

today

The ARBURG magazine

Issue 42

2009

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MASTHEAD

today, the ARBURG magazine, issue 42/2009

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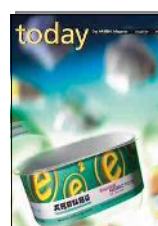
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Among its exhibits at the Fakuma, ARBURG will be presenting solutions for the packaging sector, for example an in-mould labelling system that produces six high-quality tubs in a cycle time of only 3.5 seconds.





Dear Readers,

"Autumn is the time for innovation", or rather the time when ARBURG presents its innovations in machine and robotic systems and applications engineering at the Fakuma in Friedrichshafen and at the K trade fair in Düsseldorf. The same is true this year, when we have focused on the complex topic of energy efficiency and on sector-specific solutions. ARBURG has always been represented in all injection moulding sectors, whether automotive, packaging, electronics, medical, optics or the extensive field of technical injection moulding. However, our "ALLROUNDER" product name should not be taken to mean that you are purchasing "off-the-peg" machines. On the contrary: we offer you individual injection moulding solutions precisely tailored to your needs - without compromise. It is precisely this versatility that we will be demonstrating with a variety of sector-specific exhibits at the Fakuma 2009.

The customer and project reports in "today" always impressively evidence the versatility of our ALLROUNDER

injection moulding machines. Because a huge number of articles have been amassed over the last 15 years, since 2008 we have used the "today Selection" section, which offers you a thematic overview of previously published reports. The "Projects" and "Service" issues have now been joined by publications covering the automotive, electronics, LSR and medical sectors. Like the "today", these can be ordered directly from us or downloaded from our websites. Now, all that remains is to wish you a great deal of enjoyment when reading the latest issue of "today".

A handwritten signature in blue ink that reads "Renate Keinath".

Renate Keinath

Managing Partner & Managing Director



Sector-

This year, the ARBURG trade fair stand at the Fakuma will concentrate on innovative sector-specific solutions and energy efficient machine technology, both of which are united in the new machines for 2009: the new hybrid HIDRIVE series and the electric ALLDRIVE series.

The ALLROUNDER A and H machines excel not only thanks to their energy-efficient operation, but also to their versatility in terms of sector-specific solutions, their flexibility with regard to automation and their potential to reduce cycle times. It is therefore fitting that five of these energy-efficient, high-performance machines will be presented with applications from growth sectors, such as packaging, medical technology and optics - some of which will be integrated in complex production cells.

An ALLROUNDER 520 H with a clamping force of 1,500 kN and a size 800 injection unit will demonstrate the performance of the HIDRIVE series in medical technology, where precision and hygiene are required as well as high-speed qualities. Thirty-two syringe barrels will be produced from PP in a cycle time of only six seconds. This is achieved by means of the rapid, dynamic mould movements of the servo-electric toggle-type clamping unit, the simultaneous movements of independent movement axes, the excellent injection dynamics and the large injection flow.

Medical

The use of hybrid machines in the automated automotive sec-





Packaging

-specific solutions



tor will be demonstrated with the production of a plug insert. This extremely precise technical moulded part will be produced in a cycle time of 14 seconds on an ALLROUNDER 370 H with a clamping force of 600 kN, a size 290 injection unit and a 4-cavity mould. Part removal and sprue separation are performed by a vertically operating MULTILIFT V robotic system, which sets down the moulded parts separately by cavity to ensure detailed quality assurance.

An advanced application from the optics sector will be presented on the new, smallest electric machine. The ALLROUNDER 270 A with a clamping force of 350 kN and a size 70 injection unit will apply maximum precision in producing an optical fibre with microtextures on the surface. The functional check of the optical fibre is integrated in the system in which a horizontally operating MULTILIFT H robotic system is responsible for complete part handling.

Two electric machine demonstrations will be presented with applications from the packaging sector, which makes by far the greatest demands in terms of speed and precision.



Optics

Automotive

Eight thin-walled lids will be produced by the new large ALLROUNDER 720 A with a clamping force of 3,200 kN and the new size 1300 electric injection unit, which is celebrating its debut at the Fakuma. This combines dynamic, precise injection movements with high energy-saving potential.

Another sector-specific solution from the packaging industry on show will be an in-mould labelling system (IML). The electric ALLROUNDER 570 A specially configured for this purpose features a clamping force of 2,000 kN and a size 800 injection unit with a barrier screw. In a further thin-walled application, six yoghurt tubs made from PP and weighing 6.3 grams will be produced in a cycle time of only 3.5 seconds. Performance in terms of material preparation is correspondingly high, at almost 40 kg/h. The IML system from Swiss Robotics has been specially adapted for this application. The system features short intervention times and, as well



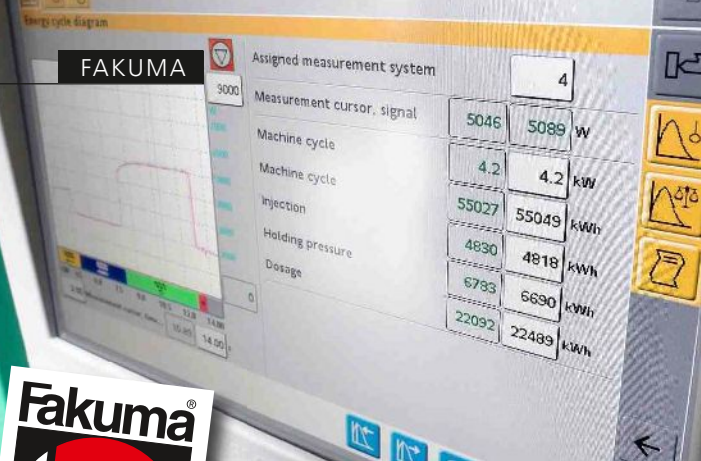
Electronics



Our presence at the FAKUMA 2009 will focus on sector-specific solutions and the energy-efficient, high-performance ALLROUNDER A and H machines.

as inserting the labels directly in the mould, also removes parts and stacks the finished tubs.

Another interesting feature is the energy consumption measurement, which not only allows the operator to monitor the energy consumption of the injection moulding process online via the SELOGICA control system, but also to optimise it on a targeted basis. This option is also available with the largest ALLROUNDER 920 S with a clamping force of 5,000 kN and a size 4600 injection unit. Integration of the subsequent operations in the production



process will be demonstrated by means of an application from the field of technical injection moulding. One particularly spectacular exhibit will be the extremely compact system built around a vertical ALLROUNDER 375 V with a clamping force of 500 kN, size 170 injection unit and six-axis robotic system. As well as the encapsulation of inserts and the integration of downstream assembly processes, the extremely simple, convenient and fast programming of the six-axis robotic system is a real highlight: the SELOGICA control sequence editor is integrated in its user interface. Thanks to an



extensive range of services, for example the convenient SELOGICA maintenance program (see overleaf) as a further important tool for production planning and reliability.



Technical injection moulding

All the exhibits and the various applications will illustrate the flexibility and performance of the central SELOGICA control system. However demanding and complex the requirements, the SELOGICA integrates all the peripherals, managing everything on a centralised basis and ensuring a smooth and fast production process. For those seeking to take this one step further in order to plan and control the entire production process, the ARBURG host computer system (ALS) is the perfect solution. The trade fair stand will also host a live demonstration of all the opportunities to be gained. All exhibits are connected to the ALS for this purpose. In addition to presenting the latest products and branch solutions, ARBURG will also show its extensive range of services, for example the convenient SELOGICA maintenance program (see overleaf) as a further important tool for production planning and reliability.

