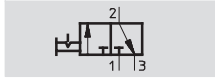# HE Manual On/Off Valves – D Series, NPT

Technical Data

FESTO

Function

Flow rate
: 1000 ... 6500 l/min

Temperature range
: −10 ... +60 °C

Operating pressure
: 0 ... 16 bar

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

General technical data								
Size	Mini			Midi			Maxi	
Pneumatic connection	⅛ NPT	¼ NPT	⅜ NPT	⅜ NPT	½ NPT	¾ NPT	¾ NPT	1 NPT
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm							
Design	Piston spool valve							
Type of mounting	Via accessories							
	In-line installation							
Assembly position	Any							
Operating pressure [bar]	0 ... 16							
Valve function	3/2-way valve, single solenoid							
Exhaust function	Without flow control							
Reset method	Mechanical spring							
C value [l/sbar]	4.4	7.2	7.5	15.7	17.0	17.3	26.8	25.9
b value	0.44	0.28	0.27	0.30	0.30	0.42	0.35	0.37
Direction of flow	Non-reversible							

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

Standard nominal flow rate[1] qnN [l/min]						
Connection	⅛ NPT	¼ NPT	⅜ NPT	½ NPT	¾ NPT	1 NPT
Mini						
HE	1000	1500	1600	–	–	–
Midi						
HE	–	–	3200	3600	3800	–
Maxi						
HE	–	–	–	–	6000	6500

1) Measured at p1 = 6 bar and ∆p = 1 bar.

Ambient conditions		
Ambient temperature [°C]	−10 ... +60
Temperature of medium [°C]	−10 ... +60
Corrosion resistance class CRC[1]	2

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
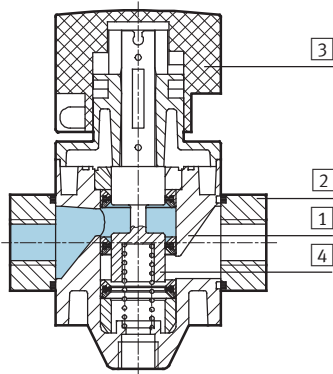
HE Manual On/Off Valves – D Series, NPT

Technical Data

Weight [g]

Size	Mini	Midi	Maxi
HE	192	511	796

Materials

Sectional view

On-off valve		
1	Housing	Die-cast aluminum
2	Port blocks	Wrought aluminum alloy
3	Rotary knob	Polyamide
4	Piston	Stainless steel
–	Seals	Nitrile rubber
	Note on materials	Free of copper, PTFE and silicone

Dimensions

Mini/Midi/Maxi

With threaded port blocks

Without threaded port blocks

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-⅛-D-MINI	64	52	40	30	–	32	⅛ NPT	–	M4	24	G⅛	20	11	98	11	7	–
HE-¼-D-MINI							¼ NPT										
HE-⅜-D-MINI	70						⅜ NPT										
HE-D-MINI	–	–			5.8		–	11				–	–			–	10
Midi																	
HE-⅜-D-MIDI	85	70	55	43	–	44	⅜ NPT	–	M5	34	G¼	32	22	119	14	8	–
HE-½-D-MIDI							½ NPT										
HE-¾-D-MIDI							¾ NPT										
HE-D-MIDI	–	–			6.8		–	24				–	–			–	11
Maxi																	
HE-¾-D-MAXI	96	80	66	46	–	44	¾ NPT	–	M5	38	G⅜	32	22	132	16	8	–
HE-1-D-MAXI	116	91					1 NPT					40					
HE-D-MAXI	–	–			6.8		–	30				–	–			–	11

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

Mini/Midi/Maxi	
Individual unit with port blocks	Individual unit without port blocks, for combination unit

Mounting attachments and accessories						
	Individual unit		Combination		→ Page/Internet
	with port blocks	without port blocks	with port blocks	without port blocks	
1 Mounting bracket HFOE	■	–	■	–	hfoe
2 Threaded pin (included in scope of delivery) FRB	–	–	■	■	frb
3 Silencer U	■	■	■	■	u

Note

For Custom Combinations → FAST Program Selector Guide starting page 7

HE Manual On/Off Valves D Series, NPT

Type Codes

| HE | — | ⅜ | — | D | — | MIDI | — | NPT |
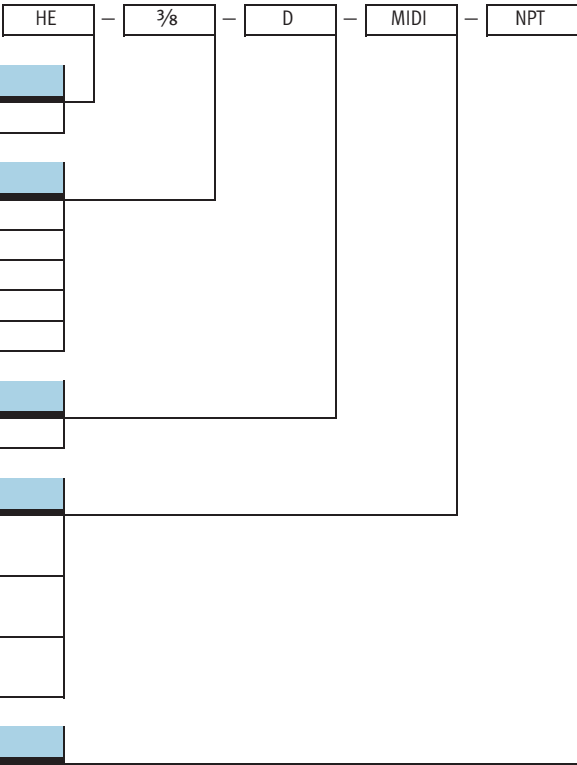
Basic function

