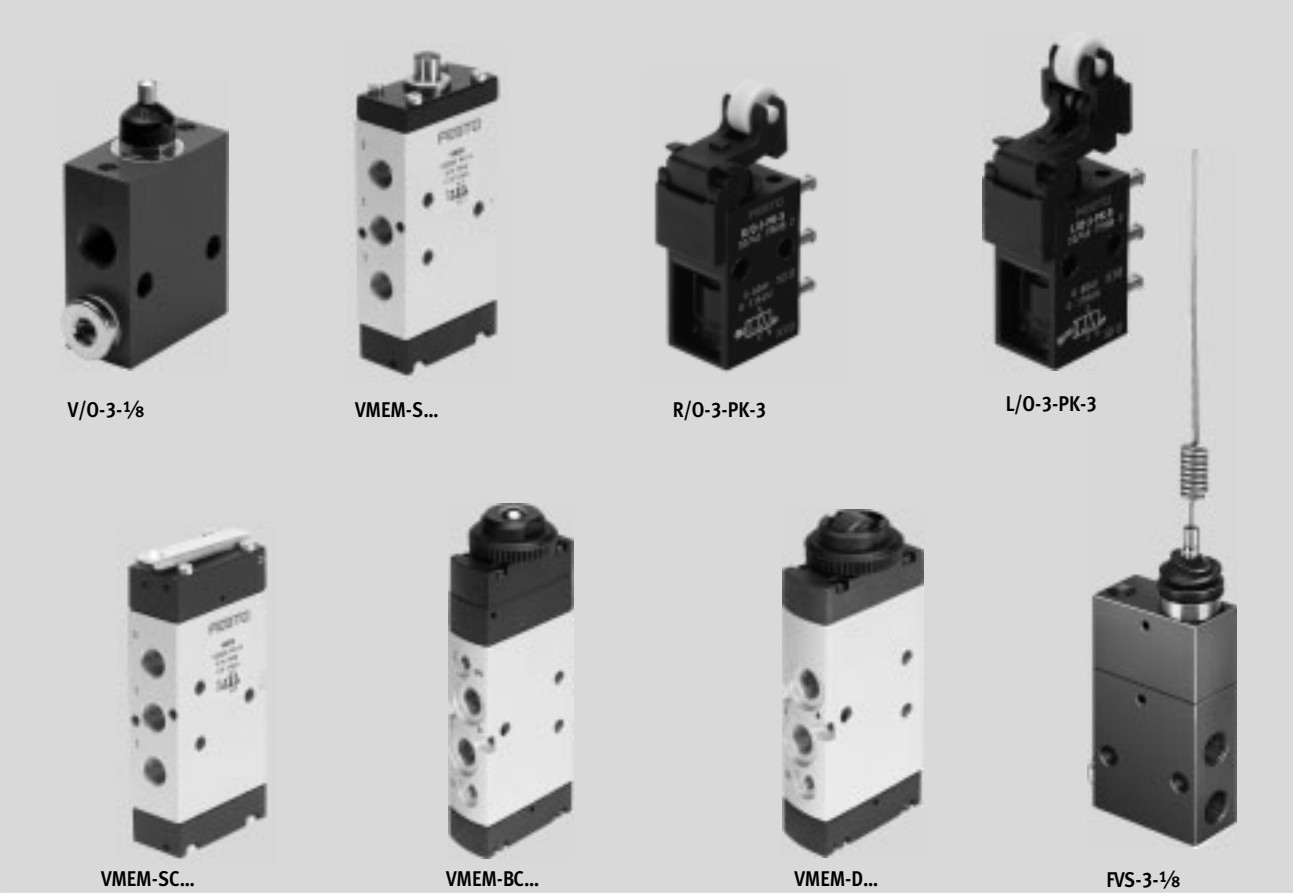
Valves, mechanically actuated

FESTO

Valves, mechanically actuated

Key features



Innovative

- Small and compact for a wide range of pneumatic applications
- Large selection of valve functions; 3/2-way, 4/2-way and 5/2-way functions
- With flow rates of up to 1,000 l/min, valves VMEM offer outstanding pneumatic performance for a great variety of applications
- Low weight
- Minimal actuating forces

Versatile

- Flexibility of the pneumatic working ports 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
- Version:
  - Stem actuated valve
  - Swivel lever valve
  - Roller lever valve, toggle lever valve
  - Whisker valve
  - Roller actuated valve
  - Ball actuated valve

Reliable

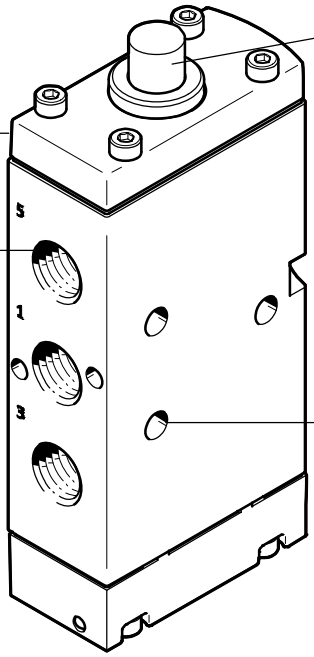
- Durable thanks to proven piston spool and piston poppet valves
- Sturdy thanks to metal or plastic housing and connecting thread or connector

Easy to mount

- Front panel mounting or mounting on bracket

Valves, mechanically actuated

Key features



Equipment options

3/2-way valve, monostable

- Normally open/closed
- Mechanical spring
- Vacuum operation possible
- Directly actuated and pneumatically piloted
- Ducted exhaust air

4/2-way valve, monostable

- Mechanical spring
- Pneumatically piloted
- Ducted exhaust air

5/2-way valve, monostable

- Pneumatic spring/mechanical spring
- Vacuum operation possible
- Reverse operation in some cases
- Pneumatically piloted
- Ducted exhaust air

Valve selection → Internet: www.festo.com

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

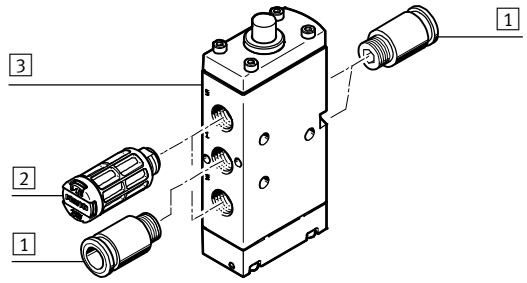
Ordering system for valves
→ Internet: mechanically and manually operated directional control valves

Valves, mechanically actuated

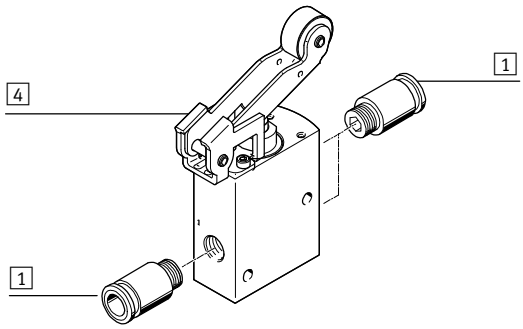
Peripherals overview

Valves, mechanically actuated

5/2-way stem actuated valve VMEM-S

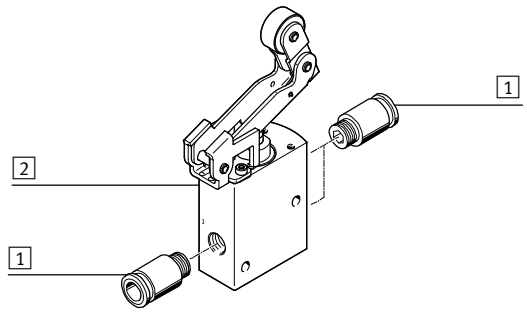


3/2-way roller lever valve R

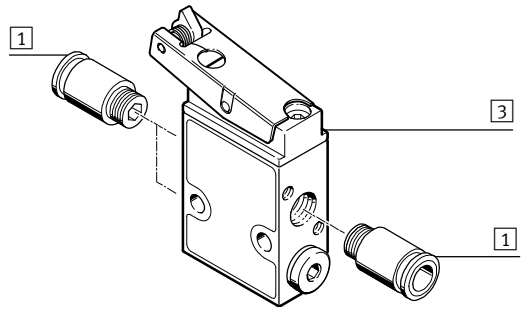


		Brief description	➔ Page/Internet
1	Fitting	For supply air/exhaust ports (1, 3, 5) and working ports (2, 4)	47
2	Silencer	For exhaust ports (3, 5)	47
3	Stem actuated valve	VMEM-S	11
4	Roller lever valve	R	30

3/2-way roller lever valve with idle return L

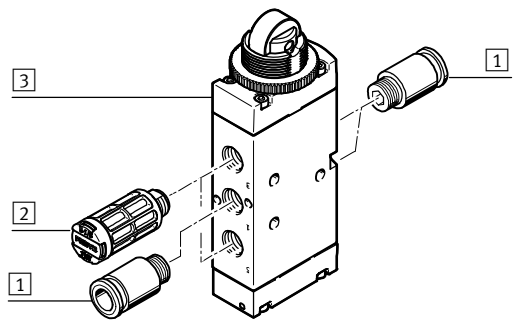


3/2-way toggle lever valve LS

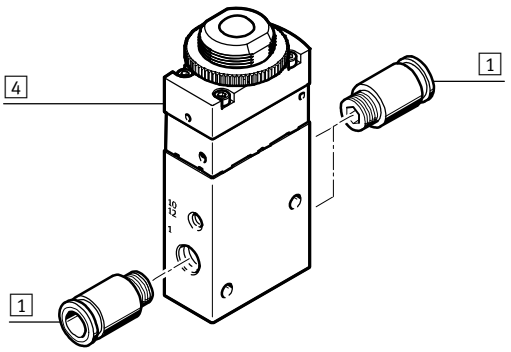


		Brief description	➔ Page/Internet
1	Fitting	For supply air/exhaust ports (1, 3, 5) and working ports (2, 4)	47
2	Roller lever valve with idle return	L	30
3	Toggle lever valve	LS	30

5/2-way roller actuated valve VMEM-D



3/2-way ball actuated valve VMEM-B



		Brief description	➔ Page/Internet
1	Fitting	For supply air/exhaust ports (1, 3, 5) and working ports (2, 4)	47
2	Silencer	For exhaust ports (3, 5)	47
3	Roller actuated valve	VMEM-D	37
4	Ball actuated valve	VMEM-B	44

Valves, mechanically actuated

Key features – Pneumatic components

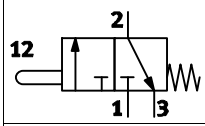
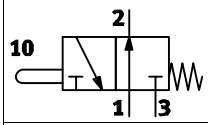
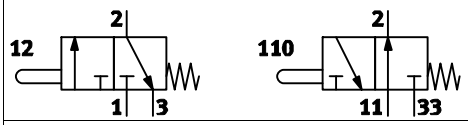
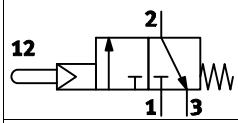
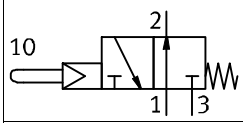
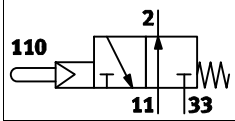
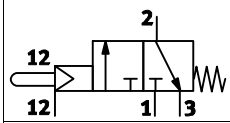
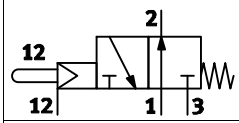
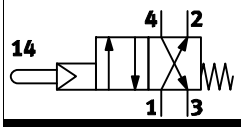
FESTO

Mechanically actuated valves

Mechanically actuated valves are often used as "signal valves" and feed back a pneumatic signal to the controller. This feedback, e.g. "End position reached", is realised via a stem actuated valve or roller actuated valve.
This is a simple application, but it is an extremely popular solution for smaller machines and conveying systems, e.g. for controlling simple clamping and locking operations in semi-automated assembly and production. The modern design with metal housing combines sturdiness and functionality.
Advantages of mechanically actuated valves:

- No electronic controller required
- No programming effort required
- Easy to adjust and connect
- Control and measurement via sensors

Valve functions

Circuit symbol	Type	Description
Stem actuated valve		
	VMEM-ST-M32C-M V-3-M5 V-3-¼-B V/O-3-PK-3	3/2-way valve, monostable • Normally closed • Mechanical spring return • Suitable for vacuum (not V/O-3-PK-3)
	VMEM-ST-M32U-M VO-3-¼-B	3/2-way valve, monostable • Normally open • Mechanical spring return • Suitable for vacuum
	V/O-3-⅛	3/2-way valve, monostable • Normally open/closed • Mechanical spring return • Suitable for vacuum
	VMEM-STC-M32C-M VS-3-⅛	3/2-way valve, monostable • Normally closed • Pneumatically piloted, internal pilot air • Mechanical spring return
	VMEM-STC-M32U-M	3/2-way valve, monostable • Normally open • Pneumatically piloted, internal pilot air • Mechanical spring return
	VOS-3-⅛	3/2-way valve, monostable • Normally open • Pneumatically piloted, internal pilot air • Mechanical spring return
	VMEM-STCZ-M32C-M	3/2-way valve, monostable • Normally closed • Pneumatically piloted, external pilot air • Mechanical spring return
	VMEM-STCZ-M32U-M	3/2-way valve, monostable • Normally open • Pneumatically piloted, external pilot air • Mechanical spring return
	VS-4-⅛	4/2-way valve, monostable • Pneumatically piloted, internal pilot air • Mechanical spring return

