

Report – Flexible Controls

Open to new ideas

From the outset, futronic has taken an open approach which leaves room for new ideas from users with its electronic control systems. The company has made a name for itself as an OEM and supplier – a moderniser and systems integrator across technology boundaries. Yet it is the development of customised solutions transcending all the usual standards to meet the highly specific requirements of the glass container industry that underlines just how flexible and powerful futronic controls and drives are. Projects for Ta Hsiang, the Taiwanese glass manufacturer or – only recently – Heinz Glas are proof that there are virtually no limits, no matter how unconventional the customer's needs.



Over the last 40 years, the automation specialists from Tettngang, a small town not far from Lake Constance on Germany's southern border, have designed whole generations of electronic control systems that can be flexibly tailored to machines from different manufacturers and to different specifications. „We work on a meta level, as it were, and we've always been very careful to keep our eye on the big picture“, explains Wolfgang Lachmann, Managing Director Development & Technology at futronic. „Making sure our

controls are compatible with various types of machinery and plant is traditionally a key priority. It's never been our policy to restrict ourselves to just a single manufacturer.“

OEM and supplier with flexibility

It wasn't long before futronic made a name for itself with this open source strategy as an OEM and supplier. Engineering companies like GPS fit their IS machines with futronic control systems as standard. Many end users



Michael Preuß
Wolfgang Lachmann

Dear readers,

futronic has pursued an open source strategy with its electronic control systems from the outset. We cross technology boundaries – and refurbishing projects are only one example. futronic controls and drives facilitate open interfaces and customisable parameters that leave room for unusual ideas and non-standard requirements. Our title story illustrates what this can look like in practice and describes a few solutions that have already been realised, for example for Heinz Glas and Ta Hsiang.

Marc Meersschant introduces you to Mavsá, our partner in Argentina, while Stephan Pies explains the role our automation technology is increasingly playing in other areas outside the container glass industry. The Journal also includes reports on training activities as well as other events of interest at futronic.

On this note, we wish you plenty of exciting reading with the new Journal.

Sincerely,

Michael Preuß
Wolfgang Lachmann

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One of futronic's most successful refurbishment projects: Glass container manufacturer Ta Hsiang from Taiwan regularly buys up used, completely refurbished machines, at last one of Emhart. futronic equipped this machine with a FMT24S control system and FDU24S drives. In 2014 a delegation of engineers went to Taiwan to integrate the servo feeder as the last component for the time being (see photos).

have likewise trusted for years in Tettnang-made technology and insist on it whenever they invest in new equipment. At the same time, futronic's experts can draw on several decades of experience when it comes to modernising old plant or used machines of different kinds and from a variety of manufacturers. In the meantime, retrofitting is one of the company's core competencies. Thanks to a clever modernisation strategy, a service life of 20 or 25 years is no problem if the IS machines, which are in any case very robust, are upgraded with a new control system. „Retrofits with the latest generation of control and drive technology are today an excellent way to keep up with modern manufacturing trends“, says Lachmann.

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Ta Hsiang, for example – a glass container manufacturer from Taiwan and a futronic customer for many years – regularly buys up used, completely refurbished machines, which frequently enjoy a second – and sometimes even a third – lease of life at the company's several factories. The control systems are habitually built by futronic, and each machine and its peripheral equipment has to be integrated into a heterogeneous setup. In 2013, futronic equipped a second-hand Emhart machine that had been acquired by Ta Hsiang earlier the same year with an FMT24S control system and FDU24S drives. The idea was that all mechanisms and components for which separate, proprietary controls had previously been essential should gradually be converted to servo technology and integrated in the futronic FMT. Lachmann refers to this as „harmonising the systems“.

The advantages are undeniable: in future, only one terminal and one user interface will be needed to set the parameters for products and processes. That means shorter retooling times, simplified handling and – last but not least space savings on the machine. In 2014, futronic's engineers integrated the servo feeder as what will be the last component for the time being. „That turned out to be one of our most successful refurbishment projects of the last few years“, Lachmann reports proudly.

Solutions to meet specific requirements

Customer expectations with regard to efficiency and product quality are rising steadily. That's why container glass producers and used machinery distributors worldwide are

investing in more automation – and hence in more operator safety, product quality and productivity. „We do very well with our controls and drives in this mixed supplier scenario“, Lachmann observes. „It's a strategy that works.“ As he sees it, there is no evidence for the argument that all a machine's components should come from one source. Implementing new technologies is equally unproblematic, Lachmann confirms. Servo technology, for instance, has been gaining ground for several years now in plant and machinery for hollow glassware. Compact servo motors with high power density are increasingly taking the place of classic motor-and-cam drives or pneumatic cylinders. A new multi-gob weight system was unveiled by futronic as long ago as glasstec 2012, for example. The system's feeder logic, which is based on the modular FDU24S (Flexible Drive System) servo drive concept, integrates easily into the existing infrastructure of plant and machinery from different manufacturers. Five of futronic's servo based multi-gob weight systems are already doing duty in three glassworks around the globe.

