

## Soft-start and exhaust valves MS-SV, MS series, NPT

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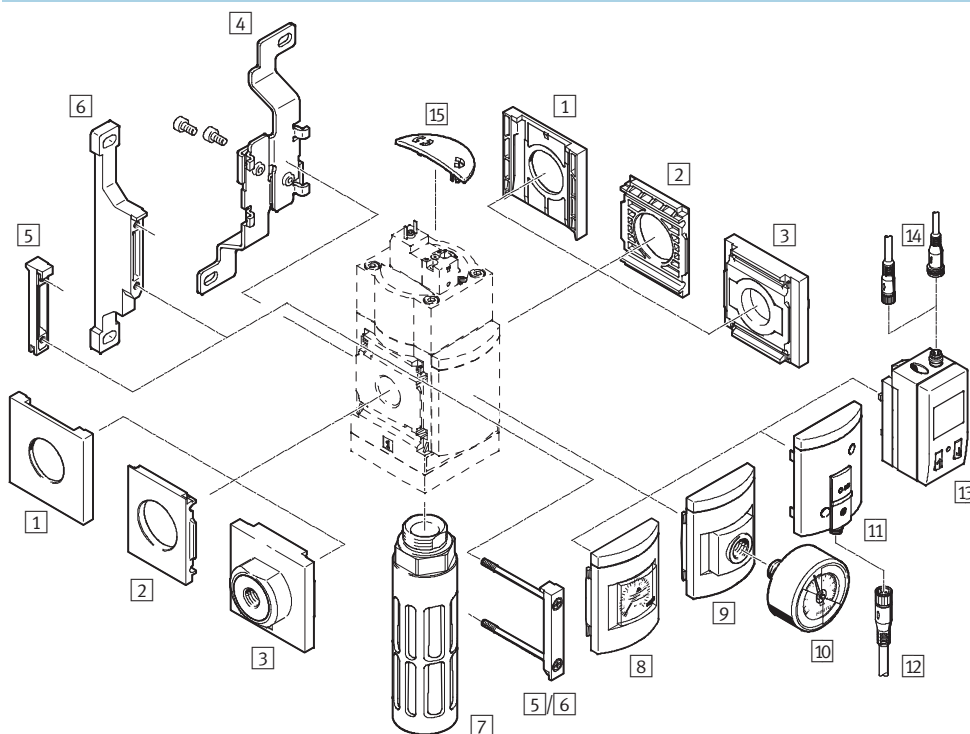


## Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

Peripherals overview

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### Soft-start and quick exhaust valve MS6N-SV-C



#### Note

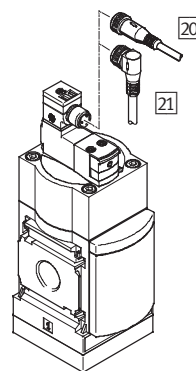
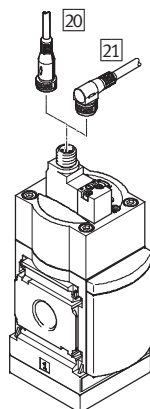
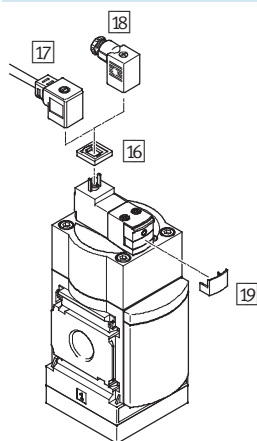
Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9 → Internet: amv, rmv, armv
- Adapter plate for mounting on profiles → Internet: ipm-80, ipm-40-80, ipm-80-80

Supply voltage  
V24/10V24/V110/V230

Supply voltage  
10V24P

Supply voltage  
V24P



## Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

Peripherals overview

| Mounting attachments and accessories |   |                          |                       |                          |                       |                 |
|--------------------------------------|---|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |   | Individual device        |                       | Combination              |                       | ➔ Page/Internet |
|                                      |   | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| 1                                    | Cover cap<br>MS6-END  | –                        | –                     | ■                        | –                     | ms6-end         |
| 2                                    | Mounting plate<br>MS6-AEND  | ■ <sup>1)</sup>          | –                     | ■ <sup>1)</sup>          | –                     | ms6-aend        |
| 3                                    | Connecting plate<br>MS6-AQ...                                     | –                        | ■ <sup>1)</sup>       | –                        | ■ <sup>1)</sup>       | ms6-aq          |
| 4                                    | Mounting bracket<br>MS6-WB  | ■                        | ■                     | –                        | –                     | ms6-wb          |
| 5                                    | Module connector<br>MS6-MV  | –                        | ■                     | ■                        | ■                     | ms6-mv          |
| 6                                    | Mounting bracket<br>MS6-WP  | ■                        | ■                     | ■                        | ■                     | ms6-wp          |
|                                      | Mounting bracket (not shown)<br>MS6-WPB/WPE/WPM                   | ■                        | ■                     | ■                        | ■                     | ms6-wp          |
| 7                                    | Silencer<br>U-¾-B-NPT   | ■                        | ■                     | ■                        | ■                     | 37              |
| 8                                    | MS pressure gauge<br>AG/RG  | ■                        | ■                     | ■                        | ■                     | 10              |
| 9                                    | Adapter plate for EN pressure gauge ¼<br>A4                       | ■                        | ■                     | ■                        | ■                     | 10              |
| 10                                   | Pressure gauge<br>MA  | ■                        | ■                     | ■                        | ■                     | 38              |
| 11                                   | Pressure sensor with operational status<br>indicator AD7 ... AD10 | ■                        | ■                     | ■                        | ■                     | 10              |
| 12                                   | Connecting cable<br>NEBU-M8...-LE3                                | ■                        | ■                     | ■                        | ■                     | 38              |
| 13                                   | Pressure sensor with LCD display<br>AD1 ... AD4                   | ■                        | ■                     | ■                        | ■                     | 10              |
| 14                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4                | ■                        | ■                     | ■                        | ■                     | 38              |
| 15                                   | Cover<br>MS6-SV-C-MK  | ■                        | ■                     | ■                        | ■                     | 36              |
| 16                                   | Illuminating seal<br>MEB-LD                                       | ■                        | ■                     | ■                        | ■                     | 37              |
| 17                                   | Plug socket with cable<br>KMEB                                    | ■                        | ■                     | ■                        | ■                     | 37              |
| 18                                   | Plug socket<br>MSSD-EB  | ■                        | ■                     | ■                        | ■                     | 37              |
| 19                                   | Locking clip<br>CPV18-HV  | ■                        | ■                     | ■                        | ■                     | 38              |
| 20                                   | Connecting cable<br>NEBU-M12G5                                    | ■                        | ■                     | ■                        | ■                     | 38              |
| 21                                   | Connecting cable<br>NEBU-M12W5                                    | ■                        | ■                     | ■                        | ■                     | 38              |

1) Module connector MS6-MV [5] or mounting bracket MS6-WP/WPB/WPE/WPM [6] is required for mounting.

## Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

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Type codes

|                             |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
|-----------------------------|------------------------------------|----|---|---|---|----|---|-----|---|---|---|-------|---|---|
|                             |                                    | MS | 6 | N | - | SV | - | 1/2 | - | C | - | 10V24 | - | S |
| <b>Series</b>               |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| MS                          | Standard service unit              |    |   |   |   |    |   |     |   |   |   |       |   |   |
| <b>Size</b>                 |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| 6                           | Grid dimension 62 mm               |    |   |   |   |    |   |     |   |   |   |       |   |   |
| <b>Thread</b>               |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| N                           | NPT thread                         |    |   |   |   |    |   |     |   |   |   |       |   |   |
| <b>Service function</b>     |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| SV                          | Soft-start and quick exhaust valve |    |   |   |   |    |   |     |   |   |   |       |   |   |
| <b>Pneumatic connection</b> |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| 1/2                         | Female thread G1/2                 |    |   |   |   |    |   |     |   |   |   |       |   |   |
| <b>Performance level</b>    |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| C                           | Category 1, to EN ISO 13849-1      |    |   |   |   |    |   |     |   |   |   |       |   |   |
| <b>Supply voltage</b>       |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| 10V24                       | Supply voltage 24 V DC             |    |   |   |   |    |   |     |   |   |   |       |   |   |
| <b>Silencer</b>             |                                    |    |   |   |   |    |   |     |   |   |   |       |   |   |
| S                           | Silencer                           |    |   |   |   |    |   |     |   |   |   |       |   |   |

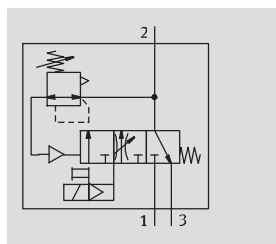
Additional variants can be ordered using the modular product system → 10

- Connecting plates
- Supply voltage
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- Tamper protection
- Flow direction

# Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

Technical data

## Function



## Flow rate

5,700 l/min

## Temperature range

0 ... +60 °C

## Pressure

3 ... 18 bar

[www.festo.com/en/](http://www.festo.com/en/)

Spare\_parts\_service



Electro-pneumatic soft-start and quick exhaust valve for gradual pressurisation and quick exhausting of system components (single channel).

The main flow control valve in the cover permits a gradual build-up of output pressure p2. Once the output pressure p2 has reached the set pressure switchover point (switching pressure), the valve opens and the full operating pressure p1 is present at the output.

- Suitable for applications with high flow rates and restricted space with medium safety requirements up to controller category 1, performance level "c"
- High volumetric flow rate for pressurisation and venting
- The filling flow rate can be set via a flow control valve for gradual pressure build-up
- Adjustable pressure switchover point
- Optional pressure sensor
- Optional cover for the control sections as tamper protection

## Safety characteristics

|                        |  |
|------------------------|--|
| Conforms to standard   | EN ISO 13849-1   |
| Safety function        | Venting  |
| Performance level (PL) | Venting: up to category 1, PL c  |
| Proven component       | Yes  |
| Shock resistance       | Shock test with severity level 2 according to FN 942017-5 and EN 60068-2-27                |
| Vibration resistance   | Transport application test with severity level 2 according to FN 942017-4 and EN 60068-2-6 |

## General technical data

|                           |   |   |
|---------------------------|---|---|
| Pneumatic connection 1, 2 | NPT1/2-14 (female thread)   | NPT1/4-18 ... NPT3/4-14 (with connecting plate AQ...) |
| Pneumatic connection 3    | NPT3/4-14   |   |
| Actuation type            | Electric  |   |
| Design                    | Piston spool valve  |   |
| Type of mounting          | Via accessories   |   |
|                           | In-line installation  |   |
| Mounting position         | Any   |   |
| Pressure indicator        | Via pressure sensor for displaying output pressure via LCD display and electrical output                  |   |
|                           | Via pressure sensor for displaying output pressure via operational status indicator and electrical output |   |
|                           | Via pressure gauge for displaying output pressure   |   |
|                           | Via pressure gauge with red/green scale for displaying output pressure                                    |   |
|                           | G1/4 prepared   |   |
| Valve function            | 3/2-way valve, closed, single solenoid  |   |
|                           | Soft-start function, adjustable   |   |
| Non-overlapping           | Yes   |   |
| Exhaust function          | No flow control   |   |
| Reset method              | Mechanical spring   |   |
| Type of control           | Piloted   |   |
| Pilot air supply          | Internal  |   |
| Sealing principle         | Soft  |   |

# Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

Technical data

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| Flow rate characteristics                   |                                     |
|---|-------------------------------------|
| Pneumatic connection                        | Female thread NPT $\frac{1}{2}$ -14 |
| Standard nominal flow rate $q_{N1}$ [l/min] |                                     |
| In main flow direction 1 $\rightarrow$ 2    | 5,700                               |
| In venting direction 2 $\rightarrow$ 3      | 7,600 <sup>2)</sup>                 |
| C value [l/s*min]                           |                                     |
| In main flow direction 1 $\rightarrow$ 2    | 23.2                                |
| In venting direction 2 $\rightarrow$ 3      | 25.6                                |
| b value                                     |                                     |
| In main flow direction 1 $\rightarrow$ 2    | 0.4                                 |
| In venting direction 2 $\rightarrow$ 3      | 0.4                                 |

1) Measured at  $p_1 = 6$  bar and  $p_2 = 5$  bar,  $\Delta p = 1$  bar

2) Measured with respect to atmosphere with silencer S

| Electrical data       |                       |  |
|-----------------------|-----------------------|--|
| Coil characteristics  | V24, V24P             | 24 V DC: 1.5 W; permissible voltage fluctuations $\pm 10\%$  |
|                       | 10V24, 10V24P         | 24 V DC: 2.5 W; permissible voltage fluctuations $\pm 10\%$  |
|                       | V110                  | 110 V AC: 50/60 Hz; pick-up power 3.0 VA; holding power 2.4 VA; permissible voltage fluctuations $\pm 10\%$    |
|                       | V230                  | 230 V AC: 50/60 Hz; pick-up power 3.0 VA; holding power 2.4 VA; permissible voltage fluctuations $-14\%/+10\%$ |
| Electrical connection | V24, 10V24            | Plug, 2-pin, to EN 175301-803, type C  |
|                       | V110, V230            | Plug, 3-pin, to EN 175301-803, type C  |
|                       | 10V24P                | M12x1, 2-pin, to IEC 61076-2-101   |
|                       | V24P                  | M12x1, 2-pin, to EN 60947-5-2  |
| Protection class      | IP65 with plug socket |  |
| Duty cycle            | [%]                   | 100  |
| Switching time off    | [ms]                  | 65   |
| Switching time on     | [ms]                  | 370  |

| Operating and environmental conditions       |  |                                   |                                   |
|--|--|-----------------------------------|-----------------------------------|
| Variant                                      | Coil characteristic V24, V24P  | Coil characteristic 10V24, 10V24P | Coil characteristic V110, V230    |
| Operating pressure [bar]                     | 3 ... 18 (3 ... 10) <sup>2)</sup>  | 3 ... 10                          | 3 ... 18 (3 ... 10) <sup>2)</sup> |
| Operating medium                             | Compressed air according to ISO 8573-1:2010 [7:4:4]  |                                   |                                   |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |                                   |                                   |
| Ambient temperature [°C]                     | 0 ... +60 (0 ... +50) <sup>2)</sup>  |                                   |                                   |
| Temperature of medium [°C]                   | 0 ... +60 (0 ... +50) <sup>2)</sup>  |                                   |                                   |
| Storage temperature [°C]                     | -10 ... +60 (0 ... +50) <sup>2)</sup>  |                                   |                                   |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |                                   |                                   |
| CE marking (see declaration of conformity)   | –  | –                                 | To EU Low Voltage Directive       |
| Fire classification to UL 94                 | V0-V2  |                                   |                                   |
| Certification                                | C-Tick   |                                   |                                   |

1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

2) With pressure sensor AD...

