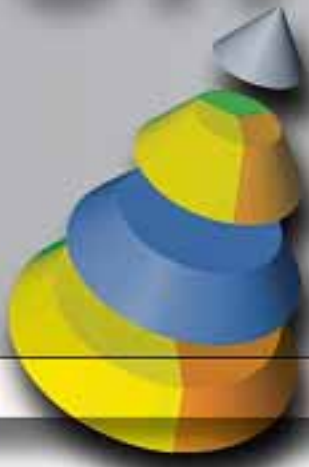


# ON THE SURFACE



Surface Finishing • Shot Blasting • Engineering • Environmental Techniques

Innovations for a forward-looking industry sector

## Automation solutions for cast part processing

**EUROGUSS is going to be a record-breaker this year, and it's no accident. Technologically demanding cast products from Germany are among the best in the world. As a result, the cast iron and steel casting industry, as well as the non-ferrous metal casting industry, have grown by 6 and 3.5 percent, respectively. A substantial share of this growth can be attributed to increasingly automated expansion within the process chain: surface treatment, including deburring.**

In the past, high labor costs in the foundry industry were rewarded with higher productivity and better quality. According to the Registered Association of German Foundry Specialists (Verein Deutscher Gießereifachleute e.V.-VDG), reliability as well as the comprehensive range of services offered by the industry were contributing factors as well. At this year's EUROGUSS, Rösler Oberflächentechnik will introduce something new, which promises increased efficiency for cast part refinishing. The goal of Rösler Oberflächentechnik's innovative process technology development in casting cleaning rooms is to achieve higher cost-effectiveness along with the highest degree of process safety.

To achieve these results requires a high degree of automation which limits manual intervention to maintenance and inspection purposes only. The deburring of the inner and outer surfaces of mid-sized cast components, such as cooling channels, is performed by two robots. The processing cell, which is enclosed by protective fencing or a sound absorbing chamber, contains the parts transport system (roller conveyor, conveyor belt, etc.). The component is handled by a 6-axis handling robot equipped with an electro-pneumatic gripper unit, which can be adjusted as required. This handling robot removes the raw component from the parts transport system, and places it in the accompanying RWH 6/12-2 oscillating chamber shot blasting system. The component is



Rösler-Euroguss-Booth

then clamped and transported into the shot blast area by a 180° rotation of the turntable. Two Hurricane high-performance blast wheels shot blast the component while it is rotated continuously by a separately driven satellite table in the blast area, while another raw component is simultaneously fed into the loading area. After the shot blast process is completed, the turntable is rotated another 180° so that the finished com-

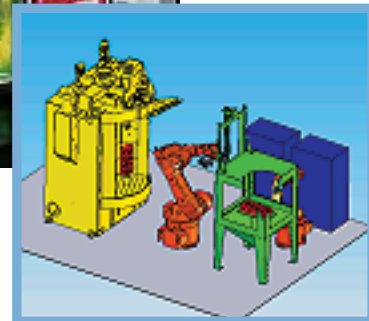
ponent can be removed by the handling robot and placed into the adjacent high-pressure blast chamber. A second robot, connected to the blast chamber, is equipped with a high pressure blast nozzle or a blast connection. The blast head itself is sealed to prevent dust leakage by a patented sealing system. This

allows the blast robot a high degree of freedom of motion, while ensuring the blast system is optimally sealed. The blast robot is pre-programmed with the pattern of channels in the component, and deburrs the part by systematically aiming the blast stream directly into the borings. Once the blasting cycle has been completed, the handling robot completes the total cycle by removing the component, rotating it to empty it of any remaining blast media, and positioning it precisely on the transport system.

The cost-effectiveness and potential cost reductions that this system offers are particularly evident when comparing it to the conservative processing methods in common use. Both overhead monorail shot blasting systems for shot blasting external surfaces, and manual shot blasting of internal surfaces, require operators and thus incur labor costs. The capital investment in the blast robots (including programming and maintenance) pays for itself within a short time. A 3-shift operation can reduce costs

by up to 200,000 Euro (\$ 239,100) in the first year.

