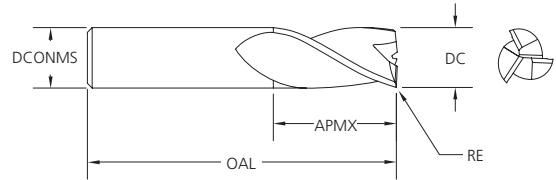
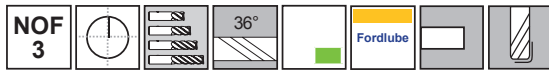


TuffCut® X-AL - Series 138

Series 138 takes aluminum milling to the extreme with chip loads and speeds, definitely designed for extreme productivity.



Uncoated		Fordlube*		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
13811810	13892	13811810F	14295		3.0	.1181		6.0		52.0		8.0		
13811810R.020	13100				3.0	.1181		6.0		52.0		8.0		0.50
13811810R.039	13101				3.0	.1181		6.0		52.0		8.0		1.00
13812500	13800	13812500F	14203	1/8		.1250	1/8		1-1/2		3/16			
13812501	13801	13812501F	14204	1/8		.1250	1/8		1-1/2		1/4			
13812502	13802	13812502F	14205	1/8		.1250	1/8		1-1/2		5/16			
13812503	13803	13812503F	14206	1/8		.1250	1/8		1-1/2		3/8			
13812504	13804	13812504F	14207	1/8		.1250	1/8		1-1/2		1/2			
13812505	13805	13812505F	14208	1/8		.1250	1/8		1-1/2		5/8			
13812506	13806	13812506F	14209	1/8		.1250	1/8		2		3/4			
13812507	13807	13812507F	14210	1/8		.1250	1/8		2		1			
13815750	13893	13815750F	14296		4.0	.1575		6.0		55.0		11.0		
13815750R.020	13102				4.0	.1575		6.0		55.0		11.0		0.50
13815750R.039	13103				4.0	.1575		6.0		55.0		11.0		1.00
13818750	13808	13818750F	14211	3/16		.1875	3/16		2		1/4			
13818751	13809	13818751F	14212	3/16		.1875	3/16		2		3/8			
13818752	13810	13818752F	14213	3/16		.1875	3/16		2		1/2			
13818753	13811	13818753F	14214	3/16		.1875	3/16		2-1/2		5/8			
13818754	13812	13818754F	14215	3/16		.1875	3/16		2-1/2		3/4			
13818755	13813	13818755F	14216	3/16		.1875	3/16		2-1/2		1			
13819680	13894	13819680F	14297		5.0	.1968		6.0		58.0		13.0		
13819680R.020	13104				5.0	.1968		6.0		58.0		13.0		0.50
13819680R.039	13105				5.0	.1968		6.0		58.0		13.0		1.00
13823620	13895	13823620F	14298		6.0	.2362		6.0		58.0		13.0		
13823620R.020	13106				6.0	.2362		6.0		58.0		13.0		0.50
13823620R.039	13107				6.0	.2362		6.0		58.0		13.0		1.00
13823620R.059	13108				6.0	.2362		6.0		58.0		13.0		1.50
13823620R.079	13109				6.0	.2362		6.0		58.0		13.0		2.00
13825000	13814	13825000F	14217	1/4		.2500	1/4		2		3/8			
13825000R.015	13000			1/4		.2500	1/4		2		3/8		0.015	
13825000R.030	13001			1/4		.2500	1/4		2		3/8		0.030	

*Allow 2 weeks to ship non-stock items.

Weldon flats available. Please specify when ordering. When ordering Weldon flats please call customer service for pricing.

Inch		Inch		Metric (mm)		Metric (mm)	
DC	Tolerance	RE	Tolerance	DC	Tolerance	RE	Tolerance
1/8 - 1	+ .000/- .0005	1/8 - 1	+ .0008/- .0008	3.00 - 20.00	+ .000/- .013	3.0 - 20.0	+ .02/- .02

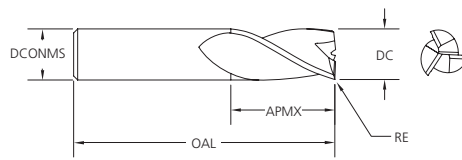
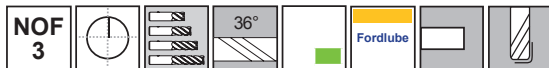


