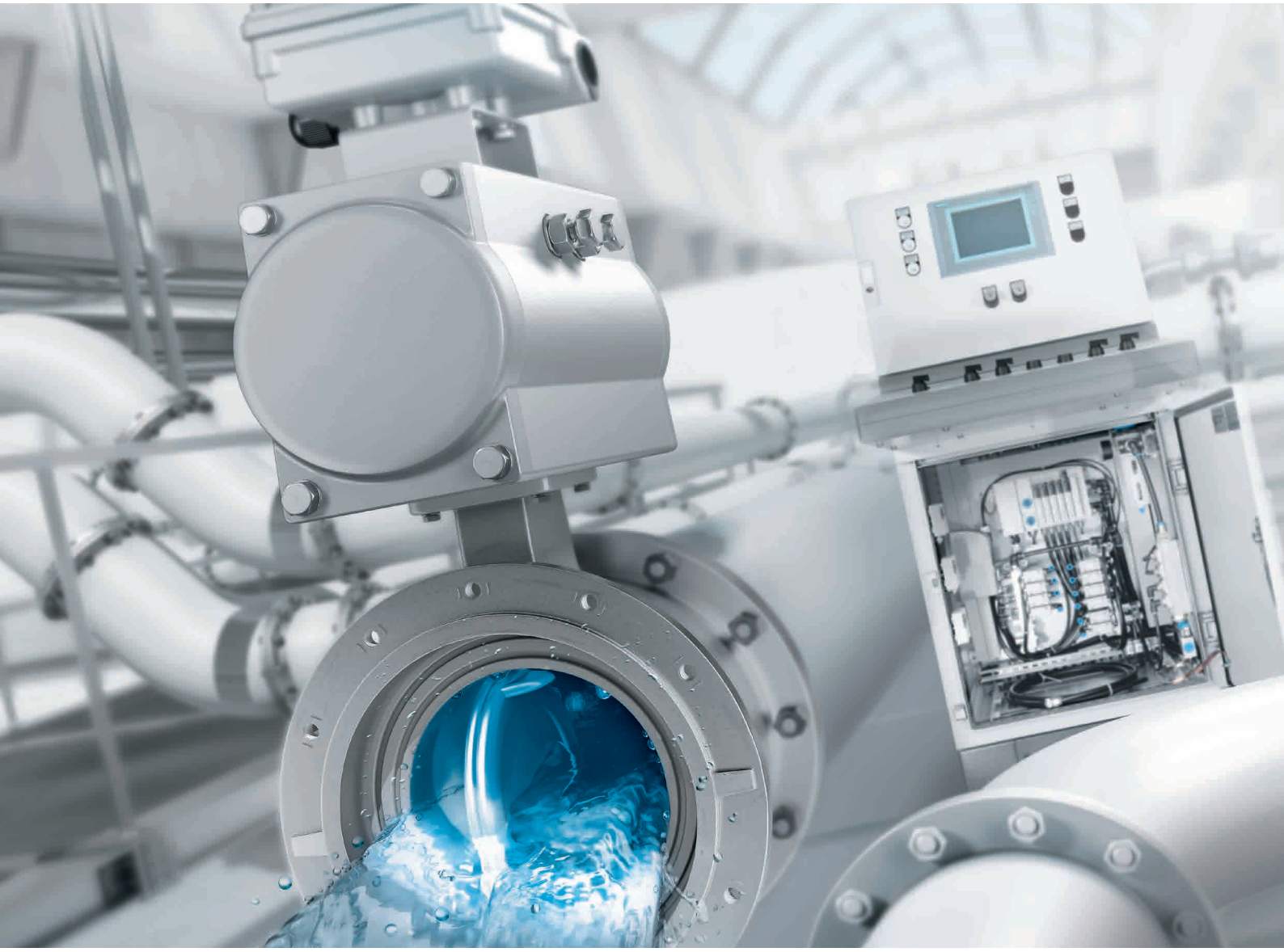
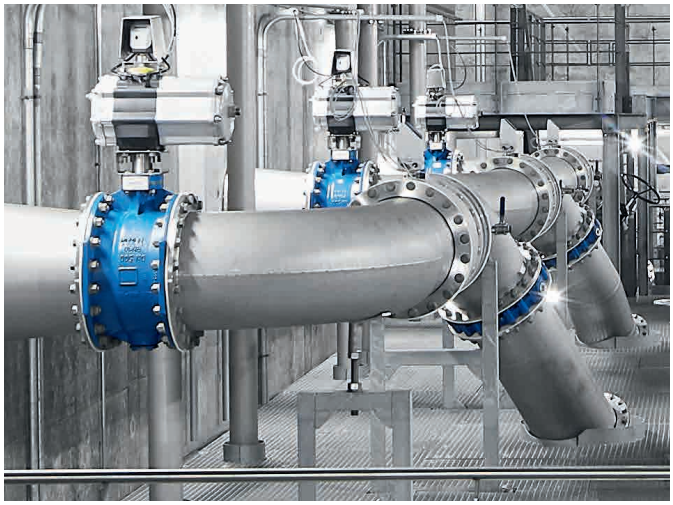
Municipal water technology

