













		Cutting Tool	Feed Rate (mm/min)	Plunge Rate (mm/min)	Stepover (mm)	Stepdown - Slotting (mm)	Stepdown - Pocketing (mm)	Router Speed (RPM)	Makita Speed Dial Setting
	Carving/Detailing - Regular Speed	V-bits							
		90, 60 Degree V-bit - V-Carving	2240	750	1.80	10.6	23.4	22000	4
		30, 90, 60 Degree V-bit - Fine Detail/Engraving	1120	370	1.80	10.6	23.4	22000	4
		Tapered Ball End Mills							
		1/4" - D1/16" Tapered Ball End Mill - Coarse	3170	1580	0.24	N/A	25.4	28500	6
		1/4" - D1/16" Tapered Ball End Mill - Fine	3800	1270	0.08	N/A	25.4	28500	6
		1/8" - D0.5mm Tapered Ball End Mill - Coarse	2000	1000	0.15	N/A	12.7	28500	6
		1/8" - D0.5mm Tapered Ball End Mill - Fine	3640	1820	0.04	N/A	12.7	28500	6
		Ball End Mills							
		1/4" Ball End Mill - Finishing	2790	1400	0.30	4.0	25.4	22000	4
1/8" Ball End Mill - Finishing	2060	1030	0.15	5.4	25.4	27000	5		
	Reduced Speed - Finishing, or mild cutting	End Mills							
		1/4" Single Flute Flat End Mill UC	1620	810	2.85	2.8	6.1	17000	3
		1/4" Flat End Mill UC	1650	830	2.85	2.7	6.0	12000	2
		1/4" Flat End Mill DC	1650	830	2.85	2.7	6.0	12000	2
		1/4" Ball End Mill	1650	830	2.85	2.7	6.0	12000	2
		1/8" Single Flute Flat End Mill UC	1050	530	1.45	4.3	9.3	22000	4
		1/8" Flat End Mill UC	1620	810	1.45	2.8	6.0	17000	3
		1/8" Flat End Mill DC	1620	810	1.45	2.8	6.0	17000	3
		1/8" Ball End Mill	1620	810	1.45	2.8	6.0	17000	3
		1/16" Flat End Mill UC	860	430	0.70	2.6	5.9	17000	3
		1/16" Flat End Mill DC	860	430	0.70	2.6	5.9	17000	3
		1/16" Corncob End Mill	860	430	0.70	2.6	5.9	17000	3
		22mm Surfacing Bit	1550	780	8.80	0.4	1.0	17000	3
		Round Groove Bits							
1/2" Round Groove Bit	860	430	5.70	3.2	7.2	17000	3		
3/4" Round Groove Bit	860	430	8.57	2.2	4.8	17000	3		
1" Round Groove Bit	860	430	11.43	1.6	3.6	17000	3		
	Regular Speed	End Mills							
		1/4" Single Flute Flat End Mill UC	2160	1080	2.85	4.1	9.2	17000	3
		1/4" Flat End Mill UC	2190	1100	2.85	4.1	9.1	12000	2
		1/4" Flat End Mill DC	2190	1100	2.85	4.1	9.1	12000	2
		1/4" Ball End Mill	2190	1100	2.85	4.1	9.1	12000	2
		1/8" Single Flute Flat End Mill UC	1400	700	1.45	6.4	14.0	22000	4
		1/8" Flat End Mill UC	2160	1080	1.45	4.1	9.1	17000	3
		1/8" Flat End Mill DC	2160	1080	1.45	4.1	9.1	17000	3
		1/8" Ball End Mill	2160	1080	1.45	4.1	9.1	17000	3
		1/16" Flat End Mill UC	1080	540	0.70	4.1	9.4	17000	3
		1/16" Flat End Mill DC	1080	540	0.70	4.1	9.4	17000	3
		1/16" Corncob End Mill	1080	540	0.70	4.1	9.4	17000	3
		22mm Surfacing Bit	2070	1040	8.80	0.6	1.6	17000	3
		Round Groove Bits							
1/2" Round Groove Bit	1040	520	5.70	8.9	19.9	17000	3		
3/4" Round Groove Bit	1300	650	8.57	4.8	10.6	17000	3		
1" Round Groove Bit	1300	650	11.43	3.6	8.0	17000	3		
	Full Speed - Roughing or aggressive cutting	End Mills							
