

Linear actuators DFPI-ND2P-E-NB3P



Linear actuators DFPI-ND2P-E-NB3P

Key features, product range overview

Function

DFPI-ND2P-E-NB3P are standards-based linear actuators to ISO 15552 with integrated displacement encoder. The potentiometric displacement encoder supplies an analogue

voltage signal proportional to the piston position. The electrical and pneumatic connection of the actuator is via a connector socket, which also provides protection. On account of

the standardised ISO 15552 mounting interfaces, there is a comprehensive range of accessories for just about every type of installation. The sturdy

corrosion-resistant design of the DFPI-ND2P-E-NB3P 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

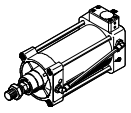
Flexible

- Comprehensive range of accessories for just about every type of installation
- Suitable for use in hazardous areas
- Additional contactless binary end-position sensing possible with proximity sensors
- Suitable for applications with regulated linear and swivel motion

Design

- Double-acting
- Sturdy tie rod design
- Integrated potentiometric displacement encoder
- Sizes Ø100, Ø125, Ø160, Ø200, Ø250 and Ø320
- Stroke lengths 40 to 990 mm
- Mounting interfaces to ISO 15552
- Robust connector socket to protect the pneumatic and electrical connections
- Temperature range -20 ... +80 °C
- IP65, IP67, IP69K, NEMA4
- ATEX 2GD certification
- Corrosion resistance class 3

Product range overview

	Type	Piston Ø [mm]	Stroke [mm]	Force [N]	Ambient temperature [°C]	→ Page/Internet
	DFPI-ND2P-E-NB3P	100	40 ... 990	4417 ... 46385	-20 ... +80	7
		125				
		160				
		200				
		250				
		320				

Linear actuators DFPI-ND2P-E-NB3P

Key features

DFPI-ND2P-E-NB3P

Piston \varnothing 100 ... 320



- DFPI with integrated displacement encoder and protected pneumatic and electrical connections

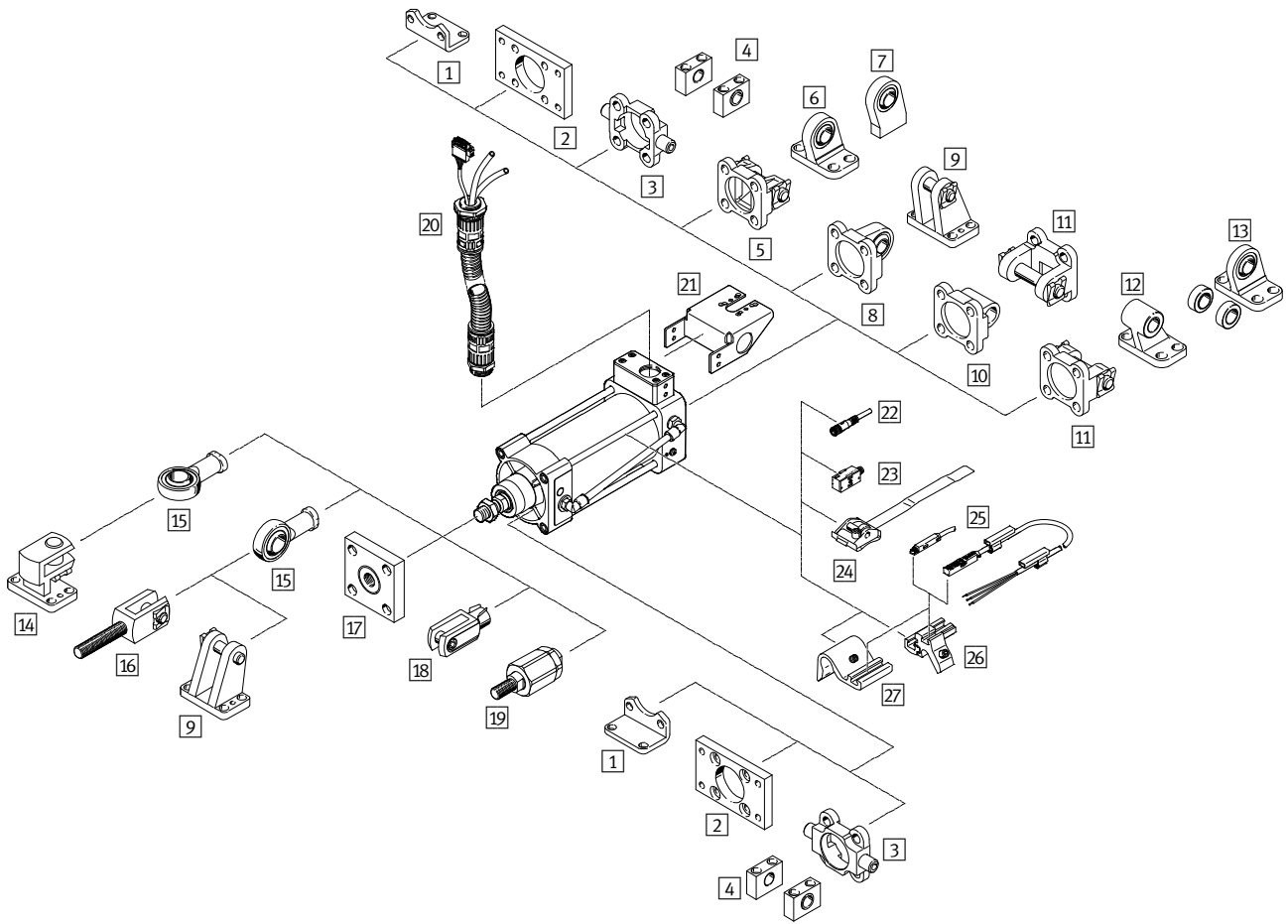
DFPI- ... -E- ... with attachments



- DFPI with integrated displacement encoder and protected pneumatic and electrical connections
- Rod eye SGS
- Swivel flange SNGL and SNGB

Linear actuators DFPI-ND2P-E-NB3P

Peripherals overview – DFPI with integrated displacement encoder



Mounting components and accessories		
	Description	→ Page/Internet
1	Foot mounting HNC/CRHNC	15
	Foot mounting HNG	15
2	Flange mounting FNC/CRFNG	17
	Flange mounting FNG	17
3	Trunnion flange ZNCF/CRZNG	18
4	Trunnion support LNZG/CRLNZG	19
5	Swivel flange SNC	20
	Swivel flange SNG	20
6	Clevis foot LSNG	26

Linear actuators DFPI-ND2P-E-NB3P

Peripherals overview – DFPI with integrated displacement encoder

Mounting components and accessories		
	Description	→ Page/Internet
7	Clevis foot LSNSG	Weld-on, with spherical bearing 26
8	Swivel flange SNCS	With spherical bearing for end caps 22
9	Clevis foot LBG	– 26
10	Swivel flange SNCL	For end caps 23
	Swivel flange SNGL	For end caps, corresponds to MP2 to ISO 15552 23
11	Swivel flange SNCB/SNCB-...-R3	For end caps 21
	Swivel flange SNGB	For end caps, corresponds to MP2 to ISO 15552 21
12	Clevis foot LNG/CRLNG	For swivel flange SNCB 26
	Clevis foot LN/LNG	For swivel flange SNGB 26
13	Clevis foot LSN	With spherical bearing 26
14	Right-angle clevis foot LQG	– 26
15	Rod eye SGS/CRSGS	With spherical bearing 27
16	Rod clevis SGA	With male thread 27
17	Coupling piece KSG	For compensating radial deviations 27
18	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane 27
19	Self-aligning rod coupler FK/CRFK	For compensating radial and angular deviations 27
20	Connecting cable NHSB	For electrical and pneumatic connection of linear actuator DFPI 13
21	DADG-AK-F6-A2	Mounting bracket for mounting a positioner with interface according to VDI/VDE 3845 or mounting with 150 mm distance between bores 24
22	Connecting cable NEBU	– 29
23	Proximity sensor SMPO-1-H-B	For sensing the piston position 29
24	Mounting kit SMBS	For proximity sensor SMPO-1-H-B 41 29
25	Proximity sensor SME/SMT-8M	For sensing the piston position 28
26	Mounting kit SMBZ-8- ...	For proximity sensor SME/SMT-8M, for piston \varnothing 100 28
27	Sensor bracket DASP-M4- ...	For proximity sensor SME/SMT-8M, for piston \varnothing 125, 160, 200, 250, 320 28

