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Drag Finishing

Mass Finishing at its Best

Rosler has a long and successful history of using advanced mass finishing techniques such as drag finishing and plunge finishing. Early efforts focused on large "maxi-drag" machines designed to treat big, heavy components from the aerospace and power engineering industries. More recent advancements include Rosler's highly successful range of mini-drag finishers. These highly cost efficient machines are designed to provide superior surface finishing for low volume batches of smaller, but highly valuable components.



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Applications

Drag finishing and plunge finishing greatly expand the range of mass finishing applications. By ensuring precise, repeatable finishing results, this technology offers significant technical advantages over both manual and robotic grinding and polishing, as well as mechanical brush and grinding systems.

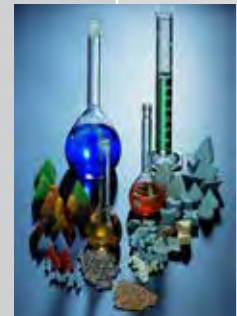
Function

Drag finishing and plunge finishing are highly specialized mass finishing methods. Ideally suited for processing delicate, high value, components, these processes provide precise, targeted surface finishes.

The process parts are attached to spindles and dragged through a work bowl filled with grinding or polishing media to prevent part impingement or part-on-part contact.

Media and Consumables

Rosler offers the largest range of mass finishing consumables. The result of over 60 years of experience in research and development, we offer over 8,000 different types of ceramic media, plastic media and compounds to our customers around the world.



Drag Finishing - 40X More Grinding Power

Rosler drag finishing systems offer a wide range of surface finishing options, from aggressive grinding to high gloss polishing, and provide 40 times more grinding power than typical rotary vibrators. With a compact foot print, functional design and user-friendly operational features, SF series machines are easily integrated into your surface processes.

1 Spinner drive

The rotating spinner features individual spindles and special fixtures. Each rotates independently and can be adjusted within a given speed range.

- Spinner with variable speed and rotation settings
- Workstations:
 - SF mini-drag series has a central drive system
 - R 4/1300 SF and SF A models features individual workstation drives
 - Options for 2, 4, 6 or 12 workstations equipped with quick connect coupling system for component fixtures
- Fixture angles are adjustable between 0 and 25° (optional)
- Linear guide for spinners' hydraulic vertical movement
- Optional photoelectric barrier controls immersion depth

2 Work bowl

The work bowl contains the grinding or polishing media, and can accommodate wet or dry processing.

- Work bowl can be quickly changed and is easily transported with a manual pallet truck or forklift
- Media unload plug
- Wear-resistant, polyurethane lining
- Bottom drains with large screen area and optional drain flush system
- Optional process water level control

Special accessories:

Wet processing:

- Vibratory motor for mixing the grinding/polishing media
- Special bottom screens for undersized media discharge

Dry processing:

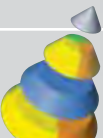
- Cooling system
- Dust extraction system with integrated dust collector



Special Workstations

Adjustable work station angle

Components with complex geometrical shapes must frequently be positioned at an angle. Depending on the machine type, this is achieved by positioning the spindles at an angle of up to 25°.



3 Overall machine design

All Rosler compact drag finishers have a small foot print and are designed for "plug and play" installation.

- Noise-reducing enclosure
- Access door with safety interlock and sliding window for easy access and operation
- Machine controls and dosing system accessible from the enclosure

