Complete Automation Solutions

An advanced technology partner for designers and manufacturers of automation equipment
Your objective: optimized and fast design solutions
Our solution: speed up your automation, from design to operation

Work with experts who understand your industry. We have been setting trends in automation for decades. We smooth the way to maximum productivity with experience and dedication. Our experience is the key to your success: from consultation through development, training, seminars and products. That is competency in action. That is why we support you and work with you to pursue one great goal: boosting your productivity

For more information:
www.festo.com/us/cs

Categories
- Accelerate your process, optimize your operation!
  Speed up your automation, from design to operation. Concentrate on your core business. Gain time, reduce costs and increase the reliability of your production process. It is all possible with complete automation solutions from Festo.

- Fast, efficient, economical!
  The sooner you speak to our experts, the more you can benefit. You can expect to save up to 50% if you involve us from the start and let us send you fully assembled solutions. And you can rest assured that everything will fit and is fully tested and documented.

- Total Quality Assurance
  Festo established a certified management system as a basis for implementing, maintaining and continuously improving quality, safety and environment practices. This is applied to all production and design facilities globally.

- By relying on automation solutions from Festo you stand to gain:
  - Time to concentrate on core competencies
  - Free-up resources
  - Process reliability
  - Advantage over the competition
  - Last but not least, money

- Exceptional service and support
  - Quick quotations
  - Custom control systems
  - Design engineering
  - Factory tested
  - Worldwide delivery and service
  - One year warranty on components and workmanship
  - Competitive pricing and delivery

A few quick and easy steps to your complete automation solutions
Take the first step and tell us your requirements. We will work on this together - but we will do the work for you. Just contact your Festo sales engineer.
www.festo.com/us/cs
Festo - Global manufacturer of process control and factory automation solutions

Festo is a leading global manufacturer of automation technology including systems, components, and controls for process control and factory automation solutions. Festo Didactic provides industrial training and education programs aimed to maximize the productivity and competitiveness of its customers. Our objective is to provide innovative solutions to solve the most challenging automation problems.

Working with designers and manufacturers to increase manufacturing productivity, we continue to advance the state of industrial automation with proven innovations, customized design solutions, and exceptional service worldwide. At the control level, Festo manufactures pneumatic pilot valves, valve terminals, I/O systems and HMIs which integrate seamlessly with leading DCS and controllers.

This reduces risk and cost by simplifying integration and providing a single source supplier. The ability to incorporate standard diagnostic features into solenoid valves and I/O systems helps accurately diagnose problems which reduce downtime and field service calls. With the comprehensive range of products, engineering competencies and strong design experience, Festo is uniquely positioned to be your complete automation solutions partner.

The quick and easy steps to your ready-to-install solution

Excellence in Automation
Our engineers are backed by over 80 years of industry experience in building advanced pneumatic and electro-mechanical control systems and components for OEM’s and end-users around the world.

Custom Systems and Components, from Concept to Completion
Our project teams will work with you every step of the way, from concept through system design and delivery of a complete automated system.

- You contact us and describe your task to us.
- We design your system and develop your ready-to-install solution in close consultation with you.
- We produce a customized quotation for you.
- We procure the components.
- We build, test and document your solution.
- We deliver the ready-to-install system to you.
- If desired, we commission it as well.

Total Quality Assurance
Festo established a certified management system as a basis for implementing, maintaining and continuously improving quality, safety and environment practices. This is applied to all production and design facilities globally. We adhere to the following standards:

- ISO 9001
- ISO 14001

From conception to commissioning, Festo will take care of it for you. This allows you to...

...significantly shorten the individual process steps and save up to 50% of total costs

Make the most of it at every stage...

1. Consultation & Design
   - Pneumatic, servopneumatic, electrical and mechatronic technologies
   - Application and industry specific
   - Consideration of application specific requirements
   - Systematic support right from the start

2. Quotations & Orders
   - Detailed quotation with engineering concept, including:
     - 2D/3D concept
     - Scope
     - Function sequence
     - Easy order processing with just one item for the entire solution

3. Engineering
   - Complete engineering solution
   - Technology and component selection
   - Solutions based on the latest technological standards
   - NEMA, UI and IEC standards
   - ETX, CE and UL certifications

4. Procurement & Logistics
   - Procurement of all Festo and third-party components
   - Reduced costs thanks to single sourcing

5. Programming
   - Custom software
   - Program text and debugging
   - Teach-in or parameterization functions
   - Defined interfaces
   - Straightforward assembly principles
   - Minimal assembly and installation effort with Festo plug and work®