Linear actuators DFPI-ND2P-E-NB3P

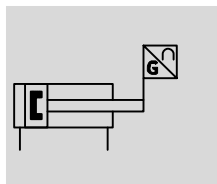
Type codes


		DFPI	-	100	-	200	-	N	D2	P	-	E	-	NB3	P
Type															
DFPI	Closed-loop controlled actuator for process automation														
Piston Ø															
100	100 mm														
125	125 mm														
160	160 mm														
200	200 mm														
250	250 mm														
320	320 mm														
Stroke															
	x length [40 ... 990 mm]														
Cushioning															
N	No cushioning														
Displacement encoder															
D2	Analogue														
Method of measurement															
P	Potentiometer														
Attachment position of controller															
-	Integrated														
E	External														
Standard															
NB3	Based on ISO 15552														
Connection type															
P	Protected														


Linear actuators DFPI-ND2P-E-NB3P


Technical data

Function



-  - Stroke
40 ... 990 mm

-  - Force
4417 ... 46385 N

-  - Piston Ø
100 ... 320 mm



General technical data						
Piston Ø	100	125	160	200	250	320
Stroke [mm]	40 ... 990					
Stroke reserve [mm]	4				-	
Mode of operation	Double-acting					
Based on standard (mounting interfaces)	DIN ISO 15552					
Cushioning	None					
Mounting position	Any					
Type of mounting	Interface to DIN ISO 15552					
Design	Piston rod, cylinder barrel					
Position sensing	Via proximity sensor				-	
	With integrated displacement encoder					
Measuring principle	Displacement encoder (potentiometer)					
Pneumatic port	For tubing O.D. 8 mm					
Electrical connection	3-pin, straight plug, screw terminal					
Max. cable length [m]	30				15	

Linear actuators DFPI-ND2P-E-NB3P

Technical data

General electrical characteristic data		
Operating voltage range	[V DC]	0 ... 15
Max. operating voltage	[V DC]	15
Resistance value of displacement encoder (on the T.E.P.) dependent on the stroke length ¹⁾		
≤ 290 mm	[kΩ]	5
> 290 mm to 590 mm	[kΩ]	10
> 590 mm to 990 mm	[kΩ]	20
Displacement encoder		
Recommended contact current	[μA]	< 0.1
Max. short-time contact current	[mA]	10
Independent linearity	[%FS]	0.04
Repetition accuracy	[mm]	±0.12
Hysteresis	[mm]	0.33

1) T.E.P. = theoretical electrical path

Operating and environmental conditions		
Operating pressure	[bar]	3 ... 8
Nominal operating pressure	[bar]	6
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating medium		Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	-20 ... +80
Storage temperature	[°C]	-20 ... +80
Relative air 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
Corrosion resistance class CRC ¹⁾		3

1) 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 requirements for the surface and which are in direct contact with a normal industrial environment.

ATEX		
ATEX category gas		II 2G
Type of (ignition) protection for gas		c T4X
ATEX category dust		II 2D
Type of (ignition) protection for dust		c 120°CX
Explosion-proof temperature	[°C]	-20 ≤ Ta ≤ +60
CE marking (see declaration of conformity)		To EU Explosion Protection Directive (ATEX)

Linear actuators DFPI-ND2P-E-NB3P

Technical data

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 in the end positions	1.3	1.0	1.4	1.0	–	–

Permissible impact velocity:
$$v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{intrinsic} + m_{Load}}}$$

Maximum permissible load:
$$m_{Load} = \frac{2 \times E_{perm.}}{v^2} - m_{intrinsic}$$

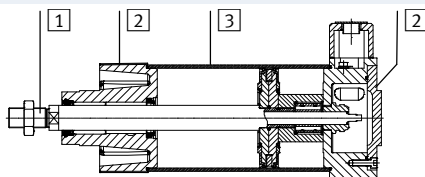
$v_{perm.}$ Permissible impact velocity
 $E_{perm.}$ Maximum impact energy
 $m_{intrinsic}$ Moving mass (actuator)
 m_{Load} Moving payload

Air consumption [l]						
Piston Ø	100	125	160	200	250	320
Air consumption, advancing, per 10 mm stroke	0.5498	0.859	1.4074	2.119	3.436	3.299
Air consumption, retracting, per 10 mm stroke	0.5153	0.8027	1.3511	2.111	5.63	5.412

Weights						
Piston Ø	100	125	160	200	250	320
Basic weight with 0 mm stroke [g]	4900	7500	12800	18100	31100	57700
Additional weight per 10 mm stroke [g]	90	134	200	239	134	227
Moving load with 0 mm stroke [g]	1060	1900	3700	4800	9300	16500
Additional moving load per 10 mm stroke [g]	28	53	89	89	358	582

Materials

Sectional view



Linear actuators		
1	Piston rod	Piston Ø 100 ... 320 High-alloy stainless steel
2	Top cap (end cap)	Piston Ø 100 ... 320 Coated die-cast aluminium
2	Bottom cap (bearing cap)	Piston Ø 100 ... 320 Coated wrought aluminium alloy
3	Cylinder barrel	Piston Ø 100 ... 320 Wrought aluminium alloy, hard-anodised
–	Tie rods	Piston Ø 100 ... 200 High-alloy stainless steel
–	Flange screw/nut	Piston Ø 100 ... 320 Coated steel
–	Screws	Piston Ø 250 ... 320 Coated steel High-alloy stainless steel
–	Rod bearing	Piston Ø 100 ... 200 Sintered bronze
–	Piston seal	Piston Ø 100, 125 PUR Piston Ø 160, 200 NBR
–	Piston rod wiper seal	Piston Ø 100 PUR Piston Ø 125 ... 200 NBR
–	Static seals	Piston Ø 100 ... 320 NBR
–	Note on materials	Piston Ø 100 ... 200 PWIS-free to FN 942010 Piston Ø 100 ... 320 RoHS-compliant

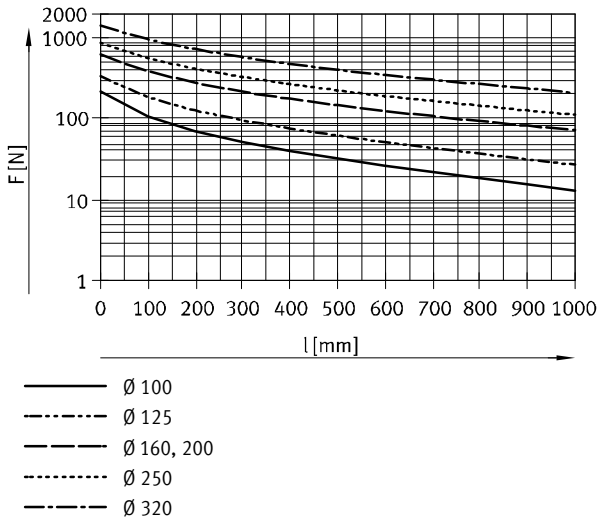
Linear actuators DFPI-ND2P-E-NB3P

Technical data

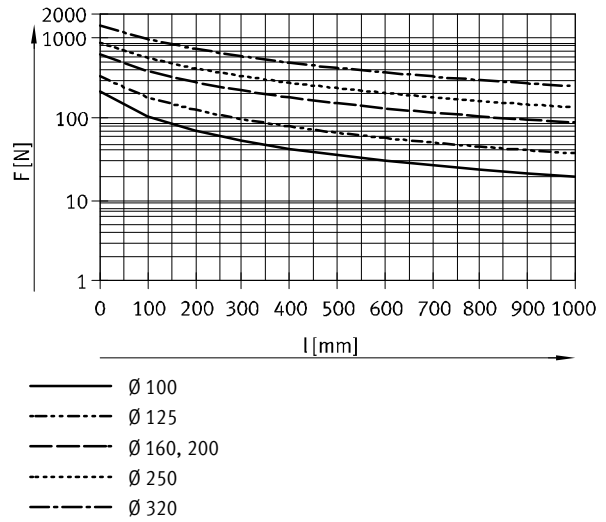
Max. lateral force as a function of stroke length l

The maximum lateral force (horizontal/vertical) applies in individual cases. In controlled operation, adjustment of the maximum lateral force to the type of control may be required. If necessary, the piston rod must be guided to avoid system vibration.

