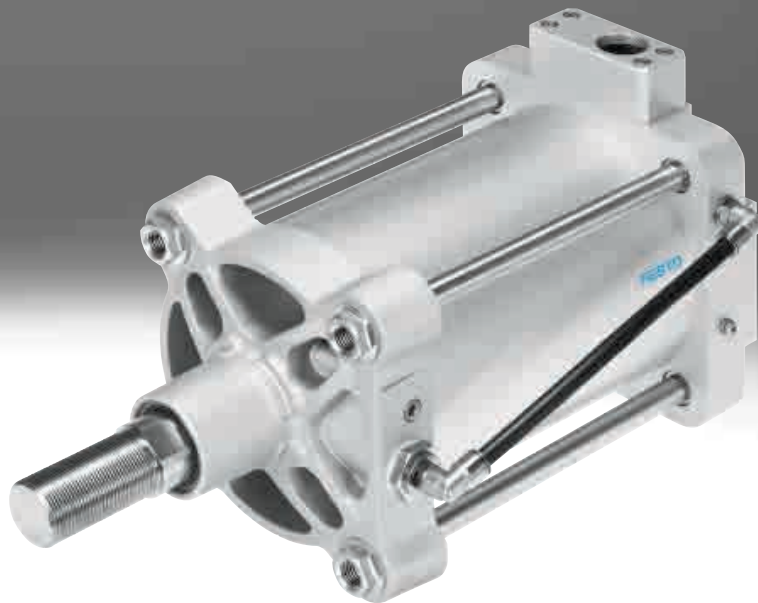


Linear actuators DFPI

FESTO



Key features

Function

DFPIs are adjustable linear actuators. Product versions with an integrated displacement encoder DFPI-...-E-... are available.

The displacement encoder integrated in the DFPI-...-E-... version returns an analogue voltage or current signal proportional to the position of the piston. This can be used for operation with an external positioner. The positions are specified via an analogue setpoint signal 4 ... 20 mA. The position feedback uses an analogue feedback signal of 4 ... 20 mA. The feedback signal guarantees high reliability and simple diagnostics for the operator. The travel speed can be influenced using the integrated flow control screws. Variants with a mounting interface to ISO 15552

are available. The sturdy corrosion-resistant design of the DFPI is ideal for use under harsh ambient conditions.

Innovative

- Ready-to-install, compact unit for easy installation
- Sturdy and corrosion-resistant, ideal for use under harsh ambient conditions
- Suitable for directly attaching a positioner in accordance with VDE/VDI 3847-2 and valve terminal VTOP for additional pneumatic functions. The integrated air supply avoids leakage caused as there are fewer connecting points between the individual components, thus preventing errors

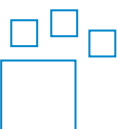
Versatile

- Wide range of accessories for virtually any installation situation
- Suitable for use in potentially explosive locations
- Additional contactless binary end-position sensing possible with proximity switches
- Suitable for applications with closed-loop controlled linear and swivel motions

Design

- Double-acting
- Optionally with integrated displacement encoder or fully integrated positioner
- Sizes \varnothing 100, \varnothing 125, \varnothing 160, \varnothing 200, \varnothing 250 and \varnothing 320
- Stroke lengths 40 to 990 mm
- Mounting interfaces to ISO 15552
- IP65, IP67, IP69K, NEMA4
- ATEX certification

Ordering data – Product options



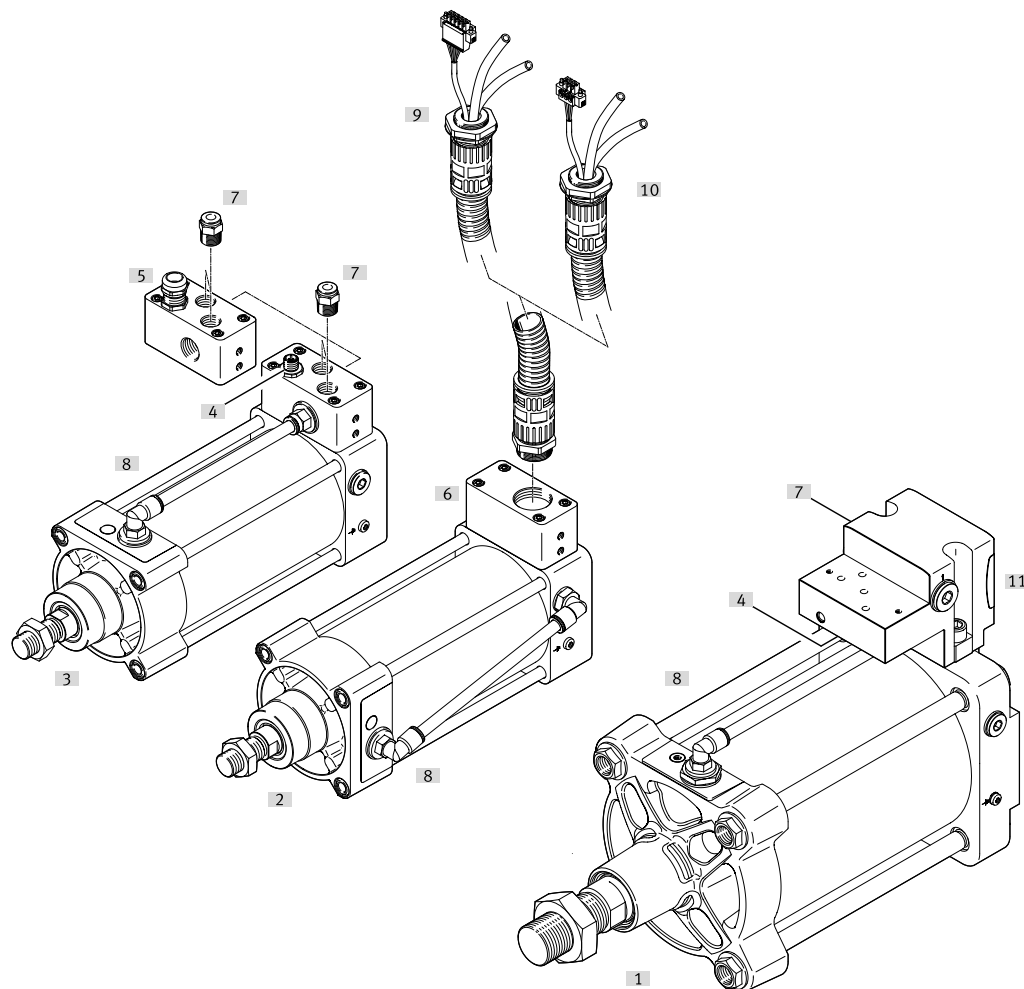
Configurable product
This product and all its product options can be ordered using the configurator.

The configurator can be found under Products on the DVD or at
→ www.festo.com/catalogue/...

Part no.	Type
5078949	DFPI-100
5087658	DFPI-125
5091793	DFPI-160
5092508	DFPI-200
5099770	DFPI-250
5106115	DFPI-320

Key features

Product options for DFPI-...-NB3P... based on ISO 15552

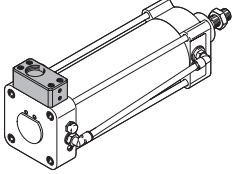
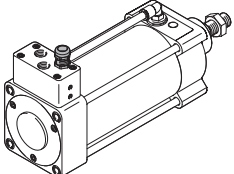
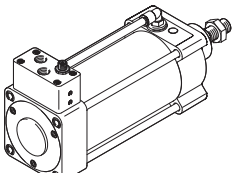
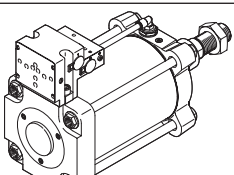


- [1] DFPI-...-ND2P-E-NB3VM12 with piston diameter 160 ... 320
- [2] DFPI-...-C1V-NB3
- [3] DFPI-...-E-NB3...
- [4] M12x1 plug, 5-pin, A-coded
- [5] Cable fitting M16x1.5
- [6] Metal flange socket
- [7] Push-in fitting QS¹⁾
- [8] Air supply on the actuator, stainless steel pipe or plastic tubing
- [9] Connecting cable NHSB¹⁾, 5-core, for DFPI-...-C1V-P-A
- [10] Connecting line NHSB¹⁾ 3-core, for DFPI-...-E-P
- [11] Manifold block for direct attachment of a positioner in accordance with VDE/VDI 3847-2 and valve terminal VTOP for additional pneumatic functions

Product range overview

DFPI-...-E-NB3...

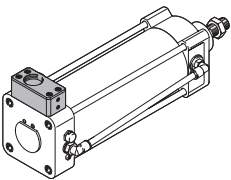
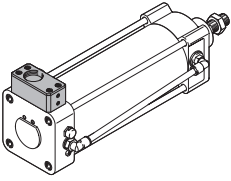
- For operation with an external positioner with analogue voltage input or 4 ... 20 mA current input
- Potentiometric displacement encoder integrated into the actuator DFPI, optionally with integrated 4...20 mA transmitter for analogue current output signal for displacement (DFPI-...ENB3P-...-I-...)
- Sturdy tie rod design
- Double-acting
- Mounting interfaces to ISO 15552 on bearing and end caps

Version	Characteristics		→ page
DFPI-...-E-NB3...	DFPI-...-E-NB3P-...	 <ul style="list-style-type: none"> • Electrical, pneumatic connection using metal flange socket, pre-assembled connecting cable NHSB, see chapter on Accessories • Air supply on the outside of the actuator via plastic tubing 	9
	DFPI-...-E-NB3P9B2-...	 <ul style="list-style-type: none"> • Electrical connection using cable connector M16x1.5, screw terminal • Pneumatic connection G3/8 • Air supply on the outside of the actuator, either using a stainless steel pipe for variant DFPI-...-E-NB3P9B2-M or plastic tubing for variant DFPI-...-E-NB3P9B2 	9
	DFPI-...-E-NB3M12B2-...	 <ul style="list-style-type: none"> • Electrical connection via M12x1 plug, 5-pin • Pneumatic connection G3/8 • Air supply on the outside of the actuator, either using a stainless steel pipe for variant DFPI-...-E-NB3M12B2-M or plastic tubing for variant DFPI-...-E-NB3M12B2 	9
	DFPI-...-ND2P-E-NB3VM12	 <ul style="list-style-type: none"> • Piston \varnothing 160 ... 320 • Direct attachment of a positioner in accordance with VDE/VDI 3847-2 and valve terminal VTOP for additional pneumatic functions • Electrical connection via M12x1 plug, 5-pin • Pneumatic connection G1/2 • Air supply on the outside of the actuator, either using a stainless steel pipe for variant DFPI-...-E-NB3VM12B2-M or plastic tubing for variant DFPI-...-E-NB3VM12B2 	9

Product range overview

DFPI...-C1V-NB3...

- Digital electropneumatic positioner integrated within the actuator housing
- Setpoint input 4 ... 20 mA
- Position feedback 4 ... 20 mA
- Safety position with either retracting or advancing piston rod depending on the product version
- Sturdy tie rod design
- Double-acting
- Mounting interfaces to ISO 15552 on bearing and end caps

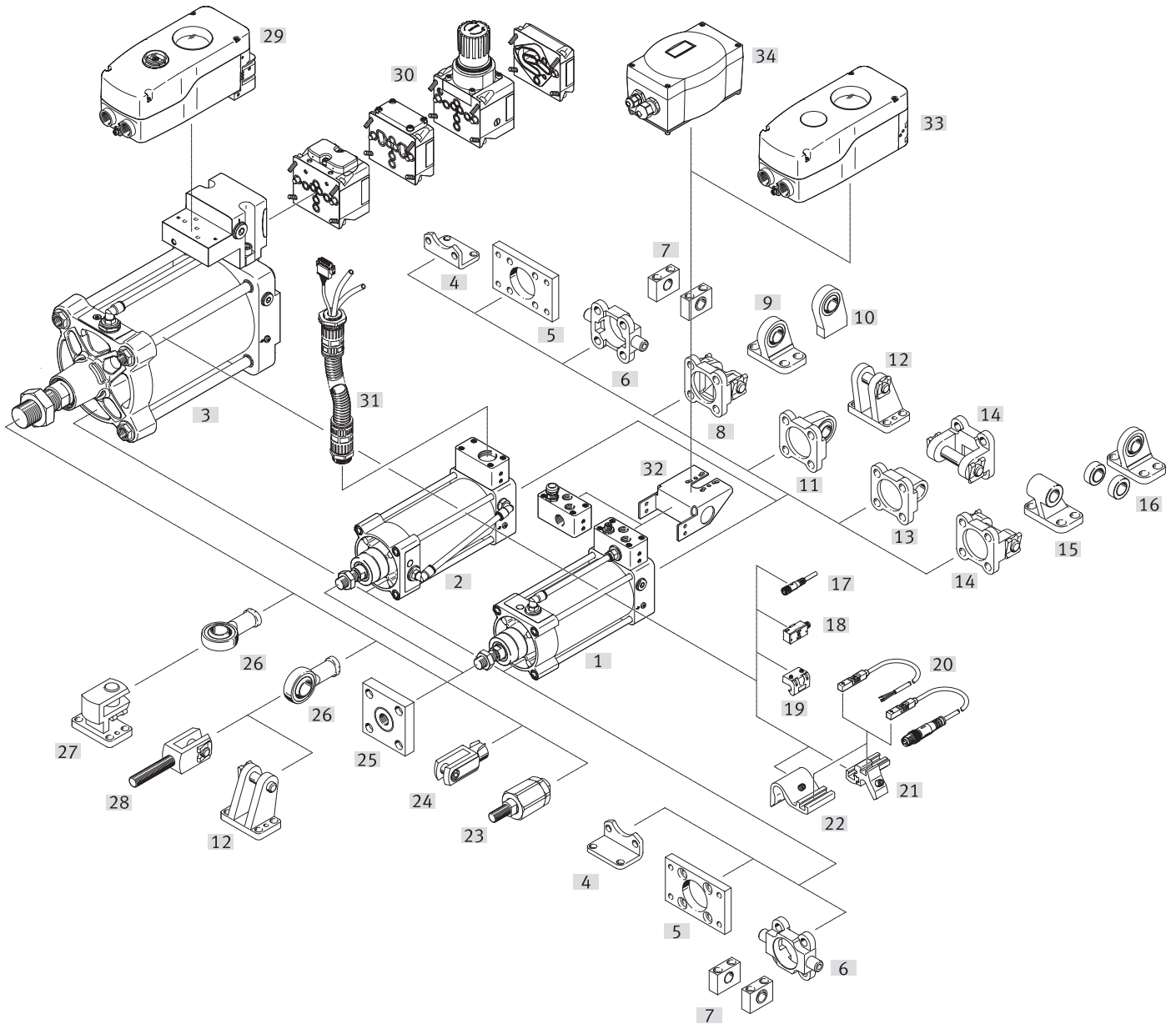
Version	Characteristics		→ page
DFPI...-C1V-NB3	 <p>DFPI...-C1V-NB3P-A</p>	<ul style="list-style-type: none"> • Electrical, pneumatic connection using metal flange socket, pre-assembled connecting cable NHSB, see chapter on Accessories • Air supply on the outside of the actuator via plastic tubing • Safety position if the operating voltage or setpoint signal fails: advancing piston rod 	16
	 <p>DFPI...-C1V-NB3P-R-A</p>	<ul style="list-style-type: none"> • Electrical, pneumatic connection using metal flange socket, pre-assembled connecting cable NHSB, see chapter on Accessories • Air supply on the outside of the actuator via plastic tubing • Safety position if the operating voltage or setpoint signal fails: retracting piston rod 	16

