RECOMMENDED CUTTING CONDITIONS

VFX5

	Work Material	Cutting Edge Diameter (inch)	Number of Flutes	Recommended Insert	Cutting Speed **vc** (SFM)	Revolution **n** (min^{-1})	Depth of Cut **ap max** (inch)	Cutting Width **ae** (inch)	Feed per Tooth **fz** (inch/t)	Table Feed **vf** (inch/min)	Chip Removal Rate **Q** ($inch^3$/min)	Estimated cutting power **PC** (HP)	Expected Torque (lbf-ft)	Tool life ratio (%)
S	Titanium Alloy (Ti6Al4V)	ϕ2.0	3	LS	130	248	1.496	2.000	.004	2.932	9	8.6	182	40
			4	MS	165	315	1.969	1.200	.004	4.963	12	10.7	178	60
			4	MS	195	372	1.969	.800	.004	5.865	9	8.0	113	80
			4	HS	195	372	1.969	.400	.005	7.038	6	5.2	74	100
		ϕ2.5	5	LS	130	199	2.362	2.500	.004	3.910	23	22.3	590	40
			5	MS	165	252	2.362	1.500	.004	4.963	18	15.9	332	60
			5	MS	195	298	2.362	1.000	.004	5.865	14	12.0	212	80
			5	HS	195	298	2.362	.500	.005	7.038	8	7.8	137	100
		ϕ3.0	6	LS	130	166	2.953	3.000	.004	3.910	35	33.2	1055	40
			6	MS	165	210	2.953	1.800	.004	4.963	26	23.8	594	60
			6	MS	195	248	2.953	1.200	.004	5.865	21	17.9	379	80
			6	HS	195	248	2.953	.600	.005	7.038	12	11.6	246	100
	Titanium Alloy (Ti-5553)	ϕ2.0	3	LS	80	153	2.953	2.000	.003	1.444	9	8.5	292	30
			4	MS	80	153	2.953	1.200	.003	1.925	7	6.5	224	50
			4	MS	100	191	2.953	.800	.004	3.008	7	6.5	178	70
			4	HS	100	191	2.953	.400	.004	3.008	4	3.6	98	80
		ϕ2.5	5	LS	80	122	2.953	2.500	.003	1.925	14	14.1	608	30
			5	MS	80	122	2.953	1.500	.003	1.925	9	8.1	350	50
			5	MS	100	153	2.953	1.000	.004	3.008	9	8.1	278	70
			5	HS	100	153	2.953	.500	.004	3.008	4	4.5	154	80
		ϕ3.0	6	LS	80	102	3.543	3.000	.003	1.925	20	20.1	1035	30
			6	MS	80	102	3.543	1.800	.003	1.925	12	11.5	595	50
			6	MS	100	127	3.543	1.200	.004	3.008	13	11.5	474	70
			6	HS	100	127	3.543	.600	.004	3.008	6	6.3	262	80

VFX5 (METRIC Standard)

	Work Material	Cutting Edge Diameter (inch)	Number of Flutes	Recommended Insert	Cutting Speed **vc** (SFM)	Revolution **n** (min^{-1})	Depth of Cut **ap max** (inch)	Cutting Width **ae** (inch)	Feed per Tooth **fz** (inch/t)	Table Feed **vf** (inch/min)	Chip Removal Rate **Q** ($inch^3$/min)	Estimated cutting power **PC** (HP)	Expected Torque (lbf-ft)	Tool life ratio (%)
S	Titanium Alloy (Ti6Al4V)	ϕ40	3	LS	130	315	1.496	1.575	.004	3.724	9	8.6	143	40
			3	MS	165	400	1.496	.945	.004	4.727	7	6.1	80	60
			3	MS	195	473	1.496	.630	.004	5.586	5	4.6	51	80
			3	HS	195	473	1.496	.315	.005	6.704	3	3.0	33	100
		ϕ50	3	LS	130	252	1.496	1.969	.004	2.979	9	8.6	179	40
			4	MS	165	320	1.969	1.181	.004	5.042	12	10.7	175	60
			4	MS	195	378	1.969	.787	.004	5.959	9	8.0	112	80
			4	HS	195	378	1.969	.394	.005	7.151	6	5.2	72	100
		ϕ63	5	LS	130	200	2.362	2.480	.004	3.941	23	22.3	585	40
			5	MS	165	254	2.362	1.488	.004	5.002	18	15.9	329	60
			5	MS	195	300	2.362	.992	.004	5.911	14	12.0	210	80
			5	HS	195	300	2.362	.496	.005	7.094	8	7.8	136	100
		ϕ80	6	LS	130	158	2.953	3.150	.004	3.724	35	33.2	1107	40
			6	MS	165	200	2.953	1.890	.004	4.727	26	23.8	624	60
			6	MS	195	236	2.953	1.260	.004	5.586	21	17.9	398	80
			6	HS	195	236	2.953	.630	.005	6.704	12	11.6	258	100
	Titanium Alloy (Ti-5553)	ϕ40	3	LS	80	194	2.362	1.575	.003	1.833	7	6.8	185	30
			3	MS	80	194	2.362	.945	.003	1.833	4	3.9	106	50
			3	MS	100	243	2.362	.630	.004	2.865	4	3.9	85	70
			3	HS	100	243	2.362	.315	.004	2.865	2	2.2	47	80
		ϕ50	3	LS	80	155	2.953	1.969	.003	1.467	9	8.5	287	30
			4	MS	80	155	2.953	1.181	.003	1.956	7	6.5	220	50
			4	MS	100	194	2.953	.787	.004	3.056	7	6.5	175	70
			4	HS	100	194	2.953	.394	.004	3.056	4	3.6	97	80
		ϕ63	5	LS	80	123	2.953	2.480	.003	1.940	14	14.1	603	30
			5	MS	80	123	2.953	1.488	.003	1.940	9	8.1	347	50
			5	MS	100	154	2.953	.992	.004	3.032	9	8.1	276	70
			5	HS	100	154	2.953	.496	.004	3.032	4	4.5	153	80
		ϕ80	6	LS	80	97	3.543	3.150	.003	1.833	20	20.1	1086	30
			6	MS	80	97	3.543	1.890	.003	1.833	12	11.5	625	50
			6	MS	100	121	3.543	1.260	.004	2.865	13	11.5	498	70
			6	HS	100	121	3.543	.630	.004	2.865	6	6.3	275	80

∗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.
∗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.
∗3 The reference of tool life which we mentioned on the tables,"tool life ratio 100(%)" is when "ae = 20(%) of tool diameter". If "ae" will be bigger than 20(%) of tool diameter,tool life will decrease in "tool life ratio" on the tables.
4 The maximum depth of cut (apmax) varies according to the machine rigidity and power.