

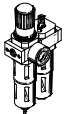

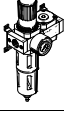
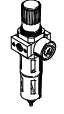
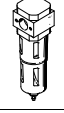
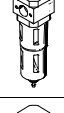
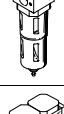


On-off/soft-start valves HE/HEE/HEP/HEL, D series



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	0.5 ...	0.5 ...	2.5 ...	0.01	1	5	40
Service units																		
FRC/FRCS 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■	■
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	■	■
Service unit combinations																		
FRC-K 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	-	-	-	-	-	-	■	■	-	-	-	-	■
	Midi	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	-	■
	Maxi	-	-	-	-	-	■	■	-	-	-	■	■	-	-	-	-	■
LFR-K LFRS-K 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	-	-	-	-	-	-	■	■	-	-	-	-	■
	Midi	-	-	-	■	■	■	-	-	-	-	■	■	-	-	-	-	■
	Maxi	-	-	-	-	-	■	■	-	-	-	■	■	-	-	-	-	■
Individual devices																		
Filter regulators LFR/LFRS 	Micro	■	■	■	-	-	-	-	-	■	■	■	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	■	■	-	-	-	■	■
	Midi	-	-	-	■	■	■	■	-	-	-	■	■	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	■	■	-	-	-	■	■
Filters LF 	Micro	■	■	■	-	-	-	-	-	■	■	-	-	-	-	-	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	■	■
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	■	■
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	■	■
Fine and micro filters LFMA/LFMB 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	■	-
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	■	■	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-
Active carbon filters LFX 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	-	-	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	-	-	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	-	-
Filter combinations LFMBA 	Micro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mini	-	-	■	■	■	-	-	-	-	-	-	-	-	■	■	-	-
	Midi	-	-	-	■	■	■	■	-	-	-	-	-	-	■	■	-	-
	Maxi	-	-	-	-	-	■	■	■	-	-	-	-	-	■	■	-	-
Pressure regulators LR/LRS 	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	
Service units																	
FRC/FRCS	Micro	-	■	■	■	-	■	■	■	-	-	-	-	-	-	-	frc
	Mini	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Midi	■	-	■	-	■	■	■	■	■	-	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	■	■	■	-	-	-	■	■	-	
Service unit combinations																	
FRC-K	Micro	-															frc
	Mini	■	-	■	-	■	■	-	■	-	■	-	-	-	-	-	
	Midi	■	-	■	-	■	■	-	■	-	■	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	-	■	-	-	■	■	-	
LFR-K LFRS-K	Micro	-															lfr
	Mini	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	
	Midi	■	-	■	-	■	■	-	■	■	■	-	-	-	-	-	
	Maxi	■	-	■	-	■	■	-	■	■	■	-	-	■	■	-	
Individual devices																	
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	
Individual devices														
Pressure regulators LRB/LRBS		Micro	-											
		Mini	-	-	-	■	-	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	-	-	-	-	-	■	■
		Maxi	-											
Pressure regulator combinations LRB-K		Micro	-											
		Mini	-	-	-	■	■	-	-	-	-	-	■	■
		Midi	-	-	-	-	■	■	-	-	-	-	■	■
		Maxi	-											
Lubricators LOE		Micro	■	■	■	-	-	-	-	-	■	■	-	-
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves HE		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves, electrical HEE		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
On-off valves, pneumatic HEP		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Soft-start valves HEL		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Membrane air dryers LDM1		Micro	-											
		Mini	-											
		Midi	-											
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Branching modules FRM		Micro	-											
		Mini	-	-	■	■	■	-	-	-	-	-	-	-
		Midi	-	-	-	■	■	■	■	-	-	-	-	-
		Maxi	-	-	-	-	-	■	■	■	-	-	-	-
Distributor block FRZ		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	
Individual devices													
Pressure regulators LRB/LRBS	Micro	-	-	-	■	■	■	-	-	-	-	-	lrb
	Mini	-	-	-	■	■	■	-	-	-	-	-	
	Midi	-	-	-	■	■	■	-	-	-	-	-	
	Maxi	-	-	-	■	■	■	-	-	-	-	-	
Pressure regulator combinations LRB-K	Micro	-	-	-	■	■	-	-	-	-	-	-	lrb
	Mini	-	-	-	■	■	-	-	-	-	-	-	
	Midi	-	-	-	■	■	-	-	-	-	-	-	
	Maxi	-	-	-	■	■	-	-	-	-	-	-	
Lubricators LOE	Micro	-	■	-	■	-	-	-	-	-	-	-	loe
	Mini	■	-	-	■	-	-	-	-	-	-	-	
	Midi	■	-	-	■	-	-	-	-	-	-	-	
	Maxi	■	-	-	■	-	-	-	-	-	-	-	
On-off valves HE	Micro	-	-	-	■	■	-	-	-	-	-	-	6
	Mini	-	-	-	■	■	-	-	-	-	-	-	
	Midi	-	-	-	■	■	-	-	-	-	-	-	
	Maxi	-	-	-	■	■	-	-	-	-	-	-	
On-off valves, electrical HEE	Micro	-	-	-	■	-	-	■	■	■	-	-	11
	Mini	-	-	-	■	-	-	■	■	■	-	-	
	Midi	-	-	-	■	-	-	■	■	■	-	-	
	Maxi	-	-	-	■	-	-	■	■	■	-	-	
On-off valves, pneumatic HEP	Micro	-	-	-	■	-	-	-	-	-	-	-	17
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	
Soft-start valves HEL	Micro	-	-	-	■	-	-	-	-	-	-	-	22
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	
Membrane air dryers LDM1	Micro	-	-	-	■	-	-	-	-	-	-	-	ldm1
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	■	-	-	■	-	-	-	-	-	-	-	
Branching modules FRM	Micro	-	-	-	■	-	-	-	-	-	■	■	frm
	Mini	-	-	-	■	-	-	-	-	-	■	■	
	Midi	-	-	-	■	-	-	-	-	-	■	■	
	Maxi	-	-	-	■	-	-	-	-	-	■	■	
Distributor block FRZ	Micro	-	-	-	■	-	-	-	-	-	-	-	frz
	Mini	-	-	-	■	-	-	-	-	-	-	-	
	Midi	-	-	-	■	-	-	-	-	-	-	-	
	Maxi	-	-	-	■	-	-	-	-	-	-	-	