Type codes

001	Series	
DFPI	Linear actuator, closed-loop controlled for process automation	
002	Piston diameter [mm]	
100	100	
125	125	
160	160	
200	200	
250	250	
320	320	
003	Stroke range [mm]	
...	40 ... 990	
004	Cushioning	
N	No cushioning	
005	Displacement encoder	
D2	Analogue	
006	Method of measurement	
P	Potentiometer	
007	Control unit	
	None	
C1	Controller 1	
008	Regulator attachment position	
	Integrated	
E	External	

009	Directional control valve	
	None	
V	Integrated	
010	Standard	
NB3	Based on ISO 15552	
011	Connection type	
	Standard	
P	Protected	
P9	Cable connector M16x1.5	
M12	Plug M12, A-coded	
VM12	Prepared for expansion modules with plug M12, A-coded	
012	Connection type material	
	Standard	
B2	Nickel-plated brass	
V2	Stainless steel (austenitic chromium-nickel/1.4301, 1.4303, 1.4306 (AISI 304L))	
013	Safety position	
	Piston rod advancing	
R	Piston rod retracting	
014	Additional function	
	Standard	
A	Position feedback 4 ... 20 mA	
T	Integrated transducer 4 ... 20 mA	
015	Pneumatic tubing	
	Standard	
M	Metal	

Peripherals overview DFPI based on ISO 15552



Mounting attachments and accessories

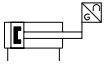
	Description	→ Page/Internet
[1] Linear actuators DFPI-...-E-NB3...	Electrical connection via M12x1 plug, 5-pin or cable fitting M16x1.5, screw terminal	9
[2] Linear actuators DFPI-...-C1V-NB3	Electrical, pneumatic connection using metal flange socket, pre-assembled connecting cable NHSB, see chapter on Accessories	16
[3] Linear actuators DFPI-...-ND2P-E-NB3VM12	<ul style="list-style-type: none"> • Prepared for extension modules with M12 plug, A-coded • Piston \varnothing 160 ... 320 • Configurable product → 2 	9
[4] Foot mounting HNC/CRHNC	For bearing or end caps	25
Foot mounting HNG	For bearing or end caps, corresponds to MS1 to ISO 15552	25
[5] Flange mounting FNC/CRFNG	For bearing or end caps	27
Flange mounting FNG	For bearing or end cap, corresponds to MF1/MF2 to ISO 15552	27
[6] Trunnion flange ZNCF/CRZNG	For bearing or end caps	28




Peripherals overview DFPI based on ISO 15552

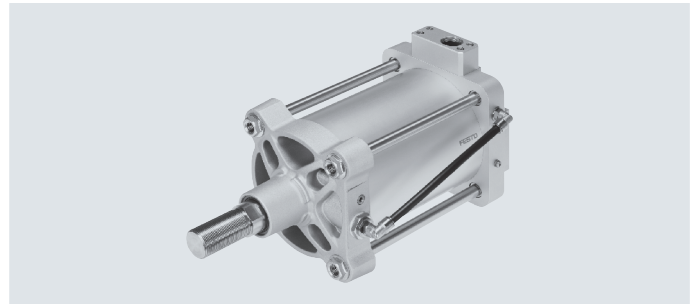
Mounting attachments and accessories		Description	→ Page/Internet
[7]	Trunnion support LNZG/CRLNZG	For trunnion flange ZNCF/CRZNG	29
[8]	Swivel flange SNC	For end caps	30
	Swivel flange SNG	For end caps	30
[9]	Clevis foot LSNG	With spherical bearing	36
[10]	Clevis foot LSNSG	Weld-on, with spherical bearing	36
[11]	Swivel flange SNCS	With spherical bearing for end caps	32
[12]	Clevis foot LBG	For swivel flange SNCS	36
[13]	Swivel flange SNCL	For end caps	33
	Swivel flange SNGL	For end caps, corresponds to MP2 to ISO 15552	33
[14]	Swivel flange SNCB/SNCB-...-R3	For end caps	31
	Swivel flange SNGB	For end caps, corresponds to MP2 to ISO 15552	31
[15]	Clevis foot LNG/CRLNG	For swivel flange SNCB	36
	Clevis foot LN/LNG	For swivel flange SNGB	36
[16]	Clevis foot LSN	With spherical bearing	36
[17]	Connecting cable NEBU	For proximity switch	39
[18]	Proximity switch SMPO-1-H-B	For sensing the piston position	39
[19]	Mounting kit SMBS	For proximity switch SMPO-1-H-B	39
[20]	Proximity switch SMT-8M-A	Magneto-resistive, 5 ... 30 V DC, to EU Explosion Protection Directive (ATEX)	52
	Proximity switch CRSMT-8	Magneto-resistive, corrosion-resistant, to EU Explosion Protection Directive (ATEX)	38
	Proximity switch SDBT	Magneto-resistive, NAMUR, to EU Explosion Protection Directive (ATEX)	38
[21]	Mounting kit SMBZ-8- ...	For proximity switch SME/SMT-8M, with piston diameter 100	38
[22]	Sensor bracket DASP-M4-...	For proximity switch SME/SMT-8M, with piston diameter 125, 160, 200, 250, 320	38
[23]	Self-aligning rod coupler FK/CRFK	To compensate for radial and angular deviations	37
[24]	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	37
[25]	Coupling piece KSG	To compensate for radial deviations	37
[26]	Rod eye SGS/CRSGS	With spherical bearing	37
[27]	Right-angle clevis foot LQG	For rod eye SGS	36
[28]	Rod clevis SGA	With male thread	37
[29]	Positioner CMSH-SE-VDE2-D-...	For directly attaching a positioner in accordance with VDE/VDI 3847-2	39
[30]	Valve terminal VTOP	For additional pneumatic functions	39
[31]	Connecting cable NHSB	For electrical and pneumatic connection of linear actuator DFPI-...P-... <ul style="list-style-type: none"> • 3-core, for DFPI-...-E-P • 5-core, for DFPI-...-C1V-P-A 	23
[32]	Adapter kit DADG-AK-F6-A2	Mounting bracket for mounting a positioner with interface to VDI/VDE 3845 or mounting with a hole spacing of 150 mm	34
[33]	Positioner CMSH-SE-VDE1-D-...	For attaching a positioner in accordance with VDE/VDI 3845-1	39
[34]	Positioner CMSX-P-SE-C-U-F1-D-...	For attaching a positioner in accordance with VDE/VDI 3845-1	39

Datasheet

Function



-  - Piston \varnothing
100 ... 320 mm
-  - Stroke
40 ... 990 mm
-  - Force
4417 ... 46385 N


General technical data

Stroke	[mm]	40 ... 990
Operating mode		Double-acting
Based on standard		ISO 15552
Cushioning		No cushioning
Mounting position		Any
Design		Piston
		Piston rod
		Tie rod
		Cylinder barrel
Position sensing		Via integrated displacement encoder
Pneumatic connection		
DFPI-...-E-NB3P...		With specific accessories, for tubing O.D. 8 mm
DFPI-...-E-NB3M12		G3/8
DFPI-...-E-NB3P9		G3/8
DFPI-...-ND2P-E-NB3VM12		G1/2 for piston diameter 160 ... 320
Electrical connection		
DFPI-...-E-NB3P...		With specific accessories, 3-pin, straight plug, screw terminal
DFPI-...-E-NB3M12B2		M12x1, 5-pin, straight plug, A-coded
DFPI-...-ND2P-E-NB3VM12		M12x1, 5-pin, straight plug, A-coded
DFPI-...-E-NB3M12V2		M12x1, 4-pin, straight plug, A-coded
DFPI-...-E-NB3P9		Cable connector M16x1.5, 3-pin, straight plug, screw terminal
DFPI-...-E-NB3P9 ...T...		Cable connector M16x1.5, 2-pin, straight plug, screw terminal

General electrical data

Measuring principle		Potentiometer
Displacement encoder		
Resistance value of displacement encoder (on TET) as a function of stroke length ¹⁾	[k Ω]	5 Stroke \leq 290 mm
	[k Ω]	10 > 290 ... 590 mm
	[k Ω]	20 > 590 ... 990 mm
Recommended contact current	[μ A]	< 0.1
Max. short-time contact current	[mA]	10
DFPI-...-E-NB3...		
Operating voltage range	[V DC]	0 ... 15
Independent linearity	[%]	\pm 0.04
Repetition accuracy	[mm]	\pm 0.12
Hysteresis	[mm]	0.33
DFPI-...-E-NB3 ...T...		
Power supply		2-wire
Operating voltage range	[V DC]	9 ... 30
Reverse polarity protection		Yes
Analogue output	[mA]	4 ... 20
Independent linearity	[%]	\pm 0.05
Repetition accuracy	[mm]	0.7
Hysteresis	[mm]	0.4

1) TET = theoretical electrical travel

Datasheet

Operating and environmental conditions		DFPI-...-E-NB3 ...T...	DFPI-...-E-NB3...
Type			
Operating pressure	[MPa]	0.3 ... 0.8	
	[bar]	3 ... 8	
Nominal operating pressure	[MPa]	0.6	
	[bar]	6	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/pilot medium		Lubricated operation possible (required for further operation)	
Storage temperature	[°C]	-20 ... +80	
Ambient temperature	[°C]	-20 ... +80	
Relative humidity	[%]	5 ... 100, condensing	
Degree of protection		IP65, IP67, IP69K, NEMA 4	
Vibration resistance to DIN/IEC 68, Part 2-6		Tested to severity level 2	
Continuous shock resistance to DIN/IEC 68, Part 2-82		Tested to severity level 2	
CE marking (see declaration of conformity) ¹⁾	To EU EMC Directive ²⁾	-	
	To EU RoHS Directive	To EU RoHS Directive	
	-	To EU Explosion Protection Directive (ATEX)	
Approval		RMC	-
UKCA marking (see declaration of conformity) ¹⁾		To UK EX regulations	
KC marking		KC EMC (KC certification number EMC/radio R-R-FTO-KC-2019-1020)	-

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

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

ATEX	
ATEX category for gas	II 2G
Type of (ignition) protection for gas	Ex h IIC T4 Gb
ATEX category for dust	II 2D
Type of (ignition) protection for dust	Ex h IIIC T120°C Db
Explosion ambient temperature	-20°C ≤ Ta ≤ +60°C

Forces [N] and impact energy [J]						
Piston ø	100	125	160	200	250	320
Theoretical force at 6 bar, advancing	4712	7363	12064	18850	29452	48255
Theoretical force at 6 bar, retracting	4417	6881	11581	18080	28274	46385
Max. impact energy at the end positions	1.3	1.0	1.4	1.0	1.9	2.4

Permissible impact velocity:

$$v = \sqrt{\frac{2 \cdot E}{m_1 + m_2}}$$

v Permissible impact velocity

E Max. impact energy

m₁ Moving mass (actuator)

m₂ Moving payload

Maximum permissible mass:

$$m_2 = \frac{2 \cdot E}{v^2} - m_1$$

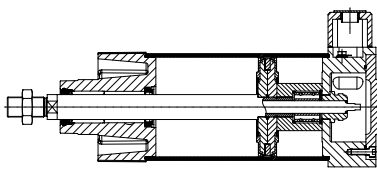
Air consumption [l]						
Piston ø	100	125	160	200	250	320
Air consumption, advancing, per 10 mm stroke	0.549	0.859	1.407	2.119	3.436	5.63
Air consumption, retracting, per 10 mm stroke	0.515	0.803	1.351	2.111	3.299	5.412

