

Positioner CMSH

FESTO



Key features

Function

The CMSH is an intelligent, digital positioner. It controls the position of a process valve that is actuated by a pneumatic actuator. Thanks to the large ambient temperature range of $-40 \dots +80^{\circ}\text{C}$ and its high degree of protection (IP66/67), it can also be used under harsh operating conditions. The CMSH is a 4 ... 20mA loop-powered 2-wire device. An additional power

supply is therefore not required. Configuration and operation can be performed locally on an LC display using operating buttons. A HART interface permits remote access and integration into higher-level systems. There are product variants for single- or double-acting actuators with safety settings (fail-safe, fail in place). The product is suitable for attachment to actuators with

a mechanical interface in accordance with VDI/VDE 3845-1 (IEC 60534-6-2) or VDI/VDE 3847-2. The product variant CMSH-S-... has an internal position sensor for detecting displacement/angle. Alternatively, an external potentiometric position sensor can be connected to the positioner on all product variants.

User-friendly

- Highly dynamic positioning system with high air output for fast and precise control of both small and large actuators without additional instruments
- Low internal air consumption
- Large display with plain text and rotatable reading direction for ease of operation
- Setup wizard for efficient and easy commissioning
- Device status at a glance with status feedback in accordance with NAMUR recommendation 107

Flexible

- Mounting interfaces for all common quarter turn and linear actuators in accordance with VDI/VDE 3845-1 (IEC 60534-6-2) or VDI/VDE 3847-2
- Pneumatic extension modules VTOP for additional instrumentation
- Modular product system for maximum flexibility to meet an extremely wide range of requirements
- Selectable parameters for precise or fast control, depending on the application

Reliable

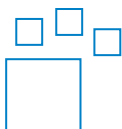
- Self-monitoring and diagnostics options for increased system availability
- Integrated pressure sensors for supply air and actuator chamber pressure, for monitoring the break-away pressure of a process valve
- Pressure-monitored partial-stroke test for increased reliability
- Easy and secure installation with integrated air supply to VDE/VDI 3847-2

Remote access using EDD- or FDT-based transfer¹⁾

- Easy integration using EDD (Electronic Device Description) or FDT (Field Device Tool) based transfer of information in superimposed DCS (distributed control system) and asset management tools
- Configuring and commissioning in a clear and user-friendly interface
- Fast access to the required additional information for maintenance and diagnostics

1) Additional information about EDD or FDT software: www.festo.com/catalogue/... → Support/Downloads.

Ordering data – Product options



Configurable product
This product and all its product options can be ordered using the configurator.

The configurator can be found at
→ www.festo.com/catalogue/...
Enter the part number or the type.

Part no.	Type
8148076	CMSH

Product range overview

Basic configuration of series CMSH...

- 1 analogue input for power supply, setpoint specification and HART communication
- 1 digital input for triggering functions

Feature	Feature value	Type code	Description
Design	Positioner, integrated displacement/angular detection	CMSH-S-...	<ul style="list-style-type: none"> • With internal position sensor for detecting displacement/angle • Alternatively, an external potentiometric position sensor can be connected with these product variants.
	Positioner, external displacement/angular detection	CMSH-SE-...	<ul style="list-style-type: none"> • Suitable for connecting external potentiometric displacement/angle sensor • Variant does not include an internal displacement/angle sensor or a position indicator
Mechanical interface	VDI/VDE 3845	CMSH-...-VDE1-...	<ul style="list-style-type: none"> • Suitable for attachment to actuators with a mechanical interface in accordance with VDI/VDE 3845-1 (IEC 60534-6-2) • Use mounting adapter in accordance with VDI/VDE 3845-1, IEC 60534-6-2 → Accessories page 15
	VDI/VDE 3847-2	CMSH-...-VDE2-...	<ul style="list-style-type: none"> • Suitable for attachment to actuators with a mechanical interface in accordance with VDI/VDE 3847-2 • Use mounting kit in accordance with VDI/VDE 3847-2 → Accessories page 15
Function	Single-acting	CMSH-...-S-...	<ul style="list-style-type: none"> • Suitable for single-acting actuators
	Double-acting	CMSH-...-D-...	<ul style="list-style-type: none"> • Suitable for double-acting actuators
	Double-acting/single-acting, switchable	CMSH-...-VSD-...	<ul style="list-style-type: none"> • Suitable for single-acting or double-acting actuators • The pneumatic manifold block CAPS determines the function type of the positioner → Accessories page 14 • The pneumatic manifold block CAPS required for operation is not pre-assembled and is not in the scope of delivery
Safety position	Exhausting	CMSH-...-A-	<ul style="list-style-type: none"> • If the electrical power supply fails, the pneumatic outlet (2) on the positioner is exhausted • In the case of double-acting actuators, the pneumatic outlet (4) on the positioner is additionally pressurised
	Holding the last position	CMSH-...-C-	<ul style="list-style-type: none"> • If the electrical power supply fails, the pneumatic outlet (2) and (4) on the positioner are closed
Pneumatic connection	G1/4	CMSH-...-G14-	<ul style="list-style-type: none"> • Pneumatic connection for fittings with G1/4 male thread
	NPT 1/4	CMSH-...-N14-	<ul style="list-style-type: none"> • Pneumatic connection for fittings with 1/4 NPT male thread
Connecting thread	M20	CMSH-...-M20-	<ul style="list-style-type: none"> • Connecting thread for cable connector or plug screw with M20 thread
	NPT 1/2	CMSH-...-N12-	<ul style="list-style-type: none"> • Connecting thread for cable connector or plug screw with 1/2 NPT thread
I/O variant	1AO, 1DI and 2DO	CMSH-...-V2-...	<ul style="list-style-type: none"> • Additional inputs and outputs • 1 analogue output for position feedback • 2 digital outputs for feedback of the device status and the position limit values • 1 digital input for triggering functions
Pressure gauge connection	Prepared	CMSH-...-V-...	<ul style="list-style-type: none"> • Additional pressure gauge connection for displaying supply air and actuator chamber pressures • Suitable for pressure gauge with G1/8 (CMSH-...-G14) or NPT 1/8 (CMSH-...-N14) male thread • Suitable for pressure gauge of nominal size 23/27

