

# ON THE SURFACE

Surface Finishing · Shot Blasting · Engineering · Environmental Techniques



Hall 6,  
Booth E02

**RÖSLER**  
finding a better way ...

## Robot-supported shot blast system for aluminium die-cast housings

# Efficient Overhead Monorail Shot Blast System requiring minimal Space

*Mastering the balancing act between designing a cost-effective compact overhead monorail shot blast system and maintaining the efficiency of a fully automatic, robot-supported blasting cell – that was the challenge Rösler Oberflächentechnik GmbH faced when approached by Georg Fischer, a company based in Herzogenburg/Austria. The result of Rösler's efforts is the "die-cast cell blasting system RHB 9/13-So" which was installed and has been successfully operating at Georg Fischer's for some months now. The company, founded in 1802 with its headquarters in Schaffhausen, Switzerland, is the technology and market leader for all casting processes used in series production.*

The area available around the die-casting cell to be extended at Georg Fischer's in Herzogenburg was restrictive; the limited space, a pre-defined cycle time of 179 seconds and the integration of the 6-axes robot, already in operation at the plant, into the control system were the basic conditions to be considered in this application. In automatic operation, process time is limited to a maximum 99 seconds of blasting time to effectively deburr various heavy (up to 35 kg or 77 lbs) aluminium gear housings, whilst also providing a uniform surface finish. Using two high-performance Hurricane® series blast wheels manufactured entirely of solid carbide and with a driving power

of 11 kW (15 HP) each, turned out to be the optimum solution for the application requirements. The workpiece fixtures are designed to accommodate the complete parts spectrum and fixture exchange takes only a few minutes. The fixtures are made of wear-resistant manganese and hardened tool steel and driven by a precision turning gear located on the chamber roof. The indexing sequence allows integrated robot loading and full blast coverage within time limits. After process idle time during indexing is kept to a minimum as the blast wheel retains speed and only the abrasive flow is momentarily interrupted via the control valve during index. A blast wheel

gate is also activated during index to contain the media and to comply with the provisions of the accident prevention regulations (UVV). The dust extraction systems efficiently removes all dust, maintains abrasive condition and to comply with the ATEX Directive (handling of explosive dusts such as aluminium) in force, is equipped with an explosion-proof dry filter suitable for external location. Rösler has successfully developed a fully integrated, compact, customer-specific system providing a cost-effective and economic solution to requirements. The customer, Georg Fischer AG, is highly satisfied.



Integrated deburring of aluminium die-cast parts

## Batch processing of special steel parts

# Bespoke Plant Engineering & System Design by Rösler

### New development: Long Radius R 480/2 E LR

Already finished surface areas of certain cylindrical, compact workpieces, manufactured from relatively brittle special steel and with an individual weight of about 120 g (4 ounces), are difficult to access and must be processed for a second time to achieve a roughness of Rz < 0.6 µm. This requirement did not cause a headache to the project management team at Rösler. What was difficult, however, was the fact that based on the parts quantities to be finished and the processing time determined by preliminary tests, parts had to be processed in batch operation which, in turn, required various steps to be performed prior to any automated and gentle treatment of the workpieces.

#### Feeding of workpieces

Safe and continuous feeding of parts into the processing bowl of the vibratory finishing machine takes place via a feeding belt with pre-designed set-down points so that workpieces are not damaged during loading and the machine can be fed about 250 parts within a maximum of 3.5 minutes. At the end of the conveyor belt, the workpieces glide on guide channels into the abrasive media mixture, where they are quickly transported away from the infeed point and are then immersed in the protective abrasive media.

