Biotech – systematic success for single-use solutions

INTELLIGENT SOLUTIONS FOR HIGH PRODUCT QUALITY

We make ideas flow.

bürkert
FLUID CONTROL SYSTEMS

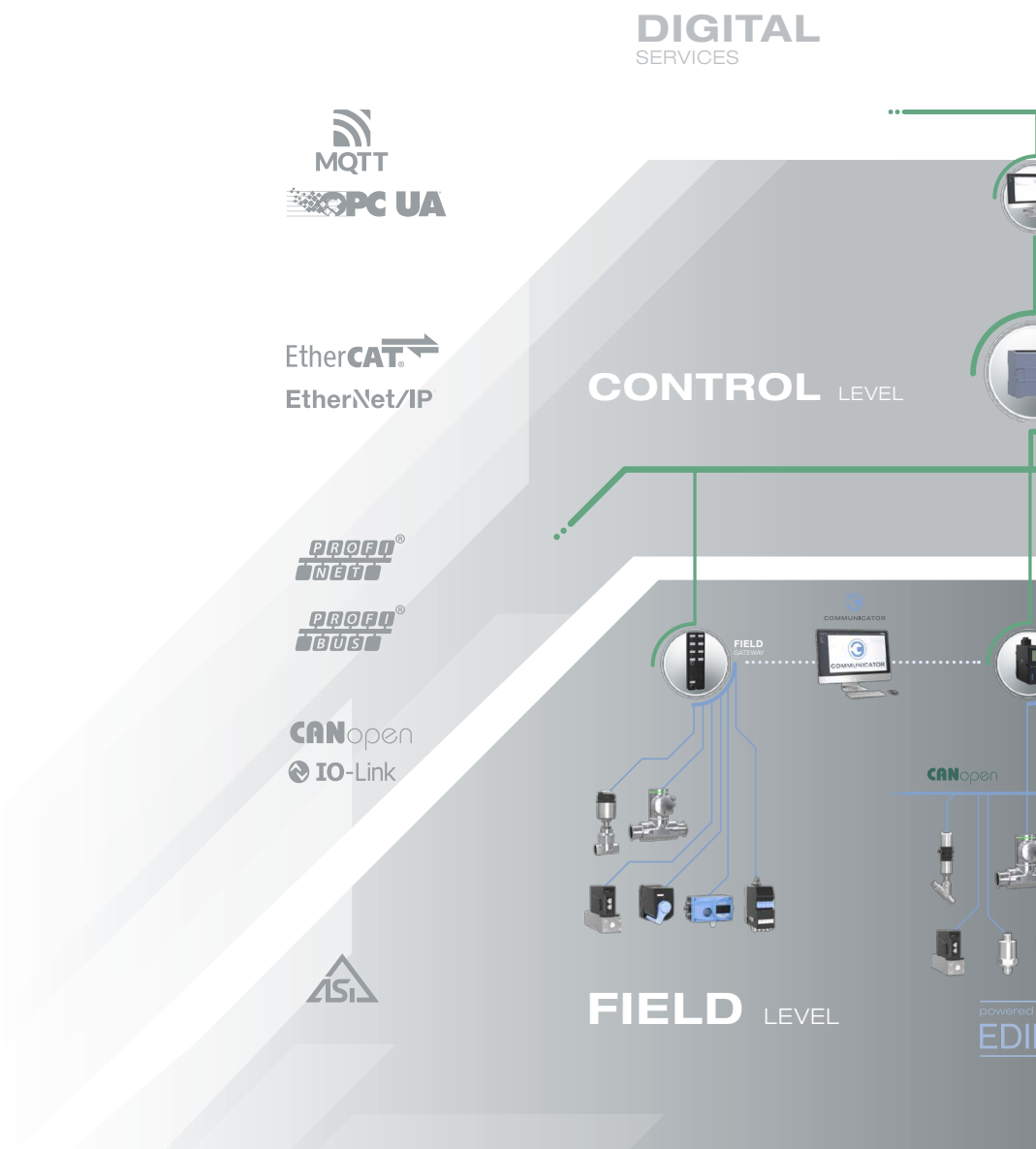

PHARMA WATER
CONNECTIV
CHROMATOGRAPHY
FILTRATION

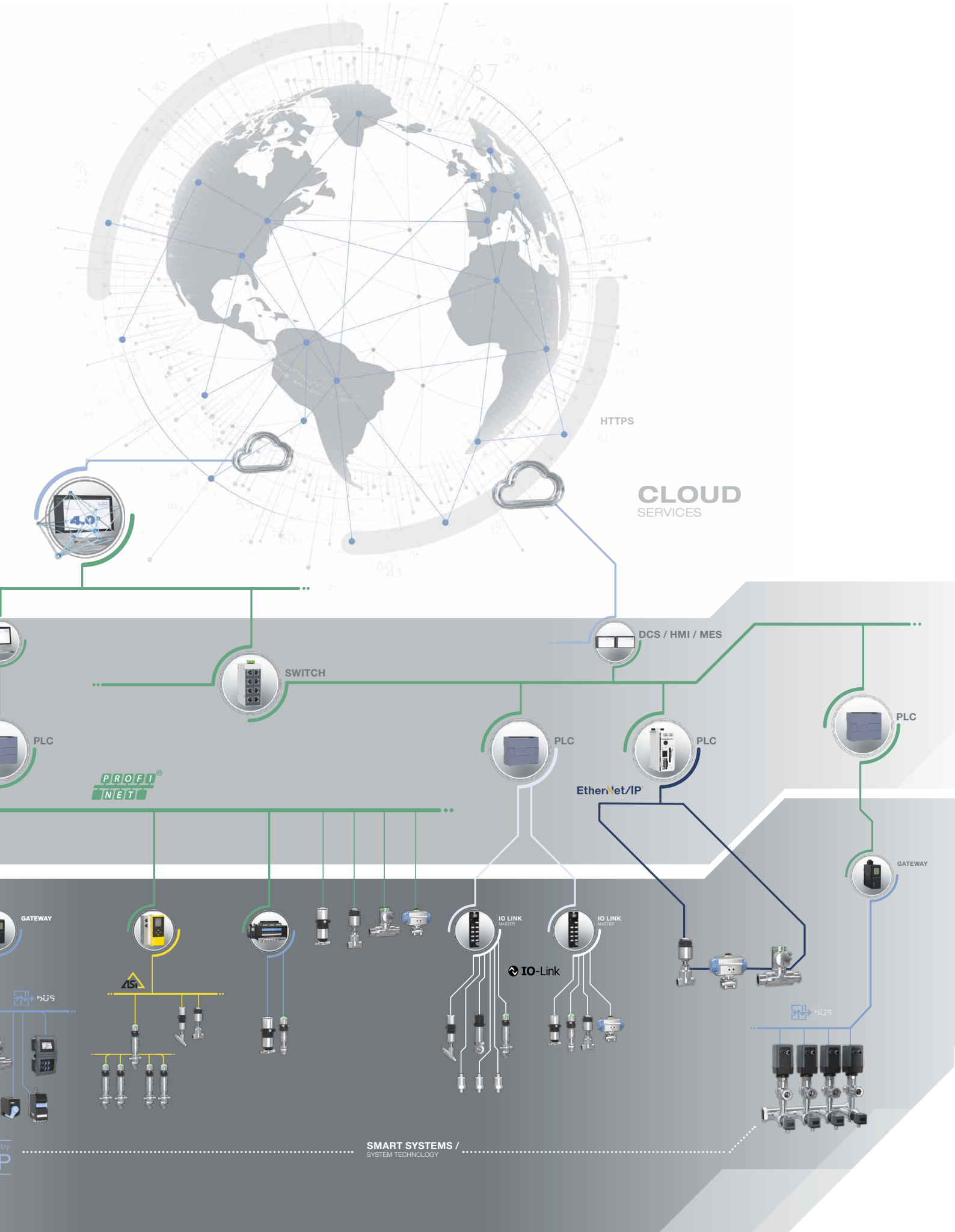
Why Bürkert is your partner

- Intelligent single-use solutions for high product quality - we speak Biotech 4.0
- For over 30 years we have been successfully optimising customer applications
- Over 3300 satisfied OEMs, end customers and plant manufacturers in the Pharma and Biotech sector

