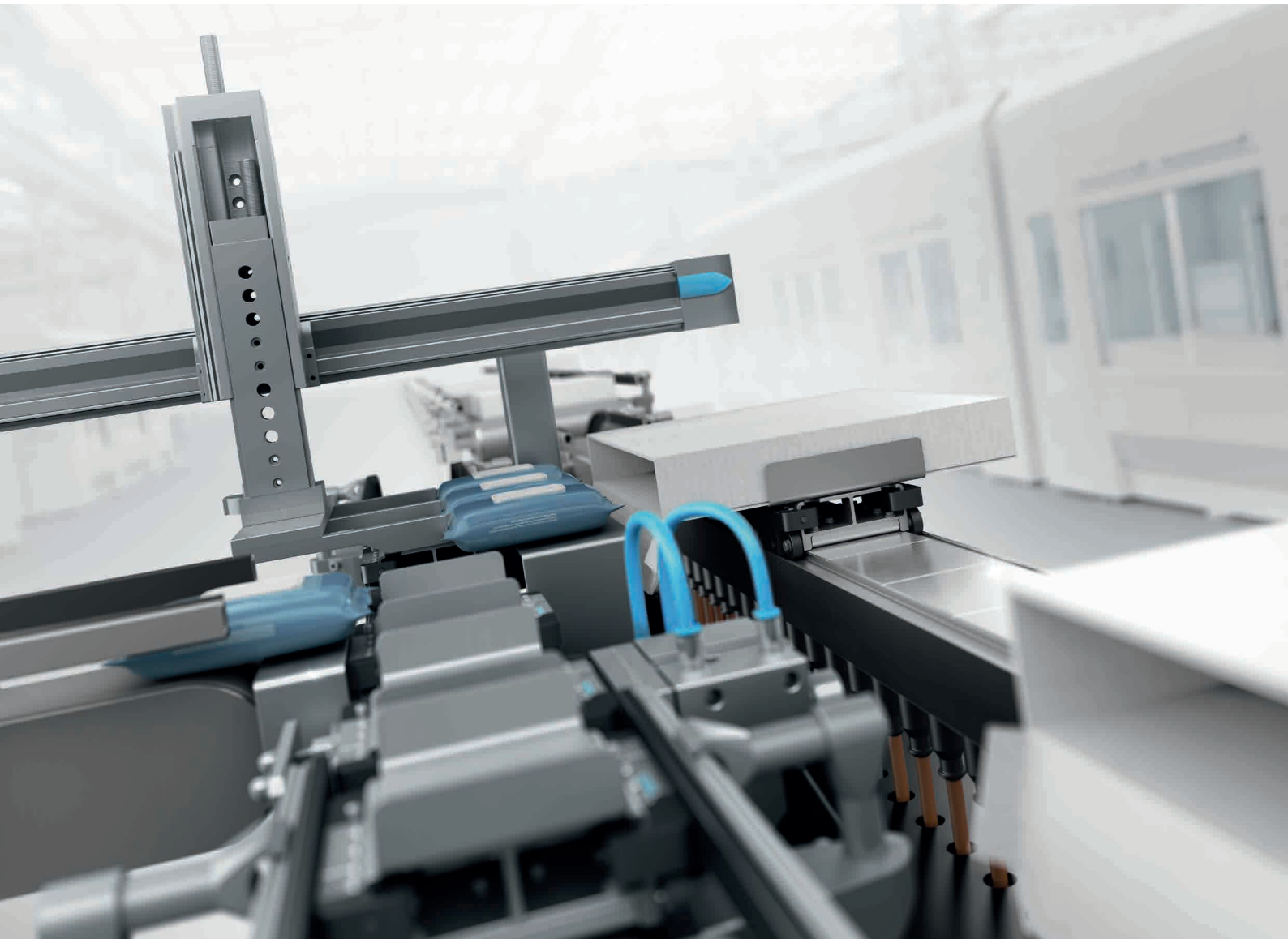


The Festo Automation Guide: your quick check for drive technology

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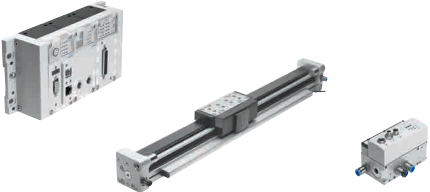
One thing is clear: your application must be tailored to your individual requirements. That is the key to economical solutions. And that is why you should rely on the most varied product portfolio on the market: whether it's pneumatic, electric or a mix, you will always find the right technology.