Type codes

001	Series
CMSH	Positioner CMSH

002	Design type
S	Positioner, displacement/integrated angular position detection
SE	Positioner, displacement/external angular position detection

003	Mechanical interface
V	Prepared for sub-base
VDE1	VDI/VDE 3845
VDE2	VDI/VDE 3847-2

004	Function
D	Double-acting
S	Single-acting
SD	Double-acting/single-acting, switchable

005	Safety position
	None
A	Exhaust
C	Hold the last position

006	Housing material
AL	Aluminium

007	Pneumatic connection
	None
G14	G1/4
N14	1/4 NPT

008	Electrical connection
C1	Spring-loaded terminal

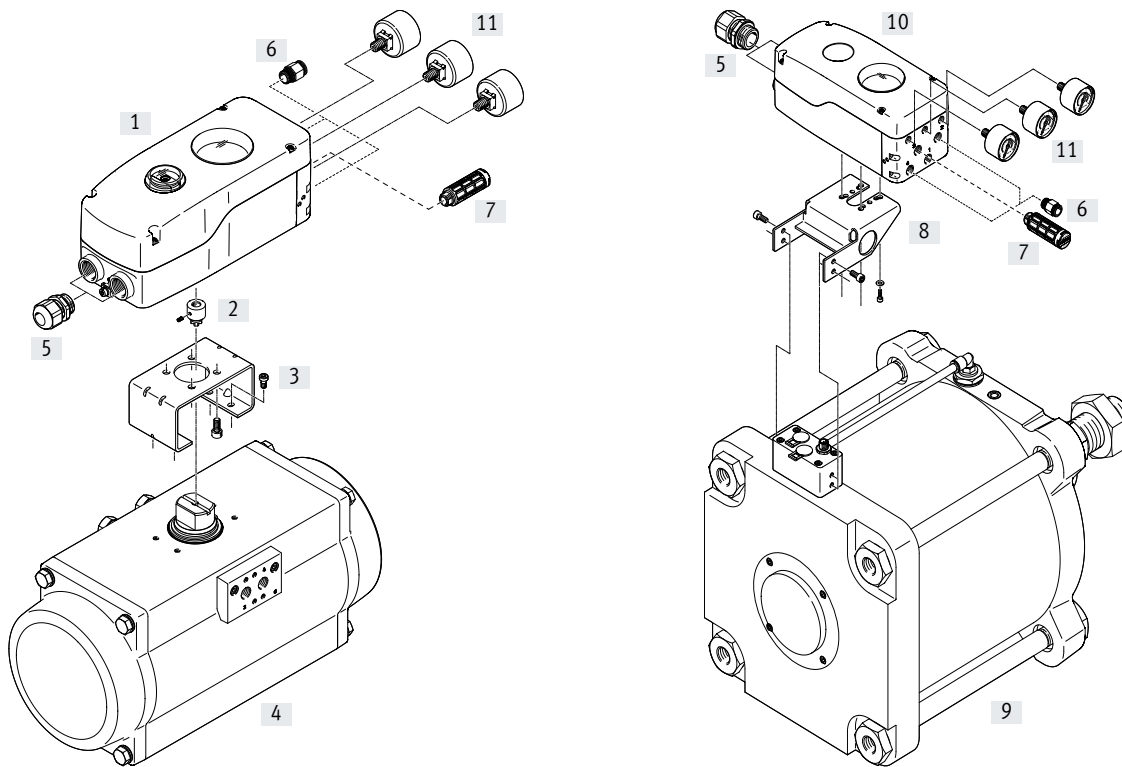
009	Connecting thread
M20	M20
N12	1/2 NPT