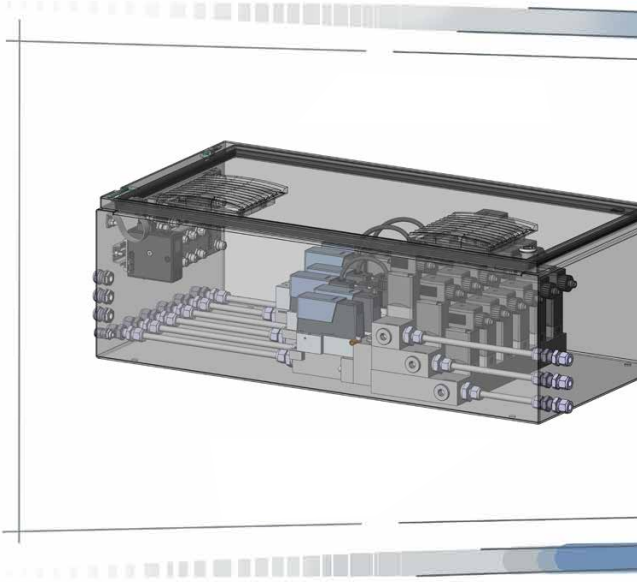
Data and information on all levels

Our open communication solutions support all common communication protocols. We can therefore guarantee simple, consistent communication including via Cloud. Our experts will advise you about the automation of valve islands and control heads without bias toward any manufacturer.




HTTPS
CLOUD
SERVICES
DCS / HMI / MES
SWITCH
PLC
PLC
PLC
PLC
PROFINET
EtherNet/IP
GATEWAY
GATEWAY
IO LINK
MASTER
IO LINK
MASTER
IO-Link
bus
bus
SMART SYSTEMS /
SYSTEM TECHNOLOGY

From idea to series



If you want sustainable solutions for your individual requirements, Bürkert is your partner. Our experienced teams combine the necessary know-how from applications, development and series production.

We will support you throughout the entire value-added chain – from the first idea to start-up and closed-loop control mode. We can therefore guarantee maximum savings and process reliability. We can support a quick time-to-market with our high vertical range of manufacture.

Idea & concept

- Demonstrably creative, quick, reliable and economical
- With guide price offer and project plan