HE	On-of valve, manual

Pneumatic connection

⅛	⅛ NPT Thread
¼	¼ NPT Thread
⅜	⅜ NPT Thread
¾	¾ NPT Thread
1	1 NPT Thread

Series

D	Series

Size

MINI	Grid dimension 40 mm (without port blocks)
MIDI	Grid dimension 55 mm (without port blocks)
MAXI	Grid dimension 60 mm (without port blocks)

NPT connection (where available)

NPT	NPT threaded connection

Ordering data		
3/2-way valve, operating pressure 0 … 16 bar, normally closed		
Size	Part No.	Type
Without threaded port blocks		
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 port blocks			
Mini	⅛ NPT	**173892**	**HE-⅛-D-MINI-NPT**
	¼ NPT	**173893**	**HE-¼-D-MINI-NPT**
	⅜ NPT	**173894**	**HE-⅜-D-MINI-NPT**
Midi	⅜ NPT	**173895**	**HE-⅜-D-MIDI-NPT**
	½ NPT	**173896**	**HE-½-D-MIDI-NPT**
	¾ NPT	**173897**	**HE-¾-D-MIDI-NPT**
Maxi	¾ NPT	**173898**	**HE-¾-D-MAXI-NPT**
	1 NPT	**173899**	**HE-1-D-MAXI-NPT**

FAST* Program – HE Manual On/Off Valve Selector Guide

HE Manual On/Off Valves – D Series, NPT

*FAST = Festo Assured Shipping Time. Ordering via the FAST program means same day / next day shipping from our warehouse of the parts required to assemble a complete air preparation unit.
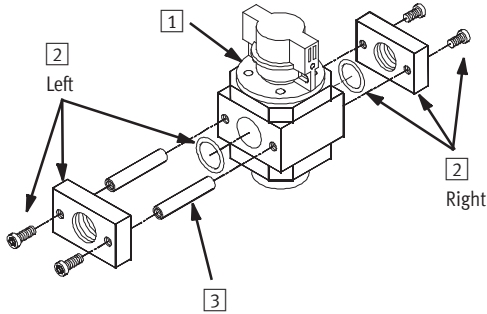
A complete valve assembly consists of the following items:

Item	Description	Qty Required per Assy
1	Main Unit	1
2	Port Block Kit	2 (one left, one right)
3	Single Unit Joining Rod	2
4	Mounting Bracket Kit (Not shown)	1

Step 1: Based upon the required Port Size, Maximum Flow, and Thread Type, select the Main Unit (Item 1) and the Left and Right Port Block Kits (Item 2).

			Item 1	Item 2			
Port size	Max. Flow (l/min/scfm]	Product Type / Description	Main Unit	NPT Thread		BSP Thread	
				Left Port Block Kit	Right Port Block Kit	Left Port Block Kit	Right Port Block Kit
⅛	1000/35.3	HE-...-D-MINI-...	170681	546520	546521	546495	546496
¼	1500/52.9			546522	546523	546497	546498
	2600/91.8	HE-...-D-MIDI-...	170682	546536	546537	546532	543533
⅜	1600/56.5	HE-...-D-MINI-...	170681	546524	546525	546499	546500
	3200/113.0	HE-...-D-MIDI-...	170682	546530	546531	546501	546502
½	3600/127.1	HE-...-D-MIDI-...		546526	546527	546503	546504
	5600/197.8	HE-...-D-MAXI-...	170683	546538	546539	546534	546535
¾	3800/134.2	HE-...-D-MIDI-...	170682	546528	546529	546505	546506
	6000/211.9	HE-...-D-MAXI-...	170683	546490	546492	546507	546508
1	6500/229.5			546491	546493	546509	546510

Step 2: Based upon the Product Type/Description from Step 1, select the Joining Rods (Item 3] and the Mounting Bracket Kit (Item 4).

	Item 3	Item 4 [Not shown]
Product Type/ Description	Single Unit Joining Rod	Mounting Bracket Kit
HE-...-D-MINI-...	546483	159 638
HE-...-D-MIDI-...	546489	159 593
HE-...-D-MAXI-...	546494	

Step3: Determine the appropriate quantity of each Item.