The true strengths of futronic-built controls and drives are most apparent when it comes to developing customised solutions transcending all the usual standards to meet the highly specific requirements of the glass container industry. „Our systems can be tailored extremely flexible to applications that don't yet exist in the minds of the engineers in the factories“, the Managing Director claims. The pool of functionality which is already integrated in the FMT24S can be accessed and configured more or less at the push of



and cosmetics industry. Heinz Glas, another important and longstanding customer of futronic, has branches in Germany, Poland and Peru – and some resourceful people on its payroll. A small group of them took a closer look at the IS machines already installed on the premises, or to be more precise at the thermodynamic processes and conditions in the various machine areas. The idea of optimising the cooling process, which begins in these machines and is so vital for the quality of the glass, gradually took shape. The classic servo take-out works with six motion phases. The temperature in the glass starts to fall due to convection cooling as soon as the gripper removes the container from the mould. To make sure it continues to decrease gently before one of the flacons which is set down on the conveyor belt heads for the annealing Lehr, the technicians at Heinz decided to incorporate a second cooling phase. The challenge confronting futronic involved integrating this additional cooling cycle into the servo take-out process without interfering with the machine's timing and hence disrupting the production process. This proved to be no easy task: „Servo mechanisms are far from trivial and the gripper was required to adopt positions that don't even exist in classic servo take-out movements“, Lachmann comments.

Maximum flexibility, maximum freedom

After holding initial talks and outlining the basic concept, it was clear that „we'd be able to manage it“, Wolfgang Lachmann recalls. „It wasn't so much the servo take-outs we scrutinised as what lies behind them“. futronic's development engineers typically favour this kind of approach. „We ended up concentrating on eight phases rather than six as well as the customer's specific requirements, and reflected on how we would have to configure our control system's functional

a button, or with only minimal effort. And if that's not enough, it doesn't take long for futronic's developers and programmers to come up with an efficient solution. „There aren't many others in the business who can rival us – or our control systems“, says Lachmann confidently. The futronic technology is highly complex, of course, and calls for a certain level of expertise on the part of customers. In spite of this, Lachmann urges technicians and electricians at glass manufacturers to be „open to the idea of a control system and to approach us to discuss their visions and suggestions“.

Additional cooling phase

Heinz Glas is a good case in point. At home in Kleintettau (Bavaria), a region with a centuries-old tradition in glassmaking, this company is one of the world's leading manufacturers of small glass bottles for the perfume

A centuries-old tradition in glassmaking: Heinz Glas is one of the world's leading manufacturers of perfume bottles. (Photo: Heinz Glas)



Impressed and very happy with the results: Willi Jungkunz, Head of Glass Production at the Heinz Glas headquarters in Kleintettau. (Photo: Heinz Glas)

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elements in order to reach our goal." The programming, implementation and preliminary tests which followed were completed in just 15 person-days. The whole thing was commissioned in the spring of this year.

Since April, the servo take-outs on a 10-section GPS IS machine have been executing eight motion phases instead of the usual six. All the mechanisms are controlled by an FMT24S. All sequences are mapped in detail on the user interface, enabling the machine operator to keep permanent track. The customer is definitely impressed and very happy with the results. „What we were planning to do didn't sound all that spectacular to begin with", reports Willi Jungkunz, Head of Glass Production at the Heinz Glas headquarters in Kleintettau. „However, we all know that the devil is in the details." What appeared at first sight to be perfectly simple turned out in the end to be highly complex. „Despite this, futronic implemented all the requirements to our satisfaction at the first attempt", Jungkunz adds. His conclusion: „futronic controls offer a high degree of freedom and a lot of flexibility for customised solutions".

Open to new challenges

The two examples described here demonstrate the enormous flexibility of futronic controls and drives. They can be extended in a variety of ways, making them open to new challenges. Lachmann is categorical that the potential is still far from exhausted: „We've already translated several ideas and concepts into practice, some of them the outcome of decidedly unconventional requests. And I'm in no doubt at all that there's more to come."