#### Processing of workpieces

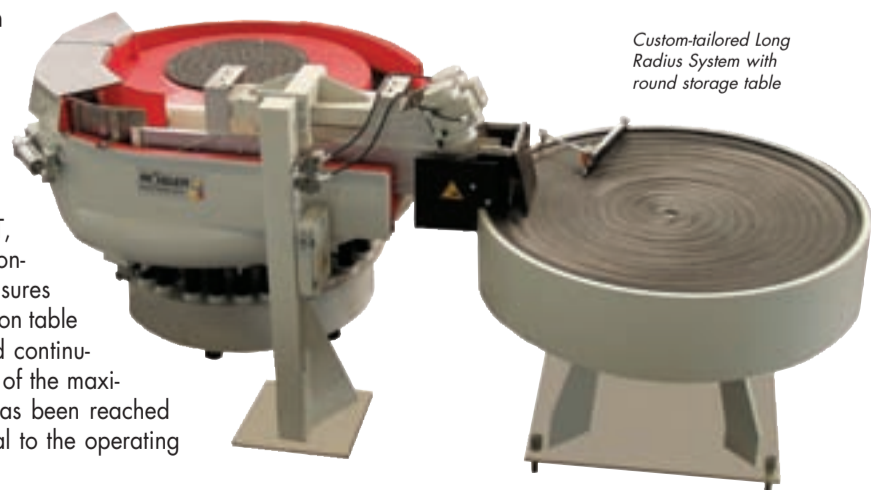
In order to be able to achieve the required degree of automation, special attention must be paid to the separation of the workpieces from the abrasive media. Common vibratory finishing bowls generate, in front of the pivoting separating flap, rather a high grinding pressure which makes them unsuitable for this application. The only machine able to meet this requirement was the newly developed Long Radius R 480/2 E LR, specially modified to suit this processing task, with its ideal combination of voluminous processing container for high piece numbers, small size and clear machine conception. The processing bowl, evenly ascending across the entire length and traversed at both sides, is ideally suited for gentle and efficient surface treatment of the delicate workpieces. Separation takes place by way of a stand-alone separating system, de-coupled from the actual processing bowl, which guarantees that abrasives are separated fast and optimally and workpieces are discharged quickly and smoothly. In order to keep error sources to an absolute minimum, the operating equipment has been selected such that the processing task can be performed solely with abrasives without having to add any supporting abrasive media [compound,

polishing pastes]. Not only is the special abrasive grinding power such that different degrees of roughness can be smoothed fast, and in this application the required Rz value of < 0.6 µm can also be achieved quickly in one process.

#### Intermediate accumulation of finished parts

The independently operating separation process requires the workpieces to accelerate and exit the screening area of the machine and to be gently passed on to an intermediate buffer system. This is performed by the Rösler rotary accumulation table, R 1540 RT, with parts flow control system. It ensures that the accumulation table is filled evenly and continuously. Once 70 % of the maximum filling level has been reached the table will signal to the operating staff.

The operating process (abrasives and compound) is designed such that the total process water runs within a Rösler process water cycle system. Due to optimised water cleaning agents, the process liquid can be re-used for a long time which significantly reduces water consumption as well as a reduction in compound (chemical treatment agent) use.



Custom-tailored Long Radius System with round storage table



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

**Our Focus is on Growth**

The figures of the financial year 2006/2007 (ending on March 31st, 2007), give rise to high expectations for future development. We have achieved our turnover target of EUR 190 million and thus laid the foundation for further growth. With the acquisition of the shot peening specialist, Baiker AG, (see article opposite or see adjacent article) in January this year, we were able to considerably extend our machine programme in the area of special shot blast systems for the aviation and automobile industry. In the next six months, we will respond to rapidly growing demand for our shot blast systems by extending our capacities in the field of shot blast technology at our site in Untermerzbach (Bavaria) and invest about EUR 10 million in a 10,000-square-metre big (107650 sqft) production area with associated machinery & equipment. This is the biggest single investment our family enterprise, established in 1933, has made so far.

It is a clear statement for Germany as a business location. In contrast to our competitors, who in part operate production facilities in East Europe, we will further increase the proportion of in-company production at the Untermerzbach location and ensure the high quality of our products, as the entire process chain from development/construction all the way up to sales and parts supply, final assembly and after-sales service will remain concentrated under one roof. Efficient project monitoring without loss of information due to interface problems, that companies outsourcing production steps so often face, is thus guaranteed.

With pride we accepted the 2006/2007 official Certificate for Training Young Professionals awarded by the Federal Labour Office a few weeks ago. Rösler employs 685 people in Germany, among them 66 trainees in six different apprenticeship trades who, after having completed a 3 to 3 1/2-year apprenticeship, will actively support our business divisions.