Rösler's commitment to providing economical process concepts has now been expanded to heavy industry, as well.



## Semi-automated sand-blasting the insides of cylinder blocks

### Blasting in the economic turnaround

**MAN's TGL has been awarded the title of "Truck of the Year" for the sixth time in 2006. The jury was especially impressed by the thoroughness the engineers applied to the development of the TGL. Cleaning the cylinder heads of casting sand deposits is done with equal thoroughness by the truck manufacturer thanks to a semi-automated shot blast system from Rösler.**

Reducing labor costs and improving product consistency are the two most common demands in cost-effective production. In order to meet these requirements when removing residual casting sand from the internal cavities of cast 4 and 6 cylinder head blocks for the D08 Common Rail Motor with sand blasting, MAN will, in future, replace the



manual shot blasting process with a semi-automated solution at its factory in Nuremberg. Rösler Oberflächentechnik was asked to design a shot blast system to clean the components above, which mass between 25 kg (55 lbs) to 80 kg (176 lbs).

**High throughput rate means cost savings**

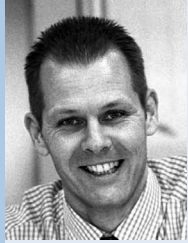
In addition to minimizing labor costs with automation, this solution provides 8 times the throughput rate of the components compared to the manual blasting process.



STD 1400 PS-So removes casting sand deposits from cylinder head blocks

**Contents:**

Custom Shot Blasting System for Delicate Diecast Parts .....	Pg.2
A disk spring every 10 seconds .....	Pg.3
Integration and interconnection in an automated manufacturing cell .....	Pg.4



**Stephan Rösler**  
Managing Director,  
Rösler  
Oberflächentechnik GmbH

**Custom solutions give customers a long term advantage**

Production that is relocated out of the country, and drastic job cuts continue to make headlines in newspapers and business magazines. Although companies always have to monitor labor costs, focusing on them exclusively is one-sided. We aim to provide our customers with a high level of flexibility, thus making productivity possible throughout the supply chain. This is a prerequisite to achieving profitable and lasting growth, along with continuous innovation and high quality. We are currently expanding our production capacities in the field of shot blast technology. Over the last three years, we have been able to increase our turnover by over 20% each year. In the previous year, our combined turnover for vibratory finishing and shot blasting technology increased about 15% to € 180 million (\$ 214 million). This continuous positive company development in both business units can also be attributed to the fact that we house everything, from development and construction, via production and distribution, under one roof. Whereas others outsource to the East, for us in Untermerzbach, the keyword is short distance communication. Due to the enormous cost containment pressures our customers face, and thus the demand for innovative automation solutions, the "one size fits all" solution has long been a thing of the past for us. Rösler systems are becoming more and more complex; automation and specialization are more and more customer-specific. In addition to the required expertise and knowledge, this requires intense development efforts and high-quality engineering performance. We therefore, see our success in staying close top the customer, in application-specific individual solutions, and thus long-term customer satisfaction. As usual, please refer to this issue of *On the Surface* for case studies of individual solutions in both vibratory finishing and shot blast technology.



Expanding shot blasting production at Rösler Untermerzbach, Germany

Custom Shot Blasting System for Delicate Diecast Parts

# Reducing costs while increasing precision

**A supplier of aluminum diecast parts for a Tier 1 automotive manufacturer in the United States faced the question of how to use automation to deflash diecastings and improve the consistency of the surfaces of sensitive components. Rösler Oberflächentechnik's solution: A custom shot blast system with a fully-automated handling system with a precision grip.**

Save costs! Increase precision! These are common demands made upon system developers. Rösler Oberflächentechnik combined both in the RHB 9/13 -a special shot blast system with a product-specific handling system. The standard-design system model is designed to process components up to 900 mm (35 in) in diameter, and up to 1,300 mm (51 in) in height. The handling system was designed to handle specific components with dimensions of up to 250 mm by 250 mm by 250 mm (10 in by 10 in by 10 in), weighing up to 30 kg (66 lbs). What makes this system special is the integrated parts transfer into the shot blast chamber.