Ordering Example:

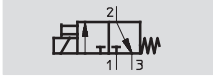**Required: ⅜ port size, 3000 l/min flow, BSP threads, and mounting bracket.**

	Item	Part No.	Qty	Description
Order:	1	170682	1	Main Unit
	2	546501	1	Left Port Block Kit
		546502	1	Right Port Block Kit
	3	546489	2	Single Unit Joining Rod
	4	159593	1	Mounting Bracket Kit

HEE Electrical On/Off Valves – D Series, NPT

Technical Data

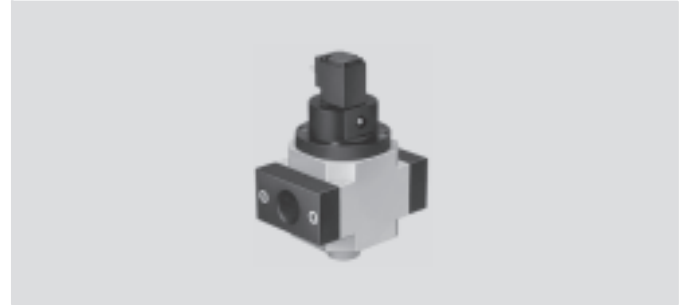Function

Flow rate
1000 ... 6500 l/min

Temperature range
−10 ... +60 °C

Operating pressure
2.5 ... 16 bar

Selected types according to ATEX
directive for explosive atmospheres
➜ www.festo.com/en/ex

- Electrical on-off valve for pressurising and venting pneumatic installations
- With solenoid coil without plug socket
- Three voltage ranges can be selected
- 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	⅛ NPT	¼ NPT	⅜ NPT	⅜ NPT	½ NPT	¾ NPT	¾ NPT	1 NPT
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 50 µm							
Design	Piston spool valve							
Type of mounting	Via accessories							
	In-line installation							
Assembly position	Any							
Operating pressure [bar]	2.5 ... 16							
Valve function	3/2-way valve, single solenoid							
Exhaust function	Without flow control							
Type of actuation	Mechanical spring							
Direction of flow	Non-reversible							
Supply voltage [V DC/AC]	24, 110, 230							
Electrical connection	Plug to DIN 43 650, type C							
Duty cycle	100%							
Protection class	IP65							

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

Standard nominal flow rate[1] qnN [l/min]						
Connection	⅛ NPT	¼ NPT	⅜ NPT	½ NPT	¾ NPT	1 NPT
Mini						
HEE	1000	1500	1600	–	–	–
Midi						
HEE	–	–	3200	3600	3800	–
Maxi						
HEE	–	–	–	–	6000	6500

1)   Measured at p1 = 6 bar and ∆p = 1 bar.

Ambient conditions				
Size		Mini	Midi	Maxi
Ambient temperature	[°C]	−10 … +60		
Temperature of medium	[°C]	−10 … +60		
Corrosion resistance class	CRC[1]	2		

1) Corrosion resistance class 2 according to Festo standard 940 070
   Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

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

Materials
Sectional view
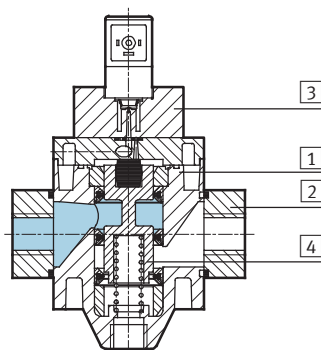
On-off valve		
1	Housing	Die-cast aluminum
2	Port blocks	Wrought aluminum alloy
3	Solenoid and intermediate plate	Polyamide
4	Piston	Stainless steel
–	Seals	Nitrile rubber
	Note on materials	Free of copper, PTFE and silicone

HEE Electrical On/Off Valves – D Series, NPT
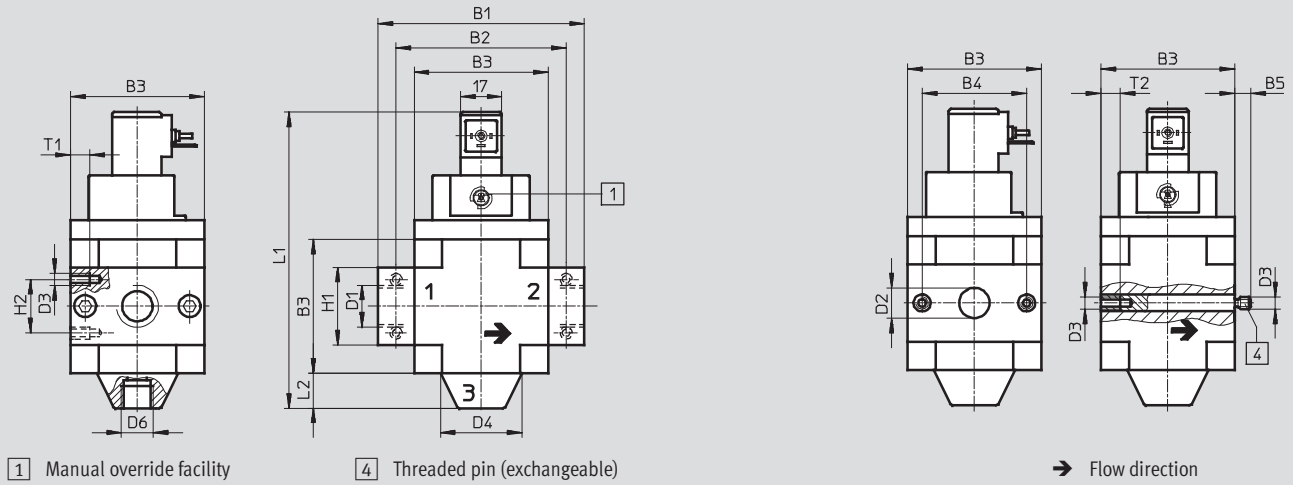
Technical Data – Dimensional Drawings