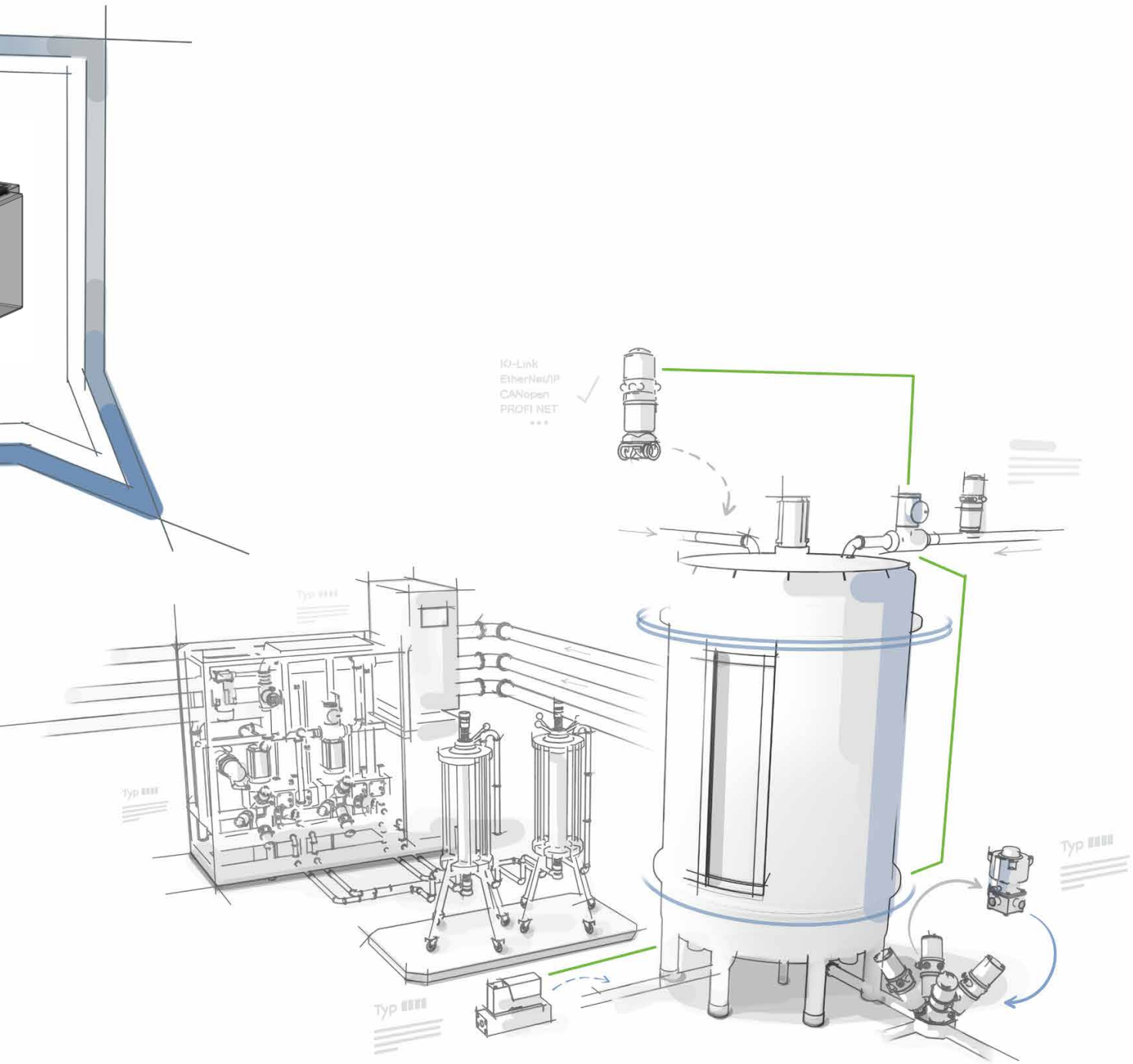
System development

- Series design
- Pilot series and tool production

1 2 3

Prototyping & simulation

- Prototype and design
- Specifications
- Series offer



System implementation

- Implementation of logistics
- Production handover

4

System & process qualification

- Zero series
- Preparation for series production

5

6

Controlled operation

- Customer training
- Installation and start-up

Reproducible fermentation processes

Bürkert expertise
Digitalisation & process automatisation /
gas control / bag inflation system /
control system with single-use valve technology

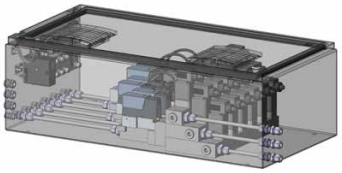
A bioreactor should provide the greatest possible product yield. To optimally support the fermentation of consistently multiplying cultures, it requires precise regulation of all important parameters such as nutrient concentration, pH value, temperature or oxygen content. You can ensure secure, reproducible processes in your fermenters with our customised, biocompatible valve and sensor solutions.

PRECISE **GAS CONTROL**

Our precise and calibrated mass flow controllers (MFCs) control common fermenting gases such as air, oxygen, nitrogen and carbon dioxide depending on what your cultures need - automated and with a high level of repeatability. Gas mixing units made from MFCs and valves configured to meet your requirements save space. The system solutions, previously checked for tightness, pressure and electrical function, are integrated in seconds and make engineering easier. Thanks to the wide setting range, both the smallest and the largest gas quantities can be controlled precisely.

MFC Types 8741 and 8745 (Ethernet)

- Nominal flow ranges from 0.010 l/min to 2500 l/min
- High accuracy in measurement and repeatability
- Configuration memory for easy device replacement



Gas control system

- Quick reaction time and sensors with a high level of measuring accuracy whilst calibration is stable long-term
- Four to six mass flow controllers with three certified solenoid valves each for the various gases in just one device
- Simple procurement process via one supplier, including complete system documentation

SPACE-SAVING **GAS CONTROL SYSTEM**

Control your fermenter gases with a single device. The mass flow controllers can be combined with all components required for a ready-to-connect, bio-compatible gas control system and easily integrated into the fermenter. Compared with conventional solutions the gas box only takes up half the space. The flexible complete system fulfils all the requirements for certification of the materials which come into contact with the medium and enable simple documentation. You have full control - the data for gas dosing is retrievable around the clock.

PROCESS RELIABLE **GAS PRESSURE**

During fermentation the medium must be reliably shielded from air. Tank blanketing systems ensure a stable chemical equilibrium via the medium and, subsequently, hygienic safety for pressure, flow and filling controls. The robust stainless steel design prevents corrosion and increases the availability and productivity of your system. Thanks to the integrated functionality of ultra-compact and light valves and sensors, reaction time is reduced by up to tenfold compared to conventional solutions.

