

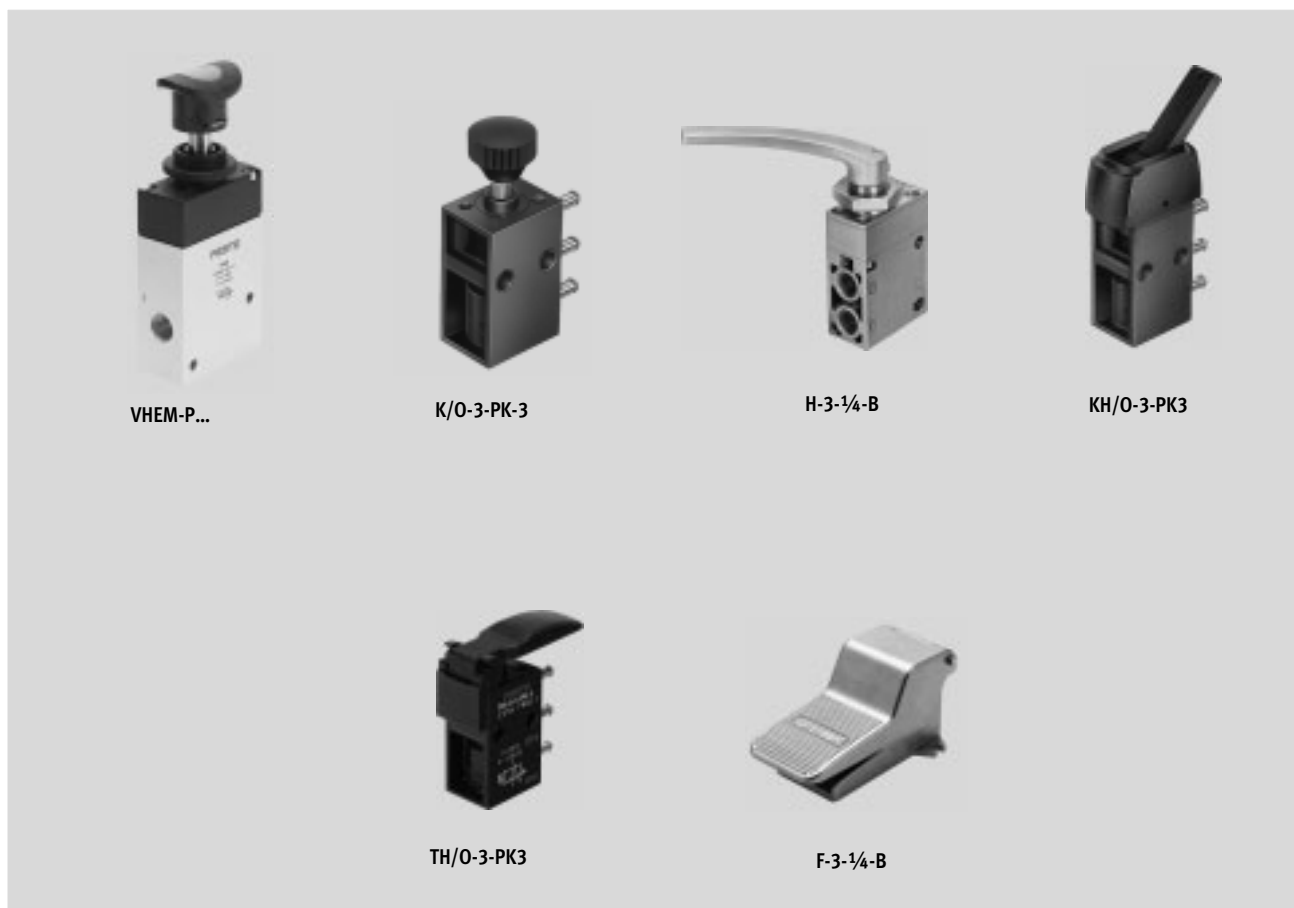
Valves, manually operated

FESTO



Valves, manually operated

Key features



Innovative

- Small and compact for a wide range of pneumatic applications
- Numerous selectable valve functions: 3/2-way and 5/2-way functions
- With flow rates of up to 1,000 l/min, valves VHEM offer outstanding pneumatic performance for a wide range of applications
- Low weight
- Minimal actuating forces

Versatile

- Flexibility of the pneumatic working lines provides a practical solution to different requirements
- Round silencer for ducted exhaust air
- Suitable for vacuum in some cases
- Reverse operation possible in some cases
- Actuation: direct and piloted
- Pressure range from vacuum to 10 bar possible
- Design:
 - Pushbutton valve
 - Toggle lever valve
 - Hand lever valve
 - Finger lever valve
 - Foot valve

Reliable

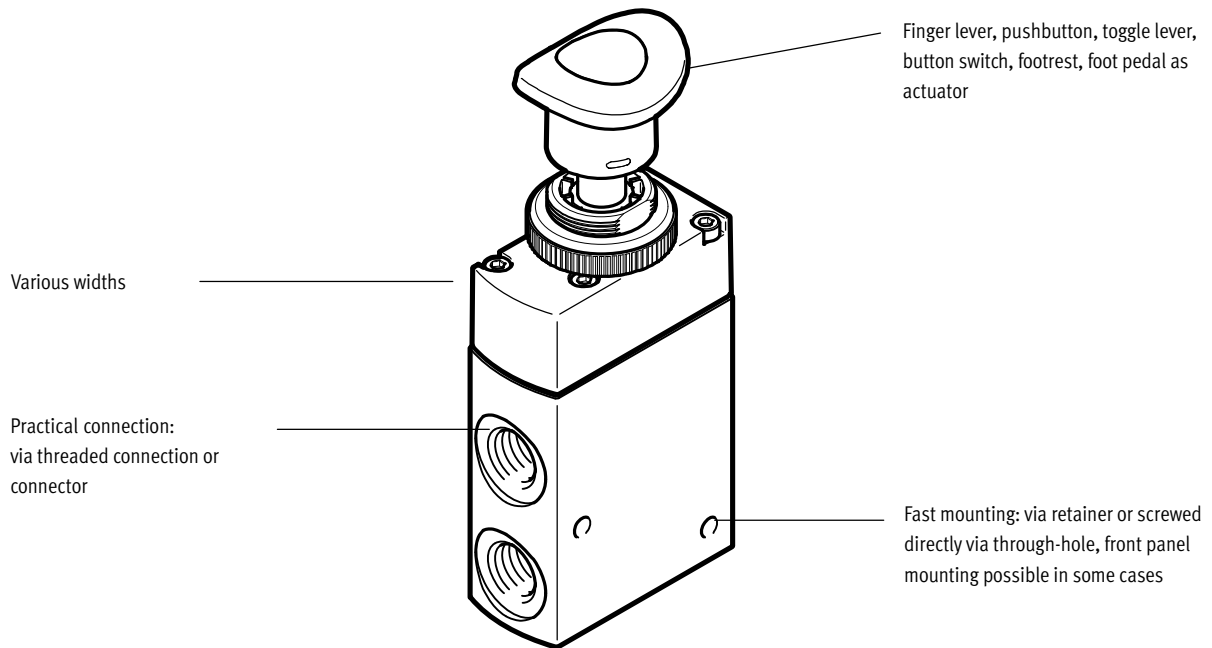
- Durable thanks to proven piston spool and piston poppet valves
- Sturdy thanks to metal or plastic housing and connecting thread or connector

Easy to mount

- Front panel mounting or mounting on bracket

Valves, manually operated

Key features



Equipment options

3/2-way valve

- Normally open/closed
- Mechanical spring
- Vacuum operation possible
- Pneumatically piloted or directly actuated
- Ducted exhaust air
- Detenting (bistable) or non-detenting (monostable)

5/2-way valve

- Pneumatic spring/mechanical spring
- Vacuum operation possible
- Reversible
- Pneumatically piloted or directly actuated
- Ducted exhaust air
- Detenting (bistable) or non-detenting (monostable)

Valve selection

→ Internet: www.festo.com

You order mechanically and manually operated valves using the order code:

Ordering system for valves

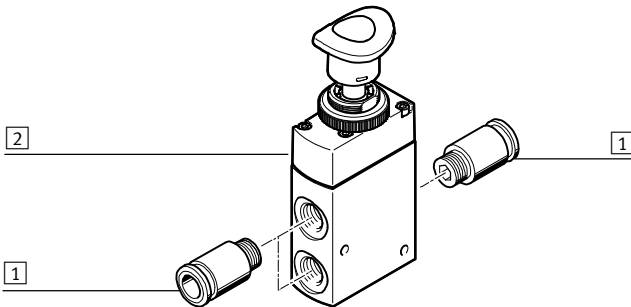
→ Internet: mechanically and manually operated directional control valves

Valves, manually operated

Peripherals overview

Manually operated valves

Pushbutton valve VHEM-P..., 3/2-way

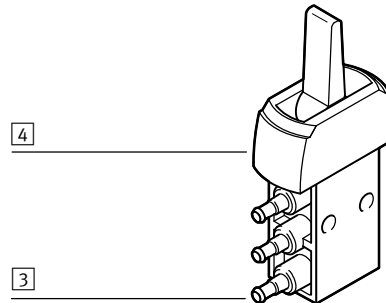
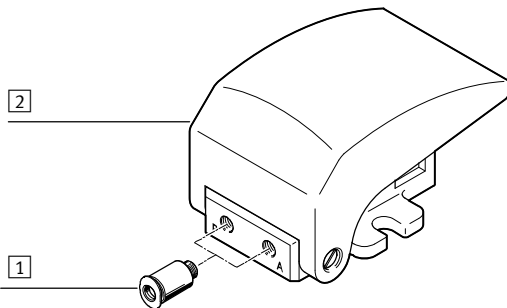


	Brief description	→ Page/Internet
1	Fitting For supply air/exhaust ports	27
2	Pushbutton valve VHEM-P...	9

Manually operated valves

Foot valve F-3_M5 ..., 3/2-way

Toggle lever valve KH/O-3-PK, 3/2-way



	Brief description	→ Page/Internet
1	Fitting For supply air/exhaust ports	27
2	Foot valve F- ...	23
3	Tubing connector For standard I.D. tubing	-
4	Toggle lever valve KH/O-3-PK	16

Valves, manually operated

Key features

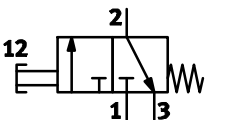
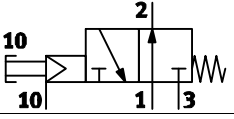
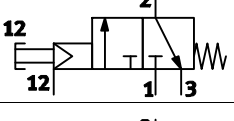
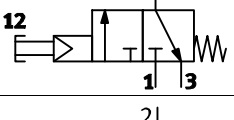
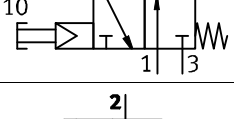
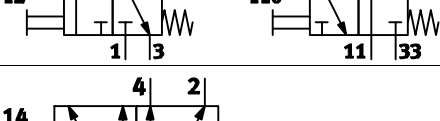
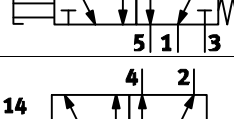
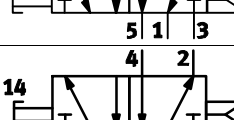
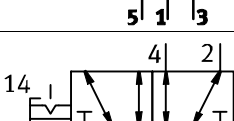

Manually operated valves

Manually operated valves are used in all industrial sectors, as well as in the commercial trades. They are used to

carry out simple processes such as clamping or closing safety doors. Depending on the desired actuation

(pushing, rotating/swivelling or tilting), the valves are either detenting or non-detenting. The valves are directly

controlled in some cases or are pneumatically piloted.

Valve functions	Type	Description
Pushbutton valve		
	K-3-M5	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally closed • Mechanical spring return • Suitable for vacuum
	VHEM-PTCZ-M32U	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally open • Mechanical spring return • Pneumatically piloted
	VHEM-PTCZ-M32C	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally closed • Mechanical spring return • Pneumatically piloted
	VHEM-PTC-M32C	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally closed • Pneumatically piloted • Mechanical spring return
	VHEM-PTC-M32U	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally open • Pneumatically piloted • Mechanical spring return
	K/O-3-PK-3	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally open/closed • Mechanical spring return
	VHEM-P-M52-M	5/2-way valve, monostable <ul style="list-style-type: none"> • Reverse operation possible • Mechanical spring return • Suitable for vacuum
	VHEM-P-M52-E	5/2-way valve, monostable <ul style="list-style-type: none"> • Reverse operation possible • (External) pneumatic spring return • Suitable for vacuum
	VHEM-P-M52-A	5/2-way valve, monostable <ul style="list-style-type: none"> • Reverse operation not possible • (Internal) pneumatic spring return
	VHEM-PA-B52	5/2-way valve, bistable <ul style="list-style-type: none"> • Detenting actuation • Reverse operation possible • Suitable for vacuum

Valves, manually operated


Key features

Valve functions		
Circuit symbol	Type	Description
Toggle lever valve		
	KH/O-3-PK-3	3/2-way valve, monostable <ul style="list-style-type: none"> • Detenting actuation • Normally open/closed • Mechanical spring return
Finger lever valve		
	TH/O-3-PK-3	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally open/closed • Mechanical spring return
	TH-3-M5	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally closed • Mechanical spring return • Suitable for vacuum
	TH-3-1/4-B	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally closed • Mechanical spring return
	THO-3-1/4-B	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally open • Mechanical spring return
	TH-5-1/4-B	5/2-way valve, monostable <ul style="list-style-type: none"> • Mechanical spring return • Suitable for vacuum

Valves, manually operated

Key features

Valve functions		
Circuit symbol	Type	Description
Hand lever valve		
<p>12</p>	H-3-1/4-B	3/2-way valve, bistable <ul style="list-style-type: none"> • Detenting actuation
<p>14</p>	H-5-1/4-B	5/2-way valve, bistable <ul style="list-style-type: none"> • Detenting actuation
Foot valve, foot valve with detent		
<p>12</p>	F-3-1/4-B	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally closed • Mechanical spring return
<p>10</p>	F-3-1/4-B	3/2-way valve, monostable <ul style="list-style-type: none"> • Normally open • Mechanical spring return
<p>12</p>	FP-3-1/4-B	3/2-way valve, monostable <ul style="list-style-type: none"> • Detenting actuation • Normally closed • Mechanical spring return
<p>14</p>	F-5-1/4-B	5/2-way valve, monostable <ul style="list-style-type: none"> • Mechanical spring return
<p>14</p>	FP-5-1/4-B	5/2-way valve, monostable <ul style="list-style-type: none"> • Detenting actuation
<p>14</p>	FPB-5-1/4	5/2-way valve, monostable <ul style="list-style-type: none"> • Detenting actuation • Mechanical spring return

-  - Note

A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup).

Valves, manually operated

Type codes

VHEM - PTCZ - M32C - M - G14

Valve series	
VHEM	Manually operated valves

Design

Actuation

P	Pushbutton valve
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Design principle

-	Piston spool
---	--------------

T	Disk seat
---	-----------

Actuation

-	Directly actuated
---	-------------------

C	Pneumatically piloted
---	-----------------------

Pilot air supply

-	Internal
---	----------

Z	External
---	----------

Switching function

-	Monostable valve
---	------------------

A	Active (spring, bistable valve)
---	---------------------------------

X	Passive (air, bistable valve)
---	-------------------------------

Valve functions

M32C	3/2-way valve, monostable, normally closed
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M32U	3/2-way valve, monostable, normally open
------	--

B32	3/2-way valve, bistable
-----	-------------------------

M52	5/2-way valve, monostable
-----	---------------------------

B52	5/2-way valve, bistable
-----	-------------------------

Reset method

-	None
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A	Internal pneumatic spring
---	---------------------------

E	External pneumatic spring
---	---------------------------

M	Mechanical spring
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Pneumatic connection

G14	Thread G1/4
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G18	Thread G1/8
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Valves, manually operated, pushbutton valves

Technical data – Pushbutton valve, standard nominal flow rate 80 l/min

-  - Flow rate
80 ... 1000 l/min

Mounting either via through-hole or on front panel (in the case of F-3-M5 with flange eyes)

