

High-quality and precise finishing of single components

Drag finisher Surf-finisher Plunge finisher



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Mass Finishing



High-performance equipment and innovative technologies – productive and cost-effective

Shot Blasting

AM Solutions



Customer-oriented equipment technology and intelligent process solutions – long-lasting and energy-efficient



Comprehensive solutions for additive manufacturing, especially 3D post processing equipment

>80	More than 80 years of experience
Ŷ	15 locations – over 150 distributors – over 1,500 employees across the globe
	Worldwide Customer Experience Center
	More than 15,000 different types of media and compounds
24	Our technical service – round-the-clock support
	Transfer of professional knowledge

Transfer of professional knowledge by certified trainers



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DRAG FINISHING EQUIPMENT

Rösler drag finishing machines represent the ideal finishing solution for **high-value**, **delicate and geometrically intricate work pieces**, which must not touch each other during the entire finishing process. Compared to traditional mass finishing methods, drag finishers achieve a **40 times higher processing** **intensity.** Because it produces absolutely repeatable results, allows the integration of different finishing steps into one single process and requires very short cycle times, the drag finishing technology is the ideal solution for automated finishing processes.

Functional principle

Drag finishers consist of a carousel equipped with up to 12 rotating work stations and a stationary work bowl filled with grinding or polishing media. For certain applications each work station can be equipped with multiple rotating spindles. The work pieces are attached to the rotating work stations or spindles with special work piece holders. As the carousel is lowered, the work pieces are immersed into the processing media. The carousel rotation along with the rotation of the work stations and spindles causes the work pieces to collide with the stationary processing media causing a high amount of pressure between media and work pieces. This guarantees absolutely homogeneous finishing results. The immersion depth and rotational speed of carousel, work stations and spindles can be individually adjusted. A simple exchange of work bowls containing different media allows wet and dry processing as well as combinations of different finishing processes.



Applications

Dragfinishing is ideal for processing high-value, geometrically intricate and delicate work pieces requiring a precise and targeted surface finish. Throughout the entire process the work pieces never touch each other. An extremely sturdy equipment design allows the treatment of work pieces with dimensions of up to 700 mm and weights of up to 300 kg. Drag finishers are frequently used for applications in the medical engineering, aerospace and tooling industry. However, they are also utilized for finishing drive train and transmission components. Drag finishing is equally effective for deburring, edge radiusing, surface grinding, smoothing and polishing.











DESIGN FEATURES

Rösler drag finishers are characterized by their **exceptionally high productivity** and a **surprisingly small foot-print.** This

allows the integration of the most complex grinding and polishing operations into any manufacturing line.

Overall design

- Sturdy and noise-absorbing enclosure
- Access door with a sash (sliding) window for easy and ergonomic work piece loading/unloading
- > Plug & Play design minimizes the time for installation and commissioning



Drive unit

- Carousel, work stations and spindles equipped with separate drive systems; allows the optimal adaptation of the processing intensity to the required finishing results
- Monitoring of the immersion depth helps to prevent work piece and machine damage
- Two-hand positioning of the carousel for easy work piece loading and unloading

Spindles

- Flexible amount of rotating spindles on the work stations. 2, 3, 4, 6 spindles possible. Equipped with quick-connect couplings for the work piece holders
- Work stations or spindles can be tilted at an angle of up to 25°
- Different spindle head versions available: Mono- or multi-spindle heads guarantee the best possible finishing results





Mono-spindle head

Multi-spindle head

Work piece holders

- For attaching the work pieces to the work stations
- Manual or automated attachment of the work pieces to the work stations/spindles
- Depending on the work piece shape and finishing process, individualized handling solutions are available, all made in-house
- The work piece holders are precisely adapted to the respective machine type

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Work bowl

- ▶ Highly robust polyurethane wear lining
- Wet and dry processing possible
- ▶ Work bowl exchange requires no tools
- Adjustment of the water level in the work bowl allows the precise adaptation of the processing intensity and, thus, ensures perfect finishing results
- Automatic replenishment of the processing media guarantees absolutely consistent surface finishes





Repeatable finishing processes

Wet processing:

- > Vibratory motor in the bottom of the work bowl for intensive mixing of the processing media
- Large screens for undersized media discharge and powerful rinsing

Dry processing:

- Dust collector
- Cooling unit
- > Sensor controlled media replenishment

Controls

- > Electrical controls equipped with PLC and user-friendly operator panel (HMI)
- Allows operation with different processing programs
- Easy integration into the customer ERP / MES systems
- ▶ Remote trouble shooting
- Optional tracking system for collection of the work piece data

Dosing system for flow-through or recycling mode for the process water

- ► Integrated work piece cleaning station
- Individual adaptation of the process water flow to each processing stage



DRAG FINISHERS, MODEL RANGE SF

For manual mounting of the work pieces to the work stations/spindles

SF drag finishers are ideal for finishing work pieces that are produced in **small and midsize volumes.** The raw work pieces are **manually mounted** to the work stations/spindles. Mounting and dismounting can be **easily handled** through an access door equipped with a sash (sliding) window. Various programs, easily called up through the HMI, allow running different finishing processes with precisely defined operational parameters.

Technical highlights

- Torsionally rigid equipment design
- Separate drive units for the carousel and the work stations
- Angle adjustment for the work stations and spindles
- Manual mounting of the work pieces to the work stations
- Two-hand positioning of the carousel for easy work piece loading and unloading
- Adjustable immersion depth for the work stations with attached work pieces

Options

- Specially designed work piece holders
- Cooling system
- Noise protection
- Automatic media replenishment
- Special suction device for extracting the media from the work bowl



Rösler drag finisher, model R 2/700 SF

Technical data

Model range:	R 4/700 SF	R 4/700 SF.2	R 6/1000 SF
Number of work stations	4	4	6
Number of work bowls	1	2	1
Work bowl diameter (mm)	700	700	1,080
Installed electrical load (kW)	9	9	12.5
Overall dimensions (L x W x H) (m)	2.1 x 1.5 x 2.6	3.4 x 1.5 x 2.6	2.3 x 1.9 x 2.8



DRAG FINISHERS, MODEL RANGE SF-A

For fully automatic processing

Drag finishers of the model range SF-A can be **fully automated including the utilization of suitable robots.** The automation not only includes the automatic loading/unloading of the work pieces but also the entire process sequence as well as the cleaning of the finished work pieces. With sophisticated **automation solutions, all designed in-house,** we will gladly develop a concept tailored to your specific finishing requirements.

Technical highlights

- Torsionally rigid equipment design
- Servo drive technology allows precise positioning of the carousel and the work stations for loading/unloading of the work pieces
- Angle adjustment for the work stations and spindles
- Automatic clamping of the work pieces, respectively, work piece holders
- Expanded system controls for integrating peripheral equipment
- Adjustable immersion depth for the work stations with attached work pieces
- Separate windows in the machine enclosure for loading and unloading of the work pieces

Options

- Specially designed work piece holders
- Special work piece clamping and release solutions
- Work piece cleaning station
- Cooling system
- Noise protection
- Automatic media replenishment
- Special suction device for extracting the media from the work bowl



Technical data

Model range:	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
Number of work stations	2	3	4	4	6
Number of work bowls	1	1	1	1	1
Work bowl diameter (mm)	800	800	800	1,080	1,080
Installed electrical load (kW)	9	11	13	13	14
Overall dimensions (L x W x H) (m)	2.1 x 1.9 x 3.4	2.1 x 1.9 x 3.4	2.1 x 1.9 x 3.4	2.3 x 2.4 x 3.5	2.3 x 2.4 x 3.5

LARGE DRAG FINISHERS AND SPECIAL FINISHING SOLUTIONS

For processing of large and heavy work pieces

Large drag finishers are **especially sturdy** machines for finishing **large and heavy work pieces.** Equipped with multiple

multi-purpose work stations, they allow the processing of large work piece volumes.



Technical data

Model range:	R 4/1300 SF	R 4/1300.2 SF
Number of work stations	4	4
Number of work bowls	1	2
Work bowl diameter (mm)	1,280	1,280
Installed electrical load (kW)	23	23
Overall dimensions (L x B x H) (m)	2.5 x 3.2 x 2.5	6.5 x 3.5 x 2.5

Additional data available upon request

Special solutions

Are you not finding a suitable solution in our range of standard machinery? We also offer custom-engineered drag finishers that are tailored to the individual customer needs.

We will gladly develop an equipment concept and finishing process that meets your specific technical requirements.



