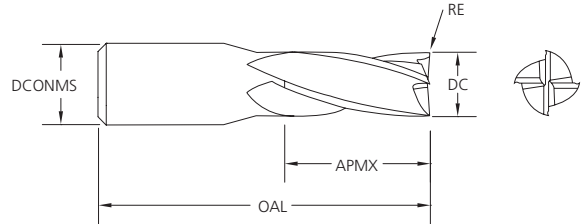
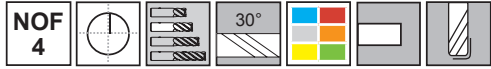


TuffCut® GP - Series 111

Designed for aggressive milling of most materials.



- Micro sizes available.

Series 111 coated tools on page 197.

Uncoated		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
11100500	51001			.0050*	1/8		1-1/2		.015			
11100780	51003		0.2	.0078*		3.0		38		0.6		
11101000	51005			.0100*	1/8		1-1/2		.030			
11101180	51007		0.3	.0118*		3.0		38		0.9		
11101500	51009			.0150*	1/8		1-1/2		.045			
11101560	11011	1/64		.0156	1/8		1-1/2		1/32			
11101570	51013		0.4	.0157		3.0		38		1.2		
11101960	51015		0.5	.0196		3.0		38		1.5		
11102000	51017			.0200	1/8		1-1/2		.060			
11102360	51019		0.6	.0236		3.0		38		1.8		
11102500	51021			.0250	1/8		1-1/2		.075			
11102750	51023		0.7	.0275		3.0		38		2.1		
11103000	51025			.0300	1/8		1-1/2		.090			
11103120	11027	1/32		.0312	1/8		1-1/2		5/64			
11103150	51029		0.8	.0315		3.0		38		2.4		
11103500	51031			.0350	1/8		1-1/2		.105			
11103540	51033		0.9	.0354		3.0		38		2.7		
11103940	11035		1.0	.0394		3.0		38		3.0		
11104000	51039			.0400	1/8		1-1/2		.120			
11104330	51041		1.1	.0433		3.0		38		3.3		
11104500	51043			.0450	1/8		1-1/2		.135			
11104680	11045	3/64		.0468	1/8		1-1/2		7/64			
11104720	51047		1.2	.0472		3.0		38		3.6		
11105000	51049			.0500	1/8		1-1/2		.150			
11105120	51051		1.3	.0512		3.0		38		3.9		

*End mills 0.015" (0.3mm) and smaller are non-center cutting.

Inch	
DC	Tolerance
1/64	+ .000/- .001
1/32 - 1/4	+ .000/- .002
>1/4 - 1	+ .000/- .003
DC Micro Sizes*	Tolerance
.005 - .100	+ .0005/- .0005

Inch	
RE	Tolerance
1/8 - 1	+ .002/- .002

Metric (mm)	
DC	Tolerance (h10)
0.20 - 0.50	+ .000/- .025
0.60 - 3.00	+ .000/- .040
>3.00 - 6.00	+ .000/- .048
>6.00 - 10.00	+ .000/- .058
>10.00 - 18.00	+ .000/- .070
>18.00 - 25.00	+ .000/- .084

Metric (mm)	
RE	Tolerance
3.0 - 25.0	+ .05/- .05



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*Inch decimal size range .005 - .100" only.