4 Machine controls

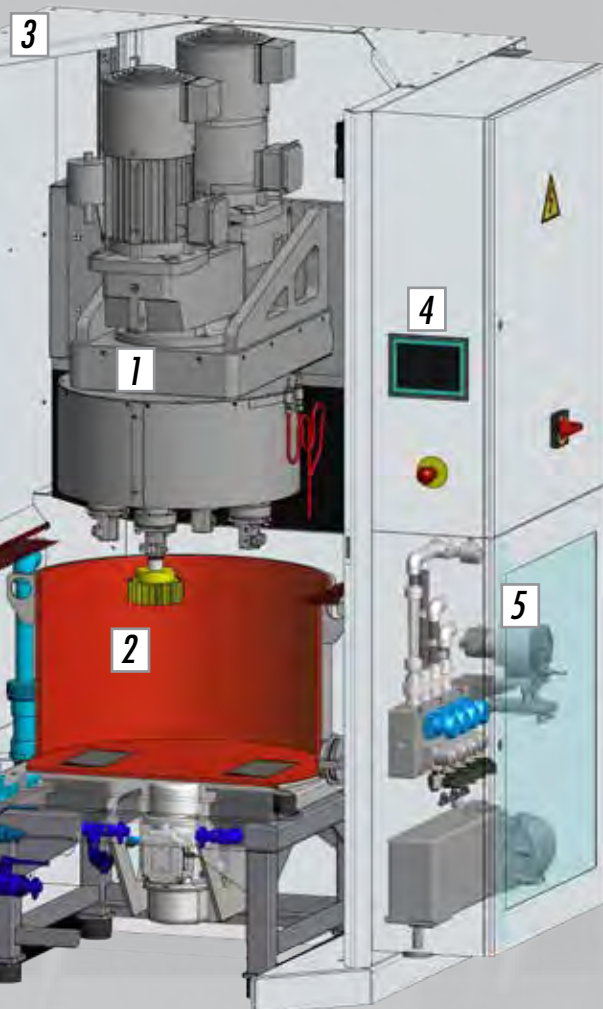
All equipment functions are available for manual and automatic operation. Specific processing programs can be stored in the PLC and selected by an optional bar code scanner.

- PLC controls with 8" multi touch color screen
- Easily programmable processing alternatives
- Clear text display of all process stages

5 Process water management

Precise, repeatable finishes require exact water and compound dosages

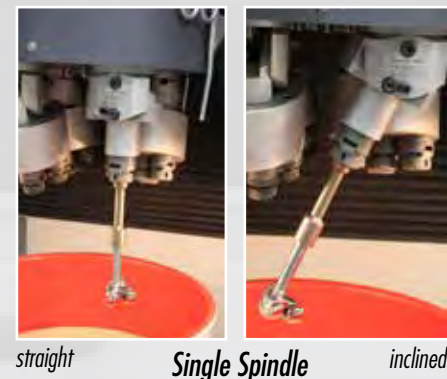
- Fresh water processing, separate water and compound flow control
- Recycled process water, special package with centrifuges



Fixtures are specifically designed to hold the process components and are attached to workstations integrated into the rotating spinner. They are partially immersed in the grinding/polishing media.

Workstations with multiple spindles

Workstations can be designed with multiple spindles. Additional rotation of individual spindles guarantees an all-around, equal surface finish. With the integrated angle adjustment, even difficult to reach areas receive a perfect finish.



Single Spindle



Multiple Spindles

The SF and SF-A Mini-Drag Finishing Systems

The Rosler mini-drag finishing system is suitable for highly complex grinding and polishing processes and can be easily integrated into practically any manufacturing line.

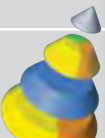


SF Series

A universal system for almost any processing task and designed for manual work piece handling.

Technical data:

Technical data:		S
<i>Machine type</i>	R 4/700 SF	
<i>Number of work bowls</i>		1
<i>Work bowl Ø (mm/inches)</i>		700
<i>Max work bowl height (mm/inches)</i>		430
<i>Usable work bowl volume (l / cuft)</i>		134
<i>Total work bowl volume (l / cuft)</i>		165
<i>Number of workstations (pcs)</i>		4
<i>Power of main drive (kWh)</i>		4
<i>Power of spindle drive (kWh)</i>		3
<i>Power of work bowl drive (kWh)</i>		0,3
<i>Total connected power (kWh)</i>		9
<i>Space req (L x W x H)</i>		1,3 x 1,5 x 2,6



SF-A Series, "A" - for easy automation

The model series SF-A includes technical features that allow the integration of robotic material handling systems.



