Partner for automation
with DeviceNet and EtherNet/IP
For smooth cooperation: DeviceNet and EtherNet/IP solutions from Festo

Products, systems and customised solutions with added value can only be created in an environment where knowledge and innovation are a matter of course and high-quality expertise abounds. This is especially true of fieldbuses like DeviceNet and EtherNet/IP. To enable these fieldbuses to achieve maximum productivity in your company, Festo focuses on four topics.

They all share a mechatronic approach:
1. State-of-the-art knowledge
2. Products and solutions
3. Mechatronics
4. Advantages on the bus

Positioning and potentials of the individual bus systems on the field level

Application complexity (sensors and actuators)
- Communication
- Motion control
- > 20% regulated
- Pre-processing
- > 20% analogue
- > 90% digital

Machine/system design (dimensions and structures)
- Compact manual workstations
- Automation cell
- Interlinked, station-based machines
- Automated systems

Communication
- EtherNet TCP/IP
- Industrial EtherNet
- Drive bus
- Fieldbus
- I/O bus

Motion control
- > 20% regulated
- Pre-processing
- > 20% analogue
- > 90% digital
Fuel for innovation: state-of-the-art knowledge.

As a member of all leading fieldbus organisations, our experience goes right back to the start. This allows us to pass on our information advantage. As the inventor of valve terminals, we give our customers a clear competitive edge by ensuring our innovations are at the core of modern automation systems. Integration of functions, such as motion control, proportional technology, measurement, control and diagnostics, make Festo valve terminals the automation platform for the 21st century: more economical, reliable and efficient.

Trend-setting and economical: products and solutions. Festo was the first supplier to deliver I/O modules rated to IP65 for valve terminals. And, with the patented modular I/O concept for the CPX electric terminal, it takes controlling automation solutions into a new dimension. The combination of valve terminals MPA or VTSA with the CPX terminal results in a standardised platform for pilot valves, remote I/O, classic pneumatics, measurement, control and diagnostics. Everything is integrated, including motion control. The integration of the motion control functions with electric and servopneumatic drives makes it the perfect platform for trend-setting mechatronics.
Specially for industries: mechatronic systems that fit. Fieldbus systems and valve terminals are customised for specific industry applications, for example via connection technologies compliant with AIDA for the automotive industry, fast start-up for robots, interlock functions for the semiconductor industry, EX-i versions or clean design in IP69K for food production. Solution packages in handling technology, from consultation to turnkey/ready-to-install solutions and delivery with a single part number. The range also includes control cabinets with matching control technology and visualisation for sub-systems and solution packages, e.g. for process automation or the food industry.

Integration and combination: advantages on the bus. Optional connection technology makes integrating bus systems in existing standards child’s play. The combination of a fieldbus device and remote control via the embedded CoDeSys controller creates undreamt of synergies in practical applications and results in autonomous, intelligent sub-systems. Consistent diagnostic concepts and forward-looking condition monitoring systems with OPC interfaces provide clarity from the device level to mechatronic sub-systems and even up to the control system for pneumatic and electrical engineering components and motion control. This significantly reduces or avoids downtime.
Successful automation – everything from a single source
Everything matches because the technology is provided by a single source. From controllers to pneumatics, electrical engineering and networking to networking on all levels. The advantages at a glance:

Networking – synergies through function integration
• Can communicate up to web level: Ethernet and web-based diagnostics concepts, e.g. remote diagnostics via fieldbus, Ethernet, integrated web server
• Selectable pre-processing, including through valve ASIC for the simplest of valve diagnostics, integrated mini control system (remote or embedded control) and extensive monitoring functions

Pneumatics – innovation is always built in
• Robust, flexible, modular, can be diagnosed, high flow rate
• Standardised, universally or application-optimised, such as Clean Design
• Safety technology, pressure control technology and servo-pneumatics built in
• Always 100 % checked, pre-assembled and easy to install

Electrical engineering – flexibility for communication
• High degree of freedom and independence thanks to modular electrical I/O terminals, installation systems and a direct fieldbus connection for valve terminals
• Maximum connection versatility
• Extensive electrical peripherals, I/O modules on terminals or separately
• Open to all established fieldbus standards, from AS-interface to the Ethernet
• Universally integrated diagnostics concept, such as condition monitoring and channel-oriented diagnostics

Clean Design for maximum ease of cleaning and corrosion resistance.
Networking: mounting plate with valve terminal and air preparation unit
Pneumatics: optimised by simulation
In-house expertise: own R&D, labs and production
There are five big trends which Festo pursues with its pneumatics, electrical engineering and networking concepts.

