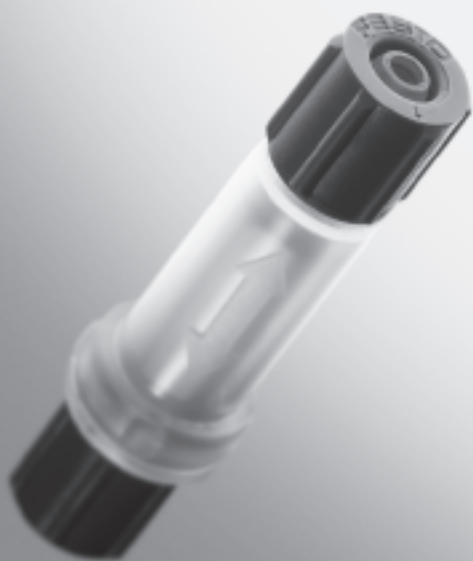




- Vacuum filters VAF
- Filters ESF
- Angle compensators ESWA
- Height compensators VAL
- Elbows LJK
- Vacuum gauges VAM
- Silencers UO
- Valves for vacuum operation

Accessories for vacuum technology

Technical data

FESTO

Vacuum filters VAF

Function



-  - Temperature range
0 ... +40 °C

-  - Operating pressure
-0.9 ... 7 bar

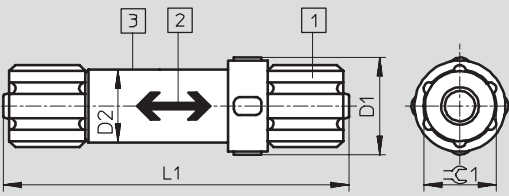
This vacuum filter is used to remove particles in the direction of suction. It is used as an inline filter in the tubing line.



General technical data			
Size	PK-3	PK-4	PK-6
Design	Filter element in the translucent status		
Operating medium	Atmospheric air		
Mounting position	Any		
Type of mounting	In-line installation		
Vacuum port	PK-3 with locknut	PK-4 with locknut	PK-6 with locknut
Grade of filtration [µm]	50		
Vacuum filter flow [l/min]	–	70	210
Nominal size [mm]	2	3	4.6
Operating pressure [bar]	-0.9 ... 7		

Ambient conditions			
Size	PK-3	PK-4	PK-6
Ambient temperature [°C]	0 ... +40		
Material	Plastic		

Weights [g]			
Size	PK-3	PK-4	PK-6
VAF- ...	4	6	9

Dimensions				
		1 Quick connectors for plastic tubing 2 Flow direction indicated with arrow 3 Degree of contamination visible through the transparent housing		

Type	D1 Ø	D2 Ø	L1	≅ 1
VAF-PK-3	16	12	50.8	8
VAF-PK-4	16	12	57	12
VAF-PK-6	24	19	64	14

Accessories for vacuum technology

FESTO

Technical data

Ordering data		
Pneumatic connection	Part No.	Type
PK-3	535 883	VAF-PK-3
PK-4	15 889	VAF-PK-4
PK-6	160 239	VAF-PK-6

Accessories for vacuum technology

Technical data

FESTO

Filter ESF

Temperature range
0 ... +60 °C

Operating pressure
-0.95 ... 4 bar

Note

For suction gripper ESG, between
suction cup and suction cup holder
→ 6 / 2.1-5



General technical data			
Holder size	3	4A	4B
Mounting position	Any		
Type of mounting	In-line installation with threaded connection		
Grade of filtration [µm]	10		
Flow rate [l/min]	100	260	270
Operating pressure [bar]	-0.95 ... 4		

Ambient conditions			
Holder size	3	4A	4B
Housing	Aluminium, nickel-plated brass		
Seals	Nitrile rubber		
Note on material	Free of copper, PTFE and silicone		
Ambient temperature [°C]	0 ... +60		
Corrosion resistance CRC ¹⁾	1		

1) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Weights [g]			
Holder size	3	4A	4B
ESF- ...	9	19	57

Dimensions						

Type	D1 Ø	D2	D3 Ø	L1	L2	L3
ESF-3	25	M4x0.7	7.8	10.5	4.5	3.1
ESF-4A	25	M6x1	8.8	10.5	5.5	3.9
ESF-4B	40	M6x1	8.8	14	5.5	3.9

Ordering data		
Holder size	Part No.	Type
3	191 202	ESF-3
4A	191 203	ESF-4A
4B	191 204	ESF-4B

Accessories for vacuum technology

Technical data

FESTO

Angle compensator ESWA

Temperature range
0 ... +60 °C

Note

For suction gripper ESG, between
suction cup and suction cup holder
→ 6 / 2.1-5



General technical data			
Holder size	3	4	5
Design	Ball joint with $\pm 15^\circ$ swivel angle		
Operating medium	Atmospheric air		
Mounting position	Any		
Type of mounting	With threaded connection		

Ambient conditions			
Holder size	3	4	5
Housing	Aluminium		
Seals	Nitrile rubber		
Ambient temperature [°C]	0 ... +60		
Corrosion resistance CRC ¹⁾	1		

1) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Weights [g]			
Holder size	3	4	5
ESWA- ...	9	19	57

Dimensions				

Type	D1 Ø	D2	L1	L2
ESWA-3	15	M4x0.7	23	4
ESWA-4	20	M6x1	28.5	6
ESWA-5	28	M10x1.5	40.5	10

Ordering data		
Holder size	Part No.	Type
3	191 205	ESWA-3
4	191 206	ESWA-4
5	191 207	ESWA-5

Accessories for vacuum technology

Technical data

FESTO

Height compensator VAL

Temperature range
-10 ... +60 °C

Note

For suction cup VAS/VASB
→ 6 / 2.1-76

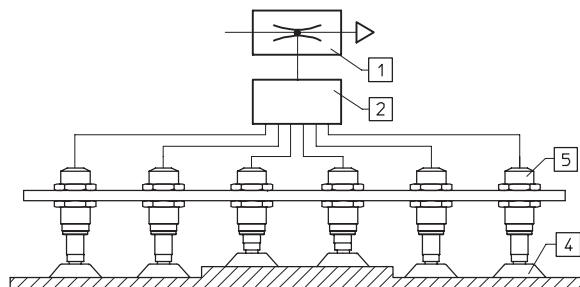


General technical data			
Size	5	10	20
Design	Vacuum port on top		
Operating medium	Atmospheric air		
Mounting position	Any		
Type of mounting	Mounting on the male thread or via the female air connection thread of the housing		
Vacuum port	M5	G1/8	G1/4
Operating pressure [bar]	-0.95 ... 8		

Ambient conditions			
Size	5	10	20
Housing	Aluminium		
Seals	Nitrile rubber		
Note on material	Free of copper, PTFE and silicone		
Ambient temperature [°C]	-10 ... +60		

Gentle handling of the workpieces by compensating for any excess stroke of the handling device or tolerance differences in the workpiece thickness.

