

On-off/Soft-start Valves MS12-EM/EE/DL/DE – Metric Series

FESTO



Manually operated and solenoid actuated on-off valves for pressurizing and venting pneumatic installations. Pneumatic and solenoid actuated soft-start valves for slowly pressurizing and venting pneumatic installations.

- On-off valves
 - MS12-EM, manually operated
 - MS12-EE, solenoid actuated
- Soft-start valves
 - MS12-DL, pneumatically actuated
 - MS12-DE, solenoid actuated
- Pneumatic connection: G1, G1¼, G1½, G2
- Operating pressure
 - EM: 0 ... 21 bar
 - EE and DE: 3 ... 16 bar
 - DL: 2 ... 21 bar
- Flow rate: 25,000 ... 42,000 l/min

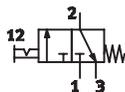
Product Range Overview														
Type	Flow rate [l/min]	Pneumatic connections		Supply voltage				Pressure indicator				Options		
				24 V DC (connection pattern to EN 175301)	24 V DC (connection pattern M12 to DESINA)	110 V AC (connection pattern to EN 175301)	230 V AC (connection pattern to EN 175301)	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter for pressure gauge G½	Adapter for pressure gauge G¼	Pressure sensor with display	Silencer	Flow direction from right to left
MS12		Body thread	Port plate	V24	V24P	V110	V230	VS	AG	A8	A4	AD...	S	Z
EM	25,000 ... 32,000	–	G1, G1¼, G1½, G2	–	–	–	–	■	■	–	■	–	■	■
EE	25,000 ... 32,000	–	G1, G1¼, G1½, G2	■	■	■	■	■	■	–	■	–	■	■
DL	25,000 ... 42,000	–	G1, G1¼, G1½, G2	–	–	–	–	■	■	–	■	–	–	■
DE	25,000 ... 42,000	–	G1, G1¼, G1½, G2	■	■	■	■	■	■	–	■	–	–	■

Contents			
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→ www.festo.com/catalog/ms12-em	→ www.festo.com/catalog/ms12-ee	→ www.festo.com/catalog/ms12-dl	→ www.festo.com/catalog/ms12-de

On-off Valves MS12-EM – Metric Series

Technical Data

ISO Symbol



- Manually operated on-off valve for pressurizing and venting pneumatic installations
- Ducted exhaust possible via a threaded connection with silencer
- The switching position is immediately recognizable
- Actuator secured by locking the rotary knob
- Commercially available padlock can be used for security



General Technical Data				
Pneumatic connection 1, 2 ¹⁾	G1	G1¼	G1½	G2
Pneumatic connection 3	G1			
Operating pressure [bar]	0 ... 21			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1210

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard Nominal Flow Rate q_{N^2} [l/min]	
In main flow direction 1 → 2	25,000 ... 32,000
In relief direction 2 → 3	13,000

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

Operating and Environmental Conditions	
Operating medium	Compressed air
Exhaust function	Without flow control
Switching position display	Knob actuator direction = flow direction
Ambient temperature [°C]	-10 ... +60
Temperature of medium [°C]	-10 ... +60
Corrosion resistance CRC ³⁾	2

3) 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.

Weights [g]	
Standard	3,900
With silencer	4,000

- For spare parts go to: www.festo.com/en/spare_parts_service

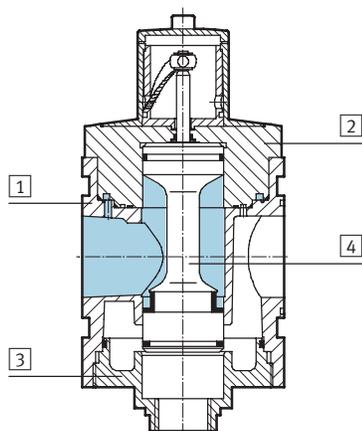
On-off Valves MS12-EM – Metric Series

Technical Data, Dimensional Drawings



Materials

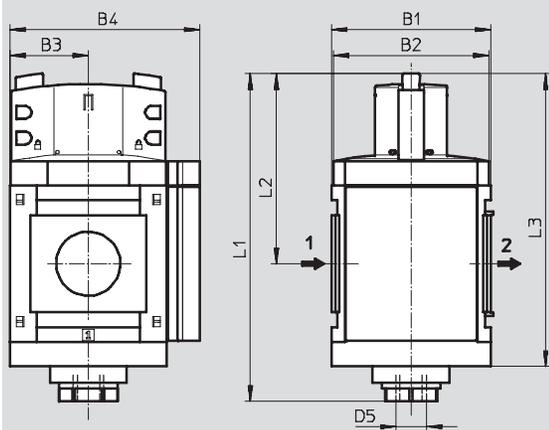
Sectional view



On-off valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
-	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Dimensions¹⁾ – Standard

Download CAD Data → www.festo.com/us/cad



→ Flow direction

B1	B2	B3	B4	L1	L2	L3	D5
124	122	61	148	255	148	228	G1

1) Dimensions are in millimeters, unless otherwise noted.

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

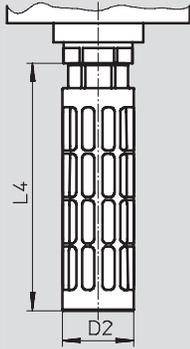
On-off Valves MS12-EM – Metric Series



Dimensional Drawings, Ordering Data – Pre-configured Products

Dimensions¹⁾ – Silencer

Download CAD Data → www.festo.com/us/cad



Type	D2 Ø	L4
MS12-EM-...-S	47.8	165.5

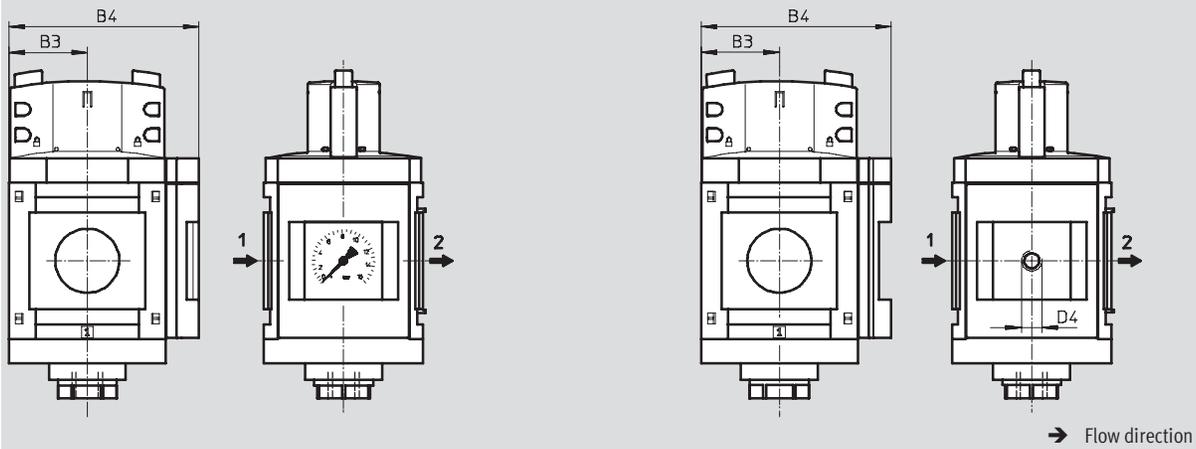
1) Dimensions are in millimeters, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters

Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-EM-...-AG	61	148	–
MS12-EM-...-A4	61	148	G ¹ / ₄

1) Dimensions are in millimeters, unless otherwise noted.

Ordering Data

Connection	Part No.	Type	LT
G1 ... G2 ²⁾	541495	MS12-EM-G ³⁾	Q

LT = Lead time 1D typically ships same day/next day 1W typically ships within 1 week Q request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1210

3) Free of copper and PTFE

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

On-off Valves MS12-EM – Metric Series



Ordering Data – Configurable Products

M Mandatory Data					O Options				
Part No.	Series	Size	Function	Connection size	Silencer	Pressure gauge/adaptor	Alternative pressure gauge scale	Type of mounting	Reverse flow direction
535031	MS	12	EM	AGF AGG AGH AGI G	S	AG A4	PSI MPA	WP	Z
Order example									
535031	MS	12	- EM	- G	- S	- AG	- PSI	-	- Z

Ordering Table			
Grid dimension	[mm]	124	Conditions Code Enter code
M	Part No.	535031	
	Series	Standard	MS
	Size	12	12
	Function	On-off valve, manual	-EM
	Connection size	Port plate G1 (dimensions → 1210)	-AGF
		Port plate G1¼ (dimensions → 1210)	-AGG
		Port plate G1½ (dimensions → 1210)	-AGH
		Port plate G2 (dimensions → 1210)	-AGI
		Module without connecting thread, without connecting plate	-G
O	Silencer	Silencer	-S
	Pressure gauge/adaptor	MS pressure gauge, bar	-AG
		Adapter plate for EN pressure gauge ¼, without pressure gauge	-A4
	Alternative pressure gauge scale	psi	1 -PSI
		MPa	1 -MPA
	Type of mounting	Mounting bracket (dimensions → 1211)	2 -WP
	Reverse flow direction	Flow direction from right to left	-Z

1 PSI, MPA Only with pressure gauge AG

2 WP Only with port plate AGF, AGG, AGH or AGI

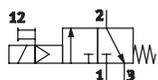
Transfer order code

535031	MS	12	- EM	-	-	-	-	-	-
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On-off Valves MS12-EE – Metric Series

Technical Data

ISO Symbol



- Solenoid actuated on-off valve for pressurizing and venting pneumatic installations
- Solenoid coil without plug socket, three voltage ranges available.
- Ducted exhaust possible via a threaded connection with silencer
- Non-detenting manual override (except variant V24P)



General Technical Data				
Pneumatic connection 1, 2 ¹⁾	G1	G1¼	G1½	G2
Pneumatic connection 3	G1			
Operating pressure [bar]	3 ... 16			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1210

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard Nominal Flow Rate q_{nN^2} [l/min]	
In main flow direction 1 → 2	25,000 ... 32,000
In exhaust direction 2 → 3	8,900

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

Operating and Environmental Conditions		
Operating medium	Compressed air	
Coil characteristics	V24	24 V DC
	V110	110 V AC
	V230	230 V AC
Ambient temperature [°C]	-10 ... +50	
Temperature of medium [°C]	-10 ... +50	
Assembly position	Any	
Corrosion resistance CRC ³⁾	2	

3) 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.