Horizontal lateral force



Vertical lateral force



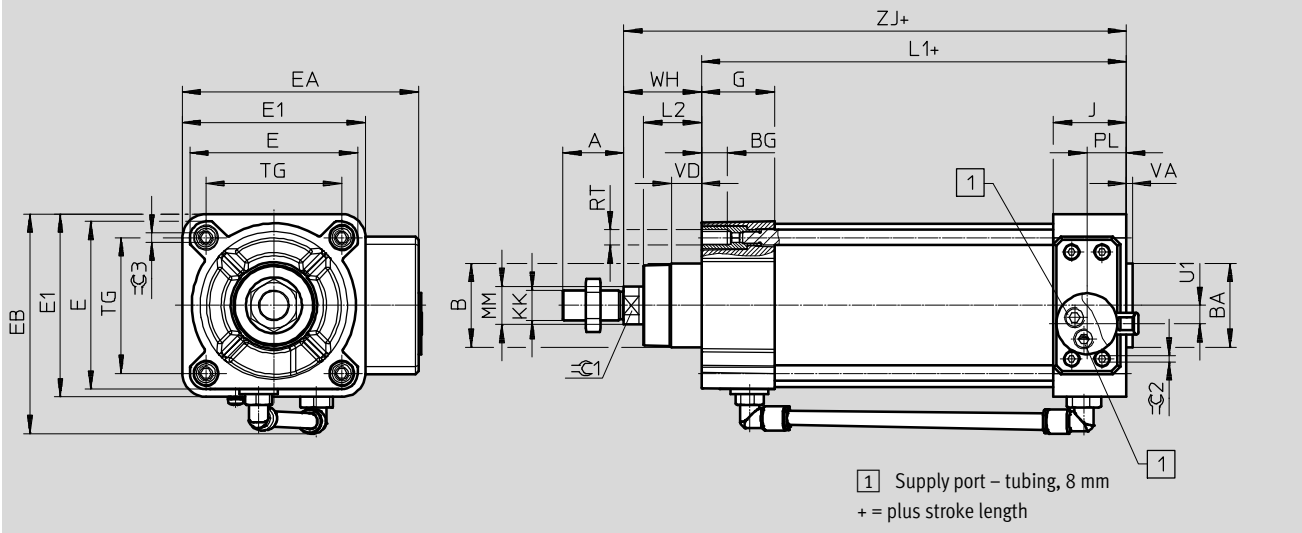
Linear actuators DFPI-ND2P-E-NB3P

Technical data

Dimensions

Download CAD data → www.festo.com

Piston Ø 100, 125



Piston Ø	A	B	BA	BG	E	E1	EA	EB	G	J	KK	L1
[mm]		Ø	Ø									
DFPI-100	40	55	55	17	110	120	155	144	48	48	M20x1.5	179
DFPI-125	54	60	60	20	136	145	180	169	44.7		M27x2	200

Piston Ø	L2	MM	PL	RT	TG	U1	VD	VA	WH	ZJ	$\varnothing 1$	$\varnothing 2$	$\varnothing 3$
[mm]													
DFPI-100	38	25	26	M10	89	12	19.2	4	51	229.7	22	4	6
DFPI-125	45.5	32		M12	110	22	20.5	6	65	264.7	27		8

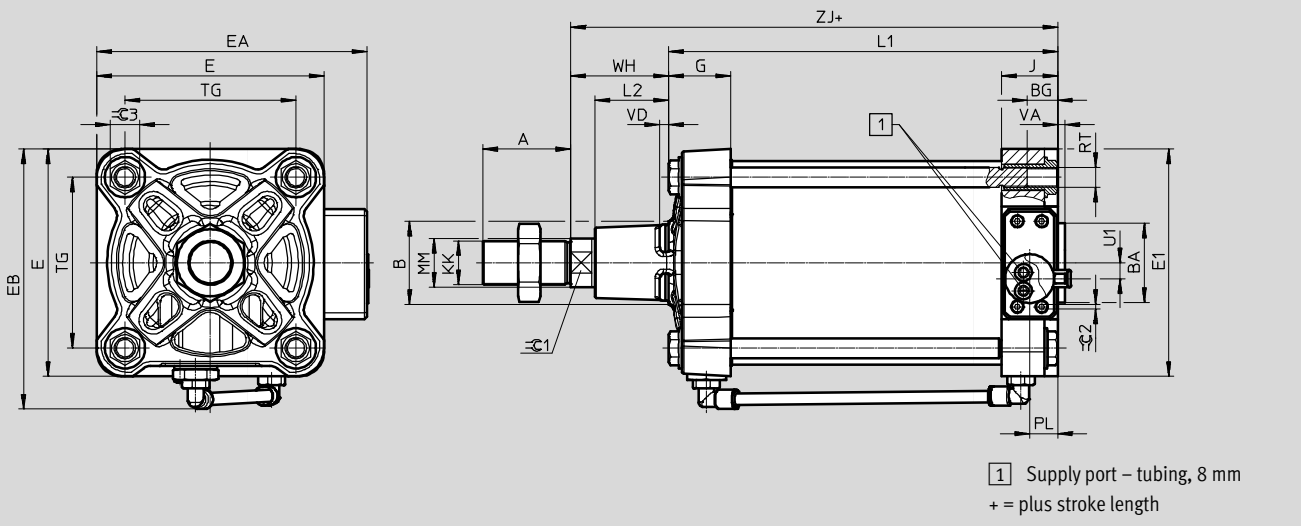
Linear actuators DFPI-ND2P-E-NB3P

Technical data

Dimensions

Download CAD data → www.festo.com

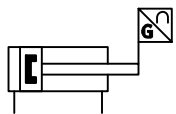
Piston Ø 160, 200, 250, 320



Piston Ø	A	B	BA	BG	E	E1	EA	EB	G	J	KK	L1
[mm]	-0.5	Ø	Ø								d11	
DFPI-160	72	65	65	24	186	186	221	210	51	46	M36x2	219
DFPI-200		75	75		230	230	265	256				47.2
DFPI-250	84	90	90	25	284	270	312	323	52	51.5	M42x2	254
DFPI-320	96	110	110	28	347	342	378.5	404	56	58	M48x2	281.2

Piston Ø	L2	MM	PL	RT	TG	U1	VD	VA	WH	ZJ	⌀C1	⌀C2	⌀C3	
[mm]								-1	±2.2					
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			

Ordering data

Type	Piston Ø [mm]	Part No.	Type
	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

Linear actuators DFPI-ND2P-E-NB3P

FESTO

Accessories

Connecting cable NHSB
for DFPI-ND2P-E-NB3P



General technical data		
Connecting cable	[mm ²]	3x 0.75
Mounting position		Any
Min. cable bending radius	[mm]	100
Pneumatic connection		For tubing O.D. 8 mm

