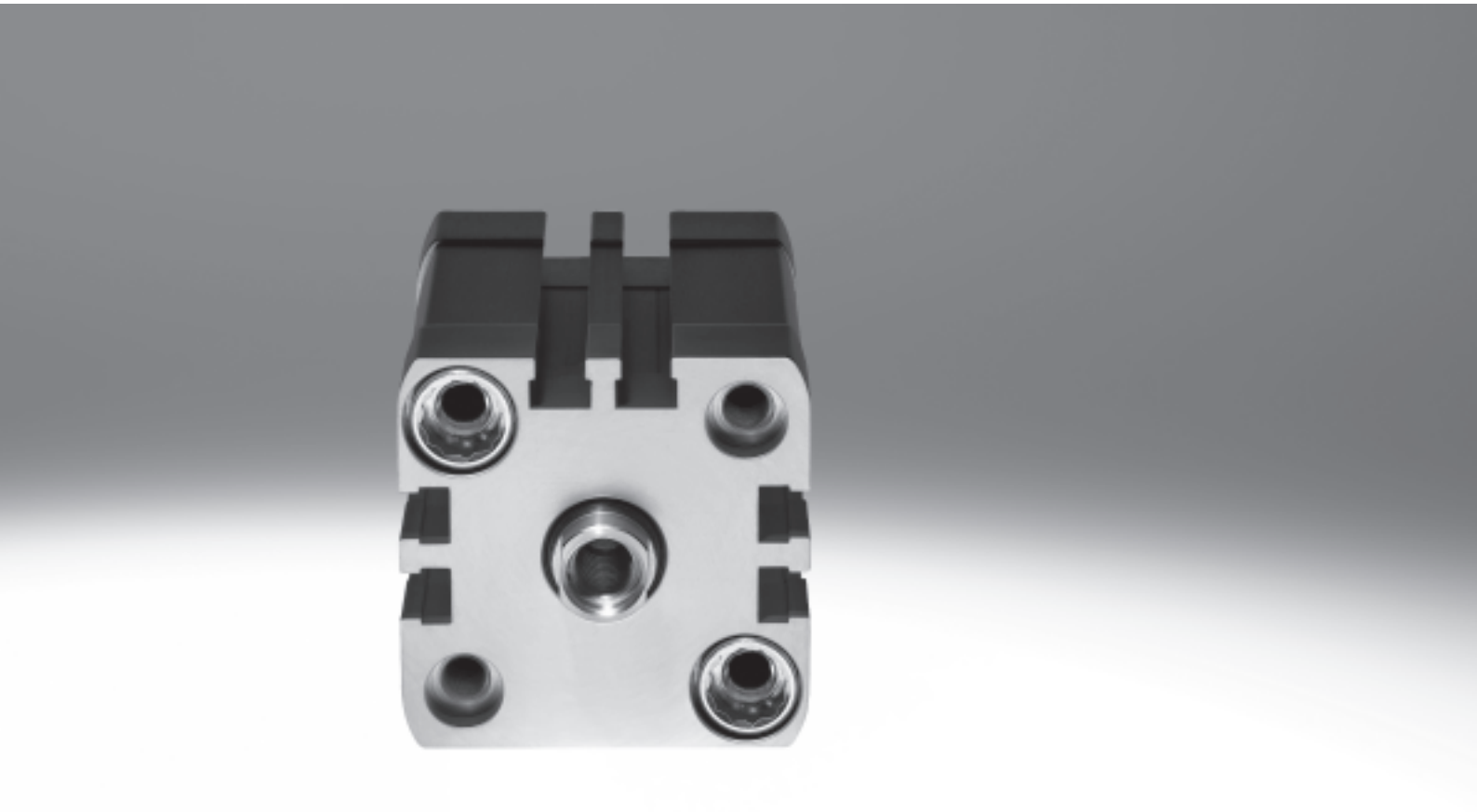
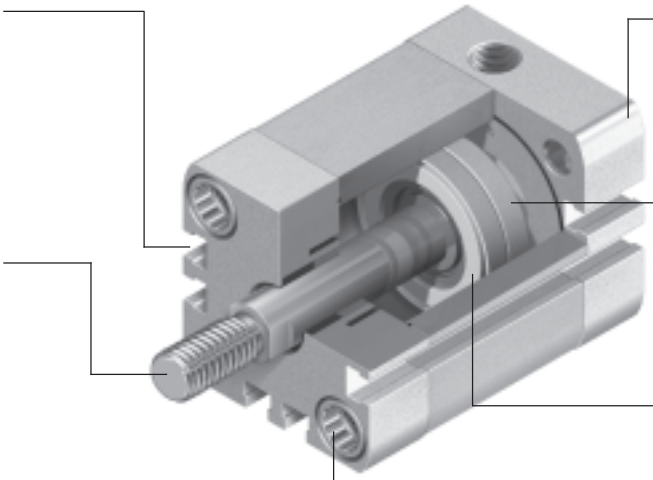
Compact cylinders ADN/AEN, to ISO 21287