Weights [g]	
Standard	3,800
With silencer	3,900

• For spare parts go to: www.festo.com/en/spare_parts_service

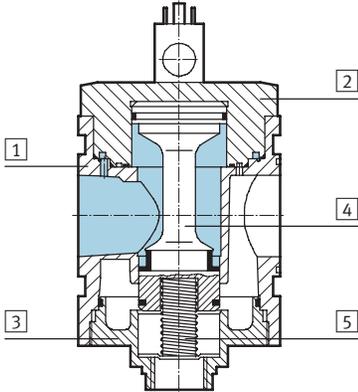
On-off Valves MS12-EE – Metric Series

Technical Data, Dimensional Drawings



Materials

Sectional view



On-off valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Dimensions¹⁾ – Standard

Download CAD Data → www.festo.com/us/cad

MS12-EE-...-V24/V110/V230

MS12-EE-...-V24P

1 Plug connection to DIN EN 175 301-803

3 Plug connection M12, 4-pin to DESINA

→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L4	L5	D5
MS12-EE-...-V24/V110/V230	124	122	61	148	237	130	162	35.7	12.3	G1
MS12-EE-...-V24P								36	10	

1) Dimensions are in millimeters, unless otherwise noted.

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

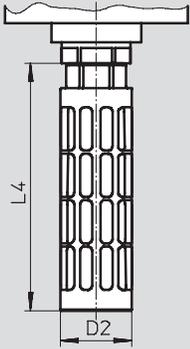
On-off Valves MS12-EE – Metric Series



Dimensional Drawings, Ordering Data – Pre-configured Products

Dimensions¹⁾ – Silencer

Download CAD Data → www.festo.com/us/cad



Type	D2 Ø	L4
MS12-EE-...-S	47.8	165.5

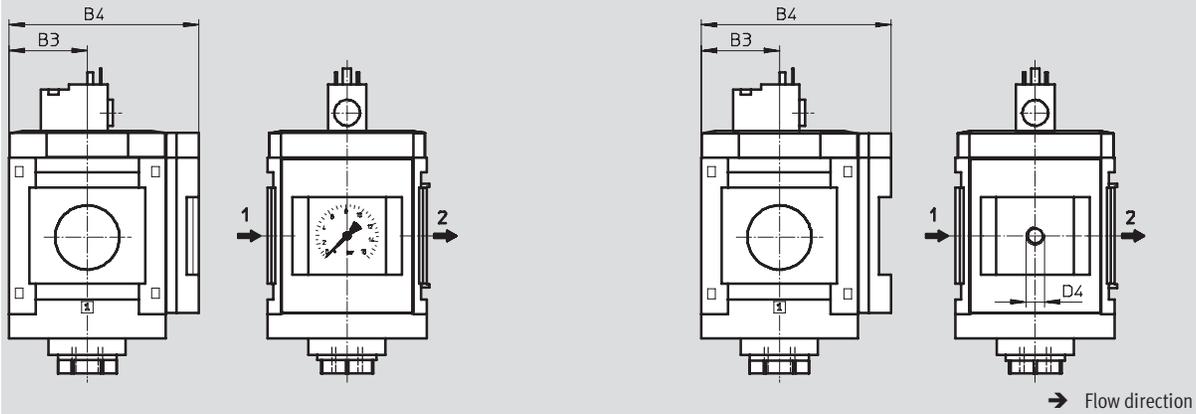
1) Dimensions are in millimeters, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters

Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-EE-...-AG	61	148	–
MS12-EE-...-A4	61	148	G1/4

1) Dimensions are in millimeters, unless otherwise noted.

Ordering Data

Connection	Supply voltage 24 V DC		LT
	Part No.	Type	
G1 ... G2 ²⁾	541496	MS12-EE-G-V24 ³⁾	Q

LT = Lead time

1D typically ships same day/next day

1W typically ships within 1 week

Q request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1210

3) Free of copper and PTFE

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

On-off Valves MS12-EE – Metric Series

Ordering Data – Configurable Products



M Mandatory Data						O Options				
Part No.	Series	Size	Function	Connection size	Supply voltage	Silencer	Pressure gauge/adap- pter	Alternative pressure gauge scale	Type of mountin- g	Reverse flow direction
535032	MS	12	EE	AGF AGG AGH AGI G	V24 V24P V110 V230	S	AG A4	PSI MPa	WP	Z
Order example										
535032	MS	12	- EE	- AGI	- V110	- S	- AG	- MPa	- WP	-

Ordering Table		Grid dimension [mm]	124	Conditions	Code	Enter code
M	Part No.	535032				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	On-off valve, electrical			-EE	-EE
	Connection size	Port plate G1 (dimensions → 1210)			-AGF	
		Port plate G1¼ (dimensions → 1210)			-AGG	
		Port plate G1½ (dimensions → 1210)			-AGH	
		Port plate G2 (dimensions → 1210)			-AGI	
		Module without connecting thread, without port plate			G	
	Supply voltage	24 V DC (connection pattern to EN 175301), 18 bar			-V24	
		24 V DC plug (connection pattern M12 to DESINA), 18 bar			-V24P	
		110 V AC (connection pattern to EN 175301), 18 bar			-V110	
		230 V AC (connection pattern to EN 175301), 18 bar			-V230	
O	Silencer	Silencer			-S	
	Pressure gauge/adap- pter	MS pressure gauge, bar			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPa	
	Type of mounting	Mounting bracket (dimensions → 1211)		2	-WP	
	Reverse flow direction	Flow direction from right to left			-Z	

1 PSI, MPA Only with pressure gauge AG

2 WP Only with port plate AGF, AGG, AGH or AGI

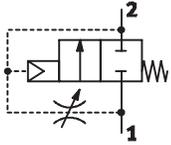
Transfer order code

535032	MS	12	-	EE	-		-		-		-		-		-	
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Soft-start Valves MS12-DL – Metric Series

Technical Data

ISO Symbol



- Pneumatically actuated soft-start valve for slowly pressurizing and venting pneumatic installations (for use with on-off valves EM and EE)
- 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.
- When the valve is exhausted, the main seat remains open until the switch-through pressure is reached. The rest of the exhaust procedure is performed using the restrictor.
- Pressure switching approx. 50% of supply pressure



- The cylinders advance slowly and reliably into the initial position, sudden and erratic movements are avoided.
- Adjustable switching time delay

General Technical Data				
Pneumatic connection 1, 2 ¹⁾	G1	G1¼	G1½	G2
Operating pressure [bar]	2 ... 21			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1210

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard Nominal Flow Rate qn ²⁾ [l/min]	
In main flow direction 1 → 2	25,000 ... 42,000
In exhaust direction 2 → 1	25,000 ... 42,000

2) Measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar

Operating and Environmental Conditions	
Operating medium	Compressed air
Exhaust function	Flow control
Direction of flow	Non-reversible
Ambient temperature [°C]	-10 ... +60
Temperature of medium [°C]	-10 ... +60
Assembly position	Any
Corrosion resistance CRC ³⁾	2

3) 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.

Weights [g]	
Soft-start valve	3,600

- For spare parts go to: www.festo.com/en/spare_parts_service

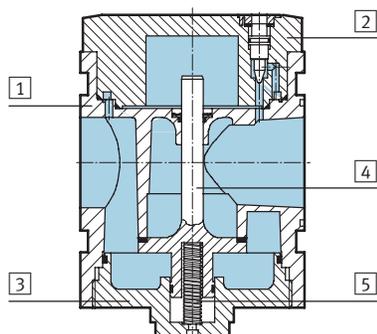
Soft-start Valves MS12-DL – Metric Series

Technical Data



Materials

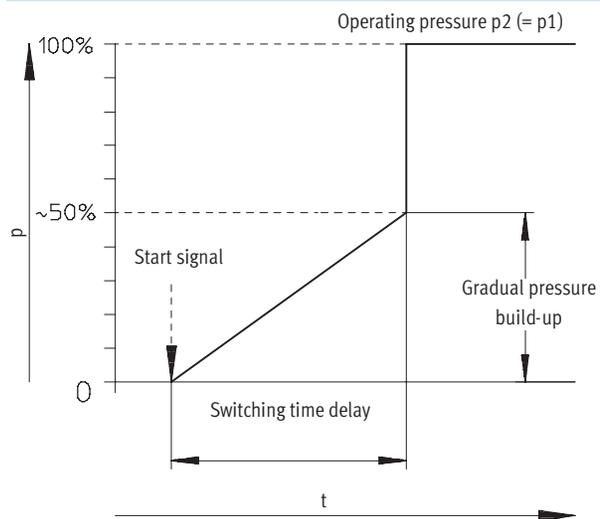
Sectional view



Soft-start valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve stem	Aluminum, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Switching Point

Pressure p as a function of time t



Soft-start Valves MS12-DL – Metric Series

Dimensional Drawings, Ordering Data – Pre-configured Products

Dimensions¹⁾ – Standard Download CAD Data → www.festo.com/us/cad

→ Flow direction

B1	B2	B3	B4	L1	L2	L3
124	122	61	148	178	82	162

1) Dimensions are in millimeters, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge AG, display unit [bar] Adapter A4 for EN pressure gauge 1/4, without pressure gauge

→ Flow direction

Type	B3	B4	D4
MS12-DL-...-AG	61	148	-
MS12-DL-...-A4	61	148	G1/4

1) Dimensions are in millimeters, unless otherwise noted.

Ordering Data			
Connection	Part No.	Type	LT
G1 ... G2 ²⁾	541497	MS12-DL-G ³⁾	Q

LT = Lead time **1D** typically ships same day/next day **1W** typically ships within 1 week **Q** request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1210
 3) Free of copper and PTFE

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Soft-start Valves MS12-DL – Metric Series



Ordering Data – Configurable Products

M Mandatory Data					O Options			
Part No.	Series	Size	Function	Connection size	Pressure gauge/adaptor	Alternative pressure gauge scale	Type of mounting	Reverse flow direction
535033	MS	12	DL	AGF AGG AGH AGI G	AG A4	PSI MPA	WP	Z
Order example								
535033	MS	12	- DL	- AGI	- AG	- MPA	- WP	- Z

Ordering Table		Grid dimension [mm]	124	Conditions	Code	Enter code
M	Part No.	535033				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	Soft-start valve, pneumatic			-DL	-DL
	Connection size	Port plate G1 (dimensions → 1210)			-AGF	
		Port plate G1¼ (dimensions → 1210)			-AGG	
		Port plate G1½ (dimensions → 1210)			-AGH	
		Port plate G2 (dimensions → 1210)			-AGI	
		Module without connecting thread, without port plate			-G	
O	Pressure gauge/adaptor	MS pressure gauge, bar			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPA	
	Type of mounting	Mounting bracket (dimensions → 1211)		2	-WP	
	Reverse flow direction	Flow direction from right to left			-Z	

1 PSI, MPA Only with pressure gauge AG

2 WP Only with port plate AGF, AGG, AGH or AGI

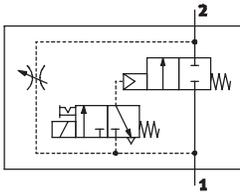
Transfer order code

535033	MS	12	- DL	-	-	-	-	-	-
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Soft-start Valves MS12-DE – Metric Series

Technical Data

ISO Symbol



- Solenoid actuated soft-start valve for slowly pressurizing and venting pneumatic installations
- 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. Only the air flow from the restrictor is available when the solenoid valve is not actuated. The main seat is only opened by energizing the solenoid valve.
- When the solenoid valve is switched off, the main seat is closed and only the air flow from the flow control valve is available.
- The solenoid valve should remain switched on in order to vent a system as this increases the flow rate from 2 and 1 and reduces the exhaust time.