New production areas for the production of shot blast systems at the Untermerzbach site. Completion: August 2007

**Special Shot Blast Systems for the Aviation and Automobile Industry**

**Takeover of Baiker Maschinenbau AG with effect from January 1st, 2007**

*With the takeover of Baiker AG, Rösler takes another step forward in its strategic expansion policy. After Vapor Blast, a renowned French manufacturer specialised in civil and military aviation and space industry applications, could be integrated into the Rösler group in 2004, the acquisition of Baiker AG now completes the picture.*

For more than 70 years Baiker, having its registered business address in Zurich, has been building shot blast systems for shot peening, peen forming, wet shot blasting and blast cleaning with special emphasis in the areas of CNC and robot-controlled systems for aviation and automobile applications. The world's leading aviation and automobile companies, such as Airbus, Rolls Royce, MTU, Lufthansa or Volvo and BMW

are among Baiker AG's regular customers. Baiker AG offers a similarly comprehensive product and system range as Rösler and extends Rösler's shot peening product spectrum by some important details. As both companies' key competences are focused on developing custom-tailored special solutions for the aviation and automobile industry, customers will benefit from more flexibility, higher degrees of automation



peen forming system for Airbus to automatically process aircraft skin plates

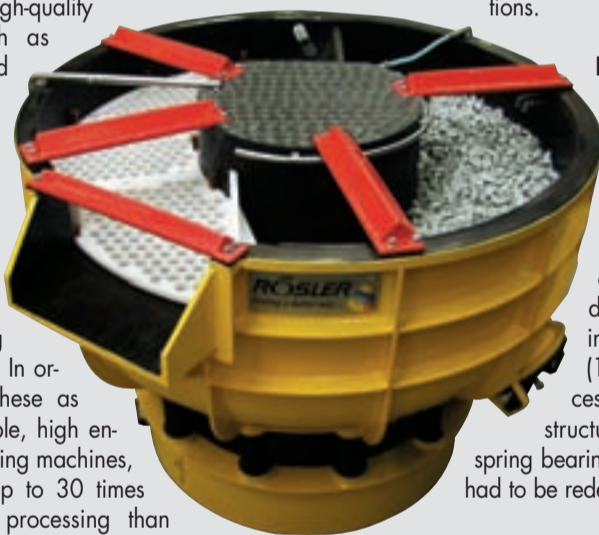
and better service. The development, construction and production of Baiker's product range will be integrated into the Rösler group.

**Extra-Power in Matters of Grinding Performance**

**New Development: High-Speed Vibrators**

*Shorter grinding times and high material removal are requirements every user of vibratory finishing machines requires. As a result of the close co-operation with a leading aviation company, Rösler engineers designed and constructed a rotary vibrator system unique in its performance. The new "high-speed" machine series reduces processing times by almost half compared with the processing times achieved with conventional rotary vibrator technology.*

The customer is among the most important partners of the globally active turbine blade manufacturer and numerous vibratory finishing machines to grind, smooth and polish a variety of different turbine blades operate there daily. Typical to such safety parts which are subject to high stresses is the use of high-quality materials such as nickel-alloyed special steels and titanium. Processing surfaces of forged parts involves a high level of machining work and therefore long grinding times. In order to keep these as short as possible, high energy disc finishing machines, which allow up to 30 times more intense processing than conventional vibratory finishing machines, are deployed. However, the use of this very powerful machine technology is limited by the size of the components and the cost-benefit ratio as there are many different kinds of turbine blades to be processed. It was therefore suggested



ed by Rösler to additionally deploy vibrators of the Euro model series to process this type of work-piece. As certain work steps require processing times of up to fifteen hours, both - the user as well as Rösler - developed the idea of reducing the process grinding times for such special applications.

**From an Idea to Reality**

There were many ways to approach the task of achieving a more powerful performance on the basis of the Euro rotary vibrator series. The central part here: a heavy-duty drive unit with a driving power of 12.5 KW (17 HP). However, the processing bowl, machine sub-structure, processing bowl spring bearing as well as other details had to be redesigned and adapted.

**Trial Runs**

New developments at Rösler are applied at first in the test centre where they are tested thoroughly for performance, properties and functions. The input results quickly reveal what could be expected of this new development: compared with conventional

vibrators, running times here could be reduced by almost half whereby the material abrasion remained the same! This outcome far exceeded the developers' and the customer's expectations.

**Proven in Practice**

Apart from the test machine a few more units are now operating at the customer's. The machine's performance is indeed fascinating: shorter grinding times, the same material abrasion and, at the same time, just forty per cent higher consumption of abrasive media. The system therefore makes sense also from an economic point of view. The outstanding feature of the high-speed rotary vibratory series is their up to sixty per cent improved grinding performance. In particular, the machines are suitable to process robust components such as forged, cast and punched parts.