FESTO



Compact cylinders ADN/AEN, to ISO 21287

Key features



More than the standard

- Series ADN/AEN compact cylinders comply with the standard ISO 21287
- The ADN/AEN is distinguished by its compact design and broad area of application thanks to the large number of variants
- The variants can be configured according to individual needs thanks to the modular product system

Powerful

- Flexible cushioning rings as standard for absorbing the residual energy facilitate high speeds and machine cycles
- Long service life thanks to exceptional cushioning characteristics and minimal friction factors
- The ADNP with bearing and end caps made of polymer is distinguished by its low weight

Convenient

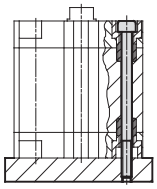
- Easy to mount with a comprehensive range of mounting accessories for just about every type of installation
- Highly flexible thanks to the wide range of variants
- Contactless position sensing using proximity sensors

Reliable

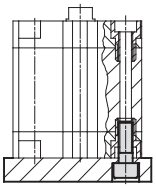
- Optimised manufacturing methods, patented technology and more than 40 years of experience in the field of cylinders make Festo and ADN/AEN a great team

Mounting options

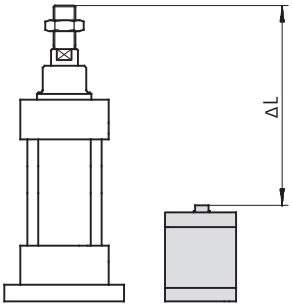
With through screw



Direct mounting



Size



- Space savings of up to 50% compared with the standard ISO 15552

Compact cylinders ADN, to ISO 21287

Key features

Variants from the modular system		
Symbol	Key features	Description
	S1 Reinforced piston rod	Increased lateral forces. Absorbs many times more lateral force than a basic cylinder
	S2 Through piston rod	For working at both ends with the same forces in the advance and return stroke, for attaching external stops
	S6 Heat-resistant seals	Temperature resistance up to max. 120 °C
	S10 Constant (slow speed) operation at low piston speeds	Suitable for slow stroke movements at a constant, judder-free speed over the full stroke of the cylinder. Seal contains silicone grease (not free of paint-wetting impairment substances)
	S11 Low friction	The special seals considerably reduce system wear. This corresponds to a considerably lower response pressure. Seal contains silicone grease (not free of paint-wetting impairment substances)
	S20 Through, hollow piston rod	For carrying vacuum, small parts, media, etc.
	K2 Extended male piston rod thread	–
	K5 Special piston rod thread	Metric standard thread to ISO
	K8 Extended piston rod	–
	K10 Smooth anodised aluminium piston rod	Ideal for use in welding environments: – Protection against welding spatter – Small moving loads – Harder surface compared to steel – Long service life
	KP With clamping unit	Integrated clamping unit on the piston rod
	EL With end position lock	Positive lock in the end position as drop guard. If there is a drop in pressure, the piston rod is secured in its end position to prevent it from dropping
	Q Square piston rod	Protection against torsion. For correctly oriented feeding
	R3 High corrosion protection	All external cylinder surfaces comply with corrosion resistance class 3 to Festo standard 940 070. The piston rod is made from corrosion and acid resistant steel
	R8 Dust protection (wiper seal)	The cylinder is equipped with a hard-chrome plated piston rod and a rigid wiper seal, which protects against dry, dusty media
	TL Captive rating plate	Laser etched rating plate. For easy identification when it comes to replacement, even after years in a harsh environment
	TT Low temperature	Temperature resistance up to max. –40 °C