		1/4" Single Flute Flat End Mill UC	2700	1350	2.85	5.5	12.3	17000	3
		1/4" Flat End Mill UC	2740	1370	2.85	5.4	12.1	12000	2
		1/4" Flat End Mill DC	2740	1370	2.85	5.4	12.1	12000	2
		1/4" Ball End Mill	2740	1370	2.85	5.4	12.1	12000	2
		1/8" Single Flute Flat End Mill UC	1750	880	1.45	8.5	18.6	22000	4
		1/8" Flat End Mill UC	2700	1350	1.45	5.5	12.1	17000	3
		1/8" Flat End Mill DC	2700	1350	1.45	5.5	12.1	17000	3
		1/8" Ball End Mill	2700	1350	1.45	5.5	12.1	17000	3
		1/16" Flat End Mill UC	1350	680	0.70	5.5	12.5	17000	3
		1/16" Flat End Mill DC	1350	680	0.70	5.5	12.5	17000	3
		1/16" Corncob End Mill	1350	680	0.70	5.5	12.5	17000	3
		22mm Surfacing Bit	2590	1300	8.80	0.8	2.1	17000	3
		Round Groove Bits							
1/2" Round Groove Bit	1300	650	5.70	7.2	15.9	17000	3		
3/4" Round Groove Bit	1300	650	8.57	4.8	10.6	17000	3		
1" Round Groove Bit	1300	650	11.43	3.6	8.0	17000	3		

		Cutting Tool	Feed Rate (mm/min)	Plunge Rate (mm/min)	Stepover (mm)	Stepdown - Slotting (mm)	Stepdown - Pocketing (mm)	Router Speed (RPM)	Makita Speed Dial Setting
	Carving/Detailing - Regular Speed	V-bits							
		90, 60 Degree V-bit - V-Carving	1730	580	1.80	6.3	14.1	17000	3
		30, 90, 60 Degree V-bit - Fine Detail/Engraving	1120	370	1.80	9.8	21.8	22000	4
		Tapered Ball End Mills							
		1/4" - D1/16" Tapered Ball End Mill - Coarse	3170	1580	0.24	N/A	25.4	28500	5
		1/4" - D1/16" Tapered Ball End Mill - Fine	3800	1900	0.08	N/A	25.4	28500	5
		1/8" - D0.5mm Tapered Ball End Mill - Coarse	1290	650	0.15	N/A	12.7	28500	5
		1/8" - D0.5mm Tapered Ball End Mill - Fine	3640	1820	0.04	N/A	12.7	28500	5
		Ball End Mills							
		1/4" Ball End Mill - Finishing	2790	1400	0.30	1.9	25.4	22000	4
1/8" Ball End Mill - Finishing	2060	1030	0.15	2.5	25.4	27000	5		
	Reduced Speed - Finishing, or mild cutting	End Mills							
		1/4" Single Flute Flat End Mill UC	1620	810	2.85	2.8	6.1	17000	3
		1/4" Flat End Mill UC	1650	830	2.85	2.7	6.0	12000	2
		1/4" Flat End Mill DC	1650	830	2.85	2.7	6.0	12000	2
		1/4" Ball End Mill	1650	830	2.85	2.7	6.0	12000	2
		1/8" Single Flute Flat End Mill UC	1050	530	1.45	4.3	9.3	22000	4
		1/8" Flat End Mill UC	1620	810	1.45	2.8	6.0	17000	3
		1/8" Flat End Mill DC	1620	810	1.45	2.8	6.0	17000	3
		1/8" Ball End Mill	1620	810	1.45	2.8	6.0	17000	3
		1/16" Flat End Mill UC	860	430	0.70	2.6	5.9	17000	3
		1/16" Flat End Mill DC	860	430	0.70	2.6	5.9	17000	3
		1/16" Corncob End Mill	860	430	0.70	2.6	5.9	17000	3
		22mm Surfacing Bit	1550	780	8.80	0.4	1.0	17000	3
		Round Groove Bits							
		1/2" Round Groove Bit	780	390	5.70	1.7	3.7	17000	3
		3/4" Round Groove Bit	860	430	8.57	1.0	2.2	17000	3
		1" Round Groove Bit	780	390	11.43	0.8	1.8	17000	3
			Regular Speed	End Mills					
1/4" Single Flute Flat End Mill UC	2160			1080	2.85	1.9	4.3	17000	3
1/4" Flat End Mill UC	2190			1100	2.85	1.9	4.2	12000	2