Uncoated		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
11105500	51053			.0550	1/8		1-1/2		.165			
11105510	51055		1.4	.0551		3.0		38		4.2		
11105910	11057		1.5	.0591		3.0		38		6.0		
11105911	51057		1.5	.0591		3.0		38		4.5		
11106000	51061			.0600	1/8		1-1/2		.180			
11106250	11063	1/16		.0625	1/8		1-1/2		3/16			
11106300	51065		1.6	.0630		3.0		38		4.8		
11106500	51067			.0650	1/8		1-1/2		.195			
11106690	51069		1.7	.0669		3.0		38		5.1		
11107000	51071			.0700	1/8		1-1/2		.210			
11107090	51073		1.8	.0709		3.0		38		5.4		
11107480	51075		1.9	.0748		3.0		38		5.7		
11107500	51077			.0750	1/8		1-1/2		.225			
11107810	11079	5/64		.0781	1/8		1-1/2		3/16			
11107870	11081		2.0	.0787		3.0		38		9.0		
11107871	51081		2.0	.0787		3.0		38		6.0		
11108000	51085			.0800	1/8		1-1/2		.240			
11108500	51087			.0850	1/8		1-1/2		.255			
11109000	51089			.0900	1/8		1-1/2		.270			
11109370	11091	3/32		.0937	1/8		1-1/2		9/32			
11109500	51093			.0950	1/8		1-1/2		.285			
11109840	11095		2.5	.0984		3.0		38		12.0		
11110010	51099			.1000	1/8		1-1/2		.300			
11110930	11101	7/64		.1093	1/8		1-1/2		3/8			
11111810	11103		3.0	.1181		3.0		38		12.0		
11111811	51402		3.0	.1181		3.0		38		12.0		0.50
11112500	11105	1/8		.1250	1/8		1-1/2		3/8			
11112501	11108	1/8		.1250	1/8		1-1/2		1/2			
11112511	51401	1/8		.1250	1/8		1-1/2		3/8		0.015	
11112512	51403	1/8		.1250	1/8		1-1/2		3/8		0.020	
11113780	11111		3.5	.1378		4.0		51		12.0		
11114060	11112	9/64		.1406	3/16		2		1/2			
11115620	11113	5/32		.1562	3/16		2		1/2			
11115750	11115		4.0	.1575		4.0		51		14.0		
11115751	51404		4.0	.1575		4.0		51		14.0		0.50
11115752	51422		4.0	.1575		4.0		51		14.0		0.75
11117190	11116	11/64		.1719	3/16		2		5/8			
11117720	11117		4.5	.1772		5.0		51		14.0		
11118750	11119	3/16		.1875	3/16		2		5/8			

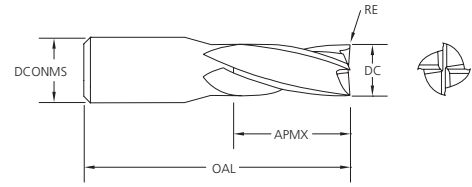
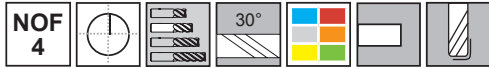
Series 111 coated tools on page 197.



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TuffCut® End Mills
Series 111

TuffCut® GP - Series 111 *Continued*



Uncoated		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
11118751	51405	3/16		.1875	3/16		2		5/8		0.015	
11118752	51407	3/16		.1875	3/16		2		5/8		0.020	
11118753	51409	3/16		.1875	3/16		2		5/8		0.030	
11119680	11121		5.0	.1968		5.0		51		20.0		
11119681	51406		5.0	.1968		5.0		51		20.0		0.50
11119682	51424		5.0	.1968		5.0		51		20.0		0.75
11119683	51440		5.0	.1968		5.0		51		20.0		1.00
11120310	11122	13/64		.2031	1/4		2-1/2		5/8			
11121650	11123		5.5	.2165		6.0		64		20.0		
11121870	11125	7/32		.2187	1/4		2-1/2		5/8			
11123440	11126	15/64		.2344	1/4		2-1/2		3/4			
11123620	11127		6.0	.2362		6.0		64		20.0		
11123621	51408		6.0	.2362		6.0		64		20.0		0.50
11123622	51426		6.0	.2362		6.0		64		20.0		0.75
11123623	51442		6.0	.2362		6.0		64		20.0		1.00
11125000	11129	1/4		.2500	1/4		2-1/2		3/4			
11125001	51411	1/4		.2500	1/4		2-1/2		3/4		0.015	
11125002	51413	1/4		.2500	1/4		2-1/2		3/4		0.020	
11125003	51415	1/4		.2500	1/4		2-1/2		3/4		0.030	
11125004	51417	1/4		.2500	1/4		2-1/2		3/4		0.045	
11127560	11131		7.0	.2756		8.0		64		20.0		
11128120	11133	9/32		.2812	5/16		2-1/2		3/4			
11131250	11135	5/16		.3125	5/16		2-1/2		13/16			
11131251	51419	5/16		.3125	5/16		2-1/2		13/16		0.015	
11131252	51421	5/16		.3125	5/16		2-1/2		13/16		0.020	
11131253	51423	5/16		.3125	5/16		2-1/2		13/16		0.030	
11131254	51425	5/16		.3125	5/16		2-1/2		13/16		0.045	
11131500	11137		8.0	.3150		8.0		64		20.0		
11131501	51410		8.0	.3150		8.0		64		20.0		0.50
11131502	51428		8.0	.3150		8.0		64		20.0		0.75
11131503	51444		8.0	.3150		8.0		64		20.0		1.00
11131504	51456		8.0	.3150		8.0		64		20.0		1.50
11135430	11139		9.0	.3543		9.0		64		20.0		
11137500	11141	3/8		.3750	3/8		2-1/2		1			
11137501	51427	3/8		.3750	3/8		2-1/2		1		0.015	
11137502	51429	3/8		.3750	3/8		2-1/2		1		0.020	
11137503	51431	3/8		.3750	3/8		2-1/2		1		0.030	

Series 111 coated tools on page 197.





