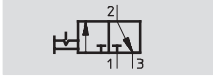


# HE Manual On/Off Valves – D Series, NPT

Technical Data

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	1/8 NPT	1/4 NPT	3/8 NPT	3/8 NPT	1/2 NPT	3/4 NPT	3/4 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 <sup>1)</sup> qnN [l/min]						
Connection	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT
<b>Mini</b>						
HE	1000	1500	1600	–	–	–
<b>Midi</b>						
HE	–	–	3200	3600	3800	–
<b>Maxi</b>						
HE	–	–	–	–	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 <sup>1)</sup>		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

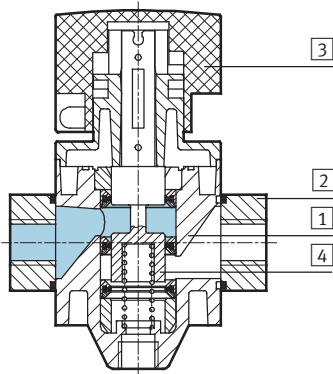
Technical Data

**FESTO**

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

## Materials

Sectional view



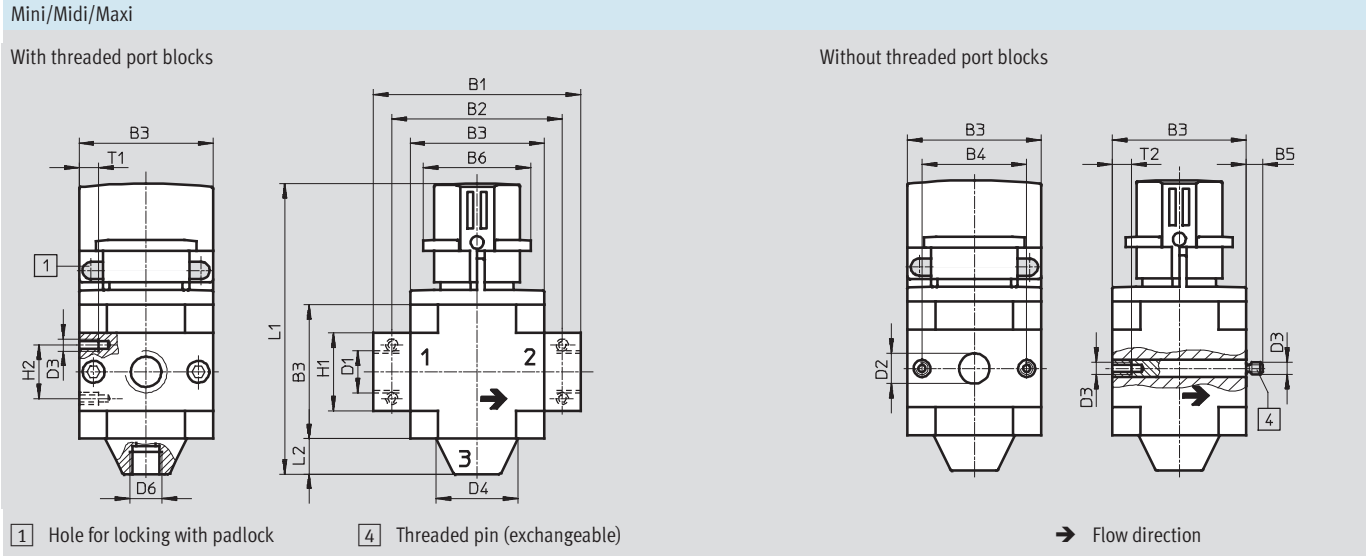
On-off valve		
1	Housing	Die-cast aluminum
2	Port blocks	Wrought aluminum alloy
3	Rotary knob	Polyamide
4	Piston	Stainless steel
-	Seals	Nitrile rubber
Note on materials		Free of copper, PTFE and silicone

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

Technical Data – Dimensional Drawings



Dimensions Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)



