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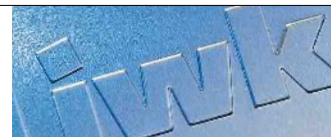
The ARBURG Magazine

Issue 40

2009



4	Our company By us, for you
6	Customer report Binder: Streamlined and efficient
9	Our company Continuously improving
10	Customer report Taiwan Powder Technologies: Spurred on by customer demands
12	Product Worth its weight in gold
13	Subsidiary Presence in Arabia
14	Customer report Vitop: Fresh on tap from bag-in-box
16	Project MKT: For cars, the future's blue
19	Our company Around the globe
20	Co-operation IWK: A refined look and a cool touch
22	Tech talk Energy-efficient drives



MASTHEAD

today, the ARBURG magazine, issue 40/2009

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Big on small components: ARBURG impressively demonstrates its expertise in micro injection moulding at the Fakuma 2008, with a complex production cell for manufacturing micro gear wheels weighing just 0.001 grams.





Dear Readers,

Last year, we took our "Technology on Tour" around the world with great success, drawing the attention of the international injection moulding industry to the subject of energy efficiency, shedding light on the various factors influencing energy consumption in injection moulding, and highlighting potential savings.

However, for us the efficient use of energy is a matter of priority not just for our products, but in our company as well. This year in Lossburg, you will be able to see for yourselves how our new building embodies the concept of energy efficiency. The new Customer Center will open its doors to coincide with our Technology Days, which will be held from 19 to 21 March 2009. Make the most of this opportunity to marvel at the possibilities that we have to offer. You may well be excited to see what innovations we will be presenting at the Technology Days. So don't let this opportunity slip away.

Also new and improved are our Projects and Applications Technology departments, likewise with the goal of

providing you with even better advice and support in future. But our investments are not limited to Lossburg, as demonstrated by the opening of our sales and service office in the United Arab Emirates.

So as you can see, we are certainly not burying our heads in the sand during these economically difficult times. Instead, we are looking towards the future and continuing to develop ourselves and our products, thereby sending out a clear signal that in ARBURG you have a strong, reliable partner with whom to jointly face a positive future.

We hope you enjoy reading this new issue.

Juliane Hehl

Managing Partner & Managing Director



By us,



After almost two years of construction work, the new ARBURG Customer Center will open in March for the Technology Days 2009 and will then be handed over to those for whom it was built: all our customers. The pride felt by Michael Hehl, Managing Partner & Spokesperson for the Management Team, with regard to the success of this building project is evident in his words: "The intention of the new building was to enable us to bring our customers even more satisfaction than before. But of course we also wanted to surprise them a little with what we have planned and implemented for their benefit."

This objective seems to have been fulfilled and reveals itself to every visitor entering the new building, which contains as much structural steel as is required for 60 houses. Everything is light, spacious and finely wrought - you immediately have the feeling of being right at the centre of things. As well as the reception, waiting and meeting area, the new building also houses all departments that have contact with customers. You will never have far to go to benefit from comprehensive ARBURG expertise. At the heart of the building is

the Customer Center's 2,100-square-metre area for machines and production cells. Here, ARBURG's entire product range is available not just "for show", but to demonstrate its performance capabilities live to all customers. This facilitates the machine selection process and also makes it easier to carry out trials and acceptance tests. In addition, applications such as powder injection moulding and clean room technology with their ALLROUNDERS are also incorporated, in order to display to perfection the diversity of techniques covered by ARBURG machines.

"ARBURG is well known for its company policy of continuously improving all customer services. Once again, we have done all we can to ensure that our customers feel at home and well looked after when they come to us," says Helmut Heinson, Managing Director Sales, explaining the objectives of the new building. "With our new premises, we can deal very flexibly with visitors' wishes and queries, and

therefore show them that we have based our entire business on them and their needs."

Herbert Kraibühler, Managing Director Technology & Engineering, adds this: "Our new building reflects and strengthens our policy of proximity to our customers and clearly indicates that in these economically turbulent times, we are ready for the future, especially in terms of customer services. At the same time, this construction project also demonstrates our clear commitment to Germany as our production location and our basic principle "Made by ARBURG - Made in Germany". We believe that this is the only way that we can guarantee our high quality standards for all customers all over the world. Finally, the energy-efficient concept of the new building demonstrates once again that we put "Energy Efficiency" into practice not just in our machines, but throughout our ALLROUNDERS, in our company and in our advice to our customers."

for you

Flashback. ARBURG on 28 March 2007: this was the date of the ground-breaking ceremony in the Oberndorfer Strasse in Lossburg, attended by managing partners, the management team, as well as regional

Customer Center is impressive in every respect. Moreover, all those responsible unanimously agree that it has more than satisfied its objectives. Now we simply have to fill it with people.

Managing Partners Renate Keinath, Juliane Hehl and Michael Hehl (from left to right) all agree: "The new Customer Center offers the perfect environment for first-class customer support."



and local council representatives. This moment heralded the official launch of the company's largest construction project since the plant was extended by the "factory of glass". The focus lay clearly on the sustained optimisation of customer support. It was important that all departments relevant to customers should be reached quickly and distances kept short. And this explains the name of the building project: the new "ARBURG Customer Center".

Now as ever, this name epitomises the company's motivating force - that of providing its customers with genuine all-round service. Now that the new building section is complete, it is clear that the ARBURG

INFOBOX

Location: Lossburg, Germany

Size: Around 10,000 square metres, of which 2,100 square metres are dedicated to the central machine, demonstration and testing zone

Concept: Central port of call for all customers to reach all the departments necessary for customer support

Machines: Over 30 ALLROUNDERS of all types and performance categories with the necessary peripherals, as well as various project systems



Streamlined

Personnel-intensive production in Germany? At first glance, this seems like an anachronism. But if we take a look behind the scenes at Franz Binder GmbH + Co. elektrische Bauelemente KG in Neckarsulm, a world market leader for circular connectors, we will see that this is not the case. Thanks to modern production technology and organisation, this family-run company produces extremely cost-effectively despite high numbers of personnel.

“We decided to take this route in 2006 with the appointment of team managers and the introduction of lean management processes,” explains Managing Director Markus Binder, son of the company founder, Franz Binder. This was followed in 2007 by the reorganisation of the production areas, as previously production, assembly and the warehouse were located at three different sites in Neckarsulm, so that a great deal of time and expense were spent on logistics and organisation. “This situation simply arose organically through our continuous expansion in Neckarsulm,” explains Franz Binder. Thanks to his responsibility for his workforce, which he refers to as his “most important capital”, and his entrepreneurial courage, which he has proven with a strategy of “continuity even when times get tough”, Binder has made his company



a world leader. In order to maintain this position, Markus Binder has charted a course towards lean production, with the aim of achieving short delivery and development times through modernisation and improved flexibility. In addition to long transport distances and the large warehouse, the company also faced the problem of different production, tooling and machine concepts and the resulting high set-up times and costs.