Uncoated		Fordlube*		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
13825001	13815	13825001F	14218	1/4		.2500	1/4		2		1/2			
13825003	13817	13825003F	14220	1/4		.2500	1/4		2		5/8			
13825002	13816	13825002F	14219	1/4		.2500	1/4		4		1/2			
13825004	13818	13825004F	14221	1/4		.2500	1/4		2-1/2		3/4			
13825004R.015	13002			1/4		.2500	1/4		2-1/2		3/4		0.015	
13825004R.030	13003			1/4		.2500	1/4		2-1/2		3/4		0.030	
13825005	13819	13825005F	14222	1/4		.2500	1/4		3		1			
13825006	13820	13825006F	14223	1/4		.2500	1/4		3		1-1/8			
13825007	13821	13825007F	14224	1/4		.2500	1/4		3		1-1/4			
13825007R.015	13004			1/4		.2500	1/4		3		1-1/4		0.015	
13825007R.030	13005			1/4		.2500	1/4		3		1-1/4		0.030	
13825008	13822	13825008F	14225	1/4		.2500	1/4		3		1-1/2			
13825009	13823	13825009F	14226	1/4		.2500	1/4		4		1-3/4			
13825010	13824	13825010F	14227	1/4		.2500	1/4		4		2			
13831200	13390			5/16		.3125	5/16		2-1/2		5/16			
13831201	13391			5/16		.3125	5/16		2-1/2		3/8			
13831202	13392			5/16		.3125	5/16		2-1/2		7/16			
13831203	13393			5/16		.3125	5/16		2-1/2		1/2			
13831254	13829	13831254F	14232	5/16		.3125	5/16		2-1/2		13/16			
13831255	13830	13831255F	14233	5/16		.3125	5/16		2-1/2		1-1/8			
13831257	13832	13831257F	14235	5/16		.3125	5/16		3		1-1/4			
13831256	13831	13831256F	14234	5/16		.3125	5/16		3-1/8		1-3/8			
13831250	13825	13831250F	14228	5/16		.3125	5/16		4		5/16			
13831251	13826	13831251F	14229	5/16		.3125	5/16		4		3/8			
13831252	13827	13831252F	14230	5/16		.3125	5/16		4		7/16			
13831253	13828	13831253F	14231	5/16		.3125	5/16		4		1/2			
13831258	13833	13831258F	14236	5/16		.3125	5/16		4		1-1/2			
13831500	13896	13831500F	14299		8.0	.3150		8.0		64.0		19.0		
13831500R.020	13110				8.0	.3150		8.0		64.0		19.0		0.50
13831500R.039	13111				8.0	.3150		8.0		64.0		19.0		1.00
13831500R.059	13112				8.0	.3150		8.0		64.0		19.0		1.50
13831500R.079	13113				8.0	.3150		8.0		64.0		19.0		2.00
13831500R.118	13114				8.0	.3150		8.0		64.0		19.0		3.00
13837500	13834	13837500F	14237	3/8		.3750	3/8		2		1/2			
13837500R.015	13006			3/8		.3750	3/8		2		1/2		0.015	
13837500R.030	13007			3/8		.3750	3/8		2		1/2		0.030	
13837502	13836	13837502F	14239	3/8		.3750	3/8		2		5/8			
13837501	13835	13837501F	14238	3/8		.3750	3/8		2-1/2		9/16			
13837504	13838	13837504F	14241	3/8		.3750	3/8		2-1/2		3/4			
13837505	13839	13837505F	14242	3/8		.3750	3/8		2-1/2		1			
13837505R.015	13008			3/8		.3750	3/8		2-1/2		1		0.015	
13837505R.030	13009			3/8		.3750	3/8		2-1/2		1		0.030	
13837510	13844	13837510F	14247	3/8		.3750	3/8		3		9/16			
13837511	13845	13837511F	14248	3/8		.3750	3/8		3		1			

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Weldon flats available. Please specify when ordering. When ordering Weldon flats please call customer service for pricing.