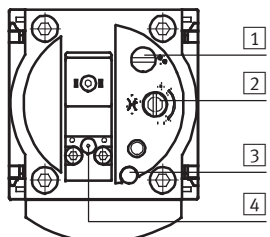
| Weight [g]   |       |
|--|-------|
| Soft-start and quick exhaust valve                 | 886   |
| Soft-start and quick exhaust valve with silencer S | 1,006 |

# Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

Technical data

| Materials         |                            |
|-------------------|----------------------------|
| Housing           | Die-cast aluminium         |
| Piston spool      | High-alloy stainless steel |
| Seals             | Nitrile rubber             |
| Note on materials | RoHS-compliant             |

| Adjusting elements |  |
|--------------------|--|
|--------------------|--|



**1** Screw for adjusting the pressure switchover point

**2** Flow control screw for adjusting the filling time

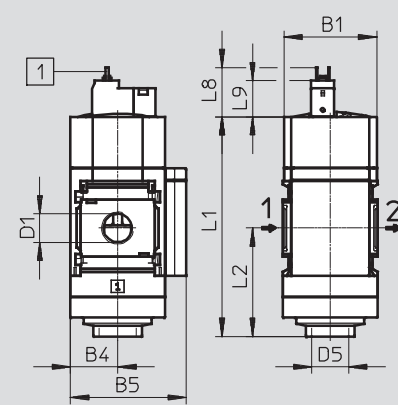
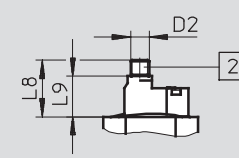
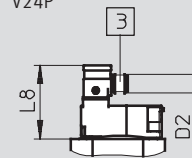
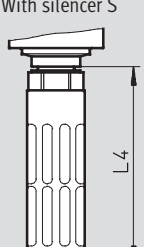
**3** Manual override at the soft-start and quick exhaust valve:

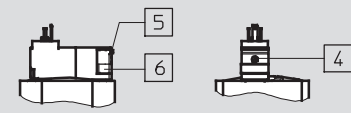
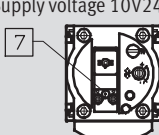
- Detenting/self-resetting as soon as the solenoid coil or manual override at the pilot solenoid valve is actuated.

**4** Manual override at the pilot solenoid valve:

- Non-detenting, actuation from above (with 10V24)
- Non-detenting/detenting, actuation from above (with 10V24P)
- Non-detenting/detenting, actuation from the front (with V24/V24P/V110/V230)

## Dimensions – Basic design Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

| With female thread NPT $\frac{1}{2}$ , with cover plate   |  |
|---|--|
| <p>Supply voltage V24/10V24/V110/V230</p>   | <p>Supply voltage 10V24P</p>  <p>Supply voltage V24P</p>  |
| <p>With silencer S</p>   |  |
| <p><b>1</b> Plug connection to EN 175301-803</p> <p><b>2</b> Electrical connection to IEC 61076-2-101, plug M12x1, 2-pin for NEBU-M12</p> <p><b>3</b> Electrical connection to EN 60947-5-2, plug M12x1, 2-pin for NEBU-M12</p> <p>→ Flow direction</p> |  |

|   |  |  |
|---|--|--|
| <p>Supply voltage V24/V24P/V110/V230</p>  <p><b>Note</b></p> <p>For detenting manual override, remove the grey cover <b>6</b> and push the slide <b>5</b> downwards.</p> | <p>Supply voltage 10V24/10V24P</p>  | <p><b>4</b> Non-detenting manual override (as supplied) at the pilot solenoid valve</p> <p><b>5</b> Slide</p> <p><b>6</b> Cover</p> <p><b>7</b> Non-detenting and detenting manual override (variant 10V24 non-detenting only) at the pilot solenoid valve</p> |
|---|--|--|

| Type      | B1 | B4 | B5 | D1                    | D2    | D5                    | L1  | L2 | L4  |
|-----------|----|----|----|-----------------------|-------|-----------------------|-----|----|-----|
| MS6N-SV-C | 62 | 31 | 76 | NPT $\frac{1}{2}$ -14 | M12x1 | NPT $\frac{3}{4}$ -14 | 144 | 71 | 135 |

| Type      | L8            |       |        |      | L9            |       |        |
|-----------|---------------|-------|--------|------|---------------|-------|--------|
|           | V24/V110/V230 | 10V24 | 10V24P | V24P | V24/V110/V230 | 10V24 | 10V24P |
| MS6N-SV-C | 36.6          | 32.6  | 36.55  | 48   | 26            | 24    | 26     |

## Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

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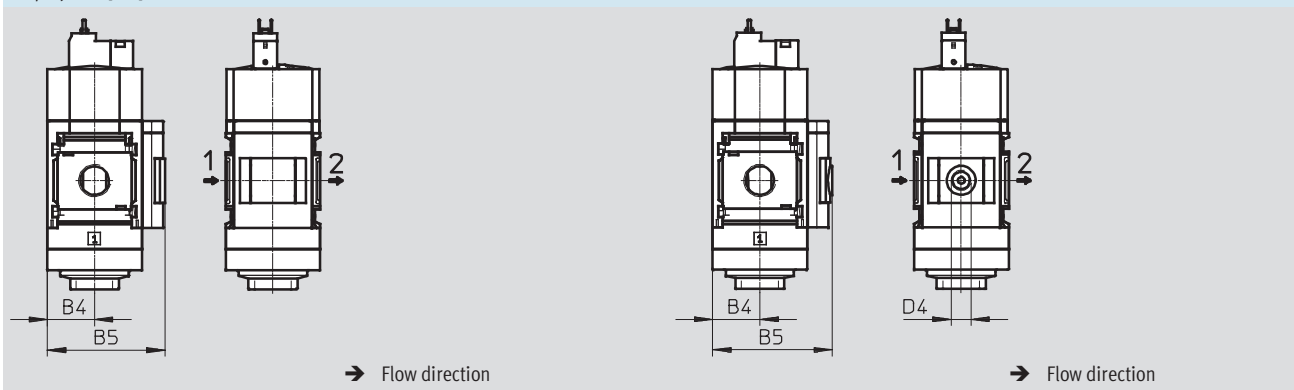
Technical data

### Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Integrated MS pressure gauge with standard scale AG or red/green scale RG, display unit [bar]

Adapter plate A4 for EN pressure gauge  $\frac{1}{4}$ , without pressure gauge



| Type           | B4 | B5   | D4              |
|----------------|----|------|-----------------|
| MS6N-SV-...-AG | 31 | 77   | –               |
| MS6N-SV-...-RG | 31 | 78.5 | –               |
| MS6N-SV-...-A4 | 31 | 78.5 | G $\frac{1}{4}$ |



## Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

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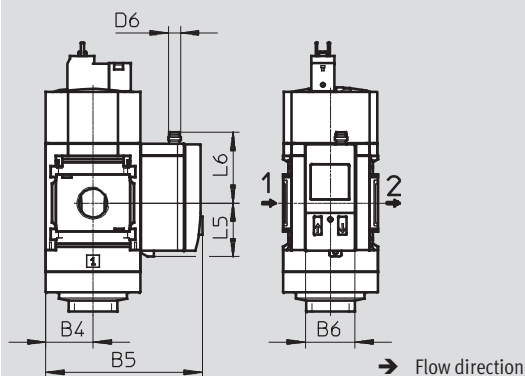
Technical data

### Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Pressure sensor with LCD display AD1 ... AD4

Technical data → Internet: [sde1](#)



Variant AD1:  
SDE1-D10-G2-MS-L-P1-M8 with  
3-pin plug M8x1, 1 switching  
output PNP

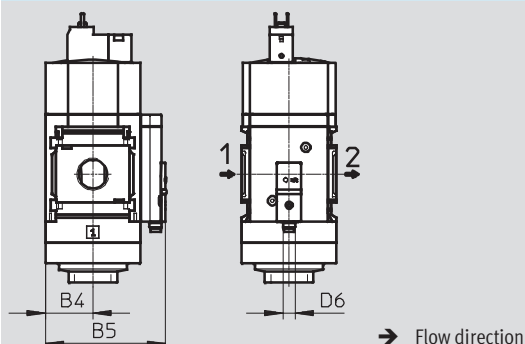
Variant AD2:  
SDE1-D10-G2-MS-L-N1-M8 with  
3-pin plug M8x1, 1 switching  
output NPN

Variant AD3:  
SDE1-D10-G2-MS-L-PI-M12 with  
4-pin plug M12x1, 1 switching  
output PNP and 4 ... 20 mA  
analogue

Variant AD4:  
SDE1-D10-G2-MS-L-NI-M12 with  
4-pin plug M12x1, 1 switching  
output NPN and 4 ... 20 mA  
analogue

Pressure sensor with operational status indicator AD7 ... AD10

Technical data → Internet: [sde5](#)



Variant AD7:  
SDE5-D10-O-...-P-M8 with 3-pin  
plug M8x1, threshold value  
comparator, 1 switching output PNP,  
N/O contact

Variant AD8:  
SDE5-D10-C-...-P-M8 with 3-pin  
plug M8x1, threshold value  
comparator, 1 switching output PNP,  
N/C contact

Variant AD9:  
SDE5-D10-O3-...-P-M8 with 3-pin  
plug M8x1, window comparator, 1  
switching output PNP, N/O contact

Variant AD10:  
SDE5-D10-C3-...-P-M8 with 3-pin  
plug M8x1, window comparator, 1  
switching output PNP, N/C contact

| Type                         | B4 | B5  | B6   | D6    | L5   | L6   |
|------------------------------|----|-----|------|-------|------|------|
| MS6N-SV-...-AD1/AD2          | 31 | 102 | 32.3 | M8x1  | 35.1 | 46.7 |
| MS6N-SV-...-AD3/AD4          |    |     |      | M12x1 |      | 55.8 |
| MS6N-SV-...-AD7/AD8/AD9/AD10 | 31 | 79  | –    | M8x1  | –    | –    |

### Ordering data

| Drawing data |            |               |                       |
|--------------|------------|---------------|-----------------------|
| Size         | Connection | With silencer |                       |
|              |            | Part No.      | Type                  |
| Cover plate  |            |               |                       |
| MS6          | NPT1/2-14  | 8001470       | MS6N-SV-1/2-C-10V24-S |

## Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

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Ordering data – Modular products

| Mandatory data → |        |      |        |          |                                     |                   |   |
|------------------|--------|------|--------|----------|-------------------------------------|-------------------|---|
| Module No.       | Series | Size | Thread | Function | Pneumatic connection                | Performance level | Supply voltage                                      |
| 548714           | MS     | 6    | N      | SV       | 1/2,<br>AQN,<br>AQP,<br>AQR,<br>AQS | C                 | V24,<br>V24P,<br>10V24,<br>10V24P,<br>V110,<br>V230 |
| Ordering example |        |      |        |          |                                     |                   |   |
| 548714           | MS     | 6    | N      | - SV     | - AQP                               | - C               | - 10V24 -   |

| Ordering table |                      |   |           |         |            |
|----------------|----------------------|---|-----------|---------|------------|
| Grid dimension | [mm]                 | 62  | Condition | Code    | Enter code |
| M              | Module No.           | 548714  |           |         |            |
|                | Series               | Standard  |           | MS      | MS         |
|                | Size                 | 6   |           | 6       | 6          |
|                | Thread               | NPT thread  |           | N       | N          |
|                | Function             | Soft-start and quick exhaust valve  |           | -SV     | -SV        |
|                | Pneumatic connection | Female thread NPT1/2  |           | -1/2    |            |
|                |                      | Connecting plate NPT1/4   |           | -AQN    |            |
|                |                      | Connecting plate NPT3/8   |           | -AQP    |            |
|                |                      | Connecting plate NPT1/2   |           | -AQR    |            |
|                |                      | Connecting plate NPT3/4   |           | -AQS    |            |
|                | Performance level    | Category 1, 1-channel, to EN ISO 13849-1  |           | -C      | -C         |
|                | Supply voltage       | 24 V DC (pin allocation to EN 175301), 3 ... 18 bar                                 |           | -V24    |            |
|                |                      | 24 V DC with M12 plug socket adapter (pin allocation to EN 60947-5-2), 3 ... 18 bar |           | -V24P   |            |
|                |                      | 24 V DC (pin allocation to EN 175301), 3 ... 10 bar                                 |           | -10V24  |            |
|                |                      | 24 V DC, M12 to IEC 61076-2-101, 3 ... 10 bar                                       |           | -10V24P |            |
|                |                      | 110 V AC (pin allocation to EN 175301), 3 ... 18 bar                                |           | -V110   |            |
|                |                      | 230 V AC (pin allocation to EN 175301), 3 ... 18 bar                                |           | -V230   |            |

Transfer order code

|        |    |   |   |      |   |   |   |
|--------|----|---|---|------|---|---|---|
| 548714 | MS | 6 | N | - SV | - | C | - |
|--------|----|---|---|------|---|---|---|

# Soft-start and quick exhaust valves MS6N-SV-C, MS series, NPT

Ordering data – Modular products

## → 0 Options

| Silencer | Pressure gauge/<br>pressure gauge<br>alternatives                  | Alternative pressure<br>gauge scale | Type of mounting  | Tamper protection | Flow direction |
|----------|--|-------------------------------------|-------------------|-------------------|----------------|
| S        | AG,<br>A4,<br>RG,<br>AD1, AD2, AD3,<br>AD4, AD7, AD8,<br>AD9, AD10 | PSI,<br>MPA                         | WP,<br>WPM,<br>WB | MK                | Z              |
| - S      | - AG   | -                                   | - WP              | -                 | -              |

| Ordering table                                |  |     |                |       |               |
|---|--|-----|----------------|-------|---------------|
| Grid dimension                                | [mm]   | 62  | Condition<br>s | Code  | Enter<br>code |
| 0 Silencer                                    | Silencer   |     |                | -S    |               |
| Pressure gauge/pressure gauge<br>alternatives | MS pressure gauge  |     |                | -AG   |               |
|   | Adapter plate for EN pressure gauge 1/4, without pressure gauge  |     |                | -A4   |               |
|   | Integrated pressure gauge, red/green scale   | 1   |                | -RG   |               |
|   | Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin   | 2   |                | -AD1  |               |
|   | Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin   | 2   |                | -AD2  |               |
|   | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA   | 2   |                | -AD3  |               |
|   | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA   | 2   |                | -AD4  |               |
|   | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact   | 2   |                | -AD7  |               |
|   | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact   | 2   |                | -AD8  |               |
|   | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact  | 2   |                | -AD9  |               |
|   | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact  | 2   |                | -AD10 |               |
|   | Alternative pressure gauge scale   | psi | 3              | -PSI  |               |
|   |  | MPa | 3              | -MPA  |               |
| Type of mounting                              | Mounting bracket, connecting kit   | 4   |                | -WP   |               |
|   | Mounting bracket, connecting kit   | 4   |                | -WPM  |               |
|   | Mounting bracket, housing  |     |                | -WB   |               |
| Tamper protection                             | Complete (manual override at soft-start/quick exhaust valve locked, adjusting screw locked, manual override at pilot solenoid valve locked (only with supply voltage 10V24, 10V24P)) |     |                | -MK   |               |
| Flow direction                                | Flow direction from right to left  |     |                | -Z    |               |

