

RECOMMENDED CUTTING CONDITIONS

■ VFX5

Workpiece Material		Cutting Edge Diameter (mm)	Number of Flutes	Recommended Insert	Cutting Speed vc (m/min)	Revolution n (min ⁻¹)	Depth of Cut apmax (mm)	Cutting Width ae (mm)	Feed per Tooth fz (mm/t)	Table Feed vf (mm/min)	Chip Removal Rate Q (cm³/min)	Estimated Cutting Power (kW)	Expected Torque (Nm)	Tool Life Ratio (%)
S	Titanium Alloy (Ti-6Al-4V)	φ40	3	LS	40	318	38	40	0.10	95	145	6.5	194	40
			3	MS	50	398	38	24	0.10	119	109	4.5	109	60
			3	MS	60	477	38	16	0.10	143	87	3.5	69	80
			3	HS	60	477	38	8	0.12	172	52	2.3	45	100
		φ50	3	LS	40	255	38	50	0.10	76	145	6.5	242	40
			4	MS	50	318	50	30	0.10	127	191	7.9	237	60
			4	MS	60	382	50	20	0.10	153	153	6.0	151	80
			4	HS	60	382	50	10	0.12	183	92	3.9	98	100
		φ63	5	LS	40	202	60	63	0.10	101	382	16.8	793	40
			5	MS	50	253	60	38	0.10	126	286	11.8	447	60
			5	MS	60	303	60	25	0.10	152	229	9.0	285	80
			5	HS	60	303	60	13	0.12	182	138	5.9	185	100
		φ80	6	LS	40	159	75	80	0.10	95	573	25.0	1500	40
			6	MS	50	199	75	48	0.10	119	430	17.6	846	60
			6	MS	60	239	75	32	0.10	143	344	13.5	539	80
			6	HS	60	239	75	16	0.12	172	206	8.7	350	100
	Titanium Alloy (Ti-5Al-5V-5Mo-3Cr)	φ40	3	LS	25	199	38	40	0.08	48	73	3.4	161	30
			3	MS	25	199	38	24	0.08	48	44	1.9	92	50
			3	MS	30	239	38	16	0.10	72	44	1.8	74	70
			3	HS	30	239	38	8	0.10	72	22	1.0	41	90
		φ50	4	LS	25	159	50	50	0.08	51	127	5.8	350	30
			4	MS	25	159	50	30	0.08	51	76	3.4	201	50
			4	MS	30	191	50	20	0.10	76	76	3.2	160	70
			4	HS	30	191	50	10	0.10	76	38	1.8	89	90
		φ63	5	LS	25	126	60	63	0.08	51	191	8.7	658	30
			5	MS	25	126	60	38	0.08	51	115	5.0	378	50
			5	MS	30	152	60	25	0.10	76	115	4.8	301	70
			5	HS	30	152	60	13	0.10	76	57	2.6	167	90
		φ80	6	LS	25	99	75	80	0.08	48	286	13.0	1246	30
			6	MS	25	99	75	48	0.08	48	172	7.5	716	50
			6	MS	30	119	75	32	0.10	72	172	7.1	570	70
			6	HS	30	119	75	16	0.10	72	86	3.9	316	90

Note 1) Please note that machining performance varies depending to the conditions such as machine rigidity, work clamping rigidity, coolant supply system, pressure and flow volume etc.

Note 2) Internal coolant is recommended. Please use an FMH type arbor for through coolant. Using external coolant in combination with through coolant is even more effective.

Note 3) The tool life ratio shows the standard when $ae = \text{tool diameter} \times 20\%$ is assumed to be 100 when shoulder cutting.

Note 4) The maximum depth of cut (apmax) varies according to the machine rigidity and power.