

- 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.



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.

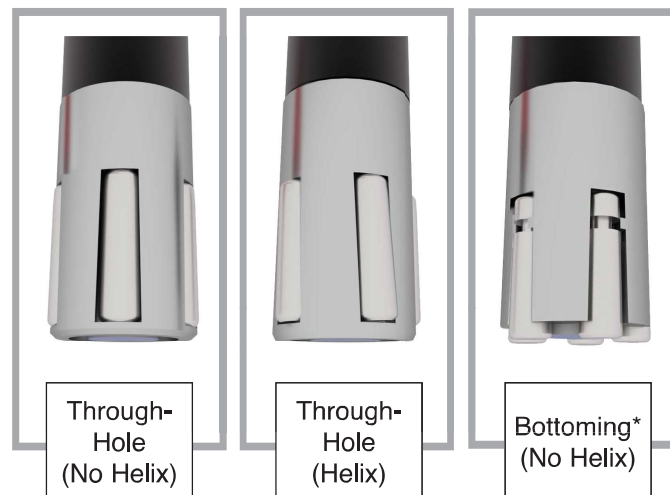
Speed and feed recommendations for internal Roll-a-Finish tools with self-feeding cages ⁽¹⁾

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.