- 1 Vacuum generator
- 2 Distributor
- 4 Suction cup
- 5 Height compensator

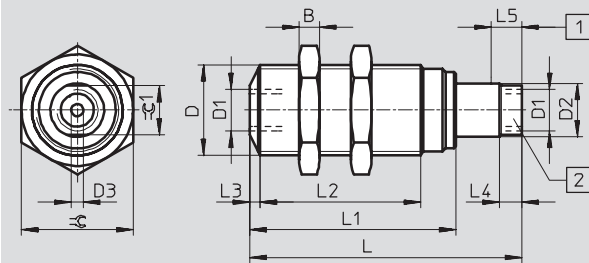


Accessories for vacuum technology

Technical data

FESTO

Dimensions



1) Spring travel for height compensator

2) Suction cup connector

Type	B	D	D1	D2 Ø	D3 Ø	L	L1	L2	L3	L4	L5	⌀	⌀ 1
VAL-M5-5	5	M16x1	M5	8	2	46	35	25.5	2	4.5	5	19	7
VAL-1/8-10	6	M22x1.5	G1/8	13	3	66	50	39	2.5	5.5	10	27	12
VAL-1/4-20	8	M26x1.5	G1/4	17	4	100	73	60	2.5	6.5	20	32	16

Ordering data

Height compensator [mm]	Vacuum port	Part No.	Type
5	M5	151 209	VAL-M5-5 ¹⁾
10	G1/8	151 210	VAL-1/8-10 ¹⁾
20	G1/4	151 211	VAL-1/4-20 ¹⁾

1) Free of copper, PTFE and silicone

Accessories for vacuum technology

Technical data

FESTO

Elbow fitting LJK

Temperature range
-10 ... +60 °C

Operating pressure
-0.95 ... 8 bar

Note
For suction cup VAS/VASB
→ 6 / 2.1-76

- Redirection of air connection
- Swivel joint rotatable 360°
- For decoupling from mounting thread



General technical data			
Size	M5	G1/8	G1/4
Design	Swivel fitting with female thread		
Operating medium	Atmospheric air		
Mounting position	Any		
Type of mounting	Mounting via the lateral connection section on the male thread of the hollow bolt		
Vacuum port	M5	G1/8	G1/4
Operating pressure [bar]	-0.95 ... 8		

Ambient conditions			
Size	M5	G1/8	G1/4
Swivel fitting	Die-cast zinc		
Seals	Nitrile rubber and steel/nitrile rubber		
Note on material	Free of copper, PTFE and silicone		
Ambient temperature [°C]	-10 ... +60		
Corrosion resistance 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 surrounding industrial atmosphere or media such as cooling or lubricating agents.

Dimensions	
	1 Air connection (vacuum) 2 Mounting thread

Vacuum port	B	D	H	H1	H2	L	L1	☞
M5	10	M5	20.3	3.8	7.5	17.5	12.5	8
G1/8	16	G1/8	30	5	10.6	28	20	13
G1/4	20	G1/4	39	8	13.5	36	26.5	17

Ordering data		
Vacuum port	Part No.	Type
M5	151 783	LJK-M5-I/I
G1/8	151 784	LJK-1/8-I/I
G1/4	151 785	LJK-1/4-I/I

Accessories for vacuum technology

Technical data

FESTO

Vacuum gauge VAM, DIN EN 837-1

Function



-  - Temperature range
-10 ... +60 °C

-  - Pressure
-1 ... +9 bar

- Analogue display via Bourdon tube
- Vacuum gauges can be loaded up to $\frac{3}{4}$ of their full scale value under static load and up to $\frac{2}{3}$ under intermittent load conditions.



General technical data			
Nominal tubing size, pressure gauge	40	63	
Type	VAM-40-V1/0	VAM-63-V1/0	VAM-63-V1/9
Pneumatic connection	R1/8	R1/4	
Operating pressure [bar]	-1 ... 0	-1 ... 0	-1 ... +9
Operating medium	Dried air, lubricated or unlubricated		
Design	Bourdon tube pressure gauge		
Based on standard	DIN EN 837-1		
Type of mounting	Can be screwed in		
	Panel mounting		
Type of seal on threaded plug	No seal		
Mounting position	Any		
Connection position	Centre, rear side		
Ambient temperature [°C]	-10 ... +60		
Accuracy of measurement, class	2.5		
Factor, continuous load	0.75		
Factor, intermittent load	0.66		

Display			
Nominal tubing size, pressure gauge	40	63	
Type	VAM-40-V1/0	VAM-63-V1/0	VAM-63-V1/9
Scale	Double scale		
	bar (outer)		
	inHg/psi (inner)		
Indicating range	[bar]	-1 ... 0	-1 ... 0
	[inHg]	-30 ... 0	-30 ... 0
	[psi]	-	0 ... +130

Product weights [g]		
Nominal tubing size, pressure gauge	40	63
VAM	63	83

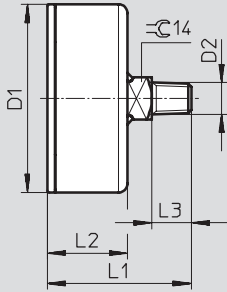
Materials	
Housing	Acrylic butadiene styrene
Window shield	Polystyrene
Threaded plug	Brass

Accessories for vacuum technology

Technical data

FESTO

Dimensions



Type	D1 Ø	D2	L1	L2	L3
VAM-40	39 ±0.5	R ¹ / ₈	46 ±1	26 ±0.5	12
VAM-63	62 ±0.5	R ¹ / ₄	47.5 ±1	26.5 ±0.5	13

Ordering data

Nominal tubing size, pressure gauge	Pneumatic connection	Indicating range			Part No.	Type
		[bar]	[inHg]	[psi]		
40	R ¹ / ₈	-1 ... 0	-30 ... 0	-	537 810	VAM-40-V1/0-R ¹ / ₈ -EN
63	R ¹ / ₄	-1 ... 0	-30 ... 0	-	537 811	VAM-63-V1/0-R ¹ / ₄ -EN
		-1 ... 9	-30 ... 0	0 ... +130	537 814	VAM-63-V1/9-R ¹ / ₄ -EN

Accessories for vacuum technology

Technical data

FESTO

Vacuum gauge VAM

Function



-  - Temperature range
-40 ... +60 °C

-  - Pressure
-1 ... 0 bar

- Analogue display via Bourdon tube
- Vacuum gauges can be loaded up to $\frac{3}{4}$ of their full scale value under static load and up to $\frac{2}{3}$ under intermittent load conditions.



