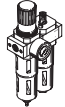
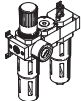
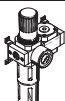

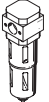
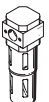

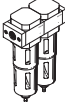
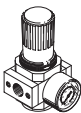


On/off / soft-start valves HE/HEE/HEP/HEL, D series

FESTO



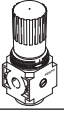
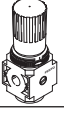
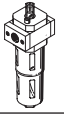
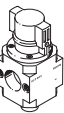
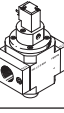
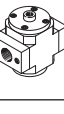

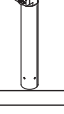


Product range overview – Service unit components, D series, metal

Type	Size	Pneumatic connection										Pressure regulation range [bar]			Grade of filtration [µm]				
		M5	M7	G1/8	G1/4	G3/8	G1/2	G3/4	G1	QS4	QS6	0.5 ...	0.5 ...	2.5 ...	0.01	1	5	40	
Service units																			
FRC/FRCS 	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■	■	
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	■	■	
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	■	■	
FRC-K 	Mini	-	-	■	■	-	-	-	-	-	-	■	■	-	-	-	-	■	
	Midi	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	-	■	
	Maxi	-	-	-	-	-	■	■	-	-	-	■	■	-	-	-	-	■	
LFR-K 	Mini	-	-	■	■	-	-	-	-	-	-	■	■	-	-	-	-	■	
	Midi	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	-	■	
	Maxi	-	-	-	-	-	■	■	-	-	-	■	■	-	-	-	-	■	
Individual devices																			
Filter regulators LFR/LFRS 	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■	■	
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	■	■	
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	■	■	
Filters LF 	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	■	■	
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	-	■	■
Fine and micro filters LFMA/LFMB 	Mini	-	-	■	■	■	-	-	-	-	-	-	-	■	■	-	-	-	
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	■	■	-	-	-	
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	
Activated carbon filters LFX 	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-	
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	-	-	
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	-	-	
Filter combinations LFMB 	Mini	-	-	■	■	■	-	-	-	-	-	-	-	■	■	-	-	-	
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	■	■	-	-	-	
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	
Druckregelventile LR/LRS 	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	-	-	
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	-	-	
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	-	-	

Product range overview – Service unit components, D series, metal

Type	Size	Bowl guard		Condensate drain			Pressure indicator		Actuator lock		Supply voltage			Options			→ Page/ Internet
		Metal bowl guard	Plastic bowl	Manual	Semi-automatic	Fully automatic	With pressure gauge	Without pressure gauge	Rotary knob with latch	Rotary knob with integrated lock	24 V DC	110 V AC	230 V AC	Directly actuated pressure regulator with integrated return flow function	Pilot actuated pressure regulator with integrated return flow function	Differential pressure display	
Service units																	
FRC/FRCS	Mini	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	frc
	Midi	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	■	■	■	-	-	-	■	■	-	
FRC-K	Mini	■	-	■	-	■	■	-	■	-	■	-	-	-	-	-	frc
	Midi	■	-	■	-	■	■	-	■	-	■	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	-	■	-	-	■	■	-	
LFR-K	Mini	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	lfr
	Midi	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	■	■	-	-	■	■	-	
Individual devices																	
Filter regulators LFR/LFRS	Mini	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	lfr
	Midi	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	■	■	■	-	-	-	■	■	-	
Filters LF	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	lf
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
Fine and micro filters LFMA/LFMB	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	lfma, lfmb
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
Activated carbon filters LFX	Mini	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	lfx
	Midi	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Maxi	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Filter combinations LFMBA	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	lfmba
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
Pressure regulators LR/LRS	Mini	-	-	-	-	-	■	■	■	■	-	-	-	■	-	-	lr
	Midi	-	-	-	-	-	■	■	■	■	-	-	-	■	-	-	
	Maxi	-	-	-	-	-	■	■	■	■	-	-	-	■	■	-	

Product range overview – Service unit components, D series, metal

Type	Size	Pneumatic Connection										Pressure regulation range [bar]		
		M5	M7	G1/8	G1/4	G3/8	G1/2	G3/4	G1	QS4	QS6	0.5 ... 7	0.5 ... 12	
Individual devices														
Pressure regulators LRB/LRBS		Mini	-	-	-	■	-	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	-	-	-	-	-	■	■
		Maxi	-	-	-	-	-	-	-	-	-	-	-	-
Pressure regulator manifolds LRB-K		Mini	-	-	-	■	■	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	■	-	-	-	-	■	■
		Maxi	-	-	-	-	-	-	-	-	-	-	-	-
Lubricators LOE		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On/off valves HE		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On/off valves HEE		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On/off valves HEP		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Soft-start valves HEL		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Membrane air dryers LDM1		Mini	-	-	-	-	-	-	-	-	-	-	-	-
		Midi	-	-	-	-	-	-	-	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Branching modules FRM		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Distributor block FRZ		Mini	-	-	-	-	-	-	-	-	-	-	-	-
		Midi	-	-	-	-	-	-	-	-	-	-	-	-
		Maxi	-	-	-	-	-	-	-	-	-	-	-	-

Product range overview – Service unit components, D series, metal

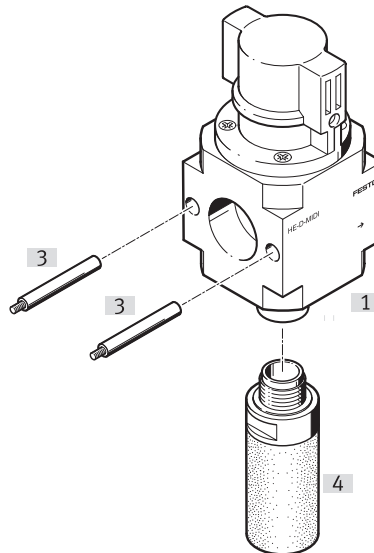
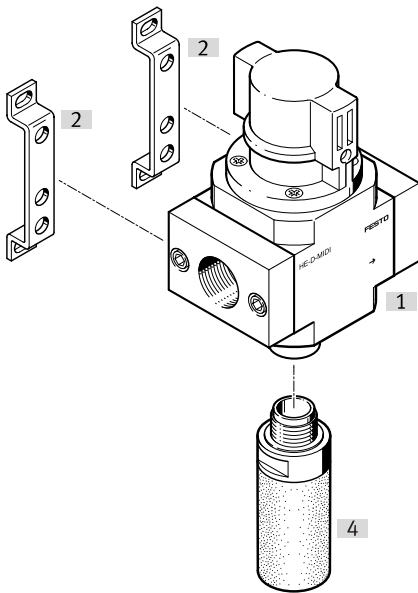
Type	Size	Bowl guard		Pressure indicator		Actuator lock		Supply voltage			Options		→ Page/ Internet
		Metal bowl guard	Plastic bowl	With pressure gauge	Without pressure gauge	Rotary knob with latch	Rotary knob with integrated lock	24 V DC	110 V AC	230 V AC	With non-return function	Pressure switch	
Individual devices													
Pressure regulators LRB/LRBS	Micro	-	-	-	■	■	■	-	-	-	-	-	lrb
	Mini	-	-	-	■	■	■	-	-	-	-	-	
	Midi	-	-	-	-	-	-	-	-	-	-	-	
Pressure regulator manifolds LRB-K	Mini	-	-	-	■	■	-	-	-	-	-	-	lrb
	Midi	-	-	-	■	■	-	-	-	-	-	-	
	Maxi	-	-	-	-	-	-	-	-	-	-	-	
Lubricators LOE	Mini	■	-	-	■	-	-	-	-	-	-	-	loe
	Midi	■	-	-	■	-	-	-	-	-	-	-	
	Maxi	■	-	-	■	-	-	-	-	-	-	-	
On/off valves HE	Mini	-	-	-	■	■	-	-	-	-	-	-	6
	Midi	-	-	-	■	■	-	-	-	-	-	-	
	Maxi	-	-	-	■	■	-	-	-	-	-	-	
On/off valves HEE	Mini	-	-	-	■	-	-	■	■	■	-	-	12
	Midi	-	-	-	■	-	-	■	■	■	-	-	
	Maxi	-	-	-	■	-	-	■	■	■	-	-	
On/off valves HEP	Mini	-	-	-	■	-	-	-	-	-	-	-	18
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	
Soft-start valves HEL	Mini	-	-	-	■	-	-	-	-	-	-	-	24
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	
Membrane air dryers LDM1	Mini	-	-	-	-	-	-	-	-	-	-	-	ldm1
	Midi	-	-	-	-	-	-	-	-	-	-	-	
	Maxi	■	-	-	■	-	-	-	-	-	-	-	
Branching modules FRM	Mini	-	-	-	■	-	-	-	-	-	■	■	frm
	Midi	-	-	-	■	-	-	-	-	-	■	■	
	Maxi	-	-	-	■	-	-	-	-	-	■	■	
Distributor block FRZ	Mini	-	-	-	■	-	-	-	-	-	-	-	frz
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	

