

Solenoid valves MHJ, fast-switching valves, NPT



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Key features

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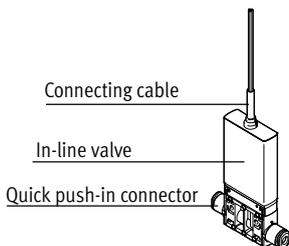
Innovative

- Individual electrical connection via moulded-in cable, control electronics are contained in the valve
- Switching times of less than one millisecond
- Signal control range 3 ... 30 V DC

Reliable

- Convenient servicing thanks to valves that can be replaced quickly and easily
- No electrical plug connectors thanks to integrated control electronics
- Up to 5 billion switching cycles

MHJ10



In-line valve

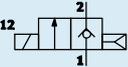
- Integrated quick push-in connector
- Electrical connection with moulded-in connecting cable

Integrated control electronics

- Compact design
- Quick installation

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Product range overview

| Function | Design | Operating voltage [V DC] | Type | Electrical connection | Switching time ¹⁾ | | → Page/ Internet |
|---|---|-----------------------------|-------|-----------------------|------------------------------|-----|---------------------|
| | | | | | Off | On | |
| 2/2-way valve  | MF = Standard nominal flow rate 100 l/min | | | | | | |
| | In-line valve | 24 | MHJ10 | With moulded-in cable | 0.4 | 0.8 | 5 |
| | HF/LP = Standard nominal flow rate 160 l/min | | | | | | |
| | In-line valve | 24 | MHJ10 | With moulded-in cable | 0.5 | 1 | 5 |
| | HF = Standard nominal flow rate 160 l/min | | | | | | |
| | In-line valve | 24 | MHJ10 | With moulded-in cable | 0.6 | 1.2 | 5 |

1) Switching time at 24 V DC and 4 bar

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Type codes

MHJ 10 - S - 2,5 - QS-1/4 - MF - U

Valve series

| | |
|-----|-----------------------|
| MHJ | Fast-switching valves |
|-----|-----------------------|

Width

| | |
|----|-------|
| 10 | 10 mm |
|----|-------|

Control electronics

| | |
|---|-------------------------------------|
| S | With integrated control electronics |
|---|-------------------------------------|

Cable length

| | |
|------|--------|
| 0,35 | 0.35 m |
| 2,5 | 2.5 m |

Push-in connector for in-line valves

| | |
|--------|--|
| QS-1/4 | Push-in connector for tubing O.D. 1/4" |
|--------|--|

Flow class

| | |
|-------|---|
| MF | Mid flow (100 l/min) |
| HF/LP | High flow/low pressure (160 l/min, 0.5 ... 4 bar) |
| HF | High flow (160 l/min) |

Country code

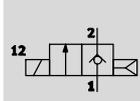
| | |
|---|---------------------|
| U | Imperial connection |
|---|---------------------|

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Technical data

Function



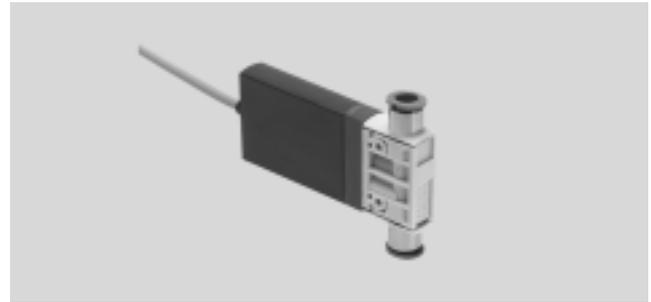
Voltage
24 V DC



Pressure
+0.5 ... +6 bar



Temperature range
-5 ... +60 °C



| General technical data | | | | |
|------------------------------|---|------------------|------|------|
| Type | MF | HF/LP | HF | |
| Valve function | 2/2-way valve, single solenoid, closed | | | |
| Design | Poppet valve without mechanical spring return | | | |
| Sealing principle | Hard | | | |
| Note on operation | Do not operate without flow | | | |
| Actuation type | Electrical | | | |
| Type of reset | Pneumatic spring | | | |
| Type of control | Direct | | | |
| Flow direction | Non-reversible | | | |
| Mounting position | Any | | | |
| Width | [mm] | 10 ¹⁾ | | |
| Grid dimension | [mm] | 10.5 | | |
| Standard nominal flow rate | [l/min] | 100 | 160 | 160 |
| C value | [l/sbar] | 0.4 | 0.66 | 0.66 |
| b value | | 0.38 | 0.36 | 0.36 |
| Type of mounting | In-line installation or via through-holes | | | |
| Pneumatic connection 1 and 2 | QS-1/4 | | | |