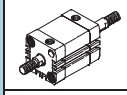
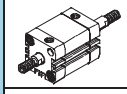
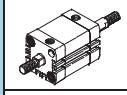
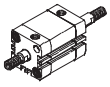
Note

Software tools and configuration of Festo product modules
➔www.festo.com

Compact cylinders ADN, to ISO 21287

Product range overview

FESTO

Function	Version	Type	Piston ∅	Stroke		Position sensing	Cushioning
			[mm]	[mm]		A	P
Double-acting	**Basic version**						
		**ADN**	12	5, 10, 15, 20, 25, 30, 40	1 … 300	■	■
			16	5, 10, 15, 20, 25, 30, 40, 50	1 … 300		
			20, 25	5, 10, 15, 20, 25, 30, 40, 50, 60	1 … 300		
			32, 40, 50	5, 10, 15, 20, 25, 30, 40, 50, 60, 80	1 … 400		
			63	10, 15, 20, 25, 30, 40, 50, 60, 80	1 … 400		
			80, 100	10, 15, 20, 25, 30, 40, 50, 60, 80	1 … 500		
			125	–	1 … 500		
		**ADN-…-S2** Through piston rod	12, 16, 20, 25	–	1 … 300	■	■
			32, 40, 50, 63	–	1 … 400		
			80, 100, 125	–	1 … 500		
		**ADN-…-S20** Through, hollow piston rod	16, 20, 25	–	1 … 300	■	■
			32, 40, 50, 63	–	1 … 400		
			80, 100, 125	–	1 … 500		
	Reinforced piston rod						
		**ADN-…-S1**	25	–	5 … 300	■	■
			40, 63	–	10 … 400		
			100	–	10 … 500		
	Non-rotating with square piston rod						
		**ADN-…-Q**	12, 16, 20, 25	–	1 … 300	■	■
			32, 40, 50, 63	–	1 … 400		
			80, 100, 125	–	1 … 500		
		**ADN-…-Q-S2** Through piston rod	12, 16, 20, 25	–	1 … 300	■	■
			32, 40, 50, 63	–	1 … 400		
			80, 100, 125	–	1 … 500		
		**ADN-…-Q-S20** Through, hollow piston rod	16, 20, 25	–	1 … 200	■	■
			32, 40, 50, 63, 80	–	1 … 300		
			100, 125	–	1 … 400		
	Standard port pattern, with clamping unit						
		**ADN-…-KP**	20, 25	–	10 … 300	■	■
			32, 40, 50, 63		10 … 400		
			80, 100		10 … 500		
	Standard port pattern, with end position lock						
		**ADN-…-EL**	20, 25	–	10 … 300	■	■
			32, 40, 50, 63		10 … 400		
			80, 100		10 … 500		
	With polymer end cap						
		**ADNP**	20, 25	5, 10, 15, 20, 25, 30, 40, 50, 60	–	■	■
			32, 40, 50	10, 15, 20, 25, 30, 40, 50, 60, 80			

Compact cylinders ADN, to ISO 21287

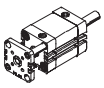
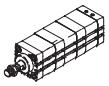
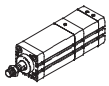
Product range overview

FESTO

Type	Male piston rod thread	Female piston rod thread	Extended male piston rod thread	Special thread	Extended piston rod	Smooth anodised piston rod	Heat-resistant seals up to max. 120 °C	Slow speed (constant motion)	Low friction	High corrosion protection	Dust protection	Low temperature	→ Page/Internet
	A	I	K2	K5	K8	K10	S6	S10	S11	R3	R8	TT	
Basic version													
ADN	■	■	■	■	■	■ ∅ 20 and above	■	■	■	■	■ ∅ 20 and above	■ ∅ 20 ... 100	13
ADN-...-S2 Through piston rod	■	■	■	■	■	–	■	–	–	–	–	■ ∅ 20 ... 100	13
ADN-...-S20 Through, hollow piston rod	■	–	■	■	■	–	■	–	–	–	–	–	13
Reinforced piston rod													
ADN-...-S1	■	■	■	■	■	–	■	–	–	■	–	–	13
Non-rotating with square piston rod													
ADN-...-Q	■	■	■	■	■	–	■	–	–	–	–	–	13
ADN-...-Q-S2 Through piston rod	■	■	■	■	■	–	■	–	–	–	–	–	13
ADN-...-Q-S20 Through, hollow piston rod	■	–	■	■	■	–	■	–	–	–	–	–	13
Standard port pattern, with clamping unit													
ADN-...-KP	■	■	■	■	■	–	–	–	–	–	–	–	38
Standard port pattern, with end position lock													
ADN-...-EL	■	■	■	■	■	–	–	–	–	–	–	–	47
With polymer end cap													
ADNP	■	■	–	–	–	–	–	–	–	–	–	–	73

