

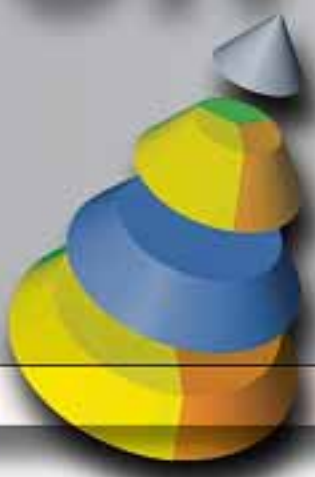
ON THE SURFACE



Hall 14, stand A06

RÖSLER
finding a better way ...

Surface Finishing • Shot Blasting • Engineering • Environmental Techniques



Surface technology for production modernisation and optimisation

Winning with Efficiency and Flexibility

Against the backdrop of lively debates about the best industrial locations, innovative and efficient production technology is of key importance. In countries where labor costs are high, efficiency and flexibility are crucial considerations when making equipment investment decisions. This is why EMO Hannover 2005 is focusing on new ideas in the fields of production modernization and efficiency. Giving impetus to industrial production is the focus of Rösler's surface finishing technology exhibit at the world's leading metal processing trade show.

In order to make it quick and easy for EMO 2005 visitors to learn about our wide-ranging surface finishing technology product line, Rösler will be showing 3-D animated videos of shot blasting and vibratory finishing equipment and processing examples on six plasma screens. The featured exhibits are two systems that will be very interesting to members of the metal processing industry: the RMBC 8.2 tumble belt batch system, targeted for foundries and forge shops, and the R1-1/4 SSA-C compact drag finishing system, designed for special vibratory finishing applications. Delicate, high-quality components with complex geometries are mounted on individual work stations and dragged through an abrasive media mass without part-on-part contact. These machines represent an important trend in modern production technology.

Robust, consistent, and effective: the RMBC 8.2 was designed for foundries and forge shops

In foundries and forge shops, shot blast systems endure extremely heavy work loads. In order to meet the required performance demands, Rösler has developed the RMBC 8.2 tumble belt batch system. This large shot blast system can descale forged parts weighing up to 150 kg (331 lbs) in batches of up to 800 l (max. batch weight 2000 kg/4,409 lbs), causing it to stand out due to its robustness and high processing intensity. A man-



The RMBC 8.2: built to stand up to the heavy demands of foundries and forge shops

ganese steel lining helps protect the inside of the heavy-duty blast chamber against wear and tear. In addition, a special steel plate conveyor is used to transport the components. This system includes two high-powered blast wheels from 22 kW up to 45 kW each, depending on the processing intensity required. When designing the system, Rösler's engineers focused on making it both user-friendly and maintenance-friendly, by installing an automatic control system, and ensuring that inspections and maintenance work can be carried out without incurring unnecessary down time. The RMBC 8.2 can be operated as a stand-alone system or, when combined with an automatic loading device, integrated into automated production systems.

A flexible system for special applications: the compact drag finishing unit

The R1-1/4 SSA-C compact drag finishing unit, Rösler's second exhibit at the EMO trade show booth, stands



A space-saving machine concept with versatile technology: the R1-1/4 SSA-C compact drag finishing system

out due to its space-saving construction and its versatility. Users of vibratory finishing technology who are looking for a compact and flexible system for non-contact vibratory finishing of precision components, and other high-quality

components with complicated geometries, will find this system the ideal solution. The processing method is very suitable for smooth-toothed gear wheels or metal-forming tools with internal teeth, as well as for the deburring of turbine blade segments after machining. The variability of the system technology permits the use of the R1-1/4 SSA-

C compact drag finishing unit for both optimum economical processing of different parts in small batches. The individually driven work stations can be moved radially and their angles can be adjusted to optimally process components with especially complex geometries. The components are lowered into a stationary abrasive media mass and pulled (dragged) through it. The resulting high-speed relative movement between the parts and the media provides intense material abrasion.



Effective immediately: spare parts for all name-brand shot blast systems

New: Expanded Spare Parts Service

In order to increase the availability of production machines and minimize servicing times, prompt and reliable spare parts service with high-quality spare and wear parts is indispensable. In cooperation with Strahl-Global Verschleißtechnik, Rösler now offers this service for all name-brand shot blast systems.