6. Production & Assembly
   - Application-specific mechanical production
   - Assembly of all individual components
   - Installation of third-party components
   - Complete tubing and wiring

7. Testing & Validation
   - 100% functional testing
   - Test run
   - Test certificate
   - Certifications, e.g. EN 60204-1, ATEX, UL-508A
   - Circuit diagrams
   - Operating instructions
   - User manual
   - Complete documentation, quickly integrated into overall documentation

8. Documentation
   - Detailed system documentation:
     - Assembly drawing
     - Parts list
     - Circuit diagrams
     - Operating instructions

9. Delivery & Commissioning
   - Delivery of a ready-to-install system
   - Commissioning service
   - Low logistics costs for only one item
   - Minimal assembly and installation effort with Festo plug and work®

...and save along the entire value creation chain
Handling Systems

Using a combination of different technologies such as electrical, pneumatics and servopneumatics, Festo can offer a full range of diverse solutions in 2D and 3D.

Standard handling units for multi-axis modular system

Pick and Place
Cantilever axis with slide or axis for Z movement. For applications where the gripper unit needs to be withdrawn from the area of action.

Linear Gantry
Gantry axis with slide or cantilever axis for Z movement. Suitable for long gantry strokes combined with high loads.

Cantilever Gantry
- Two perpendicular gantry axes
- Short Z stroke
- Space saver

3D Gantry
- Suitable for high loads and long strokes
- Gantry axes for X and Y movement
- Any drive for Z movement (preferably cantilever axes)

Custom Handling Solutions Services

Advanced Handling Systems

Flexibility
- Perfect load, dynamic response and precision characteristics
- Different sizes and working spaces
- Communication interfaces for integration into the user’s control hierarchy for (flexible) decentralized control tasks
- Peripheral equipment for the front unit with suction and gripping technology
- Function expansions integrated in the control package

Performance
- Maximum acceleration and high effective load
- High pick rates and maximum working strokes
- Optimum working space coverage, compact mounting geometry
- Standardized and tested safety concept in accordance with the machinery directive

System
- Complete decentralized system package
- Standardized high-speed handling systems
- Standardized interfaces in the control system, suitable safety concept for machine integration
- Everything from a single source – Festo Plug and Work®

T-Gantry
- Parallel-kinematic principle with two stationary motors, rotating toothed belt and low moving mass
- Highly dynamic, up to 90 picks/min. Very compact.

H-Gantry
- Parallel-kinematic principle with two stationary motors, rotating toothed belt and low moving mass
- Highly dynamic, up to 70 picks/min.

Tripod
- High precision in motion and positioning
- Highly dynamic, with up to 150 picks/min.
Control Cabinets

Festo produces a wide range of control cabinets suitable for factory automation, process automation and handling systems (cabinets for control systems).

Tailored to suit your individual application:
- Mix of technologies: pneumatic, electric and combined
- Includes the latest products and technologies
- Designed and built to your application
- Incorporates safety standards

Design compliant with:
- UL-508A
- UL-698
- NEC 70
- NFPA 79
- Hazardous locations

Range of different bus technologies:

Control systems
- CMMR, CECX, FED, CPK
- Robot control systems
- Third-party control systems
- Up to 6 axes
- Safety relay

Operator units
- Mobile: HMI, CDSA
- Integration on control cabinet: emergency shut-off, key actuators, control elements

Wiring/tubing
- Number of wires
- Cross section
- Cable harness/individual cables
- Cable inscription
- Tube diameter
- Tube color/material
- Tube designation

Controller
- Servo motor
- Stepper motor
- DC motor

Pneumatics
- Valves/valve terminals
- Compressed air preparation
- Pressure regulators
- Sensors
- Sensors Pneumatics

Fuses
- Fuse
- Circuit-breaker

Power supply unit
- Converts AC voltage/frequency
- Speed regulation

Housing
- Sheet steel/stainless steel/aluminum/plastic
- Standard sizes/special sizes
- Illuminated
- Control cabinet color: RAL 7035 or special color
- Labels

Cooling/heating
- Active
- Passive

Outputs
- Pneumatic
- Electrical
- Multi-pin interfaces

Design
- Pneumatic
- Electric
- Combined

Planar Surface Gantry EXCM

Maximum dynamic response with up to 70 picks/min and optimum utilization of the installation space is what characterizes the Cartesian high-speed handling system with robotic functionality. The XY planar surface gantry, which is extremely compact and flat, exhibits an excellent installation space to working space ratio. The recirculating toothed belt moves the slide and is driven by stepper motors in 100% servo operation.