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	1/8 NPT	-	M4	24	G1/8	20	11	98	11	7	-
HE-1/4-D-MINI							1/4 NPT										
HE-3/8-D-MINI	70						3/8 NPT										
HE-D-MINI	-	-			5.8		-	11				-	-			-	10
<b>Midi</b>																	
HE-3/8-D-MIDI	85	70	55	43	-	44	3/8 NPT	-	M5	34	G1/4	32	22	119	14	8	-
HE-1/2-D-MIDI							1/2 NPT										
HE-3/4-D-MIDI							3/4 NPT										
HE-D-MIDI	-	-			6.8		-	24				-	-			-	11
<b>Maxi</b>																	
HE-3/4-D-MAXI	96	80	66	46	-	44	3/4 NPT	-	M5	38	G3/8	32	22	132	16	8	-
HE-1-D-MAXI	116	91					40										
HE-D-MAXI	-	-			6.8		-	30				-	-			-	11

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

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

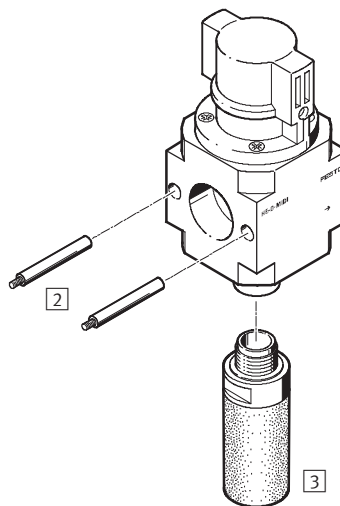
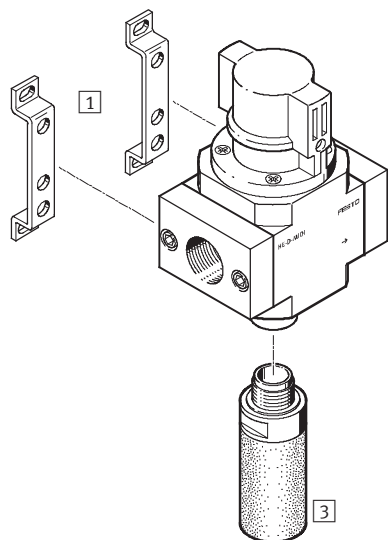
Accessories Overview



## Mini/Midi/Maxi

Individual unit with port blocks

Individual unit without port blocks, for combination unit



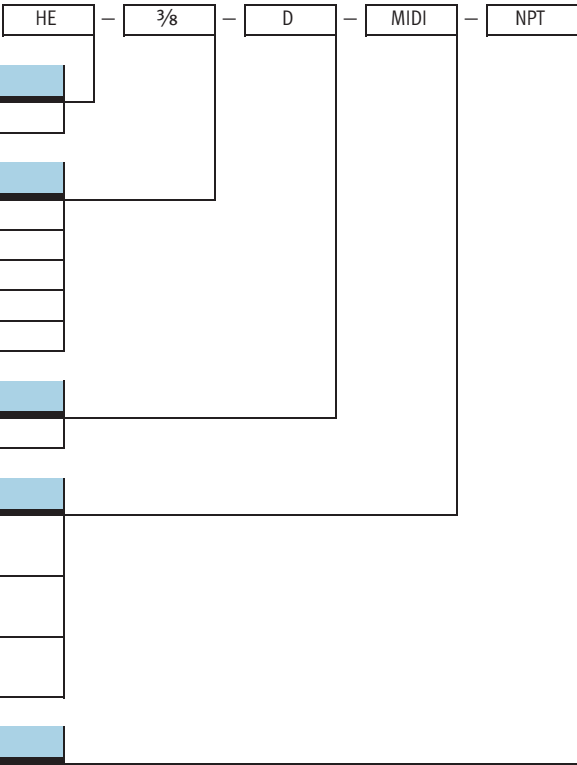
Mounting attachments and accessories					
	Individual unit		Combination		→ Page/Internet
	with port blocks	without port blocks	with port blocks	without port blocks	
1 Mounting bracket HFOE	■	-	■	-	hfoe
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	frb
3 Silencer U	■	■	■	■	u

