

Shot blasting methods for plastics de-flashing





Mass Finishing

(0)

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Shot Blasting



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>80

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by certified trainers

SHOT BLASTING METHODS FOR PLASTICS DE-FLASHING

When it comes to de-flashing of duroplastic (also called thermoset) and highly filled thermoplastic components, the proven end-to-end shot blasting systems from Rösler offer by far the best solution. Through detailed processing trials we develop optimal processes for a multitude of different technical requirements.

Besides the determination of the best processing technology this also includes the selection of the necessary accessories and consumables. The following pages will guide you through our equipment range and the auxiliary services we offer.













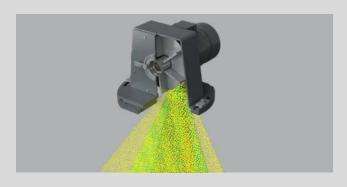
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THE PROCESS | HOW IT WORKS | COMPONENTS

Shot blasting technology

To efficiently remove flashes the blast media is accelerated to a high speed – either with blast turbines or injection (suction) blast nozzles – and thrown at the work pieces. For certain applications, a combination of both shot blast methods is utilized.



Turbine blasting

The turbines in plastics de-flashing machines are specially designed for handling "soft" blast media. The throwing blades in the rotating turbine are picking up the media and accelerating it to the desired throwing speed. Equipped with an electric drive motor, turbines generally require a relatively low energy input and offer high operational efficiency.



Injection (suction) air blasting

Contrary to blast turbines, in injection or suction blast systems the media is accelerated by compressed air and thrown through special blast nozzles. Air blasting is utilized whenever a higher blast intensity and/or targeted blasting is required. Because it offers a higher throwing speed, air blasting is also the preferred blast method for very fine, small blast media.



Turbine W32

The turbines are truly the heart of any turbine blast machine. Specially designed for plastics de-flashing, the Rösler W32 turbine is a highly efficient unit. In combination with soft blast media it ensures not only economical operation but also gentle processing with absolutely consistent high-quality de-flashing results.



Clean work pieces

After completion of the blast operation the work pieces undergo a cleaning and blow-off process that is specially adapted to individual groups of work pieces. To prevent adhesion of blast media pellets and dust - caused by electrostatic effects - all plastic de-flashing machines are equipped with an antistatic spray system. This injects an antistatic compound from a storage tank directly into the blast chamber. The frequently required manual mixing of water and antistatic compound is eliminated by the installation of an optionally available automatic antistatic dosing system. The desired mixing ratio can be set at the operating panel of the equipment controls.



Blast media cleaning and recycling

The entire blast media volume is circulating in a closed loop. In the first step dust and small solid particles are removed out of the blasting chamber with a dust collecting system connected to the blast machine. The second step consists of an integrated multi-stage screening unit. Here, debris like loose flashes, broken flashes, worn blast media and fibers, are discharged. In a third stage the blast media is passing through a cascade air-wash separator, where remaining contaminants, such as dust and fine fibers, are separated from the media. The now perfectly clean blast media is then guided into a storage hopper and is available again for workpiece processing.

This, in combination with the optionally available automatic media replenishment system, ensures high-quality and consistent shot blasting results.



Dust collector

For filtering out and collecting the dust, highly efficient cartridge filters and wet collectors, designed in compliance with ATEX standards, are available. They ensure residual dust volumes that are considerably below the German legal limits. Rösler offers a range of dust collectors with air extraction volumes from 1,000 to 25,000 m³ per hour.



Automation

To ensure high process stability, short work piece loading and unloading cycles, handling of high work piece weights and ensuring consistent de-flashing results, robots and handling systems have become indispensable tools in today's manufacturing environment. Of course, this also applies to the shot blast technology, where such handling tools are successfully integrated into numerous shot blasting installations. From initial concept studies to the detailed definition of all process components, including cycle time analysis and calculation of the costs per piece, Rösler is your competent partner for all aspects of automation. One core competency of Rösler is the integration of shot blast equipment into highly complex manufacturing lines. Tailormade gripper systems for the optimal handling of the work pieces are designed in close cooperation with the customers, built in-house and continuously optimized through long-term studies. Our Rösler automation and programming experts, stationed all over the world, can quickly implement technical modifications and system optimizations.