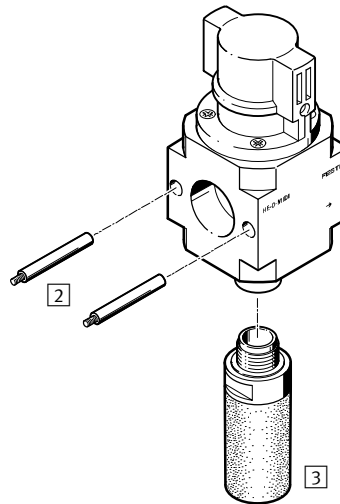
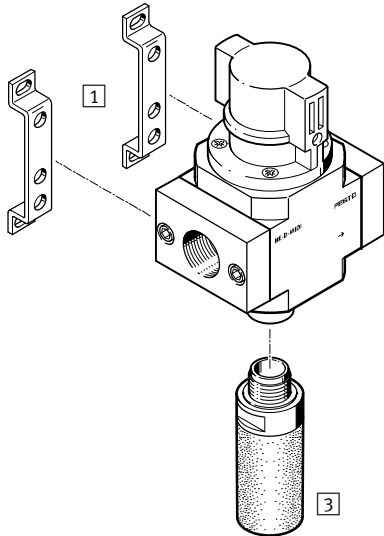
On-off valves HE, D series, metal design

Peripherals overview and type codes

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	■	■	■	■	27

Type code

HE – 1/4 – D – MIDI

Basic function

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

Pneumatic connection

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

Series

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

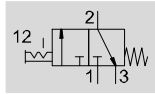
Size

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

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 $\frac{3}{8}$	- ¹⁾	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	- ¹⁾	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	- ¹⁾
Pneumatic connection 3	G $\frac{1}{8}$				G $\frac{1}{4}$					G $\frac{3}{8}$			
Design	Piston spool valve												
Type of mounting	Via accessories												
	In-line installation												
Assembly position	Any												
Valve function	3/2-way valve, double solenoid												
Exhaust function	No flow control												
Direction of flow	Non-reversible												
Sealing principle	Soft												

1) Without threaded 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	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

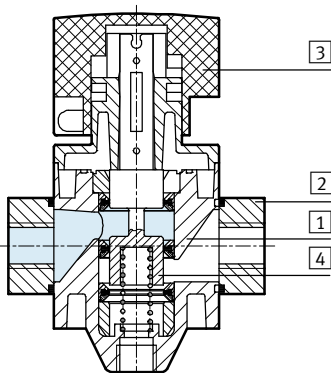
Operating and environmental conditions	
Operating pressure [bar]	0 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
	Inert gases
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient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

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.

