



GLASS PRODUCTION WITH INNOVATIVE CONTROL



futronic TECHNOLOGIES – AN INVESTMENT IN THE FUTURE



In the course of the last several decades, futronic has gained a reputation for innovative and reliable control systems for container glass machines and equipment. Over a thousand of our systems are currently in action around the globe. Many of them have been performing impeccably for twenty years or more now, living up to even the highest client expectations day by day.

Control engineering expertise, a profound understanding of the production processes in the glass industry and considerable experience are obviously vital prerequisites for designing and building the ideal solution. Our specialists are thoroughly familiar with the following sectors:



Container glass and tableware glass production



Mechanical engineering



Plant construction



Bulk material handling



Customised control solutions



We are, in other words, ideally placed to develop and install efficient systems offering excellent value for money not only in the glass industry but also in numerous related fields. We don't need to tell you that we are always on the ball and that we take an active interest in future technologies. And with more than seventy highly qualified staff on our payroll, we have the necessary capacity to form effective partnerships.

As a futronic user, you too can reap the benefits and stay that decisive step ahead in the long term. After all, the future success of your manufacturing operations will be largely determined by your choice of automation system. futronic technologies are a sound investment in the future – and a decision you won't regret.

T H E F U T U R E U N D E R C O N T R O L

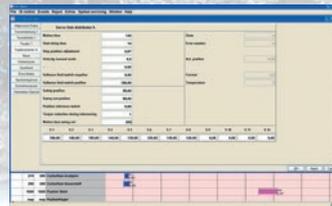
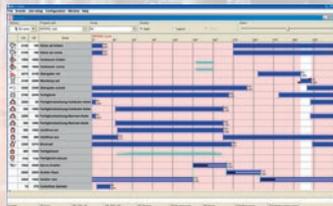


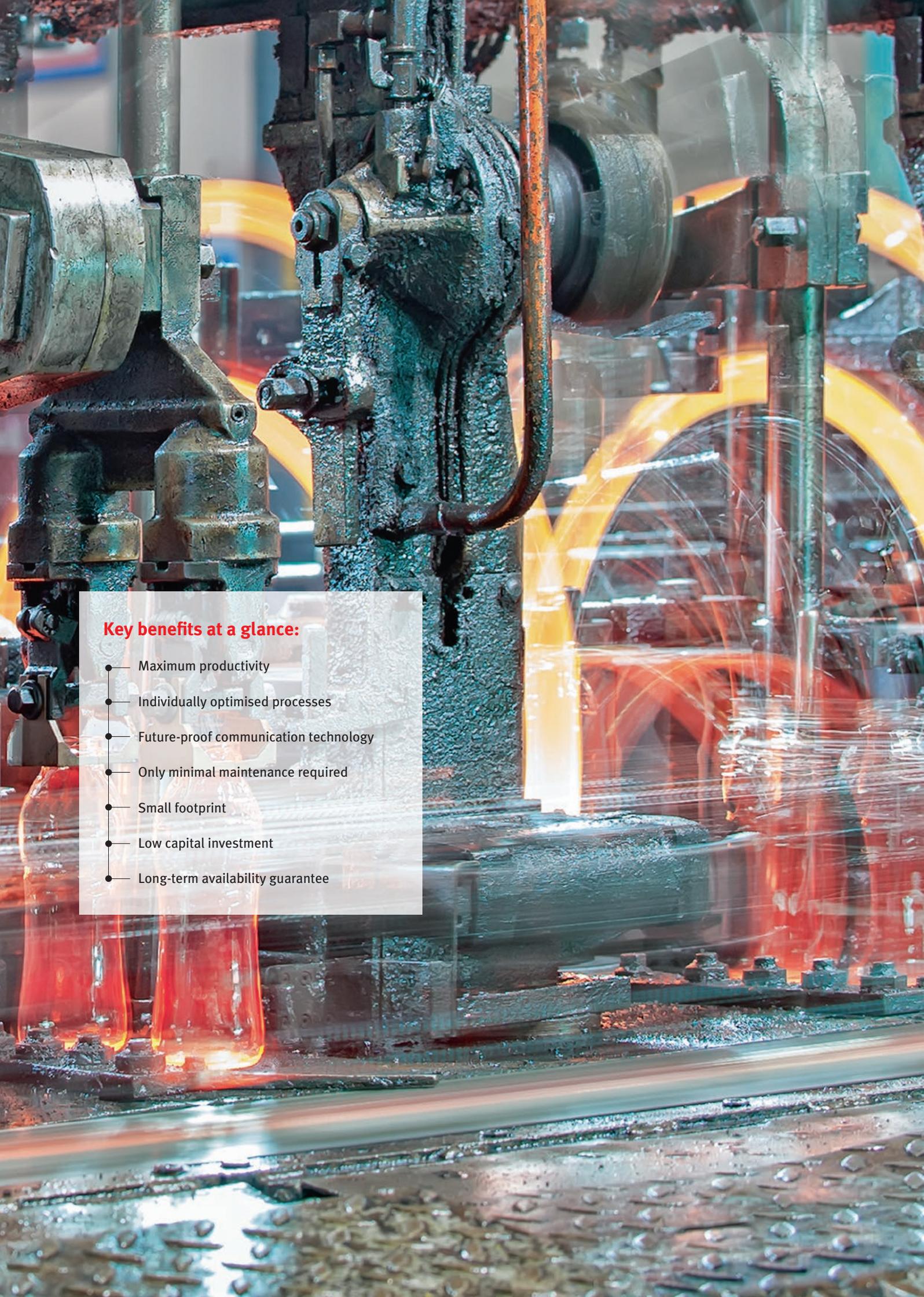
AT HOME IN THE HEART OF CONTAINER GLASS MANUFACTURING