010	Bus protocol/activation
HA	HART

011	I/O variant
	None
V2	1AA, 1DE and 2DA

012	Pressure gauge connection
	Without
V	Prepared

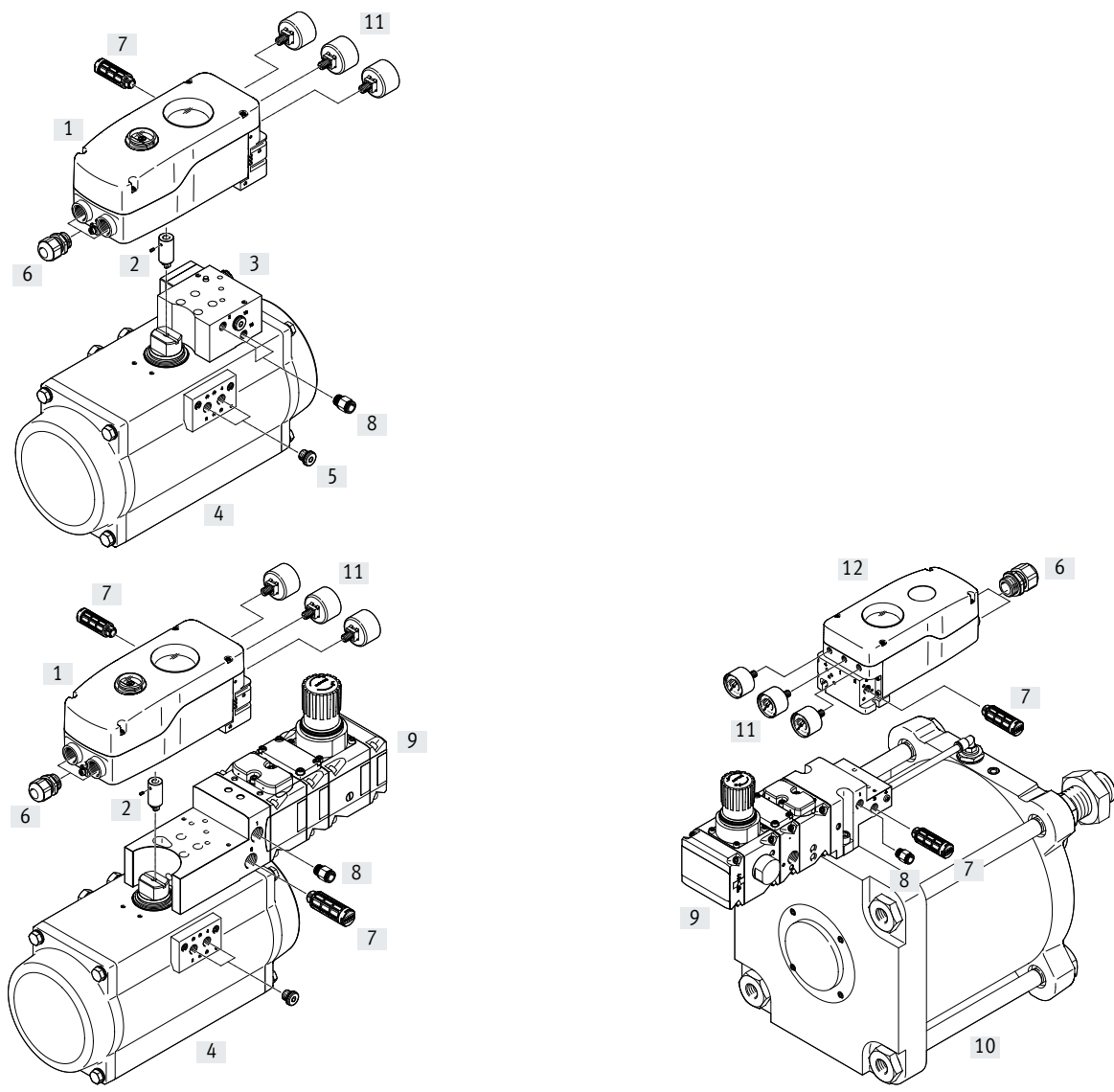
Peripherals overview CMSH-...-VDE1



Mounting attachments and accessories


Type	Description	→ Page/Internet
[1] Positioner CMSH-S-VDE1-...	Intelligent, digital positioner with HART communication	7
[2] Coupling CAFM-M1-CK-N1	For mounting positioners and quarter turn actuators for process automation with a VDI/VDE 3845-1 interface	15
[3] Mounting adapter CAFM-M1-K-N1-...	For mounting positioners and quarter turn actuators for process automation with a VDI/VDE 3845-1 interface	15
[4] Quarter turn actuator DFPD	<ul style="list-style-type: none"> • Quarter turn actuator with rack/pinion combination • Plug pattern to VDE/VDI 3845-1 	dfpd
[5] Cable connector NETC-P-M20-...	M20x1.5 made from polymer	16
[6] Push-in fitting QS	For connecting compressed air tubing with standard O.D.	16
[7] Silencer	For noise reduction and avoiding contamination at the exhaust ports	16
[8] Adapter kit DADG	For directly mounting positioners on the linear actuator DFPI	15
[9] Linear actuator DFPI-...-E-NB3P	<ul style="list-style-type: none"> • Adjustable linear actuators based on ISO 15552 • With integrated displacement encoder 	dfpi
[10] Positioner CMSH-SE-VDE1-...	Intelligent, digital positioner with HART communication	7
[11] Pressure gauge	Display unit in bar and psi	15

Peripherals overview CMSH-...-VDE2



Mounting attachments and accessories for CMSH-...-VDE2		
Type	Description	→ Page/Internet
[1] Positioner CMSH-S-VDE2-...	Intelligent, digital positioner with HART communication	7
[2] Coupling CAFM-M1-CK-N3	For mounting positioners and quarter turn actuators for process automation with a VDI/VDE 3847-2 interface	15
[3] Control plate DADG-FM-F9-VDE2	Control plate with VDI/VDE 3847-2 interface for connecting positioners and quarter turn actuators	dadg
[4] Quarter turn actuator DFPD-...-C-VDE2	<ul style="list-style-type: none"> • Quarter turn actuator with rack/pinion combination • Plug pattern for accessories to VDE/VDI 3847-2 	dfpd
[5] Blanking plug B	With internal hex and sealing ring	b
[6] Cable connector NETC-P-M20-...	M20x1.5 made from polymer	16
[7] Silencer	For noise reduction and avoiding contamination at the exhaust ports	16
[8] Push-in fitting QS	For connecting compressed air tubing with standard O.D.	16
[9] Valve terminal VTOP	For implementing additional pneumatic functions	15
[10] Linear actuator DFPI-...-ND2P-E-NB3VM12	<ul style="list-style-type: none"> • Adjustable linear actuators based on ISO 15552 • With integrated displacement encoder • Prepared for connection to valve terminal VTOP 	dfpi
[11] Pressure gauge	Display unit in bar and psi	15
[12] Positioner CMSH-SE-VDE1-...	Intelligent, digital positioner with HART communication	7