### Note

For Custom Combinations → FAST Program Selector Guide starting page 7

# HE Manual On/Off Valves D Series, NPT

Type Codes



Basic function	
HE	On-of valve, manual

Pneumatic connection	
1/8	1/8 NPT Thread
1/4	1/4 NPT Thread
3/8	3/8 NPT Thread
3/4	3/4 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

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



Ordering Data

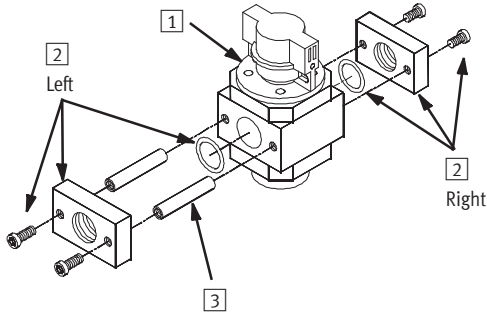
Ordering data		
3/2-way valve, operating pressure 0 ... 16 bar, normally closed		
Size	Part No.	Type
Without threaded port blocks		
Mini	170681	HE-D-MINI
Midi	170682	HE-D-MIDI
Maxi	170683	HE-D-MAXI

Ordering data			
3/2-way valve, operating pressure 0 ... 16 bar, normally closed			
Size	Connection	Part No.	Type
With threaded port blocks			
Mini	1/8 NPT	173892	HE-1/8-D-MINI-NPT
	1/4 NPT	173893	HE-1/4-D-MINI-NPT
	3/8 NPT	173894	HE-3/8-D-MINI-NPT
Midi	3/8 NPT	173895	HE-3/8-D-MIDI-NPT
	1/2 NPT	173896	HE-1/2-D-MIDI-NPT
	3/4 NPT	173897	HE-3/4-D-MIDI-NPT
Maxi	3/4 NPT	173898	HE-3/4-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	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
1/8	1000/35.3	HE...-D-MINI-...	170681	546520	546521	546495	546496
1/4	1500/52.9	HE...-D-MIDI-...	170682	546522	546523	546497	546498
	2600/91.8			546536	546537	546532	543533
3/8	1600/56.5	HE...-D-MINI-...	170681	546524	546525	546499	546500
	3200/113.0	HE...-D-MIDI-...	170682	546530	546531	546501	546502
1/2	3600/127.1	HE...-D-MIDI-...	170683	546526	546527	546503	546504
	5600/197.8	HE...-D-MAXI-...		546538	546539	546534	546535
3/4	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		

**Step 3:** Determine the appropriate quantity of each item.

**Ordering Example:**

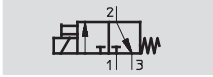
**Required:** 3/8 port size, 3000 l/min flow, BSP threads, and mounting bracket.

	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

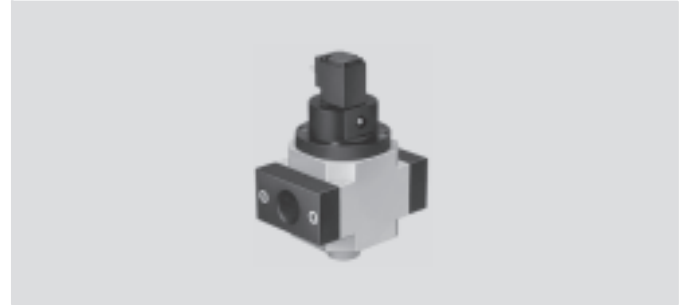
-10 ... +60 °C

### Operating pressure

2.5 ... 16 bar

Selected types according to ATEX directive for explosive atmospheres

→ [www.festo.com/en/ex](http://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	1/8 NPT	1/4 NPT	3/8 NPT	3/8 NPT	1/2 NPT	3/4 NPT	3/4 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 <sup>1)</sup> qnN [l/min]						
Connection	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1 NPT
<b>Mini</b>						
HEE	1000	1500	1600	–	–	–
<b>Midi</b>						
HEE	–	–	3200	3600	3800	–
<b>Maxi</b>						
HEE	–	–	–	–	6000	6500