Simultaneously the company was confronted with changing market require-

ments such as faster delivery times, high adherence to deadlines, accuracy of production numbers, increasing version diversity, reduced batch sizes, greater product customisation and higher quality requirements. In order to comprehensively satisfy these demands, the “Binder Added Value System (BAVS)”, which is based on lean management and the Toyota Production System (TPS), was introduced. Key elements of this strategy are, for example, the concentration of added value in a single location where possible, the training of small,



Photos: Binder

and efficient

independent production units, and the shifting of responsibility and decision-making as far down the hierarchy as possible, in order to promote fast, flexible reactions. A further element is the implementation of objectives through workshops, in which employees work on solutions together with managers and specialist personnel. Markus Binder sums up the advantages as follows: "When everyone knows what the goal is, everyone can contribute."

One of the first steps was to divide the sites according to production fields and to establish production teams. The result is that there are no more central departments for quality assurance, production control

and planning or procurement, for example. Rather, each team is made up of employees from these areas who, together with their colleagues from Production, assume responsibility for the products in question.

Due to the small batch sizes of 250 to 300 units on average, frequent mould changes - around three per shift - are the order of the day. To keep the set-up times short, Binder increasingly makes use of master moulds with cassette technology. As only the cassettes are changed, set-up times were cut by around 80 %. Today, 20 of the 50 moulds employed for cable production are cassette moulds, almost all of which are produced by the company.

Further steps were the segmentation of products into medical, sensor and industrial technologies, the standardisation of work operations and the establishment of decentralised individual stores directly on the production lines, as well as linkage of the individual workstations. A good example of lean production is provided by the production lines for encapsulated connectors, each of which consists of a compact, flexible cable cutting system, an automatic crimping machine with process monitoring for reproducible connections, and a vertically operating ALLROUNDER 275 V. Thanks to their free-space system and minimal footprint, ARBURG vertical machines are ideal for this task. In addition to their



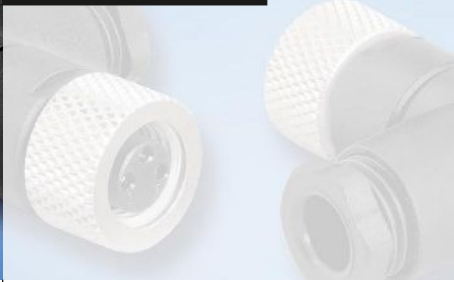
From left to right, Plant Manager Thomas Schulin and Managing Director Markus Binder are very happy with the efficient connector production in independent production units.



good accessibility and compact

design, they excel thanks to their technical equipment, as Plant Manager Thomas Schulin explains: "With the position-regulated screw option, we achieve extremely high process stability and therefore high product quality. Moreover, simultaneous movement by the ejector and the mould was made possible especially for our machines, in order to shorten cycle times." Monitoring by internal pressure sensors, to guarantee constant mould filling, is another





Manual insertion of cables in the ALLROUNDER 275 V has proven its worth (right). ALLROUNDERS with swivelling clamping unit offer a high degree of flexibility (below).



Photos: Binder



just a few minutes. Because of small batch sizes, only individual components, not the complete production line, are automated. "Another reason for manual work," comments Thomas Schulin, is that cables are "alive" and don't always behave in the same way." When it comes to inserting cables, people are still more flexible than machines.



er special feature. As these production lines with ALLROUNDER 275 V machines have proved successful, two have already been installed in the USA, and two more are planned for the Chinese factory.

The operator makes use of the time saved from the optimised injection moulding cycle for electrically testing the finished parts, with insulation tests at high voltage, for example. Rejects, which cannot be entirely avoided due to electrical faults, are separated immediately, so that production takes place with accurate numbers and 100 % quality. By linking the individual workstations, the throughput time for encapsulated connectors has been reduced from about three weeks to a single day, or a few hours in some cases. And the one-piece-flow concept means that the first part is produced and ready for shipment in

"We are continually recognising new potential areas for optimisation, even in the production sequences that we have already reorganised, and we set about implementing them," says Markus Binder, and explains that "there is no definite end to the implementation of the BVAS. Rather, it is an ongoing process."

INFOBOX

Founded: In 1960 by Franz Binder Group
Group: Binder Connector Group and Binder Systems Group
Plants: Germany, Switzerland, France, China, USA, United Kingdom
Employees: Around 1,300, approx. 550 of whom are in Neckarsulm
Turnover: € 120 million overall, € 70 million for the Connector Group
Products: Industrial connectors, plug connectors for automation technology, customised solutions. 10,000 different individual components, 4,300 catalogue items, 3,000 versions and around 40 million connectors annually
Machine fleet: 53 injection moulding machines with clamping forces from 250 to 700 kN, including 48 ALLROUNDERS
Contact: Franz Binder GmbH + Co. elektrische Bauelemente KG, Rötelstrasse 27, 74172 Neckarsulm, Germany, www.binder-connector.de

Concentrated expertise: Jürgen Schray,
Dr. Thomas Walther and Oliver Giesen (from left to right).

Continuously improving

ARBURG has never rested on its laurels. And this is why we are continually striving to improve still further. The latest example is the expansion and reorganisation of the Projects and Applications Technology departments, with the aim of providing our customers with even better, more intensive support in future, and making all ARBURG's expertise available to them.

When it comes to projects and applications technology, we focus on individual customer requirements - and consequently on customer-specific, competent advice and support.

For this reason, the Projects department has been expanded to include Commissioning. Consequently, both the experts who elaborate and implement projects and the skilled personnel who commission systems at ARBURG and on customer premises have now been merged into one compact department and share a common responsibility. "This way, all those involved get to know the systems in detail from the very beginning, communication channels are shortened and reaction times are faster," says Managing Director Sales Helmut Heinson, listing the advantages of the expanded Project department, under Head of Department Oliver Giesen. Customers all over the world benefit from this solution, whether they are in Germany or its neighbouring countries and receive support directly from the Project department, or whether they are further afield and contact and co-ordination is provided by responsible engineers at the ARBURG subsidiaries. The Applications Technology department has also been reorganised with the aim of improving customer support. It still covers the three areas, "Injection moulding" for in-house production of moulded parts, "Technical



Center", the central port of call for customer tests, and "Application-specific consulting". But now the range of the last two services, in particular, has been considerably expanded. For example, we not only run tests on machines, moulds and processes with and for customers in the Technical Center, but also subsequently compile extensive documentation that customers can use to achieve the results obtained here in their own injection moulding plant.

The greatest innovation, however, relates to application-specific consulting, as the area of responsibility has not only grown tremendously, but has also become more international. Previously, the extensive pool of expertise covering all injection moulding technologies and sectors was only resorted to in the case of specific queries regarding machines, moulds and process technology. In future, the motto will be "Don't react - act!" This will ensure that customers around the world can gain individual, on-site advice on the one hand, and that our expert knowledge can be disseminated internationally at seminars on the other - a concept that enjoyed outstanding

success in our "Technology on Tour 2008", with the subject of "Energy Efficiency Allround". "Jürgen Schray, with his many years of experience and extensive knowledge, is the ideal person to meet the challenges of this extensive new application-technology consulting task," confirms Managing Director Sales Helmut Heinson. And Dr. Thomas Walther will take on the management of the Applications Technology department in order to dedicate himself wholly to its extended area of responsibility. "Thanks to his previous position in the Development department, Dr. Walther has the perfect background to lead ARBURG successfully into the future in the field of applications technology," says Helmut Heinson, summing up the coordinated reorganisation of these departments, which will offer an improved consulting service for the benefit of all our customers.