Customer Profile: Mavsa, Argentina

Mavsa dances a tango

Every industry has its giants and glassmaking is no exception. Heye, GPS and Emhart are well-known examples that instantly spring to mind. Then there are the smaller workshops which make up for in quality and creativity what they lack in size. Máquinas Argentinas del Vitrio SA (Mavsa) of Buenos Aires is a case in point. This firm has been a valued business partner of futronic for almost ten years now. When Marc Meersschaut travelled to South America last April, he also visited Mavsa.

The South American summer is just about coming to an end when Marc Meersschaut climbs out of a taxi in Barracas, a suburb in south-east Buenos Aires, the Argentine capital. He finds himself surrounded by warehouses and factory buildings, with the occasional lorry thundering by. He stops in front of a two-storey building with a flat roof which bears the number 1119. Through the half-open, blue sliding gate he can hear the noise of machinery – sometimes louder, sometimes quieter – and the sound of metal on metal with a high-pitched his-

sing every now and then. Meersschaut is aware of voices and the bustle of activity. Then another, smaller blue door opens to the left of the gate.

Diego Fuentes smiles through his rimless glasses, greets the visitor from Germany with a hearty „¡Hola!" and a firm handshake and leads him into a tiny office, where his younger brother Gustavo and father Manuel, the company founder, are waiting for him. The four men know each other and they hold one another in



A friendly reception: Marc Meersschaut (2nd from right), the visitor from Germany, is welcomed by Diego, Manuel and Gustavo Fuentes (from left).



high regard: they laugh and chat good-humouredly. Meersschaut speaks Spanish, which makes communication much easier.

A ten-year partnership

It was back in 2006 when Mavsa and futronic's paths crossed for the first time – at a Saint Gobain-Oberland glassworks in Brazil. A machine there needed modernizing: the people from Mavsa took care of the moulds and the mechanical components while futronic was in charge of the control and drive equipment. The cooperation functioned smoothly and the two sides have stayed in contact ever since, not least through many joint projects for customers all over the world. Yet this visit to Buenos Aires by a futronic engineer is a novelty and the Fuentes obviously want to take advantage of the opportunity to finally show and tell him everything in person.

Manuel Fuentes, the founder, used to work for SARIC, an SME manufacturing tableware in the Argentine capital. As workshop manager there, he was responsible for moulds and spare parts as well as for maintenance and repairs to machinery and plant. In 1971, with the blessing of – and financial support from – his boss, he started offering these same products and

All from a single source: 25 specialized staff make virtually all the parts for presses and IS machines themselves here on ultra-modern CNC equipment.

services to other glass producers too. Three years later, he opened a workshop of his own in the Berazategui district under the name Metalurgica Buenos Aires (MBA). It was ideally situated at the heart of the Argentine glass industry, just a stone's throw away from Rigolleau, the country's oldest glassworks. Amongst other things, MBA's portfolio comprised moulds, feeders and pneumatic presses, to which whole lines were later added. It wasn't long before glass manufacturers throughout the South American continent, and even from as far away as Cuba, featured in the list of customers.

Compact solutions from a single source

Manuel's son Diego, an electronics engineer, joined the family business in 1990, followed three years after by his brother Gustavo, a trained technician. In the spring of 2001, the Fuentes decided to launch another company: Mavsa. Whereas MBA continues to focus on the production of moulds and spares, Mavsa specialises in the design and manufacture of rotary blowing machines as well as, since 2006, IS machines with between two and eight

sections. „Our customers are mainly small-to-medium sized makers of tableware and container glass“, Diego explains. „We offer them compact machinery and plant, in other words cost efficient solutions from a single source.“ The Fuentes also had their sights set on the global glass market with Mavsa: following their successful entry into North Africa and the Middle East, they turned their attention to Europe and India.

Two windows provide a view into what is a surprisingly large workshop. Mavsa employs a total of 25 staff here in research and development, design and production. „We make virtually all the parts for our machines ourselves“, says Gustavo proudly during the obligatory tour of the premises. Only a few components come from exclusive suppliers, of which futronic is one. „To date, we've fabricated wiring harnesses for the IS and press machines on behalf of Mavsa, for instance“, Meersschaut comments. „However, we're planning to extend the partnership between our two companies significantly in the future.“ After bidding goodbye to his three friends, he disappears by taxi again into the black of the Argentine night.

„The advance of digital technology“

For more than forty years now, futronic has been developing and supplying complex automation and drive solutions for the container glass industry. Yet for some time now, the control system specialist – at home near Lake Constance – has also been leveraging its expertise to realise projects in other areas. The new division which was formed as a result of this paradigm shift is meanwhile playing an increasingly important role. Stephan Pies, the sales engineer responsible for futronic’s Industrial Automation division, explains why and analyses the company’s strategic options for the future.

futronic Journal: Mr. Pies, the futronic story originally began with an order from the food industry. The decision to specialise in the glass industry, however, was taken soon after it was founded. Are you now attempting to get back to the roots?

