## 3300, 2003 JIT GENERAL PURPOSE - IMPERIAL



3300 Series 3-Flute End Mill is offered in an extensive variety of configurations.

Not Recommended for Composites, Plastics, Graphite, or Hardened Steels > 48 RC. High Si Aluminum Recommended in Unique Situations. The parameters listed for tool series that are stocked uncoated are based on running an uncoated tool.

If a coating is applied to the tools, the SFM can be increased by approximately 25%. All speed and feed recommendations should be considered only as a starting point. Start with conservative speeds and feeds while analyzing the rigidity of the process. Then cautiously progress incrementally to achieve optimum performance.

		Low Si Aluminum (<10%) (1100-1500) SFM (ft/min)				Brass & Copper (400-600) SFM (ft/min) -				Cast Iron (250–400) SFM (ft/min)					
	Slotting	Plunge Ramp	Rough Profile	HEM	Finish	Slotting	Plunge Ramp	Rough Profile	HEM	Finish	Slotting	Plunge Ramp	Rough Profile	HEM	Finish
Axial Depti	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)
Radial Widt	h full	full	(.35)xD	(.115)xD	(.010015)	full	full	(.35)xD	(.115)xD	(.010015)	full	full	(.35)xD	(.115)xD	(.010015)
1/8"	.0010	.0015	.0010	.0015	.0010	.0008	.0010	.0008	.0010	.0008	.0007	.0009	.0007	.0009	.0007
1/4"	.0030	.0035	.0030	.0035	.0030	.0015	.0020	.0015	.0020	.0015	.0014	.0020	.0014	.0020	.0014
3/8"	.0045	.0050	.0045	.0050	.0045	.0025	.0030	.0025	.0030	.0025	.0022	.0026	.0022	.0026	.0022
1/2"	.0065	.0070	.0065	.0070	.0065	.0030	.0035	.0030	.0035	.0030	.0025	.0034	.0025	.0034	.0025
3/4"	.0085	.0090	.0085	.0090	.0085	.0035	.0040	.0035	.0040	.0035	.0028	.0045	.0028	.0045	.0028
1"	.0100	.0110	.0100	.0110	.0100	.0040	.0045	.0040	.0045	.0040	.0035	.0050	.0035	.0050	.0035
		Steels (230-350) SFM (ft/min)													
		(230		min)				Stainless Steel: 0-260) SFM (ft/					ys (Nickel Base -120) SFM (ft/r		
	Slotting	(230 Plunge Ramp		min) HEM	Finish	Slotting				Finish	Slotting				Finish
Axial Depti		Plunge	-350) SFM (ft/ Rough		Finish < (1xD)	Slotting < (1xD)	(130 Plunge	)-260) SFM (ft/ Rough	min)	Finish < (1xD)	Slotting < (1xD)	. (80 Plunge	-120) SFM (ft/r Rough	min)	Finish < (1xD)
Axial Deptl Radial Widt	< (1xD)	Plunge Ramp	-350) SFM (ft/ Rough Profile	HEM			(130 Plunge Ramp	0-260) SFM (ft/ Rough Profile	min) HEM			. (80 Plunge Ramp	-120) SFM (ft/r Rough Profile	min) HEM	
·	< (1xD)	Plunge Ramp < (1xD)	-350) SFM (ft/ Rough Profile 1.5xD	HEM 1xD	< (1xD)	< (1xD)	Plunge Ramp < (1xD)	-260) SFM (ft/ Rough Profile 1.5xD	min) HEM 1xD	< (1xD)	< (1xD)	Plunge Ramp < (1xD)	-120) SFM (ft/r Rough Profile 1.5xD	nin) HEM 1xD	< (1xD)
Radial Widt	< (1xD)	Plunge Ramp <(1xD) full	Rough Profile 1.5xD (.35)xD	1xD (.115)xD	< (1xD) (.010015)	< (1xD) full	Plunge Ramp < (1xD) full	Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD	< (1xD) (.010015)	< (1xD) full	Plunge Ramp < (1xD) full	Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD	< (1xD) (.010015)
Radial Widt	< (1xD) h full .0007	Plunge Ramp < (1xD) full .0009	-350) SFM (ft/s Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD .0009	< (1xD) (.010015) .0007	< (1xD) full .0006	Plunge Ramp < (1xD) full .0008	Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD .0008	< (1xD) (.010015) .0006	< (1xD) full .0004	Plunge Ramp < (1xD) full .0005	-120) SFM (ft/r Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD .0005	< (1xD) (.010015) .0004
Radial Widt 1/8" 1/4"	< (1xD) h full .0007 .0015	Plunge Ramp < (1xD) full .0009 .0020	-350) SFM (ft/s Rough Profile 1.5xD (.35)xD .0007	1xD (.115)xD .0009 .0020	< (1xD) (.010015) .0007	< (1xD) full .0006	(130 Plunge Ramp < (1xD) full .0008	Rough Profile 1.5xD (.35)xD .0006	HEM 1xD (.115)xD .0008	< (1xD) (.010015) .0006 .0014	< (1xD) full .0004	(80 Plunge Ramp <(1xD) full .0005 .0009	-120) SFM (ft/r Rough Profile 1.5xD (.35)xD .0004	HEM  1xD  (.115)xD  .0005	< (1xD) (.010015) .0004 .0008
Radial Widt 1/8" 1/4" 3/8"	< (1xD) h full .0007 .0015	Plunge Ramp < (1xD) full .0009 .0020 .0026	-350) SFM (ft/ Rough Profile 1.5xD (.35)xD .0007 .0015	1xD (.115)xD .0009 .0020	< (1xD) (.010015) .0007 .0015 .0023	< (1xD) full .0006 .0014 .0022	(130 Plunge Ramp < (1xD) full .0008 .0017 .0022	Rough Profile 1.5xD (.35)xD .0006 .0014	HEM  1xD  (.115)xD  .0008  .0017  .0022	< (1xD) (.010015) .0006 .0014 .0022	< (1xD) full .0004 .0008 .0011	(80 Plunge Ramp <(1xD) full .0005 .0009	-120) SFM (ft/r Rough Profile 1.5xD (.35)xD .0004 .0008	HEM  1xD  (.115)xD  .0005  .0009	< (1xD) (.010015) .0004 .0008 .0011