One for all: With challenging applications, complex automation solutions and integrated energy consumption measurements, the central SELOGICA control system will provide ample proof of its versatility at the Fakuma 2009.



expanded real-time connection, even complex mould-entry operations are simple to implement. Starting the system up following interruption of a cycle is also very easy via the central machine control system.

The subject of "simple robotic system programming" is completed by the ALLROUNDER 420 C exhibit

GOLDEN EDITION with MULTILIFT V SELECT. A live presentation of the innova-

Wartung Maschine

Meldung vor Wartung

1 h

Zeit bis nächste Wartung

977 h

nächste Wartung

11

1 Betriebsstunden Automatik

!

23

500

5000 h

!

I

7= Hydraulik: Gasfüllung Druckspeicher prüfen

2 Betriebsstunden Automatik

!

0

500

5000 h

!

I

12= Hydraulik: Lüftungsschlitze Pumpenmotor reinigen

A sure eye for maintenance

A prerequisite for the permanent availability and reliability of an injection moulding machine is careful and regular maintenance. To ensure that nothing is left to chance during routine production, the SELOGICA 'direct' machine control system features a user-friendly maintenance program - including continuous monitoring of due dates and automatic reminders for forthcoming maintenance work.

Depending on the configuration of the relevant ALLROUNDER, all the necessary maintenance tasks and intervals are already specified in the control system in plain text form. As an option, further individual maintenance specifications, relating for example to moulds or additional peripherals, can be entered manually. Finally, the SELOGICA can be used to generate a clear maintenance plan for the entire production unit, which always provides information on when the various maintenance tasks are due.

The due date for the recorded maintenance work is continuously checked according to operating hours, machine cycles or months. A separately adjustable early warning threshold also provides information about pending maintenance tasks, ensuring optimum planning and preparations.

If a maintenance interval is accidentally exceeded, the machine does not stop immediately, but continues to operate until the batch has been completed or until the next manual stop. However, in order to restart the machine, the correct completion

of the pending maintenance work must be confirmed in the SELOGICA system. The control system logs and saves every acknowledgement in a so-called maintenance log. As a result, every maintenance completed remains fully transparent, also providing ideal verification for audits and certifications.

In principle, all standard maintenance tasks on ALLROUNDERS can be carried out by the operator himself in accordance with the operating manual. With inspection contracts, however, all important machine elements are inspected for wear, operability and safety by an ARBURG service technician on a regular basis. From October 2009 onwards, ARBURG will also provide training courses on "Preventive Maintenance". These courses can also be tailored to the needs of individual customers and provided on their premises. A customer-specific training course of this type makes it possible to combine injection moulding

You will find all maintenance-related information in a clearly-organised overview on the relevant SELOGICA screen pages.

theory and practice to optimum effect, and to directly exploit the resulting potential for improvement.

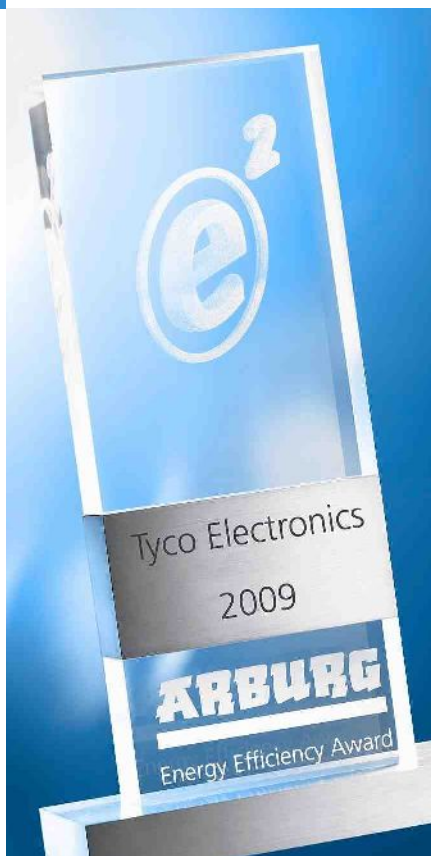
	Beschreibung	Name
17.07.08 13:45:16	0 Elektrik: Schaltschrankkühler auf Dichtheit prüfen	P. Männmann
26.03.09 10:45:04	23 Hydraulik: Lüftungsschlitze Pumpenmotor reinigen	Stefan Gühring
26.03.09 10:48:13	23 Maschineinständer: Filtereinheit austauschen	Stefan Gühring
26.03.09 10:48:19	23 Schließeinheit: Zahnriemen austauschen; ARBURG Service!	Stefan Gühring
26.03.09 10:50:29	23 Maschineinständer: Hydrauliköl wechseln	Stefan Gühring

Globally active

Once again, the Fakuma will provide the backdrop for the Energy Efficiency Award introduced by ARBURG last year. The company presents this award to customers who stand out on account of their activities in the area of energy-efficiency. The 2009 award will go to Tyco Electronics - an internationally active company that is among the world's leading manufacturers of electronic components, network solutions and undersea cables for telecommunications applications.

The ARBURG energy-efficiency award is not the first prize the group has won for its activities under the banner of "Reducing Environmental Impact on a Global Level". Along with numerous other international prizes, the award once again confirms the targeted environmental strategy officially pursued by Tyco Electronics throughout the entire world, including the consistent implementation of the relevant measures. Energy consumption, greenhouse gas emissions, water and waste water consumption, the volume of waste and material recycling are key aspects in this context. For example, the decision was made to carry out the appropriate measurements and to define global values and targets for the 2009 financial year. The measures include energy consumption audits and the implementation of numerous projects aimed at reducing energy consumption at the company's sites throughout the world.

Energy-efficient electric machines for




the production of moulded parts contribute to this reduction. "If production and application technologies allow, our plan for the future is to invest solely in electric machines," says Matthias Lauer, EMEA purchasing manager with responsibility for capital goods for the worldwide automotive division, explaining the strategy. As a result, half of the 149 ALLROUNDER injection moulding machines supplied to production facilities in Europe and North and South America since 2006 have been electric ALLDRIVE models. The ARBURG machines are particularly effective in meeting the stringent demands of Tyco Electronics

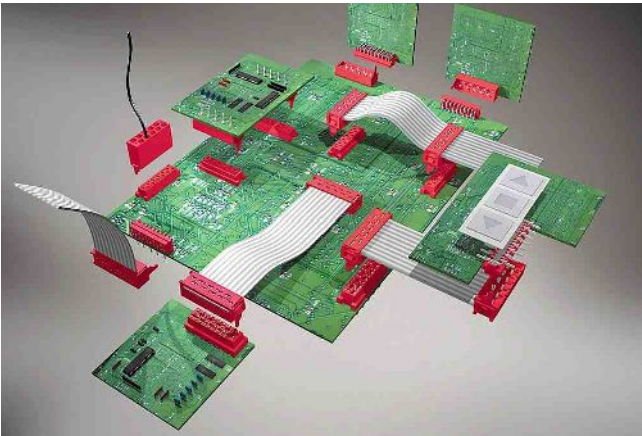


in terms of precision and speed. Moreover, the ALLROUNDER A models have proven their reliability: take for example the Speyer plant, where production takes place at full capacity around the clock, seven days a week, 362 days a year. As you pass through production, there is no mistaking the preference for electric injection moulding machines. A total of eleven ALLROUNDER A machines are in use with clamping forces of between 500 and 1,300 kN. Because only small precision parts are produced, all the machines use a size 170 injection unit. Most of the ALLDRIVE machines are integrated in automation lines, which Tyco Electronics as-





Tyco Electronics

e - in every respect



Photos: Tyco Electronics

sembles for the specific applications as required by individual components. One example is the automatic injection moulding of connectors for optical fibres on a plastic strip. Eight connectors per shot, including a backing strip, are produced on electric ALLROUNDERS in a continuous process, transported onwards and wound onto a reel. Camera inspection is integrated in the process for quality assurance purposes. At the end of the process, an installed reel switches fully-automatically to the next roll when the set number of units is reached. The full roll is then moved to the relevant systems for the continuation of component assembly.