Peripherals overview

Mini/Midi/Maxi

Individual unit with connecting plates

Individual unit without connecting plates, for service unit combination



Mounting attachments and accessories

	Single device		Combination		→ Page/Internet
	With connecting plates	Without connecting plates	With connecting plates	Without connecting plates	
[1] On/off valve HE	■	■	■	■	6
[2] Mounting bracket HFOE	■	-	■	-	hfoe-d
[3] Threaded bolt (included in the scope of delivery) FRB	-	-	■	■	frb-d
[4] Silencer U	■	■	■	■	36

Type codes

001	Series	
HE	Shut-off valve	

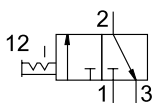
002	Valve function	
2	2/2-way valve	
3	3/2-way valve	




003	Pneumatic connection 1	
1/8	Male thread R1/8	
1/4	Male thread R1/4	
3/8	Male thread R3/8	
1/2	Male thread R1/2	
QS-6	Push-in connector 6 mm	
QS-8	Push-in connector 8 mm	
QS-10	Push-in connector 10 mm	
QS-12	Push-in connector 12 mm	

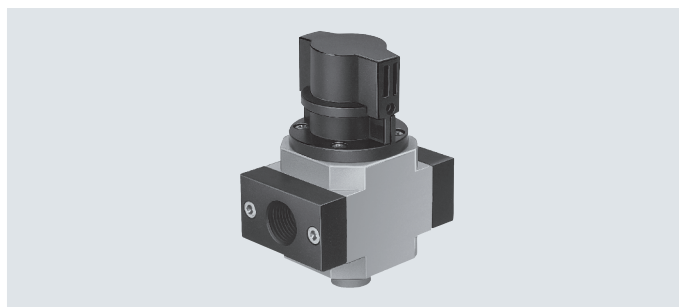
004	Pneumatic connection 2	
	Same size push-in connector as pneumatic connection 1	
1/8	Male thread R1/8	
1/4	Male thread R1/4	
3/8	Male thread R3/8	
QS-6	Push-in connector 6 mm	
QS-8	Push-in connector 8 mm	
QS-10	Push-in connector 10 mm	
QS-12	Push-in connector 12 mm	

Datasheet

Function



-  - Flow rate
1000 ... 6500 l/min
-  - Temperature range
-10 ... +60°C
-  - Operating pressure
0 ... 16 bar



- 3/2-way manual shut-off valve
- The unit is exhausted when switched off
- Ducted exhaust air possible via a threaded connection
- The switching position is recognisable
- Commercially available padlock for security

General technical data													
Size	Mini				Midi				Maxi				
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	- ¹⁾	G1/4	G3/8	G1/2	G3/4	- ¹⁾	G1/2	G3/4	G1	- ¹⁾
Pneumatic connection 3	G1/8				G1/4				G3/8				
Design	Piston spool												
Actuation type	Manual												
Type of mounting	With accessories												
	In-line installation												
Mounting position	Any												
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4]												
	Inert gases												
Valve function	3/2-way valve, bistable												
Manual override	None												
Exhaust function	Cannot be throttled												
Flow direction	Not reversible												
Sealing principle	Soft												

1) Without connecting plates

† Note: This product conforms to ISO 1179-1 and ISO 228-1.

Characteristic flow rate values											
Size	Mini			Midi				Maxi			
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1	
Standard nominal flow rate $q_n^{N^1}$ [l/min]											
In main flow direction 1 → 2	1000	1500	1600	2600	3200	3600	3800	5600	6000	6500	
C value [l/s*bar]											
In main flow direction 1 → 2	4.4	7.2	7.5	9.9	15.7	17	17.3	23.7	26.8	25.9	
b value											
In main flow direction 1 → 2	0.44	0.28	0.27	0.45	0.3	0.3	0.42	0.32	0.35	0.37	

1) Measured at $p_1 = 6$ bar and $\Delta p = 1$ bar.

Datasheet

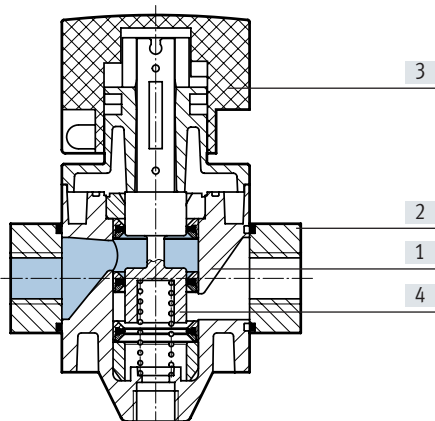
Operating and environmental conditions		
Operating pressure [bar]		0 ... 16
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
		Inert gases
Note on the operating/ pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature [°C]		-10 ... +60
Temperature of medium [°C]		-10 ... +60
Corrosion resistance class CRC ¹⁾		2 - Moderate corrosion stress

1) More information www.festo.com/x/topic/crc

Weight [g]			
Size	Mini	Midi	Maxi
On/off valve	192	511	796

Materials

Sectional view



On/off valve		
[1]	Housing	Die-cast aluminium
[2]	Connecting plates	Die-cast zinc
[3]	Rotary knob	PA
[4]	Piston	Stainless steel
-	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

