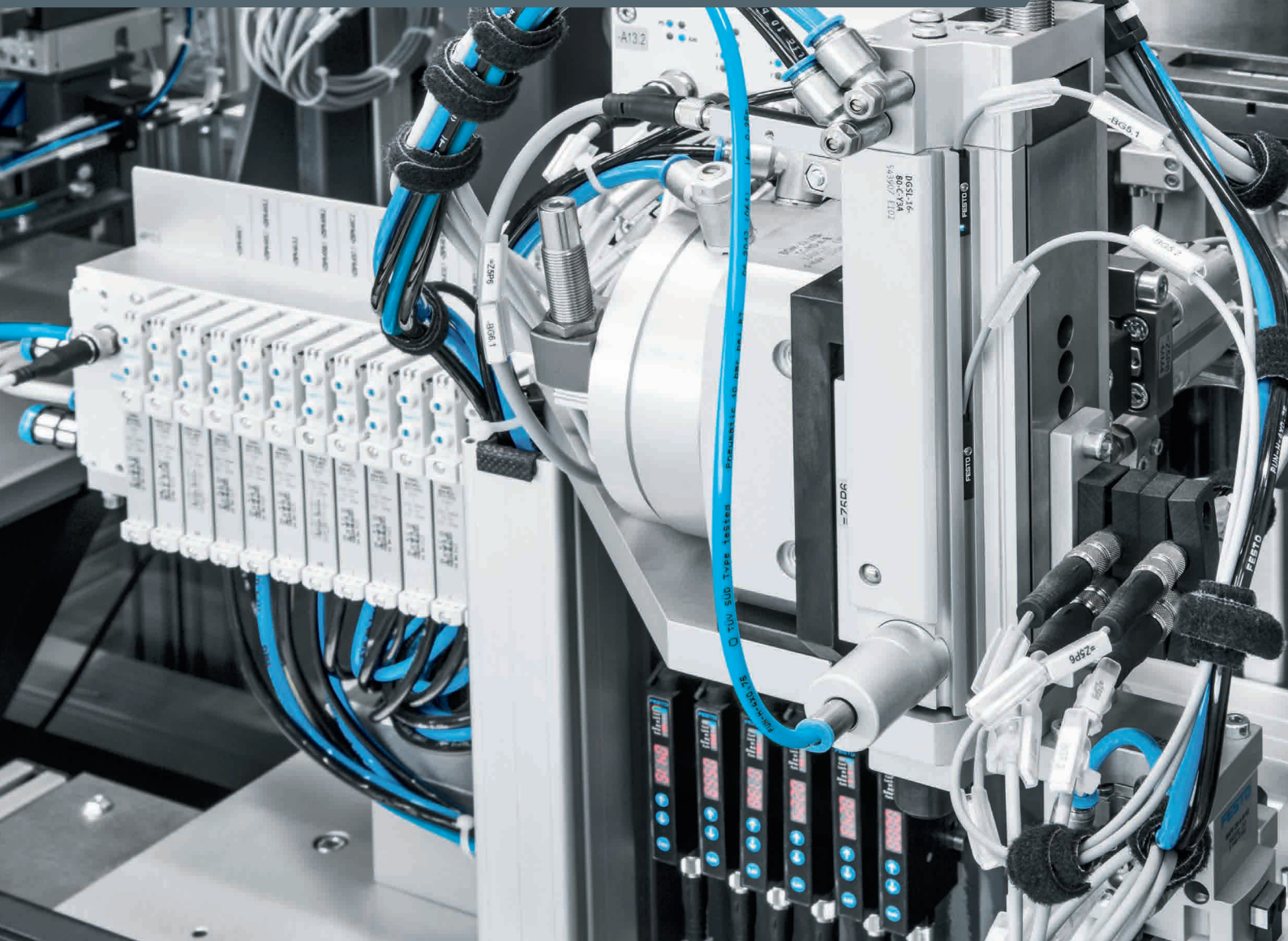


**FESTO**

Selected products



Your partner for factory and process automation

Selected products  
Your partner for factory and process automation  
9th edition

Edition 2023/01

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Ruiter Straße 82  
73734 Esslingen  
Germany

**Legend:**

**Grey text on the product pages:**

You can find these products online

**Example:**

Standards-based cylinder  
DSBG

→ [www.festo.com/catalogue/dsbg](http://www.festo.com/catalogue/dsbg)

**Blue type code on the product pages:**

Type code for online searches

dsbg

→ [www.festo.com/catalogue/dsbg](http://www.festo.com/catalogue/dsbg)

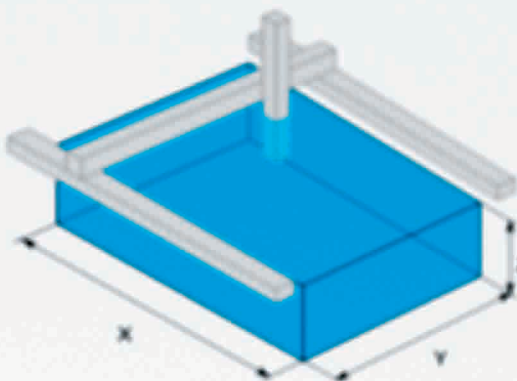
	<b>Editorial</b>	<b>2</b>	⊙
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Editorial

### Axis definition

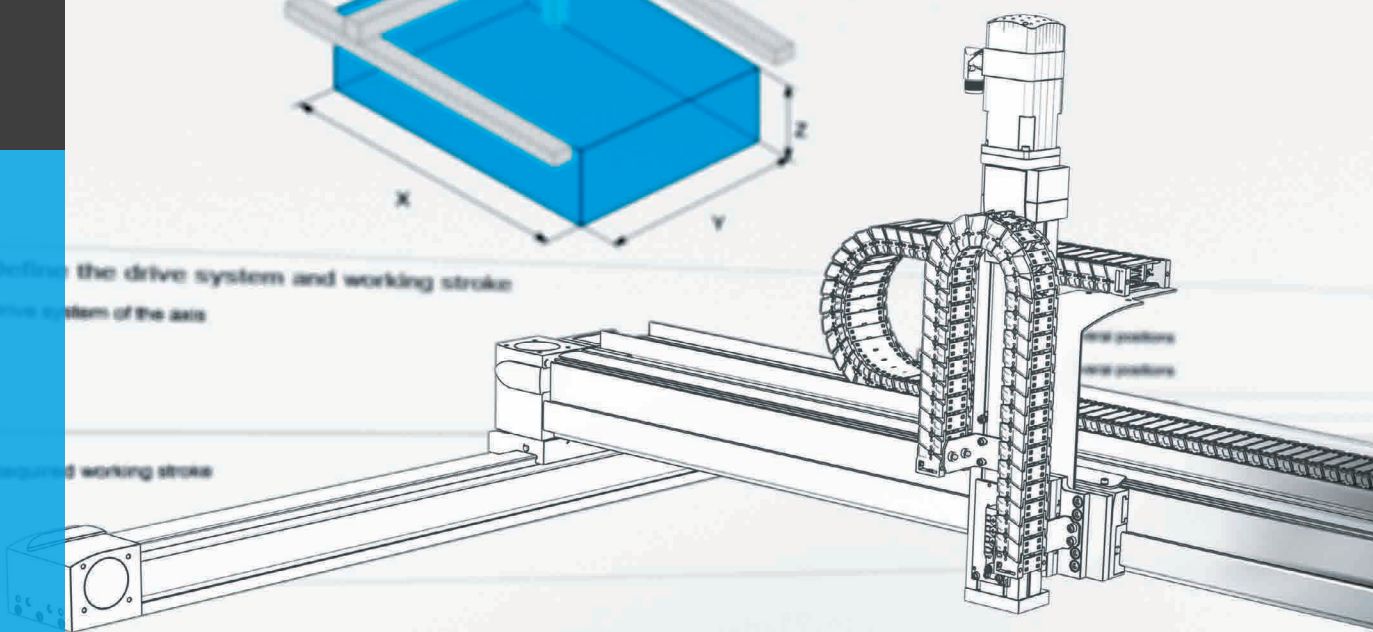
Find your handling solution in a few steps



Define the drive system and working stroke

Drive system of the axis

Required working stroke





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We are pneumatic.  
We are electric.  
We are 30,000 technology-neutral solutions.

→ WE ARE THE ENGINEERS  
OF PRODUCTIVITY.

## Dear customers and distribution partners,

It is important to have a good partner by your side, especially in uncertain and unpredictable times. Supply chain disruptions, pandemic, logistics issues – we hope that the uncertainties and fluctuations will soon return to a more normal level. But you can of course always rely on Festo. We are doing everything we can to guarantee you the best possible supply security. That's a promise!

In the new catalogue you will see many standard products along the entire control chain. They will help you to solve the majority of your automation tasks. And you can implement solutions more and more sustainably, since we have specifically reduced the weight of components – yet performance remains the same or is even improved. A great example of this is our compact cylinders ADN-S/AEN-S. They are extremely small and light, and deliver outstanding performance with a small stroke. New – or at this point unfamiliar – materials also contribute to the careful use of resources. For example, the MS-B compressed air preparation units in polymer housings are attractively priced basic components focused on the most important technical functions.

Or the solenoid valves VSNC-FK/VSNC-FKA for process automation. Thanks to the switched connections, you can always keep the valve orientation and valve mounting for your rotary actuator the same, but change the rotary actuator's direction of rotation – this is ideal in confined spaces.

To make sure everything fits together, we have developed a whole range of software tools for you. One of these is the new Electric Motion Sizing. It will help you to find the right electric drive in no time. With the Handling Guide Online, you can very quickly configure suitable industrial robots, from single-axis solutions to 3D gantries, in just a few steps.

Pneumatic sizing and simulation or being able to determine the compressed air consumption are additional tools that enhance your design. By comparing pneumatic and electric products, our "CO<sub>2</sub> & TCO Guide" selection software shows you straight away which solution best meets your needs in terms of energy and costs. Try it for yourself!

I trust this catalogue and our engineering tools will support you in making the right automation decisions quickly.



Frank Notz  
Member of the Management Board Sales of Festo SE & Co.KG

## Digital products and services

### Comprehensive digitalisation concepts: AI becomes the new standard

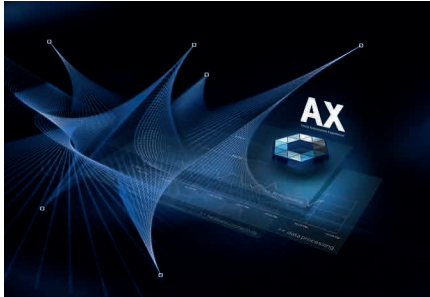
All our development activities for digitalised automation revolve around one question: how can we make you more productive along the entire value chain?

From initial engineering, procurement and commissioning to maintenance and operation? At Festo you will find the right digital offer for your needs.

Below you will see a selection that we have compiled for you.

→ [www.festo.com/engineeringtools](http://www.festo.com/engineeringtools)

### The Festo Automation Experience (Festo AX)



You can already optimise your processes right now with data analytics, machine learning and artificial intelligence from Festo.

- Smart maintenance
- Predictive maintenance
- Predictive quality
- Predictive energy

This is how customers can achieve optimisations of 25%, e.g. thanks to reduced unplanned downtime.

Smartenance, for example, is suitable for simple digital maintenance. We use Festo AX to optimise your applications based on data, either as part of a project or with a standard app.

→ [www.festo.com/Smartenance](http://www.festo.com/Smartenance)

→ [www.festo.com/AX](http://www.festo.com/AX)

### Pneumatic Sizing



You may have already asked yourself if there's a quicker and more accurate way to calculate the optimal pneumatic control chain. Yes, there is! Pneumatic Sizing doesn't just offer you one design version that is suitable for your application, but up to three. By entering three application parameters such as load, stroke and positioning time, you will get up to three suggestions: the precise result as well as the performance and eco versions.

Pneumatic Sizing allows you to benefit from:

- Optimal air consumption
- The ideal travel time per cycle
- Direct connections to the Festo Online Shop.

→ [www.festo.com/pneumaticsizing](http://www.festo.com/pneumaticsizing)

### Festo Design Tool 3D



Festo Design Tool 3D is a 3D product configurator for generating Festo-specific CAD product combinations. It will make your search for matching accessories for standard products with fast delivery, such as the pneumatic cylinder series DSBC, DSNU and ADN, faster, more reliable and easier in the future. At the same time documentation requires less effort and traceability is easy.

The benefits for design, purchasing and commissioning:

- Quick and easy automated generation of product combinations
- Shorter bills of materials, fewer sources of error and optimised ordering processes
- Native CAD models for retaining CAD/component links (CAD Constraints, CAD Mates)
- Simplified, accelerated warehousing and assembly processes

→ [www.festo.com/fdt-3d-online](http://www.festo.com/fdt-3d-online)

### CO<sub>2</sub> & TCO Guide



Before choosing the technology for your system, you should make sure you know how high the CO<sub>2</sub> consumption will be during operation and what you can expect the total cost of ownership (TCO) to be in the future.

Our CO<sub>2</sub> TCO tool enables you to compare electric and pneumatic drives from our product portfolio. It provides a clear comparison of the energy consumption, CO<sub>2</sub> emissions, the procurement costs and the

total cost of ownership and thus provides you with all the key factors as a valuable decision-making support.

- Guide for selecting the right technology
- Comparison of pneumatic and electric drives
- Comparison of energy consumption, CO<sub>2</sub> emissions, procurement costs and total cost of ownership

→ [www.festo.com/x/co2-tco](http://www.festo.com/x/co2-tco)



## Simplified Motion Series – Solution Finder



→ [www.festo.com/x/simplified-motion-series](http://www.festo.com/x/simplified-motion-series)

The simplicity of pneumatics is now combined for the first time with the advantages of electric automation thanks to the Simplified Motion Series. These integrated drives are the perfect solution for all users who are looking for an electric alternative for very simple movement and positioning tasks, but don't want the commissioning process for traditional electric drive systems that can often be quite complex.

- Configure the right product for any simple linear or rotary movement.
- Select the product and order it in the Online Shop.

## Schematic Solution for EPLAN projects



→ [www.festo.com/eplan](http://www.festo.com/eplan)

This circuit diagram service for complete EPLAN projects is unique to Festo: EPLAN Schematic Solution documents your individually configured solutions in next to no time. 3D CAD data and product information for standard catalogue products have already been available for 15 years. With EPLAN Schematic Solution you 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.

- Intuitive, fast and reliable: error-free documentation at the push of a button
- Complete mechatronic display of configured products like CPX, VTSA, MPA
- Reliably automated according to the standards IEC 61355, IEC 81346, ISO 1219

## FluidDraw – circuit diagrams for complete systems



→ [www.festo.com/fluiddraw](http://www.festo.com/fluiddraw)

Planning and documenting electric and pneumatic components in your system have never been easier. FluidDraw gives you direct access to the catalogue and any online baskets you saved at Festo, as well as letting you import additional databases and use a standardised symbol library. For maximum convenience choose the FluidDraw 365 software subscription with regular updates and the latest upgrades.

- IMX and Eplan interfaces
- Tubing lengths, wire and cable lengths
- Standardised hydraulic symbols to ISO 1219

## Configurator for process valve units and quarter turn actuator units



→ [www.festo.com/kvza](http://www.festo.com/kvza)

→ [www.festo.com/kvzb](http://www.festo.com/kvzb)

→ [www.festo.com/kdfp-dfpd](http://www.festo.com/kdfp-dfpd)

The configurator for process valve units (KVZA and KVZB) and quarter turn actuator units (KDFP-DFPD) significantly simplifies engineering and procurement processes. The tool ensures quick and successful project management by taking all relevant factors into account: from initial product search, configuration, sizing and documentation right through to ordering and delivery of the ready-to-install units – everything is combined in one tool, including customer-specific requests.

All components come from a single source, are pre-assembled and perfectly compatible with each other.

- Tailored and ready-to-install solutions
- Increased reliability for your specific application
- CAD data for configuration and documentation for direct download
- The system ID can also be used for subsequent orders
- Reliable planning with immediate price and delivery time information

Wide range of industry segments – one competent partner.

## Food, drink and packaging industry



From continuous processes, and food and splash zones to end line packaging:

- Solutions for controlling special media flows
- Automation components in easy-to-clean design and with food-safe materials
- Handling systems with suitable gripper solutions
- Technology mix: electric, pneumatic and servo-pneumatic

→ [www.festo.com/food](http://www.festo.com/food)

## Automotive industry and Tier 1 suppliers



- Flexible automation solutions for electromobility
- Intelligent and energy-efficient technologies
- Safety-related concepts and components
- Matching product portfolio – electric, pneumatic, servo-pneumatic
- Engineering and industry competencies along the entire process chain

→ [www.festo.com/automotive](http://www.festo.com/automotive)

## Small parts assembly and electronics industry



Expertise along the entire process chain:

- From wafer production at the front end to finished chips at the back end
- For quality inspection and assembly of the finished products
- In small parts assembly, electronics or non-electronics

→ [www.festo.com/electronics](http://www.festo.com/electronics)

Wide range of industry segments – one competent partner.

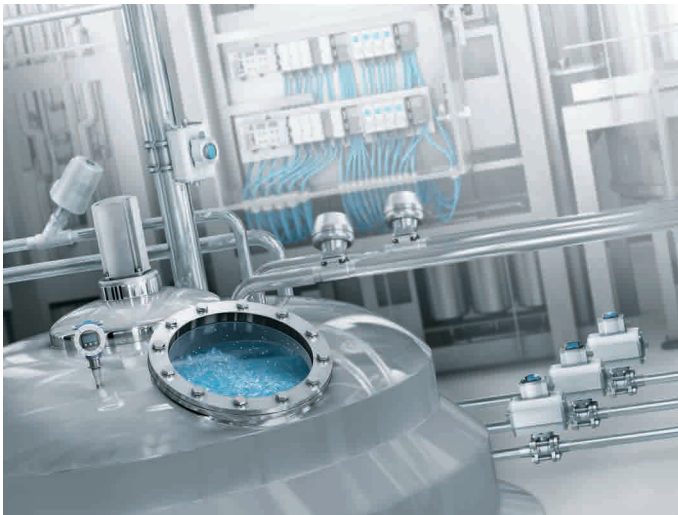
## LifeTech – technologies for the life sciences



- Delivery of automation components for key processes:
  - Laboratory automation
  - Medical technology
  - In vitro diagnostics
  - Point-of-care applications
- Kinematics for sample handling
- Liquid handling with dispensing and pipetting systems
- Precise regulation of medical gases

→ [www.festo.com/lifetech](http://www.festo.com/lifetech)

## Biotech, pharma and cosmetics industry



- Delivery of automation components for key processes:
  - API manufacturing
  - Manufacturing pharmaceuticals, cosmetics and personal care products
  - Filling and packaging
- Customer-oriented consulting and engineering
- Compressed air quality analyses
- Energy Saving Services

→ [www.festo.com/biotech](http://www.festo.com/biotech)

## Water treatment



- Delivery of automation components for key processes:
  - Water treatment
  - Wastewater treatment
- Customer-oriented consulting and engineering
- Compressed air quality analyses
- Energy Saving Services

→ [www.festo.com/water](http://www.festo.com/water)




## Your partner for safety

### Reduce risk – think preventively: Safety@Festo



Machines have to be designed in a way that protects people, animals, property and the environment from harm. The objective is to prevent physical damage of any type. With safety-oriented pneumatics from Festo, you can be sure that implemented safety measures are in compliance with the EC Machinery Directive. Festo offers many safety solutions for the entire control chain in the area of electrics and pneumatics, for input, logic and output.

These can be individual products, customer-specific solutions, proposals for circuit diagrams or training courses. Festo Didactic offers training and consulting services on standards and directives as well as risk assessments and assessments of technical safety measures.




#### Normal operation

-  Safety door switch
-  Light curtain
-  Two-hand control

#### Special operation, e.g. collaborative operation

-  Laser scanner
-  Camera system






#### Set-up and service operation

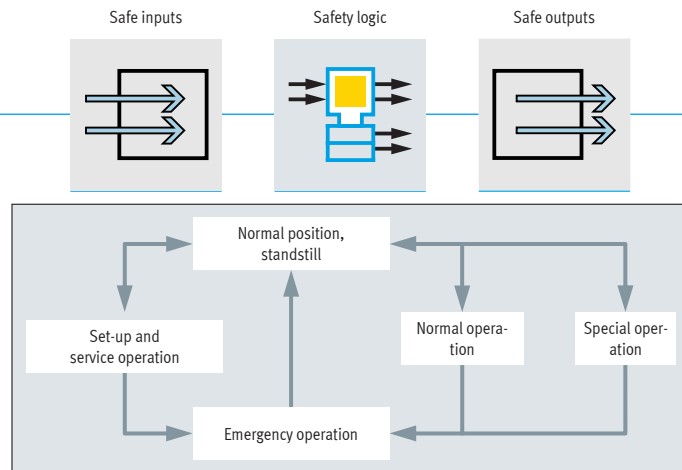
-  Mode selector switch
-  Enabling buttons
-  Safety shut-off mat

#### Emergency operation

-  Emergency stop device

#### Monitoring functions

-  Limit switch
-  Displacement encoder
-  Pressure switch
-  Switching position monitoring
-  Position monitoring



Simply ask your local contact person or find out more at [www.festo.com/safety](http://www.festo.com/safety)

**Pneumatic drive technology  
in accordance with VDMA standard sheet 24584**

**Safety sub-functions that affect systems**



SDE – Safe de-energisation



SEZ – Safe energisation



PUS (LOTO) – Prevention of unexpected start-up; lockout/tagout

**Safety sub-functions that affect drives**



STO – Safe torque off



PUS – Prevention of unexpected start-up



SS1 – Safe stop 1



SSC – Safe stopping and closing



SOS – Safe operating stop



SS2 – Safe stop 2



SDI – Safe direction



SSB – Safe stopping and blocking (in mechanics)



SB – Safe blocking (not part of VDMA 24584)



SBC – Safe brake control

**Monitoring safety sub-functions**



SLS – Safely limited speed



SLT – Safely limited torque (force)



SET – Safe equilibrium of torque

**Electric drive technology  
in accordance with ISO 61800-5-2**

**Safety sub-functions that affect drives**



STO – Safe torque off



SS1 – Safe stop 1



SOS – Safe operating stop



SS2 – Safe stop 2



SDI – Safe direction



SSB – Safe stopping and blocking (not part of ISO 61800-5-2)



SBC – Safe brake control

**Monitoring safety sub-functions**



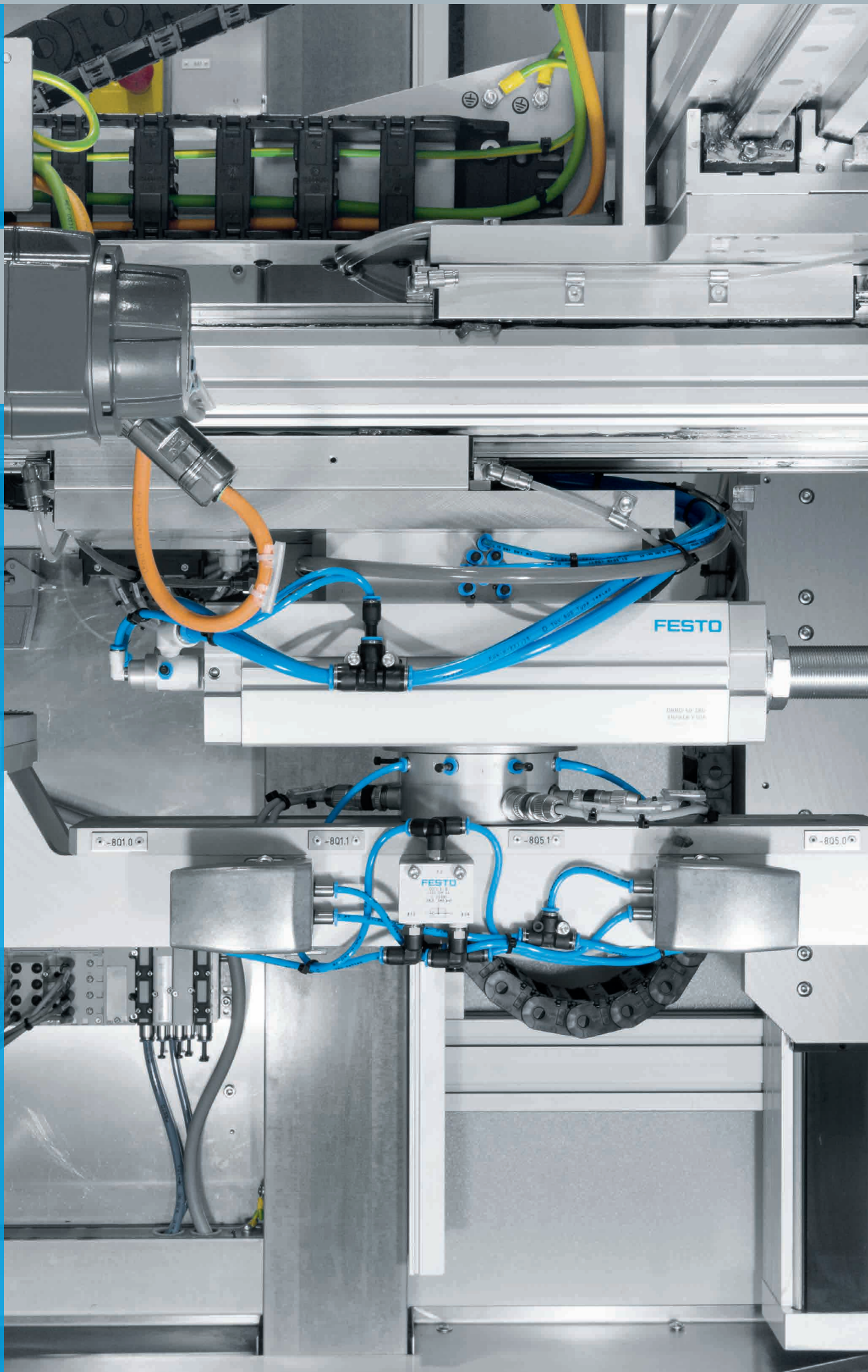
SLS – Safely limited speed



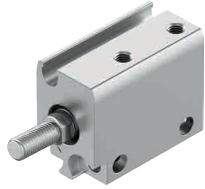
SLT – Safely limited torque

# 01

## Pneumatic drives



# Highlights



Compact cylinders

## ADN-S/AEN-S

- + Minimal installation space
- + Perfect for micro-movements

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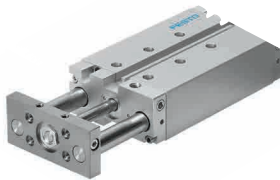


Mini slides

## DGST

- + Powerful twin-piston drive
- + Shortest mini slide on the market
- + Precision recirculating ball bearing guide
- + Versatile mounting options

→ 58



Guided drives

## DFM

- + Minimal cycle times
- + High load capacity with integrated guides
- + Wide range of mounting options

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Product overview

Software-Tools

01

Pneumatic drives

**Pneumatic sizing**



Size pneumatic control loop systems quickly and energy-efficiently.

In order to survive in a tough competitive environment, many companies are searching for ways to make savings in their production. Such savings can often be found in their existing compressed air systems, which have generally been in place for years. Up to 60% of energy costs can be saved through optimisation at both the production facility and system level.

This tool can be found at  
[→ www.festo.com/x/pneumatic-sizing](http://www.festo.com/x/pneumatic-sizing)

**Festo Design Tool 3D**



The Festo Design Tool 3D is a 3D product configurator for generating specific CAD product combinations from Festo. The configurator makes your search for the right accessory easier, more reliable and faster.

You can then order the module that has been created as a single order item, either completely pre-assembled or as individual parts in a single box. This considerably reduces your bill of materials, and downstream processes such as product ordering, order picking and assembly are significantly simplified.

This tool can be found at  
[→ www.festo.com/x/festo-design-tool](http://www.festo.com/x/festo-design-tool)

**Air consumption of cylinders**



Calculate your system's air consumption.

Determine your system's air consumption quickly and conveniently. Simply enter all the drives and tubing, set the cycle times and working pressure and the air consumption per minute and per day will be calculated for you. The input table and results can be exported directly to Excel.

This tool can be found at  
[→ www.festo.com/x/air-consumption](http://www.festo.com/x/air-consumption)

**CO2 & TCO Guide**



CO2 values and TCO for your application.




Take a quantum leap in automation technology. By using suitable components from Festo in an intelligent way, you can reduce the energy consumption of your systems and thus specifically lower your production's carbon emissions.

This tool can be found at  
[→ www.festo.com/x/co2-tco](http://www.festo.com/x/co2-tco)



## Piston rod cylinders &gt;





## Round cylinders

	 <b>Standards-based cylinders DSNU</b>	 <b>Round cylinders DSNU</b>	 <b>Round cylinders DSNU-S</b>
<b>Operating mode</b>	Double-acting	Double-acting	Double-acting
<b>Piston diameter</b>	8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm	32 mm, 40 mm, 50 mm, 63 mm	8 mm, 12 mm, 16 mm, 20 mm, 25 mm
<b>Theoretical force at 0.6 MPa (6 bar, 87 psi), advancing</b>	23 ... 295 N	482.5 ... 1870.3 N	30.2 ... 294.5 N
<b>Stroke</b>	1 ... 500 mm	1 ... 500 mm	1 ... 200 mm
<b>Cushioning</b>	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning, pneumatic cushioning, adjustable at both ends	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning, pneumatic cushioning, adjustable at both ends	Elastic cushioning rings/plates at both ends, Self-adjusting pneumatic end-position cushioning
<b>Description</b>	<ul style="list-style-type: none"> <li>• ISO 6432</li> <li>• Wide range of variants for customised applications</li> <li>• Good running performance and long service life</li> <li>• Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>• Piston rod with female or male thread</li> <li>• For position sensing</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• Wide range of variants for customised applications</li> <li>• Good running performance and long service life</li> <li>• Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>• Piston rod with female or male thread</li> <li>• For position sensing</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• Short variant of ISO cylinder DSNU</li> <li>• Quick and easy installation, even in tight spaces</li> <li>• Light weight</li> <li>• Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>• Piston rod with male thread</li> <li>• For position sensing</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> <li>• Sustainable in production thanks to reduced use of materials</li> </ul>
<b>→ Page/online</b>	25	27	29

Product overview




Piston rod cylinders >

Tie rod and profile barrel cylinders

	 <b>Standards-based cylinders DSBC</b>	 <b>Standards-based cylinders DSBG</b>	 <b>Standards-based cylinders DSBG</b>	 <b>Standards-based cylinders, clean design DSBF</b>
<b>Operating mode</b>	Double-acting	Double-acting	Double-acting	Double-acting
<b>Piston diameter</b>	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	160 mm, 200 mm, 250 mm, 320 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm
<b>Theoretical force at 0.6 MPa (6 bar, 87 psi), advancing</b>	415 ... 7363 N	415 ... 7363 N	12064 ... 48255 N	415 ... 7363 N
<b>Stroke</b>	1 ... 2800 mm	1 ... 2800 mm	1 ... 2700 mm	1 ... 2800 mm
<b>Cushioning</b>	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning, pneumatic cushioning, adjustable at both ends	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning, pneumatic cushioning, adjustable at both ends	Elastic cushioning rings/plates at both ends, pneumatic cushioning adjustable at both ends	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning, pneumatic cushioning, adjustable at both ends
<b>Description</b>	<ul style="list-style-type: none"> <li>• ISO 15552 (ISO 6431, VDMA 24562)</li> <li>• Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>• Standard profile with two sensor slots</li> <li>• Wide range of variants for customised applications</li> <li>• Comprehensive range of mounting accessories for just about every type of installation</li> <li>• For position sensing</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• ISO 15552 (ISO 6431, VDMA 24562)</li> <li>• Sturdy tie rod design</li> <li>• Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>• Comprehensive range of mounting accessories for just about every type of installation</li> <li>• For position sensing</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• ISO 15552 (ISO 6431, VDMA 24562)</li> <li>• Sturdy tie rod design</li> <li>• Pneumatic end-position cushioning adjustable at both ends</li> <li>• Optionally without adjustable pneumatic cushioning at both ends, and position sensing, resulting in a price advantage</li> <li>• Optionally with spacer bolt attachment</li> <li>• For position sensing</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• ISO 15552</li> <li>• Increased corrosion protection</li> <li>• Easy-to-clean design</li> <li>• FDA-approved lubrication and sealing on the basic design</li> <li>• Long service life thanks to optional dry-running seal</li> <li>• Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>• For position sensing</li> </ul>
<b>→ Page/online</b>	<b>31</b>	<b>dsbg</b>	<b>dsbg</b>	<b>34</b>



Piston rod cylinders >

Compact, short-stroke and flat cylinders

	 <b>Compact cylinders ADN-S</b>	 <b>Compact cylinders AEN-S</b>	 <b>Compact cylinders ADN</b>
<b>Operating mode</b>	Double-acting	Pushing	Double-acting
<b>Piston diameter</b>	6 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm	6 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm
<b>Theoretical force at 0.6 MPa (6 bar, 87 psi), advancing</b>	17 ... 1870 N	13 ... 1780	51 ... 7363 N
<b>Stroke</b>	5 ... 50 mm	5 mm, 10 mm, 25 mm	1 ... 500 mm
<b>Cushioning</b>	No cushioning, elastic cushioning rings/plates at both ends	No cushioning, elastic cushioning rings/plates at both ends	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning
<b>Description</b>	<ul style="list-style-type: none"> <li>Minimal installation space</li> <li>Very lightweight</li> <li>Ideal for small movements</li> <li>Piston rod with female or male thread</li> <li>For position sensing</li> <li>Variants recommended for production systems for manufacturing lithium-ion batteries</li> <li>Sustainable in production thanks to reduced use of materials</li> </ul>	<ul style="list-style-type: none"> <li>Minimal installation space</li> <li>Very lightweight</li> <li>Ideal for small movements</li> <li>High forces in a compact size</li> <li>Piston rod with female or male thread</li> <li>For position sensing</li> </ul>	<ul style="list-style-type: none"> <li>ISO 21287</li> <li>Up to 50% less installation space than comparable standards-based cylinders to ISO 15552</li> <li>Piston rod with female or male thread</li> <li>Wide range of variants for customised applications</li> <li>For position sensing</li> <li>Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>
<b>→ Page/online</b>	37	37	42

Piston rod cylinders >

Stainless-steel cylinders

	 <b>Standards-based cylinders CRDSNU, CRDSNU-B</b>	 <b>Round cylinders CRDSNU, CRDSNU-B</b>
<b>Operating mode</b>	Double-acting	Double-acting
<b>Piston diameter</b>	12 mm, 16 mm, 20 mm, 25 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
<b>Theoretical force at 6 bar, advancing</b>	68 ... 295 N	483 ... 4712 N
<b>Stroke</b>	1 ... 500 mm	1 ... 500 mm
<b>Cushioning</b>	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning, pneumatic cushioning, adjustable at both ends	Elastic cushioning rings/plates at both ends, self-adjusting pneumatic end-position cushioning, pneumatic cushioning, adjustable at both ends
<b>Description</b>	<ul style="list-style-type: none"> <li>ISO 6432</li> <li>Corrosion-resistant against aggressive ambient conditions</li> <li>Easy-to-clean design</li> <li>Long service life thanks to optional unlubricated seal</li> <li>Wide range of variants for customised applications</li> <li>Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>For position sensing</li> </ul>	<ul style="list-style-type: none"> <li>Corrosion-resistant against aggressive ambient conditions</li> <li>Easy-to-clean design</li> <li>Long service life thanks to optional unlubricated seal</li> <li>Wide range of variants for customised applications</li> <li>Self-adjusting pneumatic end-position cushioning saves time during commissioning and adapts optimally to load and speed changes</li> <li>For position sensing</li> </ul>
<b>→ Page/online</b>	45	45

Product overview

Rodless cylinders >

Mechanically coupled cylinders

Pneumatic drives



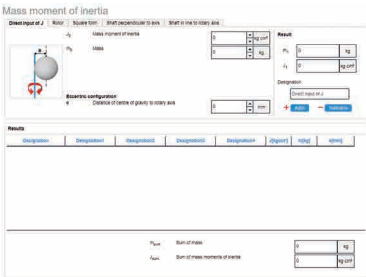
**Linear drives**  
DGC-K



**Linear drives**  
DGC-G, DGC-GF, DGC-KF


<b>Piston diameter</b>	18 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm	8 mm, 12 mm, 18 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm
<b>Theoretical force at 6 bar, advancing</b>	153 ... 3016 N	30 ... 1870 N
<b>Stroke</b>	1 ... 8500 mm	1 ... 8500 mm
<b>Cushioning</b>	Pneumatic cushioning adjustable at both ends	Elastic cushioning rings/plates at both ends, pneumatic cushioning adjustable at both ends, shock absorber, hard characteristic curve, shock absorber, soft characteristic curve
<b>Position sensing</b>	Via proximity switch	Via proximity switch
<b>Description</b>	<ul style="list-style-type: none"> <li>• Compact design: 30% smaller than the basic design DGC-G</li> <li>• Basic drive without guide, for simple drive functions</li> <li>• Low moving dead weight</li> <li>• Symmetrical design</li> </ul>	<ul style="list-style-type: none"> <li>• All settings accessible from one side</li> <li>• Available with variable end stops and intermediate position module</li> <li>• Optional: NSF-H1 lubricant for the food zone (see <a href="http://www.festo.com/certificates/DGC">www.festo.com/certificates/DGC</a>)</li> <li>• Optional: clamping unit for holding loads</li> <li>• Sustainable operation thanks to leakage reduction at sealing points</li> </ul>
<b>→ Page/online</b>	49	51

## Software-Tools

<p><b>Mass moment of inertia</b></p> 	<p>Juggling pencils and pocket calculators is now a thing of the past. Whether you have discs, blocks, push-on flanges, grippers, etc.: this tool does the job of calculating all the mass moments of inertia. Just save, send or print and you're finished.</p> <p>This tool can be found at  <a href="http://www.festo.com/x/mass-moment-of-inertia">www.festo.com/x/mass-moment-of-inertia</a></p>
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### Semi-rotary drives >


## Semi-rotary drives with rotary vane

 <p><b>Semi-rotary drives DRVS</b></p>	
<b>Size</b>	6, 8, 12, 16, 25, 32, 40
<b>Theoretical torque at 6 bar</b>	0.15 ... 20 Nm
<b>Permissible mass moment of inertia</b>	6.5 ... 350 kgcm <sup>2</sup>
<b>Position sensing</b>	Via proximity switch
<b>Swivel angle</b>	0 ... 270°
<b>Description</b>	<ul style="list-style-type: none"> <li>• Double-acting semi-rotary drive with rotary vane</li> <li>• Lighter than other semi-rotary drives</li> <li>• Fixed swivel angle, adjustable swivel angle possible with the help of accessories</li> <li>• Housing protected against splash water and dust</li> <li>• Sustainable in production thanks to reduced use of materials</li> </ul>
<b>→ Page/online</b>	54

Product overview



Semi-rotary drives >

Rotary drives with rack and pinion

	 <p><b>Semi-rotary drives DRRD</b></p>
<b>Size</b>	8, 10, 12, 16, 20, 25, 32, 35, 40, 50, 63
<b>Theoretical torque at 6 bar</b>	0.2 ... 112 Nm
<b>Permissible mass moment of inertia</b>	0.0015 ... 42 kgm <sup>2</sup>
<b>Position sensing</b>	Via proximity switch
<b>Swivel angle</b>	180°
<b>Description</b>	<ul style="list-style-type: none"> <li>• Twin-piston drive, power transmission via rack and pinion principle</li> <li>• Extremely accurate in the end positions</li> <li>• Very high load bearing capacity</li> <li>• Very good axial run-out at the flanged shaft</li> <li>• Greater stability even with smaller sizes</li> <li>• Sustainable in production thanks to reduced use of materials</li> </ul>
<b>→ Page/online</b>	56


Guided drives >

Drives with slides

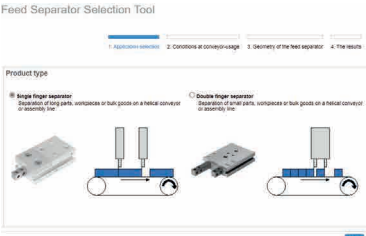
	 <p><b>Mini slides DGST</b></p>	 <p><b>Mini slides DGSL</b></p>
<b>Piston diameter</b>	6 mm, 8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm	4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm
<b>Theoretical force at 6 bar, advancing</b>	34 ... 589 N	17 ... 483 N
<b>Stroke</b>	10 ... 200 mm	10 ... 200 mm
<b>Cushioning</b>	Short elastic cushioning rings/pads at both ends, Elastomer cushioning, double-sided, stroke not adjustable, Elastic cushioning rings/pads at both ends with fixed stop, Elastic cushioning rings/plates at both ends, External hydraulic cushioning	Short elastic cushioning rings/plates at both ends, no cushioning, elastic cushioning rings/plates at both ends, elastic cushioning rings/plates at both ends with fixed stop, shock absorber, self-adjusting, progressive, at both ends, with reducing sleeve, shock absorber, progressive, at both ends
<b>Position sensing</b>	Via proximity switch	Via proximity switch
<b>Description</b>	<ul style="list-style-type: none"> <li>• Powerful twin-piston drive</li> <li>• Shortest mini slide on the market</li> <li>• Precise recirculating ball bearing guide</li> <li>• Versatile mounting options</li> <li>• Version with mirrored supply port configuration and sensor slots for compact assembly available to order using the configurator</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> <li>• Sustainable in production thanks to reduced use of materials</li> </ul>	<ul style="list-style-type: none"> <li>• High load capacity and positioning accuracy</li> <li>• Maximum movement precision thanks to ground-in ball bearing cage guide</li> <li>• Maximum flexibility thanks to 8 sizes and a large selection of cushioning variants</li> <li>• Variant with clamping unit for fixing the guide slide in any position, frictional locking</li> <li>• Variant with end-position locking for fixing the guide slide in the unpressurised, retracted state, positive locking</li> <li>• Wide variety of mounting and attachment options</li> <li>• Compact design</li> </ul>
<b>→ Page/online</b>	58	<a href="#">dgsl</a>

Guided drives >



Drives with guide rods

	 <p><b>Guided drives</b> DFM, DFM-B</p>
<b>Piston diameter</b>	6 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
<b>Theoretical force at 6 bar, advancing</b>	17 ... 4712 N
<b>Stroke</b>	5 ... 400 mm
<b>Cushioning</b>	Elastic cushioning rings/plates at both ends, pneumatic cushioning adjustable at both ends, shock absorber, soft characteristic curve
<b>Position sensing</b>	Via proximity switch
<b>Description</b>	<ul style="list-style-type: none"> <li>• Drive and guide unit in a single housing</li> <li>• High resistance to torques and lateral forces</li> <li>• Plain or recirculating ball bearing guide</li> <li>• Wide variety of mounting and attachment options</li> <li>• Wide range of variants for customised applications</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>
<b>→ Page/online</b>	<b>61</b>

Software-Tools



<p><b>Feed separators</b></p>		<p>This tool helps you to select the right separator of the type HPV from Festo for your application. Let yourself be guided by the program – enter the general parameters and you will receive at least one suggestion for the product best suited to your application.</p> <p>This tool can be found at  <a href="http://www.festo.com/x/feed-separator-selection-tool">→ www.festo.com/x/feed-separator-selection-tool</a></p>
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Feed separators

	 <p><b>Feed separators</b> HPVS</p>	 <p><b>Feed separators</b> HPV</p>
<b>Operating mode</b>	Double-acting	Double-acting
<b>Piston diameter</b>	10 mm, 14 mm, 22 mm	10 mm, 14 mm, 22 mm
<b>Stroke</b>	10 ... 60 mm	10 ... 60 mm
<b>Theoretical force at 6 bar, advancing</b>	45 ... 225 N	45 ... 225 N
<b>Description</b>	<ul style="list-style-type: none"> <li>• Version with one plunger</li> <li>• With non-rotating piston rod</li> <li>• Proximity sensor SME/SMT-8 can be integrated in the housing</li> </ul>	<ul style="list-style-type: none"> <li>• Version with two plungers</li> <li>• With twin piston, non-rotating piston rod and locking mechanism</li> <li>• Cost-effective: replaces at least two drives in the feed process</li> <li>• Proximity sensor SME/SMT-8 can be integrated in the housing</li> </ul>
<b>→ Page/online</b>	<b>hpvs</b>	<b>hpv</b>

Product overview

Cylinder mounting parts and accessories for pneumatic drives

	 <p><b>Mounting attachments</b></p>	 <p><b>Piston-rod attachments</b></p>
<p><b>Description</b></p>	<ul style="list-style-type: none"> <li>• Mounting kits</li> <li>• Direct mountings</li> <li>• Foot mountings</li> <li>• Flange mountings</li> <li>• Swivel mountings</li> <li>• Clevis feet, trunnion supports</li> <li>• Slot nuts</li> <li>• Centring pins/sleeves</li> </ul>	<ul style="list-style-type: none"> <li>• Rod clevises SG, CRSG</li> <li>• Rod eyes SGS</li> <li>• Coupling pieces KSG</li> <li>• Self-aligning rod couplers FK</li> <li>• Adapters AD</li> </ul>
<p>→ Page/online</p>	<p><a href="#">n_015001</a></p>	<p>63</p>

Customised components – for your specific requirements



**Drives with customised designs**

Can't find the pneumatic drive you need in our catalogue?

We can offer you customised components that are tailored to your specific requirements.

Common product modifications:

- Materials for special ambient conditions
- Customised dimensions
- Special strokes
- Customised mounting options
- Implementation of special cylinder functions (cylinder/valve combinations, single-acting principle, etc.)

Many additional variants are possible.

Ask your Festo sales engineer, who will be happy to help:

→ [www.festo.com/contact](http://www.festo.com/contact)

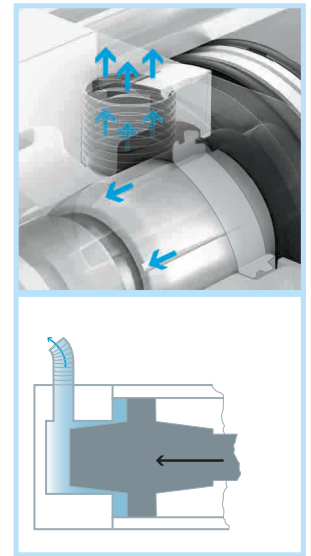
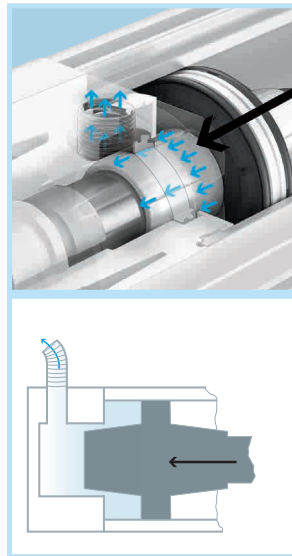
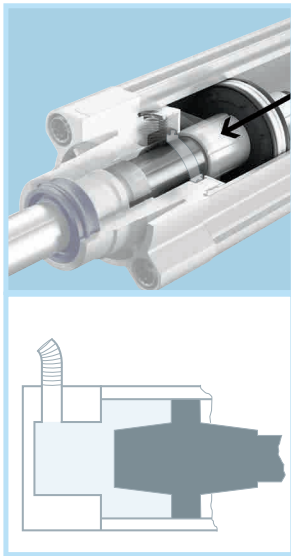


## Self-adjusting end-position cushioning PPS for standards-based cylinders

### More productivity, less work: PPS

Simply ingenious: the unique, self-adjusting end-position cushioning PPS saves huge amounts of time during commissioning, adjusts optimally to changes in load and speed and allows the cylinder to move dynamically and gently into the end position. This reduces wear on the entire system.

This and many other advantages are the result of the unique design with longitudinal slots which allow air to escape.



### Use the advantages of PPS – in these cylinders

DSNU  
→ 25

DSNU-S  
→ 29

DSBC  
→ 31

ADN  
→ 42

CRDSNU  
→ 45



### Software tool

Festo Design Tool 3D



The Festo Design Tool 3D is a 3D product configurator for generating specific CAD product combinations from Festo. The configurator makes your search for the right accessory easier, more reliable and faster.

You can then order the module that has been created as a single order item, either completely pre-assembled or as individual parts in a single box. This considerably reduces your bill of materials, and downstream processes such as product ordering, order picking and assembly are significantly simplified.

This tool can be found at  
→ [www.festo.com/x/festo-design-tool](http://www.festo.com/x/festo-design-tool)

## Self-adjusting end-position cushioning PPS for standards-based cylinders

### Less can be more: the advantages of self-adjusting cushioning at a glance

01 Pneumatic drives



**Less shock**

Running smoothly, Part 1:  
The better the cushioning, the less settling and impact vibration. Better for the cylinder, better for the machine.



**Less time**

Save time and effort in adjusting. The calculation is simple:  
no. of cylinders x 5 mins = big cost saving.



**Less noise**

Running smoothly, Part 2:  
Where there is no vibration, there is nothing to disturb the working environment of both workers and machines.



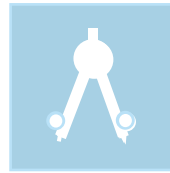
**Less errors**

Always correct. All by itself. PPS cushioning prevents setting errors and automatically compensates for changing loads.



**Less adjustment required:**

Goodbye screwdriver. Not just less adjustment, but no adjustment at all! Standards-based cylinders with PPS cushioning are self-adjusting.



**Less planning**

Making it easy – setting multiple cylinders to run in parallel is a nightmare. Standards-based cylinders with PPS cushioning. Simply fit and forget.



**Less cleaning**

A clean solution. No cushioning screws cuts dust and dirt traps and makes for smoother surfaces. In other words, adjusting-screw-free.



**Less bulky**

Compact cylinders ADN-PPS offer up to 300% more end of stroke energy absorption. Smaller or more powerful, the choice is yours.



**Less variants**

Relaxed purchasing. Cylinders with PPS cushioning have a far wider operating range than most standard cylinders. The result is fewer variants with more application options.



**Less risk**

No screws, no setting on live machinery; safer and faster. And no operator fiddling. Standards-based cylinders with PPS are self-adjusting.



**Less wear**

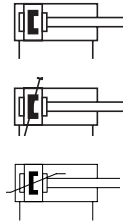
Self-adjusting means always perfectly set. Perfectly set cushioning means that cylinders operate more smoothly and longer. More machine uptime and greater throughput.



**Less stock**

Less is more. Your finance department will think so too. PPS cushioning enables a narrower range of cylinders to cover the same performance range. And less stock = lower costs.

Standards-based cylinders DSNU, to ISO 6432, double-acting



- Diameter 8 ... 25 mm: ISO 6432
- For very high demands on running characteristics, service life and load capacity
- Can be used universally thanks to individual variants
- Comprehensive range of accessories
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

Order code – Basic design



Legend:  Mandatory entry  Optional entry

001	Type
DSNU	Double-acting standards-based cylinder
002	Piston Ø [mm]
...	8, 10, 12, 16, 20, 25
003	Stroke [mm]
...	10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320

004	Cushioning
P	Elastic cushioning rings/plates at both ends
PPV	Pneumatic cushioning adjustable at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends
005	Position sensing
-	None
A	Via proximity switch

Product options

1 ... 500 mm Variable stroke	Q	With protection against rotation	KP	With clamping unit	K6	Shortened male piston rod thread
MQ Alternative plain cylinder end cap, lateral connection	S2	Through piston rod	K2	Extended male piston rod thread	K8	Extended piston rod
MA Alternative plain cylinder end cap, axial connection	S6	Heat-resistant seals up to max. 120 °C	K3	Female piston rod thread	R3	High corrosion protection
MH Alternative cylinder end cap, direct mounting	S10	Slow speed	K5	Special piston rod thread	KP	Clamping unit on the piston rod
	S11	Low friction			F1A	Recommended for production systems for manufacturing lithium-ion batteries

Configurable product

This product and all its product options can be ordered online via the configurator:  
 → [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)  
 Enter the part number or the type.

Part no.	Type	Stroke [mm]	Part no.	Type	Stroke [mm]
193986	DSNU-8-...-P	1 ... 100	14326	DSNU-8-...-P-A	10 ... 100
193987	DSNU-10-...-P	1 ... 100	14325	DSNU-10-...-P-A	10 ... 100
193988	DSNU-12-...-P/-PPV	1 ... 200	14324	DSNU-12-...-P-A	10 ... 200
193989	DSNU-16-...-P/-PPV/-PPS	1 ... 200	14323	DSNU-16-...-P-A	10 ... 200
193990	DSNU-20-...-P/-PPV/-PPS	1 ... 320	14328	DSNU-20-...-P-A	10 ... 320
193991	DSNU-25-...-P/-PPV/-PPS	1 ... 500	14327	DSNU-25-...-P-A	10 ... 500
			14320	DSNU-16-...-PPV-A	10 ... 200
			14321	DSNU-20-...-PPV-A	10 ... 320
			14322	DSNU-25-...-PPV-A	10 ... 500

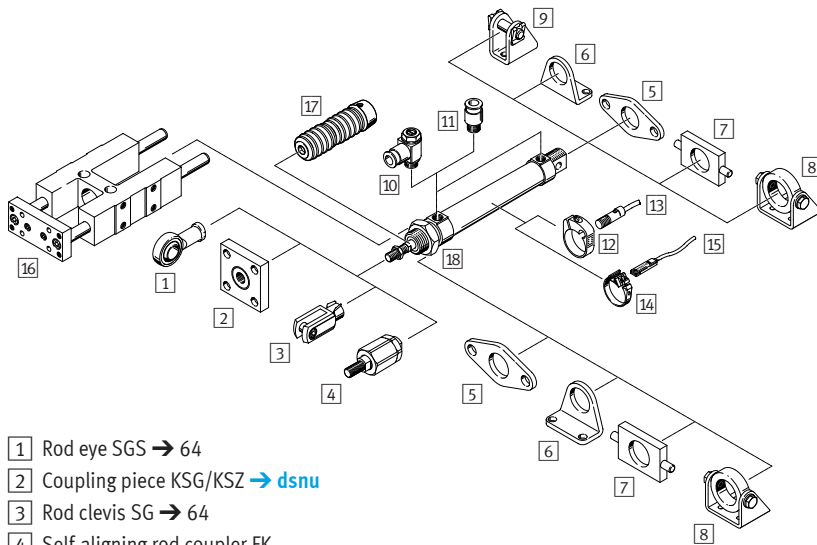
Piston rod cylinders > Round cylinders >

Standards-based cylinders DSNU, to ISO 6432, double-acting

Ordering – Basic design

003 Stroke [mm]	002 Piston Ø [mm]						002 Piston Ø [mm]			002 Piston Ø [mm]		
	8	10	12	16	20	25	16	20	25	16	20	25
	004 Cushioning – 005 Position sensing						004 Cushioning – 005 Position sensing			004 Cushioning – 005 Position sensing		
	P – A	P – A	P – A	P – A	P – A	P – A	PPV – A	PPV – A	PPV – A	PPS – A	PPS – A	PPS – A
10	19177	19183	19189	19198	19207	19218	1908266	1908289	1908312	1908274	1908297	1908320
15	1908247	1908251	1908255	1908259	1908282	1908305	1908267	1908290	1908313	1908275	1908298	1908321
20	1908248	1908252	1908256	1908260	1908283	1908306	1908268	1908291	1908314	1908276	1908299	1908322
25	19178	19184	19190	19199	19208	19219	33973	33974	33975	559263	559271	559282
30	1908249	1908253	1908257	1908261	1908284	1908307	1908269	1908292	1908315	1908277	1908300	1908323
35				1908262	1908285	1908308	1908270	1908293	1908316	1908278	1908301	1908324
40	19179	19185	19191	19200	19209	19220	19229	19236	19245	559264	559272	559283
50	19180	19186	19192	19201	19210	19221	19230	19237	19246	559265	559273	559284
60	1908250	1908254	1908258	1908263	1908286	1908309	1908271	1908294	1908317	1908279	1908302	1908325
70				1908264	1908287	1908310	1908272	1908295	1908318	1908280	1908303	1908326
80	19181	19187	19193	19202	19211	19222	19231	19238	19247	559266	559274	559285
100	19182	19188	19194	19203	19212	19223	19232	19239	19248	559267	559275	559286
125			19195	19204	19213	19224	19233	19240	19249	559268	559276	559287
150			5249947	1908265	1908288	1908311	1908273	1908296	1908319	1908281	1908304	1908327
160			19196	19205	19214	19225	19234	19241	19250	559269	559277	559288
200			19197	19206	19215	19226	19235	19242	19251	559270	559278	559289
250						19216	19227		19243	19252		559290
300						19217	19228		19244	19253		559291
320						34718	34719		34720	34721		559292

Accessories



- 1 Rod eye SGS → 64
- 2 Coupling piece KSG/KSZ → dsnu
- 3 Rod clevis SG → 64
- 4 Self-aligning rod coupler FK → 64
- 5 Flange mounting FBN → 26

- 6 Foot mounting HBN → 26
- 7 Swivel mounting WBN → 26

- 8 Swivel mounting SBN → 26
- 9 Clevis foot LBN → 26
- 10 One-way flow control valve GRLA/GRLZ → 210
- 11 Push-in fitting QS → 319
- 12 Mounting kit SMBR → dsnu
- 13 Proximity switch SMEO-/SMTO-4U → dsnu
- 14 Mounting kit SMBR-8 → 244
- 15 Proximity switch SMT-8M → 243
- 16 Guide unit FEN → dsnu
- 17 Bellows kit DADB → dsnu
- 18 Hex nut MSK → 26

5 Flange mounting FBN		
For Ø	Type	Part no.
8, 10	FBN-8/10	5129
12, 16	FBN-12/16	5130
20, 25	FBN-20/25	5131

6 Foot mounting HBN <sup>1)</sup>		
For Ø	Type	Part no.
8, 10	HBN-8/10x1	5123
	HBN-8/10x2	5124
12, 16	HBN-12/16x1	5125
	HBN-12/16x2	5126
20, 25	HBN-20/25x1	5127
	HBN-20/25x2	5128

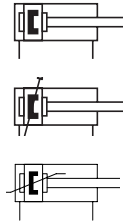
1) ...x1: 1x foot; ...x2: 2x foot, 1x nut

7 Swivel mounting WBN		
For Ø	Type	Part no.
8, 10	WBN-8/10	8608
12, 16	WBN-12/16	8609
20, 25	WBN-20/25	8610

8 Swivel mounting SBN		
For Ø	Type	Part no.
20, 25	SBN-20/25	539927

9 Clevis foot LBN		
For Ø	Type	Part no.
8, 10	LBN-8/10	6057
12, 16	LBN-12/16	6058
20, 25	LBN-20/25	6059

18 Hex nut MSK		
For Ø	Type	Part no.
16	MSK-M16x1,5	189007
20, 25	MSK-M22x1,5	189009



- For very high demands on running characteristics, service life and load capacity
- Can be used universally thanks to individual variants
- Comprehensive range of accessories

- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001 002 003 004 005  
DSNU - [ ] - [ ] - [ ] - A

Legend: [ ] Mandatory entry

001	Type
DSNU	Double-acting round cylinder
002	Piston Ø [mm]
...	32, 40
003	Stroke [mm]
...	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320

004	Cushioning
P	Elastic cushioning rings/plates at both ends
PPV	Pneumatic cushioning adjustable at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends
005	Position sensing
A	Via proximity switch

## Product options

50, 63 mm Piston Ø	Q	With protection against rotation	KP	With clamping unit	K6	Shortened male piston rod thread
1 ... 500 mm Variable stroke	S2	Through piston rod	K2	Extended male piston rod thread	K8	Extended piston rod
MQ Alternative plain cylinder end cap, lateral connection	S6	Heat-resistant seals up to max. 120 °C	K3	Female piston rod thread	R3	High corrosion protection
MA Alternative plain cylinder end cap, axial connection	S10	Slow speed	K5	Special piston rod thread	R8	Dust protection (scraper)
MH Alternative cylinder end cap, direct mounting	S11	Low friction			A6	Metal scraper
					KP	Clamping unit on the piston rod
					F1A	Recommended for production systems for manufacturing lithium-ion batteries

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
193992	DSNU-32-...
193993	DSNU-40-...
193994	DSNU-50-...
193995	DSNU-63-...

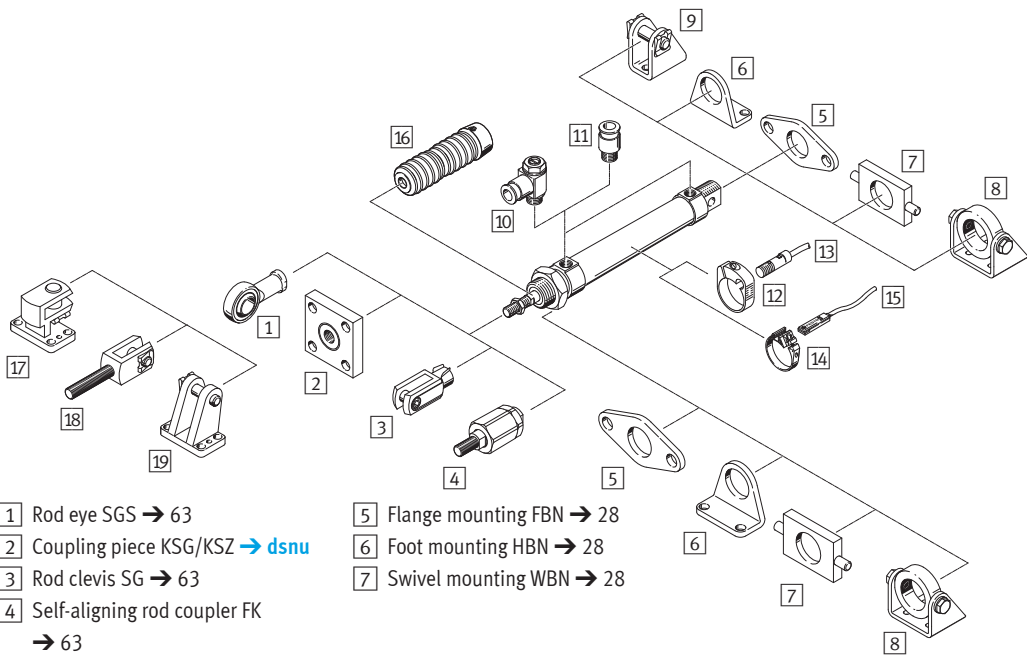
Piston rod cylinders > Round cylinders >

Round cylinders DSNU, double-acting

Ordering – Basic design

003 Stroke [mm]	002 Piston Ø [mm]		002 Piston Ø [mm]		002 Piston Ø [mm]	
	32	40	32	40	32	40
	004 Cushioning – 005 Position sensing		004 Cushioning – 005 Position sensing		004 Cushioning – 005 Position sensing	
	P – A	P – A	PPV – A	PPV – A	PPS – A	PPS – A
10	5249365	5262529				
15	5249366	5262530				
20	5249367	5262531				
25	195980	195990	196020	196030	559295	559305
30	5249368	5262532	5249851	5262705	5249968	5262768
40	195981	195991	196021	196031	559296	559306
50	195982	195992	196022	196032	559297	559307
60	5249369	5262534	5249853	5262706	5249970	5262769
70	5249370	5262535	5249854	5262707	5249971	5262771
80	195983	195993	196023	196033	559298	559308
100	195984	195994	196024	196034	559299	559309
125	195985	195995	196025	196035	559300	559310
150	5249371	5262536	5249855	5262708	5249972	5262772
160	195986	195996	196026	196036	559301	559311
200	195987	195997	196027	196037	559302	559312
250	195988	195998	196028	196038	559303	559313
300	5249372	5262537	5249856	5262709	5249973	5262773
320	195989	195999	196029	196039	559304	559314

Accessories



- 1 Rod eye SGS → 63
- 2 Coupling piece KSG/KSZ → dsnu
- 3 Rod clevis SG → 63
- 4 Self-aligning rod coupler FK → 63

- 5 Flange mounting FBN → 28
- 6 Foot mounting HBN → 28
- 7 Swivel mounting WBN → 28

- 8 Swivel mounting SBN → 28
- 9 Clevis foot LBN → 28
- 10 One-way flow control valve GRLA/GRLZ → 210
- 11 Push-in fitting QS → 319
- 12 Mounting kit SMBR → dsnu
- 13 Proximity switch SMEO-/SMTO-4U → dsnu
- 14 Mounting kit SMBR-8 → 244
- 15 Proximity switch SMT-8M → 243
- 16 Bellows kit DADB → dsnu
- 17 Right-angle clevis foot LQG → 28
- 18 Rod clevis SGA → 28
- 19 Clevis foot LBG → 28

5 Flange mounting FBN		
For Ø	Type	Part no.
32	FBN-32	195855
40	FBN-40	195856

7 Swivel mounting WBN		
For Ø	Type	Part no.
32	WBN-32	195863
40	WBN-40	195864

9 Clevis foot LBN		
For Ø	Type	Part no.
32	LBN-32	195860
40	LBN-40	195861

18 Rod clevis SGA		
For Ø	Type	Part no.
32	SGA-M10x1,25	32954
40	SGA-M12x1,25	10767

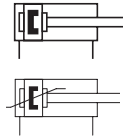
6 Foot mounting HBN <sup>1)</sup>		
For Ø	Type	Part no.
32	HBN-32x2	195851
40	HBN-40x2	195852

8 Swivel mounting SBN		
For Ø	Type	Part no.
32	SBN-32	539924
40	SBN-40	539925

17 Right-angle clevis foot LQG		
For Ø	Type	Part no.
32	LQG-32	31768
40	LQG-40	31769

19 Clevis foot LBG		
For Ø	Type	Part no.
32	LBG-32	31761
40	LBG-40	31762

1) ...x2: 2x foot, 1x nut



- Compact variant of standards-based cylinder DSNU
- Piston Ø 8... 25 mm
- Stroke 10 ... 200 mm

## Order code – Basic design

001 002 003 004 005 006 007  
**DSNU** - **S** -  -  -  - **A** -

Legend:  Mandatory entry

001	Type
<b>DSNU</b>	Double-acting round cylinder
002	Design
<b>S</b>	Compact
003	Piston Ø [mm]
...	8, 12, 16, 20, 25
004	Stroke [mm]
...	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 125, 150, 200

005	Cushioning
<b>P</b>	Elastic cushioning rings/plates at both ends
<b>PPS</b>	Pneumatic cushioning, self-adjusting at both ends
006	Position sensing
<b>A</b>	Via proximity switch
007	Cylinder end cap
<b>MQ</b>	Lateral air connection, end cap
<b>MX</b>	Mounting thread, end cap

## Product options

1 ... 200 mm Variable stroke

F1A Recommended for production systems for manufacturing lithium-ion batteries

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type	Part no.	Type
8112002	DSNU-S-8...-MQ	8112005	DSNU-S-20...-MX
8112003	DSNU-S-12...-MQ	8112006	DSNU-S-25...-MX
8112004	DSNU-S-16...-MQ		

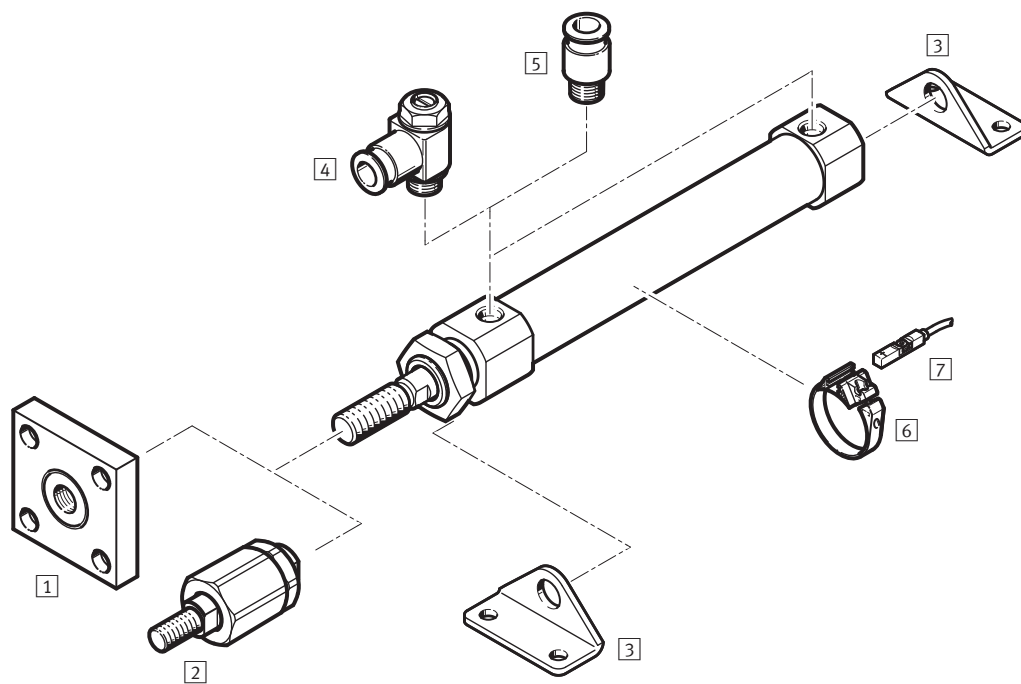
Piston rod cylinders > Round cylinders >

Round cylinders DSNU-S, double-acting

Ordering – Basic design

004 Stroke [mm]	003 Piston Ø [mm]					003 Piston Ø [mm]		
	8	12	16	20	25	16	20	25
	005 Elastic cushioning rings/plates at both ends – 006 Position sensing					005 Pneumatic cushioning, self-adjusting at both ends – 006 Position sensing		
	007 Lateral air connection, end cap			007 Mounting thread, end cap		007 Lateral air connection, end cap	007 Mounting thread, end cap	
	P – A – MQ	P – A – MQ	P – A – MQ	P – A – MX	P – A – MX	PPS – A – MQ	PPS – A – MX	PPS – A – MX
10	5205897	5211896	5216087	5224633	5228227			
15	5205898	5211897	5216088	5224634	5228228			
20	5205899	5211898	5216089	5224635	5228229			
25	5205900	5211899	5216090	5224636	5228230	5217238	5225836	5228452
30	5205902	5211900	5216091	5224637	5228231	5217239	5225837	5228453
40	5205903	5211901	5216093	5224639	5228232	5217240	5225838	5228454
50	5205904	5211903	5216094	5224641	5228233	5217241	5225839	5228455
60	5205905	5211904	5216095	5224642	5228234	5217242	5225840	5228456
80	5205906	5211905	5216096	5224643	5228235	5217243	5225841	5228457
100	5205907	5211906	5216098	5224644	5228236	5217244	5225842	5228458
125		5211908	5216099	5224645	5228237	5217245	5225843	5228459
150		5211909	5216100	5224646	5228238	5217246	5225844	5228460
200			5216101	5224647	5228239	5217248	5225846	5228461

Accessories



- 1 Coupling piece KSG/KSZ → 30
- 2 Self-aligning rod coupler FK → 30
- 3 Foot mounting HBN-S → 30
- 4 One-way flow control valve GRLA/GRLZ → 210
- 5 Push-in fitting QS → 319
- 6 Mounting kit SMBR-8 → 30
- 7 Proximity sensor SMT-8M → 243

1 Coupling piece KSG		
For Ø	Type	Part no.
25	KSG-M10x1,25	32963

1 Coupling piece KSZ		
For Ø	Type	Part no.
12, 16	KSZ-M6	36123
20	KSZ-M8	36124
25	KSZ-M10x1,25	36125

2 Self-aligning rod coupler FK		
For Ø	Type	Part no.
8	FK-M4	6528
12, 16	FK-M6	2061
20	FK-M8	2062
25	FK-M10x1,25	6140

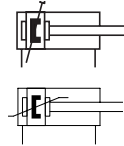
3 Foot mounting HBN-S <sup>1)</sup>		
For Ø	Type	Part no.
8	HBN-S-8x1	5407712
12, 16	HBN-S-12/16x1	5407772
20, 25	HBN-S-20/25x1	5407787
	HBN-S-20/25x2	5407847

1) ...x1: 1x foot; ...x2: 2x foot, 1x nut

6 Mounting kit SMBR-8		
For Ø	Type	Part no.
8	SMBR-8-8	175091
12	SMBR-8-12	175093
16	SMBR-8-16	175094
20	SMBR-8-20	175095
25	SMBR-8-25	175096
Heat-resistant design		
8 ... 25	SMBR-8-8/100-S6	538937



## Standards-based cylinders DSBC, to ISO 15552, double-acting



- Strokes of up to 2800 mm
- Excellent flexibility thanks to a wide range of variants
- Extensive range of accessories makes it possible to install the cylinder virtually anywhere
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001 002 003 004 005 006 007 008 009 010  
 DSBC - - - - - - - A - N3

Legend:  Mandatory entry  Optional entry

001	Type
DSBC	Double-acting standards-based cylinder
002	Protection against rotation
-	Without protection against rotation
003	Running characteristics
-	Standard
004	Piston Ø [mm]
...	32, 40, 50, 63, 80
005	Stroke [mm]
...	20, 25, 30, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320, 400, 500
006	Piston rod type
-	At one end

007	Piston rod thread type
-	Male thread
008	Cushioning
PPV	Pneumatic cushioning, adjustable at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends
009	Position sensing
A	Via proximity switch
010	Standard
N3	Conforms to ISO 15552

## Product options

100, 125 mm Piston Ø	E1	End-position locking at both ends	D3	Sensor slot on 3 sides of the profile	A1	Increased chemical resistance
1 ... 2800 mm Variable stroke						
Q With protection against rotation	E2	End-position locking with advanced piston rod	P	Elastic cushioning rings/ plates both ends	A2	Hard scraper
L Running characteristic low friction	E3	End-position locking with retracted piston rod	R3	High corrosion protection	A3	Suitable for unlubricated operation
U Constant, slow movement	T	Through piston rod	T1	Heat-resistant seals up to max. 120 °C	A6	Metal scraper
L1 Low friction for balancer applications	F	Female piston rod thread	T3	Low temperature -40 ... +80 °C	F1A	Recommended for production facilities for manufacturing lithium-ion batteries
C Clamping unit attached			T4	Temperature range 0 ... +150 °C	EX4	EU certification (II 2GD)
			P2	Bellows on bearing cap	E...	Extended piston rod 1 ... 500 mm
					...L	Extended piston rod thread 0 ... 70 mm

## Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

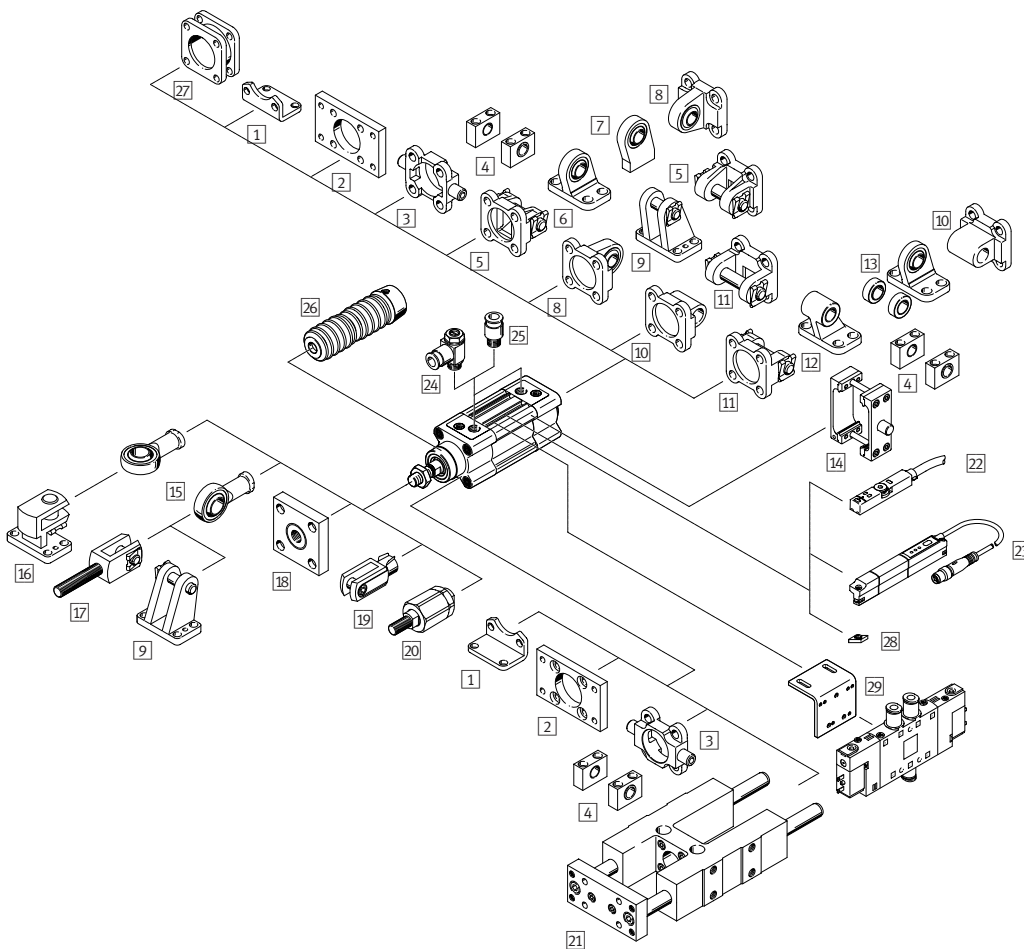
Part no.	Type	Part no.	Type
1463250	DSBC-...-32-...-A-...	1463495	DSBC-...-80-...-A-...
1461995	DSBC-...-40-...-A-...	1463520	DSBC-...-100-...-A-...
1463770	DSBC-...-50-...-A-...	1722457	DSBC-...-125-...-A-...
1463475	DSBC-...-63-...-A-...		

Piston rod cylinders > Tie rod and profile barrel cylinders >  
Standards-based cylinders DSBC, to ISO 15552, double-acting

## Ordering – Basic design

005 Stroke [mm]	004 Piston Ø [mm]					004 Piston Ø [mm]				
	32	40	50	63	80	32	40	50	63	80
	008 Pneumatic cushioning, adjustable at both ends – 009 Position sensing					008 Pneumatic cushioning, self-adjusting at both ends – 009 Position sensing				
	PPV A	PPV A	PPV A	PPV A	PPV A	PPS A	PPS A	PPS A	PPS A	PPS A
20	2123069	2123166	2098969	2125490	2126594	2123085	2123780	2102628	2126684	2126636
25	1376422	1376656	1366948	1383578	1383333	1376467	1376903	1376301	1383632	1383366
30	2123070	2123167	2098970	2125491	2126595	2123086	2123781	2102629	2126685	2126637
40	1376423	1376657	1366949	1383579	1383334	1376468	1376904	1376304	1383633	1383367
50	1376424	1376658	1366950	1383580	1383335	1376469	1376905	1376305	1383634	1383368
60	2123071	2123224	2098972	2125492	2126597	2123087	2123782	2102630	2126686	2126638
70	2123072	2123225	2098973	2125493	2126598	2123088	2123783	2102631	2126687	2126639
80	1376425	1376659	1366951	1383581	1383336	1376470	1376906	1376306	1383635	1383369
100	1376426	1376660	1366952	1383582	1383337	1376471	1376907	1376307	1383636	1383370
125	1376427	1376661	1366953	1383583	1383338	1376472	1376908	1376308	1383637	1383371
150	2123073	2123226	2098974	2125494	2126599	2123089	2123784	2102632	2126688	2126640
160	1376428	1376662	1366954	1383584	1383339	1376473	1376909	1376309	1383638	1383372
200	1376429	1376663	1366955	1383585	1383340	1376474	1376910	1376310	1383639	1383373
250	1376430	1376664	1366956	1383586	1383341	1376475	1376911	1376311	1383640	1383374
300	2123074	2123227	2098975	2125495	2126600	2123090	2123785	2102633	2126689	2126641
320	1376431	1376665	1366957	1383587	1383342	1376476	1376912	1376312	1383641	1383375
400	1376432	1376666	1366958	1383588	1383343	1376477	1376913	1376313	1383642	1383376
500	1376433	1376667	1366959	1383589	1383344	1376478	1376914	1376314	1383643	1383377

## Accessories



- 1 Foot mounting HNC → 33
- 2 Flange mounting FNC → 33
- 3 Trunnion flange ZNCF → 33
- 4 Trunnion support LNZG → 33
- 5 Swivel flange SNC → 33
- 6 Clevis foot LSNG → dsbc
- 7 Clevis foot LSNSG → dsbc
- 8 Swivel flange SNCS → 33
- 9 Clevis foot LBG → dsbc
- 10 Swivel flange SNCL → 33
- 11 Swivel flange SNCB → 33
- 12 Clevis foot LNG → 33
- 13 Clevis foot LSN → dsbc
- 14 Trunnion mounting kit DAMT → 33
- 15 Rod eye SGS → 64
- 16 Right-angle clevis foot LQG → 33
- 17 Rod clevis SGA → 33
- 18 Coupling piece KSG/KSZ → dsbc
- 19 Rod clevis SG → 64
- 20 Self-aligning rod coupler FK → 64
- 21 Guide unit FENG → dsbc
- 22 Proximity switch SMT-8M → 243
- 23 Position transmitter SMAT, SDAT → dsbc

24 One-way flow control valve GRLA → 210

26 Bellows kit DADB → dsbc

28 Slot nut ABAN → dsbc

Slot cover ABP-5-S → dsbc

25 Push-in fitting QS → 319

27 Multi-position kit DPNC → 33

29 Mounting kit DAVM for valve assembly → dsbc

## Accessories

1 Foot mounting HNC/CRHNC<sup>1)</sup>

For Ø	Type	Part no.	Type	Part no.
32	HNC-32	174369	CRHNC-32	176937
40	HNC-40	174370	CRHNC-40	176938
50	HNC-50	174371	CRHNC-50	176939
63	HNC-63	174372	CRHNC-63	176940
80	HNC-80	174373	CRHNC-80	176941

1) CRHNC: high corrosion protection

2 Flange mounting FNC/CRFNG<sup>2)</sup>

For Ø	Type	Part no.	Type	Part no.
32	FNC-32	174376	CRFNG-32	161846
40	FNC-40	174377	CRFNG-40	161847
50	FNC-50	174378	CRFNG-50	161848
63	FNC-63	174379	CRFNG-63	161849
80	FNC-80	174380	CRFNG-80	161850

2) CRFNG: high corrosion protection

## 3 Trunnion flange ZNCF

For Ø	Type	Part no.
32	ZNCF-32	174411
40	ZNCF-40	174412
50	ZNCF-50	174413
63	ZNCF-63	174414
80	ZNCF-80	174415

## 4 Trunnion support LNZG

For Ø	Type	Part no.
32	LNZG-32	32959
40	LNZG-40/50	32960
50	LNZG-40/50	32960
63	LNZG-63/80	32961
80	LNZG-63/80	32961

## 5 Swivel flange SNC

For Ø	Type	Part no.
32	SNC-32	174383
40	SNC-40	174384
50	SNC-50	174385
63	SNC-63	174386
80	SNC-80	174387

## 8 Swivel flange SNCS

For Ø	Type	Part no.
32	SNCS-32	174397
40	SNCS-40	174398
50	SNCS-50	174399
63	SNCS-63	174400
80	SNCS-80	174401

## 10 Swivel flange SNCL

For Ø	Type	Part no.
32	SNCL-32	174404
40	SNCL-40	174405
50	SNCL-50	174406
63	SNCL-63	174407
80	SNCL-80	174408

11 Swivel flange SNCB/SNCB-R3<sup>3)</sup>

For Ø	Type	Part no.	Type	Part no.
32	SNCB-32	174390	SNCB-32-R3	176944
40	SNCB-40	174391	SNCB-40-R3	176945
50	SNCB-50	174392	SNCB-50-R3	176946
63	SNCB-63	174393	SNCB-63-R3	176947
80	SNCB-80	174394	SNCB-80-R3	176948

3) SNCB-R3: high corrosion protection

## 12 Clevis foot LNG

For Ø	Type	Part no.
32	LNG-32	33890
40	LNG-40	33891
50	LNG-50	33892
63	LNG-63	33893
80	LNG-80	33894

## 14 Trunnion mounting kit DAMT

For Ø	Type	Part no.
32	DAMT-V1-32-A	2213233
40	DAMT-V1-40-A	2214899
50	DAMT-V1-50-A	2214909
63	DAMT-V1-63-A	2214971
80	DAMT-V1-80-A	163529

## 16 Right-angle clevis foot LQG

For Ø	Type	Part no.
32	LQG-32	31768
40	LQG-40	31769
50	LQG-50	31770
63	LQG-63	31771
80	LQG-80	31772

## 17 Rod clevis SGA

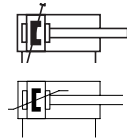
For Ø	Type	Part no.
32	SGA-M10x1,25	32954
40	SGA-M12x1,25	10767
50	SGA-M16x1,5	10768
63	SGA-M16x1,5	10768
80	SGA-M20x1,5	10769

## 27 Multi-position kit DPNC

For Ø	Type	Part no.
32	DPNC-32	174418
40	DPNC-40	174419
50	DPNC-50	174420
63	DPNC-63	174421
80	DPNC-80	174422

Piston rod cylinders > Tie rod and profile barrel cylinders >

## Standards-based cylinders DSBF-C, to ISO 15552, clean design



- Strokes of up to 2800 mm
  - Standards-based cylinder with increased corrosion protection
  - Resistant to conventional cleaning agents
  - Long service life thanks to optional dry-running seal
  - Comprehensive range of mounting accessories for just about every type of installation
  - Selected types in accordance with ATEX directive for potentially explosive atmospheres
- [www.festo.com/ex](http://www.festo.com/ex)

### Order code

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015  
 DSBF - C - - - - - - - - A - N3 - - - - - R

001	Type
DSBF	Double-acting standards-based cylinder
002	Design
C	Easy-to-clean design
003	Running characteristic
-	Standard
004	Piston Ø [mm]
...	32, 40, 50, 63, 80, 100, 125
005	Stroke [mm]
...	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 1 ... 2800
006	Piston rod type
-	At one end
007	Piston rod thread type
-	Male thread
008	Cushioning
PPV	Pneumatic cushioning adjustable at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends

009	Position sensing
A	Via proximity switch
010	Standard
N3	Conforms to ISO 15552
011	Temperature range
-	Standard
012	Scraper variant
-	None
013	Extended piston rod
-	None
014	Extended piston rod thread
-	None
015	Sensor mounting, external
R	Mounting rail for sensors

Legend:  Mandatory entry  Optional entry

### Product options

L	Running characteristic low friction	F	Female piston rod thread	T1	Heat-resistant seals up to max. 120 °C	Scraper variant	
U	Constant, slow movement	P	Elastic cushioning rings/ plates both ends	T3	Low temperature -40 ... +80°C	A1	Increased chemical resistance
T	Through piston rod	E...	Extended piston rod 1 ... 500 mm	T4	Temperature range 0 ... +150 °C	A2	Hard scraper
		...L	Extended piston rod thread 0 ... 70 mm	EX4	EU certification (II 2GD)	A3	Suitable for unlubricated operation

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
570077	DSBF-C-...-32-...
570078	DSBF-C-...-40-...
570079	DSBF-C-...-50-...
570080	DSBF-C-...-63-...

Part no.	Type
570081	DSBF-C-...-80-...
570082	DSBF-C-...-100-...
1755169	DSBF-C-...-125-...

## Order

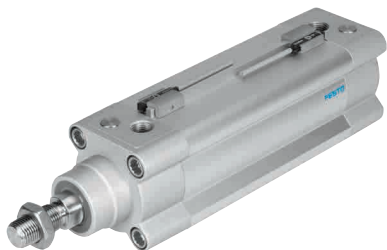
## DSBF-C with pneumatic cushioning PPV adjustable at both ends

005 Stroke [mm]	004 Piston Ø [mm]						
	32	40	50	63	80	100	125
	008 Pneumatic cushioning, adjustable at both ends – 009 Via proximity switch – 015 Mounting rail for sensors						
	PPV A-N3-R	PPV A-N3-R	PPV A-N3-R	PPV A-N3-R	PPV A-N3-R	PPV A-N3-R	PPV A-N3-R
25	1773752	1774259	1775258	1776043	1778429	1782253	1785012
40	1773753	1774260	1775259	1776044	1778430	1782254	1785013
50	1773754	1774261	1775260	1776045	1778431	1782255	1785014
80	1773755	1774262	1775261	1776046	1778432	1782256	1785015
100	1773756	1774263	1775262	1776047	1778433	1782257	1785016
125	1773757	1774264	1775263	1776048	1778434	1782258	1785017
160	1773758	1774265	1775264	1776049	1778435	1782259	1785018
200	1773759	1774266	1775265	1776050	1778436	1782260	1785019
250	1773760	1774267	1775266	1776051	1778437	1782261	1785020
320	1773761	1774268	1775267	1776052	1778438	1782262	1785021
400	1773762	1774269	1775268	1776053	1778439	1782263	1785022
500	1773763	1774270	1775269	1776054	1778440	1782264	1785023
1 ... 2800	1772262	1774182	1774418	1775324	1778184	1781598	1784637

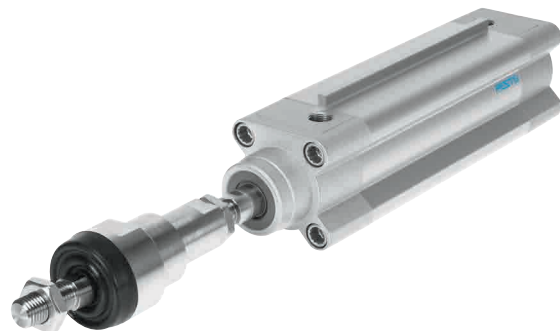
## DSBF-C with pneumatic cushioning PPS, self-adjusting at both ends

005 Stroke [mm]	004 Piston Ø [mm]						
	32	40	50	63	80	100	125
	008 Pneumatic cushioning, self-adjusting at both ends – 009 Via proximity switch – 015 Mounting rail for sensors						
	PPS A-N3-R	PPS A-N3-R	PPS A-N3-R	PPS A-N3-R	PPS A-N3-R	PPS A-N3-R	PPS A-N3-R
25	1778834	1779431	1780283	1780905	1781061	1782823	1792953
40	1778835	1779432	1780284	1780906	1781062	1782824	1792954
50	1778836	1779433	1780285	1780907	1781063	1782825	1792955
80	1778837	1779434	1780286	1780908	1781064	1782826	1792956
100	1778838	1779435	1780287	1780909	1781065	1782827	1792957
125	1778839	1779436	1780288	1780910	1781066	1782828	1792958
160	1778840	1779437	1780289	1780911	1781067	1782829	1792959
200	1778841	1779438	1780290	1780912	1781068	1782830	1792960
250	1778842	1779439	1780291	1780913	1781069	1782831	1792961
320	1778843	1779440	1780292	1780914	1781070	1782832	1792962
400	1778844	1779441	1780293	1780915	1781071	1782833	1792963
500	1778845	1779442	1780294	1780916	1781072	1782834	1792964
1 ... 2800	1778516	1779309	1779742	1780600	1780945	1781567	1792703

Standards-based cylinder DSBF-C, -...-PPV with mounting kit SMB-8-C and proximity switch CRSMT-8M

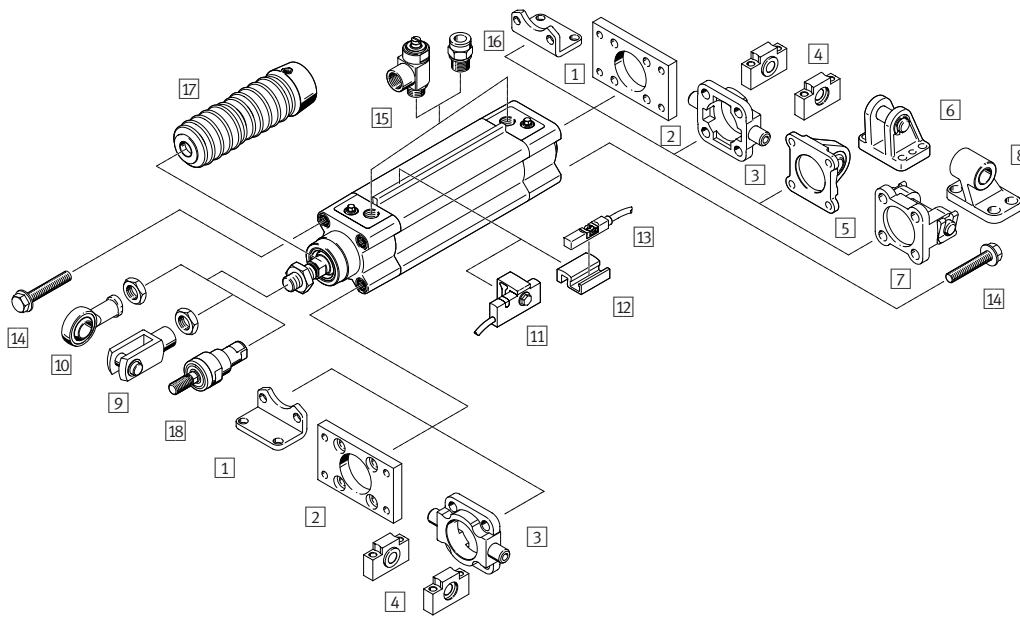


Standards-based cylinder DSBF-C, -...-PPS with self-aligning rod coupler CRFK



Piston rod cylinders > Tie rod and profile barrel cylinders >  
Standards-based cylinders DSBF-C, to ISO 15552, clean design

Accessories



- 1 Foot mounting CRHNC → 36
- 2 Flange mounting CRFNG → 36
- 3 Trunnion flange CRZNG → 36
- 4 Trunnion support CRLNZG → 36
- 5 Swivel flange SNCS/CRSNCS/SNCS- ... -R3 → [dsbf](#)
- 6 Clevis foot LBG/LBG-R3 → [dsbf](#)
- 7 Swivel flange SNCB- ... -R3 → 36
- 8 Clevis foot CRLNG → 36
- 9 Rod clevis CRSG → 36
- 10 Rod eye CRSGS → 36
- 11 Proximity switch SMT-C1 → [dsbf](#)
- 12 Mounting kit SMB-8-C → [dsbf](#)

- 13 Proximity switch CRSMT-8M → [dsbf](#)
- 14 Plug screw DAMD → [dsbf](#)
- 15 One-way flow control valve CRGRLA → [dsbf](#)
- 16 Push-in fitting NPQH → 324, CRQS/CRQSL → [dsbf](#)
- 17 Bellows kit DADB → [dsbf](#)
- 18 Self-aligning rod coupler CRFK → 36

1 Foot mounting CRHNC		
For Ø	Type	Part no.
32	CRHNC-32	176937
40	CRHNC-40	176938
50	CRHNC-50	176939
63	CRHNC-63	176940
80	CRHNC-80	176941
100	CRHNC-100	176942
125	CRHNC-125	176943

3 Trunnion flange CRZNG		
For Ø	Type	Part no.
32	CRZNG-32	161852
40	CRZNG-40	161853
50	CRZNG-50	161854
63	CRZNG-63	161855
80	CRZNG-80	161856
100	CRZNG-100	161857
125	CRZNG-125	185362

7 Swivel flange SNCB-...-R3		
For Ø	Type	Part no.
32	SNCB-32-R3	176944
40	SNCB-40-R3	176945
50	SNCB-50-R3	176946
63	SNCB-63-R3	176947
80	SNCB-80-R3	176948
100	SNCB-100-R3	176949
125	SNCB-125-R3	176950

9 Rod clevis CRSG		
For Ø	Type	Part no.
32	CRSG-M10x1,25	13569
40	CRSG-M12x1,25	13570
50, 63	CRSG-M16x1,5	13571
80, 100	CRSG-M20x1,5	13572
125	CRSG-M27x2	185361

2 Flange mounting CRFNG		
For Ø	Type	Part no.
32	CRFNG-32	161846
40	CRFNG-40	161847
50	CRFNG-50	161848
63	CRFNG-63	161849
80	CRFNG-80	161850
100	CRFNG-100	161851
125	CRFNG-125	185363

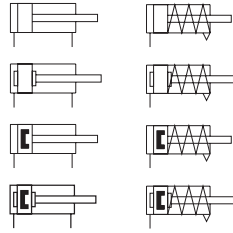
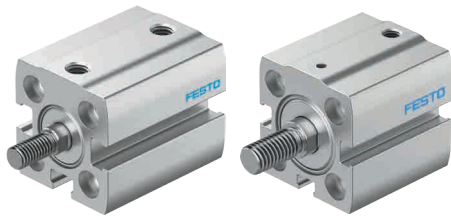
4 Trunnion support CRLNZG		
For Ø	Type	Part no.
32	CRLNZG-32	161874
40, 50	CRLNZG-40/50	161875
63, 80	CRLNZG-63/80	161876
100, 125	CRLNZG-100/125	161877

8 Clevis foot CRLNG		
For Ø	Type	Part no.
32	CRLNG-32	161840
40	CRLNG-40	161841
50	CRLNG-50	161842
63	CRLNG-63	161843
80	CRLNG-80	161844
100	CRLNG-100	161845
125	CRLNG-125	176951

10 Rod eye CRSGS		
For Ø	Type	Part no.
32	CRSGS-M10x1,25	195582
40	CRSGS-M12x1,25	195583
50, 63	CRSGS-M16x1,5	195584
80, 100	CRSGS-M20x1,5	195585
125	CRSGS-M27x2	195586

18 Self-aligning rod coupler CRFK		
For Ø	Type	Part no.
32	CRFK-M10x1,25	2305778
40	CRFK-M12x1,25	2305779
50, 63	CRFK-M16x1,5	2490673
80, 100	CRFK-M20x1,5	2545677

Compact cylinders ADN-S/AEN-S, double-acting/single-acting



- Extremely small and lightweight
- Perfect for micro-movements
- Improved running characteristics thanks to precise manufacturing from a single piece
- Wide range of mounting options, interfaces from two sides
- Variants with copper and zinc content less than 1% – recommended for production facilities for manufacturing lithium-ion batteries

Order code

001 002 003 004 005 006 007 008  
 -  -  -  -  -  -  -

Legend:  Mandatory entry  Optional entry

001	Type
ADN	Double-acting compact cylinder
AEN	Single-acting compact cylinder
002	Design
S	Short
003	Piston Ø [mm]
...	6, 10, 12, 16, 20, 25, 32, 40, 50, 63
004	Stroke [mm]
...	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
005	Piston rod thread
A	Male thread
I	Female thread

006	Cushioning
-	Without cushioning
P	Elastic cushioning rings/plates at both ends
007	Position sensing
-	None
A	Via proximity switch
008	Special material properties
-	None
F1A	Recommended for production facilities for manufacturing lithium-ion batteries

Order – AEN-S, single-acting, piston rod with male thread

004 Stroke [mm]	003 Piston Ø [mm]									
	6	10	12	16	20	25	32	40	50	63
	005 Piston rod with male thread – 006 Without cushioning – 007 Without position sensing									
	A – –									
5	8080593	8080583								
10	8080594	8080586								
	005 Piston rod with male thread – 006 Without cushioning – 007 For position sensing									
	A – – A									
5	8080591	8080584								
10	8080592	8080585								
	005 Piston rod with male thread – 006 Elastic cushioning rings/plates at both ends – 007 Without position sensing									
	A – P – –									
5		8092150	8092144	8092220	8092182	8092167				
10		8092149	8092143	8092219	8092179	8092164				
25			8092140	8092224	8092180	8092163				
	005 Piston rod with male thread – 006 Elastic cushioning rings/plates at both ends – 007 For position sensing									
	A – P – A									
5		8092152	8092142	8092222	8092177	8092165	8092162			
10		8092151	8092139	8092221	8092178	8092166	8092161	8092153	8092148	
25			8092141	8092223	8092181	8092168	8092160	8092154	8092146	

Cylinders with piston rod > Compact, short-stroke and flat cylinders >

Compact cylinders ADN-S/AEN-S, double-acting/single-acting

Ordering – AEN-S, single-acting, piston rod with female thread

004 Stroke [mm]	003 Piston Ø [mm]									
	6	10	12	16	20	25	32	40	50	63
	005 Piston rod with female thread – 006 Without cushioning – 007 Without position sensing									
	I – –									
5	4984929	4891759								
10	4984930	4891760								
	005 Piston rod with female thread – 006 Without cushioning – 007 For position sensing									
	I – – A									
5	5267300	5269268								
10	5267301	5269269								
	005 Piston rod with female thread – 006 Elastic cushioning rings/plates at both ends – 007 Without position sensing									
	I – P – –									
5			8076479	8076496	8076501	8076509	8076512			
10			8076476	8076492	8076499	8076507	8076510			
25			8076497	8076503	8076504	8076514				
	005 Piston rod with female thread – 006 Elastic cushioning rings/plates at both ends – 007 For position sensing									
	I – P – A									
5			8076475	8076495	8076502	8076506	8076511	5149290		
10			8076477	8076493	8076498	8076505	8076515	5149291	5137803	5132651
25			8076494	8076500	8076508	8076513	5149292	5137804	5132652	

Ordering – ADN-S, double-acting, piston rod with male thread

004 Stroke [mm]	003 Piston Ø [mm]									
	6	10	12	16	20	25	32	40	50	63
	005 Piston rod with male thread – 006 Without cushioning – 007 Without position sensing									
	A – –									
5	8080598	8080589								
10	8080596	8080588								
	005 Piston rod with male thread – 006 Without cushioning – 007 For position sensing									
	A – – A									
5	8080597	8080587								
10	8080595	8080590								
	005 Piston rod with male thread – 006 Elastic cushioning rings/plates at both ends – 007 Without position sensing									
	A – P – –									
5			8091419	8091671	8091431	8092103	8091452			
10			8091428	8091670	8091449	8092102	8091461			
15			8091416	8091677	8091447	8092107	8091460			
20			8091420	8091666	8091445	8092091	8091453			
25			8091426	8091665	8091443	8092092	8091467			
30			8091423	8091672	8091441	8092099	8091465			
35			8091418	8091676	8091439	8092097	8091456			
40					8091437	8092094	8091450			
45					8091435	8092106	8091451			
50					8091433	8092105	8091462			
	005 Piston rod with male thread – 006 Elastic cushioning rings/plates at both ends – 007 For position sensing									
	A – P – A									
5			8091427	8091668	8091430	8092104	8091464	8092050	8092081	8092130
10			8091424	8091678	8091448	8092093	8091457	8092067	8092073	8092128
15			8091422	8091667	8091446	8092096	8091469	8092053	8092085	8092135
20			8091429	8091674	8091444	8092109	8091468	8092064	8092076	8092120
25			8091421	8091675	8091442	8092100	8091459	8092056	8092075	8092121
30			8091417	8091669	8091440	8092098	8091454	8092061	8092074	8092125
35			8091425	8091673	8091438	8092108	8091463	8092051	8092071	8092133
40					8091436	8092095	8091455	8092059	8092087	8092134
45					8091434	8092110	8091466	8092065	8092079	8092138
50					8091432	8092101	8091458	8092054	8092086	8092119



## Ordering – ADN-S, double-acting, piston rod with female thread

004 Stroke [mm]	003 Piston Ø [mm]		6	10	12	16	20	25	32	40	50	63
	005 Piston rod with female thread – 006 Without cushioning – 007 Without position sensing											
	I – –											
5	4886885	4887523										
10	4886886	4887524										
	005 Piston rod with female thread – 006 Without cushioning – 007 For position sensing											
	I – – A											
5	5173732	5177082										
10	5173733	5177085										
	005 Piston rod with female thread – 006 Elastic cushioning rings/plates at both ends – 007 Without position sensing											
	I – P – –											
5			8076407	8076393	8076323	8076343	8076364					
10			8076419	8076405	8076341	8076361	8076382					
15			8076417	8076403	8076339	8076359	8076380					
20			8076415	8076401	8076337	8076357	8076378					
25			8076413	8076399	8076335	8076355	8076376					
30			8076411	8076397	8076333	8076353	8076374					
35			8076409	8076395	8076331	8076351	8076372					
40					8076329	8076349	8076370					
45					8076327	8076347	8076368					
50					8076325	8076345	8076366					
	005 Piston rod with female thread – 006 Elastic cushioning rings/plates at both ends – 007 For position sensing											
	I – P – A											
5			8076406	8076392	8076322	8076342	8076363	5138606	5138188	5132663		
10			8076418	8076404	8076340	8076360	8076381	5138607	5138189	5132664		
15			8076416	8076402	8076338	8076358	8076379	5138608	5138190	5132665		
20			8076414	8076400	8076336	8076356	8076377	5138609	5138191	5132666		
25			8076412	8076398	8076334	8076354	8076375	5138610	5138192	5132667		
30			8076410	8076396	8076332	8076352	8076373	5138611	5138193	5132668		
35			8076408	8076394	8076330	8076350	8076371	5138612	5138194	5132669		
40					8076328	8076348	8076369	5138613	5138195	5132670		
45					8076326	8076346	8076367	5138614	5138196	5132671		
50					8076324	8076344	8076365	5138615	5138197	5132672		

Cylinders with piston rod > Compact, short-stroke and flat cylinders >

Compact cylinders ADN-S/AEN-S, double-acting/single-acting

## Ordering – ADN-S, double-acting, piston rod with male thread

Recommended for production facilities for manufacturing lithium-ion batteries

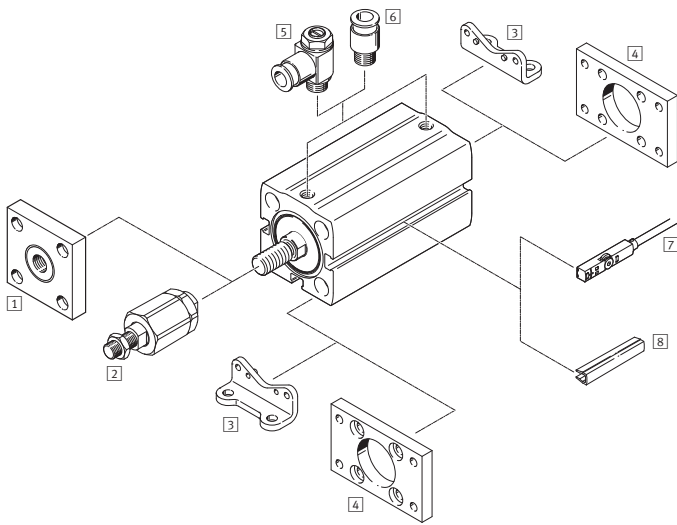
004 Stroke [mm]	003 Piston Ø [mm]									
	6	10	12	16	20	25	32	40	50	63
	005 Piston rod with male thread – 006 Elastic cushioning rings/plates at both ends – 007 For position sensing – 008 Recommended for production facilities for manufacturing lithium-ion batteries									
	A – P – A – F1A									
5			8142576	8142735	8142766	8142826	8142866	8142886	8142907	8142927
10			8142577	8142736	8142767	8142827	8142867	8142887	8142908	8142928
15			8142578	8142737	8142768	8142828	8142868	8142888	8142909	8142929
20			8142579	8142738	8142769	8142829	8142869	8142889	8142910	8142930
25			8142580	8142739	8142770	8142830	8142870	8142890	8142911	8142931
30			8142581	8142740	8142771	8142831	8142871	8142891	8142912	8142932
35			8142582	8142741	8142772	8142832	8142872	8142892	8142913	8142933
40					8142773	8142833	8142873	8142893	8142914	8142934
45					8142774	8142834	8142874	8142894	8142915	8142935
50					8142775	8142835	8142875	8142895	8142916	8142936

## Ordering – ADN-S, double-acting, piston rod with female thread

Recommended for production facilities for manufacturing lithium-ion batteries

004 Stroke [mm]	003 Piston Ø [mm]									
	6	10	12	16	20	25	32	40	50	63
	005 Piston rod with female thread – 006 Elastic cushioning rings/plates at both ends – 007 For position sensing – 008 Recommended for production facilities for manufacturing lithium-ion batteries									
	I – P – A – F1A									
5			8142562	8142728	8142756	8142806	8142846	8142876	8142897	8142917
10			8142563	8142729	8142757	8142807	8142847	8142877	8142898	8142918
15			8142564	8142730	8142758	8142808	8142848	8142878	8142899	8142919
20			8142565	8142731	8142759	8142809	8142849	8142879	8142900	8142920
25			8142566	8142732	8142760	8142810	8142850	8142880	8142901	8142921
30			8142567	8142733	8142761	8142811	8142851	8142881	8142902	8142922
35			8142568	8142734	8142762	8142812	8142852	8142882	8142903	8142923
40					8142763	8142813	8142853	8142883	8142904	8142924
45					8142764	8142814	8142854	8142884	8142905	8142925
50					8142765	8142815	8142855	8142885	8142906	8142926

Accessories



- 1 Coupling piece KSG → 41
- 2 Self-aligning rod coupler FK → 41
- 3 Foot mounting HNA → 41
- 4 Flange mounting FNC → 41
- 5 One-way flow control valve GRLA/ GRLZ → 210
- 6 Push-in fitting QS → [adn-s](#)
- 7 Proximity switch SMT-10M → 41  
SMT-8M → 41  
CRSMT-8M/SDBT-MS → [adn-s](#)  
Position transmitter SDAS-MHS/SDAT-MHS/SMAT-8M → [adn-s](#)  
Connecting cables NEBU → 41
- 8 Slot cover ABP-5 → [adn-s](#)

Accessories for piston Ø 12 ... 63 mm

1 Coupling piece KSG		
For Ø	Type	Part no.
32, 40	KSG-M10x1,25	32963
50, 63	KSG-M12x1,25	32964

2 Self-aligning rod coupler FK		
For Ø	Type	Part no.
12	FK-M5	30984
16	FK-M6	2061
20, 25	FK-M8	2062
32, 40	FK-M10x1,25	6140
50, 63	FK-M12x1,25	6141

3 Foot mounting HNA		
For Ø	Type	Part no.
12	HNA-12	537237
16	HNA-16	537238
20	HNA-20	537239
25	HNA-25	537240
32	HNA-32	537241
40	HNA-40	537242
50	HNA-50	537243
63	HNA-63	537244

4 Flange mounting FNC		
For Ø	Type	Part no.
12	FNC-12	537245
16	FNC-16	537246
20	FNC-20	537247
25	FNC-25	537248
32	FNC-32	174376
40	FNC-40	174377
50	FNC-50	174378
63	FNC-63	174379

Proximity switch for piston Ø 6, 10 mm

7 Proximity switch, N/O, magneto-resistive SMT-10M		
Description	Type	Part no.
PNP, for round slot, inserted in the slot from above		
Cable, 3-wire, lengthwise, 2.5 m	SMT-10M-PS-24V-E-2,5-L-OE	551373
Plug M8x1, 3-pin, lengthwise, 0.3 m	SMT-10M-PS-24V-E-0,3-L-M8D	551375
NPN, for C-slot, inserted in the slot from above		
Cable, 3-wire, lengthwise, 2.5 m	SMT-10M-NS-24V-E-2,5-L-OE	551377
Plug M8x1, 3-pin, lengthwise, 0.3 m	SMT-10M-NS-24V-E-0,3-L-M8D	551379

Proximity switch for piston Ø 12 ... 63 mm

7 Proximity switch, N/O, magneto-resistive SMT-8M		
Description	Type	Part no.
PNP, for T-slot, inserted in the slot from above, flush with the cylinder profile, short design		
Cable, 3-wire, 2.5 m	SMT-8M-A-PS-24V-E-2,5-OE	574335
Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-PS-24V-E-0,3-M8D	574334
NPN, for T-slot, inserted in the slot from above, flush with the cylinder profile, short design		
Cable, 3-wire, 2.5 m	SMT-8M-A-NS-24V-E-2,5-OE	574338
Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-NS-24V-E-0,3-M8D	574339

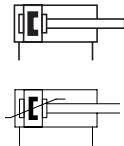
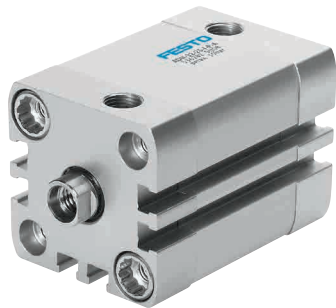
7 Connecting cable NEBU			
Cable length	Connection right	Type	Part no.
Connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

7 Proximity switch, N/C, magneto-resistive SMT-8M		
Description	Type	Part no.
PNP, for T-slot, inserted in the slot from above, flush with the cylinder profile, short design		
Cable, 3-wire, 7.5 m	SMT-8M-A-PO-24V-E-7,5-OE	574340

7 Connecting cable NEBU			
Cable length	Connection right	Type	Part no.
Connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

Cylinders with piston rod > Compact, short-stroke and flat cylinders >

## Compact cylinders ADN, to ISO 21287, double-acting



- Compact cylinders with standard dimensions
- Up to 50% less installation space than comparable standards-based cylinders to ISO 15552
- Innovative technology for maximum speeds
- Flexible in use thanks to easy-to-configure variants
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016  
**ADN** -  -  -  -  - **A** -  -  -  -  -  -  -  -  -  -  -

001	Type
ADN	Double-acting compact cylinder, to ISO 21287
002	Piston Ø [mm]
...	12, 16, 20, 25, 32, 40, 50, 63, 80
003	Stroke [mm]
...	5, 10, 15, 20, 25, 30, 40, 50, 60, 80
004	Piston rod thread type
A	Male thread
I	Female thread
005	Cushioning
P	Elastic cushioning rings/plates at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends
006	Position sensing
A	Via proximity switch
007	Protection against rotation
-	None
008	Piston rod type
-	Piston rod at one end

009	Temperature resistance
-	Standard
010	Constant motion
-	None
011	Low friction
-	Standard
012	Increased lateral force
-	None
013	Captive rating plate
-	Rating plate, glued
014	Low temperature
-	None
015	Wiper seal
-	Standard
016	EU certification (ATEX)
-	None

Legend:  Mandatory entry  Optional entry

### Product options

100, 125 mm Piston Ø	K8	Extended piston rod	K5	Special piston rod thread	S11	Low friction
1 ... 500 mm Variable stroke	S1	Reinforced piston rod	K10	Smooth anodised aluminium piston rod	R3	High corrosion protection
F1A Recommended for production facilities for manufacturing lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%)	S2	Through piston rod	S6	Heat-resistant seals up to max. 120 °C	R8	Dust protection
Q Square piston rod	S20	Through, hollow piston rod	S10	Constant, slow movement	TL	Laser etched rating plate
	K2	Extended male piston rod thread			TT	Low temperature -40 ... +80°C
					KP	With clamping unit, attached
					EL...	With end-position locking

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

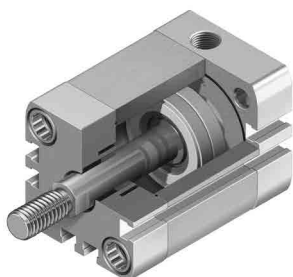
Enter the part number or the type.

Part no.	Type	Part no.	Type	Part no.	Type
536203	ADN-12-...-A	536267	ADN-32-...-A	536351	ADN-80-...-A
536218	ADN-16-...-A	536288	ADN-40-...-A	536372	ADN-100-...-A
536233	ADN-20-...-A	536309	ADN-50-...-A	536393	ADN-125-...-A
536250	ADN-25-...-A	536330	ADN-63-...-A		

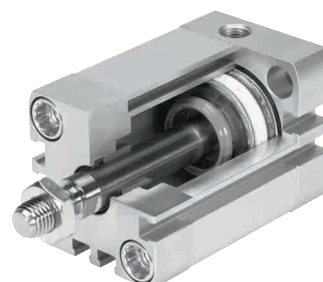
## Ordering – Basic design

003 Stroke [mm]	002 Piston Ø [mm]								
	12	16	20	25	32	40	50	63	80
	004 Piston rod with male thread – 005 Elastic cushioning rings/plates at both ends – 006 Position sensing								
	A – P – A	A – P – A	A – P – A	A – P – A	A – P – A	A – P – A	A – P – A	A – P – A	A – P – A
5	536204	536219	536234	536251	536268	536289	536310		
10	536205	536220	536235	536252	536269	536290	536311	536332	536353
15	536206	536221	536236	536253	536270	536291	536312	536333	536354
20	536207	536222	536237	536254	536271	536292	536313	536334	536355
25	536208	536223	536238	536255	536272	536293	536314	536335	536356
30	536209	536224	536239	536256	536273	536294	536315	536336	536357
40	536210	536225	536240	536257	536274	536295	536316	536337	536358
50		536331	536241	536258	536275	536296	536317	536338	536359
60			536352	536373	536276	536297	536318	536339	536360
80					536277	536298	536319	536340	536361
	004 Piston rod with male thread – 005 Pneumatic cushioning, self-adjusting at both ends – 006 Position sensing								
					A – PPS – A	A – PPS – A	A – PPS – A	A – PPS – A	A – PPS – A
10					572655	572673	572691	572709	572727
15					572656	572674	572692	572710	572728
20					572657	572675	572693	572711	572729
25					572658	572676	572694	572712	572730
30					572659	572677	572695	572713	572731
40					572660	572678	572696	572714	572732
50					572661	572679	572697	572715	572733
60					572662	572680	572698	572716	572734
80					572663	572681	572699	572717	572735
	004 Piston rod with female thread – 005 Elastic cushioning rings/plates at both ends – 006 Position sensing								
	I – P – A	I – P – A	I – P – A	I – P – A	I – P – A	I – P – A	I – P – A	I – P – A	I – P – A
5	536211	536226	536242	536259	536278	536299	536320		
10	536212	536227	536243	536260	536279	536300	536321	536342	536363
15	536213	536228	536244	536261	536280	536301	536322	536343	536364
20	536214	536229	536245	536262	536281	536302	536323	536344	536365
25	536215	536230	536246	536263	536282	536303	536324	536345	536366
30	536216	536231	536247	536264	536283	536304	536325	536346	536367
40	536217	536232	536248	536265	536284	536305	536326	536347	536368
50		536341	536249	536266	536285	536306	536327	536348	536369
60			536362	536383	536286	536307	536328	536349	536370
80					536287	536308	536329	536350	536371
	004 Piston rod with female thread – 005 Pneumatic cushioning, self-adjusting at both ends – 006 Position sensing								
					I – PPS – A	I – PPS – A	I – PPS – A	I – PPS – A	I – PPS – A
10					572646	572664	572682	572700	572718
15					572647	572665	572683	572701	572719
20					572648	572666	572684	572702	572720
25					572649	572667	572685	572703	572721
30					572650	572668	572686	572704	572722
40					572651	572669	572687	572705	572723
50					572652	572670	572688	572706	572724
60					572653	572671	572689	572707	572725
80					572654	572672	572690	572708	572726

### P and PPS cushioning



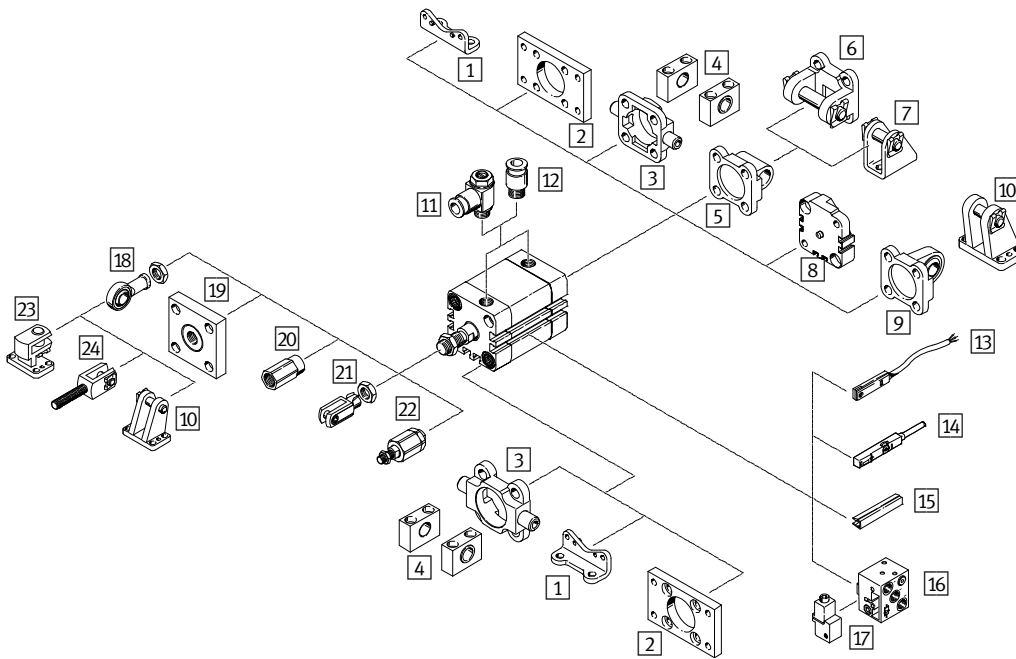
**P cushioning:**  
Elastic cushioning rings/plates at both ends



**PPS cushioning:**  
Pneumatic cushioning, self-adjusting at both ends

Cylinders with piston rod > Compact, short-stroke and flat cylinders >  
Compact cylinders ADN, to ISO 21287, double-acting

## Accessories



- 1 Foot mounting HNA → 44
- 2 Flange mounting FNC → 44
- 3 Trunnion flange ZNCF → 33
- 4 Trunnion support LNZG → 33
- 5 Swivel flange SNCL → 44
- 6 Swivel flange SNCB → 33
- 7 Clevis foot LBN → 26
- 8 Multi-position kit DPNA → 44
- 9 Swivel flange SNCS → 33
- 10 Clevis foot LBG → [adn](#)
- 11 One-way flow control valve GRLA/ GLRZ → 210
- 12 Push-in fitting QS → 319
- 13 Proximity switch SME-8 → [adn](#)  
Connecting cable NEBU → 44

- 14 Proximity sensor SMT-8M → 243  
Connecting cable NEBU → 44
- 15 Slot cover ABP-5-S → [adn](#)

- 16 Proximity switch SMPO-8E → [adn](#)
- 17 Mounting kit SMB-8E → [adn](#)

- 18 Rod eye SGS → 63
- 19 Coupling piece KSG/KSZ → [adn](#)
- 20 Adapter AD → [adn](#)

- 21 Rod clevis SG → 63
- 22 Self-aligning rod coupler FK → 63
- 23 Right-angle clevis foot LQG → 44
- 24 Rod clevis SGA → 44

1 Foot mounting HNA		
For Ø	Type	Part no.
12	HNA-12	537237
16	HNA-16	537238
20	HNA-20	537239
25	HNA-25	537240
32	HNA-32	537241
40	HNA-40	537242
50	HNA-50	537243
63	HNA-63	537244
80	HNA-80	537249

5 Swivel flange SNCL		
For Ø	Type	Part no.
12	SNCL-12	537790
16	SNCL-16	537791
20	SNCL-20	537792
25	SNCL-25	537793
32	SNCL-32	174404
40	SNCL-40	174405
50	SNCL-50	174406
63	SNCL-63	174407
80	SNCL-80	174408

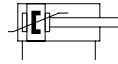
23 Right-angle clevis foot LQG		
For Ø	Type	Part no.
32, 40	LQG-32	31768
50, 63	LQG-40	31769
80	LQG-50	31770

24 Rod clevis SGA		
For Ø	Type	Part no.
32, 40	SGA-M10x1,25	32954
50, 63	SGA-M12x1,25	10767
80	SGA-M16x1,25	10768

2 Flange mounting FNC		
For Ø	Type	Part no.
12	FNC-12	537245
16	FNC-16	537246
20	FNC-20	537247
25	FNC-25	537248
32	FNC-32	174376
40	FNC-40	174377
50	FNC-50	174378
63	FNC-63	174379
80	FNC-80	174380

8 Multi-position kit DPNA		
For Ø	Type	Part no.
12	DPNA-12	537263
16	DPNA-16	537264
20	DPNA-20	537265
25	DPNA-25	537266
32	DPNA-32	537267
40	DPNA-40	537268
50	DPNA-50	537269
63	DPNA-63	537270
80	DPNA-80	537271

13/14 Connecting cable NEBU			
Cable length	Connection right	Type	Part no.
Connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m			541334
Connection left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m			541341
Connection left: straight socket, M12x1, 5-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M12G5-K-2.5-LE3	541363
5 m			541364
Connection left: angled socket, M12x1, 5-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M12W5-K-2.5-LE3	541367
5 m			541370



- With self-adjusting pneumatic end-position cushioning PPS
- Easy-to-clean design
- High corrosion protection

- Selected types in accordance with ATEX directive for potentially explosive atmospheres

→ [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001 002 003 004 005 006 007 008  
 CRDSNU - B - 25 -  - PPS - A - MG - A1

Legend:  Mandatory entry

001	Type
CRDSNU	Double-acting standards-based cylinder, stainless steel
002	Design
B	Products in stock
003	Piston Ø [mm]
25	25
004	Stroke [mm]
...	10, 25, 40, 50, 80, 100, 125, 160, 200
005	Cushioning
PPS	Pneumatic cushioning, self-adjusting at both ends

006	Position sensing
A	Via proximity switch
007	Cylinder end cap
MG	Bearing cap without mounting thread
008	Wiper ring variant
A1	Increased chemical resistance

## Product options

12 ... 25 mm Piston Ø	A1	Increased chemical resistance	K2	Extended male piston rod thread	TT	Low temperature –40 ... +80 °C
1 ... 500 mm Variable stroke	A2	Hard scraper	K3	Female piston rod thread		
P Elastic cushioning rings/plates both ends	A3	For unlubricated operation	K5	Custom piston rod thread		
PPV Pneumatic cushioning adjustable at both ends	S2	Through piston rod	K8	Extended piston rod		
MQ Alternative plain cylinder end cap, lateral connection	S6	Heat-resistant seals up to max. 120 °C				

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

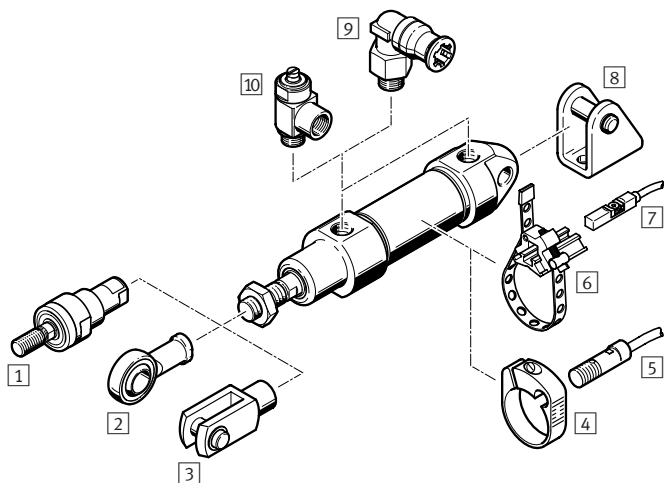
Part no.	Type
552787	CRDSNU-12-...
552788	CRDSNU-16-...
552789	CRDSNU-20-...
552790	CRDSNU-25-...

Cylinders with piston rod > Stainless-steel cylinders > Standards-based cylinders CRDSNU, to ISO 6432, stainless steel

## Ordering – Basic design

Round cylinders to ISO 6432		
003 Piston Ø [mm]	25	
004 Stroke [mm]	Type	Part no.
10	CRDSNU-B-25-10-PPS-A-MG-A1	2159636
25	CRDSNU-B-25-25-PPS-A-MG-A1	2159637
40	CRDSNU-B-25-40-PPS-A-MG-A1	2159638
50	CRDSNU-B-25-50-PPS-A-MG-A1	2159639
80	CRDSNU-B-25-80-PPS-A-MG-A1	2159640
100	CRDSNU-B-25-100-PPS-A-MG-A1	2159641
125	CRDSNU-B-25-125-PPS-A-MG-A1	2159642
160	CRDSNU-B-25-160-PPS-A-MG-A1	2159643
200	CRDSNU-B-25-200-PPS-A-MG-A1	2159644

## Accessories



- 1 Self-aligning rod coupler CRFK  
→ [crdsnu](#)
- 2 Rod eye CRSGS → [crdsnu](#)
- 3 Rod clevis CRSG → [crdsnu](#)
- 4 Mounting kit CRSMBR → 46
- 5 Proximity switch CRSMEO-4  
→ 46
- 6 Mounting kit SMBR → [crdsnu](#)
- 7 Proximity switch CRSMT-8M  
→ [crdsnu](#)
- 8 Clevis foot CRLBN → [crdsnu](#)
- 9 Push-in fitting CRQS → [crqs](#)
- 10 One-way flow control valve CRGRLA  
→ [crdsnu](#)

4 Mounting kit CRSMBR, corrosion-resistant		
For Ø	Type	Part no.
12	CRSMBR-12	164581
16	CRSMBR-16	164582
20	CRSMBR-20	164583
25	CRSMBR-25	164584

5 Proximity switch CRSMEO-4, corrosion-resistant	
Type	Part no.
Cable length 2.5 m, N/O, 3-wire	
CRSMEO-4-K-LED-24	161775





- With self-adjusting pneumatic end-position cushioning PPS
- Easy-to-clean design
- High corrosion protection

- Selected types in accordance with ATEX directive for potentially explosive atmospheres
- [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001	002	003	004	005	006	007	008
CRDSNU	B	32		PPS	A	MG	A1

Legend:  Mandatory entry

001	Type
CRDSNU	Double-acting round cylinder, stainless steel
002	Design
B	Stock items
003	Piston Ø [mm]
32	32
004	Stroke [mm]
...	10, 25, 40, 50, 80, 100, 125, 160, 200
005	Cushioning
PPS	Pneumatic cushioning, self-adjusting at both ends

006	Position sensing
A	Via proximity switch
007	Cylinder end cap
MG	Bearing cap without mounting thread
008	Wiper ring variant
A1	Increased chemical resistance

## Product options

32 ... 100 mm Piston Ø	A1	Increased chemical resistance	K2	Extended male piston rod thread	TT	Low temperature –40 ... +80 °C
1 ... 500 mm Variable stroke	A2	Hard scraper	K3	Female piston rod thread		
P Elastic cushioning rings/plates both ends	A3	For unlubricated operation	K5	Custom piston rod thread		
PPV Pneumatic cushioning adjustable at both ends	S2	Through piston rod	K8	Extended piston rod		
MQ Alternative plain cylinder end cap, lateral connection	S6	Heat-resistant seals up to max. 120 °C				

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

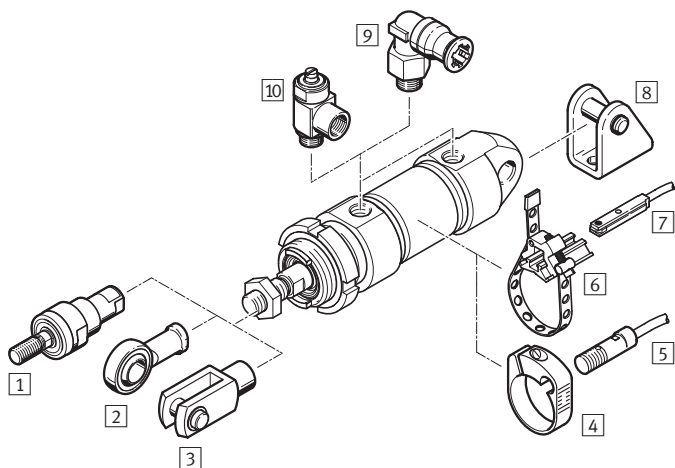
Part no.	Type
552791	CRDSNU-32-...
552792	CRDSNU-40-...
552793	CRDSNU-50-...
552794	CRDSNU-63-...

Cylinders with piston rod > Stainless-steel cylinders >  
Round cylinders CRDSNU, stainless steel

## Ordering – Basic design

Round cylinders		
003 Piston Ø [mm]	32	
004 Stroke [mm]	Type	Part no.
10	CRDSNU-B-32-10-PPS-A-MG-A1	2176399
25	CRDSNU-B-32-25-PPS-A-MG-A1	2176400
40	CRDSNU-B-32-40-PPS-A-MG-A1	2176401
50	CRDSNU-B-32-50-PPS-A-MG-A1	2176402
80	CRDSNU-B-32-80-PPS-A-MG-A1	2176403
100	CRDSNU-B-32-100-PPS-A-MG-A1	2176404
125	CRDSNU-B-32-125-PPS-A-MG-A1	2176405
160	CRDSNU-B-32-160-PPS-A-MG-A1	2176406
200	CRDSNU-B-32-200-PPS-A-MG-A1	2176407

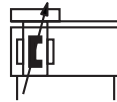
## Accessories



- 1 Self-aligning rod coupler CRFK  
→ [crdsnu](#)
- 2 Rod eye CRSGS → [crdsnu](#)
- 3 Rod clevis CRSG → [crdsnu](#)
- 4 Mounting kit CRSMBR → 48
- 5 Proximity switch CRSMEO-4  
→ 48
- 6 Mounting kit SMBR → [crdsnu](#)
- 7 Proximity switch CRSMT-8M  
→ [crdsnu](#)
- 8 Clevis foot CRLBN → [crdsnu](#)
- 9 Push-in fitting CRQS → [crqs](#)
- 10 One-way flow control valve CRGRLA  
→ [crdsnu](#)

4 Mounting kit CRSMBR, corrosion-resistant		
For Ø	Type	Part no.
32	CRSMBR-32	163888
40	CRSMBR-40	163889
50	CRSMBR-50	163890
63	CRSMBR-63	163891

5 Proximity sensor CRSMEO, corrosion-resistant	
Type	Part no.
Cable length 2.5 m, N/O, 3-wire	
CRSMEO-4-K-LED-24	161775



- Compact design: 30% smaller than the basic design DGC-G
  - Low moving dead weight
  - Without external guide, for simple drive functions
  - Symmetrical design
  - Easy assembly and installation
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
 → [www.festo.com/ex](http://www.festo.com/ex)

### Order code

001	002	003	004	005	006	007	008	009	010	011	012	
DGC	K			PPV	A						ZUB	

001	Type
DGC	Double-acting linear actuator
002	Guide
K	Compact
003	Size
...	18, 25, 32, 40, 50, 63, 80
004	Stroke [mm]
...	1 ... 8500
005	Cushioning
PPV	Pneumatic cushioning, adjustable at both ends
006	Position sensing
A	Via proximity switch
007	Basic design
GK	Standard piston
GV	Extended piston
008	Compressed air connection
-	At one end
D2	At both ends
009	Lubrication
-	Standard
H1	Lubrication approved for use in food applications

010	Moment compensator
-	None
FK	Moment compensator
011	EU certification
-	None
EX2	II 3GD
EX3	II 2G
012	Accessories
ZUB -	Accessories enclosed separately
F	Foot mounting (1 set)
...M	Central support (1 ... 10 pieces)
...Y	Slot nut for mounting slot (1 ... 10 pieces)
...B	Slot cover (1 ... 10 pieces)
...G	Proximity switch, N/O with cable, 2.5 m (1 ... 10 pieces)
...H	Proximity switch, N/O with plug (1 ... 10 pieces)
...I	Proximity switch, N/O, contactless with cable, 2.5 m (1 ... 10 pieces)
...J	Proximity switch, N/O, contactless with plug (1 ... 10 pieces)
...N	Proximity switch, N/C with cable, 7.5 m (1 ... 10 pieces)
...V	Connecting cable with plug, 2.5 m (1 ... 10 pieces)
...S	Slot cover for sensor slot (1 ... 10 pieces)

Legend:  Mandatory entry       Optional entry

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

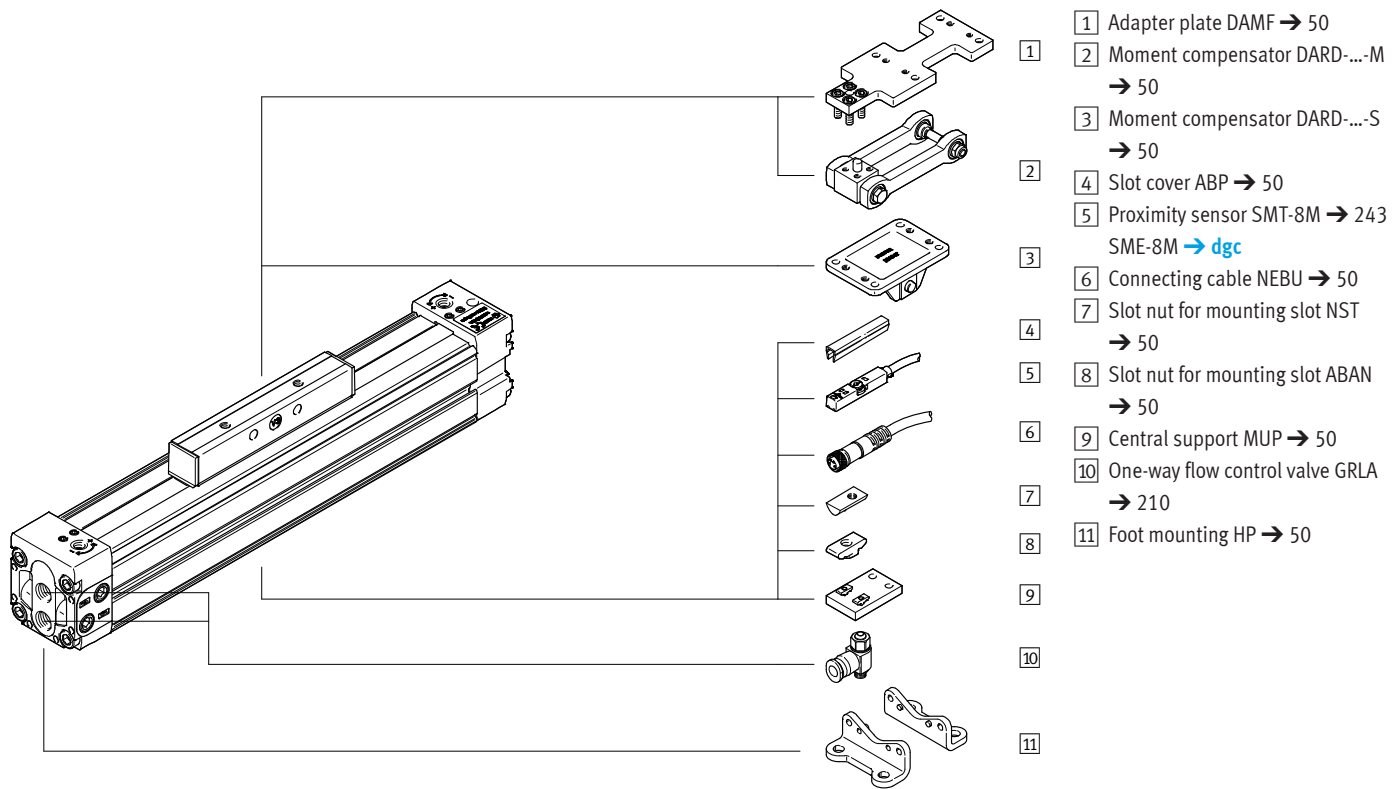
Enter the part number or the type.

Part no.	Type	Part no.	Type
1312500	DGC-K-18-...-PPV-A-...	1312504	DGC-K-50-...-PPV-A-...
1312501	DGC-K-25-...-PPV-A-...	1312505	DGC-K-63-...-PPV-A-...
1312502	DGC-K-32-...-PPV-A-...	1312506	DGC-K-80-...-PPV-A-...
1312503	DGC-K-40-...-PPV-A-...		

Rodless cylinders > Mechanically coupled cylinders > Linear drives DGC-K, double-acting

Accessories

Pneumatic drives



1 Adapter plate DAMF		
For	Type	Part no.
18	DAMF-18-FKP	2349281
25	DAMF-25-FKP	2349282
32	DAMF-32-FKP	2349283
40	DAMF-40-FKP	2349284
50	DAMF-50-FKP	2349285
63	DAMF-63-FKP	2349286
80	DAMF-80-FKP	2349287

3 Moment compensator DARD-...-S		
For	Type	Part no.
18	DARD-L1-18-S	8001411
25	DARD-L1-32-S	8001412
32	DARD-L1-32-S	8001412
40	DARD-L1-40-S	8001413
50	DARD-L1-63-S	8001414
63	DARD-L1-63-S	8001414
80	DARD-L1-80-S	8001415

7 Slot nut NST		
For	Type	Part no.
18, 25	NST-HMV-M4 <sup>2),3)</sup>	526091
32, 40	NST-5-M5	150914
50, 63, 80	NST-8-M6	150915

2) Packaging unit 10 pieces.  
3) Size 18 and 25 cannot be used with DGC-...-D2 (supply port at both ends).

9 Central support MUP		
For	Type	Part no.
18	MUP-18/25	150736
	MUP-18/25-P	1711704
25	MUP-18/25	150736
	MUP-18/25-P	1711704
32	MUP-32	150737
40	MUP-40	150738
50	MUP-50	150739
63	MUP-63	150800
80	MUP-80	158455

2 Moment compensator DARD-...-M		
For	Type	Part no.
18	DARD-L1-18-M	2349274
25	DARD-L1-25-M	2349275
32	DARD-L1-32-M	2349276
40	DARD-L1-40-M	2349277
50	DARD-L1-50-M	2349278
63	DARD-L1-63-M	2349279
80	DARD-L1-80-M	2349280

4 Slot cover ABP <sup>1)</sup>		
For	Type	Part no.
For mounting slot		
32, 40	ABP-5	151681
50, 63, 80	ABP-8	151682
For sensor slot		
18 ...	ABP-5-S1	563360
80		

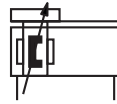
1) Packaging unit 2x 0.5 m.

8 Slot nut ABAN		
For	Type	Part no.
18, 25	ABAN-1M4-5 <sup>4)</sup>	8003032

4) Packaging unit 4 pieces.

11 Foot mounting HP		
For	Type	Part no.
18	HP-18	158472
25	HP-25	150731
32	HP-32	150732
40	HP-40	150733
50	HP-50	150734
63	HP-63	150735
80	HP-80	158453

6 Connecting cable NEBU			
Cable length	Connection right	Type	Part no.
Connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341
Connection left: straight socket, M12x1, 5-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M12G5-K-2.5-LE3	541363
5 m		NEBU-M12G5-K-5-LE3	541364
Connection left: angled socket, M12x1, 5-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M12W5-K-2.5-LE3	541367
5 m		NEBU-M12W5-K-5-LE3	541370



- Compact dimensions
  - Quick and sturdy installation and mounting
  - High precision and load carrying capacity
  - Excellent running characteristics and low air consumption
  - Precision interfaces
  - Many additional features
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

## Order code

001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016
DGC					A										+ ZUB

<b>001</b>	<b>Type</b>		<b>011</b>	<b>Additional slide, left</b>	
DGC	Double-acting linear actuator		–	None	
<b>002</b>	<b>Size</b>		KL	Additional slide, standard, left	
...	8, 12, 18, 25, 32, 40, 50, 63		<b>012</b>	<b>Additional slide, right</b>	
<b>003</b>	<b>Stroke [mm]</b>		–	None	
...	1 ... 8500		KR	Additional slide, standard, right	
<b>004</b>	<b>Guide</b>		<b>013</b>	<b>Clamping unit</b>	
G	Basic design		–	None	
GF	Plain-bearing guide		1H	1-channel holding function	
KF	Recirculating ball bearing guide		<b>014</b>	<b>Actuation type</b>	
FA	Passive guide axis		–	None	
<b>005</b>	<b>Cushioning</b>		PN	Pneumatically actuated	
P	Elastic cushioning rings/plates at both ends		<b>015</b>	<b>EU certification</b>	
PPV	Pneumatic cushioning, adjustable at both ends		–	None	
YSR	Shock absorber, self-adjusting		EX2	II 3GD	
YSRW	Shock absorber, self-adjusting, progressive		EX3	II 2G	
<b>006</b>	<b>Position sensing</b>		<b>016</b>	<b>Accessories</b>	
A	Via proximity switch		ZUB –	Accessories enclosed separately	
<b>007</b>	<b>Supply port</b>		F	Foot mounting (1 set)	
–	On the right or at both ends		...M	Profile mounting (1 ... 9 pieces)	
DL	On the left or at both ends		...B	Slot nut (1 ... 9 pieces)	
<b>008</b>	<b>Lubrication</b>		FK	With moment compensator	
–	Standard		...G	Proximity switch, cable 2.5 m (1 ... 9 pieces)	
H1	Lubrication approved for use in food applications		...H	Proximity switch, M8 plug (1 ... 9 pieces)	
<b>009</b>	<b>Slide</b>		...I	Proximity switch, contactless, cable 2.5 m (1 ... 9 pieces)	
–	Standard		...J	Proximity switch, contactless, M8 plug (1 ... 9 pieces)	
GP	Protected recirculating ball bearing guide		...V	Connecting cable, M8, 2.5 m (1 ... 9 pieces)	
<b>010</b>	<b>Lubrication function</b>		...L	Slot cover for sensor slot (1 ... 9 pieces)	
–	Standard		YWZ1	Variable end position, at one end	
C	Lubrication adapter		YWZ2	Variable end position, at both ends	
			Z1	1 intermediate position	
			Z2	2 intermediate positions	
			Z3	3 intermediate positions	
			O	Express waiver – no operating instructions to be included	

Legend:  Mandatory entry  Optional entry

Rodless cylinders > Mechanically coupled cylinders >  
 Linear drives DGC, double-acting

## Product options

N NPT thread

### Configurable product

This product and all its product options can be ordered online via the configurator:

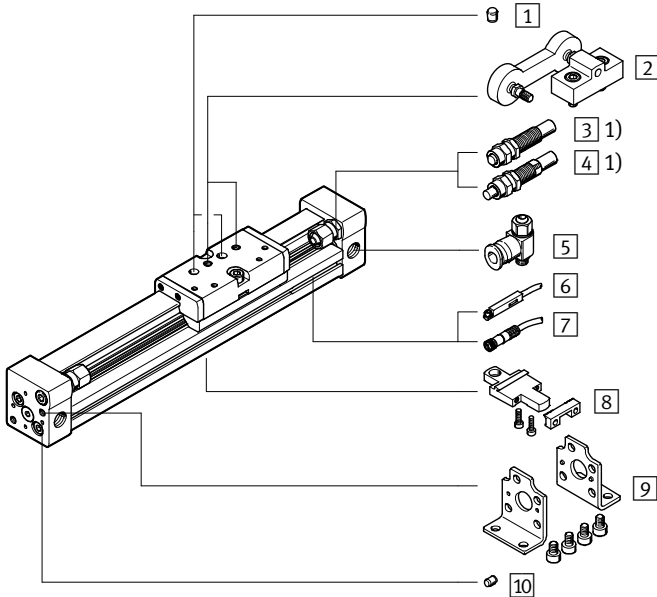
→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

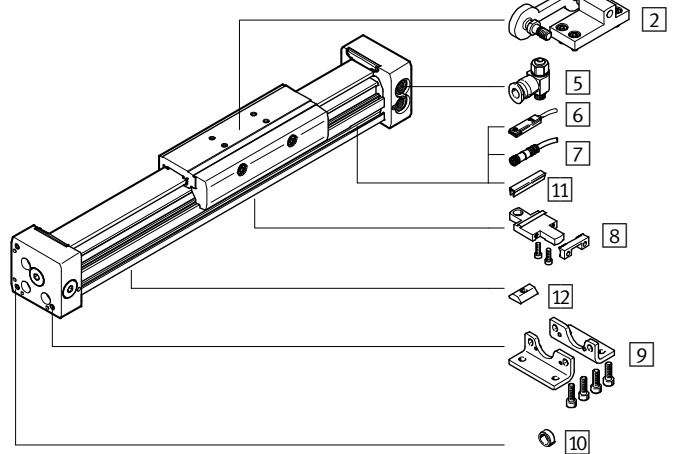
Part no.	Type	Part no.	Type
530906	DGC-8-...	532448	DGC-32-...
530907	DGC-12-...	532449	DGC-40-...
532446	DGC-18-...	532450	DGC-50-...
532447	DGC-25-...	532451	DGC-63-...

