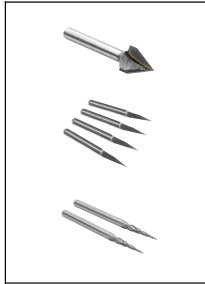


Softwood/Soft Plywood/MDF - Imperial Units



Cutting Tool	Feed Rate (inch/min)	Plunge Rate (inch/min)	Stepover (inch)	Stepdown - Slotting (inch)	Stepdown - Pocketing (inch)	Router Speed (RPM)	Makita Speed Dial Setting
V-bits							
90, 60 Degree V-bit - V-Carving	88	30	0.07	0.42	0.92	22000	4
30, 90, 60 Degree V-bit - Fine Detail/Engraving	44	15	0.07	0.42	0.92	22000	4
Tapered Ball End Mills							
1/4" - D1/16" Tapered Ball End Mill - Coarse	125	62	0.009	N/A	1	28500	6
1/4" - D1/16" Tapered Ball End Mill - Fine	150	50	0.003	N/A	1	28500	6
1/8" - D0.5mm Tapered Ball End Mill - Coarse	79	39	0.006	N/A	0.5	28500	6
1/8" - D0.5mm Tapered Ball End Mill - Fine	143	72	0.0016	N/A	0.5	28500	6
Ball End Mills							
1/4" Ball End Mill - Finishing	110	55	0.012	0.16	1	22000	4
1/8" Ball End Mill - Finishing	81	41	0.006	0.21	1	27000	5

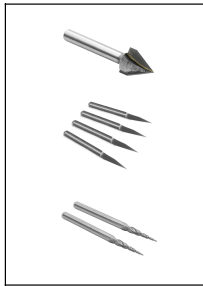


End Mills							
1/4" Single Flute Flat End Mill UC	64	32	0.11	0.11	0.24	17000	3
1/4" Flat End Mill UC	65	33	0.11	0.11	0.24	12000	2
1/4" Flat End Mill DC	65	33	0.11	0.11	0.24	12000	2
1/4" Ball End Mill	65	33	0.11	0.11	0.24	12000	2
1/8" Single Flute Flat End Mill UC	41	21	0.06	0.17	0.37	22000	4
1/8" Flat End Mill UC	64	32	0.06	0.11	0.24	17000	3
1/8" Flat End Mill DC	64	32	0.06	0.11	0.24	17000	3
1/8" Ball End Mill	64	32	0.06	0.11	0.24	17000	3
1/16" Flat End Mill UC	34	17	0.03	0.10	0.23	17000	3
1/16" Flat End Mill DC	34	17	0.03	0.10	0.23	17000	3
1/16" Corncob End Mill	34	17	0.03	0.10	0.23	17000	3
22mm Surfacing Bit	61	31	0.35	0.016	0.04	17000	3
Round Groove Bits							
1/2" Round Groove Bit	34	17	0.22	0.13	0.28	17000	3
3/4" Round Groove Bit	34	17	0.34	0.09	0.19	17000	3
1" Round Groove Bit	34	17	0.45	0.06	0.14	17000	3

End Mills							
1/4" Single Flute Flat End Mill UC	85	43	0.11	0.16	0.36	17000	3
1/4" Flat End Mill UC	86	43	0.11	0.16	0.36	12000	2
1/4" Flat End Mill DC	86	43	0.11	0.16	0.36	12000	2
1/4" Ball End Mill	86	43	0.11	0.16	0.36	12000	2
1/8" Single Flute Flat End Mill UC	55	28	0.06	0.25	0.55	22000	4
1/8" Flat End Mill UC	85	43	0.06	0.16	0.36	17000	3
1/8" Flat End Mill DC	85	43	0.06	0.16	0.36	17000	3
1/8" Ball End Mill	85	43	0.06	0.16	0.36	17000	3
1/16" Flat End Mill UC	43	21	0.03	0.16	0.37	17000	3
1/16" Flat End Mill DC	43	21	0.03	0.16	0.37	17000	3
1/16" Corncob End Mill	43	21	0.03	0.16	0.37	17000	3
22mm Surfacing Bit	81	41	0.35	0.02	0.06	17000	3
Round Groove Bits							
1/2" Round Groove Bit	41	20	0.22	0.35	0.78	17000	3
3/4" Round Groove Bit	51	26	0.34	0.19	0.42	17000	3
1" Round Groove Bit	51	26	0.45	0.14	0.31	17000	3