Valves, mechanically actuated

Key features – Pneumatic components

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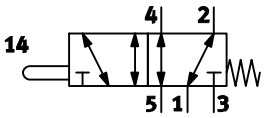
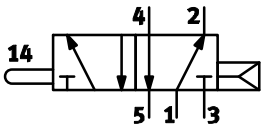
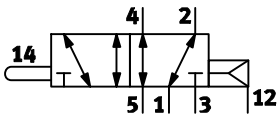
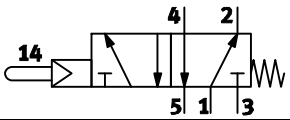
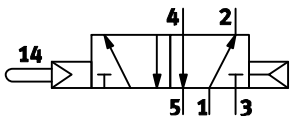
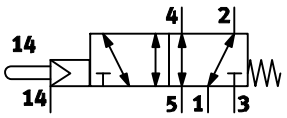
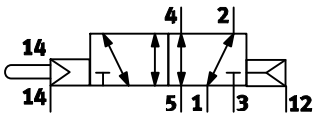
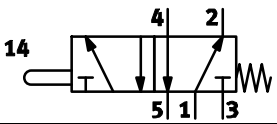
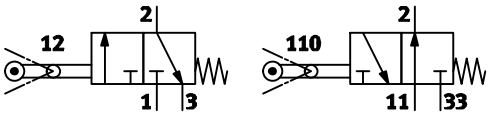
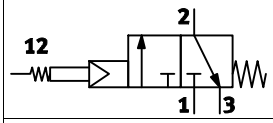
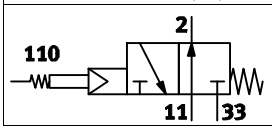
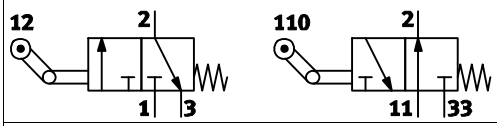
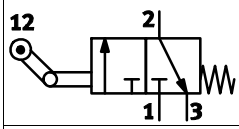
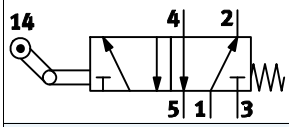
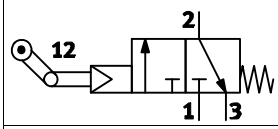
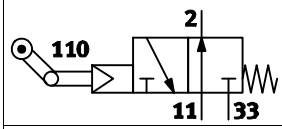
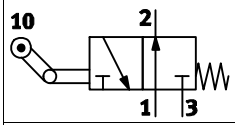
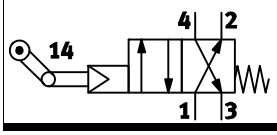
Valve functions		
Circuit symbol	Type	Description
Stem actuated valve		
	VMEM-S-M52-M	5/2-way valve, monostable • Mechanical spring return • Suitable for vacuum • Reverse operation possible
	VMEM-S-M52-A	5/2-way valve, monostable • (Internal) pneumatic spring return
	VMEM-S-M52-E	5/2-way valve, monostable • (External) pneumatic spring return • Suitable for vacuum • Reverse operation possible
	VMEM-SC-M52-M	5/2-way valve, monostable • Pneumatically piloted, internal pilot air • Mechanical spring return
	VMEM-SC-M52-A	5/2-way valve, monostable • Pneumatically piloted, internal pilot air • (Internal) pneumatic spring return
	VMEM-SCZ-M52-M	5/2-way valve, monostable • Pneumatically piloted, external pilot air • Mechanical spring return • Suitable for vacuum • Reverse operation possible
	VMEM-SCZ-M52-E	5/2-way valve, monostable • Pneumatically piloted, external pilot air • (External) pneumatic spring return • Suitable for vacuum • Reverse operation possible
	V-5-¼-B	5/2-way valve, monostable • Normally open/closed • Mechanical spring return • Suitable for vacuum
Swivel lever valve		
	RW/O-3-⅛	3/2-way valve, monostable • Normally open/closed • Mechanical spring return • Suitable for vacuum
Whisker valve		
	FVS-3-⅛	3/2-way valve, monostable • Normally closed • Mechanical spring return • Pneumatically piloted, internal pilot air
	FVSO-3-⅛	3/2-way valve, monostable • Normally open • Mechanical spring return • Pneumatically piloted, internal pilot air

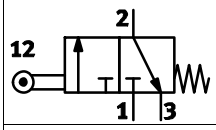
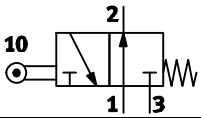
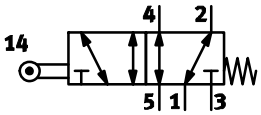
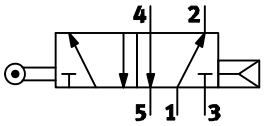
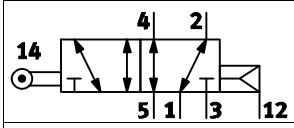
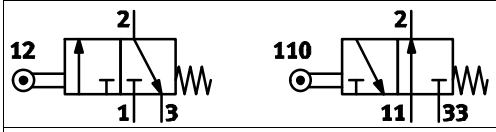
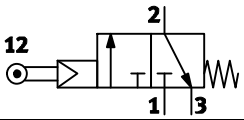
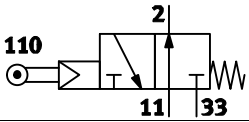
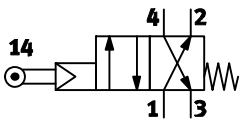
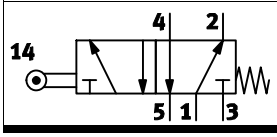
Valves, mechanically actuated

Key features – Pneumatic components

Valve functions – Circuit symbol		
Circuit symbol	Type	Description
Roller lever valve with idle return		
	L/O-3-PK-3	3/2-way valve, monostable • Normally open/closed • Mechanical spring return
	L-3-M5 L-3-¼-B	3/2-way valve, monostable • Normally closed • Mechanical spring return • Suitable for vacuum
	L-5-¼-B	5/2-way valve, monostable • Mechanical spring return • Suitable for vacuum
Toggle lever valve		
	LS-3-⅛	3/2-way valve, monostable • Normally closed • Mechanical spring return • Pneumatically piloted, internal pilot air
	LOS-3-⅛	3/2-way valve, monostable • Normally open • Mechanical spring return • Pneumatically piloted, internal pilot air
	LO-3-¼-B	3/2-way valve, monostable • Normally open • Mechanical spring return • Suitable for vacuum
	LS-4-⅛	4/2-way valve, monostable • Mechanical spring return • Pneumatically piloted, internal pilot air

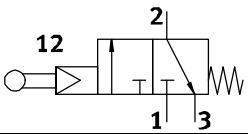
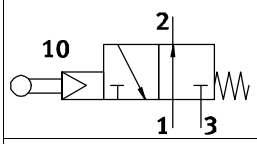
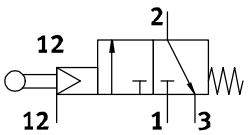
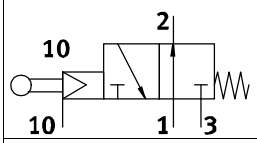
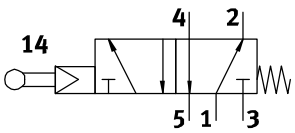
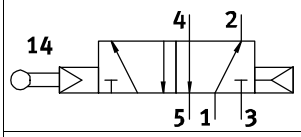
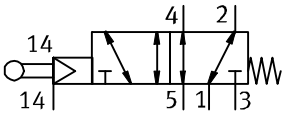
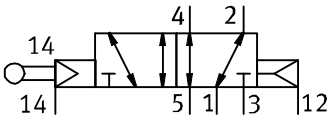
Valves, mechanically actuated

Key features – Pneumatic components

Valve functions – Circuit symbol		
Circuit symbol	Type	Description
Roller lever, roller actuated valve		
	VMEM-DT-M32C-M R-3-M5 R-3-¼-B	3/2-way valve, monostable • Normally closed • Mechanical spring return • Suitable for vacuum
	VMEM-DT-M32U-M RO-3-¼-B	3/2-way valve, monostable • Normally open • Mechanical spring return • Suitable for vacuum
	VMEM-D-M52-M	5/2-way valve, monostable • Mechanical spring return • Suitable for vacuum • Reverse operation possible
	VMEM-D-M52-A	5/2-way valve, monostable • (Internal) pneumatic spring return
	VMEM-D-M52-E	5/2-way valve, monostable • (External) pneumatic spring return • Suitable for vacuum • Reverse operation possible
	R/O-3-PK-3	3/2-way valve, monostable • Normally open/closed • Mechanical spring return
	RS-3-⅛	3/2-way valve, monostable • Normally closed • Mechanical spring return • Pneumatically piloted, internal pilot air
	ROS-3-⅛	3/2-way valve, monostable • Normally open • Mechanical spring return • Pneumatically piloted, internal pilot air
	RS-4-⅛	4/2-way valve, monostable • Mechanical spring return • Pneumatically piloted, internal pilot air
	R-5-¼-B	5/2-way valve, monostable • Mechanical spring return • Suitable for vacuum

Valves, mechanically actuated

Key features – Pneumatic components

Valve functions		
Circuit symbol	Type	Description
Ball actuated valve		
	VMEM-BTC-M32C-M	3/2-way valve, monostable • Normally closed • Mechanical spring return • Pneumatically piloted, internal pilot air
	VMEM-BTC-M32U-M	3/2-way valve, monostable • Normally open • Mechanical spring return • Pneumatically piloted, internal pilot air
	VMEM-BTCZ-M32C-M	3/2-way valve, monostable • Normally closed • Mechanical spring return • Pneumatically piloted, external pilot air
	VMEM-BTCZ-M32U-M	3/2-way valve, monostable • Normally open • Mechanical spring return • Pneumatically piloted, external pilot air
	VMEM-BC-M52-M	5/2-way valve, monostable • Mechanical spring return • Pneumatically piloted, internal pilot air
	VMEM-BC-M52-A	5/2-way valve, monostable • Pneumatic spring return • Pneumatically piloted, internal pilot air
	VMEM-BCZ-M52-M	5/2-way valve, monostable • Mechanical spring return • Pneumatically piloted, external pilot air • Suitable for vacuum • Reverse operation possible
	VMEM-BCZ-M52-E	5/2-way valve, monostable • Pneumatic spring return • Pneumatically piloted, external pilot air • Suitable for vacuum • Reverse operation possible

- 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, mechanically actuated

Type codes

VMEM	–	STCZ	–	M32C	–	M	–	G14

Valve series	
VMEM	Mechanically actuated valves

Version	
Actuation	
S	Stem actuated valve
D	Valve with roller actuation
B	Valve with ball actuation
Design principle	
–	Piston spool
T	Disk seat
Actuation method	
–	Directly actuated
C	Pneumatically piloted
Pilot air supply	
–	Internal
Z	External
Switching function	
–	Monostable valve
A	Active (spring)
X	Passive (air)

Valve function	
M32C	3/2-way valve, monostable, normally closed
M32U	3/2-way valve, monostable, normally open
M52	5/2-way valve, monostable

Reset method	
–	None
A	Pneumatic spring, internal
E	Pneumatic spring, external
M	Mechanical spring

Pneumatic connection	
G14	Fitting G¼
G18	Fitting G⅛

Stem actuated valves

Technical data – Stem actuated valve, standard nominal flow rate 80 … 140 l/min

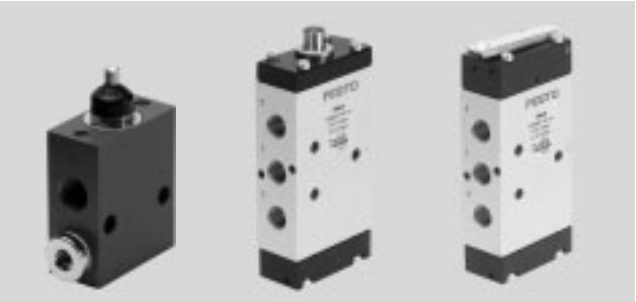
FESTO

Flow rate
80 … 1,000 l/min

Pressure
–0.95 … +10 bar

Temperature range
–10 … +60 °C

Mounting via through-holes



General technical data						
Type		V-3-M5	V/O-3-PK-3	V … -3-⅛	VS-4-⅛	V/O-3-⅛ RW/O-3-⅛
Standard nominal flow rate 1 → 2	[l/min]	80		120	120	140
Valve function		3/2-way valve		3/2-way valve	4/2-way valve	3/2-way valve
Design		Disk seat valve, directly actuated		Disk seat valve, piloted	Disk seat valve, piloted	Disk seat valve, directly actuated
Pneumatic connection		M5	PK-3 [1]	G⅛	G⅛	G⅛
Nominal size	[mm]	2.0	2.5	3.5	3.5	3.5
Weight	[g]	25	20	110	220	90 [2] 150
Actuating force • at 6 bar	[N]	23.0	17.0	3.1	3.1	28.0
• with normally closed position	[N]	–	17.0	–	–	–
• with normally open position	[N]	–	24.0	–	–	–

1) PK-3=Barbed fitting for plastic tubing with 3 mm nominal diameter
2) Value 90 with stem actuated valve, value 150 with swivel lever valve

Materials				
Type	V-3-M5	V/O-3-PK-3	V … -3-⅛	VS-4-⅛	V/O-3-⅛ RW/O-3-⅛
Seal	NBR				
Housing	Die-cast zinc	POM	Anodised aluminium		

Operating and environmental conditions						
Type		V-3-M5	V/O-3-PK-3	V … -3-⅛	VS-4-⅛	V/O-3-⅛ RW/O-3-⅛
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]				Compressed air – oil mist lubrication
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)				
Operating pressure range	[bar]	–0.95 … 8	0 … 8	3.5 … 8		–0.95 … 8
Temperature of medium	[°C]	–10 … +60				
Ambient temperature	[°C]	–10 … +60	–			

Technical data – Actuator attachment for swivel lever valve RW/O-3-⅛				
Swivel lever, type		ASK–02 (short)	ASL–02 (long)	ASS–02 (rod)
Actuating force [N]	Max.	7	Dependent on starting height	Dependent on starting height
Weight	[g]	30	35	30

Materials – Swivel lever	
Swivel lever	Aluminium, steel

Stem actuated valves

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

General technical data						
Type		VMEM-ST-M32	VMEM-STC ... -M32	VMEM-S-M52	VMEM-SC-M52	VMEM-SCZ-M52
Standard nominal flow rate 1 → 2	[l/min]	500				
Valve function		3/2-way valve		5/2-way valve		
Reset method		Mechanical spring		Mechanical or pneumatic spring		
Design		Disk seat valve, directly actuated	Disk seat valve, piloted	Piston spool valve, directly actuated	Piston spool valve, piloted	Piston spool valve, piloted
Pneumatic connection		G⅛	G⅛	G⅛	G⅛	G⅛
Pilot air supply		–	Internal or external	–	Internal	External
Nominal size	[mm]	4.0	4.0	4.0	4.0	4.0
Weight	[g]	130	152	148	170	170
Actuating force	[N]	80 [1] 130	15.5	28 [2] 39	15.5	15.5

1) Value 80 with normally closed valve, value 130 with normally open valve
2) Value 28 with mechanical spring reset method, value 39 with pneumatic spring reset method

Materials					
Type	VMEM-ST-M32	VMEM-STC ... -M32	VMEM-S-M52	VMEM-SC-M52	VMEM-SCZ-M52
Cover	–	POM	PA		
Seal	NBR				
Housing	Anodised wrought aluminium alloy				
Note on materials	RoHS-compliant				

Operating and environmental conditions							
Type		VMEM-ST-M32	VMEM-STC ... -M32	VMEM-S-M52		VMEM-SC-M52	VMEM-SCZ-M52
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]					
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)					
Operating pressure range	[bar]						
N/C valves		–0.95 ... 8	3.5 ... 8	–		–	–
N/O valves		–0.95 ... 8	4.5 ... 8	–0.95 ... 10 [1]	2.5 ... 10 [2]	2.5 ... 10	–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)

Stem actuated valves

Technical data – Stem actuated valve, standard nominal flow rate 550 … 600 l/min

General technical data				
Type		V-5-¼-B	VO-3-¼-B	V-3-¼-B
Standard nominal flow rate 1 ⇢ 2	[l/min]	550	600	
Valve function		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		G¼	G¼	G¼
Nominal size	[mm]	7.0	7.0	7.0
Weight	[g]	240	130	130
Actuating force	[N]	198.0	93.0	71.0