Data sheet

-  - Flow rate
270 ... 380 l/min

- Product versions for fail-safe or fail-in-place safety function
- Product versions for single- or double-acting actuators



General technical data

Design	Digital electropneumatic positioner
Mode of operation	
CMSH-...-S-...	Single-acting
CMSH-...-D-...	Double-acting
CMSH-...-SD-...	Single-acting/double-acting, switchable
Design features	
CMSH-...-SA-...	Safety position pneumatic outlet 2 exhausted
CMSH-...-DA-...	Safety position pneumatic outlet 2 exhausted, safety position pneumatic outlet 4 pressurised
CMSH-...-DC-...	Safety position - pneumatic outlets closed
Mounting position	Any
Type of mounting	
CMSH-...-VDE1-...	With accessories, to VDI/VDE 3845
CMSH-...-VDE2-...	With accessories, to VDI/VDE 3847-2
Measuring principle of displacement encoder	
CMSH-...-S-...	Potentiometer
CMSH-...-SE-...	External
Sensing range CMSH-...-S-...	0 ... 115 deg
Display	LCD, via software 90° rotatable
Setting options	Via display and operating buttons
Cycle time	20 ms
Nominal operating altitude	≤ 2000 m
Overvoltage category	II

Pneumatic characteristic data

Operating pressure	0.14 ... 0.8 MPa 20.3 ... 116 psi 1.4 ... 8 bar
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating/pilot medium	Lubricated operation not possible
Air output $\Delta p = 6$ bar	
CMSH-...-VDE1-S-...	380 l/min
CMSH-...-VDE1-D-...	270 l/min
CMSH-...-VDE2-S-...	320 l/min
CMSH-...-VDE2-D-...	270 l/min
Pneumatic connection	
CMSH-...-G14-...	G1/4
CMSH-...-G14-...V	G1/4 G1/8 pressure gauge connection
CMSH-...-N14-...	1/4 NPT
CMSH-...-N14-...V	1/4 NPT 1/8 NPT pressure gauge connection
CMSH-...-SD-...	With specific accessories

Data sheet

Electrical characteristic data	
Analogue input	
Signal range	4 - 20 mA with HART
Input impedance	480 Ohm at 20 mA
Overload protection	<65 mA
Galvanic isolation	Yes
Analogue output (for CMSH-...-V2-... only)	
Functional principle	Regulated power source with external supply
Signal range	4 ... 20 mA
Supply voltage	24 V (12 ... 30)
Reverse polarity protection	Yes
Short circuit current rating	Yes
Overload protection	Yes
Galvanic isolation	Yes
Digital inputs ¹⁾	
Input characteristics	
CMSH-...	1x input corresponding to IEC 61131-2, type 3
CMSH-...V2-...	2x input corresponding to IEC 61131-2, type 3
Reverse polarity protection	Yes
Overload protection	33 V
Galvanic isolation	Yes
Digital outputs (for CMSH-...-V2-... only)	
Switching output ²⁾	2x output corresponding to IEC 60947-5-6 (NAMUR) or 2x output corresponding to DIN EN 61131-2, type 2 convertible
Supply voltage	8.2 V/24 V
Short circuit current rating	Yes
Overload protection	Yes, <30 V
Galvanic isolation	Yes
Reverse polarity protection	Yes
Connection resistance	3 ... 80 kOhm
Measuring principle of displacement encoder	
CMSH-S-...	Potentiometer
CMSH-SE-...	External, potentiometer
Electrical connection 1	
Function	Analogue input, digital input, external displacement/angle sensor
Connection type	Terminal strip
Connection technology	Spring-loaded terminal
Number of pins/wires	7
Electrical connection 2 (for CMSH-...-V2-... only)	
Function	2x digital output, analogue output, digital input
Connection type	Terminal strip
Connection technology	Spring-loaded terminal
Number of pins/wires	8
Cable connector	
CMSH-...-M20-...	2x M20x1.5
CMSH-...-N12-...	2x 1/2 NPT
Max. cable length	30 m for external position sensor, shielded

1) 1 digital input for standard version, second digital input for CMSH-...V2-... only

2) Selection of NAMUR output or PLC output can be configured via software

Data sheet

Operating and environmental conditions	
Ambient temperature	-40 ... 80°C
Note on ambient temperature	Display: -30 ... 80°C
Storage temperature	-40 ... 80°C
Climatic category	1K5 to EN 60721 for storage, 4K3 to EN 60721 for operation
Degree of protection	IP66, IP67
Shock resistance	Shock test with severity level 1 to FN 942017-5 and EN 60068-2-27
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Pollution degree	3
Certification	RCM
EMC conformity	NAMUR recommendation NE 21
CE marking (see declaration of conformity) ¹⁾	To EU EMC Directive, to EU-RoHS Directive

1) Additional information: www.festo.com/catalogue/... → Support/Downloads.

