



bürkert
FLUID CONTROL SYSTEMS



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Food and Beverage

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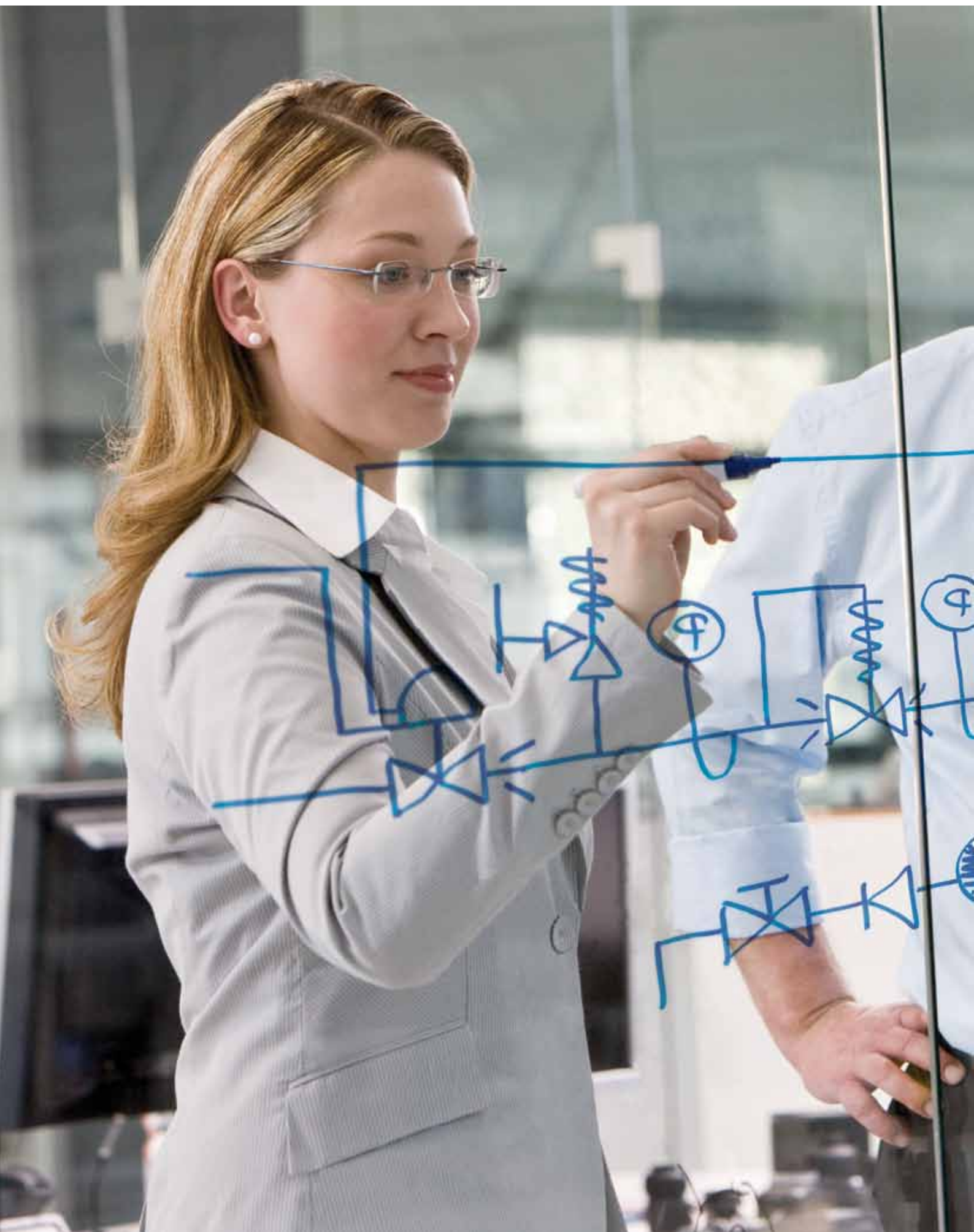
Competence in Food and Beverage Sector

Welcome to our food and beverage brochure. Inside you will find an overview of our strategic approach to serving your business needs, an insight into some unique products which provide the chance to enhance overall plant performance, make the very best of your space envelope, reduce and even eliminate dead space to optimize cleaning and ultimately achieve a higher product yield.

Through Bürkert's customer oriented segment approach we have developed our knowledge and brought together an extended portfolio allowing us to offer our customers a more comprehensive and attuned range of customized products and system solutions.

Through Bürkert's 35 international subsidiary offices and global distribution network you are even closer to these services and products. Our strong brand focuses our energies within the food and beverage arena, leaders in research and development, production capacity, knowledge transfer and especially customer service and support.

We look forward to being your partner of choice for food and beverage solutions and look forward to serving your needs in the future! Your insistence on our partnership will be highly appreciated and valued and we are confident it will be a successful and rewarding long term relationship.



With You from the Start

Our experience offers you the opportunity of a competent and knowledgeable partner from the very beginning. Whether you are undertaking a routine maintenance program or a major project we want to be with you from the very start to share our knowledge and engineer the very best possible systems and product solutions for your facilities.

Our fully trained sales force operates globally and together with our multiple manufacturing facilities and unique Systemhaus operations you are always close to a willing partner.

Our service around the world is unparalleled. We are totally committed to provide support for all of our products and the networks and applications where they are used. Satisfying your needs and requirements are our primary concern and supporting in all areas such as installation, commissioning and certification as well as general engineering and design work.

We base our partnership approach on continuous consultation. Our food and beverage experience lies in common applications such as fermentor control, heat exchange, pasteurisation, clean steam sterilisation, filtration, separation, vacuum drying systems, mixing, batching, filling and packaging, to name some of the many we work with on a regular basis.

Combined Competence

In food and beverage processing, the measuring and controlling of liquids and gases demands superior instrument performance and networkability; the equipment used has to interface seamlessly. The overall mechanical process connectivity is equally as important for maintaining sterile conditions as well as optimisation of plant performance and process security.

Standard connectivity with modular, decentralized monitoring, intelligence and diagnostics are the platform for flow control networks which provide reliable productivity data from your plant level network.

Bürkert gives you proven reliability, superior accuracy and virtually maintenance free service ensuring that we deliver unsurpassed total performance in the form of complete flow control loop systems.

Welcome to the Fascinating World of Fluid Control Systems

Measurement and control: When it comes to working with liquids and gases, we are at your side – as a manufacturer of sophisticated products, as a problem-solver with an eye for the big picture, and as a partner offering you reliable advice. Since we started in 1946, we have developed into one of the world's leading suppliers of Fluid Control Systems. At the same time we have kept our status as a family-owned business with a foundation of strong basic values to highlight the way we think and act.

EXPERIENCE

There are things which are not inherently yours. You have to gather them bit by bit. You receive them from others. And you constantly have to acquire them anew. That is what makes them so valuable. Experience is one of those things. For instance, because of our many years of experience in hygienic processing, we can provide our extensive services to you – from consulting, development, and 3D CAD simulating to testing and after-sales service. Whether individual product solutions or a pioneering new system for the entire control process: Benefit from our experience!

COURAGE

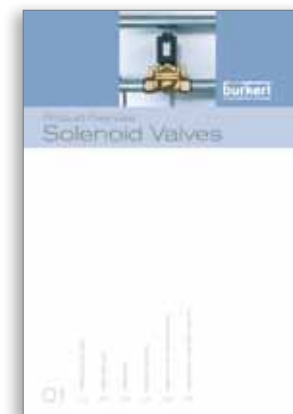
Those who only work toward optimizing things that already exist will eventually reach the limits – technically, financially, or personally. In order to overcome these limits, courage is needed: The courage to be different and trust one's own ideas; the courage to venture into the unknown, searching for new ways to develop products that have never existed before. We have this courage. By pooling and utilizing our competencies across all sectors, you benefit from our cumulative knowledge of hygienic processing systems, whether it is in the pharmaceutical or the biotechnology sector.

CLOSENESS

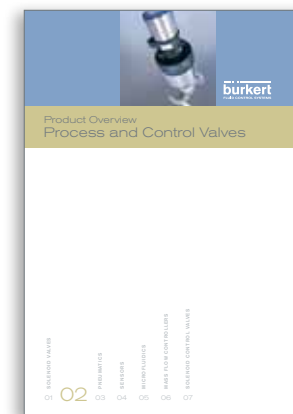
There are things we simply take for granted. Only when they are gone, do we realize how important these things really were. This applies in particular to closeness. Without closeness, it is very difficult to build relationships and a good understanding of one another. As an established medium-sized company, we know that. And that is why we are always there for you. Working with you, we develop the best possible solutions for your projects in the area of hygienic processing. Our global presence in 35 locations enables us to press ahead with technical innovations for our customers around the world.

Bürkert Product Program

We are one of the few suppliers on the market to cover the complete control loop. Our current product range extends from solenoid valves through process and analytical valves to pneumatic actuators and sensors.



Bürkert offers a remarkable range of servo assisted and direct acting solenoid valves. Read more about them in this brochure.



Bürkert offers unlimited modularity for process control with angle-seat, globe and diaphragm valves in the widest range of configurations.



Here you can find our product range of pneumatic valves, valve units and automation systems as well as information on our control cabinet building.



Here you can find our sensors, transmitters and controllers for measuring and controlling flow, temperature, pressure, level, pH/ORP and conductivity.



The brochure contains an overview of Bürkert miniature valves and micro pumps, which allow for precise and safe handling of small volumes of liquids.



This brochure provides technical background information as well as a detailed product overview for the mass flow controller and meter product range.



This brochure presents our solenoid control valves including their respective features, functions and typical applications.

