

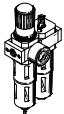

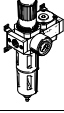
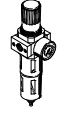
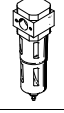
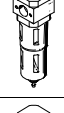
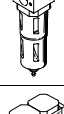


On-off/soft-start valves HE/HEE/HEP/HEL, D series



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



Product range overview D series service units, metal design

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	7	0.5	12	2.5	0.01	1	5
<b>Service units</b>																		
<b>FRC/FRCS</b> 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■	■
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	■	■
<b>Service unit combinations</b>																		
<b>FRC-K</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mini	-	-	■	■	-	-	-	-	-	-	■	■	-	-	-	-	■
	Midi	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	-	■
	Maxi	-	-	-	-	-	■	■	-	-	-	■	■	-	-	-	-	■
<b>LFR-K LFRS-K</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mini	-	-	■	■	-	-	-	-	-	-	■	■	-	-	-	-	■
	Midi	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	-	■
	Maxi	-	-	-	-	-	■	■	-	-	-	■	■	-	-	-	-	■
<b>Individual devices</b>																		
<b>Filter regulators LFR/LFRS</b> 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■	■
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	■	■
<b>Filters LF</b> 	Micro	■	■	■	-	-	-	-	-	■	■	-	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	■	■
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	■	■
<b>Fine and micro filters LFMA/LFMB</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	■	■	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-
<b>Active carbon filters LFX</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	-	-
<b>Filter combinations LFMBA</b> 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	■	■	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-
<b>Pressure regulators LR/LRS</b> 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	-	-
	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	-	-

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

Product range overview D series service units, metal design

Type	Size	Bowl guard		Condensate drain			Pressure indication		Actuator lock		Supply voltage			Options			→ Page/ Internet
		Metal bowl guard	Plastic bowl	Manual rotary	Semi-automatic	Fully automatic	With pressure gauge	Without pressure gauge	Rotary knob with detent	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 indicator	
<b>Service units</b>																	
FRC/FRCS	Micro	-	■	■	■	-	■	■	■	-	-	-	-	-	-	-	frc
	Mini	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Midi	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	■	■	■	-	-	-	■	■	-	
<b>Service unit combinations</b>																	
FRC-K	Micro	-															frc
	Mini	■	-	■	-	■	■	-	■	-	■	-	-	-	-	-	
	Midi	■	-	■	-	■	■	-	■	-	■	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	-	■	-	-	■	■	-	
LFR-K LFRS-K	Micro	-															lfr
	Mini	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	
	Midi	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	■	■	-	-	■	■	-	
<b>Individual devices</b>																	
Filter regulators LFR/LFRS	Micro	-	■	■	■	-	■	■	■	-	-	-	-	-	-	-	lfr
	Mini	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Midi	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	■	■	■	-	-	-	■	■	-	
Filters LF	Micro	-	■	■	■	-	-	-	-	-	-	-	-	-	-	-	lf
	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	-	
Fine and micro filters LFMA/LFMB	Micro	-															lfma, lfmb
	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
Active carbon filters LFX	Micro	-															lfx
	Mini	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Midi	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Maxi	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Filter combinations LFMBA	Micro	-															lfmba
	Mini	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Midi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
	Maxi	■	-	■	-	■	-	-	-	-	-	-	-	-	-	■	
Pressure regulators LR/LRS	Micro	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	lr
	Mini	-	-	-	-	-	■	■	■	■	-	-	-	■	-	-	
	Midi	-	-	-	-	-	■	■	■	■	-	-	-	■	-	-	
	Maxi	-	-	-	-	-	■	■	■	■	-	-	-	■	■	-	

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



Product range overview D series service units, metal design

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	
<b>Individual devices</b>														
Pressure regulators <b>LRB/LRBS</b>		Micro	-											
		Mini	-	-	-	■	-	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	-	-	-	-	-	■	■
		Maxi	-											
Pressure regulator combinations <b>LRB-K</b>		Micro	-											
		Mini	-	-	-	■	■	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	■	-	-	-	-	■	■
		Maxi	-											
Lubricators <b>LOE</b>		Micro	■	■	■	-	-	-	-	-	■	■	-	-
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves <b>HE</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves, electrical <b>HEE</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves, pneumatic <b>HEP</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Soft-start valves <b>HEL</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Membrane air dryers <b>LDM1</b>		Micro	-											
		Mini	-											
		Midi	-											
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Branching modules <b>FRM</b>		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Distributor block <b>FRZ</b>		Micro	-											
		Mini	-											
		Midi	-											
		Maxi	-											

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

Product range overview D series service units, metal design

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

# On-off valves HE, D series, metal design

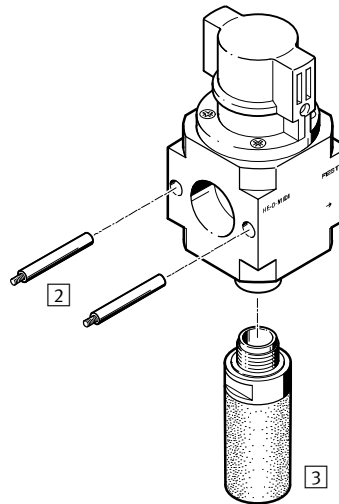
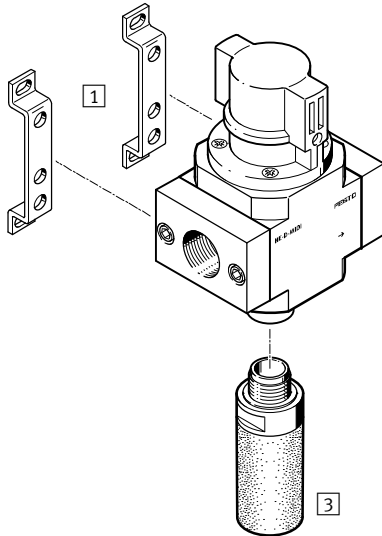
Peripherals overview

