

# enDURO M50 END MILLS

For aerospace alloys and finishing stainless steels

## 3 High Shear Flutes To reduce work hardening

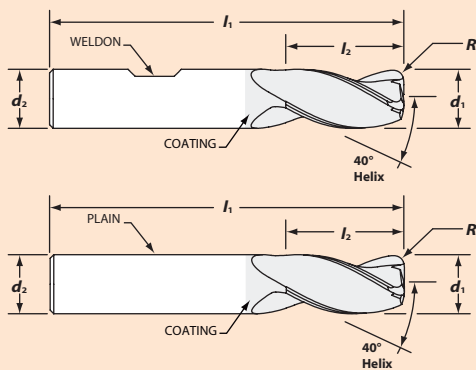
### M503



M503 • Radius

M503 • Square

- For slotting and roughing
- Provides excellent surface finishes
- High strength core design
- Superior **AITiN** coating



in  $d_1 +0.000 / -0.002$   $d_2 -0.0001$  to  $-0.0004$  mm  $d_1 +0.000 / -0.050$   $d_2 -0.0025$  to  $-0.0100$

	Carbon & tool steels $\leq 48$ HRC	✓✓
	Stainless steels	✓✓
	Cast irons	✓✓
	Aluminum and non-ferrous	✓

✓ Good ✓✓ Very Good ✓✓✓ Excellent

#### Inch

$d_1$ Cutter Dia	$d_2$ Shank Dia	$I_2$ Length of Cut	$I_1$ Overall Length	$R$ Corner Radius	Shank Style	Style Code	AITiN EDP Number	List Price
1/8	1/8	1/4	1-1/2	.015	Plain	SR	62942	23.42
		1/2	1-1/2	Square	Plain	RR	62308	23.26
		1/2	1-1/2	.015	Plain	RR	62208	25.94
3/16	3/16	5/16	2	.015	Plain	SR	62943	25.20
		9/16	2	Square	Plain	RR	62312	25.52
		9/16	2	.015	Plain	RR	62212	27.82
1/4	1/4	3/8	2	.020	Plain	SS	62944	27.30
		3/4	2-1/2	Square	Plain	RR	62316	30.14
		3/4	2-1/2	Square	Weldon	RR	62318	31.66
		3/4	2-1/2	.020	Plain	RR	62216	30.19
3/8	3/8	3/4	2-1/2	.020	Weldon	RR	62218	31.76
		1/2	2	.030	Plain	SS	62945	42.58
		1	2-1/2	Square	Plain	RR	62324	47.51
		1	2-1/2	Square	Weldon	RR	62326	49.30
1/2	1/2	1	2-1/2	.030	Plain	RR	62224	46.94
		1	2-1/2	.030	Weldon	RR	62226	48.67
		5/8	2-1/2	.030	Plain	SS	62946	65.68
		1-1/4	3	Square	Plain	RR	62332	70.40
1/2	1/2	1-1/4	3	Square	Weldon	RR	62334	72.50
		1-1/4	3	.030	Plain	RR	62232	72.14
		1-1/4	3	.030	Weldon	RR	62234	74.02

#### Metric

$d_1$ Cutter Dia	$d_2$ Shank Dia	$I_2$ Length of Cut	$I_1$ Overall Length	$R$ Corner Radius	Shank Style	Style Code	AITiN EDP Number	List Price
3	3	5	38	0,3	Plain	SR	62950	23.62
		8	38	Square	Plain	RR	62550	23.31
		8	38	0,3	Plain	RR	62540	26.04
4	4	8	50	0,3	Plain	SR	62951	25.57
		11	50	Square	Plain	RR	62551	25.72
5	5	9	50	0,3	Plain	SR	62952	26.04
		13	50	Square	Plain	RR	62552	25.94
6	6	13	50	0,3	Plain	RR	62542	28.19
		10	54	0,5	Plain	SS	62953	30.24
8	8	13	57	Square	Plain	RR	62553	30.92
		13	57	0,5	Plain	RR	62543	30.98
		12	58	0,5	Plain	SS	62954	38.01
10	10	19	63	Square	Plain	RR	62554	40.53
		19	63	0,5	Plain	RR	62544	38.74
12	12	14	66	0,5	Plain	SS	62955	57.17
		22	72	Square	Plain	RR	62555	49.35
12	12	22	72	0,5	Plain	RR	62545	48.72
		16	73	1,0	Plain	SS	62956	72.56
		26	83	Square	Plain	RR	62556	72.24
		26	83	1,0	Plain	RR	62546	73.60