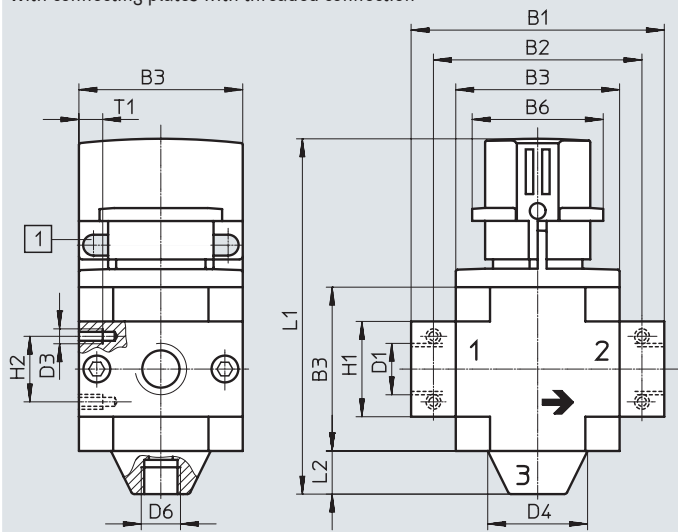
Datasheet

Dimensions

Download CAD data → www.festo.com

Mini/Midi/Maxi

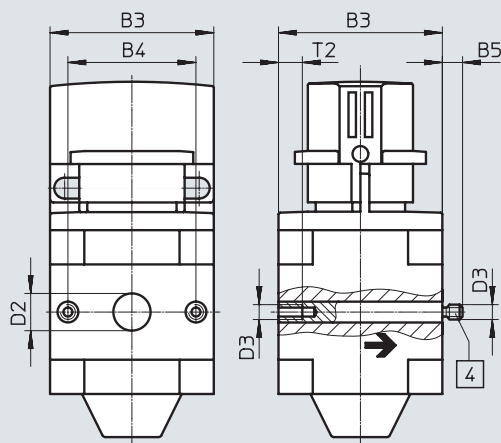
With connecting plates with threaded connection



[1] Drilled hole for locking with padlock

[4] Threaded bolt (exchangeable)

Without connecting plates



→ Flow direction

Type	B1	B2	B3	B4	B5	B6	D1	D2 ∅	D3	D4 ∅	D6	H1	H2	L1	L2	T1	T2
Mini																	
HE-1/8-D-MINI	64	52	40	30	-	32	G1/8	-	M4	24	G1/8	20	11	100	11	7	-
HE-1/4-D-MINI							G1/4										
HE-3/8-D-MINI	70						G3/8										
HE-D-MINI	-	-			5.8		-	11				-	-			-	10
Midi																	
HE-1/4-D-MIDI	85	70	55	43	-	44	G1/4	-	M5	34	G1/4	32	22	121	14	8	-
HE-3/8-D-MIDI							G3/8										
HE-1/2-D-MIDI							G1/2										
HE-3/4-D-MIDI							G3/4										
HE-D-MIDI	-	-			6.8		-	24				-	-			-	11
Maxi																	
HE-1/2-D-MAXI	96	80	66	46	-	44	G1/2	-	M5	38	G3/8	32	22	134	16	8	-
HE-3/4-D-MAXI							G3/4										
HE-1-D-MAXI	116	91					G1					40					
HE-D-MAXI	-	-			6.8		-	30				-	-			-	11

† Note: This product conforms to ISO 1179-1 and ISO 228-1.

Datasheet

Ordering data

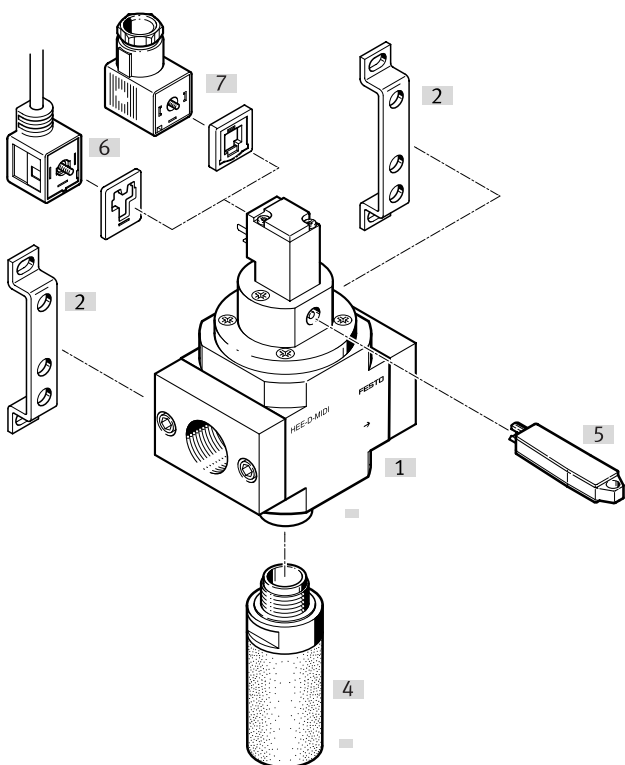
3/2-way valve, normally closed

Size	Connection	Part no.	Type
Without connecting plates			
Mini	–	170681	HE-D-MINI
Midi	–	170682	HE-D-MIDI
Maxi	–	170683	HE-D-MAXI
Connecting plates with threaded connection			
Mini	G1/8	162806	HE-1/8-D-MINI
	G1/4	162807	HE-1/4-D-MINI
	G3/8	162808	HE-3/8-D-MINI
Midi	G1/4	186513	HE-1/4-D-MIDI
	G3/8	162809	HE-3/8-D-MIDI
	G1/2	162810	HE-1/2-D-MIDI
	G3/4	162811	HE-3/4-D-MIDI
Maxi	G1/2	186514	HE-1/2-D-MAXI
	G3/4	162812	HE-3/4-D-MAXI
	G1	162813	HE-1-D-MAXI

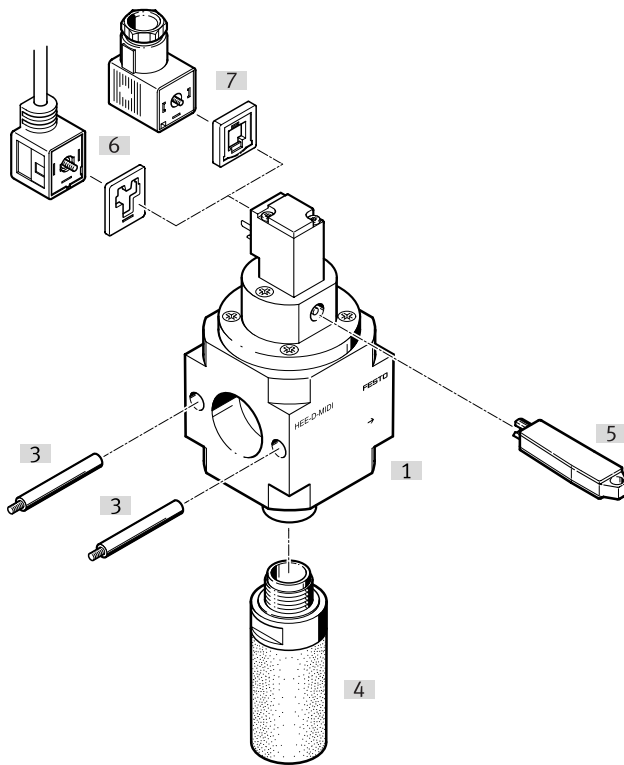
Peripherals overview

Mini/Midi/Maxi

Individual unit with connecting plates



Individual unit without connecting plates, for service unit combination



Mounting attachments and accessories

		Single device		Combination		→ Page/Internet
		With connecting plates	Without connecting plates	With connecting plates	Without connecting plates	
[1]	On/off valve HEE	■	■	■	■	12
[2]	Mounting bracket HFOE	■	-	■	-	hfoe-d
[3]	Threaded bolt (included in the scope of delivery) FRB	-	-	■	■	frb-d
[4]	Silencer U	■	■	■	■	36
[5]	Manual override non-detenting AHB-MD/MF/MY	■	■	■	■	36
[6]	Plug socket with cable KMEB-1	■	■	■	■	36
[7]	Plug socket MSSD-EB	■	■	■	■	36

Type codes

001	Series
HEE	On/off valve, electric

002	Pneumatic connection
	None
1/8	Female thread G1/8
1/4	Female thread G1/4
3/8	Female thread G3/8
1/2	Female thread G1/2
3/4	Female thread G3/4
1	Female thread G1

