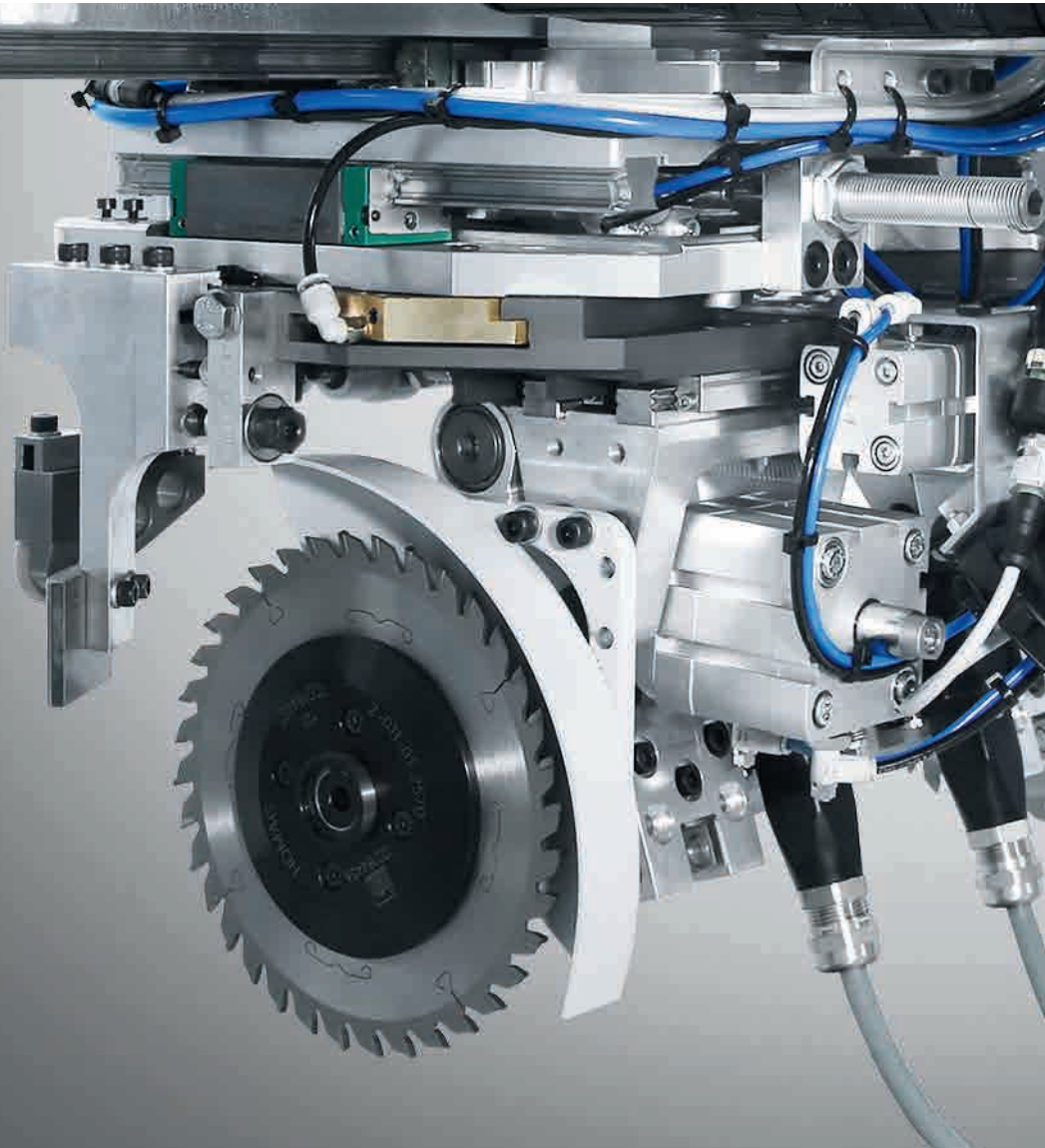


Cost-efficient production in the wood-working and wood processing industry

FESTO

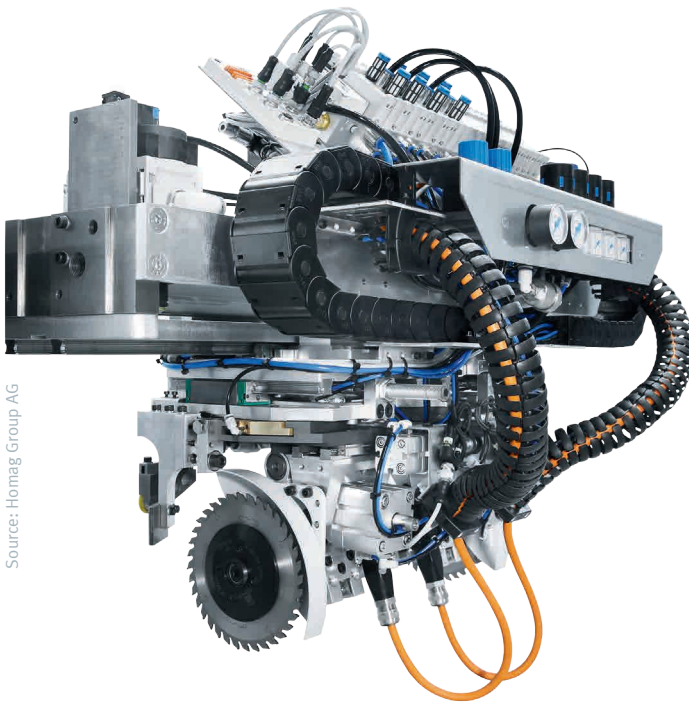


The production processes in your industry are as varied as the natural raw material, wood. Machines with innovative automation technology bring about crucial cost advantages here.

Benefit from a competitive advantage

Festo's core business includes applied automation technology for a wide variety of machines, from entry-level to fully automated high-end ones. A key technological feature of our solutions is pneumatics as a sturdy and low-cost medium. It has long established itself as the standard for primary woodworking and secondary wood processing in wood-based products technology, sawing or planing technology as well as in production machines and plants for furniture production, the components industry and carpentry and joinery.

Discover new dimensions for your company. We will help you to achieve your goals, because cost optimisation, maximum productivity, global presence and close partnerships with our customers are the hallmarks of Festo.



Source: Homag Group AG

- + Large number of standard products suitable for the working space and resistant to dust and chips**
- + Complemented by an industry-specific product offer and application-optimised solutions**
- + Global network of specialists for on-site support**
- + Consistent quality of products and services – worldwide**
- + Long-term, reliable partnership**

You have high standards, we ensure you meet them