Datasheet

Weight [g]	100	125	160	200	250	320
Piston \varnothing						
Basic weight With 0 mm stroke	4900	7500	12800	18100	31100	57700
Additional weight per 10 mm stroke	90	134	200	238	358	582
Moving mass with 0 mm stroke	1060	1900	3700	4800	9300	16500
Additional moving mass per 10 mm stroke	28	53	89	89	134	227

Materials

Sectional view

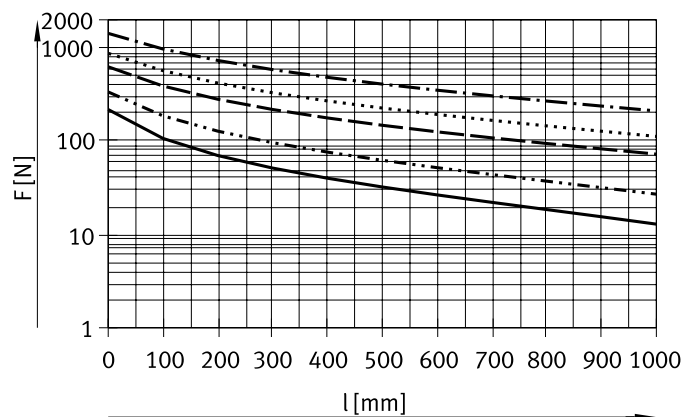


	Piston \varnothing	
[1] Piston rod	100 ... 320	High-alloy stainless steel
[2] Bottom cover	100 ... 320	Coated die-cast aluminium
[3] Cylinder barrel	100 ... 320	Smooth-anodised wrought aluminium alloy
[4] End cap	100 ... 320	Coated wrought aluminium alloy
- Tie rods	100 ... 320	High-alloy stainless steel
- Screws	100 ... 320	Coated steel
		High-alloy stainless steel
- Piston rod wiper seal	100 ... 125	TPE-U (PU)
	160 ... 320	NBR
- M12 plug DFPI-...-E-NB3M12B2	100 ... 320	Nickel-plated brass
- Cable connector DFPI-...-E-NB3P9B2	100 ... 320	Nickel-plated brass
- Air supply for characteristic value M	100 ... 320	Stainless steel pipe or plastic tubing
- Static seals	100 ... 320	NBR
- Note on materials	100 ... 320	RoHS-compliant
		Contains paint-wetting impairment substances

Max. lateral force as a function of stroke length l

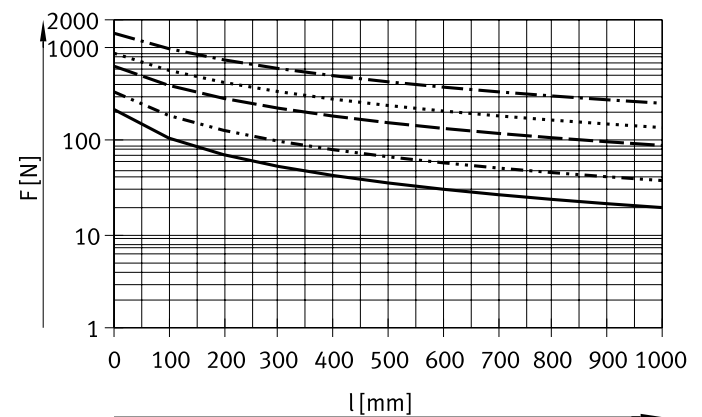
The maximum lateral force (horizontal/vertical) applies to the static application. In closed-loop operation, the maximum lateral force needs to be adjusted to the type of control. If necessary, the piston rod must be guided to avoid system vibration.

Horizontal lateral force



- \varnothing 100
- · - · - \varnothing 125
- - - \varnothing 160, 200
- · · · · \varnothing 250
- · - · - \varnothing 320

Vertical lateral force



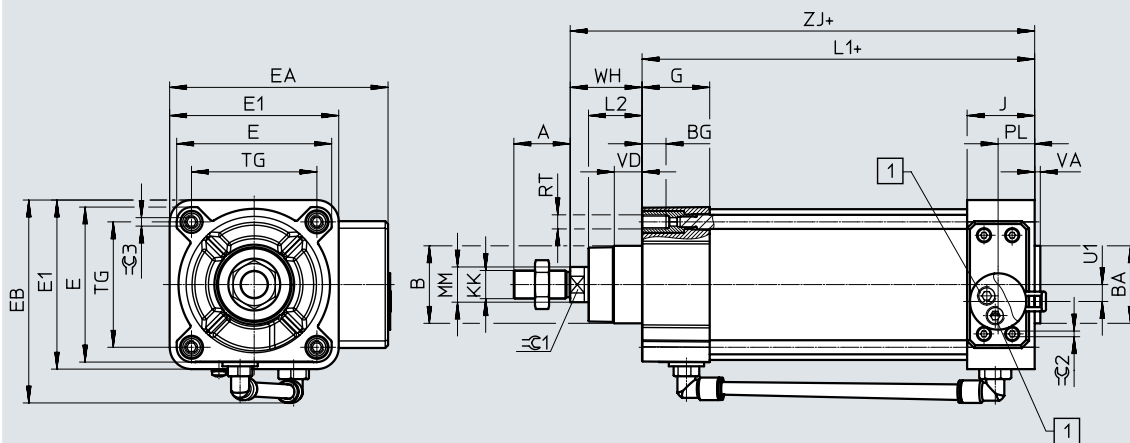
- \varnothing 100
- · - · - \varnothing 125
- - - \varnothing 160, 200
- · · · · \varnothing 250
- · - · - \varnothing 320

Datasheet

Dimensions

Download CAD data → www.festo.com

Piston \varnothing 100, 125



[1] Compressed air supply port – tubing 8 mm
 + = plus stroke length

Piston \varnothing [mm]	A	B \varnothing	BA \varnothing d11	BG	E	E1	EA	EB	G	J	KK	L1
DFPI-100	-0.5	55	55	17	110	120	155	146	48	48	M20x1.5	179
DFPI-125	54	60	60	20	136	145	180	173	44.7		M27x2	200

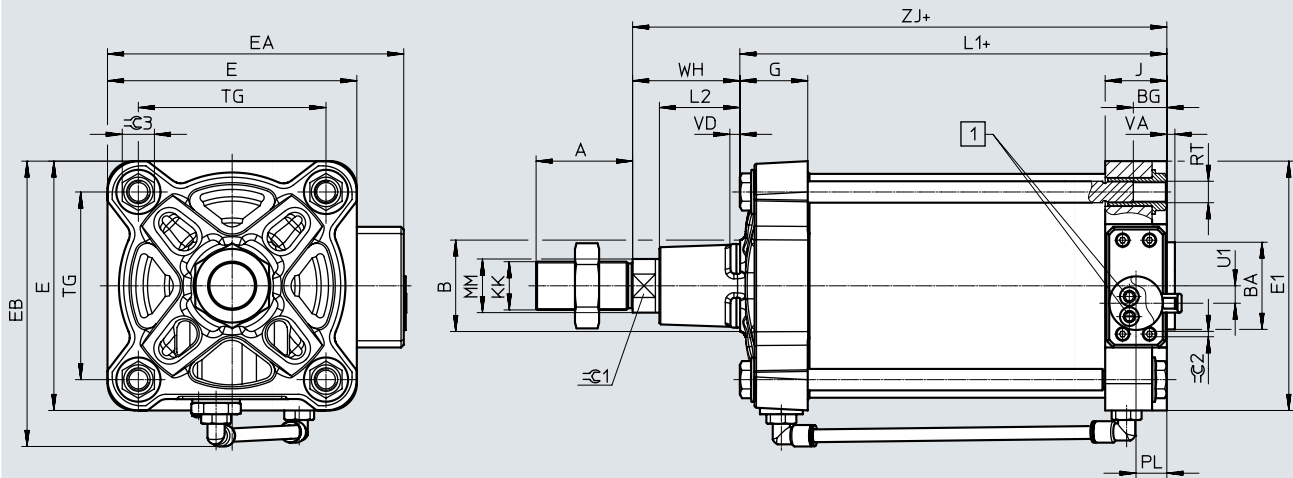
Piston \varnothing [mm]	L2	MM \varnothing	PL	RT	TG	U1	VD	VA	WH	ZJ	\varnothing C1	\varnothing C2	\varnothing C3
DFPI-100	38	25	26	M10	89	12	19.2	4	51 \pm 1.8	229.7	22	4	6
DFPI-125	45.5	32		M12	110	22	20.5	6	65 \pm 2.2	264.7	27		8

Datasheet

Dimensions

Download CAD data → www.festo.com

Piston ø 160, 200, 250, 320



[1] Compressed air supply port – tubing 8 mm
+ = plus stroke length

Piston ø [mm]	A	B ø	BA ø d11	BG	E	E1	EA	EB	G	J	KK	L1
DFPI-160	-0.5	65	65	24	186	186	221	212	51	46	M36x2	219
DFPI-200		75	75		230	230	265	256	47.2			225
DFPI-250	84	90	90	25	284	270	312	312	52	51.5	M42x2	254
DFPI-320	96	110	110	28	347	342	378.5	379	56	58	M48x2	281.2

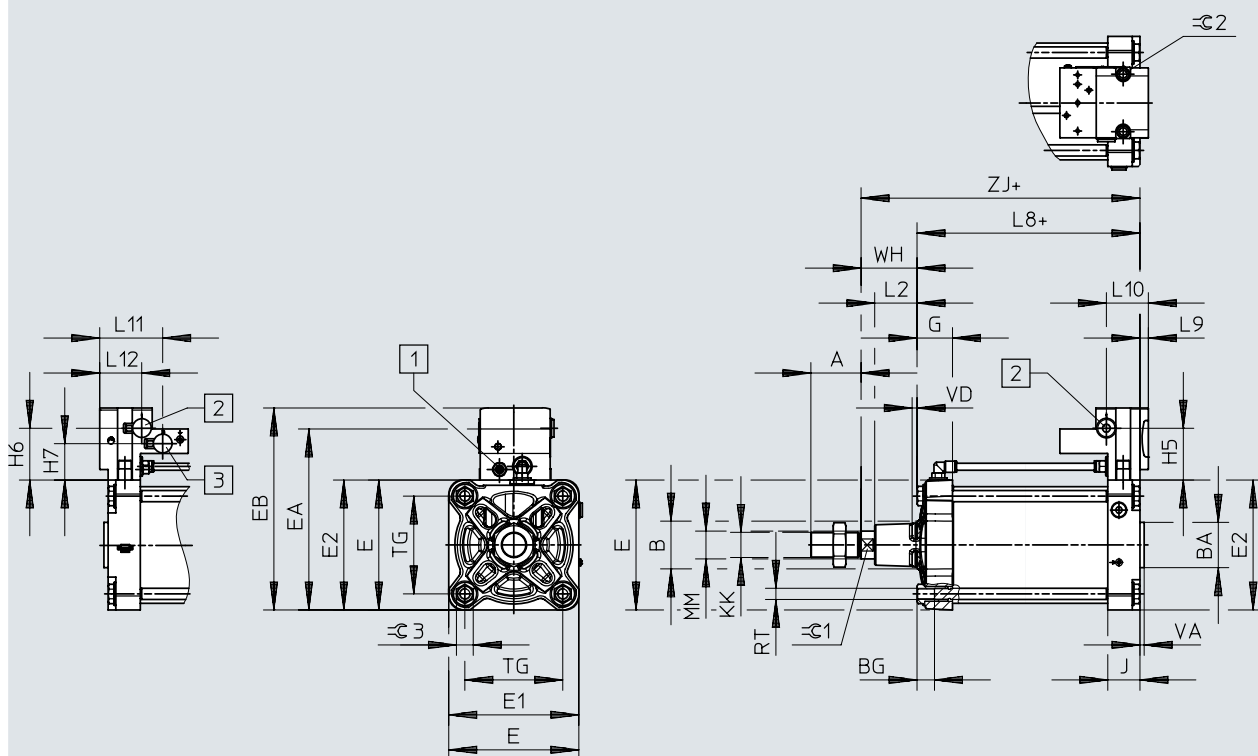
Piston ø [mm]	L2	MM ø	PL	RT	TG	U1	VD	VA	WH	ZJ	C1	C2	C3
DFPI-160	60	40	23	M16	140	13	7.5	6	80	298.6	36	4	24
DFPI-200	70				175	32			95	320			
DFPI-250	80	50	29.5	M20	220	47	13.7	10	105	359	46		42
DFPI-320	90	63	36	M24	270	62	10.7		120	401.2	55		50

Datasheet

Dimensions

Download CAD data → www.festo.com

Variant DFPI-...-ND2P-E-NB3VM12¹⁾



+ = plus stroke length

- [1] Displacement encoder connection, plug M12x1, A-coded
- [2] Pneumatic connection for supply air forwarding, with blanking plug
- [3] Pneumatic connection for exhaust, with protective cap

	A	B	BA	BG	E	E1	E2	EA	EB	G	H5	H6	H7	J	KK
	-0.5		d11												
DFPI-160-...-ND2P-E-NB3VM12	72	65	65	24	186	186	186	259	289	51	74	74	52	46	M36x2
DFPI-200-...-ND2P-E-NB3VM12	72	75	75	24	230	230	227	300	330	47.2	74	74	52	46	M36x2
DFPI-250-...-ND2P-E-NB3VM12	84	90	90	25	284	270	277.6	350.6	380.6	52	74	74	52	51.5	M42x2
DFPI-320-...-ND2P-E-NB3VM12	86	110	110	28	347	340	348.5	421.5	451.5	56	74	74	52	58	M48x2

