

## Solenoid valves MHJ, fast-switching valves

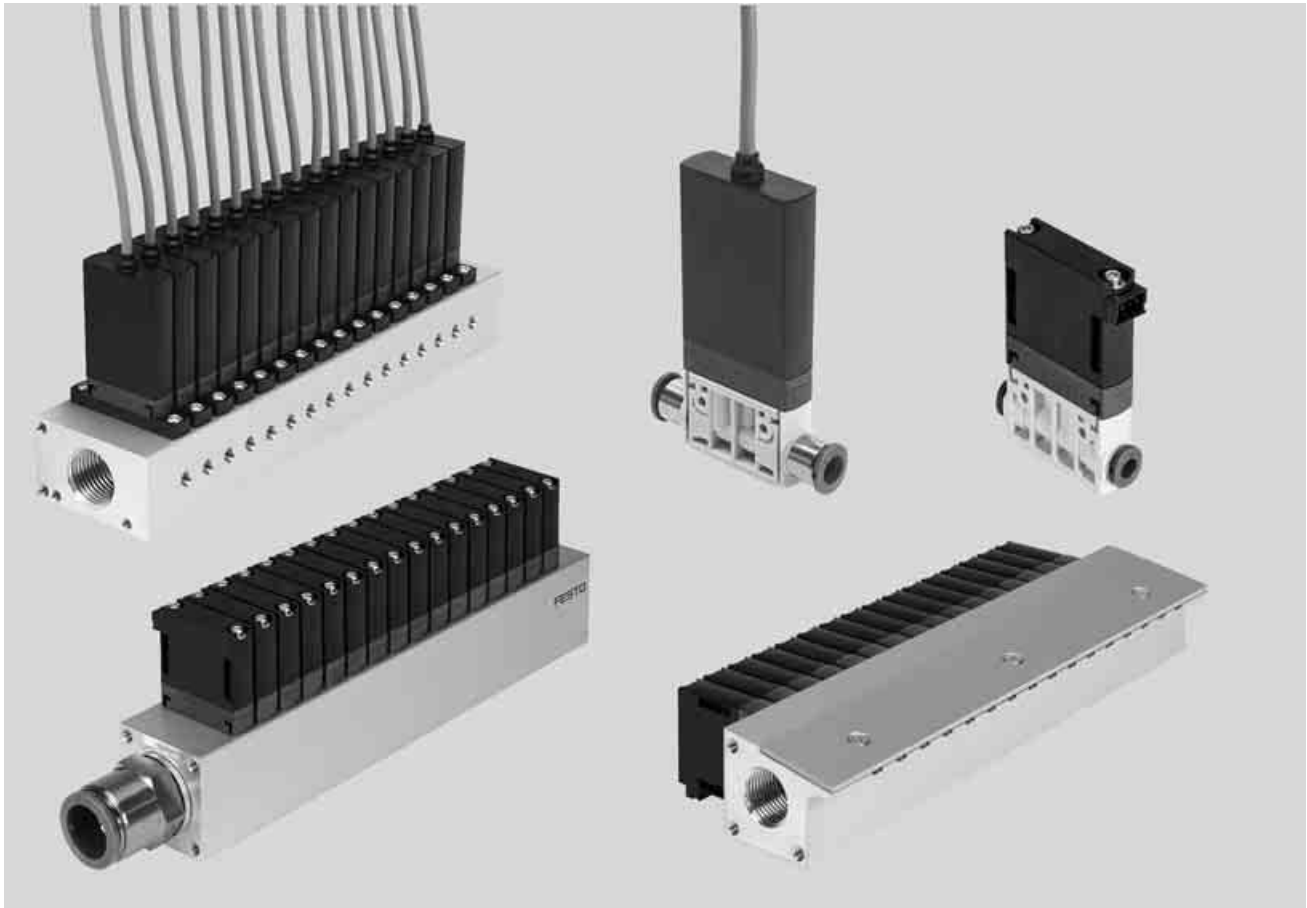
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# Solenoid valves MHJ, fast-switching valves

Key features

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## Innovative

- Individual electrical connection via connecting cable and square plug sockets with integrated control electronics for MHJ9 or via moulded-in cable for MHJ10, control electronics are contained in the valve
- Manifold rail with air nozzle outlet for MHJ9
- Switching times of less than one millisecond
- Signal control range 3 ... 30 V DC

## Versatile

- Modular system offering a range of configuration options
- Identical basic valves for individual valve and manifold assembly
- Flexible air supply with air connection at both ends on the manifold rails
- Control of the MHJ9 valves without plug socket with cable MHJ9-KMH subject to consultation with Festo

## Reliable

- Reliable servicing thanks to valves that can be replaced quickly and easily
- No electrical plug connectors with MHJ10 thanks to integrated control electronics
- Up to 5 billion switching cycles

## Easy to install

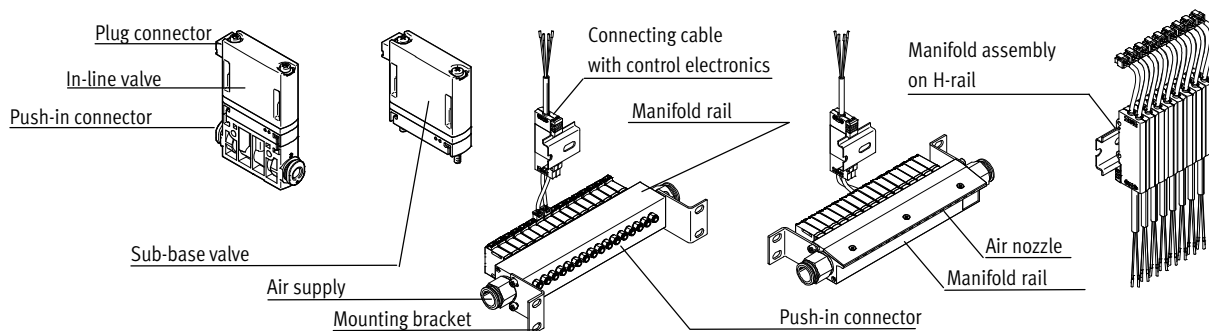
- Solid wall mounting or H-rail mounting of the connecting cables with MHJ9
- Manifold rail for MHJ9 with connecting cable block on H-rail can be mounted directly in the application

# Solenoid valves MHJ, fast-switching valves

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Key features

## MHJ9



### In-line valve

- Integrated push-in connector
- Electrical connection IP40
- Modular design

### Valve manifold with individual outputs

- Air supply at both ends
- Mounting bracket assembly in 4 directions
- Stable manifold rail

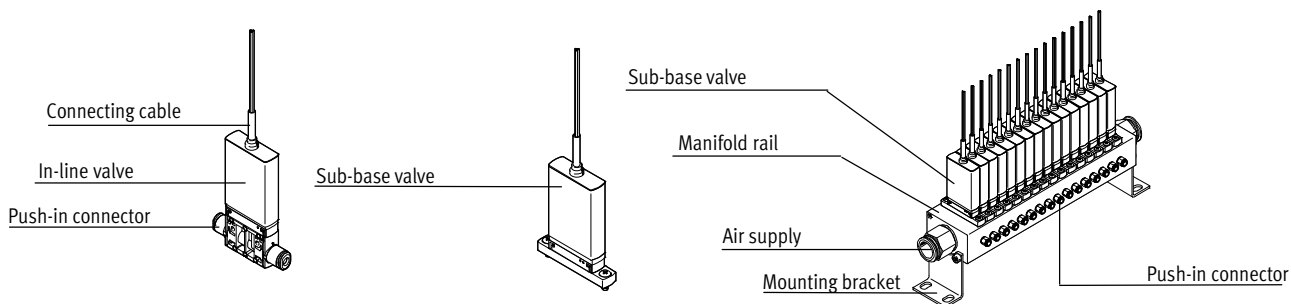
### Valve manifold with air nozzles

- Air supply at both ends
- Mounting bracket assembly in 2 directions
- Accessible air ducts

### Connecting cable with control electronics for two valves

- Individual mounting or on H-rail

## MHJ10



### In-line valve

- Integrated push-in connector
- Electrical connection with moulded-in connecting cable, IP65
- Modular design

### Valve manifold with individual outputs

- Air supply at both ends
- Stable manifold rail

### Integrated control electronics

- Mounting bracket assembly in two directions

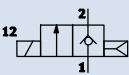
### Integrated control electronics

- Compact design
- Quick installation

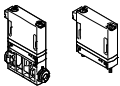
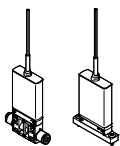
# Solenoid valves MHJ, fast-switching valves

Product range overview

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| Function                                                                                                              | Design                                       | Operating voltage<br>[V DC] | Type                  | Electrical connection | Switching time <sup>1)</sup> |               | → Page/<br>Internet |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------|-----------------------|-----------------------|------------------------------|---------------|---------------------|
|                                                                                                                       |                                              |                             |                       |                       | Off                          | On            |                     |
| <div>2/2-way valve</div> <div></div> | LF = Standard nominal flow rate 50 l/min     |                             |                       |                       |                              |               |                     |
|                                                                                                                       | In-line valve                                | 12 ... 53                   | MHJ9                  | Plug connector        | 0.9                          | 0.7           | LEERER MERKER       |
|                                                                                                                       |                                              | 24                          | MHJ10                 | With moulded-in cable | 1                            | 0.8           | LEERER MERKER       |
|                                                                                                                       | Sub-base valve                               | 12 ... 53                   | MHJ9                  | Plug connector        | 0.9                          | 0.7           | LEERER MERKER       |
|                                                                                                                       |                                              | 24                          | MHJ10                 | With moulded-in cable | 1                            | 0.8           | LEERER MERKER       |
|                                                                                                                       |                                              |                             |                       |                       |                              |               |                     |
|                                                                                                                       | MF = Standard nominal flow rate 100 l/min    |                             |                       |                       |                              |               |                     |
|                                                                                                                       | In-line valve                                | 12 ... 53                   | MHJ9                  | Plug connector        | 0.4                          | 0.8           | LEERER MERKER       |
|                                                                                                                       |                                              | 24                          | MHJ10                 | With moulded-in cable | 0.4                          | 0.8           | LEERER MERKER       |
|                                                                                                                       | Sub-base valve                               | 12 ... 53                   | MHJ9                  | Plug connector        | 0.4                          | 0.8           | LEERER MERKER       |
|                                                                                                                       |                                              | 24                          | MHJ10                 | With moulded-in cable | 0.4                          | 0.8           | LEERER MERKER       |
|                                                                                                                       |                                              |                             |                       |                       |                              |               |                     |
|                                                                                                                       | HF/LP = Standard nominal flow rate 160 l/min |                             |                       |                       |                              |               |                     |
|                                                                                                                       | In-line valve                                | 12 ... 53                   | MHJ9                  | Plug connector        | 0.4                          | 1             | LEERER MERKER       |
|                                                                                                                       |                                              | 24                          | MHJ10                 | With moulded-in cable | 0.5                          | 1             | LEERER MERKER       |
|                                                                                                                       | Sub-base valve                               | 12 ... 53                   | MHJ9                  | Plug connector        | 0.4                          | 1             | LEERER MERKER       |
|                                                                                                                       |                                              | 24                          | MHJ10                 | With moulded-in cable | 0.5                          | 1             | LEERER MERKER       |
|                                                                                                                       |                                              |                             |                       |                       |                              |               |                     |
|                                                                                                                       | HF = Standard nominal flow rate 160 l/min    |                             |                       |                       |                              |               |                     |
|                                                                                                                       | In-line valve                                | 12 ... 53                   | MHJ9                  | Plug connector        | 0.5                          | 1             | LEERER MERKER       |
| 24                                                                                                                    |                                              | MHJ10                       | With moulded-in cable | 0.6                   | 1.2                          | LEERER MERKER |                     |
| Sub-base valve                                                                                                        | 12 ... 53                                    | MHJ9                        | Plug connector        | 0.5                   | 1                            | LEERER MERKER |                     |
|                                                                                                                       | 24                                           | MHJ10                       | With moulded-in cable | 0.6                   | 1.2                          | LEERER MERKER |                     |