SURF-FINISHING

Surf-finishing is the **most intensive** mass finishing technology. It is particularly suited for **high-value components with complex shapes** that can be **easily clamped.** Compared to conventional vibratory finishing this technology increases the **processing intensity by a factor of 50!** Rösler surf-finishers **replace** time-consuming, costly manual finishing operations.

Functional principle

Rösler offers two equipment types: (1) Surf-finishers with robot-guided work piece finishing in the work bowl and (2) Multi-surf-finishers with multiple work spindles attached to a carousel. The rotation of the work bowl, filled with processing media, results in an extremely intensive finishing operation with short cycle times. The robot-guided finishing process can precisely expose the different work piece contours to the media in the rotating work bowl. In the multi-surf-finisher the work pieces are attached to the work spindles and finished through a simultaneous tilting and rotational motion. Surf-finishing allows the targeted finishing of precisely defined surface sections on the work pieces. Robot-guided as well as multi-surf-finishers allow the simultaneous processing of several work pieces. They are equally suitable for wet and dry finishing operations. Because of their high process stability they represent a real alternative to brush deburring, belt grinding and dedicated polishing equipment. Depending on the specific technical requirements, the desired finishing results can be achieved in cycle times of 30 seconds to 10 minutes.



Applications

The surf-finishing technology opens entirely new fields for mass finishing, especially for high-value precision components requiring the targeted finishing of specific surface areas. Even on work pieces with complex shapes it produces perfect surface finishes with roughness readings of Ra < 0,02 μ m, or Rz < 0,2 μ m. An important precondition is that their shape must allow easy clamping of the work pieces.

The surf-finishing technology is particularly suitable for applications in the medical device, aerospace and tooling industry. However, it also offers numerous benefits for finishing drive train and transmission components. Surffinishing is equally effective for the precisely defined deburring, edge radiusing, surface grinding, smoothing and, even, high-gloss polishing.



DESIGN FEATURES

The Rösler surf-finishers offer **top performance** and **excellent precision.** In combination with **automated work piece handling** the surf-finishing technology is **equally effective**

in treating only **targeted** or **all surface areas** on the work pieces. With numerous concepts we can offer individualized automation solution for our customers.



Work piece logistics

• The work piece handling, including transport, is adapted to the individual customer requirements. Generally, this is fully automated.



Work bowl

- Work bowl is rotating
- Different work bowl sizes
- Variable rotational speed
- Optimal supply and discharge of the process water

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Robot-guided surf-finishing system

- 6-axis industrial robot
- The work pieces, precisely placed in a staging area, are picked up by the robot(s) equipped with special grippers
- Internal or external gripping or preparatory mounting of the work pieces to suitable work piece holders



Equipment controls

- Control panel with PLC and large operating panel (HMI) (operating panel can be detached)
- Allows operation with different processing programs
- Easy integration into the customer ERP / MES systems
- Remote trouble shooting
- > Optional tracking system for collection of the work piece data



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Process water dosing system

Individual adaptation of the process water flow to each processing stage

Work piece cleaning station

- For the removal of residual media, metal & media fines and general contaminants
- Cleaning by compressed air or process water



SURF-FINISHER

With robot-guided work piece finishing

Surf-finishers are **extremely flexible** and **high-performance** finishing systems **for treating single high-value components.** Depending on the work piece size and weight we can offer different machine sizes. Robotic work piece handling allows **fully automatic operation** with a practically unlimited amount of motions in the work bowl. This results in **individualized** surface finishing processes with absolutely **repeatable results.**

Technical highlights

- Robot-guided work piece finishing
- Individualized gripper solutions
- Rotating work bowl
- 6-axis industrial robot
- Protective enclosure
- > Expanded system controls for integrating peripheral equipment

Options

- Work piece cleaning station
- Individualized work piece logistics
- Expansion by one additional industrial robot
- Noise protection
- Automatic media replenishment
- Special suction device for extracting the media from the work bowl





Scan or click to see the Surf-Finisher in action

Technical data

Model range:	RSF 700	RSF 1800
Work bowl diameter (mm)	850	1.780
Installed electrical load (kW)	12	23
Overall dimensions (L x B x H) (m)	2,9 x 2,0 x 2,4	4 x 3,2 x 2,6



MULTI-SURF-FINISHER

For fully automated and intensive finishing operations

The multi-surf-finisher allows the simultaneous processing of **multiple work pieces.** Like in drag finishing systems the work pieces, mounted to special work piece holders, are clamped to the work spindles. The main difference is that the work spindles, as well as the work bowl filled with grinding or polishing

media, are rotating. This results in a **much higher processing intensity.** The clamping of the work pieces to the spindles can be done manually (M model range), or it can be automated by using an industrial robot (A model range).