Style Code Reference

RR—Regular LOC, Regular OAL

SR—Short LOC, Regular OAL

SS—Short LOC, Short OAL

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For stainless steel, titanium and high silicon aluminum

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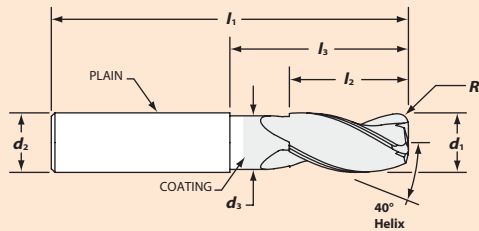
### M503N



M503N • Radius

M503N • Square

- Same advanced geometry as our M503 cutter with neck relief to prevent rubbing of parts



**Coating:** in  $d_1 +0.000 / -0.002$   $d_2 -0.0001$  to  $-0.0004$   
 mm  $d_1 +0.000 / -0.050$   $d_2 -0.0025$  to  $-0.0100$

AITiN

#### Inch

$d_1$ Cutter Dia	$d_2$ Shank Dia	$L_2$ Length of Cut	$L_1$ Overall Length	$L_3$ LBS	$d_3$ Neck Dia.	$R$ Corner Radius	Shank Style	Style Code	AITiN EDP Number	List Price
1/8	1/8	1/4	1-1/2	1/2	.118	Square	Plain	SR	62108	22.00
		1/4	1-1/2	1/2	.118	.015	Plain	SR	62008	24.94
3/16	3/16	5/16	2	9/16	.176	Square	Plain	SR	62112	24.31
		5/16	2	9/16	.176	.015	Plain	SR	62012	27.25
1/4	1/4	3/8	2-1/2	1-1/8	.235	Square	Plain	SR	62116	28.04
		3/8	2-1/2	1-1/8	.235	.020	Plain	SR	62016	31.50
		3/8	2-1/2	1-1/8	.235	.030	Plain	SR	62028	31.50
3/8	3/8	1/2	2-1/2	1-1/8	.355	Square	Plain	SR	62124	44.36
		1/2	2-1/2	1-1/8	.355	.020	Plain	SR	62030	48.67
		1/2	2-1/2	1-1/8	.355	.030	Plain	SR	62024	48.67
1/2	1/2	5/8	3	1-3/8	.475	Square	Plain	SR	62132	64.05
		5/8	3	1-3/8	.475	.020	Plain	SR	62044	70.35
		5/8	3	1-3/8	.475	.030	Plain	SR	62032	70.35

#### Metric

$d_1$ Cutter Dia	$d_2$ Shank Dia	$L_2$ Length of Cut	$L_1$ Overall Length	$L_3$ LBS	$d_3$ Neck Dia.	$R$ Corner Radius	Shank Style	Style Code	AITiN EDP Number	List Price
3	3	6	38	12	2,8	Square	Plain	SR	62530	22.05
		6	38	12	2,8	0,3	Plain	SR	62520	24.99
4	4	7	50	13	3,8	Square	Plain	SR	62531	24.57
		7	50	13	3,8	0,3	Plain	SR	62521	27.40
5	5	8	50	14	4,7	Square	Plain	SR	62532	24.68
		8	50	14	4,7	0,3	Plain	SR	62522	27.51
6	6	9	57	20	5,4	Square	Plain	SR	62533	28.88
		9	57	20	5,4	0,3	Plain	SR	62131	32.34
8	8	11	63	26	7,2	Square	Plain	SR	62534	37.96
		11	63	26	7,2	0,5	Plain	SR	62524	41.84
10	10	13	72	31	9	Square	Plain	SR	62535	46.20
		13	72	31	9	0,5	Plain	SR	62525	50.50
12	12	15	83	37	10,8	Square	Plain	SR	62536	65.89
		15	83	37	10,8	1,0	Plain	SR	62526	72.19