As you would expect with such high-precision moulded parts, which also include extremely intricate connectors with up to 154 pins, Tyco Electronics also employs highly complex moulds. Altogether, there are some 400 of these in Speyer alone and an average of six product versions can be produced on each one. Rapid mould changes on the machine and conversion to the various versions in the mould are important aspects. The very high vol-

umes that characterised routine production in the past are being increasingly replaced by small batches and a high degree of flexibility in relation to customer requirements. In an effort to minimise downtimes, short set-up times, intensive preventive maintenance and proactive, detailed production planning are becoming increasingly important. These measures enable Tyco Electronics to ensure high machine availability, guaranteeing cost-effective and energy-efficient production.

Efficient, highly automated production in Speyer: continuous injection moulding with the electric ALLROUNDER A (top right) and a production cell built around a large ALLROUNDER with a clamping force of 4,000 kN (top left).

INFOBOX

Founded: 1941

Locations: Production facilities in 50 countries, including seven in Germany

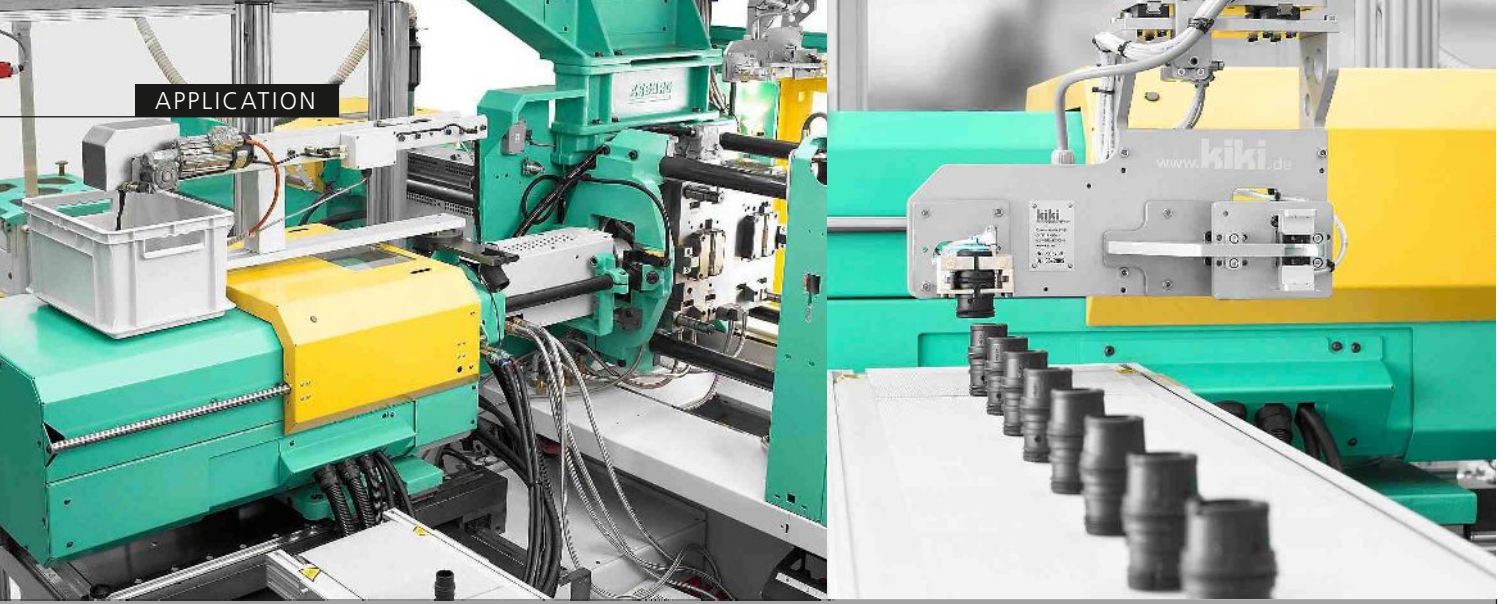
Employees: Approx. 75,000 worldwide, around 4,600 of whom are in Germany

Products: Electronic components, network solutions and undersea cables for telecommunications applications

Customers: Automotive, domestic appliances, aerospace, defence, telecommunications, computer and entertainment electronics industries

Turnover: 14.4 billion US Dollars in the 2008 financial year

Contact: www.tycoelectronics.com



Integrated seals

Multi-component and automation solutions are continuing to gain in importance in the cost-efficient production of complex moulded parts - including the injection moulding of elastomers. When these are processed together with thermoplastics using the two-component process, the different material properties place extremely high demands on both machines and moulding technology.

The production cell for manufacturing a coolant pipe with three integrated seals for the automotive sector demonstrates how these demands can be met. ARBURG used this exhibit at the International Rubber Conference (IRC) trade fair in Nuremberg to demonstrate its expertise in the fields of elastomer processing, multi-component injection moulding and automation.

Because precision plays an important role in this application, an electric ALLROUNDER 470 A with a clamping force of 1,000 kN is used. The two horizontal injection units, size 400 and 170, are positioned in an L arrangement. The larger injection unit operates conventionally, injecting horizontally through the fixed platen. The smaller unit injects into the parting line from the rear of the machine and features the elastomer equipment package from

ARBURG. This includes a special cylinder fitting with liquid medium temperature-controlled heating jackets, an optimised plasticising screw, open nozzles and a specially designed material feed for the strip or band material. Because elastomer, unlike thermoplastic, plasticizes at relatively low temperatures and is only fully vulcanised in the electrically-heated mould, two-component processing places special demands on the design of the mould. Because hot and cold areas must be kept reliably separate, a 1+1 cavity mould is used that ensures an optimum mould temperature and optimum heat separation between the elastomer cold runner and thermoplastic hot runner systems. The MULTILIFT V robotic system, which enters the mould vertically from above, places the pre-moulded parts into the mould, removes the finished parts and sets them down on a conveyor belt. The entire system



Perfectly combined and automated:
The production of a coolant pipe with integrated elastomer seals using the two-component injection moulding process.

is programmed and controlled by means of the central SELOGICA machine control system, which demonstrates how even complex processes can be handled reliably and simply.



"Only better means better"

Visitors are automatically reminded of ARBURG as soon as they enter the Production Department at ruwido in Neumarkt am Wallersee near Salzburg in Austria. Everything is high-tech, uncluttered, clearly laid-out and above all: clean. This approach to work is also evident in ruwido's products, which are high-end infrared remote controls for which the company is well-known both in Europe and throughout the world.

