

Positioner CMSH

FESTO



Characteristics

At a glance

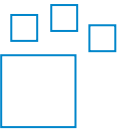
The CMSH is an intelligent digital positioner. It controls the position of a process valve that is actuated by a pneumatic actuator. Thanks to the large ambient temperature range of $-40 \dots +80 \text{ }^\circ\text{C}$ and its high degree of protection (IP66/IP67), it can also be used under harsh ambient conditions.

The CMSH is a 4 ... 20 mA 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 available for single- or double-acting actuators with fail-safe, or fail in place safety positions. The product is suitable for mounting on actuators with a mechanical interface according to VDI/VDE3845-1 (IEC60534-6-2) or VDI/VDE3847-2.

The product variant CMSH-S... has an internal position sensor for displacement/angular detection. Alternatively, an external potentiometric position sensor can be connected to the positioner on all product variants.

Ordering data - modular system

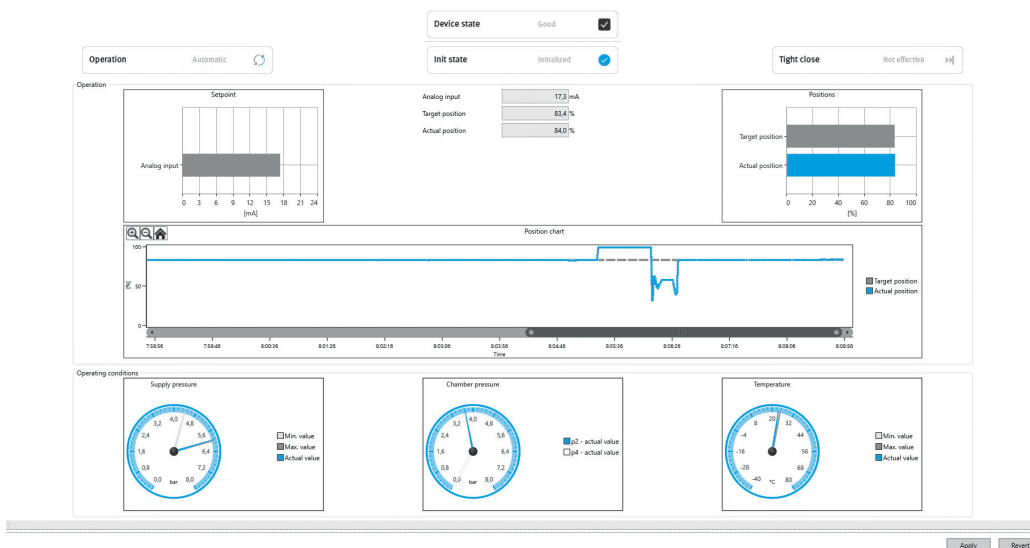
[Link !\[\]\(de95854c7ee024cfadc48187bbb781b2_img.jpg\) cmsh](#)



Configurable product

This product and all its product options can be ordered online via the configurator.

Overview



Integration into higher-level systems

- Simple integration using EDD (Electronic Device Description) or FDT (Field Device Tool) based transmission of information to higher-level DCS (Distributed Control Systems) and asset management tools
- Configuring and commissioning with a clear and user-friendly interface
- Fast access to the required additional information for maintenance and diagnostics
- Further information on the EDD or FDT software www.festo.com/catalogue/cmsh → Downloads

Design type

[S] Positioner, displacement/integrated angular position detection

- With internal position sensor for detecting displacement/angle
- Alternatively, an external potentiometric position sensor can be connected with this version of the product.

[SE] Positioner, displacement/external angular position detection

- Suitable for connecting an external potentiometric displacement/angle sensor
- Variant does not have a position indicator

Characteristics

[SE1] Positioner, external displacement/angle detection, without inspection window

- Suitable for connecting an external potentiometric displacement/angle sensor
- Variant does not contain an internal displacement/angle sensor
- Without inspection window

[SX1] Positioner, integrated displacement/angle detection, without position indicator and without inspection window

- Suitable for connecting an external potentiometric displacement/angle sensor
- With internal position sensor for detecting displacement/angle
- Variant does not have a position indicator
- Without inspection window

Mechanical interface

[VDE1] VDI/VDE 3845

- Suitable for mounting on actuators with a mechanical interface in accordance with VDI/VDE 3845-1 (IEC 60534-6-2)
- Use mounting flange adapter according to VDI/VDE 3845-1, IEC 60534-6-2 see accessories CAFM

[VDE2] VDI/VDE 3847-2

- Suitable for mounting on actuators with a mechanical interface according to VDI/VDE 3847-2
- Use mounting kit according to VDI/VDE 3847-2, see accessories CAFM

Function

[S] Single-acting

Suitable for single-acting actuators

[SD] Double-acting/single-acting, switchable

- Suitable for single-acting or double-acting drives
- The pneumatic manifold block CAPS determines the type of function of the positioner, see accessories CAPS
- The pneumatic manifold CAPS required for operation is not pre-assembled and is not in the scope of delivery

[D] Double-acting

Suitable for double-acting actuators

Safety position

[A] Exhaust

- If the electrical power supply fails, the pneumatic output (2) on the positioner is exhausted
- The pneumatic output (4) on the positioner is also exhausted in the case of double-acting drives.