Materials	
Seal	NBR
Housing	Die-cast aluminium

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

Stem actuated valves

Technical data – Stem actuated valve, standard nominal flow rate 1,000 l/min

General technical data					
Type		VMEM-ST	VMEM-S	VMEM-SC	VMEM-SCZ
Standard nominal flow rate 1 → 2	[l/min]	1,000			
Valve function		3/2-way valve	5/2-way valve		
Reset method		Mechanical spring	Mechanical or pneumatic spring		
Design		Disk seat valve, directly actuated	Piston spool valve, directly actuated	Piston spool valve, directly actuated	Piston spool valve, directly actuated
Pneumatic connection		G¼	G¼	G¼	G¼
Pilot air supply		–	–	Internal	External
Nominal size	[mm]	6.0	6.0	6.0	6.0
Weight	[g]	198	320	300	300
Actuating force	[N]	80 [1)] 140	38.0 [2)] 65.0	15.0	15.5

1) Value 80 with normally closed valve, value 140 with normally open valve
2) Value 38 with mechanical spring reset method, value 65 with pneumatic spring reset method

Materials				
Type	VMEM-ST	VMEM-S	VMEM-SC	VMEM-SCZ
Cover	–	PA		
Seal	NBR			
Housing	Anodised wrought aluminium alloy			
Note on materials	RoHS-compliant			

Operating and environmental conditions						
Type		VMEM-ST	VMEM-S		VMEM-SC	VMEM-SCZ
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]				
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)				
Operating pressure range	[bar]					
N/C valves		–0.95 … 8	–		–	–
N/O valves		–0.95 … 8	–0.95 … 10 [1)]	2.5 … 10 [2)]	2.5 … 10	–0.95 … 10
Temperature of medium	[°C]	–10 … +60				
Ambient temperature	[°C]	–10 … +60				

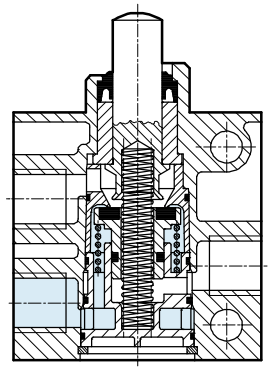
1) Suitable for vacuum, mechanical spring or external pneumatic spring reset method (in the type codes Reset method M: Mechanical spring or E: External pneumatic spring)
2) Not suitable for vacuum, internal pneumatic spring reset method (in the type codes Reset method A: Internal pneumatic spring)

Stem actuated valves

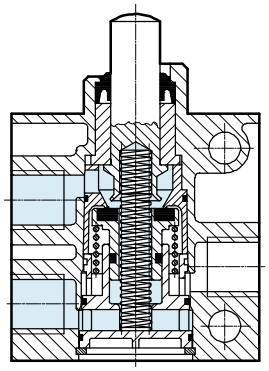
Sectional views

Sectional view

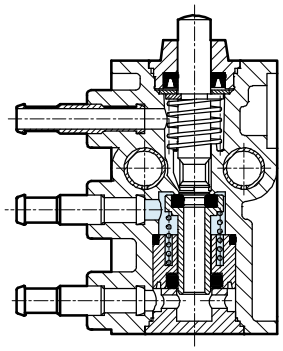
V-3-¼-B, normally closed



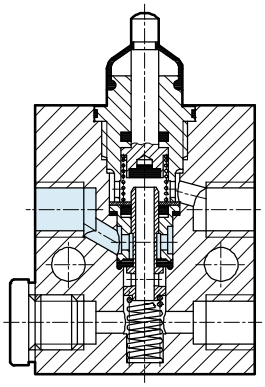
VO-3-¼-B, normally open



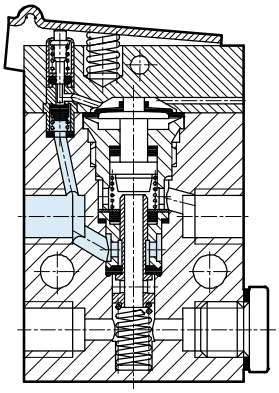
V/O-3-PK-3



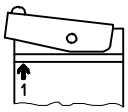
V/O-3-⅛



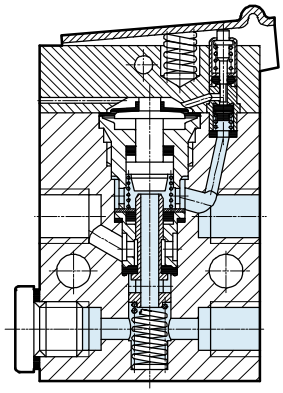
V ... -3-⅛, normally closed



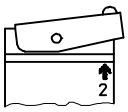
Actuator attachment at left
(number 1 on the attachment above number 1 on the housing)



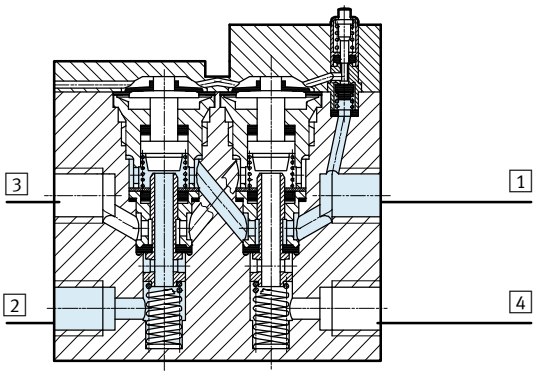
V ... -3-⅛, normally open



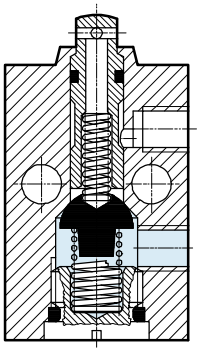
Actuator attachment at right
(number 1 on the attachment above number 2 on the housing)



VS-4-⅛



V-3-M5



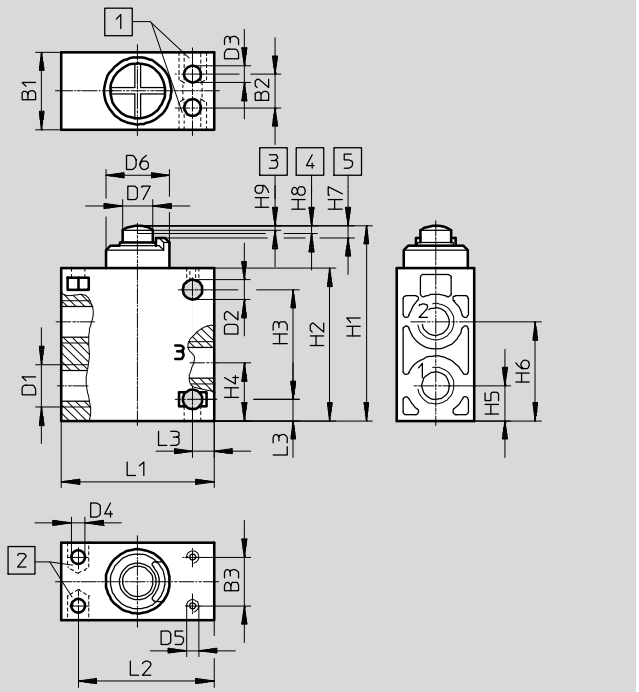
1 Supply port
2, 4 Working port
3 Exhaust port

- Note -

The sectional views, shown on the stem actuated valve, also apply in principle to the roller lever, toggle lever and swivel lever valves. The function remains the same, only the operation via actuator attachments differs.

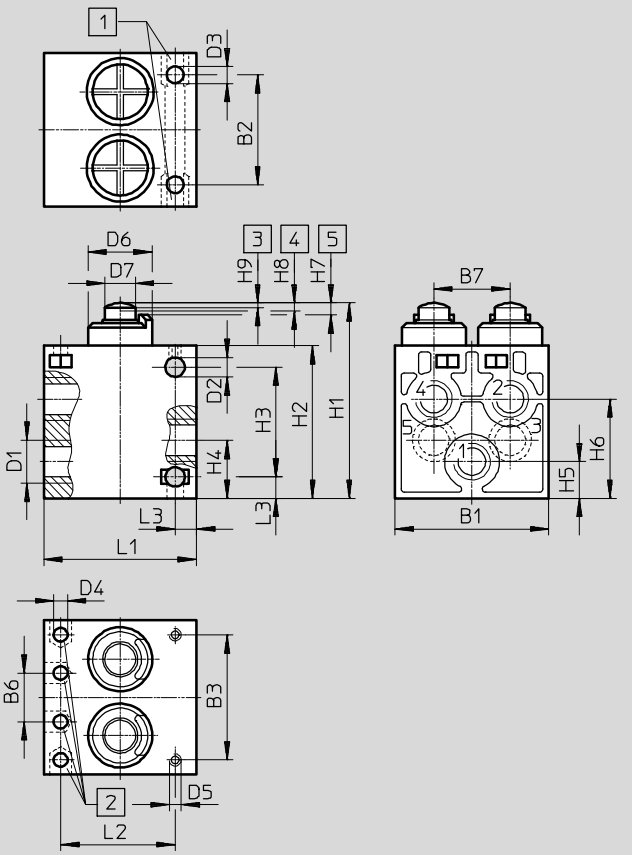
Dimensions Download CAD data ➔ **www.festo.com**

Stem actuated valve V-3- ¼-B, VO-3- ¼-B



1 Holder for hex nut M5 to DIN 934
2 Holder for hex nut M5 to DIN 934
3 Start of opening
4 Max. opening
5 Max. stroke

Stem actuated valve V-5-¼-B



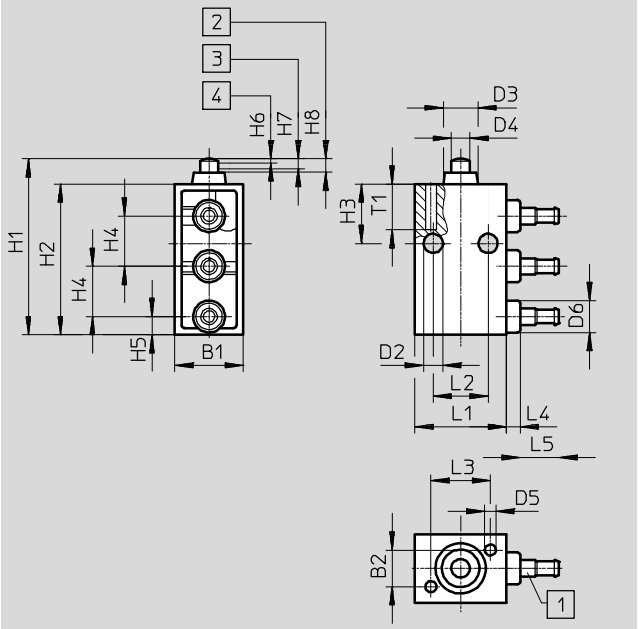
1 Holder for hex nut M5 to DIN 934
2 Holder for hex nut M5 to DIN 934
3 Start of opening
4 Max. opening
5 Max. stroke

Stem actuated valve	B1	B2	B3	B6	B7	D1	D2	D3	D4	D5	D6	D7
V-3-¼-B, VO-3-¼-B	25.4	11	16	–	–	G¼	6.4	5.5	4.5	M4	21	10
V-5-¼-B	50.4	36	41	16	25	G¼	6.4	5.5	4.5	M4	21	10

Stem actuated valve	L1	L2	L3	H1	H2	H3	H4	H5	H6	H7	H8	H9
V-3-¼-B, VO-3-¼-B	50	44.5	7	64	50	36	19	11.5	32.5	4	2.6	1.7
V-5-¼-B	50	37.5	7	64	50	36	19	11.5	32.5	4	2.6	1.7

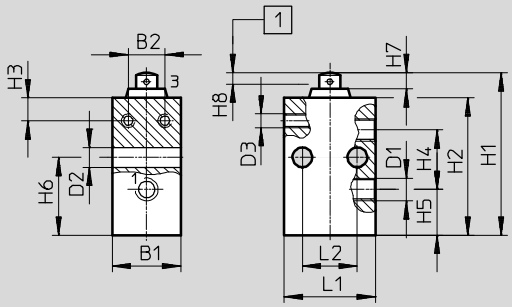
Dimensions Download CAD data ➔ **www.festo.com**

Stem actuated valve V/O-3-PK-3



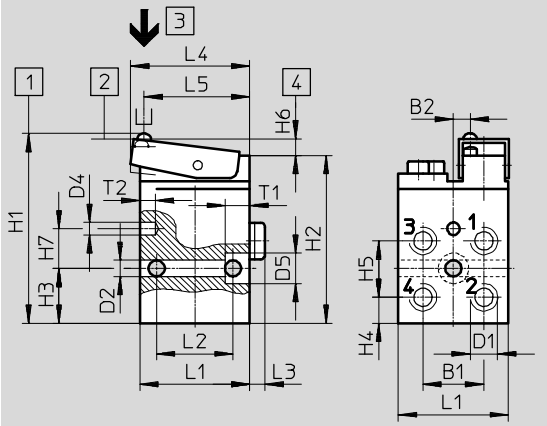
1 Barbed fitting for tubing I.D. 3 mm
2 Max. stroke
3 Max. opening
4 Start of opening

Stem actuated valve V-3-M5



1 Max. stroke

Stem actuated valve VS-4-1/8



1 Initial position
2 ON position
3 Actuation direction
4 Smallest distance between cams

Stem actuated valve	B1	B2	D1	D2	D3	D4	D5	D6	T1	T2
V/O-3-PK-3	15	8	–	4.3	7.5	4	2.4	7	10	–
V-3-M5	15	8	M5	4.3	M3	–	–	–	–	–
VS-4-1/8	20	5.5	G1/8	5.3	–	4.1	10	–	8	5

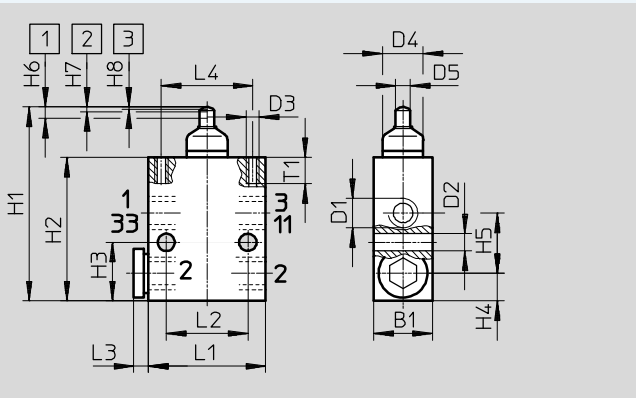
Stem actuated valve	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	H6	H7	H8	H14
V/O-3-PK-3	20	12	13	3	8.5	38.5	33	13	11	4	0.9	2.1	2.9	–
V-3-M5	–	–	–	–	–	35.5	30	8	13	10	17	3.5	2.5	–
VS-4-1/8	36	25	5	39	35.5	62.5	55	18	8.5	18.5	5.5	–	–	13

