

被切削材 Work Material	純鈦,鈦合金 Titanium , Ti-6Al-4V, Gr2 , Gr5(TC4)						
	型號 Type NO.	刀具伸長量 Extension Length	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min <sup>-1</sup> )	進給速度 Feed (mm/min)	加工深度(Aa) Depth of Cut	加工寬度(Ap) Width of Cut
UTHR0305	13mm	135	14000~14500	1200~1400	0~0.13	3	溝銑(Slotting)
UTHR0305	13mm	130	13500~14000	800~1000	0.7	3	溝銑(Slotting)
UTHR0305	13mm	130	13500~14000	500~700	0.8~1.3	3	溝銑(Slotting)
UTHR0305	13mm	130	13500~14000	400~500	1.3~1.7	3	溝銑(Slotting)
UTHR0305	13mm	130	13500~14000	900~1100	3	0.7	側銑(Side milling)
UTHR0305	13mm	130	13500~14000	500~700	3	0.8~1.3	側銑(Side milling)
UTHR0305	13mm	130	13500~14000	400~500	3	1.3~1.7	側銑(Side milling)
UTHR0305	13mm	130	13500~14000	700~900	3~6	0~0.13	側銑(Side milling)
UTHR0405	16mm	135	10000~10500	1200~1400	0~0.15	4	溝銑(Slotting)
UTHR0405	16mm	130	9500~10000	800~1000	0.8	4	溝銑(Slotting)
UTHR0405	16mm	130	9500~10000	500~700	1~2	4	溝銑(Slotting)
UTHR0405	16mm	130	9500~10000	400~500	2~2.5	4	溝銑(Slotting)
UTHR0405	16mm	130	9500~10000	900~1100	4	0.8	側銑(Side milling)
UTHR0405	16mm	130	9500~10000	500~700	4	1~2	側銑(Side milling)
UTHR0405	16mm	130	9500~10000	400~500	4	2~2.5	側銑(Side milling)
UTHR0405	16mm	130	9500~10000	700~900	4~8	0~0.15	側銑(Side milling)
UTHR0505	18mm	135	8500~9000	1100~1300	0~0.15	5	溝銑(Slotting)
UTHR0505	18mm	130	8000~8500	900~1100	0.9	5	溝銑(Slotting)
UTHR0505	18mm	130	8000~8500	500~700	1.5~2.5	5	溝銑(Slotting)
UTHR0505	18mm	130	8000~8500	400~500	3~4	5	溝銑(Slotting)
UTHR0505	18mm	130	8000~8500	900~1100	5	0.9	側銑(Side milling)
UTHR0505	18mm	130	8000~8500	500~700	5	1.5~2.5	側銑(Side milling)
UTHR0505	18mm	130	8000~8500	400~500	5	3~4	側銑(Side milling)
UTHR0505	18mm	130	8000~8500	700~900	5~10	0~0.15	側銑(Side milling)
UTHR0605	20mm	135	7000~7400	1000~1300	0~0.15	6	溝銑(Slotting)
UTHR0605	20mm	130	6600~7000	900~1100	1	6	溝銑(Slotting)
UTHR0605	20mm	130	6600~7000	500~700	2~3	6	溝銑(Slotting)
UTHR0605	20mm	130	6600~7000	400~500	4~5	6	溝銑(Slotting)
UTHR0605	20mm	130	6600~7000	1000~1200	6	1	側銑(Side milling)
UTHR0605	20mm	130	6600~7000	500~700	6	2~3	側銑(Side milling)
UTHR0605	20mm	130	6600~7000	400~500	6	4~5	側銑(Side milling)
UTHR0605	20mm	130	6600~7000	500~700	6~12	0~0.2	側銑(Side milling)
UTHR0610	20mm	135	7000~7400	1000~1300	0~0.15	6	溝銑(Slotting)
UTHR0610	20mm	130	6600~7000	900~1100	1	6	溝銑(Slotting)
UTHR0610	20mm	130	6600~7000	500~700	2~3	6	溝銑(Slotting)
UTHR0610	20mm	130	6600~7000	400~500	4~5	6	溝銑(Slotting)

