

## Short-stroke cylinders ADNE-LAS, with linear motor

**FESTO**








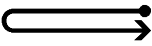
# Short-stroke cylinders ADNE-LAS, with linear motor

Key features

FESTO

At a glance		
Properties		Range of applications
<ul style="list-style-type: none"> <li>• Electric short-stroke cylinder with integrated linear motor, specifically designed for dynamic movements between two end positions</li> <li>• A cycle of advancing and retracting motion over 15 mm can be achieved in 64 ms (movement frequency of up to 13.6 Hz)</li> </ul>	<ul style="list-style-type: none"> <li>• Festo plug &amp; work: connect, switch on, teach-in end positions and then the system is ready to use. There is no need to set servo parameters</li> <li>• Mechanical interfaces are largely compatible with the pneumatic compact cylinder ADN</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic end-position cushioning, i.e. constant force across the entire stroke with the force only reduced at the end positions as end-position cushioning</li> <li>• No external magnetic fields</li> </ul>
		<ul style="list-style-type: none"> <li>• Dynamic movement with secondary accuracy requirements: <ul style="list-style-type: none"> <li>– Switching deflectors</li> <li>– Rejecting good/bad parts from an ongoing production process</li> <li>– Blocking movements</li> <li>– Checking switches</li> <li>– Applying labels</li> </ul> </li> </ul>

Everything from a single source		
<p>Short-stroke cylinder ADNE-LAS → 3</p>   <p>End-position controller CMFL → Internet: cmfl</p>	<ul style="list-style-type: none"> <li>• Short-stroke cylinder ADNE-LAS</li> <li>• End-position controller CMFL</li> <li>• Motor cable NEBM</li> <li>• Power supply cable KPWR</li> <li>• Pilot line KES</li> </ul>	<p>The short-stroke cylinder ADNE-LAS and the end-position controller CMFL form one unit. Only one cable is required between the short-stroke cylinder and end-position controller.</p>

Movement pattern		
Four movement patterns can be selected via inputs.	<ol style="list-style-type: none"> <li>1. Advancing</li> <li>2. Retracting</li> <li>3. Advancing and then retracting again</li> <li>4. Retracting and then advancing again</li> </ol>	   

## Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

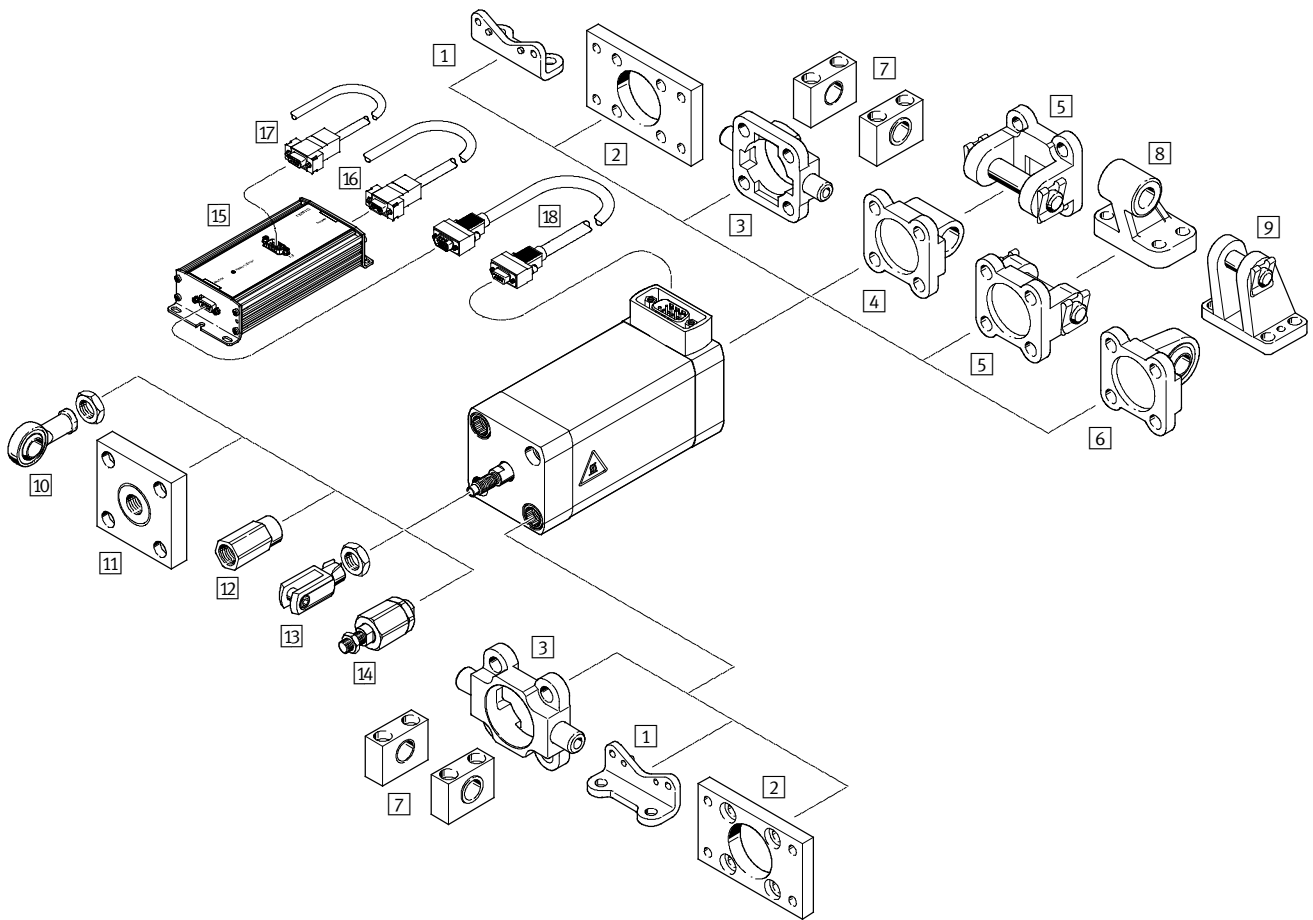
Type codes

		ADNE	–	32	–	35	–	LAS	–	A	–	
<b>Type</b>												
ADNE	Short-stroke cylinder											
<b>Size</b>												
<b>Stroke [mm]</b>												
<b>Drive type/motor technology</b>												
LAS	Linear motor, AC synchronous											
<b>Piston rod thread</b>												
A	Male thread											
<b>Type of piston rod</b>												
S20	Through, hollow piston rod											

# Short-stroke cylinders ADNE-LAS, with linear motor

Peripherals overview

FESTO



## Short-stroke cylinders ADNE-LAS, with linear motor

Peripherals overview

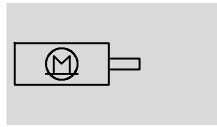
Mounting attachments and accessories				
	Brief description	Variant		→ Page/Internet
		Basic version	S20	
1 Foot mounting HNA	For bearing or end caps	■	■	15
2 Flange mounting FNC	For bearing or end caps	■	■	15
3 Trunnion flange ZNCF	For bearing or end caps	■	■	17
4 Swivel flange SNCL	For end caps	■	–	16
5 Swivel flange SNCB	For end caps	■	–	16
6 Swivel flange SNCS	For end caps, with spherical bearing	■	–	17
7 Trunnion support LNZG	In combination with trunnion flange ZNCF	■	■	18
8 Clevis foot LNG	In combination with swivel flange SNCB	■	–	18
9 Clevis foot LBG	In combination with swivel flange SNCS	■	–	18
10 Rod eye SGS	With spherical bearing	■	■	18
11 Coupling piece KSZ	Compensates radial misalignments up to ±1 mm	■	■	18
12 Adapter AD	Specially for through, hollow piston rods, for example for connecting vacuum generators	■	■	18
13 Rod clevis SG	–	■	■	18
14 Self-aligning rod coupler FK	Compensates radial and angular misalignments	■	■	18
15 End-position controller CMFL	For parameterising and positioning the short-stroke cylinder	■	■	cmfl
16 Power supply cable KPWR	For connecting the load and logic supply	■	■	cmfl
17 Pilot line KES	For I/O interface to any controller	■	■	cmfl
18 Motor cable NEBM	For connecting the motor and end-position controller	■	■	cmfl

# Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

## Technical data

### Function



Size  
32, 40

Stroke length  
15 ... 45 mm

Note

All values are based on a standard temperature of 23 °C.  
Dynamic response and accuracy are dependent on the mounting (rigidity) and the derivation of the thermal energy (heat concentration).



General technical data					
Size		32		40	
Stroke	[mm]	15	35	20	45
Design		Electric linear direct drive			
		Electric cylinder with piston rod			
Based on standard		ISO 21287			
Type of mounting		Via female thread			
		Via accessories			
Mounting position		Horizontal			
Minimum stroke	[mm]	7.5	17.5	10	22.5
Max. effective load	[g]	500			
Max. speed	[m/s]	1.9	1.8	1.5	1.6
Repetition accuracy	[mm]	±0.1			

Mechanical data					
Size		32		40	
Stroke	[mm]	15	35	20	45
Deflection of piston rod <sup>1)</sup>	Retracted	[mm]	0.14	0.14	0.15
	Advanced	[mm]	0.25	0.35	0.25
At operating voltage of 48 V					
Continuous feed force <sup>2)</sup>	[N]	10.5	5.9	14.2	11
Peak feed force	[N]	26	15	51	30
Holding force in the end positions	[N]	3	2	6	4.5
At operating voltage of 24 V					
Continuous feed force <sup>2)</sup>	[N]	10.5	5.9	14.2	11
Peak feed force	[N]	13	8	28	16
Holding force in the end positions	[N]	3	2	6	4.5

1) In new condition

2) Measured at a motor temperature of 70 °C

Note

- Due to the maximum effective load of 500 g, the lateral force  $F_Q$  of max. 5 N must not be exceeded.

- No torques are permissible on the piston rod.

# Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

Technical data

Electrical data	
Motor type	Linear AC synchronous motor
End-position detection	Internal, non-contacting
Magnetic radiation	None

Operating and environmental conditions		
Ambient temperature	[°C]	0 ... +40
Motor temperature during teach-in procedure	[°C]	+15 ... +50
Max. motor temperature	[°C]	70 (shuts down at 75 °C/in the event of a malfunction over 100 °C)
Standard temperature <sup>1)</sup>	[°C]	23
Temperature monitoring		Shuts down if motor overheats
Storage temperature	[°C]	−20 ... +60
Protection class (mechanical system)		IP40
Protection class (electrical connection)		IP65
Relative air humidity (non-condensing)	[%]	95
CE marking (see declaration of conformity)		To EU EMC Directive
Certification		C-Tick
Corrosion resistance class CRC <sup>2)</sup>		2

1) Unless otherwise stated, all values are based on standard temperature.

2) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Weight [g]					
Size		32		40	
Stroke	[mm]	15	35	20	45
Product weight		710	940	1,260	1,710
	S20	725	960	1,290	1,750
Moving load		105	130	275	350
	S20	120	150	305	390

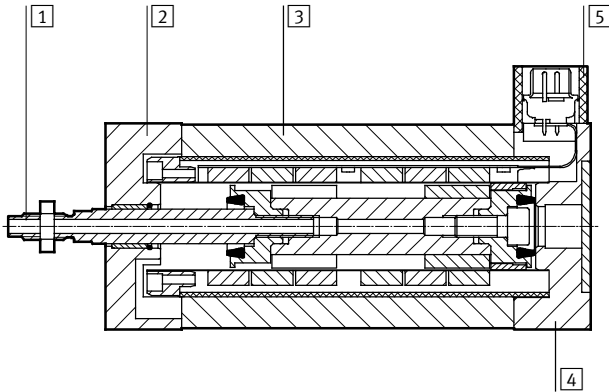
# Short-stroke cylinders ADNE-LAS, with linear motor

Technical data

FESTO

## Materials

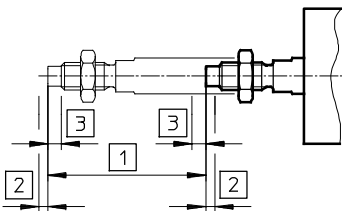
Sectional view



## Short-stroke cylinder

1	Piston rod	High-alloy stainless steel
2	Bearing cap	Anodised wrought aluminium alloy
3	Housing	Anodised wrought aluminium alloy
4	Connector cap	Anodised wrought aluminium alloy
5	Cover	Anodised wrought aluminium alloy
-	Plain bearing	Polyacetal
-	Screws, nuts	Steel
Note on materials		Contains PWIS (paint-wetting impairment substances)
		RoHS-compliant

## Internal cushioning



### 1 Working stroke:

The recommended, available operating range

### 2 Cushioning length:

The distance from the end positions of the working stroke to the mechanical end position

### 3 Rebound:

How far the drive rebounds depends on the load, the dynamics of the movement and the temperature of the cylinder

Size		32		40	
Stroke	[mm]	15	35	20	45
Working stroke	[mm]	15	35	20	45
Minimum stroke	[mm]	7.5	17.5	10	22.5
Cushioning length	[mm]	0.7	0.7	0.8	0.8
Rebound at 48 V <sup>1)</sup>	[mm]	0.8	0.8	0.5	1.3
Rebound at 24 V <sup>1)</sup>	[mm]	0.3	0.6	0.5	1.3

1) Repeat the teach-in procedure if the rebound is too strong.

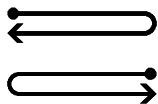


# Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

Technical data

Max. frequency  $f$  as a function of effective load  $m$  and voltage  $U$ , briefly



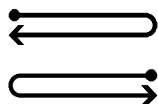
Size			32		40	
Stroke [mm]			15	35	20	45
At operating voltage of 48 V						
Frequency	Effective load = 0 g	[Hz]	13.6	7.1	11.6	5.1
	Effective load = 250 g	[Hz]	7.2	5.8	8.9	4.9
	Effective load = 500 g	[Hz]	4.7	4.5	7	4.1
At operating voltage of 24 V						
Frequency	Effective load = 0 g	[Hz]	11.1	5.5	8.8	4.2
	Effective load = 250 g	[Hz]	9.1	4.7	7.2	3.9
	Effective load = 500 g	[Hz]	6	3.2	5.4	3



Note

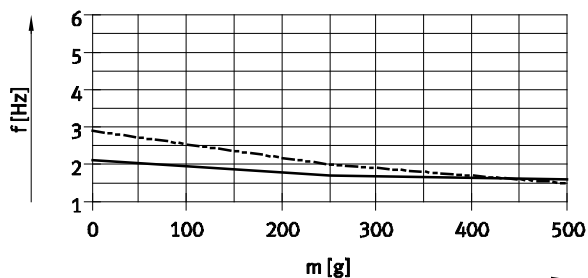
Applies to a motor temperature up to max. 74 °C.