Aluminum diecast parts are deflashed in seconds

The cast part must be gripped precisely so the robot can put it in and remove it from the shot blast chamber. In order to ensure a safe, continuous and consistent process, Rösler's engineers achieved tolerance ranges of 0.5 mm. During the actual processing, the parts in the shot blast chamber are guided from above and rotated, so that all areas and all sides can be shot blasted. This creates the required surface finish, cleans and deflashes the component thoroughly.

**Reducing cycle times**

In order to meet the required specification for cycle times, it was necessary to equip the two blast wheels with 11 kW drive motors. When the chamber door opens, bulkhead plates automatically move to block the abrasive from entering the chamber. This allows the blast wheels to keep rotating, avoiding downtime that would occur if the blast wheels started and stopped between each cycle. In order to ensure production safety, an automatic cleaning mechanism was integrated to separate fine flash from the abrasive. These innovative solutions reduce the shot blast time to 45 seconds, and reduced the pass-through times to half. The total cycle time, as predefined by the feeding/discharging robot, is 78 seconds.

**The extra mile**

The operator can make changes by a remote control analysis system. This allows them to interrupt the operation of the system at any time and perform a remote diagnosis, and optimize the programming at any time.

Linear Continuous Flow System for Delicate Components

# Gentle automated vibratory finishing solution

**Processing delicate, thin-walled aluminum diecastings in vibratory finishing systems requires a combination of technical expertise and the right equipment, especially parts loading systems. For years, Pressmetall Gunzenhausen (PMG) has been relying on Rösler finishing systems, and has added our linear continuous-flow systems to deburr diecastings.**

In the field of vibratory finishing technology, linear continuous flow systems are considered cost-effective alternatives to batch-processing vibrators, as the processing time and the related effects of deburring or finishing processes can be varied by adjusting the angle of the processing channel, the imbalance of the motor and the rotational speed. The PMG components posed a particular challenge due to their thin walls and the requirement of loading the parts gently. In order to discharge raw parts from a palletized wire mesh parts bin, a lift and tip unit fills a Vario loading buffer system. Driven by a linear-operat-

ing magnetic oscillator with speed and bearing control, the loading quantity can be adjusted individually. The downstream parts transport conveyor transfers the components directly into the processing channel of the vibratory finishing system. The finishing process time is eight minutes. The system incorporates automatic media classification, which removes undersize media, and automatic parts cleaning during the separation process. Before being dried with hot air, the components pass through a pre-drying station equipped with a high-performance cold-air blower.



In order to deburr and radius components with dimensions of 120 mm (5 in) by 120 mm (5 in) by 40 mm (2 in), and create a uniform finishing pattern on the surfaces, a continuous-flow system with a channel width of 425 mm (17 in) and a length of 4,600 mm (181 in) was selected. Rösler produces systems with channel widths up to 850 mm (33 in) and lengths up to 6,600 mm (260 in).

Long radius systems as processing cells

# Efficient, flexible-usable anywhere

**Long radius vibratory systems are relatively new in the market. This Rösler innovation uses minimal floor space for this part of component production. At the same time, investment costs are low, and processing times are variable. The 400/9 LR, developed for a well-known Austrian manufacturer of diecast parts, was designed to meet their stringent specifications for parts cleaning.**

