

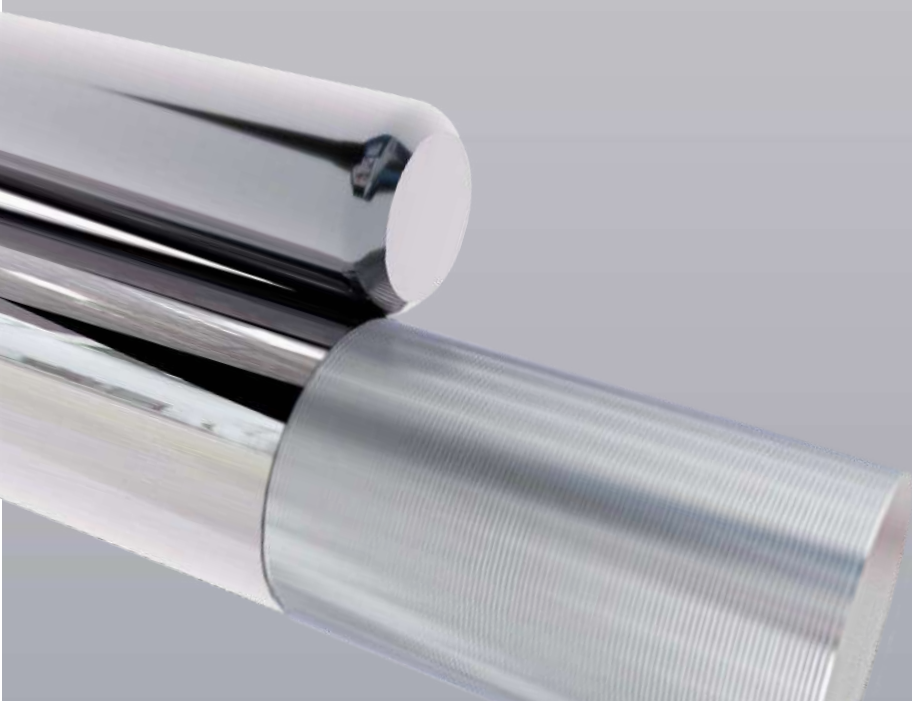


Internal/External Roller Burnishing Tools



SIZE
FINISH
WORK HARDEN

...IN SECONDS



www.cogsdill.co.uk

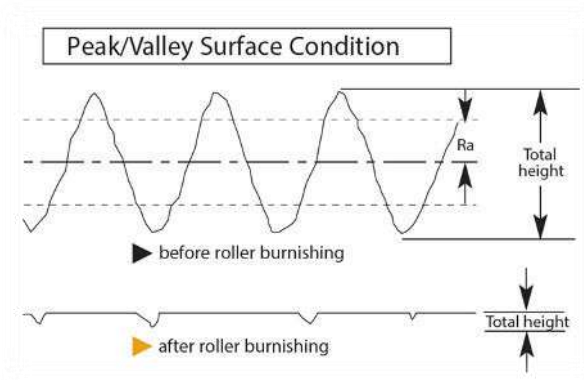


Roller burnishing

Overview

Roller burnishing is a surface finishing technique in which hardened, highly polished steel rollers are brought into pressure contact with a softer piece part.

As the pressure generated through the rollers exceeds the yield point of the piece-part material, the surface is plastically deformed by cold flowing of sub-surface material. The result is a mirror-like finish and a tough, work-hardened surface with load-carrying characteristics, which make the burnished surface superior to finishes obtained by abrasive metal removal methods.



A roller burnished surface is smoother and more wear-resistant than an abraded surface of the same profilometer reading. Profilometers measure roughness height. Abrasive finishing processes remove metal by cutting or tearing it away, and while this usually lowers the roughness profile, it leaves sharp projections in the contact plane of the machined surface.

Roller burnishing displaces metal, rather than removing it. Material in microscopic “peaks” on the machined surface is caused to cold flow into the “valleys,” creating a plateau-like profile in which sharpness is reduced or eliminated in the contact plane.

A burnished surface is therefore smoother than an abraded surface with the same roughness height measurement. The burnished surface will last longer under working conditions in contact with a mating part.



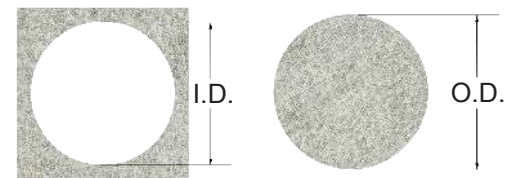


Roller burnishing

The benefits

Roller Burnishing imparts three major quality characteristics to rough or semi-finished parts simultaneously.

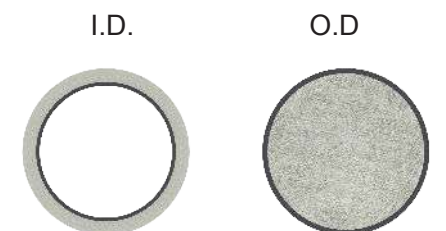
Accurate Size - Parts produced from any machineable material can be brought to size FAST with the burnishing tool. Any standard spindle driven machine, single or multi-purpose, hand or machine feed, automatic or automated may be used. Size control is built into the tool with diameter adjustment increments of 2.5 or 5 microns depending on the tools size. The precise size can be quickly attained with simple manual adjustment and maintained throughout long production processing operations.



Improved Surface Finish - The burnishing tool works metal without cutting or abrading the surface. It moves the metal, smoothing and compressing the peaks into the valleys, generating a dense and uniform surface – friction free and leaving no feathered edges. Subsequent operations, such as gauging or part run-in are often eliminated. Processing time is **SECONDS** as compared to minutes for grinding, reaming, honing or lapping.



Harder surface - During the extremely fast cycle time for part sizing and finishing, the work surface is also being work-hardened and straightened. Surface hardness increases from 5% to 10% with a penetration of .010" to .030" (.254 to .762mm) The low micro finish combined with a hardened and denser surface substantially increases part wear life and corrosion resistance, the added strength improves fatigue resistance, decreasing part failures.