Compact cylinders ADN, to ISO 21287

Product range overview

Function	Version	Type	Piston ∅	Stroke		Position sensing	Cushioning
			[mm]	[mm]		A	P
Double-acting	**Standard port pattern, non-rotating with yoke**						
		**ADNGF**	12	5, 10, 15, 20, 25, 30, 40	1 … 200	■	■
			16	5, 10, 15, 20, 25, 30, 40, 50	1 … 200		
			20, 25	5, 10, 15, 20, 25, 30, 40, 50, 60	3 … 200		
			32, 40, 50	5, 10, 15, 20, 25, 30, 40, 50, 60, 80	5 … 300		
			63, 80	10, 15, 20, 25, 30, 40, 50, 60, 80	5 … 300		
			100	10, 15, 20, 25, 30, 40, 50, 60, 80	5 … 400		
		**ADNGF-…-S2** Through piston rod	12, 16	–	1 … 200	■	■
			20, 25		3 … 200		
			32, 40, 50, 63, 80, 100		5 … 250		
	Standard port pattern, high-force cylinder						
		**ADNH**	25	–	1 … 150	■	■
			40				
			63				
			100				
	Standard port pattern, multi-position cylinder						
		**ADNM**	25	–	1 … 2000	■	■
			40				
			63				
			100				

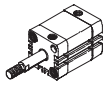
Compact cylinders ADN, to ISO 21287

Product range overview

Type	Male piston rod thread	Female piston rod thread	Extended male piston rod thread	Special thread	Extended piston rod	Heat-resistant seals up to max. 120 °C	➔ Page/Internet
	A	I	K2	K5	K8	S6	
Standard port pattern, non-rotating with yoke							
ADNGF	–	–	–	–	–	■	4
ADNGF-...-S2 Through piston rod	–	–	–	–	–	■	4
Standard port pattern, high-force cylinder							
ADNH	■	■	■	■	■	■	23
Standard port pattern, multi-position cylinder							
ADNM	■	■	■	■	■	■	8

Compact cylinders AEN, to ISO 21287

Product overview

Function	Version	Type	Piston ∅	Stroke	Position sensing	Cushioning
			[mm]	[mm]	A	P
Single-acting	Basic version					
		**AEN**	12	1 … 10	■	■
			16, 20, 25, 32, 40, 50, 63, 80, 100	1 … 25		
		**AEN-…-Z** pulling	12	1 … 10	■	■
			16, 20, 25, 32, 40, 50, 63, 80, 100	1 … 25		
	Non-rotating with square piston rod					
		**AEN-…-Q**	16	1 … 25	■	■
			20, 25, 32, 40, 50, 63, 80, 100	1 … 25		