Frequency  $f$  as a function of effective load  $m$  and voltage  $U$ , during continuous operation



At  $U = 48 \text{ V}$

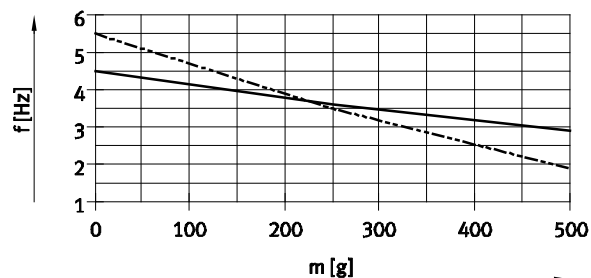
ADNE-32-15/35



— ADNE-32-15  
- - - ADNE-32-35

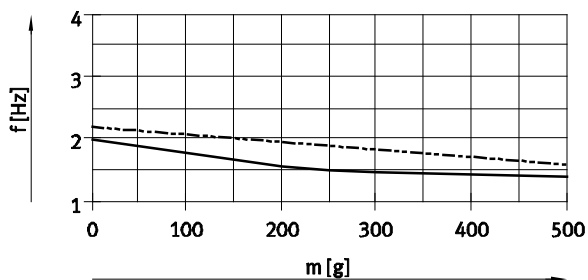
At  $U = 24 \text{ V}$

ADNE-32-15/35



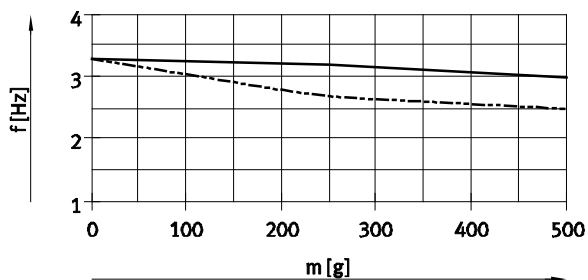
— ADNE-32-15  
- - - ADNE-32-35

ADNE-40-20/45



— ADNE-40-20  
- - - ADNE-40-45

ADNE-40-20/45



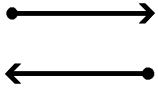
— ADNE-40-20  
- - - ADNE-40-45

# Short-stroke cylinders ADNE-LAS, with linear motor

Technical data

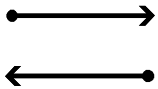
FESTO

Min. positioning time  $t$  as a function of voltage  $U$ , at an effective load of 0 g

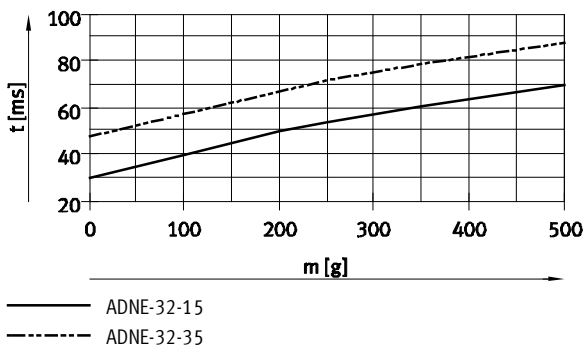


Size		32		40	
Stroke	[mm]	15	35	20	45
At operating voltage of 48 V					
Positioning time	[ms]	30	48	36	75
At operating voltage of 24 V					
Positioning time	[ms]	30	62	44	100

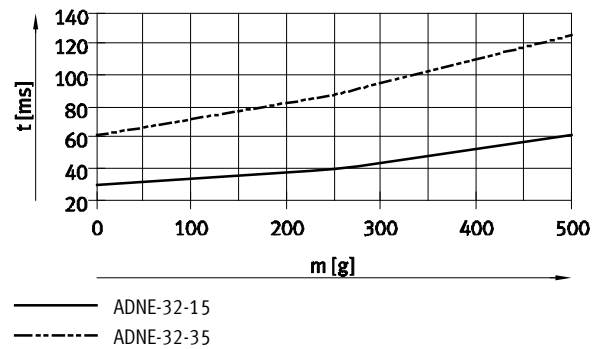
Positioning time  $t$  as a function of effective load  $m$  and voltage  $U$