Your application determines your solution
Control Panels

Festo offers control panels pre-assembled on flat plate or custom designed mounting structure to facilitate pneumatic and electric components from both Festo and third party manufacturers. The assemblies are function specific based on customer's requirements, and require minimum effort to integrate the complete assembly into the customer's system.

- Pre-assembled solution to mount directly into customer's machine
- Flat mounting panel or custom designed structure to fit available footprint
- Pre-wired and pneumatically connected
- Easy integration including interconnect documentation
- A single part number of simple ordering and vendor reduction

Your application determines your solution

Control Cabinets for Process Automation

Festo offers design, engineering and fabrication services of control cabinets tailored to the facility specifications

Control cabinets located inside or out of a cleanroom make a large contribution to validation efficiency and long term process reliability. Choosing the right partner ensures the lowest total cost of ownership.

Advantages of Festo Solution

- Knowledge of Industry standards and documentation
- Team dedicated to efficient and compact design
- Control cabinet standardization simplifies validation, training, operation, and maintenance
- Centralized process control reduces initial facility capital investment and long term operation costs
- Multiple design centers and UL508A facilities in the US

Compressed air preparation
- MS series
- D series
- Customized configuration of components

Sensors
- Pressure
- Flow rate
- Position

Valves and valve terminals
- Pneumatic, electrical
- Multi-pin interfaces

Defined interfaces for the machine
- Tubing/cables in predefined length
- Customized coupling

Electrical installation
- Implementation of electrical circuit diagrams in a solution (not shown)

Mounting plate
- Sheet steel/stainless steel/aluminum/plastics
- Standard sizes/special sizes
- Illuminated
- Control cabinet color RAL 7035 or special color
- Labels

Cut-outs
- For tubing
- For connections

Wiring/tubing
- Number of wires
- Cross section
- Cable harness/individual cables
- Cable inscription

Customized inscriptions
- For mounting in the system

Control cabinets and process valve assemblies for use in hazardous locations:
- Class I Div 1 and Class I Div 2 hazardous locations
- Intrinsically safe circuit extensions

Save 30% on Cabinet Installations

Bulkhead mounting of valve terminals has many advantages

- Individual bulkhead fittings on cabinet wall are no longer required
- A single slot in cabinet is required instead of a punch out for each bulkhead
- Removes labor for tedious plumbing inside cabinet
- All pneumatic interfaces are outside cabinet, electrical interface are inside
- Spacing on plate wide enough for swagged stainless tube connectors
- Valves are still serviceable from inside cabinet

N2 or inert gas / process air

Fieldbus

Ethernet
Process Valve Assemblies

Consult with Festo process valve engineers about custom valves and assemblies optimized to a specific application.

- Complete valve assemblies are pre-engineered and fully tested at Festo
- Custom assemblies for hazardous or washdown environments, caustic media, and extreme temperatures
- Pneumatic or analog positioning possible
- One part number for simple ordering and vendor reduction

**Competencies of Festo Customer Solutions Group**

- Multiple design and fabrication facilities in US
- UL508A listed, UL698A/1604 certification (Ex)
- Design to global standards (UL/CE, NEMA/IP, NEC/500/ATEX)
- International availability and support
- Documentation in multiple languages

Control Cabinets solutions for Water Treatment

Spend more time focused on your core competency and partner with Festo, the leading supplier of automation solutions for filtration skid manufacturers.

Control cabinet layout, component selection, procurement and logistics, and final assembly are all time-consuming tasks. Although not every project is identical, the I/O and valve counts are very similar and the controller and HMI often are the same.

Selecting a pre-engineered solution from Festo, integrating your choice of controller and HMI, and allowing Festo to assemble and test can offer significant cost savings and time to market benefits.

**Control Cabinets solutions for Water Treatment**

- Spend more time focused on your core competency and partner with Festo, the leading supplier of automation solutions for filtration skid manufacturers.
- Selecting a pre-engineered solution from Festo, integrating your choice of controller and HMI, and allowing Festo to assemble and test can offer significant cost savings and time to market benefits.