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



# HEE Electrical On/Off Valves – D Series, NPT

Technical Data

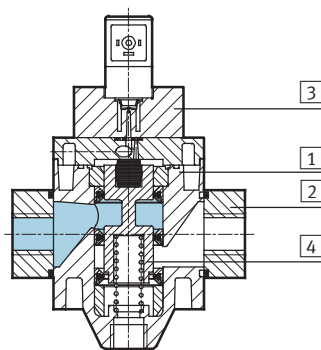
Ambient conditions				
Size		Mini	Midi	Maxi
Ambient temperature	[°C]	-10 ... +60		
Temperature of medium	[°C]	-10 ... +60		
Corrosion resistance class	CRC <sup>1)</sup>	2		

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



Download CAD Data → [www.festo.com/us/cad](http://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
<b>Mini</b>																
HEE-1/8-D-MINI	64	52	40	30	-	1/8 NPT	-	M4	24	G1/8	20	11	104	11	7	-
HEE-1/4-D-MINI	70					3/8 NPT										
HEE-3/8-D-MINI	-	-	-	-	5.8	-	11	-	-	-	-	-	-	-	-	10
<b>Midi</b>																
HEE-3/8-D-MIDI	85	70	55	43	-	3/8 NPT	-	M5	34	G1/4	32	22	122	14	8	-
HEE-1/2-D-MIDI						1/2 NPT										
HEE-3/4-D-MIDI						3/4 NPT										
HEE-D-MIDI	-	-	-	-	6.8	-	24	-	-	-	-	-	-	-	-	11
<b>Maxi</b>																
HEE-3/4-D-MAXI	96	80	66	46	-	3/4 NPT	-	M5	38	G3/8	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

# HEE Electrical On/Off Valves – D Series, NPT

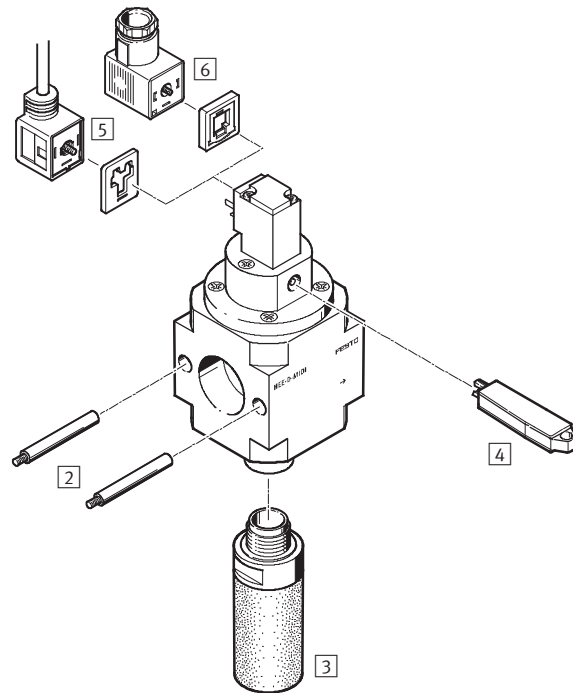
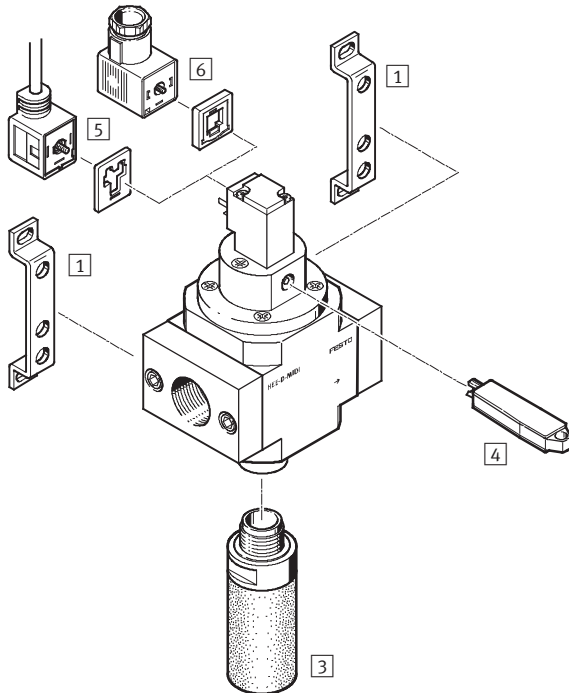
Accessories Overview