The company nobilia with around 3,000 employees has been exclusively producing its products in Germany for 70 years. The two plants in Verl in East Westphalia are among the most modern and efficient production factories for kitchen furniture in Europe, with 3,000 kitchens made and shipped every day. Offering individual design and precision

production, it supplies almost one in three kitchens sold throughout Germany, employing a high level of automation to guarantee a constant level of quality. As expected by customers of Europe's largest kitchen manufacturer and market leader in Germany.

“We manufacture over 3,000 individually designed kitchens every day. Technical availability and the highest plant precision and flexibility are the top priority. That's why we stipulate that our machine suppliers use Festo for many areas”



Martin Henkenjohann, Head of Engineering, nobilia plants

Hüttenhölischer Maschinenbau GmbH & Co. KG plans, designs and assembles special purpose machines and robot applications for the furniture industry as well as other industry sectors. Its products range from simple manual assembly jigs all the way up to complex production and assembly lines with a batch size of 1.

Hüttenhölischer's strength lies in its ability to translate customers' ideas and requirements into custom plant concepts. This is reflected in the fact that it counts the largest kitchen furniture manufacturer in Germany and Europe among its customers.

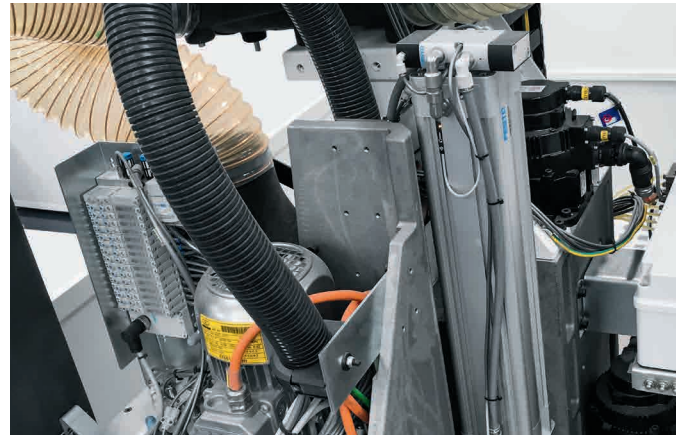
“Our customers demand flexible automation with total availability and performance. As a long-standing partner, Festo helps us to meet these exacting demands. For example, it recommended IO-Link® to us. A welcome side effect is that the workload involved in the electrical installation of our systems has been greatly reduced.”