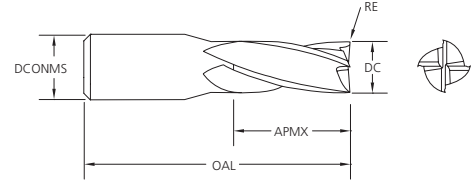
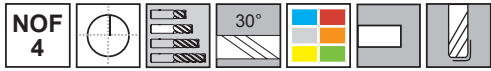
Uncoated		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
11137504	51433	3/8		.3750	3/8		2-1/2		1		0.045	
11139370	11143		10.0	.3937		10.0		70		25.0		
11139371	51412		10.0	.3937		10.0		70		25.0		0.50
11139372	51430		10.0	.3937		10.0		70		25.0		0.75
11139373	51446		10.0	.3937		10.0		70		25.0		1.00
11139374	51458		10.0	.3937		10.0		70		25.0		1.50
11143310	11145		11.0	.4331		11.0		70		25.0		
11143750	11147	7/16		.4375	7/16		2-3/4		1			
11147240	11149		12.0	.4724		12.0		76		25.0		
11147241	51414		12.0	.4724		12.0		76		25.0		0.50
11147242	51432		12.0	.4724		12.0		76		25.0		0.75
11147243	51448		12.0	.4724		12.0		76		25.0		1.00
11147244	51460		12.0	.4724		12.0		76		25.0		1.50
11147245	51468		12.0	.4724		12.0		76		25.0		2.00
11150000	11151	1/2		.5000	1/2		3		1			
11150001	51435	1/2		.5000	1/2		3		1		0.015	
11150002	51437	1/2		.5000	1/2		3		1		0.020	
11150003	51439	1/2		.5000	1/2		3		1		0.030	
11150004	51441	1/2		.5000	1/2		3		1		0.045	
11150005	51443	1/2		.5000	1/2		3		1		0.060	
11155120	11153		14.0	.5512		14.0		89		30.0		
11156250	11155	9/16		.5625	9/16		3-1/2		1-1/8			
11162500	11157	5/8		.6250	5/8		3-1/2		1-1/4			
11162501	51445	5/8		.6250	5/8		3-1/2		1-1/4		0.015	
11162502	51447	5/8		.6250	5/8		3-1/2		1-1/4		0.020	
11162503	51449	5/8		.6250	5/8		3-1/2		1-1/4		0.030	
11162504	51451	5/8		.6250	5/8		3-1/2		1-1/4		0.045	
11162505	51453	5/8		.6250	5/8		3-1/2		1-1/4		0.060	
11162506	51455	5/8		.6250	5/8		3-1/2		1-1/4		0.090	
11162990	11159		16.0	.6299		16.0		89		30.0		
11162991	51416		16.0	.6299		16.0		89		30.0		0.50
11162992	51434		16.0	.6299		16.0		89		30.0		0.75
11162993	51450		16.0	.6299		16.0		89		30.0		1.00
11162994	51462		16.0	.6299		16.0		89		30.0		1.50
11162995	51470		16.0	.6299		16.0		89		30.0		2.00
11162996	51476		16.0	.6299		16.0		89		30.0		2.50
11162997	51482		16.0	.6299		16.0		89		30.0		3.00
11170870	11161		18.0	.7087		18.0		102		35.0		
11175000	11163	3/4		.7500	3/4		4		1-1/2			
11175001	51457	3/4		.7500	3/4		4		1-1/2		0.015	
11175002	51459	3/4		.7500	3/4		4		1-1/2		0.020	
11175003	51461	3/4		.7500	3/4		4		1-1/2		0.030	
11175004	51463	3/4		.7500	3/4		4		1-1/2		0.045	

TuffCut® End Mills
Series 111

Series 111 coated tools on page 197.