1 RG Not with alternative pressure gauge scale PSI, PSI scale serves only as an auxiliary scale

2 AD1 ... AD4, AD7 ... AD10 Measuring range max. 10 bar

3 PSI, MPA Not with pressure gauge/pressure gauge alternatives A4, AD1, AD2, AD3, AD4, AD7, AD8, AD9, AD10

4 WP, WPM Only with connecting plate AQN, AQP, AQR or AQS

## Transfer order code

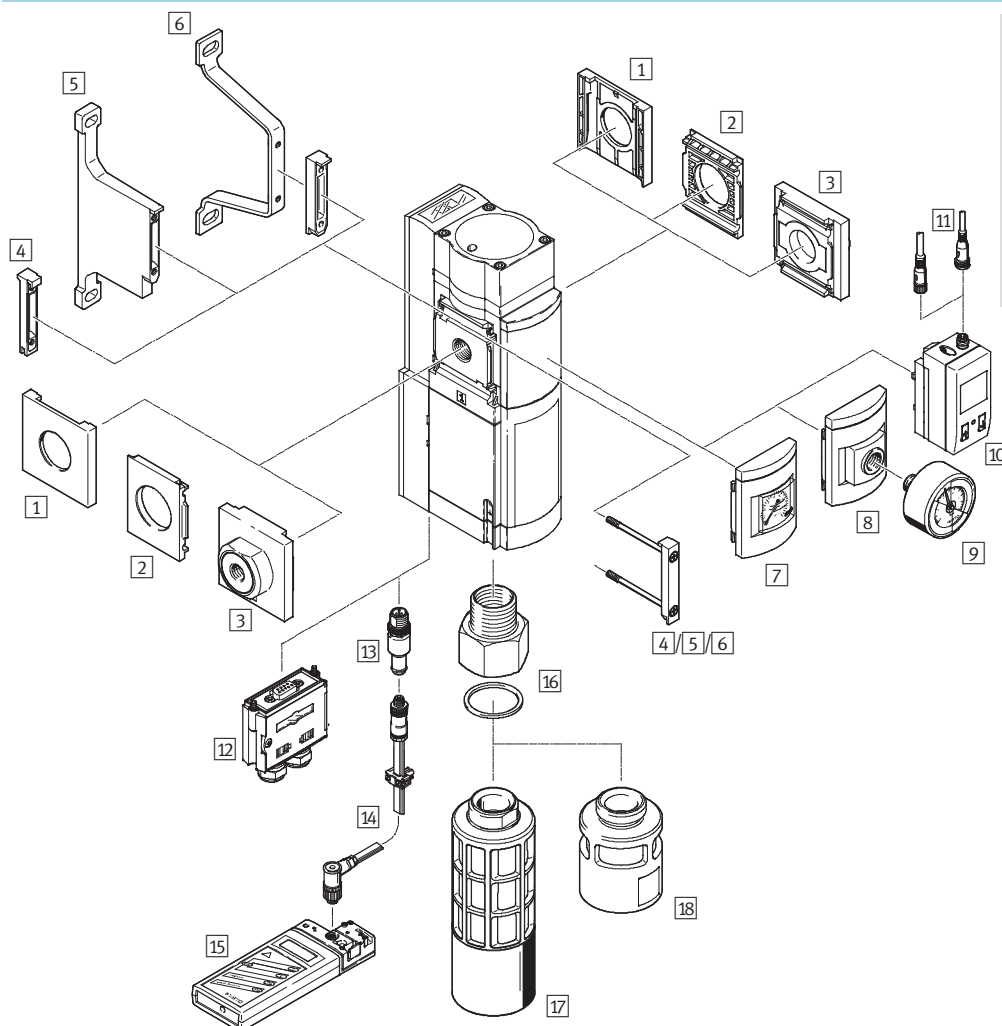
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## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

Peripherals overview

**FESTO**

### Soft-start and quick exhaust valve MS6N-SV-E



#### Note

Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9 → Internet: amv, rmv, armv
- Adapter plate for mounting on profiles → Internet: ipm-80, ipm-40-80, ipm-80-80

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

Peripherals overview

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| Mounting attachments and accessories |  |                          |                       |                          |                       |                 |
|--------------------------------------|--|--------------------------|-----------------------|--------------------------|-----------------------|-----------------|
|                                      |  | Individual device        |                       | Combination              |                       | ➔ Page/Internet |
|                                      |  | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                 |
| 1                                    | Cover cap<br>MS6-END                               | –                        | –                     | ■                        | –                     | ms6-end         |
| 2                                    | Mounting plate<br>MS6-AEND                         | ■ <sup>1)</sup>          | –                     | ■ <sup>1)</sup>          | –                     | ms6-aend        |
| 3                                    | Connecting plate<br>MS6-AQ...                      | –                        | ■ <sup>1)</sup>       | –                        | ■ <sup>1)</sup>       | ms6-aq          |
| 4                                    | Module connector<br>MS6-MV                         | –                        | –                     | ■                        | ■                     | ms6-mv          |
| 5                                    | Mounting bracket<br>MS6-WPB                        | ■                        | ■                     | ■                        | ■                     | ms6-wpb         |
| 6                                    | Mounting bracket<br>MS6-WPE                        | ■                        | ■                     | ■                        | ■                     | ms6-wpe         |
| 7                                    | MS pressure gauge<br>AG                            | ■                        | ■                     | ■                        | ■                     | 22              |
| 8                                    | Adapter plate for EN pressure gauge ¼<br>A4        | ■                        | ■                     | ■                        | ■                     | 22              |
| 9                                    | Pressure gauge<br>MA                               | ■                        | ■                     | ■                        | ■                     | 38              |
| 10                                   | Pressure sensor with LCD display<br>AD1 ... AD4    | ■                        | ■                     | ■                        | ■                     | 22              |
| 11                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4 | ■                        | ■                     | ■                        | ■                     | 38              |
| 12                                   | Multi-pin plug socket<br>NECA                      | ■                        | ■                     | ■                        | ■                     | 34              |
| 13                                   | AS-i configuration plug<br>CACC                    | ■                        | ■                     | ■                        | ■                     | 36              |
| 14                                   | Addressing cable<br>KASI-ADR                       | ■                        | ■                     | ■                        | ■                     | kasi-asi        |
| 15                                   | Addressing device<br>ASI-PRG-ADR                   | ■                        | ■                     | ■                        | ■                     | asi-prg-adr     |
| 16                                   | Adapter<br>AD                                      | ■                        | ■                     | ■                        | ■                     | 37              |
| 17                                   | Silencer<br>UOS-1                                  | ■                        | ■                     | ■                        | ■                     | 35              |
| 18                                   | Silencer<br>UOS-1-LF                               | ■                        | ■                     | ■                        | ■                     | 35              |

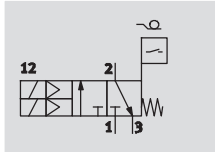
1) Module connector MS6-MV or mounting bracket MS6-WPB/WPE is required for mounting.

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

Technical data

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### Function



### Flow rate

4,300 l/min

### Temperature range

-10 ... +50 °C

### Pressure

3.5 ... 10 bar

[www.festo.com/en/](http://www.festo.com/en/)

Spare\_parts\_service



The electro-pneumatic soft-start and quick exhaust valve is used to reduce pressure quickly and reliably and to build up pressure gradually in industrial pneumatic systems and terminals.

The device is a self-testing, redundant mechatronic system conforming to the

requirements of EN ISO 13849-1. The safety-related pneumatic protection objective of safe venting is also guaranteed in the event of faults inside the valve (e.g. due to wear, contamination, electronic faults). Thanks to the 2-channel design and its monitoring, the device fulfils

controller category 3 and 4 requirements. This enables a performance level of max. "e" to be attained.

The device receives the secure enable signals (EN1/EN2) via the electrical connection (multi-pin plug socket NECA Sub-D, 9-pin or AS-i connecting

cable). The signals in question come from commercially available electronic or electromechanical safety switching devices which monitor the protective equipment of the machine (e.g. emergency stop, light curtain, electrical door switch of a protective enclosure, etc.).

### Note

The MS6N-SV-...-E-10V24 should only be used in combination with the multi-pin plug socket NECA approved for it. The multi-pin plug socket can be ordered via the modular product system (MP... → 30) or as an accessory (NECA → 42).

### Note

To avoid back pressures, it is recommended that the device be operated together with the silencer UOS-1. The silencer can be ordered via the modular product system (SO → 30) or as an accessory (UOS-1 → 43).

### Note

Only devices that do not impair the pneumatic protective measure – safe venting – may be placed downstream of the MS6N-SV-...-E. The MS6N-SV-...-E is not permitted for use as a press safety valve.

- Performance level "e"/category 4 according to EN ISO 13849-1
- Conforms to standard IEC 61508
- Switching time delay adjustable via a flow control valve for gradual pressure build-up
- Optional pressure sensor

| Safety characteristics                     |  |                    |
|--|--|--------------------|
| Type                                       | MS6N-SV-...-E-10V24  | MS6N-SV-...-E-ASIS |
| Conforms to standard                       | EN ISO 13849-1   |                    |
| Safety function                            | Venting  |                    |
| Performance level (PL)                     | Venting: category 4, PL e  |                    |
| Safety integrity level (SIL)               | Venting: SIL 3   |                    |
| Proven component                           | Yes  |                    |
| Note on forced dynamisation                | Switching frequency min. 1/month   |                    |
| Certificate issuing authority              | BGIA 0904020   | –                  |
| CE marking (see declaration of conformity) | To EU Machinery Directive  |                    |
|  | To EU EMC Directive  |                    |
| Shock resistance                           | Shock test with severity level 2 according to FN 942017-5 and EN 60068-2-27                |                    |
| Vibration resistance                       | Transport application test with severity level 2 according to FN 942017-4 and EN 60068-2-6 |                    |

### -H- Note on forced dynamisation: switching frequency min. 1/month

The mechanical system is not tested in the controlled (i.e. pressurised)

state. If the process-related switching frequency (safe venting) is less than

once a month, the machine operator must carry out a forced switch-off.

### Additional functions of MS6N-SV-...-E-ASIS:

- Integrated pressure sensors via AS-i protocol
- Pressure monitoring (under/overshooting)

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

Technical data

**FESTO**

### MS6N-SV-...-E-ASIS in the actuator-sensor interface (AS-i)

The actuator-sensor interface (AS-i) is a system for networking sensors and actuators on the lowest level of the automation hierarchy. It is a non-proprietary, open bus system and enables transfer of data and energy on just one line. This simple method permits an efficient configuration with simultaneously reliable performance. The network topology of the AS-i system can be expanded as desired without any difficulty.

An AS-i network consists of a control unit, a so-called master and the

associated sensor and actuator components, namely the slaves. The master cyclically polls all configured slaves and exchanges input and output data with them. A telegram consists of 4 bits of user data. The master communicates with the slaves via a serial transmission protocol. AS-i Safety at Work is a certified standard that enables safety-related components to be used in the AS-i system. The safe AS-i system is designed for safety applications up to category 4 according to

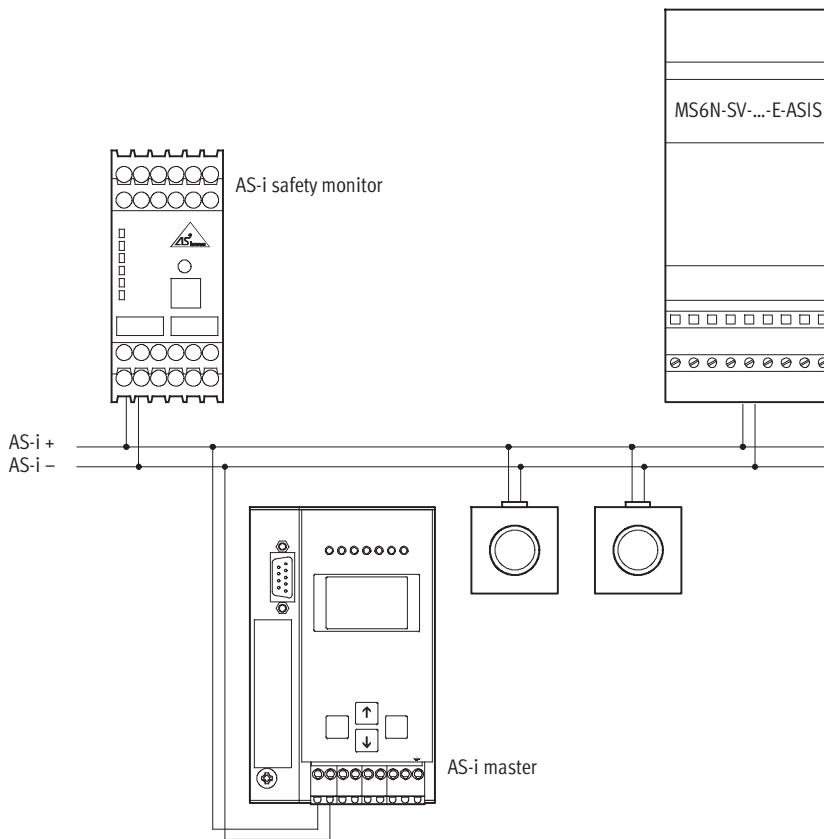
EN ISO 13849-1 PL "e".

Mixed operation of standard components and safety-oriented components is possible. The AS-interface master considers the safety-oriented slaves just like all other slaves and incorporates them into the network. The transmission protocol and the cables in the AS-i system are laid out so that they are also capable of transmitting safety-oriented telegrams.

The AS-i safety monitor is the central safe component and monitors the

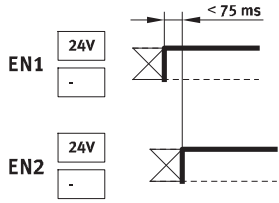
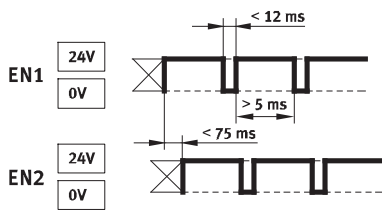
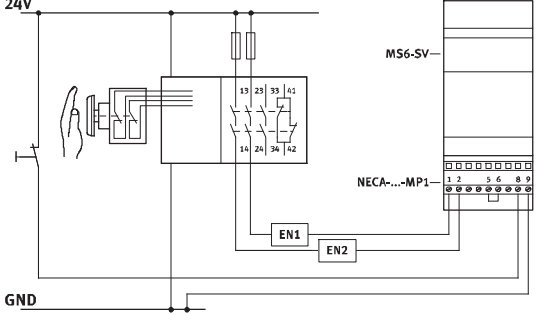
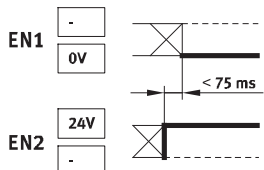
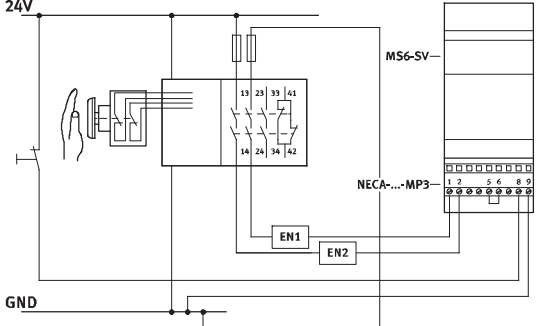
safety-oriented slaves assigned to it within an AS-i system. The safety function is ensured via additional signal transmission between the safety-oriented slaves and the AS-i safety monitor. This transmission takes place with a special safety protocol.