1/4" Flat End Mill DC	2190			1100	2.85	1.9	4.2	12000	2
1/4" Ball End Mill	2190			1100	2.85	1.9	4.2	12000	2
1/8" Single Flute Flat End Mill UC	1400			700	1.45	3.0	6.5	22000	4
1/8" Flat End Mill UC	2160			1080	1.45	1.9	4.2	17000	3
1/8" Flat End Mill DC	2160			1080	1.45	1.9	4.2	17000	3
1/8" Ball End Mill	2160			1080	1.45	1.9	4.2	17000	3
1/16" Flat End Mill UC	1080			540	0.70	1.9	4.4	17000	3
1/16" Flat End Mill DC	1080			540	0.70	1.9	4.4	17000	3
1/16" Corncob End Mill	1080			540	0.70	1.9	4.4	17000	3
22mm Surfacing Bit	2070			1040	8.80	0.3	0.7	17000	3
Round Groove Bits									
1/2" Round Groove Bit	1040			520	5.70	4.2	9.3	17000	3
3/4" Round Groove Bit	1300			650	8.57	2.2	4.9	17000	3
1" Round Groove Bit	1300			650	11.43	1.7	3.7	17000	3
	Full Speed - Roughing or aggressive cutting			End Mills					
		1/4" Single Flute Flat End Mill UC	2700	1350	2.85	2.6	5.7	17000	3
		1/4" Flat End Mill UC	2740	1370	2.85	2.5	5.6	12000	2
		1/4" Flat End Mill DC	2740	1370	2.85	2.5	5.6	12000	2
		1/4" Ball End Mill	2740	1370	2.85	2.5	5.6	12000	2
		1/8" Single Flute Flat End Mill UC	1750	880	1.45	3.9	8.6	22000	4
		1/8" Flat End Mill UC	2700	1350	1.45	2.6	5.6	17000	3
		1/8" Flat End Mill DC	2700	1350	1.45	2.6	5.6	17000	3
		1/8" Ball End Mill	2700	1350	1.45	2.6	5.6	17000	3
		1/16" Flat End Mill UC	1350	680	0.70	2.6	5.8	17000	3
		1/16" Flat End Mill DC	1350	680	0.70	2.6	5.8	17000	3
		1/16" Corncob End Mill	1350	680	0.70	2.6	5.8	17000	3
		22mm Surfacing Bit	2590	1300	8.80	0.4	1.0	17000	3
		Round Groove Bits							
		1/2" Round Groove Bit	1300	650	5.70	3.3	7.4	17000	3
		3/4" Round Groove Bit	1300	650	8.57	2.2	4.9	17000	3
		1" Round Groove Bit	1300	650	11.43	1.7	3.7	17000	3

		Cutting Tool	Feed Rate (mm/min)	Plunge Rate (mm/min)	Stepover (mm)	Stepdown - Slotting (mm)	Stepdown - Pocketing (mm)	Router Speed (RPM)	Makita Speed Dial Setting
	Carving/Detailing - Regular Speed	V-bits							
		90, 60 Degree V-bit - V-Carving	1730	580	1.80	0.7	1.6	17000	3
		30, 90, 60 Degree V-bit - Fine Detail/Engraving	1120	370	1.80	1.1	2.4	22000	4
		Tapered Ball End Mills							
		1/4" - D1/16" Tapered Ball End Mill - Coarse	700	350	0.24	N/A	0.4	10000	1
		1/4" - D1/16" Tapered Ball End Mill - Fine	1000	500	0.08	N/A	0.4	10000	1
		1/8" - D0.5mm Tapered Ball End Mill - Coarse	2000	1000	0.15	N/A	0.25	10000	1
		1/8" - D0.5mm Tapered Ball End Mill - Fine	3000	1500	0.04	N/A	0.25	10000	1
		Ball End Mills							
		1/4" Ball End Mill - Finishing	1680	840	0.13	1.4	25.4	22000	4
		1/8" Ball End Mill - Finishing	1030	520	0.13	2.3	25.4	27000	5
			Reduced Speed - Finishing, or mild cutting	End Mills					
1/4" Single Flute Flat End Mill UC	1600			800	2.85	0.6	1.3	12000	2
1/4" Flat End Mill UC	2310			1160	2.85	0.4	0.9	10000	1
1/4" Ball End Mill	2310			1160	2.85	0.4	0.9	10000	1