TuffCut® GP - Series 111 *Continued*



Uncoated		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
11175005	51465	3/4		.7500	3/4		4		1-1/2		0.060	
11175006	51467	3/4		.7500	3/4		4		1-1/2		0.090	
11175007	51469	3/4		.7500	3/4		4		1-1/2		0.125	
11178740	11165		20.0	.7874		20.0		102		38.0		
11178741	51418		20.0	.7874		20.0		102		38.0		0.50
11178742	51436		20.0	.7874		20.0		102		38.0		0.75
11178743	51452		20.0	.7874		20.0		102		38.0		1.00
11178744	51464		20.0	.7874		20.0		102		38.0		1.50
11178745	51472		20.0	.7874		20.0		102		38.0		2.00
11178746	51478		20.0	.7874		20.0		102		38.0		2.50
11178747	51484		20.0	.7874		20.0		102		38.0		3.00
11186620	11167		22.0	.8662		22.0		102		40.0		
11187500	11169	7/8		.8750	7/8		4		1-1/2			
11198430	11171		25.0	.9843		25.0		102		40.0		
11198431	51420		25.0	.9843		25.0		102		40.0		0.50
11198432	51438		25.0	.9843		25.0		102		40.0		0.75
11198433	51454		25.0	.9843		25.0		102		40.0		1.00
11198434	51466		25.0	.9843		25.0		102		40.0		1.50
11198435	51474		25.0	.9843		25.0		102		40.0		2.00
11198436	51480		25.0	.9843		25.0		102		40.0		2.50
11198437	51486		25.0	.9843		25.0		102		40.0		3.00
11110000	11097	1.0		1.0000	1		4		1-1/2			
11110001	51471	1.0		1.0000	1		4		1-1/2		0.015	
11110002	51473	1.0		1.0000	1		4		1-1/2		0.020	
11110003	51475	1.0		1.0000	1		4		1-1/2		0.030	
11110004	51477	1.0		1.0000	1		4		1-1/2		0.045	
11110005	51479	1.0		1.0000	1		4		1-1/2		0.060	
11110006	51481	1.0		1.0000	1		4		1-1/2		0.090	
11110007	51483	1.0		1.0000	1		4		1-1/2		0.125	

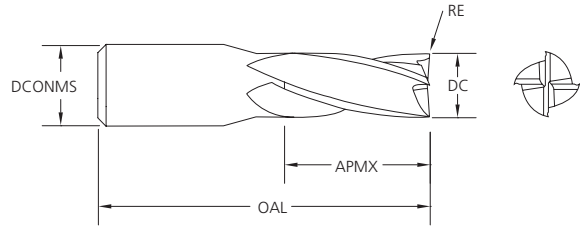
Series 111 coated tools on page 197.



TuffCut® GP - Series 111 Coated



• New ALtima® coated sizes.