1) Switching time at 24 V DC and 4 bar

| Mounting options                                                                    |                   |               |                |
|-------------------------------------------------------------------------------------|-------------------|---------------|----------------|
| Design                                                                              |                   | In-line valve | Sub-base valve |
| MHJ9 with plug connector                                                            |                   |               |                |
|  | Direct mounting   | ■             | –              |
|                                                                                     | Manifold assembly | –             | ■              |
| MHJ10 with moulded-in cable                                                         |                   |               |                |
|  | Direct mounting   | ■             | –              |
|                                                                                     | Manifold assembly | –             | ■              |

# Solenoid valves MHJ, fast-switching valves

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Type codes

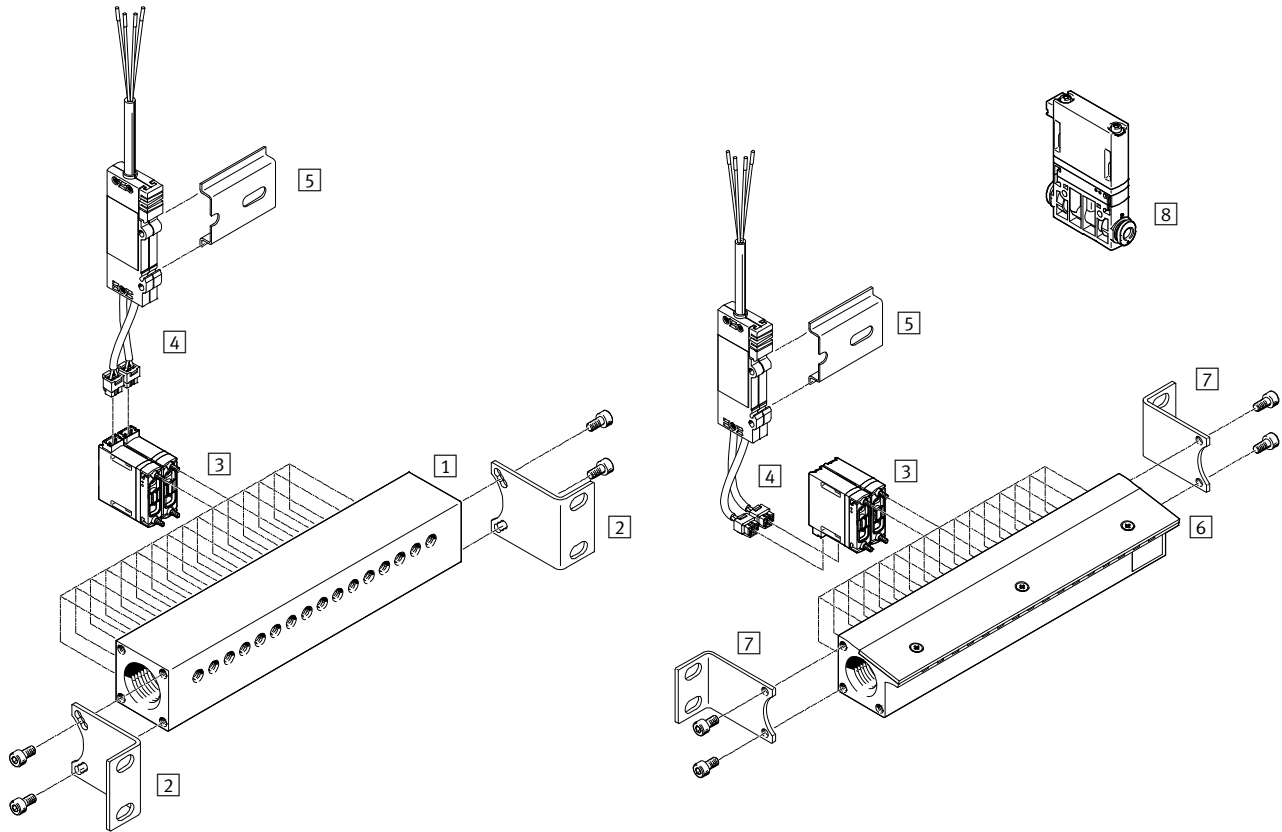
|                                             |                                                            |     |    |   |   |   |     |   |      |   |    |
|---------------------------------------------|------------------------------------------------------------|-----|----|---|---|---|-----|---|------|---|----|
|                                             |                                                            | MHJ | 10 | - | S | - | 2,5 | - | QS-4 | - | MF |
| <b>Valve series</b>                         |                                                            |     |    |   |   |   |     |   |      |   |    |
| MHJ                                         | Fast-switching valves                                      |     |    |   |   |   |     |   |      |   |    |
| <b>Width</b>                                |                                                            |     |    |   |   |   |     |   |      |   |    |
| 9                                           | 9 mm                                                       |     |    |   |   |   |     |   |      |   |    |
| 10                                          | 10 mm                                                      |     |    |   |   |   |     |   |      |   |    |
| <b>Control electronics</b>                  |                                                            |     |    |   |   |   |     |   |      |   |    |
| -                                           | Without integrated control electronics<br>(only with MHJ9) |     |    |   |   |   |     |   |      |   |    |
| S                                           | With integrated control electronics<br>(only with MHJ10)   |     |    |   |   |   |     |   |      |   |    |
| <b>Cable length for MHJ10</b>               |                                                            |     |    |   |   |   |     |   |      |   |    |
| 0,35                                        | 0.35 m                                                     |     |    |   |   |   |     |   |      |   |    |
| 2,5                                         | 2.5 m                                                      |     |    |   |   |   |     |   |      |   |    |
| <b>Push-in connector for in-line valves</b> |                                                            |     |    |   |   |   |     |   |      |   |    |
| -                                           | Sub-base valves                                            |     |    |   |   |   |     |   |      |   |    |
| QS-4                                        | Push-in connector<br>for tubing O.D. 4 mm                  |     |    |   |   |   |     |   |      |   |    |
| QS-6                                        | Push-in connector<br>for tubing O.D. 6 mm                  |     |    |   |   |   |     |   |      |   |    |
| <b>Flow class</b>                           |                                                            |     |    |   |   |   |     |   |      |   |    |
| LF                                          | Low flow (50 l/min)                                        |     |    |   |   |   |     |   |      |   |    |
| MF                                          | Mid flow (100 l/min)                                       |     |    |   |   |   |     |   |      |   |    |
| HF/LP                                       | High flow/low pressure<br>(160 l/min, 0.5... 4 bar)        |     |    |   |   |   |     |   |      |   |    |
| HF                                          | High flow (160 l/min)                                      |     |    |   |   |   |     |   |      |   |    |

# Solenoid valves MHJ9, fast-switching valves

Peripherals overview

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## Valve manifold design



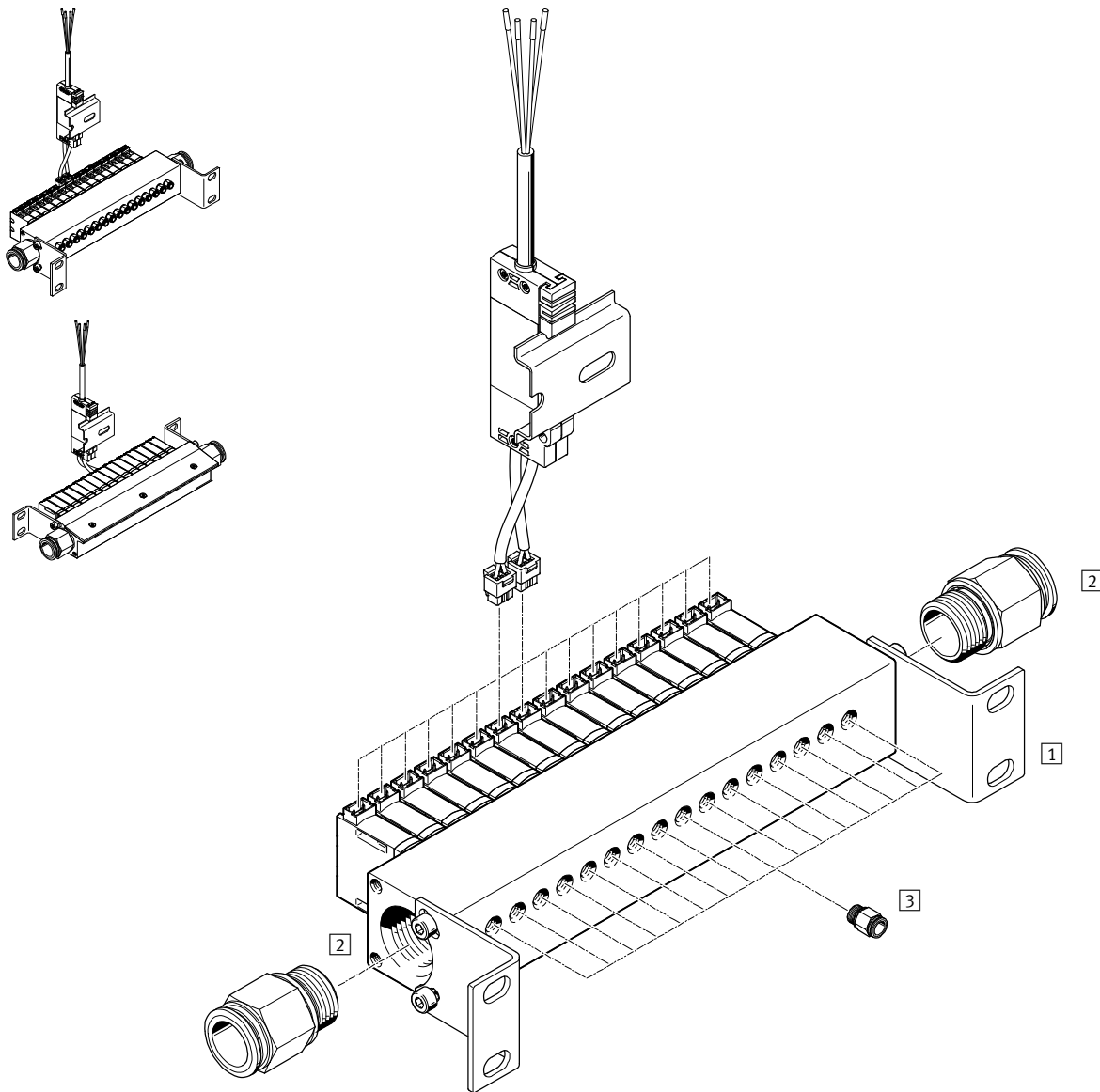
|   | Type             | Brief description | → Page/Internet                                            |
|---|------------------|-------------------|------------------------------------------------------------|
| 1 | Manifold rail    | MHJ9-P16          | With 16 valve positions                                    |
| 2 | Mounting kit     | MHJ-HW1           | Consisting of 2 mounting brackets and 4 socket head screws |
| 3 | Sub-base valve   | MHJ9              | 2/2-way solenoid valve                                     |
| 4 | Connecting cable | MHJ9-KMH          | With control electronics for 2 solenoid valves             |
| 5 | H-rail           | NRH-35-2000       | 2 m long                                                   |
| 6 | Manifold rail    | MHJ9-PN16         | With 16 valve positions                                    |
| 7 | Mounting kit     | MHJ-HW2           | Consisting of 2 mounting brackets and 4 socket head screws |
| 8 | In-line valve    | MHJ9              | 2/2-way solenoid valve                                     |