All shot blast systems have a high wearing rate. There is a high demand for quality spare parts, in particular for blast wheel shot blast systems. In response to numerous customer inquiries, Rösler has expanded its spare parts service greatly and now includes parts for all name-brand shot blast systems. Effective immediately, Rösler customers can purchase high-quality spare and wear parts for shot blast systems made by other manufacturers, from one source at fair prices. To offer these parts to our customers, Rösler has found an ideal partner with the same high quality standards: Strahl-Global Verschleißtechnik GmbH. Strahl-Global has taken over the sale of spare and wear parts for competitive systems in Germany. Rösler provides the necessary expertise

in field service, with more than ten mechanical engineers and application technicians, offering customers the high-quality technical service they require. Strahl-Global's employees provide more than 20 years of experience in wear parts technology. Strahl-Global distributes all standard spare parts for shot blast systems available on the market. "We offer fair prices and excellent quality products with long life spans which have been relied on by foundries, for example, for many years," explains Michael F. Schuhmann, Managing Director at Strahl-Global. For Rösler, the expansion of services offered is a further step towards improving customer relationship management. "By offering this additional service,



In addition to high-quality spare parts for Rösler's own shot blast systems, spare parts for shot blast systems by made by other equipment manufacturers are part of the new spare parts service Rösler now offers in cooperation with Strahl-Global. This picture only shows a small selection.

we improve our relationships with our customers while helping them to improve their quality," says Frank Möller, Rösler's Division Manager for shot blast technology. Internationally, the spare and wear parts are distributed directly by Rösler's branch offices. Visit our websites at www.strahl-global.com and www.rosler.com for more detailed information about our spare and wear parts product line.



Stephan Rösler
Managing Director of
Rösler Oberflächentechnik
GmbH

A plea for Germany as an industrial location

Without globally interlinked value chains within the framework of which tasks are outsourced to international subcontractors or branch offices abroad, a global world would not be possible. But, as widespread as outsourcing of production steps for profit reasons may be, nobody should close their eyes to the disadvantages this holds. To view the outsourcing of entire production facilities as the only way to increase efficiency, and as a solution to every problem would be wrong. Complete transfers do, of course, make sense for certain products and production plants, respectively.

I frequently receive offers from business consultants trying to promote a production transfer to the East. The risks and disadvantages involved, however, are rarely mentioned. These include, interface problems that may arise due to such a move may be enormous, and cause costs that are difficult to estimate. Other problem areas are: logistics, and insufficient or unqualified personnel unable to meet the company's standards of quality. Meanwhile, some companies that previously moved their production abroad have returned to Germany, after finding that productivity in Germany is higher due to the right measures taken. Although conditions are still not perfect here, the industrial location in Germany is far from being as bad as the public has been made to believe. I, for my part, have decided not to transfer any company divisions to East European countries but to declare my support to Germany as an industrial location. We are nevertheless able to offer our customers a machine product line that is - by far - the most diversified, and a better price-performance ratio, than many competitors operating production plants in East European countries.

Rösler Oberflächentechnik takes part in the campaign "Industrial Location Germany" initiated by the magazine "Produktion".



Customer-specific finishing solutions

Superfinishing Delicate Components

Grinding and burnishing processes are very important steps in surface finishing components made of aluminium, magnesium, nickel, stainless steel or titanium. The high-quality materials, and the often highly sensitive areas of application are the products of specialized processes.



When finishing turbine blisks a one-hundred-percent even removal is guaranteed



Rotary vibratory bowl technology offers excellent properties for the processing of pump wheels

When selecting the surface finishing system, one critical aspect is that the components can not have any part-on-part contact during processing. Therefore, Rösler uses rotary and trough-style vibratory bowls, plunge grinding and drag finishing units, or Rotomatic continuous flow systems for processing of such delicate work pieces. The media and compounds are matched to the individual processing requirements - high-performance abrasive media or polishing media, grinding media with microfine graining or grinding pastes, as well as specially-suited compounds are used. All of the media mentioned have been specially developed by Rösler in our laboratory. In some cases, chemically accelerated REM finishing (see page 4) or the patented Rösler Keramo-Finish® process is used. This is the processing method designed to meet the speci-

fication requirements of several of the worldwide largest aircraft manufacturers.