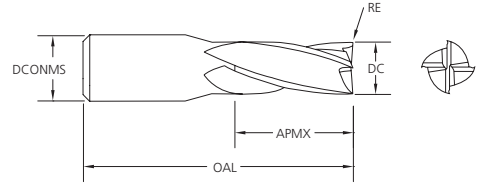


TiN		ALtima®		TiCN		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
		11103940A	11036				1.0	.0394		3.0		38		3.0		
		11105910A	11058				1.5	.0591		3.0		38		6.0		
		11107870A	11082				2.0	.0787		3.0		38		9.0		
		11109840A	11096				2.5	.0984		3.0		38		12.0		
11111810T	11104	11111810A	11003	11111810C	11004		3.0	.1181		3.0		38		12.0		
11112500T	11106	11112500A	11005	11112500C	11006	1/8		.1250	1/8		1-1/2		3/8			
		11112501A	75043			1/8		.1250	1/8		1-1/2		1/2			
		11112511A	76904			1/8		.1250	1/8		1-1/2		3/8			.015
		11112512A	75046			1/8		.1250	1/8		1-1/2		3/8			.020
		11114060A	75047			9/64		.1406	3/16		2		1/2			
		11115620A	10583			5/32		.1562	3/16		2		1/2			
11115750T	11118	11115750A	11007	11115750C	11008	4.0		.1575		4.0		51		14.0		
		11117190A	75052			11/64		.1719	3/16		2		5/8			
11118750T	11120	11118750A	11009	11118750C	11010	3/16		.1875	3/16		2		5/8			
		11118752A	75054			3/16		.1875	3/16		2		5/8			.020
11119680T	11124	11119680A	11013	11119680C	11014	5.0		.1968		5.0		51		20.0		
		11120310A	75059			13/64		.2031	1/4		2-1/2		5/8			
		11121870A	75061			7/32		.2187	1/4		2-1/2		5/8			
		11123440A	75062			15/64		.2344	1/4		2-1/2		3/4			
11123620T	11128	11123620A	11015	11123620C	11016	6.0		.2362		6.0		64		20.0		
11125000T	11130	11125000A	11017	11125000C	11018	1/4		.2500	1/4		2-1/2		3/4			
		11125001A	75064			1/4		.2500	1/4		2-1/2		3/4			.015
		11125002A	75066			1/4		.2500	1/4		2-1/2		3/4			.020
		11128120A	10057			9/32		.2812	5/16		2-1/2		3/4			
11131250T	11136	11131250A	11019	11131250C	11020	5/16		.3125	5/16		2-1/2		13/16			
		11131251A	10058			5/16		.3125	5/16		2-1/2		13/16			.015
		11131253A	10061			5/16		.3125	5/16		2-1/2		13/16			.030
		11131254A	10062			5/16		.3125	5/16		2-1/2		13/16			.045
11131500T	11138	11131500A	11021	11131500C	11022	8.0		.3150		8.0		64		20.0		
11137500T	11142	11137500A	11023	11137500C	11024	3/8		.3750	3/8		2-1/2		1			
		11137501A	10075			3/8		.3750	3/8		2-1/2		1			.015
		11137502A	10078			3/8		.3750	3/8		2-1/2		1			.020
		11137503A	18677			3/8		.3750	3/8		2-1/2		1			.030
		11137504A	10081			3/8		.3750	3/8		2-1/2		1			.045

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TuffCut® GP - Series 111 Coated *Continued*



TIN		ALtima®		TiCN		DC			DCONMS		OAL		APMX		RE	
Tool No.	EDP	Tool No.	EDP	Tool No.	EDP	Inch	mm	Decimal	Inch	mm	Inch	mm	Inch	mm	Inch	mm
11139370T	11144	11139370A	11025	11139370C	11026		10.0	.3937		10.0		70		25.0		
11143750T	11148	11143750A	11029	11143750C	11030	7/16		.4375	7/16		2-3/4		1			
11147240T	11150	11147240A	11031	11147240C	11032		12.0	.4724		12.0		76		25.0		
11150000T	11152	11150000A	11033	11150000C	11034	1/2		.5000	1/2		3		1			
		11150001A	10104			1/2		.5000	1/2		3		1		.015	
		11150002A	10107			1/2		.5000	1/2		3		1		.020	
		11150003A	10108			1/2		.5000	1/2		3		1		.030	
		11150004A	10111			1/2		.5000	1/2		3		1		.045	
		11150005A	10112			1/2		.5000	1/2		3		1		.060	
		11156250A	10116			9/16		.5625	9/16		3-1/2		1-1/8			
11162500T	11158	11162500A	11037	11162500C	11038	5/8		.6250	5/8		3-1/2		1-1/4			
		11162501A	10118			5/8		.6250	5/8		3-1/2		1-1/4		.015	
		11162502A	76923			5/8		.6250	5/8		3-1/2		1-1/4		.020	
		11162503A	10119			5/8		.6250	5/8		3-1/2		1-1/4		.030	
		11162505A	10120			5/8		.6250	5/8		3-1/2		1-1/4		.060	
11162990T	11160	11162990A	11039	11162990C	11040		16.0	.6299		16.0		89		30.0		
11175000T	11164	11175000A	11041	11175000C	11042	3/4		.7500	3/4		4		1-1/2			
		11175001A	10135			3/4		.7500	3/4		4		1-1/2		.015	
		11175003A	10136			3/4		.7500	3/4		4		1-1/2		.030	
		11175005A	10137			3/4		.7500	3/4		4		1-1/2		.060	
		11175006A	12820			3/4		.7500	3/4		4		1-1/2		.090	
		11175007A	18149			3/4		.7500	3/4		4		1-1/2		.125	
11178740T	11166	11178740A	11043	11178740C	11044		20.0	.7874		20.0		102		38.0		
		11187500A	10151			7/8		.8750	7/8		4		1-1/2			
11198430T	11172	11198430A	11047	11198430C	11048		25.0	.9843		25.0		102		40.0		
11110000T	11098	11110000A	11001	11110000C	11002	1.0		1.0000	1	4			1-1/2			
		11110006A	15689			1.0		1.0000	1	4			1-1/2		.090	

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