## Accessories

DGC-8/-12



DGC-18 ... 63



- 1 Centring pin ZBS<sup>1)</sup>
- 2 Moment compensator FKC → 53
- 3 Shock absorber YSR → ysr
- 4 Shock absorber YSRW-DGC → 53
- 5 One-way flow control valve GRLA → 210

- 6 Proximity switch  
 SME-8M → dgc  
 SMT-8M → 243  
 SME-10M → dgc  
 SMT-10M → 246

- 7 Connecting cable NEBU → 53
- 8 Profile mounting MUC → 53
- 9 Foot mounting HPC → 53
- 10 Centring pin/sleeve ZBS/ZBH → 53

- 11 Slot cover ABP-S → 53
- 12 Slot nut HMBN → 53

1) Included in the scope of delivery of the drive

## Accessories

## 2 Moment compensator FKC

For Ø	Type	Part no.
8, 12	<b>FKC-8/12</b>	<b>529350</b>
18	<b>FKC-18</b>	<b>538714</b>
25	<b>FKC-25</b>	<b>538715</b>
32	<b>FKC-32</b>	<b>538961</b>
40	<b>FKC-40</b>	<b>538962</b>
50, 63	<b>FKC-50/63</b>	<b>545240</b>

## 4 Shock absorber YSRW-DGC

For Ø	Type	Part no.
For DGC-G		
8	<b>YSRW-DGC-8</b>	<b>540344</b>
12	<b>YSRW-DGC-12</b>	<b>540345</b>
For DGC-GF		
18	<b>YSRW-DGC-18-GF</b>	<b>540346</b>
25	<b>YSRW-DGC-25-GF</b>	<b>540348</b>
32	<b>YSRW-DGC-32-GF</b>	<b>540350</b>
40	<b>YSRW-DGC-40-GF</b>	<b>540352</b>
50	<b>YSRW-DGC-40/50-B</b>	<b>1232870</b>
63	<b>YSRW-DGC-63</b>	<b>543069</b>
For DGC-KF		
18	<b>YSRW-DGC-18-KF</b>	<b>540347</b>
25	<b>YSRW-DGC-25-KF</b>	<b>540349</b>
32	<b>YSRW-DGC-32-KF</b>	<b>540351</b>
40, 50	<b>YSRW-DGC-40/50-B</b>	<b>1232870</b>
63	<b>YSRW-DGC-63</b>	<b>543069</b>

## 7 Connecting cable NEBU

Cable length	Connection right	Type	Part no.
Connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	<b>NEBU-M8G3-K-2.5-LE3</b>	<b>541333</b>
5 m		<b>NEBU-M8G3-K-5-LE3</b>	<b>541334</b>
Connection left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	<b>NEBU-M8W3-K-2.5-LE3</b>	<b>541338</b>
5 m		<b>NEBU-M8W3-K-5-LE3</b>	<b>541341</b>
Connection left: straight socket, M12x1, 5-pin			
2.5 m	Cable, open end, 3-wire	<b>NEBU-M12G5-K-2.5-LE3</b>	<b>541363</b>
5 m		<b>NEBU-M12G5-K-5-LE3</b>	<b>541364</b>
Connection left: angled socket, M12x1, 5-pin			
2.5 m	Cable, open end, 3-wire	<b>NEBU-M12W5-K-2.5-LE3</b>	<b>541367</b>
5 m		<b>NEBU-M12W5-K-5-LE3</b>	<b>541370</b>

## 8 Profile mounting MUC

For Ø	Type	Part no.
8	<b>MUC-8</b>	<b>526384</b>
12	<b>MUC-12</b>	<b>526387</b>
18	<b>MUC-18</b>	<b>531752</b>
25	<b>MUC-25</b>	<b>531753</b>
32	<b>MUC-32</b>	<b>531754</b>
40	<b>MUC-40</b>	<b>531755</b>
50	<b>MUC-50</b>	<b>531756</b>
63	<b>MUC-63</b>	<b>531757</b>

## 9 Foot mounting HPC

For Ø	Type	Part no.
8	<b>HPC-8</b>	<b>526385</b>
12	<b>HPC-12</b>	<b>526388</b>
18	<b>HPC-18</b>	<b>533667</b>
25	<b>HPC-25</b>	<b>533668</b>
32	<b>HPC-32</b>	<b>533669</b>
40	<b>HPC-40</b>	<b>533670</b>
50	<b>HPC-50</b>	<b>545236</b>
63	<b>HPC-63</b>	<b>545237</b>

10 Centring pin/sleeve ZBS/ZBH<sup>1)</sup>

For Ø	Description	Type	Part no.
For DGC-G			
8, 12	For slide	<b>ZBS-5</b>	<b>150928</b>
8, 12	For end cap	<b>ZBS-2</b>	<b>525273</b>
50, 63		<b>ZBH-9-B</b>	<b>8137184</b>
For DGC-GF			
18	For slide	<b>ZBS-5</b>	<b>150928</b>
25 ... 63		<b>ZBH-9-B</b>	<b>8137184</b>
50, 63	For end cap	<b>ZBH-9-B</b>	<b>8137184</b>
For DGC-KF			
8, 12, 18	For slide	<b>ZBS-5</b>	<b>150928</b>
25 ... 63		<b>ZBH-9-B</b>	<b>8137184</b>
8, 12	For end cap	<b>ZBH-2</b>	<b>525273</b>
18		<b>ZBS-5</b>	<b>150928</b>
25 ... 63		<b>ZBH-9-B</b>	<b>8137184</b>

1) Packaging unit 10 pieces.

11 Slot cover ABP-S<sup>2)</sup>

For Ø	Type	Part no.
For sensor slot		
18 ... 63	<b>ABP-5-S</b>	<b>151680</b>

2) Packaging unit 2x 0.5 m.

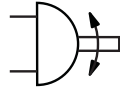
12 Slot nut HMBN<sup>3)</sup>

For Ø	Type	Part no.
For mounting slot		
25, 32, 40	<b>HMBN-5-1M5</b>	<b>547264</b>
50, 63	<b>HMBN-5-2M5</b>	<b>186566</b>

3) Packaging unit 10 pieces.

Semi-rotary drives > Semi-rotary drives with rotary vane >

## Semi-rotary drives DRVS, double-acting



- Modern and compact design
- Lighter than other semi-rotary drives
- Housing protected against splash water and dust

- Selected types in accordance with ATEX directive for potentially explosive atmospheres
- [www.festo.com/ex](http://www.festo.com/ex)

### Order code – Basic design

001 002 003 004 005  
**DRVS** -  -  - **P** -

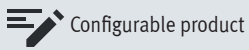
Legend:  Mandatory entry  Optional entry

001	Type
DRVS	Double-acting semi-rotary drive
002	Size
...	6, 8, 12, 16, 25, 32, 40
003	Nominal swivel angle [°]
...	90, 180, 270

004	Cushioning
P	Elastic cushioning rings/plates at both ends
005	EU certification
-	None

### Product options

EX4 EU certification (II 2GD)



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/drvs](http://www.festo.com/catalogue/drvs)

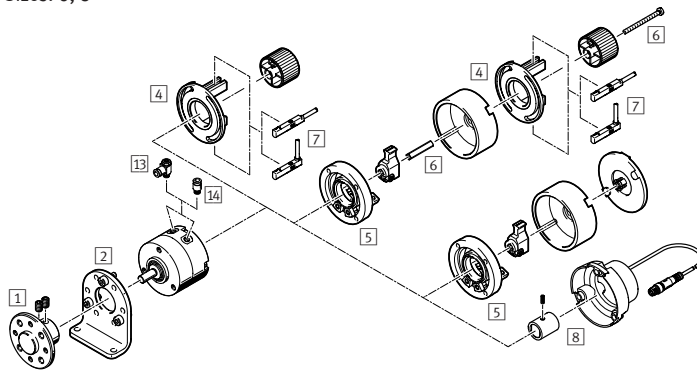
### Ordering – Basic design

003 Nominal swivel angle [°]	002 Size						
	6	8	12	16	25	32	40
	004 Elastic cushioning rings/plates at both ends						
	P	P	P	P	P	P	P
90	1845706	1845708	1845710	1845713	1845716	1845719	1845722
180	1845707	1845709	1845711	1845714	1845717	1845720	1845723
270			1845712	1845715	1845718	1845721	1845724

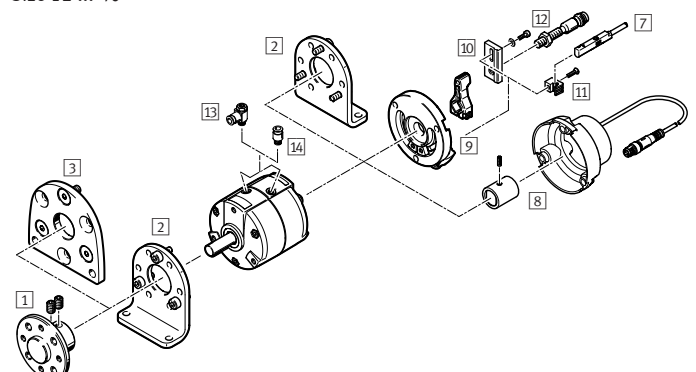


## Accessories

Sizes: 6, 8



Size 12 ... 40



- 1 Push-on flange FWSR/  
DARF → [drvs](#)
- 2 Foot mounting DAMH<sup>1)</sup> → 55
- 3 Flange mounting DAMF → [drvs](#)
- 4 Mounting kit  
WSM-...-SME-10 → 55
- 5 Stop kit KSM → 55
- 6 Adapter kit DADP-AK → 55
- 7 Proximity switch SME-10 → [drvs](#)  
SMT-10M → 246
- 8 Position sensor SRBS → [drvs](#)
- 9 Stop kit DADP-ES → 55
- 10 Sensor bracket SL-DSM-S → [drvs](#)
- 11 Sensor bracket SL-DSM-B → [drvs](#)
- 12 Proximity switch SIEN → 55  
Connecting cable NEBU → 55
- 13 One-way flow control valve GRLA  
→ 55, 210
- 14 Push-in fitting QS → 319

1) Size 6, 8: The foot mounting can only be mounted at the front.

2 Foot mounting DAMH		
For size	Type	Part no.
6	DAMH-Q12-6	3371840
8	DAMH-Q12-8	3371841
12	DAMH-Q12-12	3371842
16	DAMH-Q12-16	3371843
25	DAMH-Q12-25	3371844
32	DAMH-Q12-32	3371845
40	DAMH-Q12-40	3371846

4 Mounting kit WSM		
For size	Type	Part no.
6	WSM-6-SME-10	173205
8	WSM-8-SME-10	173206

5 Stop kit KSM		
For size	Type	Part no.
6	KSM-6	175833
8	KSM-8	175834

6 Adapter kit DADP-AK		
For size	Type	Part no.
6	DADP-AK-Q1-6	3617044
8	DADP-AK-Q1-8	3617045

9 Stop kit DADP-ES		
For size	Type	Part no.
12	DADP-ES-Q12-12	2536502
16	DADP-ES-Q12-16	2536503
25	DADP-ES-Q12-25	2536504
32	DADP-ES-Q12-32	2536505
40	DADP-ES-Q12-40	2536506

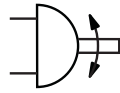
12 Inductive proximity sensor SIEN			
For size	Connection right	Type	Part no.
N/O, M5			
12 ... 40	PNP, cable, 2.5 m	SIEN-M5B-PS-K-L	150370
	PNP, plug	SIEN-M5B-PS-S-L	150371
N/O contact, M8			
12 ... 40	PNP, cable, 2.5 m	SIEN-M8B-PS-K-L	150386
	PNP, plug	SIEN-M8B-PS-S-L	150387

12 Connecting cable NEBU			
Cable length	Connection right	Type	Part no.
Connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

13 One-way flow control valves GRLA		
For size	Type	Part no.
6, 8	GRLA-M3-QS-3	175041

Semi-rotary drives > Semi-rotary drives with rack and pinion >

## Twin-piston semi-rotary drives DRRD, double-acting



- Extremely accurate in the end positions
- Very high load-bearing capacity
- Very good axial run-out at the flanged shaft
- High mass moments of inertia
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

### Order code – Basic design

001	002	003	004	005	006
DRRD	-	180	-	FH	-
					A

001	Type
DRRD	Double-acting semi-rotary drive, twin piston
002	Size
...	16, 20, 25, 32, 35, 40
003	Nominal swivel angle
180	180°
004	Output shaft
FH	Flanged shaft, hollow

Legend:  Mandatory entry

005	Cushioning
P	Elastic cushioning rings/plates at both ends
Y9	Linear shock absorber, self-adjusting at both ends
006	Position sensing
A	Via proximity switch

### Product options

8, 10, 12, 50, 63 Sizes	P2E2	Energy through-feed: pneumatic, 2 ducts; electric, 2 signals	Y10	Linear shock absorber, self-adjusting at both ends, hard	PS1	1 intermediate position
P2 Energy through-feed: pneumatic, 2 ducts	P4E6	Energy through-feed: pneumatic, 4 ducts; electric, 6 signals	Y12	Linear shock absorber, self-adjusting at both ends, external	E1	End-position locking at both ends
P4 Energy through-feed: pneumatic, 4 ducts	P8E8	Energy through-feed: pneumatic, 8 ducts; electric, 8 signals	Y14	Linear shock absorber, self-adjusting at both ends, soft	R	Sensor mounting, external: mounting rail for proximity sensor
P8 Energy through-feed: pneumatic, 8 ducts			EX4	EU certification (II 2 GD)	SG	Splash-proof design
					DN	Without operating instructions

Configurable product

This product and all its product options can be ordered online via the configurator:

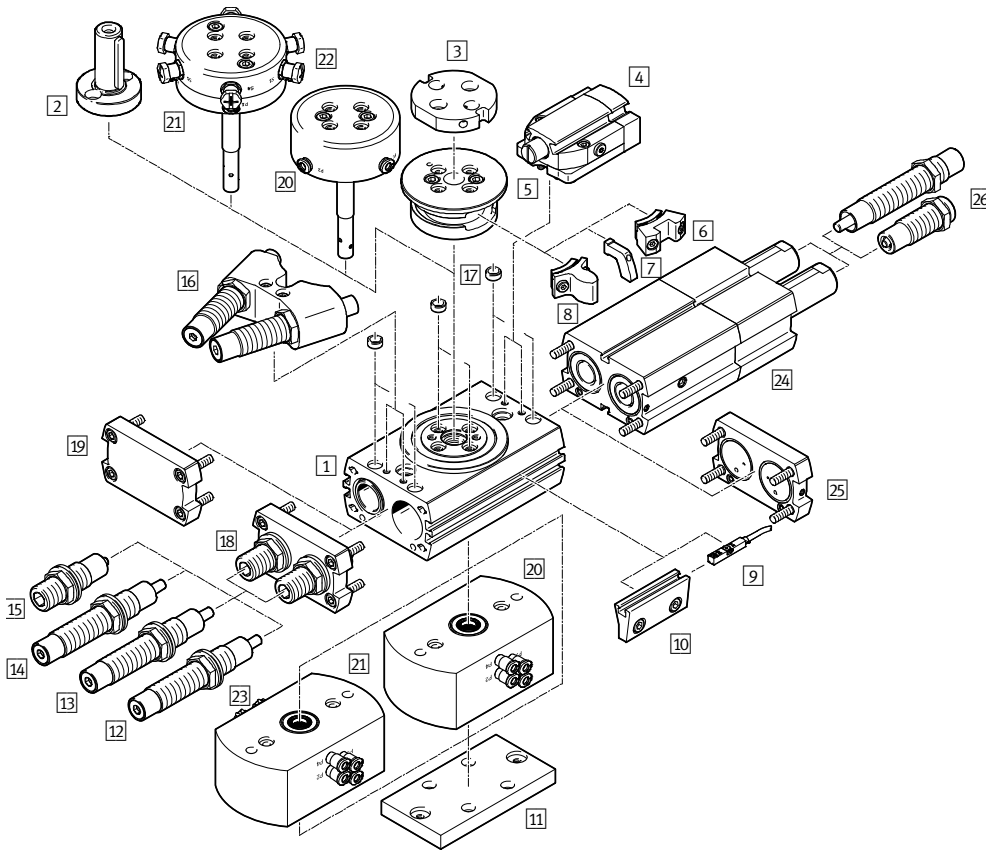
→ [www.festo.com/catalogue/drrd](http://www.festo.com/catalogue/drrd)

### Ordering – Basic design

005 Elastic cushioning rings/plates at both ends P		
002 Size	Type	Part no.
16	DRRD-16-180-FH-PA	1577238
20	DRRD-20-180-FH-PA	1395606
25	DRRD-25-180-FH-PA	1359980
32	DRRD-32-180-FH-PA	1578512
35	DRRD-35-180-FH-PA	1526825
40	DRRD-40-180-FH-PA	1503269

005 Linear shock absorber, self-adjusting at both ends Y9		
002 Size	Type	Part no.
16	DRRD-16-180-FH-Y9A	1644389
20	DRRD-20-180-FH-Y9A	1427379
25	DRRD-25-180-FH-Y9A	1360248
32	DRRD-32-180-FH-Y9A	1578518
35	DRRD-35-180-FH-Y9A	1547102
40	DRRD-40-180-FH-Y9A	1526986

Accessories



- 1 Semi-rotary drive DRRD → 56
- 2 Drive shaft DARF-Q11 → drrd
- 3 Adapter kit DHAA-G for gripper → drrd
- 4 Clamping unit DADL-...-EL, included in the scope of delivery: 4, 5, 2x6 → drrd  
End-position locking, product option E1
- 5 Flange assembly for mounting components 6, 7 and 8
- 6 Clamping component DADL-EC → drrd
- 7 Switch lug DASI-...-SL → drrd
- 8 Stop element, product option Y12
- 9 Proximity switch SME-8, SME-/SMT-8M → 57  
Position transmitter SMAT-8M → drrd

- 10 Sensing kit DASI-...-KT → drrd  
Included in the scope of delivery: 5, 2x7, 2x10  
Sensor mounting, product option R
- 11 Adapter kit DHAA-D for drives → drrd
- 12 Shock absorber, product option Y9
- 13 Shock absorber, hard, product option Y10
- 14 Shock absorber, soft, product option Y14
- 15 Shock absorber, product option P
- 16 Shock absorber, external, product option Y12, Included in the scope of delivery: 5, 2x8, 16
- 17 Centring sleeve ZBH → drrd
- 18 End cap: in combination with elastic cushioning P or shock absorber Y9, Y10, Y14
- 19 End cap: in combination with external shock absorber Y12
- 20 Energy through-feed, pneumatic, product option P2, P4, P8
- 21 Energy through-feed, pneumatic/electric, product option P2E2, P4E6, P8E8
- 22 Connecting cable NEBU from the energy through-feed to the proximity sensor → 57
- 23 Connecting cable NEBU from the energy through-feed to the controller → 57
- 24 Intermediate position, product option PS1
- 25 Connection cap for supply ports
- 26 Shock absorber DYSC-Y1F → drrd  
One-way flow control valve GRLA → 57

9 Proximity switch SME-8, inserted in the slot from the side

Description	Type	Part no.
Magnetic reed		
Cable, 2.5 m, 3-wire	SME-8-K-LED-24	150855
Plug M8x1, 3-pin	SME-8-S-LED-24	150857

9 Proximity switch SME-8M/SMT-8M, inserted in the slot from above

Description	Type	Part no.
Magnetic reed		
Cable, 2.5 m, 3-wire	SME-8M-DS-24V-K-2,5-OE	543862
Cable, 5 m, 3-wire	SME-8M-DS-24V-K-5,0-OE	543863
Plug M8x1, 3-pin	SME-8M-DS-24V-K-0,3-M8D	543861
Magneto-resistive		
Cable, 2.5 m, 3-wire	SMT-8M-A-PS-24V-E-2,5-OE	574335
Plug M8x1, 3-pin	SMT-8M-A-PS-24V-E-0,3-M8D	574334

22/23 Connecting cable NEBU, input

Cable length	Connection right	Type	Part no.
For size 16/20, connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
For size 25/32/35, connection left: straight socket, M8x1, 4-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M8G4-K-2.5-LE4	541342
5 m		NEBU-M8G4-K-5-LE4	541343
For size 40, connection left: straight socket, M12x1, 5-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M12G5-K-2.5-LE4	550326
5 m		NEBU-M12G5-K-5-LE4	541328

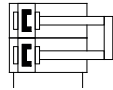
One-way flow control valve GRLA

For size	Type	Part no.
To set the swivel speed		
16 <sup>1)</sup> , 20, 25	GRLA-M5-QS-3-RS-D	197576
	GRLA-M5-QS-4-RS-D	197577
32, 35, 40	GRLA-1/8-RS-B	151169

1) Strongly recommended for this size.

Guided drives > Drives with slide >

## Mini slides DGST, double-acting



- Very compact design
- Shortest mini slide on the market
- Powerful twin-piston drive
- Very precise recirculating ball bearing guide
- Yoke plate and slide manufactured from a single piece
- Easy end-position adjustment
- Short cycle times and high effective power with twin piston
- High precision and robustness

### Order code – Basic design

001 002 003 004 005

DGST -  -  -  A

Legend:  Mandatory entry

001	Type
DGST	Double-acting mini slide
002	Size
...	6, 8, 10, 12, 16, 20, 25
003	Stroke [mm]
...	10, 20, 30, 40, 50, 80, 100, 125, 150, 200

004	Cushioning
E1	Elastomer cushioning, at both ends, stroke not adjustable
P	Elastic cushioning rings/plates at both ends
Y12	Linear shock absorber, self-adjusting at both ends, external
005	Position sensing
A	Via proximity switch

### Product options

L	Version mirror-imaged	Cushioning		Lubrication	
F1A	Recommended for production facilities for manufacturing lithium-ion batteries	E	Elastomer cushioning, short, on both sides	H1	Food-safe lubrication
		P1	Elastomer cushioning, adjustable on both sides, with fixed stop		

Configurable product

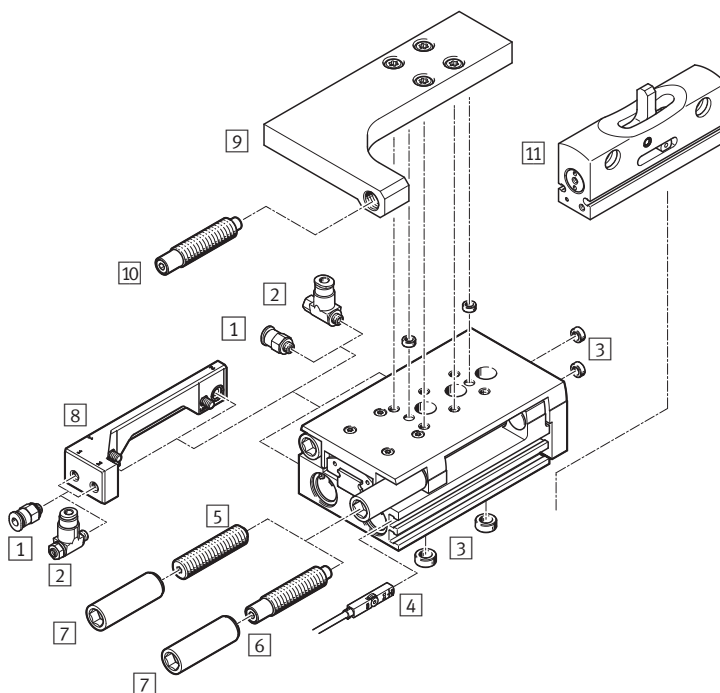
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/dgst](http://www.festo.com/catalogue/dgst)

## Ordering – Basic design

003 Stroke [mm]	002 Size						
	6	8	10	12	16	20	25
004 Cushioning E1: elastomer cushioning, at both ends, stroke not adjustable – 005 Position sensing A: via proximity sensor							
10	8078828	8078833	8078839	8078846	8078853	8078862	8078872
20	8078829	8078834	8078840	8078847	8078854	8078863	8078873
30	8078830	8078835	8078841	8078848	8078855	8078864	8078874
40	8078831	8078836	8078842	8078849	8078856	8078865	8078875
50	8078832	8078837	8078843	8078850	8078857	8078866	8078876
80		8078838	8078844	8078851	8078858	8078867	8078877
100			8078845	8078852	8078859	8078868	8078878
125					8078860	8078869	8078879
150					8078861	8078870	8078880
200						8078871	8078881
004 Cushioning P: elastic cushioning rings/plates at both ends – 005 Position sensing A: via proximity sensor							
10	8085105	8085110	8085116	8085123	8085130	8085139	8085149
20	8085106	8085111	8085117	8085124	8085131	8085140	8085150
30	8085107	8085112	8085118	8085125	8085132	8085141	8085151
40	8085108	8085113	8085119	8085126	8085133	8085142	8085152
50	8085109	8085114	8085120	8085127	8085134	8085143	8085153
80		8085115	8085121	8085128	8085135	8085144	8085154
100			8085122	8085129	8085136	8085145	8085155
125					8085137	8085146	8085156
150					8085138	8085147	8085157
200						8085148	8085158
004 Cushioning Y12: linear shock absorber, self-adjusting at both ends, external – 005 Position sensing A: via proximity sensor							
30	8085159	8085162	8085166	8085171	8085176	8085183	8085191
40	8085160	8085163	8085167	8085172	8085177	8085184	8085192
50	8085161	8085164	8085168	8085173	8085178	8085185	8085193
80		8085165	8085169	8085174	8085179	8085186	8085194
100			8085170	8085175	8085180	8085187	8085195
125					8085181	8085188	8085196
150					8085182	8085189	8085197
200						8085190	8085198

## Accessories



- 1 Push-in fitting QSM → 60
- 2 One-way flow control valve GRLA → 60
- 3 Centring sleeve ZBH, centring pin ZBS → 60
- 4 Proximity switch SMT-10M/SMT-8M → 60  
Position transmitter SMAT-8M/SDAT → [dgst](#)
- 5 Shock absorber DYEF (included in the scope of delivery of the mini slide DGST) → 60
- 6 Shock absorber DYSS (included in the scope of delivery of the mini slide DGST) → 60
- 7 Threaded sleeve included in the scope of delivery of the shock absorber [5/6](#)
- 8 Connection set DADG-AK-G8 for axial connection of compressed air tubing → [dgst](#)
- 9 Shock absorber retainer DADP → [dgst](#)
- 10 Cushioning Y12 → [dgst](#)
- 11 Intermediate-position module DADM → [dgst](#)

Guided drives > Drives with slide >

## Mini slides DGST, double-acting

01

Pneumatic drives

1 Push-in fitting QSM		
For size	Type	Part no.
For connecting compressed air tubing with standard outside diameters		
6	QSM-M3-4	153303
8, 10, 12, 16	QSM-M5-4	153304
20, 25	QSM-1/8-6	153307

2 One-way flow control valve GRLA		
For size	Type	Part no.
For regulating speed		
6	GRLA-M3-QS-3	175041
8, 10, 12, 16	GRLA-M5-QS-6-D	193139
20, 25	GRLA-1/8-QS-8-D	193145

3 Centring sleeve ZBH <sup>1)</sup> /centring pin ZBS <sup>1)</sup>		
For size	Type	Part no.
For centring loads and attachments on the slide		
6, 8, 10, 12, 16	ZBH-5-B	8146543
20, 25	ZBH-12-B	8137185
For centring loads and attachments on the yoke plate		
6	ZBS-2	525273
8, 10	ZBH-5-B	8146543
12, 16	ZBH-7-B	8146544
20, 25	ZBH-12-B	8137185
For centring the mini slide during mounting		
6, 8	ZBH-5-M4	8119593
10, 12	ZBH-7-B	8146544
16	ZBH-9-B	8137184
20, 25	ZBH-12-B	8137185

1) Packaging unit 10 pieces

4 Proximity switch, N/O, magneto-resistive SMT-10M			
For size	Description	Type	Part no.
PNP, for round slot, inserted in the slot from above			
6, 8, 10, 12	Cable, 3-wire, lengthwise, 2.5 m	SMT-10M-PS-24V-E-2,5-L-OE	551373
	Plug M8x1, 3-pin, lengthwise, 0.3 m	SMT-10M-PS-24V-E-0,3-L-M8D	551375
	Plug M8x1, 3-pin, crosswise, 0.3 m	SMT-10M-PS-24V-E-0,3-Q-M8D	551376

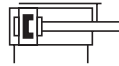
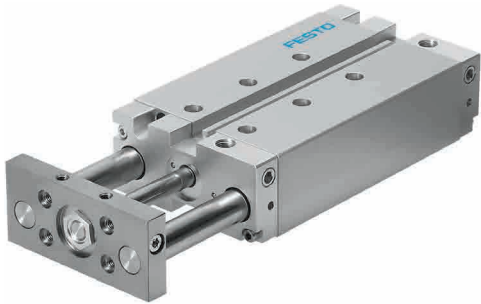
4 Proximity switch, N/O, magneto-resistive SMT-8M			
For size	Description	Type	Part no.
PNP, for T-slot, inserted in the slot from above, flush with the cylinder profile, short design			
16, 20, 25	Cable, 3-wire, 2.5 m	SMT-8M-A-PS-24V-E-2,5-OE	574335
	Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-PS-24V-E-0,3-M8D	574334
NPN, for T-slot, inserted in the slot from above, flush with the cylinder profile, short design			
16, 20, 25	Cable, 3-wire, 2.5 m	SMT-8M-A-NS-24V-E-2,5-OE	574338
	Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-NS-24V-E-0,3-M8D	574339

Connecting cable NEBU			
Cable length	Connection right	Type	Part no.
Connection left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

5 Shock absorber DYEF <sup>2)</sup>		
For size	Type	Part no.
For DGST-....P, elastic cushioning at both ends, self-adjusting, with end-position adjustment		
6	DYEF-G8-M4-Y1	8073902
8	DYEF-G8-M5-Y1	8073903
10	DYEF-G8-M6-Y1	8073904
12	DYEF-G8-M8-Y1	8073905
16	DYEF-G8-M10-Y1	8073906
20	DYEF-G8-M12-Y1	8073907
25	DYEF-G8-M14-Y1	8073908

6 Shock absorber DYSS <sup>2)</sup> with fixed stop		
For size	Type	Part no.
For DGST-....Y12, shock absorbers at both ends, self-adjusting, with end-position adjustment		
6	DYSS-G8-2-4-Y1F	8073911
8	DYSS-G8-3-4-Y1F-G2	8111383
10	DYSS-G8-4-4-Y1F-G2	8111384
12	DYSS-G8-5-5-Y1F	8073914
16	DYSS-G8-7-5-Y1F	8073915
20	DYSS-G8-8-8-Y1F	8073916
25	DYSS-G8-10-10-Y1F	8073917

2) Scope of delivery: 1 cushioning component and 1 threaded sleeve Included in the scope of delivery of the mini slide DGST



- Drive and guide unit in a single housing
- Minimal space requirement
- Sturdy and precise
- Plain or recirculating ball bearing guide
- High resistance to torques and lateral forces
- Wide range of applications

- Selected types in accordance with ATEX directive for potentially explosive atmospheres
- [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001 002 003 004 005 006  
**DFM** -  -  - **P** - **A** -

Legend:  Mandatory entry

001	Type
<b>DFM</b>	Double-acting guided drive
002	Piston Ø [mm]
...	6, 10, 12, 16, 20, 25, 32, 40, 50, 63
003	Stroke [mm]
...	5, 10, 15, 20, 25, 30, 40, 50, 80, 100, 125, 160, 200
004	Cushioning
<b>P</b>	Elastic cushioning rings/plates at both ends

005	Position sensing
<b>A</b>	Via proximity switch
006	Guide
<b>GF</b>	Plain-bearing guide
<b>KF</b>	Recirculating ball bearing guide


## Product options

80, 100 mm Piston Ø  
 10 ... 400 mm Variable stroke

PPV Pneumatic cushioning adjustable at both ends  
 YSRW Self-adjusting, progressive shock absorber, at both ends

F1A Recommended for production facilities for manufacturing lithium-ion batteries  
 S6 Heat-resistant seals up to max. 120 °C  
 AJ Precision adjustment in the end positions, advanced

EJ Precision adjustment in the end positions, retracted  
 EX3 II 2G to EU Explosion Protection Directive (ATEX)

 Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/dfm](http://www.festo.com/catalogue/dfm)

Guided drives > Drives with guide rods >

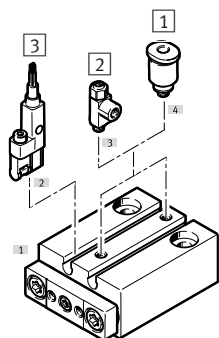
Guided drives DFM, double-acting

Ordering – Basic design

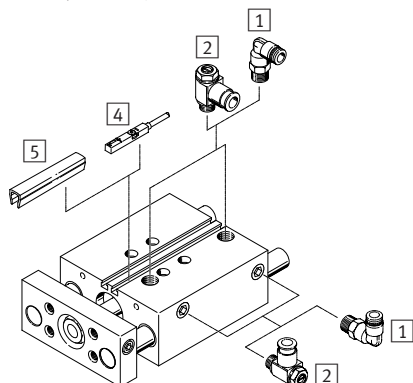
003 Stroke [mm]	002 Piston Ø [mm]									
	6	10	12	16	20	25	32	40	50	63
	004 Cushioning P: elastic cushioning rings/plates at both ends – 005 Position sensing A: via proximity switch – 006 Plain-bearing guide									
	P – A – GF	P – A – GF	P – A – GF	P – A – GF	P – A – GF	P – A – GF	P – A – GF	P – A – GF	P – A – GF	P – A – GF
5	4149944	4154768								
10	4149945	4154769	170824	170832						
15	4149946	4154770								
20	4149947	4154799	170825	170833	170840	170847	170854			
25			170826	170834	170841	170848	170855	170864	170871	170878
30			170827	170835	170842	170849	170856			
40			170828	170836	170843	170850	170857			
50			170829	170837	170844	170851	170858	170865	170872	170879
80			170830	170838	170845	170852	170859	170866	170873	170880
100			170831	170839	170846	170853	170860	170867	170874	170881
125							170861	170868	170875	170882
160							170862	170869	170876	170883
200							170863	170870	170877	170884
	004 Cushioning P: elastic cushioning rings/plates at both ends – 005 Position sensing A: via proximity switch – 006 Recirculating ball bearing guide									
		P – A – KF	P – A – KF	P – A – KF	P – A – KF	P – A – KF	P – A – KF	P – A – KF	P – A – KF	P – A – KF
10		170899	170907							
20		170900	170908	170915	170922	170929				
25		170901	170909	170916	170923	170930	170939	170946	170953	
30		170902	170910	170917	170924	170931				
40		170903	170911	170918	170925	170932				
50		170904	170912	170919	170926	170933	170940	170947	170954	
80		170905	170913	170920	170927	170934	170941	170948	170955	
100		170906	170914	170921	170928	170935	170942	170949	170956	
125						170936	170943	170950	170957	
160						170937	170944	170951	170958	
200						170938	170945	170952	170959	

Accessories

Piston Ø 6, 10 mm



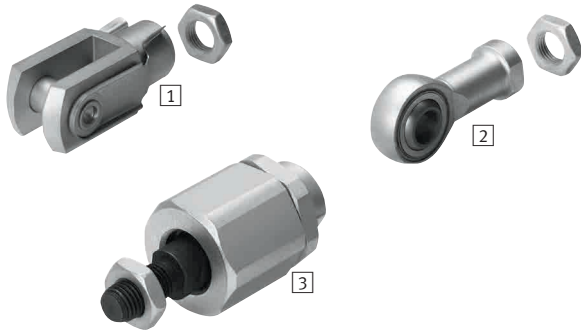
Piston Ø 12 ... 63 mm



- 1 Push-in fitting QSM/QS → 317, 319
- 2 One-way flow control valve GRLA → 210
- 3 Proximity switch SMT-10G → dfm
- 4 Proximity switch SME-8M → dfm  
SMT-8M → 243  
SME-/SMT-8 → dfm
- 5 Slot cover ABP-5-S → dfm

Centring sleeves ZBH for piston Ø 12 ... 63 mm (included in the scope of delivery) → dfm  
Adapters for drive/drive combinations → dfm





- Coordinated with Festo's cylinder range
- Versatile combinations
- Sturdy and functional
- Stainless-steel variants

- 1 Rod clevis SG: permits a swivelling movement of the cylinder in one plane
- 2 Rod eye SGS: with spherical bearing
- 3 Self-aligning rod coupler FK: for compensating radial and angular deviations

## Order code

001      002

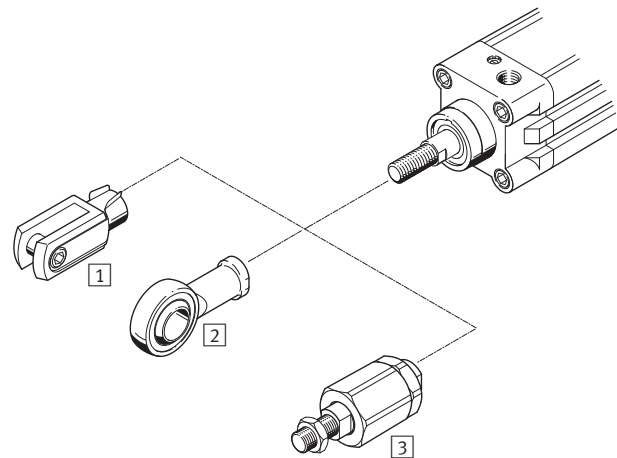
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Legend:  Mandatory entry

001	Type
SG	Rod clevis
SGS	Rod eye
FK	Self-aligning rod coupler

002	Piston rod thread
M4	Male thread M4
M6	Male thread M6
M8	Male thread M8
M10x1,25	Male thread M10x1.25
M12x1,25	Male thread M12x1.25
M16x1,5	Male thread M16x1.5
M20x1,5	Male thread M20x1.5
M36x2	Male thread M36x2



## Product options

Piston rod thread

M10, M12, M16, M27x2, M36x2, M42x2, M48x2

- CRSG Rod clevis in corrosion- and acid-resistant design, conforms to ISO 8140 → [crsg](#)
- CRSGS Rod eye in corrosion- and acid-resistant design, conforms to ISO 12240-4 dimensional series K → [crsgs](#)
- CRFK Self-aligning rod coupler in corrosion- and acid-resistant design → [crfk](#)

Configurable product

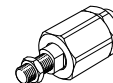
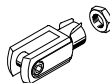
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/sgs](http://www.festo.com/catalogue/sgs)

Cylinder mounting parts and accessories for pneumatic drives >

Piston rod attachments SG, SGS, FK

Ordering

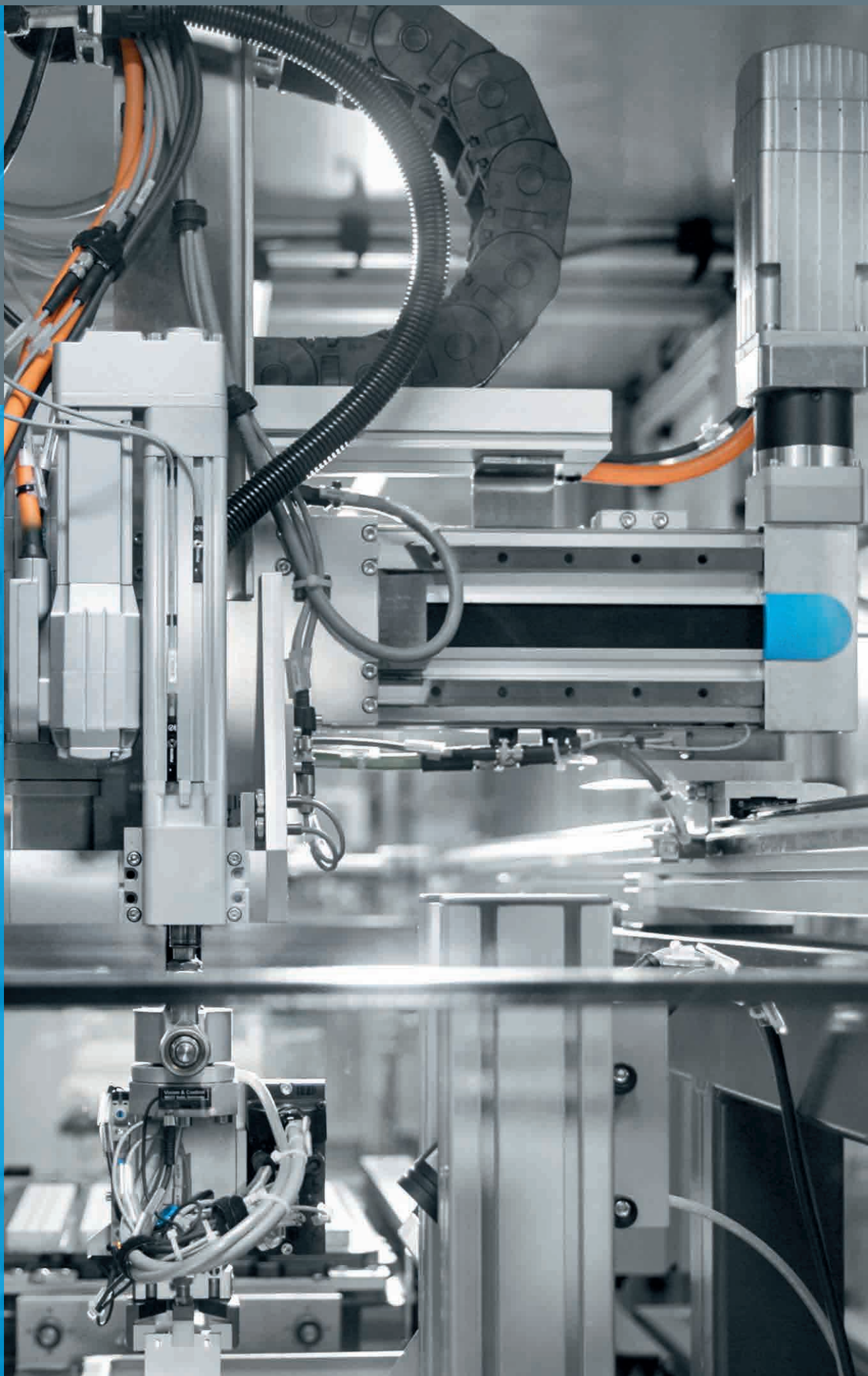


For cylinder	Piston Ø [mm]	002 Piston rod thread	001 Type		
			1 SG	2 SGS	3 FK
ADN → 42	16	M6	3110	9254	2061
	20, 25	M8	3111	9255	2062
	32, 40	M10x1.25	6144	9261	6140
	50, 63	M12x1.25	6145	9262	6141
	80	M16x1.5	6146	9263	6142
DSBC → 31	32	M10x1.25	6144	9261	6140
	40	M12x1.25	6145	9262	6141
	50	M16x1.5	6146	9263	6142
	63	M16x1.5	6146	9263	6142
	80, 100	M20x1.5	6147	9264	6143
DSNU → 27	8, 10	M4	6532	9253	6528
	12, 16	M6	3110	9254	2061
	20	M8	3111	9255	2062
	25, 32	M10x1.25	6144	9261	6140
	40	M12x1.25	6145	9262	6141
DFPC → 366	80, 100	M16x1.5	6146	9263	6142
	125	M20x1.5	6147	9264	6143
	160, 200	M36x2	9581	10775	10746



# 02

## Electric drives

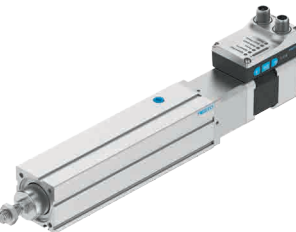


# Highlights


# Contents



Spindle axes  
**EGC-BS-KF**  
+ Spindle support enables maximum travel speed  
+ Optionally with clamping unit  
→ 80




Electric cylinder units  
**EPSC-BS**  
+ Complete solution consisting of integrated drive, motor and servo drive  
+ Easy commissioning according to the plug and work principle  
→ 95



Electric cylinder with spindle drive  
**EPCC**  
+ Low-cost: optimum price/performance ratio  
+ Dynamic due to low internal friction  
→ 99



Electric cylinders  
**ESBF**  
+ High feed forces with compact size  
+ Optionally with high corrosion protection  
→ 102



Parallel grippers, electric  
**EHPS**  
+ Gripping force adjustable at the gripper module  
+ Long stroke for different workpieces  
→ 129

Product overview \_\_\_\_\_ 68  
Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide \_\_\_\_\_ 75  
Spindle axes EGC-BS-KF, with recirculating ball bearing guide \_\_\_\_\_ 80  
Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide \_\_\_\_\_ 84  
Spindle axes ELGC-BS-KF, with recirculating ball bearing guide \_\_\_\_\_ 86  
Toothed belt axis units ELGS-TB-KF \_\_\_\_\_ 88  
Spindle axis units ELGS-BS-KF \_\_\_\_\_ 90  
Electric cylinder units EPCE-TB \_\_\_\_\_ 93  
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Electric cylinders EPCC, with spindle drive \_\_\_\_\_ 99  
Electric cylinders ESBF, with spindle drive \_\_\_\_\_ 102  
Mini slides EGSC-BS-KF \_\_\_\_\_ 106  
Mini slide units EGSS-BS-KF \_\_\_\_\_ 108  
Rotary drive units ERMS \_\_\_\_\_ 110

Product overview

Software-Tools

02 Electric drives

Electric Motion Sizing



Find the right electric or electromechanical servo drive.

Electric Motion Sizing, the online sizing and simulation tool for electric drives (servo drives and motors = servo drive package) as well as for electromechanical drive solutions (= electromechanical servo drive package comprising servo drives and motors as well as mechanics), helps you to find the right electromechanical drive solution for your application quickly and without complications.

This tool can be found at  
 → [www.festo.com/x/electric-motion-sizing](http://www.festo.com/x/electric-motion-sizing)

Simplified Motion Series – Solution Finder



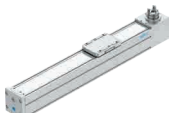



The simplicity of pneumatics is now combined for the first time with the advantages of electric automation thanks to the Simplified Motion Series.



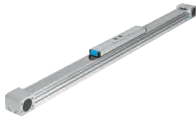

These integrated drives are the perfect solution for all users who are looking for an electric alternative for very simple movement and positioning tasks, but don't want the commissioning process for traditional electric drive systems that can often be quite complex.

This tool can be found at  
 → [www.festo.com/x/simplified-motion-series](http://www.festo.com/x/simplified-motion-series)

Electric axes

	 <b>Toothed belt axes</b> EGC-TB-KF	 <b>Spindle axes</b> EGC-BS-KF	 <b>Toothed belt axes</b> ELGC-TB-KF	 <b>Spindle axes</b> ELGC-BS-KF
<b>Size</b>	50, 70, 80, 120, 185	70, 80, 120, 185	45, 60, 80	32, 45, 60, 80
<b>Max. feed force F<sub>x</sub></b>	50 ... 2500 N	400 ... 3000 N	75 ... 250 N	40 ... 350 N
<b>Repetition accuracy</b>	+/-0.08 mm, +/-0.1 mm	+/-0.02 mm	+/-0.1 mm	+/-0.01 mm, +/-0.015 mm
<b>Working stroke</b>	50 ... 8500 mm	50 ... 3000 mm	200 ... 2000 mm	100 ... 1000 mm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Axis for high speeds and acceleration</li> <li>• Recirculating ball bearing guide for high loads and torques</li> <li>• Optionally with clamping unit, at one or both ends</li> <li>• Profile with optimised rigidity</li> <li>• 22 types in stock with short delivery times and modular products for individual specifications</li> </ul>	<ul style="list-style-type: none"> <li>• Axis for high repetition accuracy</li> <li>• Recirculating ball bearing guide for high loads and torques</li> <li>• Optionally with clamping unit, at one or both ends</li> <li>• Profile with optimised rigidity</li> <li>• Various spindle pitches</li> <li>• The optional spindle support enables maximum travel speed</li> <li>• Axial or parallel motor mounting</li> </ul>	<ul style="list-style-type: none"> <li>• Precision guide rail with high load capacity</li> <li>• Internal guide and toothed belt</li> <li>• Flexible motor mounting</li> <li>• The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• Internal guide and ball screw drive</li> <li>• Space-saving position sensing</li> <li>• Flexible motor mounting</li> <li>• The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>
<b>→ Page/online</b>	<b>75</b>	<b>80</b>	<b>84</b>	<b>86</b>




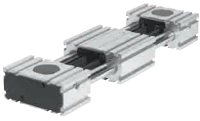
## Electric axes

	 Toothed belt axes ELGA-TB-G	 Toothed belt axes ELGA-TB-KF	 Toothed belt axes ELGA-TB-RF	 Spindle axes ELGA-BS-KF
<b>Size</b>	70, 80, 120	70, 80, 120, 150	70, 80, 120	70, 80, 120, 150
<b>Max. feed force F<sub>x</sub></b>	350 ... 1300 N	260 ... 2000 N	260 ... 1000 N	650 ... 6400 N
<b>Repetition accuracy</b>	+/-0.08 mm	+/-0.08 mm	+/-0.08 mm	+/-0.02 mm
<b>Working stroke</b>	50 ... 8500 mm	50 ... 8500 mm	50 ... 7400 mm	50 ... 3000 mm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Integrated plain-bearing guide</li> <li>• For small and medium loads</li> <li>• Low guide backlash</li> <li>• Actuator for external guides</li> <li>• Speeds up to 5 m/s with high acceleration up to 50 m/s<sup>2</sup></li> <li>• Flexible motor mounting</li> <li>• Motor can be mounted on any one of four sides</li> </ul>	<ul style="list-style-type: none"> <li>• Recirculating ball bearing guide for high loads and torques</li> <li>• High feed forces</li> <li>• Precision guide rail with high load capacity</li> <li>• Speeds up to 5 m/s with high acceleration up to 50 m/s<sup>2</sup></li> <li>• Optional: Food-safe (for further information, see <a href="http://www.festo.com/certificates/ELGA_KF">www.festo.com/certificates/ELGA_KF</a>)</li> <li>• Flexible motor mounting</li> <li>• Guide and toothed belt protected by cover band</li> <li>• 22 types in stock with short delivery times and modular products for custom variants</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated roller bearing guide</li> <li>• High speeds up to 10 m/s with high acceleration up to 50 m/s<sup>2</sup></li> <li>• Guide backlash = 0 mm</li> <li>• Very good operating performance under torque load</li> <li>• Sturdy alternative to the recirculating ball bearing guide</li> <li>• As a driving component for external guides, especially for high speeds</li> <li>• Motor can be mounted on any one of four sides</li> </ul>	<ul style="list-style-type: none"> <li>• Internal, precision recirculating ball bearing guide with high load capacity for high torque loads</li> <li>• Guide and ball screw protected by cover band</li> <li>• For extremely high requirements in terms of feed force and accuracy</li> <li>• Speeds up to 2 m/s with high acceleration up to 15 m/s<sup>2</sup></li> <li>• Space-saving position sensing</li> <li>• Flexible motor mounting</li> <li>• 34 preconfigured types and modular product system for custom variants</li> </ul>
<b>→ Page/online</b>	<a href="#">elga</a>	<a href="#">elga</a>	<a href="#">elga</a>	<a href="#">elga</a>

Product overview




Electric axes

02 Electric drives

	 <b>Toothed belt axis units</b> <b>ELGS-TB-KF</b>	 <b>Spindle axis units</b> <b>ELGS-BS-KF</b>	 <b>Toothed belt axis units</b> <b>ELGE-TB</b>	 <b>Toothed belt axes</b> <b>ELGR-TB</b>
<b>Size</b>	45, 60	32, 45, 60	35	35, 45, 55
<b>Max. feed force Fx</b>	65 ... 75 N	40 ... 200 N	50 N	50 ... 350 N
<b>Repetition accuracy</b>	+/-0.1 mm	+/-0.01 mm, +/-0.015 mm	+/-0.1 mm	+/-0.1 mm
<b>Stroke</b>	50 ... 1500 mm	100 ... 800 mm	50 ... 800 mm	50 ... 1500 mm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Complete solution consisting of integrated drive, motor and servo drive</li> <li>• Resilient toothed belt with long service life</li> <li>• Ideal for precise XY movements, e.g. in assembly plants or when handling small parts as well as for test and inspection systems</li> <li>• Protected against external influences by internal guide</li> <li>• Clean look design: easy to clean and less prone to contamination</li> <li>• Integrated end-position sensing</li> <li>• Two control options integrated as standard: digital I/O and IO-Link</li> <li>• Easy commissioning according to the plug and work principle: all parameters are manually adjustable directly on the drive without requiring any software or special expertise</li> <li>• Two sizes with speeds of up to 1.3 m/s at a max. stroke of 2000 mm</li> <li>• Product of the Simplified Motion Series: doesn't need any external servo drive or any control cabinet for installation</li> </ul>	<ul style="list-style-type: none"> <li>• Complete solution consisting of integrated drive, motor and servo drive</li> <li>• Powerful ball screw</li> <li>• Ideal for precise XY movements, e.g. in assembly plants or when handling small parts as well as for test and inspection systems</li> <li>• Protected against external influences by internal guide</li> <li>• Clean look design: easy to clean and less prone to contamination</li> <li>• Integrated end-position sensing</li> <li>• Two control options integrated as standard: digital I/O and IO-Link</li> <li>• Easy commissioning according to the plug and work principle: all parameters are manually adjustable directly on the drive without requiring any software or special expertise</li> <li>• Three sizes for a payload of up to 20 kg at a max. stroke of 800 mm</li> <li>• Product of the Simplified Motion Series: doesn't need any external servo drive or any control cabinet for installation</li> </ul>	<ul style="list-style-type: none"> <li>• Complete solution consisting of integrated drive, motor and servo drive</li> <li>• Cost-optimised design for easy motion and positioning tasks between two mechanical end positions as well as intermediate positions</li> <li>• Running performance of 5000 km</li> <li>• Freely selectable motor mounting position on four sides</li> <li>• Integrated end position sensing</li> <li>• Two control options integrated as standard: digital I/O and IO-Link</li> <li>• Easy commissioning according to the plug and work principle: all parameters are manually adjustable directly on the drive without requiring any software or special expertise</li> <li>• Product of the Simplified Motion Series: doesn't need any external servo drive or any control cabinet for the installation</li> </ul>	<ul style="list-style-type: none"> <li>• Optimum price/performance ratio</li> <li>• Ready-to-install unit for quick and easy design</li> <li>• With plain or recirculating ball bearing guide</li> <li>• Motor can be mounted on any one of four sides</li> </ul>
<b>→ Page/online</b>	<b>88</b>	<b>90</b>	<a href="#">elge</a>	<a href="#">elgr</a>






## Electric cylinders and slides

	 <b>Electric cylinder units EPCE-TB</b>	 <b>Electric cylinder units EPCS-BS</b>	 <b>Electric cylinders EPCC-BS</b>
<b>Size</b>	45, 60	32, 45, 60	25, 32, 45, 60
<b>Max. feed force F<sub>x</sub></b>	85 ... 150 N	150 ... 900 N	75 ... 1000 N
<b>Repetition accuracy</b>	+/-0.05 mm	+/-0.02 mm	+/-0.02 mm
<b>Stroke</b>	10 ... 80 mm	25 ... 500 mm	25 ... 500 mm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Complete solution consisting of integrated compact cylinder, motor and controller</li> <li>• Cost-optimised design for easy motion and positioning tasks between two mechanical end positions as well as intermediate positions</li> <li>• Minimal zero stroke and extremely compact design make this product the perfect choice for applications where space is at a premium</li> <li>• Two sizes with 5 ... 80 mm stroke, can be selected in 5 mm increments</li> <li>• Innovative interpretation of toothed belt technology for maximum dynamic response and minimal positioning times</li> <li>• Ideal for fast movement in sorting, distribution and testing applications</li> <li>• Up to two piston rods per electric cylinder unit can be selected at the same time in four different mounting positions and different combinations</li> <li>• Integrated end position sensing</li> <li>• Two control options integrated as standard: digital I/O and IO-Link</li> <li>• Easy commissioning according to the plug and work principle: all parameters are manually adjustable directly on the drive without requiring any software or special expertise</li> <li>• Product of the Simplified Motion Series: doesn't need any external servo drive or any control cabinet for the installation</li> </ul>	<ul style="list-style-type: none"> <li>• Complete solution consisting of integrated drive, motor and servo drive</li> <li>• Extremely cost-effective, yet powerful and very flexible</li> <li>• Ideal for individual linear movements in every installation position and especially for vertical Z movements</li> <li>• Precise positioning thanks to smoothly running ball screw</li> <li>• Compact dimensions</li> <li>• Safe movement through flexible position sensing</li> <li>• Integrated end-position sensing</li> <li>• Two control options integrated as standard: digital I/O and IO-Link</li> <li>• Easy commissioning according to the plug and work principle: all parameters are manually adjustable directly on the drive without requiring any software or special expertise</li> <li>• Three sizes with a max. stroke of 500 m</li> <li>• Product of the Simplified Motion Series: doesn't need any external servo drive or any control cabinet for installation</li> </ul>	<ul style="list-style-type: none"> <li>• Low-cost: optimum price/performance ratio</li> <li>• Flexible: wide range of mounting options for the motor</li> <li>• Dynamic: lower internal friction</li> <li>• Non-rotating piston rod with plain-bearing guide, stroke up to 500 mm</li> <li>• Weight-optimised design – ideal for handling systems</li> <li>• Unique: “One-size-down” assembly system for the best use of space in combination with toothed belt/spindle axis ELGC</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>
<b>→ Page/online</b>	<b>93</b>	<b>95</b>	<b>99</b>



Product overview

Electric cylinders and slides

02 Electric drives

	 <b>Electric cylinders ESBF</b>	 <b>Mini slides EGSC-BS-KF</b>	 <b>Mini slide units EGSS-BS-KF</b>
<b>Size</b>	32, 40, 50, 63, 80, 100	25, 32, 45, 60	32, 45, 60
<b>Max. feed force F<sub>x</sub></b>	600 ... 17000 N	20 ... 250 N	60 ... 250 N
<b>Repetition accuracy</b>	+/-0.01 mm, +/-0.015 mm, +/-0.05 mm	+/-0.015 mm	+/-0.015 mm
<b>Stroke</b>	30 ... 1500 mm	25 ... 200 mm	25 ... 200 mm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Available with ball screw drive (size 32 ... 100) or lead screw (size 32 ... 50)</li> <li>• Ball screw: with three spindle pitches for selecting the optimal force-speed ratio</li> <li>• Optional: high corrosion protection, degree of protection IP65, food-safe (see <a href="http://www.festo.com/certificates/ESBF">www.festo.com/certificates/ESBF</a>), piston rod extension</li> <li>• Axial or parallel motor mounting</li> <li>• 68 types in stock with short delivery times and modular products for custom variants</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• Precise guide and ball screw drive</li> <li>• Compact dimensions</li> <li>• Flexible motor mounting</li> <li>• The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• Complete solution consisting of integrated drive, motor and servo drive</li> <li>• For precise vertical Z movements or individual guided linear movements</li> <li>• Very high-quality ball screw drive with low internal friction</li> <li>• Rigid, high load-bearing and precise linear guide for absorbing lateral forces and increased anti-twist protection</li> <li>• Integrated end position sensing</li> <li>• Two control options integrated as standard: digital I/O and IO-Link</li> <li>• Easy commissioning according to the plug and work principle: all parameters are manually adjustable directly on the drive without requiring any software or special expertise</li> <li>• Product of the Simplified Motion Series: doesn't need any external servo drive or any control cabinet for the installation</li> </ul>
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## Electric semi-rotary drives

	 <b>Rotary drive units ERMS</b>	 <b>Rotary drives ERMO</b>
<b>Size</b>	25, 32	12, 16, 25, 32
<b>Peak torque</b>	2.7... 5.6 Nm	
<b>Nominal torque</b>		0.15 ... 5 Nm
<b>Max. rotational speed</b>	100 ... 150 1/min	100 ... 200 1/min
<b>Nominal speed</b>		50 ... 100 1/min
<b>Rotation angle</b>	90°, 180°, infinite	Infinite
<b>Additional functions</b>	User interface, integrated end-position sensing	
<b>Display</b>	LED	
<b>Description</b>	<ul style="list-style-type: none"> <li>• Complete solution consisting of integrated drive, motor and servo drive</li> <li>• Cost-effective solution package for simple swivel tasks, but also for applications with high loads</li> <li>• Sealed hollow shaft for the integrated through-feed of cables and tubing</li> <li>• Standardised mounting interface for direct connection to the electric mini slides EGSL, EGSC and EGSS</li> <li>• Integrated end-position sensing</li> <li>• Two control options integrated as standard: digital I/O and IO-Link</li> <li>• Easy commissioning according to the plug and work principle: all parameters are manually adjustable directly on the drive without requiring any software or special expertise</li> <li>• Product of the Simplified Motion Series: doesn't need any external servo drive or any control cabinet for installation</li> </ul>	<ul style="list-style-type: none"> <li>• Electric rotary drive with stepper motor and integrated gear unit</li> <li>• ServoLite – closed-loop operation with encoder</li> <li>• Heavy-duty bearing for high forces and torques</li> <li>• Backlash-free pre-stressed rotating plate with very good axial eccentricity and concentricity properties</li> <li>• Quick and accurate installation</li> <li>• For simple rotary indexing table applications and as a rotary axis in multi-axis applications</li> </ul>
<b>→ Page/online</b>	<b>110</b>	<b>ermo</b>

Product overview

## Customised components – for your specific requirements



### Drives with customised designs

Can't find the electromechanical drive you need in our catalogue?

We can offer you customised components that are tailored to your specific requirements.

Common product modifications:

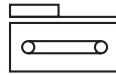
- Special strokes
- Design for special ambient conditions
- Design optimised for the installation space
- Design with carriages moving in opposite directions
- Design with absolute encoder

Many additional variants are possible.

Ask your Festo sales engineer, who will be happy to help:

→ [www.festo.com/contact](http://www.festo.com/contact)

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide



- Recirculating ball bearing guide for high loads and torques
  - Optionally with clamping unit, at one or both ends
  - Profile with optimised rigidity and load capacity
  - Comprehensive range of mounting accessories for multi-axis combinations
  - Precision: the slide position can be sensed directly using the optional displacement encoder
  - Selected types in accordance with ATEX directive for potentially explosive atmospheres
- [www.festo.com/ex](http://www.festo.com/ex)

Order code – Basic design

001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016
EGC			TB	KF	OH	GK									ZUB

001	Type
EGC	Linear axis
002	Size
...	70, 80, 120
003	Stroke [mm]
...	300, 400, 500, 600, 800, 1000, 1200
004	Drive system
TB	Toothed belt
005	Guide
KF	Recirculating ball bearing guide
006	Stroke reserve [mm]
OH	None
007	Slide
GK	Standard slide
008	Additional slide, left
-	None
009	Additional slide, right
-	None
010	Lubrication function
-	None
011	Displacement encoder, incremental
-	None
012	Clamping unit
-	None

013	Type of actuation
-	None
014	Toothed belt material
-	Standard
015	EU certification
-	None
016	Accessories
ZUB -	Accessories enclosed separately
F	Foot mounting (1 set)
...M	Profile mounting (1 ... 50 pieces)
...B	Mounting slot cover (1 ... 50 pieces)
...S	Sensor slot cover (1 ... 50 pieces)
...Y	Slot nut for mounting slot (1 ... 99 pieces)
...X	Proximity switch, inductive, N/O contact, cable 7.5 m (1 ... 6 pieces)
...Z	Proximity switch, inductive, N/C contact, cable 7.5 m (1 ... 6 pieces)
...A	Emergency buffer with retaining bracket (1 ... 2 pieces)
...C	Shock absorber with retaining bracket (1 ... 2 pieces)
...O	Proximity switch, inductive, N/O contact, cable 2.5 m (1 ... 99 pieces)
...P	Proximity switch, inductive, N/C contact, cable 2.5 m (1 ... 99 pieces)
...W	Proximity switch, inductive, N/C contact, M8 plug (1 ... 99 pieces)
...R	Proximity switch, inductive, N/O contact, M8 plug (1 ... 99 pieces)
...V	2.5 m connecting cable, M8 (1 ... 99 pieces)
...K	Shaft journal (1 ... 4 pieces)
...CL	Cable clip (10, 20, 30, 40, 50, 60, 70, 80, 90 pieces)
DN	Express waiver – no operating instructions to be included

Legend:  Mandatory entry  Optional entry

Electric axes >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Product options

50, 185 Size	KL	Additional slide, left	1HL	Clamping unit: 1-channel holding function, left	PN	Pneumatically actuated
50 ... 8500 mm variable stroke	KR	Additional slide, right			PU2	PU coating on toothed belt material
...H 0 ... 999 mm stroke reserve	C	Lubrication adapter	1HR	Clamping unit: 1-channel holding function, right	EX3	EX3 II 2G to EU Explosion Protection Directive (ATEX)
GQ Extended slide, protected	M1	Displacement encoder, incremental, resolution 2.5 µm	2H	Clamping unit: 2-channel holding function		
GP Standard slide, protected						
GV Extended slide	M2	Displacement encoder, incremental, resolution 10 µm				



Configurable product

This product and all its product options can be ordered online via the configurator:

[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type	Part no.	Type
556812	EGC-50-...-TB-KF-...	556815	EGC-120-...-TB-KF-...
556813	EGC-70-...-TB-KF-...	556817	EGC-185-...-TB-KF-...
556814	EGC-80-...-TB-KF-...		

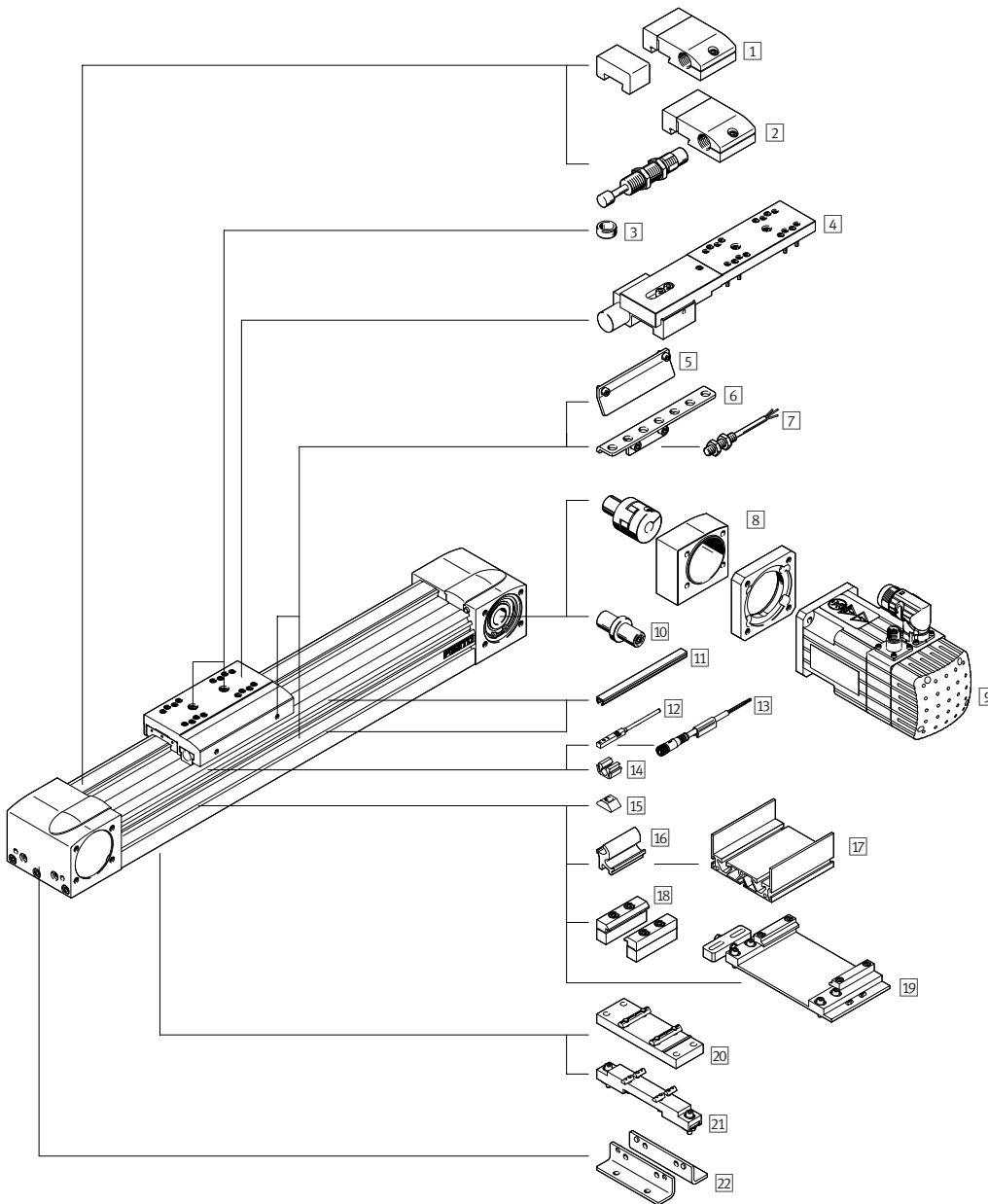
Ordering – Basic design

004 Toothed belt – 005 Recirculating ball bearing guide – 006 Without stroke reserve – 007 Standard slide – 008 Without additional slide, left – 009 Without additional slide, right – 010 Without lubrication function – 011 Without displacement encoder – 012 Without clamping unit – 013 Without actuation type – 014 Standard toothed belt material – 015 Without EU certification – 016 Without accessories

003 Stroke [mm]	002 Size					
	70		80		120	
	Type	Part no.	Type	Part no.	Type	Part no.
300	EGC-70-300-TB-KF-0H-GK	3012492				
400	EGC-70-400-TB-KF-0H-GK	3012493	EGC-80-400-TB-KF-0H-GK	575832	EGC-120-400-TB-KF-0H-GK	3013364
500	EGC-70-500-TB-KF-0H-GK	3012494	EGC-80-500-TB-KF-0H-GK	3013354	EGC-120-500-TB-KF-0H-GK	3013365
600	EGC-70-600-TB-KF-0H-GK	3012495	EGC-80-600-TB-KF-0H-GK	3013355	EGC-120-600-TB-KF-0H-GK	3013366
800	EGC-70-800-TB-KF-0H-GK	3012496	EGC-80-800-TB-KF-0H-GK	3013356	EGC-120-800-TB-KF-0H-GK	3013367
1000	EGC-70-1000-TB-KF-0H-GK	3012497	EGC-80-1000-TB-KF-0H-GK	3013357	EGC-120-1000-TB-KF-0H-GK	3013368
1200	EGC-70-1200-TB-KF-0H-GK	3012498	EGC-80-1200-TB-KF-0H-GK	3013359	EGC-120-1200-TB-KF-0H-GK	3013369
1500					EGC-120-1500-TB-KF-0H-GK	3013370

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Accessories



- 1 Emergency buffer NPE/shock absorber retainer KYE → 77
  - 2 Shock absorber YSRW/shock absorber retainer KYE → 77
  - 3 Centring pin/sleeve ZBS/ZBH → 77
  - 4 Clamping unit 1H-P...N, 2H-PN → [egc-tb](#)
  - 5 Switch lug SF-EGC → 78
  - 6 Sensor bracket HWS-EGC → 78
  - 7 Proximity switch, inductive SIEN-M8B → 78
  - 8 Axial kit EAMM-A → 78
  - 9 Motor EMMS → 121
  - 10 Drive shaft EAMB → [egc-tb](#)
  - 11 Slot cover ABP/ABP-S → 79
  - 12 Proximity switch SIES-8M → 79
  - 13 Connecting cable NEBU → 79
  - 14 Clip SMBK → 79
  - 15 Slot nut NST → 79
  - 16 Adapter kit DHAM → [egc-tb](#)
  - 17 Support profile HMIA → [egc-tb](#)
  - 18 Profile mounting MUE → 79
  - 19 Adjusting kit EADC-E16 → [egc-tb](#)
  - 20 Central support EAHF-L5 → 79
  - 21 Adjusting kit EADC-E15 → [egc-tb](#)
  - 22 Foot mounting HPE → 79
- Guide axis EGC-FA → [egc-fa](#)  
 Connecting shaft KSK → [ksk](#)

Accessories

1 Emergency buffer NPE		
For size	Type	Part no.
For use in combination with shock absorber retainer KYE For avoiding damage at the end stop in the event of malfunction		
70	NPE-70	562581
80	NPE-80	562582
120	NPE-120	562583

2 Shock absorber YSRW		
For size	Type	Part no.
For use in combination with shock absorber retainer KYE For avoiding damage at the end stop in the event of malfunction		
70	YSRW-8-14	191194
80	YSRW-12-20	191196
120	YSRW-16-26	191197

1/2 Shock absorber retainer KYE		
For size	Type	Part no.
70	KYE-70	557584
80	KYE-80	557585
120	KYE-120	557586

3 Centring pin ZBS/centring sleeve ZBH		
For size	Type	Part no.
70	ZBS-5 <sup>1)2)</sup>	150928
80, 120	ZBH-9-B <sup>1)2)</sup>	8137184

1) Packaging unit 10 pieces.  
 2) 2 centring pins/sleeves included in the scope of delivery of the axis.

Electric axes >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Accessories

02 Electric drives

5 Switch lug SF-EGC

For size	Type	Part no.
For sensing via proximity switch SIES-8M		
70	SF-EGC-1-70	558047
80	SF-EGC-1-80	558048
120	SF-EGC-1-120	558049
For sensing via proximity switch SIEN-M8B		
70	SF-EGC-2-70	558052
80	SF-EGC-2-80	558053
120	SF-EGC-2-120	558054

6 Sensor bracket HWS-EGC

For size	Type	Part no.
For proximity switch SIEN-M8B		
70, 80	HWS-EGC-M5	558057
120	HWS-EGC-M8-B	570365

7 Proximity switch, round design, inductive SIEN-M8B

Description	Type	Part no.
N/O contact	PNP, cable, 2.5 m	SIEN-M8B-PS-K-L 150386
	PNP, plug, M8x1	SIEN-M8B-PS-S-L 150387
	NPN, cable, 2.5 m	SIEN-M8B-NS-K-L 150384
	NPN, plug, M8x1	SIEN-M8B-NS-S-L 150385
N/C contact	PNP, cable, 2.5 m	SIEN-M8B-PO-K-L 150390
	PNP, plug, M8x1	SIEN-M8B-PO-S-L 150391
	NPN, cable, 2.5 m	SIEN-M8B-NO-K-L 150388
	NPN, plug, M8x1	SIEN-M8B-NO-S-L 150389

8 Axial kit EAMM-A

For	With motor/gear unit <sup>1)</sup>	Type	Part no.
In combination with stepper motor			
50	EMMS-ST-57-...	EAMM-A-L27-57A	560678
70	EMMS-ST-57-...	EAMM-A-L38-57A	560679
	EMMS-ST-87-...	EAMM-A-L38-87A	560680
80	EMMS-ST-87-...	EAMM-A-L48-87A	560683
In combination with stepper motor and gear unit			
50	EMMS-ST-42-... EMGA-40-P-G...-SST-42	EAMM-A-L27-40G	557974
70	EMMS-ST-57-... EMGA-60-P-G...-SST-57	EAMM-A-L38-60G	557978
80	EMMS-ST-57-... EMGA-60-P-G...-SST-57	EAMM-A-L48-60G	557983
120	EMMS-ST-87-... EMGA-80-P-G...-SST-87	EAMM-A-L62-80G	557989
In combination with servo motor			
70	EMMT-AS-60-...	EAMM-A-L38-60P	2037246
	EMME-AS-60-...		
80	EMMT-AS-80-...	EAMM-A-L48-80P	2042616
	EMME-AS-80-...		
120	EMME-AS-100-...	EAMM-A-L62-100A	557988
	EMMT-AS-100-...		
In combination with servo motor and gear unit			
50	EMME-AS-40-... EMGA-40-P-G...-EAS-40	EAMM-A-L27-40G	557974
70	EMMT-AS-60-... EMGA-60-P-G...-EAS-60	EAMM-A-L38-60H	1456610
	EMME-AS-60-... EMGA-60-P-G...-EAS-60		
80	EMMT-AS-60-... EMGA-60-P-G...-EAS-60	EAMM-A-L48-60H	1456611
	EMME-AS-60-... EMGA-60-P-G...-EAS-60		
120	EMMT-AS-80-... EMGA-80-P-G...-EAS-80	EAMM-A-L62-80G	557989
	EMME-AS-80-...		
	EMGA-80-P-G...-EAS-80		
	EMME-AS-100-... EMGA-80-P-G...-SAS-100		
	EMMT-AS-100-... EMGA-80-P-G...-SAS-100		
185	EMME-AS-100-... EMGA-120-P-G...-SAS-100	EAMM-A-L95-120G-G2	3659941
	EMMT-AS-100-... EMGA-120-P-G...-SAS-100		
	EMMT-AS-100-... EMGA-80-P-G...-SAS-100	EAMM-A-L95-80G-G2	3660191
	EMME-AS-100-...		
	EMGA-80-P-G...-SAS-100		
In combination with servo motor and right-angle gear unit			
50	EMME-AS-40-... EMGA-40-A-G...-40P	EAMM-A-L27-40G	557974
70	EMME-AS-60-... EMGA-60-A-G...-60P	EAMM-A-L38-60H	1456610
80	EMMT-AS-60-... EMGA-60-A-G...-60P	EAMM-A-L48-60H	1456611
120	EMME-AS-80-... EMGA-80-A-G...-80P	EAMM-A-L62-80G	557989
	EMME-AS-100-... EMGA-80-A-G...-100A		

1) The input torque must not exceed the max. permissible transferable torque of the axial kit.



## Accessories

11 Slot cover ABP		
For size	Type	Part no.
For mounting slot, 0.5 m		
70, 80	ABP-5	151681
120	ABP-8	151682
For sensor slot, 0.5 m		
70, 80, 120	ABP-5-S1	563360

12 Proximity switch for T-slot, inductive SIES-8M			
Description		Type	Part no.
N/O contact	PNP, cable, 7.5 m	SIES-8M-PS-24V-K-7,5-OE	551386
	PNP, plug, 0.3 m	SIES-8M-PS-24V-K-0,3-M8D	551387
	NPN, cable, 7.5 m	SIES-8M-NS-24V-K-7,5-OE	551396
	NPN, plug, 0.3 m	SIES-8M-NS-24V-K-0,3-M8D	551397
N/C contact	PNP, cable, 7.5 m	SIES-8M-PO-24V-K-7,5-OE	551391
	PNP, plug, 0.3 m	SIES-8M-PO-24V-K-0,3-M8D	551392
	NPN, cable, 7.5 m	SIES-8M-NO-24V-K-7,5-OE	551401
	NPN, plug, 0.3 m	SIES-8M-NO-24V-K-0,3-M8D	551402

13 Connecting cable NEBU			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

14 Clip SMBK		
For size	Type	Part no.
For sensor slot, for attaching the proximity switch cables		
70, 80, 120	SMBK-8	534254

15 Slot nut NST		
For size	Type	Part no.
70, 80	NST-5-M5	150914
120	NST-8-M6	150915

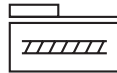
18 Profile mounting MUE		
For size	Type	Part no.
70, 80	MUE-70/80	558043
120	MUE-120/185	558044

20 Central support EAHF-L5		
For size	Type	Part no.
70	EAHF-L5-70-P	2349256
80	EAHF-L5-80-P	3535188
120	EAHF-L5-120-P	2410274

22 Foot mounting HPE		
For size	Type	Part no.
70	HPE-70	558321
80	HPE-80	558322
120	HPE-120	558323

Electric axes >

## Spindle axes EGC-BS-KF, with recirculating ball bearing guide



- High speeds and feed forces
- Recirculating ball bearing guide and rigid profile
- Large loads and torques

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015

EGC - [ ] - [ ] - BS - ...P - [ ] - KF - OH - ML - GK - [ ] - [ ] - [ ] - [ ] - ZUB - [ ]

001	Type
EGC	Linear axis
002	Size
...	70, 80, 120
003	Stroke [mm]
...	100, 200, 300, 400, 500, 600, 800
004	Function
BS	Ball screw
005	Spindle pitch [mm/rev]
10P	10
20P	20
25P	25
006	Spindle support
-	None
007	Guide
KF	Recirculating ball bearing guide
008	Stroke reserve [mm]
OH	None
009	Motor attachment position
ML	Motor on the left
010	Slide
GK	Standard slide
011	Lubrication function
-	None

012	Displacement encoder, incremental
-	None
013	Clamping unit
-	None
014	Type of actuation
-	None
015	Accessories
ZUB -	Accessories enclosed separately
F	Foot mounting (1 set)
...M	Profile mounting (1 ... 50 pieces)
...B	Mounting slot cover (1 ... 50 pieces)
...S	Sensor slot cover (1 ... 50 pieces)
...Y	Slot nut for mounting slot (1 ... 99 pieces)
...X	Proximity switch, inductive, N/O contact, cable 7.5 m (1 ... 6 pieces)
...Z	Proximity switch, inductive, N/C contact, cable 7.5 m (1 ... 6 pieces)
...A	Emergency buffer with retaining bracket (1 ... 2 pieces)
...C	Shock absorber with retaining bracket (1 ... 2 pieces)
...O	Proximity switch, inductive, N/O contact, cable 2.5 m (1 ... 99 pieces)
...P	Proximity switch, inductive, N/C contact, cable 2.5 m (1 ... 99 pieces)
...W	Proximity switch, inductive, N/C contact, M8 plug (1 ... 99 pieces)
...R	Proximity switch, inductive, N/O contact, M8 plug (1 ... 99 pieces)
...V	2.5 m connecting cable, M8 (1 ... 99 pieces)
...K	Shaft journal (1 ... 4 pieces)
...CL	Cable clip (10, 20, 30, 40, 50, 60, 70, 80, 90 pieces)
DN	Express waiver – no operating instructions to be included

Legend:  Mandatory entry  Optional entry

## Spindle axes EGC-BS-KF, with recirculating ball bearing guide

## Product options

185	Size	GQ	Extended slide, protected	C	Lubrication adapter	1HL	Clamping unit, 1-channel, left
50 ... 3000	mm variable stroke	GP	Standard slide, protected	M1	Displacement encoder, incremental, resolution 2.5 µm	1HR	Clamping unit, 1-channel, right
40P	Spindle pitch 40 mm/rev	GV	Extended slide				
S	With spindle support	KL	Additional slide, left	M2	Displacement encoder, incremental, resolution 10 µm	2H	Clamping unit, 2-channel
...H	0 ... 999 mm stroke reserve	KR	Additional slide, right			PN	Pneumatically actuated
MR	Motor on the right						



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/egc-bs](http://www.festo.com/catalogue/egc-bs)

## Ordering – Basic design

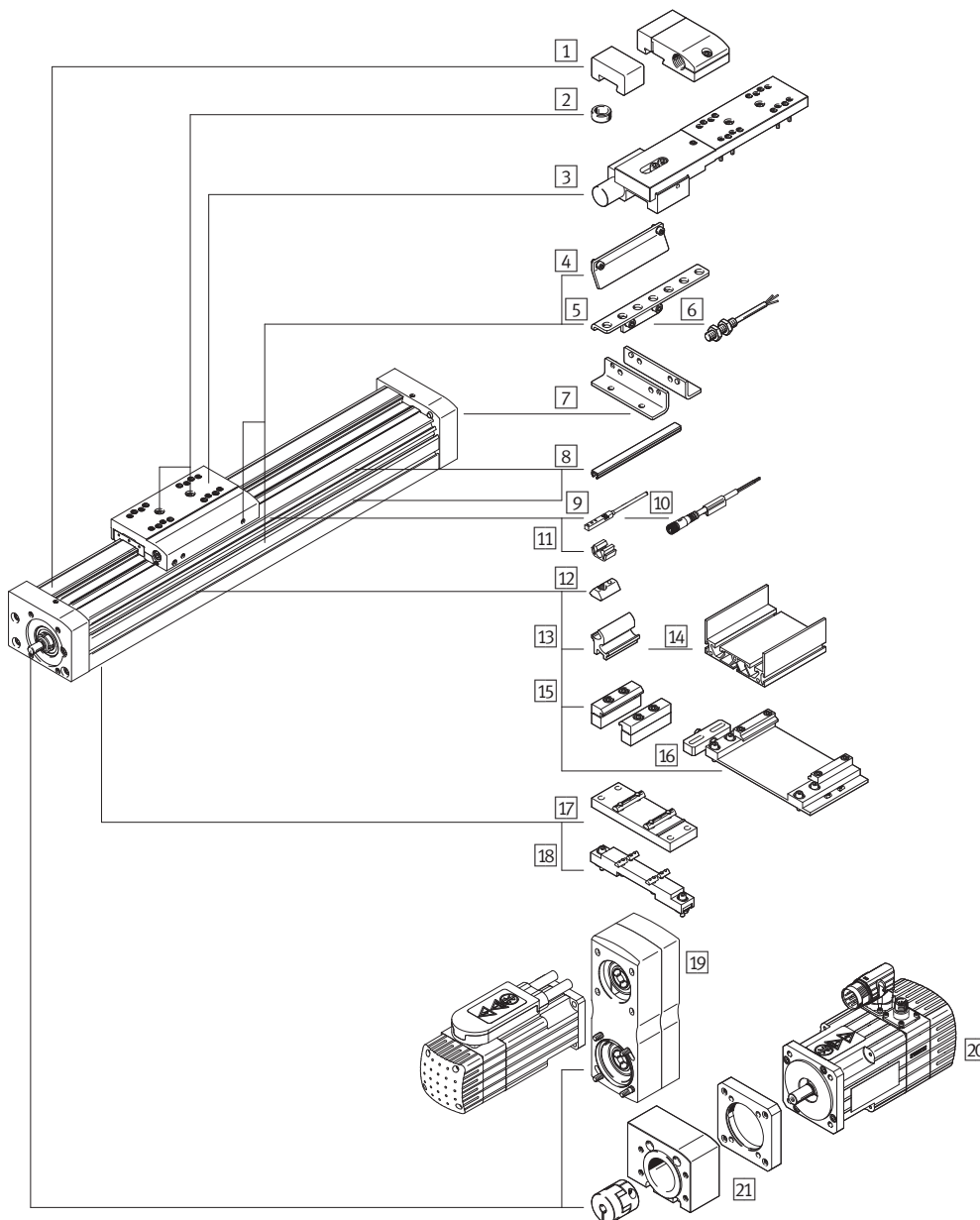
004 Ball screw drive – 006 Without spindle support – 007 Recirculating ball bearing guide – 008 Without stroke reserve – 009 Motor attachment on the left – 010 Standard slide – 011 Without lubrication function – 012 Without displacement encoder – 013 Without clamping unit – 014 Without actuation type – 015 Without accessories

003 Stroke [mm]	002 Size – 005 Spindle pitch				
	70 – 10 mm/rev	80 – 10 mm/rev	80 – 20 mm/rev	120 – 10 mm/rev	120 – 25 mm/rev
100	3013388	3013532	3013539	3013571	3013578
200	3013389	3013533	3013540	3013572	3013579
300	3013390	3013534	3013541	3013573	3013580
400	3013391	3013535	3013542	3013574	3013581
500	3013392	3013536	3013543	3013575	3013582
600	3013393	3013537	3013544	3013576	3013583
800		3013538	3013545	3013577	3013584

Electric axes >

## Spindle axes EGC-BS-KF, with recirculating ball bearing guide

### Accessories



- 1 Emergency buffer NPE with shock absorber retainer KYE → 82
- 2 Centring pin/sleeve ZBS/ZBH → 82
- 3 Clamping unit 1H...-PN, 2H-PN → [egc-bs](#)
- 4 Switch lug SF-EGC → 82, 83
- 5 Sensor bracket HWS-EGC for proximity switch SIEN-M8B → 83
- 6 Proximity switch, round design, inductive SIEN-M8B → 83
- 7 Foot mounting HPE → 83
- 8 Slot cover ABP/ABP-S → 83
- 9 Proximity switch SIES-8M → 83
- 10 Connecting cable NEBU → 83
- 11 Clip SMBK → 83
- 12 Slot nut NST → 83
- 13 Adapter kit DHAM → [egc-bs](#)
- 14 Support profile HMIA → [egc-bs](#)
- 15 Profile mounting MUE → 83
- 16 Adjusting kit EADC-E16 → [egc-bs](#)
- 17 Central support EAHF-L5 → 83
- 18 Adjusting kit EADC-E15 → [egc-bs](#)
- 19 Parallel kit EAMM-U → 83
- 20 Motor EMMS → 121
- 21 Axial kit EAMM-A → 83

Guide axis EGC-FA → [egc-fa](#)

### Accessories

1 Emergency buffer NPE		
For size	Type	Part no.
For use in combination with shock absorber retainer KYE		
70	NPE-70	562581
80	NPE-80	562582
120	NPE-120	562583

1 Shock absorber retainer KYE		
For size	Type	Part no.
For avoiding damage at the end stop in the event of malfunction		
70	KYE-70	557584
80	KYE-80	557585
120	KYE-120	557586

2 Centring pin/sleeve ZBS/ZBH		
For size	Type	Part no.
70	ZBS-5 <sup>1)2)</sup>	150928
80, 120	ZBH-9-B <sup>1)2)</sup>	8137184

- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.

4 Switch lug SF-EGC-1		
For size	Type	Part no.
For sensing via proximity switch SIES-8M		
70	SF-EGC-1-70	558047
80	SF-EGC-1-80	558048
120	SF-EGC-1-120	558049

## Spindle axes EGC-BS-KF, with recirculating ball bearing guide

## Accessories

4 Switch lug SF-EGC-2		
For size	Type	Part no.
For sensing via proximity switch SIEN-M8B		
70	SF-EGC-2-70	558052
80	SF-EGC-2-80	558053
120	SF-EGC-2-120	558054

5 Sensor bracket HWS-EGC		
For size	Type	Part no.
For proximity switch SIEN-M8B		
70, 80	HWS-EGC-M5	558057
120	HWS-EGC-M8-B	570365

6 Proximity switch, round design, inductive SIEN-M8B			
Description		Type	Part no.
N/O contact	PNP, cable, 2.5 m	SIEN-M8B-PS-K-L	150386
	PNP, plug, M8x1	SIEN-M8B-PS-S-L	150387
	NPN, cable, 2.5 m	SIEN-M8B-NS-K-L	150384
	NPN, plug, M8x1	SIEN-M8B-NS-S-L	150385
N/C contact	PNP, cable, 2.5 m	SIEN-M8B-PO-K-L	150390
	PNP, plug, M8x1	SIEN-M8B-PO-S-L	150391
	NPN, cable, 2.5 m	SIEN-M8B-NO-K-L	150388
	NPN, plug, M8x1	SIEN-M8B-NO-S-L	150389

7 Foot mounting HPE		
For size	Type	Part no.
70	HPE-70	558321
80	HPE-80	558322
120	HPE-120	558323

8 Slot cover ABP		
For size	Type	Part no.
For mounting slot, 0.5 m		
70, 80	ABP-5	151681
120	ABP-8	151682
For sensor slot, 0.5 m		
70, 80, 120	ABP-5-S1	563360

9 Proximity switch for T-slot, inductive SIES-8M			
Description		Type	Part no.
N/O contact	PNP, cable, 7.5 m	SIES-8M-PS-24V-K-7,5-OE	551386
	PNP, plug, 0.3 m	SIES-8M-PS-24V-K-0,3-M8D	551387
	NPN, cable, 7.5 m	SIES-8M-NS-24V-K-7,5-OE	551396
	NPN, plug, 0.3 m	SIES-8M-NS-24V-K-0,3-M8D	551397
N/C contact	PNP, cable, 7.5 m	SIES-8M-PO-24V-K-7,5-OE	551391
	PNP, plug, 0.3 m	SIES-8M-PO-24V-K-0,3-M8D	551392
	NPN, cable, 7.5 m	SIES-8M-NO-24V-K-7,5-OE	551401
	NPN, plug, 0.3 m	SIES-8M-NO-24V-K-0,3-M8D	551402

10 Connecting cable NEBU			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

11 Clip SMBK		
For size	Type	Part no.
For sensor slot, for attaching the proximity switch cables		
70, 80, 120	SMBK-8	534254

12 Slot nut NST		
For size	Type	Part no.
70, 80	NST-5-M5	150914
120	NST-8-M6	150915

15 Profile mounting MUE		
For size	Type	Part no.
70, 80	MUE-70/80	558043
120	MUE-120/185	558044

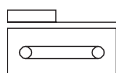
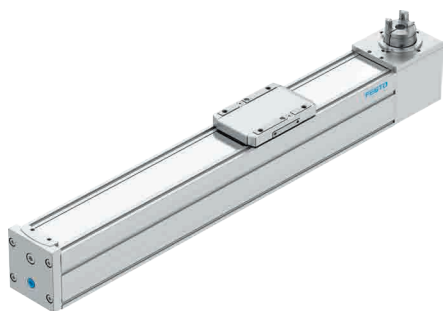
17 Central support EAHF-L5		
For size	Type	Part no.
70	EAHF-L5-70-P	2349256
80	EAHF-L5-80-P	3535188
120	EAHF-L5-120-P	2410274

19 Parallel kit EAMM-U			
For	With motor	Type	Part no.
In combination with stepper motor			
70	EMMS-ST-42-...	EAMM-U-50-S38-42A-78	1217945
	EMMS-ST-57-...	EAMM-U-60-S38-57A-91	1218568
80	EMMS-ST-57-...	EAMM-U-60-S48-57A-91	1219379
	EMMS-ST-87-...	EAMM-U-86-S48-87A-177	1217604
120	EMMS-ST-87-...	EAMM-U-86-S62-87A-177	1217373
In combination with servo motor			
70	EMME-AS-40-...	EAMM-U-50-S38-40P-78	2155239
80	EMMT-AS-60-...	EAMM-U-70-S48-60P-96	2629253
	EMME-AS-60-...		
120	EMMT-AS-80-...	EAMM-U-86-S62-80P-177	2157004
	EMME-AS-80-...		

21 Axial kit EAMM-A			
For	With motor	Type	Part no.
In combination with stepper motor			
70	EMMS-ST-42-...	EAMM-A-S38-42A-G2	3637965
	EMMS-ST-57-...	EAMM-A-S38-57A-G2	3637956
80	EMMS-ST-57-...	EAMM-A-S48-57A-G2	3637963
	EMMS-ST-87-...	EAMM-A-S48-87A-G2	3637962
120	EMMS-ST-87-...	EAMM-A-S62-87A-G2	3637966
In combination with servo motor			
70	EMME-AS-40-...	EAMM-A-S38-40P-G2	3637972
	EMMT-AS-60-...	EAMM-A-S38-60P-G2	3637958
	EMME-AS-60-...		
80	EMMT-AS-60-...	EAMM-A-S48-60P-G2	3637964
	EMME-AS-60-...		
120	EMME-AS-100-...	EAMM-A-S62-100A-G2	3637960
	EMMT-AS-100-...		
	EMMT-AS-80-...	EAMM-A-S62-80P-G2	3637970
	EMME-AS-80-...		

Electric axes >

## Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide



- The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation
- Internal guide and toothed belt
- Precise and resilient guide
- Flexible motor mounting

### Order code

001 002 003 004 005  
 ELGC - TB - KF -  -

Legend:  Mandatory entry

001	Type
ELGC	Gantry axis
002	Drive system
TB	Toothed belt
003	Guide
KF	Recirculating ball bearing guide

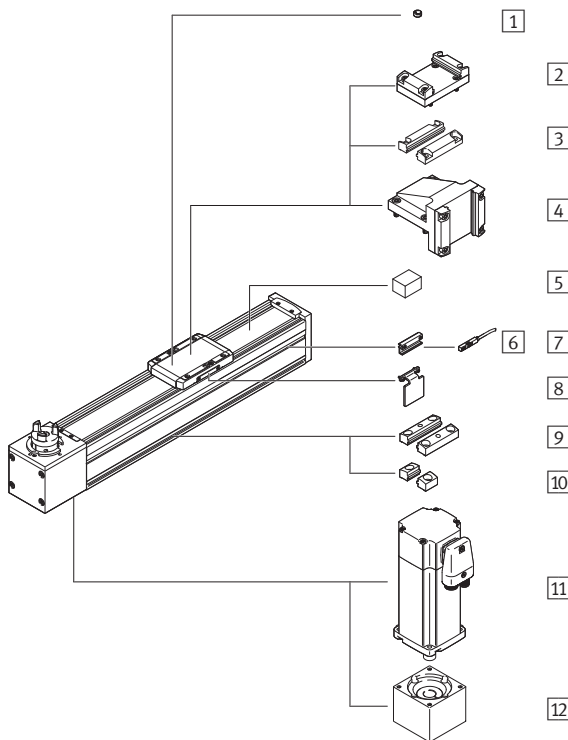
004	Size
...	45, 60, 80
005	Stroke [mm]
...	200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000

### Ordering

002 Toothed belt – 003 Recirculating ball bearing guide			
005 Stroke [mm]	004 Size		
	45	60	80
200	8062768	8062776	8062786
300	8062769	8062777	8062787
500	8062770	8062778	8062788
600	8062771	8062779	8062789
800	8062772	8062780	8062790
1000	8062773	8062781	8062791
1200	8062774	8062782	8062792
1500	8062775	8062783	8062793
1800		8062784	8062794
2000		8062785	8062795

## Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

## Accessories



- 1 Centring pin/sleeve ZBS/ZBH → 85
- 2 Adapter kit EHAA-D-L2 → 85
- 3 Profile mounting EAHF-L2-...-P-D... → 85
- 4 Angle kit EHAA-D-L2-...-AP → 85
- 5 Clamping component EADT-S-L5 → 85
- 6 Sensor bracket EAPM-L2-SH → 85
- 7 Proximity switch SIES-8M → 85  
Proximity switch SMT-8M → 243
- 8 Switch lug EAPM-L2-SLS → 85
- 9 Profile mounting EAHF-L2-...-P → 85
- 10 Profile mounting EAHF-L2-...-P-S → 85
- 11 Stepper motor EMMS-ST → 121  
Servo motor EMME-AS → [elgc-tb](#)
- 12 Axial kit EAMM-A → [elgc-tb](#)

1 Centring pin ZBS/centring sleeve ZBH<sup>1)</sup>

For size	Type	Part no.
45	ZBS-4	562959
60	ZBH-5-B	8146543
80	ZBH-7-B	8146544

1) Packaging unit 10 pieces.

## 2 Adapter kit EHAA-D-L2

For combination (size)	Type	Part no.
45/32, 45/45	EHAA-D-L2-45-L2-45	8066714
60/45, 60/60	EHAA-D-L2-60-L2-60	8066715
80/60, 80/80	EHAA-D-L2-80-L2-80	8066716

## 3 Profile mounting EAHF-L2-...-P-D...

For combination (size)	Type	Part no.
45/32	EAHF-L2-25-P-D2	4759748
60/45	EAHF-L2-45-P-D3	4759739
80/60	EAHF-L2-45-P-D4	4759726

## 4 Angle kit EHAA-D-L2-...-AP

For combination (size)	Type	Part no.
45/32	E HAA-D-L2-45-L2-32-AP	8066718
60/45	EHAA-D-L2-60-L2-45-AP	8066719
80/60	EHAA-D-L2-80-L2-60-AP	8066720

## 5 Clamping component EADT-S-L5

For size	Type	Part no.
45	EADT-S-L5-32	8065818
60, 80	EADT-S-L5-70	8058451

## 6 Sensor bracket EAPM-L2-SH

For size	Type	Part no.
45, 60, 80	EAPM-L2-SH	4759852

## 7 Proximity switch for T-slot, inductive SIES-8M

Description	Type	Part no.	
N/O contact	PNP, cable, 7.5 m	SIES-8M-PS-24V-K-7,5-OE	551386
	PNP, plug, 0.3 m	SIES-8M-PS-24V-K-0,3-M8D	551387
	NPN, cable, 7.5 m	SIES-8M-NS-24V-K-7,5-OE	551396
	NPN, plug, 0.3 m	SIES-8M-NS-24V-K-0,3-M8D	551397
N/C contact	PNP, cable, 7.5 m	SIES-8M-PO-24V-K-7,5-OE	551391
	PNP, plug, 0.3 m	SIES-8M-PO-24V-K-0,3-M8D	551392
	NPN, cable, 7.5 m	SIES-8M-NO-24V-K-7,5-OE	551401
	NPN, plug, 0.3 m	SIES-8M-NO-24V-K-0,3-M8D	551402

## 8 Switch lug EAPM-L2-SLS

For size	Type	Part no.
For sensing using inductive proximity switches SIES-8M		
45	EAPM-L2-45-SLS	8067260
60	EAPM-L2-60-SLS	8067261
80	EAPM-L2-80-SLS	8067262

## 9 Profile mounting EAHF-L2-...-P

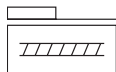
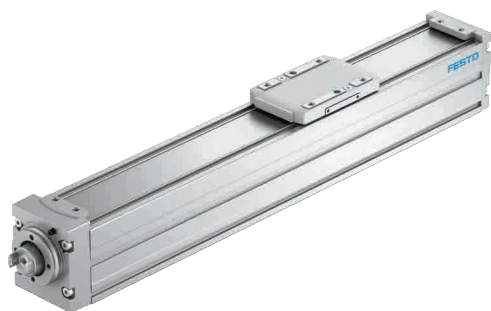
For size	Type	Part no.
For mounting the axis on the side of the profile		
45, 60, 80	EAHF-L2-45-P	4835728

## 10 Profile mounting EAHF-L2-...-P-S

For size	Type	Part no.
For mounting the axis on the side of the profile		
45, 60, 80	EAHF-L2-45-P-S	5184133

Electric axes >

## Spindle axes ELGC-BS-KF, with recirculating ball bearing guide



- The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation
- Internal guide and ball screw
- Space-saving position sensing
- Flexible motor mounting

### Order code

001 002 003 004 005 006  
 ELGC - BS - KF -  -  - ...P

Legend:  Mandatory entry

001	Type
ELGC	Gantry axis
002	Drive system
BS	Ball screw
003	Guide
KF	Recirculating ball bearing guide
004	Size
...	32, 45, 60, 80

005	Stroke [mm]
...	100, 200, 300, 400, 500, 600, 800, 1000
006	Spindle pitch [mm/rev]
8P	8
10P	10
12P	12
16P	16

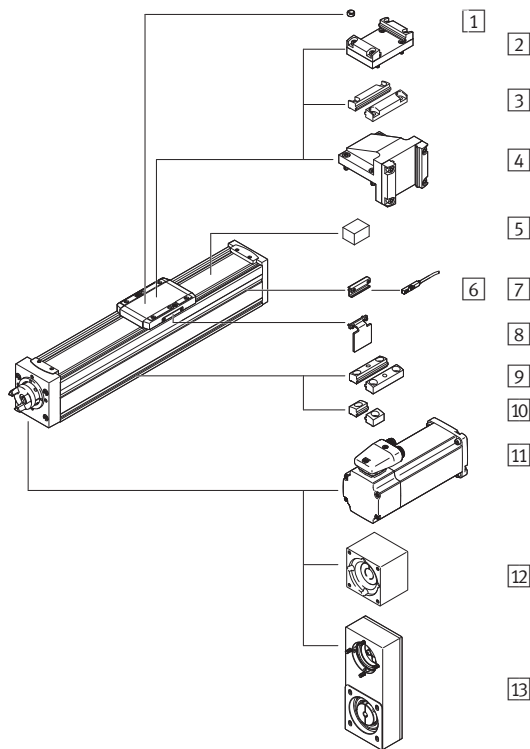
### Ordering

002 Ball screw – 003 Recirculating ball bearing guide				
005 Stroke [mm]    004 Size – 006 Spindle pitch				
	32 – 8 mm/rev	45 – 10 mm/rev	60 – 12 mm/rev	80 – 16 mm/rev
100	8061477	8061484	8061491	8061498
200	8061478	8061485	8061492	8061499
300	8061479	8061486	8061493	8061500
400	8061480	8061487	8061494	8061501
500	8061481	8061488	8061495	8061502
600	8061482	8061489	8061496	8061503
800	8061483	8061490	8061497	8061504
1000				8061505



Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Accessories



- 1 Centring pin/sleeve ZBS/ZBH → 87
- 2 Adapter kit EHAA-D-L2 → 87
- 3 Profile mounting EAHF-L2-...-P-D... → 87
- 4 Angle kit EHAA-D-L2-...-AP → 87
- 5 Clamping component EADT-S-L5 → 87
- 6 Sensor bracket EAPM-L2-SH → 87
- 7 Proximity switch SIES-8M → 87  
Proximity switch SMT-8M → 243
- 8 Switch lug EAPM-L2-...-SLS → 87
- 9 Profile mounting EAHF-L2-...-P → 87
- 10 Profile mounting EAHF-L2-...-P-S → 87
- 11 Stepper motor EMMS-ST → 121  
Servo motor EMME-AS → [elgc-tb](#)
- 12 Axial kit EAMM-A → [elgc-bs](#)
- 13 Parallel kit EAMM-U → [elgc-bs](#)

1 Centring pin/sleeve ZBS/ZBH <sup>1)</sup>			
For size	Description	Type	Part no.
32	For slide	ZBS-2	525273
45		ZBS-4	562959
60		ZBH-5-B	8146543
80		ZBH-7-B	8146544

1) Packaging unit 10 pieces.

2 Adapter kit EHAA-D-L2			
For combination (size)	Type	Part no.	
32/25, 3 2/32	EHAA-D-L2-32-L2-32	8066713	
45/32, 45/45	EHAA-D-L2-45-L2-45	8066714	
60/45, 60/60	EHAA-D-L2-60-L2-60	8066715	
80/60, 80/80	EHAA-D-L2-80-L2-80	8066716	

3 Profile mounting EAHF-L2-...-P-D...			
For combination (size)	Type	Part no.	
45/32	EAHF-L2-25-P-D2	4759748	
60/45	EAHF-L2-45-P-D3	4759739	
80/60	EAHF-L2-45-P-D4	4759726	

4 Angle kit EHAA-D-L2-...-AP			
For combination (size)	Type	Part no.	
32/25	EHAA-D-L2-32-L2-25-AP	8066717	
45/32	EHAA-D-L2-45-L2-32-AP	8066718	
60/45	EHAA-D-L2-60-L2-45-AP	8066719	
80/60	EHAA-D-L2-80-L2-60-AP	8066720	

5 Clamping component EADT-S-L5			
For size	Type	Part no.	
32, 45	EADT-S-L5-32	8065818	
60, 80	EADT-S-L5-70	8058451	

6 Sensor bracket EAPM-L2-SH			
For size	Type	Part no.	
32, 45, 60, 80	EAPM-L2-SH	4759852	

7 Proximity switch for T-slot, inductive SIES-8M			
Description	Type	Part no.	
N/O contact	PNP, cable, 7.5 m	SIES-8M-PS-24V-K-7,5-OE	551386
	PNP, plug, 0.3 m	SIES-8M-PS-24V-K-0,3-M8D	551387
	NPN, cable, 7.5 m	SIES-8M-NS-24V-K-7,5-OE	551396
	NPN, plug, 0.3 m	SIES-8M-NS-24V-K-0,3-M8D	551397
N/C contact	PNP, cable, 7.5 m	SIES-8M-PO-24V-K-7,5-OE	551391
	PNP, plug, 0.3 m	SIES-8M-PO-24V-K-0,3-M8D	551392
	NPN, cable, 7.5 m	SIES-8M-NO-24V-K-7,5-OE	551401
	NPN, plug, 0.3 m	SIES-8M-NO-24V-K-0,3-M8D	551402

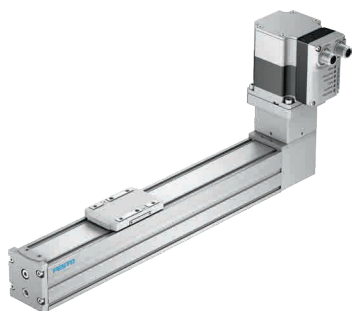
8 Switch lug EAPM-L2-SLS			
For size	Type	Part no.	
For sensing using inductive proximity switches SIES-8M			
32	EAPM-L2-32-SLS	8067259	
45	EAPM-L2-45-SLS	8067260	
60	EAPM-L2-60-SLS	8067261	
80	EAPM-L2-80-SLS	8067262	

9 Profile mounting EAHF-L2-...-P			
For size	Type	Part no.	
For mounting the axis on the side of the profile			
32	EAHF-L2-25-P	4835684	
45, 60, 80	EAHF-L2-45-P	4835728	

10 Profile mounting EAHF-L2-...-P-S			
For size	Type	Part no.	
For mounting the axis on the side of the profile			
32	EAHF-L2-25-P-S	5183153	
45, 60, 80	EAHF-L2-45-P-S	5184133	

Electric axes >

## Toothed belt axis units ELGS-TB-KF



- Without external servo drive: all the necessary electronic components are combined in the integrated drive
- Simplified commissioning: all parameters can be manually set directly on the drive
- Clean look design: easy to clean and less prone to contamination

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012  
 ELGS - TB - KF - [ ] - [ ] - ST - M - H1 - PLK - AA - [ ] - [ ]

001	Type
ELGS	Gantry axis
002	Drive system
TB	Toothed belt
003	Guide
KF	Recirculating ball bearing guide
004	Size
...	45, 60
005	Stroke [mm]
...	200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000
006	Motor type
ST	Stepper motor
007	Controller
M	Integrated

008	Control panel
H1	Integrated
009	Bus protocol/activation
PLK	PNP and IO-Link
010	End-position sensing
AA	With integrated end-position sensing
011	Cable outlet direction
-	Standard
012	Electrical accessories
-	None

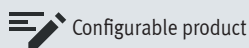
Legend:  Mandatory entry  Optional entry

### Product options

Bus protocol/activation  
 NLK NPN and IO-Link

Cable outlet direction  
 L Left  
 R Right  
 F Front

Electrical accessories  
 L1 Adapter for operation as IO-Link device



This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

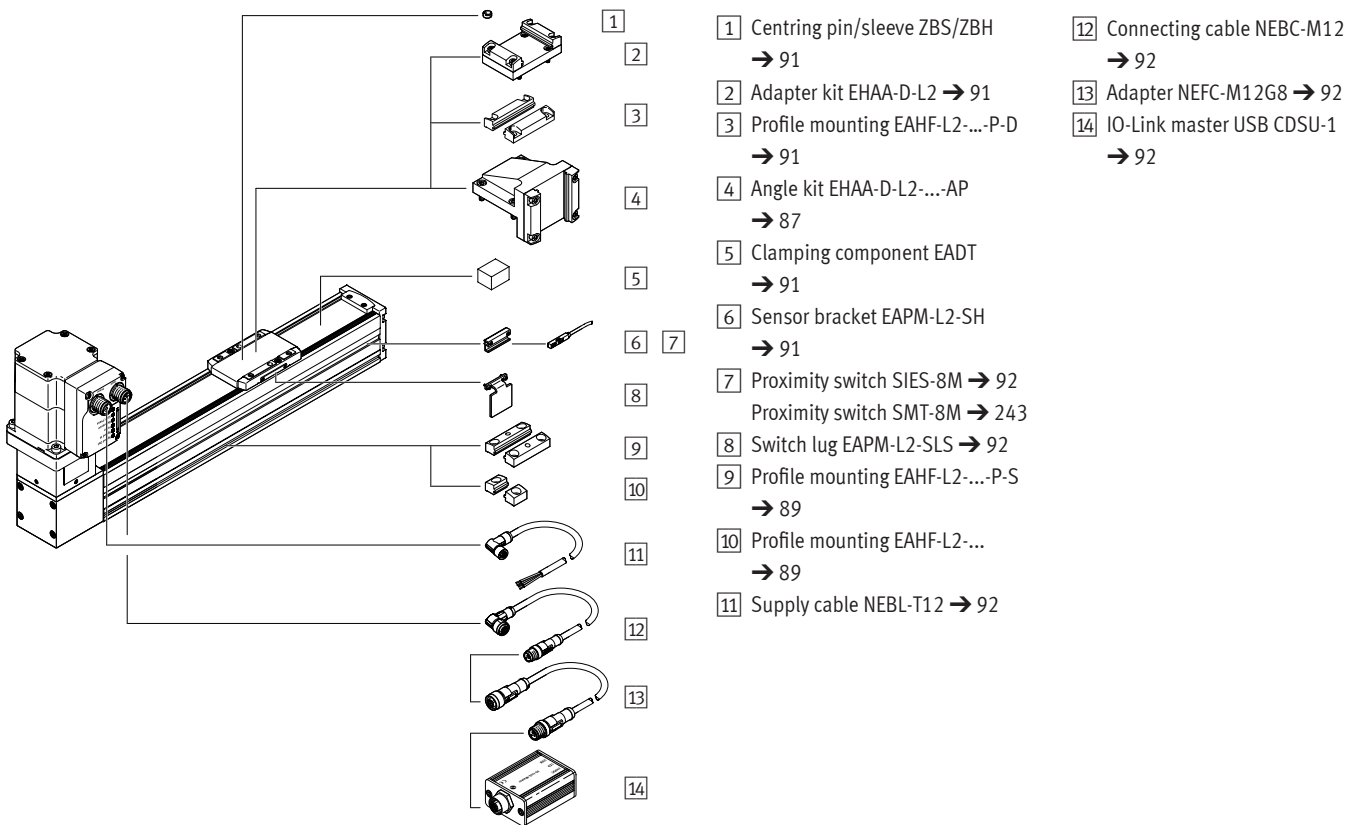
Part no.	Type
8083664	ELGS-TB-KF-45-...
8083557	ELGS-TB-KF-60-...

## Ordering data – Basic design

002 Toothed belt – 003 Recirculating ball bearing guide – 006 Stepper motor – 007 Integrated controller – 008 Integrated control panel – 009 Bus protocol/activation via PNP and IO-Link – 010 With integrated end-position sensing – 011 Standard cable outlet – 012 Without electrical accessories

005 Stroke [mm]	004 Size	
	45	60
200	8083665	8083570
300	8083666	8083571
500	8083667	8083572
600	8083668	8083573
800	8083669	8083574
1000	8083670	8083575
1200	8083671	8083576
1500	8083672	8083577
1800		8083578
2000		8083579

## Accessories



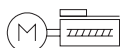
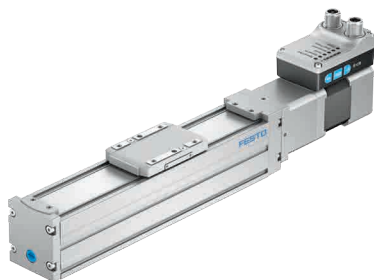
- 1 Centring pin/sleeve ZBS/ZBH → 91
- 2 Adapter kit EHAA-D-L2 → 91
- 3 Profile mounting EAHF-L2-...-P-D → 91
- 4 Angle kit EHAA-D-L2-...-AP → 87
- 5 Clamping component EADT → 91
- 6 Sensor bracket EAPM-L2-SH → 91
- 7 Proximity switch SIES-8M → 92  
Proximity switch SMT-8M → 243
- 8 Switch lug EAPM-L2-SLS → 92
- 9 Profile mounting EAHF-L2-...-P-S → 89
- 10 Profile mounting EAHF-L2-... → 89
- 11 Supply cable NEBL-T12 → 92
- 12 Connecting cable NEBC-M12 → 92
- 13 Adapter NEFC-M12G8 → 92
- 14 IO-Link master USB CDSU-1 → 92

9 Profile mounting EAHF-L2-...-P-S		
For size	Type	Part no.
For mounting the axis on the side of the profile		
45, 60	EAHF-L2-45-P-S	5184133

10 Profile mounting EAHF-L2-...-P		
For size	Type	Part no.
For mounting the axis on the side of the profile		
45, 60	EAHF-L2-45-P	4835728

Electric axes >

## Spindle axis units ELGS-BS-KF



- Without external servo drive: all the necessary electronic components are combined in the integrated drive
- Simplified commissioning: all parameters can be manually set directly on the drive
- Clean look design: easy to clean and less prone to contamination

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013 014  
 ELGS - BS - KF - - ...P - ST - M - H1 - PLK - AA - - -

001	Type
ELGS	Gantry axis
002	Drive system
BS	Ball screw
003	Guide
KF	Recirculating ball bearing guide
004	Size
...	32, 45, 60
005	Stroke [mm]
...	100, 200, 300, 400, 500, 600, 800
006	Spindle pitch [mm/rev]
...P	8, 10, 12
007	Motor type
ST	Stepper motor
008	Controller
M	Integrated

009	Control panel
H1	Integrated
010	Bus protocol/activation
PLK	PNP and IO-Link
011	End-position sensing
AA	With integrated end-position sensing
012	Cable outlet direction
-	Standard
013	Motor attachment position
-	Standard
014	Electrical accessories
-	None

Legend:  Mandatory entry  Optional entry

### Product options

Bus protocol/activation  
 NLK NPN and IO-Link

Cable outlet direction  
 D Underneath  
 F Front  
 B Rear

Motor attachment position  
 PB Parallel, rear  
 PF Parallel, front  
 PD Parallel, underneath

Electrical accessories  
 L1 Adapter for operation as IO-Link device

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

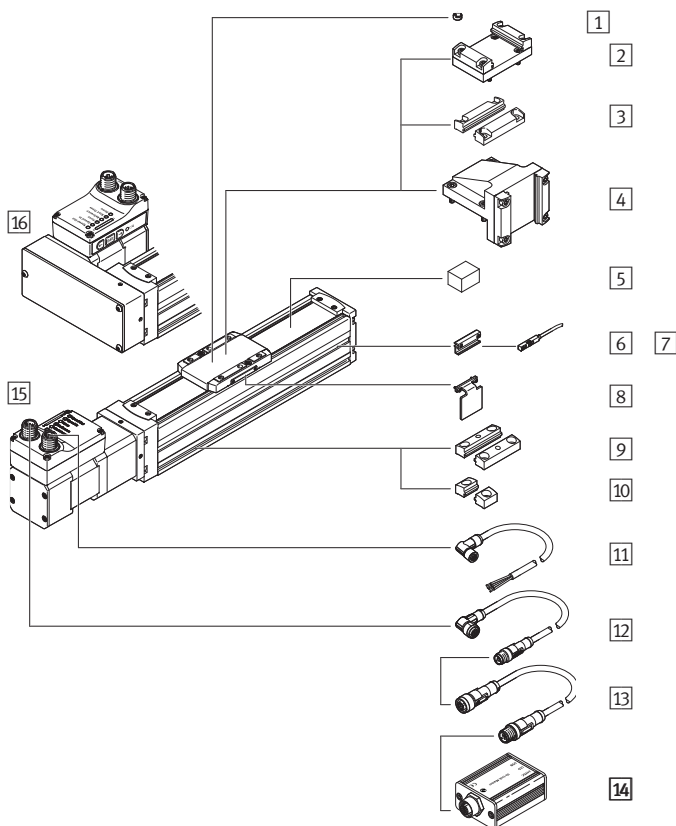
Part no.	Type
8083433	ELGS-BS-KF-32-...
8083493	ELGS-BS-KF-45-...
8083398	ELGS-BS-KF-60-...

## Ordering data – Basic design

002 Ball screw drive – 003 Recirculating ball bearing guide – 007 Stepper motor – 008 Integrated controller – 009 Integrated control panel – 010 Bus protocol/activation via PNP and IO-Link – 011 With integrated end-position sensing – 012 Standard cable outlet – 013 Standard motor attachment position – 014 Without electrical accessories

005 Stroke [mm]	004 Size – 006 Spindle pitch		
	32 – 8 mm/rev	45 – 10 mm/rev	60 – 12 mm/rev
100	8083424	8083470	8083383
200	8083425	8083471	8083384
300	8083426	8083472	8083385
400	8083427	8083473	8083386
500	8083428	8083474	8083387
600	8083429	8083475	8083388
800	8083430	8083476	8083389

## Accessories



- 1 Centring pin/sleeve ZBS/ZBH → 91
- 2 Adapter kit EHAA-D-L2 → 91
- 3 Profile mounting EAHF-L2-...-P-D → 91
- 4 Angle kit EHAA-D-L2-...-AP → 87
- 5 Clamping component EADT → 91
- 6 Sensor bracket EAPM-L2-SH → 91
- 7 Proximity switch SIES-8M → 92  
Proximity switch SMT-8M → 243
- 8 Switch lug EAPM-...-SLS → 92
- 9 Profile mounting EAHF-L2-...-P → 92
- 10 Profile mounting EAHF-L2-...-P-S → 92
- 11 Supply cable NEBL-T12 → 92
- 12 Connecting cable NEBC-M12 → 92
- 13 Adapter NEFC-M12G8 → 92
- 14 IO-Link master USB CDSU-1 → 92
- 15 Axial kit for axial motor mounting (included in the scope of delivery)
- 16 Parallel kit for parallel motor mounting (included in the scope of delivery)

### 1 Centring pin ZBS/centring sleeve ZBH<sup>1)</sup>

For size	Type	Part no.	
32	For slide	ZBS-2	525273
45		ZBS-4	562959
60		ZBH-5-B	8146543

1) Packaging unit 10 pieces.

### 2 Adapter kit EHAA-D-L2

For combination (size)	Type	Part no.
32/25	EHAA-D-L2-32-L2-32	8066713
45/32, 45/45	EHAA-D-L2-45-L2-45	8066714
60/45, 60/60	EHAA-D-L2-60-L2-60	8066715

### 3 Profile mounting EAHF-L2-...-P-D...

For combination (size)	Type	Part no.
32/25	EAHF-L2-25-P-D1	4759753
45/32	EAHF-L2-25-P-D2	4759748
60/45	EAHF-L2-45-P-D3	4759739

### 5 Clamping component EADT

For size	Type	Part no.	
32	Tool for retensioning the cover strip	EADT-S-L5-32	8065818
45		EADT-S-L5-70	8058451
60			

### 6 Sensor bracket EAPM-L2-SH

For size	Type	Part no.
32, 45, 60	EAPM-L2-SH	4759852

Electric axes >

## Spindle axis units ELGS-BS-KF

### Accessories

02 Electric drives

#### 7 Proximity switch for T-slot, inductive SIES-8M

Description	Type	Part no.	
N/O contact	PNP, cable, 7.5 m	<b>SIES-8M-PS-24V-K-7,5-OE</b>	<b>551386</b>
	PNP, plug, 0.3 m	<b>SIES-8M-PS-24V-K-0,3-M8D</b>	<b>551387</b>
	NPN, cable, 7.5 m	<b>SIES-8M-NS-24V-K-7,5-OE</b>	<b>551396</b>
	NPN, plug, 0.3 m	<b>SIES-8M-NS-24V-K-0,3-M8D</b>	<b>551397</b>
N/C contact	PNP, cable, 7.5 m	<b>SIES-8M-PO-24V-K-7,5-OE</b>	<b>551391</b>
	PNP, plug, 0.3 m	<b>SIES-8M-PO-24V-K-0,3-M8D</b>	<b>551392</b>
	NPN, cable, 7.5 m	<b>SIES-8M-NO-24V-K-7,5-OE</b>	<b>551401</b>
	NPN, plug, 0.3 m	<b>SIES-8M-NO-24V-K-0,3-M8D</b>	<b>551402</b>

#### 8 Switch lug EAPM-L2-SLS

For size	Type	Part no.
For sensing using inductive proximity switches SIES-8M		
32	<b>EAPM-L2-32-SLS</b>	<b>8067259</b>
45	<b>EAPM-L2-45-SLS</b>	<b>8067260</b>
60	<b>EAPM-L2-60-SLS</b>	<b>8067261</b>

#### 9 Profile mounting EAHF-L2-...-P

For size	Type	Part no.
For mounting the axis on the side of the profile		
32	<b>EAHF-L2-25-P</b>	<b>4835684</b>
45, 60	<b>EAHF-L2-45-P</b>	<b>4835728</b>

#### 10 Profile mounting EAHF-L2-...-P-S

For size	Type	Part no.
For mounting the axis on the side of the profile		
32	<b>EAHF-L2-25-P-S</b>	<b>5183153</b>
45, 60	<b>EAHF-L2-45-P-S</b>	<b>5184133</b>

#### 11 Supply cable NEBL-T12

Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M12x1, 4-pin			
2 m	Cable, open end, 4-wire	<b>NEBL-T12W4-E-2-N-LE4</b>	<b>8080778</b>
5 m		<b>NEBL-T12W4-E-5-N-LE4</b>	<b>8080779</b>
10 m		<b>NEBL-T12W4-E-10-N-LE4</b>	<b>8080780</b>
15 m		<b>NEBL-T12W4-E-15-N-LE4</b>	<b>8080781</b>
Connection, left: straight socket, M12x1, 4-pin			
2 m	Cable, open end, 4-wire	<b>NEBL-T12G4-E-2-N-LE4</b>	<b>8080790</b>
5 m		<b>NEBL-T12G4-E-5-N-LE4</b>	<b>8080791</b>
10 m		<b>NEBL-T12G4-E-10-N-LE4</b>	<b>8080792</b>
15 m		<b>NEBL-T12G4-E-15-N-LE4</b>	<b>8080793</b>

#### 12 Connecting cable NEBC-M12

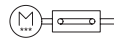
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M12x1, 8-pin			
2 m	Cable, open end, 8-wire	<b>NEBC-M12W8-E-2-N-B-LE8</b>	<b>8094476</b>
5 m		<b>NEBC-M12W8-E-5-N-B-LE8</b>	<b>8094478</b>
10 m		<b>NEBC-M12W8-E-10-N-B-LE8</b>	<b>8094481</b>
15 m		<b>NEBC-M12W8-E-15-N-B-LE8</b>	<b>8094479</b>
2 m	Straight plug, M12x1, 8-pin	<b>NEBC-M12W8-E-2-N-M12G8</b>	<b>8080786</b>
5 m		<b>NEBC-M12W8-E-5-N-M12G8</b>	<b>8080787</b>
10 m		<b>NEBC-M12W8-E-10-N-M12G8</b>	<b>8080788</b>
15 m		<b>NEBC-M12W8-E-15-N-M12G8</b>	<b>8080789</b>
Connection, left: straight socket, M12x1, 8-pin			
2 m	Cable, open end, 8-wire	<b>NEBC-M12G8-E-2-N-B-LE8</b>	<b>8094480</b>
5 m		<b>NEBC-M12G8-E-5-N-B-LE8</b>	<b>8094477</b>
10 m		<b>NEBC-M12G8-E-10-N-B-LE8</b>	<b>8094482</b>
15 m		<b>NEBC-M12G8-E-15-N-B-LE8</b>	<b>8094475</b>
2 m	Straight plug, M12x1, 8-pin	<b>NEBC-M12G8-E-2-N-M12G8</b>	<b>8080782</b>
5 m		<b>NEBC-M12G8-E-5-N-M12G8</b>	<b>8080783</b>
10 m		<b>NEBC-M12G8-E-10-N-M12G8</b>	<b>8080784</b>
15 m		<b>NEBC-M12G8-E-15-N-M12G8</b>	<b>8080785</b>

#### 13 Adapter NEFC-M12G8

Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M12x1, 8-pin			
0.3 m	Straight plug, M12x1, 5-pin	<b>NEFC-M12G8-0.3-M12G5-LK</b>	<b>8080777</b>

#### 14 IO-Link master USB CDSU-1

Cable length	Type	Part no.
For using the unit with IO-Link		
0.3 m	<b>CDSU-1</b>	<b>8091509</b>



- Without external servo drive: all the necessary electronic components are combined in the integrated drive
- Simplified commissioning: all parameters can be manually set directly on the drive
- Innovative interpretation of toothed belt technology for maximum dynamic response and minimal positioning times
- Complete solution for simple movements between mechanical end positions
- Ideal for fast movement in sorting, distribution and testing applications

## Order code

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017  
 EPCE - TB - - - FL - - - - - ST - M - H1 - PLK - AA - - -

001	Type
EPCE	Electric cylinder unit
002	Drive system
TB	Toothed belt
003	Size
45	45
60	60
004	Stroke [mm]
...	10, 20, 30, 50, 80
005	Piston rod, front left
FL	Male piston rod thread
006	Piston rod, rear left
-	None
007	Piston rod, front right
-	None
008	Piston rod, rear right
-	None

009	Cover variant
-	Standard
MF	Multimount, front
010	Motor type
ST	Stepper motor
011	Controller
M	Integrated
012	Control panel
H1	Integrated
013	Bus protocol/activation
PLK	PNP and IO-Link
014	End-position sensing
AA	With integrated end-position sensing
015	Cable outlet direction
-	Standard
016	Electrical accessories
-	None
017	Operating instructions
-	With operating instructions

Legend:  Mandatory entry  Optional entry

## Product options

Stroke 5, 15, 25, 35, 40, 45, 60 mm

Male piston rod thread

BL Left, rear

FR Right, front

BR Right, rear

Cover variant

MB Multimount, rear

MD Multimount, at both ends

Bus protocol/activation

NLK NPN and IO-Link

Cable outlet direction

D Underneath

L Left

R Right

Electrical accessories

L1 Adapter for operation as IO-Link device

Operating instructions

DN Without operating instructions

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
8103354	EPCE-TB-45-...
8103355	EPCE-TB-60-...

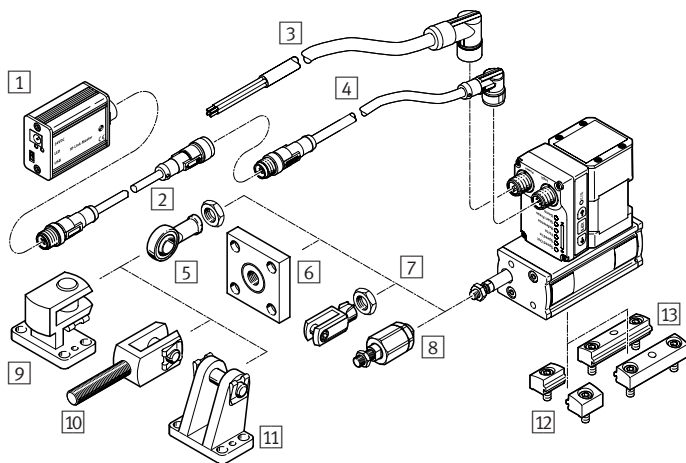
Electric cylinders and slides >  
Electric cylinder units EPCE-TB

## Ordering data

002 Toothed belt – 005 Piston rod, front left, with male thread – 006 Without piston rod, rear left – 007 Without piston rod, front right – 008 Without piston rod, rear right – 010 Stepper motor – 011 Integrated controller – 012 Integrated control panel – 013 Bus protocol/activation via PNP and IO-Link – 014 With integrated end-position sensing – 015 Standard cable outlet orientation – 016 Without electrical accessories – 017 With operating instructions

004 Stroke [mm]	003 Size		60	
	Type	Part no.	Type	Part no.
009 Cover variant: Standard				
10	EPCE-TB-45-10-FL-ST-M-H1-PLK-AA	8101539	EPCE-TB-60-10-FL-ST-M-H1-PLK-AA	8102163
20	EPCE-TB-45-20-FL-ST-M-H1-PLK-AA	8101540	EPCE-TB-60-20-FL-ST-M-H1-PLK-AA	8102162
30	EPCE-TB-45-30-FL-ST-M-H1-PLK-AA	8101541	EPCE-TB-60-30-FL-ST-M-H1-PLK-AA	8102164
50	EPCE-TB-45-50-FL-ST-M-H1-PLK-AA	8101542	EPCE-TB-60-50-FL-ST-M-H1-PLK-AA	8102170
80			EPCE-TB-60-80-FL-ST-M-H1-PLK-AA	8102167
009 Cover variant: Multimount, front				
10			EPCE-TB-60-10-FL-MF-ST-M-H1-PLK-AA	8102166
20	EPCE-TB-45-20-FL-MF-ST-M-H1-PLK-AA	8101544	EPCE-TB-60-20-FL-MF-ST-M-H1-PLK-AA	8102169
30	EPCE-TB-45-30-FL-MF-ST-M-H1-PLK-AA	8101545	EPCE-TB-60-30-FL-MF-ST-M-H1-PLK-AA	8102168
50	EPCE-TB-45-50-FL-MF-ST-M-H1-PLK-AA	8101546	EPCE-TB-60-50-FL-MF-ST-M-H1-PLK-AA	8102165
80			EPCE-TB-60-80-FL-MF-ST-M-H1-PLK-AA	8102171

## Accessories



- 1 IO-Link master USB CDSU-1 → 97
- 2 Adapter NEFC-M12G8 → 97
- 3 Supply cable NEBL-T12 → 97
- 4 Connecting cable NEBC-M12 → 97
- 5 Rod eye SGS → 94
- 6 Coupling piece KSG → 94
- 7 Rod clevis SG → 94
- 8 Self-aligning rod coupler FK → 94
- 9 Right-angle clevis foot LQG → 94
- 10 Rod clevis SGA → 94
- 11 Clevis foot LBG → 94
- 12 Profile mounting EAHF-L2-P-S → [epce](#)
- 13 Profile mounting EAHF-L2-P → [epce](#)  
Centring sleeve ZBH → 94

5 Rod eye SGS		
For size	Type	Part no.
45	SGS-M6	9254
60	SGS-M10x1,25	9261

6 Coupling piece KSG		
For size	Type	Part no.
60	KSG-M10x1,25	32963

7 Rod clevis SG		
For size	Type	Part no.
45	SG-M6	3110
60	SG-M10x1,25	6144

8 Self-aligning rod coupler FK		
For size	Type	Part no.
45	FK-M6	2061
60	FK-M10x1,25	6140

9 Right-angle clevis foot LQG		
For size	Type	Part no.
60	LQG-32	31768

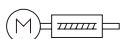
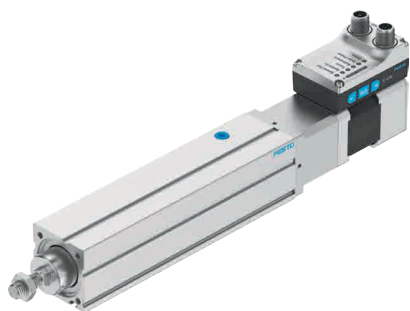
10 Rod clevis SGA		
For size	Type	Part no.
60	SGA-M10x1,25	32954

aA Clevis foot LBG		
For size	Type	Part no.
60	LBG-32	31761

Centring sleeve ZBH <sup>1)</sup>		
For size	Type	Part no.
For centring the electric cylinder unit in combination with multimount cover		
45, 60	ZBH-7-B	8146544

1) Packaging unit 10 pieces





- Without external servo drive: all the necessary electronic components are combined in the integrated drive
- Simplified commissioning: all parameters can be manually set directly on the drive
- Two control options integrated as standard: digital I/O and IO-Link
- Complete solution for simple movements between mechanical end positions
- Ideal for precise and fast movement in sorting, distribution or clamping applications

## Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013 014  
 EPCS - BS - - - ...P - A - ST - M - H1 - PLK - AA - - -

001	Type
EPCS	Electric cylinders
002	Drive system
BS	Ball screw
003	Size
32	32
45	45
60	60
004	Stroke [mm]
...	50, 100, 150, 200, 250, 300, 350, 400, 500
005	Spindle pitch [mm/rev]
...P	3, 5, 8, 10, 12
006	Position sensing
A	Via proximity switch
007	Motor type
ST	Stepper motor ST
008	Controller
M	Integrated

009	Control panel
H1	Integrated
010	Bus protocol/activation
PLK	PNP and IO-Link
011	End-position sensing
AA	With integrated end-position sensing
012	Cable outlet direction
-	Standard
013	Motor attachment position
-	Standard
014	Electrical accessories
-	None

Legend:  Mandatory entry  Optional entry

## Product options

Stroke 25, 75, 125, 175 mm

Cable outlet direction

D Underneath

L Left

R Right

Bus protocol/activation

NLK NPN and IO-Link

Motor attachment position

PL Parallel, left

PR Parallel, right

PD Parallel, underneath

PT Parallel, top

Electrical accessories

L1 Adapter for operation as IO-Link device

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
8118264	EPCS-BS-32-...
8118265	EPCS-BS-45-...
8118266	EPCS-BS-60-...

Electric cylinders and slides >

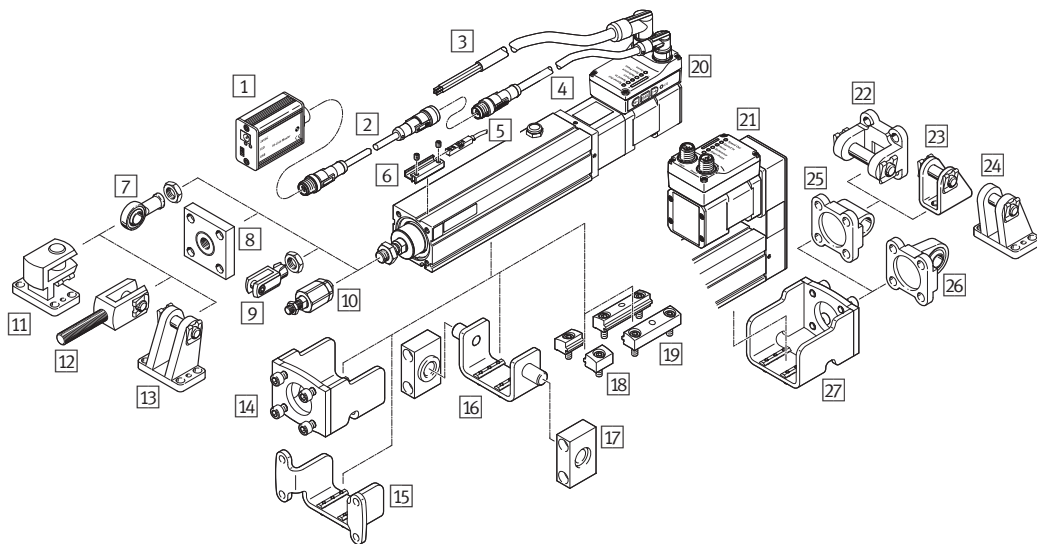
## Electric cylinder units EPCS-BS

### Ordering data – Basic design

002 Ball screw drive – 006 Position sensing via proximity switch – 007 Stepper motor ST – 008 Integrated controller – 009 Integrated control panel – 010 Bus protocol/activation via NPN and IO-Link – 011 With integrated end-position sensing – 012 Standard cable outlet orientation – 013 Standard motor attachment position – 014 Without electrical accessories

004 Stroke [mm]	003 Size – 005 Spindle pitch					
	32 – 3 mm/rev	32 – 8 mm/rev	45 – 3 mm/rev	45 – 10 mm/rev	60 – 5 mm/rev	60 – 12 mm/rev
50	<b>8118267</b>	<b>8118271</b>	<b>8118275</b>	<b>8118281</b>	<b>8118287</b>	<b>8118296</b>
100	<b>8118268</b>	<b>8118272</b>	<b>8118276</b>	<b>8118282</b>	<b>8118288</b>	<b>8118297</b>
150	<b>8118269</b>	<b>8118273</b>	<b>8118277</b>	<b>8118283</b>	<b>8118289</b>	<b>8118298</b>
200	<b>8118270</b>	<b>8118274</b>	<b>8118278</b>	<b>8118284</b>	<b>8118290</b>	<b>8118299</b>
250			<b>8118279</b>	<b>8118285</b>	<b>8118291</b>	<b>8118300</b>
300			<b>8118280</b>	<b>8118286</b>	<b>8118292</b>	<b>8118301</b>
350					<b>8118293</b>	<b>8118302</b>
400					<b>8118294</b>	<b>8118303</b>
500					<b>8118295</b>	<b>8118304</b>

### Accessories



- 1 IO-Link master USB CDSU-1 → 97
- 2 Adapter NEFC-M12G8 → 97
- 3 Supply cable NEBL-T12 → 97
- 4 Connecting cable NEBC-M12 → 97
- 5 Proximity switch<sup>1)</sup> SMT-8M-A → 243
- 6 Sensor bracket<sup>1)</sup> EAPM-L2 → 97
- 7 Rod eye SGS → 97
- 8 Coupling piece KSG → 97
- 9 Rod clevis SG → 97
- 10 Self-aligning rod coupler FK → 97
- 11 Right-angle clevis foot LQG → 97
- 12 Rod clevis SGA → 97
- 13 Clevis foot LBG → 97
- 14 Adapter kit EAHA-P2 → 97
- 15 Flange mounting EAHH-P2 → 97
- 16 Swivel mounting EAHS-P2 → 98
- 17 Trunnion support LNZG → 98
- 18 Profile mounting EAHF-L2-P-S → 98
- 19 Profile mounting EAHF-L2-P → 98
- 20 Axial kit (included in the scope of delivery) → [epcs](#)
- 21 Parallel kit (included in the scope of delivery) → [epcs](#)
- 22 Swivel flange SNCB → 98
- 23 Clevis foot LBN → 98
- 24 Clevis foot LBG → 98
- 25 Swivel flange SNCL → 98
- 26 Swivel flange SNCS → 98
- 27 Adapter kit EAHA-P2 → 98

1) Proximity switches are optional and only required in order to sense any intermediate positions.