Stem actuated valves

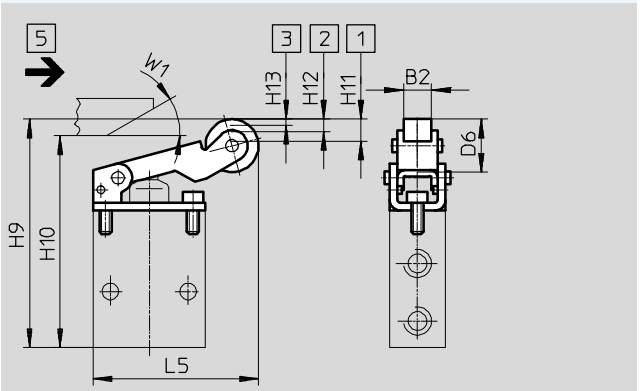
Technical data

Dimensions Download CAD data ➔ **www.festo.com**

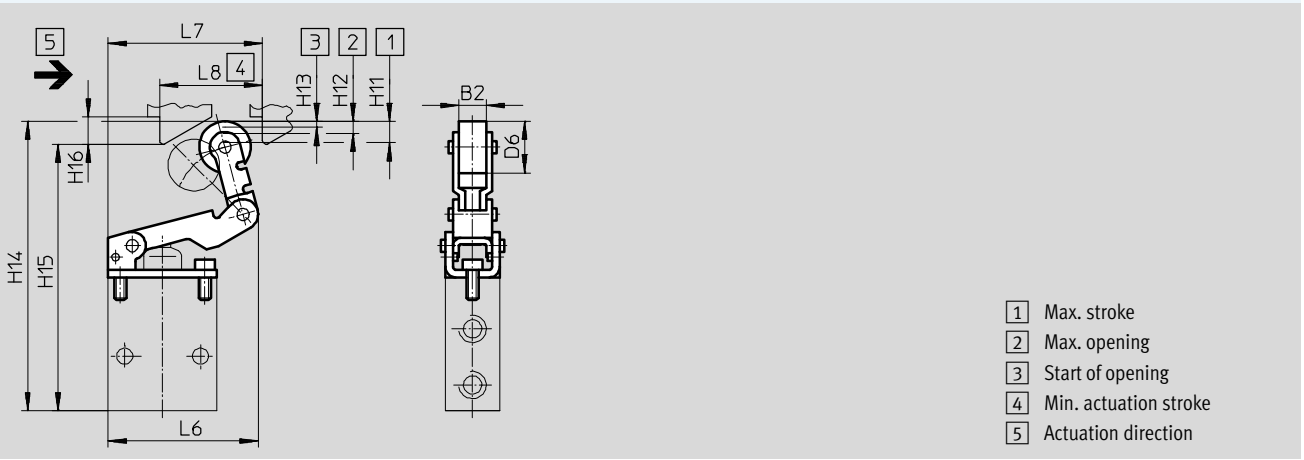
Stem actuated valve V/O-3-⅛



Roller lever AR-01 as actuator attachment for stem actuated valve V/O-3-⅛



Roller lever with idle return AL-01 as actuator attachment for stem actuated valve V/O-3-⅛

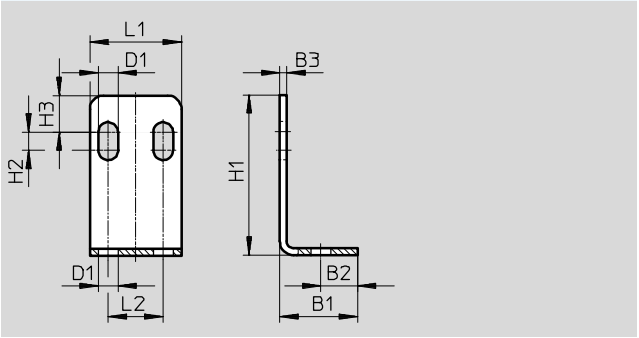


Stem actuated valve	B1	D1	D2	D3	D4	D5	L1	L2	L3	L4	H1	H2	H3	H4	H5	H6	H7 ±0.2	H8 ±0.2	T1
V/O-3-⅛	18	G⅛	5.3	M4	12.5	4.5	36	25	4.5	28	59.5	44	18	8.5	18.5	3.5	1.4	0.6	8

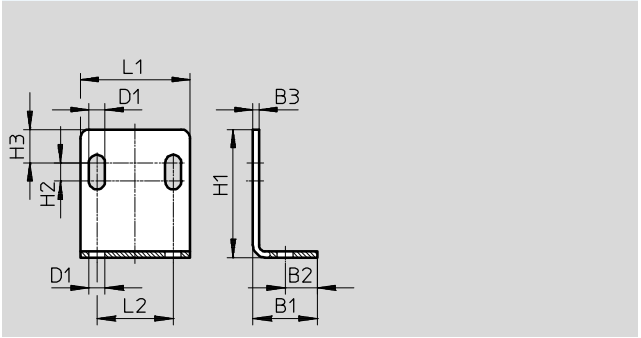
Roller lever	B2	D6	L5	L6	L7	L8	H9	H10 min.	H11	H12 +0.2	H13 +0.2	H14	H15 min.	H16	W1
AR-01	8	17	54	–	–	–	71	64	7	4	2	–	–	–	30°
AL-01	8	17	–	50.5	51	34	–	–	7	4	2	93.5	86.5	9	–

Dimensions Download CAD data ➔ **www.festo.com**

Mounting bracket HV-M5



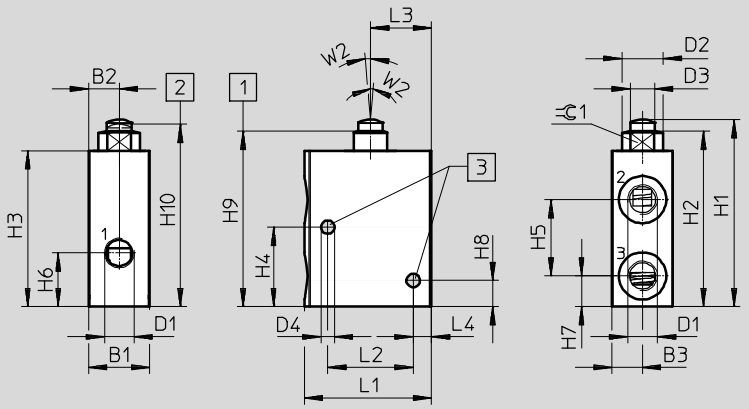
Mounting bracket HV-⅛



Mounting bracket	B1	B2	B3	D1	L1	L2	H1	H2	H3
HV-M5	17	8	1.5	4.3	20	12	35	4	8
HV-⅛	21	10.5	2	5.3	36	25	42	6	11

Dimensions Download CAD data ➔ **www.festo.com**

Stem actuated valve VMEM-ST-M32

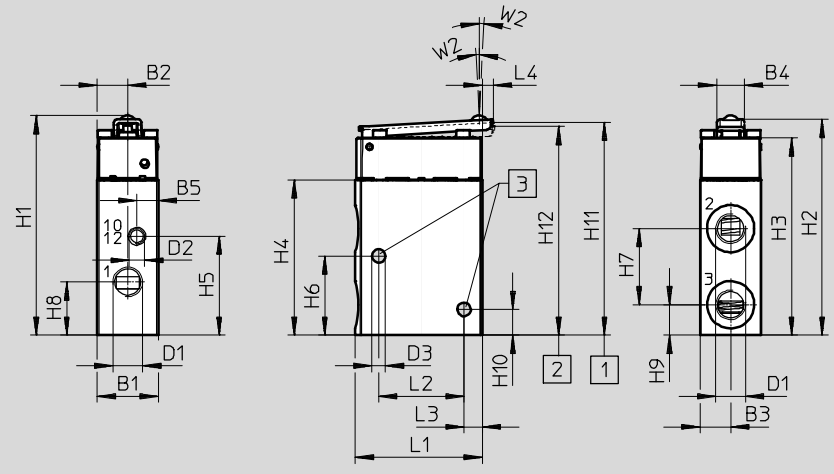


1 Maximum stroke 2 Start of opening 3 Mounting holes

Stem actuated valve	B1	B2	B3	D1	D2	D3	D4	L1	L2	L3	L4	⌀C 1
VMEM-ST...32...G18	20	10	10	G⅛	13.5	8	4.4	41.7	28	20	6	11
VMEM-ST...32...G14	25	12.5	12.5	G¼	15	10	4.4	52.1	36	25	7	13

Stem actuated valve	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10±0.3	W2
VMEM-ST...32...G18	61.6±0.3	57.4	51	26	25	17.5	10	8.5	58.1±0.4	59.8	5°
VMEM-ST...32...G14	73.3±0.2	67.7	61	26	28	23.5	12.5	8	68.6±0.6	70.5	5°

Stem actuated valve VMEM-STC-M32...G18



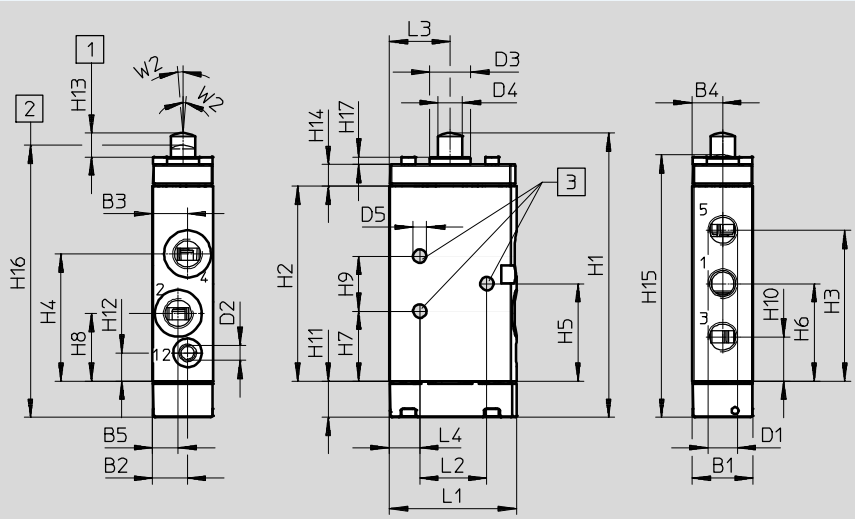
1 Maximum stroke 2 Start of opening 3 Mounting holes

Stem actuated valve	B1	B2	B3	B4	B5	D1	D2	D3	L1	L2	L3	L4	W2
VMEM-STC...32...G18	20	10	10	9	7	G⅛	M5	4.4	41.7	28	6	3.5	3°

Stem actuated valve	H1±0.4	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11±0.4	H12±0.15
VMEM-STC...32...G18	72.1	70.8	64.8	51	32.5	26	25	17.5	10	8.5	71.2	70.35

Dimensions Download CAD data ➔ **www.festo.com**

Stem actuated valve VMEM-S-M52



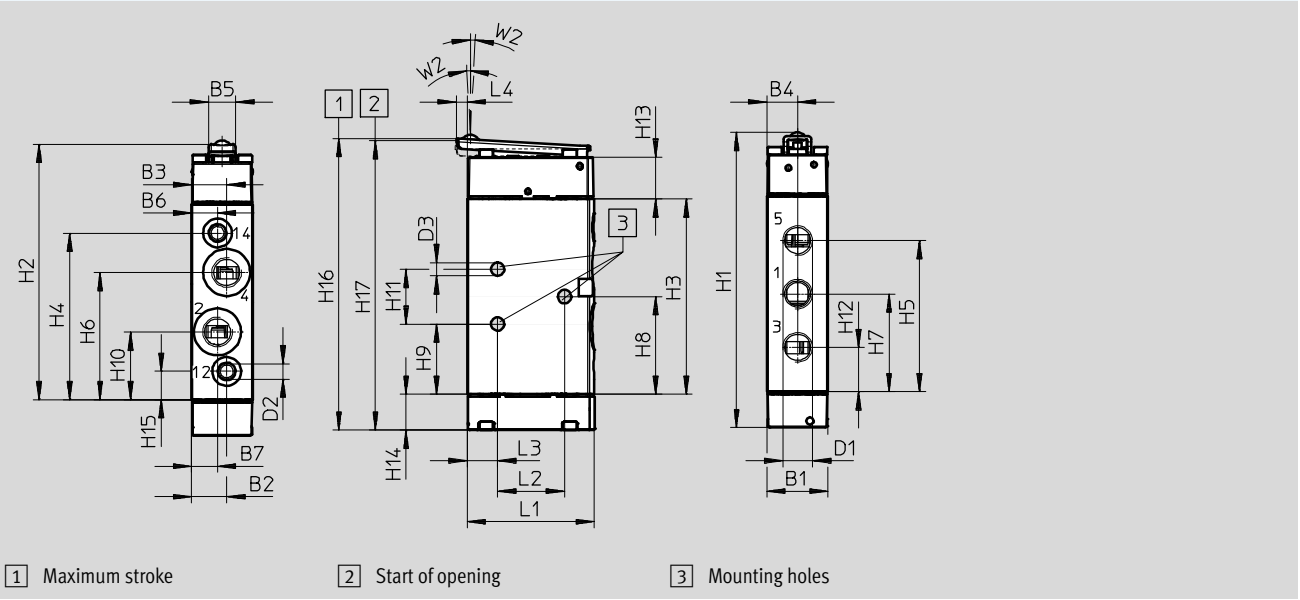
1 Maximum stroke 2 Start of opening 3 Mounting holes

Stem actuated valve	B1	B2	B3	B4	B5	D1	D2	D3	D4	D5	L1	L2	L3	L4	W2
VMEM-S...52...G18	20	11.5	11.5	10	8.5	G⅛	M5	13.5	8	4.4	41.7	25	20	7	5°
VMEM-S...52...G14	25	14.2	14.2	12.5	10.8	G¼	M5	15	10	4.4	52.1	31	25	9.5	5°

Stem actuated valve	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16	H17
VMEM-S...52...G18	93.4±0.4	64	49.5	41.8	32	32	23	22.3	18	14.5	11.8	9.3	7.8	7.1	86.3±0.4	89.4±1	2.5
VMEM-S...52...G14	118.5±0.3	87	68.1	60.1	43.5	43.8	31.4	28.5	24.3	19.5	11	10.1	9	8.3	110.1±0.3	113.7±1.3	3

Dimensions Download CAD data ➔ **www.festo.com**

Stem actuated valve VMEM-SC ... -M52



1 Maximum stroke 2 Start of opening 3 Mounting holes

Stem actuated valve	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3	L1	L2	L3	L4	W2
VMEM-SC...52...G18	20	11.5	11.5	10	9	8.5	8.5	G⅛	M5	4.4	41.7	25	7	3.5	3°
VMEM-SC...52...G14	25	14.2	14.2	12.5	12	10.8	10.8	G¼	M5	4.4	52.1	31	9.5	4.6	3°

Stem actuated valve	H1±0.4	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16±0.4	H17+0.5
VMEM-SC...52...G18	96.9	83.8	64	54.7	49.5	41.8	32	32	23	22.3	18	14.5	13.8	11.8	9.3	95.6	95.1
VMEM-SC...52...G14	119.4	106.8	87.3	77.5	68.1	59.1	43.8	43.5	31.4	28.5	24.3	19.5	13.8	11	10.1	117.8	117.4