Our customers' require

This is how Dr. Y.C. Lu, founder and managing director of Taiwan Powder Technologies (TPT), describes his company's philosophy. Since Taiwan Powder Technologies Co., Ltd. was founded in 2001, it has worked exclusively in the production of moulded parts from metal powder, covering the entire value-added chain. For its injection moulding, TPT relies on a total of 21 ALLROUNDERS.

Since TPT commenced operations in Dasi in Northern Taiwan, the local specialists have been working with ALLROUNDERS from ARBURG. Their commercial success speaks for itself: the company grew by 30 % during each of the last three years, becoming the largest producer of metal injection moulded (MIM) parts in Taiwan.

TPT focuses primarily on the market for computers, telecommunications and customer electronics, for which it produces a wide range of parts, such as hinge and structural parts. But TPT has also enjoyed considerable growth in medical technology and in the automotive and tools industries.

TPT is able to provide its customers with production and support services throughout the value-added chain. These services

include support with part and mould design, mould engineering, the selection and preparation of all the necessary materials, plus injection moulding, debinding and sintering. One of the big advantages of TPT is the customer specific material development based on the specification of the injection moulded part and the application of the final part. "This has enabled us to become the top company in the Taiwanese and Chinese markets," says Dr. Lu, explaining the company's successful expansion, "but we want more than that. For the international market also holds enormous potential for our products. And we want to increasingly expand in this direction in future."

However, the company intends to expand not just economically, but also in terms of physical space. At the end of 2008, another 1,300 square metres were added to the existing production area of 3,200 square metres. TPT is certified to ISO 9001 and QC080000 ROHS. It plans to introduce quality assurance in accordance with TS 16946 in May 2009.

TPT's product portfolio now comprises almost 600 different MIM parts. The metal content of the compounds used for production generally consist of iron-nickel alloys and type 316L/17-4ph stainless steel,



but other individually composed alloys are also used. Hammer Lin, Special Assistant Production, Engineering and QA at TPT, explains: "We produce our feedstocks in-house. This not only means lower costs for the provision of raw materials that are partly very cost-intensive, it also means greater flexibility and fast reaction times to customer requests. This has turned out to be one of our most important advantages in this business."

Of the 23 machines that TPT has integrated in its production, 21 are ALLROUNDERS that produce the MIM parts in three-shift operation. The machines are automated, because in Taiwan, cost pressure from the People's Republic of China is



Photos: TPT

TPT uses ALLROUNDER injection moulding technology to produce its MIM components (below). Founder and Managing Director Dr. Y.C. Lu (left) confirms to Uwe Haupt of ARBURG Sales that he is extremely satisfied with ARBURG injection moulding technology.

ments are our yardstick

also evident. "In order to remain pioneers, we have to invest not only in our technology, but also in our knowledge, our quality, our service and our employees," explains Hammer Lin.

At TPT, the ALLROUNDERS have a reputation for reliability and durability. According to TPT engineers, the material feed - a decisive factor in achieving a constantly high-quality MIM process - functions so precisely that specifications from the computer and electronics industry can be completely fulfilled. The highly wear-resistant cylinders and screws are also important for TPT, as they compensate for the high abrasion that occurs during MIM processing during a long service life.

Dr. Lu sums up as follows: "We have been completely satisfied right from the start, both with the technology and the support provided by C&F, ARBURG's trading partner in Taiwan. Another major advantage of the ALLROUNDERS is the SELOGICA machine control system. This permits a great deal of freedom in system programming. Via this operating unit, we can also easily and reliably incorporate our robotic systems in the production sequence. What's more, the process data can be quickly collated and evaluated during production.

We repeatedly benefit from problem analysis and complete production sequences. This is the main reason why we rely almost completely on ARBURG injection moulding technology, because for us, only the results matter. And our ALLROUNDERS achieve perfect results with all our products. The prospects for continued co-operation in future are therefore excellent."



INFOBOX

Location: Dasi, Taiwan

Employees: Approximately 110 at the central production facility

Products: MIM parts for 3C (computer, communication and customer) electronics, medical technology and the tools industry, throughout the entire value-added chain

Machine fleet: 23 machines, 21 ALLROUNDERS with clamping forces between 400 and 500 kN

Contact: Taiwan Powder Technologies Co. Ltd., No.63 Jhonghua Rd., Dasi Township, Taoyuan County, 335, Taiwan, www.tpttw.com.tw

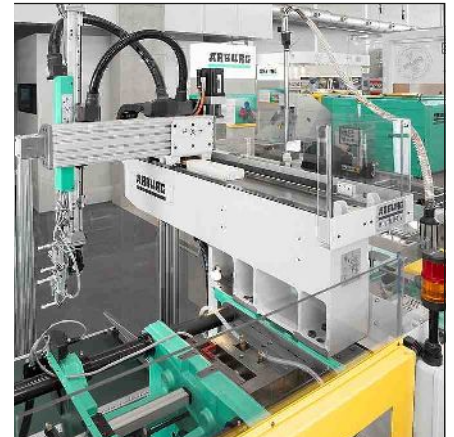
GOLDEN EDITION

Worth its weight in gold



the adapter platen for attachment to the machine, electrically integrated guarding, a conveyor belt for part set-down and CE certification for the entire system.

Ralf Kaltschmid, a Managing Director of Kaltschmid GmbH, decided to buy this configuration straight away at the Fakuma, and has not regretted this move: "When we got a closer look at the system, first of all we were impressed with its compact design. Then there were various possibilities for achieving the cost-effective production of technically sophisticated moulded parts. The guarding and CE certification guarantee high safety standards. We had already been considering a compact production solution of this kind, and then spontaneously decided to buy, because the ARBURG configuration conformed exactly to our ideals. We already have some experience with the use of various robotic systems, including with ALLROUNDERS, but we were delighted with the fascinating technology of the MULTILIFT V SELECT from the outset. We will produce high-quality products on this system. For this purpose, we make use of the 'Select/Separate' function, which enables simultaneous quality monitoring of parts during production and immediate downstream packaging of good parts. This system gives us greater reliability for our users, but also for our production. And finally, set-up is easier, too. So all in all, our production becomes more flexible."



Ralf Kaltschmid (left) was immediately delighted with the new ALLROUNDER GOLDEN EDITION and MULTILIFT V SELECT combination.



Photo: Kaltschmid GmbH

The new combination comprising the ALLROUNDER GOLDEN EDITION and MULTILIFT V SELECT robotic system, which was first presented to the public at the Fakuma 2008, met with a great deal of enthusiasm and interest right from the start. One of the first companies to order the new production unit was Kaltschmid GmbH in Schorndorf.

The integrated robotic system is available for the ALLROUNDER GOLDEN EDITION 270 C to 570 C, with a clamping force range from 400 to 2,000 kN. The MULTILIFT V SELECT features a maximum handling weight of six kilograms. What's more, the scope of delivery includes



Photo: Photodisc

Presence in Arabia



Photos: Shivram M. Nair

Visitors to the Arabplast and the high-ranking delegation accompanying the UAE's Minister for Foreign Trade, H. E. Sheikha Lubna Bint Khalid Al Qasimi (above, second from left.) were well looked after by Waddah Jaara and Carlo Brouwer (above, right).