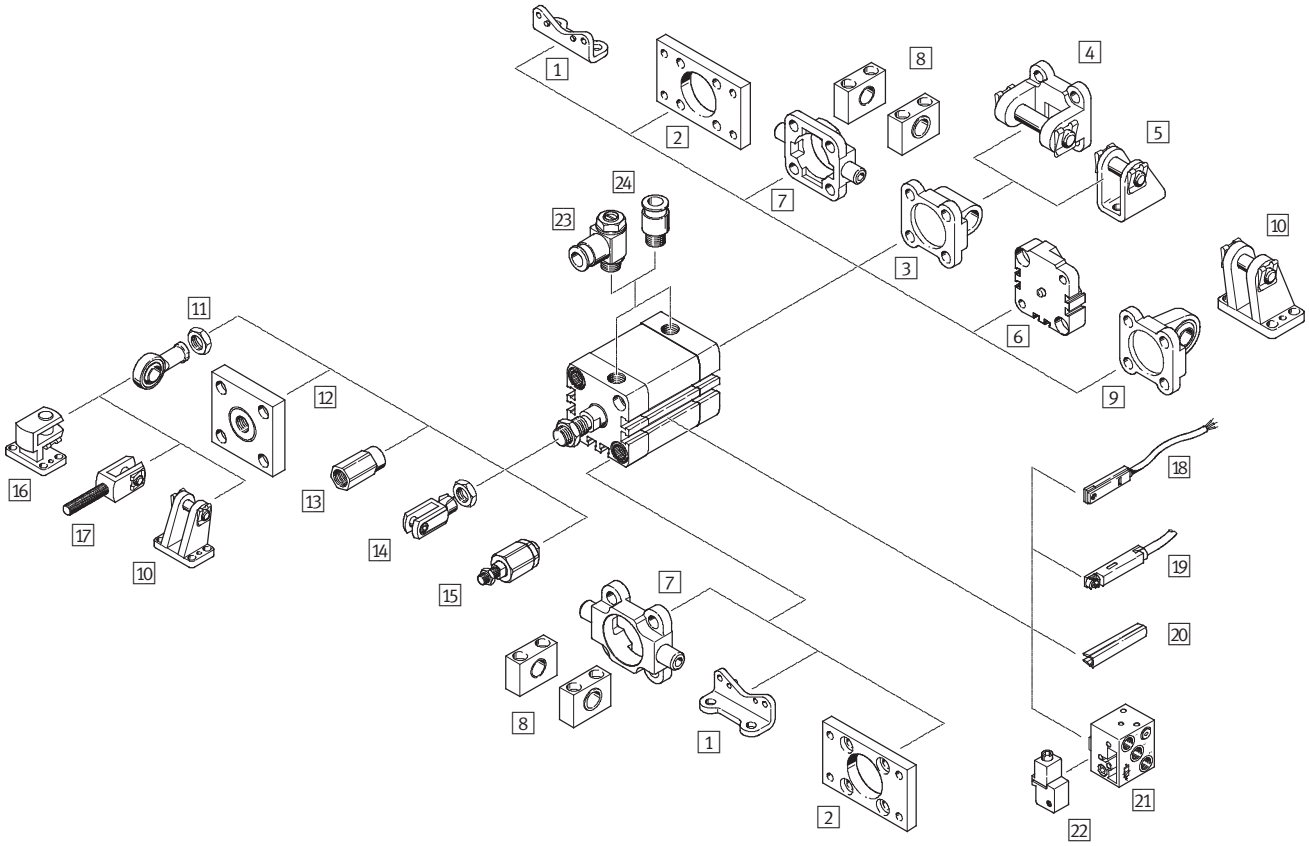
Compact cylinders AEN, to ISO 21287

Product overview

Type	Male piston rod thread	Female piston rod thread	Extended male piston rod thread	Special piston rod thread	Extended piston rod	Smooth anodised piston rod	Heat-resistant seals up to max. 120 °C	➔ Page/Internet
	A	I	K2	K5	K8	K10	S6	
Basic version								
AEN	■	■	■	■	■	■ ∅ 20 and above	■	57
AEN-...-Z pulling	■	■	■	■	■	■ ∅ 20 and above	■	57
Non-rotating with square piston rod								
AEN-...-Q	■	■	■	■	■	–	■	57

