

**Partner for automation
Water technology**

FESTO

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 **PipeLine Quality**
SINGAPORE



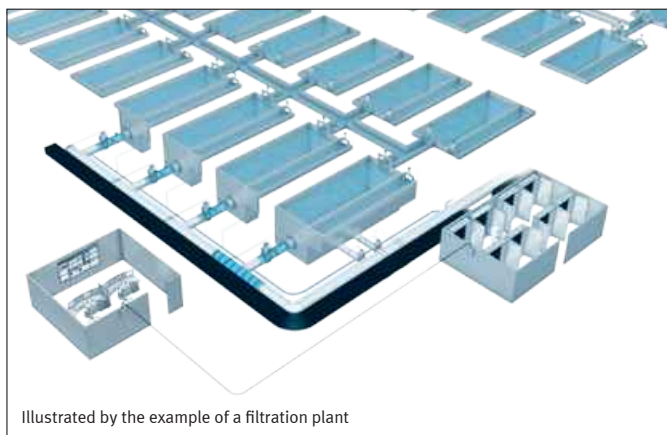
Your objective: win projects and complete them within the specified time frame and budget. Reduce the total cost of ownership of your plants.

Energy prices today are high and rising, forcing you as municipal or industrial operators of water and wastewater treatment plants to take action. In addition, the need for modernisation and new buildings puts everyone, operators, engineering consultants and plant

constructors, under constant pressure to cut costs. It is therefore crucial to take advantage of the potential for savings in all lifecycle phases of a plant, from plant engineering through to operation.

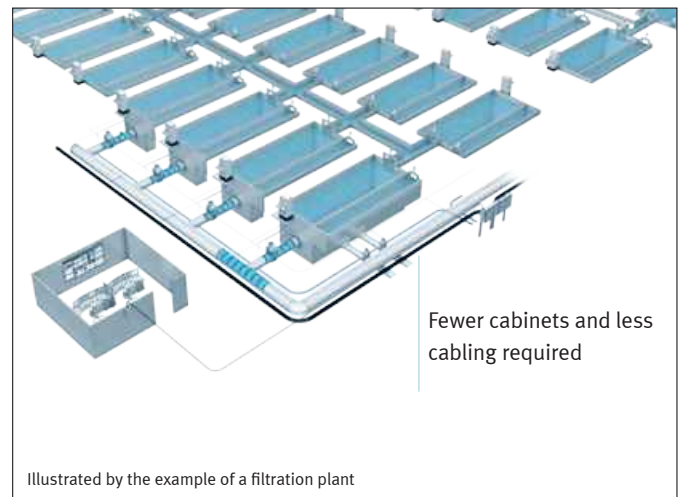
Our solution: competitiveness through integrated automation systems and comprehensive support in all project phases.

Integrated automation concepts are more suitable for water or wastewater treatment plants than centralised automation concepts. They are usually faster to implement and commission, while being simpler and saving on resources at the same time. And our integrated automation solutions are also totally reliable.



Centralised automation concept – process safety in focus

The PLC is connected to the individual components, solenoid valves and electric actuators by a central cable.



Decentralised automation concept – simpler, more economical, and more flexible

Remote I/Os and PLCs installed in decentralised control cabinets process the electrical signals while valve terminals activate the actuators pneumatically. The process control system communicates with the control cabinets by means of fieldbus.



1. Concept – integrated automation, well thought-out approach, reliable performance!

- Industrial process know-how
- Feasibility study
- Concept proposal



Operational support and after-sales service

6. Operational support and after-sales service ensure high plant availability: money saved!

- Standardised automation systems
- Training and skills development for maintenance and operating personnel
- High plant availability
- Optimised management of spare parts

Concept

Added value from Festo in all phases of the plant lifecycle

Engineering

Installation and commissioning



5. Installation and commissioning: easy, flexible and quick!

- On-site service
- Pre-assembled, tested and ready for installation – simply Festo plug and work!
- Diagnostic function for quickly detecting faults
- Modular commissioning possible before installation of the control system



2. Engineering: a central and reliable partner worldwide!

- Detailed design
- Research and engineering tools
- The right solution for every application



3. Logistics and procurement from a single source: simply faster!

- Project management
- Capacity and resource management
- 61 national companies worldwide
- Fully compatible components

Project execution



4. Project execution: our experience at your service!

- Coordination of all suppliers
- Flexible and reliable delivery worldwide
- Efficient production system
- Quality check in each project phase
- Skilled and experienced team

From pneumatic and electrical components ...

