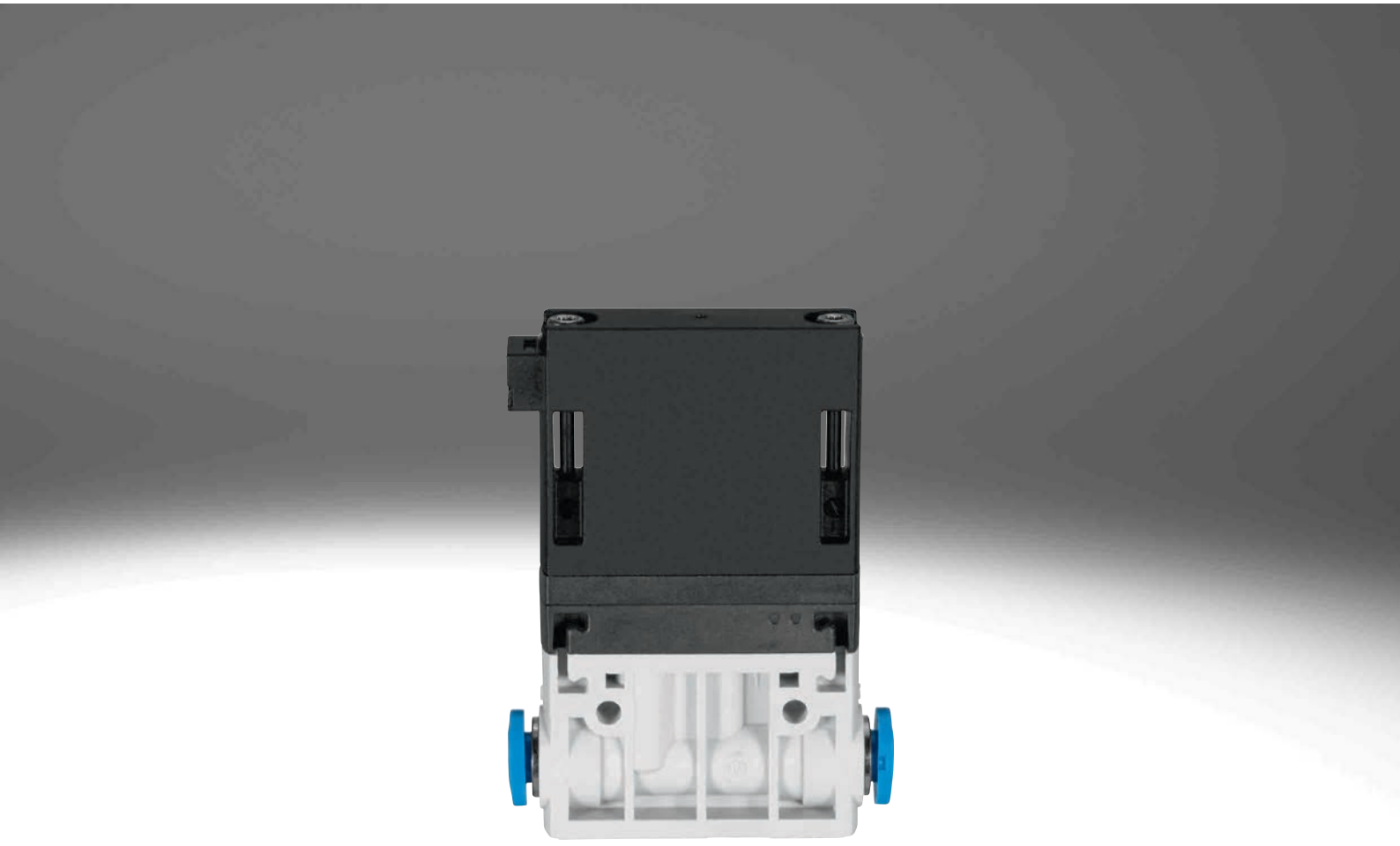
Solenoid valves MHJ, fast-switching valves, NPT

FESTO



Key features

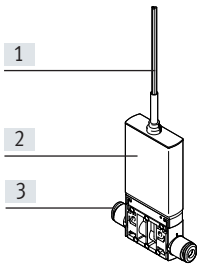
Innovative

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

Reliable

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

MHJ10



[1] Connecting cables
[2] In-line valve
[3] Push-in connector

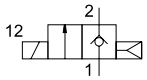
In-line valve

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

Integrated control electronics

- Compact design
- Quick installation

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

Type codes

001	Series	
MHJ9	Solenoid valve	
MHJ10	Solenoid valve	

002	Control electronics	
	Without integrated control electronics (only with MHJ9)	
S	With integrated control electronics (only with MHJ10)	