FESTO

## Mini/Midi/Maxi

Individual unit with connection plates

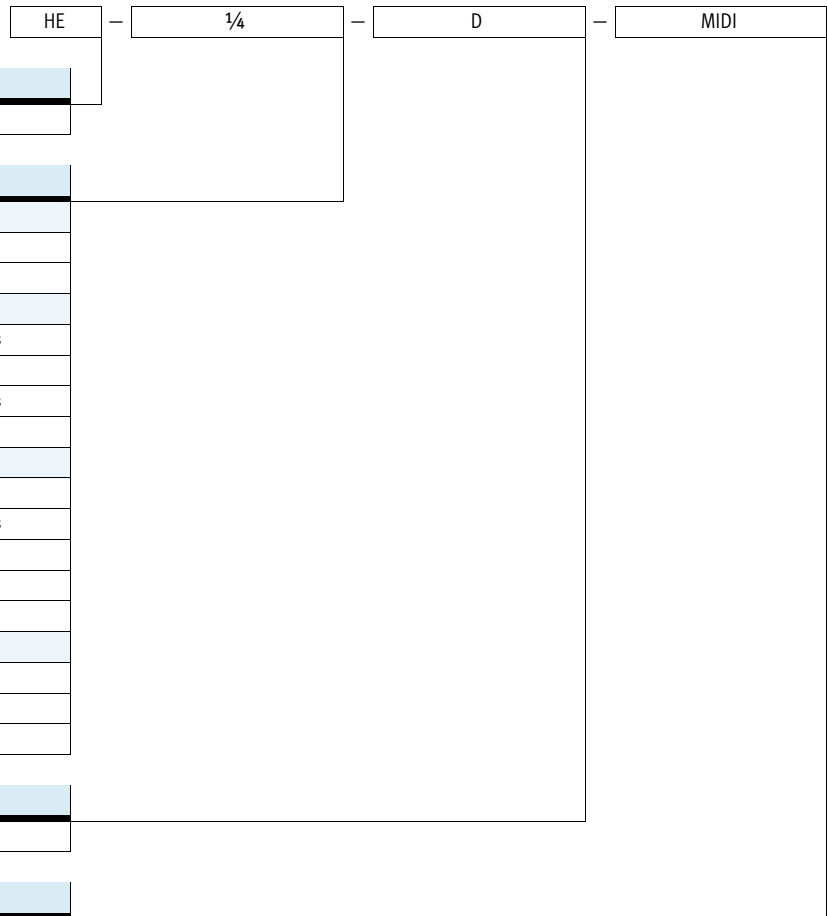
Individual unit without connection plates, for service unit combination



Mounting attachments and accessories					
	Individual unit		Combination		→ Page/ Internet
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	hfoe-d
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	frb-d
3 Silencer U	■	■	■	■	35

# On-off valves HE, D series, metal design

Type codes



**Basic function**

HE	On-off valve, manual
----	----------------------

**Pneumatic connection**

**MINI/MIDI/MAXI**

	Without connecting plates
--	---------------------------

**MINI**

1/8	Connecting plates with connecting thread G1/8
1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8

**MIDI**

1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8
1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4

**MAXI**

1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4
1	Connecting plates with connecting thread G1

**Series**

D	Series
---	--------

**Size**

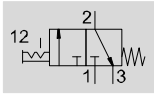
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

# On-off valves HE, D series, metal design

Technical data

FESTO

Function



- - Flow rate  
1,000 ... 6,500 l/min
- - Temperature range  
-10 ... +60 °C
- - Operating pressure  
0 ... 16 bar



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

General technical data													
Size	Mini				Midi					Maxi			
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	- <sup>1)</sup>	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	- <sup>1)</sup>	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	- <sup>1)</sup>
Pneumatic connection 3	G $\frac{1}{8}$				G $\frac{1}{4}$					G $\frac{3}{8}$			
Design	Piston spool valve												
Actuation type	Manual												
Type of mounting	Via accessories												
	In-line installation												
Assembly position	Any												
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]												
	Inert gases												
Valve function	3/2-way valve, bistable												
Manual override	None												
Exhaust function	No flow control												
Direction of flow	Non-reversible												
Sealing principle	Soft												

1) Without connecting plates

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

Flow rate characteristic values											
Size	Mini			Midi				Maxi			
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	
Standard nominal flow rate $q_{nN}^{1)}$ [l/min]											
In main flow direction 1 $\rightarrow$ 2	1,000	1,500	1,600	2,600	3,200	3,600	3,800	5,600	6,000	6,500	
C value [l/s*bar]											
In main flow direction 1 $\rightarrow$ 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 $\rightarrow$ 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.



# On-off valves HE, D series, metal design

Technical data

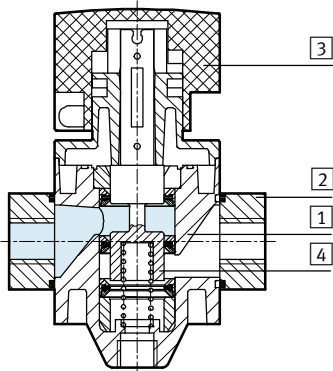
Operating and environmental conditions	
Operating pressure [bar]	0 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
	Inert gases
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature [°C]	-10 ... +60
Temperature of medium [°C]	-10 ... +60
Corrosion resistance class CRC <sup>1)</sup>	2
Maritime classification	See certificate <sup>2)</sup>

- 1) 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.
- 2) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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

## Materials

Sectional view



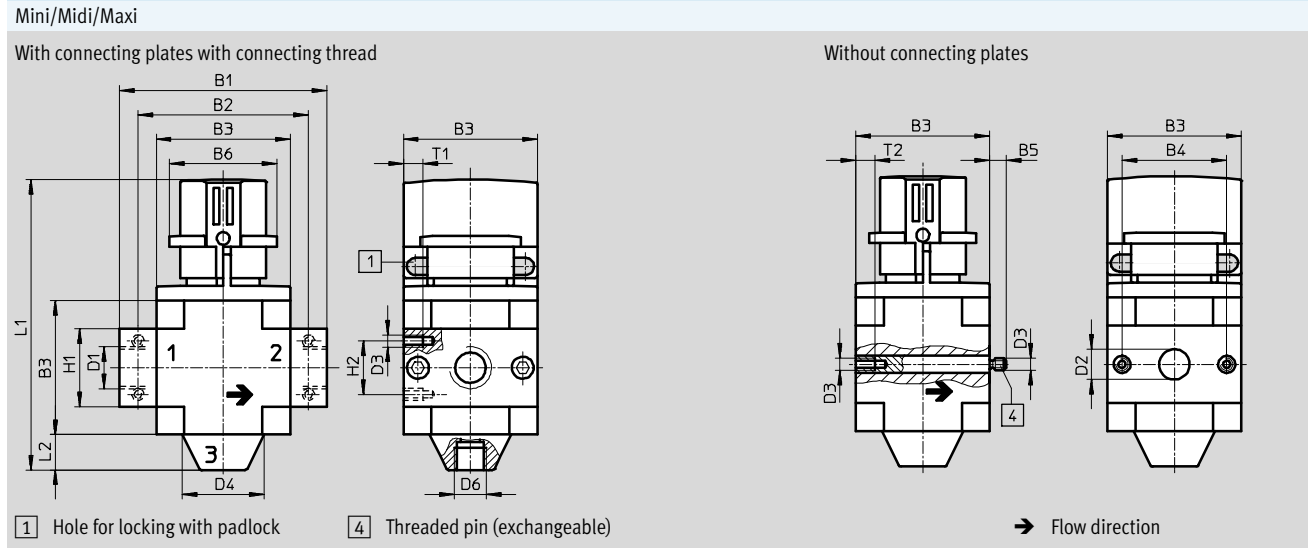
On-off valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Die-cast zinc
3	Rotary knob	PA
4	Piston	Stainless steel
-	Seals	NBR
Note on materials		RoHS-compliant

