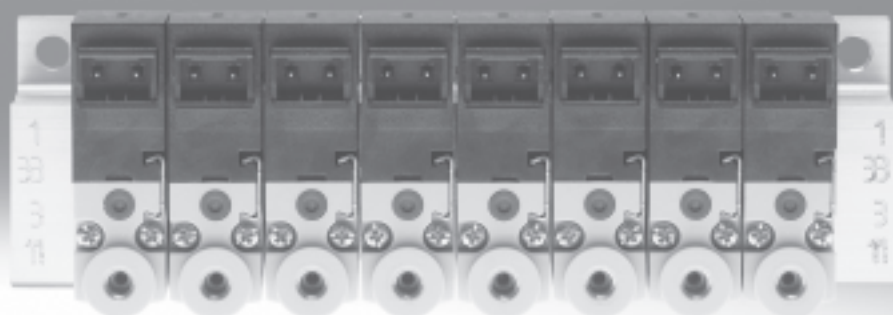


Solenoid valves MH1, miniature

FESTO



Complete product range for a wide range of applications

FESTO



Extremely small

The new miniaturised generation of poppet valves offers flow rates of 14 l/min in the 2/2-way version or 10 l/min in the 3/2-way version. Either as an individual sub-base or pre-assembled on a PR manifold rail. In addition, mounting on a PR manifold rail enables very compact assembly. For increased requirements and speed, the bigger MH2 with a flow rate of up to 100 l/min is the ideal solution.

Extremely versatile and fast

The miniature valves can be linked together via a pneumatic multiple connector plate or electrical multi-pin plug. There is also a choice between horizontal electrical connections, on top and underneath. Furthermore, a connection for mounting on a PCB is available. All components are tested and assembled for Festo plug and work®. Need a system to run as fast as possible? No problem! The response time of the miniature valves is an impressive 4 ms.

Totally coordinated

Festo offers an extensive product range including drives, rodless drives, mini slides, rotary drives and accessories under the umbrella term “compact”. Perfectly coordinated and geared towards all production areas for the manufacture and processing of very small products. All the components comply with Festo’s proven quality standards and include the added value that only a global company can offer.

Miniature valves not just for the electronics industry ...

... but also for the light assembly, medical technology and semiconductor industries and wherever extremely compact and fast-switching valves or pilot valves are required for valves coming into contact with media (e.g. process industry). With response times of approximately 4 ms, these valves satisfy all requirements for speed. Vacuum functions can also be easily implemented. A 100% duty cycle and even a three-shift operation guarantee maximum cost-effectiveness.

With flow rates of 10 and 14 l/min for the miniature valves, there is always sufficient volume for pilot control of process valves. The flow rate is also adequate for Festo's wide range of compact cylinders, rotary drives and slides.

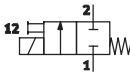
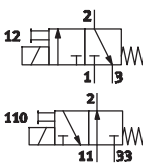
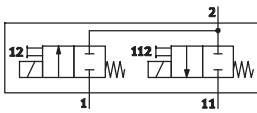
For increased requirements of up to 100 l/min: MH2.



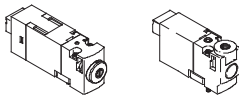
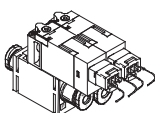
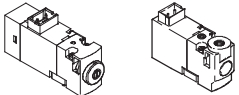
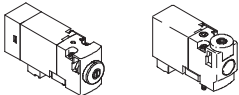
Solenoid valves MH1, miniature

Product range overview

FESTO

Function	Circuit symbol	Version	Voltage [V DC]			→ Page/ Internet
			5	12	24	
2/2-way valve		Standard nominal flow rate 14 l/min				
		Semi in-line valve	■	■	■	6
		Sub-base valve	■	■	■	16
		Standard nominal flow rate 30 l/min, controls vacuum or ejector pulse				
		Sub-base valve	–	–	■	33
3/2-way valve ¹⁾		Standard nominal flow rate 10 l/min				
		Semi in-line valve	■	■	■	6
		Sub-base valve	■	■	■	16
		Sub-base valve with LED	–	–	■	16
2x2/2-way valve		Standard nominal flow rate 30 l/min, controls vacuum and ejector pulse				
		Sub-base valve with LED	–	–	■	33

1) Can be used as a 2/2-way valve by sealing port 1 or 3

Mounting options				
Design		Semi in-line valve	Sub-base valve	
Electrical connection		Without LED	Without LED	With LED
Plug connection at rear (HC)				
	Individual sub-base	■	■	■
	Manifold assembly	■	■	■
	Sub-base with 2x2/2-way valve fully assembled	–	–	■
Plug connection on top (TC)				
	Individual sub-base	■	■	■
	Manifold assembly	■	■	■
Plug connection underneath (PI)				
	Individual sub-base with plug base	■	■	■
	Manifold assembly with plug bases	■	■	■
	Manifold assembly with plug bases and electrical multi-pin plug	■	■	■
	Manifold assembly on PCB with soldering bases	■	■	■
	Manifold assembly on PCB with soldering bases and pneumatic multiple connector plate	–	■	■

Solenoid valves MH1, miniature

FESTO

Type codes

		MH	A	1	-	M	4	L	H	-	3/2	-	0	-	M3	-	HC
Valve family																	
MH	Miniature and fast-switching valves																
Design																	
P	Semi in-line valve																
A	Sub-base valve																
Size																	
1	Flow rate 10 ... 14 l/min																
Drive type																	
M	Solenoid, switching																
Operating voltage																	
4	5 V DC																
5	12 V DC																
1	24 V DC																
Signal status display																	
-	No																
L	LED																
Manual override																	
H	Non-detenting/detenting																
Valve function																	
2/2	2/2-way valve																
3/2	3/2-way valve																
Normal position																	
G	Closed																
O	Open																
Pneumatic connection																	
0.6	Nominal size 0.65 mm																
0.9	Nominal size 0.9 mm																
M3	M3 thread																
Electrical connection																	
HC	Plug connection at rear for plug socket KMH/NEBV-H1G2																
TC	Plug connection on top for plug socket KMH/NEBV-H1G2																
PI	Plug connection underneath for plug-in connection																

-  - Note

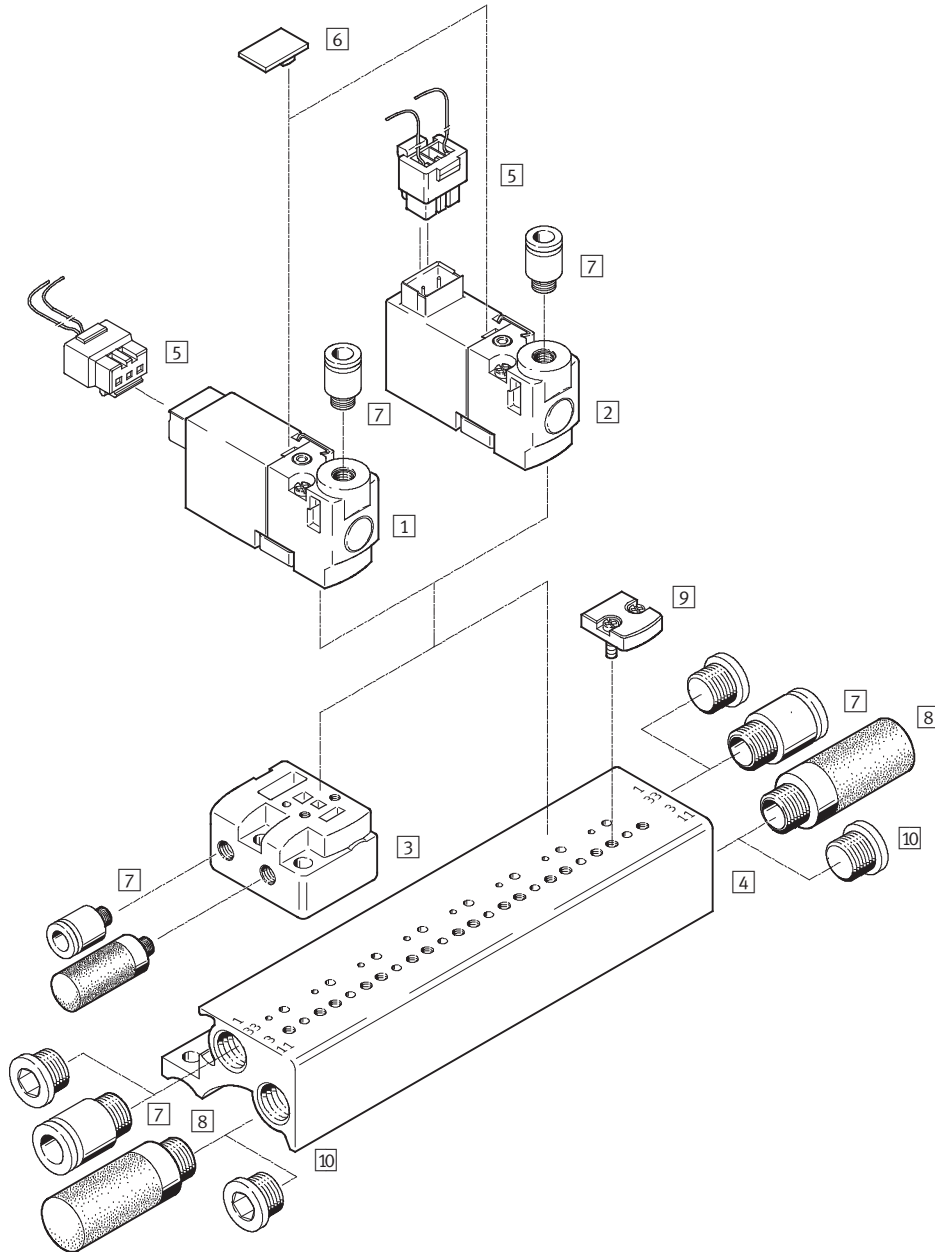
Further variants and accessories can be configured and ordered using the modular system.

Solenoid valves MHP1, miniature

Peripherals overview – Semi in-line valve, valve manifold

FESTO

Plug connection at rear ...-HC, plug connection on top ...-TC



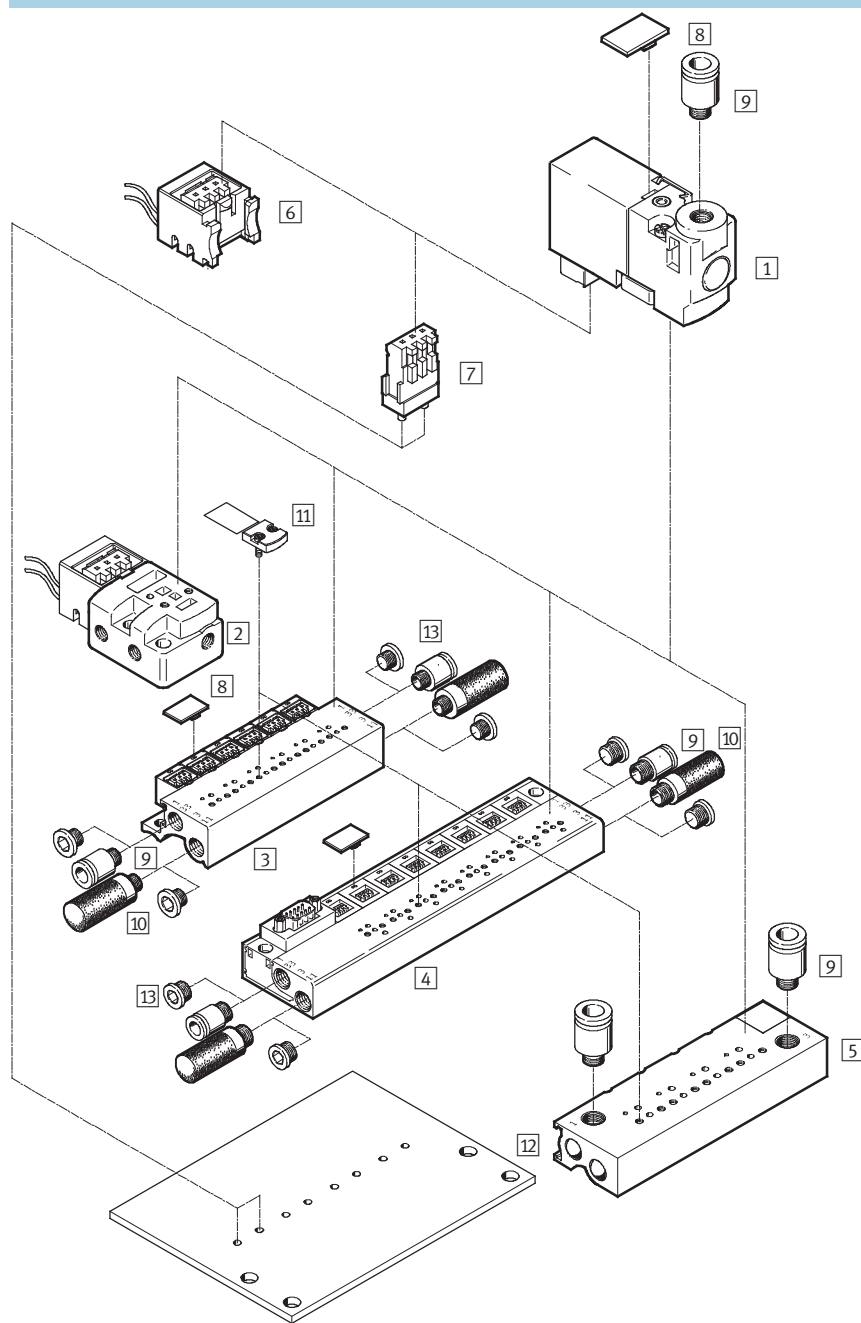
Accessories		→ Page/ Internet			→ Page/ Internet
1	Semi in-line valve MHP1-...-HC	8	6	Inscription label MH-BZ-80X	35
2	Semi in-line valve MHP1-...-TC	8	7	Push-in fittings QS/QSM	qs
3	Individual sub-base MHP1-AS-3-M3	10	8	Silencer UC	uc
4	Manifold block MHP1-PR...-3	10	9	Blanking plate MHAP1-BP-3 for sealing vacant positions	35
5	Plug socket with cable KMH/NEBV-H1G2	35	10	Blanking plug B	35