	L2	L8	L9	L10	L11	L12	MM	RT	TG	VD	VA	WH	ZJ	± 1	± 2	± 3
											-1	± 2.2				
DFPI-160-...-ND2P-E-NB3VM12	60	219	12	60	90	60	40	M16	140	7.5	6	80	298.6	36	10	24
DFPI-200-...-ND2P-E-NB3VM12	70	225	12	60	90	60	40	M16	175	7.5	6	95	320	36	10	24
DFPI-250-...-ND2P-E-NB3VM12	80	254	6.5	60	90	60	50	M20	220	13.7	10	105	359	46	10	42
DFPI-320-...-ND2P-E-NB3VM12	90	281.2	0	60	90	60	63	M24	270	10.7	10	120	401.2	55	10	50

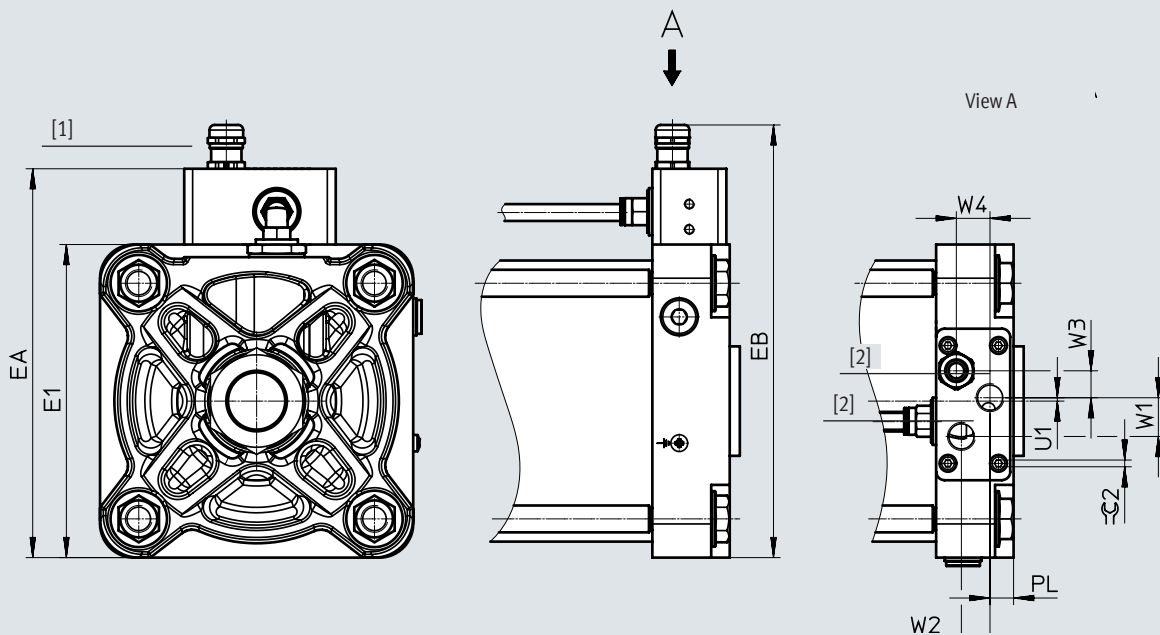
1) Configurable product → 2

Datasheet

Dimensions

Download CAD data → www.festo.com

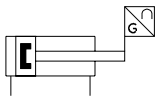
Variants DFPI-...-E-NB3P9B2-... and DFPI-...-E-NB3M12B2-...



- [1] DFPI-...-P9B2-...: electrical connection: cable connector M16x1.5, 3-pin, straight plug, screw terminal
 DFPI-...-M12B2-...: electrical connection: M12x1, 5-pin, straight plug, A-coded
- [2] 2 pneumatic connection: G3/8

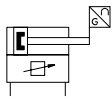
Type	E1	EA	EB	PL	U1	W1	W2	W3	W4	⌀ 2
DFPI-100-...-P9	110	157	183.5	16	4	23	17	16	20	4
DFPI-100-...-M12			170							
DFPI-125-...-P9	136	183	209.5	14	6	23	17	16	20	4
DFPI-125-...-M12			196							
DFPI-160-...-P9	186	231	275.5	14	2	23	17	16	20	4
DFPI-160-...-M12			244							
DFPI-200-...-P9	230	272	298.5	19.5	11	23	17	16	20	4
DFPI-200-...-M12			285							
DFPI-250-...-P9	270	322.6	349.1	26	11	23	17	16	20	4
DFPI-250-...-M12			335.6							
DFPI-320-...-P9	340	393.5	420	26	11	23	17	16	20	4
DFPI-320-...-M12			406.5							




Ordering data

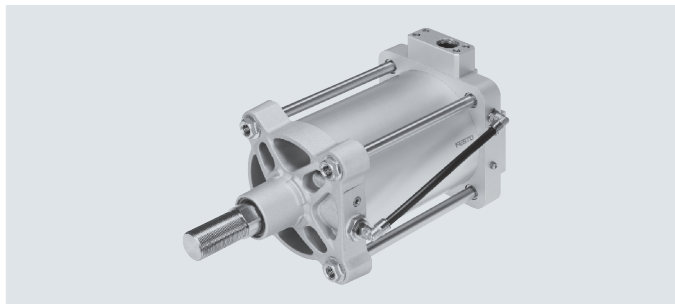
		Piston Ø [mm]	Part no.	Type
 <ul style="list-style-type: none"> • Linear actuators with integrated displacement encoder • Based on ISO 15552 		100	2185733	DFPI-100- ... -ND2P-E-NB3P
		125	2207685	DFPI-125- ... -ND2P-E-NB3P
		160	2208573	DFPI-160- ... -ND2P-E-NB3P
		200	2209613	DFPI-200- ... -ND2P-E-NB3P
		250	2210666	DFPI-250- ... -ND2P-E-NB3P
		320	2186271	DFPI-320- ... -ND2P-E-NB3P

Datasheet

Function



-  - Piston \varnothing
100 ... 320 mm
-  - Stroke
40 ... 990 mm
-  - Force
4417 ... 46385 N



General technical data

Stroke	[mm]	40 ... 990
Operating mode		Double-acting
Based on standard		ISO 15552
Cushioning		No cushioning
Mounting position		Any
Design		Piston
		Piston rod
		Tie rod
		Cylinder barrel
Position sensing		Via integrated displacement encoder
Measuring principle of displacement encoder		Potentiometer
Pneumatic connection		With specific accessories
		For tubing O.D. 8 mm
		For tubing O.D. 10 mm
Electrical connection		With specific accessories
		5-pin
		Straight plug
		Screw terminal

General electrical data

Operating voltage range	[V DC]	21.6 ... 26.4
Nominal operating voltage	[V DC]	24
Setpoint input	[mA]	4 ... 20
Analogue output	[mA]	4 ... 20
Accuracy of analogue output	[%FS]	1
Max. current consumption	[mA]	220
Reverse polarity protection		For operating voltage
		For setpoint value
		Initialisation connection
Positioning accuracy	[%FS]	1
Repetition accuracy	[%FS]	± 1
Size of dead space	[%FS]	1
Hysteresis	[%FS]	± 1

Datasheet

Operating and environmental conditions		
Operating pressure	[MPa]	0.3 ... 0.8
	[psi]	43.5 ... 116
	[bar]	3 ... 8
Nominal operating pressure	[MPa]	0.6
	[psi]	87
	[bar]	6
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/pilot medium	Lubricated operation possible (required for further operation)	
Temperature of medium	[°C]	-5 ... +40
Ambient temperature	[°C]	-5 ... +50
Storage temperature	[°C]	-5 ... +50
Relative humidity	[%]	5 ... 100, condensing
Degree of protection	IP65, IP67, IP69K, NEMA 4	
Vibration resistance to DIN/IEC 68, Part 2-6	Tested to severity level 2	
Continuous shock resistance to DIN/IEC 68, Part 2-82	Tested to severity level 2	
Approval	RCM	
UKCA marking (see declaration of conformity) ¹⁾	To UK EMC regulations	
	To UK EX regulations	
	To UK RoHS regulations	
CE marking (see declaration of conformity) ¹⁾	To EU EMC Directive ²⁾	
	To EU Explosion Protection Directive (ATEX)	
	To EU RoHS Directive	

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

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

ATEX	
ATEX category for gas	II 3G
Type of (ignition) protection for gas	Ex ec IICT4 X Gc
ATEX category for dust	II 3D
Type of (ignition) protection for dust	Ex tc IIIC T120°C X Dc
Explosion ambient temperature	-5°C ≤ Ta ≤ +50°C
Explosion protection certification outside the EU	EPL Dc (GB)
	EPL Gc (GB)

Datasheet

Forces [N]						
Piston ø	100	125	160	200	250	320
Theoretical force at 6 bar, advancing	4712	7363	12064	18850	29452	48255
Theoretical force at 6 bar, retracting	4417	6881	11581	18080	28274	46385

Maximum permissible mass:

$$m_2 = \frac{2 \cdot E}{v^2} - m_1$$

- v Permissible impact velocity
- E Max. impact energy
- m₁ Moving mass (actuator)
- m₂ Moving payload

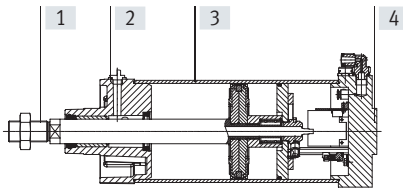
Air consumption [l]						
Piston ø	100	125	160	200	250	320
Air consumption, advancing, per 10 mm stroke	0.549	0.859	1.407	2.199	3.436	5.63
Air consumption, retracting, per 10 mm stroke	0.515	0.803	1.351	2.111	3.299	5.412

Weight [g]						
Piston ø	100	125	160	200	250	320
Basic weight with 0 mm stroke	5280	7950	14330	20410	35370	57550
Additional weight per 10 mm stroke	90	134	200	238	358	582
Moving mass with 0 mm stroke	1060	1900	3700	4800	9300	16500
Additional moving mass per 10 mm stroke	28	53	89	89	134	227

Datasheet

Materials

Sectional view



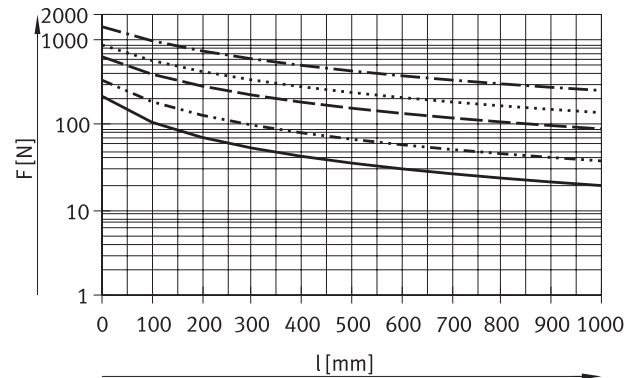
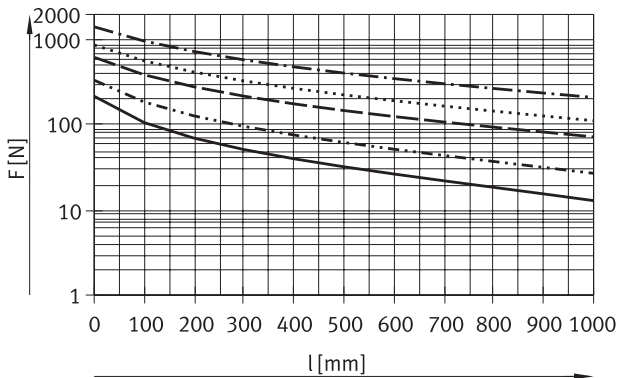
	Piston \varnothing	
[1] Piston rod	100 ... 320	High-alloy stainless steel
[2] Bottom cover	100 ... 320	Coated die-cast aluminium
[3] Cylinder barrel	100 ... 320	Smooth-anodised wrought aluminium alloy
[4] End cap	100 ... 320	Coated wrought aluminium alloy
- Tie rods	100 ... 200	High-alloy stainless steel
- Screws	100 ... 320	Coated steel
		High-alloy stainless steel
- Piston rod wiper seal	100	TPE-U (PU)
	125 ... 320	NBR
- Static seals	100 ... 320	NBR
- Note on materials	100 ... 320	RoHS-compliant
		Contains paint-wetting impairment substances

Max. lateral force as a function of stroke length l

The maximum lateral force (horizontal/vertical) applies to the static application. In closed-loop operation, the maximum lateral force needs to be adjusted to the type of control. If necessary, the piston rod must be guided to avoid system vibration.

