

Information on  
Injection Moulding  
Market and Technology

# ARBURG

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# today

A publication of the  
ARBURG Group

Issue 15

Autumn 2000



## Fakuma 2000

Pure innovation!

## ARBURG Brazil

Springboard for South America

## Tech Talk

MULTILIFT handling technology

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For years now, the division of labour within ARBURG's management team between the partners Juliane Hehl, Eugen Hehl, Karl Hehl and Michael Hehl and the two managing directors, Michael Grandt (Sales and Accounting) and Herbert Kraibühler (Technology), has worked admirably.

To publicise this excellent collaboration, it is we, rather than the partners Eugen and Karl Hehl, who welcome you to this new edition of ARBURG today. In coming issues, various combinations of partners and managing directors will be here to help you take a look behind the scenes at ARBURG.

Some of these efforts will be presented in this issue of our today magazine: Whether our Fakuma programme, the new structure of our German sales organisation or the opening of our new subsidiary in Brazil - ARBURG always stakes its good name on that!

Apart from top-quality technology, these activities will also involve special efforts in our company's sales and marketing divisions.

Enjoy reading this issue.

Juliane Hehl

Michael Grandt

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With the MULTILIFT H, ARBURG has added another robotic handling device to its product range that can cope with virtually any practical application. At the same time, the fact that both machinery and handling systems come from a single source means that optimum coordination of individual components is guaranteed, along with simple operation through full integration in the SELOGICA machine control system.

Back every year –

# ARBURG

## Fakuma in Friedrichshafen



ARBURG's information counter is the first port of call for enquiries and requests.

**J**ust like Christmas or Easter, Fakuma in Friedrichshafen has now earned its place in the calendar. Ever since its debut in 1981, ARBURG has been in on the event as an exhibitor at this international exhibition for plastics processing.

This year, the 14th Fakuma, one of the largest European plastics exhibitions, will be held at the exhibition ground in Friedrichshafen. Rising visitor and exhibitor numbers are testimony to the success and vast importance of this exhibition. A record participation is anticipated in the run-up to Fakuma 2000, with some 1,260 companies

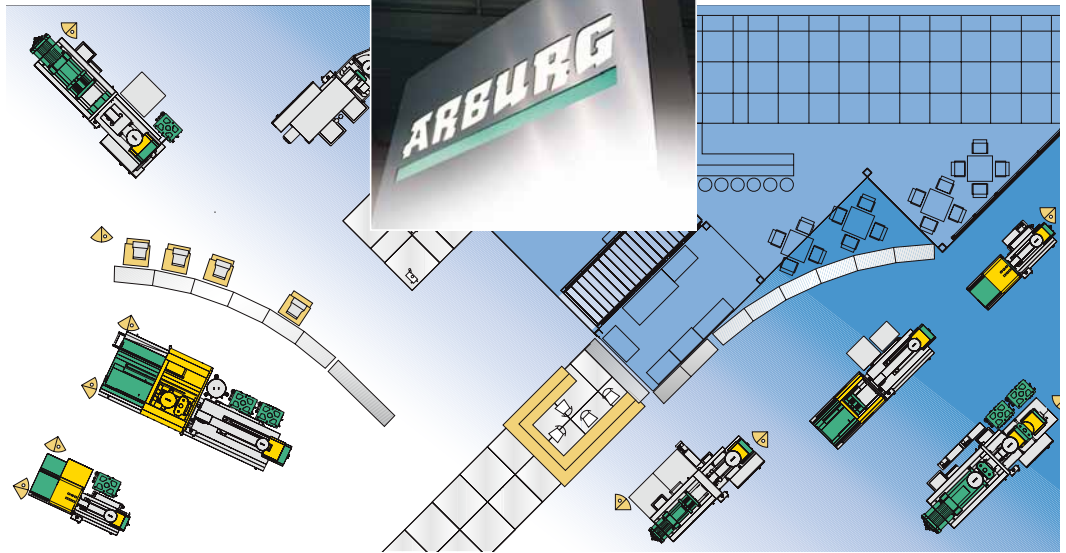


"What on earth will ARBURG be presenting at this year's Fakuma?"



The ALLROUNDER's versatility is demonstrated using specific sample applications.

from 30 countries already booked in. At the same time, organisers are once again expecting over 30,000 visitors to the exhibition in 2000.



The ARBURG stand at Fakuma 2000 will cover an area of 800 square metres divided between two levels.



Fakuma: always a platform for sophisticated technology.

## Biggest European exhibition appearance

Fakuma 2000 will be ARBURG's biggest European exhibition appearance this year. A representative cross-section of ARBURG's range of machines will be put together to give the public an impression of the versatile applications potential offered by ARBURG injection moulding technology. Eight machines will be displayed on the exhibition plot, covering some 800 square metres. This year's exhibition appearance will clearly focus on the areas of handling and special techniques.

### Focus on handling

Various ALLROUNDERS will be used to demonstrate the flexibility and reliability offered by the new MULTILIFT H in practice. The 320 K and 420 C ALLROUNDERS are fitted with the MULTILIFT "Compact" package. This is the most comprehensive of the three equipment packages on offer and incorporates both a handling system and a conveyor belt in a compact design beneath the enlarged machine guard. The resulting benefits in terms of installation dimensions provide a perfect solution to the

space problems that often occur in practice.

### Specialities

The second focus of the exhibition will be special processes. These will involve ARBURG demonstrating, for instance, LSR (liquid silicone rubber) processing or the manufacture of injection moulded parts made from several components. Consequently, an ALLROUNDER 520 C with three injection units will be on display. Here, too, the space problem has been solved by mounting the third injection unit at a 45° angle above the horizontal.

The big ALLROUNDER 630 S, which successfully celebrated its premiere at last year's FAKUMA in the basic model, is to be presented as the second multi-component machine. With this version ARBURG will be showing a particularly interesting sphere of application – two-component processing or the combination of "hard" and "soft" materials, which is becoming more and more widely used in practice too. Example: The trigger section of a



ALLROUNDERS will be open to view – on all sides.

garden spray gun made from ABS and TPE, which will be injection moulded at FAKUMA. The advantage of this is that by using TPE for the gripping surface, its feel and anti-slip properties can be significantly improved.