**FMT24S – our IS machine control
for more performance and flexibility**

Thanks to modern IS machines, turning a handful of silica sand into a bottle is hardly rocket science any more. Yet the ability to meet complex specifications regarding productivity, quality and energy efficiency remains an art not everyone can master. The performance and flexibility of the control system are crucial here. The control is responsible for fine tuning each of the processes involved – from feeder indexing through the reject system and error detection to the annealing lehr control.

This control family from the futronic stable is optimally equipped to handle these challenges. It centres around the FMT24S, our IS machine control, which is equally ideal as a standalone solution or for modernising individual sections on an existing line.



A detailed view of a glass bottle manufacturing machine. The machine is complex, with various rollers, guides, and a central vertical shaft. Molten glass is being processed, forming into a continuous strand that is then shaped into individual bottles. The background is filled with the intricate machinery and the bright orange-red glow of the molten glass. A semi-transparent white box is overlaid on the left side of the image, containing a list of key benefits.

Key benefits at a glance:

- Maximum productivity
- Individually optimised processes
- Future-proof communication technology
- Only minimal maintenance required
- Small footprint
- Low capital investment
- Long-term availability guarantee

RELIABLE, FLEXIBLE AND EFFICIENT CONTROL OF THE HOT AND COLD ENDS

For many years now, futronic has combined outstanding electrical expertise with a profound understanding of the production processes in the glass industry. Hardware and software development for the controls and drives at the hot and cold ends is the mainstay of our business – from the feeder through the servo take-out mechanisms to the annealing lehr control.

Operator terminal

All functions and sequences at a glance

All operating states are visualised on the operator terminal. Individual sequences can be optimised at any time with a few mouse clicks and errors detected and corrected instantly.

Hot end

Clean reject

Faulty containers must be reliably identified and rejected. Unlike other controls, the FMT24S makes an excellent job of the rejection process even at a rate of up to 300 containers per minute. The ASDR2, our fully compatible reject system, can be seamlessly integrated as a module in the existing control architecture or adapted to any machine as a standalone solution.

Pusher control

Jerk-free movement

There are many different pusher concepts – single or multi-axis, air assisted or airless and with additional pneumatic cylinders or special functions. This futronic control is ready for all of them and can be optimally configured according to the needs of each system.