## Mini/Midi/Maxi

Individual unit with port blocks

Individual unit without port blocks, for air preparation unit combination



### Mounting attachments and accessories

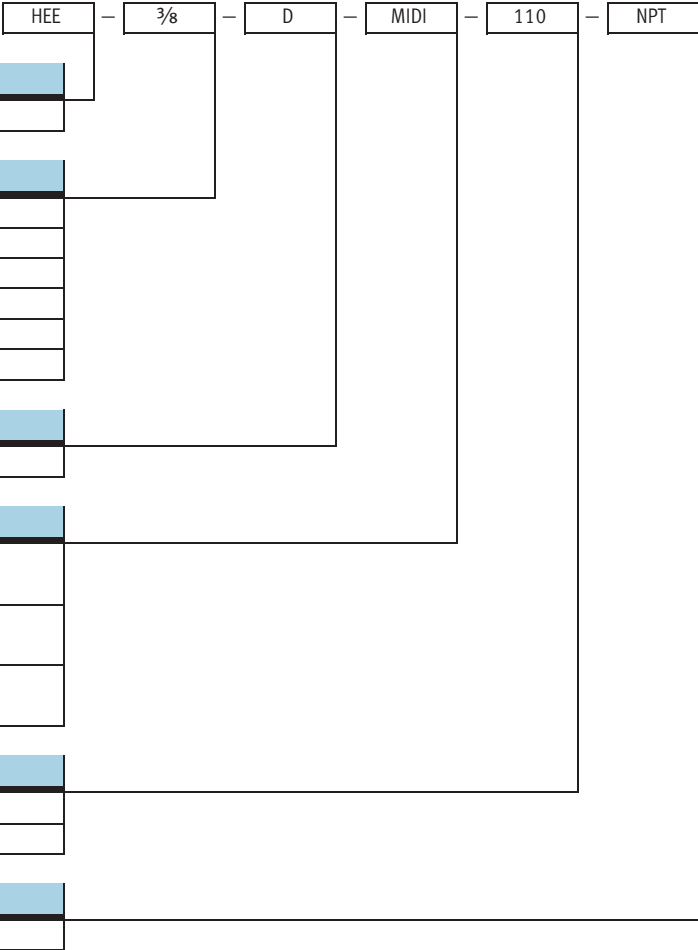
	Individual unit		Combination		→ Page/Internet
	with port blocks	without port blocks	with port blocks	without port blocks	
1 Mounting bracket HFOE	■	-	■	-	hfoe
2 Threaded pin (included in scope of delivery) FRB	-	-	■	■	frb
3 Silencer U	■	■	■	■	u
4 Manual override tool, non-detenting AHB-MD/MF/MY	■	■	■	■	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



Basic function	
LFMBA	Filter combination

Pneumatic connection	
1/8	1/8 NPT Thread
1/4	1/4 NPT Thread
3/8	3/8 NPT Thread
1/2	1/2 NPT Thread
3/4	3/4 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

# HEE Electrical On/Off Valves – D Series, NPT

Ordering 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 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