Another special area is LSR processing. The special properties of liquid silicones make them particularly well-suited to use under extreme conditions, which means they are now being used increasingly more in practice. An ALLROUNDER 470 S specially designed for liquid silicone processing will be on show at the exhibition. This machine will be used to produce single core seals with a 96-cavity mould.

### Common control philosophy

Visitors to Fakuma will be able to see for themselves that ARBURG's special ALLROUNDERS designed to process LSR, or several components, can be operated just as easily and reliably as the "standard" models. Even when it comes to special applications, the machine and peripherals are programmed and controlled by the central SELOGICA machine control system using graphics process programming and logical user guidance.

# Flexible intervention

**O**ptimum flexibility in terms of equipment and adaptability are the features that characterise all MULTILIFT models, practical equipment packages offered at economical prices with comprehensive service support make it easier to opt for a complete solution incorporating the machine and handling technology in one production cell.

## Equipment packages – CE marking possible

With the different MULTILIFT variants, the vast majority of injection moulding applications can easily be covered. These equipment packages are the "Module without B-axis", "Module with B-axis" and "Compact".

All equipment packages come with a pneumatically driven Z-axis as standard. In addition, there is the pneumatic

Apart from the additional B-axis, the "Compact" variant also has an enlarged machine guard, beneath which both the MULTILIFT H handling system and the conveyor belt are housed. The entire machine is delivered ready for use and there is no need for additional protective housing.

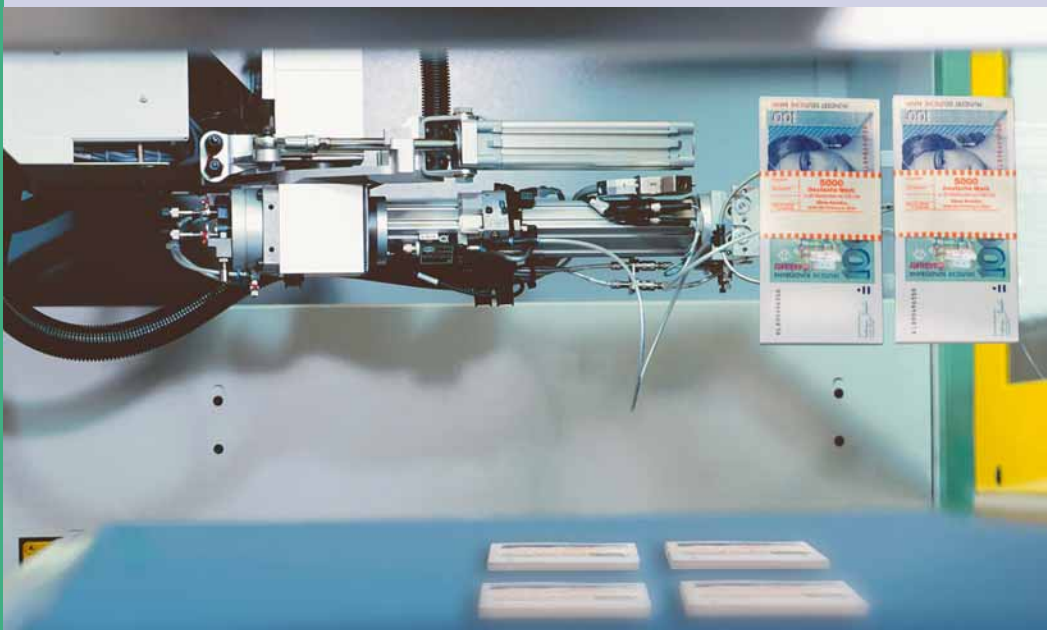
## Gira in the lead

Gira, the company from Radevormwald that manufactures elec-

is crucially important to the already planned investment aimed at fully automated production.

## Advantageous – horizontal extraction

There are clear advantages associated with horizontal parts extraction from the back of the machine. The assembly height of the ALLROUNDER remains low with an optimum machine width and there are no restrictions on injection in the parting line or the production of parts from several components. Special processes like thermoset or PET processing are just as problem-free as the use of additional peripherals with vertical operation. The moulds can be inserted into the clamping unit from above. The handling arrangement combines short intervention paths, additional stability, speed and precision during extraction and a large, flexible set-down area.



The economically priced MULTILIFT H enables good savings to be achieved.

Different MULTILIFT designs will be on show or in use on several ALLROUNDERS at Faku-ma. "Compact" versions of the MULTILIFT H will be in operation on the ALLROUNDER 320 K and the ALLROUNDER 630 S, while the "Module with B-axis" will be shown on the 420 C.

The fact that the combination of machinery and handling technology comes from a single source means that even complex production requirements can be satisfied across the board.

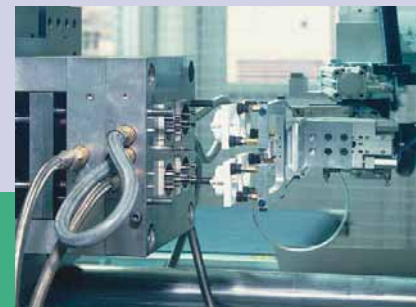
On the MULTILIFT H, the extraction process takes place horizontally from the rear. Different axis designs and lengths make the handling systems individually adaptable.

C-axis, which enables the gripper arm to rotate a maximum of 90° around the longitudinal axis. The G-axis (gripper stroke) is mounted on the gripper flange as a lifting unit, rotating along with the C-axis, and can be used as an ejection or delivery stroke, depending on its position. The gripper pin-cers, conveyor belt and adapted safety mechanisms complete the standard equipment. The CE mark is included as standard in the compact module supply schedule. With the two others, it can either be supplied as an optional extra by ARBURG or the customer himself.

The module with B-axis can swivel the entire gripper arm 90° around the vertical, something that is particularly beneficial when the machine width is a factor during set-down.

trical installation systems, was one of the first companies worldwide to have been able to use the ALLROUNDER – MULTILIFT combination in an operating environment. A total of twelve new production cells with ALLROUNDER models 320, 370 and 420 S are in use there, not least due to their unbeatable cost/benefit ratio.