# On-off valves HE, D series, metal design

Technical data

FESTO

Dimensions Download CAD data → [www.festo.com](http://www.festo.com)



Type	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>																	
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
<b>Midi</b>																	
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
<b>Maxi</b>																	
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					40					
HE-1-D-MAXI	116	91					G1					-	-				
HE-D-MAXI	-	-			6.8		-	30				-	-			-	11

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

# On-off valves HE, D series, metal design

Technical data

Ordering data			
3/2-way valve, normally closed			
Size	Connection	Part No.	Type
Without connecting plates			
Mini	–	<b>170681</b>	<b>HE-D-MINI</b>
Midi	–	<b>170682</b>	<b>HE-D-MIDI</b>
Maxi	–	<b>170683</b>	<b>HE-D-MAXI</b>
Connecting plates with connecting thread			
Mini	G1/8	<b>162806</b>	<b>HE-1/8-D-MINI</b>
	G1/4	<b>162807</b>	<b>HE-1/4-D-MINI</b>
	G3/8	<b>162808</b>	<b>HE-3/8-D-MINI</b>
Midi	G1/4	<b>186513</b>	<b>HE-1/4-D-MIDI</b>
	G3/8	<b>162809</b>	<b>HE-3/8-D-MIDI</b>
	G1/2	<b>162810</b>	<b>HE-1/2-D-MIDI</b>
	G3/4	<b>162811</b>	<b>HE-3/4-D-MIDI</b>
Maxi	G1/2	<b>186514</b>	<b>HE-1/2-D-MAXI</b>
	G3/4	<b>162812</b>	<b>HE-3/4-D-MAXI</b>
	G1	<b>162813</b>	<b>HE-1-D-MAXI</b>

# On-off valves HEE, D series, metal design

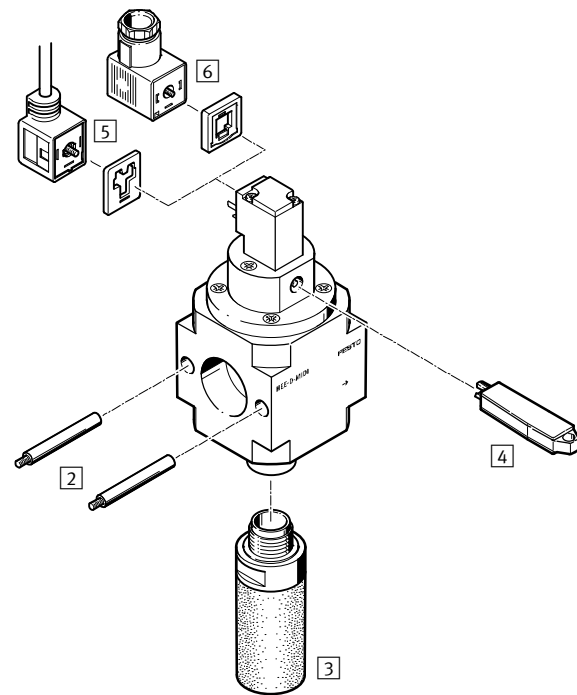
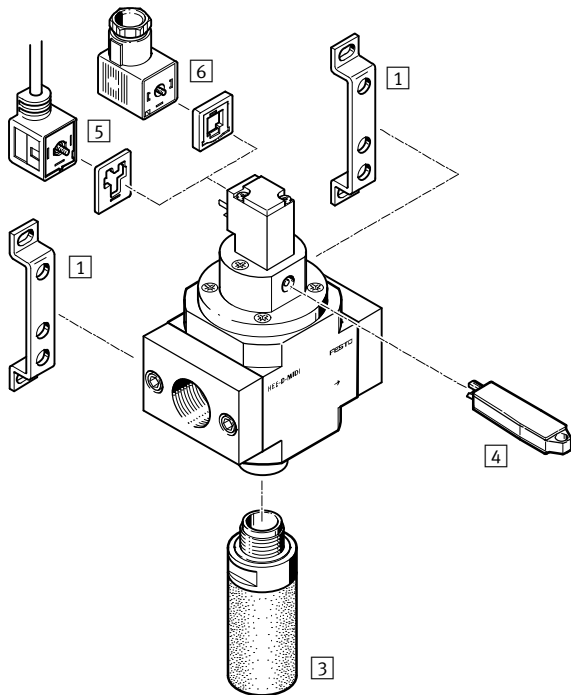
Peripherals overview



## Mini/Midi/Maxi

Individual unit with connection plates

Individual unit without connection plates, for service unit combination



Mounting attachments and accessories					
	Individual unit		Combination		→ Page/ Internet
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	–	■	–	hfoe-d
2 Threaded pin (included in scope of delivery) FRB	–	–	■	■	frb-d
3 Silencer U	■	■	■	■	35
4 Manual override tool, non-detenting AHB-MD/MF/MY	■	■	■	■	–
5 Plug socket with cable KMEB-1	■	■	■	■	35
6 Plug socket MSSD-EB	■	■	■	■	35

# On-off valves HEE, D series, metal design

Type codes

HEE – 1/4 – D – MIDI – 110

**Basic function**

HEE	On-off valve, electrical
-----	--------------------------

**Pneumatic connection**

**MINI/MIDI/MAXI**

	Without connecting plates
--	---------------------------

**MINI**

1/8	Connecting plates with connecting thread G1/8
1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8

**MIDI**

1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8
1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4

**MAXI**

1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4
1	Connecting plates with connecting thread G1

**Series**

D	Series
---	--------

**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)

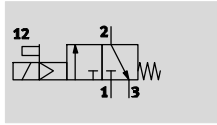
**Voltage**

24	Supply voltage 24 V DC
110	Supply voltage 110 V AC
230	Supply voltage 230 V AC

# On-off valves HEE, D series, metal design

## Technical data

### Function



- - Flow rate  
1,000 ... 6,500 l/min
- - Temperature range  
-10 ... +60 °C
- - Operating pressure  
2.5 ... 16 bar



- Electrical on-off valve for pressurising and venting pneumatic installations
- With solenoid coil without plug socket
- Three voltage ranges can be selected
- Ducted exhaust possible via a threaded connection with silencer
- Manual override via pushing 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 valve												
Actuation type	Electrical												
Type of mounting	Via accessories												
	In-line installation												
Assembly position	Any												
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]												
	Inert gases												
Valve function	3/2-way valve, single solenoid, closed												
Signal status display	Via accessories												
Manual override	Detenting												
Exhaust function	No flow control												
Type of reset	Mechanical spring												
Type of control	Piloted												
Direction of flow	Non-reversible												
Sealing principle	Soft												