Dimensions Download CAD Data ➔ www.festo.com/us/cad

Mini/Midi/Maxi

With threaded port blocks

Without threaded port blocks

1 Manual override facility   4 Threaded pin (exchangeable)   ➔ Flow direction

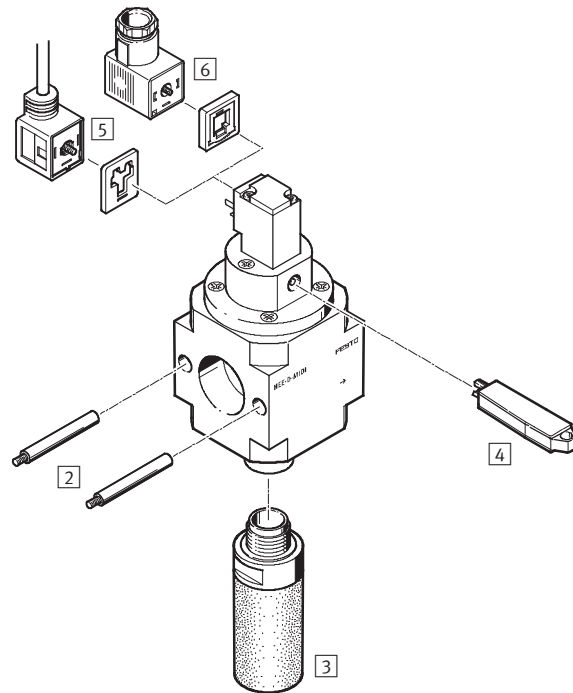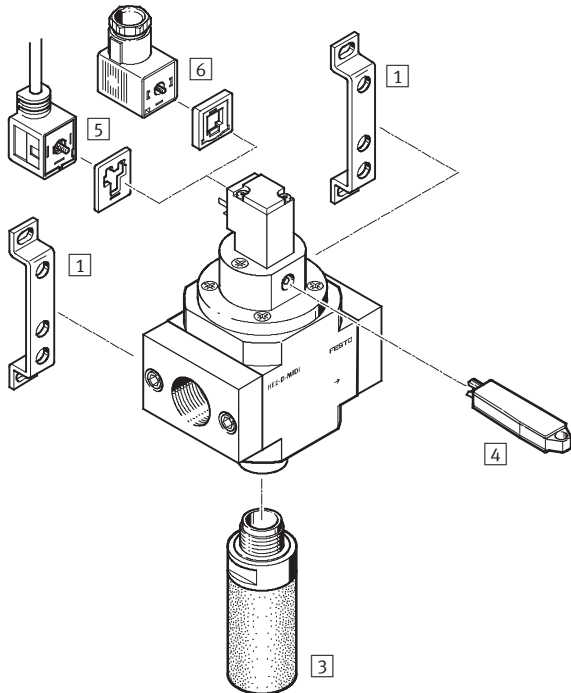| Type	B1	B2	B3	B4	B5	D1	D2 ∅	D3	D4 ∅	D6	H1	H2	L1	L2	T1	T2
Mini																
HEE-⅛-D-MINI	64	52	40	30	–	⅛ NPT	–	M4	24	G⅛	20	11	104	11	7	–
HEE-¼-D-MINI	64					¼ NPT										
HEE-⅜-D-MINI	70					⅜ NPT										
HEE-D-MINI	–	–			5.8	–	11				–	–			–	10
Midi																
HEE-⅜-D-MIDI	85	70	55	43	–	⅜ NPT	–	M5	34	G¼	32	22	122	14	8	–
HEE-½-D-MIDI						½ NPT										
HEE-¾-D-MIDI						¾ NPT										
HEE-D-MIDI	–	–			6.8	–	24				–	–			–	11
Maxi																
HEE-¾-D-MAXI	96	80	66	46	–	¾ NPT	–	M5	38	G⅜	32	22	135	16	8	–
HEE-1-D-MAXI	116	91				1 NPT					40					
HEE-D-MAXI	–	–			6.8	–	30				–	–			–	11

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

Mini/Midi/Maxi

| Individual unit with port blocks | Individual unit without port blocks, for air preparation unit combination |

| **Mounting attachments and accessories**					
		Individual unit		Combination		➔ Page/Internet
		with port blocks	without port blocks	with port blocks	without port blocks	
1	Mounting bracket HFOE	■	–	■	–	hfoe
2	Threaded pin (included in scope of delivery) FRB	–	–	■	■	frb
3	Silencer U	■	■	■	■	u
4	Manual override tool, non-detenting AHB-MD/MF/MY	■	■	■	■	ahb
5	Plug socket with cable KMEB-1	■	■	■	■	kmeb
6	Plug socket MSSD-EB	■	■	■	■	mssd