003	Cable length	
	Without integrated cable	
2,5	2.5 m	
0,35	0.35 m	

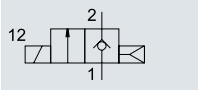
004	Pneumatic connection	
	Sub-base valves	
QS-4	Push-in connector 4 mm	
QS-6	Push-in connector 6 mm	
QS-1/4	Push-in connector 1/4	

005	Flow rate	
LF	50 l/min	
MF	100 l/min	
MF/LP	100 l/min, 0.5 ... 4 bar	
HF	160 l/min	
HF/LP	160 l/min, 0.5 ... 4 bar	

006	Country code	
	None	
U	Imperial connection	

Data sheet

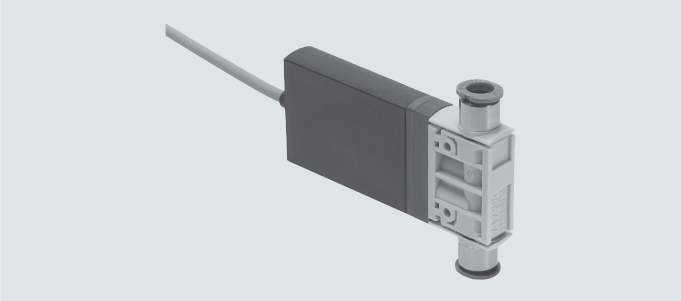
Function



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		
Reset method			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 the operating/pilot medium			Lubricated operation not possible		
Operating pressure		[MPa]	+0.05 ... +0.6	+0.05 ... +0.4	+0.05 ... +0.6
		[bar]	+0.5 ... +6	+0.5 ... +4	+0.5 ... +6
Ambient temperature		[°C]	–5 ... +60		
	With block mounting	[°C]	Max. +45	Max. +45	–
Temperature of medium		[°C]	–5 ... +60		
Restricted ambient temperature and temperature of medium			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]		
KC mark			KC EMC		
Certification			RCM		
PWIS conformity			VDMA24364-B2-L		
Note on materials			RoHS-compliant		

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Data sheet

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 with a trigger signal of 3 ... 15 V DC		
			0.44 ... 15.44 mA with a trigger signal of 15 ... 30 V DC		
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		
			Holding current reduction with energy recovery		
			Safety shut-off		
Degree of protection to EN 60529			IP55		
Duty cycle[2]		[%]	100	100	–
Operating conditions to DIN VDE 0580[2]	With individual valve		–	–	S3 50% 20 min.
	With block mounting		–	–	S3 25% 20 min.
Electrical connection			Cable, 3-wire		

1) If there is a current limit during the switching operation, it must be set to at least 1.7 A.
2) Air must flow through the valve continuously

Switching times and frequencies				
Type		MF	HF/LP	HF
Maximum switching frequency		1000	500	500
Tolerance for switching time	On	±15		
	Off	+15/–25		
Switching times for 24 V DC when new				
Pressure 0.05 MPa (0.5 bar, 7.25 psi)	Switching time on	0.8	0.8	1
	Switching time off	0.5	0.6	0.8
Pressure 0.4 MPa (4 bar, 58 psi)	Switching time on	0.8	1	1.2
	Switching time off	0.4	0.5	0.6
Pressure 0.6 MPa (6 bar, 87 psi)	Switching time on	0.9	–	1.3
	Switching time off	0.4	–	0.6

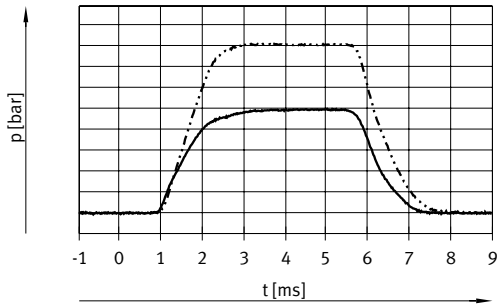
Note

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.