- The cylinders advance slowly and reliably into the initial position, sudden and erratic movements are avoided.
- Switch-through pressure can be exactly controlled using a solenoid valve
- Adjustable switching time delay
- Non-detenting manual override (except variant V24P)
- Solenoid coil without plug socket, three voltage ranges available

General Technical Data				
Pneumatic connection 1, 2 ¹⁾	G1	G1¼	G1½	G2
Operating pressure [bar]	3 ... 16			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1210

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard Nominal Flow Rate qn ²⁾ [l/min]	
In main flow direction 1 → 2	25,000 ... 42,000
In relief direction 2 → 1 ³⁾	25,000 ... 42,000

2) Measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar

3) For energised solenoid valve

Operating and Environmental Conditions		
Operating medium	Compressed air	
Coil characteristics	V24	24 V DC
	V110	110 V AC
	V230	230 V AC
Exhaust function	Flow control	
Direction of flow	Non-reversible	
Ambient temperature [°C]	-10 ... +50	
Temperature of medium [°C]	-10 ... +50	
Assembly position	Any	
Corrosion resistance CRC ⁴⁾	2	

4) 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.

Soft-start Valves MS12-DE – Metric Series

Technical Data

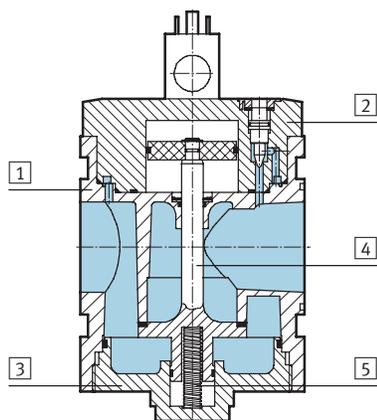


Weights [g]	
Soft-start valve	3,800

- For spare parts go to: www.festo.com/en/spare_parts_service

Materials

Sectional view



Soft-start valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve stem	Aluminum, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Soft-start Valves MS12-DE – Metric Series

Dimensional Drawings, Ordering Data – Pre-configured Products



Dimensions¹⁾ – Standard Download CAD Data → www.festo.com/us/cad

MS12-DE-...-V24/V110/V230

MS12-DE-...-V24P

1) Plug connection to DIN EN 175 301-803

3) Plug connection M12, 4-pin to Desina

→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L4	L5
MS12-DE-...-V24/V110/V230	124	122	61	148	226	130	162	35.7	12.3
MS12-DE-...-V24P								36	10

1) Dimensions are in millimeters, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge AG, display unit [bar]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge

→ Flow direction

Type	B3	B4	D4
MS12-DE-...-AG	61	148	–
MS12-DE-...-A4	61	148	G1/4

1) Dimensions are in millimeters, unless otherwise noted.

Ordering Data			
Connection	Supply voltage 24 V DC		
	Part No.	Type	LT
G1 ... G2 ²⁾	541498	MS12-DE-G-V24 ³⁾	Q

LT = Lead time **1D** typically ships same day/next day **1W** typically ships within 1 week **Q** request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1210

3) Free of copper and PTFE

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Soft-start Valves MS12-DE – Metric Series



Ordering Data – Configurable Products

M Mandatory Data						O Options			
Part No.	Series	Size	Function	Connection size	Supply voltage	Pressure gauge/adapter	Alternative pressure gauge scale	Type of mounting	Reverse flow direction
535034	MS	12	DE	AGF AGG AGH AGI G	V24 V24P V110 V230	AG A4	PSI MPA	WP	Z
Order example									
535034	MS	12	- DE	- AGH	- V230	- A4	-	- WP	- Z

Ordering Table		Grid dimension [mm]	124	Conditions	Code	Enter code
M	Part No.	535034				
	Series	Standard			MS	MS
	Size	12			12	12
	Function	Soft-start valve, electrical			-DE	-DE
	Connection size	Port plate G1 (dimensions → 1210)			-AGF	
		Port plate G1¼ (dimensions → 1210)			-AGG	
		Port plate G1½ (dimensions → 1210)			-AGH	
		Port plate G2 (dimensions → 1210)			-AGI	
		Module without connecting thread, without port plate			-G	
	Supply voltage	24 V DC (connection pattern to EN 175301), 18 bar			-V24	
		24 V DC plug (connection pattern M12 to DESINA), 16 bar			-V24P	
		110 V AC (connection pattern to EN 175301), 18 bar			-V110	
		230 V AC (connection pattern to EN 175301), 18 bar			-V230	
	Pressure gauge/adapter	MS pressure gauge, bar			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	psi		1	-PSI	
		MPa		1	-MPA	
	Type of mounting	Mounting bracket (dimensions → 1211)		2	-WP	
	Reverse flow direction	Flow direction from right to left			-Z	

1 PSI, MPA Only with pressure gauge AG

2 WP Only with port plate AGF, AGG, AGH or AGI

Transfer order code

535034	MS	12	- DE	-	-	-	-	-	-
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On-off/Soft-start Valves MS12-EM/DL – Metric Series

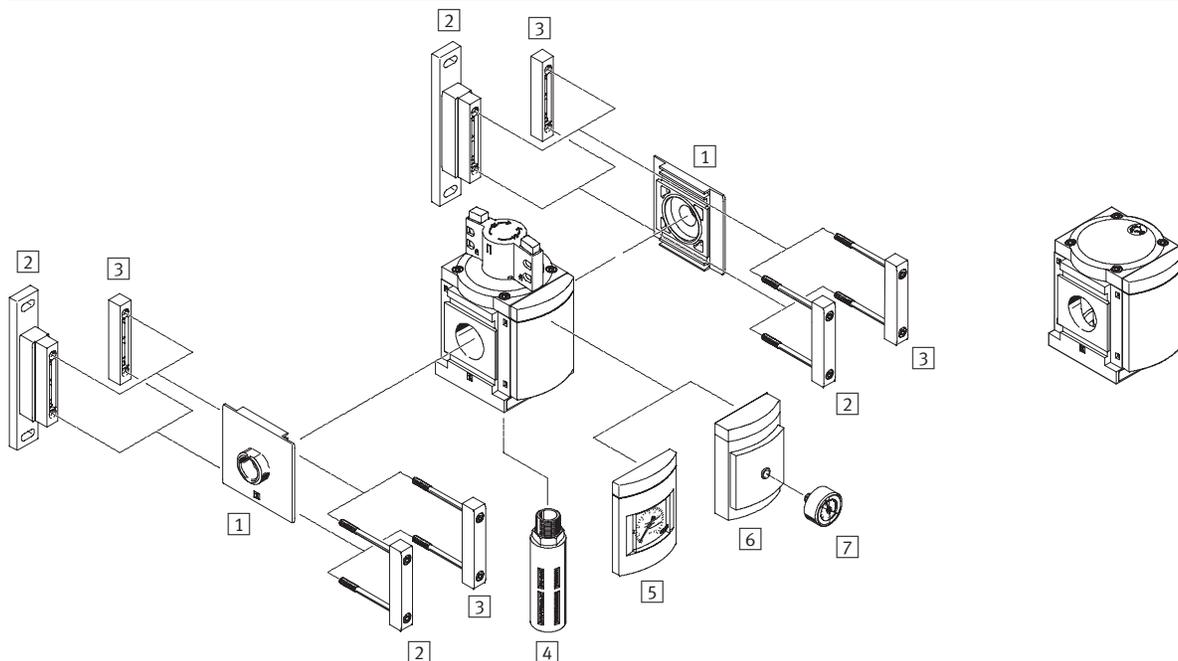
Accessories Overview



Mounting Attachments and Accessories

On-off Valve EM – manually actuated

Soft-start Valve DL – pneumatically actuated



Mounting Attachments and Accessories

→ Page

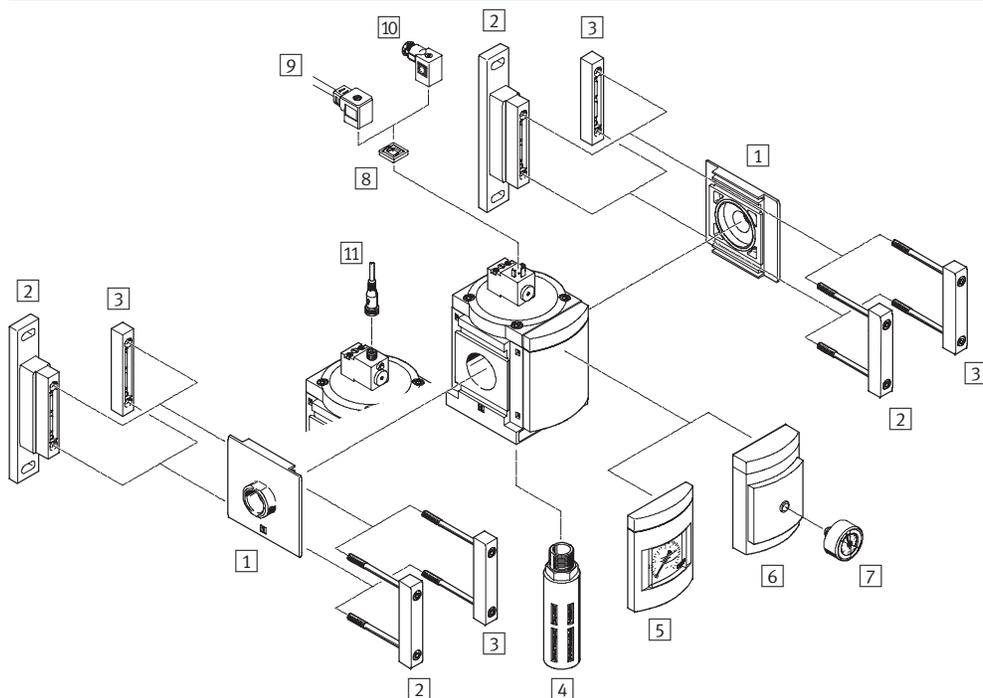
		→ Page
1	Port plate MS12-AG...	1210
2	Mounting bracket MS12-WP	1211
3	Body connector MS12-MV	1210
4	Silencer (with EM) U	1212
5	MS pressure gauge AG	EM 1195 DL 1203
6	Adapter for EN pressure gauge 1/4 A4	EM 1195 DL 1203
7	Pressure gauge MA	1212

