

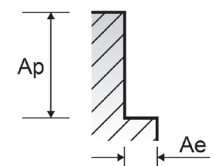
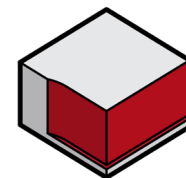
Speeds and Feeds



6 FLUTE CHIP SPLITTER - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	5	Low alloy steel	0.05D	3.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	6-7	Low alloy steel	0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
RPM					15915	11937	9549	7958	5968	4775	3820	
FEED					6494	8308	8251	8260	7234	6446	5317	
8-9	Low alloy steel	0.05D	3.0D	Vc	205	205	205	205	205	205	205	
				fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174	
				RPM	10876	8157	6525	5438	4078	3263	2610	
				FEED	3263	4160	4150	4176	3646	3269	2725	
10-11.1	High alloyed steel, and tool steel	0.05D	3.0D	Vc	100	100	100	100	100	100	100	
				fz	0.041	0.071	0.088	0.105	0.123	0.137	0.144	
				RPM	5305	3979	3183	2653	1989	1592	1273	
				FEED	1305	1695	1681	1671	1468	1308	1100	
M	12-13	Stainless steel	0.05D	3.0D	Vc	215	215	215	215	215	215	215
					fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168
					RPM	11406	8555	6844	5703	4277	3422	2737
	14.1	Stainless steel	0.05D	3.0D	Vc	145	145	145	145	145	145	145
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143
					RPM	7692	5769	4615	3846	2885	2308	1846
14.2	Stainless steel	0.05D	3.0D	Vc	135	135	135	135	135	135	135	
				fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142	
				RPM	7162	5371	4297	3581	2686	2149	1719	
K	15-20	Grey cast iron	0.05D	3.0D	Vc	225	225	225	225	225	225	225
					fz	0.082	0.139	0.173	0.208	0.242	0.270	0.278
					RPM	11937	8952	7162	5968	4476	3581	2865
	31-35	Heat Resistant Super Alloys	0.05D	3.0D	Vc	35	35	35	35	35	35	35
					fz	0.033	0.055	0.070	0.082	0.097	0.112	0.115
					RPM	1857	1393	1114	928	696	557	446
36-37	Titanium Alloys	0.05D	3.0D	Vc	115	115	115	115	115	115	115	
				fz	0.033	0.055	0.070	0.083	0.097	0.113	0.117	
				RPM	6101	4576	3661	3050	2288	1830	1464	
					FEED	1208	1510	1537	1519	1332	1241	1028



Technical Details



Feed Rate, Per Revolution (in/min)

$$v_f = f_n \cdot n$$

Feed Rate, Per Tooth (in/min)

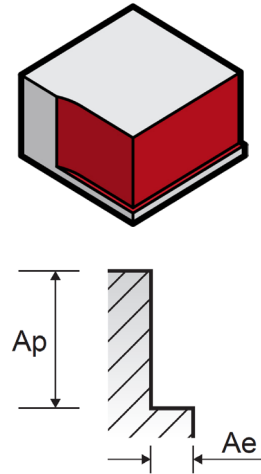
$$v_f = f_z \cdot n \cdot Z$$

Feed Per Revolution (in/rev)

$$f_n = \frac{v_f}{n}$$

Feed Per Tooth (in)

$$f_z = \frac{v_f}{n \cdot Z}$$



Cutting Speed (ft/min)

$$v_c = \frac{\pi \cdot D_{tool} \cdot n}{12}$$

Spindle Speed (rev/min)

$$n = \frac{v_c \cdot 12}{\pi \cdot D_{tool}}$$

Material Removal Rate (in³/min)

$$MMR = a_p \cdot a_e \cdot v_f$$

Symbol	Definition	Unit
v_f	Feed rate	<i>in/min</i>
f_n	Feed per revolution	<i>in/rev</i>
f_z	Feed per tooth	<i>in</i>
v_c	Cutting speed	<i>ft/min (SFM)</i>
n	Spindle speed	<i>rev/min (RPM)</i>
D_{tool}	Tool cutting diameter	<i>in</i>
MMR	Material removal rate	<i>(in³/min)</i>
a_e	Radial depth of cut	<i>in</i>
a_p	Axial depth of cut	<i>in</i>
Z	Number of teeth/flutes	

