Sub-bases VABP

FESTO

Sub-bases VABP

Key features

At a glance

The sub-base VABP can be used to help realise specific switch-off behaviour when switching off the valve load voltage. It is a single-channel solution for uncoupling the drive from the power valve. 4 switch-off functions are possible.

The sub-base is not a safety device, nor is it a complete safety solution. However, it can form part of a safety solution.

Features:

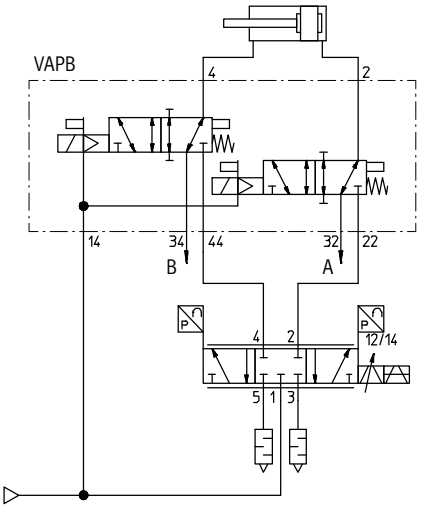
- Compact design
- Simple installation
- Suitable for servopneumatic drives
- Can be attached directly to the proportional directional control valve VPWP
- Connecting cable for direct connection to the proportional directional control valve VPWP
- Suitable for cylinders that are controlled by 5/2- or 5/3-way valves
- For ISO valves with spring return and external auxiliary pilot air
- Extended accessories:
  ISO solenoid valves with switching position sensing for producing a diagnostic rate > 60%

The technology in detail

1 Sub-base VABP (example with valves mounted)
2 Pilot air port
3 Function port B
4 Function port A
5 Solenoid valve VSVA, MN1H
6 Proportional directional control valve VPWP
7 Mounting screws

The 4 different single-channel switch-off functions can be configured using function ports 32 (A) and 34 (B):

- Stopping a movement: blocking
- De-energising: exhausting
- Reversing with reduced speed
- Switching off power: short-circuit

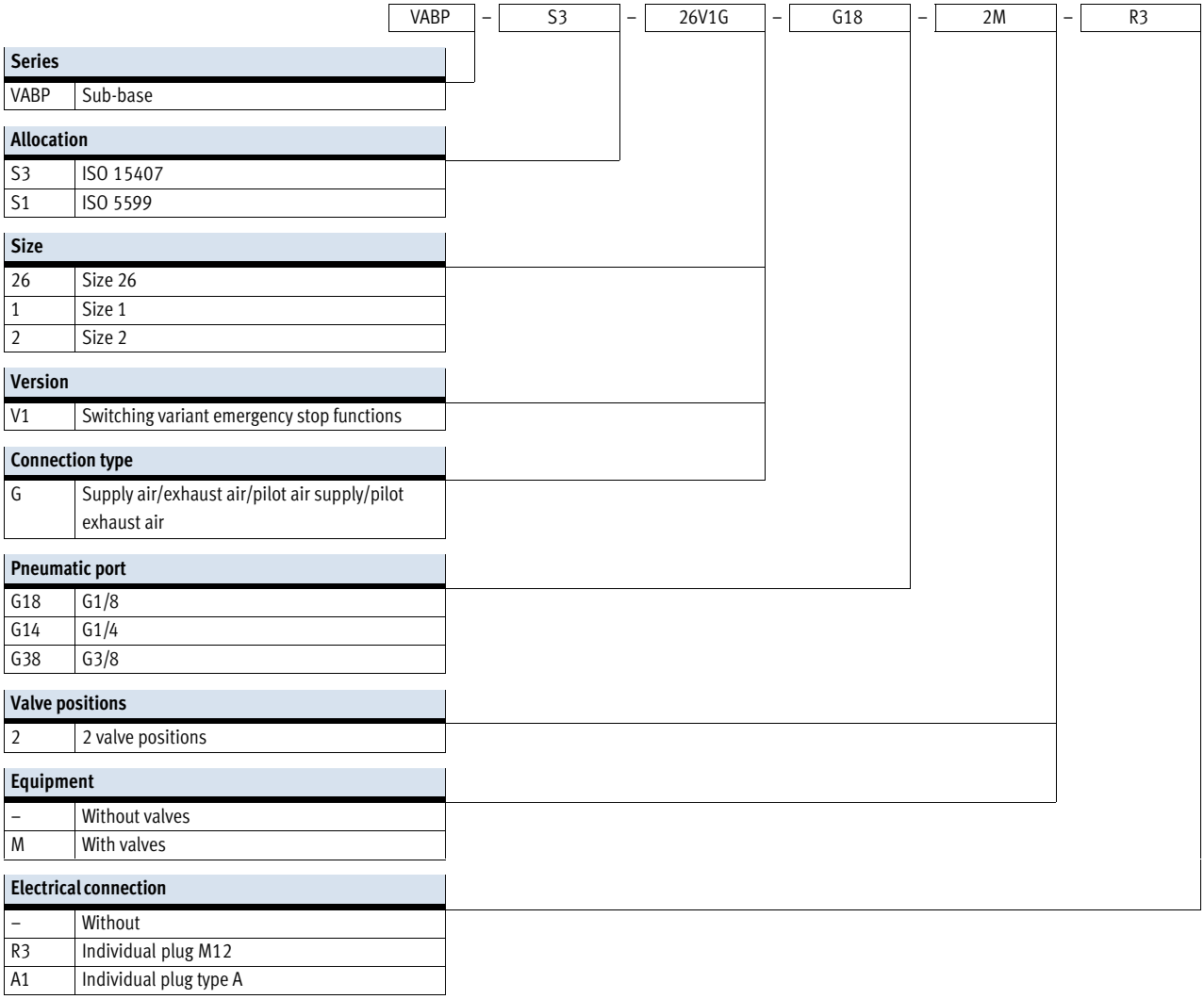


Note

An application document "Demonstrating VABP protective measures" is available from the Support Portal.