Special application: rotary vibratory bowl

In order to process oversized components gently and economically, it is not always necessary to utilize a drag finishing or continuous-flow system. Rotary vibratory bowl technology is more cost effective, while also offering excellent processing of large and delicate individual

components with outer diameters of between 300 mm (12 in) and 1900 mm (75 in) and weighing up to 800 kg (1,764 lbs). Rotary vibratory bowls are sturdy, user-friendly, and economical in terms of media and compound consumption. They are also ideally suited for ball burnishing or deflashing, as well as Keramo-Finish® high-gloss polishing. With the addition of peripheral equipment, they can be configured as fully automated processing cells.

Special Keramo-Finish Polishing Media-RP®

For Keramo-Finish® processing, the Rösler laboratory has developed special porcelain polishing media. The Keramo-Finish® RP media is identifiable by a micro-crystalline binding structure with a specific weight of 2.91 g/cm³.



Keramo-Finish® Surface Finishing

Keramo-Finish® is a finishing method. In the preceding processing step, the turbine blades are, for example, shot blasted and their surface is peened.



This precision process was developed by Rösler to achieve micro-fine surfaces for the aviation industry, in particular for processing turbine blades and rotors of all kinds. For this specialized process, a rotary vibratory bowl is most commonly used. Keramo-Finish® processing involves a combination of high-density, low-abrasive special media, grinding paste and polishing compound. The surface of the component is polished by special "RP" media coated with abrasive paste that exert slight pressures during a precisely defined processing period. Due to the very slow movement of the mass within the bowl, it is possible to polish several components at the same time without the risk of damage.



The surfaces of bearing rollers are polished in a rotary vibratory bowl by the Keramo-Finish® process

Tandem rotary vibratory bowls with the Double-Batch System®

Traditional processing meets High Technology

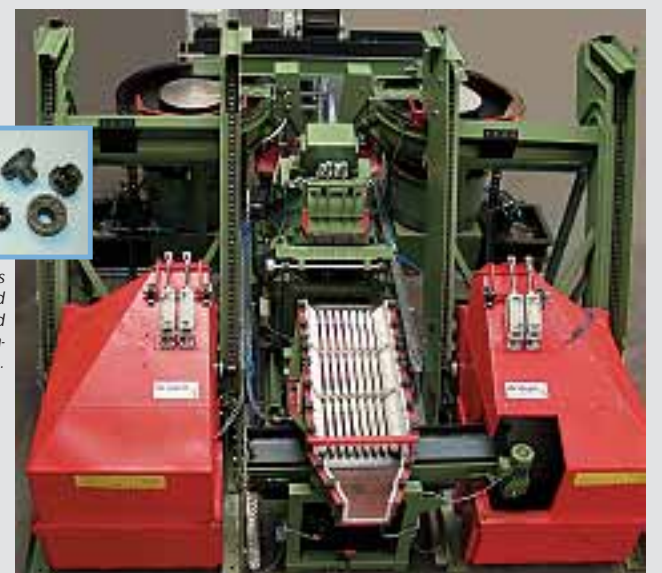
For UKM Fahrzeugteile GmbH, a manufacturer of automotive components, Rösler's vibratory finishing engineers developed a customized variation on rotary vibratory bowl finishing. This system allows UKM to process various part sizes and shapes in a "continuous batch" operation.

As part of their vehicle components production upgrade, UKM Fahrzeugteile GmbH needed an economical system for deburring batches containing different-sized steel parts with individual part weights between 72 g (3 oz) and 262 g (9 oz). The company already utilizes Rösler rotary vibratory bowls in other production areas. The special requirements necessitated the development of a new processing concept. A significant aspect of the tandem rotary vibratory bowl system is the separation station which is used by both of the R 420 circular vibratory bowls. The separation station is divided into an intermediate hopper and a screening machine to provide simultaneous processing and separation in accordance with the Rösler Double-Batch System® method. At the same time that components are being processed in one of the circular vibratory bowls, discharge, separation and change of the abrasive media is taking place at the second processing station. As part of the separation process, components and media are cleaned with an integrated rinsing device. A self-cleaning undersize media screen reliably separates media that has become too small before

the next batch is processed. This is indispensable for obtaining uniform processing results, due to the heterogeneity of the components to be processed, and the diverse sizes and shapes of the media. The tandem system is connected to a Z 1000 ASS-II-Turbo process water treatment unit, and thus works without producing any waste water. This custom rotary vibratory bowl concept meets all specifications defined by the customer in terms of flexibility, cost-effectiveness and repeatability, while providing excellent component quality. This system configuration is ideal for all applications that involve a frequent exchange of parts.