Typical turbine blades - processed in the new high-speed vibrators

**Rotary Table Blast Machine for a busy jobbing foundry**

**Standard Or Special No Problem For Rösler**

*Based in the Heartland of UK Steel Production, the well known, Sheffield based Trefoil steel foundry have been experiencing an increased demand for their high quality output. To keep pace with customer requirements some of the company's larger castings have had to be contracted out for the important blast process. Having reached a critical mass, the company's growing volumes dictated that it made sound economic sense to increase the company's 'in-house' shot blasting capacity.*

To help uphold Trefoil's fine reputation for the quality of their production the company put together a demanding specification and contacted several suitable shot blasting equipment suppliers to discuss their requirements. After examining all of the alternatives, Trefoil chose Rösler UK's bespoke solution as it matched all of the company's challenging requirements. Russell Bloor of Trefoil explained. "One of the problems we have in the part of the factory des-

igned for the equipment, is the height available under the crane, Rösler immediately appreciated this and offered a solution. Rösler installed a 2-metre diameter rotary table machine; model RDT 200, fitted with two of the company's super efficient 'Hurricane' Blast Wheels'. Mindful of the prevailing height restrictions, Rösler's engineers placed a double resp. divided bucket elevator, together with a full maintenance platform and access ladder, at the rear of the machine. Although this modified design occupies a little more floor space than Rösler's standard 2-metre (6.6 feet) unit. By integrating a divided bucket elevator, the machine's separator was able to be placed at a lower level, meaning that only the collecting hopper for blasting media and dosing units needed to be placed above the blast wheels. Trefoil's machine is provided with a low level 'scalping-drum' which is designed to remove raw pollution with continuous action out of the

blasting media flow. The shot, which consists of cut-wire, is carried to the airwash separator, where residual sand and spent abrasive is efficiently separated over a double airwash system. As a busy jobbing foundry, Trefoil is asked to produce and clean a wide variety of steel castings from a wide range of industries. The object of Trefoil's blasting process is to remove residual sand and to produce a clean descaled surface for presentation to the companies valued clients. The two 7.5 KW (10 HP) Hurricane® blast wheels system fitted to the unit are easily adjustable for coverage, giving Trefoil the versatility for variety of parts that they require. Used throughout the world for cleaning and descaling tools, components, moulds and fabrication surface preparation for coatings and shot peening gears and springs etc. The Rösler table machine has proven to be an extremely versatile machine.



## Cleaning of Moulds

### PLC controlled Wet Blast System

**In today's global economy automotive companies must supply high quality products at competitive prices. At the same time they must generate financial returns allowing them to amortize their capital investments in the shortest possible time. This is not an easy task for any organisation to achieve and maintain, but the well known and highly respected English company CANNON AUTOMOTIVE appears to be hitting this target. As part of its quality drive the company recently decided to analyze the procedures that were being used to clean the large dies from their car mat rubber moulding section.**

Cannon Automotive engineers felt that improvements to quality control and productivity were possible and asked Rösler to partner with them in finding a solution.

The moulds or dies range in size from 610 x 480 x 30 mm to 1600 x 1220 x 40 mm and weigh up to 400 kgs.

To maintain good release properties the dies require regular cleaning by removing carbonised material from their surface. The dies are, of course, high quality precision tools. Their surface must be finished to very high specifications that must be maintained throughout the die's working life. Wet blasting seemed to offer the best solution.

Rösler engineers met several times with Cannon production engineers to listen and discuss their requirements prior to drawing up a specification for the possible equipment. The following "must have features" were specified:

1. Blast cabinet must accommodate components of up to 1600 x 1200 mm and a weight of up to 400 kgs
2. Machine to be PLC controlled
3. Programs to allow for three types of loading: Single small mould, tandem loading and single large mould
4. Full stainless steel cabinet
5. Full recycling and cleaning of the process water and compound (inhibitor)
6. Six oscillating blast nozzles for blasting, rinsing, and blow off

Small moulds are loaded by hand; the larger, heavier moulds are placed directly onto the work table by fork lift truck. The table moves in linear fashion at 90° relative to the movement of the blast nozzles.