Workstations with Servo drive and optional angle and radial adjustment



Post finishing treatment
Rinsing – Drying



Technical features

- Torsion-resistant design
- Servo drive for the workstations/spindle heads, with precise spinner positioning
- Workstations:
 - Angle and radial adjustment
 - Automatic work piece clamping systems

F - Series

SF-A - Series

R 4/700 SF/2	R 6/1000 SF	R 2/800 SF - A	R 3/800 SF - A	R 4/800 SF - A	R 4/1000 SF - A	R 6/1000 SF - A
2	1	1	1	1	1	1
700	1.000	800	800	800	1.000	1.000
430	480	430	430	430	540	540
134	314	160	160	160	380	380
165	377	210	210	210	420	420
4	6	2	3	4	4	6
4	7,5	9,2	9,2	9,2	9,2	9,2
3	3,7	0,75	0,75	0,75	0,75	0,75
0,3	0,6	0,3	0,3	0,3	0,55	0,55
11	12,5	8	9	13	13	14
2,6 x 1,5 x 2,6	1,6 x 1,9 x 2,75	1,5 x 1,7 x 3,2	1,5 x 1,7 x 3,2	1,5 x 1,7 x 3,2	1,8 x 2,1 x 3,5	1,8 x 2,1 x 3,5

The R 4/1300 SF Drag Finishers

The R 4/1300 SF is the largest model among the mini-drag finishers. It has four (4) powerful, versatile workstations and is capable of finishing large component batches or components up to 24 in. (600 mm).

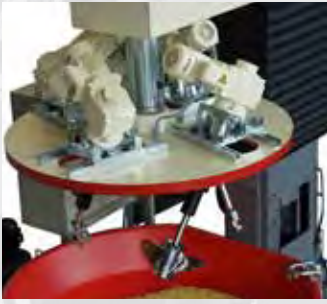
Technical features:

- A sturdy single column holds the spinner and all drive units providing hydraulically activated up and down movement
- Modular concept allows expansion into systems with two or three processing stations
- Independent spinner and workstation drives with adjustable speeds
- Work bowl equipped with vibratory motor
- Safety fence or protective housing with optional noise insulation
- Work station options
 - Angle adjustment
 - Radial adjustment



Drag finisher with protective housing

Flexible Workstations:



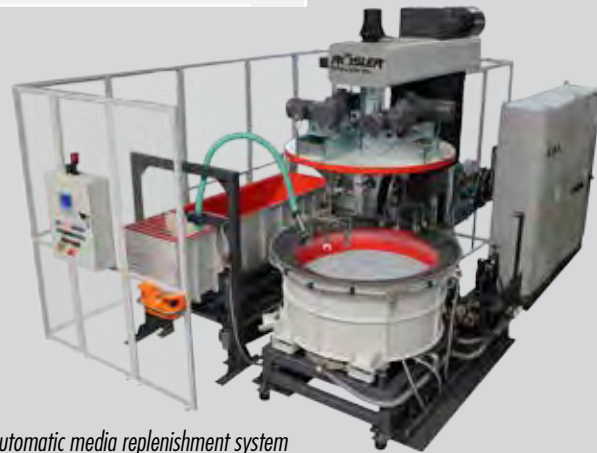
Workstation option: Angle and radial adjustment



Component processing with workstation equipped with eight (8) spindles offers simultaneous processing of 32 work pieces in one batch.






Workstation with radial adjustment; maximum work piece diameter up to 24 in. (600 mm) with two (2) work pieces per batch.