End Mills							
1/4" Single Flute Flat End Mill UC	106	53	0.11	0.22	0.48	17000	3
1/4" Flat End Mill UC	108	54	0.11	0.21	0.48	12000	2
1/4" Flat End Mill DC	108	54	0.11	0.21	0.48	12000	2
1/4" Ball End Mill	108	54	0.11	0.21	0.48	12000	2
1/8" Single Flute Flat End Mill UC	69	35	0.06	0.33	0.73	22000	4
1/8" Flat End Mill UC	106	53	0.06	0.22	0.48	17000	3
1/8" Flat End Mill DC	106	53	0.06	0.22	0.48	17000	3
1/8" Ball End Mill	106	53	0.06	0.22	0.48	17000	3
1/16" Flat End Mill UC	53	27	0.03	0.22	0.49	17000	3
1/16" Flat End Mill DC	53	27	0.03	0.22	0.49	17000	3
1/16" Corncob End Mill	53	27	0.03	0.22	0.49	17000	3
22mm Surfacing Bit	102	51	0.35	0.03	0.08	17000	3
Round Groove Bits							
1/2" Round Groove Bit	51	26	0.22	0.28	0.63	17000	3
3/4" Round Groove Bit	51	26	0.34	0.19	0.42	17000	3
1" Round Groove Bit	51	26	0.45	0.14	0.31	17000	3

Hardwood / Hard Plywood - Imperial Units





Cutting Tool	Feed Rate (inch/min)	Plunge Rate (inch/min)	Stepover (inch)	Stepdown - Slotting (inch)	Stepdown - Pocketing (inch)	Router Speed (RPM)	Makita Speed Dial Setting
V-bits							
90, 60 Degree V-bit - V-Carving	68	23	0.07	0.25	0.56	17000	3
30, 90, 60 Degree V-bit - Fine Detail/Engraving	44	15	0.07	0.39	0.86	22000	4
Tapered Ball End Mills							
1/4" - D1/16" Tapered Ball End Mill - Roughing	125	62	0.009	N/A	1	28500	5
1/4" - D1/16" Tapered Ball End Mill - Finishing	150	75	0.003	N/A	1	28500	5
1/8" - D0.5mm Tapered Ball End Mill - Roughing	51	25	0.006	N/A	0.5	28500	5
1/8" - D0.5mm Tapered Ball End Mill - Finishing	143	72	0.0016	N/A	0.5	28500	5
Ball End Mills							
1/4" Ball End Mill - Finishing	110	55	0.012	0.075	1.0	22000	4
1/8" Ball End Mill - Finishing	81	41	0.006	0.1	1.0	27000	5