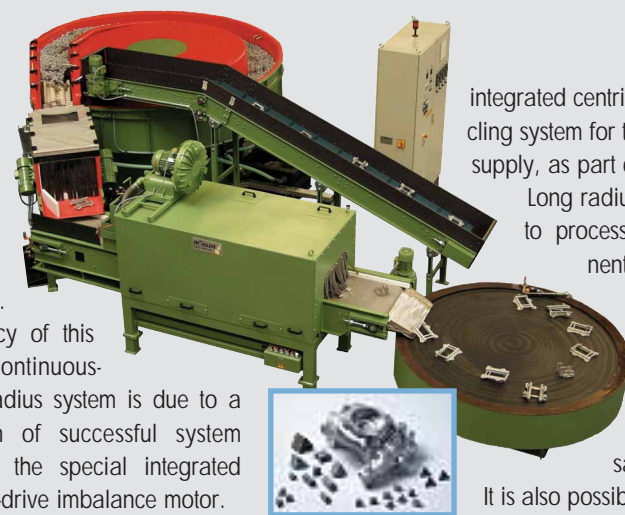
A variety of magnesium diecastings for passenger cars were to be finished, deburred, and radiused. Due to the material properties of magnesium diecastings, determining the right media and compound was crucial to achieving their requirements. In this case, ceramic cones and a special compound suitable for cycle operation was the ideal solution. The system configuration is based on the flexible, standard R 400/9 LR system. The components pass through the 400 mm (16 in) wide and 9,000 mm (354 in) long processing channel, in just 6.5 minutes, enough time to achieve the required surface quality and com-

plete the vibratory finishing process. After finishing, the parts are cleaned by a vibratory spraying station. An intermediate pre-drying station blows off the retained water in angles, pocket holes and undercuts. The R 2000.2 BT hot-air conveyor dryer, operates in a circulating-air mode with two thermostat-controlled hot air blowers.

**Automation**

In addition to a high level of parts cleanliness, automation played a key role. The deflashing was required to ensure worker safety during the assembly process. The wide variety of different components can be processed with the Rösler sys-

tem, without retooling. The efficiency of this compact continuous-flow long radius system is due to a combination of successful system design and the special integrated Rösler direct-drive imbalance motor. The double-flange construction of the motor ensures a powerful, loss-free transfer of the vibratory energy into the process channel. Another important advantage of the total system concept is its space-saving installation with an



integrated centrifugal process water recycling system for the water and compound supply, as part of the processing cell.

Long radius systems are not limited to processing magnesium components, punched parts such as clutch disks and bearings, as well as aluminum diecast housings are only some examples of its universal application range.

It is also possible to operate long radius systems in batch mode, by equipping them with an automatic separation flap, in order to process large quantities of components.



Another Chapter in the Shot Peening Success Story  
**Shot blasting to achieve higher internal stress**

Shot peening is a cold-working process, where the component is shot blasted with ball-shaped media. Each ball has the effect of a miniature forging hammer, which stamps the smallest of ball joints (bent areas of a ball section) into the surface, compressing the surface as during forging. The lower-lying material layers, however, try to bring the surface back to its original form.

The result is that in the component's edge zone (about 200 µm) an internal stress is induced.

One important advantage of shot peening is that it increases the service life of structural components. This process, long in use to strengthen components of aircraft engines and other components for the aviation industry, is now gaining popularity in

other branches of industry, such as motor and gear construction. When developing and manufacturing these shot blast systems, high standards must be applied. Process safety, precision, and reproducibility must be combined with high standards for quality and safety, and comprehensive service, as well as expertise in the construction of shot blast systems. In this area, Rösler Ober-

flächentechnik has been considered a competent and reliable partner for years. Rösler shot blast systems are usually equipped with 6-axis industrial robots or CNC axis to manipulate nozzles, machine turntables or satellites, which act as a separate axis to the robotics.