In 1975, ruwido developed the world's first infrared remote controls for televisions. Even then, the aim was to develop innovative product concepts and to offer customers perfect service. In 2003, the long-serving managing director, Ferdinand Maier, took over the business in a management buyout. The new business model is profitable, as is proven by continuous

two-digit growth rates in terms of volume and turnover. "Bigger doesn't mean better, only better means better!" says Maier, describing his company's philosophy.

"ARBURG has always been ruwido's first choice in the production of small parts because these machines combine precise injection and clamping performance with excellent controllability," says Johann Rinnerthaler, Production Manager at ruwido, explaining the company's use of ALLROUNDER technology. "Added to this is the excellent after-sales service: if, for example, we need replacement parts, we know they will be delivered quickly."

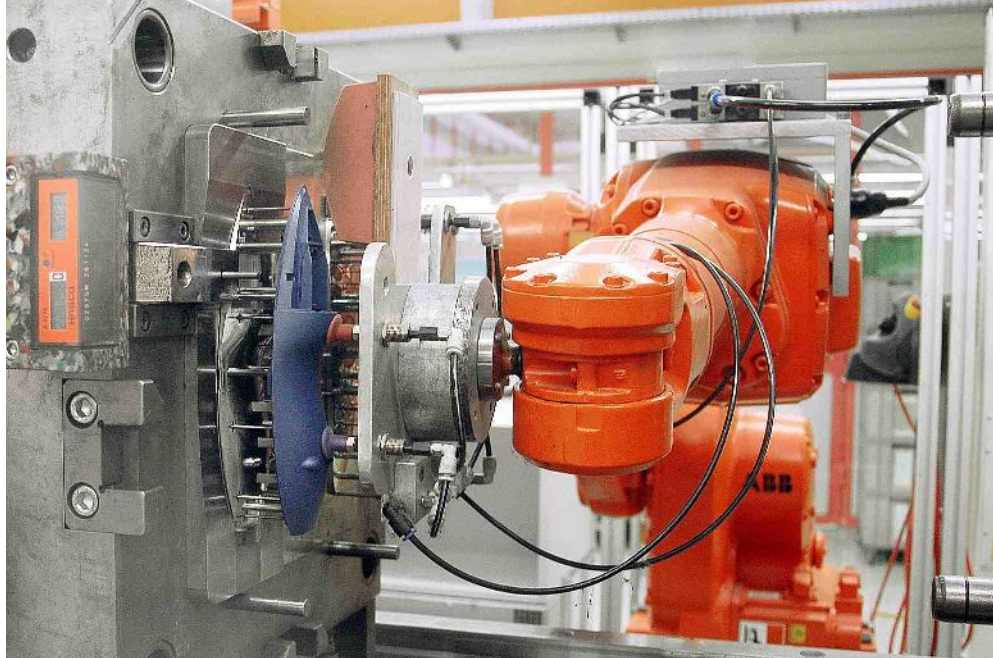
Training is also a priority at ruwido. Rinnerthaler explains: "Machine operators who are highly trained and who know their machines intimately also work with greater motivation. That's why we provide our machine operators with such intensive training. We bring in an ARBURG instructor and provide our personnel with ad-



Photos: ruwido



ruwido



vanced practical training on site. This cuts down on absences and saves money."

There are currently 15 ALLROUNDER injection moulding machines in operation at the company's production facility in Neumarkt, including three fully electric ALLROUNDER A models. The particular advantage of this series for ruwido lies in their flexibility, energy efficiency and low emissions. "Unlike hydraulic machines, the ALLDRIVE machines do not require any power during setup processes. With this way of working, longer energy-efficient cycles are possible as well as quick conversion of the moulds, which is absolutely vital for us. The low cooling requirements of the ALLROUNDER A models means that production can be expanded without the need for a cooling line. Temperature and noise emissions are also gratifyingly low, which is good news for our employees," says Rinnerthaler.

The company re-invests a large proportion of its profits into research and development activities. Marketing assistant Martina Kick explains the reasoning behind this decision: "What our customers like about their partnership with ruwido is the excellent support they get, from product design, to market introduction and beyond. As an innovation partner, our aim is to promote awareness for new means of audiovisual communication. This is why we continuously collaborate with universi-

ty research institutes in looking for new operating concepts for services in home entertainment. Our solutions are characterised by design and material innovations, haptically adapted to the needs of users, and consistent, user-oriented, intuitive user guidance systems that make even complex processes easy to understand. Our range is targeted at premium customers in premium markets. This requires us to assume a pioneering role."

ruwido's list of reference customers indicates that it has chosen the right path in offering added value for the customer throughout the value-added chain. Customers include high-end manufacturers such as Loewe and Metz, as well as many cable and satellite TV providers worldwide. ruwido is the European market leader in input devices in the IPTV sector (Internet TV) and was named supplier of the year by Loewe in 2008. The company has also proven its competence in the automotive sector. As a longstanding cooperation partner, ruwido's supplies to MAGNA International include 80,000 specially developed components for wing mirror controls each week. Research, design, me-



chanical and electronic development, plastics production and mould construction are among the company's central service offerings. It also provides complete surface finishing and assembly, extensive quality testing, packaging and logistics.

These processes finally produce a fully packaged product ready for delivery. Pro-





Photos: ruwido

ruwido uses a high level of automation to achieve a flexibility that allows even single-unit batches to be produced cost-efficiently. The injection moulding shop uses ARBURG machines, to the complete satisfaction of managing director Ferdinand Maier.

duction is organised so flexibly that it can be broken down into the proverbial 'one-piece-flow'. "All our central services are housed under a single roof, allowing us to offer our customers a high degree of, often critical, flexibility," says Martina Kick.

In production, this philosophy is reflected in the high level of rational and cost-effective automation. A large number of freely programmable robotic systems are used at ruwido, enabling around-the-clock production, seven days per week. Johann Rinnerthaler describes the underlying philosophy as follows: "Behind our cost-efficient automation, you will always find human faces working directly at the machines in the assembly hall. These are the people responsible for quality and flexibility in production. Things will remain this way here for the foreseeable future."

In addition to the consistent development of innovations in the product area, ruwido also believes that the motivation of all employees is an important element in promoting its image. Thus, for ex-

ample, all employees who come in contact with injection moulding technology also have a say when it comes to the purchase of new production machinery. There has been little fluctuation in the 196 employees in the past six years, while the level of automation has risen continuously. The employees can produce up to 37,000 remote controls in up to 1,700 versions each day.

The name ruwido is synonymous with one hundred percent customer orientation, maximum flexibility and cost-efficient automation that takes account of the employees and their central role in the organization of production and in the company's structure. There are many parallels between ruwido and ARBURG, starting from the high proportion of in-house production, consistent customer support and innovative spirit, through to the cleanliness that characterises the company. This is a longstanding, open partnership that will continue to develop dynamically over the coming years.