[C] Hold the last position

If the electrical power supply fails, the pneumatic outputs (2) and (4) on the positioner are closed

Pneumatic connection

[G14] G1/4

Pneumatic connection for fittings with G1/4 male thread

[N14] 1/4 NPT

Pneumatic connection for fittings with 1/4 NPT male thread

Connecting thread

[M20] M20

Connecting thread for cable fitting or plug screw with M20 thread

[N12] 1/2 NPT

Connecting thread for cable fitting or plug screw with 1/2 NPT thread

I/O variant

[V2] 1 digital input, 2 digital outputs and 1 analogue output

- 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

Characteristics

Pressure gauge connection

[V] Prepared

- 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

EU certification

[EX3] II 2G

Explosion protection

[EX4] II 2GD

Explosion protection

Type of ignition protection

[A] Intrinsically safe

Explosion protection

Type code

001	Series	
CMSH	Positioner CMSH	
002	Design type	
S	Positioner, displacement/integrated angular position detection	
SE	Positioner, displacement/external angular position detection	
SE1	Positioner, external displacement/angle detection, without inspection window	
SX1	Positioner, integrated displacement/angle detection, without position indicator and without inspection window	
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	1 digital input, 2 digital outputs and 1 analogue output	
012	Pressure gauge connection	
	Without	
V	Prepared	
013	EU certification	
	None	
EX3	II 2G	
EX4	II 2GD	
014	Type of ignition protection	
	None	
A	Intrinsically safe	

Datasheet

General technical data		
Design type	Positioner, displacement/integrated angular position detection	Positioner, displacement/external angular position detection
Design	Digital, electropneumatic positioner	
Mode of operation	Double-acting, Single-acting	Double-acting
Design characteristics	Safety pneumatic output 2 exhausted, Safety pneumatic output 4 pressurised	
Mounting position	optional	
Type of mounting	With accessories, To VDI/VDE 3845	
Functional principle of measuring system	Potentiometer	External
Sensing range	0 ... 115 deg	–
Display	LCD display, via software 90° rotatable	
Setting options	Via display and keys	
Cycle time	20 ms	
Nominal altitude of use	<= 2000 m NHN	
Overvoltage category	II	
Product weight	2,055 ... 2,640 g	2,520 g

Pneumatic characteristics		
Design type	Positioner, displacement/integrated angular position detection	Positioner, displacement/external angular position detection
Operating pressure	1.4 ... 8 bar	
Operating pressure	0.14 ... 0.8 MPa	
Operating pressure	20.3 ... 116 psi	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating and pilot medium	Lubricated operation not possible	
Air flow rate at $\Delta p = 6$ bar	270 ... 380 l/min	270 l/min
Pneumatic connection	G1/4, 1/4 NPT, With specific accessories	G1/4

Datasheet

Characteristic electrical data	
Reverse polarity protection	yes
Connection resistance	3 - 80 kOhm
digital input, signal range	4 - 20 mA with HART
Analogue inputs, input impedance	480 ohm at 20 mA
Analog inputs, overload protection	<65 mA
Analogue inputs, electrical isolation	yes
Analogue outputs, functional principle	Regulated power source with external supply
digital output, signal range	4 - 20 mA
Analogue outputs, supply voltage	24
Analogue outputs, reverse polarity protection	yes
Analog outputs, short circuit current rating	yes
Analog outputs, overload protection	yes
Analogue outputs, galvanic isolation	yes
Characteristic for inputs	1x to IEC 61131-2, type 3, 2x to IEC 61131-2, type 3
Digital inputs, reverse polarity protection	yes
Digital inputs, electrical isolation	yes
Digital inputs, overload protection	33 V
Switching output ¹⁾	2x to IEC 60947-5-6 or 2x to DIN EN 61131-2 type 2, switchable
Digital outputs, supply voltage	8.2 V, 24 V
Digital outputs, short circuit current rating	yes
Digital outputs, overload protection	Yes, <30 V
Digital outputs, electrical isolation	yes
Electrical connection 1, function	Analogue input, Digital input, External path/angle sensor
Electrical connection 1, connection type	Terminal strip
Electrical connection 1, connector system	Spring-loaded terminal
Electrical connection 1, number of connections/cores	7
Electrical connection 2, function	2x digital output, Analogue output, Digital input
Electrical connection 2, connection type	Terminal strip
Electrical connection 2, connector system	Spring-loaded terminal
Electrical connection 2, number of connections/cores	8
Cable fitting	2x 1/2 NPT, 2x M20x1.5
Max. cable length	30 m for external position sensor, Shielded

1) Selection NAMUR output or PLC output configurable via software.

Datasheet

Operating and environmental conditions

Ambient temperature	-40 ... 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
Operating pressure	1.4 ... 8 bar
Approval	RCM trademark
Conforms to standard	NAMUR NE 21
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating and pilot medium	Lubricated operation not possible
CE mark (see declaration of conformity) ¹⁾	To EU EMC Directive, To EU Explosion Protection Directive (ATEX), In accordance with EU RoHS Directive

1) More information www.festo.com/sp Certificates.

Materials

Material housing	Aluminium, powder-coated
Material screen	PC
Material shaft	High-alloy stainless steel
Material coupling	High-alloy stainless steel
Material screws	Galvanised steel
Material seals	EPDM, NBR, VMQ
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III