Hygienic Virtual Plant

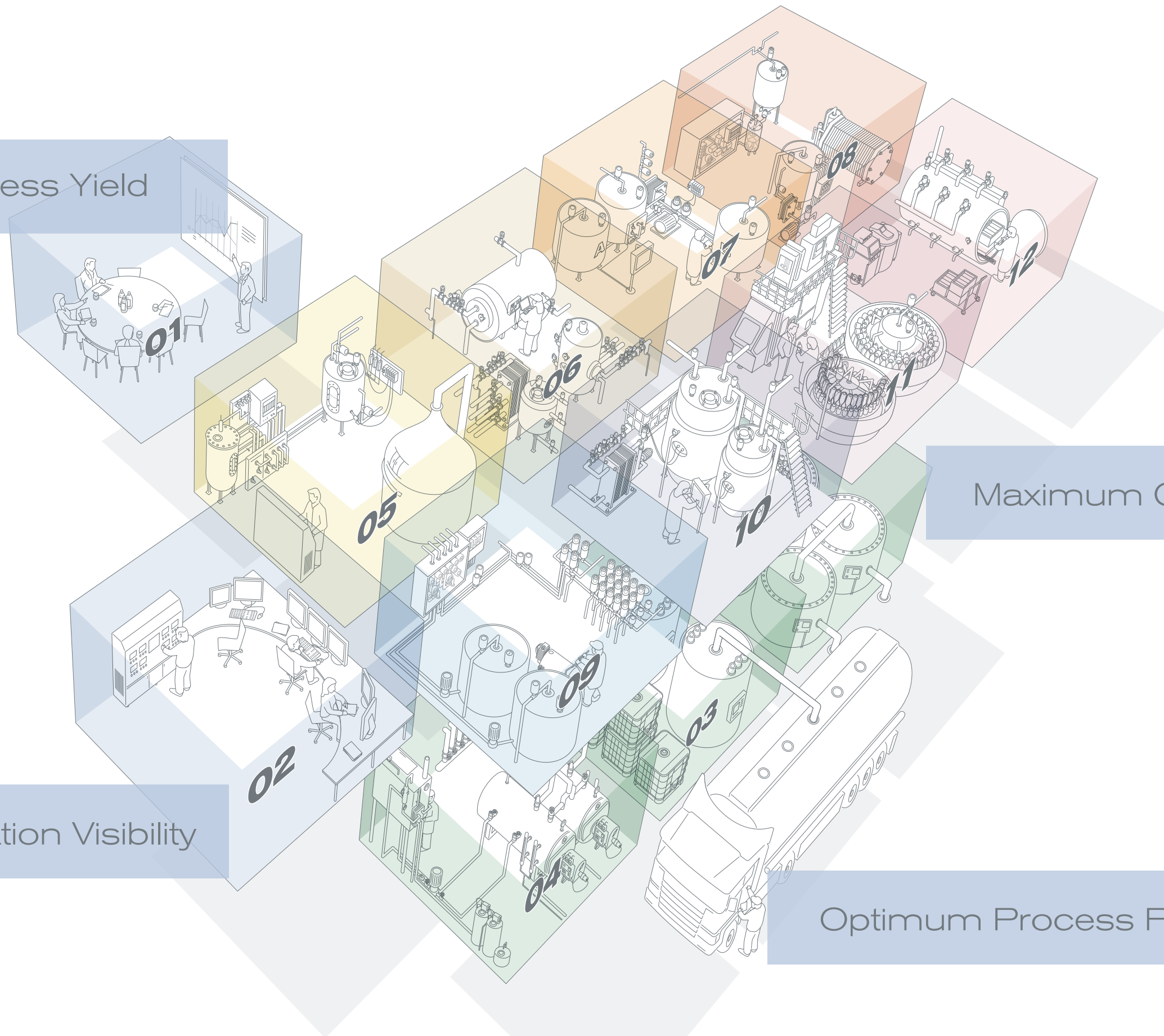
Higher Process Yield

- 1 Board Room
- 2 Control Room
- 3 Delivery & Dispatch
- 4 Boiler House
- 5 Fermentation
- 6 Heat exchanger
- 7 CIP/SIP
- 8 Filtration
- 9 Batching
- 10 Cooking
- 11 Filling
- 12 Sterilizers and Autoclaves

Maximum Cleanability

Full Automation Visibility

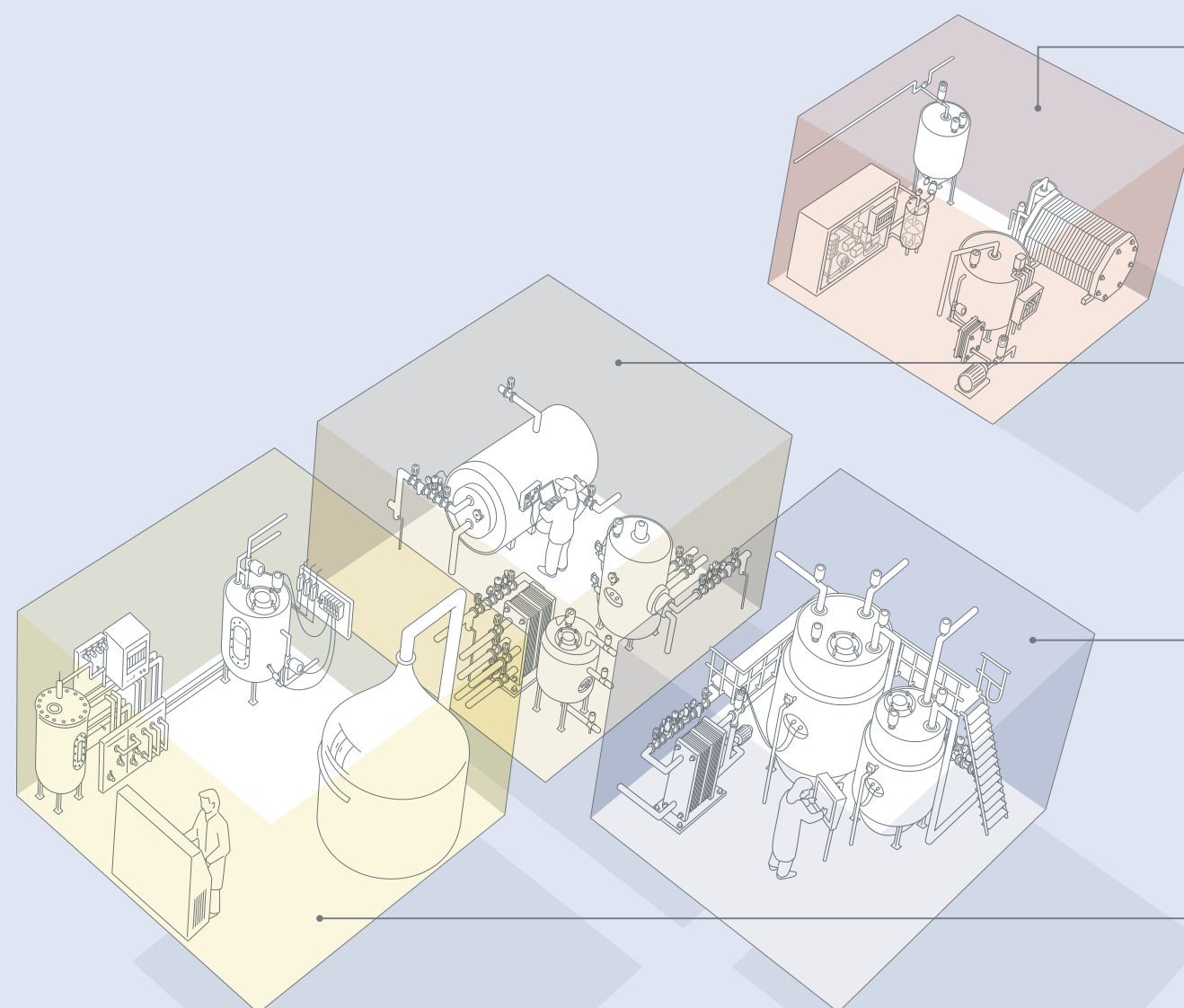
Optimum Process Flexibility



In the Process

In the food and beverage world, where compactness, smart communications, plant footprints, cleaning and sterilization, dead legs, cross-contamination, and validation are everyday concerns, Bürkert provides process efficiency and higher yields by offering unlimited process modularity. End-users

profit from our experience. And in addition to convincing functionality and cleanability, all instruments and components are not only good looking, they are also flexible, and can be used in many different processes – for even easier operation, internal processing, and preventative maintenance.



Filtration

From filtration of beer to separation and identification of dairy proteins, our unlimited modularity saves you valuable plant space and offers you peace of mind from dead legs and cross contamination. Less welding means less validation, and our patented designs provide faster crossover times, higher process efficiencies, and higher yields. Our unique Robolux multiway/ multiport valves are compact and smart and our instrumentation for pressure, level, conductivity, and pH is easy to commission.

Heat Exchange

From pasteurizer control to simple tempering of water, autoclaving of canned food to sterilization of pipework and vessels, our experience is heat exchange control. Our control solutions offer ease of use, fast reaction times and a reduced footprint for all kinds of heat exchange applications. Through constant innovation our technology is designed to work with you to find the best results.

Cooking

Experience gained over many years working with soups, jams, sauces, chocolate, beers and juices means we can accurately control jacketed kettles, direct steam injection and industrial cookers and steamers to perfection. Our dedication to innovation means we understand batching and continuous heating processes. Our experience in process loops, communication and integrated PID means we are the smart choice for fluid control systems.