Following the loading of the mould or moulds onto the movable table the correct PLC program for the particular part(s) is selected. The speed of the table, movement of the blast nozzles and area to be covered are selected and controlled by the PLC.

Rösler wet blast machine with work table with linear movement and Siemens S7 PLC



The moulds – when in use – are exposed to very high temperatures for a long period of time. This can cause micro cracks on their surface. A welcome benefit of the Rösler wet blast process is its peening effect which helps to minimize these micro cracks.

Moulds and tools from many industries can be cleaned and peened using a wet blast process. Rösler not only offers a wide range of standard wet blast cabinets but also designs and builds many special wet blast systems for use in automotive, aerospace and other industrial applications with specific cleaning requirements.



Inside view of blast chamber showing the six reciprocating nozzles for blasting rinsing and blow off

## MT-Multi-Tumbler Rotating Drums

### Blast Cleaning bulky, heavy parts in a Green Sand Foundry

**When KENNEDY VALVE needed to modernize its blast cleaning operation, the customer chose three MT 34 multi tumblers from Rösler USA for this truly heavy-duty shot blast application**

#### Kennedy Valve Co. – A modern business with a long tradition

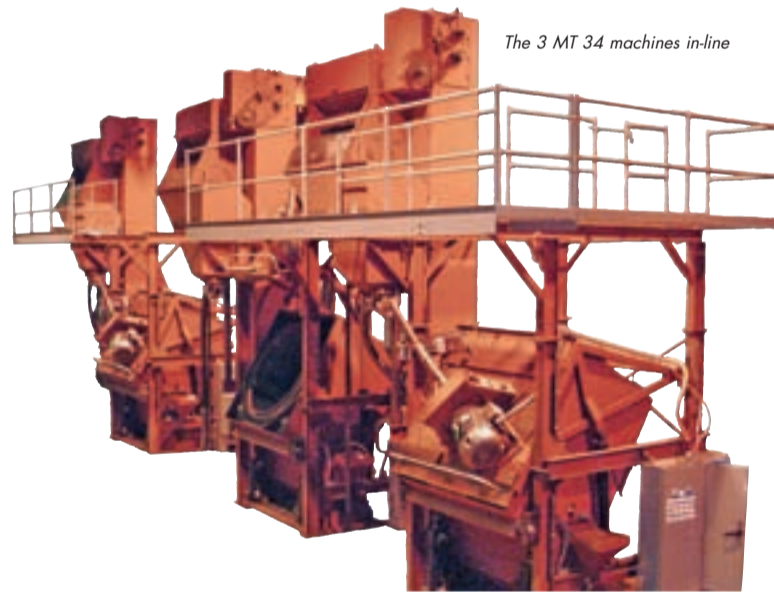
Kennedy Valve, founded in 1877 by Daniel Kennedy, originally made gate valves for the city of Manhattan (New York City). Today, Kennedy Valve is a leading supplier of fire hydrants and all types of valves for water distribution. The visitor, upon entering the Kennedy Valve premises, is equally impressed by the more than 120 years of manufacturing tradition still visible and the state-of-the-art manufacturing technologies employed by Kennedy Valve today.

#### The manufacturing process

Kennedy Valve is a fully integrated manufacturer producing its own cast iron castings, machining them in ultra-modern machining centers, all the way to final assembly and painting of the finished products. The foundry consists of a green sand molding line producing approximately



Finished fire hydrants ready for shipping



The 3 MT 34 machines in-line

10 tons of different types of castings per hour ranging in weight from 1 kg (2 lbs) all the way up to 270 kg (600 lbs) per piece. After shakeout in Didion drums, the castings are shot blasted. From blasting they go to various machining centers. After final assembly and painting the parts are ready for shipment to the customers

#### The search for the right blast cleaning concept for Kennedy Valve

Until 2005 Kennedy Valve was utilizing three large steel-flighted tumblast machines – two from Wheelabrator and one from Pangborn; each with a capacity of app. 955 liters (34 cubic feet). When these machines needed replacement, Kennedy Valve started looking for different solutions. Says Arne Feyling, Assistant

General Manager: "Our steel flighted blast machines required a high degree of maintenance, and we were tired of having to spend literally hundreds of thousands of dollars for maintenance and spare parts every year". Also, "the unloading of these machines was a problem, and frequently we had to literally rake the last parts out of the tumbling mill". In their search for alternative blast cleaning solutions, Kennedy Valve also looked at continuous systems, such as a rocker barrel concept and continuous tumblast machines.

