



driven by technology

News

Issue 3 / 2011



From the content...

Product innovations and trade fairs

Tool clamping

International activities

Cover picture: Combined self-centering and magnetic chuck
Ø 4000 mm, 6 jaws, for the clamping of large rings.

The Customer Magazine of the RÖHM Group



Dear Readers,

In spite of the difficulties of the global economy, German companies were in relatively good shape as they went into the last few weeks of the year. At the same time, rising economic risks have had a dampening effect on the future expectations of investors and consumers, which has been reflected in a decline in incoming orders. Weaker impulses in foreign trade have underlined this development. A further negative factor has been the loss of confidence in the handling of the debt crisis in Europe and the United States.

The federal government is assuming that German economic performance at the end of the year will be stagnant; on the other hand, it is not expecting a recession. For 2012 a 1.0 percent growth rate has been forecast.

The export business is becoming increasingly important. In September of this year alone, German industry exported goods to the value of 95 billion euros – 10.5 percent more than in September 2010. RÖHM stands above all to benefit from the expansion of growing economies where innovation, technology, precision and quality are in demand. With more than 50 branches and agencies abroad, we are serving these markets – and we continue to expand. You can find out more about it in this issue.

We are also delighted that we are able to offer you a new main catalogue and a completely reworked website. This will make it even easier for you in future to find your way among the RÖHM range of products. But you can read about this for yourselves.

We would like to thank you for your partnership and for the work we have done together in the year 2011. We look forward to being able to serve you in 2012 as well.

We wish you and your nearest and dearest a merry Christmas season and a healthy and happy New Year.

Yours sincerely,



Michael Fried, Dr.-Ing.

CEO

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185 square metres packed with ideas: the RÖHM trade fair stand at EMO 2011 in Hanover

Trade fairs – RÖHM draws positive balance

RÖHM GmbH can draw a positive balance from the EMO trade fair in Hannover. At what is the world's leading trade fair for metal processing, the company exhibited its standard and special clamping tools on a stand measuring 185 square metres.

RÖHM has rarely been able to show so many innovations. The e-EQUIPMENT product line alone has had three electrically powered clamping tools added to it. So electrically driven steady rests, e-cylinders without throughhole and a clamp and release unit now round off the energy-efficient range. In combination with the products of this series already placed on the market, RÖHM thus makes it possible to dispense with hydraulics in tool machines.

Numerous other innovations, such as the zero clearance CoE face driver, the new DURO-NC-AW power chuck (specially developed for power driven tools), the DURO-NC Flex and the new RESK-H built-in clamping chuck illustrate the far-ranging development achievements of the RÖHM group.

The response at the trade fair stand exceeded all expectations. Many concrete approaches in discussions with customers and prospective customers coming from Europe, Asia and North and South America made it plain what a demand there is for tried and tested products and new developments that save time and cut costs.

With its strong international commitment, RÖHM not only stands well in Europe but is also in a good position to secure further shares of the market in the rising economies of the world. With the recent foundation of RÖHM China, the company now has a constant presence in that country as well.

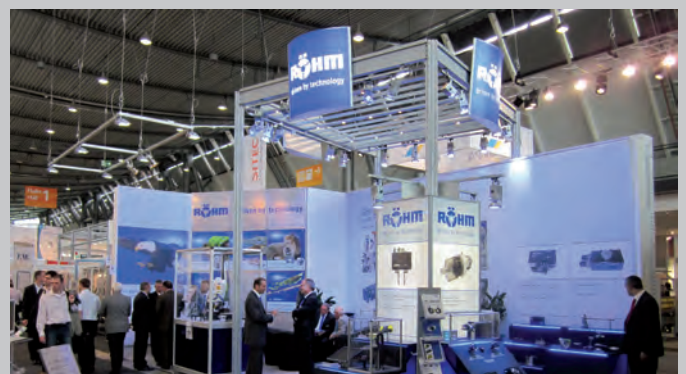
'We had many good contacts from within Germany and abroad. Visitors came to us with precise questions. Our standard and special products do all that is required of them,' said CEO Michael Fried.

Under the motto 'Tool machines and more', 2037 firms from 41 countries presented their products and services. The event organisers counted 140,000 visitors

At the Motek trade fair in Stuttgart RÖHM presented product innovations and tried and tested solutions in the field of gripping technology at a stand measuring 50 square metres.

These included for example the REPG electric gripper, which has an exciting additional feature in the form of workpiece recognition. The product also allows sensitive gripping with forces of 10 to 400 Nm. The RPP parallel gripper also met with a warm response. A wide range of possible uses of the tool – inner and outer gripping, rechunking, swivelling – were demonstrated. Big lift grippers mounted on an industrial robot was shown in action, as were swivel units, enabling visitors to the trade fair to have a direct impression of the flexibility of RÖHM's products.

'Extending from the level of detail to system solutions, our product range supports practically all handling tasks in the field of gripping technology. This means we are in the best possible position for meeting the widest variety of customer requirements, as was confirmed by the positive feedback of trade visitors at the Motek trade fair,' commented CEO Michael Fried.



Both novelties and tried and tested solutions were presented by RÖHM at the Motek trade fair.

On the occasion of the Metallobrabotka international trade fair in Moscow, RÖHM representatives met manufacturers of machines and metal processing equipment. The company gave a comprehensive view of its product spectrum.