Fermentation

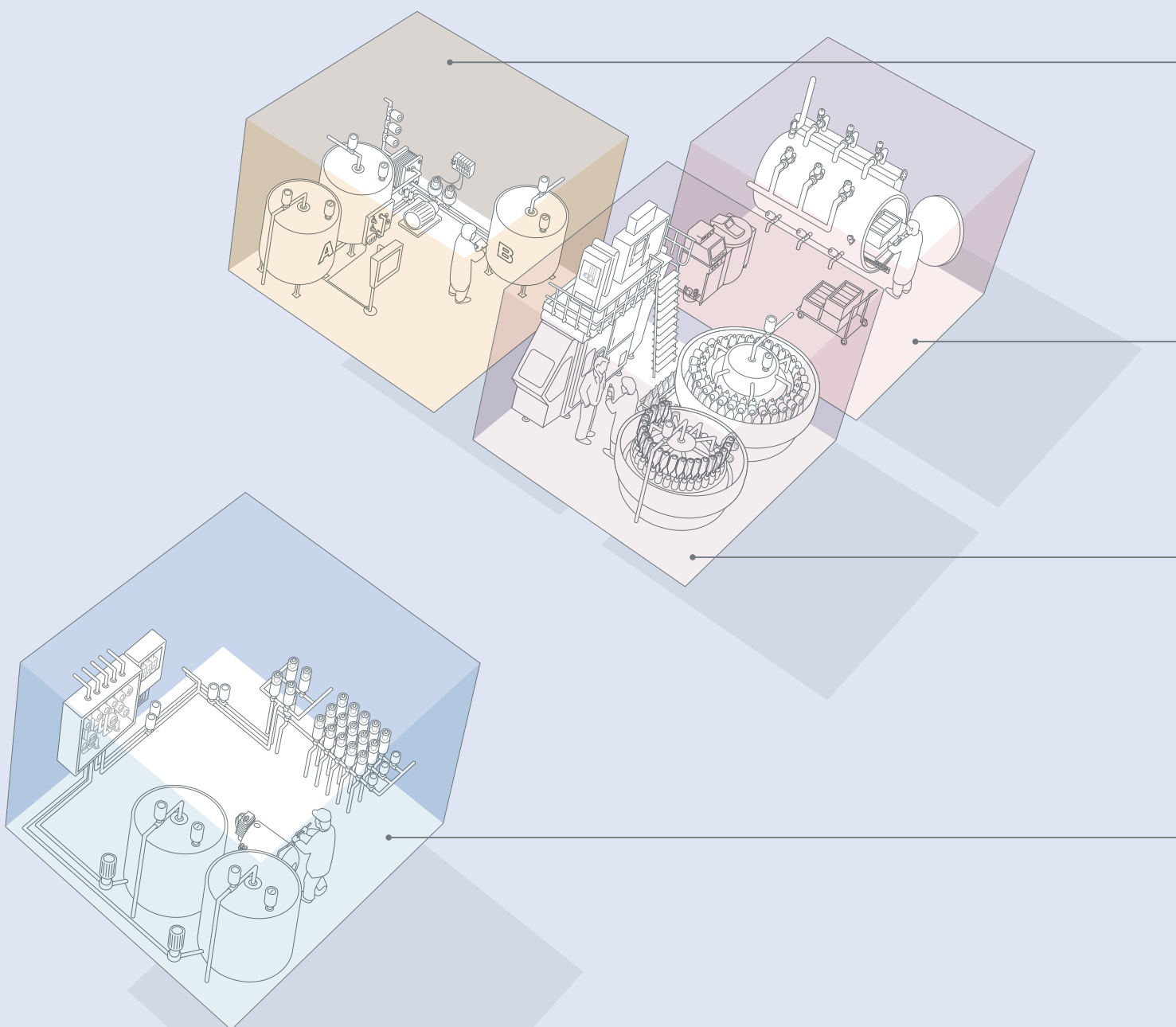
Fermentation provides a diversity of flavors, aromas, and textures in food substrates. It preserves, enriches, and detoxifies and produces important nutrients and drugs. Process safety is evident in our components for fermentor gas control, pH and pressure monitoring, and modular fieldbus solutions which are used to join individual reactors into coordinated processes.



In Support

Food and beverage manufacturing that work in the background to provide support to the main processes. This means controlled batching and filling of ingredients and the effective cleaning and sterilisation of the direct contact process elements and finished media. These applications are critical in upstream integrity as well as overall plant

performance. Each area demands strict control and yet flexibility is often a key desire - Bürkert make certain that both mechanical and instrumentation equipment are system designed to realise these goals, offering enhanced plant lifecycle and availability, added to high integrity and process owner satisfaction.



CIP

Your customers place trust in your product and safety is related to your brand. Each stage of your CIP/SIP regime can be controlled and safely documented. Our stable and rugged components are designed for the harsh shifts from acid to base, and for the demands of washdown. Our components and system solutions bring peace of mind. Your pH, conductivity, pressure and flow are all important to your consumers. All of the CIP parameters are safe in Bürkert's hands allowing you to make your product with confidence.

Sterilisers and Autoclaves

Infection protection is a rapidly growing industry where sterility and reliability are crucial. Our hardworking valve and sensor elements can be found in sterilizers and process autoclaves in pilot laboratories, food plants and breweries around the globe. We take time to understand your process requirements, delivering accurate and safe solutions time and again.

Filling

Your production lines rely on the speed of your filling lines. Whether you fill 200 barrels per day or 20,000 packs per hour, our unique solutions help you exceed your targets. Whether you are filling portion packages, cartons, briks, bags, or kegs, we are part of the solution for long, high volume production runs at lower operating costs. Whether your goal is cost-driven innovation for a new machine, getting the whole fruit into a yogurt container, or boosting production on your filling floor we are here to help.

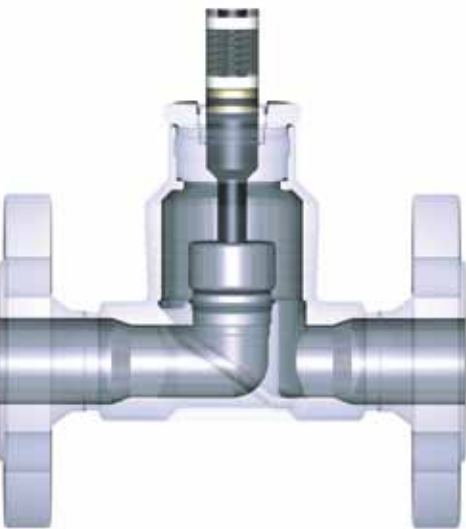
Batching

From simple components to dose chemicals and specific valves for yogurt filling to fully tested and approved systems for bread ingredients or pasta sauce. We have batched food ingredients such as cookie mix, flavours and fragrances, cocoa butter ingredients, liquid flour, and syrups with whole fruit pieces. Only the right ingredients count for the right taste and texture.



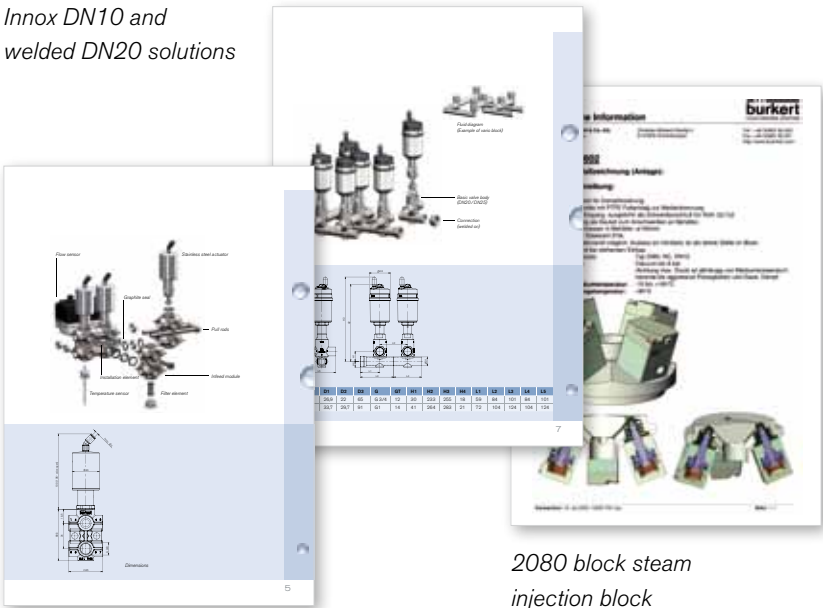
Documentation and Validation

Supporting the validation requirements of our clients and customers every time, we have extended our quality culture to certification and documentation for food and beverage specific requirements. Optimized traceability, the elimination of waste from handling procedures and innovative supply chain/transformation processes raise our level of capability. We are ready to react and deliver to new market requirements by supplying a full range of supporting paperwork with each of our fantastic products.



3D-Visualization tools
for process efficiency

Innox DN10 and
welded DN20 solutions

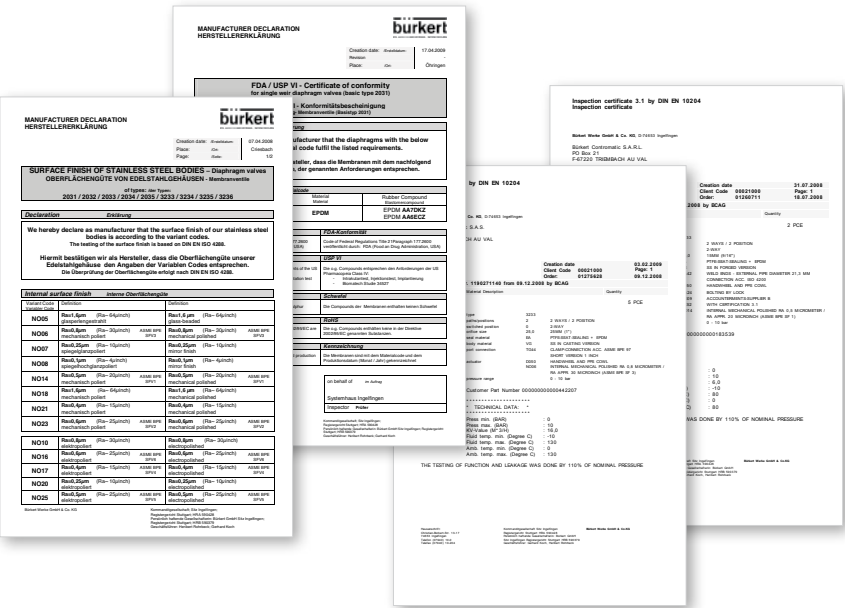


System block

2080 block steam
injection block

Global Certifications

- Level 2.2 Conformance Certification
- Level 3.1 Material Certification
- FDA compliance statement
- General Arrangement Drawing in all formats
- Instruction, Maintenance and Operation Manual
- CE Statement
- ATEX Certification
- Re-stamping & traceability
- Surface Finish Profilometer Report
- Welding Certification
- CE Declarations
- 3A Certification
- EHEDG Certification



Quality documentation to simplify
your validation process



Materials Specifications

Metallurgy

The use of stainless steel is widely endorsed in the food and beverage market segment; but the exact grade and finish of the material will determine the most important contribution to process efficiency and security against contamination or resistance to corrosion. A steel alloy has a minimum content of 10% chromium which defines it as stainless steel; this content is sufficient that chromium oxide forms a passive film across the surface and protects against surface corrosion as well as inhibiting internal material structure corrosion.

Ensuring low ferrite content raw material and optimised manufacturing processes are standard practice and together with appropriate validation certification mean that you are assured of quality every time.

Welding components inline for optimum tightness and process integrity demands high quality materials. Metallurgical knowledge is extensive throughout our organisation and covers a wide range of exotic materials like Hastelloy and tantalum for extreme applications.