FESTO



Your objective is maximum efficiency when planning, installing and operating municipal water and wastewater treatment plants. Thanks to our integrated automation solutions, smart tools and personal support during all project phases, you always reach your objective – worldwide.

Our highlights for municipal water technology



Products and solutions
Festo provides an extensive product and solution portfolio for the automation of treatment plants for ground, sea, surface and waste water.

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Digitalisation
In addition, you can exploit significant potential in municipal water technology with our digitalisation concepts.

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Engineering tools
We provide you with personal advice, as well as numerous tools that enable you to plan, configure and order in a smart and intuitive way.

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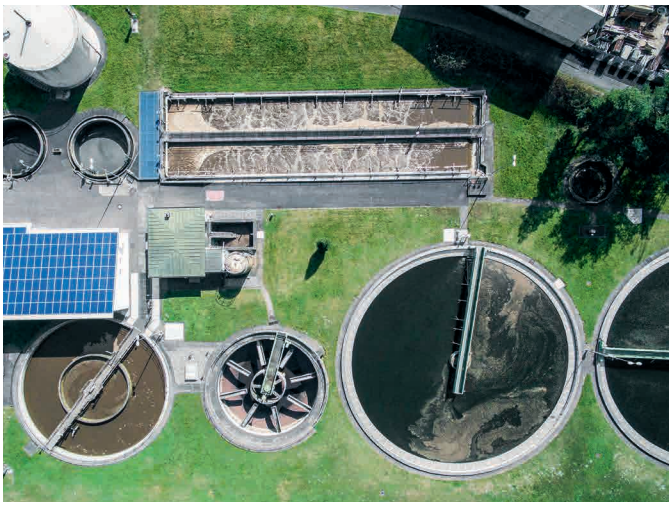

Automation with concepts
Pneumatic automation concepts bring you clear advantages, especially in the field of water/wastewater treatment.

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Do you design, build or operate plants? Then you can now benefit from our added value.

We are your reliable partner for automation for all project phases, and throughout the entire lifecycle of plants and systems.

Conceptualisation
We design and think through your automation project together with you, and support you on the way to a feasibility study.

Engineering
To ensure that your engineering processes can run quickly and smoothly, we provide you with a detailed design of the automation solution and also make useful design tools available to you.

Logistics/procurement
We supply everything from a single source, from project management and system solutions to components – with 61 national companies and over 250 Festo branches worldwide.

Project implementation
Our experienced and qualified team assists you throughout all the project phases, and supports you during implementation.

Assembly/commissioning
Our pre-assembled, tested and ready-to-install solutions make installation and commissioning easier for you, enable diagnostics for quick fault detection and, if necessary, our on-site service team will be happy to help.

Operation/maintenance
By training and educating our maintenance and operating staff and by using standardised automation systems, we ensure high system availability and thus save you money!

The water treatment plant in Langenau (Southern Germany) is one of of the largest and most modern water treatment plants in Europe and supplies about three million people. In 2016, a new rapid decarbonisation plant with automation technology from Festo was put into operation. A total of 77 Festo quarter turn and linear actuators ensure reliable processes in the plant. One of the benefits of pneumatics is that in the event of a malfunction, such as a power failure, the actuators automatically return to their initial state thanks to their de-energised normal position. The filtration process can be resumed and the water that enters the infeed system is free of sediment. The Festo control cabinets with valve terminals CPX/VTSA are installed decentrally at the multi-media filter basins and guarantee a high level of reliability. The control cabinets control all pneumatic process valves and include additional sensors for measurement signals as well as limit switches.