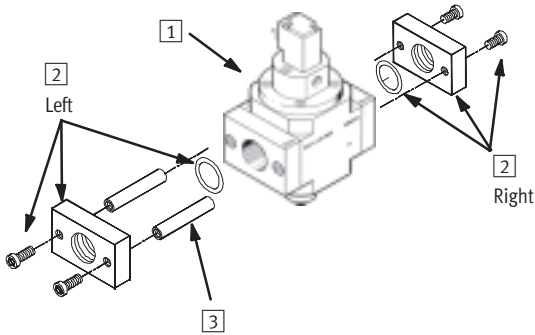
Ordering data							
3/2-way valve, operating pressure 2.5 ... 16 bar, normally closed							
Size	Connection	24 V DC		110 V AC		230 V AC	
		Part No.	Type	Part No.	Type	Part No.	Type
With threaded port blocks							
Mini	1/8 NPT	173900	HEE-1/8-D-MINI-24-NPT	173901	HEE-1/8-D-MINI-110-NPT	-	
	1/4 NPT	173902	HEE-1/4-D-MINI-24-NPT	173903	HEE-1/4-D-MINI-110-NPT		
	3/8 NPT	173904	HEE-3/8-D-MINI-24-NPT	176905	HEE-3/8-D-MINI-110-NPT		
Midi	3/8 NPT	173906	HEE-3/8-D-MIDI-24-NPT	173907	HEE-3/8-D-MIDI-110-NPT	-	
	1/2 NPT	173908	HEE-1/2-D-MIDI-24-NPT	173909	HEE-1/2-D-MIDI-110-NPT		
	3/4 NPT	173910	HEE-3/4-D-MIDI-24-NPT	173911	HEE-3/4-D-MIDI-110-NPT		
Maxi	3/4 NPT	173912	HEE-3/4-D-MAXI-24-NPT	173913	HEE-3/4-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

\*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).

				Item				
				1	2			
Port size	Max. Flow (l/min/scfm)	Coil Voltage	Product Type / Description	Main Unit	NPT Thread		BSP Thread	
					Left Port Block	Right Port Block	Left Port Block	Right Port Block
1/8	1000/35.3	24	HE-...-D-MINI-...	172956	546520	546521	546495	546496
		110		172957				
		230		172958				
1/4	1500/52.9	24	HE-...-D-MINI-...	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				
3/8	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				
1/2	3600/127.1	24	HE-...-D-MINI-...	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				
3/4	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	HE-...-D-MAXI-...	172962	546491	546493	546509	546510
		110		172963				
		230		172964				

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

HEE Electric On/Off Valves – D Series, NPT



**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 <span style="border: 1px solid black; padding: 0 2px;">3</span>	<span style="border: 1px solid black; padding: 0 2px;">4</span> (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	

**Step 3:** Determine the appropriate quantity of each Item.

**Ordering Example:**

**Required:**  $\frac{3}{8}$  port size, 3000 l/min flow, BSP threads, and mounting bracket kit.

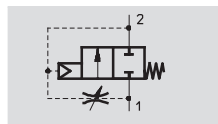
	Item	Part No.	Qty	Description
Order:	<span style="border: 1px solid black; padding: 0 2px;">1</span>	172960	1	Main Unit
	<span style="border: 1px solid black; padding: 0 2px;">2</span>	546501	1	Left Port Block Kit
		546502	1	Right Port Block Kit
	<span style="border: 1px solid black; padding: 0 2px;">3</span>	546489	2	Single Unit Joining Rod
	<span style="border: 1px solid black; padding: 0 2px;">4</span>	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	1/8 NPT	1/4 NPT	3/8 NPT	3/8 NPT	1/2 NPT	3/4 NPT	3/4 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 <sup>1)</sup> qnN [l/min]						
Connection	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT	3/4 NPT	1NPT
<b>Mini</b>						
HEL	1000	1500	1600	–	–	–
<b>Midi</b>						
HEL	–	–	3200	3600	3800	–
<b>Maxi</b>						
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 <sup>1)</sup>		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.