Operating and environmental conditions		
Ambient temperature	[°C]	-20 ... 60
Ambient temperature with flexible cable installation	[°C]	-5 ... 60
Operating voltage range DC	[V]	0 ... 30
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible
Protection class		IP65, IP67, IP68, IP69K, NEMA 4 in assembled state

Materials	
Protective conduit	PA
Conduit fitting	PA
Cable sheath	PVC
Seals	TPE
Note on materials	Contains PWIS (paint-wetting impairment substances) RoHS-compliant

Linear actuators DFPI-ND2P-E-NB3P

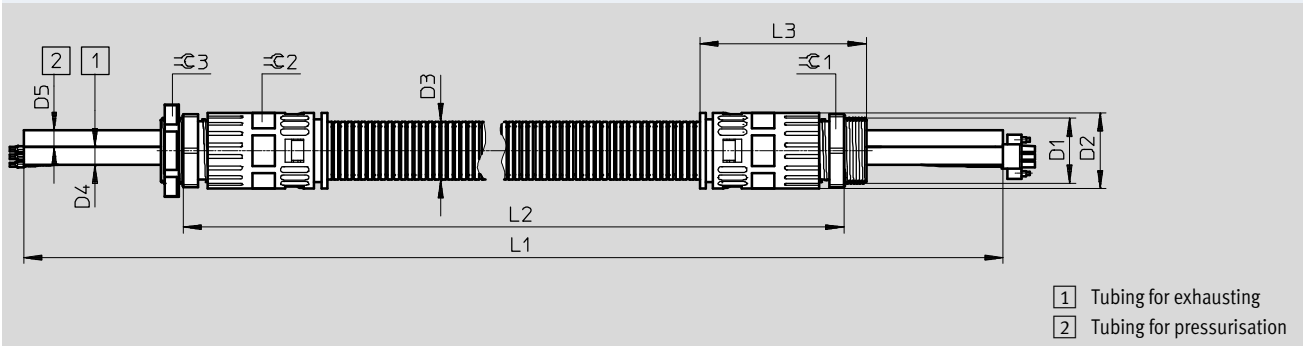
Accessories



Dimensions

Download CAD data → www.festo.com

3-wire



Type	D1	D2 Ø	D3 Ø	D4 Ø	D5 Ø	L1 ±25	L2 ±25	L3	∅C 1	∅C 2	∅C 3
NHSB-A1-06-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				

Ordering data – Connecting cable

Technical data → Internet: nhsb

	Electrical connection 1	Electrical connection 2	Length [m]	Cable composition [mm ²]	Weight [g]	Part No.	Type
3-wire, for DFPI- ... -ND2P-E-NB3P							
	Straight plug, 3-pin	Open end, 3-wire	0.6	3x 0.75	280	3673475	NHSB-A1-06-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

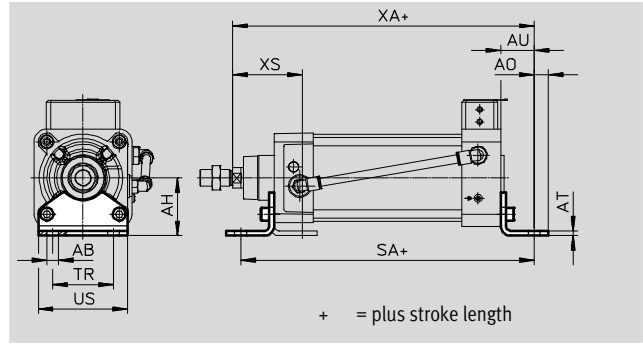
Linear actuators DFPI-ND2P-E-NB3P

Accessories

Foot mounting HNC/CRHNC

Materials:

- HNC: Galvanised steel
- CRHNC: High-alloy steel
- Free of copper and PTFE



Dimensions and ordering data										
For Ø	AB	AH	AO	AT	AU	SA	TR	US	XA	XS
[mm]	Ø									
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

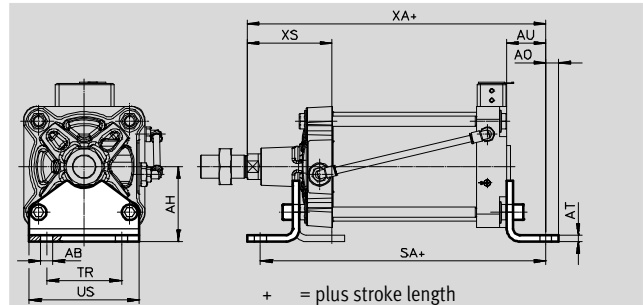
For Ø	Basic design				High corrosion protection			
	CRC ¹⁾	Weight [g]	Part No.	Type ²⁾	CRC ¹⁾	Weight [g]	Part No.	Type ²⁾
[mm]								
100	2	1009	174374	HNC-100	4	990	176942	CRHNC-100
125	2	1902	174375	HNC-125	4	1920	176943	CRHNC-125

- Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
 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, for instance in the chemical or food industries. These applications may need to be supported by special tests (→ also FN 940082) using appropriate media.
- Suitable for ATEX

Foot mounting HNG

Materials:

- Galvanised steel
- Free of copper and PTFE



Dimensions and ordering data														
For Ø	AB	AH	AO	AT	AU	SA	TR	US	XA	XS	CRC ¹⁾	Weight	Part No.	Type
[mm]	Ø											[g]		
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 may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

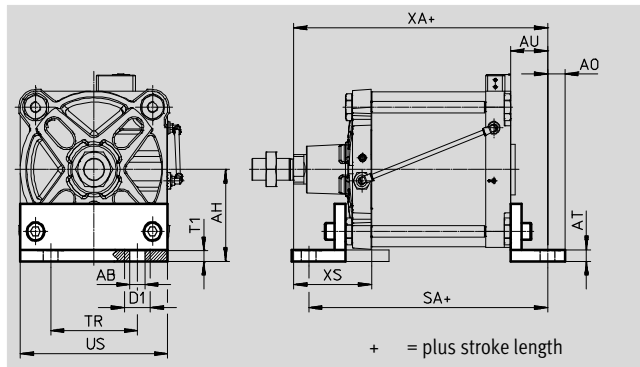
Linear actuators DFPI-ND2P-E-NB3P



Accessories

Foot mounting HNG

Materials:
Galvanised steel
Free of copper and PTFE



Dimensions and ordering data														Weight [g]	Part No.	Type
For \varnothing [mm]	AB \varnothing	AH	A0	AT	AU	D1 \varnothing	SA	T1	TR	US	XA	XS	CRC ¹⁾			
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 may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Linear actuators DFPI-ND2P-E-NB3P

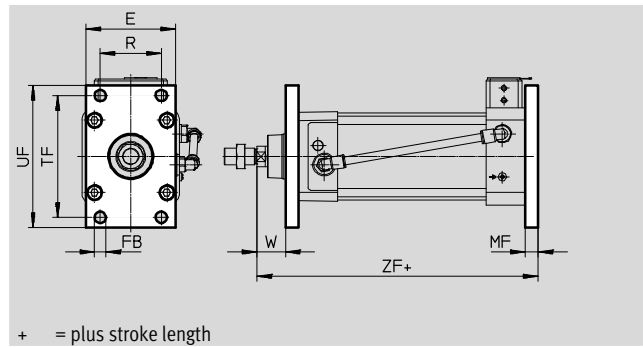
FESTO

Accessories

Flange mounting FNC/CRFNG

Materials:

- FNC: Galvanised steel
- CRFNG: High-alloy steel
- Free of copper and PTFE
- RoHS-compliant