Technical highlights

- Rotating work bowl with direct drive
- Torsion-resistant equipment design
- Servo drive technology allows precise positioning of the carousel and the spindles for loading/unloading of the work pieces
- Angle adjustment for the work spindles
- Variable number of working spindles
- Expanded system controls for integrating peripheral equipment
- Separate windows in the machine enclosure for loading and unloading of the work pieces

Options

- Specially designed work piece holders
- Cooling system
- Noise protection
- Automatic media replenishment
- Special suction device for extracting the media from the work bowl



Technical data

Model range:	RMSF 4/700-M	RMSF 4/800-A	RMSF 6/1000-A
Number of work spindles	4	4	6
Number of work bowls	1	1	1
Work bowl diameter (mm)	850	850	1,080
Automatic work piece loading	No	Yes	Yes
Installed electrical load (kW)	27	27	27
Overall dimensions (L x B x H) (m)	2.0 x 1.3 x 2.4	2.1 x 2.0 x 3.1	2.3 x 2.4 x 3.5

PLUNGE FINISHING

Rösler plunge finishers are particularly suitable for finishing **geometrically complex heavy** and **delicate work pieces.** The simultaneous rotational and up/down movements produce absolutely repeatable finishing results. By way of a special

clamping device the work pieces are mounted to the rotating work spindle and are immersed in the work bowl filled with processing media.

Functional principle

The rotating work spindle immerses one work piece at a time into the work bowl filled with grinding or polishing media. The work spindle can actually execute different motions: Purely rotational, orbital and reciprocal (left/right). These motions, or a combination thereof, produce optimal finishing results. A vibratory motor mounted to the work bow ensures a homogeneous mixing of the processing media. It also promotes the discharge of undersized media and facilitates the immersion of the work piece into the mix of processing media.



Applications

Plunge finishers were designed for deburring, edge radiusing, surface grinding and polishing of large and heavy components. They are primarily used in the automotive and aerospace industry, but also for special industrial finishing applications.





PLUNGE FINISHER

Specially designed machine for finishing large components

Plunge finishers are ideal for the surface finishing of **large and heavy work pieces** with a maximum length of 800 mm and weighing up to 200 kg. **Only one single work piece** is processed at a time. These are true mass finishing machines, suitable for deburring, surface grinding and polishing. During the process the working spindle can perform different motions. This ensures optimal finishing results.

Technical highlights

- Depending on the type of motion it needs to perform, the drive system for the main spindle can be a gear or a servo motor
- Manual or automatic clamping of the work piece to the working spindle
- Expanded system controls for integrating peripheral equipment
- Up-down spindle movement for treating internal surface areas
- Work bowl equipped with a vibratory motor to thoroughly mix the processing media in the work bowl
- Adjustable immersion depth

Options

- Custom-engineered gripper solutions
- Noise protection
- Automatic media replenishment
- Special suction device for extracting the media from the work bowl



Scan or click to see the Plunge Finisher in action



Technical data

Model range:	R 1/1 TSA-O/VS	R 1/1 TSA-Z/IS	R 1/1 TSA-O
Possible motions	orbital / up/down variable spindle	circular / up/down inner spindle/paddle	orbital / up/down variable spindle
Spindle drives	Separate drive systems for the primary and secondary spindles	Separate drive system for the inner spindle/paddle	common drive system for the primary and secondary spindles
Work bowl diameter (mm)	1,170	1,050	1,050
Max. usable work bowl height (mm)	680	680	650
Installed electrical load (kW)	20	16	16

CUSTOM-ENGINEERED AUTOMATED FINISHING SOLUTIONS

The integration of mass finishing systems into fully automated manufacturing lines is major strength of the Rösler company. 9 out of 10 mass finishing systems leaving our manufacturing plants are custom-engineered solutions. of automation, we can provide a variety of material handling systems in combination with specially developed finishing processes. Rösler offers flexible modular systems, all made in-house, which meet any automation requirement the customers may ask for.