Weight [g]			
Size	Mini	Midi	Maxi
HE	192	511	796

Materials

Sectional view



On-off valve	
1	Housing Die-cast aluminium
2	Connecting plates Wrought aluminium alloy
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

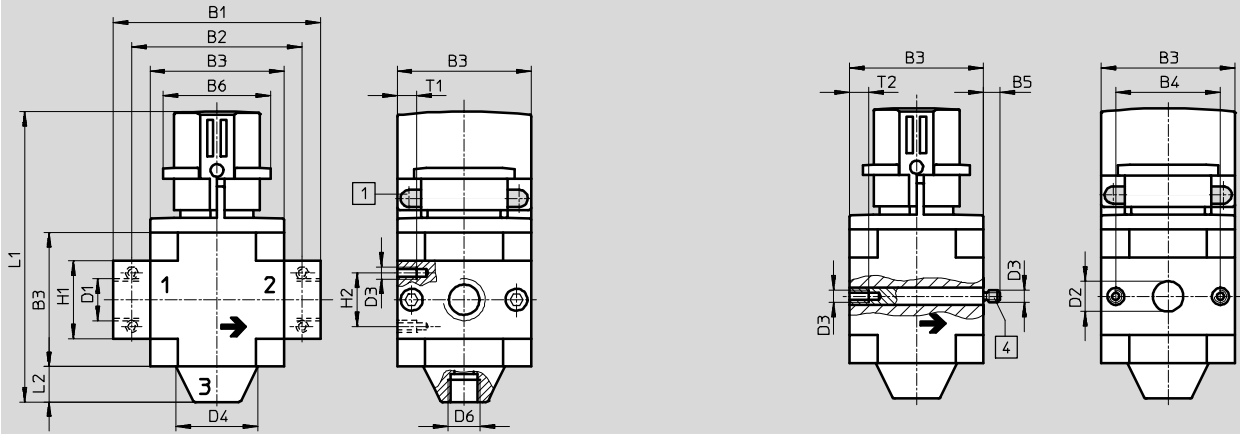
Dimensions

Download CAD data → www.festo.com

Mini/Midi/Maxi

With threaded connecting plates

Without threaded connecting plates



1 Hole for locking with padlock

4 Threaded pin (exchangeable)

→ 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 to ISO 228-1

On-off valves HE, D series, metal design

Technical data

Ordering data		
3/2-way valve, operating pressure 0 ... 16 bar, normally closed		
Size	Part No.	Type
Without threaded connecting plates		
Mini	170681	HE-D-MINI
Midi	170682	HE-D-MIDI
Maxi	170683	HE-D-MAXI

Ordering data			
3/2-way valve, operating pressure 0 ... 16 bar, normally closed			
Size	Connection	Part No.	Type
With threaded connecting plates			
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

On-off valves HEE, D series, metal design

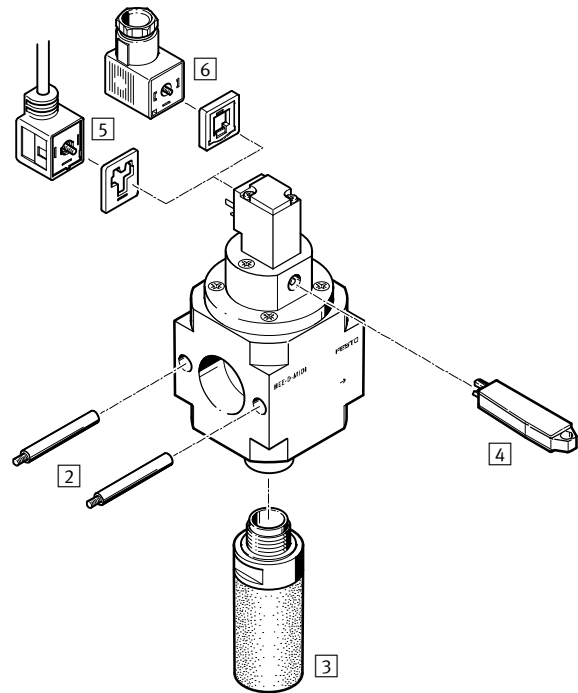
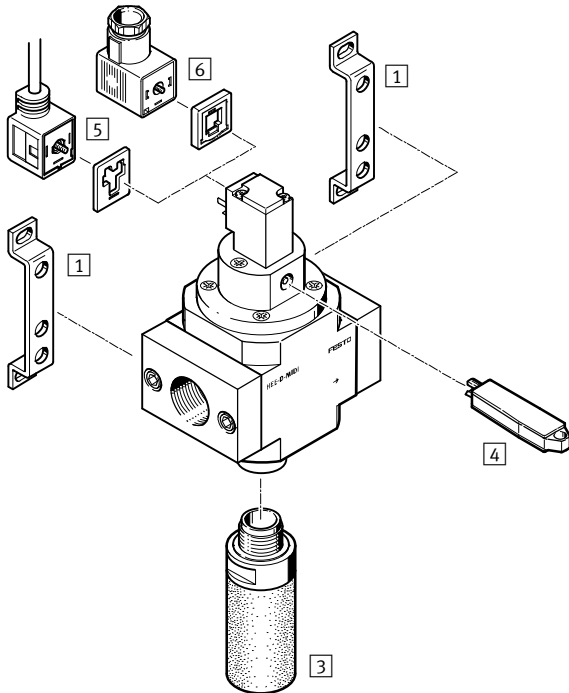
Peripherals overview