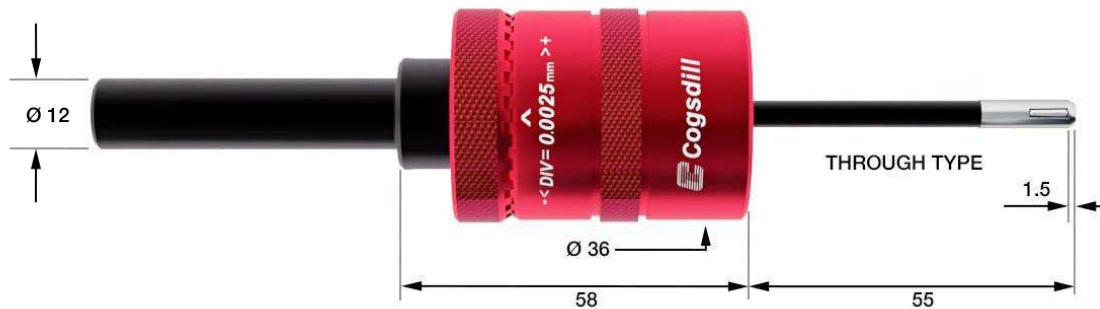
5% to 10% increase in hardness -
.010" to .030" (.245mm to .762mm)
depth of penetration



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications



SRM SERIES ROLL-A-FINISH™ TOOLS 4.00mm to 5.75mm (.157" to .226")

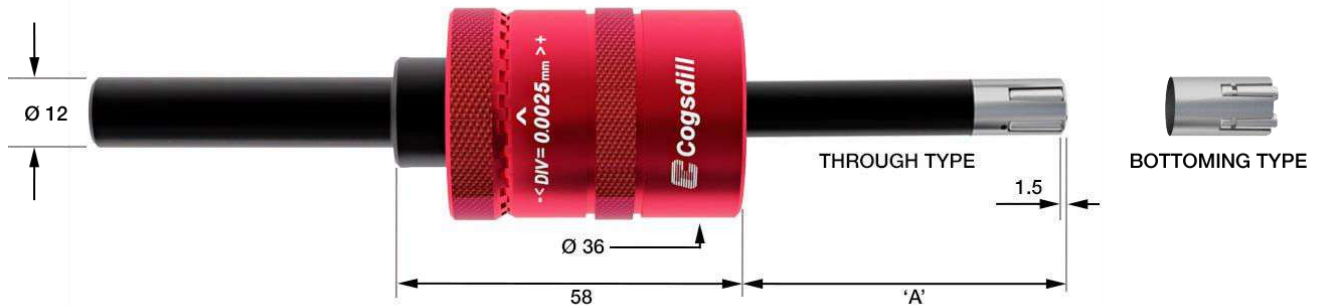
DIAMETER RANGE				TOOL NUMBER		
MIN Ø		MAX Ø		Through-hole	Bottoming*	Self feed option
mm	Inches	mm	Inches	(No Helix)	(No Helix)	(1½° Helix)
3.97	0.156	4.25	0.167	SRM 4.00	-	-
4.22	0.166	4.50	0.177	SRM 4.25	-	-
4.47	0.176	4.75	0.187	SRM 4.50	-	-
4.72	0.186	5.00	0.197	SRM 4.75	-	-
4.97	0.196	5.25	0.207	SRM 5.00	-	Through-hole only
5.22	0.206	5.50	0.217	SRM 5.25	-	Through-hole only
5.47	0.215	5.75	0.226	SRM 5.50	-	Through-hole only
5.72	0.225	6.00	0.236	SRM 5.75	-	Through-hole only



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications



SRMR SERIES ROLL-A-FINISH™ TOOLS 6.00mm to 12.5mm (.236" to .492")

DIAMETER RANGE				TOOL NUMBER			
				Standard Length 'A' = 55mm		Extended Length 'A' = 105mm	
MIN Ø		MAX Ø		Through-hole	Bottoming*	Through-hole	Bottoming*
mm	Inches	mm	Inches	(No Helix)	(No Helix)	(No Helix)	(No Helix)
5.95	0.234	6.50	0.256	SRMR 6.00	SRMB 6.00	SRMR 6.00 + 50	SRMB 6.00 + 50
6.45	0.254	7.00	0.276	SRMR 6.50	SRMB 6.50	SRMR 6.50 + 50	SRMB 6.50 + 50
6.95	0.274	7.50	0.295	SRMR 7.00	SRMB 7.00	SRMR 7.00 + 50	SRMB 7.00 + 50
7.45	0.293	8.00	0.315	SRMR 7.50	SRMB 7.50	SRMR 7.50 + 50	SRMB 7.50 + 50
7.95	0.313	8.50	0.335	SRMR 8.00	SRMB 8.00	SRMR 8.00 + 50	SRMB 8.00 + 50
8.45	0.333	9.00	0.354	SRMR 8.50	SRMB 8.50	SRMR 8.50 + 50	SRMB 8.50 + 50
8.95	0.352	9.50	0.374	SRMR 9.00	SRMB 9.00	SRMR 9.00 + 50	SRMB 9.00 + 50
9.45	0.372	10.00	0.394	SRMR 9.50	SRMB 9.50	SRMR 9.50 + 50	SRMB 9.50 + 50
9.95	0.392	10.50	0.413	SRMR 10.00	SRMB 10.00	SRMR 10.00 + 50	SRMB 10.00 + 50
10.45	0.411	11.00	0.433	SRMR 10.50	SRMB 10.50	SRMR 10.50 + 50	SRMB 10.50 + 50

DIAMETER RANGE				TOOL NUMBER					
				Standard Length 'A' = 68mm		Extended Length 'A' = 118mm		Extra Length 'A' = 168mm	
MIN Ø		MAX Ø		Through Hole	Bottoming*	Through Hole	Bottoming*	Through Hole	Bottoming*
mm	Inches	mm	Inches	(No Helix)	(No Helix)	(No Helix)	(No Helix)	(No Helix)	(No Helix)
10.95	0.431	11.50	0.453	SRMR 11.00	SRMB 11.00	SRMR 11.00 + 50	SRMB 11.00 + 50	SRMR 11.00 + 100	SRMB 11.00 + 100
11.45	0.451	12.00	0.472	SRMR 11.50	SRMB 11.50	SRMR 11.50 + 50	SRMB 11.50 + 50	SRMR 11.50 + 100	SRMB 11.50 + 100
11.95	0.47	12.50	0.492	SRMR 12.00	SRMB 12.00	SRMR 12.00 + 50	SRMB 12.00 + 50	SRMR 12.00 + 100	SRMB 12.00 + 100
12.45	0.49	13.00	0.512	SRMR 12.50	SRMB 12.50	SRMR 12.50 + 50	SRMB 12.50 + 50	SRMR 12.50 + 100	SRMB 12.50 + 100

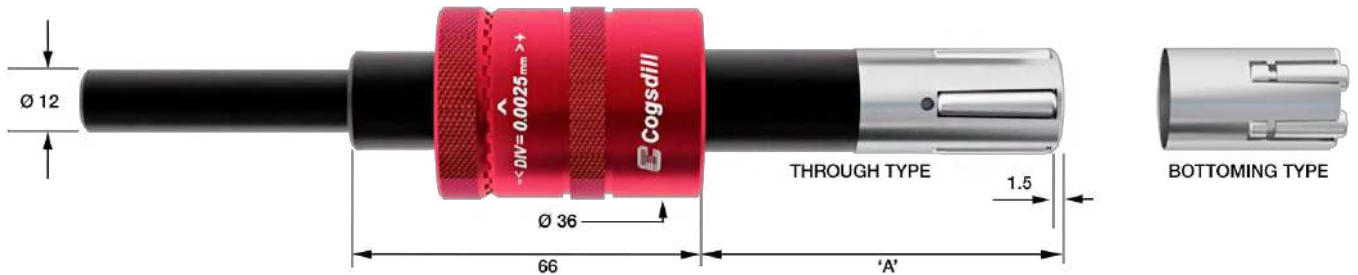
*When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications



SRMR SERIES ROLL-A-FINISH™ TOOLS 13.00mm to 24.00mm mm (.512" to .945")

DIAMETER RANGE				TOOL NUMBER					
				Standard Length 'A' = 68mm		Extended Length 'A' = 118mm		Extra Length 'A' = 168mm	
MIN Ø		MAX Ø		Through Hole	Bottoming*	Through Hole	Bottoming*	Through Hole	Bottoming*
mm	Inches	mm	Inches	(No Helix)	(No Helix)	(No Helix)	(No Helix)	(No Helix)	(No Helix)
12.90	0.508	14.00	0.551	SRMR 13.00	SRMB 13.00	SRMR 13.00 + 50	SRMB 13.00 + 50	SRMR13.00 + 100	SRMB 13.00 + 100
13.90	0.547	15.00	0.591	SRMR 14.00	SRMB 14.00	SRMR 14.00 + 50	SRMB 14.00 + 50	SRMR 14.00 + 100	SRMB 14.00 + 100
14.90	0.587	16.00	0.630	SRMR 15.00	SRMB 15.00	SRMR 15.00 + 50	SRMB 15.00 + 50	SRMR 15.00 + 100	SRMB 15.00 + 100
15.90	0.626	17.00	0.669	SRMR 16.00	SRMB 16.00	SRMR 16.00 + 50	SRMB 16.00 + 50	SRMR 16.00 + 100	SRMB 16.00 + 100
16.90	0.665	18.00	0.709	SRMR 17.00	SRMB 17.00	SRMR 17.00 + 50	SRMB 17.00 + 50	SRMR17.00 + 100	SRMB 17.00 + 100
17.90	0.705	19.00	0.748	SRMR 18.00	SRMB 18.00	SRMR 18.00 + 50	SRMB 18.00 + 50	SRMR 18.00 + 100	SRMB 18.00 + 100
18.90	0.744	20.00	0.787	SRMR 19.00	SRMB 19.00	SRMR 19.00 + 50	SRMB 19.00 + 50	SRMR 19.00 + 100	SRMB 19.00 + 100
19.90	0.783	21.00	0.827	SRMR 20.00	SRMB 20.00	SRMR 20.00 + 50	SRMB 20.00 + 50	SRMR 20.00 + 100	SRMB 20.00 + 100
20.90	0.823	22.00	0.866	SRMR 21.00	SRMB 21.00	SRMR 21.00 + 50	SRMB 21.00 + 50	SRMR 21.00 + 100	SRMB 21.00 + 100
21.90	0.862	23.00	0.906	SRMR 22.00	SRMB 22.00	SRMR 22.00 + 50	SRMB 22.00 + 50	SRMR 22.00 + 100	SRMB 22.00 + 100
22.90	0.902	24.00	0.945	SRMR 23.00	SRMB 23.00	SRMR 23.00 + 50	SRMB 23.00 + 50	SRMR 23.00 + 100	SRMB 23.00 + 100
23.90	0.941	25.00	0.984	SRMR 24.00	SRMB 24.00	SRMR 24.00 + 50	SRMB 24.00 + 50	SRMR 24.00 + 100	SRMB 24.00 + 100

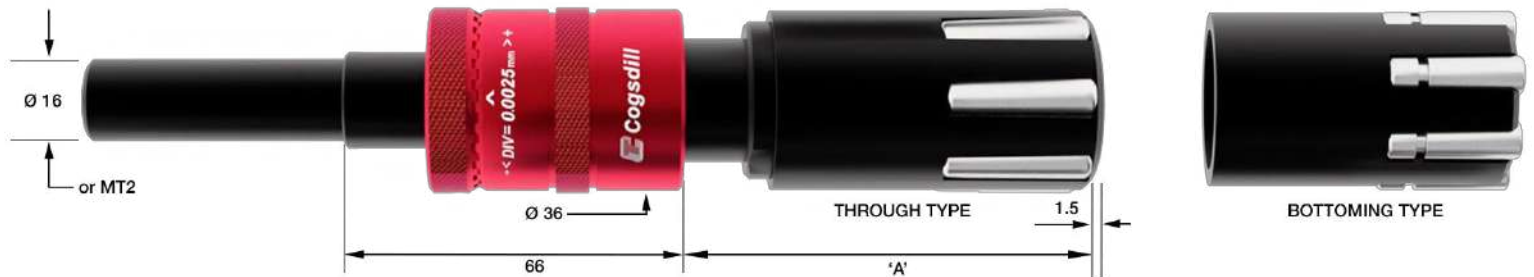
When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications



SRMR SERIES ROLL-A-FINISH™ TOOLS 25.00mm to 50.00mm (.984" to 1.969")