Carriers and pinions that vary in size and weight are deburred per batch in the tandem system.



This tandem rotary vibratory bowl system with the Rösler Double-Batch System® can be used for all applications that involve a frequent exchange of parts.

Inquiry



Rüdiger Böhm,
Test Centre Manager

Individual systems that provide a high degree of flexibility is the focus of our customer system planning. We pride ourselves on meeting the requirements of our customers in the best-possible way and we do not hesitate taking the unconventional path. We analyze the needs of the customer, and offer him solutions to solve these problems. Our project teams take into account all aspects of processing methods and system technology when planning the machine concept.

Technical Details

System model:	R 420-S0
Motor speed:	1,500 rpm
Work piece:	carrier, pinion made of hardened steel
Individual part weight:	72 g (3 oz) – 262 g (9 oz)
Batch quantity:	up to 100 l
Processing time:	30 min
After-treatment:	washing system

! Rösler Shot Blast Technology Highly Successful

Rösler Oberflächentechnik GmbH has been steadily improving its already excellent market position in the area of custom-built systems. At the same time, the Rösler group of companies has established itself successfully in the field of commercial shot

blast systems and increased its market penetration. It is in the aviation industry, as well as in the fields of diecasting and forging shops, that Rösler's innovative, individual and economical surface technologies have been contributing to improved prod-

uct quality and a more cost-effective production flow. With the acquisition of Köhne Lackieranlagen GmbH, Rösler is now a single-vendor source of complete preservation lines.

Europe's largest overhead rail shot blast system

Shot Blast Technology for Offshore Wind Power

Iron foundry GGT- Großguss Torgelow GmbH is one of several manufacturers of components used in wind power generation systems. The company has invested in a new casting production line, specially designed to produce oversized cast components for offshore wind turbines. For GGT's new production line, Rösler has developed a massive shot blast system to clean and remove residual casting sand from these components.

With about 16,500 onshore wind turbines and an output of nearly 16.5 gigawatt hours, Germany is the world's top generator of wind power. In addition, the German wind power industry is rapidly expanding seaward. On German coasts, up to 25 gigawatt (GW) hours of wind power is planned to be generated by offshore systems by 2030. Wind power is a growth industry throughout Europe. The German Institute for Wind Energy forecasts that by 2008, 36 GW hours of wind power will be available in Europe. Today, German wind energy system and component manufacturers generate a higher proportion of the net product abroad than at home.



Offshore locations offer the greatest potential for wind power generation. Expanding offshore capacities presents new challenges to manufacturers and planners

A new casting production line

GGT-Großguss Torgelow

GmbH belongs to the group of manufacturers that produce components for the construction of wind turbines, build machines and heavy equipment, and cast engines. Components such as rotor hubs and base frames of wind turbines with high stress load must be cast to the highest quality specifications. The process used for this purpose by the iron foundry industry not only offers uniform qual-

ity results, but cuts costs as well. This contributes to an increase in both the performance potential of the system's manufacturers, and the reliability and cost-effectiveness of the wind turbine systems,

which is very important for offshore use. Offshore systems are significantly larger than land-based systems. Their larger size requires a corresponding increase in the production volume of rotor hubs and gear components.

42-meter overhead rail shot blast system

A Rösler continuous-flow overhead rail shot blast

system was required to clean the cast components, up to 8 m (26 ft) in length and weighing up to 100 tons, and to remove residual casting sand. This shot blast system is an integral part of the

new production facility for over-sized cast parts. The shot blast system was planned correspondingly big and powerful it is the only overhead rail system of its size in Europe. The total system, including loading and un-loading stations, measures 42 m (138 ft) in length, including an 18 m (59 ft) long shot blast cabin. Different sizes and shapes of components can be treated. This was the decisive factor for Rösler. In order to ensure an economical continuous feed of the heavy parts, a tandem operation with two parallel-running, automatically controlled, cranes was developed. Within the shot blast zone, there are three fixed crane positions. A total of ten high-performance blast wheels operate at different angles to deliver highly efficient cleaning. The entire shot blast system is designed to withstand very extreme production conditions. The cabin is constructed of 8 mm (1/3 in) manganese steel and 12 mm (1/2 in) manganese plates. The maximum noise level of the system is below 80 dB.