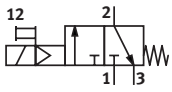
003	Version
D	D series, metal




004	Size
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

005	Rated operating voltage
24	24 V DC
110	110 V AC
230	230 V AC

Datasheet

Function



-  - Flow rate
1000 ... 6500 l/min
-  - Temperature range
-10 ... +60°C
-  - Operating pressure
2.5 ... 16 bar



- Electric on/off valve for pressurising and exhausting pneumatic systems
- With solenoid coil, without plug socket
- Choice of three voltage ranges
- Ducted exhaust possible via a threaded connection with silencer
- Manual override, non-detenting and detenting (using override tool AHB-MD/MF/MV)
- Solenoid head can be repositioned by 4 x 90°

General technical data													
Size	Mini				Midi					Maxi			
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	- ¹⁾	G1/4	G3/8	G1/2	G3/4	- ¹⁾	G1/2	G3/4	G1	- ¹⁾
Pneumatic connection 3	G1/8				G1/4					G3/8			
Design	Piston spool												
Actuation type	Electrical												
Type of mounting	With accessories												
	In-line installation												
Mounting position	Any												
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4]												
	Inert gases												
Valve function	3/2-way valve, closed, monostable												
Signal status indication	With accessories												
Manual override	Detenting												
Exhaust function	Cannot be throttled												
Reset method	Mechanical spring												
Type of control	Piloted												
Flow direction	Not reversible												
Sealing principle	Soft												

1) Without connecting plates

† Note: This product conforms to ISO 1179-1 and ISO 228-1.

Electrical data		
Characteristic coil data	24	24 V DC: 3.0 W; perm. voltage fluctuations ±10%
	110	110 V AC: 50/60 Hz; pick-up power 5.0 VA; holding power 3.7 VA; permissible voltage fluctuation ±10%
	230	230 V AC: 50/60 Hz; pick-up power 5.0 VA; holding power 3.7 VA; permissible voltage fluctuation -14%/+10%
Electrical connection	Plug, to EN 175301-803, type C	
Degree of protection for solenoid coil	IP65	
Duty cycle	[%]	100

Datasheet

Characteristic flow rate values										
Size	Mini			Midi				Maxi		
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1
Standard nominal flow rate $q_{nN}^{(1)}$ [l/min]										
In main flow direction 1 → 2	1000	1500	1600	2600	3200	3600	3800	5600	6000	6500
In relief direction 2 → 3	1000			2000				3000		
C value [l/s*bar]										
In main flow direction 1 → 2	4.4	7	7.3	9.7	15.7	17	17.3	24.2	28	27.6
b value										
In main flow direction 1 → 2	0.44	0.31	0.28	0.47	0.33	0.3	0.41	0.3	0.32	0.32

1) Measured at $p_1 = 6$ bar and $\Delta p = 1$ bar.

Operating and environmental conditions		
Supply voltage	24 V DC	110 V AC 230 V AC
Operating pressure [bar]	2.5 ... 16	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases	
Note on the operating/ pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
PWIS conformity	VDMA24364-B1/B2-L	
Ambient temperature [°C]	-10 ... +60	
Temperature of medium [°C]	-10 ... +60	
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress	
CE marking (see declaration of conformity) ²⁾	-	To EU Low Voltage Directive
UKCA marking (see declaration of conformity) ²⁾	-	To UK regulations for electrical equipment

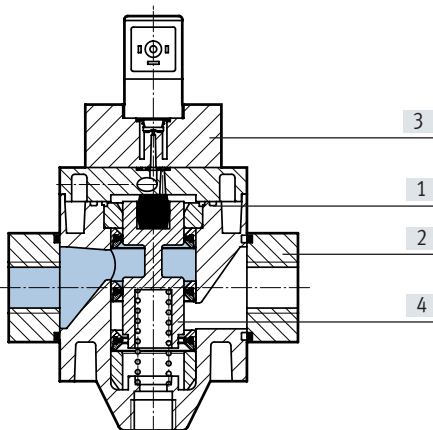
1) More information www.festo.com/x/topic/crc

2) More information www.festo.com/catalogue/hee → Support/Downloads.

Weight [g]			
Size	Mini	Midi	Maxi
On/off valve	223	500	800

Materials

Sectional view



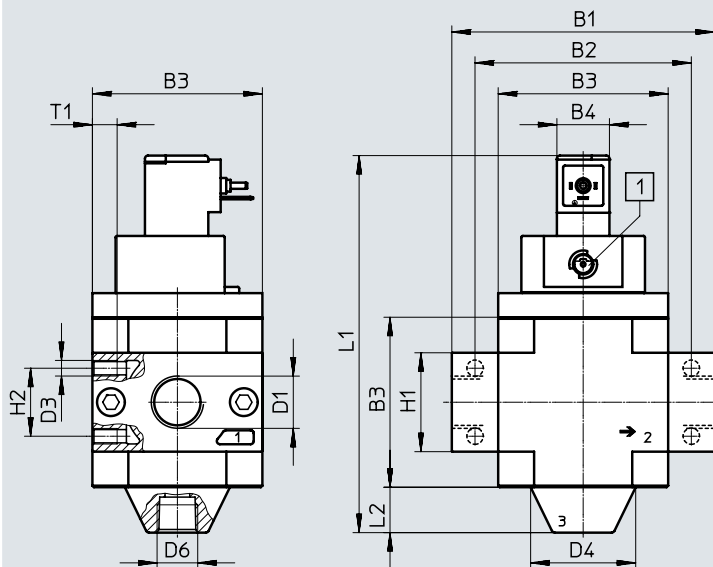
On/off valve		
[1]	Housing	Die-cast aluminium
[2]	Connecting plates	Die-cast zinc
[3]	Solenoid and intermediate plate	PA
[4]	Piston	Stainless steel
-	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Datasheet

Dimensions

Download CAD data → www.festo.com

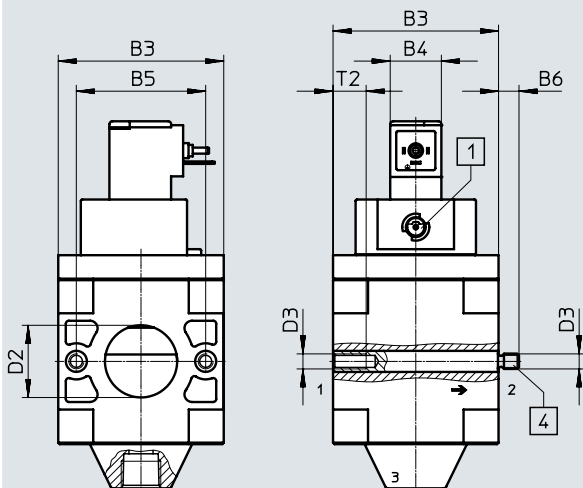
Mini/Midi/Maxi, with connecting plates with threaded connection



[1] Manual override

→ Flow direction

Mini/Midi/Maxi, without connecting plates



[1] Manual override

[4] Threaded bolt (exchangeable)