1) Without connecting plates

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

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

# On-off valves HEE, D series, metal design

Technical data

Flow rate characteristic values										
Size	Mini			Midi				Maxi		
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Standard nominal flow rate $q_{nN}^{1)}$ [l/min]										
In main flow direction 1 $\rightarrow$ 2	1,000	1,500	1,600	2,600	3,200	3,600	3,800	5,600	6,000	6,500
In relief direction 2 $\rightarrow$ 3	1,000			2,000				3,000		
C value [l/s*bar]										
In main flow direction 1 $\rightarrow$ 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 $\rightarrow$ 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 in accordance with ISO 8573-1:2010 [7:4:4] Inert gases		
Note on operating/pilot medium	Operation with lubricated medium 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 <sup>1)</sup>	2		
CE marking (see declaration of conformity) <sup>2)</sup>	-		To EU Low Voltage Directive
Maritime classification	See certificate <sup>2)</sup>		-

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

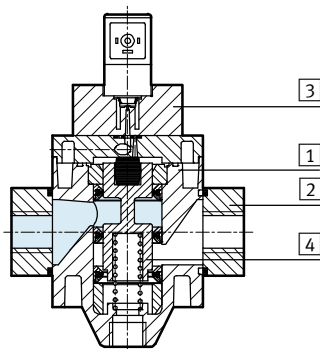
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

2) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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

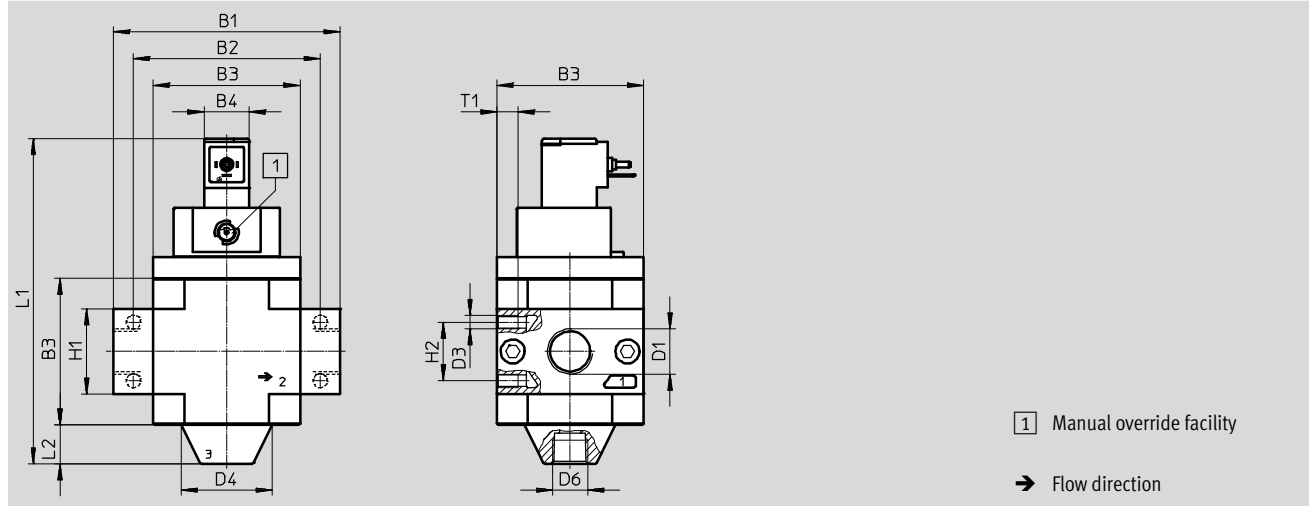
# On-off valves HEE, D series, metal design



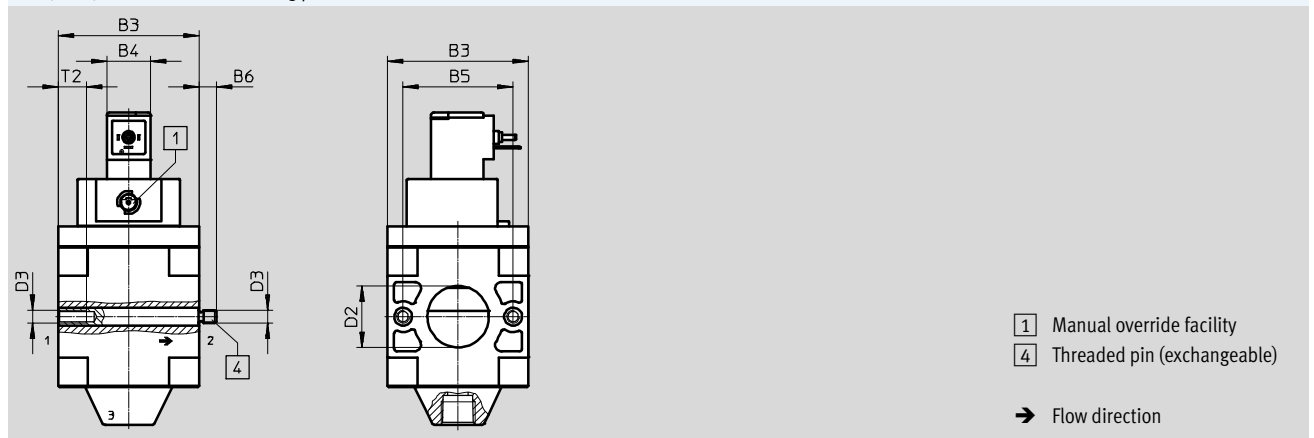
Technical data

## Dimensions Download CAD data → [www.festo.com](http://www.festo.com)

Mini/Midi/Maxi, with connecting plates with connecting thread



## Mini/Midi/Maxi, without connecting plates



Type	B1	B2	B3	B4	B5	B6	D1	D2 Ø	D3	D4 Ø	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>																	
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
<b>Midi</b>																	
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
<b>Maxi</b>																	
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 to ISO 228-1