## Accessories

1 IO-Link master USB CDSU-1		
Cable length	Type	Part no.
For using the unit with IO-Link		
0.3 m	CDSU-1	8091509

2 Adapter NEFC-M12G8			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M12x1, 8-pin			
0.3 m	Straight plug, M12x1, 5-pin	NEFC-M12G8-0.3-M12G5-LK	8080777

3 Supply cable NEBL-T12			
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M12x1, 4-pin			
2 m	Cable, open end, 4-wire	NEBL-T12W4-E-2-N-LE4	8080778
5 m		NEBL-T12W4-E-5-N-LE4	8080779
10 m		NEBL-T12W4-E-10-N-LE4	8080780
15 m		NEBL-T12W4-E-15-N-LE4	8080781
Connection, left: straight socket, M12x1, 4-pin			
2 m	Cable, open end, 4-wire	NEBL-T12G4-E-2-N-LE4	8080790
5 m		NEBL-T12G4-E-5-N-LE4	8080791
10 m		NEBL-T12G4-E-10-N-LE4	8080792
15 m		NEBL-T12G4-E-15-N-LE4	8080793

4 Connecting cable NEBC-M12			
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M12x1, 8-pin			
2 m	Cable, open end, 8-wire	NEBC-M12W8-E-2-N-B-LE8	8094476
5 m		NEBC-M12W8-E-5-N-B-LE8	8094478
10 m		NEBC-M12W8-E-10-N-B-LE8	8094481
15 m		NEBC-M12W8-E-15-N-B-LE8	8094479
2 m	Straight plug, M12x1, 8-pin	NEBC-M12W8-E-2-N-M12G8	8080786
5 m		NEBC-M12W8-E-5-N-M12G8	8080787
10 m		NEBC-M12W8-E-10-N-M12G8	8080788
15 m		NEBC-M12W8-E-15-N-M12G8	8080789
Connection, left: straight socket, M12x1, 8-pin			
2 m	Cable, open end, 8-wire	NEBC-M12G8-E-2-N-B-LE8	8094480
5 m		NEBC-M12G8-E-5-N-B-LE8	8094477
10 m		NEBC-M12G8-E-10-N-B-LE8	8094482
15 m		NEBC-M12G8-E-15-N-B-LE8	8094475
2 m	Straight plug, M12x1, 8-pin	NEBC-M12G8-E-2-N-M12G8	8080782
5 m		NEBC-M12G8-E-5-N-M12G8	8080783
10 m		NEBC-M12G8-E-10-N-M12G8	8080784
15 m		NEBC-M12G8-E-15-N-M12G8	8080785

6 Sensor bracket EAPM-L2		
For size	Type	Part no.
32, 45, 60	EAPM-L2-SH	4759852

7 Rod eye SGS		
For size	Type	Part no.
With spherical bearing		
32	SGS-M8	9255
45	SGS-M10x1,25	9261
60	SGS-M12x1,25	9262

8 Coupling piece KSG		
For size	Type	Part no.
To compensate for radial deviations		
45	KSG-M10x1,25	32963
60	KSG-M12x1,25	32964

9 Rod clevis SG		
For size	Type	Part no.
Permits a swivelling movement of the cylinder in one plane		
32	SG-M8	3111
45	SG-M10x1,25	6144
60	SG-M12x1,25	6145

10 Self-aligning rod coupler FK		
For size	Type	Part no.
To compensate for radial and angular deviations		
32	FK-M8	2062
45	FK-M10x1,25	6140
60	FK-M12x1,25	6141

11 Right-angle clevis foot LQG		
For size	Type	Part no.
For rod eye SGS		
45	LQG-32	31768
60	LQG-40	31769

12 Rod clevis SGA		
For size	Type	Part no.
45	SGA-M10x1,25	32954
60	SGA-M12x1,25	10767

13 Clevis foot LBG		
For size	Type	Part no.
45	LBG-32	31761
60	LBG-40	31762

14 Adapter kit EAHA-P2		
For size	Type	Part no.
For mounting the swivel flange and trunnion flange on the front		
32	EAHA-P2-32	5173020
45	EAHA-P2-45	5172353
60	EAHA-P2-60	5173082

15 Flange mounting EAHH-P2		
For size	Type	Part no.
For mounting the electric cylinder via the profile		
32	EAHH-P2-32	5126157
45	EAHH-P2-45	5126669
60	EAHH-P2-60	5127005

Electric cylinders and slides >

## Electric cylinder units EPCS-BS

### Accessories

02 Electric drives

16 Swivel mounting EAHS-P2		
For size	Type	Part no.
Position freely selectable along the cylinder length		
32	EAHS-P2-32	5125041
45	EAHS-P2-45	5125167
60	EAHS-P2-60	5125281

17 Trunnion support LNZG		
For size	Type	Part no.
For cylinders with trunnion flange mounting		
32	LNZG-16	1434912
45	LNZG-32	32959
60	LNZG-40/50	32960

18 Profile mounting EAHF-L2-...-P-S		
For size	Type	Part no.
For mounting the cylinder on the side of the profile		
32	EAHF-L2-25-P-S	5183153
45, 60	EAHF-L2-45-P-S	5184133

19 Profile mounting EAHF-L2-P		
For size	Type	Part no.
For mounting the cylinder on the side of the profile		
32	EAHF-L2-25-P	4835684
45, 60	EAHF-L2-45-P	4835728

22 Swivel flange SNCB		
For size	Type	Part no.
With parallel motor mounting, for spherical bearing		
45	SNCB-32	174390
60	SNCB-40	174391

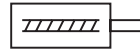
23 Clevis foot LBN		
For size	Type	Part no.
With parallel motor mounting, for spherical bearing		
32	LBN-20/25	6059

24 Clevis foot LBG		
For size	Type	Part no.
With parallel motor mounting, for spherical bearing		
45	LBG-32	31761
60	LBG-40	31762

25 Swivel flange SNCL		
For	Type	Part no.
With parallel motor mounting		
32	SNCL-20	537792
45	SNCL-32	174404
60	SNCL-40	174405

26 Swivel flange SNCS		
For size	Type	Part no.
With parallel motor mounting		
45	SNCS-32	174397
60	SNCS-40	174398

27 Adapter kit EAHA-P2		
For size	Type	Part no.
For mounting the swivel flange and trunnion flange on the front		
32	EAHA-P2-32	5173020
45	EAHA-P2-45	5172353
60	EAHA-P2-60	5173082



- With ball screw
- Degree of protection IP40
- Compact dimensions
- Extensive mounting accessories for various installation situations
- Suitable for simple applications in factory automation that in the past were mostly carried out using pneumatic solutions

## Order code

001 002 003 004 005 006 007 008 009 010  
 EPCC - BS - - - ...P - - - - A - -

Legend:  Mandatory entry  Optional entry

001	Type
EPCC	Electric cylinder
002	Drive system
BS	Ball screw
003	Size
...	25, 32, 45, 60
004	Stroke [mm]
...	25, 50, 75, 100, 125, 150, 175, 200, 250
005	Spindle pitch [mm/rev]
...P	2, 3, 5, 6, 8, 10, 12

006	Piston rod thread type
-	Male thread
007	Scraper variant
-	None
008	Piston rod extension
-	None
009	Position sensing
A	Via proximity switch
010	Guide unit
-	None

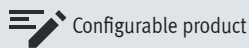
## Product options

Stroke 300, 350, 400, 500 mm  
 Piston rod thread type  
 F Female thread

Scraper variant  
 A7 Wiper

Piston rod extension  
 ...E 1 ... 100 mm

Guide unit  
 KF Recirculating ball bearing with two guide rods



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/epcc](http://www.festo.com/catalogue/epcc)

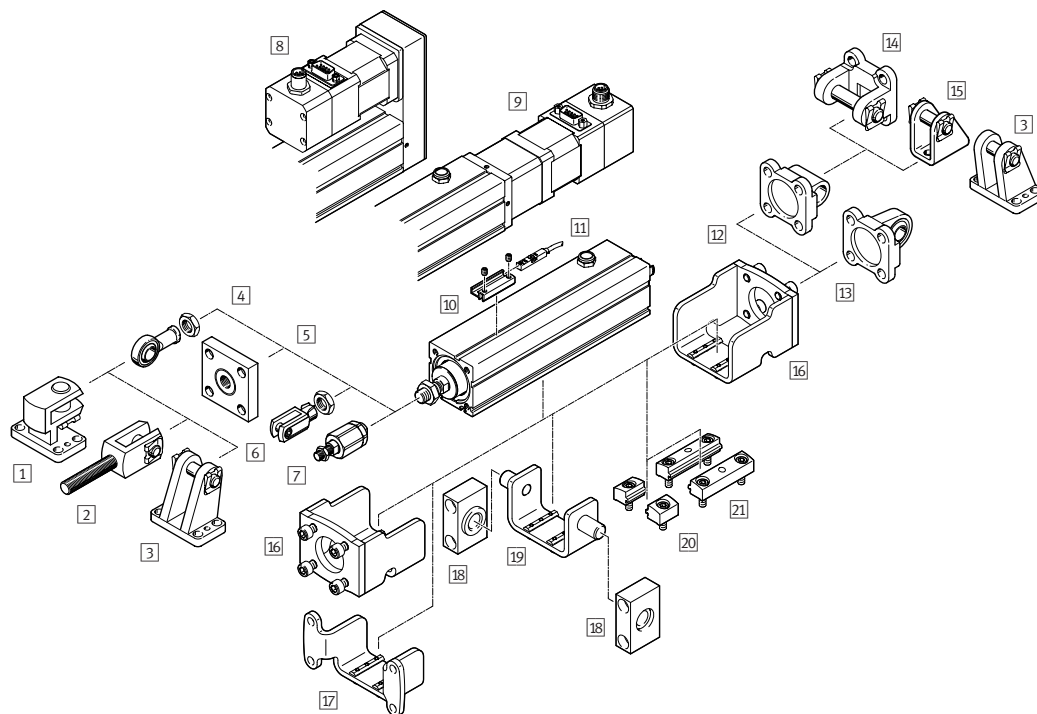
## Ordering data

002 Ball screw – 009 Via proximity switch								
004 Stroke [mm]    003 Size – 005 Spindle pitch								
	25 – 2 mm/U	25 – 6 mm/U	32 – 3 mm/U	32 – 8 mm/U	45 – 3 mm/U	45 – 10 mm/U	60 – 5 mm/U	60 – 12 mm/U
25	5428805	5428813	5428833	5428841	5428858	5428868	5428888	5428901
50	5428806	5428814	5428834	5428842	5428859	5428869	5428889	5428902
75	5428807	5428815	5428835	5428843	5428860	5428870	5428890	5428903
100	5428808	5428816	5428836	5428844	5428861	5428871	5428891	5428904
125	5428809	5428817	5428837	5428845	5428862	5428872	5428892	5428905
150	5428810	5428818	5428838	5428846	5428863	5428873	5428893	5428906
175	5428811	5428819	5428839	5428847	5428864	5428874	5428894	5428907
200	5428812	5428820	5428840	5428848	5428865	5428875	5428895	5428908
250							5428896	5428909

Electric cylinders and slides >

Electric cylinders EPCC, with spindle drive

Accessories



- 1 Right-angle clevis foot LQG → 100
- 2 Rod clevis SGA → 100
- 3 Clevis foot LBG → 100
- 4 Rod eye SGS → 100
- 5 Coupling piece KSG → 100
- 6 Rod clevis SG → 100
- 7 Self-aligning rod coupler FK → 100
- 8 Parallel kit EAMM-U → 100
- 9 Axial kit EAMM-A → 101
- 10 Sensor bracket EAPM-L2 → 101
- 11 Proximity switch SMT-8M → 243
- 12 Swivel flange SNCL → 101
- 13 Swivel flange SNCS → 101
- 14 Swivel flange SNCB → 101
- 15 Clevis foot LBN → 101

- 16 Adapter kit EAHA-P2 → 101
- 17 Flange mounting EAHH-P2 → 101
- 18 Trunnion support LNZG → 101
- 19 Swivel mounting EAHS-P2 → 101
- 20 Profile mounting EAHF-L2-P-S → 101
- 21 Profile mounting EAHF-L2-P → 101

1 Right-angle clevis foot LQG		
For size	Type	Part no.
45	LQG-32	31768
60	LQG-40	31769

2 Rod clevis SGA		
For size	Type	Part no.
45	SGA-M10x1,25	32954
60	SGA-M12x1,25	10767

3 Clevis foot LBG		
For size	Type	Part no.
45	LBG-32	31761
60	LBG-40	31762

4 Rod eye SGS		
For size	Type	Part no.
25	SGS-M6	9254
32	SGS-M8	9255
45	SGS-M10x1,25	9261
60	SGS-M12x1,25	9262

5 Coupling piece KSG		
For size	Type	Part no.
45	KSG-M10x1,25	32963
60	KSG-M12x1,25	32964

6 Rod clevis SG		
For size	Type	Part no.
25	SG-M6	3110
32	SG-M8	3111
45	SG-M10x1,25	6144
60	SG-M12x1,25	6145

7 Self-aligning rod coupler FK		
For size	Type	Part no.
25	FK-M6	2061
32	FK-M8	2062
45	FK-M10x1,25	6140
60	FK-M12x1,25	6141

8 Parallel kit EAMM-U			
For	With motor	Type	Part no.
In combination with stepper motor EMMS-ST			
25	EMMS-ST-28-...	EAMM-U-30-V20-28A-44	4767125
32	EMMS-ST-42-...	EAMM-U-45-V25-42A-63	4825645
45	EMMS-ST-42-...	EAMM-U-45-V32-42A-63	4280674
60	EMMS-ST-57-...	EAMM-U-65-T42-57A-87	4331535
In combination with servo motor			
32	EMME-AS-40-...	EAMM-U-45-V25-40P-63	4782056
45	EMME-AS-40-...	EAMM-U-45-V32-40P-63	4718297
60	EMMT-AS-60-...	EAMM-U-65-T42-60P-87	4784301
	EMME-AS-60-...		

## Accessories

<b>9 Axial kit EAMM-A</b>			
For	With motor	Type	Part no.
In combination with stepper motor EMMS-ST			
25	EMMS-ST-28-...	EAMM-A-V20-28A	4505258
32	EMMS-ST-42-...	EAMM-A-V25-42A	4582608
45	EMMS-ST-42-...	EAMM-A-V32-42A	4281142
	EMMS-ST-57-...	EAMM-A-V32-57A	4597016
60	EMMS-ST-57-...	EAMM-A-T42-57A	4327034
	EMMS-ST-87-...	EAMM-A-T42-87A	4610008
In combination with servo motor			
32	EMME-AS-40-...	EAMM-A-V25-40P	4491059
45	EMME-AS-40-...	EAMM-A-V32-40P	4595742
	EMMT-AS-60-...	EAMM-A-V32-60P	4608750
	EMME-AS-60-...		
60	EMMT-AS-60-...	EAMM-A-T42-60P	4133487
	EMME-AS-60-...		
	EMMT-AS-80-...	EAMM-A-T42-80P	4623788
	EMME-AS-80-...		

<b>10 Sensor bracket EAPM-L2</b>		
For size	Type	Part no.
25, 32, 45, 60	EAPM-L2-SH	4759852

<b>12 Swivel flange SNCL</b>		
For	Type	Part no.
25	SNCL-16	537791
32	SNCL-20	537792
45	SNCL-32	174404
60	SNCL-40	174405

<b>13 Swivel flange SNCS</b>		
For size	Type	Part no.
45	SNCS-32	174397
60	SNCS-40	174398

<b>14 Swivel flange SNCB</b>		
For size	Type	Part no.
45	SNCB-32	174390
60	SNCB-40	174391

<b>15 Clevis foot LBN</b>		
For size	Type	Part no.
25	LBN-12/16	6058
32	LBN-20/25	6059

<b>16 Adapter kit EAHA-P2</b>		
For size	Type	Part no.
25	EAHA-P2-25	5172843
32	EAHA-P2-32	5173020
45	EAHA-P2-45	5172353
60	EAHA-P2-60	5173082

<b>17 Flange mounting EAHH-P2</b>		
For size	Type	Part no.
25	EAHH-P2-25	5127286
32	EAHH-P2-32	5126157
45	EAHH-P2-45	5126669
60	EAHH-P2-60	5127005

<b>18 Trunnion support LNZG</b>		
For size	Type	Part no.
25, 32	LNZG-16	1434912
45	LNZG-32	32959
60	LNZG-4 0/50	32960

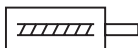
<b>19 Swivel mounting EAHS-P2</b>		
For size	Type	Part no.
25	EAHS-P2-25	5125383
32	EAHS-P2-32	5125041
45	EAHS-P2-45	5125167
60	EAHS-P2-60	5125281

<b>20 Profile mounting EAHF-L2-P-S</b>		
For size	Type	Part no.
For mounting the slide on the side of the profile		
25, 32	EAHF-L2-25-P-S	5183153
45, 60	EAHF-L2-45-P-S	5184133

<b>21 Profile mounting EAHF-L2-P</b>		
For size	Type	Part no.
For mounting the slide on the side of the profile		
25, 32	EAHF-L2-25-P	4835684
45, 60	EAHF-L2-45-P	4835728

Electric cylinders and slides >

## Electric cylinders ESBF, with spindle drive



- Based on ISO 15552
- Available with ball screw (size 32 ... 100) and lead screw (size 32 ... 50)
- There is a choice of three spindle pitches (ball screw) for selecting the optimal force/speed ratio
- High rigidity and precision (ball screw)
- Axial or parallel motor mounting

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011  
 ESBF - BS - - - ...P - - - - - - -

Legend:  Mandatory entry  Optional entry

001	Type
ESBF	Electric cylinder
002	Drive system
BS	Ball screw
003	Size
...	32, 40, 50, 63
004	Stroke [mm]
...	100, 200, 300, 400
005	Spindle pitch [mm/rev]
...P	5, 10, 15, 16, 20, 25

006	Piston rod thread type
-	Male thread
007	Degree of protection for electrics
-	Standard
008	Corrosion protection
-	Standard
009	Special material properties
-	None
010	Additional features
-	None
011	Piston rod extension
-	None

### Product options

80, 100 Size	S1	Degree of protection for electrics IP65	F1	Additional feature: food-safe in accordance with supplementary material information, see <a href="http://www.festo.com/certificates/ESBF">www.festo.com/certificates/ESBF</a>	...E	Piston rod extension 1 ... 200 mm
30 ... 1500 mm variable stroke	R3	High corrosion protection				
Spindle pitch mm/rev	F1A	Recommended for production facilities for manufacturing lithium-ion batteries				
2.5, 3, 4, 15, 32, 40						
LS Lead screw						
F Piston rod with female thread						



Configurable product

This product and all its product options can be ordered online via the configurator:

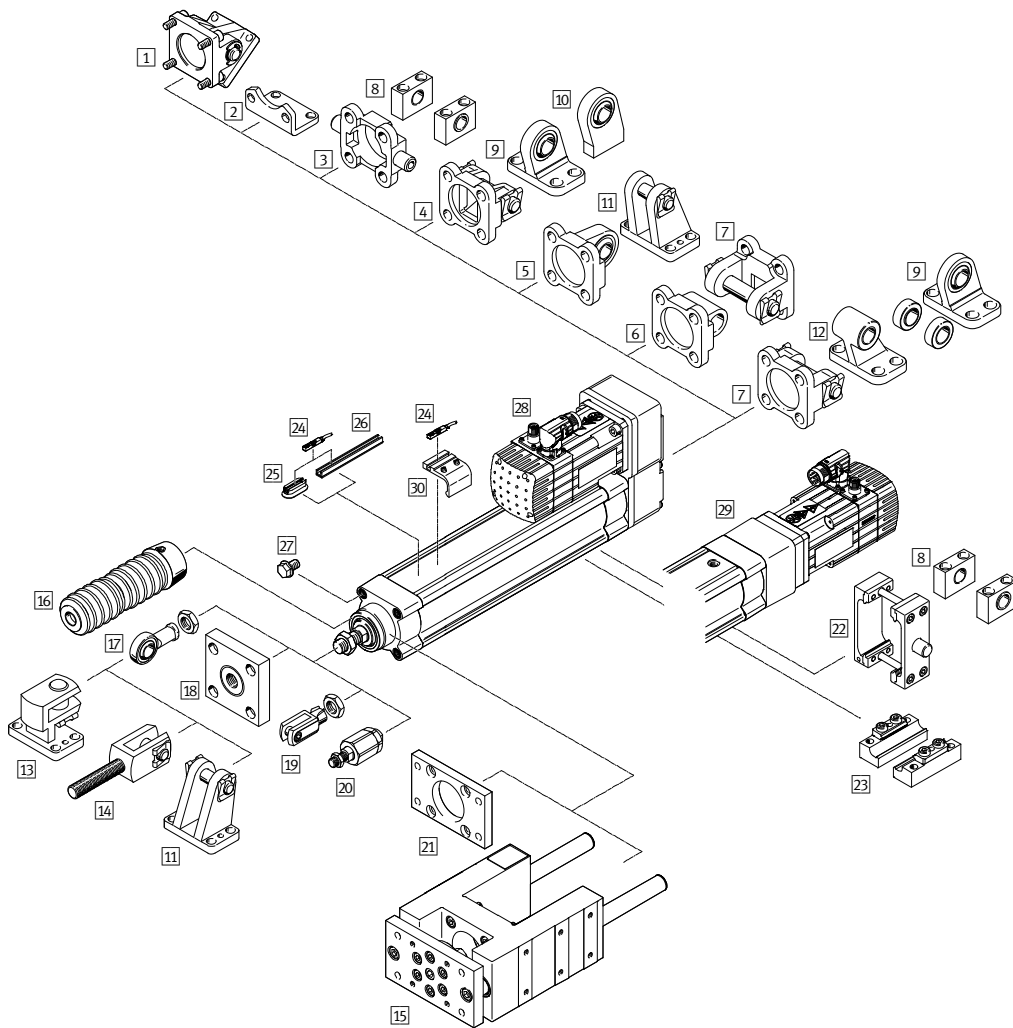
→ [www.festo.com/catalogue/esbf](http://www.festo.com/catalogue/esbf)

### Ordering data – Basic design

002 Ball screw – 006 Piston rod with male thread – 007 Standard degree of protection for electrical system – 008 Standard corrosion protection – 009 Without additional features – 010 Without piston rod extension											
004 Stroke [mm]	003 Size – 005 Spindle pitch [mm/rev]										
	32 – 5	32 – 10	40 – 5	40 – 10	40 – 16	50 – 5	50 – 10	50 – 20	63 – 5	63 – 10	63 – 25
100	8022562	8022565	8022574	8022577	8022581	8022590	8022593	8022597	574093	574096	574100
200	2215384	8022566	2215385	8022578	8022582	2215386	8022594	8022598	1347390	574097	574101
300	8022563	8022567	8022575	8022579	8022583	8022591	8022595	8022599	574094	574098	574102
400	8022564	8022568	8022576	8022580	8022584	8022592	8022596	8022600	574095	574099	574103



Accessories



- 1 Swivel flange DAMS → 103
- 2 Foot mounting HNC → 103
- 3 Trunnion flange ZNCF → 103
- 4 Swivel flange SNC → 103
- 5 Swivel flange SNCS → 103
- 6 Swivel flange SNCL → 104
- 7 Swivel flange SNCB → 104
- 8 Trunnion support LNZG → 104
- 9 Clevis foot LSN/LSNG → 104
- 10 Clevis foot LSNSG → 104
- 11 Clevis foot LBG → 104
- 12 Clevis foot LNG → 104
- 13 Right-angle clevis foot LQG → 104
- 14 Rod clevis SGA → 104
- 15 Guide unit EAGF-V2 → [esbf](#)
- 16 Bellows kit EADB → [esbf](#)
- 17 Rod eye SGS → 104
- 18 Coupling piece KSZ → 104
- 19 Rod clevis SG → 104
- 20 Self-aligning rod coupler FK → 104
- 21 Flange mounting EAHH → 104
- 22 Trunnion mounting kit DAMT → 104
- 23 Profile mounting EAHF-V2 → 104
- 24 Proximity switch SMT-8M → 243

- 25 Mounting kit CRSMB → 105
- 26 Sensor rail SAMH → 105
- 27 Plug screw DAMD-PS → 105
- 28 Parallel kit EAMM-U → 105
- 29 Axial kit EAMM-A → 105
- 30 Mounting kit SMB-8-FENG → 105

1 Swivel flange DAMS		
For size	Type	Part no.
40	DAMS-K-V1-40-V-R3	2787470
50	DAMS-K-V1-50-V-R3	2787651
63	DAMS-K-V1-63-V-R3	1555443

2 Foot mounting HNC		
For size	Type	Part no.
32	HNC-32	174369
40	HNC-40	174370
50	HNC-50	174371
63	HNC-63	174372

3 Trunnion flange ZNCF		
For size	Type	Part no.
32	ZNCF-32	174411
40	ZNCF-40	174412
50	ZNCF-50	174413
63	ZNCF-63	174414

4 Swivel flange SNC		
For size	Type	Part no.
32	SNC-32	174383
40	SNC-40	174384
50	SNC-50	174385
63	SNC-63	174386

5 Swivel flange SNCS		
For size	Type	Part no.
32	SNCS-32	174397
40	SNCS-40	174398
50	SNCS-50	174399
63	SNCS-63	174400

Electric cylinders and slides >

## Electric cylinders ESBF, with spindle drive

### Accessories

#### 6 Swivel flange SNCL

For size	Type	Part no.
32	SNCL-32	174404
40	SNCL-40	174405
50	SNCL-50	174406
63	SNCL-63	174407

#### 7 Swivel flange SNCB

For size	Type	Part no.
32	SNCB-32	174390
40	SNCB-40	174391
50	SNCB-50	174392
63	SNCB-63	174393

#### 8 Trunnion support LNZG

For size	Type	Part no.
32	LNZG-32	32959
40, 50	LNZG-40/50	32960
63	LNZG-63/80	32961

#### 9 Clevis foot LSN

For size	Type	Part no.
32	LSN-32	5561
40	LSN-40	5562
50	LSN-50	5563
63	LSN-63	5564

#### 9 Clevis foot LSNG

For size	Type	Part no.
32	LSNG-32	31740
40	LSNG-40	31741
50	LSNG-50	31742
63	LSNG-63	31743

#### 10 Clevis foot LSNSG

For size	Type	Part no.
32	LSNSG-32	31747
40	LSNSG-40	31748
50	LSNSG-50	31749
63	LSNSG-63	31750

#### 11 Clevis foot LBG

For size	Type	Part no.
32	LBG-32	31761
40	LBG-40	31762
50	LBG-50	31763
63	LBG-63	31764

#### 12 Clevis foot LNG

For size	Type	Part no.
32	LNG-32	33890
40	LNG-40	33891
50	LNG-50	33892
63	LNG-63	33893

#### 13 Right-angle clevis foot LQG

For size	Type	Part no.
32	LQG-32	31768
40	LQG-40	31769
50	LQG-50	31770
63	LQG-63	31771

#### 14 Rod clevis SGA

For size	Type	Part no.
32	SGA-M10x1,25	32954
40	SGA-M12x1,25	10767
50, 63	SGA-M16x1,5	10768

#### 17 Rod eye SGS

For size	Type	Part no.
32	SGS-M10x1,25	9261
40	SGS-M12x1,25	9262
50, 63	SGS-M16x1,5	9263

#### 18 Coupling piece KSZ

For size	Type	Part no.
32	KSZ-M10x1,25	36125
40	KSZ-M12x1,25	36126
50, 63	KSZ-M16x1,5	36127

#### 19 Rod clevis SG

For size	Type	Part no.
32	SG-M10x1,25	6144
40	SG-M12x1,25	6145
50, 63	SG-M16x1,5	6146

#### 20 Self-aligning rod coupler FK

For size	Type	Part no.
32	FK-M10x1,25	6140
40	FK-M12x1,25	6141
50, 63	FK-M16x1,5	6142

#### 21 Flange mounting EAHH

For size	Type	Part no.
32	EAHH-V2-32-R1	2827587
40	EAHH-V2-40-R1	2827588
50	EAHH-V2-50-R1	2827589
63	EAHH-V2-63-R1	1502305

#### 22 Trunnion mounting kit DAMT

For size	Type	Part no.
32	DAMT-V1-32-A	2213233
40	DAMT-V1-40-A	2214899
50	DAMT-V1-50-A	2214909
63	DAMT-V1-63-A	2214971

#### 23 Profile mounting EAHF-V2

For size	Type	Part no.
32, 40	EAHF-V2-32/40-P	2838839
50, 63	EAHF-V2-50/63-P	1547781

## Accessories

## 25 Mounting kit CRSMB

For size	Type	Part no.
32, 40, 50, 63	CRSMB-8-32/100	525565

## 26 Sensor rail SAMH

For size	Length	Type	Part no.
32, 40, 50, 63	50 mm	SAMH-N8-SR-50	1600093
32, 40, 50, 63	100 mm	SAMH-N8-SR-100	1600118

## 27 Plug screw DAMD-PS

For size	Type	Part no.
32, 40	DAMD-PS-M6-12-R1	1355016
50, 63	DAMD-PS-M8-16-R1	650121

## 28 Parallel kit EAMM-U

For	With motor	Type	Part no.
In combination with stepper motor			
32	EMMS-ST-42-...	EAMM-U-50-D32-42A-78	1201607
	EMMS-ST-57-...	EAMM-U-60-D32-57A-91	1210419
40	EMMS-ST-57-...	EAMM-U-60-D40-57A-91	1210442
	EMMS-ST-87-...	EAMM-U-86-D40-87A-102	1215802
50	EMMS-ST-87-...	EAMM-U-86-D50-87A-102	2802708
63	EMMS-ST-87-...	EAMM-U-86-D60-87A-102	1215784
In combination with servo motor			
32	EMME-AS-40-...	EAMM-U-50-D32-40P-78	2153283
	EMMT-AS-60-...	EAMM-U-70-D32-60P-96	2619586
	EMME-AS-60-...		
40	EMMT-AS-60-...	EAMM-U-70-D40-60P-96	2617488
	EMME-AS-60-...		
	EMMT-AS-80-...	EAMM-U-86-D40-80P-102	2802441
50	EMME-AS-80-...		
	EMME-AS-100-...	EAMM-U-110-D50-100A-120	2799424
	EMMT-AS-80-...	EAMM-U-86-D50-80P-102	2803053
63	EMME-AS-80-...		
	EMME-AS-100-...	EAMM-U-110-D60-100A-120	1202436
	EMMT-AS-80-...	EAMM-U-86-D60-80P-102	2155875
63	EMME-AS-80-...		

## 29 Axial kit EAMM-A

For	With motor/gear unit <sup>1)</sup>	Type	Part no.
In combination with stepper motor			
32	EMMS-ST-42-...	EAMM-A-D32-42A	543148
	EMMS-ST-57-...	EAMM-A-D32-57A	550980
40	EMMS-ST-57-...	EAMM-A-D40-57A	543154
	EMMS-ST-87-...	EAMM-A-D40-87A	550982
50	EMMS-ST-87-...	EAMM-A-D50-87A	2733781
63	EMMS-ST-87-...	EAMM-A-D60-87A	543162

## 29 Axial kit EAMM-A

For	With motor/gear unit <sup>1)</sup>	Type	Part no.
In combination with stepper motor and gear unit			
32	EMMS-ST-42-...	EAMM-A-D32-40G	1454238
	EMGA-40-P-G...-SST-42		
	EMMS-ST-57-...	EAMM-A-D32-60G	2946758
40	EMGA-60-P-G...-SST-57		
	EMMS-ST-42-...	EAMM-A-D40-40G	560282
	EMGA-40-P-G...-SST-42		
50	EMMS-ST-57-...	EAMM-A-D40-60G	2256400
	EMGA-60-P-G...-SST-57		
	EMMS-ST-87-...	EAMM-A-D50-60G	2733786
63	EMGA-80-P-G...-SST-87		
	EMMS-ST-87-...	EAMM-A-D50-80G	2733787
	EMGA-80-P-G...-SST-87		
63	EMMS-ST-57-...	EAMM-A-D60-60G	560283
	EMGA-60-P-G...-SST-57		
	EMMS-ST-87-...	EAMM-A-D60-80G	1499402
63	EMGA-80-P-G...-SST-87		
	EMMS-ST-87-...		
	EMGA-80-P-G...-SST-87		
In combination with servo motor			
32	EMME-AS-40-...	EAMM-A-D32-40P	1976465
	EMMT-AS-60-...	EAMM-A-D32-60P	1956054
	EMME-AS-60-...		
40	EMMT-AS-60-...	EAMM-A-D40-60P	1977000
	EMME-AS-60-...		
50	EMME-AS-100-...	EAMM-A-D50-100A	2733784
	EMMT-AS-100-...		
	EMMT-AS-80-...	EAMM-A-D50-80P	2733785
63	EMME-AS-80-...		
	EMME-AS-100-...	EAMM-A-D60-100A	550983
	EMMT-AS-100-...		
63	EMMT-AS-80-...	EAMM-A-D60-80P	1977073
	EMME-AS-80-...		
	EMMT-AS-80-...		
In combination with servo motor and gear unit			
32	EMME-AS-40-...	EAMM-A-D32-40G	1454238
	EMGA-40-P-G...-EAS-40		
	EMMT-/EMME-AS-60-...	EAMM-A-D32-60H	2946760
40	EMGA-60-P-G...-EAS-60		
	EMME-AS-40-...	EAMM-A-D40-40G	560282
	EMMT-/EMME-AS-60-...	EAMM-A-D40-60H	1454242
50	EMGA-60-P-G...-EAS-60		
	EMME-AS-60-...	EAMM-A-D50-60H	2733796
	EMMT-/EMME-AS-80-...	EAMM-A-D50-80G	2733787
63	EMGA-80-P-G...-EAS-80		
	EMMT-/EMME-AS-100-...	EAMM-A-D50-80G	2733787
	EMGA-80-P-G...-SAS-100		
63	EMMT-/EMME-AS-100-...	EAMM-A-D50-80G	2733787
	EMGA-80-P-G...-EAS-80		
	EMMT-/EMME-AS-60-...	EAMM-A-D60-60H	1454245
63	EMGA-60-P-G...-EAS-60		
	EMMT-/EMME-AS-80-...	EAMM-A-D60-80G	1499402
	EMGA-80-P-G...-EAS-80		
63	EMMT-/EMME-AS-100-...	EAMM-A-D60-80G	1499402
	EMGA-80-P-G...-SAS-100		
	EMGA-80-P-G...-SAS-100		

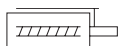
1) The input torque must not exceed the max. permissible transferable torque of the axial kit.

## 30 Mounting kit SMB-8-FENG

For size	Type	Part no.
32, 40	SMB-8-FENG-32/40	175705
50, 63	SMB-8-FENG-50/63	175706

Electric cylinders and slides >

## Mini slides EGSC-BS-KF



- The toothed belt and spindle axes ELGC together with the mini slide EGSC form a scalable modular system for compact automation
- Precision guide and ball screw
- Compact dimensions
- Flexible motor mounting
- Simple position sensing with proximity switch SMT-8M and integrated positioning magnet

### Order code

001 002 003 004 005 006  
 EGSC - BS - KF - - - ...P

Legend:  Mandatory entry

001	Type
EGSC	Mini slide
002	Drive system
BS	Ball screw
003	Guide
KF	Recirculating ball bearing guide
004	Size
...	25, 32, 45, 60

005	Stroke [mm]
...	25, 50, 75, 100, 125, 150, 200
006	Spindle pitch [mm/rev]
...P	6, 8, 10, 12

### Product options

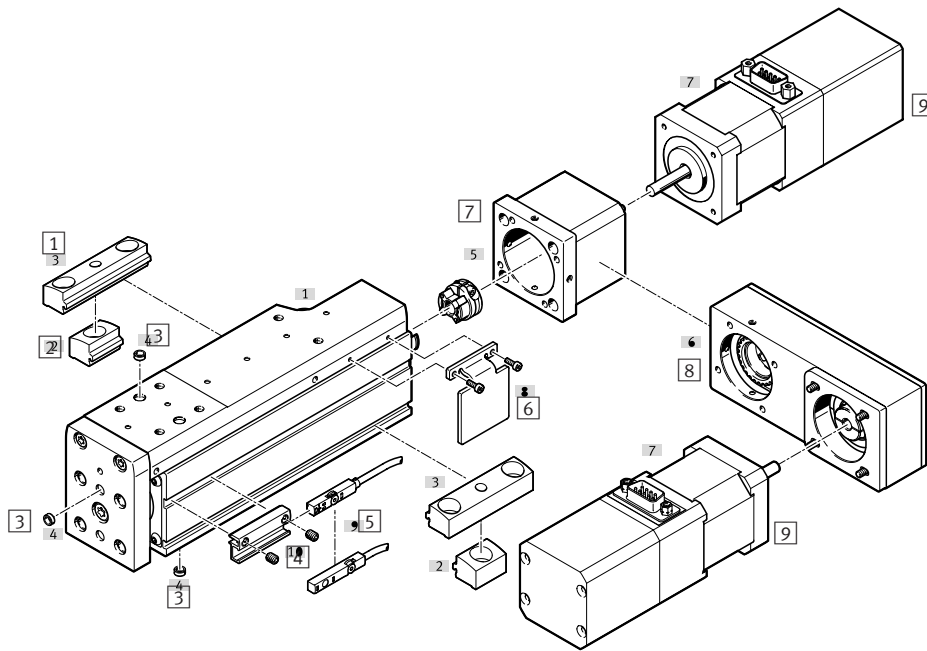
Spindle pitch [mm/rev]

2P	2
3P	3
5P	5

### Ordering

002 Ball screw drive – 003 Recirculating ball bearing guide				
005 Stroke [mm]	004 Size – 006 Spindle pitch			
	25 – 6 mm/rev	32 – 8 mm/rev	45 – 10 mm/rev	60 – 12 mm/rev
25	8048310	8048306	8048300	
50	8048311	8048307	8048301	8048362
75	8061280	8048308	8048302	8048363
100		4356032	4022926	4356469
125			8048303	8048364
150			8048304	8048365
200				8048366

## Accessories



- 1 Profile mounting EAHF-L2-...-P → 107
- 2 Profile mounting EAHF-L2-...-P-S → 107
- 3 Centring pin/sleeve ZBS/ZBH → [egsc-bs](#)
- 4 Sensor bracket EAPM-L2 → 107
- 5 Proximity switch SIES-8M → 107  
Proximity switch SMT-8M → 243
- 6 Switch lug EAPM-...-SLS → 107
- 7 Axial kit EAMM-A → 107
- 8 Parallel kit EAMM-U → 107
- 9 Stepper motor EMMS-ST → 121  
Servo motor EMME-AS → [elgc-tb](#)

### 1 Profile mounting EAHF-L2-...-P

For size	Type	Part no.
For mounting the axis on the side of the profile		
25, 32	EAHF-L2-25-P	4835684
45, 60	EAHF-L2-45-P	4835728

### 2 Profile mounting EAHF-L2-...-P-S

For size	Type	Part no.
For mounting the axis on the side of the profile		
25, 32	EAHF-L2-25-P-S	5183153
45, 60	EAHF-L2-45-P-S	5184133

### 4 Sensor bracket EAPM-L2-SH

For size	Type	Part no.
25, 32, 45, 60	EAPM-L2-SH	4759852

### 5 Proximity switch for T-slot, inductive SIES-8M

Description		Type	Part no.
N/O contact	PNP, cable, 7.5 m	SIES-8M-PS-24V-K-7,5-OE	551386
	PNP, plug, 0.3 m	SIES-8M-PS-24V-K-0,3-M8D	551387
	NPN, cable, 7.5 m	SIES-8M-NS-24V-K-7,5-OE	551396
	NPN, plug, 0.3 m	SIES-8M-NS-24V-K-0,3-M8D	551397
N/C contact	PNP, cable, 7.5 m	SIES-8M-PO-24V-K-7,5-OE	551391
	PNP, plug, 0.3 m	SIES-8M-PO-24V-K-0,3-M8D	551392
	NPN, cable, 7.5 m	SIES-8M-NO-24V-K-7,5-OE	551401
	NPN, plug, 0.3 m	SIES-8M-NO-24V-K-0,3-M8D	551402

### 6 Switch lug EAPM-L2-SLS

For size	Type	Part no.
For sensing using inductive proximity switches SIES-8M		
25	EAPM-E19-25-SLS	8067258
32	EAPM-L2-32-SLS	8067259
45	EAPM-L2-45-SLS	8067260
60	EAPM-L2-60-SLS	8067261

### 7 Axial kit EAMM-A

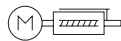
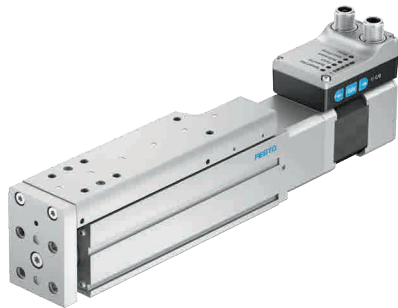
For	With motor	Type	Part no.
In combination with stepper motor EMMS-ST			
25	EMMS-ST-28-...	EAMM-A-V20-28A	4505258
32	EMMS-ST-42-...	EAMM-A-V25-42A	4582608
45	EMMS-ST-42-...	EAMM-A-V32-42A	4281142
	EMMS-ST-57-...	EAMM-A-V32-57A	4597016
60	EMMS-ST-57-...	EAMM-A-T42-57A	4327034
	EMMS-ST-87-...	EAMM-A-T42-87A	4610008
In combination with servo motor			
32	EMME-AS-40-...	EAMM-A-V25-40P	4491059
45	EMME-AS-40-...	EAMM-A-V32-40P	4595742
	EMME-AS-60-...	EAMM-A-V32-60P	4608750
	EMMT-AS-60-...		
60	EMME-AS-60-...	EAMM-A-T42-60P	4133487
	EMMT-AS-60-...		
	EMME-AS-80-...	EAMM-A-T42-80P	4623788
	EMMT-AS-80-...		

### 8 Parallel kit EAMM-U

For	With motor	Type	Part no.
In combination with stepper motor EMMS-ST			
25	EMMS-ST-28-...	EAMM-U-30-V20-28A-44	4767125
32	EMMS-ST-42-...	EAMM-U-45-V25-42A-63	4825645
45	EMMS-ST-42-...	EAMM-U-45-V32-42A-63	4280674
60	EMMS-ST-57-...	EAMM-U-65-T42-57A-87	4331535
In combination with servo motor EMME-AS			
32	EMME-AS-40-...	EAMM-U-45-V25-40P-63	4782056
45	EMME-AS-40-...	EAMM-U-45-V32-40P-63	4718297
60	EMME-AS-60-...	EAMM-U-65-T42-60P-87	4784301
	EMMT-AS-60-...		

Electric cylinders and slides >

## Mini slide units EGSS-BS-KF



- Without external servo drive: all the necessary electronic components are combined in the integrated drive
- Simplified commissioning: all parameters can be manually set directly on the drive
- Very high-quality ball screw with low internal friction
- Rigid, high load-bearing and precise linear guide for absorbing lateral forces and increased protection against rotation

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013 014  
 EGSS - BS - KF - - - ...P - ST - M - H1 - PLK - AA - - -

001	Type
EGSS	Electric slide drive
002	Drive system
BS	Ball screw
003	Guide
KF	Recirculating ball bearing guide
004	Size
...	32, 45, 60
005	Stroke [mm]
...	25, 50, 75, 100, 125, 150, 200
006	Spindle pitch [mm/rev]
...P	8, 10, 12
007	Motor type
ST	Stepper motor
008	Controller
M	Integrated

009	Control panel
H1	Integrated
010	Bus protocol/activation
PLK	PNP and IO-Link
011	End-position sensing
AA	With integrated end-position sensing
012	Cable outlet direction
-	Standard
013	Motor attachment position
-	Standard
014	Electrical accessories
-	None

Legend:  Mandatory entry  Optional entry

### Product options

Bus protocol/activation  
 NLK NPN and IO-Link

Cable outlet direction  
 D Underneath  
 L Left  
 R Right

Motor attachment position  
 PL Parallel, left  
 PR Parallel, right  
 PD Parallel, underneath  
 PT Parallel, top

Electrical accessories  
 L1 Adapter for operation as IO-Link device

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

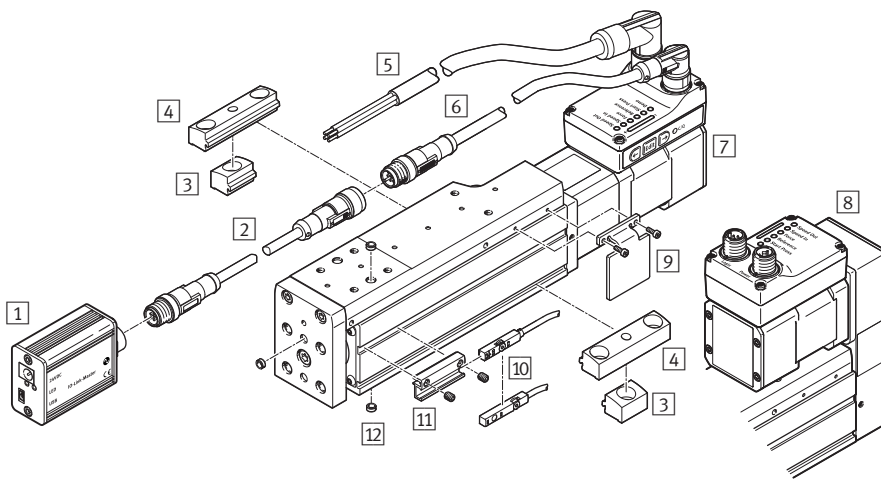
Part no.	Type
8083800	EGSS-BS-KF-32-...
8083813	EGSS-BS-KF-45-...
8083713	EGSS-BS-KF-60-...

## Ordering data – Basic design

002 Ball screw drive – 003 Recirculating ball bearing guide – 007 Stepper motor – 008 Integrated controller – 009 Integrated control panel – 010 Bus protocol/activation via PNP and IO-Link – 011 With integrated end-position sensing – 012 Standard cable outlet – 013 Standard motor attachment position – 014 Without electrical accessories

005 Stroke [mm]	004 Size – 006 Spindle pitch		
	32 – 8 mm/rev	45 – 10 mm/rev	60 – 12 mm/rev
25	<b>8083801</b>	<b>8083814</b>	
50	<b>8083802</b>	<b>8083815</b>	<b>8083716</b>
75	<b>8083803</b>	<b>8083816</b>	<b>8083717</b>
100	<b>8083804</b>	<b>8083817</b>	<b>8083718</b>
125		<b>8083818</b>	<b>8083719</b>
150		<b>8083819</b>	<b>8083720</b>
200			<b>8083721</b>

## Accessories



- 1 IO-Link master USB CDSU-1 → 109
- 2 Adapter NEFC-M12G8 → 109
- 3 Profile mounting EAHF-L2-...-P-S → 109
- 4 Profile mounting EAHF-L2-...-P → 109
- 5 Supply cable NEBL-T12 → 92
- 6 Connecting cable NEBC-M12 → 92
- 7 Axial kit → [egss](#)
- 8 Parallel kit → [egss](#)

- 9 Switch lug EAPM-...-SLS → 109
- 10 Proximity switch SIES-8M → 92  
Proximity switch SMT-8M → 243
- 11 Sensor bracket EAPM-L2 → 109
- 12 Centring pin/centring sleeve ZBS/ZBH → [egss](#)

1 IO-Link master USB CDSU-1		
Cable length	Type	Part no.
For using the unit with IO-Link		
0.3 m	CDSU-1	8091509

2 Adapter NEFC-M12G8			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M12x1, 8-pin			
0.3 m	Straight plug, M12x1, 5-pin	NEFC-M12G8-0.3-M12G5-LK	8080777

3 Profile mounting EAHF-L2-...-P-S		
For size	Type	Part no.
For mounting the axis on the side of the profile		
32	EAHF-L2-25-P-S	5183153
45, 60	EAHF-L2-45-P-S	5184133

4 Profile mounting EAHF-L2-...-P		
For size	Type	Part no.
For mounting the axis on the side of the profile		
32	EAHF-L2-25-P	4835684
45, 60	EAHF-L2-45-P	4835728

9 Switch lug EAPM-L2-SLS		
For size	Type	Part no.
For sensing using inductive proximity switches SIES-8M		
32	EAPM-L2-32-SLS	8067259
45	EAPM-L2-45-SLS	8067260
60	EAPM-L2-60-SLS	8067261

11 Sensor bracket EAPM-L2-SH		
For size	Type	Part no.
32, 45, 60	EAPM-L2-SH	4759852

Electric semi-rotary drives >

## Rotary drive units ERMS



- Without external servo drive: all the necessary electronic components are combined in the integrated drive
- Complete solution for simple movements between mechanical end positions
- Simplified commissioning: all parameters can be manually set directly on the drive
- End-position feedback similar to that of a conventional proximity switch is integrated as standard

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010  
**ERMS** -  -  - **ST** - **M** - **H1** - **PLK** - **AA** -  -

001	Type
<b>ERMS</b>	Rotary drive

002	Size
...	25, 32

003	Nominal swivel angle [°]
...	90, 180

004	Motor type
<b>ST</b>	Stepper motor

005	Controller
<b>M</b>	Integrated

006	Control panel
<b>H1</b>	Integrated

007	Bus protocol/activation
<b>PLK</b>	PNP and IO-Link

008	End-position detection
<b>AA</b>	With integrated end-position sensing

009	Cable outlet direction
-	Standard

010	Electrical accessories
-	None

Legend:  Mandatory entry  Optional entry

### Product options

Nominal swivel angle  
None

Controller  
None  
C External in the control cabinet  
T External in modular electrical terminal CPX

Bus protocol/activation  
NLK NPN and IO-Link®  
PNLK PNP or NPN or IO-Link®

Cable outlet direction  
L Left  
R Right

Motor type  
AS AC synchronous  
EC EC motor

Control panel  
None

End-position detection  
None

Electrical accessories  
L1 Adapter for operation as IO-Link® device

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
<b>8087808</b>	<b>ERMS-25-...</b>
<b>8087809</b>	<b>ERMS-32-...</b>

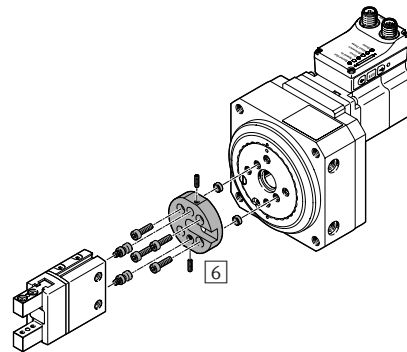
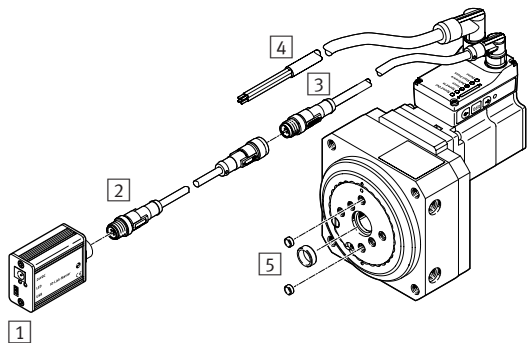


## Ordering – Basic design

004 Stepper motor – 005 Integrated controller – 006 Integrated control panel – 007 Bus protocol/activation via PNP and IO-Link – 008 With integrated end-position sensing – 009 Standard cable outlet – 010 Without electrical accessories

003 Nominal swivel angle [°]		002 Size			
25		32			
Type	Part no.	Type	Part no.		
90	ERMS-25-90-ST-M-H1-PLK-AA	8087819	ERMS-32-90-ST-M-H1-PLK-AA	8087821	
180	ERMS-25-180-ST-M-H1-PLK-AA	8087820	ERMS-32-180-ST-M-H1-PLK-AA	8087822	

## Accessories



- 1 IO-Link master USB CDSU-1 → 111
- 2 Adapter NEFC-M12G8 → 111
- 3 Connecting cable NEBC-M12 → 111
- 4 Supply cable NEBL-T12 → 111
- 5 Centring sleeve ZBH → 111  
Central mounting SLZZ → 111
- 6 Adapter kit DHAA → [dhaa](#)

1 IO-Link master USB CDSU-1		
Cable length	Type	Part no.
0.3 m	CDSU-1	8091509

2 Adapter NEFC-M12G8		
Cable length	Type	Part no.
0.3 m	NEFC-M12G8-0.3-M12G5-LK	8080777

3 Connecting cable NEBC-M12			
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M12x1, 8-pin			
2 m	Cable, open end, 8-wire	NEBC-M12W8-E-2-N-B-LE8	8094476
5 m		NEBC-M12W8-E-5-N-B-LE8	8094478
10 m		NEBC-M12W8-E-10-N-B-LE8	8094481
15 m		NEBC-M12W8-E-15-N-B-LE8	8094479
2 m	Straight plug, M12x1, 8-pin	NEBC-M12W8-E-2-N-M12G8	8080786
5 m		NEBC-M12W8-E-5-N-M12G8	8080787
10 m		NEBC-M12W8-E-10-N-M12G8	8080788
15 m		NEBC-M12W8-E-15-N-M12G8	8080789
Connection, left: straight socket, M12x1, 8-pin			
2 m	Cable, open end, 8-wire	NEBC-M12G8-E-2-N-B-LE8	8094480
5 m		NEBC-M12G8-E-5-N-B-LE8	8094477
10 m		NEBC-M12G8-E-10-N-B-LE8	8094482
15 m		NEBC-M12G8-E-15-N-B-LE8	8094475
2 m	Straight plug, M12x1, 8-pin	NEBC-M12G8-E-2-N-M12G8	8080782
5 m		NEBC-M12G8-E-5-N-M12G8	8080783
10 m		NEBC-M12G8-E-10-N-M12G8	8080784
15 m		NEBC-M12G8-E-15-N-M12G8	8080785

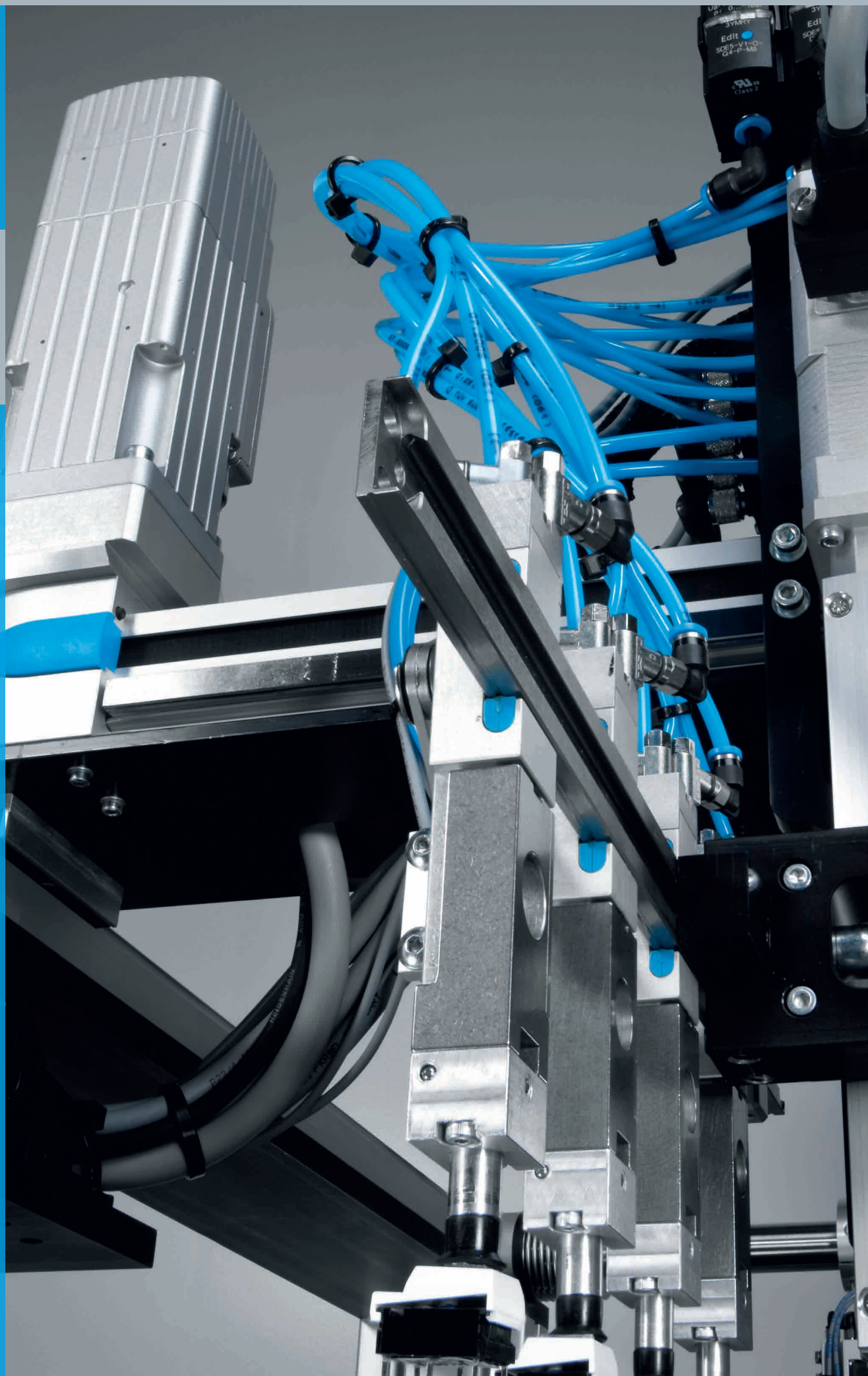
4 Supply cable NEBL-T12			
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M12x1, 4-pin			
2 m	Cable, open end, 4-wire	NEBL-T12W4-E-2-N-LE4	8080778
5 m		NEBL-T12W4-E-5-N-LE4	8080779
10 m		NEBL-T12W4-E-10-N-LE4	8080780
15 m		NEBL-T12W4-E-15-N-LE4	8080781
Connection, left: straight socket, M12x1, 4-pin			
2 m	Cable, open end, 4-wire	NEBL-T12G4-E-2-N-LE4	8080790
5 m		NEBL-T12G4-E-5-N-LE4	8080791
10 m		NEBL-T12G4-E-10-N-LE4	8080792
15 m		NEBL-T12G4-E-15-N-LE4	8080793

5 Centring sleeve ZBH <sup>1)</sup>		
For size	Type	Part no.
For centring the drive in the case of side mounting		
25	ZBH-9-B	8137184
32	ZBH-12-B	8137185
For centring attachments on the rotating plate		
25, 32	ZBH-7-B	8146544
For centring attachments in the middle of the rotating plate		
25	ZBH-15	191409

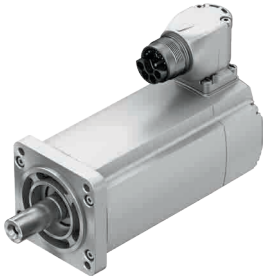
1) Packaging unit 10 pieces.

# 03

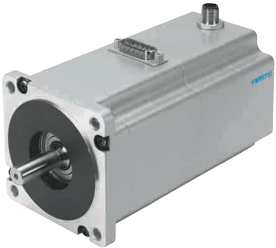
## Motors and servo drives



# Highlights



Servo motors  
**EMMT-AS**  
+ Simple connection technology  
(OCP: one cable plug)  
+ Choice of absolute measurement  
system: single turn or multi-turn,  
battery free  
  
→ 118



Stepper motors  
**EMMS-ST**  
+ Small increments and high driving  
torques thanks to 2-phase hybrid  
technology  
+ Optimised connection technology  
  
→ 121




# Contents

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Servo motors EMMT-AS \_\_\_\_\_ 118  
Stepper motors EMMS-ST \_\_\_\_\_ 121  
Servo drives CMMT-AS \_\_\_\_\_ 123  
Servo drive CMMT-ST, for extra-low voltage \_\_\_\_\_ 125



Product overview

Software-Tools


03 Motors and servo drives

<p><b>Festo Configuration Tool (FCT)</b></p> 	<p>The „Festo Configuration Tool“ is a configuration and parameterisation software program that supports all Festo devices, in particular motor controllers.</p> <p>The software is extremely flexible, provides full support for the device properties and is simple and intuitive to operate.</p> <p>The user is guided step-by-step through the commissioning process while each individual step is checked.</p> <p>The „Festo Configuration Tool“ parameterisation software can be found at                  → <a href="http://www.festo.com/fct">www.festo.com/fct</a> &gt; section „Other useful tools for the first start“</p>
<p><b>Electric Motion Sizing</b></p> 	<p>Find the right electric or electromechanical servo drive.</p> <p>Electric Motion Sizing, the online sizing and simulation tool for electric drives (servo drives and motors = servo drive package) as well as for electromechanical drive solutions (= electromechanical servo drive package comprising servo drives and motors as well as mechanics), helps you to find the right electromechanical drive solution for your application quickly and without complications.</p> <p>This tool can be found at                  → <a href="http://www.festo.com/x/electric-motion-sizing">www.festo.com/x/electric-motion-sizing</a></p>
<p><b>Simplified Motion Series – Solution Finder</b></p> 	<p>The simplicity of pneumatics is now combined for the first time with the advantages of electric automation thanks to the Simplified Motion Series.</p> <p>These integrated drives are the perfect solution for all users who are looking for an electric alternative for very simple movement and positioning tasks, but don't want the commissioning process for traditional electric drive systems that can often be quite complex.</p> <p>This tool can be found at                  → <a href="http://www.festo.com/x/simplified-motion-series">www.festo.com/x/simplified-motion-series</a></p>



Servo motors

	 <p><b>Servo motors EMMT-AS</b></p>	 <p><b>Servo motors EMME-AS</b></p>
<b>Nominal torque</b>	0.6 ... 82.4 Nm	0.12 ... 6.4 Nm
<b>Nominal rotational speed</b>	1000 ... 3500 rpm	3000 ... 9000 1/min
<b>Nominal motor power</b>	190 ... 8629 W	110 ... 2000 W
<b>Peak torque</b>	1.6 ... 183.3 Nm	0.7 ... 30 Nm
<b>Max. speed</b>	1654 ... 15000 rpm	3910 ... 10000 1/min
<b>Description</b>	<ul style="list-style-type: none"> <li>• Brushless, permanently excited synchronous servo motor</li> <li>• Digital absolute displacement encoder, single-turn or multi-turn</li> <li>• Extremely low cogging torque – supports high synchronisation even at low rotational speeds</li> <li>• Simple connection technology (OCP: one cable plug) – one connecting cable for supply and encoder</li> <li>• Rotatable plug with adjustable angle (310°)</li> <li>• Available with holding brake</li> </ul>	<ul style="list-style-type: none"> <li>• Brushless, permanently magnetized synchronous servo motor</li> <li>• Digital absolute displacement encoder, single turn or multi-turn</li> <li>• Reliable, dynamic, precise</li> <li>• Optimised connection technology</li> <li>• Variants with safety encoder absolute, multi turn, HIPERFACE®</li> <li>• Degree of protection IP54 (on the motor shaft without radial shaft seal), IP65 (on the motor shaft with radial shaft seal), IP65 (for motor housing and power/encoder connections)</li> <li>• Optionally with holding brake</li> </ul>
<b>→ Page/online</b>	118	<a href="http://www.festo.com/emme">emme</a>

## Stepper motors

	 <p><b>Stepper motors EMMS-ST</b></p>
<b>Nominal motor current</b>	1.4 ... 9.5 A
<b>Max. speed</b>	430 ... 6000 1/min
<b>Motor holding torque</b>	0.09 ... 9.3 Nm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Small increments and high driving torques thanks to 2-phase hybrid technology</li> <li>• Optimised connection technology</li> <li>• Four sizes with flange sizes 28, 42, 57 and 87</li> <li>• 28 types in stock</li> <li>• With incremental encoder for closed-loop operation</li> <li>• Degree of protection IP40 (motor shaft), IP54 (sizes 42, 27, 87: motor housing and plug connection), IP65 (size 28: motor housing and plug connection)</li> <li>• Optionally with holding brake</li> </ul>
→ Page/ <a href="#">online</a>	121

## Gear units

	 <p><b>Gear units EMGA-P-EAS</b></p>		 <p><b>Gear units EMGA-P-SST</b></p>
<b>Gear ratio</b>	3:1, 5:1, 8:1, 12:1, 20:1		3:1, 5:1, 8:1, 12:1
<b>Continuous output torque</b>	6 ... 120 Nm		6 ... 120 Nm
<b>Max. drive speed</b>	7000 ... 18000 1/min		7000 ... 18000 1/min
<b>Torsional rigidity</b>	0.85 ... 10.4 Nm/arcmin		0.8 ... 10.4 Nm/arcmin
<b>Torsional backlash</b>	0.12 ... 0.31°		0.12 ... 0.31°
<b>Mass moment of inertia, gear unit</b>	0.015 ... 0.77 kgcm <sup>2</sup>		0.015 ... 0.77 kgcm <sup>2</sup>
<b>Max. efficiency</b>	96%, 97%, 98%		96%, 97%, 98%
<b>Description</b>	<ul style="list-style-type: none"> <li>• Planetary gear unit for servo motors EMME-AS, EMMT-AS</li> <li>• Eco AC synchronous interface</li> <li>• Life-time lubrication</li> <li>• Degree of protection IP54</li> </ul>		<ul style="list-style-type: none"> <li>• Planetary gear unit for stepper motors EMMS-ST</li> <li>• Life-time lubrication</li> <li>• Degree of protection IP54</li> </ul>
→ Page/ <a href="#">online</a>	120		122

Product overview

Software-Tools

03 Motors and servo drives

**Commissioning software Festo Automation Suite**



The quick and reliable way to a ready-to-use drive system – the Festo Automation Suite combines the parameterisation, programming and maintenance of Festo components in one program and enables the entire drive package, from the mechanical system to the controller, to be commissioned. Perfect for making industrial automation simple, efficient and seamless.

**Servo drive plug-in CMMT-AS**

- An operational drive system in just 5 steps – parameterisation is almost fully automatic with the commissioning wizard
- Advanced editing with the expert view provides full access to all device parameters
- Conveniently install the plug-in using the software

This tool can be found at  
 → [www.festo.com/AutomationSuite](http://www.festo.com/AutomationSuite)

Electric servo drives ›

Servo drives



**Servo drives CMMT-AS**




**Motor controllers C MMP-AS**

<b>Nominal current</b>		2 ... 13 A
<b>Nominal operating voltage AC</b>	230 ... 400 V	230 ... 400 V
<b>Nominal operating voltage phases</b>	1-phase, 3-phase	1-phase, 3-phase
<b>Nominal power of controller</b>	350 ... 6000 VA	500 ... 9000 VA
<b>Fieldbus coupling</b>	EtherCAT, EtherNet/IP, Modbus/TCP, PROFINET	CANopen, DeviceNet, EtherCAT, EtherNet/IP, Modbus/TCP, PROFINET, PROFIBUS DP
<b>Safety function</b>	Safe brake control (SBC), safe torque off (STO), safe stop 1 (SS1)	Safe torque off (STO), safe stop 1 (SS1)
<b>Performance Level (PL)</b>	Safe brake control (SBC)/category 3, Performance Level e, safe torque off (STO)/category 4, Performance Level e	Safe torque off (STO)/category 4, Performance Level e
<b>Description</b>	<ul style="list-style-type: none"> <li>• One of the most compact servo drives on the market</li> <li>• Precise force, speed and position control</li> <li>• Auto-tuning supports easy commissioning and automatically optimises the control behaviour of rotary and linear motions</li> <li>• The latest generation of servo drive systems with optimised prices and sizes</li> <li>• With safety functions</li> <li>• Configuration of standard safety functions without software</li> <li>• MP variant with multi-protocol: the required bus protocol can be selected using the commissioning software Festo Automation Suite or directly on the servo drive</li> <li>• Optimally with servo motor EMMT-AS</li> <li>• Universal applications</li> <li>• Sustainable operation thanks to energy recovery</li> </ul>	<ul style="list-style-type: none"> <li>• Many interfaces and functions for decentralised motion functions (flying saw, flying measurement, modulo function, etc.)</li> <li>• Optional: integrated cam disk controllers and highly dynamic movements</li> <li>• Standardised interfaces allow seamless integration in mechatronic multi-axis modular systems</li> <li>• Reliable and easy commissioning and parameterisation with the Festo Configuration Tool (FCT)</li> <li>• Optionally with 3 slots for extension modules</li> <li>• Variants with safety functions</li> <li>• 255 position sets</li> </ul>
<b>→ Page/online</b>	<b>123</b>	<b><a href="#">cmmmp</a></b>

Electric servo drives &gt;

## Stepper motor controllers

	 <p><b>Servo drives CMMT-ST</b></p>
<b>Nominal current, load supply</b>	8 A
<b>Nominal voltage, load supply DC</b>	24 V, 48 V
<b>Fieldbus coupling</b>	EtherCAT, EtherNet/IP, Modbus/TCP, PROFINET
<b>Safety function</b>	Safe torque off (STO), safe stop 1 with time control (SS1-t)
<b>Performance Level (PL)</b>	STO/cat. 3, PLd (EC motor without diagnostics), STO/cat. 3, PLe (stepper motor/EC motor with diagnostics)
<b>Description</b>	<ul style="list-style-type: none"> <li>• Very efficient for tasks with low power requirements</li> <li>• Ideal for positioning tasks and point-to-point and interpolating motion solutions</li> <li>• 50% more compact than the smallest servo drive CMMT-AS</li> <li>• 150 W at 24 V DC, 300 W at 48 V DC</li> <li>• With safety functions</li> <li>• Optimised for use with stepper motors like the tried-and-tested EMMS-ST</li> </ul>
<b>→ Page/online</b>	<b>125</b>

## Servo motors EMMT-AS



- Dynamic, brushless, permanently excited synchronous servo motors
- Extremely low cogging torque – supports high synchronisation even at low rotational speeds
- Optimised torque
- Optimised speed
- Simple connection technology (OCP: one cable plug) – hybrid cable: motor cable and connecting cable for supply and encoder in one
- Rotatable plug

### Order code

001 002 003 004 005 006 007 008 009 010

EMMT - AS - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Legend:  Mandatory entry  Optional entry

001	Type
EMMT	Servo motor
002	Motor type
AS	AC synchronous
003	Flange size, motors [mm]
...	60, 80, 100
004	Length
S	Short
M	Medium
L	Long
005	Output shaft
-	Smooth shaft
006	Rotary shaft seal
-	Without

007	Winding
LS	Low-voltage, standard
HS	High-voltage, standard
008	Electrical connection
R	Angled plug, rotatable
009	Measuring unit
S	Absolute encoder, single turn
M	Absolute encoder, multi-turn
010	Brake
-	Without
B	With brake

### Product options

#### Flange size, motors

150 mm, 190 mm

#### Length

H Very long

#### Output shaft

K Shaft to DIN 6885

#### Rotary shaft seal

R With standard shaft sealing ring

#### Winding

HV High voltage, speed-optimised

HT High voltage, torque optimised

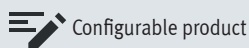
#### Electrical connection

R2 Angled plug M23, rotatable

R3 Angled plug M40, rotatable

#### Measuring unit

MY Absolute safety encoder, multi-turn, EnDat



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
4808568	EMMT-AS-60-...
4595815	EMMT-AS-80-...
5185818	EMMT-AS-100-...



## Ordering – Short length

003 Motor flange size	004 Overall length S: short		010 With brake: B	
	010 Without brake Type	Part no.	Type	Part no.
	007 Winding LS: low voltage, standard – 009 Measuring unit S: absolute encoder, single turn			
80			EMMT-AS-80-S-LS-RSB	5255427
	007 Winding LS: low voltage, standard – 009 Measuring unit M: absolute encoder, multi-turn			
60			EMMT-AS-60-S-LS-RMB	5242199
80	EMMT-AS-80-S-LS-RM	5255426	EMMT-AS-80-S-LS-RMB	5255428
	007 Winding HS: high voltage, standard – 009 Measuring unit S: absolute encoder, single turn			
80			EMMT-AS-80-S-HS-RSB	5255431
100	EMMT-AS-100-S-HS-RS	5255519	EMMT-AS-100-S-HS-RSB	5255528
	007 Winding HS: high voltage, standard – 009 Measuring unit M: absolute encoder, multi-turn			
60			EMMT-AS-60-S-HS-RMB	5242203
80	EMMT-AS-80-S-HS-RM	5255430	EMMT-AS-80-S-HS-RMB	5255432
100	EMMT-AS-100-S-HS-RM	5255521	EMMT-AS-100-S-HS-RMB	5255529

## Ordering – Medium length

003 Motor flange size	004 Overall length M: medium		010 With brake: B	
	010 Without brake Type	Part no.	Type	Part no.
	007 Winding LS: low voltage, standard – 009 Measuring unit S: absolute encoder, single turn			
80			EMMT-AS-80-M-LS-RSB	5255435
	007 Winding LS: low voltage, standard – 009 Measuring unit M: absolute encoder, multi-turn			
60			EMMT-AS-60-M-LS-RMB	5242207
80	EMMT-AS-80-M-LS-RM	5255434	EMMT-AS-80-M-LS-RMB	5255436
	007 Winding HS: high voltage, standard – 009 Measuring unit S: absolute encoder, single turn			
80			EMMT-AS-80-M-HS-RSB	5255439
100	EMMT-AS-100-M-HS-RS	5255530	EMMT-AS-100-M-HS-RSB	5255532
	007 Winding HS: high voltage, standard – 009 Measuring unit M: absolute encoder, multi-turn			
60			EMMT-AS-60-M-HS-RMB	5242211
80	EMMT-AS-80-M-HS-RM	5255438	EMMT-AS-80-M-HS-RMB	5255440
100	EMMT-AS-100-M-HS-RM	5255531	EMMT-AS-100-M-HS-RMB	5255533

## Ordering – Long length

003 Motor flange size	004 Overall length L: long		010 With brake: B	
	010 Without brake Type	Part no.	Type	Part no.
	007 Winding LS: low voltage, standard – 009 Measuring unit S: absolute encoder, single turn			
80			EMMT-AS-80-L-LS-RSB	5255443
	007 Winding LS: low voltage, standard – 009 Measuring unit M: absolute encoder, multi-turn			
60			EMMT-AS-60-L-LS-RMB	5242215
80	EMMT-AS-80-L-LS-RM	5255442	EMMT-AS-80-L-LS-RMB	5255444
	007 Winding HS: high voltage, standard – 009 Measuring unit S: absolute encoder, single turn			
80			EMMT-AS-80-L-HS-RSB	5255447
100	EMMT-AS-100-L-HS-RS	5255534	EMMT-AS-100-L-HS-RSB	5255536
	007 Winding HS: high voltage, standard – 009 Measuring unit M: absolute encoder, multi-turn			
60			EMMT-AS-60-L-HS-RMB	5242219
80	EMMT-AS-80-L-HS-RM	5255446	EMMT-AS-80-L-HS-RMB	5255448
100	EMMT-AS-100-L-HS-RM	5255535	EMMT-AS-100-L-HS-RMB	5255537

## Servo motors EMMT-AS

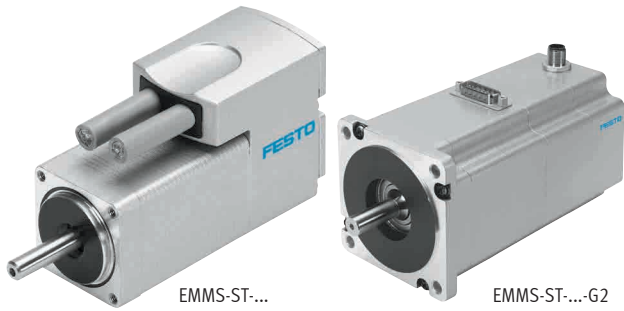
### Accessories

Gear unit EMGA – planetary gear unit				
For motor	Gear ratio	Gear unit flange size	Type	Part no.
EMMT-AS-60	3:1	60	<b>EMGA-60-P-G3-EAS-60</b>	<b>2297686</b>
	5:1	60	<b>EMGA-60-P-G5-EAS-60</b>	<b>2297687</b>
EMMT-AS-80	3:1	80	<b>EMGA-80-P-G3-EAS-80</b>	<b>2297690</b>
	5:1	80	<b>EMGA-80-P-G5-EAS-80</b>	<b>2297691</b>
EMMT-AS-100	3:1	80	<b>EMGA-80-P-G3-SAS-100</b>	<b>552194</b>
	5:1	80	<b>EMGA-80-P-G5-SAS-100</b>	<b>552195</b>
	3:1	120	<b>EMGA-120-P-G3-SAS-100</b>	<b>552196</b>
	5:1	120	<b>EMGA-120-P-G5-SAS-100</b>	<b>552197</b>
	3:1	160	<b>EMGA-160-P-G3-SAS-140</b>	<b>552198</b>
EMMT-AS-150	5:1	120	<b>EMGA-120-P-G5-SAS-140</b>	<b>552199</b>
	3:1	160	<b>EMGA-160-P-G3-SAS-140</b>	<b>552200</b>
	5:1	160	<b>EMGA-160-P-G5-SAS-140</b>	<b>552201</b>

More gear ratios → [www.festo.com/catalogue/emmt-as](http://www.festo.com/catalogue/emmt-as)

Motor cable NEBM-M23G15, hybrid cable				
Cable cross section	Cable length	Type	Part no.	
Straight plug and cable outlet				
1.5 mm <sup>2</sup>	2.5 m	<b>NEBM-M23G15-EH-2.5-Q9N-R3LEG14</b>	<b>5251381</b>	
	5 m	<b>NEBM-M23G15-EH-5-Q9N-R3LEG14</b>	<b>5251382</b>	
	7.5 m	<b>NEBM-M23G15-EH-7.5-Q9N-R3LEG14</b>	<b>5251383</b>	
	10 m	<b>NEBM-M23G15-EH-10-Q9N-R3LEG14</b>	<b>5251384</b>	
	15 m	<b>NEBM-M23G15-EH-15-Q9N-R3LEG14</b>	<b>5251385</b>	
	20 m	<b>NEBM-M23G15-EH-20-Q9N-R3LEG14</b>	<b>5251386</b>	
	X length <sup>1)</sup>	<b>NEBM-M23G15-EH-...-Q9N-R3LEG14</b>	<b>5251380</b>	
2.5 mm <sup>2</sup>	2.5 m	<b>NEBM-M23G15-EH-2.5-Q10N-R3LEG14</b>	<b>5251388</b>	
	5 m	<b>NEBM-M23G15-EH-5-Q10N-R3LEG14</b>	<b>5251389</b>	
	7.5 m	<b>NEBM-M23G15-EH-7.5-Q10N-R3LEG14</b>	<b>5251390</b>	
	10 m	<b>NEBM-M23G15-EH-10-Q10N-R3LEG14</b>	<b>5251391</b>	
	15 m	<b>NEBM-M23G15-EH-15-Q10N-R3LEG14</b>	<b>5251392</b>	
	20 m	<b>NEBM-M23G15-EH-20-Q10N-R3LEG14</b>	<b>5251393</b>	
	X length <sup>1)</sup>	<b>NEBM-M23G15-EH-...-Q10N-R3LEG14</b>	<b>5251387</b>	

1) Choice of cable lengths: 0.5 ... 99.9 m, in increments of 0.1 m.



- 2-phase hybrid technology
- Standard industrial connection technology
- Optional: encoder, brake

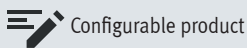
Order code

001	002	003	004	005	006	007	008
EMMS	ST			S			

Legend:  Mandatory entry  Optional entry

001	Type
EMMS	Motor
002	Motor type
ST	Stepper motor
003	Motor flange size
...	28, 42, 57, 87
004	Length
S	Short
M	Medium
L	Long
005	Electrical connection
S	Straight plug

006	Measuring unit
-	Without
E	Encoder
007	Brake
-	Without
B	With brake
008	Generation
-	First generation
G2	Second generation



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/emms-st](http://www.festo.com/catalogue/emms-st)

Ordering – Short and medium length

003 Motor flange size	004 Overall length S: short				004 Overall length M: medium			
	007 Without brake		007 With brake: B		007 Without brake		007 With brake: B	
	Type	Part no.	Type	Part no.	Type	Part no.	Type	Part no.
	006 Without measuring unit – 008 Second generation							
42	EMMS-ST-42-S-S-G2	1370470	EMMS-ST-42-S-SB-G2	1370472				
	006 Measuring unit E: with encoder – 008 Second generation							
42	EMMS-ST-42-S-SE-G2	1370471	EMMS-ST-42-S-SEB-G2	1370473				
	006 Without measuring unit – 008 Second generation							
57	EMMS-ST-57-S-S-G2	1370474	EMMS-ST-57-S-SB-G2	1370476	EMMS-ST-57-M-S-G2	1370478	EMMS-ST-57-M-SB-G2	1370480
	006 Measuring unit E: with encoder – 008 Second generation							
57	EMMS-ST-57-S-SE-G2	1370475	EMMS-ST-57-S-SEB-G2	1370477	EMMS-ST-57-M-SE-G2	1370479	EMMS-ST-57-M-SEB-G2	1370481
	006 Without measuring unit – 008 Second generation							
87	EMMS-ST-87-S-S-G2	1370482	EMMS-ST-87-S-SB-G2	1370484	EMMS-ST-87-M-S-G2	1370486	EMMS-ST-87-M-SB-G2	1370488
	006 Measuring unit E: with encoder – 008 Second generation							
87	EMMS-ST-87-S-SE-G2	1370483	EMMS-ST-87-S-SEB-G2	1370485	EMMS-ST-87-M-SE-G2	1370487	EMMS-ST-87-M-SEB-G2	1370489

## Stepper motors EMMS-ST

### Ordering – Long length

003 Motor flange size	004 Overall length L: long			
	007 Without brake		007 With brake: B	
	Type	Part no.	Type	Part no.
006 Without measuring unit – 008 First generation				
28	EMMS-ST-28-L-S	1451384	EMMS-ST-28-L-SB	1451383
006 Measuring unit E: with encoder – 008 First generation				
28	EMMS-ST-28-L-SE	1430663	EMMS-ST-28-L-SEB	1451382
006 Without measuring unit – 008 Second generation				
87	EMMS-ST-87-L-S-G2	1370490	EMMS-ST-87-L-SB-G2	1370493
006 Measuring unit E: with encoder – 008 Second generation				
87	EMMS-ST-87-L-SE-G2	1370491	EMMS-ST-87-L-SEB-G2	1370494

### Accessories

Gear unit EMGA-SST				
For	Gear ratio	Gear unit flange size	Type	Part no.
EMMS-ST-42	3:1	40	EMGA-40-P-G3-SST-42	549428
	5:1	40	EMGA-40-P-G5-SST-42	549429
EMMS-ST-57	3:1	60	EMGA-60-P-G3-SST-57	549430
	5:1	60	EMGA-60-P-G5-SST-57	549431
EMMS-ST-87	3:1	80	EMGA-80-P-G3-SST-87	549432
	5:1	80	EMGA-80-P-G5-SST-87	549433

Motor cable NEBM-S				
For <sup>1)</sup>	Cable length	Type	Part no.	
Straight plug, min. bending radius: 62 mm, suitable for use with energy chains				
EMMS-ST-28 and CMMT-ST	1.5 m	NEBM-M12G8-E-1.5-Q5-LE6	1449600	
	2.5 m	NEBM-M12G8-E-2.5-Q5-LE6	1449601	
	5 m	NEBM-M12G8-E-5-Q5-LE6	1449602	
	7 m	NEBM-M12G8-E-7-Q5-LE6	1449603	
	10 m	NEBM-M12G8-E-10-Q5-LE6	1449604	
Straight plug, min. bending radius: 62 mm, suitable for use with energy chains				
EMMS-ST-42/57 und CMMT-ST /CMMS-ST	1.5 m	NEBM-S1G9-E-1.5-Q5-LE6	1450368	
	2.5 m	NEBM-S1G9-E-2.5-Q5-LE6	1450369	
	5 m	NEBM-S1G9-E-5-Q5-LE6	1450370	
	7 m	NEBM-S1G9-E-7-Q5-LE6	1450371	
	10 m	NEBM-S1G9-E-10-Q5-LE6	1450372	
Angled plug, min. bending radius: 62 mm, suitable for use with energy chains				
EMMS-ST-42/57 and CMMT-ST/CMMS-ST	1.5 m	NEBM-S1W9-E-1.5-Q5-LE6	1450736	
	2.5 m	NEBM-S1W9-E-2.5-Q5-LE6	1450737	
	5 m	NEBM-S1W9-E-5-Q5-LE6	1450738	
	7 m	NEBM-S1W9-E-7-Q5-LE6	1450739	
	10 m	NEBM-S1W9-E-10-Q5-LE6	1450740	
Straight plug, min. bending radius: 80 mm, suitable for use with energy chains				
EMMS-ST-87 and CMMT-ST/CMMS-ST	1.5 m	NEBM-S1G15-E-1.5-Q7-LE6	1450834	
	2.5 m	NEBM-S1G15-E-2.5-Q7-LE6	1450835	
	5 m	NEBM-S1G15-E-5-Q7-LE6	1450836	
	7 m	NEBM-S1G15-E-7-Q7-LE6	1450837	
	10 m	NEBM-S1G15-E-10-Q7-LE6	1450838	
Angled plug, min. bending radius: 80 mm, suitable for use with energy chains				
EMMS-ST-87 and CMMT-ST/CMMS-ST	1.5 m	NEBM-S1W15-E-1.5-Q7-LE6	1450943	
	2.5 m	NEBM-S1W15-E-2.5-Q7-LE6	1450944	
	5 m	NEBM-S1W15-E-5-Q7-LE6	1450945	
	7 m	NEBM-S1W15-E-7-Q7-LE6	1450946	
	10 m	NEBM-S1W15-E-10-Q7-LE6	1450947	

Encoder cable NEBM-M12				
For <sup>1)</sup>	Cable length	Type	Part no.	
Straight plug, min. bending radius: 51 mm, suitable for use with energy chains				
CMMS-ST	5 m	NEBM-M12G8-E-5-S1G9	550748	
	10 m	NEBM-M12G8-E-10-S1G9	550749	
	15 m	NEBM-M12G8-E-15-S1G9	550750	
Straight plug, min. bending radius: 68 mm, suitable for use with energy chains				
CMMT-ST	1.5 m	NEBM-M12G8-E-1.5-LE8	1451586	
	2.5 m	NEBM-M12G8-E-2.5-LE8	1451587	
	5 m	NEBM-M12G8-E-5-LE8	1451588	
	7 m	NEBM-M12G8-E-7-LE8	1451589	
	10 m	NEBM-M12G8-E-10-LE8	1451590	
Angled plug, min. bending radius: 68 mm, suitable for use with energy chains				
CMMT-ST	1.5 m	NEBM-M12W8-E-1.5-LE8	1451674	
	2.5 m	NEBM-M12W8-E-2.5-LE8	1451675	
	5 m	NEBM-M12W8-E-5-LE8	1451676	
	7 m	NEBM-M12W8-E-7-LE8	1451677	
	10 m	NEBM-M12W8-E-10-LE8	1451678	

1) CMMS-ST: Motor controller → [cmms-st](#)  
 CMMT-ST: Motor controller → 117



- Universal servo drive for PM-synchronous servo motors with up to 6000 W continuous power
- Supports the motor series EMMT-AS, EMME-AS among others
- Precise torque, speed and position control
- From point-to-point to interpolated motion
- Integrated safety functions:
  - Safe torque off (STO)
  - Safe stop 1 (SS1)
  - Safe brake control (SBC)

## Order code

001	002	003	004	005	006	007
CMMT	AS					S1


Legend:  Mandatory entry  Optional entry

001	Type
CMMT	Motor controllers
002	Motor type
AS	AC synchronous
003	Nominal current
C2	2 A
C3	3 A
C4	4 A
C5	5 A
C7	7 A
C12	12 A

004	Nominal input voltage
3A	230 V AC/50 ... 60 Hz
11A	400 V AC
005	Number of phases
–	1-phase
P3	3-phase
006	Bus protocol/activation
EC	EtherCAT
EP	EtherNet/IP and Modbus TCP
PN	PROFINET RT/IRT
007	Safety function
S1	Standard safety

## Product options

Bus protocol/activation  
MP Multiprotocol

 Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
5111184	CMMT-AS-...-3A-...-S1
5111189	CMMT-AS-...-11A-P3-...-S1

## Ordering

003 Nominal current	005 Number of phases	006 Bus protocol					
		Type	Part no.				
		EtherCAT		EtherNet/IP and Modbus TCP		PROFINET RT/IRT	
2 A	1-phase	CMMT-AS-C2-3A-EC-S1	5340819	CMMT-AS-C2-3A-EP-S1	5340824	CMMT-AS-C2-3A-PN-S1	5340814
4 A		CMMT-AS-C4-3A-EC-S1	5340820	CMMT-AS-C4-3A-EP-S1	5340825	CMMT-AS-C4-3A-PN-S1	5340815
2 A	3-phase	CMMT-AS-C2-11A-P3-EC-S1	5340821	CMMT-AS-C2-11A-P3-EP-S1	5340826	CMMT-AS-C2-11A-P3-PN-S1	5340816
3 A		CMMT-AS-C3-11A-P3-EC-S1	5340822	CMMT-AS-C3-11A-P3-EP-S1	5340827	CMMT-AS-C3-11A-P3-PN-S1	5340817
5 A		CMMT-AS-C5-11A-P3-EC-S1	5340823	CMMT-AS-C5-11A-P3-EP-S1	5340828	CMMT-AS-C5-11A-P3-PN-S1	5340818
7 A		CMMT-AS-C7-11A-P3-EC-S1	8133354	CMMT-AS-C7-11A-P3-EP-S1	8133356	CMMT-AS-C7-11A-P3-PN-S1	8133352
12 A		CMMT-AS-C12-11A-P3-EC-S1	8133355	CMMT-AS-C12-11A-P3-EP-S1	8133357	CMMT-AS-C12-11A-P3-PN-S1	8133353

## Accessories

Plug assortment NEKM <sup>1)</sup>		
For	Type	Part no.
For single wiring connection		
CMMT-AS-...-3A-...-S1	NEKM-C6-C16-S	4325822
CMMT-AS-...-11A-P3-...-S1	NEKM-C6-C45-P3-S	5119205
For double wiring connection		
CMMT-AS-...-3A-...-S1	NEKM-C6-C16-D	5054513
CMMT-AS-...-11A-P3-...-S1	NEKM-C6-C45-P3-D	5118001

1) Required accessories

Operating panel CDSB-A1, with touchscreen		
Description	Type	Part no.
USB interface: USB 2.0 type mini		
3 GB user memory	CDSB-A1	8070984

Connecting cable NEBC-R3G8			
<ul style="list-style-type: none"> <li>Patch cable for the daisy-chain connection of the bus interfaces X19A/B</li> <li>Patch cable for master/slave functionality (X10-X10)</li> <li>Ethernet category Cat 5e</li> </ul>			
Cable length	Connection on the right	Type	Part no.
Connection on the left: straight plug, RJ45, 8-pin			
0.2 m	Straight plug, RJ45, 8-pin	NEBC-R3G8-KS-0.2-N-S-R3G8-ET	8082383

Mains filter CAMF-C6-F		
Description	Type	Part no.
Sufficient for: 2x CMMT-AS-C2-3A or 1x CMMT-AS-C4-3A		
1-phase, 8 A	CAMF-C6-F-C8-3A	8088928
Sufficient for: 6x CMMT-AS-C2-3A or 3x CMMT-AS-C4-3A		
1-phase, 20 A	CAMF-C6-F-C20-3A	8088929
Sufficient for: 8x CMMT-AS-C2-11A or 5x CMMT-AS-C3-11A or 2x CMMT-AS-C5-11A or 2x CMMT-AS-C7-11A or 1x CMMT-AS-C12-11A		
3-phase, 16 A	CAMF-C6-F-C16-11A	8096868
Sufficient for: 21x CMMT-AS-C2-11A or 14x CMMT-AS-C3-11A or 7x CMMT-AS-C5-11A or 5x CMMT-AS-C7-11A or 3x CMMT-AS-C12-11A		
3-phase, 42 A	CAMF-C6-F-C42-11A	8096894

Line choke CAMF-C6-FD		
Description	Type	Part no.
Sufficient for: 2x CMMT-AS-C2-3A or 1x CMMT-AS-C4-3A		
1-phase, 6 A	CAMF-C6-FD-C6-3A	8088930
Sufficient for: 3x CMMT-AS-C2-11A or 2x CMMT-AS-C3-11A or 1x CMMT-AS-C5-11A		
3-phase, 6 A	CAMF-C6-FD-C6-11A	8096867

Braking resistor CACR			
Resistance value [Ω]	Nominal power [W]	Type	Part no.
For CMMT-AS-C2-3A-...-S1			
100	150 <sup>1)</sup>	CACR-LE2-100-W500	1336615
100	720 <sup>1)</sup>	CACR-KL2-100-W1800	8091545
For CMMT-AS-C2-11A-...-S1, CMMT-AS-C3-11A-...-S1			
240	120 <sup>2)</sup>	CACR-LE2-240-W500	8091543
240	720 <sup>2)</sup>	CACR-KL2-240-W1800	8091544
For CMMT-AS-C4-3A-...-S1			
72	150 <sup>1)</sup>	CACR-LE2-72-W500	1336611
100	150 <sup>1)</sup>	CACR-LE2-100-W500	1336615
67	720 <sup>1)</sup>	CACR-KL2-67-W1800	1336617
100	720 <sup>1)</sup>	CACR-KL2-100-W1800	8091545
For CMMT-AS-C5-11A-...-S1			
100	150 <sup>2)</sup>	CACR-LE2-100-W500	1336615
100	720 <sup>2)</sup>	CACR-KL2-100-W1800	8091545
For CMMT-AS-C7-11A-...-S1			
72	120 <sup>2)</sup>	CACR-LE2-72-W500	1336611
67	720 <sup>2)</sup>	CACR-KL2-67-W1800	1336617
For CMMT-AS-C12-11A-...-S1			
50	120 <sup>2)</sup>	CACR-LE2-50-W500	2882342
40	480 <sup>2)</sup>	CACR-KL2-40-W2000	2882343

1) at 380 V  
2) at 780 V

Electric servo drives > Stepper motor controllers >  
Servo drive CMMT-ST, for extra-low voltage

- Space-saving servo drive for operating stepper motors and brushless direct current motors
- Extremely economical for positioning tasks and motion solutions with low power requirements up to 300 W
- Integrated safety functions:
  - Safe torque off (STO)
  - Safe stop 1 with time control (SS1-t)

## Order code

001	002	003	004	005	006
CMMT	ST	C8	1C		SO

001	Type
CMMT	Motor controllers
002	Motor type
ST	Stepper motor
003	Nominal current
C8	8 A
004	Nominal input voltage
1C	24 ... 48 V DC

Legend:  Mandatory entry

005	Bus protocol/activation
EC	EtherCAT
EP	EtherNet/IP und Modbus TCP
PN	PROFINET RT/IRT
006	Safety function
SO	Basic safety

## Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/cmmt-st](http://www.festo.com/catalogue/cmmt-st)

## Ordering

003 Nominal current	004 Nominal input voltage	005 Bus protocol/activation	006 Safety function	Type	Part no.
8 A	24 V DC	EtherCAT	Basic safety	CMMT-ST-C8-1C-EC-SO	8084005
		PROFINET RT/IRT		CMMT-ST-C8-1C-PN-SO	8084004
		EtherNet/IP, Modbus TCP		CMMT-ST-C8-1C-EP-SO	8084006

## Accessories

Plug assortment NEKM-C <sup>1)</sup>		
Description	Type	Part no.
For single wiring connection with single-phase servo drives	NEKM-C-22	8081885

1) Included in the scope of delivery of the servo drive.

Connecting cable NEBC-R3G8			
<ul style="list-style-type: none"> <li>• Patch cable for the daisy-chain connection of the bus interfaces X19A/B</li> <li>• Ethernet category Cat 5e</li> </ul>			
Cable length	Connection on the right	Type	Part no.
Connection on the left: straight plug, RJ45, 8-pin			
0.2 m	Straight plug, RJ45, 8-pin	NEBC-R3G8-KS-0.2-N-S-R3G8-ET	8082383

# 04


## Grippers






# Highlights


# Contents



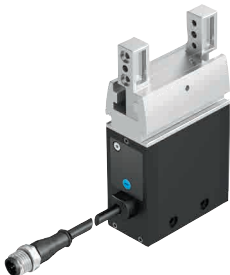
Parallel grippers  
**DHPS**  
+ Heavy-duty, precision T-slot guide for gripper jaws  
+ High gripping force with compact dimensions  
→ 131



Parallel grippers  
**DHPC**  
+ Heavy-duty and precise ball guide  
+ Wide range of mounting and attachment options  
→ 133



Parallel grippers  
**HGPT-B**  
+ Sturdy and powerful  
+ High-force variant available  
→ 137



Parallel grippers, electric  
**EHPS**  
+ Gripping force adjustable at the gripper module  
+ Long stroke for different workpieces  
→ 129

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 Parallel grippers DHPS \_\_\_\_\_ 131  
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Product overview

Software-Tools

Product finder for grippers



A secure grip is a question of the right calculation. In this case, calculation of weight, direction of movement, distances, etc. The software tool immediately determines which type of gripper – parallel, three-point, angle or swivel/gripper – and which size best matches your requirements.

These tools can be found at

- ➔ [www.festo.com/x/gripper-parallel](http://www.festo.com/x/gripper-parallel)
- ➔ [www.festo.com/x/gripper-3-point](http://www.festo.com/x/gripper-3-point)
- ➔ [www.festo.com/x/gripper-angle](http://www.festo.com/x/gripper-angle)
- ➔ [www.festo.com/x/gripper-radial](http://www.festo.com/x/gripper-radial)

Mechanical grippers >

Parallel grippers



**Parallel grippers DHPS**



**Parallel gripper DHPC**



**Parallel grippers HGPT-B**




**Parallel gripper HGPL-B**

	Parallel grippers DHPS	Parallel gripper DHPC	Parallel grippers HGPT-B	Parallel gripper HGPL-B
<b>Size</b>	6, 10, 16, 20, 25, 35	6, 10, 16, 20, 25, 32, 40	16, 20, 25, 35, 40, 50, 63, 80	14, 25, 40, 63
<b>Stroke per gripper jaw</b>	2 ... 12.5 mm	2 ... 15 mm	1.5 ... 25 mm	20 ... 150 mm
<b>Total gripping force at 0.6 MPa (6 bar, 87 psi), closing</b>	25 ... 910 N	7.8 ... 717.2 N	106 ... 6300 N	158 ... 2742 N
<b>Max. force on gripper jaw F<sub>z</sub>, static</b>	10 ... 450 N	5 ... 245 N	200 ... 7000 N	500 ... 9000 N
<b>Gripping force backup</b>	During opening, During closing, None	During opening, During closing, None	During opening, During closing, None	None
<b>Gripper repetition accuracy</b>	≤0.02 mm	≤0.02 mm	≤0.03 mm , ≤0.04 mm , ≤0.05 mm	<0.03 mm
<b>Position sensing</b>	Via Hall sensor, via proximity sensor	Via proximity sensor	Via proximity sensor	Via proximity sensor
<b>Description</b>	<ul style="list-style-type: none"> <li>• Heavy-duty, precision T-slot guide for gripper jaws</li> <li>• High gripping force with compact dimensions</li> <li>• Max. repetition accuracy</li> <li>• Can be used as a double-acting and single-acting gripper</li> <li>• Single-acting variant or with gripping force backup, opening (NO) or closing (NC)</li> <li>• Suitable for external and internal gripping</li> <li>• Wide range of adaptation options on the drives</li> </ul>	<ul style="list-style-type: none"> <li>• Resilient and precise ball guide</li> <li>• High gripping force and compact size</li> <li>• Max. repetition accuracy</li> <li>• Can be used as a double-acting or single-acting gripper</li> <li>• Single-acting variant or with gripping force retention normally open (NO) or normally closed (NC)</li> <li>• Suitable for external and internal gripping</li> <li>• Wide variety of mounting and attachment options</li> <li>• Sustainable in production thanks to reduced use of materials</li> </ul>	<ul style="list-style-type: none"> <li>• Sturdy and powerful</li> <li>• With T-slot guide</li> <li>• Gripper jaw guide protected by sealing air against dust</li> <li>• High-force variant available</li> <li>• Can be used as a double-acting and single-acting gripper</li> <li>• Single-acting variant or with gripping force backup, opening (NO) or closing (NC)</li> <li>• Suitable for external and internal gripping</li> </ul>	<ul style="list-style-type: none"> <li>• Space-saving, high forces and torques</li> <li>• Controlled, precise and centred gripping</li> <li>• Long stroke: long guide length for the gripper jaws</li> <li>• Opening stroke can be adjusted to optimise time</li> <li>• Double-acting gripper with two pistons operating in parallel and in opposite directions</li> <li>• Suitable for external and internal gripping</li> </ul>
<b>➔ Page/online</b>	<b>131</b>	<b>133</b>	<b>137</b>	<b>139</b>



## Electric grippers &gt;

## Parallel grippers

	
	Parallel grippers, electric EHPS
<b>Size</b>	16, 20, 25
<b>Total gripping force at 0.6 MPa (6 bar, 87 psi), closing</b>	See documentation on our website
<b>Max. force on gripper jaw F<sub>z</sub>, static</b>	200 ... 450 N
<b>Stroke per gripper jaw</b>	10 ... 16 mm
<b>Gripper repetition accuracy</b>	≤0.01 mm, ≤0.03 mm
<b>Position sensing</b>	Via proximity switch, with Hall sensor, with displacement encoder integrated, via IO-Link® interface
<b>Description</b>	<ul style="list-style-type: none"> <li>• Electric version of the pneumatically actuated parallel gripper DHPS</li> <li>• Ideal for use as a front-end actuator thanks to its low dead weight</li> <li>• Controller-free actuation using digital signals</li> <li>• Gripping force (4 settings) adjustable via ratchet switch or via IO-Link interface</li> <li>• RA1 version with robot connection, enables fast integration in lightweight robot environments</li> </ul>
<b>online: →</b>	<a href="#">ehps</a>

## Mechanical grippers &gt;

## Three-point grippers

		
	Three-point grippers DHDS	Three-point grippers HGDT
<b>Size</b>	16, 32, 50	25, 35, 40, 50, 63
<b>Stroke per gripper jaw</b>	2.5 ... 6 mm	1.5 ... 10 mm
<b>Total gripping force at 0.6 MPa (6 bar, 87 psi), closing</b>	87 ... 750 N	207 ... 2592 N
<b>Gripping force backup</b>	During closing	During opening, during closing
<b>Gripper repetition accuracy</b>	≤0.04 mm	≤0.03 mm
<b>Position sensing</b>	Via Hall sensor, via proximity sensor	Via proximity sensor
<b>Description</b>	<ul style="list-style-type: none"> <li>• Heavy-duty, precision T-slot guide for gripper jaws</li> <li>• High gripping force with compact dimensions</li> <li>• Max. repetition accuracy</li> <li>• Can be used as a double-acting and single-acting gripper</li> <li>• Single-acting variant or with gripping force backup, closing (NC)</li> <li>• Suitable for external and internal gripping</li> <li>• Wide range of adaptation options on the drives</li> </ul>	<ul style="list-style-type: none"> <li>• Synchronous movement of the gripper jaws</li> <li>• Gripper jaw guide protected by sealing air against dust</li> <li>• High-force variant available</li> <li>• With T-slot guide</li> <li>• Can be used as a double-acting and single-acting gripper</li> <li>• Single-acting variant or with gripping force backup, opening (NO) or closing (NC)</li> <li>• Suitable for external and internal gripping</li> </ul>
<b>→ Page/online</b>	<a href="#">dhds</a>	<a href="#">hgdt</a>

Product overview

Mechanical grippers >

Angle grippers



Angle grippers  
DHWS

<b>Size</b>	10, 16, 25, 32, 40
<b>Total gripping force at 0.6 MPa (6 bar, 87 psi), closing</b>	30 ... 1362 Ncm
<b>Max. opening angle</b>	40°
<b>Gripping force backup</b>	During closing
<b>Gripper repetition accuracy</b>	≤0.04 mm
<b>Position sensing</b>	Via Hall sensor, via proximity sensor
<b>Description</b>	<ul style="list-style-type: none"> <li>• Improved gripper jaw guide</li> <li>• Internal fixed flow control, does away with the need for external flow control in 80% of applications</li> <li>• Slotted guide</li> <li>• Max. repetition accuracy</li> <li>• Can be used as a double- and single-acting gripper</li> <li>• Single-acting variant or with gripping force backup, normally closed (NC)</li> <li>• Suitable for external and internal gripping</li> <li>• Wide range of adaptation options on the drives</li> </ul>
<b>→ Page/online</b>	<a href="#">dhws</a>

Mechanical grippers >

Radial grippers



Radial grippers  
DHRS

<b>Size</b>	10, 16, 25, 32, 40
<b>Total gripping force at 0.6 MPa (6 bar, 87 psi), closing</b>	15 ... 660 Ncm
<b>Max. opening angle</b>	180°
<b>Gripping force backup</b>	During closing
<b>Gripper repetition accuracy</b>	≤0.1 mm
<b>Position sensing</b>	Via Hall sensor, via proximity sensor
<b>Description</b>	<ul style="list-style-type: none"> <li>• Lateral gripper jaw support for high torque loads</li> <li>• Self-centring</li> <li>• Internal fixed flow control</li> <li>• Max. repetition accuracy</li> <li>• Slotted guide</li> <li>• Can be used as a double-acting and single-acting gripper</li> <li>• Single-acting variant or with gripping force backup, closing (NC)</li> <li>• Wide range of adaptation options on the drives</li> </ul>
<b>→ Page/online</b>	<a href="#">dhrs</a>



- Oval piston for high gripping forces
- High gripping forces with compact dimensions
- Gripper jaw centring options
- Wide range of adaptation options on the drives
- Adaptable position sensor for the small gripper sizes
- Integrated proximity sensors for the medium and large gripper sizes
- Suitable for external and internal gripping

## Order code – Basic design

001 002 003 004  
DHPS - [ ] - A - [ ]

Legend: [ ] Mandatory entry [ ] Optional entry

001	Type
DHPS	Parallel gripper

002	Size
...	6, 10, 16, 20, 25, 35

003	Position sensing
A	Via proximity switch

004	Gripping force backup
-	None

## Product options

Gripping force backup

NO Opening

NC Closing

Configurable product

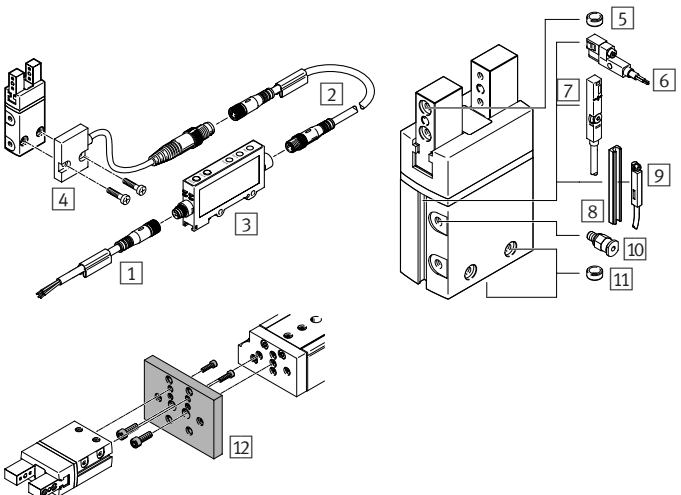
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/dhps](http://www.festo.com/catalogue/dhps)

## Ordering – Basic design

Double-acting, 004 Without gripping force backup		
002 Size	Type	Part no.
6	DHPS-6-A	1254039
10	DHPS-10-A	1254040
16	DHPS-16-A	1254043
20	DHPS-20-A	1254046
25	DHPS-25-A	1254049
35	DHPS-35-A	1254052

## Accessories



- 1 Connecting cable NEBU → 132
- 2 Connecting cable NEBU → 132
- 3 Signal converter SVE4 → 132
- 4 Position sensor SMH-S1 → 132
- 5 Centring sleeve ZBH → 132
- 6 Proximity switch SMT-8G → 132  
Connecting cable NEBU → 132
- 7 Position transmitter SMAT-8M → [dhps](#)  
SDAT → [dhps](#)
- 8 Sensor rail HGP-SL, can be glued into place → 132
- 9 Proximity switch SMT-10G → 132  
Connecting cable NEBU → 132
- 10 Push-in fitting QS → 319
- 11 Centring sleeve ZBH → 132
- 12 Adapter kit DHAA, HMSV, HAPG, HAPS, HMVA → [dhps](#)

Mechanical grippers >

## Parallel grippers DHPS

### Accessories

#### 1 Connecting cable NEBU

For size 6, connection between signal converter and controller

Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 4-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M8G4-K-2.5-LE4	541342
5 m		NEBU-M8G4-K-5-LE4	541343
Connection, left: angled socket, M8x1, 4-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M8W4-K-2.5-LE4	541344
5 m		NEBU-M8W4-K-5-LE4	541345

#### 2 Connecting cable NEBU

For size 6, connection between position sensor and signal converter

Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 4-pin			
2.5 m	Straight plug M8x1, 4-pin	NEBU-M8G4-K-2.5-M8G4	554035

#### 3 Signal converter SVE4

For size 6, for evaluating signals for position sensor SMH-S1

Switching output	Output connection	Type	Part no.
Input connection: socket M8x1, 4-pin			
2x PNP	Plug M8x1, 4-pin	SVE4-HS-R-HM8-2P-M8	544216
2x NPN		SVE4-HS-R-HM8-2N-M8	544219

#### 4 Position sensor SMH-S1

For size 6

Description	Type	Part no.
Adaptable and integratable sensor technology for sensing the piston position	SMH-S1-HGP06	175710

#### 5 Centring sleeve ZBH<sup>1)</sup>

For size	Type	Part no.
For centring the gripper fingers on the gripper jaws		
10	ZBH-5-B	8146543
16, 20	ZBH-7-B	8146544
25, 35	ZBH-9-B	8137184

1) Packaging unit 10 pieces. The delivery scope of the gripper for size 10 and above includes 4 centring sleeves

#### 6 Proximity switch for T-slot, N/O contact, magneto-resistive SMT-8G

For size	Description	Type	Part no.
PNP, inserted in the slot from the side			
10, 16, 20, 25,	Cable, 3-wire, lateral, 2.5 m	SMT-8G-PS-24V-E-2,5Q-OE	547859
35			
NPN, inserted in the slot from the side			
10, 16, 20, 25,	Cable, 3-wire, lateral, 2.5 m	SMT-8G-NS-24V-E-2,5Q-OE	8065028
35			

#### 8 Sensor rail HGP-SL, can be glued in

For size	Type	Part no.
10	HGP-SL-10-10	535582
16	HGP-SL-10-16	535583
20	HGP-SL-10-20	535584
25	HGP-SL-10-25	535585
35	HGP-SL-10-35	535586

#### 9 Proximity switch, N/O contact, magneto-resistive SMT-10G

For sensor rail HGP-SL

For size	Description	Type	Part no.
PNP, inserted in the slot from the side			
10, 16, 20, 25,	Cable, 3-wire, lateral, 2.5 m	SMT-10G-PS-24V-E-2,5Q-OE	547862
35			
NPN, inserted in the slot from the side			
10, 16, 20, 25,	Cable, 3-wire, lateral, 2.5 m	SMT-10G-NS-24V-E-2,5Q-OE	8065030
35			

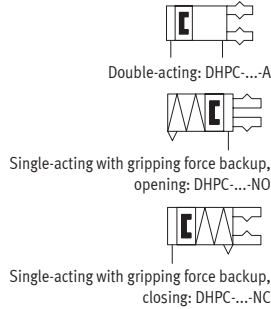
#### 11 Centring sleeve ZBH<sup>1)</sup>

For size	Type	Part no.
For centring the gripper during mounting		
6, 10	ZBH-5-B	8146543
16, 20	ZBH-7-B	8146544
25	ZBH-9-B	8137184
35	ZBH-12-B	8137185

1) Packaging unit 10 pieces. The scope of delivery of the gripper includes 2 centring sleeves.

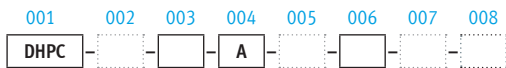
#### Connecting cable NEBU

Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341



- Heavy-duty and precise ball guide
- High gripping forces with compact dimensions
- Max. repetition accuracy
- Wide range of mounting and connection options
- Can be used as a double-acting or single-acting gripper
- Suitable for external and internal gripping

## Order code – Basic design



Legend:  Mandatory entry  Optional entry

001	Type
DHPC	Parallel gripper
002	Gripper characteristic
-	Standard
L	Long stroke
003	Size
...	6, 10, 16, 20, 25, 32, 40
004	Position sensing
A	Via proximity switch
005	Gripping force backup
-	None
NO	Opening
NC	Closing

006	Pneumatic connection
B	Underneath
S	On the side
Z	Via mounting spigot
007	Dust protection
-	None
008	Type of mounting for gripper finger
-	None
1	Mounting holes on the side
2	Flat gripper fingers

## Product options

Dust protection

C Protective dust cap

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
8116728	DHPC-...-6-A-...
8116729	DHPC-...-10-A-...
8116730	DHPC-...-16-A-...
8116731	DHPC-...-20-A-...

Part no.	Type
8116732	DHPC-...-25-A-...
8116733	DHPC-...-32-A-...
8116734	DHPC-...-40-A-...

Mechanical grippers >

Parallel grippers DHPC

Ordering – Basic design

003 Size	008 Type of mounting for gripper finger			006 Pneumatic connection underneath				006 Pneumatic connection on the side			
	None	Mounting holes on the side	Flat gripper fingers	002 Gripper characteristic: Standard		002 Gripper characteristic: Long stroke		002 Gripper characteristic: Standard		002 Gripper characteristic: Long stroke	
				Type	Part no.	Type	Part no.	Type	Part no.	Type	Part no.
				Double-acting, 005 Without gripping force backup				Double-acting, 005 Without gripping force backup			
6	■			DHPC-6-A-B	8116738			DHPC-6-A-S	8116735		
		■		DHPC-6-A-B-1	8116739			DHPC-6-A-S-1	8116736		
			■	DHPC-6-A-B-2	8116740			DHPC-6-A-S-2	8116737		
10	■			DHPC-10-A-B	8116756	DHPC-L-10-A-B	8116774	DHPC-10-A-S	8116753	DHPC-L-10-A-S	8116771
		■		DHPC-10-A-B-1	8116757	DHPC-L-10-A-B-1	8116775	DHPC-10-A-S-1	8116754	DHPC-L-10-A-S-1	8116772
			■	DHPC-10-A-B-2	8116758	DHPC-L-10-A-B-2	8116776	DHPC-10-A-S-2	8116755	DHPC-L-10-A-S-2	8116773
16	■			DHPC-16-A-B	8116788	DHPC-L-16-A-B	8116806	DHPC-16-A-S	8116785	DHPC-L-16-A-S	8116803
		■		DHPC-16-A-B-1	8116789	DHPC-L-16-A-B-1	8116807	DHPC-16-A-S-1	8116786	DHPC-L-16-A-S-1	8116804
			■	DHPC-16-A-B-2	8116790	DHPC-L-16-A-B-2	8116808	DHPC-16-A-S-2	8116787	DHPC-L-16-A-S-2	8116805
20	■			DHPC-20-A-B	8116820	DHPC-L-20-A-B	8116838	DHPC-20-A-S	8116817	DHPC-L-20-A-S	8116835
		■		DHPC-20-A-B-1	8116821	DHPC-L-20-A-B-1	8116839	DHPC-20-A-S-1	8116818	DHPC-L-20-A-S-1	8116836
			■	DHPC-20-A-B-2	8116822	DHPC-L-20-A-B-2	8116840	DHPC-20-A-S-2	8116819	DHPC-L-20-A-S-2	8116837
25	■			DHPC-25-A-B	8116852	DHPC-L-25-A-B	8116870	DHPC-25-A-S	8116849	DHPC-L-25-A-S	8116867
		■		DHPC-25-A-B-1	8116853	DHPC-L-25-A-B-1	8116871	DHPC-25-A-S-1	8116850	DHPC-L-25-A-S-1	8116868
			■	DHPC-25-A-B-2	8116854	DHPC-L-25-A-B-2	8116872	DHPC-25-A-S-2	8116851	DHPC-L-25-A-S-2	8116869
32	■			DHPC-32-A-B	8116884			DHPC-32-A-S	8116881		
		■		DHPC-32-A-B-1	8116885			DHPC-32-A-S-1	8116882		
			■	DHPC-32-A-B-2	8116886			DHPC-32-A-S-2	8116883		
40	■			DHPC-40-A-B	8116897			DHPC-40-A-S	8116894		
		■		DHPC-40-A-B-1	8116898			DHPC-40-A-S-1	8116895		
			■	DHPC-40-A-B-2	8116899			DHPC-40-A-S-2	8116896		



Ordering – Basic design

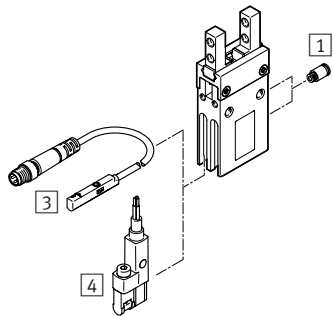
003 Size	008 Type of mounting for gripper finger			006 Pneumatic connection on the side				006 Pneumatic connection on the side			
	None	Mounting holes on the side	Flat gripper fingers	002 Gripper characteristic: Standard		002 Gripper characteristic: Long stroke		002 Gripper characteristic: Standard		002 Gripper characteristic: Long stroke	
				Type	Part no.	Type	Part no.	Type	Part no.	Type	Part no.
				Single-acting, with 005 Gripping force backup, opening				Single-acting, with 005 Gripping force backup, closing			
6	■			DHPC-6-A-NO-S	8116741			DHPC-6-A-NC-S	8116747		
		■		DHPC-6-A-NO-S-1	8116742			DHPC-6-A-NC-S-1	8116748		
			■	DHPC-6-A-NO-S-2	8116743			DHPC-6-A-NC-S-2	8116749		
10	■			DHPC-10-A-NO-S	8116759	DHPC-L-10-A-NO-S	8116777	DHPC-10-A-NC-S	8116765	DHPC-L-10-A-NC-S	8116780
		■		DHPC-10-A-NO-S-1	8116760	DHPC-L-10-A-NO-S-1	8116778	DHPC-10-A-NC-S-1	8116766	DHPC-L-10-A-NC-S-1	8116781
			■	DHPC-10-A-NO-S-2	8116761	DHPC-L-10-A-NO-S-2	8116779	DHPC-10-A-NC-S-2	8116767	DHPC-L-10-A-NC-S-2	8116782
16	■			DHPC-16-A-NO-S	8116791	DHPC-L-16-A-NO-S	8116809	DHPC-16-A-NC-S	8116797	DHPC-L-16-A-NC-S	8116812
		■		DHPC-16-A-NO-S-1	8116792	DHPC-L-16-A-NO-S-1	8116810	DHPC-16-A-NC-S-1	8116798	DHPC-L-16-A-NC-S-1	8116813
			■	DHPC-16-A-NO-S-2	8116793	DHPC-L-16-A-NO-S-2	8116811	DHPC-16-A-NC-S-2	8116799	DHPC-L-16-A-NC-S-2	8116814
20	■			DHPC-20-A-NO-S	8116823	DHPC-L-20-A-NO-S	8116841	DHPC-20-A-NC-S	8116829	DHPC-L-20-A-NC-S	8116844
		■		DHPC-20-A-NO-S-1	8116824	DHPC-L-20-A-NO-S-1	8116842	DHPC-20-A-NC-S-1	8116830	DHPC-L-20-A-NC-S-1	8116845
			■	DHPC-20-A-NO-S-2	8116825	DHPC-L-20-A-NO-S-2	8116843	DHPC-20-A-NC-S-2	8116831	DHPC-L-20-A-NC-S-2	8116846
25	■			DHPC-25-A-NO-S	8116855	DHPC-L-25-A-NO-S	8116873	DHPC-25-A-NC-S	8116861	DHPC-L-25-A-NC-S	8116876
		■		DHPC-25-A-NO-S-1	8116856	DHPC-L-25-A-NO-S-1	8116874	DHPC-25-A-NC-S-1	8116862	DHPC-L-25-A-NC-S-1	8116877
			■	DHPC-25-A-NO-S-2	8116857	DHPC-L-25-A-NO-S-2	8116875	DHPC-25-A-NC-S-2	8116863	DHPC-L-25-A-NC-S-2	8116878
32	■			DHPC-32-A-NO-S	8116887			DHPC-32-A-NC-S	8116890		
		■		DHPC-32-A-NO-S-1	8116888			DHPC-32-A-NC-S-1	8116891		
			■	DHPC-32-A-NO-S-2	8116889			DHPC-32-A-NC-S-2	8116892		
40	■			DHPC-40-A-NO-S	8116900			DHPC-40-A-NC-S	8116903		
		■		DHPC-40-A-NO-S-1	8116901			DHPC-40-A-NC-S-1	8116904		
			■	DHPC-40-A-NO-S-2	8116902			DHPC-40-A-NC-S-2	8116905		

003 Size	008 Type of mounting for gripper finger			006 Pneumatic connection via mounting spigot				006 Pneumatic connection via mounting spigot			
	None	Mounting holes on the side	Flat gripper fingers	002 Gripper characteristic: Standard		002 Gripper characteristic: Standard		002 Gripper characteristic: Standard		002 Gripper characteristic: Standard	
				Type	Part no.	Type	Part no.	Type	Part no.	Type	Part no.
				Single-acting, with 005 Gripping force backup, opening				Single-acting, with 005 Gripping force backup, closing			
6	■			DHPC-6-A-NO-Z	8116744			DHPC-6-A-NC-Z	8116750		
		■		DHPC-6-A-NO-Z-1	8116745			DHPC-6-A-NC-Z-1	8116751		
			■	DHPC-6-A-NO-Z-2	8116746			DHPC-6-A-NC-Z-2	8116752		
10	■			DHPC-10-A-NO-Z	8116762			DHPC-10-A-NC-Z	8116768		
		■		DHPC-10-A-NO-Z-1	8116763			DHPC-10-A-NC-Z-1	8116769		
			■	DHPC-10-A-NO-Z-2	8116764			DHPC-10-A-NC-Z-2	8116770		
16	■			DHPC-16-A-NO-Z	8116794			DHPC-16-A-NC-Z	8116800		
		■		DHPC-16-A-NO-Z-1	8116795			DHPC-16-A-NC-Z-1	8116801		
			■	DHPC-16-A-NO-Z-2	8116796			DHPC-16-A-NC-Z-2	8116802		
20	■			DHPC-20-A-NO-Z	8116826			DHPC-20-A-NC-Z	8116832		
		■		DHPC-20-A-NO-Z-1	8116827			DHPC-20-A-NC-Z-1	8116833		
			■	DHPC-20-A-NO-Z-2	8116828			DHPC-20-A-NC-Z-2	8116834		
25	■			DHPC-25-A-NO-Z	8116858			DHPC-25-A-NC-Z	8116864		
		■		DHPC-25-A-NO-Z-1	8116859			DHPC-25-A-NC-Z-1	8116865		
			■	DHPC-25-A-NO-Z-2	8116860			DHPC-25-A-NC-Z-2	8116866		

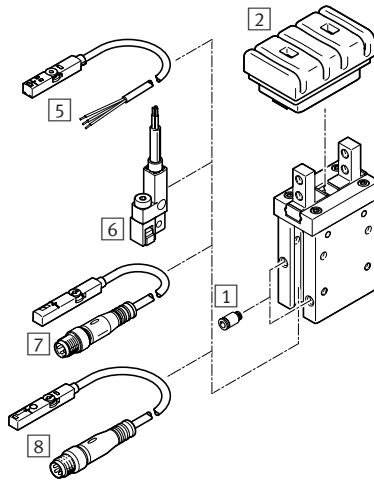
Mechanical grippers >  
Parallel grippers DHPC

Accessories

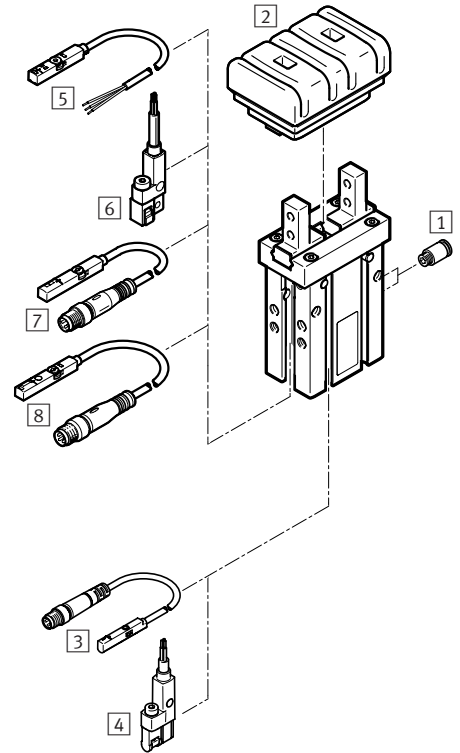
Size 6



Size 10



Size 16 ... 40



- 1 Push-in fitting QS → 319
- 2 Protective dust cap DHAS-DP → dhpc
- 3 Proximity switch SMT-10M → 136
- 4 Proximity switch SMT-10G → 136
- 5 Proximity switch SMT-8M → 136
- 6 Proximity switch SMT-8G → 136
- Connecting cable NEBU → 132
- 7 Position transmitter SMAT-8M → dhpc
- 8 Position transmitter SDAS-MHS → dhpc

3 Proximity switch, N/O contact, magneto-resistive SMT-10M			
For size	Description	Type	Part no.
PNP, for round slot, inserted in the slot from above			
6, 16, 20, 25, 32, 40	Cable, 3-wire, lengthwise, 2.5 m	SMT-10M-PS-24V-E-2,5-L-OE	551373
	Plug M8x1, 3-pin, lengthwise, 0.3 m	SMT-10M-PS-24V-E-0,3-L-M8D	551375
6, 16, 20, 25, 32, 40	Cable, 3-wire, lateral, 2.5 m	SMT-10M-PS-24V-E-2,5-Q-OE	551374
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-10M-PS-24V-E-0,3-Q-M8D	551376

4 Proximity switch, N/O contact, magneto-resistive SMT-10G For sensor rail HGP-SL			
For size	Description	Type	Part no.
PNP, for round slot, inserted in the slot from the side			
6, 16, 20, 25, 32, 40	Cable, 3-wire, lateral, 2.5 m	SMT-10G-PS-24V-E-2,5Q-OE	547862
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-10G-PS-24V-E-0,3Q-M8D	547863
NPN, for round slot, inserted in the slot from the side			
6, 16, 20, 25, 32, 40	Cable, 3-wire, lateral, 2.5 m	SMT-10G-NS-24V-E-2,5Q-OE	8065030
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-10G-NS-24V-E-0,3Q-M8D	8065029

5 Proximity switch, N/O contact, magneto-resistive SMT-8M			
For size	Description	Type	Part no.
PNP, for T-slot, inserted in the slot from above, short design			
10, 16, 20, 25, 32, 40	Cable, 3-wire, 2.5 m	SMT-8M-A-PS-24V-E-2,5-OE	574335
	Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-PS-24V-E-0,3-M8D	574334
NPN, for T-slot, inserted in the slot from above, short design			
10, 16, 20, 25, 32, 40	Cable, 3-wire, 2.5 m	SMT-8M-A-NS-24V-E-2,5-OE	574338
	Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-NS-24V-E-0,3-M8D	574339

6 Proximity switch, N/O contact, magneto-resistive SMT-8G			
For size	Description	Type	Part no.
PNP, for T-slot, inserted in the slot from the side			
10, 16, 20, 25, 32, 40	Cable, 3-wire, lateral, 2.5 m	SMT-8G-PS-24V-E-2,5Q-OE	547859
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-8G-PS-24V-E-0,3Q-M8D	547860
NPN, for T-slot, inserted in the slot from the side			
10, 16, 20, 25, 32, 40	Cable, 3-wire, lateral, 2.5 m	SMT-8G-NS-24V-E-2,5Q-OE	8065028
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-8G-NS-24V-E-0,3Q-M8D	8065027

Connecting cable NEBU			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
		NEBU-M8G3-K-5-LE3	541334
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
		NEBU-M8W3-K-5-LE3	541341



- Sturdy and precise kinematics for very high torque resistance and long service life
- Virtually backlash-free plain-bearing guide
- Reduced weight: systematic use of high-performance and lightweight materials
- 4 sensor slots: proximity switches no longer project past the housing at the bottom. Up to 4 positions can be sensed using the proximity sensors
- Suitable for external and internal gripping

### Order code – Basic design

001 002 003 004 005 006  
 HGPT - [ ] - A - B - [ ] - [ ]

Legend:  Mandatory entry  Optional entry

001	Type
HGPT	Parallel gripper, heavy-duty
002	Size
25	25
35	35
003	Position sensing
A	Via proximity switch

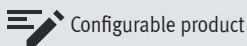
004	Generation
B	Series B
005	Gripping force
-	Standard
006	Gripping force backup
-	None

### Product options

Size  
 16, 20, 40, 50, 63, 80

Gripping force  
 F High

Gripping force backup  
 G1 Opening  
 G2 Closing



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/hgpt](http://www.festo.com/catalogue/hgpt)

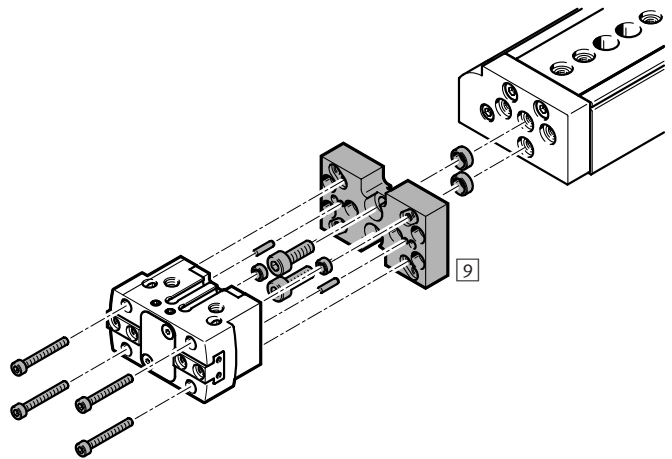
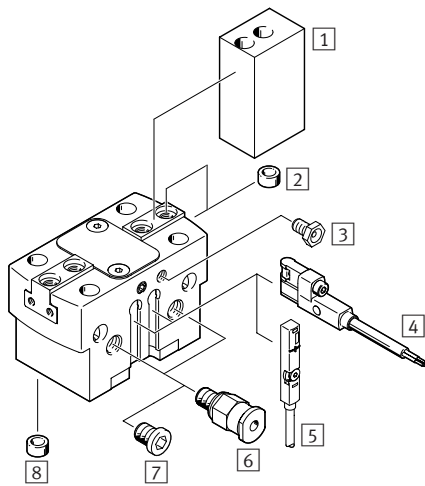
### Ordering – Basic design

Double-acting, 006 Without gripping force backup		
002 Size	Type	Part no.
25	HGPT-25-A-B	560204
35	HGPT-35-A-B	560210

Mechanical grippers >

Parallel grippers HGPT-B, heavy-duty

Accessories



- 1) Gripper jaw blank BUB-HGPT → [hgpt](#)
- 2) Centring sleeve ZBH → 138
- 3) Lubrication nipple, included in the scope of delivery of the gripper
- 4) Proximity switch SMT-8G → 138  
SMT-10G → 138  
Connecting cable NEBU → 138
- 5) Position transmitter SMAT-8M → [hgpt](#)  
SDAT → [hgpt](#)
- 6) Push-in fitting QS → 319
- 7) Blanking plug B → 138
- 8) Centring sleeve ZBH → 138
- 9) Adapter kit DHAA, HAPG → [hgpt](#)

2) Centring sleeve ZBH <sup>1)</sup>			
For size	Type	Part no.	
For centring the gripper jaw blanks/gripper fingers on the gripper jaws			
25	ZBH-7-B	8146544	
35	ZBH-9-B	8137184	
For centring the gripper fingers laterally on the gripper jaws			
25	ZBH-5-B	8146543	
35	ZBH-7-B	8146544	

1) Packaging unit 10 pieces. Centring sleeves included in the scope of delivery of the gripper.

4) Proximity switch, N/O contact, magneto-resistive SMT-8G			
For size	Description	Type	Part no.
PNP, for T-slot, inserted in the slot from the side			
25, 35	Cable, 3-wire, lateral, 2.5 m	SMT-8G-PS-24V-E-2,5Q-OE	547859
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-8G-PS-24V-E-0,3Q-M8D	547860
NPN, for T-slot, inserted in the slot from the side			
25, 35	Cable, 3-wire, lateral, 2.5 m	SMT-8G-NS-24V-E-2,5Q-OE	8065028
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-8G-NS-24V-E-0,3Q-M8D	8065027

4) Proximity switch, N/O contact, magneto-resistive SMT-10G			
For size	Description	Type	Part no.
PNP, for round slot, inserted in the slot from the side			
25, 35	Cable, 3-wire, lateral, 2.5 m	SMT-10G-PS-24V-E-2,5Q-OE	547862
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-10G-PS-24V-E-0,3Q-M8D	547863
NPN, for round slot, inserted in the slot from the side			
25, 35	Cable, 3-wire, lateral, 2.5 m	SMT-10G-NS-24V-E-2,5Q-OE	8065030
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-10G-NS-24V-E-0,3Q-M8D	8065029

Connecting cable NEBU			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

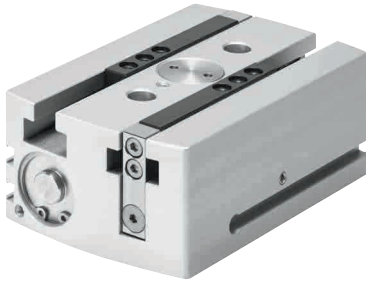
7) Blanking plug B <sup>1)</sup>		
For size	Type	Part no.
For sealing the supply ports		
25, 35	B-M5-B	174308

1) Packaging unit 10 pieces

8) Centring sleeve ZBH <sup>1)</sup>		
For size	Type	Part no.
For centring the gripper during mounting		
25, 35	ZBH-7-B	8146544

1) Packaging unit 10 pieces

Parallel grippers HGPL-B, heavy-duty with long stroke



- High torque resistance due to guided gripper jaw
- Compact and sturdy design
- Suitable for external and internal gripping

Order code – Basic design

001 002 003 004 005  
 HGPL - 14 -  - A - B

Legend:  Mandatory entry

001	Type
HGPL	Parallel gripper, heavy-duty with long stroke
002	Size
14	14
003	Stroke per gripper jaw [mm]
20	20
40	40

004	Position sensing
A	Via proximity switch
005	Generation
B	Series B

Product options

Size: 25, 40, 63  
 Stroke per gripper jaw: 60, 80, 100, 150 mm

Configurable product

This product and all its product options can be ordered online via the configurator:  
[www.festo.com/catalogue/hgpl](http://www.festo.com/catalogue/hgpl)

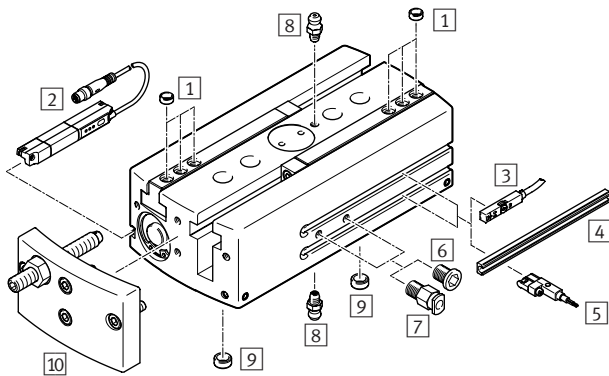
Ordering – Basic design

Double-acting			
002 Size	003 Stroke per gripper jaw [mm]	Type	Part no.
14	20	HGPL-14-20-A-B	3361479
	40	HGPL-14-40-A-B	3361480

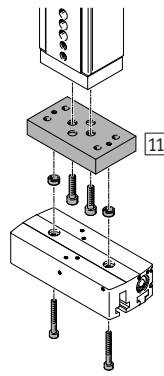
Mechanical grippers >

## Parallel grippers HGPL-B, heavy-duty with long stroke

### Accessories



- 1 Centring sleeve ZBH → 140
- 2 Position transmitter SMAT-8M, SDAT → [hgpl](#)
- 3 Proximity switch SME-8M → [hgpl](#)  
SMT-8M → 140
- 4 Sensor rail DASP → 140
- 5 Proximity switch SME-10M → [hgpl](#)  
SMT-10M → 140  
Connecting cable NEBU → 140



- 6 Blanking plug B → 140
- 7 Push-in fitting QS → 319
- 8 Lubrication nipple, 1 included in the scope of delivery
- 9 Centring sleeve ZBH → 140
- 10 Stroke reduction HGPL-HR → [hgpl](#)
- 11 Adapter kit DHAA, HAPG → [hgpl](#)  
Gripper jaw blank BUB-HGPL → [hgpl](#)

1 Centring sleeve ZBH <sup>1)</sup>		
For size	Type	Part no.
For centring the gripper jaw blanks/gripper fingers on the gripper jaws		
14	ZBH-5-B	8146543

1) Packaging unit 10 pieces. 4 included in the scope of delivery.

3 Proximity switch, N/O contact, magneto-resistive SMT-8M			
For size	Description	Type	Part no.
PNP, for T-slot, inserted in the slot from above, short design			
14	Cable, 3-wire, 2.5 m	SMT-8M-A-PS-24V-E-2,5-OE	574335
	Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-PS-24V-E-0,3-M8D	574334
NPN, for T-slot, inserted in the slot from above, short design			
14	Cable, 3-wire, 2.5 m	SMT-8M-A-NS-24V-E-2,5-OE	574338
	Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-NS-24V-E-0,3-M8D	574339

4 Sensor rail DASP <sup>1)</sup>		
Description	Type	Part no.
For using the proximity switch SME/SMT-10, for gluing into the slot		
For a gripper stroke of max. 60 mm	DASP-B6-60-C-SR	3528767
For a gripper stroke of max. 80 mm	DASP-B6-80-C-SR	3528768

1) Packaging unit 2 pieces

5 Proximity switch, N/O contact, magneto-resistive SMT-10M			
For size	Description	Type	Part no.
PNP, for round slot, inserted in the slot from above			
14	Cable, 3-wire, lengthwise, 2.5 m	SMT-10M-PS-24V-E-2,5-L-OE	551373
	Plug M8x1, 3-pin, lengthwise, 0.3 m	SMT-10M-PS-24V-E-0,3-L-M8D	551375
	Cable, 3-wire, lateral, 2.5 m	SMT-10M-PS-24V-E-2,5-Q-OE	551374
	Plug M8x1, 3-pin, lateral, 0.3 m	SMT-10M-PS-24V-E-0,3-Q-M8D	551376

Connecting cable NEBU			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

6 Blanking plug B <sup>1)</sup>		
For size	Type	Part no.
For sealing the supply ports		
14	B-M5-B	174308

1) Packaging unit 10 pieces

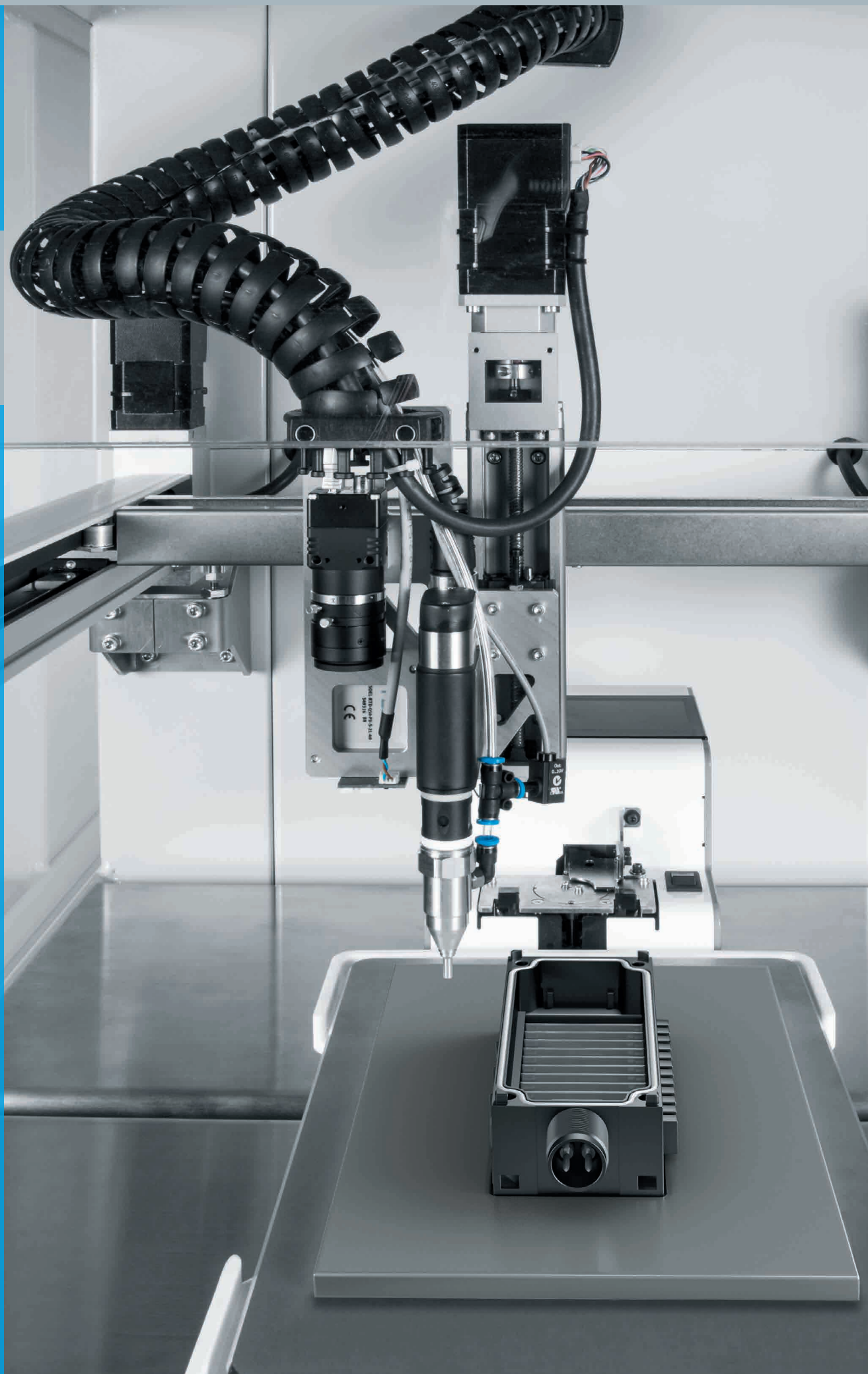
9 Centring sleeve ZBH <sup>1)</sup>		
For size	Type	Part no.
For centring the gripper during mounting		
14	ZBH-9-B	8137184

1) Packaging unit 10 pieces. 2 included in the scope of delivery.



# 05

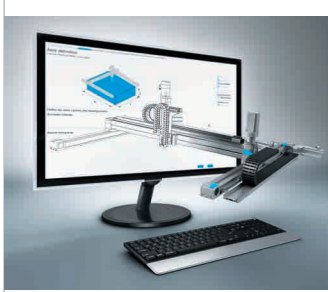
## Handling systems





# Highlights

# Contents



## Handling Guide Online

- + Find your handling solution in a few steps
- + Configuration and ordering system for standard handling systems of the YXC... series
- + Economical and reliable

→ 144

Product overview \_\_\_\_\_ 144



Planar surface gantries

## EXCM

- Compact gantry
- + Perfectly matched drive and controller packages

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Planar surface gantries

## EXCH

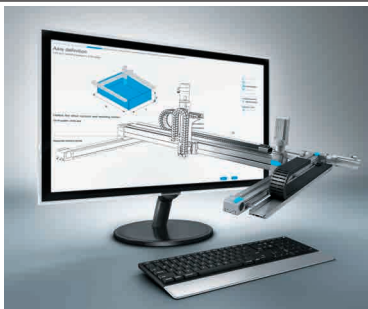
- + Maximum coverage of the working area
- + Low moving mass
- + High payload

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Product overview

Software-Tools

**Engineering tool: Handling Guide Online (HGO)**



Planning and designing complex handling systems, e.g. for pick & place applications, generally takes a lot of time. With the innovative Handling Guide Online (HGO) you can design a tailor-made system in just a few steps. Simply enter your application data such as the load mass, travel and cycle time.