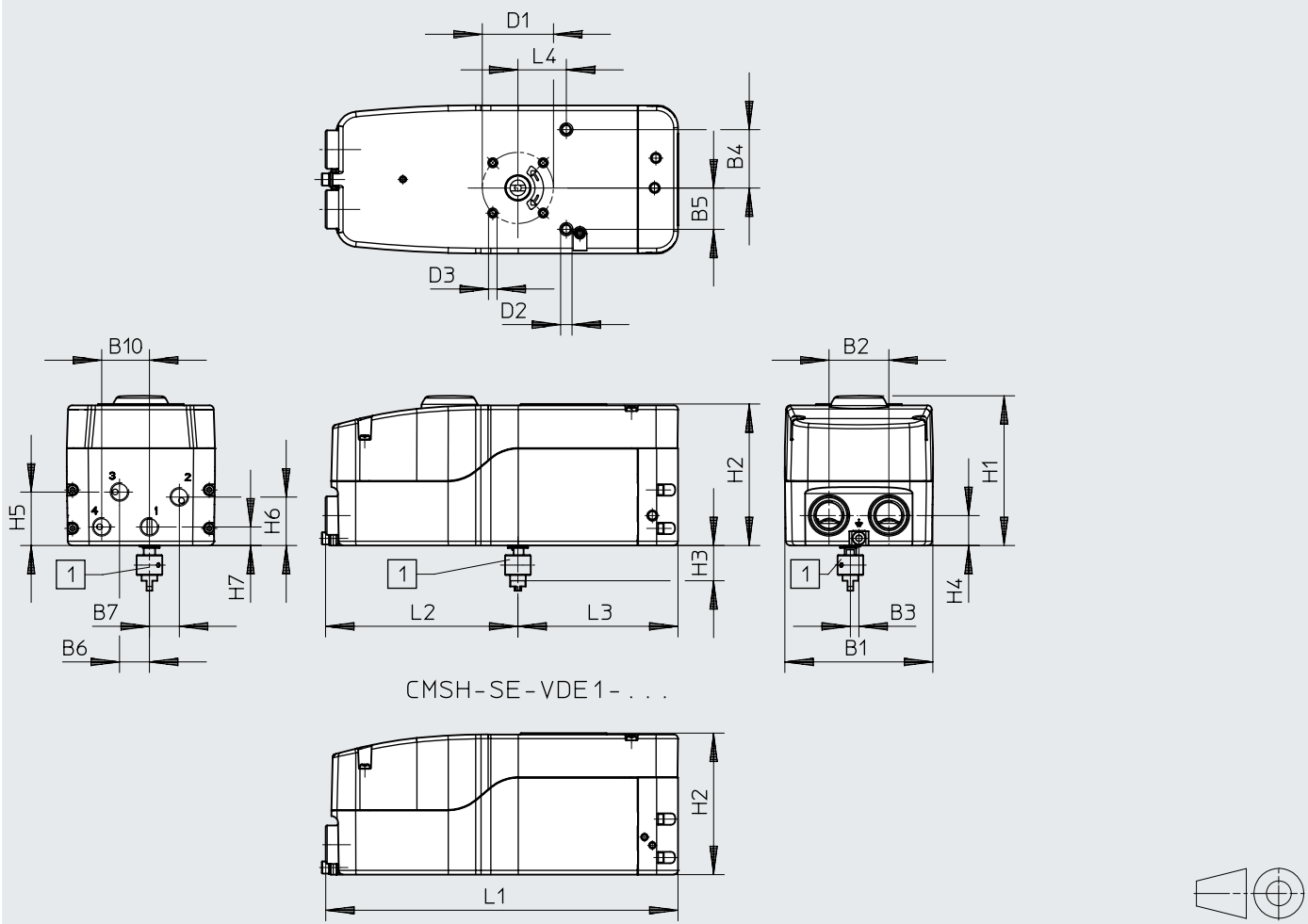
Materials	
Housing	Aluminium, powder-coated
Inspection window	PC
Shaft (for CMSH-S-... only)	High-alloy stainless steel
Coupling (for CMSH-S-... only)	High-alloy stainless steel
Screws	High-alloy stainless steel
Seals	NBR
	EPDM
	VMQ
Note on materials	RoHS-compliant
PWIS conformity	VDMA24364 zone III

Data sheet

Dimensions

Download CAD data → www.festo.com

CMSH-...-VDE1



[1] Coupling CAFM-M1-CK-N1

	B1	B2	B3	B4	B5	B6	B7	B10	D1 ∅	D2	D3
CMSH-S-VDE1-S-A-AL-G14-C1M20-HA	104	42	6	41	29	21	-	-	50	M8	M6
CMSH-S-VDE1-S-A-AL-N14-C1N12-HA											
CMSH-S-VDE1-D-A-AL-G14-C1M20-HA							21	33.5			
CMSH-S-VDE1-D-A-AL-N14-C1N12-HA											
CMSH-SE-VDE1-D-A-AL-G14-C1M20-HA											
CMSH-S-VSD-AL-C1M20-HA											
CMSH-S-VSD-AL-C1N12-HA											

	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	L4
CMSH-S-VDE1-S-A-AL-G14-C1M20-HA	105	100	25	21	37.5	34	13	247	135	112	34
CMSH-S-VDE1-S-A-AL-N14-C1N12-HA											
CMSH-S-VDE1-D-A-AL-G14-C1M20-HA											
CMSH-S-VDE1-D-A-AL-N14-C1N12-HA											
CMSH-SE-VDE1-D-A-AL-G14-C1M20-HA											
CMSH-S-VSD-AL-C1M20-HA											
CMSH-S-VSD-AL-C1N12-HA											