Complete range of products for every level of automation

Top-down control and visualisation

Modular controller CECX-X-C1

Customised process solution with configurable expansion options:

- Digital and analogue I/O equipment
- T 100
- Counter modules
- Profibus



Operator units CDPX

Control of automation tasks at field level. Graphics-capable for maximum flexibility when displaying processes and data. For text-based and graphical development of visualisation solutions according to requirements, e.g., recipe handling and trend indication.



Decentralised automation platforms

CPX terminal

For integrating pneumatic and electrical control chains. As a valve terminal partner or remote I/O. Open to all fieldbus and Ethernet standards.



Valve terminal CPX/MPA

Space-saving system and function integrator for reliable and feedback-free switching of pilot valves and process actuators, incl. pressure sensors for process documentation.



Valve terminal CPX/VTSA

For the pneumatic and electrical supply of up to 32 valves. With controllers, flow control valves, shut-off plates, switching position sensing and pressure shut-off plate for "hot swap" maintenance or repair.



Valve terminal CPV

Communication link to all common fieldbus protocols. Can be used in control cabinets in combination with a pneumatic multi-pin, or as a stand-alone option with stainless steel cover.



Product range for automated process valves

Closed-loop controlled linear actuator DFPI

Its all-in-one design and technological details make it ideal for actuating knife gate valves and penstock valves with controlled strokes: integrated displacement encoder via potentiometric linear displacement sensor, valve manifold, positioner and an extremely sturdy connection.



Analogue sensor box SRAP

Position indicator with 4 to 20 mA output signal for monitoring the entire swivel angle of the actuator.



Linear actuator DLP

For pneumatic operation of knife gate valves and penstock valves, up to 80,000 N at 10 bar. Explosion protection included.



Digital sensor box SRBF

For sensing and visualising the end positions of quarter turn actuators even in harsh environments.



Quarter turn actuators DFPB/DAPS

In many sizes, double- and single-acting, 8 to 8,000 Nm at 6 bar. Explosion protection included. SIL-certified.



Compressed air network accessories

Optimal pneumatic maintenance and connection technology. Made for trouble-free operation of the compressed air supply network.



Please note:

These pages contain selected products only.

Additional information can be found at www.festo.com/water

... to ready-to-install subsystems ...



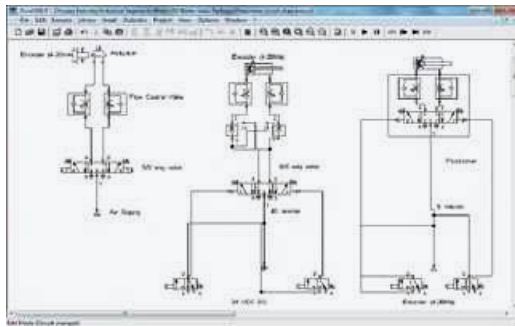
Complete solutions are also a result of good advice. Our experts are there for you!



Get support: we answer your open questions
 What application do you need? And which solution is technically and economically the best?



2D or 3D? Visualisation of your automated process valves
 Many solutions can only be envisioned if they can be seen. We therefore visualise your solution in CAD as an extra step.



Circuit diagrams for you
 Whether pneumatic or electrical, we create a circuit diagram for your solution using our simulation tools.



2D or 3D? Visualisation of your control cabinet
 As an additional step, you get a visual representation of your control cabinet. That also helps avoid mistakes.



Gate valve unit VZKA-PW for use in wastewater treatment plants and butterfly valve unit VZSA for controlling the inflows and outflows in water treatment plants

Pneumatically automated process valves

- Simple design and few components
- Fewer moving parts and increased availability thanks to integrated limit switches
- High switching cycle rate and easily adjustable opening and closing time



You get a complete solution
 We make it as simple as possible for you: our complete solutions are very easy to install and commission. That provides certainty and reliability – and saves a great deal of time.