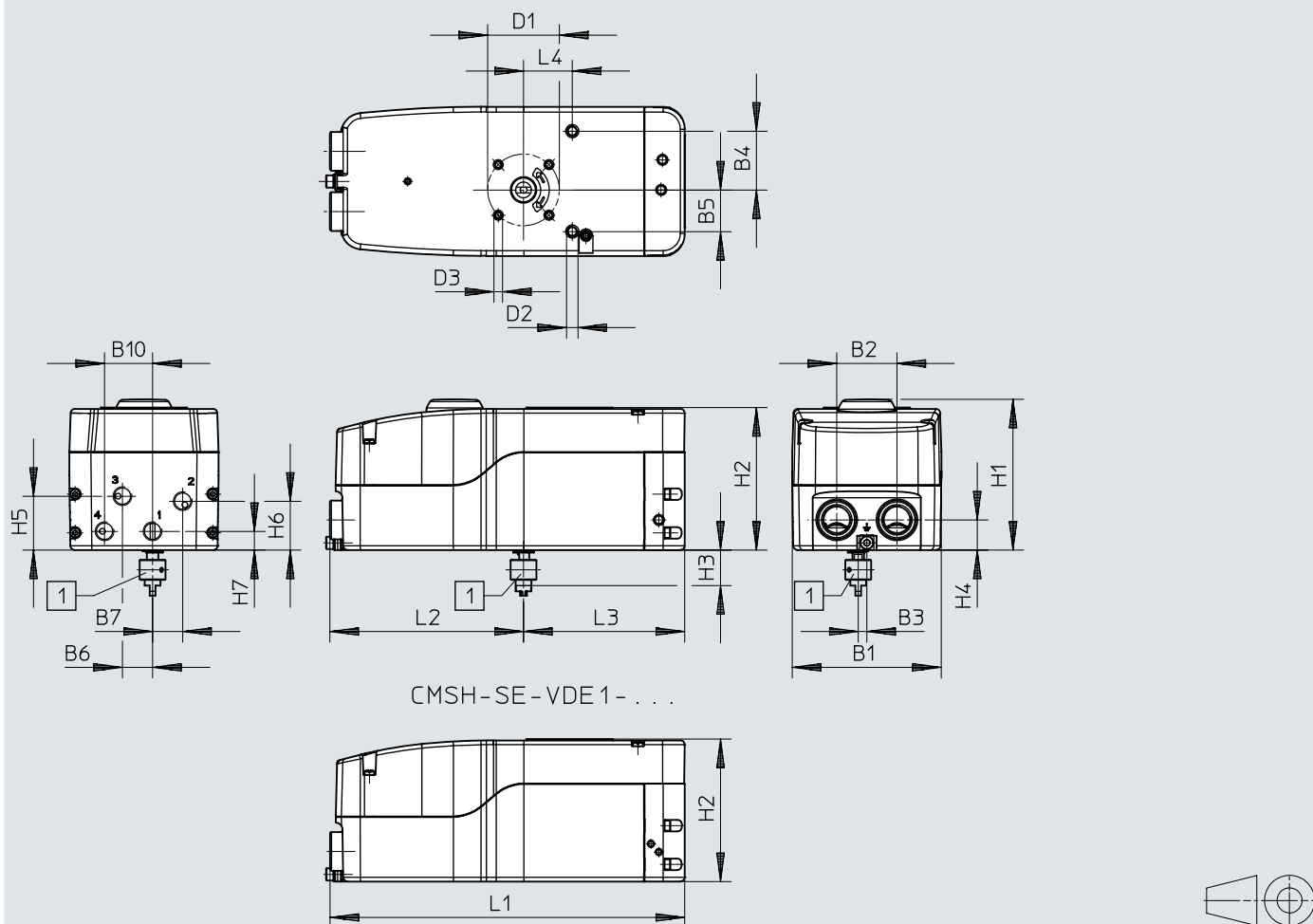
ATEX

ATEX category gas	II (1) 2G, II 2G
Explosion ignition protection type for gas	Ex ia [ia Ga] IIC T4/T6 Gb, Ex ib IIC T4/T6 Gb
Explosion ambient temperature	-40°C ≤ Ta ≤ +135°C, T4: -40°C ≤ Ta ≤ +80°C, T6: -40°C ≤ Ta ≤ +50°C
Certificate issuing authority	BVS 23 ATEX E004, DNV 24.0177, IECEx BVS 23.0001
Explosion protection certification outside the EU	EPL Db (BR), EPL Db (GB), EPL Db (IEC-EX), EPL Gb (BR), EPL Gb (GB), EPL Gb (IECEx)

Dimensions

Dimensions – CMSH-...-VDE1-...-HA

Download CAD data www.festo.com



CMSH-SE-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											
CMSH-S-VDE1-D-A-AL-N14-C1N12-HA											
CMSH-SE-VDE1-D-A-AL-G14-C1M20-HA							21	33,5			
CMSH-S-V-SD-AL-C1M20-HA											
CMSH-S-V-SD-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-V-SD-AL-C1M20-HA											
CMSH-S-V-SD-AL-C1N12-HA											