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

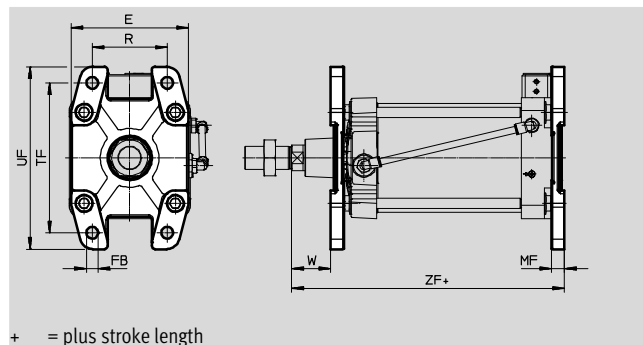
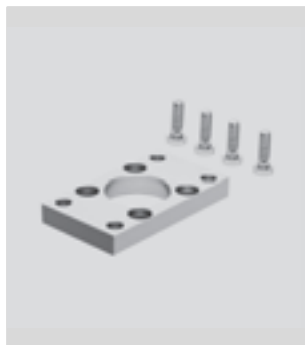
For Ø	Basic design				High corrosion protection			
	CRC ¹⁾	Weight [g]	Part No.	Type ²⁾	CRC ¹⁾	Weight [g]	Part No.	Type ²⁾
[mm]								
100	1	2041	174381	FNC-100	4	2054	161851	CRFNG-100
125	1	3775	174382	FNC-125	4	3787	185363	CRFNG-125

- Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which 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, for instance in the chemical or food industries. These applications may need to be supported by special tests (→ also FN 940082) using appropriate media.
- Suitable for ATEX

Flange mounting FNG

Materials:

- Painted spheroidal graphite cast iron
- Free of copper and PTFE



Dimensions and ordering data												
For Ø	E	FB	MF	R	TF	UF	W	ZF	CRC ¹⁾	Weight	Part No.	Type
[mm]		Ø								[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

- Corrosion resistance class CRC 1 to Festo standard FN 940070
 Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Linear actuators DFPI-ND2P-E-NB3P



Accessories

Trunnion flange ZNCF/CRZNG

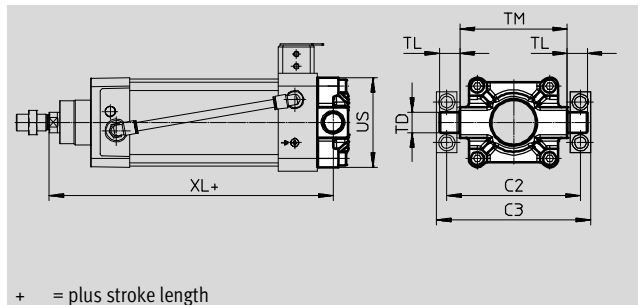
Materials:

ZNCF: Stainless steel casting

CRZNG: Electropolished stainless steel casting

Free of copper and PTFE

RoHS-compliant



+ = plus stroke length

Dimensions and ordering data							
For Ø	C2	C3	TD	TL	TM	US	XL
[mm]			Ø e9				
100	164	189	25	24.5	132	110	248.7
125	192	217			160	131	289.7

For Ø	Basic design				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 may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

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, for instance in the chemical or food industries. These applications may need to be supported by special tests (→ also FN 940082) using appropriate media.

2) Suitable for ATEX

Linear actuators DFPI-ND2P-E-NB3P

Accessories

Trunnion support LNZG

Materials:

Trunnion support:

Ø 100/125: Anodised aluminium

Ø 160 ... 320: Galvanised steel

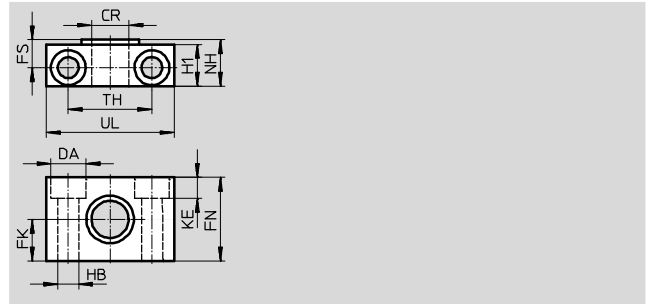
Plain bearing:

Ø 100/125, 160/200: Plastic

Ø 250/320: Bronze

Free of copper and PTFE

RoHS-compliant



Dimensions and ordering data															
For Ø	CR	DA	FK	FN	FS	H1	HB	KE	NH	TH	UL	CRC ¹⁾	Weight	Part No.	Type
[mm]	Ø	Ø					Ø						[g]		
	D11	H13					H13								
100/125	25	20	25±0.1	50	16	24.5	14	13	28.5	50 ±0.2	75	2	306	32962	LNZG-100/125
160/200	32	26	30 ±0.2	60	22.5	36	18	17	40	60 ±0.3	92	2	659	35780	LNZG-160/200
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 may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

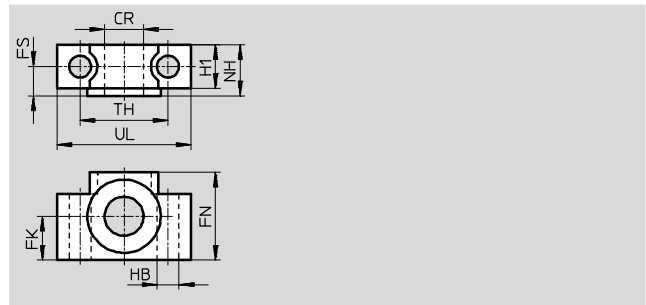
Trunnion support CRLNZG

Materials:

High-alloy steel

Free of copper and PTFE

RoHS-compliant



Dimensions and ordering data															
For Ø	CR	FK	FN	FS	H1	HB	NH	TH	UL	CRC ¹⁾	Weight	Part No.	Type		
[mm]	Ø	±0.1				Ø		±0.2			[g]				
	D11					H13									
100, 125	25	25	50	16	24.5	14	28.5	50	75	4	739	161877	CRLNZG-100/125		

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, for instance in the chemical or food industries. These applications may need to be supported by special tests (➔ also FN 940082) using appropriate media.

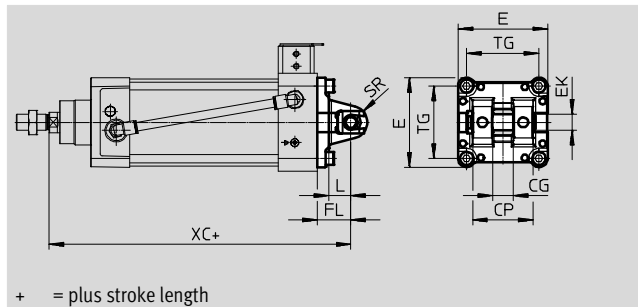
Linear actuators DFPI-ND2P-E-NB3P



Accessories

Swivel flange SNC

Materials:
Die-cast aluminium
RoHS-compliant

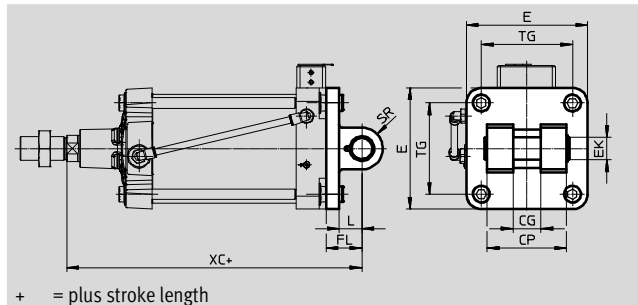


Dimensions and ordering data													
For \varnothing	CG	CP	E	EK \varnothing	FL ± 0.2	L	SR	TG	XC	CRC ¹⁾	Weight [g]	Part No.	Type ²⁾
[mm]	H14	h14		H9	± 0.2								
100	25	75	110 ^{+0.3/-0.8}	20	41	27	20	89	270.7	2	895	174388	SNC-100
125	37	97	131 ^{-0.8}	30	50	30	25	110	334.7	2	1740	174389	SNC-125