Data sheet

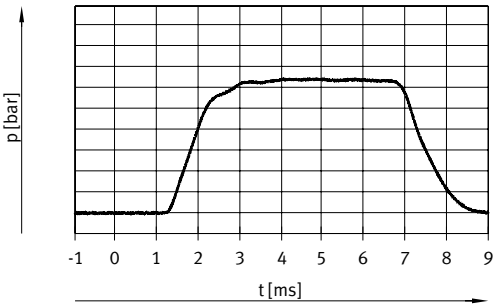
Switching behaviour – Operating pressure

Type MF and HF/LP



4 bar
6 bar

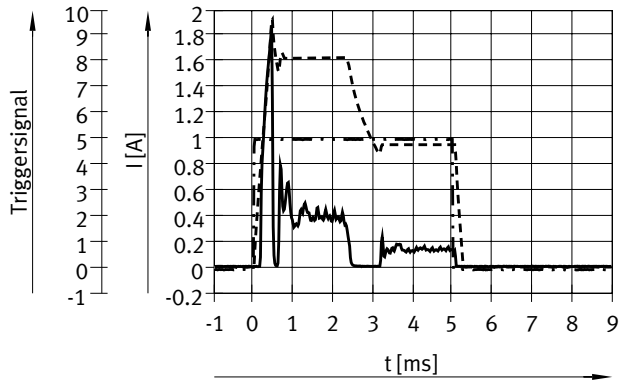
Type HF



4 bar

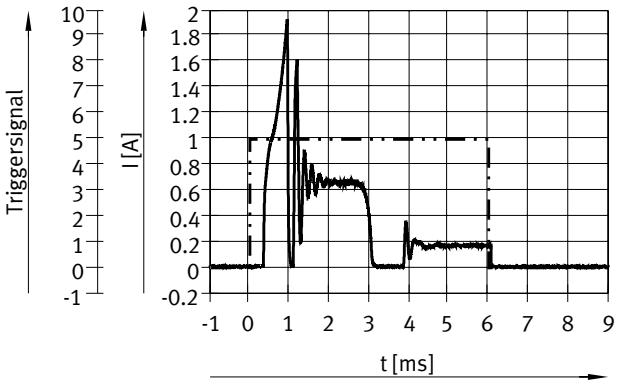
Switching behaviour – Current/voltage curve

Type MF and HF/LP



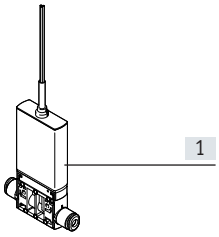
Current in the supply line at 24 V
Coil current
Trigger signal

Type HF



Current in the supply line at 24 V
Trigger signal

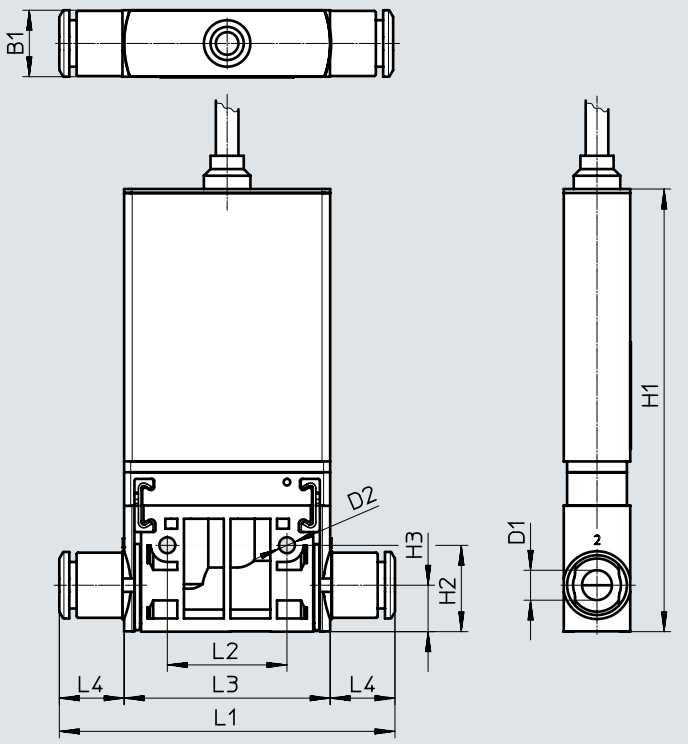
Materials



[1]	Housing	Reinforced PA
		Reinforced PPS
–	Seals	HNBR
–	Screws	Steel
–	Cable sheath	PUR
–	Manifold rail	Anodised wrought aluminium alloy

Data sheet

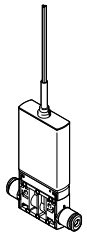
Dimensions Download CAD data ➔ www.festo.com



Wire 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	+0.05 ... +0.6 MPa	**562172**	**MHJ10-S-0.35-QS-1/4-MF-U**
			2.5 m	85 g	+0.05 ... +0.6 MPa	**565517**	**MHJ10-S-2.5-QS-1/4-MF-U**
		160 l/min	2.5 m	85 g	+0.05 ... +0.4 MPa	**567800**	**MHJ10-S-2.5-QS-1/4-HF/LP-U**
					+0.05 ... +0.6 MPa	**567504**	**MHJ10-S-2.5-QS-1/4-HF-U**

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