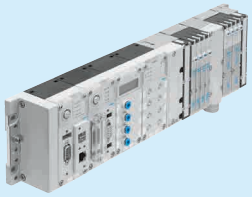
Dipl.-Ing. Bernhard Röhrle
Spokesperson for Zweckverband Landes-wasserversorgung (regional water treatment association)

“We expect our plants to run for decades, so reliability and quality both play a crucial role.”

Automation for your water treatment from a single source

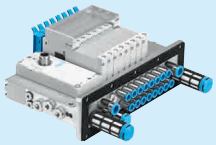
Are you planning, building or operating plants and systems for treating surface water, groundwater, seawater or wastewater? Then we have the right automation solutions for you.

Visualisation and operation
Control panels for controlling and visualising processes and information. Ethernet interfaces for external components.

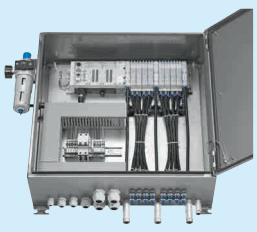


Decentralised open- and closed-loop control
Integrated control systems enable autonomous programming and open-loop control without the need for complex process control systems. Programming with CODESYS, communication via Ethernet/fieldbus.

Automation platform
Modular, electrical terminals for the quick and easy connection of pneumatic and electric components in the field. For direct integration of valve terminals and as a remote I/O. Universal communication via fieldbus/Ethernet.