→ Flow direction

Type	B1	B2	B3	B4	B5	B6	D1	D2 ∅	D3	D4 ∅	D6	H1	H2	L1	L2	T1	T2
Mini																	
HEE-1/8-D-MINI	64	52	40	17	30	-	G1/8	-	M4	24	G1/8	20	11	104	11	7	-
HEE-1/4-D-MINI							G1/4										
HEE-3/8-D-MINI	70						G3/8										
HEE-D-MINI	-	-				5.8	-	11				-	-			-	10
Midi																	
HEE-1/4-D-MIDI	85	70	55	17	43	-	G1/4	-	M5	34	G1/4	32	22	122	14	8	-
HEE-3/8-D-MIDI							G3/8										
HEE-1/2-D-MIDI							G1/2										
HEE-3/4-D-MIDI							G3/4										
HEE-D-MIDI	-	-				6.8	-	24				-	-			-	11
Maxi																	
HEE-1/2-D-MAXI	96	80	66	17	46	-	G1/2	-	M5	38	G3/8	32	22	135	16	8	-
HEE-3/4-D-MAXI							G3/4										
HEE-1-D-MAXI	116	91					G1					40					
HEE-D-MAXI	-	-				6.8	-	30				-	-			-	11

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Datasheet

Ordering data

3/2-way valve, normally closed

Size	Connection	24 V DC		110 V AC		230 V AC	
		Part no.	Type	Part no.	Type	Part no.	Type

Without connecting plates

Mini	-	172956	HEE-D-MINI-24	172957	HEE-D-MINI-110	172958	HEE-D-MINI-230
Midi	-	172959	HEE-D-MIDI-24	172960	HEE-D-MIDI-110	172961	HEE-D-MIDI-230
Maxi	-	172962	HEE-D-MAXI-24	172963	HEE-D-MAXI-110	172964	HEE-D-MAXI-230

Connecting plates with threaded connection

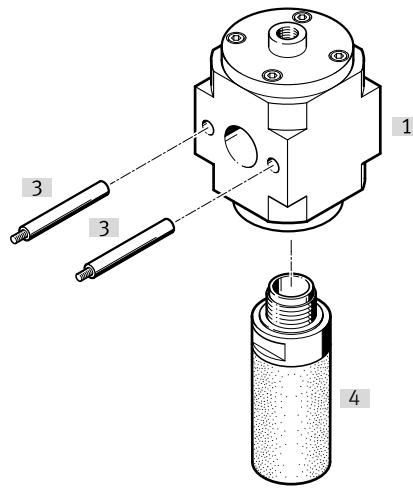
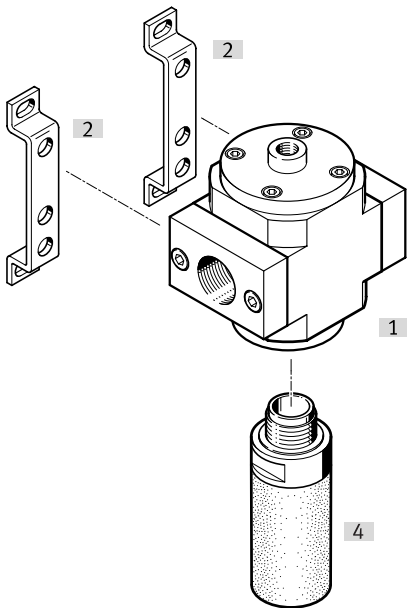
Mini	G1/8	165068	HEE-1/8-D-MINI-24			165070	HEE-1/8-D-MINI-230
	G1/4	165071	HEE-1/4-D-MINI-24			165073	HEE-1/4-D-MINI-230
	G3/8	165074	HEE-3/8-D-MINI-24			172940	HEE-3/8-D-MINI-230
Midi	G1/4	186515	HEE-1/4-D-MIDI-24			186516	HEE-1/4-D-MIDI-230
	G3/8	172941	HEE-3/8-D-MIDI-24			172943	HEE-3/8-D-MIDI-230
	G1/2	172944	HEE-1/2-D-MIDI-24			172946	HEE-1/2-D-MIDI-230
	G3/4	172947	HEE-3/4-D-MIDI-24			172949	HEE-3/4-D-MIDI-230
Maxi	G1/2	186518	HEE-1/2-D-MAXI-24			186519	HEE-1/2-D-MAXI-230
	G3/4	172950	HEE-3/4-D-MAXI-24			172952	HEE-3/4-D-MAXI-230
	G1	172953	HEE-1-D-MAXI-24			172955	HEE-1-D-MAXI-230

Peripherals overview

Mini/Midi/Maxi

Individual unit with connecting plates

Individual unit without connecting plates, for service unit combination



Mounting attachments and accessories

	Single device		Combination		→ Page/Internet
	With connecting plates	Without connecting plates	With connecting plates	Without connecting plates	
[1] On/off valve HEP	■	■	■	■	18
[2] Mounting bracket HFOE	■	-	■	-	hfoe-d
[3] Threaded bolt (included in the scope of delivery) FRB	-	-	■	■	frb-d
[4] Silencer U	■	■	■	■	36

Type codes

001	Series
HEP	On/off valve

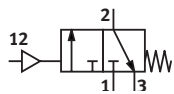
002	Pneumatic connection
	None
1/8	Female thread G1/8
1/4	Female thread G1/4
3/8	Female thread G3/8
1/2	Female thread G1/2
3/4	Female thread G3/4
1	Female thread G1




003	Version
D	D series, metal

004	Size
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

Datasheet

Function



-  - Flow rate
800 ... 6500 l/min
-  - Temperature range
-10 ... +60°C
-  - Operating pressure
0 ... 16 bar



- Pneumatically actuated on-off valve for pressurising and exhausting pneumatic systems
- The valve can be used as an individual device or in combination with other D-series modules

General technical data													
Size	Mini				Midi				Maxi				
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	- ¹⁾	G1/4	G3/8	G1/2	G3/4	- ¹⁾	G1/2	G3/4	G1	- ¹⁾
Pneumatic connection 3	G1/8				G1/4				G3/8				
Pilot air port 12	G1/8												
Design	Piston spool												
Actuation type	Pneumatic												
Type of mounting	With accessories In-line installation												
Mounting position	Any												
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases												
Valve function	3/2-way valve, closed, monostable												
Manual override	None												
Exhaust function	Cannot be throttled												
Reset method	Mechanical spring												
Flow direction	Not reversible												
Sealing principle	Soft												

1) Without connecting plates

• Note: This product conforms to ISO 1179-1 and ISO 228-1.

Datasheet

Characteristic flow rate values											
Size	Mini			Midi			Maxi				
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1	
Standard nominal flow rate $q_{nN^{(1)}}$ [l/min]											
In main flow direction 1 → 2	1000	1500	1600	2600	3500	3900	4100	5600	6000	6500	
In relief direction 2 → 3	800			1900				2400			
C value [l/s*bar]											
In main flow direction 1 → 2	4.3	7.2	7.7	10.1	15.5	16.6	16.2	24.2	28	27.6	
b value											
In main flow direction 1 → 2	0.48	0.34	0.3	0.46	0.33	0.4	0.47	0.3	0.32	0.32	

1) Measured at $p_1 = 6$ bar and $\Delta p = 1$ bar.