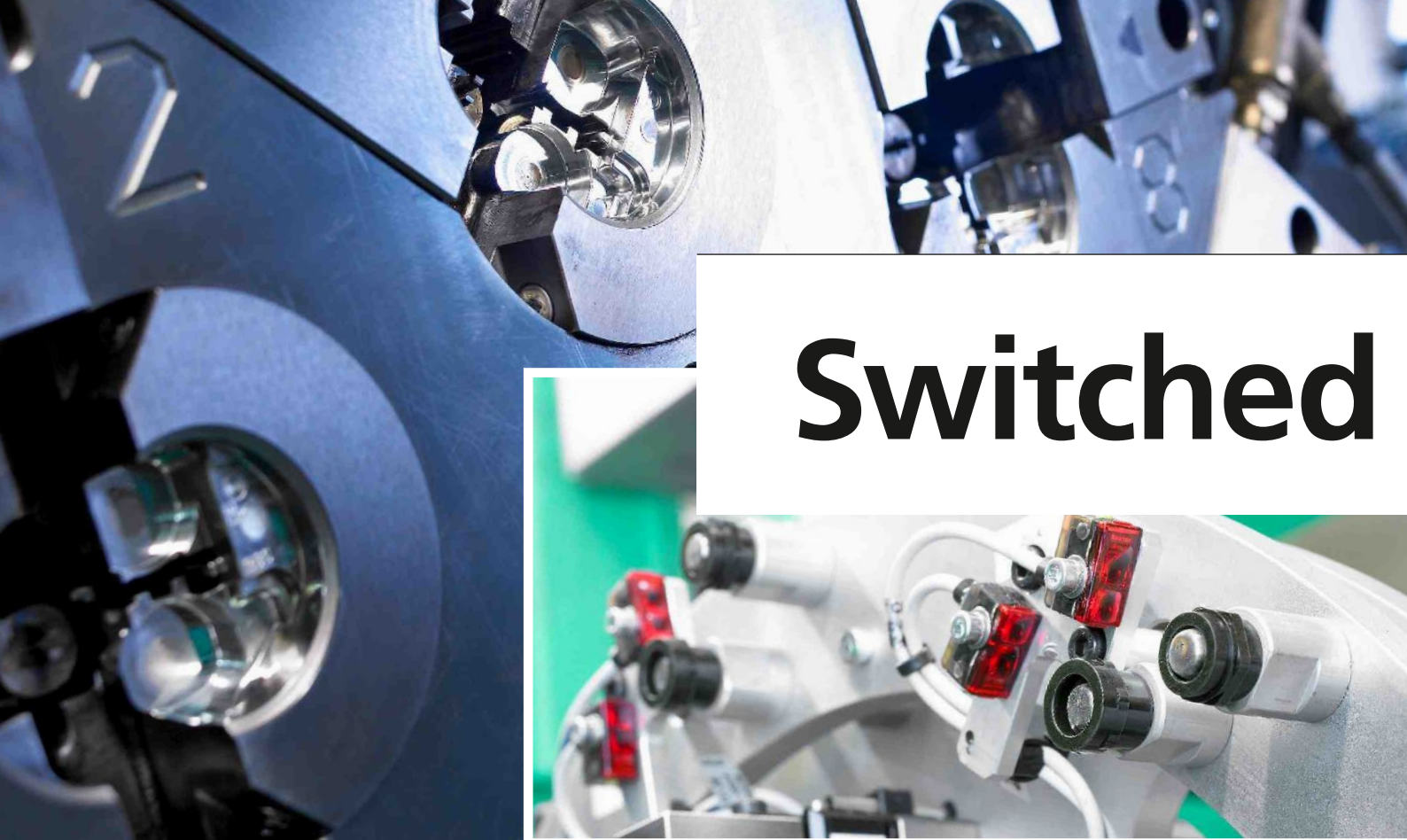
INFOBOX

Founded: 1969

Products: around seven million remote controls and keypads each year for cable, satellite TV and IPTV companies, the pay-TV and hotel sector; plastic components for the automotive industry

Production: around 70 percent of in-house production, processing of some 540 different plastics (elastomers, thermosets and thermoplastics), combined with other materials, such as metal or even glass

Contact: ruwido austria gmbh, Köstendorfer Straße 8, 5202 Neumarkt a. W., Austria
www.ruwido.com,
www.ruwido-automotive.com,
www.ruwido-consumer.com



Switched

Since its foundation in 1918, Bernhardt & Schulte GmbH & Co. KG has always been involved in the production of switches for electrical installations. The Meinerzhagen-based company continues to specialise in the production of rotary switches. With a continuous stream of innovations, Bernhardt & Schulte has managed to achieve a top-ranking position in this market segment.

The company has also specialised in the processing of pourable thermosets, mainly for articles which are further processed in the automotive industry. Injection moulding machines from ARBURG are also used in this area.

Anyone looking for Bernhardt & Schulte on the Internet will find the company's homepage at www.drehschalter.de. The use of the word "Drehschalter" (the German for rotary switch) in the address is an indication of the company's specialisation. However, the company provides more than just injection moulding production for its customers. All-round support also includes the fields of mould design and con-



struction, as well as downstream assembly and packaging processes. A complex automation solution has been in place since December 2008, on a production cell built around an ALLROUNDER 630 S ECO with a clamping force of 2,500 kN and a size 800 injection unit, a horizontally operating MULTILIFT H robotic system and further peripherals.

This system is used to produce a switch cover from thermoplastic, which is used in a Bosch starter relay used for VW applications such as start/stop starters, for example. With this technology, CO₂ emissions and fuel consumption can be reduced by up to eight percent in city traffic.

Of particular interest here is the fact that the two sleeves inserted in this cover are made from thermoset and are encapsulated with thermoplastic. The different thermoset sleeves are provided by means of two storage bins to increase system autonomy. The sleeves are transferred from these bins by means of vibrating spiral conveyors and fed positionally correctly to two pick and place robotic systems with linear rails. These then load a synchronised rotary table.

The MULTILIFT H picks up the 16 sleeves in a single step. The grip-



per of the robotic system then docks with the injection side of the open mould and places the Vyncolite X613 thermoset inserts precisely into the cavities in a single action.

The mould closes and the 39-second cycle begins. The thermoset sleeves are encapsulated with a glass-fibre-filled thermoplastic Lati PA6.6 GF35. When the mould is opened, eight finished parts drop onto the machine's conveyor belt. An automatic packing device ensures that a total of 240 parts are counted into the re-usable small batch containers provided for this purpose. The necessary pulse required for this purpose is output by means of the SELOGICA control system. After the con-



on



tainers have been filled, the parts are ready for dispatch.

The 8-cavity mould was designed and produced by Bernhardt & Schulte with the cavities arranged in a circular pattern. The mould is injected by means of an 8-drop hot-runner manifold. Two slides are used for each cavity to create the complex geometry of the switch cover. The temperature of the mould is controlled by means of 26 pulse-controlled cooling circuits to ensure optimum processing.

In the automotive industry, quality assurance for the parts is hugely significant. In addition to machine parameter monitoring, this is achieved via internal mould pressure sensors as well as near-contour

temperature measurement for each cavity. A sorting flap also separates good and reject parts at the machine.

Operations manager Jörg Grossmann is highly satisfied with the performance of the production cell: "We have worked closely together with ARBURG from the outset to achieve our goals. ARBURG's specialists provided a lot of help, both in terms of the design of the system and in the adaptation of the equipment. This has resulted in a host of individual solutions, such as the use of the MULTILIFT H robotic system which transports the inserts horizontally on account of the available ceiling height, or the choice of a performance-adapted ALLROUNDER 630 S ECO. Smooth production and the high reliability and output of the system confirm that we made the right choice with ARBURG."