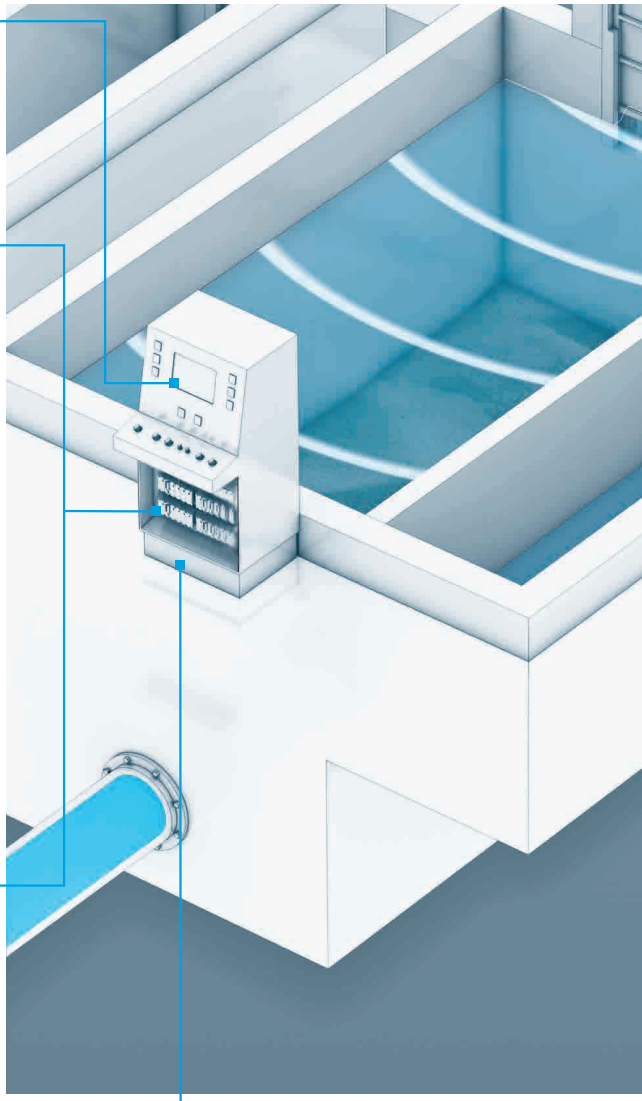


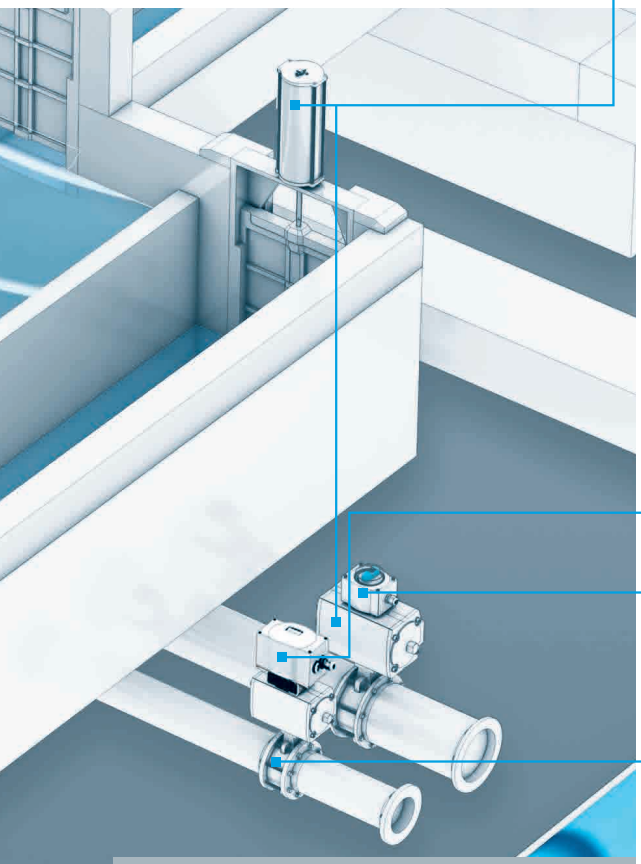
Valve terminals
Our valve terminals combine maximum modularity with maximum pneumatic power. A wide range of functions can be combined in a modular design and connected to the automation platform CPX, all customised to your requirements.



Protected from external influences
Control cabinets protect key electric and pneumatic components and ensure that your systems comply with directives and industry-specific requirements, even if you require a customer-specific solution.

CODESYS
EtherNet/IP
DeviceNet
CANopen
PROFIBUS
PROFINET
INTERBUS
Modbus
ETHERNET POWERLINK
IO-Link





Pneumatic motion
Quarter turn and linear actuators for easy on/off operation, either with integrated displacement measurement and positioning or external positioner.

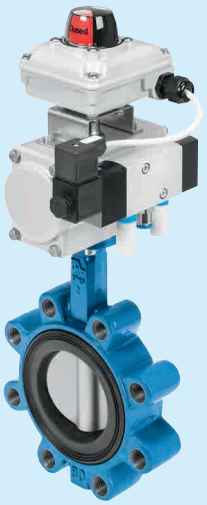
Open- and closed-loop control of actuators
External positioner for closed-loop control of pneumatic actuators for process valves.
You can choose from a huge range of pilot valves for on/off operation.

Monitoring positions
Analogue or digital sensor boxes for quarter turn actuators.
Proximity switch to determine the final position of linear actuators for on/off operation.

Open- and closed-loop control of media
We offer you a wide range of ball valves, butterfly valves as well as knife gate valves, angle seat valves and pinch valves.

Pre-assembled and ready-to-use
Pre-assembled process valve units ensure that the components precisely match one another – and with our online process valve configurator you can now configure them quickly and easily yourself.

→ **More information on page 10**



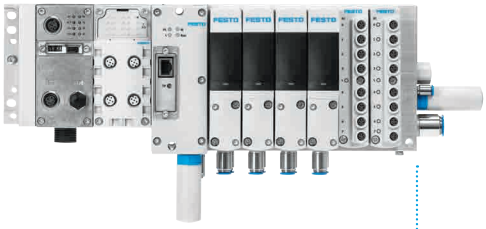
Compressed air network accessories
For optimal and trouble-free operation of your compressed air supply network, you will find numerous accessories, such as service unit components, tubing and connection technology.

Explosive atmosphere?
Festo also provides suitable products for your applications in potentially explosive areas, such as digestion towers or biogas plants – of course including comprehensive documentation and declarations of conformity.