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	■	■	■	■	27
4 Manual override tool, non-detenting AHB-MD/MF/MY	■	■	■	■	-
5 Plug socket with cable KMEB-1	■	■	■	■	27
6 Plug socket MSSD-EB	■	■	■	■	27

On-off valves HEE, D series, metal design

Type codes

HEE – ¼ – D – MIDI – 110

Basic function

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

Pneumatic connection

	Without threaded connecting plates
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	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)

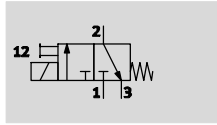
Voltage

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	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	- ¹⁾	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	- ¹⁾	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	- ¹⁾
Pneumatic connection 3	G $\frac{1}{8}$				G $\frac{1}{4}$					G $\frac{3}{8}$			
Design	Piston spool valve												
Type of mounting	Via accessories												
	In-line installation												
Assembly position	Any												
Valve function	3/2-way valve, single solenoid												
Exhaust function	No flow control												
Type of reset	Mechanical spring												
Type of control	Piloted												
Pilot air supply	Internal												
Direction of flow	Non-reversible												
Sealing principle	Soft												
C value [l/(s*bar)]	4.4	7.0	7.3	-	9.7	15.7	17.0	17.3	-	24.2	28.0	27.6	-
b value	0.44	0.31	0.28	-	0.47	0.33	0.30	0.41	-	0.30	0.32	0.32	-

1) Without threaded 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 $\pm 10\%$
	110	110 V AC: 50/60 Hz; pick-up power 5.0 W; holding power 3.7 W; perm. voltage fluctuations $\pm 10\%$
	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

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]										
Connection	Mini			Midi				Maxi		
	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
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		

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

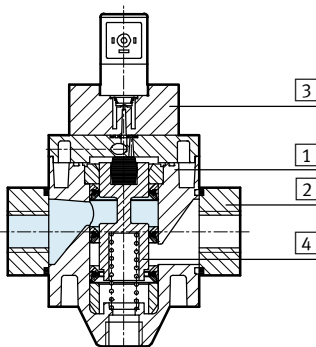
Operating and environmental conditions	
Operating pressure [bar]	2.5 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature [°C]	-10 ... +60
Temperature of medium [°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾	2
Certification	Germanischer Lloyd (only with supply voltage 24 V DC and 110 V AC)

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.

Weight [g]			
Size	Mini	Midi	Maxi
HEE	223	500	800

Materials

Sectional view



On-off valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Wrought aluminium alloy
3	Solenoid and intermediate plate	Polyamide
4	Piston	Stainless steel
-	Seals	Nitrile rubber