Compact cylinders ADN/AEN, to ISO 21287

Peripherals overview



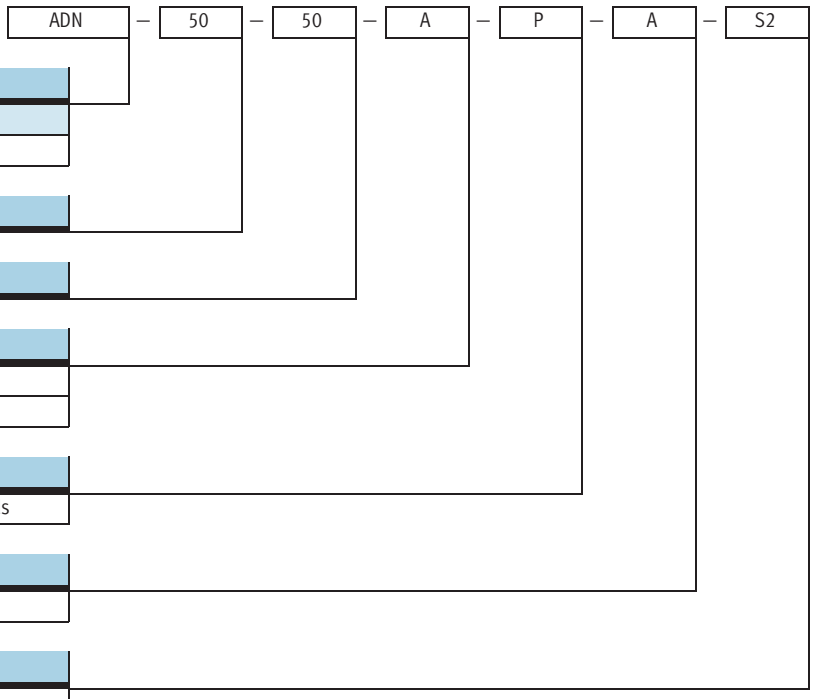
Compact cylinders ADN/AEN, to ISO 21287

Peripherals overview

Mounting attachments and accessories			
		Brief description	→ Page/Internet
1	Foot mounting HNA	For bearing or end caps	77
2	Flange mounting FNC	For bearing or end caps	78
3	Swivel flange SNCL	For end caps	79
4	Swivel flange SNCB	For swivel flange SNCL	83
5	Clevis foot LBN/CRLBN	For swivel flange SNCL	82
6	Multi-position kit DPNA	For connecting two cylinders with identical piston ∅ to form a multi-position cylinder	81
7	Trunnion flange ZNCF/CRZNG	For bearing caps	84
8	Trunnion support LNZG	For trunnion flange ZNCF/CRZNG	85
9	Swivel flange SNCS	For end caps	80
10	Clevis foot LBG	For swivel flange SNCS	80
11	Rod eye SGS/CRSGS	With spherical bearing	86
12	Coupling piece KSG/KSZ	For compensating radial deviations	86
13	Adapter AD	For mounting a vacuum suction cup on a hollow cylinder piston rod	86
14	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	86
15	Self-aligning rod coupler FK	For compensating radial and angular deviations	86
16	Right-angle clevis foot LQG	For rod eye SGS	87
17	Rod clevis SGA	With male thread	86
18	Proximity sensor SME/SMT-8	Can be integrated in the sensor slot of the cylinder profile barrel	89
19	Proximity sensor SME/SMT-8M	Can be integrated in the sensor slot of the cylinder profile barrel	89
20	Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	89
21	Proximity sensor SMPO-8E	Pneumatic output signal	89
22	Mounting kit SMB-8E	For proximity sensor SMPO-8E	89
23	One-way flow control valve GRLA/GRLZ	For speed regulation	87
24	Push-in fitting QS	For connecting compressed air tubing with standard external diameters	quick star

Compact cylinders ADN, to ISO 21287

Type codes



Type	
Double-acting	
ADN	Compact cylinder

Piston ∅ [mm]

Stroke [mm]

Piston rod thread	
A	Male thread
I	Female thread

Cushioning	
P	Flexible cushioning rings/pads at both ends

Position sensing	
A	Via proximity sensor

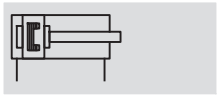
Variant	
Q	Square piston rod
S1	Reinforced piston rod
S2	Through piston rod
S20	Through, hollow piston rod
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
K10	Smooth anodised piston rod
S6	Heat-resistant seals up to max. 120 °C
S10	Slow speed (constant motion)
S11	Low friction
R3	High corrosion protection
R8	Dust protection
TL	Captive rating plate (laser etched)
TT	Low temperature