Production cell, perfectly tailored to the requirements (top right): The thermoset sleeves are delivered in the correct position in an extremely confined space (bottom right), picked up by a MULTILIFT H (top left), precisely placed in the mould (bottom left) and encapsulated with thermoplastic.

INFOBOX

Founded: 1918

Locations: Plant I (main plant) in Meinerzhagen/Märkischer Kreis, Plant II in Steinwiesen/Upper Franconia

Products: Development and manufacture of integrated switches for device applications, manufacturing of technical moulded parts from thermosets and thermoplastics, design and construction of injection moulds for processing thermosets and thermoplastics, finishing work, assembly and printing of plastic components

Contact: Bernhardt & Schulte GmbH & Co. KG, Oststrasse 20, 58540 Meinerzhagen, Germany
www.drehschalter.de



More than

If you're looking for high-end products made from liquid silicone (LSR) and require the highest standards of precision, then SIMTEC Silicone Parts in Madison, Wisconsin, is the place to go. The company's range covers not only high-grade LSR products, but also two-component moulded parts and encapsulated inserts. The US company's motto "Extraordinary Solutions" provides a clue to what customers can expect.

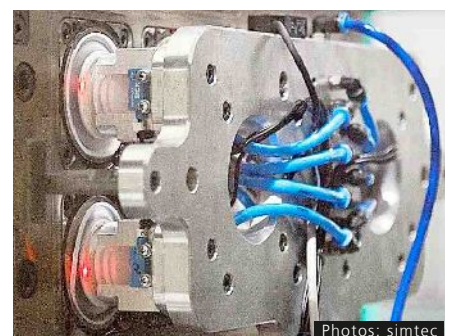
"We specialise 100 percent in LSR - that's our core area of expertise", says CEO Enrique Camacho. "This enables us to meet all requirements, whatever sector customer comes from: for example clean room production, safety and hygiene for medical technology or long service life, thermal resistance or reproducibility for the automotive sector." SIMTEC's list of customers worldwide includes some major players: around 95 percent of them belong to the "Fortune 500" with sales above 60 billion US dollars. The fact that this relatively new company is a major supplier of high-grade, high-precision LSR products is the result of a clear, far-sighted strategy.

The SIMTEC team is made up of highly



qualified employees with decades of experience in both silicone and thermoplastic processing. This is an important aspect for two-component injection moulding, in which adhesion properties and consequently the right choice of materials play a crucial role. Various ovens are available for the subsequent curing processes, enabling us to apply the right process according to product requirements.

"Our advantage is that our expertise goes beyond just LSR processing," explains the CEO. "In fact we come from a scientific background and are aware of how a particular material will react to different conditions at a molecular level." This also results in the fact that SIMTEC invests heavily in research and development, cooperates with leading institutions in the field of LSR technology and publishes numerous specialist articles.



"Our extensive expertise secures us a competitive advantage and, of course, for our customers too. To ensure that things remain that way in the future, we intend to further develop our two-component injection moulding and insert encapsulation areas," explains Camacho.

SIMTEC offers the full range of expertise from a single source. In his opinion,



Enrique Camacho (right) is delighted with the ARBURG machines: "We always equip our ALLROUNDERS to very high standards to ensure that we are well positioned for the future."

"just" silicon



materials have also been developed for very special requirements in collaboration with raw materials suppliers. This extensive know-how is also reflected in the quality of the products: the reject rate - or more precisely the PPM (parts per million) rate is less than ten.

"We also only cooperate with the best suppliers," emphasises the CEO, who ordered the first ALLROUNDER injection moulding machines when the newly founded company's premises were still a shell. The ARBURG machines, which now number eight in total, currently operate in a class 100,000 clean room. "However, if our customers demand a class 10,000 clean room at some time in the future, we will meet those requirements," promises Enrique Camacho. "We also always equip our ALLROUNDERS to very high standards to ensure that we are well positioned for the future. The modular concept of the ARBURG machines leaves us a wide range of options. We are also very pleased with our MULTILIFT robotic systems."

The complexity and quality of the products we produce also require the corresponding moulds. The range includes 1 to 128-cavity moulds for "simple" LSR parts and up to 8+8 cavity moulds in the two-component sector. When it comes to the integration of complete systems, SIMTEC can call on the skills of its own in-house experts. "We implement the entire automation system in-house, which affords us great flexibility in providing our customers a tailor-made service."

SIMTEC
SILICONE PARTS

the best product results are achieved by being on board from the very outset. He provides a clear illustration of the innovative spirit of his company: "99 percent of the products we manufacture didn't exist before. Customers simply came to us with an idea." This was followed by the design stage, involving the optimisation of the product design, choice of materials and processes, prototype production, pre-production and, finally, series production.

In an effort to find exactly the right material for a customer's specific needs, it is not just different plastics that are extensively tested in advance. Customer-specific

INFOBOX

Founded: 2002

Employees: High 17

Products: high-grade LSR products, including two-component moulded parts and encapsulated inserts.

Customers: Automotive, consumer goods, medical technology, personal care and special applications for the European and North and South American markets

Machine fleet: Eight specially equipped LSR ALLROUNDERS with clamping forces from 800 to 2,200 kN, including three two-component machines

Certification: ISO 9001:2008, TS 16949, ISO 13485, cGMP, EPA

Contact: SIMTEC Silicone Parts, LLC, 1902 Wright Street, Madison, WI 53704, USA
www.simtec-silicone.com



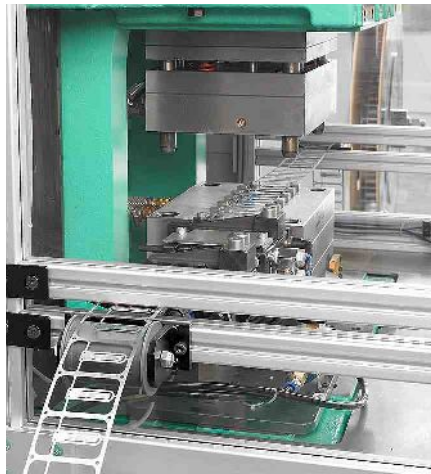
Reel-to-reel

Integrating and fully automating several processing steps has the effect of lowering overall production costs while also maintaining or even increasing the high quality of production. One example of such an integrated and automated production cell for hybrid parts is the reel-to-reel system built around a vertical series-produced machine from ARBURG.

The ALLROUNDER 275 V with its clamping force of 250 kN features a free-space system and a fixed vertical clamping unit, making it the perfect choice for the automated encapsulation of inserts. This production cell has been used at trade fairs to produce a metal/plastic clip as a demo part. Partners in this project were

Leicht Stanzautomation (reel take-up and pay-off mechanism), and Kron (mould technology) as well as Thyssen Krupp Nirosta (pre-stamped stainless steel coils).

The coil of stamped stainless steel parts is unwound from the reel by a horizontal pay-off mechanism with coil remover. A so-called loop control acts as a buffer, which compensates the different feed speeds of the pay-off device and the injection moulding process, and also enables the coils to be changed. The coil is fed to the injection moulding machine, where



the single-cavity follow-on composite mould processes the stamped parts in two steps.

In the first step, the blank clip suspended from the pre-stamped coil is encapsulated with a plastic handle. In the second step, the finished item is separated from the coil. This action takes place simultaneously to the encapsulation of the next metal/plastic clip. The finished parts leave the machine via a chute incorporated in the mould and drop into a container. The rest of the stamped coil is transported on a vertical winder and subsequently recycled.