RAW MATERIALS

BATCH HOUSE

HOT END

CONTROL



COLD END



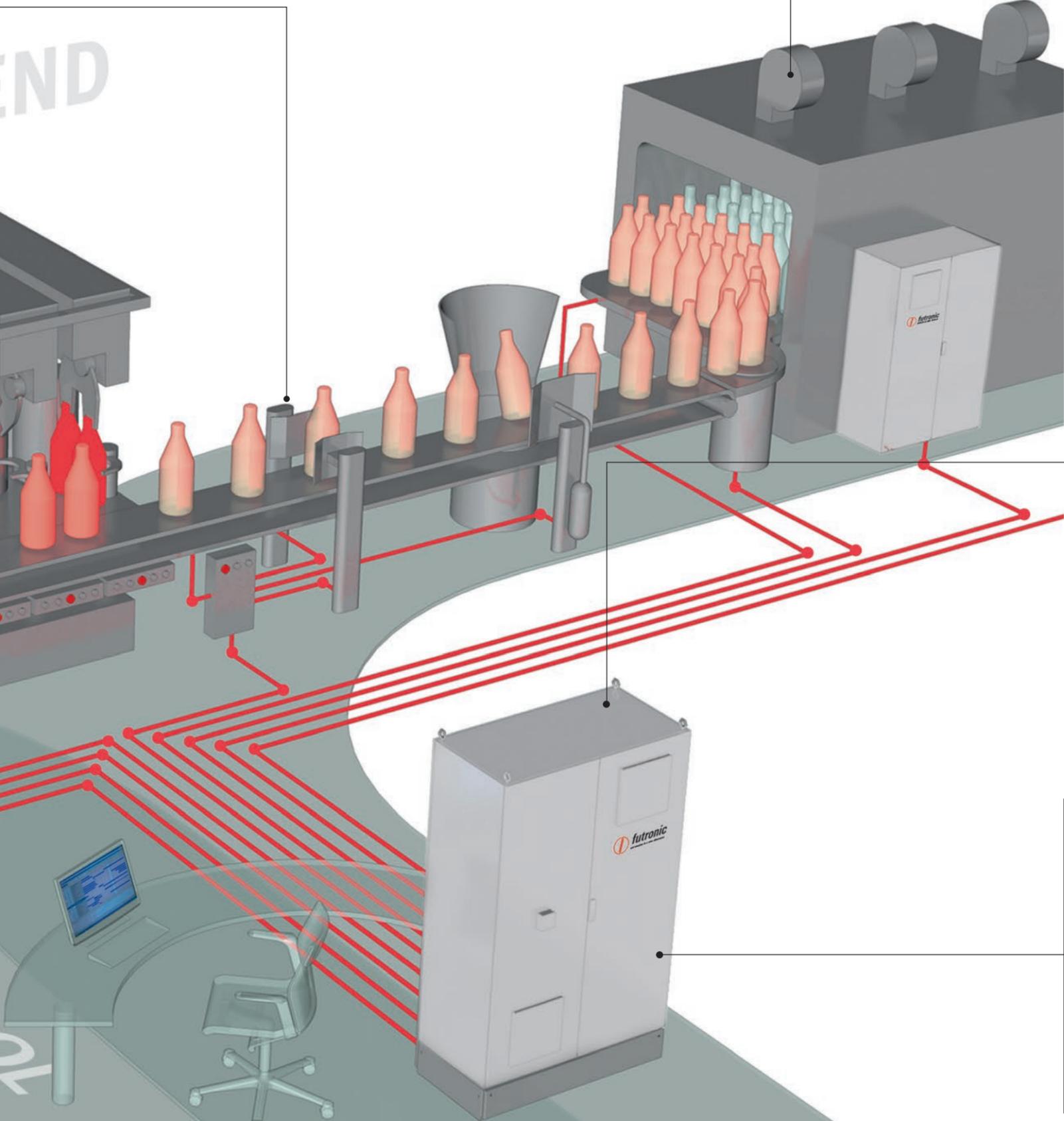
Annealing lehr control

Stress-free cooling

futronic has come up with an electronic control system that enables the complex, quality sensitive processes in the annealing lehr to be extensively automated for any type of glass container. Optimal operating conditions thus prevail in the heating and cooling zones regardless of the temperature profile. Energy consumption is down – and with it your costs.