Sub-bases VABP

Type codes



Series	
VABP	Sub-base

Allocation	
S3	ISO 15407
S1	ISO 5599

Size	
26	Size 26
1	Size 1
2	Size 2

Version	
V1	Switching variant emergency stop functions

Connection type	
G	Supply air/exhaust air/pilot air supply/pilot exhaust air

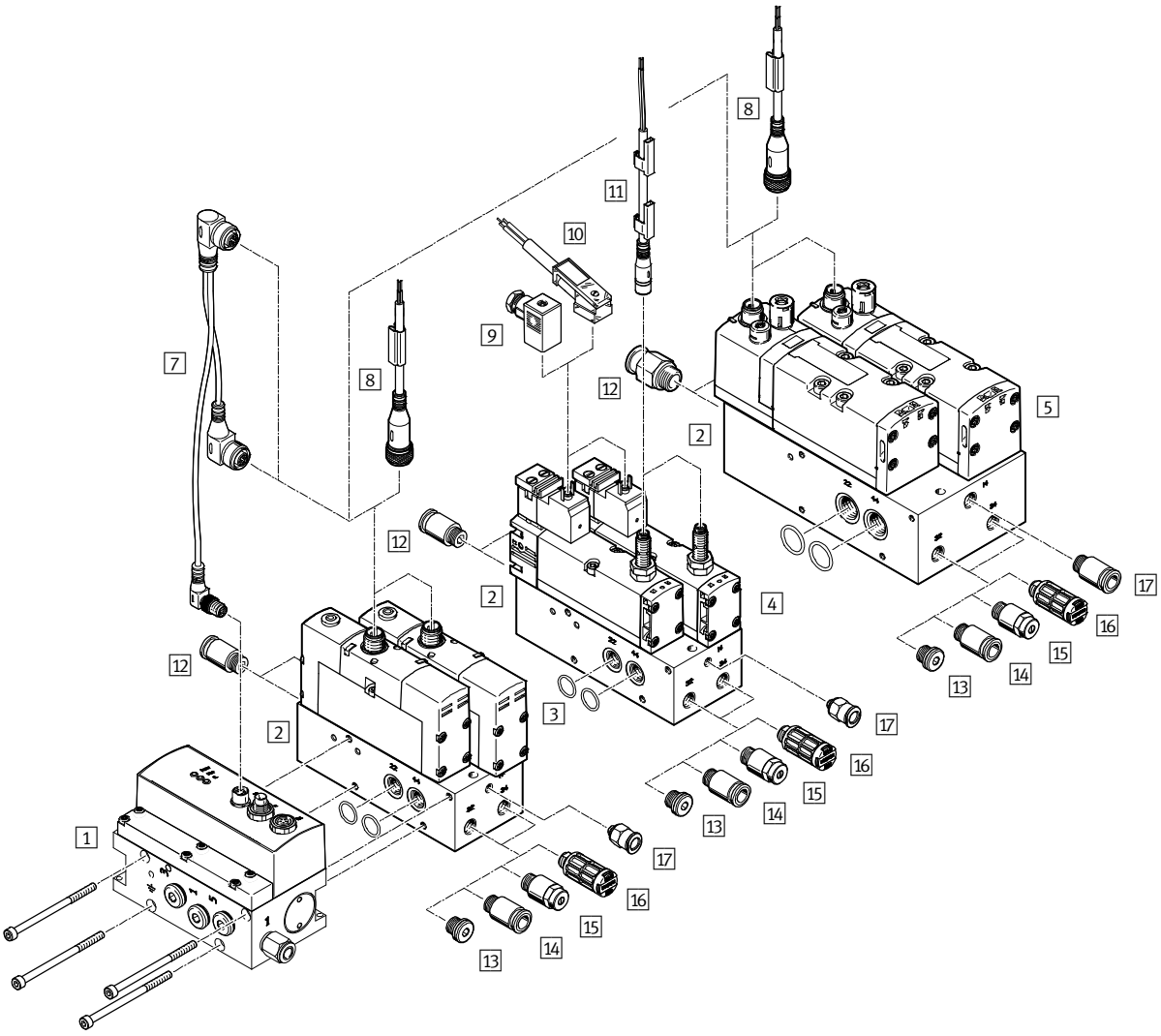
Pneumatic port	
G18	G1/8
G14	G1/4
G38	G3/8

Valve positions	
2	2 valve positions

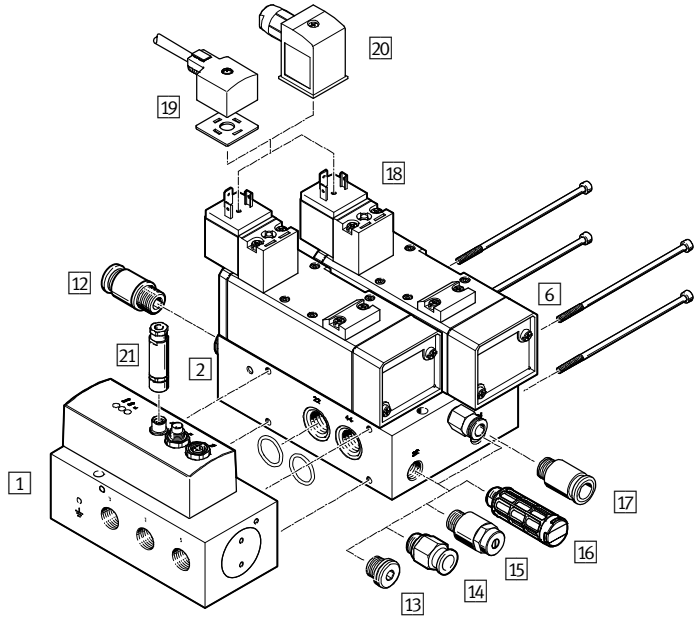
Equipment	
–	Without valves
M	With valves