The Festo Automation Guide: your route to the right technology



Pneumatics: a success story

Pneumatics was the starting point for the success of Festo. This simple and low-cost technology with its strengths in moving between two end positions, for example in holding, tensioning, clamping and pressing applications, is straightforward and sturdy. That is why it can be found in nearly all industry segments.



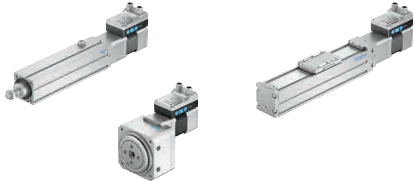
Servo-pneumatics: cost-effective positioning of heavy loads

Servo-pneumatics is a very attractively priced technology if you need to position heavy loads ranging from 15 kg to 300 kg. Drive packages based on this technology are characterised by fast switching from position control to force control and gentle travel to positions. It does require software and relevant programming experience. Path control is not possible.



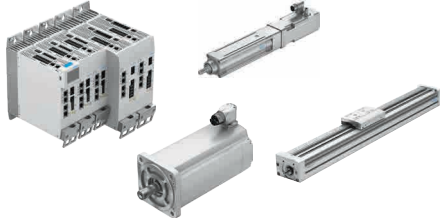
Digitised pneumatics: multifunctionality with Motion Apps

Unique and only from Festo: digitised pneumatics, such as the Motion Terminal VTEM, a multi-functional platform controlled via Motion Apps and based on state-of-the-art piezo technology. Excellent function integration is combined with outstanding monitoring solutions, and amazingly compact multi-pressure and multi-flow control applications are combined with self-learning algorithms such as in the Motion App “Presetting of travel time”. This technology is only limited by the need for programming experience and a finite flow rate range.



Simplified Motion Series: simple, low-cost, precise

Only from Festo: a simple, low-cost and precise range for linear or rotary movements between two end positions with high process reliability thanks to defined and reliable speed and force control. Ideal in assembly, testing and desktop applications. In addition, integrated IO-Link® permits diagnostics and an Industry 4.0 connection to the cloud. The series also includes extremely easy commissioning without the need for software, and state-of-the-art communication and control concepts. The only limit is the force range and protection to IP40.