Solenoid valves MHP1, miniature

Peripherals overview – Semi in-line valve, valve terminal

FESTO

Plug connection underneath ...-PI



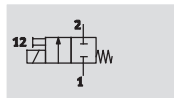
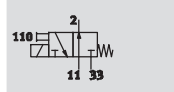
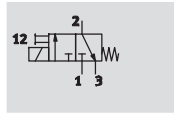
Accessories		→ Page/ Internet			→ Page/ Internet
1	Semi in-line valve MHP1-...-PI	8	7	Soldering base PCBC-A	35
2	Individual sub-base MHP1-AS-3-M3-PI	10	8	Inscription label MH-BZ-80x	35
3	Manifold block MHP1-PR...-3-PI with plug bases	10	9	Push-in fittings QS/QSM	qs
4	Manifold block MHP1-PR...-3-PI-D with plug bases and electrical multi-pin plug	12	10	Silencer UC	uc
5	Manifold block MHP1-PR...-3-PI-PCB for mounting on PCB	13	11	Blanking plate MHAP1-BP-3-PI for sealing vacant positions	35
6	Plug base MHAP-PI	35	12	PCB (user-specific)	13
			13	Blanking plug B	35

Solenoid valves MHP1, miniature

Technical data – Semi in-line valve

FESTO

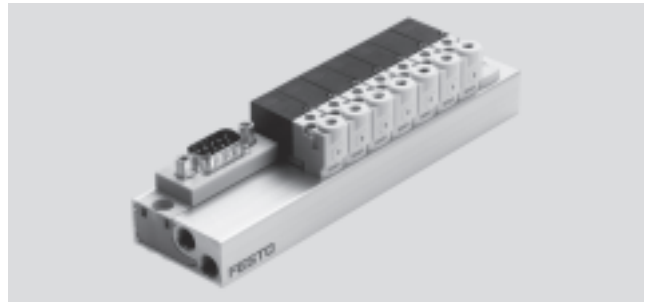
Function



-  - Voltage
5, 12, 24 V DC

-  - Pressure
-0.9 ... +8 bar

-  - Temperature range
-5 ... +50 °C



General technical data						
Valve function			2/2-way, single solenoid		3/2-way, single solenoid	
Constructional design			Poppet valve with spring return			
Sealing principle			Soft			
Actuation type			Electric			
Reset method			Mechanical spring			
Type of pilot control			Direct			
Direction of flow			Non-reversible			
Exhaust function			–		With flow control	
Manual override			Non-detenting			
Type of mounting			On sub-base via through-holes			
Mounting position			Any			
Nominal size		[mm]	0.9		0.65	
Standard nominal flow rate		[l/min]	14 (2 bar → 0 bar)		10	
Grid dimension		[mm]	10		10	
Pneumatic connection	Individual sub-base	1, 33	M3		M3	
		2	M3		M3	
		3, 11	–		M3	
	Manifold assembly	1, 33	M7		M7	
		2	M3		M3	
		3, 11	–		M7	
Product weight		[g]	10		10	

Operating and environmental conditions				
Valve function		2/2-way, single solenoid		3/2-way, single solenoid
Operating medium		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm
		Vacuum, grade of filtration 40 µm		-
Operating pressure range	Normally closed	[bar]	-0.9 ... +2	0 ... 8 ¹⁾
	Normally open	[bar]	-	0 ... 6 ¹⁾
Ambient temperature	Individual mounting	[°C]	-5 ... +50	
	Manifold assembly	[°C]	-5 ... +40	
Temperature of medium	Individual mounting	[°C]	-5 ... +50	
	Manifold assembly	[°C]	-5 ... +40	
Storage temperature		[°C]	-20 ... +60	
Corrosion resistance class CRC			2 ²⁾	

1) Vacuum operation possible with special connection method

2) Corrosion resistance class 2 as per Festo standard 940 070

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

Solenoid valves MHP1, miniature

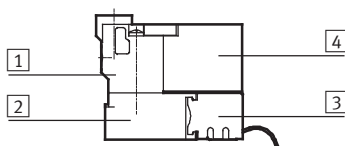
FESTO

Technical data – Semi in-line valve

Electrical data			
Valve function		2/2-way, single solenoid	3/2-way, single solenoid
Operating voltage		[V DC]	5 ±10%, 12 ±10% or 24 ±10%
Type of connection		Plug connection	
Power consumption		[W]	1
Duty cycle		100%	
Protection class to EN 60529			
With plug socket KMH/NEBV-H1G2		IP40	
With plug base MHAP-PI			
With soldering base PCBC-A			
With Sub-D connector plug			

Response times and switching frequencies		
Valve function	2/2-way, single solenoid	3/2-way, single solenoid
Response time on/off [ms]	4/5	4/4
Maximum switching frequency [Hz]	20	

Materials

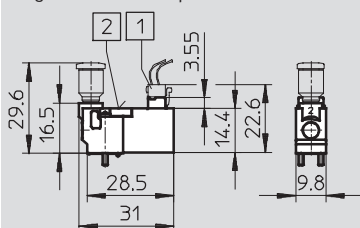


1	Housing	Polyphenylene sulphide
2	Sub-base	Aluminium
3	Plug base	Polyamide
4	Coil housing	Polyamide
-	Seals	Fluoro elastomer, nitrile rubber, hydrogenated nitrile rubber
Note on materials		Free of copper and PTFE

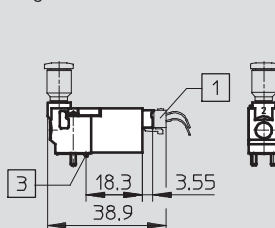
Dimensions

Download CAD data → www.festo.com

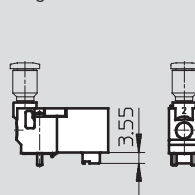
Plug connection on top



Plug connection at rear

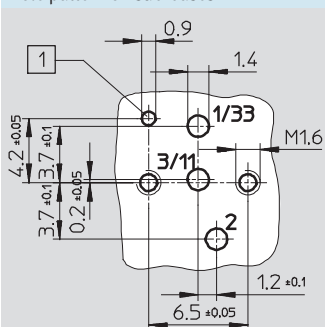


Plug connection underneath



- 1 Plug socket KMH/NEBV-H1G2
- 2 Manual override
- 3 Coding pin

Hole pattern on sub-bases



- 1 Hole for coding pin



Note

With semi in-line valves, port 2 is not used. If used as a 2/2-way valve, normally closed, port 3/11 is not used.

If used as a 2/2-way valve, normally open, port 1/33 is not used.

Solenoid valves MHP1, miniature

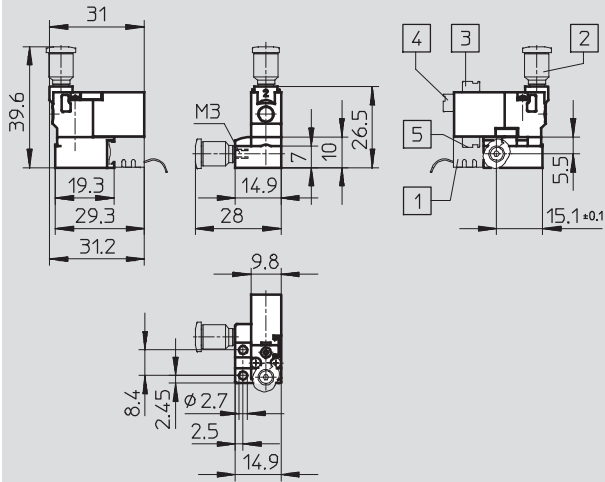
Technical data – Semi in-line valve

FESTO

Dimensions – 2/2-way valve

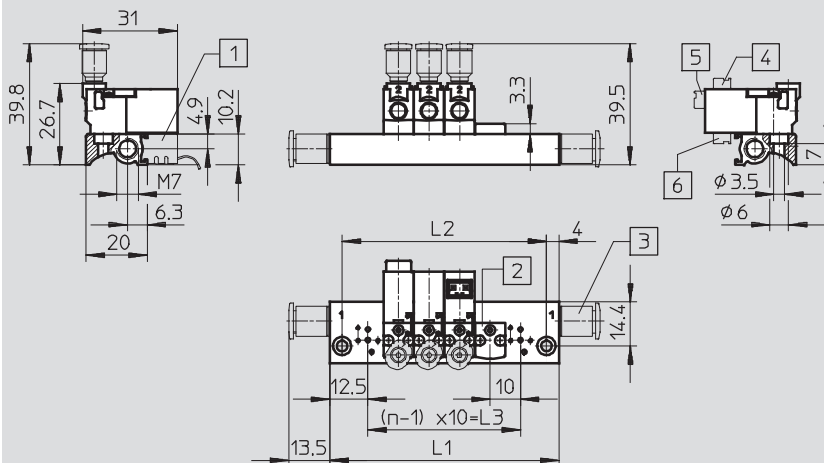
Download CAD data → www.festo.com

Individual sub-base



- 1 Plug base MHAP-PI
- 2 Fitting QSM
- 3 Plug connection on top
- 4 Plug connection at rear
- 5 Plug connection underneath

Manifold assembly



- 1 Plug base MHAP-PI
- 2 Blanking plate MHAP1
- 3 Fitting QSM
- 4 Plug connection on top
- 5 Plug connection at rear
- 6 Plug connection underneath

Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	35	27	10
3	45	37	20
4	55	47	30
5	65	57	40
6	75	67	50
7	85	77	60
8	95	87	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
9	105	97	80
10	115	107	90
11	125	117	100
12	135	127	110
13	145	137	120
14	155	147	130
15	165	157	140

Valve positions n	L1 ±0.15	L2 ±0.1	L3
16	175	167	150
17	185	177	160
18	195	187	170
19	205	197	180
20	215	207	190
21	225	217	200
22	235	227	210

Solenoid valves MHP1, miniature

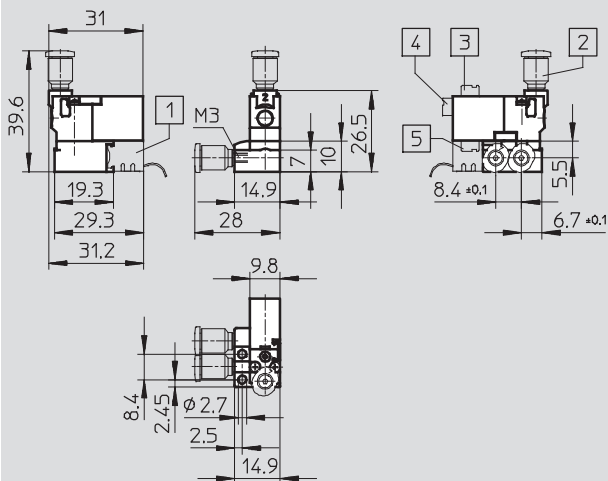
Technical data – Semi in-line valve

FESTO

Dimensions – 3/2-way valve

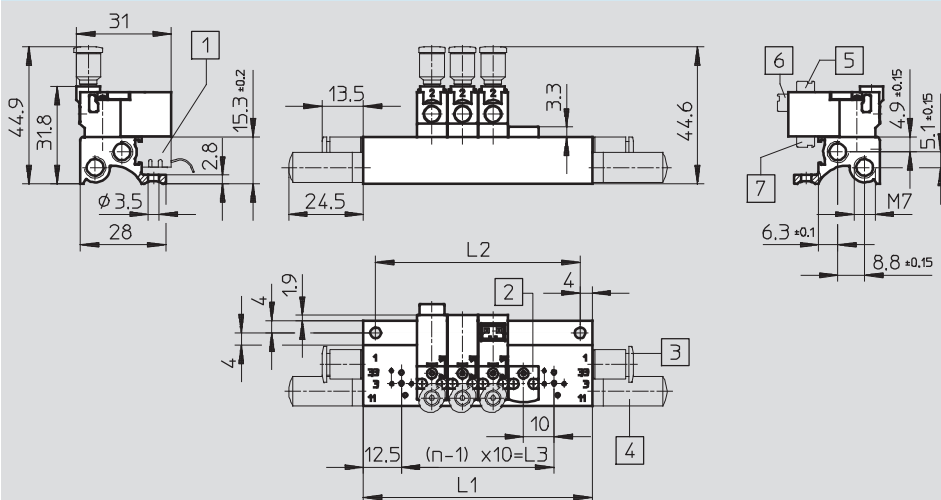
Download CAD data → www.festo.com

Individual sub-base



- 1 Plug base MHAP-PI
- 2 Fitting QSM
- 3 Plug connection on top
- 4 Plug connection at rear
- 5 Plug connection underneath