Electrical connection	
–	Without
R3	Individual plug M12
A1	Individual plug type A

VABP-S3-26V1G / VABP-S1-1V1G



VABP-S1-2V1G



Sub-bases VABP

Peripherals overview

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Accessories							
		See allocation table below				Description	➔ Page/ Internet
		3	4	5	6		
1	Proportional directional control valve VPWP	■	■	■	■	5/3-way proportional directional control valve for applications with Soft Stop and for pneumatic positioning	vpwp
2	Sub-base VABP	■	■	■	■	For realising specific switch-off functions	6
7	Connecting cable NEDV	■	–	■	–	Connection of solenoid valve to proportional directional control valve VPWP	15
8	Connecting cable NEBU-M12	■	–	■	–	Connection of solenoid valve to controller. Alternative to 7	15
9	Plug socket MSSD-EB	–	■	–	–	Connection of solenoid valve to controller. Alternative to 10	15
10	Plug socket with cable KMEB	–	■	–	–	Connection of solenoid valve to controller	15
11	Connecting cable NEBU-M8	–	■	–	–	Connection of switching position sensing system to controller	15
12	Push-in fitting QS	■	■	■	■	For working ports 2 and 4	15
13	Blanking plug B	■	■	■	■	• For function ports 32 and 34 • For realising a switch-off function	14
14	Push-in fitting QS	■	■	■	■	• For function ports 32 and 34 • For realising a switch-off function	15
15	Exhaust air flow control valve GRE	■	■	■	■	• For function ports 32 and 34 • For realising a switch-off function	14
16	Silencer UC	■	■	■	■	• For function ports 32 and 34 • For realising a switch-off function	14
17	Push-in fitting QS	■	■	■	■	For pilot air port 14	15
18	Solenoid coil MSN1G	–	–	–	■	For actuating the solenoid valve	14
19	Connecting cable KMC	–	–	–	■	Connection of solenoid valve to controller	15
20	Plug socket MSSD-C	–	–	–	■	Connection of solenoid valve to controller. Alternative to 19	15
21	Plug NECU	–	–	–	■	For connecting the solenoid valves to the proportional directional control valve VPWP	15

Allocation table			
	Sub-base	Solenoid valve (➔ 14)	Proportional directional control valve
3	VABP-S3-26V1G	VSVA-B-M52-MZH-A1-1R5L	VPWP-4/-6
4	VABP-S3-26V1G	VSVA-B-M52-MZ-A1-1C1-APP[1)]	VPWP-4/-6
5	VABP-S1-1V1G	VSVA-B-M52-MZD-D1-1R5L	VPWP-8
6	VABP-S1-2V1G	MN1H-5/2-D-2-FR-S-C	VPWP-10

1) Solenoid valve with switching position sensing

Sub-bases VABP

Technical data

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- Flow rate
  800 ... 2000 l/min
- Pressure
  0 ... 16 bar

General technical data					
Type		VABP-S3-26V1G		VABP-S1-1V1G	VABP-S1-2V1G
For proportional directional control valve		VPWP-4/-6		VPWP-8	VPWP-10
Width	[mm]	26		42	54
Pneumatic port					
Working ports: 2, 4, 22, 44		G⅛		G¼	G⅜
Pilot air supply: 14		M5		G⅛	G⅛
Function ports: 32, 34		G⅛		G⅛	G¼
Nominal flow rate	[l/min]	800		1400	2000
Mounting position		Any			
Product weight					
Without valves	[g]	668		1623	1950
With valves	[g]	1200		2480	3400
With solenoid valve		1	2	3	4
Valve function		5/2			
Reset method		Mechanical spring			
Type of control		Piloted			
Pilot air supply		External			
Direction of flow		Reversible			
Switching position sensing		–	Yes	–	
Switching element function		–	N/C contact	–	
Switching output		–	PNP	–	
Nominal width		9		11	11
Actuation type		Electrical			
Manual override		Without or covered			
Nominal operating voltage	[V]	24			
Perm. voltage fluctuations	[%]	±10		±10	–15/±10

Allocation table, solenoid valve	
1	VSVA-B-M52-MZH-A1-1R5L
2	VSVA-B-M52-MZ-A1-1C1-APP
3	VSVA-B-M52-MZD-D1-1R5L
4	MN1H-5/2-D-2-FR-S-C

Operating and environmental conditions				
Type		VABP-S3-26V1G	VABP-S1-1V1G	VABP-S1-2V1G
Operating medium[1)]		Compressed air to ISO 8573-1:2010 [6:4:4]		
Operating pressure[1)]	[bar]	0 ... 16		
Pilot pressure with valves	[bar]	3 ... 8		
Ambient temperature	[°C]	0 ... +50		
Temperature of medium	[°C]	0 ... +50		

1) Note operating range of connected components.

Materials	
Manifold rail	Wrought aluminium alloy
O-ring	NBR
Screws	Steel
Note on materials	RoHS-compliant

Configuring the switch-off functions

The sub-base is not a safety device, nor is it a complete safety solution. However, it can form part of a safety solution.

Suitable accessories must be mounted at the function ports [32] and [34] in order to configure the different switch-off functions.