# On-off valves HEE, D series, metal design

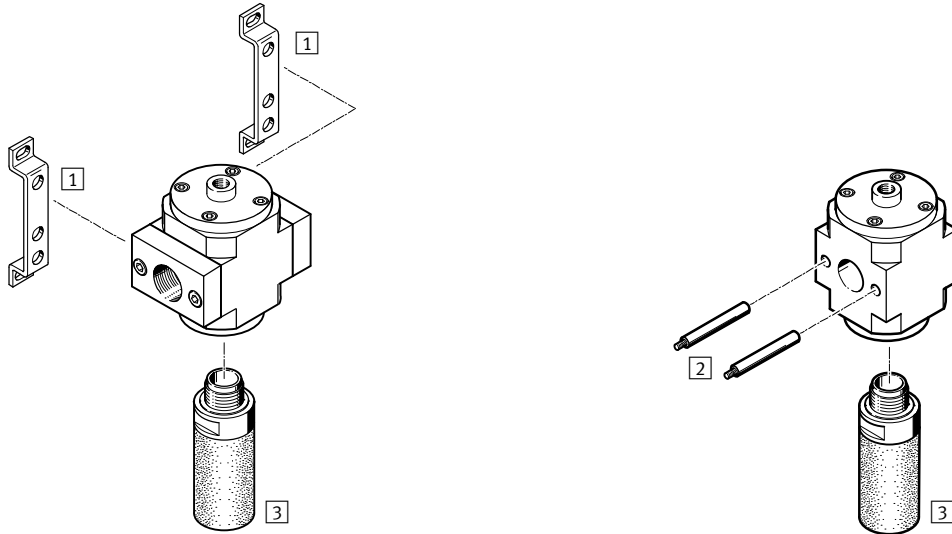
Technical data

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 connecting thread							
Mini	G $\frac{1}{8}$	165068	HEE- $\frac{1}{8}$ -D-MINI-24	165069	HEE- $\frac{1}{8}$ -D-MINI-110	165070	HEE- $\frac{1}{8}$ -D-MINI-230
	G $\frac{1}{4}$	165071	HEE- $\frac{1}{4}$ -D-MINI-24	165072	HEE- $\frac{1}{4}$ -D-MINI-110	165073	HEE- $\frac{1}{4}$ -D-MINI-230
	G $\frac{3}{8}$	165074	HEE- $\frac{3}{8}$ -D-MINI-24	165075	HEE- $\frac{3}{8}$ -D-MINI-110	172940	HEE- $\frac{3}{8}$ -D-MINI-230
Midi	G $\frac{1}{4}$	186515	HEE- $\frac{1}{4}$ -D-MIDI-24	186517	HEE- $\frac{1}{4}$ -D-MIDI-110	186516	HEE- $\frac{1}{4}$ -D-MIDI-230
	G $\frac{3}{8}$	172941	HEE- $\frac{3}{8}$ -D-MIDI-24	172942	HEE- $\frac{3}{8}$ -D-MIDI-110	172943	HEE- $\frac{3}{8}$ -D-MIDI-230
	G $\frac{1}{2}$	172944	HEE- $\frac{1}{2}$ -D-MIDI-24	172945	HEE- $\frac{1}{2}$ -D-MIDI-110	172946	HEE- $\frac{1}{2}$ -D-MIDI-230
	G $\frac{3}{4}$	172947	HEE- $\frac{3}{4}$ -D-MIDI-24	172948	HEE- $\frac{3}{4}$ -D-MIDI-110	172949	HEE- $\frac{3}{4}$ -D-MIDI-230
Maxi	G $\frac{1}{2}$	186518	HEE- $\frac{1}{2}$ -D-MAXI-24	186520	HEE- $\frac{1}{2}$ -D-MAXI-110	186519	HEE- $\frac{1}{2}$ -D-MAXI-230
	G $\frac{3}{4}$	172950	HEE- $\frac{3}{4}$ -D-MAXI-24	172951	HEE- $\frac{3}{4}$ -D-MAXI-110	172952	HEE- $\frac{3}{4}$ -D-MAXI-230
	G1	172953	HEE-1-D-MAXI-24	172954	HEE-1-D-MAXI-110	172955	HEE-1-D-MAXI-230

# On-off valves HEP, D series, metal design

Peripherals overview

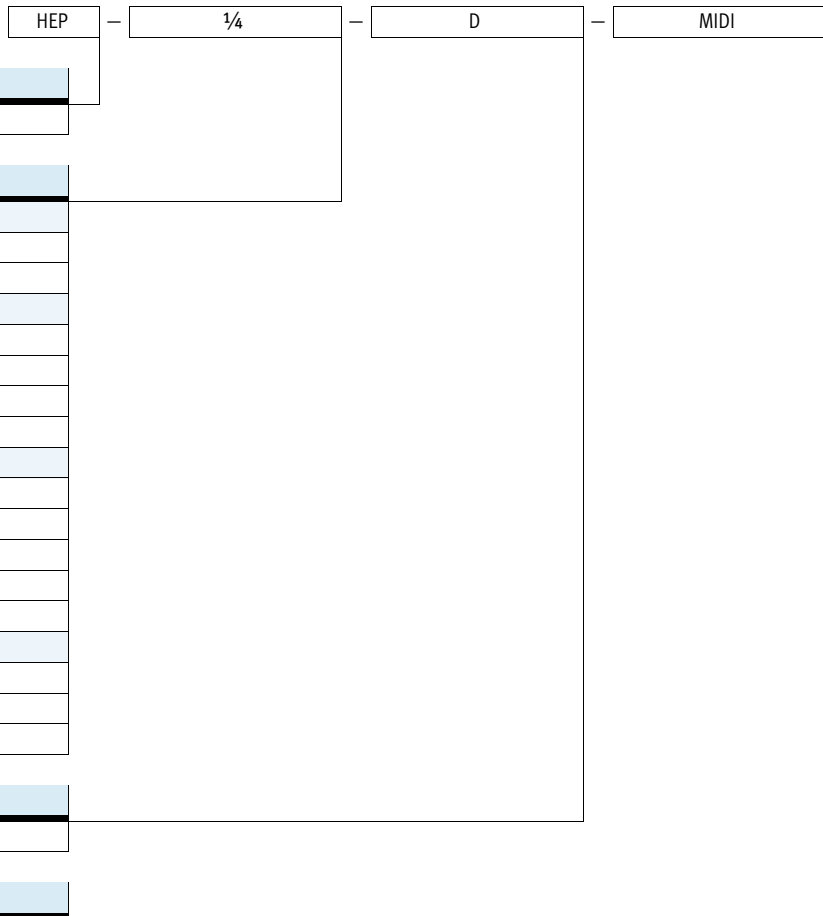
**Mini/Midi/Maxi**  
 Individual unit with connection plates Individual unit without connection plates, for service unit combination



Mounting attachments and accessories					
	Individual unit		Combination		→ Page/ Internet
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	hfoe-d
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	frb-d
3 Silencer U	■	■	■	■	35

# On-off valves HEP, D series, metal design

Type codes



**Basic function**

HEP	On-off valve, pneumatic
-----	-------------------------

**Pneumatic connection**

MINI/MIDI/MAXI	
	Without connecting plates

**MINI**

1/8	Connecting plates with connecting thread G1/8
1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8

**MIDI**

1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8
1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4

**MAXI**

1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4
1	Connecting plates with connecting thread G1

**Series**

D	Series
---	--------

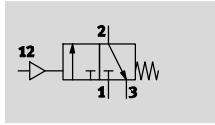
**Size**




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

# On-off valves HEP, D series, metal design

## Technical data

### Function



-  - Flow rate  
800 ... 6,500 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Operating pressure  
0 ... 16 bar



- Pneumatically actuated on-off valve for pressurising and venting pneumatic installations
- The valve can be used as a single unit 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	- <sup>1)</sup>	G1/4	G3/8	G1/2	G3/4	- <sup>1)</sup>	G1/2	G3/4	G1	- <sup>1)</sup>
Pneumatic connection 3	G1/8				G1/4					G3/8			
Pilot air connection 12	G1/8												
Design	Piston spool valve												
Actuation type	Pneumatic												
Type of mounting	Via accessories												
	In-line installation												
Assembly position	Any												
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]												
	Inert gases												
Valve function	3/2-way valve, single solenoid, closed												
Manual override	None												
Exhaust function	No flow control												
Type of actuation	Mechanical spring												
Direction of flow	Non-reversible												
Sealing principle	Soft												