BLAST CABINET RSKI-S

themselves thousands of times. In their basic version they include an injection blast system and an integrated dust collector. Major features are the front gate – designed as a roll– up door – and the large inspection window. The cabin design is

Rösler blast cabinets are standard machines **that have proven** modular so that components like rotary table or rotary basket can be easily added to the basic version. Numerous options, such as automatic blast nozzle movement and extended media cleaning and recycling, are also available.

The blast cabinet is an ideal manufacturing tool thanks to

- their sturdy design in industrial grade quality
- numerous optional accessories



RSKI 1000-S with vibratory screening unit

Design and technical features

Injection (suction) blasting

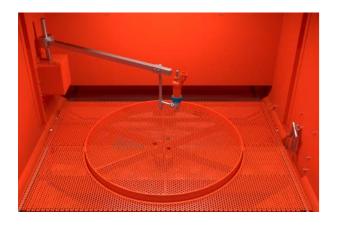
Specifications RSKI-S

| Model | RSKI 1000-S | RSKI 1400-S |
|------------------------------------|-------------|-------------|
| Blast room width (mm) | 990 | 1,390 |
| Blast room depth (mm) | 1,000 | 1,390 |
| Blast room height (mm) | 710 | 740 |
| Blast gun (injection blasting) | SPI 38 | SPI 38 |
| Quantity | 1 (up to 4) | 1 (up to 4) |
| Air nozzle ø (mm) | 3 - 6 | 3 - 6 |
| Blast nozzle ø (mm) | 8 - 14 | 8 - 14 |
| Air demand / nozzle at 3bar (m³/h) | 20 - 80 | 20 - 80 |
| Accessories | | |
| Grate (manual blasting) | • | • |
| Rotary basket / Rotary table | 0/0 | 0/0 |
| Additional accessories | 0 | 0 |
| Air volume dust collector (m³/h) | 300 - 600 | 600 - 1,000 |
| Control panel in contactor version | • | • |
| Control panel with PLC | 0 | 0 |
| Machine width (mm) | 1,370 | 1,370 |
| Machine depth (mm) | 1,930 | 2,010 |
| Machine height (mm) | 1,740 | 1,780 |

• = standard | o = optional

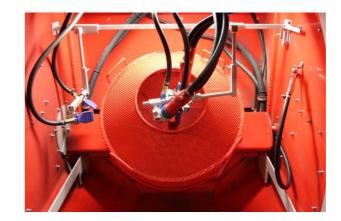
BLAST CABINET RSKI-S

Accessories



Rotary table

For processing bulky, heavy work pieces the blast cabinet can be equipped with a rotary table. Versions in different sizes and for different payloads are available. Rotation can be induced manually or by electric motor. The process can be automated by electric or pneumatic horizontal/vertical nozzle movement.



Rotary basket

Rotary baskets allow the processing of small work pieces, which can freely tumble over each other. The basket can be easily attached to a star-shaped support and can be inclined in different angles. The rotary drive is placed outside of the cabinet. By continuously tumbling over each other in the basket the work pieces are evenly and perfectly de-flashed.



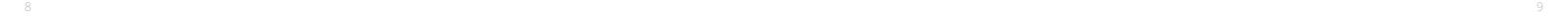
Rotary satellite table

Entire batches of rotationally symmetrical components can be processed in this machine version. The work pieces are individually placed on the satellite stations. During the blast process the satellite table is indexing from one predefined position to the next. The blast operation only takes place when the table is stationary but under rotation of the satellite stations.



Nozzle movement

Automatic nozzle movement allows automation of the entire blast process. The cabin can be equipped with a vertical or horizontal axis.



SATELLITE TABLE BLAST MACHINE RSA

continuous processing of delicate work pieces. They are especially suitable for applications where only partial surface individual work pieces fixtures can be assembled to the areas on the work pieces must be blasted. They ensure short satellites. cycle times because loading/unloading of the work pieces

Rösler indexing satellite table blast machines allow the and shot blasting take place simultaneously. Applications: Rotationally symmetric work pieces and devices for which

The RSA satellite table blast machine is an ideal manufacturing tool thanks to

- very high work piece throughput rates
- easy integration into continuous flow manufacturing lines