General technical data		
Nominal tubing size, pressure gauge	40	63
Type	VAM-40-V1/0	VAM-63-V1/0
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$
Operating pressure [bar]	-1 ... 0	-1 ... 0
Operating medium	Filtered compressed air, lubricated or unlubricated, vacuum	
Design	Bourdon tube pressure gauge	
Conforms to	DIN EN 837-1	
Type of mounting	Can be screwed in	
Connection position	Centre, rear side	
Ambient temperature [°C]	-40 ... +60	
Corrosion resistance classification CRC ¹⁾	4	
Accuracy of measurement, class	2.5	
Protection class	IP43	

1) CRC4: Corrosion resistance class to Festo standard 940 070

Components with very heavy corrosion exposure. Components in contact with aggressive media, e.g. in food or chemical industries. These applications must, if necessary, be verified by special tests with the media concerned.

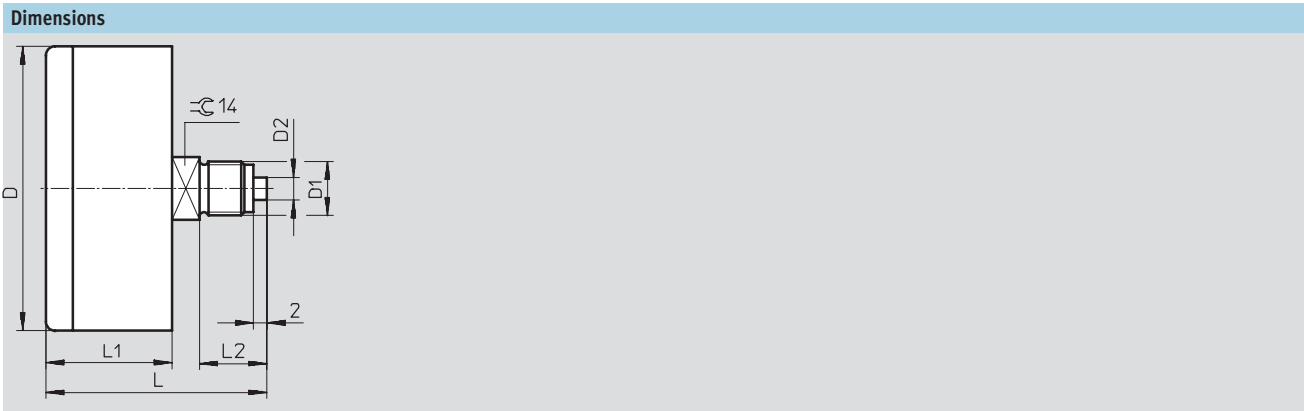
Display		
Nominal tubing size, pressure gauge	40	63
Type	VAM-40-V1/0	VAM-63-V1/0
Scale	Double scale bar (outer) inHg (inner)	
Indicating range [bar]	-1 ... 0	-1 ... 0
[inHg]	-30 ... 0	-30 ... 0

Product weights [g]		
Nominal tubing size, pressure gauge	40	63
VAM	63	112

Materials	
Housing	High-alloy stainless steel
Window shield	Polycarbonate
Note on material	Free of copper and PTFE

Accessories for vacuum technology

Technical data



Type	D Ø	D1	D2 Ø	L	L1	L2
VAM-40	40	G1/8	8	43.5	27.5	10
VAM-63	63	G1/4	5	51	30	15

Ordering data					
Nominal tubing size, pressure gauge	Pneumatic connection	Indicating range		Part No.	Type
		[bar]	[inHg]		
40	G1/8	-1 ... 0	-30 ... 0	183 521	VAM-40-V1/0-1/8-CT
63	G1/4	-1 ... 0	-30 ... 0	183 522	VAM-63-V1/0-1/4-CT

Vacuum accessories

4.1

Accessories for vacuum technology

Technical data

FESTO

Vacuum gauge FVAM, DIN EN 837-1

Function



-  - Temperature range
-10 ... +60 °C

-  - Pressure
-1 ... 0 bar

- Analogue display via Bourdon tube
- Vacuum gauges can be loaded up to $\frac{3}{4}$ of their full scale value under static load and up to $\frac{2}{3}$ under intermittent load conditions.



General technical data		
Nominal tubing size, pressure gauge	40	63
Pneumatic connection	G $\frac{1}{8}$	G $\frac{1}{4}$
Operating pressure [bar]	-1 ... 0	-1 ... 0
Operating medium	Dried air, lubricated or unlubricated	
Design	Bourdon tube pressure gauge	
Based on standard	DIN EN 837-1	
Type of mounting	Can be screwed in	
	Panel mounting	
Type of seal on threaded plug	No seal	
Mounting position	Any	
Connection position	Centre, rear side	
Ambient temperature [°C]	-10 ... +60	
Accuracy of measurement, class	2.5	
Factor, continuous load	0.75	
Factor, intermittent load	0.66	

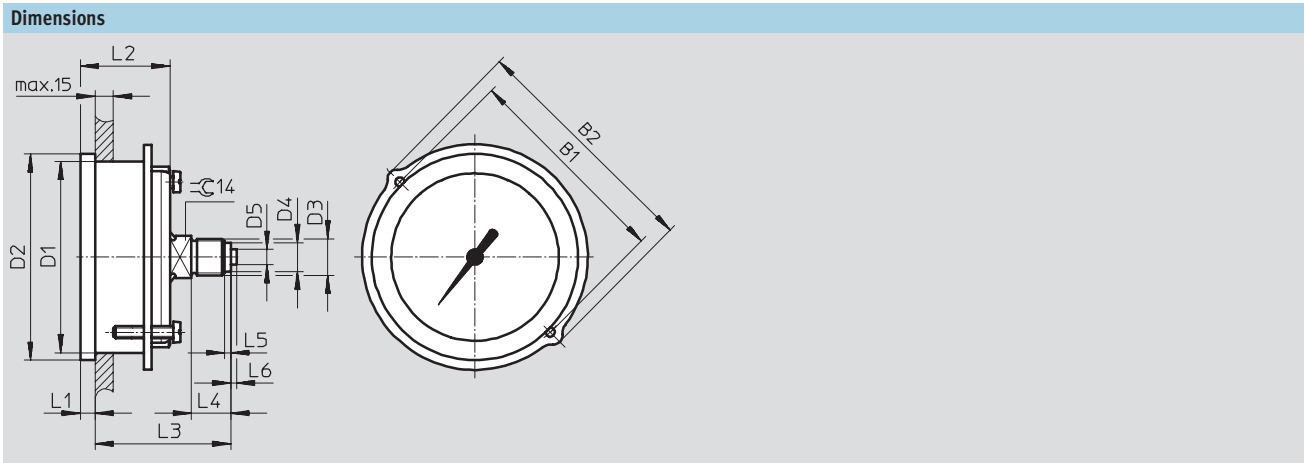
Display		
Nominal tubing size, pressure gauge	40	63
Scale	Double scale	
	bar (outer)	
	inHg/psi (inner)	
Indicating range [bar]	-1 ... 0	-1 ... 0
	[inHg]	-30 ... 0