- Networking concepts – a central prerequisite for installation, function integration, diagnostics, energy efficiency

They are all ingredients for successful automation. The most important trend with regard to industrial communication is undoubtedly the networking concept. It directly affects, to varying degrees, the system and machine options – regardless of whether it’s about installation, function integration, diagnostics or energy efficiency.

Festo’s many years of experience as a market and technological leader for valve terminals provide an answer to the requirements demanded by today’s and tomorrow’s market. Reliable products in pneumatics and electrical engineering for all types of industrial communication – worldwide! Integral solutions and universal system concepts are the central success factors.

See the Festo homepage for more information on the mega-trends: www.festo.com

- Products
- Valve terminals

The 5 big trends

<table>
<thead>
<tr>
<th>Networking</th>
<th>Installation</th>
<th>Function integration</th>
<th>Diagnostics</th>
<th>Energy efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve terminals from Festo are very adaptable!</td>
<td>Improved cycle times of up to 35%!</td>
<td>Enhanced efficiency of up to 60%!</td>
<td>Up to 35% less downtime!</td>
<td>Reduce energy costs by up to 60%!</td>
</tr>
<tr>
<td>Different levels, different requirements.</td>
<td>Central, decentralised or hybrid machine concept, modular or compact.</td>
<td>By means of the most extensive function integration, e.g. with a CPX terminal</td>
<td>Active diagnostics management and condition monitoring can save up to €10,000 per minute!</td>
<td>By means of energy savings along the production processes.</td>
</tr>
</tbody>
</table>
Maximum productivity will be greatly influenced by industrial communication in the future. To control and analyse individual processes with high efficiency, it is mandatory that the communication levels, which are still often separated today, be networked. For example, with DeviceNet and EtherNet/IP.

The “control technology pyramid” shows the different communication requirements on each individual level.

The general advantages
The combination of DeviceNet and EtherNet/IP: overall, the most modern type of automation with specific advantages for each level.

Management level – holistic communication all the way to the office

Ethernet
- Remote diagnostics and maintenance of controls and devices from the office network
- Networking of applications and machines
- Storage of process and device information
- Use of Ethernet infrastructure components (e.g. Wireless LAN or VPN)

Control level – monitoring of production and processes

Ethernet and EtherNet/IP
- Changing device parameters via the fieldbus network and configuration tools
- Saving configurations and parameters within PLC projects
- Integration of device status and diagnostics in PLC program or in visualisation systems
- Integration of DeviceNet in EtherNet/IP networks
- Acyclic communication with “explicit messaging” possible for parameters and diagnostics

Field/device level – indicates on-site safety/reliability

DeviceNet and EtherNet/IP
- Fast device exchange via DIP switches
- Easy identification of the network status of field devices via LEDs
- Definition of device behaviour in the event of a communication error
- Setting of network and communication attributes for adjusting machine performance
- On-site diagnostics with LEDs and HMI

Networking concepts: fundamental for the world of fieldbus
At the centre of networking: control platforms and technologies

Typical control platforms

**Rockwell Automation**
Systems and services for drive, control and information technology, from components all the way to holistically integrated systems

Typical products:
Controllers: Allen Bradley ControlLogix and CompactLogix (modular PLCs)
Software tools: RSNetWorx for DeviceNet (network configuration) and RSLogix5000 (PLC programming and configuration of EtherNet/IP)

**Omron**
Systems for drive and control technology, as well as sensors and switching components.

Typical products
Controllers: CJ1 family – Modular PLCs
Software tools: Omron DeviceNet configurator (network configuration) and CX programmer (PLC programming)

Further useful information about the networks and how to commission them
For example ...  
- DeviceNet Planning and Installation Manual  
- DeviceNet Plant Floor Troubleshooting Guide  
- EtherNet/IP Infrastructure Guidelines  
- EtherNet/IP Media Planning and Installation  
... can be accessed at: www.ODVA.org
The communication protocols:

**DeviceNet**
DeviceNet communication is based on the broadcast-oriented Controller Area Network (CAN), which was originally developed for the automotive sector in order to replace the expensive wiring used in vehicles with a secure and cost-effective network. The extensive demands on transmission reliability and interference immunity in vehicle construction and the functionality within large temperature ranges make CAN an ideal hardware base for data transmission in industrial automation. DeviceNet is characterised by its robustness and insensitivity to high temperatures and its high protection against interference.