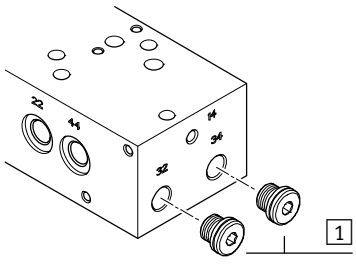
Sub-base	Silencer	Blanking plug	Exhaust air flow control valve	Push-in fitting
VABP-S3-26V1G	U-⅛	B-⅛	GRE-⅛	QS-G⅛-4, 6 or 8
VABP-S1-1V1G	U-⅛	B-⅛	GRE-⅛	QS-G⅛-4, 6 or 8
VABP-S1-2V1G	U-¼	B-¼	GRE-¼	QS-G¼-6, 8 or 10

Switch-off variants

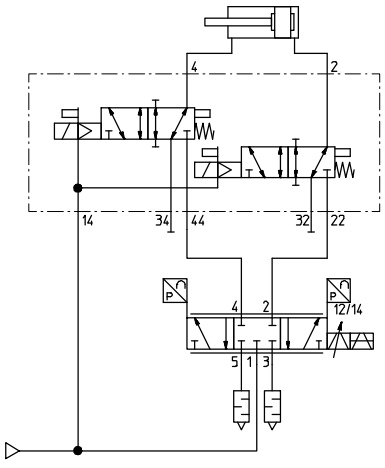
Circuit 1: Stopping a movement – blocking

When the valves are switched off, the movement of the drive will be stopped.

Note:
- Following actuation of the switch-off function, the drive will be under pressure
- In the case of a vertical mounting position, it is possible that the payload will slowly drop



1 Blanking plug

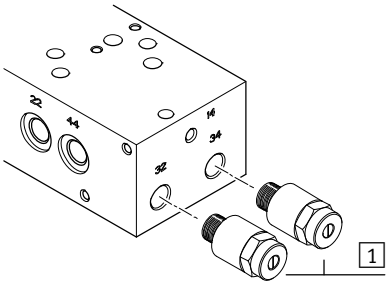


Switch-off variants

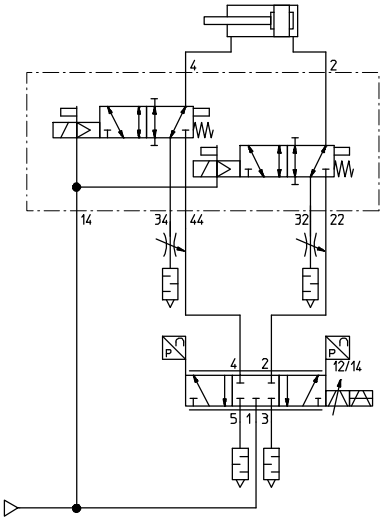
Circuit 2: De-energising – exhausting

When the valves are switched off, the drive will be exhausted.

Note:
- Not suitable for a vertical mounting position without additional safety functions
- If the exhaust air flow control valves are closed, the drive will not be exhausted
- Exhausting is also possible via the silencer



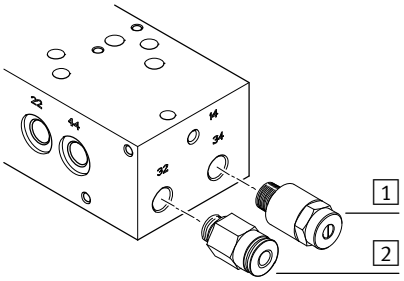
[1] Exhaust air flow control valve or silencer



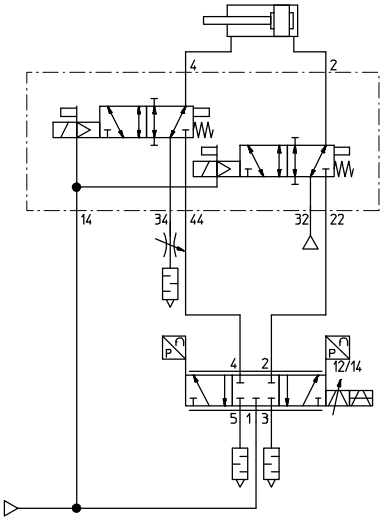
Circuit 3: Reversing (advancing) and reducing speed

When the solenoid valves are switched off, the movement of a retracting drive is reversed with simultaneous reduction of speed. The drive travels into the end position.

Note:
- The holding function is time-limited
- To generate the reversing movement even in the event of compressed air failure, an air reservoir with non-return function can be inserted at port [32] for compressed air supply.



[1] Exhaust air flow control valve
[2] Push-in fitting

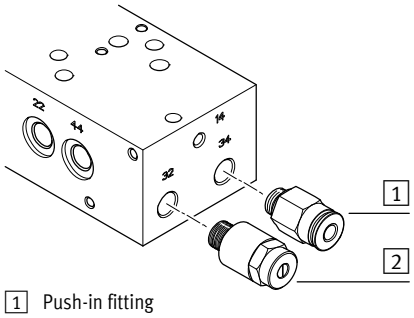


Switch-off variants

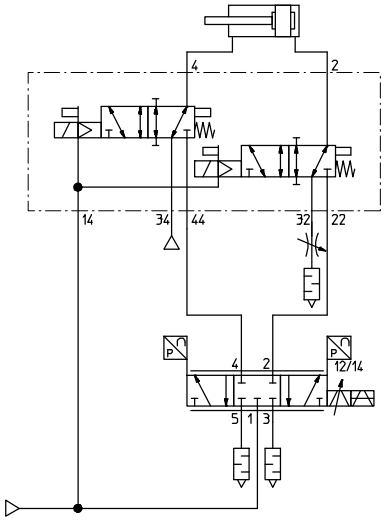
Circuit 4: Reversing (retracting) and reducing speed

When the solenoid valves are switched off, the movement of an extending drive is reversed with simultaneous reduction of speed. The drive travels into the end position.

Note:
- The holding function is time-limited
- To generate the reversing movement even in the event of compressed air failure, an air reservoir with non-return function can be inserted at port [34] for compressed air supply.