In the case of a stop request or defect, the AS-i safety monitor in protection mode reliably switches the system off with a maximum reaction time of 40 ms.



## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

Technical data

| MS6N-SV-...-E-10V24 with multi-pin plug socket NECA |  |  |
|---|--|--|
| Description   | Enable signals (EN1/EN2)   | Example of connection  |
| NECA-...-MP1  | <ul style="list-style-type: none"> <li>Static enable signals (EN1 = 24 V, EN2 = 24 V).</li> </ul> <br><ul style="list-style-type: none"> <li>Clocked enable signals (EN1 = 0 ... 24 V, EN2 = 0 ... 24 V) for cross-circuit detection. Cross-circuit detection with clock signals is in principle carried out by the safety switching device/safety PLC used.</li> </ul> <br><p><b>Note</b></p> <p>Given the fact that clock outputs from different controller manufacturers are not standardised, their usability must be checked in each case. If the clock pulse is outside of the described limits, this is recognised by the MS6N-SV-...-E-10V24 as an error and a safe switch-off is performed.</p> |    |
| NECA-...-MP3  | <ul style="list-style-type: none"> <li>Static enable signals (EN1 = 0 V, EN2 = 24 V).</li> <li>Static cross-circuit monitoring possible. A cross circuit in lines EN1 and EN2 does not lead to inadvertent start-up of the valve.</li> </ul>    |  |



## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

**FESTO**

Technical data

| General technical data     |  |   |
|----------------------------|--|---|
| Pneumatic connection 1, 2  | NPT1/2-14 (female thread)  | NPT1/4-18 ... NPT3/4-14 (with connecting plate AQ...) |
| Pneumatic connection 3     | NPT1-11 1/2  |   |
| Actuation type             | Electric   |   |
| Design                     | Piston seat  |   |
| Type of mounting           | Via accessories  |   |
|                            | In-line installation   |   |
| Mounting position          | Any  |   |
| Pressure indicator         | Via pressure sensor for displaying output pressure via LCD display and electrical output |   |
|                            | Via pressure gauge for displaying output pressure  |   |
|                            | G1/4 prepared  |   |
| Position sensing principle | Solenoid piston principle  |   |
| Valve function             | 3/2-way valve, closed, single solenoid   |   |
|                            | Soft-start function, adjustable  |   |
| Non-overlapping            | No   |   |
| Exhaust function           | No flow control  |   |
| Manual override            | None   |   |
| Reset method               | Mechanical spring  |   |
| Switching position display | LED and floating contact   |   |
| Type of control            | Piloted  |   |
| Pilot air supply           | Internal   |   |
| Sealing principle          | Soft   |   |

| Flow rate characteristics                                       |                         |  |
|---|-------------------------|--|
| Pneumatic connection  | Female thread NPT1/2-14 |  |
| Standard nominal flow rate q <sub>N</sub> <sup>1)</sup> [l/min] |                         |  |
| In main flow direction 1 → 2                                    | 4,300                   |  |
| In venting direction 2 → 3                                      | 9,000 <sup>2)</sup>     |  |
|   |                         |  |
| C value [l/s*min]   |                         |  |
| In main flow direction 1 → 2                                    | 19.3                    |  |
| In venting direction 2 → 3                                      | 24.6                    |  |
|   |                         |  |
| b value   |                         |  |
| In main flow direction 1 → 2                                    | 0.21                    |  |
| In venting direction 2 → 3                                      | 0.4                     |  |

1) Measured at  $p_1 = 6$  bar and  $p_2 = 5$  bar,  $\Delta p = 1$  bar

2) Measured with respect to atmosphere with silencer UOS-1

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

Technical data

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| Electrical data                                 |                          |                    |
|---|--------------------------|--------------------|
| Type  | MS6N-SV-...-E-10V24      | MS6N-SV-...-E-ASIS |
| Electrical connection                           | Sub-D, 9-pin             | 2x M12             |
| Nominal operating voltage [V DC]                | 24                       | –                  |
| Permissible voltage fluctuations [%]            | ±10                      | –                  |
| Operating voltage range for AS-interface [V DC] | –                        | 22 ... 31.6        |
| Duty cycle [%]                                  | 100                      |                    |
| Max. switching frequency [Hz]                   | 1                        |                    |
| Switching time off [ms]                         | 40                       |                    |
| Switching time on [ms]                          | 130                      |                    |
| Switching position display                      | LED and floating contact | LED and via AS-i   |
| Protection class                                | IP65 with plug socket    |                    |

| AS-i Safety-specific data   |   |
|-----------------------------|---|
| Type                        | MS6N-SV-...-E-ASIS  |
| Fieldbus interface          | Socket M12 (AS-i Out) and plug M12 (AS-i In)  |
| LED displays                | AS-i and status   |
| Device-specific diagnostics | Inputs for cyclical digital data (exhausted, pressurised, fault)<br>Cyclical analogue values (supply pressure p1, output pressure p2)<br>Acyclical values (counter, pressure monitoring, fault, switching frequency exceeded, status) |
| Product identification      | IO code: 0x7<br>Profile: 7.5.5<br>ID code: 0x5<br>ID1: 0xF<br>ID2: 0x5  |
| Vendor ID AS-interface      | 0x014D  |
| Device ID AS-interface      | 0x03A6  |
| Addressing range            | Standard slave: 1 ... 31  |

| Operating and environmental conditions       |  |                    |
|--|--|--------------------|
| Type   | MS6N-SV-...-E-10V24  | MS6N-SV-...-E-ASIS |
| Operating pressure [bar]                     | 3.5 ... 10   | 3.5 ... 10         |
| Operating medium                             | Compressed air according to ISO 8573-1:2010 [7:4:4]  |                    |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |                    |
| Ambient temperature [°C]                     | –10 ... +50 (0 ... +50) <sup>2)</sup>  | 0 ... +50          |
| Temperature of medium [°C]                   | –10 ... +50 (0 ... +50) <sup>2)</sup>  | 0 ... +50          |
| Storage temperature [°C]                     | –10 ... +50 (0 ... +50) <sup>2)</sup>  | 0 ... +50          |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |                    |
| Noise level [dB(A)]                          | 75 (with silencer UOS-1)   |                    |
| CE marking (see declaration of conformity)   | To EU EMC Directive<br>To EU Machinery Directive   |                    |
| Fire classification to UL 94                 | V0-V2  |                    |
| Certification                                | cULus recognized (OL)<br>C-Tick  |                    |

1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

2) With pressure sensor AD...

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

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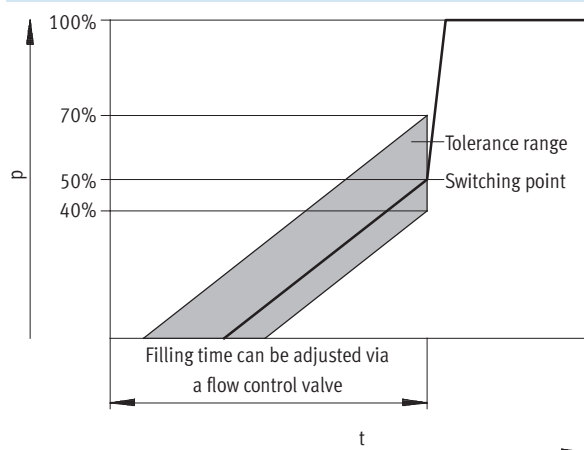
Technical data

| Weight [g]   |       |
|--|-------|
| Soft-start and quick exhaust valve                     | 2,000 |
| Soft-start and quick exhaust valve with silencer UOS-1 | 2,200 |

| Materials         |                            |
|-------------------|----------------------------|
| Housing           | Die-cast aluminium         |
| Piston spool      | High-alloy stainless steel |
| Seals             | Nitrile rubber             |
| Note on materials | RoHS-compliant             |

### Switching point

Pressure  $p$  as a function of time  $t$



#### Note

The +20%/–10% switching point tolerance refers to the operating pressure  $p_1$ .  
Example: A switching point from 1.6 bar to 2.8 bar is permissible at an operating pressure of 4 bar.

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

**FESTO**

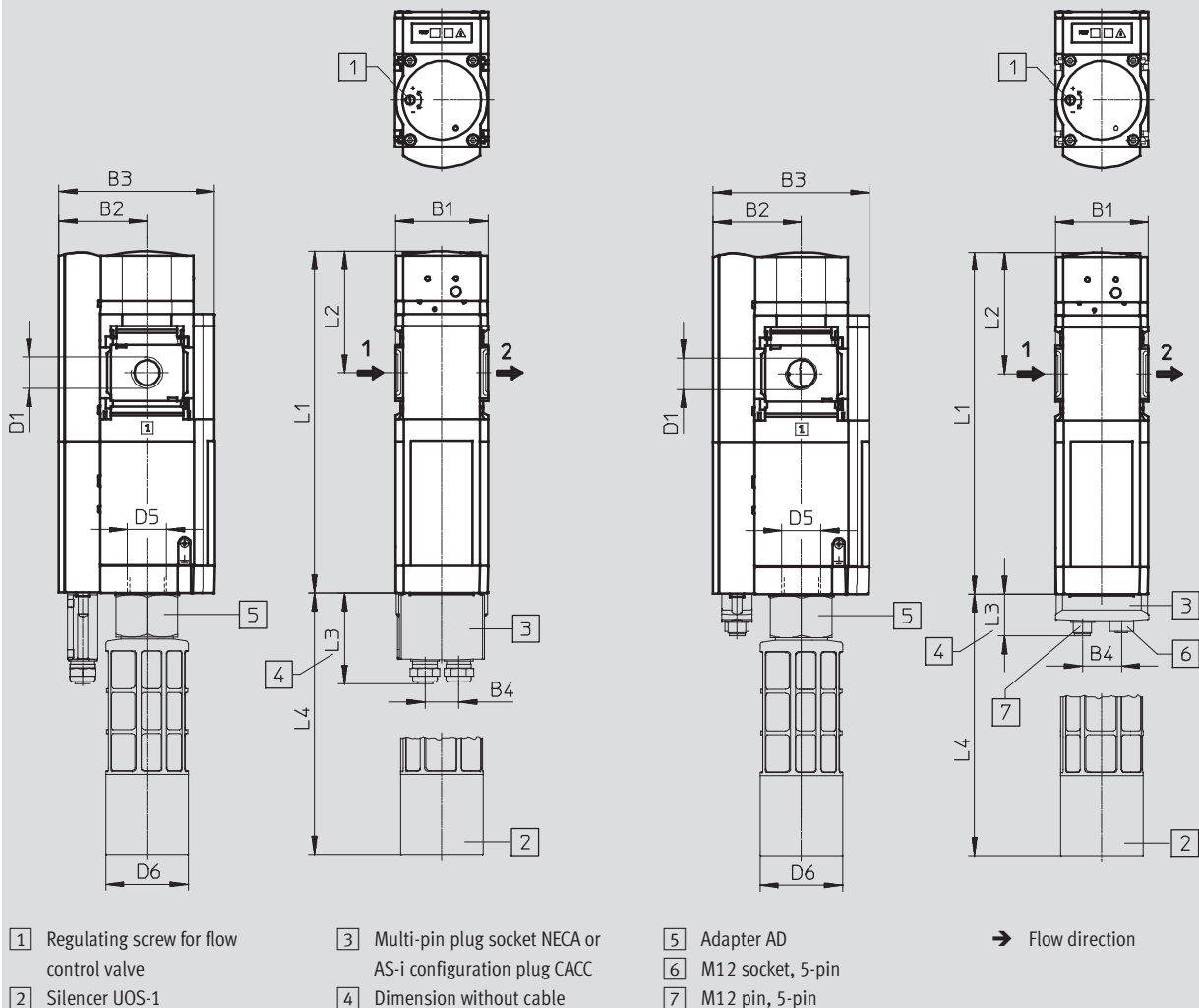
Technical data

### Dimensions – Basic design

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

With supply voltage 10V24,  
with female thread NPT $\frac{1}{2}$ , with cover plate

With supply voltage ASIS,  
with female thread NPT $\frac{1}{2}$ , with cover plate



| Type                            | B1 | B2   | B3  | B4   | D1                    | D5                    | D6 | L1  | L2 | L3   | L4    |
|---------------------------------|----|------|-----|------|-----------------------|-----------------------|----|-----|----|------|-------|
| MS6N-SV- $\frac{1}{2}$ -E-10V24 | 62 | 58.8 | 104 | 22.5 | NPT $\frac{1}{2}$ -14 | NPT1-11 $\frac{1}{2}$ | 55 | 228 | 81 | 61   | 174.3 |
| MS6N-SV- $\frac{1}{2}$ -E-ASIS  |    |      |     | 26.1 |                       |                       |    |     |    | 28.3 |       |

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

**FESTO**

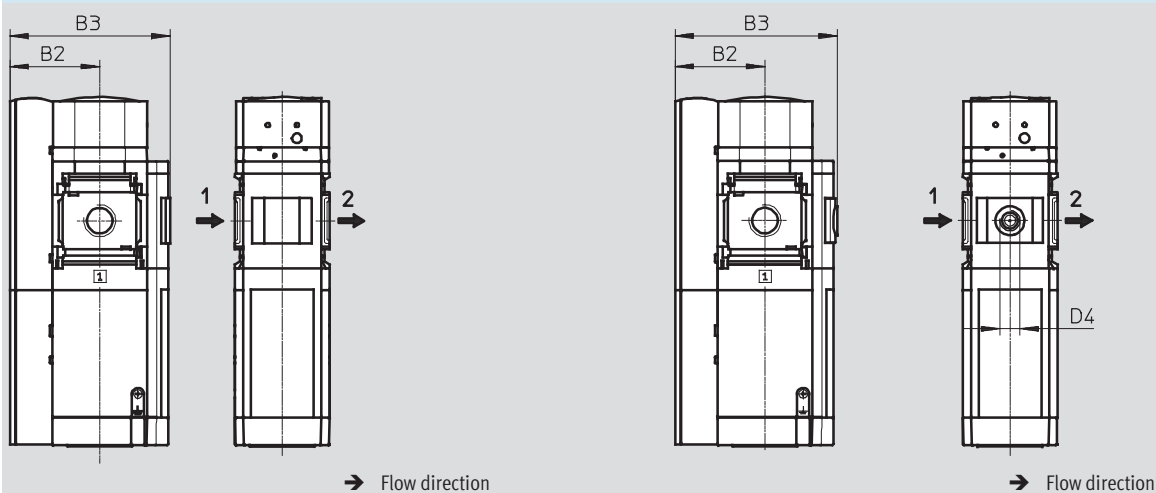
Technical data

### Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Integrated MS pressure gauge AG, display unit [bar]