**Key features:**
- Linear topology with branch lines
- Network length of several hundred meters
- Max. 64 field devices
- Max. 512 I/O for each device
- Network I/O data limited by DeviceNet scanner

**EtherNet/IP**
EtherNet/IP (Ethernet Industrial Protocol) is an open industrial standard which is based on the public Ethernet, with standard communication modules, PC interface cards, cables, plugs, hubs and switches. EtherNet/IP was created due to high demand for standardised, Ethernet-based communication applications in the control area; it was also designed to facilitate interoperability of communication between different controller products. With the decreasing costs for infrastructure and connections, EtherNet/IP is also becoming more widespread at the field level.

**Key features:**
- Connected Ethernet topology (switched Ethernet network)
- Network length up to several kilometers
- Device identification based on IP addresses
- Number of slave connections limited by EtherNet/IP bypass modules. Usually 64 connections.
- Linear topologies possible with integrated switches
Solution expertise: always built into the product at Festo
The ideal combination of maximum performance and process reliability for every conceivable application in pneumatics, electrical engineering and networking: Festo’s valve terminal range. Unique, intelligent solutions that can be adapted to all the requirements of your systems – and with a convincing price/performance ratio.

Field level:

Fast device exchange by means of DIP switches
- Reduce downtimes by quickly replacing products
- Set the bus address and baud rate for DeviceNet
- Set IP addresses for EtherNet/IP or dynamic addressing methods via the network

At the centre of networking: advantages of the field level ...

<table>
<thead>
<tr>
<th>Dynamic addressing via BOOTP/DH or stored addressing</th>
<th>Fixed addressing via DIL switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting: All switches OFF (default setting)</td>
<td>Setting Host ID of the address</td>
</tr>
</tbody>
</table>

Sub-D (IP65) 2xM12 micro-connector Open style connector (terminal IP20)
Easy identification of the network status of field devices
- Can be very quickly recognised via LEDs

Definition of device behaviour in event of a communication error
- Fall-safe: defined state of valves and electrical outputs in event of communication errors and when the program is stopped (idle mode)
- Parameterise a preferred actuator state depending on the machine concept

Set network and communication attributes for adjusting machine performance
- Select between cyclic, polled and change-of-state data transmission
- For maximised performance and optimum workload of the fieldbus network
- Quickconnect – supports fast establishment of communication (0.5 sec), e.g. during tool change

On the spot diagnostics
- Localise errors ultra-fast with LEDs or device diagnostics
- Get extended on-site data without existing network infrastructure: with CPX-MMI or CPX-FMT

CTEU-DN  CPX-MMI  CPX-FMT
At the centre of networking: advantages ... up to control/management level

Control level:

Changing and saving device parameters via the fieldbus network and configuration tools
- EDS files for including devices and information in software tools, such as RSNetworx for DeviceNet
- Can be stored in the fieldbus master by a DeviceNet or Ethernet/IP scanner
- Significantly reduces time and probability of error: as pre-configured parameters can be activated directly from the controller
- CPX terminals with EtherNet/IP fieldbus nodes can be configured conveniently with CPX-FMT (Festo Maintenance Tool for PCs). This configuration is then simply imported in RSLogix.