Manifold assembly



- 1 Plug base MHAP-PI
- 2 Blanking plate MHAP1
- 3 Fitting QSM
- 4 Silencer
- 5 Plug connection on top
- 6 Plug connection at rear
- 7 Plug connection underneath

Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	35	27	10
3	45	37	20
4	55	47	30
5	65	57	40
6	75	67	50
7	85	77	60
8	95	87	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
9	105	97	80
10	115	107	90
11	125	117	100
12	135	127	110
13	145	137	120
14	155	147	130
15	165	157	140

Valve positions n	L1 ±0.15	L2 ±0.1	L3
16	175	167	150
17	185	177	160
18	195	187	170
19	205	197	180
20	215	207	190
21	225	217	200
22	235	227	210

Solenoid valves MHP1, miniature

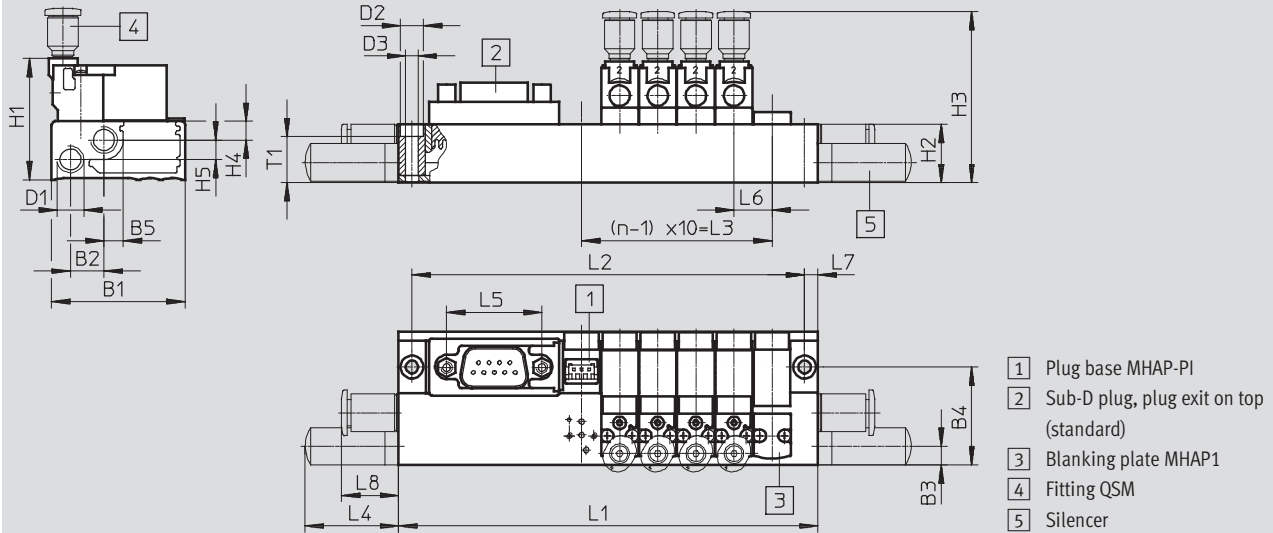
Technical data – Semi in-line valve

FESTO

Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Manifold assembly with electrical multi-pin plug



Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	70	63	10
4	90	83	30
6	110	103	50
8	130	123	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
10	172	165	90
12	192	185	110
14	212	205	130
16	232	225	150

Valve positions n	L1 ±0.15	L2 ±0.1	L3
18	252	245	170
20	272	265	190
22	292	285	210

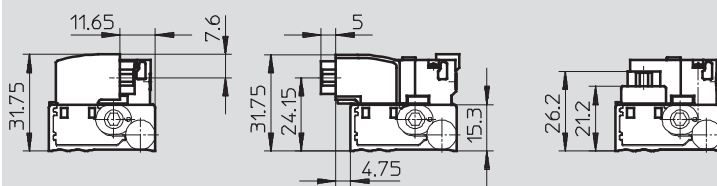
Type	L4	L5	L6	L7	L8	B1	B2	B3	B4	B5	D1	D2	D3	H1	H2	H3	H4	H5	T1
MHP1	25	25	10	4	15	35	9	5	26	5	M7	6	3	32	15	45	5	5	12

Electrical multi-pin plug – Plug directions

To pneumatic side

To electrical side

To top (standard)



Solenoid valves MHP1, miniature

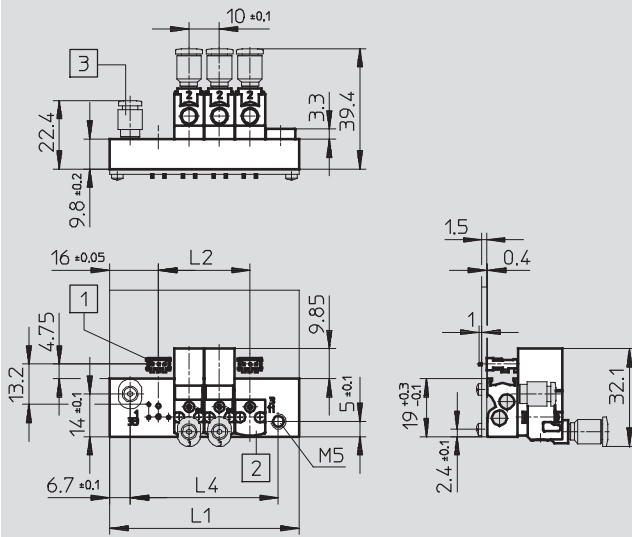
Technical data – Semi in-line valve

FESTO

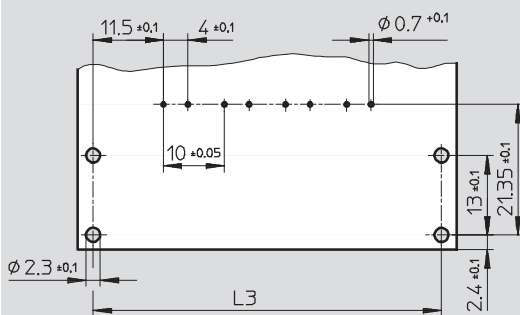
Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Manifold assembly on PCB



Hole pattern on PCB



Note

The PCB is not included in the scope of delivery.

Valve positions n	L1 ±0.15	L2	L3 ±0.1	L4 ±0.1
2	42	10	37	28.6
4	62	30	57	48.6
6	82	50	77	68.6
8	102	70	97	88.6
10	122	90	117	108.6

Solenoid valves MHP1, miniature

Technical data – Semi in-line valve

FESTO

Ordering data – 2/2-way valves			
Electrical connection	Operating voltage	Normally closed	
		Part No.	Type
M3 connecting thread			
Plug connection at rear	5 V DC	197045	MHP1-M4H-2/2G-M3-HC
	12 V DC	197046	MHP1-M5H-2/2G-M3-HC
	24 V DC	197047	MHP1-M1H-2/2G-M3-HC
Plug connection on top	5 V DC	197048	MHP1-M4H-2/2G-M3-TC
	12 V DC	197049	MHP1-M5H-2/2G-M3-TC
	24 V DC	197050	MHP1-M1H-2/2G-M3-TC
Plug connection underneath	5 V DC	197051	MHP1-M4H-2/2G-M3-PI
	12 V DC	197052	MHP1-M5H-2/2G-M3-PI
	24 V DC	197053	MHP1-M1H-2/2G-M3-PI



Note

Type 2/2G and type 3/2O valves must not be mixed on a manifold block.

Ordering data – Product-specific accessories			
Designation		Part No.	Type
Valves with plug connection at rear or on top			
Individual sub-base		197188	MHP1-AS-2-M3
Manifold block for	2 valves	197196	MHP1-P2-2
	4 valves	197197	MHP1-P4-2
	6 valves	197198	MHP1-P6-2
	8 valves	197200	MHP1-P8-2
	10 valves	197201	MHP1-P10-2
Valves with plug connection underneath			
Individual sub-base		197190	MHP1-AS-2-M3-PI
Manifold block with plug bases for	2 valves	197217	MHP1-P2-2-PI
	4 valves	197218	MHP1-P4-2-PI
	6 valves	197219	MHP1-P6-2-PI
	8 valves	197220	MHP1-P8-2-PI
	10 valves	197221	MHP1-P10-2-PI



Note

Manifold blocks with an uneven number of valves and for 11 ... 24 valves as well as further variants can be configured and ordered using the MH1 modular product system.

Solenoid valves MHP1, miniature

Technical data – Semi in-line valve

FESTO

Ordering data – 3/2-way valves					
Electrical connection	Operating voltage	Normally closed		Normally open	
		Part No.	Type	Part No.	Type
M3 connecting thread					
Plug connection at rear	5 V DC	197009	MHP1-M4H-3/2G-M3-HC	197027	MHP1-M4H-3/2O-M3-HC
	12 V DC	197010	MHP1-M5H-3/2G-M3-HC	197028	MHP1-M5H-3/2O-M3-HC
	24 V DC	197011	MHP1-M1H-3/2G-M3-HC	197029	MHP1-M1H-3/2O-M3-HC
Plug connection on top	5 V DC	197012	MHP1-M4H-3/2G-M3-TC	197030	MHP1-M4H-3/2O-M3-TC
	12 V DC	197013	MHP1-M5H-3/2G-M3-TC	197031	MHP1-M5H-3/2O-M3-TC
	24 V DC	197014	MHP1-M1H-3/2G-M3-TC	197032	MHP1-M1H-3/2O-M3-TC
Plug connection underneath	5 V DC	197015	MHP1-M4H-3/2G-M3-PI	197033	MHP1-M4H-3/2O-M3-PI
	12 V DC	197016	MHP1-M5H-3/2G-M3-PI	197034	MHP1-M5H-3/2O-M3-PI
	24 V DC	197017	MHP1-M1H-3/2G-M3-PI	197035	MHP1-M1H-3/2O-M3-PI



Note

Type 3/2G and type 3/2O valves must not be mixed on a manifold block.

Ordering data – Product-specific accessories			
Designation		Part No.	Type
Valves with plug connection at rear or on top			
Individual sub-base		197184	MHP1-AS-3-M3
Manifold block for	2 valves	197191	MHP1-PR2-3
	4 valves	197192	MHP1-PR4-3
	6 valves	197193	MHP1-PR6-3
	8 valves	197194	MHP1-PR8-3
	10 valves	197195	MHP1-PR10-3
Valves with plug connection underneath			
Individual sub-base		197186	MHP1-AS-3-M3-PI
Manifold block with plug bases for	2 valves	197212	MHP1-PR2-3-PI
	4 valves	197213	MHP1-PR4-3-PI
	6 valves	197214	MHP1-PR6-3-PI
	8 valves	197215	MHP1-PR8-3-PI
	10 valves	197216	MHP1-PR10-3-PI
Manifold block with plug bases and electrical multi-pin plug for	4 valves	197233	MHP1-PR4-3-PI-D9
	6 valves	197234	MHP1-PR6-3-PI-D9
	8 valves	197235	MHP1-PR8-3-PI-D9
	10 valves	197236	MHP1-PR10-3-PI-D25
Manifold block for mounting on PCB for	2 valves	197242	MHP1-PR2-3-PI-PCB
	4 valves	197243	MHP1-PR4-3-PI-PCB
	6 valves	197244	MHP1-PR6-3-PI-PCB
	8 valves	197245	MHP1-PR8-3-PI-PCB
	10 valves	197246	MHP1-PR10-3-PI-PCB