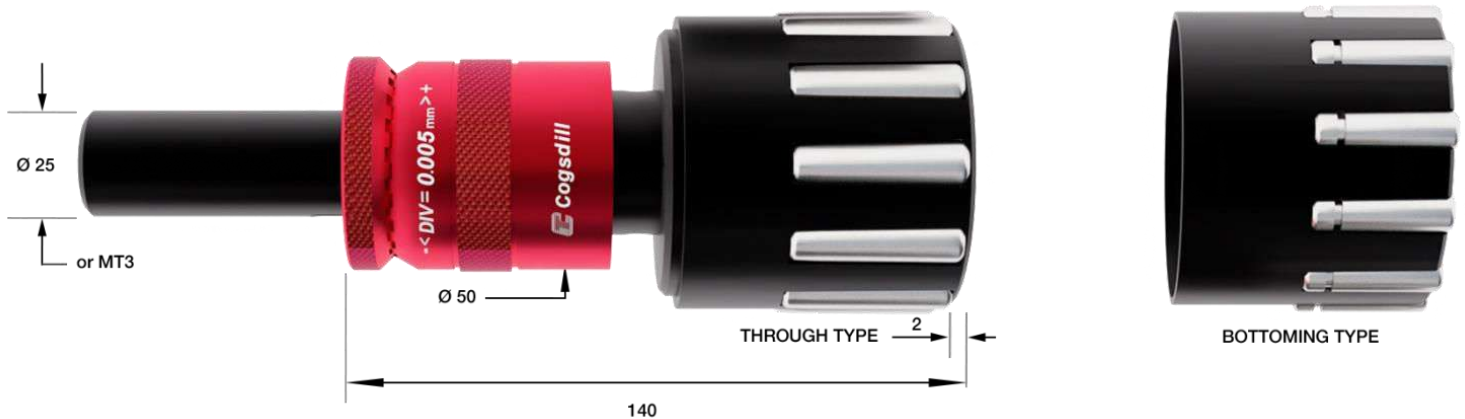
DIAMETER RANGE				TOOL NUMBER					
				Standard Length 'A' = 75.7mm		Extended Length 'A' = 126.5mm		Extended Length 'A' = 177.3mm	
MIN Ø		MAX Ø		Through Hole	Bottoming	Through Hole	Bottoming	Through Hole	Bottoming
mm	Inches	mm	Inches	(No Helix)	(No Helix)	(No Helix)	(No Helix)	(No Helix)	(No Helix)
24.90	0.98	26.00	1.024	SRMR 25	SRMB 25	SRMR 25 + 50	SRMB 25 + 50	SRMR 25 + 100	SRMB 25 + 100
25.90	1.02	27.00	1.063	SRMR 26	SRMB 26	SRMR 26 + 50	SRMB 26 + 50	SRMR 26 + 100	SRMB 26 + 100
26.90	1.059	28.00	1.102	SRMR 27	SRMB 27	SRMR 27 + 50	SRMB 27 + 50	SRMR 27 + 100	SRMB 27 + 100
27.90	1.098	29.00	1.142	SRMR 28	SRMB 28	SRMR 28 + 50	SRMB 28 + 50	SRMR 28 + 100	SRMB 28 + 100
28.90	1.138	30.00	1.181	SRMR 29	SRMB 29	SRMR 29 + 50	SRMB 29 + 50	SRMR 29 + 100	SRMB 29 + 100
29.90	1.177	31.00	1.22	SRMR 30	SRMB 30	SRMR 30 + 50	SRMB 30 + 50	SRMR 30 + 100	SRMB 30 + 100
30.90	1.217	32.00	1.26	SRMR 31	SRMB 31	SRMR 31 + 50	SRMB 31 + 50	SRMR 31 + 100	SRMB 31 + 100
31.90	1.256	33.00	1.3	SRMR 32	SRMB 32	SRMR 32 + 50	SRMB 32 + 50	SRMR 32 + 100	SRMB 32 + 100
32.90	1.295	34.00	1.339	SRMR 33	SRMB 33	SRMR 33 + 50	SRMB 33 + 50	SRMR 33 + 100	SRMB 33 + 100
33.90	1.335	35.00	1.378	SRMR 34	SRMB 34	SRMR 34 + 50	SRMB 34 + 50	SRMR 34 + 100	SRMB 34 + 100
34.90	1.374	36.00	1.417	SRMR 35	SRMB 35	SRMR 35 + 50	SRMB 35 + 50	SRMR 35 + 100	SRMB 35 + 100
35.90	1.413	37.00	1.457	SRMR 36	SRMB 36	SRMR 36 + 50	SRMB 36 + 50	SRMR 36 + 100	SRMB 36 + 100
36.90	1.453	38.00	1.496	SRMR 37	SRMB 37				
37.90	1.492	39.00	1.535	SRMR 38	SRMB 38				
38.90	1.531	40.00	1.574	SRMR 39	SRMB 39				
39.90	1.571	41.00	1.614	SRMR 40	SRMB 40				
40.90	1.61	42.00	1.654	SRMR 41	SRMB 41				
41.90	1.649	43.00	1.693	SRMR 42	SRMB 42	ON COMPONENT BORES LARGER THAN 37mm, INFINITE LENGTHS CAN BE BURNISHED BY ADDING SHANK ADAPTORS			
42.90	1.689	44.00	1.732	SRMR 43	SRMB 43				
43.90	1.728	45.00	1.772	SRMR 44	SRMB 44				
44.90	1.768	46.00	1.811	SRMR 45	SRMB 45				
45.90	1.807	47.00	1.85	SRMR 46	SRMB 46				
46.90	1.846	48.00	1.89	SRMR 47	SRMB 47				
47.90	1.886	49.00	1.929	SRMR 48	SRMB 48				
48.90	1.925	50.00	1.968	SRMR 49	SRMB 49				
49.90	1.964	51.00	2.008	SRMR 50	SRMB 50				

When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.

Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications



SRMR SERIES ROLL-A-FINISH™ TOOLS 51.00mm to 89.00mm (2.008" to 3.504")

DIAMETER RANGE				TOOL NUMBER	
				(UNLIMITED WORKING LENGTH USING SHANK EXTENSIONS)	
MIN Ø		MAX Ø		Through hole	Bottoming*
mm	Inches	mm	Inches	(No Helix)	(No Helix)
50.90	2.004	52.00	2.047	SRMR 51	SRMB 51
51.90	2.043	53.00	2.087	SRMR 52	SRMB 52
52.90	2.083	54.00	2.126	SRMR 53	SRMB 53
53.90	2.122	55.00	2.165	SRMR 54	SRMB 54
54.90	2.161	56.00	2.205	SRMR 55	SRMB 55
55.90	2.201	57.00	2.244	SRMR 56	SRMB 56
56.90	2.24	58.00	2.283	SRMR 57	SRMB 57
57.90	2.28	59.00	2.323	SRMR 58	SRMB 58
58.90	2.319	60.00	2.362	SRMR 59	SRMB 59
59.90	2.358	61.00	2.402	SRMR 60	SRMB 60
60.90	2.398	62.00	2.441	SRMR 61	SRMB 61
61.90	2.437	63.00	2.48	SRMR 62	SRMB 62
62.90	2.476	64.00	2.52	SRMR 63	SRMB 63
63.90	2.516	65.00	2.559	SRMR 64	SRMB 64
64.90	2.555	66.00	2.598	SRMR 65	SRMB 65
65.90	2.594	67.00	2.638	SRMR 66	SRMB 66
66.90	2.634	68.00	2.677	SRMR 67	SRMB 67
67.90	2.673	69.00	2.717	SRMR 68	SRMB 68
68.90	2.713	70.00	2.756	SRMR 69	SRMB 69

When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications



SRMR SERIES ROLL-A-FINISH™ TOOLS 51.00mm to 89.00mm (2.008" to 3.504")

DIAMETER RANGE				TOOL NUMBER	
				(UNLIMITED WORKING LENGTH USING SHANK EXTENSIONS)	
MIN Ø		MAX Ø		Through hole	Bottoming*
mm	Inches	mm	Inches	(No Helix)	(No Helix)
69.90	2.752	71.00	2.795	SRMR 70	SRMB 70
70.90	2.791	72.00	2.835	SRMR 71	SRMB 71
71.90	2.831	73.00	2.874	SRMR 72	SRMB 72
72.90	2.87	74.00	2.913	SRMR 73	SRMB 73
73.90	2.909	75.00	2.953	SRMR 74	SRMB 74
74.90	2.949	76.00	2.992	SRMR 75	SRMB 75
75.90	2.988	77.00	3.031	SRMR 76	SRMB 76
76.90	3.028	78.00	3.071	SRMR 77	SRMB 77
77.90	3.067	79.00	3.11	SRMR 78	SRMB 78
78.90	3.106	80.00	3.15	SRMR 79	SRMB 79
79.90	3.146	81.00	3.189	SRMR 80	SRMB 80
80.90	3.185	82.00	3.228	SRMR 81	SRMB 81
81.90	3.224	83.00	3.268	SRMR 82	SRMB 82
82.90	3.264	84.00	3.307	SRMR 83	SRMB 83
83.90	3.303	85.00	3.346	SRMR 84	SRMB 84
84.90	3.343	86.00	3.386	SRMR 85	SRMB 85
85.90	3.382	87.00	3.425	SRMR 86	SRMB 86
86.90	3.421	88.00	3.465	SRMR 87	SRMB 87
87.90	3.461	89.00	3.504	SRMR 88	SRMB 88
88.90	3.5	90.00	3.543	SRMR 89	SRMB 89