Compact cylinders ADN, to ISO 21287

Technical data

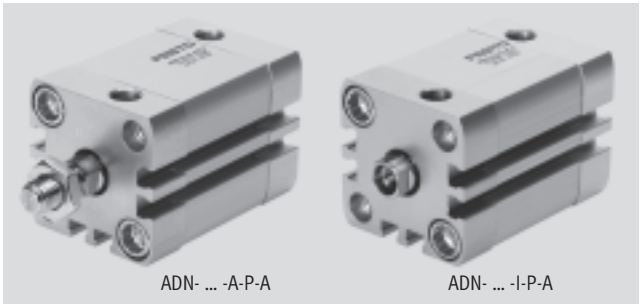
FESTO

Function



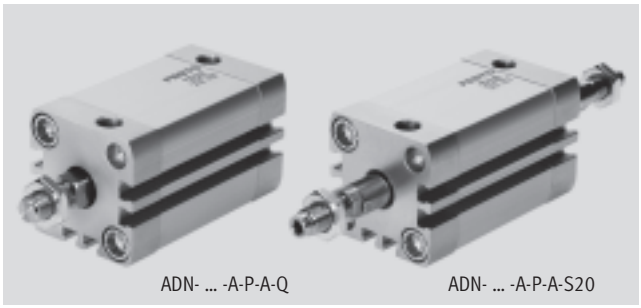
Variants ➔ 3

- Ø - Diameter
  12 ... 125 mm
- I - Stroke length
  1 ... 500 mm
- www.festo.com



ADN- ... -A-P-A

ADN- ... -I-P-A



ADN- ... -A-P-A-Q

ADN- ... -A-P-A-S20

General technical data												
Piston ∅	12	16	20	25	32	40	50	63	80	100	125	
Constructional design	Piston											
	Piston rod											
	Cylinder barrel											
Cushioning	Flexible cushioning rings/pads at both ends											
Position sensing	Via proximity sensor											
Type of mounting	Via through-holes											
	Via female threads											
	Via accessories											
Mounting position	Any											

Technical data – Basic version and variants							
Piston ∅		12	16	20	25	32	40
Pneumatic connection		M5	M5	M5	M5	G1/8	G1/8
Female piston rod thread		M3	M4	M6	M6	M8	M8
	K5	–	–	M5	M5	M6	M6
Male piston rod thread		M5	M6	M8	M8	M10x1.25	M10x1.25
	K5	M6	M8	M10, M10x1.25	M10, M10x1.25	M10, M12	M10, M12
Max. torsional backlash of piston rod [°]	Q	2	1.8	1.6	1.6	1.2	1.2

Piston ∅		50	63	80	100	125
Pneumatic connection		G1/8	G1/8	G1/8	G1/8	G1/4
Female piston rod thread		M10	M10	M12	M12	M16
	K5	M8	M8	M10	M10	–
Male piston rod thread		M12x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5
	K5	M12, M16	M12, M16	M16, M20	M16, M20, M20x1.5	M20
Max. torsional backlash of piston rod [°]	Q	1	1	0.8	0.8	0.8

Technical data – Variant S1					
Piston ∅		25	40	63	100
Pneumatic connection		M5	M5	G⅛	G⅛
Piston rod thread	Female	M6	M10	M12	M16
	Male	M8	M12x1.25	M16x1.5	M20x1.5
Special thread	Female	M5	M8	M10	–
variant K5	Male	M10, M10x1.25	M10x1.25, M12	M12x1.25, M16	M16x1.5, M20

Operating and environmental conditions												
Piston ∅		12	16	20	25	32	40	50	63	80	100	125
Operating medium		Filtered compressed air, lubricated or unlubricated										
Operating pressure		1 … 10		0.6 … 10								
[bar]	Q	1.3 … 10		1 … 10		0.8 … 10			0.6 … 10			
	S1	–			1 … 10	–	1 … 10	–	1 … 10	–	1 … 10	–
	S2, S20	1.5 … 10	1.3 … 10	1.2 … 10		1 … 10			0.8 … 10			
	S6	1 … 10		0.6 … 10								
	S11	0.45 … 10				0.25 … 10						
	R8, TT	–		1,5 … 10			1 … 10					–
Ambient temperature[1]		–20 … +80										
[°C]	S6	0 … +120										
	R3	–20 … +80										
	TT	–		–40 … +80								–
Corrosion resistance		2										
class CRC[2]	R3	3										
ATEX		Specified types ➔ www.festo.com										

1) Note operating range of proximity sensors

2) Corrosion resistance class 2 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 to Festo standard 940 070
Components with heavy corrosion exposure. Externally visible components in direct contact with normal industrial atmosphere or media such as solvents and cleaning agents, where the surface requirement is predominantly functional.