#### The Choice of the Multi-Tumbler concept

In the end, Kennedy valve decided to go with the multi tumbler concept from Rösler USA and purchased three MT 34 machines.

The customer was impressed by the superior tumbling action in the rotary barrel and the excellent blast cleaning results, and by the simplicity and robustness of the MT design which can significantly reduce the maintenance costs for the shot blast department.

The installation consists of

- 3 x MT 34 multi tumbler machines with a usable volume of approximately 1000 liters each (34 cubic feet). Each machine has a 55 kW (75 HP) blast wheel.
- A vibratory loading hopper equipped with weighing cells.
- Unload conveyor for the shot blasted parts.

Since many of the parts are very bulky, batch sizes are limited to 600 kg (1300 lbs). The customer is using S 550 steel shot for blast cleaning the parts. Due to the amount of sand still on the parts, the MT 34s are equipped with a magnetic separator and a double cascade air wash separator.

#### Excellent track record

Since their installation the MT 34's have been running very well. According to Arne Feyling their uptime has been well over 95%.



Arne Feyling with largest part (600 lbs/273 kg)

#### Rösler exhibition dates:

##### March 2007

- 06.03. - 08.03. Houstex Apex, Houston, TX, USA
- 06.03. - 09.03. Industrie, Lyon, F
- 13.03. - 15.03. Expo Manufactura, Monterrey, MEX
- 20.03. - 24.03. Maquitech, Barcelona, E
- 26.03. - 29.03. Westec Apex, Los Angeles, CA, USA
- 28.03. - 29.03. Maintenance, Antwerpen, B

##### April 2007

- 09.04. - 15.04. CIMT, Beijing, PRC
- 10.04. - 12.04. ExpoCoating, Moscow, RUS
- 16.04. - 20.04. Hannovermesse, Hanover, D
- 17.04. - 20.04. Forma Tool, Celje, SI

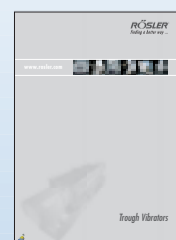
##### May 2007

- 08.05. - 11.05. Baltecnica, Vilnius, LT
- 08.05. - 11.05. Mach-Tech, Budapest, H
- 08.05. - 12.05. Technical Fair, Belgrade, XS
- 15.05. - 18.05. Metal Casting Congress Houston, TX, USA
- 16.05. - 20.05. Metaltech, Kuala Lumpur, MAL
- 21.05. - 24.05. Chinaplas, Guangzhou, PRC
- 21.05. - 26.05. FEIMAF, Sao Paulo, BR
- 22.05. - 24.05. Eastex Apex, West Springfield, MA, USA
- 22.05. - 25.05. AIEE, Melbourne, AUS
- 22.05. - 25.05. Int. Maschinenbaumesse, Nitra, SK
- 28.05. - 31.05. Metallurgy-Litmas, Moscow, RUS
- 30.05. - 02.06. Carrara Marmotec, Carrara, MS, I

##### June 2007

- 11.06. - 14.06. Surfex, Poznan, PL
- 12.06. - 16.06. GIFA, Dusseldorf, D
- 13.06. - 15.06. Metalworking, Jekaterinburg, RUS
- 15.06. - 18.06. GIMT + AMB, Guangzhou, PRC
- 18.06. - 21.06. Technology, Tel Aviv, IL

#### New Rösler brochures:



Trough vibrators (129.10 gb)

Says Arne Feyling: "The choice for the MT 34 multi tumbler equipment was a calculated risk. But to date we have not been disappointed. We are pleased with the high productivity, the high uptime and, especially, the low maintenance cost so far. To go with the multi tumbler concept was absolutely the right decision for our type of application, and we would do it all over again!"

## Multi Channel systems – the ideal solution for finishing of delicate workpieces

### A challenging Partnership

The name ALUPRESS is synonymous for technologically advanced solutions which meet extremely high demands. The company, with headquarters in Brixen (Italy) and a branch office in Hildburghausen (Thuringia), is specialised in producing aluminium die-cast parts. For many years, it has held the position as the leading supplier to the automobile industry. The aluminium die-castings manufactured by Alupress are mostly custom-tailored solutions for specific customer requirements.