Precise peening of turbine shafts Process-Optimized Method

The competitive situation in the aviation industry requires turbine manufacturers to focus on cutting costs and shortening delivery times, and at the same time, improving the performance and reliability of the turbines. For peening aeroplane engine turbine shafts Rösler Oberflächentechnik has developed a special shot peening system. This system meets the technical specifications of



For peening shot blasting of turbine shafts, Rösler Oberflächentechnik has developed a special combination system



the aerospace industry, and is used by renowned manufacturers of turbines such as SNECMA and NPO Saturn.

Turbine shafts are hollow shafts whose surface is peened on the outside and inside walls to increase stability and life span. In order to achieve optimum results within a fully-automated processing process, Rösler has combined two shot blast systems in one: a 6-axis robot system with adjustable nozzles for precision processing of the outer surfaces of the shafts, as well as a special CNC-controlled lance to peen the inner surfaces. The system has a separate double-pressure vessel for each of the two types of blast media (S315/S630) as well as two blast media treatment systems to sort the shot blast agents according to size and shape, ensuring the highest-possible consistency of the peening process during all processing steps. For the customer this means consistently repeatable, constant and even shot peening.

Successful hand-in-hand-concept

Large-Scale Project: Preservation System for Singapore

With the acquisition of Köhne Lackiersysteme GmbH, Rösler is now a single-vendor source of complete preservation lines. The latest big project carried out for CWT Distribution Limited (CWT) is a preservation system for processing steel plates.

The CWT is a multi-national corporation headquartered in Singapore. They turned to Rösler as a single-vendor service provider because they were convinced of Rösler's comprehensive competence in planning, construction, production and assembly. The preservation line built for CWT allows the customer to shot blast more than 100,000 tons of steel plates annually and coat them with a welding primer film for temporary corrosion protection. Processing takes place in continuous flow machines with a processing performance of 4 m (13 ft) per minute.

Steel plates up to 3 m (10 ft) wide are automatically placed on the conveyor belt, then run through the pre-chamber, the shot blast chamber and the after-chamber of the roller conveyor shot blast system. The eight high-performance blast wheels mounted on the cabin housing of the shot blast system ensure all-around, comprehensive and uniform processing. They produce excellent cleaning results of B SA 2.5 (according to the common Swedish standard of cleanliness) providing an excellent surface for their subsequent coat-



Over 100,000 tons of steel pass through the CWT preservation line per year, where they are shot blasted and then coated with a welding primer layer

ing in the varnishing unit. To minimize the amount of overspray needed, the varnishing unit uses a vacuum and an intelligent material-sensor device. A special brush pre-separation device in the varnishing cabin prevents wet paint particles from getting into the filter. Next, the plates are coated with a very thin layer of corrosion protection agent, and then run through an after-drying process that, in view of the high temperatures in Singapore, has been designed in the form of an air extraction system. The dry plates can then be immediately transferred to the next production step.

Removing coatings from turbine components

High-Pressure Wet Blasting at 4000 Bar

Today's state-of-the-art technology in the field of turbine construction is the result of technical progress in the fields of material, manufacturing and surface finishing technology. For instance, the introduction of titanium alloys at the beginning of the sixties made possible the development of large fan blades. There is an equally close relationship between the power of a modern aeroplane engine and the quality of its individual component surfaces. In order to improve resistance against erosion and frictional wear and tear, highly used frames, cases, bearing housings or turbine blades are thermally coated with a layer of special plasma coating after the shot peening. As part of regular inspection and maintenance, this coating must be renewed regularly, requiring the removal of the old coating. As part of a capacity upgrade, Lufthansa Technik AG Hamburg ordered a Rösler high-pressure wet blast system with integrated process water treatment. Not only is wet blasting environmentally friendly, but it also produces much faster results than the conventional chemical coating removal method.