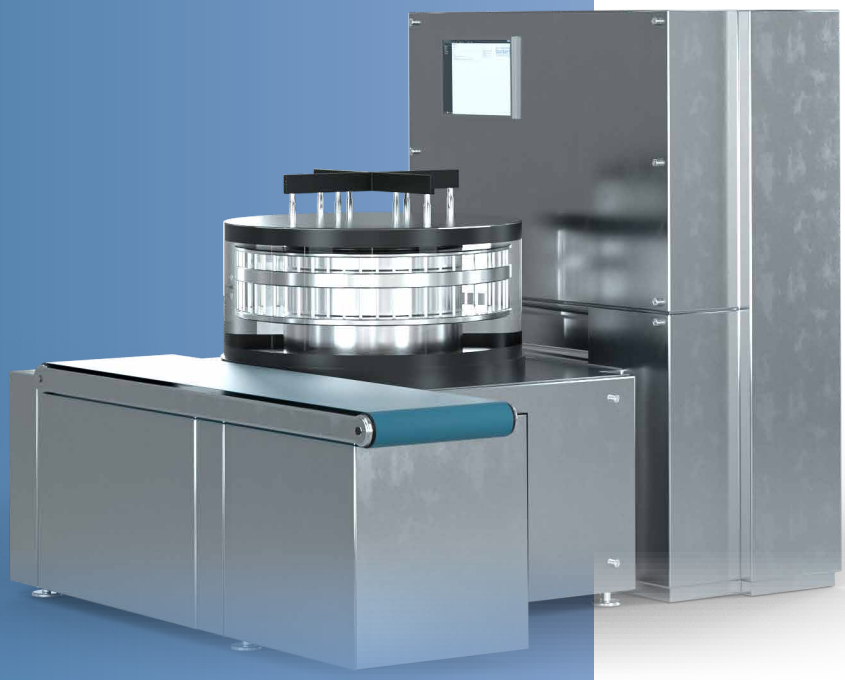
Tank blanketing system

- High control characteristics with reproducible automation
- Fully autonomous operation, thanks to integrated process controllers
- Hygienically absolutely safe operation (CIP/SIP-compatible)

Contamination-free filling

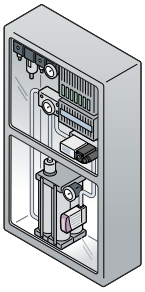
Bürkert expertise

Digitalisation & process automation / hygienic control technology / flow measurement and control / disinfection system (H_2O_2) / filling system



Safety is of top priority when filling biotechnologically manufactured products. The smallest contaminations in this critical area can impair the effectiveness and/or quality of the substances enormously, or even endanger human life. Furthermore, it must be possible to reproducibly control filling quantities with high precision. Our innovative approaches raise safety and speed to a level that has never been reached before. At the same time, it is able to document the filling process, thereby meeting increasingly strict hygiene regulations.

EVEN, EFFICIENT
CHEMICAL DISINFECTION



System solution

- Resource-saving and time-saving disinfection
- Consistent and documented degree of inactivation
- Easily scalable thanks to flexibly adjustable dosing quantity

Quick and resource-friendly

Our system solution mixes hydrogen peroxide (H_2O_2) and air into a fine aerosol at the speed of sound. The high-precising dosing significantly speeds up the formation of the required H_2O_2 concentration level. You will therefore save up to 20% of time in the disinfection process, compared to a peristaltic pump. Furthermore, you will require less hydrogen peroxide, compressed air and electrical energy.

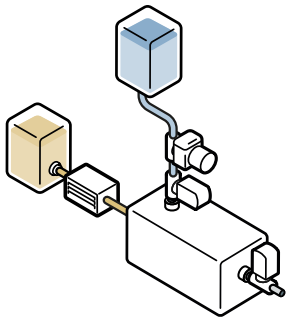
Safe and documented

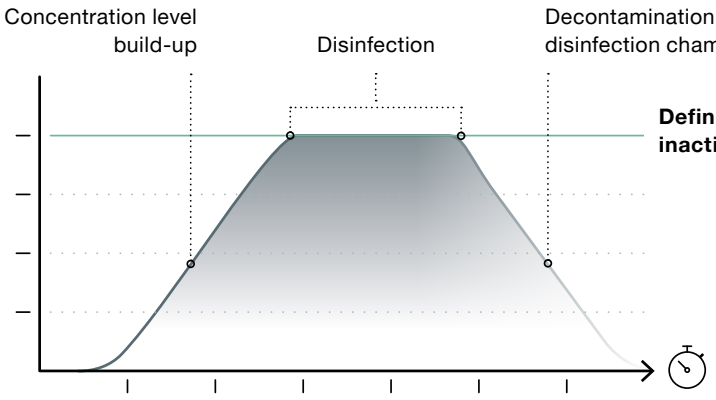
The H_2O_2 concentration is also inspected beforehand, thanks to integration into your process control, and not just with the aid of the sensor in the chamber. You can therefore rely on a consistent degree of inactivation and easily document the disinfection process for each batch.