When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications



SRMR SERIES ROLL-A-FINISH™ TOOLS 90.00mm to 177.00mm (3.543" to 6.969")

DIAMETER RANGE				TOOL NUMBER	
				(UNLIMITED WORKING LENGTH USING SHANK EXTENSIONS)	
MIN Ø		MAX Ø		Through hole	Bottoming*
mm	Inches	mm	Inches	(No Helix)	(Ho Helix)
89.90	3.539	91.00	3.583	SRMR 90	SRMB 90
90.90	3.579	92.00	3.622	SRMR 91	SRMB 91
91.90	3.618	93.00	3.661	SRMR 92	SRMB 92
92.90	3.657	94.00	3.701	SRMR 93	SRMB 93
93.90	3.697	95.00	3.740	SRMR 94	SRMB 94
94.90	3.736	96.00	3.780	SRMR 95	SRMB 95
95.90	3.776	97.00	3.819	SRMR 96	SRMB 96
96.90	3.815	98.00	3.858	SRMR 97	SRMB 97
97.90	3.854	99.00	3.898	SRMR 98	SRMB 98
98.90	3.894	100.00	3.937	SRMR 99	SRMB 99
99.90	3.933	101.00	3.976	SRMR 100	SRMB 100
100.90	3.972	102.00	4.016	SRMR 101	SRMB 101
101.90	4.012	103.00	4.055	SRMR 102	SRMB 102
102.90	4.052	104.00	4.094	SRMR 103	SRMB 103
103.90	4.091	105.00	4.134	SRMR 104	SRMB 104
104.90	4.130	106.00	4.173	SRMR 105	SRMB 105
105.90	4.169	107.00	4.213	SRMR 106	SRMB 106
106.90	4.209	108.00	4.252	SRMR 107	SRMB 107
107.90	4.248	109.00	4.291	SRMR 108	SRMB 108
108.90	4.287	110.00	4.331	SRMR 109	SRMB 109
109.90	4.327	111.00	4.370	SRMR 110	SRMB 110
110.90	4.366	112.00	4.409	SRMR 111	SRMB 111
111.90	4.406	113.00	4.449	SRMR 112	SRMB 112
112.90	4.445	114.00	4.488	SRMR 113	SRMB 113

When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications

SRMR SERIES ROLL-A-FINISH™ TOOLS 90.00mm to 177.00mm (3.543" to 6.969")

DIAMETER RANGE				TOOL NUMBER	
				(UNLIMITED WORKING LENGTH USING SHANK EXTENSIONS)	
MIN Ø		MAX Ø		Through hole	Bottoming
mm	Inches	mm	Inches	(No Helix)	(No Helix)
113.90	4.484	115.00	4.528	SRMR 114	SRMB 114
114.90	4.524	116.00	4.567	SRMR 115	SRMB 115
115.90	4.563	117.00	4.606	SRMR 116	SRMB 116
116.90	4.602	118.00	4.646	SRMR 117	SRMB 117
117.90	4.642	119.00	4.685	SRMR 118	SRMB 118
118.90	4.681	120.00	4.724	SRMR 119	SRMB 119
119.90	4.720	121.00	4.764	SRMR 120	SRMB 120
120.90	4.760	122.00	4.803	SRMR 121	SRMB 121
121.90	4.799	123.00	4.843	SRMR 122	SRMB 122
122.90	4.839	124.00	4.882	SRMR 123	SRMB 123
123.90	4.878	125.00	4.921	SRMR 124	SRMB 124
124.90	4.917	126.00	4.961	SRMR 125	SRMB 125
125.90	4.957	127.00	5.000	SRMR 126	SRMB 126
126.90	4.996	128.00	5.039	SRMR 127	SRMB 127
127.90	5.035	129.00	5.079	SRMR 128	SRMB 128
128.90	5.075	130.00	5.118	SRMR 129	SRMB 129
129.90	5.114	131.00	5.157	SRMR 130	SRMB 130
130.90	5.154	132.00	5.197	SRMR 131	SRMB 131
131.90	5.193	133.00	5.236	SRMR 132	SRMB 132
132.90	5.232	134.00	5.276	SRMR 133	SRMB 133
133.90	5.272	135.00	5.315	SRMR 134	SRMB 134
134.90	5.311	136.00	5.354	SRMR 135	SRMB 135
135.90	5.350	137.00	5.394	SRMR 136	SRMB 136
136.90	5.390	138.00	5.433	SRMR 137	SRMB 137
137.90	5.429	139.00	5.472	SRMR 138	SRMB 138
138.90	5.469	140.00	5.512	SRMR 139	SRMB 139
139.90	5.508	141.00	5.551	SRMR 140	SRMB 140
140.90	5.547	142.00	5.591	SRMR 141	SRMB 141
141.90	5.587	143.00	5.630	SRMR 142	SRMB 142
142.90	5.626	144.00	5.669	SRMR 143	SRMB 143
143.90	5.665	145.00	5.709	SRMR 144	SRMB 144
144.90	5.705	146.00	5.748	SRMR 145	SRMB 145
145.90	5.744	147.00	5.787	SRMR 146	SRMB 146
146.90	5.783	148.00	5.827	SRMR 147	SRMB 147
147.90	5.823	149.00	5.866	SRMR 148	SRMB 148
148.90	5.862	150.00	5.906	SRMR 149	SRMB 149
149.90	5.902	151.00	5.945	SRMR 150	SRMB 150
150.90	5.941	152.00	5.984	SRMR 151	SRMB 151
151.90	5.980	153.00	6.024	SRMR 152	SRMB 152

When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.