'In view of the dynamism of economic development on the international markets, we need to be doing even more to take advantage of it and project our existing potential and innovations on a global scale,' was the unanimous conclusion of company strategists. This is because at RÖHM all processes and technologies come from a single source – from engineering through to commissioning. The benefits of manufacturing depth and breadth in the end make a convincing impression worldwide.



RÖHM at the Metallobrabotka trade fair in Moscow.

Preview: Trade fairs in 2012

- IMTEX, Bangalore
- Industrie, Paris
- MACH, Birmingham
- Hannover Messe / Industrial Supply
- SIAMS, Moutier
- Automatica, Munich
- FEIMAFE, Sao Paulo
- Metallobrabotka, Moscow
- BIEHM, Bilbao
- CIMES, Beijing
- FEBRAMEC, Caxias do Sul
- MSV, Brunn
- IMTS, Chicago
- AMB, Stuttgart
- Motek, Stuttgart
- JIMTOF, Tokio
- EMAF, Oporto
- Prodex, Basel



A presence on all continents of the globe

The demand for precision clamping tools on the international markets continues unabated. The RÖHM group of companies demonstrates the advantages of its clamping tools to users on a regular basis.

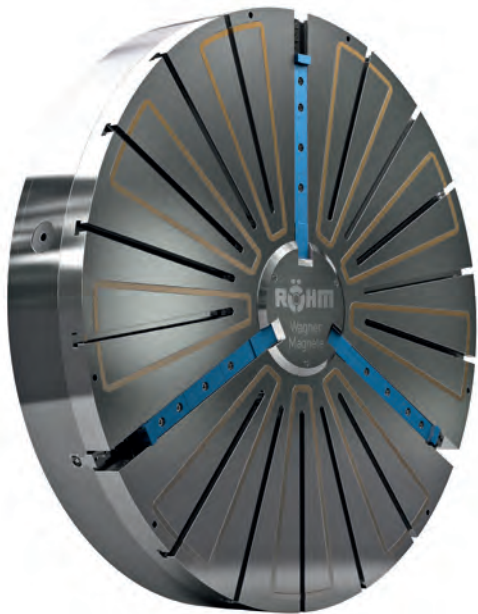
But it isn't just companies at whom this comprehensive information is aimed – we also address the customers and decision-makers of the future. An example of this can be seen in an event at the University of Shanghai on the subject of 'Advanced Manufacturing Technology and Cutting Tools'. In the light of concrete examples of solutions already realised by RÖHM in the areas of crankshaft, engine block and brake disk clamping, those attending were able to form an impression of RÖHM's versatility.



RÖHM presents concrete examples of use at the University of Shanghai

Innovative and future-oriented: Our product novelties

RÖHM has rarely shown so many product innovations as at the EMO trade fair



The new MZMF hybrid chuck consistently combines the advantages of power clamping and magnetic clamping technology. This fundamental, patented further development of the earlier model on which it is based is 30% lighter, and the height has also been reduced by a third. Easily deformed workpieces can be centred and clamped without suffering deformation in a matter of seconds. The hybrid solution supports heavy-duty cutting as well as three-sided machining, for example in connection with products of the wind power industry. Here 80% of the setup time can be done away with.

The part can be held either from the inside or from the outside. The high holding forces for heavy-duty cutting make it possible for example to rough-machine the flat surface of a ring. If the workpiece then needs to be machined from three sides, the centring jaws are retracted or removed and the workpiece is securely held with a force of up to 170 N/cm², so that planing, grinding or hard turning can be carried out.

RÖHM presents the EVS e-cylinder without throughhole for the secure and energy-efficient clamping of workpieces on turning and grinding machines. This gives users a space-saving and economical electrically powered clamping cylinder.

For the electrical clamping of workpieces on turning or grinding machines where you need as much space as possible, RÖHM now offers the EVS e-cylinder without through-hole. With its notably compact design, the cylinder is economically driven by a servomotor with an output of 1.0 kW. For the loading of cut-to-length workpieces on the cylinder from the front, the EVS offers all the advantages of electrically powered drives.





RÖHM expands its DURO-NC range. The new variant supports the use of power driven tools and has a quick change system for clamping mandrels and collet chucks, so users can benefit from even greater flexibility when using the tried and tested power chuck.

The new power-driven DURO-NC AW chuck has a greater area free on the front of the chuck. Saving space in the body means that room has been created for tool clamping involving power driven tools. Their interference contour can now be brought closer to the chuck.

With the DURO-NC Flex RÖHM presents another variant of its tried and tested chuck. It is equipped with a rapid change system and comes with the possibility of mounting a clamping mandrel or a collet chuck on the 3-jaw unit. This means that when changing workpiece you no longer need to change the complete chuck, but can just substitute the attachment that is needed.

A quick-action bayonette closure gives a secure connection to the draw tube. For each change, as a result, something like 25 percent of the usual time can be saved. This enables users in tool construction or in small scale, serial or special manufacturing to make valuable gains in their productivity.