On-off/Soft-start Valves MS12-EE/DE – Metric Series

Accessories Overview

Mounting Attachments and Accessories

On-off/Soft-start Valve EE/DE – solenoid actuated



Mounting Attachments and Accessories

		→ Page
1	Port plate MS12-AG...	1210
2	Mounting bracket MS12-WP	1211
3	Body connector MS12-MV	1210
4	Silencer (with EE) U	1212
5	MS pressure gauge AG	EE 1199 DE 1207
6	Adapter for EN pressure gauge 1/4 A4	EE 1199 DE 1207
7	Pressure gauge MA	1212
8	Illuminating seal MC-LD	1212
9	Plug socket with cable KMC	1212
10	Plug socket MSSD-C	1212
11	Plug socket with cable SIM-M12-4...	1212

On-off/Soft-start Valves MS12-EM/EE/DL/DE – Metric Series



Accessories

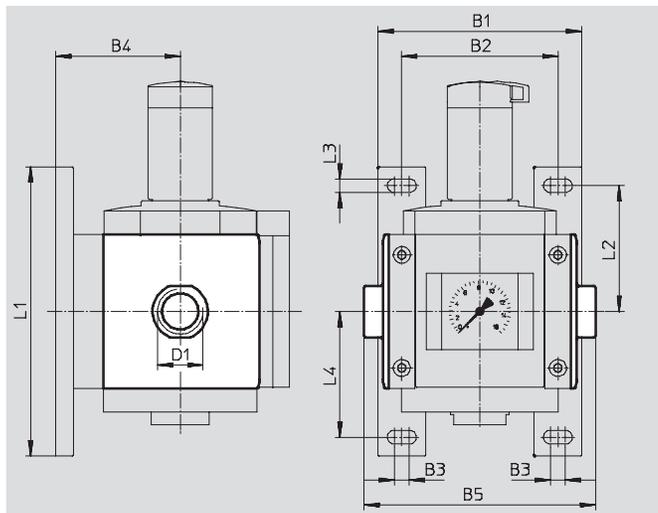
1 Port plate MS12-AG...

- Adapter for pneumatic connection

Material:

Die-cast aluminum

Free of copper and PTFE



Dimensions and Ordering Data												Part No.	Type
B1	B2	B3	B4	B5	D1	L1	L2	L3	L4	Weight [g]			
162	124	12	99	184	G1	230	100	11	100	1,300	537135	MS12-AGF	
				184	G1¼						537136	MS12-AGG	
				184	G1½						537137	MS12-AGH	
				196	G2						537138	MS12-AGI	

3 Body connector MS12-MV

- For connecting modules

Material:

Die-cast aluminum,

Free of copper and PTFE



Ordering Data			
Size	Weight [g]	Part No.	Type
MS12	500	537134	MS12-MV

On-off/Soft-start Valves MS12-EM/EE/DL/DE – Metric Series

FESTO

Accessories

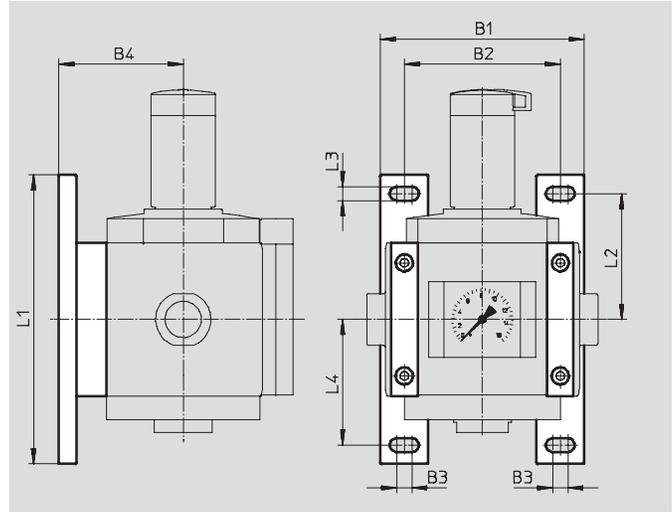
2 Mounting bracket MS12-WP

- To connect the modules for wall mounting
- In combination with a port plate for mounting an individual unit on a wall

Material:

Die-cast aluminum

Free of copper and PTFE



Dimensions and Ordering Data

Size	B1	B2	B3	B4	L1	L2	L3	L4	Weight [g]	Part No.	Type
MS12	162	124	12	99	230	100	11	100	700	537133	MS12-WP

On-off/Soft-start Valves MS12-EM/EE/DL/DE – Metric Series

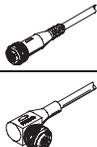


Accessories

10 Ordering Data – Plug Socket MSSD					Technical data → www.festo.com/catalog/mssd	
	Description	Operating voltage range	Electrical connection	Type of mounting cable connection	Part No.	Type
	for MS12-EE/DE	≤ 250 V AC/DC	3-pin	Clamping screws	34583	MSSD-C
			4-pin	Insulation displacement technology	192748	MSSD-C-S-M16

9 Ordering Data – Plug Socket with Cable KMC					Technical data → www.festo.com/catalog/kmc	
	Description	Operating voltage range	Switching status display	Cable length [m]	Part No.	Type
	for MS12-EE/DE	24 V DC	LED	2.5	30931	KMC-1-24DC-2,5-LED
		24 V DC	LED	5	30933	KMC-1-24DC-5-LED
		24 V DC	LED	10	193459	KMC-1-24-10-LED
		230 V AC	–	2.5	30932	KMC-1-230AC-2,5
		230 V AC	–	5	30934	KMC-1-230AC-5

8 Ordering Data – Illuminating Seal MC-LD			Technical data → www.festo.com/catalog/mc-ld	
	Description	Operating voltage range	Part No.	Type
	for plug socket with cable KMC and plug socket MSSD-C	12 ... 24 V DC	19145	MC-LD-12-24DC
		230 V DC/AC ±10%	19146	MC-LD-230AC

11 Ordering Data – Plug Socket with Cable SIM-M12			Technical data → www.festo.com/catalog/sim-m12	
	Electrical connection	Cable length [m]	Part No.	Type
	M12x1, 4-pin	5	164259	SIM-M12-4GD-5-PU
	M12x1, 4-pin	5	164258	SIM-M12-4WD-5-PU

7 Ordering Data – Pressure Gauge MA					Technical data → www.festo.com/catalog/ma	
	Nominal size	Pneumatic connection	Indicating range		Part No.	Type
			[bar]	[psi]		
	Pressure gauge MA, DIN EN 837-1					
	40	G $\frac{1}{4}$	0 ... 16	0 ... 232	183901	MA-40-16-G$\frac{1}{4}$-EN
	Pressure gauge MA, DIN EN 837-1, with red-green range					
	50	R $\frac{1}{4}$	0 ... 16	–	525729	MA-50-16-R$\frac{1}{4}$-E-RG

4 Ordering Data – Silencer U			Technical data → www.festo.com/catalog/u	
	Description	Pneumatic connection	Part No.	Type
	for MS12-EM/EE	G1	151990	U-1-B

On-off/Soft-start Valves MS12N-EM/EE/DL/DE – Inch Series



Manually operated and solenoid actuated on-off valves for pressurizing and venting pneumatic installations. Pneumatic and solenoid actuated soft-start valves for slowly pressurizing and venting pneumatic installations.

- On-off valves
 - MS12N-EM, manually operated
 - MS12N-EE, solenoid actuated
- Soft-start valves
 - MS12N-DL, pneumatically actuated
 - MS12N-DE, solenoid actuated
- Pneumatic connection: 1 NPT, 1¼ NPT, 1½ NPT, 2 NPT
- Operating pressure
 - EM: 0 ... 309 psi
 - EE and DE: 44 ... 235 psi
 - DL: 29 ... 309 psi
- Flow rate: 882.5 ... 1,482.6 scfm

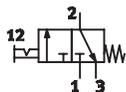
Product Range Overview														
Type	Flow rate [scfm]	Pneumatic connections		Supply voltage				Pressure indicator				Options		
				24 V DC (connection pattern to EN 175301)	24 V DC (connection pattern M12 to DESINA)	110 V AC (connection pattern to EN 175301)	230 V AC (connection pattern to EN 175301)	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter for pressure gauge 1/8 NPT	Adapter for pressure gauge 1/4 NPT			Pressure sensor with display
MS12N		Body thread	Port plate	V24	V24P	V110	V230	VS	AG	A8	A4	AD...	S	Z
EM	882.5 ... 1,129.6	–	1 NPT, 1¼ NPT, 1½ NPT, 2 NPT	–	–	–	–	■	■	–	■	–	■	■
EE	882.5 ... 1,129.6	–	1 NPT, 1¼ NPT, 1½ NPT, 2 NPT	■	■	■	■	■	■	–	■	–	■	■
DL	882.5 ... 1,482.6	–	1 NPT, 1¼ NPT, 1½ NPT, 2 NPT	–	–	–	–	■	■	–	■	–	–	■
DE	882.5 ... 1,482.6	–	1 NPT, 1¼ NPT, 1½ NPT, 2 NPT	■	■	■	■	■	■	–	■	–	–	■

Contents			
MS12N-EM	MS12N-EE	MS12N-DL	MS12N-DE
Technical Data → 1214	Technical Data → 1218	Technical Data → 1222	Technical Data → 1226
Dimensional Drawings → 1215	Dimensional Drawings → 1219	Dimensional Drawings → 1224	Dimensional Drawings → 1228
Ordering Data → 1216	Ordering Data → 1220	Ordering Data → 1224	Ordering Data → 1228
Accessories → 1230	Accessories → 1230	Accessories → 1230	Accessories → 1230
→ www.festo.com/catalog/ms12n-em	→ www.festo.com/catalog/ms12n-ee	→ www.festo.com/catalog/ms12n-dl	→ www.festo.com/catalog/ms12n-de

On-off Valves MS12N-EM – Inch Series

Technical Data

ISO Symbol



- Manually operated on-off valve for pressurizing and venting pneumatic installations
- Ducted exhaust possible via a threaded connection with silencer
- The switching position is immediately recognizable
- Actuator secured by locking the rotary knob
- Commercially available padlock can be used for security



General Technical Data				
Pneumatic connection 1, 2 ¹⁾	1 NPT	1¼ NPT	1½ NPT	2 NPT
Pneumatic connection 3	1 NPT			
Operating pressure [psi]	0 ... 309			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1232

Standard Nominal Flow Rate q _N ²⁾ [scfm]	
In main flow direction 1 → 2	882.5 ... 1,129.6
In relief direction 2 → 3	458.9

2) Measured at p₁ = 88 psi and Δp = 15 psi

Operating and Environmental Conditions	
Operating medium	Compressed air
Exhaust function	Without flow control
Switching position display	Knob actuator direction = flow direction
Ambient temperature [°F]	14 ... 140
Temperature of medium [°F]	14 ... 140
Assembly position	Any
Corrosion resistance CRC ³⁾	2

3) 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.