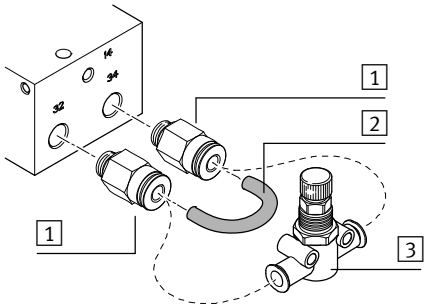
1 Push-in fitting
2 Exhaust air flow control valve



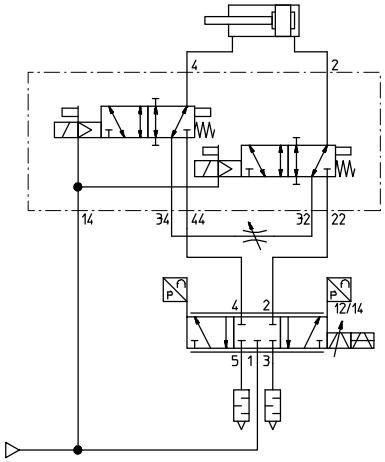
Circuit 5: Switching off power – short-circuit

When the valves are switched off, the two chambers are interconnected. The drive comes to a stop.

Note:
- Following actuation of the switch-off function, the drive will be under pressure
- Not suitable for a vertical mounting position without additional safety functions
- To restrict the run-out movement, it is recommended that a thin tube (4 or 6 mm) or a flow control valve (e.g. GRO...) is used for connecting the ports [32] and [34].

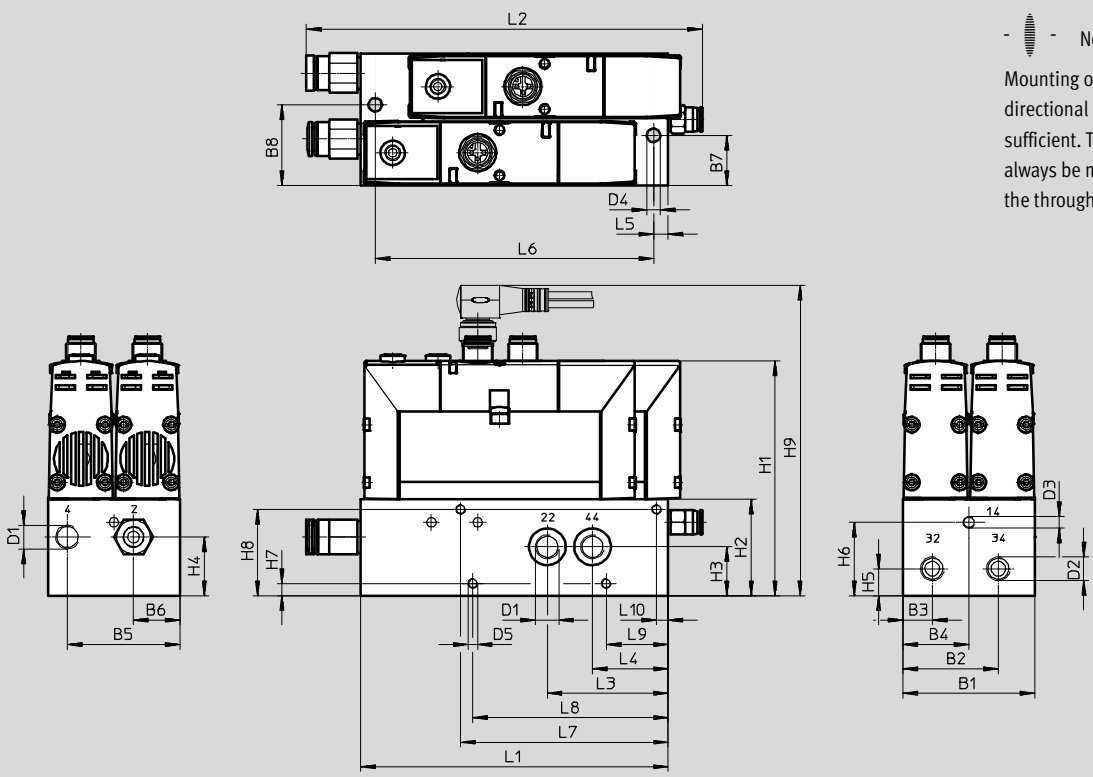


1 Push-in fitting
2 Exhaust air flow control valve
3 One-way flow control valve



Dimensions Download CAD data ➔ **www.festo.com**

VABP-S3-26V1G



Note

Mounting only via the proportional directional control valve VPWP is not sufficient. The sub-base must also always be mounted directly using the through holes D4.

	B1	B2	B3	B4	B5	B6	B7	B8
Without valves	54	39	12	27	46	19	20.5	33
With valves								

	D1	D2	D3	D4 ∅	D5	H1	H2	H3
Without valves	G1⁄8	G1⁄8	M5	5.5	M4	–	39.5	20
With valves						96		

	H4	H5	H6	H7 ±0.1	H8 ±0.1	H9	L1	L2
Without valves	24	11	30	5	35.3	–	126	–
With valves						124.5		162

	L3	L4	L5	L6	L7 ±0.1	L8 ±0.1	L9 ±0.1	L10 ±0.1
Without valves	49.5	31	6	120	85	80	25.4	4.75
With valves								