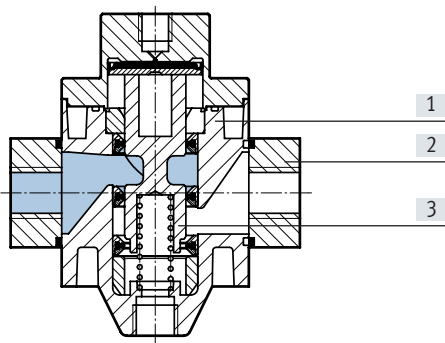
Operating and environmental conditions	
Operating pressure	[MPa] 0 ... 1.6
	[bar] 0 ... 16
	[psi] 0 ... 232
Pilot pressure	[bar] 3 ... 16
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
	Inert gases
Note on the operating/ pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -10 ... +60
Temperature of medium	[°C] -10 ... +60
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress

1) More information www.festo.com/x/topic/crc

Weight [g]			
Size	Mini		Maxi
On/off valve	223		800

Materials

Sectional view



On/off valve		
[1]	Housing	Die-cast aluminium
[2]	Connecting plates	Die-cast zinc
[3]	Piston	Stainless steel
-	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

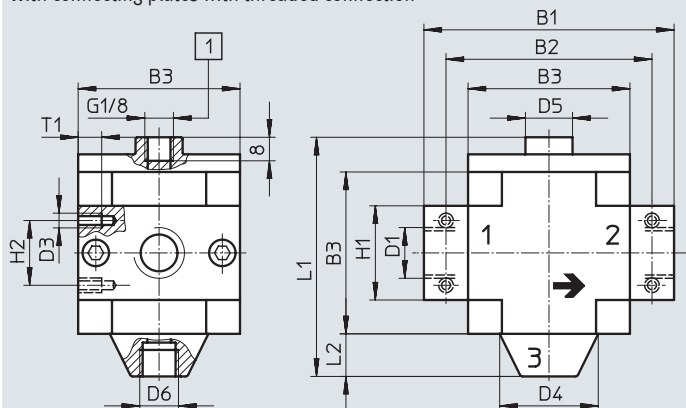
Datasheet

Dimensions

Download CAD data → www.festo.com

Mini/Midi/Maxi

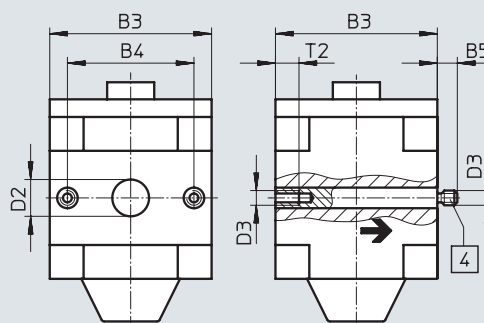
With connecting plates with threaded connection



[1] Threaded connection for pilot air (12)

[4] Threaded bolt (exchangeable)

Without connecting plates



→ Flow direction

Type	B1	B2	B3	B4	B5	D1	D2 ∅	D3	D4 ∅	D5	D6	H1	H2	L1	L2	T1	T2
Mini																	
HEP-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	24	16	G1/8	20	11	73.8	11	7	-
HEP-1/4-D-MINI						G1/4											
HEP-3/8-D-MINI	70					G3/8											
HEP-D-MINI	-	-			5.8	-	11					-	-			-	10
Midi																	
HEP-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	34	32	G1/4	32	22	94.6	14	8	-
HEP-3/8-D-MIDI						G3/8											
HEP-1/2-D-MIDI						G1/2											
HEP-3/4-D-MIDI						G3/4											
HEP-D-MIDI	-	-			6.8	-	24					-	-			-	11
Maxi																	
HEP-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	38	16	G3/8	32	22	95.6	16	8	-
HEP-3/4-D-MAXI						G3/4											
HEP-1-D-MAXI	116	91				G1						40					
HEP-D-MAXI	-	-			6.8	-	30					-	-			-	11

† Note: This product conforms to ISO 1179-1 and ISO 228-1.

Datasheet

Ordering data

3/2-way valve, normally closed

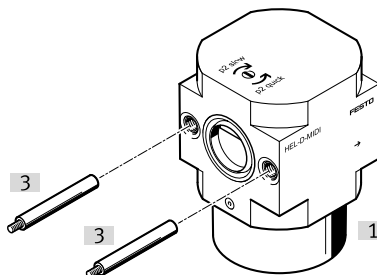
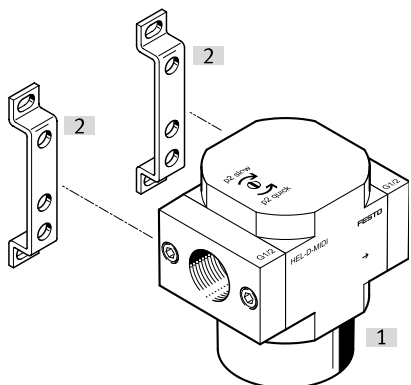
Size	Connection	Part no.	Type
Without connecting plates			
Mini	–	193242	HEP-D-MINI
Midi	–	193249	HEP-D-MIDI
Maxi	–	193257	HEP-D-MAXI
Connecting plates with threaded connection			
Mini	G1/8	193243	HEP-1/8-D-MINI
	G1/4	193244	HEP-1/4-D-MINI
	G3/8	193245	HEP-3/8-D-MINI
Midi	G1/4	193250	HEP-1/4-D-MIDI
	G3/8	193251	HEP-3/8-D-MIDI
	G1/2	193252	HEP-1/2-D-MIDI
	G3/4	193253	HEP-3/4-D-MIDI
Maxi	G1/2	193258	HEP-1/2-D-MAXI
	G3/4	193259	HEP-3/4-D-MAXI
	G1	193260	HEP-1-D-MAXI

Peripherals overview

Mini/Midi/Maxi

Individual unit with connecting plates

Individual unit without connecting plates, for service unit combination



Mounting attachments and accessories

		Single device		Combination		→ Page/Internet
		With connecting plates	Without connecting plates	With connecting plates	Without connecting plates	
[1]	Soft-start valve HEL	■	■	■	■	24
[2]	Mounting bracket HFOE	■	-	■	-	hfoe-d
[3]	Threaded bolt (included in the scope of delivery) FRB	-	-	■	■	frb-d

Type codes

001	Series
HEL	Soft-start valve

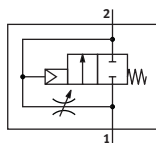
002	Pneumatic connection
	None
1/8	Female thread G1/8
1/4	Female thread G1/4
3/8	Female thread G3/8
1/2	Female thread G1/2
3/4	Female thread G3/4
1	Female thread G1




003	Version
D	D series, metal

004	Size
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

Datasheet

Function



-  - Flow rate
1000 ... 6500 l/min
-  - Temperature range
-10 ... +60°C
-  - Operating pressure
3 ... 16 bar



The duration of the pressure build-up is set using the restrictor attached to the valve cap.

The outlet pressure p2 rises slowly in accordance with the restrictor setting. The main seat opens when the switch-through pressure is reached.

- Pneumatically actuated soft-start valve for slowly pressurising and venting pneumatic systems (for use with on/off valves HE and HEE)
- The drives move slowly and reliably into the initial position
- Sudden and erratic movements are avoided
- Main seat opening at approx. 50% of input pressure
- Adjustable switching time delay

General technical data													
Size	Mini				Midi					Maxi			
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	- ¹⁾	G1/4	G3/8	G1/2	G3/4	- ¹⁾	G1/2	G3/4	G1	- ¹⁾
Design	Piston spool												
Actuation type	Pneumatic												
Type of mounting	With accessories In-line installation												
Mounting position	Any												
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases												
Valve function	2/2-way valve, closed, monostable												
Manual override	None												
Exhaust function	Can be throttled												
Reset method	Mechanical spring												
Type of control	Direct												
Flow direction	Not reversible												
Sealing principle	Soft												

1) Without connecting plates

† Note: This product conforms to ISO 1179-1 and ISO 228-1.

Characteristic flow rate values											
Size	Mini			Midi				Maxi			
Pneumatic connection 1, 2	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1	
Standard nominal flow rate qnN¹⁾ [l/min]											
In main flow direction 1 → 2	1000	1500	1600	2600	3200	3600	3800	5600	6000	6500	
C value [l/s*bar]											
In main flow direction 1 → 2	4.5	7.1	7.6	9	16.5	19.8	20.5	26.9	33.9	28.3	
b value											
In main flow direction 1 → 2	0.46	0.41	0.3	0.59	0.39	0.37	0.48	0.36	0.38	0.54	

1) Measured at p1 = 6 bar and Δp = 1 bar.