Integration of device status and diagnostics in PLC programs or visualisation systems
- Easy diagnostics information via controller with optional status bits
- Status interface for additional information via CPX: optional via process data
- Targeted changing and querying of parameters and diagnostics: optimum data access via “explicit messaging” during PLC start-up and acyclically during the program run

Device status and diagnostics with network tools
- Read out module status or error trace of the CPX terminal online: extended diagnostic data, e.g. with RSNetworx
- Basic function: Explicit messaging
- Festo maintenance tools, such as CPX-FMT

Integration of DeviceNet in EtherNet/IP networks
- For example, by means of EtherNet/IP on DeviceNet gateways
- Controllers can work with several networks

EDS files

RS network

Device status/diagnostics
Management level:

Remote diagnostics and remote maintenance of controls and devices from the office network

• Access via the network can be realised with CPX-FMT from various computers for more transparency without additional investments in the infrastructure

• Simple and cost-effective: project planning using the PLC Ethernet connection via the PC network

Networking of applications and machines

• Ideal, thanks to data bandwidth and flexibility: Industrial Ethernet

• For decentralised control concepts: communication with a higher-order controller via DeviceNet or EtherNet/IP thanks to the remote control mode of the CPX fieldbus node

Storage of process and device information (documents, web sites)

• Extended device, machine and system information can be stored centrally on data servers within an Ethernet network. Status and diagnostic data can also be queried on the CPX terminal with EtherNet/IP via an installed web server.

• The CPX web monitor HTML software package is optimised for visualising the CPX terminal via a web browser (e.g. in combination with CPX-FEC or CPX-CEC)

• Fast and easy access from all computers

Use of Ethernet infrastructure components (wireless LAN)

• The existing infrastructure for industrial Ethernet makes integration in the automation environment or of special components for remote maintenance via the Internet (via VPN, for example) quick and inexpensive

• CPX EtherNet/IP node on standard Ethernet technology is compatible with the infrastructure components
Overview: The world of Festo valve terminals

Your selection matrix for valve terminals ... will guide you quickly to the right solution, enabling you to choose from a comprehensive variety of valve terminals. The matrix shows the most important technical features, together with recommendations to meet industry-specific requirements or for specific applications.

For a quick preselection: general characteristics and specific requirements at a glance.

<table>
<thead>
<tr>
<th>Universal terminals</th>
<th>Specific requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual valves and valve terminals</td>
<td>ISO standard</td>
</tr>
<tr>
<td>in one range</td>
<td>- Multi-pin/fieldbus (sizes 02, 01, 1, 2, 3)</td>
</tr>
<tr>
<td>Modular valve terminals on sub-bases</td>
<td>- Individual connections</td>
</tr>
<tr>
<td>Compact valve terminals</td>
<td>VSVA/VTIA</td>
</tr>
<tr>
<td></td>
<td>Weight-optimised (polymer)</td>
</tr>
<tr>
<td></td>
<td>VTUB</td>
</tr>
<tr>
<td></td>
<td>Pilot valves (semicon, PA)</td>
</tr>
<tr>
<td></td>
<td>VTOC</td>
</tr>
<tr>
<td></td>
<td>Easy to clean</td>
</tr>
<tr>
<td></td>
<td>CDVI</td>
</tr>
<tr>
<td></td>
<td>ATEX</td>
</tr>
<tr>
<td></td>
<td>- Zone 2 (cat. 3)</td>
</tr>
<tr>
<td></td>
<td>- Zone 1 (cat. 2)</td>
</tr>
</tbody>
</table>