Weights [lb]	
Standard	7.80
With silencer	8.00

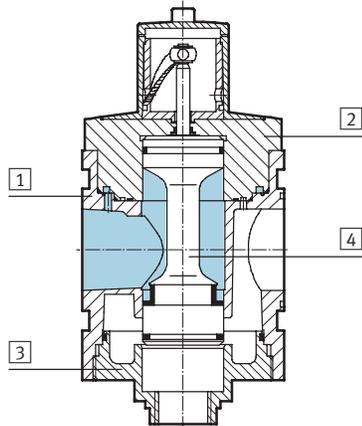
- For spare parts go to: www.festo.com/en/spare_parts_service

On-off Valves MS12N-EM – Inch Series

Technical Data, Dimensional Drawings

Materials

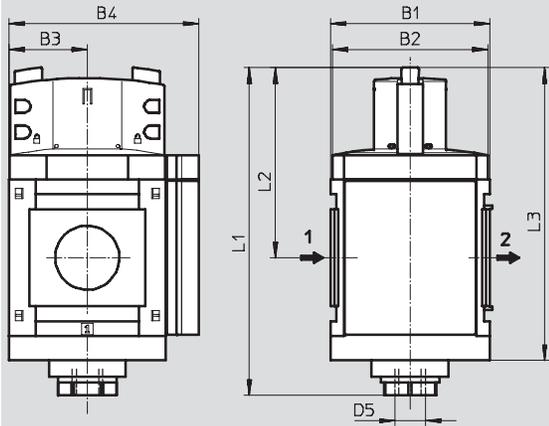
Sectional view



On-off valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
-	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Dimensions – Standard

Download CAD Data → www.festo.com/us/cad



→ Flow direction

B1	B2	B3	B4	L1	L2	L3	D5
4.88	4.80	2.40	5.83	10.04	5.83	8.98	G1

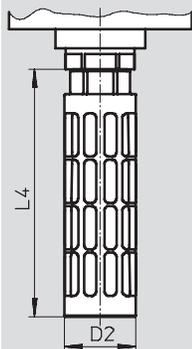
On-off Valves MS12-EM – Inch Series

Dimensional Drawings, Ordering Data – Pre-configured Products



Dimensions¹⁾ – Silencer

Download CAD Data → www.festo.com/us/cad



Type	D2 Ø	L4
MS12-EM-...-S	1.88	6.52

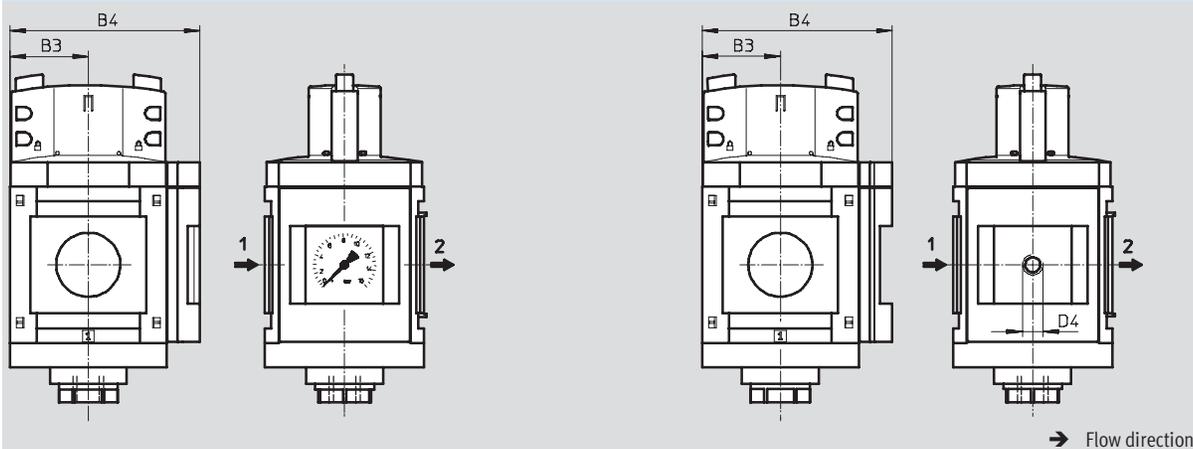
1) Dimensions are in inches, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters

Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge AG, display unit [psi]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-EM-...-AG	2.40	5.83	–
MS12-EM-...-A4	2.40	5.83	G1/4

1) Dimensions are in inches, unless otherwise noted.

Ordering Data

Connection	Part No.	Type	LT
1 NPT ... 2 NPT ²⁾	541495	MS12-EM-G ³⁾	Q

LT = Lead time

1D typically ships same day/next day

1W typically ships within 1 week

Q request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1232

3) Free of copper and PTFE

On-off Valves MS12N-EM – Inch Series



Ordering Data – Configurable Products

M Mandatory Data						O Options				
Part No.	Series	Size	Thread	Function	Connection size	Silencer	Pressure gauge/adapter	Alternative pressure gauge scale	Type of mounting	Reverse flow direction
535036	MS	12	N	EM	AQT AQU AQUV AQW G	S	AG A4	BAR MPA	WP	Z
Order example										
535036	MS	12	N	-EM	-G	-S	-AG	-BAR	-	-Z

Ordering Table			
Grid dimension	[mm]	124	Conditions Code Enter code
M	Part No.	535036	
	Series	Standard	MS MS
	Size	12	12 12
	Thread	NPT thread	N N
	Function	On-off valve, manual	-EM -EM
	Connection size	Port plate 1 NPT (dimensions → 1232)	-AQT
		Port plate 1¼ NPT (dimensions → 1232)	-AQU
		Port plate 1½ NPT (dimensions → 1232)	-AQUV
		Port plate 2 NPT (dimensions → 1232)	-AQW
		Module without connecting thread, without connecting plate	-G
O	Silencer	Silencer	-S
	Pressure gauge/adapter	MS pressure gauge, psi	-AG
		Adapter plate for EN pressure gauge ¼, without pressure gauge	-A4
	Alternative pressure gauge scale	bar	¹ -BAR
		MPa	¹ -MPA
	Type of mounting	Mounting bracket (dimensions → 1233)	² -WP
	Reverse flow direction	Flow direction from right to left	-Z

¹ **BAR, MPA** Only with pressure gauge AG

² **WP** Only with port plate AQT, AQU, AQUV or AQW

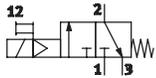
Transfer order code

535036	MS	12	N	-EM	-	-	-	-	-	-
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On-off Valves MS12N-EE – Inch Series

Technical Data

ISO Symbol



- Solenoid actuated on-off valve for pressurizing and venting pneumatic installations
- Solenoid coil without plug socket, three voltage ranges available.
- Ducted exhaust possible via a threaded connection with silencer
- Non-detenting manual override (except variant V24P)



General Technical Data				
Pneumatic connection 1, 2 ¹⁾	1 NPT	1¼ NPT	1½ NPT	2 NPT
Pneumatic connection 3	1 NPT			
Operating pressure [psi]	44 ... 235			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1232

Standard Nominal Flow Rate qnN ²⁾ [scfm]	
In main flow direction 1 → 2	882.5 ... 1,129.6
In relief direction 2 → 3	314.2

2) Measured at p₁ = 88 psi and Δp = 15 psi

Operating and Environmental Conditions		
Operating medium		Compressed air
Coil characteristics	V24	24 V DC
	V110	110 V AC
	V230	230 V AC
Ambient temperature	[°F]	14 ... 122
Temperature of medium	[°F]	14 ... 122
Assembly position		Any
Corrosion resistance	CRC ³⁾	2

3) 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.

Weights [lb]	
Standard	7.60
With silencer	7.80

- For spare parts go to: www.festo.com/en/spare_parts_service

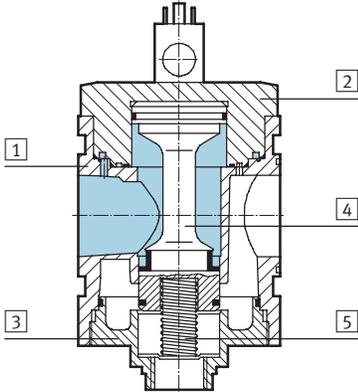
On-off Valves MS12N-EE – Inch Series

Technical Data, Dimensional Drawings



Materials

Sectional view



On-off valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve spool	Stainless steel, polyacetate, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Dimensions¹⁾ – Standard

Download CAD Data → www.festo.com/us/cad

MS12-EE-...-V24/V110/V230

MS12-EE-...-V24P

1 Plug connection to DIN EN 175 301-803

3 Plug connection M12, 4-pin to DESINA

→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L4	L5	D5
MS12-EE-...-V24/V110/V230	4.88	4.80	2.40	5.83	9.33	5.12	6.38	1.41	0.48	G1
MS12-EE-...-V24P								1.42	0.39	

1) Dimensions are in inches, unless otherwise noted.

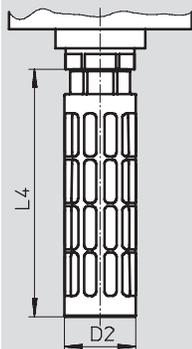
On-off Valves MS12N-EE – Inch Series

Dimensional Drawings, Ordering Data – Pre-configured Products



Dimensions¹⁾ – Silencer

Download CAD Data → www.festo.com/us/cad



Type	D2 ∅	L4
MS12-EE-...-S	1.88	6.52

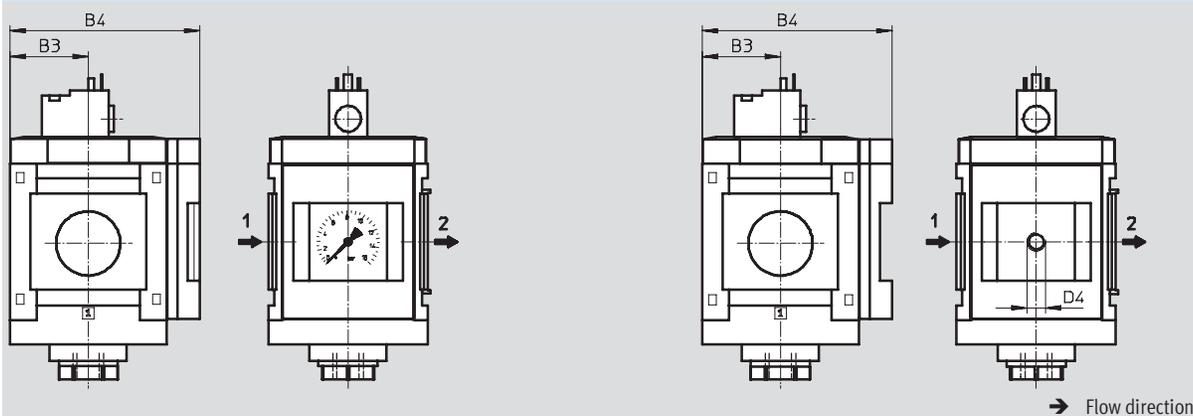
1) Dimensions are in inches, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters

Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge AG, display unit [psi]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge



Type	B3	B4	D4
MS12-EE-...-AG	2.40	5.83	–
MS12-EE-...-A4	2.40	5.83	G1/4

1) Dimensions are in inches, unless otherwise noted.