Note

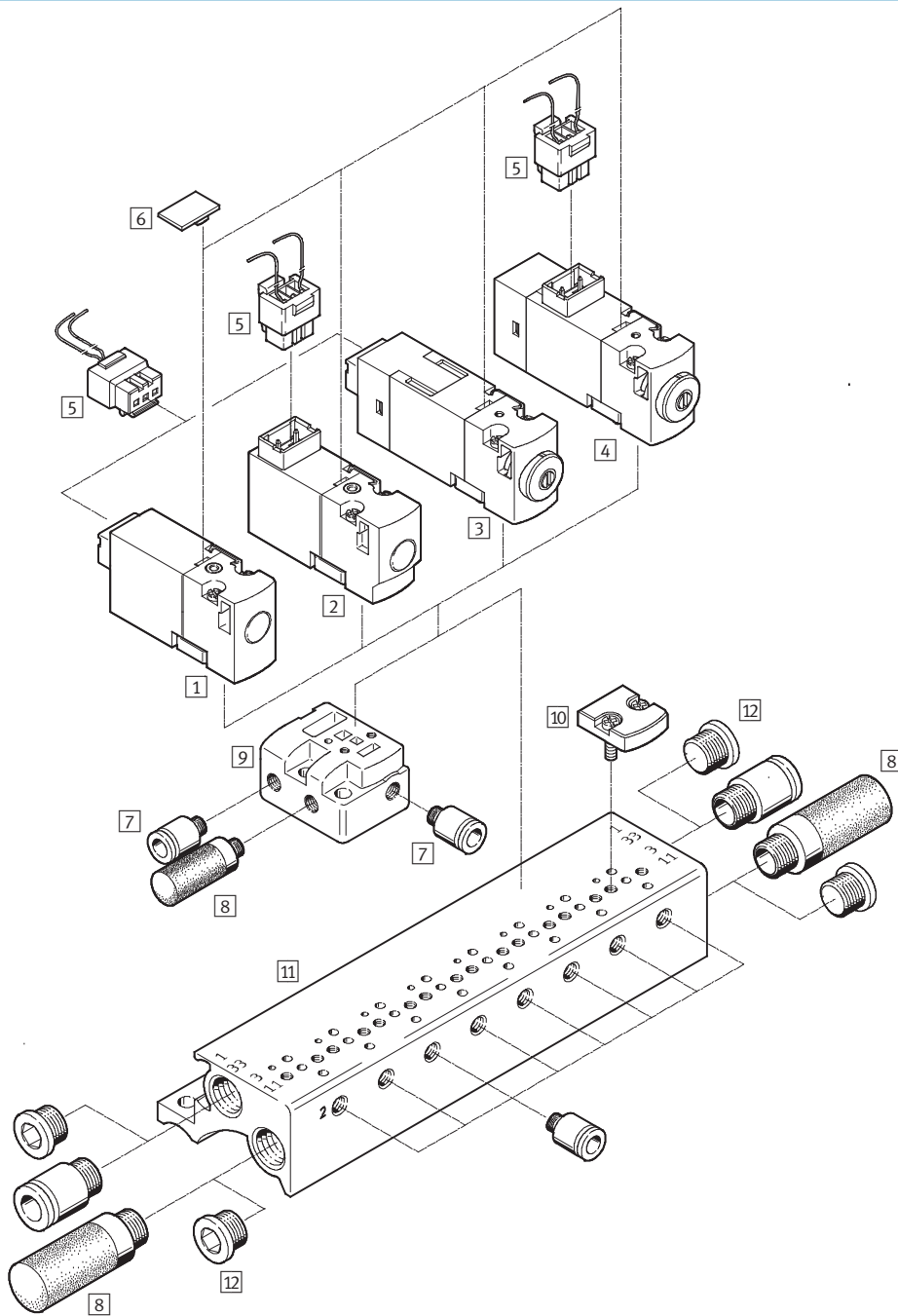
Manifold blocks with an uneven number of valves and for 11 ... 24 valves as well as further variants can be configured and ordered using the MH1 modular product system.

Solenoid valves MHA1, miniature

Peripherals overview – Sub-base valve, valve manifold

FESTO

Plug connection at rear ...-HC, plug connection on top ...-TC



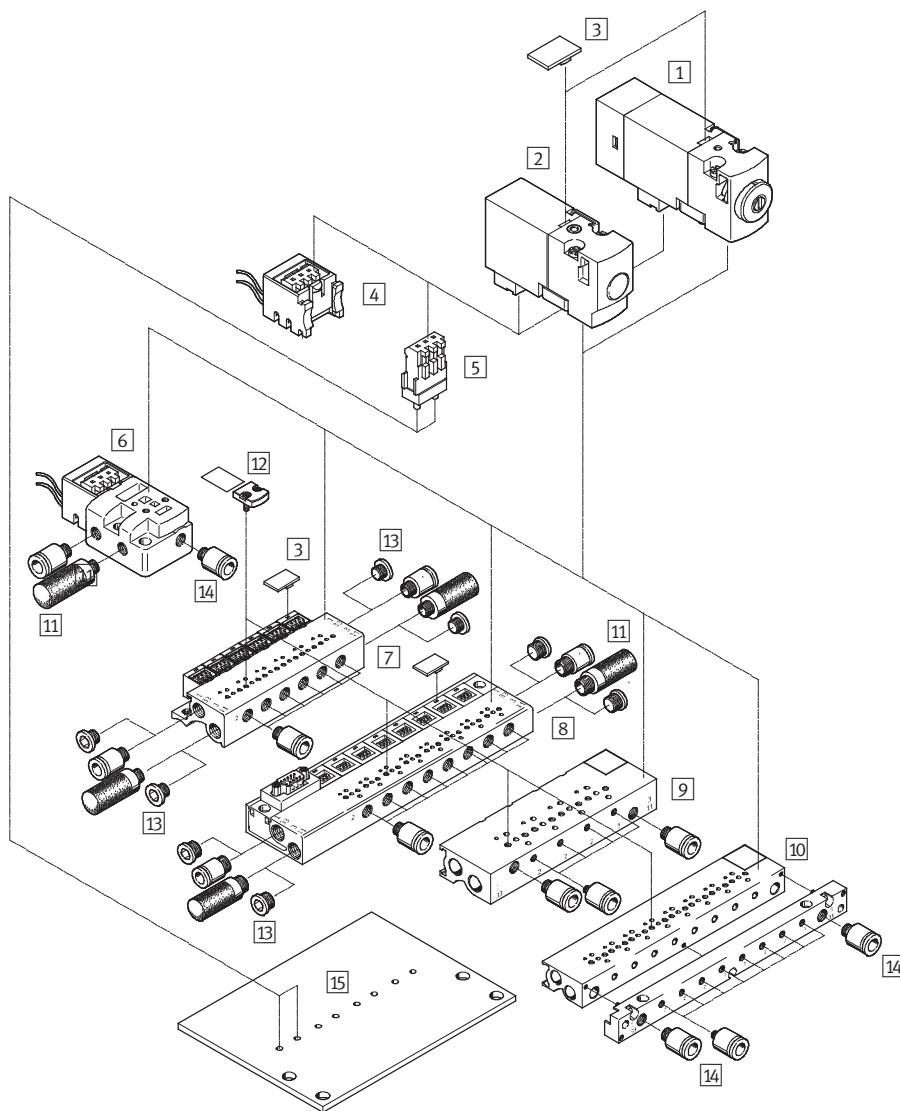
Accessories		→ Page/ Internet		→ Page/ Internet
1	Sub-base valve MHA1-...-HC	19	7	Push-in fittings QS/QSM
2	Sub-base valve MHA1-...-TC	19	8	Silencer UC
3	Sub-base valve MHA1-...-HC with LED	27	9	Individual sub-base MHA1-AS-3-M3
4	Sub-base valve MHA1-...-TC with LED	27	10	Blanking plate MHAP1-BP-3 for sealing vacant positions
5	Plug socket with cable KMH/NEBV-H1G2	35	11	Manifold block MHA1-PR...-3
6	Inscription label MH-BZ-80X	35	12	Blanking plug B

Solenoid valves MHA1, miniature

Peripherals overview – Sub-base valve, valve terminal

FESTO

Plug connection underneath ...-PI



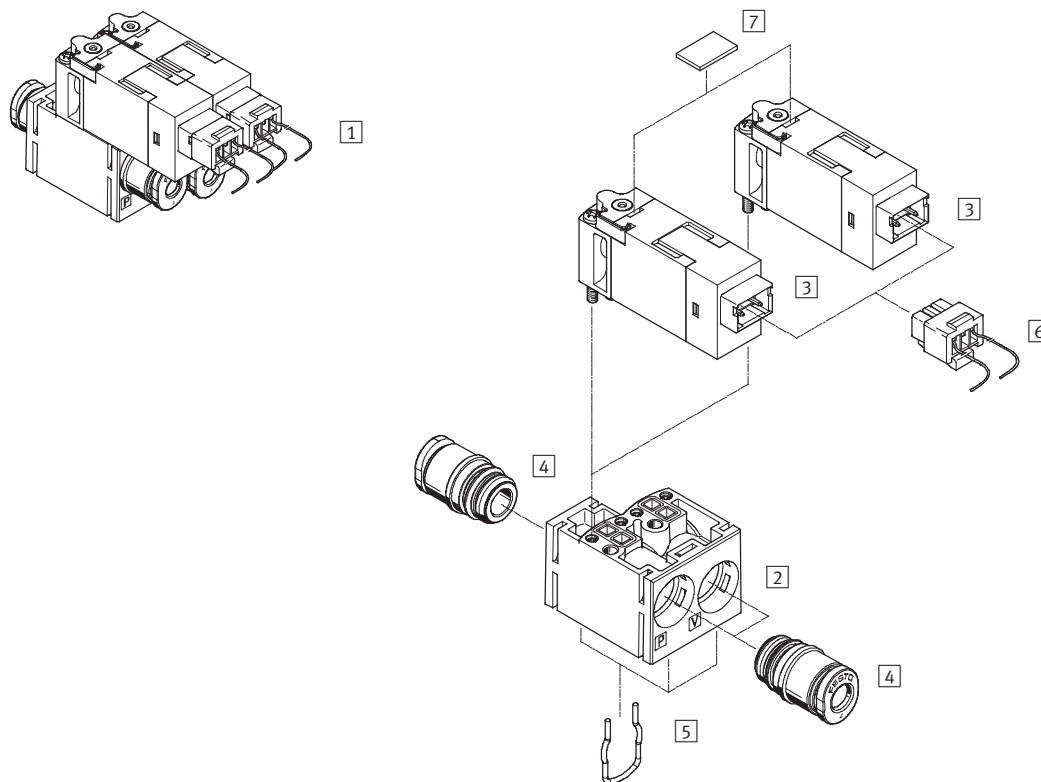
Accessories		→ Page/ Internet			→ Page/ Internet
1	Sub-base valve MHA1-...-PI with LED	27	9	Manifold block MHA1-PR...-3-M3-PI-PCB for mounting on PCB	24
2	Sub-base valve MHA1-...-PI	19	10	Manifold block MHA1-PR...-3-M3-PI-PCBM for mounting on PCB with pneumatic multiple connector plate	24
3	Inscription label MH-BZ-80X	35	11	Silencer UC	uc
4	Plug base MHAP-PI	35	12	Blanking plate MHAP1 for sealing vacant positions	35
5	Soldering base PCBC-A	35	13	Blanking plug B	35
6	Individual sub-base MHA1-AS-3-M3-PI with plug base	21	14	Push-in fittings QS	qs
7	Manifold block MHA1-PR...-3-M3-PI with plug bases	21	15	PCB (user-specific)	24
8	Manifold block MHA1-PR...-3-M3-PI-D with plug bases and electrical multi-pin plug	23			

Solenoid valves MHP1, miniature

Peripherals overview – 2x2/2 sub-base valve with LED

FESTO

2x2/2 sub-base valve with LED



Accessories

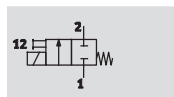
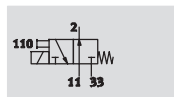
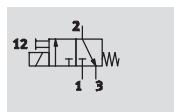
	→ Page/ Internet		→ Page/ Internet
1 Solenoid valve MHA1-2x2/2G-1,5	33	5 Clip	–
2 Sub-base	–	6 Plug socket with cable KMH/NEBV-H1 G2	35
3 Solenoid valve MHA1-M1LCH-2/2G-1.5-HC	33	7 Inscription label MH-BZ-80x	35
4 Push-in cartridge	–		

Solenoid valves MHA1, miniature

FESTO

Technical data – Sub-base valve

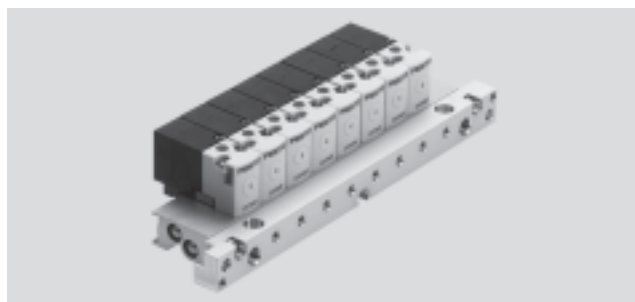
Function



-  Voltage
5, 12, 24 V DC

-  Pressure
-0.9 ... +8 bar

-  Temperature range
-5 ... +50 °C



General technical data						
Valve function			2/2-way, single solenoid		3/2-way, single solenoid	
Constructional design			Poppet valve with spring return			
Sealing principle			Soft			
Actuation type			Electric			
Reset method			Mechanical spring			
Type of pilot control			Direct			
Direction of flow			Non-reversible			
Exhaust function			–		With flow control	
Manual override			Non-detenting			
Type of mounting			On sub-base via through-holes			
Mounting position			Any			
Nominal size		[mm]	0.9		0.65	
Standard nominal flow rate		[l/min]	14 (2 bar → 0 bar)		10	
Grid dimension		[mm]	10		10	
Pneumatic connection	Individual sub-base	1, 33	M3		M3	
		2	–		M3	
		3, 11	M3		M3	
	Manifold assembly	1, 33	M7		M7 (PCB: M5)	
		2	–		M3	
		3, 11	M7		M7 (PCB: M5)	
Product weight		[g]	10		10	