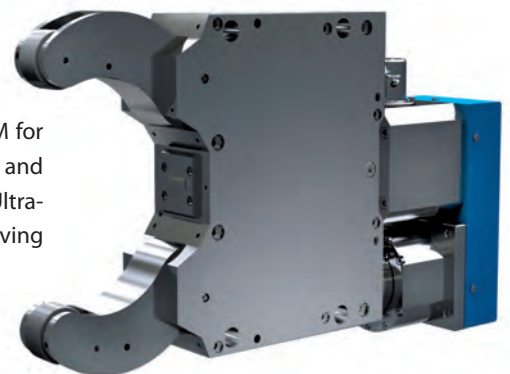
With the new RESK-H built-in clamping chuck RÖHM's clamping experts for the first time present a powerful clamping device for linking all the interfaces that occur in processing machines. With its considerable pull-in force and self-inhibiting locking system, it makes it possible for flexible assembly groups like changeable milling heads and spindle attachments, as well as devices on forming machines, to be clamped speedily and securely. Where a lot of screwing was needed in the past, the new chuck simplifies and speeds up the clamping process. As well as offering shorter changeover times in the processing of big workpieces, the RESK-H extends the working range of medium to large processing centres. The built-in clamping chuck achieves a stable and secure connection in that the segmented collet chucks engage with the clamping diagonals of the screwed-in adapter rings and clamp the replacement element on the machine with considerable pull-down force. As a result of the mechanical self-inhibition in the angular combination between the segmented collet chuck and the connecting rod, the clamping operation can be carried out without the need of hydraulic pressure. So the RESK-H also works in an extremely energy-efficient way.



The new electrical clamp and release unit shows RÖHM consistently developing further products for a non-hydraulic processing centre. The highly compact electrical unit can be used in all kinds of situation. Its functions can be activated by way of the machine controls, and in combination with the Super-Lock locking system of the manufacturer make spring packages in tool clamping systems superfluous. This gives users an ultra-modern clamping system, specially designed for high rotary speeds with HSK tools.

As a connecting link between the HSK clamping set and the activation rod, the highly compact Super-Lock locking system replaces traditional spring packages. As a result the unit saves up to 50% of the space that would otherwise be required for the installation length. Being activated by way of the stationary electrical clamp and release unit, it is particularly suitable for use in combination with short spindles for high rotary speeds with the best balancing quality. In addition, the development of new spindle forms and qualities may be considered. An electric motor with integrated thread spindle serves as a drive unit. Because hydraulic systems have been completely dispensed with, the use of energy is extremely sparing and measured out only in the amounts needed. The electric drive does not transfer any heat to the spindle, which increases the precision and reliability of the entire system.

An electrical steady rest for the secure processing of long workpieces was shown by RÖHM for the first time at the EMO. The new development, which can also be retrofitted on turning and grinding machines, is driven by a servo-motor and dispenses with hydraulics completely. Ultra-modern control technology, in combination with precise mechanics, supports energy-saving use. The unit is user-friendly and easy to operate by way of the machine controls.



RÖHM charity campaign 2011

On the occasion of RÖHM's 2011 charity campaign, CEO Michael Fried was recently able to hand over a total of 15,000 euros to three children's aid organisations.

As in past years, RÖHM's donation gave the St. Nikolaus Children's Hospice in Bad Grönenbach, the Radio 7 'Drachenkinder' campaign and the St. Clara Children's Home in Gundelfingen/Donau 5,000 euros each.

The St. Nikolaus Children's Hospice supports incurably ill children and their families.

The Radio 7 'Drachenkinder' campaign helps traumatised children in life-threatening situations – like exposure to violence, the death of a family member or a serious illness.

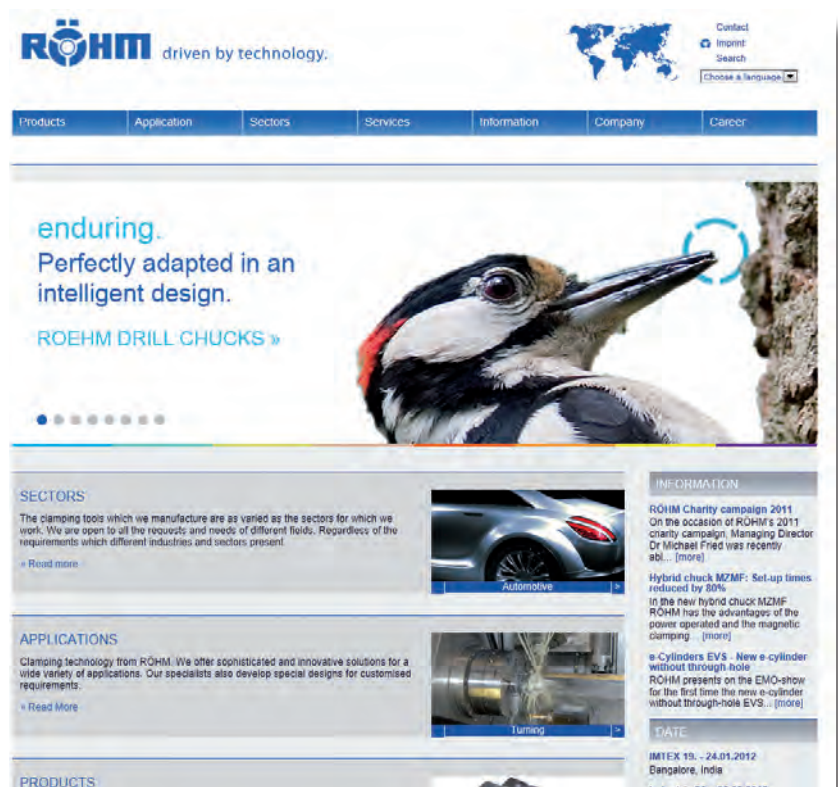
An essential pillar of the guiding ideals of the St. Clara Children's Home is to provide help where the need is greatest, and to engage with current problems facing children, young people and their families.