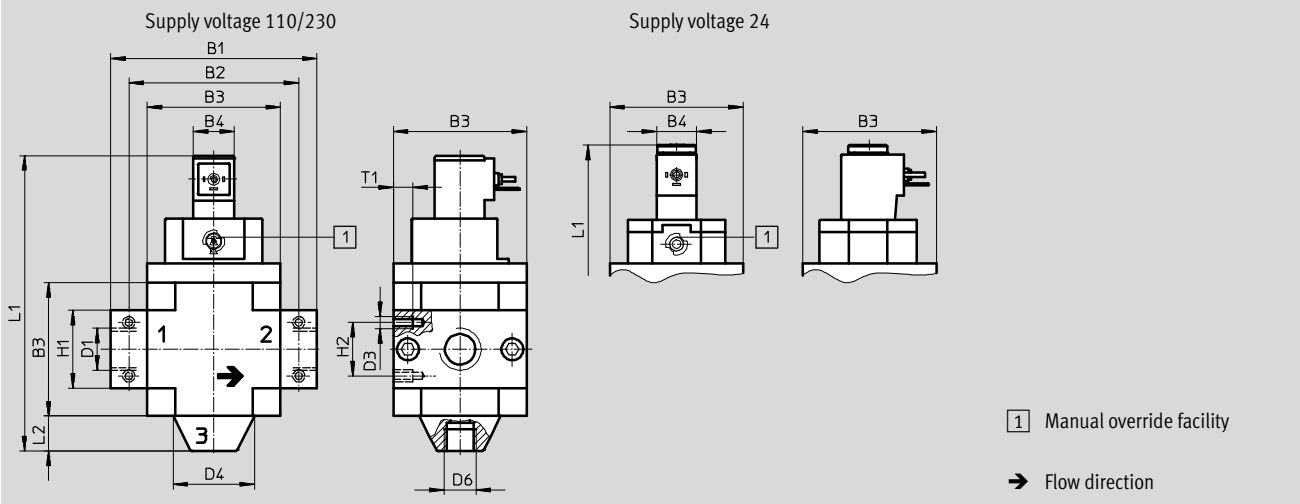
On-off valves HEE, D series, metal design

Technical data

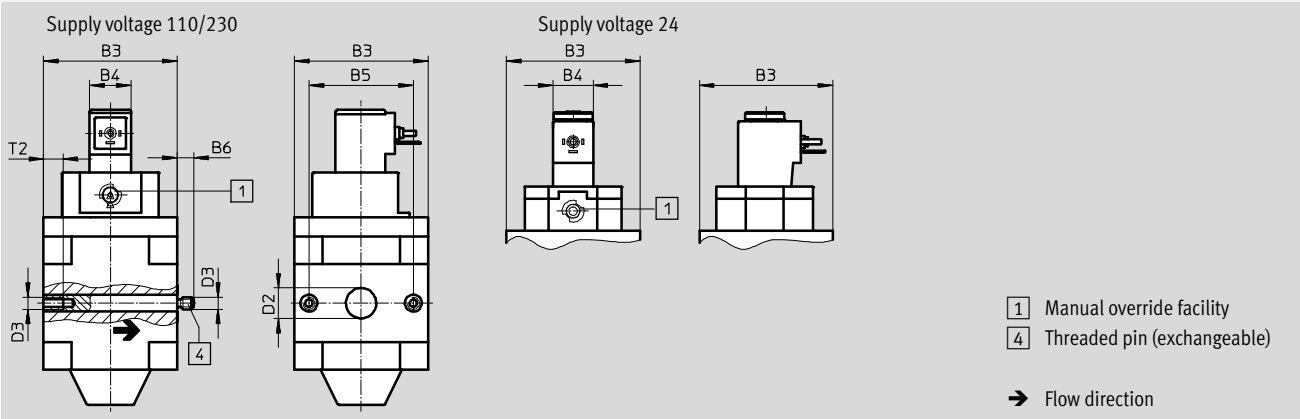
Dimensions

Download CAD data → www.festo.com

Mini/Midi/Maxi, with threaded connecting plates



Mini/Midi/Maxi, without threaded connecting plates



Type	B1	B2	B3	B4	B5	B6	D1	D2 Ø	D3	D4 Ø	D6	H1	H2	L1		L2	T1	T2
														24	110/230			
Mini																		
HEE-1/8-D-MINI	64	52	40	17	30	-	G1/8	-	M4	24	G1/8	20	11	108	104	11	7	-
HEE-1/4-D-MINI							G3/8											
HEE-3/8-D-MINI	70																	
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	126	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	139	135	16	8	-
HEE-3/4-D-MAXI							G3/4											
HEE-1-D-MAXI	116	91										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

FESTO

Technical data

Ordering data							
3/2-way valve, operating pressure 2.5 ... 16 bar, normally closed							
Size	Connection	24 V DC		110 V AC		230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
Without threaded 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
With threaded connecting plates							
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