# Solenoid valves MHJ9, fast-switching valves

Peripherals overview

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## Valve manifold with accessories



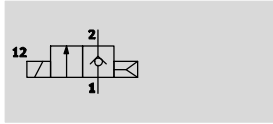
|   | Type            | Brief description | → Page/Internet           |
|---|-----------------|-------------------|---------------------------|
| 1 | Manifold rail   | MHJ9-P16          | With mounting kit MHJ-HW1 |
| 2 | Push-in fitting | QS                | For air supply port 1     |
| 3 | Push-in fitting | QS                | For valve output 2        |

# Solenoid valves MHJ9, fast-switching valves

Technical data

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Function



-  - Width  
9 mm

-  - Temperature range  
-5 ... +60 °C



| General technical data                                     |                                               |      |       |      |                     |      |       |      |  |
|------------------------------------------------------------|-----------------------------------------------|------|-------|------|---------------------|------|-------|------|--|
| Type                                                       | In-line valve MHJ9-QS                         |      |       |      | Sub-base valve MHJ9 |      |       |      |  |
|                                                            | LF                                            | MF   | HF/LP | HF   | LF                  | 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                   |      |       |      |                     |      |       |      |  |
| Service life in billions of switching cycles <sup>1)</sup> | 5                                             | 5    | 0.5   | 0.5  | 5                   | 5    | 0.5   | 0.5  |  |
| Actuation type                                             | Electrical                                    |      |       |      |                     |      |       |      |  |
| Type of reset                                              | Pneumatic spring                              |      |       |      |                     |      |       |      |  |
| Type of control                                            | Direct                                        |      |       |      |                     |      |       |      |  |
| Flow direction                                             | Non-reversible                                |      |       |      |                     |      |       |      |  |
| Mounting position                                          | Any                                           |      |       |      |                     |      |       |      |  |
| Width [mm]                                                 | 9 <sup>2)</sup>                               |      |       |      |                     |      |       |      |  |
| Grid dimension [mm]                                        | 9.5                                           |      |       |      |                     |      |       |      |  |
| Standard nominal flow rate <sup>3)</sup> [l/min]           | 50                                            | 100  | 160   | 160  | 50                  | 100  | 160   | 160  |  |
| C value [l/sbar]                                           | 0.2                                           | 0.4  | 0.66  | 0.66 | 0.2                 | 0.4  | 0.66  | 0.66 |  |
| b value                                                    | 0.5                                           | 0.38 | 0.36  | 0.36 | 0.5                 | 0.38 | 0.36  | 0.36 |  |
| Type of mounting                                           | In-line installation or via through-holes     |      |       |      | On sub-base         |      |       |      |  |
| Pneumatic connection 1 and 2                               | QS4                                           | QS4  | QS6   | QS6  | Sub-base M7         |      |       |      |  |
| Product weight [g]                                         | 30                                            |      |       |      | 25                  |      |       |      |  |
| Max. tightening torque of valve mounting [Nm]              | -                                             |      |       |      | 0.28                |      |       |      |  |

1) The long service life of the valves can only be achieved with the "hard" sealing principle; however, this results in minor leakage when the valve is closed.

2) Min. permitted grid dimension 9.5 mm

3) The specified flow rate refers to the valve without sub-base. The maximum flow rate that can be achieved may deviate from the specified value when the valve is mounted on a sub-base.

| Operating and environmental conditions        |                                                  |             |             |             |  |
|-----------------------------------------------|--------------------------------------------------|-------------|-------------|-------------|--|
| Type                                          | LF                                               | 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 ... +8                                      | +0.5 ... +6 | +0.5 ... +4 | +0.5 ... +6 |  |
| Ambient temperature [°C]                      | -5 ... +60                                       |             |             |             |  |
| With manifold assembly                        | Max. +45                                         | 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 <sup>1)</sup>  | 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.



# Solenoid valves MHJ9, fast-switching valves

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Technical data

| Electrical data in combination with connecting cable MHJ9-KMH |                        |                                               |     |       |               |
|---------------------------------------------------------------|------------------------|-----------------------------------------------|-----|-------|---------------|
| Type                                                          |                        | LF                                            | MF  | HF/LP | HF            |
| Operating voltage range <sup>1)</sup>                         | [V DC]                 | 12 ... 53                                     |     |       |               |
| Note regarding operating voltage                              |                        | Operation only with connecting cable MHJ9-KMH |     |       |               |
| Coil resistance                                               | [Ohm]                  | 2.5                                           |     |       |               |
| Duty cycle <sup>2)</sup>                                      | [%]                    | 100                                           | 100 | 100   | –             |
| Operating conditions to DIN VDE 0580 <sup>2)</sup>            | With individual valve  | –                                             | –   | –     | S3 50% 20 min |
|                                                               | With manifold assembly | –                                             | –   | –     | S3 15% 20 min |
| Electrical connection                                         |                        | 2-pin, plug connector KMH                     |     |       |               |
| Degree of protection to EN 60529                              |                        | IP40                                          |     |       |               |

1) Any current limit must be set to at least 1.7 A for LF, MF and HF/LP valves and to at least 1.85 A for HF valves for the switching operation.

2) Air must flow through the valve continuously.



Note

The specified values only apply when using the connecting cable MHJ9-KMH.

Ask your technical consultant about other actuation options for the MHJ valves.

| Switching times and frequencies |                    |      |         |      |       |     |
|---------------------------------|--------------------|------|---------|------|-------|-----|
| Type                            |                    |      | LF      | MF   | HF/LP | HF  |
| Maximum switching frequency     |                    | [Hz] | 500     | 1000 | 500   | 500 |
| Tolerance for switching time    | On                 | [%]  | ±15     |      |       |     |
|                                 | Off                | [%]  | +15/–25 |      |       |     |
|                                 |                    |      |         |      |       |     |
| Switching times at 12 V DC      |                    |      |         |      |       |     |
| Pressure 4 bar                  | Switching time on  | [ms] | 1       | 1.1  | 1.3   | 1.4 |
|                                 | Switching time off | [ms] | 0.9     | 0.4  | 0.5   | 0.6 |
|                                 |                    |      |         |      |       |     |
| Switching times at 24 V DC      |                    |      |         |      |       |     |
| Pressure 0.5 bar                | Switching time on  | [ms] | 0.7     | 0.7  | 0.8   | 0.9 |
|                                 | Switching time off | [ms] | 0.9     | 0.5  | 0.5   | 0.7 |
| Pressure 4 bar                  | Switching time on  | [ms] | 0.7     | 0.8  | 1     | 1   |
|                                 | Switching time off | [ms] | 0.9     | 0.4  | 0.4   | 0.5 |
| Pressure 6 bar                  | Switching time on  | [ms] | –       | 0.9  | –     | 1.3 |
|                                 | Switching time off | [ms] | –       | 0.4  | –     | 0.5 |
| Pressure 8 bar                  | Switching time on  | [ms] | 0.8     | –    | –     | –   |
|                                 | Switching time off | [ms] | 0.9     | –    | –     | –   |
|                                 |                    |      |         |      |       |     |
| Switching times at 48 V DC      |                    |      |         |      |       |     |
| Pressure 4 bar                  | Switching time on  | [ms] | 0.6     | 0.6  | 0.8   | 0.8 |
|                                 | Switching time off | [ms] | 0.8     | 0.4  | 0.4   | 0.4 |



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.

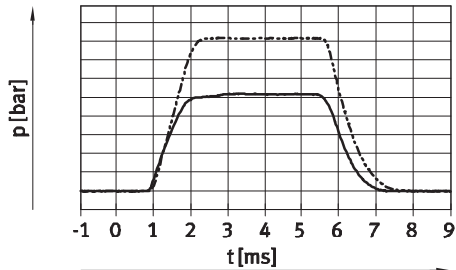
# Solenoid valves MHJ9, fast-switching valves

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Technical data

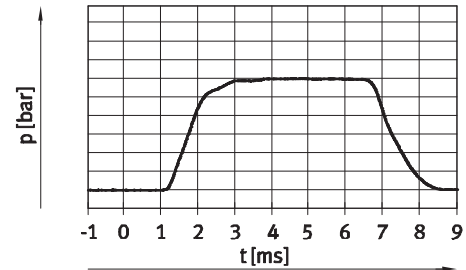
## Switching behaviour – Operating pressure

Type LF, MF and HF/LP



— 4 bar  
- - - 6 bar

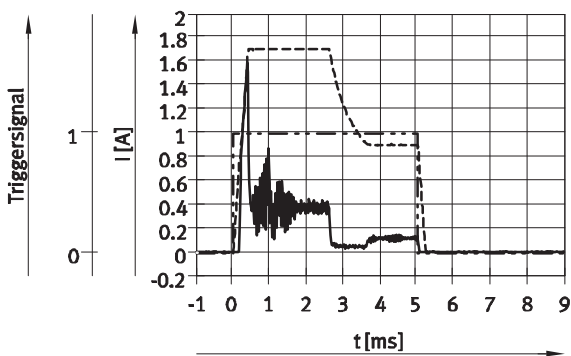
Type HF



— 4 bar

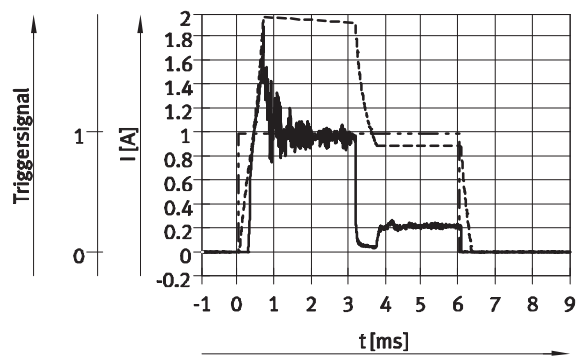
## Switching behaviour – Current/voltage curve

Type LF, MF and HF/LP



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

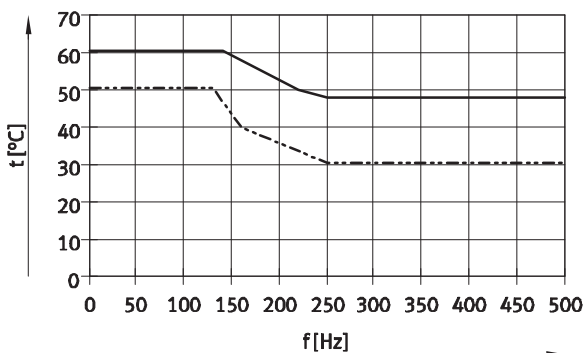
Type HF



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

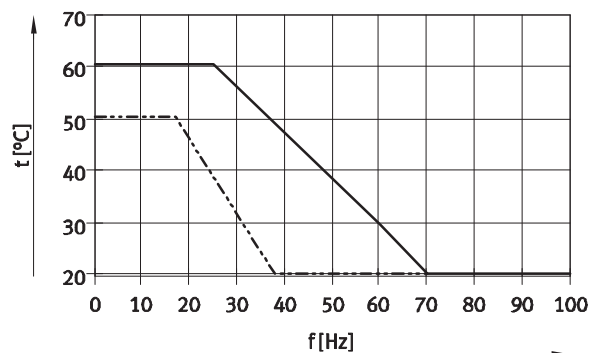
## Maximum permissible ambient temperature as a function of switching frequency

Type LF, MF and HF/LP



— Individual valve, 4 bar  
- - - Manifold assembly/sub-base valve, 4 bar

Type HF



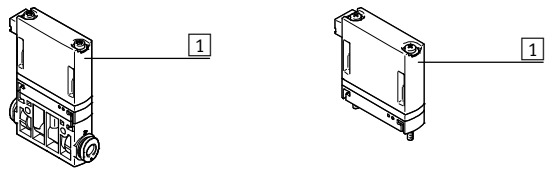
— Individual valve, 4 bar  
- - - Manifold assembly/sub-base valve, 4 bar