-  - Pressure
-0.95 ... 10 bar

-  - Temperature range
-10 ... +60 °C



General technical data				
Type		K/O-3-PK-3	K-3-M5	F-3-M5
Standard nominal flow rate [l/min]	1 → 2	80		
Valve function		3/2-way valve		
Design		Disk seat valve, directly actuated		
Pneumatic connection		PK-3 ¹⁾	M5	M5
Nominal size [mm]		2.5	2.0	2.0
Weight [g]		20	28	235
Actuating force [N]		-	23.0	7.0
• at 6 bar				
• with normally closed position	[N]	24.0	-	-
• with normally open position	[N]	17.0	-	-

1) PK-3=Barbed fitting for plastic tubing with 3 mm nominal diameter

Materials				
Type		K/O-3-PK-3	K-3-M5	F-3-M5
Seal		NBR		-
Housing		Plastic	Die-cast zinc	Die-cast zinc

Operating and environmental conditions				
Type		K/O-3-PK-3	K-3-M5	F-3-M5
Operating medium		Compressed air according to ISO 8573-1:2010 [-:-:-]		
Note about the operating/pilot medium		Lubricated operation possible (required during subsequent operation)		
Operating pressure range [bar]		0 ... 8	-0.95 ... 8	-0.95 ... 8
Ambient temperature [°C]		-10 ... +60		

Valves, manually operated, pushbutton valves

Technical data – Pushbutton valve, standard nominal flow rate 500 l/min

General technical data				
Type	VHEM-PTC ... G18	VHEM-PA-B52-G18	VHEM-P ... G18	
Standard nominal flow rate [l/min] 1 → 2	500			
Valve function	3/2-way valve	5/2-way valve, bistable	5/2-way valve, monostable	
Reset method	Mechanical spring	–	Mechanical or pneumatic spring	
Design	Disk seat valve, piloted	Piston spool valve, directly actuated		
Pneumatic connection	G1/8	G1/8		
Pilot air supply	Internal or external	–		
Nominal size [mm]	4.0	4.0		
Weight [g]	198	194		
Actuating force [N]	28.0	17.0	26.0 ¹⁾ 39.0	
Unlocking force [N]	–	48.0	–	

1) Valve 26.0 with mechanical spring reset method, value 39.0 with pneumatic spring reset method

Materials	
Seal	NBR
Housing	Anodised wrought aluminium alloy
Note on materials	RoHS-compliant

Operating and environmental conditions				
Type	VHEM-PTC ... G18	VHEM-PA-B52-G18	VHEM-P ... G18	
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]			
Note about the operating/ pilot medium	Lubricated operation possible (required during subsequent operation)			
Operating pressure range [bar]				
N/C valves	3.5 ... 8	–	–	
N/O valves	4.5 ... 8	–0.95 ... 10 ¹⁾	–0.95 ... 10 ¹⁾	2.5 ... 10 ²⁾
Temperature of medium [°C]	–10 ... +60			
Ambient temperature [°C]	–10 ... +60			

1) Suitable for vacuum, mechanical spring or external pneumatic spring reset method (in the type codes Reset method M: Mechanical spring or E: External pneumatic spring)

2) Not suitable for vacuum, internal pneumatic spring reset method (in the type codes Reset method A: Internal pneumatic spring)

Safety characteristics for bistable valves VHEM-PA-B52 ...	
Shock resistance	Shock test with severity level 1 ¹⁾ , to EN 60068-2-27
Vibration resistance	Transport application test with severity level 1 ¹⁾ , to EN 60068-2-6

1) See following test conditions table for explanations of the severity levels.

Test conditions		
Severity level	Vibration	Shock
Severity level 1	0.15 mm travel at 10 ... 58 Hz, 2 g acceleration at 58 ... 150 Hz	±15 g at 11 ms duration, 5 shocks per direction
Severity level 2	0.35 mm travel at 10 ... 60 Hz, 5 g acceleration at 60 ... 150 Hz	±30 g at 11 ms duration, 5 shocks per direction

Valves, manually operated, pushbutton valves

Technical data – Pushbutton valve, standard nominal flow rate 1000 l/min

General technical data		
Type	VHEM-P ... G14	VHEM-PA-B52-G14
Standard nominal flow rate [l/min] 1 → 2	1000	
Valve function	5/2-way valve	5/2-way valve, bistable
Reset method	Mechanical or pneumatic spring	–
Design	Piston spool valve, directly actuated	Piston spool valve, directly actuated
Pneumatic connection	G $\frac{1}{4}$	G $\frac{1}{4}$
Pilot air supply	–	–
Nominal size [mm]	6.0	6.0
Weight [g]	366	366
Actuating force [N]	39.0	22.0
Unlocking force [N]	–	51.0

Materials	
Seal	NBR
Housing	Anodised wrought aluminium alloy
Note on materials	RoHS-compliant

Operating and environmental conditions		
Type	VHEM-P ... G14	VHEM-PA-B52-G14
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]	
Note about the operating/ pilot medium	Lubricated operation possible (required during subsequent operation)	
Operating pressure range [bar]	–0.95 ... 10 ¹⁾	2.5 ... 10 ²⁾ –0.95 ... 10
Temperature of medium [°C]	–10 ... +60	
Ambient temperature [°C]	–10 ... +60	

- 1) Suitable for vacuum, mechanical spring or external pneumatic spring reset method (in the type codes Reset method M: Mechanical spring or E: External pneumatic spring)
 2) Not suitable for vacuum, internal pneumatic spring reset method (in the type codes Reset method A: Internal pneumatic spring)

Safety characteristics for bistable valves VHEM-PA-B52 ...	
Shock resistance	Shock test with severity level 1 ¹⁾ , to EN 60068-2-27
Vibration resistance	Transport application test with severity level 1 ¹⁾ , to EN 60068-2-6

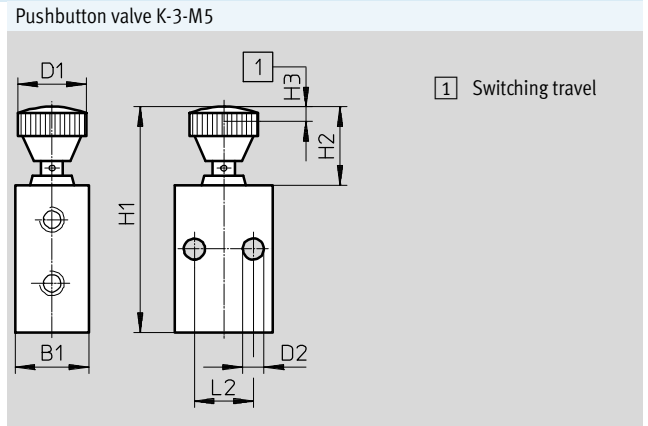
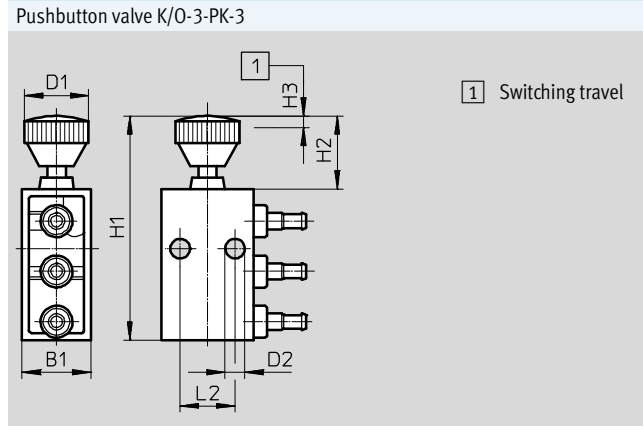
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Test conditions		
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Severity level 2	0.35 mm travel at 10 ... 60 Hz, 5 g acceleration at 60 ... 150 Hz	±30 g at 11 ms duration, 5 shocks per direction