Ordering Data

Connection	Supply voltage 24 V DC		LT
	Part No.	Type	
1 NPT ... 2 NPT ²⁾	541496	MS12-EE-G-V24 ³⁾	Q

LT = Lead time

1D typically ships same day/next day

1W typically ships within 1 week

Q request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1232

3) Free of copper and PTFE

On-off Valves MS12N-EE – Inch Series



Ordering Data – Configurable Products

M Mandatory Data							O Options				
Part No.	Series	Size	Thread	Function	Connection size	Supply voltage	Silencer	Pressure gauge/adapter	Alternative pressure gauge scale	Type of mounting	Reverse flow direction
535037	MS	12	N	EE	AQT AQU AQV AQW G	V24 V24P V110 V230	S	AG A4	BAR MPA	WP	Z
Order example											
535037	MS	12	N	- EE	- AQW	- V110	- S	- AG	- MPA	- WP	-

Ordering Table			Conditions	Code	Enter code
Grid dimension	[mm]	124			
M Part No.	535037				
Series	Standard			MS	MS
Size	12			12	12
Function	On-off valve, electrical			-EE	-EE
Thread	NPT thread			N	N
Connection size	Port plate 1 NPT (dimensions → 1232)			-AQT	
	Port plate 1¼ NPT (dimensions → 1232)			-AQU	
	Port plate 1½ NPT (dimensions → 1232)			-AQV	
	Port plate 2 NPT (dimensions → 1232)			-AQW	
	Module without connecting thread, without port plate			G	
Supply voltage	24 V DC (connection pattern to EN 175301), 265 psi			-V24	
	24 V DC plug (connection pattern M12 to DESINA), 235 psi			-V24P	
	110 V AC (connection pattern to EN 175301), 265 psi			-V110	
	230 V AC (connection pattern to EN 175301), 265 psi			-V230	
O Silencer	Silencer			-S	
Pressure gauge/adapter	MS pressure gauge, bar			-AG	
	Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
Alternative pressure gauge scale	bar		1	-BAR	
	MPa		1	-MPA	
Type of mounting	Mounting bracket (dimensions → 1233)		2	-WP	
Reverse flow direction	Flow direction from right to left			-Z	

1 BAR, MPA Only with pressure gauge AG

2 WP Only with port plate AQT, AQU, AQV or AQW

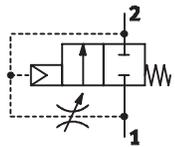
Transfer order code

535037	MS	12	N	- EE	-	-	-	-	-	-	-
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Soft-start Valves MS12N-DL – Inch Series

Technical Data

ISO Symbol



- 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.
- When the valve is exhausted, the main seat remains open until the switch-through pressure is reached. The rest of the exhaust procedure is performed using the restrictor.
- Pneumatically actuated soft-start valve for slowly pressurizing and venting pneumatic installations (for use with on-off valves EM and EE)
- Adjustable switching time delay



- The cylinders advance slowly and reliably into the initial position, sudden and erratic movements are avoided.
- Pressure switching approx. 50% of supply pressure

General Technical Data				
Pneumatic connection 1, 2 ¹⁾	1 NPT	1¼ NPT	1½ NPT	2 NPT
Operating pressure [psi]	29 ... 309			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1232

Standard Nominal Flow Rate qnN ²⁾ [scfm]	
In main flow direction 1 → 2	882.5 ... 1,482.6
In relief direction 2 → 1	882.5 ... 1,482.6

2) Measured at p1 = 88 psi and p2 = 74 psi, Δp = 15 psi

Operating and Environmental Conditions	
Operating medium	Compressed air
Exhaust function	Flow control
Direction of flow	Non-reversible
Ambient temperature [°F]	14 ... 140
Temperature of medium [°F]	14 ... 140
Assembly position	Any
Corrosion resistance CRC ³⁾	2

3) 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.

Weights [lb]	
Soft-start valve	7.20

- For spare parts go to: www.festo.com/en/spare_parts_service

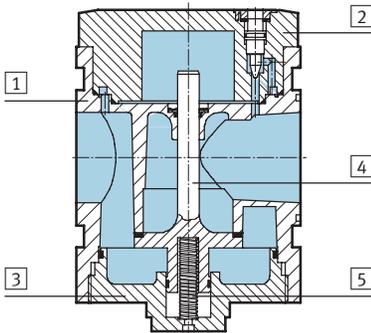
Soft-start Valves MS12N-DL – Inch Series

Technical Data



Materials

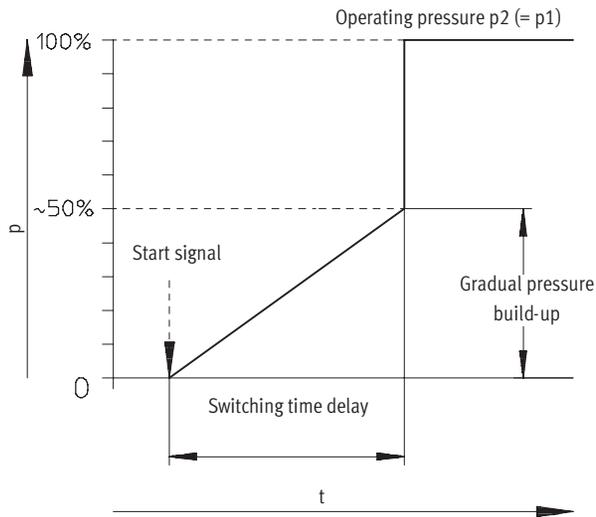
Sectional view



Soft-start valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve stem	Aluminum, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
Note on materials		Free of copper and PTFE (not with variant AG)

Switching Point

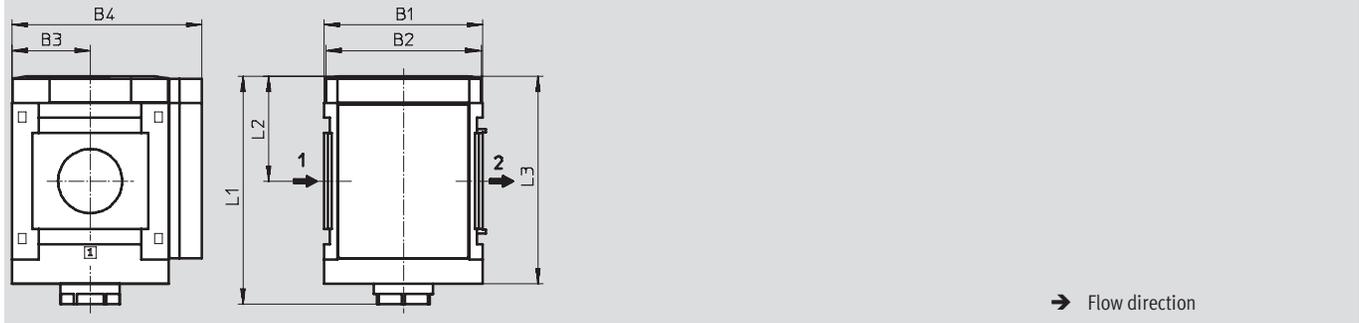
Pressure p as a function of time t



Soft-start Valves MS12N-DL – Inch Series

Dimensional Drawings, Ordering Data – Pre-configured Products

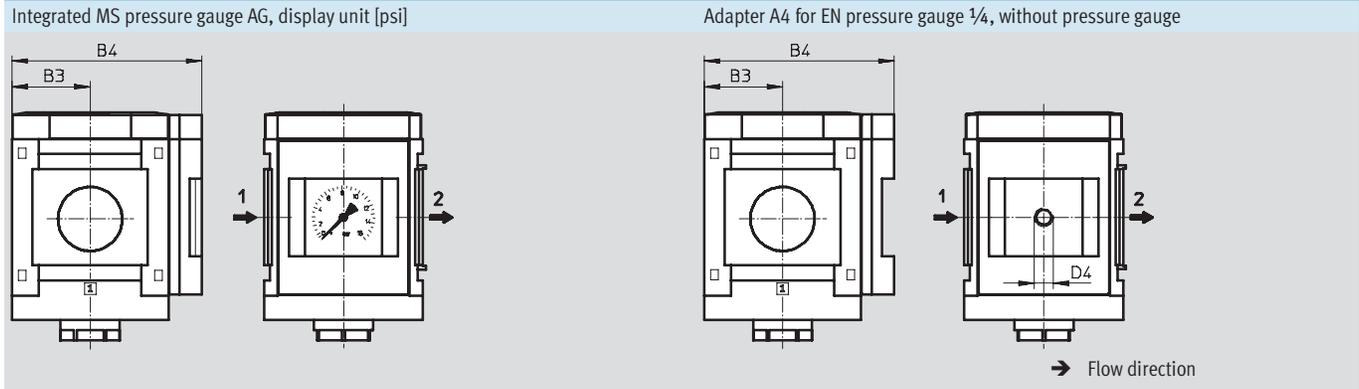
Dimensions¹⁾ – Standard Download CAD Data → www.festo.com/us/cad



B1	B2	B3	B4	L1	L2	L3
4.88	4.80	2.40	5.83	7.01	3.23	6.38

1) Dimensions are in inches, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters Download CAD Data → www.festo.com/us/cad



Type	B3	B4	D4
MS12-DL-...-AG	2.40	5.83	-
MS12-DL-...-A4	2.40	5.83	G1/4

1) Dimensions are in inches, unless otherwise noted.