Product weights [g]		
Nominal tubing size, pressure gauge	40	63
FVAM	81	121

Materials	
Housing	Acrylic butadiene styrene
Window shield	Polymethylmethacrylate
Threaded plug	Brass

Accessories for vacuum technology

Technical data



Type	B1	B2	D1 Ø	D2 Ø	D3	D4 Ø	D5 Ø	L1	L2	L3	L4	L5	L6
FVAM-40	48	56	40	45	G1/8	8	–	4.5	26.5	40	10	2	–
FVAM-63	70	79	63	68	G1/4	9.5	5	4.8	29.5	42.5	13	2	2

Ordering data					
Nominal tubing size, pressure gauge	Pneumatic connection	Indicating range		Part No.	Type
		[bar]	[inHg]		
40	G1/8	–1 ... 0	–30 ... 0	537 812	FVAM-40-V1/0-G1/8-EN
63	G1/4	–1 ... 0	–30 ... 0	537 813	FVAM-63-V1/0-G1/4-EN

Vacuum accessories

4.1

Accessories for vacuum technology

Technical data

FESTO

Silencer UO

for vacuum generators

VN-05/07/10/14

→ 6 / 1.1-10

- Special minimal resistance silencer
- Facilitates trouble-free operation of the vacuum generator

Function



General technical data			
Size	M7	G1/8	G1/4
Pneumatic connection	M7	G1/8	G1/4
Type of mounting	Threaded connection		
Assembly position	Any		
Product weight [g]	2.5	5	8

Operating and environmental conditions			
Operating pressure [bar]	0 ... 8		
Operating medium	Dried compressed air		
Ambient temperature [°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.

Materials	
Silencer insert	Polyethylene
Threaded collar	Polyethylene
Note on materials	Free of copper and PTFE

Dimensions	

Connection	D Ø	D1	D2	L	L1
M7	9.8	M7	3	36.7	5.5
G1/8	13.8	G1/8	3.5	48	6.5
G1/4	17.8	G1/4	5.3	62.3	8.5

Ordering data		
Pneumatic connection	Part No.	Type
M7	197 582	UO-M7
G1/8	197 583	UO-1/8
G1/4	197 584	UO-1/4

Accessories for vacuum technology

Technical data

FESTO

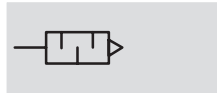
Silencer UOM

Silencer extension UOMS

for vacuum generators VN-20/30

→ 6 / 1.1-10

Function



- Special minimal resistance silencer
- Facilitates trouble-free operation of the vacuum generator
- Silencer extension for extending the silencer for further noise reduction

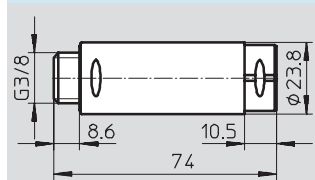
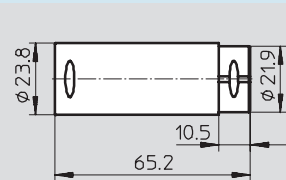


General technical data		
Type	UOM	UOMS
Pneumatic connection	G3/8	–
Design	Silencer, open	
Type of mounting	Screw-in	Engaging
Assembly position	Any	
Type of seal on threaded collar	No seal	
Product weight	[g]	17.5

Operating and environmental conditions		
Operating pressure of vacuum generator	[bar]	0 ... 8
Operating medium	Compressed air	
Ambient temperature	[°C]	0 ... +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.

Materials	
Housing	Polyacetate
Inner piping	Wrought aluminium alloy
Silencer insert	Polyurethane foam
Threaded plug	Polyacetate
Note on materials	Free of copper and PTFE

Dimensions		Download CAD data → www.festo.com/en/engineering
UOM	UOMS	
		

Ordering data			
Silencer		Silencer extension	
Part No.	Type	Part No.	Type
538 433	UOM-3/8	538 437	UOMS-3/8

Accessories for vacuum technology

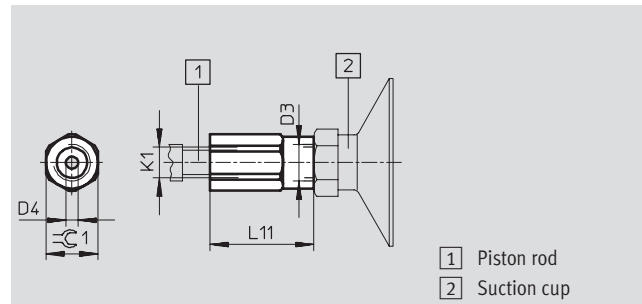
Accessories

Adapter AD

for suction cups VAS/VASB

→ 6 / 2.1-76

for connection of suction cup with
piston rod thread, for example



Ordering data						
Pneumatic connection	Vacuum port	D4	L11	±1	Part No.	Type
K1	D3	Ø				
M6	M5	2.3	27	10	157 328	AD-M6-M5
	G1/8	2.3	27	13	157 329	AD-M6-1/8
	G1/4	2.3	30	17	157 330	AD-M6-1/4
M8	G1/8	3.2	29	13	157 331	AD-M8-1/8
	G1/4	3.2	32	17	157 332	AD-M8-1/4
M10x1.25	G1/8	4	31	13	157 333	AD-M10x1,25-1/8
	G1/4	4	34	17	157 334	AD-M10x1,25-1/4
M12x1.25	G1/4	6	34	17	160 256	AD-M12x1,25-1/4
	G3/8	6	37	22	160 257	AD-M12x1,25-3/8