Data sheet

Dimensions

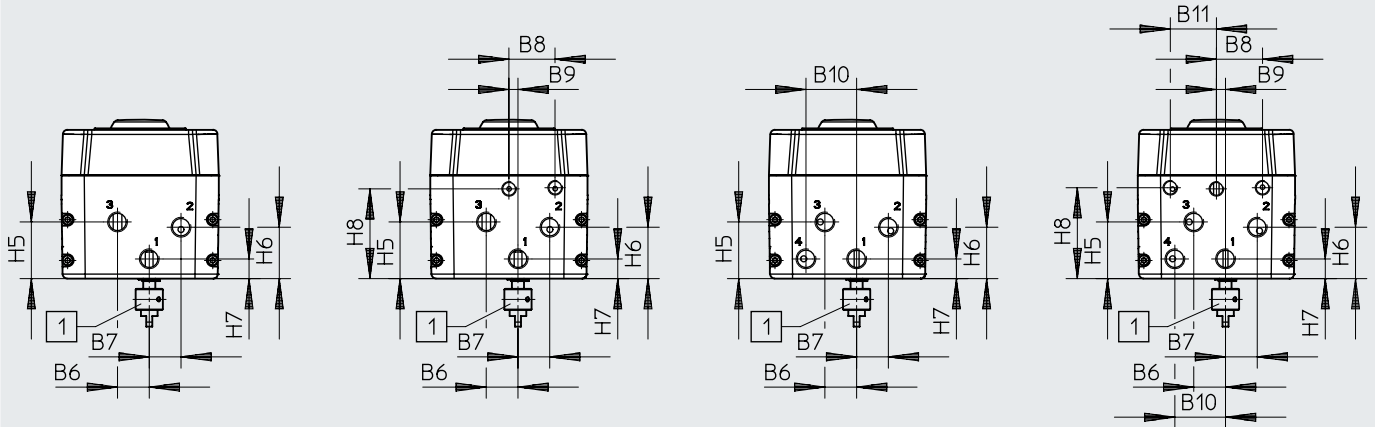
Download CAD data → www.festo.com

CMSH-S-VDE1-S-...

CMSH-S-VDE1-S-...-V

CMSH-S-VDE1-D-...

CMSH-S-VDE1-D-...-V



[1] Coupling CAFM-M1-CK-N1

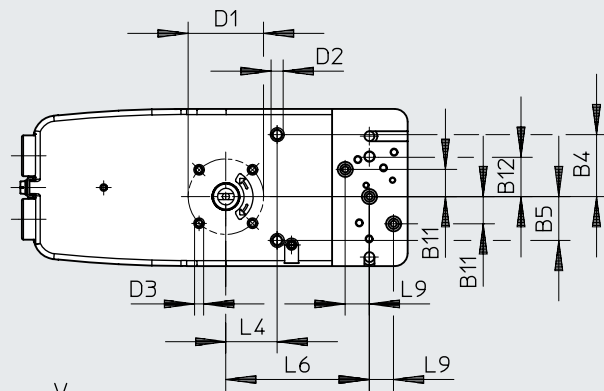
	B6	B7	B8	B9	B10	B11	H5	H6	H7	H8
CMSH-S-VDE1-S-...	21	21	-	-	-	-	37.5	34	13	-
CMSH-S-VDE1-S-...-V...			30.5	6	-	-				60
CMSH-S-VDE1-D-...			-	-	33.5	-				-
CMSH-S-VDE1-D-...-V...			30.5	6	33.5	30.5				60

Data sheet

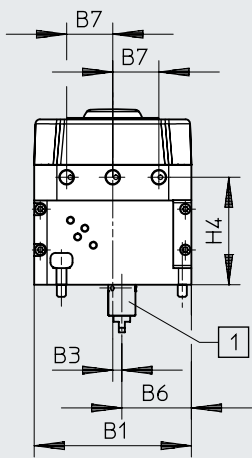
Dimensions

Download CAD data → www.festo.com

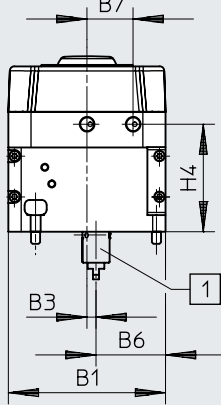
CMSH-...-VDE2



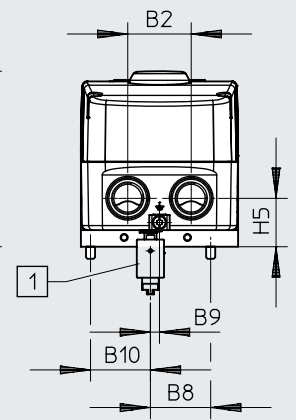
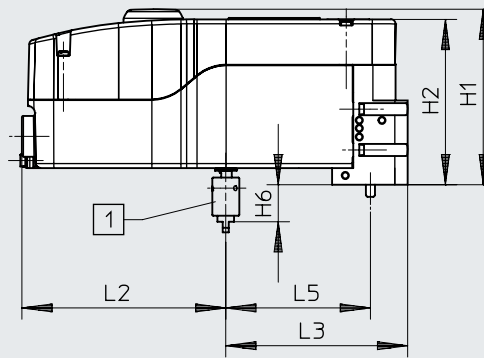
CMSH-S-VDE2-D-...-V-...



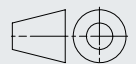
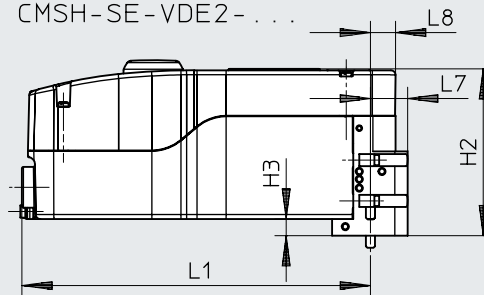
CMSH-S-VDE2-S-...-V-...



CMSH-S-VDE2-...



CMSH-SE-VDE2-...