Stem actuated valves

Ordering data

Ordering data							
Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Pilot air[1]	Part No.	Type
Stem actuated valve							
80 l/min	3/2-way valve, monostable	Suitable for vacuum	■	Closed	–	**3626**	**V-3-M5**
		Suitable for vacuum	■	Open/closed	–	**10747**	**V/O-3-PK-3**
120 l/min	3/2-way valve, monostable	–	■	Closed	–	**2334**	**VS-3-⅛**
		–	■	Closed	–	**2952**	**VOS-3-⅛**
	4/2-way valve, monostable	–	■	–	–	**3394**	**VS-4-⅛**
140 l/min	3/2-way valve, monostable	Suitable for vacuum	■	Open/closed	–	**4938**	**V/O-3-⅛**
500 l/min	3/2-way valve, monostable	Suitable for vacuum	■	Closed	–	**555618**	**VMEM-ST-M32C-M-G18**
				Open	–	**555619**	**VMEM-ST-M32U-M-G18**
		–	■	Closed	Internal	**555620**	**VMEM-STC-M32C-M-G18**
					External	**555622**	**VMEM-STCZ-M32C-M-G18**
				Open	Internal	**555621**	**VMEM-STC-M32U-M-G18**
					External	**555623**	**VMEM-STCZ-M32U-M-G18**
		Suitable for vacuum, reverse operation	■	–	–	**555624**	**VMEM-S-M52-M-G18**
		(Internal) pneumatic reset	–	–	–	**555625**	**VMEM-S-M52-A-G18**
		Suitable for vacuum, reverse operation, (external) pneumatic reset	–	–	–	**555626**	**VMEM-S-M52-E-G18**
		–	■	–	Internal	**555627**	**VMEM-SC-M52-M-G18**
		Suitable for vacuum, reverse operation		–	External	**555629**	**VMEM-SCZ-M52-M-G18**
		–	–	–	Internal	**555628**	**VMEM-SC-M52-A-G18**
		Suitable for vacuum, reverse operation		–	External	**555630**	**VMEM-SCZ-M52-E-G18**
550 l/min	5/2-way valve, monostable	Suitable for vacuum	■	–	–	**6809**	**V-5-¼-B**
600 l/min	3/2-way valve, monostable	Suitable for vacuum	■	Closed	–	**6808**	**V-3-¼-B**
				Open	–	**9157**	**VO-3-¼-B**
1,000 l/min	3/2-way valve, monostable	Suitable for vacuum	■	Closed	–	**556901**	**VMEM-ST-M32C-M-G14**
				Open	–	**556902**	**VMEM-ST-M32U-M-G14**
	5/2-way valve, monostable	Suitable for vacuum, reverse operation	■	–	–	**556903**	**VMEM-S-M52-M-G14**
		–	–	–	–	**556904**	**VMEM-S-M52-A-G14**
		Suitable for vacuum, reverse operation	–	–	–	**556905**	**VMEM-S-M52-E-G14**
		–	■	–	Internal	**556906**	**VMEM-SC-M52-M-G14**
		Suitable for vacuum, reverse operation			External	**556908**	**VMEM-SCZ-M52-M-G14**
		–	–	–	Internal	**556907**	**VMEM-SC-M52-A-G14**
		Suitable for vacuum, reverse operation			External	**556909**	**VMEM-SCZ-M52-E-G14**

1) With piloted valves

Swivel lever valves

Technical data – Swivel lever valve, standard nominal flow rate 140 l/min

- Flow rate
  140 l/min

- Pressure
  –0.95 ... 8 bar

- Temperature range
  –10 ... +60 °C

Mounting via through-holes

General technical data		
Type		RW/O-3-⅛
Standard nominal flow rate 1 → 2	[l/min]	140
Valve function		3/2-way valve
Design		Disk seat valve, directly actuated
Pneumatic connection		G⅛
Nominal size	[mm]	3.5
Weight	[g]	150
Actuating force at 6 bar	[N]	28.0

Materials	
Seal	NBR
Housing	Anodised aluminium

Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)
Operating pressure range	[bar]	–0.95 ... 8
Temperature of medium	[°C]	–10 ... +60

Technical data – Actuator attachment for swivel lever valve RW/O-3-⅛				
Swivel lever, type		ASK–02 (short)	ASL–02 (long)	ASS–02 (rod)
Actuating force [N]	Max.	7	Dependent on starting height	Dependent on starting height
Weight	[g]	30	35	30

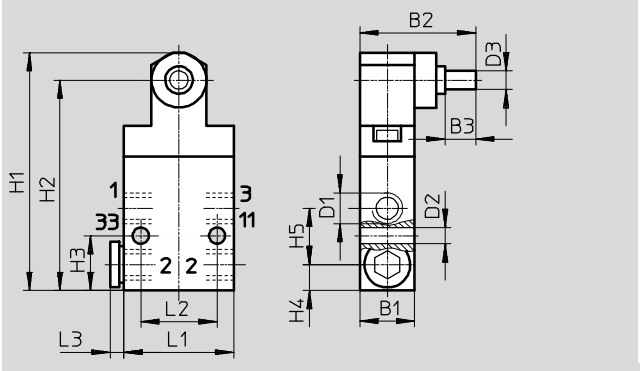
Materials – Swivel lever	
Swivel lever	Aluminium, steel

Swivel lever valves

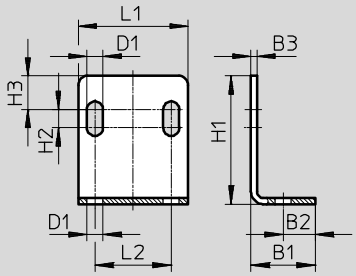
Technical data

Dimensions Download CAD data ➔ **www.festo.com**

Swivel lever valve RW/O-3-⅛



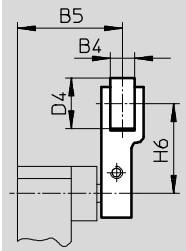
Mounting bracket HV-⅛



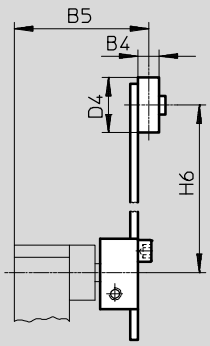
	B1	B2	B3	D1	D2	D3	L1	L2	L3	H1	H2	H3	H4	H5
Swivel lever valve RW/O-3-⅛	18	38	10	G⅛	5.3	6	36	25	4.5	78	69	18	8.5	18.5
Mounting bracket HV-⅛	21	10.5	2	5.3	–	–	36	25	–	42	6	11	–	–

Actuator attachment for swivel lever valve RW/O-3-⅛

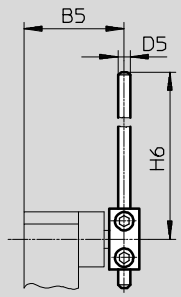
Swivel lever, short ASK-02



Swivel lever, long ASL-02



Swivel lever rod ASS-02



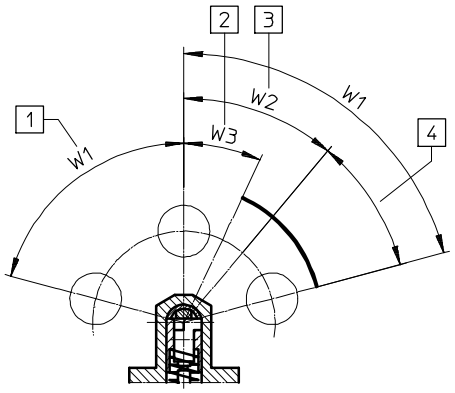
Actuator attachment	B4	B5	D4	D5	D6	H6
ASK-02	8	35	17	–	–	30
ASL-02	7	44	18	–	–	25 ... 85
ASS-02	–	33	–	4	4	30 ... 140

Swivel lever valves

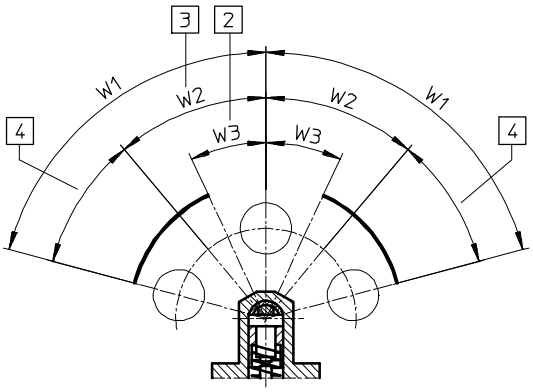
Technical data

Actuating ranges are set by converting the switching head

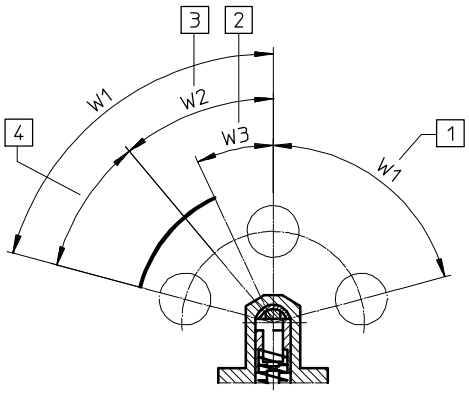
Default settings (upon delivery)



Valve components 1 and 2 turned 90° around the longitudinal axis



Valve components 1 and 2 turned 180° around the longitudinal axis



1 (w1) Idling, or max. angle position (75°)
2 (w3) Start of opening (25° ± 5°)
3 (w2) Max. opening angle (40° ± 5°)
4 Overtravel

Ordering data

Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Part No.	Type
Swivel lever valve						
140 l/min	3/2-way valve, monostable	Suitable for vacuum	■	Open/closed	**4937**	**RW/O-3-⅛**

Ordering data

	Description	Part No.	Type	PU[1]
Actuator attachment				
	For swivel lever valve RW/O-3-⅛, short swivel lever	**5835**	**ASK-02**	**1**
	For swivel lever valve RW/O-3-⅛, long swivel lever	**5836**	**ASL-02**	**1**
	For swivel lever valve RW/O-3-⅛, swivel lever rod	**4789**	**ASS-02**	**1**

1) Packaging unit

Whisker valves

Technical data – Whisker valve, standard nominal flow rate 120 l/min

FESTO

Flow rate
120 l/min

Pressure
3.5 ... 8 bar

Temperature range
–10 ... +60 °C

Mounting via through-holes

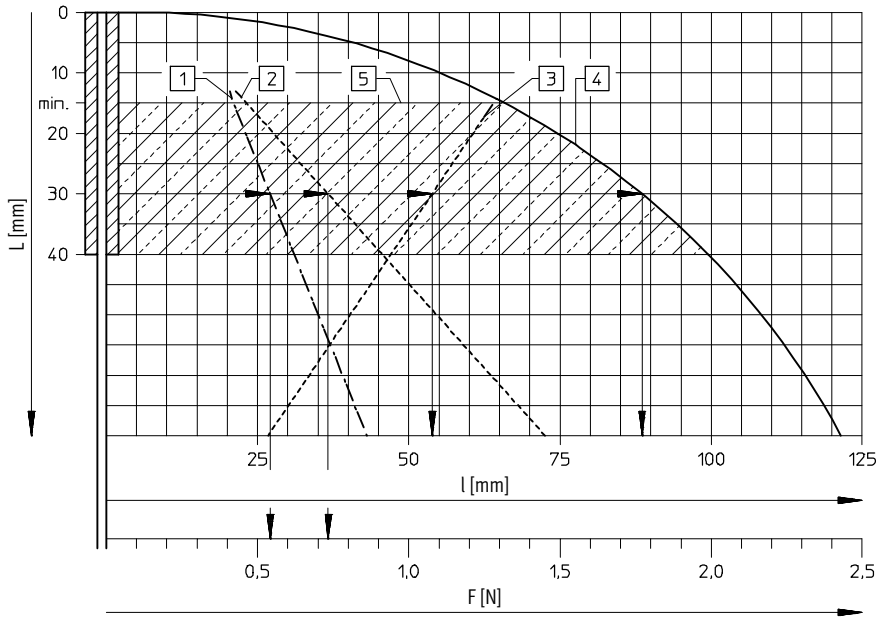
General technical data		
Type		Whisker valve FVS, FVSO
Standard nominal flow rate 1 → 2	[l/min]	120
Valve function		3/2-way valve
Design		Disk seat valve, piloted
Pneumatic connection		G⅛
Nominal size	[mm]	3.5
Weight	[g]	130
Actuating force at 6 bar	[N]	➔ Graph
Repetition accuracy of switching point	[mm]	±0.1

Materials	
Seal	NBR
Housing	Anodised aluminium

Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)
Operating pressure range	[bar]	3.5 ... 8
Temperature of medium	[°C]	–10 ... +60
Ambient temperature	[°C]	–10 ... +60

Switching forces F and switching travel l at 6 bar as a function of approach distance L

Whisker valve



This piloted valve with extremely low actuating forces is particularly suited for systems where dissimilar parts or actuating elements without precision positioning are to be sensed, or where the actuating levels are different. The whisker can be approached from any direction perpendicular to the whisker axis, or can be passed.