Mounting plate VN-T

for vacuum generator VN

→ 6 / 1.1-10

for mounting on H-rail or via through-hole

Ambient temperature: 0 ... +60 °C

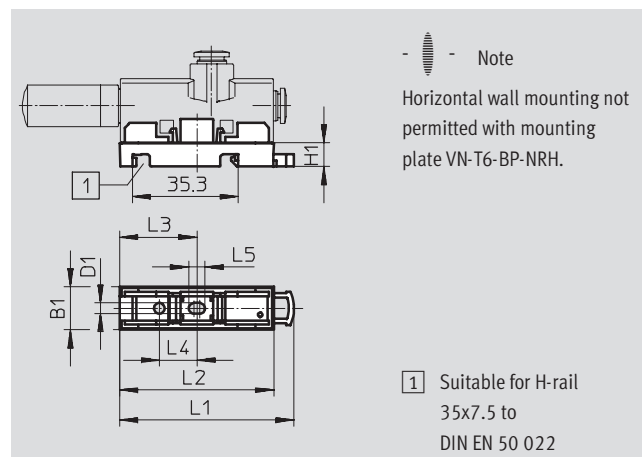
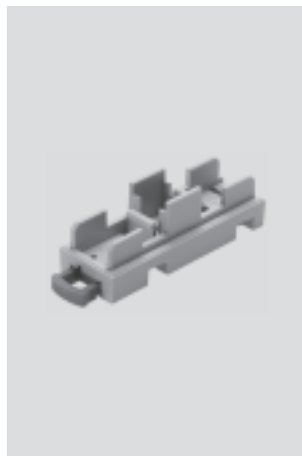
Material:

Plate VN-T2/T3/T4: Polyacetate,
reinforced

Plate VN-T6: Polyamide, reinforced

Slide: Polyacetate

Free of copper and PTFE



Dimensions and ordering data											
Width [mm]	B1	D1	H1	L1	L2	L3	L4	L5	CRC ¹⁾	Weight [g]	Part No. Type
10	10.4	3.5	8	56.5	51	25.5	12.5	5.5	2	3.5	196 951 VN-T2-BP-NRH
14	14.4	3.5	8	57.9	51.2	25.6	12.5	5.5	2	4.5	193 641 VN-T3-BP-NRH
18	18.4									5.5	195 279 VN-T4-BP-NRH
24	24	4.3	7.3	98	91	45.5	32.5	6.3	2	12.4	196 956 VN-T6-BP-NRH 

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.

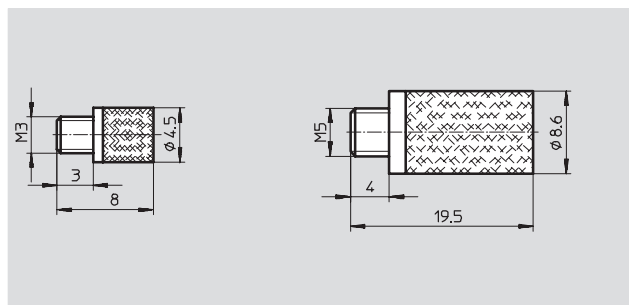
Accessories for vacuum technology

Accessories

FESTO

Silencer U

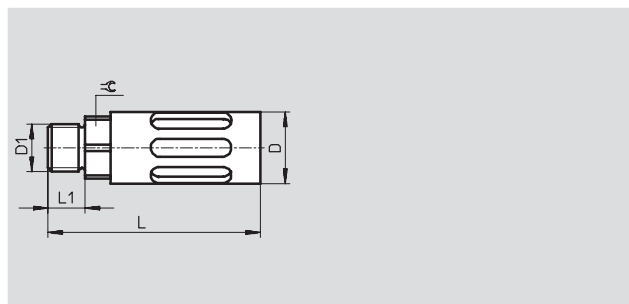
Material:
Sintered bronze



Ordering data			
Connection	Weight [g]	Part No.	Type
M5	5	4 645	U-M5

Silencer U-...-B

Material:
Die-cast metal

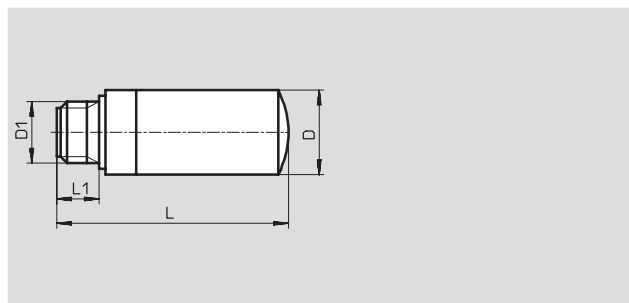


Ordering data						
Connection	D Ø	D1	L	L1	⌀	Part No. Type
G $\frac{1}{8}$	16	G $\frac{1}{8}$	39.2	5.5	14	6 841 U- $\frac{1}{8}$ -B ¹⁾
G $\frac{1}{4}$	19.5	G $\frac{1}{4}$	55.6	6.5	17	6 842 U- $\frac{1}{4}$ -B ¹⁾
G $\frac{3}{8}$	25	G $\frac{3}{8}$	86.6	7.5	19	6 843 U- $\frac{3}{8}$ -B ¹⁾

1) Free of copper, PTFE and silicone

Silencer UC

Material:
Polyethylene



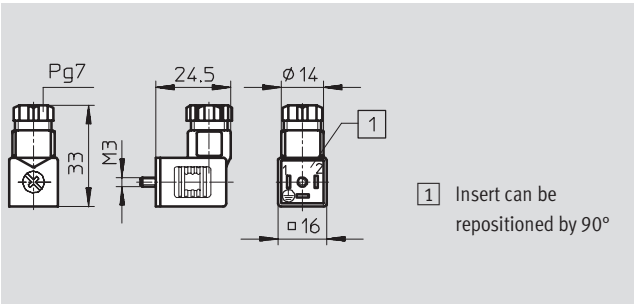
Ordering data						
Connection	D Ø	D1	L	L1	Part No.	Type
G $\frac{1}{8}$	13.8	G $\frac{1}{8}$	38.0	6.5	161 419	UC- $\frac{1}{8}$
G $\frac{1}{4}$	17.8	G $\frac{1}{4}$	51.0	8.5	165 004	UC- $\frac{1}{4}$