1) Min. permitted grid dimension 10.5 mm

| Operating and environmental conditions | | | | |
|--|--|-------------|-------------|-------------|
| Type | MF | HF/LP | HF | |
| Operating medium | Compressed air to ISO 8573-1:2010 [7:4:4] | | | |
| Note on operating/pilot medium | Lubricated operation not possible | | | |
| Operating pressure | [bar] | +0.5 ... +6 | +0.5 ... +4 | +0.5 ... +6 |
| Ambient temperature | [°C] | -5 ... +60 | | |
| With manifold assembly | [°C] | Max. +45 | Max. +45 | - |
| Temperature of medium | [°C] | -5 ... +60 | | |
| Restricted ambient and media temperature | As a function of switching frequency (see graph) | | | |
| Storage temperature | [°C] | -20 ... +50 | | |
| Permissible solenoid surface temperature | [°C] | +120 | | |
| Corrosion resistance class CRC ¹⁾ | 2 | | | |
| CE marking (see declaration of conformity) | To EU EMC Directive ²⁾ | | | |
| Note on materials | RoHS compliant | | | |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

2) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → Certificates.

If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary. Max. permissible cable length 2.5 m.

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| Electrical data | | | | |
|--|------------------------|---|-------|---------------|
| Type | | MF | HF/LP | HF |
| Operating voltage ¹⁾ | [V DC] | 24 ±10% = 21.6 ... 26.4 | | |
| Trigger signal range | [V DC] | 3 ... 30 | | |
| Input resistance | [kΩ] | 34 | | |
| Note on input current | | Linear rise | | |
| | | 0.09 ... 0.44 mA at a trigger signal of 3 ... 15 V DC | | |
| | | 0.44 ... 15.44 mA at a trigger signal of 15 ... 30 V DC | | |
| Power | Low-current phase | [W] | 2 | 3.2 |
| | High-current phase | [W] | 7 | 14.5 |
| Reverse polarity protection | | For operating voltage | | |
| Additional functions | | Spark arresting | | |
| | | Reduction of holding current with energy recovery | | |
| | | Safety shut-off | | |
| Degree of protection to EN 60529 | | IP65 | | |
| Duty cycle ²⁾ | [%] | 100 | 100 | – |
| Operating conditions to DIN VDE 0580 ²⁾ | With individual valve | – | – | S3 50% 20 min |
| | With manifold assembly | – | – | S3 25% 20 min |
| Electric connection | | Cable, 3-wire | | |

1) Any current limit must be set to at least 1.7 A for the switching operation.

2) Air must flow through the valve continuously.

| Switching times and frequencies | | | | |
|---|--------------------|------|---------|-----|
| Type | | MF | HF/LP | HF |
| Maximum switching frequency | [Hz] | 1000 | 500 | 500 |
| Tolerance for switching time | On | [%] | ±15 | |
| | Off | [%] | +15/–25 | |
| Switching times at 24 V DC in new condition | | | | |
| Pressure 0.5 bar | Switching time on | [ms] | 0.8 | 1 |
| | Switching time off | [ms] | 0.5 | 0.8 |
| Pressure 4 bar | Switching time on | [ms] | 0.8 | 1.2 |
| | Switching time off | [ms] | 0.4 | 0.6 |
| Pressure 6 bar | Switching time on | [ms] | 0.9 | 1.3 |
| | Switching time off | [ms] | 0.4 | 0.6 |

 Note

The maximum switching frequency that can be achieved decreases as the temperature of the valve increases or as the operating and ambient temperature increases.

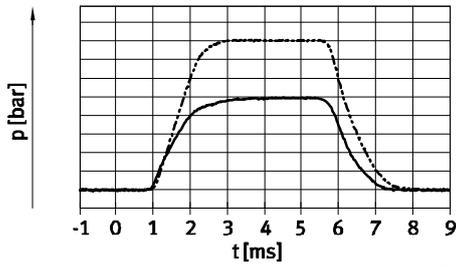
The ambient temperature must therefore be limited accordingly so that the maximum switching frequency can be reached.