Dimensions

Dimensions – CMSH-...-VDE1

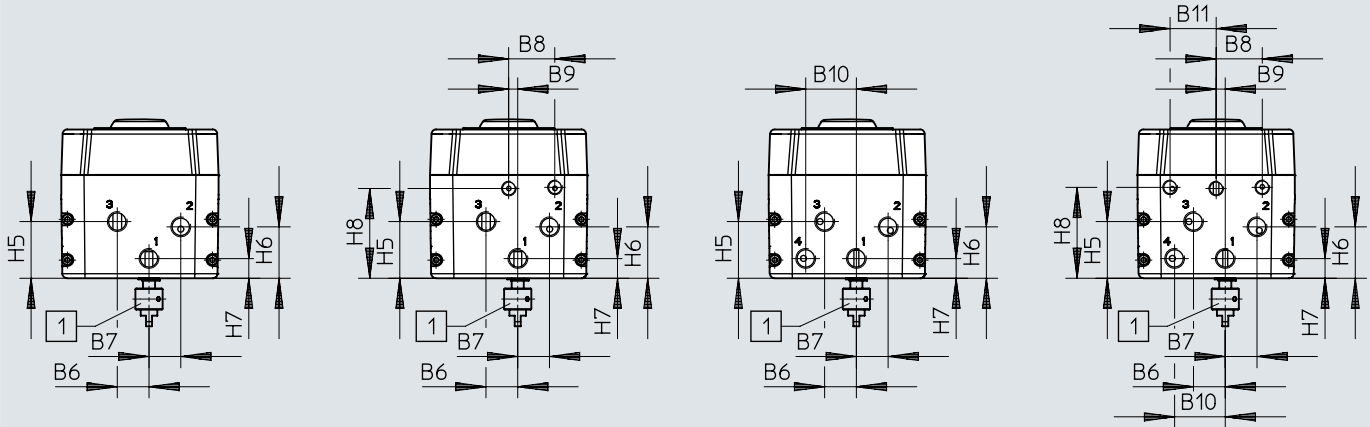
Download CAD data www.festo.com

CMSH-S-VDE1-S-...

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

CMSH-S-VDE1-D-...

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



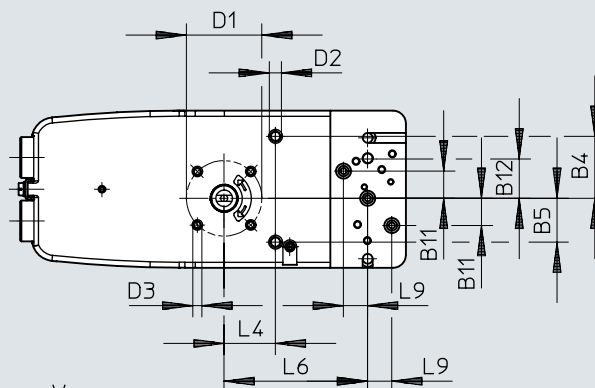
[1] Coupling CAFM-M1-CK-N1

	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

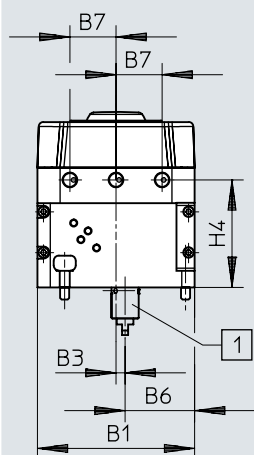
Dimensions

Dimensions – CMSH-...-VDE2

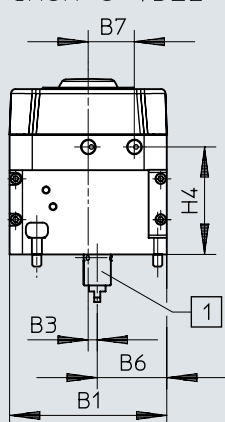
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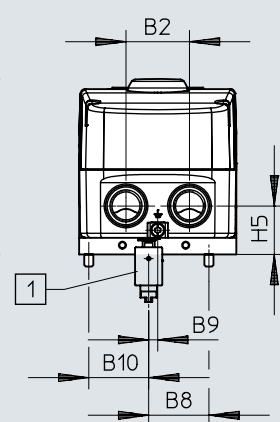
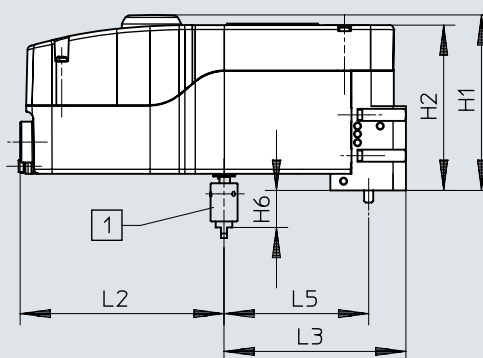
CMSH-S-VDE2-D-...-V-...



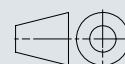
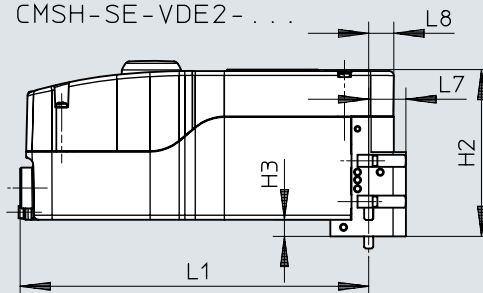
CMSH-S-VDE2-S-...-V-...



CMSH-S-VDE2-...



CMSH-SE-VDE2-...




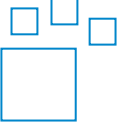
[1] Coupling CAFM-M1-CK-N3

	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-...															