Flexible and scalable

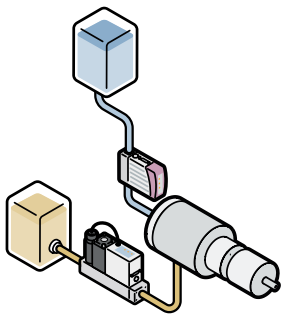
The system components, which have been coordinated with each other beforehand, enable the dosing quantity to be individually set even during ongoing machine operation. Our solution therefore saves space and can be very easily adapted for different device sizes.

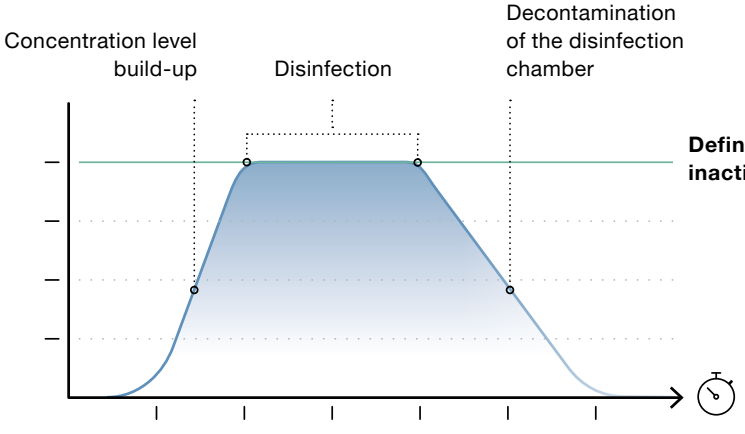
Conventional solution





Bürkert system solution





Consistently clean pharmaceutical water

Bürkert expertise
Digitalisation & process automation / hygienic control technology / flow measurement and control / inlet water monitoring system

Water for injection purposes (WFI) is a significant cost factor in the manufacture of biotechnological products. However, it should also be used sparingly for ecological reasons. With our monitoring and control systems, you will have around the clock control of water quality and availability in your WFI circuit. Process failures and missing batches will then be a thing of the past. The precise control prevents overdoses and the efficiency of the system increases. Our solenoid valve technology also reduces energy consumption and operating costs.

FLOWave Type 8098

- Efficient flow measurement, regardless of medium conductivity and flow direction
- Reliably meets the highest hygiene requirements
- Low weight and low energy consumption

CLEAN **FLOW MEASUREMENT**

FLOWave ensures efficient system operation and guarantees the quality of your pharmaceutical ingredients: the flowmeter measures the volume flow without any sensor elements in the measurement tube – even for non-conductive media.
The smooth surface ensures germ-free cleaning. FLOWave therefore meets the highest level of hygiene requirements.
Thanks to its low weight the flowmeter can be easily and quickly installed by one person. Its small dimensions create free space in your system structure.

CONSISTENTLY HIGH **WATER QUALITY**

Our compact Type 8905 online analysis system allows you to monitor all key water parameters continuously and accurately, without excessive maintenance. You can always view all measurement data thanks to the easily readable display and digital interfaces. Parameters are constantly documented. The system significantly reduces water consumption used for analysis compared to conventional solutions. Other water parameters can be analysed at any time by adding additional sensor cubes. Thanks to the Hot Swap function, you can also remove the modular cubes for cleaning and replace them while the system is in operation.

Online analysis system Type 8905

- Lower costs, thanks to low sample water consumption and reduced maintenance costs
- Easy on-site operation and remote monitoring
- Effortless extension of additional process parameters


ZETA
VK04
MZ532
VK02
MZ527

ZETA

“In Bürkert we found a competent partner for the development of this gas box. In close, collegial cooperation, a ready-to-connect, complete gas control system was developed that is precisely tailored to our requirements, and only takes up about half as much installation space as previous solutions.”

Florian Stolka, Senior Project Engineer, ZETA

You can find out more about this and other projects in your industry at:

www.burkert.com

www.burkert.com/biotech

07/2023

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We make ideas flow.

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