1 Switching force
2 Passing force
3 Switching travel
4 Overtravel
5 Permissible approach range

Example:

A distance of 30 mm from the end of the spring results in:

Switching travel 54 mm
Switching force 0.57 N

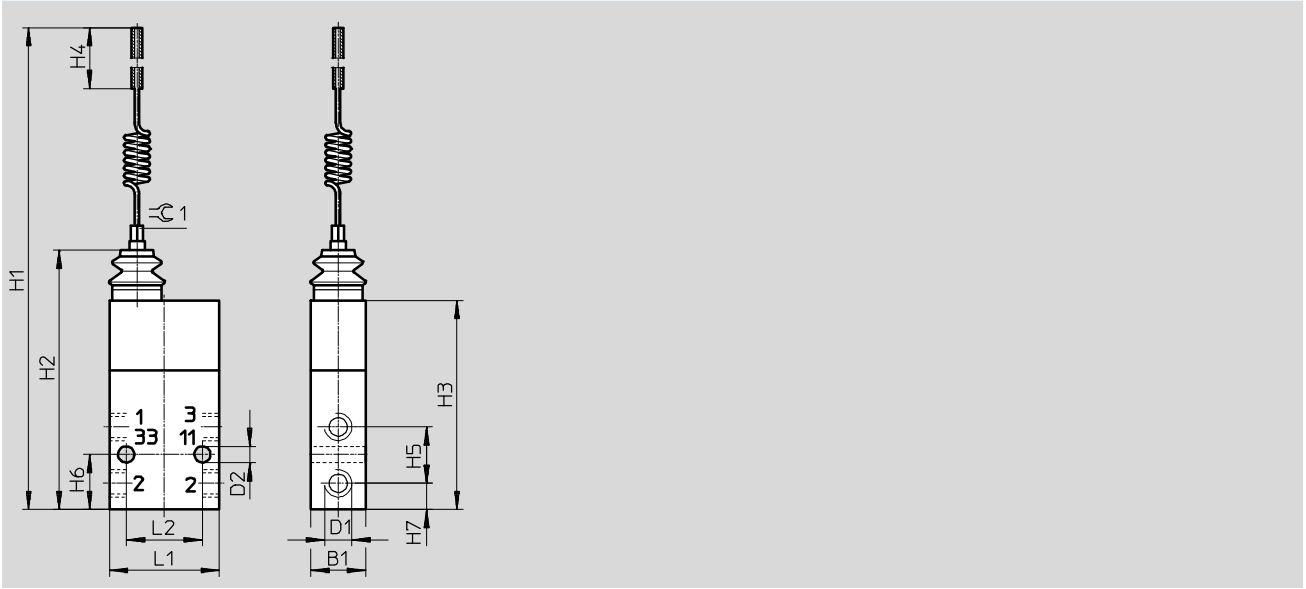
Overtravel 88 mm
Passing force 0.75 N

Whisker valves

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

Whisker valve FVS, FVSO



Whisker valve	B1	D1	D2	H1	H2	H3	H4 max.	H5	H6	H7	L1	L2	1
FVS, FVSO	18	G⅛	5.3	220	85	68.5	40	18.5	18	8.5	36	25	4

Ordering data

Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Pilot air[1)]	Part No.	Type
Whisker valve							
120 l/min	3/2-way valve, monostable	Whisker valve	■	Closed	Internal	**3876**	**FVS-3-⅛**
				Open	Internal	**3877**	**FVSO-3-⅛**

1) With piloted valves

Roller lever valves with idle return, toggle lever valves

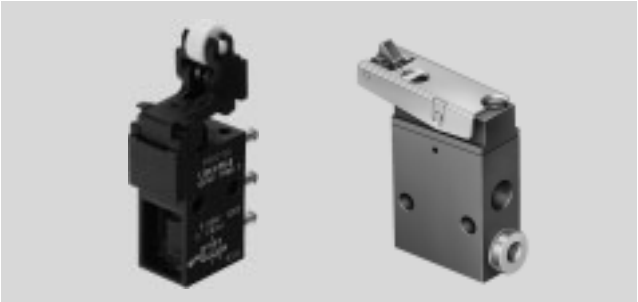
Technical data – Roller lever valve with idle return, toggle lever valve, standard nominal flow rate 80 … 120 l/min

- Flow rate
  80 … 600 l/min

- Pressure
  –0.95 … 8 bar

- Temperature range
  –10 … +60 °C

Mounting via through-holes



General technical data					
Type		L/O-3-PK-3	L-3-M5	LS-3-⅛ LOS-3-⅛	LS-4-⅛
Version		Roller lever valve with idle return	Roller lever valve with idle return	Toggle lever valve	Toggle lever valve
Standard nominal flow rate 1 → 2	[l/min]	80		120	
Valve function		3/2-way valve		3/2-way valve	4/2-way valve
Design		Disk seat valve, directly actuated		Disk seat valve, piloted	Disk seat valve, piloted
Pneumatic connection		PK-3 (barbed fitting for plastic tubing with 3 mm nominal diameter)	M5	G⅛	G⅛
Nominal size	[mm]	2.5	2	3.5	3.5
Weight	[g]	19	43	110	220
Actuating force • at 6 bar	[N]	–	16.5	–	2.2
• with normally closed position	[N]	10.0	–	1.8	–
• with normally open position	[N]	13.0	–	1.8	–

Materials					
Type		L/O-3-PK-3	L-3-M5	LS-3-⅛ LOS-3-⅛	LS-4-⅛
Seal		NBR			
Housing		POM	Die-cast zinc	Anodised aluminium	Anodised aluminium

Operating and environmental conditions					
Type		L/O-3-PK-3	L-3-M5	LS-3-⅛ LOS-3-⅛	LS-4-⅛
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]			
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)			
Operating pressure range	[bar]	0 … 8	–0.95 … 8	3.5 … 8	3.5 … 8
Ambient temperature	[°C]	–10 … +60			

Roller lever valves with idle return, toggle lever valves

Technical data – Roller lever valve with idle return, toggle lever valve, standard nominal flow rate 550 … 600 l/min

General technical data			
Type		L-5-¼-B	L-3-¼-B LO-3-¼-B
Version		Toggle lever valve	Toggle lever valve
Standard nominal flow rate 1 → 2	[l/min]	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		G¼	G¼
Nominal size	[mm]	7.0	7.0
Weight	[g]	360	250
Actuating force	[N]	53.0	15.0 [1)] 38.0

1) Value 15.0 with normally closed valve, value 38.0 with normally open valve

Materials	
Seal	NBR
Housing	Die-cast aluminium

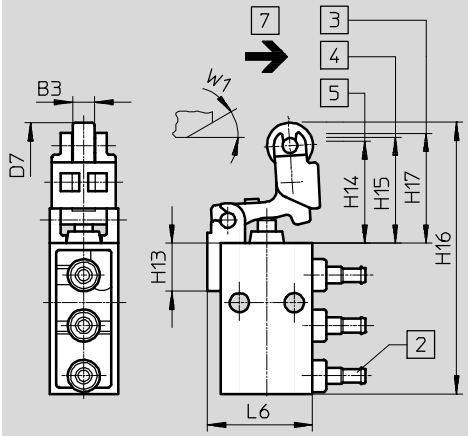
Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)
Operating pressure range	[bar]	–0.95 … 10
Ambient temperature	[°C]	–10 … +60

Roller lever valves with idle return, toggle lever valves

Technical data

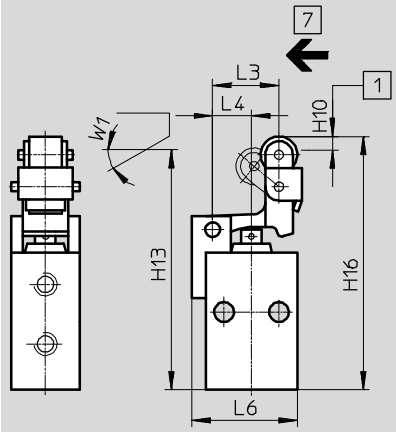
Dimensions Download CAD data ➔ **www.festo.com**

Roller lever valve with idle return L/O-3-PK-3



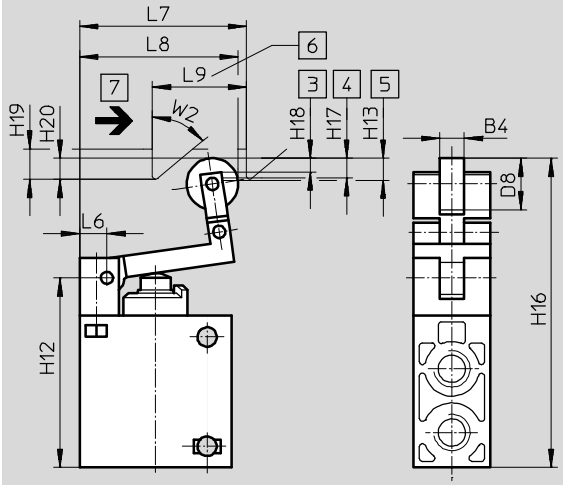
2 Barbed fitting for tubing I.D. 3 mm
3 Max. opening
4 Start of opening
5 Max. stroke
7 Actuation direction

Roller lever valve with idle return L-3-M5



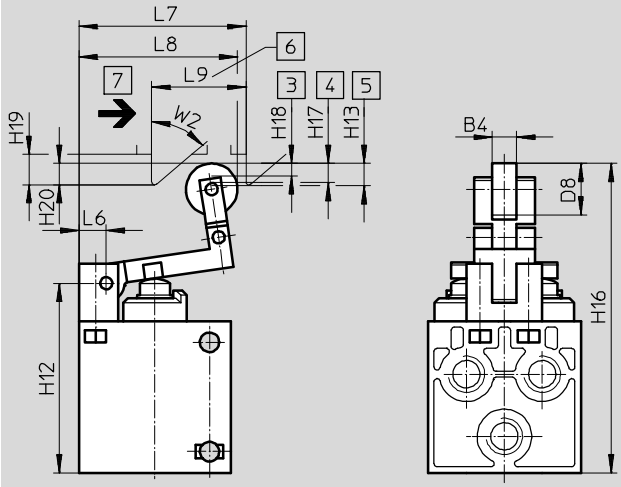
1 Switching travel
7 Actuation direction

Roller lever valve with idle return L-3-¼-B, LO-3-¼-B



3 Start of opening
4 Max. opening
5 Max. stroke
6 Cam operating path
7 Actuation direction

Roller lever valve with idle return L-5-¼-B



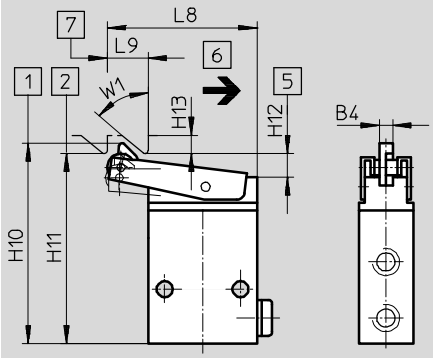
3 Start of opening
4 Max. opening
5 Max. stroke
6 Cam operating path
7 Actuation direction

Roller lever valve with idle return	B3	B4	D7	D8	L3	L4	L6	L7	L8	L9
L/O-3-PK-3	4.8	–	10	–	–	–	23	–	–	–
L-3-M5	–	–	–	–	14.5	8.5	23	–	–	–
L-3-¼-B, LO-3-¼-B	–	8	–	17	–	–	9	55	54	31
L-5-¼-B	–	8	–	17	–	–	9	55	54	31

Roller lever valve with idle return	H10	H12	H13	H14	H15	H16	H17	H18	H19	H20	W1	W2
L/O-3-PK-3	–	–	10.5	22.3	23.2	59.5	24	–	–	–	30°	–
L-3-M5	3	–	52.5	–	–	55.5	–	–	–	–	30°	–
L-3-¼-B, LO-3-¼-B	–	62.5	7.4	–	–	102	6.3	4.1	10	7	–	50°
L-5-¼-B	–	62.5	7.4	–	–	102	6.3	4.1	10	7	–	50°

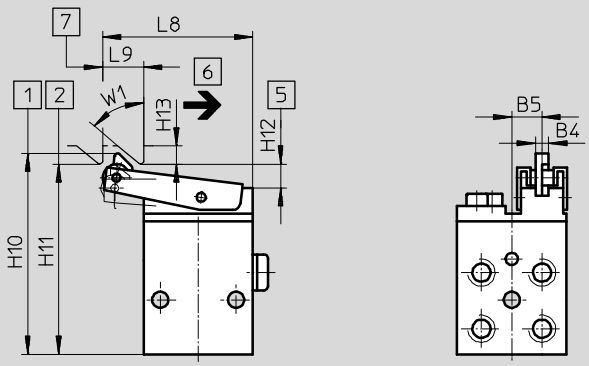
Dimensions Download CAD data ➔ **www.festo.com**

Toggle lever valve LS-3-⅛, LOS-3-⅛



1 Initial position
2 ON position
5 Bottom edge of control rail or cam
6 Idle return
7 Min. switching travel

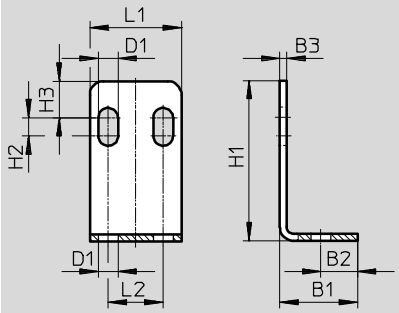
Toggle lever valve LS-4-⅛



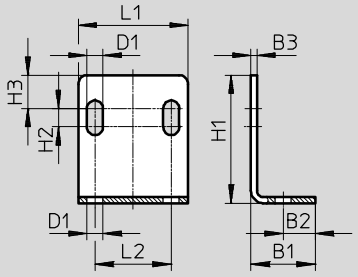
1 Initial position
2 ON position
5 Bottom edge of control rail or cam
6 Idle return
7 Min. switching travel

Toggle lever valve	B4	B5	L8	L9	H10	H11	H12 +0.2, −0.3	H13	W1
LS-3-⅛, LOS-3-⅛	4.4	–	49.5	13.5	66	62.5	7.5	6	50°
LS-4-⅛	4.4	9	49.5	13.5	66	62.5	7.5	6	50°

Mounting bracket HV-M5



Mounting bracket HV-⅛



Mounting bracket	B1	B2	B3	D1	L1	L2	H1	H2	H3
HV-M5	17	8	1.5	4.3	20	12	35	4	8
HV-⅛	21	10.5	2	5.3	36	25	42	6	11

Roller lever valves with idle return, toggle lever valves

Ordering data

Ordering data						
Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Part No.	Type
Toggle lever valve						
120 l/min	3/2-way valve, monostable	Toggle lever valve	■	Closed	**2186**	**LS-3-⅛**
				Open	**2950**	**LOS-3-⅛**
	4/2-way valve, monostable	Toggle lever valve	■	–	**3416**	**LS-4-⅛**
Roller lever valve with idle return						
80 l/min	3/2-way valve, monostable	Roller lever valve with idle return	■	Open/closed	**10749**	**L/O-3-PK-3**
		Roller lever valve with idle return, suitable for vacuum		Closed	**3628**	**L-3-M5**
550 l/min	5/2-way valve, monostable	Roller lever valve with idle return, suitable for vacuum	■	–	**8993**	**L-5-¼-B**
600 l/min	3/2-way valve, monostable	Roller lever valve with idle return, suitable for vacuum	■	Closed	**8982**	**L-3-¼-B**
				Open	**8989**	**LO-3-¼-B**

Ordering data				
	Description	Part No.	Type	PU[1]
Actuator attachment				
	For roller lever valve with idle return L-3-M5, roller lever with idle return with mounting screws	**6513**	**AL-05**	**1**

1) Packaging unit

Roller lever valves, roller actuated valves

Technical data – Roller lever valve, roller actuated valve, standard nominal flow rate 80 … 120 l/min

FESTO

Flow rate
80 … 500 l/min

Pressure
–0.95 … 10 bar

Temperature range
–10 … +60 °C

Mounting either via through-holes or on front panel

General technical data					
Type		R/O-3-PK-3	R-3-M5	RS-3-⅛ ROS-3-⅛	RS-4-⅛
Version		Roller lever valve	Roller lever valve	Roller lever valve	Roller lever valve
Standard nominal flow rate 1 → 2	[l/min]	80		120	
Valve function		3/2-way valve		3/2-way valve	4/2-way valve
Design		Disk seat valve, directly actuated		Disk seat valve, piloted	
Pneumatic connection		PK-3 (barbed fitting for plastic tubing with 3 mm nominal diameter)	M5	G⅛	G⅛
Nominal size	[mm]	2.5	2	3.5	3.5
Weight	[g]	18	40	120	230
Actuating force	[N]	–	16.5	1.8	1.8
• at 6 bar					
• with normally closed position	[N]	10.0	–	–	–
• with normally open position	[N]	15.0	–	–	–