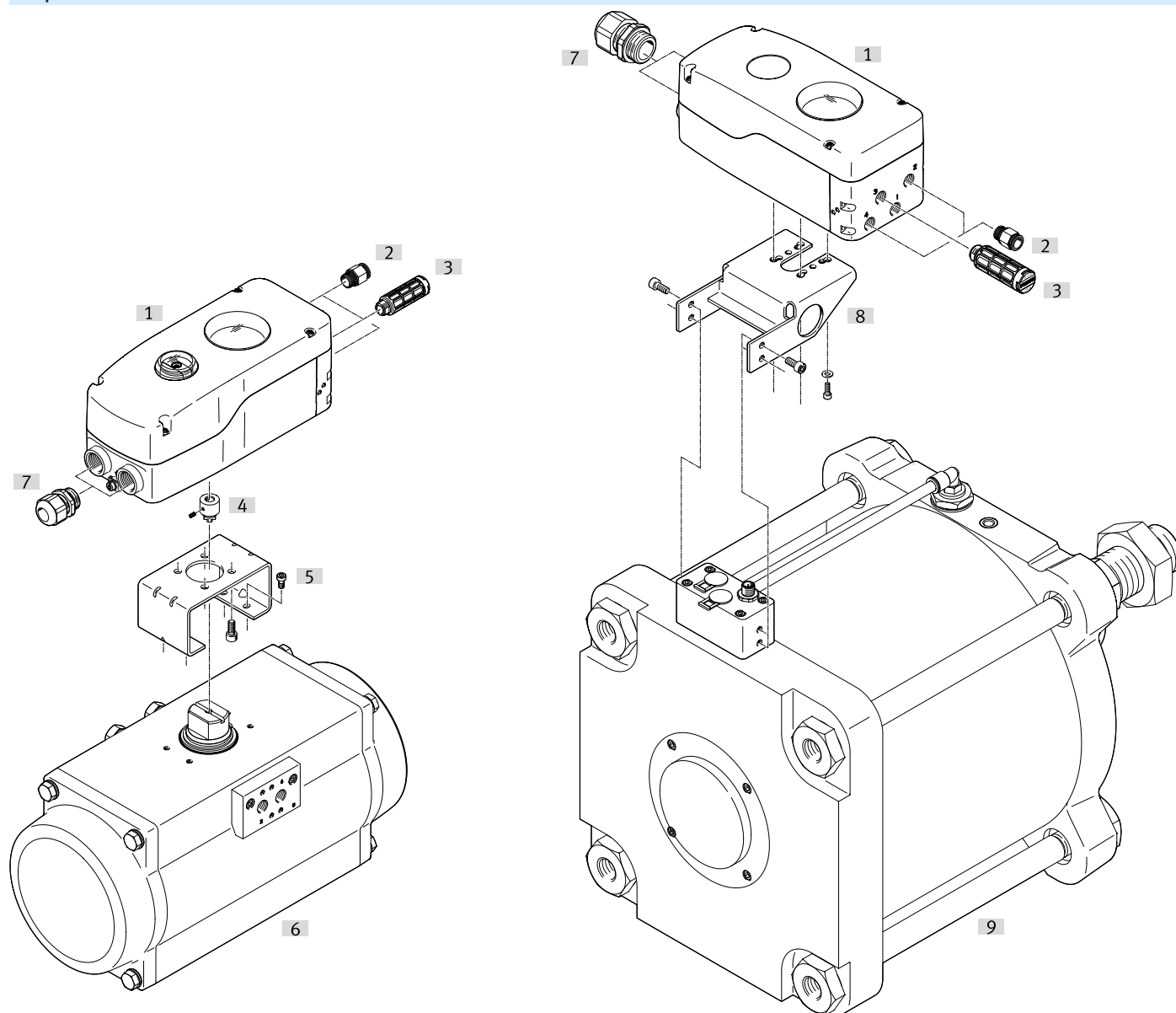
Ordering data

Ordering data							
	Design type	Mechanical interface	Function	Pneumatic connection	Connecting thread	Part no.	Type
	Positioner, displacement/integrated angular position detection	Prepared for sub-base	Double-acting/single-acting, switchable	None	M20	8097425	CMSH-S-V-SD-AL-C1M20-HA
					1/2 NPT	8097426	CMSH-S-V-SD-AL-C1N12-HA
	Positioner, displacement/external angular position detection	VDI/VDE 3845	Double-acting	G1/4	M20	8097420	CMSH-S-VDE1-D-A-AL-G14-C1M20-HA
				1/4 NPT	1/2 NPT	8097421	CMSH-S-VDE1-D-A-AL-N14-C1N12-HA
			Single-acting	G1/4	M20	8097412	CMSH-S-VDE1-S-A-AL-G14-C1M20-HA
				1/4 NPT	1/2 NPT	8097413	CMSH-S-VDE1-S-A-AL-N14-C1N12-HA
			Double-acting	G1/4	M20	8097423	CMSH-SE-VDE1-D-A-AL-G14-C1M20-HA

Ordering information – modular product system						
	Design	Type of mounting	Material housing	Product weight	Part no.	Type
	Digital, electro-pneumatic positioner	With accessories, To VDI/VDE 3845, To VDI/VDE 3847-2	Aluminium, powder-coated	2,045 ... 2820 g	8148076	CMSH-