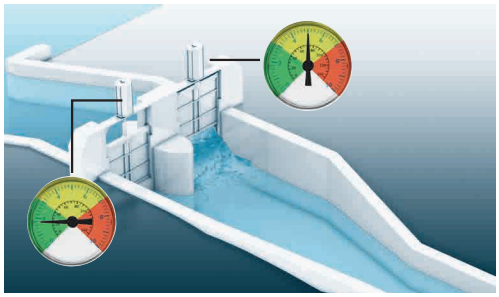
Added value and transparency through digitalisation

Digital pneumatics with the Festo Motion Terminal

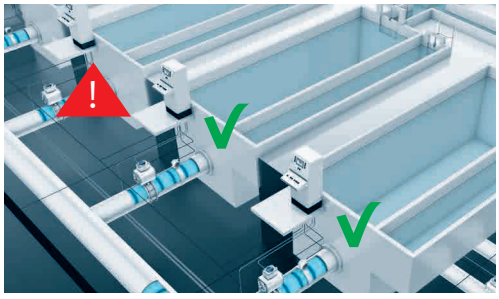
The Festo Motion Terminal VTEM is the first valve in the world to be controlled using apps. Our Motion Apps allow you to integrate many functions using standardised hardware. Functions can be simply switched at the touch of a button. This increases productivity and reduces complexity in production.



Flexibility and standardisation go hand in hand with our Motion Apps
The Festo Motion Terminal offers benefits along the entire value chain, from the conceptualisation to the modernisation of your system. The Motion Apps are an integral part of this. They allow you to standardise your applications while offering unparalleled levels of flexibility. Currently, there are 10 apps. We would like to draw your attention to two of them, as they are particularly interesting for system builders/ operators of municipal water treatment plants:



Save compressed air, especially with large actuators: ECO drive
The actuator is operated with the minimum pressure needed for the load. There is no rise in pressure in the actuator chamber at the end of the movement. Savings in compressed air of up to 70% are possible, especially for very large actuators such as those used for penstock valves.



Detect and locate malfunctions in specific actuators: leakage diagnostics
Thanks to separate diagnostic cycles and defined threshold values, malfunctions can be detected and localised with the Festo Motion Terminal for specific actuators. This allows you to always keep track of large systems, and you also know at any time, whether, and if so, which actuator is malfunctioning.

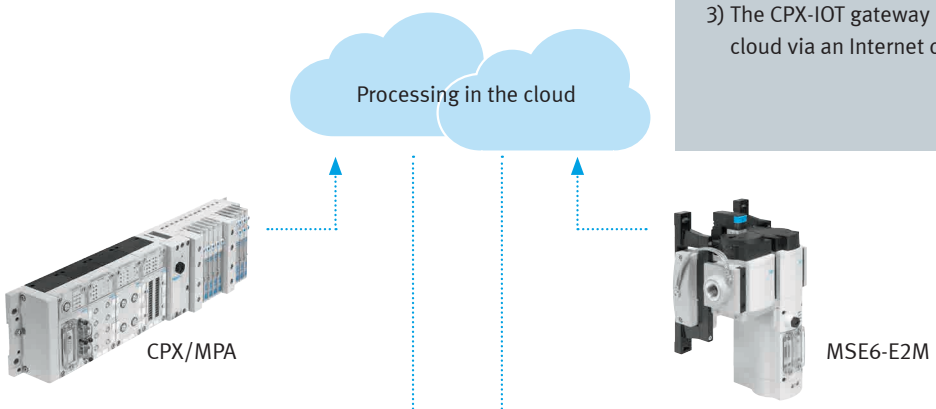
VTEM – a platform full of possibilities: just ask us about it!
The opportunities that the Motion Terminal opens up are unlimited. One of our specific goals is to develop new apps that are tailored to your needs. We have already developed concepts for optimising the opening/closing characteristics of process valves or for detecting the end position without using sensors. You too can benefit from this continuous development by telling us your requirements – we look forward to receiving your ideas!