Note

For Custom Combinations ➔ FAST Program Selector Guide starting page 14

HEE Electrical On/Off Valves – D Series, NPT

Type Codes

FESTO

HEE	—	⅜	—	D	—	MIDI	—	110	—	NPT
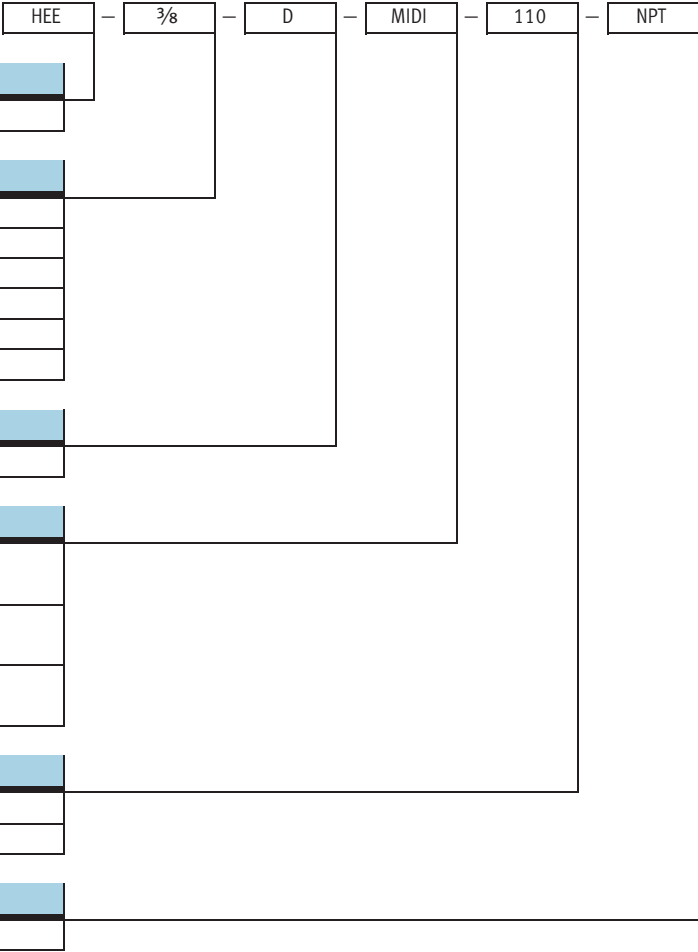
Basic function

LFMBA	Filter combination

Pneumatic connection

⅛	⅛ NPT Thread
¼	¼ NPT Thread
⅜	⅜ NPT Thread
½	½ NPT Thread
¾	¾ NPT Thread
1	1 NPT Thread

Series

D	Series

Size

MINI	Grid dimension 40 mm (without port blocks)
MIDI	Grid dimension 55 mm (without port blocks)
MAXI	Grid dimension 60 mm (without port blocks)

Voltage

24	24 V DC supply voltage
110	110 V DC supply voltage

NPT Connection (where available)

NPT	NPT threaded connection

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 port blocks								
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

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
With threaded port blocks								
Mini	⅛ NPT	173900	HEE-⅛-D-MINI-24-NPT		173901	HEE-⅛-D-MINI-110-NPT		–
	¼ NPT	173902	HEE-¼-D-MINI-24-NPT		173903	HEE-¼-D-MINI-110-NPT		
	⅜ NPT	173904	HEE-⅜-D-MINI-24-NPT		176905	HEE-⅜-D-MINI-110-NPT		
Midi	⅜ NPT	173906	HEE-⅜-D-MIDI-24-NPT		173907	HEE-⅜-D-MIDI-110-NPT		–
	½ NPT	173908	HEE-½-D-MIDI-24-NPT		173909	HEE-½-D-MIDI-110-NPT		
	¾ NPT	173910	HEE-¾-D-MIDI-24-NPT		173911	HEE-¾-D-MIDI-110-NPT		
Maxi	¾ NPT	173912	HEE-¾-D-MAXI-24-NPT		173913	HEE-¾-D-MAXI-110-NPT		–
	1 NPT	173914	HEE-1-D-MAXI-24-NPT		173915	HEE-1-D-MAXI-110-NPT		

FAST* Program – HEE Electric On/Off Valve Selector Guide

HEE Electric On/Off Valves – D Series, NPT

FESTO

*FAST = Festo Assured Shipping Time. Ordering via the FAST program means same day / next day shipping from our warehouse of the parts required to assemble a complete air preparation unit.
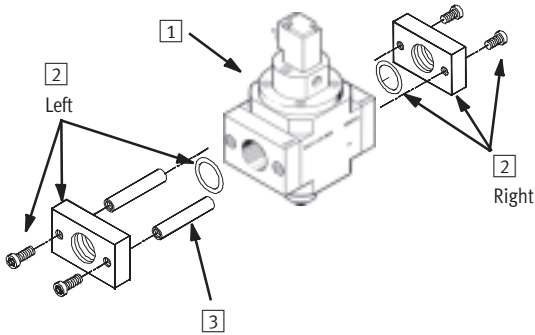
A complete valve assembly consists of the following items:

Item	Description	Qty Required per Assy
1	Main Unit	1
2	Port Block Kit	2 (one left, one right)
3	Single Unit Joining Rod	2
4	Mounting Bracket Kit (Optional) (Not shown)	1

Step 1: Based upon the required Port Size, Maximum Flow, and Thread Type, select the Main Unit (Item 1) and the Left and Right Port Block Kits (Item 2).