The advantages: less time and money spent thanks to joint programming of the entire configuration with the SELOGICA machine control system, useful cycle time reductions, definable, free set-down possibilities and flexible interfaces for peripherals added subsequently. According to Gira, the ALLROUNDER – MULTILIFT combination thereby guarantees all-round applications potential, which



Quick, precise parts extraction.

There are various options available for practical working with the MULTILIFT H, such as a mechanical intermediate stop on the pneumatic Z-axis, a pneumatic X-axis or a servo-electric Z-axis. All the available axes can be combined in any way. In addition, there are further vacuum circuits designed to draw parts, pneumatic valves and inputs and outputs for gripper functions.

# Precision Computer-con



Hi-tech in an idyllic setting – Agrodur's is located in the middle of a valley in the spa town of Bad Berleburg. Here, high priority is given to quality control. The relevant data is captured on site, transmitted online to the central quality assurance department and stored.

**A**grodur is like ARBURG in that the company name is made up of the initials of the founder member, Alfred Grosalski, and the processing material – thermoset (Duroplast).

Another factor linking the two companies is their position, surrounded by unspoilt natural beauty. It's the sort of location where you would not immediately expect to find a hi-tech injection moulding operation. Yet it is here that Agrodur, the corporate successor of the company Bisterfeld + Stolting, has been producing technical moulded parts from duroplastic and thermoplastic in outstanding quality since 1928.

Following the restructuring of production (Berleburg now only produces injection moulded parts, while duroplastic moulded parts are produced exclusively in Taucha near Weissenfels in the new Federal



Extensive checks, even during production, guarantee that the injection moulded parts are of the highest quality.

lands), a total of 115 employees are involved in injection moulded parts production. The company site in Bad Berleburg deals with development, design, applications technology, parts finish, ultrasound welding and subassembly construction. Both sites are managed from the head office in Radevormwald.

Agrodur's customers come from the electrical engineering, electrical installation and hygiene sector. But

the company has also made a name for itself as a subcontractor to system suppliers to the car industry.

## Machine park: ARBURG!

Agrodur and ARBURG have enjoyed a long-standing partnership. This means that 54 of the total of 62 injection moulding machines are ALLROUNDERS, 23 of which are fitted with a SELOGICA machine control system. Apart from the advan-

tages of the control system, Agrodur believes that the flexibility of supply, highly efficient service and host computer integration for production units are powerful arguments in favour of ARBURG machines.

Olaf Dörnen, Agrodur production manager in Bad Berleburg, explains clearly and simply why the company comes back to the ALLROUNDER's injection moulding technology time and time again: "In the clamping force category up to 85 tonnes, ARBURG's position is absolutely commanding, not only in terms of technology, but also the cost/benefit ratio. This is ARBURG's domain."

The machines range from the ALLROUNDER of the seventies to the very latest S machine technology, via H, HD, M and C ALLROUNDERS. The tonnage covers clamping forces from 25 to 400 tonnes. The last addition to the machine park came with the procurement of a total of 16

# from the spa

## trolled production cells with ALLROUNDER S



ALLROUNDERS of sizes 270 S and 320 S, which were combined with several other S machines to create host computer-controlled production units.

### Production cells operate in shifts

A total of 24 ALLROUNDER S are used in groups of 6 in these production cells, which manufacture injection moulded parts five days a week based on three-shift operation. Selected machines are also used to work phantom shifts on Saturdays and Sundays if the order situation requires it.

The production units have an online connection to ARBURG Lossburg via the host computer, thereby guaranteeing effective machine diagnosis and rapid assistance in the event of production problems.

Setters and operators ensure high functionality and quality in in-

jection moulded parts production right from the very outset. Apart from the host computer-controlled production monitoring, there is also a monitor for mould hot runner control. Faults that can emerge during production times are captured and recorded centrally via the PPS system.

Quality control based on the inspection schedule takes place right on site through SPC. This data goes online to the central quality assurance department, where it is stored for documentation purposes. Once the parts have been produced, the quantities are calculated and then the parts packed. The quality-relevant data recorded at this point, for instance by weighing the parts, is also transferred online to the PPS system and retained for control purposes. The central computer stores the processing parameters reported cyclically by the ARBURG host computer, which means that the this data can be traced back without interruption and squared with the batch numbers appearing on the delivery notes. In this way, certain batches and the quality of these can be traced back for over ten years.

### High priority given to quality assurance

The fact that Agrodur produces the highest quality is something the company has in writing. The existing DIN EN ISO 9002 certification was followed this year by QS 9000 and VDA 6.1 certification. According to Olaf Dörnen, "A company like ours can hardly operate nowadays without these certifications. The car industry, in particular, will no longer award contracts without the corresponding continual quality management. Certification enables us to document the fact that our quality assurance schemes are being implemented and are taking effect in all departments."

Continual means, for instance, that even mould construction from stock works on an ISO basis; that moulds for routine maintenance

work are always supplied along with the last shot; that designs are based on the very latest 3D technology with PRO ENGINEER software; or that data exchange with the customer can also take place via e-mail and ISDN.

### Agrodur – producer and component supplier

Agrodur's injection and moulding operations are not only aimed at meeting customer orders, but its own requirements too, including, for instance, shower heads for kitchen fittings. However, the company lives mainly off its customer service, which ranges from planning and development, through mould construction, sampling and production to manufacture and packing - in other words, a complete service from one supplier.

The product range in the area of thermoplastics extends from electroplates for reflectors of various sizes, which can also be refined subsequently, either by chrome-plating, printing or stamping, through products for medical technology and electrical engineering, to components for the hygiene industry. Quick connector components for vehicle fuel lines, distributor parts and fixing elements are injection moulded on S ALLROUNDERS. Something of particular interest is the way in



Inspection of all the relevant production parameters

which the quick connectors function. To indicate that the fuel lines are properly connected to one another, the coloured sealing ring snaps out once the connector has locked in.

At the material end, Agrodur processes virtually anything in the

way of standard and special plastics. The range extends from unstrengthened and strengthened to conductive and high-temperature plastics. To make for greater autonomy in the production process, an automatic material supply is being created in Berleburg. This investment by the company is not only indicative of its confidence in the site, but also demonstrates the company's long-term plans to keep its injection moulding production operation right up to scratch.