End Mills							
1/4" Single Flute Flat End Mill UC	64	32	0.11	0.11	0.24	17000	3
1/4" Flat End Mill UC	65	33	0.11	0.11	0.24	12000	2
1/4" Flat End Mill DC	65	33	0.11	0.11	0.24	12000	2
1/4" Ball End Mill	65	33	0.11	0.11	0.24	12000	2
1/8" Single Flute Flat End Mill UC	41	21	0.06	0.17	0.37	22000	4
1/8" Flat End Mill UC	64	32	0.06	0.11	0.24	17000	3
1/8" Flat End Mill DC	64	32	0.06	0.11	0.24	17000	3
1/8" Ball End Mill	64	32	0.06	0.11	0.24	17000	3
1/16" Flat End Mill UC	34	17	0.03	0.10	0.24	17000	3
1/16" Flat End Mill DC	34	17	0.03	0.10	0.24	17000	3
1/16" Corncob End Mill	34	17	0.03	0.10	0.24	17000	3
22mm Surfacing Bit	61	31	0.35	0.016	0.04	17000	3
Round Groove Bits							
1/2" Round Groove Bit	31	15	0.22	0.07	0.15	17000	3
3/4" Round Groove Bit	34	17	0.34	0.04	0.09	17000	3
1" Round Groove Bit	31	15	0.45	0.03	0.07	17000	3
End Mills							
1/4" Single Flute Flat End Mill UC	85	43	0.11	0.07	0.17	17000	3
1/4" Flat End Mill UC	86	43	0.11	0.07	0.17	12000	2
1/4" Flat End Mill DC	86	43	0.11	0.07	0.17	12000	2
1/4" Ball End Mill	86	43	0.11	0.07	0.17	12000	2
1/8" Single Flute Flat End Mill UC	55	28	0.06	0.12	0.26	22000	4
1/8" Flat End Mill UC	85	43	0.06	0.07	0.17	17000	3
1/8" Flat End Mill DC	85	43	0.06	0.07	0.17	17000	3
1/8" Ball End Mill	85	43	0.06	0.07	0.17	17000	3
1/16" Flat End Mill UC	43	21	0.03	0.07	0.17	17000	3
1/16" Flat End Mill DC	43	21	0.03	0.07	0.17	17000	3
1/16" Corncob End Mill	43	21	0.03	0.07	0.17	17000	3
22mm Surfacing Bit	81	41	0.35	0.012	0.028	17000	3
Round Groove Bits							
1/2" Round Groove Bit	41	20	0.22	0.17	0.37	17000	3
3/4" Round Groove Bit	51	26	0.34	0.09	0.19	17000	3
1" Round Groove Bit	51	26	0.45	0.07	0.15	17000	3
End Mills							
1/4" Single Flute Flat End Mill UC	106	53	0.11	0.10	0.22	17000	3
1/4" Flat End Mill UC	108	54	0.11	0.10	0.22	12000	2
1/4" Flat End Mill DC	108	54	0.11	0.10	0.22	12000	2
1/4" Ball End Mill	108	54	0.11	0.10	0.22	12000	2
1/8" Single Flute Flat End Mill UC	69	35	0.06	0.15	0.34	22000	4
1/8" Flat End Mill UC	106	53	0.06	0.10	0.22	17000	3
1/8" Flat End Mill DC	106	53	0.06	0.10	0.22	17000	3
1/8" Ball End Mill	106	53	0.06	0.10	0.22	17000	3
1/16" Flat End Mill UC	53	27	0.03	0.10	0.23	17000	3
1/16" Flat End Mill DC	53	27	0.03	0.10	0.23	17000	3
1/16" Corncob End Mill	53	27	0.03	0.10	0.23	17000	3
22mm Surfacing Bit	102	51	0.35	0.016	0.04	17000	3
Round Groove Bits							
1/2" Round Groove Bit	51	26	0.22	0.13	0.29	17000	3
3/4" Round Groove Bit	51	26	0.34	0.09	0.19	17000	3
1" Round Groove Bit	51	26	0.45	0.07	0.15	17000	3

Plastics (Acrylic, PVC, HDPE, Acetal/Delrin) - Imperial Units

		Cutting Tool	Feed Rate (inch/min)	Plunge Rate (inch/min)	Stepover (inch)	Stepdown - Slotting (inch)	Stepdown - Pocketing (inch)	Router Speed (RPM)	Makita Speed Dial Setting
	Carving/Detailing - Regular Speed	V-bits							
		90, 60 Degree V-bit - V-Carving	68	23	0.07	0.03	0.06	17000	3
		30, 90, 60 Degree V-bit - Fine Detail/Engraving	44	15	0.07	0.04	0.09	22000	4
		Tapered Ball End Mills							
		1/4" - D1/16" Tapered Ball End Mill - Roughing	28	14	0.009	N/A	0.016	10000	1
		1/4" - D1/16" Tapered Ball End Mill - Finishing	39	20	0.003	N/A	0.016	10000	1
		1/8" - D0.5mm Tapered Ball End Mill - Roughing	79	39	0.006	N/A	0.01	10000	1
		1/8" - D0.5mm Tapered Ball End Mill - Finishing	118	59	0.0016	N/A	0.01	10000	1
		Ball End Mills							
		1/4" Ball End Mill - Finishing	66	33	0.005	0.055	1	22000	4
1/8" Ball End Mill - Finishing	41	20	0.005	0.09	1	27000	5		