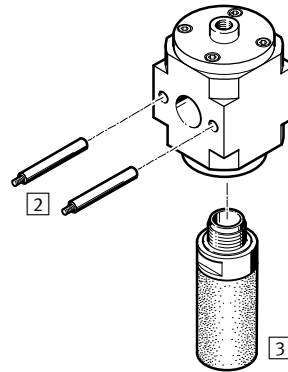
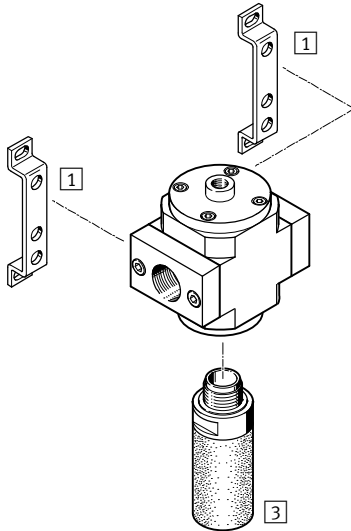
On-off valves HEP, D series, metal design

Peripherals overview and type codes

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	■	■	■	■	27

Type code

HEP – ¼ – D – MIDI

Basic function

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

Pneumatic connection

1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

Series

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

Size

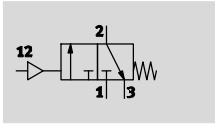
MINI	Grid dimension 40 mm (without connecting plates)
MIDI	Grid dimension 55 mm (without connecting plates)
MAXI	Grid dimension 66 mm (without connecting plates)




On-off valves HEP, D series, metal design

Technical data

FESTO

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
- These valves are particularly suitable for applications in explosion protection areas

General technical data													
Size	Mini				Midi					Maxi			
Pneumatic connection 1, 2	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	- ¹⁾	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	- ¹⁾	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	- ¹⁾
Pneumatic connection 3	G $\frac{1}{8}$				G $\frac{1}{4}$					G $\frac{3}{8}$			
Pilot air connection 12	G $\frac{1}{8}$												
Design	Piston spool valve												
Type of mounting	Via accessories												
	In-line installation												
Assembly position	Any												
Valve function	3/2-way valve, single solenoid, closed												
Exhaust function	No flow control												
Type of actuation	Mechanical spring												
Direction of flow	Non-reversible												
Sealing principle	Soft												
C value [l/(s*bar)]	4.3	7.2	7.7	-	10.1	15.5	16.6	16.2	-	24.2	28.0	27.6	-
b value	0.48	0.34	0.30	-	0.46	0.33	0.40	0.47	-	0.30	0.32	0.32	-

1) Without threaded connecting plates

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

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]											
Connection	Mini			Midi				Maxi			
	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	
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			

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

On-off valves HEP, D series, metal design

Technical data

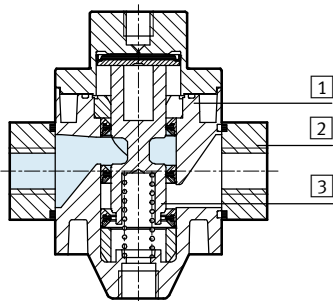
Operating and environmental conditions		
Operating pressure	[bar]	0 ... 16
Pilot pressure	[bar]	3 ... 16
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	-10 ... +60
Temperature of medium	[°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾		2
Certification		Germanischer Lloyd

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.