Elastomers

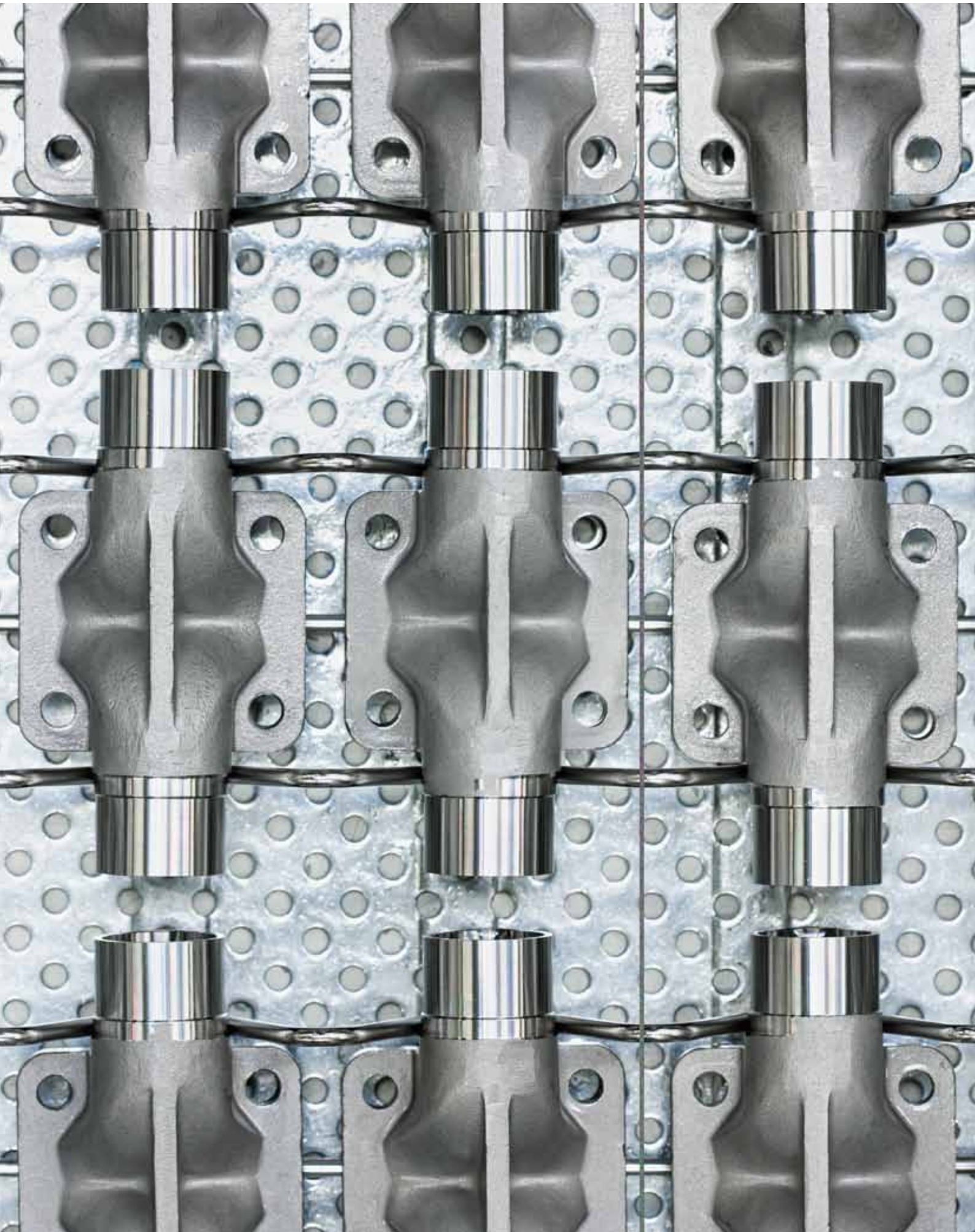
Elastomers are materials that can be stretched or compressed repeatedly but upon release of stress return to almost their original size and state. Their resistance to different process media, cleaning media and temperature cycles are critical success factors in a food and beverage installation.

The use of EPDM, Advanced PTFE and many other elastomer materials is controlled through regulatory bodies such as FDA (Food & Drug Administration) and European Food Safety Authority- EFSA. Our qualified and experienced engineers have vigorously tested each of the grades of elastomer in our laboratory facilities to gain satisfactory approval for use.

Whether used for sealing gaskets, soft-seats, o-rings or diaphragms or used in the construction of special process interfaces, all such materials used by the alliance meet the necessary grade and ensure your peace of mind.

Metallurgy	
AISI	A182, A479, 316L
ASTM	ASME BPE
DIN 17440	1.4435 BN2 2 CrNiMo 18 12
British Standard	970 316 S12
AFNOR:	Z 2CND 17-13
Ferrite	< 0.5 %

Elastomers	
EPDM	FDA CFR #21 177.2600 USP Class VI 121 °C
Advanced PTFE	FDA CFR 177.1550 USP Class VI 121 °C
Full FDA compliant certification and traceability is provided.	



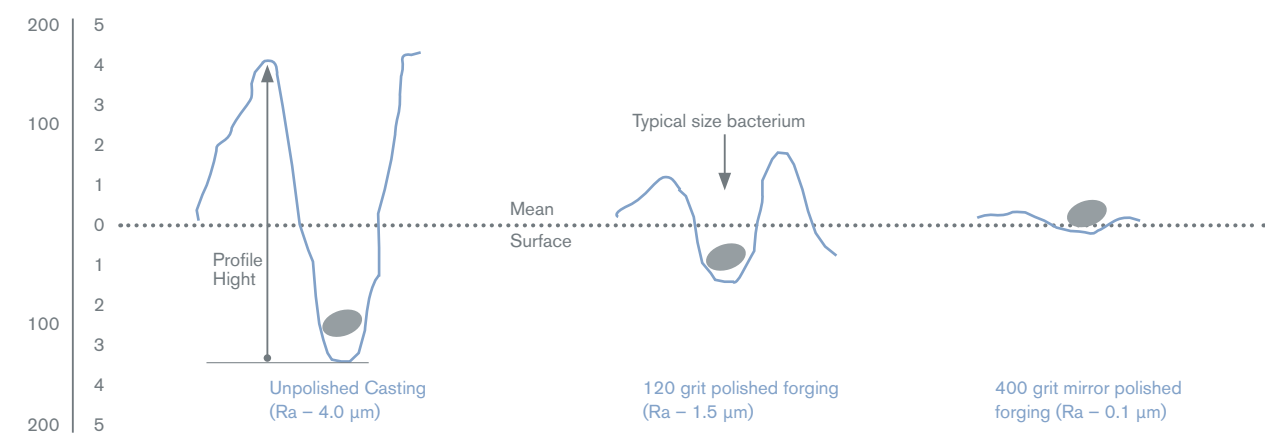
Perfect Surface for Process Efficiency

All Bürkert valve bodies are machined and finished in house using the latest computer controlled CNC machines and measurement equipment. A high surface quality by precision machining followed by grinding or polishing is required for the cleaner applications, ensuring the surface is free of shrink-holes, scoring and other roughness phenomena and free of impurities.

Virtually ferrite-free alloys prevent contamination which may occur due to the use of cast pipe sections.

One key to hygiene is the high quality of stainless steel and in some cases a high surface.

A high surface quality is demanded, particularly in the Dairy applications. The high-quality surfaces meet the stringent requirements concerning purity in the processes.



Electropolishing offers a 50 % reduction of roughness by smoothing the surface. The operation also reduces the surface tension and increases corrosion resistance by creating a high-chromium oxide barrier. Electropolishing optimizes cleanability and sterilizability and removes any chance of contamination by lubricants or grain particles. It also gives the beautiful appearance expected in the industry.

Surface finish											
Ra µm	6.3	3.2	2.7	1.6	0.89	0.75	0.625	0.51	0.375	0.28	0.25
Ra µInch	250	128	108	64	35	30	25	20	15	11	10
Grit					150		180	240	280	320	330

1. Networking

Automation Concept – Centralised

The heart of Bürkert's food and beverage expertise. With clients around the world at research and development installations, production facilities, integration experts and machines builders we have exceeded market expectations for modularity, performance and ease of use.

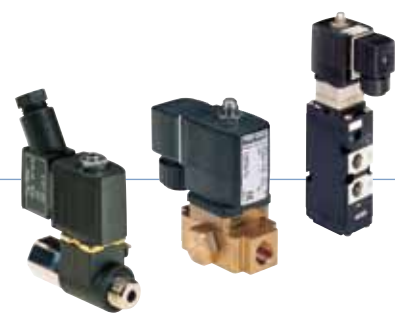
Whether you prefer centralised or decentralised pneumatic control for your process, and no matter which automation solution fits best to your food and beverage application, Bürkert offers the matching concept.

- AirLINE automation system in classic control cabinets as a centralised solution
- AirLINE Quick in stainless steel hygienic designed enclosure boxes, as a compact and flexible standard module for centralised process control
- Control heads designed according to EHEDG guidelines, offering a clean hygienic and decentralised automation solution (see page 24)



Pneumatic Process Interface Centres

Bürkert offers the widest range of equipment to actuate, monitor, network, position and decentralize process control into the field. Each component is the product of cross functional mechanical and electrical engineering innovation and exacting laboratory testing. Each of building blocks is ready to be included in your complete automation strategy.



Types 6519/6014p/6012p – Pilot Valves

It's your choice. From the simplest banjo valve to a fieldbus enabled multichannel pneumatic valve island, we fit around your needs and can help to develop flexible interfaces between your process and your control system.



Type 8640 – AirLINE

The 8640 valve unit system is designed to solve diverse and complex control problems due to its systematic modular construction and combination of pneumatic and electrical interfaces. By putting together a row of pneumatic modules with different numbers of valves, 2 to 24 valve functionalities can be optimised to your needs, with the added benefits of IP54 environment protection. Communication can be achieved with wiring or fieldbus technique.



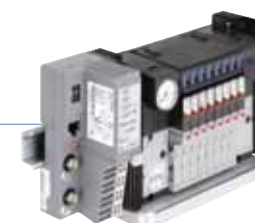
Type 8640 – AirLINE Quick

The Type 8640 valve island is expanded by AirLINE Quick with a stainless steel adapter plate and stainless steel push-in connectors for hygienic applications. Installation and commissioning times are reduced to a minimum. Installation location of the valve island is a choice between either cabinet wall or floor mounting, the flexible AirLINE Quick system supports both options.



Type 8644 with Siemens ET 200S – AirLINE Quick

Remote process actuation control system AirLINE, fully compatible with Siemens ET 200S. It integrates high performance solenoid pilot valves, remote electronic I/O and fieldbus communication into a process actuation and control system that is both compact and extremely flexible. In addition to the existing solution the AirLINE Quick version helps you to reduce the number of components in the control cabinet.



Type 8644 with Rockwell Point I/O – AirLINE Quick

Groundbreaking modular system in protection class IP 20 with multiple communication possibilities including ControlNet, DeviceNet, Ethernet and Profibus DP. Fully compatible with Rockwell Point I/O. In addition to the existing solution the AirLINE Quick version helps you to reduce the number of components in the control cabinet.