Operating and environmental conditions				
Valve function			2/2-way, single solenoid	3/2-way, single solenoid
Operating medium			Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm
			Vacuum, grade of filtration 40 µm	
Operating pressure range	Normally closed	[bar]	-0.9 ... +2	0 ... 8 ¹⁾
	Normally open	[bar]	-	0 ... 6 ¹⁾
Ambient temperature	Individual mounting	[°C]	-5 ... +50	
	Manifold assembly	[°C]	-5 ... +40	
Temperature of medium		Individual mounting	[°C]	-5 ... +50
Temperature of medium		Manifold assembly	[°C]	-5 ... +40
Storage temperature		[°C]	-20 ... +60	
Corrosion resistance class CRC			2 ²⁾	

1) Vacuum operation possible with special connection method

2) Corrosion resistance class 2 as per Festo standard 940 070

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

Solenoid valves MHA1, miniature

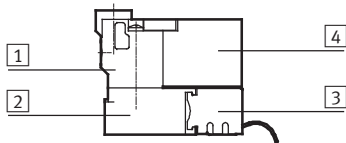
Technical data – Sub-base valve

FESTO

Electrical data		
Valve function	2/2-way, single solenoid	3/2-way, single solenoid
Operating voltage	[V DC]	5 ±10%, 12 ±10% or 24 ±10%
Type of connection	Plug connection	
Power consumption	[W]	1
Duty cycle	[%]	100
Protection class to EN 60529		
With plug socket KMH/NEBV-H1G2	IP40	
With plug base MHAP-PI		
With soldering base PCBC-A		
With Sub-D connector plug		

Response times and switching frequencies		
Valve function	2/2-way, single solenoid	3/2-way, single solenoid
Response time on/off	[ms]	4/5
Maximum switching frequency	[Hz]	20

Materials



1	Housing	Polyphenylene sulphide
2	Sub-base	Aluminium
3	Plug base	Polyamide
4	Coil housing	Polyamide
-	Seals	Fluoro elastomer, nitrile rubber, hydrogenated nitrile rubber
Note on materials		Free of copper and PTFE

Dimensions			Download CAD data → www.festo.com
Plug connection on top	Plug connection at rear	Plug connection underneath	
Top view dimension drawing showing the plug connection on top. Dimensions include 22.6, 14.7, 28.5, 14.4, 3.55, 9.8, 36.4, 18.3, and 3.55. Callouts 1, 2, and 3 are present.	Rear view dimension drawing showing the plug connection at rear. Dimensions include 36.4, 18.3, and 3.55. Callout 1 is present.	Underneath view dimension drawing showing the plug connection underneath. Dimensions include 3.55. Callout 1 is present.	1 Plug socket KMH/NEBV-H1G2 2 Manual override 3 Coding pin

Hole pattern on sub-bases		
Hole pattern dimension drawing on sub-bases. Dimensions include 0.9, 1.4, 1.2 ±0.1, 6.5 ±0.05, 3.7 ±0.1, 0.2 ±0.05, 3.7 ±0.1, 4.2 ±0.05, and M1.6. Callout 1 points to a hole for coding pin.	1 Hole for coding pin	Note If used as a 2/2-way valve, normally closed, port 3/11 is not used. If used as a 2/2-way valve, normally open, port 1/33 is not used.

Solenoid valves MHA1, miniature

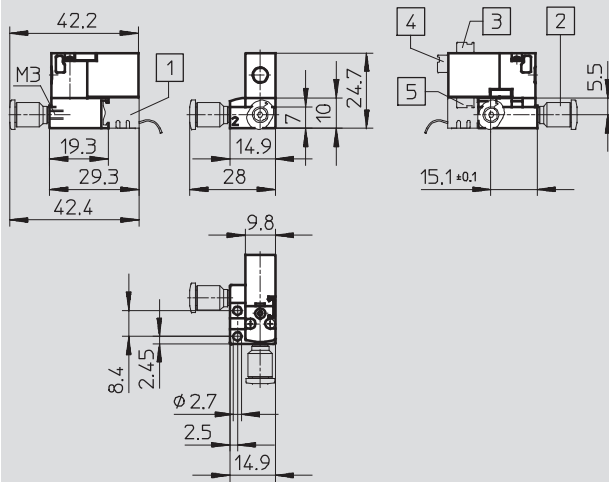
Technical data – Sub-base valve

FESTO

Dimensions – 2/2-way valve

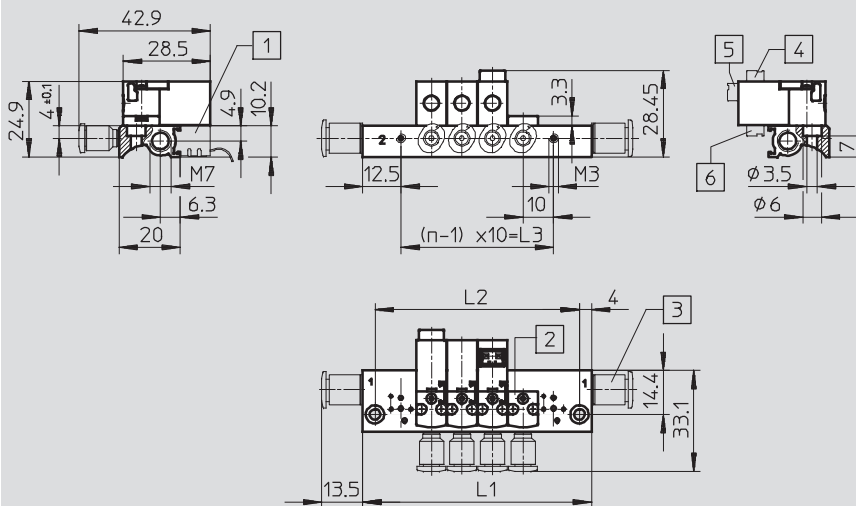
Download CAD data → www.festo.com

Individual sub-base



- 1 Plug base MHAP-PI
- 2 Fitting QSM
- 3 Plug connection on top
- 4 Plug connection at rear
- 5 Plug connection underneath

Manifold assembly



- 1 Plug base MHAP-PI
- 2 Blanking plate MHAP1
- 3 Fitting QSM
- 4 Plug connection on top
- 5 Plug connection at rear
- 6 Plug connection underneath

Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	35	27	10
3	45	37	20
4	55	47	30
5	65	57	40
6	75	67	50
7	85	77	60
8	95	87	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
9	105	97	80
10	115	107	90
11	125	117	100
12	135	127	110
13	145	137	120
14	155	147	130
15	165	157	140

Valve positions n	L1 ±0.15	L2 ±0.1	L3
16	175	167	150
17	185	177	160
18	195	187	170
19	205	197	180
20	215	207	190
21	225	217	200
22	235	227	210

Solenoid valves MHA1, miniature

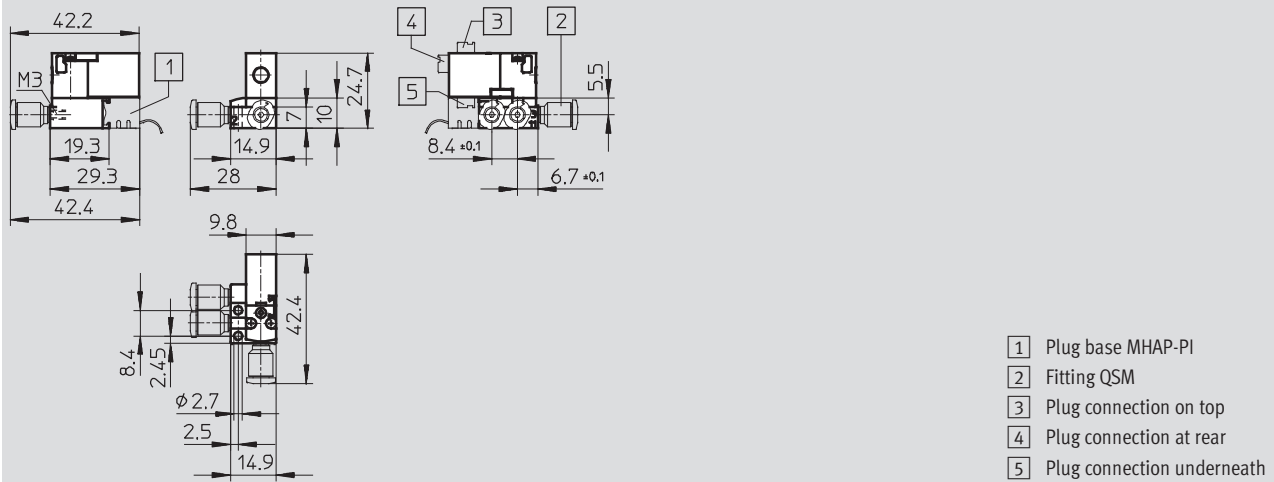
Technical data – Sub-base valve

FESTO

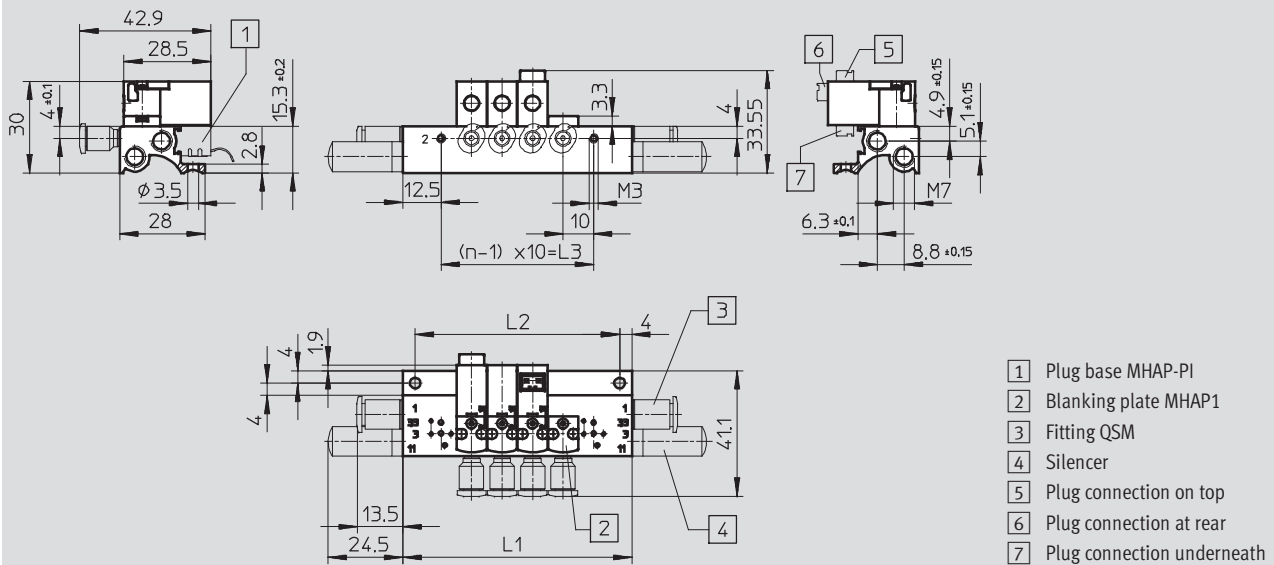
Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Individual sub-base



Manifold assembly



Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	35	27	10
3	45	37	20
4	55	47	30
5	65	57	40
6	75	67	50
7	85	77	60
8	95	87	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
9	105	97	80
10	115	107	90
11	125	117	100
12	135	127	110
13	145	137	120
14	155	147	130
15	165	157	140

Valve positions n	L1 ±0.15	L2 ±0.1	L3
16	175	167	150
17	185	177	160
18	195	187	170
19	205	197	180
20	215	207	190
21	225	217	200
22	235	227	210