Ordering Data			
Connection	Part No.	Type	LT
1 NPT ... 2 NPT ²⁾	541497	MS12-DL-G ³⁾	Q

LT = Lead time **1D** typically ships same day/next day **1W** typically ships within 1 week **Q** request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1232
 3) Free of copper and PTFE

Soft-start Valves MS12N-DL – Inch Series



Ordering Data – Configurable Products

M Mandatory Data						O Options			
Part No.	Series	Size	Thread	Function	Connection size	Pressure gauge/adaptor	Alternative pressure gauge scale	Type of mounting	Reverse flow direction
535038	MS	12	N	DL	AQT AQU AQV AQW G	AG A4	BAR MPA	WP	Z
Order example									
535038	MS	12	N	- DL	- AQW	- AG	- MPA	- WP	- Z

Ordering Table			Conditions	Code	Enter code
Grid dimension	[mm]	124			
M Part No.	535038				
Series	Standard			MS	MS
Size	12			12	12
Thread	NPT thread			N	N
Function	Soft-start valve, pneumatic			-DL	-DL
Connection size	Port plate 1 NPT (dimensions → 1232)			-AQT	
	Port plate 1¼ NPT (dimensions → 1232)			-AQU	
	Port plate 1½ NPT (dimensions → 1232)			-AQV	
	Port plate 2 NPT (dimensions → 1232)			-AQW	
	Module without connecting thread, without port plate			-G	
O Pressure gauge/adaptor	MS pressure gauge, psi			-AG	
	Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
Alternative pressure gauge scale	bar		1	-BAR	
	MPa		1	-MPA	
Type of mounting	Mounting bracket (dimensions → 1233)		2	-WP	
Reverse flow direction	Flow direction from right to left			-Z	

1 BAR, MPA Only with pressure gauge AG

2 WP Only with port plate AQT, AQU, AQV or AQW

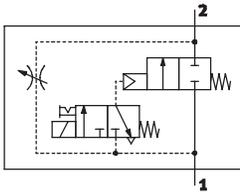
Transfer order code

535038	MS	12	N	- DL					
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Soft-start Valves MS12N-DE – Inch Series

Technical Data

ISO Symbol



- Solenoid actuated soft-start valve for slowly pressurizing and venting pneumatic installations
- 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. Only the air flow via the restrictor is available when the solenoid valve is not actuated. The main seat is only opened by energizing the solenoid valve.
- When the solenoid valve is switched off, the main seat is closed and only the air flow via the flow control valve is available.
- The solenoid valve should remain switched on in order to vent a system as this increases the flow rate from 2 to 1 and reduces the exhaust time.



- The cylinders advance slowly and reliably into the initial position, sudden and erratic movements are avoided.
- Switch-through pressure can be exactly controlled using a solenoid valve
- Adjustable switching time delay
- Non-detenting manual override (except variant V24P)
- Solenoid coil without plug socket, three voltage ranges available.

General Technical Data				
Pneumatic connection 1, 2 ¹⁾	1 NPT	1¼ NPT	1½ NPT	2 NPT
Operating pressure [psi]	44 ... 235			

1) Dependent on port plate selected, must be ordered separately as an accessory → 1232

Standard Nominal Flow Rate qnN ²⁾ [scfm]	
In main flow direction 1 → 2	882.5 ... 1,482.6
In relief direction 2 → 1 ³⁾	882.5 ... 1,482.6

2) Measured at p1 = 88 psi and p2 = 74 psi Δp = 15 psi

3) For energized solenoid valve

Operating and Environmental Conditions	
Operating medium	Compressed air
Coil characteristics	V24 24 V DC
	V110 110 V AC
	V230 230 V AC
Exhaust function	Flow control
Direction of flow	Non-reversible
Ambient temperature [°F]	14 ... 122
Temperature of medium [°F]	14 ... 122
Assembly position	Any
Corrosion resistance CRC ⁴⁾	2

4) 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.

Soft-start Valves MS12N-DE – Inch Series

Technical Data

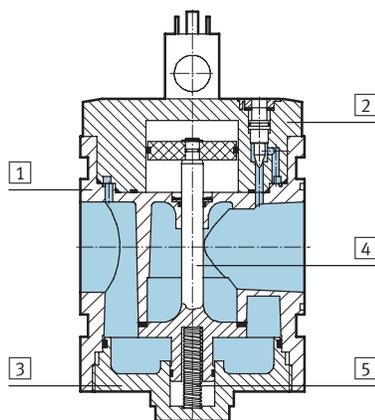


Weights [lb]	
Soft-start valve	7.60

- For spare parts go to: www.festo.com/en/spare_parts_service

Materials

Sectional view



Soft-start valve		
1	Body	Die-cast aluminum
2	Cap, top	Aluminum
3	Cap, bottom	Aluminum
4	Valve stem	Aluminum, nitrile rubber
5	Springs	Steel
-	Covers/cover plates	Polyamide
-	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE (not with variant AG)

Soft-start Valves MS12N-DE – Inch Series

Dimensional Drawings, Ordering Data – Pre-configured Products



Dimensions¹⁾ – Standard Download CAD Data → www.festo.com/us/cad

MS12-DE-...-V24/V110/V230

MS12-DE-...-V24P

1) Plug connection to DIN EN 175 301-803

3) Plug connection M12, 4-pin to DESINA

→ Flow direction

Type	B1	B2	B3	B4	L1	L2	L3	L4	L5
MS12-DE-...-V24/V110/V230	4.88	4.80	2.40	5.83	8.90	5.12	6.38	1.41	0.48
MS12-DE-...-V24P								1.42	0.39

1) Dimensions are in inches, unless otherwise noted.

Dimensions¹⁾ – Pressure Gauges/Adapters Download CAD Data → www.festo.com/us/cad

Integrated MS pressure gauge AG, display unit [psi]

Adapter A4 for EN pressure gauge 1/4, without pressure gauge

→ Flow direction

Type	B3	B4	D4
MS12-DE-...-AG	2.40	5.83	–
MS12-DE-...-A4	2.40	5.83	G1/4

1) Dimensions are in inches, unless otherwise noted.

Ordering Data			
Connection	Supply voltage 24 V DC		
	Part No.	Type	LT
1 NPT ... 2 NPT ²⁾	541498	MS12-DE-G-V24 ³⁾	Q

LT = Lead time 1D typically ships same day/next day 1W typically ships within 1 week Q request a quote for lead time

2) Port plate must be ordered separately as an accessory → 1232
 3) Free of copper and PTFE

Soft-start Valves MS12N-DE – Inch Series



Ordering Data – Configurable Products

M Mandatory Data							O Options			
Part No.	Series	Size	Thread	Function	Connection size	Supply voltage	Pressure gauge/adap-ter	Alternative pressure gauge scale	Type of mountin-g	Reverse flow direction
535039	MS	12	N	DE	AQT AQU AQV AQW G	V24 V24P V110 V230	AG A4	BAR MPA	WP	Z
Order example										
535039	MS	12	N	- DE	- AQV	- V230	- A4	-	- WP	- Z

Ordering Table		Grid dimension [mm]	124	Conditions	Code	Enter code
M	Part No.	535039				
	Series	Standard			MS	MS
	Size	12			12	12
	Thread	NPT thread			N	N
	Function	Soft-start valve, electrical			-DE	-DE
	Connection size	Port plate 1 NPT (dimensions → 1232)			-AQT	
		Port plate 1¼ NPT (dimensions → 1232)			-AQU	
		Port plate 1½ NPT (dimensions → 1232)			-AQV	
		Port plate 2 NPT (dimensions → 1232)			-AQW	
		Module without connecting thread, without port plate			-G	
	Supply voltage	24 V DC (connection pattern to EN 175301), 265 psi			-V24	
		24 V DC plug (connection pattern M12 to DESINA), 235 psi			-V24P	
		110 V AC (connection pattern to EN 175301), 265 psi			-V110	
		230 V AC (connection pattern to EN 175301), 265 psi			-V230	
O	Pressure gauge/adap-ter	MS pressure gauge, psi			-AG	
		Adapter plate for EN pressure gauge ¼, without pressure gauge			-A4	
	Alternative pressure gauge scale	bar		1	-BAR	
		MPa		1	-MPA	
	Type of mounting	Mounting bracket (dimensions → 1233)		2	-WP	
	Reverse flow direction	Flow direction from right to left			-Z	

1 BAR, MPA Only with pressure gauge AG

2 WP Only with port plate AQT, AQU, AQV or AQW

Transfer order code

535039	MS	12	N	- DE	-	-	-	-	-	-
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On-off/Soft-start Valves MS12N-EM/DL – Inch Series

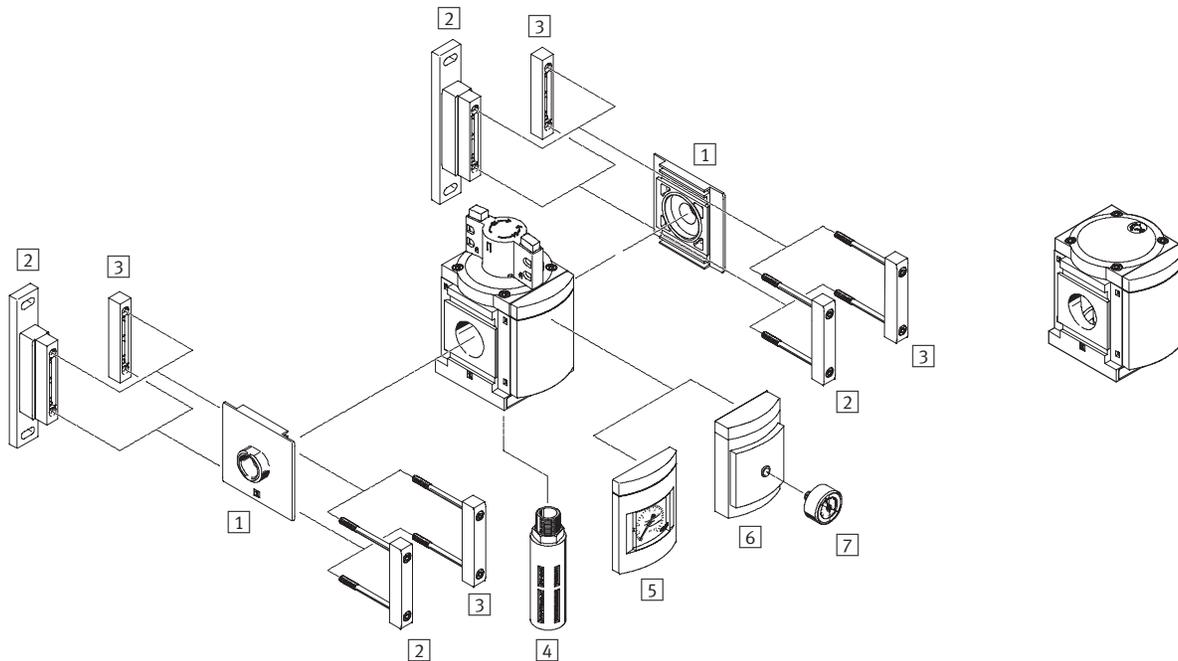
Accessories Overview



Mounting Attachments and Accessories

On-off Valve EM – manually actuated

Soft-start Valve DL – pneumatically actuated



Mounting Attachments and Accessories

→ Page

		→ Page
1	Port plate MS12-AQ...	1232
2	Mounting bracket MS12-WP	1233
3	Body connector MS12-MV	1232
4	Silencer (with EM) U	1234
5	MS pressure gauge AG	EM 1217 DL 1225
6	Adapter for EN pressure gauge 1/4 A4	EM 1217 DL 1225
7	Pressure gauge MA	1234