Stephan Pies: No, that’s not strictly accurate. The container glass industry will definitely still be our bread and butter in the future. We’ve built up a great deal of know-how and experience there over the years. It’s where we’ve made a name for ourselves worldwide and we do business with a lot of important and longstanding customers. It would be true to say that up until ten years ago, almost all of futronic’s projects were for glass manufacturers and involved our own control hardware. Nevertheless, we gradually started thinking about other branches of industry where this same expertise might also enable us to offer suitable solutions. We initially restricted ourselves to smaller, occasional projects, for example in connection with bulk materials, special-purpose machinery and handling.

futronic Journal: So how has the Industrial Automation division developed so far?

Pies: Industrial Automation has developed rather well up to now: the projects have got bigger and bigger and we now manage orders worth as much as 800,000 euros. One of the most complex and most exciting challenges to date was a project for a rolling mill, where we developed and implemented the entire control technology. We’ve established a solid customer base in the meantime: more and more manufacturers put their trust in us and our know-how and they rely on our proven quality when it comes to industrial automation. And of course some projects are conducted as cooperative ventures with Jetter, our parent company, who support us with valuable expertise and experience as well as giving us access to their products. That really is a huge advantage and our customers reap the benefits. Today, around 35 percent of our total sales revenue is ge-



nerated with projects for clients outside the container glass industry.

futronic Journal: But even there, you’ve started treading new paths ...

Pies: That’s right. After all, not everything in glass production revolves around the IS machine and our FMT24S control system; there are numerous other technological challenges where better, more practical solutions are needed. We’ve already realised several projects in these areas and we’ve even developed a few new products, such as an annealing Lehr control. We also entered into uncharted territory with Forma Glas, our Austrian partner who build innovative equipment for making stemware, beakers and pressed glass items. For about three years now, we’ve been developing and designing the controls and drives for Forma Glas’s rotary blowing machines and presses, and we function very well as a team in the meantime.

futronic Journal: That takes us nicely on to the next question: what do you consider to be the crucial technological challenges for tomorrow?

Pies: The unstoppable advance of digital technology will be a major issue in the glass industry and in many other areas too. As an automation specialist, we’re obviously deeply preoccupied with Industry 4.0. We’re endeavouring to strengthen our expertise in this field, develop future-proof automation solutions and secure a pole position for ourselves. The integration of a new kind of sensor technology in production processes will be another fascinating topic. Although the use of cameras, particularly for inspections and quality assurance for instance, has been taken for granted for a long time now, there’s still plenty of potential for more. In the future, we’ll also be examining how cameras can be employed in automated processes to position products or to optimise gripping operations and an array of other mechanisms. We’ve already acquired a fair amount of experience here and there are umpteen opportunities in the most diverse applications. Finally, we also want to invest in automating our own production processes and making them more efficient. This will help us stay competitive with our serial control cabinets, for example.

futronic Journal: What else does your strategy comprise? Where will it take you in the future?

Pies: Well, we hope to successively develop our Industrial Automation division, generate new leads and gain a foothold in other branches of industry. We’re especially keen to extend our service portfolio, for instance in development and production as well as in after-sales. All the signs point to further growth, in other words – and that includes the workforce. We’re on the lookout for new people, not just in sales. Another objective we’ve set ourselves is to become more independent of fluctuating economic climates in specific industries.

New control system for a plastic roll

Systemtechnik International Lighting Service manufactures and distributes industrial luminaires and accessories. The company located in Tett nang near Lake Constance asked futronic to replace the control system for a plastic roll when spare parts were no longer available. Amongst other things, we took care of the hardware planning and the programming, and we also built the control cabinet.

Jetter technology was chosen for this purpose, namely touch panels, motors and servo amplifiers. Commissioning the system turned out to be a particular challenge: „We were forced to interrupt production in order to carry out the upgrade, which meant speed was of the essence“, explains Manfred Wuhner, project manager at Systemtechnik. „It was vital to have a partner we could depend on. We found what we were looking for in futronic.“

Precision profile machining

futronic is delighted to have acquired a new customer in the UK. Wegoma Machinery Sales (wegoma.co.uk), located in the north of England, develops and manufactures machines and equipment for producing PVC window frame profiles. futronic is responsible for planning the hardware for each of its two machining and cutting centres – „Supercut 5“ and „Supercut 6“ – and will also fabricate the cables and supply the control cabinets. Jetter technology will be used for the entire control and drive equipment.