Valve terminals

<table>
<thead>
<tr>
<th>Electrical periphery</th>
<th>Flow rate (litres/min. per valve, max.)</th>
<th>Electrical inputs (max. per valve terminal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSVA/VTIA – ISO 15407-1</td>
<td>500</td>
<td>8 16 72 92 144 512</td>
</tr>
<tr>
<td>Modular, individual connectors M8/M12, C type</td>
<td>1000</td>
<td>8 16</td>
</tr>
<tr>
<td>CPX/VTSA/VTSA-F – ISO 15407-2 and 5599-2</td>
<td>550/700</td>
<td>8</td>
</tr>
<tr>
<td>Modular, high pneumatic functionality, with electrical I/O</td>
<td>1100/1400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1800/1800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3000/3000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4500/-</td>
<td></td>
</tr>
<tr>
<td>CPX/MPA-S/MPA-F/MPA-L</td>
<td>360</td>
<td>8</td>
</tr>
<tr>
<td>Universal, modular, flexible, serial valve control, with electrical I/O</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td></td>
<td>900</td>
<td></td>
</tr>
<tr>
<td>CPV</td>
<td>400</td>
<td>8</td>
</tr>
<tr>
<td>Universal, compact, high performance</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>VTUG</td>
<td>200</td>
<td>8</td>
</tr>
<tr>
<td>Universal, compact sub-base, high flow rate</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>VUVB/VTUB</td>
<td>400</td>
<td>8</td>
</tr>
<tr>
<td>Universal, highly economical</td>
<td>200/500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>VTOC</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Compact, flexible 2x 3/2-way pilot valves</td>
<td>200/500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>CDVI</td>
<td>650</td>
<td>8</td>
</tr>
<tr>
<td>Clean Design IP65/67</td>
<td>200/500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>CPX terminal: multifunctional, modular, flexible periphery. Independent platform, comprehensive diagnostics and function integration. Options: remote I/O, remote control and motion control.</td>
<td>200/500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>CPX system: decentralised installation system. Up to 16 I/O modules and valve terminals. 3 platforms, for I/O modules, valve terminals and master modules.</td>
<td>200/500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>CTEU/CAPE</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Flexible fieldbus and installation concept for up to 2 I/O modules or valve terminals.</td>
<td>200/500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td></td>
</tr>
</tbody>
</table>

Quick planning aid: the valve terminal configurator in Festo’s electronic catalogue. At www.festo.com, you can configure almost 20 valve terminal series to suit your requirements.
<table>
<thead>
<tr>
<th>Functionality</th>
<th>Protocol</th>
<th>Electrical connection</th>
<th>Diagnostic</th>
<th>Valve properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decentralised</td>
<td>Pressure sensor</td>
<td>Multi-pin</td>
<td></td>
<td>Directly actuated</td>
</tr>
<tr>
<td></td>
<td>Proportional pressure regulator</td>
<td></td>
<td></td>
<td>PILOTE</td>
</tr>
<tr>
<td></td>
<td>End-position controller Soft Stop</td>
<td></td>
<td></td>
<td>Vacuum</td>
</tr>
<tr>
<td></td>
<td>Servopneumatic positioning system</td>
<td></td>
<td></td>
<td>Several pressure zones</td>
</tr>
<tr>
<td></td>
<td>Multi-axis interface for electric cases</td>
<td></td>
<td></td>
<td>IP40</td>
</tr>
<tr>
<td></td>
<td>Safety technology valves</td>
<td></td>
<td></td>
<td>IP65</td>
</tr>
<tr>
<td></td>
<td>Soft start/exhaust valves</td>
<td></td>
<td></td>
<td>IP67</td>
</tr>
<tr>
<td></td>
<td>Electrical voltage zones</td>
<td></td>
<td></td>
<td>Explosion-proof</td>
</tr>
<tr>
<td></td>
<td>Vertical stacking</td>
<td></td>
<td></td>
<td>Status bit</td>
</tr>
<tr>
<td></td>
<td>Multi-pin</td>
<td></td>
<td></td>
<td>Module/channel-oriented</td>
</tr>
<tr>
<td></td>
<td>IO Link, I-Port</td>
<td></td>
<td></td>
<td>Preventive maintenance/CMS</td>
</tr>
<tr>
<td></td>
<td>AS Interface</td>
<td></td>
<td></td>
<td>Web-based, web monitor</td>
</tr>
</tbody>
</table>
Motors and controllers for DeviceNet

Holistic mechatronic motion solutions from one source: from controllers to ready-to-install handling systems.

From modular and compact controller concepts for standard pneumatics to servo-pneumatic and electric positioning all the way to sensors and compact camxera systems for process diagnostics and quality assurance.

With its controller and motor portfolio, Festo covers a wide range of servo and stepper motor functions, optimally adapted to all electrical drives.

Modular, flexible, universal: motors and controllers for DeviceNet
Servo motor controller  
CMMP-AS/CMMS-AS/CMMD-AS  
For special requirements: the highly functional controller CMMP-AS. For standard functions: the controller CMMS-AS and the economical double controller CMMD-AS.