RÖHM hopes that the money donated will make a financial contribution to the successful work of the institutions benefited. RÖHM CEO Michael Fried emphasised how dear to his heart it is to support charitable institutions of this kind.



At the donation ceremony (from left): Patrick Eitel (RÖHM Marketing), Simone Pschorn (St. Nikolaus Children's Hospice), Sister Maria Elisabeth (St. Clara Children's Home), Sibylle Merx (Radio 7) and RÖHM CEO Michael Fried.

Short routes to information: New catalogue, new website



A comprehensive overview of RÖHM's product range is offered by the new 2011/2012 Main catalogue.

800 informative pages help users to find the suitable solution for tool and workpiece clamping. The presentation has been optimised down to the last detail – and thanks to index tabs that make it easy to find your favourite pages, the RÖHM catalogue is even more user-friendly than in the past. Additional coloured tabs on the outside likewise make it easy for readers to locate the product group they are interested in without loss of time.

Another new feature is that the overall catalogue has been split up into selective catalogues – with a separate catalogue now obtainable for each product group. This shows RÖHM accommodating a frequently expressed customer preference.

Reworked design, new content, optimised navigation:

RÖHM presents its new website.

Our website has become even more user-friendly. You are invited to find out all about the RÖHM group of companies and its products at www.roehm.biz.

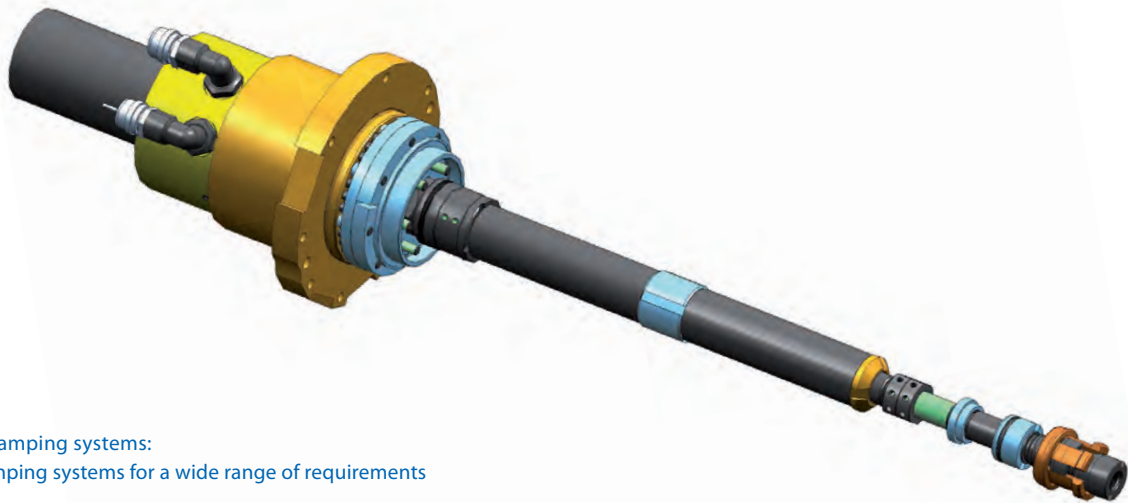
The new layout of the website supports rapid and user-friendly access to the different product areas, services and activities of the clamping technology company.

The website has been consistently designed with the customer in mind. For example, you can search for customer applications or industrial sectors. So you no longer need to be familiar with the classification of the products within the RÖHM hierarchy. Just a few days after the relaunch, a positive development in terms of the numbers of visitors could be observed.

Short routes to information – that is the supreme aim both of the new RÖHM catalogue and of the new online presentation.

Secure in the spindle: RÖHM tool clamping systems

RÖHM tool clamping systems effortlessly meet all requirements in terms of operating safety, running smoothness, rotary speed and clamping force.



RÖHM tool clamping systems:
Compact clamping systems for a wide range of requirements

RÖHM offers a wide variety of tool clamping systems. These are perfectly suited to all kinds of areas of use – ranging from the microscopic to heavy-duty cutting. Whether the processing of metal, wood, stone or glass is involved, RÖHM offers standard products as well as customised special solutions at an attractive price.

The solid and robust design guarantees secure tool clamping and a long service life. Consisting of optimised components with highly finished surfaces, the tool clamping systems need little maintenance, resulting in notably high yield and low operating costs.

The constructive design of the HSK clamping sets allows use at very high rotary speeds and ensures reliable clamping force.

PSC clamping sets are a future addition to the product portfolio, designed for use with the polygon interface. This means that in combination with the tried and tested clamping units, reliable automatic spindle clamping systems for the Capto™ interface are also available.

Super Lock: practical benefits that convince

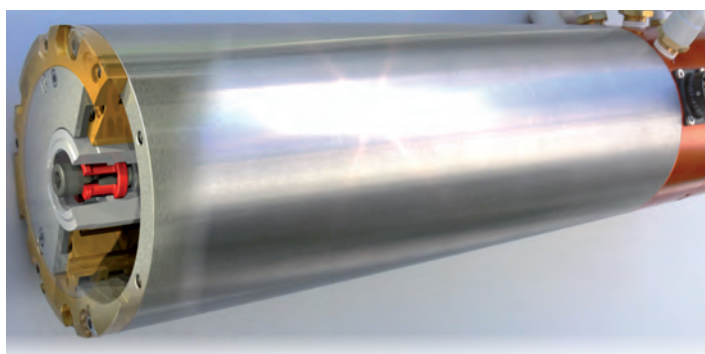


Based on the short and compact design and the optimised guidance characteristics, the highest rotary speeds can be achieved with excellent residual imbalance. For example, the dynamic imbalance values of an HSK-A25 spindle at rotary speeds of 60,000 rpm are three times better than with comparable spring clamping systems.