Horizontal lateral force

Vertical lateral force



- \varnothing 100
- · - · \varnothing 125
- - - \varnothing 160, 200
- · · \varnothing 250
- · - · \varnothing 320

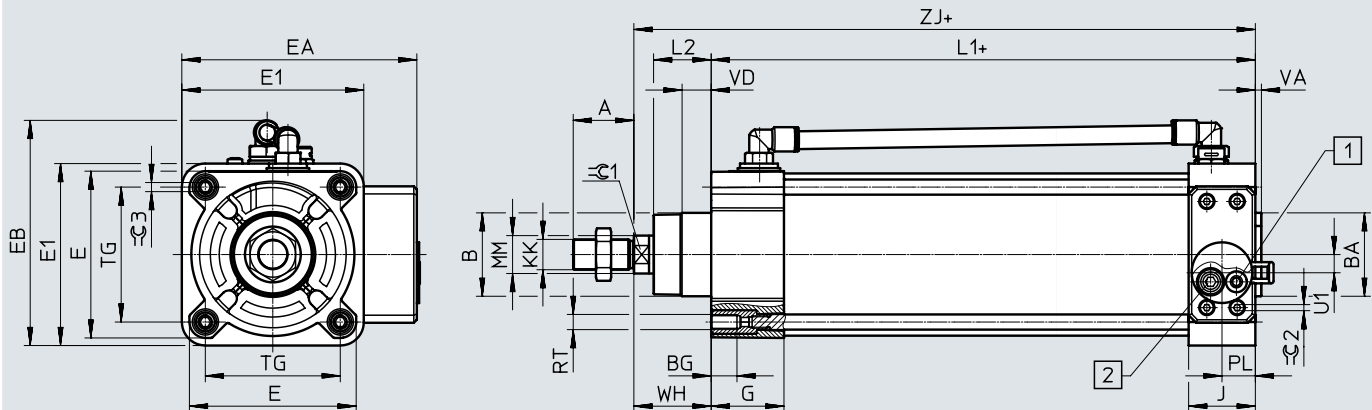
- \varnothing 100
- · - · \varnothing 125
- - - \varnothing 160, 200
- · · \varnothing 250
- · - · \varnothing 320

Datasheet

Dimensions

Download CAD data → www.festo.com

Piston \varnothing 100, 125



- [1] Compressed air supply port – tubing 8 mm
- [2] Exhaust – tubing 10 mm
- + = plus stroke length

Piston \varnothing [mm]	A	B \varnothing	BA \varnothing d11	BG	E	E1	EA	EB	G	J	KK	L1
DFPI-100	40	55	55	17	110	120	155	146	48	44	M20x1.5	258.9
DFPI-125	54	60	60	20	136	145	180	173	44.7		M27x2	254.4

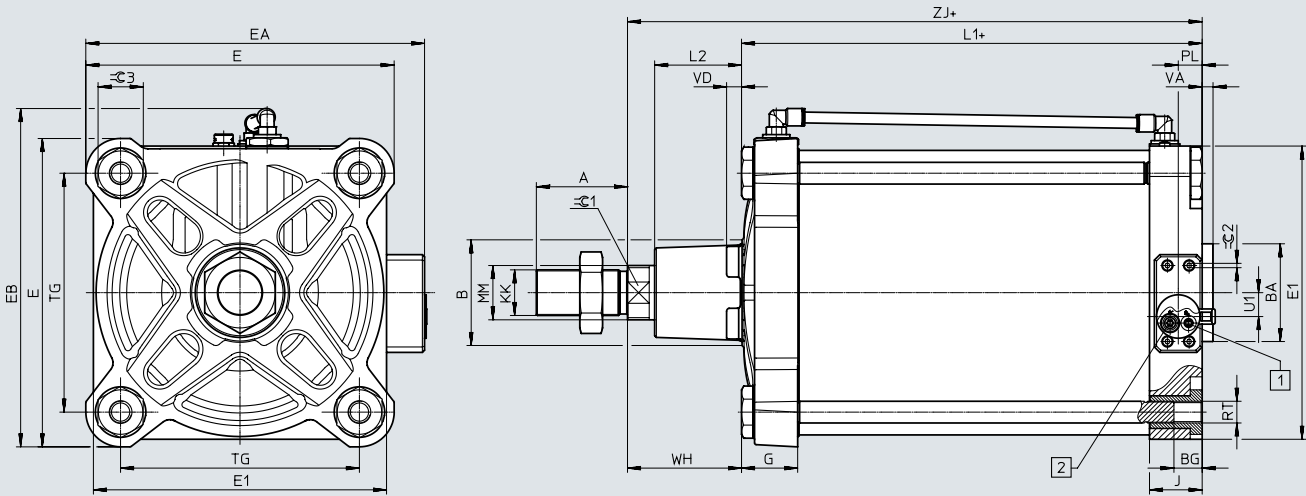
Piston \varnothing [mm]	L2	MM \varnothing	PL	RT	TG	U1	VD	VA	WH	ZJ	\varnothing C1	\varnothing C2	\varnothing C3
DFPI-100	38	25	22	M10	89	12	19.2	4	51 \pm 1.8	309.9	22	4	6
DFPI-125	45.5	32		M12	110	2	20.5	6	65 \pm 2.2	319.4	27		

Datasheet

Dimensions

Piston \varnothing 160, 200, 250, 320

Download CAD data \rightarrow www.festo.com

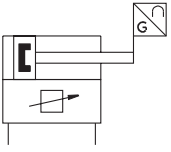
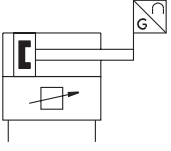


- [1] Compressed air supply port – tubing 8 mm
- [2] Exhaust – tubing 10 mm
- + = plus stroke length

Piston \varnothing [mm]	A	B \varnothing	BA \varnothing d11	BG	E	E1	EA	EB	G	J	KK	L1
DFPI-160	72	65	65	24	186	186	221	212	51	46	M36x2	291.8
DFPI-200		75	75		230	230	265	256				47.2
DFPI-250	84	90	90	25	284	270	312	312	52	48.5	M42x2	324.4
DFPI-320	96	110	110	28	347	342	378.5	379	56	46	M48x2	351.4

Piston \varnothing [mm]	L2	MM \varnothing	PL	RT	TG	U1	VD	VA	WH	ZJ	\varnothing 1	\varnothing 2	\varnothing 3
DFPI-160	60	40	22	M16	140	12	7.5	6	80	371.8	36	4	24
DFPI-200	70				175	32							
DFPI-250	80	50	22.5	M20	220	22	13.7	10	105	429.2	46		42
DFPI-320	90	63			270	52							10.7

Datasheet

Ordering data		Piston ø [mm]	Part no.	Type
Safety position advancing				
 <ul style="list-style-type: none"> • Linear actuators with integrated positioner • Based on ISO 15552 	100	2184841	DFPI-100-...-ND2P-C1V-NB3P-A	
	125	2180905	DFPI-125-...-ND2P-C1V-NB3P-A	
	160	2201101	DFPI-160-...-ND2P-C1V-NB3P-A	
	200	2206373	DFPI-200-...-ND2P-C1V-NB3P-A	
	250	2200311	DFPI-250-...-ND2P-C1V-NB3P-A	
	320	2185309	DFPI-320-...-ND2P-C1V-NB3P-A	
Safety position retracting				
 <ul style="list-style-type: none"> • Linear actuators with integrated positioner • Based on ISO 15552 	100	4588304	DFPI-100-...-ND2P-C1V-NB3P-R-A	
	125	4588636	DFPI-125-...-ND2P-C1V-NB3P-R-A	
	160	4588972	DFPI-160-...-ND2P-C1V-NB3P-R-A	
	200	4587974	DFPI-200-...-ND2P-C1V-NB3P-R-A	
	250	4591209	DFPI-250-...-ND2P-C1V-NB3P-R-A	
	320	4591205	DFPI-320-...-ND2P-C1V-NB3P-R-A	

Accessories

Connecting cable NHSB

- Pre-assembled connecting cable
- Fits linear actuators DFPI-...-E-P-... and DFPI-...-C1V-P-...
- Cable lengths 5, 10 and 15 m



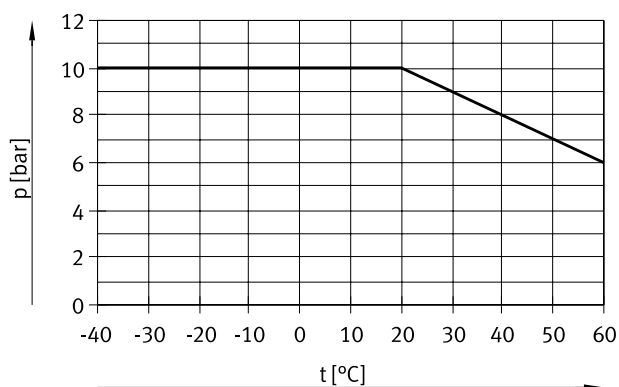
General technical data			
Connecting cable	[mm ²]	3x 0.75	5x 0.75
Mounting position		Any	
Electrical connection 1		Straight plug, 3-pin	Straight plug, 5-pin
Electrical connection 2		Open end, 3-core	Open end, 5-core
Min. cable bending radius	[mm]	100	
Pneumatic connection		For tubing O.D. 8 mm	
		–	For tubing O.D. 10 mm

Operating and environmental conditions			
Ambient temperature	[°C]	–20 ... +60	
Ambient temperature with flexible cable installation	[°C]	–5 ... +60	
Operating voltage range	[V DC]	0 ... 30	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/pilot medium		Lubricated operation possible	
Degree of protection		IP65, IP67, IP69K, NEMA 4	
Relative humidity	[%]	5 ... 100, condensing	

Materials	
Protective conduit	PA
Conduit fitting	PA
Cable sheath	PVC
Seals	TPE
Note on materials	RoHS-compliant

Operating pressure [bar] as a function of operating temperature [°C]

NHSB-A1-...

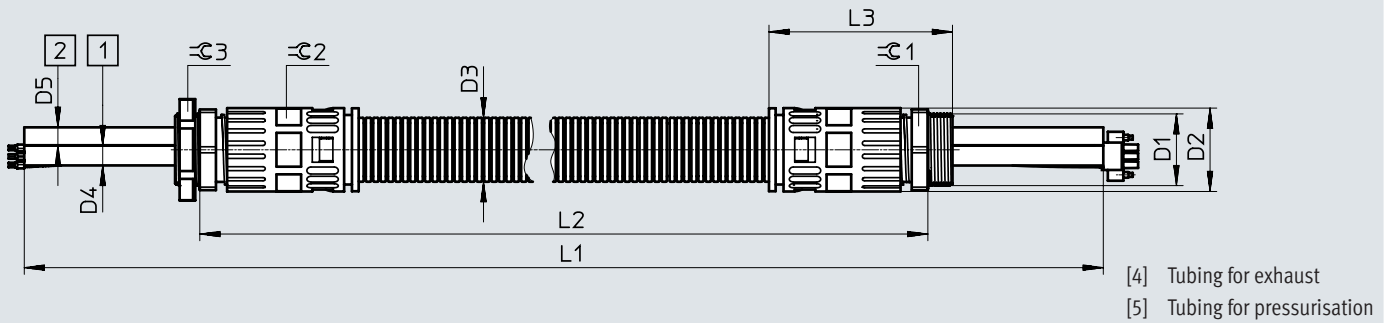


Accessories

Dimensions

Download CAD data → www.festo.com

3-core

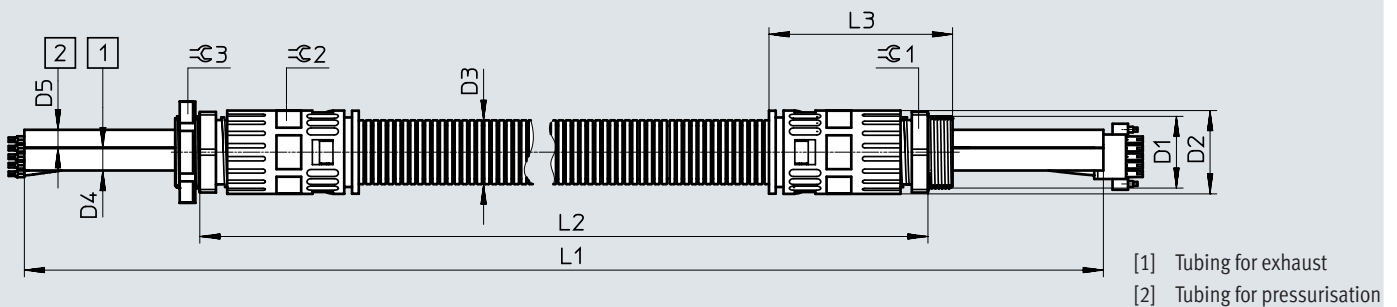


Type	D1	D2 ø	D3 ø	D4 ø	D5 ø	L1 ±25	L2 ±25	L3	⊘ 1	⊘ 2	⊘ 3
NHSB-A1-0.6-BLG3-LE3-PU8-2xBB	M32x1.5	37	28.5	8	8	1400	600	82	36	34	41
NHSB-A1-5-BLG3-LE3-PU8-2xBB						6100	5000				
NHSB-A1-10-BLG3-LE3-PU8-2xBB						11100	10000				
NHSB-A1-15-BLG3-LE3-PU8-2xBB						16100	15000				

Dimensions

Download CAD data → www.festo.com

5-core



Type	D1	D2 ø	D3 ø	D4 ø	D5 ø	L1 ±25	L2 ±25	L3	⊘ 1	⊘ 2	⊘ 3
NHSB-A1-5-BLG5-LE5-PU8-2xBB	M32x1.5	37	28.5	10	8	6100	5000	82	36	34	41
NHSB-A1-10-BLG5-LE5-PU8-2xBB						11100	10000				
NHSB-A1-15-BLG5-LE5-PU8-2xBB						16100	15000				

Ordering data – Connecting cable

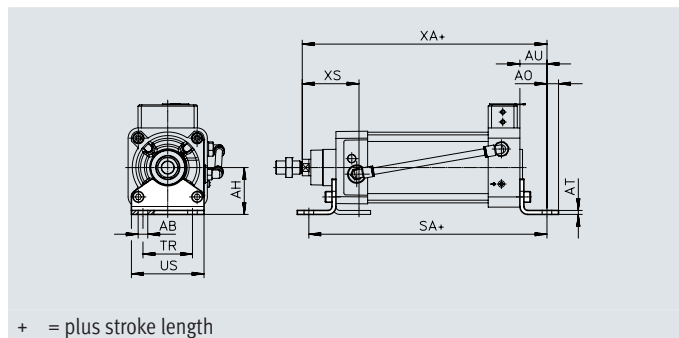
Datasheets → Internet: [nhsb](http://nhsb.com)