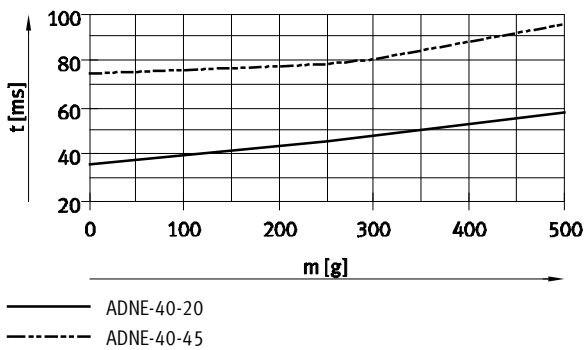
At  $U = 48$  V  
ADNE-32-15/35



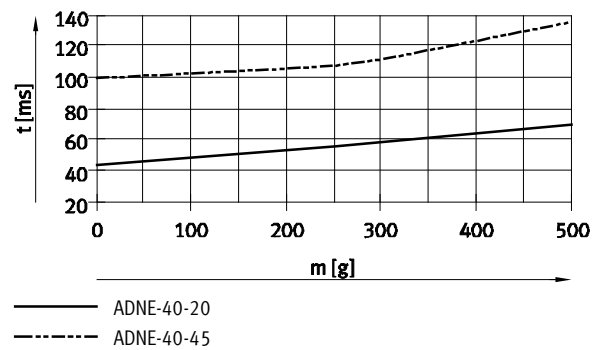
At  $U = 24$  V  
ADNE-32-15/35



ADNE-40-20/45



ADNE-40-20/45

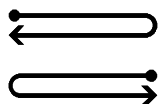


# Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

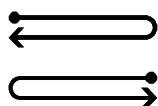
Technical data

Min. positioning time  $t$  as a function of voltage  $U$ , at an effective load of 0 g



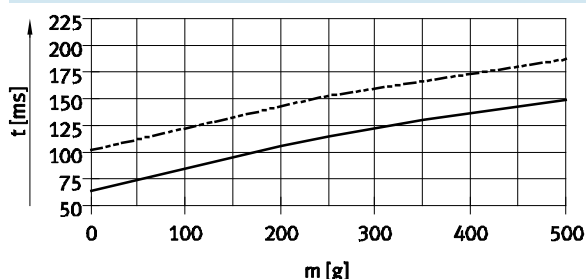
Size		32		40	
Stroke	[mm]	15	35	20	45
At operating voltage of 48 V					
Positioning time	[ms]	64	102	77	160
At operating voltage of 24 V					
Positioning time	[ms]	64	132	94	213

Positioning time  $t$  as a function of effective load  $m$  and voltage  $U$



At  $U = 48 \text{ V}$

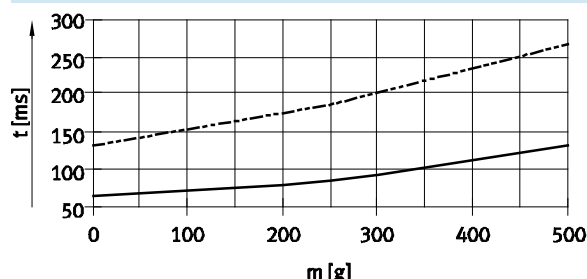
ADNE-32-15/35



— ADNE-32-15  
- - - ADNE-32-35

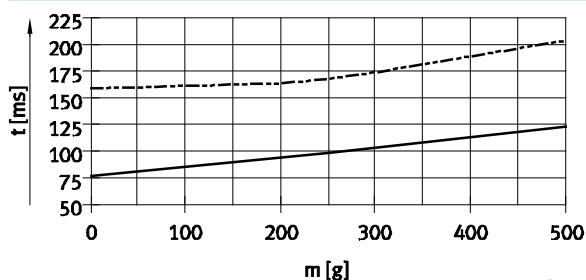
At  $U = 24 \text{ V}$

ADNE-32-15/35



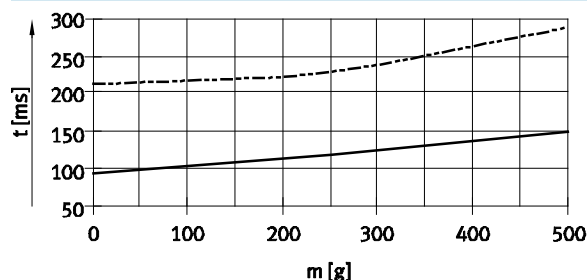
— ADNE-32-15  
- - - ADNE-32-35

ADNE-40-20/45



— ADNE-40-20  
- - - ADNE-40-45

ADNE-40-20/45



— ADNE-40-20  
- - - ADNE-40-45

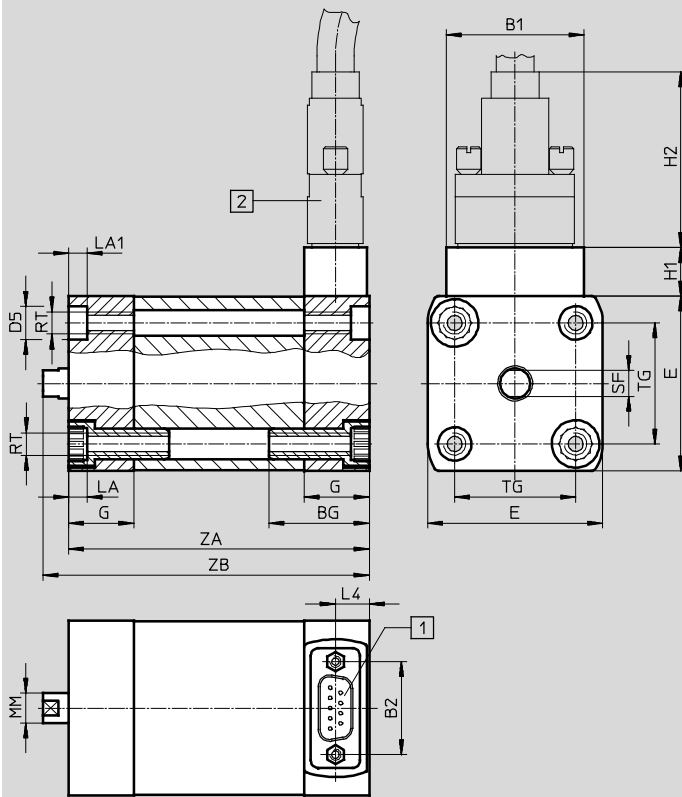
# Short-stroke cylinders ADNE-LAS, with linear motor