Accessories for vacuum technology

Accessories

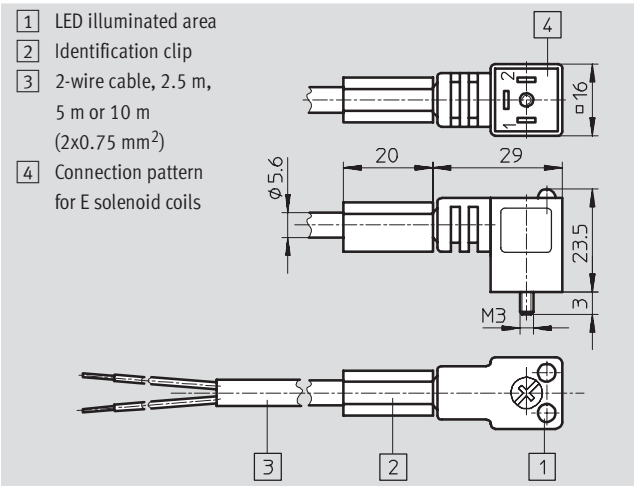
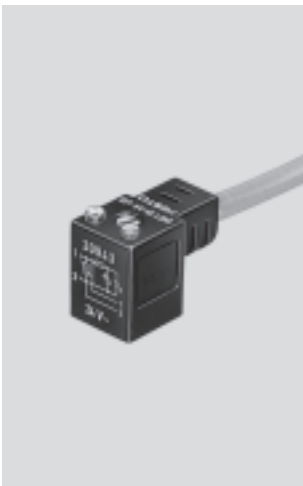


Plug socket MSSD-E
for solenoid coil ME



Ordering data		
	Part No.	Type
Plug socket	14 098	MSSD-E

Plug socket with cable KME-...
for solenoid coil ME



Ordering data		
Length [m]	Voltage [V DC]	Part No. Type
2.5	24	30 943 KME-1-24DC-2,5-LED
5	24	30 945 KME-1-24DC-5-LED
10	24	193 455 KME-1-24DC-10-LED

Illuminating seal ME-...
for solenoid coil ME



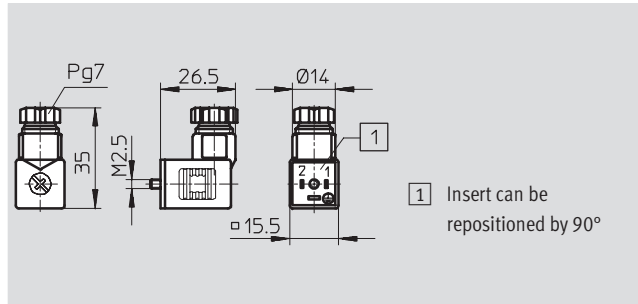
Ordering data		
Voltage [V DC]	Part No.	Type
24	19 141	ME-LD-12-24DC

Accessories for vacuum technology

Accessories

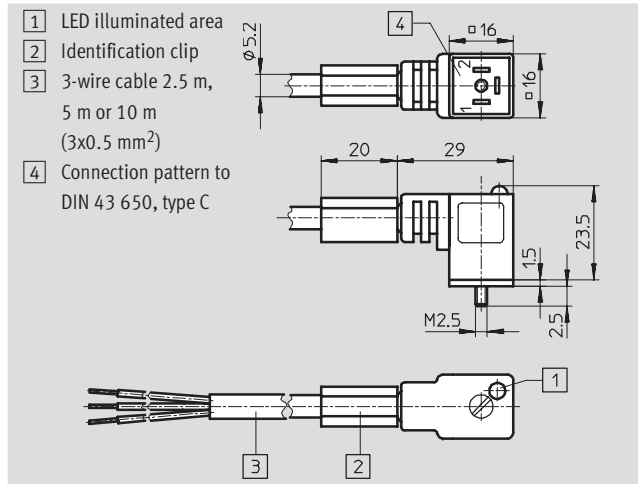
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Plug socket MSSD-EB
for solenoid coil MEB



Ordering data			
		Part No.	Type
Plug socket		151 687	MSSD-EB

Plug socket with cable KMEB-...
for solenoid coil MEB



Ordering data			
Length [m]	Voltage [V DC]	Part No.	Type
2.5	24	151 688	KMEB-1-24DC-2,5-LED
5.0	24	151 689	KMEB-1-24DC-5-LED
10.0	24	193 457	KMEB-1-24DC-10-LED

Illuminating seal MEB-...
for solenoid coil MEB



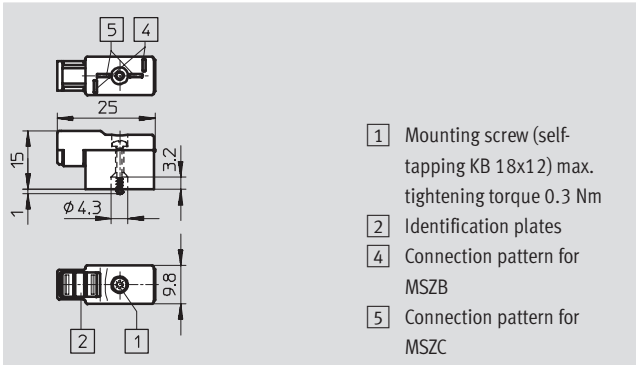
Ordering data			
Voltage [V DC]		Part No.	Type
24		151 717	MEB-LD-12-24DC

Accessories for vacuum technology

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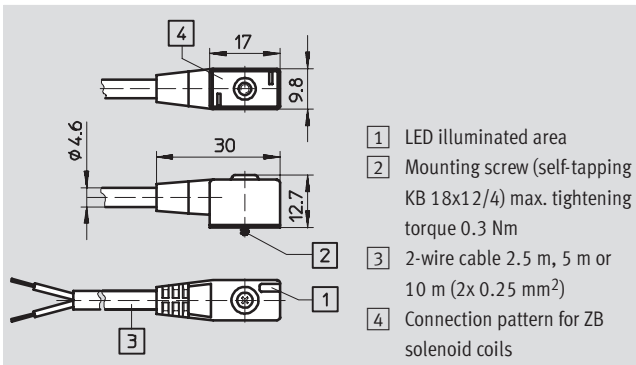
Accessories

Plug socket MSSD-ZBZC
for solenoid coils MZB, MYB



Ordering data		
	Part No.	Type
Plug socket	185 521	MSSD-ZBZC

Plug socket with cable KMYZ-...-LED
for solenoid coils MZB, MYB



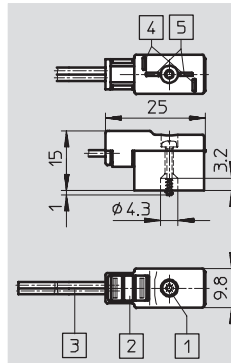
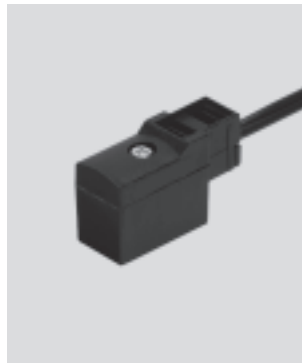
Ordering data		
Length [m]	Part No.	Type
2.5	34 997	KMYZ-2-24-2,5-LED
5.0	34 998	KMYZ-2-24-5-LED
10.0	193 443	KMYZ-2-24-10-LED