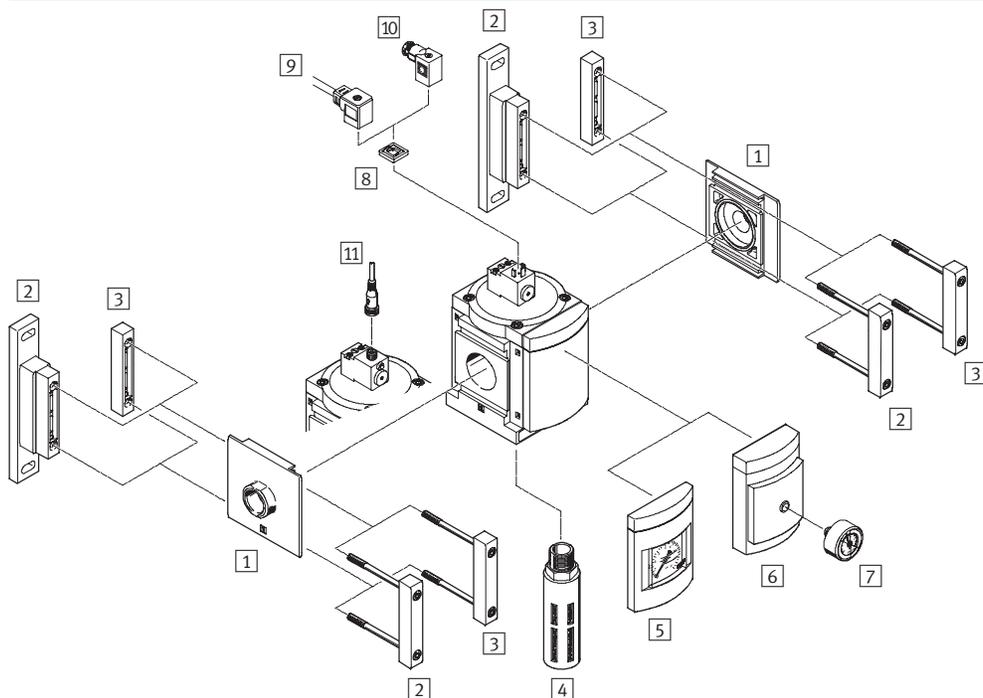
On-off/Soft-start Valves MS12N-EE/DE – Inch Series

Accessories Overview



Mounting Attachments and Accessories

On-off/Soft-start Valve EE/DE – solenoid actuated



Mounting Attachments and Accessories

→ Page

		→ Page
1	Port plate MS12-AQ...	1232
2	Mounting bracket MS12-WP	1233
3	Body connector MS12-MV	1232
4	Silencer (with EE) U	1234
5	MS pressure gauge AG	EE 1221 DE 1229
6	Adapter for EN pressure gauge ¼ A4	EE 1221 DE 1229
7	Pressure gauge MA	1234
8	Illuminating seal MC-LD	1234
9	Plug socket with cable KMC	1234
10	Plug socket MSSD-C	1234
11	Plug socket with cable SIM-M12-4...	1234

On-off/Soft-start Valves MS12N-EM/EE/DL/DE – Inch Series



Accessories

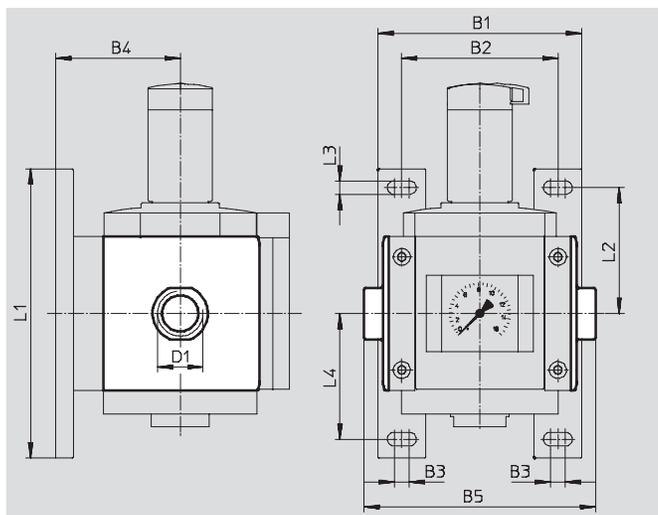
1 Port plate MS12-AQ...

- Adapter for pneumatic connection

Material:

Die-cast aluminum

Free of copper and PTFE



Dimensions and Ordering Data											
B1	B2	B3	B4	B5	D1	L1	L2	L3	L4	Weight [[b]	Part No. Type
6.38	4.88	0.47	3.90	7.24	1 NPT	9.06	3.94	0.43	3.94	2.60	537139 MS12-AQT
				7.24	1¼ NPT						537140 MS12-AQU
				7.24	1½ NPT						537141 MS12-AQV
				7.72	2 NPT						537142 MS12-AQW

3 Body connector MS12-MV

- For connecting modules

Material:

Die-cast aluminum,

Free of copper and PTFE



Ordering Data			
Size	Weight [[b]	Part No.	Type
MS12	1.00	537134	MS12-MV

On-off/Soft-start Valves MS12N-EM/EE/DL/DE – Inch Series



Accessories

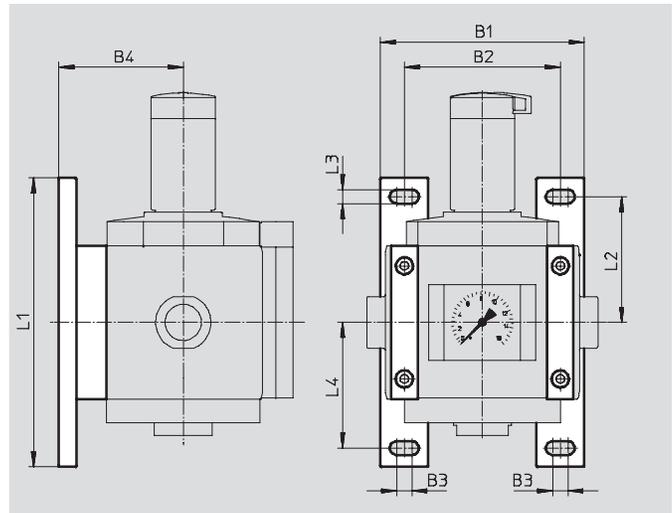
2 Mounting bracket MS12-WP

- To connect the modules for wall mounting
- In combination with a port plate for mounting an individual unit on a wall

Material:

Die-cast aluminum

Free of copper and PTFE



Dimensions and Ordering Data

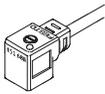
Size	B1	B2	B3	B4	L1	L2	L3	L4	Weight [[b]	Part No.	Type
MS12	6.38	4.88	0.47	3.90	9.06	3.94	0.43	3.94	1.40	537133	MS12-WP

On-off/Soft-start Valves MS12N-EM/EE/DL/DE – Inch Series

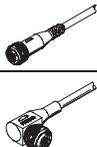
FESTO

Accessories

10 Ordering Data – Plug Socket MSSD					Technical data → www.festo.com/catalog/mssd	
	Description	Operating voltage range	Electrical connection	Type of mounting cable connection	Part No.	Type
	for MS12-EE/DE	≤ 250 V AC/DC	3-pin	Clamping screws	34583	MSSD-C
			4-pin	Insulation displacement technology	192748	MSSD-C-S-M16

9 Ordering Data – Plug Socket with Cable KMC					Technical data → www.festo.com/catalog/kmc	
	Description	Operating voltage range	Switching status display	Cable length [ft]	Part No.	Type
	for MS12-EE/DE	24 V DC	LED	8.2	30931	KMC-1-24DC-2,5-LED
		24 V DC	LED	16.4	30933	KMC-1-24DC-5-LED
		24 V DC	LED	32.8	193459	KMC-1-24-10-LED
		230 V AC	–	8.2	30932	KMC-1-230AC-2,5
		230 V AC	–	16.4	30934	KMC-1-230AC-5

8 Ordering Data – Illuminating Seal MC-LD				Technical data → www.festo.com/catalog/mc-ld	
	Description	Operating voltage range	Part No.	Type	
	for plug socket with cable KMC and plug socket MSSD-C	12 ... 24 V DC	19145	MC-LD-12-24DC	
		230 V DC/AC ±10%	19146	MC-LD-230AC	

1 Ordering Data – Plug Socket with Cable SIM-M12			Technical data → www.festo.com/catalog/sim-m12	
	Electrical connection	Cable length [ft]	Part No.	Type
	M12x1, 4-pin	16.4	164259	SIM-M12-4GD-5-PU
	M12x1, 4-pin	16.4	164258	SIM-M12-4WD-5-PU

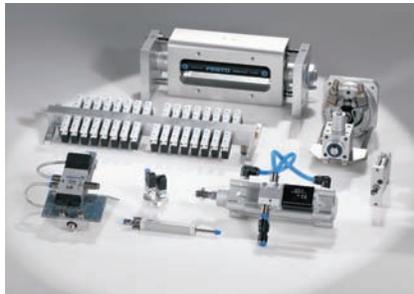
7 Ordering Data – Pressure Gauge MA					Technical data → www.festo.com/catalog/ma	
	Nominal size	Pneumatic connection	Indicating range		Part No.	Type
			[bar]	[psi]		
	Pressure gauge MA, DIN EN 837-1					
	1.57	R $\frac{1}{4}$	0 ... 16	0 ... 232	187080	MA-40-16-R $\frac{1}{4}$ -EN
	Pressure gauge MA, DIN EN 837-1, with red-green range					
	1.97	R $\frac{1}{4}$	–	0 ... 232	526790	MA-50-232-R $\frac{1}{4}$ -PSI-E-RG

4 Ordering Data – Silencer U				Technical data → www.festo.com/catalog/u	
	Description	Pneumatic connection	Part No.	Type	
	for MS12-EM/EE	G1	151990	U-1-B	

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