Technical data

FESTO

## Dimensions – Basic version

Download CAD data → [www.festo.com](http://www.festo.com)



- 1 Electrical connection
- 2 Motor cable not included in the scope of delivery

Size	Stroke [mm]	B1	B2	BG	D5 Ø F9	E +0.3	G	H1	H2	LA +0.4
32	15	37	25	26	9	47	17.5	13	50	4.6
	35									
40	20	37	25	26	9	54.5	17.5	13	50	4.6
	45									

Size	Stroke [mm]	LA1	L4	MM Ø h9	RT	SF h13	TG ±0.2	ZA +0.4/-0.2	ZB +0.75/-0.35
32	15	5	9.1	8	M6	7	32.5	110.8	117.65
	35							150.8	157.65
40	20	5	9.1	10	M6	9	38	136.5	143.4
	45							186.5	193.4

# Short-stroke cylinders ADNE-LAS, with linear motor

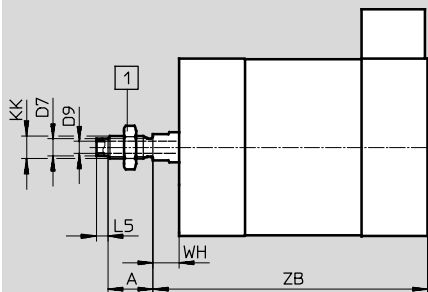
FESTO

Technical data

## Dimensions – Variants

Download CAD data → [www.festo.com](http://www.festo.com)

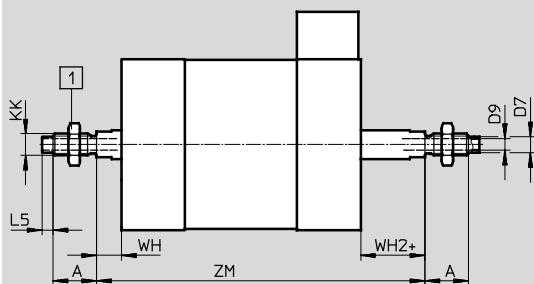
A – Male thread



1 Hex nut DIN 439-B included in the scope of delivery

Size	Stroke [mm]	A -0.5	D7 Ø	D9 Ø	KK	L5	WH +0.75 -0.55	ZB +0.75 -0.35
32	15	12	4.5	3.2	M6	3	6.85	117.65
	35							157.65
40	20	16	6	3.8	M8	2	6.9	143.4
	45							193.4

## S20 – Through, hollow piston rod



1 Hex nut DIN 439-B included in the scope of delivery  
+ = plus stroke length

Size	Stroke [mm]	A -0.5	D7 Ø	D9 Ø	KK	L5	WH +0.75 -0.55	WH2 +0.55 -0.75	ZM +0.6 -0.4
32	15	12	4.5	3.2	M6	3	6.85	6.85	140
	35								200
40	20	16	6	3.8	M8	2	6.9	6.9	170.8
	45								245.8

## Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

Ordering data – Modular products

Ordering table					
Size	32	40	Condi- tions	Code	Enter code
<b>[M]</b> Module No.	<b>566415</b>	<b>566416</b>			
Function	Electric short-stroke cylinder, based on ISO 21287			<b>ADNE</b>	ADNE
Size	32	40		<b>-...</b>	
Stroke [mm]	15, 35	20, 45		<b>-...</b>	
Drive type	Linear motor			<b>-L</b>	-L
Motor technology	AC synchronous			<b>AS</b>	AS
Piston rod thread	Male thread			<b>-A</b>	A
<b>[O]</b> Type of piston rod	Through, hollow piston rod			<b>-S20</b>	

Transfer order code

	ADNE	-		-	L		AS	-	A	-	
--	------	---	--	---	---	--	----	---	---	---	--

# Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

Accessories

## Foot mounting HNA

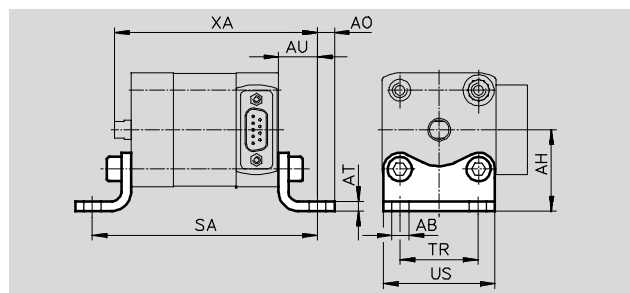
Material:

HNA: Galvanised steel

HNA-...-R3: Steel with protective coating

Free of copper and PTFE

RoHS-compliant



Dimensions and ordering data										
For size	Stroke	AB Ø	AH	A0	AT	AU	SA	TR	US	XA
	[mm]	H14	JS14		±0.5	±0.2		±0.2	-0.5	
32	15	7	33.5	7	4	16	142.8	32	46	133.65
	35						182.8			173.65
40	20	10	38	9	4	18	172.5	36	54	161.4
	45						222.5			211.4

For size	Basic version				High corrosion protection			
	CRC <sup>1)</sup>	Weight [g]	Part No.	Type	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
32	1	123	537241	HNA-32	3	123	537256	HNA-32-R3
40	1	157	537242	HNA-40	3	157	537257	HNA-40-R3

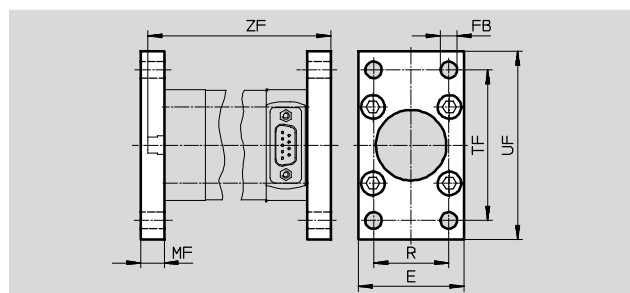
## Flange mounting FNC

Material:

Galvanised steel

Free of copper and PTFE

RoHS-compliant



Dimensions and ordering data								
For size	Stroke	E	FB Ø	MF	R	TF	UF	ZF
	[mm]						±1	
32	15	45	7	10	32	64	80	127.65
	35							167.65
40	20	54	9	10	36	72	90	153.4
	45							203.4

For size	Basic version				High corrosion protection			
	CRC <sup>1)</sup>	Weight [g]	Part No.	Type	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
32	1	221	174376	FNC-32	4	225	161846	CRFNG-32
40	1	291	174377	FNC-40	4	300	161847	CRFNG-40

1) Corrosion resistance class 1 according to Festo standard 940 070

Components with light corrosion exposure. Protection for transport and storage. Components without significant decorative function or surface, e.g. installed out of sight internally or behind covers.

Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Corrosion resistance class 3 according to Festo standard 940 070

Components subject to high corrosion stress. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

Corrosion resistance class 4 according to Festo standard 940 070

Components subject to particularly high corrosion stress. Parts used with aggressive media, e.g. in the food or chemical industry. These applications should be supported with special tests with the media if required.

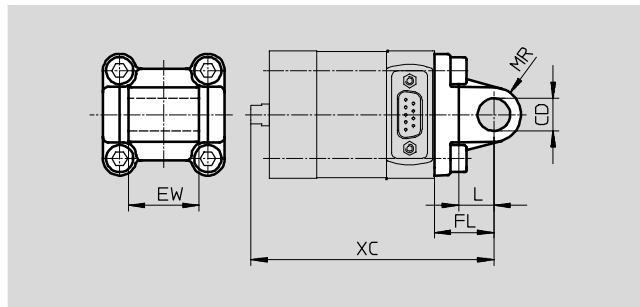
# Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

Accessories

## Swivel flange SNCL

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

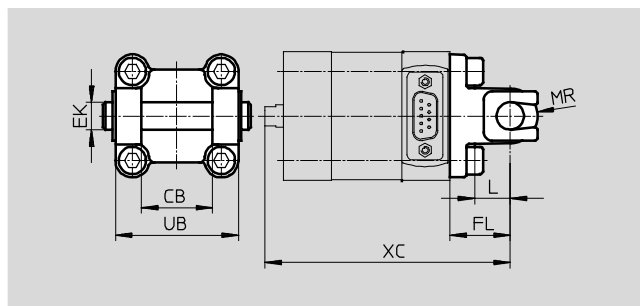


Dimensions and ordering data							
For size	Stroke	CD Ø H9	EW h12	FL ±0.2	L	MR	XC
32	15	10	26	22	13	10	139.65
	35						179.65
40	20	12	28	25	16	12	168.4
	45						218.4

For size	Basic version CRC <sup>1)</sup>		Weight [g]	Part No.	Type
32	2		85	174404	SNCL-32
40	2		115	174405	SNCL-40

## Swivel flange SNCB/SNCB-...-R3

Material:  
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 size	Stroke	CB H14	EK Ø e8	FL ±0.2	L	MR	XC
32	15	26	10	22	13	8.5	139.65
	35						179.65
40	20	28	12	25	16	12	168.4
	45						218.4

For size	Basic version			High corrosion protection		
	CRC <sup>1)</sup>	Weight [g]	Part No. Type	CRC <sup>1)</sup>	Weight [g]	Part No. Type
32	2	103	174390 SNCB-32	3	100	176944 SNCB-32-R3
40	2	155	174391 SNCB-40	3	151	176945 SNCB-40-R3

1) Corrosion resistance class 2 according to Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.  
Corrosion resistance class 3 according to Festo standard 940 070  
Components subject to high corrosion stress. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.