# Solenoid valves MHJ9, fast-switching valves

Technical data



## Materials

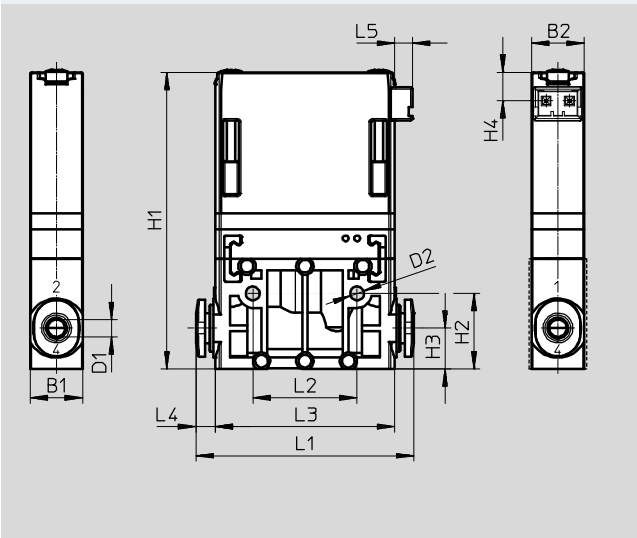


|   |               |                                  |
|---|---------------|----------------------------------|
| 1 | Housing       | Reinforced PA                    |
| - | Seals         | HNBR                             |
| - | Screws        | Steel                            |
| - | Manifold rail | Anodised wrought aluminium alloy |

## Dimensions

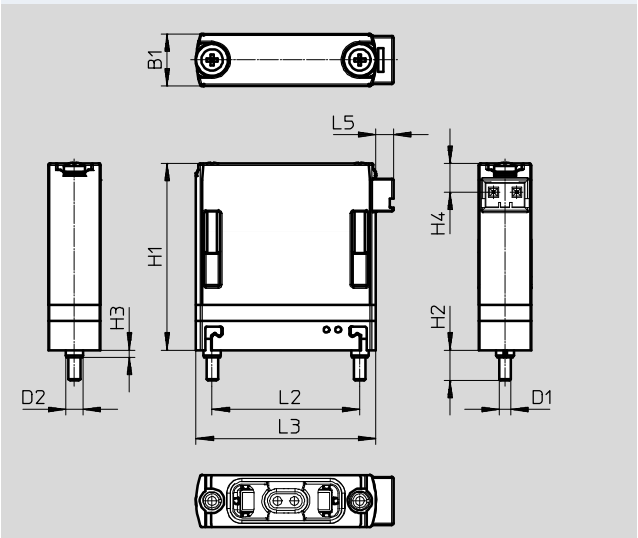
Download CAD data → [www.festo.com](http://www.festo.com)

### Semi in-line valve



| Type      | B1 | B2 | D1 | D2  | H1 | H2 | H3 | H4 | L1 | L2 | L3 | L4  | L5 |
|-----------|----|----|----|-----|----|----|----|----|----|----|----|-----|----|
| MHJ9-QS-4 | 9  | 9  | 4  | 2.4 | 51 | 13 | 7  | 5  | 38 | 18 | 32 | 3.2 | 3  |
| MHJ9-QS-6 | 10 | 9  | 6  |     |    |    |    |    | 51 |    |    | 9.5 |    |

### Sub-base valve



| Type | B1 | D1 | D2 | H1 | H2  | H3  | H4 | L2   | L3 | L5 |
|------|----|----|----|----|-----|-----|----|------|----|----|
| MHJ9 | 9  | M2 | 3  | 32 | 5.3 | 1.2 | 5  | 25.5 | 31 | 3  |

# Solenoid valves MHJ9, fast-switching valves

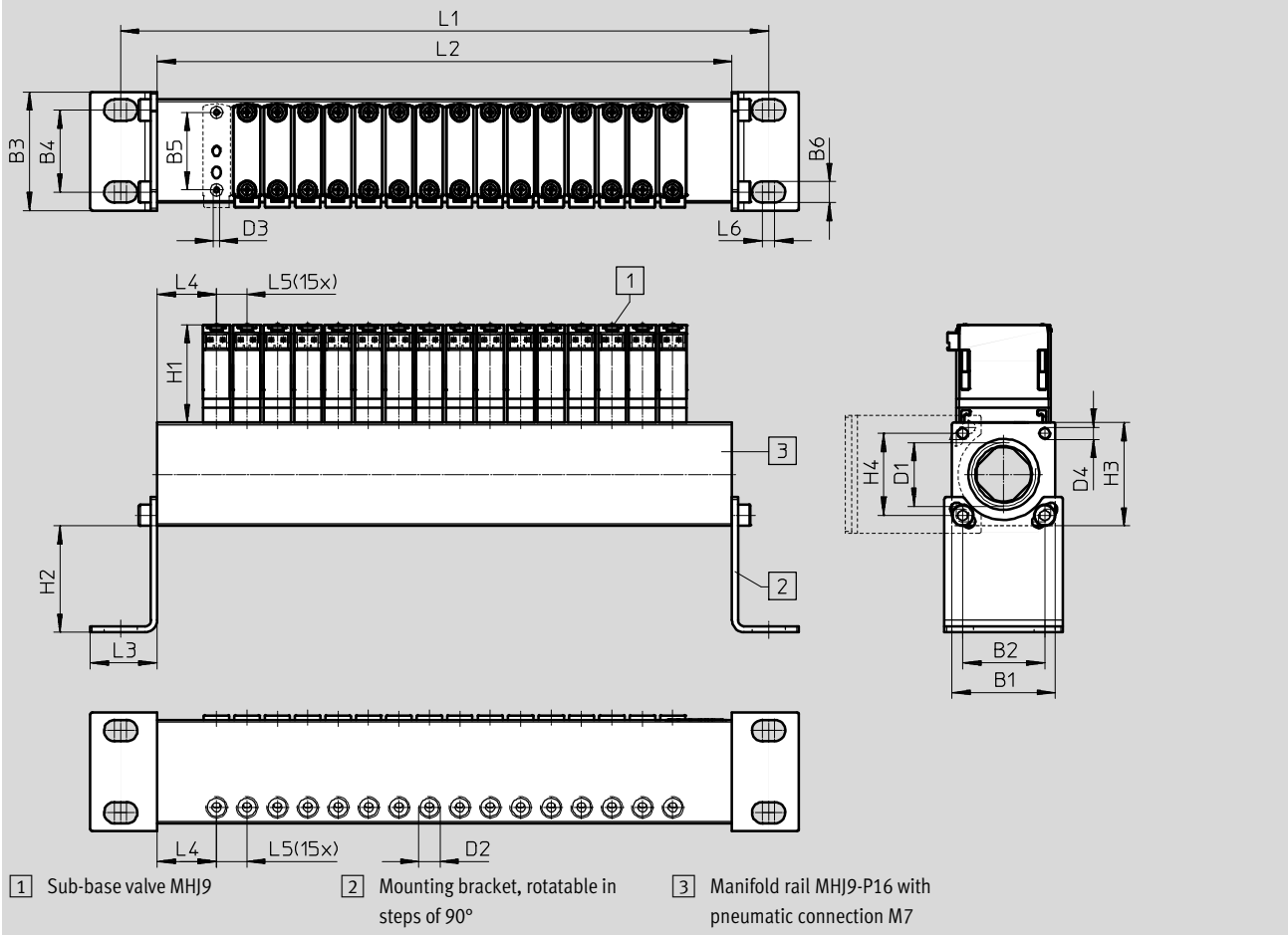
Technical data

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## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Manifold assembly on MHJ9-P16 (with pneumatic connection M7)



| Type     | B1 | B2 | B3 | B4 | B5 | B6 | D1   | D2 | D3 | D4 | H1 | H2 | H3 | H4 | L1  | L2  | L3 | L4 | L5 | L6 |
|----------|----|----|----|----|----|----|------|----|----|----|----|----|----|----|-----|-----|----|----|----|----|
| MHJ9-P16 | 34 | 27 | 39 | 27 | 26 | 7  | G1/2 | M7 | M2 | M4 | 32 | 35 | 34 | 27 | 213 | 189 | 22 | 20 | 10 | 4  |

# Solenoid valves MHJ9, fast-switching valves

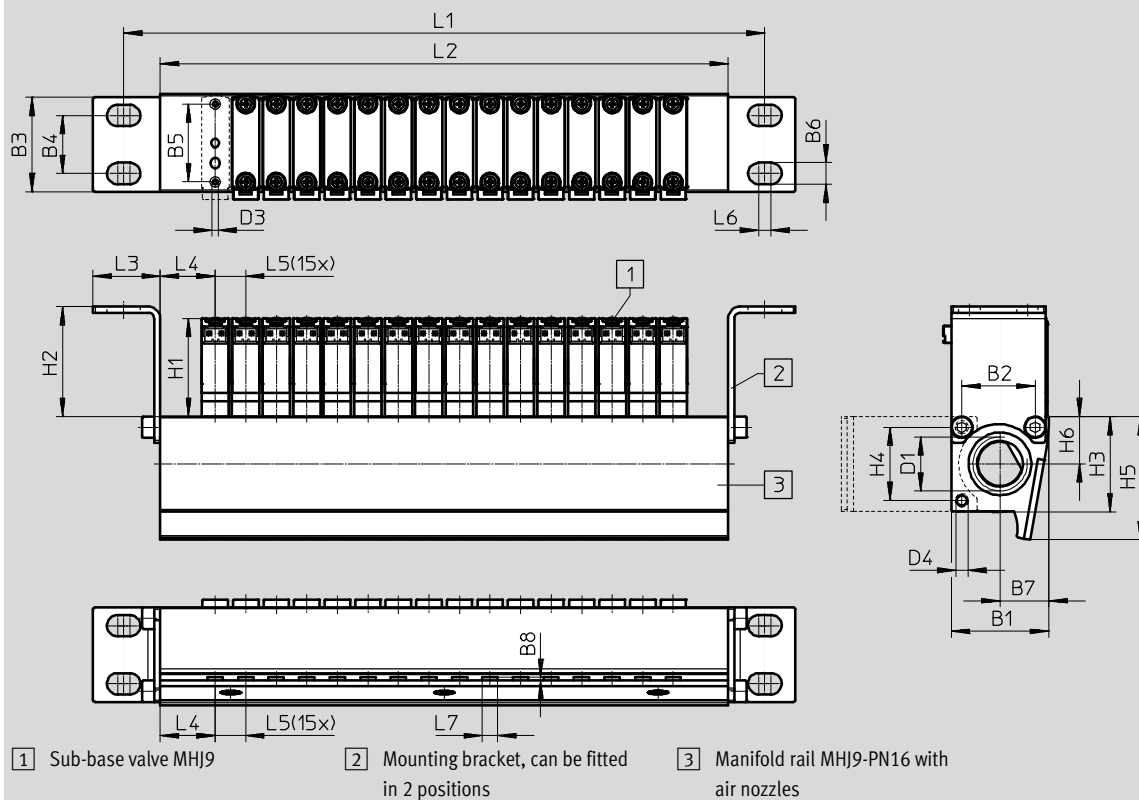
Technical data

**FESTO**

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Manifold assembly on MHJ9-PN16 (with air nozzles)

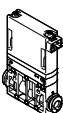
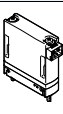