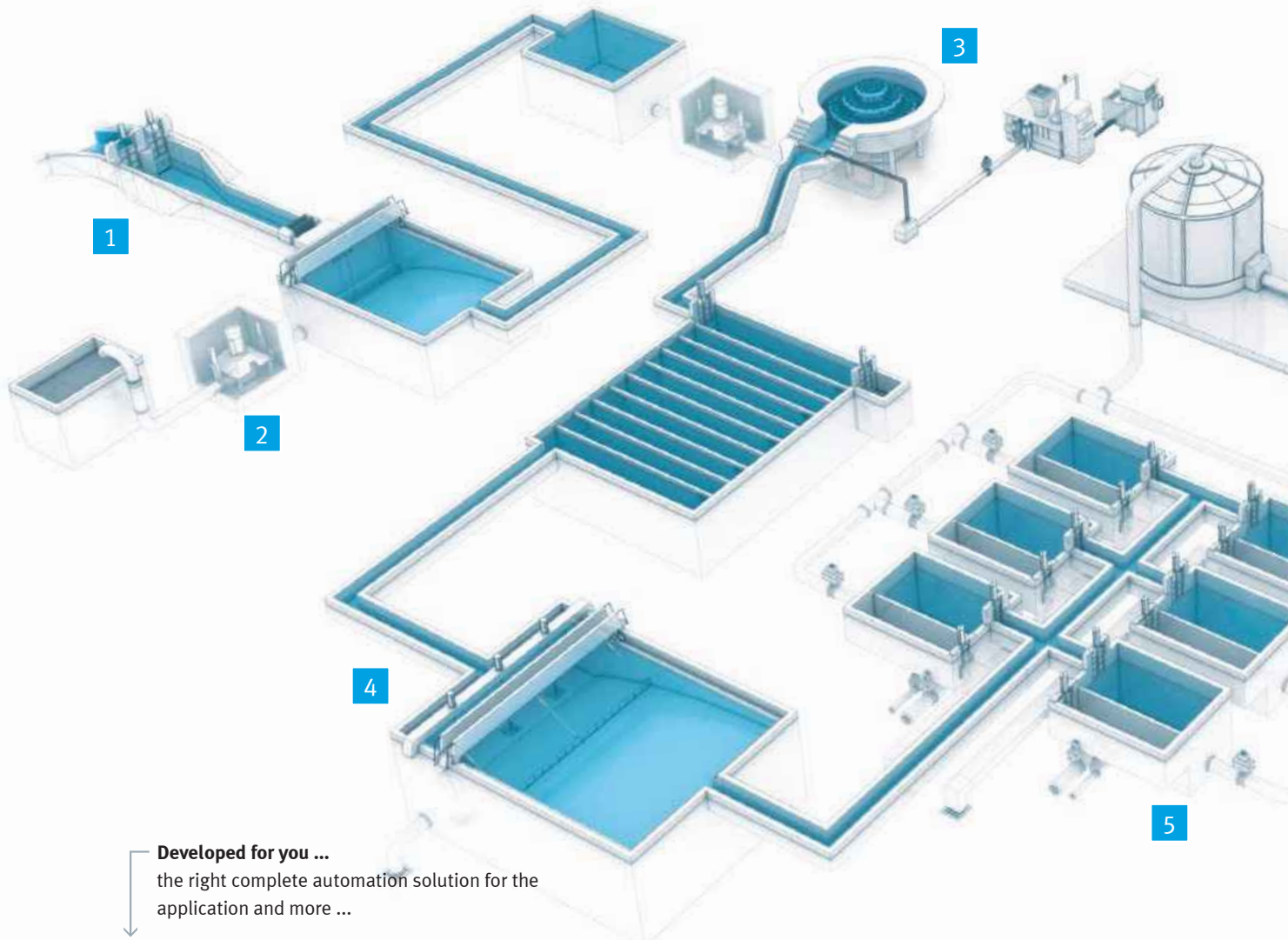
Customised configuration of control cabinets in coordination with the operator and plant builder

Control cabinets

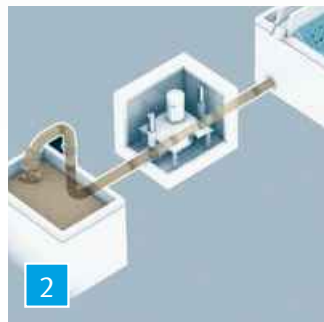
- Universal communication with all common bus technologies
- Dry run for function testing
- Automatic/manual mode, reversible for clear operating status

... to the complete automation of your processes

Complete automation systems for water technology



1 Inlet: controlling the supply of untreated water
Variable opening and closing of gate valves without housing using sturdy actuators



