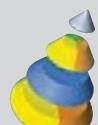


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*High Power Systems for Drag
Grinding and Drag Polishing*



High Power Drag Grinding Systems

Most up to date technology for solving processing difficulties.

Drag Grinding – Drag Polishing

This high power process is the continuing development of vibratory finishing technology. It opens up new perspectives and allows for the automatic processing of high value components. Up to now, such components could only be treated manually to produce the required quality.



The effectiveness

of RÖSLER high power drag grinding systems is up to 50 times greater than common vibro finishing systems, and 10 times greater than high energy systems. This is due to the special powerful drives used.

The economy

of RÖSLER high power drag grinding systems is substantial despite the very high grinding effectiveness. With regard to grinding effectiveness, the grinding and polishing depreciation is considerably lower than in rotary vibrators or in high energy systems. Due to the static media mass in RÖSLER high power drag systems, only those media in direct contact with the components are subject to depreciation. In vibrators and high energy systems, a high quantity of the media are working against each other, few work upon the components.

Amortization of RÖSLER High Power Systems

The up to date technology and enormous capacity of these machines allow for the processing of expensive components which, up to now, had to be restricted to costly manual processing.

Suitable machines, capable of treating the components without damage, were simply not available.

With regard to manual processing, RÖSLER high power drag grinding or drag polishing systems can replace 10 manual workers. With three shift production, savings of up to over 500 000 EUR per year can be realized. The amortization of RÖSLER high power systems varies between 6 and 12 months, depending on the components.

Both RÖSLER special service options offer effluent and a residue free operation for drag grinding and drag polishing, and solve all your disposal problems. The service options are called RÖSLER Turbo Floc® and RÖSLER Clear Matic®.

- ▶ Effluent is changed to circulating process water.
- ▶ Drag grinding depreciation changes to reusable value media, and will be uplifted by RÖSLER within the framework of the Öko-Pac System.
- ▶ Empty packaging material will be uplifted and reused within the framework of the RÖSLER direct delivery service.



Drag Grinding and Drag Polishing of your high and sensitive components free of charge



The RÖSLER group has more than 10 test centers around the world, where sample treatments for customers or interested companies can be made.

During the sample treatment, your components are dragged through a static grinding or polishing media mass with high rotation speed without coming into contact with each other. If required, the components can also rotate around their own axis.

Characteristics

Characteristic features of your components for drag grinding or drag polishing in a RÖSLER high power system:

- ▶ At present the components are treated by lengthy and costly hand labor.
- ▶ The components must be processed absolutely equally and consistently.
- ▶ High levels of unusable components due to varying manual treatment resulting from "the human element" must be eliminated.
- ▶ You need new approaches due to a lack of expertise in the workforce.
- ▶ The components consist of materials which are difficult to machine or are very hard.
- ▶ The components are complex in shape and geometry, having many radii.
- ▶ The components are extremely sensitive and must not come into contact with each other during processing.
- ▶ The components need to have extremely smooth surfaces.

Product groups

Product groups particularly suitable for drag grinding and drag polishing in a RÖSLER high power system:

- ▶ Propellers, water and air.
- ▶ Hand tools such as pliers, hammers, etc.
- ▶ Electric and air pneumatic tools (screwdrivers etc.).
- ▶ Bone implants.
- ▶ Handles and armatures (high value items).
- ▶ Irons (eg smoothing sliding surface after coating).
- ▶ Turbine blades.
- ▶ Textile machinery (large thread guiding components).
- ▶ Armatures (valve covers).
- ▶ Gearbox components (housings and gears).
- ▶ Forgings (surface polishing).
- ▶ Weapon components.
- ▶ Machine components (complex shapes).
- ▶ Hydraulic components (pump & motor components).

Selected processing samples for grinding · smoothing · polishing · deburring · radiussing

Rösler high power systems improve component quality and environmental conditions.

Irons

Smoothing and polishing of the sliding surface after coating.



Armatures

Grinding, smoothing and polishing after casting or forging.



Turbine blades

Grinding and smoothing after casting or machining.



Door handles

Smoothing and polishing after shaping or belt grinding.



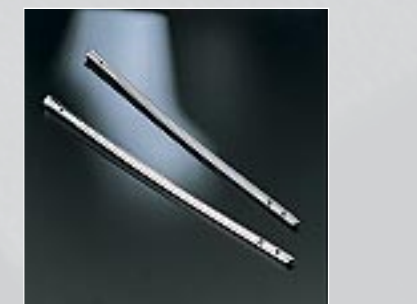
Drill housings

Grinding, smoothing and polishing after machining or belt grinding.



Bone implants

Deburring, radiussing and polishing after machining



High-Tech Drag Grinding and Drag Polishing Systems

The most modern technology for solving your processing problems. Cost saving linear systems and high power rotation systems for processes without stoppages.

Rösler High-Tech Drag Grinding and Drag Polishing Systems

Depending on the requirements of the components, one, two or three step processes may be necessary.

Number of Steps	Process Steps		
1	Deburring or radiussing or smoothing or polishing etc.		
2	Deburring or radiussing or grinding etc.	+ Fine grinding or smoothing or polishing etc.	
2	Deburring or radiussing or grinding etc.	+ Fine grinding or smoothing or polishing etc.	+ Polishing or washing or change of components

Different processes usually require different media (grinding media, polishing media, etc.) In principle, more processing steps can be undertaken in all single systems (Type A). However, this requires frequent charging and discharging of the components, as well as media changes. This makes the system uneconomical.

Rösler Linear System for fully automatic processes

With these automatic machines (Types B + C) we have created cost saving alternatives, in which 2 or 3 several (Type B) process steps can follow on consecutively without changing the media and discharging/charging the components.