**Choose from one of three standard cabinets for most applications**

<table>
<thead>
<tr>
<th>Cabinet</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure Type</td>
<td>Stainless steel, NEMA 4X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routes/Bulkhead Cable Grand</td>
<td>36 ports</td>
<td>70 ports</td>
<td>106 ports</td>
</tr>
<tr>
<td>Power</td>
<td>24 VDC power supply (maxi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Inputs</td>
<td>8</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Digital Outputs</td>
<td>6</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Analog Inputs</td>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Analog Outputs</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Pneumatic Pilot Valves</td>
<td>8 3/2 or (6) 5/2</td>
<td>12 3/2 or (8) 5/2</td>
<td>24 3/2 or (12) 5/2</td>
</tr>
<tr>
<td>Pneumatic Supply</td>
<td>3/8&quot; OD tube</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumatic Output</td>
<td>1/4&quot; OD tube</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Preparation</td>
<td>Regulator, filter, manual on/off valve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure Switch</td>
<td>Analog and digital output with low-pressure alarm</td>
<td></td>
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<tr>
<td>Safety Features</td>
<td>Emergency shut-off switch</td>
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Optional: UPS, flow controls on valve, Light tower with buzzer, Ethernet switch 4-port, Expansion of valves or I/O

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**Process Valve Assemblies**

Consult with Festo process valve engineers about custom valves and assemblies optimized to a specific application.

- Complete valve assemblies are pre-engineered and fully tested at Festo
- Custom assemblies for hazardous or washdown environments, caustic media, and extreme temperatures
- Pneumatic or analog positioning possible
- One part number for simple ordering and vendor reduction

**Custom designed and built process valve assemblies for:**

- Special dosing and mixing applications
- Assemblies that minimize purge volumes
- Solutions to quick product change-overs
- Special materials
Cylinder Solutions

Pneumatic cylinders built to your specifications. Options include:
- Rod extensions/reductions
- Rod thread changes (inch and metric / male and female)
- Rod thread length extensions/reductions
- Rod thread removal (blank rod ends)
- Port orientation changes (90˚, 180˚, 270˚)
- High tolerance strokes (+/- 0.2mm)
- Heat resistant seals (up to 150˚ C)
- Low friction seals
- Food grade seals
- Chemical resistant seals
- Dry running seals
- Hard-chromium plated piston rod for dusty and weld environments

Cylinder Types

- Standard ISO (extrusion)
  - Perfect cushioning due to self adjusting cushioning
  - PPS
- Standard ISO (tie rod)
  - Large-diameter cylinder with tie rods
- Standard ISO (corrosion resistant)
  - Clean design corrosion resistant rod-lock assembly
- Standard ISO (tubing)
  - Fast adaptation for optimum cushioning - without adjusting screw
- Non-rotating (elliptical piston)
  - Optimized for environments with high contents of dry, dusty media
- Non-rotating (rectangular piston)
  - Protected against torsion due to piston shape
- Compact
  - Self adjusting cushioning for maximum productivity in confined spaces

Pre-Assembly & Pre-Pack (kit) Solutions

Standard components can be combined or kitted for ease of use, logistics and to reduce your production time and costs.
- Individual pneumatic and electric components pre-assembled in one module or pre-packed
- In accordance with your application-specific requirements
- For direct installation in your system
- Commonly used combinations:
  - Cylinder / valve combinations
  - Valve manifolds
  - Components for compressed air preparation combined with valves
- Common pre-pack solutions:
  - Fittings and tubings
  - Configured valve manifolds, air preparation module in one convenient package
  - Special packing containers

Custom Component Solutions

Electro-mechanical and pneumatic custom components designed and built to your specifications. Options include components for:

Various Environments
- High and/or low temperatures
- Vacuum
- Clean room
- Wash down
- Hazardous location and/or corrosion resistance

Special Functions and/or Configurations
- Low friction cylinders
- High speed cylinders and valves
- Cylinder/valve combinations
- Motor mounting kits

Size and/or Weight Reduction
- Cut down on weight and increase performance with new materials
- Compact solutions
- Integrated solutions

Labeling
- Customer logos
- Laser etching
- Customer part nos.
- Engraving

Valve terminals
Air preparation units
DSBC cylinders

Motor mounting kits
Custom manifolds
Integrated solutions
Cylinder-valve combination

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Festo - Your Partner in Automation

Engineering and Manufacturing Excellence. Festo's Quality Assurance, ISO 9001 Certification
Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers’ requirements in product quality, delivery, customer service and satisfaction.

The Executive Management Team determines the guidelines of the Quality & Environmental Policy, keeps itself informed regarding quality and environmental performance, and supports the validity of the Quality and Environmental Management System.

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