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	型號 Type NO.	刀具伸長量 Extension Length	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min <sup>-1</sup> )	進給速度 Feed (mm/min)	加工深度(Aa) Depth of Cut	加工寬度(Ap) Width of Cut
UTHR0610	20mm	130	6600~7000	1000~1200	6	1	側銑(Side milling)
UTHR0610	20mm	130	6600~7000	500~700	6	2~3	側銑(Side milling)
UTHR0610	20mm	130	6600~7000	400~500	6	4~5	側銑(Side milling)
UTHR0610	20mm	130	6600~7000	500~700	6~12	0~0.2	側銑(Side milling)
UTHR0805	24mm	135	5000~5500	1000~1300	0~0.2	8	溝銑(Slotting)
UTHR0805	24mm	130	4800~5300	900~1100	0.5~1	8	溝銑(Slotting)
UTHR0805	24mm	130	4800~5300	500~700	3~4	8	溝銑(Slotting)
UTHR0805	24mm	130	4800~5300	400~500	4~6.5	8	溝銑(Slotting)
UTHR0805	24mm	130	4800~5300	1000~1200	8	0.5~1	側銑(Side milling)
UTHR0805	24mm	130	4800~5300	500~700	8	3~4	側銑(Side milling)
UTHR0805	24mm	130	4800~5300	400~500	8	4~6.5	側銑(Side milling)
UTHR0805	24mm	130	4800~5300	500~700	8~16	0~0.2	側銑(Side milling)
UTHR0810	24mm	135	5000~5500	1000~1300	0~0.2	8	溝銑(Slotting)
UTHR0810	24mm	130	4800~5300	900~1100	0.5~1	8	溝銑(Slotting)
UTHR0810	24mm	130	4800~5300	500~700	3~4	8	溝銑(Slotting)
UTHR0810	24mm	130	4800~5300	400~500	4~6.5	8	溝銑(Slotting)
UTHR0810	24mm	130	4800~5300	1000~1200	8	0.5~1	側銑(Side milling)
UTHR0810	24mm	130	4800~5300	500~700	8	3~4	側銑(Side milling)
UTHR0810	24mm	130	4800~5300	400~500	8	4~6.5	側銑(Side milling)
UTHR0810	24mm	130	4800~5300	500~700	8~16	0~0.2	側銑(Side milling)
UTHR1005	30mm	150	4800~5200	1000~1200	0~0.2	10	溝銑(Slotting)
UTHR1005	30mm	135	4200~4500	900~1100	0.5~1	10	溝銑(Slotting)
UTHR1005	30mm	135	4200~4500	500~600	4~5	10	溝銑(Slotting)
UTHR1005	30mm	135	4200~4500	400~500	7~8	10	溝銑(Slotting)
UTHR1005	30mm	135	4200~4500	900~1100	10	0.5~1	側銑(Side milling)
UTHR1005	30mm	135	4200~4500	500~700	10	4~5	側銑(Side milling)
UTHR1005	30mm	135	4200~4500	400~500	10	7~8	側銑(Side milling)
UTHR1005	30mm	135	4200~4500	500~700	10~20	0~0.25	側銑(Side milling)
UTHR1010	30mm	150	4800~5200	1000~1200	0~0.2	10	溝銑(Slotting)
UTHR1010	30mm	135	4200~4500	900~1100	0.5~1	10	溝銑(Slotting)
UTHR1010	30mm	135	4200~4500	500~600	4~5	10	溝銑(Slotting)
UTHR1010	30mm	135	4200~4500	350~450	7~8	10	溝銑(Slotting)
UTHR1010	30mm	135	4200~4500	900~1100	10	0.5~1	側銑(Side milling)
UTHR1010	30mm	135	4200~4500	500~600	10	4~5	側銑(Side milling)
UTHR1010	30mm	135	4200~4500	350~450	10	7~8	側銑(Side milling)
UTHR1010	30mm	135	4200~4500	500~700	10~20	0~0.25	側銑(Side milling)