### Clear perspective on the future

And on the subject of the future, Agrodur has a quite clear perspective. The company will remain constantly receptive to new technologies and processes, because, in the view confidently expressed by Olaf Dörnen, this is the only way in which it will be able to fully satisfy customer requirements. According to him, a good example of this is two component injection moulding, an area in which they will work closely with ARBURG and various plastics institutes. So Agrodur looks well-equipped for the future. Proof that the way chosen is the right one is not only provided by figures alone; the company is quite literally undergoing a transformation. There is regrouping, restructuring and rebuilding underway in every corner of the company. And apart from this, the company is working to full capacity – so it's full speed ahead for the ALLROUNDERS. In short, things are working!



# Everything for the good of the customer

In recent months ARBURG has undertaken some crucial restructuring of its German sales organisation. Eberhard Lutz, Divisional Sales Manager for Germany, explained the purpose and extent of the changes in an interview for ARBURG today.

**Mr Lutz, what changes have been made in the German sales organisation?**

**E.L.:** We have undertaken a basic restructuring of our field service, with a simultaneous reduction in the size of sales territories and an increase in the number of field representatives. Our team is now made up of 22 sales consultants and four regional sales managers. The implementation of this measure proved unavoidable in the year 2000, due to the number of long-serving sales consultants and regional sales managers in the German sales organisation who had either already retired or were about to – a complete upheaval in other words.

**What was the aim of these changes?**

**E.L.:** ARBURG would like in general to make customer consultancy even more intensive in future. Our customers are constantly expecting ever greater know-how from us, as the machine supplier, in actual production matters too. But consultancy and service are extremely time-consuming areas, if they are to be

good. Through the reorganisation, we want to be able to take account of this greater demand for consultancy. In addition, it is gratifying that the expansion in the programme range, through the addition of our new MULTILIFT handling system and greater clamping forces, for example, has brought with it a closer partnership between ourselves and our customers.

**Do you intend to take account of the increasing level of consultancy in other ways?**

**E.L.:** Yes, quite definitely. As an additional service, we will provide greater opportunities for our applications know-how to be made available through joint visits to the customer on site by our sales consultants and applications engineers.

**Were there obstacles that had to be overcome as part of the reorganisation?**

**E.L.:** To begin with, any change in an established relationship between customer and sales consult-

ant tends to be tricky. A partnership that has, in many cases, existed for decades, cannot simply be delegated from one day to the next. This is not something that can be undertaken lightly. We therefore weighed up the situation and only after thorough deliberation did we make changes which would quite definitely be for the good of our customers.

**Over what period did you implement the changes?**

**E.L.:** We regarded the year 2000 as a period of transition. Of course, this does not mean that we are using these months to experiment. The implementation period will be between spring and autumn. Two more new sales consultants will be starting their practical field duties in the coming weeks, having undergone almost six months' intensive training in-house.



Eberhard Lutz (r.) in discussion with Dr. Christoph Schumacher.





## Now in South America

**S**ince August ARBURG has had a presence in Brazil too, with its own branch, ARBURG Ltda. From his base in São Paulo, managing director Alberto Kolm and his five members of staff look 'after the largest country in the south of the continent.

This is ARBURG's way of responding to the fact that the growth of this speculative market has picked up pace again recently. This applies

not only to the threshold countries of Brazil, Argentina and Chile, but also to smaller countries in the region that are also benefiting from an appreciably more stable political environment.

The latest efforts made by the subcontinent to create in the medium term a community of nations along the lines of "big brother" USA and the growing affinity of these countries, particularly on the economic stage, mainly with their "EU

motherlands" Spain and Portugal, cast a significant light on the scope and importance of this decision.

ARBURG has had a local agent in place in Brazil for some time now, with whom the new subsidiary company could be developed on the basis of a tried and tested model. Another positive side-effect of this process has been that the staff and therefore the know-how in relation to injection moulding technology could be immediately absorbed.

The first step has already been taken with the acquisition of a piece of land. The next phase will involve the construction of an ARBURG Technology Center (ATC).

## Major success for ARBURG USA



**F**ollowing the NPE in Chicago, managing director Friedrich Kanz, and his 60 or so sales team were able to congratulate themselves on the outstanding reception and great recognition received for the extremely successful exhibition appearance made by the North American branch of ARBURG GmbH + Co.

With the help of its sensational stand concept, ARBURG was able to present to the American market the new dimension in its range of machinery. The wide span of ARBURG's clamping forces now extends from the ALLROUNDER 630 S, the largest machine currently with a clamping force of 300 US tons, to the smallest ALLROUNDER 220 S with a clamping force of 17 US tons.

### ARBURG's New Dimension

The ARBURG exhibits were completely consistent with this year's company motto "The New Dimen-



sion". From the very smallest machine to the largest, the company exhibited everything in Chicago that stood for flexible, economical working. "We have been very successful in showing the American market that ARBURG can no longer be exclusively associated with small clamping forces, but that we are making concerted moves towards the upper limit of 440 US tons planned by ARBURG", is how Friedrich Kanz evaluates the company's success at the Chicago exhibition.

Countless high-quality discussions took place and interesting applications ranging from multi-component production, through hot duct applications for the manufac-

ture of medical pipettes, to the presentation of the production of an electrical coil supported by the MuCell process, aroused great interest.

### MULTILIFT H handling

ARBURG's new modular handling system MULTILIFT H, which was exhibited on several ALLROUNDERS is obviously of great interest to the North American clientele too.

# „Glass factory“ in Hardware and software



Das Gebäude steht, doch die Feinarbeiten rund um ARBURG II dauern an.

**W**ith building work having officially ended in September, the practical part of ARBURG II is now complete. To put it another way, the building is standing. However, the project as a whole is far from complete.

ARBURG architect and chief engineer, Manfred Wolfer, describes the situation like this. „The implementation phase is now complete. But for us this is only the first part of the project. We now have to deal with the huge task of settling the accounts of a total of 35 tradesmen and five building technology trades, as well as the acceptance procedure and inspection of trade documentation. Finally, we also need to have some idea of how ARBURG II will look on the inside.“

What Wolfer is referring to with the last point in particular represents for him and his department an extremely demanding and expensive task, which will probably keep them busy for several years. The documentation is to form the basis for the graphical data capture, which as a facility management provides a three-dimensional software depiction of the entire infrastructure, initially of ARBURG II and later also of the entire company, thereby facilitating a completely new type of construction planning and implementation.