Port size	Max. Flow (l/min/scfm]	Coil Voltage	Product Type / Description	Item 1 Main Unit	Item 2 NPT Thread Left Port Block	Right Port Block	BSP Thread Left Port Block	Right Port Block
⅛	1000/35.3	24	HE-...-D-MINI-...	172956	546520	546521	546495	546496
		110		172957				
		230		172958				
¼	1500/52.9	24		172956	546522	546523	546497	546498
		110		172957				
		230		172958				
	2600/91.8	24	HE-...-D-MIDI-...	172959	546536	546537	546532	546533
		110		172960				
		230		172961				
⅜	1600/56.5	24	HE-...-D-MINI-...	172956	546524	546525	546499	546500
		110		172957				
		230		172958				
	3200/113.0	24	HE-...-D-MIDI-...	172959	546530	546531	546501	546502
		110		172960				
		230		172961				
½	3600/127.1	24		172959	546526	546527	546503	546504
		110		172960				
		230		172961				
	5600/197.8	24	HE-...-D-MAXI-...	172962	546538	546539	546534	546535
		110		172963				
		230		172963				
¾	3800/134.2	24	HE-...-D-MIDI-...	172959	546528	546529	546505	546506
		110		172960				
		230		172961				
	6000/211.9	24	HE-...-D-MAXI-...	172962	546490	546492	546507	546508
		110		172963				
		230		172964				
1	6500/229.5	24		172962	546491	546493	546509	546510
		110		172963				
		230		172964				

Step 2: Based upon the Product Type/Description from Step 1, select the Joining Rods (Item ☐3☐) and the (optional) Mounting Bracket Kit (Item ☐4☐).

	Item ☐3☐	☐4☐ (Not shown)
Product Type / Description	Single Unit Joining Rod	Mounting Bracket Kit (Optional)
HE-...-D-MINI-...	546483	159638
HE-...-D-MIDI-...	546489	159593
HE-...-D-MAXI-...	546494	

Step3: Determine the appropriate quantity of each Item.

Ordering Example:

Required: ⅜ port size, 3000 l/min flow, BSP threads, and mounting bracket kit.

	Item	Part No.	Qty	Description
Order:	☐1☐	172960	1	Main Unit
	☐2☐	546501	1	Left Port Block Kit
		546502	1	Right Port Block Kit
	☐3☐	546489	2	Single Unit Joining Rod
	☐4☐	159593	1	Mounting Bracket Kit

HEL Soft-Start Valves – D Series, NPT

Technical Data

Function
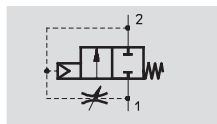
Flow rate
1000 ... 6500 l/min

Temperature range
−10 ... +60 °C

Operating pressure
3 ... 16 bar

- Soft-start valve for gradual pressure build-up (for use with HE, HEE, and HEP on/off valves)
- Air cylinders etc. 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	⅛ NPT	¼ NPT	⅜ NPT	⅜ NPT	½ NPT	¾ NPT	¾ NPT	1 NPT
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 50 μm							
Design	Piston spool valve							
Type of mounting	Via accessories							
	In-line installation							
Assembly position	Any							
Operating pressure [bar]	3 ... 16							
Valve function	2/2-way valve, air operated, closed							
Exhaust function	Flow control							
Reset method	Mechanical spring							
C value [l/sbar]	4.4	7.9	9.1	18.4	21.0	22.5	31.0	29.0
b value	0.46	0.38	0.29	0.33	0.29	0.36	0.30	0.38
Type of actuation	Direct							
Direction of flow	Nonreversible							

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

Standard nominal flow rate[1] qnN [l/min]						
Connection	⅛ NPT	¼ NPT	⅜ NPT	½ NPT	¾ NPT	1 NPT
Mini						
HEL	1000	1500	1600	–	–	–
Midi						
HEL	–	–	3200	3600	3800	–
Maxi						
HEL	–	–	–	–	6000	6500

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

Ambient conditions		
Ambient temperature	[°C]	−10 ... +60
Temperature of medium	[°C]	−10 ... +60
Corrosion resistance class	CRC[1]	2

1)   Corrosion resistance class 2 according to Festo standard 940 070
    Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
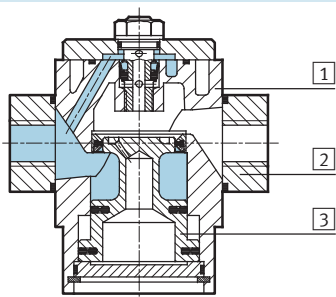
Weight [g]			
Size	Mini	Midi	Maxi
HEL	184	586	850

Materials
Sectional view

On-off valve		
1	Housing	Die-cast aluminum
2	Port blocks	Wrought aluminum alloy
3	Piston	Stainless steel
–	Seals	Nitrile rubber
	Note on materials	Free of copper, PTFE and silicone