	Titanium (120-200) SFM (ft/min)									
	Slotting	Plunge Ramp	Rough Profile	HEM	Finish					
Axial Depth	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)					
Radial Width	full	full	(.35)xD	(.115)xD	(.010015)					
1/8"	.0004	.0006	.0004	.0006	.0004					
1/4"	.0008	.0012	.0008	.0012	.0008					
3/8"	.0012	.0016	.0012	.0016	.0012					
1/2"	.0016	.0022	.0016	.0022	.0016					
3/4"	.0020	.0029	.0020	.0029	.0020					
1"	.0028	.0035	.0028	.0035	.0028					

## 3300, 2003 JIT GENERAL PURPOSE - METRIC



**3300 Series 3-Flute End Mill is offered in an extensive variety of configurations.**Not Recommended for Composites, Plastics, Graphite, or Hardened Steels > 48 RC. High Si. Aluminum Recommended in Unique Situations. The parameters listed for tool series that are stocked uncoated are based on running an uncoated tool.
If a coating is applied to the tools, the SFM can be increased by approximately 25%. All speed and feed recommendations should be considered only as a starting point. Start with conservative speeds and feeds while analyzing the rigidity of the process. Then cautiously progress incrementally to achieve optimum performance.

	Low Si Aluminum (<10%) (335-457) SMM (m/min)				Brass & Copper (121-182) SMM (m/min)				Cast Iron (76-121)SMM (m/min)						
	Slotting	Plunge Ramp	Rough Profile	НЕМ	Finish	Slotting	Plunge Ramp	Rough Profile	HEM	Finish	Slotting	Plunge Ramp	Rough Profile	HEM	Finish
Axial Depth	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)
Radial Width	full	full	(.35)xD	(.115)xD	(.2540)	full	full	(.35)xD	(.115)xD	(.2540)	full	full	(.35)xD	(.115)xD	(.2540)
3	.0254	.0381	.0254	.0381	.0254	.0203	.0254	.0203	.0254	.0203	.0178	.0229	.0178	.0229	.0178
6	.0762	.0889	.0762	.0889	.0762	.0381	.0508	.0381	.0508	.0381	.0356	.0508	.0356	.0508	.0356
10	.1143	.1270	.1143	.1270	.1143	.0635	.0762	.0635	.0762	.0635	.0559	.0660	.0559	.0660	.0559
12	.1651	.1778	.1651	.1778	.1651	.0762	.0889	.0762	.0889	.0762	.0635	.0864	.0635	.0864	.0635
20	.2159	.2286	.2159	.2286	.2159	.0889	.1016	.0889	.1016	.0889	.0711	.1143	.0711	.1143	.0711
25	.2540	.2794	.2540	.2794	.2540	.1016	.1143	.1016	.1143	.1016	.0889	.1270	.0889	.1270	.0889
	Steels (70-106) SMM (m/min)			Stainless Steels (39-85) SMM (m/min)											
		(70-		nin)									ys (Nickel Base I-36) SMM (m/r		
	Slotting	(70- Plunge Ramp		nin) HEM	Finish	Slotting				Finish	Slotting				Finish
Axial Depth	Slotting < (1xD)	Plunge	106) SMM (m/i Rough		Finish < (1xD)	Slotting < (1xD)	(39 Plunge	-85) SMM (m/r Rough	nin)	Finish < (1xD)	Slotting < (1xD)	(24 Plunge	-36) SMM (m/r Rough	min)	Finish < (1xD)