1) Without connecting plates

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

# On-off valves HEP, D series, metal design

Technical data

Flow rate characteristic values										
Size	Mini			Midi				Maxi		
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1
Standard nominal flow rate $q_{nN}^{1)}$ [l/min]										
In main flow direction 1 $\rightarrow$ 2	1,000	1,500	1,600	2,600	3,500	3,900	4,100	5,600	6,000	6,500
In relief direction 2 $\rightarrow$ 3	800			1,900				2,400		
C value [l/s*bar]										
In main flow direction 1 $\rightarrow$ 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 $\rightarrow$ 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 [bar]	0 ... 16
Pilot pressure [bar]	3 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating/pilot medium	Operation with lubricated medium 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 <sup>1)</sup>	2
Maritime classification	See certificate <sup>2)</sup>

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

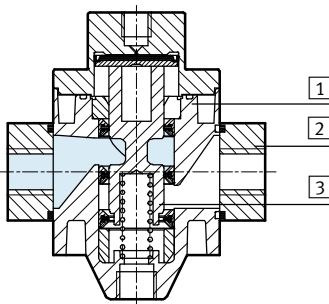
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

2) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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	Piston Stainless steel
-	Seals NBR
Note on materials RoHS-compliant	

# On-off valves HEP, D series, metal design

Technical data

Dimensions Download CAD data → [www.festo.com](http://www.festo.com)

Mini/Midi/Maxi

With connecting plates with connecting thread Without connecting plates

1 Threaded connection for pilot air (12) 4 Threaded pin (exchangeable) → Flow direction

Type	B1	B2	B3	B4	B5	D1	D2 Ø	D3	D4 Ø	D5	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>																	
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					G3/8	11											
HEP-3/8-D-MINI	70																
HEP-D-MINI	-	-			5.8	-	11					-	-			-	10
<b>Midi</b>																	
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	11											
HEP-1/2-D-MIDI					G1/2	11											
HEP-3/4-D-MIDI					G3/4	11											
HEP-D-MIDI	-	-			6.8	-	24					-	-			-	11
<b>Maxi</b>																	
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	11											
HEP-1-D-MAXI	116	91															
HEP-D-MAXI	-	-			6.8	-	30					-	-			-	11

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

## On-off valves HEP, D series, metal design

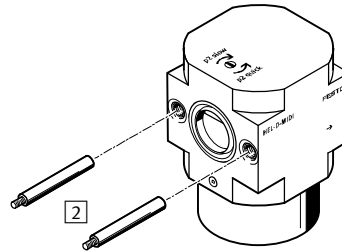
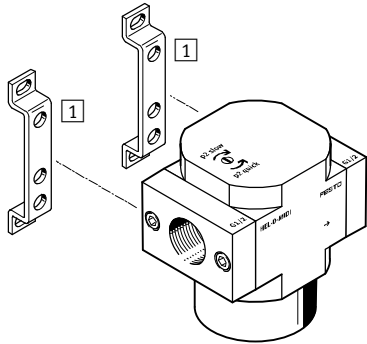
Technical data

Ordering data			
3/2-way valve, normally closed			
Size	Connection	Part No.	Type
With connecting plates			
Mini	–	193242	HEP-D-MINI
Midi	–	193249	HEP-D-MIDI
Maxi	–	193257	HEP-D-MAXI
Connecting plates with connecting thread			
Mini	G $\frac{1}{8}$	193243	HEP- $\frac{1}{8}$ -D-MINI
	G $\frac{1}{4}$	193244	HEP- $\frac{1}{4}$ -D-MINI
	G $\frac{3}{8}$	193245	HEP- $\frac{3}{8}$ -D-MINI
Midi	G $\frac{1}{4}$	193250	HEP- $\frac{1}{4}$ -D-MIDI
	G $\frac{3}{8}$	193251	HEP- $\frac{3}{8}$ -D-MIDI
	G $\frac{1}{2}$	193252	HEP- $\frac{1}{2}$ -D-MIDI
	G $\frac{3}{4}$	193253	HEP- $\frac{3}{4}$ -D-MIDI
Maxi	G $\frac{1}{2}$	193258	HEP- $\frac{1}{2}$ -D-MAXI
	G $\frac{3}{4}$	193259	HEP- $\frac{3}{4}$ -D-MAXI
	G1	193260	HEP-1-D-MAXI

# Soft-start valves HEL, D series, metal design

Peripherals overview

**Mini/Midi/Maxi**  
 Individual unit with connection plates Individual unit without connection plates, for service unit combination

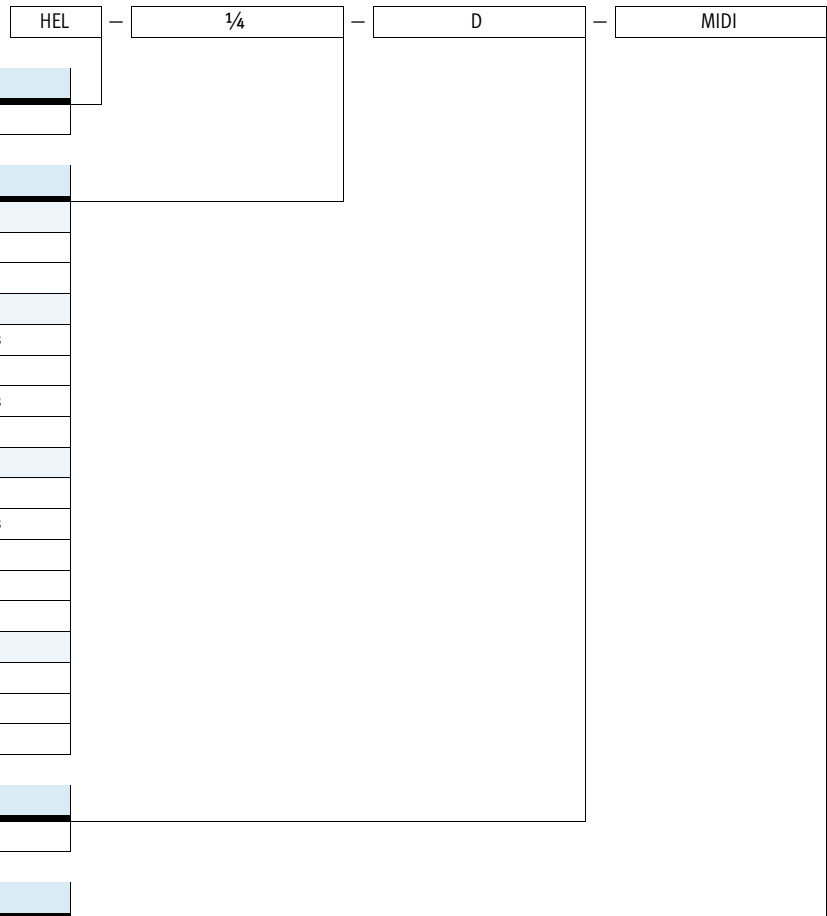


Mounting attachments and accessories					
	Individual unit		Combination		→ Page/ Internet
	with connection plates	without connection plates	with connection plates	without connection plates	
1 Mounting bracket HFOE	■	-	■	-	hfoe-d
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	frb-d