Cleaning and peening in one process

# Oscillating chamber provides simultaneous loading/unloading and shot blasting

*Thoroughly cleaning surfaces in the shortest possible time requires solutions that are both flexible and innovative.*

Achieving a sufficiently strong adhesive base for oil and powder coating, requires that the components be shot blasted completely free of contamination such as rust, scales or flash. When shot blasting is used, it can have the desired side effect of hardening components with shot peening, contributing substantially to higher fracture resistance and a longer service life for the component. To meet these requirements, Rösler designed the RWH 6/12-2, a space saving, robot-supported oscillating chamber shot blast system.



This versatile shot blast system was developed to meet high performance demands, and can be used to process a wide variety of housing components as well as symmetrical parts. Its double-chamber system allows for the largest possible handling space when loading and unloading parts. Two Hurricane high-performance blast

wheels shot blast the component while it is rotated continuously by a separately driven satellite table in the blast area. The advantage of this shot blast system is that parts can be safely loaded and unloaded in the open chamber, at the same time that another component is being shot blasted. When the blasting cycle is complete, the oscillating chamber rotates 180 degrees, moving the raw part into the loading/unloading



area. While the chamber is rotating, the media dosing unit is closed, although the blast wheels continue running. This allows the blast wheels to keep rotating, avoiding downtime that would occur if the blast wheels started and stopped between each cycle.

In order to meet customer specifications, this shot blast system was designed for both robotic and manual parts loading and unloading, in case of robot downtime. In order to ensure continuous processing, the shot blast system can be equipped with options such as an automatic cleaning unit, a media refill dosing device, and component rotation monitoring units.

Oscillating chamber shot blast system: simultaneous shot blasting and loading/unloading

A Fully Automated Shot Peening Solution

# A disk spring every 10 seconds

*ZF Sachs, one of the world's leading manufacturers of drive and chassis components is involved in a joint venture with a Chinese supplier, and needed a partner in shot blast technology. They brought their requirements to Rösler Oberflächentechnik and Rösler engineers developed a continuous-flow system to shot peen disk springs.*

Performance specifications for shot blast systems often provide information gained from detailed tests carried out in order to prove the functioning of a work process, and how to treat the most unique geometries. In Shanghai, performance specifications were used to select the RBD 600-2 continuous-flow system to peen disk springs. According to the Almen measuring method, deflection values between 0.1 and 0.25 mm (equivalent to a shot blast intensity of 4 to 10 A) as well as a 98% degree of overlap, were to be achieved by the system.

The pre-defined dimensions for the disk springs in this application range from 110 mm (4 in) to 300 mm (13 in) in diameter.

Another objective for the system was that it be fully automated.



RBD system shot peens 1.5 million disk springs a year

In order to meet these specifications, a system concept incorporating two parts conveyors

(each with a working width of 300 mm (13 in)) was developed, where one of the conveyors transports the disk springs continuously underneath four blast wheels. These are arranged at an angle facing towards one another to achieve an even shot blast result. After the springs have been shot blasted on one side, they are conveyed to a turning station, where they are automatically rotated by 180° and conveyed back to the blast wheels by the conveyor running parallel in the opposite direction.

In order to achieve optimum contact on parts of different dimensions and geometries, as well as to prevent the parts from being blown out of shape, it was necessary to equip the conveyors with different

component guide rails. In addition, two component recognition systems ensure the pass-through process runs smoothly. The required cycle time of 10 seconds per spring was realized easily and consistently with this system.



Two parts conveyors ensure the springs are shot blasted on both sides

Rösler exhibition dates:

January 2006

12.01. - 15.01. Autosport, Birmingham, GB  
22.01. - 24.01. Steelfab/Middle East Industrial Show, Sharjah, UAE  
22.01. - 24.01. Stone Expo, Gent, B

February 2006

07.02. - 11.02. Marmol, Valencia, E  
15.02. - 18.02. Metapro, Brussels, B  
21.02. - 24.02. Vietsip, Hanoi, VN  
21.02. - 26.02. Asian Aerospace, Singapore, SGP