Switching point
Pressure p as a function of time t
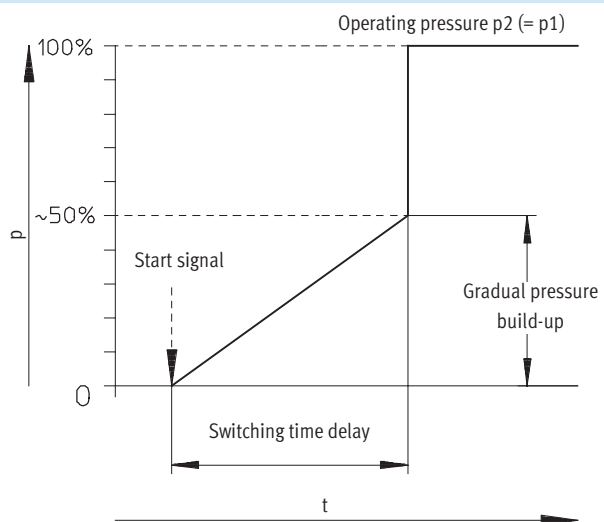
HEL Soft-Start Valves – D Series, NPT

Technical Data – Dimensional Drawings

FESTO

Dimensions Download CAD Data ➜ **www.festo.com/us/cad**

Mini/Midi

With threaded port blocks

Without threaded port blocks

1 Regulating screw for flow control valve

4 Threaded pin (exchangeable)

➜ Flow direction

Maxi

With threaded port blocks

Without threaded port blocks

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-⅛-D-MINI (NPT)	64	52	40	30	–	⅛ NPT	–	M4	30	20	11	66	16	7	–
HEL-¼-D-MINI (NPT)						¼ NPT									
HEL-⅜-D-MINI (NPT)	70					⅜ NPT									
HEL-D-MINI	–	–			5.8	–	11			–	–			–	10
Midi															
HEL-⅜-D-MIDI (NPT)	85	70	55	43	–	⅜ NPT	–	M5	50	32	22	91	22	8	–
HEL-½-D-MIDI (NPT)						½ NPT									
HEL-¾-D-MIDI (NPT)						¾ NPT									
HEL-D-MIDI	–	–			6.8	–	24			–	–			–	11
Maxi															
HEL-¾-D-MAXI (NPT)	96	80	66	46	–	¾ NPT	–	M5	50	32	22	89	23	8	–
HEL-1-D-MAXI (NPT)	116	91				1 NPT				40					
HEL-D-MAXI	–	–			6.8	–	30			–	–			–	11

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

HEL Soft-Start Valves – D Series, NPT
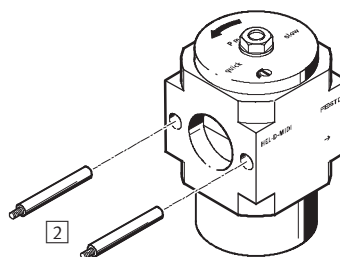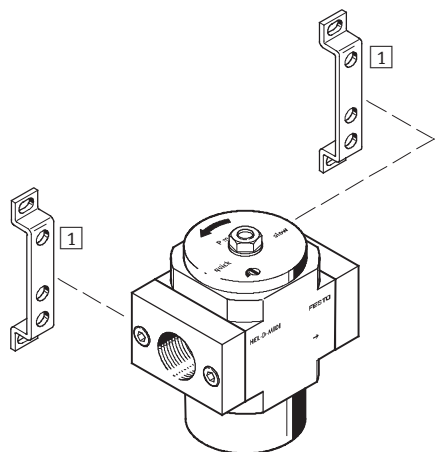
Accessories Overview

FESTO

| Mini/Midi/Maxi	
Individual unit with port blocks	Individual unit without port blocks, for combination unit

Mounting attachments and accessories		Individual unit		Combination		➔ Page/Internet
		with port blocks	without port blocks	with port blocks	without port blocks	
1	Mounting bracket HFOE	■	–	■	–	hfoe
2	Threaded pin (included in scope of delivery) FRB	–	–	■	■	frb

Note

For Custom Combinations ➔ FAST Program Selector Guide starting page 22

HEL	—	⅜	—	D	—	MIDI	—	NPT
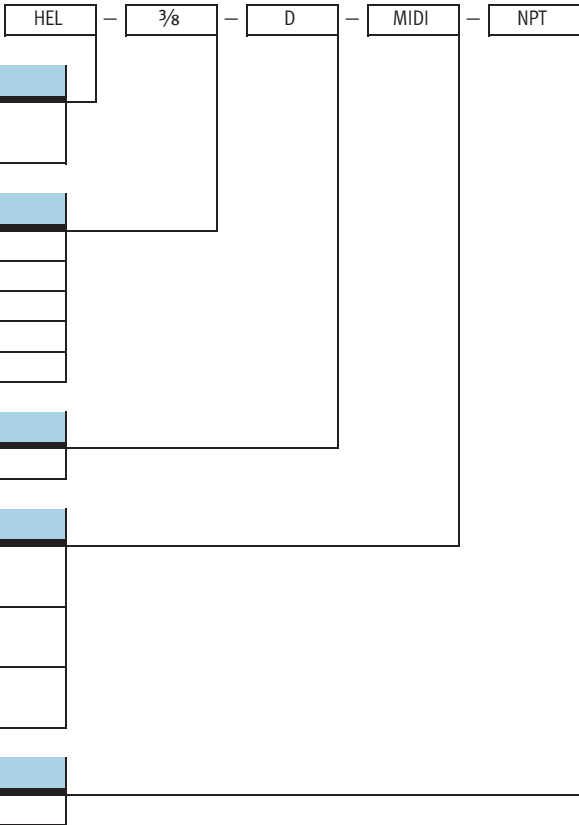
Basic function	
HEL	Soft-start valve, gradual pressure buildup