Automatic media replenishment system

Technical data

Machine type	R 4/1300 SF	R 4/1300.2 SF	R 4/1300.3 SF
			
Number of work bowls	1	2	3
Work bowl Ø (mm / inches)	1.280	1.280	1.280
Max work bowl height (mm / inches)	460	460	460
Usable work bowl volume (l / cuft)	590	590	590
Total work bowl volume (l / cuft)	850	850	850
Number of workstations (pcs)	4	4	4
Power of main drive (kWh)	15	15	15
Power of spindle drives (kWh)	0,8 (direct drive)	0,8 (direct drive)	0,8 (direct drive)
Power of work bowl drive (kWh)	3	3	3
Total connected power (kWh)	23	24	25
Space requirements (L x W x H)	2,34 x 3,2 x 3,25	6,2 x 3,5 x 3,25	9 x 3,5 x 3,25

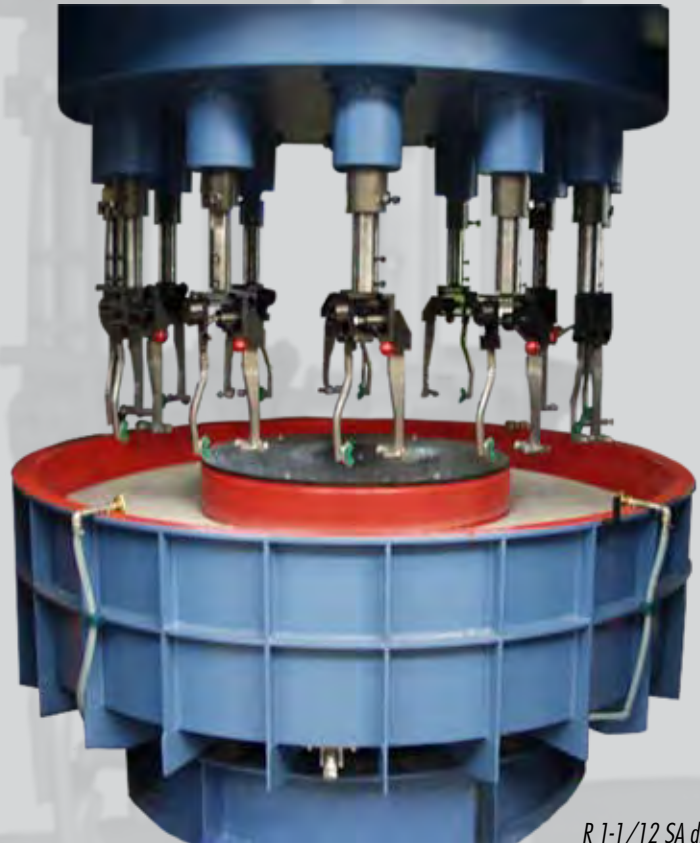
Status: 05/2015

Maxi-Drag Systems

Rosler's large drag finishers are custom engineered systems focused on the component shape, size and weight, as well as the number of components to be finished and the finishing process itself.

Technical features:

- Rugged mainframe with four (4) connected columns holds the spinner and provides the up and down movement
- Rotating or fixed work stations with optional angle adjustment
- Central variable speed drive for spinner and workstations
- 2:1 workstation to spinner speed ratio
- Optional independent drives for workstations
- Work bowl equipped with vibratory motor for mixing the grinding/polishing media
- Bottom of work bowl equipped with large area screens



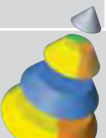
R 1-1/12 SA drag finisher equipped with 12 workstations