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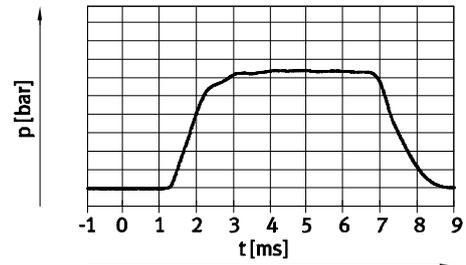
Switching behaviour – Operating pressure

Type MF and HF/LP



— 4 bar
- - - 6 bar

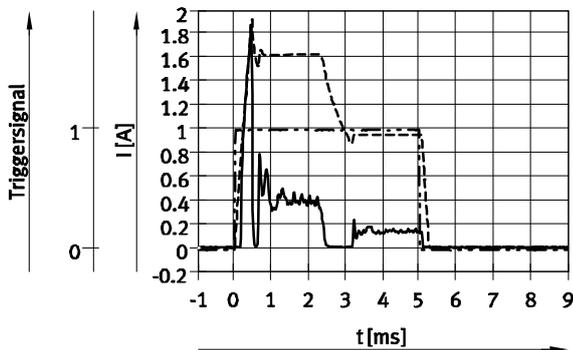
Type HF



— 4 bar

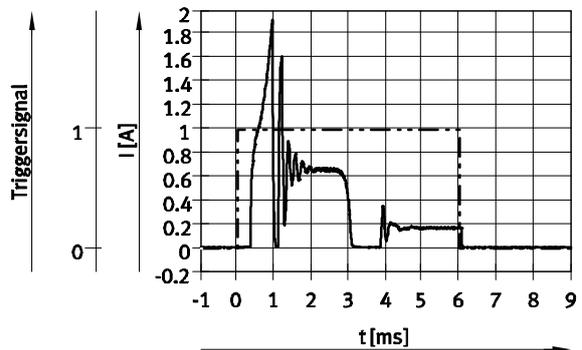
Switching behaviour – Current/voltage curve

Type MF and HF/LP



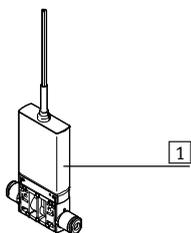
— Current in the supply line at 24 V
- - - Coil current
- · - · Trigger signal

Type HF



— Current in the supply line at 24 V
- - - Trigger signal

Materials



| | | |
|---|--------------|---------------------------------|
| 1 | Housing | Reinforced PA Reinforced PPS |
| - | Seals | HNBR |
| - | Screws | Steel |
| - | Cable sheath | PUR |

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Technical data

Download CAD data → www.festo.com

Wiring allocation:
 BU = GND
 BN = Operating voltage positive
 BK = Trigger signal

| Type | B1 | D1 | D2 | H1 | H2 | H3 | L1 | L2 | L3 | L4 |
|-------|----|------|-----|----|----|----|------|----|----|-----|
| MHJ10 | 10 | 1/4" | 2.4 | 68 | 13 | 7 | 50.5 | 18 | 32 | 9.5 |

| Ordering data | | | | | | | |
|-------------------------------------|------------------------|----------------------------|--------------|----------------|--------------------|---------------|-----------------------------------|
| | Description | Standard nominal flow rate | Cable length | Product weight | Operating pressure | Part No. | Type |
| In-line valve with connecting cable | | | | | | | |
| | 2/2-way solenoid valve | 100 l/min | 0.35 m | 50 g | +0.5 ... +6 bar | 562172 | MHJ10-S-0,35-QS-1/4-MF-U |
| | | | 2.5 m | 85 g | +0.5 ... +6 bar | 565517 | MHJ10-S-2,5-QS-1/4-MF-U |
| | | 160 l/min | 2.5 m | 85 g | +0.5 ... +6 bar | 567800 | MHJ10-S-2,5-QS-1/4-HF/LP-U |
| | | | | | +0.5 ... +4 bar | 567504 | MHJ10-S-2,5-QS-1/4-HF-U |