



**Speeds & Feeds**

**Product Table:** Drill/End Mills - Mill Style - 2 Flute  
**Characteristics:** 60° Included Angle  
**Series:** 9917xx

**Product Notes:**

- Milling - Presented data reflects slotting application using OD of cutter up to .5x Dia Axial DOC  
 - Use OD of cutter for Chip Load selection and RPM calculation  
 - If Axial DOC exceeds .5x Dia, Chip Load and/or Radial DOC must be reduced

- Chamfering - Presented data reflects full chamfer engagement on one side of workpiece  
 - Due to a varying tip diameter, an **Effective Cutter Diameter** is needed for Chip Load selection and RPM calculation. Consider the major and minor diameters along the actual contact length and average them:  $(\text{Major Diameter} + \text{Minor Diameter})/2$   
 - Depth of Cut is shown as number of Passes with each made using a **descending** stepover  
 - Feed rates may be increased (or number of passes decreased) when creating traditional edge breaks

- Drilling - Presented values are Chip Load per Tooth and not Chip Load per Rev  
 - Use OD for Chip Load selection and RPM calculation  
 - Since only 2 flutes are center cutting in 2 and 4 flute drill/mills, all drilling feed calculations should be made using **2 Effective Flutes**  
 - Depth of Cut not shown as it is not applicable  
 - Drilling is not recommended for tools with < 82° included point angle

**General Notes:**

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. Chip loads reflect uncoated cutters and may be increased 10%-20% if coated. For ferrous materials with hardness ≤ 28 Rc, chip loads can be increased 10%-20%.

If you require additional information, HARVEY TOOL has a team of technical experts available to assist you through even the most challenging applications. Please contact us at **800-645-5609** or **Harveytech@harveyperformance.com**.

**WARNING:** Cutting tools may shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment in the vicinity of use.

MATERIAL	SFM	Hardness: ≤ 28 Rc (≤ 271 HBn)														
		Chip Load (IPT) By Cutter Diameter											Depth of Cut			
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	0.625	0.750	1.000	Radial	Axial	
ALUMINUM ALLOYS	750	Milling	.00068	.00086	.00102	.00138	.00206	.00275	.00343	.00413	.00550	.00688	.00825	.01100	1x Dia	.5x Dia
		Chamfering	.00068	.00086	.00102	.00138	.00206	.00275	.00343	.00413	.00550	.00688	.00825	.01100	2 passes	
	1000	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Wrought (1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAGNESIUM ALLOYS	750	Milling	.00061	.00077	.00092	.00124	.00185	.00248	.00309	.00371	.00495	.00619	.00743	.00990	1x Dia	.5x Dia
		Chamfering	.00061	.00077	.00092	.00124	.00185	.00248	.00309	.00371	.00495	.00619	.00743	.00990	2 passes	
	1000	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Wrought - 5%-8% Si (4xxx)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZINC ALLOYS	1500	Milling	.00068	.00086	.00102	.00138	.00206	.00275	.00343	.00413	.00550	.00688	.00825	.01100	1x Dia	.5x Dia
		Chamfering	.00068	.00086	.00102	.00138	.00206	.00275	.00343	.00413	.00550	.00688	.00825	.01100	2 passes	
	800	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Wrought - 8%-12% Si (4xxx)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COPPER ALLOYS	225	Milling	.00055	.00069	.00082	.00110	.00165	.00220	.00275	.00330	.00440	.00550	.00660	.00880	1x Dia	.5x Dia
		Chamfering	.00055	.00069	.00082	.00110	.00165	.00220	.00275	.00330	.00440	.00550	.00660	.00880	2 passes	
	500	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		High Coppers - 90%+ (C1xxx)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HIGH TEMP ALLOYS	70	Milling	.00013	.00017	.00020	.00027	.00040	.00054	.00067	.00081	.00108	.00135	.00162	.00216	1x Dia	.5x Dia
		Chamfering	.00013	.00017	.00020	.00027	.00040	.00054	.00067	.00081	.00108	.00135	.00162	.00216	3 passes	
	150	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Inconel, Hastelloy, Waspalloy, Monel, Nimonic, Haynes, Discolor, Incoloy	-	-	-	-	-	-	-	-	-	-	-	-	-	-