## Facility management

Data preparation is made up of many layers, above all on account of the high degree of installation. In the final development phase, Wolf-

er says there will be a „virtual factory“ that people, visitors for instance, will actually be able to „walk around“. However, these are not the main applications for which

Viel Arbeit für die Fensterputzer: 3000 Quadratmeter umfasst die komplett verglaste Fassade des Neubaus.



paired within the space of a few months, leaving no indication that this was the site of major

excavation work for the new building.

The extended side building will not only make it possible for there to be greater breadth in the collection and detailed separation of any waste materials occurring. The additional premises will also be used in future to house all the internal tradesmen - fitters, painters, joiners and also gardeners, plus snow clearing and a 50 square metre salt silo. Additional car parking spaces and also the new filling station will be located „at the back of ARBURG“.

The new gate with a lorry parking lane for six trucks and corresponding logistics should be up and running by the end of the year; the Loßburg municipal council will have made provision for road widening and a left-turning lane by autumn 2000. The office buildings are currently in the development phase. So at least the hardware part of the „glass factory“ is complete for the time being.



Nach der Begrünung wird in ein paar Monaten nichts mehr von der Erdeponie zu sehen sein.

a large and extensive database is being operated and data prepared. The benefits that this sort of system actually provides for the company are demonstrated by the example of the mechanical air supply to a given part of the building. Important characteristic variables such as the size of the air ducts, the volume of air flowing through them and the efficiency required of the air-conditioning system are clearly defined. If another room is incorporated in this part of the building, the facility management data can be used to determine accurately whether a supply can be guaranteed to all rooms or whether the characteristic variables have to be adapted to the new circumstances.

Optimising building planning and processes

Quick, precise planning and calculations with the aid of the com-

puter produce in some cases significant time and cost advantages. These mean that the implementation of infrastructural building measures can be optimally managed, representing an important step in process optimisation, considering the size of the building and virtually constant building work. However, the software work on the „glass factory“ has only just begun. According to Wolfer, there is a lot of work still to be done before you will be able to move through the virtual halls.

## The factual foundation

Coming back down to earth, the „technical grassing“ of the area surrounding the new works hall and the earth tip will be the final outside work to be completed. By sowing quick-growing grass seed, any sign of the earth tip used for ARBURG II will have disap-

**The Y2K problem actually proved nothing more than routine, according to Andreas Dümmler, Divisional Manager of Information Systems and Organisation. It was simply dealt with alongside the bigger tasks associated with the new millennium. The real obstacles as far as Dümmler was concerned lay in quite different areas.**

The communications structure for ARBURG II had to be planned and installed, browser-based applications are to replace the central program structure. The two-di-

emergency generators, as well as special CO2 extinguishers for fire protection.

All important company data is „reflected“, so that a total crash can be avoided. The data from the disk and server room in ARBURG I exists in two different places in ARBURG II. Not only the disks containing the company data, but also the various servers, are divided between separate DP protection rooms. The same procedure applies to the mainframe and back-up computers. Another important point is that not only the hardware and software, but the

communications, even if the first system should break down. The information systems are now therefore completely divided between ARBURG I and II, something that denotes a fresh challenge for hardware and software, as well as the network structure. The network is created in highly complex form via a high-speed glass fibre network. The technology used is a gigabit Ethernet and an ATM network with a glass fibre-based backbone. This permits the highest bandwidths between different data worlds and exceptionally fast processing.

Spares ordering via t-online is also to be further expanded and more convenient to use. ARBURG's German customers can already find

tried-and-tested components are not dispensed with during modernisation; instead, they have to be incorporated into new applications wherever possible. In this way, ARBURG is not only able to react more quickly, but also to secure its investments in the longer term. ARBURG has logically used the opportunities available in connection with the necessary restructuring of the DP sector for the year 2000, enabling it take the offensive and perform powerfully in the marketplace.

## Mayor challenges

mensional CAD system CADAM is currently being replaced by CATIA, with its real 3D design potential. Lotus Notes has been introduced as a new communications platform and the Intranet system developed.

Due to the size of ARBURG, it was necessary to house the previously centralised information system structure at a variety of sites. The fundamental protection con-

The protection concept is based on data security in decentralised DP protection rooms (photo right).

„Reflected“ in ARBURG II. All important data from ARBURG I is also kept here (photo below).

## of the 21st century



cept is based on risk minimisation. If important DP departments are far away from one another spatially, any damage that may occur cannot lead to a total crash.

All decentralised DP protection rooms are equipped with uninterruptible power supplies (UPS) and

network junctions too, were divided both spatially and functionally with the building of ARBURG II, since computer hardware can be replaced far quicker than networks nowadays.

A second telephone system for ARBURG II secures external com-

out about availability and prices when ordering the necessary components. In future, a special e-business solution in this direction will be offered through the Internet.

The acceleration of browser-based applications produces rationalisation and financial benefits not only for the company, but the customer too. They profit from more efficient order processing and production planning. This creates transparency between ARBURG and its customers, which extends as far as field services. The very latest notebook and ISDN technology, for instance, ensures that German staff on site have extensive access to original customer data, supply range and prices, so that in principle a machine can be put together and ordered online.

Despite all thoughts of progress,





One of the two injection moulding plants belonging to the Eltek group is located in the Aosta valley. ALLROUNDERS dominate the scene at both production locations.

Nowadays, its group of companies, the Eltek group, is internationally active as a reliable partner to a number of large companies in the vehicle parts and domestic appliance industry.

Today this group, the Eltek group, consists of two companies – Eltek S.p.A. Holding in Casale, south-west of Milan, and Eltek Plast S.p.A. in Hône in the Aosta valley close to the Italian/French border. The division of labour between the two companies is based on the synergies that can be achieved. The overall mould construction and injection moulding operation, as well as the assembly of plastic components for the tech-



**An organisation at your service**

The Eltek Group is committed to this slogan. It reflects the way in which all development and implementation activities are strictly aimed at meeting customers' individual requirements. At the same time, this is the main advantage Eltek has over other companies,

# Eltek Group – A company history revolving around

## Eltek and Eltek Plast – internationally renowned for complete production of complex plastic parts

**I**t was 1984 in the Italian town of Casale Monferrato. Luigi Sassone was trying for the first time to inject around electrical coils. At that time his machinery consisted of an ARBURG C4b, the small pneumatic injection moulding machine that has made ARBURG a name of world renown.

nical centre, is concentrated at Eltek Plast. Eltek's Casale operation deals with the design, testing and manufacture of electromechanical parts.