In comparison with spring clamping systems, significantly lower forces are at work in the vicinity of the spindle. This means there is much less stress on the spindle components and spindle bearing. This property is particularly useful in connection with an electrically operated clamp and release unit.

Case example: The Super Lock as used by Levicron – a cutting edge solution

The Levicron company develops and produces industrial motor spindles with air bearings for precision cutting and microprocessing. 'This was the first time that the outstanding advantages of air bearings had been combined with industrial functionality and robustness,' says Levicron Managing Director Dr. Ralf Dupont.

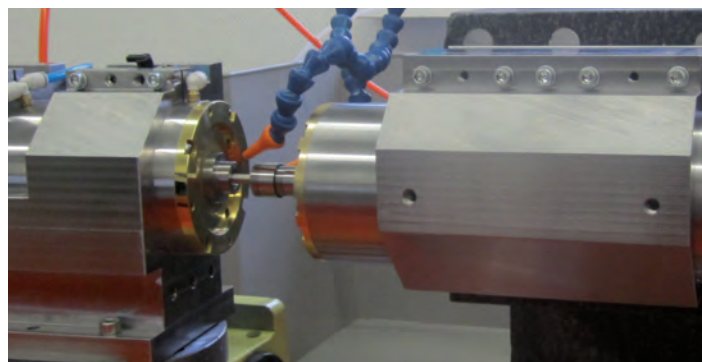


Industrial motor spindles with air bearings together with RÖHM's Super Lock clamping system.

As well as needing a top-quality and exact bearing, the precision spindle calls for an ideal tool clamping system. The exceedingly high demands in terms of even running and shaft and bearing dynamics, coupled with the high rotary speed, however rule out the use of disc or coil springs. Here the number of rotating and mutually linked individual components and their weight distribution are crucial, if an ideally constant and even rotor dynamism is to be achieved.

The perfect solution to this problem is found in the RÖHM Super Lock tool clamping system. The locking system works completely independently of springs and so is designed to be very short and compact. The number of moving parts has been reduced to a minimum, which gives the benefit of a constant and evenly balanced distribution of weight with excellent balance quality in the mounted shaft.

With a balancing quality of G 0.05 to be achieved in the mounted shaft, rotary speeds up to 100,000 rpm and a target asynchronous error in the rotary movements of less than 30 nm over the entire speed range, the advantages of the Super Lock system are evident.



With ground shaft inner cones in their own air bearings it has been shown in the field that the best possible balancing quality and accuracy of repeated tool clamping can be achieved, so confirming the outstanding advantages of the Super Lock system.

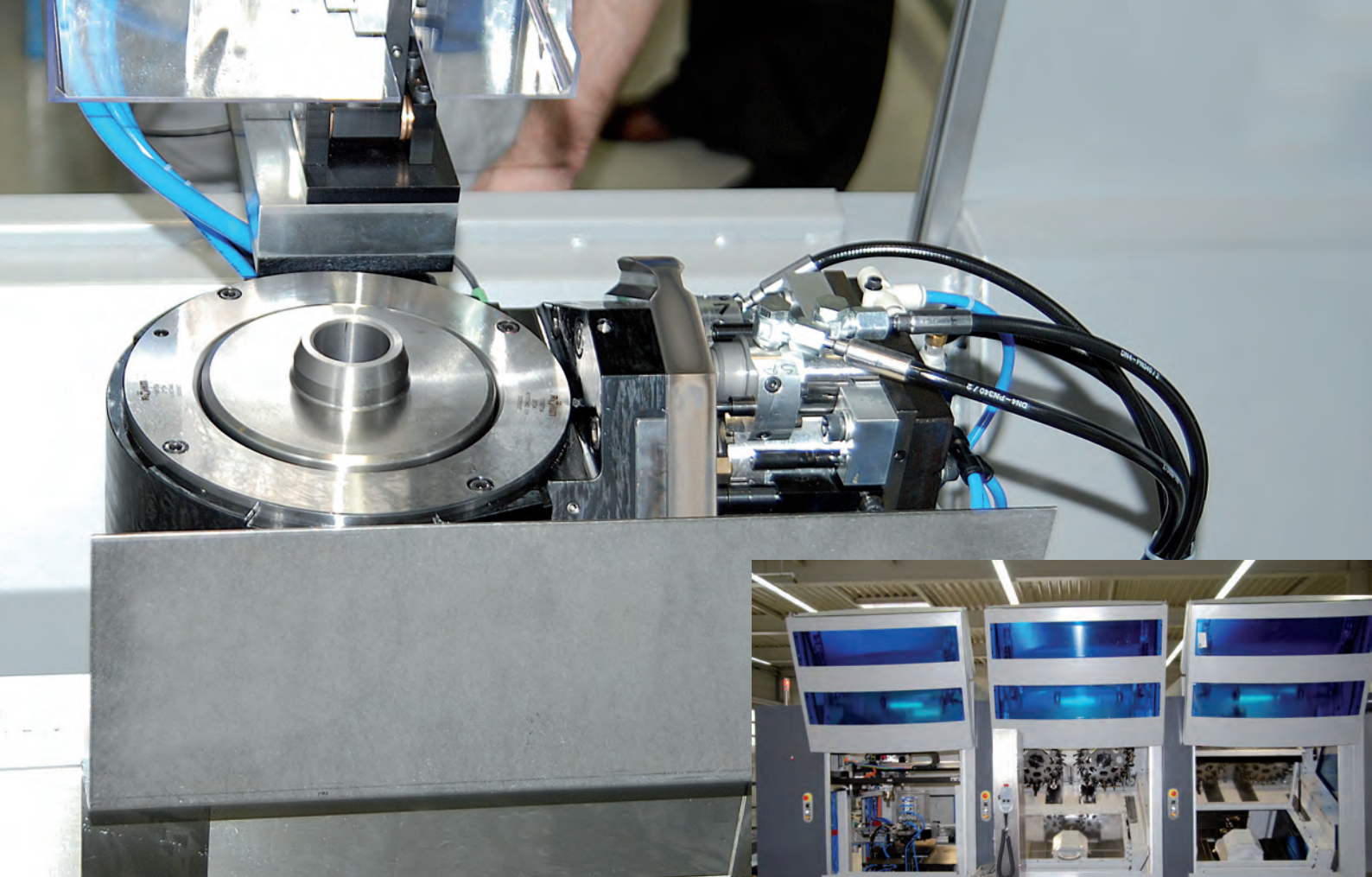
RÖHM wins award for quality and delivery reliability