MATERIAL	SFM	Hardness: 29-37 Rc (279-344 HBn)														
		Chip Load (IPT) By Cutter Diameter											Depth of Cut			
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	0.625	0.750	1.000	Radial	Axial	
CARBON STEELS	600	Milling	.00023	.00029	.00035	.00047	.00071	.00095	.00118	.00142	.00189	.00236	.00284	.00378	1x Dia	.5x Dia
		Chamfering	.00029	.00037	.00044	.00059	.00088	.00118	.00147	.00177	.00236	.00295	.00354	.00473	3 passes	
	200	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	.00021	.00027	.00032	.00043	.00065	.00086	.00108	.00130	.00173	.00216	.00259	.00346	1x Dia	.5x Dia
STAINLESS STEELS	450	Milling	.00023	.00029	.00035	.00047	.00071	.00095	.00118	.00142	.00189	.00236	.00284	.00378	1x Dia	.5x Dia
		Chamfering	.00029	.00037	.00044	.00059	.00088	.00118	.00147	.00177	.00236	.00295	.00354	.00473	3 passes	
	200	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	.00021	.00027	.00032	.00043	.00065	.00086	.00108	.00130	.00173	.00216	.00259	.00346	1x Dia	.5x Dia
TOOL STEELS	200	Milling	.00013	.00017	.00020	.00027	.00040	.00054	.00067	.00081	.00108	.00135	.00162	.00216	1x Dia	.5x Dia
		Chamfering	.00017	.00021	.00025	.00034	.00050	.00068	.00084	.00101	.00135	.00169	.00203	.00270	3 passes	
	150	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	.00011	.00013	.00016	.00022	.00032	.00043	.00054	.00067	.00086	.00108	.00130	.00173	1x Dia	.5x Dia
HIGH TEMP ALLOYS	70	Milling	.00007	.00008	.00010	.00014	.00020	.00027	.00034	.00041	.00054	.00068	.00081	.00108	1x Dia	.5x Dia
		Chamfering	.00007	.00008	.00010	.00014	.00020	.00027	.00034	.00041	.00054	.00068	.00081	.00108	3 passes	
	150	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	.00017	.00021	.00025	.00034	.00050	.00068	.00084	.00101	.00135	.00169	.00203	.00270	4 passes	

MATERIAL	SFM	Hardness: 38-45 Rc (353-421 HBn)														
		Chip Load (IPT) By Cutter Diameter											Depth of Cut			
		0.062	0.078	0.093	0.125	0.187	0.250	0.312	0.375	0.500	0.625	0.750	1.000	Radial	Axial	
CARBON STEELS	600	Milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Chamfering	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	200	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STAINLESS STEELS	450	Milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Chamfering	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	200	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	.00011	.00013	.00016	.00022	.00032	.00043	.00054	.00065	.00086	.00108	.00130	.00173	1x Dia	.5x Dia
TOOL STEELS	200	Milling	.00011	.00013	.00016	.00022	.00032	.00043	.00054	.00065	.00086	.00108	.00130	.00173	1x Dia	.5x Dia
		Chamfering	.00017	.00021	.00025	.00034	.00050	.00068	.00084	.00101	.00135	.00169	.00203	.00270	4 passes	
	150	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	.00007	.00008	.00010	.00014	.00020	.00027	.00034	.00041	.00054	.00068	.00081	.00108	1x Dia	.5x Dia
HIGH TEMP ALLOYS	70	Milling	.00017	.00021	.00025	.00034	.00050	.00068	.00084	.00101	.00135	.00169	.00203	.00270	4 passes	
		Chamfering	.00017	.00021	.00025	.00034	.00050	.00068	.00084	.00101	.00135	.00169	.00203	.00270	4 passes	
	150	Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Milling	.00007	.00008	.00010	.00014	.00020	.00027	.00034	.00041	.00054	.00068	.00081	.00108	1x Dia	.5x Dia