Axial Depth Radial Width		Plunge Ramp	106) SMM (m/i Rough Profile	HEM			(39 Plunge Ramp	-85) SMM (m/r Rough Profile	nin) HEM			(24 Plunge Ramp	-36) SMM (m/r Rough Profile	nin) HEM	
	< (1xD)	Plunge Ramp < (1xD)	106) SMM (m/i Rough Profile 1.5xD	HEM 1xD	< (1xD)	< (1xD)	Plunge Ramp < (1xD)	-85) SMM (m/r Rough Profile 1.5xD	HEM 1xD	< (1xD)	< (1xD)	Plunge Ramp < (1xD)	-36) SMM (m/r Rough Profile 1.5xD	nin) HEM 1xD	< (1xD)
Radial Width	< (1xD)	Plunge Ramp < (1xD) full	Rough Profile 1.5xD (.35)xD	1xD (.115)xD	< (1xD) (.2540)	< (1xD) full	Plunge Ramp < (1xD) full	-85) SMM (m/r Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD	< (1xD) (.2540)	< (1xD) full	Plunge Ramp < (1xD)	Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD	< (1xD) (.2540)
Radial Width	< (1xD) full .0178	Plunge Ramp < (1xD) full .0229	Rough Profile 1.5xD (.35)xD	1xD (.115)xD .0229	< (1xD) (.2540) .0178	< (1xD) full .0152	Plunge Ramp < (1xD) full .0203	-85) SMM (m/r Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD .0203	< (1xD) (.2540) .0152	< (1xD) full .0102	Plunge Ramp < (1xD) full .0127	-36) SMM (m/r Rough Profile 1.5xD (.35)xD	HEM 1xD (.115)xD .0127	< (1xD) (.2540) .0102
Radial Width 3	< (1xD) full .0178	Plunge Ramp < (1xD) full .0229 .0508	Rough Profile 1.5xD (.35)xD .0178	1xD (.115)xD .0229 .0508	< (1xD) (.2540) .0178	< (1xD) full .0152 .0356	(39 Plunge Ramp < (1xD) full .0203 .0432	-85) SMM (m/r Rough Profile 1.5xD (.35)xD .0152 .0356	HEM  1xD  (.115)xD  .0203  .0432	< (1xD) (.2540) .0152 .0356	< (1xD) full .0102 .0203	Plunge Ramp < (1xD) full .0127 .0229	-36) SMM (m/r Rough Profile 1.5xD (.35)xD .0102 .0203	HEM  1xD  (.115)xD  .0127	< (1xD) (.2540) .0102
Radial Width 3 6 10	< (1xD) full .0178 .0381 .0584	Plunge Ramp < (1xD) full .0229 .0508 .0660	Rough Profile 1.5xD (.35)xD .0178 .0381	1xD (.115)xD .0229 .0508 .0660	< (1xD) (.2540) .0178 .0381 .0584	< (1xD) full .0152 .0356 .0559	(39 Plunge Ramp < (1xD) full .0203 .0432 .0559	-85) SMM (m/r Rough Profile 1.5xD (.35)xD .0152 .0356 .0559	HEM 1xD (.115)xD .0203 .0432 .0559	< (1xD) (.2540) .0152 .0356 .0559	< (1xD) full .0102 .0203 .0279	Plunge Ramp < (1xD) full .0127 .0229 .0279	-36) SMM (m/r Rough Profile 1.5xD (.35)xD .0102 .0203 .0279	HEM  1xD  (.115)xD  .0127  .0229  .0279	< (1xD) (.2540) .0102 .0203 .0279

	Titanium (36-60) SMM (m/min)								
	Slotting	Plunge Ramp	Rough Profile	НЕМ	Finish				
Axial Depth	< (1xD)	< (1xD)	1.5xD	1xD	< (1xD)				
Radial Width	full	full	(.35)xD	(.115)xD	(.2540)				
3	.0102	.0152	.0102	.0152	.0102				
6	.0203	.0305	.0203	.0305	.0203				
10	.0305	.0406	.0305	.0406	.0305				
12	.0406	.0559	.0406	.0559	.0406				
20	.0508	.0737	.0508	.0737	.0508				
25	.0711	.0889	.0711	.0889	.0711				