TuffCut® X-AL - Series 138 *Continued*



Uncoated		Fordlube*		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
13837506	13840	13837506F	14243	3/8		.3750	3/8		3		1-1/4			
13837507	13841	13837507F	14244	3/8		.3750	3/8		3-1/2		1-1/2			
13837507R.015	13010			3/8		.3750	3/8		3-1/2		1-1/2		0.015	
13837507R.030	13011			3/8		.3750	3/8		3-1/2		1-1/2		0.030	
13837503	13837	13837503F	14240	3/8		.3750	3/8		4		5/8			
13837508	13842	13837508F	14245	3/8		.3750	3/8		4		2			
13837509	13843	13837509F	14246	3/8		.3750	3/8		4-1/2		2-1/2			
13839370	13897	13839370F	14300		10.0	.3937		10.0		70.0		22.0		
13839370R.020	13115				10.0	.3937		10.0		70.0		22.0		0.50
13839370R.039	13116				10.0	.3937		10.0		70.0		22.0		1.00
13839370R.059	13117				10.0	.3937		10.0		70.0		22.0		1.50
13839370R.079	13118				10.0	.3937		10.0		70.0		22.0		2.00
13839370R.118	13119				10.0	.3937		10.0		70.0		22.0		3.00
13843750	13846	13843750F	14249	7/16		.4375	7/16		2-3/4		9/16			
13843751	13847	13843751F	14250	7/16		.4375	7/16		2-3/4		1			
13847240	13898	13847240F	14301		12.0	.4724		12.0		84.0		26.0		
13847240R.020	13120				12.0	.4724		12.0		84.0		26.0		0.50
13847240R.039	13121				12.0	.4724		12.0		84.0		26.0		1.00
13847240R.059	13122				12.0	.4724		12.0		84.0		26.0		1.50
13847240R.079	13123				12.0	.4724		12.0		84.0		26.0		2.00
13847240R.118	13124				12.0	.4724		12.0		84.0		26.0		3.00
13847240R.157	13125				12.0	.4724		12.0		84.0		26.0		4.00
13847240R.196	13126				12.0	.4724		12.0		84.0		26.0		5.00
13850000	13848	13850000F	14251	1/2		.5000	1/2		3		5/8			
13850000R.015	13012			1/2		.5000	1/2		3		5/8		0.015	
13850000R.030	13013			1/2		.5000	1/2		3		5/8		0.030	
13850000R.060	13014			1/2		.5000	1/2		3		5/8		0.060	
13850000R.090	13015			1/2		.5000	1/2		3		5/8		0.090	
13850000R.120	13016			1/2		.5000	1/2		3		5/8		0.120	
13850001	13849	13850001F	14252	1/2		.5000	1/2		3		3/4			
13850002	13850	13850002F	14253	1/2		.5000	1/2		3		1			
13850003	13851	13850003F	14254	1/2		.5000	1/2		3		1-1/4			
13850003R.015	13017			1/2		.5000	1/2		3		1-1/4		0.015	
13850003R.030	13018			1/2		.5000	1/2		3		1-1/4		0.030	
13850003R.060	13019			1/2		.5000	1/2		3		1-1/4		0.060	
13850003R.090	13020			1/2		.5000	1/2		3		1-1/4		0.090	
13850003R.120	13021			1/2		.5000	1/2		3		1-1/4		0.120	
13850004	13852	13850004F	14255	1/2		.5000	1/2		4		1-1/2			

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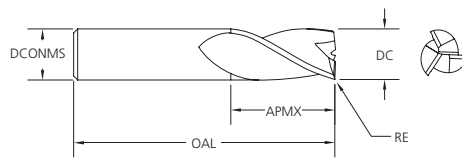
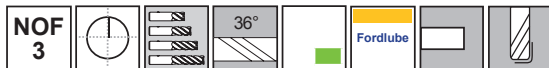