Adapter plate A4 for EN pressure gauge 1/4, without pressure gauge



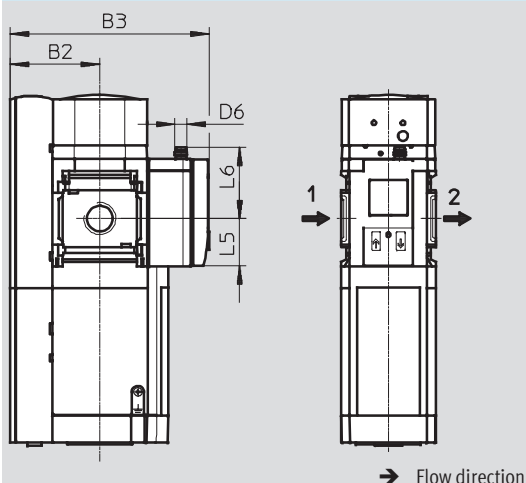
| Type                 | B2   | B3    | D4   |
|----------------------|------|-------|------|
| MS6N-SV-...-E-...-AG | 58.8 | 104.8 | –    |
| MS6N-SV-...-E-...-A4 |      | 106.3 | G1/4 |

### Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Pressure sensor with LCD display AD1 ... AD4

Technical data → Internet: sde1



Variant AD1:  
SDE1-D10-G2-MS-L-P1-M8 with  
3-pin plug M8x1, 1 switching  
output PNP

Variant AD2:  
SDE1-D10-G2-MS-L-N1-M8 with  
3-pin plug M8x1, 1 switching  
output NPN

Variant AD3:  
SDE1-D10-G2-MS-L-PI-M12 with  
4-pin plug M12x1, 1 switching  
output PNP and 4 ... 20 mA  
analogue

Variant AD4:  
SDE1-D10-G2-MS-L-NI-M12 with  
4-pin plug M12x1, 1 switching  
output NPN and 4 ... 20 mA  
analogue

| Type                      | B2   | B3    | D6    | L5   | L6   |
|---------------------------|------|-------|-------|------|------|
| MS6N-SV-...-E-...-AD1/AD2 | 58.8 | 130.8 | M8x1  | 31.2 | 46.7 |
| MS6N-SV-...-E-...-AD3/AD4 |      |       | M12x1 |      | 55.8 |

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

**FESTO**

Ordering data – Modular products

| M Mandatory data → |        |      |        |          |                                     |                   |                |
|--------------------|--------|------|--------|----------|-------------------------------------|-------------------|----------------|
| Module No.         | Series | Size | Thread | Function | Pneumatic connection                | Performance level | Supply voltage |
| 548714             | MS     | 6    | N      | SV       | 1/2,<br>AQN,<br>AQP,<br>AQR,<br>AQS | E                 | 10V24,<br>ASIS |
| Ordering example   |        |      |        |          |                                     |                   |                |
| 548714             | MS     | 6    | N      | - SV     | - AQP                               | - E               | - 10V24 -      |

| Ordering table       |   |    |             |        |            |
|----------------------|---|----|-------------|--------|------------|
| Grid dimension       | [mm]  | 62 | Condition s | Code   | Enter code |
| M Module No.         | 548714  |    |             |        |            |
| Series               | Standard  |    |             | MS     | MS         |
| Size                 | 6   |    |             | 6      | 6          |
| Thread               | NPT thread  |    |             | N      | N          |
| Function             | Soft-start and quick exhaust valve                            |    |             | -SV    | -SV        |
| Pneumatic connection | Female thread NPT1/2  |    |             | -1/2   |            |
|                      | Connecting plate NPT1/4                                       |    |             | -AQN   |            |
|                      | Connecting plate NPT3/8                                       |    |             | -AQP   |            |
|                      | Connecting plate NPT1/2                                       |    |             | -AQR   |            |
|                      | Connecting plate NPT3/4                                       |    |             | -AQS   |            |
| Performance level    | Category 4, 2-channel with self-monitoring, to EN ISO 13849-1 |    |             | -E     | -E         |
| Supply voltage       | 24 V DC (pin allocation to EN 175301)                         |    |             | -10V24 |            |
|                      | 22 ... 31.6 V DC, AS-i Safety at Work, SPEC3.0 Profile 7.5.5  |    |             | -ASIS  |            |

Transfer order code

|        |    |   |   |      |   |   |   |
|--------|----|---|---|------|---|---|---|
| 548714 | MS | 6 | N | - SV | - | E | - |
|--------|----|---|---|------|---|---|---|

## Soft-start and quick exhaust valves MS6N-SV-E, MS series, NPT

Ordering data – Modular products

### → 0 Options

| Silencer    | Pressure gauge/pressure gauge alternatives | Alternative pressure gauge scale | Multi-pin plug socket | Type of mounting | UL certification | Flow direction |
|-------------|--|----------------------------------|-----------------------|------------------|------------------|----------------|
| SO          | AG,<br>A4,<br>AD1,<br>AD2,<br>AD3,<br>AD4  | PSI,<br>MPA                      | MP1,<br>MP3           | WPB              | UL1              | Z              |
| - <b>SO</b> | - <b>AG</b>                                | -                                | - <b>MP1</b>          | - <b>WPB</b>     | -                | -              |

| Ordering table                             |      |  |             |      |  |            |
|--|------|--|-------------|------|--|------------|
| Grid dimension                             | [mm] | 62   | Condition s | Code |  | Enter code |
| 0 Silencer                                 |      | Open silencer  |             | -SO  |  |            |
| Pressure gauge/pressure gauge alternatives |      | MS pressure gauge  |             | -AG  |  |            |
|  |      | Adapter plate for EN pressure gauge 1/4, without pressure gauge  |             | -A4  |  |            |
|  |      | Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin   | 1           | -AD1 |  |            |
|  |      | Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin   | 1           | -AD2 |  |            |
|  |      | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA                       | 1           | -AD3 |  |            |
|  |      | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA                       | 1           | -AD4 |  |            |
|  |      |  |             |      |  |            |
| Alternative pressure gauge scale           |      | psi  | 2           | -PSI |  |            |
|  |      | MPa  | 2           | -MPA |  |            |
| Multi-pin plug socket                      |      | Sub-D, 9-pin, screw terminal, without cable, static enable signals (EN1 = 24 V, EN2 = 24 V)                                  | 1           | -MP1 |  |            |
|  |      | Sub-D, 9-pin, screw terminal, without cable, static enable signals (EN1 = 0 V, EN2 = 24 V), short-circuit detection possible | 1           | -MP3 |  |            |
|  |      |  |             |      |  |            |
| Type of mounting                           |      | Mounting bracket, large clearance  |             | -WPB |  |            |
| UL certification                           |      | cULus, ordinary location for Canada and USA  | 1           | -UL1 |  |            |
| Flow direction                             |      | Flow direction from right to left  |             | -Z   |  |            |

1 AD1, AD2, AD3, AD4, MP1, MP2, UL1

Now with supply voltage ASIS.

2 PSI, MPA Not with pressure gauge/pressure gauge alternatives A4, AD1, AD2, AD3, AD4

Transfer order code

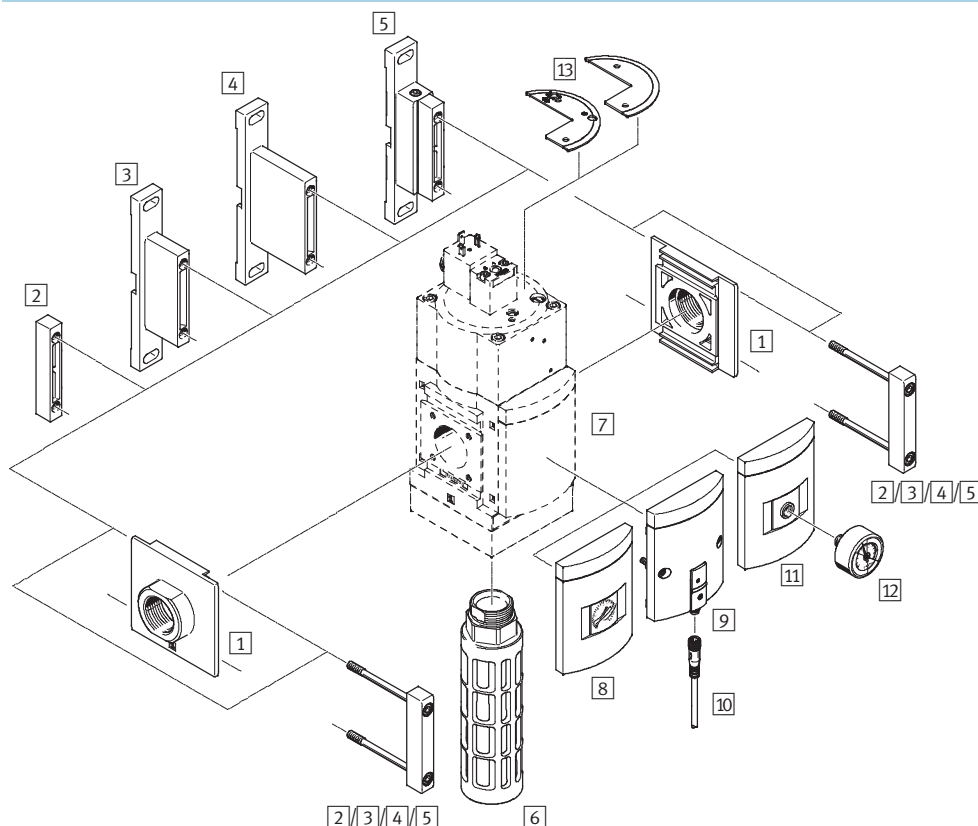
-  -  -  -  -  -  -

## Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

Peripherals overview

**FESTO**

### Soft-start and quick exhaust valve MS9-SV-C



#### Note

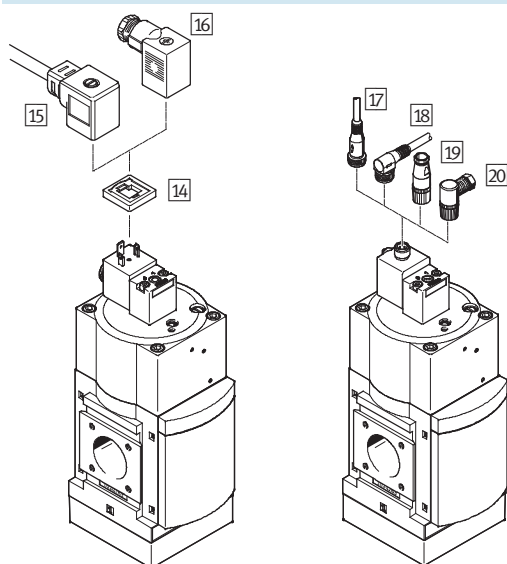
Additional accessories:

- Module connector for combination with size MS6, MS9 or MS12

➔ Internet: rmv, armv

Supply voltage  
V24/V110/V230

Supply voltage  
10V24P





## Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

Peripherals overview

| Mounting attachments and accessories |  |                             |                             |   |                     |
|--------------------------------------|--|-----------------------------|-----------------------------|---|---------------------|
|                                      |  | Individual device           |                             | Combination   | ➔ Page/<br>Internet |
|                                      |  | With female thread N¾ or N1 | With connecting plate AQ... | Module without connecting thread, without connecting plate NG |                     |
| 1                                    | Connecting plate MS9-AQ...                                     | –                           | ■                           | ■   | ms9-aq              |
| 2                                    | Module connector MS9-MV  | –                           | –                           | ■   | ms9-mv              |
| 3                                    | Mounting bracket MS9-WP  | ■                           | ■                           | ■   | ms9-wp              |
| 4                                    | Mounting bracket MS9-WPB                                       | ■                           | ■                           | ■   | ms9-wp              |
| 5                                    | Mounting bracket MS9-WPM                                       | ■                           | ■                           | ■   | ms9-wp              |
| 6                                    | Silencer U-1-B   | ■                           | ■                           | ■   | 37                  |
| 7                                    | Cover plate VS   | ■                           | ■                           | ■   | 32                  |
| 8                                    | MS pressure gauge AG/RG  | ■                           | ■                           | ■   | 32                  |
| 9                                    | Pressure sensor with operational status indicator AD7 ... AD10 | ■                           | ■                           | ■   | 32                  |
| 10                                   | Connecting cable NEBU-M8...-LE3                                | ■                           | ■                           | ■   | 38                  |
| 11                                   | Adapter plate for EN pressure gauge ¼ A4                       | ■                           | ■                           | ■   | 32                  |
| 12                                   | Pressure gauge MA  | ■                           | ■                           | ■   | 38                  |
| 13                                   | Cover MS9-SV-MH/MK   | ■                           | ■                           | ■   | 36                  |
| 14                                   | Illuminating seal MC-LD  | ■                           | ■                           | ■   | 37                  |
| 15                                   | Plug socket with cable KMC                                     | ■                           | ■                           | ■   | 37                  |
| 16                                   | Plug socket MSSD-C   | ■                           | ■                           | ■   | 37                  |
| 17                                   | Connecting cable NEBU-M12G5                                    | ■                           | ■                           | ■   | 38                  |
| 18                                   | Connecting cable NEBU-M12W5                                    | ■                           | ■                           | ■   | 38                  |
| 19                                   | Sensor socket SIE-GD   | ■                           | ■                           | ■   | 38                  |
| 20                                   | Angled socket SIE-WD   | ■                           | ■                           | ■   | 38                  |

## Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

**FESTO**

Type codes

|   |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
|---|--|----|---|---|----|---|----|---|---|---|-----|---|---|---|----|
|   |  | MS | 9 | - | SV | - | NG | - | C | - | V24 | - | S | - | VS |
| <b>Series</b>                                     |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| MS  | Standard service unit                                      |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| <b>Size</b>                                       |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| 9   | Grid dimension 90 mm                                       |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| <b>Service function</b>                           |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| SV  | Soft-start and quick exhaust valve                         |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| <b>Pneumatic connection</b>                       |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| NG  | Module without connecting thread, without connecting plate |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| <b>Performance level</b>                          |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| C   | Category 1, to EN ISO 13849-1                              |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| <b>Supply voltage</b>                             |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| V24   | Supply voltage 24 V DC                                     |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| <b>Silencer</b>                                   |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| S   | Silencer   |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| <b>Pressure gauge/pressure gauge alternatives</b> |  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |
| VS  | Cover plate  |    |   |   |    |   |    |   |   |   |     |   |   |   |    |

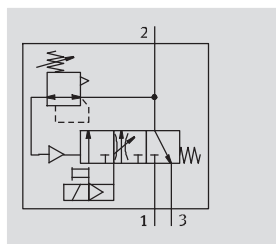
Additional variants can be ordered using the modular product system → 32

- Connecting plates
- Supply voltage
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Type of mounting
- Tamper protection
- UL certification
- Flow direction

# Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

Technical data

## Function



## Flow rate

8,300 ... 16,550 l/min

## Temperature range

0 ... +60 °C

## Pressure

3.5 ... 16 bar

[www.festo.com/en/](http://www.festo.com/en/)

Spare\_parts\_service



Electro-pneumatic soft-start and quick exhaust valve for gradual pressurisation and quick exhausting of system components (single channel).