March 2006

06.03. - 11.03. BIEMH, Bilbao, E  
07.03. - 09.03. Euroguss, Nuremberg, D  
14.03. - 18.03. Simodec, La Roche sur Foron, F  
14.03. - 18.03. ESEF, Utrecht, NL  
16.03. - 19.03. WIN, Istanbul, TR  
27.03. - 30.03. Westec, Los Angeles, USA  
27.03. - 31.03. Industrie Paris, Paris, F

April 2006

04.04. - 07.04. Metav, Munich, D  
05.04. - 08.04. Metal-Working, Kiev, UA  
21.04. - 26.04. Antikorozija, Zagreb, HR  
26.04. - 29.04. Chinaplas, Shanghai, PRC

May 2006

01.05. - 05.05. Metal Messe, Frederica, DK  
10.05. - 13.05. Piedra, Madrid, E  
16.05. - 19.05. Fond-Ex, Bruno, CZ  
16.05. - 20.05. Technical Fair, Belgrade, SIC  
16.05. - 21.05. IIA, Berlin, D  
17.05. - 20.05. Metef, Brescia, I  
23.05. - 26.05. Int. Maschinenbau, Nitra, SK  
23.05. - 27.05. Mecanica, Sao Paulo, BR  
23.05. - 27.05. Metallurgy Litmash, Moscow, RUS  
30.05. - 02.06. AIEE, Sydney, AUS  
31.05. - 03.06. Marmotech, Carrara, I

June 2006

12.06. - 16.06. CIMES, Peking, PRC  
19.06. - 22.06. Int. Maschinenbau, Poznan, PL  
20.06. - 24.06. Metav, Duesseldorf, D

September 2006

05.09. - 07.09. TIV, Hardenberg, NL  
06.09. - 13.09. IMTS, Chicago, USA  
11.09. - 15.09. Electra Mining Exhibition, Johannesburg, SA  
18.09. - 22.09. Int. Maschinenbau, Brunn, CZ  
19.09. - 23.09. AMB, Stuttgart, D  
19.09. - 24.09. Rösler Hausmesse, Sens, F

19.09. - 24.09. Int. Herbstmesse, Zagreb, HR  
25.09. - 30.09. ITM, Plovdiv, BG

October 2006

03.10. - 06.10. Techniska, Stockholm, S  
03.10. - 07.10. TIB, Bukarest, RO  
05.10. - 08.10. Marmomacc, Verona, I  
05.10. - 10.10. BiMu, Milano, I  
10.10. - 13.10. Vienna-Tec, A  
24.10. - 28.10. EuroBlech, Hanover, D  
31.10. - 05.11. Airshow China, Zuhai, PRC

November 2006

09.11. - 12.11. Ankiras Annofer, Istanbul, TR  
14.11. - 17.11. Swisstech, Basel, CH  
14.11. - 17.11. Elmia Subcontractor, Jönköping, S  
21.11. - 23.11. Metavak, Gorinchem, NL



## Rösler Acquires Jet Wheelblast

Rösler Metal Finishing USA, LLC and Jet Wheelblast Corporation, global suppliers of surface finishing equipment and consumables, announce the signing of a definitive agreement for Rösler to acquire the Jet Wheelblast business. Says Stephan Rösler, Chief Executive Officer of the Rösler Group, "The acquisition of the Jet Wheelblast facility and its product line by Rösler USA allows the Rösler group to continue its aggressive growth in the

worldwide blasting business, with special emphasis on the North American market."

Mr. Rösler went on to say that "another benefit of this acquisition is that Rösler will be able to utilize the fully equipped Jet Wheelblast manufacturing facility along with our existing lining facility, located in Marshall, Michigan, to manufacture select blasting and vibratory finishing equipment from the Rösler

product range in the United States."