Roller burnishing

Internal Roll-a-Finish™ SRMR/SRMB series

Standard tool specifications

SRMR SERIES ROLL-A-FINISH™ TOOLS 90.00mm to 177.00mm (3.543" to 6.969")

DIAMETER RANGE				TOOL NUMBER	
				(UNLIMITED WORKING LENGTH USING SHANK EXTENSIONS)	
MIN Ø		MAX Ø		Through hole	Bottoming
152.90	6.020	154.00	6.063	SRMR 153	SRMB 153
153.90	6.059	155.00	6.102	SRMR 154	SRMB 154
154.90	6.098	156.00	6.142	SRMR 155	SRMB 155
155.90	6.138	157.00	6.181	SRMR 156	SRMB 156
156.90	6.177	158.00	6.220	SRMR 157	SRMB 157
157.90	6.217	159.00	6.260	SRMR 158	SRMB 158
158.90	6.256	160.00	6.299	SRMR 159	SRMB 159
159.90	6.295	161.00	6.339	SRMR 160	SRMB 160
160.90	6.335	162.00	6.378	SRMR 161	SRMB 161
161.90	6.374	163.00	6.417	SRMR 162	SRMB 162
162.90	6.413	164.00	6.457	SRMR 163	SRMB 163
163.90	6.453	165.00	6.496	SRMR 164	SRMB 164
164.90	6.492	166.00	6.535	SRMR 165	SRMB 165
165.90	6.531	167.00	6.575	SRMR 166	SRMB 166
166.90	6.571	168.00	6.614	SRMR 167	SRMB 167
167.90	6.610	169.00	6.654	SRMR 168	SRMB 168
168.90	6.650	170.00	6.693	SRMR 169	SRMB 169
169.90	6.690	171.00	6.732	SRMR 170	SRMB 170
170.90	6.728	172.00	6.772	SRMR 171	SRMB 171
171.90	6.768	173.00	6.811	SRMR 172	SRMB 172
172.90	6.807	174.00	6.850	SRMR 173	SRMB 173
173.90	6.846	175.00	6.890	SRMR 174	SRMB 174
174.90	6.886	176.00	6.929	SRMR 175	SRMB 175
175.90	6.925	177.00	6.969	SRMR 176	SRMB 176
176.90	6.965	178.00	7.008	SRMR 177	SRMB 177

When ordering Blind Bore Tools, please state the actual size to be burnished
Optional Self-Feeding 1½° Helix style tools are available for all sizes and styles in this range.



Roller burnishing

External Roll-a-Finish™ XBB series

Standard tool specifications

For burnishing the outside diameter of cylindrical parts such as shafts rotating in bushings or bearings. Provides an ideal surface for grease and oil seals.



XBB tools are available for nominal sizes from 1.5mm to 65mm

All XBB tools are 'Bottoming style' and require machine feeding.
The tools are adjustable in increments of 0.002mm and 0.005mm on larger sizes.





Roller burnishing

External Roll-a-Finish™ XBB series

Standard tool specifications

XBB SERIES ROLL-A-FINISH™ TOOLS 1.50mm to 20.00mm (.059" to .787")



STANDARD HOLLOW
SHANK DESIGN



OPTIONAL SCREW-IN
SHANK DESIGN



Roller burnishing

External Roll-a-Finish™ XBB series

Standard tool specifications

XBB SERIES ROLL-A-FINISH™ TOOLS 1.50mm to 20.00mm (.059" to .787")

DIAMETER RANGE				TOOL NUMBER
MIN Ø		MAX Ø		Bottoming
mm	Inches	mm	Inches	(No Helix)
1.00	0.039	1.60	0.063	XBB 1.50
1.50	0.059	2.10	0.083	XBB 2.00
2.00	0.078	2.60	0.102	XBB 2.50
2.50	0.098	3.10	0.122	XBB 3.00
3.00	0.118	3.60	0.142	XBB 3.50
3.50	0.138	4.10	0.161	XBB 4.00
4.00	0.157	4.60	0.181	XBB 4.50
4.50	0.177	5.10	0.201	XBB 5.00
5.00	0.197	5.60	0.220	XBB 5.50
5.50	0.217	6.10	0.240	XBB 6.00
6.00	0.236	6.60	0.260	XBB 6.50
6.50	0.256	7.10	0.280	XBB 7.00
7.00	0.276	7.60	0.299	XBB 7.50
7.50	0.295	8.10	0.319	XBB 8.00
8.00	0.315	8.60	0.339	XBB 8.50
8.50	0.335	9.10	0.358	XBB 9.00
9.00	0.354	9.60	0.378	XBB 9.50
9.50	0.374	10.10	0.398	XBB 10.00
10.00	0.39	10.60	0.417	XBB 10.50
10.50	0.41	11.10	0.437	XBB 11.00
11.00	0.43	11.60	0.457	XBB 11.50
11.50	0.45	12.10	0.476	XBB 12.00
12.00	0.47	12.60	0.496	XBB 12.50
12.50	0.49	13.10	0.516	XBB 13.00
13.00	0.51	13.60	0.535	XBB 13.50
13.50	0.53	14.10	0.555	XBB 14.00
14.00	0.55	14.60	0.575	XBB 14.50
14.50	0.57	15.10	0.594	XBB 15.00
15.00	0.59	15.60	0.614	XBB 15.50
15.50	0.61	16.10	0.634	XBB 16.00
16.00	0.63	16.60	0.654	XBB 16.50
16.50	0.65	17.10	0.673	XBB 17.00
17.00	0.66	17.60	0.693	XBB 17.50
17.50	0.68	18.10	0.713	XBB 18.00
18.00	0.70	18.60	0.732	XBB 18.50
18.50	0.72	19.10	0.752	XBB 19.00
19.00	0.74	19.60	0.772	XBB 19.50
19.50	0.76	20.10	0.791	XBB 20.00

Optional Self-Feeding 1½° Helix style tools are available from XBB 6.5 onwards.



Roller burnishing

External Roll-a-Finish™ XBB series

Standard tool specifications

XBB SERIES ROLL-A-FINISH™ TOOLS 21.00mm to 40.00mm (.827" to 1.575")



STANDARD HOLLOW
SHANK DESIGN



OPTIONAL SCREW-IN
SHANK DESIGN



Roller burnishing

External Roll-a-Finish™ XBB series

Standard tool specifications

XBB SERIES ROLL-A-FINISH™ TOOLS 21.00mm to 40.00mm (.827" to 1.575")

DIAMETER RANGE				TOOL NUMBER
MIN Ø		MAX Ø		Bottoming
mm	Inches	mm	Inches	(No Helix)
20.00	0.787	21.10	0.831	XBB 21
21.00	0.827	22.10	0.870	XBB 22
22.00	0.866	23.10	0.909	XBB 23
23.00	0.906	24.10	0.949	XBB 24
24.00	0.945	25.10	0.988	XBB 25
25.00	0.984	26.10	1.028	XBB 26
26.00	1.024	27.10	1.067	XBB 27
27.00	1.063	28.10	1.106	XBB 28
28.00	1.102	29.10	1.146	XBB 29
29.00	1.142	30.10	1.185	XBB 30
30.00	1.181	31.10	1.224	XBB 31
31.00	1.22	32.10	1.264	XBB 32
32.00	1.26	33.10	1.303	XBB 33
33.00	1.299	34.10	1.343	XBB 34
34.00	1.339	35.10	1.382	XBB 35
35.00	1.378	36.10	1.421	XBB 36
36.00	1.417	37.10	1.461	XBB 37
37.00	1.457	38.10	1.500	XBB 38
38.00	1.496	39.10	1.539	XBB 39
39.00	1.535	40.10	1.579	XBB 40

Optional Self-Feeding 1½° Helix style tools are available for all sizes in this range.