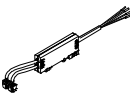
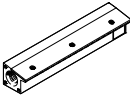
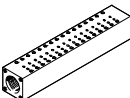
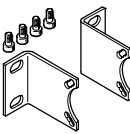
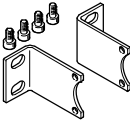
| Type      | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | D1   | D3 | D4 | H1 | H2 | H3 | H4 | H5 | H6 | L1  | L2  | L3 | L4 | L5 | L6 | L7 |
|-----------|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|----|----|-----|-----|----|----|----|----|----|
| MHJ9-PN16 | 32 | 24 | 31 | 19 | 26 | 7  | 16 | 1  | G3/8 | M2 | M4 | 32 | 36 | 31 | 24 | 40 | 16 | 210 | 186 | 22 | 18 | 10 | 4  | 5  |

# Solenoid valves MHJ9, fast-switching valves

Technical data

**FESTO**

| Ordering data                                                                     |                        |                            |                    |               |                        |
|-----------------------------------------------------------------------------------|------------------------|----------------------------|--------------------|---------------|------------------------|
|                                                                                   | Description            | Standard nominal flow rate | Operating pressure | Part No.      | Type                   |
| In-line valve without connecting cable                                            |                        |                            |                    |               |                        |
|  | 2/2-way solenoid valve | 50 l/min                   | +0.5 ... +8 bar    | <b>572079</b> | <b>MHJ9-QS-4-LF</b>    |
|                                                                                   |                        | 100 l/min                  | +0.5 ... +6 bar    | <b>553118</b> | <b>MHJ9-QS-4-MF</b>    |
|                                                                                   |                        | 160 l/min                  | +0.5 ... +4 bar    | <b>567793</b> | <b>MHJ9-QS-6-HF/LP</b> |
|                                                                                   |                        | 160 l/min                  | +0.5 ... +6 bar    | <b>567790</b> | <b>MHJ9-QS-6-HF</b>    |
| Sub-base valve without connecting cable                                           |                        |                            |                    |               |                        |
|  | 2/2-way solenoid valve | 50 l/min                   | +0.5 ... +8 bar    | <b>572078</b> | <b>MHJ9-LF</b>         |
|                                                                                   |                        | 100 l/min                  | +0.5 ... +6 bar    | <b>553115</b> | <b>MHJ9-MF</b>         |
|                                                                                   |                        | 160 l/min                  | +0.5 ... +4 bar    | <b>567792</b> | <b>MHJ9-HF/LP</b>      |
|                                                                                   |                        | 160 l/min                  | +0.5 ... +6 bar    | <b>553117</b> | <b>MHJ9-HF</b>         |

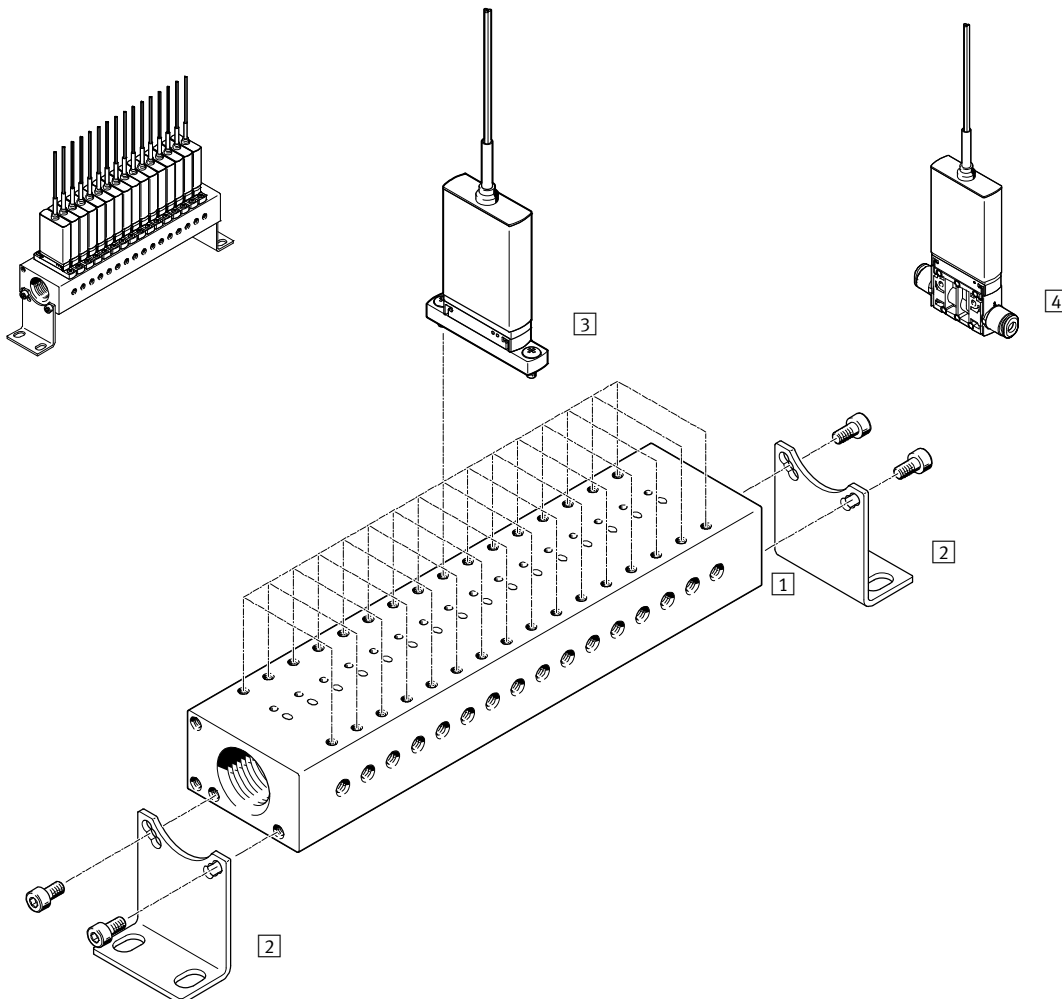
| Ordering data – Accessories                                                         |                                                                                                     |                                           |                   |               |                        |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------|---------------|------------------------|
|                                                                                     | Description                                                                                         |                                           |                   | Part No.      | Type                   |
| Connecting cable with control electronics for 2 valves                              |                                                                                                     |                                           |                   |               |                        |
|   | Mounting on H-rail, for static applications                                                         | For LF, MF and HF/LP valves               | 0.5 m             | <b>553121</b> | <b>MHJ9-KMH-0,5-MF</b> |
|                                                                                     |                                                                                                     |                                           | 2.5 m             | <b>565519</b> | <b>MHJ9-KMH-2,5-MF</b> |
|                                                                                     |                                                                                                     | For HF valves                             | 0.5 m             | <b>562170</b> | <b>MHJ9-KMH-0,5-HF</b> |
|                                                                                     |                                                                                                     |                                           | 2.5 m             | <b>567505</b> | <b>MHJ9-KMH-2,5-HF</b> |
| Manifold rail                                                                       |                                                                                                     |                                           |                   |               |                        |
|  | For 16 valves MHJ9, without mounting bracket, with air nozzles                                      |                                           |                   | <b>553123</b> | <b>MHJ9-PN16</b>       |
|  | For 16 valves MHJ9, without mounting bracket, with pneumatic connection M7                          |                                           |                   | <b>553125</b> | <b>MHJ9-P16</b>        |
| Mounting kit                                                                        |                                                                                                     |                                           |                   |               |                        |
|  | For manifold rail MHJ9-P16, consisting of 2 mounting brackets and 4 socket head screws M4x8 DIN912  |                                           |                   | <b>565455</b> | <b>MHJ-HW1</b>         |
|  | For manifold rail MHJ9-PN16, consisting of 2 mounting brackets and 4 socket head screws M4x8 DIN912 |                                           |                   | <b>565456</b> | <b>MHJ-HW2</b>         |
| Push-in fitting for valve output, port 2                                            |                                                                                                     |                                           |                   |               |                        |
|  | Connecting thread M7 for tubing O.D.                                                                | For manifold rail with LF or MF valves    | 4 mm (10 pieces)  | <b>153319</b> | <b>QSM-M7-4-I</b>      |
|                                                                                     |                                                                                                     | For manifold rail with HF or HF/LP valves | 6 mm (10 pieces)  | <b>153321</b> | <b>QSM-M7-6-I</b>      |
| Push-in fitting for air supply, port 1                                              |                                                                                                     |                                           |                   |               |                        |
|  | Connecting thread G1/2 for tubing O.D.                                                              |                                           | 12 mm (1 piece)   | <b>186104</b> | <b>QS-G1/2-12</b>      |
|                                                                                     |                                                                                                     |                                           | 16 mm (1 piece)   | <b>186105</b> | <b>QS-G1/2-16</b>      |
|                                                                                     | Connecting thread G3/8 for tubing O.D.                                                              |                                           | 12 mm (10 pieces) | <b>186103</b> | <b>QS-G3/8-12</b>      |
|                                                                                     |                                                                                                     |                                           | 16 mm (10 pieces) | <b>186347</b> | <b>QS-G3/8-16</b>      |

# Solenoid valves MHJ10, fast-switching valves

Peripherals overview

**FESTO**

## Individual valve, valve manifold design



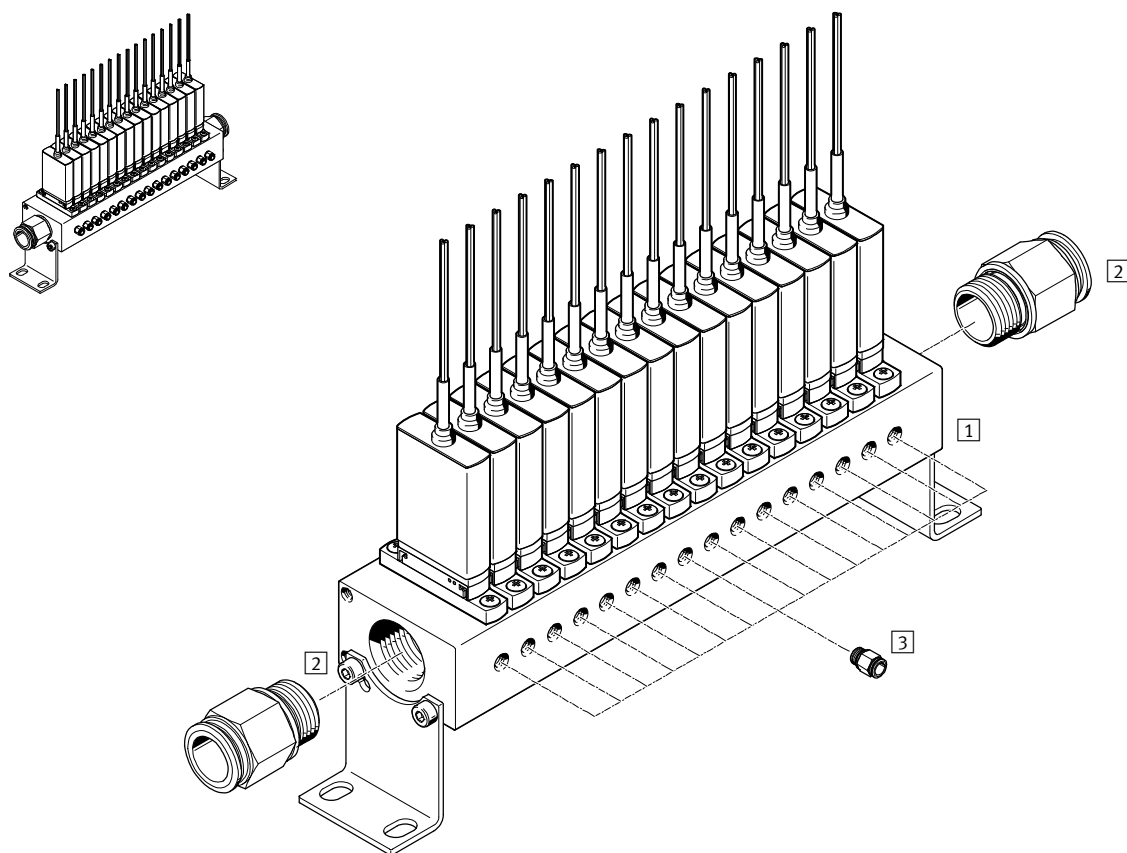
|   | Type           | Brief description                                                     | → Page/Internet |
|---|----------------|-----------------------------------------------------------------------|-----------------|
| 1 | Manifold rail  | MHJ10-P16<br>With 16 valve positions                                  | LEERER MERKER   |
| 2 | Mounting kit   | MHJ-HW1<br>Consisting of 2 mounting brackets and 4 socket head screws | LEERER MERKER   |
| 3 | Sub-base valve | MHJ10<br>2/2-way solenoid valve                                       | LEERER MERKER   |
| 4 | In-line valve  | MHJ10<br>2/2-way solenoid valve                                       | LEERER MERKER   |