1/8" Single Flute Flat End Mill UC	800			400	1.45	1.2	2.5	12000	2
1/8" Flat End Mill UC	1600			800	1.45	0.6	1.3	12000	2
1/8" Ball End Mill	1600			800	1.45	0.6	1.3	12000	2
1/16" Flat End Mill UC	1130			570	0.70	0.4	0.9	17000	3
Regular Speed	End Mills								
	1/4" Single Flute Flat End Mill UC		1830	920	2.85	1.0	2.3	12000	2
	1/4" Flat End Mill UC		2640	1320	2.85	0.7	1.6	10000	1
	1/4" Ball End Mill		2640	1320	2.85	0.7	1.6	10000	1
	1/8" Single Flute Flat End Mill UC		910	460	1.45	2.0	4.5	12000	2
	1/8" Flat End Mill UC		1830	920	1.45	1.0	2.2	12000	2
	1/8" Ball End Mill		1830	920	1.45	1.0	2.2	12000	2
	1/16" Flat End Mill UC		1300	650	0.70	0.7	1.6	17000	3
Full Speed - Roughing or aggressive cutting	End Mills								
	1/4" Single Flute Flat End Mill UC		2290	1150	2.85	1.4	3.0	12000	2
	1/4" Flat End Mill UC		3300	1650	2.85	0.9	2.1	10000	1
	1/4" Ball End Mill		3300	1650	2.85	0.9	2.1	10000	1
	1/8" Single Flute Flat End Mill UC		1140	570	1.45	2.7	5.9	12000	2
	1/8" Flat End Mill UC		2290	1150	1.45	1.4	3.0	12000	2
	1/8" Ball End Mill		2290	1150	1.45	1.4	3.0	12000	2
	1/16" Flat End Mill UC		1620	810	0.70	1.0	2.2	17000	3

		Cutting Tool	Feed Rate (mm/min)	Plunge Rate (mm/min)	Stepover (mm)	Stepdown - Slotting (mm)	Stepdown - Pocketing (mm)	Router Speed (RPM)	Makita Speed Dial Setting	
	Carving/Detailing	V-bits								
		30, 90, 60 Degree V-bit - Fine Detail/Engraving	1350	450	1.45	0.2	0.5	17000	3	
		Ball End Mills								
		1/4" Ball End Mill - Finishing	1120	560	0.30	0.4	25.4	22000	4	
		1/8" Ball End Mill - Finishing	690	350	0.15	0.7	25.4	27000	5	
	Reduced Speed - Finishing, or mild cutting	End Mills								
		1/4" Single Flute Flat End Mill UC	880	440	2.85	0.3	0.6	17000	3	
		1/4" Flat End Mill UC	1240	620	2.85	0.2	0.4	12000	2	
		1/4" Ball End Mill	1240	620	2.85	0.2	0.4	12000	2	
		1/8" Single Flute Flat End Mill UC	440	220	1.45	0.4	0.9	17000	3	
		1/8" Flat End Mill UC	880	440	1.45	0.2	0.5	17000	3	
			1/8" Ball End Mill	880	440	1.45	0.2	0.5	17000	3
	Regular Speed	End Mills								
		1/4" Single Flute Flat End Mill UC	1080	540	2.85	0.4	0.9	17000	3	
		1/4" Flat End Mill UC	1520	760	2.85	0.3	0.6	12000	2	
		1/4" Ball End Mill	1520	760	2.85	0.3	0.6	12000	2	
		1/8" Single Flute Flat End Mill UC	540	270	1.45	0.6	1.3	17000	3	
		1/8" Flat End Mill UC	1080	540	1.45	0.3	0.7	17000	3	
			1/8" Ball End Mill	1080	540	1.45	0.3	0.7	17000	3
	Full Speed - Roughing or aggressive cutting	End Mills								
		1/4" Single Flute Flat End Mill UC	1350	680	2.85	0.5	1.0	17000	3	
		1/4" Flat End Mill UC	1910	960	2.85	0.3	0.7	12000	2	
		1/4" Ball End Mill	1910	960	2.85	0.3	0.7	12000	2	
1/8" Single Flute Flat End Mill UC		670	340	1.45	0.7	1.5	17000	3		
1/8" Flat End Mill UC		1350	680	1.45	0.4	0.8	17000	3		
		1/8" Ball End Mill	1350	680	1.45	0.4	0.8	17000	3	