Datasheet

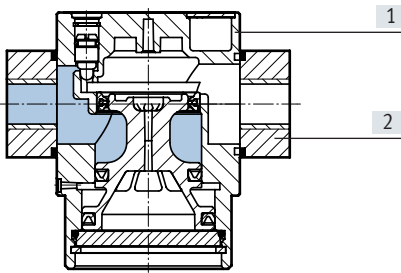
Operating and environmental conditions	
Operating pressure [bar]	3 ... 16
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on the operating/ pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature [°C]	-10 ... +60
Temperature of medium [°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress

1) More information www.festo.com/x/topic/crc

Weight [g]			
Size	Mini	Midi	Maxi
Soft-start valve	126	270	394

Materials

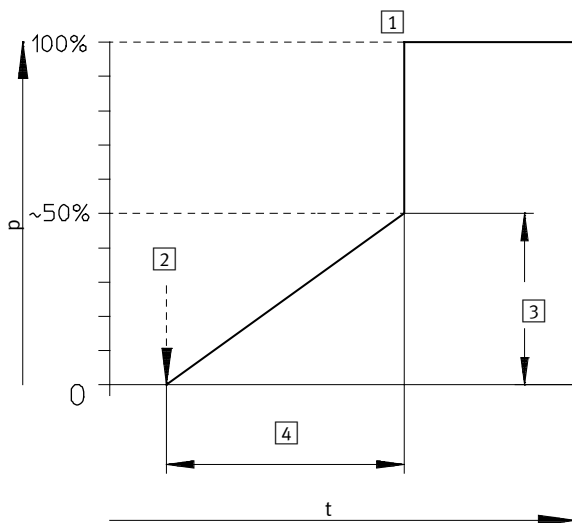
Sectional view



Soft-start valve		
[1]	Housing	Die-cast aluminium
[2]	Connecting plates	Die-cast zinc
-	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

Switching point

Pressure p as a function of time t



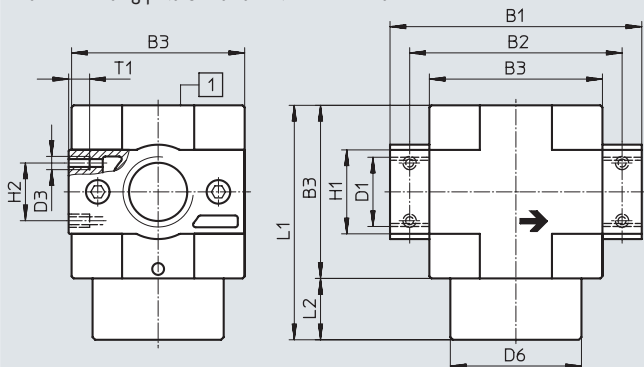
- [1] Operating pressure $p_2 (= p_1)$
- [2] Start signal
- [3] Gradual pressure build-up
- [4] Switching time delay

Datasheet

Dimensions

Download CAD data → www.festo.com

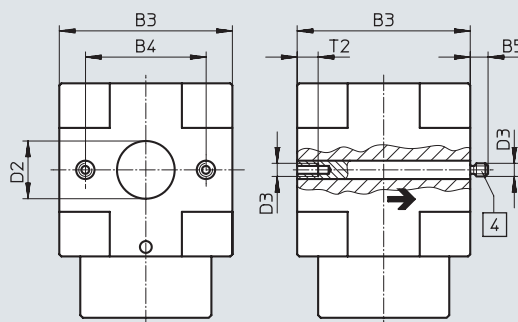
With connecting plates with threaded connection



[1] Adjusting screw in housing

[4] Threaded bolt (exchangeable)

Without connecting plates



→ Flow direction

Type	B1	B2	B3	B4	B5	D1	D2 ∅	D3	D6	H1	H2	L1	L2	T1	T2
Mini															
HEL-1/8-D-MINI	64	52	40	30	-	G1/8	-	M4	30	20	11	56	16	7	-
HEL-1/4-D-MINI						G1/4									
HEL-3/8-D-MINI	70					G3/8									
HEL-D-MINI	-	-			5.8	-	11							-	10
Midi															
HEL-1/4-D-MIDI	85	70	55	43	-	G1/4	-	M5	50	32	22	77	22	8	-
HEL-3/8-D-MIDI						G3/8									
HEL-1/2-D-MIDI						G1/2									
HEL-3/4-D-MIDI						G3/4									
HEL-D-MIDI	-	-			6.8	-	24							-	11
Maxi															
HEL-1/2-D-MAXI	96	80	66	46	-	G1/2	-	M5	50	32	22	89	23	8	-
HEL-3/4-D-MAXI						G3/4				40					
HEL-1-D-MAXI	116	91				G1									
HEL-D-MAXI	-	-			6.8	-	30							-	11

† Note: This product conforms to ISO 1179-1 and ISO 228-1.

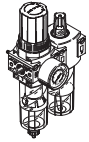
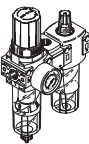
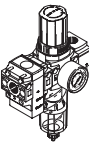
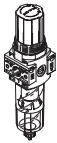

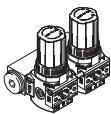

Datasheet

Ordering data

2/2-way valve, normally closed

Size	Connection	Part no.	Type
Without connecting plates			
Mini	–	170690	HEL-D-MINI
Midi	–	170691	HEL-D-MIDI
Maxi	–	170692	HEL-D-MAXI
Connecting plates with threaded connection			
Mini	G1/8	165076	HEL-1/8-D-MINI
	G1/4	165077	HEL-1/4-D-MINI
	G3/8	165078	HEL-3/8-D-MINI
Midi	G1/4	186521	HEL-1/4-D-MIDI
	G3/8	165079	HEL-3/8-D-MIDI
	G1/2	165080	HEL-1/2-D-MIDI
	G3/4	165081	HEL-3/4-D-MIDI
Maxi	G1/2	186522	HEL-1/2-D-MAXI
	G3/4	165082	HEL-3/4-D-MAXI
	G1	165083	HEL-1-D-MAXI

Product range overview – Service unit components, D series, polymer

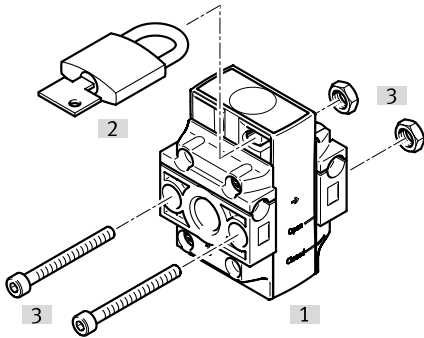
Type	Size	Pneumatic connection		Pressure regulation range [bar]	Grade of filtration [µm]		
		G1/4	G1/2		5	40	
Service units							
FRC		Mini	■	-	■	■	■
Service unit combinations							
FRC-K		Mini	■	-	■	-	■
LFR-K		Mini	■	-	■	-	■
Individual devices							
Filter regulators LFR		Mini	■	-	■	■	■
Pressure regulators LR		Mini	■	-	■	-	-
Pressure regulator manifolds LRB-K		Mini	-	■	■	-	-
On/off valves HE		Mini	■	-	-	-	-