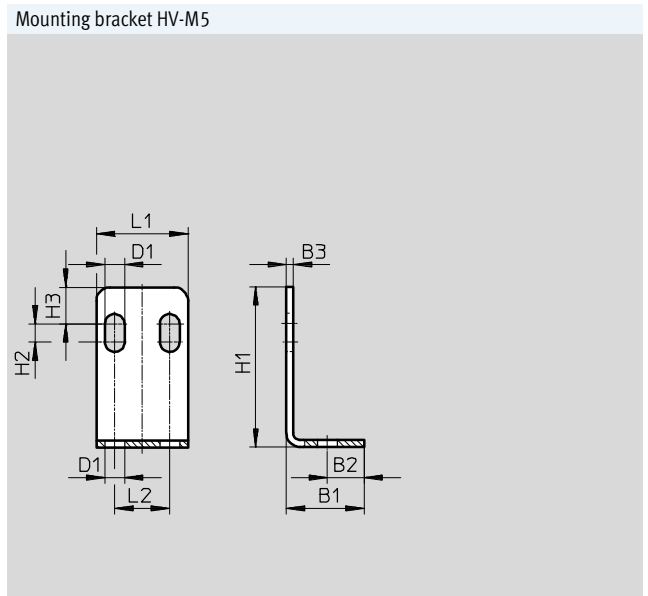
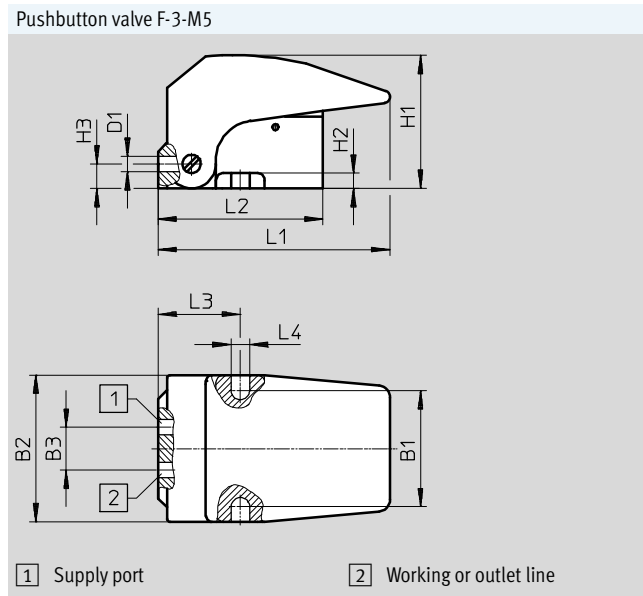
Valves, manually operated, pushbutton valves

Technical data – Pushbutton valve

Dimensions Download CAD data → www.festo.com



Pushbutton valve	B1	D1	D2	H1	H2	H3	L2
K/O-3-PK-3	15	14	4.3	49	16	2.5	12
K-3-M5	15	14	4.3	46	16	3	12



	B1	B2	B3	D1	H1	H2	H3	L1	L2	L3	L4
Pushbutton valve F-3-M5	38	48	15	M5	43	5	7.5	76.5	54	27	6.5
Mounting bracket HV-M5	17	8	1.5	4.3	35	4	8	20	12	-	-

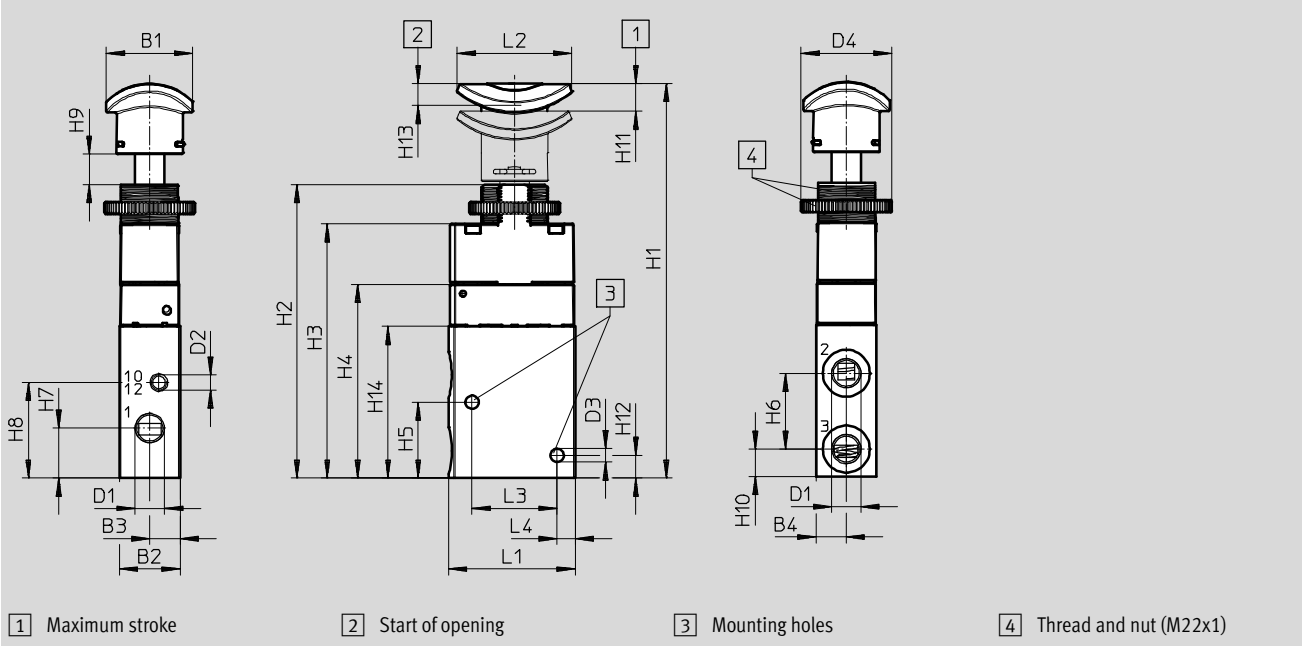
Valves, manually operated, pushbutton valves

Technical data – Pushbutton valve

Dimensions

Download CAD data → www.festo.com

Pushbutton valve VHEM-PTC ... 32 ... G ...



Pushbutton valve	B1	B2	B3	B4	D1	D2	D3	D4	L1	L2	L3	L4
VHEM-PTC...32...G18	28.5	20	10	10	G1/8	M5	4.4	30	41.7	37.8	28	6

Pushbutton valve	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14
VHEM-PTC...32...G18	130	96.8	83.8	63.8	26	25	16.5	31.5	10	9	9	8.5	7.2	50

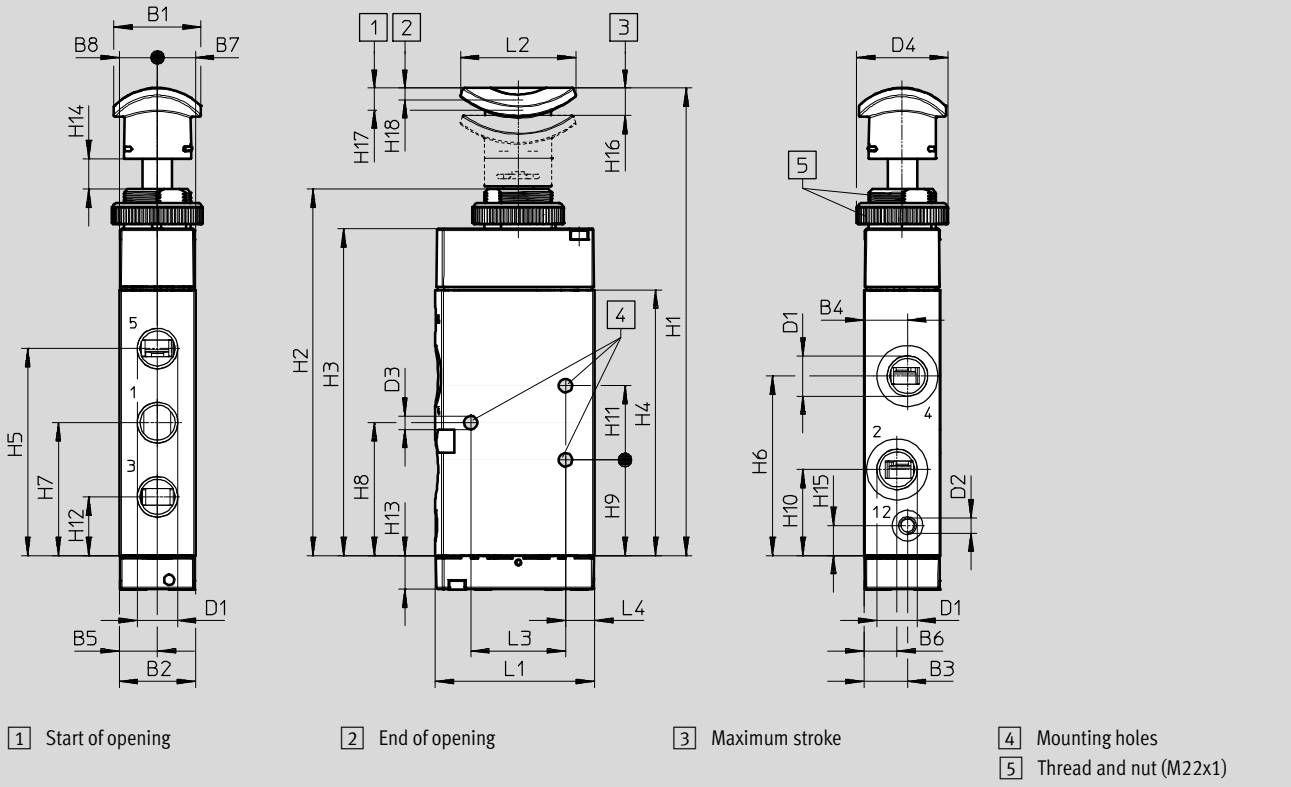
Valves, manually operated, pushbutton valves