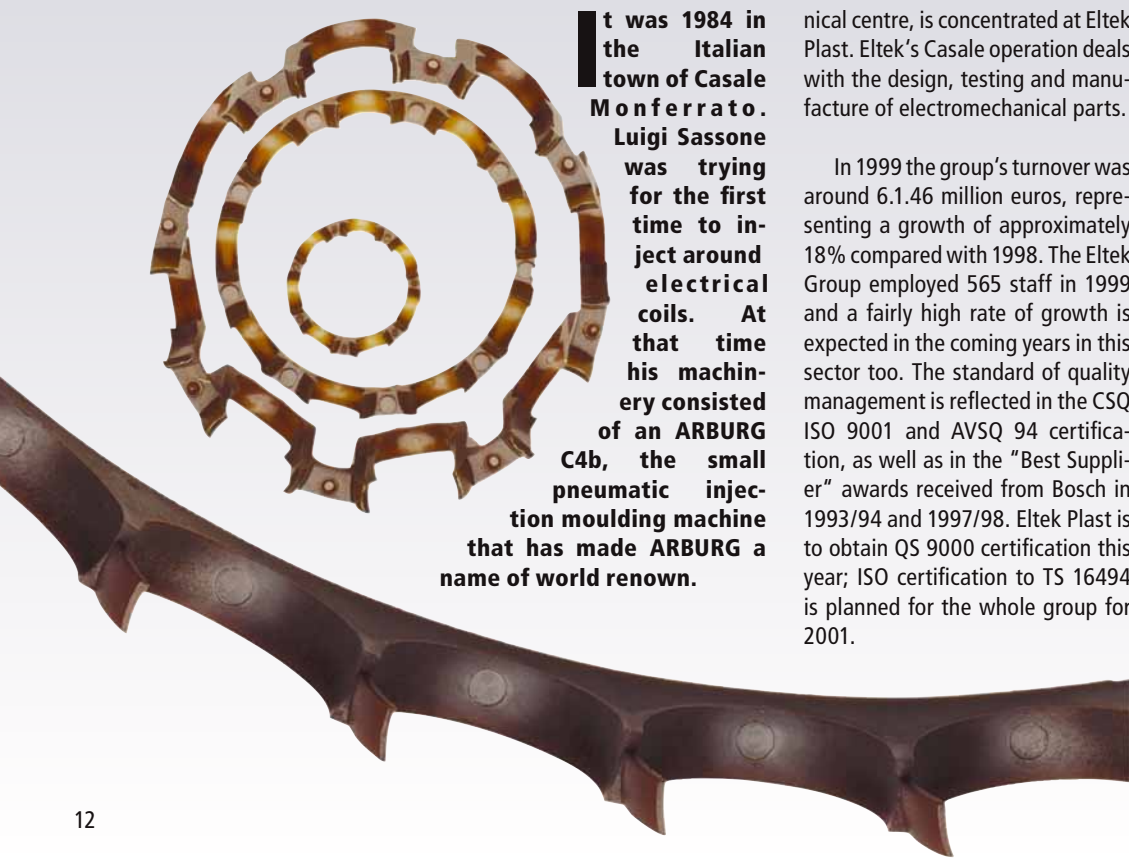
In 1999 the group's turnover was around 6.1.46 million euros, representing a growth of approximately 18% compared with 1998. The Eltek Group employed 565 staff in 1999 and a fairly high rate of growth is expected in the coming years in this sector too. The standard of quality management is reflected in the CSQ ISO 9001 and AVSQ 94 certification, as well as in the "Best Supplier" awards received from Bosch in 1993/94 and 1997/98. Eltek Plast is to obtain QS 9000 certification this year; ISO certification to TS 16494 is planned for the whole group for 2001.

in the opinion of the company founder, Sassone. This is because larger customers, in particular, award contracts almost exclusively to companies that are able to follow the project through with the customer from the start and are able to react quickly and flexibly to individual wishes.

Eltek offers everything from design, development and optimum layout of whole components through CAD/CAM-based prototype production, the construction of all necessary production resources, design and construction of thermoplastic moulds, fully or partially automated series production of defined numbers up to the documented quality control of raw materials and manufactured parts and components in their own and external laboratories – all from a single supplier.

**Expansion continues**

The fact that the company's approach is meeting with approval is shown not only by the positive





customer trend, but also the expansion efforts planned in the medium term in Casale and Hône. And from the point of view of machine technology, a further increase in capacity is anticipated. In the coming years an annual budget of around 2 million deutschmarks is to be set aside for expansion of the machine park and sights are clearly set on the larger machines. The procurement of 630 S ALLROUNDERS has already been discussed and plans are afoot for increasing the number of ma-



A wide variety of coils are produced and encapsulated at the Casale site. PhotosEltek

control. The focal points when it comes to injecting around parts are firstly the U versions of various ALLROUNDERS and secondly the T ALLROUNDERS. The degree of automation is correspondingly high in both plants. For instance, the assembly and monitoring of one of the dishwasher dosage units is fully automated in a customer and task-specific assembly corridor. Staff involvement is only needed for advance checking and equipping



Dishwasher dosing units are produced fully automatically. After the injection moulding process, assembly of the finished components takes place on the assembly corridor.

taneously at Eltek. This means that the group manufactures dishwasher dosing units for almost all the reputable dishwasher producers.

While plastic components are produced exclusively in Hône, the manufacture of combined parts, such as spools, is reserved for the parent plant in Casale. The encapsulated coils used in various vehicle fuel injection systems are also produced there. Spool rods and plastic casings are made from PPS/PPT, materials whose properties mean they are predestined for use in the car industry.