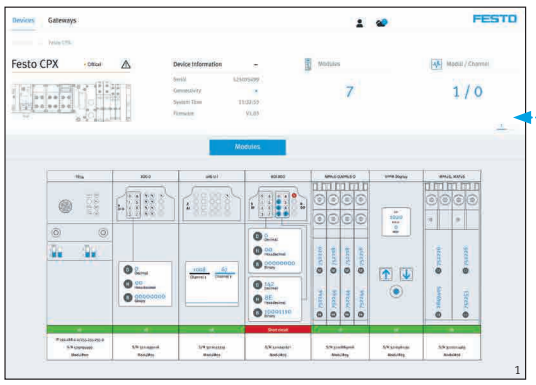
Greater transparency with networked components and cloud services

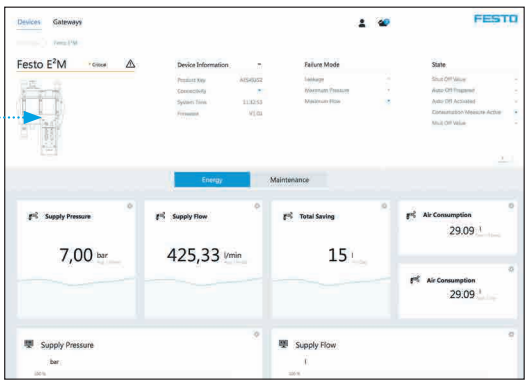
With Festo you can easily and quickly get started with the Industrial Internet of Things (IIoT). This makes information about Festo devices and their statuses available worldwide at any time. For you, this means increased productivity through better utilisation, lower costs through better energy efficiency and fewer downtimes thanks to comprehensive diagnostics, condition monitoring and improved maintenance.

Keep track of everything with Festo Dashboards
Our predefined Festo Dashboards provide a clear interface on which you can view all the essential actual characteristics and data at a glance – all without programming. On request, you will be notified fully automatically in the event of deviations from the target values.

Easy transfer to the cloud
To monitor the data of your Festo devices and equipment in the cloud, you only need:
1) A compatible Festo device (such as CPX/MPA or MSE6-E2M) › supplies the data
2) Festo controller, such as CPX-CEC or CECC › compresses the data before it is forwarded to the CPX-IOT
3) The CPX-IOT gateway › sends the data to the cloud via an Internet connection







CPX/MPA
The dashboard shows an exact digital image of your individual configuration. You can detect operating statuses immediately, receive error messages in plain text and track valve switching cycles as well as the status of the inputs/outputs live. Retrospective analysis of process data for up to one year is possible.

MSE6-E2M
Energy consumption is monitored and documented in the dashboard. For every system supplied with compressed air via an MSE6-E2M, you can view the pressure, flow rate, consumption and changes in pressure at any time. This allows you to identify possible leaks, carry out preventive maintenance and reduce downtimes.

Reach your goals more quickly with smart engineering tools

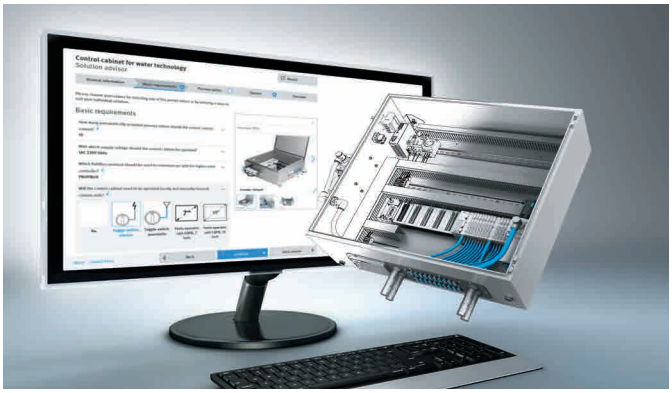
Smart and intuitive planning, configuration and ordering. With our engineering tools you can now do this even more easily, faster and therefore more cost-effectively.

Configurators for pneumatically automated process valves
The configurators make selecting the optimal solution child's play. Once you select a few parameters, the configurator immediately suggests appropriate combinations. This makes your engineering process faster, easier and more reliable.

- Manually actuated process valves
- Automatically actuated process valves
- Closed-loop controlled process valves

To the configurator for butterfly valve units:
→ **www.festo.com/kvza**

To the configurator for ball valve units:
→ **www.festo.com/kvzb**



Configurator for control cabinet solutions for water technology (Cabinet Guide Online)
With the Cabinet Guide Online, technicians and engineers involved in project managing and planning water technology systems can now create a ready-to-install control cabinet in record time and can make significant savings in comparison with customised, project-specific control cabinets.