**Advantages:**




- 1D- ... 3D kinematics
- Tailor-made system solution within just a few minutes
- CAD model available immediately
- Fully automatic selection of all relevant components
- Fully automated processing including ordering function
- Fully assembled or unassembled systems

This tool can be found at

➔ [www.festo.com/x/handling-guide-online](http://www.festo.com/x/handling-guide-online)



Cartesian robots >

Planar surface gantries

	 Planar surface gantries, compact YXMF	 Planar surface gantries, highly dynamic YXMF	 2D planar surface gantries YXCF
<b>Description</b>	<ul style="list-style-type: none"> <li>• Parallel kinematic drive concept with minimal space requirements</li> <li>• Ready-to-install complete system including energy chain, matching motors and dual motor controller</li> <li>• For two-dimensional movements in horizontal working areas</li> <li>• Flexible working area through scalable strokes in the X and Y direction</li> <li>• Based on the planar surface gantry EXCM</li> <li>• For extremely small working areas</li> <li>• For desktop applications in small parts assembly, electronics manufacturing and laboratory processes</li> </ul>	<ul style="list-style-type: none"> <li>• Parallel kinematic drive concept for maximum dynamic response</li> <li>• Ready-to-install complete system including energy chain and matching motor and motor controller package</li> <li>• For two-dimensional movements in horizontal working areas</li> <li>• Flexible working area through scalable strokes in the X and Y direction</li> <li>• Based on the planar surface gantry EXCH</li> <li>• Maximum dynamic response and efficient operation up to max. 100 picks/min</li> <li>• For rapid processes with high cycle rates like pick &amp; place, feeding parts, stacking, packaging tasks</li> <li>• Cost-saving alternative to two Scara robots due to large working area and high dynamic response</li> </ul>	<ul style="list-style-type: none"> <li>• Ready-to-install complete system including energy chain for cables or tubing as well as matching motor and motor controller package</li> <li>• For two-dimensional movements in horizontal working areas</li> <li>• Flexible working area through scalable strokes in the X and Y direction</li> <li>• X-axis based on toothed belt axis EGC-TB</li> <li>• Y-axis based on the toothed belt axis EGC-TB and toothed belt axis with heavy-duty guide EGC-HD-TB</li> <li>• Especially suitable for very long strokes</li> </ul>
➔ <a href="#">Page/online</a>	<a href="#">yxmf</a>	<a href="#">yxmf</a>	<a href="#">yxcf</a>

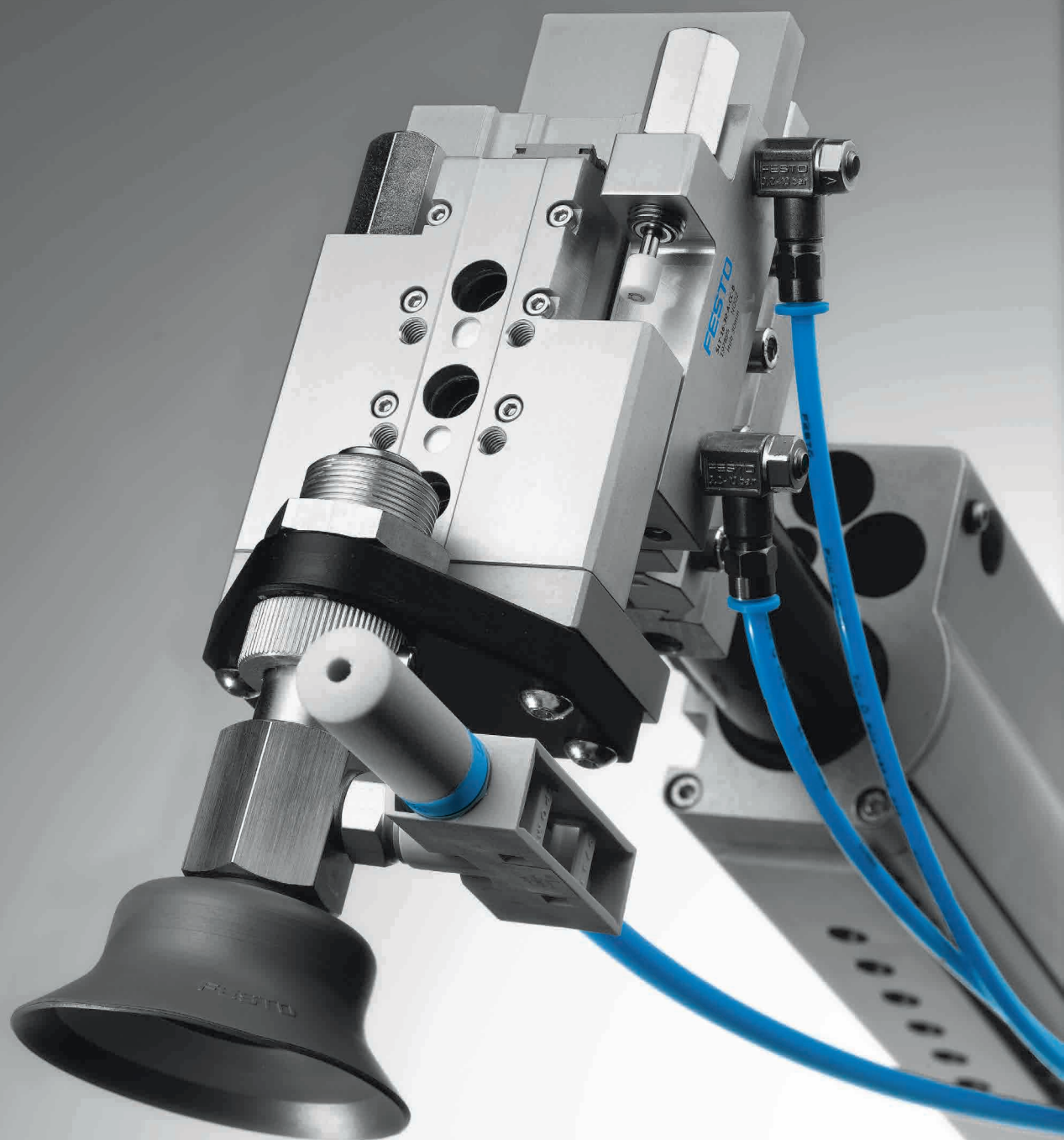
Cartesian robots >

Planar surface gantries

	 <p>2D planar surface gantries EXCM</p>	 <p>2D planar surface gantries EXCH</p>
<p><b>Description</b></p>	<ul style="list-style-type: none"> <li>• Excellent functionality in small installation spaces</li> <li>• Low moving dead weight</li> <li>• Actuation via two stepper motors with an integrated optical encoder and a two-axis controller</li> <li>• With recirculating ball bearing guide</li> <li>• Sustainable operation due to weight-optimised axes</li> </ul>	<ul style="list-style-type: none"> <li>• Optimal dynamic response when compared with other Cartesian gantry systems</li> <li>• Drive concept with low moving dead weight</li> <li>• Flat system design</li> <li>• High acceleration in both axial directions</li> <li>• Large working space</li> <li>• Sustainable operation due to weight-optimised axes</li> </ul>
<p>→ Page/<a href="#">online</a></p>	<p><a href="#">excm</a></p>	<p><a href="#">exch</a></p>

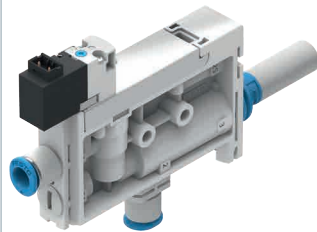
# 06

## Vacuum technology

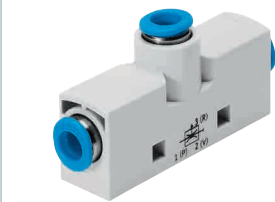


# Highlights

# Contents



Vacuum generators  
**OVEL**  
+ Ideal for fast small parts handling  
+ Lightweight design for installing in the gripping area  
  
→ 150




Vacuum generators  
**VN**  
+ Generate a vacuum quickly and easily  
+ Lightweight design for installing in the gripping area  
  
→ 152




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Product overview


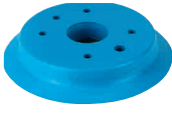


Software-Tools

<b>Vacuum selection</b>		<p>Which suction cup for which surface and which movement? Don't experiment – calculate!</p> <p>The vacuum selection program helps you select the right suction cups, tubing and venturi nozzles. It also calculates the distribution of the forces acting on the individual suction cups, as well as the evacuation time. This software tool even enables a distinction to be made between linear and rotary movements.</p> <p>This tool can be found at  <a href="http://www.festo.com/x/vacuum-sizing">→ www.festo.com/x/vacuum-sizing</a></p>
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Vacuum generators



	 <b>Vacuum generators OVEL</b>	 <b>Vacuum generators OVEM</b>	 <b>Vacuum generators, pneumatic VN</b>
<b>Nominal width of Laval nozzle</b>	0.45 ... 0.95 mm	0.45 ... 3 mm	0.45 ... 3 mm
<b>Ejector characteristic</b>	High suction rate, high vacuum, standard	High suction rate, high vacuum, standard	High suction rate, high vacuum, standard, inline, high vacuum, high suction rate
<b>Integrated function</b>	Electrical ejector pulse, flow control valve, pressure sensor, pressure transmitter, electric on/off valve, filter, open silencer, closed silencer	Electric ejector pulse valve, flow control valve, electric on/off valve, filter, electric air saving function, check valve, open silencer, vacuum switch	Pneumatic ejector pulse valve, open silencer, vacuum switch
<b>Max. vacuum</b>	89 ... 92%	93%	86 ... 93%
<b>Max. suction rate with respect to atmosphere</b>	4 ... 21 l/min	6 ... 348 l/min	6.1 ... 339 l/min
<b>Description</b>	<ul style="list-style-type: none"> <li>• Low-cost, compact vacuum generator</li> <li>• Light weight</li> <li>• Various performance levels and vacuum types</li> <li>• Short switching times thanks to integrated solenoid valves</li> <li>• Quick, precise and safe placement of the workpiece via the ejector pulse</li> <li>• Easy assembly</li> <li>• Minimal installation costs</li> <li>• Sustainable operation thanks to reduced pressure level</li> <li>• RA1 version with robot connection, enables fast integration in lightweight robot environments</li> </ul>	<ul style="list-style-type: none"> <li>• Compact design</li> <li>• Monitoring with vacuum sensor with IO-Link®</li> <li>• Central electrical connection via an M12 plug</li> <li>• Maintenance-free operation and reduced noise level through an integrated, open silencer</li> <li>• Integrated filter with inspection window</li> <li>• Optionally with air-saving function and LCD display</li> <li>• Short switching times thanks to integrated solenoid valves</li> <li>• Adjustable ejector pulse: precise and safe depositing of the workpiece</li> <li>• Sustainable operation with air-saving circuit</li> </ul>	<ul style="list-style-type: none"> <li>• Can be used directly in the work space</li> <li>• Available as straight type (in-line: vacuum port in line with the supply port) or T-shape (standard: vacuum port at 90° to the supply port)</li> <li>• Compact and cost-effective</li> <li>• Maintenance-free operation and reduced noise level through an integrated, open silencer</li> </ul>
<b>→ Page/online</b>	<b>150</b>	<b>ovem</b>	<b>152</b>

## Suction cups with connector

	 Suction cups with connector ESS	 Suction cups without connector ESV	 Suction cups with connector VAS, VASB	 Suction grippers ESG
<b>Suction cup size</b>	4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm, 4x10 mm, 10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm			4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm, 4x10 mm, 10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm
<b>Suction cup diameter</b>	2 ... 200 mm	20 ... 200 mm	2 ... 125 mm	2 ... 200 mm
<b>Holding force at nominal operating pressure</b>	0.1 ... 1610 N	8.2 ... 1610 N	0.14 ... 700 N	
<b>Design</b>	Round, bell-shaped	Bell-shaped or round bellows		Vacuum port on top, vacuum port on the side, with height compensator, with long height compensator
<b>Information on suction cup materials</b>	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan®	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan®	NBR, PUR, TPE-U (PU), VMQ (silicone)	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan®
<b>Description</b>	<ul style="list-style-type: none"> <li>Suction cup consisting of the suction cup itself plus the support plate with mounting</li> <li>Suction cup volume: 0.002 ... 245 cm<sup>3</sup></li> <li>Min. workpiece radius: 10 ... 680 mm</li> <li>Mounting for suction cup holder: female thread, male thread, push-in connector</li> <li>Suction cup with mounting thread</li> </ul>	<ul style="list-style-type: none"> <li>Wearing part for suction cup ESS</li> <li>Easily interchangeable</li> <li>Suction cup volume: 0.318 ... 245 cm<sup>3</sup></li> <li>Min. workpiece radius: 10 ... 680 mm</li> </ul>	<ul style="list-style-type: none"> <li>Sturdy and reliable</li> <li>Suction cup with fixed connecting thread</li> <li>11 suction cup diameters</li> <li>Round suction cup shape, bellows</li> <li>Vacuum port on top, on the side</li> <li>Screw-in thread</li> </ul>	<ul style="list-style-type: none"> <li>Modular system of suction cup holders and suction cups with over 5000 variants</li> <li>Optionally with angle compensator, height compensator, filter</li> <li>15 suction cup diameters</li> <li>6 suction cup shapes</li> <li>Suction cup volume: 0.002 ... 245 cm<sup>3</sup></li> <li>Min. workpiece radius: 10 ... 680 mm</li> <li>Vacuum port: push-in connector or barbed fitting for plastic tubing, threaded connection</li> </ul>
→ Page/online	ess	esv	154	156

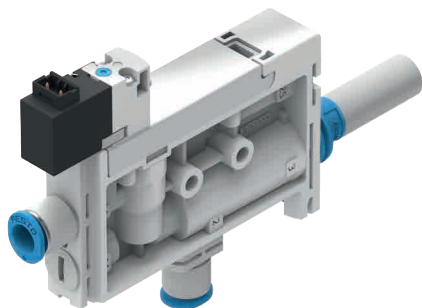
## Classic &gt;

## Vacuum generators

	 Vacuum generator VAD	 Vacuum generator VAK
<b>Size</b>	M5, G1/8, G1/4, G3/8	G1/4
<b>Nominal width of Laval nozzle</b>	0.5 mm, 0.8 mm, 1 mm, 1.5 mm	1 mm
<b>Ejector characteristics</b>	High vacuum	High vacuum
<b>Operating pressure</b>	1.5 ... 10 bar	1.5 ... 10 bar
<b>Type of mounting</b>	Via through-hole	Via through-hole
<b>Pneumatic connection</b>	M5, G1/8, G1/4, G3/8	G1/4
<b>Description</b>	<ul style="list-style-type: none"> <li>Without ejector pulse</li> <li>Workpieces can be picked up in any position</li> <li>Sturdy and resistant to external influences</li> <li>Easy to install</li> <li>No moving parts, maintenance-free</li> <li>Connecting threads and mounting holes available</li> </ul>	<ul style="list-style-type: none"> <li>With ejector pulse</li> <li>Quick and reliable setting down of parts via an ejector pulse from a pre-filled reservoir</li> <li>Robust vacuum generator for a broad field of applications</li> <li>Optional silencer</li> </ul>
online: →	vad	vak

Vacuum generators >

## Vacuum generators OVEL



- Various performance levels and vacuum types
- Short switching times thanks to integrated solenoid valves
- Quick, precise and safe placing of the workpiece via ejector pulse
- Compact and lightweight size for installing in the gripping area
- Ideal for fast small parts handling
- Maintenance-free open silencer

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013 014  
**OVEL** -  - **H** -  - **PQ** -  - **UA** -  -  - **C** - **A** -   - **H3** -

001	Type
<b>OVEL</b>	Vacuum generator, electropneumatic
002	Vacuum generation
<b>5</b>	Laval nozzle 0.45 mm
<b>7</b>	Laval nozzle 0.7 mm
<b>10</b>	Laval nozzle 0.95 mm
003	Vacuum type
<b>H</b>	High vacuum
004	Size
<b>10</b>	Grid dimension 10 mm
<b>15</b>	Grid dimension 15 mm
005	Supply air port
<b>PQ</b>	Push-in connectors, metric
006	Vacuum port
<b>VQ4</b>	Push-in connector 4 mm
<b>VQ6</b>	Push-in connector 6 mm
007	Exhaust port
<b>UA</b>	Open silencer

008	Ejector pulse connection
-	Via supply air port
009	Vacuum valve
<b>C</b>	Normally closed
010	Additional function
<b>A</b>	Electrical ejector pulse
011	Vacuum sensor pressure measuring range
<b>B2</b>	-1 ... 1 bar
<b>V1</b>	0 ... -1 bar
012	Vacuum sensor output signal
<b>B</b>	1 ... 5 V
<b>V</b>	0 ... 10 V
<b>PNLK</b>	PNP or NPN or IO-Link
013	Electrical connection
<b>H3</b>	Connection pattern H, vertical plug
014	Robot connection
-	Without

Legend:  Mandatory entry  Optional entry

### Product options

Vacuum type	Vacuum port	Ejector pulse connection	Vacuum sensor pressure measuring range
L High suction rate	VM7 M7	Z Additional connection (like pneumatic port for supply air)	- Without vacuum sensor
Supply air port	VQ3 Push-in connector 3 mm	Additional function	Vacuum sensor output signal
P For pneumatic links via manifold rail	Exhaust port	- Without ejector pulse	- Without vacuum sensor
	RQ Push-in connectors, metric		Robot connection
	UC Closed silencer		RA1 Universal robots

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
<b>8049045</b>	<b>OVEL</b>

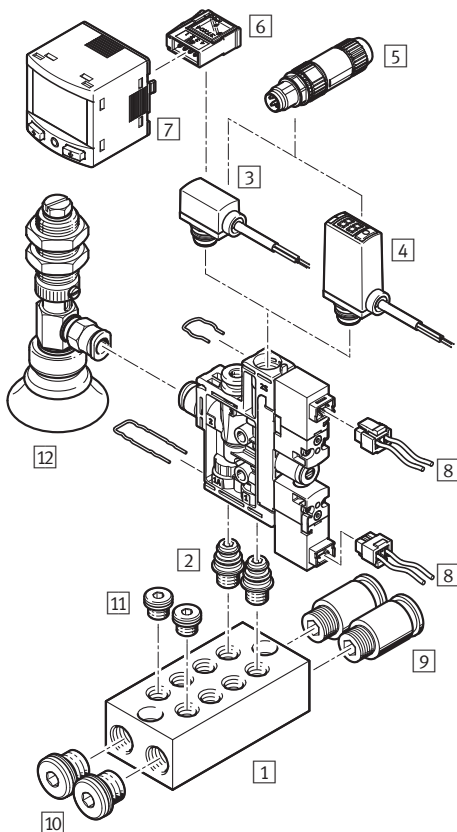


## Ordering – Basic design

005/006 With push-in connector at supply air port and at vacuum port, 007 Open silencer at exhaust port,  
010 With ejector pulse, 011 With vacuum sensor and 013 Connection pattern H, vertical plug

004 Size	006 Vacuum port	011 Vacuum sensor pressure measuring range	012 Vacuum sensor output signal	Type	Part no.
<b>002 Nominal width of Laval nozzle 0.45 mm</b>					
Grid dimension 10 mm	Push-in connector 4 mm	0 ... -1 bar	1 ... 5 V	OVEL-5-H-10-PQ-VQ4-UA-C-A-V1B-H3	8049046
		0 ... -1 bar	0 ... 10 V	OVEL-5-H-10-PQ-VQ4-UA-C-A-V1V-H3	8049049
		0 ... -1 bar	PNP or NPN or IO-Link	OVEL-5-H-10-PQ-VQ4-UA-C-A-V1PNLK-H3	8049052
		-1 ... 1 bar	0 ... 10 V	OVEL-5-H-10-PQ-VQ4-UA-C-A-B2V-H3	8069567
		-1 ... 1 bar	PNP or NPN or IO-Link	OVEL-5-H-10-PQ-VQ4-UA-C-A-B2PNLK-H3	8069570
<b>002 Nominal width of Laval nozzle 0.7 mm</b>					
Grid dimension 15 mm	Push-in connector 4 mm	0 ... -1 bar	1 ... 5 V	OVEL-7-H-15-PQ-VQ4-UA-C-A-V1B-H3	8049047
		0 ... -1 bar	0 ... 10 V	OVEL-7-H-15-PQ-VQ4-UA-C-A-V1V-H3	8049050
		0 ... -1 bar	PNP or NPN or IO-Link	OVEL-7-H-15-PQ-VQ4-UA-C-A-V1PNLK-H3	8049053
		-1 ... 1 bar	0 ... 10 V	OVEL-7-H-15-PQ-VQ4-UA-C-A-B2V-H3	8069568
		-1 ... 1 bar	PNP or NPN or IO-Link	OVEL-7-H-15-PQ-VQ4-UA-C-A-B2PNLK-H3	8069571
<b>002 Nominal width of Laval nozzle 0.95 mm</b>					
Grid dimension 15 mm	Push-in connector 6 mm	0 ... -1 bar	1 ... 5 V	OVEL-10-H-15-PQ-VQ6-UA-C-A-V1B-H3	8049048
		0 ... -1 bar	0 ... 10 V	OVEL-10-H-15-PQ-VQ6-UA-C-A-V1V-H3	8049051
		0 ... -1 bar	PNP or NPN or IO-Link	OVEL-10-H-15-PQ-VQ6-UA-C-A-V1PNLK-H3	8049054
		-1 ... 1 bar	0 ... 10 V	OVEL-10-H-15-PQ-VQ6-UA-C-A-B2V-H3	8069569
		-1 ... 1 bar	PNP or NPN or IO-Link	OVEL-10-H-15-PQ-VQ6-UA-C-A-B2PNLK-H3	8069572

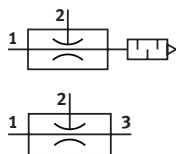
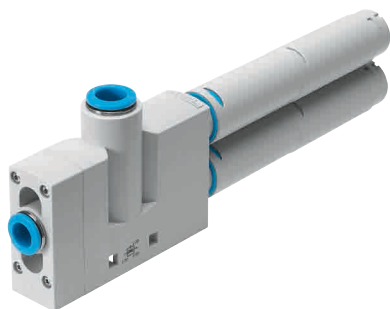
## Accessories



- 1 Common supply manifold OABM-P  
→ [ovel](#)
- 2 Mounting kit OABM-MK → [ovel](#)
- 3 Pressure transmitter SPTE → [ovel](#)
- 4 Pressure sensor SPAE → 255
- 5 Plug NECU-S-M8G3/M12G3  
→ [ovel](#)
- 6 Plug NECU-S-ECG4 → [ovel](#)
- 7 Signal converter SCDN → [ovel](#)
- 8 Plug socket with cable NEBV  
→ [ovel](#)
- 9 Push-in fitting QS → 319
- 10 Blanking plug B-1/8 → 331
- 11 Blanking plug B-M7 → 331
- 12 Suction gripper ESG → 156  
Suction cup holder ESH → 156  
Suction cup ESS → 156  
Vacuum filter OAFF → [ovel](#)

Vacuum generators >

## Vacuum generators VN, pneumatic



- High vacuum levels of up to 93%
- Easy connection of holders and suction cups
- Lightweight and compact design thanks to plastic housing
- Non-wearing and maintenance-free, long service life
- Vacuum monitoring via vacuum switch
- Low environmental impact due to silencers

### Order code – Basic design

001 002 003 004 005 006 007 008  
 VN - [ ] - H - T - [ ] - [ ] - [ ]

Legend: [ ] Mandatory entry

001	Type
VN	Vacuum generators, pneumatic

002	Nominal width of Laval nozzle [mm]
05	0.45
07	0.7
10	0.95
14	1.4
20	2
30	3

003	Ejector characteristic
H	High vacuum/standard

004	Design
T	T-shape

005	Size
2	Grid dimension 10 mm
3	Grid dimension 14 mm
4	Grid dimension 18 mm
6	Grid dimension 24 mm

006	Pneumatic connection 1
PQ1	Push-in fitting QS-4
PQ2	Push-in fitting QS-6
PQ4	Push-in fitting QS-10

007	Vacuum port (V)
VQ1	Push-in fitting QS-4
VQ2	Push-in fitting QS-6
VQ3	Push-in fitting QS-8
VQ5	Push-in fitting QS-12

008	Pneumatic connection 3
RQ1	Push-in fitting QS-4
RO1	Silencer UO, open
RO2	Silencer UOM, open

### Product options

Ejector characteristic:

- L High suction rate/standard
- M High vacuum/inline
- N High suction rate/inline

Design, size:

- I2 Straight, grid dimension 10 mm
- I3 Straight, grid dimension 13 mm

Connection options:

- Female thread M5, G1/8, G1/4, G3/8
- Male thread G1/8, G1/4
- Push-in sleeve Ø 4 mm, Ø 6 mm

Configurable product

This product and all its product options can be ordered online via the configurator:

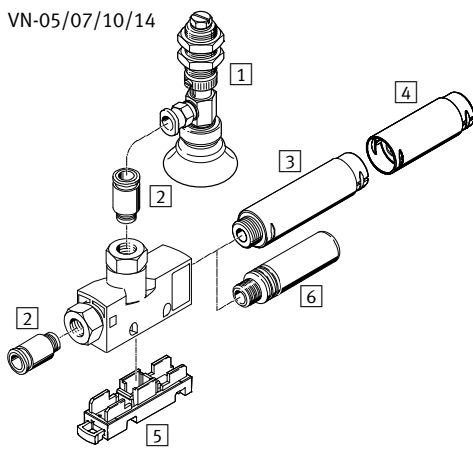
→ [www.festo.com/catalogue/vn](http://www.festo.com/catalogue/vn)

## Ordering – Basic design

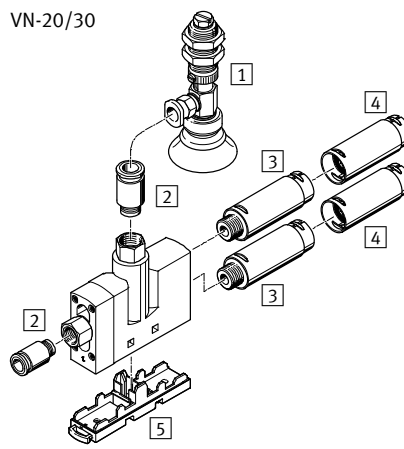
002 Nominal width of Laval nozzle [mm]	004 Design, 005 Size	006 Pneumatic connection 1	007 Vacuum port (V)	Type	Part no.
0.45	T2: T-type, grid dimension 10 mm	QS-4	QS-4	VN-05-H-T2-PQ1-VQ1-RQ1	526100
0.7	T2: T-type, grid dimension 10 mm	QS-4	QS-4	VN-07-H-T2-PQ1-VQ1-RQ1	526101
0.95	T3: T-type, grid dimension 14 mm	QS-6	QS-6	VN-10-H-T3-PQ2-VQ2-RQ1	193490
1.4	T4: T-type, grid dimension 18 mm	QS-6	QS-8	VN-14-H-T4-PQ2-VQ3-RQ2	547707
2	T6: T-type, grid dimension 24 mm	QS-10	QS-12	VN-20-H-T6-PQ4-VQ5-RQ2	193495
3	T6: T-type, grid dimension 24 mm	QS-10	QS-12	VN-30-H-T6-PQ4-VQ5-RQ2	193497

## Accessories

VN-05/07/10/14



VN-20/30



- 1) Suction gripper ESG (complete solution) → 156  
Suction cup holder ESH with Suction cup ESS (individual components) → 156
- 2) Push-in fitting QS → 319
- 3) Silencer UOM → 153
- 4) Silencer extension UOMS → 153
- 5) Mounting plate VN-T → 153
- 6) Silencer UO → [vn](#)  
Silencer AMTE → 153

3) Silencer UOM			
For grid dimension	Pneumatic connection	Type	Part no.
18 mm	G1/4	UOM-1/4	538432
24 mm	G3/8	UOM-3/8	538433

4) Silencer extension UOMS		
For silencer	Type	Part no.
UOM-1/4	UOMS-1/4	538436
UOM-3/8	UOMS-3/8	538437

5) Mounting plate VN-T		
For grid dimension	Type	Part no.
For mounting on H-rail or via through-hole		
10 mm	VN-T2-BP-NRH	196951
14 mm	VN-T3-BP-NRH	193641
18 mm	VN-T4-BP-NRH	195279
24 mm	VN-T6-BP-NRH <sup>1)</sup>	196956

1) Horizontal wall mounting not permissible.

Silencer AMTE <sup>1)</sup> , long version			
For grid dimension	Pneumatic connection	Type	Part no.
10 mm	M5	AMTE-M-LH-M5	1205858
14 mm	G1/8	AMTE-M-LH-G18	1205860
18 mm	G1/4	AMTE-M-LH-G14	1205861

1) Packaging unit 20 pieces

## Suction cups VAS/VASB



- The ideal solution for transporting workpieces of different weights, surfaces and shapes
- Wide range to suit applications with various temperature ranges and workpiece surfaces
- Suction cups made from silicone are food-safe
- All tubing connection sizes correspond to a holder size

### Order code

001 002 003 004 005 006  
 -  -  -  -  -

Legend:  Mandatory entry  Optional entry

<b>001</b>	<b>Type</b>
<b>VAS</b>	Suction cup, round, flat
<b>VASB</b>	Suction cup, round, bellows with 1.5 convolutions
<b>002</b>	<b>Suction cup Ø [mm]</b>
...	2, 5, 8, 10, 15, 30, 40, 55, 75, 100, 125
<b>003</b>	<b>Vacuum connection</b>
<b>PK-3</b>	PK-3
<b>M3</b>	M3 thread
<b>M5</b>	M5 thread
<b>1/8</b>	G1/8 thread
<b>1/4</b>	G1/4 thread
<b>3/8</b>	G3/8 thread

<b>004</b>	<b>Suction cup shape</b>
-	Round, flat
-	Round, bellows with 1.5 convolutions
<b>S</b>	Round, flat
<b>005</b>	<b>Suction cup material</b>
<b>PUR</b>	TPE-U(PU), suction cup shape S
<b>NBR</b>	Nitrile rubber
<b>SI</b>	VMQ (silicone)
<b>PUR</b>	Polyurethane
<b>006</b>	<b>Generation</b>
-	A series
<b>B</b>	B series

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/vas](http://www.festo.com/catalogue/vas)

### Ordering – Suction cup shape round, flat

002 Suction cup Ø	003 Vacuum connection	Connection position	004 Suction cup shape	Type of mounting	Type	Part no.
<b>005 Suction cup material: TPE-U(PU)</b>						
8 mm	PK-3	On the side	Round, flat	M5	<b>VAS-8-M5-S-PUR-B</b>	<b>8025969</b>
<b>005 Suction cup material: NBR</b>						
2 mm	M3	On top	Round, flat	Via vacuum connection	<b>VAS-2-M3-NBR</b>	<b>173438</b>
5 mm	M5				<b>VAS-5-M5-NBR</b>	<b>173439</b>
8 mm	M5				<b>VAS-8-M5-NBR</b>	<b>34588</b>
10 mm	M5				<b>VAS-10-M5-NBR</b>	<b>173440</b>
15 mm	G1/8				<b>VAS-15-1/8-NBR</b>	<b>36142</b>
30 mm	G1/8				<b>VAS-30-1/8-NBR</b>	<b>34587</b>
40 mm	G1/4				<b>VAS-40-1/4-NBR</b>	<b>36143</b>
55 mm	G1/4				<b>VAS-55-1/4-NBR</b>	<b>36144</b>
75 mm	G1/4				<b>VAS-75-1/4-NBR</b>	<b>36145</b>
100 mm	G1/4				<b>VAS-100-1/4-NBR</b>	<b>34586</b>
125 mm	G3/8	<b>VAS-125-3/8-NBR</b>	<b>152605</b>			

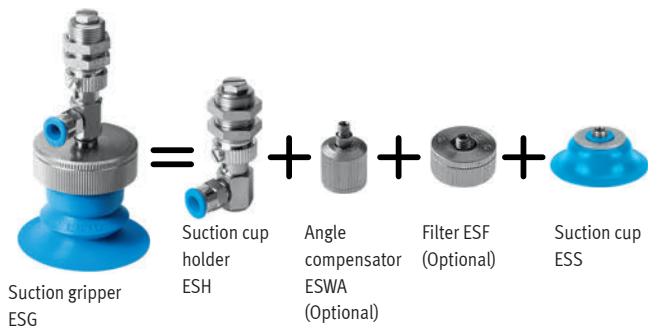
## Ordering – Suction cup shape round, flat

002 Suction cup Ø	003 Vacuum connection	Connection position	004 Suction cup shape	Type of mounting	Type	Part no.
<b>005 Suction cup material: VMQ (silicone)</b>						
8 mm	M5	On top	Round, flat	Via vacuum connection	VAS-8-M5-SI-B	1377781
10 mm	M5				VAS-10-M5-SI-B	1385610
15 mm	G1/8				VAS-15-1/8-SI-B	1376604
30 mm	G1/8				VAS-30-1/8-SI-B	1377752
40 mm	G1/4				VAS-40-1/4-SI-B	1379454
55 mm	G1/4				VAS-55-1/4-SI-B	1379348
75 mm	G1/4				VAS-75-1/4-SI-B	1382165
100 mm	G1/4				VAS-100-1/4-SI-B	1386376
125 mm	G3/8				VAS-125-3/8-SI-B	1415120
<b>005 Suction cup material: PUR</b>						
8 mm	M5	On top	Round, flat	Via vacuum connection	VAS-8-M5-PUR-B	1396086
10 mm	M5				VAS-10-M5-PUR-B	1469698
15 mm	G1/8				VAS-15-1/8-PUR-B	1396087
30 mm	G1/8				VAS-30-1/8-PUR-B	1396090
40 mm	G1/4				VAS-40-1/4-PUR-B	1396092
55 mm	G1/4				VAS-55-1/4-PUR-B	1396095
75 mm	G1/4				VAS-75-1/4-PUR-B	1396096
100 mm	G1/4				VAS-100-1/4-PUR-B	1396098
125 mm	G3/8				VAS-125-3/8-PUR-B	1396108

## Ordering – Bellows

002 Suction cup Ø	003 Vacuum connection	Connection position	004 Suction cup shape	Type of mounting	Type	Part no.
<b>005 Suction cup material: NBR</b>						
8 mm	M5	On top	Round, bellows with 1.5 convolutions	Via vacuum connection	VASB-8-M5-NBR	35410
15 mm	G1/8				VASB-15-1/8-NBR	35411
30 mm	G1/8				VASB-30-1/8-NBR	35412
40 mm	G1/4				VASB-40-1/4-NBR	35413
55 mm	G1/4				VASB-55-1/4-NBR	35414
75 mm	G1/4				VASB-75-1/4-NBR	35415
100 mm	G1/4				VASB-100-1/4-NBR	35416
125 mm	G3/8				VASB-125-3/8-NBR	152609
<b>005 Suction cup material: VMQ (silicone)</b>						
8 mm	M5	On top	Round, bellows with 1.5 convolutions	Via vacuum connection	VASB-8-M5-SI-B	1394696
15 mm	G1/8				VASB-15-1/8-SI-B	1377689
30 mm	G1/8				VASB-30-1/8-SI-B	1377637
40 mm	G1/4				VASB-40-1/4-SI-B	1372910
55 mm	G1/4				VASB-55-1/4-SI-B	1373812
75 mm	G1/4				VASB-75-1/4-SI-B	1378427
100 mm	G1/4				VASB-100-1/4-SI-B	1382277
125 mm	G3/8				VASB-125-3/8-SI-B	1387375
<b>005 Suction cup material: PUR</b>						
8 mm	M5	On top	Round, bellows with 1.5 convolutions	Via vacuum connection	VASB-8-M5-PUR-B	1395637
15 mm	G1/8				VASB-15-1/8-PUR-B	1395671
30 mm	G1/8				VASB-30-1/8-PUR-B	1395690
40 mm	G1/4				VASB-40-1/4-PUR-B	1395691
55 mm	G1/4				VASB-55-1/4-PUR-B	1396063
75 mm	G1/4				VASB-75-1/4-PUR-B	1396064
100 mm	G1/4				VASB-100-1/4-PUR-B	1396066
125 mm	G3/8				VASB-125-3/8-PUR-B	1396067

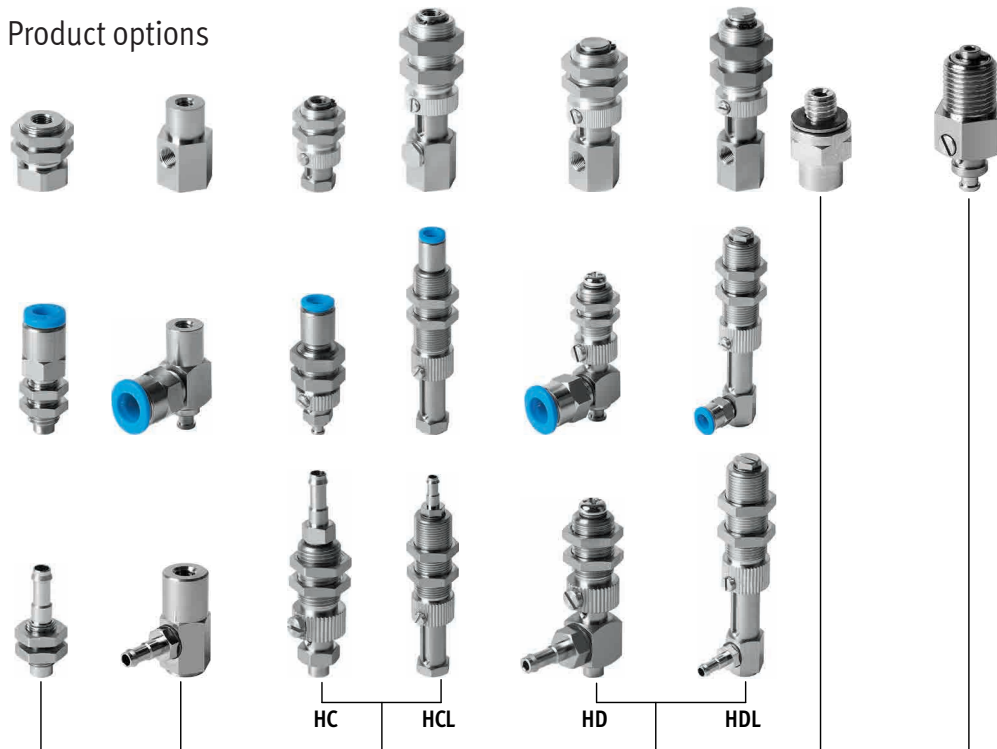
## Suction grippers ESG – Overview



- Any combination of suction cup holder ESH and suction cup with connection attachments ESS is possible in the same holder size
- 15 suction cup diameters from 2 ... 200 mm
- 6 different materials – including anti-static ones

- 6 suction cup shapes
- Numerous suction cup holders
- Suitable for a wide variety of temperature ranges and workpiece surfaces

### Product options



#### Suction cup holder ESH → esh

Threaded connection G  
For suction cup Ø 60 ... 200 mm  
For suction cup size 15x45 ... 30x90 mm

Push-in connector QS  
For suction cup Ø 2 ... 50 mm  
For suction cup size 4x10 ... 10x30 mm

Barbed fitting connector PK  
For suction cup Ø 2 ... 50 mm  
For suction cup size 4x10 ... 10x30 mm

<b>HA</b>	<b>HB</b>	<b>HC</b>	<b>HCL</b>	<b>HD</b>	<b>HDL</b>	<b>HE</b>	<b>HF</b>
2 ... 200	2 ... 200	2 ... 200	4 ... 200	2 ... 200	4 ... 200	2 ... 200	2 ... 50
4x10 ... 30x90	4x10 ... 30x90	4x10 ... 30x90	4x10 ... 30x90	4x10 ... 30x90	4x10 ... 30x90	4x10 ... 30x90	4x10 ... 10x30

Holder type  
For suction cup diameter [mm]  
For suction cup size [mm]

#### Angle compensator ESWA → eswa

#### Vacuum filter ESF → esf

#### Suction cup ESS → ess

- FPM (fluoro rubber)
- NBR (nitrile rubber)
- BR (butadiene rubber), anti-static
- VMQ (silicone)
- PUR (polyurethane)
- Vulkollan®



Configurable product

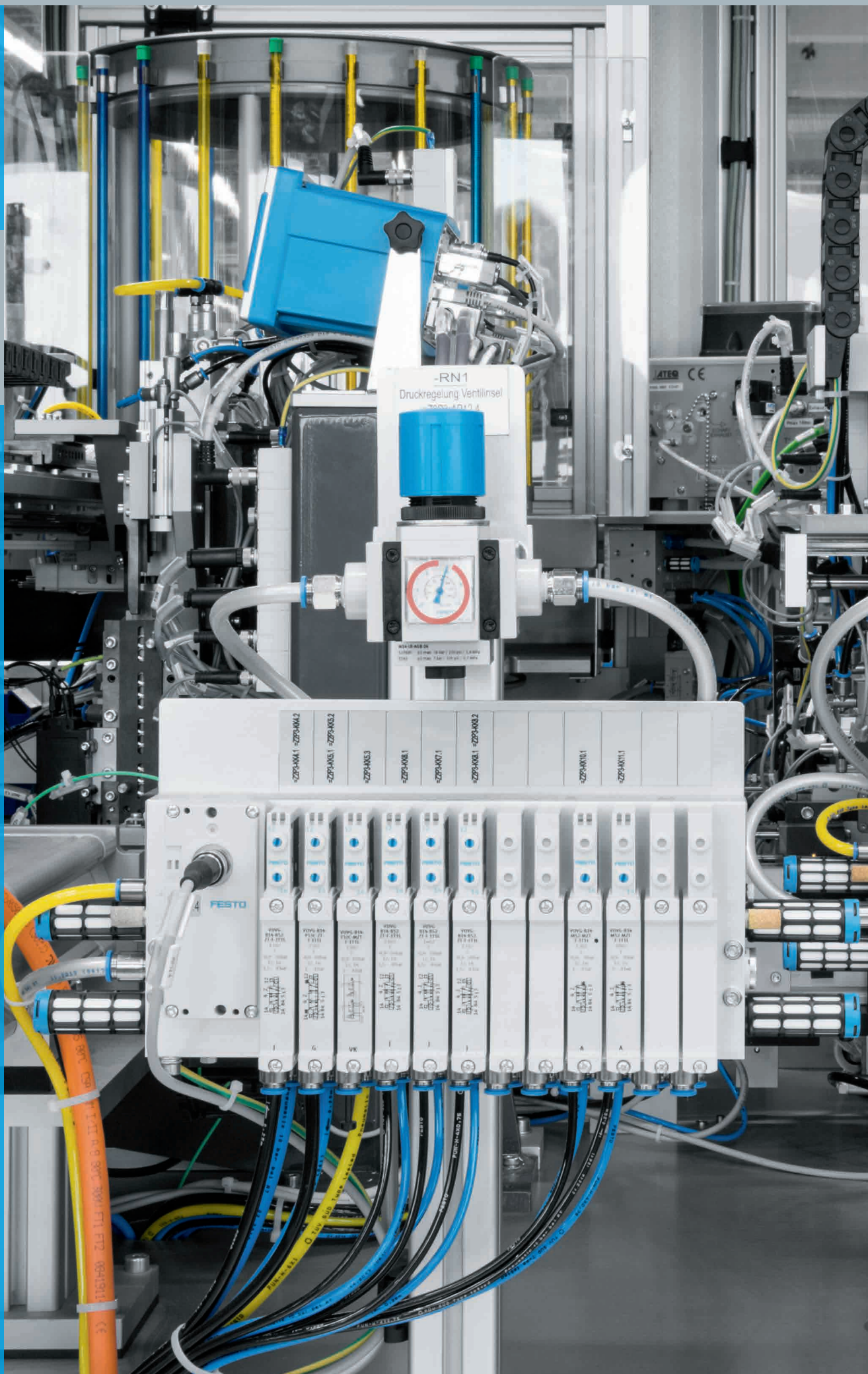
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/esg](http://www.festo.com/catalogue/esg)



# 07

# Valves

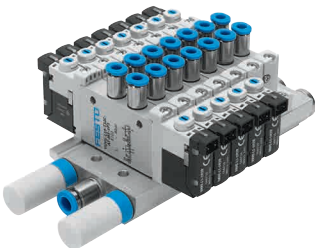





# Highlights



Solenoid valves, NAMUR  
**VSNC**  
+ Certified in accordance with established explosion standards  
+ Sturdy and with high flow rates  
→ 173



Solenoid valves  
**VUUG**  
+ Universal valve, sturdy and durable  
+ Can be used as an individual valve or manifold valve VTUG  
→ 182



Solenoid valves  
**VUVS-L**  
+ Piston spool with sealing cartridge (VUVS-L) or sealing ring (VUVS-LK)  
+ Can be used as an individual valve or manifold valve VTUS  
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Product overview

Software-Tools

**Pneumatic sizing**






Size pneumatic control loop systems quickly and energy-efficiently.

In order to survive in a tough competitive environment, many companies are searching for ways to make savings in their production. Such savings can often be found in their existing compressed air systems, which have generally been in place for years. Up to 60% of energy costs can be saved through optimisation at both the production facility and system level.

This tool can be found at  
 → [www.festo.com/x/pneumatic-sizing](http://www.festo.com/x/pneumatic-sizing)

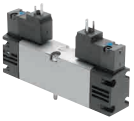

Electrically and pneumatically actuated directional control valves >

Standards-based directional control valves

	 <b>Solenoid valves</b> VSNC	 <b>Solenoid valves</b> VSNC-G18	 <b>Standards-based valves with central plug</b> VSVA-R5, VSVA-R2
<b>Actuation type</b>	Electrical	Electric	Electrical
<b>Pneumatic connection 1</b>	1/4 NPT, G1/4, G1/8, QS-1/4, QS-10, QS-3/8, QS-5/16, QS-6, QS-8	G1/8	Sub-base size 1 to ISO 5599-1, size 2 to ISO 5599-1
<b>Operating pressure [MPa]</b>	0.15 ... 1 MPa	0.25 MPa ... 0.8 MPa	-0.09 ... 1.6 MPa
<b>Operating pressure</b>	1.5 ... 10 bar	2.5 bar ... 8 bar	-0.9 ... 16 bar
<b>Standard nominal flow rate</b>	800 ... 1350 l/min	400 l/min	400 ... 2800 l/min
<b>Valve function</b>	5/2 double solenoid, 5/2-way or 3/2-way, convertible, 5/3-way, pressurised, 5/3 exhausted, 5/3 closed	5/2-way single solenoid; 5/2-way single solenoid, connections swapped	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed
<b>Electrical connection</b>	3-pin, Type A, Type B, Cable connector M20x1.5, M12x1, A-coded to EN 61076-2-101, Plugs, To EN 175301-803, To industry standard (11 mm)	Type C	3-pin, 4-pin, central plug, round design, M8x1, M12x1
<b>Description</b>	<ul style="list-style-type: none"> <li>NAMUR connection pattern to VDI/VDE 3845</li> <li>Replaceable seal for 3/2-way or 5/2-way valve</li> <li>Wide choice of EX solenoid systems</li> <li>Sturdy and powerful</li> <li>Extended temperature range</li> <li>Outstanding value for money</li> <li>All solenoid coils can be used on an armature tube</li> <li>The variant VSNC-...FN achieves increased energy efficiency thanks to reduced power consumption</li> </ul>	<ul style="list-style-type: none"> <li>NAMUR connection pattern to VDI/VDE 3845</li> <li>Compact, cost-effective, powerful</li> <li>Especially suitable for quarter turn actuators DAPS and DFPD with connection pattern to VDI/VDE 3845</li> <li>Extended temperature range</li> <li>Electrical connection with plug pattern type C, to EN 175301-803</li> <li>Integrated 24 V solenoid</li> <li>Excellent price/performance ratio</li> </ul>	<ul style="list-style-type: none"> <li>Conforms to ISO 5599-1</li> <li>Electrical connection via central plug</li> <li>Sturdy metal housing</li> <li>Manifold assembly with mixture of sizes possible</li> </ul>
→ Page/online	173	176	178

## Electrically and pneumatically actuated directional control valves &gt;





## Standards-based directional control valves

	 <b>Standards-based valves with individual plug VSVA-C1, VSVA-P1</b>	 <b>Standards-based valves, plug-in VSVA-T1</b>
<b>Actuation type</b>	Electrical	Electrical
<b>Pneumatic connection 1</b>	Sub-base Size 1 ISO 5599-1, Size 18 mm ISO 15407-1, Size 26 mm ISO 15407-1	Sub-base size 1 to ISO 5599-2, size 2 to ISO 5599-2, size 18 to ISO 15407-2, size 26 to ISO 15407-2
<b>Operating pressure [MPa]</b>	-0.09 ... 1.6 MPa	-0.09 ... 1 MPa
<b>Operating pressure</b>	-0.9 ... 16 bar	-0.9 ... 10 bar
<b>Standard nominal flow rate</b>	400 ... 1400 l/min	150 ... 2900 l/min
<b>Valve function</b>	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3/2-way, single solenoid, closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/3-way, pressurised 1 to 2, 4 to 5 closed, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed, 5/3-way, port 2 pressurised, 4 exhausted, 5/3-way, port 4 pressurised, 2 exhausted
<b>Electrical connection</b>	Type B, Type C, With protective earth conductor, To DIN EN 175301-803, To EN 175301-803, To industry standard (11 mm), Without protective earth conductor	2-pin, 4-pin, plug-in, plug, to ISO 15407-2, to ISO 5599-2
<b>Description</b>	<ul style="list-style-type: none"> <li>• Conforms to ISO 15407-1 and to ISO 15218 for pilot valve with interface</li> <li>• Electrical connection via type C plug</li> <li>• Sturdy metal housing</li> <li>• Manifold assembly with mixture of sizes possible</li> </ul>	<ul style="list-style-type: none"> <li>• For valve terminal VTSA/VTSA-F</li> <li>• Sturdy metal housing</li> </ul>
<b>→ Page/online</b>	<b>180</b>	<a href="#">vsva</a>

Product overview


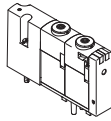

Electrically and pneumatically actuated directional control valves >

Universal directional control valves

				
	<b>Solenoid valves, for individual connection VUVG</b>	<b>Solenoid valves, plug-in VUVG-T1</b>	<b>Solenoid valves VUVS</b>	<b>Solenoid and pneumatic valves, Tiger Classic MFH, MOCH, MOFH, JMFH, JMFDH, VL/O, VL, JH, JDH</b>
<b>Actuation type</b>	Electrical	Electrical	Electrical	Electrical, pneumatic
<b>Pneumatic connection 1</b>	G1/4, G1/8, M3, M5, M7		1/8 NPT, G1/4, G1/8, G3/8	G1/2, G1/4, G1/8, G3/4
<b>Pneumatic working port</b>	G1/4, G1/8, M3, M5, M7, QS-1/4, QS-1/8, QS-10, QS-3, QS-3/16, QS-3/8, QS-4, QS-5/16, QS-5/32, QS-6, QS-8	Flange, G1/4, G1/8, M5, M7	1/8 NPT, 1/4 NPT, 3/8 NPT, G1/4, G1/8, G3/8, QS-1/2, QS-1/4, QS-10, QS-12, QS-3/8, QS-4, QS-5/16, QS-5/32, QS-6, QS-8	G1/2, G1/4, G1/8, G3/4
<b>Operating pressure [MPa]</b>	-0.09 ... 1 MPa	-0.09 ... 1 MPa	-0.09 ... 1 MPa	
<b>Operating pressure</b>	-0.9 ... 10 bar	-0.9 ... 10 bar	-0.9 ... 10 bar	-0.95 ... 10 bar
<b>Standard nominal flow rate</b>	80 ... 1380 l/min	130 ... 1200 l/min	500 ... 2400 l/min	500 ... 7500 l/min
<b>Valve function</b>	2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	3/2-way, single solenoid/monostable, closed, 3/2-way, single solenoid/monostable, open, 3/2-way, single solenoid/monostable, open/closed, 5/2-way, double solenoid/bistable, 5/2-way, double solenoid/bistable, dominant signal, 5/2-way, single solenoid/monostable
<b>Electrical connection</b>	2-pin, 3-pin, plug pattern H, horizontal connection, M8x1 A-coded to EN 61076-2-104, plug, via E-box, via electrical pilot valve	Via sub-base	3-pin, Socket, Type B, Type C, Screw terminal, To EN 175301-803, To industry standard (11 mm)	Via F coil, to be ordered separately
<b>Description</b>	<ul style="list-style-type: none"> <li>• Compact universal valve</li> <li>• Connection technology via electrical connection box (E-box)</li> <li>• High flow rate relative to its size</li> <li>• In-line valves can be used as individual valves or manifold valves</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-base valve</li> <li>• For valve terminal VTUG with multi-pin plug, fieldbus interface</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• Universal valve, sturdy and durable</li> <li>• Low-cost, no limitations with regard to performance</li> <li>• Can be used as individual valves or manifold valves VTUS</li> </ul>	<ul style="list-style-type: none"> <li>• Sturdy and reliable</li> <li>• Poppet valve</li> <li>• All-metal version</li> <li>• Principle with armature tube</li> </ul>
<b>→ Page/online</b>	<b>182</b>	<b>182</b>	<b>187</b>	<b>tiger classic</b>




## Electrically and pneumatically actuated directional control valves &gt;

## Application-specific directional control valves

	 Pilot valves VOFX	 Solenoid valves VOVC	 Solenoid valves MHE2, MHP2, MHA2, MHE3, MHP3, MHA3, MHE4, MHP4, MHA4
<b>Design</b>	Directly actuated poppet valve	Poppet valve with spring return	Pressure-relieved poppet valve
<b>Valve function</b>	3/2-way, single solenoid, closed	2x3/2-way, monostable, closed	3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, single solenoid
<b>Operating pressure [MPa]</b>			-0.09 ... 0.8 MPa
<b>Operating pressure</b>	-0.9 ... 8 bar	0 ... 8 bar	-0.9 ... 8 bar
<b>Ambient temperature</b>	-10 ... 50°C	-5 ... 50°C	-5 ... 60°C
<b>Pneumatic connection 1</b>	G1/8	Sub-base	Sub-base, G1/4, G1/8, M7, QS-4, QS-6, QS-8
<b>Standard nominal flow rate</b>	50 l/min	10 l/min	90 ... 400 l/min
<b>Description</b>	<ul style="list-style-type: none"> <li>• For angle seat valves VZXF and VZXA</li> <li>• Can be used wherever valve terminals are not economically or technically viable</li> <li>• Manual override, detenting</li> </ul>	<ul style="list-style-type: none"> <li>• For valve terminal VTOC</li> <li>• Optimal use of the installation space yet maximum performance</li> <li>• Detenting or non-detenting manual override</li> </ul>	<ul style="list-style-type: none"> <li>• Directly actuated poppet valve</li> <li>• Fast-switching valve: switching times down to 2 ms</li> <li>• Direct mounting, individual sub-base, manifold assembly</li> <li>• Manifold block for 2 ... 10 valves</li> </ul>
<b>→ Page/online</b>	<a href="#">372</a>	<a href="#">vovc</a>	<a href="#">mh2</a>

## Electrically and pneumatically actuated directional control valves &gt;





## Application-specific directional control valves

	 Fast-switching valves MHJ9, MHJ10	 Solenoid valves VOFC	 Solenoid valves VOFD
<b>Design</b>	Poppet valve without spring return	Piston spool, piloted poppet valve	Directly actuated poppet valve
<b>Valve function</b>	2/2-way, single solenoid, closed	3/2-way, single solenoid, closed, 5/2-way, double solenoid, 5/2-way, single solenoid	3/2-way, single solenoid, closed, semi-automatic, 3/2-way, single solenoid, closed
<b>Operating pressure [MPa]</b>	0.05 ... 0.8 MPa		0 ... 1.2 MPa
<b>Operating pressure</b>	0.5 ... 8 bar	0 ... 10 bar	0 ... 12 bar
<b>Ambient temperature</b>	-5 ... 60°C	-25 ... 60°C	-50 ... 60°C
<b>Pneumatic connection 1</b>	Sub-base, QS-4, QS-6	1/4 NPT, 1/2 NPT, NAMUR connection pattern, G1/2, G1/4, M5	1/4 NPT, NAMUR connection pattern, G1/4, M5
<b>Standard nominal flow rate</b>	50 ... 160 l/min	595 ... 2794 l/min	52 ... 1900 l/min
<b>Description</b>	<ul style="list-style-type: none"> <li>• Directly actuated poppet valve</li> <li>• Identical basic valves for direct mounting or manifold installation</li> <li>• Individual valve with integrated plug connection</li> <li>• Switching frequencies up to 1000 Hz</li> <li>• Very good reproducibility</li> <li>• MHJ9: Valve manifold assembly with individual outputs or with air nozzle output</li> <li>• MHJ9: Electrical connection via connecting cable MHJ9-KMH with integrated control electronics</li> <li>• MHJ10: Valve manifold assembly with individual outputs</li> <li>• MHJ10: Electrical connection via moulded-in cable, control electronics included in the valve</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for process automation, for applications in chemical and petrochemical plants</li> <li>• Suitable for outdoor use under harsh, dusty ambient conditions</li> <li>• Especially suitable for quarter turn actuators thanks to NAMUR flange pattern</li> <li>• Valve can switch between internal and external pilot air</li> <li>• Variants with safety function</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for process automation, for applications in chemical and petrochemical plants</li> <li>• Suitable for outdoor use under harsh, dusty ambient conditions</li> <li>• Especially suitable for quarter turn actuators thanks to NAMUR flange pattern</li> <li>• Variants with safety function</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> </ul>
<b>→ Page/online</b>	<a href="#">mhj9</a>	<a href="#">vofc</a>	<a href="#">vofd</a>

Product overview



Manually actuated directional control valves >

Swivel lever valves

	 <b>Hand lever valves VHEF-H</b>	 <b>Hand lever valves VHEF, NPT thread</b>	 <b>Hand lever valves VHER</b>	 <b>Hand lever valves VHER, NPT thread</b>
<b>Valve function</b>	3/2-way bistable, 3/2-way open/closed monostable, 5/2-way bistable, 5/2-way monostable, 5/3-way exhausted, 5/3-way closed	3/2-way bistable, 3/2-way open/closed monostable, 5/2-way bistable, 5/2-way monostable, 5/3-way exhausted, 5/3-way closed	4/3-way pressurised, 4/3-way exhausted, 4/3-way closed	4/3-way exhausted, 4/3-way closed
<b>Type of control</b>	Direct	Direct	Direct	Direct
<b>Standard nominal flow rate</b>	530 ... 1200 l/min	530 ... 1200 l/min	170 ... 3800 l/min	600 ... 3800 l/min
<b>Pneumatic working port</b>	G1/4, G1/8	NPT1/4, NPT1/4-18, NPT1/8, NPT1/8-27	G1/2, G1/4, G1/8, M5	NPT1/2-14, NPT1/4-18, NPT1/8-27
<b>Operating pressure [MPa]</b>	-0.095 ... 1 MPa	-0.095 ... 1 MPa		
<b>Operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar	0 ... 10 bar	0 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• With hand lever on the side or on top</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• With hand lever on the side or on top</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• Lever in metal or polymer design</li> <li>• Front panel mounting, through-holes or mounting holes</li> </ul>	<ul style="list-style-type: none"> <li>• Lever in metal design</li> <li>• Front panel mounting, through or mounting holes</li> </ul>
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Manually actuated directional control valves >

Pushbutton valves

	 <b>Pushbutton valves VHEF-P</b>	 <b>Pushbutton valves VHEF-P, NPT thread</b>
<b>Valve function</b>	3/2-way bistable, 3/2-way open/closed monostable, 5/2-way bistable, 5/2-way monostable	3/2-way bistable, 3/2-way open/closed monostable, 5/2-way bistable, 5/2-way monostable
<b>Type of control</b>	Direct, piloted	Direct, piloted
<b>Standard nominal flow rate</b>	750 ... 1200 l/min	750 ... 1200 l/min
<b>Pneumatic working port</b>	G1/4, G1/8	NPT1/4-18, NPT1/8-27
<b>Operating pressure [MPa]</b>	-0.095 ... 1 MPa	-0.095 ... 1 MPa
<b>Operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• With button switch</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• With button switch</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>
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## Manually actuated directional control valves &gt;

## Finger lever valves

	 Finger lever valves VHEF-L	 Finger lever valves VHEF-L, NPT thread
<b>Valve function</b>	3/2-way open/closed monostable, 5/2-way monostable	3/2-way open/closed monostable, 5/2-way monostable
<b>Type of control</b>	Direct	Direct
<b>Standard nominal flow rate</b>	750 ... 1200 l/min	750 ... 1200 l/min
<b>Pneumatic working port</b>	G1/4, G1/8	NPT1/4-18, NPT1/8-27
<b>Operating pressure [MPa]</b>	-0,095 ... 1 MPa	-0,095 ... 1 MPa
<b>Operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• With finger lever</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• With finger lever</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>
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## Manually actuated directional control valves &gt;



## Selector switches

	 Selector valves VHEF-ES	 Selector valves VHEF-ES, NPT thread
<b>Valve function</b>	3/2-way bistable, 3/2-way open/closed monostable, 5/2-way bistable, 5/2-way monostable, 5/3-way exhausted, 5/3-way closed	3/2-way bistable, 3/2-way open/closed monostable, 5/2-way bistable, 5/2-way monostable, 5/3-way exhausted, 5/3-way closed
<b>Type of control</b>	Direct	Direct
<b>Standard nominal flow rate</b>	530 ... 1200 l/min	530 ... 1200 l/min
<b>Pneumatic working port</b>	G1/4, G1/8	NPT1/4, NPT1/4-18, NPT1/8, NPT1/8-27
<b>Operating pressure [MPa]</b>	-0,095 ... 1 MPa	-0,095 ... 1 MPa
<b>Operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• With selector switch on the side or on top</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• With selector switch on the side or on top</li> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>
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Product overview



Mechanically actuated directional control valves >

Stem actuated valves

	 <b>Stem actuated valves</b> <b>VMEF-S</b>	 <b>Stem actuated valves</b> <b>VMEF-S, NPT thread</b>
<b>Valve function</b>	3/2-way closed monostable, 5/2-way monostable	3/2-way closed monostable, 5/2-way monostable
<b>Type of control</b>	Direct, piloted	Direct, piloted
<b>Standard nominal flow rate</b>	750 ... 1200 l/min	750 ... 1200 l/min
<b>Pneumatic working port</b>	G1/4, G1/8	NPT1/4-18, NPT1/8-27
<b>Operating pressure [MPa]</b>	-0,095 ... 1 MPa	-0,095 ... 1 MPa
<b>Operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Outstanding pneumatic performance</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Outstanding pneumatic performance</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>
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Mechanically actuated directional control valves >



Roller lever valves

	 <b>Roller lever valves</b> <b>VMEF-R</b>	 <b>Roller lever valves</b> <b>VMEF-R, NPT thread</b>
<b>Valve function</b>	3/2-way monostable, 5/2-way monostable	3/2-way monostable, 5/2-way monostable
<b>Type of control</b>	Direct	Direct
<b>Standard nominal flow rate</b>	750 ... 1200 l/min	750 ... 1200 l/min
<b>Pneumatic working port</b>	G1/4, G1/8	NPT1/4, NPT1/8
<b>Operating pressure [MPa]</b>	-0,095 ... 1 MPa	-0,095 ... 1 MPa
<b>Operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Outstanding pneumatic performance</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Outstanding pneumatic performance</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>
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## Mechanically actuated directional control valves &gt;

## Roller lever valves

	 Roller lever valves VMEF-K	 Roller lever valves VMEF-K, NPT thread
<b>Valve function</b>	3/2-way monostable, 5/2-way monostable	3/2-way monostable, 5/2-way monostable
<b>Type of control</b>	Direct	Direct
<b>Standard nominal flow rate</b>	750 ... 1200 l/min	750 ... 1200 l/min
<b>Pneumatic working port</b>	G1/4, G1/8	NPT1/4, NPT1/8
<b>Operating pressure [MPa]</b>	-0,095 ... 1 MPa	-0,095 ... 1 MPa
<b>Operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Outstanding pneumatic performance</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>	<ul style="list-style-type: none"> <li>• Durable thanks to tried-and-tested piston spool and disc seat valve technology</li> <li>• Sturdy metal housing</li> <li>• Outstanding pneumatic performance</li> <li>• Attractively priced</li> <li>• Ergonomic and reliable operation</li> <li>• Low actuating forces</li> <li>• Modern design</li> <li>• Reverse operation possible</li> </ul>
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## Shut-off valves &gt;




## Check valves

	 Check valves, piloted HGL
<b>Pneumatic connection 1</b>	G1/2, G1/4, G1/8, G3/8, M5, QS-10, QS-12, QS-4, QS-6, QS-8
<b>Standard nominal flow rate 1</b> → 2 from 6 to 5 bar	130 ... 1600 l/min
<b>Operating pressure [MPa]</b>	0.05 ... 1 MPa
<b>Operating pressure</b>	0.5 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• Valve function: piloted non-return function</li> <li>• Pneumatically piloted</li> <li>• Screw-in with male thread</li> <li>• Pilot air connection: M5, G1/8, G1/4, G3/8, QS-4</li> <li>• Manually actuated exhaust possible with separate accessories</li> </ul>
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Product overview




Shut-off valves >

Shut-off valves and ball valves

	 <b>Hand slide valves VBOH</b>	 <b>Ball valves QH-QS, QHS-QS</b>	 <b>Ball valves QH</b>
<b>Valve function</b>	3/2-way, bistable	2/2-way, bistable	2/2-way, bistable
<b>Pneumatic connection 1</b>	G1/2, G1/4, G1/8, G3/4, G3/8, M5	QS-4, QS-6, R1/8	G1, G1 1/2, G1/2, G1/4, G3/4, G3/8
<b>Standard nominal flow rate</b>	236 ... 7691 l/min	148 ... 560 l/min	3400 ... 84000 l/min
<b>Operating pressure [MPa]</b>	-0.095 ... 1.2 MPa	-0.1 ... 1 MPa	
<b>Operating pressure</b>	-0.95 ... 12 bar	-1 ... 10 bar	
<b>Description</b>	<ul style="list-style-type: none"> <li>Used as a shut-off function for pressurising and exhausting compressed air systems, e.g. upstream of service unit combinations, for air guns and also for exhausting pneumatic cylinders</li> <li>Non-overlapping, so no pressure losses when switching</li> <li>Minimal installation effort</li> </ul>	<ul style="list-style-type: none"> <li>Shut-off valve, manually operated</li> <li>In-line installation, can be screwed in, bulk-head fitting</li> <li>Variants: thread at both ends, push-in connector at both ends, thread/push-in connector</li> </ul>	<ul style="list-style-type: none"> <li>Shut-off valve, manually operated</li> <li>In-line installation</li> <li>Female thread at both ends</li> <li>With hand lever</li> <li>Pipe thread to ISO 2281</li> </ul>
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Flow control valves >

One-way flow control valves




	 <b>One-way flow control valves GRLA, GRLZ</b>	 <b>One-way flow control valves VFOE-L</b>	 <b>One-way flow control valves VFOF</b>
<b>Valve function</b>	Exhaust air one-way flow control function, one-way flow control function, supply air one-way flow control function	Exhaust air one-way flow control function, supply air one-way flow control function	Exhaust air one-way flow control function
<b>Pneumatic connection 1</b>	Female thread G1/4, For barbed connector I.D. 4 mm Via union nut, 6 mm Via union nut, G1/2, G1/4, G1/8, G3/4, G3/8, M3, M5, PK-3, PK-3 Via union nut, PK-4, PK-4 Via union nut, PK-6 Via union nut, QS-10, QS-12, QS-3, QS-4, QS-6, QS-8	QS-10, QS-12, QS-4, QS-6, QS-8	QS-6, QS-8
<b>Standard nominal flow rate in flow control direction</b>	0 ... 4320 l/min	85 ... 1200 l/min	240 ... 590 l/min
<b>Adjusting element</b>	Knurled screw, slotted head screw, internal hex	Rotary knob with detent	Internal hex
<b>Description</b>	<ul style="list-style-type: none"> <li>Functional combination of one-way flow control valve and piloted check valve</li> <li>Flow control valve, flow control at one end</li> <li>Polymer, metal or stainless steel design</li> <li>Standard, mini, in-line variants with different flow rates</li> <li>Connections: thread at both ends, push-in connector at both ends, thread/push-in connector</li> </ul>	<ul style="list-style-type: none"> <li>Low-cost solution for standard applications</li> <li>Simple and reliable adjustment of pneumatic cylinder speed</li> <li>Extremely easy assembly</li> <li>Quick commissioning</li> <li>Compact dimensions</li> </ul>	<ul style="list-style-type: none"> <li>Functional combination of one-way flow control valve and piloted check valve</li> <li>High flow rate</li> <li>Can be rotated horizontally through 360° when mounted</li> <li>Compact and can be operated from the side</li> </ul>
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## Proportional valves &gt;

## Pressure regulators


	 Proportional pressure regulators VPPE	 Proportional pressure regulators VPPM
<b>Valve function</b>	3-way proportional pressure regulator, 3-way proportional pressure regulator, closed	3-way proportional pressure regulator
<b>Pneumatic connection 1</b>	G1/8	Sub-base, G1/2, G1/4, G1/8
<b>Pressure regulation range</b>	0.02 ... 10 bar	0.02 ... 10 bar
<b>Operating pressure [MPa]</b>	0.8 MPa	
<b>Operating pressure</b>	8 bar	
<b>Standard nominal flow rate</b>	310 ... 1250 l/min	380 ... 7000 l/min
<b>Description</b>	<ul style="list-style-type: none"> <li>• Piloted pressure regulator</li> <li>• Setpoint input as analogue voltage signal (0 ... 10 V)</li> <li>• Electrical connection via M12x1 plug, 4 or 5-pin</li> <li>• Available with setpoint module</li> <li>• Variant with display with three retrievable presets and digital controller electronics</li> <li>• For simple control tasks</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• Piloted pressure regulator</li> <li>• Multi-sensor control (cascade control)</li> <li>• Three default presets for fast commissioning</li> <li>• Integration in valve terminal MPA</li> <li>• User interface with LED displays, LCD display, adjustment/selection buttons</li> <li>• Integrated pressure sensor</li> <li>• Electrical connection via plug, round design, 8-pin, M12 or terminal linking</li> </ul>
<b>→ Page/online</b>	<a href="#">vppe</a>	<a href="#">vppm</a>

## Solenoid-actuated process and media valves





	 Solenoid valves VZWD	 Solenoid valves VZWF	 Solenoid valves VZWM
<b>Design</b>	Directly actuated poppet valve	Diaphragm valve, force pilot operated	Diaphragm valve, servo-controlled
<b>Actuation type</b>	Electrical	Electrical	Electrical
<b>Nominal width</b>	1 ... 6 mm	13.5 ... 50 mm	13 ... 50 mm
<b>Flow rate Kv</b>	0.06 ... 0.4 m³/h	1.8 ... 28 m³/h	1.6 ... 39 m³/h
<b>Temperature of medium</b>	-10 ... 80°C	-10 ... 80°C	-10 ... 60°C
<b>Medium pressure</b>	0 ... 90 bar	0 ... 10 bar	
<b>Medium pressure of gaseous media</b>			0.5 ... 10 bar
<b>Medium pressure of liquid media</b>			0.5 ... 6 bar
<b>Process valve connection</b>	1/4 NPT, 1/8 NPT, G1/4, G1/8, NPT1/4	1 NPT, 1 1/2 NPT, 1 1/4 NPT, 1/2 NPT, 1/4 NPT, 2 NPT, 3/4 NPT, 3/8 NPT, G1, G1 1/2, G1 1/4, G1/2, G1/4, G2, G3/4, G3/8	G1, G1 1/2, G1 1/4, G1/2, G1/4, G2, G3/4, G3/8
<b>Description</b>	<ul style="list-style-type: none"> <li>• Large pressure range</li> <li>• Directly actuated poppet valve</li> <li>• No pressure difference required</li> <li>• Can also be used in vacuum technology</li> </ul>	<ul style="list-style-type: none"> <li>• High flow rates</li> <li>• Large nominal widths with relatively small solenoids</li> <li>• No pressure difference required</li> <li>• Can also be used in vacuum technology</li> </ul>	<ul style="list-style-type: none"> <li>• Brass or stainless steel casting design</li> <li>• Electrical connection via solenoid armature tube</li> <li>• Wide range of coils</li> <li>• Coil can be ordered separately</li> </ul>
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Product overview




Solenoid-actuated process and media valves

	 <p>Solenoid valves VZWP</p>
<b>Design</b>	Piloted piston poppet valve
<b>Actuation type</b>	Electrical
<b>Nominal width</b>	13 ... 25 mm
<b>Flow rate Kv</b>	1.5 ... 11.5 m³/h
<b>Temperature of medium</b>	-10 ... 80°C
<b>Medium pressure</b>	0.5 ... 40 bar
<b>Process valve connection</b>	1 NPT, 1/2 NPT, 1/4 NPT, 3/4 NPT, 3/8 NPT, G1, G1/2, G1/4, G3/4, G3/8
<b>Description</b>	<ul style="list-style-type: none"> <li>• For all applications with a differential pressure of min. 0.5 bar</li> <li>• For high pressures and high flow rates with relatively small solenoids</li> <li>• For controlling gaseous and liquid media in open circuits</li> </ul>
<b>→ Page/online</b>	<a href="#">vzwp</a>

Pneumatically and mechanically actuated industrial process and media valves




	 <p>Ball valves VZBD</p>	 <p>Ball valves VZBE</p>	 <p>Ball valves VZBF</p>	 <p>Ball valves VZBC</p>
<b>Design</b>	2-way ball valve	2-way ball valve, 2-way ball valve with hand lever, 3-way ball valve, L-shaped hole, T-shaped hole	2-way ball valve	2-way ball valve
<b>Valve function</b>	2/2	2/2, 3/2	2/2	2/2
<b>Actuation type</b>	Mechanical	Mechanical	Mechanical	Mechanical
<b>Nominal width DN</b>	15, 20, 25, 32, 40, 50, 65, 80, 100	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100	15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200	15, 20, 25, 32, 40, 50, 65, 80, 100
<b>Process valve connection</b>	Clamp to ASME-BPE, clamp to DIN 32676 series B, weld-on end to ASME-BPE, weld-on end to ISO 1127	1 NPT, 1 1/2 NPT, 1 1/4 NPT, 1/2 NPT, 1/4 NPT, 2 NPT, 2 1/2 NPT, 3 NPT, 3/4 NPT, 3/8 NPT, 4 NPT, weld-on end to ASME B16.11	Flange to ANSI B16.5 class 150	Ring housing with threaded flange
<b>Flow rate Kv</b>	13 ... 1641 m³/h	5.1 ... 1637 m³/h	8.5 ... 7816 m³/h	19.4 ... 1414 m³/h
<b>Temperature of medium</b>	-20 ... 200°C	-20 ... 200°C	-20 ... 200°C	-10 ... 200°C
<b>Nominal pressure process valve PN</b>	16	63	20	16, 40
<b>Description</b>	<ul style="list-style-type: none"> <li>• Electro-polished surfaces SFV4</li> <li>• PTFE seal with minimal dead space</li> <li>• The powerful ball valve for the pharmaceutical and cosmetics industries</li> <li>• FDA-compliant seal to FDA 21 CFR 177.1550</li> </ul>	<ul style="list-style-type: none"> <li>• 2-way manual, with lockable hand lever</li> <li>• 2-way and 3-way with top flange to ISO 5211, optionally with lockable hand lever</li> <li>• Stainless steel design</li> <li>• Pipe thread to ASME B1.20.1 or welded end to ASME B16.11</li> <li>• Optionally with pre-assembled hand lever</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged connections to ANSI B 16.5. class 150</li> <li>• Static discharge assured</li> <li>• API 607 Fire Safe approval</li> <li>• Stainless steel design</li> <li>• Easy to service</li> <li>• Optionally with pre-assembled hand lever</li> </ul>	<ul style="list-style-type: none"> <li>• Automatable 2-way compact flanged ball valve</li> <li>• Stainless steel design</li> <li>• Short installed length</li> <li>• Blow-out proof shaft</li> <li>• Manual operation possible using hand lever</li> <li>• Flange to DIN 1092-1</li> <li>• Mounting flange to ISO 5211</li> <li>• Use in zone 1, 21, 2, 22</li> </ul>
<b>→ Page/online</b>	<a href="#">vzbd</a>	<a href="#">vzbe</a>	<a href="#">vzbf</a>	<a href="#">vzbc</a>

## Pneumatically and mechanically actuated industrial process and media valves

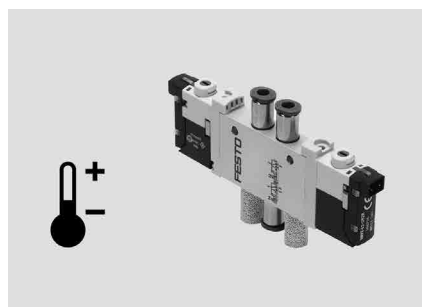
	 Ball valves VZBA	 Angle seat valves VZXF	 Angle seat valves VZXA
<b>Design</b>	2-way ball valve, 3-way ball valve, L-shaped hole, T-shaped hole	Poppet valve with piston actuator	Poppet valve with piston actuator, poppet valve with diaphragm actuator
<b>Valve function</b>	2/2, 3/2	2/2-way, monostable, closed	2/2
<b>Actuation type</b>	Mechanical	Pneumatic	Pneumatic
<b>Nominal width DN</b>	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100	12, 13, 16, 18, 23, 24, 29, 31, 35, 43, 45	13, 20, 25, 32, 40, 50, 65
<b>Process valve connection</b>	Weld-on ends/weld-on ends, Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp2 1/2, Rp3, Rp3/4, Rp3/8, Rp4		
<b>Flow rate Kv</b>	7 ... 1414 m <sup>3</sup> /h	3.3 ... 43 m <sup>3</sup> /h	4.6 ... 77.9 m <sup>3</sup> /h
<b>Temperature of medium</b>	-10 ... 200°C	-40 ... 200°C	-30 ... 200°C
<b>Medium pressure [MPa]</b>		-0.09 ... 4 MPa	0 ... 3 MPa
<b>Medium pressure</b>		-0.9 ... 40 bar	-0 ... 30 bar
<b>Nominal pressure process valve PN</b>	63	16, 40	25, 40
<b>Description</b>	<ul style="list-style-type: none"> <li>• Automatable 2-way or 3-way ball valve</li> <li>• Stainless steel design</li> <li>• Blow-out proof shaft</li> <li>• Manual operation possible using hand lever</li> <li>• Connecting thread to EN 10226-1</li> <li>• Mounting flange to ISO 5211</li> <li>• Use in zone 1, 21, 2, 22</li> </ul>	<ul style="list-style-type: none"> <li>• Sturdy design</li> <li>• Stainless steel and gunmetal (red brass) process valves with stainless steel, brass or aluminium actuators</li> <li>• Different actuator sizes and housing materials</li> <li>• Selection of different seat and shaft seals</li> <li>• For liquids, gases and other easily contaminated media</li> <li>• Easy-to-clean design</li> </ul>	<ul style="list-style-type: none"> <li>• Highly flexible, extremely high flow rates</li> <li>• Long service life</li> <li>• Stainless steel or Ecobrass process valves with stainless steel or polymer actuators</li> <li>• Modular design</li> <li>• Hygienic design, insensitive to dirt</li> <li>• Quick and easy maintenance</li> <li>• Simple and sturdy: an ideal choice for virtually all media with a viscosity of 600 mm<sup>2</sup>/s</li> <li>• High chemical and thermal resistance</li> <li>• Sustainable in production thanks to the use of alternative materials</li> </ul>
<b>online: →</b>	<a href="#">vzba</a>	<a href="#">vzxf</a>	<a href="#">370</a>

Product overview

Pneumatically and mechanically actuated industrial process and media valves

	 <b>Pinch valves VZQA</b>	 <b>Ball valve actuator units VZBM</b>	 <b>Ball valve actuator units VZBA</b>
<b>Design</b>	Pinch valve, pneumatically actuated	2-way ball valve, 3-way ball valve, quarter turn actuator	2-way ball valve, 3-way ball valve, L-shaped hole, quarter turn actuator, T-shaped hole
<b>Valve function</b>	2/2-way, monostable, closed, 2/2-way, monostable, open		
<b>Actuation type</b>	Pneumatic	Pneumatic	Pneumatic
<b>Nominal width DN</b>	6, 15, 25	8, 10, 15, 20, 25, 32, 40, 50	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100
<b>Process valve connection</b>	Clamp to ASME-BPE type A, clamp to ASME-BPE type B, clamp to DIN 32676 series A, 1 NPT, 1/2 NPT, 1/4 NPT, G1, G1/2, G1/4	Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp3/4, Rp3/8	Weld-on ends/weld-on ends, Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp2 1/2, Rp3, Rp3/4, Rp3/8, Rp4
<b>Flow rate Kv</b>	0.7 ... 18 m³/h	5.9 ... 243 m³/h	7 ... 1414 m³/h
<b>Temperature of medium</b>	-15 ... 150°C	-20 ... 130°C	-10 ... 200°C
<b>Medium pressure [MPa]</b>	0 ... 0.6 MPa		
<b>Medium pressure</b>	0 ... 6 bar		
<b>Nominal pressure process valve PN</b>	10	25, 40	63
<b>Description</b>	<ul style="list-style-type: none"> <li>• Modular design</li> <li>• Quick and easy replacement of the diaphragm</li> <li>• For critical, abrasive and viscous media</li> <li>• Easy-to-clean design</li> <li>• Flow direction is freely selectable</li> <li>• Versions with end-position sensing</li> </ul>	<ul style="list-style-type: none"> <li>• Ball valve actuator unit with double-acting or single-acting quarter turn actuator DFPD</li> <li>• Brass ball valve</li> <li>• 2-way ball valve actuator unit with pipe thread to EN 10226-1</li> <li>• 3-way ball valve actuator unit with L-shaped hole and pipe thread to EN 10226-1</li> <li>• 3-way ball valve actuator unit with T-shaped hole and pipe thread to EN 10226-1</li> <li>• Flow is fully opened or closed in both directions</li> </ul>	<ul style="list-style-type: none"> <li>• Ball valve actuator unit with double-acting or single-acting quarter turn actuator DAPS</li> <li>• Stainless steel ball valve</li> <li>• NAMUR connection pattern for solenoid valves/limit switch attachments to VDI/VDE 3845</li> <li>• Flow is fully opened or closed in both directions</li> <li>• Use in zone 1, 21, 2, 22</li> </ul>
<b>→ Page/online</b>	<b>373</b>	<b>382</b>	<b>vzba</b>

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- Modified connecting thread
- Modified valve sub-bases

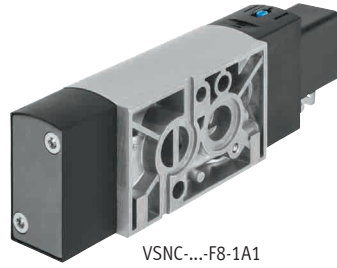
Many additional variants are possible.

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VSNC-...-F8



VSNC-...-F8-1A1

- Connection G1/4, 1/4 NPT
  - Flow rate 900 ... 1350 l/min
  - Voltage 12, 24, 48 V DC, 24, 48, 120, 230 V AC
  - Namur connection pattern to VDE/VDI 3845
  - Solenoid actuated, piloted
  - Mechanical spring return
  - Can be converted from 3/2-way to 5/2-way function
  - Selected types in accordance with ATEX directive for potentially explosive atmospheres
- [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001	002	003	004	005	006	007	008	009	010	011	012
VSNC	F					D					

001	Type
VSNC	Solenoid valve
002	Valve type
F	Flanged valve
003	Design principle
–	Piston spool
004	Additional function
–	None
C	Convertible valve function
005	Valve function
M52	5/2-way valve, single solenoid
B52	5/2-way valve, double solenoid
P53C	5/3-way valve, mid-position closed
P53E	5/3-way valve, mid-position exhausted
P53U	5/3-way valve, mid-position pressurised
006	Reset method for single-solenoid valves
–	None (with double-solenoid valve)
M	Mechanical spring

007	Manual override
D	Non-detenting, detenting
008	Pneumatic connection
G14	G1/4
N14	1/4NPT
009	Exhaust
–	Without fitting
010	Valve pilot control interface
F8	With 8 mm armature tube, long
FN	With 9 mm armature tube
011	Nominal operating voltage
–	Without
1	24 V DC
012	Electrical connection
–	None
A1	Connecting cable type A, to EN 175301
B2	Connecting cable type B, industry standard

Legend:  Mandatory entry  Optional entry

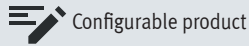
## Product options

Design principle	Pneumatic connection	Power consumption	Circuitry
T Poppet valve	Push-in connector 6, 8, 10 mm, 1/4", 5/16", 3/8"	11 1.1 W	F Fuse
Additional function		18 1.8 W	EU certification
AC Connections swapped and convertible valve function	Exhaust	Nominal operating voltage	EX2 II 3GD
Manual override	QN With fitting	12 V DC, 24 V AC/50-60 Hz,	EX4 II 2GD
H Non-detenting	U... With silencer	48 V AC/50-60 Hz, 60V DC/AC,	Certification
S Covered	Valve pilot control interface	110 V AC/50-60 Hz, 230 V AC/50-60 Hz	U4 Class 1 Div 1 to NEC 500
– Without	F19 Electric with 13 mm armature tube for solenoid coil	Electrical connection	Ignition protection type
	F19A Electric with 13 mm armature tube for solenoid coil, intrinsically safe	C3 Cable, 3 m	A Intrinsically safe
	P2 Interface for pilot valve size 30 mm to ISO 15218 (CNOMO)	K4 Cable connector, metric	D Flameproof enclosure
	– Standard	K11 Cable with insulating conduit connection	M Encapsulation
		Degree of protection for electrics	ME Encapsulation, enhanced safety
		S8 IP67	N Non-sparking
		S11 IP66	Electrical accessories, valve
			G Connector socket, without LED

Electrically and pneumatically actuated directional control valves > Standards-based directional control valves >

## Solenoid valves VSNC, NAMUR

### Ordering – Product options



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
<b>8026033</b>	<b>VSNC</b>

### Ordering – Basic design

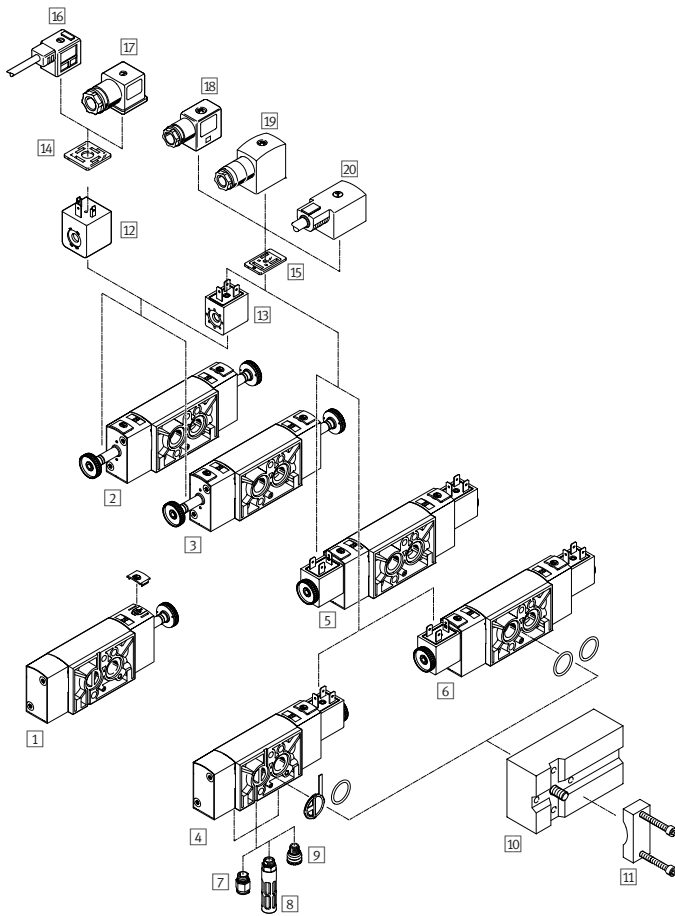
Without solenoid coil, 004 Convertible valve function		
008 Pneumatic connection	Type	Part no.
012 Without electrical connection		
005 5/2-way valve, single solenoid		
010 With 8 mm armature tube, long		
G1/4	<b>VSNC-FC-M52-MD-G14-F8</b>	<b>577257</b>
1/4NPT	<b>VSNC-FC-M52-MD-N14-F8</b>	<b>577262</b>
010 With 9 mm armature tube		
G1/4	<b>VSNC-FC-M52-MD-G14-FN</b>	<b>577267</b>
1/4NPT	<b>VSNC-FC-M52-MD-N14-FN</b>	<b>577272</b>

With 24 V DC solenoid coil, without plug socket, 004 Convertible valve function		
008 Pneumatic connection	Type	Part no.
012 Electrical connection		
005 5/2-way valve, single solenoid		
010 With 8 mm armature tube, long		
G1/4	<b>VSNC-FC-M52-MD-G14-F8-1B2</b>	<b>577295</b>
Plug pattern type B, industry standard		
G1/4	<b>VSNC-FC-M52-MD-G14-F8-1A1</b>	<b>8074945</b>
Plug pattern type A, to EN 175301		

Without solenoid coil, 004 Without additional function		
008 Pneumatic connection	Type	Part no.
012 Without electrical connection		
005 5/2-way valve, double solenoid		
010 With 8 mm armature tube, long		
G1/4	<b>VSNC-F-B52-D-G14-F8</b>	<b>577258</b>
1/4NPT	<b>VSNC-F-B52-D-N14-F8</b>	<b>577263</b>
010 With 9 mm armature tube		
G1/4	<b>VSNC-F-B52-D-G14-FN</b>	<b>577268</b>
1/4NPT	<b>VSNC-F-B52-D-N14-FN</b>	<b>577273</b>
005 5/3-way valve, mid-position closed		
010 With 8 mm armature tube, long		
G1/4	<b>VSNC-F-P53C-MD-G14-F8</b>	<b>577259</b>
1/4NPT	<b>VSNC-F-P53C-MD-N14-F8</b>	<b>577264</b>
010 With 9 mm armature tube		
G1/4	<b>VSNC-F-P53C-MD-G14-FN</b>	<b>577269</b>
1/4NPT	<b>VSNC-F-P53C-MD-N14-FN</b>	<b>577274</b>
005 5/3-way valve, mid-position exhausted		
010 With 8 mm armature tube, long		
G1/4	<b>VSNC-F-P53U-MD-G14-F8</b>	<b>577260</b>
1/4NPT	<b>VSNC-F-P53U-MD-N14-F8</b>	<b>577265</b>
010 With 9 mm armature tube		
G1/4	<b>VSNC-F-P53U-MD-G14-FN</b>	<b>577270</b>
1/4NPT	<b>VSNC-F-P53U-MD-N14-FN</b>	<b>577275</b>
005 5/3-way valve, mid-position pressurised		
010 With 8 mm armature tube, long		
G1/4	<b>VSNC-F-P53E-MD-G14-F8</b>	<b>577261</b>
1/4NPT	<b>VSNC-F-P53E-MD-N14-F8</b>	<b>577266</b>
010 With 9 mm armature tube		
G1/4	<b>VSNC-F-P53E-MD-G14-FN</b>	<b>577271</b>
1/4NPT	<b>VSNC-F-P53E-MD-N14-FN</b>	<b>577276</b>



Accessories



Solenoid valves VSNC...-F8

- 1 3/2-way and 5/2-way valve, single solenoid → 174
- 2 5/2-way valve, double solenoid → vsnc
- 3 5/3-way valve, single solenoid, normally open, closed or exhausted → vsnc
- 4 3/2-way and 5/2-way valve, single solenoid, with solenoid coil → 174
- 5 5/2-way valve, double solenoid, with solenoid coil → 174
- 6 5/3-way valve, single solenoid, normally open, closed or exhausted, with solenoid coil → 174
- 7 Push-in fitting QS → 319
- 8 Silencer U → 343
- 9 Exhaust protection VABD-D3-SN-G14 → vsnc
- 10 Connection kit VABF-S7-S-G14 → vsnc
- 11 Mounting bracket VAME-S7-Y → vsnc

- 12 Solenoid coil VACF-A → 175
- 13 Solenoid coil VACF-B → 175
- 14 Illuminating seal MC-LD → vsnc
- 15 Illuminating seal MF-LD → vsnc
- 16 Connecting cable KMC → vsnc
- 17 Plug socket MSSD-C → vsnc
- 18 Plug socket MSSD-F → vsnc
- 19 Plug socket MSSD-F-S → vsnc
- 20 Connecting cable KMF → kmf

For armature tube 8 mm

12/13 Solenoid coil VACF for solenoid valve VSNC-FC-M52-MD-G14-F8			
Description	Type	Part no.	
Connection pattern to industry standard, type B			
	12 V DC; 3,4 W	VACF-B-B2-5	8030801
	24 V DC; 3,3 W	VACF-B-B2-1	8030802
	48 V DC; 3,4 W	VACF-B-B2-7	8030803
	24 V AC; 50/60 Hz	VACF-B-B2-1A	8030804
	48 V AC; 50/60 Hz	VACF-B-B2-7A	8030805
	110/120 V AC; 50/60 Hz	VACF-B-B2-16B	8030806
	230/240 V AC; 50/60 Hz	VACF-B-B2-3W	8030808

12/13 Solenoid coil VACF for solenoid valve VSNC-FC-M52-MD-G14-F8			
Description	Type	Part no.	
Connection pattern to DIN EN 175301-803, type A			
	12 V DC; 2,8 W	VACF-A-A1-5	8030821
	24 V DC; 2,6 W	VACF-A-A1-1	8030822
	48 V DC; 2,8 W	VACF-A-A1-7	8030823
	24 V AC; 50/60 Hz	VACF-A-A1-1A	8030824
	48 V AC; 50/60 Hz	VACF-A-A1-7A	8030825
	110/120 V AC; 50/60 Hz	VACF-A-A1-16B	8030826
	230/240 V AC; 50/60 Hz	VACF-A-A1-3W	8030828

For armature tube 9 mm

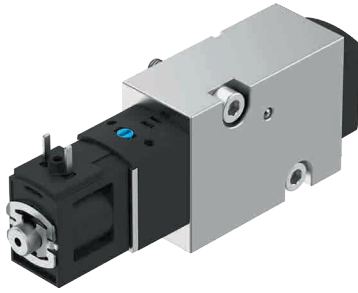
Solenoid coil VACN-N

Description	Type	Part no.	
Plug pattern type A, to EN 175301			
Type of ignition protection: intrinsically safe Ex-ia			
	24 V DC, minimum switching current 27 mA	VACN-N-A1-1-EX4-A	8029139
	Type of ignition protection: non-sparking Ex nA		
	24 V DC; 2,1 W	VACN-N-A1-1-EX2-N	8029136
	110 V AC; 50/60 Hz	VACN-N-A1-16B-EX2-N	8029137
	230 V AC; 50/60 Hz	VACN-N-A1-3A-EX2-N	8029138
Degree of protection IP65 with socket			
	24 V DC; 0,7 W	VACN-N-A1-1	8029144
	110 V AC; 50/60 Hz	VACN-N-A1-16B	8029134
	230 V AC; 50/60 Hz	VACN-N-A1-3A	8029135

Description	Type	Part no.	
Cable			
Type of ignition protection: encapsulated Ex me			
	230 V AC; 50/60 Hz	VACN-N-K11-3A-EX4-M	8029141
	110 V AC; 50/60 Hz	VACN-N-K11-16B-EX4-M	8029142
	24 V DC; 2,6 W	VACN-N-K11-1-EX4-M	8029143
Cable with insulating conduit connection			
Type of ignition protection: encapsulated AEx m, Class 1, Div 1 to NEC 500			
	230 V AC; 50 Hz	VACN-N-K111-3A-0.5-U4-M	8029140
	120 V AC; 60 Hz	VACN-N-K111-16B-0.5-U4-M	8029145
	24 V DC; 4,6 W	VACN-N-K111-1-0.5-U4-M	8029146

Electrically and pneumatically actuated directional control valves > Standards-based directional control valves >

## Solenoid valves VSNC-G18, NAMUR



- With NAMUR connection pattern to VDE/VDI 3845
- Compact and powerful
- Especially suitable for quarter turn actuators DAPS and DFPD with connection pattern to VDI/VDE 3845
- Electrical connection with plug pattern type C, to EN 175301-803
- Integrated 24 V solenoid
- Extended temperature range –20 to +50 °C
- Excellent price/performance ratio
- Additional function: swapped connections and convertible valve function

### Order code

001	002	003	004	005	006	007	008	009	010	011
VSNC	F	K			R	D	G18	1	C1	S

Legend:  Mandatory entry  Optional entry

001	Series
VSNC	Solenoid valve VSNC
002	Valve type
F	Sub-base valve
003	Design principle
K	Piston spool with sealing ring
004	Additional function
	None
A	Connections swapped
005	Valve function
M52	5/2-way valve, single solenoid
M32C	3/2-way valve, single solenoid, normally closed

006	Reset method for single-solenoid valves
R	Mixed, pneumatic/mechanical spring
007	Manual override
D	Non-detenting, detenting
008	Pneumatic connection
G18	G1/8
009	Nominal operating voltage
1	24 V DC
010	Electrical connection
C1	Plug pattern type C, to EN 175301-803
011	Version
S	Core features

### Ordering data

Valve function	Width	Part no.	Type
3/2-way, single solenoid, closed	25.5 mm	8166611	VSNC-FK-M32C-RD-G18-1C1-S
5/2-way single solenoid		8128472	VSNC-FK-M52-RD-G18-1C1-S
3/2-way single solenoid, closed, connections swapped		8166612	VSNC-FKA-M32C-RD-G18-1C1-S
5/2-way single solenoid, connections swapped		8128473	VSNC-FKA-M52-RD-G18-1C1-S

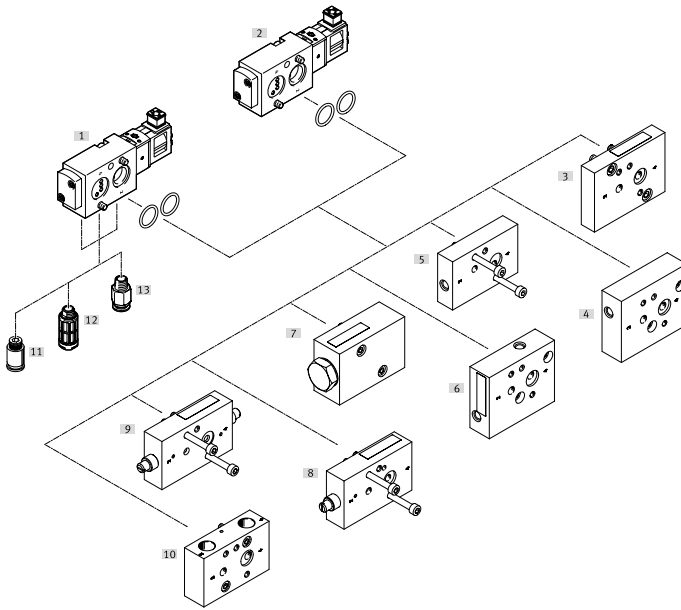
### Accessories

Plug socket with cable KMEB			
Electrical connection	Cable length	Part no.	Type
24 V DC, with LED			
3-pin	2.5 m	151688	KMEB-1-24-2.5-LED
	5 m	151689	KMEB-1-24-5-LED
	10 m	193457	KMEB-1-24-10-LED

Plug socket MSSD-E			
Electrical connection	Nominal conductor cross section	Part no.	Type
Plug pattern type C to DIN EN 175301-803, cable connection: screw terminal			
3-pin, angled	≤0.75 mm <sup>2</sup>	151687	MSSD-EB
4-pin, angled	0.25 ... 0.5 mm <sup>2</sup>	192745	MSSD-EB-S-M14
3-pin, angled	1.5 mm <sup>2</sup>	539712	M SSD-EB-M12

Cover cap VAMC		
Description	Part no.	Type
For manual override, non-detenting or covered	8049538	VAMC-B10-20-CH2-S

## Accessories



- 1 Solenoid valves VSNC-...-M32C-...: 3/2-way valve, single solenoid, for controlling single-acting or double-acting actuators → 176
- 2 Solenoid valves VSNC-...-M52-...: 5/2-way valve, single solenoid, for controlling double-acting actuators → 176
- 3 Mounting plate VABA-B14-FL12-FL14 → 177
- 4 Mounting plate VABS-B14-270-FF14 → 177
- 5 Mounting plate VABS-B14-180-FF14 → 177
- 6 Mounting plate VABS-B14-90-FF14 → 177
- 7 Exhaust plate VABF-B14-M3-...14 → 177
- 8 Throttle plate (single-acting) VABF-B14-F1B1P1-FF14 → 177
- 9 Throttle plate (double-acting) VABF-B14-F1B1P2-FF14 → 177
- 10 Connector plate VABS-B14-T-F ... 14 → 177
- 11 Push-in fitting QS → 177
- 12 Silencer → 177
- 13 Push-in fitting NPQE → 177

## Mounting plates VABA, VABS with through-hole

Description	Part no.	Type
3 With 1/2" and 1/4" NAMUR connection	8098889	VABA-B14-FL12-FL14
4 NAMUR connection can be turned 270°. It is also possible to mount a 1/4" NAMUR valve on a 1/2" actuator	8098891	VABS-B14-270-FF14
5 NAMUR connection can be turned 180°. It is also possible to mount a 1/4" NAMUR valve on a 1/2" actuator	8099347	VABS-B14-180-FF14
6 NAMUR connection can be turned 90°. It is also possible to mount a 1/4" NAMUR valve on a 1/2" actuator	8098888	VABS-B14-90-FF14

## Exhaust plates VABF with through-hole

Description	Part no.	Type
7 Exhausting a quarter turn actuator with Namur connection via a valve terminal or a normal in-line valve NPT1/4	8099627	VABF-B14-M3-N14
Exhausting a quarter turn actuator with Namur connection via a valve terminal or a normal in-line valve G1/4	8099350	VABF-B14-M3-G14

## Throttle plates VABF with through-hole

Description	Part no.	Type
8 Flow control for single-acting quarter turn actuators	8098885	VABF-B14-F1B1P1-FF14
9 Flow control for double-acting quarter turn actuators	8098887	VABF-B14-F1B1P2-FF14

## Connector plates VABS with through-hole

Description	Part no.	Type
10 Enables the Namur valve to be used as an in-line valve with NPT1/4"	8099628	VABS-B14-T-FN14
Enables the Namur valve to be used as an in-line valve with G1/4"	8098884	VABS-B14-T-FG14

## Push-in fittings QS

Pneumatic connection 2	Part no.	Type
Pneumatic connection 1: male thread G1/8		
11 For tubing O.D. 4 mm	186095	QS-G1/8-4
For tubing O.D. 6 mm	186096	QS-G1/8-6
For tubing O.D. 8 mm	186098	QS-G1/8-8
Pneumatic connection 1: male thread G1/8 with internal hexagon		
11 For tubing O.D. 4 mm	186106	QS-G1/8-4-I
For tubing O.D. 6 mm	186107	QS-G1/8-6-I
For tubing O.D. 8 mm	186109	QS-G1/8-8-I
For tubing O.D. 10 mm	132999	QS-G1/8-10-I

## Silencers AMTE, U

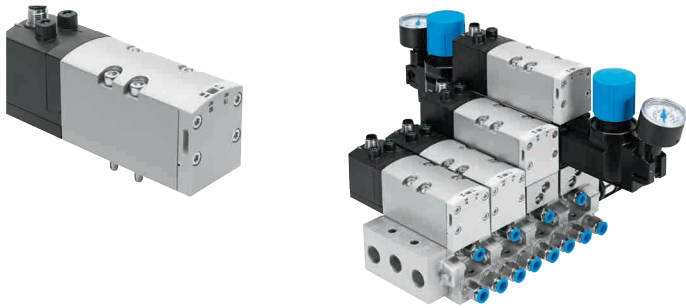
Description	Part no.	Type
Pneumatic connection: G1/8		
12 Short version, sintered metal	1206622	AMTE-M-H-G18
Long version, sintered metal	1205860	AMTE-M-LH-G18
Polymer version	2307	U-1/8
Polymer version, 50 pieces per pack	534222	U-1/8-50
Polymer version, female thread	3670	U-1/8-I
Die-cast metal version	6841	U-1/8-B
Polymer version	161419	UC-1/8

## Push-in fittings NPQE

Pneumatic connection 2	Part no.	Type
Pneumatic connection 1: male thread R1/8		
13 For tubing O.D. 4 mm	8112913	NPQE-D-R18-Q4-P10
For tubing O.D. 6 mm	8112914	NPQE-D-R18-Q6-P10
For tubing O.D. 8 mm	8112915	NPQE-D-R18-Q8-P10
For tubing O.D. 10 mm	8112916	NPQE-D-R18-Q10-P10
For tubing O.D. 12 mm	8112917	NPQE-D-R18-Q12-P10

Electrically and pneumatically actuated directional control valves > Standards-based directional control valves >

## Solenoid valves VSVA, to ISO 5599-1



- High-performance valves in a sturdy metal design
- Width 42 mm/ISO size 1
- Flow rate up to 1300 l/min
- Solenoid coil with central plug M12, 24 V DC
- Wide range of vertical stacking modules: pressure regulator, flow control, vertical pressure shut-off plate, etc.
- Valve on individual sub-base or for manifold assembly

### Order code

001	002	003	004	005	006	007	008	009	010
VSVA	B					D1	1	R5	L

Legend:  Mandatory entry  Optional entry

001	Type
VSVA	Standards-based valves to ISO 5599-1
002	Valve type
B	Sub-base valve
003	Valve function
M52	5/2-way valve, single solenoid
B52	5/2-way valve, double solenoid
004	Reset method for single-solenoid valves
-	None (with double-solenoid valve)
A	Pneumatic spring
M	Mechanical spring
005	Pilot air
-	Internal

006	Manual override
D	Non-detenting/detenting
H	Non-detenting
007	Pneumatic connection
D1	42 mm (1) ISO 5599-1/-2
008	Nominal operating voltage
1	24 VDC
009	Electrical connection
R5	Central plug M12
010	Signal status display
L	LED

### Product options

D52	5/2-way valve, double solenoid, dominant signal	T32U	2x 3/2-way valve, normally open	T32W	2x 3/2-way valve, 1x normally open, 1x normally closed, reversible	Pneumatic connection	
P53C	5/3-way valve, mid-position closed	T32H	2x 3/2-way valve, normally 1x open, 1x closed			A2	18 mm (02) ISO 15407-1 → 180
P53E	5/3-way valve, mid-position exhausted	T32F	2x 3/2-way valve, normally open, reversible	T22C	2x 2/2-way valve, normally closed	A1	26 mm (01) ISO 15407-1 → 180
P53U	5/3-way valve, mid-position pressurised	T32N	2x 3/2-way valve, normally closed, reversible	Pilot air		D2	52 mm (2) ISO 5599-1
T32C	2x 3/2-way valve, normally closed			Z	External	Electrical connection	
						R2	Central plug M8

Configurable product

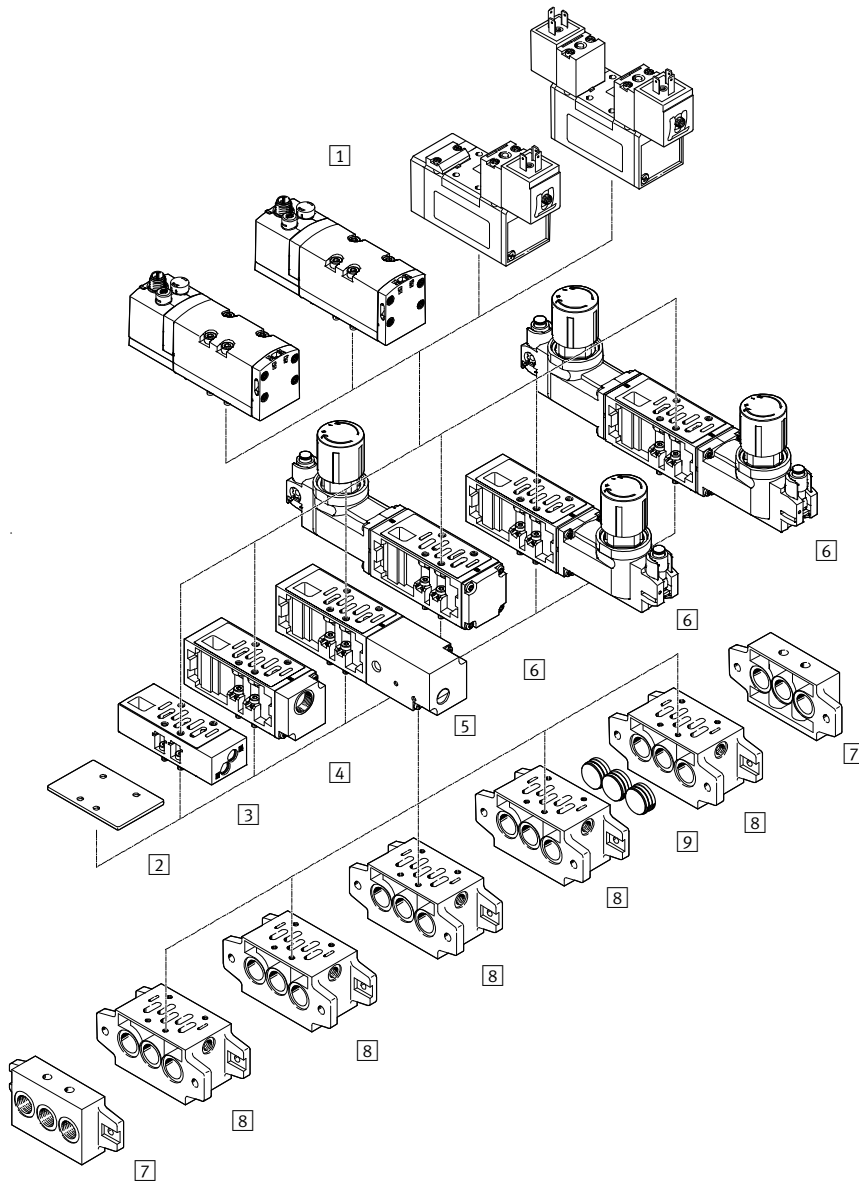
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/vsva](http://www.festo.com/catalogue/vsva)

## Ordering – Basic design

003 Valve function	004 Reset method	007 Pneumatic connection	Type	Part no.
5/2-way valve, single solenoid	Reset method: pneumatic spring	42 mm (1) ISO 5599-1/-2	<b>VSVA-B-M52-AD-D1-1R5L</b>	<b>561362</b>
5/2-way valve, single solenoid	Reset method: mechanical spring		<b>VSVA-B-M52-MD-D1-1R5L</b>	<b>561363</b>
5/2-way valve, double solenoid	Without, dominance: 1st signal		<b>VSVA-B-B52-D-D1-1R5L</b>	<b>561364</b>

## Accessories



### Manifold assembly

- 1 Solenoid valve VSVA with central plug M12, 3-pin  
Individual sub-base NAS, NAU  
→ 179
- 2 Blanking plate NDV → 179
- 3 Flow control plate  
VABF-S1-...-F1B1-C, GRO-ZP-...  
→ vsva
- 4 Vertical pressure supply plate  
VABF-S1-...-P1A3-G38 → vsva
- 5 Vertical pressure shut-off plate  
VABF-S1-...-L1D1-C → vsva
- 6 Regulator plate VABF-S1-...-R...,  
LR-ZP-... → vsva
- 7 End plate kit NEV → 179
- 8 Manifold sub-base NAV → 179
- 9 Isolating disc NSC → 179

Manifold sub-base with 90° connections NAVW → 179

1 Individual sub-base NAS, NAU		
For	Type	Part no.
Pneumatic ports on the side		
42 mm	<b>NAS-1/4-1A-ISO</b>	<b>9484</b>
Pneumatic ports underneath		
42 mm	<b>NAU-1/4-1B-ISO</b>	<b>9485</b>

2 Blanking plate NDV		
For	Type	Part no.
42 mm	<b>NDV-1-ISO</b>	<b>9489</b>

7 End plate kit NEV		
For	Type	Part no.
42 mm	<b>NEV-1DA/DB-ISO</b>	<b>10174</b>

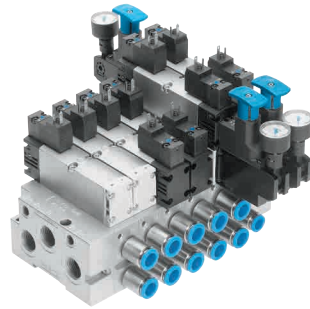
8 Manifold sub-base NAV		
For	Type	Part no.
Connections underneath		
42 mm	<b>NAV-1/4-1C-ISO</b>	<b>10173</b>

9 Isolating disc NSC		
For	Type	Part no.
42 mm	<b>NSC-1/4-1-ISO</b>	<b>11550</b>

Manifold sub-base with 90° connections NAVW		
For	Type	Part no.
Connections on the side and underneath		
42 mm	<b>NAVW-1/4-1-ISO</b>	<b>152789</b>

Electrically and pneumatically actuated directional control valves > Standards-based directional control valves >

## Solenoid valves VSVA, to ISO 15407-1



- High-performance valves in a sturdy metal housing
- Width of standards-based valve 18/26 mm, flow rates up to 1400 l/min
- Manifold assembly with mixture of sizes possible
- Electrical connection with round or square plug socket
- Complete and standardised valve range
- Wide range of vertical stacking modules: pressure regulator, flow control valve, vertical pressure shut-off plate, etc.

### Order code

001 002 003 004 005 006 007 008 009 010 011

VSVA - B - [ ] - [ ] - H - [ ] - 1 - [ ] - [ ]

Legend:  Mandatory entry  Optional entry

001	Type
VSVA	Standards-based valves, to ISO 15407-1
002	Valve type
B	Sub-base valve
003	Valve function
M52	5/2-way valve, single solenoid
B52	5/2-way valve, double solenoid
P53E	5/3-way valve, mid-position exhausted
004	Reset method for single-solenoid valves
-	None (with double-solenoid valve)
A	Pneumatic spring
M	Mechanical spring
005	Pilot air supply
-	Internal
006	Manual override
H	Non-detenting

007	Pneumatic connection
A1	26 mm (01) ISO 15407-1/-2
A2	18 mm (02) ISO 15407-1/-2
008	Nominal operating voltage
1	24 V DC
009	Electrical connection
C1	Connection pattern type C, to EN 175 301
R5	Central plug M12
010	Signal status display
-	None
L	LED (integrated)
011	Position sensing
-	None

### Product options

D52	5/2-way valve, double solenoid with dominant signal at 14	T32F	2x 3/2-way valve, normally open, reverse operation	Pilot air	Z	External	Electrical connection	R2	Central plug M8x1
P53C	5/3-way valve, mid-position closed	T32N	2x 3/2-way valve, normally open, reverse operation	Manual override	D	Non-detenting, detenting	R3	Individual plug M12	
P53U	5/3-way valve, mid-position pressurised	T32W	2x 3/2-way valve, normally 1x open, 1x closed, reverse operation	-	-	Without	P1	Interface for pilot valve (CNOMO small)	
T32C	2x 3/2-way valve, normally closed	T22C	2x 2/2-way valve, normally closed	Pneumatic connection	D...	ISO 5599-1 → 178	Position sensing	APC	Proximity switch PNP with open cable end
T32U	2x 3/2-way valve, normally open			Nominal operating voltage		12 V DC, 24 V AC, 50/60 Hz, 110 V AC, 50/60 Hz, 230 V AC, 50/60 Hz	APP	Proximity switch PNP with plug M8	
T32H	2x 3/2-way valve, normally 1x open, 1x closed						ANC	Proximity switch NPN with open cable end	
							ANP	Proximity switch NPN with plug M8	

Configurable product

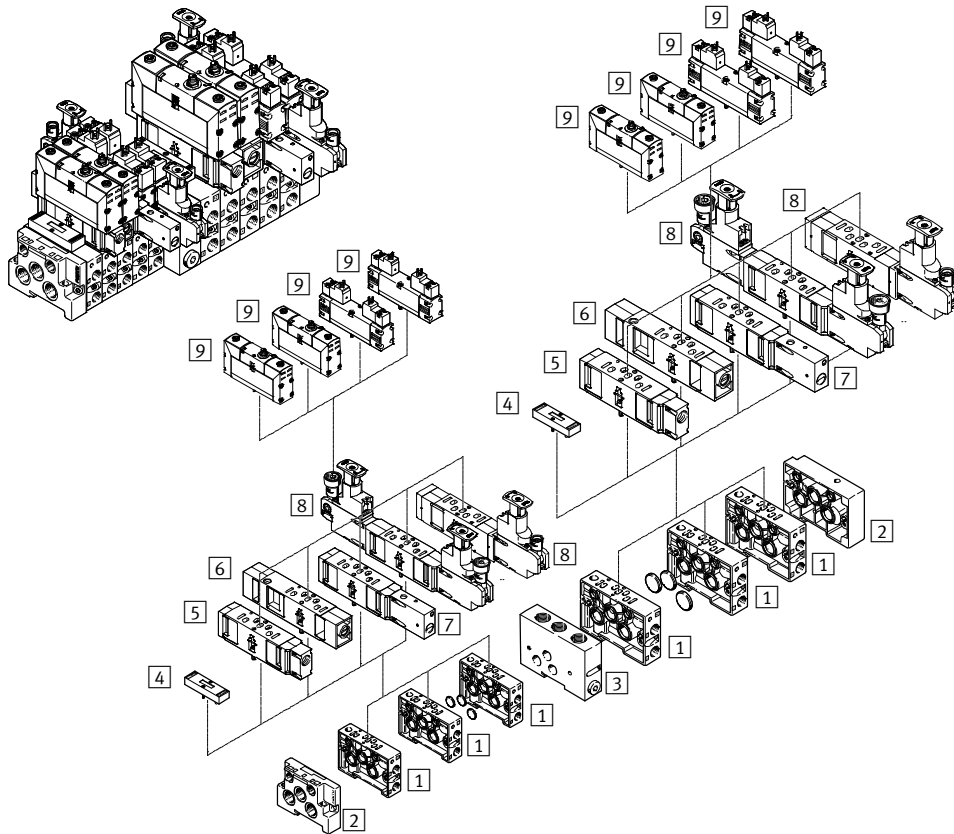
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/vsva](http://www.festo.com/catalogue/vsva)

## Ordering – Basic design

003 Valve function	007 Pneumatic connection A1 26 mm (01) ISO 15407-1/-2		007 Pneumatic connection A2 18 mm (02) ISO 15407-1/-2	
	Type	Part no.	Type	Part no.
<b>009 Electrical connection R5: with central plug M12</b>				
5/2-way valve, single solenoid	VSVA-B-M52-AH-A1-1R5L	534555	VSVA-B-M52-AH-A2-1R5L	546767
	VSVA-B-M52-MH-A1-1R5L	534556	VSVA-B-M52-MH-A2-1R5L	546768
5/2-way valve, double pilot	VSVA-B-B52-H-A1-1R5L	534557	VSVA-B-B52-H-A2-1R5L	546769
5/3-way valve, mid-position exhausted	VSVA-B-P53E-H-A1-1R5L	534560		
<b>009 Electrical connection C1: type C to EN 175301 (with pilot control with square plug type C to EN 175301-803)</b>				
5/2-way valve, single solenoid	VSVA-B-M52-AH-A1-1C1	546700	VSVA-B-M52-AH-A2-1C1	546701
	VSVA-B-M52-MH-A1-1C1	546702	VSVA-B-M52-MH-A2-1C1	546703
5/2-way valve, double pilot	VSVA-B-B52-H-A1-1C1	546696	VSVA-B-B52-H-A2-1C1	546697
5/3-way valve, mid-position exhausted	VSVA-B-P53E-H-A1-1C1	546706		

## Accessories



### Manifold assembly

- 1 Manifold sub-base NAW with ports 2 and 4 on the side → 181
- 2 End plate kit NEV for sealing the manifold sub-bases → 181
- 3 Intermediate plate NZV for connecting width 18 mm with width 26 mm → vsva
- 4 Blanking plate NDV for vacant or spare positions → vsva
- 5 Vertical supply plate VABF...P1-A3 for intermediate air supply → vsva
- 6 Flow control plate VABF...F1-B1 for flow control in ducts 3 and 5 → vsva
- 7 Vertical pressure shut-off plate VABF...L1-D1 with switch for manual shut-off of duct 1 → vsva
- 8 Regulator plate VABF...R...-C2 → vsva
- 9 Solenoid valve VSVA → 180

Individual sub-base NAS → 181

1 Manifold sub-base NAW with ports 2 and 4 on the side		
For	Type	Part no.
26 mm	NAW-1/4-01-VDMA	161102
18 mm	NAW-1/8-02-VDMA	161110

2 End plate kit NEV		
For	Type	Part no.
26 mm	NEV-01-VDMA	161104
18 mm	NEV-02-VDMA	161112

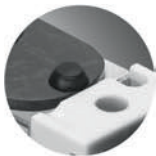
4 Blanking plate NDV		
For	Type	Part no.
26 mm	NDV-01-VDMA	161107
18 mm	NDV-02-VDMA	161114

Individual sub-base NAS		
For	Type	Part no.
26 mm	NAS-1/4-01-VDMA	161109
18 mm	NAS-1/8-02-VDMA	161115

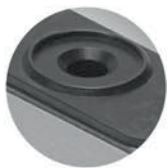
## Designed for reliable and easy operation

The VUVG has been a huge success since it was introduced. This is without doubt due to its first-class pneumatic performance of the VUVG as well as numerous other technical features.

Integrated LED for 360 degree view – convenient for a fast status overview as well as reduced downtimes.



Direction indicator: detent for correct valve installation.



Captive seal integrated into the valve.

Standard: the non-detenting/detenting manual override for easy commissioning with cover if required.



Click! Just snap it in and it's done.

E-box with numerous connection options for optimum integration into your system concept.



Retained mounting screws: robust, secure mounting, no lost parts.

Imperial connections (inch) can be easily realised with hybrid fittings.



Several pressure zones possible – quickly and easy with separators.

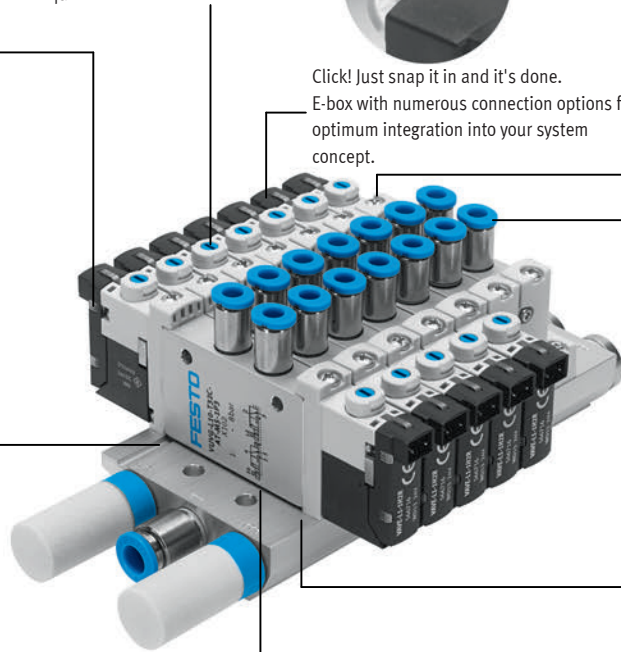
Make the most of the available installation space with a host of connection options and functions.



Individual valves can be mounted one behind the other without an extra manifold rail or bracket thanks to the side holes.



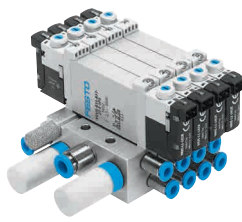
No additional components required to mount an individual valve onto a valve manifold.







In-line valve VUVG-L10 with seal VABD-L1-10X



Sub-base valve VUVG-B10

- Connection technology via electrical connection box (E-box)
- Specific I-Port interface from Festo for fieldbus node
- IO-Link mode for direct connection to a higher-level IO-Link master
- Festo-specific I-Port interface with interlock
- Variable multi-pin plug connection using Sub-D or flat cable
- Sturdy and durable metal components
- Reversible piston spool valves
- Up to 24 valve positions

## Order code – Basic design

001	002	003	004	005	006	007	008	009	010	011	012	013	014	015
VUVG							T			1		L		

<b>001</b>	<b>Type</b>		<b>008</b>	<b>Manual override</b>	
VUVG	Solenoid valve for standard applications		T	Non-detenting, detenting via accessory	
<b>002</b>	<b>Valve type</b>		<b>009</b>	<b>Pneumatic connection</b>	
B	Sub-base valve		M5	M5 thread	
L	In-line valve/individual valve		M7	M7 thread	
<b>003</b>	<b>Design principle</b>		G18	G1/8 thread	
–	Piston spool with sealing cartridge		G14	G1/4 thread	
K	Piston spool with sealing ring		F	Flange/sub-base	
<b>004</b>	<b>Size</b>		<b>010</b>	<b>Exhaust</b>	
10	Size 10		–	Without fitting	
14	Size 14		<b>011</b>	<b>Nominal operating voltage</b>	
18	Size 18		1	24 V DC	
<b>005</b>	<b>Valve function</b>		<b>012</b>	<b>Electrical connection</b>	
B52	5/2-way valve, double solenoid		R8	M8 individual plug, 3-pin	
M52	5/2-way valve, single solenoid		H2	Connection pattern H, horizontal plug	
P53C	5/3-way valve, mid-position closed		<b>013</b>	<b>Signal status display</b>	
T32C	2x 3/2-way valve, normally closed		L	LED (integrated)	
<b>006</b>	<b>Reset method for single-solenoid valves</b>		<b>014</b>	<b>Version</b>	
–	Without, for valve function B52 and P53		–	Extended features	
A	Pneumatic spring, for valve function T32 and M52		S	Core features	
M	Mechanical spring, for valve function M52		<b>015</b>	<b>Electrical accessories, valve</b>	
R	Pneumatic/mechanical spring, for valve function M52		–	None	
<b>007</b>	<b>Pilot air supply</b>				
–	Internal				

Legend:  Mandatory entry  Optional entry

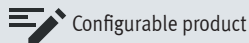
## Product options

<b>Valve type</b>		<b>T32H</b>	2x3/2-way valve, 1x closed, 1x open	<b>Exhaust</b>		<b>S...</b>	Connection pattern S
S	Semi in-line valve			U	Silencer	L...	With flying leads
<b>Valve functions</b>			<b>Pilot air supply</b>	QN	With fitting	K...	With cable
M32C	3/2-way valve, single solenoid, closed		Z	External	<b>Nominal operating voltage</b>	R...	Individual plugs
M32U	3/2-way valve, single solenoid, open				5 V DC, 12 V DC, 24 V AC, 50/60 Hz	P3	Without electrical connection box
P53U	5/3-way valve, pressurised		<b>Manual override</b>		<b>Circuitry</b>	P1	Interface for pilot valve size 15 mm to ISO 15218 (CNOMO)
P53E	5/3-way valve, exhausted		S	Covered	R	Holding current reduction with integrated protective circuit	<b>Electrical accessories, valve</b>
T32C	2x3/2-way valve, normally closed		H	Non-detenting			Connecting cables, connector sockets
T32U	2x3/2-way valve, normally open		Y	Detenting	<b>Electrical connection</b>		
			–	Without	T1	Plug-in	
			<b>Pneumatic connection</b>		H...	Connection pattern H	
			Push-in connector 3 ... 10 mm, 5/32" ... 3/8"				

Electrically and pneumatically actuated directional control valves > Universal directional control valves >

## Solenoid valves VUVG

### Ordering – Product options



This product and all its product options can be ordered online via the configurator:  
 → [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)  
 Enter the part number or the type.

Part no.	Type	012 Electrical connection
564212	VUVG	Individual connection
575203	VUVG-...T1	Plug-in

### Ordering – Basic design

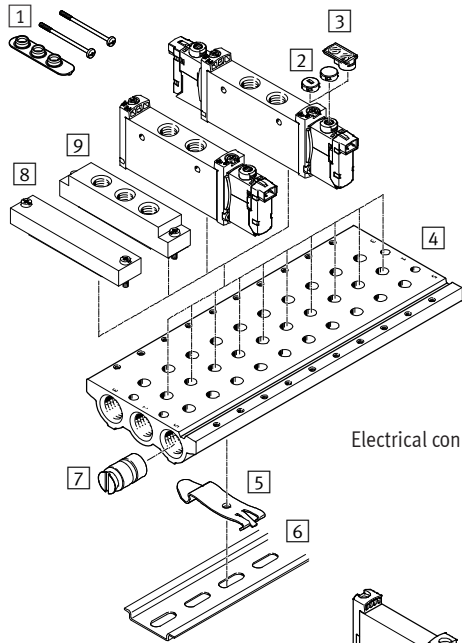
014 Core features						
004 Size	Type	Part no.	Type	Part no.	Type	Part no.
012 Electrical connection box R8 with individual plug M8, 002 In-line valve/individual valve, 003 Piston spool with sealing ring						
	005 2x3/2-way, normally closed		005 5/2-way, single solenoid		005 5/2-way, double solenoid	
	006 Pneumatic spring		006 Pneumatic spring		006 –	
Size 10	VUVG-LK10-T32C-AT-M5-1R8L-S	8042542	VUVG-LK10-M52-AT-M5-1R8L-S	8042543	VUVG-LK10-B52-T-M5-1R8L-S	8042544
	VUVG-LK10-T32C-AT-M7-1R8L-S	8042550	VUVG-LK10-M52-AT-M7-1R8L-S	8042551	VUVG-LK10-B52-T-M7-1R8L-S	8042552
Size 14	VUVG-LK14-T32C-AT-G18-1R8L-S	8042566	VUVG-LK14-M52-AT-G18-1R8L-S	8042567	VUVG-LK14-B52-T-G18-1R8L-S	8042568
012 Electrical connection box H2 with horizontal plug, 002 In-line valve/individual valve, 003 Piston spool with sealing ring						
	005 2x3/2-way, normally closed		005 5/2-way, single solenoid		005 5/2-way, double solenoid	
	006 Pneumatic spring		006 Pneumatic spring		006 –	
Size 10	VUVG-LK10-T32C-AT-M5-1H2L-S	8042538	VUVG-LK10-M52-AT-M5-1H2L-S	8042539	VUVG-LK10-B52-T-M5-1H2L-S	8042540
	VUVG-LK10-T32C-AT-M7-1H2L-S	8042546	VUVG-LK10-M52-AT-M7-1H2L-S	8042547	VUVG-LK10-B52-T-M7-1H2L-S	8042548
Size 14	VUVG-LK14-T32C-AT-G18-1H2L-S	8042562	VUVG-LK14-M52-AT-G18-1H2L-S	8042563	VUVG-LK14-B52-T-G18-1H2L-S	8042564
012 Electrical connection box R8 with individual plug M8, 002 Sub-base valve, 003 Piston spool with sealing ring						
	005 2x3/2-way, normally closed		005 5/2-way, single solenoid		005 5/2-way, double solenoid	
	006 Pneumatic spring		006 Pneumatic spring		006 –	
Size 10	VUVG-BK10-T32C-AT-F-1R8L-S	8042558	VUVG-BK10-M52-AT-F-1R8L-S	8042559	VUVG-BK10-B52-T-F-1R8L-S	8042560
Size 14	VUVG-BK14-T32C-AT-F-1R8L-S	8042574	VUVG-BK14-M52-AT-F-1R8L-S	8042575	VUVG-BK14-B52-T-F-1R8L-S	8042576
012 Electrical connection box H2 with horizontal plug, 002 Sub-base valve, 003 Piston spool with sealing ring						
	005 2x3/2-way, normally closed		005 5/2-way, single solenoid		005 5/2-way, double solenoid	
	006 Pneumatic spring		006 Pneumatic spring		006 –	
Size 10	VUVG-BK10-T32C-AT-F-1H2L-S	8042554	VUVG-BK10-M52-AT-F-1H2L-S	8042555	VUVG-BK10-B52-T-F-1H2L-S	8042556
Size 14	VUVG-BK14-T32C-AT-F-1H2L-S	8042570	VUVG-BK14-M52-AT-F-1H2L-S	8042571	VUVG-BK14-B52-T-F-1H2L-S	8042572

014 Extended features						
004 Size	Type	Part no.	Type	Part no.	Type	Part no.
012 Electrical connection box R8 with individual plug M8, 002 In-line valve/individual valve, 003 Piston spool with sealing cartridge						
	005 2x3/2-way, normally closed		005 5/2-way, single solenoid		005 5/2-way, double solenoid	
	006 Pneumatic spring		006 Pneumatic/mechanical spring		006 –	
Size 10	VUVG-L10-T32C-AT-M5-1R8L	577347	VUVG-L10-M52-RT-M5-1R8L	572634	VUVG-L10-B52-T-M5-1R8L	576664
	VUVG-L10-T32C-AT-M7-1R8L	574218	VUVG-L10-M52-RT-M7-1R8L	574221	VUVG-L10-B52-T-M7-1R8L	574222
Size 14	VUVG-L14-T32C-AT-G18-1R8L	574226	VUVG-L14-M52-AT-G18-1R8L <sup>1)</sup>	574229	VUVG-L14-B52-T-G18-1R8L	574230
Size 18	VUVG-L18-T32C-AT-G14-1R8L	8031525	VUVG-L18-M52-RT-G14-1R8L	8031531		
			VUVG-L18-M52-MT-G14-1R8L <sup>2)</sup>	8031532		
	005 5/3-way, mid-position closed					
	006 –					
Size 10	VUVG-L10-P53C-T-M5-1R8L	577346				
	VUVG-L10-P53C-T-M7-1R8L	574223				
Size 14	VUVG-L14-P53C-T-G18-1R8L	574231				
Size 18	VUVG-L18-P53C-T-G14-1R8L	8031534				

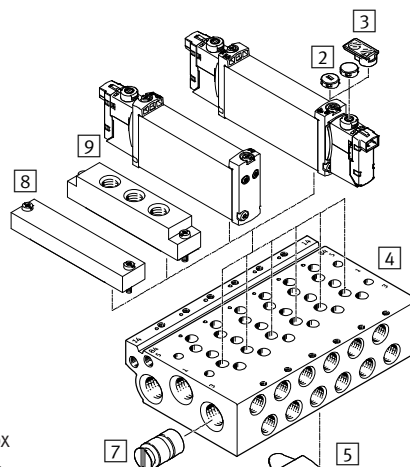
1) 006 Pneumatic spring  
 2) 006 Mechanical spring

## Accessories

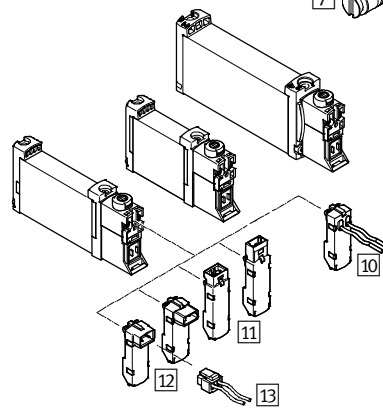
### In-line valve VUVG-L with seal



### Sub-base valve VUVG-B



### Electrical connection box



- 1 Seal VABD-L1-10X for in-line valve → 185
  - 2 Cover VMPA-HBT-B for manual override, non-detenting → 185
  - 3 Inscription label holder ASLR-D for labelling the valves, covering the mounting screw and the manual override → 185
  - 4 Manifold rail VABM for 2 to 10 valve positions → 186
  - 5 H-rail mounting VAME-T-M4 for fitting the valve manifold on an H-rail → 185
  - 6 H-rail NRH-35-2000 for mounting → nrh-35
  - 7 Separator VABD-B for creating pressure zones → 186
  - 8 Blanking plate VABB for covering an unused valve position → 186
  - 9 Supply plate VABF → 186
- Electrical connection box VAVE
- 10 With flying leads → 186
  - 11 With vertical plug → 186
  - 12 With horizontal plug → 186
  - 13 Plug socket with cable NEBV, open end → 186

1 Seal VABD-L1-10X			
Size	Pneum. Connection	Type	Part no.
For VUVG-L			
002 In-line valve/individual valve, 003 Piston spool with sealing cartridge			
10	M5	VABD-L1-10X-S-M5	566672
10	M7	VABD-L1-10X-S-M7	566673
14	G1/8	VABD-L1-14X-S-G18	566675
18	G1/4	VABD-L1-18X-S-G14	574479
18	G1/4	VABD-L1-18B-S-G14	574480
For VUVG-LK			
002 In-line valve/individual valve, 003 Piston spool with sealing ring			
10	M5	VABD-L1-10XK-S-M5	8043718
10	M7	VABD-L1-10XK-S-M7	8043719
14	G1/8	VABD-L1-14XK-S-G18	8043720

2/3/5 Cover VMPA/inscription label holder ASLR/H-rail mounting VAME		
Size	Type	Part no.
10, 14, 18	VMPA-HBT-B (10 Stück)	540897
10, 14, 18	ASLR-D-L1 (10 Stück)	570818
10, 14 18	VAME-T-M4 (2 Stück)	569998

Electrically and pneumatically actuated directional control valves > Universal directional control valves >

## Solenoid valves VUVG

### Accessories

4 Manifold rail VABM							
Size	Connection 1)	Valve positions	Type	Part no.			
For individual valve VUVG-L with seal VABD-L1-10X 1							
10	M5/M7	2	VABM-L1-10S-G18-2	566558			
		3	VABM-L1-10S-G18-3	566559			
		4	VABM-L1-10S-G18-4	566560			
		6	VABM-L1-10S-G18-6	566562			
		8	VABM-L1-10S-G18-8	566564			
10	M5/M7	10	VABM-L1-10S-G18-10	566566			
		14	G1/4	2	VABM-L1-14S-G14-2	566618	
				3	VABM-L1-14S-G14-3	566619	
				4	VABM-L1-14S-G14-4	566620	
				6	VABM-L1-14S-G14-6	566622	
8	VABM-L1-14S-G14-8			566624			
10	M5/M7	10	VABM-L1-14S-G14-10	566626			
		18	G3/8	2	VABM-L1-18S-G38-2	574455	
				3	VABM-L1-18S-G38-3	574456	
4	VABM-L1-18S-G38-4			574457			
6	VABM-L1-18S-G38-6			574459			
8	VABM-L1-18S-G38-8			574461			
10	VABM-L1-18S-G38-10	574463					
For sub-base valve VUVG-B							
10	M5	2	VABM-L1-10W-G18-2	566582			
		3	VABM-L1-10W-G18-3	566583			
		4	VABM-L1-10W-G18-4	566584			
		6	VABM-L1-10W-G18-6	566586			
		8	VABM-L1-10W-G18-8	566588			
		10	VABM-L1-10W-G18-10	566590			
		M7	2	VABM-L1-10HW-G18-2	566606		
			3	VABM-L1-10HW-G18-3	566607		
			4	VABM-L1-10HW-G18-4	566608		
			6	VABM-L1-10HW-G18-6	566610		
	10	M7	8	VABM-L1-10HW-G18-8	566612		
			10	VABM-L1-10HW-G18-10	566614		
			14	G1/8	2	VABM-L1-14W-G18-2	566642
					3	VABM-L1-14W-G18-3	566643
4	VABM-L1-14W-G18-4	566644					
6	VABM-L1-14W-G18-6	566646					
8	VABM-L1-14W-G18-8	566648					
10	VABM-L1-14W-G18-10	566650					
18	G3/8	2	VABM-L1-18W-G38-2	574467			
		3	VABM-L1-18W-G38-3	574468			
		4	VABM-L1-18W-G38-4	574469			
		6	VABM-L1-18W-G38-6	574471			
		8	VABM-L1-18W-G38-8	574473			
		10	VABM-L1-18W-G38-10	574475			

1) VABM-L1-...S: Supply ports 1, 3, 5  
VABM-L1-...W, VABM-L1-...HW: working ports 2, 4

7 Separator VABD-B		
Size	Type	Part no.
For individual valve VUVG-L		
10	VABD-8-B	569995
14	VABD-10-B	569996
18	VABD-12-B	569997
For sub-base valve VUVG-B		
10	VABD-6-B	569994
14	VABD-10-B	569996
18	VABD-12-B	569997

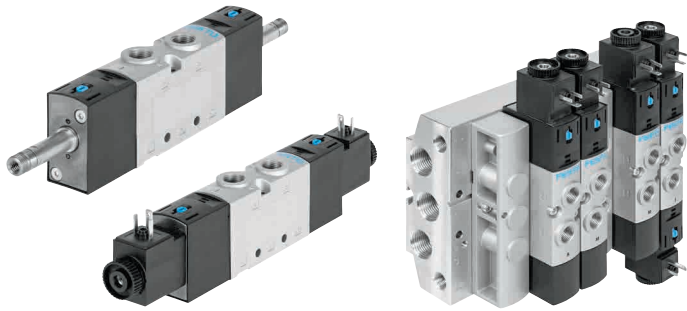
8 Blanking plate VABB		
Size	Type	Part no.
For individual valve VUVG-L		
10	VABB-L1-10-S	566462
14	VABB-L1-14	569989
18	VABB-L1-18	574482
For sub-base valve VUVG-B		
10	VABB-L1-10-W	566495
14	VABB-L1-14	569989
18	VABB-L1-18	574482

9 Supply plate VABF			
Size	Connection	Type	Part no.
For individual valve VUVG-L			
10	M5	VABF-L1-10-P3A4-M5	569991
10	M7	VABF-L1-10-P3A4-M7	569992
14	G1/8	VABF-L1-14-P3A4-G18	569993
18	G1/4	VABF-L1-18-P3A4-G14	574481
For sub-base valve VUVG-B			
10	M5	VABF-L1-10-P3A4-M5	569991
10	M7	VABF-L1-10-P3A4-M7	569992
14	G1/8	VABF-L1-14-P3A4-G18	569993
18	G1/4	VABF-L1-18-P3A4-G14	574481

10/11/12 Electrical connection box VAVE		
Description	Type	Part no.
10 With flying leads, LED, protective circuit		
0.5 m, 24 and 12 V DC	VAVE-L1-1VL1-LP <sup>1)</sup>	566722
1 m	VAVE-L1-1VL2-LP <sup>1)</sup>	566723
2.5 m	VAVE-L1-1VL3-LP <sup>1)</sup>	566724
1 m	VAVE-L1-1VK7-LP <sup>3)</sup>	573942
11 Vertical plug, LED, protective circuit		
24 and 12 V DC	VAVE-L1-1VH3-LP <sup>1)</sup>	566715
aB Horizontal plug, LED, protective circuit		
24 and 12 V DC	VAVE-L1-1VH2-LP <sup>1)</sup>	566714
24 V DC	VAVE-L1-1H2-LR <sup>2)</sup>	566716
24 and 12 V DC	VAVE-L1-1VR8-LP <sup>3)</sup>	573919

1) Additional functions: spark arresting, bipolar, IP40  
2) Additional functions: spark arresting, reduction of holding current, IP40  
3) Additional functions: spark arresting, bipolar, IP65

13 Plug socket with cable NEBV			
Description	Cable length	Type	Part no.
Straight socket, 2-pin			
Flying leads, open end	0.5 m	NEBV-H1G2-KN-0.5-LE	566654
	1 m	NEBV-H1G2-KN-1-LE2	566655
	2.5 m	NEBV-H1G2-KN-2.5-LE	566656
Individual cable, 0.5 m, open end, 2-pin	0.5 m	NEBV-H1G2-P-0.5-LE2	566658
	1 m	NEBV-H1G2-P-1-LE2	566659
	2.5 m	NEBV-H1G2-P-2.5-LE2	566660



- Width of valves 20 (21 mm), 25 (26.5 mm), 30 (31 mm), flow rate up to 2300 l/min
- In-line valves can be used as individual valves or manifold valves
- Variable pressure zones
- Universal valve, sturdy and durable
- Low-cost, no limitations with regard to performance
- Can be used as a valve manifold VTUS

## Order code – Basic design

001	002	003	004	005	006	007	008	009	010	011	012	013	014
VUVS	L						D				1		

<b>001</b>	<b>Type</b>
VUVS	Solenoid valve
<b>002</b>	<b>Valve type</b>
L	In-line valve
<b>003</b>	<b>Design principle</b>
–	Piston spool with sealing cartridge
K	Piston spool with sealing ring
<b>004</b>	<b>Size</b>
20	Valve width 21 mm
25	Valve width 26.5 mm
30	Valve width 31 mm
<b>005</b>	<b>Valve function</b>
B52	5/2-way valve, double solenoid
M52	5/2-way valve, single solenoid
P53C	5/3-way valve, mid-position closed
M32C	3/2-way valve, normally closed
<b>006</b>	<b>Reset method for single-solenoid valves</b>
–	Without, for valve function B52
A	Pneumatic spring, for valve function M32 and M52
M	Mechanical spring, for valve function M32, M52 and P53
<b>007</b>	<b>Pilot air supply</b>
–	Internal

<b>008</b>	<b>Manual override</b>
D	Non-detenting, detenting without accessories
<b>009</b>	<b>Pneumatic connection</b>
G18	G1/8 thread
G14	G1/4 thread
G38	G3/8 thread
<b>010</b>	<b>Exhaust</b>
–	Without fitting
<b>011</b>	<b>Valve pilot control interface</b>
–	Standard
F7	With 8 mm armature tube, short
F8	With 8 mm armature tube, long
<b>012</b>	<b>Nominal operating voltage</b>
1	24 V DC
<b>013</b>	<b>Electrical connection</b>
C1	Connection pattern type C, to EN 175301
B2	Connection pattern type B, industry standard
<b>014</b>	<b>Version</b>
–	Extended features
S	Core features

Legend:  Mandatory entry  Optional entry

## Product options

### Design principle

T Poppet valve

### Pilot air supply

Z External

### Exhaust

QN With fitting  
U... Silencer

### EU certification

EX2 II 3GD

### Valve functions

M32U 3/2-way valve, open  
P53U 5/3-way valve, pressurised  
P53E 5/3-way valve, exhausted  
T32... 2x 3/2-way valve

### Manual override

S Covered  
H Non-detenting

### Pneumatic connection

Push-in connector 4 ... 12 mm, 5/32 ... 1/2"

### Nominal operating voltage

24 V AC, 230 V AC, 230/240 V AC,  
12 V DC, 110/120 V AC

### Degree of protection for electrics

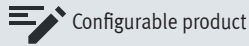
S8 IP67

### Electrical accessories, valve

G Connector socket, without LED  
GL Connector socket, with LED  
GS Connector socket, with protective circuit

Electrically and pneumatically actuated directional control valves > Universal directional control valves > Solenoid valves VUVS-L

## Ordering – Product options



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

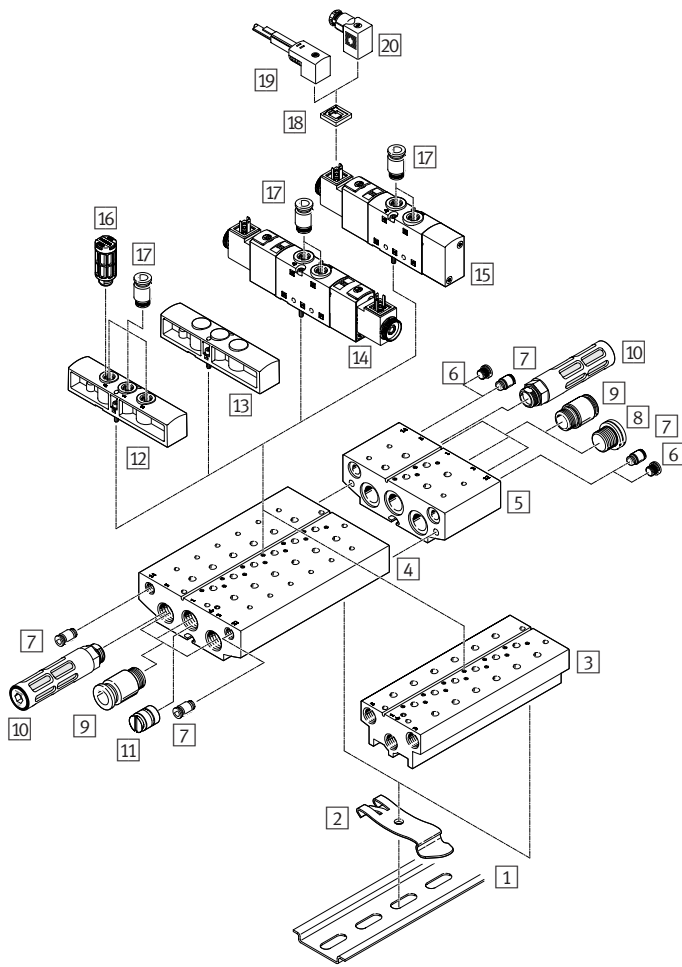
Part no.	Type
576516	VUVS-20
8022014	VUVS-25
8022017	VUVS-30

## Ordering – Basic design

014 Core features						
004 Size	Type	Part no.	Type	Part no.	Type	Part no.
013 Connection pattern type C, to EN 175 301, 002 In-line valve, 003 Piston spool with sealing ring, 011 With standard valve pilot control interface						
	005 3/2-way, normally closed		005 5/2-way, double solenoid		005 5/2-way, single solenoid	
	006 Pneumatic spring		006 –		006 Pneumatic spring	
20 (valve width 21 mm)	VUVS-LK20-M32C-AD-G18-1C1-S	8043213	VUVS-LK20-B52-D-G18-1C1-S	8043215	VUVS-LK20-M52-AD-G18-1C1-S	8043214
013 Connection pattern type B, industry standard, 002 In-line valve, 003 Piston spool with sealing ring, 011 With standard valve pilot control interface						
	005 3/2-way, normally closed		005 5/2-way, double solenoid		005 5/2-way, single solenoid	
	006 Pneumatic spring		006 –		006 Pneumatic spring	
25 (valve width 26.5 mm)	VUVS-LK25-M32C-AD-G14-1B2-S	8043217	VUVS-LK25-B52-D-G14-1B2-S	8043219	VUVS-LK25-M52-AD-G14-1B2-S	8043218
30 (valve width 31 mm)	VUVS-LK30-M32C-AD-G38-1B2-S	8049880	VUVS-LK30-B52-D-G38-1B2-S	8049882	VUVS-LK30-M52-AD-G38-1B2-S	8049881

014 Extended features						
004 Size	Type	Part no.	Type	Part no.	Type	Part no.
013 Connection pattern type C, to EN 175 301, 002 In-line valve, 003 Piston spool with sealing cartridge, 011 With armature tube valve pilot control interface						
	005 3/2-way, normally closed		005 3/2-way, normally closed		005 5/2-way, single solenoid	
	006 Mechanical spring		006 Pneumatic spring		006 Mechanical spring	
20 (valve width 21 mm)	VUVS-L20-M32C-MD-G18-F7-1C1	575274	VUVS-L20-M32C-AD-G18-F7-1C1	575269	VUVS-L20-M52-MD-G18-F7-1C1	575264
25 (valve width 26.5 mm)	VUVS-L25-M32C-MD-G14-F8-1C1	575477	VUVS-L25-M32C-AD-G14-F8-1C1	575475	VUVS-L25-M52-MD-G14-F8-1C1	575511
30 (valve width 31 mm)	VUVS-L30-M32C-MD-G38-F8-1C1	575570	VUVS-L30-M32C-AD-G38-F8-1C1	575568	VUVS-L30-M52-MD-G38-F8-1C1	575604
	005 5/2-way, single solenoid		005 5/2-way, double solenoid		005 5/3-way, mid-position closed	
	006 Pneumatic spring		006 –		006 Mechanical spring	
20 (valve width 21 mm)	VUVS-L20-M52-AD-G18-F7-1C1	575263	VUVS-L20-B52-D-G18-F7-1C1	575265	VUVS-L20-P53C-MD-G18-F7-1C1	575268
25 (valve width 26.5 mm)	VUVS-L25-M52-AD-G14-F8-1C1	575503	VUVS-L25-B52-D-G14-F8-1C1	575518	VUVS-L25-P53C-MD-G14-F8-1C1	575525
30 (valve width 31 mm)	VUVS-L30-M52-AD-G38-F8-1C1	575596	VUVS-L30-B52-D-G38-F8-1C1	575611	VUVS-L30-P53C-MD-G38-F8-1C1	575618

## Accessories



- 1 H-rail NRH-35-2000 → nrh-35
  - 2 H-rail mounting VAME-T-M4 → vuv-s-l
  - 3 Manifold block, compact VABM-B10-...S → 190
  - 4 Manifold block, standard VABM-B10-20E → vuv-s-l
  - 5 Extension module for standard manifold block VABM-B10-20EEE → vuv-s-l
  - 6 Blanking plug B with connecting thread → 331
  - 7 Push-in fitting QS → 319
  - 8 Blanking plug B with connecting thread → 331
  - 9 Push-in fitting QS → 319
  - 10 Silencer U → 343
  - 11 Separator VABD → vuv-s-l
  - 12 Supply plate VABF-B10-20-P1A4 → vuv-s-l
  - 13 Blanking plate VABB-B10 → 189
  - 14 Solenoid valve VUVS, 5/3-way valve and 5/2-way valve, double solenoid, with solenoid coil
  - 15 Solenoid valve VUVS, 5/2-way valve, single solenoid, with solenoid coil
  - 16 Silencer U → 343
  - 17 Push-in fitting QS → 319
  - 18 Illuminating seal MEB-LD → vuv-s-l
  - 19 Plug socket with cable KMEB → 190  
Plug socket with cable KMF → 190
  - 20 Plug socket MSSD → 190
- Solenoid coil VACS-C, VACF-B → 190

## 13 Blanking plate VABB-B10

Size	Type	Part no.
For valve position on manifold block for 3/2-way valves		
20	VABB-B10-20-E-P3	576411
25	VABB-B10-25-E-P3	8026210
30	VABB-B10-30-E-P3	8026336
For valve position on manifold block for 5/2-way, 5/3-way valves		
20	VABB-B10-20-E	576410
25	VABB-B10-25-E	8026209
30	VABB-B10-30-E	8026335
For valve position on supply manifold		
20	VABB-B10-20-A	576409
25	VABB-B10-25-A	8026208
30	VABB-B10-30-A	8026334

Electrically and pneumatically actuated directional control valves > Universal directional control valves >

## Solenoid valves VUVS-L

### Accessories

[3] Manifold block, compact VABM-B10-...S				
Size (width)	Pneumatic connection	Valve positions	Type	Part no.
For 3/2-way valves, incl. seals and screws for mounting valves				
20 (21 mm)	G1/4	2	VABM-B10-20S-G14-2-P3	576465
		4	VABM-B10-20S-G14-4-P3	576467
		6	VABM-B10-20S-G14-6-P3	576469
		8	VABM-B10-20S-G14-8-P3	576471
25 (26.5 mm)	G3/8	2	VABM-B10-25S-G38-2-P3	8026297
		4	VABM-B10-25S-G38-4-P3	8026299
		6	VABM-B10-25S-G38-6-P3	8026301
		8	VABM-B10-25S-G38-8-P3	8026303
30 (31 mm)	G1/2	2	VABM-B10-30S-G12-2-P3	8026413
		4	VABM-B10-30S-G12-4-P3	8026415
		6	VABM-B10-30S-G12-6-P3	8026417
		8	VABM-B10-30S-G12-8-P3	8026419
20 (21 mm)	G1/4	2	VABM-B10-20S-G14-2	576417
		4	VABM-B10-20S-G14-4	576419
		6	VABM-B10-20S-G14-6	576421
		8	VABM-B10-20S-G14-8	576423
25 (26.5 mm)	G3/8	2	VABM-B10-25S-G38-2	8026261
		4	VABM-B10-25S-G38-4	8026263
		6	VABM-B10-25S-G38-6	8026265
		8	VABM-B10-25S-G38-8	8026267
30 (31 mm)	G1/2	2	VABM-B10-30S-G12-2	8026377
		4	VABM-B10-30S-G12-4	8026379
		6	VABM-B10-30S-G12-6	8026381
		8	VABM-B10-30S-G12-8	8026383
20 (21 mm)	G3/8	2	VABM-B10-20-G38-2-P53	576363
		4	VABM-B10-20-G38-4-P53	576365
		6	VABM-B10-20-G38-6-P53	576367
		8	VABM-B10-20-G38-8-P53	576369
25 (26.5 mm)	G1/2	2	VABM-B10-25-G12-2-P53	8026219
		4	VABM-B10-25-G12-4-P53	8026221
		6	VABM-B10-25-G12-6-P53	8026223
		8	VABM-B10-25-G12-8-P53	8026225
30 (31 mm)	G3/4	2	VABM-B10-30-G34-2-P53	8026338
		4	VABM-B10-30-G34-4-P53	8026340
		6	VABM-B10-30-G34-6-P53	8026342
		8	VABM-B10-30-G34-8-P53	8026344
20 (21 mm)	G1/4	2	VABM-B10-20S-G14-10-P3	576473
		4	VABM-B10-20S-G14-10-P3	576473
		6	VABM-B10-20S-G14-10-P3	576473
		8	VABM-B10-20S-G14-10-P3	576473
25 (26.5 mm)	G3/8	2	VABM-B10-25S-G38-10-P3	8026305
		4	VABM-B10-25S-G38-10-P3	8026305
		6	VABM-B10-25S-G38-10-P3	8026305
		8	VABM-B10-25S-G38-10-P3	8026305
30 (31 mm)	G1/2	2	VABM-B10-30S-G12-10-P3	8026421
		4	VABM-B10-30S-G12-10-P3	8026421
		6	VABM-B10-30S-G12-10-P3	8026421
		8	VABM-B10-30S-G12-10-P3	8026421
Common supply manifold for mounting on both sides, incl. seals and screws for valve assembly				
20 (21 mm)	G3/8	2	VABM-B10-20-G38-2-P53	576363
		4	VABM-B10-20-G38-4-P53	576365
		6	VABM-B10-20-G38-6-P53	576367
		8	VABM-B10-20-G38-8-P53	576369
25 (26.5 mm)	G1/2	2	VABM-B10-25-G12-2-P53	8026219
		4	VABM-B10-25-G12-4-P53	8026221
		6	VABM-B10-25-G12-6-P53	8026223
		8	VABM-B10-25-G12-8-P53	8026225
30 (31 mm)	G3/4	2	VABM-B10-30-G34-2-P53	8026338
		4	VABM-B10-30-G34-4-P53	8026340
		6	VABM-B10-30-G34-6-P53	8026342
		8	VABM-B10-30-G34-8-P53	8026344

[19] Plug socket with cable KMEB			
Description	Cable length	Type	Part no.
Angled socket, 3-pin, 24 V DC, type C, to EN 175301-803			
For size 20, 25, 30 With LEDs	2.5 m	KMEB-1-24-2,5-LED	151688
	5 m	KMEB-1-24-5-LED	151689

[19] Plug socket with cable KMF			
Description	Cable length	Type	Part no.
Angled socket, 3-pin, 24 V DC, type B, industry standard			
For size 25, 30 With LED	2.5 m	KMF-1-24DC-2,5-LED	30935
	5 m	KMF-1-24DC-5-LED	30937

[20] Plug socket MSSD			
Description	Type	Part no.	
Angled socket, 3-pin, 0 ... 250 V AC/DC, square plug, type C, to EN 175301-803, for size 20, 25, 30			
Cable connector Pg7	MSSD-EB	151687	
Angled socket, 3-pin, 0 ... 250 V AC/DC, square design MSF, type B, industry standard, for size 25, 30			
Cable connector Pg9	MSSD-F	34431	

Solenoid coil VACS-C for size 20		
Description	Type	Part no.
Connection pattern type C, to EN 175 301		
12 V DC	VACS-C-C1-5	8025331
24 V DC	VACS-C-C1-1	8025330
48 V DC	VACS-C-C1-7	8025336
24 V AC; 50/60 Hz	VACS-C-C1-1A	8025335
48 V AC; 50/60 Hz	VACS-C-C1-7A	8025337
110/120 V AC; 50/60 Hz	VACS-C-C1-16B	8025334
230/240 V AC; 50/60 Hz	VACS-C-C1-3W	8025338

Solenoid coil VACF-B		
Description	Type	Part no.
Plug pattern type B, industry standard, for size 25, 30		
12 V DC	VACF-B-B2-5	8030801
24 V DC	VACF-B-B2-1	8030802
48 V DC	VACF-B-B2-7	8030803
24 V AC; 50/60 Hz	VACF-B-B2-1A	8030804
48 V AC; 50/60 Hz	VACF-B-B2-7A	8030805
110/120 V AC; 50/60 Hz	VACF-B-B2-16B	8030806
230/240 V AC; 50/60 Hz	VACF-B-B2-3W	8030808
Plug pattern type C, to EN 175 301, for size 25, 30		
12 V DC	VACF-B-C1-5	8030810
24 V DC	VACF-B-C1-1	8030811
48 V DC	VACF-B-C1-7	8030812
24 V AC; 50/60 Hz	VACF-B-C1-1A	8030813
48 V AC; 50/60 Hz	VACF-B-C1-7A	8030814
110/120 V AC; 50/60 Hz	VACF-B-C1-16B	8030815
230/240 V AC; 50/60 Hz	VACF-B-C1-3W	8030817
Plug pattern type A, to EN 175301-803, for size 30		
24 V DC	VACF-A-A1-1	8030822





- Low actuating forces
- Ergonomic and reliable operation
- Practical connection with threaded connection or connecting pieces
- Fast mounting: via retaining bracket or screwed directly via through-hole
- Sturdy metal housing
- Reverse operation possible

## Order code

001 002 003 004 005 006 007 008  
 VHEF - HS [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Legend: [ ] Mandatory entry [ ] Optional entry

001	Type
VHEF	Manually actuated valves
002	Actuation type
HS	Hand lever, on the side
003	Design principle
-	Piston spool
T	Poppet valve
004	Type of control
-	Directly actuated
005	Pilot air
-	Internal

006	Valve function
B32	3/2-way valve, bistable
B52	5/2-way valve, bistable
M32	3/2-way valve, normally closed or open
M52	5/2-way valve, monostable
B53C	5/3-way valve, detenting, mid position closed
B53E	5/3-way valve, detenting, mid-position exhausted
P53C	5/3-way valve, mid-position closed
P53E	5/3-way valve, mid-position exhausted
007	Reset method for monostable valves
-	None (for double pilot valves)
M	Mechanical spring
008	Pneumatic connection
G18	G1/8 thread
G14	G1/4 thread
N18	1/8 NPT thread
N14	1/4 NPT thread

## Ordering – VHEF-HS, G thread

006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	-	G1/8	750 l/min	VHEF-HST-B32-G18	4165861
		G1/4	870 l/min	VHEF-HST-B32-G14	4165862
	Mechanical spring	G1/8	750 l/min	VHEF-HST-M32-M-G18	4165853
		G1/4	870 l/min	VHEF-HST-M32-M-G14	4165854
5/2-way valve	Mechanical spring	G1/8	750 l/min	VHEF-HS-M52-M-G18	4165855
		G1/4	1200 l/min	VHEF-HS-M52-M-G14	4165856
	-	G1/8	750 l/min	VHEF-HS-B52-G18	4165863
		G1/4	1200 l/min	VHEF-HS-B52-G14	4165864
5/3-way valve	-	G1/8	700 l/min	VHEF-HS-B53C-G18	4165865
		G1/4	1200 l/min	VHEF-HS-B53C-G14	4165866
		G1/8	530 l/min	VHEF-HS-B53E-G18	4165867
		G1/4	900 l/min	VHEF-HS-B53E-G14	4165868
	Mechanical spring	G1/8	700 l/min	VHEF-HS-P53C-M-G18	4165857
		G1/4	1200 l/min	VHEF-HS-P53C-M-G14	4165858
		G1/8	530 l/min	VHEF-HS-P53E-M-G18	4165859
		G1/4	900 l/min	VHEF-HS-P53E-M-G14	4165860

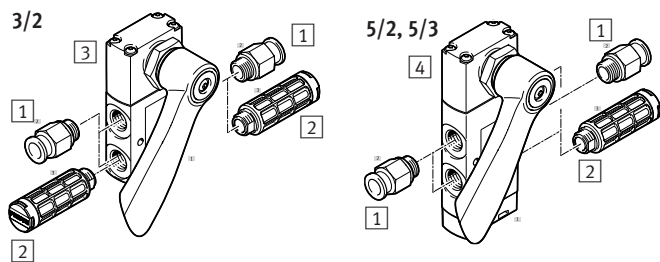
Manually actuated directional control valves >

## Hand lever valves VHEF-HS

### Ordering – VHEF-HS, NPT thread

006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	–	1/8 NPT	750 l/min	VHEF-HST-B32-N18	4414861
		1/4 NPT	870 l/min	VHEF-HST-B32-N14	4414862
	Mechanical spring	1/8 NPT	750 l/min	VHEF-HST-M32-M-N18	4414853
		1/4 NPT	870 l/min	VHEF-HST-M32-M-N14	4414854
5/2-way valve	Mechanical spring	1/8 NPT	750 l/min	VHEF-HS-M52-M-N18	4414855
		1/4 NPT	1200 l/min	VHEF-HS-M52-M-N14	4414856
	–	1/8 NPT	750 l/min	VHEF-HS-B52-N18	4414863
		1/4 NPT	1200 l/min	VHEF-HS-B52-N14	4414864
5/3-way valve	–	1/8 NPT	700 l/min	VHEF-HS-B53C-N18	4414865
		1/4 NPT	1200 l/min	VHEF-HS-B53C-N14	4414866
		1/8 NPT	530 l/min	VHEF-HS-B53E-N18	4414867
		1/4 NPT	900 l/min	VHEF-HS-B53E-N14	4414868
	Mechanical spring	1/8 NPT	700 l/min	VHEF-HS-P53C-M-N18	4414857
		1/4 NPT	1200 l/min	VHEF-HS-P53C-M-N14	4414858
		1/8 NPT	530 l/min	VHEF-HS-P53E-M-N18	4414859
		1/4 NPT	900 l/min	VHEF-HS-P53E-M-N14	4414860

### Accessories



- 1 Fitting for supply air/exhaust air ports (1, 3, 5) and working ports (2, 4)  
Push-in fittings QS, G thread → 319  
Push-in fittings QB, NPT thread → 192
- 2 Silencer U, for exhaust air ports (3, 5)  
G thread → 343  
NPT thread → 192
- 3 3/2-way valve VHEF-HST...32...
- 4 5/2- or 5/3-way valve VHEF-HS...52..., VHEF-HS...53...