	Electrical connection 1	Electrical connection 2	Length [m]	Cable composition [mm ²]	Weight [g]	Part no.	Type
3-core, for DFPI- ... -E-P-...							
	Straight plug, 3-pin	Open end, 3-core	0.6	3x 0.75	280	3673475	NHSB-A1-0.6-BLG3-LE3-PU8-2XBB
			5		1250	1686608	NHSB-A1-5-BLG3-LE3-PU8-2XBB
			10		2500	1686609	NHSB-A1-10-BLG3-LE3-PU8-2XBB
			15		3750	1686610	NHSB-A1-15-BLG3-LE3-PU8-2XBB
5-core, for DFPI- ... -C1V-P-...							
	Straight plug, 5-pin	Open end, 5-core	5	5x 0.75	1250	1585793	NHSB-A1-5-BLG5-LE5-PU8-2XBB
			10		2500	1585794	NHSB-A1-10-BLG5-LE5-PU8-2XBB
			15		3750	1585795	NHSB-A1-15-BLG5-LE5-PU8-2XBB

Accessories

Foot mounting HNC/CRHNC

Material:
 HNC: Galvanised steel
 CRHNC: High-alloy steel



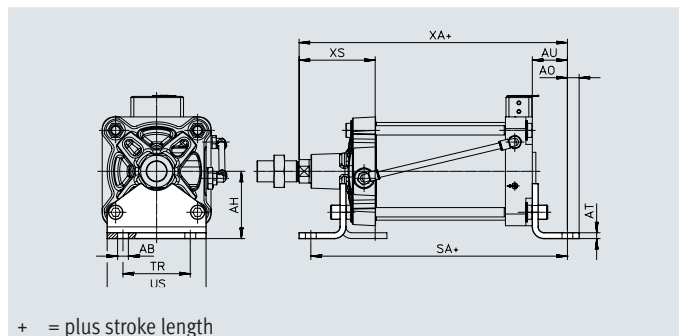
Dimensions										
For \varnothing	AB \varnothing	AH	AO	AT	AU	SA	TR	US	XA	XS
[mm]										
100	14.5	71	17.5	6	41	261	75	110	270.7	86
125	16.5	90	22	8	45	290	90	131	309.7	102

Ordering data									
For \varnothing	Basic version				High corrosion protection				
	CRC ¹⁾	Weight [g]	Part no.	Type ²⁾	CRC ¹⁾	Weight [g]	Part no.	Type ²⁾	
[mm]									
100	2	1009	174374	HNC-100	4	990	176942	CRHNC-100	
125	2	1902	174375	HNC-125	4	1920	176943	CRHNC-125	

- Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.
 Corrosion resistance class CRC 4 to Festo standard FN 940070
 Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be supported with special tests
 (→ also FN 940082) using appropriate media.
- Suitable for ATEX (areas)

Foot mounting HNG

Material:
 Galvanised steel



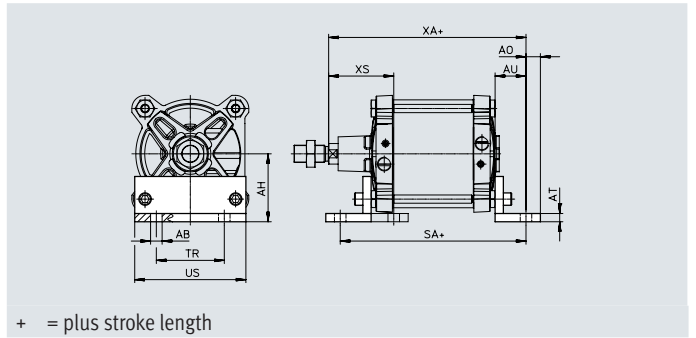
Dimensions and ordering data														
For \varnothing	AB \varnothing	AH	AO	AT	AU	SA	TR	US	XA	XS	CRC ¹⁾	Weight [g]	Part no.	Type
[mm]														
160	18.5	115	20	10	60	339	115	169	358.6	130	2	3931	34476	HNG-160
200	24	135	30	12	70	365	135	214	390	153	2	6896	34477	HNG-200

- Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.

Accessories

Foot mounting HNG

Material:
Galvanised steel



+ = plus stroke length

Dimensions and ordering data

For \varnothing [mm]	AB \varnothing	AH	AO	AT	AU	D1 \varnothing	SA	T1	TR	US	XA	XS	CRC ¹⁾	Weight [g]	Part no.	Type
250	28	165	35	20	75	–	404	–	165	270	434	160	2	17084	157510	HNG-250
320	35	200	40	25	85	60	451.2	23	200	340	486.2	180	2	29968	157511	HNG-320

1)

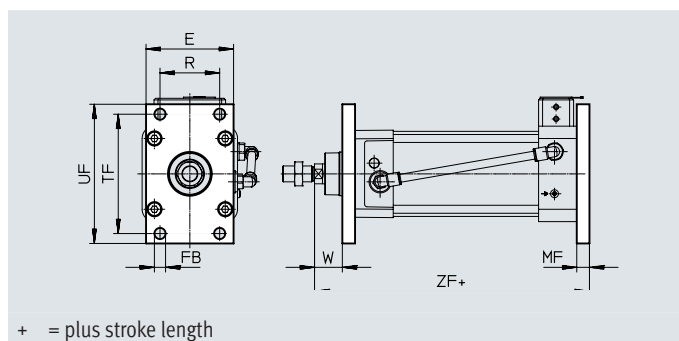
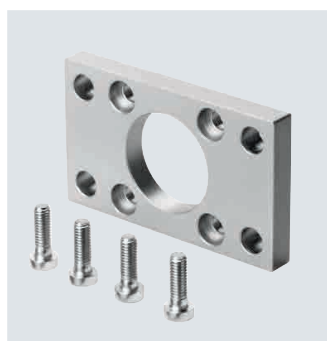
Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.

Accessories

Flange mounting FNC/CRFNG

Material:
 FNC: Galvanised steel
 CRFNG: high-alloy steel
 RoHS-compliant



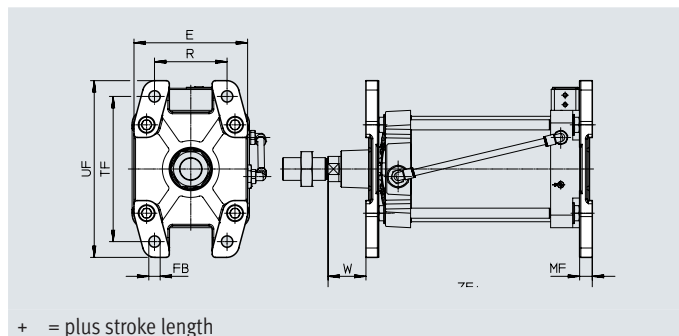
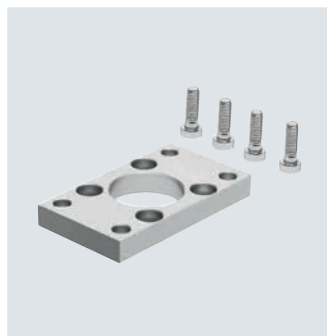
Dimensions								
For \varnothing	E	FB	MF	R	TF	UF	W	ZF
[mm]		\varnothing						
100	110	14	16	75	150	175	35	245.7
125	132	16	20	90	180	210	45	284.7

Ordering data								
For \varnothing	Basic version				High corrosion protection			
	CRC ¹⁾	Weight [g]	Part no.	Type ²⁾	CRC ¹⁾	Weight [g]	Part no.	Type ²⁾
[mm]								
100	1	2041	174381	FNC-100	4	2054	161851	CRFNG-100
125	1	3775	174382	FNC-125	4	3787	185363	CRFNG-125

- 1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. Dry indoor applications, as well as protection during transport and storage. Also applies to parts behind covers, in non-visible internal areas, or parts that are covered in the application (e.g. drive trunnions).
 Corrosion resistance class CRC 4 to Festo standard FN 940070
 Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be supported with special tests
 (→ also FN 940082) using appropriate media.
- 2) Suitable for ATEX (areas)

Flange mounting FNG

Material:
 Painted spheroidal graphite cast iron



Dimensions and ordering data												
For \varnothing	E	FB	MF	R	TF	UF	W	ZF	CRC ¹⁾	Weight	Part no.	Type
[mm]		\varnothing								[g]		
160	180	18	20	115	230	280	60	318.6	1	3550	34478	FNG-160
200	220	22	25	135	270	320	70	345	1	5321	34479	FNG-200
250	270	26	25	165	330	390	80	384	1	8657	157508	FNG-250
320	340	33	30	200	400	470	90	431.2	1	15109	157509	FNG-320

- 1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. Dry indoor applications, as well as protection during transport and storage. Also applies to parts behind covers, in non-visible internal areas, or parts that are covered in the application (e.g. drive trunnions).

Accessories

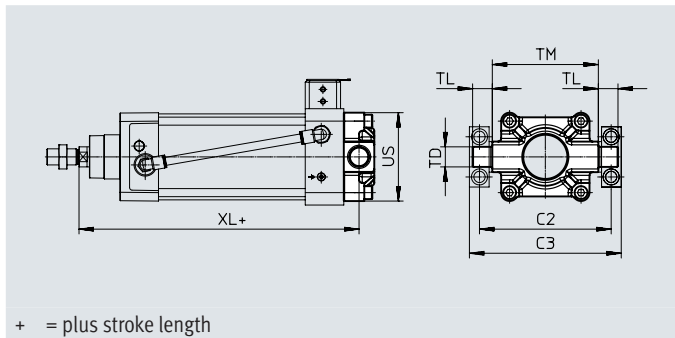
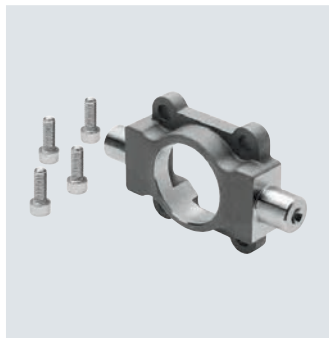
Trunnion flange ZNCF/CRZNG

Material:

ZNCF: Stainless steel casting

CRZNG: Electropolished stainless steel casting

RoHS-compliant



Dimensions							
For \varnothing	C2)	C3)	TD \varnothing e9	TL	TM	US	XL
[mm]							
100	164	189	25	24.5	132	110	248.7
125	192	217			160	131	289.7

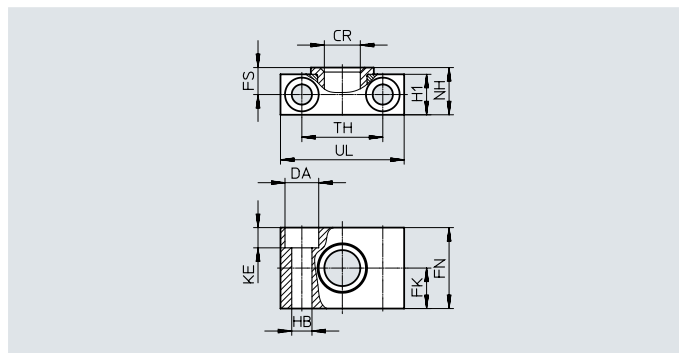
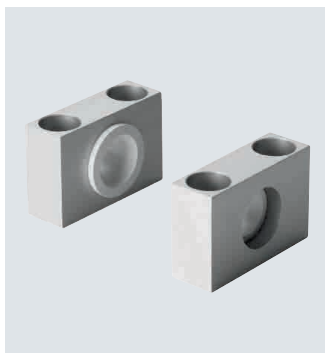
Ordering data								
For \varnothing	Basic version				High corrosion protection			
	CRC ¹⁾	Weight [g]	Part no.	Type ²⁾	CRC ¹⁾	Weight [g]	Part no.	Type ²⁾
[mm]								
100	2	2254	174416	ZNCF-100	4	2254	161857	CRZNG-100
125	2	3484	174417	ZNCF-125	4	3484	185362	CRZNG-125

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.
 Corrosion resistance class CRC 4 to Festo standard FN 940070
 Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be supported with special tests
 (→ also FN 940082) using appropriate media.
- 2) Suitable for ATEX (areas)

Accessories

Trunnion support LNZG

Material mounting:
 ∅ 100, 125: Anodised wrought aluminium alloy
 ∅ 160 ... 320: Galvanised steel
 Material of bearing:
 ∅ 100 ... 200: Plastic
 ∅ 250, 320: Bronze
 RoHS-compliant

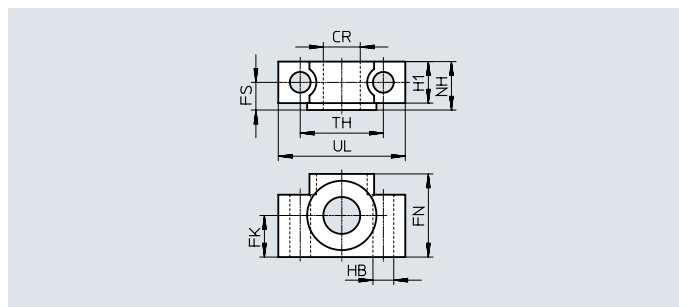
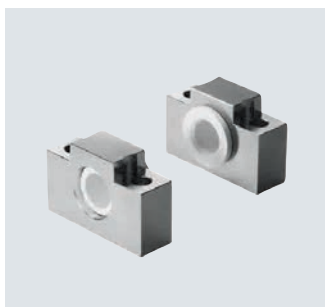


Dimensions and ordering data																
For ∅ [mm]	CR ∅	DA ∅ H13	FK	FN	FS	H1	HB ∅ H13	KE	NH	TH	UL	CRC ¹⁾	Weight [g]	Part no.	Type	
100, 125	25D11	20	25 ±0.1	50	16	24.5	14	13	28.5	50 ±0.2	75	2	306	32962	LNZG-10 0/125	
160, 200	32D11	26	30 ±0.2	60	22.5	36	18	17	40	60 ±0.3	92	2	659	35780	LNZG-16 0/200	
250	40G7	33	35 ±0.2	70	27.5	45	22	21.5	50	90 ±0.3	140	2	2218	157516	LNZG-250	
320	50G7	40	40 ±0.2	80	32.5	55	26	25.5	60	100 ±0.3	150	2	2934	157517	LNZG-320	

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.