Solenoid valves MHA1, miniature

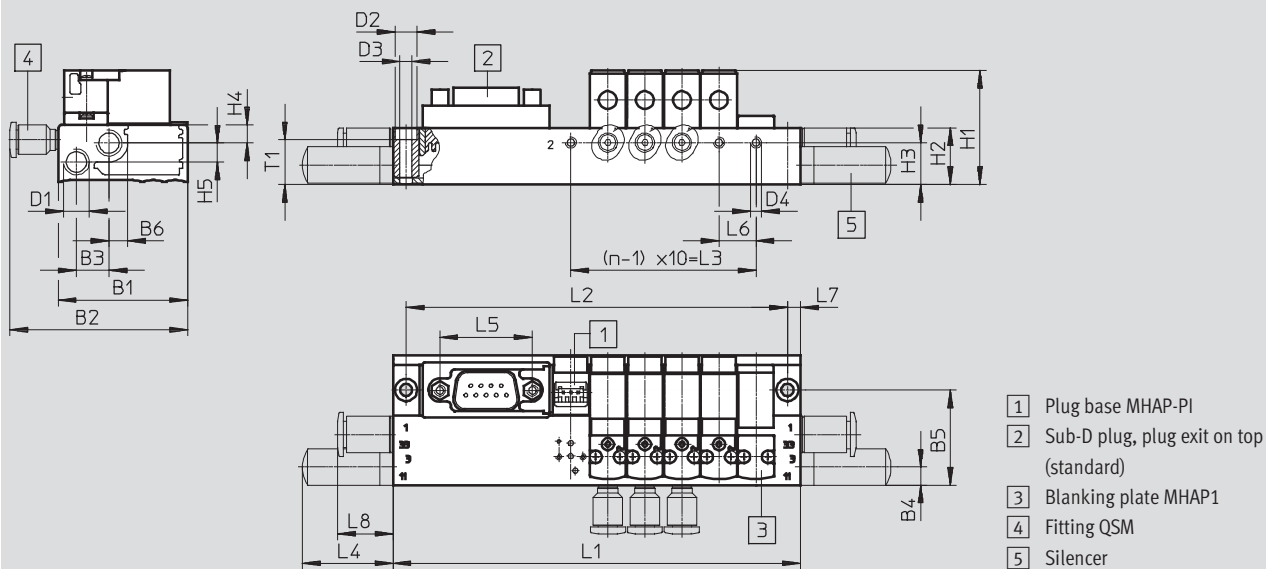
Technical data – Sub-base valve

FESTO

Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Manifold assembly with electrical multi-pin plug



Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	70	63	10
4	90	83	30
6	110	103	50
8	130	123	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
10	172	165	90
12	192	185	110
14	212	205	130
16	232	225	150

Valve positions n	L1 ±0.15	L2 ±0.1	L3
18	252	245	170
20	272	265	190
22	292	285	210

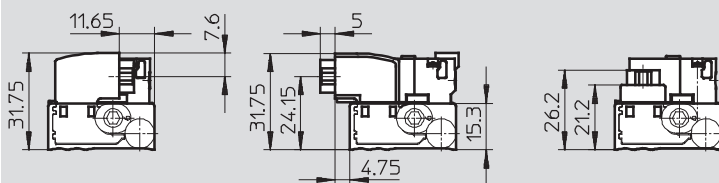
Type	L4	L5	L6	L7	L8	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	H1	H2	H3	H4	H5	T1
MHA1	25	25	10	4	15	35	48	9	5	26	5	M7	6	3	M3	31	15	11	5	5	12

Electrical multi-pin plug – Plug directions

To pneumatic side

To electrical side

To top (standard)



Solenoid valves MHA1, miniature

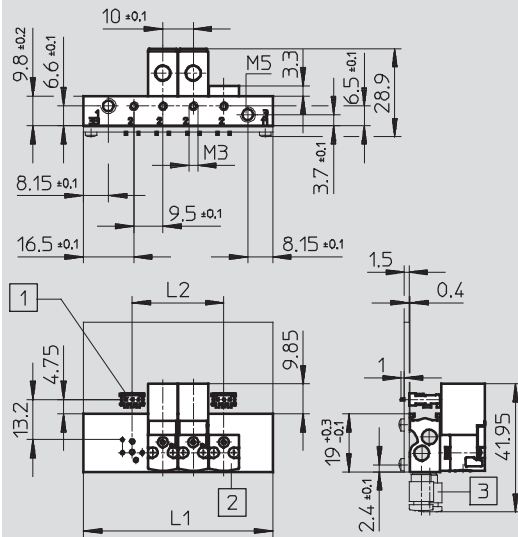
Technical data – Sub-base valve

FESTO

Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Manifold assembly on PCB



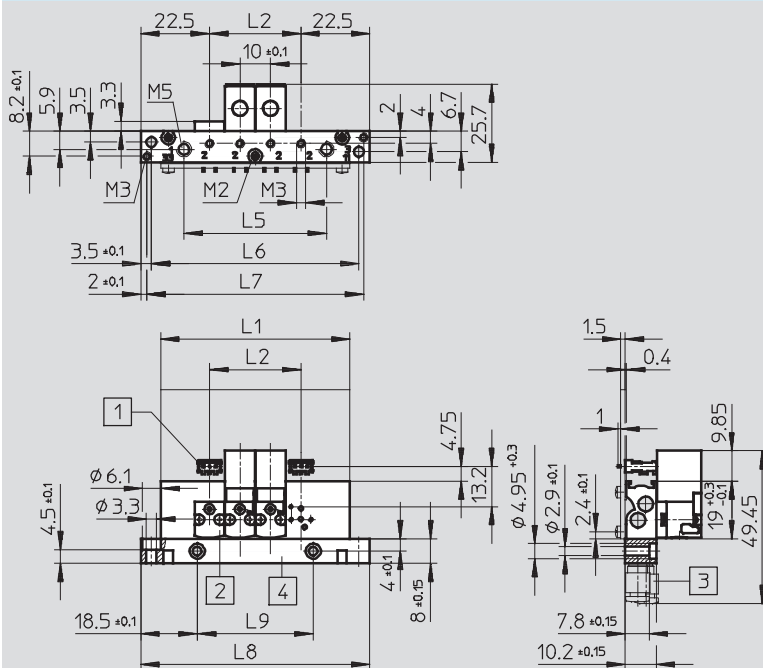
- 1 Soldering base PCBC-A
- 2 Blanking plate MHAP1
- 3 Fitting QSM

- - Note

The PCB is not included in the scope of delivery.

Hole pattern on PCB → 25

Manifold assembly with pneumatic multiple connector plate on PCB



- 1 Soldering base PCBC-A
- 2 Blanking plate MHAP1
- 3 Fitting QSM
- 4 Removable pneumatic multiple connector plate

- - Note

The PCB is not included in the scope of delivery.

Hole pattern on PCB → 25

Valve positions n	L1 ±0.15	L2	L3 ±0.1	L5 ±0.15	L6	L7 ±0.1	L8 ±0.2	L9 ±0.1
2	42	10	37	–	–	–	–	–
4	62	30	57	46.7	68	71	75	38
6	82	50	77	66.7	88	91	95	58
8	102	70	97	86.7	108	111	115	78
10	122	90	117	106.7	128	131	135	98

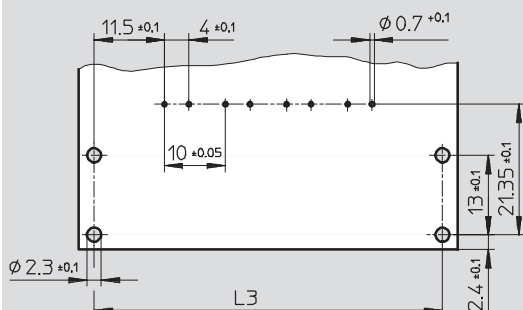
Solenoid valves MHA1, miniature

Technical data – Sub-base valve

FESTO

Dimensions

Hole pattern on PCB



Note

The PCB is not included in the scope of delivery.

Ordering data – 2/2-way valves

Electrical connection	Operating voltage	Normally closed	
		Part No.	Type
M3 connecting thread			
Plug connection at rear	5 V DC	197036	MHA1-M4H-2/2G-0,9-HC
	12 V DC	197037	MHA1-M5H-2/2G-0,9-HC
	24 V DC	197038	MHA1-M1H-2/2G-0,9-HC
Plug connection on top	5 V DC	197039	MHA1-M4H-2/2G-0,9-TC
	12 V DC	197040	MHA1-M5H-2/2G-0,9-TC
	24 V DC	197041	MHA1-M1H-2/2G-0,9-TC
Plug connection underneath	5 V DC	197042	MHA1-M4H-2/2G-0,9-PI
	12 V DC	197043	MHA1-M5H-2/2G-0,9-PI
	24 V DC	197044	MHA1-M1H-2/2G-0,9-PI



Note

Type 3/2G and type 3/20 valves must not be mixed on a manifold block.

Ordering data – Product-specific accessories

Designation		Part No.	Type
Valves with plug connection at rear or on top			
Individual sub-base		197187	MHA1-AS-2-M3
Manifold block for	2 valves	197207	MHA1-P2-2-M3
	4 valves	197208	MHA1-P4-2-M3
	6 valves	197209	MHA1-P6-2-M3
	8 valves	197210	MHA1-P8-2-M3
	10 valves	197211	MHA1-P10-2-M3
Valves with plug connection underneath			
Individual sub-base		197189	MHA1-AS-2-M3-PI
Manifold block with plug bases for	2 valves	197227	MHA1-P2-2-M3-PI
	4 valves	197228	MHA1-P4-2-M3-PI
	6 valves	197229	MHA1-P6-2-M3-PI
	8 valves	197230	MHA1-P8-2-M3-PI
	10 valves	197231	MHA1-P10-2-M3-PI



Note

Manifold blocks with an uneven number of valves and for 11 ... 24 valves as well as further variants can be configured and ordered using the MH1 modular product system.

Solenoid valves MHA1, miniature

Technical data – Sub-base valve

FESTO

Ordering data – 3/2-way valves					
Electrical connection	Operating voltage	Normally closed		Normally open	
		Part No.	Type	Part No.	Type
M3 connecting thread					
Plug connection at rear	5 V DC	197000	MHA1-M4H-3/2G-0,6-HC	197018	MHA1-M4H-3/2O-0,6-HC
	12 V DC	197001	MHA1-M5H-3/2G-0,6-HC	197019	MHA1-M5H-3/2O-0,6-HC
	24 V DC	197002	MHA1-M1H-3/2G-0,6-HC	197020	MHA1-M1H-3/2O-0,6-HC
Plug connection on top	5 V DC	197003	MHA1-M4H-3/2G-0,6-TC	197021	MHA1-M4H-3/2O-0,6-TC
	12 V DC	197004	MHA1-M5H-3/2G-0,6-TC	197022	MHA1-M5H-3/2O-0,6-TC
	24 V DC	197005	MHA1-M1H-3/2G-0,6-TC	197023	MHA1-M1H-3/2O-0,6-TC
Plug connection underneath	5 V DC	197006	MHA1-M4H-3/2G-0,6-PI	197024	MHA1-M4H-3/2O-0,6-PI
	12 V DC	197007	MHA1-M5H-3/2G-0,6-PI	197025	MHA1-M5H-3/2O-0,6-PI
	24 V DC	197008	MHA1-M1H-3/2G-0,6-PI	197026	MHA1-M1H-3/2O-0,6-PI



Note

Type 3/2G and type 3/2O valves must not be mixed on a manifold block.

Ordering data – Product-specific accessories			
Designation		Part No.	Type
Valves with plug connection at rear or on top			
Individual sub-base		197183	MHA1-AS-3-M3
Manifold block for	2 valves	197202	MHA1-PR2-3-M3
	4 valves	197203	MHA1-PR4-3-M3
	6 valves	197204	MHA1-PR6-3-M3
	8 valves	197205	MHA1-PR8-3-M3
	10 valves	197206	MHA1-PR10-3-M3
Valves with plug connection underneath			
Individual sub-base		197185	MHA1-AS-3-M3-PI
Manifold block with plug bases for	2 valves	197222	MHA1-PR2-3-M3-PI
	4 valves	197223	MHA1-PR4-3-M3-PI
	6 valves	197224	MHA1-PR6-3-M3-PI
	8 valves	197225	MHA1-PR8-3-M3-PI
	10 valves	197226	MHA1-PR10-3-M3-PI
Manifold block with plug bases and electrical multi-pin plug for	4 valves	197238	MHA1-PR4-3-M3-PI-D9
	6 valves	197239	MHA1-PR6-3-M3-PI-D9
	8 valves	197240	MHA1-PR8-3-M3-PI-D9
	10 valves	197241	MHA1-PR10-3-M3-PI-D25
Manifold block for mounting on PCB for	2 valves	197247	MHA1-PR2-3-M3-PI-PCB
	4 valves	197248	MHA1-PR4-3-M3-PI-PCB
	6 valves	197249	MHA1-PR6-3-M3-PI-PCB
	8 valves	197250	MHA1-PR8-3-M3-PI-PCB
	10 valves	197251	MHA1-PR10-3-M3-PI-PCB
Manifold block for mounting on PCB with pneumatic multiple connector plate for	4 valves	197253	MHA1-PR4-3-PI-PCBM
	6 valves	197254	MHA1-PR6-3-PI-PCBM
	8 valves	197255	MHA1-PR8-3-PI-PCBM
	10 valves	197256	MHA1-PR10-3-PI-PCBM



Note

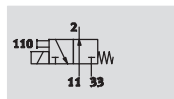
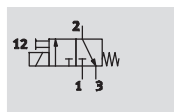
Manifold blocks with an uneven number of valves and for 11 ... 24 valves as well as further variants can be configured and ordered using the MH1 modular product system.