### Accessories for VHEF, UNF/NPT thread

1 Push-in fitting QBM/QB, straight  
Male thread with internal hex

Connection 1	Connection 2	Type	Part no.
UNF10-32	5/32"	QBM-10-32-UNF-5/32-I-U	572312
1/8 NPT	5/32"	QB-1/8-5/32-I-U	572317
	1/4"	QB-1/8-1/4-I-U	572318
	5/16"	QB-1/8-5/16-I-U	572319
1/4 NPT	5/16"	QB-1/4-5/16-I-U	572321
	3/8"	QB-1/4-3/8-I-U	572322
	1/2"	QB-1/4-1/2-U	567771

1 Push-in fitting QBLL, angled, long  
Male thread with external hex

Connection 1	Connection 2	Type	Part no.
1/8 NPT	5/32"	QBLL-1/8-5/32-U	564668
	1/4"	QBLL-1/8-1/4-U	564670
	5/16"	QBLL-1/8-5/16-U	564671

1 Push-in fitting QBL, angled  
Male thread with external hex

Connection 1	Connection 2	Type	Part no.
1/8 NPT	5/32"	QBL-1/8-5/32-U	533290
	1/4"	QBL-1/8-1/4-U	533292
	5/16"	QBL-1/8-5/16-U	533293
1/4 NPT	5/16"	QBL-1/4-5/16-U	533296
	3/8"	QBL-1/4-3/8-U	533297
	1/2"	QBL-1/4-1/2-U	567775

2 Silencer U, metal variant

Pneumatic connection	Type	Part no.
1/8 NPT	U-1/8-B-NPT	12638
1/4 NPT	U-1/4-B-NPT	12639



- Lever position sensing
- Connection M5, G1/8, G1/4, G1/2, 1/8 NPT, 1/4 NPT, 1/2 NPT
- Flow rates 170 ... 3800 l/min
- Lockable using accessories

### Order code

001 002 003 004 005 006 007  
**VHER** -  - **H** -  -  -  -

Legend:  Mandatory entry  Optional entry

<b>001</b>	<b>Type</b>
<b>VHER</b>	Hand lever valve with detent
<b>002</b>	<b>Design</b>
-	Hand lever, metal version
<b>P</b>	Hand lever, polymer version
<b>003</b>	<b>Actuation type</b>
<b>H</b>	Hand lever, top
<b>004</b>	<b>Valve function</b>
<b>B43C</b>	4/3-way valve, detenting, mid-position closed
<b>B43E</b>	4/3-way valve, detenting, mid-position open
<b>B43U</b>	4/3-way valve, detenting, mid-position pressurised
<b>005</b>	<b>Direction of flow</b>
-	Not reversible

<b>006</b>	<b>Connection direction, pneumatic connection</b>
-	On the side
<b>B</b>	Underneath
<b>007</b>	<b>Pneumatic connection</b>
<b>M5</b>	M5
<b>G18</b>	G1/8
<b>G14</b>	G1/4
<b>G12</b>	G1/2
<b>N18</b>	1/8 NPT
<b>N14</b>	1/4 NPT
<b>N12</b>	1/2 NPT

### Ordering – VHER, G thread

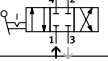
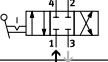
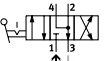
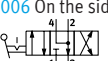
006 Connection direction	007 Connection	Standard nominal flow rate	Type	Part no.
<b>002 Metal lever</b>				
	G1/8	800 l/min	<b>VHER-H-B43U-B-G18</b>	<b>3488215</b>
	G1/4	1500 l/min	<b>VHER-H-B43U-B-G14</b>	<b>3515286</b>
	G1/2	3800 l/min	<b>VHER-H-B43U-B-G12</b>	<b>3192072</b>
	G1/8	600 l/min	<b>VHER-H-B43U-G18</b>	<b>3488214</b>
	G1/4	1150 l/min	<b>VHER-H-B43U-G14</b>	<b>3515108</b>
	G1/2	3200 l/min	<b>VHER-H-B43U-G12</b>	<b>3192071</b>
	G1/8	800 l/min	<b>VHER-H-B43C-B-G18</b>	<b>3488205</b>
	G1/4	1500 l/min	<b>VHER-H-B43C-B-G14</b>	<b>3515202</b>
	G1/2	3800 l/min	<b>VHER-H-B43C-B-G12</b>	<b>3192066</b>
	G1/8	600 l/min	<b>VHER-H-B43C-G18</b>	<b>3488204</b>
	G1/4	1150 l/min	<b>VHER-H-B43C-G14</b>	<b>3514710</b>
	G1/2	3200 l/min	<b>VHER-H-B43C-G12</b>	<b>3192065</b>
	G1/8	800 l/min	<b>VHER-H-B43E-B-G18</b>	<b>3488207</b>
	G1/4	1500 l/min	<b>VHER-H-B43E-B-G14</b>	<b>3515258</b>
	G1/2	3800 l/min	<b>VHER-H-B43E-B-G12</b>	<b>3192068</b>
	G1/8	600 l/min	<b>VHER-H-B43E-G18</b>	<b>3488206</b>
	G1/4	1150 l/min	<b>VHER-H-B43E-G14</b>	<b>3515082</b>
	G1/2	3200 l/min	<b>VHER-H-B43E-G12</b>	<b>3192067</b>

006 Connection direction	007 Connection	Standard nominal flow rate	Type	Part no.
<b>002 Polymer lever</b>				
	M5	260 l/min	<b>VHER-P-H-B43U-B-M5</b>	<b>3410684</b>
	G1/8	800 l/min	<b>VHER-P-H-B43U-B-G18</b>	<b>3488217</b>
	G1/4	1500 l/min	<b>VHER-P-H-B43U-B-G14</b>	<b>3515683</b>
	G1/2	3800 l/min	<b>VHER-P-H-B43U-B-G12</b>	<b>3192084</b>
	M5	170 l/min	<b>VHER-P-H-B43U-M5</b>	<b>3410683</b>
	G1/8	600 l/min	<b>VHER-P-H-B43U-G18</b>	<b>3488216</b>
	G1/4	1150 l/min	<b>VHER-P-H-B43U-G14</b>	<b>3515573</b>
	G1/2	3200 l/min	<b>VHER-P-H-B43U-G12</b>	<b>3192082</b>
	M5	260 l/min	<b>VHER-P-H-B43C-B-M5</b>	<b>3410680</b>
	G1/8	800 l/min	<b>VHER-P-H-B43C-B-G18</b>	<b>3488209</b>
	G1/4	1500 l/min	<b>VHER-P-H-B43C-B-G14</b>	<b>3515601</b>
	G1/2	3800 l/min	<b>VHER-P-H-B43C-B-G12</b>	<b>3192075</b>
	M5	170 l/min	<b>VHER-P-H-B43C-M5</b>	<b>3410679</b>
	G1/8	600 l/min	<b>VHER-P-H-B43C-G18</b>	<b>3488208</b>
	G1/4	1150 l/min	<b>VHER-P-H-B43C-G14</b>	<b>3515361</b>
	G1/2	3200 l/min	<b>VHER-P-H-B43C-G12</b>	<b>3192074</b>
	M5	260 l/min	<b>VHER-P-H-B43E-B-M5</b>	<b>3410682</b>
	G1/8	800 l/min	<b>VHER-P-H-B43E-B-G18</b>	<b>3488211</b>
	G1/4	1500 l/min	<b>VHER-P-H-B43E-B-G14</b>	<b>3515640</b>
	G1/2	3800 l/min	<b>VHER-P-H-B43E-B-G12</b>	<b>3192077</b>
	M5	170 l/min	<b>VHER-P-H-B43E-M5</b>	<b>3410681</b>
	G1/8	600 l/min	<b>VHER-P-H-B43E-G18</b>	<b>3488210</b>
	G1/4	1150 l/min	<b>VHER-P-H-B43E-G14</b>	<b>3515542</b>
	G1/2	3200 l/min	<b>VHER-P-H-B43E-G12</b>	<b>3192076</b>

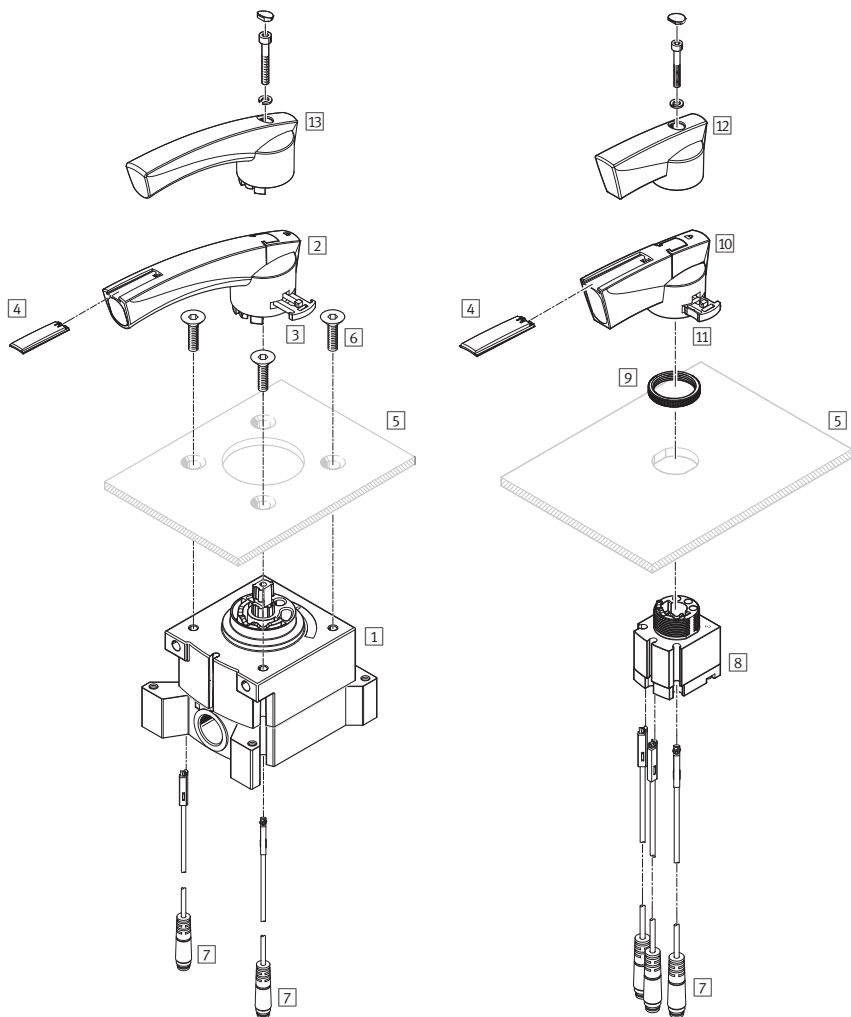
Manually actuated directional control valves >

## Hand lever valves VHER

### Ordering – VHER, NPT thread

006 Connection direction	007 Connection	Standard nominal flow rate	Type	Part no.
<b>002 Metal lever</b>				
	1/8 NPT	800 l/min	<b>VHER-H-B43C-B-N18</b>	<b>3488213</b>
	1/4 NPT	1500 l/min	<b>VHER-H-B43C-B-N14</b>	<b>3520389</b>
	1/2 NPT	3800 l/min	<b>VHER-H-B43C-B-N12</b>	<b>3192086</b>
	1/8 NPT	600 l/min	<b>VHER-H-B43C-N18</b>	<b>3488212</b>
	1/4 NPT	1150 l/min	<b>VHER-H-B43C-N14</b>	<b>3520365</b>
	1/2 NPT	3200 l/min	<b>VHER-H-B43C-N12</b>	<b>3192085</b>
	1/2 NPT	3800 l/min	<b>VHER-H-B43E-B-N12</b>	<b>3192088</b>
	1/2 NPT	3200 l/min	<b>VHER-H-B43E-N12</b>	<b>3192087</b>

### Accessories



- 1 Hand lever valve VHER (pneumatic port on the side) → 193
- 2 Actuating lever, large, polymer
- 3 Lever mounting clip, large
- 4 Inscription label
- 5 Control panel (not included in the scope of delivery)
- 6 Mounting screws (not included in the scope of delivery)
- 7 Proximity switch SME-10-... -L-... (electrical connection, in-line) → 194
- 8 Hand lever valve VHER (pneumatic ports underneath) → 193
- 9 Knurled nut, control panel mounting
- 10 Actuating lever, small, polymer
- 11 Lever mounting clip, small
- 12 Actuating lever, small, metal
- 13 Actuating lever, large, metal

7 Proximity switch, magnetic reed  
For valves with pneumatic ports underneath

Description	Type	Part no.
Cable, 2.5 m, 3-wire	<b>SME-10-KL-LED-24</b>	<b>173210</b>
Connector M8x1, 3-pin	<b>SME-10-SL-LED-24</b>	<b>173212</b>



- Precise mechanical system
- Low actuating forces
- Ergonomic and reliable operation
- Practical connection with threaded connection or connecting pieces
- Fast mounting: via retaining bracket or screwed directly via through-hole
- Sturdy metal housing
- Reverse operation possible

## Order code

001 002 003 004 005 006 007 008  
**VHEF** - **P** - - - - - - - -

Legend:  Mandatory entry  Optional entry

<b>001</b>	<b>Type</b>
<b>VHEF</b>	Manually actuated valves
<b>002</b>	<b>Actuation type</b>
<b>P</b>	Pushbutton
<b>003</b>	<b>Design principle</b>
-	Piston spool
<b>T</b>	Disc seat
<b>004</b>	<b>Type of control</b>
-	Directly actuated
<b>C</b>	Indirectly actuated
<b>005</b>	<b>Pilot air</b>
-	Internal
<b>Z</b>	External

<b>006</b>	<b>Valve function</b>
<b>B32</b>	3/2-way valve, bistable
<b>B52</b>	5/2-way valve, bistable
<b>M32</b>	3/2-way valve, normally closed or open
<b>M52</b>	5/2-way valve, monostable
<b>007</b>	<b>Reset method for monostable valves</b>
-	Without (for double pilot valves)
<b>M</b>	Mechanical spring
<b>008</b>	<b>Pneumatic connection</b>
<b>G18</b>	G1/8 thread
<b>G14</b>	G1/4 thread
<b>N18</b>	1/8 NPT thread
<b>N14</b>	1/4 NPT thread

## Ordering – VHEF-P, G thread

006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	-	G1/8	750 l/min	<b>VHEF-PTC-B32-G18</b>	<b>5299707</b>
		G1/4	870 l/min	<b>VHEF-PTC-B32-G14</b>	<b>5299713</b>
	Mechanical	G1/8	750 l/min	<b>VHEF-PTC-M32-M-G18</b>	<b>5299705</b>
		G1/4	870 l/min	<b>VHEF-PTC-M32-M-G14</b>	<b>5299711</b>
	-	G1/8	750 l/min	<b>VHEF-PTCZ-B32-G18</b>	<b>5299708</b>
		G1/4	870 l/min	<b>VHEF-PTCZ-B32-G14</b>	<b>5299714</b>
	Mechanical	G1/8	750 l/min	<b>VHEF-PTCZ-M32-M-G18</b>	<b>5299706</b>
		G1/4	870 l/min	<b>VHEF-PTCZ-M32-M-G14</b>	<b>5299712</b>
5/2-way valve	-	G1/8	750 l/min	<b>VHEF-P-B52-G18</b>	<b>5299710</b>
	Mechanical	G1/4		<b>VHEF-P-M52-M-G18</b>	<b>5299709</b>
	-	G1/8	1200 l/min	<b>VHEF-P-B52-G14</b>	<b>5299716</b>
	Mechanical	G1/4		<b>VHEF-P-M52-M-G14</b>	<b>5299715</b>

Manually actuated directional control valves >

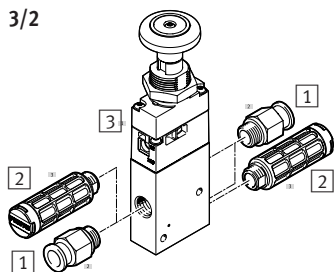
Pushbutton valves VHEF-P

Ordering – VHEF-P, NPT thread

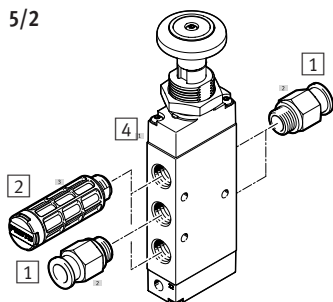
006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	–	1/8 NPT	750 l/min	VHEF-PTC-B32-N18	5299719
		1/4 NPT	870 l/min	VHEF-PTC-B32-N14	5299725
	Mechanical	1/8 NPT	750 l/min	VHEF-PTC-M32-M-N18	5299717
		1/4 NPT	870 l/min	VHEF-PTC-M32-M-N14	5299723
	–	1/8 NPT	750 l/min	VHEF-PTCZ-B32-N18	5299720
		1/4 NPT	870 l/min	VHEF-PTCZ-B32-N14	5299726
	Mechanical	1/8 NPT	750 l/min	VHEF-PTCZ-M32-M-N18	5299718
		1/4 NPT	870 l/min	VHEF-PTCZ-M32-M-N14	5299724
5/2-way valve	–	1/8 NPT	750 l/min	VHEF-P-B52-N18	5299722
	Mechanical	1/8 NPT		VHEF-P-M52-M-N18	5299721
	–	1/4 NPT	1200 l/min	VHEF-P-B52-N14	5299728
	Mechanical	1/4 NPT		VHEF-P-M52-M-N14	5299727

Accessories

3/2



5/2



- 1 Fitting for supply air/exhaust air ports (1, 3, 5) and working ports (2, 4)  
Push-in fittings QS, G thread → 319  
Push-in fittings QB, NPT thread → 192
- 2 Silencer U, for exhaust air ports (3, 5)  
G thread → 343  
NPT thread → 192
- 3 3/2-way valve VHEF-PTC-M32... , VHEF-PTCZ-M32...
- 4 5/2-way valve VHEF-P-M52...



- Precise mechanical system
- Low actuating forces
- Ergonomic and reliable operation
- Practical connection with threaded connection or connecting pieces
- Fast mounting: via retaining bracket or screwed directly via through-hole
- Sturdy metal housing
- Reverse operation possible

## Order code

001 002 003 004 005 006 007 008  
 VHEF - L - - - - - - - -

Legend:  Mandatory entry  Optional entry

001	Type
VHEF	Manually actuated valves
002	Actuation type
L	Finger lever
003	Design principle
-	Piston spool
T	Disc seat
004	Type of control
-	Directly actuated
005	Pilot air
-	Internal

006	Valve function
M32	3/2-way valve, normally closed or open
M52	5/2-way valve, monostable
007	Reset method for monostable valves
E	Pneumatic spring
M	Mechanical spring
008	Pneumatic connection
G18	G1/8 thread
G14	G1/4 thread
N18	1/8 NPT thread
N14	1/4 NPT thread

## Ordering – VHEF-L, G thread

006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	Mechanical spring	G1/8	750 l/min	VHEF-LT-M32-M-G18	4500009
		G1/4	870 l/min	VHEF-LT-M32-M-G14	4500008
5/2-way valve	Mechanical spring	G1/8	750 l/min	VHEF-L-M52-M-G18	4500001
	Pneumatic spring	G1/8	750 l/min	VHEF-L-M52-E-G18	4500005
	Mechanical spring	G1/4	1200 l/min	VHEF-L-M52-M-G14	4500000
	Pneumatic spring	G1/4	1200 l/min	VHEF-L-M52-E-G14	4500004

## Ordering – VHEF-L, NPT thread

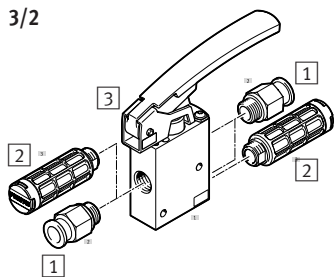
006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	Mechanical spring	1/8 NPT	750 l/min	VHEF-LT-M32-M-N18	4500011
		1/4 NPT	870 l/min	VHEF-LT-M32-M-N14	4500010
5/2-way valve	Mechanical spring	1/8 NPT	750 l/min	VHEF-L-M52-M-N18	4500003
	Pneumatic spring	1/8 NPT	750 l/min	VHEF-L-M52-E-N18	4500007
	Mechanical spring	1/4 NPT	1200 l/min	VHEF-L-M52-M-N14	4500002
	Pneumatic spring	1/4 NPT	1200 l/min	VHEF-L-M52-E-N14	4500006

Manually actuated directional control valves >

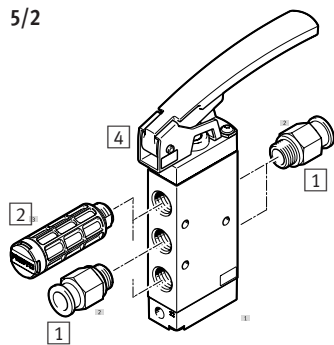
Finger lever valves VHEF-L

Accessories

3/2



5/2



- 1 Fitting for supply air/exhaust air ports (1, 3, 5) and working ports (2, 4)  
Push-in fittings QS, G thread → 319  
Push-in fittings QB, NPT thread → 192
- 2 Silencer U, for exhaust air ports (3, 5)  
G thread → 343  
NPT thread → 192
- 3 3/2-way valve VHEF-LT-M32...
- 4 5/2-way valve VHEF-L-M52...





- Precise mechanical system
- Low actuating forces
- Ergonomic and reliable operation
- Practical connection with threaded connection or connecting pieces
- Fast mounting: via retaining bracket or screwed directly via through-hole
- Sturdy metal housing
- Reverse operation possible

## Order code

001 002 003 004 005 006 007 008  
 VHEF - ES

Legend:  Mandatory entry  Optional entry

001	Type
VHEF	Manually actuated valves
002	Actuation type
ES	Selector switch, on the side
003	Design principle
-	Piston spool
T	Disc seat
004	Type of control
-	Directly actuated
005	Pilot air
-	Internal

006	Valve function
B32	3/2-way valve, bistable
B52	5/2-way valve, bistable
M32	3/2-way valve, normally closed or open
M52	5/2-way valve, monostable
B53C	5/3-way valve, detenting, mid position closed
B53E	5/3-way valve, detenting, mid-position exhausted
P53C	5/3-way valve, mid-position closed
P53E	5/3-way valve, mid-position exhausted
007	Reset method for monostable valves
-	Without (for double pilot valves)
M	Mechanical spring
008	Pneumatic connection
G18	G1/8 thread
G14	G1/4 thread
N18	1/8 NPT thread
N14	1/4 NPT thread

## Ordering – VHEF-ES, G thread

006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	-	G1/8	750 l/min	VHEF-EST-B32-G18	4106814
		G1/4	870 l/min	VHEF-EST-B32-G14	4106815
	Mechanical spring	G1/8	750 l/min	VHEF-EST-M32-M-G18	4106806
		G1/4	870 l/min	VHEF-EST-M32-M-G14	4106807
5/2-way valve	Mechanical spring	G1/8	750 l/min	VHEF-ES-M52-M-G18	4106808
		G1/4	1200 l/min	VHEF-ES-M52-M-G14	4106809
	-	G1/8	750 l/min	VHEF-ES-B52-G18	4106816
		G1/4	1200 l/min	VHEF-ES-B52-G14	4106817
5/3-way valve	-	G1/8	700 l/min	VHEF-ES-B53C-G18	4106818
		G1/4	1200 l/min	VHEF-ES-B53C-G14	4106819
		G1/8	530 l/min	VHEF-ES-B53E-G18	4106820
		G1/4	900 l/min	VHEF-ES-B53E-G14	4106821
	Mechanical spring	G1/8	700 l/min	VHEF-ES-P53C-M-G18	4106810
		G1/4	1200 l/min	VHEF-ES-P53C-M-G14	4106811
		G1/8	530 l/min	VHEF-ES-P53E-M-G18	4106812
		G1/4	900 l/min	VHEF-ES-P53E-M-G14	4106813

Manually actuated directional control valves >

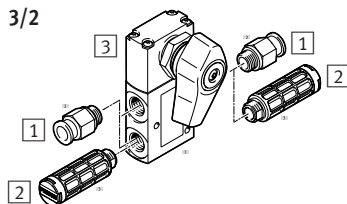
Selector valves VHEF-ES

Ordering – VHEF-ES, NPT thread

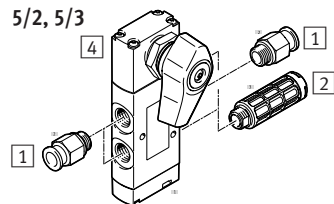
006 Valve function	007 Reset method	008 Pneumatic connection	Standard nominal flow rate	Type	Part no.
3/2-way valve	–	1/8 NPT	750 l/min	VHEF-EST-B32-N18	4414814
		1/4 NPT	870 l/min	VHEF-EST-B32-N14	4414815
	Mechanical spring	1/8 NPT	750 l/min	VHEF-EST-M32-M-N18	4414806
		1/4 NPT	870 l/min	VHEF-EST-M32-M-N14	4414807
5/2-way valve	Mechanical spring	1/8 NPT	750 l/min	VHEF-ES-M52-M-N18	4414808
		1/4 NPT	1200 l/min	VHEF-ES-M52-M-N14	4414809
	–	1/8 NPT	750 l/min	VHEF-ES-B52-N18	4414816
		1/4 NPT	1200 l/min	VHEF-ES-B52-N14	4414817
5/3-way valve	–	1/8 NPT	700 l/min	VHEF-ES-B53C-N18	4414818
		1/4 NPT	1200 l/min	VHEF-ES-B53C-N14	4414819
		1/8 NPT	530 l/min	VHEF-ES-B53E-N18	4414820
		1/4 NPT	900 l/min	VHEF-ES-B53E-N14	4414821
	Mechanical spring	1/8 NPT	700 l/min	VHEF-ES-P53C-M-N18	4414810
		1/4 NPT	1200 l/min	VHEF-ES-P53C-M-N14	4414811
		1/8 NPT	530 l/min	VHEF-ES-P53E-M-N18	4414812
		1/4 NPT	900 l/min	VHEF-ES-P53E-M-N14	4414813

Accessories

3/2



5/2, 5/3



- 1 Fitting for supply air/exhaust air ports (1, 3, 5) and working ports (2, 4)  
Push-in fittings QS, G thread → 319  
Push-in fittings QB, NPT thread → 192
- 2 Silencer U, for exhaust air ports (3, 5)  
G thread → 343  
NPT thread → 192
- 3 3/2-way valve VHEF-EST...32...
- 4 5/2- or 5/3-way valve VHEF-ES...52..., VHEF-ES...53...



- Precise mechanical system
- Low actuating forces
- Ergonomic and reliable operation
- To be mounted via through-holes
- Stem actuated valves are also suitable for front panel mounting
- Sturdy thanks to metal housing and connecting thread or connecting pieces
- Reverse operation possible in some cases

## Order code

001 002 003 004 005 006 007 008  
**VMEF** - **S** - - - - - - - -

Legend:  Mandatory entry  Optional entry

001	Type
VMEF	Mechanically actuated valves
002	Actuation type
S	Plunger
003	Design principle
-	Piston spool
T	Poppet valve
004	Type of control
-	Directly actuated
C	Indirectly actuated (piloted)

005	Pilot air
-	Internal
Z	External
006	Valve function
M32	3/2-way valve, normally closed or open
M52	5/2-way valve, monostable
007	Reset method for monostable valves
E	Pneumatic spring, external
M	Mechanical spring
008	Pneumatic connection
G18	G1/8 thread
G14	G1/4 thread
N18	1/8 NPT thread
N14	1/4 NPT thread

## Ordering – VMEF-S, G thread

006 Valve function	004 Type of control	005 Pilot air	007 Reset method	008 Connection	Standard nominal flow rate	Type	Part no.
3/2-way valves	Direct	-	Mechanical	G1/8	750 l/min	VMEF-ST-M32-M-G18	8031295
				G1/4	870 l/min	VMEF-ST-M32-M-G14	8031300
	Piloted	Internal	Mechanical	G1/8	750 l/min	VMEF-STC-M32-M-G18	8031331
				G1/4	870 l/min	VMEF-STC-M32-M-G14	8031332
		External	Mechanical	G1/8	750 l/min	VMEF-STCZ-M32-M-G18	8031335
				G1/4	870 l/min	VMEF-STCZ-M32-M-G14	8031336
5/2-way valves	Direct	-	Mechanical	G1/8	750 l/min	VMEF-S-M52-M-G18	8031297
				Pneumatic	G1/8	750 l/min	VMEF-S-M52-E-G18
			Mechanical	G1/4	1200 l/min	VMEF-S-M52-M-G14	8031302
				Pneumatic	G1/4	1200 l/min	VMEF-S-M52-E-G14
	Piloted	Internal	Mechanical	G1/4	1200 l/min	VMEF-SC-M52-M-G14 <sup>1)</sup>	8031319
				G1/8	750 l/min	VMEF-SC-M52-M-G18 <sup>1)</sup>	8031320
		External	Pneumatic	G1/4	1200 l/min	VMEF-SCZ-M52-E-G14	8031323
				G1/8	750 l/min	VMEF-SCZ-M52-E-G18	8031324
			Mechanical	G1/4	1200 l/min	VMEF-SCZ-M52-M-G14	8031327
				G1/8	750 l/min	VMEF-SCZ-M52-M-G18	8031328

1) Non-reversible

Mechanically actuated directional control valves >

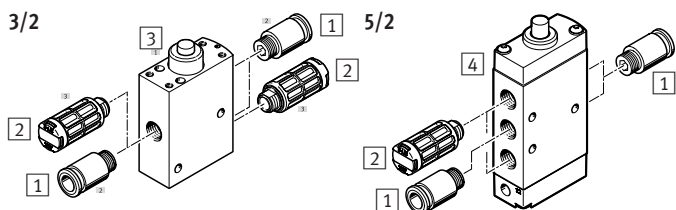
Stem actuated valves VMEF-S

Ordering – VMEF-S, NPT thread

006 Valve function	004 Type of control	005 Pilot air	007 Reset method	008 Connection	Standard nominal flow rate	Type	Part no.
3/2-way valves	Direct	–	Mechanical	1/8 NPT	750 l/min	VMEF-ST-M32-M-N18	8031305
				1/4 NPT	870 l/min	VMEF-ST-M32-M-N14	8031310
	Piloted	Internal	Mechanical	1/8 NPT	750 l/min	VMEF-STC-M32-M-N18	8031333
				1/4 NPT	870 l/min	VMEF-STC-M32-M-N14	8031334
		External	Mechanical	1/8 NPT	750 l/min	VMEF-STCZ-M32-M-N18	8031337
				1/4 NPT	870 l/min	VMEF-STCZ-M32-M-N14	8031338
5/2-way valves	Direct	–	Mechanical	1/8 NPT	750 l/min	VMEF-S-M52-M-N18	8031307
			Pneumatic	1/8 NPT	750 l/min	VMEF-S-M52-E-N18	8031309
			Mechanical	1/4 NPT	1200 l/min	VMEF-S-M52-M-N14	8031312
			Pneumatic	1/4 NPT	1200 l/min	VMEF-S-M52-E-N14	8031314
	Piloted	Internal	Mechanical	1/4 NPT	1200 l/min	VMEF-SC-M52-M-N14 <sup>1)</sup>	8031321
				1/8 NPT	750 l/min	VMEF-SC-M52-M-N18 <sup>1)</sup>	8031322
		External	Pneumatic	1/4 NPT	1200 l/min	VMEF-SCZ-M52-E-N14	8031325
				1/8 NPT	750 l/min	VMEF-SCZ-M52-E-N18	8031326
			Mechanical	1/4 NPT	1200 l/min	VMEF-SCZ-M52-M-N14	8031329
				1/8 NPT	750 l/min	VMEF-SCZ-M52-M-N18	8031330

1) Non-reversible

Accessories



- 1 Fitting for supply air/exhaust air ports (1, 3, 5) and working ports (2, 4)  
Push-in fittings QS, G thread → 319  
Push-in fittings QB, NPT thread → 192
- 2 Silencer U, for exhaust air ports (3, 5)  
G thread → 343  
NPT thread → 192
- 3 3/2-way valve
- 4 5/2-way valve



- Precise mechanical system
- Low actuating forces
- Ergonomic and reliable operation
- To be mounted via through-holes
- Sturdy thanks to metal housing and connecting thread or connecting pieces
- Reverse operation possible

## Order code

001 002 003 004 005 006 007 008  
 VMEF - R - - - - - - -

Legend:  Mandatory entry  Optional entry

001	Type
VMEF	Mechanically actuated valves
002	Actuation type
R	Roller lever
003	Design principle
-	Piston spool
T	Disc seat
004	Type of control
-	Directly actuated
005	Pilot air
-	Internal

006	Valve function
M32	3/2-way valve, normally closed or open
M52	5/2-way valve, monostable
007	Reset method for monostable valves
E	Pneumatic spring, external
M	Mechanical spring
008	Pneumatic connection
G18	G1/8 thread
G14	G1/4 thread
N18	1/8 NPT thread
N14	1/4 NPT thread

## Order – VMEF-R, G thread

006 Valve function	004 Type of control	005 Pilot air	007 Reset method	008 Connection	Standard nominal flow rate	Type	Part no.
3/2-way valves	Direct	Internal	Mechanical	G1/8	750 l/min	VMEF-RT-M32-M-G18	8049239
				G1/4	870 l/min	VMEF-RT-M32-M-G14	8047095
5/2-way valves	Direct	Internal	Pneumatic	G1/8	750 l/min	VMEF-R-M52-E-G18	8047092
			Mechanical	G1/8	750 l/min	VMEF-R-M52-M-G18	8049238
			Pneumatic	G1/4	1200 l/min	VMEF-R-M52-E-G14	8047093
			Mechanical	G1/4	1200 l/min	VMEF-R-M52-M-G14	8047094

## Ordering – VMEF-R, NPT thread

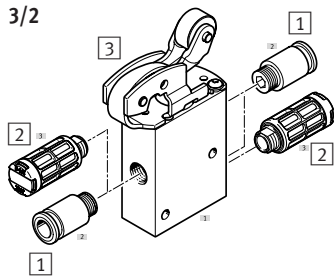
006 Valve function	004 Type of control	005 Pilot air	007 Reset method	008 Connection	Standard nominal flow rate	Type	Part no.
3/2-way valves	Direct	Internal	Mechanical	1/8 NPT	750 l/min	VMEF-RT-M32-M-N18	8047098
				1/4 NPT	870 l/min	VMEF-RT-M32-M-N14	8047101
5/2-way valves	Direct	Internal	Pneumatic	1/8 NPT	750 l/min	VMEF-R-M52-E-N18	8047096
			Mechanical	1/8 NPT	750 l/min	VMEF-R-M52-M-N18	8047097
			Pneumatic	1/4 NPT	1200 l/min	VMEF-R-M52-E-N14	8047099
			Mechanical	1/4 NPT	1200 l/min	VMEF-R-M52-M-N14	8047100

Mechanically actuated directional control valves >

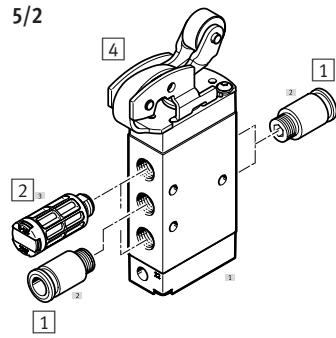
Roller lever valves VMEF-R

Accessories

3/2



5/2



- 1 Fitting for supply air/exhaust air ports (1, 3, 5) and working ports (2, 4)  
Push-in fittings QS, G thread → 319  
Push-in fittings QB, NPT thread → 192
- 2 Silencer U, for exhaust air ports (3, 5)  
G thread → 343  
NPT thread → 192
- 3 3/2-way valve
- 4 5/2-way valve



- Precise mechanical system
- Low actuating forces
- Ergonomic and reliable operation
- To be mounted via through-holes
- Sturdy thanks to metal housing and connecting thread or connecting pieces
- Reverse operation possible

## Order code

001 002 003 004 005 006 007 008  
 VMEF - K - - - - M - -

Legend:  Mandatory entry  Optional entry

001	Type
VMEF	Mechanically actuated valves
002	Actuation type
K	Roller lever
003	Design principle
-	Piston spool
T	Disc seat
004	Type of control
-	Directly actuated
005	Pilot air
-	Internal

006	Valve function
M32	3/2-way valve, normally closed or open
M52	5/2-way valve, monostable
007	Reset method for monostable valves
M	Mechanical spring
008	Pneumatic connection
G18	G1/8 thread
G14	G1/4 thread
N18	1/8 NPT thread
N14	1/4 NPT thread

## Ordering – VMEF-K, G thread

006 Valve function	004 Type of control	005 Pilot air	007 Reset method	008 Connection	Standard nominal flow rate	Type	Part no.
3/2-way valves	Direct	Internal	Mechanical	G1/8	750 l/min	VMEF-KT-M32-M-G18	8049241
				G1/4	870 l/min	VMEF-KT-M32-M-G14	8047103
5/2-way valves	Direct	Internal	Mechanical	G1/8	750 l/min	VMEF-K-M52-M-G18	8049240
				G1/4	1200 l/min	VMEF-K-M52-M-G14	8047102

## Ordering – VMEF-K, NPT thread

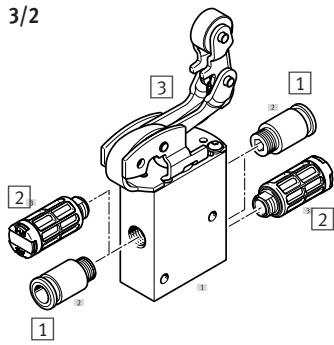
006 Valve function	004 Type of control	005 Pilot air	007 Reset method	008 Connection	Standard nominal flow rate	Type	Part no.
3/2-way valves	Direct	Internal	Mechanical	1/8 NPT	750 l/min	VMEF-KT-M32-M-N18	8047105
				1/4 NPT	870 l/min	VMEF-KT-M32-M-N14	8047107
5/2-way valves	Direct	Internal	Mechanical	1/8 NPT	750 l/min	VMEF-K-M52-M-N18	8047104
				1/4 NPT	1200 l/min	VMEF-K-M52-M-N14	8047106

Mechanically actuated directional control valves >

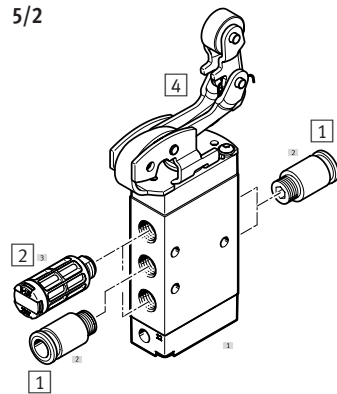
Roller lever valves VMEF-K

Accessories

3/2

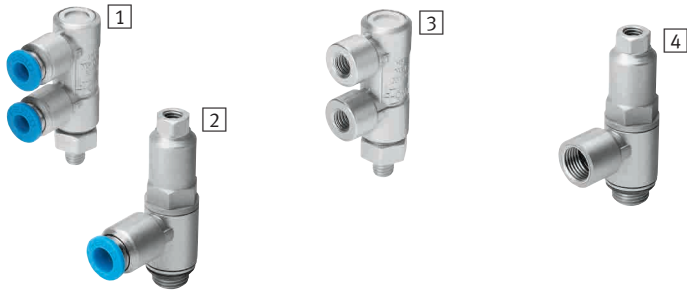


5/2



- 1 Fitting for supply air/exhaust air ports (1, 3, 5) and working ports (2, 4)  
Push-in fittings QS, G thread → 319  
Push-in fittings QB, NPT thread → 192
- 2 Silencer U, for exhaust air ports (3, 5)  
G thread → 343  
NPT thread → 192
- 3 3/2-way valve
- 4 5/2-way valve





- Controlled, piloted non-return function
- Manual exhausting
- Can be rotated when installed
- Push-in connector  
Flow rate 130 ... 1400 l/min
- Female thread  
Flow rate 130 ... 1600 l/min

- 1 HGL-M5-QS-4
- 2 HGL-...-QS
- 3 HGL-M5-B
- 4 HGL-...-B

## Order code

001 002 003 004  
HGL -      

Legend:   Mandatory entry   Optional entry

001	Type
HGL	Check valve, piloted
002	Pneumatic connection 2
M5	Male thread M5
1/8	Male thread G1/8
1/4	Male thread G1/4
3/8	Male thread G3/8
1/2	Male thread G1/2
003	Pneumatic connection 1
-	Connection size as for connection 2, female thread
QS-4	Push-in connector for tubing O.D. 4 mm
QS-6	Push-in connector for tubing O.D. 6 mm
QS-8	Push-in connector for tubing O.D. 8 mm
QS-10	Push-in connector for tubing O.D. 10 mm
QS-12	Push-in connector for tubing O.D. 12 mm

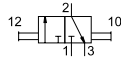
004	Generation
-	None
B	Optimised function

## Ordering

	002 Pneumatic connection 2	003 Pneumatic connection 1	Pilot air connection 21	Standard nominal flow rate qnN in flow direction at 6 bar → 5 bar [l/min]	Standard flow rate qn in flow direction at 6 bar → 0 bar [l/min]	Type	Part no.
<b>Threaded/push-in connector</b>							
<span style="border: 1px solid black; padding: 0 2px;">1</span>	M5	QS-4	QS-4	130	200	HGL-M5-QS-4	530038
<span style="border: 1px solid black; padding: 0 2px;">2</span>	G1/8	QS-4	M5	200	300	HGL-1/8-QS-6	530039
	G1/8	QS-6	M5	270	400	HGL-1/8-QS-6	530040
	G1/4	QS-8	G1/8	390	640	HGL-1/4-QS-8	530041
	G1/4	QS-10	G1/8	400	670	HGL-1/4-QS-10	530042
	G3/8	QS-8	G1/4	830	1200	HGL-3/8-QS-8	530043
	G3/8	QS-10	G1/4	890	1300	HGL-3/8-QS-10	530044
	G1/2	QS-12	G3/8	1400	2100	HGL-1/2-QS-12	530045
<b>Threaded connection at both ends</b>							
<span style="border: 1px solid black; padding: 0 2px;">3</span>	M5	M5	M5	130	200	HGL-M5-B	530029
<span style="border: 1px solid black; padding: 0 2px;">4</span>	G1/8	G1/8	M5	300	430	HGL-1/8-B	530030
	G1/4	G1/4	G1/8	550	680	HGL-1/4-B	530031
	G3/8	G3/8	G1/4	1100	1500	HGL-3/8-B	530032
	G1/2	G1/2	G3/8	1600	2100	HGL-1/2-B	530033

Shut-off valves > Shut-off valves and ball valves >

## Hand slide valves VBOH



- Can be used as a shut-off function for pressurising and exhausting compressed air systems, e.g. upstream of service unit combinations, for air guns or for exhausting pneumatic cylinders
- Non-overlapping, so no pressure losses when switching
- Minimal installation effort
- Standard nominal flow rate 236 ... 7691 l/min
- Operating pressure -0.95 ... +12 bar
- Exclusive design

### Order code

001 002 003 004  
**VBOH** - **32** -  -

Legend:  Mandatory entry  Optional entry

001	Type
VBOH	Hand slide valve

002	Valve function
32	3/2-way valve, bistable

003	Pneumatic connection 1
M5	Female thread M5
G18	Female thread G1/8
G14	Female thread G1/4
G38	Female thread G3/8
G12	Female thread G1/2
G34	Female thread G3/4

004	Pneumatic connection 2
-	Same size as pneumatic connection 1

### Ordering

003 Pneumatic connection 1	004 Pneumatic connection 2	Nominal width [mm]	Standard nominal flow rate qnN [l/min]	Type	Part no.
M5	M5	3.6	236	VBOH-32-M5	1609969
G1/8	G1/8	5.7	777	VBOH-32-G18	1558073
G1/4	G1/4	8.4	1675	VBOH-32-G14	1302994
G3/8	G3/8	9.9	2201	VBOH-32-G38	1482679
G1/2	G1/2	12.1	3420	VBOH-32-G12	1587988
G3/4	G3/4	19.3	7691	VBOH-32-G34	1629664



- Fast, controllable non-return function
- Prevents pneumatic drives from dropping down in the event of a loss of compressed air
- With hand lever
- Pipe thread to ISO 228-1

## Order code

001 002 003  
QH -

Legend:  Mandatory entry  Optional entry

001	Type
QH	Ball valve

003	Pneumatic connection 2
-	Same size as pneumatic connection 1

002	Pneumatic connection 1
1/4	Female thread G1/4
3/8	Female thread G3/8
1/2	Female thread G1/2
3/4	Female thread G3/4
1	Female thread G1
1 1/2	Female thread G1 1/2

## Ordering – Basic design

002 Pneumatic connection 1	003 Pneumatic connection 2	Nominal width [mm]	Standard nominal flow rate q <sub>N</sub> [l/min]	Type	Part no.
G1/4	G1/4	10	3400	QH-1/4	9541
G3/8	G3/8	10	7500	QH-3/8	9542
G1/2	G1/2	15	11500	QH-1/2	9543
G3/4	G3/4	20	21000	QH-3/4	9544
G1	G1	25	33000	QH-1	9545
G1 1/2	G1 1/2	40	84000	QH-1 1/2	6837

Flow control valves >

## One-way flow control valves GRLA, GRLZ



1



2

- Sturdy metal design
- Can be swivelled 360° around the screw-in axis after mounting
- Push-in connector
- Flow rate 100 ... 1580 l/min

- 1 GRLA-QS-D/GRLZ-QS-D: with slotted head screw
- 2 GRLA-QS-RS-D: with knurled screw

### Order code – Basic design

001 002 003 004 005 006 007  
 -  -  -  -  -  -

Legend:  Mandatory entry  Optional entry

001	Type
GRLA	One-way flow control valve for exhaust air, elbow outlet
GRLZ	One-way flow control valve for supply air, elbow outlet
002	Pneumatic connection 2
M5	Male thread M5
1/8	Male thread G1/8
1/4	Male thread G1/4
3/8	Male thread G3/8
1/2	Male thread G1/2
003	Pneumatic connection 1, connection type
QS	Push-in connector

004	Pneumatic connection 1, tubing O.D. [mm]
...	3, 4, 6, 8, 10, 12
005	Adjusting element
-	Slotted head screw
RS	Knurled screw
006	Flow rate characteristic
-	None
MF	Medium flow
007	Generation
D	D series

### Product options

One-way flow control valves  
 GRLSA Elbow outlet, with rotary knob  
 GR Straight design  
 CRGRLA Corrosion-resistant

Pneumatic connection  
 M3 Male thread M3  
 QS-3 Push-in connector 3 mm

Flow rate characteristic  
 LF Low flow

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/grla](http://www.festo.com/catalogue/grla)

## Ordering – Basic design

Pneumatic connection		Standard nominal flow rate qnN at 6 bar → 5 bar		Standard flow rate qn at 6 bar → 0 bar		Type	Part no.
		In flow control direction	In non-return direction	In flow control direction	In non-return direction		
002	003/004	[l/min]	[l/min]	[l/min]	[l/min]		
<b>001 GRLA: for exhaust air, 005 With slotted head screw</b>							
M5	QS-3	100	60 ... 100	145	150 ... 170	GRLA-M5-QS-3-D	193137
	QS-4	110	65 ... 110	165	140 ... 160	GRLA-M5-QS-4-D	193138
	QS-6	115	70 ... 110	185	145 ... 170	GRLA-M5-QS-6-D	193139
G1/8	QS-3	130	100 ... 130	180	200 ... 220	GRLA-1/8-QS-3-D	193142
	QS-4	160	120 ... 190	250	270 ... 300	GRLA-1/8-QS-4-D	193143
	QS-6	185	160 ... 240	370	330 ... 390	GRLA-1/8-QS-6-D	193144
	QS-8	215	175 ... 250	400	330 ... 410	GRLA-1/8-QS-8-D	193145
G1/4	QS-6	400	290 ... 420	600	570 ... 680	GRLA-1/4-QS-6-D	193146
	QS-8	475	325 ... 500	720	610 ... 760	GRLA-1/4-QS-8-D	193147
	QS-10	480	345 ... 500	760	630 ... 790	GRLA-1/4-QS-10-D	193148
G3/8	QS-6	495	320 ... 495	740	840 ... 890	GRLA-3/8-QS-6-D	193149
	QS-8	820	450 ... 850	1300	1080 ... 1420	GRLA-3/8-QS-8-D	193150
	QS-10	900	540 ... 975	1400	1160 ... 1620	GRLA-3/8-QS-10-D	193151
G1/2	QS-12	1580	925 ... 1605	2220	1910 ... 2500	GRLA-1/2-QS-12-D	193152
<b>001 GRLA: for exhaust air, 005 With slotted head screw, 006 Mid flow</b>							
G1/8	QS-6	400	290 ... 420	600	570 ... 680	GRLA-1/8-QS-6-MF-D	537075
	QS-8	475	325 ... 500	720	610 ... 760	GRLA-1/8-QS-8-MF-D	537076
<b>001 GRLA-RS: for exhaust air, 005 With knurled screw</b>							
M5	QS-3	100	60 ... 100	145	150 ... 170	GRLA-M5-QS-3-RS-D	197576
	QS-4	110	65 ... 110	165	140 ... 160	GRLA-M5-QS-4-RS-D	197577
	QS-6	115	70 ... 110	185	145 ... 170	GRLA-M5-QS-6-RS-D	197578
G1/8	QS-3	130	100 ... 130	180	200 ... 220	GRLA-1/8-QS-3-RS-D	197579
	QS-4	160	120 ... 190	250	270 ... 300	GRLA-1/8-QS-4-RS-D	197580
	QS-6	185	160 ... 240	370	330 ... 390	GRLA-1/8-QS-6-RS-D	197581
	QS-8	215	175 ... 250	400	330 ... 410	GRLA-1/8-QS-8-RS-D	534337
G1/4	QS-6	400	290 ... 420	600	570 ... 680	GRLA-1/4-QS-6-RS-D	534338
	QS-8	475	325 ... 500	720	610 ... 760	GRLA-1/4-QS-8-RS-D	534339
	QS-10	480	345 ... 500	760	630 ... 790	GRLA-1/4-QS-10-RS-D	534340
G3/8	QS-6	495	320 ... 495	740	840 ... 890	GRLA-3/8-QS-6-RS-D	534341
	QS-8	820	450 ... 850	1300	1080 ... 1420	GRLA-3/8-QS-8-RS-D	534342
	QS-10	900	540 ... 975	1400	1160 ... 1620	GRLA-3/8-QS-10-RS-D	534343
G1/2	QS-12	1580	925 ... 1605	2220	1910 ... 2500	GRLA-1/2-QS-12-RS-D	534344

Pneumatic connection		Standard nominal flow rate qnN at 6 bar → 5 bar		Standard flow rate qn at 6 bar → 0 bar		Type	Part no.
		In flow control direction	In non-return direction	In flow control direction	In non-return direction		
002	003/004	[l/min]	[l/min]	[l/min]	[l/min]		
<b>001 GRLZ: for supply air, 005 With slotted head screw</b>							
M5	QS-3	100	60 ... 100	135	130 ... 160	GRLZ-M5-QS-3-D	193153
	QS-4	110	65 ... 110	160	150 ... 180	GRLZ-M5-QS-4-D	193154
	QS-6	115	70 ... 110	170	160 ... 200	GRLZ-M5-QS-6-D	193155
G1/8	QS-3	130	100 ... 130	200	180 ... 200	GRLZ-1/8-QS-3-D	193156
	QS-4	160	120 ... 190	300	260 ... 290	GRLZ-1/8-QS-4-D	193157
	QS-6	185	160 ... 240	340	390 ... 460	GRLZ-1/8-QS-6-D	193158
	QS-8	215	175 ... 250	370	390 ... 470	GRLZ-1/8-QS-8-D	193159

Flow control valves >

## One-way flow control valves VFOE



VFOE-LE



VFOE-LS

- Polymer design
- Exhaust air/supply air one-way flow control function
- Metric thread, G thread to ISO 228-1 or R thread to EN 10226-1 and ISO 7/1
- Flow rates 85 ... 800 l/min
- Operating pressure 0.02 ... 1 MPa

### Order code – Basic design

001 002 003 004 005 006 007  
 VFOE - L - T - - - -

Legend:  Mandatory entry  Optional entry

001	Type
VFOE	One-way flow control valve
002	Design
L	L-shape
003	Function
E	Exhaust air one-way flow control function
S	Supply air one-way flow control function
004	Adjusting element
T	Rotary knob with detent

005	Pneumatic connection 2
M5	M5
M7	M7
G18	G1/8
G14	G1/4
G38	G3/8
G12	G1/2
R18	R1/8
R14	R1/4
R38	R3/8
006	Pneumatic connection 1
Q4	Push-in connector 4 mm
Q6	Push-in connector 6 mm
Q8	Push-in connector 8 mm
Q10	Push-in connector 10 mm
007	Package unit
-	Standard

### Product options

Package unit

P20 20 pieces per pack

P50 50 pieces per pack

Configurable product

This product and all its product options can be ordered online via the configurator:

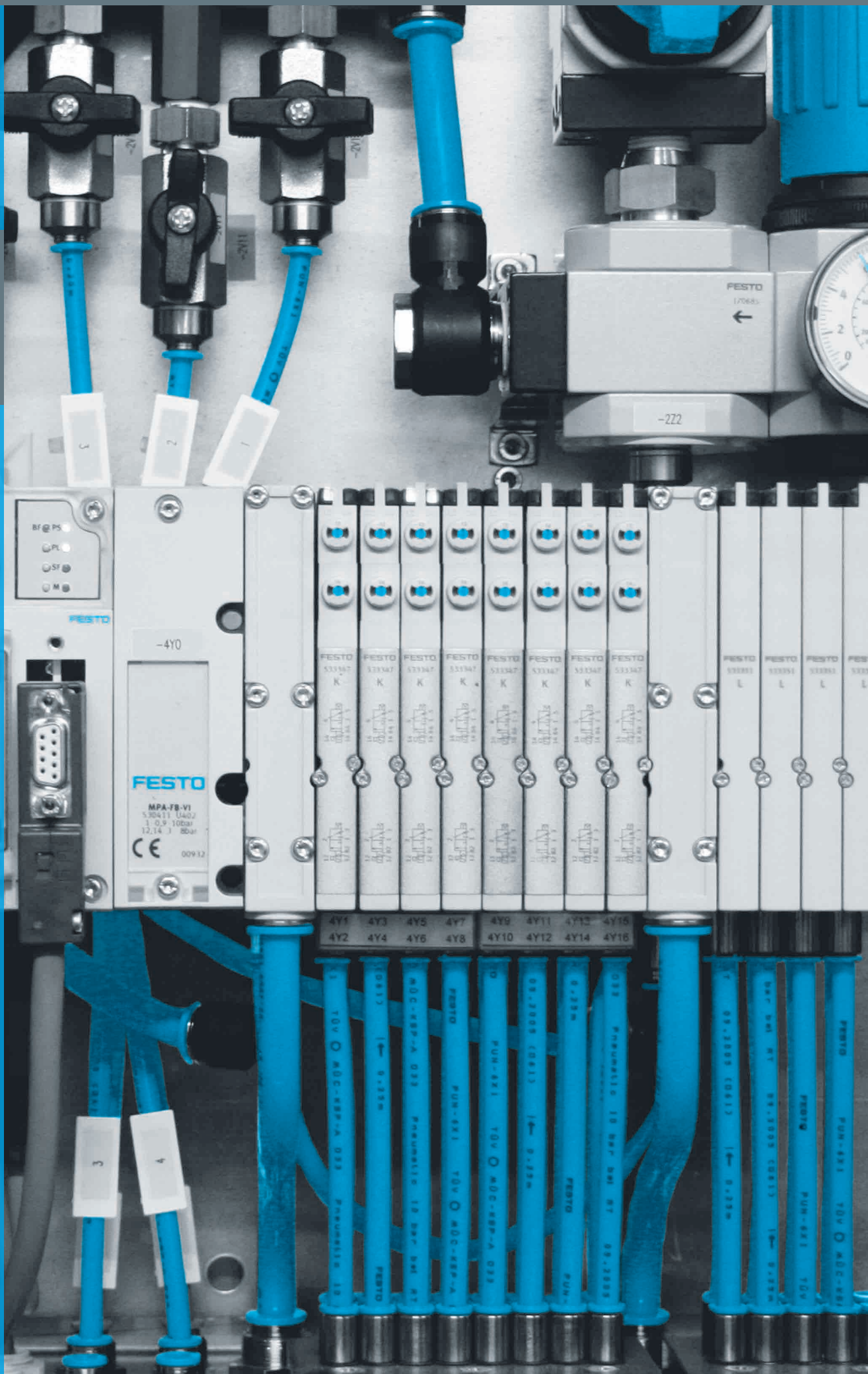
→ [www.festo.com/catalogue/vfoe](http://www.festo.com/catalogue/vfoe)

## Ordering – Basic design

Pneumatic connection		Standard nominal flow rate q <sub>nN</sub> at 0.6 MPa → 0.5 MPa		Standard flow rate q <sub>n</sub> at 0.6 MPa → 0 MPa		Type	Part no.
		In flow control direction	In non-return direction	In flow control direction	In non-return direction		
005	006	[l/min]	[l/min]	[l/min]	[l/min]		
<b>002/003 VFOE-LE: L-shape, exhaust air one-way flow control function</b>							
M5	QS-4	90	50 ... 90	150	130 ... 160	VFOE-LE-T-M5-Q4	8068723
	QS-6	105	60 ... 105	160	150 ... 180	VFOE-LE-T-M5-Q6	8068724
G1/8	QS-4	150	90 ... 150	250	240 ... 300	VFOE-LE-T-G18-Q4	8068725
	QS-6	165	110 ... 500	280	300 ... 360	VFOE-LE-T-G18-Q6	8068726
	QS-8	170	130 ... 200	320	320 ... 390	VFOE-LE-T-G18-Q8	8068727
G1/4	QS-6	400	350 ... 450	610	700 ... 800	VFOE-LE-T-G14-Q6	8068728
	QS-8	500	370 ... 500	810	750 ... 900	VFOE-LE-T-G14-Q8	8068729
	QS-10	500	370 ... 500	810	750 ... 900	VFOE-LE-T-G14-Q10	8068730
G3/8	QS-8	700	600 ... 900	1150	1300 ... 1500	VFOE-LE-T-G38-Q8	8068731
	QS-10	800	700 ... 1000	1280	1400 ... 1600	VFOE-LE-T-G38-Q10	8068732
R1/8	QS-4	150	90 ... 150	250	240 ... 300	VFOE-LE-T-R18-Q4	8068734
	QS-6	165	110 ... 200	280	300 ... 360	VFOE-LE-T-R18-Q6	8068735
	QS-8	170	130 ... 200	320	320 ... 390	VFOE-LE-T-R18-Q8	8068736
R1/4	QS-6	400	350 ... 450	610	700 ... 800	VFOE-LE-T-R14-Q6	8068737
	QS-8	500	370 ... 500	810	750 ... 900	VFOE-LE-T-R14-Q8	8068738
	QS-10	500	370 ... 500	810	750 ... 900	VFOE-LE-T-R14-Q10	8068739
R3/8	QS-8	720	600 ... 900	1150	1300 ... 1500	VFOE-LE-T-R38-Q8	8068740
	QS-10	750	700 ... 1000	1280	1400 ... 1600	VFOE-LE-T-R38-Q10	8068741
<b>002/003 VFOE-LS: L-shape, supply air one-way flow control function</b>							
M5	QS-4	85	50 ... 90	135	130 ... 160	VFOE-LS-T-M5-Q4	8068743
	QS-6	100	60 ... 100	165	150 ... 180	VFOE-LS-T-M5-Q6	8068744
M7	QS-4	85	50 ... 90	135	130 ... 160	VFOE-LS-T-M7-Q4	8068745
	QS-6	100	60 ... 100	165	150 ... 180	VFOE-LS-T-M7-Q6	8068746
G1/8	QS-4	165	90 ... 165	260	240 ... 300	VFOE-LS-T-G18-Q4	8068747
	QS-6	170	110 ... 200	270	300 ... 360	VFOE-LS-T-G18-Q6	8068748
	QS-8	170	130 ... 200	270	320 ... 390	VFOE-LS-T-G18-Q8	8068749
R1/8	QS-4	165	90 ... 165	260	240 ... 300	VFOE-LS-T-R18-Q4	8068750
	QS-6	170	110 ... 200	270	300 ... 360	VFOE-LS-T-R18-Q6	8068751
	QS-8	170	130 ... 200	270	320 ... 390	VFOE-LS-T-R18-Q8	8068752

# 08

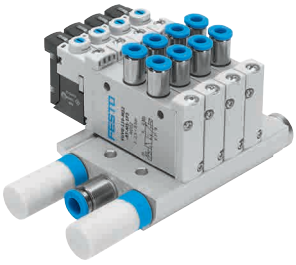
## Valve terminals





# Highlights

# Contents

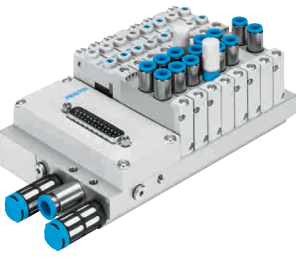


Valve manifolds with individual electrical connection

**VTUG-S**

- + Compact universal series
- + High flow rate

→ 226




Valve terminals with multi-pin plug or fieldbus connection

**VTUG**

- + Energy-efficient thanks to reverse operation and targeted pressure reduction
- + Especially suitable for control cabinet installation

→ 228



Valve terminals

**MPA-S**

- + Extremely flexible
- + Open to PROFIBUS-DP, INTERBUS, CANopen, DeviceNet, CC-LINK

→ 232

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Valve terminals VTSA \_\_\_\_\_ 222

Valve manifolds VTUG-S with individual electrical connection \_\_\_\_\_ 226

Valve terminals VTUG with multi-pin or fieldbus connection \_\_\_\_\_ 228

Valve manifolds VTUS \_\_\_\_\_ 230

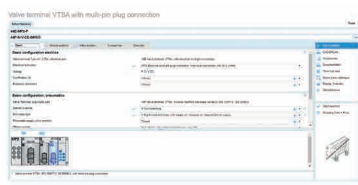
Valve terminals MPA-S with CPX terminal \_\_\_\_\_ 232

Automation system CPX-AP-I \_\_\_\_\_ 234

Product overview

Software-Tools

Configurator for valve terminals

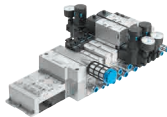


Design a product with numerous features reliably and quickly with the help of the configurator.

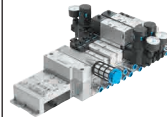
Select all the required product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection. A dynamic graphic generated on the basis of the configuration provides visual assistance when selecting the correct product features.

- You can find the configurator for the product you want
1. at [www.festo.com/catalogue/valve-terminal](http://www.festo.com/catalogue/valve-terminal)
  2. by selecting the product you want
  3. and clicking on the blue "Configure product" button

Standards-based valve terminals






Valve terminals  
VTSA



Valve terminals  
VTSA-NPT

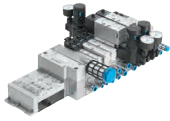
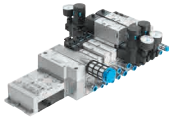

	Valve terminals VTSA	Valve terminals VTSA-NPT
<b>Valve size</b>	18 mm, 26 mm, 42 mm, 52 mm, 65 mm	18 mm, 26 mm, 42 mm, 52 mm, 65 mm
<b>Valve function</b>	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/2-way, single solenoid, safety function, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed, 5/3-way, port 2 pressurised, 4 exhausted	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/2-way, single solenoid, safety function, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed, 5/3-way, port 2 pressurised, 4 exhausted
<b>Max. standard nominal flow rate</b>	550 l/min at 18 mm, 1100 l/min at 26 mm, 1300 l/min at 42 mm, 2900 l/min at 52 mm, 4000 l/min at 65 mm	550 l/min at 18 mm, 1100 l/min at 26 mm, 1300 l/min at 42 mm, 2900 l/min at 52 mm, 4000 l/min at 65 mm
<b>Max. no. of valve positions</b>	32	32
<b>Max. no. of pressure zones</b>	32	32
<b>Electrical actuation</b>	AP interface, Ethernet, Fieldbus, IO-Link®, Multi-pin plug, Integrated controller	AP interface, Ethernet, Fieldbus, Multi-pin plug, IO-Link®, Integrated controller
<b>Valve terminal design</b>	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed
<b>Description</b>	<ul style="list-style-type: none"> <li>• Conforms to ISO 15407-2/ISO 5599-2</li> <li>• Multi-pin plug connection or fieldbus connection via the CPX system</li> <li>• Five valve sizes can be combined on one valve terminal</li> <li>• Integratable safety functions</li> </ul>	<ul style="list-style-type: none"> <li>• Conforms to ISO 15407-2/ISO 5599-2</li> <li>• Multi-pin plug connection or fieldbus connection via the CPX system</li> <li>• Five valve sizes can be combined on one valve terminal</li> <li>• Integratable safety functions</li> </ul>
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## Universal valve terminals



	 <b>Valve manifolds VTUG-S</b>	 <b>Valve terminals with multi-pin plug/fieldbus connection VTUG</b>	 <b>Valve manifolds VTUS</b>
<b>Valve size</b>	10 mm, 14 mm, 18 mm	10 mm, 14 mm, 18 mm	21 mm, 26.5 mm, 31 mm
<b>Valve function</b>	2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed
<b>Max. standard nominal flow rate</b>	380 l/min at 10 mm, 780 l/min at 14 mm, 1380 l/min at 18 mm	330 l/min at 10 mm, 630 l/min at 14 mm, 1200 l/min at 18 mm	
<b>Max. no. of valve positions</b>	16	24	16
<b>Max. no. of pressure zones</b>	9	13	9
<b>Electrical actuation</b>	Individual connection	AP interface, Individual connection, Fieldbus, I-Port, IO-Link®, Multi-pin plug	Individual connection
<b>Valve terminal design</b>	Fixed grid	Fixed grid	Fixed grid
<b>Description</b>	<ul style="list-style-type: none"> <li>• Compact with small valves VUVG</li> <li>• Connection technology easy to change via the E-box</li> <li>• Wide range of valve functions</li> <li>• Also with semi in-line valves</li> </ul>	<ul style="list-style-type: none"> <li>• Low-cost fixed grid</li> <li>• Extremely easy assembly</li> <li>• Exchangeable electrical control</li> <li>• IO-Link® capable</li> <li>• Valves VUVG with individual electrical connection can be integrated</li> <li>• Also available with pneumatic multiple connector plate</li> <li>• Part of the VG series</li> <li>• Energy-efficient thanks to reverse operation and targeted pressure reduction</li> <li>• Optimised and space-saving variant available for installation in control cabinets</li> <li>• Variants with hot-swap connections: valves can be replaced during operation</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>	<ul style="list-style-type: none"> <li>• Sturdy valves with long service life VUUS</li> <li>• Individual electrical connection</li> <li>• Pilot air supply in the manifold rail</li> <li>• Comprehensive range of accessories</li> </ul>
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Product overview

Universal valve terminals

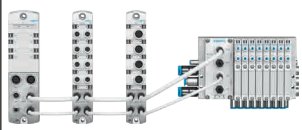


	 <b>Valve terminals VTSA-F</b>	 <b>Valve terminals VTSA-F-NPT</b>	 <b>Valve terminals VTSA-F-CB</b>
<b>Valve size</b>	18 mm, 26 mm, 42 mm, 52 mm, 65 mm	18 mm, 26 mm, 42 mm, 52 mm, 65 mm	18 mm, 26 mm, 42 mm, 52 mm
<b>Valve function</b>	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/2-way, single solenoid, safety function, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed, 5/3-way, port 2 pressurised, 4 exhausted	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/2-way, single solenoid, safety function, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed, 5/3-way, port 2 pressurised, 4 exhausted	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant signal, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed, 5/3-way, connection 2 pressurised, 4 exhausted
<b>Max. standard nominal flow rate</b>	700 l/min at 18 mm, 1350 l/min at 26 mm, 1860 l/min at 42 mm, 2900 l/min at 52 mm, 4000 l/min at 65 mm	700 l/min at 18 mm, 1350 l/min at 26 mm, 1860 l/min at 42 mm, 2900 l/min at 52 mm, 4000 l/min at 65 mm	700 l/min at 18 mm, 1350 l/min at 26 mm, 1860 l/min at 42 mm, 2900 l/min at 52 mm
<b>Max. no. of valve positions</b>	32	32	32
<b>Max. no. of pressure zones</b>	16	16	
<b>Electrical actuation</b>	AP interface, Ethernet, Fieldbus, Multi-pin plug, IO-Link®, Integrated controller	AP interface, Ethernet, Fieldbus, Multi-pin plug, IO-Link®, Integrated controller	Ethernet, Fieldbus, Integrated controller
<b>Valve terminal design</b>	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed
<b>Description</b>	<ul style="list-style-type: none"> <li>Flow rate-optimised valve terminal VTSA</li> <li>Links with increased flow rates</li> <li>Functions like standard valve terminals VTSA</li> </ul>	<ul style="list-style-type: none"> <li>Flow rate-optimised valve terminal VTSA</li> <li>Links with increased flow rates</li> <li>Functions like standard valve terminals VTSA</li> </ul>	<ul style="list-style-type: none"> <li>Valve terminal VTSA optimised for flow rate and communication</li> <li>Extended diagnostic functions via CBUS and LED display</li> <li>Previous external cabling is now unnecessary, while the installation space remains the same</li> <li>Up to 96 valve addresses and up to four voltage zones, three of which can be safely shut off</li> <li>For applications with increased safety requirements such as manual work stations</li> <li>Control via CPX pneumatic interface with serial communication</li> <li>Five valve sizes can be combined on one valve terminal</li> </ul>
<b>→ Page/online</b>	222	222	<a href="#">vtsa-f</a>

## Universal valve terminals

	 <b>Valve terminals MPA-S</b>	 <b>Valve terminals MPA-L</b>
<b>Valve size</b>	10 mm, 14 mm, 20 mm	10 mm, 14 mm, 20 mm
<b>Valve function</b>	2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3-way proportional pressure regulator, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed
<b>Max. standard nominal flow rate</b>	360 l/min at 10 mm, 550 l/min at 14 mm, 700 l/min at 20 mm	360 l/min at 10 mm, 670 l/min at 14 mm, 870 l/min at 20 mm
<b>Max. no. of valve positions</b>	8, 24, 32, 64	32
<b>Max. no. of pressure zones</b>	3, 7, 9, 17	20
<b>Electric actuation</b>	AS-Interface, fieldbus, multi-pin plug	Fieldbus, multi-pin plug, IO-Link, I-Port
<b>Valve terminal design</b>	Modular, valve sizes can be mixed	Valve sizes can be mixed
<b>Description</b>	<ul style="list-style-type: none"> <li>• Valve terminals for universal applications</li> <li>• High-performance valves in a sturdy metal housing</li> <li>• Metal links</li> <li>• Two valve sizes can be combined</li> <li>• Excellent communication thanks to serial links</li> <li>• Fieldbus connection via CPX</li> <li>• Max. 128 valves</li> </ul>	<ul style="list-style-type: none"> <li>• Maximum modularity</li> <li>• System can be extended as required with individual sub-bases and modular tie rods</li> <li>• Polymer sub-bases</li> <li>• 3 valve sizes</li> <li>• Tamper-proof fixed flow restrictor</li> <li>• Fieldbus interface via CPX</li> <li>• IO-Link® capable</li> </ul>
<b>→ Page/online</b>	232	<a href="#">mpa-l</a>

Product overview

Electrical peripherals

	 <p><b>Automation systems</b> CPX-AP-I</p>	 <p><b>Terminal</b> CPX</p>	 <p><b>Fieldbus modules</b> CTEU</p>
<b>Protocol</b>	IO-Link, PROFIBUS DP, PROFINET, EtherCAT, EtherNet/IP, Modbus@TCP	Interbus, DeviceNet, CANopen, CC-Link, PROFIBUS DP, PROFINET, EtherCAT, EtherNet/IP, Modbus@TCP, SercosIII, Powerlink, IO-Link®, I-Port, HART	AS-Interface, CANopen, CC-Link, CPI-B, DeviceNet, EtherCAT, EtherNet/IP, PROFINET, Modbus@ TCP, PROFIBUS DP, VARAN, I-Port
<b>Electrical actuation</b>		Fieldbus, integrated controller	
<b>Max. address volume for inputs</b>	244 ... 2048 Byte	64 Byte	2 ... 64 Byte
<b>Max. address volume for outputs</b>	244 ... 2048 Byte	64 Byte	2 ... 64 Byte
<b>Parameterisation</b>		Diagnostic behaviour, failsafe response, forcing of channels, signal setup	Activate diagnostics, diagnostic behaviour, failsafe and idle response, failsafe response, IO-Link mode, watchdog disable, watchdog enable
<b>Degree of protection</b>	IP65, IP67	IP65, IP67	IP65, IP67
<b>Nominal operating voltage DC</b>		24 V	24 ... 30 V
<b>Operating voltage range DC</b>		18 ... 30 V	18 ... 31.6 V
<b>Description</b>	<ul style="list-style-type: none"> <li>Powerful remote I/O system that flexibly links 80 modules at a data rate of 200 Mbaud in real-time</li> <li>Seamless connectivity along with advanced diagnostics option increase the machine availability and productivity</li> <li>Simple integration into the controller of your choice: PROFINET, PROFIBUS, EtherCAT®, EtherNet/IP, ModbusTCP</li> <li>Real-time capability and deterministic system behaviour enable cycle times of up to 250 µs</li> <li>Cable lengths of up to 50 m between every module enable vast system dimensions</li> <li>The IO-Link master and parameterisation software enable simple integration of any IO-Link® devices</li> <li>Ethernet performance up to the valve terminal and digital as well as analogue input/output modules</li> </ul>	<ul style="list-style-type: none"> <li>Automation platform</li> <li>Open to all common fieldbus protocols and Ethernet</li> <li>Integrated diagnostic and maintenance functions</li> <li>Applicable as stand-alone remote I/O or with valve terminals MPA-S, MPA-L, VTSA/VTSA-F</li> <li>Choice of polymer or metal interlinking block with individual links</li> <li>Analogue inputs and outputs, 2-way/4-way, optionally with HART protocol</li> </ul>	<ul style="list-style-type: none"> <li>For valve terminals VTUG, MPA-L, VTOC</li> <li>Can be expanded into the installation system CTEL</li> <li>Fieldbus-typical LEDs, interfaces and switching elements</li> <li>Isolated power supply for electronics and valves</li> </ul>
<b>→ Page/online</b>	<b>234</b>	<b><a href="#">cpx</a></b>	<b><a href="#">cteu</a></b>

## Customised components – for your specific requirements



### Valve terminals with customised designs

Can't find the valve terminal you need in our catalogue?

We can offer you customised components that are tailored to your specific requirements.

Common product modifications:

- Coatings for special ambient conditions
- Customised cables: length, pin allocation, pre-assembled with plug
- Modified actuating elements
- Modified connecting thread
- Modified valve sub-bases

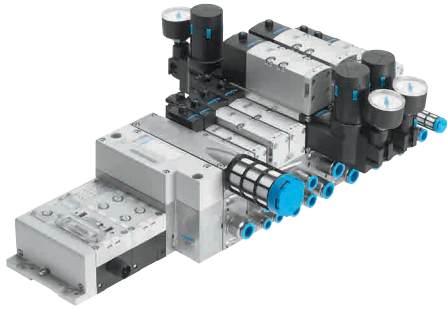
Many additional variants are possible.

Ask your Festo sales engineer, who will be happy to help:

→ [www.festo.com/contact](http://www.festo.com/contact)

Standards-based valve terminals >

## Valve terminals VTSA



- Sturdy and flexible valve terminal
- Widths 18 and 26 mm: ISO 15407-2, widths 42 and 52 mm: ISO 5599-2
- Widths 18 mm, 26 mm, 42 mm and 52 mm can be combined on one valve terminal without an adapter
- Complete and standardised valve range
- Wide range of vertical stacking modules: pressure regulator, flow control, vertical pressure shut-off plate, etc.
- Integrated safety functions
- Flow rate: 550 ... 2900 l/min
- Flow-optimised version VTSA-F: 700 ... 4000 l/min
- High pressure range: -0.9 ... 10 bar
- All pneumatic connections can also be supplied with an NPT thread

## Key features

### Innovative

- High-performance valves in a sturdy metal housing
- Five valve sizes on one valve terminal (width 65 mm with adapter)
- Standardised from the multi-pin plug to the fieldbus connection and control block
- Dream team: fieldbus valve terminal suitable for electrical peripherals CPX. This means:
  - Forward-looking internal communication system for controlling the valves and CPX modules
  - Four valve sizes on one valve terminal without adapters
- Valve functions for integration in control architectures of higher categories to EN ISO 13849-1

### Versatile

- Modular system offering a range of configuration options
- Expandable with up to 32 solenoid coils
- Conversions and extensions are possible at any time
- Integration of innovative function modules possible
- Flexible air supply and variable pressure zones
- Reverse operation
- High pressure range -0.9 ... 10 bar, flow range 550 ... 4000 l/min
- Wide range of valve functions
- Valve supply 24 V DC or 110 V AC

### Reliable

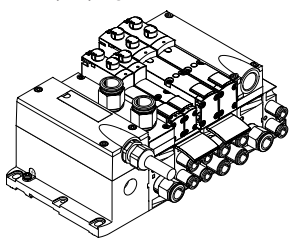
- Sturdy and durable metal components
  - Valves
  - Manifold sub-bases
  - Seals
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Reliable servicing thanks to valves that can be replaced quickly and easily
- Manual override, either non-detenting, non-detenting/detenting or covered
- Durable thanks to tried-and-tested piston spool valves
- Large and durable labelling system
- 100% duty cycle

### Easy to install

- Ready-to-install and tested unit
- Reduced selection, ordering, installation and commissioning costs
- Secure mounting on wall or H-rail
- Manifold sub-bases can be extended using four screws, sturdy duct separation on metal support

### Electrical connection options

#### Multi-pin plug connection

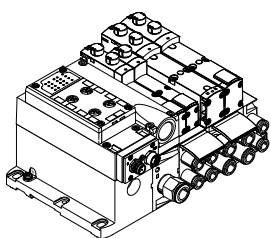


Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire connecting cable or a self-assembled multi-pin plug connection, which substantially reduces installation time. The valve terminals can be equipped with max. 32 valves with max. 32 solenoid coils.

#### Versions

- Multi-pin plug connection with terminal strip (spring-loaded terminal), 24 V DC
- Pre-assembled connecting cable, 24 V DC
- Sub-D plug for assembly by the user, 37-pin, 24 V DC
- Round plug M23, 19-pin, 24 V DC

#### AS-Interface connection



A special feature of the AS-Interface is the simultaneous transmission of data and supply power via a two-wire cable. The encoded cable profile prevents connection with incorrect polarity.

The valve terminal with AS-Interface is available in the following versions:

- With 1 to 8 modular valve positions (max. 8 solenoid coils). This corresponds to 1 to 8 VTSA valves.
- With all available valve functions.

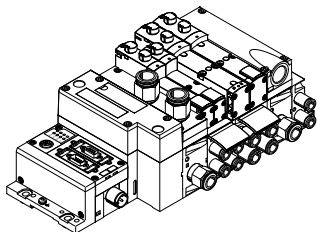
The connection technology used for the inputs can be selected as with CPX: M8, M12, quick connector, Sub-D, spring-loaded terminal (terminals to IP20).



## Key features

### Electrical connection options

Fieldbus connection via the CPX system



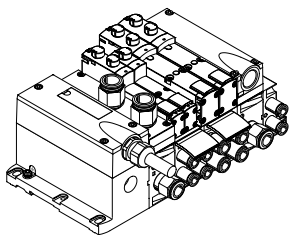
An integrated fieldbus node manages the communications connection with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Valve terminals with fieldbus interfaces from the CPX system can be configured with up to 16 manifold sub-bases. With 2 solenoid coils per connection, up to 32 solenoid coils can thus be actuated.

Versions:

PROFIBUS, INTERBUS, DeviceNet, CANopen, CC-LINK, EtherNet/IP, EtherCAT, Modbus TCP, PROFINET, POWERLINK, Sercos III

Control block connection via the CPX system

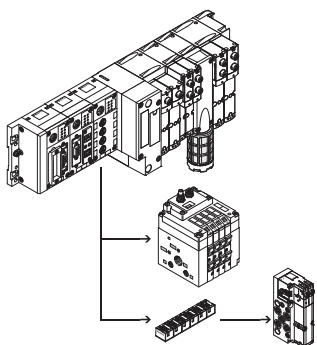


A controller integrated in the Festo valve terminal enables the design of stand-alone control units with protection to IP65 without a control cabinet thanks to two different operating modes.

In the slave operating mode, these valve terminals can be used for intelligent preprocessing and are therefore ideal modules for designs using decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.

CP string extension



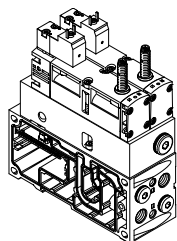
The optional CP string extension enables additional valve terminals and I/O modules to be connected to the fieldbus node of the CPX terminal on up to four CP strings. Different input and output modules as well as valve terminals MPA-S can be connected.

The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on site. All the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

One CP string offers:

- 32 input signals
- 32 output signals for output modules 24 V DC or solenoid coils
- Logic and sensor supply for the input modules
- Load voltage supply for the valve terminals
- Logic supply for the output module

Control block with safety function,  
width 26 mm



5/2-way solenoid valve

These valves are used for special applications, for example for:

- Protecting against unexpected start-up
- Safe reversing
- Drives in manually loaded devices

This control block is suitable for use as a press safety valve to EN 962.

This valve is a safety device in accordance with the Machinery Directive 2006/42/EC.

Standards-based valve terminals >

## Valve terminals VTSA

### Key features

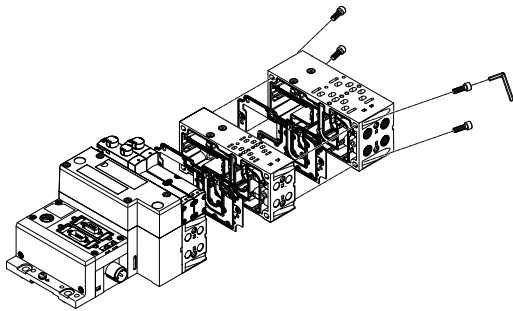
#### Modular pneumatic peripherals

The modular design of the VTSA/VTSA-F/VTSA-F-CB enables maximum flexibility right from the planning stage and offers maximum ease of service in operation. The system consists of manifold sub-bases and valves.

The manifold sub-bases are screwed together and thus form the support system for the valves.

The manifold sub-bases are screwed together and thus form the support system for the valves.

Basic system modularity

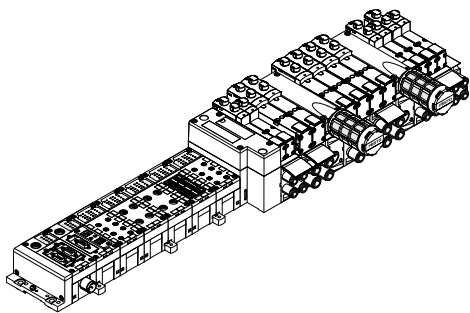


#### Modular electrical peripherals

The valves are actuated differently depending on whether a multi-pin terminal or fieldbus terminal is used.

The VTSA/VTSA-F with CPX interface is based on the internal bus system of the CPX terminal and uses this communication system for all solenoid coils and a range of electrical input and output functions.

VTSA with electrical peripherals CPX



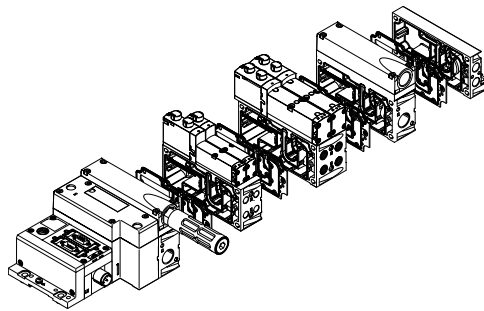
Technical data online → [www.festo.com/catalogue/vtisa](http://www.festo.com/catalogue/vtisa)

Inside the manifold sub-bases are the ducts for supplying compressed air to and exhausting from the valves on the terminal as well as the working ports for the pneumatic cylinders for each valve.

Each manifold sub-base is connected to the next using four screws.

Individual valve terminal sections can be isolated and further blocks easily inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

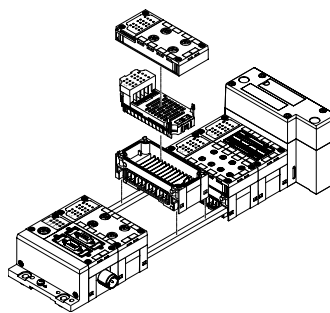
Valve modularity




Parallel links enable the following:

- Transmission of switching information
- Compact design
- Position-based diagnostics
- Separate voltage supply for valves
- Flexible conversion without address shifting
- Option of CP interface
- CPX-CEC as stand-alone controller with access via Ethernet and web server
- Transmission of status, parameter and diagnostic data

Modularity with electrical peripherals CPX



 Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

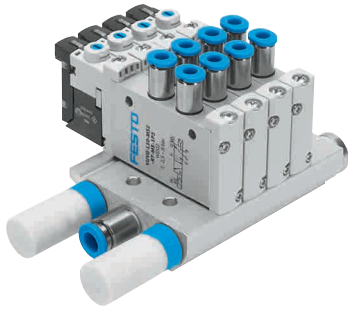
Enter the part number or the type.

Part no.	Type	Electric actuation	Connecting thread
Valve terminal VTSA, conforms to ISO 15407-2 / ISO 5599-2			
<b>539215</b>	<b>VTSA-MP</b>	Multi-pin plug	Metric
<b>539217</b>	<b>VTSA-FB</b>	CPX terminal	Metric
<b>539218</b>	<b>VTSA-FB-NPT</b>	CPX terminal	NPT
Valve terminal VTSA-F, flow-optimised version			
<b>547963</b>	<b>VTSA-F-MP</b>	Multi-pin plug	Metric
<b>547964</b>	<b>VTSA-F-MP-NPT</b>	Multi-pin plug	NPT
<b>547965</b>	<b>VTSA-F-FB</b>	CPX terminal	Metric
<b>547966</b>	<b>VTSA-F-FB-NPT</b>	CPX terminal	NPT

The valve terminals are fully assembled according to your order specifications and are individually tested. This reduces assembly and installation time to a minimum.

Universal valve terminals >

## Valve manifolds VTUG-S with individual electrical connection



- Up to 16 valve positions in a fixed grid
- Perfect for fast applications where a particularly high flow at a consistently small size is required
- Multiple different pressure zones on one valve terminal
- Many electrical connection options
- Comprehensive range of accessories
- Flow rate 380 ... 1380 l/min
- Size 10, 14, 18
- Pressure range –0.9 ... 10 bar

## Key features

### Innovative

- Can be set to internal or external pilot air supply for manifold assemblies with sub-base valves
- Maximum pressure 10 bar
- Design principle:
  - Piston spool with sealing ring (VUVG-LK, VUVG-BK)
  - Piston spool with sealing cartridge (VUVG-L, VUVG-B)

### Versatile

- Wide range of valve functions
- Choice of quick plug connectors
- In-line valves
- Semi in-line valves for manifold assembly
- M5 and M7 in-line valves can be combined on one manifold rail
- Valve manifold with pressure zones
- IP40, IP65
- Connection technology via:
  - Electrical connection box (E-box)
  - Pneumatic interface CNOMO, to ISO 15218

### Reliable

- Sturdy and durable metal components
  - Valves
  - Manifold rails
- Fast troubleshooting thanks to 360° LED display
- Reliable servicing thanks to valves that can be replaced quickly and easily
- Choice of manual override: non-detenting, covered, non-detenting/detenting or detenting (without accessories)

### Valve functions

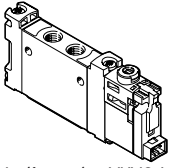
- 2x3/2-way valve
  - Normally open
  - Normally closed
  - 1x normally closed, 1x normally open
- 5/2-way valve
  - Single solenoid
  - Double solenoid
- 5/3-way valve
  - Mid-position pressurised
  - Mid-position exhausted
  - Mid-position closed

### Easy to install

- Secure mounting on wall or H-rail
- Easy mounting, captive screws and seal
- Connection technology easy to change via the E-box
- Inscription label holder for labelling the valves

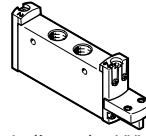
## Individual valves and valve manifolds

### In-line valves as individual valve



In-line valve VUVG-LK/  
VUVG-L

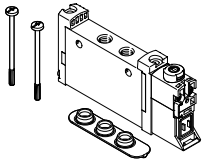
In-line valves are designed to be used without pneumatic links. All pneumatic connections are on the valve and can be equipped with fittings/tubing. The electrical connection is provided by different E-boxes.



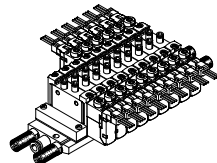
In-line valve VUVG-L to  
ISO 15218 (CNOMO)

The in-line valve VTUG-L...-P1 to ISO 15218 is a solenoid valve without electrical pilot control. The basic valve with the pneumatic CNOMO interface to ISO 15218 can be equipped with type C connection (DIN EN 175301-803) or M12 connection (IEC 61076-2-101).

### Semi in-line valves for manifold assembly



Semi in-line valve  
VUVG-S

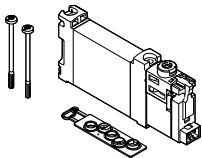


Valve manifold VTUG made up of  
semi in-line valves VUVG-S

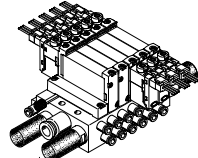
The supply ports (1, 3 and 5) for semi in-line valves are connected to the valve by common pneumatic links (e.g. sub-base). The working ports (2, 4) are on the valve.

The electrical connection is established via variable E-boxes.

### Sub-base valves for manifold assembly



Sub-base valve VU-  
VG-BK/VUVG-B

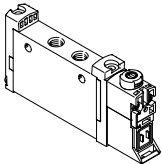


Valve manifold VTUG made up  
of sub-base valves VUVG-BK/  
VUVG-B

In the case of sub-base valves, the supply ports (1, 3 and 5) and the working ports (2, 4) are connected to the valve via the pneumatic links (e.g. sub-base).

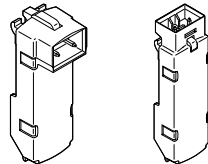
The electrical connection is established via variable E-boxes.

### Basic valves VUVG



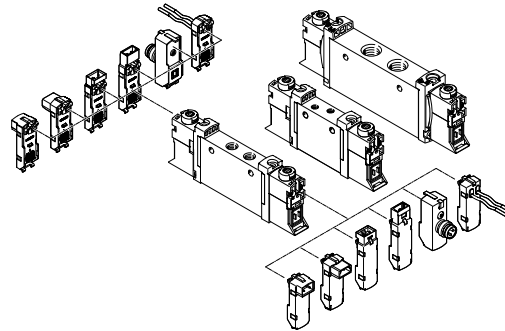
- Size 10, 14 and 18 mm
- In-line valves and semi in-line valves
- Sub-base valves
- 2x 3/2-way, 5/2-way and 5/3-way valves

### E-boxes



- 5, 12 and 24 V DC
- With or without holding current reduction
- LED

### Basic valve and E-box combinations



### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

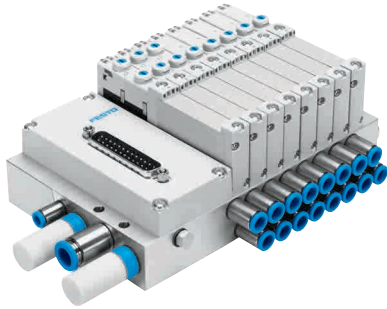
Enter the part number or the type.

Part no.	Type
572230	VTUG-S

The valve manifold is fully assembled according to your order specification and individually checked. This reduces assembly and installation time to a minimum.

Universal valve terminals >

## Valve terminals VTUG with multi-pin or fieldbus connection



- Up to 24 valve positions in a fixed grid
- Vacuum and pressure on one valve terminal
- Multiple different pressure zones on one valve terminal
- Flexible control cabinet installation
- Flow rate 330 ... 1200 l/min
- Size 10, 14, 18
- Pressure range -0.9 ... 10 bar

### Key features

#### Innovative

- Festo-specific I-Port interface for bus nodes (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master
- Festo-specific I-Port interface with interlock
- Flexible multi-pin plug connection using Sub-D or ribbon cable
- Reversible piston spool valves, up to 24 valve positions
- Reduced power consumption
- Excellent price/performance ratio

#### Versatile

- Choice of quick plug connectors
- Multiple pressure zones possible
- Sub-D variant and fieldbus interface with protection to IP67
- Internal or external pilot air with the same manifold rail possible through the use of blanking plugs
- Sub-base valves with working ports underneath for installation in control cabinets

#### Reliable

- Sturdy and durable metal components
  - Valves
  - Manifold rails
- Fast troubleshooting thanks to LED indicator
- Manual override: choice of non-detenting, detenting or covered

#### Easy to install

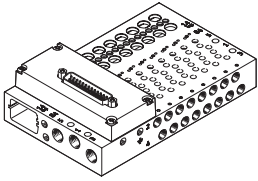
- Easy mounting thanks to captive screws and seal
- Connection technology easy to change
- Inscription label holder for labelling

#### Valve functions

- 3/2-way valve
  - Single solenoid
  - Normally open
  - Normally closed
- 2x 3/2-way valve
  - Single solenoid
  - Normally open
  - Normally closed
  - 1x normally closed, 1x normally open
  - Mechanical spring
  - Pneumatic spring
- 5/2-way valve
  - Single solenoid
  - Pneumatic/mechanical spring
  - Mechanical spring
  - Pneumatic spring
  - Double solenoid valve
- 5/3-way valve
  - Mid-position pressurised
  - Mid-position exhausted
  - Mid-position closed
- Reversible piston spool valves, up to 24 valve positions

## Electrical connection

### Multi-pin plug connection



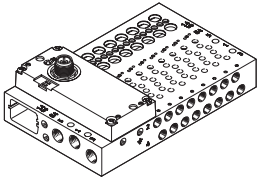
The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection.

This substantially reduces installation time compared to individually connected valves. The valve terminal can be equipped with max. 48 solenoid coils.

Versions:

- Sub-D connection
- Ribbon cable

### I-Port interface



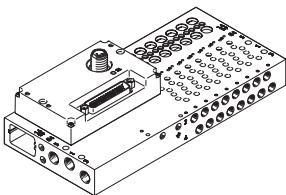
Festo-specific interface as a basis for bus nodes (CTEU) or in IO-Link mode for direct connection to a higher-order IO-Link master.

Communication and power supply take place via a common M12 interface.

Connection options:

- As I-Port interface for bus nodes (CTEU)
- In IO-Link mode for direct connection to an IO-Link master

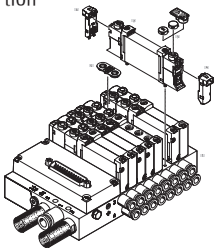
### I-Port interface with interlock



The interlock function enables the first 16 solenoid coils to be individually supplied externally.

The external supply guarantees the safety-related enabling of these valves.

### Valves with individual electrical actuation



The VTUG variant with multi-pin plug connection and fieldbus interface offers the additional option of individual electrical actuation of the valves.

#### Configurable product

This product and all its product options can be ordered online via the configurator:

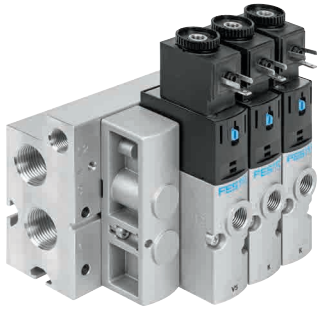
→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type
573606	VTUG

The valve terminal is fully assembled according to your order specifications and individually tested. This reduces assembly and installation time to a minimum.

## Valve manifolds VTUS



- Sturdy valves with long service life  
VUVS → 187
- Individual electrical connection
- Pilot air supply in the manifold rail
- Comprehensive range of accessories
- Flow rate 600 ... 2300 l/min
- Sizes 20, 25, 30
- Pressure range -0.9 ... 10 bar

### Key features

#### Innovative

- A reliable, sturdy valve with a long service life
- Design principle:
  - Piston spool with sealing ring (VUVS-LK)
  - Poppet seat, soft-sealing (VUVS-LT)
  - Piston spool with sealing cartridge (VUVS-L)
- Flow rate up to 1800 l/min with VUVS-LK and VUVS-LT
- Flow rate up to 2300 l/min with VUVS-L
- Wide range of valve functions

#### Versatile

- Operating voltage can be easily altered by changing the solenoid coil (VUVS-L and VUVS-LT)
- In-line valves can be used as individual valves or manifold valves
- Flexible pressure zones
- Wide range of mounting options

#### Reliable

- Ergonomic and safe operation
- Reliable servicing thanks to valves that can be replaced quickly and easily

#### Easy to mount

- Pre-assembled units on rails
- Individual valves assembled ready for installation
- Common supply manifolds for mounting on one or both sides
- Secure mounting on wall or H-rail

#### Valve functions

- Internal/external pilot air supply
- Reset via pneumatic/mechanical spring
- Direction of flow can be reversed in the case of external pilot air supply

#### Equipment options

- VUVS-LK: 3/2-way and 5/2-way valves, with solenoid coil
- VUVS-LT: 3/2-way, 2x 3/2-way and 5/2-way solenoid valves, with or without solenoid coil
- VUVS-L: 3/2-way, 5/2-way and 5/3-way valves, with or without solenoid coil

#### Versions

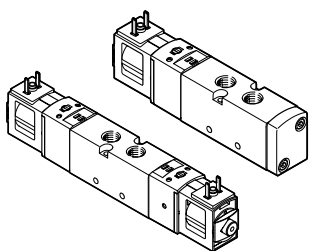
- A maximum of 16 valve positions can be configured in the standard version (for VUVS-L variant only)
- A maximum of 12 valve positions can be configured in the compact version (maximum of 10 valve positions for VUVS-LK variant)
- Valve positions 2 ... 10 can be configured in increments of 1, valve positions 10 ... 16 in increments of 2
- Manifold block with a maximum of 10 valve positions
- Extension module with 2 valve positions
- Common supply manifold with a maximum of 10 valve positions
- Creation of pressure zones (maximum 9 pressure zones in the case of a valve manifold with 16 valve positions)

### Solenoid valves VUVS

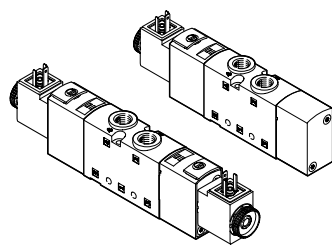
In-line valves are designed to be used without pneumatic links. All pneumatic connections are on the valve and can be equipped with fittings/tubing.

By using a special seal set, the in-line valves can also be mounted on a manifold rail (pneumatic links) as semi in-line valves.

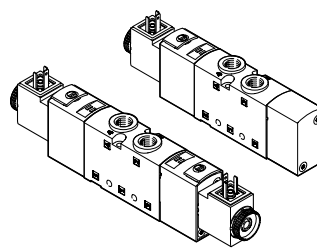
In-line valve VUVS-LK as individual valve (piston spool valve)



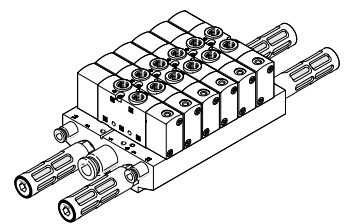
In-line valve VUVS-LT as individual valve (poppet seat valve)



In-line valve VUVS-L as individual valve (piston spool valve)



Valve manifold VTUS

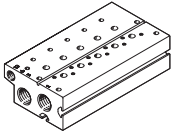




## Connection blocks

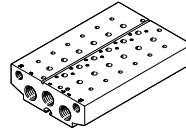
### Standard manifold block

For 3/2-way valves



- Connection Size 20: G3/8 Size 25: G1/2 Size 30: G3/4
- For valves with external pilot air supply
- Maximum 10 valve positions

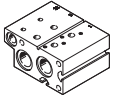
For 5/2-way and 5/3-way valves



- Connection Size 20: G3/8 Size 25: G1/2 Size 30: G3/4
- For valves with external pilot air supply
- Maximum 10 valve positions

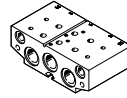
### Manifold block extension module, for standard manifold block

For 3/2-way valves



- Connection Size 20: G3/8 Size 25: G1/2 Size 30: G3/4
- Maximum two valve positions

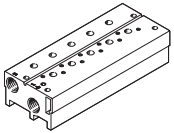
For 5/2-way and 5/3-way valves



- Connection Size 20: G3/8 Size 25: G1/2 Size 30: G3/4
- Maximum two valve positions

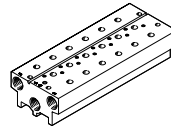
### Compact manifold block

For 3/2-way valves



- Connection Size 20: G1/4 Size 25: G3/8 Size 30: G1/2
- Maximum 10 valve positions

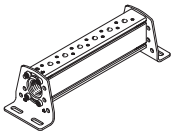
For 5/2-way and 5/3-way valves



- Connection Size 20: G1/4 Size 25: G3/8 Size 30: G1/2
- Maximum 10 valve positions

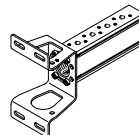
### Common supply manifold

Mounting on both sides



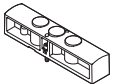
- Connection Size 20: G3/8 Size 25: G1/2 Size 30: G3/4
- Maximum 10 valve positions

Mounting on one side



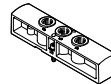
- Connection Size 20: G3/8 Size 25: G1/2 Size 30: G3/4
- Maximum 4 valve positions

### Cover plate for vacant position



For covering vacant valve positions

### Supply plate



For additional air supply and exhaust via a valve position

### Separator for pressure zones



For creating pressure zones (maximum 9 pressure zones permitted)

### Configurable product

This product and all its product options can be ordered online via the configurator:

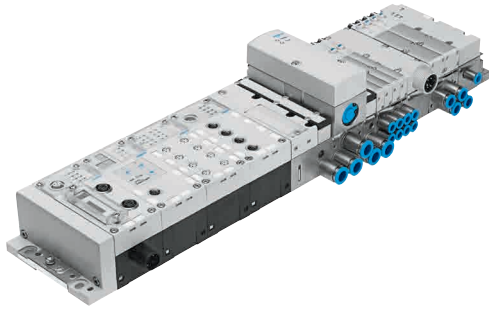
→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type	Size	Standard nominal flow rate
577304	VTUS-20	20	600 ... 700 l/min
8022016	VTUS-25	25	1000 ... 1300 l/min
8022019	VTUS-30	30	1600 ... 2300 l/min

The valve manifold is fully assembled according to your order specifications and individually tested. This reduces assembly and installation time to a minimum.

## Valve terminals MPA-S with CPX terminal



- Actuated via fieldbus or control block
- Max. 64 valve positions/max. 128 solenoid coils
- Digital inputs/outputs
- Analogue inputs/outputs
- Parameterisation of inputs and outputs
- Integrated convenient diagnostic system
- Proportional technology
- Integrated, high-level diagnostics thanks to serial linkage
- Up to 8 voltage zones
- Flow rate 360 ... 700 l/min
- Width 10 mm, 14 mm, 20 mm
- Pressure range -0.9 ... 10 bar

### Key features

#### Innovative

- Compact high-performance valves in sturdy metal housing
- MPA1 Flow rates of up to 360 l/min
- MPA14 Flow rates of up to 670 l/min
- MPA2 Flow rates of up to 840 l/min
- Standardised from the individual valve to the valve terminal multi-pin plug, AS-Interface, CPI and fieldbus connection and control block
- Dream team: fieldbus valve terminal suitable for electrical peripherals CPX. This means:
  - Forward-looking internal communication system for actuating the valves and CPX modules
  - Diagnostics down to the individual valve
  - Valves can be actuated with or without (standard) separate electrical circuits

#### Versatile

- Modular system offering a range of configuration options
- Expandable with up to 128 solenoid coils
- Conversions and extensions possible at a later date
- Further sub-bases can be expanded using just three screws, sturdy separating seals on metal separator plates
- Integration of innovative function modules possible
- Manual regulators, swivelling pressure gauges
- Proportional pressure regulators
- Air supply can be extended via additional pressure zones with supply plates
- Wide range of pressures -0.09 ... 1 MPa
- Wide range of valve functions

#### Reliable

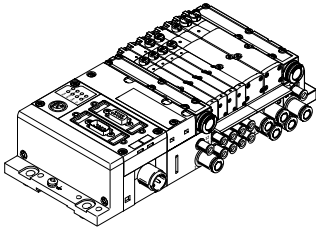
- Sturdy and durable metal components
  - Valves
  - Sub-bases
  - Seals
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Extensive operating voltage range  $\pm 25\%$
- Easy to service thanks to replaceable valves and electronic modules
- Manual override either non-detenting, detenting or protected against unauthorised activation (covered)
- Durable thanks to tried-and-tested piston spool valves
- Large and durable labelling system, suitable for barcodes

#### Easy to mount

- Ready-to-install and tested unit
- Reduced selection, ordering, installation and commissioning costs
- Secure mounting on wall or H-rail

## Electrical connection options

### Fieldbus connection via the CPX system



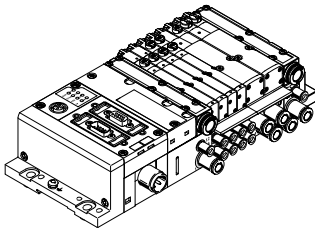
An integrated fieldbus node manages the communications connection with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Valve terminals with fieldbus interfaces can be configured with up to 16 sub-bases. In combination with the MPA1 or MPA14 and 8 solenoid coils per sub-base, up to 128 solenoid coils can thus be controlled. An MPA2 with 4 solenoid coils per sub-base can actuate 64 solenoid coils.

#### Versions:

PROFIBUS-DP, INTERBUS, DeviceNet, CANopen, CC-LINK, EtherNet/IP, EtherCAT, Modbus/TCP, PROFINET, POWERLINK, Sercos III, Front End Controller Remote, Front End Controller, Remote I/O, CPX terminal

### Control block connection via the CPX system



Controllers integrated in the Festo valve terminals enable the design of stand-alone control units to IP65, without control cabinets.

In the slave operating mode, these valve terminals can be used for intelligent preprocessing and are therefore ideal modules for designs using decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.



#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

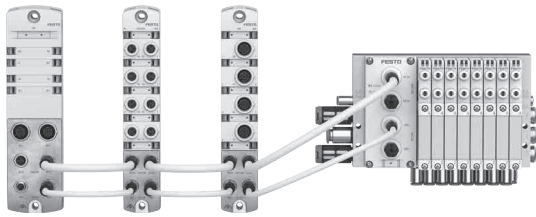
Enter the part number or the type.

The valve terminals are fully assembled according to your order specifications and are individually tested. This reduces assembly and installation time to a minimum.

Part no.	Type	Electrical actuation
530411	MPA-FB-VI	Fieldbus

Electrical peripherals >

## Automation system CPX-AP-I



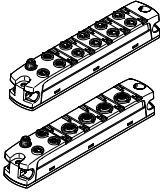
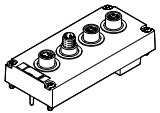
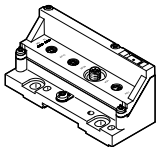
- Decentralised remote I/O system
- Ultra-lightweight and compact
- IO-Link master and IO-Link device tool
- Short bus cycle times up to 250 µs
- 2 kByte of I/O process data
- Parallel data processing of real-time and non-real-time data
- Theoretically up to 500 modules in line, star and tree topology
- Cable lengths up to 50 m between modules
- Best price/performance ratio by combining valve terminals and decentralised I/Os

## Ordering

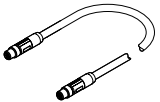
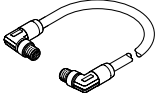
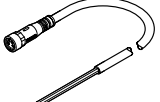
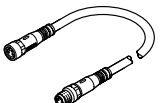
Description			Type	Part no.	
<b>Bus interface</b>					
	PROFINET	<ul style="list-style-type: none"> <li>• Actuation via PROFINET</li> <li>• Two PROFINET connections</li> <li>• Two connections for system communication</li> <li>• Two connections for power supply and transmission</li> </ul>	CPX-AP-I-PN-M12	8086607	
	PROFIBUS	<ul style="list-style-type: none"> <li>• Actuation via PROFIBUS</li> <li>• Two PROFIBUS connections</li> <li>• Two connections for system communication</li> <li>• Two connections for power supply and transmission</li> </ul>	CPX-AP-I-PB-M12	8086608	
	EtherCAT	<ul style="list-style-type: none"> <li>• Actuation via EtherCAT</li> <li>• Two EtherCAT connections</li> <li>• Two connections for system communication</li> <li>• Two connections for power supply and transmission</li> </ul>	CPX-AP-I-EC-M12	8086609	
	EtherNet/IP	<ul style="list-style-type: none"> <li>• Actuation via EtherNet/IP</li> <li>• Two Ethernet connections</li> <li>• Two connections for system communication</li> <li>• Two connections for power supply and transmission</li> </ul>	CPX-AP-I-EP-M12	8086610	
<b>IO-Link master</b>					
	4 IO-Link connections	<ul style="list-style-type: none"> <li>• LED indicator</li> <li>• Master V 1.1</li> </ul>	<ul style="list-style-type: none"> <li>• Electrical connection, IO-Link 4x sockets M12x1, 5-pin</li> </ul>	CPX-AP-I-4IOL-M12	8086604
<b>Input module, digital</b>					
	4 inputs	<ul style="list-style-type: none"> <li>• LED indicator</li> <li>• PNP (positive switching)</li> <li>• Characteristic curve of inputs to IEC 61131-2, type 3</li> </ul>	<ul style="list-style-type: none"> <li>• Electrical connection input 4x socket, 3-pin, M8x1</li> </ul>	CPX-AP-I-4DI-M8-3P	8086605
	8 inputs	<ul style="list-style-type: none"> <li>• LED indicator</li> <li>• PNP (positive switching)</li> <li>• Characteristic curve of inputs to IEC 61131-2, type 3</li> </ul>	<ul style="list-style-type: none"> <li>• Electrical connection input 8x socket, 3-pin, M8x1</li> </ul>	CPX-AP-I-8DI-M8-3P	8086600
			<ul style="list-style-type: none"> <li>• Electrical connection input 4x socket, 5-pin, M12x1</li> </ul>	CPX-AP-I-8DI-M12-5P	8086602
<b>Input module, analogue</b>					
	4 inputs	<ul style="list-style-type: none"> <li>• LED indicator</li> <li>• Current, voltage, temperature or resistance measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Electrical connection input 4x socket, 5-pin, M12x1</li> </ul>	CPX-AP-I-4AI-U-I-RTD-M12	8086606

Electrical peripherals >  
Automation system CPX-AP-I

## Ordering

Description			Type	Part no.	
<b>Digital input/output module</b>					
 <ul style="list-style-type: none"> <li>• 4 inputs</li> <li>• 4 outputs</li> </ul>	<ul style="list-style-type: none"> <li>• LED indicator</li> <li>• PNP (positive switching)</li> <li>• Characteristic curve of inputs to IEC 61131-2, type 3</li> <li>• Characteristic curve of outputs to IEC 61131-2, type 0.5</li> </ul>	<ul style="list-style-type: none"> <li>• Electrical connection input 4x socket, 3-pin, M8x1</li> <li>• Electrical connection output 4x socket, 3-pin, M8x1</li> </ul>	CPX-AP-I-4DI4DO-M8-3P	8086601	
		<ul style="list-style-type: none"> <li>• Electrical connection input 2x socket, 5-pin, M12x1</li> <li>• Electrical connection output 2x socket, 5-pin, M12x1</li> </ul>	CPX-AP-I-4DI4DO-M12-5P	8086603	
<b>Electrical interface for valve terminal</b>					
	Valve terminal VTUG	<ul style="list-style-type: none"> <li>• LED indicator</li> <li>• 3 valve sizes (10 mm, 14 mm and 18 mm)</li> <li>• Fixed-grid links</li> <li>• 130 ... 1000 l/min flow rate</li> <li>• Separate load voltage supply for the connected valves, can be shut down separately</li> <li>• Short-circuit disconnection</li> </ul>	<ul style="list-style-type: none"> <li>• Max. 12 valve positions</li> <li>• Max. 24 solenoid coils</li> </ul>	VAEM-L1-S-12-AP	8081922
			<ul style="list-style-type: none"> <li>• Max. 24 valve positions</li> <li>• Max. 48 solenoid coils</li> </ul>	VAEM-L1-S-24-AP	8081923
	Valve terminal MPA-L	<ul style="list-style-type: none"> <li>• LED indicator</li> <li>• 3 valve sizes (10 mm, 14 mm and 20 mm)</li> <li>• Modular design</li> <li>• Flow rates of up to 870 l/min</li> <li>• Separate load voltage supply for the connected valves, can be shut down separately</li> <li>• Short circuit shutdown, short circuit diagnostics and switching cycle counter</li> </ul>	<ul style="list-style-type: none"> <li>• Max. 32 valve positions</li> <li>• Max. 32 solenoid coils</li> </ul>	VMPAL-EPL-AP	8087171

## Accessories

<b>Connecting cables</b>						
Description		Electrical connection 1	Electrical connection 2	Cable length	Type	Part no.
	For communication interface	Straight plug, M8x1, 4-pin, D-coded	Straight plug, M8x1, 4-pin, D-coded	0.3 m	NEBC-D8G4-ES-0.3-N-S-D8G4-ET	8082902
				5 m	NEBC-D8G4-ES-5-N-S-D8G4-ET	8065129
		Angled plug, M8x1, 4-pin, D-coded	Angled plug, M8x1, 4-pin, D-coded	0.5 m	NEBC-D8W4-ES-0.5-N-S-D8W4-ET	8065124
				5 m	NEBC-D8W4-ES-5-N-S-D8W4-ET	8065130
	For power supply	Straight socket, M8 x 1, 4-pin, A-coded	Open cable end, 4-wire	5 m	NEBL-M8G4-E-5-N-LE4	8065110
				15 m	NEBL-M8G4-E-15-N-LE4	8065121
	For voltage forwarding	Straight socket, M8 x 1, 4-pin, A-coded	Straight plug, M8 x 1, 4-pin, A-coded	0.3 m	NEBL-M8G4-E-0.3-N-M8G4	8082904
				5 m	NEBL-M8G4-E-5-N-M8G4	8065108

# 09

## Sensors



# Highlights

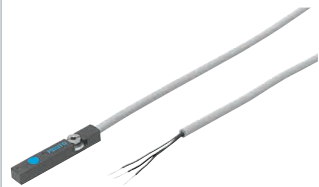


Proximity switches, for T-slot

## SDBT-MSX

- + Quick and easy mounting without the need to search for switching points
- + Oil-resistant, welding field-resistant, resistant to welding spatter

→ 245



Proximity switch, for T-slot

## SMT-8M

- + Short design
- + Variants suitable for use with energy chains and robots

→ 243



Pressure sensors

## SPAN

- + Pressure and vacuum
- + 13 pressure measuring ranges
- + All standard pressure units

→ 252

# Contents

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Product overview

Software-Tools

Festo Design Tool 3D







The Festo Design Tool 3D is a 3D product configurator for generating specific CAD product combinations from Festo. The configurator makes your search for the right accessory easier, more reliable and faster.

You can then order the module that has been created as a single order item, either completely pre-assembled or as individual parts in a single box. This considerably reduces your bill of materials, and downstream processes such as product ordering, order picking and assembly are significantly simplified.