Technical data – Pushbutton valve

Dimensions

Download CAD data → www.festo.com

Pushbutton valve VHEM-P- ... 52 ... G ..., VHEM-PA-B52-G ...



Pushbutton valve	B1	B2	B3	B4	B5	B6	B7	B8	D1	D2	D3	D4	L1	L2	L3	L4	H1	H2
VHEM-P...52...G14	28.5	25	14.2	14.2	12.5	10.8	9.5	9.5	G1/4	M5	4.4	30	52.1	37.8	31	9.5	153.2	120
VHEM-P...52...G18	28.5	20	11.5	11.5	10	8.5	7.5	7.5	G1/8	M5	4.4	30	41.7	37.8	25	7	130.2	97

Pushbutton valve	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18
VHEM-P...52...G14	107	87	67.8	58.8	43.5	43.5	31.4	28.2	24.3	19.2	11	10	9.8	9	5.3	3.8
VHEM-P...52...G18	84	64	49.5	41.8	32	32	23	22.3	18	14.5	11.8	10	9.3	7.5	4.5	3.2

Valves, manually operated, pushbutton valves




Ordering data

Ordering data								
Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Pilot air ¹⁾	Part No.	Type	
Pushbutton valve								
80 l/min	3/2-way valve, monostable	With PK-3, tubing connector	■	Open/closed	–	13793	K/O-3-PK3	
		With M5 threaded connection	■	Closed	–	3660	K-3-M5	
					–	4452	F-3-M5	
500 l/min	3/2-way valve, monostable	–	■	Closed	Internal	558405	VHEM-PTC-M32C-M-G18	
					External	558426	VHEM-PTCZ-M32C-M-G18	
				Open	Internal	558425	VHEM-PTC-M32U-M-G18	
					External	558411	VHEM-PTCZ-M32U-M-G18	
	5/2-way valve, monostable	Suitable for vacuum, reversible	■	–	–	–	558414	VHEM-P-M52-M-G18
				–	–	–	558419	VHEM-P-M52-E-G18
				–	–	–	558418	VHEM-P-M52-A-G18
	5/2-way valve, bistable	Suitable for vacuum, reversible	■	–	–	–	558420	VHEM-PA-B52-G18
				–	–	–	–	–
1000 l/min	5/2-way valve, monostable	Suitable for vacuum, reversible	■	–	–	558421	VHEM-P-M52-M-G14	
		Suitable for vacuum, reversible	–	–	–	558424	VHEM-P-M52-E-G14	
		–	–	–	–	558423	VHEM-P-M52-A-G14	
	5/2-way valve, bistable	Suitable for vacuum	■	–	–	–	558422	VHEM-PA-B52-G14
				–	–	–	–	–

1) With piloted valves

Valves, manually operated, toggle lever valves

Technical data – Toggle lever valve, 80 l/min standard nominal flow rate

-  - Flow rate
80 l/min
-  - Pressure
0 ... 8 bar
-  - Temperature range
-10 ... +60 °C

Mounting via through-hole



General technical data		
Type	KH/O-3-PK-3	
Standard nominal flow rate [l/min]	80	
1 → 2		
Valve functions	3/2-way valve	
Design	Disk seat valve, directly actuated	
Pneumatic connection	PK-3 ¹⁾	
Nominal size [mm]	2.5	
Weight [g]	20	
Actuating force [N]	-	
• at 6 bar		
• with normally closed [N]	7.5	
• with normally open [N]	6.5	

1) PK-3=Barbed fitting for plastic tubing with 3 mm nominal diameter

Materials	
Seal	Nitrile rubber
Housing	Plastic

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]
Note about the operating/pilot medium	Lubricated operation possible (required during subsequent operation)
Operating pressure range [bar]	0 ... 8
Ambient temperature [°C]	-10 ... +60

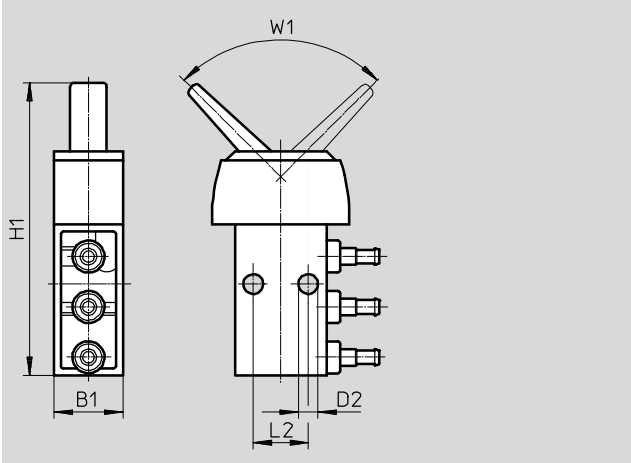
Valves, manually operated, toggle lever valves

Technical data – Toggle lever valve

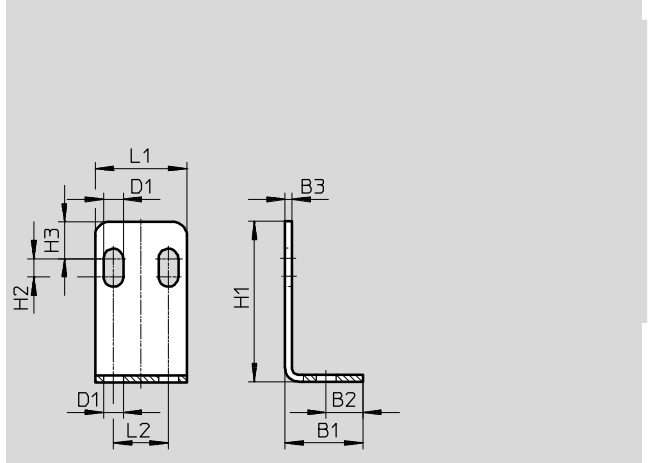
Dimensions

Download CAD data → www.festo.com

Toggle lever valve KH/O-3-PK-3



Mounting bracket HV-M5






	B1	B2	B3	D1	D2	H1	H2	H3	L1	L2	W1
Toggle lever valve KH/O-3-PK-3	15	–	–	–	4.3	64	–	–	–	12	90°
Mounting bracket HV-M5	17	8	1.5	4.3	–	35	4	8	20	12	–

Ordering data

Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Part No.	Type
Toggle lever valve						
80 l/min	3/2-way valve, monostable	With PK-3, tubing connector	■	Open/closed	33003	KH/O-3-PK3

Valves, manually operated, finger lever valves

Technical data – Finger lever valve, standard nominal flow rate 80 ... 600 l/min

-  Flow rate
80 ... 600 l/min
-  Pressure
-0.95 ... 10 bar
-  Temperature range
-10 ... +60 °C