Since 1 January 2009, ARBURG has been represented in the United Arab Emirates (UAE) with its own sales and service office. The new organisation and ALLROUNDER injection moulding technology were presented at the Arabplast, which took place in Dubai from 10 to 13 January.

"The Arabian market offers a great deal of potential as regards technologically sophisticated applications, which is why we have decided to make long-term investments in this market," explained Managing Director Sales Helmut Heinson at the ARBURG press conference during the Arabplast. ARBURG has founded its own organisation in the United Arab Emirates, in order to provide customers in the Arab states with even more intensive support in future. The head of the new sales and service office is the manager of ARBURG's Dutch subsidiary, Carlo Brouwer, who knows the UAE countries intimately and has already made numerous business contacts here.

"Our high-tech machines amply satisfy

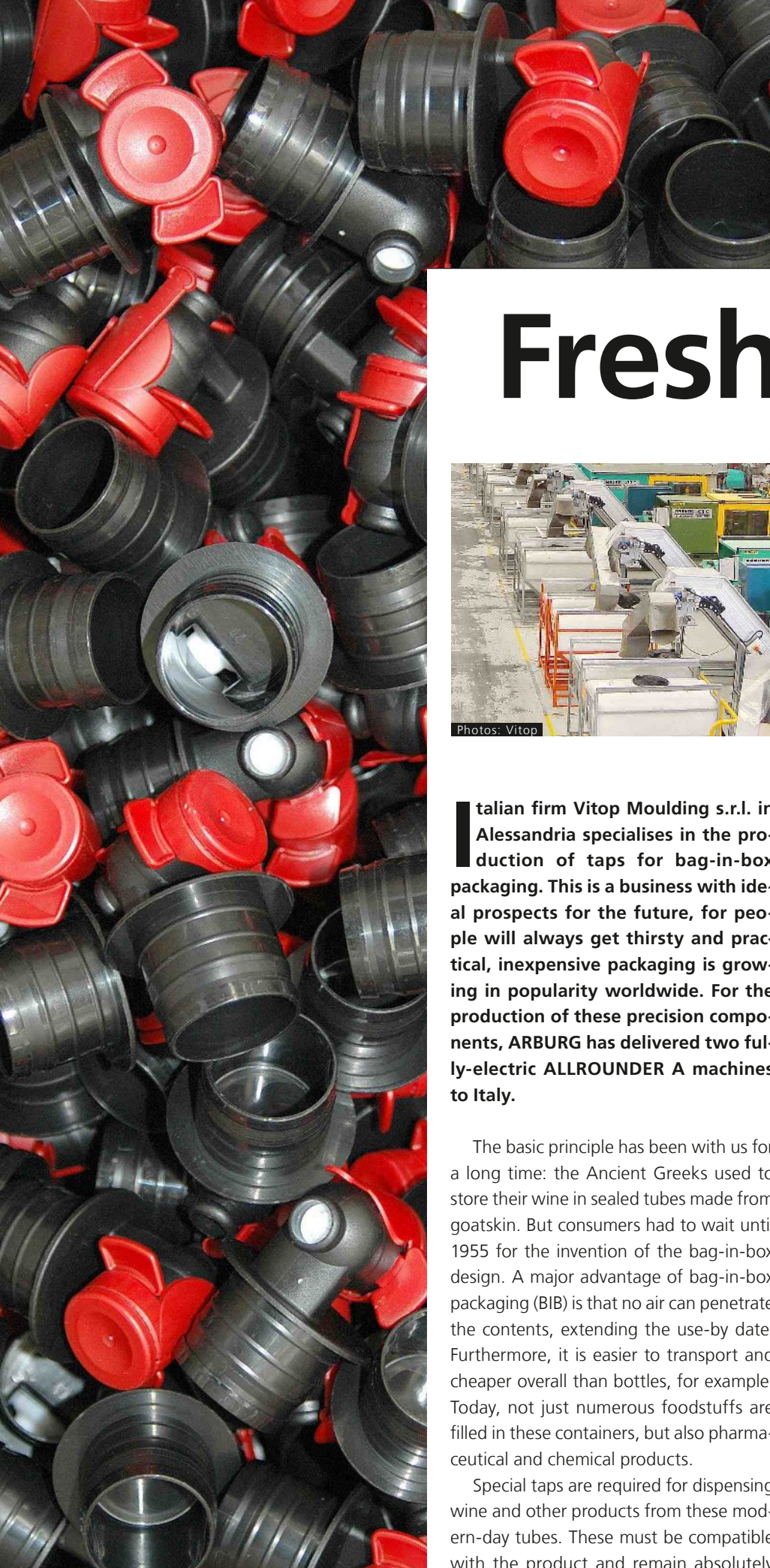
the exacting requirements of the booming Arabian market in all areas - the dominant packaging industry, for example, and the growing sector of technical and medical moulded part production," says Carlo Brouwer. The Arabplast exhibit and application were selected with this in mind: the high-precision production of syringe barrels on an electric ALLROUNDER 570 A with high-performance plasticising cylinder and a 48-cavity mould.

Those responsible were extremely pleased with the exhibition. "The Arabplast was characterised not so much by the quantity but rather the quality of the visitors. This made it possible for us to provide all trade visitors with intensive support and individual advice, and to present ARBURG technology in detail," says the manager of the new sales and service office, whose team has many years of experience with ALLROUNDERS in the UAE. "With Waddah Jaara, who is responsible for sales, and our service technician, we have been able to



acquire highly qualified employees, who will provide our customers with first-class support," says Carlo Brouwer with delight.

As with all ARBURG's international organisations, the new office in the United Arab Emirates will offer the entire range of services: sales, service, spare parts, applications technology and training. "Following the foundation of our own sales and service office at the beginning of the year, we have now also found perfect premises in Ras Al Khaimah, and are therefore gradually reinforcing and extending our service offering," says Helmut Heinson, explaining the company's next steps.



Fresh on tap



Photos: Vitop

Italian firm Vitop Moulding s.r.l. in Alessandria specialises in the production of taps for bag-in-box packaging. This is a business with ideal prospects for the future, for people will always get thirsty and practical, inexpensive packaging is growing in popularity worldwide. For the production of these precision components, ARBURG has delivered two fully-electric ALLROUNDER A machines to Italy.

The basic principle has been with us for a long time: the Ancient Greeks used to store their wine in sealed tubes made from goatskin. But consumers had to wait until 1955 for the invention of the bag-in-box design. A major advantage of bag-in-box packaging (BIB) is that no air can penetrate the contents, extending the use-by date. Furthermore, it is easier to transport and cheaper overall than bottles, for example. Today, not just numerous foodstuffs are filled in these containers, but also pharmaceutical and chemical products.

Special taps are required for dispensing wine and other products from these modern-day tubes. These must be compatible with the product and remain absolutely

leak-proof during their useful life. Not only that, they act as a quality seal, sometimes as a bearer of tax stamps and are an important part of the packaging design.