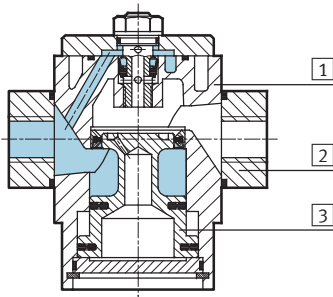
# HEL Soft-Start Valves – D Series, NPT

Technical Data

Weight [g]			
Size	Mini	Midi	Maxi
HEL	184	586	850

## Materials

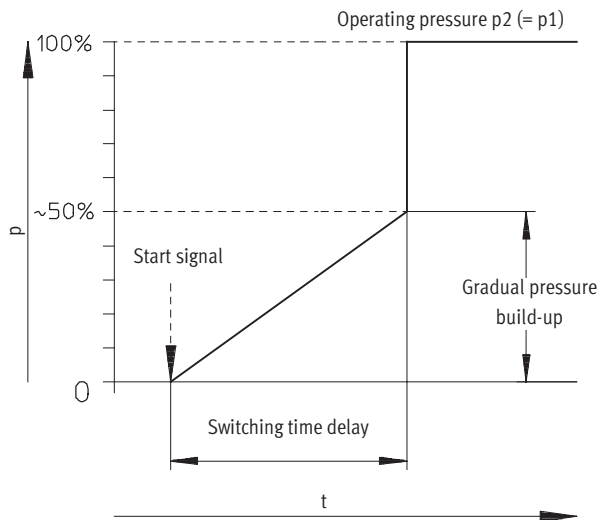
Sectional view



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



**Dimensions** Download CAD Data → [www.festo.com/us/cad](http://www.festo.com/us/cad)

**Mini/Midi**

With threaded port blocks Without threaded port blocks

1 Regulating screw for flow control 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
<b>Mini</b>															
HEL-1/8-D-MINI (NPT)	64	52	40	30	-	1/8 NPT	-	M4	30	20	11	66	16	7	-
HEL-1/4-D-MINI (NPT)	70					3/8 NPT									
HEL-3/8-D-MINI (NPT)	-					5.8									
HEL-D-MINI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
<b>Midi</b>															
HEL-3/8-D-MIDI (NPT)	85	70	55	43	-	3/8 NPT	-	M5	50	32	22	91	22	8	-
HEL-1/2-D-MIDI (NPT)						1/2 NPT									
HEL-3/4-D-MIDI (NPT)						3/4 NPT									
HEL-D-MIDI	-	-	-	-	-	6.8	24	-	-	-	-	-	-	-	11
<b>Maxi</b>															
HEL-3/4-D-MAXI (NPT)	96	80	66	46	-	3/4 NPT	-	M5	50	32	22	89	23	8	-
HEL-1-D-MAXI (NPT)	116	91				40									
HEL-D-MAXI	-	-				6.8				30					

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

# HEL Soft-Start Valves – D Series, NPT

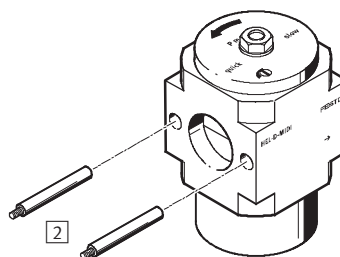
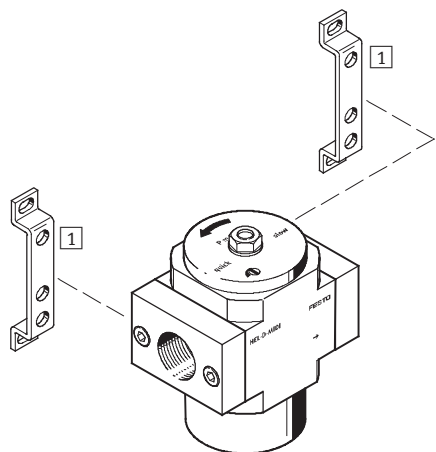
Accessories Overview