Daniel Hüttenhölischer, Managing Director, Hüttenhölischer Maschinenbau GmbH & Co. KG

Pneumatic drives for every application

From single-acting cylinders, compact and round cylinders to semi-rotary drives and clamping cylinders, Festo drives offer sturdy, attractively priced and reliable solutions. Most feature self-adjusting cushioning PPS, which saves you around five minutes of setup time. In addition, there are matching proximity sensors, connecting components and tubing as well as fittings – including fully assembled into a complete unit.



Source: SCM GROUP S.p.A.

Our standard product range is complemented by industry-specific developments:

- Pressure cylinders with reinforced piston rod for absorbing high lateral forces during woodworking using pressure rollers with defined preclamping forces
- Trimmer cylinders to ISO VDMA 15552 featuring modular equipment options with special wiper seals and cushioning systems developed specifically for harsh and difficult environmental conditions and high speeds
- Cylinders for the drying process to ISO VDMA 15552



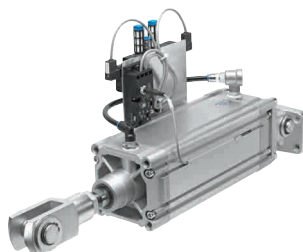
Pressure cylinder

Source: Michael Weing Aktiengesellschaft

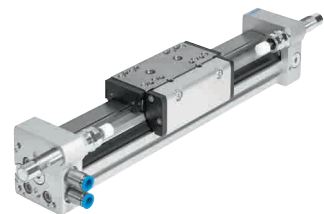
A few highlights from our product range



Compact cylinder ADN-PPS to ISO 21287



Cylinder/valve combination



Linear drive DGC



Guided drive DFM-B



Standards-based cylinder DSBC to ISO 15552



Round cylinder DSNU with cushioning PPS

Compressed air preparation that saves time and money

Extend the service life of your components and systems, and at the same time reduce machine failures and downtime. Our MS series service unit combinations with their unique mix of sizes enable optimum flow rates with smaller sizes and lower costs. Available in pneumatic or electric versions, they prevent leakage and offer reliable stop and start functions. Concentrated Festo expertise is evident in every detail and is a direct result of our integrated thinking.

Safety@Festo

With our safety-related automation technology you can achieve optimum safety. And be in full compliance with the EC Machinery Directive.