The Italian company Vitop Moulding s.r.l. in Alessandria in Piedmont specialises in the production of these precision components. Originally founded by René Erb in 1992 under the name of Wicotop, the company was taken over by the Irish Jefferson Smurfit Group in 1996, which then merged with the Dutch company Kappa Packaging in 2005 to form the Smurfit Kappa Group (SKG) in Dublin. Also in 1996, Vitop purchased a new production site in Alessandria covering 15,000 square metres. Here, individual components for taps, plugs and connectors for BIBs are produced on 30 injection moulding machines with clamping forces from 800 to 2,200 kN. The materials used are polypropylene, polyethylene and special plastics. For removal, Vitop employs robots.

Its primary markets are Europe and North and South America. Vitop is certified to ISO 9001:2000, HACCP and NSF. The Hazard Analysis and Critical Control Point (HACCP) concept is a preventive system intended to guarantee the safety of foodstuffs and consumers. NSF International

from bag-in-box

was identified by the World Health Organisation (WHO) as an international centre of collaboration for the safety and preparation of drinking water.

The fully automated assembly of the end products takes place in a separate clean room, which conforms to the strict guidelines of the food industry. Each assembly section is equipped with optical monitoring systems for quality control. Faulty parts are automatically separated straight away. In addition, each tap must undergo a leak test at a pressure of 0.4 bar.

In the light of all the stringent quality requirements, it is understandable that Vitop can accept no compromises when it comes to its machine equipment. "We haven't received a single complaint about leaky taps for more than ten years," says Didier Pontcharraud, Managing Director of Vitop. "Since we have already had very good experiences with the reliability and cost-effectiveness of the fully hydraulic ALLROUNDER C series, we recently decided to purchase two fully electric machines from the ALLROUNDER A series as well," he says, explaining the company's decision to invest. What's more, the co-operation between the two companies also has a ten-year history.

Fully electric ALLROUNDER A injection moulding machines are predestined for the

production of moulded parts for medical technology and the food industry. They operate quickly, precisely, cleanly, with a high degree of reproducibility and energy efficiency, and with low noise emissions. Vitop employs an electric ALLROUNDER 420 A and a 570 A with clamping forces of 1,000 and 2,000 kN respectively in its production.

As production in Alessandria continues around the clock, seven days a week, the machines are constantly at work. This makes regular maintenance, carried out partly by Vitop, partly by the ARBURG Service, all the more important.

The growth in the market for BIBs is demonstrated by the 10% annual growth in Wine Bag-in-Box consumption in Europe. So, excellent prospects for growth - not least for the co-operation between Vitop and ARBURG!



Italian firm Vitop Moulding S.r.l. in Alessandria specialises in the production of taps for bag-in-box packaging.

vitop 
www.vitop.fr



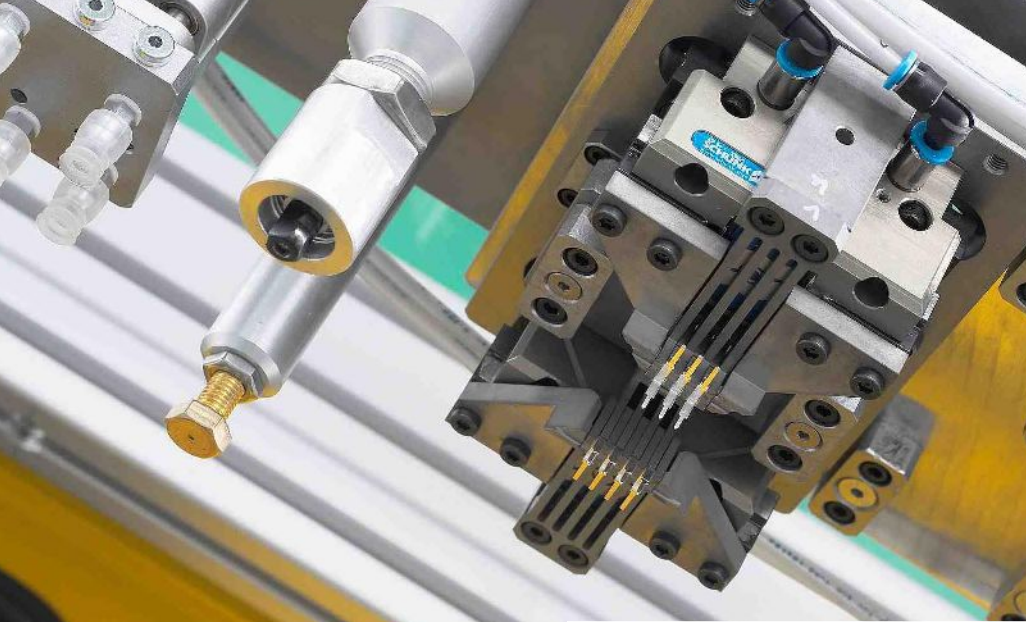
INFOBOX

Employees: Approx. 70

Machine fleet: 30

Products: Taps for flexible and rigid drink containers, connectors and carry straps

Contact: Vitop Moulding S.r.l.,
Via Enzo Ferrari 39, Zona Industriale
D3, 15100 Alessandria (Piedmont),
Italy, www.vitop.fr



For



Today, more than ever, innovative concepts for the “car of the future” are in demand. At a time when car manufacturers and, to an even greater extent, their suppliers, are suffering from a severe global recession, so-called “future technologies” are absolutely vital. One of these future technologies has been developed by Mercedes Benz Cars: “BLUETEC”, an exhaust gas filtering system for diesel vehicles. MKT Metall- und Kunststofftechnik GmbH supplies housings and covers for the control unit of the urea sensor, which they produce on ALLROUNDERS.

The highly automated production cell was developed in close co-operation and consultation between MKT and the ARBURG Project department. It incorporates an ALLROUNDER 1200 T 800-150 rotary table machine with a clamping force of 800 kN and size 150 injection unit, a Scara robot and FPT handling system. The entire system is operated centrally via the SELOGICA machine control system. The first step of the process for



Photo: MKT

the production cell is the pre-sorting of the contacts, followed by the provision of the 14 pins by the Scara insertion robot. The FPT handling system is responsible for both removing and setting down the finished moulded parts, and for

inserting the contacts in the mould. Following their insertion in the two cavities, encapsulation of the contacts begins. Next, the finished parts are removed by the FPT handling system and conveyed to a downstream camera check.

cars, the future's blue

The Fuchs camera system consists of four cameras, and monitors the presence and position of the contacts, checks for burrs on the connector shroud and monitors the presence and position of the locking hook, which secures the two parts. If the moulded parts are recognised as "OK", the good parts are marked and deposited in blister packs on a Schuma palletising system. The latter features a feed and exit section as a buffer, and can therefore work self-sufficiently for eight to ten hours.

The two-cavity mould with a second, separate lower section for dual-station production works with sensor scanning, to ensure perfect monitoring of the presence and position of the contacts. This ensures that there are no downtimes during production.

Wolfgang Ebner, Managing Director at MKT, is delighted with the production cell: "This complex, automated system was the first production unit that we installed and started up in our new 2,250-square-metre company building, which we acquired at the end of 2008. The system works without problem, enabling us to be a reliable supplier of this promising technology for Mercedes-Benz."

