04~0.08
		珠光 Pearlitic	260	30~70	0.004~0.12	30~80	0.024~0.04
N	可鍛壓鋁合金 Aluminium Alloys Wrought	鍛造 Non aging	60	120~200	0.04~0.12	160~240	0.08~0.2
		時效處理 Aged	100	80~180	0.024~0.12	120~200	0.08~0.16
	鋁合金 Aluminium Alloys	鑄造 Cast	75	60~120	0.04~0.12	80~160	0.08~0.16
		鑄造和時效 Cast & Aged	90	70~130	0.24~0.08	95~175	0.08~0.12
	鋁合金 Aluminium Alloys	鑄鋁，含矽量13~22% Cast Si	130	120~200	0.04~0.12	160~240	0.08~0.16
		銅及鋁合金 Copper & Aluminium Alloys	黃銅 Brass	90	120~200	0.04~0.12	160~240
青銅、紫銅 Bronze & non leaded copper	100		80~180	0.024~0.08	120~200	0.08~0.16	
S	高溫合金 High-Temp Alloys	退火的(鐵基)Annealed(Iron based)	200	20~40	0.006~0.016	25~50	0.032~0.08
		時效的(鐵基)Aged(Iron based)	280	15~30	0.004~0.008	15~40	0.008~0.024
		退火的(鎳或鈷基) Annealed(Nickel or Cobalt based)	250	10~20	0.004~0.008	10~30	0.008~0.024
		時效的(鎳或鈷基) Aged(Nickel or Cobalt based)	350	12~20	0.004~0.008	10~25	0.008~0.024
		純鈦(99.5%) Pure(99.5% Ti)	400Rm	20~60	0.006~0.016	30~65	0.024~0.04
		α+β 合金 α+β alloys	1050Rm	15~40	0.006~0.016	15~40	0.024~0.04
H	超硬鋼 Extra Hard Steels		45~50HRC	10~30	0.002~0.005	10~35	0.004~0.008
		調質鋼 Hardened & Tempered	50~55HRC	10~20	0.002~0.005	10~30	0.004~0.008

※ 刀具「切入進給量」建議採取低於「螺紋切削時進給量」60%。
At tools entry, set the Feed (mm) to 60% lower than the threading Feed.

※ 切削公式 Cutting Formula : S(主軸轉速) = Vc(切削速度) × 1000 / D(外徑) / π (3.14) F(進給速度) = fz(每刃進給量) × Z(刃數) × S(主軸轉速)

- 當加工聲音尖銳時，請調降主軸轉速(S) (10~40%)。 When the sound is piercing, please lower the spindle speed(S) (10~40%).
- 當機台震動太大時，請調降進給速度(F) (10~40%)。 When the machine is vibrating, please decrease the feed rate(F) (10~40%).
- 當主軸負載太大時，請調降進給速度(F) (10~40%)。 When the spindle load is high, please decrease the feed rate(F) (10~40%).
- 以上數據為建議值，適當的條件仍需視機台狀況，夾治具品質，潤滑冷卻系統...等而改變。

These are recommended values which depend on the condition of the machine, fixture, lubricating & cooling systems... etc. They may have to be adapted.