Type 8644 with Wago 750 – AirLINE

Remote process actuation control system AirLINE, fully compatible with WAGO I/O System 750. It integrates high performance solenoid pilot valves, remote electronic I/O and fieldbus communication into a process actuation and control system that is both compact and extremely flexible.



Type 8644 with Phoenix Inline - AirLINE

Remote process actuation control system AirLINE, fully compatible with Phoenix Inline System. It integrates high performance solenoid pilot valves, remote electronic I/O and fieldbus communication into a process actuation and control system that is both compact and extremely flexible.



Automation Concept – Decentralised

Bürkert presents a wide range of control heads and positioners which have been specially optimised for the decentralised automation of pneumatically controlled hygienic process valves.

The different control heads can be assembled onto the Bürkert ELEMENT range or adapted to hygienic control valves. The control head 8681 can be married with all commercially available valve types such as butterfly valves, ball valves, single and double seat valves. Making it a universal standard solution for automating the complete process installation.



Control head / Positioner for Decentralised Automation

Bürkert offers the widest range of control heads to actuate, monitor, network, position and decentralised process control. Each component is the product of cross functional mechanical and electrical engineering innovation. Each of the blocks is ready to be included in your complete automation strategy.



Type 8690 – Pneumatic control unit

Next generation feedback for both ELEMENT and CLASSIC actuators. Contains 2- or 3-wire mechanical or inductive feedback switches. A really rugged package that will survive the toughest wash down environments.



Types 8691/8695 – Control head

A control head mixes the benefits of local pilot with feedback in one package. Bürkert has the advantage of being able to control the quality of the components inside as they are our own standard products. Add one, two or three pilot valves with mechanical, inductive or sensorpad feedback. Then plug and play.



Type 8681 – Universal control head

The Type 8681 control head is optimised for decentralised automation of hygienic process valves. Thanks to its universal adapter it can be combined with commercial butterfly valves, ball valves, single and double seated valves. With a decentralised automation concept, the control head takes over all pneumatic actuation, feedback and diagnostic functions, including field bus communication. Easy to clean with proven electrical IP protection and chemically resistant for use in food and beverage industries.



Types 8694/8692/8693 – Positioner and controller

The innovative positioner and controller range offers a complete automation concept for integration into the most up-to-date control systems. Designed for tough and agile process environments the devices design is particularly suited to the specific requirements of users in the food and beverage industries in terms of size, shape and cleanability, footprint and access code security.



Types 8791/8792/8793 – SideControl positioner

The robust and compact positioner is designed to standardisation acc. to IEC 534-6 or VDI/VDE 3845 for assembly with linear and rotary actuators. The digital electropneumatic positioner SideControl can be operated with the usual current and voltage standard signals and can also be equipped with the fieldbus interface PROBUS DPV1. Additionally to the digital graphic display the valve opening is signaled by a mechanical indicator element.



2. Valves

Process Yield Magic

Food and beverage customers need to be certain about their process. Often to gain the best possible result for your process, our Engineers are required to design bespoke solutions to meet your specific needs and requirements, optimising key system factors for best process efficiency and highest possible yield.

In recent years the development of complex block and multi port valve solutions has proven advantageous for achieving smaller footprints through compact design; this has led to solutions that are extremely cleanable as and when required by the process.

The use of manual and pneumatic actuators with different options for stroke limitation, feedback of position even and very often in-built full PID control can be combined with any valve solution or can be implemented in more complex multi-port solutions, meaning even higher levels of performance can be ascertained. The unique Robolux valve, which makes use of a double weir-single diaphragm-single actuator design, is the ultimate solution for achieving all of these criteria.

Exceptional solutions can be provided by combining our available valve technologies, and we have some of the most experienced design engineers who can bring your ideas to life in a virtual 3D model so that you can visualise the process enhancements as they are developed for you.

Utilities			
Process			

Valves

Making your life simpler, our groundbreaking innovation has created a remarkable range of attractive and hardworking valve elements which can be combined to give the user the best possible fit for purpose. With unlimited modularity, Bürkert saves you time by offering valves for media from slurries to clean steam and from de-ionized water to hydrochloric acid to save you time and offer peace of mind with the sure knowledge you have chosen experience and quality.



Types 2000/2100 – 2/2 way Angle-Seat Valve

Reliable and maintenance-free pneumatically operated angle seat valves, available in the original Classic style for the most robust situations and the Element, suited to “cleaner” applications. There are versions in brass and stainless steel ranging from 1/2" - 2 1/2" (DN 13 - 65). High flow rates and cycle life are extended due to their frictionless seat design, self adjusting packing and class leading features. The valves are complemented with a range of automation modules, whether they are electrical/optical position feedback, pneumatic control heads and integrated fieldbus interfaces.



Type 2300 – 2/2 way Angle Seat Control Valve, Element design.

The angle seat design results in a flow characteristic result approximately 35% greater than conventional control valves and the parabolic trim ensures great control results. Available in stainless steel trim or PTFE soft seat versions to suit your media and application requirements. Simple integration of automation modules whether they are digital electropneumatic positioner or process controller (which includes in-build PID functionality).



Type 2000 Inox – 2/2 Angle Seat Valve

The externally piloted angle-seat valve is operated with a single acting piston actuator. The pneumatic piston actuator is constructed from stainless steel and incorporates a proven self adjusting packing gland, to ensure high media leak tightness. The 2/2 way body is made from a high quality stainless steel casting, with a flow optimized design enabling high flow rates.



Types 2012/2101 – 2/2 way Globe Valve

A hard working on/off valve for demanding media and steam applications. Unrivalled cycle life by virtue of a proven self adjusting packing gland and impressive sealing integrity. The fully integrated system has a compact, smooth design, integrated pneumatic lines, IP65/67 protection class and superior chemical resistance.



Type 2301 – Globe Control Valve, Element Design

All stainless steel continuous control valve, robust and maintenance free for challenging control applications. With a comprehensive range of reduced trims, you can fit line size bodies with duty specific removable trims, giving the huge benefit of reduced installation time and cost. It can also be combined with our comprehensive range of positioners and controllers featuring integrated graphic display, easy to use PID controller, internal air channels, PC interface and contactless positioner feedback.



Multi-functional System

The modular block systems based on ELEMENT & CLASSIC solutions from Bürkert open up whole new possibilities for your individual valve housings. They require less installation space and absolutely no connecting elements such as elbows or T-pieces which may be prone to leaks, and therefore supersede flawed connecting pipe-based solutions. And they do all this while increasing the safety of your system and markedly reducing the amount of effort required for installation.

Valves | Process

This overview represents only a few of the diaphragm valve configurations we are able to offer you.



Types 3233/3233SS – 2/2 way Diaphragm Valves

Manually operated these valves consist of a flow-optimised stainless steel body with various surface finishes, a diaphragm and a hand wheel style actuator. The valves have no dead volume and can be mounted to be self-draining, enabling high flow capacities. The valves can also be autoclaved.



Types 2031/2103/2031SS – 2/2 way Diaphragm Valves

Hermetical separation of fluids from the operating mechanism by diaphragm. With its favourable flow characteristics and zero dead volume, the valve body enables high flow capacities and a variety of applications solutions can be optimised. Available with classic, ELEMENT and full stainless steel pneumatic actuators suitable for use with all our control heads.



Types 3235/2033/2105 – Tank Bottom Valves

Designed for control of sterile, aggressive, viscous and consumable fluid media.. Enables optimal filling and emptying of vessels with less dead leg. The high quality diaphragms hermetically separate critical fluids from the actuator. The valve body consists of a single block with no weld seam, machined out of high quality stainless steel. Valves are available with classic, ELEMENT and stainless steel actuators.



Type 2080 – Bellow Valve

The Type 2080 offer security, using full media separation between the media and the valve actuation, coupled with a reliable pneumatic piston actuator with return spring and a stainless steel body. With the appropriate installation (body to bottom) the valve is self-draining and the materials used and the internal contours are simple to clean by CIP and SIP procedures makes this a perfect valve for food processes technology.



Type 2035 – Robolux Multi Port Diaphragm Valves

This Multiway-Multiport Diaphragm Valve system is designed for control of aseptic, steam and CIP fluid paths. It enables optimal sampling, draining or diverting of critical process fluids. The valve range is based on the patented Robolux technology, where two seats are placed under one diaphragm. This design eliminates dead legs and will minimize the flow system volume. The stainless steel actuator fits perfectly for Food and Beverage processes.



3. Process Connectivity

Perfect Solutions

Bürkert's experience of mechanical connectivity means that the process can run continuously and smoothly with the security of safe and sterile connections throughout the plant.

This gives customers a combined process performance including:

- High product yield
- Flexible process lines
- Constant process efficiency
- Fast and flawless cleaning cycles
- Minimum maintenance

Our range of weld unions, quick connectors, flanges, fittings, hoses, and pipes are designed and manufactured with all of these criteria in mind and they also bring you the benefit of virtually unlimited modularity.

As an example of our innovation in your food and Beverage world, BBS Sterile QuickCONNECT system employs standard dimension norm o-rings which fit neatly into precision machined grooves and minimizes potential bacterial traps; the sealing between components is the same whether it is for unions, flow indicators, check valves or specialty components.

Whether the connection is clamped, threaded or flanged each product is designed to ensure that your process will flow without obstruction.

By using this in-built modularity, the ability to react to extra process needs or enhancements can be made simply and quickly; for example - inserting an inline filter or orifice plate. All materials are fully traceable and meet current regulatory standards; certification and compliance statements are readily available.



Type BBS-10
Ball Check Valve



Type BBS-05
Sterile QuickCONNECT



Type BBS-06
Sterile Flange

Process Piping Solutions

Unlimited modularity is derived from a complete range of high quality and flexible piping components. Latest manufacturing techniques are employed to ensure precision machined components match exactly with your needs. All made to enhance your success.



Type BBS-02 – Seals Gaskets and O-Rings

Wide range of materials with the right certification and a unique level of traceability.



Type BBS-03 – Sterile Unions

Sterile unions that provide aseptic connectivity and enhanced process flexibility. Available for all standards and optional material like Hastelloy. ASME BPE, DIN, ISO and BSOD. All sizes.



Type BBS-3F – Inline Flow Indicators

Flow indicators – full view, partial view or flange mounted vessel sight glasses. Pressure and temperature resistant. The borosilicate glass used is suitable for CIP and SIP applications and can be provided with protective mesh upon request. Process connections according to your plant requirement.