The ALLROUNDER 275 V, which is equipped with the small size 30 injection unit, achieves a maximum shot weight of 14 grams. The handle of the clip weighs 0.9 grams; giving the complete hybrid part

In perfect harmony: the components of the reel-to-reel system (top). Ideal conditions for automatic encapsulation: the free-space system of the vertical ALLROUNDER V (centre).

a total weight of 1.6 grams. The cycle time of the encapsulation process is 30 seconds.

Combining systems of this kind with vertical ARBURG machines is a particularly interesting and financially attractive prospect, which is further enhanced by the simple, perfect communication between individual components and the SELOGICA machine control system via standard interfaces. The standardised machine technology with sophisticated functional units enables the creation of simple reel-to-reel systems at comparatively low cost. Finally, as the main contractor, ARBURG takes care from the very outset to ensure that turnkey projects of this kind remain cost-efficient to purchase, use and maintain by combining the various system parts in order to achieve the best possible price/performance ratio.





Hungary celebrates first decade

The Juniális event has now become a permanent fixture for ARBURG in Hungary. Each year, this occasion affords customers and interested parties the opportunity to meet and find out about the latest trends in injection moulding. This year's event also provided an opportunity to celebrate the tenth anniversary of the Hungarian subsidiary.

Renate Keinath, ARBURG Managing Partner responsible for Human Resources, and Stephan Doehler, European Sales Manager, travelled to Budapest for this special occasion. On behalf of the Hehl and Keinath families, as well as the entire ARBURG company, Renate Keinath congratulated subsidiary manager Gabriella Hollik and her team on their tenth anniversary. She also thanked them for their extraordinary dedication and fidelity.

In his address, Stephan Doehler touched on some of the highlights in the long history of ARBURG's involvement in Hungary. The first machines were delivered over 20 years ago. At the time, cooperation mainly involved German companies who had production operations in Hungary and who were accordingly supported by the company's headquarters in Lossburg. Gradually more and more local companies came on board. The customer base grew continuously and the importance of the Hungarian market increased as a result. The next logical step was to establish a

subsidiary there in autumn 1998 and to progressively expand it. In a move designed to further improve customer support, the subsidiary is set to move to new premises in Budapest at the end of 2009.

Continuing with his speech, Stephan Doehler thanked the customers for their confidence over the years and encouraged optimism in the future: "Continue to place



your trust in ARBURG, just as we continue to place our trust in our customers, always aiming to work together to find the best technical and economically viable solutions. In future, we will make particular efforts on your behalf, because Hungary, our customers, and their technical development supported by our injection moulding machines are very close to our heart." Appropriately, the concept and benefits of the new ALLROUNDER HIDRIVE hybrid series were presented as part of the event.

The varied programme was extremely well received by the 52 guests. "Visitors



Renate Keinath (left) congratulates Gabriella Hollik on ten years of ARBURG Hungary and presents her with a commemorative sculpture.

responded very positively to the HIDRIVE presentation and machine demonstration, as well as the perfect fringe programme and the chance to meet together for informal discussions in a relaxed atmosphere," said Gabriella Hollik in summary.

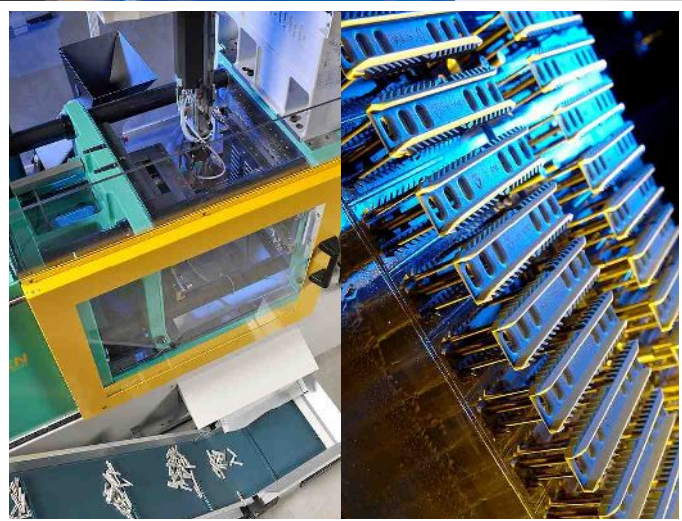
"The ultimate

This, the motto of CERA Handels GmbH expresses in a nutshell just what the company has to offer its customers. Producing connectors for the manufacture of insulated glass as well as plastic horseshoes for horse riding with "the ultimate in precision" means meeting stringent quality requirements, both for the company itself and for its partners.

A peek inside the newly constructed and perfectly structured production hall confirms that claim. This investment represents the fruition of a longstanding plan of Managing Director Karin Rafeld-Cech and her daughter Stephanie Rafeld. With an eye to the future, she wanted to bring the entire value-added chain of CERA products under a single roof in both organizational and physical terms. At the beginning of 2009, the administration and warehouse building was therefore extended to include a 1,200 square metre production hall. Just half a year later, the new injection moulding production plant went

into operation, incorporating the many decades of experience enjoyed by Karin Rafeld-Cech in the industry. In the early 1970's, her company was the first to produce corner brackets for window profiles using injection moulding technology. The product range has grown continuously ever since. Today, it contains some 900 different articles and product versions for the manufacture of insulating glass. The different corner brackets and connectors - also available with gas filling option - as well as cross bars, are marketed under the CERA CONNEX brand. Because most of the products are further processed fully automatically - for example on bending systems for window profiles - the requirements in terms of precision are correspondingly high. Through its collaboration with the leading manufacturers of insulating glass and profiles, CERA is always close to the market and continuously develops its products.

The same applies to the second product group, CERA ENDURANCE plastic horseshoes. "The perfect conditions were in place for this development," explains Stephanie Rafeld, who is responsible for this part of the business, "our own test horses, a wealth of experience in plastics processing and top-class contacts with material manufacturers and mould constructors." Initially developed purely for personal use, the plastic horseshoes made from TPU are now used successfully all





in precision"



Working hand-in-hand: Stephanie Rafeld, Klaus Köhnke and Karin Rafeld-Cech (left to right). The results are top-class products such as connectors (bottom) and plastic horseshoes (top), all produced on ALLROUNDERS with MULTILIFT.

over the world. Better shock-absorbing properties, lower intrinsic weight, easy handling and reduced risk of injury are the decisive advantages of this shoe over conventional steel horseshoes. A particularly high degree of wear resistance is also required.

Because all CERA products had already been successfully produced on ALLROUNDERS, it was clear that the company would call on ARBURG as a partner for this new product. Appropriately, a new production unit went into operation in autumn 2008, consisting of the ALLROUNDER GOLDEN EDITION, the MULTILIFT V SELECT robotic system, a conveyor belt and guard cage. "We knew right from the start that this compact turnkey solution would be perfect for our needs," says Karin Rafeld-Cech, who immediately ordered twelve systems. This is also confirmed by production manager Klaus Köhnke, who is very impressed not only with the high quality of the

moulded parts, but above all with the significantly shorter cycle times: "The high-quality machine and robotic technology enables us to mould, demould and remove our products quickly and with high precision. The "teach-in" function also makes the robotic system very easy to program." In addition, the ARBURG host computer system (ALS) also gives Köhnke access to all the machines at all times and keeps him up-to-date with production. He can also use the ALS to produce optimum production plans - a decisive factor for a production facility that runs around-the-clock with numerous product versions. In order to keep set-up times to a minimum, CERA is increasingly using moulds with inserts.