Solenoid valves MHA1, miniature

FESTO

Technical data – Sub-base valve with LED

Function



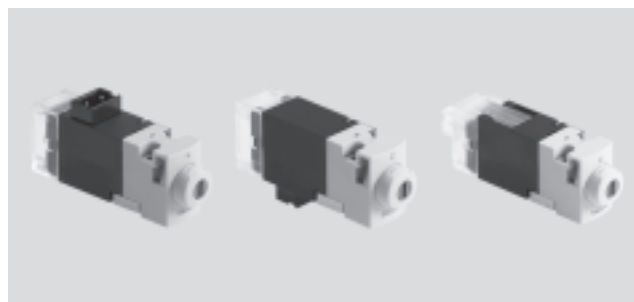
Voltage
24 V DC



Pressure
0 ... +8 bar



Temperature range
–5 ... +50 °C



General technical data			
Valve function			3/2-way, single solenoid
Constructional design			Poppet valve with spring return
Sealing principle			Soft
Actuation type			Electric
Reset method			Mechanical spring
Type of pilot control			Direct
Direction of flow			Non-reversible
Exhaust function			With flow control
Manual override			Non-detenting/detenting
Signal status display			LED
Type of mounting			On sub-base via through-holes
Mounting position			Any
Nominal size		[mm]	0.65
Standard nominal flow rate		[l/min]	10
Grid dimension		[mm]	10
Pneumatic connection	Individual sub-base	1, 33	M3
		2	M3
		3, 11	M3
	Manifold assembly	1, 33	M7
		2	M3
		3, 11	M7
Product weight		[g]	11

Operating and environmental conditions			
Valve function			3/2-way, single solenoid
Operating medium			Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm
Operating pressure range	Normally closed	[bar]	0 ... 8 ¹⁾
	Normally open	[bar]	0 ... 6 ¹⁾
Ambient temperature	Individual mounting	[°C]	–5 ... +50
	Manifold assembly	[°C]	–5 ... +40
Temperature of medium	Individual mounting	[°C]	–5 ... +50
	Manifold assembly	[°C]	–5 ... +40
Storage temperature		[°C]	–20 ... +60
Corrosion resistance class CRC			2 ²⁾

1) Vacuum operation possible with special connection method

2) Corrosion resistance class 2 as per Festo standard 940 070

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

Solenoid valves MHA1, miniature

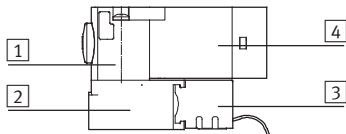
Technical data – Sub-base valve with LED

FESTO

Electrical data		
Valve function		3/2-way, single solenoid
Operating voltage	[V DC]	24 ±10%
Type of connection		Plug connection
Power consumption	[W]	1.1
Protection class to EN 60529		
With plug socket KMH/NEBV-H1G2		IP40
With plug base MHAP-PI		
With soldering base PCBC-A		
With Sub-D connector plug		

Response times and switching frequencies		
Valve function		3/2-way, single solenoid
Response time on/off	[ms]	4/4
Maximum switching frequency	[Hz]	20

Materials



1	Housing	Polyphenylene sulphide
2	Sub-base	Aluminium
3	Plug base	Polyamide
4	Coil housing	Polyamide
-	Seals	Fluoro elastomer, nitrile rubber, hydrogenated nitrile rubber
Note on materials		Free of copper and PTFE

Dimensions			Download CAD data → www.festo.com
Plug connection on top	Plug connection at rear	Plug connection underneath	
			1 Plug socket KMH/NEBV-H1G2 2 Manual override 3 Coding pin

Hole pattern on sub-bases		
	1 Hole for coding pin Note If used as a 2/2-way valve, normally closed, port 3/11 is not used.	If used as a 2/2-way valve, normally open, port 1/33 is not used.

Solenoid valves MHA1, miniature

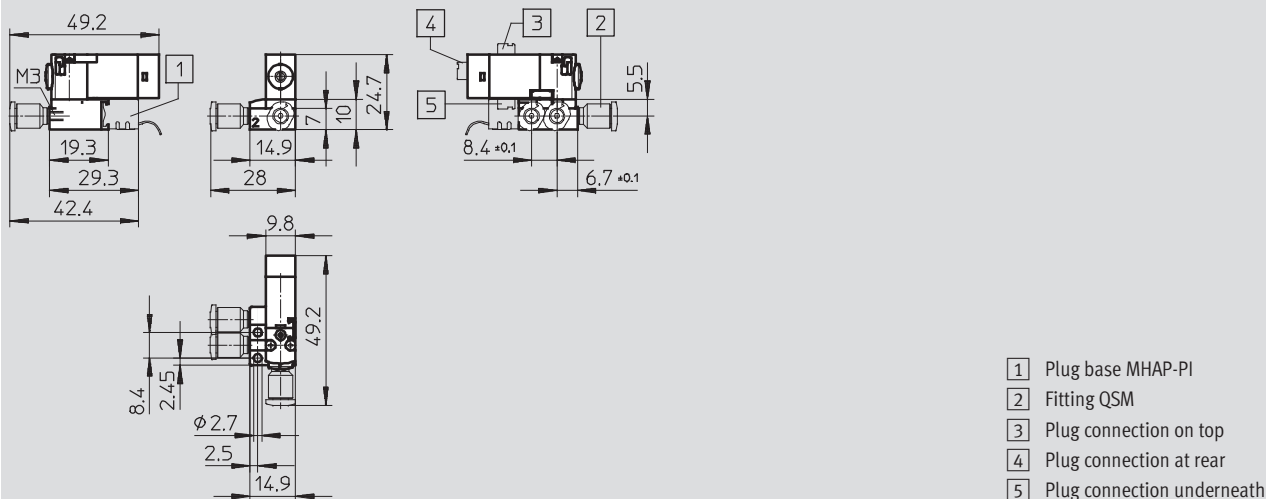
Technical data – Sub-base valve with LED

FESTO

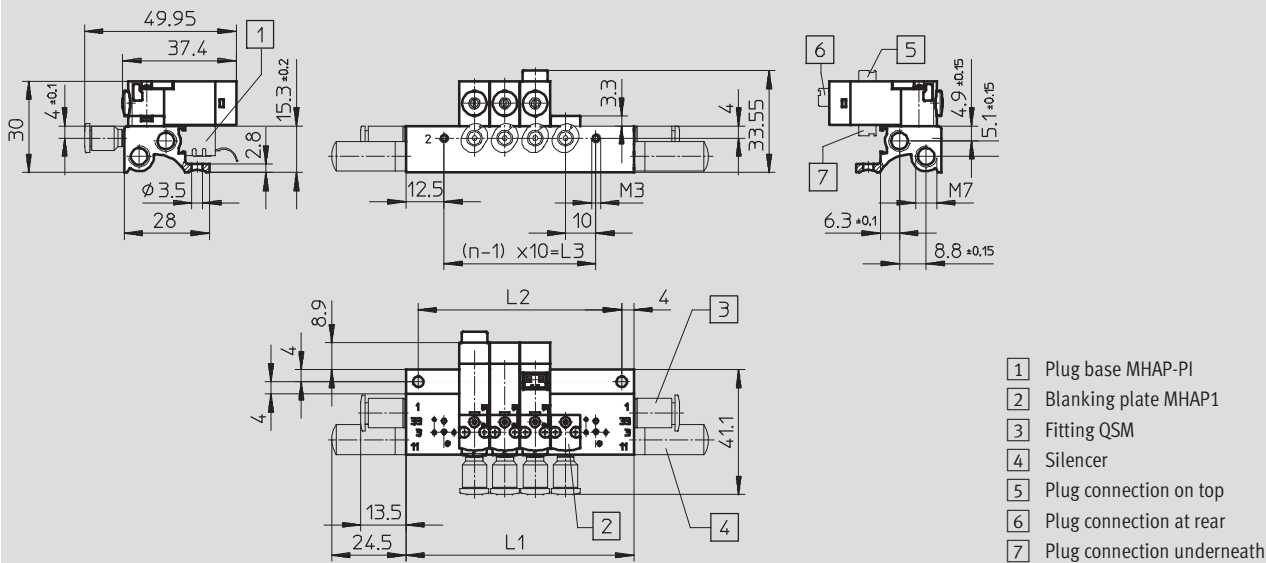
Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Individual sub-base



Manifold assembly



Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	35	27	10
3	45	37	20
4	55	47	30
5	65	57	40
6	75	67	50
7	85	77	60
8	95	87	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
9	105	97	80
10	115	107	90
11	125	117	100
12	135	127	110
13	145	137	120
14	155	147	130
15	165	157	140

Valve positions n	L1 ±0.15	L2 ±0.1	L3
16	175	167	150
17	185	177	160
18	195	187	170
19	205	197	180
20	215	207	190
21	225	217	200
22	235	227	210

Solenoid valves MHA1, miniature

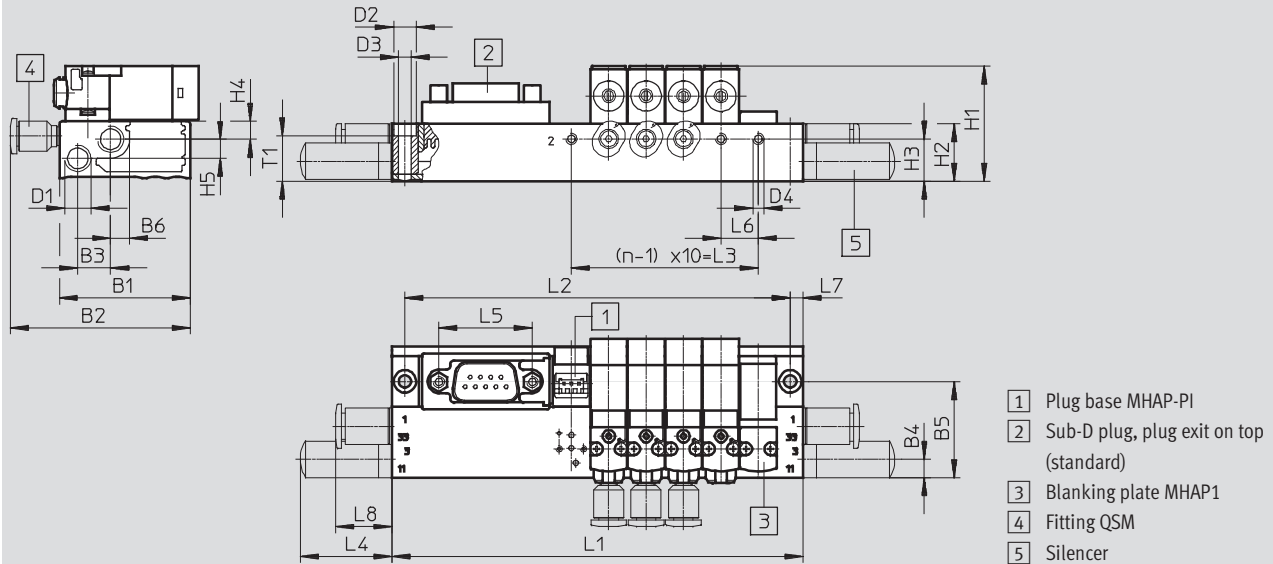
Technical data – Sub-base valve with LED

FESTO

Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Manifold assembly with electrical multi-pin plug



Valve positions n	L1 ±0.15	L2 ±0.1	L3
2	70	63	10
4	90	83	30
6	110	103	50
8	130	123	70

Valve positions n	L1 ±0.15	L2 ±0.1	L3
10	172	165	90
12	192	185	110
14	212	205	130
16	232	225	150

Valve positions n	L1 ±0.15	L2 ±0.1	L3
18	252	245	170
20	272	265	190
22	292	285	210

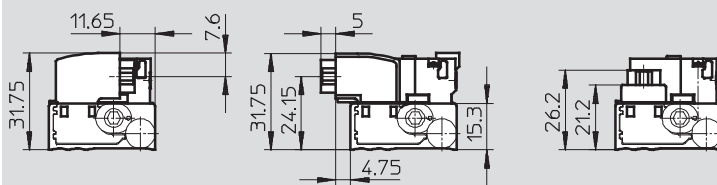
Type	L4	L5	L6	L7	L8	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	H1	H2	H3	H4	H5	T1
MHA1-M1LH	25	25	10	4	15	35	48	9	5	26	5	M7	6	3	M3	31	15	11	5	5	12

Electrical multi-pin plug – Plug directions

To pneumatic side

To electrical side

To top (standard)



Solenoid valves MHA1, miniature

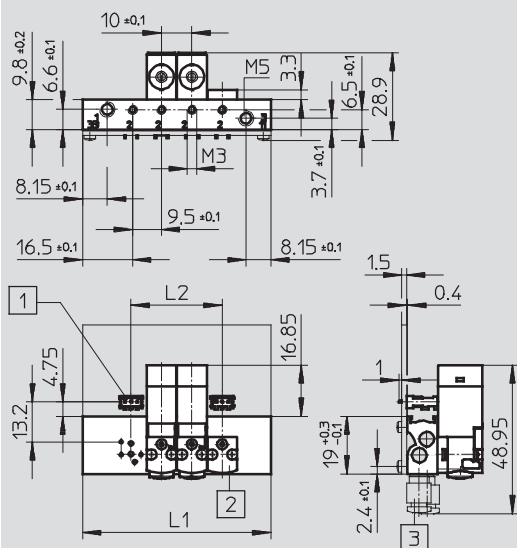
Technical data – Sub-base valve with LED