RSA 1500-S10 with five dual satellite groups

Design and technical features

Rotary satellite table

Blow-off station

Specifications RSA

| Model | RSA 1500-S4 | RSA 1500-S5 | RSA 1500-S8 | RSA 1500-S10 |
|--------------------------------------|-------------|-------------|-------------|--------------|
| Machine width (mm) | 1,700 | 1,700 | 1,700 | 1,700 |
| Machine depth (mm) | 2,100 | 2,100 | 2,100 | 2,100 |
| Machine height (mm) | 2,500 | 2,500 | 2,500 | 2,500 |
| Max, single work piece size (mm) | Ø 300 x 400 |
| Max, single work piece weight (kg) | 15 | 15 | 15 | 15 |
| Number of satellites | 4 | 5 | 8 | 10 |
| Blast gun (injection blasting) | SPI 38 | SPI 38 | SPI 38 | SPI 38 |
| Quantity | 4 | 4 | 4 | 4 |
| Air nozzle Ø (mm) | 4 | 4 | 4 | 4 |
| Blast nozzles Ø (mm) | 10 | 10 | 10 | 10 |
| Air demand / nozzle at 3 bars (m³/h) | 36 | 36 | 36 | 36 |
| Single step operation | • | • | - | - |
| Dual step operation | - | - | • | • |
| Control panel with PLC | • | • | • | • |
| Air volume dust collector (m³/h) | 2,000 | 2,000 | 2,000 | 2,000 |

· = standard | o = optional

SWING CHAMBER BLAST MACHINE RWS

With the Rösler swing chamber blast machine **single or multiple work pieces, mounted on satellite stations**, are processed. This machine type is especially suitable for applications where only partial surface areas on the work pieces must be blasted. They ensure short cycle times paired with a high productivity,

because loading/unloading of the work pieces and shot blasting take place simultaneously.

Applications: Rotationally symmetric work pieces and devices for which individual work pieces fixtures can be assembled to the satellites.



Design and technical features

- Adaptation to individual customers: The swing chamber machine is custom engineered to your individual requirement
- Flexible: The machine can be equipped with injection air blast or turbine technology.
 If needed, both technologies can be combined in a single machine
- Compact design: Small footprint
- Optional: Automatic work piece loading and unloading
- Ergonomical: Large access doors facilitate maintenance
- Optional: Numerous accessories ensure optimum process control
- Optional: Variable quantity and design of the satellite stations

Swing chamber system

- ments: The machine can be equipped with a different quantity of satellite stations and different satellite arrangements
- Repeatable, consistent results: Indexing of the swing chamber is induced with a precise indexing drive system
- Reliable and precise: Rotation of the individual satellite stations with a toothed belt driven by a servo motor
- Optional: Precise positioning of the individual satellite stations

Blow-off station

- Integrated work piece cleaning station: Precisely adapted compressed air nozzles remove residual blast media and dust from the finished work pieces
- Optional: Safe reduction of electrostatic charges with ionization systems

Specifications RWS

| Model | RWS 1200-I | RWS 1200-T |
|--|------------|------------|
| Machine width (mm) | 1,500 | 1,600 |
| Machine depth (mm) | 2,000 | 3,250 |
| Machine height (mm) | 2,330 | 4,950 |
| Standard quantity of satellites | 2 x 1 | 2 x 1 |
| Turbine, standard | - | 1 x W32 |
| Turbine power, standard (kW) | - | 4.0 |
| Blast gun (injection blasting) | SPI38 | 0 |
| Quantity | 2 | 0 |
| Air nozzles Ø (mm) | 4 | 0 |
| Blast nozzles Ø (mm) | 10 | 0 |
| Air demand / nozzle at 3 bars (m³/h) | 36 | 0 |
| Max, work piece diameter (mm) with 2 x 1 satellite stations | 400 | 400 |
| Max, load per satellite station (kg) with 2 x 1 satellite stations | 5 | 5 |
| Max, height swing chamber wall (mm) | 270 | 270 |
| Control panel with PLC | • | • |
| Air volume dust collector (m³/h) | 2,000 | 2,000 |

 $[\]cdot$ = standard | - = not available | o = optional

WIRE MESH BELT BLAST MACHINE RSAB

The Rösler wire mesh belt machine is particularly suitable for all-around shot blasting of **small to midsize and very complex work pieces** in continuous flow operation.