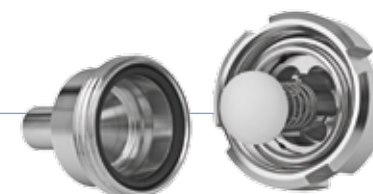
Type BBS-06 – Sterile Flanges

For increased process security and integrity these sterile flanges are available to suit your exact fine chemical (API) or pharmaceutical process plant requirements.



Type BBS-25 – Clamps

Expansive selection of high quality clamp connections, ferrules and unions can be supplied as individual components or as pre-validated sub-systems.



Type BBS-10 – Ball Check Valves

Ball check valves designed for sanitary applications where clean ability and safety are critical factors. Selection of materials available on request. Diaphragm check valves are also available.

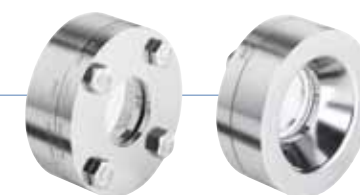
Process Piping Highlight – Unique Sterility



Type BBS-25 – QuickCONNECT Clamp System

One example of our innovation in the Food and Beverage market is the BBS QuickCONNECT system. A connection concept that has been design in accordance with the EHEDG guidelines and brings a number of advantages:

- No contamination of the medium
- Lower water consumption
- Short sterilization times / low energy requirements
- Large product yield and larger return
- Small seal
- Short rinse time
- Lower overall material need
- Shorter cool and heat up times
- Optimized production cycle.



Type BBS-07 – Tank Flanges

Tank Flanges and Tank Sight Glasses – have a low profile design and enhanced drain ability. They are all provided with unique o-ring seal design and are stress/crack/shatter resistant. All are designed to withstand cleaning cycles and temperatures and high pressure versions are available.



Type BBS-11 – Side Wall Instrument Port

Also know as Ingold connections, these products have a wide range of uses from instrumentation to sampling systems. Designed for optimum performance with an in-built feature to guarantee operator safety

Process Vessel Solutions

We offer a wide range of vessel components as well as complete vessel solutions for bespoke applications. Materials of construction are according to your process needs and where required exotic materials and special construction provide safe and reliable solutions. All vessels and components are designed for maximum sealing integrity and ease of use.

Vessel components include:

- Sterile access ports
- Man-way covers
- Side wall instrument ports
- Tank sight glasses
- Tank flanges
- Tank mounted valves
- Stroke bottom drain valves

4. Filling Systems

Precision at Every Point

Your production lines rely on the speed of your filling lines. Whether you fill 200 barrels per day or 20,000 packs per hour, our unique solutions help you exceed your targets.

Whether you are filling portion packages, cartons, briks, bags, or kegs, we are part of the solution for long, high volume production runs at lower operating costs. We help you to reach higher productivity and greater space efficiency in high-speed filling machines and we solve sticky problems at the plant level. Our products have proven themselves with superior cycle life, sterility, accuracy, and repeatability in plants around the world.

Our support and experience is ready and willing. Whether your goal is cost-driven innovation, getting the whole fruit into a yogurt container, or boosting production on your filling floor we are here to help.



Type 2080 – Bellow Valve

Clever design and experience in food and beverage delivery systems results in a specifically contoured valve internal that makes it easy to clean and sterilise. Our piston technology lends itself perfectly to high speed response times, and long-life process availability, ensuring that your filling programs are delivered accurately and repeatedly.



S056 – Full bore sanitary magflow meter

Combined with our Element process valve range, you can control batching of food and beverage media and flow measurement with high speed and accuracy, ensuring a safe and precise delivery.

5. Gas Control

Mass Flow Measure and Control

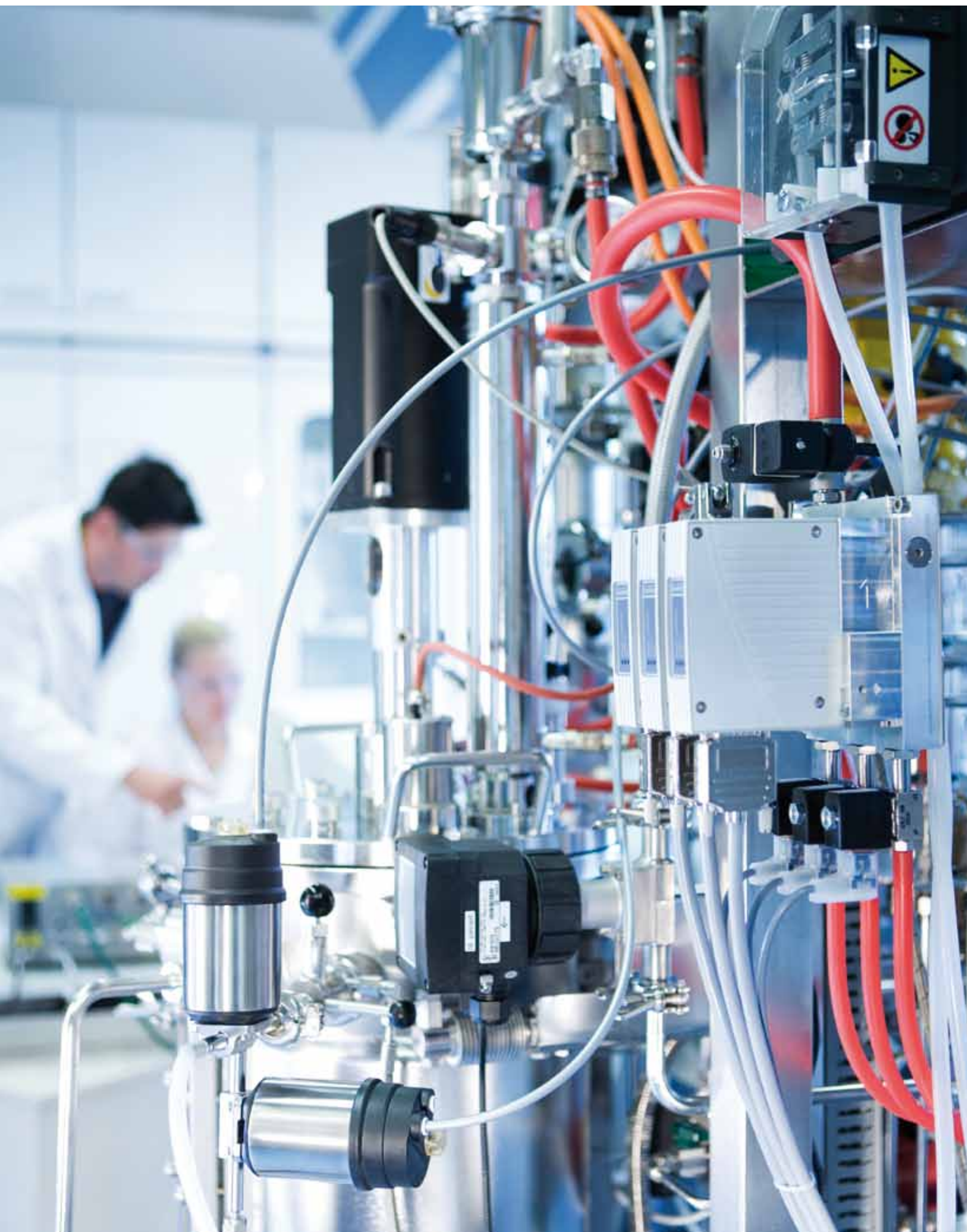
Working hand-in-hand with a host of international clients we have developed some of the most advanced gas blending equipment in the world.

We control protective or reactive mixtures by combining various in-house technologies including thermal mass or differential pressure flow and precision solenoid control valves to form perfect loops.

Each of these loops or subsystems offers documented ratio control with millisecond reaction times and, importantly, fewer sealing points. The system operator benefits from high levels of repeatability and flexibility without the cost of expensive, less stable pre-mixed gases.

Process gases are indispensable in pharmaceutical manufacturing, from the fermentation right through to the packaging processes. Inert gases are used for example to protect packaged drugs against the effect of atmospheric oxygen. The combination of inert gases and reactive gases such as N_2 , CO_2 , O_2 are used in the fermentation process to give the microorganisms a precise atmosphere to achieve a high yield. Whatever the application, it is all down to precise regulation, constant control and accurate metering of the gas media, ensuring a consistent and reproducible result, whilst maintaining process security and limiting costs.

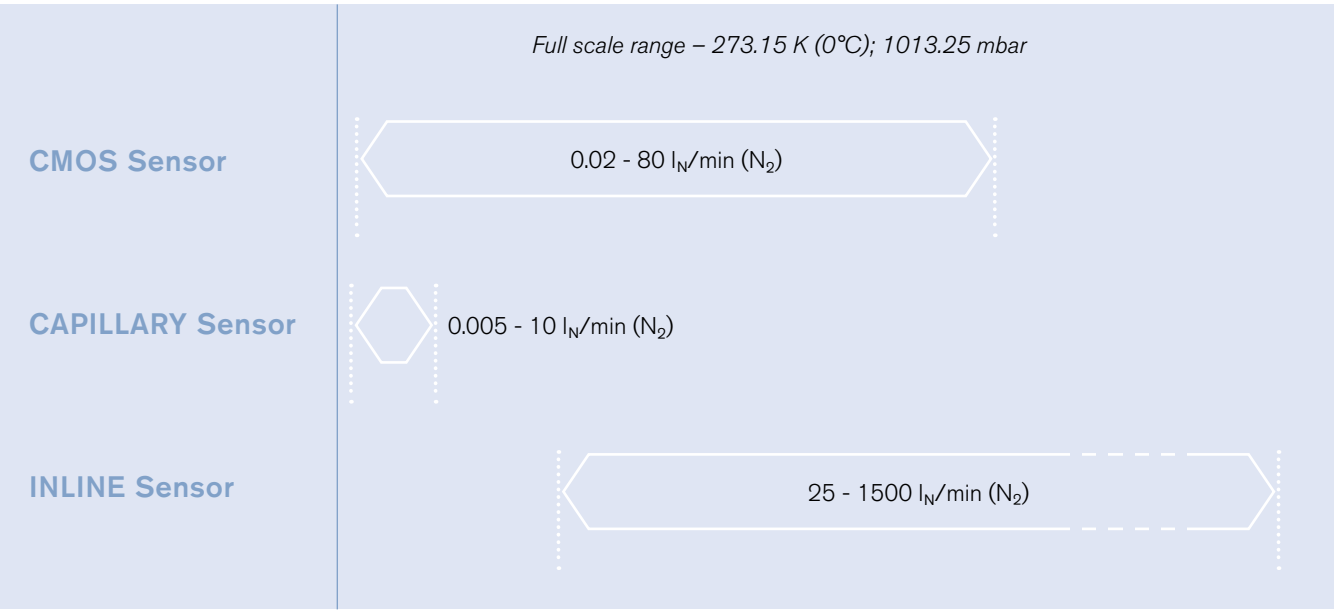
Bürkert's Mass Flow Meters (MFM) and Mass Flow Controllers (MFC) rank among the most sought after components in the business. With a well established position in various processes all over the world, they set the standard in the measurement and control of mass flow rates.