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	型號 Type NO.	刀具伸長量 Extension Length	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min <sup>-1</sup> )	進給速度 Feed (mm/min)	加工深度(Aa) Depth of Cut	加工寬度(Ap) Width of Cut
UTHR1020	30mm	150	4800~5200	1000~1200	0~0.2	10	溝銑(Slotting)
UTHR1020	30mm	135	4200~4500	900~1100	0.5~1	10	溝銑(Slotting)
UTHR1020	30mm	135	4200~4500	500~600	4~5	10	溝銑(Slotting)
UTHR1020	30mm	135	4200~4500	350~450	7~8	10	溝銑(Slotting)
UTHR1020	30mm	135	4200~4500	900~1100	10	0.5~1	側銑(Side milling)
UTHR1020	30mm	135	4200~4500	500~600	10	4~5	側銑(Side milling)
UTHR1020	30mm	135	4200~4500	350~450	10	7~8	側銑(Side milling)
UTHR1020	30mm	135	4200~4500	500~700	10~20	0~0.25	側銑(Side milling)
UTHR1210	33mm	150	3800~4200	1000~1200	0~0.25	12	溝銑(Slotting)
UTHR1210	33mm	135	3400~3800	750~950	0.6~1.2	12	溝銑(Slotting)
UTHR1210	33mm	135	3400~3800	400~500	4~5	12	溝銑(Slotting)
UTHR1210	33mm	135	3400~3800	250~400	6~7	12	溝銑(Slotting)
UTHR1210	33mm	135	3400~3800	800~1000	12	0.6~1.2	側銑(Side milling)
UTHR1210	33mm	135	3400~3800	400~500	12	4~5	側銑(Side milling)
UTHR1210	33mm	135	3400~3800	300~400	12	6~7	側銑(Side milling)
UTHR1210	33mm	135	3400~3800	500~700	12~24	0~0.25	側銑(Side milling)
UTHR1220	33mm	150	3800~4200	1000~1200	0~0.25	12	溝銑(Slotting)
UTHR1220	33mm	135	3400~3800	750~950	0.6~1.2	12	溝銑(Slotting)
UTHR1220	33mm	135	3400~3800	400~500	4~5	12	溝銑(Slotting)
UTHR1220	33mm	135	3400~3800	250~400	5~6	12	溝銑(Slotting)
UTHR1220	33mm	135	3400~3800	800~1000	12	0.6~1.2	側銑(Side milling)
UTHR1220	33mm	135	3400~3800	400~500	12	4~5	側銑(Side milling)
UTHR1220	33mm	135	3400~3800	300~400	12	5~6	側銑(Side milling)
UTHR1220	33mm	135	3400~3800	500~700	12~24	0~0.25	側銑(Side milling)
UTHR1230	33mm	150	3800~4200	1000~1200	0~0.25	12	溝銑(Slotting)
UTHR1230	33mm	135	3400~3800	750~950	0.6~1.2	12	溝銑(Slotting)
UTHR1230	33mm	135	3400~3800	400~500	4~5	12	溝銑(Slotting)
UTHR1230	33mm	135	3400~3800	250~400	5~6	12	溝銑(Slotting)
UTHR1230	33mm	135	3400~3800	800~1000	12	0.6~1.2	側銑(Side milling)
UTHR1230	33mm	135	3400~3800	400~500	12	4~5	側銑(Side milling)
UTHR1230	33mm	135	3400~3800	300~400	12	5~6	側銑(Side milling)
UTHR1230	33mm	135	3400~3800	500~700	12~24	0~0.25	側銑(Side milling)
UTHR1610	43mm	150	2800~3200	800~1000	0~0.25	16	溝銑(Slotting)
UTHR1610	43mm	135	2500~2900	700~850	0.6~1.2	16	溝銑(Slotting)
UTHR1610	43mm	135	2500~2900	350~500	3~4	16	溝銑(Slotting)
UTHR1610	43mm	135	2500~2900	200~350	4~5	16	溝銑(Slotting)