	Reduced Speed - Finishing, or mild cutting	End Mills							
		1/4" Single Flute Flat End Mill UC	63	31	0.11	0.024	0.05	12000	2
		1/4" Flat End Mill UC	91	46	0.11	0.016	0.04	10000	1
		1/4" Ball End Mill	91	46	0.11	0.016	0.04	10000	1
		1/8" Single Flute Flat End Mill UC	31	16	0.06	0.047	0.10	12000	2
		1/8" Flat End Mill UC	63	31	0.06	0.02	0.05	12000	2
		1/8" Ball End Mill	63	31	0.06	0.024	0.05	12000	2
		1/16" Flat End Mill UC	44	22	0.03	0.016	0.035	17000	3
	Regular Speed	End Mills							
		1/4" Single Flute Flat End Mill UC	72	36	0.11	0.04	0.09	12000	2
		1/4" Flat End Mill UC	104	52	0.11	0.03	0.06	10000	1
		1/4" Ball End Mill	104	52	0.11	0.03	0.06	10000	1
		1/8" Single Flute Flat End Mill UC	36	18	0.06	0.08	0.18	12000	2
		1/8" Flat End Mill UC	72	36	0.06	0.04	0.09	12000	2
		1/8" Ball End Mill	72	36	0.06	0.04	0.09	12000	2
		1/16" Flat End Mill UC	51	26	0.03	0.03	0.06	17000	3
	Full Speed - Roughing or aggressive cutting	End Mills							
		1/4" Single Flute Flat End Mill UC	90	45	0.11	0.06	0.12	12000	2
		1/4" Flat End Mill UC	130	65	0.11	0.04	0.08	10000	1
		1/4" Ball End Mill	130	65	0.11	0.04	0.08	10000	1
		1/8" Single Flute Flat End Mill UC	45	22	0.06	0.11	0.23	12000	2
		1/8" Flat End Mill UC	90	45	0.06	0.06	0.12	12000	2
		1/8" Ball End Mill	90	45	0.06	0.06	0.12	12000	2
		1/16" Flat End Mill UC	64	32	0.03	0.04	0.09	17000	3

Aluminum - Imperial Units

		Cutting Tool	Feed Rate (inch/min)	Plunge Rate (inch/min)	Stepover (inch)	Stepdown - Slotting (inch)	Stepdown - Pocketing (inch)	Router Speed (RPM)	Makita Speed Dial Setting
	Carving/Detailing	V-bits							
		30, 90, 60 Degree V-bit - Fine Detail/Engraving	53	18	0.06	0.008	0.020	17000	3
		Ball End Mills							
		1/4" Ball End Mill - Finishing	44	22	0.012	0.016	1	22000	4
		1/8" Ball End Mill - Finishing	27	14	0.006	0.028	1	27000	5
	Reduced Speed - Finishing, or mild cutting	End Mills							
		1/4" Single Flute Flat End Mill UC	35	17	0.11	0.012	0.024	17000	3
		1/4" Flat End Mill UC	49	24	0.11	0.008	0.016	12000	2
		1/4" Ball End Mill	49	24	0.11	0.008	0.016	12000	2
		1/8" Single Flute Flat End Mill UC	17	9	0.06	0.016	0.035	17000	3
		1/8" Flat End Mill UC	35	17	0.06	0.008	0.02	17000	3
		1/8" Ball End Mill	35	17	0.06	0.008	0.02	17000	3
	Regular Speed	End Mills							
		1/4" Single Flute Flat End Mill UC	43	21	0.11	0.016	0.035	17000	3
		1/4" Flat End Mill UC	60	30	0.11	0.012	0.024	12000	2
		1/4" Ball End Mill	60	30	0.11	0.012	0.024	12000	2
		1/8" Single Flute Flat End Mill UC	21	11	0.06	0.024	0.051	17000	3
		1/8" Flat End Mill UC	43	21	0.06	0.012	0.028	17000	3
		1/8" Ball End Mill	43	21	0.06	0.012	0.028	17000	3
	Full Speed - Roughing or aggressive cutting	End Mills							
		1/4" Single Flute Flat End Mill UC	53	27	0.11	0.018	0.039	17000	3
		1/4" Flat End Mill UC	75	38	0.11	0.012	0.028	12000	2
		1/4" Ball End Mill	75	38	0.11	0.012	0.028	12000	2
		1/8" Single Flute Flat End Mill UC	26	13	0.06	0.028	0.059	17000	3
		1/8" Flat End Mill UC	53	27	0.06	0.014	0.031	17000	3
		1/8" Ball End Mill	53	27	0.06	0.014	0.031	17000	3