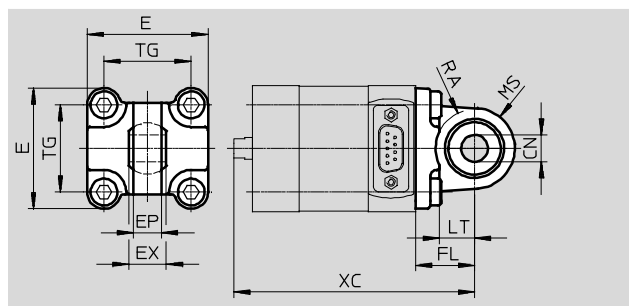
# Short-stroke cylinders ADNE-LAS, with linear motor

FESTO

Accessories

## Swivel flange SNCS

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

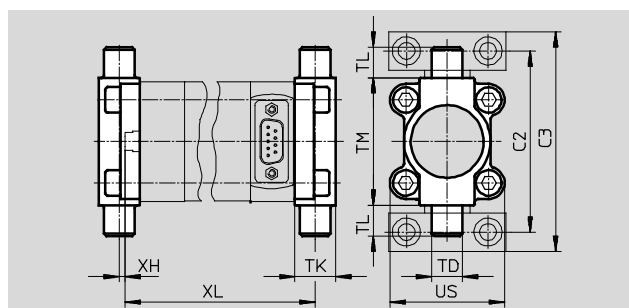


Dimensions and ordering data											
For size	Stroke	CN Ø	E	EP ±0.2	EX	FL ±0.2	LT	MS	RA +1	TG	XC
32	15	10 <sup>+0.013</sup>	45 <sup>+0.2/-0.5</sup>	10.5	14	22	13	15 <sup>+0.5</sup>	14.5	32.5	139.65
	35										179.65
40	20	12 <sup>+0.015</sup>	54 <sup>-0.5</sup>	12	16	25	16	17 <sup>+0.5</sup>	17.5	38	168.4
	45										218.4

For size	Basic version CRC <sup>1)</sup>		Weight [g]	Part No.	Type
32	2		86	174397	SNCS-32
40	2		122	174398	SNCS-40

## Trunnion flange ZNCF/CRZNG

Material:  
ZNCF: Stainless steel casting  
CRZNG: Electropolished stainless steel casting  
Free of copper and PTFE  
RoHS-compliant



Dimensions and ordering data										
For size	Stroke	C2	C3	TD Ø e9	TK	TL	TM	US	XH	XL
32	15	71	86	12	16	12	50	45	1.15	125.65
	35									165.65
40	20	87	105	16	20	16	63	54	3.1	153.4
	45									203.4








For size	Basic version			High corrosion protection		
	CRC <sup>1)</sup>	Weight [g]	Part No. Type	CRC <sup>1)</sup>	Weight [g]	Part No. Type
32	2	150	174411 ZNCF-32	4	150	161852 CRZNG-32
40	2	285	174412 ZNCF-40	4	285	161853 CRZNG-40

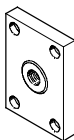




1) Corrosion resistance class 2 according to Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.  
Corrosion resistance class 4 according to Festo standard 940 070  
Components subject to particularly high corrosion stress. Parts used with aggressive media, e.g. in the food or chemical industry. These applications should be supported with special tests with the media if required.

## Short-stroke cylinders ADNE-LAS, with linear motor

Accessories

**FESTO**

Ordering data			
Designation	For size	Part No.	Type
Trunnion support LNZG			
	32	32959	LNZG-32
	40	32960	LNZG-40/50
Trunnion support CRLNZG, corrosion-resistant			
	32	161874	CRLNZG-32
	40	161875	CRLNZG-40/50
Clevis foot LNG			
	32	33890	LNG-32
	40	33891	LNG-40
Clevis foot CRLNG, corrosion-resistant			
	32	161840	CRLNG-32
	40	161841	CRLNG-40
Clevis foot LBG			
	32	31761	LBG-32
	40	31762	LBG-40
Rod eye SGS			
	32	9254	SGS-M6
	40	9255	SGS-M8
Rod eye CRSGS, corrosion-resistant			
	32	195580	CRSGS-M6
	40	195581	CRSGS-M8

Ordering data			
Designation	For size	Part No.	Type
Coupling piece KSZ			
	32	36123	KSZ-M6
	40	36124	KSZ-M8
Adapter AD			
	32	157328	AD-M6-M5
		157329	AD-M6-1/8
		157330	AD-M6-1/4
	40	157331	AD-M8-1/8
		157332	AD-M8-1/4
Rod clevis SG			
	32	3110	SG-M6
	40	3111	SG-M8
Rod clevis CRSG, corrosion-resistant			
	32	13567	CRSG-M6
	40	13568	CRSG-M8
Self-aligning rod coupler FK			
	32	2061	FK-M6
	40	2062	FK-M8