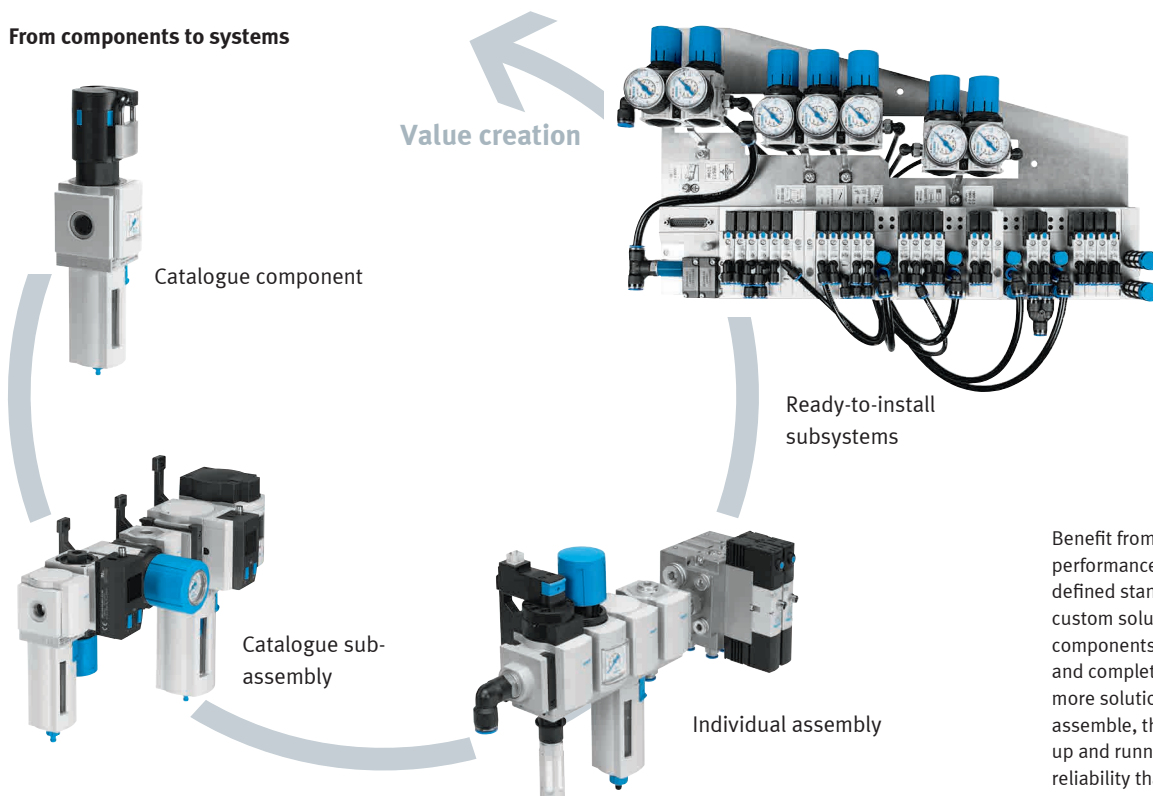
Energy efficiency@Festo

Festo's perfectly coordinated energy efficiency concept incorporates all the phases of your value creation process for an economical and sustainable plant design. Our Energy Saving Services ensure especially energy-efficient operation.



Source: IMA Kiessmann GmbH – Holzbearbeitungssysteme

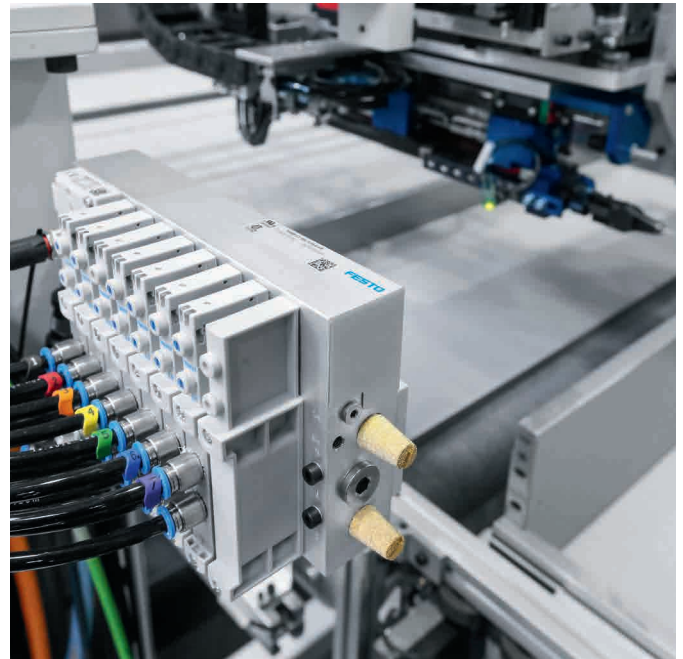
From components to systems



Benefit from the best price-performance ratio, both with pre-defined standard products and custom solutions. Our range includes components as well as assemblies and complete subsystems. And the more solutions you have us pre-assemble, the faster you can be up and running – and with total reliability thanks to full testing and documentation.

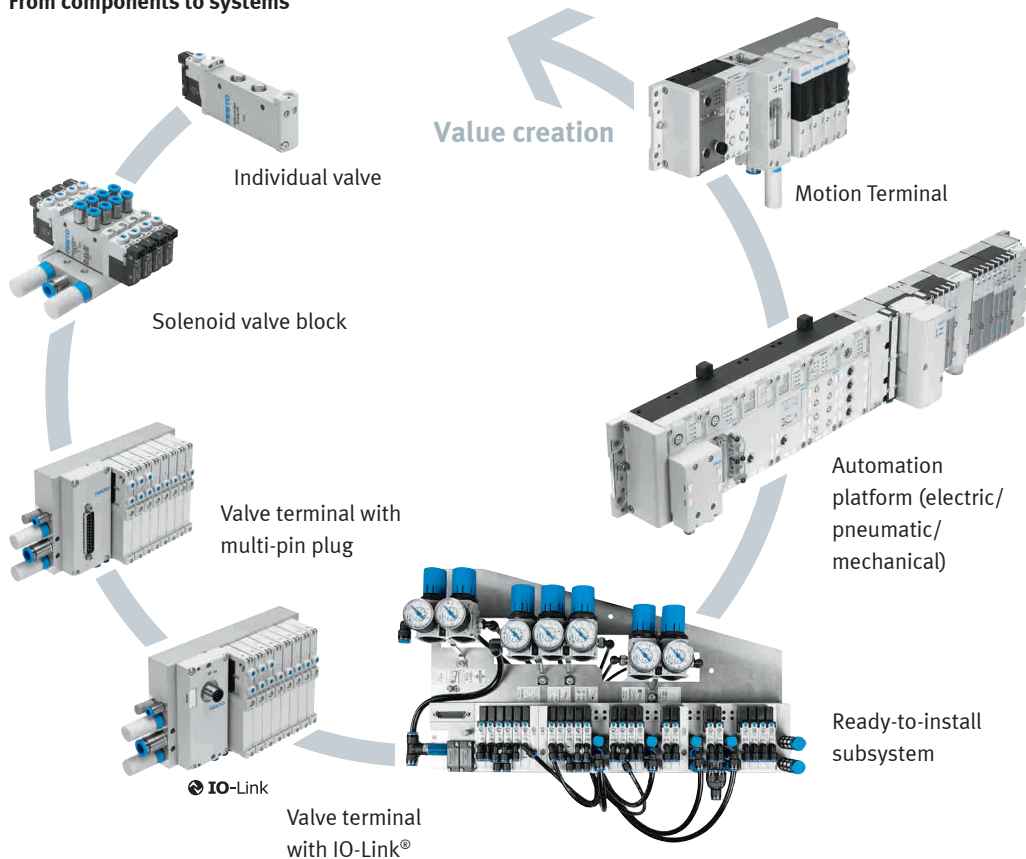
Festo: the no. 1 expert in valve technology