The company expects its suppliers to demonstrate the same commitment to resolving problems and the same flexibility and high reliability it offers to its own customers – a challenge Rösler has gladly taken on.

Increasing customer demands regarding the surface quality and cleanliness of workpieces require continuous improvement of the surface finishing systems. At the same time, equipment concepts must meet customer demands for low space requirements, increased throughput rates and total repeatability of the surface finishing results. For years Rösler vibratory finishing bowls and continuous flow vibrators have been operating successfully at both Alupress sites. A high degree of automation has, meanwhile, become a must; not only for the surface finishing step but the entire parts handling before and after the surface finishing process.

The customer asked for a finishing system that needed to be integrated into the flow of the Alupress production process. Also, the system had to be designed to take up a minimum of space, offered high throughput rates and provided gentle processing of the delicate aluminium parts. There was only one machine that fit all these requirements: The Multi Channel system R 370/12 SE. Additional components, such the parts loading belt, rinse station as well as parts drying along with a complete sound enclosure to reduce noise levels rounded off the automated finishing system.

#### Processing of workpieces

Multi Channel continuous flow vibrators are ideal for finishing large quantities of delicate parts which require short in-feed cycles. Usually, linear continuous flow vibrators have a maximum processing channel length of about 6,000 mm.



The chosen multi channel system with its spiral shaped work bowl has a usable channel length of 12,000 mm and a channel width of 370 mm. This allows the processing not only of small but also of larger parts. The high forward travel speed of the media/workpiece mixture guarantees that the workpieces do not impinge onto each other, even if load cycles are short. The relatively long travel time in the work bowl guarantees excellent finishing results, i.e. edge breaking and general surface improvement. Once the finishing process is completed, the finished parts must be separated

from the media. This takes place in an external vibratory separation unit which is equipped with large dimensioned separation screens. Two steps on the screening area ensure that media is safely removed from cup-shaped parts. The separation unit is equipped with two high performance imbalance motors. Undersize media is discharged by way of a special undersize media classification screen.

#### Post treatment of the finished parts

The vibratory finishing process leaves various amounts of solids – media and metal fines – on the workpieces. To clean the finished parts prior to drying they are transported through a vibratory rinsing station, type R 18/6 SM-So. Spray nozzles mounted above and below the separation screen provide an all-round rinse cleaning of the parts. A built-in step on the screening area ensures the removal of the cleaning liquid from cup shaped parts. A certain amount of liquid will be carried into the hot air belt drier R 2000.2 where it will be evaporated. An air knife mounted at the entrance of the drier minimizes the amount of liquid carried into the drier. The parts are subsequently dried with hot air in the 2 m long drying tunnel. The dryer has a heating capacity of 50 kW. At the exit of the drying tunnel the parts are manually removed and gently placed into waiting parts bins. The system is laid out in a manner that the operator can simultaneously load raw parts onto the loading belt and remove finished parts from the belt dryer.

#### Vibratory finishing and parts rinsing – with a minimum of process liquid

To keep the whole finishing process environmentally friendly the process liquid – for finishing and rinsing – is cleaned and recirculated with a Z 1000 ASS TURBO automatic centrifugal filtering system. With this system media and metal fines are separated from the liquid phase by way of centrifugal force. The performance of the Z 1000 system guarantees a high cleaning efficiency resulting in a high water quality. This guarantees a high degree of cleanliness of the parts and ensures long time intervals before the process liquid must be replaced.

To minimise noise levels, all noise producing system components are encapsulated with a noise absorbing cabin. Parts loading and unloading take place outside of the cabin.

## Rösler Compact

### China Aviation Industry 55<sup>th</sup> Anniversary Excellent Suppliers Award



On the occasion of the 6th China International Aviation & Aerospace Exhibition 2006 in Zhuhai Rösler was honoured as one of

the most important and best suppliers of the Chinese aerospace industry. Otto Pobuda, Branch manager of Rösler China, accepted this award in the name of the complete staff of Rösler.