# Solenoid valves MHJ10, fast-switching valves

Peripherals overview

FESTO

## Valve manifold with accessories



|   | Type            | Brief description                      | → Page/Internet |
|---|-----------------|----------------------------------------|-----------------|
| 1 | Manifold rail   | MHJ10-P16<br>With mounting kit MHJ-HW1 | LEERER MERKER   |
| 2 | Push-in fitting | QS<br>For air supply port 1            | LEERER MERKER   |
| 3 | Push-in fitting | QS<br>For valve output 2               | LEERER MERKER   |

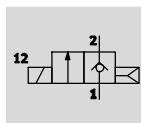


# Solenoid valves MHJ10, fast-switching valves

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Technical data

Function



-  - Width  
10 mm

-  - Flow rate  
Max. 160 l/min

-  - Voltage  
24 V DC



| General technical data                                     |                                               |      |       |      |                        |      |       |      |
|------------------------------------------------------------|-----------------------------------------------|------|-------|------|------------------------|------|-------|------|
| Type                                                       | In-line valve MHJ10-S...QS                    |      |       |      | Sub-base valve MHJ10-S |      |       |      |
|                                                            | LF                                            | MF   | HF/LP | HF   | LF                     | 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                   |      |       |      |                        |      |       |      |
| Service life in billions of switching cycles <sup>1)</sup> | 5                                             | 5    | 0.5   | 0.5  | 5                      | 5    | 0.5   | 0.5  |
| Actuation type                                             | Electrical                                    |      |       |      |                        |      |       |      |
| Type of reset                                              | Pneumatic spring                              |      |       |      |                        |      |       |      |
| Type of control                                            | Direct                                        |      |       |      |                        |      |       |      |
| Flow direction                                             | Non-reversible                                |      |       |      |                        |      |       |      |
| Mounting position                                          | Any                                           |      |       |      |                        |      |       |      |
| Width [mm]                                                 | 10 <sup>2)</sup>                              |      |       |      |                        |      |       |      |
| Grid dimension [mm]                                        | 10.5                                          |      |       |      |                        |      |       |      |
| Standard nominal flow rate [l/min]                         | 50                                            | 100  | 160   | 160  | 50                     | 100  | 160   | 160  |
| C value [l/sbar]                                           | 0.2                                           | 0.4  | 0.66  | 0.66 | 0.2                    | 0.4  | 0.66  | 0.66 |
| b value                                                    | 0.5                                           | 0.38 | 0.36  | 0.36 | 0.5                    | 0.38 | 0.36  | 0.36 |
| Type of mounting                                           | In-line installation or via through-holes     |      |       |      | On sub-base            |      |       |      |
| Pneumatic connection 1 and 2                               | QS4                                           | QS4  | QS6   | QS6  | Sub-base M7            |      |       |      |
| Max. tightening torque for valve mounting [Nm]             | -                                             |      |       |      | 0.7                    |      |       |      |

1) The long service life of the valves can only be achieved with the "hard" sealing principle; however, this results in minor leakage when the valve is closed.

2) Min. permitted grid dimension 10.5 mm

| Operating and environmental conditions        |                                                  |             |             |             |
|-----------------------------------------------|--------------------------------------------------|-------------|-------------|-------------|
| Type                                          | LF                                               | 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 ... +8                                      | +0.5 ... +6 | +0.5 ... +4 | +0.5 ... +6 |
| Ambient temperature [°C]                      | -5 ... +60                                       |             |             |             |
| With manifold assembly                        | Max. +45                                         | 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 <sup>1)</sup>  | 2                                                |             |             |             |
| CE marking (see declaration of conformity)    | To EU EMC Directive <sup>2)</sup>                |             |             |             |
| 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](http://www.festo.com/sp) → User documentation.

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.

# Solenoid valves MHJ10, fast-switching valves

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Technical data

| Electrical data                                    |                        |                                                   |                         |       |               |
|----------------------------------------------------|------------------------|---------------------------------------------------|-------------------------|-------|---------------|
| Type                                               |                        | LF                                                | MF                      | HF/LP | HF            |
| Operating voltage <sup>1)</sup>                    |                        | [V DC]                                            | 24 ±10% = 21.6 ... 26.4 |       |               |
| Control signal range                               |                        | [V DC]                                            | 3 ... 30                |       |               |
| Power                                              | Low-current phase      | [W]                                               | 2                       | 2     | 3.2           |
|                                                    | High-current phase     | [W]                                               | 7                       | 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 <sup>2)</sup>                           |                        | [%]                                               | 100                     | 100   | 100           |
| Operating conditions to DIN VDE 0580 <sup>2)</sup> | With individual valve  |                                                   | –                       | –     | S3 50% 20 min |
|                                                    | With manifold assembly |                                                   | –                       | –     | S3 15% 20 min |
| Electrical 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                            |                    |      | LF      | MF  | HF/LP | HF  |     |
| Maximum switching frequency     |                    |      | [Hz]    | 500 | 1000  | 500 | 500 |
| Tolerance for switching time    | On                 | [%]  | ±15     |     |       |     |     |
|                                 | Off                | [%]  | +15/–25 |     |       |     |     |
|                                 |                    |      |         |     |       |     |     |
| Switching times at 24 V DC      |                    |      |         |     |       |     |     |
| Pressure 0.5 bar                | Switching time on  | [ms] | 0.7     | 0.8 | 0.8   | 1   |     |
|                                 | Switching time off | [ms] | 0.9     | 0.5 | 0.6   | 0.8 |     |
| Pressure 4 bar                  | Switching time on  | [ms] | 0.8     | 0.8 | 1     | 1.2 |     |
|                                 | Switching time off | [ms] | 1       | 0.4 | 0.5   | 0.6 |     |
| Pressure 6 bar                  | Switching time on  | [ms] | –       | 0.9 | –     | 1.3 |     |
|                                 | Switching time off | [ms] | –       | 0.4 | –     | 0.6 |     |
| Pressure 8 bar                  | Switching time on  | [ms] | 0.9     | –   | –     | –   |     |
|                                 | Switching time off | [ms] | 0.9     | –   | –     | –   |     |



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.

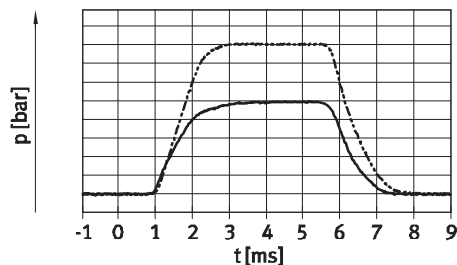
# Solenoid valves MHJ10, fast-switching valves

FESTO

Technical data

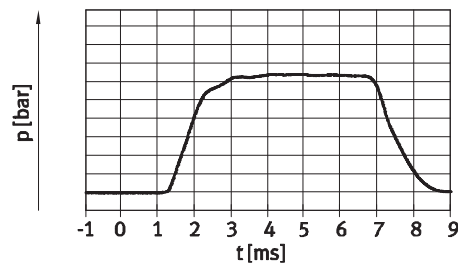
## Switching behaviour – Operating pressure

Type LF, MF and HF/LP



— 4 bar  
- - - 6 bar

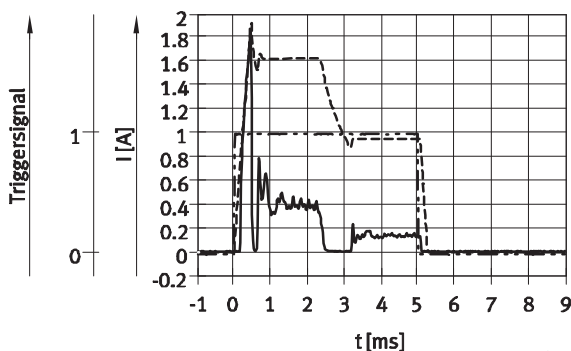
Type HF



— 4 bar

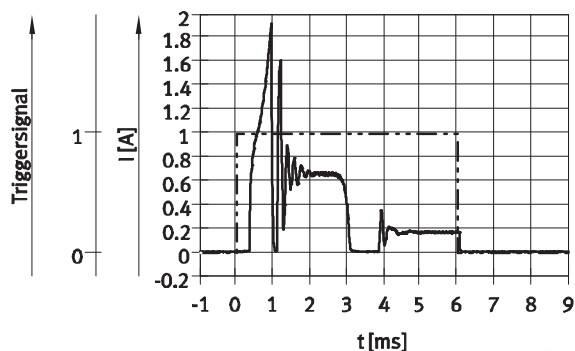
## Switching behaviour – Current/voltage curve

Type LF, MF and HF/LP



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

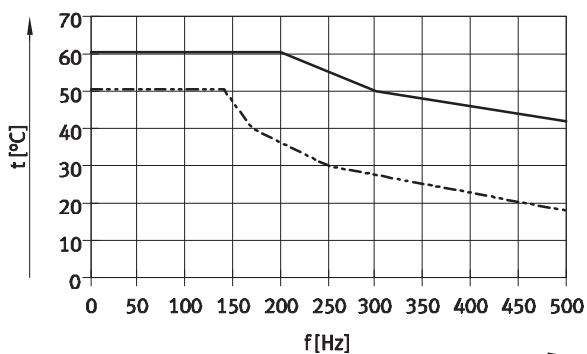
Type HF



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

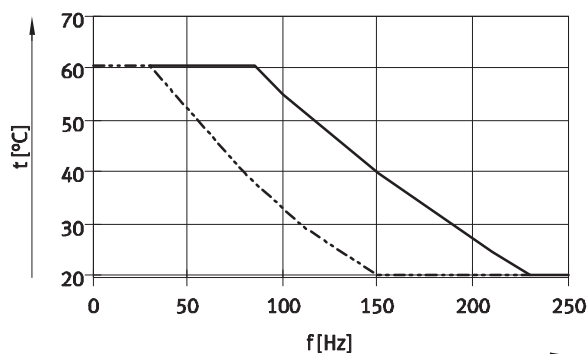
## Maximum permissible ambient temperature as a function of switching frequency

Type LF, MF and HF/LP



— Individual valve, 4 bar  
- - - Manifold assembly/sub-base valve, 4 bar

Type HF



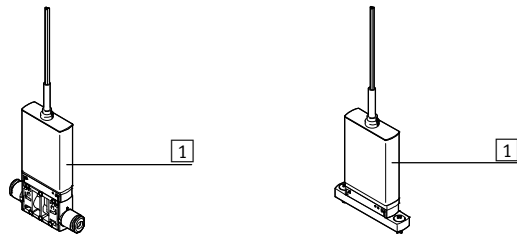
— Individual valve, 4 bar  
- - - Manifold assembly/sub-base valve, 4 bar