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
- 2) Suitable for ATEX

Swivel flange SNG

Materials:
Die-cast aluminium
RoHS-compliant



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

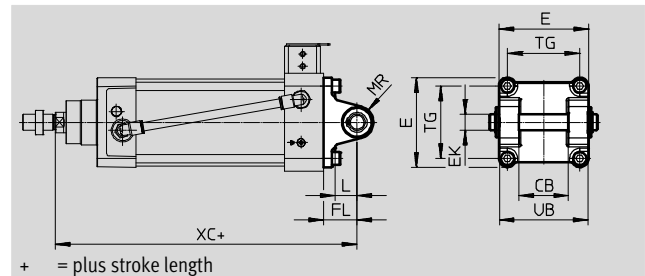
- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
- 2) Suitable for ATEX

Linear actuators DFPI-ND2P-E-NB3P

Accessories

Swivel flange SNCB/SNCB-...-R3

Materials:
SNCB: Die-cast aluminium
SNCB-...-R3: Die-cast aluminium with protective coating, high corrosion protection
Free of copper and PTFE
RoHS-compliant



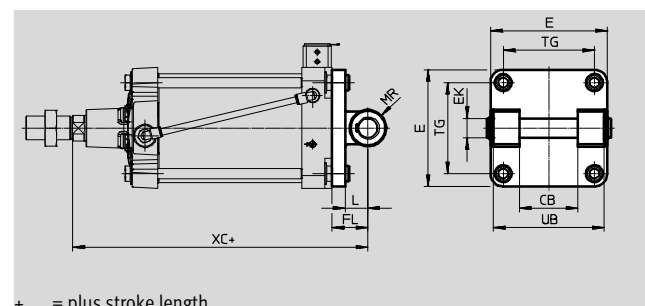
Dimensions and ordering data									
For Ø	CB	E	EK Ø	FL	L	MR	TG	UB	XC
[mm]	H14		H9/e8	±0.2		-0.5			
100	60	110+0.3/-0.8	20	41	27	20	89	110	270.7
125	70	131-0.8	25	50	30	25	110	130	314.7

For Ø [mm]	Basic design				Variant R3 – High corrosion protection			
	CRC ¹⁾	Weight [g]	Part No.	Type	CRC ¹⁾	Weight [g]	Part No.	Type
100	2	1035	174395	SNCB-100	3	986	176949	SNCB-100-R3
125	2	1860	174396	SNCB-125	3	1776	176950	SNCB-125-R3

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
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 requirements for the surface and which are in direct contact with a normal industrial environment.

Swivel flange SNGB for clevis foot LN/LSN

Materials:
Die-cast aluminium



Dimensions and ordering data													
For Ø	CB	E	EK Ø	FL	L	MR	TG	UB	XC	CRC ¹⁾	Weight	Part No.	Type
[mm]	H14		E10	±0.2			±0.3	h14			[g]		
160	90	179.5 ±0.5	30	55	35	25	140	170	353.6	2	3438	34547	SNGB-160
200	110	268 ±0.2	40	70	47	40	220	200	390	2	10013	562455	SNGB-200-B
250	110	268	40 E10	70	47	40	220	200	426	2	16141	157512	SNGB-250
320	120	338	45 H9	80	52	45	270	220	481,2	2	26636	157513	SNGB-320

- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

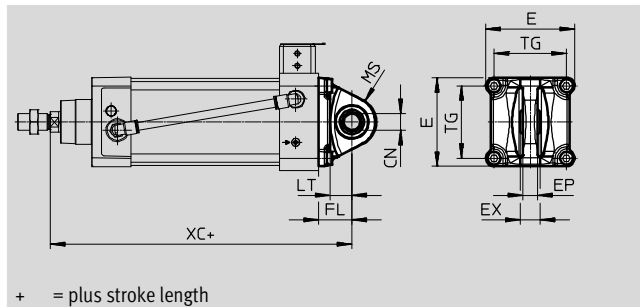
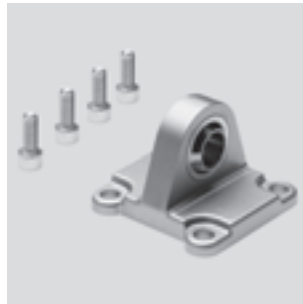
Linear actuators DFPI-ND2P-E-NB3P

Accessories



Swivel flange SNCS

Materials:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant



Dimensions and ordering data													
For \varnothing	CN	E	EP	EX	FL	LT	MS	TG	XC	CRC ¹⁾	Weight	Part No.	Type
[mm]	\varnothing	+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

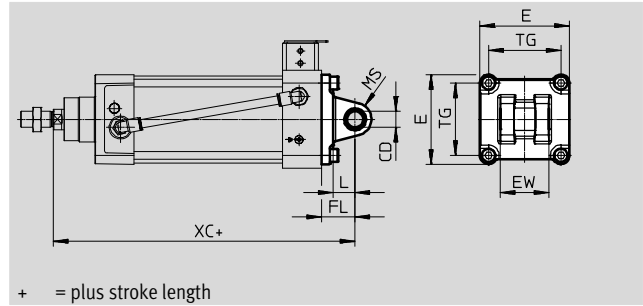
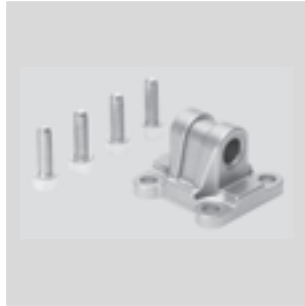
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Linear actuators DFPI-ND2P-E-NB3P

Accessories

Swivel flange SNCL

Materials:
Die-cast aluminium
Free of copper and PTFE
RoHS-compliant

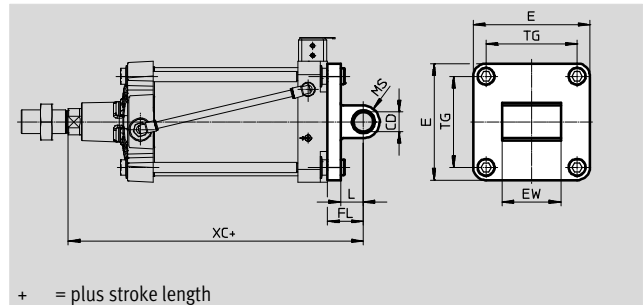


Dimensions and ordering data												
For \varnothing	CD	E	EW	FL	L	MS	TG	XC	CRC ¹⁾	Weight	Part No.	Type
[mm]	\varnothing H9		-0.2/-0.6	+0.2						[g]		
100	20	110 ^{+0.3/-0.8}	60	41	27	20	72	270.7	2	606	174409	SNCL-100
125	25	131 ^{-0.8}	70	50	30	25	89	314.7	2	1135	174410	SNCL-125

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Swivel flange SNGL

Materials:
Die-cast aluminium
Free of copper and PTFE



Dimensions and ordering data												
For \varnothing	CD	E	EW	FL	L	MS	TG	XC	CRC ¹⁾	Weight	Part No.	Type
[mm]	\varnothing H9	± 0.5	-0.5/-1.2	+0.2						[g]		
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	SNGL-200

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Linear actuators DFPI-ND2P-E-NB3P