DELIVERY



FDU24S

FDU24S

Synchronous precision

The FDU24S is a servo drive system that combines flexibility with maximum precision when individual motion sequences have to be synchronised in the machines. From servo feeders through servo shears to servo gob distributors – with the FDU24S, all servo mechanisms can be parametrised and monitored using a single, central control. The full power of the FDU24S is unleashed when teamed up with our FMT24S machine control.

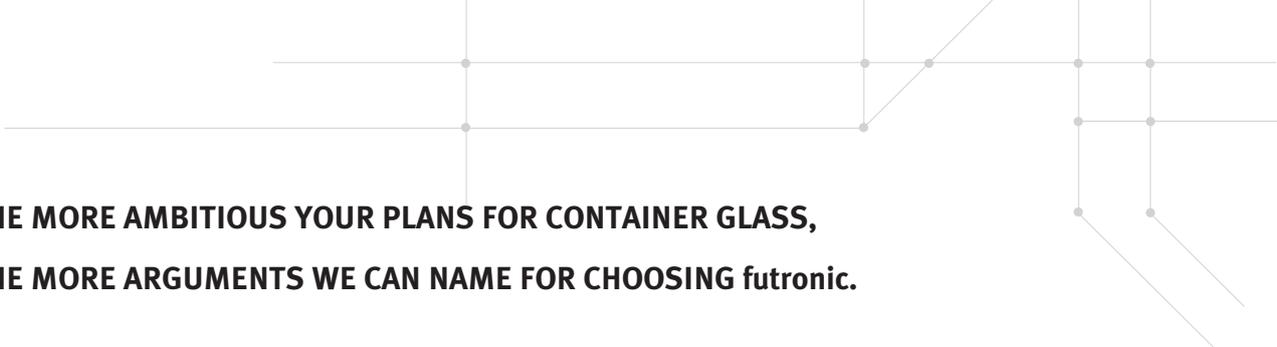
FMT24S

Everything under control

The FMT24S is a distributed control system that is capable of controlling all sequences and processes on an IS machine with anything up to 24 sections. Thanks to the consistent deployment of modern, low-maintenance bus technology, the system is fully scalable and can be flexibly adapted to meet highly specific requirements.



FMT24S



THE MORE AMBITIOUS YOUR PLANS FOR CONTAINER GLASS, THE MORE ARGUMENTS WE CAN NAME FOR CHOOSING futronic.

Control and drives in perfect harmony

The control

The distributed FMT24S (Flexible Modular Timing System) is at the heart of our solutions for container glass production. An FMT24S is capable of controlling all sequences and processes on an IS machine with anything up to 24 sections. It makes no difference who originally manufactured the IS machine. Our control solutions are fully compatible with almost any type. They are often the only way to breathe new life into an older line and fit it for the challenges of the 21st century.

The drive

Our FDU24S (Flexible Drive Unit) solution makes a perfect complement to our FMT24S machine control. It unites all an IS machines synchronous servo drives as well as any number of servo mechanisms for moulding containers under one user interface. The FDU24S can be used as a standalone solution, in combination with the FMT24S or with a third-party control.

The most important features and benefits of the FMT24S

Easy expandability

New functions can be retrofitted using additional, digital or analogue inputs and outputs – at any time in a few simple steps. Older control versions can be modernised easily and inexpensively, so that there is no need to invest in a new control.

Full servo integration

Servo motors and servo proportional valves can be controlled by a single system. Individually tailored expansions are also possible.

More flexible production

The FMT24S has multi-job capability, in other words it supports the production of different jobs on different sections of an IS machine. If necessary, you can even «immobilise» specific sections. Alternatively, our control also allows several lines to be managed from one main control terminal (MCT). You can't get more flexible than that!

Customised special programs

The process control system can be fine-tuned even more closely to each customer's

requirements with up to ten freely configurable special programs. These programs can also be executed parallel to one another.