- For controlling 4 ... 20 process valves
- Up to 80 digital and 16 analogue I/Os
- Right housing size, material and equipment for the application and installation location
- Various fieldbus protocols
- With/without filter regulator
- Optional with manual operation

→ **www.festo.com/cabinets-water**

We can help you plan!
Our experts will work with you to develop automation concepts that are tailored to your application. Together we can find the technically and economically optimal solution for your automation task. At the same time, we support you in your planning with

- pneumatic/electrical circuit diagrams (ePlan)
- CAD visualisations of automated process valves and control cabinets in 2D/3D

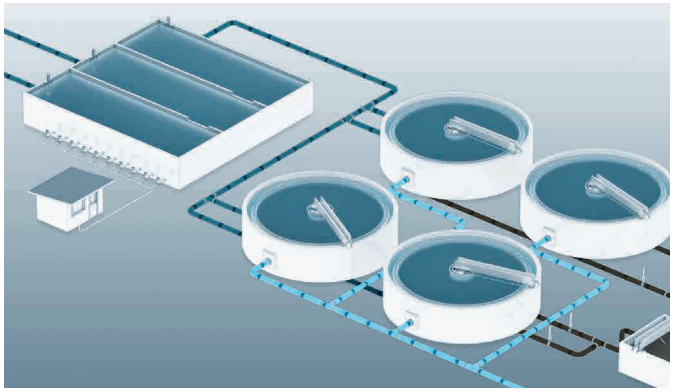
Unique from Festo: Schematic Solution for Eplan projects
This tool documents your configured solutions (CPX, VTSA, MPA) as a mechatronic representation in next to no time. Simply enter the order code and receive the complete plan in just a few minutes – error-free and trouble-free. No more tedious searching for, downloading and piecing together individual components.

→ **www.festo.com/appworld**

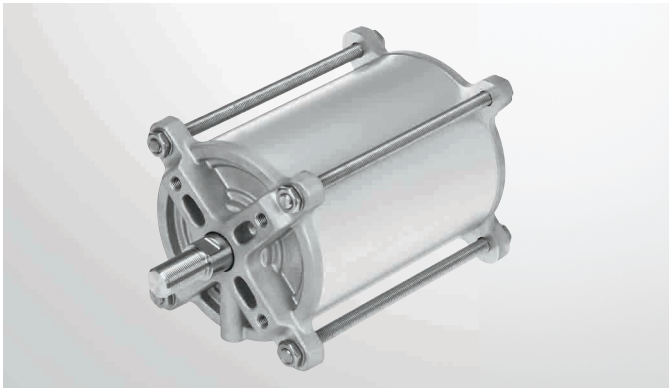
For greater cost-effectiveness of your systems: automation with concepts

Simple, efficient and safe: we recommend automation with pneumatics!

Thanks to pneumatics, you can significantly reduce energy consumption throughout your water or wastewater treatment plant. Using pneumatics as the basis for automation puts you in a good position thanks to its low acquisition costs and low operating costs – and also provides numerous technical advantages.



Integrated automation concepts with pneumatics
- Reduce investment and operating costs
- Enable quick commissioning and easy operation
- Allow low voltage for all system components
- Provide maximum safety
- Are energy efficient and environmentally friendly
- Are available from Festo with everything from a single source



Pneumatic actuators
- Are sturdy and reliable thanks to few moving parts
- Allow the process valve to adopt a safety position in the event of power failure
- Allow fast or slow positioning motion
- Permit 100% duty cycles
- Are overload-proof and also available with Ex-certificate