Trunnion support CRLNZG

Material:
 High-alloy steel
 RoHS-compliant



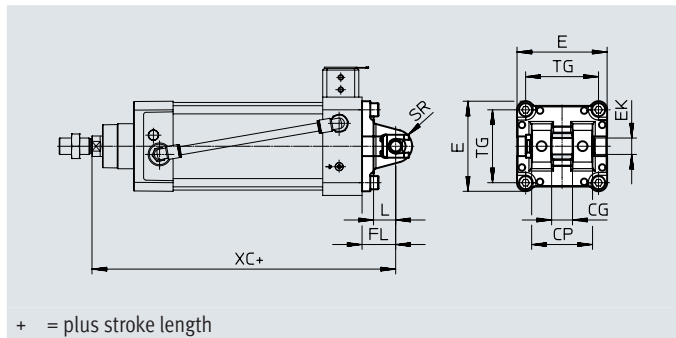
Dimensions and ordering data																
For ∅ [mm]	CR ∅	FK	FN	FS	H1	HB ∅ H13	NH	TH	UL	CRC ¹⁾	Weight [g]	Part no.	Type			
100, 125	25	25	50	16	24.5	14	28.5	50	75	4	739	161877	CRLNZG-10 0/125			

1) Corrosion resistance class CRC 4 to Festo standard FN 940070
 Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be supported with special tests (→ also FN 940082) using appropriate media.

Accessories

Swivel flange SNC

Material:
Die-cast aluminium
RoHS-compliant



+ = plus stroke length

Dimensions and ordering data

For \varnothing	CG	CP	E	EK \varnothing	FL	L	SR	TG	XC	CRC ¹⁾	Weight	Part no.	Type ²⁾
[mm]	H14	h14		H9	± 0.2						[g]		
100	25	75	110 $+0.3/-0.8$	20	41	27	20	89	270.7	1	895	174388	SNC-100
125	37	97	131 -0.8	30	50	30	25	110	334.7	1	1740	174389	SNC-125

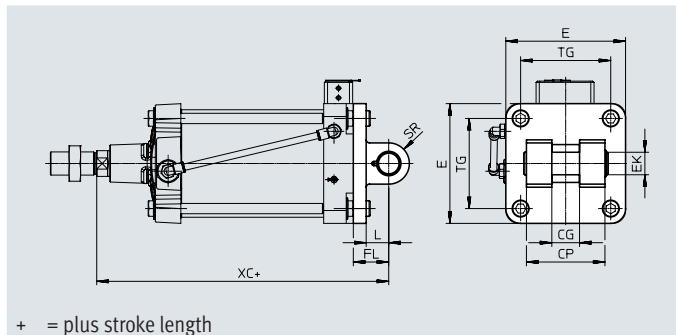
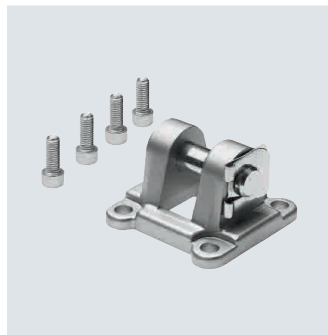
1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry indoor applications, as well as protection during transport and storage. Also applies to parts behind covers, in non-visible internal areas, or parts that are covered in the application (e.g. drive trunnions).

2) Suitable for ATEX (areas)

Swivel flange SNG

Material:
Die-cast aluminium
RoHS-compliant



+ = plus stroke length

Dimensions and ordering data

For \varnothing	CG	CP	E	EK \varnothing	FL	L	SR	TG	XC	CRC ¹⁾	Weight	Part no.	Type ²⁾
[mm]	H14	d12	max.	F7/h9	± 0.2	min.	max.	± 0.3			[g]		
160	43	122	186	35	55	35	32	140	353.6	2	3577	152597	SNG-160
200			230		60			175	380	2	5160	152598	SNG-200

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

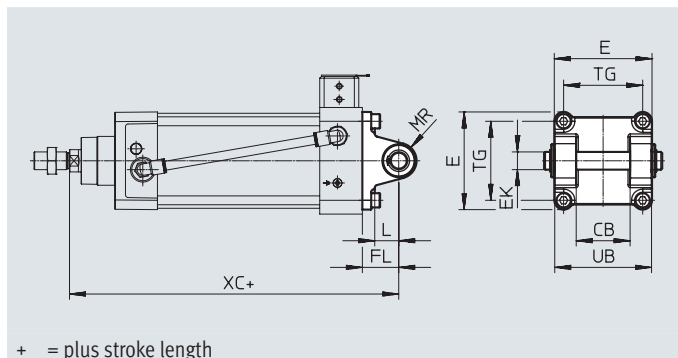
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.

2) Suitable for ATEX (areas)

Accessories

Swivel flange SNCB/SNCB-...-R3

Material:
SNCB: Die-cast aluminium
SNCB-...-R3: Die-cast aluminium with protective coating, high corrosion protection
RoHS-compliant



+ = plus stroke length

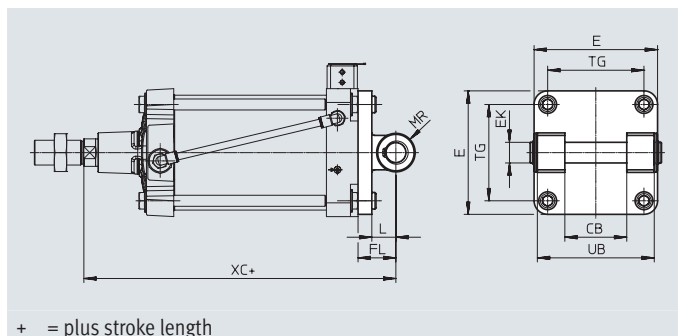
Dimensions										
For \varnothing	CB	E	EK \varnothing	FL	L	MR	TG	UB	XC	
[mm]	H14		H9/e8	± 0.2		-0.5				
100	60	110+0.3/-0.8	20	41	27	20	89	110	270.7	
125	70	131-0.8	25	50	30	25	110	130	314.7	

Ordering data										
For \varnothing	Basic version				Variant R3 – High corrosion protection					
	CRC ¹⁾	Weight [g]	Part no.	Type	CRC ¹⁾	Weight [g]	Part no.	Type		
[mm]										
100	1	1035	174395	SNCB-100	3	986	176949	SNCB-100-R3		
125	1	1860	174396	SNCB-125	3	1776	176950	SNCB-125-R3		

- 1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. Dry indoor applications, as well as protection during transport and storage. Also applies to parts behind covers, in non-visible internal areas, or parts that are covered in the application (e.g. drive trunnions).
 Corrosion resistance class CRC 3 to Festo standard FN 940070
 High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional surface requirements that are in direct contact with the normal surrounding industrial environment.

Swivel flange SNGB For clevis foot LN/LSN

Material:
Die-cast aluminium



+ = plus stroke length

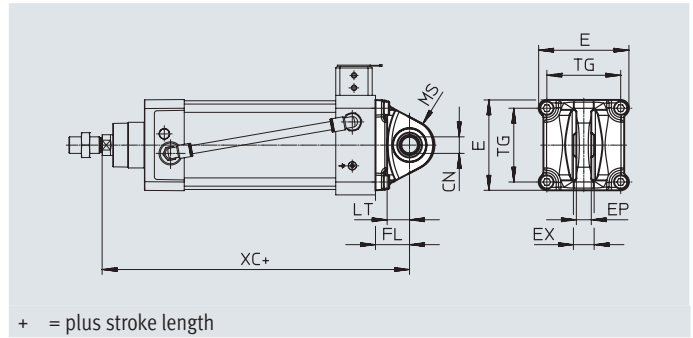
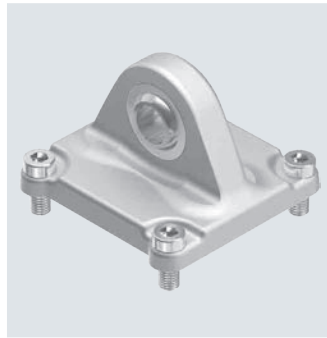
Dimensions and ordering data														
For \varnothing	CB	E	EK \varnothing	FL	L	MR	TG	UB	XC	CRC ¹⁾	Weight [g]	Part no.	Type	
[mm]	H14			± 0.2			± 0.2	h14						
160	90	183.5	30 H9	55	37	30	140	170	353.6	2	3445	34547	SNGB-160	
200		220		60	40	25	175		380	2	10020	562455	SNGB-200-B	
250	110	268	40 E10	70	47	40	220	200	426	1	16141	157512	SNGB-250	
320	120	338	45 H9	80	52	45	270	220	481.2	1	26636	157513	SNGB-320	

- 1) Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. Dry indoor applications, as well as protection during transport and storage. Also applies to parts behind covers, in non-visible internal areas, or parts that are covered in the application (e.g. drive trunnions).
 Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.

Accessories

Swivel flange SNCS

Material:
Wrought aluminium alloy
RoHS-compliant



+ = plus stroke length

Dimensions and ordering data

For \varnothing	CN \varnothing	E	EP	EX	FL	LT	MS	TG	XC	CRC ¹⁾	Weight	Part no.	Type
[mm]		+1/-0.7	± 0.2								[g]		
100	20	109	18	25	41	27	30	89	270.7	2	683	174402	SNCS-100
125	30	132	25	37	50	30	39	110	314.7	2	1369	174403	SNCS-125

1)

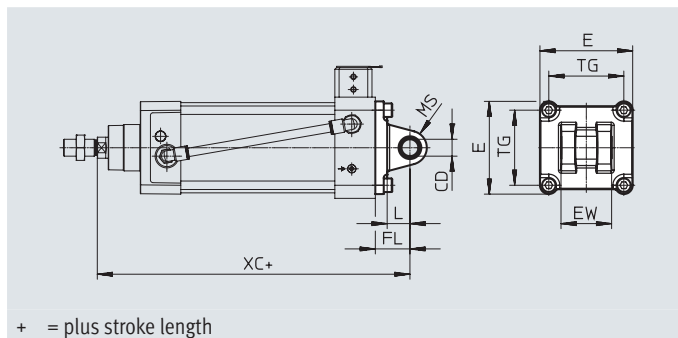
Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.

Accessories

Swivel flange SNCL

Material:
Die-cast aluminium
RoHS-compliant



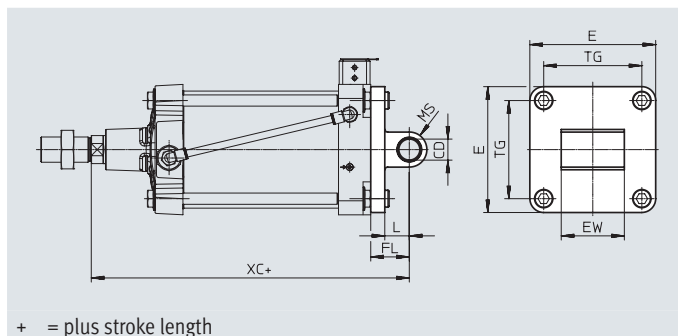
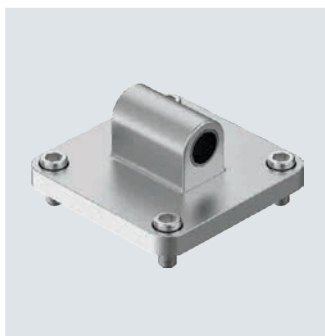
Dimensions and ordering data

For \varnothing [mm]	CD \varnothing H9	E	EW	FL	L	MS	TG	XC	CRC ¹⁾	Weight [g]	Part no.	Type
100	20	110+0.3/-0.8	-0.2/-0.6	+0.2	27	20	72	270.7	1	606	174409	SNCL-100
125	25	131-0.8	70	50	30	25	89	314.7	1	1135	174410	SNCL-125

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor applications, as well as protection during transport and storage. Also applies to parts behind covers, in non-visible internal areas, or parts that are covered in the application (e.g. drive trunnions).

Swivel flange SNGL

Material:
Die-cast aluminium



Dimensions and ordering data

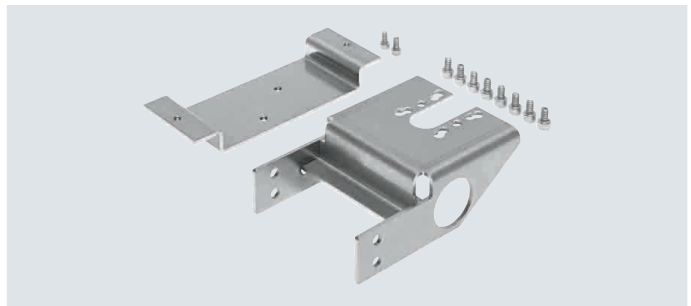
For \varnothing [mm]	CD \varnothing H9	E	EW	FL	L	MS	TG	XC	CRC ¹⁾	Weight [g]	Part no.	Type
160	30	179.5	90	55	35	25	140	353.6	2	2358	151534	SNGL-160
200		219.5					60	175	380	2	3713	151535

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with the normal surrounding industrial environment.