A valve terminal offers an efficient means of integrating pneumatic valves and electrical peripherals. The shared power supply and control system require less tubing and fewer cables and are therefore much easier and quicker to install. We invented the valve terminal in 1989, and have continuously made it more economical and flexible ever since. This has included electrical inputs and outputs, safety technology, control protocols, diagnostics and condition monitoring as well as application-optimised and customer-specific valve terminals.



Source: Hüttenbäuer Maschinenbau GmbH & Co. KG

From components to systems



PROFI
BUS
PROFI
NET

DeviceNet

EtherNet/IP

Modbus TCP

IO-Link

CANopen

CC-Link

EtherCAT

INTERBUS

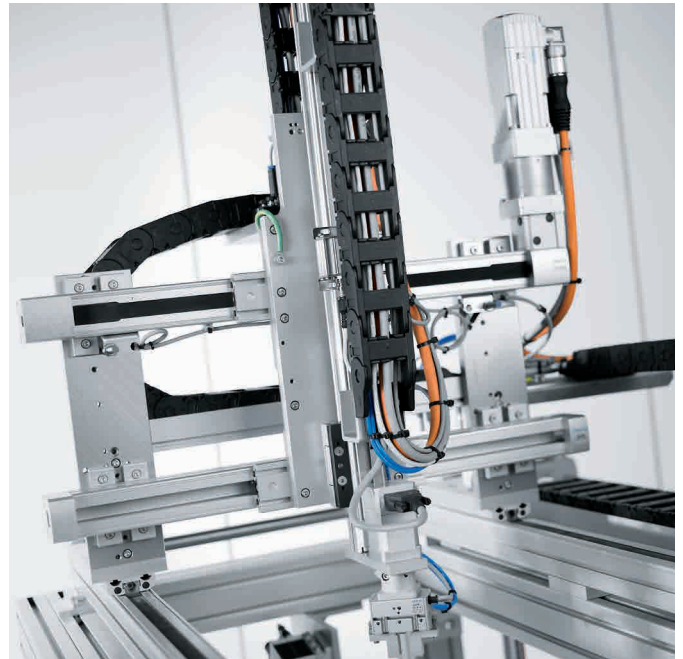
ASi

ETHERNET
POWERLINK

Configurable in line with the user's requirements, valve terminals offer flexibility in terms of functions, sizes and features. They enable communication with all I/O and controller platforms. Even the most complex automation tasks can be cost-effectively implemented thanks to our intelligent solutions with maximum function integration.

Electric drive technology at its best

The Festo range of servo motors and servo controllers is specially designed for our toothed belt axes and spindle axes as well as for our electric cylinders – perfectly combined with engineering software and enhanced with complete safety solutions for mechanical and drive systems. Innovative software tools for engineering and configuration together with our automation platform and other integrated motion control solutions provide a virtually unlimited spectrum of solutions for industrial automation tasks, whether for complete positioning systems or entire handling units. Incidentally, they are also available in electric versions or a combination of the two.