The high pressure of 4,000 bar needed to remove the plasma coating is generated by means of a high-performance pump and is sprayed on the component by a high speed



The Rösler high-pressure wet blast system cleans the component at a pressure of 4000 bar

rotary nozzle, manipulated by a 6-axis robot, at a speed of 3,000 rpm. The effect achieved guarantees a quick, precise and at the same time gentle coating removal without causing deformations on the surface of the component. Depending on the type and thickness of the coating, removal speeds of 4 mm (1/8 in) up to 75 mm (3 in) per second are achieved. At Lufthansa Technik AG, a crane loads the components to be blasted directly onto a turntable in the stainless-steel blasting chamber. The pneumatically sealed door closes automatically prior to the start of the processing. The environmentally-friendly process water treatment system utilizes a proven system technology long used in vibratory finishing, which has been modified to suit high-pressure wet blasting applications.

Roboblaster RROB with double gripper

Increased Production Rate

'Time to market' is the slogan which is currently driving activities in the automobile industry. In order to accelerate the time to market, many manufacturers resort to continuous streamlining of their manufacturing processes, thus reducing the time required to bring new products to the marketplace. Increasingly, outsourced divisions are being retransferred. A South German automobile manufacturer reintegrated shot blasting of transmission housings back into the company after the material they are constructed of was changed from aluminium to magnesium die castings. This automobile manufacturer asked Rösler Oberflächentechnik to develop a highly efficient processing system for deburring and surface finishing the casings and inter-

nal surfaces of transmission housings. Rosler developed a custom-built RROB 800/1200-6 Roboblaster which was designed with a special



Rösler developed this highly efficient processing system for an automobile manufacturer to deburr and surface finish transmission housings.

the transmission housings in the blast chamber, and then rotates them. This rotation causes the patented interlocking seal on the gripper's collar to immediately and securely seal the blast chamber. In the shot blast chamber, the housings are shot blasted for 20 seconds by six high-performance blast wheels, of which, two are mounted on to the back wall of the chamber to guarantee that the inside area is shot blasted thoroughly. A system especially developed for the Roboblaster subsequently removes the shot blast media from the components.



The double gripper handles up to two housings at once.

emphasis on cost-effectiveness and quality. To achieve the required cycle time of 26 seconds per component, the robot is equipped with a double gripper which can accommodate two components at the same time. The robot places

Shot peening of stabilizers

Innovative Finishing of Tubes and Round Bars



The RDR 100 peens the surfaces of manganese steel stabilizers

Within the automobile industry, subcontractors are required to provide innovative solutions to reduce the overall weights of the components they manufacture. For safety reasons and due to the high stress loads they are subjected to, the material composition of structural chassis components, such as stabilizers, cannot simply be changed. A worldwide market leader in the production of chassis modules uses shot peening to strengthen the surfaces of stabilizers made of manganese steel. By increasing the compressive residual stress values, the overall parts weight can be reduced, while extending the lifespan of the component. A Rösler RDR 100 tube/round bar shot blast system peens the surfaces of steel

tubes, which are about 1.2 m (4 ft) long, with an outer diameter of between 27 mm (1 in) and 39 mm (1 1/2 in), and a wall thickness of between 3 mm (1/10 in) and 5 mm (2/10 in), in a fully-automated three-shift operation. Rösler custom-tailored the continuous-feed system to meet the customer's special processing requirements. The travel speed is 3 m (10 ft) per minute, which is equivalent to a cycle time of 27.3 seconds per stabilizer tube. In order to ensure consistent shot blast results for the entire tube's circumference, a special roller conveyor is used as a transport system. It consists of "Diabolo" rollers which produce concurrent forward and rotational movements of the parts. A 22 kW H-42 high-performance blast wheel performs the blasting.

After processing, the tube passes through a blow-off station where the outer surface is cleaned of any residual shot blast media which may be adhering to it. At the unload end of the shot blast machine, a blast media removal station then removes any loose shot blast medium residues from the inside of the tube. Subsequent handling of the tube is then taken over by the robot.



The special roller conveyor transport system consists of "Diabolo" rollers which produce concurrent forward and rotational movements of the parts.



Rösler Compact

FKS: The Number One Centrifugal Disc Finishing Machine



These fully integrated FKS 35.1A2 tandem systems were configured for an international manufacturer of automobile parts to provide completely automated operation within a single production line.

Thanks to its excellent system technology, the FKS machine has become the world's top selling centrifugal disc finishing machine.