FESTO

Dimensions – 3/2-way valve

Download CAD data → www.festo.com

Manifold assembly on PCB



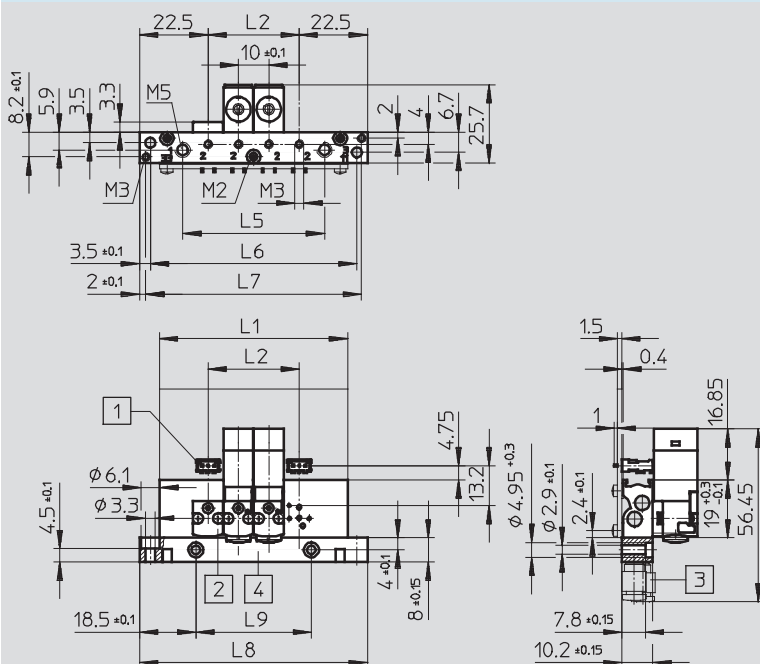
- 1 Soldering base PCBC-A
- 2 Blanking plate MHAP1
- 3 Fitting QSM

-  - Note

The PCB is not included in the scope of delivery.

Hole pattern on PCB → 32

Manifold assembly with pneumatic multiple connector plate on PCB



- 1 Soldering base PCBC-A
- 2 Blanking plate MHAP1
- 3 Fitting QSM
- 4 Removable pneumatic multiple connector plate

-  - Note

The PCB is not included in the scope of delivery.

Hole pattern on PCB → 32

Valve positions n	L1 ±0.15	L2	L3 ±0.1	L5 ±0.15	L6	L7 ±0.1	L8 ±0.2	L9 ±0.1
2	42	10	37	–	–	–	–	–
4	62	30	57	46.7	68	71	75	38
6	82	50	77	66.7	88	91	95	58
8	102	70	97	86.7	108	111	115	78
10	122	90	117	106.7	128	131	135	98

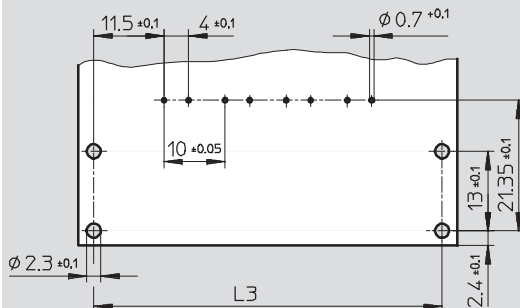
Solenoid valves MHA1, miniature

Technical data – Sub-base valve with LED

FESTO

Dimensions

Hole pattern on PCB



Note

The PCB is not included in the scope of delivery.

Ordering data – 3/2-way valves

Electrical connection	Operating voltage	Normally closed Part No.	Type	Normally open Part No.	Type
M3 connecting thread					
Plug connection at rear	24 V DC	540443	MHA1-M1LH-3/2G-0,6-HC	540440	MHA1-M1LH-3/2O-0,6-HC
Plug connection on top	24 V DC	540444	MHA1-M1LH-3/2G-0,6-TC	540441	MHA1-M1LH-3/2O-0,6-TC
Plug connection underneath	24 V DC	540445	MHA1-M1LH-3/2G-0,6-PI	540442	MHA1-M1LH-3/2O-0,6-PI



Note

Type 3/2G and type 3/2O valves must not be mixed on a manifold block.

Ordering data – Product-specific accessories

Designation	Part No.	Type
Valves with plug connection at rear or on top		
Individual sub-base	197183	MHA1-AS-3-M3
Manifold block for	2 valves	197202 MHA1-PR2-3-M3
	4 valves	197203 MHA1-PR4-3-M3
	6 valves	197204 MHA1-PR6-3-M3
	8 valves	197205 MHA1-PR8-3-M3
	10 valves	197206 MHA1-PR10-3-M3
Valves with plug connection underneath		
Individual sub-base	197185	MHA1-AS-3-M3-PI
Manifold block with plug bases for	2 valves	197222 MHA1-PR2-3-M3-PI
	4 valves	197223 MHA1-PR4-3-M3-PI
	6 valves	197224 MHA1-PR6-3-M3-PI
	8 valves	197225 MHA1-PR8-3-M3-PI
	10 valves	197226 MHA1-PR10-3-M3-PI
Manifold block with plug bases and electrical multi-pin plug for	4 valves	197238 MHA1-PR4-3-M3-PI-D9
	6 valves	197239 MHA1-PR6-3-M3-PI-D9
	8 valves	197240 MHA1-PR8-3-M3-PI-D9
	10 valves	197241 MHA1-PR10-3-M3-PI-D25
Manifold block for mounting on PCB for	2 valves	197247 MHA1-PR2-3-M3-PI-PCB
	4 valves	197248 MHA1-PR4-3-M3-PI-PCB
	6 valves	197249 MHA1-PR6-3-M3-PI-PCB
	8 valves	197250 MHA1-PR8-3-M3-PI-PCB
	10 valves	197251 MHA1-PR10-3-M3-PI-PCB
Manifold block for mounting on PCB with pneumatic multiple connector plate for	4 valves	197253 MHA1-PR4-3-PI-PCBM
	6 valves	197254 MHA1-PR6-3-PI-PCBM
	8 valves	197255 MHA1-PR8-3-PI-PCBM
	10 valves	197256 MHA1-PR10-3-PI-PCBM



Note

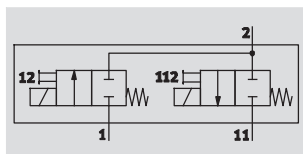
Manifold blocks with an uneven number of valves and for 11 ... 24 valves as well as further variants can be configured and ordered using the MH1 modular product system.

Solenoid valves MHA1, miniature

FESTO

Technical data – 2x2/2-way sub-base valve with LED

Function



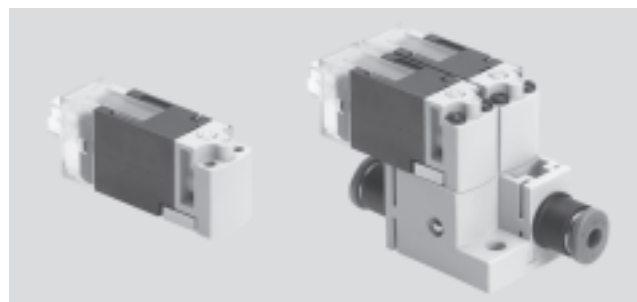
Voltage
24 V DC



Pressure
– 0.95 ... +1.5 bar



Temperature range
–5 ... +50 °C



General technical data			
Valve function		2/2-way, single solenoid	2x2/2-way, single solenoid
Constructional design		Poppet valve with spring return	
Sealing principle		Soft	
Actuation type		Electric	
Reset method		Mechanical spring	
Type of pilot control		Direct	
Direction of flow		Non-reversible	
Exhaust function		No flow control	
Manual override		Non-detenting	
Signal status display		LED	
Type of mounting		On sub-base via through-holes	Via through-holes
Mounting position		Any	
Nominal size	[mm]	1.5	
Standard nominal flow rate	[l/min]	30	
Width	[mm]	10	20
Grid dimension	[mm]	10	
Pneumatic connection	1	–	QS3, QS4
	11	–	QS3, QS4
	2	–	QS3, QS4

Operating and environmental conditions			
Valve function		2/2-way, single solenoid	2x2/2-way, single solenoid
Operating medium		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm	
Operating pressure	Port 1	[bar]	0 ... 1.5
	Port 11	[bar]	– 0.95 ... 0
Ambient temperature		[°C]	–5 ... +50
Temperature of medium		[°C]	–5 ... +50
Storage temperature		[°C]	–20 ... +60
Corrosion resistance class CRC			2 ¹⁾

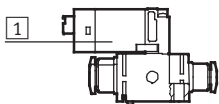
1) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Electrical data			
Valve function		2/2-way, single solenoid	2x2/2-way, single solenoid
Operating voltage		[V DC]	24 ±10%
Type of connection		Plug connection	
Power consumption		[W]	3, following current reduction 0.7
Max. length of connecting cable		[m]	30
Protection class to EN 60529			
With plug socket KMH/NEBV-H1G2		IP40	

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Response times and switching frequencies		
Valve function	2/2-way, single solenoid	2x2/2-way, single solenoid
Response time on/off	[ms]	6/2
Maximum switching frequency	[Hz]	10

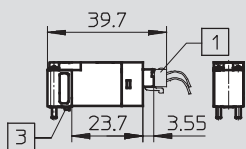
Materials



1	Housing	Reinforced PA, reinforced PPS
-	Screws	Steel
-	Seals	HNBR, NBR
	Note on materials	Free of copper and PTFE RoHS-compliant

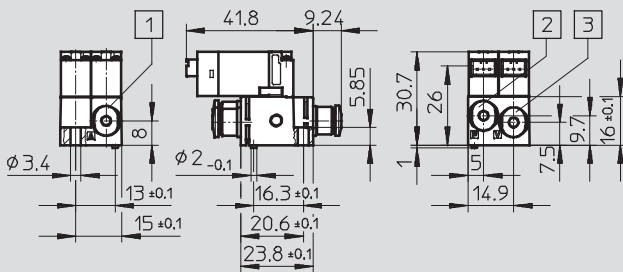
Dimensions Download CAD data → www.festo.com

Download CAD data → www.festo.com



- 1 Plug socket KMH/NEBV-H1 G2
- 3 Coding pin

2x2/2-way valve



- 1 Push-in fitting 2
- 2 Push-in fitting 1
- 3 Push-in fitting 11

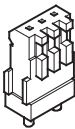
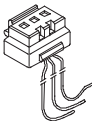
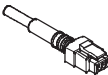
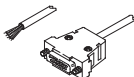
Ordering data	
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Subject to change – 2012/02

Solenoid valves MH1, miniature

Accessories

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Ordering data				
			Part No.	Type
Soldering base				
	For plug-in connection, 3-pin	10 pieces	197261	PCBC-A-10
		100 pieces	197262	PCBC-A-100
Plug socket with cable				
	Electrical plug base for plug-in connection, for 1 valve, with cable	0.5 m	197260	MHAP-PI
	Plug socket with cable for horizontal connection, for 1 valve, 2-wire	0.5 m	197263	KMH-0,5
		1 m	197264	KMH-1
	Plug socket with cable, sheathed for horizontal connection, for 1 valve, 2-wire	0.5 m	566658	NEBV-H1G2-P-0.5-N-LE2
		1 m	566659	NEBV-H1G2-P-1-N-LE2
		2.5 m	566660	NEBV-H1G2-P-2.5-N-LE2
		5 m	566661	NEBV-H1G2-P-5-N-LE2
	Socket, 9-pin, Sub-D, open cable end, for up to 8 valves, IP40, cable sheath PVC	2.5 m	531184	KMP6-09P-8-2,5
		5 m	531185	KMP6-09P-8-5
		10 m	531186	KMP6-09P-8-10
	Socket, 25-pin, Sub-D, open cable end, for up to 12 valves, IP40, cable sheath PVC	2.5 m	530049	KMP6-25P-12-2,5
		5 m	530050	KMP6-25P-12-5
		10 m	530051	KMP6-25P-12-10
	Socket, 25-pin, Sub-D, open cable end, for up to 24 valves, IP40, cable sheath PVC	2.5 m	530046	KMP6-25P-20-2,5
		5 m	530047	KMP6-25P-20-5
		10 m	530048	KMP6-25P-20-10
Blanking plug				
	For M5 thread	10 pieces	3843	B-M5
	For M7 thread	10 pieces	174309	B-M7
Inscription label				
	For solenoid valve	80 labels in frame	197259	MH-BZ-80X
Blanking plate				
	For manifold block	Plug connection	197257	MHAP1-BP-3
		Plug base	197258	MHAP1-BP-3-PI
Silencer				
			➔ Internet: uc	
Push-in fittings				
			➔ Internet: quick star	