Traditional, modular servo drive solutions: electrical variety

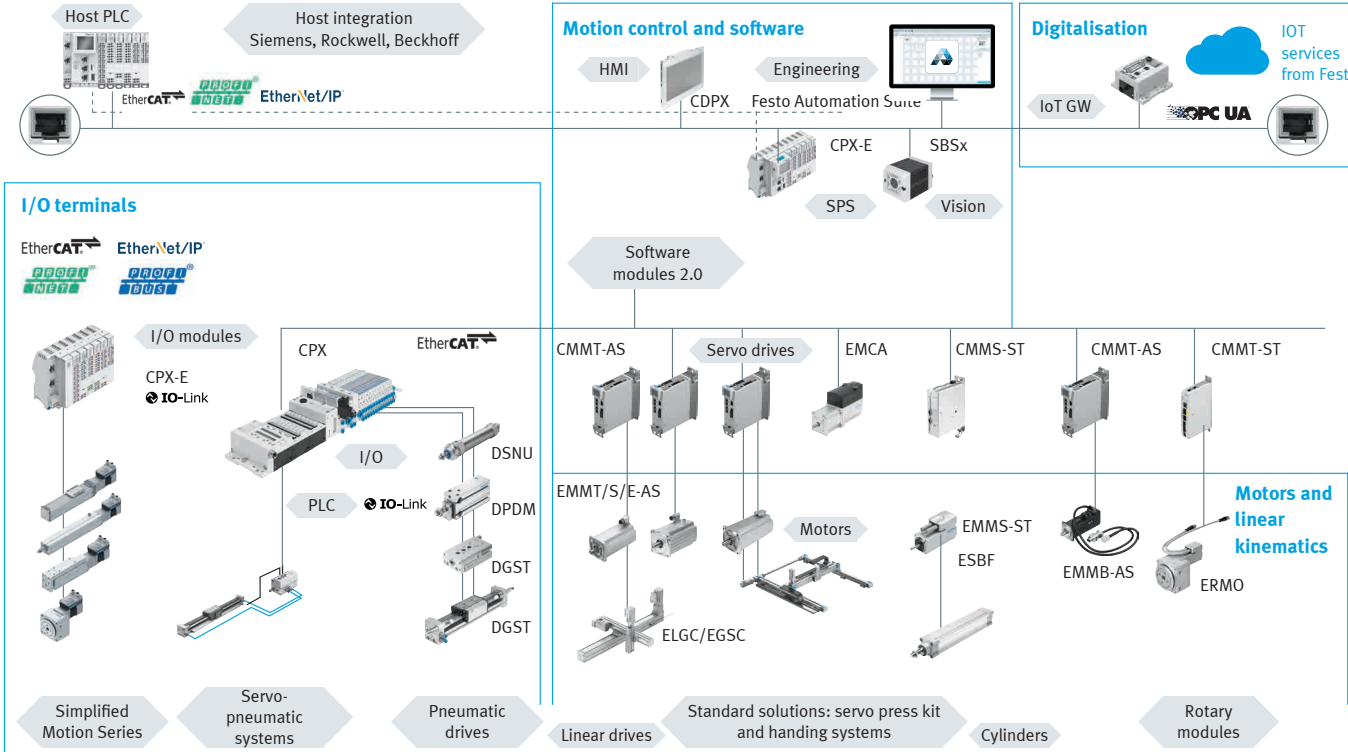
You have the choice of millions of combinations for highly dynamic, linear or rotary multi-axis movements in flexible configurations, including any number of intermediate positions. At the same time, they move very precisely, quickly and dynamically and with great force. Synchronised movements across multiple axes or combinations with dynamic, flexible Cartesian robots are also possible. Relevant software and programming experience are required.

Variety for the best solution: the Festo automation concept

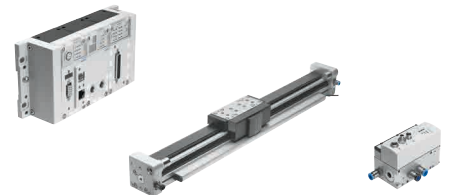
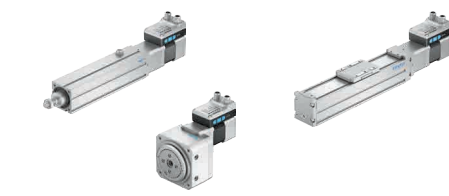
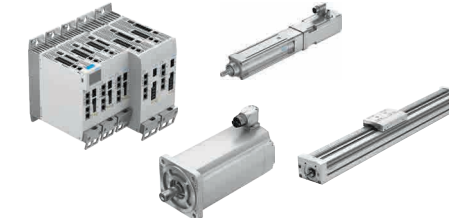
Simple pneumatics, servo-pneumatics, digitised pneumatics, simple electric drives and modular servo drive solutions: the list of technologies that Festo masters is huge. This is no surprise, as each technology has its own advantages and disadvantages. That is why Festo decided a long time ago to be actively involved in all fields and to build up a competitive portfolio along with the required expertise. So that you can always count on the best technology or a mix of technologies.

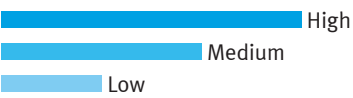
Our automation concept enables all components to be seamlessly connected, from the workpiece to the control level and even to the cloud. With this concept, you can also integrate electromechanical servo controllers directly into third-party controllers. And all these technologies also allow you to implement decentralised automation systems when using Festo controllers. Take advantage of the variety!