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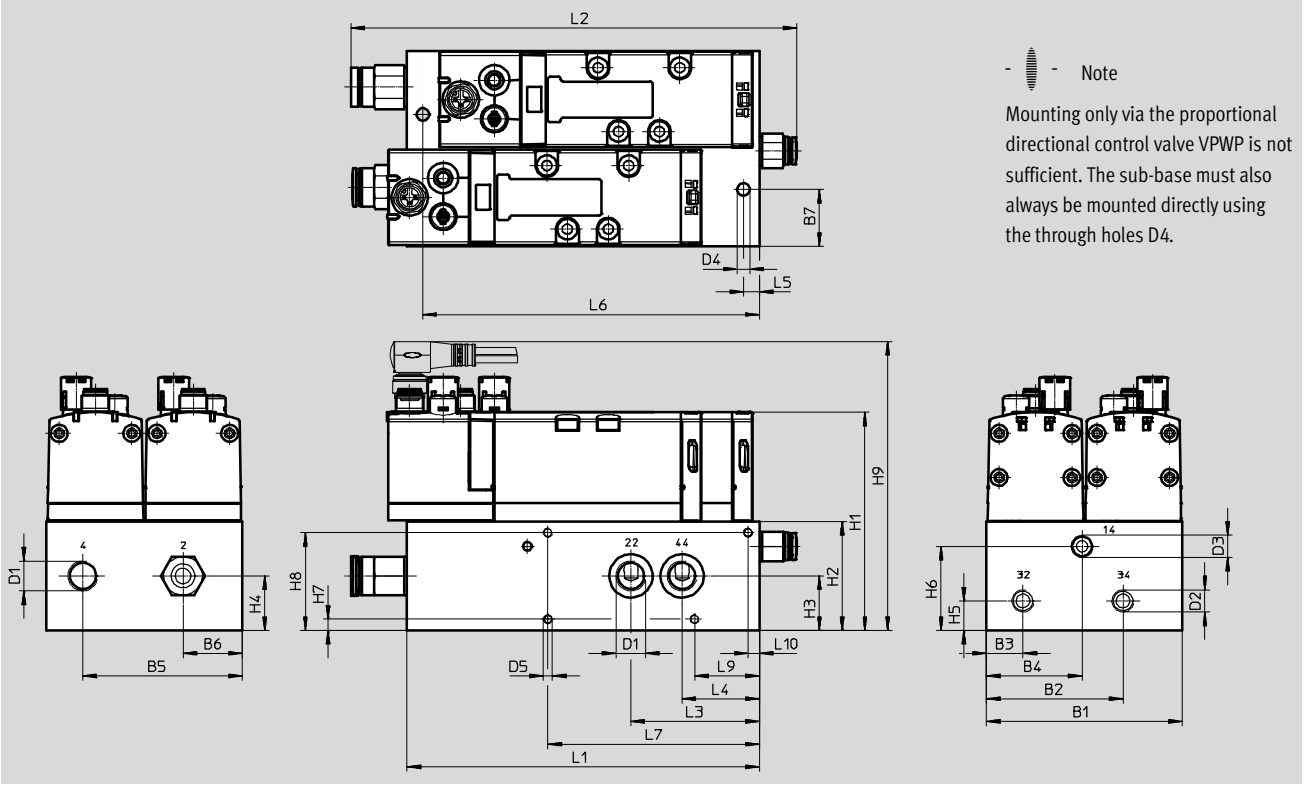
VABP-S1-1V1G



Note

Mounting only via the proportional directional control valve VPWP is not sufficient. The sub-base must also always be mounted directly using the through holes D4.

	B1	B2	B3	B4	B5	B6	B7	B8
Without valves	86	60	16	42	70	26	25	58
With valves								

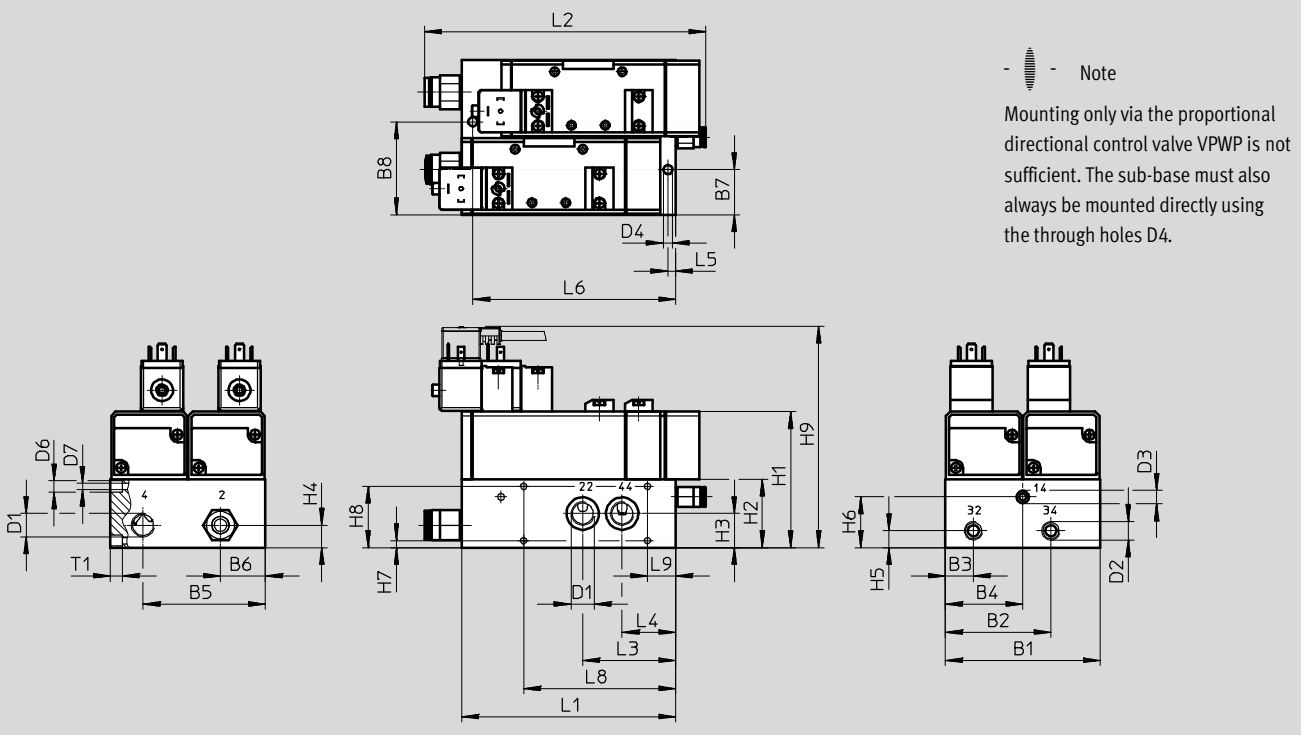
	D1	D2	D3	D4 ∅	D5	H1	H2	H3
Without valves	G¼	G⅛	G⅛	5.5	M4	–	48	24
With valves						96		