Depending on the finishing task and the requested degree

The Rösler possibilities

- Work piece transfer modules to link the mass finishing system with upstream operations
- Work piece handling and transport
- Robotic handling systems
- Integration into work piece washing and drying systems
- Single piece quality control
- > Packaging and staging of the work pieces for downstream operations
- > Process water cleaning and recycling

Additional Rösler services

- Work space studies including simulations of equipment layouts
- Cycle time studies to maximize productive and minimize idle times
- > Virtual reality software for the presentation of equipment concepts

Success stories



Two Rösler drag finishers R 6/1000 SF-A with robotic work piece handling









Rösler multi-surf-finisher RMSF 4/800-A with fully automated gantry loading system





Rösler multi-surf-finisher RMSF 4/800-A integrated into a fully automated processing line. Includes work piece handling with two industrial robots, Rösler continuous flow washing machine and final quality control with marking of the finished work pieces.





RÖSLER SMART SOLUTIONS

A digital added value to meet your challenges

Now is the time to promote the **digital transformation** and develop innovative digitization solutions. Under our new brand **Rösler Smart Solutions** we have developed a comprehensive digitization product that will allow you to **make processes**

and their parameters more transparent and to define the potential for substantial cost savings. Our package creates the potential for optimization significant reduction of the operating costs.















Process monitoring C and recording of data. c

Quick correction of deviations and faults. Intelligent operation with uptime projections.



Optimized utilization of resources and cost reduction.

Consumables



MEDIA AND COMPOUNDS

In addition to our machine program, we also offer the most comprehensive range of media and compounds in the world. All our consumable products have been developed and produced in-house with "Made in Germany" quality. With over 80 years of experience in the field of surface finishing we can provide our customers with tailormade processes for new applications and solutions for product improvement and cost reductions.

Stable and repeatable finishing processes are our specialty.



The world's largest range of media and compounds

With around 15,000 products our portfolio of consumables is the largest in the world. It includes ceramic and plastic grinding and polishing media, compounds and process water cleaners. All our consumables can be individually adapted to the needs and requests of our customers.





Our ceramic media production

Quality

Our production complies with the most stringent environmental standards and is subject to strict quality controls per DIN EN ISO 9001 and 50001.

Excellent product availability

Our central warehouse in Germany stocks more than 8,000 tons of media and compounds. In addition, our global network of branches and many of our channel partners maintain warehouses with consumables close to our customers.

CUSTOMER EXPERIENCE CENTER MASS FINISHING

A major strength of the Rösler business approach is that **we look at all aspects of a finishing task**. The equipment and the processes are individually tailored to the respective finishing requirements, but also to their optimal integration into the customer's manufacturing operation. Most of the Rösler sales

branches have their own **Customer Experience Centers (CEC)**, equipped with the latest finishing equipment.

To investigate the various finishing possibilities, in our CEC we are conducting **processing trials** with the work pieces of our respective customers.



Process development and process optimization

Our all-around approach guarantees perfect finishing solutions. This includes processing trials, process development, selection of the right machinery and a professional after sales service.

In our CEC, equipped with ultra-modern equipment, we can run practically any mass finishing process. State-of-the-art **physical and chemical measuring** equipment represents a vital tool for process development and optimization.

The entire focus of our specialists in the engineering and R & D departments is on developing **tailormade finishing solutions**.

Product development and optimization

The enormous depth of the Rösler product range, CEC around the world and our well-equipped laboratory at the Untermerzbach location in Germany are an excellent basis for the development of innovative and cost-efficient products in the field of mass finishing.

All our products, be it consumables, finishing equipment,

vibratory motors, process water cleaning centrifuges, as well as work piece handling systems and post processing equipment like dryers, are **developed and manufactured** in-house. Such a high manufacturing depth is unparalleled in our industry.



LEARNING FROM THE GLOBAL LEADER

Our comprehensive mass finishing knowhow is founded on over 80 years of experience. As the global technology and market leader in the field of surface treatment we can offer proven









Rösler Academy

The central training center of the Rösler Oberflächentechnik GmbH

- An area of more than 1,350 m² for learning and working
- > Equipped with the latest digital media and communication technologies
- Certified professional trainers
- Specialized fields: Mass finishing, shot blasting, lean management
- More than 10 different training seminars
- Focus on hands-on learning
- Training seminars in German and English
- > Customized training seminars at customer locations upon request

Our professional trainers

All our trainers are certified and are among the best in their respective fields. In our training seminars you will benefit from the extensive experience of our trainers, who will provide you with first-hand practical knowledge.