Your advantage:
advice and
implementation
expertise across
all technologies.



The Festo Automation Guide:
your route to the right technology

	Features/performance	Energy efficiency	USPs, typical usage and application areas
 Pneumatics: a success story Pneumatics was the starting point for the success of Festo. This simple and low-cost technology with its strengths in moving between two end positions, for example in holding, tensioning, clamping and pressing applications, is straightforward and sturdy. That is why it can be found in nearly all industry segments.	Compactness Simplicity of commissioning Flexibility in operation Accuracy Defined by end positions Force F_{max} 48 kN Speed V_{max} 3 m/s	Dynamic movement Pressing/pulling Tensioning/clamping	• Holding and pressing are where pneumatics comes into its own • End position travel • Wide range of versions – ISO cylinders, integrated guides, etc. • Many variants for a broad range of applications: temperature, corrosion resistance, chemical resistance, food safety • Sturdy and straightforward technology with low maintenance requirements • Established in all segments of automation technology
 Servo-pneumatics: cost-effective positioning of heavy loads Servo-pneumatics is a very attractively priced technology if you need to position heavy loads ranging from 15 kg to 300 kg. Drive packages based on this technology are characterised by fast switching from position control to force control and gentle travel to positions. It does require software and relevant programming experience. Path control is not possible.	Compactness Simplicity of commissioning Flexibility in operation Accuracy ± 0.5 mm Force F_{max} 5.5 kN Speed V_{max} ~3 m/s	Dynamic movement Pressing/pulling Tensioning/clamping	• Ideal for gentle movement and free positioning of workpieces • Excellent for applications with force control • Fast switching from position to force control • For loads up to 300 kg horizontally or 100 kg vertically • Stroke lengths up to 2000 mm
 Digitised pneumatics: multifunctionality with Motion Apps Unique and only from Festo: digitised pneumatics, such as the Motion Terminal VTEM, a multi-functional platform controlled via Motion Apps and based on state-of-the-art piezo technology. Excellent function integration is combined with outstanding monitoring solutions, and amazingly compact multi-pressure and multi-flow control applications are combined with self-learning algorithms such as in the Motion App “Presetting of travel time”. This technology is only limited by the need for programming experience and a finite flow rate range.	Compactness Simplicity of commissioning Flexibility in operation Accuracy ±1.5 mm Force F_{max} 3 kN Speed V_{max} ~3 m/s	Dynamic movement Pressing/pulling Tensioning/clamping	• Software-controlled valve functions via Motion Apps • High flexibility: numerous pneumatic functions in one piece of hardware • Up to 16 independent channels for controlling pressure and flow rate on one platform • High level of function integration via central fieldbus • Controlled movement into the end positions in pneumatic systems with more than one axis • Free positioning with and without motion planning • Condition monitoring and process monitoring
 Simplified Motion Series: simple, low-cost, precise Only from Festo: a simple, low-cost and precise range for linear or rotary movements between two end positions with high process reliability thanks to defined and reliable speed and force control. Ideal in assembly, testing and desktop applications. In addition, integrated IO-Link® permits diagnostics and an Industry 4.0 connection to the cloud. The series also includes extremely easy commissioning without the need for software, and state-of-the-art communication and control concepts. The only limit is the force range and protection to IP40.	Compactness Simplicity of commissioning Flexibility in operation Accuracy ±0.01 mm Force F_{max} 0.9 kN Speed V_{max} 1.3 m/s	Dynamic movement Pressing/pulling Tensioning/clamping	• Suitable for simple electric motion into end positions • Software-free commissioning without the need for programming • Good process reliability thanks to defined speed and dynamic response • Digital I/O and IO-Link® integrated as standard • IO-Link® for flexible force and enhanced functionality • Integrated, intelligent, electric valve actuators
 Traditional, modular servo drive solutions: electrical variety You have the choice of millions of combinations for highly dynamic, linear or rotary multi-axis movements in flexible configurations, including any number of intermediate positions. At the same time, they move very precisely, quickly and dynamically and with great force. Synchronised movements across multiple axes or combinations with dynamic, flexible Cartesian robots are also possible. Relevant software and programming experience are required.	Compactness Simplicity of commissioning Flexibility in operation Accuracy ±0.003 mm Force F_{max} 17 kN Speed V_{max} 10 m/s	Dynamic movement Pressing/pulling Tensioning/clamping	• Suitable for intermediate positions, precise speeds and dynamic movements • Good process reliability with guaranteed cycle times • Toothed belt and spindle drives as well as piston rod drives with and without guide, voltage ranges from 24 V to 415 V • Servo drive and motor combinations enable synchronised movements of several axes • Linear drives can be combined with dynamic and flexible Cartesian robots