Accessories

Adapter kit DADG-AK-F6-A2

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



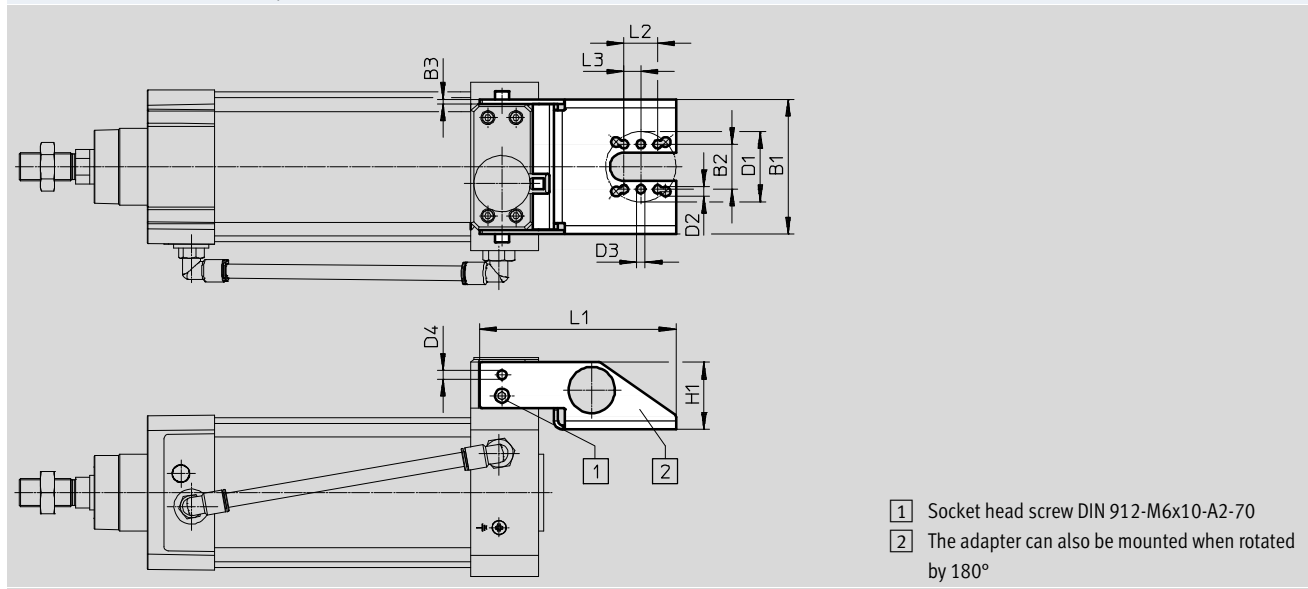
General technical data		
Ambient temperature ¹⁾	[°C]	-20 ... +80
Corrosion resistance class CRC ²⁾		3

- 1) Note operating range of proximity sensors 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 requirements for the surface and which are in direct contact with a normal industrial environment.

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

Dimensions Download CAD data → www.festo.com

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



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

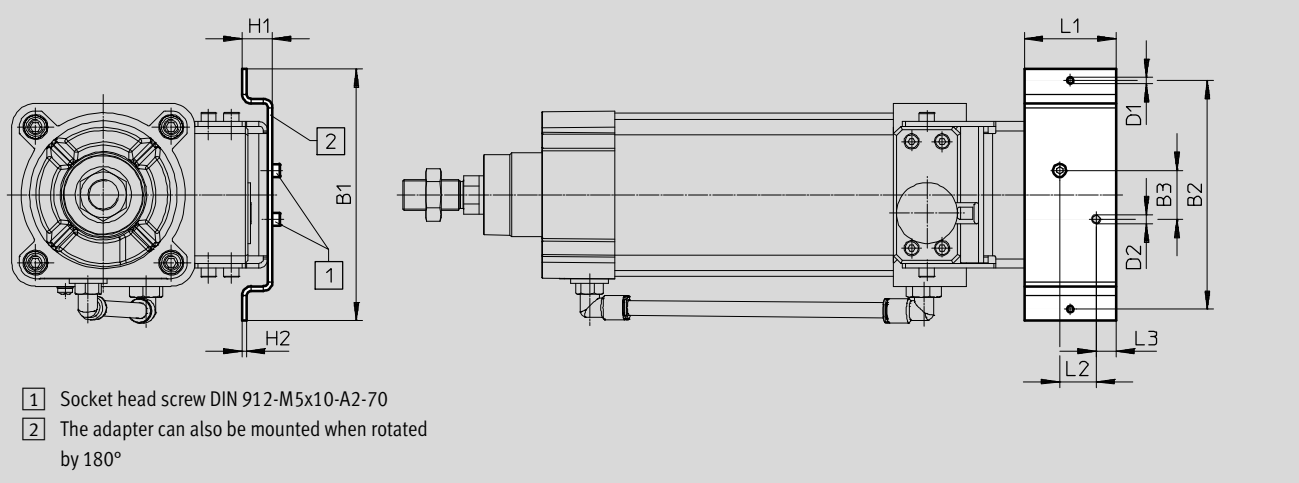
Linear actuators DFPI-ND2P-E-NB3P

Accessories

Dimensions

Download CAD data → www.festo.com

Mounting bracket for mounting a positioner with 150 mm hole spacing

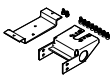


Dimensions

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


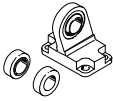
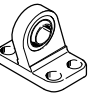

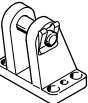
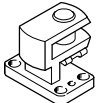
Ordering data – Adapter kit

Technical data → Internet: smbs


	For ∅	Description	Part No.	Type
	100 ... 200 mm	For direct mounting of an external positioner on the actuator	3179433	DADG-AK-F6-A2

Linear actuators DFPI-ND2P-E-NB3P

Accessories





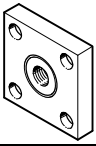
Ordering data – Mounting components				Technical data → Internet: clevis foot			
Designation	For Ø	Part No.	Type	Designation	For Ø	Part No.	Type
Clevis foot LN/LNG				Clevis foot LSN			
	100	33895	LNG-100		100	5566	LSN-100
	125	33896	LNG-125		125	6987	LSN-125
	160	9037	LN-160		160	6988	LSN-160
	200	33898	LNG-200		200	6989	LSN-200
Clevis foot LSNG				Clevis foot LSNSG			
	100	31745	LSNG-100		100	31752	LSNSG-100
	125	31746	LSNG-125		125	31753	LSNSG-125
	160	152599	LSNG-160				
	200	152600	LSNG-200				
Clevis foot LBG¹⁾				Right-angle clevis foot LQG¹⁾			
	100	31766	LBG-100		100	31773	LQG-100
	125	31767	LBG-125		125	31774	LQG-125

1) Suitable for ATEX




Ordering data – Mounting components, corrosion-resistant				Technical data → Internet: crlng	
Designation	For Ø	Part No.	Type		
Clevis foot CRLNG					
	100	161845	CRLNG-100		
	125	176951	CRLNG-125		

Linear actuators DFPI-ND2P-E-NB3P

Accessories

Ordering data – Piston-rod attachments				Technical data → Internet: piston-rod attachment			
Designation	For Ø	Part No.	Type	Designation	For Ø	Part No.	Type
Rod eye SGS				Rod clevis SGA¹⁾			
	100	9264	SGS-M20x1,5		100	10769	SGA-M20x1,5
	125	10774	SGS-M27x2		125	10770	SGA-M27x2
	160, 200	10775	SGS-M36x2		160, 200	10771	SGA-M36x2
Rod clevis SG¹⁾				Self-aligning rod coupler FK¹⁾			
	100	6147	SG-M20x1,5		100	6143	FK-M20x1,5
	125	14987	SG-M27x2-B		125	10485	FK-M27x2
	160, 200	9581	SG-M36x2		160, 200	10746	FK-M36x2
Coupling piece KSG¹⁾							
	100	32966	KSG-M20x1,5				
	125	32967	KSG-M27x2				

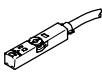
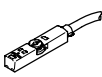
1) Suitable for ATEX

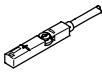
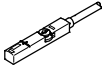
Ordering data – Piston-rod attachments, corrosion-resistant				Technical data → Internet: piston-rod attachment			
Designation	For Ø	Part No.	Type	Designation	For Ø	Part No.	Type
Rod eye CRSGS				Rod clevis CRSG¹⁾			
	100	195585	CRSGS-M20x1,5		100	13572	CRSG-M20x1,5
	125	195586	CRSGS-M27x2		125	185361	CRSG-M27x2
Self-aligning rod coupler CRFK							
	100	2545677	CRFK-M20x1,5				