Roller burnishing

External Roll-a-Finish™ XBB series

Standard tool specifications

XBB SERIES ROLL-A-FINISH™ TOOLS 41.00mm to 65.00mm (1.614" to 2.559")





Roller burnishing

External Roll-a-Finish™ XBB series

Standard tool specifications

XBB SERIES ROLL-A-FINISH™ TOOLS 41.00mm to 65.00mm (1.614" to 2.559")

DIAMETER RANGE				TOOL NUMBER
MIN Ø		MAX Ø		Bottoming
mm	Inches	mm	Inches	(No Helix)
40.00	1.575	41.10	1.618	XBB 41
41.00	1.614	42.10	1.657	XBB 42
42.00	1.654	43.10	1.697	XBB 43
43.00	1.693	44.10	1.736	XBB 44
44.00	1.732	45.10	1.776	XBB 45
45.00	1.772	46.10	1.815	XBB 46
46.00	1.811	47.10	1.854	XBB 47
47.00	1.850	48.10	1.894	XBB 48
48.00	1.890	49.10	1.933	XBB 49
49.00	1.929	50.10	1.972	XBB 50
50.00	1.969	51.10	2.012	XBB 51
51.00	2.008	52.10	2.051	XBB 52
52.00	2.047	53.10	2.091	XBB 53
53.00	2.087	54.10	2.13	XBB 54
54.00	2.126	55.10	2.169	XBB 55
55.00	2.165	56.10	2.209	XBB 56
56.00	2.205	57.10	2.248	XBB 57
57.00	2.244	58.10	2.287	XBB 58
58.00	2.283	59.10	2.327	XBB 59
59.00	2.323	60.10	2.366	XBB 60
60.00	2.362	61.10	2.406	XBB 61
61.00	2.402	62.10	2.445	XBB 62
62.00	2.441	63.10	2.484	XBB 63
63.00	2.480	64.10	2.524	XBB 64
64.00	2.520	65.10	2.563	XBB 65

Optional Self-Feeding 1½° Helix style tools are available for all sizes in this range.



Roller burnishing

Roll-a-Finish™ SRMR/SRMB and XBB series

Spare Roll part numbers

SRMR/SRMB INTERNAL ROLLER BURNISHING ROLL CHART

TOOL NUMBER (From - To)	ROLL NUMBER		QTY/TOOL
	Through hole	Bottoming	
SRM 4.00 - SRM 4.75	RR137	-	3
SRM 5.00 - SRM 5.75	SR187	-	3
SRMR 6.00 - SRMR 7.50	R250	B250	5
SRMR 8.00 - SRM 9.00	R312	B312	5
SRMR 9.50 - SRMR 10.50	R375	B375	5
SRMR 11.00 - SRMR 12	R437	B437	5
SRMR 13 - SRMR 17	R500	B500	5
SRMR 18 - SRMR 24	R750	B750	5
SRMR 25 - SRMR 29	R750	B750	7
SRMR 30 - SRMR 35	R875	B875	7
SRMR 36 - SRMR 41	R1125	B1125	7
SRMR 42 - SRMR 50	R1625	B1625	7
SRMR 51 - SRMR 69	R1625	B1625	9
SRMR 70 - SRMR 89	R1625	B1625	11
SRMR 90 - SRMR 110	R1625	B1625	13
SRMR 111 - SRMR 135	R1625	B1625	15
SRMR 136 - SRMR 155	R1625	B1625	17
SRMR 156 - SRMR 177	R1625	B1625	19

XBB EXTERNAL ROLLER BURNISHING ROLL CHART

TOOL NUMBER (From - To)	ROLL NUMBER	
	Bottoming	QTY/TOOL
XBB 1.50 - XBB 5.50	B312	3
XBB 6.00 - XBB 20.00	B438	5
XBB 21 - XBB 40	B875	7
XBB 41 - XBB 65	B1125	9

Tool adjustment procedure

Cogsdill manufactures a variety of standard Roll-a-Finish Tools. Although the detail numbers and nomenclature for the adjustment components differ somewhat for the various tool series, the adjustment procedure for all Roll-a-Finish tools is basically the same.

For all SRMR and SRMB tools, a rear castellated adjusting collar interlocks with a threaded and castellated bearing collar to keep the tool in adjustment. In order to adjust the tool, retract the spring-loaded adjusting collar and rotate the threaded bearing collar. This will alter the position of the tapered mandrel or race in relation to the tapered rolls, thereby changing the

effective tool diameter within the specified diameter range. XBB tools are adjusted by rotating the housing on the threaded mandrel shank. Tool adjustment requires the use of an Allen wrench. SRMR, SRMB and XBB series tools adjust in increments of .0025mm (.0001 inch), and in increments of .005mm (.0002 inch) for tools over 50mm in diameter.



tool adjustment procedure

Part preparation & operating parameters for roller burnishing

- 1 The first step is to rotate the adjustment collar assembly in a plus or minus direction as marked on the tool until the workpiece will just slip over the rolls. This procedure is similar to plug or ring gaging a part. This will set tool working diameter the same as prepared part diameter.
- 2 Retract the tool from the part and increase tool working diameter by approximately .01mm to .02mm (.0005 to .001 inch) over the prepared part diameter. On SRMR and SRMB tools, a one notch change equals .002mm (.0001 inch) diameter change. On tools over 50.0mm in diameter, calibrations are in .005mm (.0002 inch) increments.
- 3 Now, run the first part and check for finish. Readjust tool diameter as necessary to obtain desired surface finish. Several trial runs may be necessary; however, once properly adjusted, only one pass of the tool is required for roller burnishing.
- 4 Measure finished parts for size. The difference between the prefinished and roller burnished sizes represents actual stock displacement. If necessary, modify the prefinished size to allow for more or less stock displacement.
- 5 If the prefinished size is changed, the burnishing tool must be adjusted by the same amount as the cutting tool to produce the desired finish.

Stock displacement

Approximate pre-finishes resulting from common machining operations and the probable displacements produced by the roller burnishing process are listed below

PREFINISH OPERATION	Prefinish surface	
	Micrometers	Microinches
Hone	.25-.50	10-20
Grind	.50-1.00	20-40
Ream	1.00-1.50	40-60
Bore, Turn (Medium)	2.00-3.00	80-100
Bore, Turn (Rough)	3.75-5.00	150-200

PREFINISH OPERATION	Expected displacement by burnishing	
	Millimeters	Inches
Hone	.002-.005	.0001-.0002
Grind	.005-.010	.0002-.0004
Ream	.010-.015	.0004-.0006
Bore, Turn (Medium)	.020-.030	.0008-.0012
Bore, Turn (Rough)	.038-.050	.0015-.0020

Surface finishes of .25micrometers (10 microinches) Ra and below are obtainable provided that the prepared surface is uniform and tearfree.