Accessories

Adapter kit DADG-AK-F6-A2

For directly mounting a positioner on the linear actuator DFPI-ND2P-E-NB3P



General technical data

Ambient temperature ¹⁾	[°C]	-20 ... +80
Corrosion resistance class CRC ²⁾		3

1) Note operating range of proximity switches and cylinder

2)

Corrosion resistance class CRC 3 to Festo standard FN 940070

High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional surface requirements that are in direct contact with the normal surrounding industrial environment.

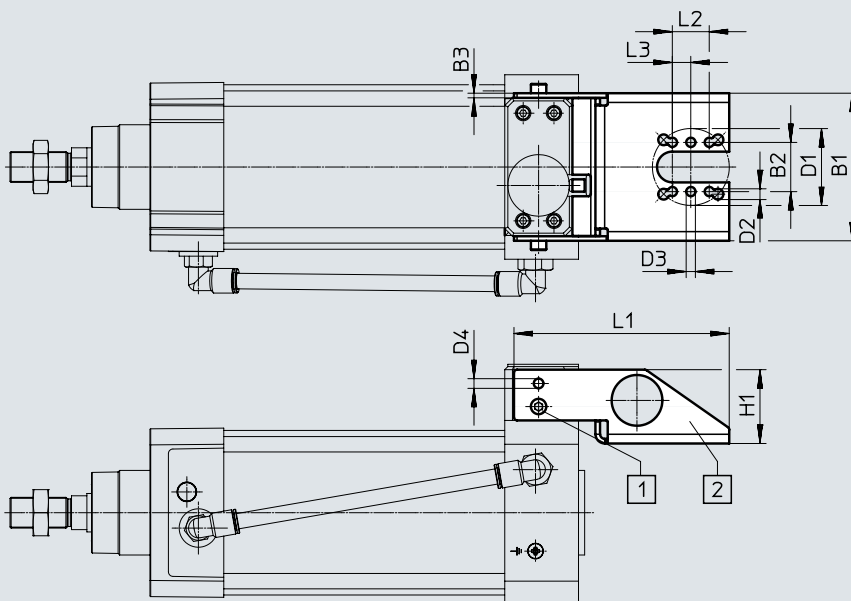
Materials

Mounting bracket	High-alloy stainless steel
Screws	High-alloy stainless steel
Note on materials	Contains paint-wetting impairment substances
	RoHS-compliant

Dimensions

Download CAD data → www.festo.com

Mounting bracket for mounting a positioner with interface to VDI/VDE 3845 sheet 1:2010-09



- [1] Socket head screw DIN 912-M6x10-A2-70
- [2] The adapter can also be rotated 180° during mounting

Dimensions

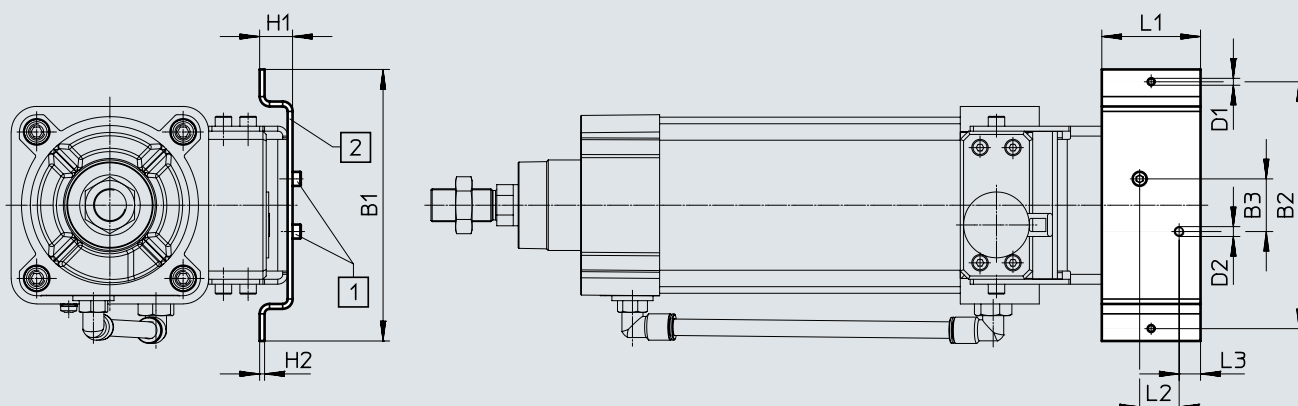
Type	B1	B2	B3	D1 ∅	D2 ∅	D3 ∅	D4 ∅	H1	L1	L2	L3
DADG-1	96	32	3	50	7	6	6.3	48	140	24	12

Accessories

Dimensions

Download CAD data → www.festo.com

Mounting bracket for mounting a positioner with hole spacing of 150 mm



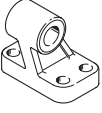

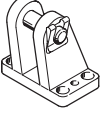
- [1] Socket head screw DIN 912-M5x10-A2-70
- [2] The adapter can also be rotated 180° during mounting

Dimensions										
Type	B1	B2	B3	D1 ∅	D2 ∅	H1	H2	L1	L2	L3
DADG-2	165	150	32	M5	M6	20	3	60	24	13

Ordering data – Adapter kit				Datasheets → Internet: smbs	
	For ∅	Description	Part no.	Type	
	100 ... 320 mm	For directly mounting an external positioner on the actuator	3179433	DADG-AK-F6-A2	

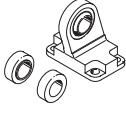

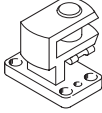
Accessories

Ordering data – Mounting components

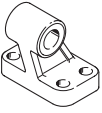
Designation	For \varnothing	Part no.	Type
Clevis foot LN/LNG			
	100	33895	LNG-100
	125	33896	LNG-125
	160	9037	LN-160
	200	33898	LNG-200
	250	9039	LN-250
	320	9040	LN-320
Clevis foot LSNG			
	100	31745	LSNG-100
	125	31746	LSNG-125
	160	152599	LSNG-160
	200	152600	LSNG-200
Clevis foot LBG¹⁾			
	100	31766	LBG-100
	125	31767	LBG-125

1) Suitable for ATEX

Datasheets → Internet: clevis foot

Designation	For \varnothing	Part no.	Type
Clevis foot LSN			
	100	5566	LSN-100
	125	6987	LSN-125
	160	6988	LSN-160
	200	6989	LSN-200
	250	6990	LSN-250
	320	6991	LSN-320
Clevis foot LSNSG			
	100	31752	LSNSG-100
	125	31753	LSNSG-125
Right-angle clevis foot LQG¹⁾			
	100	31773	LQG-100
	125	31774	LQG-125


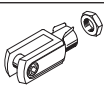
Ordering data – Mounting components, corrosion-resistant

Designation	For \varnothing	Part no.	Type
Clevis foot CRLNG			
	100	161845	CRLNG-100
	125	176951	CRLNG-125

Datasheets → Internet: crlng

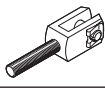
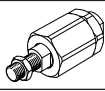
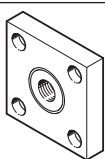
Accessories

Ordering data – Piston rod attachments


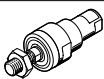
Designation	For ø	Part no.	Type
Rod eye SGS			
	100	9264	SGS-M20x1.5
	125	10774	SGS-M27x2
	160, 200	10775	SGS-M36x2
	250	10776	SGS-M42x2
	320	10777	SGS-M48x2
Rod clevis SG¹⁾			
	100	6147	SG-M20x1.5
	125	14987	SG-M27x2-B
	160, 200	9581	SG-M36x2
	250	9582	SG-M42x2
	320	9583	SG-M48x2

1) Suitable for ATEX

Datasheets → Internet: piston rod attachment

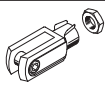
Designation	For ø	Part no.	Type
Rod clevis SGA¹⁾			
	100	10769	SGA-M20x1.5
	125	10770	SGA-M27x2
	160, 200	10771	SGA-M36x2
Self-aligning rod coupler FK¹⁾			
	100	6143	FK-M20x1.5
	125	10485	FK-M27x2
	160, 200	10746	FK-M36x2
Coupling piece KSG¹⁾			
	100	32966	KSG-M20x1.5
	125	32967	KSG-M27x2

Ordering data – Piston rod attachments, corrosion-resistant

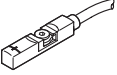
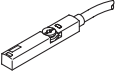

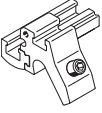

Designation	For ø	Part no.	Type
Rod eye CRSGS			
	100	195585	CRSGS-M20x1.5
	125	195586	CRSGS-M27x2
Self-aligning rod coupler CRFK			
	100	2545677	CRFK-M20x1.5

1) Suitable for ATEX



Datasheets → Internet: piston rod attachment

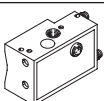
Designation	For ø	Part no.	Type
Rod clevis CRSG¹⁾			
	100	13572	CRSG-M20x1.5
	125	185361	CRSG-M27x2

Accessories

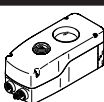
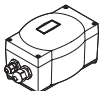
Ordering data – Proximity switch for T-slot, corrosion-resistant						Datasheets → Internet: crsmt
	Switching output	Electrical connection	Cable length [m]	Part no.	Type	
N/O						
	PNP	Cable, 3-core	5	574380	CRSMT-8M-PS-24V-K-5,0-OE-EX2	
Ordering data – Proximity switch for T-slot, NAMUR						
						Datasheets → Internet: sdbt
	Switching output	Electrical connection	Cable length [m]	Part no.	Type	
N/O						
	NAMUR	Cable, 2-core	5	579071	SDBT-MS-20NL-ZN-E-5-LE-EX6	
			10	579072	SDBT-MS-20NL-ZN-E-10-LE-EX6	
Ordering data – Slot cover for T-slot						
						Datasheets → Internet: abp
	Mounting	Length [m]		Part no.	Type	
	Insertable	2x 0.5		151680	ABP-5-S	
Ordering data – Mounting kits for proximity switches SMT/CRSMT/SDBT						
						Datasheets → Internet: smbz, dasp
	For ø	Materials		Part no.	Type	
	100	Rail: Anodised wrought aluminium alloy Screws: High-alloy stainless steel		537806	SMBZ-8-3 2/100	
	125			1451483	DASP-M4-125-A	
	160, 200			1553813	DASP-M4-160-A	
	250			1456781	DASP-M4-250-A	
	320			3015256	DASP-M4-320-A	

Accessories

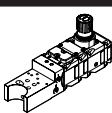
Ordering data – Connecting cables					Datasheets → Internet: nebu
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-core	2.5	541333	NEBU-M8G3-K-2.5-LE3
			5	541334	NEBU-M8G3-K-5-LE3
	Straight socket, M12x1, 5-pin	Cable, open end, 3-core	2.5	541363	NEBU-M12G5-K-2.5-LE3
			5	541364	NEBU-M12G5-K-5-LE3
	Angled socket, M8x1, 3-pin	Cable, open end, 3-core	2.5	541338	NEBU-M8W3-K-2.5-LE3
			5	541341	NEBU-M8W3-K-5-LE3
	Angled socket, M12x1, 5-pin	Cable, open end, 3-core	2.5	541367	NEBU-M12W5-K-2.5-LE3
			5	541370	NEBU-M12W5-K-5-LE3

Ordering data – Proximity switch, rectangular, pneumatic					Datasheets → Internet: smpo
	Mounting	Pneumatic connection	Part no.	Type	
3/2-way valve, normally closed					
	With accessories	Barbed fitting for tubing I.D. 3 mm	31008	SMPO-1-H-B	

Ordering data – Mounting kit for proximity switch SMPO-1					Datasheets → Internet: smbs
	For ø	Mounting	Part no.	Type	
	32 ... 100 mm	On the cylinder barrel using clamping strap	151226	SMBS-2	

Ordering data – Positioner					Datasheets → Internet: cmsh, cmsx
	Description	Function	Part no.	Type	
	<ul style="list-style-type: none"> Product versions for fail-safe or fail-in-place safety function Product versions for single- or double-acting actuators 	<ul style="list-style-type: none"> CMSH-SE-VDE1-D-... for attaching a positioner in accordance with VDE/VDI 3845-1 CMSH-SE-VDE2-D-... for directly attaching a positioner in accordance with VDE/VDI 3847-2 	8148076	CMSH-	
	Can be set to opening/closing in the event of a system failure ¹⁾	Double-acting	★ 3929539	CMSX-P-SE-C-U-F1-D-130-A	
	Holds position in the event of a system failure ¹⁾		3929540	CMSX-P-SE-C-U-F1-D-130-C	

1) Failure of the operating voltage supply or setpoint specification

Ordering data – Valve terminal					Datasheets → Internet: vtop
	Mounting	Part no.	Type		
	For additional pneumatic functions such as compressed air control, volume flow boosting, reaching a defined end position in the event of pressure failure, safe venting and reversing the effective direction	8141655	VTOP-		

Festo - Your Partner in Automation



1 Festo Inc.
5300 Explorer Drive
Mississauga, ON L4W 5G4
Canada

Festo Customer Interaction Center
Tel: 1 877 463 3786
Fax: 1 877 393 3786
Email: customer.service.ca@festo.com



2 Festo Pneumatic
Av. Ceylán 3,
Col. Tequesquináhuac
54020 Tlalnepantla,
Estado de México

Multinational Contact Center
01 800 337 8669
ventas.mexico@festo.com



3 Festo Corporation
1377 Motor Parkway
Suite 310
Islandia, NY 11749

Festo Customer Interaction Center
1 800 993 3786
1 800 963 3786
customer.service.us@festo.com



4 Regional Service Center
7777 Columbia Road
Mason, OH 45040

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