¹ Source: Evaluation questionnaires filled out by participants, Status 31/12/2022

You can find more information about our seminars, dates and registration procedures under www.rosler-academy.com or scan the QR-Code.





Mass Finishing Shot Blasting **AM Solutions**

www.rosler.com

Germany

Rösler Oberflächentechnik GmbH

Work Memmelsdorf Vorstadt 1 D-96190 Untermerzbach Tel.: +49 9533 / 924-0 Fax: +49 9533 / 924-300 info@rosler.com

Rösler Oberflächentechnik GmbH

Nerk Hausen Hausen 1 D-96231 Bad Staffelstein Tel.: +49 9533 / 924-0 Fax: +49 9533 / 924-300 info@rosler.com

USA

Rösler Metal Finishing USA, L.L.C.

1551 Denso Road USA-Battle Creek MI 49037 Tel.: +1 269 / 4413000 Fax: +1 269 / 4413001 rosler-us@rosler.com

France

Rösler France Koster France Z.I. de la Fontaine d'Azon CS 50513 – St. Clément F-89105 Sens Cedex Tel.: +33 3 / 86647979 Fax: +33 3 / 86655194 rosler-fr@rosler.com

Italy

Rösler Italiana S.r.l. Via Elio Vittorini 10/12 I-20863 Concorezzo (MB) Tel.: +39 039 / 611521 Fax: +39 039 / 6115232 rosler-it@rosler.com

Switzerland

Rösler Schweiz AG Staffelbachstraße 189 Postfach 81 CH-5054 Kirchleerau Tel.: +41 62 / 7385500 Fax: +41 62 / 7385580 rosler-ch@rosler.com

Spain

Rösler International GmbH & Co. KG Sucursal en España Polg. Ind. Cova Solera C/Roma, 7 E-08191 Rubí (Barcelona) Tel.: +34 93 / 5885585 Fax: +34 93 / 5883209 rosler-es@rosler.com

Netherlands

Rösler Benelux B.V. Regeestraat 18 NL-5347 JG Oss Postbus 829 NL-5340 AV Oss Tel: +31 412 / 646600 Fax: +31 412 / 646046 rosler-nl@rosler.com

Belgium

Rösler Benelux B.V. Avenue de Ramelot 6 Zoning Industriel B-1480 Tubize (Saintes) Tel.: +32 2 / 3610200 Fax: +32 2 / 3612831 rosler-be@rosler.com

Austria

Rösler Oberflächentechnik GmbH

Hetmanekgasse 15 A-1230 Wien Tel.: +43 1 / 6985180-0 Fax: +43 1 / 6985182 rosler-at@rosler.com

Romania

Rösler Romania SRL Str. Avram lancu 39-43 RO-075100 Otopeni/ILFOV Tel.: +40 21 / 352 4416 Fax: +40 21 / 352 4935 rosler-ro@rosler.com

Russia

Rösler Russland Borovaya Str. 7, bldg. 4, office 107 111020 Moscow Tel. / Fax: +7 495 / 247 55 80 rosler-ru@rosler.com

Great Britain

Rösler UK Ltd. Kosler UK Ltd. Unity Grove, School Lane Knowsley Business Park GB-Prescot, Merseyside L34 9GT Tel.: +44 151 / 4820444 Fax: +44 151 / 4824400 rosler-uk@rosler.com

Brazil

Rösler Otec do Brasil LTDA Av. Antonio Angelo Amadio, 1421 Centro Empresarial Castelo Branco 18550-000 Boituva São Paulo - Brasil Tel.: +55 15 / 3264-1117 Tel.: +55 15 / 3264-1112 info@roster.etec.com br info@rosler-otec.com.br

China

Rosler SURFACE-TECH (BEIJING) CO., LTD.

Beijing Office Fu Hua Mansion, Office A-11-K No. 8, Chao Yang Men North Avenue Beijing 100027, P.R China Tel::+86 10 / 6554 73 86 Fax:+86 10 / 6554 73 87 rosler-cn@rosler.com

around the world