### ARBURG – highly rated machine technology

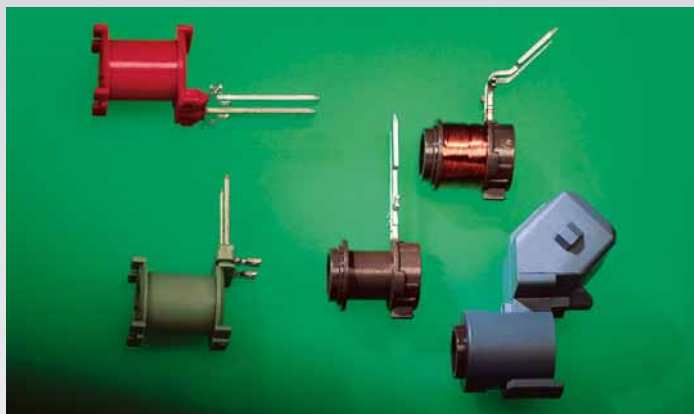
Eltek has been delighted with the injection moulded technology supplied by ARBURG over its years of collaboration. This is reflected in the composition of the company's machine park, with its ALLROUNDER D and S machines. Insertion tasks, in particular, make it necessary to use strong, economical machinery. ARBURG was able to notch up points in this sector, both with the ALLROUNDER principle of the swivelling clamping and injection units and also with the ALLROUNDER T round table machines.

The management and owner, Sassone, are in agreement that future plans are to be based on ARBURG injection moulding technology, yet in the medium term

developments will be towards two component injection moulding. Customer parts specifications and requirements in the direction of further rationalisation not only make this step possible on the one hand, but also essential on the other.

What is being specifically considered – still using ARBURG applications technology know-how – is saving a stage in the work involved in manufacturing the seal and in assembly, for instance by injecting a silicon seal on PP. At present this technology is still proving hard to implement, because the materials are barely compatible. However, the company is working flat out to find a solution and it will probably not be too long in coming.

# ound plastics



Eltek speciality – high load-bearing coils for integration in vehicle technology.

chines to 150 in total.

### A production tour

ALLROUNDER injection moulding technology is employed with the same precision as the customer's wishes. And that goes for both Eltek sites – without qualification. A total of 66 ALLROUNDERS of different types and sizes operate in Hône and Casale. Starting with D machines, the range extends across CMD and M to the very latest generation of ALLROUNDER C and S with SELOGICA screen

and final inspection and packing of the finished components. In this way, Eltek produces over 25 million different coils annually with over 20 million plastic components assembled from several parts.

### Special Eltek products

The quality of the company's reputation is impressively demonstrated by the fact that reputable manufacturers of electrical appliances have development and production work undertaken simul-



# MILESTONES

**W**hat is in fact a “milestone”? Although a fairly unspectacular word, it describes something quite unique, almost revolutionary, that has never happened before and will have a long-term effect. To this extent, the use of the term to denote the development of the ALLROUNDER is probably not overstated. The principle of the swivelling clamping unit combined with the movable plug-in injection unit has to date been something unique and revolutionary in the field of injection moulding. A stroke of genius, the effects of which have resulted in fundamental changes in plastics production.

After ARBURG’s first development in 1954, a hand-operated piston injection-moulding machine for injection moulding small parts, had within a very short time created a furore and given the company a considerable reputation among parts manufacturers and machine engineers, many may perhaps have rested on their laurels.

Father Arthur Hehl and his two sons, Karl and Eugen, had quite a different attitude. The path they had taken was undoubtedly the right one. As a result, there was to be no sitting back and admiring what had been achieved; instead, efforts had to be made to optimise technology and thereby gain a lead over the competitors.

## The start of the sixties and the ALLROUNDER’s coming!

By 1961 things had progressed to the point where ARBURG was launching a hydraulic injection moulding machine capable of producing injection moulded parts in different working positions in the shape of the ALLROUNDER. How was this possible? Removing the rigid construction principle with its horizontal clamping and injection unit was to facilitate far more flexible working in the case of injection moulded parts production. One machine could inject both through the fixed mould side and in the parting plane and by swivelling the clamping unit, inserts could be easily injected around. By using another injection unit, it was even possible to produce parts in two colours or from two materials on one machine and in one working cycle. Through the special layout of the clamping and injection unit, it was also possible to investigate in greater detail the processing requirements of the different ma-

terials, such as the flow and filling behaviour of plastics.

No sooner said than done! The implementation of the ALLROUNDER principle sounds relatively simple too. All that is needed is for the clamping unit to be made capable of swivelling by means of a hinge mechanism and the injection unit capable of being moved and plugged in. That’s all. It almost goes without saying, however, that tremendous planning and development efforts, different working and test models for functional testing and enormous detail work were needed at ARBURG before the first ALLROUNDER could leave the final assembly point.

## The ALLROUNDER lives in the company

Practical suitability is still the number one requirement. And the ALLROUNDER principle is once again included as an option in even

the very latest generation of machines, the ALLROUNDER S. Yet, quite incidentally, the ALLROUNDER has had a far greater effect. The name was held in high esteem, not only due to the universal technology, which among other things creates the basis for today’s modular machine system, it also became

a programme and key element in the company philosophy. The name is synonymous with everything that ARBURG does – supplying universal, practically-oriented machine technology, that has been refined and works economically, supplemented by full customer service.

Looked at in this way, the ALLROUNDER is truly a milestone in the company’s development and a living term that can be encountered virtually everywhere. And what could the company’s staff magazine be called other than “der allrounder”...



One of the ALLROUNDER’s possible working positions. The upward closing clamping unit is particularly suitable for injecting around inserts.



## Handling technology as an integrated package

Dipl.-Ing. (FH) MARCUS VOGT Technical information

**The aim when designing a production unit for automated parts production can be clearly defined. The important thing is to find the most appropriate combination of injection moulding machine, handling technology and peripherals. In this context, the MULTILIFT H horizontal parts handling system is not only combined, but also fully integrated into the machine, offering genuine advantages for the user, thanks to its modular concept.**

A multi-track approach had previously been the norm when designing this sort of production unit; in other words, a handling device was bought in, adapted to the machine and then fitted with the appropriate conveying and safety mechanisms. Consequently, the individual components had to be coordinated in terms of design as well as control right at the very outset when designing the overall configuration. Having different contacts for the different components makes coordination difficult, starting with the system design right through to the coordination of delivery deadlines for prompt commissioning.