	H4	H5	H6	H7 ±0.1	H8 ±0.1	H9	L1	L2
Without valves	24	13	37	5	43	–	155	–
With valves						132		196

	L3	L4	L5	L6	L7 ±0.1	L9 ±0.1	L10 ±0.1
Without valves	56.5	34	7	148	93	28.5	5
With valves							

Dimensions Download CAD data ➔ **www.festo.com**

VABP-S1-2V1G



Note

Mounting only via the proportional directional control valve VPWP is not sufficient. The sub-base must also always be mounted directly using the through holes D4.

	B1	B2	B3	B4	B5	B6	B7	B8
Without valves	110	75	20	55	87	32	32	66
With valves								

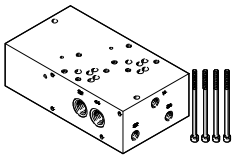
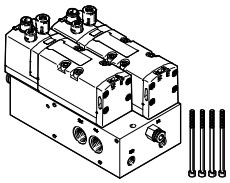
	D1	D2	D3	D4 ∅	D6 ∅ H13	D7 ∅ H13	H1	H2
Without valves	G3⁄8	G1⁄4	G1⁄8	6.6	4.5	8	–	48.5
With valves							96.5	

	H3	H4	H5	H6	H7 ±0.1	H8 ±0.1	H9	L1
Without valves	24.3	16	12	36	5	43.5	–	152
With valves							157	

	L2	L3	L4	L5	L6	L8 ±0.1	L9 ±0.1	T1
Without valves	–	66	38	5.5	144	108	20	8.4
With valves	200							

Sub-bases VABP

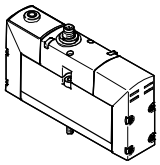
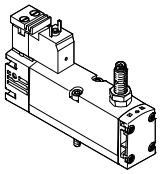
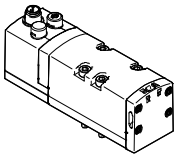
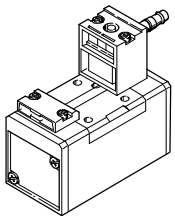
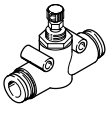
Technical data

Ordering data			
	Nominal flow rate	Part No.	Type
Without valves			
	800	**2605074**	**VABP-S3-26V1G-G18-2**
	1400	**2614860**	**VABP-S1-1V1G-G14-2**
	2000	**2738671**	**VABP-S1-2V1G-G38-2**
With valves			
	800	**2605075**	**VABP-S3-26V1G-G18-2M-R3**
	1400	**2614863**	**VABP-S1-1V1G-G14-2M-R3**
	2000	**2738672**	**VABP-S1-2V1G-G38-2M-A1**

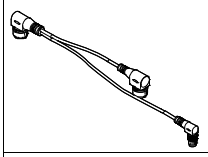
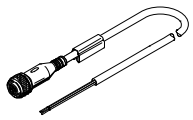
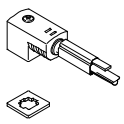
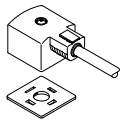
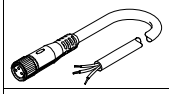
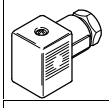
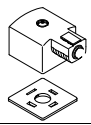
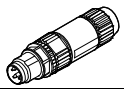
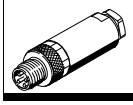
Note

The solenoid valve VSVA with switching position sensing must be ordered separately ➔14

Ordering data

	Description	Part No.	Type	PU[1]
Solenoid valve				
	For sub-base: • VABP-S3-26V1G-G18-2	**534546**	**VSVA-B-M52-MZH-A1-1R5L**	1
	For sub-base: • VABP-S3-26V1G-G18-2 • With switching position sensing via inductive proximity sensor	**560726**	**VSVA-B-M52-MZ-A1-1C1-APP**	1
	For sub-base: • VABP-S1-1V1G-G14-2	**561373**	**VSVA-B-M52-MZD-D1-1R5L**	1
	For sub-base: • VABP-S1-2V1G-G38-2	**159718**	**MN1H-5/2-D-2-FR-S-C**	1
Solenoid coil				
	For solenoid valve: • MN1H-5/2-D-2-FR-S-C	**123060**	**MSN1G-24DC-OD**	1
Blanking plug				
	For realising a switch-off function	**3568** **3569**	**B-⅛** **B-¼**	10
Silencer				
	For realising a switch-off function	**161419** **165004**	**UC-⅛** **UC-¼**	1
Exhaust air flow control valve				
	For realising a switch-off function	**10351** **10352**	**GRE-⅛** **GRE-¼**	1
One-way flow control valve				
	For realising a switch-off function	**193969** **193970**	**GR-QS-6** **GR-QS-8**	1