Tool operation

Standard Roll-a-Finish tools are designed for right-hand rotation. When the Roll-a-Finish tool reaches the end of the desired roller burnishing length, pull the tool from the bore. This reverse action causes the rolls to collapse slightly in the cage to make withdrawal easy.



Part preparation & operating parameters for roller burnishing

Coolant

For most metals use any standard grade, light-weight, low-viscosity lubricating oil, or any mineral, sulphur, or soluble oil compatible with the metal or alloy to be burnished and recommended for fine surface finishing.

For aluminum or magnesium alloys use a highly refined oil-based coolant with low viscosity. For cast iron a mineral seal oil is ideal. Flooding the part is recommended.

Filtration of the coolant is highly recommended to remove metal particles and grit.

Maintenance & repair

The Roll-a-Finish tool requires only routine maintenance. For long tool life and optimum performance, tool should be kept free of grit and other foreign matter. Rolls, cage, and mandrel should be examined at regular intervals and replaced when the desired size and finish are no longer obtainable. It is always advisable to replace a complete set of rolls, as there will be some sacrifice of tolerance and finish quality if new and used rolls are mixed.

Tools may be returned to Cogsdill for inspection and reconditioning to return them to original operating performance. Contact Cogsdill's Returns Department for a Return Material Authorization Number to assist us in processing your repair order. We will advise price and delivery before proceeding with the repair.

Interchangeability

Mandrel and race assemblies are interchangeable with tool adjustment assemblies within specified ranges. For example, the SRMR and SRMB tools from 12.0 to 25.0mm have a common adjustment assembly. All standard Roll-a-Finish tools 6.0mm and above can be changed from through-hole to bottoming by changing cage and rolls.

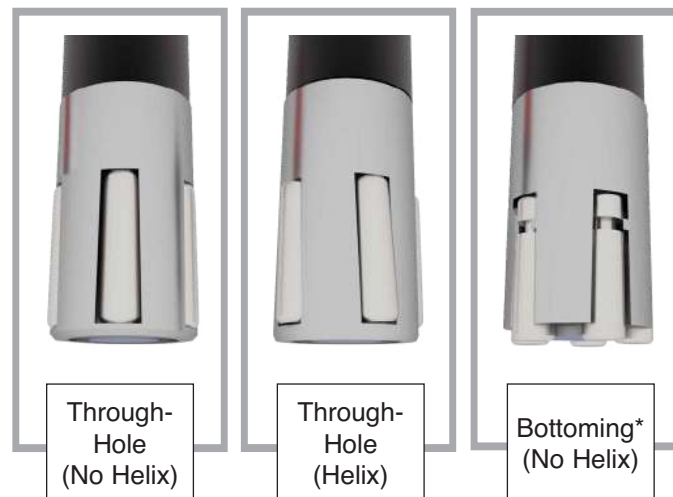
Speed and feed recommendations for internal Roll-a-Finish tools with self-feeding cages ⁽¹⁾

DIAMETER		RPM	FEED PER REVOLUTION	
MM	INCHES		MM	INCHES
4.76	.187	1500-4300	.2540-.3048	.010-.012
6.35	.250	1500-4300	.2540-.3048	.010-.012
7.94	.312	1300-3700	.3048-.3556	.012-.014
9.52	.375	1020-3100	.4064-.5080	.016-.020
11.11	.437	875-2600	.4572-.5842	.018-.023
12.70	.500	765-2300	.4572-.5842	.018-.023
14.28	.562	675-2000	.4572-.5842	.018-.023
15.87	.625	610-1800	.7620-.9144	.030-.036
19.05	.750	505-1500	.7620-.9144	.030-.036
22.22	.875	335-1300	.8636-.9906	.034-.039
25.40	1.000	380-1100	1.219-1.321	.048-.052
28.57	1.125	340-1000	1.295-1.422	.051-.056
31.75	1.250	305-900	1.625-1.752	.064-.069
34.92	1.375	275-825	1.956-2.083	.077-.082
38.10	1.500	255-750	2.286-2.413	.090-.095
41.27	1.625	235-700	2.133-2.235	.084-.088
44.45	1.750	215-650	2.464-2.565	.097-.101
47.62	1.875	205-610	2.794-2.895	.110-.114
50.80	2.000	190-575	3.124-3.226	.123-.127
53.97	2.125	180-540	3.454-3.581	.136-.141
57.15	2.250	170-510	3.785-3.912	.149-.154
60.32	2.375	160-485	4.115-4.242	.162-.167
63.50	2.500	150-460	4.445-4.572	.175-.180
66.67	2.625	145-435	2.235-2.286	.088-.090
69.85	2.750	140-415	2.413-2.464	.095-.097
73.02	2.875	130-400	2.565-2.591	.101-.102
76.20	3.000	125-380	2.565-2.616	.101-.103
88.90	3.500	110-325	3.251-3.302	.128-.130
101.60	4.000	95-285	3.912-3.962	.154-.156

(1) When the self-feeding tool is used with power feed, the feed rate **MUST** exceed the maximum feed rate (shown at left) for a given size. This prevents the rolls from collapsing in the cage and eliminating the burnishing action.

POWER FEEDING CAGES:

The feed rate for SRMR and SRMB tools and bottoming style tools with power-feeding cages must be from .25mm/rev. (.010 IPR) up to the maximum rate (shown at left) for the self-feeding tools for the same diameter.



**Mandrel may be cut off if it does not allow full bottoming.*

Special Applications



Combination



Double diameter



Bespoke external



Taper



Flat-face



Fillet radius



Bayonet style



Internal/External combination



The burnishing tool family

Universal burnishing tools



Micro burnishing tools



Diamond burnishing tools



Skive burnishing tools



Roller burnishing machines









Cogsdill

Burnishing
ZX Tooling System

Recessing and Grooving

Shefcut Deburring

Global
Support
Network



Oil & Gas



Aerospace



Heavy Engineering



Transportation



Power Generation



Marine



Connect with us

For
Additional
Information

Cogsdill-Nuneaton Limited

St George's Way
Bermuda Industrial Estate
Nuneaton, Warwickshire
CV10 7JS, UK
Tel +44(0)2476383792
Fax +44(0)2476344433
Email sales@cogsdill.co.uk
Web www.cogsdill.co.uk

Cogsdill Tool Products, Inc

Tel (803) 438-4000
Fax (803) 4385263
Email cogsdill@cogsdill.com
Web www.cogsdill.com

Cogsdill Asia Pacific Pte Ltd

Tel +65 9769 5658
Email office@cogsdill.sg
Web www.cogsdill.sg

Cogsdill Austria GMBH

Tel +43(0)7665 6024040
Email office@cogsdill.at
Web www.cogsdill.at