Würth GmbH & Co. KG of Künzelsau, one of the biggest trading companies in Germany, has once again awarded RÖHM its 'prize for quality and delivery reliability'.

RÖHM receives the supplier award in recognition of its committed, fair and partnership-based cooperation. An additional requirement for the prize is that the company should be able to show very much better than average and constant achievements in such areas as quality, technology and logistics.

For us this prize is a recognition of the work we have done in the past – but at the same time it puts us under an obligation to keep up our services in future at the highest possible level.





Expanding prospects

For the economic manufacture of different workpieces, Mikron is supplying a modular processing system with a hydraulic expansion chuck from RÖHM to Asia.

With its Mikron Multistep XT-200 modular processing system, the firm Mikron GmbH of Rottweil offers extendable machine and tool technology which in terms of manufacturing capacity can be adapted to the lifecycle of a product. Because a customer had the additional need to make different variants of one workpiece, a special clamping solution was called for. RÖHM's specialists developed a hydraulic expansion chuck for the purpose, making it possible for cast iron workpieces of different dimensions to be securely clamped and supporting five-and-a-half side processing. To begin with the solution appeared to be much too expensive, as well as unsuitable for unmachined parts.

'In the search for a clamping solution it rapidly became clear that a classic three-jaw chuck would not be able to solve the problem,' recalls Alexander Amann, Multistep Project Director at Mikron of Rottweil. A solution of that kind would have been too big and too heavy. And moreover, a chuck like that would not have been able to clamp

the cylindrical workpieces without the risk of deformation. 'As a result of our technical researches, it quickly became clear that the clamping problem could only be resolved through the use of a hydraulic expansion chuck. But it was a prerequisite for this that the clamping diameter should fall in an appropriate tolerance category,' reports Frank Stier, a technical advisor at RÖHM.

Three-jaw chuck too big, too heavy and too coarse

For the manufacture of components later to be used in the production of radial piston pumps for hydraulic drives in heavy construction machinery, the Mikron company of Rottweil supplied a Multistep XT-200 modular processing system to an Asian company. The system consists of three interlinked modules, a loading module and two manufacturing modules together with a handover unit to ensure a short time between one clamping operation and the next. As Mikron always favours solutions involving a combination of machine and tool, a clamping technology solution for the workpieces also needed to be

found. But this involved an even bigger challenge. Two workpieces of GGG 60 spheroidal cast iron, with a diameter of 134 and 144 millimetres respectively and weighing up to ten kilos, had to be safely passed through the system with one clamping device and just a single clamping operation. The two interlinked manufacturing modules, each having two spindles each with 18 tools and five axes, needed to be capable of processing the workpieces on five and a half sides. In order to make nine holes in the workpiece, on the one side the processing steps required were preliminary drilling, drilling, circular milling and rubbing. On the opposite side nine longitudinal holes were to be made – some of them diagonally – and deburred. To do all this, the heavy unmachined parts had to be mounted securely, clamped and passed from module to module.

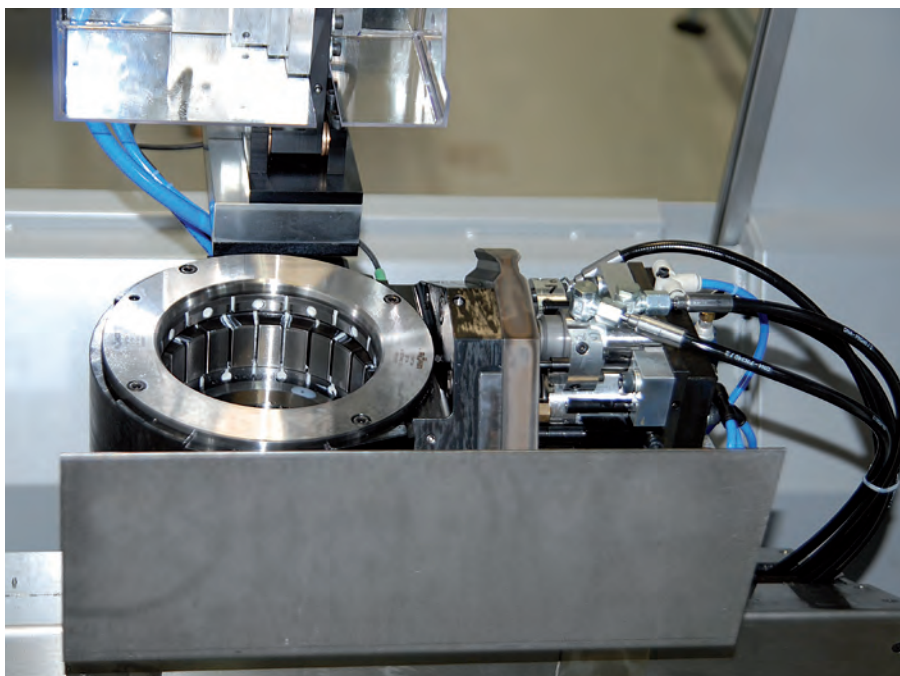
Processing from five and a half sides called for