This tool can be found at  
 → [www.festo.com/x/festo-design-tool](http://www.festo.com/x/festo-design-tool)

Proximity switches ›





Proximity switches, for T-slot

	 Proximity switches SMT-8M-A	 Proximity switch SME-8M	 Proximity switch SME-8	 Proximity switches SDBT-MSX
<b>Electrical connection 1, connection type</b>	Cable, cable with plug	Cable, Cable with plug	Cable, Plugs	Cable, cable with plug
<b>Electrical connection 1, connection technology</b>	M8x1 A-coded to EN 61076-2-104, M12x1 A-coded to EN 61076-2-101, open end	M12x1, A-coded to EN 61076-2-101, M8x1, A-coded, to EN 61076-2-104, Open end	M8x1, A-coded, to EN 61076-2-104, Open end	M8x1 A-coded to EN 61076-2-104, open end
<b>Operating voltage range DC</b>	5 ... 30 V	5 ... 30 V	0 ... 230 V	10 ... 30 V
<b>Switching element function</b>	N/C, N/C or N/O, switchable, N/O	N/C contact, N/O contact	N/C contact, N/O contact	N/C or N/O contact, switchable
<b>Switching output</b>	NPN, PNP, PNP/NPN switchable, contactless, 2-wire	Contacting, bipolar	Contacting, bipolar, Without LED function	PNP/NPN switchable
<b>Description</b>	<ul style="list-style-type: none"> <li>Measuring principle: magneto-resistive</li> <li>For universal use</li> <li>Individually configurable or pre-assembled</li> <li>Inserted in the slot from above, flush with the cylinder profile</li> <li>LED switching status indication</li> <li>LED operating reserve indication</li> <li>Cable length 0.1 ... 30 m</li> </ul>	<ul style="list-style-type: none"> <li>Measuring principle: magnetic reed</li> <li>Individually configurable or pre-assembled</li> <li>Inserted in the slot from above, flush with the cylinder profile</li> <li>LED switching status indication</li> <li>Cable length 0.3, 2.5, 5, 7.5, 0.2 ... 10 m</li> </ul>	<ul style="list-style-type: none"> <li>Measuring principle: magnetic reed</li> <li>Insertable in the slot lengthwise</li> <li>LED switching status indication</li> <li>Cable length 0.3, 2.5, 5, 7.5, 0.2 ... 10 m</li> </ul>	<ul style="list-style-type: none"> <li>Measuring principle: magnetic Hall</li> <li>Auto teach-in: automatic teach-in of the switching point at system start-up</li> <li>Programmable: PNP/NPN, NO/NC and switching window range between 2 ... 15 mm</li> <li>Insertable in the slot from above, screw-clamped</li> <li>LED status indicator</li> <li>Cable length 0.3 ... 5 m</li> </ul>
→ Page/online	243	<a href="#">sme-8m</a>	<a href="#">sme-8</a>	245




## Proximity switches &gt;

## Proximity switches, for C-slot


				
	<b>Proximity switch SME-10M</b>	<b>Proximity switch SME-10</b>	<b>Proximity switch SMT-10M</b>	<b>Proximity switch SMT-10G</b>
<b>Electrical connection, connection type</b>	Cable, Cable with plug	Cable, Cable with plug	Cable, Cable with plug	Cable, Cable with plug
<b>Electrical connection, connection technology</b>	M12x1, A-coded to EN 61076-2-101, M8x1, A-coded, to EN 61076-2-104, Open end	M8x1, A-coded, to EN 61076-2-104, Open end	M12x1, A-coded to EN 61076-2-101, M8x1, A-coded, to EN 61076-2-104, Open end	M8x1, A-coded, to EN 61076-2-104, Open end
<b>Electrical connection, number of pins/wires</b>	2, 3	3	2, 3	3
<b>Operating voltage range DC</b>	5 ... 30 V	12 ... 27 V	5 ... 30 V	10 ... 30 V
<b>Switching element function</b>	N/O contact	N/O contact	N/O contact	N/O contact
<b>Switching output</b>	Contacting, bipolar	Contacting, bipolar	NPN, PNP, Non-contacting, 2-wire	NPN, PNP
<b>Description</b>	<ul style="list-style-type: none"> <li>Measuring principle: magnetic reed</li> <li>Individually configurable or pre-assembled</li> <li>Inserted in the slot from above, flush with the cylinder profile</li> <li>LED switching status indication</li> <li>Cable length 0.3, 2.5 m</li> </ul>	<ul style="list-style-type: none"> <li>Measuring principle: magnetic reed</li> <li>Insertable in the slot lengthwise</li> <li>LED switching status indication</li> <li>Cable length 0.3, 2.5 m</li> </ul>	<ul style="list-style-type: none"> <li>Measuring principle: magneto-resistive</li> <li>For universal use</li> <li>Individually configurable or pre-assembled</li> <li>Inserted in the slot from above, flush with the cylinder profile</li> <li>LED switching status indication</li> <li>Cable length 0.3, 2.5 m</li> </ul>	<ul style="list-style-type: none"> <li>Measuring principle: magneto-resistive</li> <li>SMT-10G: design ideal for gripper sensing</li> <li>Insertable in the slot lengthwise or from above</li> <li>LED switching status indication</li> <li>Cable length 0.3, 2.5 m</li> </ul>
<b>→ Page/online</b>	<a href="#">sme-10m</a>	<a href="#">sme-10</a>	<a href="#">246</a>	<a href="#">smt-10</a>

## Inductive sensors




	
	<b>Inductive sensors SIEN</b>
<b>Size</b>	Ø4 mm, Ø6.5 mm, M12, M12x1, M18, M18x1, M30, M30x1.5, M5x0.5, M8x1
<b>Switching output</b>	NPN, PNP
<b>Switching element function</b>	N/C, N/O
<b>Electrical connection</b>	Cable, plug, 3-pin, 3-wire, M8x1, M12x1
<b>Operating voltage range DC</b>	10 ... 30 V
<b>Description</b>	<ul style="list-style-type: none"> <li>With standards-based switching distance</li> <li>For DC voltage</li> <li>Round design</li> <li>Metric thread</li> <li>Flush or non-flush mounting</li> <li>LED switching status indication</li> <li>Design with metal or polyamide housing</li> </ul>
<b>→ Page/online</b>	<a href="#">248</a>

## Product overview



### Position sensors

	 <p>Position sensors SRBS</p>
<b>Design</b>	Round
<b>Sensing range</b>	>270°
<b>Analogue output</b>	50 mA
<b>Electrical connection 1, connection type</b>	Cable with plug
<b>Electrical connection 1, connection technology</b>	M8x1 A-coded to EN 61076-2-104
<b>Electrical connection 1, occupied pins/wires</b>	4
<b>Description</b>	<ul style="list-style-type: none"> <li>Used to detect rotation of the shaft on rotary drives DRVS and DSM</li> <li>Simple and reliable operation using just one pushbutton directly on the device</li> <li>Switching output 2x PNP or 2x NPN, switchable</li> <li>Sensor can be quickly mounted without having to manually search for switching points</li> </ul>
<b>→ Page/online</b>	<a href="#">srbs</a>


### Pressure and vacuum sensors

	 <p>Pressure sensors SDE5</p>	 <p>Pressure sensors SPAN</p>	 <p>Pressure sensors SPAЕ</p>
<b>Pressure measuring range [MPa]</b>		-0.1 ... 1.6 MPa	-0.1 ... 1 MPa
<b>Pressure measuring range</b>	-1 ... 10 bar	-1 ... 16 bar	-1 ... 10 bar
<b>Switching element function</b>	N/C, N/O, switchable	N/C or N/O, switchable	N/C, N/O, switchable
<b>Switching output</b>	NPN, PNP	2 x PNP or 2 x NPN switchable, PNP/NPN switchable	PNP/NPN switchable
<b>Pneumatic connection</b>	QS-1/4, QS-4, QS-5/32, QS-6	Male thread 1/8 NPT, male thread G1/8, R1/8, female thread G1/8, M5, for tubing O.D. 4	Flange, cartridge 10, push-in sleeve QS-4, QS-6, QS-3, QS-4
<b>Electrical connection</b>	3-wire, 3-pin, Cable, Plugs, To EN 60947-5-2, Round design, M8x1	Plug, square design, 4-pin	Cable, open end, 3-wire
<b>Display type</b>		Illuminated LCD	LED display, 2-digit
<b>Description</b>	<ul style="list-style-type: none"> <li>Programmable and configurable pressure switch for simple pressure sensing tasks</li> <li>Threshold/window comparator</li> <li>Switching point adjustment by teach-in function</li> <li>Integrated microprocessor</li> <li>Switching status indication by an LED visible from all sides</li> <li>Certification: c UL us Listed (OL), C-Tick</li> </ul>	<ul style="list-style-type: none"> <li>For monitoring compressed air and non-corrosive gases</li> <li>For network monitoring, regulator monitoring, leak testing, object detection</li> <li>Relative measurement method based on a piezoresistive measuring cell</li> <li>Serial communication integrated using IO-Link® 1.1</li> <li>Compact design 30 x 30 mm</li> <li>High-contrast, blue backlit display</li> </ul>	<ul style="list-style-type: none"> <li>Electronic pressure sensor with piezoresistive pressure measuring cell, integrated signal processing, numeric pressure indicator in percent, operating key and a switching output, PNP/NPN switchable</li> <li>Display of minimum and maximum measured value</li> <li>All parameters entered can be transferred to other SPAEs (replicator function)</li> <li>IO-Link® communication interface</li> </ul>
<b>→ Page/online</b>	<a href="#">250</a>	<a href="#">252</a>	<a href="#">255</a>

## Pressure and vacuum sensors

		
	<b>Pressure sensors SPAU</b>	<b>Pressure switches, vacuum switches PEV, VPEV</b>
<b>Pressure measuring range</b>	-1 ... 16 bar	-1 ... 10 bar
<b>Switching element function</b>	N/C or N/O, switchable	Changeover switch
<b>Switching output</b>	2 x PNP or 2 x NPN switchable, 2xPNP	
<b>Pneumatic connection</b>	Flange, 1/8 NPT, G1/8, M5, M7, QS-4, QS-5/32, QS-6, R1/4, R1/8	G1/4, G1/8, M5
<b>Electrical connection</b>		4-pin, Type A, Screw terminal, Plugs, To DIN 43650, To EN 60947-5-2, Round design, Square design, M8x1, M12x1
<b>Display type</b>	Illuminated LCD, LED	
<b>Description</b>	<ul style="list-style-type: none"> <li>• For monitoring compressed air and non-corrosive gases</li> <li>• With or without display</li> <li>• Transfer of the pressure value as switching signal, analogue signal or via IO-Link® to the connected control system</li> <li>• Maximum flexibility thanks to versatile pneumatic adaptation and switchable electrical outputs</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanical pressure and vacuum switch</li> <li>• Adjustable switching point</li> <li>• Mounting: screw-in, via through-holes or via H-rail</li> <li>• Visual scale for pressure adjustment</li> <li>• Certification: CCC, c UL us – Recognized (OL), RCM</li> </ul>
<b>→ Page/online</b>	<a href="#">spau</a>	<a href="#">pev</a>

## Flow sensors

	
	<b>Flow sensors SFAH</b>
<b>Flow measuring range</b>	0.002 ... 200 l/min
<b>Operating medium</b>	Argon, nitrogen, compressed air to ISO 8573-1:2010 [6:4:4]
<b>Operating pressure</b>	-0.9 ... 10 bar
<b>Pneumatic connection</b>	Female thread G1/4, G1/8, for tubing O.D. 4, 6, 8
<b>Switching output</b>	2 x PNP or 2 x NPN switchable
<b>Electrical connection 1, connection type</b>	Plug
<b>Electrical connection 1, connection technology</b>	Connection pattern L1J, M8x1 A-coded to EN 61076-2-104
<b>Description</b>	<ul style="list-style-type: none"> <li>• Process, compressed air, forming gas and pneumatic object monitoring, handling of ultra-small parts, leak test</li> <li>• Compact design 20 x 58 mm</li> <li>• Clear 2-line display</li> <li>• Mounting: H-rail mounting, wall or surface mounting, front panel mounting</li> <li>• Serial communication integrated using IO-Link® 1.1</li> </ul>
<b>→ Page/online</b>	<a href="#">256</a>

Product overview

Optical sensors



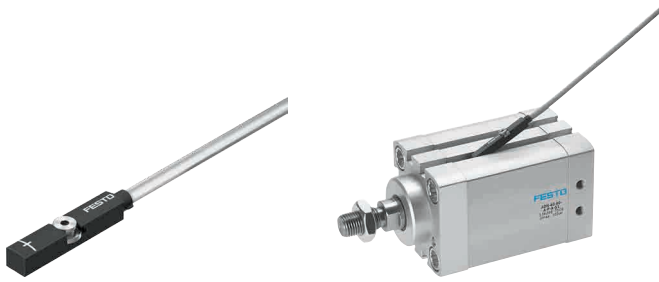
**Retro-reflective sensors, diffuse sensors, light barriers**  
**SOOD**



**Retro-reflective sensors, diffuse sensors, distance sensor, light barriers**  
**SOOE**

<b>Measurement method</b>	Retro-reflective sensor, through-beam sensor, transmitter, receiver, diffuse sensor with background suppression	Retro-reflective sensor, distance sensor, through-beam sensor, transmitter, receiver, diffuse sensor with background suppression, laser contrast sensor, retro-reflective sensor for transparent objects, diffuse sensor
<b>Working range</b>	0 ... 10000 mm	0 ... 20000 mm
<b>Setting options</b>		IO-Link®, potentiometer, teach-in
<b>Type of light</b>	Laser, red, LED	Laser, red, LED
<b>Switching output</b>	Push-pull	Push-pull
<b>Description</b>	<ul style="list-style-type: none"> <li>• Easy to operate</li> <li>• Quick to commission</li> <li>• Reliable and stable sensing</li> <li>• Attractive price/performance ratio</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to operate</li> <li>• Quick to commission</li> <li>• Reliable and stable sensing</li> <li>• Attractive price/performance ratio</li> </ul>
<b>→ Page/online</b>	<b>259</b>	<b>259</b>

Proximity switches SMT-8M, for T-slot



- Switching output NPN, PNP, PNP/NPN switchable, contactless, 2-wire
- Insertable in the slot from above, does not protrude beyond the cylinder profile
- Suitable for use with energy chains and robots
- Cable clip and inscription labels included in the scope of delivery
- With switching status indication

Order code – Basic design

001	002	003	004	005	006	007	008	009	010
SMT	8M	A		24V	E				

Legend:  Mandatory entry  Optional entry

001	Type
SMT	Proximity switch, magneto-resistive
002	Design
8M	For T-slot, insertable in the slot from above
003	Design
A	Short
004	Switching output
PS	3-wire N/O contact, PNP
NS	3-wire N/O contact, NPN
PO	3-wire N/C contact, PNP
005	Rated operating voltage
24V	24 V DC
006	Cable characteristic
E	Suitable for use with energy chains/robots

007	Cable length
0,3	0.3 m
2,5	2.5 m
5,0	5 m
7,5	7.5 m
008	Cable designation
–	With inscription label holder
009	Connection technology
OE	Open end
M8D	Cable with plug M8x1, rotatable thread
M12	Cable with plug M12x1, rotatable thread
010	EU certification
–	None

Product options

SME	Proximity switch, magnetic reed	DS	3-wire N/O contact
		DO	3-wire N/C contact
		ZS	2-wire N/O contact PNP
			Cable length
			0.1 ... 30 m
	Switching output		
	NO		3-wire N/C contact NPN
	PNS		PNP/NPN switchable
	PSO		PNP, N/C, N/O switchable

	Cable designation	Versions:
	N	Without inscription label holder
		Corrosion-resistant, heat-resistant
	Connection technology	
	M8	M8, snap-on collar

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/smt-8m](http://www.festo.com/catalogue/smt-8m)

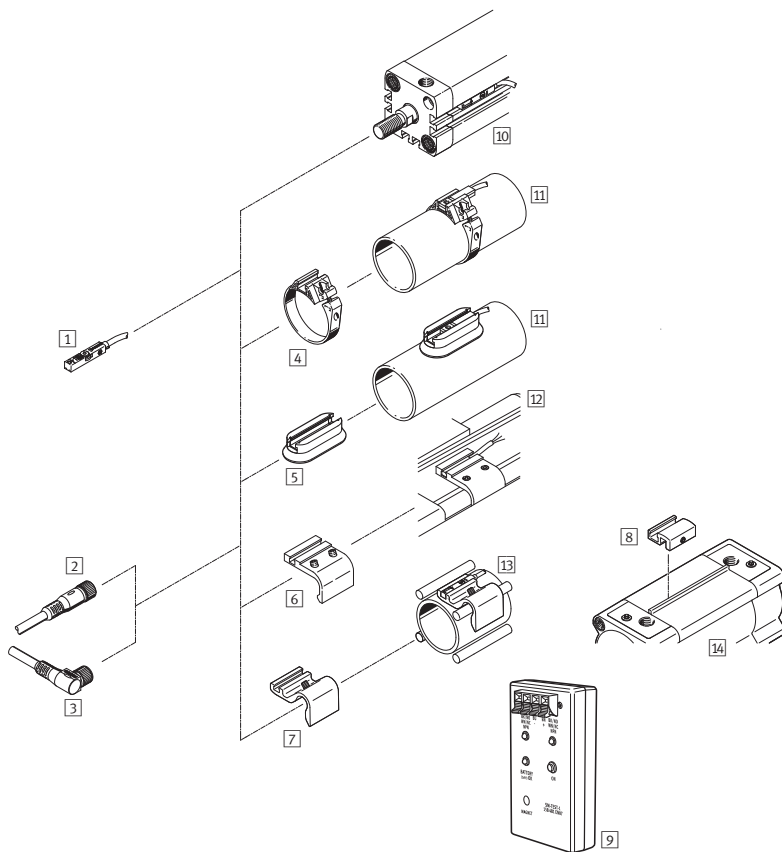
Proximity switches >

Proximity switches SMT-8M, for T-slot

Ordering – Basic design

001 Measuring principle	004 Switching output	009 Connection technology			007 Cable length	Type	Part no.
		Cable	Cable with plug, rotatable thread				
			M8x1	M12x1			
<b>004 N/O</b>							
Magneto-resistive	3-wire N/O contact, PNP	–	3-pin	–	0.3 m	<b>SMT-8M-A-PS-24V-E-0,3-M8D</b>	<b>574334</b>
		3-wire	–	–	2.5 m	<b>SMT-8M-A-PS-24V-E-2,5-OE</b>	<b>574335</b>
		3-wire	–	–	5 m	<b>SMT-8M-A-PS-24V-E-5,0-OE</b>	<b>574336</b>
	3-wire N/O contact, NPN	–	–	3-pin	0.3 m	<b>SMT-8M-A-PS-24V-E-0,3-M12</b>	<b>574337</b>
		3-wire	–	–	2.5 m	<b>SMT-8M-A-NS-24V-E-2,5-OE</b>	<b>574338</b>
		–	3-pin	–	0.3 m	<b>SMT-8M-A-NS-24V-E-0,3-M8D</b>	<b>574339</b>
<b>004 N/C</b>							
Magneto-resistive	3-wire N/C contact, PNP	3-wire	–	–	7.5 m	<b>SMT-8M-A-PO-24V-E-7,5-OE</b>	<b>574340</b>

Accessories



Proximity switches

1 SMT-8M-A-..., with cable → 243

Connecting cables

2 NEBU-M...G... → 304

3 NEBU-M...W... → 304

Mounting kits

4 SMBR → 244

5 CRSMB, corrosion-resistant

→ [smt-8m](#)

6 SMB-8-FENG → [smt-8m](#)

8 SMB-8-C → [smt-8m](#)

Accessories

7 Sensor bracket

DASP-M4-... → [smt-8m](#)

9 Sensor tester

SM-TEST-1 → [smt-8m](#)

Drives

10 Drives with T-slot → 31

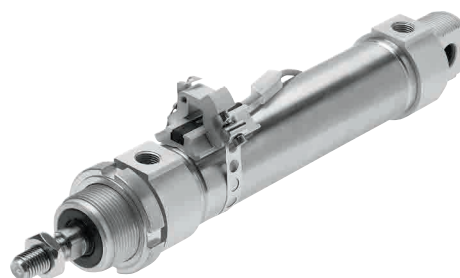
11 Round cylinders → 25

12 Standards-based cylinder DSBC → 31

13 Drives with tie or mounting rod → 31

14 Standards-based cylinder DSBF → 34

4 Mounting kit SMBR		
For Ø	Type	Part no.
8	<b>SMBR-8-8</b>	<b>175091</b>
10	<b>SMBR-8-10</b>	<b>175092</b>
12	<b>SMBR-8-12</b>	<b>175093</b>
16	<b>SMBR-8-16</b>	<b>175094</b>
20	<b>SMBR-8-20</b>	<b>175095</b>
25	<b>SMBR-8-25</b>	<b>175096</b>
32	<b>SMBR-8-32</b>	<b>175097</b>
40	<b>SMBR-8-40</b>	<b>175098</b>



## Proximity switches SDBT-MSX, for T-slot



- Quick and easy mounting without the need to search for switching points
- Mounting without accessories (power supply)
- Reliable teaching-in of the switching position under load during operation
- Can be programmed flexibly for expanded applications
- Switching output PNP/NPN, switchable
- Insertable in the slot from above, does not protrude beyond the cylinder profile
- Suitable for use with energy chains and robots
- With switching status indication

## Order code

001	002	003	004	005	006	007	008	009	010	011
SDBT	M	S	X	1	L		E		N	

Legend:  Mandatory entry

001	Type
SDBT	Sensor, magnetic Hall
002	Design
M	For T-slot, inserted in the slot from above
003	Sensor principle
S	Contactless (solid state)
004	Additional features
X	Auto teach-in and programmable
005	Nominal operating voltage
1	24 V DC
006	Display
L	LED
007	Digital switching output
PU	3-wire N/O contact, PNP
NU	3-wire N/O contact, NPN

008	Cable characteristic
E	Suitable for use with energy chains/robots
009	Cable length
0.3	0.3 m
2.5	2.5 m
5	5 m
010	Cable designation
N	Without inscription label holder
011	Connection technology
M8	Plug M8, A-coded
LE	Open end

## Ordering

001 Measuring principle	007 Digital switching output	011 Connection technology	009 Cable length	Type	Part no.
007 N/O					
Magnetic Hall	3-wire N/O contact, PNP	Plug M8, A-coded	0.3 m	SDBT-MSX-1L-PU-E-0.3-N-M8	8059120
		Open end	2.5 m	SDBT-MSX-1L-PU-E-2.5-N-LE	8059121
		Open end	5 m	SDBT-MSX-1L-PU-E-5-N-LE	8059122
	3-wire N/O contact, NPN	Plug M8, A-coded	0.3 m	SDBT-MSX-1L-NU-E-0.3-N-M8	8059123
		Open end	2.5 m	SDBT-MSX-1L-NU-E-2.5-N-LE	8059124
		Open end	5 m	SDBT-MSX-1L-NU-E-5-N-LE	8059125

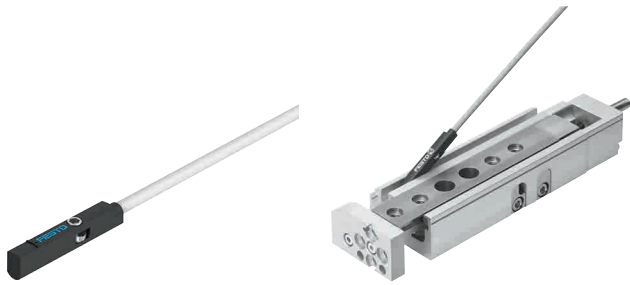
## Accessories

Mounting kit SMBR → 244  
 Sensor bracket DASP-M4... → [sdbt-msx](#)  
 Mounting SMBZ-8... → [sdbt-msx](#)  
 Positioning element SMM-8 → [sdbt-msx](#)

Connecting cables  
 NEBU-M...G... → 304  
 NEBU-M...W... → 304  
 Sensor tester SM-TEST-1 → [sdbt-msx](#)

Proximity switches >

## Proximity switches SMT-10M, for C-slot



- Switching output PNP, NPN or contactless, 2-wire
- Inserted in the slot from above, does not protrude beyond the cylinder profile
- Suitable for use with energy chains and robots
- Cable clip and inscription labels included in the scope of delivery
- With switching status indication

### Order code – Basic design

001 **SMT** - 002 **10M** - 003  - 004 **24V** - 005 **E** - 006  - 007  - 008 **L** - 009  - 010

Legend:  Mandatory entry     Optional entry

001	Type
SMT	Proximity switch, magneto-resistive
002	Design
10M	For C-slot, insertable in the slot from above
003	Switching output
PS	3-wire N/O contact, PNP
ZS	2-wire N/O contact, PNP
NS	3-wire N/O contact, NPN
004	Rated operating voltage
24V	24 V DC
005	Cable characteristic
E	Suitable for use with energy chains/robots

006	Cable length
0,3	0.3 m
2,5	2.5 m
007	Display
-	LED
008	Cable outlet
L	In-line
009	Cable designation
-	With inscription label holder
010	Connection technology
OE	Open end
M8D	Cable with plug M8x1, rotatable thread

### Product options

SME	Proximity switch, magnetic reed	Q	Lateral cable outlet	M8	Cable with plug M8x1, snap-on flange	Cable length 0.2 ... 10 m
DS	N/O, 3-wire	N	Without inscription label holder	M12	Cable with plug M12x1, rotatable thread	

Configurable product

This product and all its product options can be ordered online via the configurator:

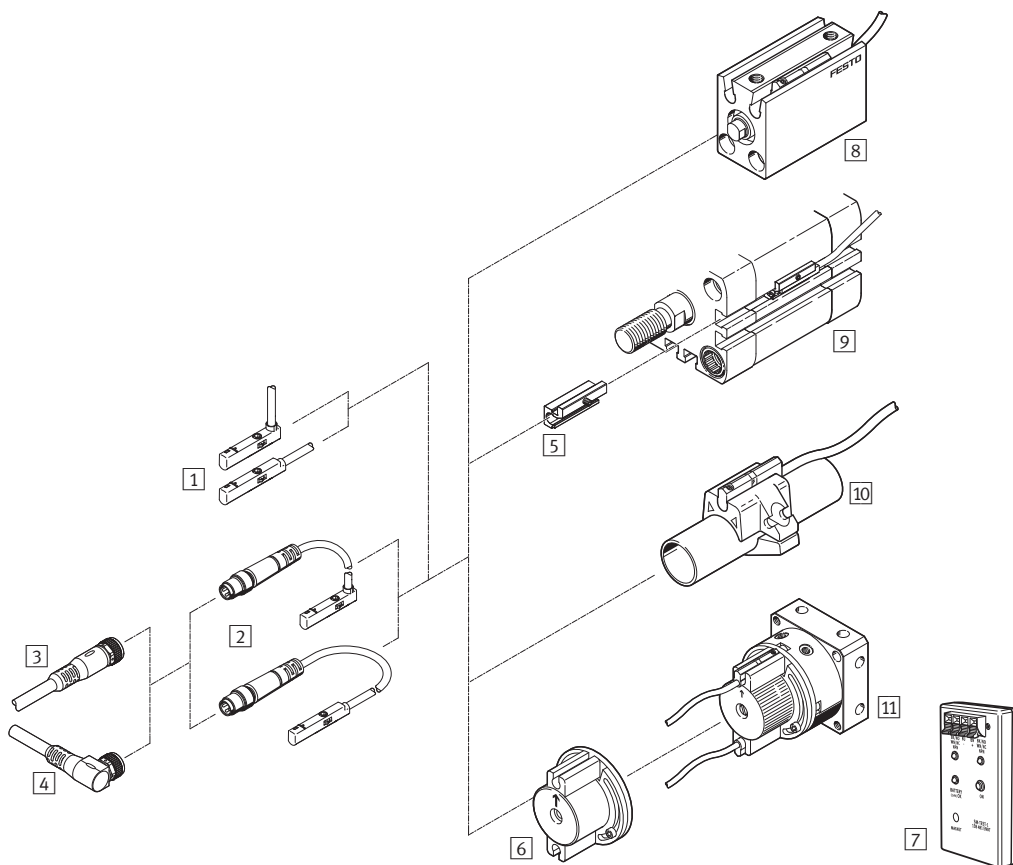
→ [www.festo.com/catalogue/smt-10m](http://www.festo.com/catalogue/smt-10m)



## Ordering – Basic design

003 Switching output	008 Cable outlet	Electrical connection		006 Cable length	Type	Part no.
		Cable	Cable with plug, rotatable thread			
003 N/O						
3-wire N/O contact, PNP	In-line	3-wire, open end	–	2.5 m	<b>SMT-10M-PS-24V-E-2,5-L-OE</b>	<b>551373</b>
	In-line	–	3-pin, M8x1 A-coded to EN 61076-2-104	0.3 m	<b>SMT-10M-PS-24V-E-0,3-L-M8D</b>	<b>551375</b>
3-wire N/O contact, NPN	In-line	3-wire, open end	–	2.5 m	<b>SMT-10M-NS-24V-E-2,5-L-OE</b>	<b>551377</b>
	In-line	–	3-pin, M8x1 A-coded to EN 61076-2-104	0.3 m	<b>SMT-10M-NS-24V-E-0,3-L-M8D</b>	<b>551379</b>
Contactless, 2-wire N/O contact, PNP	In-line	2-wire, open end	–	2.5 m	<b>SMT-10M-ZS-24V-E-2,5-L-OE</b>	<b>551382</b>

## Accessories



## Proximity switches

- 1 SMT-10M-...-OE, with cable → 246
- 2 SMT-10M-...-M..., with cable and plug → 246

## Connecting cables

- 3 NEBU-M...G... → 304
- 4 NEBU-M...W... → 304

## Mounting kits

- 5 SMBN-10 → [smt-10m](#)
- 6 WSM-...-SME-10 → [smt-10m](#)

## Accessories

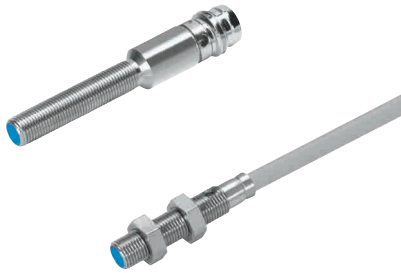
- 7 Sensor tester SM-TEST-1 → [smt-10m](#)

## Drives

- 8 Drives with C-slot → 37
- 9 Drives with T-slot → 31
- 10 Round cylinders → 25
- 11 Swivel module DSM → [dsm](#)

Inductive sensors >

## Proximity switches SIEN, inductive



- With standards-based switching distance
- Round design, metric thread
- Flush installation
- With switching status indication
- Design with metal housing

### Order code – Basic design

001	002	003	004	005	006	007	008	009	010
SIE	N			B		S		L	

Legend:  Mandatory entry     Optional entry

001	Type
SIE	Proximity switches, inductive
002	Design
N	With standards-based switching distance
003	Design
–	Round
004	Size
M5	Metric thread M5x0.5
M8	Metric thread M8x1
005	Type of mounting
B	Flush

006	Switching input/output
P	PNP
N	NPN
007	Switching element function
S	N/O
008	Electrical connection
K	3-wire, open end, cable 2.5 m
S	3-pin, plug, M8x1
009	Display
L	LED
010	Housing material
–	Standard

### Product options

Size	Type of mounting	Housing material
4    Diameter 4 mm	NB    Non-flush	PA    Polyamide housing
6.5    Diameter 6.5 mm	Switching element function	
M...    Metric thread M12x1, M18x1, M30x1.5	O    N/C	



Configurable product

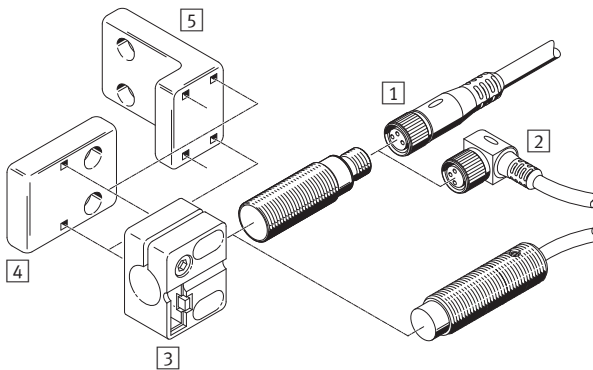
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/sien](http://www.festo.com/catalogue/sien)

## Ordering – Basic design

006 Switching input/output	004 Size	008 Electrical connection		Cable length	Type	Part no.
		Cable	Plug			
<b>007 N/O contact</b>						
PNP	M5x0.5	3-wire, open end	–	2.5 m	SIEN-M5B-PS-K-L	150370
	M8x1	3-wire, open end	–	2.5 m	SIEN-M8B-PS-K-L	150386
	M5x0.5	–	3-pin, plug, M8x1	–	SIEN-M5B-PS-S-L	150371
	M8x1	–	3-pin, plug, M8x1	–	SIEN-M8B-PS-S-L	150387
NPN	M5x0.5	3-wire, open end	–	2.5 m	SIEN-M5B-NS-K-L	150368
	M8x1	3-wire, open end	–	2.5 m	SIEN-M8B-NS-K-L	150384
	M5x0.5	–	3-pin, plug, M8x1	–	SIEN-M5B-NS-S-L	150369
	M8x1	–	3-pin, plug, M8x1	–	SIEN-M8B-NS-S-L	150385

## Accessories



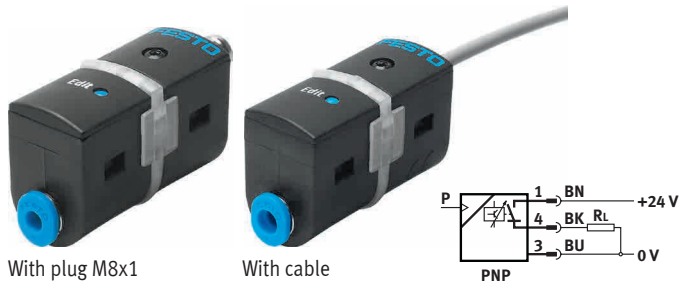
### Connecting cables

- 1 NEBU-M...G... → 251
- 2 NEBU-M...W... → 251

### Sensor brackets

- 3 SIEZ-B → [sien](#)
- 4 SIEZ-NB → [sien](#)
- 5 SIEZ-UH → [sien](#)

Pressure and vacuum sensors >  
Pressure sensors SDE5



- Programmable and configurable pressure switch for simple and quick pressure monitoring tasks
- Relative pressure or differential pressure measurement
- Teach-in function for programming
- Switching status indication by an LED visible from all sides

Order code – Basic design



Legend: [ ] Mandatory entry [ ] Optional entry

001	Type
SDE5	Pressure sensor
002	Pressure measuring range
V1	-1 ... 0 bar
D2	0 ... 2 bar
D10	0 ... 10 bar
003	Pressure input
-	Relative pressure
004	Output function
FP	Freely programmable, selectable N/O, N/C
O	Threshold value with fixed hysteresis, 1 teach-in point, N/O contact
C	Threshold value with fixed hysteresis, 1 teach-in point, N/C contact
O1	Threshold value with fixed hysteresis, 2 teach-in points, N/O contact
O2	Threshold value with variable hysteresis, N/O contact
O3	Window comparator with fixed hysteresis, N/O contact
C3	Window comparator with fixed hysteresis, N/C contact

005	Pneumatic connection
Q4	Push-in connector 4 mm, at both ends
Q6	Push-in connector 6 mm, at both ends
Q4E	Push-in connector 4 mm, at one end
Q6E	Push-in connector 6 mm, at one end
006	Electrical output 1
P	PNP
007	Electrical connection
K	3-wire, open end, cable 2.5 m
M8	3-pin, plug, M8x1

Product options

Pressure input	Output function	Pneumatic connection	Electrical output 1
Z Differential pressure	NF No binary switching function (analogue output)	Push-in connector 1/4", at one end	N NPN
			V 0 ... 10 V

Configurable product

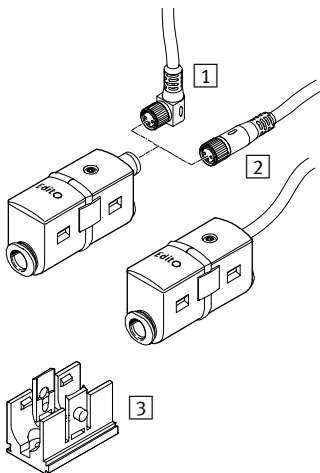
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/sde5](http://www.festo.com/catalogue/sde5)

## Ordering – Basic design

004 Output function	002 Pressure measuring range					
	V1: -1 ... 0 bar		D2: 0 ... 2 bar		D10: 0 ... 10 bar	
	Type	Part no.	Type	Part no.	Type	Part no.
Freely programmable (switching/teach-in function, N/O contact, N/C contact)	-	-	-	-	SDE5-D10-FP-Q6E-P-M8	542897
	SDE5-V1-FP-Q6-P-M8	542887	-	-	SDE5-D10-FP-Q6-P-M8	542898
	-	-	-	-	SDE5-D10-FP-Q4E-P-K	542901
	-	-	-	-	SDE5-D10-FP-Q4E-P-M8	542900
	-	-	-	-	SDE5-D10-FP-Q6-P-K	542899
Threshold value with fixed hysteresis, 1 teach-in point, N/O contact	SDE5-V1-O-Q6E-P-M8	527461	-	-	SDE5-D10-O-Q6E-P-M8	527467
	-	-	SDE5-D2-O-Q6E-P-K	542888	SDE5-D10-O-Q6E-P-K	542890
	SDE5-V1-O-Q6-P-M8	527458	-	-	SDE5-D10-O-Q6-P-M8	527464
	SDE5-V1-O-Q4E-P-M8	527460	-	-	SDE5-D10-O-Q4E-P-M8	527466
	SDE5-V1-O-Q4-P-M8	527457	-	-	SDE5-D10-O-Q4-P-M8	527463
Threshold value with fixed hysteresis, 1 teach-in point, N/C contact	-	-	-	-	SDE5-D10-C-Q6E-P-M8	542894
	-	-	-	-	SDE5-D10-C-Q4E-P-M8	542889
	-	-	-	-	SDE5-D10-C-Q6E-P-K	542895
Threshold value with fixed hysteresis, 2 teach-in points, N/O contact	SDE5-V1-O1-Q6-P-M8	542886	-	-	-	-
Threshold value with variable hysteresis, N/O contact	-	-	-	-	SDE5-D10-O2-Q6-P-M8	542892
Window comparator with fixed hysteresis, N/O contact	-	-	-	-	SDE5-D10-O2-Q6E-P-M8	542891
Window comparator with fixed hysteresis, N/C contact	-	-	-	-	SDE5-D10-O3-Q6E-P-K	542893
Window comparator with fixed hysteresis, N/C contact	-	-	-	-	SDE5-D10-C3-Q6E-P-K	542896

## Accessories



- 1 Connecting cable NEBU-M8W3, angled socket → 251
- 2 Connecting cable NEBU-M8G3, straight socket → 251
- 3 Wall bracket (included in scope of delivery)

1 Connecting cables NEBU-M8W3, M8x1, angled socket			
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

2 Connecting cables NEBU-M8G3, M8x1, straight socket			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334

Pressure and vacuum sensors >  
**Pressure sensors SPAN**



- For network monitoring, regulator monitoring, leak test and object detection
- Relative method of measurement, based on a piezoresistive measuring cell
- Serial communication integrated using IO-Link® 1.1
- Compact design
- High-contrast display

**Order code – Basic design**

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015  
 SPAN - - R - - - L1 + - - - -

<b>001</b>	Type
SPAN	Pressure sensor
<b>002</b>	Product version
-	Standard
B	Basic
<b>003</b>	Pressure measuring range
V1	-1 ... 0 bar
B2	-1 ... +1 bar
P10	0 ... 10 bar
B11	-1 ... +10 bar
<b>004</b>	Pressure input
R	Relative pressure
<b>005</b>	Pneumatic connection
G18	G1/8
R18	R1/8
M5	M5
Q4	Push-in connector 4 mm
<b>006</b>	Thread type
-	None
F	Female thread
M	Male thread
<b>007</b>	Thread material
-	Standard
AL	Aluminium

<b>008</b>	Electrical output 1
PN	PNP or NPN
PNLK	PNP, NPN or IO-Link®
<b>009</b>	Electrical output 2
-	None
PN	PNP or NPN
PNVBA	PNP or NPN or 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA
<b>010</b>	Electrical connection
L1	Plug design L1
<b>011</b>	Mounting accessories
-	None
<b>012</b>	Electrical adapter
-	None
<b>013</b>	Electrical accessories
-	None
2.5S	Straight socket, cable 2.5 m
<b>014</b>	Protective devices
-	None
<b>015</b>	Certificates
-	None

Legend:  Mandatory entry     Optional entry

**Product options**

Pressure measuring range

B02	-0,1 ... 0,1 bar
P025	0 ... 0,25 bar
P05	0 ... 0,5 bar
P1	0 ... 1 bar
P2	0 ... 2 bar
P6	0 ... 6 bar
P12	0 ... 12 bar
P16	0 ... 16 bar
V025	0 ... -0,25 bar
V05	0 ... -0,5 bar

Pneumatic connection

N18	1/8 NPT
-----	---------

Thread material

PM	Polymer
----	---------

Mounting accessories

A	Mounting bracket
W	Wall mounting
FP	Panel mounting kit

Electrical adapter

EA	Electrical adapter, angled
ES	Electrical adapter, straight

Electrical accessories

5S	Straight socket, cable 5 m
5A	Angled socket, cable 5 m
2.5A	Angled socket, cable 2.5 m


Protective devices

G	Safety guard
---	--------------

Certificates

T	Test report
---	-------------

## Ordering – Product options

 Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.    Type  
**8003300**    **SPAN**

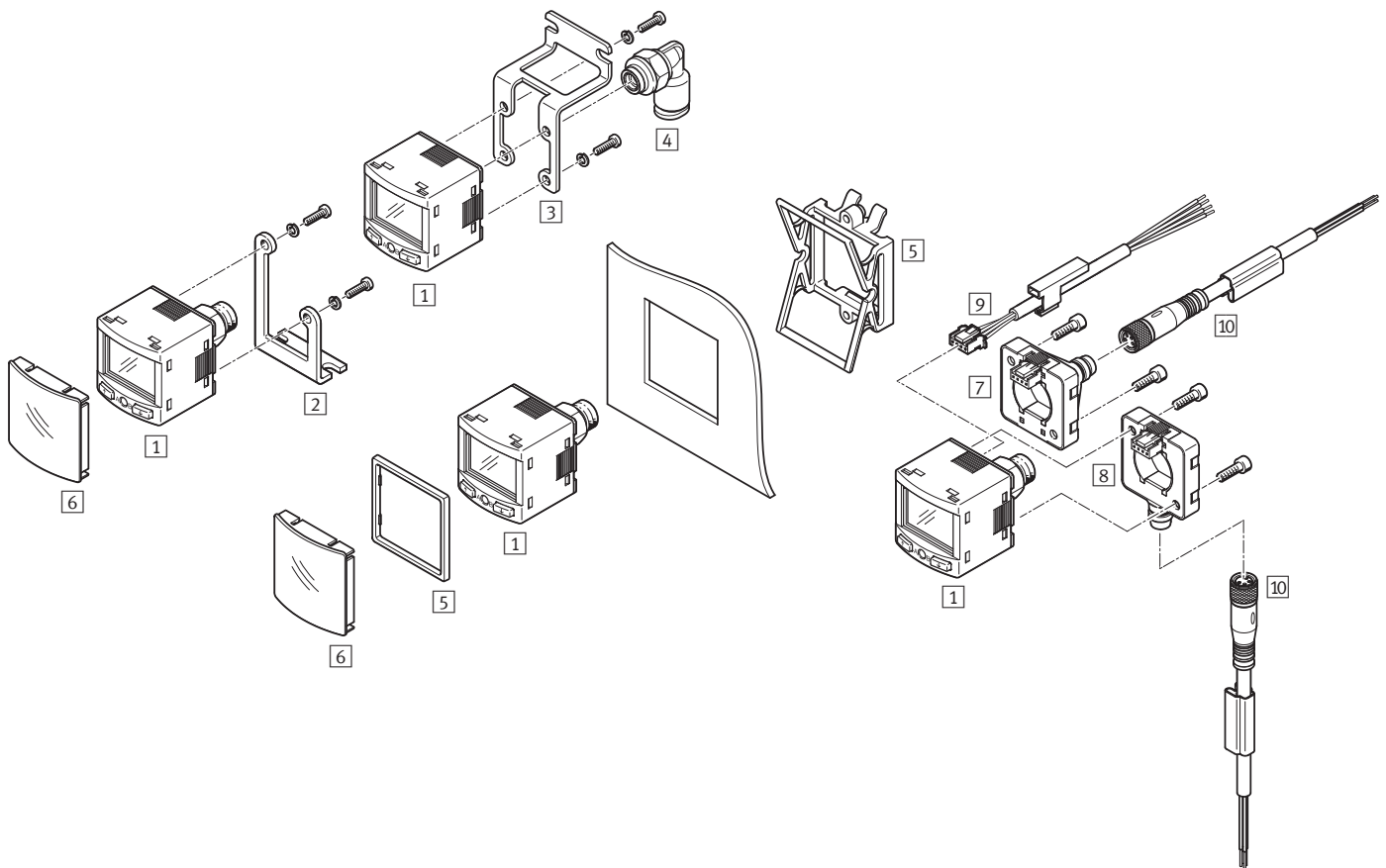
## Ordering – Basic design

002 Product version: Standard			005 Pneumatic connection	Type	Part no.
Electrical output					
Switching output	Analogue output	Serial interface			
<b>003 Pressure measuring range V1: -1 ... 0 bar</b>					
2 x PNP/NPN Switchable	-	-	G1/8 male, M5 female	SPAN-V1R-G18M-PN-PN-L1	8035546
			R1/8 male, M5 female	SPAN-V1R-R18M-PN-PN-L1	8035549
			Push-in connector 4 mm	SPAN-V1R-Q4-PN-PN-L1	8035554
0 ... 10 V, 1 ... 5 V 4 ... 20 mA Switchable	IO-Link		G1/8 male, M5 female	SPAN-V1R-G18M-PNLK-PNVBA-L1	8035535
			R1/8 male, M5 female	SPAN-V1R-R18M-PNLK-PNVBA-L1	8035538
			Push-in connector 4 mm	SPAN-V1R-Q4-PNLK-PNVBA-L1	8035543
<b>003 Pressure measuring range B2: -1 ... +1 bar</b>					
2 x PNP/NPN Switchable	-	-	G1/8 male, M5 female	SPAN-B2R-G18M-PN-PN-L1	8035545
			R1/8 male, M5 female	SPAN-B2R-R18M-PN-PN-L1	8035548
			M5 female	SPAN-B2R-M5F-PN-PN-L1	8035551
			Push-in connector 4 mm	SPAN-B2R-Q4-PN-PN-L1	8035553
0 ... 10 V, 1 ... 5 V 4 ... 20 mA Switchable	IO-Link		G1/8 male, M5 female	SPAN-B2R-G18M-PNLK-PNVBA-L1	8035534
			R1/8 male, M5 female	SPAN-B2R-R18M-PNLK-PNVBA-L1	8035537
			M5 female	SPAN-B2R-M5F-PNLK-PNVBA-L1	8035540
			Push-in connector 4 mm	SPAN-B2R-Q4-PNLK-PNVBA-L1	8035542
<b>003 Pressure measuring range P10: 0 ... 10 bar</b>					
2 x PNP/NPN Switchable	-	-	G1/8 male, M5 female	SPAN-P10R-G18M-PN-PN-L1	8035544
			R1/8 male, M5 female	SPAN-P10R-R18M-PN-PN-L1	8035547
			M5 female	SPAN-P10R-M5F-PN-PN-L1	8035550
			Push-in connector 4 mm	SPAN-P10R-Q4-PN-PN-L1	8035552
			0 ... 10 V, 1 ... 5 V 4 ... 20 mA Switchable	IO-Link	
R1/8 male, M5 female	SPAN-P10R-R18M-PNLK-PNVBA-L1	8035536			
M5 female	SPAN-P10R-M5F-PNLK-PNVBA-L1	8035539			
Push-in connector 4 mm	SPAN-P10R-Q4-PNLK-PNVBA-L1	8035541			
<b>003 Pressure measuring range B11: -1 ... +10 bar</b>					
2 x PNP/NPN Switchable	0 ... 10 V, 1 ... 5 V 4 ... 20 mA Switchable	IO-Link	G1/8 male, M5 female	SPAN-B11R-G18M-PNLK-PNVBA-L1	609149

002 Product version: Basic					
Electrical output	013 Electrical accessories	002 Thread material	005 Pneumatic connection	Type	Part no.
Switching output					
<b>003 Pressure measuring range V1: -1 ... 0 bar</b>					
1 x PNP/NPN Switchable	Connecting cable NEBS-L1G4-K-2,5-LE4	Standard	G1/8 male	SPAN-B-V1R-G18M-PN-L1+2.5S	8114767
<b>003 Pressure measuring range B2: -1 ... +1 bar</b>					
1 x PNP/NPN Switchable	Connecting cable NEBS-L1G4-K-2,5-LE4	Standard	G1/8 male	SPAN-B-B2R-G18M-PN-L1+2.5S	8114766
			R1/8 male	SPAN-B-B2R-R18M-PN-L1+2.5S	8114769
		Aluminium	M5 female	SPAN-B-B2R-M5FAL-PN-L1+2.5S	8114772
<b>003 Pressure measuring range B11: -1 ... +10 bar</b>					
1 x PNP/NPN Switchable	Connecting cable NEBS-L1G4-K-2,5-LE4	Standard	G1/8 male	SPAN-B-B11R-G18M-PN-L1+2.5S	8114765
			R1/8 male	SPAN-B-B11R-R18M-PN-L1+2.5S	8114768

Pressure and vacuum sensors >  
Pressure sensors SPAN

Accessories



- 1 Pressure sensor SPAN
- 2 Mounting bracket SAMH-PU-A → span
- 3 Wall mounting SAMH-PN-W → 254
- 4 Push-in fitting QSML-M5 → 318
- 5 Front panel mounting kit SAMH-PN-F → 254
- 6 Safety guard SACC-PN-G → 254
- 7 Electrical adapter SASC-P4-A-M8-S (only in combination with NEBU-M8) → 254
- 8 Electrical adapter SASC-P4-A-M8-A (only in combination with NEBU-M8) → 254
- 9 Connecting cable NEBS-L1G4 → 254
- 10 Connecting cable NEBU-M8

3 Wall mounting SAMH-PN-W		
Type of mounting	Type	Part no.
Via through-hole and screw	<b>SAMH-PN-W</b>	<b>8035563</b>

5 Panel mounting kit SAMH-PN-F		
Description	Type	Part no.
Mounting kit for front panel	<b>SAMH-PN-F</b>	<b>8035561</b>

6 Safety guard SACC-PN-G		
Description	Type	Part no.
To protect the display and control elements	<b>SACC-PN-G</b>	<b>8035560</b>

7 Electrical adapter SASC-P4-A-M8-S		
Description	Type	Part no.
For outlet orientation to the rear	<b>SASC-P4-A-M8-S</b>	<b>8000327</b>

8 Electrical adapter SASC-P4-A-M8-A		
Description	Type	Part no.
For outlet orientation underneath	<b>SASC-P4-A-M8-A</b>	<b>8000326</b>

9 Connecting cables NEBS-L1G4, rectangular design L1			
Cable length	Connection, right	Type	Part no.
Connection, left: socket, rectangular design L1, 4-pin			
2.5 m	Cable, open end, 4-wire	<b>NEBS-L1G4-K-2.5-LE4</b>	<b>572576</b>
5 m		<b>NEBS-L1G4-K-5-LE4</b>	<b>572577</b>

10 Connecting cables NEBU-M8G4, M8x1, straight socket			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 4-pin			
2.5 m	Cable, open end, 4-wire	<b>NEBU-M8G4-K-2.5-LE4</b>	<b>541342</b>
5 m		<b>NEBU-M8G4-K-5-LE4</b>	<b>541343</b>

10 Connecting cables NEBU-M8W4, M8x1, angled socket			
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M8x1, 4-pin			
2.5 m	Cable, open end, 4-wire	<b>NEBU-M8W4-K-2.5-LE4</b>	<b>541344</b>
5 m		<b>NEBU-M8W4-K-5-LE4</b>	<b>541345</b>





SPAE-P10R



SPAE-V1R

- Pressure sensor
- Vacuum sensor
- Single-button operation
- 7-segment display
- Switching status indication
- N/C or N/O, switchable
- Communication interface for IO-Link®
- Pressure measuring range 0 ... 10 bar, -1 ... 0 bar
- Voltage 18 ... 30 V DC
- Switching output PNP/NPN, switchable

## Order code – Basic design

001	002	003	004	005	006
SPAE		R		PNLK	2.5K

Legend:  Mandatory entry

001	Type
SPAE	Piezoresistive pressure sensor
002	Pressure measuring range
P10	0 ... 10 bar
V1	-1 ... 0 bar
003	Pressure input
R	Relative pressure

004	Pneumatic connection
S4	Push-in sleeve 4 mm
S6	Push-in sleeve 6 mm
Q3	Push-in connector 3 mm
Q4	Push-in connector 4 mm
F	Flange

005	Electrical output 1
PNLK	PNP/NPN/IO-Link®

006	Electrical connection
2.5K	Cable 2.5 m, open end

## Product options

Pressure measuring range  
B2 -1 ... 1 bar

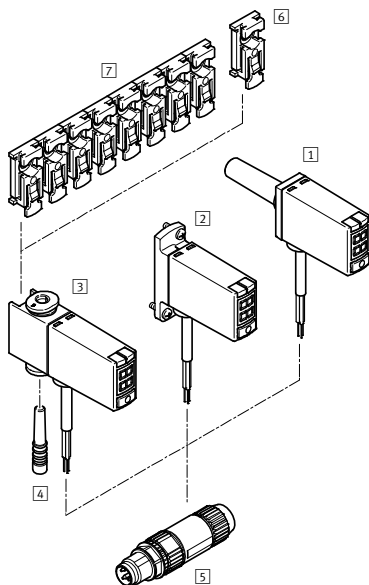
Pneumatic connection  
PC10 Cartridge 10 mm

## Ordering – Basic design

004 Pneumatic connection	Type	Part no.
002 Pressure measuring range -1 ... 0 bar		
Push-in sleeve 4 mm	SPAE-V1R-S4-PNLK-2.5K	8001440
Push-in sleeve 6 mm	SPAE-V1R-S6-PNLK-2.5K	8001441
Push-in connector 3 mm	SPAE-V1R-Q3-PNLK-2.5K	8001442
Push-in connector 4 mm	SPAE-V1R-Q4-PNLK-2.5K	8001443
Flange	SPAE-V1R-F-PNLK-2.5K	8001444

004 Pneumatic connection	Type	Part no.
002 Pressure measuring range 0 ... 10 bar		
Push-in sleeve 4 mm	SPAE-P10R-S4-PNLK-2.5K	8001445
Push-in sleeve 6 mm	SPAE-P10R-S6-PNLK-2.5K	8001446
Push-in connector 3 mm	SPAE-P10R-Q3-PNLK-2.5K	8001447
Push-in connector 4 mm	SPAE-P10R-Q4-PNLK-2.5K	8001448
Flange	SPAE-P10R-F-PNLK-2.5K	8001449

## Accessories

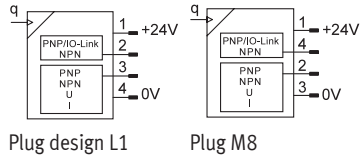


Pressure sensor

- 1 SPAE-...-S...
- 2 SPAE-...-F...
- 3 SPAE-...-Q...

- 4 Blanking plug, for SPAE-...-Q... (included in the scope of delivery)
- 5 Plug NECU-S-M8G3-HX-Q3, SEA-4GS-7-2,5 → [spae](#)
- 6 Mounting clip SAMH-PE-MC-1 → [spae](#)
- 7 Mounting clip SAMH-PE-MC-8 → [spae](#)

## Flow sensors SFAH



- High measuring dynamics (1:50)
- Measurement method is based on the thermal heat-transfer method
- Clear 2-line display
- Intuitive menu navigation
- L1 and M8 plugs for fast commissioning
- High pressure range –0.9 bar ... 10 bar
- Degree of protection IP40 or IP54
- Switching output 2 x PNP or 2 x NPN, switchable
- N/C or N/O, switchable

## Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013  
**SFAH** -  **U** -    **S** - **PNLK** - **PNVBA** -  +  -  -  -

001	Type
SFAH	Flow sensor
002	Flow measuring range
0.1 <sup>1)</sup>	Max. 0.1 l/min
0.5	Max. 0.5 l/min
1	max. 1 l/min
5	max. 5 l/min
10	max. 10 l/min
50	max. 50 l/min
100	max. 100 l/min
200	max. 200 l/min
003	Flow input
U	Unidirectional
004	Pneumatic connection
Q4	Push-in connector 4 mm
Q6	Push-in connector 6 mm
Q8	Push-in connector 8 mm
G14	G1/4
G18	G1/8
005	Thread type
-	None
F	Female thread

006	Outlet direction
S	Straight
007	Electrical output 1
PNLK	PNP/NPN/IO-Link®
008	Electrical output 2
PNVBA	PNP or NPN or 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA
009	Electrical connection
L1	Plug design L1
M8	Plug M8, A-coded
010	Mounting accessories
-	None
011	Electrical accessories
-	None
2.5S	Straight socket, cable 2.5 m
012	Protective devices
-	None
013	Certificates
-	None

1) For low leakage requirements in the lower measuring range, use G1/4 or G1/8 female thread in combination with pneumatic connection.

Legend:  Mandatory entry  Optional entry

## Product options

B	Bidirectional flow input	Mounting accessories	Electrical accessories	Protective devices	
AR	Angled outlet direction, can be adjusted	H	H-rail mounting	G	Safety guard
		W	Wall mounting		Certificates
		FP	Panel mounting kit	T	Test report
				2.5S	Straight socket, cable 2.5 m
				2.5A	Angled socket, cable 2.5 m
				5S	Straight socket, cable 5 m
				5A	Angled socket, cable 5 m

## Ordering – Product options



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.  
**8035300**

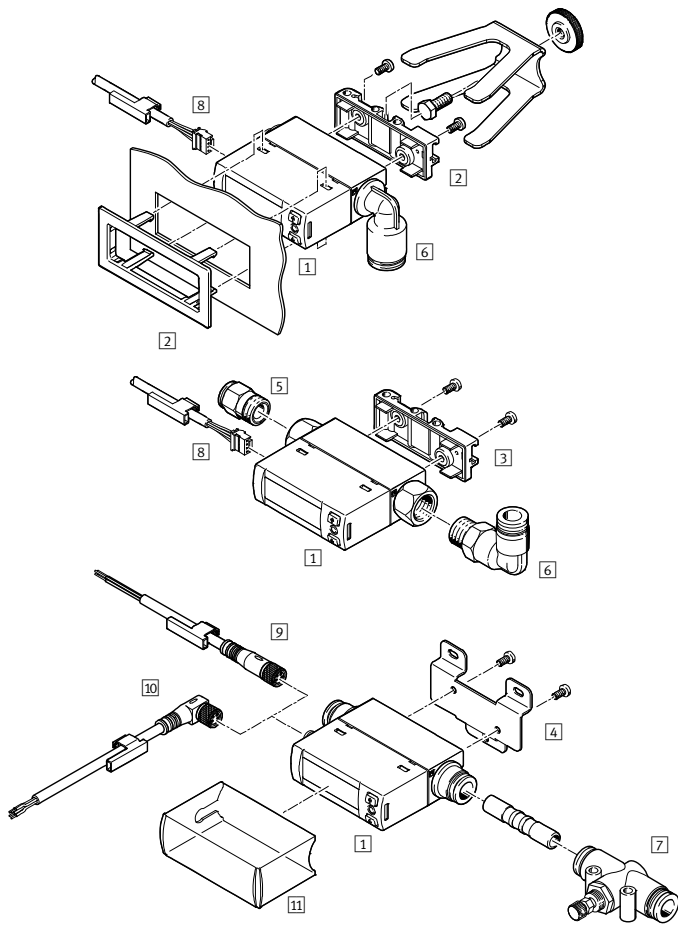
Type  
**SFAH**

## Ordering – Basic design

002 Flow measuring range	004 Pneumatic connection	Type	Part no.
0.1 l/min	For tubing O.D. 4 mm	SFAH-0.1U-Q4S-PNLK-PNVBA-L1	8058461
		SFAH-0.1U-Q4S-PNLK-PNVBA-M8	8058462
0.5 l/min	For tubing O.D. 4 mm	SFAH-0.5U-Q4S-PNLK-PNVBA-L1	8058463
		SFAH-0.5U-Q4S-PNLK-PNVBA-M8	8058464
1 l/min	For tubing O.D. 4 mm	SFAH-1U-Q4S-PNLK-PNVBA-L1	8058465
		SFAH-1U-Q4S-PNLK-PNVBA-M8	8058466
5 l/min	For tubing O.D. 6 mm	SFAH-5U-Q6S-PNLK-PNVBA-L1	8058467
		SFAH-5U-Q6S-PNLK-PNVBA-M8	8058468
10 l/min	For tubing O.D. 6 mm	SFAH-10U-Q6S-PNLK-PNVBA-L1	8058469
		SFAH-10U-Q6S-PNLK-PNVBA-M8	8058470
50 l/min	For tubing O.D.8 mm	SFAH-50U-Q8S-PNLK-PNVBA-L1	8058471
		SFAH-50U-Q8S-PNLK-PNVBA-M8	8058472
	Female thread G1/8	SFAH-50U-G18FS-PNLK-PNVBA-M8	8058473
100 l/min	For tubing O.D. 8 mm	SFAH-100U-Q8S-PNLK-PNVBA-L1	8058474
		SFAH-100U-Q8S-PNLK-PNVBA-M8	8058475
	Female thread G1/4	SFAH-100U-G14FS-PNLK-PNVBA-M8	8058476
200 l/min	For tubing O.D. 8 mm	SFAH-200U-Q8S-PNLK-PNVBA-L1	8058477
		SFAH-200U-Q8S-PNLK-PNVBA-M8	8058478
	Female thread G1/4	SFAH-200U-G14FS-PNLK-PNVBA-M8	8058479

## Flow sensors SFAH

### Accessories



- 1 Flow sensor SFAH → 256
- 2 Front panel mounting kit SAMH-FH-F → 258
- 3 H-rail mounting SAMH-FH-H → 258
- 4 Wall mounting SAMH-FH-W → 258
- 5 Push-in fitting QS → 319
- 6 Push-in fitting QSL → 321
- 7 One-way flow control valve GRO-QS-... → gro
- 8 Connecting cable NEBS-L1G4-... → 258
- 9 Connecting cable NEBU-M8G4 → 258
- 10 Connecting cable NEBU-M8W4 → 258
- 11 Safety guard SACC-FH-G-S3, only in combination with electrical connection M8 → 258

09 Sensors

2 Panel mounting kit SAMH-FH-F		
Description	Type	Part no.
Mounting kit for front panel	SAMH-FH-F	8058459

3 H-rail mounting SAMH-FH-H		
Description	Type	Part no.
For H-rail mounting	SAMH-FH-H	8058460

4 Wall mounting SAMH-FH-W		
Type of mounting	Type	Part no.
Via through-hole and screw	SAMH-FH-W	8036910

8 Connecting cables NEBS-L1G4, rectangular design L1			
Cable length	Connection, right	Type	Part no.
Connection, left: socket, rectangular design L1, 4-pin			
2.5 m	Cable, open end, 4-wire	NEBS-L1G4-K-2.5-LE4	572576

9 Connecting cables NEBU-M8G4, M8x1, straight socket			
Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 4-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M8G4-K-2.5-LE4	541342

10 Connecting cables NEBU-M8W4, M8x1, angled socket			
Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M8x1, 4-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M8W4-K-2.5-LE4	541344

11 Safety guard SACC-FH-G-S3		
Description	Type	Part no.
To protect the display and control elements	SACC-FH-G-S3	8069031



S00D

- Diffuse sensors S00D-BS
  - Retro-reflective sensors S00D-RS
  - Light barriers S00D-TB
- For very tight application environments



S00E

- Diffuse sensors S00E-BS, S00E-DS, S00E-KS
  - Distance sensors S00E-MS
  - Retro-reflective sensors S00E-RG, S00E-RS
  - Light barriers S00E-TB
- IO-Link® interface
  - Highly precise multi-pixel technology (MPT)

**Diffuse sensors S00D-BS**

- Diffuse sensor with background suppression
- The switching distance is set using optical triangulation
- Switching distance virtually independent of colour and surface
- Can also be used with a shiny or reflective background
- Detection of small differences in distance
- Easy adjustment

**Retro-reflective sensors S00D-RS**

- Retro-reflective sensors with two lenses
- Particularly economical

**Light barriers S00D-TB**

- Through-beam sensors
- Transmitter and receiver in different housings
- Most reliable principles in harsh ambient conditions

**Diffuse sensors S00E-BS**

- Diffuse sensor with background suppression
- The switching distance is set using optical triangulation
- Switching distance virtually independent of colour and surface
- Can also be used with a shiny or reflective background
- Detection of small differences in distance
- Easy adjustment

**Diffuse sensors S00E-DS**

- Cheaper
- Longer switching distance
- More reliable for detecting only slightly reflective objects

**Diffuse sensors S00E-KS**

- Highly precise, energetic contrast sensor
- Detects small contrast differences within a working range up to 120 mm

**Distance sensors S00E-MS**

- Sensors evaluate the distance and transfer the value via IO-Link®

**Retro-reflective sensors S00E-RG**

- Retro-reflective sensors with auto-collimation
- No blind zone
- High precision across the entire sensing range
- Radially symmetrical sensing range
- Good repeatability
- Low hysteresis
- Particularly suitable for transparent objects

**Retro-reflective sensors S00E-RS**

- Retro-reflective sensors with two lenses
- Particularly economical

**Light barriers S00E-TB**

- Through-beam sensors
- Transmitter and receiver in different housings
- Most reliable principles in harsh ambient conditions

Optical sensors >

## Opto-electronic sensors SOOD/SOOE

### Order code – SOOD



<b>001</b>	Type
<b>SOOD</b>	Opto-electronic sensors
<b>002</b>	Sensor function
<b>BS</b>	Diffuse sensor with background suppression
<b>RS</b>	Retro-reflective sensor
<b>TB</b>	Through-beam sensor, transmitter/receiver
<b>003</b>	Type of light
<b>L</b>	Red laser
<b>R</b>	Red LED
<b>004</b>	Electrical output
<b>PN</b>	PNP or NPN (push-pull)
<b>005</b>	Working range
<b>-</b>	Standard
<b>30</b>	30 mm
<b>50</b>	50 mm
<b>80</b>	80 mm

Legend:  Mandatory entry     Optional entry

### Order code – SOOE



<b>001</b>	Type
<b>SOOE</b>	Opto-electronic sensors
<b>002</b>	Sensor function
<b>BS</b>	Diffuse sensor with background suppression
<b>DS</b>	Diffuse sensor
<b>KS</b>	Contrast sensor
<b>MS</b>	Distance sensor
<b>RG</b>	Retro-reflective sensor for transparent objects
<b>RS</b>	Retro-reflective sensor
<b>TB</b>	Through-beam sensor, transmitter/receiver
<b>003</b>	Type of light
<b>L</b>	Red laser
<b>R</b>	Red LED
<b>004</b>	Electrical output 1
<b>PNLK</b>	PNP/NPN/IO-Link®
<b>005</b>	Setting options
<b>T</b>	Teach-in

Legend:  Mandatory entry

### Product options SOOD

Working range

1000	1000 mm
2000	2000 mm
10000	10000 mm

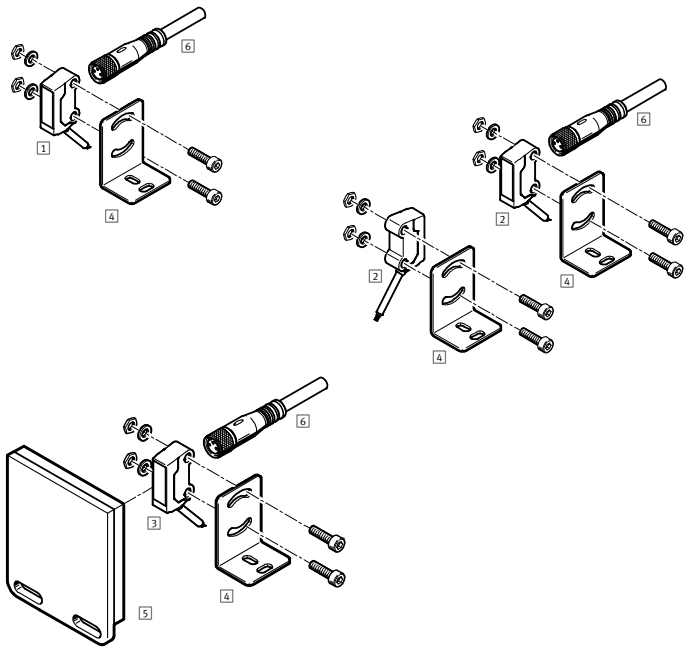
### Ordering – SOOD

003 Type of light	005 Working range	Type	Part no.
<b>002 Diffuse sensor with background suppression</b>			
Red laser	7 ... 30 mm	<b>SOOD-BS-L-PN-30</b>	<b>8075658</b>
	7 ... 50 mm	<b>SOOD-BS-L-PN-50</b>	<b>8075659</b>
	20 ... 80 mm	<b>SOOD-BS-L-PN-80</b>	<b>8075660</b>
Red LED	1 ... 30 mm	<b>SOOD-BS-R-PN-30</b>	<b>8075653</b>
	3 ... 50 mm	<b>SOOD-BS-R-PN-50</b>	<b>8075654</b>
	15 ... 80 mm	<b>SOOD-BS-R-PN-80</b>	<b>8075655</b>
<b>002 Retro-reflective sensor</b>			
Red laser	0 ... 2000 mm	<b>SOOD-RS-L-PN</b>	<b>8075662</b>
Red LED	0 ... 1000 mm	<b>SOOD-RS-R-PN</b>	<b>8075657</b>
<b>002 Through-beam sensor (transmitter and receiver included in the scope of delivery)</b>			
Red laser	0 ... 10000 mm	<b>SOOD-TB-L-PN</b>	<b>8075661</b>
Red LED	0 ... 2000 mm	<b>SOOD-TB-R-PN</b>	<b>8075656</b>

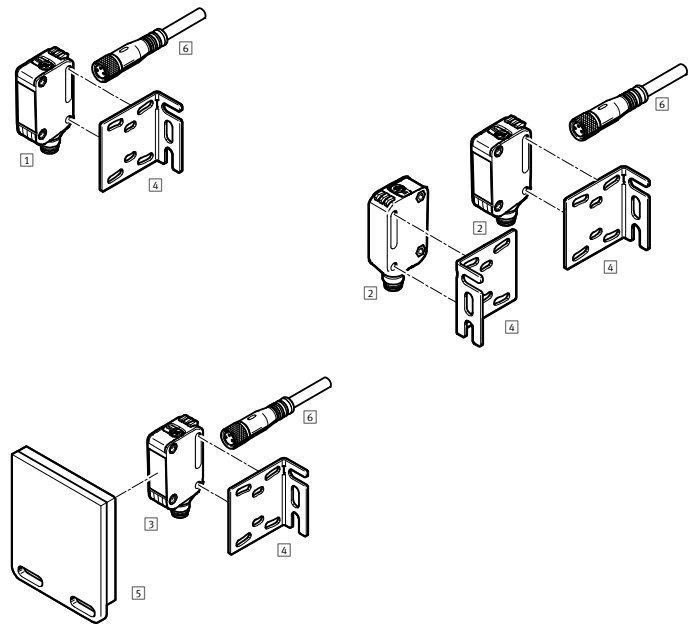
### Ordering – SOOE

003 Type of light	Working range	Type	Part no.
<b>002 Diffuse sensor with background suppression</b>			
Red laser	7 ... 300 mm	<b>SOOE-BS-L-PNLK-T</b>	<b>8075670</b>
Red LED	5 ... 350 mm	<b>SOOE-BS-R-PNLK-T</b>	<b>8075664</b>
<b>002 Diffuse sensor</b>			
Red LED	2 ... 1000 mm	<b>SOOE-DS-R-PNLK-T</b>	<b>8075663</b>
<b>002 Contrast sensor</b>			
Red laser	25 ... 120 mm	<b>SOOE-KS-L-PNLK-T</b>	<b>8075669</b>
<b>002 Distance sensor</b>			
Red laser	40 ... 100 mm	<b>SOOE-MS-L-PNLK-T</b>	<b>8075673</b>
Red LED	40 ... 100 mm	<b>SOOE-MS-R-PNLK-T</b>	<b>8075668</b>
<b>002 Retro-reflective sensor for transparent objects</b>			
Red LED	0 ... 3500 mm	<b>SOOE-RG-R-PNLK-T</b>	<b>8075667</b>
<b>002 Retro-reflective sensor</b>			
Red laser	0 ... 12000 mm	<b>SOOE-RS-L-PNLK-T</b>	<b>8075672</b>
Red LED	0 ... 7500 mm	<b>SOOE-RS-R-PNLK-T</b>	<b>8075666</b>
<b>002 Through-beam sensor (transmitter and receiver included in the scope of delivery)</b>			
Red laser	0 ... 20000 mm	<b>SOOE-TB-L-PNLK-T</b>	<b>8075671</b>
Red LED	0 ... 12000 mm	<b>SOOE-TB-R-PNLK-T</b>	<b>8075665</b>

Accessories – SOOD



Accessories – SOOE



- 1 Diffuse sensor with background suppression, red laser, SOOD-BS-L
- 2 Through-beam sensor SOOD-TB
- 3 Retro-reflective sensor SOOD-RS
- 4 Mounting bracket SAMH-L2-... → sood
- 5 Reflector, reflective foil SARA-R-... → sood
- 6 Connecting cable NEBU-M8 → 261

- 1 Retro-reflective sensor SOOE-RS
- 2 Through-beam sensor SOOE-TB
- 3 Retro-reflective sensor with background suppression SOOE-BS
- 4 Mounting bracket SAMH-L3-... → sooe
- 5 Reflector, reflective foil SARA-R-... → sooe
- 6 Connecting cable NEBU-M8 → 261

6 Connecting cables NEBU-M8G3, M8x1, straight socket

Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8G3-K-2.5-LE3	541333
5 m		NEBU-M8G3-K-5-LE3	541334

Connecting cable NEBU-M8W3, M8x1, angled socket

Cable length	Connection, right	Type	Part no.
Connection, left: angled socket, M8x1, 3-pin			
2.5 m	Cable, open end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341

# 10


## Compressed air preparation





# Highlights

# Contents



Service unit combinations, MS series

**MSB**

- + Combinations of filter regulator, filter, lubricator, on/off valve and soft-start valve
- + Sizes: 4, 6

→ 274




Filter regulators, MS-B series

**MS-LFR-B**

- + Size 2, 4, 6
- + Flow rate 140 ... 5300 l/min
- + Pressure gauge with bar, psi, MPa

→ 278



Pressure regulators, MS-B series

**MS-LR-B**

- + Size 2, 4, 6
- + Flow rate 170 ... 6000 l/min
- + Pressure gauge with bar, psi, MPa

→ 282

Product overview \_\_\_\_\_ 264

Service unit combinations MSB4/MSB6, MS series \_\_\_\_\_ 274

Service unit combinations MSB4/MSB6-FRC, MS series \_\_\_\_\_ 276

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Pressure regulators MS2/MS4/MS6-LR-B, MS-B series \_\_\_\_\_ 282

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On/off valves MS4/MS6-EE-B, soft-start valve MS4/MS6-EDE-B, MS-B series \_ 286

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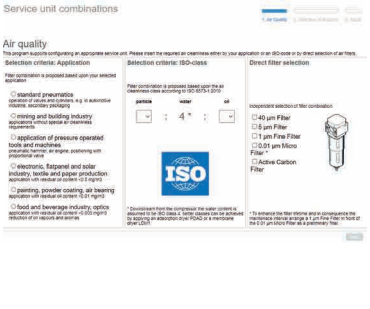
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Distributor blocks MS4/MS6-FRM-FRZ, MS series \_\_\_\_\_ 294

Connecting plate kit MS4/MS6-AG... \_\_\_\_\_ 295



Product overview

Software-Tools

<p><b>Air consumption</b></p>		<p>Calculate your system's air consumption quickly and conveniently.</p> <p>Simply enter all the drives and tubing, set the cycle times and working pressure and the air consumption per minute and per day will be calculated for you. It includes a feature for exporting the input table together with the result directly to Excel.</p> <p>This tool can be found at  <a href="http://www.festo.com/x/air-consumption">→ www.festo.com/x/air-consumption</a></p>
<p><b>Configurator</b></p>		<p>Design a product with numerous features reliably and quickly with the help of the configurator.</p> <p>Select all the required product features step by step. The use of logic checks ensures that only correct configurations are available for selection.</p> <p>A dynamic graphic generated on the basis of the configuration provides a visual aid for selecting the correct product features.</p> <p>This tool can be found at  <a href="http://www.festo.com/x/service-unit-sizing">→ www.festo.com/x/service-unit-sizing</a></p>



Service units >

MS series

 <p><b>Service unit combinations</b> MSB4, MSB6, MSB9</p>	 <p><b>Energy efficiency modules</b> MSE6-E2M</p>	
<p><b>Pneumatic connection 1</b></p>	<p>G1/8, G1/4, G1/2, G3/4, G1, G1 1/4, G1 1/2, 1/2 NPT, 3/4 NPT, 1 NPT, 1 1/4 NPT, 1 1/2 NPT</p>	<p>G1/2</p>
<p><b>Standard nominal flow rate</b></p>	<p>750 ... 18000 l/min</p>	<p>4500 l/min</p>
<p><b>Flow measuring range</b></p>		<p>50 ... 5000 l/min</p>
<p><b>Pressure regulation range</b></p>	<p>0.5 ... 16 bar</p>	
<p><b>Operating pressure [MPa]</b></p>	<p>0 ... 2 MPa</p>	<p>0.35 ... 1 MPa</p>
<p><b>Operating pressure</b></p>	<p>0 ... 20 bar</p>	<p>3.5 ... 10 bar</p>
<p><b>Grade of filtration</b></p>	<p>0.01 ... 40 µm</p>	
<p><b>Fieldbus interface</b></p>		<p>2x socket, M12x1, 4-pin, D-coded, 2x RJ45 push-pull socket, AIDA, Sub-D socket, 9-pin</p>
<p><b>Description</b></p>	<ul style="list-style-type: none"> <li>• Combination of filter regulator, filter, lubricator, on/off valve, soft-start valve</li> <li>• Grid dimensions 40, 62, 90 mm (size 4, 6, 9)</li> </ul>	<ul style="list-style-type: none"> <li>• Intelligent service unit component for optimising the use of compressed air as an energy medium in industrial automation technology</li> <li>• Combination of stop valve, flow sensor, pressure sensor and fieldbus node</li> <li>• Identification of production downtime and leakages</li> <li>• User-controlled shut-off and pressurisation</li> <li>• Equipped with measurement, control and diagnostic functions</li> <li>• Fieldbus connection (PROFIBUS DP, PROFINET IO, EtherNet/IP or EtherCAT®) via integrated fieldbus nodes enables connection to a higher-level controller</li> <li>• Grid dimension 62 mm (size 6)</li> <li>• Sustainable operation with active air shut-off and pressure reduction</li> </ul>
<p>→ Page/online</p>	<p>274</p>	<p>mse6</p>


Service units >

D series, polymer

	 Service unit combinations with lubricator FRC-K	 Service unit combinations without lubricator LFR-DB
<b>Pneumatic connection 1</b>	G1/4	G1/4
<b>Standard nominal flow rate</b>	400 ... 700 l/min	1900 l/min
<b>Pressure regulation range</b>	0.5 ... 7 bar	0.5 ... 7 bar
<b>Operating pressure [MPa]</b>	0.15 ... 1 MPa	0.15 ... 1 MPa
<b>Operating pressure</b>	1.5 ... 10 bar	1.5 ... 10 bar
<b>Grade of filtration</b>	40 µm	40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Combination of on/off valve, filter regulator, distributor module and lubricator</li> <li>• Size mini</li> </ul>	<ul style="list-style-type: none"> <li>• Combination of on/off valve, filter regulator and distributor module</li> <li>• Size mini</li> </ul>
<b>→ Page/online</b>	<a href="#">frc</a>	<a href="#">lfr</a>

Filter regulators/lubricators >

MS series

	 Service unit combinations MSB4-FRC, MSB6-FRC
<b>Pneumatic connection 1</b>	G1/2, G1/4, G1/8, G3/8
<b>Standard nominal flow rate</b>	850 ... 4800 l/min
<b>Pressure regulation range</b>	0.3 ... 12 bar
<b>Operating pressure</b>	0.8 ... 20 bar
<b>Grade of filtration</b>	5 µm, 40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Filter, regulator and lubricator functions in a single unit</li> <li>• High flow rate and highly efficient in removing contaminants</li> <li>• Good regulation characteristics with minimal pressure hysteresis</li> <li>• Grid dimensions 40, 62 mm (size 4, 6)</li> </ul>
<b>→ Page/online</b>	<a href="#">276</a>

Product overview

Filter regulators/lubricators >

D series, polymer



Service units  
FRC-DB

<b>Pneumatic connection 1</b>	G1/4
<b>Standard nominal flow rate</b>	≥550 l/min
<b>Pressure regulation range</b>	0.5 ... 7 bar
<b>Operating pressure [MPa]</b>	0.15 ... 1 MPa
<b>Operating pressure</b>	1.5 ... 10 bar
<b>Grade of filtration</b>	5 ... 40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Filter, regulator and lubricator functions in a single unit</li> <li>• With manual or semi-automatic condensate drain</li> <li>• Size mini</li> </ul>
<b>→ Page/online</b>	<a href="#">frc</a>

Filter regulators >

MS-B series




Filter regulators  
MS2-LFR-B, MS4-LFR-B, MS6-LFR-B

<b>Pneumatic connection 1</b>	G1/2, G1/4, M5, QS-6
<b>Standard nominal flow rate</b>	140 ... 5300 l/min
<b>Pressure regulation range [MPa]</b>	0.03 ... 0.7 MPa
<b>Pressure regulation range</b>	0.3 ... 7 bar
<b>Operating pressure [MPa]</b>	0.1 ... 1 MPa
<b>Operating pressure</b>	1 ... 10 bar
<b>Grade of filtration</b>	5 µm, 40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Competitively priced basic component focused on the most important technical functions</li> <li>• Lightweight and sturdy thanks to modern polymer materials</li> <li>• Compatible with the MS series for the ideal combination of low-cost basic functionality and high-end functional requirements</li> <li>• Stable control response</li> <li>• With or without pressure gauge</li> <li>• Rotary knob with latch</li> <li>• With integrated secondary exhausting and primary exhausting with return flow function</li> <li>• MS2: Directly operated diaphragm regulator</li> <li>• MS4, MS6: directly actuated piston regulator</li> <li>• Grid dimension 25, 40, 62 mm (sizes 2, 4, 6)</li> </ul>
<b>→ Page/online</b>	<a href="#">278</a>


Filter regulators >

## MS series

 <b>Filter regulators</b> MS4-LFR, MS6-LFR, MS9-LFR, MS12-LFR	
<b>Pneumatic connection 1</b>	Internal, G1/2, G1/4, G1/8, G3/8
<b>Standard nominal flow rate</b>	850 ... 24000 l/min
<b>Pressure regulation range</b>	0,3 ... 16 bar
<b>Operating pressure</b>	0,8 ... 20 bar
<b>Grade of filtration</b>	5 µm, 40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• MS4-LFR, MS6-LFR: directly actuated diaphragm regulator, MS9-LFR: piloted or directly actuated filter-diaphragm regulator, MS12-LFR: piloted diaphragm regulator without internal air consumption</li> <li>• Good control characteristics with minimal pressure hysteresis and primary pressure compensation</li> <li>• Good particle and condensate separation</li> <li>• With or without secondary exhausting</li> <li>• High flow rate</li> <li>• Lockable rotary knob</li> <li>• Return flow option for exhausting from output 2 to input 1 already integrated</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> <li>• Grid dimension 40, 62, 90, 124 mm (size 4, 6, 9, 12)</li> <li>• With or without pressure gauge</li> </ul>
<b>→ Page/online</b>	<b>280</b>

Filter regulators >

## D series, polymer

 <b>Filter regulators</b> LFR-DB	
<b>Pneumatic connection 1</b>	G1/4
<b>Standard nominal flow rate</b>	≥1000 l/min
<b>Pressure regulation range</b>	0.5 ... 7 bar
<b>Operating pressure [MPa]</b>	0.15 ... 1 MPa
<b>Operating pressure</b>	1.5 ... 10 bar
<b>Grade of filtration</b>	5 µm, 40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• With manual or semi-automatic condensate drain</li> <li>• Size mini</li> <li>• With or without pressure gauge</li> </ul>
<b>→ Page/online</b>	<b>lfr</b>

Product overview

Filter regulators >

Individual devices



**Filter regulators  
PCR P**

<b>Pneumatic connection 1</b>	1/4 NPT, 1/2 NPT, G1/2, G1/4, NPT1/2-14, NPT1/4-18
<b>Standard nominal flow rate</b>	1600 ... 4115 l/min
<b>Pressure regulation range</b>	0.5 ... 12 bar
<b>Operating pressure [MPa]</b>	0.1 ... 2 MPa
<b>Operating pressure</b>	1 ... 20 bar
<b>Grade of filtration</b>	5 µm, 40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Robust housing for the specific requirements of the process automation industry</li> <li>• Suitable for use outdoors and at temperatures down to -60 °C</li> <li>• Resistant to UV radiation and corrosive environments</li> <li>• Two pressure gauge connections for different installation options</li> <li>• With manual condensate drain, rotating</li> <li>• Size 44, 64</li> <li>• Sustainable operation thanks to reduced pressure level</li> </ul>
<b>→ Page/online</b>	<b>384</b>

Pressure regulators >

MS-B series





**Pressure regulators  
MS2-LR-B, MS4-LR-B, MS6-LR-B**

<b>Pneumatic connection 1</b>	M5, QS-6, G1/4, G1/2
<b>Standard nominal flow rate</b>	170 ... 6000 l/min
<b>Pressure regulation range</b>	0.3 ... 7 bar
<b>Operating pressure [MPa]</b>	0.1 ... 1 MPa
<b>Operating pressure</b>	1 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• Competitively priced basic component focused on the most important technical functions</li> <li>• Lightweight and sturdy thanks to modern polymer materials</li> <li>• Compatible with the MS series for the ideal combination of low-cost basic functionality and high-end functional requirements</li> <li>• Stable control response</li> <li>• With or without pressure gauge</li> <li>• Rotary knob with latch</li> <li>• With integrated secondary exhausting and primary exhausting with return flow function</li> <li>• MS2: Directly operated diaphragm regulator</li> <li>• MS4, MS6: directly actuated piston regulator</li> <li>• Grid dimension 25, 40, 62 mm (sizes 2, 4, 6)</li> <li>• Sustainable operation thanks to reduced pressure level</li> </ul>
<b>→ Page/online</b>	<b>282</b>



Pressure regulators >

MS series

	 Pressure regulators MS4-LR, MS6-LR, MS9-LR	 Pressure regulators MS12-LR
<b>Pneumatic connection 1</b>	G1/2, G1/4, G1/8, G3/8	Connecting plate
<b>Standard nominal flow rate</b>	1000 ... 30000 l/min	12000 ... 22000 l/min
<b>Pressure regulation range</b>	0.3 ... 16 bar	0.15 ... 16 bar
<b>Operating pressure [MPa]</b>	0.1 ... 1 MPa	0.08 ... 2.1 MPa
<b>Operating pressure</b>	0.8 ... 20 bar	0.8 ... 21 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• High flow rate with minimal pressure drop</li> <li>• Good regulation characteristics with minimal pressure hysteresis and primary pressure compensation</li> <li>• With or without secondary venting</li> <li>• Lockable rotary knob</li> <li>• Optional pressure sensor and rotary knob pressure gauge</li> <li>• Grid dimensions 40, 62, 90 mm (size 4, 6, 9)</li> </ul>	<ul style="list-style-type: none"> <li>• High flow rate performance with minimal pressure drop</li> <li>• Good control characteristics with minimal pressure hysteresis and primary pressure compensation</li> <li>• With secondary exhausting</li> <li>• Lockable rotary knob</li> <li>• With or without pressure gauge</li> <li>• MS12-LR-...-PO: pneumatically actuated (pressure range determined by pilot regulator)</li> <li>• MS12-LR-...-PE6: electrically actuated (pilot control by proportional pressure regulator)</li> <li>• Grid dimension 124 mm (size 12)</li> <li>• Sustainable operation thanks to reduced pressure level</li> </ul>
<b>→ Page/online</b>	284	284

Pressure regulators >



D series, polymer

	 Pressure regulators LR-DB	 Pressure regulator manifolds LRB-DB
<b>Pneumatic connection 1</b>	G1/4	G1/2
<b>Standard nominal flow rate</b>	≥1300 l/min	≥1000 l/min
<b>Pressure regulation range</b>	0.5 ... 7 bar	0.5 ... 7 bar
<b>Operating pressure [MPa]</b>	0.1 ... 1 MPa	0.15 ... 1 MPa
<b>Operating pressure</b>	1.5 ... 10 bar	1.5 ... 10 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• Set values are secured by locking the rotary knob</li> <li>• Available with pressure gauge</li> <li>• Size mini</li> </ul>	<ul style="list-style-type: none"> <li>• Regulator manifold with through air supply for pressure ranges that can be adjusted independently of one another</li> <li>• Set values are secured by locking the rotary knob</li> <li>• Without pressure gauge</li> <li>• Size mini</li> </ul>
<b>→ Page/online</b>	lr-db	lrb-db

Product overview




On/off and soft-start valves >

MS-B series

	 <b>On/off valves</b> MS4-EE-B, MS6-EE-B	 <b>Soft-start valves</b> MS4-EDE-B, MS6-EDE-B
<b>Design</b>	Poppet valve, electrically actuated	Poppet valve, electrically actuated
<b>Pneumatic connection 1</b>	G1/2, G1/4	G1/2, G1/4
<b>Standard nominal flow rate</b>	2000 ... 5000 l/min	2000 ... 5000 l/min
<b>Operating pressure [MPa]</b>	0.3 ... 0.7 MPa	0.3 ... 0.7 MPa
<b>Operating pressure</b>	3 ... 7 bar	3 ... 7 bar
<b>Standard nominal flow rate</b>	2000 ... 5000 l/min	2000 ... 5000 l/min
<b>Exhaust air function</b>		Without flow control option
<b>Electrical connection</b>	Type C, To EN 175301-803	Type C, To EN 175301-803
<b>Description</b>	<ul style="list-style-type: none"> <li>• Very compact and extremely lightweight series for use close to the process directly in the machine</li> <li>• Electrically operated 3/2-way valve for pressurising and exhausting pneumatic systems</li> <li>• Ducted exhaust air possible via threaded connection with silencer</li> <li>• Detenting and non-detenting manual override</li> <li>• Supply voltage 24 V DC</li> <li>• With solenoid coil, without plug socket</li> <li>• Grid dimension 40, 62 mm (size 4, 6)</li> </ul>	<ul style="list-style-type: none"> <li>• Very compact and extremely lightweight series for use close to the process directly in the machine</li> <li>• Electrically operated 3/2-way valve for slowly pressurising and exhausting pneumatic systems</li> <li>• The switching pressure can be precisely controlled with a solenoid valve</li> <li>• Adjustable switching time delay</li> <li>• Built-in connections into which the tubing can be directly inserted</li> <li>• Detenting and non-detenting manual override</li> <li>• Supply voltage 24 V DC</li> <li>• With solenoid coil, without plug socket</li> <li>• Grid dimension 40, 62 mm (size 4, 6)</li> </ul>
<b>→ Page/online</b>	286	286

On/off and soft-start valves >



MS series

	 <b>On/off valves</b> MS4-EM1, MS6-EM1, MS9-EM, MS12-EM	 <b>On/off valves</b> MS4-EE, MS6-EE, MS9-EE, MS12-EE	 <b>Soft-start valves</b> MS4-DL, MS6-DL, MS12-DL
<b>Pneumatic connection 1</b>	Manifold module, G1/2, G1/4, G1/8, G3/8	Manifold module, G1/2, G1/4, G1/8, G3/8	Manifold module, G1/2, G1/4, G1/8, G3/8
<b>Standard nominal flow rate</b>	1200 ... 32000 l/min	1000 ... 32000 l/min	1000 ... 42000 l/min
<b>Operating pressure</b>	0 ... 20 bar	3 ... 18 bar	2 ... 20 bar
<b>Actuation type</b>	Manual	Electrical	Pneumatic
<b>Description</b>	<ul style="list-style-type: none"> <li>• Manual 3/2-way valve for pressurising and exhausting pneumatic systems</li> <li>• A silencer can be attached or the exhaust air ducted at port 3</li> <li>• Switching position is immediately recognisable</li> <li>• Optionally with pressure gauge and pressure sensor</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> <li>• Grid dimension 40, 62, 90, 124 mm (size 4, 6, 9, 12)</li> </ul>	<ul style="list-style-type: none"> <li>• Electric 3/2-way valve for pressurising and exhausting pneumatic installations</li> <li>• A silencer can be attached or the exhaust air ducted at port 3</li> <li>• Supply voltage 24 V DC, 110, 230 V AC</li> <li>• Optionally with pressure gauge and pressure sensor</li> <li>• With solenoid coil, without plug socket</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> <li>• Grid dimension 40, 62, 90, 124 mm (size 4, 6, 9, 12)</li> </ul>	<ul style="list-style-type: none"> <li>• 2/2-way valve for slowly pressurising pneumatic systems (for use with on/off valves EM(1) and EE)</li> <li>• For building up pressure gradually</li> <li>• Adjustable pressure build-up time</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> <li>• Grid dimension 40, 62, 124 mm (size 4, 6, 12)</li> </ul>
<b>→ Page/online</b>	288	288	290




On/off and soft-start valves >

MS series

	 Soft-start/quick exhaust valves MS6-SV-E, MS6-SV-D	 Soft-start/quick exhaust valves MS6-SV-C, MS9-SV-C
<b>Pneumatic connection 1</b>	G1/2	G1/2, G1/4
<b>Standard nominal flow rate</b>	4300 ... 5700 l/min	4300 ... 16550 l/min
<b>Operating pressure</b>	3 ... 10 bar	3 ... 16 bar
<b>Actuation type</b>	Electrical	Electrical
<b>Safety integrity level (SIL)</b>	Exhausting/SIL 3, prevention of unexpected start-up (pressurisation)/SIL 3	
<b>Performance Level (PL)</b>	Exhausting/category 3, Performance Level d, exhausting/up to category 4, Performance Level e, prevention of unexpected start-up (pressurisation)/category 3, Performance Level d, prevention of unexpected start-up (pressurisation)/up to category 4, Performance Level e	Exhausting/category 1, Performance Level c, exhausting/up to category 1, Performance Level c, prevention of unexpected start-up (pressurisation)/category 1, Performance Level c
<b>Description</b>	<ul style="list-style-type: none"> <li>• With safety functions</li> <li>• For reducing pressure quickly and reliably and for building up pressure gradually</li> <li>• Adjustable pressure build-up time</li> <li>• Optionally with silencer</li> <li>• Supply voltage 24 V DC</li> <li>• Grid dimensions 62 mm (size 6)</li> </ul>	<ul style="list-style-type: none"> <li>• With safety functions</li> <li>• For reducing pressure quickly and reliably and for building up pressure gradually</li> <li>• Adjustable pressure build-up time</li> <li>• Adjustable switch-through pressure</li> <li>• Supply voltage 24 V DC</li> <li>• Grid dimensions 62, 90 mm (size 6, 9)</li> </ul>
<b>→ Page/online</b>	<a href="#">ms6-sv-e</a>	290

On/off and soft-start valves >



D series, polymer

	 On/off valves HE-DB
<b>Pneumatic connection 1</b>	G1/4
<b>Standard nominal flow rate</b>	2300 l/min
<b>Operating pressure [MPa]</b>	0 ... 1 MPa
<b>Operating pressure</b>	0 ... 10 bar
<b>Actuation type</b>	Manual
<b>Description</b>	<ul style="list-style-type: none"> <li>• 3/2-way manual on/off valve</li> <li>• Switching position is immediately recognisable</li> <li>• Commercially available padlock for security</li> </ul>
<b>→ Page/online</b>	<a href="#">he-db</a>

Product overview


Compressed air distributors >

MS series

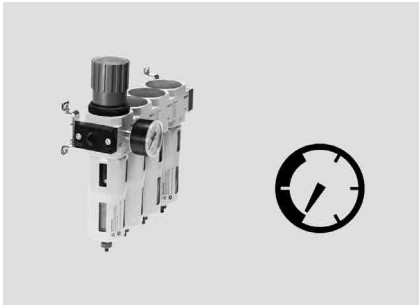
	 <p><b>Branching modules</b> MS4-FRM, MS6-FRM, MS9-FRM, MS12-FRM</p>	 <p><b>Distributor blocks</b> MS4-FRM-FRZ, MS6-FRM-FRZ</p>
<b>Pneumatic connection 1</b>	G1/4, G1/2, G1, G2, Manifold module, 1/2 NPT, 3/4 NPT, 1 NPT, 1 1/4 NPT, 1 1/2 NPT, G1, G1 1/2, G1 1/4, G1/2, G1/4, G1/8, G3/4, G3/8	G1/4, G1/2
<b>Standard nominal flow rate in main flow direction 1-&gt;2</b>	1200 ... 50000 l/min	4050 ... 14600 l/min
<b>Operating pressure</b>	0 ... 20 bar	0 ... 20 bar
<b>Description</b>	<ul style="list-style-type: none"> <li>• Optionally with integrated non-return function and pressure sensor</li> <li>• Outlet at top and bottom</li> <li>• Can be used as an intermediate distributor for varying air qualities</li> <li>• Optionally with pressure sensor</li> <li>• Grid dimensions 40, 62, 90, 124 mm (size 4, 6, 9, 12)</li> </ul>	<ul style="list-style-type: none"> <li>• Slim pneumatic distributor</li> <li>• Outlet at top and bottom</li> <li>• Can be used as an intermediate distributor for varying air qualities</li> <li>• Can be used as an adapter between two pressure regulators with large rotary knob with pressure gauge on size 4</li> <li>• Grid dimensions 40, 62 mm (size 4, 6)</li> </ul>
<b>→ Page/online</b>	292	294

Accessories >

MS series

	 <p><b>Connecting plates</b> MS4-AG..., MS6-AG...</p>
<b>Pneumatic connection 1</b>	G1/4, G3/8, G1/2, G3/4
<b>Pneumatic connection 2</b>	G1/4, G3/8, G1/2, G3/4
<b>Description</b>	<ul style="list-style-type: none"> <li>• Accessories for size MS4, MS6</li> <li>• Adapter for pneumatic connection</li> </ul>
<b>→ Page/online</b>	295

## Customised components – for your specific requirements



### Components for compressed air preparation with customised designs

Can't find the compressed air preparation components you need in our catalogue?

We offer you customised components that are tailored to your specific requirements.

Common product modifications:

- Modified pressure range
- Rotary knob: in a special colour, with protection against rotation
- Fitting: integrated throttling port, special thread
- Tubing with special printing
- Pressure gauge with red-green range

Many additional variants are possible.

Ask your Festo sales engineer, who will be happy to help:

→ [www.festo.com/contact](http://www.festo.com/contact)

Service units > MS series >

## Service unit combinations MSB4/MSB6, MS series



- For filtered and unlubricated compressed air
- Supply pressure can be opened and closed
- Output pressure is infinitely adjustable within the pressure regulation range
- Flow rate 800 ... 4800 l/min
- Operating pressure 1.5 ... 20 bar
- Grade of filtration 0.01 ... 40 µm
- Manual condensate drain

Combinations comprising:

- ① Manually operated on/off valve, filter regulator with lockable pressure gauge, mounting bracket
- ② Manually operated on/off valve, filter regulator with lockable pressure gauge, branching module with pressure switch, mounting bracket
  - Electrical pressure monitoring with adjustable switching pressure
- ③ Manually operated on/off valve, filter regulator with lockable pressure gauge, electrically actuated on/off valve with pressure sensor for operational status indicator, mounting bracket
  - Electrical pressure monitoring with adjustable switching pressure
  - When the unit is switched off, quick exhausting ensures rapid pressure reduction

## Order code – Basic design

001 002 003 004 005 006  
**MSB**  -  :  : **C3** : **J1** :  - **WP**

Legend:  Mandatory entry  Optional entry

001	Type
MSB	MS series
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Pneumatic connection
1/4	G1/4 thread
1/2	G1/2 thread
004	Flow direction
-	From left to right

005	Service unit combination
C3	On/off valve MS4-EM1, MS6-EM1
J1	Filter regulator MS4-LFR, MS6-LFR
D14	On/off valve MS4-EE, MS6-EE
F12	Branching module MS4-FRM, MS6-FRM
006	Type of mounting
WP	Mounting bracket

## Product options

- Additional connection sizes
- Connecting plates
- Grade of filtration 5 µm
- Service unit components: filter regulators, soft-start valves, lubricators, on/off valves
- Alternative flow direction
- Fully automatic condensate drain

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

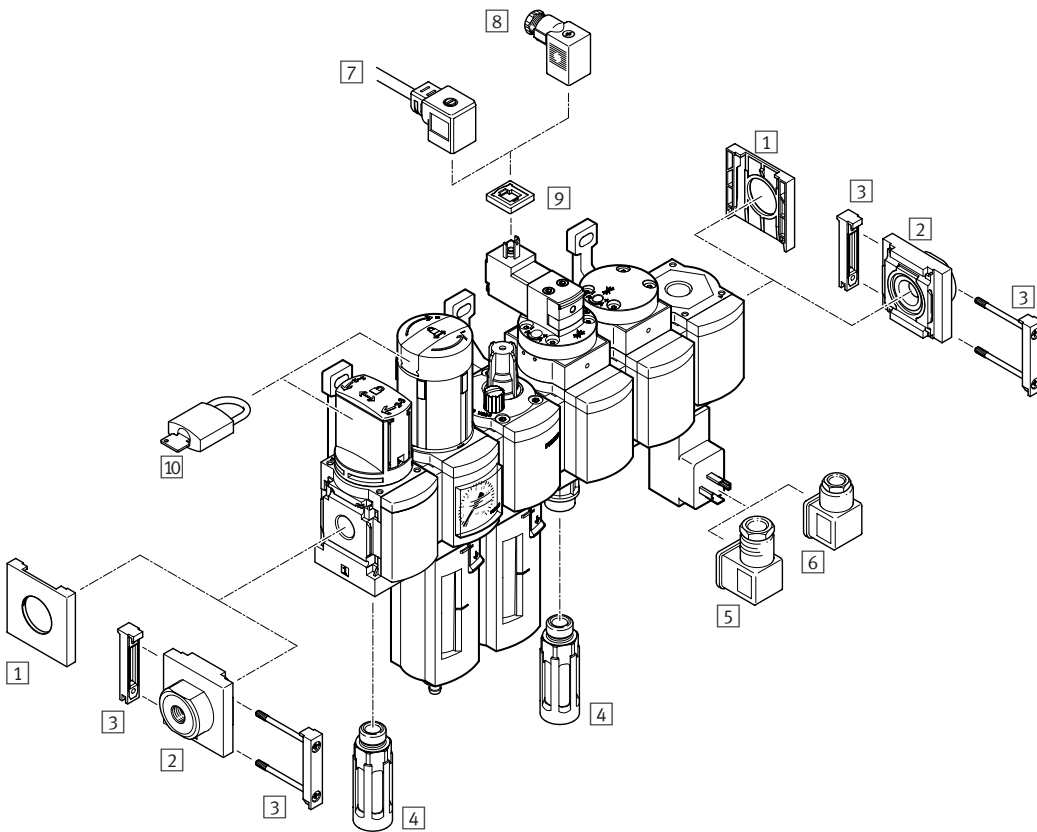
Enter the part number or the type.

Part no.	Type	Standard nominal flow rate	Pressure regulation range	Grade of filtration
531029	MSB4	800 ... 1400 l/min	1 ... 12 bar	0.01 ... 40 µm
531030	MSB6	1700 ... 4800 l/min	1 ... 12 bar	0.01 ... 40 µm

## Ordering – Basic design

002 Size	003 Pneumatic connection	Condensate drain	Grade of filtration	Type	Part no.
① Manually operated on/off valve, filter regulator with lockable pressure gauge, mounting bracket Pressure regulation range 0.5 ... 12 bar, pressure gauge with outer scale in bar and inner scale in psi					
4	G1/4	Manual rotary	40 µm	<b>MSB4-1/4:C3J1-WP</b>	<b>8025354</b>
6	G1/2	Manual rotary	40 µm	<b>MSB6-1/2:C3J1-WP</b>	<b>8025355</b>
② Manually operated on/off valve, filter regulator with lockable pressure gauge, branching module with pressure switch, mounting bracket Pressure regulation range 0.5 ... 10 bar, pressure gauge with outer scale in bar and inner scale in psi					
4	G1/4	Manual rotary	40 µm	<b>MSB4-1/4:C3J1F12-WP</b>	<b>8025356</b>
6	G1/2	Manual rotary	40 µm	<b>MSB6-1/2:C3J1F12-WP</b>	<b>8025357</b>
③ Manually operated on/off valve, filter regulator with lockable pressure gauge, electrically actuated on/off valve with pressure sensor for operational status indicator, mounting bracket Pressure regulation range 0.5 ... 10 bar, pressure gauge with outer scale in bar and inner scale in psi					
4	G1/4	Manual rotary	40 µm	<b>MSB4-1/4:C3J1D14-WP</b>	<b>8025358</b>
6	G1/2	Manual rotary	40 µm	<b>MSB6-1/2:C3J1D14-WP</b>	<b>8025359</b>

## Accessories



- 1 Cover cap MS4/6-END  
→ [ms4-end](#)
- 2 Connecting plate kit MS4/6-AG...  
→ 295
- 3 Module connector MS-MV  
→ 275
- 4 Silencer U-B → 343
- 5 Angled socket PEV-1/4-WD-LED  
→ [msb](#)
- 6 Plug socket MSSD-C-4P → [msb](#)
- 7 Plug socket with cable KMEB-3  
→ [msb](#)
- 8 Plug socket MSSD-EB → [msb](#)
- 9 Illuminating seal MEB-LD → [msb](#)
- 10 Padlock LRVS-D → [msb](#)

Mounting bracket  
MS4/MS6-WP, MS4/MS6-WPB,  
MS4/MS6-WPM → 275  
MS4/6-WPE → [ms4-wpe](#)

3 Module connector MS-MV		
Size	Type	Part no.
4	<b>MS4-MV1</b>	<b>8119201</b>
6	<b>MS6-MV1</b>	<b>8119204</b>

Mounting bracket MS4/6-WP		
Size	Type	Part no.
For wall mounting		
4	<b>MS4-WP</b>	<b>532184</b>
6	<b>MS6-WP</b>	<b>532195</b>

Mounting bracket MS4/6-WPB		
Size	Type	Part no.
For wall mounting		
4	<b>MS4-WPB</b>	<b>526063</b>
6	<b>MS6-WPB</b>	<b>526074</b>

Mounting bracket MS4/6-WPM		
Size	Type	Part no.
For wall mounting		
4	<b>MS4-WPM-D</b>	<b>526060</b>
6	<b>MS6-WPM-D</b>	<b>526073</b>

Filter regulators/lubricators > MS series >

## Service unit combinations MSB4/MSB6-FRC, MS series



- Filter, regulator and lubricator functions in a single unit
- High flow rate and highly efficient in removing contaminants
- Good regulation characteristics with minimal pressure hysteresis
- Set values are secured by locking the rotary knob
- Flow rate 850 ... 4800 l/min
- Operating pressure 1.5 ... 20 bar
- Grade of filtration 40 µm
- Manual condensate drain

### Order code – Basic design

001 002 003 004 005 006  
**MSB**  -  - **FRC5:J1** **M1** -

**Legend:**  Mandatory entry  Optional entry

<b>001</b>	Type
<b>MSB</b>	MS series
<b>002</b>	Size
<b>4</b>	Grid dimensions 40 mm
<b>6</b>	Grid dimensions 62 mm
<b>003</b>	Pneumatic connection
<b>1/4</b>	G1/4 thread
<b>1/2</b>	G1/2 thread
<b>004</b>	Service unit combination
<b>FRC5:J1</b>	<ul style="list-style-type: none"> <li>• Filter regulator with pressure gauge, rotary knob with detent, can be locked using accessories</li> <li>• Lubricator</li> <li>• Pressure regulation range 0.5 ... 12 bar</li> <li>• Plastic bowl with plastic bowl guard</li> <li>• Grade of filtration 40 µm</li> <li>• Manual condensate drain</li> <li>• Pressure gauge with outer scale in bar and inner scale in psi</li> </ul>

<b>005</b>	Lubricator
<b>M1</b>	Plastic bowl guard
<b>006</b>	Flow direction
<b>-</b>	From left to right

### Product options

- Additional connection sizes
- Grade of filtration 5 µm
- Pressure regulation range 0.3 ... 7 bar
- Metal bowl guard for filter regulator and for lubricator
- Fully automatic condensate drain

Configurable product

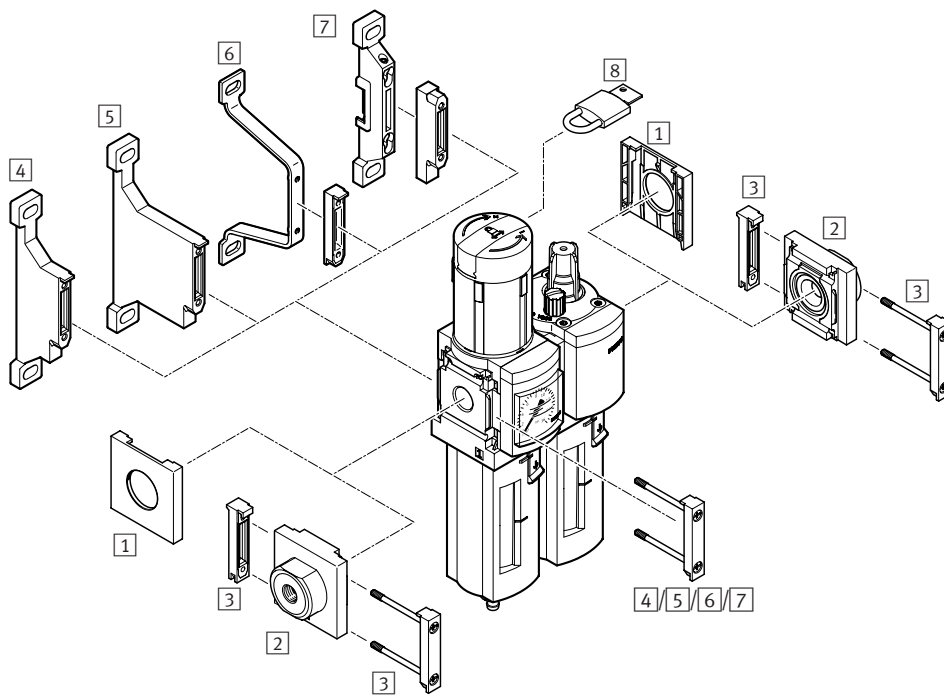
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/msb](http://www.festo.com/catalogue/msb)

### Ordering – Basic design

002 Size	003 Pneumatic connection	Standard nominal flow rate	Pressure regulation range	Grade of filtration	Type	Part no.
Grade of filtration 40 µm, manual rotary condensate drain						
4	G1/4	900 l/min	0.5 ... 12 bar	40 µm	<b>MSB4-1/4-FRC5:J1M1</b>	<b>531117</b>
6	G1/2	3700 l/min	0.5 ... 12 bar	40 µm	<b>MSB6-1/2-FRC5:J1M1</b>	<b>530244</b>

## Accessories



- 1 Cover cap MS4/6-END  
→ [ms4-end](#)
- 2 Connecting plate kit MS4/6-AG...  
→ 295
- 3 Module connector MS-MV  
→ 277
- 4 Mounting bracket MS4/6-WP  
→ 277
- 5 Mounting bracket MS4/6-WPB  
→ 277
- 6 Mounting bracket MS4/6-WPE  
→ [ms4-wpe](#)
- 7 Mounting bracket MS4/6-WPM  
→ 277
- 8 Padlock LRVS-D → [msb](#)

3 Module connector MS-MV		
Size	Type	Part no.
4	MS4-MV1	8119201
6	MS6-MV1	8119204

4 Mounting bracket MS4/6-WP		
Size	Type	Part no.
For wall mounting		
4	MS4-WP	532184
6	MS6-WP	532195

5 Mounting bracket MS4/6-WPB		
Size	Type	Part no.
For wall mounting		
4	MS4-WPB	526063
6	MS6-WPB	526074

7 Mounting bracket MS4/6-WPM		
Size	Type	Part no.
For wall mounting		
4	MS4-WPM-D	526060
6	MS6-WPM-D	526073

Filter regulators > MS-B series >

## Filter regulators MS2/MS4/MS6-LFR-B, MS-B series



- Very compact and extremely light-weight series for use close to the process directly in the machine
- Filter and pressure regulator in a single unit
- For stepless, precise adjustment of the required operating pressure
- Flow rate 140 ... 5300 l/min
- Operating pressure 1 ... 10 bar
- Grade of filtration 5 µm, 40 µm
- Manual or fully automatic condensate drain

### Order code – MS2-LFR-B

001	002	003	004	005	006	007	008	009	010
MS	2	LFR		D6			C	M	B

001	Type
MS	MS series service unit
002	Size
2	Grid dimensions 25 mm
003	Function
LFR	Filter regulator
004	Pneumatic connection
M5	Female thread M5
QS6	Push-in connector for tubing O.D. 6 mm
005	Pressure regulation range
D6	0.5 ... 7 bar
006	Pressure gauge alternatives
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge
AR	With pressure gauge
007	Alternative pressure gauge scale
–	None
BAR	Display unit bar/psi
MPA	Display unit MPa
008	Grade of filtration
C	5 µm
009	Condensate drain
M	Manual rotary
010	Version
B	2nd generation

Legend:  Mandatory entry  Optional entry

### Order code – MS4/MS6-LFR-B

001	002	003	004	005	006	007	008	009	010	011
MS		LFR		D6		P		AG		B

001	Type
MS	MS series service unit
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Function
LFR	Filter regulator
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2
005	Pressure regulation range
D6	0.3 ... 7 bar
006	Grade of filtration
C	5 µm
E	40 µm
007	Bowl type
P	Polymer
008	Condensate drain
M	Manual rotary
VC	Fully automatic, normally closed
009	Pressure gauge alternatives
AG	With MS pressure gauge
010	Alternative pressure gauge scale
BAR	Display unit bar/psi
MPA	Display unit MPa
011	Version
B	2nd generation

### Ordering – MS2-LFR-B

002 Size	004 Pneumatic connection	006 Pressure gauge	007 Pressure gauge scale	008 Grade of filtration	009 Condensate drain	Type	Part no.
005 Pressure regulation range 0.5 ... 7 bar							
2	M5	None	–	5 µm	Manual	MS2-LFR-M5-D6-A8-C-M-B	8086643
	QS-6					MS2-LFR-QS6-D6-A8-C-M-B	8086646
	M5	With	bar	5 µm	Manual	MS2-LFR-M5-D6-AR-BAR-C-M-B	8086641
	QS-6					MS2-LFR-QS6-D6-AR-BAR-C-M-B	8086644
	M5	With	MPa	5 µm	Manual	MS2-LFR-M5-D6-AR-MPA-C-M-B	8086642
	QS-6					MS2-LFR-QS6-D6-AR-MPA-C-M-B	8086645

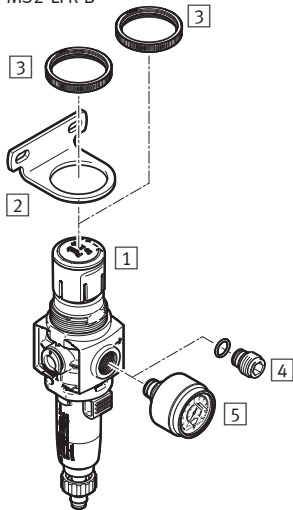


## Ordering – MS4/MS6-LFR-B

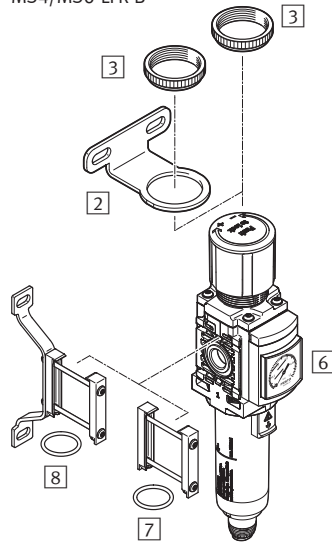
002 Size	004 Pneumatic connection	009 Pressure gauge	010 Pressure gauge scale	006 Grade of filtration	008 Condensate drain	Type	Part no.
<b>005 Pressure regulation range 0.3 ... 7 bar</b>							
4	G1/4	With	bar	5 µm	Manual	MS4-LFR-1/4-D6-C-P-M-AG-BAR-B	8098257
			MPa			MS4-LFR-1/4-D6-C-P-M-AG-MPA-B	8098265
		With	bar	5 µm	Fully automatic	MS4-LFR-1/4-D6-C-P-VC-AG-BAR-B	8098259
			MPa			MS4-LFR-1/4-D6-C-P-VC-AG-MPA-B	8098266
		With	bar	40 µm	Manual	MS4-LFR-1/4-D6-E-P-M-AG-BAR-B	8098258
			MPa			MS4-LFR-1/4-D6-E-P-M-AG-MPA-B	8098254
		With	bar	40 µm	Fully automatic	MS4-LFR-1/4-D6-E-P-VC-AG-BAR-B	8098264
			MPa			MS4-LFR-1/4-D6-E-P-VC-AG-MPA-B	8098256
6	G1/2	With	bar	5 µm	Manual	MS6-LFR-1/2-D6-C-P-M-AG-BAR-B	8098300
			MPa			MS6-LFR-1/2-D6-C-P-M-AG-MPA-B	8098310
		With	bar	5 µm	Fully automatic	MS6-LFR-1/2-D6-C-P-VC-AG-BAR-B	8098309
			MPa			MS6-LFR-1/2-D6-C-P-VC-AG-MPA-B	8098302
		With	bar	40 µm	Manual	MS6-LFR-1/2-D6-E-P-M-AG-BAR-B	8098304
			MPa			MS6-LFR-1/2-D6-E-P-M-AG-MPA-B	8098307
		With	bar	40 µm	Fully automatic	MS6-LFR-1/2-D6-E-P-VC-AG-BAR-B	8098312
			MPa			MS6-LFR-1/2-D6-E-P-VC-AG-MPA-B	8098305

## Accessories

### MS2-LFR-B



### MS4/MS6-LFR-B



- 1 Filter regulator MS2-LFR-B
- 2 Mounting bracket MS-WR-B
- 3 Nut MS-WRS → 279
- 4 Plug screw MS2-G18S → 279
- 5 Pressure gauge PAGN → 279
- 6 Filter regulator MS4/MS6-LFR-B → 278
- 7 Module connector MS-MV1 → 279
- 8 Wall mounting kit MS...-WPE-B → 283

Filter cartridges → 279

### 2 Mounting bracket MS-WR-B

Size	Type	Part no.
For wall mounting, knurled nut included in the scope of delivery		
2	MS2-WR-B	8087978
4	MS4-WR-B	8149680
6	MS6-WR-B	8149681

1) Knurled nut included in the scope of delivery

### 3 Nut MS-WRS

Size	Type	Part no.
For front panel mounting		
2	MS2-WRS	8098037
4	MS4-WRS	532187
6	MS6-WRS	532188

### 4 Plug screw MS2-G18S

Size	Type	Part no.
For sealing the pressure gauge connection		
2	MS2-G18S	8095766

### 5 Pressure gauge PAGN, suitable for size 2

Operating pressure	Outer scale	Inner scale	Type	Part no.
0 ... 10 bar	0 ... 10 bar	–	PAGN-26-10-G18S	8088985
0 ... 1 MPa	0 ... 10 bar	0 ... 1 MPa, 0 ... 145 psi	PAGN-26-1M-G18S	8088986

### Filter cartridge LFP

Size	Grade of filtration	Type	Part no.
2	5 µm	LFP-D-MICRO-5M	526818
4	5 µm	MS4-LFP1-C	8129064
	40 µm	MS4-LFP1-E	8129062
6	5 µm	MS6-LFP1-C	8129063
	40 µm	MS6-LFP1-E	8129061

### 7 Module connector MS-MV1

Size	Type	Part no.
For connecting the modules for wall mounting		
4	MS4-MV1	8119201
6	MS6-MV1	8119204

Filter regulators > MS series >

## Filter regulators MS4/MS6/MS12-LFR, MS series



- Filter and pressure regulator in a single unit
  - Good regulation characteristics with minimal hysteresis and primary pressure compensation
  - Good particle and condensate separation
  - Flow rate 850 ... 17000 l/min
  - Operating pressure 0.8 ... 20 bar
  - Grade of filtration 5 µm, 40 µm
  - Manual or fully automatic condensate drain
  - Selected types in accordance with ATEX directive for potentially explosive atmospheres
- [www.festo.com/ex](http://www.festo.com/ex)

### Order code – Basic design

001	002	003	004	005	006	007	008	009	010
MS		LFR						AS	

Legend:  Mandatory entry  Optional entry

001	Type
MS	MS series service unit
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
12	Grid dimensions 124 mm
003	Function
LFR	Filter regulator
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2
005	Pressure regulation range
D6	0.3 ... 7 bar
D7	0.5 ... 12 bar

006	Grade of filtration
C	5 µm
E	40 µm
007	Bowl guard
R	Plastic bowl guard
U	Integrated as metal bowl
008	Condensate drain
M	Manual rotary
V	Fully automatic
009	Lockable
AS	Rotary knob with detent, can be locked using accessories
010	Flow direction
-	From left to right

### Product options

- Size 9, grid dimensions 90 mm
- Pneumatic connection
  - Connecting plate
  - Module without connecting thread, without connecting plate
- Pressure regulation range 0.3 ... 4 bar
- Condensate drain
  - Semi-automatic
  - External fully automatic condensate drain
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Without secondary exhaust
- Long rotary knob
- Lockable
  - None
  - With integrated lock
- With mounting bracket
- EU certification: II 2GD to EU Explosion Protection Directive (ATEX)
- UL certification
- Flow direction from right to left

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

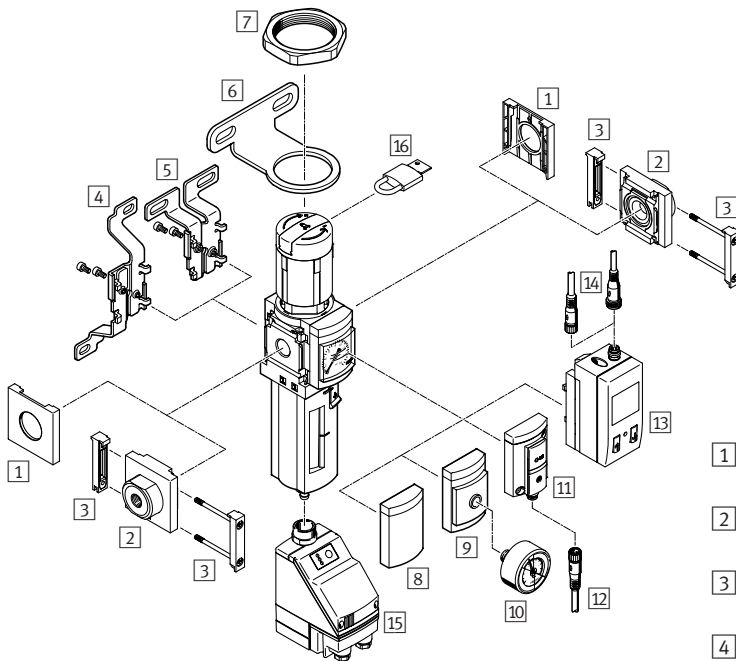
Enter the part number or the type.

Part no.	Type	Standard nominal flow rate	Pressure regulation range	Grade of filtration
526489	MS4-LFR	850 ... 1800 l/min	0.3 ... 12 bar	5 µm, 40 µm
526490	MS6-LFR	2000 ... 7200 l/min	0.3 ... 16 bar	5 µm, 40 µm
535022	MS12-LFR	11000 ... 17000 l/min	0.3 ... 16 bar	5 µm, 40 µm

## Ordering – Basic design

			006 Grade of filtration 5 µm		006 Grade of filtration 40 µm	
002 Size	004 Pneumatic connection	008 Condensate drain	Type	Part no.	Type	Part no.
Pressure regulation range 0.3 ... 7 bar, integrated pressure gauge, display unit [bar], standard rotary knob with detent, can be locked using accessories, plastic bowl guard						
4	G1/4	Manual rotary	MS4-LFR-1/4-D6-CRM-AS	529144	MS4-LFR-1/4-D6-ERM-AS	529148
			Fully automatic	MS4-LFR-1/4-D6-CRV-AS	529146	MS4-LFR-1/4-D6-ERV-AS
6	G1/2	Manual rotary	MS6-LFR-1/2-D6-CRM-AS	529176	MS6-LFR-1/2-D6-ERM-AS	529180
			Fully automatic	MS6-LFR-1/2-D6-CRV-AS	529178	MS6-LFR-1/2-D6-ERV-AS
Pressure regulation range 0.5 ... 12 bar, integrated pressure gauge, display unit [bar], standard rotary knob with detent, can be locked using accessories, plastic bowl guard						
4	G1/4	Manual rotary	MS4-LFR-1/4-D7-CRM-AS	529152	MS4-LFR-1/4-D7-ERM-AS	529156
			Fully automatic	MS4-LFR-1/4-D7-CRV-AS	529154	MS4-LFR-1/4-D7-ERV-AS
6	G1/2	Manual rotary	MS6-LFR-1/2-D7-CRM-AS	529184	MS6-LFR-1/2-D7-ERM-AS	529188
			Fully automatic	MS6-LFR-1/2-D7-CRV-AS	529186	MS6-LFR-1/2-D7-ERV-AS
Pressure regulation range 0.5 ... 12 bar, integrated pressure gauge, display unit [bar], standard rotary knob with detent, can be locked using accessories, integrated as metal bowl						
4	G1/4	Manual rotary			MS4-LFR-1/4-D7-EUM-AS	535724
			Fully automatic	MS4-LFR-1/4-D7-CUV-AS	535720	MS4-LFR-1/4-D7-EUV-AS
6	G1/2	Manual rotary			MS6-LFR-1/2-D7-EUM-AS	529192
			Fully automatic	MS6-LFR-1/2-D7-CUV-AS	530340	MS6-LFR-1/2-D7-EUV-AS

## Accessories



- 1 Cover cap MS4/6-END → [ms4-end](#)
  - 2 Connecting plate kit MS4/6-AG... → 295
  - 3 Module connector MS-MV → 281
  - 4 Mounting bracket MS4/6-WB → 281
  - 5 Mounting bracket MS4/6-WBM → [ms4-wbm](#)
  - 6 Mounting bracket MS4/6-WR → 281
  - 7 Hex nut MS4/6-WRS → [ms4-wrs](#)
  - 8 Cover plate VS → [ms4-lfr](#)
  - 9 Adapter plate for EN pressure gauge → [ms4-lfr](#)
  - 10 Pressure gauge MA → [ms4-lfr](#)
  - 11 Pressure sensor without display → [ms4-lfr](#)
  - 12 Connecting cable NEBU-M8...-LE3 → 304
  - 13 Pressure sensor with display → [ms4-lfr](#)
  - 14 Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4 → 304
  - 15 Fully automatic condensate drain, electrically actuated → [ms4-lfr](#)
  - 16 Padlock LRVS-D → [ms4-lfr](#)
- Mounting bracket MS4/MS6-WP, MS4/MS6-WPB, MS4/MS6-WPM → 281  
MS4/6-WPE → [ms4-wpe](#)  
Filter cartridge MS-LFP → 281

3 Module connector MS-MV		
Size	Type	Part no.
4	MS4-MV1	8119201
6	MS6-MV1	8119204

Module connector MS-MVM		
Size	Type	Part no.
For installing modules with regulator knob pointing downwards		
4	MS4-MVM	532800
6	MS6-MVM	532801

4 Mounting bracket MS-WB		
Size	Type	Part no.
For wall mounting		
4	MS4-WB	532185
6	MS6-WB	532196

6 Mounting bracket MS-WR		
Size	Type	Part no.
For wall mounting		
4	MS4-WR	526064
6	MS6-WR	526075

Mounting bracket MS-WP		
Size	Type	Part no.
For wall mounting		
4	MS4-WP	532184
6	MS6-WP	532195

Mounting bracket MS-WPB		
Size	Type	Part no.
For wall mounting		
4	MS4-WPB	526063
6	MS6-WPB	526074

Mounting bracket MS-WPM		
Size	Type	Part no.
For wall mounting		
4	MS4-WPM-D	526060
6	MS6-WPM-D	526073

Filter cartridge MS-LFP		
Size	Type	Part no.
Grade of filtration 5 µm		
4	MS4-LFP-C	534501
6	MS6-LFP-E	534499

Pressure regulators > MS-B series >

## Pressure regulators MS2/MS4/MS6-LR-B, MS-B series



- Very compact and extremely light-weight series for use close to the process directly in the machine
- Maintains a constant working pressure independent of pressure fluctuations and air consumption
- Stable control behaviour
- Integrated secondary exhaust and primary exhaust with return flow function
- Flow rate 170 ... 6000 l/min
- Operating pressure 1 ... 10 bar

### Order code

001	002	003	004	005	006	007	008
MS		LR		D6			B

Legend:   Mandatory entry   Optional entry

001	Type
MS	MS series
002	Size
2	Grid dimensions 25 mm
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Function
LR	Pressure regulator
004	Pneumatic connection
M5	Female thread M5
QS6	Push-in connector for tubing O.D. 6 mm
1/4	Female thread G1/4
1/2	Female thread G1/2

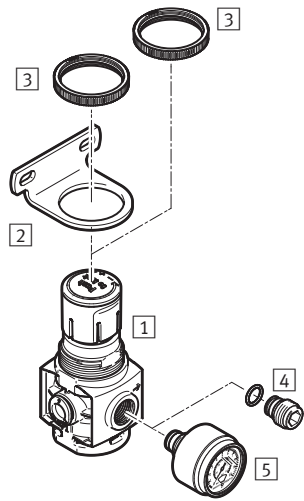
005	Pressure regulation range
D6	Pressure regulation range 0.3 ... 7 bar
006	Pressure gauge alternatives
A8	With adapter plate for EN pressure gauge □, without pressure gauge
AR	With pressure gauge
AG	MS pressure gauge
007	Alternative pressure gauge scale
-	None
BAR	Display unit [bar/psi]
MPA	Display unit [MPa]
008	Version
B	2nd generation

### Ordering

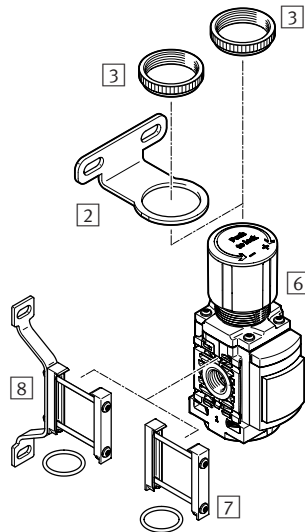
005 Pressure regulation range 0.5 ... 7 bar, rotary knob with detent						
002 Size	004 Pneumatic connection	006 Pressure gauge	007 Pressure gauge scale	Type	Part no.	
2	M5	None	-	MS2-LR-M5-D6-A8-B	8086637	
	QS-6			MS2-LR-QS6-D6-A8-B	8086640	
	M5	With		bar	MS2-LR-M5-D6-AR-BAR-B	8086628
	QS-6			MS2-LR-QS6-D6-AR-BAR-B	8086638	
	M5	With		MPa	MS2-LR-M5-D6-AR-MPA-B	8086636
	QS-6			MS2-LR-QS6-D6-AR-MPA-B	8086639	
4	G1/4	With	bar	MS4-LR-1/4-D6-AG-BAR-B	8099358	
			MPa	MS4-LR-1/4-D6-AG-MPA-B	8099359	
6	G1/2	With	bar	MS6-LR-1/2-D6-AG-BAR-B	8099205	
			MPa	MS6-LR-1/2-D6-AG-MPA-B	8099204	

## Accessories

MS2-LR-B



MS4/MS6-LR-B



- 1 Pressure regulator MS2-LR-B → 282
- 2 Mounting bracket MS2-WR → 283
- 3 Nut MS-WRS → 283
- 4 Plug screw MS2-G18S → 283
- 5 Pressure gauge PAGN → 283
- 6 Pressure regulator MS4/MS6-LR-B → 282
- 7 Module connector MS-MV1 → 283
- 8 Wall mounting kit MS...-WPE-B → 283

### 2 Mounting bracket MS-WR

Size	Type	Part no.
For wall mounting, knurled nut included in the scope of delivery		
2	MS2-WR-B	8087978
4	MS4-WR-B	8149680
6	MS6-WR-B	8149681

### 3 Nut MS-WRS

Size	Type	Part no.
For front panel mounting		
2	MS2-WRS	8098037
4	MS4-WRS	532187
6	MS6-WRS	532188

### 4 Plug screw MS2-G18S

Size	Type	Part no.
For sealing the pressure gauge connection		
2	MS2-G18S	8095766

### 5 Pressure gauge PAGN, suitable for size 2

Operating pressure	Outer scale	Inner scale	Type	Part no.
0 ... 10 bar	0 ... 10 bar	–	PAGN-26-10-G18S	8088985
0 ... 1 MPa	0 ... 10 bar	0 ... 1 MPa, 0 ... 145 psi	PAGN-26-1M-G18S	8088986

### 7 Module connector MS-MV1

Size	Type	Part no.
For connecting the modules for wall mounting		
4	MS4-MV1	8119201
6	MS6-MV1	8119204

### 8 Wall mounting kit MS...-WPE-B

Size	Type	Part no.
For wall mounting		
4	MS4-WPE-B	8118600
6	MS6-WPE-B	8118599

## Pressure regulators MS4/MS6/MS12-LR, MS series



- Maintains a constant working pressure independent of pressure fluctuations and air consumption
- High flow rate with minimal pressure drop
- Flow rate 1000 ... 22000 l/min
- Operating pressure 0.8 ... 20 bar
- Selected types in accordance with ATEX directive for potentially explosive atmospheres

→ [www.festo.com/ex](http://www.festo.com/ex)

### Order code – Basic design

001	002	003	004	005	006	007
MS		LR			AS	

Legend:   Mandatory entry   Optional entry

001	Type
MS	MS series
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
12	Grid dimensions 124 mm
003	Function
LR	Pressure regulator
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2

005	Pressure regulation range
D5	0.3 ... 4 bar, manually actuated
D6	0.3 ... 7 bar, manually actuated
D7	0.5 ... 12 bar, manually actuated
006	Lockable
AS	Standard rotary knob with detent, can be locked using accessories
007	Flow direction
-	From left to right

### Product options

- Size 9, grid dimensions 90 mm
- Pneumatic connection
  - Female thread G1/8, G3/8, G3/4, G1
  - Connecting plate
  - Module without connecting thread, without connecting plate
- Pressure regulation range
  - 0.5 ... 16 bar
  - Max. 16 bar, pneumatically actuated
  - 0.15 ... 6 bar, electrically actuated
- Regulator type: directly actuated
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Without secondary exhaust
- Rotary knob alternatives
  - Rotary knob underneath
  - Long rotary knob
  - Rotary knob pressure gauge, small
  - Rotary knob pressure gauge, large
- Lockable
  - None
  - With integrated lock
- With mounting bracket
- EU certification: II 2GD to EU Explosion Protection Directive (ATEX)
- UL certification
- Flow direction from right to left

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

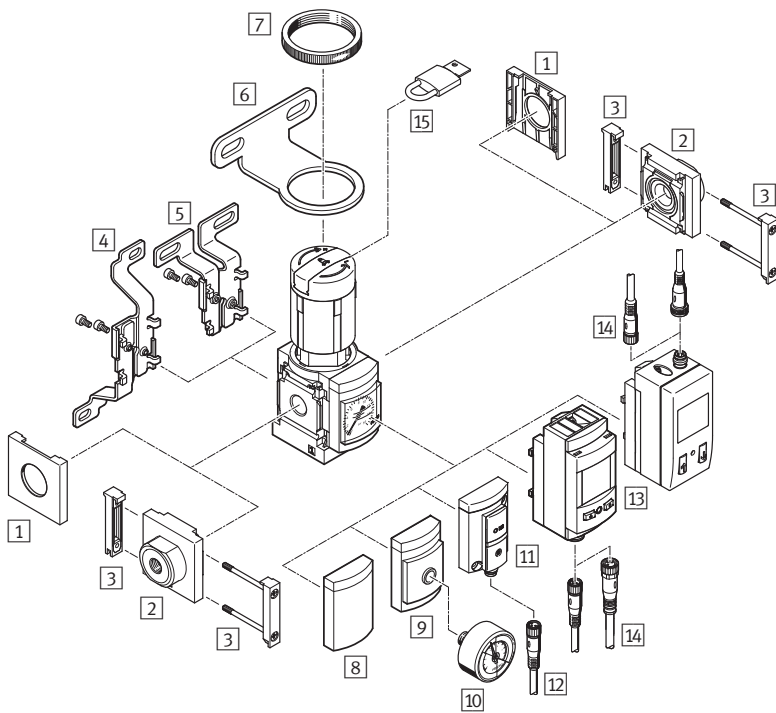
Enter the part number or the type.

Part no.	Type	Standard nominal flow rate	Pressure regulation range
527690	MS4-LR	1000 ... 2200 l/min	0.3 ... 12 bar
527663	MS6-LR	2200 ... 7500 l/min	0.3 ... 16 bar
535021	MS12-LR	12000 ... 22000 l/min	0.15 ... 16 bar

## Ordering – Basic design

		005 Pressure regulation range 0.3 ... 4 bar		005 Pressure regulation range 0.3 ... 7 bar		005 Pressure regulation range 0.5 ... 12 bar	
002 Size	004 Pneumatic connection	Type	Part no.	Type	Part no.	Type	Part no.
Integrated MS pressure gauge with standard scale, display unit [bar], rotary knob with latch, can be locked using accessories							
4	G1/4	MS4-LR-1/4-D5-AS	529415	MS4-LR-1/4-D6-AS	529417	MS4-LR-1/4-D7-AS	529419
6	G1/2	MS6-LR-1/2-D5-AS	529989	MS6-LR-1/2-D6-AS	529991	MS6-LR-1/2-D7-AS	529993

## Accessories



- 1 Cover cap MS4/6-END → [ms4-end](#)
- 2 Connecting plate kit MS4/6-AG... → 295
- 3 Module connector MS-MV → 285
- 4 Mounting bracket MS4/6-WB → 285
- 5 Mounting bracket MS4/6-WBM → [ms4-wbm](#)
- 6 Mounting bracket MS4/6-WR → 285
- 7 Knurled nut MS-LR (included in the scope of delivery)
- 8 Cover plate VS → [ms4-lr](#)
- 9 Adapter plate for EN pressure gauge → [ms4-lr](#)
- 10 Pressure gauge MA → [ms4-lr](#)
- 11 Pressure sensor without display → [ms4-lr](#)
- 12 Connecting cable NEBU-M8...-LE3 → 304
- 13 Pressure sensor with LCD display → [ms4-lr](#)
- 14 Connecting cable NEBU-M8...-LE3/ NEBU-M12...-LE4 → 304
- 15 Padlock LRVS-D → [ms4-lr](#)

Mounting bracket  
MS4/MS6-WP, MS4/MS6-WPB, MS4/MS6-WPM  
→ 285  
MS4/6-WPE → [ms4-wpe](#)

3 Module connector MS-MV		
Size	Type	Part no.
4	MS4-MV1	8119201
6	MS6-MV1	8119204

Module connector MS-MVM		
Size	Type	Part no.
For installing modules with regulator knob pointing downwards		
4	MS4-MVM	532800
6	MS6-MVM	532801

4 Mounting bracket MS-WB		
Size	Type	Part no.
For wall mounting		
4	MS4-WB	532185
6	MS6-WB	532196

6 Mounting bracket MS-WR		
Size	Type	Part no.
For wall mounting		
4	MS4-WR	526064
6	MS6-WR	526075

Mounting bracket MS-WP		
Size	Type	Part no.
For wall mounting		
4	MS4-WP	532184
6	MS6-WP	532195

Mounting bracket MS-WPB		
Size	Type	Part no.
For wall mounting		
4	MS4-WPB	526063
6	MS6-WPB	526074

Mounting bracket MS-WPM		
Size	Type	Part no.
For wall mounting		
4	MS4-WPM-D	526060
6	MS6-WPM-D	526073

On/off valves and soft-start valves > MS-B series > Electrically actuated on/off valves >

On/off valves MS4/MS6-EE-B, soft-start valve MS4/MS6-EDE-B, MS-B series



- Very compact and extremely light-weight series for use close to the process directly in the machine
- Detenting and non-detenting manual override
- Connection G1/4, G1/2
- Flow rate 2000, 5000 l/min
- Operating pressure 3 ... 7 bar

Order code

001	002	003	004	005	006
MS				V24	B

Legend:  Mandatory entry

001	Type
MS	MS series
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Function
EE	Electrically actuated on/off valve
EDE	Soft-start valve, electrically actuated
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2

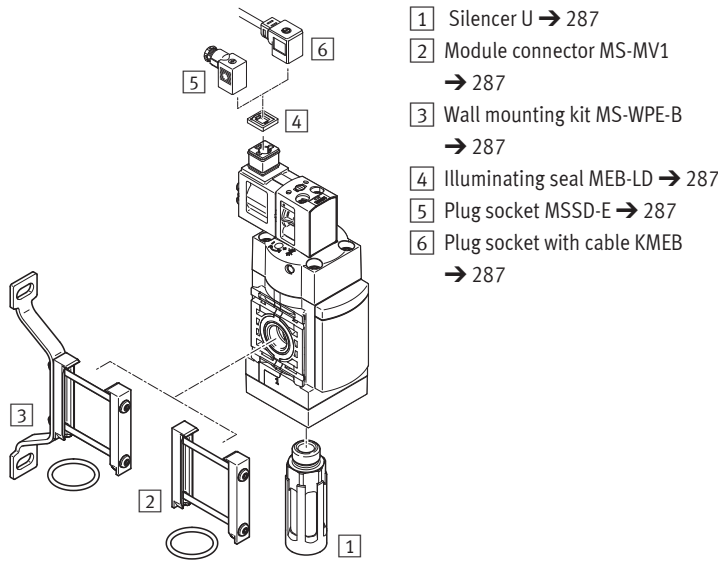
005	Supply voltage
V24	24 V DC (plug pattern to EN 175301)
006	Version
B	2nd generation

Ordering

002 Size	004 Pneumatic connection	003 Function	Type	Part no.
003 Manually operated on/off valve, 3/2-way valve, bistable, closed				
005 Supply voltage 24 V DC				
4	G1/4	For pressurising and exhausting pneumatic systems	MS4-EE-1/4-V24-B	8091771
6	G1/2		MS6-EE-1/2-V24-B	8091578
003 Soft-start valve, electrically actuated, 3/2-way valve, single solenoid, closed				
005 Supply voltage 24 V DC				
4	G1/4	For slowly pressurising and exhausting pneumatic systems	MS4-EDE-1/4-V24-B	8080815
6	G1/2		MS6-EDE-1/2-V24-B	8080855



## Accessories



- 1 Silencer U → 287
- 2 Module connector MS-MV1 → 287
- 3 Wall mounting kit MS-WPE-B → 287
- 4 Illuminating seal MEB-LD → 287
- 5 Plug socket MSSD-E → 287
- 6 Plug socket with cable KMEB → 287

1 Silencer U		
Size	Type	Part no.
4	U-1/4	2316
6	U-1/2	2310

5 Plug socket MSSD-E			
Electrical connection	Cable connection	Type	Part no.
3-pin	Screw terminal	MSSD-EB	151687
4-pin		MSSD-EB-S-M14	192745

2 Module connector MS-MV1		
Size	Type	Part no.
For connecting the modules for wall mounting		
4	MS4-MV1	8119201
6	MS6-MV1	8119204

6 Plug socket with cable KMEB			
Electrical connection	Cable length	Type	Part no.
24 V DC, with LED			
3-pin	2.5 m	KMEB-1-24-2.5-LED	151688
	5 m	KMEB-1-24-5-LED	151689
	10 m	KMEB-1-24-10-LED	193457

3 Wall mounting kit MS-WPE-B		
Size	Type	Part no.
For wall mounting		
4	MS4-WPE-B	8118600
6	MS6-WPE-B	8118599

4 Illuminating seal MEB-LD		
Operating voltage range	Type	Part no.
For plug socket with cable KMEB and plug socket MSSD-EB		
12 ... 24 V DC	MEB-LD-12-24DC	151717

On/off valves and soft-start valves > MS series > Manually/electrically actuated on/off valves >

On/off valves MS4/MS6-EM1, MS4/MS6-EE, MS series



- For pressurising and exhausting pneumatic systems
- Connection G1/4, G1/2
- Flow rate 1000 ... 8700 l/min
- Operating pressure 0 ... 18 bar
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

Order code – Basic design

001 002 003 004 005 006  
 MS  -  -  -  -  -

Legend:  Mandatory entry  Optional entry

001	Type
MS	MS series
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Function
EM1	Manually operated on/off valve
EE	Electrically actuated on/off valve
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2

005	Supply voltage
-	Without (manually operated on/off valve)
10V24	24 V DC
006	Silencers
-	Without silencer
S	With silencer

Product options

- Size
  - 9, grid dimensions 90 mm
  - 12, grid dimensions 124 mm
- Additional connection sizes
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Additional supply voltages
- With mounting bracket
- Other valve functions
- EU certification
- UL certification
- Flow direction from right to left

Configurable product

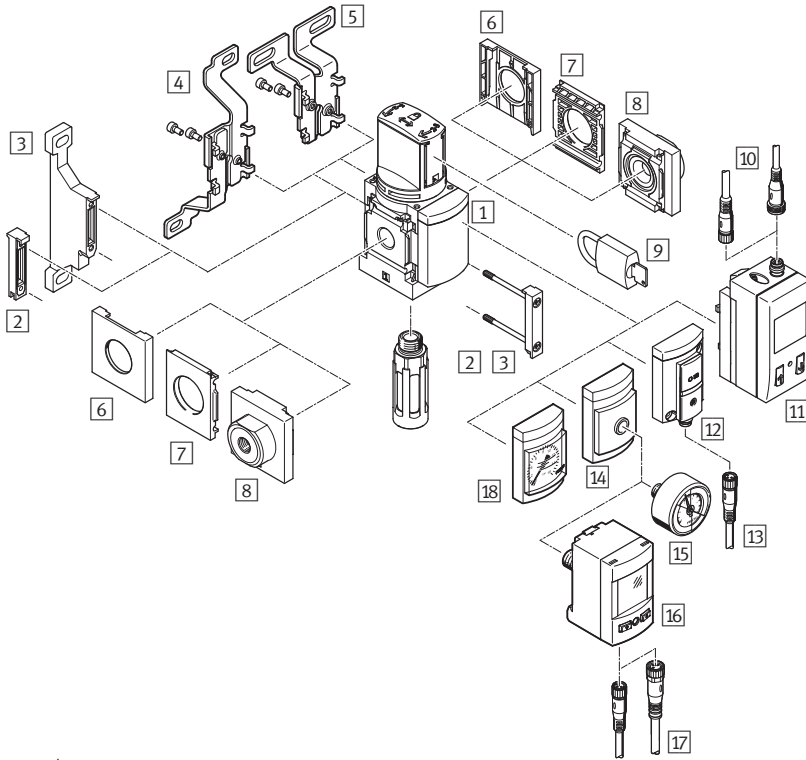
This product and all its product options can be ordered online via the configurator:  
 → [www.festo.com/catalogue/ms-e](http://www.festo.com/catalogue/ms-e)

Ordering – Basic design

		006 Without silencer		006 With silencer	
002 Size	004 Pneumatic connection	Type	Part no.	Type	Part no.
003 Manually operated on/off valve, 3/2-way valve, bistable					
4	G1/4	MS4-EM1-1/4	541258	MS4-EM1-1/4-S	541259
6	G1/2	MS6-EM1-1/2	541267	MS6-EM1-1/2-S	541268
003 Electrically actuated on/off valve, 3/2-way valve, single solenoid, closed					
005 Supply voltage 24 V DC					
4	G1/4	MS4-EE-1/4-10V24	542578	MS4-EE-1/4-10V24-S	542598
6	G1/2	MS6-EE-1/2-10V24	542582	MS6-EE-1/2-10V24-S	542602

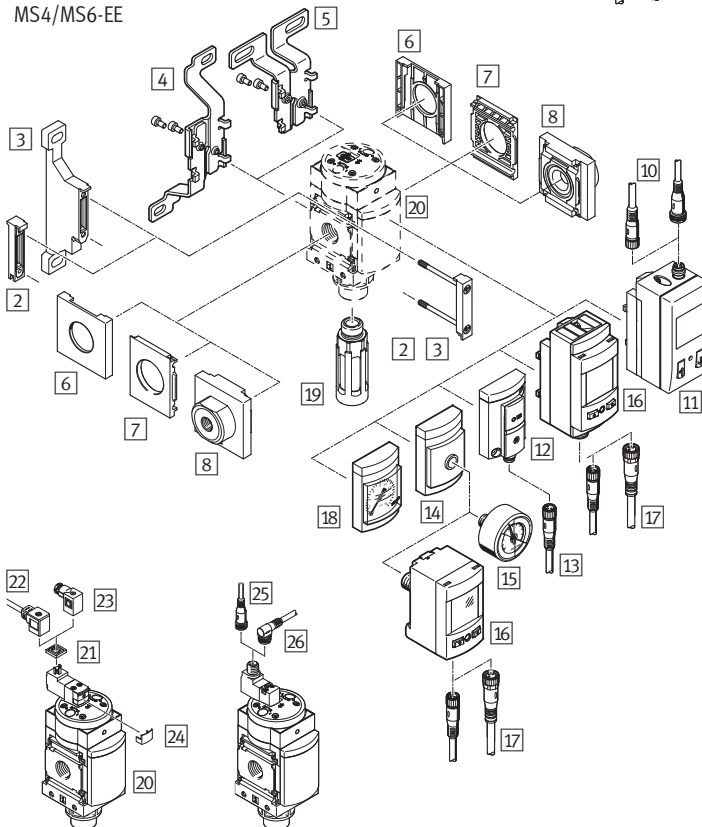
## Accessories

MS4/MS6-EM1



- 1 On/off valve MS4/6-EM1
- 2 Module connector MS-MV → 281
- 3 Mounting bracket MS4/6-WP → 281
- 4 Mounting bracket MS4/6-WB → 281
- 5 Mounting bracket MS4-WBM → [ms4-wbm](#)
- 6 Cover cap MS4/6-END → [ms4-end](#)
- 7 Mounting plate MS4/6-AEND → [ms4-aend](#)
- 8 Connecting plate kit MS4/6-AG... → 295
- 9 Padlock LRVS-D → [ms4-e](#)
- 10 Connecting cable NEBU-M8...-LE3, NEBU-M12...-LE4 → 304
- 11 Pressure sensor SDE1 with LCD display → [ms4-e](#)
- 12 Pressure sensor SDE5 with status indicator → [ms-e](#)
- 13 Connecting cable NEBU-M8...-LE3 → 304
- 14 Adapter plate for EN pressure gauge → [ms4-e](#)
- 15 Pressure gauge MA → [ms4-e](#)
- 16 Pressure sensor SPAU → [ms4-e](#)
- 17 Connecting cable NEBU-M8...-LE4, NEBU-M12...-LE4 → 304
- 18 MS pressure gauge → [ms4-e](#)
- 19 Silencer U → 343

MS4/MS6-EE



- 20 On/off valve MS4/6-EE
- 21 Illuminating seal MEB-LD → [ms4-e](#)
- 22 Plug socket with cable KMEB → [ms4-e](#)
- 23 Plug socket MSSD-EB → [ms4-e](#)
- 24 Locking clip CPV18-HV → [ms4-e](#)
- 25 Connecting cable NEBU-M12G5 → 304
- 26 Connecting cable NEBU-M12W5 → [ms4-e](#)

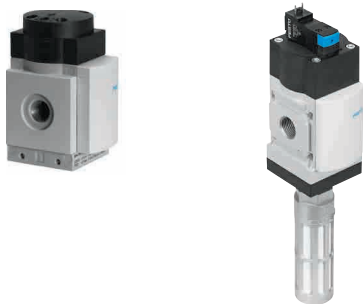
Mounting bracket

MS4/MS6-WPB, MS4/MS6-WPM → 281

MS4/6-WPE → [ms4-wpe](#)

On/off and soft-start valves > MS series >

## Soft-start/quick exhaust valves MS4/MS6-DL, MS6-SV, MS series



### MS-DL:

- For slowly pressurising and exhausting pneumatic systems (for use with on/off valves EM1 and EE)

### MS-SV-C:

- For the gradual pressurisation and quick exhausting of system components (single channel)

- Connection G1/4, G1/2
- Flow rate 1000 ... 6450 l/min
- Operating pressure 3 ... 18 bar
- Selected types in accordance with ATEX directive for potentially explosive atmospheres

→ [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001 002 003 004 005 006 007

MS  -  -  -  -  -  -

Legend:  Mandatory entry  Optional entry

001	Type
MS	MS series
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Service function
DL	Pneumatically actuated soft-start valve
SV	Soft-start/quick exhaust valve
004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2

005	Performance Level
-	None
C	Category 1, to EN ISO 13849-1
006	Supply voltage
-	Without (pneumatically actuated soft-start valve)
10V24	24 V DC, 10 bar, connection pattern to EN 175301
007	Silencer
-	Without silencer
S	With silencer

## Product options

- Size
  - 12, grid dimensions 124 mm
- Additional connection sizes
- Additional supply voltages
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- With mounting bracket
- With tamper protection
- EU certification
- UL certification
- Flow direction from right to left

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/ms-dl](http://www.festo.com/catalogue/ms-dl)

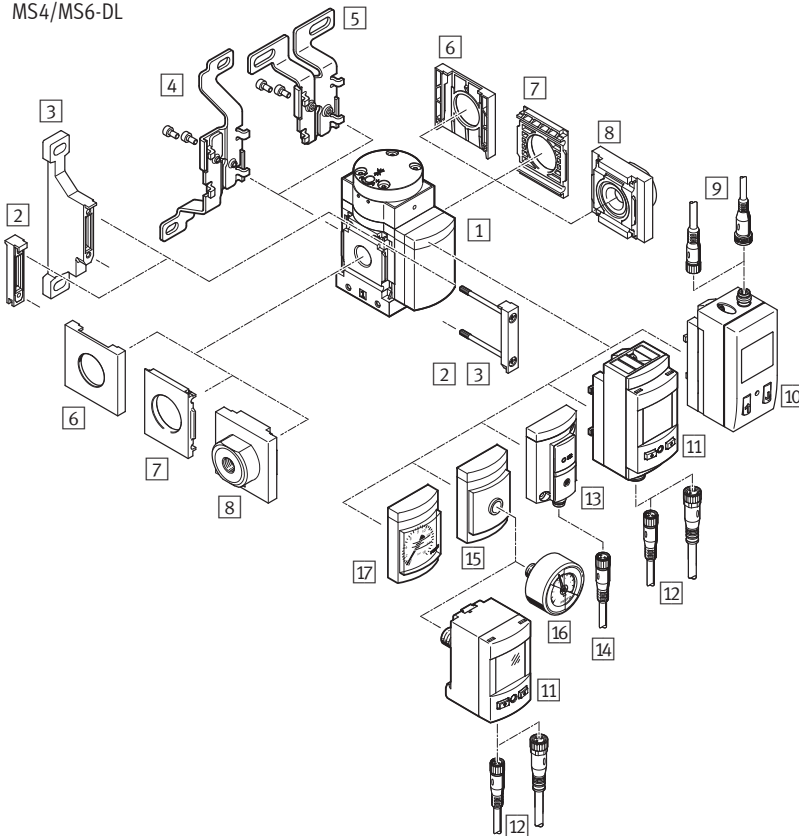
→ [www.festo.com/catalogue/ms-sv](http://www.festo.com/catalogue/ms-sv)

## Ordering – Basic design

002 Size	004 Pneumatic connection	007 Silencer	Type	Part no.
003 Pneumatically actuated soft-start valve, 2/2-way valve				
4	G1/4	-	MS4-DL-1/4	529531
6	G1/2	-	MS6-DL-1/2	529817
003 Electro-pneumatically actuated soft-start/quick exhaust valve, 3/2-way valve, single solenoid, closed				
6	G1/2	With	MS6-SV-1/2-C-10V24-S	8001469

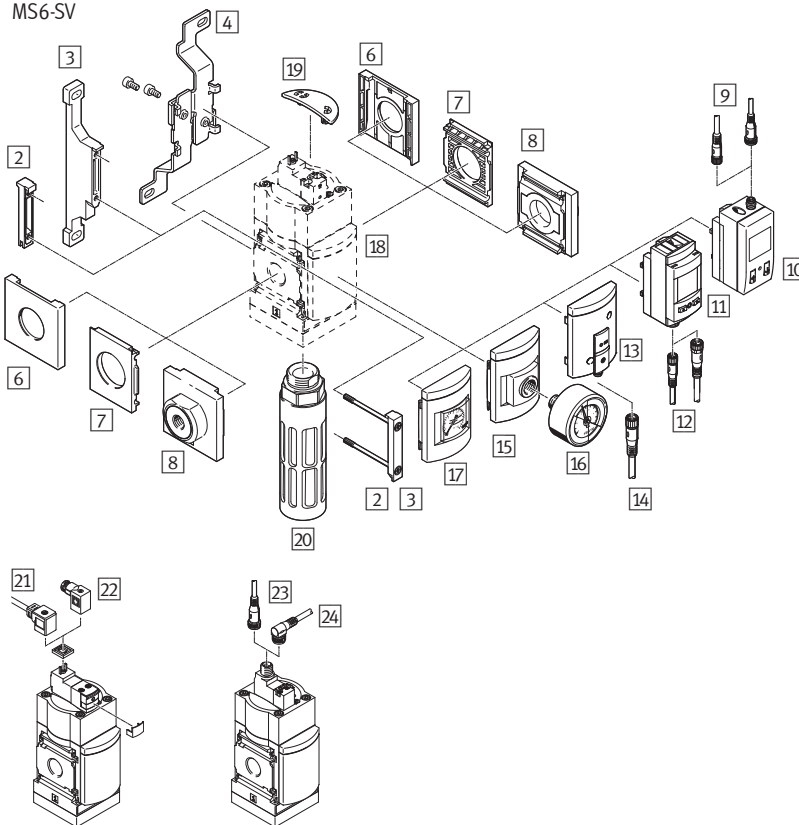
## Accessories

MS4/MS6-DL



- 1 Soft-start valve MS4/6-DL
- 2 Module connector MS-MV → 281
- 3 Mounting bracket MS-WP → 281
- 4 Mounting bracket MS-WB → 281
- 5 Mounting bracket MS-WBM → [ms4-wbm](#)
- 6 Cover cap MS-END → [ms4-end](#)
- 7 Mounting plate MS6-AEND → [ms6-aend](#)
- 8 Connecting plate kit MS4/6-AG... → 295
- 9 Connecting cable NEBU-M8...-LE3/NEBU-M12...-LE4 → 304
- 10 Pressure sensor SDE1 with LCD display → [ms4-dl](#)
- 11 Pressure sensor SPAU with LCD display → [ms4-dl](#)
- 12 Connecting cable NEBU-M8...-LE4, NEBU-M12...-LE4 → 304
- 13 Pressure sensor SDE5 with status indicator → [ms4-dl](#)
- 14 Connecting cable NEBU-M8...-LE3 → 304
- 15 Adapter plate for EN pressure gauge → [ms4-dl](#)
- 16 Pressure gauge MA → [ms4-dl](#)
- 17 MS pressure gauge → [ms4-dl](#)

MS6-SV



- 18 Soft-start/quick exhaust valve MS6-SV-C
- 19 Cover MS6-SV-C-MK → [ms6-sv](#)
- 20 Silencer U-3/4-B → [ms6-sv](#)
- 21 Plug socket with cable KMEB → [ms6-sv](#)
- 22 Plug socket MSSD-EB → [ms6-sv](#)
- 23 Connecting cable NEBU-M12G5 → 304
- 24 Connecting cable NEBU-M12W5 → [ms6-sv](#)

Mounting bracket

MS4/MS6-WPM → 281

MS4/6-WPE → [ms4-wpe](#)

Compressed air distributors > MS series >

## Branching modules MS4/MS6-FRM, MS series



- Compressed air distributors with 4 connections
- Can be used as an intermediate distributor for varying air qualities
- Outlet at top and bottom
- Flow rate 1200 ... 14700 l/min
- Operating pressure 0 ... 20 bar

### Order code – Basic design

001 002 003 004 005  
**MS**  - **FRM** -  -

Legend:  Mandatory entry  Optional entry

001	Series
MS	MS series
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Service function
FRM	Branching module

004	Pneumatic connection
1/4	Female thread G1/4
1/2	Female thread G1/2
005	Non-return function/pressure switch
-	Standard

### Product options

- Size
  - 12, grid dimensions 124 mm
- Additional connection sizes
- With integrated non-return function
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- With pressure switch
- With mounting bracket
- EU certification
- UL certification
- Flow direction from right to left

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

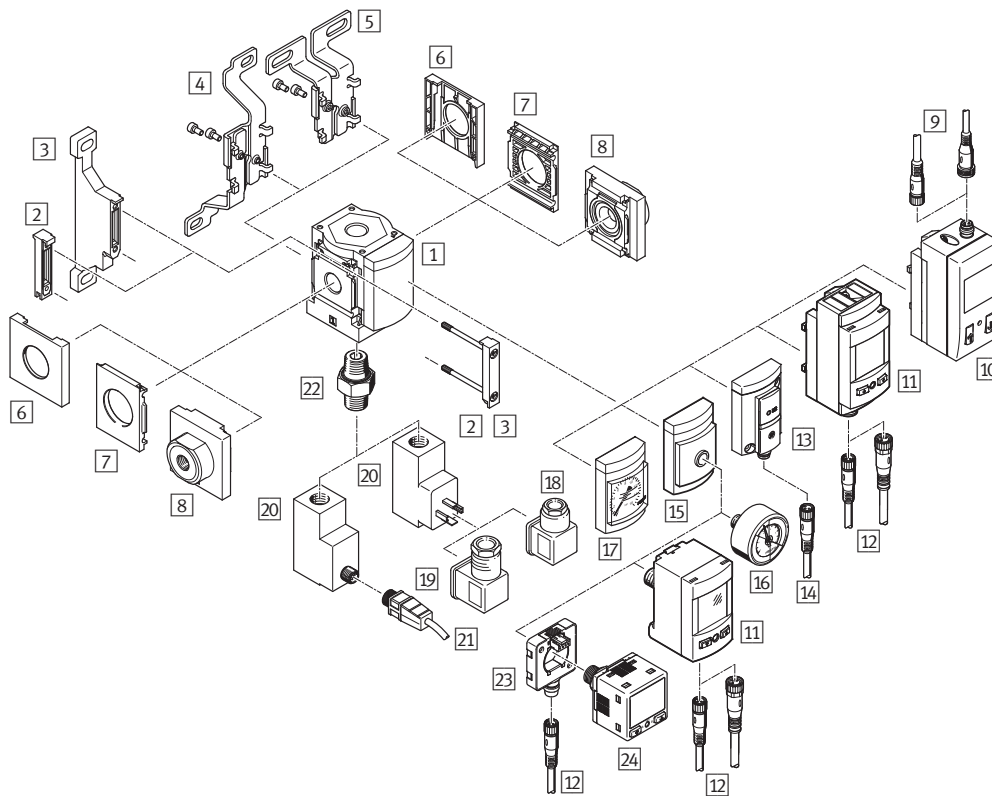
Enter the part number or the type.