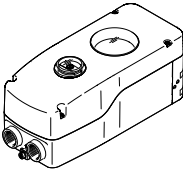


[1] Coupling CAFM-M1-CK-N3

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	D1	D2	D3
CMSH-S-VDE2-...	104	42	6	41	29	46	30.5	40	6	40	18	26.5	50	M8	M6
CMSH-SE-VDE2-...															
CMSH-S-VDE2-S-...-V-...															
CMSH-S-VDE2-D-...-V-...															

	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6	L7	L8	L9
CMSH-S-VDE2-...	116	111	11	71	32	25	230	135	120	34	95	95	25	17	16
CMSH-SE-VDE2-...															
CMSH-S-VDE2-S-...-V-...															
CMSH-S-VDE2-D-...-V-...															

Data sheet

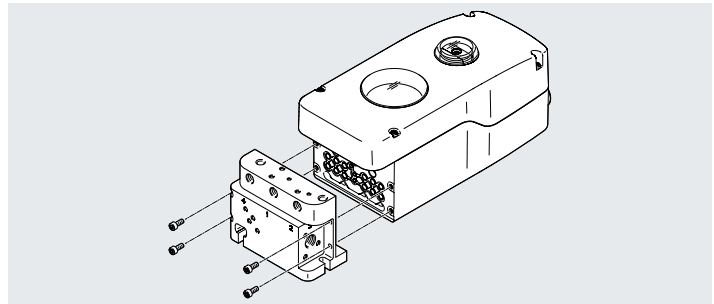
Ordering data	Description	Product weight [g]	Part no.	Type
	Positioner CMSH with HART communication	2640	8097412	CMSH-S-VDE1-S-A-AL-G14-C1M20-HA
		2640	8097413	CMSH-S-VDE1-S-A-AL-N14-C1N12-HA
		2640	8097420	CMSH-S-VDE1-D-A-AL-G14-C1M20-HA
		2640	8097421	CMSH-S-VDE1-D-A-AL-N14-C1N12-HA
		2520	8097423	CMSH-SE-VDE1-D-A-AL-G14-C1M20-HA
		2175	8097425	CMSH-S-VSD-AL-C1M20-HA
		2175	8097426	CMSH-S-VSD-AL-C1N12-HA

Accessories

Manifold block CAPS for CMSH-...-SD-...

Housing material:
Powder-coated aluminium
Screws material:
High-alloy stainless steel

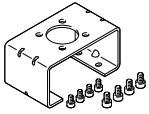
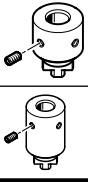
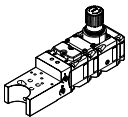
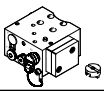
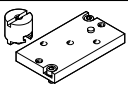
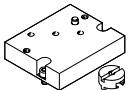
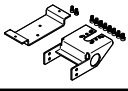

RoHS-compliant
PWIS conformity:
VDMA24364-Zone III






Ordering data						
Function	Mechanical interface	Safety position	Pneumatic connection	Pressure gauge connection	Part no.	Type
Single-acting	VDI/VDE 3845	Exhausting	G1/4	–	8154576	CAPS-M1-VDE1-S-A-AL-G14
	VDI/VDE 3845	Exhausting	1/4 NPT	–	8154578	CAPS-M1-VDE1-S-A-AL-N14
	VDI/VDE 3845	Exhausting	G1/4	G1/8	8154577	CAPS-M1-VDE1-S-A-AL-G14-V
	VDI/VDE 3845	Exhausting	1/4 NPT	1/8 NPT	8154579	CAPS-M1-VDE1-S-A-AL-N14-V
	VDI/VDE 3847-2	Exhausting	G1/4	–	8154588	CAPS-M1-VDE2-S-A-AL-G14
	VDI/VDE 3847-2	Exhausting	1/4 NPT	–	8154590	CAPS-M1-VDE2-S-A-AL-N14
	VDI/VDE 3847-2	Exhausting	G1/4	G1/8	8154589	CAPS-M1-VDE2-S-A-AL-G14-V
	VDI/VDE 3847-2	Exhausting	1/4 NPT	1/8 NPT	8154591	CAPS-M1-VDE2-S-A-AL-N14-V


Ordering data						
Function	Mechanical interface	Safety position	Pneumatic connection	Pressure gauge connection	Part no.	Type
Double-acting	VDI/VDE 3845	Exhausting	G1/4	–	8154580	CAPS-M1-VDE1-D-A-AL-G14
	VDI/VDE 3845	Exhausting	1/4 NPT	–	8154582	CAPS-M1-VDE1-D-A-AL-N14
	VDI/VDE 3845	Holding the last position	G1/4	–	8154584	CAPS-M1-VDE1-D-C-AL-G14
	VDI/VDE 3845	Holding the last position	1/4 NPT	–	8154586	CAPS-M1-VDE1-D-C-AL-N14
	VDI/VDE 3845	Exhausting	G1/4	G1/8	8154581	CAPS-M1-VDE1-D-A-AL-G14-V
	VDI/VDE 3845	Exhausting	1/4 NPT	1/8 NPT	8154583	CAPS-M1-VDE1-D-A-AL-N14-V
	VDI/VDE 3845	Holding the last position	G1/4	G1/8	8154585	CAPS-M1-VDE1-D-C-AL-G14-V
	VDI/VDE 3845	Holding the last position	1/4 NPT	1/8 NPT	8154587	CAPS-M1-VDE1-D-C-AL-N14-V
	VDI/VDE 3847-2	Exhausting	G1/4	–	8154592	CAPS-M1-VDE2-D-A-AL-G14
	VDI/VDE 3847-2	Exhausting	1/4 NPT	–	8154594	CAPS-M1-VDE2-D-A-AL-N14
	VDI/VDE 3847-2	Holding the last position	G1/4	–	8154596	CAPS-M1-VDE2-D-C-AL-G14
	VDI/VDE 3847-2	Holding the last position	1/4 NPT	–	8154598	CAPS-M1-VDE2-D-C-AL-N14
	VDI/VDE 3847-2	Exhausting	G1/4	G1/8	8154593	CAPS-M1-VDE2-D-A-AL-G14-V
	VDI/VDE 3847-2	Exhausting	1/4 NPT	1/8 NPT	8154595	CAPS-M1-VDE2-D-A-AL-N14-V
	VDI/VDE 3847-2	Holding the last position	G1/4	G1/8	8154597	CAPS-M1-VDE2-D-C-AL-G14-V
	VDI/VDE 3847-2	Holding the last position	1/4 NPT	1/8 NPT	8154599	CAPS-M1-VDE2-D-C-AL-N14-V