Frequent material changes also pose challenges with regard to the centralised material supply system from Motan.

In addition to the Motan drying and conveying unit, colouring units ensure fast material and colour changes. The system is the result of a cooperative partnership in which the

economical, technical and optical requirements have been fully met.

After all, an optimum image is very important to the DIN EN 9001:2008-certified company, according to Stephanie Rafeld: "If you want to sell quality, then you must implement quality in all areas of the company, just as CERA does."

INFOBOX

Founded: 1974 by Karin Rafeld-Cech and Karl Rafeld

Employees: 19

Products: Connectors for insulating glass production, plastic horseshoes for horse riding

Markets: Mainly Germany, Europe and South Africa; exports account for 50 percent of sales

Machine fleet: Twelve ALLROUNDER GOLDEN EDITION models with clamping forces between 400 and 2,000 kN with a MULTILIFT V SELECT robotic system

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TECH TALK

Oliver Schäfer, Technical Information

Retrofitting energy

Energy-efficiency is currently a much-debated topic, for injection moulding companies as well. As an innovative injection moulding machinery manufacturer and pioneer with regard to energy efficiency, ARBURG is confronted with an ever growing number of enquiries on a daily basis. In addition to selecting the right machine concept for new purchases, there is now increasing focus on retrofitting energy-efficient technology on older injection moulding machines.

However, in many cases, the potential for energy savings achievable through retrofitting is insufficient to warrant the sometimes extremely high conversion costs. This applies especially to small and medium-sized injection moulding machines. The reason is that the energy requirements and therefore the potential for savings decrease the smaller the machines are (see chart). In contrast, retrofit and conversion costs are largely independent of the machine size.

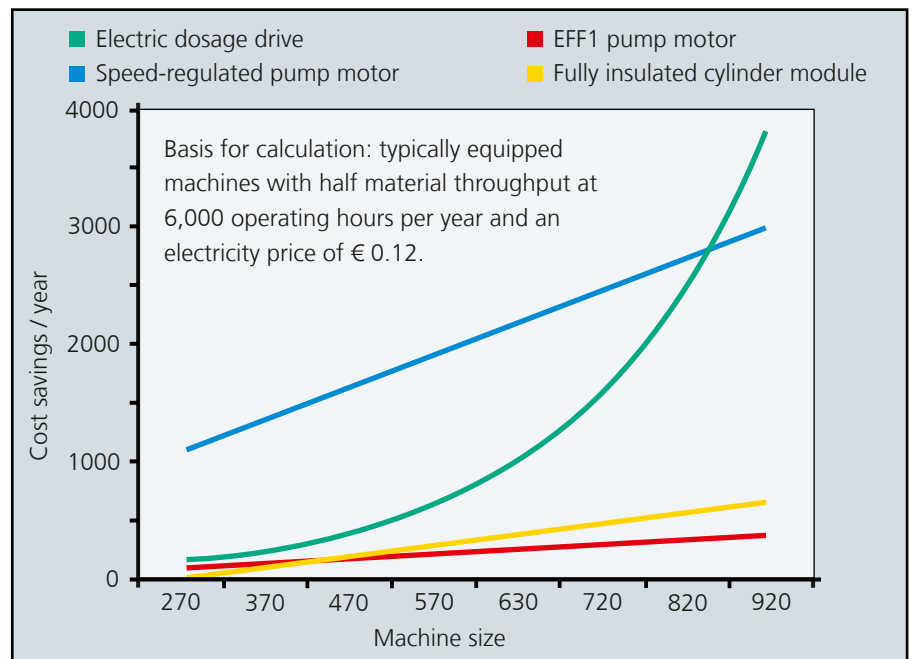
Examples of this are the retrofitting of an electric dosage drive or speed controlled pump motor on hydraulic machines - regulating pumps have been the standard in ALLROUNDERS for over 30 years. During conversion, the control system and software must also be upgraded. This en-

tails not only the considerable cost of new components such as frequency converters and motors, but also the associated labour costs. Owing to the high conversion costs, these retrofitting measures are therefore seldom economically viable. The situation is quite different if the energy-efficient equipment is ordered directly when the injection moulding machine is purchased. In this case, the higher investment costs incurred are significantly reduced due to the absence of the conventional components.

The same applies to the retrofitting of

energy saving motors of the highest efficiency class, EFF1. In comparison with a conventional EFF2 motor, energy savings of up to four percent can be achieved, but the greater energy-efficiency alone is not sufficient to justify the replacement of existing motors. However, if a faulty motor needs repairing or replacing, it may certainly be worth considering the alternative EFF1 motor. The available installation space is also decisive because energy-saving motors are larger than EFF2 motors.

A further retrofitting option is to fully





-efficiency?



insulate the cylinder module of the injection unit. This allows the heat dissipation losses to be reduced to a minimum. However, all insulation also represents an intervention in temperature control and must consequently be designed with the relevant application in mind. The viscosity of the processed material and the material throughput play a decisive role here. Despite all considerations with regard to efficiency, however, a controlled, reproducible process must always be the priority. A compromise between energy saving and process stability is the standard insulation of the cylinder modules on ALLROUNDERS. Heat loss through radiation is already significantly reduced, while at the same time ensuring a more controlled, more reproducible process. Nevertheless, it is always recommendable to consider the option of full insulation.

Additional potential is said to be achievable through decentralised reactive current compensation directly at the injection moulding machine. However, most injection moulding businesses already use centralised reactive current compensation systems. These are generally more than adequate.

The currently available low-viscosity multigrade hydraulic oils also generally permit energy savings. The extent of the potential savings on a particular machine, however, ultimately depends on a number

of influencing factors, for example the injection moulding process and the type of hydraulic drive. Consequently, only an individual comparison generally proves meaningful. The energy savings achieved by means of low-viscosity hydraulic oils must be balanced against higher purchasing costs and, in the case of retrofits, the costs for changing the oil in the injection moulding machines. Bear in mind, however, that the use of these hydraulic oils is not always permissible on account of their low viscosity, particularly in the case of older pump systems.

The examples described show that the retrofitting of already installed injection moulding machines for the purposes of energy efficiency is a complex task which often fails to live up to expectations. However, the potential for energy savings in production organisation is often completely neglected. This is despite the fact that such measures can usually be implemented directly without any additional costs. A good example of this is standby mode. This standard function of the SELOGICA control system means that you can help save energy by simply pressing a button, for example during breaks or downtimes. Whether standby mode only involves switching off the pump motor or whether cylinder and mould heating are lowered can be easily programmed in accordance with the moulds being used. An-

Energy efficiency: switch-on to switching-off (top). The energy-saving potential of retrofitting measures (chart on left), however, is often insufficient to justify the conversion costs.

other interesting feature of the SELOGICA is the automatic switchover to standby mode if the control system does not register machine movements during a freely programmable period. Training and awareness-raising of employees should therefore always be a central component of energy efficiency activities.



Electrical innovation. Reproducible, precise, fast and energy-efficient: With its fully electric ALLROUNDER A, ARBURG has just the right solution for these customer requirements. The fully electric ALLDRIVE is available with clamping forces from 350 to 3,200 kN. Efficiency and precision, suitable for countless applications.



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