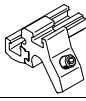
1) Suitable for ATEX

Linear actuators DFPI-ND2P-E-NB3P

Accessories



Ordering data – Proximity sensor for T-slot, magneto-resistive						Technical data → Internet: smt	
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type	
N/O contact							
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2,5-OE	
			Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
			Plug M12x1, 3-pin	0.3	574337	SMT-8M-A-PS-24V-E-0,3-M12	
		NPN	Cable, 3-wire	2.5	574338	SMT-8M-A-NS-24V-E-2,5-OE	
			Plug M8x1, 3-pin	0.3	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
N/C contact							
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7,5-OE	


Ordering data – Proximity sensor for T-slot, magnetic reed						Technical data → Internet: sme	
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type	
N/O contact							
	Inserted in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	543862	SME-8M-DS-24V-K-2,5-OE	
				5.0	543863	SME-8M-DS-24V-K-5,0-OE	
			Cable, 2-wire	2.5	543872	SME-8M-ZS-24V-K-2,5-OE	
			Plug M8x1, 3-pin	0.3	543861	SME-8M-DS-24V-K-0,3-M8D	
N/C contact							
	Inserted in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	546799	SME-8M-DO-24V-K-7,5-OE	

Ordering data – Mounting kits for proximity sensor SME/SMT-8						
	For Ø	Materials	Part No.	Type		
	100	Rail: Anodised wrought aluminium alloy Screws: High-alloy stainless steel Free of copper and PTFE	537806	SMBZ-8-32/100		
	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		

Linear actuators DFPI-ND2P-E-NB3P

Accessories

Ordering data – Connecting cables				Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	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-wire	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-wire	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-wire	2.5	541367	NEBU-M12W5-K-2.5-LE3
			5	541370	NEBU-M12W5-K-5-LE3

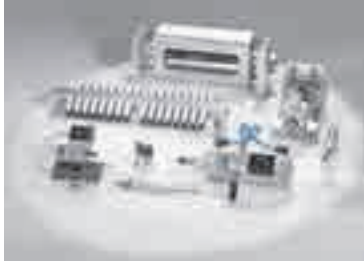
Ordering data – Rectangular proximity sensors, pneumatic			Technical data → Internet: smpo	
	Mounting	Pneumatic connection	Part No.	Type
3/2-way valve, normally closed				
	Via accessories	Barbed connector for tubing I.D. 3 mm	31008	SMPO-1-H-B

Ordering data – Mounting kit for proximity sensor SMPO-1			Technical data → Internet: smbs	
	For Ø	Mounting	Part No.	Type
	32 ... 100 mm	On the cylinder barrel via clamping strap	151226	SMBS-2

Product Range and Company Overview

A Complete Suite and Company Overview

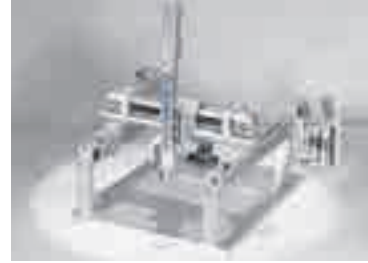
Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



Electromechanical
Electromechanical actuators, motors, controllers & drivers



Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 16,000 employees in 60 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

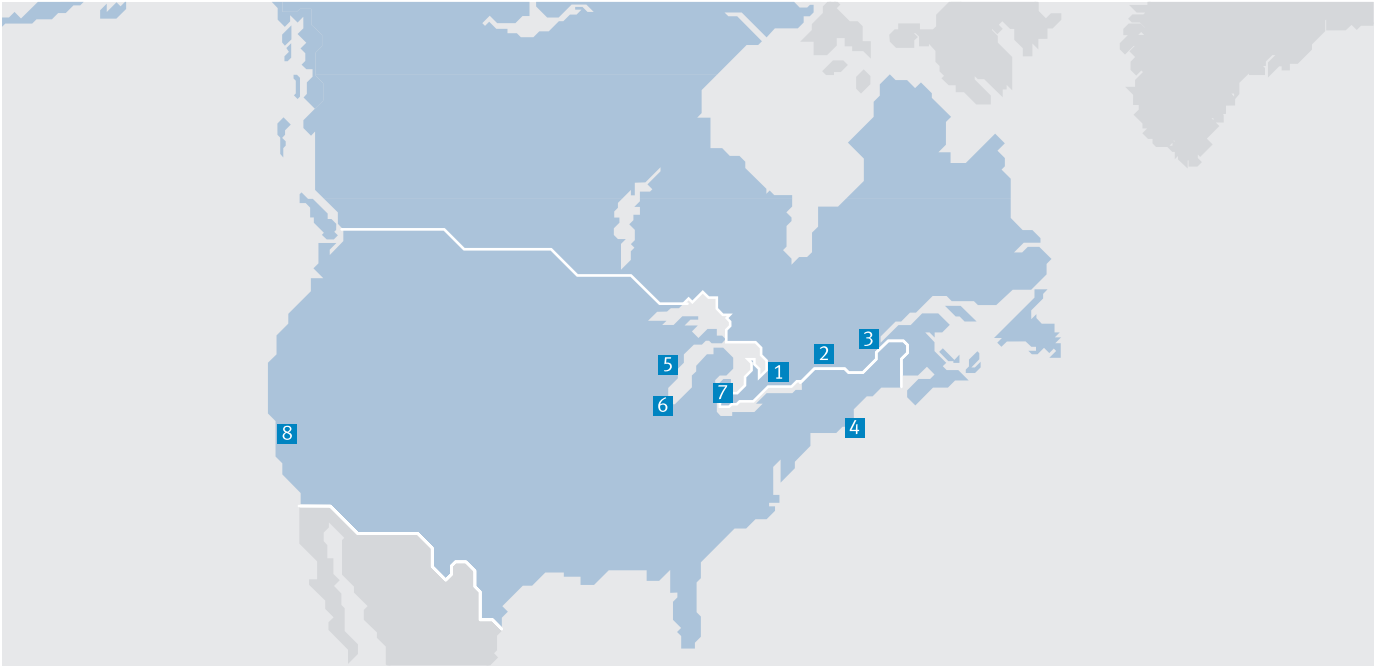


© Copyright 2013, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.



Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmental friendly printing plant.

Festo North America



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

2 Montréal
5600, Trans-Canada
Pointe-Claire, QC
H9R 1B6

3 Québec City
2930, rue Watt#117
Québec, QC
G1X 4G3



**4 Festo United States
Headquarters
Festo Corporation**
395 Moreland Road
Hauppauge, NY
11788

5 Appleton
North 922 Tower View Drive, Suite N
Greenville, WI
54942

7 Detroit
1441 West Long Lake Road
Troy, MI
48098

6 Chicago
85 W Algonquin - Suite 340
Arlington Heights, IL
60005

8 Silicon Valley
4935 Southfront Road, Suite F
Livermore, CA
94550

Festo Regional Contact Center

Canadian Customers

Commercial Support:
Tel: 1 877 GO FESTO (1 877 463 3786)
Fax: 1 877 FX FESTO (1 877 393 3786)
Email: festo.canada@ca.festo.com

Technical Support:
Tel: 1 866 GO FESTO (1 866 463 3786)
Fax: 1 877 FX FESTO (1 877 393 3786)
Email: technical.support@ca.festo.com

USA Customers

Commercial Support:
Tel: 1 800 99 FESTO (1 800 993 3786)
Fax: 1 800 96 FESTO (1 800 963 3786)
Email: customer.service@us.festo.com

Technical Support:
Tel: 1 866 GO FESTO (1 866 463 3786)
Fax: 1 800 96 FESTO (1 800 963 3786)
Email: product.support@us.festo.com