Uncoated		Fordlube*		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
13850005	13853	13850005F	14256	1/2		.5000	1/2		4		2			
13850005R.015	13022			1/2		.5000	1/2		4		2		0.015	
13850005R.030	13023			1/2		.5000	1/2		4		2		0.030	
13850005R.060	13024			1/2		.5000	1/2		4		2		0.060	
13850005R.090	13025			1/2		.5000	1/2		4		2		0.090	
13850005R.120	13026			1/2		.5000	1/2		4		2		0.120	
13850006	13854	13850006F	14257	1/2		.5000	1/2		4		2-1/4			
13850007	13855	13850007F	14258	1/2		.5000	1/2		6		2-1/2			
13850008	13856	13850008F	14259	1/2		.5000	1/2		6		3-1/4			
13850009	13857	13850009F	14260	1/2		.5000	1/2		8		4			
13855120	13899	13855120F	14302		14.0	.5512		14.0		84.0		26.0		
13862500	13858	13862500F	14261	5/8		.6250	5/8		3-1/2		3/4			
13862500R.030	13027			5/8		.6250	5/8		3-1/2		3/4		0.030	
13862500R.060	13028			5/8		.6250	5/8		3-1/2		3/4		0.060	
13862500R.090	13029			5/8		.6250	5/8		3-1/2		3/4		0.090	
13862500R.120	13030			5/8		.6250	5/8		3-1/2		3/4		0.120	
13862501	13859	13862501F	14262	5/8		.6250	5/8		6		3/4			
13862502	13860	13862502F	14263	5/8		.6250	5/8		3-1/2		7/8			
13862503	13861	13862503F	14264	5/8		.6250	5/8		3-1/2		1-1/4			
13862504	13862	13862504F	14265	5/8		.6250	5/8		4		1-5/8			
13862504R.030	13031			5/8		.6250	5/8		4		1-5/8		0.030	
13862504R.060	13032			5/8		.6250	5/8		4		1-5/8		0.060	
13862504R.090	13033			5/8		.6250	5/8		4		1-5/8		0.090	
13862504R.120	13034			5/8		.6250	5/8		4		1-5/8		0.120	
13862505	13863	13862505F	14266	5/8		.6250	5/8		5		2			
13862506	13864	13862506F	14267	5/8		.6250	5/8		5		2-1/2			
13862506R.030	13035			5/8		.6250	5/8		5		2-1/2		0.030	
13862506R.060	13036			5/8		.6250	5/8		5		2-1/2		0.060	
13862506R.090	13037			5/8		.6250	5/8		5		2-1/2		0.090	
13862506R.120	13038			5/8		.6250	5/8		5		2-1/2		0.120	
13862507	13865	13862507F	14268	5/8		.6250	5/8		6		3-1/4			
13862990	13900	13862990F	14303		16.0	.6299		16.0		89.0		32.0		
13862990R.020	13127				16.0	.6299		16.0		89.0		32.0		0.50
13862990R.039	13128				16.0	.6299		16.0		89.0		32.0		1.00
13862990R.059	13129				16.0	.6299		16.0		89.0		32.0		1.50
13862990R.079	13130				16.0	.6299		16.0		89.0		32.0		2.00
13862990R.118	13131				16.0	.6299		16.0		89.0		32.0		3.00
13862990R.157	13132				16.0	.6299		16.0		89.0		32.0		4.00
13862990R.196	13133				16.0	.6299		16.0		89.0		32.0		5.00
13870870	13901	13870870F	14304		18.0	.7087		18.0		92.0		32.0		
13875000	13866	13875000F	14269	3/4		.7500	3/4		4		3/4			
13875001	13867	13875001F	14270	3/4		.7500	3/4		4		1			
13875001R.030	13039			3/4		.7500	3/4		4		1		0.030	
13875001R.060	13040			3/4		.7500	3/4		4		1		0.060	
13875001R.090	13041			3/4		.7500	3/4		4		1		0.090	

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TuffCut® X-AL - Series 138 *Continued*