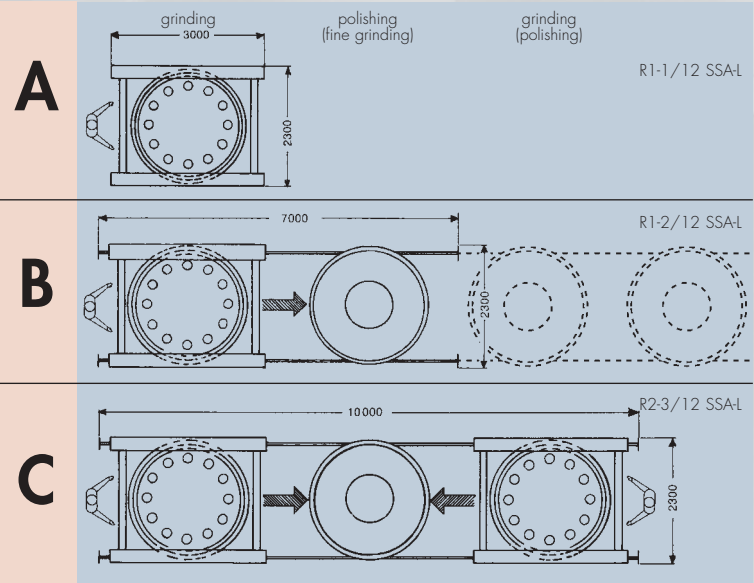
Rösler High Power Rotations Systems

Fully automatic processes without stoppages. These high power systems developed by Rösler offer a parallel cycle with 3 process steps. As all process steps function simultaneously, all charging, discharging and stoppages are eliminated. Theses rotation machines developed by Rösler guarantee a considerably higher output than linear systems. They are, therefore, the most efficient machines in this field.

Advantages of Drag Grinding and Drag Polishing Systems

- ▶ 12 rotating spindles for securing one or more components are supplied as standard equipment and are situated on a rotation plate. More spindles are available on request.
- ▶ Progressively adjustable turntable rotation speed.
- ▶ Turntable rotation direction reversible.
- ▶ Spindle RPM can be acitvated or switched off.
- ▶ Progressively adjustable spindle speed independent or rotor speed.
- ▶ Turntable spindle direction.
- ▶ Spindle axis adjustable.
- ▶ Integrated washing and blasting system for processed components.
- ▶ Processing spindles with quick change connections equipped with automatic lock and foot-operated pneumatic release.
- ▶ If requested, automatic component change by industrial robot.
- ▶ Automatic supplement of any media loss.
- ▶ Equipment facilitating automatic change of processing mechanism.
- ▶ Intergrated chip classifying system for process mechanism.
- ▶ Automatic rinsing of process bowl for complete drainage of component and media depreciation, including level control for adjustment of processing intensity.
- ▶ Automatic circulation of process water.
- ▶ PLC control with operator guide for automatic process cycles.

Type: Linear Systems



Type: Rotation Systems

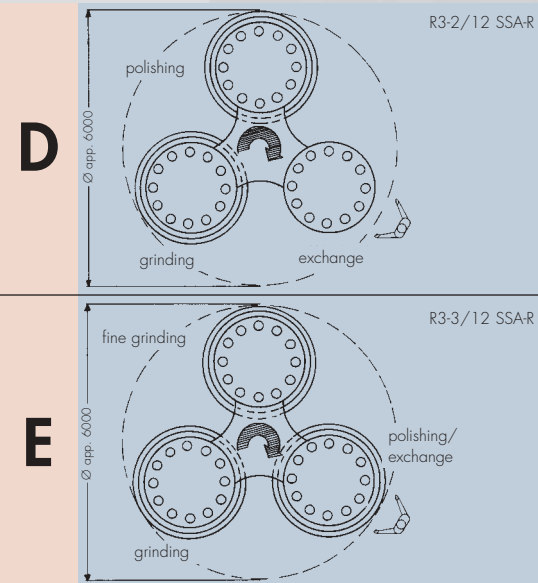


Table of comparson. System capacity with presel times and numbers of components per spindle.

	type	A number process spindle	B components per spindle	grinding rough	fine min	polishing min	change min	machine cycle min	system capacity parts/h	process	
A	R1-1/12 SSA-L	12	4	/	20	/	5 ¹	25	115	1 step	LINEAR SYSTEMS
B	R1-2/12 SSA-L	12	4	/	20	10	5 ¹	35	80	2 step	
C	R2-3/12 SSA-L	24	4	/	20	10	5 ¹	35	160 polishing time may be only 50% of the grinding time	2 step	
D	R3-2/12 SSA-R	36	4	/	20	10 to 20	5 ² to 20	20	144 polishing and grinding time may be similar	2 step	ROTATION SYSTEMS
E	R3-3/12 SSA-R	36	4	20	20	10	5 ³ to 10	20	144 polishing time needs to have reserves for component exchange.	3 step	

¹ = Component exchange with stopped machine, part of total batch time.
² = Component exchange at a separate station during processing of the other station. The exchange time is not stoppage time and can last up to 20 minutes in the sample without influencing the machine capacity (this is specially recommended for components which are difficult to change.) The polishing time can aslo last 20 minutes without influencing the machine capacity.
³ = Component exchange is carried out at the polishing station, after the polishing time, during the remaining time difference to the grinding time. During the exchanges the other stations are operating. The exchange time is no stoppage time and does not influence the machine capacity.

Varying component sizes require flexibility within the system production:

- ▶ Process bowl diameters from 500 mm to 720 mm.
- ▶ Spindle center distances from 382 mm to 720 mm.

Special constructions according to customer requirements on request.



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