The BLUETEC pollutant reducing system is the diesel vehicle's closest equivalent to the catalytic converter for petrol engines. Mercedes Benz Cars developed this filter technology exclusively for Mercedes-Benz vehicles. BLUETEC is al-

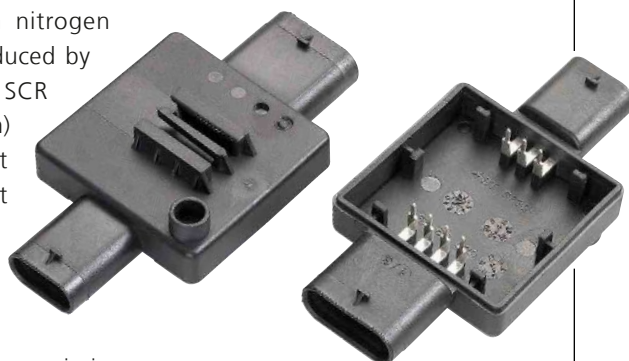
ready used with great success in cars for the US market, but also in Germany, the first mass-production vehicles with BLUETEC have already taken to the road.

This technology incorporates several different pollutant-reducing variants which, besides reducing hydrocarbons, carbon monoxide and particulates, are also intended to break down nitrogen oxides. The components produced by MKT are employed in the SCR (Selective Catalytic Reduction) process for a urea sensor that ensures precisely the correct dosage of the aqueous AdBlue urea solution, which is contained in an additional tank in the vehicle.

AdBlue is converted into ammonia in the exhaust pipe. In the downstream SCR catalytic converter, the ammonia changes the nitrogen oxides into harmless nitrogen and water. In this way, up to 80 % of nitrogen oxides in diesel vehicles can be filtered. This is an extremely interesting technology, which owes its perfect function not least to the high precision of ALLROUNDER injection moulding machines.

MKT has known for a long time that it can trust in the reliability of ARBURG technology. The company was founded from the Wehrle company following a management buyout in 1996 and had already worked with ALLROUNDERS before. Today, the German plants of MKT

Housing and cover for the control unit of the BLUETEC urea sensor (below). Project managers at MKT: Hans-Joachim Dietsche, Injection Moulding Manager, Wolfgang Ebner, Managing Director and Edgar Blatter, Mould Construction Manager (left, from left to right).

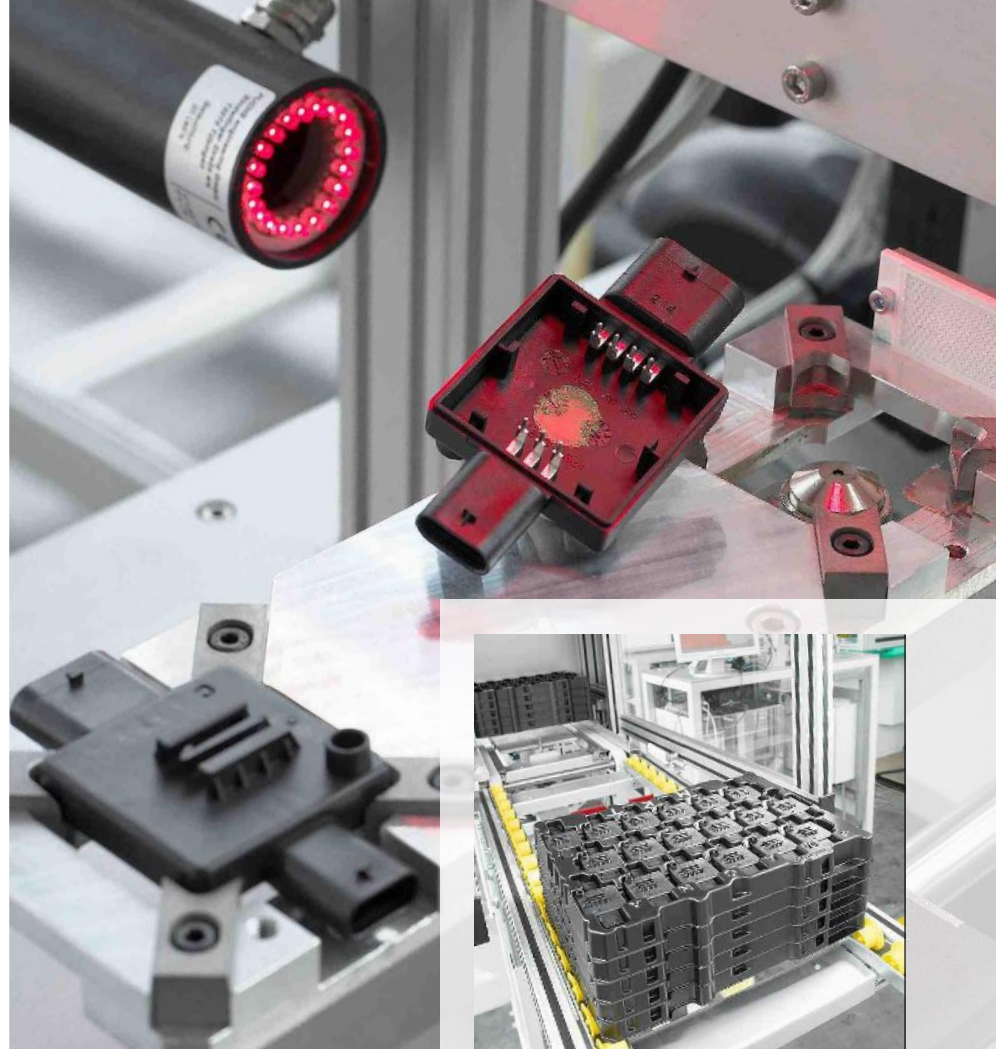


Metall- und Kunststofftechnik GmbH are principally occupied with the production of housings for electronic assemblies for the automotive industry, metal-plastic bonds and moulded parts from two components. 70 % of production is dedicated to the automotive sector, but customers also include office furniture and the aviation industry, supplying guides or inserts for tables on aeroplanes, for example. Engineering plastics such as PA 6, PA 66, PBT, TPU, TPE and POM are predominantly used for processing. Here is what Hans-Joachim Dietsche, Injection Mould-

ing Manager, has to say: "Above all, we produce metal encapsulations and connector housings for the automotive industry, and have to comply with very strict tolerances. We achieve this not just by satisfying the stipulations of QS 9001:2001, but also, above all, by our use of ARBURG injection moulding machines. Our entire machine fleet - all twelve injection moulding machines - are ALLROUNDERS. The clamping force range extends up to 1,500 kN. What's more, our oldest machine is from 1985 and is still operating in our production. For us, this is a sure sign of a very special quality."

The ALLROUNDER machines are serviced partly internally and partly by the ARBURG Service, which Dietsche also regards as very good and competent: "We have a good, direct line to ARBURG, which provides for the fast procurement of spare parts when necessary. Our proximity to the plant in Lossburg, but also our direct points of contact in Sales and Service ensure that all our queries and wishes are dealt with smoothly and efficiently." Wolfgang Ebner adds: "Our co-operation, which goes back many years, rests on four major pillars: direct communication, trustworthy points of contact, solid collaboration and the proximity of the sites."

ARBURG machine technology is also bound to receive a positive rating, because the co-operation functions so well. Says Hans-Joachim Dietsche: "We are particularly pleased that ARBURG still has spare parts for our older machines in stock. This ensures that we can be a reliable supplier to our customers. But our new ALLROUNDERS are just as popular among our installation technicians and operators, one major reason being the graphic SELOGICA user interface. This



way, we can handle even complex injection moulding jobs with ease."