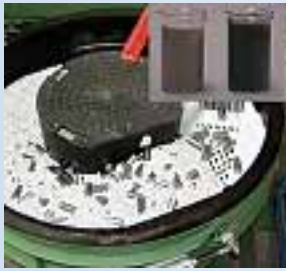
He further remarked that "by combining the sales organizations of both companies into a single sales network, Rösler will have a much wider distribution and customer base, making us more competitive and allowing us to achieve our long term growth target in North America."



## Rösler briefs

### Dosable liquid pastes

Pastes are normally used to finish fine surfaces, and polish (Keramo-Finish<sup>®</sup>) them. The consistency of these pastes is usually creamy or powdery, preventing their use in automatic dosing systems, thus far. Rösler Oberflächentechnik's own laboratory and product development division have developed an innovative solution: liquid pastes which maintain their consistency and can be dosed automatically, into vibratory finishing systems. Both abrasive and polishing pastes are available as liquid pastes. This allows even more automation to be added to existing systems. This new development is further proof of the measurable advantages of housing system and dosing technology, as well as product development under one roof.



Use of liquid pastes in the automated Keramo-Finish<sup>®</sup> process.

For simple cleaning tasks involving media and smaller batch quantities, continuous trough-belt conveyor shot blast systems are often too big and too costly. And compressed-air shot blast systems with rotary baskets consume excess energy. Rösler Oberflächentechnik now offers an alternative: the RD 100 rotary basket system. This system has a compact structure with floor space requirements of only 1,600 mm (63 in) by 1,150 mm (45 in), and is 1600 mm (63 in) in height. The rotary basket system uses a single direct-drive blast wheel, installed underneath and slightly angled, which does not require a bucket conveyor. The system is also of interest with regard to investment costs. The RD 100 is best suited for revolvable parts from 50 mm by 50 mm (2 in by 2 in) up to a maximum of 150 mm by 150 mm (6 in by 6 in), or single parts up to the maximum rotary basket size, 500 mm (20 in) in diameter and 660 mm (26 in) in length, are to be processed. The required dust collector is equipped with an automatic vibratory dust removal unit, as well as a dust discharge unit which utilized a screw conveyor to discharge the dust. Both are integrated into the system design.

### An alternative for shot blasting small parts and small quantities

For simple cleaning tasks involving media and smaller batch quantities, continuous trough-belt conveyor shot blast systems are often too big and too costly. And compressed-air shot blast systems with rotary baskets consume excess energy. Rösler Oberflächentechnik now offers an alternative: the RD 100 rotary basket system. This system has a compact structure with floor space requirements of only 1,600 mm (63 in) by 1,150 mm (45 in), and is 1600 mm (63 in) in height. The rotary basket system uses a single direct-drive blast wheel, installed underneath and slightly angled, which does not require a bucket conveyor. The system is also of interest with regard to investment costs. The RD 100 is best suited for revolvable parts from 50 mm by 50 mm (2 in by 2 in) up to a maximum of 150 mm by 150 mm (6 in by 6 in), or single parts up to the maximum rotary basket size, 500 mm (20 in) in diameter and 660 mm (26 in) in length, are to be processed. The required dust collector is equipped with an automatic vibratory dust removal unit, as well as a dust discharge unit which utilized a screw conveyor to discharge the dust. Both are integrated into the system design.



A clever alternative: RD 100

The RD 100 rotary basket system uses a single direct-drive blast wheel, installed underneath and slightly angled, which does not require a bucket conveyor. The system is also of interest with regard to investment costs. The RD 100 is best suited for revolvable parts from 50 mm by 50 mm (2 in by 2 in) up to a maximum of 150 mm by 150 mm (6 in by 6 in), or single parts up to the maximum rotary basket size, 500 mm (20 in) in diameter and 660 mm (26 in) in length, are to be processed. The required dust collector is equipped with an automatic vibratory dust removal unit, as well as a dust discharge unit which utilized a screw conveyor to discharge the dust. Both are integrated into the system design.