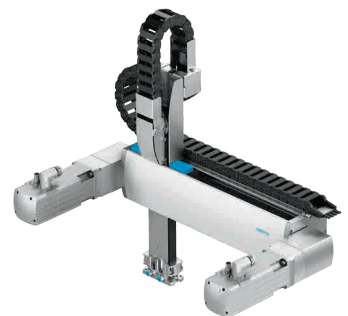
A few highlights from our product range



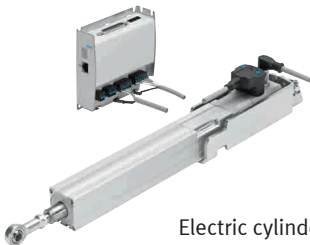
Motor controllers CMMS-ST/
CMMO-ST/CMMP-AS



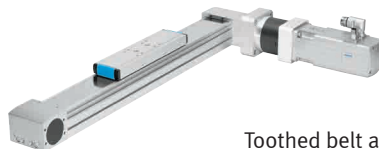
Servo motors/stepper motors
EMMS-AS/EMME-AS/EMMS-ST



Handling system



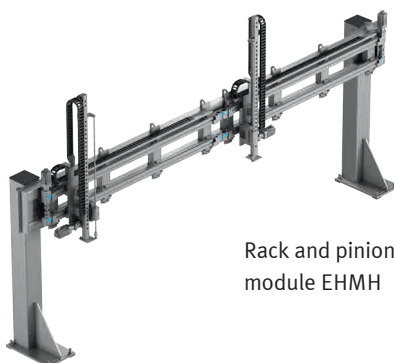
Electric cylinder EPCO



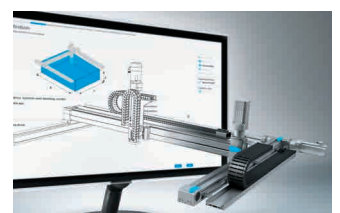
Toothed belt axes ELGA-TB-RF/
EGC-TB/ELGR



Electric cylinder ESBF



Rack and pinion Z-axis
module EHHH



Engineering software

High productivity thanks to point-to-point connection

Numerous Festo customers in your industry are already using IO-Link®. Experience shows that this type of installation concept reduces costs by up to 20% overall.

Easy to parameterise

Software-supported parameterisation of intelligent sensors and actuators via the IO-Link® master makes it extremely easy to set and reassign parameters. An especially convenient feature is automatic re-parameterisation following device replacement.

Safe investment thanks to standardisation

An international, open and fieldbus-independent IO-Link® standard provides support for existing and future connection concepts.

Less downtime, higher productivity

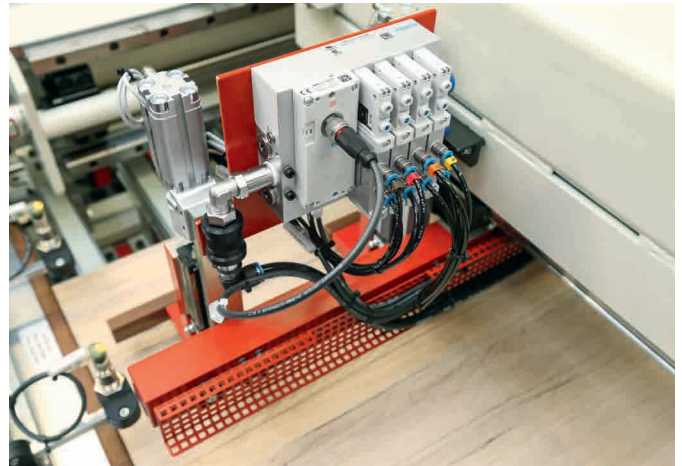
The comprehensive exchange of diagnostic and operational data between device and master systems accelerates troubleshooting and forms the basis for condition monitoring systems.

Communication across all levels

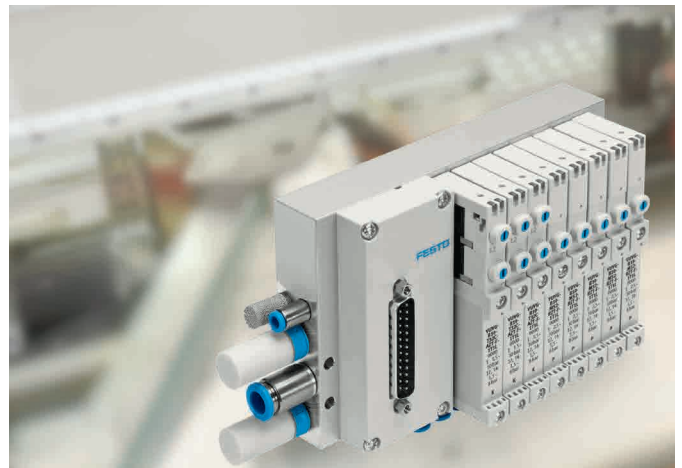
IO-Link® provides greater flexibility in communication, from the control level to the field level.