Instead of inflexible individual solutions, what ARBURG offers with the MULTILIFT H is a reasonably priced complete solution, which combines machine technology and parts handling to produce a practical production unit. This complete solution not only includes the handling system itself, but the conveyor belt and safety mechanisms are also contained in this package. In this way, attention can be paid to ensuring an optimum combination of components, even at the design stage. The dimensions of the axes and strokes, as well as the environment, are adapted to the machine

size concerned, including the standard safety mechanisms. The positive side-effect of this overall development is that the assembly area for the entire configuration can be reduced to a minimum.

The machine is supplied having been checked and accepted at the factory with the handling system attached, which means that costly on-site adjustment work between the machine, handling system and safety mechanisms can be dispensed with. This is a factor that has a bearing with regard to the CE mark required in EU countries. The necessary declaration of conformity and also the complete technical documentation come from one source, so that on-site acceptance is problem-free. In the case of the MULTILIFT's "Compact" equipment package, the CE mark is even supplied ex works.

However, integrated and coordinated does not mean inflexible. Thanks to the MULTILIFT's modular concept, the user can put together the solution that precisely suits his application with a vast array of equipment possibilities.



Together we're even stronger – staff from three departments have now come together for the good of the customer in the "Customer Services" department.

## All working together

**It goes without saying that whatever happens in a company is ultimately for the benefit of the customer. But no sector is as evidently responsible for how well supported a customer feels than customer services. This is clear not only from the name; cooperation is demonstrated not in times when everything is running smoothly, but only when things aren't going quite as well. By bringing together all technical services into the new "Customer Services" department, ARBURG has taken an effective step towards optimising customer welfare and has increased the effectiveness of this division.**

The result of this restructuring can be seen in the use of space as well. The earlier "Technical Service", "Repair" and "Spares" departments are now housed in one office. The commercial processing of the different departments has now also been merged.

"Customer Services" will also continue to be responsible for the standard training of service engineers worldwide. Divisional manager, Roland Paukstat, expresses it like this, "The short paths that we have thereby achieved internally produce a higher efficiency all in all for each customer, particularly in relation to accessibility, processing time and service quality."

The aim is to achieve complete, global technical support for all contacts, which not only includes the customers themselves, but also the actual branch offices and agencies. Although the effects of synergy in the service sector should be felt by customers, everything will remain the same in terms of official contact. Neither the main telephone numbers for Technical Service (-3909 for the hotline) nor the spares service in Germany (-3295) have changed as a result of the move. And the contacts remain the same too. On an international scale, the branch office and commercial partners continue to represent the first port of call; they then in turn speak to the person responsible in the country concerned.

There has, however, been a small yet not insignificant change and this too should be seen as entirely consistent with a further optimised customer support. The Technical Service hotline in Loßburg is now even easier to reach, with competent staff ready to deal with your problems between 7.00 am and 6.00 pm, Monday to Thursday, and until 4.00 pm on Fridays. All you need to do is call!

# ARBURG Ltd. Şti.:



## "We bring technology to Turkey"

**B**ack in 1996 ARBURG opened its own subsidiary office in Turkey under the name ARBURG Ltd. Şti. This was a strategic decision taken in recognition of the fact that Turkey is a very attractive market for injection moulding machine manufacturers.

It was for this reason that ARBURG wanted to set up its own branch, thereby providing a direct customer presence. One of the main advantages in setting up the operation was the fact that the managing director, Selim Tankut, had earlier worked as an ARBURG agent between 1993 and 1996.

"We bring technology to Turkey", is how ARBURG's managing director, Selim Tankut, describes the contact between the Turkish branch office and its customers. He sets great store by ARBURG's corporate philosophy in which it regards it-



self not purely as a machine manufacturer or even supplier, but as a technology partner for injection moulding operations. This means that customer contact does not end with the delivery of a machine, but continues on the same scale, because at ARBURG service and training have a crucial part to play worldwide. The Turkish branch supports its customers with numerous training programmes and shows them how they can use ARBURG machine technology to best effect, to further optimise their production. The value placed on service in Tur-



Waiting for the next assignment – a vehicle belonging to ARBURG's service engineers, who can be reached round the clock each day, parked in front of ARBURG's subsidiary office in Turkey.



ARBURG's Turkish team comprises a further six members, apart from the managing director, Selim Tankut (centre, seated).

key is also reflected in the fact that the service engineer can be reached on his mobile round the clock – 24 hours a day, seven days a week!

Apart from the managing director, the ARBURG team in Turkey comprises six other members – a member of staff for finances, one for sales, two service engineers, a secretary and an office boy, as is customary in most Turkish companies. "He is our main man", smiles Selim Tankut, because he runs all the important errands, helps out the service engineers and also lends a hand wherever there's a bottleneck. This year another service engineer and an applications engineer are also set to join the team.

ARBURG's recent years in Turkey have been a complete success, showing that the company's decision to open its own branch was

spot on. However, the earthquake in 1999 cut a swathe in ARBURG's investment prospects and marked a reversal of fortune both for the population and the Turkish economy. Nevertheless, in the aftermath of the earthquake, ARBURG's Turkish branch has provided assistance to a number of struggling companies in the form of financial support. Investment prospects are now once more looking very healthy.

ARBURG customers in Turkey come from highly demanding sectors, such as the packing industry, which accounts for the largest share, the electronics, car and component supplier industries. Selim Tankut sees great growth potential in the latter two in particular. Following declining production in the car sector, investment by component suppliers has been virtually non-existent in recent years too, although

ARBURG's branch manager predicts that this is set to change.

The largest share of ALLROUNDERS sold in Turkey are standard machines, although there is certainly a demand for special areas such as MIM technology or smart card production.

When it comes to exhibitions, ARBURG's Turkish branch is also very well placed, with Selim Tankut sitting on the exhibition committee of the largest "Plastic and Rubber" exhibition, which is held each year in Istanbul and always attended by ARBURG with its own stand. Apart from exhibitions at home, Selim Tankut also encourages contact between Turkish customers and the head office in Loßburg or Germany in general and always brings a few of his customers with him to the technology days in Lossburg, to "Fakuma" in Friedrichshafen or "K" in Dusseldorf.