Our engineering tools give you more speed and greater reliability

Schematic Solution for EPLAN projects

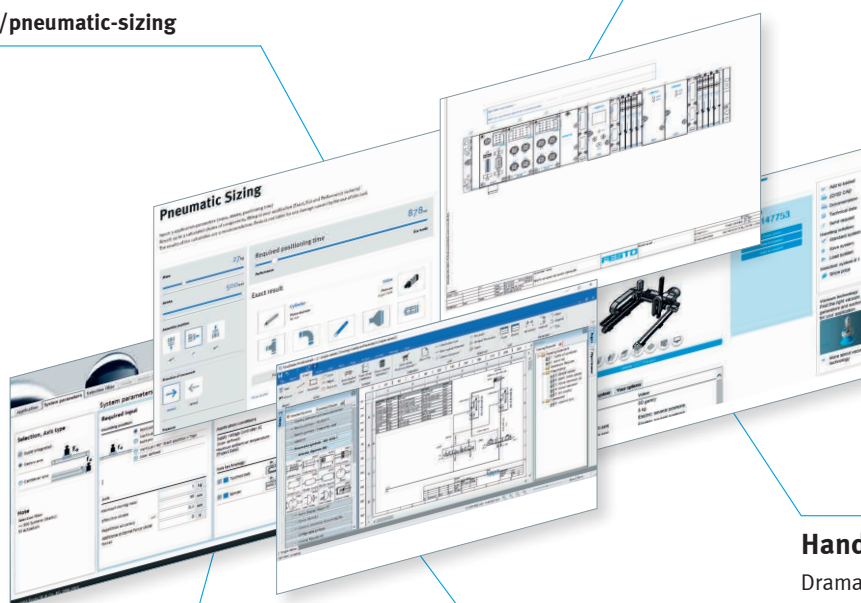
A real time saver! The circuit diagram service for complete EPLAN projects.

→ www.festo.com/eplan

Pneumatic Sizing

Makes designing your pneumatic control chain child's play.

→ www.festo.com/pneumatic-sizing



Handling Guide Online

Dramatically shortens your time to market: the right handling system in just 20 minutes.

→ www.festo.com/handling-guide

PositioningDrives

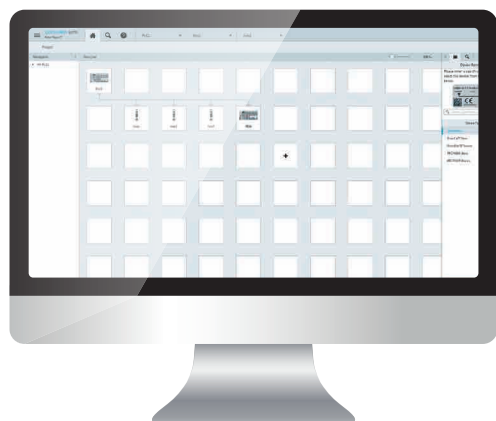
The quick and easy way to your electric drive solution.

→ www.festo.com/positioningdrives

FluidDraw 6 Professional

Pneumatic and electric circuit diagrams made easy.

→ www.festo.com/fluiddraw



The data used during the engineering process can be conveniently transferred to your bill of materials, which can then be ordered directly and easily – over and over again. Numerous tools such as the Festo Automation Suite additionally speed up commissioning and ensure greater process reliability in operation.

→ www.festo.com/AutomationSuite