Peripherals

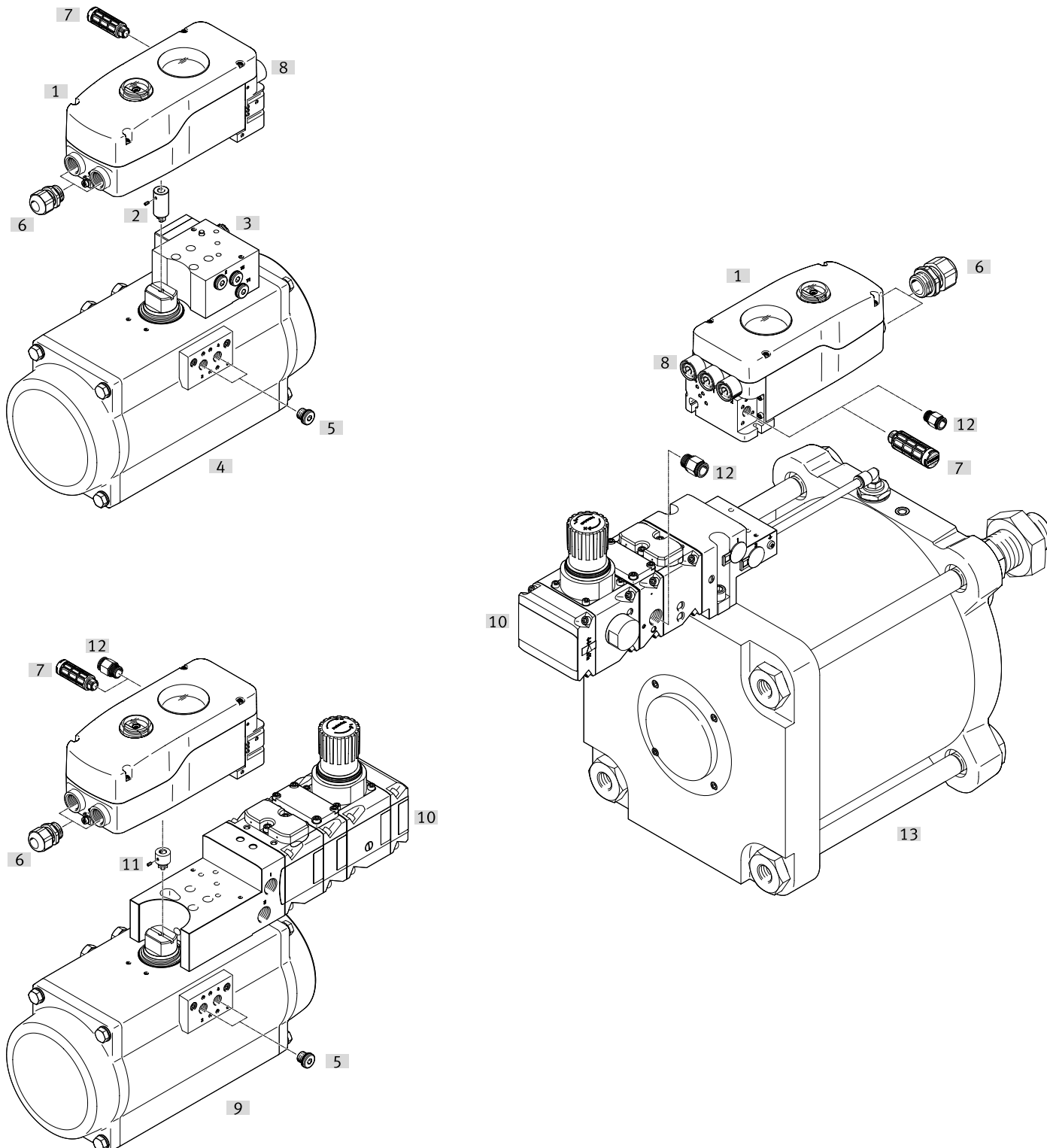
Peripherals overview CMSH-...-VDE1



Accessories			→ Link
Type/order code	Description		
[1] Positioner CMSH	Intelligent, digital positioner with HART communication		cmsh
[2] Push-in fitting QS	For connecting tubing with standard O.D.		19
[3] Silencer	To reduce noise and avoid contamination at exhaust ports		19
[4] Coupling CAFM-M1-CK-N1	For mounting positioners and quarter turn actuators for process automation with a VDI/VDE 3845-1 interface		17
[5] Mounting flange adapter CAFM-M1-K-N1-...	For mounting positioners and quarter turn actuators for process automation with a VDI/VDE 3845-1 interface		17
[6] Quarter turn actuator DFPD	<ul style="list-style-type: none"> Semi-rotary drive with rack-and-pinion combination Connection pattern according to VDI/VDE 3845-1 		dfpd
[7] Cable fitting NETC-P-M20-...	M20x1.5 made of polymer		19
[8] Adapter kit DADG	For direct mounting of positioners on linear actuator DFPI		18
[9] Linear actuator DFPI-...-E-NB3	<ul style="list-style-type: none"> Adjustable linear actuators based on ISO 15552 With integrated displacement encoder 		dfpi