Accessories for vacuum technology

Accessories

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Plug socket with cable KMYZ-...
for solenoid coils MZB, MYB

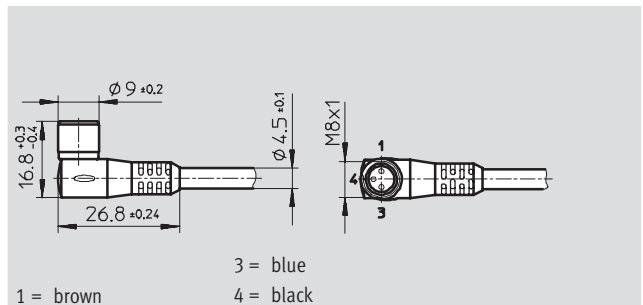
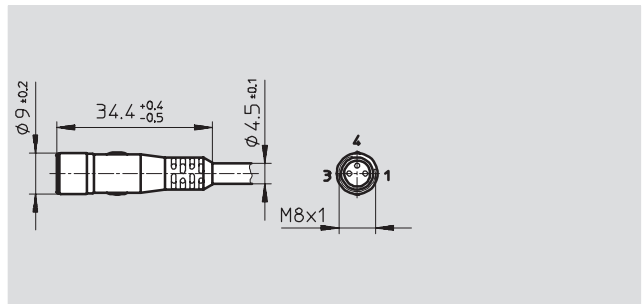


- 1 Mounting screw (self-tapping KB 18x12) max. tightening torque 0.3 Nm
- 2 Identification plates
- 3 2-wire cable 0.5 m or 2.5 m (1x0.35 mm², 1x0.34 mm²)
- 4 Connection pattern for MSZB
- 5 Connection pattern for MSZC

Ordering data		
Length [m]	Part No.	Type
0.5	185 519	KMYZ-4-24-0,5
2.5	185 520	KMYZ-4-24-2,5

Plug socket with cable SIM-M8-3...

Material:
Polyurethane



Ordering data				Technical data → Volume 4	
Electrical connection	Cable length [m]	Connection direction		Part No.	Type
		Inline	Lateral		
M8x1, 3-pin	2.5	■	–	159 420	SIM-M8-3GD-2,5-PU
		–	■	159 422	SIM-M8-3WD-2,5-PU
	5	■	–	159 421	SIM-M8-3GD-5-PU
		–	■	159 423	SIM-M8-3WD-5-PU
	10	■	–	192 964	SIM-M8-3GD-10-PU
		–	■	192 965	SIM-M8-3WD-10-PU

Accessories for vacuum technology

Accessories

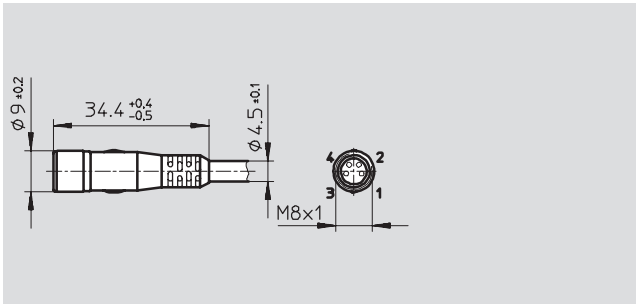


Plug socket with cable SIM-M8-4...

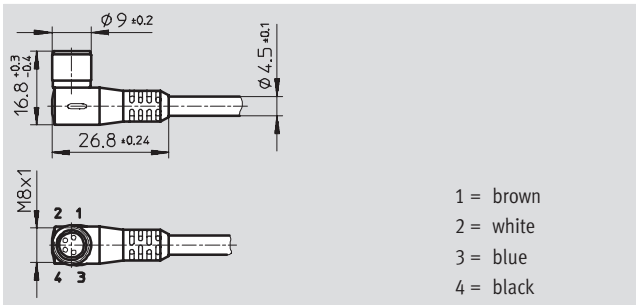
Material:
Polyurethane



SIM-M8-4GD-...



SIM-M8-4WD-...



Ordering data				Technical data → Volume 4	
Electrical connection	Cable length [m]	Connection direction		Part No.	Type
		Inline	Lateral		
M8x1, 4-pin	2.5	■	—	158 960	SIM-M8-4GD-2,5-PU
		—	■	158 962	SIM-M8-4WD-2,5-PU
	5	■	—	158 961	SIM-M8-4GD-5-PU
		—	■	158 963	SIM-M8-4WD-5-PU

Accessories for vacuum technology

Accessories

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Valves suitable for vacuum

In contrast to the vacuum generator, the vacuum pump is an instrument for central vacuum generation that evacuates the entire network and does not create a vacuum directly on an installation – as is the case with the generator. From this network – or the

connected reservoirs – tubing is connected, which draws the vacuum. This requires the use of valves or valve terminals suitable for vacuum, which have a short response time in order to be able to achieve the shortest

possible evacuation times despite remote vacuum generation. The most important characteristic of these valves is their nominal size, as it determines the maximum suction rate and therefore the evacuation time.

The evacuation times to be achieved are also derived from the laval nozzle diameter of the vacuum generator. The evacuation time is thus the connection between the nominal valve size and laval nozzle diameter.

For vacuum generators with high vacuum ...

- Vacuum generator VN
- Vacuum generator VAD
- Vacuum generator VADM/VADMI
- Vacuum generator VAD-M

... the following rules of thumb apply:

$$\frac{\text{Valve nom. size}}{3} = \text{Laval nozzle dia.}$$

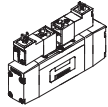
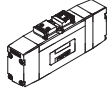
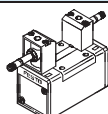
For vacuum generators with high suction rate ...

