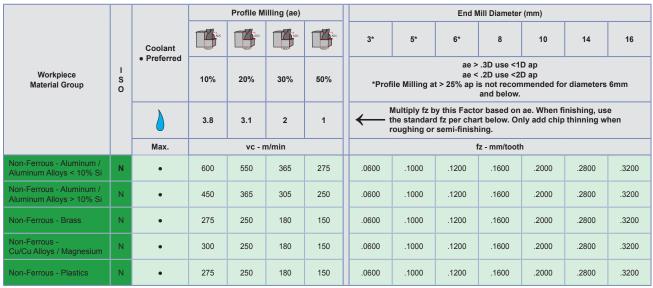
TuffCut® AL / X-AL

136 / 138 / 138N / 138R / 138NR Recommended Cutting Data - Profile Milling Inch

Workpiece Material Group	I S O	Coolant • Preferred	Profile Milling (ae)				End Mill Diameter									
				ADC	RDO		1/8*	3/16*	1/4*	5/16	3/8	1/2	5/8	3/4	1	
			10%	20%	30%	50%	ae > .3D use <1D ap ae < .2D use <2D ap *Profile Milling at > 25% ap is not recommended for diameters 1/4" and below									
		\	3.8	3.1	2	1	Multiply fz by this Factor based on ae. When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing.									
		Max.		vc -	fz - in/tooth											
Non-Ferrous - Aluminum / Aluminum Alloys < 10% Si	N	•	2000	1800	1200	900	.0025	.0037	.0050	.0062	.0075	.0100	.0125	.0150	.0200	
Non-Ferrous - Aluminum / Aluminum Alloys > 10% Si	N	•	1500	1200	1000	800	.0025	.0037	.0050	.0062	.0075	.0100	.0125	.0150	.0200	
Non-Ferrous - Brass	N	•	900	800	600	500	.0025	.0037	.0050	.0062	.0075	.0100	.0125	.0150	.0200	
Non-Ferrous - Cu/Cu Alloys / Magnesium	N	•	1000	800	600	500	.0025	.0037	.0050	.0062	.0075	.0100	.0125	.0150	.0200	
Non-Ferrous - Plastics	N	•	900	800	600	500	.0025	.0037	.0050	.0062	.0075	.0100	.0125	.0150	.0200	

Above 20,000 RPM, Tool Balancing Required

136 / 138 / 138N / 138R / 138NR Recommended Cutting Data - Profile Milling Metric



Above 20,000 RPM, Tool Balancing Required

Spindle Maximum - Should the calculated spindle speed be more than your actual spindle maximum, use this formula: (Calculated Feed x Spindle Maximum)/Calculated Speed

TuffCut® AL / X-AL

136 / 138 / 138N / 138R / 138NR Recommended Cutting Data - Slotting Inch

Workpiece Material Group	I S O	Coolant • Preferred	Slotting			End Mill Diameter									
					4 TA	1/8*	3/16*	1/4*	5/16	3/8	1/2	5/8	3/4	1	
		8	25%	50%	100%	*Slotting at > 25% ap is not recommended for diameters 1/4" and below.								w.	
		Max.	vc - SFM			fz - in/tooth									
Non-Ferrous - Aluminum / Aluminum Alloys < 10% Si	N	•	2000	1500	1000	.0012	.0018	.0025	.0032	.0037	.0050	.0065	.0075	.0100	
Non-Ferrous - Aluminum / Aluminum Alloys > 10% Si	N	•	1500	1200	800	.0012	.0018	.0025	.0032	.0037	.0050	.0065	.0075	.0100	
Non-Ferrous - Brass	N	•	600	500	400	.0018	.0025	.0032	.0037	.0050	.0065	.0075	.0100	.0120	
Non- Ferrous - Cu/Cu Alloys / Magnesium	N	•	500	400	300	.0018	.0025	.0032	.0037	.0050	.0065	.0075	.0100	.0120	
Non-Ferrous - Plastics	N	•	1200	1000	800	.0018	.0025	.0032	.0037	.0050	.0065	.0075	.0100	.0120	

Above 20,000 RPM, Tool Balancing Required

136 / 138 / 138N / 138R / 138NR Recommended Cutting Data - Slotting Metric

Workpiece Material Group	I S O	Coolant • Preferred		Slotting		End Mill Diameter (mm)									
					4	3*	5*	6*	8	10	14	16	20		
		8	25%	50%	100%	*Slotting at > 25% ap is not recommended for diameters 6m						6mm and	below.		
		Max.	vc - m/min			fz - mm/tooth									
Non-Ferrous - Aluminum / Aluminum Alloys < 10% Si	N	•	600	450	300	.0300	.0450	.0630	.0810	.0930	.1270	.1650	.1900		
Non-Ferrous - Aluminum / Aluminum Alloys > 10% Si	N	•	450	365	250	.0300	.0450	.0630	.0810	.0930	.1270	.1650	.1900		
Non-Ferrous - Brass	N	•	180	150	120	.0450	.0630	.0810	.0930	.1270	.1650	.1900	.2540		
Non-Ferrous - Cu/Cu Alloys / Magnesium	N	•	150	120	90	.0450	.0630	.0810	.0930	.1270	.1650	.1900	.2540		
Non-Ferrous - Plastics	N	•	365	300	250	.0450	.0630	.0810	.0930	.1270	.1650	.1900	.2540		

Above 20,000 RPM, Tool Balancing Required

Spindle Maximum - Should the calculated spindle speed be more than your actual spindle maximum, use this formula: (Calculated Feed x Spindle Maximum)/Calculated Speed