You will see that this is no exaggeration if you take a look at the automatic production cell for the AdBlue sensor housing in action: everything functions without any problems via one central control system. To produce future technology, you need future-oriented machine technology. ARBURG: helping to make the eco-friendly "car of the future" a reality.

Cameras monitor the presence and position of the contacts, the formation of burrs and the presence and position of the locking hook (large photo). Next, the parts are deposited in blister packs (small photo).

INFOBOX

Founded: In 1996 by a management buyout of the Wehrle company

Location: Germany

Employees: 40

Products: Urea sensor (AdBlue), housing for diesel pre-heater control units (Opel, Mercedes-Benz), housings for window winders, sunroof control (Porsche), guides for tables in aeroplanes, inserts for armrests in aeroplanes.

Machine fleet: Twelve ALLROUNDERS with a clamping force of up to 1,500 kN

Contact: MKT Metall- und Kunststofftechnik GmbH, Unter Greut 9, D- 79790 Küssaberg, Germany, www.mkt-gmbh.org



Photos: C. Tirel & S. O'Leary



Around the globe



Photo: Loddewynx J.-P.



In 2008, ARBURG took its "Technology on Tour" around the world, in order to sensitise the international injection moulding industry to the subject of energy efficiency. All participants were unanimous in their positive response to these events, and here at ARBURG, we are also very pleased with how the tour went.

The results speak for themselves - 45 events all over the world, some lasting several days, with an average of 90 visitors each. Target groups included not just existing and potential customers, representatives from the industry and trade journalists - some events were also attended by trainees from the plastics sector and schoolchildren.

"Technology on Tour" encountered huge interest on its journey, which started in Europe, continued through America and culminated in Asia. Participants were thoroughly impressed whatever the event -



open house, seminars or the truck with an electric ALLROUNDER 320 A on board. ARBURG was also extremely satisfied. Helmut Heinson, Managing Director Sales, praised all participating subsidiaries and trading partners: "With 'Technology on Tour', we pushed the topic of energy efficiency into the spotlight world-wide and positioned ourselves as a competent point of contact in the matter of energy efficiency."

A key element of the series of events was the in-depth presentation, "Energy Efficiency Allround", in which the injection moulding process as a whole was examined under the microscope with regard to energy consumption. At some events, the theory was directly demonstrated in practice. Hydraulic and electric ALLROUNDER machines of the same size were equipped with identical moulds and produced a demo moulded part. Energy consumption measurements then revealed that the electric machine had consumed up to 40 % less energy than its hydraulic counterpart.

The combination of in-depth presentations, discussions with experts and live demos met with overwhelming approval from participants: "ARBURG has truly hit the mark with the energy efficiency theme. In view of rising prices for raw materials and energy, the subject of energy saving is becoming ever more important. This series of events supplied sufficient amounts information, and provided specific suggestions for savings potentials."

Visitors to "Technology on Tour" were offered numerous platforms at which they could obtain and exchange information.

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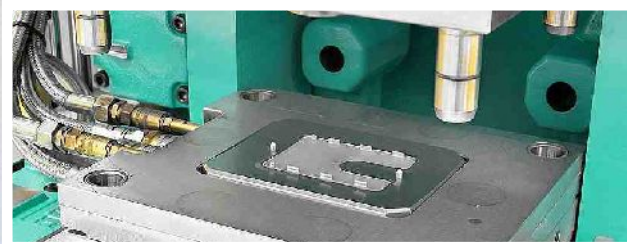
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In addition to its own extensive development work, ARBURG also co-operates intensively with institutes and research facilities, with the aim of jointly uncovering new fields of application for injection moulding. A prime example here is our cooperation with the institute of materials technology and plastics processing (Institut für Werkstofftechnik und Kunststoffverarbeitung - IWK) at the Rapperswil college of engineering (Hochschule für Technik Rapperswil - HSR) in Switzerland.

The IWK supports the plastics-processing industry in Switzerland by consistently and methodically combining and further developing materials and plastics. "We regard the fields of injection moulding and fibre composite engineering with a modern infrastructure as the professional basis

for our work," says the Director of the institute, Prof. Dr.-Ing. Frank Ehrig, explaining its basic philosophy. As the IWK's research and development is application-oriented, much of its work stems from market requirements and technological trends.

In the electronics, microelectronics, domestic appliance and automotive industries, for example, the trend is increasingly towards individual design and greater exclusivity. Since metallic surfaces play an important role in this area, the in-mould lamination of metal foil is becoming more and more important.

In this process, metal foil up to 0.3 millimetre thick, of stainless steel or aluminium, for example, is laminated. Unlike other decorative procedures for plastic components, in-mould lamination of metal foil allows the production of surfaces other than metallic ones. Rather, the metal foil has the same feel - known as the cool touch effect - as when the surface of metal is touched. Moreover, the injection moulding process enables functions and processes to be integrated in the plastic base material, such as the insertion of hook catches and fastening pins, for example.

ok and a cool touch



Photos: IWK

Prof. Frank Ehrig (right) is pleased with the successful co-operation with Peter Moser and his team from the Swiss ARBURG subsidiary - in the production of the upper parts of a business card dispenser on the vertical ALLROUNDER 275 V, for example.

As the metal foil is extremely thin, textured surfaces can simultaneously be created on the moulded part as a result of the injection pressure, opening up possibilities for new designs.

As a rule, the metal foil is preformed, as it has different deep-drawing characteristics compared with plastic foil. However, the IWK is currently conducting tests with the aim of eliminating this preforming process for simpler geometries. In initial trials, a plaque with a diameter of 47 millimetres was produced. The aim here was to achieve a small radius at the edge and to move creases out of the visible range by deliberately sliding the foil in the mould parting line. On the basis of this fairly simple geometry, a component has been developed with a geometry similar to a trim panel, as used in the electronics or automotive industry, for example. At the Fakuma 2008, in co-operation with ARBURG, the upper part of a business card dispenser was produced on a vertical ALLROUNDER 275 V with a clamping force of 250 kN, with the aim of presenting this innovative process to the international injection moulding industry. The fixed lower mould platen of this machine enables the foil section to be

positioned with ease. During the in-mould lamination process, the aluminium foil is shaped, laminated and stamped out. Because the foil is not preformed before its insertion in the mould and the moulded part does not need subsequent machining after demoulding, moulded components of this kind can be produced in large numbers very fast and cost-effectively. "We were extremely pleased with the response at the Fakuma and new projects have already been discussed," says Prof. Dr.-Ing. Frank Ehrig, describing the company's success at the exhibition.

The in-mould lamination of metal foil has great potential wherever additional functions and processes can be integrated. Therefore, the replacement of metal panels, which so far had to be specially shaped or welded to the additional components to secure them, is increasingly under discussion. Another interesting potential application is the substitution of plastic component chrome plating. Here, thanks to the in-mould lamination of metal foil, finishing processes that are mostly outsourced can now be incorporated in the production process.

These developments offer the potential to further reduce production costs, while also

further increasing the value of products. ARBURG is placing the ALLROUNDER 275 V at the institute's disposal after the exhibition, in order to continue supporting the IWK in these activities.