Product range overview – Service unit components, D series, polymer

Type	Size	Condensate drain		Pressure indicator		Actuator lock	Regulating functions		→ Page/ Internet
		Manual	Semi-automatic	With pressure gauge	Without pressure gauge		With secondary exhausting	With return flow function	
Service units									
FRC	Mini	■	■	■	-	■	■	■	frc
Service unit combinations									
FRC-K	Mini	■	-	■	-	■	■	■	frc
LFR-K	Mini	■	-	■	-	■	■	■	lfr
Individual devices									
Filter regulators LFR	Mini	■	■	■	■	■	■	■	lfr
Pressure regulators LR	Mini	-	-	■	■	■	■	■	lr
Pressure regulator manifolds LRB-K	Mini	-	-	-	■	■	■	■	lrb
On/off valves HE	Mini	-	-	-	■	-	-	-	32

Peripherals overview

Peripherals overview



Mounting attachments and accessories

		→ Page/Internet
[1]	On/off valve HE	32
[2]	Padlock LRVS-D	36
[3]	Socket head screw with hex nut for mounting with the following service unit component (2 included in the scope of delivery) DIN 912-M4X40-8.8/DIN 934-M4-6AU	-
-	Socket head screw for wall mounting (2 included in the scope of delivery) DIN 84-M4X45-4.8	-

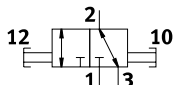
Type codes




Type codes

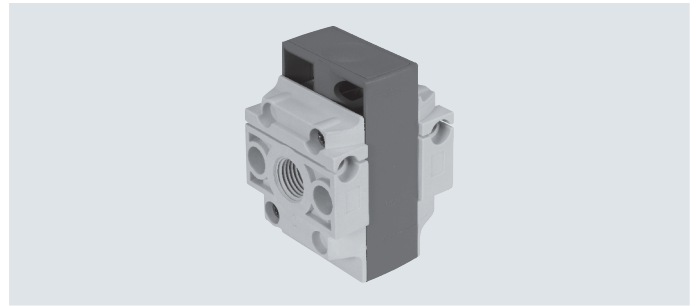
001	Series	003	Version
HE	On/off-exhaust valve	DB	D series, polymer
002	Pneumatic connection	004	Size
1/4	Female thread G1/4	MINI	Grid dimension 40 mm (without connecting plates)

Datasheet

Function



-  - Flow rate
2300 l/min
-  - Temperature range
-5 ... +50°C
-  - Operating pressure
0 ... 10 bar



- 3/2-way manual shut-off valve
- The switching position is recognisable
- Commercially available padlock for security

General technical data	
Size	Mini
Pneumatic connection 1, 2	G1/4
Design	On/off valve
Lap	Underlap
Actuation type	Manual
Type of mounting	In-line installation Via through-hole
Mounting position	Any
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Valve function	3/2-way valve, bistable
Actuator lock	Padlock (optional)
Manual override	None
Exhaust function	Cannot be throttled
Type of control	Direct
Sealing principle	Soft

Characteristic flow rate values	
Pneumatic connection 1, 2	G1/4
Standard nominal flow rate $q_{nN}^{1)}$ [l/min]	
In main flow direction 1 → 2	2300
In relief direction 2 → 3	700
C value [l/s*bar]	
In main flow direction 1 → 2	6.3
b value	
In main flow direction 1 → 2	0.28

1) Measured at $p_1 = 6$ bar and $\Delta p = 1$ bar.

Datasheet

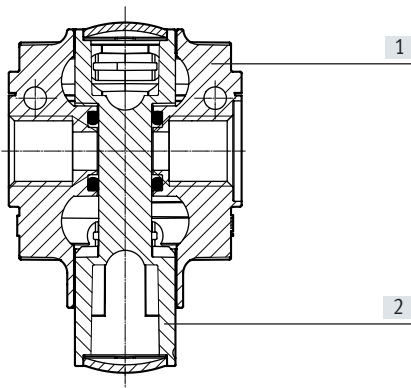
Operating and environmental conditions	
Size	Mini
Operating pressure [bar]	0 ... 10
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on the operating/ pilot medium	Lubricated operation not possible
Ambient temperature [°C]	-5 ... +50
Temperature of medium [°C]	-5 ... +50
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress

1) More information www.festo.com/x/topic/crc.

Weight [g]	
Size	Mini
On/off valve	66

Materials

Sectional view

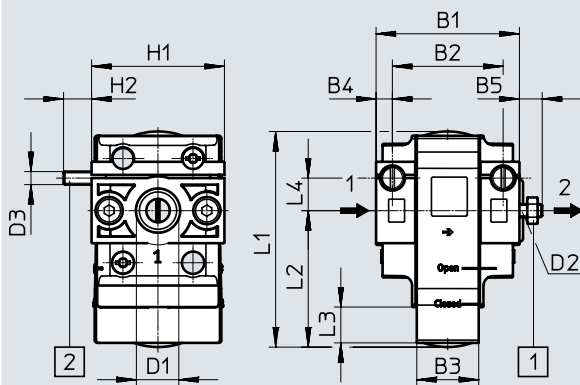


On/off valve	Mini
[1] Housing	Reinforced PA
[2] Piston spool	POM
- Seals	FPM
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Dimensions

Download CAD data → www.festo.com

Mini



- [1] Socket head screw with hex nut for mounting with the following service unit component (2 included in the scope of delivery)
- [2] Socket head screw for wall mounting (2 included in the scope of delivery)


→ Flow direction

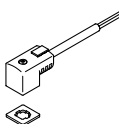
Type	B1	B2	B3	B4	B5	D1	D2	D3	H1	H2	L1	L2	L3	L4
HE-1/4-DB	44	34	19	5	7	G1/4	M4	M4	41	9	66	42	11	10


Ordering data

Size	Connection	Part no.	Type
Mini	G1/4	3563687	HE-1/4-DB-MINI

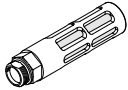
Accessories

Ordering data – Plug socket MSSD				Datasheets → Internet: mssd	
	Description	Electrical connection	Type of mounting for cable connection	Part no.	Type
	For HEE	3-pin	Clamping screws	151687	MSSD-EB
		4-pin	Insulation displacement technology	192745	MSSD-EB-S-M14

Ordering data – Plug socket with cable KMEB						Datasheets → Internet: kmeb	
	Description	Operating voltage	Electrical connection	Switching status indication	Cable length [m]	Part no.	Type
	For HEE	24 V DC	3-pin	LED	2.5	151688	KMEB-1-24-2.5-LED
					5	151689	KMEB-1-24-5-LED
					10	193457	KMEB-1-24-10-LED
		230 V AC	3-pin	–	2.5	151690	KMEB-1-230AC-2.5
					5	151691	KMEB-1-230AC-5

Ordering data – Illuminating seal MEB-LD				Datasheets → Internet: meb	
	Description	Operating voltage range	Part no.	Type	
	For plug socket with cable KMEB and plug socket MSSD-EB	12 ... 24 V DC	151717	MEB-LD-12-24DC	
		230 V DC/AC ±10%	151718	MEB-LD-230AC	

Ordering data – Manual override AHB-MD/MF/MV			
	Description	Part no.	Type
	Turn 90° to actuate and lock manual override	157651	AHB-MD/MF/MV

Ordering data – Silencer U				Datasheets → Internet: u	
	Pneumatic connection	Part no.	Type		
	G1/8	6841	U-1/8-B		
	G1/4	6842	U-1/4-B		
	G3/8	6843	U-3/8-B		
	G1/2	6844	U-1/2-B		
	G3/4	6845	U-3/4-B		
	G1	151990	U-1-B		

Ordering data – Padlock LRVS-D			
	Weight [g]	Part no.	Type
	120	193786	LRVS-D