Stepper motor controller  
CMMS-ST and stepper motor  
EMMS-ST  
Stepper motor technology in a real plug and work package solution: the single-axis position controller CMMS-ST combined with stepper motors EMMS-ST for single and multi-axis handling with moving loads up to 20 kg. In ServoLite mode, the combination of CMMS-ST and EMMS-ST provides a full closed-loop servo system with maximum reliability and great dynamic response.

Motor controller SFC-DC  
Simple selection and commissioning. The SFC-DC concept incorporates the easy input of positioning records at the controller via the human-machine interface or via the computer-aided Festo Configuration Tool (FCT). Perfect as a ready-to-install solution – Festo plug and work® in combination with the electric gripper HGPLE or electric slide SLTE.

Position controller SFC-LACI  
The position controller also comprises the additional power electronics needed to actuate linear motor drives. Speed, force and position can be freely adjusted. Up to 31 motion profiles can be stored directly in the SFC-LACI for the linear motor cylinders DNCE-LAS and DFME-LAS.

Intelligent servo motor  
MTR-DCI  
Includes all the required components – motor, gears, motor controller and power electronics. Wide torque range, ideal for positioning tasks.

Standard handling Systems  
Pick & Place  
Linear gantry (2D)  
Three-dimensional gantry (3D)

Advanced handling systems  
T-gantry (2D)  
H-gantry (3D)  
Tripod
Customised solutions
If you require a certain amount of added individuality beyond valve terminals, electrical peripherals, function integration and sector orientation, then you’re in the right place.

It doesn’t matter whether you choose AS-interface, fieldbus or Ethernet, our customised solutions meet all current and future market requirements. As always, pneumatics, electrical engineering, motion and networking are all provided by a single source.

Build it yourself or have it built?
The decision is yours. But complete systems can save you as much as 50%. With ready-to-install systems you no longer need to undertake complex working processes.

Tell us what your requirements are and we will design, order, compile, test and deliver. We can also assemble and commission your system on request. You concentrate on your core tasks; that not only saves time and money, but brings maximum reliability with regard to function and optimal settings.

Services and support – for more added value

Ready-to-install solutions

Complete control cabinets with remote I/O and valve terminals give you a total solution, either stand-alone or with a fieldbus connection to your host system.

Ready-to-install mounting plates (pressure gauges, valves, service units): a turnkey, complete solution for a machine unit at the AS-interface.

Special designs
Individual solutions:
• On integrated blocks
• On printed circuit boards
• Modular control units
• Under safety guards

Optimised and customised AS-interface solutions:
• Electric
• Pneumatic
• Mechatronic
• Integrated in machine profiles

We offer:
• Engineering
• Documentation
• Assembly
• Testing
• Commissioning
• Servicing during the operating phase
Our services support you every step of the way, from planning to operation, and make the process faster, more reliable and more efficient. And as far as TCO is concerned, we help you to recognise and achieve potential savings.

**Engineering**
The optimum valve terminal right from the start:
- Correct selection thanks to software configuration
- Highly scalable thanks to extremely modular equipment design
- Diagnostics and condition monitoring service: from analysis and consultation right up to programming services
- Modular CAD models

**Procurement service**
Simplified procurement and logistics:
- Pre-assembled and checked modules and systems configured to the customer’s specific requirements – Festo plug and work®
- Order code: configure once and order using the same part number again and again
- Labelling service: valve terminals labelled as required

**Commissioning service**
Know-how on request:
- Fast installation, fast connection, fast commissioning
- Additional ready-to-install solutions with further components available on request
- Circuit diagrams in EPLAN 5.1 and P8

**After-sales services**
Reliable operation of your valve terminal with:
- Technical hotline
- Online spare parts service
- Repair service, including express
- 24 h emergency service for registered customers
- On-site after-sales service
- Modular service contracts, preventative or for emergencies

**Strong support: CAD models for valve terminals**
Brief instructions for anyone requiring CAD models (2D/3D for valve terminals from Festo):
- Festo website
  - www.festo.com
- Click through to the Festo “Online Shop/Catalogue”
- Register if you haven’t already done so
- Log on
- Search for product, e.g. MPA
- Is the CAD symbol active? If so, the CAD files are available
- Configure valve terminal (and put in shopping basket if necessary)
- Click the CAD symbol to generate/order the CAD files

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