Mass Flow Measure and Control

The Mass Flow Controller are compact devices that control the mass flow of gases. They control a preset flow rate reference value – regardless of disturbance variables or temporary occurring flow resistances. The mechatronic devices consists of the following components: flow sensor (CMOS, Capillary or Inline sensor), digital electronics and a solenoid control valve as an actuator.

With its easy installation, the compact structure of the Mass Flow Controller ensures the convenient operation of a complete (closed) control loop. Additional work and costs e.g. wiring and harmonising individual components, incorporating pipe lengths, are ruled out.



MFC

Types 8712/8702 – CMOS Sensors



The CMOS sensor determines the flow rate directly in a secondary channel in parallel to the main channel. This enables the measurement and control of gas flow with millisecond reaction times and it maintains its high sensitivity, even with the smallest flow rates. The MFC/MFM using this type of sensor, displays a high level of repeatability.

Types 8710/8700 – Capillary Sensors



The capillary sensor work also with a parallel running secondary channel to the main channel. The sensor has no direct contact with the medium and the measuring range shows a linear dependency between the measuring signal and the mass flow rate. This enables the use of gases the sensor is not calibrated for by working with a conversion factor. This predestinate MFC/MFMs with this type of sensor for the use with aggressive gases.

Types 8626/8006 – Inline Sensors



In contrast to the CMOS and capillary sensor, the Inline sensor measures the mass flow of the gas in the main channel. The appropriate flow conditioning and the arrangement of the sensor ensures that the mass flow can be very fast (few hundred milliseconds) and precisely derived.

6. Sensors, Controllers and Transmitters

Process Vision

For more than a decade, Bürkert has been providing well-rounded system solutions from one source with its own range of sensors. In view of the wide variety of specific components linked to specific manufacturers, the availability of a standard concept completing the control loop of actuators and controllers with suitable sensors proves to be the most consistent and logical step. The Bürkert brand stands for yet another benefit: optimum economy and efficiency and design geared to the future. Wherever it is necessary to display process values, perform control functions and monitor alarms, the concept is clear: simple menu prompting and easy integration and commissioning of actuators in an individual, tailor-made system.

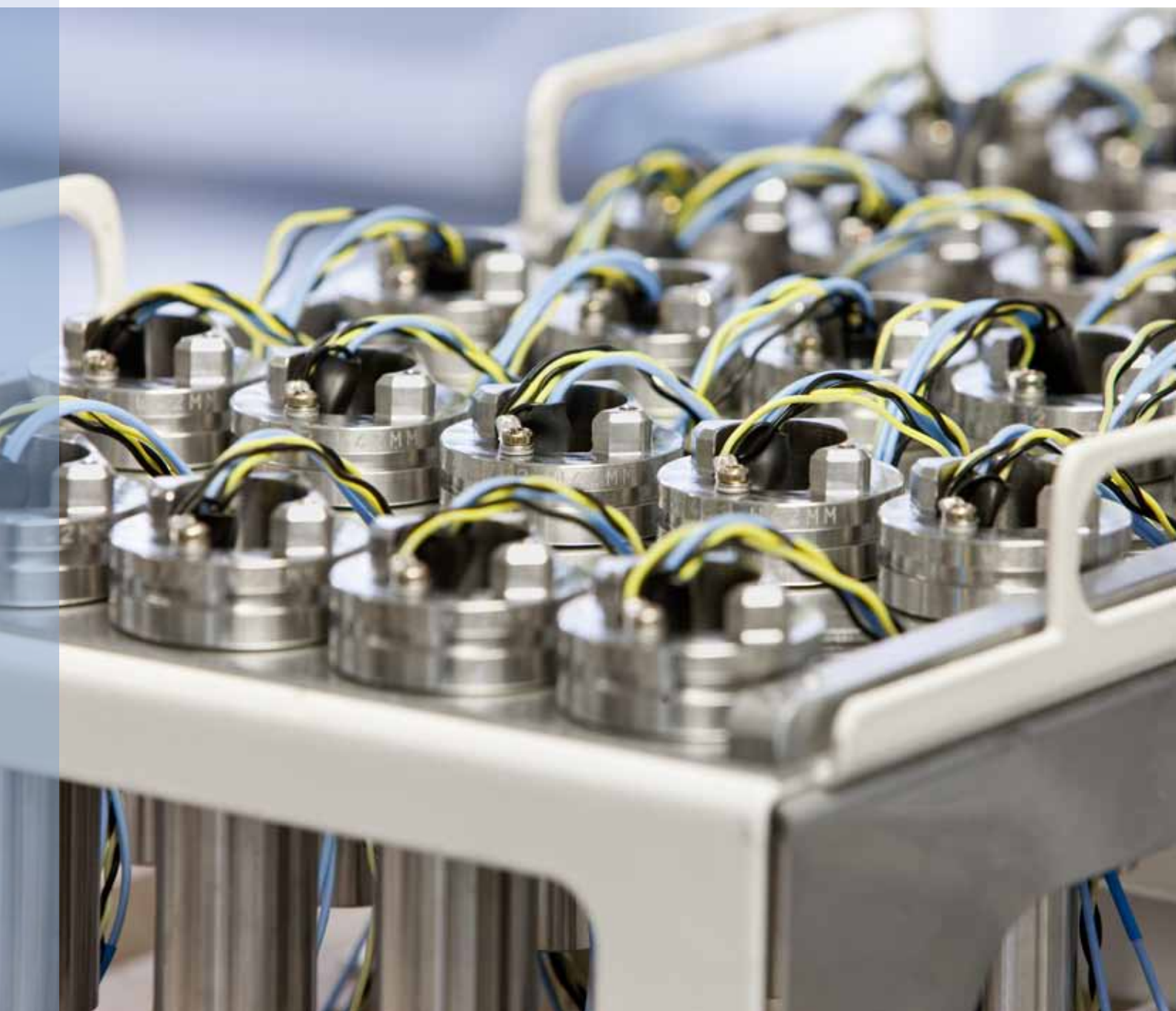
Whether they are required to control flow rates, monitor for leaks or control pH values in cooling water conditioning systems or monitoring temperature, conductivity and filling level: our sensors act precisely, systematically and economically. The rugged design and long service life even in extreme continuous operation are "design features" which apply to all products manufactured by Bürkert. The trend in sensor systems pursues two directions. High-end technology with field bus interfaces and multi-channel designs is one of them. On the other hand, there is an increasing demand for "simple" monitoring with switching output and optional ASI bus interworking. Bürkert leads the way on both levels. Integrating intelligent technology using field buses from the start and providing those who only wish to control or measure a simple problem with individually adapted products and services.

Our strength is shown in the functional details of a comprehensive range of sensor systems and its modularity. We offer individually configurable, systematic solutions for any application problem. The dialogue between our researchers and developers and on-site specialists has brought about ground-breaking components. For example, in flow measuring technology, the paddle wheel measuring method plays an outstanding role owing to its broad range of application, and measurement with Finger MID opens up new, interesting potentials. Bürkert already provides suitable, fully-developed products for both areas, and new, innovative solutions will be added, making your life simpler.



Flow Sensors

According to the various requests and requirements from the food and beverage market, Bürkert provides flow sensors and transmitters with measuring principles suitable for both utilities and process duties. With measuring principles from magnetic inductive and paddlewheel and a range of materials and connections to suit different applications your needs are well covered.



Type 8056 – Magflowmeter

The 8056 hygienic magnetic flowmeter has high accuracy, a wide range of outputs and integrated data logger and batch controller. Manufactured from 316L stainless steel with a PTFE lining, it is available from DN3 to DN100 with clamp and other sanitary connections. It is designed for applications with conductivities as low as 5 $\mu\text{S}/\text{cm}$. Type 8056 can control high-precision dosing operations and continuous flow measurement, with a measuring range up to 280 m^3/h .



Type 8045 – INSERTION Magmeter

INSERTION magmeter for continuous flow measurement. Designed for pipes with diameters ranging from DN 06 to DN 400 and $> 20 \mu\text{S}/\text{cm}$. FDA approved. The version with a stainless steel sensor has been designed for applications with high pressures (PN16) and high temperatures (up to 110°C). The version with Alloy C22 electrodes allows applications with high corrosive fluids.



Type 8030 – Paddlewheel Flow Sensor

The 8030 paddlewheel flowmeter is ideal for neutral, solid free and even slightly aggressive liquids, like town water, wash down and CIP media. All wetted parts are produced from FDA approved materials. The Bürkert designed fitting system ensures simple installation of the sensors into all pipes from DN 06 to 65.

Level Sensors

The Bürkert series of level sensors now includes radar, guided microwave, ultrasonic transmitters and tuning fork switches to meet the demanding tasks of the food and beverage industry. They fulfill the stringent requirements regarding design, appearance and ease of cleaning in the hygienic sector. Whether aggressive or neutral media: high-tech solutions from Bürkert quickly and efficiently solve your problems.



Type 8185 – Guided Microwave Level Transmitter

Level transmitter with cable or rod probe, designed for continuous level measurement in all areas of process technology. With a measuring range of up to 32 m, the transmitter is best suited for tall vessels. Even process conditions such as steam generation, density fluctuations or changes of the dielectric constant do not influence the accuracy of the measurement.



Types 8176/8177 – Ultrasonic Level Transmitters

Non-contact, highly precise, ultrasonic level transmitters are easily set up for level control of utility fluids such as CIP media where a simple menu allows output of level or volume in no time! In combination with our intelligent sanitary process valves, continuous level control loops can be easily and successfully established.



Type 8110 – Vibrating Level Switch

Due to its short insertion length, level applications in vessels, tanks, pipes and restricted space areas are possible. Due to the simple and rugged measuring system, the 8110 is virtually unaffected by the chemical and physical features of the liquid. It can operate even in difficult conditions such as turbulent, foaming or bubbling media. The 8110 is available with threaded or clamp process connection.



Type 8138 – Sanitary Radar Level Transmitter

Non-contact radar level transmitter for continuous level measurement up to 20 m. It is particularly suitable for use in small vessels that contain beverage liquids under sanitary process conditions.