- Vacuum generator VN

$$\frac{\text{Valve nom. size}}{4} = \text{Laval nozzle dia.}$$

Standard directional control valves

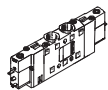
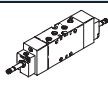
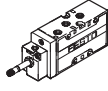
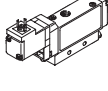
→ Volume 2

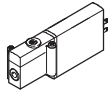
	ISO size	Pneumatic connection	Nominal size [mm]	Response time [ms] OnOff		Function	Type
Solenoid valves, ISO 15407-1							
	02	G1/8	6	18 ... 23 16	27 ... 34 16	5/2-way valve	MN2H-5/2-...-02-S JMN2H-5/2-...-02-S
	01	G1/4	8	24 ... 31 16 ... 18	43 ... 58 18		MN2H-5/2-...-01-S JMN2H-5/2-...-01-S
Pneumatic valves, ISO 15407-1							
	02	G1/8	6	8 ... 9 6 6	18 6 6	5/3-way valve 5/2-way valve	VL-5/3G-...-02 J-5/2-...-02 JD-5/2-...-02
	01	G1/4	8	13 10 9	32 ... 38 10 9	5/3-way valve 5/2-way valve	VL-5/3-...-01 J-5/2-...-01 JD-5/2-...-01
Solenoid valves, ISO 5599-1							
	1	G1/4	8	16 ... 23 16 17.....23 18	35 ... 45 16 32 ... 39 18	5/2-way valve 5/3-way valve	MFH-...-S-C JMFH-...-S-C MN1H-...-S-C JMN1H-...-S-C
	2	G3/8	11.5	27 ... 48 18 24 ... 46 21	71 ... 73 18 62 ... 69 21		MFH-...-S-C JMFH-...-S-C MN1H-...-S-C JMN1H-...-S-C
	3	G1/2	14.5	30 ... 60 18 33 ... 49 21	66 ... 82 18 71 ... 74 21		MFH-...-S-C JMFH-...-S-C MN1H-...-S-C JMN1H-...-S-C

Accessories for vacuum technology

Accessories

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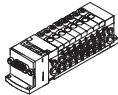
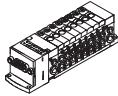
Directional control valves for standard applications						→Volume 2
	Pneumatic connection	Nominal size [mm]	Response time [ms]		Function	Type
			On	Off		
Solenoid valves CPE, Compact Performance						
	M5, M7, G1/8, G1/4, G3/8, push-in connector 4, 6, 8, 10, 12 mm	6	12 ... 27	12 ... 42	3/2-way valve	CPE14-...-S
		8	13 ... 28	13 ... 38	5/2-way valve	CPE18-...-S
		11	25 ... 50	25 ... 55	5/3-way valve	CPE24-...-S
Solenoid valves, Tiger 2000						
	G1/8	8	10 ... 24	12 ... 30	5/2-way valve	JMFH-...-S-B
			18 ... 30	18 ... 36	5/3-way valve	JMVH-...-S-B
	G1/4	10	14 ... 34	14 ... 44		JMFH-...-S-B
			16 ... 33	16 ... 40		JMVH-...-S-B
	G3/8	12	14 ... 36	14 ... 82		JMFH-...-S-B
			17 ... 32	17 ... 88		JMVH-...-S-B
Solenoid valves, Tiger Classic						
	G1/8	5	9	29	3/2-way valve	MFH-3-...-S
			4	10	5/2-way valve	VL/O-3-...-B
	G1/4	7	10	29		MFH-3-...-S
			8	30		VL/O-3-...-B
	G1/2	14	18	90		MFH-3-...-S
			17	30		VL/O-3-...-B
	G3/4	19	40	29		MFH-3-...-S
			23	23		VL/O-3-...-B
Solenoid valves, midi pneumatics						
	G1/8	5	10 ... 15	18 ... 28	3/2-way valve	MEBH-5/2-...
			10	10	5/2-way valve	JMEBH-5/2-...
			12	25	5/3-way valve	MEBH-5/3-...
			10 ... 15	18 ... 28		MEH-5/2-...
			10	10		JMEH-5/2-...
			12	25		MEH-5/3-...

Application-optimised directional control valves						→Volume 2
	Pneumatic connection	Nominal size [mm]	Response time [ms]		Function	Type
			On	Off		
Solenoid valves MH2, MH3, fast switching valves						
	M5, M7, QS4	2	2 ... 7	2 ... 7	3/2-way valve	MHE/P/A2-...
	G1/8, QS6	3				MHE/P/A3-...

Accessories for vacuum technology

Accessories

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Application-optimised valve terminals							→Volume 4
	Pneumatic connection	Nominal size [mm]	Response time [ms]		Function	Type	
			On	Off			
Valve terminal type 82 CPASC1, Smart Cubic							
	M5, push-in connectors 3, 4 mm	2.5	10	25	2/2-way valve	CPASC1-M1H-B-...	
			10	25	3/2-way valve	CPASC1-M1H-G-...	
			10	25	5/2-way valve	CPASC1-M1H-E-...	
			10	20	5/3-way valve	CPASC1-M1H-X-...	
Valve terminal type 80 CPVSC1, Smart Cubic							
	M5, push-in connectors 3, 4 mm	2.5	10	10	2/2-way valve	CPVSC1-M1H-D-P	
					3/2-way valve	CPVSC1-M1H-M-P	
					5/2-way valve	CPVSC1-M1H-J-P	
						CPVSC1-M1H-N-P	
						CPVSC1-M1H-K-P	

Accessories for vacuum technology

Accessories

FESTO

Vacuum accessories

4.1

Modern connection technology

Festo offers a broad spectrum of tubing accessories in nominal sizes ranging from 2 ... 28 mm.

The range of accessories from Festo assures clear-cut control system layouts and easy assembly.

Product overview	Brief description	→ Volume 3
Pipes		
	• Plastic pipes • Metal pipes	
Tubing		
	• Standard O.D., standard I.D. • Operating medium: Compressed air, water, vacuum • Variants: Temperature and chemical resistant, hydrolysis resistant, suitable for foodstuffs	
Spiral tubing		
	• Standard O.D. • Operating medium: Compressed air, water, vacuum • Materials: Polyamide, polyurethane	
Push-in fittings		
	• Threaded connection: Metric thread, G thread, R thread • Suitable for vacuum • Variants: Metal, stainless steel, flame retardant, antistatic	
Plugs/couplings		
	• Threaded connection: Metric thread, G thread • Self-sealing, shut-off on one side, safety coupling • Variants: Male thread, female thread	
Distributors		
	• Connection sizes: M3 ... G½	
Tubing cutters		
	• Pipe and tubing cutters	
Protective conduits		
	• Flexible, separable, fittings, adapters, connectors, distributors	
Air reservoirs		
	• EC directive 87/404 • Variants: Stainless steel	
Air guns		
	• Variant: Air-saving function	