Mounting via through-hole



General technical data					
Type	TH/O-3-PK-3	TH-3-M5	TH-5-1/4-B	TH-3-1/4-B	THO-3-1/4-B
Standard nominal flow rate [l/min] 1 → 2	80		550	600	
Valve function	3/2-way valve		5/2-way valve	3/2-way valve	
Design	Disk seat valve, directly actuated		Disk seat valve, directly actuated	Disk seat valve, directly actuated	
Pneumatic connection	PK-3 ¹⁾	M5	G1/4	G1/4	G1/4
Nominal size [mm]	2.5	2.0	7.0	7.0	7.0
Weight [g]	18	37	320	210	210
Actuating force [N]	-	14.5	34.0	10.5	22.5
• at 6 bar					
• with normally closed position	[N] 8.0	-	-	-	-
• with normally open position	[N] 6.0	-	-	-	-

1) PK-3=Barbed fitting for plastic tubing with 3 mm nominal diameter

Materials					
Type	TH/O-3-PK-3	TH-3-M5	TH-5-1/4-B	TH-3-1/4-B	THO-3-1/4-B
Seal	NBR				
Housing	Plastic	Die-cast zinc	Die-cast aluminium		

Operating and environmental conditions					
Type	TH/O-3-PK-3	TH-3-M5	TH-5-1/4-B	TH-3-1/4-B	THO-3-1/4-B
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]				
Note about the operating/pilot medium	Lubricated operation possible (required during subsequent operation)				
Operating pressure range [bar]	0 ... 8	-0.95 ... 8	-0.95 ... 10		
Ambient temperature [°C]	-10 ... +60				

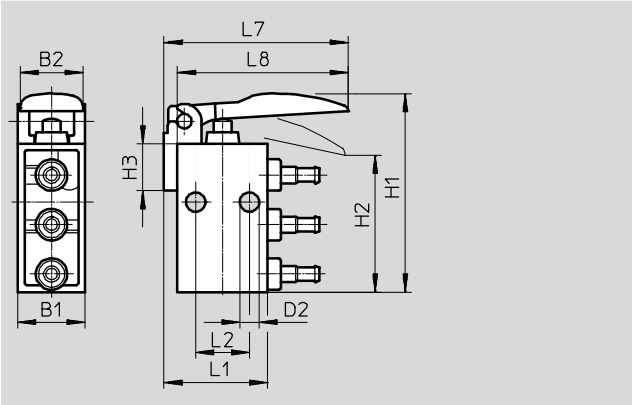
Valves, manually operated, finger lever valves

Technical data – Finger lever valve

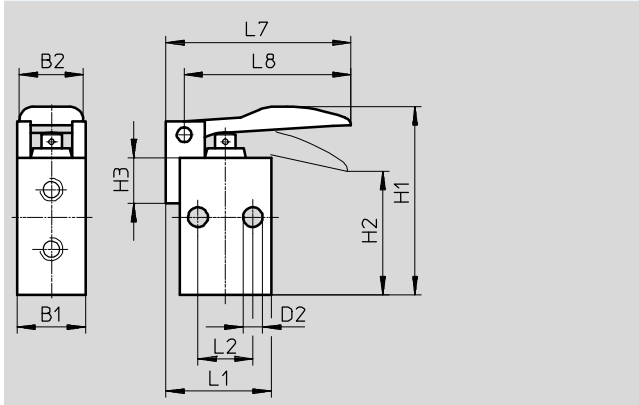
Dimensions

Download CAD data → www.festo.com

Finger lever valve TH/O-3-PK-3

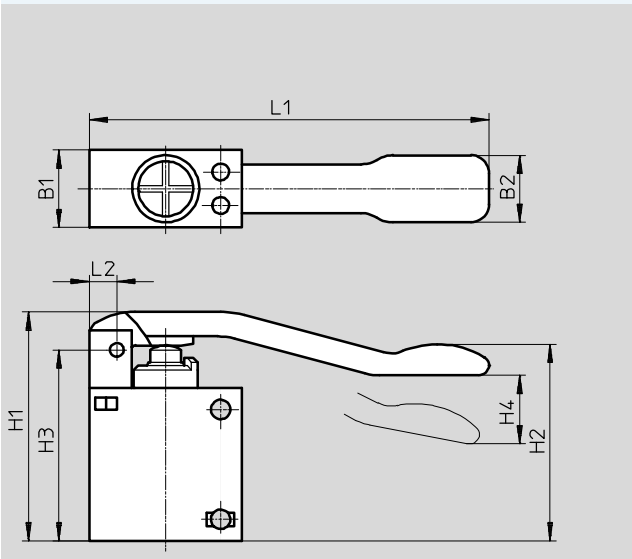


Finger lever valve TH-3-M5

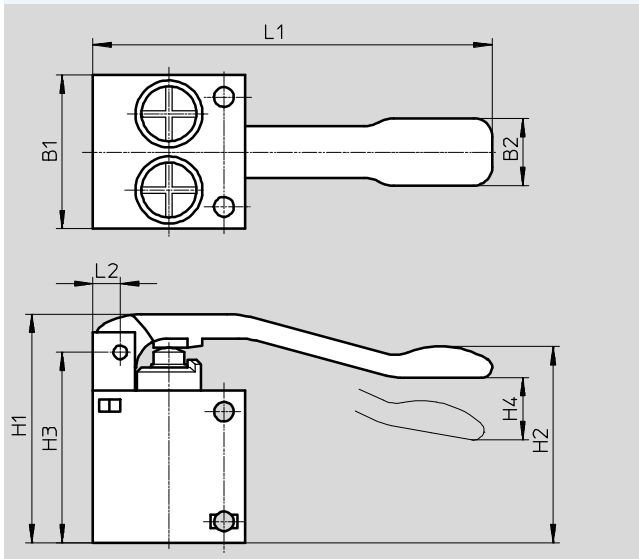


Finger lever valve	B1	B2	D2	H1	H2	H3	L1	L2	L7	L8
TH/O-3-PK-3	15	14	4.3	44.6	30.4	10.5	23	12	41	38
TH-3-M5	14.8	14	4.3	42	27	10	23	12	40.5	36.5

Finger lever valve TH-3-1/4-B, THO-3-1/4-B



Finger lever valve TH-5-1/4-B



Finger lever valve	B1	B2	H1	H2	H3	H4	L1	L2
TH-3-1/4-B, THO-3-1/4-B	25.4	22	75	68	62.5	23	131	9
TH-5-1/4-B	50.4	22	75	68	62.5	23	131	9

Valves, manually operated, finger lever valves

Technical data – Finger lever valve

Dimensions Download CAD data → www.festo.com




Mounting bracket	B1	B2	B3	D1	H1	H2	H3	L1	L2
HV-M5	17	8	1.5	4.3	35	4	8	20	12


Ordering data						
Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Part No.	Type
Finger lever valve						
80 l/min	3/2-way valve, monostable	With PK-3, tubing connector	■	Open/closed	13794	TH/O-3-PK3
			■	Closed	6758	TH-3-M5
550 l/min	5/2-way valve, monostable	–	■	Closed	8994	TH-5-1/4-B
600 l/min	3/2-way valve, monostable	–	■	Closed	8983	TH-3-1/4-B
		–	■	Open	8990	THO-3-1/4-B


Valves, manually operated, hand lever valves

Technical data – Hand lever valve, standard nominal flow rate 550 ... 600 l/min

-  - Flow rate
550 ... 600 l/min

Mounting either via through-hole or
on front panel

-  - Pressure
-0.95 ... 10 bar

-  - Temperature range
-10 ... +60 °C



General technical data		
Type	H-5-1/4-B	H-3-1/4-B
Standard nominal flow rate [l/min] 1 → 2	550	600
Valve function	5/2-way valve	3/2-way valve
Design	Disk seat valve, directly actuated	Disk seat valve, directly actuated
Pneumatic connection	G1/4	G1/4
Nominal size [mm]	7.0	7.0
Weight [g]	510	320
Actuation torque [Nm]	2.0	0.5