Weight [g]			
Size	Mini	Midi	Maxi
HEP	223	500	800

Materials

Sectional view

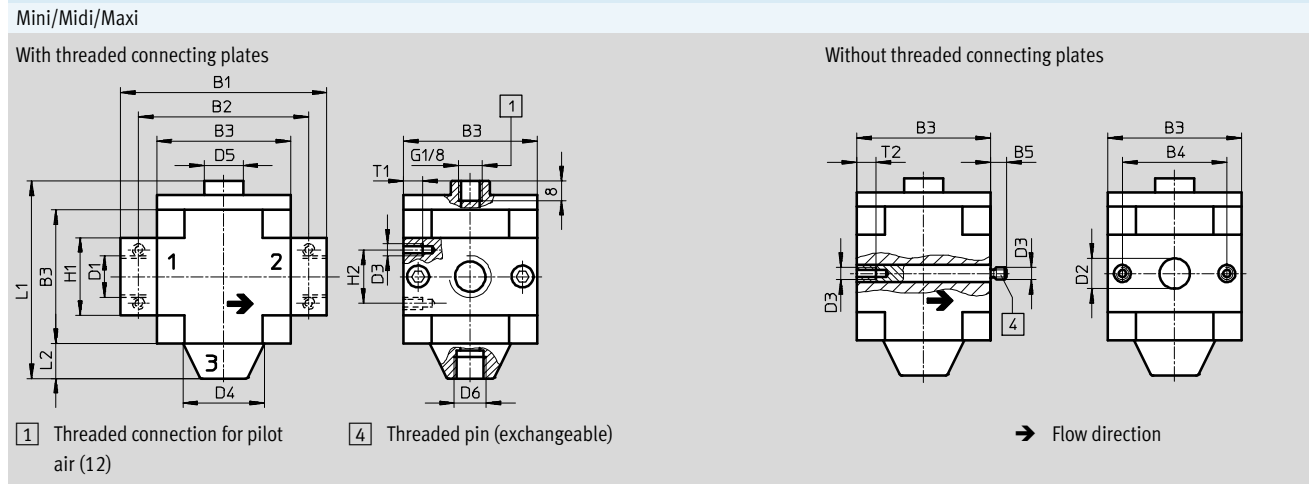


On-off valve		
1	Housing	Die-cast aluminium
2	Connecting plates	Wrought aluminium alloy
3	Piston	Stainless steel
-	Seals	Nitrile rubber

On-off valves HEP, D series, metal design

Technical data

Dimensions Download CAD data → www.festo.com



Type	B1	B2	B3	B4	B5	D1	D2 Ø	D3	D4 Ø	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 to ISO 228-1

On-off valves HEP, D series, metal design

FESTO

Technical data

Ordering data		
Pneumatic actuation, 3/2-way valve, operating pressure 2 ... 16 bar, normally closed		
Size	Part No.	Type
Without threaded connecting plates		
Mini	193242	HEP-D-MINI
Midi	193249	HEP-D-MIDI
Maxi	193257	HEP-D-MAXI

Ordering data		
Pneumatic actuation, 3/2-way valve, operating pressure 2 ... 16 bar, normally closed		
Size	Connection	Part No. Type
With threaded connecting plates		
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

Soft-start valves HEL, D series, metal design

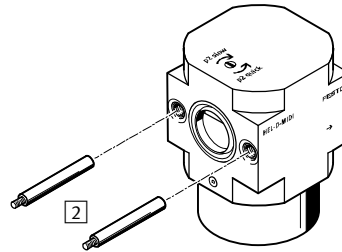
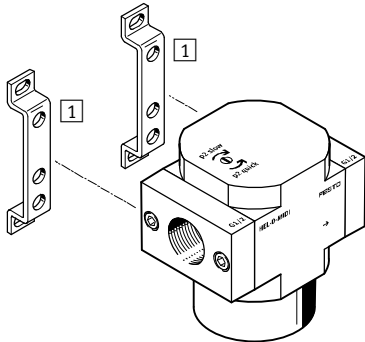
Peripherals overview and type codes



Peripherals overview – Mini/Midi/Maxi

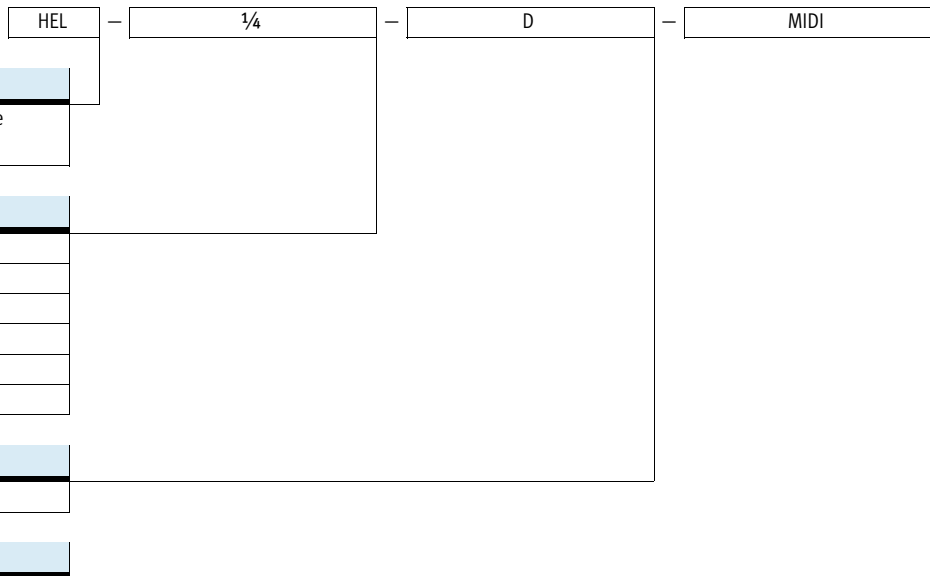
Individual unit with connection plates

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

Type code



Basic function	
HEL	Soft-start valve, gradual pressure build-up

Pneumatic connection	
1/8	Thread G1/8
1/4	Thread G1/4
3/8	Thread G3/8
1/2	Thread G1/2
3/4	Thread G3/4
1	Thread G1