12-station system enclosed by sound attenuating enclosure

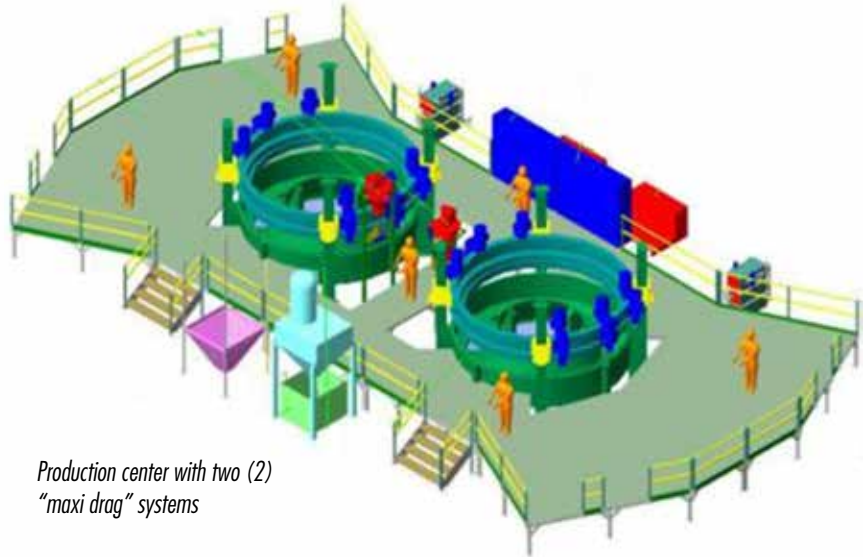
Technical data:

Machine Type
Number of work bowls
Work bowl Ø (mm / inches)
Max work bowl height (mm / inches)
Number of workstations (pcs)
Total connected power (kWh)
Processing channel width (mm / inches)

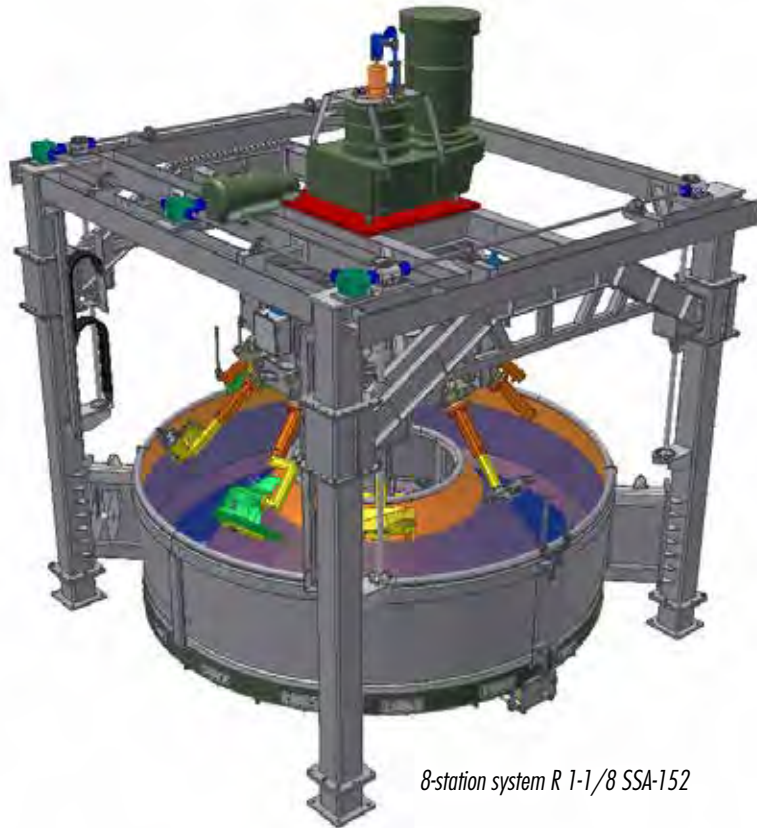




Fixed workstations



Production center with two (2)
"maxi drag" systems



8-station system R 1-1/8 SSA-152



Rotating workstations with adjustable angle
and adjustable speed

R 1-1/12 SSA	R 1-1/6 SSA-125	R 1-1/6 SSA-126	R 1-1/8 SSA-152	R 1-1/10 SSA-114	R 1-1/10 SSA-170
1	1	1	1	1	1
2.220	3.175	3.216	3.870	2.900	4.318
750	991	1.016	1.016	800	1.016
12	6	6	8	10	10
54	93	40	65	80	93
750	1.016	1.067	1.067	740	1.067

Individual Equipment Designs

Drag finishing systems are customized to suit the specific application and the required surface finish. Special robotic material handling systems with component staging options reduce the need for manual handling and intervention.