Materials					
Type		R/O-3-PK-3	R-3-M5	RS-3-⅛ ROS-3-⅛	RS-4-⅛
Seal		NBR			
Housing		POM	Die-cast zinc	Anodised aluminium	Anodised aluminium

Operating and environmental conditions					
Type		R/O-3-PK-3	R-3-M5	RS-3-⅛ ROS-3-⅛	RS-4-⅛
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]			
Note about operating/pilot medium		Lubricated operation possible (required during subsequent operation)			
Operating pressure range	[bar]	0 … 8	–0.95 … 8	3.5 … 8	3.5 … 8
Ambient temperature	[°C]	–10 … +60			

Technical data – Actuator attachment			
Type		AR-01	AL-01
Version		Roller lever	Roller lever with idle return
Actuating force [N]	Max.	10	12
Weight	[g]	42	52

Materials – Actuator attachment	
Actuator attachment	Galvanised steel

Roller lever valves, roller actuated valves

Technical data – Roller lever valve, roller actuated valve, standard nominal flow rate 550 … 600 l/min

General technical data			
Type		R-5-¼-B	R-3-¼-B RO-3-¼-B
Version		Roller lever valve	Roller lever valve
Standard nominal flow rate 1 → 2	[l/min]	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		G¼	G¼
Nominal size	[mm]	7.0	7.0
Weight	[g]	340	230
Actuating force	[N]	35.0	10.0 [1] 26.0

1) Value 10.0 with normally closed valve, value 26.0 with normally open valve

Materials	
Seal	NBR
Housing	Die-cast aluminium

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

Roller lever valves, roller actuated valves

Technical data – Roller lever valve, roller actuated valve, standard nominal flow rate 500 l/min

General technical data			
Type		VMEM-DT	VMEM-D
Standard nominal flow rate 1 ⇢ 2	[l/min]	500	
Valve function		3/2-way valve	5/2-way valve
Reset method		Mechanical spring	Mechanical or pneumatic spring
Design		Disk seat valve, directly actuated	Piston spool valve, directly actuated
Pneumatic connection		G⅛	G⅛
Pilot air supply		–	–
Nominal size	[mm]	4.0	4.0
Weight	[g]	160	176
Max. switching frequency	[Hz]	2	2
Max. actuating speed			
• Axial actuation	[m/s]	0.6	0.6
• Lateral actuation	[m/s]	0.2	0.2
Actuating force	[N]	90 [1] 130	27.5 [2] 41
Max. actuating force	[N]	80	150
Max. lateral force	[N]	30	30

1) Value 90 with normally closed valve, value 130 with normally open valve
2) Value 27.5 with mechanical spring reset method, value 41 with pneumatic spring reset method

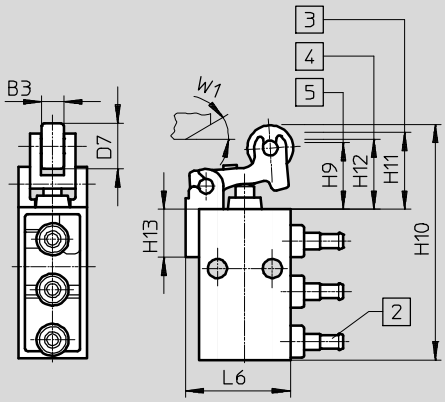
Materials	
Cover	PA
Seal	NBR
Housing	Anodised wrought aluminium alloy
Note on materials	RoHS-compliant

Operating and environmental conditions				
Type		VMEM-DT	VMEM-D	
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]		
Note on operating/ pilot medium	[µm]	Lubricated operation possible (required during subsequent operation)		
Operating pressure range	[bar]	–0.95 ... 8	–0.95 ... 10 [1]	2.5 ... 10 [2]
Pilot pressure	[bar]	–	2.5 ... 10 [3]	
Temperature of medium	[°C]	–10 ... +60		
Ambient temperature	[°C]	–10 ... +60		
Corrosion resistance class CRC [4]		2		

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)
3) With VMEM-D ... E ...
4) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

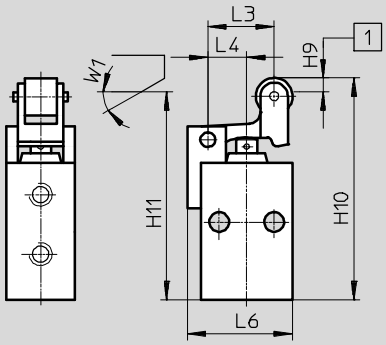
Dimensions Download CAD data ➔ **www.festo.com**

Roller lever valve R/O-3-PK-3



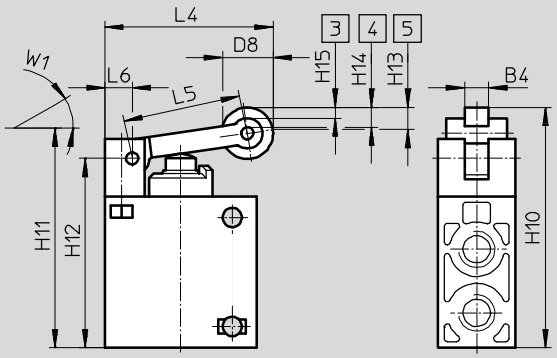
2 Barbed fitting for tubing I.D. 3 mm
3 Max. opening
4 Start of opening
5 Max. stroke

Roller lever valve R-3-M5



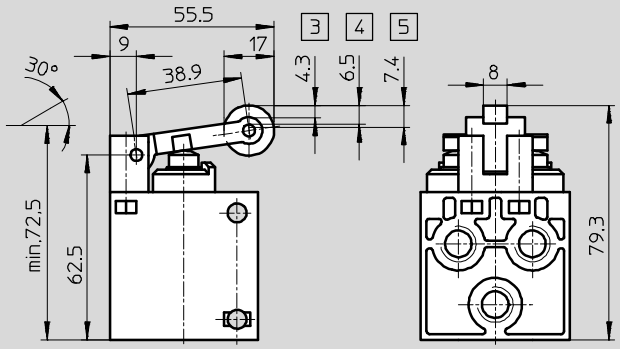
1 Switching travel

Roller lever valve R-3-¼-B, RO-3-¼-B



3 Start of opening
4 Max. opening
5 Max. stroke

Roller lever valve R-5-¼-B



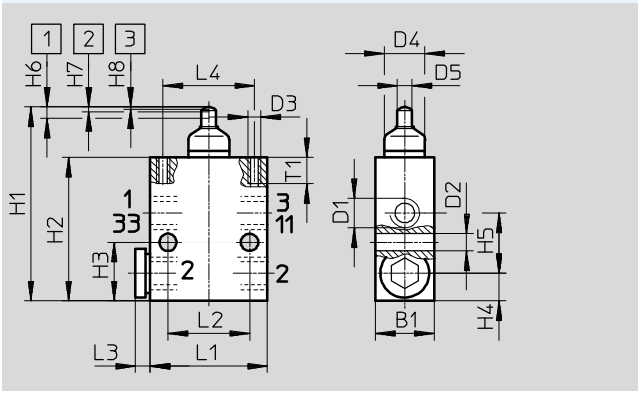
3 Start of opening
4 Max. opening
5 Max. stroke

Roller lever valve	B3	B4	D7	D8	L3	L4	L5	L6
R/O-3-PK-3	4.8	–	10	–	–	–	–	23
R-3-M5	–	–	–	–	14.5	8.5	–	23
R-3-¼-B, RO-3-¼-B	–	8	–	17	–	55.5	39	9
R-5-¼-B	–	8	–	17	–	55.5	39	9

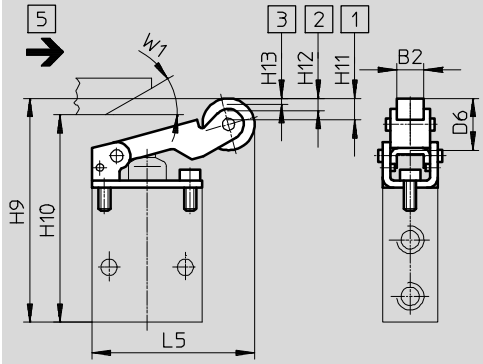
Roller lever valve	H9	H10	H11	H12	H13	H14	H15	W1
R/O-3-PK-3	14.5	14.3	16.8	18.5	10.5	–	–	30°
R-3-M5	3	48.5	45.5	–	–	–	–	30°
R-3-¼-B, RO-3-¼-B	–	79.3	min. 72.5	62.5	7.4	6.5	4.3	30°
R-5-¼-B	–	79.3	min. 72.5	62.5	7.4	6.5	4.3	30°

Dimensions Download CAD data ➔ **www.festo.com**

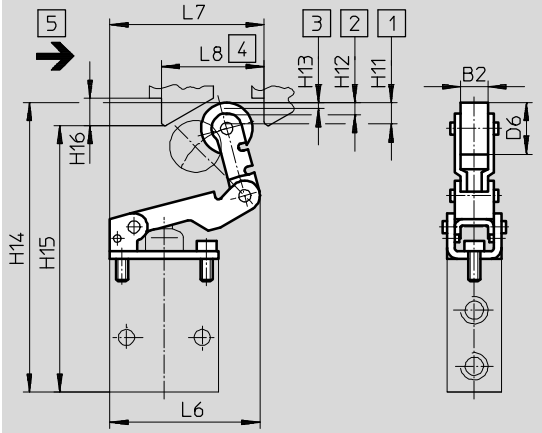
Basic valve, stem actuated valve V/O-3-⅛



Roller lever AR-01 as actuator attachment for stem actuated valve V/O-3-⅛



Roller lever with idle return AL-01 as actuator attachment for stem actuated valve V/O-3-⅛



1 Max. stroke
2 Max. opening
3 Start of opening
4 Min. actuation stroke
5 Actuation direction

Note

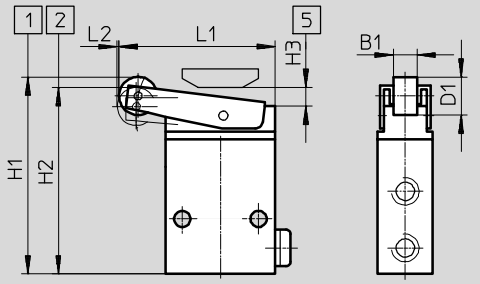
The stem actuated valve V/O-3-⅛ can be extended with an actuator attachment for the roller lever or toggle lever valve. The technical data is listed with the stem actuated valve.

Stem actuated valve	B1	D1	D2	D3	D4	D5	L1	L2	L3	L4	H1	H2	H3	H4	H5	H6	H7 ±0.2	H8 ±0.2	T1
V/O-3-⅛	18	G⅛	5.3	M4	12.5	4.5	36	25	4.5	28	59.5	44	18	8.5	18.5	3.5	1.4	0.6	8

Actuator attachment	B2	D6	L5	L6	L7	L8	H9	H10 min.	H11	H12 +0.2	H13 +0.2	H14	H15 min.	H16	W1
AR-01	8	17	54	–	–	–	71	64	7	4	2	–	–	–	30°
AL-01	8	17	–	50.5	51	34	–	–	7	4	2	93.5	86.5	9	–

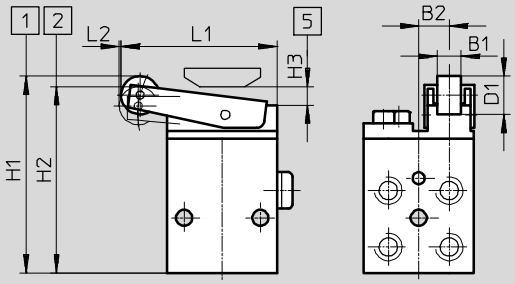
Dimensions Download CAD data ➔ **www.festo.com**

Roller lever valve RS-3-⅛, ROS-3-⅛



1 Initial position
2 ON position
5 Bottom edge of control rail or cam

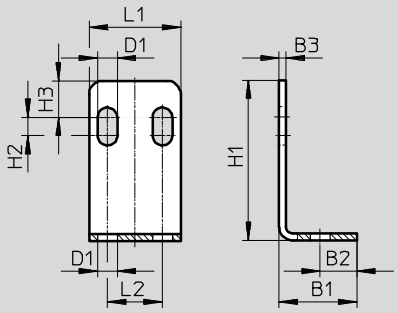
Roller lever valve RS-4-⅛



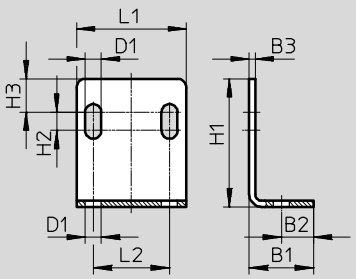
1 Initial position
2 ON position
5 Bottom edge of control rail or cam

Roller lever valve	B1	B2	D1	L1	L2	H1	H2	H3 +0.2, −0.3
RS-3-⅛, ROS-3-⅛	7.7	–	12.5	51.5	0.5	64.5	61	6
RS-4-⅛	7.7	9	12.5	51.5	0.5	64.5	61	6

Mounting bracket HV-M5



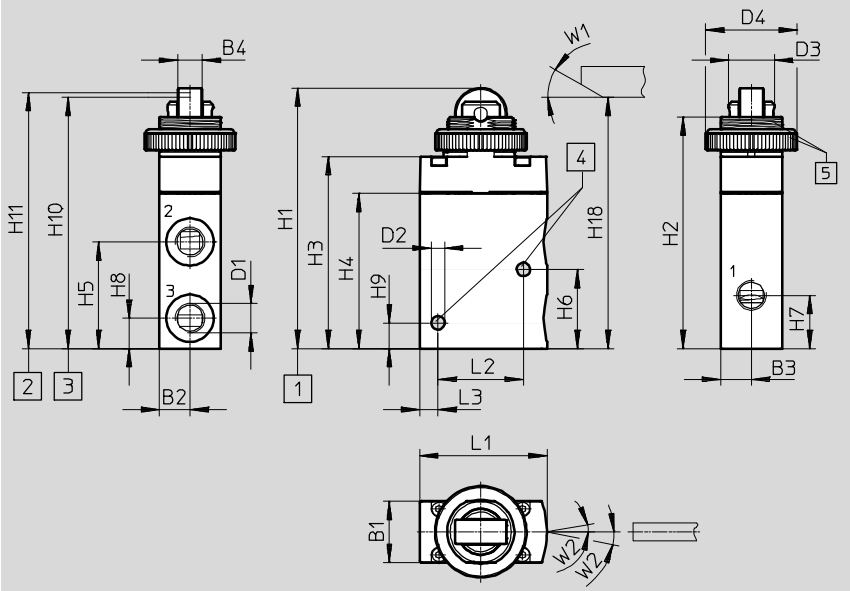
Mounting bracket HV-⅛



Mounting bracket	B1	B2	B3	D1	L1	L2	H1	H2	H3
HV-M5	17	8	1.5	4.3	20	12	35	4	8
HV-⅛	21	10.5	2	5.3	36	25	42	6	11