Pneumatic connection	
⅛	⅛ NPT Thread
¼	¼ NPT Thread
⅜	⅜ NPT Thread
¾	¾ NPT Thread
1	1 NPT Thread

Series	
D	Series

Size	
MINI	Grid dimension 40 mm (without port blocks)
MIDI	Grid dimension 55 mm (without port blocks)
MAXI	Grid dimension 60 mm (without port blocks)

NPT connection (where available)	
NPT	NPT threaded connection

HEL Soft-Start Valves – D Series, NPT

Ordering Data

Ordering data		
Gradual pressure build-up, 2/2-way valve, operating pressure 3 … 16 bar, normally closed		
Size	Part No.	Type
Without threaded port bloks		
Mini	**170690**	**HEL-D-MINI**
Midi	**170691**	**HEL-D-MIDI**
Maxi	**170692**	**HEL-D-MAXI**

Ordering data			
Gradual pressure build-up, 2/2-way valve, operating pressure 3 … 16 bar, normally closed			
Size	Connection	Part No.	Type
With threaded port blocks			
Mini	⅛NPT	**173916**	**HEL-⅛-D-MINI-NPT**
	¼NPT	**173917**	**HEL-¼-D-MINI-NPT**
	⅜NPT	**173918**	**HEL-⅜-D-MINI-NPT**
Midi	⅜NPT	**173919**	**HEL-⅜-D-MIDI-NPT**
	½NPT	**173920**	**HEL-½-D-MIDI-NPT**
	¾NPT	**173921**	**HEL-¾-D-MIDI-NPT**
Maxi	¾NPT	**173922**	**HEL-¾-D-MAXI-NPT**
	1NPT	**173923**	**HEL-1-D-MAXI-NPT**

FAST* Program – HEL Soft-Start Valve Selector Guide

HEL Soft-Start Valves – D Series, NPT

*FAST = Festo Assured Shipping Time. Ordering via the FAST program means same day / next day shipping from our warehouse of the parts required to assemble a complete air preparation unit.
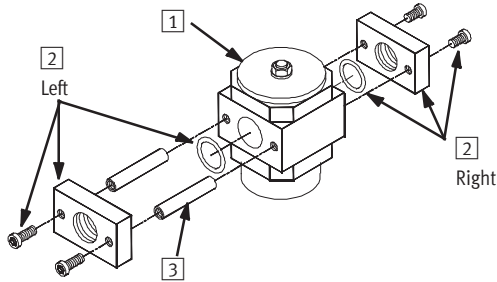
A complete valve assembly consists of the following items:

Item	Description	Qty Required per Assy
1	Main Unit	1
2	Port Block Kit	2 [one left, one right]
3	Single Unit Joining Rod	2
4	Mounting Bracket Kit (Not shown) (Optional)	1

Step 1: Based upon the required Port Size, Maximum Flow, and Thread Type, select the Main Unit (Item 1) and the Left and Right Port Block Kits (Item 2).

			Item 1	Item 2			
Port size	Max. Flow (l/min/scfm)	Product Type / Description	Main Unit	NPT Thread		BSP Thread	
				Left Port Block Kit	Right Port Block Kit	Left Port Block Kit	Right Port Block Kit
⅛	1000/35.3	HEL-...-D-MINI-...	170690	546520	546521	546495	546496
¼	1500/52.9			546522	546523	546497	546498
	2600/91.8	HEL-...-D-MIDI-...	170691	546536	546537	546532	546533
⅜	1600/56.5	HEL-...-D-MINI-...	170690	546524	546525	546499	546500
	3200/113.0	HEL-...-D-MIDI-...	170691	546530	546531	546501	546502
½	3600/127.1	HEL-...-D-MIDI-...		546526	546527	546503	546504
	5600/197.8	HEL-...-D-MAXI-...	170692	546538	546539	546534	546535
¾	3800/134.2	HEL-...-D-MIDI-...	170691	546528	546529	546505	546506
	6000/211.9	HEL-...-D-MAXI-...	170692	546490	546492	546507	546508
1	6500/229.5			546491	546493	546509	546510

Step 2: Based upon the Product Type/Description from Step 1, select the Joining Rods (Item 3), and the Mounting Bracket Kit (Item 4).

	Item 3	Item 4 (Not shown)
Product Type/ Description	Single Unit Joining Rod	Mounting Bracket Kit (Optional)
HEL-...-D-MINI-...	546483	159638
HEL-...-D-MIDI-...	546489	159593
HEL-...-D-MAXI-...	546494	

Step3: Determine the appropriate quantity of each Item.

Ordering Example:

Required: ⅜ port size, 3000 l/min flow, BSP threads, and mounting bracket kit.

	Item	Part No.	Qty	Description
Order:	1	170691	1	Main Unit
	2	546501	1	Left Port Block Kit
		546502	1	Right Port Block Kit
	3	546489	2	Single Unit Joining Rod
	4	159593	1	Mounting Bracket Kit

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ISO 9001
ISO 14001

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