Style Code Reference  
 SR—Short LOC, Regular OAL

### Application Guide • Speed & Feed

Work Material	Type of Cut	Axial DOC	Radial DOC	No. of Flutes	Speed (SFM)	Feed (Inches per Tooth)							Speed (m/min)		Feed (mm per Tooth)						
						1/8	1/4	3/8	1/2	5/8	3/4	1	3,0	6,0	9,0	12,0	16,0	19,0	25,0		
Easy to Machine Stainless Steels 416, 410, 302, 303	Slot	.5 x D	1 x D	3	275	.0005	.0010	.0015	.0020	.0025	.0030	.0040	84	.0127	.0254	.0381	.0508	.0635	.0762	.1016	
	Rough	1 x D	.5 x D	3	350	.0006	.0013	.0019	.0025	.0032	.0038	.0050	107	.0152	.0330	.0483	.0635	.0813	.0965	.1270	
Moderately Difficult Stainless Steels 304, 316, Invar, Kovar	Slot	.5 x D	1 x D	3	250	.0003	.0007	.0011	.0015	.0019	.0023	.0030	76	.0076	.0178	.0279	.0381	.0483	.0584	.0762	
	Rough	1 x D	.5 x D	3	300	.0006	.0011	.0017	.0022	.0028	.0035	.0045	91	.0152	.0279	.0432	.0559	.0711	.0889	.1143	
Difficult to Machine Stainless Steels 316L, 17-4 PH, 15-5 PH, 13-8 PH	Slot	.5 x D	1 x D	3	225	.0003	.0006	.0009	.0012	.0015	.0018	.0024	69	.0076	.0152	.0229	.0305	.0381	.0457	.0610	
	Rough	1 x D	.5 x D	3	275	.0003	.0007	.0011	.0015	.0019	.0023	.0030	84	.0076	.0178	.0279	.0381	.0483	.0584	.0762	
Low Carbon Steels $\leq$ 32 HRC 1018, 12L14, 8620	Slot	.5 x D	1 x D	3	325	.0006	.0013	.0021	.0027	.0035	.0042	.0054	99	.0152	.0330	.0533	.0686	.0889	.1067	.1372	
	Rough	1 x D	.5 x D	3	375	.0007	.0015	.0023	.0030	.0037	.0045	.0060	114	.0178	.0381	.0584	.0762	.0940	.1143	.1524	
Carbon & Tool Steels 33 HRC to 38 HRC	Slot	.5 x D	1 x D	3	275	.0005	.0010	.0015	.0020	.0025	.0030	.0040	84	.0127	.0254	.0381	.0508	.0635	.0762	.1016	
	Rough	1 x D	.5 x D	3	325	.0006	.0012	.0018	.0023	.0029	.0035	.0046	99	.0152	.0305	.0457	.0584	.0737	.0889	.1168	
Copper, Brass, & Bronze	Slot	.5 x D	1 x D	3	450	.0007	.0015	.0022	.0030	.0037	.0045	.0060	137	.0178	.0381	.0559	.0762	.0940	.1143	.1524	
	Rough	1 x D	.5 x D	3	550	.0008	.0018	.0026	.0035	.0044	.0053	.0070	168	.0203	.0457	.0660	.0889	.1118	.1346	.1778	
Aluminum, Bronze & Beryllium Copper	Slot	.5 x D	1 x D	3	275	.0005	.0010	.0015	.0020	.0025	.0030	.0040	84	.0127	.0254	.0381	.0508	.0635	.0762	.1016	
	Rough	1 x D	.5 x D	3	350	.0006	.0013	.0020	.0025	.0032	.0039	.0050	107	.0152	.0330	.0508	.0635	.0813	.0991	.1270	

D = tool diameter Reduce feed rates by 20% when using long length tools

Starting parameters shown