With a market share of 70 percent, this intelligent system concept has further established

Rösler's market position as the world's leader in vibratory finishing. The company's special performance capabilities in the field of system design and construction are supported and guaranteed by a wide range of products. Decades of experience and extensive technical expertise assure Rösler's customers that the design of the systems is perfectly matched to their individual application, and that the systems themselves

Vibratory Finishing for New Laser Production Technologies

New generation laser production methods make it possible today to manufacture three-dimensional components from different types of materials. These new technologies have drastically shortened the production times of both prototypes and functional components. Laser sintering and laser cutting offer, in the form of rapid prototyping and rapid manufacturing processes, huge cost-savings potential for components such as individual medical implants and hollow aerospace parts. In partnership with leading laser manufacturing companies, Rösler has developed special methods for finishing parts produced by laser technology. For instance, vibratory finishing and centrifugal disc finishing machines polish surfaces with special media to provide a uniform appearance.

Chemically-Accelerated Vibratory Finishing

Rösler has added a new processing method to its process technology product line: Chemically-accelerated vibratory finishing. REM Chemicals, Inc. has developed chemical accelerants (patented under the name of REM), which are used in combination with non-abrasive ceramic media, for special cases where the surface has to be super-finished. REM enables the user to save processing steps and to significantly minimize the processing time required in comparison to other vibratory finishing methods. Through their partnership with REM Chemicals, Rösler hopes to make this process available to a wide range of users.

Vibratory Finishing instead of Honing

Honing is the generally accepted technology for machining inner bores and outer surfaces to a very fine finish. As companies search for an economical and thus cost-effective processing method that achieves at least the same and/or a better surface quality, more and more users are turning to vibratory finishing. Its greatest advantage is in increased production capacity, as can be seen from the example below. In vibratory finishing, the component is processed in a continuous-flow system, such as Rotomatic or long-radius vibratory bowls, with



special non-chipping media in order to achieve micro-fine surface finishes.

Vibratory finishing applied in a Rotomatic continuous-flow system achieves a production capacity that doubles the capacity achieved by honing.



Automobile Manufacturers Squeezed between Cost and Innovation

German automobile manufacturers are currently facing pressure from two development trends. Increasing costs due to global competition forces these companies to take comprehensive measures to adjust their cost structure. At the same time, this industry sector is trying to meet environmental protection targets. According to an automotive expert, Prof. Ferdinand Dudenhöfer, all German manufacturers still significantly exceed the upper limits of values for carbon-dioxide (CO₂) emissions which will be required starting in 2008. The automobile manufacturers thus not only face model-specific consumption taxes at the EU level, but also losses in their export trade, in particular with China and the USA. A significant obstacle to drastically reducing CO₂ emissions is that cars are still very heavy, which is why innovations in the field of light vehicle construction that focus on new materials and improved production technologies are particularly critical.

TRADE FAIR CALENDAR 2005

06.09.-08.09.	TIV	Hardenberg (NL)
13.09.-18.09.	Internationale Herbstmesse	Zagreb (HR)
14.09.-21.09.	EMO	Hannover (D)
20.09.-22.09.	Diecasting	Shanghai (RC)
21.09.-22.09.	East Midlands Manufacturing	Donington (GB)
21.09.-24.09.	Finitura & Oltre	Bergamo (I)
26.09.-01.10.	ITM	Plovdiv (BG)
27.09.-29.09.	Wisconsin Manufacturing	West Allis (USA)
27.09.-30.09.	Trasmet	Bilbao (E)
29.09.-02.10.	Marmomac	Verona (I)
03.10.-07.10.	Int. Maschinenbaumesse	Brünn (CZ)
04.10.-06.10.	Surface World	Birmingham (GB)
04.10.-08.10.	TIB	Bukarest (RO)
18.10.-20.10.	parts2clean	Essen (D)
18.10.-21.10.	Tekniska	Stockholm (S)
19.10.-21.10.	Eurofinish	Gent (B)
20.10.-22.10.	Foundry Int. RHS	London (GB)
06.11.-10.11.	Investment Casting and Forge	Dearborn (USA)
08.11.-11.11.	Elmia Subcontractor	Jönköping (S)
14.11.-18.11.	Eurosufas	Barcelona (E)
22.11.-24.11.	Metavak	Rijswijk (NL)
23.11.-26.11.	Manufacturing Indonesia	Jakarta (RI)
06.12.-09.12.	Aero Engines of the XXI Century-Conference	Moskau (RUS)