Type 8137 – High Pressure Radar Level Transmitter

General purpose high pressure radar level transmitter, level measurement up to 30 m. Available in two versions: firstly with thread and horn antenna, particularly suitable for use in small tanks and secondly with flange and horn antenna, particularly suitable for use in storage tanks and process vessels particularly where the measurement of food and beverage liquid media is needed under extremely difficult process conditions.



Type 8136 – Radar Level Transmitter

Non-contact radar level transmitter for continuous level measurement up to 20 m. The unit is available in two versions: firstly with encapsulated horn antenna particularly suitable for level measurement of aggressive liquids in small vessels and secondly with plastic horn antenna particularly suitable for flow measurement in open flumes or gauge measurement in waters.

Temperature Sensors

Temperature sensing and control is often critical in both process and cleaning cycles within all hygienic food and beverage processing environments. With its compact size and smart functionality, the Bürkert 8400 series offers you precisely what you need. However, if it is simple blind temperature sensing with thermo well pockets and standard Pt100 sensors, please don't hesitate to talk to our team who will be pleased to discuss your exact needs and requirements. Each instrument offered is available for connection to the wide range of controllers that we offer.



Type 8400 – PT100 Temperature Transmitter

This intelligent sensor/switch with an extra large display is specifically designed to switch a valve and to establish a monitoring system or an On/Off control loop. Compact and wall versions are available. The wall-mounted version must be inserted into a holder previously mounted on a wall, and it needs to be associated with a remote temperature sensor.

Pressure Sensors

Accurate and reliable, our range of pressure sensors provides exceptional performance. In standard form they come with threaded connections, but each of them features zero and span adjustment, which means they can be combined effortlessly with diaphragm seals to adapt to virtually any pressure, temperature or media in an impressive range of connections. Whether hygienic connections for process or rugged connections for utilities, you will benefit from using these sensors throughout your plant. The flagship of our range is model 8326 featuring bright display and turndown functionality.



Type 8311 – Pressure Transmitter, 0-50 bar

Available with both utility and process connections, this intelligent mini transmitter/switch with an extra-large display is specially designed to switch alarms and to establish a monitoring system or an On/Off control loop. The switching points can be programmed with the three-key keypad below the display. In addition, the process value can be transmitted to the PLC (4-20 mA). Measuring range up to 50 bar.



Type 8323 – Pressure Transmitter/Monitor, 0-25 bar

Combining utility and hygienic process connections with high accuracy, compact design, robust construction and flexibility make this instrument universal and suitable for different measurement functions. The sensor is available with flush diaphragm or according to EHEDG standards. For technical reasons, a piezoresistive sensor element is used for measuring ranges up to 16 bar and a thin film sensor element for the measuring range of 25 bar. Wetted parts are made of stainless steel and completely welded. Internal seal elements, which could restrict the choice of measuring materials, are excluded.

Analytical Sensors

In combination with our process valves, Bürkert's analytical sensors and controllers for pH and conductivity measurement are the ideal solution for food and beverage CIP and SIP applications. Inductive transmitters are employed in the CIP makeup loop whereas the return CIP must be able to measure the very low conductivity of the final rinse water.

pH (Hygienic Connection)

Type 8201 – pH Transmitter, Glass Free



The pH measuring system is suitable for measuring absolute pH values in liquids between pH 0 and pH 12 at medium temperatures of up to 140°C and process pressures of a maximum 6 bar. Due to its hygienic design and the robust glass-free layout, this model is particularly suitable for use in hygienic processes, for example the production of foods and active ingredients. The pH electrode's extremely smooth enamel surface prevents the medium from sticking and is very easy to clean. For this, the electrode stays in the process even during a CIP process.

pH

Type 8202 – pH/ORP Transmitter, ELEMENT Design

The transmitter Type 8202 is a compact, modular device, especially designed for measuring the pH or O.R.P. value of fluids with two transistor and dual analog outputs for temperature and pH/O.R.P. The transmitter consists of a replaceable standard 120 mm pH or O.R.P. probe, screwed in a sensor holder with integrated Pt1000 temperature sensor. This ensemble is plugged-in and screwed with a nut to an IP67 enclosure containing the electronic module with cover and a removable display.

Conductivity (Hygienic Connection)

Type 8221 – Four-Pole Conductivity Transmitter



Due to their hygienic design and the robust layout, these conductivity sensors are suitable for use under demanding conditions. Its wide measuring range capability is perfect for food and beverage processes, where the media needs to be detected, but also other flushing, cleaning and rinsing medias should also be detected too. The sensors are based on the 4-electrode principle which excludes polarization phenomena normally observed with 2-electrode sensors.

Conductivity

Type 8222 – Resistive Conductivity Transmitter, ELEMENT Design

DUAL-compact field transmitter for conductivity and temperature. Direct inline or bypass pipe mounted via a standard True Union fitting. The 8222 utilizes 3 different electrodes which are determined by liquid conductivity covering a broad range from pure water (.05 $\mu\text{S}/\text{cm}$) to waste water (10 mS/cm). Integrated switches are optional for diagnostics, high/low alarm purposes or for simple on/off controller functions. The programmer unit with backlit display can be left in the unit for local display or removed, leaving the transmitter blind.

Controllers and Transmitters

Functionality is the word that best describes this range of transmitters and controllers. Modularity is a close second with plenty of options available as standard to allow you to select the ultimate controller for your process. From standard DIN panel mounting, wall mounting and skid mounting you can be sure you can fit your choice into your chosen application for optimum handling. With a wide range of materials of construction and many features built in for convenience and performance, you will find each one a natural choice to enhance your process or use as a stand alone system controller to integrate into your existing systems.



Type 8619 – MultiCELL

Bürkert's 8619 transmitter/controller is the latest addition to Bürkert's process control program. The 1/4 DIN panel mounted controller incorporates a large backlit LCD display for viewing up to 6 possible process variables including up to two analytical instruments, two temperatures and up to 3 hall flow sensors. Additional input and output modules can be added to further enhance the controller's capabilities with additional 4-20mA and binary inputs and outputs. An SD card is standard for data logging and up/down loading of parameterization files.



Type 8611 – eCONTROL

Thanks to its compact design, the universal 8611 controller is especially designed for compact control system applications. It is compatible with a wide range of proportional control valves and connects with an electropneumatic servo-system for pneumatically actuated process control valves. The PI process controller is equipped with many additional functions. The actual process value can be supplied as one of three inputs; a standard current (4-20 mA), frequency or Pt100 signal directly to the universal controller. The process switching points can be set via a 4-20 mA signal or with the keypad.



7. System Competence

Perfect Solutions

Bürkert has a unique perspective in the process control and instrumentation industry as we are the only single brand which combines a complete range of valves, instruments, pneumatic actuation, networking and controllers from a single source.

With our dedicated world-class engineers and our superlative manufacturing facilities we can deliver systems which meet your exact requirements.

Your reliable Bürkert sales consultant and our system engineers work in concert to ask the right questions and provide the right hardware. Transparent operations, up to date situation, review procedure, engineering change notices, portals through SAP and secure intranet are normal in our projects.

For a world class system experience, insist on Bürkert people to be part of your next project.



01 Connect

As a globally flexible, lean, focused and innovative company we are the partner of choice for fluid control systems in more than 35 countries. Whether you are in Stuttgart, Singapore, Chicago or Sydney, everywhere in the world we are close to you and therefore know first-hand about your specific tasks and problems.

Following our principle of "one face to the customer", you have a competent, reliable consultant by your side at all times, who listens to your needs and presents a solution in your daily application language ... crossing conventional boundaries and creating synergies between industries in pursuit of your ideal solution.

Systemhaus crews in Charlotte (USA), Suzhou (China), Dresden, Ingelfingen and Dortmund are continuously in innovation mode. They creatively engineer cost effective solutions to meet difficult process challenges for our customers.



02 Conceive & Innovate

Your project team starts working for you: from your reliable sales consultant, qualified industry specialists to dedicated system engineers – Bürkert puts the necessary experts together.

For the entire duration of the project they work together, combining their experience and clarifying all the requirements in close cooperation with you to come up with a feasible draft of your solution within the shortest timeframe.

CAD-created animations or simulations, combined with extended manufacturing, materials, tool design, construction and assembly knowledge enable us to provide a rough but firm production concept for your system at an early stage.



03 Plan & Specify

In Phase 3 the project is planned in detail. A specification sheet and refined solution concept are developed. This defines exactly what you expect from the system and what it must provide to ensure that all components meet your requirements.

At the end of this phase you are presented with a detailed product definition, a production specification and precise commercial conditions and agreements.

Structured project management based on open communication, effective coordination and thorough documentation ensures fast and reliable results.



04 Do & Check

Good communication, coordination and documentation at all project phases make sure that we are on the right track, developing the right solution, to allow us to quickly move on to prototyping.

Thanks to the latest technology, we are able to build a prototype made of metal or plastic or a functional model, to test flow for example, within 24 hours.

We provide you with samples; we perform tests and, of course, obtain all the necessary local and global approvals to make sure the system can go to production.

From here we work in concert with one of our production facilities in Ingelfingen, Gerabronn, Criesbach, Öhringen or Triembach according to their individual core manufacturing competencies.



05 Complete

Our work does not end with the perfect delivery of components and systems. We offer a comprehensive program to our global clients interlinking services ranging from maintenance and service contracts operator training and integrated logistics.

Our customer service is available around the clock, offering support through internet, telephone or our qualified, experienced people at your site.

We aim to provide only the utmost in customer experience. Something you will tell your friends about.

Systems | Cabinets

Bürkert will provide you with total system solutions which are completely compliant. Our Quality Management Systems, Quality Assurance, Risk Assessment and Validation and Training all meet latest practices and combine with our manufacturing and engineering design teams to give you an optimum experience.

Our practical experience of qualitative and productive tools and techniques is put to use every day and is transferred into your ideal system solution.

When the consulting approach begins we are searching for the knowledge you possess that will allow us to apply these techniques and put our engineering skills and experience into practice. As we continue to consult, our closeness develops and a mutual trust and understanding brings us closer to realising exceptional system solutions which are tailor made to your process demands. Finally we have realised together a system solution which delivers results time and time again and proves to have a rewarding payback. And so we find the courage to continue as partners in the future and push the boundaries of engineering to enhance process performance and product yield and an unrivalled scope of supply, successful future.

With 6 manufacturing locations, multiple Systemhaus facilities globally, more than 2000 employees and mutually our alliance is almost certainly a partnership that you will want to insist upon supporting your business development plans.

We make ideas flow.



Bürkert – Close to You

For up-to-date addresses
please visit us at
www.burkert.com.



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