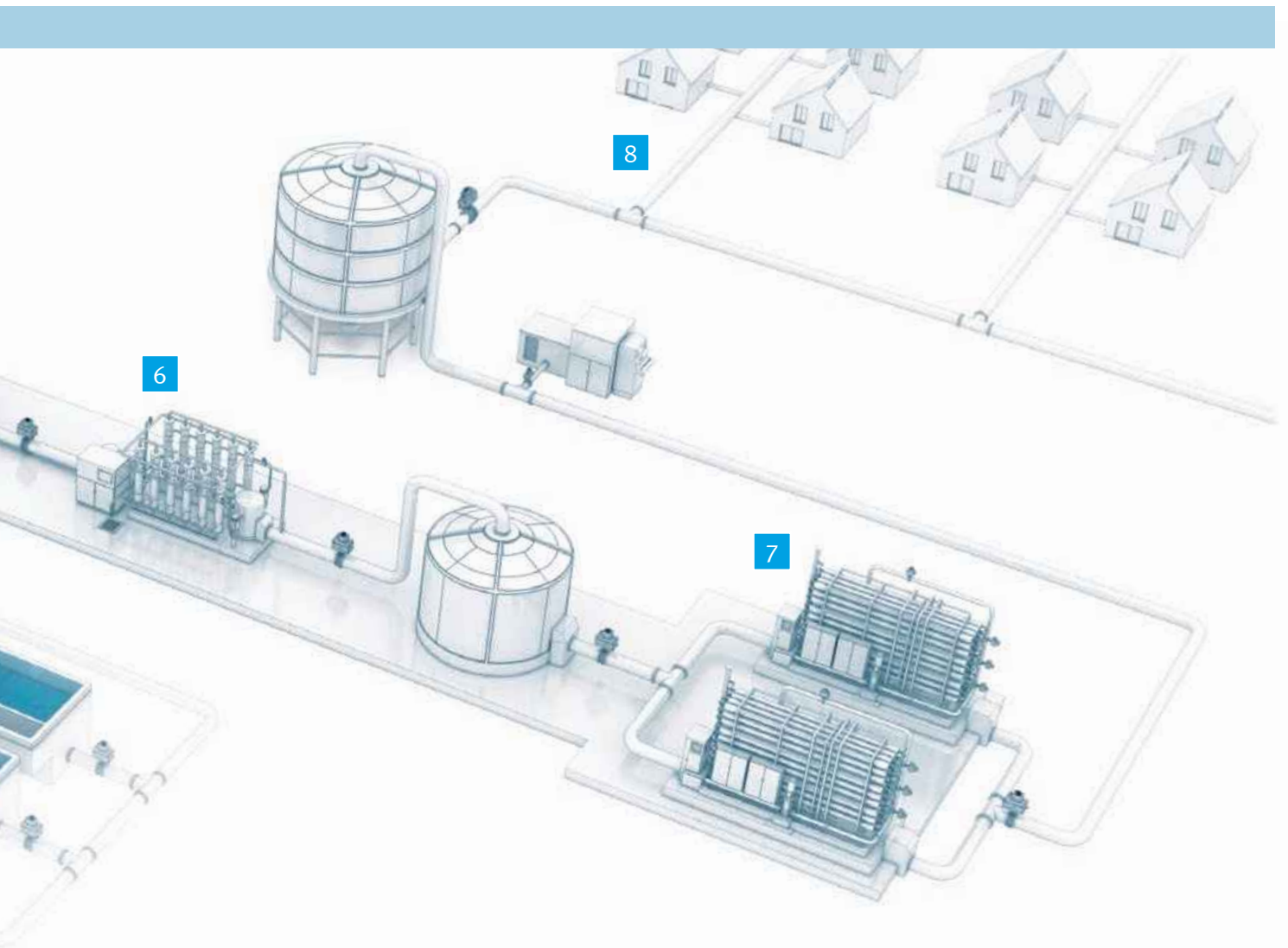
2 Sludge pumping station
Synchronising the knife gate with the pumping operation for sludge



3 Mixing and dosage
Automating the flocculant mixing system



4 Sedimentation tank
Controlling sludge discharge using poppet valves

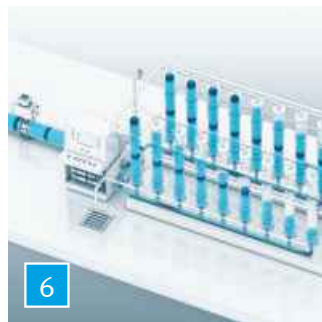


Would you like to learn more?