Part no.	Type	Standard nominal flow rate	Operating pressure
527703	MS4-FRM	1200 ... 4600 l/min	0 ... 14 bar
527676	MS6-FRM	3200 ... 14700 l/min	0 ... 20 bar

### Ordering – Basic design

002 Size	004 Pneumatic connection	Type	Part no.
6	G1/4	MS6-FRM-1/4	529857
6	G1/2	MS6-FRM-1/2	529853

## Accessories

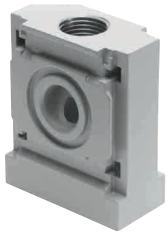


- 1 Branching module MS4/6-FRM
- 2 Module connector MS-MV → 281
- 3 Mounting bracket MS4/6-WP  
→ [ms4-wp](#)
- 4 Mounting bracket MS4/6-WB → 281
- 5 Mounting bracket MS4-WBM  
→ [ms4-wbm](#)
- 6 Cover cap MS4/6-END → [ms4-end](#)
- 7 Mounting plate MS4/6-AEND  
→ [ms4-aend](#)
- 8 Connecting plate kit MS4/6-AG...  
→ 295
- 9 Connecting cable NEBU-M8...-LE3,  
NEBU-M12...-LE4 → 304
- 10 Pressure sensor SDE1 with LCD display  
→ [ms4-frm](#)
- 11 Pressure sensor SPAU → [ms4-frm](#)
- 12 Connecting cable NEBU-M8...-LE4,  
NEBU-M12...-LE4 → 304
- 13 Pressure sensor SDE5 with status indi-  
cator → [ms4-frm](#)
- 14 Connecting cable NEBU-M8...-LE3  
→ 304
- 15 Adapter for EN pressure gauge  
→ [ms4-frm](#)
- 16 Pressure gauge MA → [ms4-frm](#)
- 17 MS pressure gauge → [ms4-frm](#)
- 18 Plug socket MSSD-C-4P → [ms4-frm](#)
- 19 Angled socket PEV-1/4-WD-LED  
→ [ms4-frm](#)
- 20 Pressure switch PEV → [ms4-frm](#)
- 21 Connecting cable NEBU-M12...-LE4  
→ 304
- 22 Double nipple ESK → [ms4-frm](#)
- 23 Electrical adapter SASC → [ms4-frm](#)
- 24 Pressure sensor SPAN → [ms4-frm](#)

Mounting bracket  
MS4/MS6-WPM → 281  
MS4/6-WPE → [ms4-wpe](#)

Compressed air distributors > MS series >

## Distributor blocks MS4/MS6-FRM-FRZ, MS series



- Compressed air distributors with 4 connections
- Can be used as an intermediate distributor for varying air qualities
- Outlet at top and bottom
- Flow rate 2900 ... 14600 l/min
- Operating pressure 0 ... 20 bar

### Order code

001 002 003

MS  - FRM - FRZ

Legend:  Mandatory entry

001	Series
MS	MS series
002	Size
4	Grid dimensions 40 mm
6	Grid dimensions 62 mm
003	Service function
FRM-FRZ	Distributor block

### Ordering

002 Size	Pneumatic connection 3, 4	Type	Part no.
4	G1/4	MS4-FRM-FRZ	549336
6	G1/2	MS6-FRM-FRZ	549337



Accessories for compressed air preparation >  
Connecting plate kit MS4/MS6-AG...



- MS series
- Adapter for pneumatic connection
- MS6-AGE for implementing threaded connection G3/4

### Ordering


Size	Pneumatic connection	Type	Part no.
4	G1/4	<b>MS4-AGB</b>	<b>526069</b>
4	G3/8	<b>MS4-AGC</b>	<b>526070</b>
6	G1/2	<b>MS6-AGD</b>	<b>526082</b>
6	G3/4	<b>MS6-AGE</b>	<b>526083</b>

# 11

## Electrical connection technology



# Highlights



Connecting cables

## NEBU

- + The modular cable system with unlimited combination options of plugs, plug sockets, cable lengths and qualities
- + Adapted to all devices with M8 and M12 plugs
- + Cable length 0.1 ... 30 m

→ 304

# Contents

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Connecting cables NEBU, universal	304
Connecting cables NEBM	305
Connecting cables NEBS	307

Product overview

Software-Tools

**Configurator for connecting cables**



Design a product with numerous features reliably and quickly with the help of the configurator.

Select all the required product features step by step. The use of logic checks ensures that only correct configurations are available for selection.

A dynamic graphic generated on the basis of the configuration provides a visual aid for selecting the correct product features.

You will find the configurator

1. at [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu)
2. Click on the product
3. Click on the blue „Configure product“ button

Connecting cables >

Universal connecting cables



Connecting cables  
**NEBU**

<b>Electrical connection, connection type</b>	Socket, cable, plug
<b>Electrical connection, cable outlet</b>	Straight, angled, can be adjusted in 15° steps
<b>Electrical connection, design</b>	Round
<b>Electrical connection, connection technology</b>	G7/8 coded to NFPA/T3.5.29 R1-2007, M12x1 A-coded to EN 61076-2-101, M8x1 A-coded to EN 61076-2-104, open end
<b>Electrical connection, number of pins/wires</b>	3, 4, 5, 8
<b>Cable length</b>	0.1 ... 30 m
<b>Description</b>	<ul style="list-style-type: none"> <li>• For thread M8x1 A-coded according to EN 61076-2-104</li> <li>• For thread M12x1 A-coded according to EN 61076-2-101</li> <li>• Pre-assembled at one or both ends</li> <li>• Designs for static, standard, energy chain and robot applications</li> <li>• Cable length 0.1 ... 30 m</li> <li>• With PVC or PUR cable</li> <li>• Ambient temperature -25 ... +80 °C</li> </ul>
<b>→ Page/online</b>	<b>304</b>


## Connecting cables &gt;

## Connecting cables for controllers

	 <p>Connecting cables NEBC</p>
<b>Electrical connection</b>	25-pin, 5-pin, straight plug, straight plug/open end, Sub-D/-, Sub-D/ Sub-D, square design/angled, M12x1
<b>Electrical connection, connection type</b>	Socket, plug, hybrid plug, plug and socket strip, cable
<b>Electrical connection, cable outlet</b>	Straight, angled
<b>Electrical connection, design</b>	Square, round
<b>Electrical connection, connection technology</b>	Connection pattern P1, M12x1 A-coded to EN 61076-2-101, M12x1 Festo-specific coding, connection pattern type A to EN 175301-803, HR25, M8x1, D-coded to EN 61076-2-114, M12x1, D-coded to EN 61076-2-101, M9x0.5, RJ45 to IEC 60603-7-3, USB 2.0 type A, USB 3.0 type A, open end, M8x1 A-coded to EN 61076-2-104, RJ45, RJ45 and socket strip 12 pins, 2 rows, Sub-D, USB 2.0 type B, USB 3.0 type B micro
<b>Electrical connection, number of pins/wires</b>	3, 4, 5, 8, 9, 10, 15, 17, 20, 25, 26
<b>Cable length</b>	0.2 ... 50 m
<b>Description</b>	<ul style="list-style-type: none"> <li>• Variants in easy-to-clean design</li> <li>• Standard variants, variants with shielding or as a hybrid cable</li> <li>• Variants suitable for energy chains</li> <li>• Variants with Ethernet, CANopen, I-Port or RS232</li> </ul>
<b>→ Page/online</b>	<a href="#">nebc</a>

## Connecting cables &gt;




## Connecting cables for motors

	 <p>Motor, encoder cables NEBM</p>
<b>Electrical connection, connection type</b>	Socket, hybrid socket, cable, plug, plug and cable
<b>Electrical connection, cable outlet</b>	Straight, angled
<b>Electrical connection, design</b>	Square, round
<b>Electrical connection, connection technology</b>	Connection pattern F1, connection pattern H6, coded for motor, connection pattern H7, coded for motor brake, connection pattern L4, connection pattern L5, connection pattern RE, ITT M3, M12x1 A-coded to EN 61076-2-101, RJ45, RJ45 and open end, Sub-D, M16x0.75, M23x1, open end
<b>Electrical connection, number of pins/wires</b>	2, 4, 6, 8, 9, 10, 12, 14, 15, 18, 28, 31
<b>Cable length</b>	0.2 ... 100 m
<b>Description</b>	<ul style="list-style-type: none"> <li>• For servo motors EMMB-AS, EMME-AS, EMMT-AS and stepper motor EMMS-ST</li> <li>• Can be used in a wide temperature range</li> <li>• For motor controller CMMS-ST, CMMP-AS, servo drive CMMT-AS</li> <li>• Suitable for use with energy chains</li> </ul>
<b>→ Page/online</b>	<b>305</b>

Product overview


Connecting cables >

Connecting cables for valves

	 Connecting cables NEBV	 Plug sockets with cable KMEB-1, KMEB-2, KMEB-3	 Plug sockets with cable KMF
<b>Electrical connection</b>	4-pin/2-wire, 4-pin/3-pin, 44-pin, socket, angled socket/cable, angled socket/straight plug, M8x1/M8x1, Sub-D, M8x1	2-pin, 3-pin, 4-pin, 5-pin, angled socket, type C, to DIN EN 175301-803	Socket
<b>Electrical connection, connection type</b>	2x single wire, socket, socket, slim, cable with socket, cable, plug, twin cable	Socket	
<b>Electrical connection, cable outlet</b>	Straight, angled	Angled	
<b>Electrical connection, design</b>	Square, round	Angular	
<b>Electrical connection, connection technology</b>	Connection pattern ZB, self-tapping screw, connection pattern ZC, self-tapping screw, connection pattern ZC, metric screw, connection pattern H, connection pattern HP, connection pattern Q7, M12x1 A-coded to EN 61076-2-101, connection pattern S, connection pattern type A based on EN 175301-803, connection pattern type B to industry standard 11 mm, connection pattern type C to EN 175301-803, M8x1 A-coded to EN 61076-2-104, open end, Sub-D	Open end	
<b>Electrical connection, number of pins/wires</b>	2, 3, 4, 5, 8, 10, 25, 26, 27, 36, 37, 44	2, 3	
<b>Cable length</b>	0.1 ... 30 m	0.5 ... 10 m	2.5 ... 10 m
<b>Description</b>	<ul style="list-style-type: none"> <li>• For solenoid coils form A, form B or form C</li> <li>• For solenoid coils with thread M8x1 or M12x1 A-coded</li> <li>• For solenoid coils ZC or various special connection patterns</li> <li>• Pre-assembled at one or both ends</li> <li>• Cable length 0.1 ... 30 m</li> <li>• With PUR cable</li> <li>• Ambient temperature -25 ... +80 °C</li> </ul>	<ul style="list-style-type: none"> <li>• For solenoid coils with plug pattern type C according to EN 175301-803</li> <li>• For EB solenoid coils</li> <li>• With PVC or PUR cable</li> <li>• Ambient temperature -20 ... +80 °C</li> </ul>	<ul style="list-style-type: none"> <li>• For solenoid coils with plug pattern type B as per industrial standard, 11 mm</li> <li>• For F solenoid coils</li> <li>• With PVC cable</li> <li>• Ambient temperature -20 ... +80 °C</li> </ul>
<b>→ Page/online</b>	<a href="#">nebv</a>	<a href="#">kmeb-1</a>	<a href="#">kmf</a>


Connecting cables >

## Connecting cables for sensors

	 <p><b>Connecting cables</b> <b>NEBS</b></p>
<b>Electrical connection, connection type</b>	Socket, cable, plug
<b>Electrical connection, cable outlet</b>	Straight
<b>Electrical connection, design</b>	Square, round
<b>Electrical connection, connection technology</b>	Plug pattern L1J, M12x1, A-coded to EN 61076-2-101, M16x0.75, open end
<b>Electrical connection, number of pins/cores</b>	4, 5, 12, 24, 25
<b>Cable length</b>	0.3 ... 15 m
<b>Description</b>	<ul style="list-style-type: none"> <li>• For connecting with rectangular design L1, grid dimension 5.8 mm</li> <li>• For thread M12x1, A-coded to EN 61076-2-101</li> <li>• For thread M16x0.75</li> <li>• Connecting cable for pressure sensor SPAN</li> <li>• Degree of protection IP40, IP65, IP67, IP69K, when mounted</li> <li>• With PVC or PUR cable</li> <li>• Ambient temperature -40 ... +70°C</li> </ul>
<b>online: →</b>	<b>307</b>

Plug connectors >

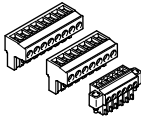

## Universal plug connectors

	 <p><b>Distributors</b> <b>NEDY</b></p>
<b>Electrical connection, connection type</b>	2x socket, 2x cable, cable, plug
<b>Electrical connection, design</b>	Square, round
<b>Electrical connection, connection technology</b>	Connection pattern ZB, self-tapping screw, connection pattern ZC, self-tapping screw, connection pattern ZC, metric screw, connection pattern H, connection pattern type A to EN 175301-803, connection pattern type B to EN 175301-803, connection pattern type B to industry standard 11 mm, connection pattern type C to EN 175301-803, connection pattern type C to industry standard 9.4 mm, M12x1 A-coded to EN 61076-2-101, M8x1 A-coded to EN 61076-2-104, open end
<b>Electrical connection, number of pins/wires</b>	2, 3, 4, 5
<b>Degree of protection</b>	IP65, IP67, IP68, IP69K
<b>Description</b>	<ul style="list-style-type: none"> <li>• Collecting signals between field devices (sensors) and controller inputs with double assignment</li> <li>• Distributing signals between controller outputs with double assignment and field devices (actuators, e.g. valves)</li> </ul>
<b>→ Page/online</b>	<b>nedy</b>

## Product overview


### Plug connectors >

## Plug connectors for controllers

	 <p><b>Plug assortments</b> NEKM</p>	 <p><b>Plug, adapter, manifold block</b> NEFC</p>
<b>Electrical connection, connection technology</b>	Screw connector	M12x1 A-coded to EN 61076-2-101
<b>Electrical connection, number of pins/wires</b>	2 ... 9	5, 8
<b>Description</b>	<ul style="list-style-type: none"> <li>• For motor controller CMMS-ST, CMMP-AS</li> <li>• For servo drive CMMT-AS</li> </ul>	<ul style="list-style-type: none"> <li>• Adapter, 5-pin M12, for mini USB socket with controller software for CPX terminal</li> <li>• Adapter for rotary drive unit ERMS as connection between motor and IO-Link master</li> <li>• Plug and connection block for motor controller as connection from I/O interface to the controller</li> </ul>
<b>→ Page/online</b>	<a href="#">nekm</a>	<a href="#">nefc</a>

### Plug connectors >

## Plug connectors for valves

	 <p><b>Plug sockets</b> MSSD</p>
<b>Electrical connection</b>	3-pin, 4-pin, socket, angled socket, type A, type B, type C, to DIN EN 175301-803, to DIN EN 61984, square design, square design MSC, square design MSEB, square design MSF, square design MSN1, square design MSN2, square design MSV
<b>Electrical connection, connection type</b>	Socket
<b>Electrical connection, design</b>	Square
<b>Electrical connection, connection technology</b>	Connection pattern type A to EN 175301-803, connection pattern type B to industry standard 11 mm, screw terminal
<b>Electrical connection, number of pins/wires</b>	3
<b>Connection cross section</b>	0.25 ... 1.5 mm <sup>2</sup>
<b>Degree of protection</b>	IP50, IP65, IP67, to IEC 60529
<b>Description</b>	<ul style="list-style-type: none"> <li>• For valves with F, D, N1, V, E, EB, N2, Y, Z, ZB, ZC, MD-2 and MH-2 solenoid coils</li> <li>• For connecting individual valves</li> <li>• Optionally with LED indicator</li> </ul>
<b>→ Page/online</b>	<a href="#">mssd</a>

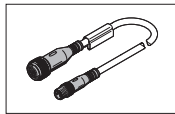
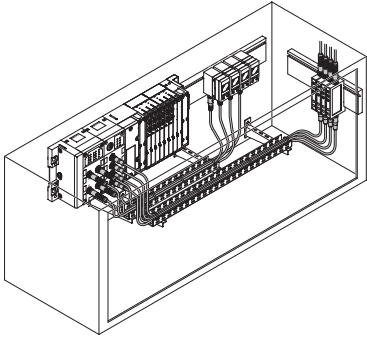


The configurable connecting cables offer unlimited combinations in terms of plug sockets, cable lengths, cable qualities and plugs. They match all devices with M8 and M12 plugs such as proximity switches, position transmitters, pressure and flow sensors, optical and inductive sensors as well as individual valves. Cable

lengths are freely selectable within a range of 0.1 ... 30 m.

The ends and middle pieces can also be freely selected for maximum customisation.

## Basic



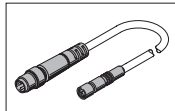
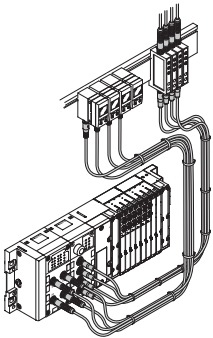
### Applications

Static installation, no or small mechanical load

### Properties of basic cables

Price-optimised cable for simple, mainly static applications

## Standard



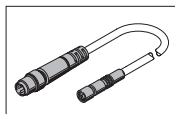
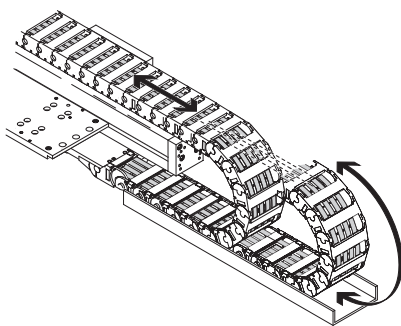
### Applications

Low to average mechanical load, energy chains with large radius  $\geq 75$  mm

### Properties of standard cables

Good oil resistance, good bending properties, suitable for use with energy chains

## Energy chain



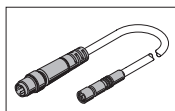
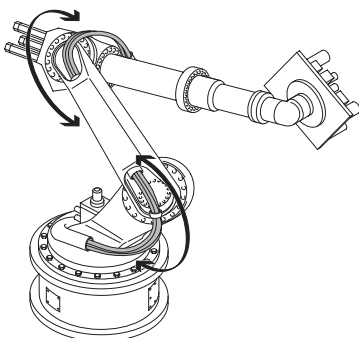
### Applications

Energy chain applications involve high mechanical loads, particularly if very small radii are required.

### Properties of cables suitable for use with energy chains

Very good oil resistance, very good bending properties, highly suitable for energy chains, halogen-free

## Robot



### Applications

Robot applications involve high mechanical loads that are primarily caused by torsion.

### Properties of robot cables

Very good oil resistance, very good bending properties, suitable for use with energy chains, halogen-free

The technical data as well as an overview of the range of options for the connecting cables NEBU can be found online

→ [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu)

Connecting cables > Connecting cables, universal > Connecting cables NEBU, universal



- Plug socket with cable for connecting inputs/outputs
- Pre-assembled at both ends

### Order code – Basic design

001 002 003 004 005 006 007 008 009

NEBU -  -  -  -  K -  -  -  -

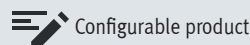
Legend:  Mandatory entry  Optional entry

001	Type
NEBU	Connecting cable, universal
002	Connection technology left, field device side
M8	Socket M8x1, A-coded, EN 61076-2-104
M12	Socket M12x1, A-coded, EN 61076-2-101
003	Connection technology version, left
G3	Straight, 3-pin
G5	Straight, 5-pin
W3	Angled, 3-pin
004	Indicator
-	Without LED
005	Cable characteristic
K	Standard

006	Cable length [m]
...	0.5, 1, 2.5, 5, 10
007	Cable designation
-	With inscription label holder
008	Connection technology right, controller side
M8	Plug M8x1, A-coded, EN 61076-2-104
LE	Open cable end
009	Connection technology version, right
3	Open cable end, 3-wire
4	Open cable end, 4-wire
5	Open cable end, 5-wire
G3	Straight, 3-pin

### Product options

- |  |  |
|--|--|
| <p>Connection technology</p> <ul style="list-style-type: none"> <li>• Socket/plug M12x1</li> <li>• Socket G7/8</li> </ul> <p>Connection technology version</p> <ul style="list-style-type: none"> <li>• Rotatable</li> </ul> <p>Indicator</p> <ul style="list-style-type: none"> <li>• With LED indicator</li> </ul> | <p>Cable characteristics</p> <ul style="list-style-type: none"> <li>• Suitable for use with energy chains</li> <li>• Suitable for robot applications</li> </ul> <p>Cable length</p> <ul style="list-style-type: none"> <li>• Up to 30 m</li> </ul> |
|--|--|



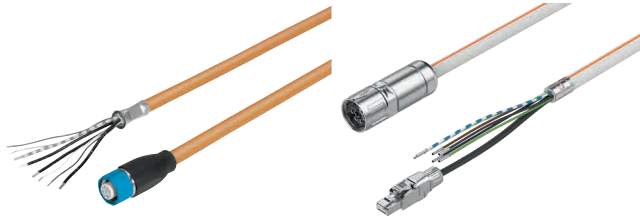
This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/nebu](http://www.festo.com/catalogue/nebu)

### Ordering – Basic design

Connecting cables, M8, 3-pin			
Cable length	Connection, right	Type	Part no.
Connection, left: socket M8, straight, 3-pin			
0.5 m	Plug M8, straight, 3-pin	NEBU-M8G3-K-0.5-M8G3	541346
1 m		NEBU-M8G3-K-1-M8G3	541347
2.5 m		NEBU-M8G3-K-2.5-M8G3	541348
5 m		NEBU-M8G3-K-5-M8G3	541349
2.5 m		Open cable end, 3-wire	NEBU-M8G3-K-2.5-LE3
5 m	NEBU-M8G3-K-5-LE3		541334
10 m	NEBU-M8G3-K-10-LE3		541332
Connection, left: socket M8, angled, 3-pin			
2.5 m	Open cable end, 3-wire	NEBU-M8W3-K-2.5-LE3	541338
5 m		NEBU-M8W3-K-5-LE3	541341
10 m		NEBU-M8W3-K-10-LE3	541335

Connecting cables, M12, 5-pin			
Cable length	Connection, right	Type	Part no.
Connection, left: socket M12, straight, 5-pin			
2.5 m	Open cable end, 3-wire	NEBU-M12G5-K-2.5-LE3	541363
5 m		NEBU-M12G5-K-5-LE3	541364
2.5 m	Open cable end, 4-wire	NEBU-M12G5-K-2.5-LE4	550326
5 m		NEBU-M12G5-K-5-LE4	541328
2.5 m	Open cable end, 5-wire	NEBU-M12G5-K-2.5-LE5	541330
5 m		NEBU-M12G5-K-5-LE5	541331



NEBM-M16G8-E-...-Q7-LE8

NEBM-M23G15-EH-...-Q9N-R3LEG14

- For servo motor EMMT-AS and stepper motor EMMS-ST
- Suitable for use with energy chains

## Order code – Basic design

001 002 003 004 005 006 007 008 009 010

NEBM - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Legend:  Mandatory entry  Optional entry

001	Type
NEBM	Connecting cables for motors
002	Connection technology left, field device side
M12	Socket M12x1, A-coded, EN 61076-2-101
M16	M16
M23	M23
S1	Sub-D
003	Cable outlet left
G	Straight
W	Angled
004	Number of pins/wires, left
8	8-pin
9	9-pin
15	15-pin
005	Cable characteristic/version
E	Suitable for energy chains/standard
EH	Suitable for energy chains/hybrid cable
006	Cable length [m]
...	1,5, 2,5, 5, 7, 7,5, 10, 15, 20

007	Wire cross section
-	Standard
Q5	0.34 mm <sup>2</sup>
Q7	0.75 mm <sup>2</sup>
Q9	1.5 mm <sup>2</sup>
008	Cable designation
-	With inscription label holder
N	Without inscription label holder
009	Connection technology right, controller side
LE	Open end
S1G	Sub-D, straight
R3LEG	RJ45 and open end, straight plug and cable outlet
010	Number of pins/wires, right
6	6-pin
8	8-pin
9	9-pin
14	14-pin
15	15-pin

## Product options

### Connection technologies

- M40, ITT M3, connection pattern L4, connection pattern L5

### Cable length

- 0.5 ... 25 m

### Cable characteristics

- Suitable for robot applications

### Number of pins/wires

- 2, 4, 12, 18, 28, 31



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/nebm](http://www.festo.com/catalogue/nebm)

## Connecting cables NEBM

### Ordering – Basic design

Encoder cable for stepper motors EMMS-ST, motor controller CMMS-ST		
Cable length	Type	Part no.
Straight plug, min. bending radius: 51 mm, ambient temperature: -40 ... +70 °C		
5 m	NEBM-M12G8-E-5-S1G9	550748
10 m	NEBM-M12G8-E-10-S1G9	550749
15 m	NEBM-M12G8-E-15-S1G9	550750

Motor cable for stepper motors EMMS-ST-28, motor controller CMMS-ST		
Cable length	Type	Part no.
Straight plug, min. bending radius: 62 mm, ambient temperature: -40 ... +80 °C		
1.5 m	NEBM-M12G8-E-1.5-Q5-LE6	1449600
2.5 m	NEBM-M12G8-E-2.5-Q5-LE6	1449601
5 m	NEBM-M12G8-E-5-Q5-LE6	1449602
7 m	NEBM-M12G8-E-7-Q5-LE6	1449603
10 m	NEBM-M12G8-E-10-Q5-LE6	1449604

Motor cable for stepper motors EMMS-ST-42/57, motor controller CMMS-ST		
Cable length	Type	Part no.
Straight plug, min. bending radius: 62 mm, ambient temperature: -40 ... +80 °C		
1.5 m	NEBM-S1G9-E-1.5-Q5-LE6	1450368
2.5 m	NEBM-S1G9-E-2.5-Q5-LE6	1450369
5 m	NEBM-S1G9-E-5-Q5-LE6	1450370
7 m	NEBM-S1G9-E-7-Q5-LE6	1450371
10 m	NEBM-S1G9-E-10-Q5-LE6	1450372
Angled plug, min. bending radius: 62 mm, ambient temperature: -40 ... +80 °C		
1.5 m	NEBM-S1W9-E-1.5-Q5-LE6	1450736
2.5 m	NEBM-S1W9-E-2.5-Q5-LE6	1450737
5 m	NEBM-S1W9-E-5-Q5-LE6	1450738
7 m	NEBM-S1W9-E-7-Q5-LE6	1450739
10 m	NEBM-S1W9-E-10-Q5-LE6	1450740

Motor cable for stepper motors EMMS-ST-87, motor controller CMMS-ST		
Cable length	Type	Part no.
Straight plug, min. bending radius: 80 mm, ambient temperature: -40 ... +80 °C		
1.5 m	NEBM-S1G15-E-1.5-Q7-LE6	1450834
2.5 m	NEBM-S1G15-E-2.5-Q7-LE6	1450835
5 m	NEBM-S1G15-E-5-Q7-LE6	1450836
7 m	NEBM-S1G15-E-7-Q7-LE6	1450837
10 m	NEBM-S1G15-E-10-Q7-LE6	1450838
Angled plug, min. bending radius: 80 mm, ambient temperature: -40 ... +80 °C		
1.5 m	NEBM-S1W15-E-1.5-Q7-LE6	1450943
2.5 m	NEBM-S1W15-E-2.5-Q7-LE6	1450944
5 m	NEBM-S1W15-E-5-Q7-LE6	1450945
7 m	NEBM-S1W15-E-7-Q7-LE6	1450946
10 m	NEBM-S1W15-E-10-Q7-LE6	1450947

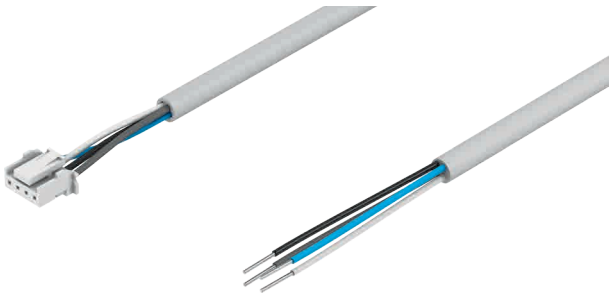
Encoder cable for stepper motors EMMS-ST, motor controller CMMS-ST		
Cable length	Type	Part no.
Straight plug, min. bending radius: 68 mm, ambient temperature: -40 ... +80 °C		
1.5 m	NEBM-M12G8-E-1.5-LE8	1451586
2.5 m	NEBM-M12G8-E-2.5-LE8	1451587
5 m	NEBM-M12G8-E-5-LE8	1451588
7 m	NEBM-M12G8-E-7-LE8	1451589
10 m	NEBM-M12G8-E-10-LE8	1451590
Angled plug, min. bending radius: 68 mm, ambient temperature: -40 ... +80 °C		
1.5 m	NEBM-M12W8-E-1.5-LE8	1451674
2.5 m	NEBM-M12W8-E-2.5-LE8	1451675
5 m	NEBM-M12W8-E-5-LE8	1451676
7 m	NEBM-M12W8-E-7-LE8	1451677
10 m	NEBM-M12W8-E-10-LE8	1451678

Motor cable for servo motors EMME-AS, motor controller CMMP-AS		
Cable length	Type	Part no.
Straight plug (cable cross section: 0.75 mm <sup>2</sup> )		
2.5 m	NEBM-M16G8-E-2.5-Q7-LE8	8004662
5 m	NEBM-M16G8-E-5-Q7-LE8	8003770
7 m	NEBM-M16G8-E-7.5-Q7-LE8	8004663
10 m	NEBM-M16G8-E-10-Q7-LE8	8003771
15 m	NEBM-M16G8-E-15-Q7-LE8	8003772
Straight plug (cable cross section: 0.15 mm <sup>2</sup> )		
2.5 m	NEBM-M16G8-E-2.5-Q9-LE8	8004660
5 m	NEBM-M16G8-E-5-Q9-LE8	8003766
7 m	NEBM-M16G8-E-7.5-Q9-LE8	8004661
10 m	NEBM-M16G8-E-10-Q9-LE8	8003767
15 m	NEBM-M16G8-E-15-Q9-LE8	8003768

Encoder cable for servo motors EMME-AS, motor controller CMMP-AS		
Cable length	Type	Part no.
Straight plug		
2.5 m	NEBM-M12G8-E-2.5-N-S1G15	8004664
5 m	NEBM-M12G8-E-5-N-S1G15	8003762
7 m	NEBM-M12G8-E-7.5-N-S1G15	8004665
10 m	NEBM-M12G8-E-10-N-S1G15	8003763
15 m	NEBM-M12G8-E-15-N-S1G15	8003764

Motor cable for servo motors EMMT-AS, hybrid cable		
Cable length	Type	Part no.
Straight plug and cable outlet		
2.5 m	NEBM-M23G15-EH-2.5-Q9N-R3LEG14	5251381
5 m	NEBM-M23G15-EH-5-Q9N-R3LEG14	5251382
7 m	NEBM-M23G15-EH-7.5-Q9N-R3LEG14	5251383
10 m	NEBM-M23G15-EH-10-Q9N-R3LEG14	5251384
15 m	NEBM-M23G15-EH-15-Q9N-R3LEG14	5251385
20 m	NEBM-M23G15-EH-20-Q9N-R3LEG14	5251386
X length <sup>1)</sup>	NEBM-M23G15-EH-...-Q9N-R3LEG14	5251380

1) Choice of cable lengths: 0.5 ... 99.9 m, in increments of 0.1 m.



- For connecting with rectangular design L1, grid dimension 5.8 mm
- For thread M12x1, A-coded to EN 61076-2-101
- For thread M16x0.75
- Pre-assembled at one or both ends

## Order code – Basic design

001 002 003 004 005 006 007 008 009 010  
**NEBS** - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Legend: [ ] Mandatory entry [ ] Optional entry

<b>001</b>	Type
<b>NEBS</b>	Connecting cable for sensors
<b>002</b>	Connection technology left, field device side
<b>L1</b>	Socket connection pattern L1
<b>M12</b>	Socket M12x1, A-coded, EN 61076-2-101
<b>SM12</b>	Plug M12x1, A-coded, EN 61076-2-101
<b>SM16</b>	Plug M16x0.75
<b>003</b>	Connection technology version, left
<b>G4</b>	Straight, 4-pin
<b>G5</b>	Straight, 5-pin
<b>G12</b>	Straight, 12-pin
<b>G24</b>	Straight, 24-pin
<b>004</b>	Cable characteristic
<b>K</b>	Standard
<b>E</b>	Suitable for use with energy chains
<b>005</b>	Cable design
-	Standard
<b>S</b>	With shielding
<b>006</b>	Cable length [m]

...	0.3, 0.5, 1, 2, 2.5, 5, 10, 15
<b>007</b>	Cable designation
-	With inscription label holder
<b>N</b>	Without inscription label holder
<b>008</b>	Connection technology right, controller side
<b>M12</b>	Plug M12x1, A-coded, EN 61076-2-101
<b>SM12</b>	Socket M12x1, A-coded
<b>LE</b>	Open cable end
<b>009</b>	Plug/socket
-	None
<b>G</b>	Straight
<b>010</b>	Number of pins/cores on the right
<b>4</b>	4
<b>5</b>	5
<b>12</b>	12
<b>24</b>	24

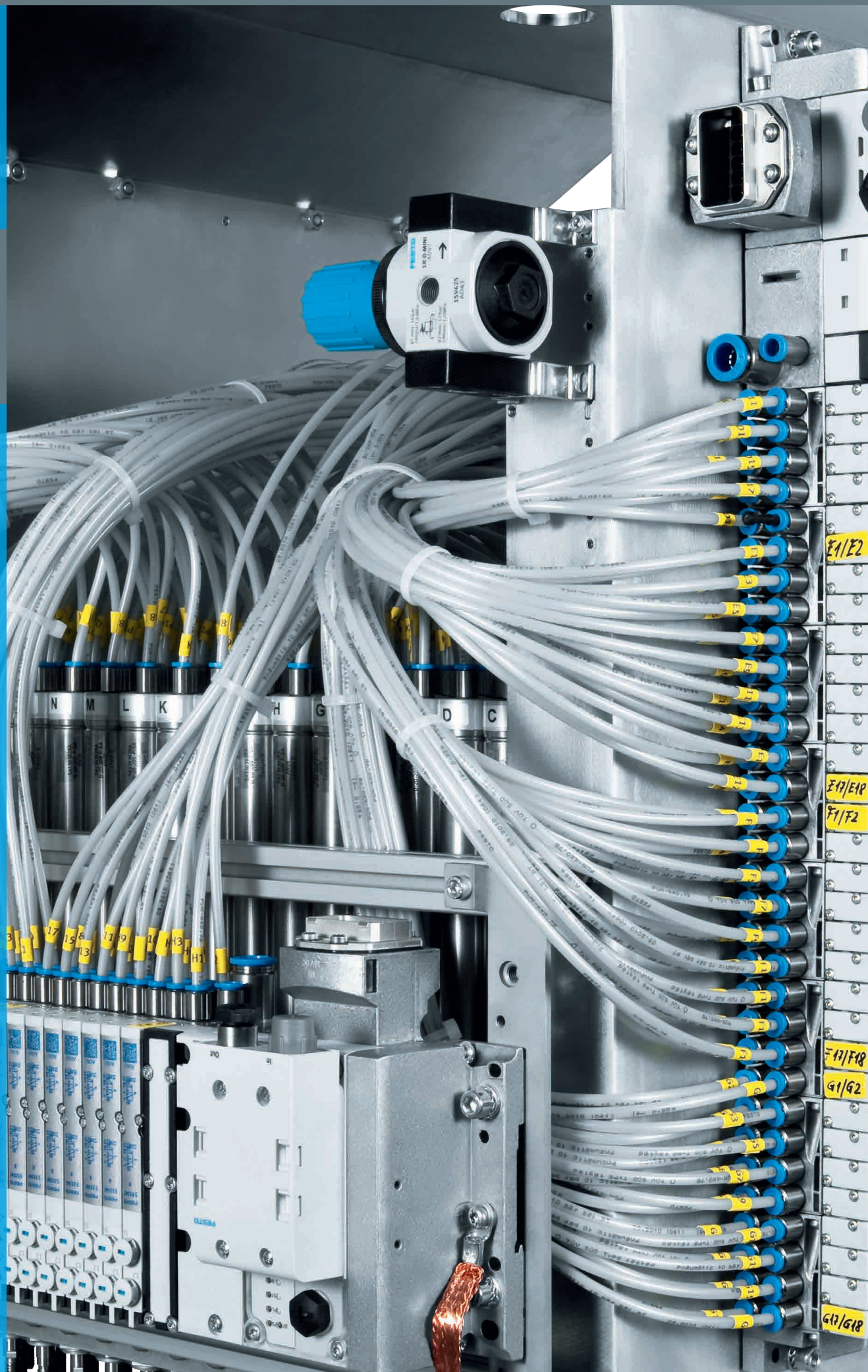
## Ordering

Electrical connection 2	Cable length	Type	Part no.
Electrical connection 1: Socket, 4-pin, rectangular design L1			
Plug M12x1, A-coded, 4-pin	1 m	<b>NEBS-L1G4-K-1-N-M12G4</b>	<b>8091514</b>
Open end, 4-core	2.5 m	<b>NEBS-L1G4-K-2.5-LE4</b>	<b>572576</b>
	5 m	<b>NEBS-L1G4-K-5-LE4</b>	<b>572577</b>
Electrical connection 1: socket M12x1, 5-pin, straight design			
Open end, 5-core	5 m	<b>NEBS-M12G5-ES-5-LE5</b>	<b>8030962</b>
	10 m	<b>NEBS-M12G5-ES-10-LE5</b>	<b>8030963</b>
	15 m	<b>NEBS-M12G5-ES-15-LE5</b>	<b>8097576</b>
Electrical connection 1: socket M12x1, 12-pin, straight design			
Socket, straight design, 12-pin	0.5 m	<b>NEBS-M12G12-KS-0.5-SM12G12</b>	<b>3056124</b>
	2 m	<b>NEBS-M12G12-KS-2-SM12G12</b>	<b>3058527</b>
Open end, 12-core	5 m	<b>NEBS-M12G12-KS-5-LE12</b>	<b>3058614</b>
	10 m	<b>NEBS-M12G12-KS-10-LE12</b>	<b>2912452</b>


Electrical connection 2	Cable length	Type	Part no.
Electrical connection 1: Plug M12x1, 12-pin, straight design			
Plug, straight design, 12-pin	0.3 m	<b>NEBS-SM12G12-E-0.3-N-M12G12</b>	<b>3947404</b>
Open end, 12-core	0.5 m	<b>NEBS-SM12G12-E-0.5-N-LE12</b>	<b>3947401</b>
	5 m	<b>NEBS-SM12G12-E-5-N-LE12</b>	<b>3947395</b>
Electrical connection 1: plug M16x0.75, 24-pin, straight design			
Open end, 25-core	5 m	<b>NEBS-SM16G24-K-5-N-LE24</b>	<b>8048653</b>
	10 m	<b>NEBS-SM16G24-K-10-N-LE24</b>	<b>8048654</b>

# 12

## Pneumatic connection technology



## Highlights



Plastic tubing  
**PUN-H**

- + Wide choice of variants
- + PUN-H: high resistance to microbes and hydrolysis and approved for use in the food industry
- + PUN-H-T: translucent black, blue, green, red, yellow

→ 314



Push-in fittings  
**QSM, QS**

- + QSM: mini series for maximum component density in small installation spaces
- + QS: standard series for maximum flexibility in standard applications

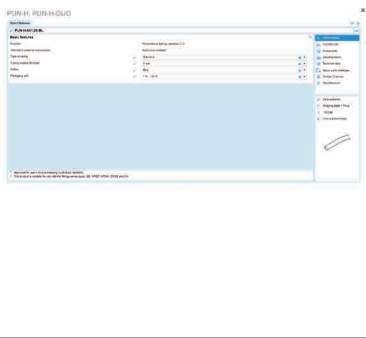

→ 317, 319

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Product overview

Software-Tools

<p><b>Configurator for tubing</b></p>		<p>Design a product with numerous features reliably and quickly with the help of the configurator.</p> <p>Select all the required product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection.</p> <p>You can find the configurator for the product you want</p> <ol style="list-style-type: none"> <li>1. at <a href="http://www.festo.com/catalogue/tubing">www.festo.com/catalogue/tubing</a></li> <li>2. by selecting the product you want</li> <li>3. and clicking on the blue "Configure product" button</li> </ol>
<p><b>Festo Design Tool 3D</b></p>		<p>The Festo Design Tool 3D is a 3D product configurator for generating specific CAD product combinations from Festo.</p> <p>The configurator makes your search for the right accessory easier, more reliable and faster. You can then order the module that has been created as a single order item, either completely pre-assembled or as individual parts in a single box.</p> <p>This considerably reduces your bill of materials, and downstream processes such as product ordering, order picking and assembly are significantly simplified.</p> <p>This tool can be found at  <a href="http://www.festo.com/x/festo-design-tool">www.festo.com/x/festo-design-tool</a></p>

Tubing >



Standard O.D. tubing

	 <b>Plastic tubing</b> PUN-H, PUN-H-DUO	 <b>Plastic tubing</b> PUN, PUN-DUO	 <b>Plastic tubing</b> PTFEN
<b>O.D.</b>	2 ... 16 mm	3 ... 16 mm	4 ... 16 mm
<b>I.D.</b>	1.2 ... 11 mm	2 ... 11 mm	2.9 ... 11 mm
<b>Temperature-dependent operating pressure [MPa]</b>	-0.095 ... 1 MPa	-0.095 ... 1 MPa	-0.095 ... 1.5 MPa
<b>Temperature-dependent operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 10 bar	-0.95 ... 15 bar
<b>Ambient temperature</b>	-35 ... 60°C	-35 ... 60°C	-20 ... 150°C
<b>Description</b>	<ul style="list-style-type: none"> <li>• Polyurethane</li> <li>• High resistance to microbes and hydrolysis</li> <li>• Suitable for use with energy chains</li> <li>• Clean room-compatible combination with fitting NPKA</li> <li>• Also available as DUO plastic tubing</li> <li>• Operating medium: compressed air, vacuum, water</li> </ul>	<ul style="list-style-type: none"> <li>• Polyurethane</li> <li>• Highly resistant to stress cracks</li> <li>• Suitable for energy chains</li> <li>• Also available as DUO tubing</li> <li>• Operating media: compressed air, vacuum</li> </ul>	<ul style="list-style-type: none"> <li>• Polytetrafluoroethylene</li> <li>• Food-safe see <a href="http://www.festo.com/certificates/PTFEN">www.festo.com/certificates/PTFEN</a></li> <li>• Highly resistant to chemicals</li> <li>• High temperature resistance</li> <li>• Operating media: compressed air, vacuum</li> </ul>
<b>→ Page/online</b>	<b>314</b>	<b><a href="#">pun</a></b>	<b><a href="#">ptfen</a></b>







## Tubing &gt;

## Standard O.D. tubing

	 Plastic tubing PEN	 Plastic tubing PLN
<b>O.D.</b>	4 ... 16 mm	4 ... 16 mm
<b>I.D.</b>	2.7 ... 10.8 mm	2.9 ... 12 mm
<b>Temperature-dependent operating pressure [MPa]</b>	-0.095 ... 1 MPa	-0.095 ... 1.4 MPa
<b>Temperature-dependent operating pressure</b>	-0.95 ... 10 bar	-0.95 ... 14 bar
<b>Ambient temperature</b>	-30 ... 60°C	-30 ... 80°C
<b>Description</b>	<ul style="list-style-type: none"> <li>• Polyethylene</li> <li>• High resistance to chemicals and very high resistance to hydrolysis</li> <li>• Resistant to most cleaning agents and lubricants</li> <li>• Suitable for energy chains</li> <li>• Operating media: compressed air, vacuum, water</li> </ul>	<ul style="list-style-type: none"> <li>• Polyethylene</li> <li>• Highly resistant to chemicals, microbes and hydrolysis</li> <li>• Food-safe see <a href="http://www.festo.com/certificates/PLN">www.festo.com/certificates/PLN</a></li> <li>• Resistant to most cleaning agents and lubricants</li> <li>• Operating media: compressed air, vacuum, water</li> </ul>
<b>→ Page/online</b>	<a href="#">pen</a>	<a href="#">pln</a>

## Fittings &gt;



## Push-in fittings

	 Push-in fittings/connectors, mini series QSM, QSMC, QSMF, QSML, QSMP, QSMS, QSMT, QSMX, QSMY	 Push-in fittings/connectors, standard series QS, QSF, QSS, QSC, QSH, QSL, QST, QSW, QSX, QSY	 Push-in fittings/connectors NPQH	 Push-in fittings/connectors, metal, standard series NPQM
<b>Pneumatic connection 1</b>	Male thread M8x1.25, male thread G1/8, M3, M5, M6, M6x0.75, M7, M8x0.75, R1/8, female thread M3, M5, push-in sleeve QS-2, QS-3, QS-4, QS-6, for tubing O.D. 2 mm, 3 mm, 4 mm, 6 mm	Male thread G1/2, G1/4, G1/8, G3/4, G3/8, M5, R1/2, R1/4, R1/8, R3/8, female thread G1/2, G1/4, G1/8, G3/8, push-in sleeve QS-10, QS-12, QS-16, QS-4, QS-6, QS-8, for tubing O.D. 10 mm, 12 mm, 16 mm, 4 mm, 6 mm, 8 mm	Female thread G1/4, G1/8, For tubing O.D. 10 mm, 12 mm, 14 mm, 4 mm, 6 mm, 8 mm, Male thread G1/2, G1/4, G1/8, G3/8, M5, M7, Push-in sleeve QS-10, QS-12, QS-14, QS-4, QS-6, QS-8	Female thread G1/4, G1/8, For tubing O.D. 10 mm, 12 mm, 14 mm, 4 mm, 6 mm, 8 mm, Male thread G1/2, G1/4, G1/8, G3/8, M5, M7, Push-in sleeve QS-10, QS-12, QS-14, QS-4, QS-6, QS-8
<b>Pneumatic connection 2</b>	For tubing O.D. 2 mm, 3 mm, 4 mm, 6 mm	Female thread G1/2, G1/4, G1/8, G3/8, push-in sleeve QS-10, QS-12, QS-16, QS-4, QS-6, QS-8, for tubing O.D. 10 mm, 12 mm, 16 mm, 22 mm, 4 mm, 6 mm, 8 mm	For tubing O.D. 10 mm, 12 mm, 14 mm, 4 mm, 6 mm, 8 mm, Push-in sleeve QS-10, QS-12, QS-14, QS-4, QS-6, QS-8	For tubing O.D. 10 mm, 12 mm, 14 mm, 3 mm, 4 mm, 6 mm, 8 mm, Push-in sleeve QS-10, QS-12, QS-14, QS-4, QS-6, QS-8
<b>Temperature-dependent operating pressure</b>	-0.95 ... 14 bar	-0.95 ... 14 bar		
<b>Operating pressure for entire temperature range</b>	-0.95 ... 6 bar	-0.95 ... 14 bar	-0.95 ... 20 bar	-0.95 ... 16 bar
<b>Ambient temperature</b>	-10 ... 80°C	-20 ... 80°C	0 ... 150°C	-20 ... 70°C
<b>Description</b>	<ul style="list-style-type: none"> <li>• Mini series</li> <li>• Compact for maximum component density in confined installation spaces</li> <li>• PBT and nickel-plated brass</li> <li>• Operating media: compressed air, vacuum</li> </ul>	<ul style="list-style-type: none"> <li>• Standard series</li> <li>• Wide range of variants: large selection for maximum flexibility in standard applications</li> <li>• PBT and nickel-plated brass</li> <li>• Operating media: compressed air, vacuum, (water)</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-metal brass, chemically nickel-plated</li> <li>• High corrosion and chemical resistance</li> <li>• Highly resistant to temperatures and pressure</li> <li>• Food-safe see <a href="http://www.festo.com/certificates/NPQH">www.festo.com/certificates/NPQH</a></li> <li>• Operating media: compressed air, vacuum, water</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-metal brass, nickel-plated</li> <li>• Attractively priced metal push-in fitting</li> <li>• Sturdy</li> <li>• Operating media: compressed air, vacuum</li> </ul>
<b>→ Page/online</b>	<a href="#">317</a>	<a href="#">319</a>	<a href="#">324</a>	<a href="#">npqm</a>



Product overview

Fittings >

Threaded fittings

	 <b>Threaded fittings NPFC</b>	 <b>Blanking plug B</b>
<b>Pneumatic connection 1</b>	G1, G1/2, G1/4, G1/8, G3/4, G3/8, M3, M5, M7, R1, R1/2, R1/4, R1/8, R3/4, R3/8	Male thread G1, G1/2, G1/4, G1/8, G3/4, G3/8, M3, M5, M7
<b>Pneumatic connection 2</b>	G1, G1/2, G1/4, G1/8, G3/4, G3/8, M3, M5, R1, R1/2, R1/4, R1/8, R3/4, R3/8	
<b>Operating pressure</b>	-0.95 ... 50 bar	
<b>Ambient temperature</b>	-20 ... 150°C	
<b>Description</b>	<ul style="list-style-type: none"> <li>• Nickel-plated brass</li> <li>• Sleeve</li> <li>• Extension</li> <li>• Double nipple</li> <li>• Reducing nipple</li> <li>• L-, T-, Y- or X-fitting</li> <li>• Operating media: compressed air, vacuum</li> </ul>	<ul style="list-style-type: none"> <li>• Aluminium, stainless steel</li> <li>• With sealing ring</li> <li>• Variants recommended for production systems for manufacturing lithium-ion batteries</li> </ul>
<b>→ Page/online</b>	<b>328</b>	<b>331</b>

Couplings

	 <b>Quick coupling sockets, quick coupling plugs NPHS-D6, NPHS-S6</b>	 <b>Quick coupling sockets, quick coupling plugs KD, KD1, KD2, KD3, KD4, KS, KS1, KS2, KS3, KS4</b>
<b>Pneumatic connection 1</b>	For plug-in nipple I.D. 9 mm, male thread G1/2, G1/4, G1/8, G3/8, female thread G1/2, G1/4, G3/8	N-6, N-9, male thread G1/2, G1/4, G1/8, G3/8, M3, M5, female thread G1/2, G1/4, G1/8, G3/8, M5, CK-3, CK-4, CK-6, CK-9, CN-2
<b>Standard nominal flow rate</b>	875 ... 2083 l/min	44 ... 1350 l/min
<b>Operating pressure</b>	-0.95 ... 20 bar	-0.95 ... 12 bar
<b>Ambient temperature</b>	-20 ... 80°C	-10 ... 80°C
<b>Description</b>	<ul style="list-style-type: none"> <li>• Safety coupling</li> <li>• Shut-off at one end</li> <li>• Exhaust the air on the connector side without releasing the coupling</li> <li>• Combination of coupling and hand slide valve</li> <li>• Can be used as an on/off valve</li> <li>• Nickel-plated brass or galvanised hardened steel</li> </ul>	<ul style="list-style-type: none"> <li>• Quick connection coupling for standard applications without safety function</li> <li>• Shut off at one or both ends</li> <li>• With male or female thread or with barbed fitting or quick connector</li> <li>• Nickel-plated brass, PP</li> <li>• Operating media: compressed air, vacuum</li> </ul>
<b>→ Page/online</b>	<b>332</b>	<b>332</b>

## Everything from a single source – for the ideal combination

Our range of tubing and fittings covers every conceivable task. Regardless of whether your selection is determined by standard requirements or extreme conditions such as heat, welding spatter, high pH values or resistance to hydrolysis – at Festo you'll always find the right tubing/fitting combination.

### Tubing

Material	Polyurethane (PU)					Polyethylene (PE)		Polyamide (PA)				Perfluoroalkoxy alkane		
	Designation	PUN/PUN-DUO → pun	PUN-H <sup>3</sup> /PUN-H-DUO → 314	PUN-CM → pun	PUN-V0 → pun-v0	PUN-V0-C → pun-v0	PEN → pen	PLN → pln	PAN → pan	PAN-R → pan-r	PAN-V0 → pan-v0	PAN-MF → pan-mf	PFAN → pfan	PTFEN → ptfen
Operating medium	Compressed air, vacuum	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum	Compressed air, vacuum	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum
Temperature [°C]	-35 ... +60	-35 ... +60	-35 ... +60	-35 ... +60	-35 ... +60	-30 ... +60	-30 ... +80	-30 ... +80	-30 ... +80	-30 ... +90	-60 ... +100	-20 ... +150	-20 ... +150	
Temperature-dependent operating pressure [MPa]	-0,095 ... +1	-0,095 ... +1	-0,095 ... +1	-0,095 ... +1	-0,095 ... +1	-0,095 ... +1	-0,095 ... +1,4	-0,095 ... +1,9	-0,095 ... +3,5	-0,095 ... +1,2	-0,095 ... +3,1	-0,095 ... +1,6	-0,095 ... +1,5	
Temperature-dependent operating pressure [bar]	-0,95 ... +10	-0,95 ... +10	-0,95 ... +10	-0,95 ... +10	-0,95 ... +10	-0,95 ... +10	-0,95 ... +14	-0,95 ... +19	-0,95 ... +35	-0,95 ... +12	-0,95 ... +31	-0,95 ... +16	-0,95 ... +15	
Resistant to chemicals	-	+	+	+	+	++	++	+	+	+	+	+++	+++	
Food-safe	-	2)	-	-	-	-	2)	-	-	-	-	2)	2)	
Hydrolysis-resistant	+	++	++	++	++	+++	+++	++	++	++	++	+++	+++	
Fire tested	UL 94 HB	UL 94 HB	-	UL 94 V0...V2	UL 94 V0...V2	-	-	-	-	UL 94 V0	-	UL 94 V0	UL 94 V0	
Halogen-free	+++	+++	+++	+++	+++	+++	+++	+++	+++	-	+++	-	-	
Flexibility	+++	+++	++	++	++	++	+	++	+	++	+	+	+	
Special features	Wide choice of variants	Hydrolysis-resistant	Anti-static	Flame-retardant	Resistant to welding spatter	Suitable for use with energy chains	Weather-resistant	High load bearing capacity	Suitable for pressures up to 35 bar	Resistant to welding spatter	DIN 73378 KFZ approval	Highly resistant to chemicals	Highly resistant to chemicals	

- 1) Other media on request
- 2) Suitable for use with food in accordance with supplementary material information/declaration of conformity → [www.festo.com/support](http://www.festo.com/support) > Conceptualise and design > Certificates, approvals and product conformity
- 3) O.D. 3 mm and above
- +++ Highly suitable
- ++ Very suitable
- + Limited suitability (on request)
- Not suitable

### Fittings

Material	Polymer				Metal					
	Designation	NPKA → npka	NPQP → npqp	QS, QSM → 319, 317	QS-V0 → qs-v0	NPQM → npqm	NPQH → 324	NPFC → 328	NPCK → npck	CRQS → crqs
Operating medium	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>	Compressed air, vacuum, water <sup>1)</sup>
Temperature [°C]	-10 ... +60	-20 ... +60	-10 ... +80	0 ... +60	-20 ... +70	0 ... +150	-20 ... +150	-20 ... +150	-20 ... +120	-15 ... +120
Temperature-dependent operating pressure [MPa]	-0,095 ... +1	-0,095 ... +1	-0,095 ... +1,4	-0,095 ... +1	-0,095 ... +1,6	-0,095 ... +2	-0,095 ... +5	-0,095 ... +1,2	-0,095 ... +1	
Temperature-dependent operating pressure [bar]	-0,95 ... +10	-0,95 ... +10	-0,95 ... +14	-0,95 ... +10	-0,95 ... +16	-0,95 ... +20	-0,95 ... +50	-0,95 ... +12	-0,95 ... +10	
Housing material	POM and PA66	PP	PBT and nickel-plated brass	PBT	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Stainless steel	Stainless steel	
Thread	G thread	R thread	M, G and R thread	G and R threads	M and G thread	M and G thread	M, G and R thread	M and G thread	M and R thread	
Resistant to chemicals	++	+++	+	+	+	++	+	+++	+++	
Food-safe <sup>2)</sup>	2)	2)	-	-	-	2)	-	2)	2)	
Corrosion resistance class (CRC)	4	4	1	1	1	3	1	4	4	
Special features	Cleanroom-compatible, 100% polymer	Highly resistant to chemicals	Wide choice of variants	Resistant to welding spatter	Sturdy	High temperature resistance	Economical, suitable for high pressure and temperature ranges	Clean design	Highly resistant to corrosion	

- 1) Other media on request
- 2) Suitable for use with food in accordance with supplementary material information/declaration of conformity → [www.festo.com/support](http://www.festo.com/support) > Conceptualise and design > Certificates, approvals and product conformity
- +++ Highly suitable
- ++ Very suitable
- + Limited suitability (on request)
- Not suitable

Reliable selection has never been this easy: our Product Finder for tubing and fittings helps you to select a tailored combination. Get started by following these links:

- [www.festo.com/productfinder/tubing](http://www.festo.com/productfinder/tubing)
- [www.festo.com/productfinder/fittings](http://www.festo.com/productfinder/fittings)

## Plastic tubing PUN-H, hydrolysis-resistant



- Extremely flexible polyurethane tubing
- Suitable for energy chains
- Operating media: compressed air, vacuum, water
- PUN-H-T: transparent version for greater safety, e.g. solid particles can be detected immediately
- Individual configuration for plastic tubing

### Order code – Basic design

001 002 003 004 005  
 PUN - H - [ ] - [ ] - [ ]

Legend:  Mandatory entry  Optional entry

001	Type
PUN	Polyurethane tubing, standard O.D.
002	Alternative material characteristic
H	Hydrolysis-resistant
003	O.D. x wall thickness [mm]
2x0,4	2.0 x 0.4
3x0,5	3.0 x 0.5
4x0,75	4.0 x 0.75
6x1	6.0 x 1.0
8x1,25	8.0 x 1.25
10x1,5	10 x 1.5
12x2	12.0 x 2.0
14x2	14.0 x 2.0
16x2,5	16.0 x 2.5

004	Colour
NT	Natural
SW	Black
BL	Blue
SI	Silver
TBL	Translucent blue
TGE	Translucent yellow
TGN	Translucent green
TRT	Translucent red
TSW	Translucent black
005	Packaging unit
-	50 m

### Product options

Materials:

- PUN (Standard) polyurethane
- PAN Polyamide
- PFAN Perfluoralkoxy alkane
- PEN Polyethylene

Certifications:

- CM Anti-static
- VO Flame-retardant to UL 94 V0
- R Sturdy
- MF Automotive approval certificate
- VOC Resistant to welding spatter

Paired tubing:

- DUO DUO tubing

Packaging units:

- 100 m, 200 m, 300 m, 400 m, 500 m
- Customer-specific tubing inscription

Colours:

- GN Green
- RT Red
- WS White
- GE Yellow
- BR Brown
- BS Blue/Black



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/pun](http://www.festo.com/catalogue/pun)






## Ordering – Basic design

003 O.D. [mm]	004 Colour	001 + 002 PUN-H: Polyurethane, hydrolysis-resistant		001 + 002 PUN-H-T: Polyurethane, hydrolysis-resistant, translucent	
		Type	Part no.	Type	Part no.
2	Natural	PUN-H-2x0,4-NT	133038	–	
	Black	PUN-H-2x0,4-SW	133039	–	
3	Natural	PUN-H-3x0,5-NT	197375	–	
	Silver	PUN-H-3x0,5-SI	558277	–	
	Blue	PUN-H-3x0,5-BL	197382	–	
	Black	PUN-H-3x0,5-SW	197389	–	
4	Natural	PUN-H-4x0,75-NT	197376	–	
	Silver	PUN-H-4x0,75-SI	558278	–	
	Yellow	–		PUN-H-4x0,75-TGE	8048679
	Red	–		PUN-H-4x0,75-TRT	8048675
	Green	–		PUN-H-4x0,75-TGN	8048677
	Blue	PUN-H-4x0,75-BL	197383	PUN-H-4x0,75-TBL	8048671
	Black	PUN-H-4x0,75-SW	197390	PUN-H-4x0,75-TSW	8048673
6	Natural	PUN-H-6x1-NT	197377	–	
	Silver	PUN-H-6x1-SI	558279	–	
	Yellow	–		PUN-H-6x1-TGE	8048689
	Red	–		PUN-H-6x1-TRT	8048685
	Green	–		PUN-H-6x1-TGN	8048687
	Blue	PUN-H-6x1-BL	197384	PUN-H-6x1-TBL	8048681
	Black	PUN-H-6x1-SW	197391	PUN-H-6x1-TSW	8048683
8	Natural	PUN-H-8x1,25-NT	197378	–	
	Silver	PUN-H-8x1,25-SI	558280	–	
	Yellow	–		PUN-H-8x1,25-TGE	8048699
	Red	–		PUN-H-8x1,25-TRT	8048695
	Green	–		PUN-H-8x1,25-TGN	8048697
	Blue	PUN-H-8x1,25-BL	197385	PUN-H-8x1,25-TBL	8048691
	Black	PUN-H-8x1,25-SW	197392	PUN-H-8x1,25-TSW	8048693
10	Natural	PUN-H-10x1,5-NT	197379	–	
	Silver	PUN-H-10x1,5-SI	558281	–	
	Yellow	–		PUN-H-10x1,5-TGE	8048709
	Red	–		PUN-H-10x1,5-TRT	8048705
	Green	–		PUN-H-10x1,5-TGN	8048707
	Blue	PUN-H-10x1,5-BL	197386	PUN-H-10x1,5-TBL	8048701
	Black	PUN-H-10x1,5-SW	197393	PUN-H-10x1,5-TSW	8048703
12	Natural	PUN-H-12x2-NT	197380	–	
	Silver	PUN-H-12x2-SI	558282	–	
	Yellow	–		PUN-H-12x2-TGE	8048719
	Red	–		PUN-H-12x2-TRT	8048715
	Green	–		PUN-H-12x2-TGN	8048717
	Blue	PUN-H-12x2-BL	197387	PUN-H-12x2-TBL	8048711
	Black	PUN-H-12x2-SW	197394	PUN-H-12x2-TSW	8048713
14	Blue	PUN-H-14x2-BL	570386	–	
	Black	PUN-H-14x2-SW	570387	–	
16	Natural	PUN-H-16x2,5-NT	197381	–	
	Silver	PUN-H-16x2,5-SI	558283	–	
	Blue	PUN-H-16x2,5-BL	197388	–	
	Black	PUN-H-16x2,5-SW	197395	–	

▶ Tubing > Standard O.D. tubing >

Plastic tubing PUN-H, hydrolysis-resistant

Tubing/fitting combination

Fitting	Tubing	
	PUN	PUN-H
Push-in fitting QSM, mini series → 317 	-	■ For O.D. 2 mm: recommended fitting
Push-in fitting QS, standard series → 319 	■ For O.D. 3 ... 12, 16 mm: recommended fitting	■ For O.D. 3 ... 12, 16 mm: recommended fitting
Push-in fitting NPQH, metal → 324 	■ For O.D. 4 ... 14 mm: recommended fitting	■ For O.D. 4 ... 14 mm: recommended fitting
Push-in fitting NPQM → npqm 	■ For O.D. 4 ... 14 mm	■ For O.D. 4 ... 14 mm
Quick connector CK → ck 	■ For O.D. 4 ... 8 mm	■ For O.D. 4 ... 8 mm

Push-in fittings/connectors QSM, mini series



QSM-G1/8-6-I



QSML-M5-6



QSMT-M5-6



QSMY-3



QSMS

- Simple and reliable connection and release
- Compact for maximum component density in confined installation spaces

Order code

001 002 003 004 005  
 -

Legend:  Mandatory entry  Optional entry

001	Type
QSM	Push-in fitting/push-in connector, straight, mini series
QSML	Push-in fitting/push-in connector, L-shape, mini series
QSMT	Push-in connector, T-shape, mini series
QSMY	Push-in connector, Y-shape, mini series
QSMS	Push-in bulkhead connector, mini series

002	Pneumatic connection 1
M3	M thread M3
M5	M thread M5
M6	M thread M6
M7	M thread M7
G1/8	G thread G1/8
1/8	R thread R1/8
	3H Push-in sleeve 3 mm
	4 Push-in connector 4 mm
	4H Push-in sleeve 4 mm
	6 Push-in connector 6 mm
	6H Push-in sleeve 6 mm
	8 Push-in connector 8 mm
	10 Push-in connector 10 mm
	12 Push-in connector 12 mm

003	Pneumatic connection 2
-	Same size as connection 1
3	Push-in connector 3 mm
4	Push-in connector 4 mm
6	Push-in connector 6 mm

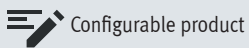
004	Packaging unit
-	10 pieces

005	Installation method
-	Standard
I	With internal hex

Product options

Push-in connector 2 mm  
 Packaging unit: 100 pieces



This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/qsm](http://www.festo.com/catalogue/qsm)

Fittings >

Push-in fittings/connectors QSM, mini series

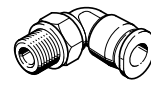
Ordering

**Push-in fitting QSM, straight**  
**Male thread with external hex**



Connection 1	Connection 2	Type	Part no.
<b>M thread with sealing ring</b>			
M3	3 mm	QSM-M3-3	153301
	4 mm	QSM-M3-4	153303
M5	3 mm	QSM-M5-3	153302
	4 mm	QSM-M5-4	153304
	6 mm	QSM-M5-6	153306
M6	6 mm	QSM-M6-6	132600
<b>R thread</b>			
R1/8	4 mm	QSM-1/8-4	153305
	6 mm	QSM-1/8-6	153307
<b>G thread with sealing ring</b>			
G1/8	4 mm	QSM-G1/8-4	186264
	6 mm	QSM-G1/8-6	186265

**Push-in fitting QSML, L-shape, rotatable**  
**Male thread with external hex**



Connection 1	Connection 2	Type	Part no.
<b>M thread with sealing ring</b>			
M3	3 mm	QSML-M3-3	153330
	4 mm	QSML-M3-4	153332
M5	3 mm	QSML-M5-3	153331
	4 mm	QSML-M5-4	153333
	6 mm	QSML-M5-6	153335
M7	4 mm	QSML-M7-4	186352
	6 mm	QSML-M7-6	186353
<b>R thread</b>			
R1/8	4 mm	QSML-1/8-4	153334
	6 mm	QSML-1/8-6	153336
<b>G thread with sealing ring</b>			
G1/8	4 mm	QSML-G1/8-4	186268
	6 mm	QSML-G1/8-6	186269

**Push-in connector QSM-...-1, straight**  
**Male thread with internal hex**



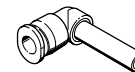
Connection 1	Connection 2	Type	Part no.
<b>M thread with sealing ring</b>			
M3	3 mm	QSM-M3-3-1	153312
	4 mm	QSM-M3-4-1	153314
M5	3 mm	QSM-M5-3-1	153313
	4 mm	QSM-M5-4-1	153315
	6 mm	QSM-M5-6-1	153317
M7	4 mm	QSM-M7-4-1	153319
	6 mm	QSM-M7-6-1	153321
<b>R thread</b>			
R1/8	4 mm	QSM-1/8-4-1	153316
	6 mm	QSM-1/8-6-1	153318
<b>G thread with sealing ring</b>			
G1/8	4 mm	QSM-G1/8-4-1	186266
	6 mm	QSM-G1/8-6-1	186267

**Push-in L-connector QSML, L-shape**



Connection 1	Connection 2	Type	Part no.
3 mm	3 mm	QSML-3	153343
4 mm	4 mm	QSML-4	153344
6 mm	6 mm	QSML-6	153345

**Push-in L-connector QSML-...H, L-shape**  
**With push-in sleeve**



Connection 1	Connection 2	Type	Part no.
3 mm	3 mm	QSML-3H	153346
4 mm	4 mm	QSML-4H	153347
6 mm	6 mm	QSML-6H	153348
<b>Reducing</b>			
4 mm	3 mm	QSML-4H-3	153349
6 mm	4 mm	QSML-6H-4	153350

**Push-in connector QSM, straight**



Connection 1	Connection 2	Type	Part no.
3 mm	3 mm	QSM-3	153323
4 mm	4 mm	QSM-4	153324
6 mm	6 mm	QSM-6	153325
<b>Reducing</b>			
4 mm	3 mm	QSM-4-3	153326
6 mm	4 mm	QSM-6-4	153327

**Push-in T-connector QSMT, T-shape**



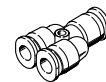
Connection 1	Connection 2	Type	Part no.
3 mm	3 mm	QSMT-3	153365
4 mm	4 mm	QSMT-4	153366
6 mm	6 mm	QSMT-6	153367
<b>Reducing</b>			
4 mm	3 mm	QSMT-4-3	153368
6 mm	4 mm	QSMT-6-4	153369

**Push-in bulkhead connector QSMS**



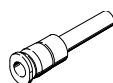
Connection 1	Connection 2	Type	Part no.
3 mm	3 mm	QSMS-3	153375
4 mm	4 mm	QSMS-4	153376
6 mm	6 mm	QSMS-6	153377

**Push-in Y-connector QSMY, Y-shape**



Connection 1	Connection 2	Type	Part no.
<b>Push-in connector/push-in connector</b>			
3 mm	3 mm	QSMY-3	153370
4 mm	4 mm	QSMY-4	153371
6 mm	6 mm	QSMY-6	153372
<b>Reducing</b>			
4 mm	3 mm	QSMY-4-3	153373
6 mm	4 mm	QSMY-6-4	153374

**Push-in connector QSM-...H**  
**With push-in sleeve**



Connection 1	Connection 2	Type	Part no.
4 mm	3 mm	QSM-4H-3	153328
6 mm	4 mm	QSM-6H-4	153329

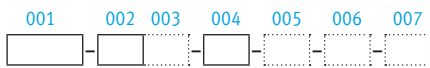


Push-in fittings/connectors QS, standard series



- Simple and reliable connection and release
- Wide selection for maximum flexibility in standard applications
- Male or female thread with external or internal hexagon
- Resistant to pressure: economical for pneumatic installations up to 14 bar

Order code



Legend:  Mandatory entry  Optional entry

001	Type
QS	Push-in fitting/push-in connector, straight, standard series
QSF	Push-in fitting, straight, standard series
QSL	Push-in fitting/push-in connector, L-shape, standard series
QSLL	Push-in fitting, L-shape, long, standard series
QSLF	Push-in fitting, L-shape, standard series
QSLV	Push-in fitting, L-shape, standard series
QST	Push-in fitting/push-in connector, T-shape, standard series
QSTL	Push-in fitting, T-shape, standard series
QSY	Push-in fitting/push-in connector, Y-shape, standard series
QSVL	Push-in fitting, Y-shape, standard series
QSS	Push-in bulkhead connector, standard series
QSC	Push-in cap/blanking plug, standard series

002	Pneumatic connection 1
M5	M thread M5
G1/8	G thread G1/8
G1/4	G thread G1/4
G3/8	G thread G3/8
G1/2	G thread G1/2
1/8	R thread R1/8
1/4	R thread R1/4
3/8	R thread R3/8
1/2	R thread R1/2

003	Additional feature
-	Standard
L	Long push-in sleeve
F	With fixed collar

004	Pneumatic connection 2
4	Push-in connector 4 mm
6	Push-in connector 6 mm
8	Push-in connector 8 mm
10	Push-in connector 10 mm
12	Push-in connector 12 mm
16	Push-in connector 16 mm

005	Packaging unit
-	10 pieces

006	Installation method
-	Standard
I	With internal hex

007	Generation
-	First generation
B	Second generation

Product options

Types: QS-V0, resistant to welding spatter  
CRQS, stainless steel

Designs: W-shape, X-shape

Packaging units: 20 pieces, 50 pieces, 100 pieces

Configurable product

This product and all its product options can be ordered online via the configurator:  
[→ www.festo.com/catalogue/qs](http://www.festo.com/catalogue/qs)

Fittings >

Push-in fittings/connectors QS, standard series

Ordering

**Push-in fitting QS, straight**  
**Male thread with external hex**



Connection 1	Connection 2	Type	Part no.
<b>R thread</b>			
R1/8	4 mm	QS-1/8-4	153001
	6 mm	QS-1/8-6	153002
	8 mm	QS-1/8-8	153004
	10 mm	QS-1/8-10	190643
R1/4	4 mm	QS-1/4-4	190644
	6 mm	QS-1/4-6	153003
	8 mm	QS-1/4-8	153005
	10 mm	QS-1/4-10	153007
	12 mm	QS-1/4-12	164980
R3/8	6 mm	QS-3/8-6	190645
	8 mm	QS-3/8-8	153006
	10 mm	QS-3/8-10	153008
	12 mm	QS-3/8-12	153009
	16 mm	QS-3/8-16 <sup>1)</sup>	164957
R1/2	10 mm	QS-1/2-10 <sup>1)</sup>	190646
	12 mm	QS-1/2-12 <sup>1)</sup>	153010
	16 mm	QS-1/2-16 <sup>1)</sup>	153011
<b>G thread with sealing ring</b>			
G1/8	4 mm	QS-G1/8-4	186095
	6 mm	QS-G1/8-6	186096
	8 mm	QS-G1/8-8	186098
G1/4	6 mm	QS-G1/4-6	186097
	8 mm	QS-G1/4-8	186099
	10 mm	QS-G1/4-10	186101
	12 mm	QS-G1/4-12	186350
G3/8	8 mm	QS-G3/8-8	186100
	10 mm	QS-G3/8-10	186102
	12 mm	QS-G3/8-12	186103
	16 mm	QS-G3/8-16 <sup>1)</sup>	186347
G1/2	12 mm	QS-G1/2-12 <sup>1)</sup>	186104
	16 mm	QS-G1/2-16 <sup>1)</sup>	186105

1) Packaging unit 1 piece

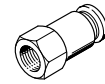
**Push-in fitting QS-...-I, straight**  
**Male thread with internal hex**



Connection 1	Connection 2	Type	Part no.
<b>R thread</b>			
R1/8	4 mm	QS-1/8-4-I	153012
	6 mm	QS-1/8-6-I	153013
	8 mm	QS-1/8-8-I	153015
	10 mm	QS-1/8-10-I	190647
R1/4	6 mm	QS-1/4-6-I	153014
	8 mm	QS-1/4-8-I	153016
	10 mm	QS-1/4-10-I	153018
	12 mm	QS-1/4-12-I	190649
R3/8	8 mm	QS-3/8-8-I	153017
	10 mm	QS-3/8-10-I	153019
	12 mm	QS-3/8-12-I	153020
R1/2	10 mm	QS-1/2-10-I <sup>1)</sup>	190648
	12 mm	QS-1/2-12-I <sup>1)</sup>	153021
<b>G thread with sealing ring</b>			
G1/8	4 mm	QS-G1/8-4-I	186106
	6 mm	QS-G1/8-6-I	186107
	8 mm	QS-G1/8-8-I	186109
	10 mm	QS-G1/8-10-I	132999
G1/4	6 mm	QS-G1/4-6-I	186108
	8 mm	QS-G1/4-8-I	186110
	10 mm	QS-G1/4-10-I	186112
G3/8	8 mm	QS-G3/8-8-I	186111
	10 mm	QS-G3/8-10-I	186113
	12 mm	QS-G3/8-12-I	186114
G1/2	12 mm	QS-G1/2-12-I <sup>1)</sup>	186115

1) Packaging unit 1 piece

**Push-in fitting QSF, straight**  
**Female thread with external hex**



Connection 1	Connection 2	Type	Part no.
<b>G thread</b>			
G1/8	4 mm	QSF-1/8-4-B	153022
	6 mm	QSF-1/8-6-B	153023
	8 mm	QSF-1/8-8-B	153025
G1/4	4 mm	QSF-1/4-4-B	190650
	6 mm	QSF-1/4-6-B	153024
	8 mm	QSF-1/4-8-B	153026
	10 mm	QSF-1/4-10-B	153028
	12 mm	QSF-1/4-12-B	190651
G3/8	6 mm	QSF-3/8-6-B	190652
	8 mm	QSF-3/8-8-B	153027
	10 mm	QSF-3/8-10-B	153029
	12 mm	QSF-3/8-12-B	153030
G1/2	12 mm	QSF-1/2-12-B <sup>1)</sup>	190653
	16 mm	QSF-1/2-16-B <sup>1)</sup>	190654

1) Packaging unit 1 piece

## Ordering

### Push-in connector QS, straight

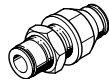
Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	QS-4	153031
6 mm	6 mm	QS-6	153032
8 mm	8 mm	QS-8	153033
10 mm	10 mm	QS-10	153034
12 mm	12 mm	QS-12	153035
16 mm	16 mm	QS-16 <sup>1)</sup>	153036
Reducing			
6 mm	4 mm	QS-6-4	153037
8 mm	4 mm	QS-8-4	130606
	6 mm	QS-8-6	153038
10 mm	6 mm	QS-10-6	130607
	8 mm	QS-10-8	153039
12 mm	8 mm	QS-12-8	130608
	10 mm	QS-12-10	153040



1) Packaging unit 1 piece

### Push-in bulkhead connector QSS

Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	QSS-4	153157
6 mm	6 mm	QSS-6	153158
8 mm	8 mm	QSS-8	153159
10 mm	10 mm	QSS-10	153160
12 mm	12 mm	QSS-12	153161
With fixed collar			
8 mm	8 mm	QSS-8-F	130642
10 mm	10 mm	QSS-10-F	130643
12 mm	12 mm	QSS-12-F	130644



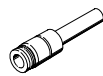
### Push-in cap QSC

Connection 1	Connection 2	Type	Part no.
4 mm	-	QSC-4	153262
6 mm	-	QSC-6	153263
8 mm	-	QSC-8	153264
10 mm	-	QSC-10	153265
12 mm	-	QSC-12	153266



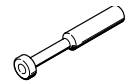
### Push-in connector QS-...H, straight With push-in sleeve

Connection 1	Connection 2	Type	Part no.
Reducing			
6 mm	4 mm	QS-6H-4	153041
8 mm	4 mm	QS-8H-4	130622
	6 mm	QS-8H-6	153042
10 mm	6 mm	QS-10H-6	130623
	8 mm	QS-10H-8	153043
12 mm	6 mm	QS-12H-6	132981
	8 mm	QS-12H-8	130624
	10 mm	QS-12H-10	153044



### Blanking plug QSC-...H

Connection 1	Connection 2	Type	Part no.
4 mm	Without	QSC-4H	153267
6 mm	Without	QSC-6H	153268
8 mm	Without	QSC-8H	153269
10 mm	Without	QSC-10H	153270
12 mm	Without	QSC-12H	153271
16 mm	Without	QSC-16H <sup>1)</sup>	153272



1) Packaging unit 1 piece

### Push-in L-fitting QSL, L-shape, rotatable Male thread with external hex

Connection 1	Connection 2	Type	Part no.
R thread			
R1/8	4 mm	QSL-1/8-4	153045
	6 mm	QSL-1/8-6	153046
	8 mm	QSL-1/8-8	153048
	10 mm	QSL-1/8-10	190658
R1/4	4 mm	QSL-1/4-4	190659
	6 mm	QSL-1/4-6	153047
	8 mm	QSL-1/4-8	153049
	10 mm	QSL-1/4-10	153051
R3/8	6 mm	QSL-3/8-6	190660
	8 mm	QSL-3/8-8	153050
	10 mm	QSL-3/8-10	153052
	12 mm	QSL-3/8-12	153053
	16 mm	QSL-3/8-16 <sup>1)</sup>	164958
R1/2	10 mm	QSL-1/2-10 <sup>1)</sup>	190661
	12 mm	QSL-1/2-12 <sup>1)</sup>	153054
	16 mm	QSL-1/2-16 <sup>1)</sup>	153055
G thread with sealing ring			
G1/8	4 mm	QSL-G1/8-4	186116
	6 mm	QSL-G1/8-6	186117
	8 mm	QSL-G1/8-8	186119
G1/4	6 mm	QSL-G1/4-6	186118
	8 mm	QSL-G1/4-8	186120
	10 mm	QSL-G1/4-10	186122
	12 mm	QSL-G1/4-12	186351
G3/8	8 mm	QSL-G3/8-8	186121
	10 mm	QSL-G3/8-10	186123
	12 mm	QSL-G3/8-12	186124
	16 mm	QSL-G3/8-16 <sup>1)</sup>	186348
G1/2	12 mm	QSL-G1/2-12 <sup>1)</sup>	186125
	16 mm	QSL-G1/2-16 <sup>1)</sup>	186126



1) Packaging unit 1 piece

Fittings >

Push-in fittings/connectors QS, standard series

Ordering

Push-in fitting QSL, L-shape, long, rotatable



Connection 1	Connection 2	Type	Part no.
R thread (male thread with external hexagon)/push-in connector			
R1/8	4 mm	QSL-1/8-4	153076
	6 mm	QSL-1/8-6	153077
	8 mm	QSL-1/8-8	153079
R1/4	4 mm	QSL-1/4-4	190662
	6 mm	QSL-1/4-6	153078
	8 mm	QSL-1/4-8	153080
	10 mm	QSL-1/4-10	153082
R3/8	6 mm	QSL-3/8-6	190663
	8 mm	QSL-3/8-8	153081
	10 mm	QSL-3/8-10	153083
	12 mm	QSL-3/8-12	153084
R1/2	10 mm	QSL-1/2-10 <sup>1)</sup>	190664
	12 mm	QSL-1/2-12 <sup>1)</sup>	153085

Push-in L-connector QSL, L-shape



Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	QSL-4	153070
6 mm	6 mm	QSL-6	153071
8 mm	8 mm	QSL-8	153072
10 mm	10 mm	QSL-10	153073
12 mm	12 mm	QSL-12	153074
16 mm	16 mm	QSL-16 <sup>1)</sup>	153075

1) Packaging unit 1 piece

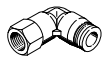
Push-in L-connector QSL...H, L-shape  
With push-in sleeve



Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	QSL-4H	153056
6 mm	6 mm	QSL-6H	153057
8 mm	8 mm	QSL-8H	153058
10 mm	10 mm	QSL-10H	153059
12 mm	12 mm	QSL-12H	153060
Reducing			
6 mm	4 mm	QSL-6H-4	153061
8 mm	6 mm	QSL-8H-6	153062
10 mm	6 mm	QSL-10H-8	153063
12 mm	10 mm	QSL-12H-10	153064
Long push-in sleeve			
4 mm	4 mm	QSL-4HL	153065
6 mm	6 mm	QSL-6HL	153066
8 mm	8 mm	QSL-8HL	153067
10 mm	10 mm	QSL-10HL	153068
12 mm	12 mm	QSL-12HL	153069

1) Packaging unit 1 piece

Push-in L-fitting QSLF, L-shape, rotatable  
Female thread with external hex



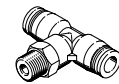
Connection 1	Connection 2	Type	Part no.
G thread			
G1/8	4 mm	QSLF-1/8-4-B	153273
	6 mm	QSLF-1/8-6-B	153274
	8 mm	QSLF-1/8-8-B	153276
G1/4	6 mm	QSLF-1/4-6-B	153275
	8 mm	QSLF-1/4-8-B	153277
	10 mm	QSLF-1/4-10-B	153279
G3/8	8 mm	QSLF-3/8-8-B	153278
	10 mm	QSLF-3/8-10-B	153280

Push-in L-fitting QSLV, L-shape, rotatable  
Male thread with external hex



Connection 1	Connection 2	Type	Part no.
M thread			
M5	6 mm	QSLV-M5-6	190666
R thread			
R1/8	4 mm	QSLV-1/8-4	153086
	6 mm	QSLV-1/8-6	153087
	8 mm	QSLV-1/8-8	153089
R1/4	6 mm	QSLV-1/4-6	153088
	8 mm	QSLV-1/4-8	153090
	10 mm	QSLV-1/4-10	153092
R3/8	8 mm	QSLV-3/8-8	153091
	10 mm	QSLV-3/8-10	153093
	12 mm	QSLV-3/8-12	153094
R1/2	12 mm	QSLV-1/2-12 <sup>1)</sup>	153095
	16 mm	QSLV-1/2-16 <sup>1)</sup>	153096
	G thread		
G1/8	4 mm	QSLV-G1/8-4	186137
	6 mm	QSLV-G1/8-6	186138
	8 mm	QSLV-G1/8-8	186140
G1/4	6 mm	QSLV-G1/4-6	186139
	8 mm	QSLV-G1/4-8	186141
	10 mm	QSLV-G1/4-10	186143
G3/8	8 mm	QSLV-G3/8-8	186142
	10 mm	QSLV-G3/8-10	186144
	12 mm	QSLV-G3/8-12	186145
G1/2	12 mm	QSLV-G1/2-12 <sup>1)</sup>	186146
	16 mm	QSLV-G1/2-16 <sup>1)</sup>	186147

Push-in T-fitting QST, T-shape, rotatable  
Male thread with external hex



Connection 1	Connection 2	Type	Part no.
R thread			
R1/8	4 mm	QST-1/8-4	153106
	6 mm	QST-1/8-6	153107
	8 mm	QST-1/8-8	153109
	10 mm	QST-1/8-10	190667
R1/4	4 mm	QST-1/4-4	190668
	6 mm	QST-1/4-6	153108
	8 mm	QST-1/4-8	153110
	10 mm	QST-1/4-10	153112
	12 mm	QST-1/4-12	190669
R3/8	6 mm	QST-3/8-6	190670
	8 mm	QST-3/8-8	153111
	10 mm	QST-3/8-10	153113
	12 mm	QST-3/8-12	153114
	16 mm	QST-3/8-16 <sup>1)</sup>	164959
R1/2	10 mm	QST-1/2-10 <sup>1)</sup>	190672
	12 mm	QST-1/2-12 <sup>1)</sup>	153115
	16 mm	QST-1/2-16 <sup>1)</sup>	153116

1) Packaging unit 1 piece

## Ordering

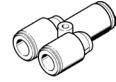
### Push-in T-connector QST, T-shape



Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	QST-4	153128
6 mm	6 mm	QST-6	153129
8 mm	8 mm	QST-8	153130
10 mm	10 mm	QST-10	153131
12 mm	12 mm	QST-12	153132
16 mm	16 mm	QST-16 <sup>1)</sup>	153133
Reducing			
6 mm	4 mm	QST-6-4	153134
8 mm	4 mm	QST-8-4	130613
	6 mm	QST-8-6	153135
10 mm	6 mm	QST-10-6	130614
	8 mm	QST-10-8	153136
12 mm	8 mm	QST-12-8	130615
	10 mm	QST-12-10	153137
16 mm	12 mm	QST-16-12 <sup>1)</sup>	130616

1) Packaging unit 1 piece

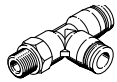
### Push-in Y-connector QSY, Y-shape



Connection 1	Connection 2	Type	Part no.
Push-in connector/push-in connector			
4 mm	4 mm	QSY-4	153148
6 mm	6 mm	QSY-6	153149
8 mm	8 mm	QSY-8	153150
10 mm	10 mm	QSY-10	153151
12 mm	12 mm	QSY-12	153152
16 mm	16 mm	QSY-16 <sup>1)</sup>	130609
Reducing (2 reduced outlets)			
6 mm	4 mm	QSY-6-4	153153
8 mm	4 mm	QSY-8-4	130610
	6 mm	QSY-8-6	153154
10 mm	6 mm	QSY-10-6	130611
	8 mm	QSY-10-8	153155
12 mm	8 mm	QSY-12-8	130612
	10 mm	QSY-12-10	153156
16 mm	12 mm	QSY-16-12 <sup>1)</sup>	190708

1) Packaging unit 1 piece

### Push-in T-fitting QSTL, T-shape, rotatable Male thread with external hex



Connection 1	Connection 2	Type	Part no.
R thread			
R1/8	4 mm	QSTL-1/8-4	153117
	6 mm	QSTL-1/8-6	153118
	8 mm	QSTL-1/8-8	153120
R1/4	6 mm	QSTL-1/4-6	153119
	8 mm	QSTL-1/4-8	153121
	10 mm	QSTL-1/4-10	153123
R3/8	8 mm	QSTL-3/8-8	153122
	10 mm	QSTL-3/8-10	153124
	12 mm	QSTL-3/8-12	153125
R1/2	12 mm	QSTL-1/2-12 <sup>1)</sup>	153126
	16 mm	QSTL-1/2-16 <sup>1)</sup>	153127

1) Packaging unit 1 piece

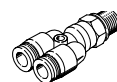
### Push-in Y-fitting QSYL, Y-shape, rotatable Male thread with external hex



Connection 1	Connection 2	Type	Part no.
R thread			
R1/8	4 mm	QSYL-1/8-4 <sup>1)</sup>	153172
	6 mm	QSYL-1/8-6 <sup>1)</sup>	153173
	8 mm	QSYL-1/8-8 <sup>1)</sup>	153175
R1/4	6 mm	QSYL-1/4-6 <sup>1)</sup>	153174
	8 mm	QSYL-1/4-8 <sup>1)</sup>	153176
	10 mm	QSYL-1/4-10 <sup>1)</sup>	153178
R3/8	8 mm	QSYL-3/8-8 <sup>1)</sup>	153177
	10 mm	QSYL-3/8-10 <sup>1)</sup>	153179
	12 mm	QSYL-3/8-12 <sup>1)</sup>	153180
R1/2	12 mm	QSYL-1/2-12 <sup>1)</sup>	153181

1) Packaging unit 1 piece

### Push-in Y-fitting QSY, Y-shape, rotatable Male thread with external hex



Connection 1	Connection 2	Type	Part no.
M thread with sealing ring			
M5	4 mm	QSY-M5-4	190673
	6 mm	QSY-M5-6	190674
R thread			
R1/8	4 mm	QSY-1/8-4	153138
	6 mm	QSY-1/8-6	153139
	8 mm	QSY-1/8-8	153141
R1/4	4 mm	QSY-1/4-4	190675
	6 mm	QSY-1/4-6	153140
	8 mm	QSY-1/4-8	153142
	10 mm	QSY-1/4-10	153144
R3/8	8 mm	QSY-3/8-8	153143
	10 mm	QSY-3/8-10	153145
	12 mm	QSY-3/8-12	153146
R1/2	10 mm	QSY-1/2-10 <sup>1)</sup>	133196
	12 mm	QSY-1/2-12 <sup>1)</sup>	153147

1) Packaging unit 1 piece

Fittings >

## Push-in fittings/connectors NPQH



NPQH-H-G18F-Q8-P10



NPQH-H-Q4-E-P10



NPQH-L-G14-Q10-P10



NPQH-T-G14-Q6-P10



NPQH-D-S8-Q6-P10



NPQH-D-Q8-E-P10



NPQH-Y-Q10-E-P10



NPQH-P-S8-P10

- All metal push-in fitting/connector made of chemically nickel-plated brass
- High corrosion and chemical resistance
- FDA-compliant for the food and packaging industry (see → [www.festo.com/certificates/NPQH](http://www.festo.com/certificates/NPQH))
- For pneumatic applications with a temperature range up to 150 °C and a pressure range up to 20 bar

## Order code

001 002 003 004 005 006 007 008

NPQH - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - P10

Legend:  Mandatory entry  Optional entry

001	Type
NPQH	All metal push-in fitting/connector

002	Design
B	Plug screw
D	Straight
H	Push-in bulkhead connector
L	L-shape
P	Blanking plug
T	T-shape
Y	Y-shape

003	Additional features
-	Without
L	Long

004	Installation method
-	Standard
K	Internal hex

005	Pneumatic connection 1		
M5	M thread M5	Q10	Push-in connector 10 mm
M7	M thread M7	Q12	Push-in connector 12 mm
G18	G thread G1/8	Q14	Push-in connector 14 mm
G14	G thread G1/4	S4	Push-in sleeve 4 mm
G38	G thread G3/8	S6	Push-in sleeve 6 mm
G12	G thread G1/2	S8	Push-in sleeve 8 mm
Q4	Push-in connector 4 mm	S10	Push-in sleeve 10 mm
Q6	Push-in connector 6 mm	S12	Push-in sleeve 12 mm
Q8	Push-in connector 8 mm	S14	Push-in sleeve 14 mm

006	Connection type		
-	Standard		
F	Female thread		

007	Pneumatic connection 2		
-	Without	Q14	Push-in connector 14 mm
E	Same size as connection 1	S4	Push-in sleeve 4 mm
Q4	Push-in connector 4 mm	S6	Push-in sleeve 6 mm
Q6	Push-in connector 6 mm	S8	Push-in sleeve 8 mm
Q8	Push-in connector 8 mm	S10	Push-in sleeve 10 mm
Q10	Push-in connector 10 mm	S12	Push-in sleeve 12 mm
Q12	Push-in connector 12 mm	S14	Push-in sleeve 14 mm

008	Packaging unit		
P10	10 pieces		

## Product options

Additional features:

- S Rotatable
- LS Long, rotatable

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/npqh](http://www.festo.com/catalogue/npqh)

## Ordering

### Push-in fitting NPQH-D

#### Male thread with external hex



Connection 1	Connection 2	Type	Part no.
<b>M thread with sealing ring</b>			
M5	4 mm	NPQH-D-M5-Q4-P10	578334
	6 mm	NPQH-D-M5-Q6-P10	578335
M7	4 mm	NPQH-D-M7-Q4-P10	578336
	6 mm	NPQH-D-M7-Q6-P10	578337
<b>G thread with sealing ring</b>			
G1/8	4 mm	NPQH-D-G18-Q4-P10	578338
	6 mm	NPQH-D-G18-Q6-P10	578339
	8 mm	NPQH-D-G18-Q8-P10	578340
G1/4	6 mm	NPQH-D-G14-Q6-P10	578341
	8 mm	NPQH-D-G14-Q8-P10	578342
	10 mm	NPQH-D-G14-Q10-P10	578343
	12 mm	NPQH-D-G14-Q12-P10	578344
G3/8	8 mm	NPQH-D-G38-Q8-P10	578345
	10 mm	NPQH-D-G38-Q10-P10	578346
	12 mm	NPQH-D-G38-Q12-P10	578347
	14 mm	NPQH-D-G38-Q14-P10	578348
G1/2	10 mm	NPQH-D-G12-Q10-P10	578349
	12 mm	NPQH-D-G12-Q12-P10	578350
	14 mm	NPQH-D-G12-Q14-P10	578351

### Push-in fitting NPQH-D

#### Female thread with external hex



Connection 1	Connection 2	Type	Part no.
G1/8	4 mm	NPQH-D-G18F-Q4-P10	578352
	6 mm	NPQH-D-G18F-Q6-P10	578353
	8 mm	NPQH-D-G18F-Q8-P10	578354
G1/4	4 mm	NPQH-D-G14F-Q4-P10	578355
	6 mm	NPQH-D-G14F-Q6-P10	578356
	8 mm	NPQH-D-G14F-Q8-P10	578357

### Push-in fitting NPQH-D

#### With push-in sleeve



Connection 1	Connection 2	Type	Part no.
<b>M thread with sealing ring</b>			
M5	4 mm	NPQH-D-M5-S4-P10	578358
	6 mm	NPQH-D-M5-S6-P10	578359
<b>G thread with sealing ring</b>			
G1/8	4 mm	NPQH-D-G18-S4-P10	578360
	6 mm	NPQH-D-G18-S6-P10	578361
	8 mm	NPQH-D-G18-S8-P10	578362
G1/4	6 mm	NPQH-D-G14-S6-P10	578363
	8 mm	NPQH-D-G14-S8-P10	578364
	10 mm	NPQH-D-G14-S10-P10	578365
	12 mm	NPQH-D-G14-S12-P10	578366
G3/8	10 mm	NPQH-D-G38-S10-P10	578367
	12 mm	NPQH-D-G38-S12-P10	578368
G1/2	12 mm	NPQH-D-G12-S12-P10	578369

### Push-in fitting NPQH-DK

#### Male thread with internal hex



Connection 1	Connection 2	Type	Part no.
<b>M thread with sealing ring</b>			
M5	4 mm	NPQH-DK-M5-Q4-P10	578370
	6 mm	NPQH-DK-M5-Q6-P10	578371
M7	4 mm	NPQH-DK-M7-Q4-P10	578372
	6 mm	NPQH-DK-M7-Q6-P10	578373
<b>G thread with sealing ring</b>			
G1/8	4 mm	NPQH-DK-G18-Q4-P10	578374
	6 mm	NPQH-DK-G18-Q6-P10	578375
	8 mm	NPQH-DK-G18-Q8-P10	578376
G1/4	8 mm	NPQH-DK-G14-Q8-P10	578377
	10 mm	NPQH-DK-G14-Q10-P10	578378
G3/8	12 mm	NPQH-DK-G38-Q12-P10	578379

### Push-in connector NPQH-D

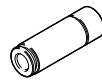
Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	NPQH-D-Q4-E-P10	578323
6 mm	6 mm	NPQH-D-Q6-E-P10	578324
8 mm	8 mm	NPQH-D-Q8-E-P10	578325
10 mm	10 mm	NPQH-D-Q10-E-P10	578326
12 mm	12 mm	NPQH-D-Q12-E-P10	578327
14 mm	14 mm	NPQH-D-Q14-E-P10	578328

### Push-in connector NPQH-D

Connection 1	Connection 2	Type	Part no.
<b>Reducing</b>			
6 mm	4 mm	NPQH-D-Q6-Q4-P10	578329
8 mm	6 mm	NPQH-D-Q8-Q6-P10	578330
12 mm	8 mm	NPQH-D-Q12-Q8-P10	578331
14 mm	10 mm	NPQH-D-Q14-Q10-P10	578332
14 mm	12 mm	NPQH-D-Q14-Q12-P10	578333

### Push-in connector NPQH-D

#### With push-in sleeve



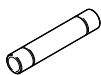
Connection 1	Connection 2	Type	Part no.
4 mm	6 mm	NPQH-D-S6-Q4-P10	578304
	8 mm	NPQH-D-S8-Q4-P10	578305
	10 mm	NPQH-D-S10-Q4-P10	578307
6 mm	8 mm	NPQH-D-S8-Q6-P10	578306
	10 mm	NPQH-D-S10-Q6-P10	578308
	12 mm	NPQH-D-S12-Q6-P10	578310
	14 mm	NPQH-D-S14-Q6-P10	578313
8 mm	10 mm	NPQH-D-S10-Q8-P10	578309
	12 mm	NPQH-D-S12-Q8-P10	578311
	14 mm	NPQH-D-S14-Q8-P10	578314
10 mm	12 mm	NPQH-D-S12-Q10-P10	578312
	14 mm	NPQH-D-S14-Q10-P10	578315
12 mm	14 mm	NPQH-D-S14-Q12-P10	578316

Fittings >

Push-in fittings/connectors NPQH

Ordering

Push-in sleeve NPQH-D



Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	NPQH-D-S4-E-P10	578317
6 mm	6 mm	NPQH-D-S6-E-P10	578318
8 mm	8 mm	NPQH-D-S8-E-P10	578319
10 mm	10 mm	NPQH-D-S10-E-P10	578320
12 mm	12 mm	NPQH-D-S12-E-P10	578321
14 mm	14 mm	NPQH-D-S14-E-P10	578322

Push-in bulkhead fitting NPQH-H

Female thread with external hex



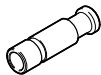
Connection 1	Connection 2	Type	Part no.
G thread with sealing ring			
G1/8	4 mm	NPQH-H-G18F-Q4-P10	578294
	6 mm	NPQH-H-G18F-Q6-P10	578295
	8 mm	NPQH-H-G18F-Q8-P10	578296
G1/4	6 mm	NPQH-H-G14F-Q6-P10	578297
	8 mm	NPQH-H-G14F-Q8-P10	578298

Push-in bulkhead fitting NPQH-H



Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	NPQH-H-Q4-E-P10	578299
6 mm	6 mm	NPQH-H-Q6-E-P10	578300
8 mm	8 mm	NPQH-H-Q8-E-P10	578301
10 mm	10 mm	NPQH-H-Q10-E-P10	578302
12 mm	12 mm	NPQH-H-Q12-E-P10	578303

Blanking plug NPQH-P



Connection 1	Connection 2	Type	Part no.
4 mm	-	NPQH-P-S4-P10	578257
6 mm	-	NPQH-P-S6-P10	578258
8 mm	-	NPQH-P-S8-P10	578259
10 mm	-	NPQH-P-S10-P10	578260
12 mm	-	NPQH-P-S12-P10	578261
14 mm	-	NPQH-P-S14-P10	578262

Plug screw NPQH-BK



Connection 1	Connection 2	Type	Part no.
M thread with sealing ring			
M5	-	NPQH-BK-M5-P10	578404
M7	-	NPQH-BK-M7-P10	578405
G thread with sealing ring			
G1/8	-	NPQH-BK-G18-P10	578406
G1/4	-	NPQH-BK-G14-P10	578407
G3/8	-	NPQH-BK-G38-P10	578408
G1/2	-	NPQH-BK-G12-P10	578409

Push-in L-fitting NPQH-L

Rotatable 360°, male thread, with external hex



Connection 1	Connection 2	Type	Part no.
M thread with sealing ring			
M5	4 mm	NPQH-L-M5-Q4-P10	578276
	6 mm	NPQH-L-M5-Q6-P10	578277
M7	4 mm	NPQH-L-M7-Q4-P10	578278
	6 mm	NPQH-L-M7-Q6-P10	578279
G thread with sealing ring			
G1/8	4 mm	NPQH-L-G18-Q4-P10	578280
	6 mm	NPQH-L-G18-Q6-P10	578281
	8 mm	NPQH-L-G18-Q8-P10	578282
G1/4	6 mm	NPQH-L-G14-Q6-P10	578283
	8 mm	NPQH-L-G14-Q8-P10	578284
	10 mm	NPQH-L-G14-Q10-P10	578285
	12 mm	NPQH-L-G14-Q12-P10	578286
G3/8	8 mm	NPQH-L-G38-Q8-P10	578287
	10 mm	NPQH-L-G38-Q10-P10	578288
	12 mm	NPQH-L-G38-Q12-P10	578289
	14 mm	NPQH-L-G38-Q14-P10	578290
G1/2	10 mm	NPQH-L-G12-Q10-P10	578291
	12 mm	NPQH-L-G12-Q12-P10	578292
	14 mm	NPQH-L-G12-Q14-P10	578293

Push-in L-fitting, long, NPQH-LL

Rotatable 360°, male thread, with external hex



Connection 1	Connection 2	Type	Part no.
G1/8	4 mm	NPQH-LL-G18-Q4-P10	578263
	6 mm	NPQH-LL-G18-Q6-P10	578264
	8 mm	NPQH-LL-G18-Q8-P10	578265
G1/4	6 mm	NPQH-LL-G14-Q6-P10	578266
	8 mm	NPQH-LL-G14-Q8-P10	578267
	10 mm	NPQH-LL-G14-Q10-P10	578268
G3/8	10 mm	NPQH-LL-G38-Q10-P10	578269

Push-in L-connector NPQH-L



Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	NPQH-L-Q4-E-P10	578270
6 mm	6 mm	NPQH-L-Q6-E-P10	578271
8 mm	8 mm	NPQH-L-Q8-E-P10	578272
10 mm	10 mm	NPQH-L-Q10-E-P10	578273
12 mm	12 mm	NPQH-L-Q12-E-P10	578274
14 mm	14 mm	NPQH-L-Q14-E-P10	578275



## Ordering

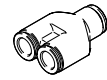
## Push-in T-fitting NPQH-T

Rotatable 360°, male thread, with external hex



Connection 1	Connection 2	Type	Part no.
M thread with sealing ring			
M5	4 mm	NPQH-T-M5-Q4-P10	578390
	6 mm	NPQH-T-M5-Q6-P10	578391
G thread with sealing ring			
G1/8	4 mm	NPQH-T-G18-Q4-P10	578392
	6 mm	NPQH-T-G18-Q6-P10	578393
	8 mm	NPQH-T-G18-Q8-P10	578394
G1/4	6 mm	NPQH-T-G14-Q6-P10	578395
	8 mm	NPQH-T-G14-Q8-P10	578396
	10 mm	NPQH-T-G14-Q10-P10	578397
	12 mm	NPQH-T-G14-Q12-P10	578398
G3/8	8 mm	NPQH-T-G38-Q8-P10	578399
	10 mm	NPQH-T-G38-Q10-P10	578400
	12 mm	NPQH-T-G38-Q12-P10	578401
G1/2	10 mm	NPQH-T-G12-Q10-P10	578402
	12 mm	NPQH-T-G12-Q12-P10	578403

## Push-in Y-connector NPQH-Y



Connection 1	Connection 2	Type	Part no.
6 mm	6 mm	NPQH-Y-Q6-E-P10	578410
8 mm	8 mm	NPQH-Y-Q8-E-P10	578411
10 mm	10 mm	NPQH-Y-Q10-E-P10	578412
Reducing			
6 mm	4 mm	NPQH-Y-Q6-Q4-P10	578413
8 mm	6 mm	NPQH-Y-Q8-Q6-P10	578414
10 mm	8 mm	NPQH-Y-Q10-Q8-P10	578415

## Push-in T-connector NPQH-T



Connection 1	Connection 2	Type	Part no.
4 mm	4 mm	NPQH-T-Q4-E-P10	578380
6 mm	6 mm	NPQH-T-Q6-E-P10	578381
8 mm	8 mm	NPQH-T-Q8-E-P10	578382
10 mm	10 mm	NPQH-T-Q10-E-P10	578383
12 mm	12 mm	NPQH-T-Q12-E-P10	578384
14 mm	14 mm	NPQH-T-Q14-E-P10	578385
Reducing			
6 mm	4 mm	NPQH-T-Q6-Q4-P10	578386
8 mm	6 mm	NPQH-T-Q8-Q6-P10	578387
10 mm	8 mm	NPQH-T-Q10-Q8-P10	578388
12 mm	10 mm	NPQH-T-Q12-Q10-P10	578389

Fittings >

## Threaded fittings NPFC



- Nickel-plated brass
- Resistant to mechanical loads
- For service units, control cabinet construction or the easy installation of pneumatic controllers
- For pneumatic applications with a temperature range up to 150 °C and a pressure range up to 50 bar

## Order code

001 002 003 004 005 006 007

NPFC -  -  -  -  -  -

Legend:  Mandatory entry  Optional entry

001	Type
NPFC	Threaded fitting
002	Design
S	Sleeve, straight
R	Reducing sleeve, straight
E...	Extension, straight, length 1 ... length 4
D	Double nipple, male thread/male thread
R	Reducing nipple
H	Bulkhead fitting
L	Fitting, L-shape
T	Fitting, T-shape
Y	Fitting, Y-shape
X	Fitting, X-shape

003	Number connection type 1
-	1x available
2	2x available
3	3x available
4	4x available

004	Pneumatic connection 1		
M3	M thread M3	R18	R thread R1/8
M5	M thread M5	R14	R thread R1/4
M7	M thread M7	R38	R thread R3/8
G18	G thread G1/8	R12	R thread R1/2
G14	G thread G1/4	R34	R thread R3/4
G38	G thread G3/8	R1	R thread R1
G12	G thread G1/2		
G34	G thread G3/4		
G1	G thread G1		

005	Pneumatic connection 2		
M3	M thread M3	R18	R thread R1/8
M5	M thread M5	R14	R thread R1/4
M7	M thread M7	R38	R thread R3/8
G18	G thread G1/8	R12	R thread R1/2
G14	G thread G1/4	R34	R thread R3/4
G38	G thread G3/8	R1	R thread R1
G12	G thread G1/2		
G34	G thread G3/4		
G1	G thread G1		

006	Thread type
F	With female thread
M	With male thread

007	Packaging unit
-	10 pieces

## Ordering

### Sleeve NPFC-S, straight Female thread



Connection 1	Connection 2	Type	Part no.
<b>M thread</b>			
M5	M5	NPFC-S-2M5-F	8030290
<b>G thread</b>			
G1/8	G1/8	NPFC-S-2G18-F	8030291
G1/4	G1/4	NPFC-S-2G14-F	8030292
G3/8	G3/8	NPFC-S-2G38-F	8030293
G1/2	G1/2	NPFC-S-2G12-F	8030294
G3/4	G3/4	NPFC-S-2G34-F	8030295

### Reducing sleeve NPFC-R, straight Female thread



Connection 1	Connection 2	Type	Part no.
<b>M thread</b>			
M5	G1/8	NPFC-R-G18-M5-F	8069219
<b>G thread</b>			
G1/8	G1/4	NPFC-R-G14-G18-F	8069220
	G3/8	NPFC-R-G38-G18-F	8030296
	G1/2	NPFC-R-G12-G18-F	8069222
G1/4	G3/8	NPFC-R-G38-G14-F	8069221
	G1/2	NPFC-R-G12-G14-F	8069223
G3/8	G1/2	NPFC-R-G12-G38-F	8069224
G1/2	G3/4	NPFC-R-G34-G12-F	8030297
	G1	NPFC-R-G1-G12-F	8069225
G3/4	G1	NPFC-R-G1-G34-F	8069226

### Extension NPFC-E..., straight Male thread/female thread



Connection 1	Connection 2	Type	Part no.
<b>Length 1</b>			
M5	M5	NPFC-E1-2M5-FM	8069218
G1/8	G1/8	NPFC-E1-2G18-FM	8030298
G1/4	G1/4	NPFC-E1-2G14-FM	8030299
G3/8	G3/8	NPFC-E1-2G38-FM	8030300
G1/2	G1/2	NPFC-E1-2G12-FM	8030301
<b>Length 2</b>			
G1/8	G1/8	NPFC-E2-2G18-FM	8030302
G1/4	G1/4	NPFC-E2-2G14-FM	8030303
<b>Length 3</b>			
G1/8	G1/8	NPFC-E3-2G18-FM	8030304
G1/4	G1/4	NPFC-E3-2G14-FM	8030305
<b>Length 4</b>			
G1/8	G1/8	NPFC-E4-2G18-FM	8030306

### Double nipple NPFC-D, straight Male thread



Connection 1	Connection 2	Type	Part no.
<b>M thread</b>			
M3	M3	NPFC-D-2M3-M	8069210
M5	M5	NPFC-D-2M5-M	8030267
	G1/8	NPFC-D-M5-G18-M	8069211
M7	G1/8	NPFC-D-M7-G18-M	8030268
<b>G thread</b>			
G1/8	G1/8	NPFC-D-2G18-M	8030269
	G1/4	NPFC-D-G18-G14-M	8030270
	G3/8	NPFC-D-G18-G38-M	8030271
G1/4	G1/4	NPFC-D-2G14-M	8030272
	G3/8	NPFC-D-G14-G38-M	8030273
	G1/2	NPFC-D-G14-G12-M	8030274
G3/8	G3/8	NPFC-D-2G38-M	8030275
	G1/2	NPFC-D-G38-G12-M	8030276
G1/2	G1/2	NPFC-D-2G12-M	8030277
	G3/4	NPFC-D-G12-G34-M	8069216
G3/4	G3/4	NPFC-D-2G34-M	8069217
<b>R thread</b>			
R1/8	R1/8	NPFC-D-2R18-M	8030278
	R1/4	NPFC-D-R18-R14-M	8030279
	R3/8	NPFC-D-R18-R38-M	8030280
R1/4	R1/4	NPFC-D-2R14-M	8030281
	R3/8	NPFC-D-R14-R38-M	8030282
	R1/2	NPFC-D-R14-R12-M	8030283
R3/8	R3/8	NPFC-D-2R38-M	8030284
	R1/2	NPFC-D-R38-R12-M	8030285
R1/2	R1/2	NPFC-D-2R12-M	8030286
	R3/4	NPFC-D-R12-R34-M	8030287
R3/4	R3/4	NPFC-D-2R34-M	8030288
R1	R1	NPFC-D-2R1-M	8030289

### Reducing nipple NPFC-R



Connection 1	Connection 2	Type	Part no.
<b>Female thread/male thread</b>			
M5	G1/8	NPFC-R-G18-M5-FM	8030314
G1/8	G1/4	NPFC-R-G14-G18-FM	8030315
	G3/8	NPFC-R-G38-G18-FM	8030316
G1/4	G3/8	NPFC-R-G38-G14-FM	8030317
G3/8	G1/4	NPFC-R-G12-G38-FM	8030318
<b>Male thread/female thread</b>			
M5	M3	NPFC-R-M5-M3-MF	8069227
M7	M5	NPFC-R-M7-M5-MF	8069228
G1/8	M5	NPFC-R-G18-M5-MF	8030307
G1/4	M5	NPFC-R-G14-M5-MF	8069229
	G1/8	NPFC-R-G14-G18-MF	8030308
G3/8	G1/8	NPFC-R-G38-G18-MF	8030309
	G1/4	NPFC-R-G38-G14-MF	8030310
G1/2	G1/4	NPFC-R-G12-G14-MF	8030311
G1/2	G3/8	NPFC-R-G12-G38-MF	8030312
G3/4	G1/4	NPFC-R-G34-G14-MF	8069234
	G3/8	NPFC-R-G34-G38-MF	8069235
	G1/2	NPFC-R-G34-G12-MF	8030313
G1	G1/2	NPFC-R-G1-G12-MF	8069237
	G3/4	NPFC-R-G1-G34-MF	8069238

Fittings >

## Threaded fittings NPFC

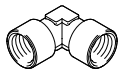
### Ordering

#### Bulkhead fitting NPFC-H



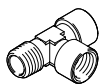
Connection 1	Connection 2	Type	Part no.
Female thread/female thread			
M5	M5	NPFC-H-M5-F	8069239
G1/8	G1/8	NPFC-H-G18-F	8069240
G1/4	G1/4	NPFC-H-G14-F	8069241
G3/8	G3/8	NPFC-H-G38-F	8069242
G1/2	G1/2	NPFC-H-G12-F	8069243

#### Elbow fitting NPFC-L, L-shape



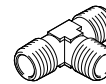
Connection 1	Connection 2	Type	Part no.
Female thread/female thread			
M5	M5	NPFC-L-2M5-F	8030208
G1/8	G1/8	NPFC-L-2G18-F	8030209
G1/4	G1/4	NPFC-L-2G14-F	8030210
G3/8	G3/8	NPFC-L-2G38-F	8030211
G1/2	G1/2	NPFC-L-2G12-F	8030212
G3/4	G3/4	NPFC-L-2G34-F	8030213
G1	G1	NPFC-L-2G1-F	8030214
Male thread/female thread			
M5	M5	NPFC-L-2M5-MF	8030215
R1/8	G1/8	NPFC-L-R18-G18-MF	8030216
R1/4	G1/4	NPFC-L-R14-G14-MF	8030217
R3/8	G3/8	NPFC-L-R38-G38-MF	8030218
R1/2	G1/2	NPFC-L-R12-G12-MF	8030219
R3/4	G3/4	NPFC-L-R34-G34-MF	8030220
R1	G1	NPFC-L-R1-G1-MF	8030221
Male thread/male thread			
M5	M5	NPFC-L-2M5-M	8030222
R1/8	R1/8	NPFC-L-2R18-M	8030223
R1/4	R1/4	NPFC-L-2R14-M	8030224
R3/8	R3/8	NPFC-L-2R38-M	8030225
R1/2	R1/2	NPFC-L-2R12-M	8030226
R3/4	R3/4	NPFC-L-2R34-M	8030227

#### T-fitting NPFC-T, T-shape



Connection 1	Connection 2	Type	Part no.
Female thread/female thread/female thread			
G1/8	G1/8	NPFC-T-3G18-F	8030235
G1/4	G1/4	NPFC-T-3G14-F	8030236
G3/8	G3/8	NPFC-T-3G38-F	8030237
G1/2	G1/2	NPFC-T-3G12-F	8030238
G3/4	G3/4	NPFC-T-3G34-F	8030239
G1	G1	NPFC-T-3G1-F	8030240
Female thread/male thread/female thread			
M5	M5	NPFC-T-3M5-FMF	8030245
G1/8	R1/8	NPFC-T-2G18-R18-FMF	8030246
G1/4	R1/4	NPFC-T-2G14-R14-FMF	8030247
G3/8	R3/8	NPFC-T-2G38-R38-FMF	8030248
G1/2	R1/2	NPFC-T-2G12-R12-FMF	8030249
G3/4	R3/4	NPFC-T-2G34-R34-FMF	8030250
G1	R1	NPFC-T-2G1-R1-FMF	8030251
Female thread/male thread/male thread			
G1/8	R1/8	NPFC-T-G18-2R18-FMM	8030255
G1/4	R1/4	NPFC-T-G14-2R14-FMM	8030256
G3/8	R3/8	NPFC-T-G38-2R38-FMM	8030257
G1/2	R1/2	NPFC-T-G12-2R12-FMM	8030258

#### T-fitting NPFC-T, T-shape



Connection 1	Connection 2	Type	Part no.
Male thread/male thread/male thread			
R1/4	R1/4	NPFC-T-3R14-M	8030252
R3/8	R3/8	NPFC-T-3R38-M	8030253
R1/2	R1/2	NPFC-T-3R12-M	8030254
Male thread/male thread/female thread			
R1/8	G1/8	NPFC-T-2R18-G18-MMF	8030259
R1/4	G1/4	NPFC-T-2R14-G14-MMF	8030260
R1/2	G1/2	NPFC-T-2R12-G12-MMF	8030261
Male thread/female thread/female thread			
M5	M5	NPFC-T-3M5-MFF	8069244
R1/8	G1/8	NPFC-T-R18-2G18-MFF	8030241
R1/4	G1/4	NPFC-T-R14-2G14-MFF	8030242
R3/8	G3/8	NPFC-T-R38-2G38-MFF	8030243
R1/2	G1/2	NPFC-T-R12-2G12-MFF	8030244

#### Fitting NPFC-Y, Y-shape



Connection 1	Connection 2	Type	Part no.
Female thread/female thread/female thread			
G1/4	G1/4	NPFC-Y-3G14-F	8030228
G3/8	G3/8	NPFC-Y-3G38-F	8030229
G1/2	G1/2	NPFC-Y-3G12-F	8030230
Male thread/female thread/female thread			
R1/8	G1/8	NPFC-Y-R18-2G18-MFF	8030231
R1/4	G1/4	NPFC-Y-R14-2G14-MFF	8030232
R3/8	G3/8	NPFC-Y-R38-2G38-MFF	8030233
R1/2	G1/2	NPFC-Y-R12-2G12-MFF	8030234

#### Fitting NPFC-X, X-shape



Connection 1	Connection 2	Type	Part no.
Female thread/female thread/female thread/female thread			
G1/4	G1/4	NPFC-X-4G14-F	8030262
G3/8	G3/8	NPFC-X-4G38-F	8030263
G1/2	G1/2	NPFC-X-4G12-F	8030264
Male thread/female thread/female thread/female thread			
G1/4	R1/4	NPFC-X-R14-3G14-MFFF	8030265
G1/2	R1/2	NPFC-X-R12-3G12-MFFF	8030266



B-M3-S9



B-M5



B

- With sealing ring
- High-alloy stainless steel, aluminium, steel, CU/ZN/NI metals excluded
- M thread, G thread

## Order code

001 002 003 004  
 -

Legend:  Mandatory entry  Optional entry

001	Type
B	Blanking plug
002	Pneumatic connection
M3	M thread M3
M5	M thread M5
M7	M thread M7
1/8	G thread G1/8
1/4	G thread G1/4
3/8	G thread G3/8
1/2	G thread G1/2
3/4	G thread G3/4
1	G thread G1

003	Version
-	Standard
S9	Corrosion- and acid-resistant version
F1A	CU/ZN/NI metals excluded (recommended for battery manufacturing)
004	Generation
-	First generation
B	Second generation

## Ordering

Blanking plug B				
Pneumatic connection	Material	Type	Part no.	PU <sup>1)</sup>
M thread				
With external hexagon and sealing ring				
M3	High-alloy stainless steel	B-M3-S9	30979	10
M5	Aluminium	B-M5	3843	10
With internal hex and sealing ring				
M5	Galvanised steel	B-M5-B	174308	10
	CU/ZN/NI metals excluded	B-M5-F1A <sup>2)</sup>	8142288	10
M7	Galvanised steel	B-M7	174309	10
	CU/ZN/NI metals excluded	B-M7-F1A <sup>2)</sup>	8144525	10
G thread				
With internal hex and sealing ring				
G1/8	Galvanised steel	B-1/8	3568	10
	CU/ZN/NI metals excluded	B-1/8-F1A <sup>2)</sup>	8142289	10
G1/4	Galvanised steel	B-1/4	3569	10
	CU/ZN/NI metals excluded	B-1/4-F1A <sup>2)</sup>	8142290	10
G3/8	Galvanised steel	B-3/8	3570	10
G1/2		B-1/2	3571	10
G3/4		B-3/4	3572	1
G1		B-1	5763	1

1) Packaging unit

2) Recommended for battery manufacturing

Couplings >

## Quick coupling sockets/plugs NPHS, KD/KS



### Safety coupling NPHS

- To ISO 4414
- Releasing sleeve made of metal or polymer
- Integrated hand slide valve
- Shut-off at one end

### Plug-in coupling KD4/KS4

- For standard applications, without safety function
- Housing made from nickel-plated brass
- Releasing sleeve made from polymer
- Shut-off at one end

### Order code

#### Safety coupling NPHS

001 002 003 004 005 006  
 NPHS -  6 -  -

001	Type
NPHS	Safety coupling
002	Coupling element
D	Quick coupling socket
S	Quick coupling plug
003	Coupling size
6	Size 6
004	Releasing sleeve version
M	Metal
P	Polymer
005	Pneumatic connection 1
G18	G1/8
G14	G1/4
G38	G3/8
G12	G1/2
006	Thread type connection 1
-	Male thread
F	Female thread

### Order code

#### Plug-in coupling KD/KS

001 002 003 004  
 4 -  -  A

001	Type
KD	Plug-in coupling with quick coupling socket
KS	Plug-in coupling with quick coupling plug
002	Coupling size
4	Size 4
003	Pneumatic connection 1
1/4	G1/4
3/8	G3/8
1/2	G1/2
004	Thread type connection 1
A	Male thread

Legend:  Mandatory entry  Optional entries

### Product options

#### Pneumatic connection 1:

- Barbed fitting
- Female thread
- Quick connector with union nut
- Bulkhead quick connector with union nut

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/nphs](http://www.festo.com/catalogue/nphs)

→ [www.festo.com/catalogue/kd](http://www.festo.com/catalogue/kd)

## Quick coupling sockets/plugs NPHS, KD/KS

## Ordering – Safety coupling: quick coupling socket/plug NPHS

Quick coupling socket/plug combination NPHS – 004 Metal releasing sleeve			Quick coupling socket NPHS-D6-M			
		Type	–	<b>NPHS-D6-M-G14</b>	<b>NPHS-D6-M-G38</b>	<b>NPHS-D6-M-G12</b>
		Part no.	–	<b>8059275</b>	<b>8059276</b>	<b>8059277</b>
			Male thread G1/8	Male thread G1/4	Male thread G3/8	Male thread G1/2
Standard nominal flow rate $q_{nN}^{(1)}$ for quick coupling socket/plug combination						
Quick coupling plug NPHS-S6	Male thread G1/4	<b>NPHS-S6-M-G14</b>	–	1833 l/min	2100 l/min	2100 l/min
		<b>8059258</b>				
	Male thread G3/8	<b>NPHS-S6-M-G38</b>	–	1800 l/min	2050 l/min	2050 l/min
		<b>8059259</b>				
	Male thread G1/2	<b>NPHS-S6-M-G12</b>	–	1750 l/min	2000 l/min	2000 l/min
		<b>8059260</b>				

1) Measured at  $p_1 = 6$  bar and  $\Delta p = 1$  bar

Quick coupling socket/plug combination NPHS – 004 Polymer releasing sleeve			Quick coupling socket NPHS-D6-P			
		Type	<b>NPHS-D6-P-G18</b>	<b>NPHS-D6-P-G14</b>	<b>NPHS-D6-P-G38</b>	<b>NPHS-D6-P-G12</b>
		Part no.	<b>8059266</b>	<b>8059267</b>	<b>8059268</b>	<b>8059269</b>
			Male thread G1/8	Male thread G1/4	Male thread G3/8	Male thread G1/2
Standard nominal flow rate $q_{nN}^{(1)}$ for quick coupling socket/plug combination						
Quick coupling plug NPHS-S6	Male thread G1/8	<b>NPHS-S6-M-G18</b>	875 l/min	1183 l/min	1216 l/min	1233 l/min
		<b>8059257</b>				
	Male thread G1/4	<b>NPHS-S6-M-G14</b>	1038 l/min	1916 l/min	2033 l/min	2016 l/min
		<b>8059258</b>				
	Male thread G3/8	<b>NPHS-S6-M-G38</b>	1038 l/min	1883 l/min	2033 l/min	1983 l/min
		<b>8059259</b>				
Male thread G1/2	<b>NPHS-S6-M-G12</b>	1002 l/min	1883 l/min	1966 l/min	1950 l/min	
	<b>8059260</b>					
Quick coupling plug NPHS-S6	Female thread G1/4	<b>NPHS-S6-M-G14F</b>	1002 l/min	1883 l/min	1950 l/min	1916 l/min
		<b>8059262</b>				
	Female thread G3/8	<b>NPHS-S6-M-G38F</b>	1050 l/min	1966 l/min	2083 l/min	2016 l/min
		<b>8059263</b>				
	Female thread G1/2	<b>NPHS-S6-M-G12F</b>	1038 l/min	1883 l/min	2000 l/min	1983 l/min
		<b>8059264</b>				

1) Measured at  $p_1 = 6$  bar and  $\Delta p = 1$  bar

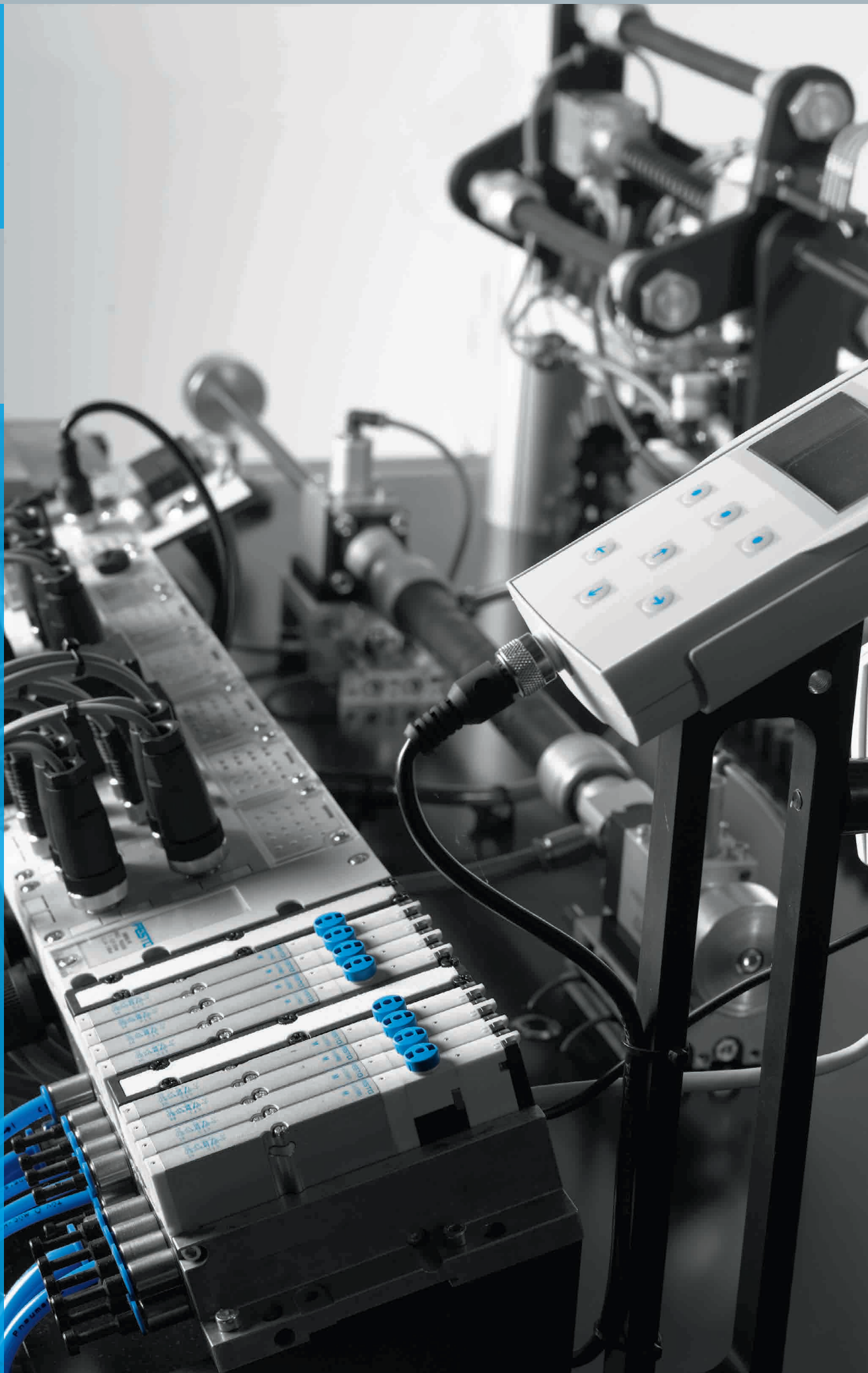
## Ordering – plug-in coupling: quick coupling socket/plug KD/KS

Combination of quick coupling socket KD4/plug KS4			Quick coupling socket KD4			
		Type	–	<b>KD4-1/4-A</b>	<b>KD4-3/8-A</b>	<b>KD4-1/2-A</b>
		Part no.	–	<b>2143</b>	<b>2144</b>	<b>2145</b>
			Male thread G1/8	Male thread G1/4	Male thread G3/8	Male thread G1/2
Standard nominal flow rate $q_{nN}^{(1)}$ for quick coupling socket/plug combination						
Quick coupling plug KS4	Male thread G1/4	<b>KS4-1/4-A</b>	–	1260 l/min	1242 l/min	1296 l/min
		<b>2154</b>				
	Male thread G3/8	<b>KS4-3/8-A</b>	–	1283 l/min	1274 l/min	1319 l/min
		<b>2155</b>				
	Male thread G1/2	<b>KS4-1/2-A</b>	–	1283 l/min	1260 l/min	1301 l/min
		<b>531676</b>				

1) Measured at  $p_1 = 6$  bar and  $\Delta p = 1$  bar

# 13


## Control technology and software





# Highlights


# Contents



Automation systems  
**CPX-AP-I**

- + Best value for money by combining valve terminals and decentralised I/Os
- + IO-Link master and IO-Link device tool
- + Theoretically up to 500 modules in line, star and tree topology

→ 336



Terminals  
**CPX**

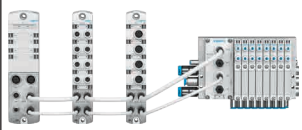


- + Installation variants: stand-alone as remote I/O or with valve terminal VTSA/MPA
- + Digital or analogue input/output modules
- + Optional CODESYS controller

→ 336

Product overview \_\_\_\_\_ 336

Product overview

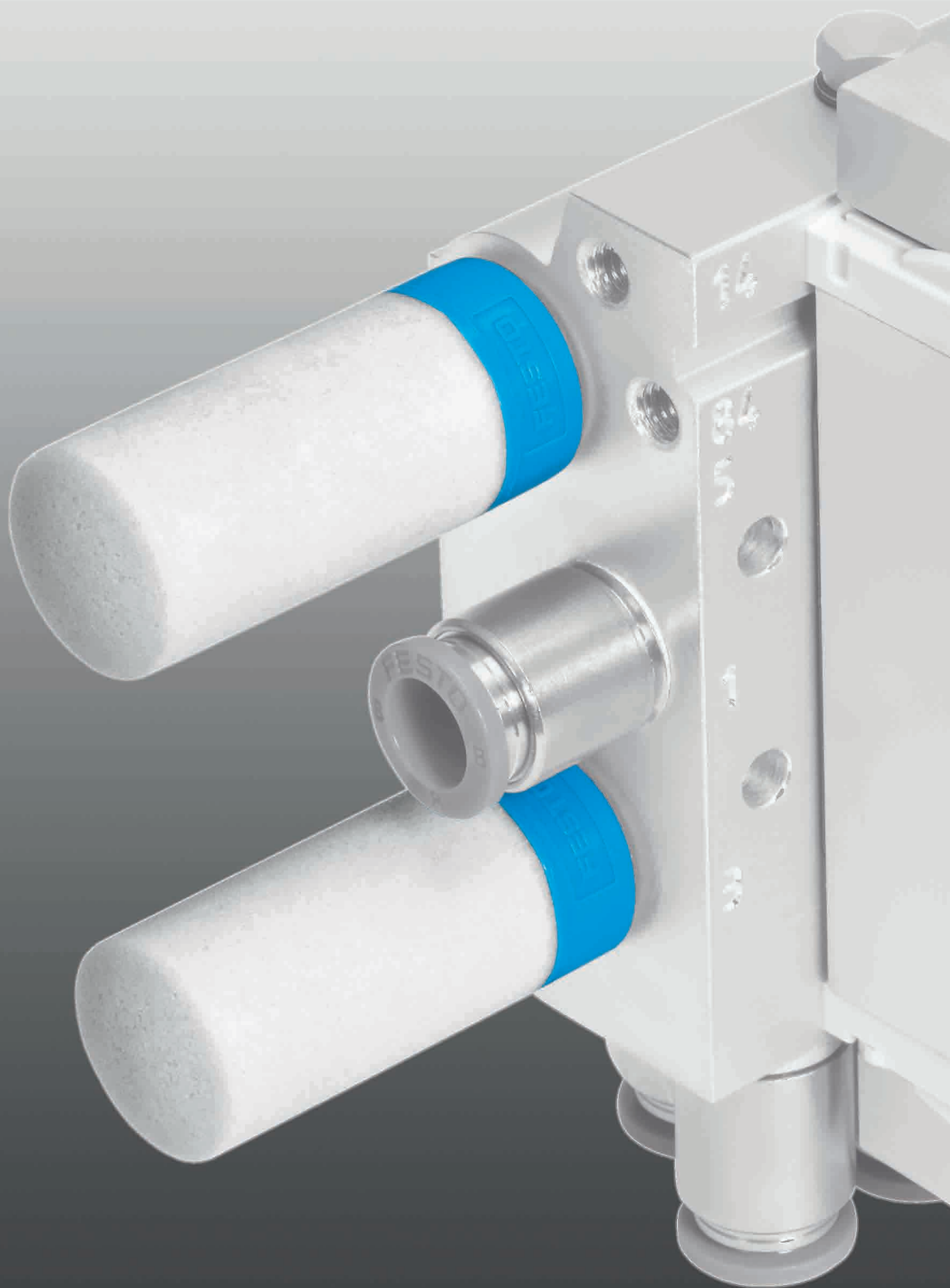
Electrical peripherals

	 <b>Automation systems</b> <b>CPX-AP-I</b>	 <b>Terminals</b> <b>CPX</b>	 <b>Fieldbus modules</b> <b>CTEU</b>
<b>Protocol</b>	PROFIBUS DP, PROFINET, EtherCAT, EtherNet/IP, Modbus®TCP	Interbus, DeviceNet, CANopen, CC-Link, PROFIBUS DP, PROFINET, EtherCAT, EtherNet/IP, Modbus®TCP, SercosIII, Powerlink, IO-Link®, I-Port, HART	AS-Interface, CANopen, CC-Link, CPI-B, DeviceNet, EtherCAT, EtherNet/IP, PROFINET, Modbus® TCP, PROFIBUS DP, VARAN, I-Port
<b>Electrical control</b>		Fieldbus, integrated controller	
<b>Max. address capacity, inputs</b>	244 ... 2048 Byte	64 Byte	2 ... 64 Byte
<b>Max. address capacity, outputs</b>	244 ... 2048 Byte	64 Byte	2 ... 64 Byte
<b>Parameterisation</b>		Diagnostic behaviour, failsafe response, forcing of channels, signal setup	Activate diagnostics, diagnostic behaviour, failsafe and idle response, failsafe response, IO-Link mode, watchdog disable, watchdog enable
<b>Degree of protection</b>	IP65, IP67	IP65, IP67	IP65, IP67
<b>Nominal operating voltage DC</b>		24 V	24 ... 30 V
<b>Operating voltage range DC</b>		18 ... 30 V	18 ... 31.6 V
<b>Description</b>	<ul style="list-style-type: none"> <li>Powerful remote I/O system that flexibly links 80 modules at a data rate of 200 Mbaud in real-time</li> <li>Seamless connectivity along with advanced diagnostics option increase the machine availability and productivity</li> <li>Simple integration into the controller of your choice: PROFINET, PROFIBUS, EtherCAT®, EtherNet/IP, ModbusTCP</li> <li>Real-time capability and deterministic system behaviour enable cycle times of up to 250 µs</li> <li>Cable lengths of up to 50 m between every module enable vast system dimensions</li> <li>The IO-Link master and parameterisation software enable simple integration of any IO-Link® devices</li> <li>Ethernet performance up to the valve terminal and digital as well as analogue input/output modules</li> </ul>	<ul style="list-style-type: none"> <li>Automation platform</li> <li>Open to all common fieldbus protocols and Ethernet</li> <li>Integrated diagnostic and maintenance functions</li> <li>Can be used as stand-alone remote I/O or with valve terminals MPA-S, MPA-L, VTSA/VTSA-F</li> <li>Choice of polymer or metal interlinking block with individual linking</li> <li>Analogue inputs and outputs, 2-way/4-way, with optional HART protocol</li> </ul>	<ul style="list-style-type: none"> <li>For valve terminals VTUG, MPA-L, VTOC</li> <li>Can be expanded into the installation system CTEL</li> <li>Fieldbus-typical LEDs, interfaces and switching elements</li> <li>Isolated power supply for electronics and valves</li> </ul>
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## Other pneumatic equipment



# Highlights



Silencers  
**AMTE**  
+ Metal design  
+ High temperature resistance up to 80 °C  
+ Slim width  
+ Many different variants  
+ Universal applications  
→ 342




Silencers  
**U**  
+ Polymer design  
+ Connection thread G1/8, G1/4, G3/8, G1/2, G3/4, G1  
+ Noise level 74 ... 90 dB(A)  
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Silencers U	343

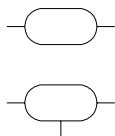
## Product overview

### Air reservoirs

	 <p><b>Air reservoirs CRVZS</b></p>
<b>Volume</b>	0.1 l, 0.4 l, 0.75 l, 5 l, 2 l, 10 l, 20 l
<b>Information on air reservoir materials</b>	High-alloy stainless steel
<b>Conforms to standard</b>	AD 2000
<b>Condensate drain connection</b>	G3/8
<b>Description</b>	<ul style="list-style-type: none"> <li>• Corrosion-resistant</li> <li>• Compensation of pressure fluctuations and as accumulators in the event of sudden air consumption</li> <li>• Providing large volumes of compressed air for supplying fast pulsing drives</li> <li>• With connection for condensate drain in some cases</li> <li>• Food-safe, see <a href="http://www.festo.com/catalogue/crvzs">www.festo.com/catalogue/crvzs</a> &gt; Support / Downloads &gt; Certificates</li> <li>• Designs to EU Pressure Equipment Directive EN 286-1</li> <li>• Operating media: compressed air, vacuum</li> </ul>
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### Silencers

	 <p><b>Silencers AMTE</b></p>	 <p><b>Silencers U</b></p>	 <p><b>Silencers UOM, UOMS</b></p>
<b>Information on silencer insert materials</b>	Bronze	PE, bronze	PU foam
<b>Pneumatic connection</b>	G1, G1/2, G1/4, G1/8, G3/4, G3/8, M3, M5, 1/8 NPT, 1/4 NPT, 3/8 NPT, 1/2 NPT, 10-32 UNF-2A	G1, G1/2, G1/4, G1/8, G3/4, G3/8, NPT3/4, PK-3, PK-4	G1/4, G3/8
<b>Noise level</b>	55 ... 95 dB(A)	70 ... 90 dB(A)	
<b>Description</b>	<ul style="list-style-type: none"> <li>• Long or short design</li> <li>• Metal design</li> <li>• Operating medium: compressed air</li> <li>• High temperature resistance up to 80 °C</li> <li>• Slim width</li> <li>• Many different variants</li> <li>• Universal applications</li> </ul>	<ul style="list-style-type: none"> <li>• Compact design, polymer or die-cast metal</li> <li>• Barbed connector or threaded connection</li> <li>• Operating medium: compressed air</li> </ul>	<ul style="list-style-type: none"> <li>• Special open minimal resistance silencer</li> <li>• For vacuum generators</li> <li>• Facilitates trouble-free operation of the vacuum generator</li> <li>• Silencer extension for extending the silencer for further noise reduction</li> <li>• Operating medium: compressed air</li> </ul>
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- Corrosion-resistant
- Volume up to 20 l
- Compensation of pressure fluctuations and as accumulators in the event of sudden air consumption
- Providing large volumes of compressed air for supplying fast-pulsing drives
- CRVZS-5, -10 and -20 according to EU Pressure Equipment Directive
- Optionally with condensate drain

## Ordering

Pneumatic connection	Condensate drain connection	Type of mounting	Volume	Type	Part no.
G1/8	–	Via retaining clips	0.1 l ±20%	<b>CRVZS-0.1</b>	<b>160233</b>
G1/4	–	Via retaining clips	0.4 l ±20%	<b>CRVZS-0.4</b>	<b>160234</b>
		Via retaining clips	0.75 l ±20%	<b>CRVZS-0.75</b>	<b>160235</b>
G1/2	–	Via through-hole	2 l ±10%	<b>CRVZS-2</b>	<b>160236</b>
G1	G3/8	Via through-hole	5 l ±10%	<b>CRVZS-5</b>	<b>192159</b>
		Via through-hole	10 l ±10%	<b>CRVZS-10</b>	<b>160237</b>
		Via through-hole	20 l ±10%	<b>CRVZS-20</b>	<b>534845</b>

## Silencers AMTE



• Suitable for reducing noise at the exhaust ports of pneumatic systems

• Metal design  
• Long version

## Ordering

Version	Type	Part no.	PU <sup>1)</sup>	Connection D1		Noise level [dB (A)]
				M thread	G thread	
Long version						
	AMTE-M-LH-M5	1205858	20	M5	–	< 72
	AMTE-M-LH-G18	1205860	20	–	G1/8	< 76
	AMTE-M-LH-G14	1205861	20	–	G1/4	< 83
	AMTE-M-LH-G38	1205862	10	–	G3/8	< 82
	AMTE-M-LH-G12	1205863	10	–	G1/2	< 88
	AMTE-M-LH-G34	1205864	10	–	G3/4	< 85
	AMTE-M-LH-G1	1205865	10	–	G1	< 88

1) Packaging unit

## Product options

Connection D1

- M3
- NPT thread

Short version



## Silencers U



- For noise reduction at the exhaust ports of pneumatic components

- Polymer or die-cast metal design

## Ordering

Version	Type	Part no.	PU <sup>1)</sup>	Connection D1 G thread	Noise level [dB (A)]
Polymer, male thread					
	U-1/8	2307	1	G1/8	< 74
	U-1/4	2316	1	G1/4	< 76
	U-3/8	2309	1	G3/8	< 82
	U-1/2	2310	1	G1/2	< 82
	U-3/4	2311	1	G3/4	< 85
	U-1	2312	1	G1	< 90
Die-cast metal					
	U-1/8-B	6841	1	G1/8	< 74
	U-1/4-B	6842	1	G1/4	< 80
	U-3/8-B	6843	1	G3/8	< 80
	U-1/2-B	6844	1	G1/2	< 81
	U-3/4-B	6845	1	G3/4	< 83
	U-1-B	151990	1	G1	< 85

1) Packaging unit

## Product options

## Version

- Sintered metal
- Polymer, female thread
- NPT thread

## Connection

- PK-3, PK-4

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## Process automation



# Highlights



Limit switch attachments  
**SRBC**  
+ Weatherproof aluminium housing  
+ Cost-optimised, high-performance and reliable series  
→ 358




Positioners  
**CMSX**  
+ Ideal for proportional flow control at process valves (e.g. flow control, dispensing/mixing)  
→ 362



Positioners  
**CMSH**  
+ Highly dynamic positioning system  
+ Large display  
+ Setup wizard for efficient and easy commissioning  
→ 364



Quarter turn actuators  
**DFPD**  
+ Flange hole pattern to ISO 5211  
+ NAMUR connection pattern for solenoid valves and limit switch attachments to VDI/VDE 3845  
→ 368



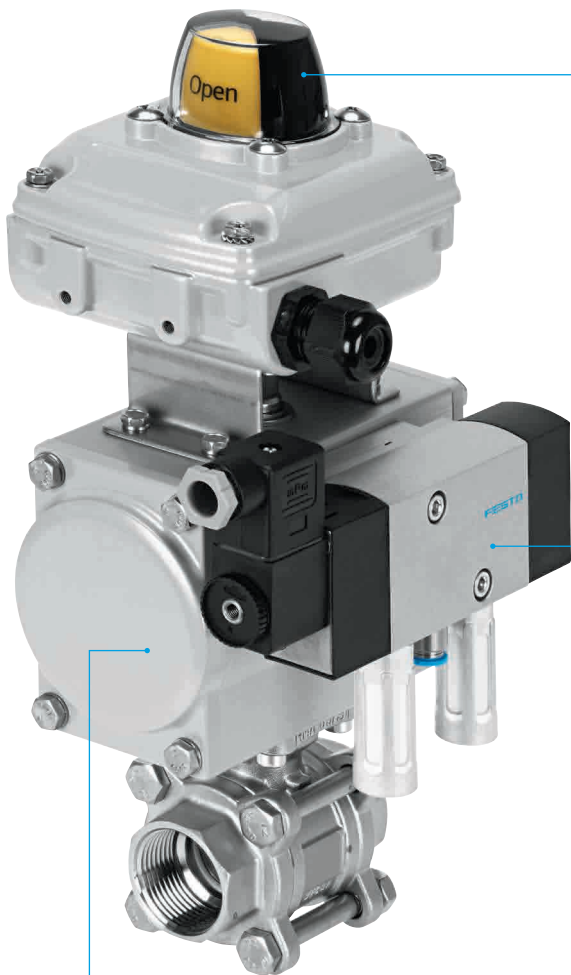
Angle seat valves  
**VZXA**  
+ Highly flexible, extremely high flow rates  
+ Hygienic design, insensitive to dirt  
+ Modular  
→ 370

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## Standardising and automating process valves

Fully automated process valves from a single source make planning, procurement and commissioning significantly easier and cost effective. They eliminate a considerable amount of project management work, reduce warehousing costs for spare parts, and speed up service and maintenance.