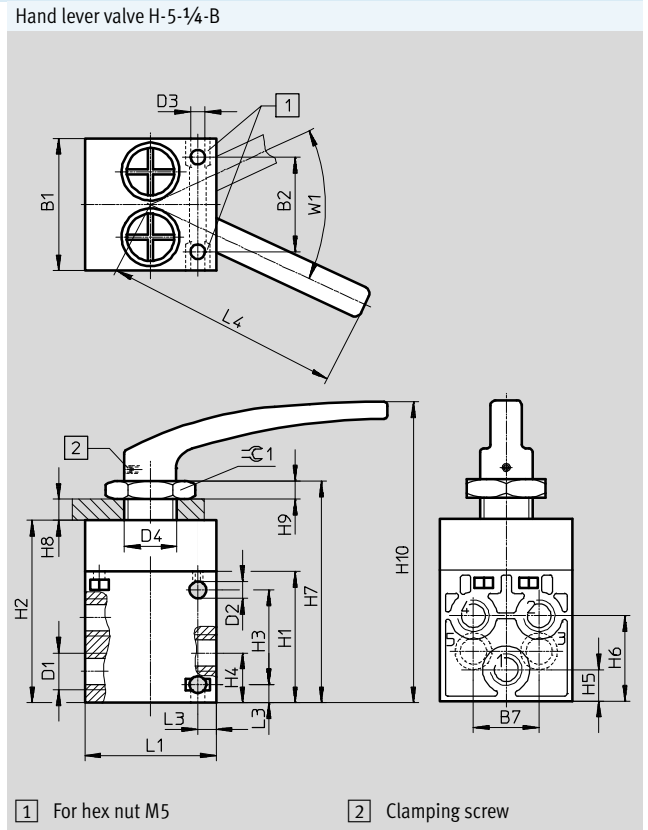
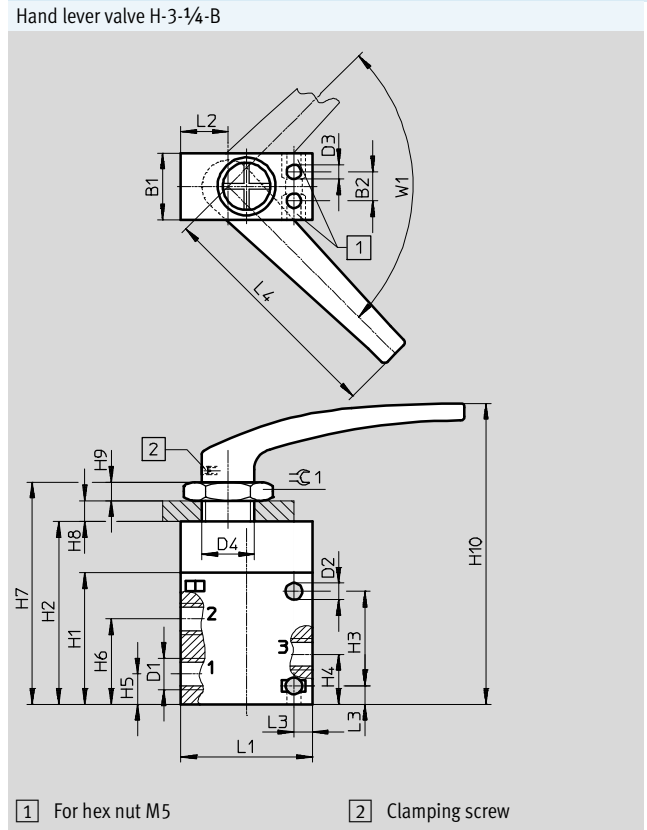
Materials	
Seal	NBR
Housing	Die-cast aluminium

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]
Note about the operating/ pilot medium	Lubricated operation possible (required during subsequent operation)
Operating pressure range [bar]	-0.95 ... 10
Ambient temperature [°C]	-10 ... +60

Valves, manually operated, hand lever valves

Technical data – Hand lever valve

Dimensions Download CAD data → www.festo.com




Hand lever valve	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
H-3-1/4-B	50	69.5	36	19	11.5	32.5	84.5	0 ... 8	7	114.5
H-5-1/4-B	50	69.5	36	19	11.5	32.5	84.5	0 ... 8	7	114.5

Hand lever valve	B1	B2	B7	D1	D2	D3	D4	L1	L2	L3	L4	W1	∠ 1
H-3-1/4-B	25.4	11	–	G1/4	6.4	5.5	M20x1.5	50	18	7	90	90°	30
H-5-1/4-B	50.4	36	25	G1/4	6.4	5.5	M20x1.5	50	–	7	90	50°	30


Ordering data		Part No.	Type
Nominal flow rate	Valve function		
Hand lever valve			
550 l/min	5/2-way valve, bistable	8995	H-5-1/4-B
600 l/min	3/2-way valve, bistable	8987	H-3-1/4-B


Valves, manually operated, foot valves, foot valves with detent

Technical data – Foot valve, standard nominal flow rate 550 ... 600 l/min

-  - Flow rate
550 ... 600 l/min

Mounted via flange eyes on the housing

-  - Pressure
-0.95 ... 10 bar

-  - Temperature range
-10 ... +60 °C



General technical data							
Type	FPB-3-1/4	F-5-1/4-B	FP-5-1/4-B	FPB-5-1/4	F-3-1/4-B	FO-3-1/4-B	FP-3-1/4-B
Standard nominal flow rate [l/min] 1 → 2	550				600		
Valve function	3/2-way valve	5/2-way valve			3/2-way valve		
Design	Disk seat valve, directly actuated	Disk seat valve, directly actuated	Disk seat valve, directly actuated	Disk seat valve, directly actuated	Disk seat valve, directly actuated	Disk seat valve, directly actuated	Disk seat valve, directly actuated
Pneumatic connection	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4
Nominal size [mm]	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Weight [g]	610	705	1,845	725	595	595	1,760
Actuating force [N]	31.5	78.0	82.0	67.5	50.0	55.0	58.5

Materials	
Seal	NBR
Housing	Die-cast aluminium

Operating and environmental conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Operating pressure range [bar]	-0.95 ... 10
Ambient temperature [°C]	-10 ... +60

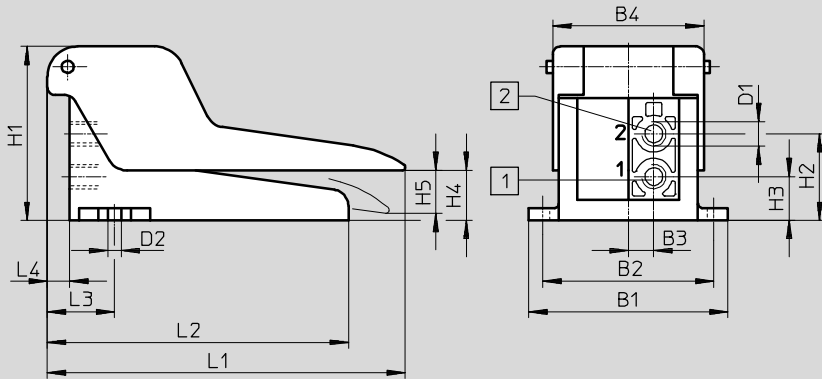
Valves, manually operated, foot valves, foot valves with detent

Technical data

Dimensions

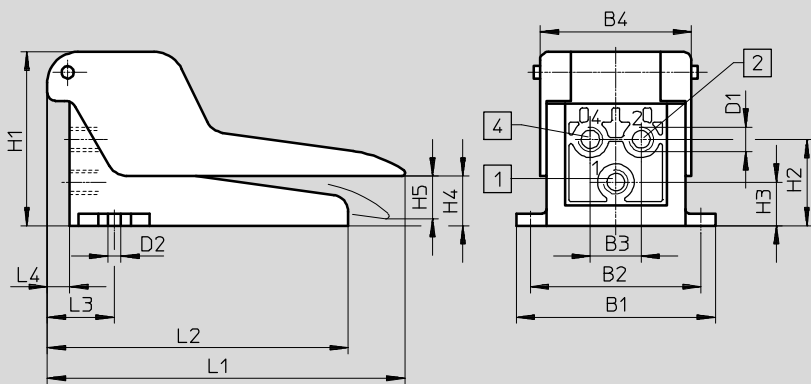
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Foot valve F ... 3 ... , foot valve with detent FPB-3 ...



1 Supply port 2 Working line

Foot valve F-5 ... , foot valve with detent FPB-5 ...