Peripherals

Peripherals overview CMSH-...-VDE2



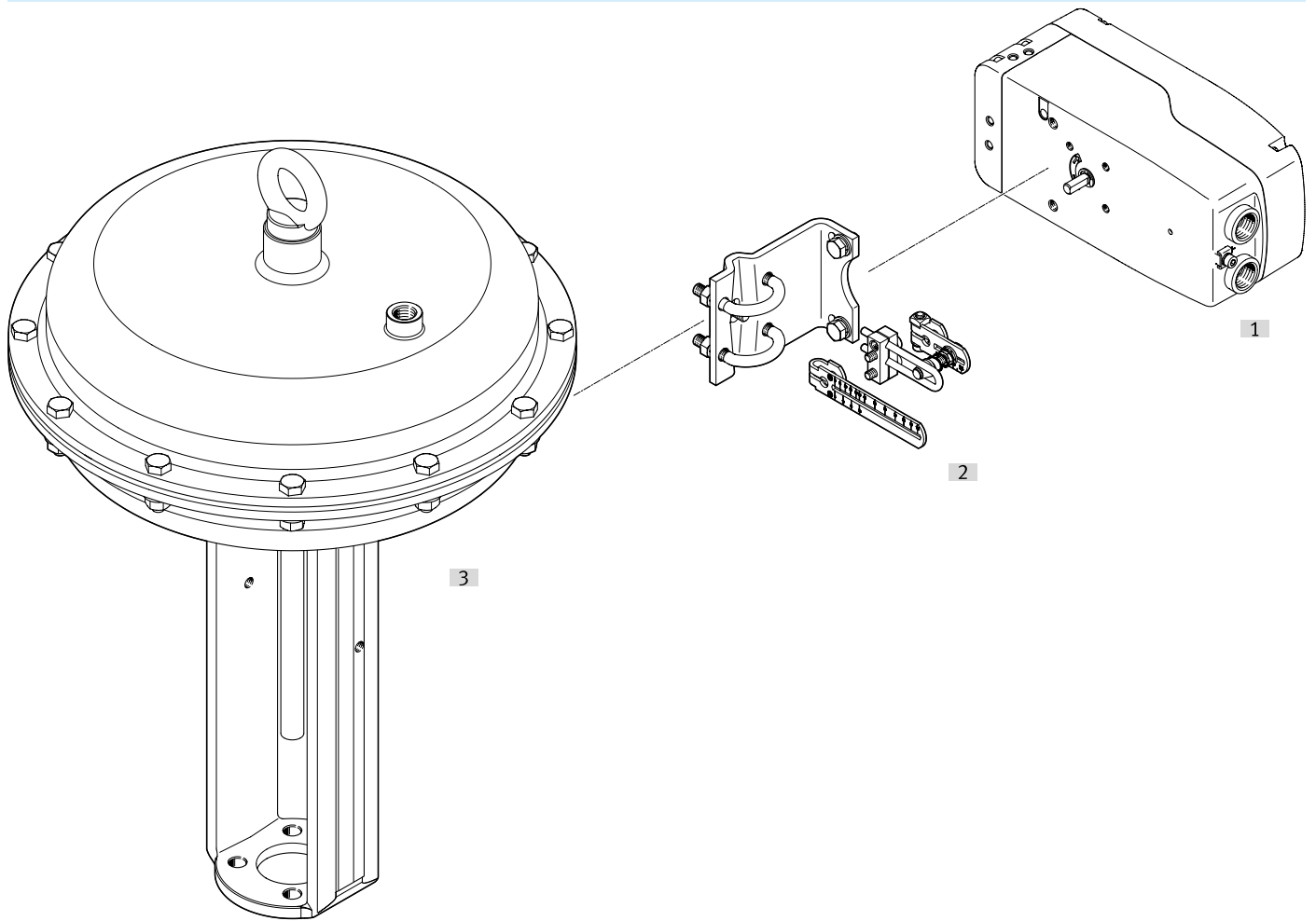
Accessories		→ Link
Type/order code	Description	
[1] Positioner CMSH-SE-VDE2-D-...	Intelligent, digital positioner with HART communication	cmsh
[2] Coupling CAFM-M1-CK-N3	For mounting positioners and quarter turn actuators for process automation with a VDI/VDE 3847-2 interface	17
[3] Control plate DADG-FM-F9-VDE2	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"> Semi-rotary drive with rack-and-pinion combination Connection pattern according to VDI/VDE 3847-2 	dfpd

Peripherals

Accessories		→ Link
Type/order code	Description	
[5] Blanking plug B	With hexagon socket and sealing ring	b
[6] Cable fitting NETC-P-M20-...	M20x1.5 made of polymer	19
[7] Silencer	For reducing noise and prevent contamination at the exhaust ports	19
[8] Push-in fitting QS	For connecting tubing with standard O.D.	19
[9] Valve manifold VTOP	For implementing additional pneumatic functions	18
[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 connecting the valve terminal VTOP 	dfpi
[11] Pressure gauges	Display unit in MPa, bar and psi	18
[12] Positioner CMSH-SE-VDE1-...	Intelligent, digital positioner with HART communication	cmsh

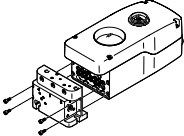
Peripherals

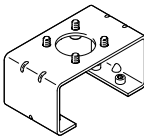
Peripherals overview CMSH-...-VDE1 with mounting kit for diaphragm actuators




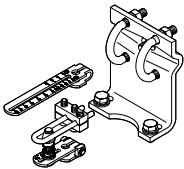
Accessories		→ Link
Type/order code	Description	
[1] Positioner CMSH	Intelligent, digital positioner with HART communication	cmsh
[2] Mounting kit CAFM-M1-K...	Mounting kit for linear drives according to IEC 60534-6-1, NAMUR 004	17
[3] Diaphragm actuators according to IEC60534-6-1, NAMUR 004	Diaphragm actuator with interface according to IEC 60534-6-1, NAMUR 004	

Accessories

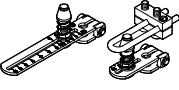
Electrical connection block CAPS					
	Mode of operation	Mechanical interface	Design characteristics	Part no.	Type
	Double-acting	VDI/VDE 3845	Safety position - pneumatic outlets closed	8154586	CAPS-M1-VDE1-D-C-AL-N14
				8154585	CAPS-M1-VDE1-D-C-AL-G14-V
				8154587	CAPS-M1-VDE1-D-C-AL-N14-V
				8154584	CAPS-M1-VDE1-D-C-AL-G14
			8154580	CAPS-M1-VDE1-D-A-AL-G14	
			8154582	CAPS-M1-VDE1-D-A-AL-N14	
			8154581	CAPS-M1-VDE1-D-A-AL-G14-V	
		VDI/VDE 3847-2	Safety position - pneumatic outlets closed	8154599	CAPS-M1-VDE2-D-C-AL-N14-V
				8154598	CAPS-M1-VDE2-D-C-AL-N14
				8154597	CAPS-M1-VDE2-D-C-AL-G14-V
				8154596	CAPS-M1-VDE2-D-C-AL-G14
			Safety pneumatic output 2 exhausted, Safety pneumatic output 4 pressurised	8154593	CAPS-M1-VDE2-D-A-AL-G14-V
				8154592	CAPS-M1-VDE2-D-A-AL-G14
				8154595	CAPS-M1-VDE2-D-A-AL-N14-V
	Single-acting	VDI/VDE 3845	Safety pneumatic output 2 exhausted	8154578	CAPS-M1-VDE1-S-A-AL-N14
				8154579	CAPS-M1-VDE1-S-A-AL-N14-V
				8154576	CAPS-M1-VDE1-S-A-AL-G14
		VDI/VDE 3847-2	Safety pneumatic output 2 exhausted	8154577	CAPS-M1-VDE1-S-A-AL-G14-V
				8154589	CAPS-M1-VDE2-S-A-AL-G14-V
				8154588	CAPS-M1-VDE2-S-A-AL-G14
			8154591	CAPS-M1-VDE2-S-A-AL-N14-V	
			8154590	CAPS-M1-VDE2-S-A-AL-N14	