Dimensions Download CAD data ➔ **www.festo.com**

Roller actuated valve VMEM-DT...32...G18



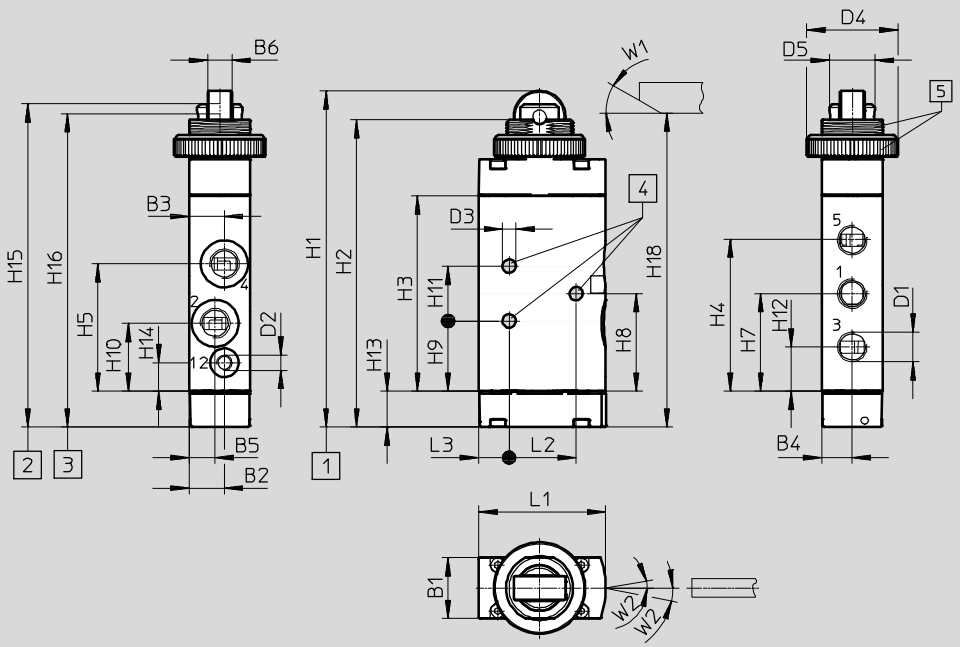
1 Maximum stroke
2 Start of opening
3 ON position
4 Mounting holes
5 Thread and nut (M22x1)

Roller actuated valve	B1	B2	B3	B4	D1	D2	D3	D4	L1	L2	L3	W1	W2
VMEM-DT...32...G18	20	10	10	8	G⅛	4.4	15	30	41.7	28	6	30°	5°

Roller actuated valve	H1±0.3	H2	H3	H4	H5	H6	H7	H8	H9	H10±0.4	H11±0.3	H18±0.3
VMEM-DT...32...G18	85.8	76	63	51	35	26	18	10	8.5	82.6	84	82.5

Dimensions Download CAD data ➔ **www.festo.com**

Roller actuated valve VMEM-D...52...G18



1 Maximum stroke
2 Start of opening
3 ON position
4 Mounting holes
5 Thread and nut (M22x1)

Roller actuated valve	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	D5	L1	L2	L3	W1	W2
VMEM-D...52...G18	20	11.5	11.5	10	8.5	8	G⅛	M5	4.4	30	15	41.7	25	7	30°	5°

Roller actuated valve	H1±0.2	H2	H3	H4	H5	H7	H8	H10	H11	H12	H13	H14	H15	H16±1	H17±0.4	H18±0.2
VMEM-D...52...G18	110.6	101.1	64	49.5	41.8	32	32	23	22.3	18	14.5	11.8	9.3	106.6	104	103

Roller lever valves, roller actuated valves

Ordering data

Ordering data						
Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Part No.	Type
Roller lever valve						
80 l/min	3/2-way valve, monostable	Roller lever valve	■	Open/closed	**10748**	**R/O-3-PK-3**
				Closed	**3629**	**R-3-M5**
120 l/min	3/2-way valve, monostable	Roller lever valve	■	Closed	**2272**	**RS-3-⅛**
				Open	**2270**	**ROS-3-⅛**
	4/2-way valve, monostable	Roller lever valve	■	–	**2949**	**RS-4-⅛**
550 l/min	5/2-way valve, monostable	Roller lever valve, suitable for vacuum	■	–	**8996**	**R-5-¼-B**
600 l/min	3/2-way valve, monostable	Roller lever valve, suitable for vacuum	■	Closed	**8985**	**R-3-¼-B**
				Open	**8991**	**RO-3-¼-B**
Roller actuated valve						
500 l/min	3/2-way valve, monostable	Roller actuated valve, suitable for vacuum	■	Closed	**563386**	**VMEM-DT-M32C-M-G18**
				Open	**563387**	**VMEM-DT-M32U-M-G18**
	5/2-way valve, monostable	Roller actuated valve, suitable for vacuum, reverse operation	■	–	**563390**	**VMEM-D-M52-M-G18**
		Roller actuated valve	–	–	**563388**	**VMEM-D-M52-A-G18**
		Roller actuated valve, suitable for vacuum, reverse operation	–	–	**563389**	**VMEM-D-M52-E-G18**

Ordering data				
	Description	Part No.	Type	PU[1]
Actuator attachment				
	For stem actuated valve V/O-3-⅛, roller lever	**4936**	**AR-01**	**1**
	For stem actuated valve V/O-3-⅛, roller lever with idle return	**4941**	**AL-01**	**1**
	For roller lever valve R-3-M5, roller lever with mounting screws	**6512**	**AR-05**	**1**

1) Packaging unit

Ball actuated valves

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

- Flow rate
  500 l/min

- Pressure
  0.95 … 10 bar

- Temperature range
  –10 … +60 °C

Mounting either via through-holes or on front panel

General technical data					
Type		VMEM-BTC	VMEM-BTCZ	VMEM-BC	VMEM-BCZ
Standard nominal flow rate 1 → 2	[l/min]	500			
Valve function		3/2-way valve	5/2-way valve	5/2-way valve	
Reset method		Mechanical spring		Mechanical or pneumatic spring	
Design		Disk seat valve, piloted		Piston spool valve, piloted	
Pneumatic connection		G1/8		G1/8	
Pilot air supply		Internal	External	Internal	External
Nominal size	[mm]	4.0		4.0	
Weight	[g]	148		182	
Max. switching frequency	[Hz]	3		3	
Max. actuating speed					
• Axial actuation	[m/s]	0.6		0.6	
• Lateral actuation	[m/s]	0.2		0.2	
Actuating force	[N]	44		44	
Max. actuating force	[N]	80		150	
Max. lateral force	[N]	30		30	

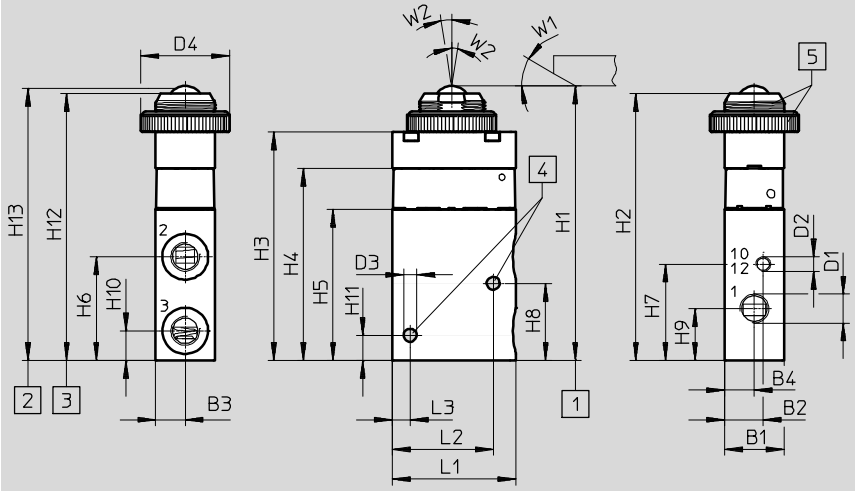
Materials	
Cover	Anodised wrought aluminium alloy
Seal	NBR
Housing	Anodised wrought aluminium alloy
Note on materials	RoHS-compliant

Operating and environmental conditions					
Type		VMEM-BTC	VMEM-BTCZ	VMEM-BC	VMEM-BCZ
Operating medium		Compressed air to ISO 8573-1:2010 [7:–:–]			
Note on operating/pilot medium		Lubricated operation possible (required during subsequent operation)			
Operating pressure range	[bar]				
N/C valves		3.5 … 8	–0.95 … 8	–	–
N/O valves		4.5 … 8	–0.95 … 8	2.5 … 10 [2]	–0.95 … 10 [1]
Pilot pressure	[bar]				
N/C valves		–	3.5 … 8	–	–
N/O valves		–	4.5 … 8	–	2.5 … 10
Temperature of medium	[°C]	–10 … +60			
Ambient temperature	[°C]	–10 … +60			
Corrosion resistance class CRC [3]		2			

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)
3) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Dimensions Download CAD data ➔ **www.festo.com**

Ball actuated valve VMEM-BTC...32...G18

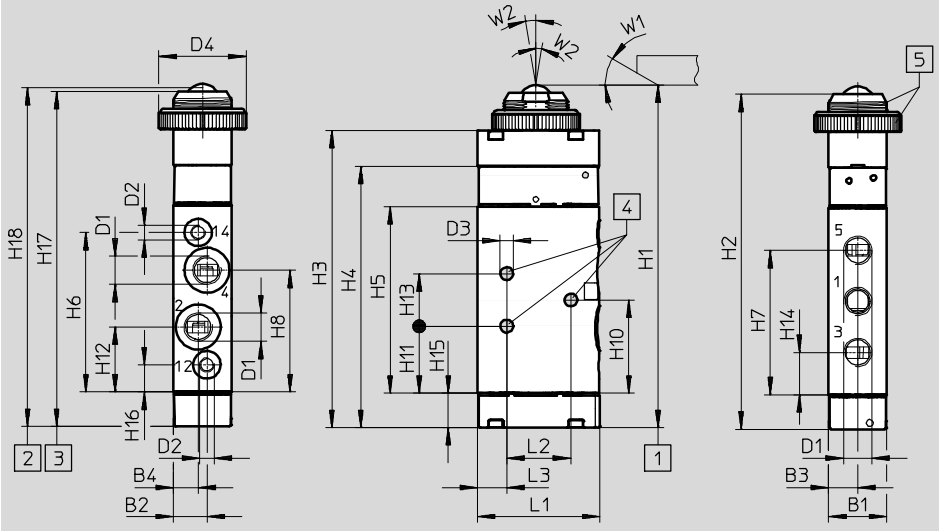


1 Maximum stroke
2 Start of opening
3 ON position
4 Mounting holes
5 Thread and nut (M22x1)

Ball actuated valve	B1	B2	B3	B4	D1	D2	D3	D4	L1	L2	L3	W1	W2
VMEM-BTC...32...G18	20	13	10	10	G⅛	M5	4.4	30	41.7	28	6	30°	2°

Ball actuated valve	H1±0.3	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12±0.4	H13±0.3
VMEM-BTC...32...G18	92.8	90.1	77.1	64.8	51	35	32.5	26	17.5	10	8.5	90	91

Ball actuated valve VMEM-BC/BCZ...52...G18



1 Maximum stroke
2 Start of opening
3 ON position
4 Mounting holes
5 Thread and nut (M22x1)

Ball actuated valve	B1	B2	B3	B4	D1	D2	D3	D4	L1	L2	L3	H1±0.2	H2	H3	H4
VMEM-BC/BCZ...52...G18	20	11.5	10	8.5	G⅛	M5	4.4	30	41.7	25	7	117.3	114.9	101.9	89.6

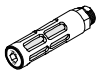
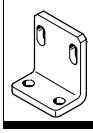
Ball actuated valve	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16	H17±0.2	H18±0.2	W1	W2
VMEM-BC/BCZ...52...G18	64	54.7	49.5	41.8	32	32	23	22.3	18	14.5	11.8	9.3	115	115.7	30°	2°

Ball actuated valves

Ordering data

Ordering data							
Nominal flow rate	Valve function	Description	Mechanical reset	Normal position	Pilot air[1]	Part No.	Type
Ball actuated valve							
500 l/min	3/2-way valve, monostable	Ball actuated valve	■	Closed	Internal	**563772**	**VMEM-BTC-M32C-M-G18**
		Ball actuated valve, suitable for vacuum		Closed	External	**563773**	**VMEM-BTCZ-M32C-M-G18**
		Ball actuated valve	■	Open	Internal	**563774**	**VMEM-BTC-M32U-M-G18**
		Ball actuated valve, suitable for vacuum		Open	External	**563775**	**VMEM-BTCZ-M32U-M-G18**
	5/2-way valve, monostable	Ball actuated valve	■	–	Internal	**563776**	**VMEM-BC-M52-M-G18**
		Ball actuated valve, suitable for vacuum, reverse operation		–	External	**563779**	**VMEM-BCZ-M52-M-G18**
		Ball actuated valve	–	–	Internal	**563778**	**VMEM-BC-M52-A-G18**
		Ball actuated valve, suitable for vacuum, reverse operation		–	External	**563780**	**VMEM-BCZ-M52-E-G18**

1) With piloted valves

Ordering data					
	Description		Part No.	Type	PU[1]
Push-in fitting with external hex (Mini version)					
	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 G⅛ for tubing O.D.	4 mm	**186264**	**QSM-G⅛-4**	**10**
		6 mm	**186265**	**QSM-G⅛-6**	**10**
Push-in fitting with external hex (Standard version)					
	Connecting thread G⅛ for tubing O.D.	4 mm	**186095**	**QS-G⅛-4**	**10**
		6 mm	**186096**	**QS-G⅛-6**	**10**
	Connecting thread G¼ for tubing O.D.	6 mm	**186097**	**QS-G¼-6**	**10**
		8 mm	**186099**	**QS-G¼-8**	**10**
		10 mm	**186101**	**QS-G¼-10**	**10**
Push-in fitting with internal hex (Mini version)					
	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 G⅛ for tubing O.D.	4 mm	**186266**	**QSM-G⅛-4-I**	**10**
		6 mm	**186267**	**QSM-G⅛-6-I**	**10**
Push-in fitting with internal hex (Standard version)					
	Connecting thread G⅛ for tubing O.D.	4 mm	**186106**	**QS-G⅛-4-I**	**10**
		6 mm	**186107**	**QS-G⅛-6-I**	**10**
		8 mm	**186109**	**QS-G⅛-8-I**	**10**
	Connecting thread G¼ for tubing O.D.	6 mm	**186108**	**QS-G¼-6-I**	**10**
		8 mm	**186110**	**QS-G¼-8-I**	**10**
		10 mm	**186112**	**QS-G¼-10-I**	**10**
Silencer					
	Connecting thread	G⅛	**2307**	**U-⅛**	**1**
			161419	**UC-⅛**	**1**
		G¼	**2316**	**U-¼**	**1**
			6842	**U-¼-B**	**1**
			165004	**UC-¼**	**1**
Mounting bracket					
	For valves with push-in connector and threaded connection M5	11 g	**9634**	**HV-M5**	**1**
	For valves with push-in connector and threaded connection G⅛	32 g	**9635**	**HV-⅛**	**1**

1) Packaging unit