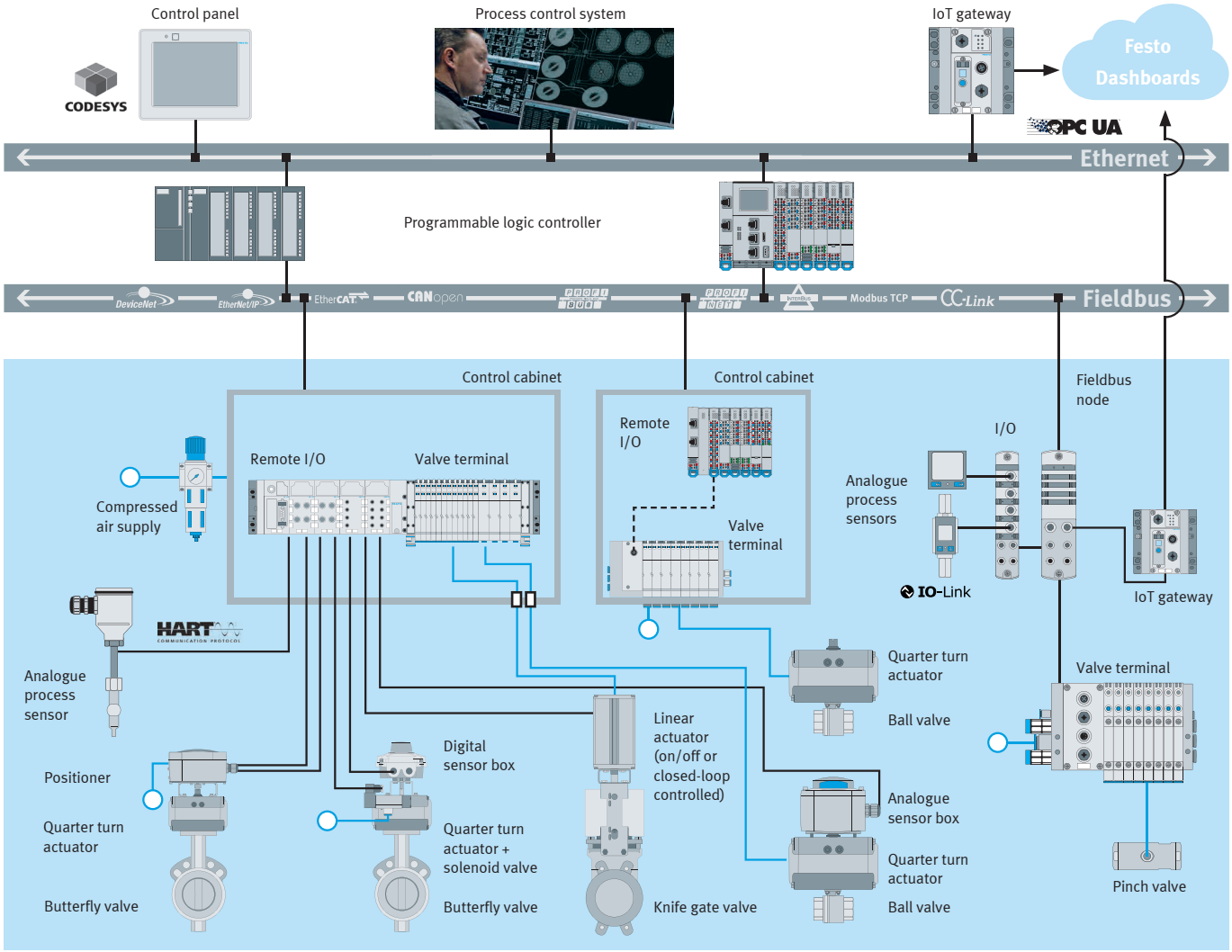
Even with a small concept, you can achieve a great impact
Automation doesn't have to be complicated. You get application-related automation concepts from us that are precisely designed to meet your needs. Even with smaller dimensions, which are incorporated into ongoing system optimisation and renovation, you achieve a positive energy-saving effect almost incidentally.

For example, substituting mechanical check valves by automated knife gate valves in pumping stations

Conventional systems for pumping stations consume an unnecessary amount of energy, because the pump – in addition to its actual function – always has to overcome the flow resistance of the check valve. There is also a risk of water hammer.

The solution from Festo does away with check valves and replaces them with automated gate valves. The pump no longer has to work against the flow resistance of the check valve and the gate valve also ensures a full flow rate. In addition to significant energy savings, this also brings other advantages:
- Increased operational safety
- No water hammer and therefore no damage to the piping system
- Extended service life of the components

Automation – fit for the future!



More information
→ **www.festo.com/water**

You are looking for a partner who understands your objectives.
You require more efficient production plants.
We are your solution for automation.

→ **WE ARE THE ENGINEERS OF PRODUCTIVITY.**

135300 en 2019/11 – Errors and omissions excepted