1) Packaging unit

Ordering data				
	Description	Part No.	Type	PU[1]
Push-in fitting (only use push-in fitting with sealing ring)				
	For pilot air port 14			
	VABP-S3-26V1G	**130896**	**QSM-B-M5-6-20**	20
	VABP-S1-1V1G	**186096**	**QS-G⅛-6**	10
	VABP-S1-2V1G	**186098**	**QS-G⅛-8**	10
	For function ports 32, 34			
	VABP-S3-26V1G	**186096**	**QS-G⅛-6**	10
	VABP-S1-1V1G	**186098**	**QS-G⅛-8**	10
	VABP-S1-2V1G	**186099**	**QS-G¼-8**	10
	For working ports 2, 4, 22, 44			
	VABP-S3-26V1G	**186098**	**QS-G⅛-8**	10
	VABP-S1-1V1G	**186101**	**QS-G¼-10**	10
	VABP-S1-2V1G	**186103**	**QS-G⅜-12**	10
Connecting cable and plug socket with cable				
	Connection of solenoid valve to proportional directional control valve VPWP. For the solenoid valves: • VSVA-B-M52-MZH-A1-1R5L • VSVA-B-M52-MZD-D1-1R5L	**2384165**	**NEDV-L2R1-V7-M12W3-K-0.1L1-N-M8W4-0.2R1**	1
	Connection of solenoid valve to controller. For the solenoid valves: • VSVA-B-M52-MZH-A1-1R5L • VSVA-B-M52-MZD-D1-1R5L	**541363** **541364**	**NEBU-M12G5-K-2.5-LE3** **NEBU-M12G5-K-5-LE3**	1
	Connection of solenoid valve to controller. For solenoid valve with switching position sensing • VSVA-B-M52-MZ-A1-1C1-APP	**151688** **151689**	**KMEB-1-24-2,5-LED** **KMEB-1-24-5-LED**	1
	Connection of solenoid valve to controller. For solenoid valve: • MN1H-5/2-D-2-FR-S-C	**30931** **30933**	**KMC-1-24DC-2,5-LED** **KMC-1-24DC-5-LED**	1
	Connection of switching position sensing system to controller	**541334**	**NEBU-M8G3-K-5-LE3**	1
Plug and plug socket				
	Alternative plug socket for solenoid valve. For solenoid valve with switching position sensing • VSVA-B-M52-MZ-A1-1C1-APP	**151687**	**MSSD-EB**	1
	Alternative plug socket for solenoid valve. For solenoid valve: • MN1H-5/2-D-2-FR-S-C	**34583**	**MSSD-C**	1
	• Insulation displacement connector • Connection of the connecting cable KMC to the proportional directional control valve VPWP	**562025**	**NECU-S-M8G4-HX**	1
	• Screw terminal • Connection of the connecting cable KMC to the proportional directional control valve VPWP	**1068198**	**NECU-S-M8G4-C2**	

1) Packaging unit

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ISO 14001
DNV
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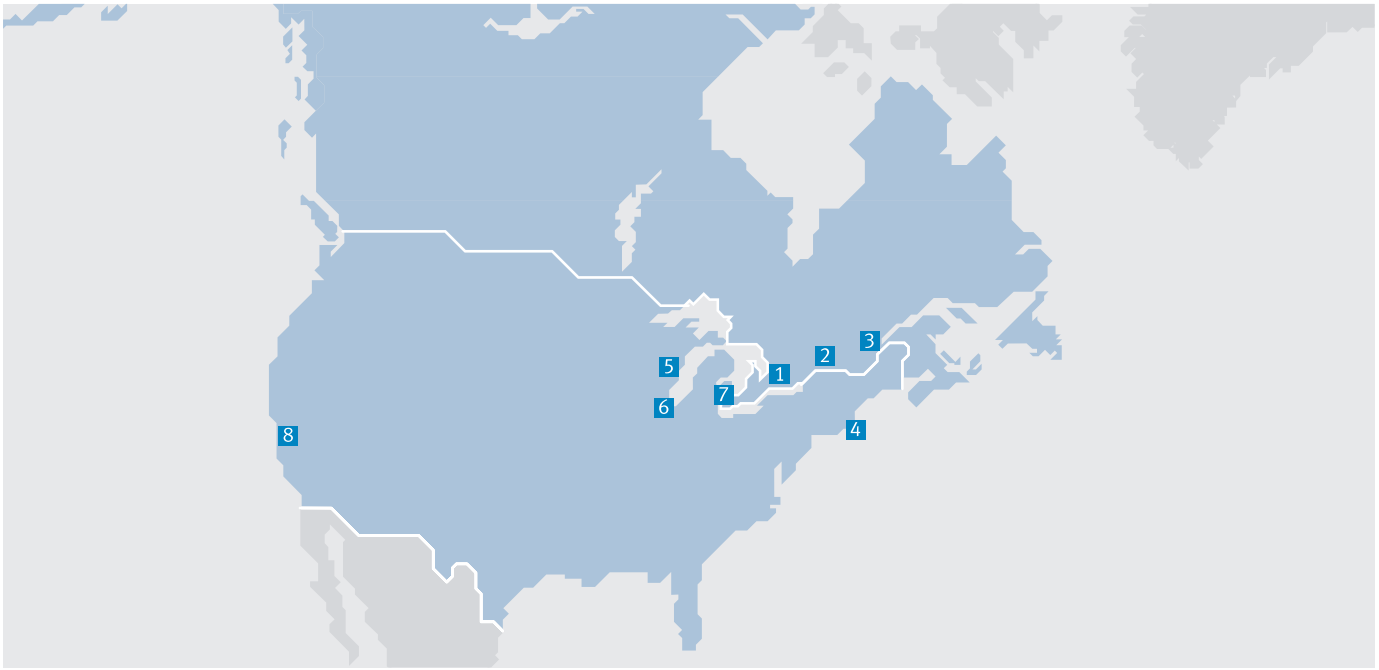

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