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## Precision Tandem Centrifugal Disc Finishing Systems

# Flat, thin parts require a special seal gap

Rösler's FKS 06.1 A2/So and FKS 15.1 A2/So centrifugal disc finishing systems, in use at an international automobile manufacturer, are proof that precision and speed are not mutually exclusive. These machines were developed to process flat and very thin discs, deburring in alternate directions, radiusing to round sharp edges, and achieving smooth polished surfaces.

Two, working as one, is the short description of the system concept. Two tandem centrifugal disc finishing machines share a parts loading unit. The pair also share an R 150 RT-So circular dryer.

When processing discs as thin as 0.2 mm, it is critical that batch integrity be remained, the discs not be damaged, and the quality be consistent. To achieve these requirements, it is necessary to precisely control the seal gap between the casing of the work bowl and the rotating base plate of the centrifugal disc.

In this system, the seal gap, formed by the rotary table and work bowl casing made of wear-resistant construction, is only 0.15 mm.

### High precision in the seal gap area

Particularly when processing thinner parts, the system technology must be able to ensure that the parts don't get stuck in the seal gap. Rösler technology was designed to prevent negative effects



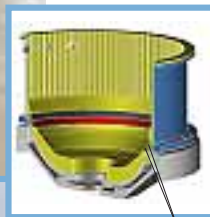
Efficient tandem centrifugal disc finishing systems with shared separation and drying units

due to temperature changes that can reduce the seal gap size in other centrifugal disc finishing machines. At the same time, all peripheral equipment, such as loading units, buffers and screening machines had to be designed with no gaps, and equipped with an anti-adhesion package to keep the flat, thin parts from sticking together.

In order to achieve precise separation for a wide variety of parts, it is necessary to be able to pro-

gram different separation speeds, as well as to change the incline of the Vario buffer. This combination ensures optimum loading and unloading of parts, and media. At the same time, the undersize media screening process (separation of usable and waste media) is optimal.

Different parts, different process parameters and times, individual drying cycles, time-variable separation processes—all combined in a programmable logic system control unit, which also includes parts loading with apportioning of batches.



Special seal gap  
Cross section of a work bowl



### Tandem Systems Update

**NEW!** Fully automatic single-batch systems have been developed to supplement the existing fully automatic double-batch systems. Rösler's engineers have been working on the concept, and this system will be unveiled at trade fairs in Germany in 2006 (see page 3 for the trade fair schedule).

## Integration and interconnection in an automated manufacturing cell

# Fully-automated process monitoring included

The level of automation in a vibratory finishing system is usually determined by the product range and the required capital investment. A manufacturer of gears for passenger cars had one critical requirement: everything had to be fully automated, from parts loading to complete process monitoring.

Rösler's tandem centrifugal disc finishing systems are normally part of a fully automated production system. This is no surprise, these systems sell themselves with their short processing times and high degree of automation. In this particular system, the parts are automatically fed into the vibratory finishing system after cutting, requiring absolute process safety and making full automation desirable.

The process requirements were deburring and radiusing extremely delicate rings, without marks at the edges or substantial deformation of the rings. Continuous and absolutely reliable process monitoring was also required. Process parameters and auxiliaries such as water quantities and levels, compounds and media are

monitored, as well as rotation speed and processing times. All data regarding the vibratory finishing process, the separation process and performance, is captured and transmitted to a central computer. After each batch, the amount of media used is determined, and the necessary refill quantity is added automatically from a central buffer. Intricately interconnected conveyor belt systems transport the finished parts. The processing time is approximately one hour, which is why the system, with a total of four machines, was designed as a tandem system, allowing the use of a shared separation unit in alternate directions. This next-generation system with eight work



Eight interconnected centrifugal disc machines provide a high level of automation



bowls is an addition to three existing Rösler lines with six systems apiece.

### New Rösler catalogues:



Shot Blasting (174.1 gb)

Vibratory Finishing (173 gb)



Long Radius (207.2 gb)