The clamping solution supplied by RÖHM, based on a hydraulic expansion chuck, proved to be the most cost-effective way of meeting the specified requirements. The chucks have an opening stroke of just one to two tenths of a millimetre. With a pressure of 160 bar the workpieces are held securely. As the chuck encloses the cylindrical components on all sides, the risk of deformation is eliminated. The clamping and releasing is carried out by a hydraulic system which is disconnected again after each step of the process. This gives the workpieces the necessary freedom of movement in the course of the five-and-a-half side processing, and also supports the automated transfer of the workpiece from module to module by way of transfer axes. Moreover, in this way collisions are ruled out. A pressure reservoir holds the workpieces safely and securely throughout the processing.

As a result the manufacturing processes could be carried out with just one single clamping operation, making it possible to achieve a high degree of precision. In the loading module, a gripper places the workpieces in the chuck. An Erowa zero-point clamping system known for its precision in erosion technology serves as an interface. In order to exclude inaccuracy, any chips that may have accumulated on the chuck are first removed by a blower, which directs pressurised air at a pressure of six bar at the unit. To prevent these scattering at random through the machine room, a plexiglass bell is first lowered over the chuck. After clamping has been carried out, a pin approaches a contact switch to check whether the clamping pressure has been built up. Then a radio sensor determines the middle axis, the upper edge and – for the bezel thickness – the position of the reverse side. The entire periphery is oriented to the workpieces with the two different dimensions. Changing the setup to accommodate the other workpiece is a matter of just a few moments and a few operations. After eight screws have been released and three parts of the inner clamping ring have been changed, the chuck is ready to handle the differently sized workpiece.

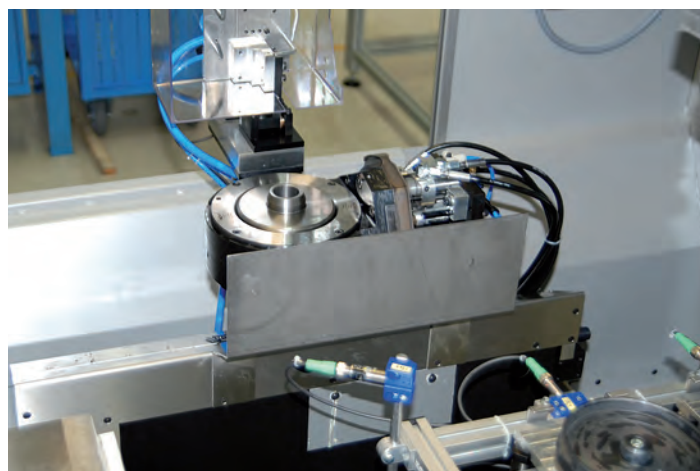
A standard solution which at first seemed out of the question

The key to the resolution of this clamping problem did not actually involve any specially manufactured components – it was just a case



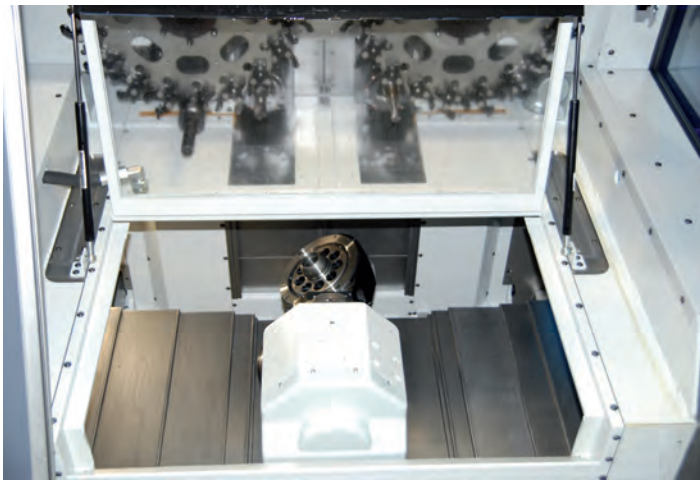
In the loading module a gripper places the workpieces in the hydraulic expansion chuck, which has an opening stroke of 0.2 mm.

of the use of standard elements and standard designs. This kept the costs low. It has to be said that hardly anyone would have expected a hydraulic expansion chuck to be the solution, at least to begin with. Based on the manufacturing process, cast components like the workpieces supplied, consisting of GGG 60 spheroidal cast iron with a high silicon component, have an outer surface of poor quality – much too inexact and random for this kind of clamping technology. This makes it impossible to repeat the positioning and clamping with any accuracy. No casting process exists that would give the surface required. Even for Stier, this seemed to rule the whole idea out of court. 'Actually that eliminated the use of a hydraulic expansion chuck right from the start.' But after Mikron had discussed the problem with its customer, and the customer had talked to his suppliers, it finally proved possible to create the necessary conditions. 'The supplier now delivers the cast components with a surface quality of H7, as the result of an additional processing step,' says Amann, underlining the fruitful and solution-oriented cooperative effort. With unmachined parts processed in this way it proved possible to achieve the necessary precision and reproducibility of the clamping operation.