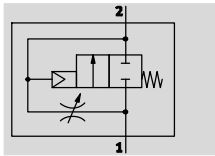
Series	
D	Series

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	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 valve												
Type of mounting	Via accessories												
	In-line installation												
Assembly position	Any												
Valve function	2/2-way valve, single solenoid, closed												
Exhaust function	Flow control												
Reset method	Mechanical spring												
Type of actuation	Direct												
Direction of flow	Non-reversible												
Sealing principle	Soft												
C value [l/(s*bar)]	4.5	7.1	7.6	-	9.0	16.5	19.8	20.5	-	26.9	33.9	28.3	-
b value	0.46	0.41	0.3	-	0.59	0.39	0.37	0.48	-	0.36	0.38	0.54	-

1) Without threaded connecting plates

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

Standard nominal flow rate $q_{nN}^{1)}$ [l/min]											
Connection	Mini			Midi				Maxi			
	G1/8	G1/4	G3/8	G1/4	G3/8	G1/2	G3/4	G1/2	G3/4	G1	
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	

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

Soft-start valves HEL, D series, metal design

Technical data

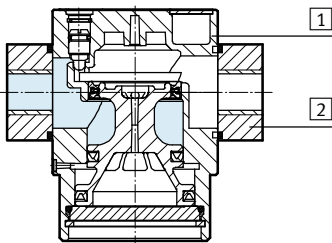
Operating and environmental conditions	
Operating pressure [bar]	3 ... 16
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature [°C]	-10 ... +60
Temperature of medium [°C]	-10 ... +60
Corrosion resistance class CRC ¹⁾	2
Certification	Germanischer Lloyd

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.

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

Materials

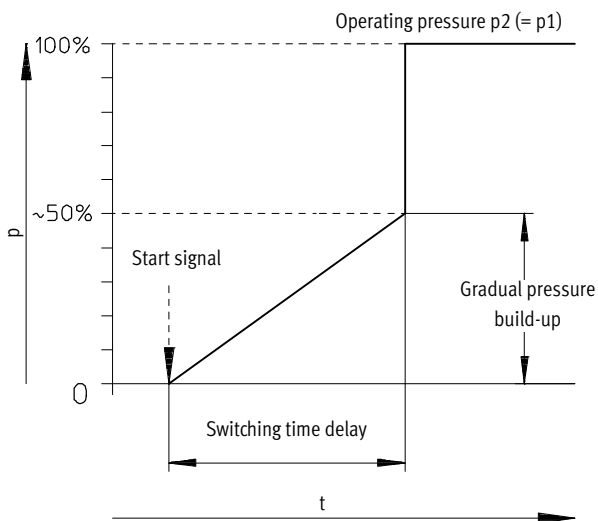
Sectional view



Soft-start valve	
1	Housing Die-cast aluminium
2	Connecting plates Wrought aluminium alloy
-	Seals Nitrile rubber

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

With threaded connecting plates

Without threaded 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
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 to ISO 228-1

Soft-start valves HEL, D series, metal design

FESTO


Technical data

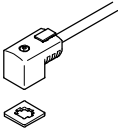
Ordering data			
Gradual pressure build-up, 2/2-way valve, operating pressure 3 ... 16 bar, normally closed			
Size	Connection	Part No.	Type
Without threaded connecting plates			
Mini		170690	HEL-D-MINI
Midi		170691	HEL-D-MIDI
Maxi		170692	HEL-D-MAXI
With threaded connecting plates			
Mini	G1/8	165076	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


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	151687	MSSD-EB
		4-pin	Insulation displacement technology	192745	MSSD-EB-S-M14

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	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			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	151717	MEB-LD-12-24DC
		230 V DC/AC ±10%	151718	MEB-LD-230AC

Ordering data – Silencer U			Technical data → 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