R 4/1300 SF with enclosure



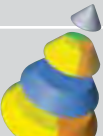
SF - mini-drag finisher for 2-stage processing



R 6/1000 SFA with robotic material handling and complete production center



R 4/1300 SF with automatic media replenishment system





Three-station system with automatic media replenishment: Allows cut down, fine grinding and high gloss polishing without having to remove the components from the workstations.



System with work bowl shuttle



R 4/1300 SF



Maxi drag finishing system



TSA Plunge Finishing Systems Individual Equipment Designs

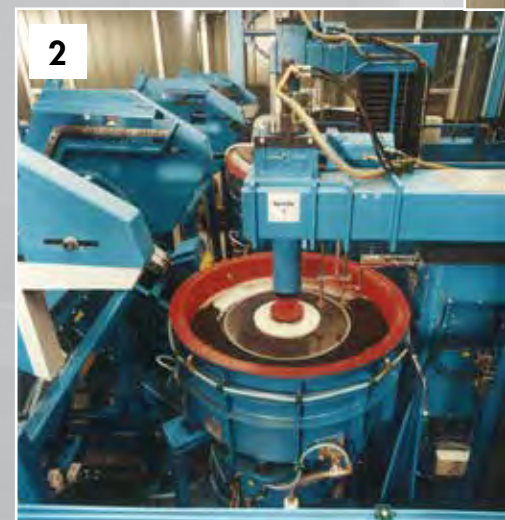
Rosler's TSA series plunge finishers feature a high speed rotating spindle which lowers the attached parts into a work bowl filled with grinding or polishing media. The spindle also reciprocates radially through an arc of 70 degrees, at frequencies up to 500 rpm, and eliminates the need for manual deburring. Plus, vertical oscillation and eccentric orbital movement can be used to enhance the grinding action.

Plunge Finishers can also be configured for multi-stage processes. Individual bowls, each containing a different type of media, can provide aggressive cut down, gentle surface smoothing, and finally high-gloss polishing.

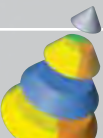


*R 1/1 TSA - 0/VS
Rotary drive with eccentric orbital and vertical oscillation
- Finishing aluminum automotive wheels*

European Patent No. 2108481



R 1/1 R Reciprocal rotary spindle movement





R1/1 TSA - Z/IS – Special plunge finishers for polishing aluminum truck wheels. Centered rotary carousel movement with rotating inner spindle



Automatic part clamping



R 1/1 R plunge finisher with reciprocal rotary spindle movement



TSA - 0 – Special plunge finishing system for milling-rollers and other circular components

TSA - 0 - 2 – Plunge finishing in two separate work bowls - Grinding and polishing

Technical data:

	1	2	3	4
Machine type	R1/1 TSA-0/VS	R 1/1 R	R1/1 TSA-Z/IS	R1/1 TSA-0
Working movement	Carousel/spindle – Rotational direction change and variable speed option	Spindle with reciprocating rotary movement	Rotary carousel with independent inner spindle - rotational direction change and variable speed option	Combined carousel/spindle drive – rotational direction change and variable speed option
Up/down movement	Distance / time variable	–	Variable	Distance / time variable
Work bowl diameter (mm / inches)	1.170	1.200	1.050	1.050
Work bowl height (mm / inches)	680	606	680	650
Total connected power (kWh)	20	33	16	16
Power of carousel drive (kWh)	7,5	–	9,2	7,5
Power of spindle drive (kWh)	7,5	30	2,2	–



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Rosler Metal Finishing USA, LLC offers the widest range of surface finishing equipment in the industry, including mass finishing and shot blasting equipment, media, compounds and effluent treatment. We serve North American customers from our 300,000 sq. ft. manufacturing campus in Battle Creek and support global customers through our worldwide network.

Our company slogan "*finding a better way...*" is exactly what we do. After evaluating what the end result should be, our highly-trained employees choose from the most extensive product range in the industry to develop unbiased, cost-effective solutions. Send us your challenge.



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