Uncoated		Fordlube*		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
13875001R.120	13042			3/4		.7500	3/4		4		1		0.120	
13875001R.190	13043			3/4		.7500	3/4		4		1		0.190	
13875001R.250	13044			3/4		.7500	3/4		4		1		0.250	
13875002	13868	13875002F	14271	3/4		.7500	3/4		6		1			
13875003	13869	13875003F	14272	3/4		.7500	3/4		6		1-1/2			
13875004	13870	13875004F	14273	3/4		.7500	3/4		4		1-5/8			
13875004R.030	13045			3/4		.7500	3/4		4		1-5/8		0.030	
13875004R.060	13046			3/4		.7500	3/4		4		1-5/8		0.060	
13875004R.090	13047			3/4		.7500	3/4		4		1-5/8		0.090	
13875004R.120	13048			3/4		.7500	3/4		4		1-5/8		0.120	
13875004R.190	13049			3/4		.7500	3/4		4		1-5/8		0.190	
13875004R.250	13050			3/4		.7500	3/4		4		1-5/8		0.250	
13875005	13871	13875005F	14274	3/4		.7500	3/4		5		2			
13875006	13872	13875006F	14275	3/4		.7500	3/4		5		2-1/4			
13875007	13873	13875007F	14276	3/4		.7500	3/4		5		2-1/2			
13875007R.030	13051			3/4		.7500	3/4		5		2-1/2		.030	
13875007R.060	13052			3/4		.7500	3/4		5		2-1/2		.060	
13875007R.090	13053			3/4		.7500	3/4		5		2-1/2		.090	
13875007R.120	13054			3/4		.7500	3/4		5		2-1/2		.120	
13875007R.190	13055			3/4		.7500	3/4		5		2-1/2		.190	
13875007R.250	13056			3/4		.7500	3/4		5		2-1/2		.250	
13875008	13874	13875008F	14277	3/4		.7500	3/4		6		3			
13875009	13875	13875009F	14278	3/4		.7500	3/4		6		3-1/4			
13875010	13876	13875010F	14279	3/4		.7500	3/4		6		3-1/2			
13875011	13877	13875011F	14280	3/4		.7500	3/4		6-1/4		4			
13875012	13878	13875012F	14281	3/4		.7500	3/4		8		5			
13878740	13902	13878740F	14305		20.0	.7874		20.0		102.0		38.0		
13878740R.020	13134				20.0	.7874		20.0		102.0		38.0		0.50
13878740R.039	13135				20.0	.7874		20.0		102.0		38.0		1.00
13878740R.059	13136				20.0	.7874		20.0		102.0		38.0		1.50
13878740R.079	13137				20.0	.7874		20.0		102.0		38.0		2.00
13878740R.118	13138				20.0	.7874		20.0		102.0		38.0		3.00
13878740R.157	13139				20.0	.7874		20.0		102.0		38.0		4.00
13878740R.196	13140				20.0	.7874		20.0		102.0		38.0		5.00
13810000	13879	13810000F	14282	1.00		1.0000	1		6		1-1/4			
13810001	13880	13810001F	14283	1.00		1.0000	1		8		1-1/4			
13810002	13881	13810002F	14284	1.00		1.0000	1		4		1-1/2			
13810002R.030	13057			1.00		1.0000	1		4		1-1/2		0.030	

*Allow 2 weeks to ship non-stock items.

Weldon flats available. Please specify when ordering. When ordering Weldon flats please call customer service for pricing.



Uncoated		Fordlube*		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
13810002R.060	13058			1.00		1.0000	1		4		1-1/2		0.060	
13810002R.090	13059			1.00		1.0000	1		4		1-1/2		0.090	
13810002R.120	13060			1.00		1.0000	1		4		1-1/2		0.120	
13810002R.190	13061			1.00		1.0000	1		4		1-1/2		0.190	
13810002R.250	13062			1.00		1.0000	1		4		1-1/2		0.250	
13810003	13882	13810003F	14285	1.00		1.0000	1		5		2			
13810004	13883	13810004F	14286	1.00		1.0000	1		5		2-1/2			
13810004R.030	13063			1.00		1.0000	1		5		2-1/2		0.030	
13810004R.060	13064			1.00		1.0000	1		5		2-1/2		0.060	
13810004R.090	13065			1.00		1.0000	1		5		2-1/2		0.090	
13810004R.120	13066			1.00		1.0000	1		5		2-1/2		0.120	
13810004R.190	13067			1.00		1.0000	1		5		2-1/2		0.190	
13810004R.250	13068			1.00		1.0000	1		5		2-1/2		0.250	
13810005	13884	13810005F	14287	1.00		1.0000	1		6		3			
13810006	13885	13810006F	14288	1.00		1.0000	1		6		3-1/2			
13810006R.030	13069			1.00		1.0000	1		6		3-1/2		0.030	
13810006R.060	13070			1.00		1.0000	1		6		3-1/2		0.060	
13810006R.090	13071			1.00		1.0000	1		6		3-1/2		0.090	
13810006R.120	13072			1.00		1.0000	1		6		3-1/2		0.120	
13810006R.190	13073			1.00		1.0000	1		6		3-1/2		0.190	
13810006R.250	13074			1.00		1.0000	1		6		3-1/2		0.250	
13810007	13886	13810007F	14289	1.00		1.0000	1		6		4			
13810008	13887	13810008F	14290	1.00		1.0000	1		7		4-1/8			
13810009	13888	13810009F	14291	1.00		1.0000	1		8		5-1/2			

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Page 173