Additional operating data

The FMT24S supports a wide range of process control systems from different manufacturers. All the operating data which is available can thus be accessed via a single user interface and utilised for custom control tasks.

Function monitoring

All actions are documented in a logbook. The output assignment is visualised on the monitor to facilitate rapid error diagnoses.

Flexible rights management

User profiles with different rights can be created to ensure flexible – and above all safe – operation on the terminal. Our electronic key system (EKS), which lets you switch between various users on the fly – can be supplied as an option.

Mobile operation in a wireless network

Our FMT24S can also be operated in a wireless network (WLAN) using a standard industrial tablet. Functional tests can then be performed directly on the machine, for instance, thanks to this mobile solution. Much less time is necessary to check individual functions.

Permanent spare parts guarantee

A long-term spare parts guarantee is something we take for granted in connection with good customer service. The availability of all essential components is assured for years to come. Even if certain parts are discontinued, we make sure a sufficient quantity are still kept in stock. If necessary, we develop alternatives of our own. Our customers profit from exceptional investment and planning security.

Simple maintenance

futronic solutions are designed with maximum reliability and minimum downtime in mind. In the unlikely event of a fault, the majority of components can be replaced in a few simple steps. If you have any questions, our hotline will be pleased to assist. Secure remote maintenance can be provided via a VPN connection if required.

Flexible training module

Only properly trained personnel can operate a machine safely. Our FMT Trainer was developed as a one-section control specifically for this purpose. It provides an uncomplicated way for operators to become more familiar with our controls and drives. The FMT Trainer can also serve temporarily as a source of spare parts store for the FMT24S.

TECHNICAL DATA

FMT24S (Flexible Modular Timing System)

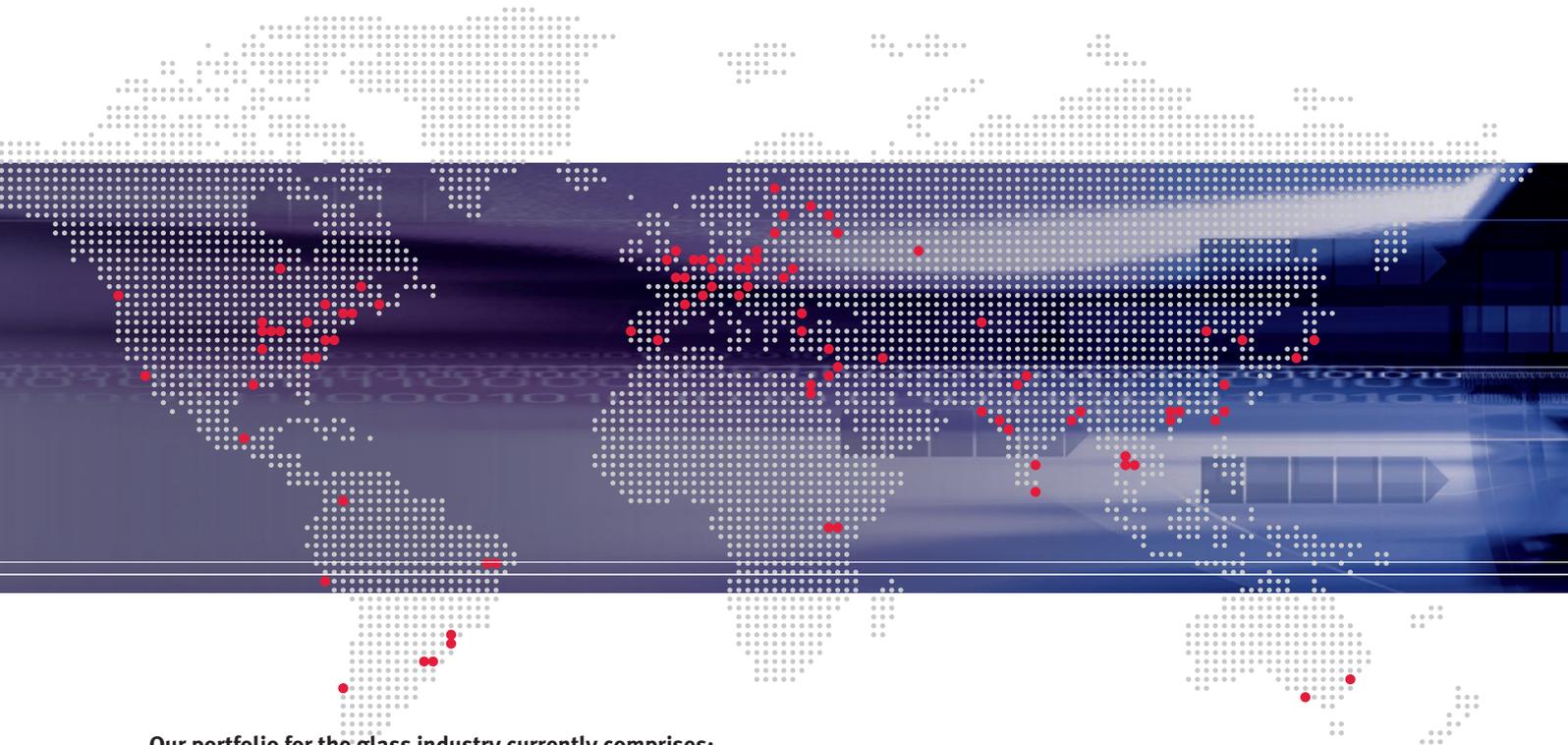
Dimensions (WxDxH)	1600 mm x 600 mm x 2000 mm
Weight	Approx. 410 kg
Housing	Steel cabinet (Rittal)
Degree of protection	IP22 (optional: IP54 with air conditioner)
Total power consumption	3 KVA
Mains voltage	3 x 320 - 575 V, 50/60 Hz
Mains voltage tolerance	±5 %
Battery backup	4 sec (internal supply only!)
Ambient temperature without air conditioner	25 °C
Ambient temperature with air conditioner	45 °C (depends on type)
Relative humidity	80 %