After clamping has been carried out, a pin approaches a contact switch to check whether the clamping pressure has been built up.

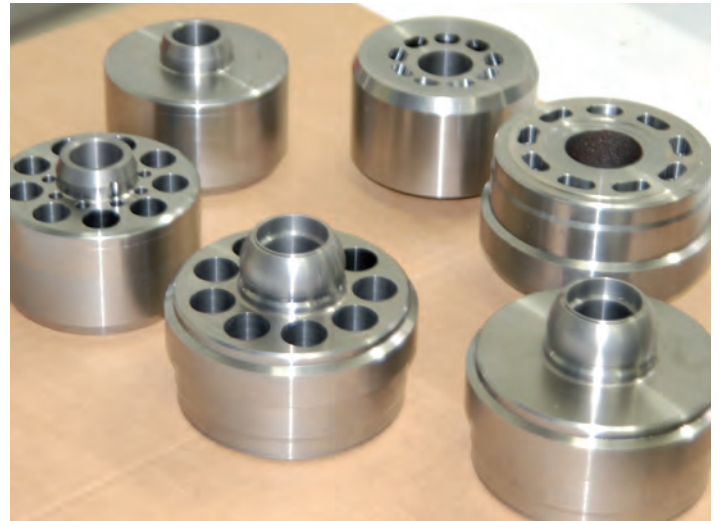
The three hydraulic expansion chucks which were supplied along with the processing system now do their part in bringing about a short cycle time of less than five minutes, confirming Mikron's exceptional expertise in the development of manufacturing solutions along with the suitable cutting tools. RÖHM had only got involved some six months before. A point in the company's favour was its international presence and the possibility of providing customer service locally in Asia.



The two interlinked manufacturing modules, each with two spindles each having 18 tools and five axes, process workpieces on five and a half sides.



The Multistep XT-200 modular processing system from the Rottweil-based Mikron company.



Tools made of GGG 60 spheroidal cast iron are passed through the system securely with just one clamping operation.

Result:

- Hydraulic expansion chuck from RÖHM clamps cast iron workpieces of different dimensions.
- Two workpieces at a time, with a diameter of 134 and 144 mm respectively, are passed through the system in a single clamping operation.
- Manufacture of components for the production of radial piston pumps to be used in heavy construction machinery.
- Facilitating five-and-a-half side processing.
- Low costs as a result of the use of standard elements and standard design.
- No deformation, as the components are enclosed on all sides.
- Automated transfer of the workpieces from module to module, based on transfer axes.

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RÖHM – Products of America

Coming from Atlanta and going out into the whole of the USA: More than a dozen members of staff represent the RÖHM Group in the United States. Under the direction of Mark Fischer, the team markets RÖHM's standard and special solutions and commissions them on site when required to do so – and of course first-class customer service is a top priority.

It has been 40 years now since RÖHM set up an American branch, with the objective of finding a footing on this rising market. Since then the RÖHM subsidiary has continued to add to its share of the market in this highly competitive environment. Today RÖHM's clamping tools enjoy an excellent reputation in America.

Mark Fischer says: 'We are proud of the fact that we can offer superior clamping technology in the USA. Most imported tool machines (of which a significant number come from Germany) already come with clamping tools. This is where German development work stands us in good stead, because "made in Germany" still carries weight in the USA, which gives us a definite competitive advantage.'

RÖHM's regular customer base includes the automotive industry. We maintain close and successful business contacts with practically all the important American automotive companies.



The corporate building in Atlanta.

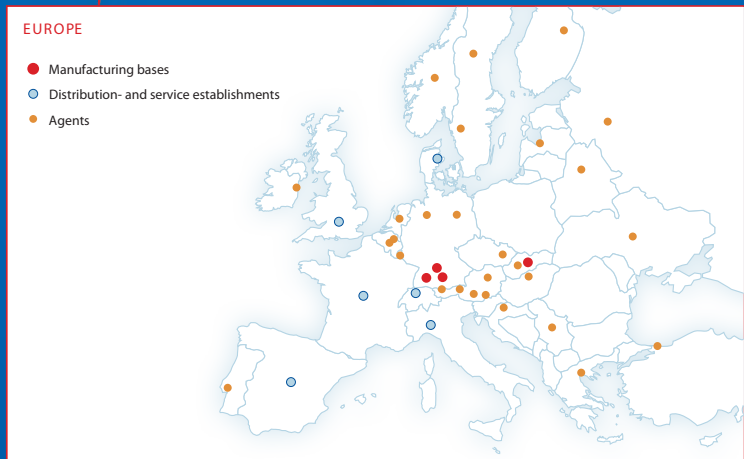
Result:

- A local presence in the USA for more than 40 years.
- RÖHM is represented in all significant branches of industry (e.g. mechanical engineering, automotive, aircraft manufacture, rail technology, energy, crafts etc.).

We wish you and your families a blessed
and contemplative Christmas, and every success
and happiness in the New Year!

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