# Soft-start valves HEL, D series, metal design

Type codes



**Basic function**

HEL	Soft-start valve
-----	------------------

**Pneumatic connection**

**MINI/MIDI/MAXI**

	Without connecting plates
--	---------------------------

**MINI**

1/8	Connecting plates with connecting thread G1/8
1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8

**MIDI**

1/4	Connecting plates with connecting thread G1/4
3/8	Connecting plates with connecting thread G3/8
1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4

**MAXI**

1/2	Connecting plates with connecting thread G1/2
3/4	Connecting plates with connecting thread G3/4
1	Connecting plates with connecting thread G1

**Series**

D	Series
---	--------

**Size**

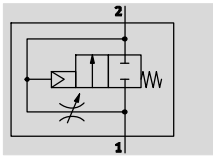
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)

# Soft-start valves HEL, D series, metal design

Technical data



Function



- - Flow rate  
1,000 ... 6,500 l/min
- - Temperature range  
-10 ... +60 °C
- - Operating pressure  
3 ... 16 bar



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

The output 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)
- Drives are moved slowly and safely to their initial positions
- Sudden and erratic movements are avoided
- Pressure switching approx. 50% of input pressure
- Adjustable switching time delay

General technical data													
Size	Mini				Midi					Maxi			
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	- <sup>1)</sup>	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	- <sup>1)</sup>	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	- <sup>1)</sup>
Design	Piston spool valve												
Actuation type	Pneumatic												
Type of mounting	Via accessories In-line installation												
Assembly position	Any												
Air purity class at the output	Compressed air in accordance with ISO 8573-1:2010 [7:4:4] Inert gases												
Valve function	2/2-way valve, single solenoid, closed												
Manual override	None												
Exhaust function	Flow control												
Reset method	Mechanical spring												
Type of actuation	Direct												
Direction of flow	Non-reversible												
Sealing principle	Soft												

1) Without connecting plates

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

Flow rate characteristic values											
Size	Mini			Midi				Maxi			
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	
Standard nominal flow rate q <sub>N</sub> <sup>1)</sup> [l/min]											
In main flow direction 1 → 2	1,000	1,500	1,600	2,600	3,200	3,600	3,800	5,600	6,000	6,500	
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 p<sub>1</sub> = 6 bar and Δp = 1 bar.

# Soft-start valves HEL, D series, metal design

Technical data

Operating and environmental conditions	
Operating pressure [bar]	3 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
	Inert gases
Note on operating/pilot medium	Operation with lubricated medium 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 <sup>1)</sup>	2
Maritime classification	See certificate <sup>2)</sup>

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

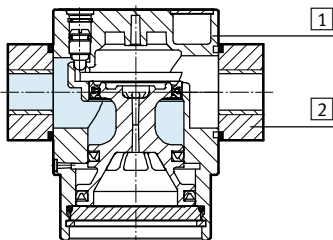
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

2) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

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

## Materials

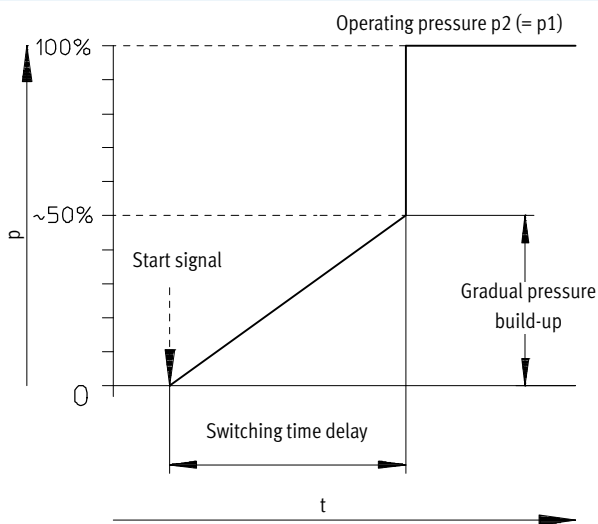
Sectional view



Soft-start valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Die-cast zinc
-	Seals	NBR
Note on materials		RoHS-compliant

## Switching point

Pressure p as a function of time t



# Soft-start valves HEL, D series, metal design

Technical data



Download CAD data → [www.festo.com](http://www.festo.com)

With connecting plates with connecting thread

Without connecting plates

1 Regulating screw in housing     
 4 Threaded pin (exchangeable)     
 → Flow direction

Type	B1	B2	B3	B4	B5	D1	D2 ∅	D3	D6	H1	H2	L1	L2	T1	T2
<b>Mini</b>															
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	-	-	-	-	-	-	-	-	10
HEL-D-MINI	-	-	-	-	5.8	-	11	-	-	-	-	-	-	-	-
<b>Midi</b>															
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
<b>Maxi</b>															
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				-	-				
HEL-1-D-MAXI	116	91	-	-	-	G1	-	-	-	40	-	-	-	-	-
HEL-D-MAXI	-	-	-	-	6.8	-	30	-	-	-	-	-	-	-	11

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

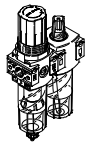
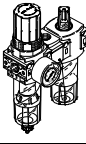
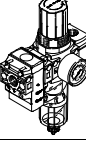
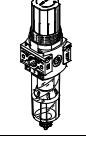

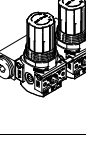
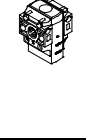
## Soft-start valves HEL, D series, metal design

Technical data

Ordering data			
2/2-way valve, normally closed			
Size	Connection	Part No.	Type
Without connecting plates			
Mini	–	<b>170690</b>	<b>HEL-D-MINI</b>
Midi	–	<b>170691</b>	<b>HEL-D-MIDI</b>
Maxi	–	<b>170692</b>	<b>HEL-D-MAXI</b>
Connecting plates with connecting thread			
Mini	G $\frac{1}{8}$	<b>165076</b>	<b>HEL-<math>\frac{1}{8}</math>-D-MINI</b>
	G $\frac{1}{4}$	<b>165077</b>	<b>HEL-<math>\frac{1}{4}</math>-D-MINI</b>
	G $\frac{3}{8}$	<b>165078</b>	<b>HEL-<math>\frac{3}{8}</math>-D-MINI</b>
Midi	G $\frac{1}{4}$	<b>186521</b>	<b>HEL-<math>\frac{1}{4}</math>-D-MIDI</b>
	G $\frac{3}{8}$	<b>165079</b>	<b>HEL-<math>\frac{3}{8}</math>-D-MIDI</b>
	G $\frac{1}{2}$	<b>165080</b>	<b>HEL-<math>\frac{1}{2}</math>-D-MIDI</b>
	G $\frac{3}{4}$	<b>165081</b>	<b>HEL-<math>\frac{3}{4}</math>-D-MIDI</b>
Maxi	G $\frac{1}{2}$	<b>186522</b>	<b>HEL-<math>\frac{1}{2}</math>-D-MAXI</b>
	G $\frac{3}{4}$	<b>165082</b>	<b>HEL-<math>\frac{3}{4}</math>-D-MAXI</b>
	G1	<b>165083</b>	<b>HEL-1-D-MAXI</b>