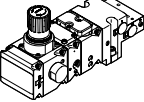
Mounting adapter				
	Size	Product weight	Part no.	Type
	AA 1 to VDI/VDE 3845	354 g	8148117	CAF-M1-K-N1-AA1
	AA 2 to VDI/VDE 3845	385 g	8148118	CAF-M1-K-N1-AA2
	AA 3 to VDI/VDE 3845	462 g	8148119	CAF-M1-K-N1-AA3
	AA 4 to VDI/VDE 3845	524 g	8148120	CAF-M1-K-N1-AA4

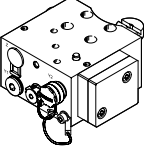
Coupling				
	Type of mounting	Product weight	Part no.	Type
	To VDI/VDE 3845	27 g	8154713	CAF-M1-CK-N1
	To VDI/VDE 3847-2	47 g	8154714	CAF-M1-CK-N3

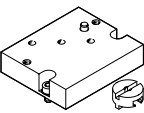
Mounting kit CAFM			
	Description	Part no.	Type
	For linear drives/diaphragm actuators with interface to IEC 60534-6-1, NAMUR 004	8091822	CAF-M1-K-N2

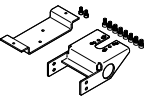
Accessories

Reduced mounting kit CAFM			
	Description	Part no.	Type
	For linear drives/diaphragm actuators with interface to IEC 60534-6-1, NAMUR 004. Set of wearing parts for the mounting kit CAFM-M1-K-N2.	8091823	CAFM-M1-K-R1-N2


Valve terminal					
	Description	Pneumatic connection	Operating pressure	Part no.	Type
	Valve terminal for direct mounting on positioners and actuators with VDI/VDE 3847-2 interface for implementing additional pneumatic functions	Sub-base design, airing	0 ... 9 bar	8141655	VTOP-

Control plate DADG			
	Description	Part no.	Type
	Control plate for direct mounting on positioners and actuators with VDI/VDE 3847-2 interface	8104802	DADG-FM-F9-VDE2

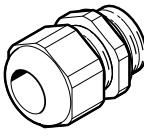
Adapter kit DADG			
	Description	Part no.	Type
	Adapter kit for mounting the control plate DADG-FM-F9-VDE2 on DFPD-2300-...-C-VDE2	8104804	DADG-AK-F9-2
	Adapter kit for mounting the control plate DADG-FM-F9-VDE2 on DFPD-80-...-C-VDE2 to DFPD-160-...-C-VDE2	8125947	DADG-AK-F9-1

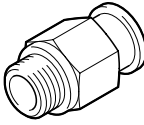
Adapter kit for linear actuator DFPI-...-E-NB3P				
	Size	Ambient temperature ¹⁾	Part no.	Type
	100-320	-20 ... 80 °C	3179433	DADG-AK-F6-A2

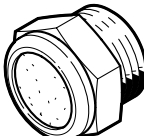
1) Note operating range of the proximity switches and of the cylinder.

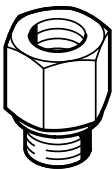
Pressure gauge with display unit							
	Indicating range	Indicating range	Indicating range	Nominal size of pressure gauge	Pneumatic connection	Part no.	Type
	0 ... 10 bar			26	G1/8 with sealing ring	8088985	PAGN-26-10-G18S
		0 ... 145 psi		23	R1/8	183897	MA-23-10-R1/8
			0 ... 1 MPa	26	G1/8 with sealing ring	8088986	PAGN-26-1M-G18S

Accessories

Cable fitting					
	Connection technology 1	Cable diameter	Colour	Part no.	Type
	M20x1.5	4 ... 13 mm	Black	8151591	NETC-P-M20-PBK-T14
				4464895	NETC-P-M20
				8151589	NETC-P-M20-PBK-T26-EX4-E
				8151590	NETC-M20-PBK-T14
				8151588	NETC-M20-PBK-T26-EX4-E
			Blue	8151587	NETC-M20-PBU-T26-EX4-E

Push-in fitting				
	Nominal size	Pneumatic connection, port 1	Part no.	Type
	8.5 mm	Male thread G1/4	★ 186101	QS-G1/4-10
		Male thread R1/4	★ 153007	QS-1/4-10

Silencer					
	Description	Size of pack	Pneumatic connection	Part no.	Type
	Silencers to reduce noise and prevent contamination at exhaust ports	20	G1/4	6842	U-1/4-B
				★ 2316	U-1/4
				★ 1206623	AMTE-M-H-G14
				★ 1205861	AMTE-M-LH-G14
			1/4 NPT	1206990	AMTE-M-LH-N14

Adapter with filter NPFV						
	Nominal size	Material adapter	Material seals	Operating pressure	Part no.	Type
	6 mm	High-alloy stainless steel	NBR	2 ... 8 bar	563398	NPFV-AF-G14-G14-MF
					4727333	NPFV-AF-N14-N14-MF
					563397	NPFV-AF-G14-N14-MF