INFOBOX

Founded: 2005

Products: Application-oriented research & development, services for injection moulding and fibre composite plastics

Machine fleet: Two-component ALLROUNDER 570 C, vertical ALLROUNDER 275 V

Contact: Institut für Werkstofftechnik und Kunststoffverarbeitung (IWK), Oberseestrasse 10, 8640 Rapperswil, Switzerland, www.iwk.hsr.ch



TECH TALK

Dipl. Ing. (BA) Oliver Schäfer, Technical Information

Energy-efficient

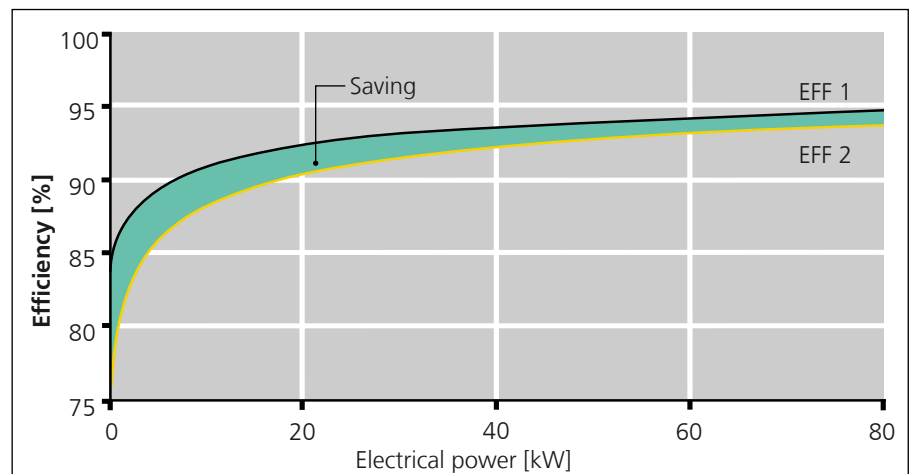
A vital prerequisite for an efficient, economical company is the reduction of running costs. In this connection, the constantly rising cost of energy has also become an important competitive factor. The use of innovative drive technology is generally a method of tackling the energy-saving issue. And in the field of injection moulding machine construction, ARBURG is the innovative force with a pioneering role.

A good example is the energy recovery of the electric ALLROUNDERS. Here, the machines' electric motors act as a generator during braking, enabling kinetic energy to be converted into electrical energy. The energy recovered using this so-called generator brake is not lost through heat conversion as a result of braking resistance, but is instead returned to the mains supply of the injection moulding plant with a high degree of efficiency. It is then available for other power consuming devices at no cost. When large moulding compounds need to be moved, in particular, this technology cuts energy consumption by several percent. The energy-saving motors available for hydraulic drives are another example of energy-efficient drive technology. These three-phase induction motors, which have been specially configured for high efficien-

cy, comply with efficiency class EFF1 - in conformity with the stipulations of CEMEP (Committee of Manufacturers of Electrical Machines and Power Electronics). With an EFF1 motor, the dissipation losses are much lower than with a conventional EFF2 motor. Energy savings of up to 4 % at the motor's nominal operating point can be achieved, depending on the size of the motor. However, the design optimisations inherent in energy-saving motors result in higher material costs during production, and therefore in higher investment costs as well. If we take the entire useful life into account, the cost of a motor is determined by its running costs to a far greater extent than by its investment costs. The following applies

as a rule of thumb: the use of an energy-saving motor in the highest efficiency class EFF1 pays off in all cases where operating hours amount to at least 6,000 a year. Then, the higher investment costs are amortised in less than three years of operation. However, on its own, the improved efficiency of EFF1 motors is not sufficient to justify the replacement of existing motors. But if a faulty motor needs repairing or changing, it can certainly make sense to replace it with an energy-saving version.

On the other hand, the ARBURG energy-saving system (AES) with speed-controlled motor - which ARBURG has featured in its range for over ten years - offers even greater energy-saving potential for hydrau-





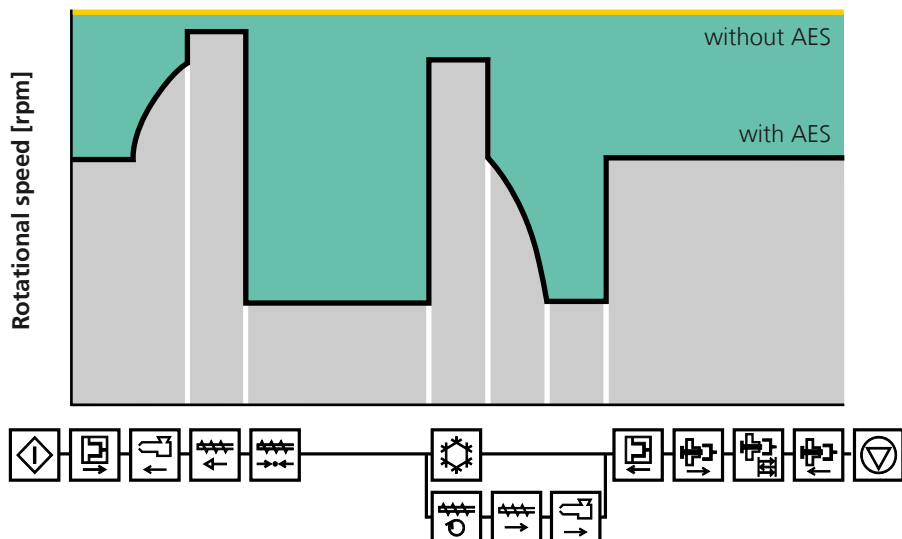
drives

lic drives. Here, instead of continually working at nominal speed, the speed and therefore the power of the motor are adapted to the low power requirement during long cooling periods, for example. A frequency converter infinitely adjusts the speed of the motor in accordance with the output that is actually required. So, even at partial load, the pump and motor operate with optimum efficiency and with correspondingly low energy consumption. No-load losses are effectively minimised, and energy savings of up to 30 % can be achieved. Depending on the injection moulding process in question, the additional cost of a variable-speed drive such as the ARBURG energy-saving system (AES) can be amortised

in just two years. In addition, optimised-efficiency drives generally minimise wear and produce less heat loss. This not only reduces the heat emitted into the environment, but also allows for energy savings with regard to machine cooling. With innovative, energy-efficient drive technology, it is certainly possible to simultaneously improve both costs and environmental performance. It is often only the higher investment costs that act as a deterrent. However, in drive technology in particular, the expected running costs are considerably higher than the investment costs. A detailed comparison of drive technologies and an estimate of the anticipated running costs are therefore always worthwhile.

Photo: MEV Verlag GmbH

With energy recovery, no more energy is lost during braking (above). Energy-saving motors are more efficient (left). Speed-controlled motors are energy-efficient and function according to demand (right).





International turnkey projects. Modular ALLROUNDER injection moulding technology and MULTILIFT robotic systems, combined with a highly-qualified project team make ARBURG the perfect partner for complete turnkey projects. We provide support for complex production cells, often in conjunction with our sophisticated multi-component technology, from the conceptual planning phase and the design of the system and the mould, through to approval and initial pilot production - and all this available worldwide.



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