# On-off valves HE, D series, polymer

Product range overview D series service units, polymer

Type	Size	Pneumatic connection		Pressure regulation range [bar]	Grade of filtration [µm]		
		G¼	G½		5	40	
<b>Service units</b>							
FRC		Mini	■	-	■	■	■
<b>Service unit combinations</b>							
FRC-K		Mini	■	-	■	-	■
LFR-K		Mini	■	-	■	-	■
<b>Individual devices</b>							
Filter regulators LFR		Mini	■	-	■	■	■
Pressure regulators LR		Mini	■	-	■	-	-
Pressure regulator combinations LRB-K		Mini	-	■	■	-	-
On-off valves HE		Mini	■	-	-	-	-

# On-off valves HE, D series, polymer

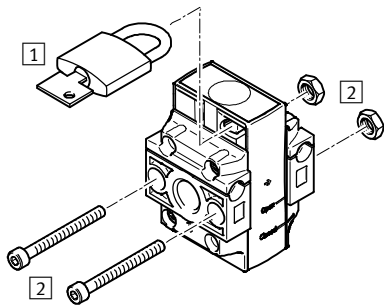
Product range overview D series service units, polymer

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

# On-off valves HE, D series, polymer

Peripherals overview and type code

## Peripherals overview



## Mounting attachments and accessories

	→ Page/Internet
1 Padlock LRVS-D	35
2 Socket head screw with hexagon nut for mounting with subsequent service unit (2 included in scope of delivery) DIN 912-M4X40-8.8/DIN 934-M4-6AU	-
- Socket head screw for wall mounting (2 included in scope of delivery) DIN 84-M4X45-4.8	-

## Type code

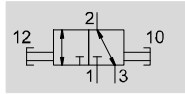
	HE	-	1/4	-	DB	-	MINI
<b>Basic function</b>							
HE	On-off valve						
<b>Pneumatic connection</b>							
1/4	Thread G1/4						
<b>Series</b>							
DB	Series						
<b>Size</b>							
MINI							



# On-off valves HE, D series, polymer

Technical data

Function



- - Flow rate  
2,300 l/min
- - Temperature range  
-5 ... +50 °C
- - Operating pressure  
0 ... 10 bar



- 3/2-way manual shut-off valve
- The switching position is recognizable
- Commercially available padlock can be used for security

General technical data	
Size	Mini
Pneumatic connection 1, 2	G $\frac{1}{4}$
Design	On-off valve
Actuation type	Manual
Type of mounting	Inline installation Via through-holes
Assembly position	Any
Air purity class at the output	Compressed air in accordance with 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	No flow control
Type of control	Direct
Sealing principle	Soft

Flow rate characteristic values	
Pneumatic connection 1, 2	G $\frac{1}{4}$
Standard nominal flow rate $q_{nN^{1)}$ [l/min]	
In main flow direction 1 $\rightarrow$ 2	2,300
In relief direction 2 $\rightarrow$ 3	700
C value [l/s*bar]	
In main flow direction 1 $\rightarrow$ 2	6.3
b value	
In main flow direction 1 $\rightarrow$ 2	0.28

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

# On-off valves HE, D series, polymer

Technical data



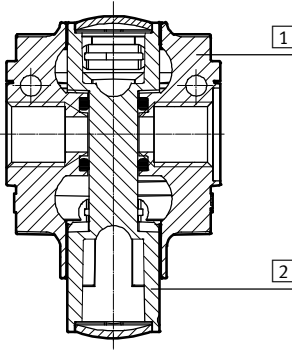
Operating and environmental conditions	
Size	Mini
Operating pressure [bar]	0 ... 10
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating/pilot medium	Operation with lubricated medium not possible
Ambient temperature [°C]	-5 ... +50
Temperature of medium [°C]	-5 ... +50
Corrosion resistance class CRC <sup>1)</sup>	1

1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Weight [g]	
Size	Mini
On-off valve	66

## Materials

Sectional view

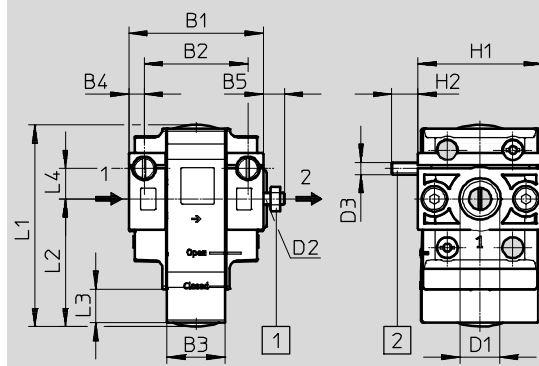


On-off valve	Mini
1 Housing	PA reinforced
2 Piston spool	POM
- Seals	FPM
Note on materials	RoHS-compliant

## Dimensions

Mini

Download CAD data → [www.festo.com](http://www.festo.com)



- 1 Socket head screw with hexagon nut for mounting with subsequent service unit (2 included in scope of delivery)
  - 2 Socket head screw for wall mounting (2 included in 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

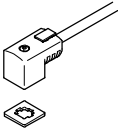
Ordering data			
Size	Connection	Part No.	Type
Mini	G1/4	3563687	HE-1/4-DB-MINI


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


FESTO


Accessories

Ordering data – Plug socket MSSD				Technical data → Internet: mssd	
	Description	Electrical connection	Type of mounting cable connection	Part No.	Type
	For HEE	3-pin	Clamping screws	<b>151687</b>	<b>MSSD-EB</b>
		4-pin	Insulation displacement technology	<b>192745</b>	<b>MSSD-EB-S-M14</b>

Ordering data – Plug socket with cable KMEB						Technical data → Internet: kmeb	
	Description	Operating voltage range	Electrical connection	Switching status display	Cable length [m]	Part No.	Type
	For HEE	24 V DC	3-pin	LED	2.5	<b>151688</b>	<b>KMEB-1-24-2,5-LED</b>
					5	<b>151689</b>	<b>KMEB-1-24-5-LED</b>
					10	<b>193457</b>	<b>KMEB-1-24-10-LED</b>
		230 V AC	3-pin	–	2.5	<b>151690</b>	<b>KMEB-1-230AC-2,5</b>
					5	<b>151691</b>	<b>KMEB-1-230AC-5</b>

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

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

Ordering data – Padlock LRVS-D			Part No.	Type
	Weight [g]			
	120	<b>193786</b>	<b>LRVS-D</b>	