# Solenoid valves MHJ10, fast-switching valves

FESTO

Technical data

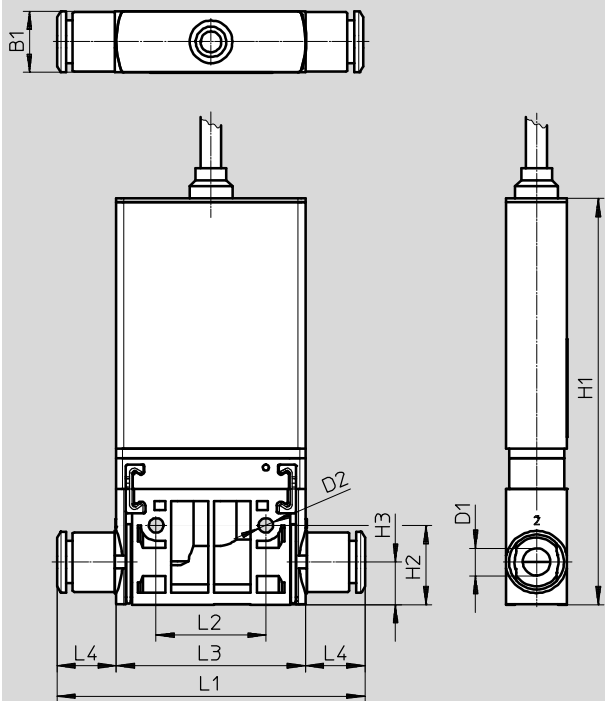
## Materials



|   |               |                                  |
|---|---------------|----------------------------------|
| 1 | Housing       | Reinforced PA                    |
|   |               | Reinforced PPS                   |
| - | Seals         | HNBR                             |
| - | Screws        | Steel                            |
| - | Cable sheath  | PUR                              |
| - | Manifold rail | Anodised wrought aluminium alloy |

## Dimensions

Semi in-line valve



Wiring allocation:

BU = GND

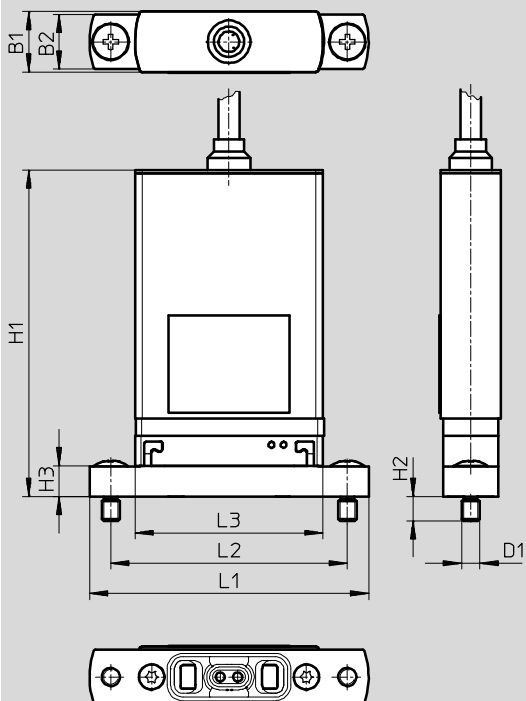
BN = Operating voltage positive

BK = Trigger signal

| Type          | B1 | D1 | D2  | H1 | H2 | H3 | L1   | L2 | L3 | L4  |
|---------------|----|----|-----|----|----|----|------|----|----|-----|
| MHJ10-S...QS4 | 10 | 4  | 2.4 | 68 | 13 | 7  | 50.5 | 18 | 32 | 9.5 |
| MHJ10-S...QS6 |    | 6  |     |    |    |    |      |    |    |     |

Download CAD data → [www.festo.com](http://www.festo.com)

Sub-base valve



Wiring allocation:

BU = GND

BN = Operating voltage positive

BK = Trigger signal

| Type    | B1 | B2 | D1 | H1 | H2 | H3 | L1 | L2 | L3 |
|---------|----|----|----|----|----|----|----|----|----|
| MHJ10-S | 10 | 9  | M3 | 54 | 4  | 5  | 46 | 39 | 31 |

# Solenoid valves MHJ10, fast-switching valves

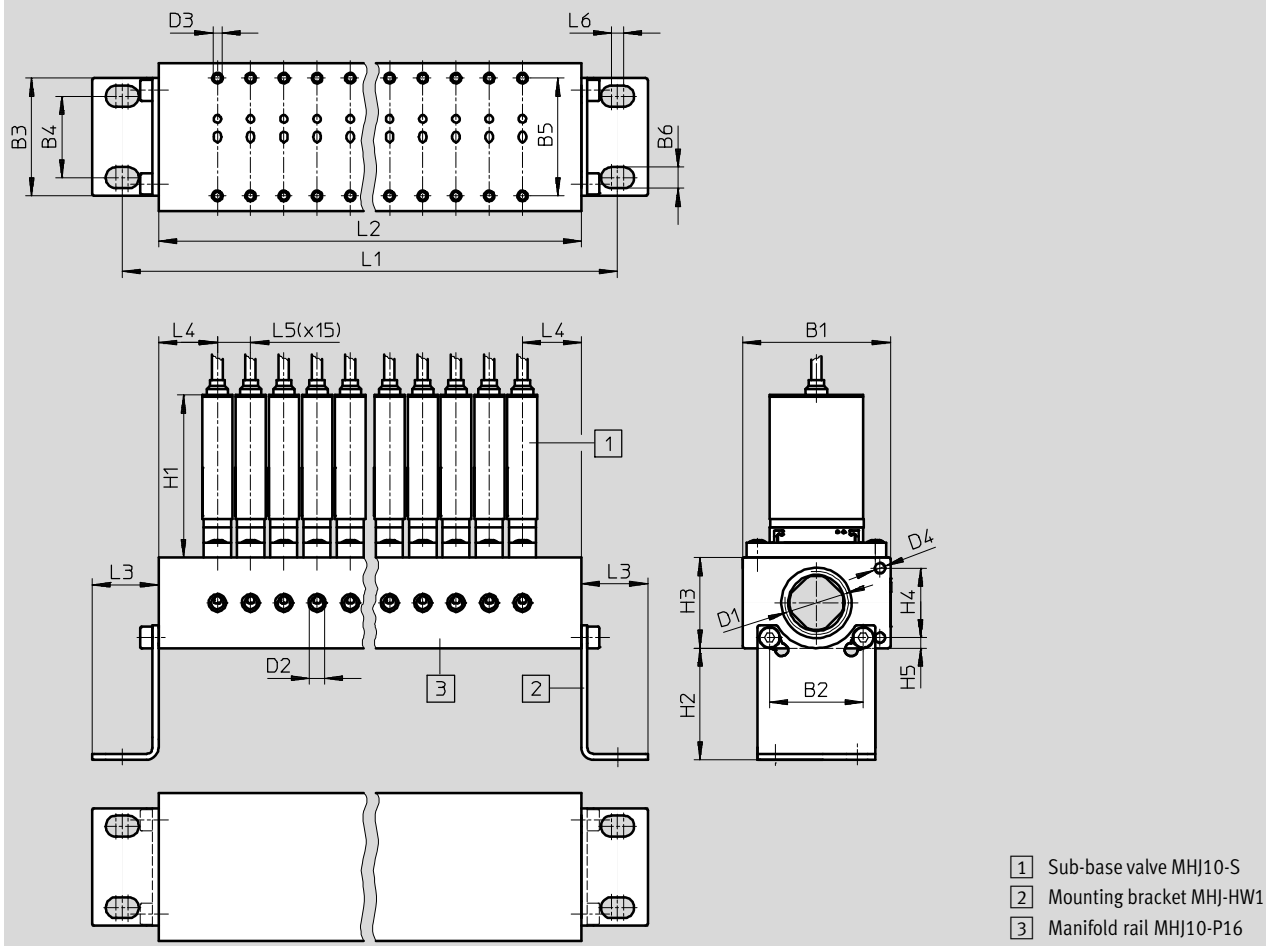
Technical data

**FESTO**

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

### Manifold assembly

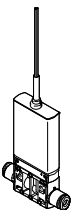
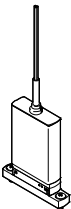


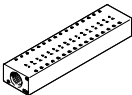
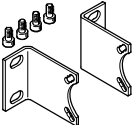
| Type      | B1 | B2 | B3 | B4 | B5 | B6 | D1   | D2 | D3 | D4 | H1 | H2 | H3 | H4 | H5  | L1  | L2  | L3 | L4 | L5 | L6 |
|-----------|----|----|----|----|----|----|------|----|----|----|----|----|----|----|-----|-----|-----|----|----|----|----|
| MHJ10-P16 | 49 | 31 | 39 | 27 | 39 | 7  | G1/2 | M7 | M3 | M4 | 54 | 37 | 30 | 23 | 3.5 | 228 | 204 | 22 | 20 | 11 | 4  |

# Solenoid valves MHJ10, fast-switching valves

**FESTO**

Technical data

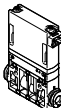
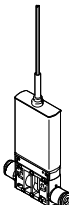
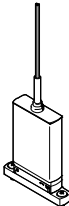
| Ordering data                                                                     |                        |                            |              |                |                    |               |                               |
|-----------------------------------------------------------------------------------|------------------------|----------------------------|--------------|----------------|--------------------|---------------|-------------------------------|
|                                                                                   | 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 | 50 l/min                   | 2.5 m        | 85 g           | +0.5 ... +8 bar    | <b>572081</b> | <b>MHJ10-S-2,5-QS-4-LF</b>    |
|                                                                                   |                        | 100 l/min                  | 0.35 m       | 50 g           | +0.5 ... +6 bar    | <b>557604</b> | <b>MHJ10-S-0,35-QS-4-MF</b>   |
|                                                                                   |                        |                            | 2.5 m        | 85 g           | +0.5 ... +6 bar    | <b>565515</b> | <b>MHJ10-S-2,5-QS-4-MF</b>    |
|                                                                                   |                        | 160 l/min                  | 2.5 m        | 85 g           | +0.5 ... +6 bar    | <b>567503</b> | <b>MHJ10-S-2,5-QS-6-HF</b>    |
|                                                                                   |                        |                            |              |                | +0.5 ... +4 bar    | <b>567798</b> | <b>MHJ10-S-2,5-QS-6-HF/LP</b> |
| Sub-base valve with connecting cable                                              |                        |                            |              |                |                    |               |                               |
|  | 2/2-way solenoid valve | 50 l/min                   | 2.5 m        | 75 g           | +0.5 ... +8 bar    | <b>572080</b> | <b>MHJ10-S-2,5-LF</b>         |
|                                                                                   |                        | 100 l/min                  | 0.35 m       | 40 g           | +0.5 ... +6 bar    | <b>557601</b> | <b>MHJ10-S-0,35-MF</b>        |
|                                                                                   |                        |                            | 2.5 m        | 75 g           | +0.5 ... +6 bar    | <b>565513</b> | <b>MHJ10-S-2,5-MF</b>         |
|                                                                                   |                        | 160 l/min                  | 2.5 m        | 75 g           | +0.5 ... +6 bar    | <b>567502</b> | <b>MHJ10-S-2,5-HF</b>         |
|                                                                                   |                        |                            |              |                | +0.5 ... +4 bar    | <b>567796</b> | <b>MHJ10-S-2,5-HF/LP</b>      |

| Ordering data – Accessories                                                         |                                                                                                     |                                           |                  |            |            |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------|------------------|------------|------------|
|                                                                                     | Description                                                                                         |                                           | Part No.         | Type       |            |
| Manifold rail                                                                       |                                                                                                     |                                           |                  |            |            |
|  | For 16 valves MHJ10, without mounting bracket, with pneumatic connection M7                         |                                           | 557608           | MHJ10-P16  |            |
| Mounting kit                                                                        |                                                                                                     |                                           |                  |            |            |
|  | For manifold rail MHJ10-P16, consisting of 2 mounting brackets and 4 socket head screws M4x8 DIN912 |                                           | 565455           | MHJ-HW1    |            |
| Push-in fitting for valve output, port 2                                            |                                                                                                     |                                           |                  |            |            |
|  | Connecting thread M7 for tubing O.D.                                                                | For manifold rail with LF or MF valves    | 4 mm (10 pieces) | 153319     | QSM-M7-4-I |
|                                                                                     |                                                                                                     | For manifold rail with HF or HF/LP valves | 6 mm (10 pieces) | 153321     | QSM-M7-6-I |
| Push-in fitting for air supply, port 1                                              |                                                                                                     |                                           |                  |            |            |
|  | Connecting thread G1/2 for tubing O.D.                                                              | 12 mm (1 piece)                           | 186104           | QS-G1/2-12 |            |
|                                                                                     |                                                                                                     | 16 mm (1 piece)                           | 186105           | QS-G1/2-16 |            |
|                                                                                     | Connecting thread G3/8 for tubing O.D.                                                              | 12 mm (10 pieces)                         | 186103           | QS-G3/8-12 |            |
|                                                                                     |                                                                                                     | 16 mm (10 pieces)                         | 186347           | QS-G3/8-16 |            |