Design and technical features

- High work piece throughput: Continuous flow shot blasting operation
- Highly efficient and all-around shot blasting:
 Optimal turbine placement above and below the wire mesh belt
- Compact design: Easy integration into existing manufacturing lines
- Customer-friendly and safe: Large maintenance and inspection doors, protected by limit switches

Blast media

- Consistently high quality of the operation
 mix: Multi-step screening unit with
 subsequent single stage, extra wide
 cascade air wash separator
- Optional: Automatic blast media replenishment

2

Work piece transport

- The work pieces are passing through the machine on a wear-resistant, endless wire mesh belt
- Optional: Automatic loading/unloading and transfer of the work pieces to the next manufacturing station

4

Blow off station

- Integrated work piece cleaning system:
 Air blower removes residual blast media
 and dust from the work pieces
- Optional: Additional compressed a nozzles and ionization systems

Specifications RSAB

| Model | RSAB 370-T1+1 | RSAB 470-T2+2 |
|---|---------------|---------------|
| Machine width (mm) | 3,550 | 5,800 |
| Machine depth (mm) | 1,380 | 2,970 |
| Machine height (mm) | 2,100 | 4,000 |
| Work piece loading height (mm) | 1,220 | 1,250 |
| Width of wire mesh belt (mm) | 370 | 470 |
| Max. work piece height (mm) | 150 | 150 |
| Turbines (standard) | 2 x W32 | 4 x W32 |
| Turbine power, standard (kW) | 4.0 | 4.0 |
| Width of wire mesh, Standard (mm) | 10 x 19 | 10 x 19 |
| Durchlaufgeschwindigkeit, Standard (m/min) | 0.35 - 3.5 | 0.45 - 4.3 |
| Control panel with PLC | • | • |
| Air volume dust collector (m³/h) | 3,000 | 4,000 |

 $[\]cdot$ = standard | o = optional

TUMBLE BELT BLAST MACHINE RMBC-S

processing large batches of plastic components that can tumble over each other. In these machines a continuously to the accelerated blast media. running endless, perforated rubber belt causes the work pieces

Die RMBC-S is a compact de-flashing shot blast machine for to steadily tumble over each other. The high-performance turbines ensure that all work pieces are consistently exposed

The RMBC-S tumble belt blast machine is an ideal manufacturing tool thanks to

- ▶ a high equipment uptime
- minimal costs for availability



Design and technical features

Work piece handling

Blast media

Specifications RMBC-S

| Model | RMBC 1.1-S |
|--|---------------|
| Machine width (mm) | 1,800 |
| Machine depth (mm) | 1,620 |
| Machine height (mm) | 2,480 |
| Troughed belt | Rubber fabric |
| Standard perforation (mm) | 8 |
| Turbine (standard) | 1 x W40 |
| Turbine power, standard (kW) | 5.5 |
| Max. batch volume (dm³) | 70 |
| Max. batch weight (kg) | 200 |
| Max. weight single work piece (kg) | 5 |
| Max. work piece dimensions, measured diagonally (mm) | 225 |
| Control panel with PLC | 0 |
| Control panel in contactor version | • |
| Air volume dust collector (m³/h) | 1,200 |

• = standard | o = optional

CONTINUOUS FEED LOOP BELT BLAST MACHINE RSBS

for de-flashing of high volumes of plastic components that are throwing the blast media onto the work pieces. A rotary can tumble over each other, in continuous flow. A special loop belt system causes the work pieces to continuously tumble and loose flashes from the work pieces. over each other and, at the same time, to steadily pass through

The compact continuous feed loop belt blast machine is used the machine. One respectively two high performance turbines screen drum at the machine exit separates residual blast media

The RSBS continuous feed loop belt blast machine is an ideal manufacturing tool thanks to

- ▶ a high equipment availability
- ▶ high work piece throughput



Work piece handling

Easy installation and integration

Design and technical features

Blast media

Specifications RSBS

| Model | RSBS 1201 | RSBS 1702 |
|--|-----------------------------------|-----------------------------------|
| Machine width (mm) | 3,160 | 4,320 |
| Machine depth (mm) | 1,250 | 1,370 |
| Machine height (mm) | 2,220 | 2,350 |
| Looped belt | rod belt system rubber / steel | rod belt system rubber / steel |
| Diameter of looped belt (mm) | 220 | 400 |
| Turbines (standard) | 1 x W32 | 2 x W32 |
| Turbine power, standard (kW) | 4.0 | 4.0 |
| Max. work piece dimensions, measured diagonally (mm) | 10 / 150 | 10 / 250 |
| Control panel with PLC | • | • |
| Air volume dust collector (m³/h) | 1,200 | 3,000 |
| | | |

• = standard | o = optional

MULTI-TUMBLER RMTS

blast system

each other, the multi-tumbler ensures unmatched process stability. The special drum design ensures optimal and gentle

When it comes to treating **components that can tumble over** mixing of the work pieces and, thus, ensures absolutely repeatable results.