被切削材 Work Material	純鈦,鈦合金 Titanium , Ti-6Al-4V, Gr2 , Gr5(TC4)						
	型號 Type NO.	刀具伸長量 Extension Length	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min <sup>-1</sup> )	進給速度 Feed (mm/min)	加工深度(Aa) Depth of Cut	加工寬度(Ap) Width of Cut
UTHR1610	43mm	135	2500~2900	700~900	16	0.6~1.2	側銑(Side milling)
UTHR1610	43mm	135	2500~2900	350~500	16	3~4	側銑(Side milling)
UTHR1610	43mm	135	2500~2900	200~350	16	4~5	側銑(Side milling)
UTHR1610	43mm	135	2500~2900	350~550	16~32	0~0.3	側銑(Side milling)
UTHR1620	43mm	150	2800~3200	800~1000	0~0.25	16	溝銑(Slotting)
UTHR1620	43mm	135	2500~2900	700~850	0.6~1.2	16	溝銑(Slotting)
UTHR1620	43mm	135	2500~2900	350~500	3~4	16	溝銑(Slotting)
UTHR1620	43mm	135	2500~2900	200~350	4~5	16	溝銑(Slotting)
UTHR1620	43mm	135	2500~2900	700~900	16	0.6~1.2	側銑(Side milling)
UTHR1620	43mm	135	2500~2900	350~500	16	3~4	側銑(Side milling)
UTHR1620	43mm	135	2500~2900	200~350	16	4~5	側銑(Side milling)
UTHR1620	43mm	135	2500~2900	350~550	16~32	0~0.3	側銑(Side milling)
UTHR1630	43mm	150	2800~3200	800~1000	0~0.25	16	溝銑(Slotting)
UTHR1630	43mm	135	2500~2900	700~850	0.6~1.2	16	溝銑(Slotting)
UTHR1630	43mm	135	2500~2900	350~500	3~4	16	溝銑(Slotting)
UTHR1630	43mm	135	2500~2900	200~350	4~5	16	溝銑(Slotting)
UTHR1630	43mm	135	2500~2900	700~900	16	0.6~1.2	側銑(Side milling)
UTHR1630	43mm	135	2500~2900	350~500	16	3~4	側銑(Side milling)
UTHR1630	43mm	135	2500~2900	200~350	16	4~5	側銑(Side milling)
UTHR1630	43mm	135	2500~2900	350~550	16~32	0~0.3	側銑(Side milling)
UTHR2010	47mm	150	2200~2600	600~800	0~0.3	20	溝銑(Slotting)
UTHR2010	47mm	135	2000~2300	500~700	0.6~1.2	20	溝銑(Slotting)
UTHR2010	47mm	135	2000~2300	200~350	3~4	20	溝銑(Slotting)
UTHR2010	47mm	135	2000~2300	150~250	4~5	20	溝銑(Slotting)
UTHR2010	47mm	135	2000~2300	600~800	20	0.6~1.2	側銑(Side milling)
UTHR2010	47mm	135	2000~2300	250~350	20	3~4	側銑(Side milling)
UTHR2010	47mm	135	2000~2300	200~300	20	4~5	側銑(Side milling)
UTHR2010	47mm	135	2000~2300	200~400	20~40	0~0.3	側銑(Side milling)
UTHR2020	47mm	150	2200~2600	600~800	0~0.3	20	溝銑(Slotting)
UTHR2020	47mm	135	2000~2300	500~700	0.6~1.2	20	溝銑(Slotting)
UTHR2020	47mm	135	2000~2300	200~350	3~4	20	溝銑(Slotting)
UTHR2020	47mm	135	2000~2300	150~250	4~5	20	溝銑(Slotting)
UTHR2020	47mm	135	2000~2300	600~800	20	0.6~1.2	側銑(Side milling)
UTHR2020	47mm	135	2000~2300	250~350	20	3~4	側銑(Side milling)
UTHR2020	47mm	135	2000~2300	200~300	20	4~5	側銑(Side milling)
UTHR2020	47mm	135	2000~2300	200~400	20~40	0~0.3	側銑(Side milling)

被切削材 Work Material	純鈦,鈦合金 Titanium , Ti-6Al-4V, Gr2 , Gr5(TC4)						
型號 Type NO.	刀具伸長量 Extension Length	切削速度 Cutting Speed (m/min)	迴轉速度 Speed (min <sup>-1</sup> )	進給速度 Feed (mm/min)	加工深度(Aa) Depth of Cut	加工寬度(Ap) Width of Cut	加工方式 Milling Type
UTHR2030	47mm	150	2200~2600	600~800	0~0.3	20	溝銑(Slotting)
UTHR2030	47mm	135	2000~2300	500~700	0.6~1.2	20	溝銑(Slotting)
UTHR2030	47mm	135	2000~2300	200~350	3~4	20	溝銑(Slotting)
UTHR2030	47mm	135	2000~2300	150~250	4~5	20	溝銑(Slotting)
UTHR2030	47mm	135	2000~2300	600~800	20	0.6~1.2	側銑(Side milling)
UTHR2030	47mm	135	2000~2300	250~350	20	3~4	側銑(Side milling)
UTHR2030	47mm	135	2000~2300	150~250	20	4~5	側銑(Side milling)
UTHR2030	47mm	135	2000~2300	200~400	20~40	0~0.3	側銑(Side milling)

附註：

1. UTHR 適用於粗、中、精銑加工，溝銑 (Aa) 與側銑 (Ap) 都有 0.5~1.0D 切削能力。粗切削時建議使用濕式高壓水溶性切削液，以免造成排屑不良；特別是用於易沾黏鐵削的純鈦與鈦合金材料上。直徑 Ø10 以上，需視機器剛性與主軸扭力值的不同，做適當調整。
2. 以上冷卻方式皆為濕式。

Note :

1. UTHR is good at Roughing, Semi-finishing and Finishing. It can do a 0.5~1.0D machining for both Slotting (Aa) and Side milling (Ap). When Roughing, suggest to use the high pressure emulsion coolant in order to prevent chip removal. UTHR is especially good at Gr2 and Gr5 material with chip stickness. For diameter above 10.0mm, adjustment is required and depends on the rigidity of machine and the torque of spindle.
2. Wet coolant type is suggested for all above cutting conditions.