It was Jetter who actually introduced futronic to Wegoma. This is not the first time the two companies have got together to deliver a joint, end-to-end solution. „We intend to cooperate even more closely on future customer projects“, Stephan Pies, the sales engineer responsible for futronic’s Industrial Automation division, explains. „It works very well, we find it easy to agree – and the customer reaps the benefits.“



Get on well together: Dave Phillips (right), project manager at Wegoma, and Stephan Pies, his contact at futronic.

New customer in the food industry

Bucher Filtrox Systems (bucherfiltrox.com) of St. Gallen (Switzerland) is another new addition to futronic’s customer portfolio. The company claims to be the world’s leading supplier of microfiltration systems and equipment for the beverage industry. Meanwhile futronic has already realised several smaller projects for Bucher Filtrox in the last few months and got various

machines up and running. futronic provided comprehensive package – from hardware planning and software development through the construction of control cabinets and the installation of electrical and pneumatic equipment to commissioning. More, higher-volume orders are currently in the pipeline.



Pellet loading

Coperion (coperion.com) is the worldwide market and technology leader for compounding systems, feeding equipment and bulk materials handling in the plastics, chemicals, food and aluminium industries. Headquartered in Stuttgart and Weingarten, the latter only a few miles from Tett nang, the company implements individual solutions for compounding technology and bulk materials handling plants. futronic won its first order for the plant builder earlier this year: the exchange of signals for the existing PLC of a bulk materials system which is used to load pellets onto trucks was redesigned with our engineering expertise. With our foot now in the door, the chances are that more projects will follow.

Stefan Rose

Trust as key leadership quality

Stefan Rose was recently appointed as our new Production Manager. Aged 43, he is a native of Konstanz, where he originally trained with an electronics company as an electronics and communications technician. He later upgraded his CV with additional qualifications as an electrician and business economist. The hard work was evidently worth it: Rose soon was taking on managerial duties at the „interfaces between Testing, Design and Quality Assurance“, as he



puts it. That's precisely where he operates at futronic right now. He leads a 15-strong team in Production and Control Cabinet Construction and is responsible for teaching technical skills to futronic's trainees. Part of his job is to identify potential for optimisation. Another is to ensure smooth production workflows and punctual deliveries. Last but not least, he sees the feel-good factor as a valuable team motivator. He never has been the kind to brandish a whip and confesses that „deep relaxation“ is more his style. That's not difficult to believe – his subordinates enjoy the trust and the considerable freedom he gives them. By showing that every individual is important, he can be confident of getting the productivity and quality he is striving for in return. It was love that first lured him to Ravensburg eight years ago. After twenty-four years with the Konstanz firm, he finally decided to call it a day. He may have moved away from the lakeside, but as a passionate sailor with his own boat water continues to play a central role in his life. Rose already feels very much at home at futronic and has no regrets about taking up the offer. And nor have we.

Frank Wahlpahl,
Software Developer



Frank Wahlpahl only intended to stay a few months. A quarter of a century on, he's still here. As an electronics technician he currently works in Automation Development, where he is responsible for project coordination, circuit diagram creation, software development, hardware and software testing, commissioning and documentation. Congratulations from us!

Josef Kopold,
Testing



Josef Kopold also has been with us for 25 years. He works as an electrician in Testing, where he is subjecting all our hardware and software applications to a thorough scrutiny. We are proud that he has remained faithful to us for such a long time and would like to congratulate him.

New trainees

Eva-Marie Schwank and Aleksandar Popovic are our two newest trainees. Eva-Marie, aged 19, is hoping to become an Industrial Business Management Assistant with a higher-level qualification in „International Management with Foreign Languages“. At futronic she'll be gaining an insight into our diverse commercial activities. Aleksandar, aged 21, has just started training with us as an Electronics Technician for Industrial Engineering. Prior to joining futronic, he completed a two-year vocational course at Tettng Electronics College (EST), which is why he already knows quite a bit about the technical side. His goal: to become an expert in software development and design.



Team building challenges

A one-day Team Workshop was on the futronic agenda at the beginning of October. The aim: for „old“ and „new“ trainees to get to know one another better. They all made their way to the fitness trail in Lindau,

at the Lake Constance, where local outdoor specialist TSO Training had prepared a number of surprises and challenges, designed to build mutual trust and team spirit and develop coordination and cooperation.



A tricky challenge: considerable precision, dexterity and team effort is required to lift a tarpaulin with a beaker of water balanced on it without spilling a drop.