## Mini/Midi/Maxi

Individual unit with port blocks

Individual unit without port blocks, for combination unit



### Mounting attachments and accessories

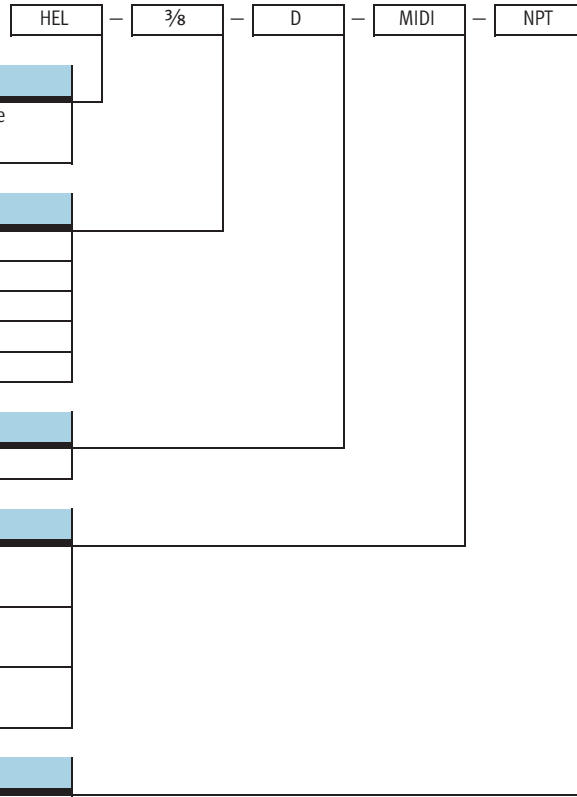
	Individual unit		Combination		→ Page/Internet
	with port blocks	without port blocks	with port blocks	without port blocks	
1 Mounting bracket HFOE	■	–	■	–	hfoe
2 Threaded pin (included in scope of delivery) FRB	–	–	■	■	frb

### Note

For Custom Combinations → FAST Program Selector Guide starting page 22

# HEL Soft-Start Valves – D Series, NPT

Type Codes



**Basic function**

HEL	Soft-start valve, gradual pressure buildup
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**Pneumatic connection**

1/8	1/8 NPT Thread
1/4	1/4 NPT Thread
3/8	3/8 NPT Thread
3/4	3/4 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
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## HEL Soft-Start Valves – D Series, NPT

Ordering Data

**FESTO**

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

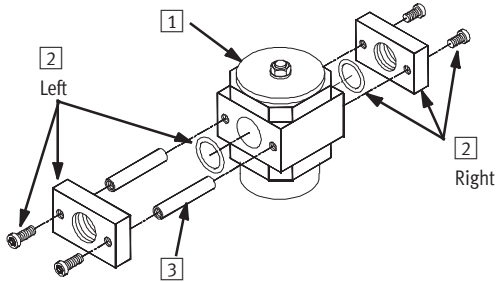
Ordering data		
Gradual pressure build-up, 2/2-way valve, operating pressure 3 ... 16 bar, normally closed		
Size	Connection	Part No. Type
With threaded port blocks		
Mini	1/8NPT	173916 HEL-1/8-D-MINI-NPT
	1/4NPT	173917 HEL-1/4-D-MINI-NPT
	3/8NPT	173918 HEL-3/8-D-MINI-NPT
Midi	3/8NPT	173919 HEL-3/8-D-MIDI-NPT
	1/2NPT	173920 HEL-1/2-D-MIDI-NPT
	3/4NPT	173921 HEL-3/4-D-MIDI-NPT
Maxi	3/4NPT	173922 HEL-3/4-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	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
1/8	1000/35.3	HEL-...-D-MINI-...	170690	546520	546521	546495	546496
1/4	1500/52.9			546522	546523	546497	546498
	2600/91.8	HEL-...-D-MIDI-...	170691	546536	546537	546532	546533
3/8	1600/56.5	HEL-...-D-MINI-...	170690	546524	546525	546499	546500
	3200/113.0	HEL-...-D-MIDI-...	170691	546530	546531	546501	546502
1/2	3600/127.1	HEL-...-D-MIDI-...		546526	546527	546503	546504
	5600/197.8	HEL-...-D-MAXI-...	170692	546538	546539	546534	546535
3/4	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	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		

**Step 3:** Determine the appropriate quantity of each item.

**Ordering Example:**

**Required:** 3/8 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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Subject to change