The main flow control valve in the end cap permits a gradual build-up of output pressure p2. Once the output pressure p2 has reached the set pressure switchover point (switching pressure), the valve opens and the full operating pressure p1 is present at the output.

- Suitable for applications with high flow rates and restricted space with medium safety requirements up to controller category 1, performance level "c"
- High volumetric flow rate for pressurisation and venting

- The filling flow rate can be set via a flow control valve for gradual pressure build-up
- Adjustable pressure switchover point
- Optional pressure sensor
- Optional cover for the control sections as tamper protection

## Safety characteristics

|                        |  |
|------------------------|--|
| Conforms to standard   | EN ISO 13849-1   |
| Safety function        | Venting  |
| Performance level (PL) | Venting: up to category 1, PL c  |
| Shock resistance       | Shock test with severity level 1 according to FN 942017-5 and EN 60068-2-27      |
| Vibration resistance   | Transport application test with severity level 1 to FN 942017-4 and EN 60068-2-6 |

## General technical data

|                           |   |                          |   |   |
|---------------------------|---|--------------------------|---|---|
| Pneumatic connection 1, 2 | NPT3/4-14 (female thread)   | NPT1-11½ (female thread) | NPT1/2-14 ... NPT1½-11½ (with connecting plate AQ...) | – (module without connecting thread, without connecting plate NG) |
| Pneumatic connection 3    | G1  |                          |   |   |
| Actuation type            | Electric  |                          |   |   |
| Design                    | Piston spool valve  |                          |   |   |
| Type of mounting          | Via accessories   |                          |   |   |
|                           | In-line installation  |                          |   |   |
| Mounting position         | Any   |                          |   |   |
| Pressure indicator        | Via pressure sensor for displaying output pressure via operational status indicator and electrical output |                          |   |   |
|                           | Via pressure gauge for displaying output pressure   |                          |   |   |
|                           | Via pressure gauge with red/green scale for displaying output pressure                                    |                          |   |   |
|                           | G¼ prepared   |                          |   |   |
| Valve function            | 3/2-way valve, closed, single solenoid  |                          |   |   |
|                           | Soft-start function, adjustable   |                          |   |   |
| Exhaust function          | No flow control   |                          |   |   |
| Reset method              | Mechanical spring   |                          |   |   |
| Type of control           | Piloted   |                          |   |   |
| Sealing principle         | Soft  |                          |   |   |

# Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

Technical data

**FESTO**

| Electrical data       |                       |  |
|-----------------------|-----------------------|--|
| Coil characteristics  | V24                   | 24 V DC: 8.4 W; permissible voltage fluctuations $\pm 10\%$  |
|                       | 10V24P                | 24 V DC: 2.7 W; permissible voltage fluctuations $\pm 10\%$  |
|                       | V110                  | 110 V AC: 50/60 Hz; pick-up power 14.5/12 VA; holding power 10.5/7.6 VA; permissible voltage fluctuations $\pm 10\%$ |
|                       | V230                  | 230 V AC: 50/60 Hz; pick-up power 14.5/12 VA; holding power 10.5/7.6 VA; permissible voltage fluctuations $\pm 10\%$ |
| Electrical connection | V24, V110, V230       | Plug, square design to EN 175301-803, type A   |
|                       | 10V24P                | M12x1, 4-pin, to IEC 61076-2-101, to DESINA  |
| Protection class      | IP65 with plug socket |  |
| Duty cycle            | [%]                   | 100  |

| Flow rate characteristics                        |                       |                       |                  |        |        |        |        |
|--|-----------------------|-----------------------|------------------|--------|--------|--------|--------|
| Pneumatic connection                             | Female thread         |                       | Connecting plate |        |        |        |        |
|  | NPT $\frac{3}{4}$ -14 | NPT1-11 $\frac{1}{2}$ | AQR              | AQS    | AQT    | AQU    | AQV    |
| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |                       |                       |                  |        |        |        |        |
| In main flow direction 1 $\rightarrow$ 2         | 14,150                | 16,460                | 8,300            | 13,250 | 16,340 | 16,550 | 15,910 |
| In venting direction 2 $\rightarrow$ 3           | 14,790                | 14,140                | 16,500           | 14,400 | 13,800 | 13,200 | 13,200 |
| C value [l/s*min]                                |                       |                       |                  |        |        |        |        |
| In main flow direction 1 $\rightarrow$ 2         | 57.61                 | 69.59                 | 31.43            | 54.24  | 68.24  | 68.45  | 66.07  |
| In venting direction 2 $\rightarrow$ 3           | 55.52                 | 54.01                 | 56.22            | 54.07  | 52.73  | 51.06  | 51.36  |
| b value  |                       |                       |                  |        |        |        |        |
| In main flow direction 1 $\rightarrow$ 2         | 0.37                  | 0.32                  | 0.47             | 0.37   | 0.34   | 0.35   | 0.35   |
| In venting direction 2 $\rightarrow$ 3           | 0.49                  | 0.46                  | 0.60             | 0.49   | 0.47   | 0.45   | 0.44   |

1) Measured at  $p_1 = 6$  bar and  $p_2 = 5$  bar,  $\Delta p = 1$  bar

| Operating and environmental conditions       |  |                            |                                       |
|--|--|----------------------------|---------------------------------------|
| Variant                                      | Coil characteristic V24  | Coil characteristic 10V24P | Coil characteristic V110, V230        |
| Operating pressure [bar]                     | 3.5 ... 16 (3.5 ... 10) <sup>2)</sup>  | 3.5 ... 10                 | 3.5 ... 16 (3.5 ... 10) <sup>2)</sup> |
| Operating medium                             | Compressed air according to ISO 8573-1:2010 [7:4:4]  |                            |                                       |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |                            |                                       |
| Ambient temperature [°C]                     | 0 ... +60 (0 ... +50) <sup>2)</sup>  |                            |                                       |
| Temperature of medium [°C]                   | 0 ... +60 (0 ... +50) <sup>2)</sup>  |                            |                                       |
| Storage temperature [°C]                     | 0 ... +60 (0 ... +50) <sup>2)</sup>  |                            |                                       |
| Corrosion resistance class CRC <sup>1)</sup> | 2  |                            |                                       |
| Noise level <sup>3)</sup> [dB(A)]            | 93 (with silencer S)   |                            |                                       |
| CE marking (see declaration of conformity)   | –  | –                          | To EU Low Voltage Directive           |
| Certification (variant UL1)                  | cULus recognized (OL)  |                            |                                       |

- 1) Corrosion resistance class 2 according to Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- 2) With pressure sensor AD...
- 3) Venting at 10 bar at a distance of 1 m

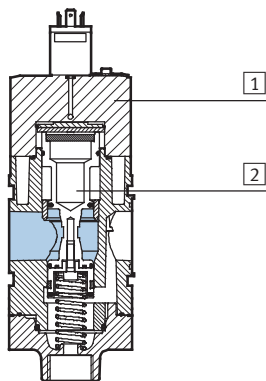
| Weight [g]                                     |       |
|--|-------|
| Soft-start/quick exhaust valve                 | 2,970 |
| Soft-start/quick exhaust valve with silencer S | 3,200 |

# Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

Technical data

## Materials

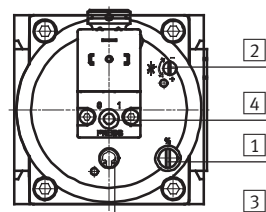
Sectional view



### Soft-start and quick exhaust valve

|                   |              |                    |
|-------------------|--------------|--------------------|
| 1                 | Housing      | Die-cast aluminium |
| 2                 | Piston spool | Brass              |
| -                 | Seals        | Nitrile rubber     |
| Note on materials |              | RoHS-compliant     |

## Adjusting elements



- 1 Screw for adjusting the pressure switchover point
- 2 Flow control screw for adjusting the filling time
- 3 Manual override at the soft-start and quick exhaust valve:
  - Detenting/self-resetting as soon as the solenoid coil or manual override at the pilot solenoid valve is actuated.
- 4 Manual override at the pilot solenoid valve:
  - Non-detenting, actuation from above

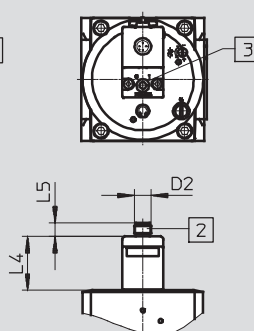
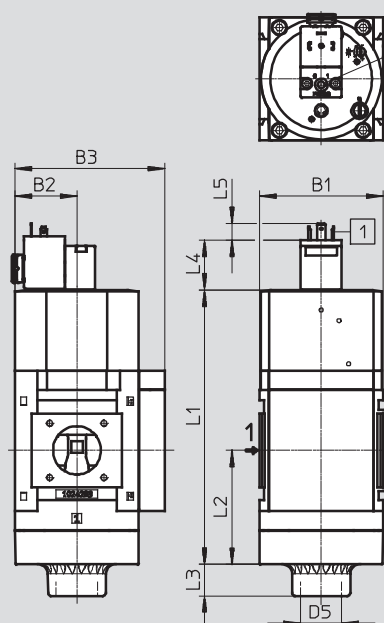
## Dimensions – Basic design

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

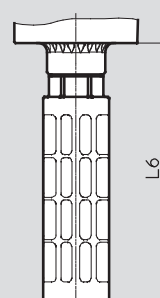
Module without connecting thread, without connecting plate NG, with cover plate VS

Supply voltage V24/V110/V230

Supply voltage 10V24P



With silencer S



- 1 Plug connection to EN 175301-803
- 2 Electrical connection to IEC 61076-2-101, plug M12x1, 4-pin to DESINA
- 3 Manual override

→ Flow direction

| Type                        | B1 | B2 | B3  | D2    | D5 | L1  | L2 | L3 | L4   | L5 | L6  |
|-----------------------------|----|----|-----|-------|----|-----|----|----|------|----|-----|
| MS9-SV-NG-...-V24/V110/V230 | 90 | 45 | 109 | -     | G1 | 200 | 83 | 23 | 36.4 | 12 | 189 |
| MS9-SV-NG-...-10V24P        |    |    |     | M12x1 |    |     |    |    | 39.2 | 10 |     |

## Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

**FESTO**

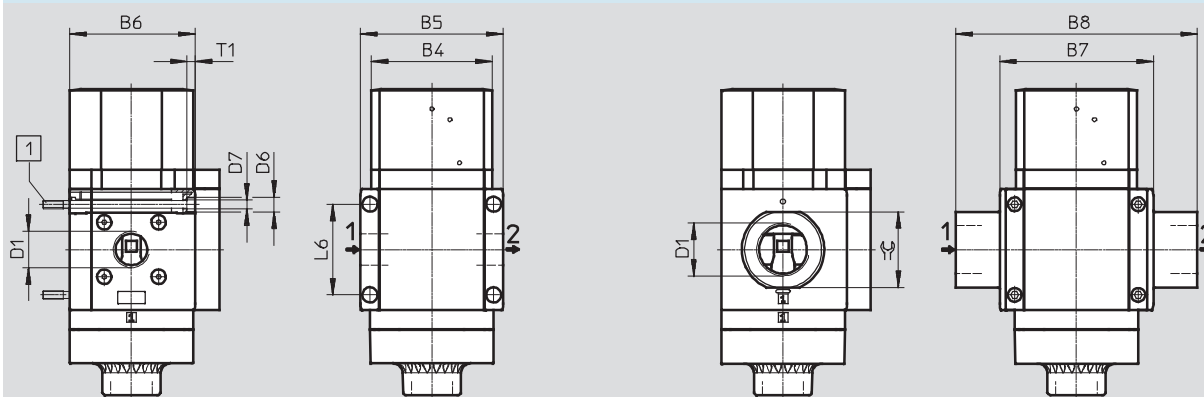
Technical data

### Dimensions – Connecting thread/connecting plate

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

With female thread N $\frac{3}{4}$  or N1

With connecting plate AQ...



1 Mounting screw M6x11.90 to DIN 912 (not included in the scope of delivery) for wall mounting without mounting bracket

→ Flow direction

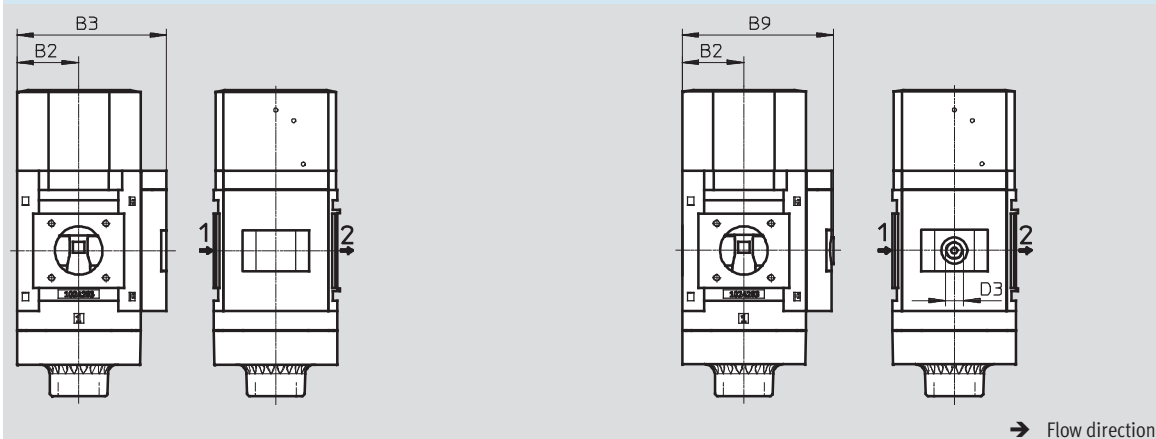
| Type                   | B4 | B5  | B6   | B7  | B8  | D1                                   | D6 | D7  | L6 | T1 | ≅  |
|------------------------|----|-----|------|-----|-----|--------------------------------------|----|-----|----|----|----|
| MS9-SV-N $\frac{3}{4}$ | 90 | 104 | 91.5 | -   | -   | NPT $\frac{3}{4}$ -14                | 11 | 6.5 | 66 | 6  | -  |
| MS9-SV-N1              |    |     |      |     |     | NPT1-11 $\frac{1}{2}$                |    |     |    |    |    |
| MS9-SV-AQR             | -  | -   | -    | 112 | 132 | NPT $\frac{1}{2}$ -14                | -  | -   | -  | -  | 30 |
| MS9-SV-AQS             |    |     |      |     | 132 | NPT $\frac{3}{4}$ -14                |    |     |    |    | 36 |
| MS9-SV-AQT             |    |     |      |     | 142 | NPT1-11 $\frac{1}{2}$                |    |     |    |    | 41 |
| MS9-SV-AQU             |    |     |      |     | 162 | NPT1 $\frac{1}{4}$ -11 $\frac{1}{2}$ |    |     |    |    | 50 |
| MS9-SV-AQV             |    |     |      |     | 176 | NPT1 $\frac{1}{2}$ -11 $\frac{1}{2}$ |    |     |    |    | 55 |

### Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Integrated MS pressure gauge with standard scale AG or red/green scale RG

Adapter plate A4 for EN pressure gauge  $\frac{1}{4}$ , without pressure gauge



→ Flow direction

| Type             | B2 | B3  | B9  | D3              |
|------------------|----|-----|-----|-----------------|
| MS9-SV-...-AG/RG | 45 | 109 | -   | -               |
| MS9-SV-...-A4    |    | -   | 110 | G $\frac{1}{4}$ |

## Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

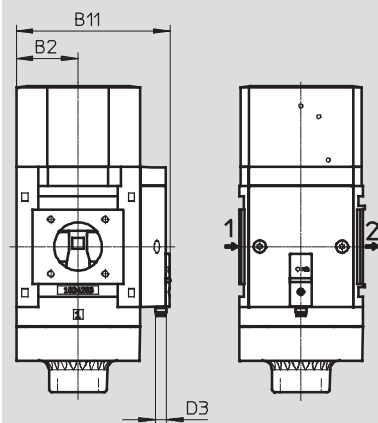
Technical data

### Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

Pressure sensor with operational status indicator AD7 ... AD10

Technical data → Internet: sde5



→ Flow direction

Variant AD7:  
SDE5-D10-O-...-P-M8 with 3-pin  
plug M8x1, threshold value  
comparator, 1 switching output PNP,  
N/O contact

Variant AD9:  
SDE5-D10-O3-...-P-M8 with 3-pin  
plug M8x1, window comparator, 1  
switching output PNP, N/O contact

Variant AD8:  
SDE5-D10-C-...-P-M8 with 3-pin  
plug M8x1, threshold value  
comparator, 1 switching output PNP,  
N/C contact

Variant AD10:  
SDE5-D10-C3-...-P-M8 with 3-pin  
plug M8x1, window comparator, 1  
switching output PNP, N/C contact

| Type                        | B2 | B11 | D3 |
|-----------------------------|----|-----|----|
| MS9-SV-...-AD7/AD8/AD9/AD10 | 45 | 112 | M8 |

### Ordering data

| Size        | Connection | With silencer |                      |
|-------------|------------|---------------|----------------------|
|             |            | Part No.      | Type                 |
| Cover plate |            |               |                      |
| MS9         | —          | 570739        | MS9-SV-NG-C-V24-S-VS |

## Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

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Ordering data – Modular products

| M Mandatory data        |           |          |             |   |                   |                         |
|-------------------------|-----------|----------|-------------|---|-------------------|-------------------------|
| Module No.              | Series    | Size     | Function    | Pneumatic connection                              | Performance level | Supply voltage          |
| 562176                  | MS        | 9        | SV          | N $\frac{3}{4}$ , N1, AQR, AQS, AQT, AQU, AQV, NG | C                 | V24, 10V24P, V110, V230 |
| <b>Ordering example</b> |           |          |             |   |                   |                         |
| <b>562176</b>           | <b>MS</b> | <b>9</b> | <b>- SV</b> | <b>- NG</b>                                       | <b>- C</b>        | <b>- V24</b>            |

| Ordering table       |  |    |             |                                   |            |     |
|----------------------|--|----|-------------|-----------------------------------|------------|-----|
| Grid dimension       | [mm]   | 90 | Condition s | Code                              | Enter code |     |
| M Module No.         | <b>562176</b>  |    |             |                                   |            |     |
| Series               | Standard   |    |             | <b>MS</b>                         |            | MS  |
| Size                 | 9  |    |             | <b>9</b>                          |            | 9   |
| Function             | Soft-start and quick exhaust valve                         |    |             | <b>-SV</b>                        |            | -SV |
| Pneumatic connection | Female thread NPT $\frac{3}{4}$                            |    |             | <b>-N<math>\frac{3}{4}</math></b> |            |     |
|                      | Female thread NPT1   |    |             | <b>-N1</b>                        |            |     |
|                      | Connecting plate NPT $\frac{1}{2}$                         |    |             | <b>-AQR</b>                       |            |     |
|                      | Connecting plate NPT $\frac{3}{4}$                         |    |             | <b>-AQS</b>                       |            |     |
|                      | Connecting plate NPT1                                      |    |             | <b>-AQT</b>                       |            |     |
|                      | Connecting plate NPT1 $\frac{1}{4}$                        |    |             | <b>-AQU</b>                       |            |     |
|                      | Connecting plate NPT1 $\frac{1}{2}$                        |    |             | <b>-AQV</b>                       |            |     |
|                      | Module without connecting thread, without connecting plate |    |             | <b>-NG</b>                        |            |     |
| Performance level    | Category 1, 1-channel, to EN ISO 13849-1                   |    |             | <b>-C</b>                         |            | -C  |
| Supply voltage       | 24 V DC (pin allocation to EN 175301), 16 bar              |    |             | <b>V24</b>                        |            |     |
|                      | 24 V DC, M12 to IEC 61076-2-101, 10 bar                    |    |             | <b>10V24P</b>                     |            |     |
|                      | 110 V AC (pin allocation to EN 175301), 16 bar             |    |             | <b>V110</b>                       |            |     |
|                      | 230 V AC (pin allocation to EN 175301), 16 bar             |    |             | <b>V230</b>                       |            |     |

Transfer order code

|               |           |          |             |  |            |  |
|---------------|-----------|----------|-------------|--|------------|--|
| <b>562176</b> | <b>MS</b> | <b>9</b> | <b>- SV</b> |  | <b>- C</b> |  |
|---------------|-----------|----------|-------------|--|------------|--|



# Soft-start and quick exhaust valves MS9-SV-C, MS series, NPT

Ordering data – Modular products

| Mandatory data |  | Options                          |                  |                   |                  |                |
|----------------|--|----------------------------------|------------------|-------------------|------------------|----------------|
| Silencer       | Pressure gauge/pressure gauge alternatives | Alternative pressure gauge scale | Type of mounting | Tamper protection | UL certification | Flow direction |
| S              | AG, VS, A4, RG, AD7, AD8, AD9, AD10        | PSI, MPA, BAR                    | WP, WPM, WPB     | MH, MK            | UL1              | Z              |
| - S            | - AG                                       | -                                | -                | -                 | -                | -              |

| Ordering table |  |   |             |       |  |            |
|----------------|--|---|-------------|-------|--|------------|
| Grid dimension | [mm]                                       | 90  | Condition s | Code  |  | Enter code |
| M              | Silencer                                   | Silencer  |             | -S    |  | -S         |
|                | Pressure gauge/pressure gauge alternatives | MS pressure gauge   |             | -AG   |  |            |
|                |  | Cover plate   |             | -VS   |  |            |
|                |  | Adapter plate for EN pressure gauge 1/4, without pressure gauge   |             | -A4   |  |            |
|                |  | Integrated pressure gauge, red/green scale  | 1           | -RG   |  |            |
|                |  | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact  | 2           | -AD7  |  |            |
|                |  | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact  | 2           | -AD8  |  |            |
|                |  | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact   | 2           | -AD9  |  |            |
|                |  | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact   | 2           | -AD10 |  |            |
| O              | Alternative pressure gauge scale           | Psi   | 3           | -PSI  |  |            |
|                |  | MPa   | 3           | -MPA  |  |            |
|                |  | Bar   | 3           | -BAR  |  |            |
|                | Type of mounting                           | Mounting bracket  | 4           | -WP   |  |            |
|                |  | Mounting bracket  | 4           | -WPM  |  |            |
|                |  | Mounting bracket for large wall gap   | 4           | -WPB  |  |            |
|                | Tamper protection                          | Without manual override (manual override at soft-start/quick exhaust valve locked, adjusting screws open, manual override at pilot solenoid valve locked) |             | -MH   |  |            |
|                |  | Complete (manual override at soft-start/quick exhaust valve locked, adjusting screws locked, manual override at pilot solenoid valve locked)              |             | -MK   |  |            |
|                | UL certification                           | cULus, ordinary location for Canada and USA   | 5           | -UL1  |  |            |
|                | Flow direction                             | Flow direction from right to left   |             | -Z    |  |            |

- |                       |  |                 |   |
|-----------------------|--|-----------------|---|
| 1 RG                  | Not with alternative pressure gauge scale PSI, PSI scale serves only as an auxiliary scale | 3 PSI, MPA, BAR | Not with pressure gauge/pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10 |
| 2 AD7, AD8, AD9, AD10 | Measuring range max. 10 bar  | 4 WP, WPM, WPB  | Not with module NG  |
|                       |  | 5 UL1           | Not with supply voltage V110, V230  |

Transfer order code

- S - - - - -

# Soft-start and quick exhaust valves MS-SV, MS series, NPT

FESTO

Accessories

## Multi-pin plug socket NECA

(order code in the modular product system: MP1/MP3)

- For soft-start and quick exhaust valve MS6N-SV-E



| Technical data                |                                   |                                       |
|-------------------------------|-----------------------------------|---------------------------------------|
| Type of mounting              | Via through-hole                  |                                       |
| Electrical connection         | Sub-D 9-pin, screw terminal 9-pin |                                       |
| Operating voltage range       | [V DC]                            | 21.6 ... 26.4                         |
| Nominal operating voltage     | [V DC]                            | 24                                    |
| Acceptable current load       | [A]                               | 1.0                                   |
| Connection cross section      | [mm <sup>2</sup> ]                | 0.34 ... 1.0 without wire end sleeves |
|                               | [mm <sup>2</sup> ]                | 0.34 ... 0.5 with wire end sleeves    |
| Permissible cable diameter    | [mm]                              | 5.0 ... 10.0                          |
| Protection class to IEC 60529 | IP65                              |                                       |

| Operating and environmental conditions       |                     |             |
|--|---------------------|-------------|
| Relative air humidity                        | 95%, non-condensing |             |
| Ambient temperature                          | [°C]                | 0 ... +50   |
| Storage temperature                          | [°C]                | -20 ... +70 |
| Corrosion resistance class CRC <sup>1)</sup> | 2                   |             |

1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

| Materials |                |
|-----------|----------------|
| Housing   | PA reinforced  |
| Screws    | Steel          |
| Union nut | Brass          |
| Seals     | Nitrile rubber |

| Dimensions |  | Download CAD Data → <a href="http://www.festo.com/us/cad">www.festo.com/us/cad</a> |
|------------|--|--|
|            |  |  |

| Ordering data |  |            |          |                  |
|---------------|--|------------|----------|------------------|
| Description   | Connection   | Weight [g] | Part No. | Type             |
| For MS6N-SV-E | Without cable, static enable signals (EN1 = 24 V, EN2 = 24 V)                                  | 60         | 548719   | NECA-S1G9-P9-MP1 |
|               | Without cable, static enable signals (EN1 = 0 V, EN2 = 24 V), cross-circuit detection possible | 60         | 552703   | NECA-S1G9-P9-MP3 |

## Soft-start and quick exhaust valves MS-SV, MS series, NPT

Accessories

### Silencer UOS-1

(order code in the modular product system: S0)

- For soft-start and quick exhaust valve MS6N-SV-E

### Silencer UOS-1-LF

- For soft-start and quick exhaust valve MS6N-SV-E

### Note

The space-saving silencer UOS-1-LF may only be used for applications with low exhaust rates. Pneumatic port 2 at the soft-start and quick exhaust valve MS6N-SV-E must be reduced to NPT $\frac{1}{4}$  using a connecting plate MS6-AQN.



UOS-1



UOS-1-LF

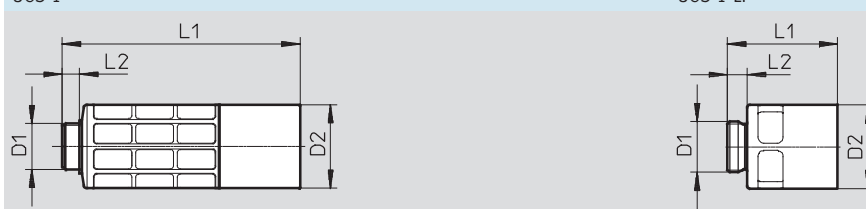
| Technical data                  |                 |
|---------------------------------|-----------------|
| Pneumatic connection            | G1              |
| Design                          | Open silencer   |
| Type of mounting                | Via male thread |
| Mounting position               | Any             |
| Type of seal on threaded collar | No seal         |

| Operating and environmental conditions       |   |
|--|---|
| Operating pressure [bar]                     | 0 ... 10                                  |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [–:–:–] |
| Ambient temperature [°C]                     | –10 ... +50                               |
| Corrosion resistance class CRC <sup>1)</sup> | 2   |

1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

| Materials         |                         |                         |
|-------------------|-------------------------|-------------------------|
| Type              | UOS-1                   | UOS-1-LF                |
| Housing           | POM                     | Wrought aluminium alloy |
| Sleeve            | Wrought aluminium alloy | –                       |
| Silencer insert   | PE                      |                         |
| Note on materials | RoHS-compliant          |                         |
|                   | Free of copper and PTFE |                         |

| Dimensions   |  | Download CAD Data ➔ <a href="http://www.festo.com/us/cad">www.festo.com/us/cad</a> |  |
|--|--|--|--|
| UOS-1  |  | UOS-1-LF   |  |
|  |  |  |  |

| Type     | D1 | D2<br>Ø | L1    | L2   |
|----------|----|---------|-------|------|
| UOS-1    | G1 | 55      | 156.5 | 11.5 |
| UOS-1-LF |    |         | 72.2  | 13   |

| Ordering data |                       |  |            |   |
|---------------|-----------------------|--|------------|---|
| Description   |                       |  | Weight [g] | Part No. Type   |
| For MS6N-SV-E | For high exhaust rate |  | 200        | <b>552252</b> UOS-1   |
|               | For low exhaust rate  |  | 157.9      | <b>1901207</b> UOS-1-LF  |

## Soft-start and quick exhaust valves MS-SV, MS series, NPT

Accessories

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### AS-i configuration plug CACC

- For soft-start and quick exhaust valve MS6N-SV-E-ASIS

Note on materials: RoHS-compliant



1 M12 pin, 4-pin

| Dimensions and ordering data |      |      |                 |          |            |
|------------------------------|------|------|-----------------|----------|------------|
| Description                  | D1   | L1   | $\frac{1}{4}$ " | Part No. | Type       |
| For MS6N-SV-E-ASIS           | 14.5 | 48.3 | 13              | 573923   | CACC-CP-AS |

### Cover MS-SV-MH/MK

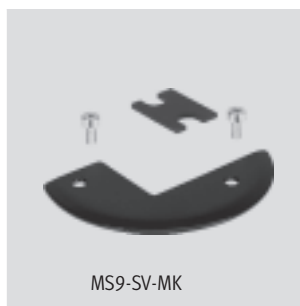
(order code in the modular product system: MH/MK)

- For soft-start and quick exhaust valve MS6N-SV-C/MS9-SV-C

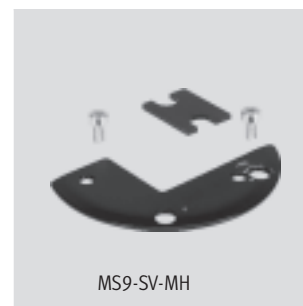
Note on materials: RoHS-compliant






MS6-SV-C-MK



MS9-SV-MK



MS9-SV-MH

| Ordering data |  |                   |          |             |   |
|---------------|--|-------------------|----------|-------------|---|
| Description   |  | CRC <sup>1)</sup> | Part No. | Type        |   |
| For MS6N-SV-C | Tamper protection for manual override at the soft-start and quick exhaust valve, flow control screw, adjusting screw for pressure switchover point and manual override at the pilot solenoid valve (MS6N-SV-...-C-10V24/10V24P only) | 2                 | 8001479  | MS6-SV-C-MK |  |
| For MS9-SV-C  | Tamper protection for manual override at the soft-start and quick exhaust valve, flow control screw, adjusting screw for pressure switchover point and manual override at the pilot solenoid valve                                   | 2                 | 1457669  | MS9-SV-MK   |  |
|               | Tamper protection for manual override at the soft-start and quick exhaust valve and manual override at the pilot solenoid valve  | 2                 | 1457670  | MS9-SV-MH   |  |


1) Corrosion resistance class 2 according to Festo standard 940 070


Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.