Process stability of batch operations thanks to • innovative & optimized drum design that ensures perfect mixing of the work pieces RMTS-80 as stand-alone

Design and technical features

Blast media

Specifications RMTS

| Market 1 | DIATE TO | DATE OF |
|--|------------------|------------------|
| Model | RMTS-50 | RMTS-80 |
| Machine width (mm) | 1,550 | 1,550 |
| Machine depth (mm) | 2,100 | 2,100 |
| Machine height (mm) | 2,450 | 2,450 |
| Drum | Perforated steel | Perforated steel |
| Standard drum perforation (mm) | 6 | 6 |
| Turbines (standard) | 1 x W32 | 1 x W32 |
| Turbine power, standard (kW) | 4.0 | 4.0 |
| Max. batch volume (dm³) | 50 | 80 |
| Max. batch weight (kg) | 50 | 50 |
| Max. weight single work piece (kg) | 5 | 5 |
| max. work piece dimensions, measured diagonally (mm) | 100 | 200 |
| Control panel with PLC | 0 | 0 |
| Control panel in contactor version | • | • |
| Air volume dust collector (m³/h) | 1,200 | 1,200 |
| | | |

• = standard | o = optional

CONSUMABLES

BLAST MEDIA

The wide spectrum of applications demands a large range of different blast media. High uptime, minimal wear and short cycle times are the most important requirements for the media. Constant comparison tests, shot blasting trials and monitoring of the media operating mix, all done at the customer location, ensure continuous process improvement and guarantee that the media, previously considered as just an "auxiliary consumable" item, has become an essential tool for reducing the overall costs.



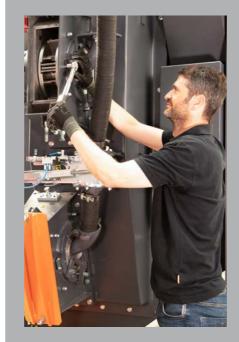
We stock a comprehensive range of different blast media for processing trials and maintain a large stock of standard media with different pellet sizes in our warehouse. The plastic de-flashing machines can be operated with the following media

- ▶ Polyamide (PA), in cubical or cylindrical shape
- Filled polyamide media for special applications
- Organic products made from nut shells or fruit kernels
- ▶ Duroplast media

ANTISTATIC COMPOUND



AFTER-SALES-SERVICE



Twenty-four-seven technical support throughout the life of your machine!

Irrespective of what surface treatment issues you might have, we offer professional support and meet all your requirements:

- Spare and wear parts, also for equipment supplied by other manufacturers
- Tailormade maintenance contracts
- Control and calibration of dust collectors
- Modernization and relocation of existing equipment
- Expert advice for all process questions
- Blast media analysis
- ▶ Support in meeting the operating standards for your equipment
- ▶ Protective ground wire tests (in accordance with EN 60204-1 / VDE 0113)
- BUS measurements
- Customer Experience Centers and process labs around the world
- Training courses for operators and maintenance personnel
- Added value through service contracts: 24 h emergency hotline



Maintenance and repair service

Our professional service team stands ready to serve you, be it helping with an emergency, a repair or a scheduled maintenance. With quick response times and well-equipped service vehicles we are able to maintain your onsite equipment or get it running again.



Spare and wear parts – also for equipment supplied by other manufacturers

By nature all shot blast machines are subject to wear! Rösler maintains a large stock of spare parts. This guarantees quick delivery and a high equipment uptime. If needed, we will arrange for delivery overnight.