### A top supplier through reliability and consistent quality

An award that gives us reason to be proud and poses new challenges: Rösler was honoured by **SCHAEFFLER GROUP** as one of its top 50 suppliers "for excellent performance". This award is a special honour for Rösler, considering that Schaeffler Group works with over 2500 suppliers worldwide. Schaeffler, a privately owned business, with over 63,000 employees, is a major high-tech supplier for automotive, aerospace and general industry. The company produces its products worldwide at more than 180 locations. An essential aspect of our business with the Schaeffler group is to provide all locations with Rösler products (mainly media as well as finishing and waste water treatment compounds) with the best and – especially – absolutely consistent quality. Rösler is able to master this logistical challenge by its worldwide network of regional warehouses and centrally situated manufacturing locations. This network along with strictly enforced quality audits ensures a high and consistent quality of all products Rösler supplies to the Schaeffler group. The goal for 2007 is clear: "With our performance we want to maintain our earned status as a key supplier of Schaeffler".



## New Development in the Field of Centrifugal Disc Finishing Technology

### A strong combination

Rösler, the worldwide leading manufacturer of vibratory finishing and shot blast equipment, invests over three and a half million Euro (4.6 million \$) annually in research and development projects. One key focus, in the field of vibratory finishing technology in particular, is the interaction between process- and equipment-technology. The optimum combination of both helps us to solve even the most difficult finishing problems of our customers.

#### A case study from the field of centrifugal disk finishing

Several hundred Rösler disk finishing machines in the market are mainly used for deburring and edge breaking. Usually, they are equipped with the proven polyurethane tub and spinner system. This, however, limits the thickness of the parts to be finished to 0.15 – 0.20 mm. Thinner parts cannot be processed. Moreover, with PU gap systems the equipment can be damaged, when using abrasive grinding or polishing pastes or the REM process (chemically accelerated mass finishing).

#### High precision required

To prevent lodging of parts in the gap area, very thin parts require a gap size which is smaller than their minimum thickness. PU gap systems cannot meet this requirement. A special, high precision spinner bearing combined with a gap design in hard metal or ceramic allow gap sizes down to 0.10 – 0.15 mm. This special gap design prevents the friction heat generated by the finishing process changing the gap dimensions.

#### Hard metal or ceramic gap design

The use of wear resistant ceramic rings is most suitable for "gentle" finishing applications, when using small size media, for chemically accelerated finishing and for dry polishing. Because of its robust mechanical properties a gap design in hard metal is used for more aggressive finishing with larger parts and media.

#### The use of centrifugal disk finishing for special finishing applications

Rotary barrels are still utilized, when it comes to surface smoothing and high gloss finishing of small to tiny parts. These finishing systems, however, require a considerable amount of time and are usually very labour intensive. In addition, these ancient finishing systems do not produce repeatable surface finishes and pose difficulties, when it comes to separating the finished parts from the media. They simply do no longer fit into a modern manufacturing environment. For this reason Rösler has further developed the disk finishing concept to be utilized for such specialized finishing applica-



tions. Our disk system E/SA with the models FKS 04.1, FKS 06.1 and FKS 15.1 are available with the special gap design and integrated parts/media separation system. Inconsistent finishing results and labour intensive material handling are a thing of the past. Modern control and dosing systems allow full automation of the finishing process.

#### Even small and midsize disk finishing machines allow automated processing

Many Rösler double batch disk finishing installations in the market have proven their cost effectiveness and high productivity. However, with small production batches and long processing times the usually highly efficient – but also expensive – double batch system is not necessarily the right equipment choice. For this reason Rösler recently developed the new E-A equipment line with the models FKS 06.1 and FKS 15.1. The fully automatic E-A series consists of the proven work bowl/spinner design combined with an easy to handle, efficient vibratory separation system.

#### The single batch E-A disk finishing equipment line

The processing bowl is combined with a space saving vibratory separation unit with integrated

media hopper. Both, work bowl and separation unit are equipped with independent tilting drives (gear motors). The work bowl with the mass of finished parts and media tilts slowly and gently transfer parts and media onto the vibratory screening unit. Adjustable imbalance motors induce the separation of parts from media. At the same time the parts are rinsed, and undersize media is discharged from the system with a special undersize media screen. Once the separation process is completed, the separation unit tilts over the work bowl and unloads the batch of media back into the work bowl. All that is left to do is adding raw parts, and the next finishing process can start. This new design rounds off the comprehensive range of centrifugal disk finishing systems offered by Rösler. Parts loading and parts drying can easily be integrated into fully automatic PLC controlled finishing systems. We will be happy to demonstrate this new equipment concept to you in one of our test centers.