# Solenoid valves MHJ, fast-switching valves

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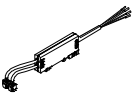
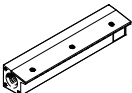
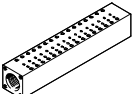
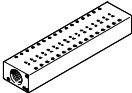
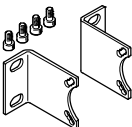
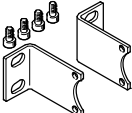
Accessories

| Ordering data                                                                       |                        |                            |              |                    |               |                               |
|-------------------------------------------------------------------------------------|------------------------|----------------------------|--------------|--------------------|---------------|-------------------------------|
|                                                                                     | Description            | Standard nominal flow rate | Cable length | Operating pressure | Part No.      | Type                          |
| In-line valve without connecting cable                                              |                        |                            |              |                    |               |                               |
|    | 2/2-way solenoid valve | 50 l/min                   | –            | +0.5 ... +8 bar    | <b>572079</b> | <b>MHJ9-QS-4-LF</b>           |
|                                                                                     |                        | 100 l/min                  | –            | +0.5 ... +6 bar    | <b>553118</b> | <b>MHJ9-QS-4-MF</b>           |
|                                                                                     |                        | 160 l/min                  | –            | +0.5 ... +4 bar    | <b>567793</b> | <b>MHJ9-QS-6-HF/LP</b>        |
|                                                                                     |                        |                            | –            | +0.5 ... +6 bar    | <b>567790</b> | <b>MHJ9-QS-6-HF</b>           |
| Sub-base valve without connecting cable                                             |                        |                            |              |                    |               |                               |
|    | 2/2-way solenoid valve | 50 l/min                   | –            | +0.5 ... +8 bar    | <b>572078</b> | <b>MHJ9-LF</b>                |
|                                                                                     |                        | 100 l/min                  | –            | +0.5 ... +6 bar    | <b>553115</b> | <b>MHJ9-MF</b>                |
|                                                                                     |                        | 160 l/min                  | –            | +0.5 ... +4 bar    | <b>567792</b> | <b>MHJ9-HF/LP</b>             |
|                                                                                     |                        |                            | –            | +0.5 ... +6 bar    | <b>553117</b> | <b>MHJ9-HF</b>                |
| In-line valve with connecting cable                                                 |                        |                            |              |                    |               |                               |
|   | 2/2-way solenoid valve | 50 l/min                   | 2.5 m        | +0.5 ... +8 bar    | <b>572081</b> | <b>MHJ10-S-2,5-QS-4-LF</b>    |
|                                                                                     |                        | 100 l/min                  | 0.35 m       | +0.5 ... +6 bar    | <b>557604</b> | <b>MHJ10-S-0,35-QS-4-MF</b>   |
|                                                                                     |                        |                            | 2.5 m        | +0.5 ... +6 bar    | <b>565515</b> | <b>MHJ10-S-2,5-QS-4-MF</b>    |
|                                                                                     |                        | 160 l/min                  | 2.5 m        | +0.5 ... +4 bar    | <b>567798</b> | <b>MHJ10-S-2,5-QS-6-HF/LP</b> |
|                                                                                     |                        |                            |              | +0.5 ... +6 bar    | <b>567503</b> | <b>MHJ10-S-2,5-QS-6-HF</b>    |
| Sub-base valve with connecting cable                                                |                        |                            |              |                    |               |                               |
|  | 2/2-way solenoid valve | 50 l/min                   | 2.5 m        | +0.5 ... +8 bar    | <b>572080</b> | <b>MHJ10-S-2,5-LF</b>         |
|                                                                                     |                        | 100 l/min                  | 0.35 m       | +0.5 ... +6 bar    | <b>557601</b> | <b>MHJ10-S-0,35-MF</b>        |
|                                                                                     |                        |                            | 2.5 m        | +0.5 ... +6 bar    | <b>565513</b> | <b>MHJ10-S-2,5-MF</b>         |
|                                                                                     |                        | 160 l/min                  | 2.5 m        | +0.5 ... +4 bar    | <b>567796</b> | <b>MHJ10-S-2,5-HF/LP</b>      |
|                                                                                     |                        |                            |              | +0.5 ... +6 bar    | <b>567502</b> | <b>MHJ10-S-2,5-HF</b>         |

# Solenoid valves MHJ, fast-switching valves

Accessories

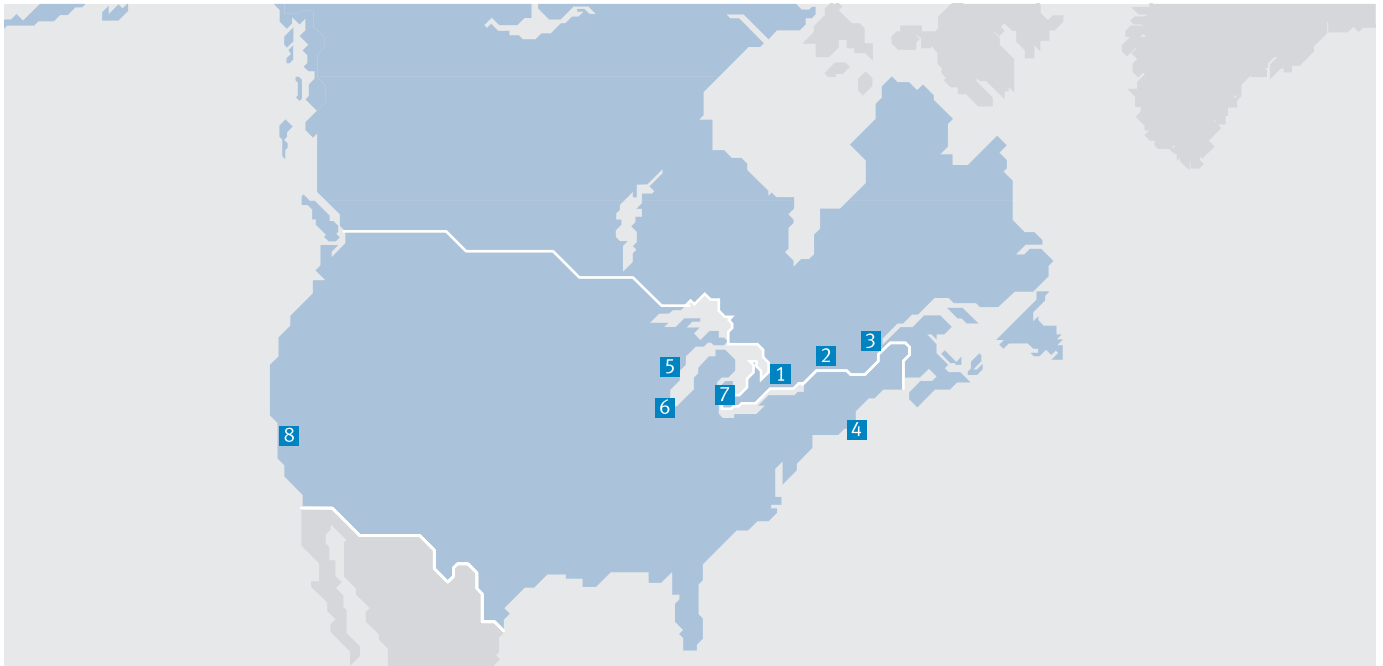
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| Ordering data                                                                       |                                                                                                      |                             |                                           |            |                 |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------|------------|-----------------|
| Description                                                                         |                                                                                                      |                             |                                           | Part No.   | Type            |
| Connecting cable                                                                    |                                                                                                      |                             |                                           |            |                 |
|    | With control electronics for 2 valves, mounting on H-rail, for static applications                   | For LF, MF and HF/LP valves | 0.5 m                                     | 553121     | MHJ9-KMH-0,5-MF |
|                                                                                     |                                                                                                      |                             | 2.5 m                                     | 565519     | MHJ9-KMH-2,5-MF |
|                                                                                     |                                                                                                      | For HF valves               | 0.5 m                                     | 562170     | MHJ9-KMH-0,5-HF |
|                                                                                     |                                                                                                      |                             | 2.5 m                                     | 567505     | MHJ9-KMH-2,5-HF |
| Manifold rail <sup>1)</sup>                                                         |                                                                                                      |                             |                                           |            |                 |
|    | For 16 valves MHJ9, without mounting bracket, with air nozzles                                       |                             |                                           | 553123     | MHJ9-PN16       |
|    | For 16 valves MHJ9, without mounting bracket, with pneumatic connection M7                           |                             |                                           | 553125     | MHJ9-P16        |
|    | For 16 valves MHJ10, without mounting bracket, with pneumatic connection M7                          |                             |                                           | 557608     | MHJ10-P16       |
| Mounting kit                                                                        |                                                                                                      |                             |                                           |            |                 |
|  | For manifold rail MHJ...-P16, consisting of 2 mounting brackets and 4 socket head screws M4x8 DIN912 |                             |                                           | 565455     | MHJ-HW1         |
|  | For manifold rail MHJ9-PN16, consisting of 2 mounting brackets and 4 socket head screws M4x8 DIN912  |                             |                                           | 565456     | MHJ-HW2         |
| Push-in fitting for valve output, port 2                                            |                                                                                                      |                             |                                           |            |                 |
|  | Connecting thread M7 for tubing O.D.                                                                 | 4 mm (10 pieces)            | For manifold rail with LF or MF valves    | 153319     | QSM-M7-4-I      |
|                                                                                     |                                                                                                      | 6 mm (10 pieces)            | For manifold rail with HF or HF/LP valves | 153321     | QSM-M7-6-I      |
| Push-in fitting for air supply, port 1                                              |                                                                                                      |                             |                                           |            |                 |
|  | Connecting thread G1/2 for tubing O.D.                                                               | 12 mm (1 piece)             | 186104                                    | QS-G1/2-12 |                 |
|                                                                                     |                                                                                                      | 16 mm (1 piece)             | 186105                                    | QS-G1/2-16 |                 |
|                                                                                     | Connecting thread G3/8 for tubing O.D.                                                               | 12 mm (10 pieces)           | 186103                                    | QS-G3/8-12 |                 |
|                                                                                     |                                                                                                      | 16 mm (10 pieces)           | 186347                                    | QS-G3/8-16 |                 |

1) Further versions/lengths available on request



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