Accessories

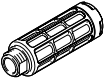
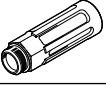


Ordering data						
	Description	Size	Product weight [g]	Part no.	Type	
	Mounting adapter for quarter turn actuators with interface to VDI/VDE 3845	30x80, height 20 mm	354	8148117	CAFM-M1-K-N1-AA1	
		30x80, height 30 mm	385	8148118	CAFM-M1-K-N1-AA2	
		30x130, height 30 mm	462	8148119	CAFM-M1-K-N1-AA3	
		30x130, height 50 mm	524	8148120	CAFM-M1-K-N1-AA4	
Ordering data						
	Description	Type of mounting		Part no.	Type	
	Coupling	To VDI/VDE 3845		8154713	CAFM-M1-CK-N1	
		To VDI/VDE 3847-2		8154714	CAFM-M1-CK-N3	
Ordering data						
	Description			Part no.	Type	
	Valve terminal for direct mounting on positioners and actuators with interface to VDI/VDE 3847-2 for implementing additional pneumatic functions			8141655	VTOP-	
Ordering data						
	Description			Part no.	Type	
	Control plate for direct mounting on positioners and actuators with interface to VDI/VDE 3847-2			8104802	DADG-FM-F9-VDE2	
	Adapter kit for mounting the control plate DADG-FM-F9-VDE2 on DFPD-80-...-C-VDE2 to DFPD-160-...-C-VDE2			8125947	DADG-AK-F9-1	
	Adapter kit for mounting the control plate DADG-FM-F9-VDE2 on DFPD-2300-...-C-VDE2			8104804	DADG-AK-F9-2	
Ordering data						
	Description			Part no.	Type	
	Adapter kit for linear actuator DFPI-...-E-NB3P			3179433	DADG-AK-F6-A2	
Ordering data						
	Description	Display range	Nominal size, pressure gauge	Pneumatic connection	Part no.	Type
	Pressure gauge with display unit in bar and psi	<ul style="list-style-type: none"> Outer scale 0 ... 10 bar Inner scale 0 ... 140 psi 	26	G1/8 with sealing ring	8088985	PAGN-26-10-G18S
		<ul style="list-style-type: none"> Outer scale 0 ... 1 MPa 	26	G1/8 with sealing ring	8088986	PAGN-26-1M-G18S
		<ul style="list-style-type: none"> Outer scale 0 ... 10 bar Inner scale 0 ... 145 psi 	23	R1/8	183897	MA-23-10-R1/8

Accessories

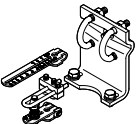
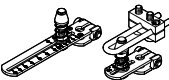
Ordering data							
	Description	Connection	Material	Colour	EU certification	Part no.	Type
	Cable connector	M20x1.5	Polymer	Black	–	4464895	NETC-P-M20
		M20x1.5	PA	Black	–	8151590	NETC-M20-PBK-T14
		M20x1.5	Polymer	Blue	II 2GD	4197362	NETC-P-M20-EX4
	Cable connector with enhanced safety	M20x1.5	PA	Blue/black	II 2GD	8151587	NETC-M20-PBU-T26-EX4-E
		M20x1.5	PA	Black	II 2GD	8151588	NETC-M20-PBK-T26-EX4-E
	Plug screw	M20x1.5	PA	Black	–	8151591	NETC-P-M20-PBK-T14
	Plug screw with enhanced safety	M20x1.5	PA	Black	II 2GD	8151589	NETC-P-M20-PBK-T26-EX4-E

Ordering data						
	Description	Pneumatic connection		Part no.	Type	PU ¹⁾
		Male thread	For tubing O.D.			
	Push-in fitting	G1/4	10	★ 186101	QS-G1/4-10	10
		R1/4	10	★ 153007	QS-1/4-10	10

1) Packaging unit

Ordering data						
	Description	Pneumatic connection		Part no.	Type	PU ¹⁾
	Silencer for noise reduction and avoiding contamination at the exhaust ports	G1/4		★ 2316	U-1/4	1
		G1/4		6842	U-1/4-B	1
		G1/4		★ 1206623	AMTE-M-H-G14	20
		G1/4		★ 1205861	AMTE-M-LH-G14	20
		1/4 NPT		1206990	AMTE-M-LH-N14	20

1) Packaging unit

Ordering data				
	Description	Plug pattern	Part no.	Type
	Mounting kit	Linear actuators to IEC 60534-6-1, NAMUR 004	8091822	CAFM-M1-K-N2
	Reduced mounting kit		8091823	CAFM-M1-K-R1-N2