More economical and efficient installation

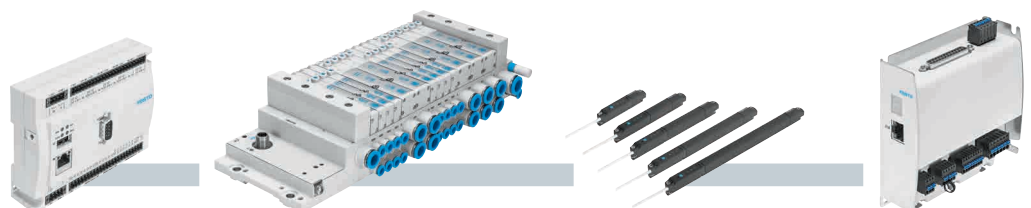
Low-cost standard cables and IO-Link® for valve terminals allow simple, decentralised diagnostic messages and offer distinct technical advantages compared with multi-pin plugs, such as more flexible installation, improved energy chain throughfeed, and optimum adaptation to particularly demanding ambient conditions like humid or harsh environments.



Source: Hüttenbüschler Maschinenbau GmbH & Co. KG



 IO-Link



Forward-looking technology for you

Industry 4.0

Solutions are becoming ever faster, more flexible and more intelligent in all industries. Higher availability, energy efficiency, communication between objects – these are the trends in Industry 4.0 and Festo is playing an important role in shaping them.



Engineering tools

Tools like the Handling Guide Online (HGO), FluidDraw or PositioningDrives simplify your work and greatly shorten your time to market. Use them for project planning, design and engineering.



For you and your customers: targeted on-site services worldwide

- Spare parts service
- Repair service
- Modular service contracts
- Energy Saving Services
- Compressed air quality analysis
- Condition Monitoring Service
- Commissioning support for axis systems
- 24-hour delivery service
- 24-hour emergency service



Training, learning systems, consulting

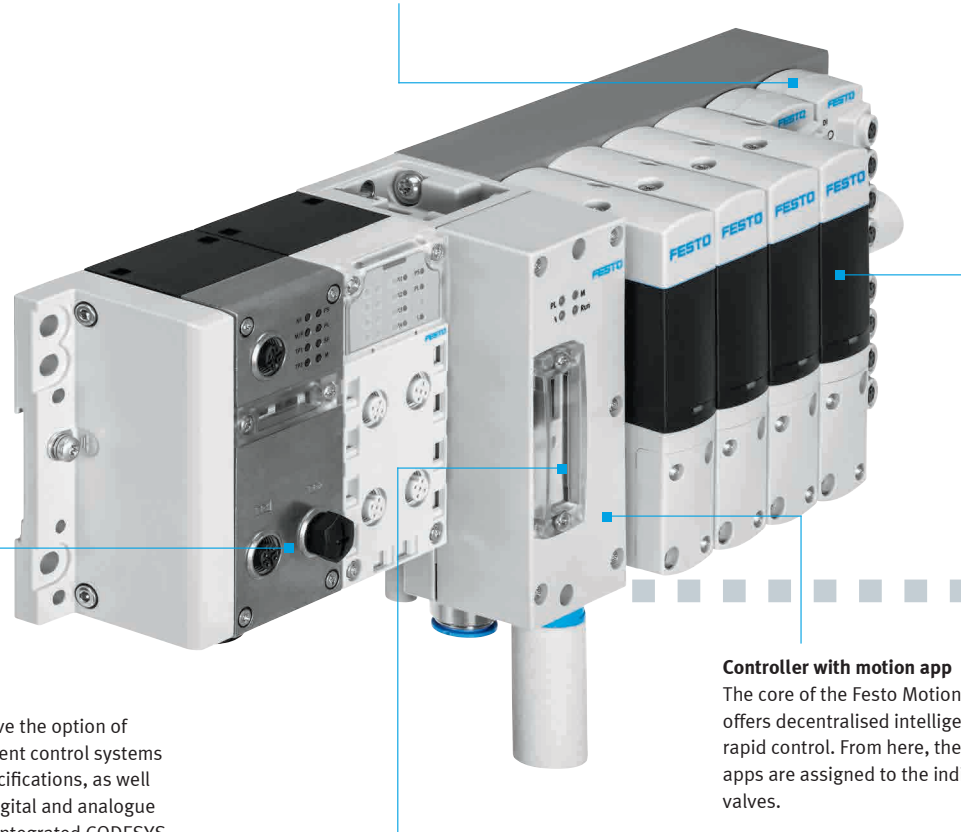
45 years of experience in training and more than 2,900 courses with around 42,000 participants each year: through our learning systems we promote technical basic and further training as well as targeted organisational and process optimisation. We also offer individual training programmes, courses at masters level and special courses for managers.