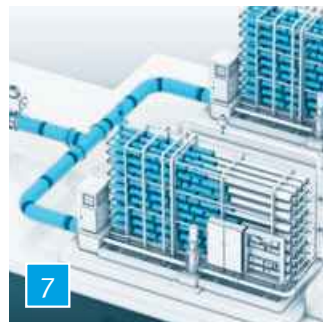
www.festo.com/water



Automating filtration systems
Controlling the process loop
filtration – backwashing to clean
filters – fixed-bed filtration



Ultrafiltration
Controlling operating modes:
Crossflow filtration
Dead-end filtration
Backwashing

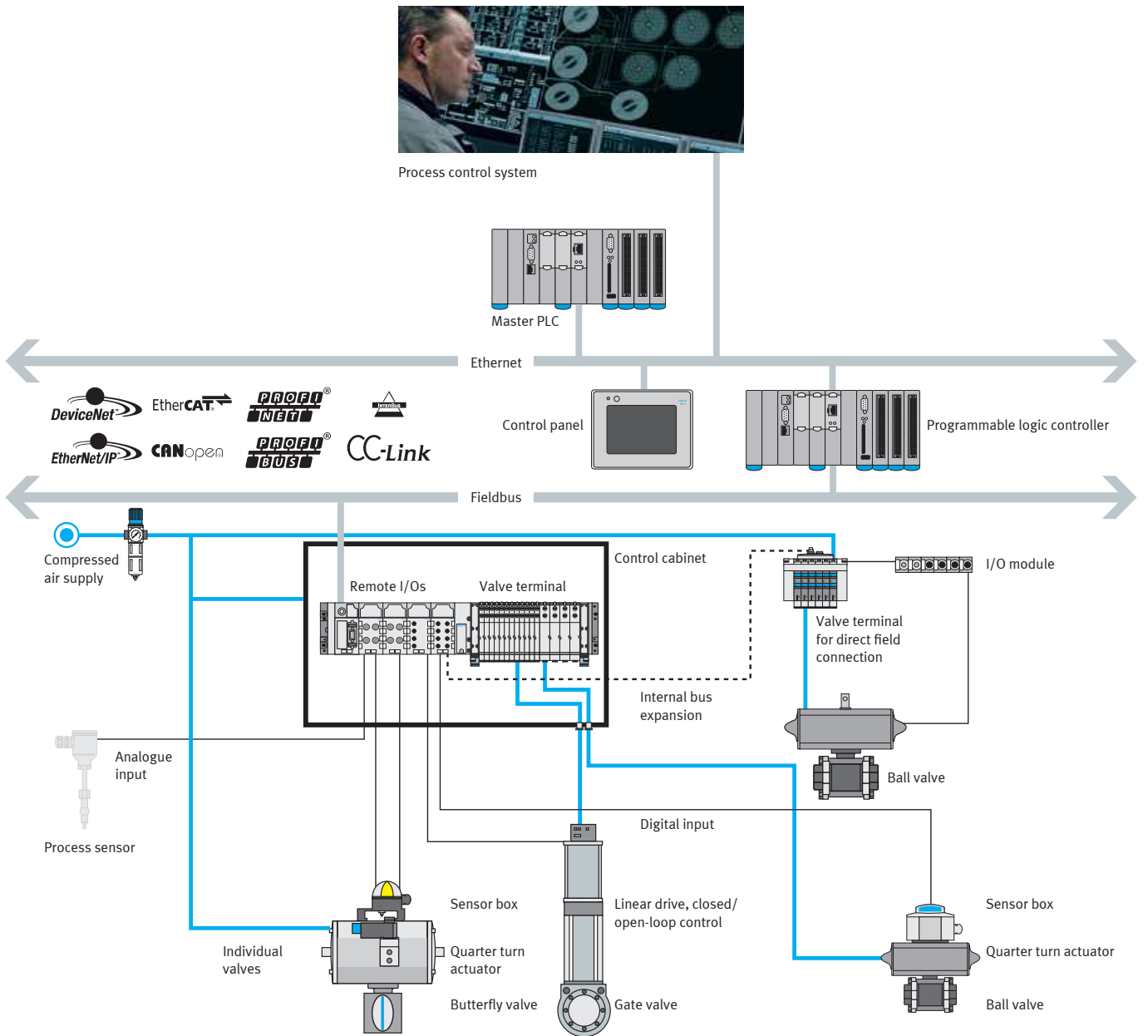


Reverse osmosis
Controlling operating modes:
Crossflow filtration
Dead-end filtration
Backwashing






Distribution
Automating plunger valves
Securing drinking water
distribution

Complete automation systems from a single source give you a head start ...



→ A complete product range overview can be found at: www.festo.com/water

... and innovation through synergies

				
Biotech/pharmaceutical industry	Food/packaging industry	Automotive industry	Flat panel and solar	Electronics industry/ light assembly

For years, Festo has been developing factory and process automation solutions for a wide range of industry sectors. By transferring our experience and innovations from one industry to another, we take advantage of valuable synergies and create economies of scale.

It enables us to develop and implement customised concepts for your plant quickly and economically so you too can benefit from our worldwide network of know-how.