## Soft-start and quick exhaust valves MS-SV, MS series, NPT

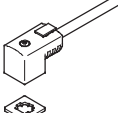
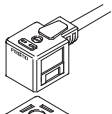
**FESTO**


Accessories

| Ordering data – Adapter AD  |               |                      |    |                            |
|---|---------------|----------------------|----|----------------------------|
|   | Description   | Pneumatic connection |    | Part No. Type              |
|   |               | 1                    | 2  |                            |
|  | For MS6N-SV-E | NPT1-11½             | G1 | <b>546547 AD-1NPT-G1-I</b> |

| Ordering data – Silencer U-...-B  |               |                      |  | Technical data → Internet: u |                  |
|---|---------------|----------------------|--|------------------------------|------------------|
|   | Description   | Pneumatic connection | Order code in the modular product system | Part No.                     | Type             |
|  | For MS6N-SV-C | NPT¾-14              | S  | <b>566823</b>                | <b>U-¾-B-NPT</b> |
|   | For MS9-SV-C  | G1                   | S  | <b>151990</b>                | <b>U-1-B</b>     |

| Ordering data – Plug socket MSSD  |               |                       |                                       | Technical data → Internet: mssd |                      |
|---|---------------|-----------------------|---------------------------------------|---------------------------------|----------------------|
|   | Description   | Electrical connection | Type of mounting for cable connection | Part No.                        | Type                 |
|  | For MS6N-SV-C | 3-pin                 | Clamping screws                       | <b>151687</b>                   | <b>MSSD-EB</b>       |
|   |               | 4-pin                 | Insulation displacement connectors    | <b>192745</b>                   | <b>MSSD-EB-S-M14</b> |
|   |               | 3-pin                 | Clamping screws                       | <b>539712</b>                   | <b>MSSD-EB-M12</b>   |
|   | For MS9-SV-C  | 3-pin                 | Clamping screws                       | <b>34583</b>                    | <b>MSSD-C</b>        |
|   |               | 4-pin                 | Insulation displacement connectors    | <b>192748</b>                   | <b>MSSD-C-S-M16</b>  |
|   |               |                       |                                       |                                 |                      |


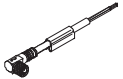
| Ordering data – Plug socket with cable KMEB/KMC                                     |               |                   |                       |                          |                  | Technical data → Internet: kmeb, kmc |                           |
|---|---------------|-------------------|-----------------------|--------------------------|------------------|--------------------------------------|---------------------------|
|   | Description   | Operating voltage | Electrical connection | Switching status display | Cable length [m] | Part No.                             | Type                      |
|  | For MS6N-SV-C | 24 V DC           | 2-pin                 | LED                      | 2.5              | <b>547268</b>                        | <b>KMEB-3-24-2,5-LED</b>  |
|   |               |                   |                       |                          | 5                | <b>547269</b>                        | <b>KMEB-3-24-5-LED</b>    |
|   |               |                   |                       | –                        | 2.5              | <b>547270</b>                        | <b>KMEB-3-24-2,5</b>      |
|   |               |                   |                       |                          | 5                | <b>547271</b>                        | <b>KMEB-3-24-5</b>        |
|   |               |                   | 3-pin                 | LED                      | 2.5              | <b>151688</b>                        | <b>KMEB-1-24-2,5-LED</b>  |
|   |               |                   |                       |                          | 5                | <b>151689</b>                        | <b>KMEB-1-24-5-LED</b>    |
|   |               |                   |                       |                          | 10               | <b>193457</b>                        | <b>KMEB-1-24-10-LED</b>   |
|   |               | 230 V AC          | 3-pin                 | –                        | 2.5              | <b>151690</b>                        | <b>KMEB-1-230AC-2,5</b>   |
|   |               |                   |                       |                          | 5                | <b>151691</b>                        | <b>KMEB-1-230AC-5</b>     |
|   |               |                   |                       |                          |                  |                                      |                           |
|  | For MS9-SV-C  | 24 V DC           | 3-pin                 | LED                      | 2.5              | <b>30931</b>                         | <b>KMC-1-24DC-2,5-LED</b> |
|   |               |                   |                       |                          | 5                | <b>30933</b>                         | <b>KMC-1-24DC-5-LED</b>   |
|   |               |                   |                       |                          | 10               | <b>193459</b>                        | <b>KMC-1-24-10-LED</b>    |
|   |               | 230 V AC          | 3-pin                 | –                        | 2.5              | <b>30932</b>                         | <b>KMC-1-230AC-2,5</b>    |
|   |               |                   |                       |                          | 5                | <b>30934</b>                         | <b>KMC-1-230AC-5</b>      |
|   |               |                   |                       |                          |                  |                                      |                           |



| Ordering data – Illuminating seal MEB-LD/MC-LD                                      |   |                         | Technical data → Internet: meb, mc |                       |
|---|---|-------------------------|------------------------------------|-----------------------|
|   | Description   | Operating voltage range | Part No.                           | Type                  |
|  | For plug socket with cable KMEB and plug socket MSSD-EB | 12 ... 24 V DC          | <b>151717</b>                      | <b>MEB-LD-12-24DC</b> |
|   |   | 230 V DC/AC ±10%        | <b>151718</b>                      | <b>MEB-LD-230AC</b>   |
|   | For plug socket with cable KMC and plug socket MSSD-C   | 12 ... 24 V DC          | <b>19145</b>                       | <b>MC-LD-12-24DC</b>  |
|   |   | 230 V DC/AC ±10%        | <b>19146</b>                       | <b>MC-LD-230AC</b>    |


## Soft-start and quick exhaust valves MS-SV, MS series, NPT


**FESTO**


Accessories


| Ordering data – Connecting cable NEBU-M8  |                       |                 |                  | Technical data → Internet: nebu |                     |
|---|-----------------------|-----------------|------------------|---------------------------------|---------------------|
|   | Electrical connection | Number of wires | Cable length [m] | Part No.                        | Type                |
|  | M8x1, straight socket | 3               | 2.5              | 541333                          | NEBU-M8G3-K-2.5-LE3 |
|   |                       |                 | 5                | 541334                          | NEBU-M8G3-K-5-LE3   |
|  | M8x1, angled socket   | 3               | 2.5              | 541338                          | NEBU-M8W3-K-2.5-LE3 |
|   |                       |                 | 5                | 541341                          | NEBU-M8W3-K-5-LE3   |

| Ordering data – Connecting cable NEBU-M12   |                        |                 |                  | Technical data → Internet: nebu |                      |
|---|------------------------|-----------------|------------------|---------------------------------|----------------------|
|   | Electrical connection  | Number of wires | Cable length [m] | Part No.                        | Type                 |
|  | M12x1, straight socket | 4               | 2.5              | 550326                          | NEBU-M12G5-K-2.5-LE4 |
|   |                        |                 | 5                | 541328                          | NEBU-M12G5-K-5-LE4   |
|  | M12x1, angled socket   | 4               | 2.5              | 550325                          | NEBU-M12W5-K-2.5-LE4 |
|   |                        |                 | 5                | 541329                          | NEBU-M12W5-K-5-LE4   |

| Ordering data – Sensor socket SIE-GD  |                       |  | Technical data → Internet: sie-gd |        |
|---|-----------------------|--|-----------------------------------|--------|
|   | Electrical connection |  | Part No.                          | Type   |
|  | M12x1, 4-pin          |  | 18494                             | SIE-GD |

| Ordering data – Angled socket SIE-WD  |                       |  | Technical data → Internet: sie-wd |           |
|---|-----------------------|--|-----------------------------------|-----------|
|   | Electrical connection |  | Part No.                          | Type      |
|  | M12x1, 4-pin          |  | 12956                             | SIE-WD-TR |

| Ordering data – Pressure gauge MA   |   |                      |               |           |          | Technical data → Internet: ma  |  |
|---|---|----------------------|---------------|-----------|----------|--------------------------------|--|
|   | Nominal size                                      | Pneumatic connection | Display range |           | Part No. | Type                           |  |
|   |   |                      | [bar]         | [psi]     |          |                                |  |
|  | Pressure gauge MA, EN 837-1                       |                      |               |           |          | Technical data → Internet: ma  |  |
|   | 40  | R $\frac{1}{4}$      | 0 ... 16      | 0 ... 232 | 187080   | MA-40-16-R $\frac{1}{4}$ -EN   |  |
|   |   |                      | 0 ... 25      | 0 ... 360 | 187081   | MA-40-25-R $\frac{1}{4}$ -EN   |  |
|   |   | G $\frac{1}{4}$      | 0 ... 16      | 0 ... 232 | 183901   | MA-40-16-G $\frac{1}{4}$ -EN   |  |
|   | Pressure gauge MA, EN 837-1, with red/green range |                      |               |           |          | Technical data → Internet: ma  |  |
|   | 50  | R $\frac{1}{4}$      | 0 ... 16      | –         | 525729   | MA-50-16-R $\frac{1}{4}$ -E-RG |  |

| Ordering data – Locking clip CPV18-HV   |                       |  |  | Technical data → Internet: cpv18-hv |          |                  |
|---|-----------------------|--|--|-------------------------------------|----------|------------------|
|   | Description           |  |  | Part No.                            | Type     | PU <sup>1)</sup> |
|  | For MS6N-SV-C-...-V24 | Cover for the manual override, the clip prevents actuation |  | 530056                              | CPV18-HV | 10               |

1) Packaging unit

## Product Range and Company Overview

### A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



**Custom Automation Components**  
Complete custom engineered solutions



**Custom Control Cabinets**  
Comprehensive engineering support and on-site services



**Complete Systems**  
Shipment, stocking and storage services

### The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



**Electromechanical**  
Electromechanical actuators, motors, controllers & drives



**Pneumatics**  
Pneumatic linear and rotary actuators, valves, and air supply



**PLCs and I/O Devices**  
PLC's, operator interfaces, sensors and I/O devices

### Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

### Quality Assurance, ISO 9001 and ISO 14001 Certifications

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To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.



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# Festo North America

## Festo Regional Contact Center

5300 Explorer Drive  
Mississauga, Ontario L4W 5G4  
Canada

### USA Customers:

For ordering assistance,

**Call:** 1.800.99.FESTO (1.800.993.3786)

**Fax:** 1.800.96.FESTO (1.800.963.3786)

**Email:** [customer.service@us.festo.com](mailto:customer.service@us.festo.com)

For technical support,

**Call:** 1.866.GO.FESTO (1.866.463.3786)

**Fax:** 1.800.96.FESTO (1.800.963.3786)

**Email:** [product.support@us.festo.com](mailto:product.support@us.festo.com)

### Canadian Customers:

**Call:** 1.877.GO.FESTO (1.877.463.3786)

**Fax:** 1.877.FX.FESTO (1.877.393.3786)

**Email:** [festo.canada@ca.festo.com](mailto:festo.canada@ca.festo.com)

## USA Headquarters

Festo Corporation  
395 Moreland Road  
P.O. Box 18023  
Hauppauge, NY 11788, USA  
[www.festo.com/us](http://www.festo.com/us)

## USA Sales Offices

### Appleton

North 922 Tower View Drive, Suite N  
Greenville, WI 54942, USA

### Boston

120 Presidential Way, Suite 330  
Woburn, MA 01801, USA

### Chicago

1441 East Business Center Drive  
Mt. Prospect, IL 60056, USA

### Dallas

1825 Lakeway Drive, Suite 600  
Lewisville, TX 75057, USA

### Detroit – Automotive Engineering Center

2601 Cambridge Court, Suite 320  
Auburn Hills, MI 48326, USA

### New York

395 Moreland Road  
Hauppauge, NY 11788, USA

### Silicon Valley

4935 Southfront Road, Suite F  
Livermore, CA 94550, USA

## United States



**USA Headquarters, East:** Festo Corp., 395 Moreland Road, Hauppauge, NY 11788  
Phone: 1.631.435.0800; Fax: 1.631.435.8026;  
Email: [info@festo-usa.com](mailto:info@festo-usa.com) [www.festo.com/us](http://www.festo.com/us)

## Canada



**Headquarters:** Festo Inc., 5300 Explorer Drive, Mississauga, Ontario L4W 5G4  
Phone: 1.905.624.9000; Fax: 1.905.624.9001;  
Email: [festo.canada@ca.festo.com](mailto:festo.canada@ca.festo.com) [www.festo.ca](http://www.festo.ca)

## Mexico



**Headquarters:** Festo Pneumatic, S.A., Av. Ceylán 3, Col. Tequesquahuac,  
54020 Tlalneapantla, Edo. de México  
Phone: 011 52 [55] 53 21 66 00; Fax: 011 52 [55] 53 21 66 65;  
Email: [festo.mexico@mx.festo.com](mailto:festo.mexico@mx.festo.com) [www.festo.com/mx](http://www.festo.com/mx)

## Central USA

Festo Corporation  
1441 East Business  
Center Drive  
Mt. Prospect, IL 60056, USA  
Phone: 1.847.759.2600  
Fax: 1.847.768.9480



## Western USA

Festo Corporation  
4935 Southfront Road,  
Suite F  
Livermore, CA 94550, USA  
Phone: 1.925.371.1099  
Fax: 1.925.245.1286



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