FDU24S (Flexible Drive Unit)

Dimensions (WxDxH)	1200 mm x 600 mm x 1800 mm Height incl. plinth: x 2000 mm
Weight	Approx. 250 kg
Housing	Steel cabinet (Rittal)
Degree of protection	IP22 (optional: IP54 with air conditioner)
Total power consumption	600 W for control plus power for connected motors
Mains voltage	400 - 480V, 50/60 H
Mains voltage tolerance	±5%
Battery backup	20 ms (400V AC); 30ms (500V AC) for 24V Electronic control system
Power electronics	JETTER servo converter
Electronic control system	JETTER JetControl 360
Operation	Integrated in FMT24S or standalone browser GUI
Drive-to-PC interface	Ethernet
Ambient temperature without air conditioner	28 °C
Ambient temperature with air conditioner	45 °C (depends on type)
Relative humidity	80 %



**futronic PRODUCTS HAVE BEEN IN ACTION
FOR MANY YEARS NOW ON ALL FIVE CONTINENTS.**



Our portfolio for the glass industry currently comprises:

FMT24S, futronic IS-machine control

Highly flexible, network-enabled machine control with a future-proof hardware platform for up to 24 sections

FMT24S Trainer

FMT24S-compatible mini control system for training, maintenance and job development

FDU24S, futronic servo drive

Drive system, fully integratable in the FMT24S environment

ASDR, futronic reject system

Reliable detection and rejection of container glass that have broken, fallen over, stuck together or been deformed

DPR1, futronic double parison reject system

Reliable detection of double parison at the hot end of the IS-machine

FLC, futronic annealing lehr control

Complex processes under control – intelligent, item based control reduces energy consumption

FFP, futronic fire polishing control system

Surface refinement using special flame treatment for high-grad container glass and table ware

FBC, futronic control system for blow machines

Combination of a machine control and synchronous drive for blow machines with up to 32 sections and 128 servo axes

FPC, futronic control systems for press machines

Combination of a machine control and synchronous drive for press machines with up to 32 sections

Please refer to our data sheets for detailed technical information about the various products.