A world first: digital pneumatics

The world's first Festo Motion Terminal VTEM is opening up radical new dimensions in the world of automation. As the first valve terminal controlled by apps, it combines the benefits of electrics and pneumatics with a multitude of functions.

And your plant remains open to modernisation and performance improvements – without having to change the hardware. This will also enable you to master all the key challenges of the future.



CPX module

With CPX, you have the option of using many different control systems and end user specifications, as well as all the usual digital and analogue I/O modules. An integrated CODESYS controller and OPC UA for Industry 4.0 are available on request.

CPX-CTEL

The installation system allows you to integrate up to 4 standard valve terminals cost-effectively as no extra bus nodes are required. This makes combining different technologies effortless.

Input module

Up to 16 analogue or digital inputs for direct control applications such as Soft Stop. The necessary data is recorded and transmitted by sensors mounted directly on the actuator.

Valve

The app-controlled valve comprises four 2/2-way diaphragm poppet valves, which are controlled by four piezo pilot valves. The integrated stroke and pressure sensors provide optimal control and transparent condition monitoring.

Ethernet WebConfig interface

When it comes to efficient parameterisation the choice is yours: you can either use an intuitive WebConfig user interface via the PC's web browser or easily access the (PLC) machine control system as usual – without the need for additional configuration software.

Controller with motion app

The core of the Festo Motion Terminal offers decentralised intelligence and rapid control. From here, the motion apps are assigned to the individual valves.

Motion apps

- Directional control valve function
- Proportional directional control valve
- Soft Stop
- Proportional pressure regulation
- Model-based proportional pressure regulation
- ECO drive
- Selectable pressure level
- Leakage diagnostics
- Supply and exhaust air flow control
- Presetting of travel time

Plenty of positives

Flexible and economical, right down to a batch size of 1

Enjoy maximum flexibility and stand out from the competition with the ability to respond to changed requirements during operation using a motion app instead of having to subsequently install expensive hardware.

Maximum overall equipment effectiveness and longer component service life

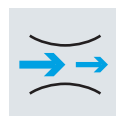
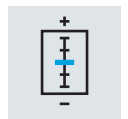
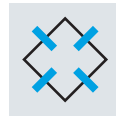
Integrated sensors and matching motion apps make condition monitoring and diagnostics for maintenance easier than ever before.

Greater profitability across the entire value chain

Motion apps such as ECO drive reduce your compressed air consumption by up to 70%. There is no need for shock absorbers or flow control valves, thus significantly reducing your spare parts usage.

Standardisation and reduced complexity

The Festo Motion Terminal performs many tasks with the highest possible level of standardisation. It now allows 50 different components and a wide range of functions to be packed into one valve.



Motion apps today

Thanks to appropriate apps, the Motion Terminal offers maximum versatility and is suitable for numerous tasks. Further apps for even more functions are already being planned.

Technical data

Flow	550 l/min
Switching time	4 ms
Operating pressure	-0.9 ... 8 bar
Degree of protection	IP65
Temperature range	-5 ... +50°C
Bus connection	PROFINET, EtherCAT®, Ethernet/IP, CPX/CEC

Important: By 2018, the Festo Motion Terminal will be available worldwide. To check availability for 2017, please go to:

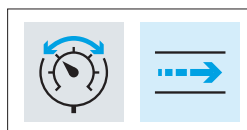
→ www.festo.com/motionterminal

Secure your own pole position

During the production process workpieces with different dimensions, contours and thicknesses need to be clamped. You can significantly reduce your cycle times here by prepositioning, while variable clamping pressure ensures optimum clamping results. This is ideal for guaranteeing consistently high processing quality. New: pre-selecting the position and individual pressure is easy to achieve with the corresponding motion apps.

More information

→ www.festo.com/wood



Motion apps used: “Proportional pressure regulation” and “Motion profile and positioning” (this function will be available from 2018).

You work with wood or wood-based materials.
You want sturdy and low-cost solutions.
We supply simple to high-end solutions, worldwide.

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