1 Supply port 2 Working line 4 Working line

Type	B1	B2	B3	B4	D1	D2	H1	H2	H3	H4	H5	L1	L2	L3	L4
Foot valve F ... 3 ... , foot valve with detent FPB-3 ...	98	84	12.5	74.4	G1/4	6.5	85.5	42.5	21.5	29	24	176	148	33	11
Foot valve F-5 ... , Foot valve with detent FPB-5 ...	98	84	25	74.4	G1/4	6.5	85.5	42.5	21.5	29	24	176	148	33	11

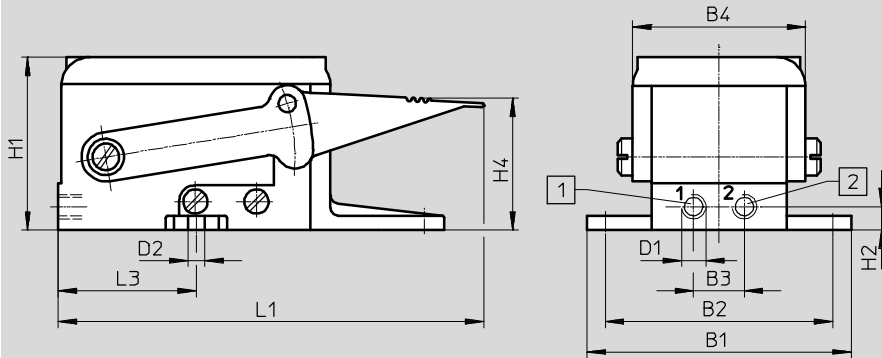
Valves, manually operated, foot valves, foot valves with detent

Technical data

Dimensions

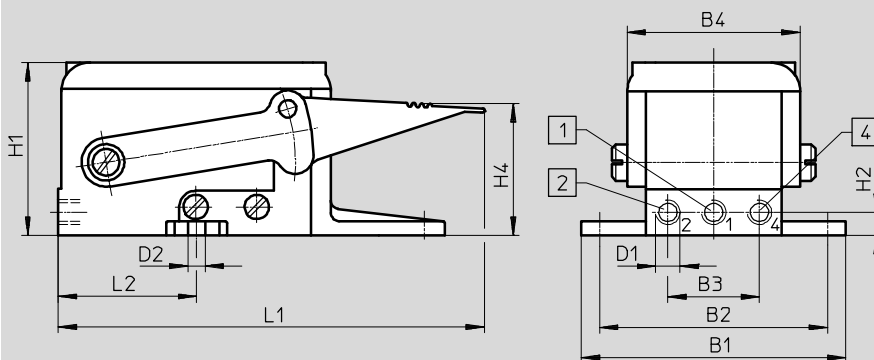
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Foot valve with detent FP-3-1/4-B



1 Supply port 2 Working line

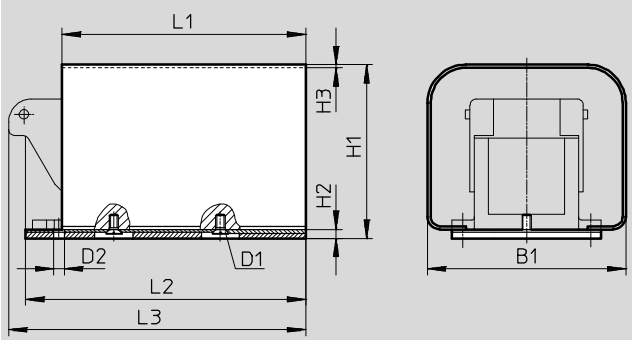
Foot valve with detent FP-5-1/4-B



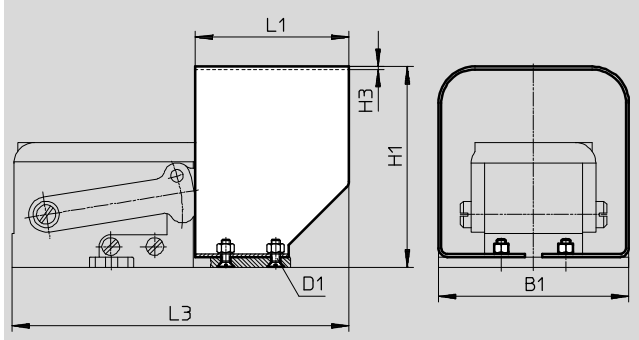
1 Supply port 2 Working line 4 Working line

Foot valve with detent	B1	B2	B3	B4	D1	D2	H1	H2	H4	L1	L3
FP-3-1/4-B	130	112	25	85	G1/4	8.5	85	11.5	65	210	68
FP-5-1/4-B	130	112	45	85	G1/4	8.5	85	11.5	65	210	68

Safety guard FH, for foot valve F and foot valve with detent FPB



Safety guard FPH-121, for foot valve with detent FP

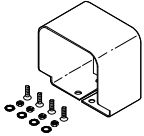


Safe guard	B1	D1	D2	H1	H2	H3	L1	L2	L3
FH	130	M6	7	114	6	2	160	184	195
FPH-121	130	M6	-	137	-	2	105	-	230

Valves, manually operated, foot valves, foot valves with detent

Ordering data




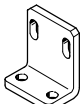
Ordering data						
Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Part No.	Type
Foot valve						
550 l/min	3/2-way valve, bistable	Suitable for vacuum	■	–	526984	FPB-3-1/4
	5/2-way valve, bistable	Suitable for vacuum	■	–	526985	FPB-5-1/4
		Suitable for vacuum	■	–	8997	FP-5-1/4-B
	5/2-way valve, monostable	Suitable for vacuum	■	Open	8992	F-5-1/4-B
600 l/min	3/2-way valve, bistable	Suitable for vacuum	■	–	8986	FP-3-1/4-B
	3/2-way valve, monostable	Suitable for vacuum	■	Closed	8984	F-3-1/4-B
		Suitable for vacuum	■	Open	8988	FO-3-1/4-B

Ordering data					
	Description		Part No.	Type	PJ ¹⁾
Safety guard					
	For foot valve F and foot valve with detent FPB	1240 g	4500	FH	1
	For foot valve FP	670 g	2071	FPH-121	1

1) Packaging unit

Valves, manually operated

Accessories

Ordering data						
	Description		Part No.	Type	PU ¹⁾	
Push-in fitting with external hex						
	Connecting thread M5 for tubing O.D.	3 mm	153302	QSM-M5-3	10	
		4 mm	153304	QSM-M5-4	10	
		6 mm	153306	QSM-M5-6	10	
	Connecting thread G $\frac{1}{8}$ for tubing O.D.	4 mm		186095	QS-G$\frac{1}{8}$-4	10
				186264	QSM-G$\frac{1}{8}$-4	10
		6 mm		186096	QS-G$\frac{1}{8}$-6	10
				186265	QSM-G$\frac{1}{8}$-6	10
	Connecting thread G $\frac{1}{4}$ for tubing O.D.	6 mm	186097	QS-G$\frac{1}{4}$-6	10	
		8 mm	186099	QS-G$\frac{1}{4}$-8	10	
		10 mm	186101	QS-G$\frac{1}{4}$-10	10	
Push-in fitting with internal hex						
	Connecting thread M5 for tubing O.D.	3 mm	153313	QSM-M5-3-I	10	
		4 mm	153315	QSM-M5-4-I	10	
		6 mm	153315	QSM-M5-6-I	10	
	Connecting thread G $\frac{1}{8}$ for tubing O.D.	4 mm		186106	QS-G$\frac{1}{8}$-4-I	10
				186266	QSM-G$\frac{1}{8}$-4-I	10
		6 mm		186107	QS-G$\frac{1}{8}$-6-I	10
				186267	QSM-G$\frac{1}{8}$-6-I	10
	Connecting thread G $\frac{1}{4}$ for tubing O.D.	8 mm	186109	QS-G$\frac{1}{8}$-8-I	10	
		6 mm	186108	QS-G$\frac{1}{4}$-6-I	10	
		8 mm	186110	QS-G$\frac{1}{4}$-8-I	10	
	10 mm	186112	QS-G$\frac{1}{4}$-10-I	10		
Silencer						
	Connecting thread	G $\frac{1}{8}$	2307	U-$\frac{1}{8}$	1	
			161419	UC-$\frac{1}{8}$	1	
		G $\frac{1}{4}$	2316	U-$\frac{1}{4}$	1	
			6842	U-$\frac{1}{4}$-B	1	
			165004	UC-$\frac{1}{4}$	1	
Mounting bracket						
	For valves with push-in connector and threaded connection	11 g	9634	HV-M5	1	
		32 g	9635	HV-$\frac{1}{8}$	1	

1) Packaging unit