Please find more information to our service for shot blast machines at www.rosler.com

CUSTOMER EXPERIENCE CENTER SHOT BLAST TECHNOLOGY

approach to surface treatment challenges. Equipment and processes are not only tailored to the respective finishing task but also optimally integrated into the overall manufacturing from our customers in our CEC's. operation. Practically all our Rösler locations have their own

A special feature of the Rösler philosophy is our integrative Customer Experience Center (CEC) equipped with state-ofthe-art machinery. To develop the best processing solutions we conduct comprehensive processing trials with the work pieces







Process development and optimization

equipment selection to an excellent after sales service, can demonstrate all shot blasting processes under actual production conditions. Ultramodern physical and chemical measuring technologies support the process development and optimization. The process and design engineers from our development and engineering departments develop

From the processing trials, the process development and custom-engineered solutions on a daily basis. For the development of shot blasting solutions the processes are we provide "total" solutions from one single source. In frequently planned with computer simulations. Thanks our well-equipped Customer Experience Centers (CEC) we to ultramodern software we are able to electronically reproduce the possible finishing results on the surface of the work pieces. These simulations allow us to optimize the physical arrangement of the media acceleration systems relative to the work pieces that must be blasted.

Product development and optimization

Customer Experience Centers (CEC) around the world and development in the field of shot blasting. our well-equipped lab in Untermerzbach, Germany, are

The unique depth of our Rösler equipment portfolio, our ideal conditions for innovative and cost-effective product

LEARNING FROM THE GLOBAL MARKET LEADER

based on over 80 years of experience. As global technology and market leader in the refinement of surfaces we offer excellent

Our expertise in the field of mechanical surface treatment is complete solutions – from equipment and accessories, all the way to after sales service. We are happy to pass this unique knowledge to you in our training seminars.







Rösler Academy

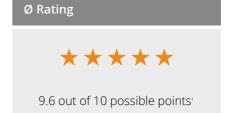
The central training center of the Rösler Oberflächentechnik GmbH

- ► 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, Additive Manufacturing
- ▶ 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.







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



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

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 for the shot blasting technology! Under our new brand **Rösler Smart Solutions** we have developed comprehensive digitization modules that will allow you to make **your shot blasting processes** and **their**

parameters more transparent and to define the potential for substantial cost savings. Our software package helps taking advantage of the potential for optimization and significant reduction of operating costs.















Transparency of processes and costs

Realtime process monitoring and recording of data Quick correction of deviations and faults

Intelligent equipment operation with uptime projections Optimized utilization of resources and cost reduction

The **digitization portfolio for shot blasting equipment** was developed for our entire equipment range. It contains soft- and hardware packages that can be utilized for the following topics:



WORK PIECE QUALITY

- Combination of all shot blasting parameters into one common metric called "shot blast performance"
- Recording of all process data that influence the work piece quality
- ► Individual evaluation of the achieved production volume

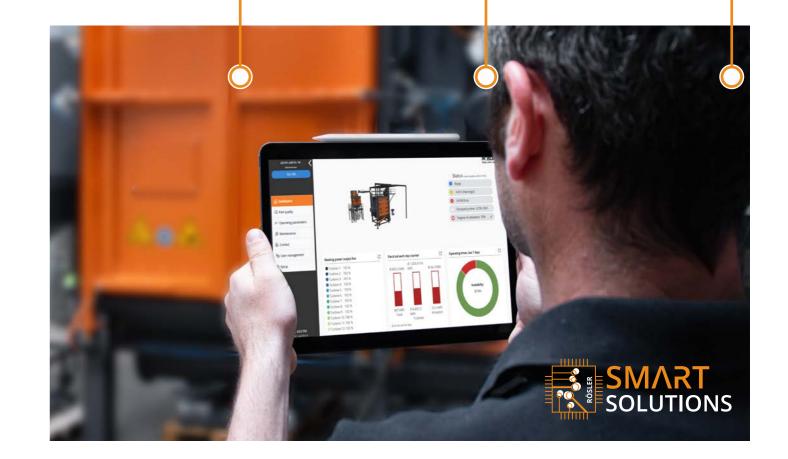


- Realtime monitoring of all consumption values
- Digital archiving of all recorded data. This allows the identification of operating patterns and trends
- Visualization of individually defined time periods



MAINTENANCE

- Collection of the uptime history for each turbine facilitates preventive maintenance
- Operating times and equipment availability are displayed in a simple, easy-to-understand format
- Spare part orders prepared in advance, including mail-to function





Mass Finishing

Shot Blasting

AM Solutions

www.rosler.com

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