**Quarter turn actuator DFPD**  
The new benchmark for quarter turn actuators. Its range of variants and standardised hole patterns to NAMUR VDI/VDE 3845 for pilot valves open up a wide variety of possible applications.  
→ 351



**Position sensing for all application areas**  
Whether an open solution with the sensor SRBG, the sturdy limit switch attachment SRBC for basic applications indoors and outdoors or the allrounder SRBE for explosion-proof areas. Festo always has the right solution.  
→ 358



**Alternative to the limit switch box: the positioners CMSX and CMSH for analogue control, for example for flow rates**  
The CMSX can be used for basic position controls tasks, while the CMSH is suitable for highly challenging control with 2-conductor connection technology.  
→ 349



**Standard NAMUR valve VSNC**  
Controls quarter turn actuators and linear actuators with a VDI/VDE 3845 interface. Globally certified in accordance with current Ex standards. Now also available with poppet valve technology.  
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**Pilot valves VOFC/VOFD**  
An extremely sturdy alternative to the valve VSNC. Ideal for outdoor areas and potentially explosive atmospheres. The extremely sturdy VOFC/VOFD can control valve actuators in the chemical, petrochemical and pharmaceutical production plants of leading companies worldwide.  
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**Configurator for butterfly valve unit KVZA, ball valve unit KVZB, drive unit KDFP**






Software tools for easy selection and configuration of process valve units.  
→ [www.festo.com/process](http://www.festo.com/process)



We offer a wide selection of tubing and fittings for a broad range of applications, from standard applications to applications with specific external influences.  
→ Pneumatic connection technology  
→ 308



You can find the appropriate components here:  
→ [www.festo.com/productfinder/fittings](http://www.festo.com/productfinder/fittings)

## Pilot valves



	 <b>Solenoid valves VSNC</b>	 <b>Solenoid valves VOFC</b>	 <b>Solenoid valves VOFD</b>
<b>Valve function</b>	5/2 double solenoid, 5/2-way or 3/2-way, convertible, 5/3-way, pressurised, 5/3 exhausted, 5/3 closed	3/2-way, single solenoid, closed, 5/2-way, double solenoid, 5/2-way, single solenoid	3/2-way, single solenoid, closed, semi-automatic, 3/2-way, single solenoid, closed
<b>Operating pressure [MPa]</b>	0.15 ... 1 MPa	0 ... 1 MPa	0 ... 1.2 MPa
<b>Operating pressure</b>	1.5 ... 10 bar	0 ... 10 bar	0 ... 12 bar
<b>Ambient temperature</b>	-20 ... 60°C	-25 ... 60°C	-50 ... 60°C
<b>Pneumatic port 1</b>	1/4 NPT, G1/4, G1/8, QS-1/4, QS-10, QS-3/8, QS-5/16, QS-6, QS-8	1/4 NPT, 1/2 NPT, NAMUR connection pattern, G1/2, G1/4, M5	1/4 NPT, NAMUR connection pattern, G1/4, M5
<b>Standard nominal flow rate</b>	800 ... 1350 l/min	595 ... 2794 l/min	52 ... 1900 l/min
<b>Explosion prevention and protection</b>	Class I, Div. 1 (US), Class I, Div. 2 (US), Class II, Div. 1 (US), Class II, Div. 2 (US), Class III, Div. 1 (US), Class III, Div. 2 (US), The information in the certificate must be observed., Zone 0 (IEC-EX), Zone 0 (KR), Zone 1 (ATEX), Zone 1 (IEC-EX), Zone 1 (KR), Zone 2 (ATEX), Zone 2 (KR), Zone 20 (IEC-EX), Zone 21 (ATEX), Zone 21 (IECEx), Zone 21 (KR), Zone 22 (ATEX), Zone 22 (KR)	Zone 1 (ATEX), Zone 1 (IEC-EX), Zone 1 (KR), Zone 2 (ATEX), Zone 21 (ATEX), Zone 21 (IECEx), Zone 21 (KR), Zone 22 (ATEX)	Zone 1 (ATEX), Zone 2 (ATEX), Zone 21 (ATEX), Zone 22 (ATEX)
<b>Safety integrity level (SIL)</b>		Up to SIL 2 High Demand mode, up to SIL 2 Low Demand mode, up to SIL 3 High Demand mode, up to SIL 3 Low Demand mode	Up to SIL 3 High Demand mode, up to SIL 3 Low Demand mode
<b>Description</b>	<ul style="list-style-type: none"> <li>NAMUR connection pattern to VDI/VDE 3845</li> <li>Rotatable seal for 3/2-way or 5/2-way valve</li> <li>Wide choice of EX solenoid systems</li> <li>Sturdy and powerful</li> <li>Extended temperature range</li> <li>Outstanding value for money</li> <li>All solenoid coils can be used on an armature tube</li> <li>The VSNC...FN variant achieves higher energy efficiency with reduced power consumption</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for process automation, for applications in chemical and petrochemical plants</li> <li>Suitable for outdoor use under harsh ambient conditions</li> <li>Especially suitable for quarter turn actuators thanks to NAMUR flange pattern</li> <li>Valve can switch between internal and external pilot air</li> <li>Variants with safety functions</li> <li>Variants to EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for process automation, for applications in chemical and petrochemical plants</li> <li>Suitable for outdoor use under harsh ambient conditions</li> <li>Especially suitable for quarter turn actuators thanks to NAMUR flange pattern</li> <li>Variants with safety functions</li> <li>Variants to EU Explosion Protection Directive (ATEX)</li> </ul>
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Product overview



Limit switch attachments

	 <p><b>Limit switch attachments SRBC</b></p>	 <p><b>Limit switch attachments SRBG</b></p>
<b>Information on housing materials</b>	Die-cast aluminium	PBT
<b>Operating voltage range AC</b>	0 ... 250 V	
<b>Operating voltage range DC</b>	0 ... 175 V	6 ... 60 V
<b>Measuring principle</b>	Inductive, magnetic reed, mechanical/electrical	Inductive
<b>Switching element function</b>	N/C contact, N/O contact, toggle switch, single-pole	N/C contact, N/C contact or N/O contact, switchable, N/O contact
<b>Safety integrity level (SIL)</b>	SIL 2	SIL 2
<b>Description</b>	<ul style="list-style-type: none"> <li>• Pre-assembled mounting adapter for ease of installation</li> <li>• The trip cams can be easily set without additional tools</li> <li>• Sturdy, corrosion-resistant design, ideal for use in harsh ambient conditions</li> <li>• Clearly visible 3D position indicator allows the current position of the quarter turn actuator to be quickly detected</li> <li>• With safety functions</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• Compact housing with M12 plug connection</li> <li>• Direct mounting on quarter turn actuators to VDI/VDE 3845</li> <li>• For quarter turn actuators for process automation with position indicators</li> <li>• AS-Interface version with extended addressing options</li> <li>• LED status indicator for switching status, supply voltage and solenoid valve output</li> <li>• With safety functions</li> <li>• Variants to EU Explosion Protection Directive (ATEX)</li> </ul>
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Limit switch attachments

	 <p><b>Limit switch attachments SRBE</b></p>	 <p><b>Limit switch attachments SRBI</b></p>
<b>Information on housing materials</b>	Die-cast aluminium	PBT
<b>Operating voltage range AC</b>	0 ... 250 V	
<b>Operating voltage range DC</b>	0 ... 60 V	10 ... 30 V
<b>Measuring principle</b>	Inductive, magnetic reed, mechanical/electrical, for proximity sensor	Inductive
<b>Switching element function</b>	N/C contact, N/O contact, toggle switch, single-pole, toggle switch, double-pole	N/O contact
<b>Safety integrity level (SIL)</b>	SIL 2	
<b>Description</b>	<ul style="list-style-type: none"> <li>• The trip cams can be easily set without additional tools</li> <li>• Sturdy, corrosion-resistant design, ideal for use in harsh ambient conditions</li> <li>• Clearly visible 3D position indicator allows the current position of the quarter turn actuator to be quickly detected</li> <li>• With safety functions</li> <li>• To EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• Compact housing with M12 plug connection</li> <li>• Direct mounting on quarter turn actuators to VDI/VDE 3845</li> <li>• For quarter turn actuators for process automation with position indicators</li> <li>• LED status indicator for switching status and supply voltage</li> </ul>
<b>→ Page/online</b>	<b>srbe</b>	<b>srbi</b>

## Accessories for limit switch attachments

		
	<b>Position indicators SASF-S2</b>	<b>Position indicators SASF-S3</b>
<b>Setting range of swivel angle</b>	0 ... 360°	0 ... 180°
<b>Ambient temperature</b>	-25 - 70°C	-25 ... 70°C
<b>Type of mounting</b>	To VDI/VDE 3845	To VDI/VDE 3845
<b>Description</b>	<ul style="list-style-type: none"> <li>• For limit switch attachments SRBG</li> <li>• For mounting on drive shaft of standard actuators to VDI/VDE 3845</li> <li>• Four fixed actuating lugs offset by 90° or two adjustable metal bands around the circumference</li> <li>• For clockwise and anticlockwise rotating actuators with 90° and 180° rotation</li> </ul>	<ul style="list-style-type: none"> <li>• For limit switch attachments SRBI</li> <li>• For mounting on drive shaft of standard actuators to VDI/VDE 3845</li> </ul>
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## Positioners

		
	<b>Positioners CMSX</b>	<b>Positioners CMSH</b>
<b>Mode of operation</b>	Double-acting, single-acting	Double-acting, single-acting
<b>Standard nominal flow rate</b>	50 ... 130 l/min	
<b>Ambient temperature</b>	-5 ... 60°C	-40 ... 80°C
<b>Reference value</b>	0 - 20 mA, 4 - 20 mA, 0 - 10 V	
<b>Operating voltage range DC</b>	21.6 ... 26.4 V	
<b>Operating pressure [MPa]</b>	0.3 ... 0.8 MPa	0.14 ... 0.8 MPa
<b>Operating pressure</b>	3 ... 8 bar	1.4 ... 8 bar
<b>Design features</b>	Safety position – pneumatic output 4 exhausted, safety position – pneumatic output 2 pressurised, safety position – pneumatic outputs closed	Safety position – pneumatic outputs closed, safety position – pneumatic output 2 exhausted, safety position – pneumatic output 4 pressurised
<b>Degree of protection</b>	IP65	IP66, IP67
<b>Type of mounting</b>	Via accessories	Via accessories, to VDI/VDE 3845, to VDI/VDE 3847-2
<b>Information on housing materials</b>	Reinforced PC	Aluminium, powder-coated
<b>Description</b>	<ul style="list-style-type: none"> <li>• Digital, electropneumatic positioner</li> <li>• Simple and efficient position control of single-acting and double-acting pneumatic rotary and linear drives</li> <li>• With integrated or external path/angular detection</li> <li>• Simple commissioning through automatic initialisation function</li> <li>• Intuitive menu navigation</li> <li>• 3-conductor technology</li> <li>• Variants with safety functions</li> </ul>	<ul style="list-style-type: none"> <li>• Intelligent, digital electropneumatic positioner with HART communication</li> <li>• Fast and precise position control of single- and double-acting pneumatic rotary and linear drives</li> <li>• With integrated or external path/angular detection</li> <li>• Commissioning, operation, maintenance and diagnostics on the local display via the user-friendly software menu or via remote access with EDD-based (Electronic Device Description) or FDT-based (Field Device Tool) transmission</li> <li>• 2-conductor technology</li> <li>• Perfect interaction with the pneumatic extension modules VTOP</li> <li>• Variants with safety functions</li> <li>• Sustainable operation thanks to efficient control</li> </ul>
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Product overview

Drives >



Linear actuators

	 <b>Linear actuators DFPC</b>	 <b>Linear actuators with displacement encoder DFPI -ND2P</b>	 <b>Linear actuators with displacement encoder DFPI-NB3</b>
<b>Design</b>	Piston, piston rod, tie rod, cylinder barrel	Piston, Piston rod, Tie rod, Cylinder barrel	Piston, piston rod, tie rod, cylinder barrel
<b>Mode of operation</b>	Double-acting	Double-acting	Double-acting
<b>Size of valve actuator</b>	80, 100, 125, 160, 200, 250, 320	100, 125, 160, 200, 250, 320	100, 125, 160, 200, 250, 320
<b>Stroke</b>	10 ... 1600 mm	40 ... 990 mm	40 ... 990 mm
<b>Operating pressure [MPa]</b>	0.06 ... 0.8 MPa	0.3 ... 0.8 MPa	
<b>Operating pressure</b>	0.6 ... 8 bar	3 ... 8 bar	3 ... 8 bar
<b>Ambient temperature</b>	-20 ... 80°C	-20 ... 80°C	-20 ... 80°C
<b>Description</b>	<ul style="list-style-type: none"> <li>• Robust and corrosion-resistant tie-rod design</li> <li>• Ideal for use in harsh ambient conditions</li> <li>• Numerous configuration options</li> <li>• Variants with mounting interface to ISO 5210 or ISO 15552 with extended tie rods</li> </ul>	<ul style="list-style-type: none"> <li>• Mounting interfaces for process valves to DIN EN ISO 5210</li> <li>• Integrated air supply</li> <li>• Optionally with integrated displacement encoder or fully integrated positioner</li> <li>• IP65, IP67, IP69K, NEMA4</li> <li>• To EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• Mounting interfaces to ISO 15552 on bearing and end caps</li> <li>• Robust and corrosion-resistant tie-rod design</li> <li>• Optionally with integrated displacement encoder or fully integrated positioner</li> <li>• IP65, IP67, IP69K, NEMA4</li> <li>• To EU Explosion Protection Directive (ATEX)</li> </ul>
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## Drives &gt;

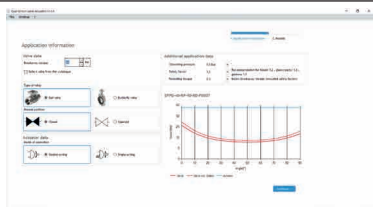
## Quarter turn actuators

	 Quarter turn actuators DFPD	 Quarter turn actuators DAPS
<b>Design</b>	Rack and pinion	Scotch yoke system
<b>Mode of operation</b>	Double-acting, single-acting	Double-acting, single-acting
<b>Size of valve actuator</b>	10, 20, 40, 80, 120, 160, 240, 300, 480, 700, 900, 1200, 2300	0008, 0015, 0030, 0053, 0060, 0090, 0106, 0120, 0180, 0240, 0360, 0480, 0720, 0960, 1440, 1920, 2880, 3840, 4000, 5760, 8000
<b>Flange hole pattern</b>	F03, F04, F05, F07, F10, F12, F14, F16, F0507, F0710, F1012, F1216	F03, F04, F05, F07, F10, F12, F14, F16, F25
<b>Swivel angle</b>	90°, 120°, 135°, 180°	90°, 92°
<b>Ambient temperature</b>	-50 ... 150°C	-50 ... 150°C
<b>Operating pressure [MPa]</b>	0.2 ... 0.8 MPa	0.1 ... 0.84 MPa
<b>Operating pressure</b>	2 ... 8 bar	1 ... 8.4 bar
<b>Safety function</b>	The fundamental safety function consists of the execution of a complete working stroke (opening and closing of the process valve) within a defined time. The fundamental safety function consists of the control valve moving to the switching position when the compressed air is turned off. Return is through spring force.	
<b>Safety integrity level (SIL)</b>	Up to SIL 2 High Demand mode, up to SIL 2 Low Demand mode, up to SIL 3 in a redundant architecture, up to SIL 1 High Demand mode	Up to SIL 2 High Demand mode, up to SIL 2 Low Demand mode
<b>Description</b>	<ul style="list-style-type: none"> <li>• Uniform torque characteristic across the entire rotation angle of 90° with the double-acting version</li> <li>• Process valve connection to ISO 5211</li> <li>• Mounting hole pattern to VDI/VDE 3845</li> <li>• Sturdy, non-slip and easy-to-clean aluminium housing</li> <li>• Long service life, low wear</li> <li>• Version with swivel angle 120°, 135°, 180° for the sizes 40, 120, 240, 480, double-acting</li> <li>• Variants with safety functions</li> <li>• To EU Explosion Protection Directive (ATEX)</li> </ul>	<ul style="list-style-type: none"> <li>• High breakaway torques</li> <li>• Flange hole pattern to ISO 5211</li> <li>• Mounting hole pattern to VDI/VDE 3845</li> <li>• Optionally with handwheel as a manual emergency override</li> <li>• Corrosion-resistant version made from stainless steel</li> <li>• To EU Explosion Protection Directive (ATEX)</li> <li>• With safety functions</li> </ul>
<b>→ Page/online</b>	368	daps

Product overview

Software-Tools

**Process Valve Automation Tool (PVA-Tool) engineering software**



User-friendly software for sizing and selecting the appropriate quarter turn actuators for automating butterfly and ball valves

The torque curve of the selected actuator will be displayed for visual confirmation. The specifications for the application can be changed at any time and the results will be automatically adjusted in line with the new requirements.

You can find the engineering software at  
 → [www.festo.com/x/engineering](http://www.festo.com/x/engineering)

Process valves ›

Ball valves



Ball valves  
VZBD



Ball valves  
VZBE






Ball valves  
VZBF

<b>Design</b>	2-way ball valve	2-way ball valve, 2-way ball valve with hand lever, 3-way ball valve, L-bore, T-bore	2-way ball valve
<b>Actuation type</b>	Mechanical	Mechanical	Mechanical
<b>Nominal width DN</b>	15, 20, 25, 32, 40, 50, 65, 80, 100	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100	15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200
<b>Process valve connection</b>	Clamp to ASME-BPE, clamp to DIN 32676 series B, weld-on end to ASME-BPE, weld-on to ISO 1127	1 NPT, 1 1/2 NPT, 1 1/4 NPT, 1/2 NPT, 1/4 NPT, 2 NPT, 2 1/2 NPT, 3 NPT, 3/4 NPT, 3/8 NPT, 4 NPT, weld-on end to ASME B16.11	Flange to ANSI B16.5 class 150
<b>Flow rate Kv</b>	13 ... 1641 m <sup>3</sup> /h	5.1 ... 1637 m <sup>3</sup> /h	8.5 ... 7816 m <sup>3</sup> /h
<b>Temperature of medium</b>	-20 ... 200°C	-20 ... 200°C	-20 ... 200°C
<b>Nominal pressure PN of process valve</b>	16	63	20
<b>Description</b>	<ul style="list-style-type: none"> <li>• Electro-polished surfaces SFV4</li> <li>• PTFE seal with only little dead space</li> <li>• The powerful ball valve for the pharmaceutical and cosmetic industries</li> <li>• FDA-compliant seal to FDA 21 CFR 177.1550</li> </ul>	<ul style="list-style-type: none"> <li>• 2-way manual, with lockable hand lever</li> <li>• 2-way and 3-way with top flange to ISO 5211, optionally with lockable hand lever</li> <li>• Stainless steel design</li> <li>• Pipe thread to ASME B1.20.1 or welded end to ASME B16.11</li> <li>• Optionally with pre-assembled hand lever</li> </ul>	<ul style="list-style-type: none"> <li>• Flange connections to ANSI B 16.5. class 150</li> <li>• Static discharge ensured</li> <li>• API 607 Fire Safe approval</li> <li>• Stainless steel design</li> <li>• Easy to service</li> <li>• Optionally with pre-assembled hand lever</li> </ul>
<b>→ Page/online</b>	<a href="#">vzbd</a>	<a href="#">vzbe</a>	<a href="#">vzbf</a>

## Process valves ›



## Ball valves

	 Ball valves VZBM	 Ball valves VZBC	 Ball valves VZBA
<b>Design</b>	2-way ball valve, 3-way ball valve, L-bore, T-bore	2-way ball valve	2-way ball valve, 3-way ball valve, L-bore, T-bore
<b>Actuation type</b>	Mechanical	Mechanical	Mechanical
<b>Nominal width DN</b>	8, 10, 15, 20, 25, 32, 40, 50	15, 20, 25, 32, 40, 50, 65, 80, 100	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100
<b>Process valve connection</b>	Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp3/4, Rp3/8	Ring housing with threaded flange	Weld-on ends/weld-on ends, Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp2 1/2, Rp3, Rp3/4, Rp3/8, Rp4
<b>Flow rate Kv</b>	5.9 ... 243 m <sup>3</sup> /h	19.4 ... 1414 m <sup>3</sup> /h	7 ... 1414 m <sup>3</sup> /h
<b>Temperature of medium</b>	-20 ... 130°C	-10 ... 200°C	-10 ... 200°C
<b>Nominal pressure PN of process valve</b>	25, 40, 50	16, 40	63
<b>Description</b>	<ul style="list-style-type: none"> <li>• Brass design</li> <li>• Pipe thread to EN 10226-1</li> </ul>	<ul style="list-style-type: none"> <li>• Automatable 2-way compact flanged ball valve</li> <li>• Stainless steel design</li> <li>• Short installed length</li> <li>• Blow-out proof shaft</li> <li>• Manual operation possible using hand lever</li> <li>• Flange to DIN 1092-1</li> <li>• Mounting flange to ISO 5211</li> <li>• Use in zones 1, 21, 2, 22</li> </ul>	<ul style="list-style-type: none"> <li>• Automatable 2-way or 3-way ball valve</li> <li>• Stainless steel design</li> <li>• Blow-out proof shaft</li> <li>• Manual operation possible using hand lever</li> <li>• Connecting thread to EN 10226-1</li> <li>• Mounting flange to ISO 5211</li> <li>• Use in zones 1, 21, 2, 22</li> </ul>
<b>→ Page/online</b>	<a href="#">vzbm</a>	<a href="#">vzbc</a>	<a href="#">vzba</a>

## Product overview


### Process valves >

## Angle seat valves

	 Angle seat valves VZXF	 Angle seat valves VZXA
<b>Design</b>	Poppet valve with piston actuator	Poppet valve with piston actuator, poppet valve with diaphragm actuator
<b>Actuator size</b>	50 mm, 80 mm	46 mm, 75 mm, 90 mm
<b>Valve function</b>	2/2-way, closed, monostable	2/2
<b>Control function</b>	Closed by spring force, NC	Closed by reduced spring force, NC, double-acting, opened by spring force, NO, closed by spring force, NC
<b>Actuation type</b>	Pneumatic	Pneumatic
<b>Nominal width DN</b>	12, 13, 16, 18, 23, 24, 29, 31, 35, 43, 45	13, 20, 25, 32, 40, 50, 65
<b>Flow rate Kv</b>	3.3 ... 43 m <sup>3</sup> /h	4.6 ... 77.9 m <sup>3</sup> /h
<b>Medium pressure [MPa]</b>	-0.09 ... 4 MPa	0 ... 3 MPa
<b>Medium pressure</b>	-0.9 ... 40 bar	0 ... 30 bar
<b>Temperature of medium</b>	-40 ... 200°C	-30 ... 200°C
<b>Nominal pressure PN of process valve</b>	16, 40	25, 40
<b>Description</b>	<ul style="list-style-type: none"> <li>• Sturdy design</li> <li>• Stainless steel and gunmetal (red brass) process valves with stainless steel, brass or aluminium actuators</li> <li>• Different actuator sizes and housing materials</li> <li>• Selection of different seat and shaft seals</li> <li>• For liquids, gases and other easily contaminated media</li> <li>• Easy-to-clean design</li> </ul>	<ul style="list-style-type: none"> <li>• Highly flexible, extremely high flow rates</li> <li>• Long service life</li> <li>• Stainless steel or Ecobross process valves with stainless steel or polymer actuators</li> <li>• Modular design</li> <li>• Hygienic design, insensitive to dirt</li> <li>• Quick and easy maintenance</li> <li>• Simple and sturdy: an ideal choice for virtually all media with a viscosity of 600 mm<sup>2</sup>/s</li> <li>• High chemical and thermal resistance</li> <li>• Sustainable in production thanks to the use of alternative materials</li> </ul>
<b>→ Page/online</b>	<a href="#">vzxf</a>	<a href="#">370</a>


### Electrically actuated directional control valves >

## Application-specific directional control valves

	 Pilot valves VOFX
<b>Design</b>	Directly actuated poppet valve
<b>Valve function</b>	3/2-way, single solenoid, closed
<b>Operating pressure</b>	-0.9 ... 8 bar
<b>Ambient temperature</b>	-10 ... 50°C
<b>Pneumatic connection 1</b>	G1/8
<b>Standard nominal flow rate</b>	50 l/min
<b>Description</b>	<ul style="list-style-type: none"> <li>• For angle seat valves VZXF and VZXA</li> <li>• Can be used wherever valve terminals are not economically or technically viable</li> <li>• Manual override, detenting</li> </ul>
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## Process valves &gt;

## Pinch valves

	
	<b>Pinch valves VZQA</b>
<b>Design</b>	Pinch valve, pneumatically actuated
<b>Actuation type</b>	Pneumatic
<b>Valve function</b>	2/2-way, monostable, closed, 2/2-way, monostable, open
<b>Nominal width DN</b>	6, 15, 25
<b>Process valve connection</b>	Clamp to ASME-BPE type A, clamp to ASME-BPE type B, clamp to DIN 32676 series A, 1 NPT, 1/2 NPT, 1/4 NPT, G1, G1/2, G1/4
<b>Flow rate Kv</b>	0.7 ... 18 m <sup>3</sup> /h
<b>Medium pressure [MPa]</b>	0 ... 0.6 MPa
<b>Medium pressure</b>	0 ... 6 bar
<b>Temperature of medium</b>	-5 ... 150°C
<b>Nominal pressure PN of process valve</b>	10
<b>Description</b>	<ul style="list-style-type: none"> <li>• Modular design</li> <li>• Quick and easy replacement of the diaphragm</li> <li>• For critical, abrasive and viscous media</li> <li>• Easy-to-clean design</li> <li>• Flow direction is freely selectable</li> <li>• Versions with end-position sensing</li> </ul>
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## Process valves &gt;




## Solenoid actuated media valves

				
	<b>Solenoid valves VZWD</b>	<b>Solenoid valves VZWF</b>	<b>Solenoid valves VZWM</b>	<b>Solenoid valves VZWP</b>
<b>Design</b>	Directly actuated poppet valve	Diaphragm valve, force pilot operated	Diaphragm valve, servo-controlled	Pilot-actuated piston poppet valve
<b>Actuation type</b>	Electrical	Electrical	Electrical	Electrical
<b>Nominal size</b>	1 ... 6 mm	13.5 ... 50 mm	13 ... 50 mm	13 ... 25 mm
<b>Process valve connection</b>	1/4 NPT, 1/8 NPT, G1/4, G1/8, NPT1/4	1 NPT, 1 1/2 NPT, 1 1/4 NPT, 1/2 NPT, 1/4 NPT, 2 NPT, 3/4 NPT, 3/8 NPT, G1, G1 1/2, G1 1/4, G1/2, G1/4, G2, G3/4, G3/8	G1, G1 1/2, G1 1/4, G1/2, G1/4, G2, G3/4, G3/8	1 NPT, 1/2 NPT, 1/4 NPT, 3/4 NPT, 3/8 NPT, G1, G1/2, G1/4, G3/4, G3/8
<b>Flow rate Kv</b>	0.06 ... 0.4 m <sup>3</sup> /h	1.8 ... 28 m <sup>3</sup> /h	1.6 ... 39 m <sup>3</sup> /h	1.5 ... 11.5 m <sup>3</sup> /h
<b>Medium pressure [MPa]</b>	0 ... 9 MPa	0 ... 1 MPa		0.05 ... 4 MPa
<b>Medium pressure</b>	0 ... 90 bar	0 ... 10 bar	0.5 ... 10 bar	0.5 ... 40 bar
<b>Temperature of medium</b>	-10 ... 80°C	-10 ... 80°C	-10 ... 60°C	-10 ... 80°C
<b>Description</b>	<ul style="list-style-type: none"> <li>• Extensive pressure range</li> <li>• Directly actuated poppet valve</li> <li>• No pressure difference required</li> <li>• Can also be used in vacuum technology</li> </ul>	<ul style="list-style-type: none"> <li>• High flow rates</li> <li>• Large nominal diameters with relatively small solenoids</li> <li>• No pressure difference required</li> <li>• Can also be used in vacuum technology</li> </ul>	<ul style="list-style-type: none"> <li>• Brass or stainless steel casting design</li> <li>• Electrical connection via solenoid armature tube</li> <li>• Wide range of coils</li> <li>• Coil can be ordered separately</li> </ul>	<ul style="list-style-type: none"> <li>• For all applications with a differential pressure of min. 0.5 bar</li> <li>• For high pressures and high flow rates with relatively small solenoids</li> <li>• For controlling gaseous and liquid media in open circuits</li> </ul>
<b>→ Page/online</b>	<b>376</b>	<b>378</b>	<b>380</b>	<b>vzwp</b>

Product overview


Process valve units >

Ball valve actuator units

	 Ball valve actuator units VZBM	 Ball valve actuator units VZBC	 Ball valve actuator units VZBA
<b>Design</b>	2-way ball valve, 3-way ball valve, quarter turn actuator	2-way ball valve, quarter turn actuator	2-way ball valve, 3-way ball valve, L-bore, quarter turn actuator, T-bore
<b>Actuation type</b>	Pneumatic	Pneumatic	Pneumatic
<b>Nominal width DN</b>	8, 10, 15, 20, 25, 32, 40, 50	15, 20, 25, 32, 40, 50, 65, 80, 100	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100
<b>Process valve connection</b>	Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp3/4, Rp3/8	Ring housing with threaded flange	Weld-on ends/weld-on ends, Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp2 1/2, Rp3, Rp3/4, Rp3/8, Rp4
<b>Flow rate Kv</b>	5.9 ... 243 m <sup>3</sup> /h	19.4 ... 1414 m <sup>3</sup> /h	7 ... 1414 m <sup>3</sup> /h
<b>Temperature of medium</b>	-20 ... 130°C	-10 ... 200°C	-10 ... 200°C
<b>Nominal pressure PN of process valve</b>	25, 40	16, 40	63
<b>Description</b>	<ul style="list-style-type: none"> <li>• Ball valve actuator unit with double-acting or single-acting quarter turn actuator DFPD</li> <li>• Brass ball valve</li> <li>• 2-way ball valve actuator unit with pipe thread to EN 10226-1</li> <li>• 3-way ball valve actuator unit with L-bore and pipe thread to EN 10226-1</li> <li>• 3-way ball valve actuator unit with T-bore and pipe thread to EN 10226-1</li> <li>• Flow is fully opened or closed in both directions</li> </ul>	<ul style="list-style-type: none"> <li>• Ball valve actuator unit with double-acting or single-acting quarter turn actuator DAPS</li> <li>• Stainless steel ball valve in compact design</li> <li>• NAMUR connection pattern for solenoid valves/ limit switch attachments to VDI/VDE 3845</li> <li>• Flow is fully opened or closed in both directions</li> <li>• Use in zones 1, 21, 2, 22</li> </ul>	<ul style="list-style-type: none"> <li>• Ball valve actuator unit with double-acting or single-acting quarter turn actuator DAPS</li> <li>• Stainless steel ball valve</li> <li>• NAMUR connection pattern for solenoid valves/ limit switch attachments to VDI/VDE 3845</li> <li>• Flow is fully opened or closed in both directions</li> <li>• Use in zones 1, 21, 2, 22</li> </ul>
<b>online: →</b>	<a href="#">382</a>	<a href="#">vzbc</a>	<a href="#">vzba</a>

## Compressed air preparation &gt; Filter regulators &gt;

## Individual devices

	 <p><b>Filter regulators PCR</b></p>
<b>Pneumatic connection 1</b>	1/4 NPT, 1/2 NPT, G1/2, G1/4, NPT1/2-14, NPT1/4-18
<b>Standard nominal flow rate</b>	1600 ... 4115 l/min
<b>Pressure regulation range</b>	0.5 ... 12 bar
<b>Operating pressure [MPa]</b>	0.1 MPa ... 2 MPa
<b>Operating pressure</b>	1 ... 20 bar
<b>Grade of filtration</b>	5 µm, 40 µm
<b>Description</b>	<ul style="list-style-type: none"> <li>• Robust housing for the specific requirements of the process automation industry</li> <li>• Suitable for use outdoors and at temperatures down to -60 °C</li> <li>• Resistant to UV radiation and corrosive environments</li> <li>• Two pressure gauge connections for different installation options</li> <li>• With manual condensate drain, rotating</li> <li>• Size 44, 64</li> <li>• Sustainable operation thanks to reduced pressure level</li> </ul>
<b>→ Page/online</b>	<b>384</b>

## Limit switch attachments SRBC



- Measuring principle: electromagnetic, magnetic reed or inductive
- Switching element function: toggle switch, single-pole (SPDT), N/C or N/O
- For DC and AC voltage
- Pre-assembled mounting adapter
- Ambient temperature  $-40^{\circ}$  ...  $+80^{\circ}$  C
- Cable connector and blanking plug included in the scope of delivery
- Selected types in accordance with ATEX directive for potentially explosive atmospheres

→ [www.festo.com/ex](http://www.festo.com/ex)

\*) Electrical output: 1WG

## Order code

001	002	003	004	005	006	007	008	009	010	011
SRBC	C		YR	90						

Legend:  Mandatory entry  Optional entry

<b>001</b>	<b>Type</b>
SRBC	Limit switch attachment
<b>002</b>	<b>Design</b>
C	Sensor box
<b>003</b>	<b>Mechanical interface</b>
A3	Mounting adapter, hole pattern 30x80 mm, shaft height 20 mm
A4	Flexible mounting adapter (30x80 mm and 30x130 mm, shaft height 20 mm in each case)
A5	EN ISO 5211/F05 (without mounting adapter)
<b>004</b>	<b>Display type</b>
YR	Position indicator yellow/red
<b>005</b>	<b>Measuring range</b>
90	0 ... 90°
<b>006</b>	<b>Sensor principle</b>
N	Proximity switch, inductive
R	Reed with contact
MW	Floating contact, changeover switch
<b>007</b>	<b>Nominal operating voltage</b>
1	24 V DC
2A	110 V AC, 50-60 Hz
20N	8.2 V DC, NAMUR
22A	250 V AC

<b>008</b>	<b>Electrical output 1</b>
1W	1-pin toggle switch
1WG	1-pin toggle switch (gold contact)
ZC	2-wire N/C contact
ZU	2-wire N/O
P	PNP
N	NPN
<b>009</b>	<b>Electrical connection</b>
C2	Screw terminal
M12	M12 plug, A-coded
<b>010</b>	<b>Cable connector</b>
-	None
P20	M20x1.5, polymer
<b>011</b>	<b>EU certification</b>
-	Without
EX6	II 1 GD



Configurable product

This product and all its product options can be ordered online via the configurator:

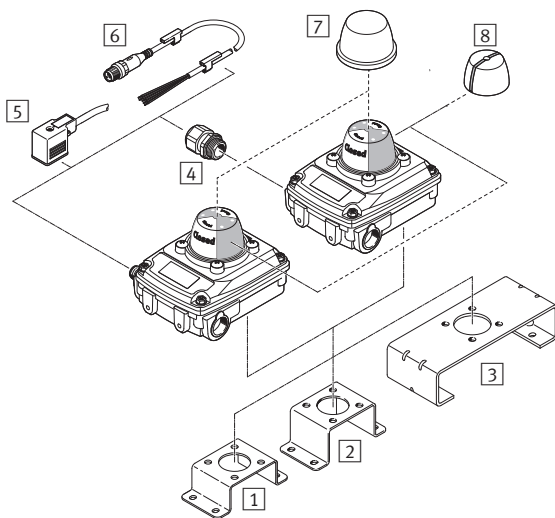
→ [www.festo.com/catalogue/srbc](http://www.festo.com/catalogue/srbc)



## Ordering

007 Nominal operating voltage	008 Electrical output	009 Electrical connection	010 Cable conduit fitting	011 EU certification	Type	Part no.
<b>006 Proximity switch, inductive</b>						
003 Mounting adapter, hole pattern 30x80 mm, shaft height 20 mm						
8.2 V DC, NAMUR	2-wire N/C	Screw terminal	M20x1.5, polymer	–	SRBC-CA3-YR90-N-20N-ZC-C2P20	3482806
8.2 V DC, NAMUR	2-wire N/C	Screw terminal	M20x1.5, polymer	II2GD	SRBC-CA3-YR90-N-20N-ZC-C2P20-EX6	3482807
24 V DC	PNP	Screw terminal	M20x1.5, polymer	–	SRBC-CA3-YR90-N-1-P-C2P20	3482808
24 V DC	NPN	Screw terminal	M20x1.5, polymer	–	SRBC-CA3-YR90-N-1-N-C2P20	3482809
24 V DC	2-wire N/O	Screw terminal	M20x1.5, polymer	–	SRBC-CA3-YR90-N-1-ZU-C2P20	3482810
8.2 V DC, NAMUR	2-wire N/C	M12 plug, A-coded	–	–	SRBC-CA3-YR90-N-20N-ZC-M12	8137100
24 V DC	PNP	M12 plug, A-coded	–	–	SRBC-CA3-YR90-N-1-P-M12	8137101
003 Flexible mounting adapter (30x80 mm and 30x130 mm, shaft height 20 mm in each case)						
8.2 V DC, NAMUR	2-wire N/C	Screw terminal	–	II2GD	SRBC-CA4-YR90-N-20N-ZC-C2-EX6	8137096
24 V DC	PNP	Screw terminal	–	–	SRBC-CA4-YR90-N-1-P-C2	8137097
003 Mechanical interface to EN ISO 5211/F05 (without mounting adapter)						
8.2 V DC, NAMUR	2-wire N/C	Screw terminal	–	II2GD	SRBC-CA5-YR90-N-20N-ZC-C2-EX6	8137105
24 V DC	PNP	Screw terminal	M20x1.5, polymer	–	SRBC-CA5-YR90-N-1-P-C2	8137106
<b>006 Electromechanical and contacting reed</b>						
003 Mounting adapter, hole pattern 30x80 mm, shaft height 20 mm						
110 V AC, 50-60 Hz	1-pin toggle switch	Screw terminal	M20x1.5, polymer	–	SRBC-CA3-YR90-R-2A-1W-C2P20	3482811
<b>006 Floating contact, changeover switch</b>						
003 Mounting adapter, hole pattern 30x80 mm, shaft height 20 mm						
250 V AC	1-pin toggle switch	Screw terminal	M20x1.5, polymer	–	SRBC-CA3-YR90-MW-22A-1W-C2P20	3482805
24 V DC	1-pin toggle switch (gold contact)	Screw terminal	–	II2GD	SRBC-CA3-YR90-MW-1-1WG-C2-EX6	8137093
24 V DC	1-pin toggle switch	M12 plug, A-coded	–	–	SRBC-CA3-YR90-MW-1-1W-M12	8137098
24 V DC	1-pin toggle switch (gold contact)	M12 plug, A-coded	–	–	SRBC-CA3-YR90-MW-1-1WG-M12	8137099
003 Flexible mounting adapter (30x80 mm and 30x130 mm, shaft height 20 mm in each case)						
250 V AC	1-pin toggle switch	Screw terminal	–	–	SRBC-CA4-YR90-MW-22A-1W-C2	8137094
24 V DC	1-pin toggle switch (gold contact)	Screw terminal	–	II2GD	SRBC-CA4-YR90-MW-1-1WG-C2-EX6	8137095
24 V DC	1-pin toggle switch	M12 plug, A-coded	–	–	SRBC-CA4-YR90-MW-1-1W-M12	8137102
003 Mechanical interface to EN ISO 5211/F05 (without mounting adapter)						
250 V AC	1-pin toggle switch	Screw terminal	–	–	SRBC-CA5-YR90-MW-22A-1W-C2	8137103
24 V DC	1-pin toggle switch (gold contact)	Screw terminal	M20x1.5, polymer	II2GD	SRBC-CA5-YR90-MW-1-1WG-C2-EX6	8137104

## Accessories



- 1 Mounting adapter for mounting on standard actuators in accordance with VDI/VDE 3845  
DARQ-K-X1-A1-F05-20-R1<sup>1)</sup>  
→ 359
  - 2 Mounting adapter for mounting on standard actuators in accordance with VDI/VDE 3845  
DARQ-K-X1-A1-F05-30-R1  
→ 359
  - 3 Mounting adapter for mounting on standard actuators in accordance with VDI/VDE 3845  
DARQ-K-X1-A2-F05-30-R1  
→ 359
  - 4 Cable connector  
NETC-P-M20<sup>1)</sup> → [srbc](#)
  - 5 Connecting cables for valve connection for limit switch attachment with terminal rail connection  
NEBV → [srbc](#)
  - 6 Connecting cable NEBU → [srbc](#)
  - 7 Safety guard SACC → [srbc](#)
  - 8 Position indicator SASF → [srbc](#)
- 1) Included in the scope of delivery of the limit switch attachment.

1 Mounting adapter DARQ-K-X1-A1-F05-20-R1			
Hole pattern actuator outlet	Height [mm]	Type	Part no.
30x80 mm	20	DARQ-K-X1-A1-F05-20-R1	3636269

2 Mounting adapter DARQ-K-X1-A1-F05-30-R1			
Hole pattern actuator outlet	Height [mm]	Type	Part no.
30x80 mm	30	DARQ-K-X1-A1-F05-30-R1	3636270

3 Mounting adapter DARQ-K-X1-A1-F05-20-R1			
Hole pattern actuator outlet	Height [mm]	Type	Part no.
30x130 mm	30	DARQ-K-X1-A2-F05-30-R1	3886114

## Limit switch attachments SRBG



SRBG...-M12



SRBG...-C2

- Inductive double sensor
- Direct mounting on quarter turn actuators to VDI/VDE 3845
- No adjustment is necessary when mounting the sensor
- Suitable for clockwise and anticlockwise rotating actuators in the setting range 0 ... 180°
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001 002 003 004 005 006 007 008  
**SRBG** - **C1** - **N** - **1** -  -  -  -

Legend:  Mandatory entry  Optional entry

001	Type
SRBG	Limit switch attachment
002	Design
C1	Dual sensor
003	Sensor principle
N	Proximity switch, inductive
004	Nominal operating voltage
1	24 V DC
005	Electrical output 1
P	PNP
ZU	2-wire N/O
AS	AS-Interface®

006	Electrical connection
C2	Screw terminal
M12	M12x1 plug, A-coded
007	Electrical connection, valve
-	Without
C2	Screw terminal
M12	M12 plug, A-coded
008	EU certification
-	None

## Product options

Nominal operating voltage  
 • 8.2 V DC, NAMUR

Electrical output  
 • 2-wire N/C

EU certification  
 • II1G

Configurable product

This product and all its product options can be ordered online via the configurator:

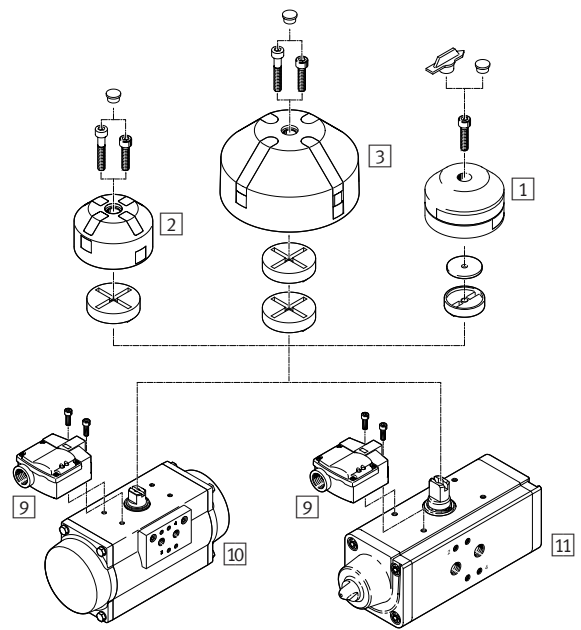
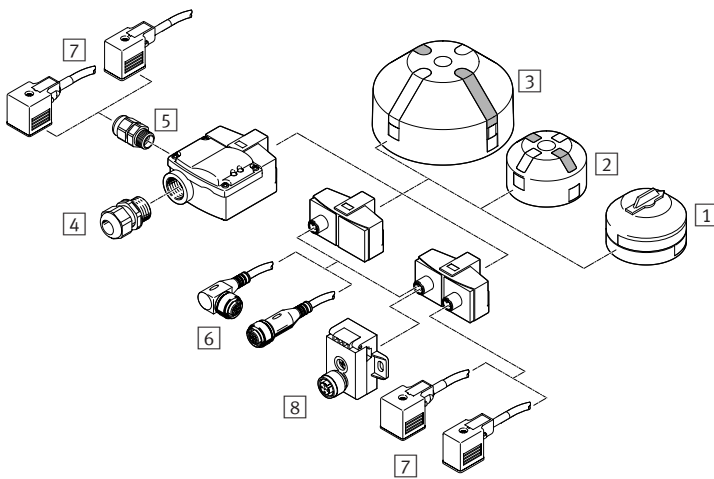
→ [www.festo.com/catalogue/srbg](http://www.festo.com/catalogue/srbg)

## Ordering – Basic design

006 Limit switch attachment with plug M12		
005 Electrical output	Type	Part no.
PNP	SRBG-C1-N-1-P-M12	3568055
2-wire N/O	SRBG-C1-N-1-ZU-M12	3568056
AS-Interface®	SRBG-C1-N-1-AS-M12-M12	3567908

006 Limit switch attachment with screw terminal		
005 Electrical output	Type	Part no.
PNP	SRBG-C1-N-1-P-C2-C2	3568165
2-wire N/O	SRBG-C1-N-1-ZU-C2-C2	3568166

Accessories



- 1 Position indicator SASF-S2...-A20 → 361
- 2 Position indicator SASF-S2...-A34 → 361
- 3 Position indicator SASF-S2...-A56 → 361
- 4 Cable connector NETC-P-M20 → 361
- 5 Cable connector NETC-P-M12 → 361
- 6 Connecting cables NEBU-M12 → 361
- 7 Connecting cables NEBV → [srbg](#)
- 8 AS-Interface components → [srbg](#)
- 9 Limit switch box SRBG
- 10 Quarter turn actuators DFPD → 368
- 11 Quarter turn actuators DAPS → [daps](#)

1 / 2 / 3 Position indicator SASF

- With four fixed actuating lugs offset by 90° or two adjustable metal bands around the circumference
- Mounting on drive shaft of standard actuators in accordance with VDI/VDE 3845

Setting range of swivel angle	Type	Part no.
-------------------------------	------	----------

<b>1 Position indicator SASF-... -A20</b> With adjustable actuating lug		
0 ... 360°	SASF-S2-B-V-A20	8140395
<b>2 Position indicator SASF-... -A34</b>		
0 ... 90°	SASF-S2-B-F-A34	4046082
<b>3 Position indicator SASF-... -A56</b>		
0 ... 90°	SASF-S2-B-F-A56	4077125

Possible combinations of quarter turn actuator and position indicator SASF

Quarter turn actuator	Size	2 SASF-S2-B-F-A34	3 SASF-S2-B-F-A56
-----------------------	------	-------------------	-------------------

<b>Double-acting</b>			
DFPD → 368	10 ... 480	■	-
DAPS → <a href="#">daps</a>	0015 ... 1920	■	-
DAPS → <a href="#">daps</a>	2880 ... 8000	-	■
DAPS-CR → <a href="#">daps</a>	0120 ... 0480	■	-
<b>Single-acting</b>			
DFPD → 368	20 ... 480	■	-
DAPS → <a href="#">daps</a>	0015 ... 0960	■	-
DAPS → <a href="#">daps</a>	1440 ... 4000	-	■
DAPS-CR → <a href="#">daps</a>	0060 ... 0240	■	-

4 / 5 Cable connectors NETC

Description	Type	Part no.
<b>4 Cable connectors NETC-P-M20</b>		
M20x1.5 made from polymer	NETC-P-M20	4464895
<b>5 Cable connectors NETC-P-M12</b>		
M12x1.5 made from polymer	NETC-P-M12	4197367

6 Connecting cable NEBU

Cable length	Connection, right	Type	Part no.
Connection, left: straight socket, M12x1, 5-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M12G5-K-2.5-LE4.5LE4	550326
5 m		NEBU-M12G5-K-5-LE4	541328
Connection, left: angled socket, M12x1, 5-pin			
2.5 m	Cable, open end, 4-wire	NEBU-M12W5-K-2.5-LE4	550325
5 m		NEBU-M12W5-K-5-LE4	541329

## Positioners CMSX



- Positioners for single-acting and double-acting pneumatic quarter turn actuators and double-acting linear actuators in process automation systems
- High process reliability thanks to analogue and digital feedback signals
- Fail-safe or fail-in-place safety function
- Extremely energy-efficient: no internal air consumption at rest
- For automated butterfly valves, ball valves, bulk goods deflectors, etc.

## Order code

001    002    003    004    005    006    007    008    009  
**CMSX** - **P** -  - **C** - **U** - **F1** -  -  -

Legend:  Mandatory entry

001	Type
<b>CMSX</b>	Positioner, for process automation
002	Product version
<b>P</b>	Primarily polymers
003	Design
<b>S</b>	Positioner, integrated displacement/angle detection
<b>SE</b>	Positioner, external displacement/angle detection
004	Display type
<b>C</b>	LCD, backlit
005	Setpoint value
<b>U</b>	Configurable (0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA)
006	Position feedback
<b>F1</b>	4 ... 20 mA

007	Function
<b>D</b>	Double-acting
<b>S</b>	Single-acting
008	Flow rate
<b>50</b>	50 l/min
<b>130</b>	130 l/min
009	Safety function
<b>A</b>	Opening or closing in the event of system failure <sup>1)</sup>
<b>C</b>	Holding position in the event of system failure <sup>1)</sup>

1) Failure of the operating voltage supply or the setpoint specification.

## Ordering

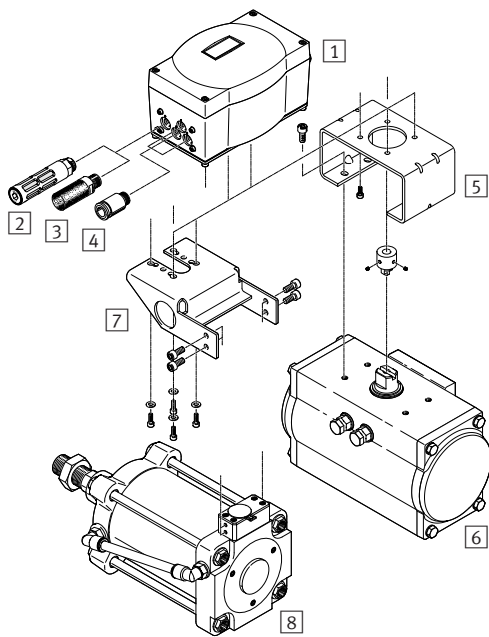
003 Design	007 Function	008 Flow rate	009 Safety function	Type	Part no.
Positioner, integrated displacement/angle detection	Single-acting	50 l/min	Can be set to opening or closing in the event of system failure <sup>1)</sup>	<b>CMSX-P-S-C-U-F1-S-50-A</b>	<b>3929370</b>
	Double-acting	50 l/min		<b>CMSX-P-S-C-U-F1-D-50-A</b>	<b>3929313</b>
Positioner, external displacement/angle detection		130 l/min		<b>CMSX-P-SE-C-U-F1-D-130-A</b>	<b>3929539</b>
		130 l/min		<b>CMSX-P-S-C-U-F1-D-130-A</b>	<b>3929312</b>
Positioner, integrated displacement/angle detection	Single-acting	130 l/min	Holding position in the event of system failure <sup>1)</sup>	<b>CMSX-P-S-C-U-F1-S-130-A</b>	<b>3929369</b>
	Double-acting	130 l/min		<b>CMSX-P-S-C-U-F1-D-130-C</b>	<b>3929314</b>
Positioner, external displacement/angle detection		50 l/min		<b>CMSX-P-S-C-U-F1-D-50-C</b>	<b>3929315</b>
		130 l/min		<b>CMSX-P-SE-C-U-F1-D-130-C</b>	<b>3929540</b>

1) Failure of the operating voltage supply or the setpoint specification.

Combinations <sup>2)</sup> of positioners and actuators			
Positioners CMSX	Quarter turn actuator DFDP → 368	Quarter turn actuator DAPS → <b>daps</b>	Linear actuator DFPI → <b>dfpi</b>
008 Flow rate	Size	Size	Piston Ø
50 l/min	≤160	≤180	–
130 l/min	≥240	≥240	≥100


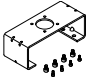
2) The precise selection of the positioner for the actuator is dependent on the specific application. Please consult your local Festo contact.

## Accessories

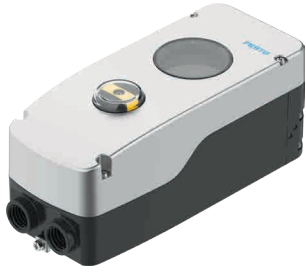


- 1 Positioner CMSX → 362
- 2 Silencer U, polymer, male thread → 343
- 3 Silencer UC, for reducing noise at valve exhaust ports → [uc](#)
- 4 Push-in fitting QS → 319
- 5 Mounting adapter DARQ, for mounting on standards-based actuators according to VDI/VDE 3845 → 363
- 6 Quarter turn actuator DFPD → 368
- 7 Adapter kit DADG, for direct mounting of a positioner on the linear actuator DFPI → [dadg](#)
- 8 Linear actuator DFPI → [dfpi](#)

## 5 Mounting adapter DARQ

	Size	Type	Part no.
	AA 1 to VDI/VDE 3845	DARQ-K-P-A1-F05-20-R1	2197135
	AA 2 to VDI/VDE 3845	DARQ-K-P-A1-F05-30-R1	2197136

## Valve positioners CMSH



- Highly dynamic positioning system with high air output for fast and precise control of both small and large actuators without additional instruments
- Large display with plain text and rotatable reading direction for ease of operation
- Fail-safe or fail-in-place safety function
- Low internal air consumption
- Setup wizard for efficient and easy commissioning

### Order code

001 002 003 004 005 006 007 008 009 010 011 012  
 CMSH - - - - AL - C1 - HA - -

001	Type
CMSH	Positioner for process automation
002	Design
S	Positioner, integrated displacement/angle detection
SE	Positioner, external displacement/angle detection
003	Mechanical interface
V	Prepared for sub-base
VDE1	VDI/VDE 3845
004	Function
D	Double-acting
S	Single-acting
SD	Double-acting/single-acting, switchable
005	Safety position
-	None
A	Exhausting
006	Housing material
AL	Aluminium

007	Pneumatic connection
-	Without
G14	G1/4
N14	1/4NPT
008	Electrical connection
C1	Spring-loaded terminal
009	Connecting thread
M20	M20
N12	1/2NPT
010	Bus protocol/activation
HA	HART
011	I/O variant
-	None
012	Pressure gauge connection
-	None

Legend:  Mandatory entry  Optional entry

### Product options

Mechanical interface  
 • VDI/VDE 3847-2

Safety position  
 • Holding the last position

I/O variant  
 • 1A0, 1DI and 2DO

Pressure gauge connection  
 • Prepared

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

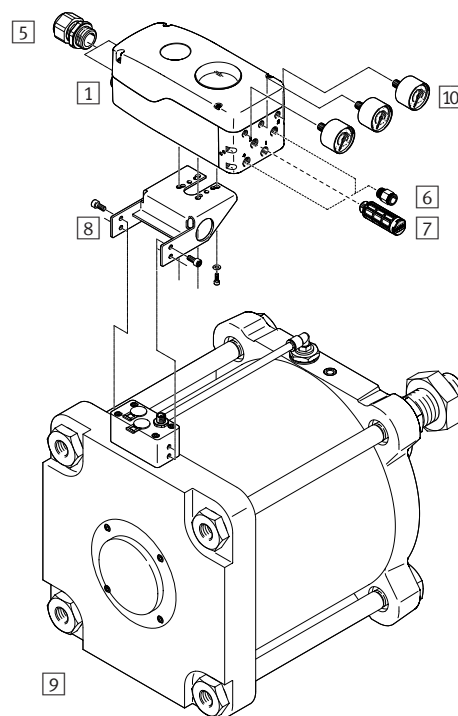
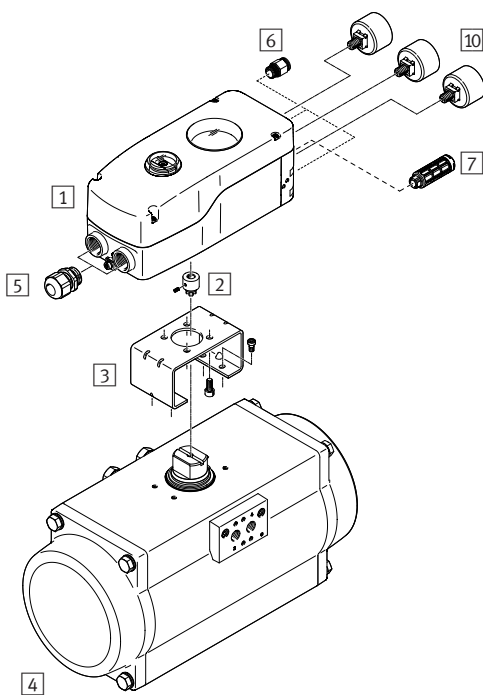
Enter the part number or the type.

Part no.	Type
8148076	CMSH

## Ordering

002 Design	003 Mechanical interface	004 Function	005 Safety position	007 Pneumatic connection	Type	Part no.
Positioner, integrated displacement/angle detection	VDI/VDE 3845	Single-acting	Exhausting	G1/4	<b>CMSH-S-VDE1-S-A-AL-G14-C1M20-HA</b>	<b>8097412</b>
	VDI/VDE 3845	Single-acting	Exhausting	1/4NPT	<b>CMSH-S-VDE1-S-A-AL-N14-C1N12-HA</b>	<b>8097413</b>
	VDI/VDE 3845	Double-acting	Exhausting	G1/4	<b>CMSH-S-VDE1-D-A-AL-G14-C1M20-HA</b>	<b>8097420</b>
	VDI/VDE 3845	Double-acting	Exhausting	1/4NPT	<b>CMSH-S-VDE1-D-A-AL-N14-C1N12-HA</b>	<b>8097421</b>
Positioner, external displacement/angle detection	VDI/VDE 3845	Double-acting	Exhausting	G1/4	<b>CMSH-SE-VDE1-D-A-AL-G14-C1M20-HA</b>	<b>8097423</b>
Positioner, integrated displacement/angle detection	Prepared for sub-base	Convertible	-	-	<b>CMSH-S-V-SD-AL-C1M20-HA</b>	<b>8097425</b>
			-	-	<b>CMSH-S-V-SD-AL-C1N12-HA</b>	<b>8097426</b>

## Accessories

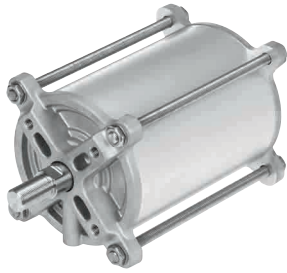


- 1 Positioner CMSH
- 2 Coupling CAFM-M1-CK-N1 → [cmsh](#)
- 3 Mounting adapter CAFM-M1-K-N1 → 365
- 4 Quarter turn actuator DFPD → 368
- 5 Cable connector NETC-P-M20 → [cmsh](#)
- 6 Push-in fitting QS → 319
- 7 Silencer  
AMTE, metal design → 342  
U, polymer, male thread → 343
- 8 Adapter kit DADG, for direct mounting of a positioner on the linear actuator DFPI → [dfpi](#)
- 9 Linear actuator DFPI → [dfpi](#)
- 10 Pressure gauge PAGN, MA → [cmsh](#)

3 Mounting adapter CAFM-M1-K-N1			
For quarter turn actuators with interface to VDI/VDE 3845			
	Size	Type	Part no.
	30x80, height 20 mm	<b>CAFM-M1-K-N1-AA1</b>	<b>8148117</b>
	30x80, height 30 mm	<b>CAFM-M1-K-N1-AA2</b>	<b>8148118</b>
	30x130, height 30 mm	<b>CAFM-M1-K-N1-AA3</b>	<b>8148119</b>
	30x130, height 50 mm	<b>CAFM-M1-K-N1-AA4</b>	<b>8148120</b>

Actuators >

## Linear actuators DFPC



- Sturdy tie rod design
- Sizes Ø80 ... Ø320 mm
- Stroke length 10 ... 1600 mm
- Mounting interface in accordance with ISO 5210 or ISO 15552, with extended tie rods
- Operating pressure 0.06 ... 0.8 MPa, 0.6 ... 8 bar
- Ambient temperature -20 ... +80 °C
- Selected types in accordance with ATEX directive for potentially explosive atmospheres

→ [www.festo.com/ex](http://www.festo.com/ex)

### Order code

001 002 003 004 005 006 007 008 009 010 011 012  
 DFPC - [ ] - [ ] - D - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

001	Type
DFPC	Linear actuator
002	Piston Ø [mm]
...	80, 100, 125, 160, 200, 250, 320
003	Stroke [mm]
...	50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400
004	Function
D	Double-acting
005	Piston rod thread type
-	Male thread
006	Housing surface treatment
-	Without
007	EU certification
-	None

008	Piston rod extension
-	Without
009	Piston rod thread extension
-	Without
010	Piston rod thread shortener
-	Without
011	Piston rod thread
-	Standard
012	Thread length of spacer bolts on the bearing cap
-	Without

Legend:  Mandatory entry  Optional entry

### Product options

Variable stroke  
 ... 10 ... 1600 mm

Piston rod thread extension  
 ...L 0 ... 70 mm

Piston rod thread  
 M16, M16x1.5, M20, M20x1.5, M24, M24x1.5, M27, M27x2, M30, M30x2, M36, M36x2, M42, M42x2, M48, M48x2

Thread length of spacer bolts on the bearing cap  
 ...LB2 10 ... 140 mm

EU certification  
 EX4 II 2GD

Piston rod thread shortening  
 ...S 1 ... 74 mm

Piston rod extension  
 ...E 1 ... 500 mm

#### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type	Part no.	Type
8110796	DFPC-80-...	8133072	DFPC-200-...
8110785	DFPC-100-...	8141420	DFPC-250-...
8110797	DFPC-125-...	8141421	DFPC-320-...
8133065	DFPC-160-...		

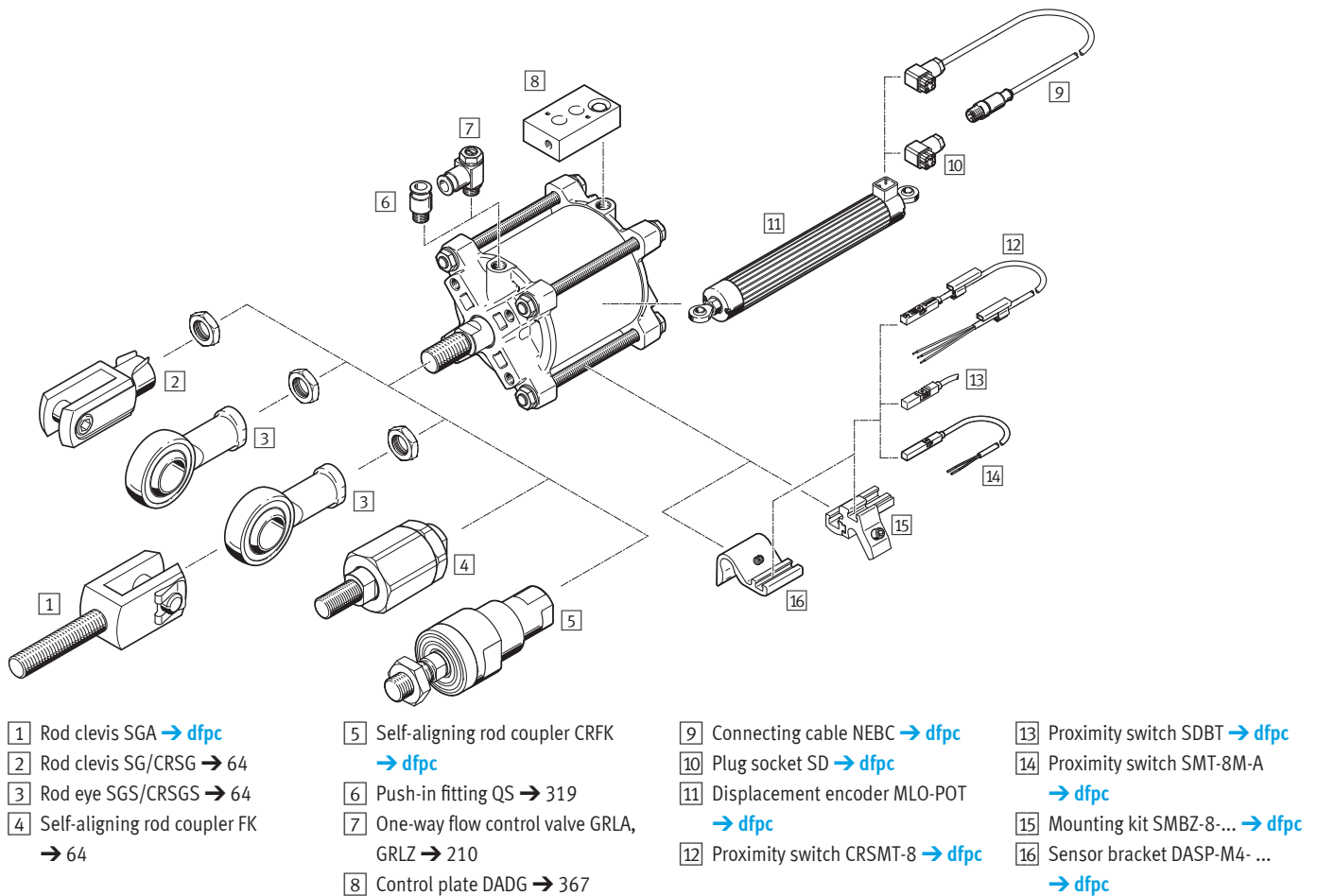


## Ordering

002 Piston Ø [mm]	003 Stroke [mm]	Type	Part no.
Double-acting linear actuator with cushioning at both ends			
80	50	DFPC-80-50-D	8110815
	65	DFPC-80-65-D	8110817
	80	DFPC-80-80-D	8110816
100	80	DFPC-100-80-D	8110777
	100	DFPC-100-100-D	8110776
	125	DFPC-100-125-D	8110775
125	100	DFPC-125-100-D	8110773
	125	DFPC-125-125-D	8110774
	150	DFPC-125-150-D	8110772

002 Piston Ø [mm]	003 Stroke [mm]	Type	Part no.
Double-acting linear actuator with cushioning at both ends			
160	150	DFPC-160-150-D	8133079
	200	DFPC-160-200-D	8133080
	250	DFPC-160-250-D	8133081
	300	DFPC-160-300-D	8133082
200	300	DFPC-200-300-D	8133104
	350	DFPC-200-350-D	8133105
	400	DFPC-200-400-D	8133106

## Accessories



- 1 Rod clevis SGA → dfpc
- 2 Rod clevis SG/CRSG → 64
- 3 Rod eye SGS/CRSGS → 64
- 4 Self-aligning rod coupler FK → 64

- 5 Self-aligning rod coupler CRFK → dfpc
- 6 Push-in fitting QS → 319
- 7 One-way flow control valve GRLA, GRLZ → 210
- 8 Control plate DADG → 367

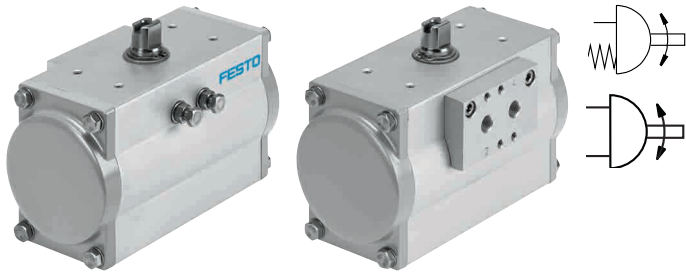
- 9 Connecting cable NEBC → dfpc
- 10 Plug socket SD → dfpc
- 11 Displacement encoder MLO-POT → dfpc
- 12 Proximity switch CRSMT-8 → dfpc

- 13 Proximity switch SDBT → dfpc
- 14 Proximity switch SMT-8M-A → dfpc
- 15 Mounting kit SMBZ-8-... → dfpc
- 16 Sensor bracket DASP-M4-... → dfpc

8 Control plate, NAMUR DADG		
Pneumatic connection	Type	Part no.
For mounting a valve to VDI/VDE 3845 (NAMUR) using a hollow bolt		
G1/8	DADG-FM-VDE1G18	8131546
G1/4	DADG-FM-VDE1G14	8131548

Actuators >

## Quarter turn actuators DFPD



- Suitable for the automation of butterfly valves, ball valves and air dampers
- Also suitable for water/wastewater, beverage and pharmaceutical industries as well as process automation
- Size 10 ... 2300
- Torque 10 ... 2200 Nm
- Swivel angle 90°, 120°, 135°, 180°
- Flange hole pattern to ISO 5211
- Port pattern to NAMUR VDI/VDE 3845 for mounting solenoid valves, position sensors and positioners

### Order code – Basic design

001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016
DFPD				RP		90	R								

001	Type
DFPD	Quarter turn actuator
002	System of units
-	Metric
003	Version
-	Standard
004	Size
...	10, 20, 40, 80, 120, 160, 240, 300, 480, 700, 900, 1200, 2300
005	Design
RP	Rack and pinion
006	Yoke type
-	None
007	Swivel angle
90	90°
008	Swivel direction
R	To the right
009	Function
D	Double-acting
S	Single-acting
010	Spring force
-	None
60	For connection pressure 6 bar

011	Flange pattern 1
F03	Hole pattern F03
F04	Hole pattern F04
F05	Hole pattern F05
F07	Hole pattern F07
F10	Hole pattern F10
F12	Hole pattern F12
F14	Hole pattern F14
012	Flange pattern 2
-	None
07	Hole pattern F07
10	Hole pattern F10
12	Hole pattern F12
16	Hole pattern F16
013	Manual override
-	None
014	Temperature range
-	Standard
015	Shaft material
-	Standard
016	Housing surface treatment
-	None

Legend:  Mandatory entry     Optional entry

### Product options

#### System of units

- Imperial
- System of units
- 120°, 135°, 180°
- 0 ... 180°

#### Swivel direction

- To the left
- Swivel angle
- For connection pressure 2 ... 5.5 bar

#### Temperature range

- 0 ... +150° C
- -50 ... +60° C

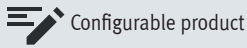
#### Shaft material

- Stainless steel

#### Housing surface treatment

- Epoxy-coated
- DFPD-C
- Version for use in chemical and petrochemical plants

## Ordering – Product options



Configurable product

This product and all its product options can be ordered online via the configurator:

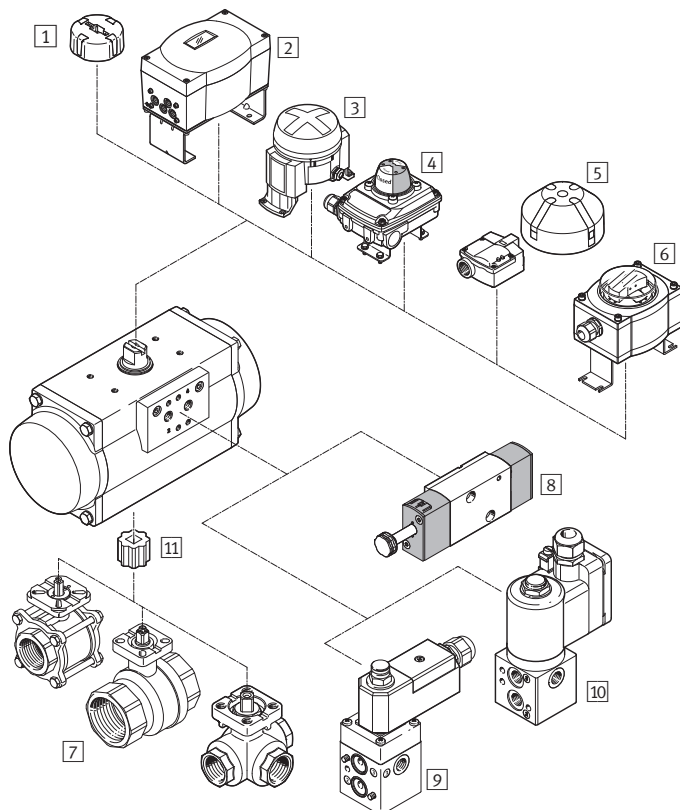
→ [www.festo.com/catalogue/dfpd](http://www.festo.com/catalogue/dfpd)

## Ordering – Basic design

004 Size	Type	Part no.
<b>009 Quarter turn actuators DFPD, single-acting</b>		
10	–	
20	DFPD-20-RP-90-RS60-F04	8047622
	DFPD-20-RP-90-RS60-F05	8048015
40	DFPD-40-RP-90-RS60-F0507	8047624
80	DFPD-80-RP-90-RS60-F0507	8047626
120	DFPD-120-RP-90-RS60-F0507	8048134
160	DFPD-160-RP-90-RS60-F0710	8048136
240	DFPD-240-RP-90-RS60-F0710	8048138
300	DFPD-300-RP-90-RS60-F0710	8048140
480	DFPD-480-RP-90-RS60-F1012	8048142
700	DFPD-700-RP-90-RS60-F1012	8065262
900	DFPD-900-RP-90-RS60-F14	8065266
1200	DFPD-1200-RP-90-RS60-F14	8065270
2300	DFPD-2300-RP-90-RS60-F1216	8065274

004 Size	Type	Part no.
<b>009 Quarter turn actuators DFPD, double-acting</b>		
10	DFPD-10-RP-90-RD-F03	8047613
	DFPD-10-RP-90-RD-F04	8048010
20	DFPD-20-RP-90-RD-F04	8047614
40	DFPD-40-RP-90-RD-F0507	8047615
80	DFPD-80-RP-90-RD-F0507	8047616
120	DFPD-120-RP-90-RD-F0507	8048123
160	DFPD-160-RP-90-RD-F0710	8048124
240	DFPD-240-RP-90-RD-F0710	8048125
300	DFPD-300-RP-90-RD-F0710	8048126
480	DFPD-480-RP-90-RD-F1012	8048127
700	DFPD-700-RP-90-RD-F1012	8065261
900	DFPD-900-RP-90-RD-F14	8065265
1200	DFPD-1200-RP-90-RD-F14	8065269
2300	DFPD-2300-RP-90-RD-F1216	8065273

## Accessories



- 1 Position indicator SASF → [dfpd](#)
- 2 Positioner CMSX → 362
- 3 Limit switch attachment DAPZ → [dapz](#)
- 4 Limit switch attachment SRBC → 358
- 5 Limit switch attachment SRBG with position indicator SASF → 360
- 6 Limit switch attachment SRAP → [srp](#)
- 7 Ball valve VAPB → [vapb](#)  
Ball valve VZBA → [vzba](#)
- 8 Solenoid valve VSNC → 173
- 9 Solenoid valve VOFC → [vofc](#)
- 10 Solenoid valve VOFD → [vofd](#)
- 11 Reducing sleeve DARQ → [dfpd](#)

Process valves >

## Angle seat valves VZXA



- Suitable for virtually all media
- High chemical and thermal resistance
- Modular design
- Hygienic design, insensitive to dirt
- Long service life
- Quick and easy maintenance
- High flow rates can be achieved
- Selected types in accordance with ATEX directive for potentially explosive atmospheres

→ [www.festo.com/ex](http://www.festo.com/ex)

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017  
 VZXA - [ ] - [ ] - T - [ ] - [ ] - [ ] - T - [ ] - K - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

001	Type		
VZXA	Process valve		
002	Flow direction		
A	Over valve seat, for gaseous media		
B	Under valve seat, for gaseous and liquid media		
003	Control of the medium		
-	On/off operation		
004	Cable connection		
T	Threaded collar		
005	Connection standard		
S6	DIN ISO 228-1		
S7	ANSI/ASME B 1.20.1		
006	Connection size	006	Connection size
1/2"	1/2"	13	DN13
3/4"	3/4"	20	DN20
1"	1"	25	DN25
1 1/4"	1 1/4"	32	DN32
007	Temperature of medium		
M2	-10 ... +180°C		
M6	-10 ... +60 °C		
008	Valve housing material		
V13	Stainless steel 1.4409		
V14	Stainless steel ASTM A351-CF3M		
B1	Brass		
009	Seat seal material		
T	PTFE		

010	Medium pressure
4.4	0 ... 4.4 bar
8.3	0 ... 8.3 bar
12.8	0 ... 12.8 bar
16	0 ... 16 bar
23	0 ... 23 bar
30	0 ... 30 bar
011	Actuator
K	Piston actuator
012	Actuator size
46	46 mm
75	75 mm
013	Stroke
17	17 mm
20	20 mm
014	Control function
-	Closed via spring force, NC
PR	Closed via reduced spring force, NC
015	Position sensing
-	Via mechanical indicator
016	Actuator housing material
V4	Stainless steel 1.4408
PM	Polymer
017	EU certification
-	None

Legend: [ ] Mandatory entry [ ] Optional entry

### Product options

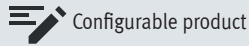
- Connection standard
- Rc thread to DIN 10226
  - Connection sizes
  - DN40, DN50, DN65
  - 1 1/2", 2"

- Temperature of medium
- -30 ... +200 °C
- Seat seal material
- PTFE modified
- Medium pressure
- 4 ... 25 bar

- Actuator
- Diaphragm actuator
- Actuator size
- 90 mm
- Stroke
- 26 mm

- Control function
- Double-acting
  - Opened via spring force, NO
- EU certification
- II 2GD

## Ordering – Product options



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no. Type  
3539410 VZXA

## Ordering – Basic design

**Angle seat valve with stainless steel piston actuator**

002 Flow direction below the valve seat, for gaseous and liquid media

006 Connection size	Type	Part no.	006 Connection size	Type	Part no.
007 Temperature of medium –10 ... +180 °C					
012 Actuator size 46 mm					
013 Stroke 17 mm					
005 Connection standard DIN ISO 228-1		005 Connection standard ANSI/ASME B 1.20.1		008 Valve housing: Stainless steel ASTM A351-CF3M	
008 Valve housing: Stainless steel 1.4409		008 Valve housing: Stainless steel ASTM A351-CF3M			
DN13	VZXA-B-TS6-13-M2-V13T-30-K-46-17-V4	8060527	1/2"	VZXA-B-TS7-1/2"-M2-V14T-30-K-46-17-V4	8060541
DN20	VZXA-B-TS6-20-M2-V13T-12.8-K-46-17-V4	8060528	3/4"	VZXA-B-TS7-3/4"-M2-V14T-12.8-K-46-17-V4	8060542
DN25	VZXA-B-TS6-25-M2-V13T-8.3-K-46-17-V4	8060530	1"	VZXA-B-TS7-1"-M2-V14T-8.3-K-46-17-V4	8060544
007 Temperature of medium –10 ... +180 °C					
012 Actuator size 75 mm					
013 Stroke 20 mm					
005 Connection standard DIN ISO 228-1		005 Connection standard ANSI/ASME B 1.20.1		008 Valve housing: Stainless steel ASTM A351-CF3M	
008 Valve housing: Stainless steel 1.4409		008 Valve housing: Stainless steel ASTM A351-CF3M			
DN20	VZXA-B-TS6-20-M2-V13T-30-K-75-20-V4	8060529	3/4"	VZXA-B-TS7-3/4"-M2-V14T-30-K-75-20-V4	8060543
DN25	VZXA-B-TS6-25-M2-V13T-23-K-75-20-V4	8060531	1"	VZXA-B-TS7-1"-M2-V14T-23-K-75-20-V4	8060545

**Angle seat valve with polymer piston actuator**

002 Flow direction below the valve seat, for gaseous and liquid media

006 Connection size	Type	Part no.	006 Connection size	Type	Part no.
007 Temperature of medium –10 ... +180 °C					
012 Actuator size 46 mm					
013 Stroke 17 mm					
005 Connection standard DIN ISO 228-1		005 Connection standard ANSI/ASME B 1.20.1		008 Valve housing: Brass	
008 Valve housing: Brass		008 Valve housing: Brass			
DN13	VZXA-B-TS6-13-M2-B1T-30-K-46-17-PM	8111589	1/2"	VZXA-B-TS7-1/2"-M2-B1T-30-K-46-17-PM	8111604
DN20	VZXA-B-TS6-20-M2-B1T-12.8-K-46-17-PM	8111590	3/4"	VZXA-B-TS7-3/4"-M2-B1T-12.8-K-46-17-PM	8111605
DN25	VZXA-B-TS6-25-M2-B1T-8.3-K-46-17-PM	8111592	1"	VZXA-B-TS7-1"-M2-B1T-8.3-K-46-17-PM	8111607
			1 1/4"	VZXA-B-TS7-1 1/4"-M2-B1T-4.4-K-46-17-PM	8111609

**Angle seat valve with polymer piston actuator**

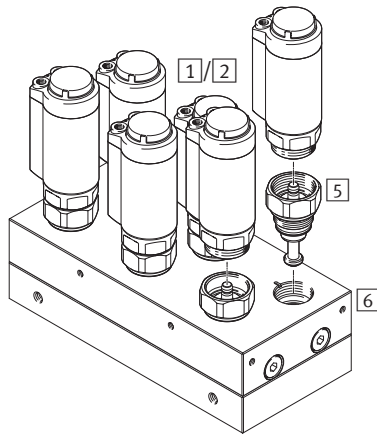
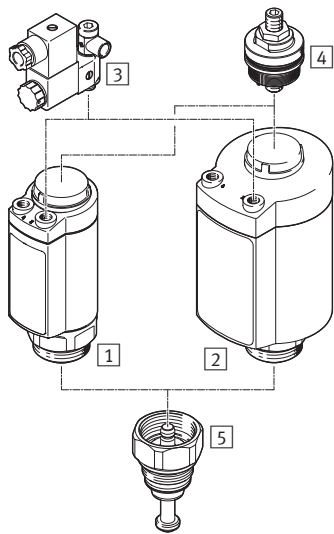
002 Flow direction over the valve seat, for gaseous media

006 Connection size	Type	Part no.	006 Connection size	Type	Part no.
007 Temperature of medium –10 ... +180 °C			007 Temperature of medium –10 ... +60 °C		
012 Actuator size 46 mm			012 Actuator size 46 mm		
013 Stroke 17 mm			013 Stroke 17 mm		
005 Connection standard DIN ISO 228-1		005 Connection standard ANSI/ASME B 1.20.1		008 Valve housing: Brass	
008 Valve housing: Brass		008 Valve housing: Brass			
DN13	VZXA-A-TS6-13-M2-B1T-16-K-46-17-PR-PM	8111583	1/2"	VZXA-A-TS7-1/2"-M6-B1T-16-K-46-17-PR-PM	8111598
DN32	VZXA-A-TS6-32-M2-B1T-4.4-K-46-17-PM	8111594			

Process valves >

## Angle seat valves VZXA

### Accessories



- 1 Piston drive DFPK, drive size 46 mm → [vzxa](#)
- 2 Piston drive DFPK, drive size 75 mm → [vzxa](#)

- 3 Pilot valve VOFX → 372
- 4 Stroke reduction VAVA → 372

- 5 Cover kit VAVC → [vzxa](#)
- 6 Manifold block → [vzxa](#)

- 7 Position indicator SAMH → 372

3 Pilot valve VOFX		
Description	Type	Part no.
3/2-way, single solenoid, closed	<b>VOFX-LT-M32C-MY-G18-SG18-1B2</b>	<b>8119587</b>

4 Stroke reduction VAVA		
Description	Type	Part no.
Opening stroke limitation		
Stop with adjustable threaded pin, only for flow beneath the seat	<b>VAVA-F12-H-H1</b>	<b>8089993</b>
Stop with adjustable shock absorber	<b>VAVA-F12-H-H6</b>	<b>8107369</b>

7 Position indicator SAMH		
Description	Type	Part no.
Without sensors	<b>SAMH-F12-MK</b>	<b>8092711</b>
With 2 sensors with explosion protection and a high level of IP protection <sup>1)</sup>	<b>SAMH-F12-MK-A2</b>	<b>8101084</b>



VZQA-C-M22C



VZQA-C-M22U



- Easy-to-clean housing (clean design)
- Shut-off element made of elastomer
- For controlling fluid/powdery media, solids and mixtures of substances
- Selected types in accordance with ATEX directive for potentially explosive atmospheres  
→ [www.festo.com/ex](http://www.festo.com/ex)

## Order code – Basic design

001	002	003	004	005	006	007	008	009	010	011
VZQA	C									

Legend:  Mandatory entry  Optional entry

001	Type
VZQA	Pinch valve, pneumatically actuated
002	Product version
C	Easy-to-clean design
003	Valve function
M22C	2/2-way valve, normally closed
M22U	2/2-way valve, normally open
004	Nominal diameter DN
6	6 mm
15	15 mm
25	25 mm
005	Process valve connection type 1
G	G female thread
S5	Clamp ferrule to DIN 32676, series A
006	Process valve connection type 2
G	G female thread
S5	Clamp ferrule to DIN 32676, series A

007	Housing material
AL	Aluminium
V2	Stainless steel (chrome-nickel, austenitic)
V4	Stainless steel (chrome-nickel-molybdenum, austenitic)
008	Housing cover material
AL	Aluminium
V4	Stainless steel (chrome-nickel-molybdenum, austenitic)
POM	Polyoxymethylene
009	Shut-off element material
E	EPDM
N	NBR
S1	Silicone
010	Pressure range of media
2	0 ... 2 bar
4	0 ... 4 bar
011	Sensing type
-	None

## Product options

### Process valve connection type

- NPT female thread
- Clamp ferrule to ASME-BPE, type A
- Clamp ferrule to ASME-BPE, type B

### Pressure range of media

- 0 ... 6 bar

### Sensing type

- End positions

### Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the part number or the type.

Part no.	Type	003 Valve function	004 Nominal diameter DN	010 Pressure range of media
2037881	VZQA-C-M22U-4	2/2-way valve, normally open	Selectable	0 ... 4 bar
3174282	VZQA-C-M22C-15-6	2/2-way valve, normally closed	15 mm	0 ... 6 bar

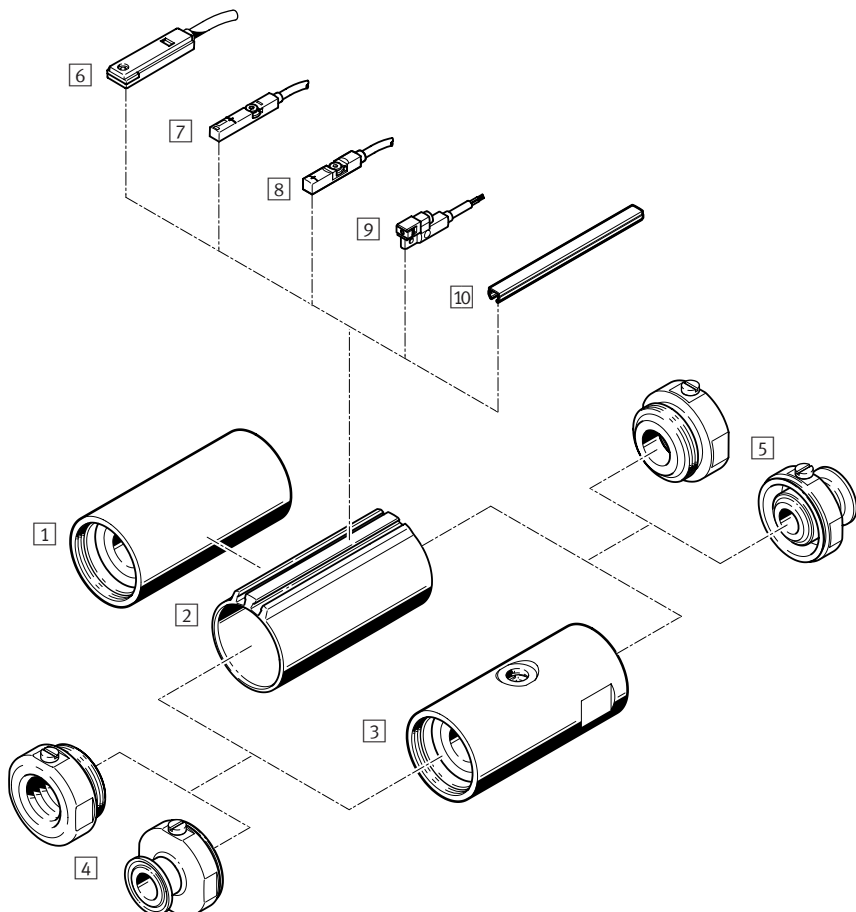
Process valves >

Pinch valves VZQA

Ordering – Basic design

003 Valve function	004 Nominal diameter DN	005 Process valve connection type	009 Shut-off element material	Type	Part no.
<b>010 Pressure range of media: 0 ... 2 bar</b>					
2/2-way valve, normally closed	6	Clamp ferrule to DIN 32676, series A	Silicone	VZQA-C-M22C-6-S5S5-V2V4S1-2	8117022
	15	Clamp ferrule to DIN 32676, series A	Silicone	VZQA-C-M22C-15-S5S5-V2V4S1-2	3412427
	6	G female thread G1/4	Silicone	VZQA-C-M22C-6-GG-V2V4S1-2	8117024
	15	G female thread G1/2	Silicone	VZQA-C-M22C-15-GG-V2V4S1-2	3412428
<b>010 Pressure range of media: 0 ... 4 bar</b>					
2/2-way valve, normally open	6	Clamp ferrule to DIN 32676, series A	EPDM	VZQA-C-M22U-6-S5S5-V4V4E-4	2931681
	6	Clamp ferrule to DIN 32676, series A	Silicone	VZQA-C-M22U-6-S5S5-V4V4S1-4	2931682
	15	Clamp ferrule to DIN 32676, series A	EPDM	VZQA-C-M22U-15-S5S5-V4V4E-4	3022833
	15	Clamp ferrule to DIN 32676, series A	Silicone	VZQA-C-M22U-15-S5S5-V4V4S1-4	3022834
	25	Clamp ferrule to DIN 32676, series A	EPDM	VZQA-C-M22U-25-S5S5-V4V4E-4	3968924
	25	Clamp ferrule to DIN 32676, series A	Silicone	VZQA-C-M22U-25-S5S5-V4V4S1-4	3968925
2/2-way valve, normally open	6	G female thread G1/4	EPDM	VZQA-C-M22U-6-GG-V4V4E-4	2931678
	6	G female thread G1/4	NBR	VZQA-C-M22U-6-GG-ALV4N-4	2931679
	6	G female thread G1/4	Silicone	VZQA-C-M22U-6-GG-V4V4S1-4	2931683
	15	G female thread G1/2	EPDM	VZQA-C-M22U-15-GG-V4V4E-4	3022829
	15	G female thread G1/2	NBR	VZQA-C-M22U-15-GG-V4V4N-4	3022830
	15	G female thread G1/2	Silicone	VZQA-C-M22U-15-GG-V4V4S1-4	3022835
	15	G female thread G1/2	NBR	VZQA-C-M22U-15-GG-ALV4N-4	3022831
	15	G female thread G1/2	NBR	VZQA-C-M22U-15-GG-ALPOMN-4	3022832
	25	G female thread G1	EPDM	VZQA-C-M22U-25-GG-V4V4E-4	3968922
	25	G female thread G1	EPDM	VZQA-C-M22U-25-GG-ALALE-4	3968923
	25	G female thread G1	Silicone	VZQA-C-M22U-25-GG-V4V4S1-4	3968926

Accessories



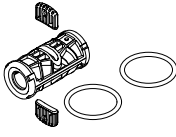
Base body

- 1 VZQA-C-M22C, normally closed, stainless steel housing
- 2 VZQA-C-M22C, normally closed, aluminium housing (always with T-slots)
- 3 VZQA-C-M22U, normally open
- 4 Connection 1  
G female thread  
Clamp ferrules
- 5 Connection 2  
G female thread  
Clamp ferrules
- Proximity switch for T-slot
- 6 SME-8 → vzqa
- 7 SME-8M → vzqa
- 8 SMT-8M → 375
- 9 SMT-8G → 375
- 10 Slot cover ABP-5-S → 375



## Accessories

## Seal cartridge VAVC-Q2

	For valve function	Nominal diameter DN	Shut-off element material	Type	Part no.	
	2/2-way valve, normally open	6	NBR	VAVC-Q2-M22U-6-N	2392881	
			EPDM	VAVC-Q2-M22U-6-E	2392882	
			VMQ (silicone)	VAVC-Q2-M22U-6-S1	2392883	
		15	VMQ (silicone)	VAVC-Q2-M22U-15-S1	3019144	
			EPDM	VAVC-Q2-M22U-15-E	3019148	
			NBR	VAVC-Q2-M22U-15-N	3019151	
		25	NBR	VAVC-Q2-M22U-25-N	3970092	
			EPDM	VAVC-Q2-M22U-25-E	3970093	
			VMQ (silicone)	VAVC-Q2-M22U-25-S1	3970094	
	2/2-way valve, normally closed		6	EPDM	VAVC-Q2-M22C-6-E	3418620
			15	EPDM	VAVC-Q2-M22C-15-E	3418619

8 Proximity switch, N/O contact, magneto-resistive SMT-8M		
Description	Type	Part no.
PNP, short design		
Cable, 3-wire, 2.5 m	SMT-8M-A-PS-24V-E-2,5-OE	574335
Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-PS-24V-E-0,3-M8D	574334
NPN, short design		
Cable, 3-wire, 2.5 m	SMT-8M-A-NS-24V-E-2,5-OE	574338
Plug M8x1, 3-pin, 0.3 m	SMT-8M-A-NS-24V-E-0,3-M8D	574339

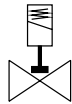
8 Proximity switch, N/C contact, magneto-resistive SMT-8M		
Description	Type	Part no.
PNP, short design		
Cable, 3-wire, 7.5 m	SMT-8M-A-PO-24V-E-7,5-OE	574340

9 Proximity switch, N/O contact, magneto-resistive SMT-8G		
Description	Type	Part no.
PNP		
Cable, 3-wire, 2.5 m	SMT-8G-PS-24V-E-2,5Q-OE	547859
Plug M8x1, 3-pin, 0.3 m	SMT-8G-PS-24V-E-0,3Q-M8D	547860
Plug M8x1, 3-pin	SMT-8-SL-PS-LED-24-B	562019

10 Slot cover ABP-5-S, for T-slot		
Length	Type	Part no.
Insertable		
2x 0.5 m	ABP-5-S	151680

Process valves >

## Solenoid valves VZWD, directly actuated



- Suitable for applications with high pressure and low flow rates
- Solenoid actuation
- Operating pressure 0 ... 90 bar
- Nominal pressure of process valve PN 50, PN 100
- Flow rate Kv 0.06 ... 0.4 m<sup>3</sup>/h

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011  
**VZWD** - **L** - **M22C** - **M** -  -  - **V** - **1** **P4** -  -

001	Type			
VZWD	Solenoid valve, directly actuated			
002	Valve type			
L	In-line valve			
003	Valve function			
M22C	2/2-way valve, normally closed			
004	Reset method			
M	Mechanical spring			
005	Process valve connection			
G18	G1/8 thread			
G14	G1/4 thread			
006	Nominal width DN			
10	1 mm	40	4 mm	
20	2 mm	60	6 mm	
30	3 mm			

007	Sealing material			
V	FPM			
008	Nominal operating voltage			
1	24 V DC			
009	Electrical connection			
P4	Plug socket, 3-pin			
010	Medium pressure			
4	Max. 4 bar			
8	Max. 8 bar			
15	Max. 15 bar			
50	Max. 50 bar			
011	Corrosion protection			
-	Brass			
R1	Stainless steel			

Legend:  Mandatory entry  Optional entry

### Product options

Nominal width

- 1.5 mm
- 2.5 mm
- 5 mm

Nominal operating voltage

- 110 V AC /50-60 Hz
- 230 V AC /50-60 Hz

Medium pressure

- 5 ... max. 90 bar

Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/vzwd](http://www.festo.com/catalogue/vzwd)

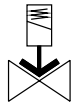
## Ordering – Basic design

005 Process valve connection	006 Nominal width DN	010 Medium pressure <sup>1)</sup>	Type	Part no.
008 Nominal operating voltage 24 V DC				
011 Corrosion protection: brass				
G1/8	1 mm	0 ... 50 bar	VZWD-L-M22C-M-G18-10-V-1P4-50	1491825
	2 mm	0 ... 15 bar	VZWD-L-M22C-M-G18-20-V-1P4-15	1491827
	3 mm	0 ... 15 bar	VZWD-L-M22C-M-G18-30-V-1P4-15	1491836
	4 mm	0 ... 8 bar	VZWD-L-M22C-M-G18-40-V-1P4-8	1491837
G1/4	3 mm	0 ... 15 bar	VZWD-L-M22C-M-G14-30-V-1P4-15	1491844
	4 mm	0 ... 8 bar	VZWD-L-M22C-M-G14-40-V-1P4-8	1491845
	6 mm	0 ... 4 bar	VZWD-L-M22C-M-G14-60-V-1P4-4	1491847
011 Corrosion protection: stainless steel				
G1/8	3 mm	0 ... 15 bar	VZWD-L-M22C-M-G18-30-V-1P4-15-R1	1491852
	4 mm	0 ... 8 bar	VZWD-L-M22C-M-G18-40-V-1P4-8-R1	1491853
G1/4	3 mm	0 ... 15 bar	VZWD-L-M22C-M-G14-30-V-1P4-15-R1	1491860
	4 mm	0 ... 8 bar	VZWD-L-M22C-M-G14-40-V-1P4-8-R1	1491861
	6 mm	0 ... 4 bar	VZWD-L-M22C-M-G14-60-V-1P4-4-R1	1491863

1) The valves are suitable for vacuum with Pabs > 100 mbar. Please ensure the flow direction corresponds to the direction of the arrow.

Process valves >

## Solenoid valves VZWF, force pilot operated



- Suitable for closed applications such as cooling or filling systems
- For controlling gaseous and liquid media
- Solenoid actuation
- Medium pressure 0 bar or higher
- Process valve PN 40 nominal pressure
- Flow rate Kv 1.8 ... 28 m<sup>3</sup>/h

### Order code – Basic design

001 002 003 004 005 006 007 008 009 010 011  
**VZWF** - **B** - **L** - **M22C** -  -  -  - **1** **P4** -  -

001	Type		
VZWF	Solenoid valve, force pilot operated		
002	Product version		
B	Optimised function		
003	Valve type		
L	In-line valve		
004	Valve function		
M22C	2/2-way valve, normally closed		
005	Process valve connection		
G14	G1/4 thread	G34	G3/4 thread
G38	G3/8 thread	G1	G1 thread
G12	G1/2 thread		
006	Nominal width DN		
135	13.5 mm		
275	27.5 mm		

007	Sealing material		
-	Standard (NBR)		
E	EPDM		
008	Nominal operating voltage		
1	24 V DC		
009	Electrical connection		
P4	Plug socket, 3-pin		
010	Medium pressure		
6	Max. 6 bar		
10	Max. 10 bar		
011	Corrosion protection		
-	Standard (brass)		
R1	Stainless steel		

Legend:  Mandatory entry  Optional entry

### Product options

**Product version**

- Standard

**Process valve connection**

- G1, G1¼, G1½, G2

**Nominal width DN**

- 40 mm
- 50 mm

**Sealing material**

- FPM

**Nominal operating voltage**

- 110 V AC/50-60Hz
- 230 V AC/50-60Hz

Configurable product

This product and all its product options can be ordered online via the configurator:

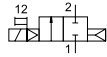
→ [www.festo.com/catalogue/vzwf](http://www.festo.com/catalogue/vzwf)

## Ordering – Basic design

005 Process valve connection	006 Nominal width DN	010 Medium pressure	Type	Part no.
008 Nominal operating voltage 24 V DC				
007 Seal material NBR, 011 Standard corrosion protection (brass)				
G1/4	13.5 mm	0 ... 10 bar	VZWF-B-L-M22C-G14-135-1P4-10	1492110
G3/8	13.5 mm	0 ... 10 bar	VZWF-B-L-M22C-G38-135-1P4-10	1492111
G1/2	13.5 mm	0 ... 10 bar	VZWF-B-L-M22C-G12-135-1P4-10	1492112
G3/4	27.5 mm	0 ... 6 bar	VZWF-B-L-M22C-G34-275-1P4-6	1492113
G1	27.5 mm	0 ... 6 bar	VZWF-B-L-M22C-G1-275-1P4-6	1492114
007 Sealing element material EPDM, 011 Stainless steel corrosion protection				
G1/4	13.5 mm	0 ... 10 bar	VZWF-B-L-M22C-G14-135-E-1P4-10-R1	1492134
G3/8	13.5 mm	0 ... 10 bar	VZWF-B-L-M22C-G38-135-E-1P4-10-R1	1492135
G1/2	13.5 mm	0 ... 10 bar	VZWF-B-L-M22C-G12-135-E-1P4-10-R1	1492136
G3/4	27.5 mm	0 ... 6 bar	VZWF-B-L-M22C-G34-275-E-1P4-6-R1	1492137
G1	27.5 mm	0 ... 6 bar	VZWF-B-L-M22C-G1-275-E-1P4-6-R1	1492138

Process valves >

## Solenoid valves VZWM



- Indirectly actuated poppet valve with diaphragm seal
- Available in brass or stainless steel casting
- Wide range of coils
- Flow rate 1400 ... 31000 l/min

### Order code – Basic design



Legend:  Mandatory entry  Optional entry

001	Type		
VZWM	Solenoid valve, process valve		
002	Valve type		
L	In-line valve		
003	Valve function		
M22C	2/2-way valve, normally closed		
004	Process valve connection		
G14	G1/4 thread	G34	G3/4 thread
G38	G3/8 thread	G1	G1 thread
G12	G1/2 thread		

005	Electrical connection
F4	With armature tube for solenoid coil MD-2- ... -PA
F5	With armature tube for solenoid coil MH-2- ... -PA
006	Corrosion protection
-	Standard (brass)
R1	Stainless steel

### Product options

Process valve connection

- G1¼, G1½, G2



Configurable product

This product and all its product options can be ordered online via the configurator:

→ [www.festo.com/catalogue/vzwm](http://www.festo.com/catalogue/vzwm)

### Ordering – Basic design

004 Process valve connection	Type	Part no.
	006 Standard corrosion protection (brass)	
G1/4	VZWM-L-M22C-G14-F4	546146
G3/8	VZWM-L-M22C-G38-F4	546147
G1/2	VZWM-L-M22C-G12-F4	546148
G3/4	VZWM-L-M22C-G34-F4	546149
G1	VZWM-L-M22C-G1-F4	546150

004 Process valve connection	Type	Part no.
	006 Stainless steel corrosion protection	
G1/4	VZWM-L-M22C-G14-F5-R1	546162
G3/8	VZWM-L-M22C-G38-F5-R1	546163
G1/2	VZWM-L-M22C-G12-F5-R1	546164
G3/4	VZWM-L-M22C-G34-F5-R1	546165
G1	VZWM-L-M22C-G1-F5-R1	546166

## Accessories

Solenoid coil MD		
Voltage	Type	Part no.
Solenoid coil for VZWM- ... -F4- ...		
24 V DC	MD-2-24VDC-PA	549903
110 V AC, 50 ... 60 Hz	MD-2-110VAC-PA	549904
230 V AC, 50 ... 60 Hz	MD-2-230VAC-PA	549905

Solenoid coil MH		
Voltage	Type	Part no.
Solenoid coil for VZWM- ... -F5- ...		
24 V DC	MH-2-24VDC-PA	549906
110 V AC, 50 ... 60 Hz	MH-2-110VAC-PA	549907
230 V AC, 50 ... 60 Hz	MH-2-230VAC-PA	549908

Plug socket MSSD		
Electrical connection	Type	Part no.
Connection pattern to EN 175301-803 type A		
3-pin, square design	MSSD-N	550067

Mounting bracket HRM		
Material	Type	Part no.
Galvanised steel	HRM-1	9769
	HRM-2	9770
	HRM-3	9771

Process valve units >

## Ball valve actuator units VZBM



- Pneumatic actuation
- Ball valve actuator unit with double-acting or single-acting quarter turn actuator
- Swivel angle 0 ... 90°
- Brass design
- Pipe thread to EN 10226-1
- Flange hole pattern to ISO 5211
- Flow is fully opened or closed in both directions
- Limit switch attachments or limit switches can be mounted directly on the actuator unit for sensing the end positions
- Flow rate 5.9 ... 243 m<sup>3</sup>/h

### Order code

001 002 003 004 005 006 007 008 009 010  
**VZBM** - **A** -  - **RP** -  -  -  - **B2** -

Legend:  Mandatory entry

001	Type
<b>VZBM</b>	Ball valve

002	Version
<b>A</b>	Ball valve actuator unit

003	Nominal width DN
<b>1/4"</b>	DN8
<b>3/8"</b>	DN10
<b>1/2"</b>	DN15
<b>3/4"</b>	DN20
<b>1"</b>	DN25
<b>1 1/4"</b>	DN32
<b>1 1/2"</b>	DN40
<b>2"</b>	DN50

004	Process valve connection type
<b>RP</b>	Rp thread

005	Nominal pressure
<b>25</b>	25 bar
<b>40</b>	40 bar

006	Design
<b>D</b>	Two-part
<b>F</b>	Four-part

007	Valve function
<b>2</b>	2/2 way
<b>3L</b>	3/2-way, L-bore
<b>3T</b>	3/2-way, T-bore

008	Housing material
<b>B2</b>	Brass, nickel-plated

009	Version
<b>PA</b>	Quarter turn actuator DFPD, double-acting
<b>PB</b>	Quarter turn actuator DFPD, single-acting

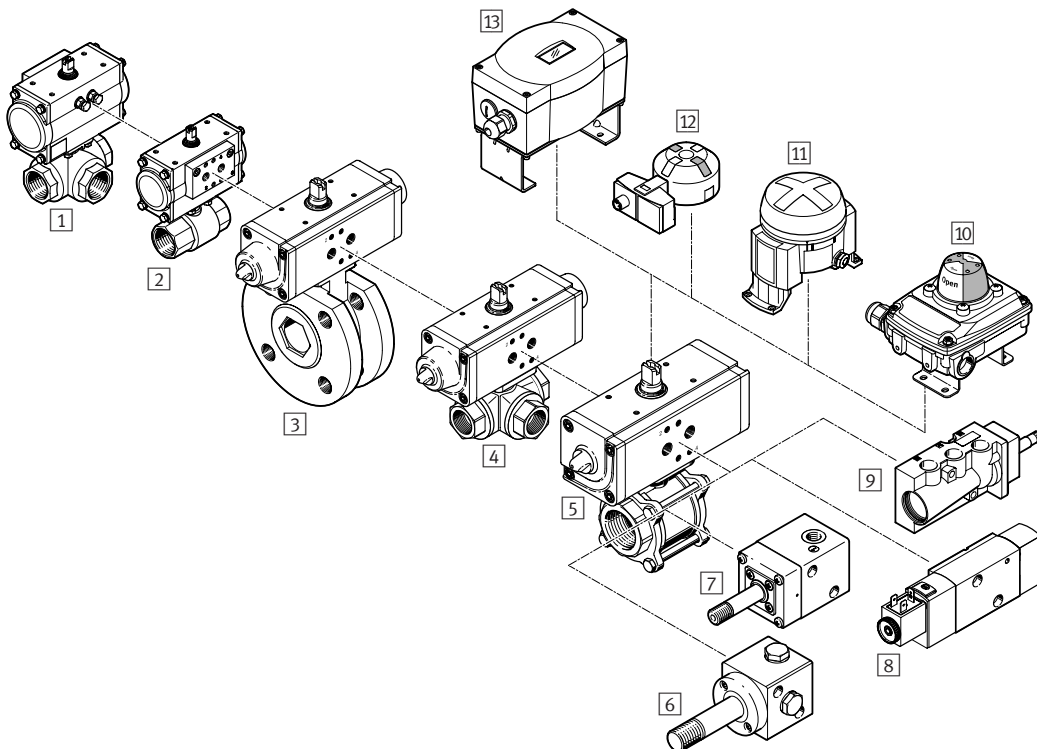
010	Size
<b>10</b>	10
<b>20</b>	20
<b>40</b>	40
<b>80</b>	80
<b>120</b>	120



## Ordering

007 Valve function	003 Nominal width DN	Connecting thread	Type	Part no.	Type	Part no.
			009 Quarter turn actuators DFPD, single-acting	009 Quarter turn actuators DFPD, double-acting		
2/2 way	8	Rp1/4	VZBM-A-1/4"-RP-40-D-2-B2-PB20	8070242	VZBM-A-1/4"-RP-40-D-2-B2-PA10	8070234
	10	Rp3/8	VZBM-A-3/8"-RP-40-D-2-B2-PB20	8070243	VZBM-A-3/8"-RP-40-D-2-B2-PA10	8070235
	15	Rp1/2	VZBM-A-1/2"-RP-25-D-2-B2-PB20	8070244	VZBM-A-1/2"-RP-25-D-2-B2-PA10	8070236
	20	Rp3/4	VZBM-A-3/4"-RP-25-D-2-B2-PB20	8070245	VZBM-A-3/4"-RP-25-D-2-B2-PA10	8070237
	25	Rp1	VZBM-A-1"-RP-25-D-2-B2-PB20	8070246	VZBM-A-1"-RP-25-D-2-B2-PA10	8070238
	32	Rp1 1/4	VZBM-A-1 1/4"-RP-25-D-2-B2-PB20	8070247	VZBM-A-1 1/4"-RP-25-D-2-B2-PA10	8070239
	40	Rp1 1/2	VZBM-A-1 1/2"-RP-25-D-2-B2-PB40	8070248	VZBM-A-1 1/2"-RP-25-D-2-B2-PA20	8070240
	50	Rp2	VZBM-A-2"-RP-25-D-2-B2-PB80	8070249	VZBM-A-2"-RP-25-D-2-B2-PA40	8070241
3/2-way, L-bore	8	Rp1/4	VZBM-A-1/4"-RP-25-F-3L-B2-PB20	8070266	VZBM-A-1/4"-RP-25-F-3L-B2-PA10	8070250
	10	Rp3/8	VZBM-A-3/8"-RP-25-F-3L-B2-PB20	8070267	VZBM-A-3/8"-RP-25-F-3L-B2-PA10	8070251
	15	Rp1/2	VZBM-A-1/2"-RP-25-F-3L-B2-PB20	8070268	VZBM-A-1/2"-RP-25-F-3L-B2-PA10	8070252
	20	Rp3/4	VZBM-A-3/4"-RP-25-F-3L-B2-PB40	8070269	VZBM-A-3/4"-RP-25-F-3L-B2-PA20	8070253
	25	Rp1	VZBM-A-1"-RP-25-F-3L-B2-PB40	8070270	VZBM-A-1"-RP-25-F-3L-B2-PA20	8070254
	32	Rp1 1/4	VZBM-A-1 1/4"-RP-25-F-3L-B2-PB80	8070271	VZBM-A-1 1/4"-RP-25-F-3L-B2-PA40	8070255
	40	Rp1 1/2	VZBM-A-1 1/2"-RP-25-F-3L-B2-PB120	8070272	VZBM-A-1 1/2"-RP-25-F-3L-B2-PA80	8070256
	50	Rp2	VZBM-A-2"-RP-25-F-3L-B2-PB120	8070273	VZBM-A-2"-RP-25-F-3L-B2-PA80	8070257
3/2-way, T-bore	8	Rp1/4	VZBM-A-1/4"-RP-25-F-3T-B2-PB20	8070274	VZBM-A-1/4"-RP-25-F-3T-B2-PA10	8070258
	10	Rp3/8	VZBM-A-3/8"-RP-25-F-3T-B2-PB20	8070275	VZBM-A-3/8"-RP-25-F-3T-B2-PA10	8070259
	15	Rp1/2	VZBM-A-1/2"-RP-25-F-3T-B2-PB20	8070276	VZBM-A-1/2"-RP-25-F-3T-B2-PA10	8070260
	20	Rp3/4	VZBM-A-3/4"-RP-25-F-3T-B2-PB40	8070277	VZBM-A-3/4"-RP-25-F-3T-B2-PA20	8070261
	25	Rp1	VZBM-A-1"-RP-25-F-3T-B2-PB40	8070278	VZBM-A-1"-RP-25-F-3T-B2-PA20	8070262
	32	Rp1 1/4	VZBM-A-1 1/4"-RP-25-F-3T-B2-PB80	8070279	VZBM-A-1 1/4"-RP-25-F-3T-B2-PA40	8070263
	40	Rp1 1/2	VZBM-A-1 1/2"-RP-25-F-3T-B2-PB120	8070280	VZBM-A-1 1/2"-RP-25-F-3T-B2-PA80	8070264
	50	Rp2	VZBM-A-2"-RP-25-F-3T-B2-PB120	8070281	VZBM-A-2"-RP-25-F-3T-B2-PA80	8070265

## Accessories



- 1 Ball valve actuator unit VZBM, 3-way, brass  
Combination of double-acting or single-acting quarter turn actuator DFPD and ball valve
- 2 Ball valve actuator unit VZBM, 2-way, brass  
Combination of double-acting or single-acting quarter turn actuator DFPD and ball valve
- 3 Ball valve actuator unit, stainless steel, compact design VZBC → [vzbc](#)
- 4 Ball valve actuator unit VZBA, 3-way → [vzba](#)
- 5 Ball valve actuator unit VZBA, 2-way → [vzba](#)
- 6 Solenoid valve VOFD → [vofd](#)
- 7 Solenoid valve VOFC → [vofc](#)
- 8 Solenoid valve VSNC → 173

- 9 Solenoid valve NVF3 → [nvf3](#)
- 10 Limit switch attachment SRBC → 358

- 11 Limit switch attachments DAPZ → [dapz](#)

- 12 Limit switch attachment SRBG → 360
- 13 Positioner CMSX → 362

## Filter regulators PCRP



- Robust housing for the specific requirements of process automation
- Suitable for use outdoors and at temperatures down to -60 °C
- Resistant to UV radiation and corrosive environments
- Connection G1/4, G1/2, NPT1/4-18, NPT1/2-14
- Pressure regulation ranges 0.5 ... 7 bar; 0.5 ... 12 bar
- Flow rate 1600 ... 4115 l/min

## Order code

001 002 003 004 005 006 007 008  
 PCRP -  -  -  -  -  -  -  -

Legend:  Mandatory entry

001	Type
PCRP	Filter regulator
002	Size
44	44
64	64
003	Pneumatic connection
G14	G1/4
G12	G1/2
N14	1/4 NPT
N12	1/2 NPT
004	Pressure regulation range
7	Up to 7 bar
12	Up to 12 bar

005	Filter version
C	5 µm
E	40 µm
006	Bowl type
R1	Stainless steel
007	Condensate drain
M	Manual
008	Temperature range
T18	-20 ... +80 °C
T19	-60 ... +80 °C

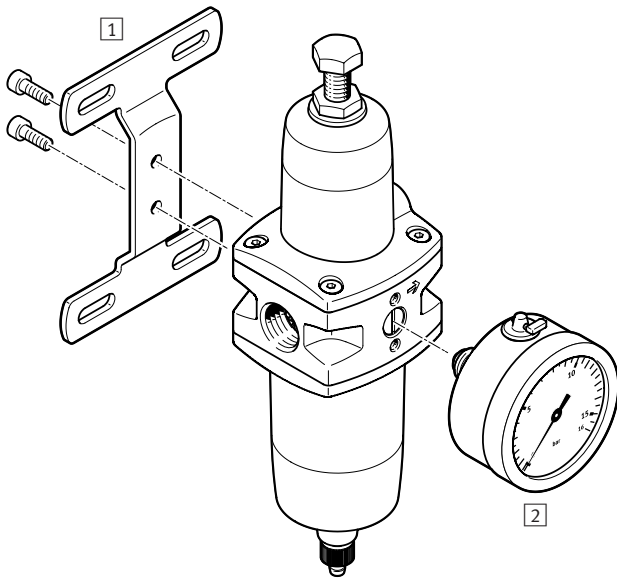
## Ordering

008 Temperature range -20 ... +80 °C		005 Grade of filtration 5 µm		005 Grade of filtration 40 µm	
002 Size	003 Pneumatic connection	Type	Part no.	Type	Part no.
<b>004 Pressure regulation range 0.5 ... 7 bar</b>					
64	G1/4	PCR-64-G14-7-C-R1-M-T18	4787803	PCR-64-G14-7-E-R1-M-T18	4787805
	G1/2	PCR-64-G12-7-C-R1-M-T18	4787811	PCR-64-G12-7-E-R1-M-T18	4787813
	1/4 NPT	PCR-64-N14-7-C-R1-M-T18	4787799	PCR-64-N14-7-E-R1-M-T18	4787801
	1/2 NPT	PCR-64-N12-7-C-R1-M-T18	4787807	PCR-64-N12-7-E-R1-M-T18	4787809
<b>004 Pressure regulation range 0.5 ... 12 bar</b>					
44	G1/4	PCR-44-G14-12-C-R1-M-T18	8120907	PCR-44-G14-12-E-R1-M-T18	8120906
	G1/2	PCR-44-G12-12-C-R1-M-T18	8120905	PCR-44-G12-12-E-R1-M-T18	8120904
	1/4 NPT	PCR-44-N14-12-C-R1-M-T18	8120903	PCR-44-N14-12-E-R1-M-T18	8120902
	1/2 NPT	PCR-44-N12-12-C-R1-M-T18	8120901	PCR-44-N12-12-E-R1-M-T18	8120900
64	G1/4	PCR-64-G14-12-C-R1-M-T18	4787804	PCR-64-G14-12-E-R1-M-T18	4787806
	G1/2	PCR-64-G12-12-C-R1-M-T18	4787812	PCR-64-G12-12-E-R1-M-T18	4787814
	1/4 NPT	PCR-64-N14-12-C-R1-M-T18	4787800	PCR-64-N14-12-E-R1-M-T18	4787802
	1/2 NPT	PCR-64-N12-12-C-R1-M-T18	4787808	PCR-64-N12-12-E-R1-M-T18	4787810

## Ordering

008 Temperature range -60 ... +80 °C						
002 Size	003 Pneumatic connection		005 Grade of filtration 5 µm		005 Grade of filtration 40 µm	
			Type	Part no.	Type	Part no.
004 Pressure regulation range 0.5 ... 7 bar						
64	G1/4		PCR-P-64-G14-7-C-R1-M-T19	5394669	PCR-P-64-G14-7-E-R1-M-T19	5394671
	G1/2		PCR-P-64-G12-7-C-R1-M-T19	5394677	PCR-P-64-G12-7-E-R1-M-T19	5394679
	1/4 NPT		PCR-P-64-N14-7-C-R1-M-T19	5394665	PCR-P-64-N14-7-E-R1-M-T19	5394667
	1/2 NPT		PCR-P-64-N12-7-C-R1-M-T19	5394673	PCR-P-64-N12-7-E-R1-M-T19	5394675
004 Pressure regulation range 0.5 ... 12 bar						
44	G1/4		-	-	PCR-P-44-G14-12-E-R1-M-T19	8120898
	G1/2		-	-	PCR-P-44-G12-12-E-R1-M-T19	8120899
	1/4 NPT		-	-	PCR-P-44-N14-12-E-R1-M-T19	8120896
	1/2 NPT		-	-	PCR-P-44-N12-12-E-R1-M-T19	8120897
64	G1/4		PCR-P-64-G14-12-C-R1-M-T19	5394670	PCR-P-64-G14-12-E-R1-M-T19	5394672
	G1/2		PCR-P-64-G12-12-C-R1-M-T19	5394678	PCR-P-64-G12-12-E-R1-M-T19	5394680
	1/4 NPT		PCR-P-64-N14-12-C-R1-M-T19	5394666	PCR-P-64-N14-12-E-R1-M-T19	5394668
	1/2 NPT		PCR-P-64-N12-12-C-R1-M-T19	5394674	PCR-P-64-N12-12-E-R1-M-T19	5394676

## Accessories



- 1 Mounting bracket PAMP → 385
- 2 Pressure gauge PAGN → 385

Filter cartridge MS4-LFP, filter made of PE → 385  
 Filter cartridge PFEP, filter made of high-alloy stainless steel → 385

1 Mounting bracket PAMP		
Size	Type	Part no.
44	PAMP-MB-44	8123058
64	PAMP-MB-64	8081356

2 Pressure gauge PAGN, G1/4				
Nominal size	Display range	Operating pressure	Type	Part no.
Outer scale in bar				
63	0 ... 16 bar	0 ... 16 bar	PAGN-63-16-G14-R1-1.6-0.5-V2	8081401

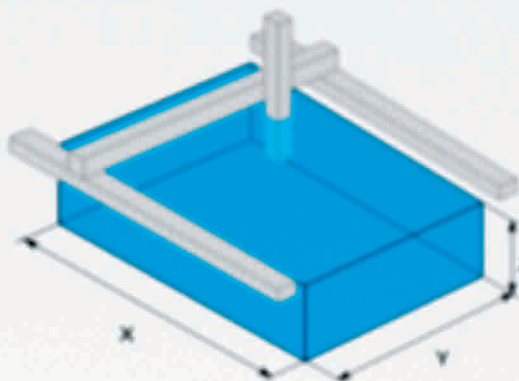
Filter cartridge MS4-LFP, PFEP			
Size	For filter regulator	Type	Part no.
Degree of filtration 5 µm			
44	PCR-P-44-...-C-...-T18	MS4-LFP-C	534501
64	PCR-P-64-...-C	PFEP-64-C	8081360
Degree of filtration 40 µm			
44	PCR-P-44-...-E-...-T19	PFEP-44-E	8123059
	PCR-P-44-...-E-...-T18	MS4-LFP-E	534502
64	PCR-P-64-...-E	PFEP-64-E	8081365



# Appendix

## Axis definition

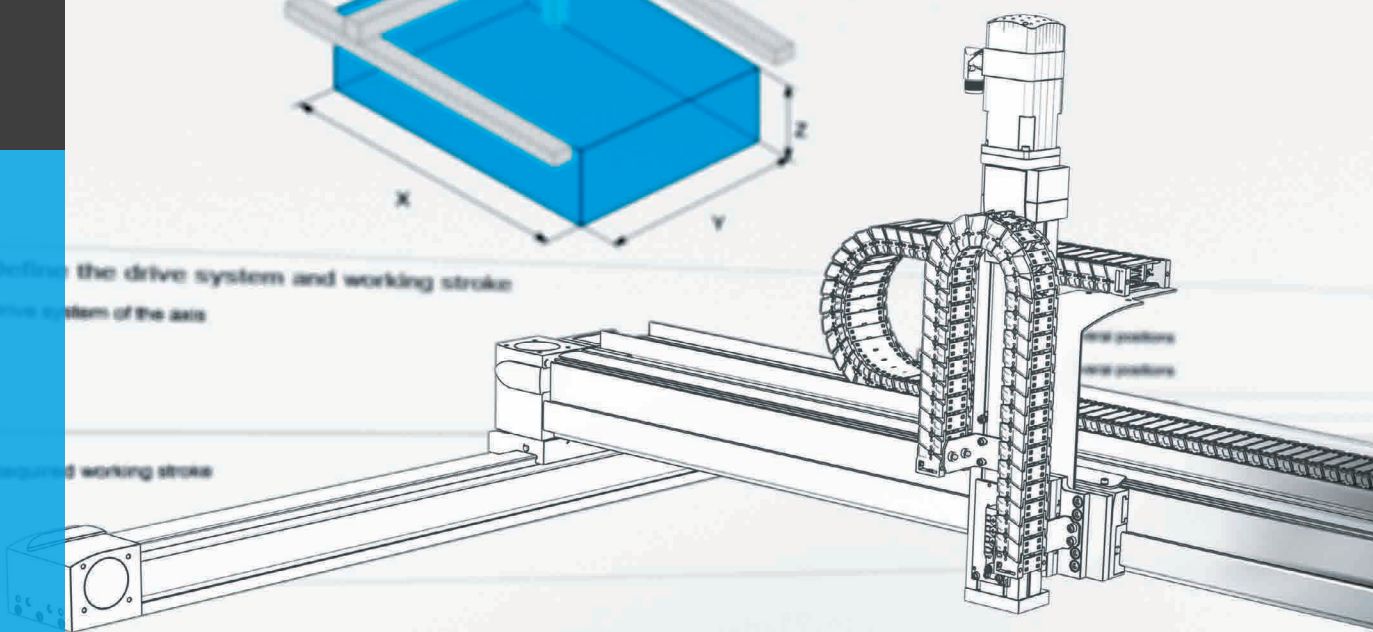
Find your handling solution in a few steps



Define the drive system and working stroke

Drive system of the axis

Required working stroke





# Contents

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## Energy efficiency

### Sustainability in manufacturing

Automation solutions enable faster, more flexible and more cost-efficient production, but they also consume energy – whether to generate compressed air in pneumatic systems or to operate electric components. We support you in four core areas to achieve greater sustainability in manufacturing: our products and solutions have the greatest impact on

your energy footprint and on protecting the climate. The sustainability of our portfolio extends from its production and operation, right through to the end of its long service life. We support you with digital tools for the design of energy-efficient systems. Our services help you to identify potential savings in your compressed air system and our offer of basic and

further training gives your current and future experts the knowledge they need to work sustainably. Improve your energy efficiency and productivity with us. We are your partner on the journey to CO<sub>2</sub>-neutral production.

### Products for sustainable operation



Festo offers products and solutions that use energy more efficiently so that you can realise significant potential savings right now, whether with high-performance, simple pneumatic systems or precise, dynamic electric automation technology.

### Save energy with good design



Your applications are most efficient when they are tailored exactly to your individual requirements. By selecting the right technology and optimally sizing components, you will create the framework for long-term energy savings. And by using our numerous engineering tools this process is made even easier.

### Save more energy with Festo services



High energy prices, rising cost pressure and a growing awareness of climate protection have undoubtedly made industrial energy efficiency a key activity in your business. Festo Energy Saving Services according to DIN EN ISO 11011 offer you a tailor-made range of services that enable you to identify and utilise potential compressed air savings in an optimal, integrated and sustainable way.

### Sustainability in basic and further training



Energy efficiency and sustainability start in the minds of your employees. Festo Didactic is the world's leading specialist in technical education. We teach the specialists of today and tomorrow the knowledge and skills they need to identify potential savings in their work and implement them systematically, from the design of your systems through to day-to-day operation.

Simply ask your local contact person or find out more at [www.festo.com/energyefficiency](http://www.festo.com/energyefficiency)

## Ways to make automation more efficient



MSE6-C2M with pressure reduction and soft start for restarting

Up to  
20%

### Energy efficiency modules from the MSE6 series

Avoid unnecessary compressed air consumption. In some work cycles, the energy supply can be temporarily stopped – right up to zero energy consumption and zero leakage. That is why the intelligent energy efficiency modules of the MSE6 series constantly monitor the compressed air consumption and shut

off the compressed air during non-production times after a certain amount of time. The MSE6-C2M and MSE6-D2M also maintain the system pressure at a minimum standby pressure level.

→ [www.festo.com/mse6](http://www.festo.com/mse6)



MSE6-E2M with complete pressure shut-off



MSE6-D2M as an extension for a second string on the MSE6-C2M or a CPX terminal



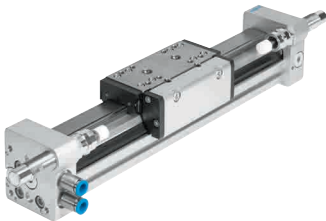
Up to  
20%

### Flow sensor SFAM

You can install the flow sensor SFAM as a stand-alone device or in combination with an MS series service unit so you get a transparent impression of

the compressed air consumption straight away. Because a changing flow value is often a sign that there is a potential for savings.

→ [www.festo.com/sfam](http://www.festo.com/sfam)



Up to  
10%

### Pneumatic linear drive DGC

The patented sealing band in the rodless drive's sealing system really comes into its own with long strokes. Virtually leakage free, the drive systemati-

cally reduces compressed air consumption.

→ [www.festo.com/dgc](http://www.festo.com/dgc)



Up to  
60%

### Vacuum generator OVEM

Reliably holding objects using vacuum does not necessarily require a constant vacuum pressure. In particular with smooth surfaces, you can avoid continuous air consumption with an air-saving circuit.

The intelligent vacuum generator OVEM monitors the vacuum pressure, generates vacuum only when it is needed and thus significantly reduces energy consumption.

→ [www.festo.com/ovem](http://www.festo.com/ovem)

Up to  
20%



The percentage values for energy saving potential are based on calculations carried out at Festo for a sample application. We will be happy to explain the details to you and also to calculate your specific cost benefits.

The saving is not generated by using the product itself, but rather by detecting the status and monitoring for leakages.

## Festo Services and Support

### Consistent and comprehensive support

The service and support philosophy of Festo is based on a constant analysis of the value chains of different types of customers.

Festo has built on this knowledge to develop a sophisticated portfolio that supports you along your entire value chain.

It includes numerous services such as the Energy Saving Services, customised developments of ready-to-install solutions and special designs.

Our networked digital information system now consists of a database-driven catalogue with over 30,000 products and accessories as well as tools for configuration, planning and design. Globally standardised application platforms for product lifecycle, production, logistics, sales and finance help to create integrated, global processes that will benefit you.

#### Engineering



- Consulting
- Design aids
- 2D/3D CAD drawings and models
- Design and sizing tools
- Selection tools
- Engineering of ready-to-install solutions

#### Procurement/logistics



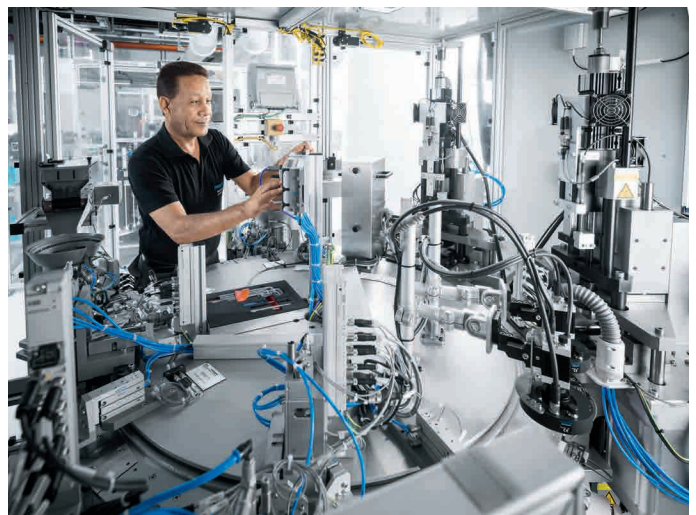
- Festo Online Shop
- 24-hour delivery service
- Logistics optimisation service
- PrePack

#### Assembly and commissioning



- Commissioning axis systems
- Compressed air consumption analysis
- Commissioning and training for servo-pneumatic welding guns

#### Operation



- Worldwide after-sales service
- Energy Saving Services
- Compressed air quality analysis
- Support Portal with documentation for the entire product lifecycle

Are you interested in these services?

Simply ask your local contact person or find out more at [→ www.festo.com/services](https://www.festo.com/services)

You will find further information about our services there.





## Food safety and efficiency ...

... are key requirements.

Our clever mix of solutions provides the perfect ingredients for production systems that produce high-quality food and drink economically.

→ [www.festo.com/food](http://www.festo.com/food)

## Reliable and efficient compressed air



Decide what kind of compressed air quality you need for your application. Our preconfigured service units are designed to meet your requirements and can be ordered with just a single part number. Save energy by automatically shutting off the compressed air in stand-by mode. Our energy efficiency modules MSE6-... monitor the compressed air supply fully automatically.

## Certified food safe



Manage demanding applications for clean and safe food dispensing with the pneumatic pinch valve VZQA. Its silicone diaphragm comes in an N/O variant and with a declaration of conformity in accordance with Regulation (EC) No. 1935/2004. This pinch valve variant has thus been approved for direct contact with food products.

## Maximum performance



Fast, easy and energy-efficient.

Decentralised valve terminal concepts increase the productivity of your systems. With the clean design valve terminal MPA-C there's no need for a control cabinet thanks to degree of protection IP69K.

Or you can use valve terminal VTUG in the control cabinet, with multi-pin plug, all common fieldbuses or IO-Link®.

## High operational reliability



Reliable components are essential for high machine availability.

Take the stainless-steel cylinder CRDSNU from our clean design drive portfolio, for example. It's always correctly set thanks to the self-adjusting end position cushioning system PPS – and has no adjusting screw where dirt can accumulate.

## Training and consulting

Festo Didactic is a leading global solution provider for technical education and training with a strong industrial DNA. Thanks to a state-of-the-art approach to training and education, the company ensures its the employability and productivity of its customers. The product and service portfolio offers customers comprehensive training solutions that cover the main technology areas of factory and process automation. We combine technical training content with expertise and training courses from other specialist areas, such as process optimisation,

management and communication. As an integral part of the Festo Group, the interplay between automation and education is exceptional. Thanks to the close contact with Festo Automation, we are aware of the challenges facing our customers. This enables us to offer tailored and practical training courses for industry. Our experienced trainers teach relevant content that is tailored to each specific group.

## Our offer

The goal is maximum value creation. This can be achieved through training courses on different topics and in different formats.



### + Technology

Development of technical skills: core technologies in factory and process automation



### + Organisation

Driving continuous improvement: strategic planning and process optimisation along the value chain



### + People

Development of behaviour and attitude: teamwork, communication skills and leadership qualities



### + Innovations

Development of skills for the future: learning, leading and being ready for future production in the context of Industry 4.0



### + Overview of topics

- Pneumatics
- Hydraulics
- PLCs (programmable logic controllers)
- Electrical engineering/electronics
- Process automation
- Handling systems
- Water management
- Maintenance
- Supply chain management
- Lean production
- Process optimisation
- Service and sales competence
- Industry 4.0



### + Training offered

- Public courses
- Company-specific training courses
- Consulting
- Coaching
- Skills programmes
- Business games
- Training needs analysis, certification, blended learning concepts

### What is stopping you? Contact us at:

Festo Didactic SE | Rechbergstraße 3 | 73770 Denkendorf | did@festo.com

→ [www.festo-didactic.com](http://www.festo-didactic.com)

## What must be taken into account when using Festo products?

The limit values specified in the technical data and any specific safety instructions must be adhered to by the user in order to ensure correct functioning.

The pneumatic components must be supplied with correctly prepared compressed air without aggressive media.

Take the ambient conditions at the place of use into consideration. Corrosive, abrasive and dusty environments (e.g. water, ozone, grinding dust) will reduce the service life of the product.

Check the resistance of the materials of Festo products to the media used and surrounding media.

When using Festo products in safety-oriented applications, all national and international laws and regulations, for example the EC Machinery Directive, must be observed and complied with together with the relevant references to standards, trade association rules and the applicable international regulations.

Unauthorised conversions or modifications to products and systems from Festo constitute a safety risk and are thus not permitted.

Festo doesn't accept any liability for any resulting damage.

You should contact Festo if one of the following applies to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.

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