Forces [N] and impact energy [J]												
Piston ∅		12	16	20	25	32	40	50	63	80	100	125
Theoretical force at		68	121	188	295	483	754	1178	1870	3016	4712	7363
6 bar, advancing	S1	–	–	–	295	–	754	–	1870	–	4712	–
	S2	51	90	141	247	415	686	1057	1750	2827	4524	7069
Theoretical force at		51	90	141	247	415	686	1057	1750	2827	4524	7069
6 bar, retracting	S1	–	–	–	247	–	633	–	1681	–	4417	–
	S2	51	90	141	247	415	686	1057	1750	2827	4524	7069
Max. impact energy at		0.07	0.15	0.2	0.3	0.4	0.7	1	1.3	1.8	2.5	3.3
the end positions	S1	–	–	–	0.3	–	0.7	–	1.3	–	2.5	–
	S6	0.035	0.075	0.1	0.15	0.2	0.35	0.5	0.65	0.9	1.25	1.75
	K10	–	–	0.16	0.24	0.32	0.56	0.8	1	1.4	2	2.6
	S20	–	0.016	0.024	0.083	0.15	0.39	0.48	0.62	0.8	0.9	0.95

Permissible impact velocity:

$$v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{dead} + m_{load}}}$$

Maximum permissible load:

$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

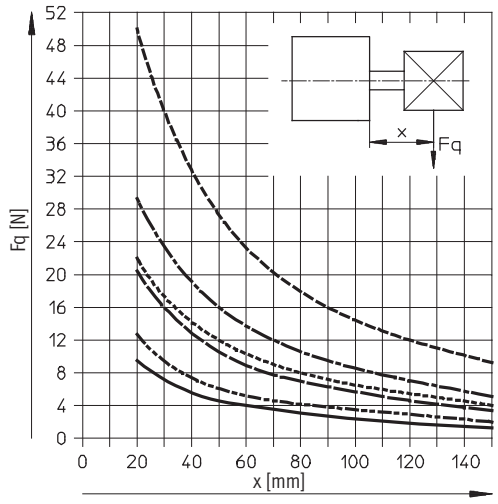
$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
m_{dead} Moving load (drive)
m_{load} Moving work load

- Note

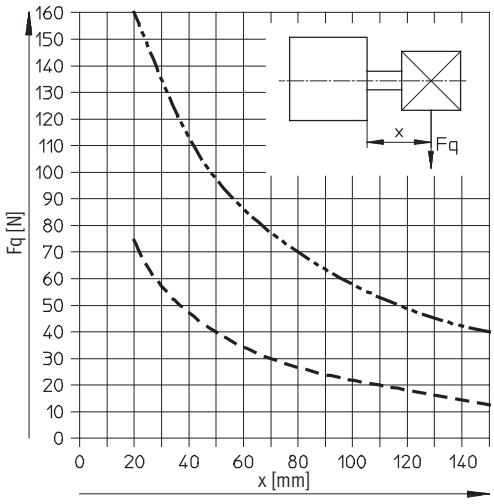
These specifications represent the maximum values which can be reached. Note the maximum permitted impact energy.

Max. lateral force Fq as a function of the projection x

∅ 12 ... 63



∅ 80 ... 125

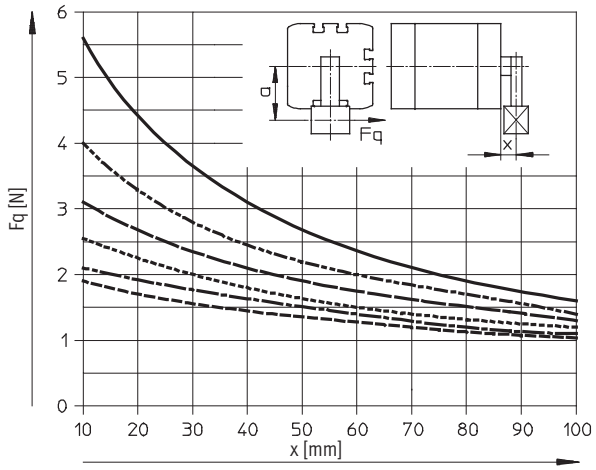


- ∅ 12
- ∅ 16
- ∅ 20
- ∅ 25
- ∅ 32/40
- ∅ 50/63
- ∅ 80/100
- ∅ 125

Max. lateral force Fq as a function of the projection x and the lever arm a

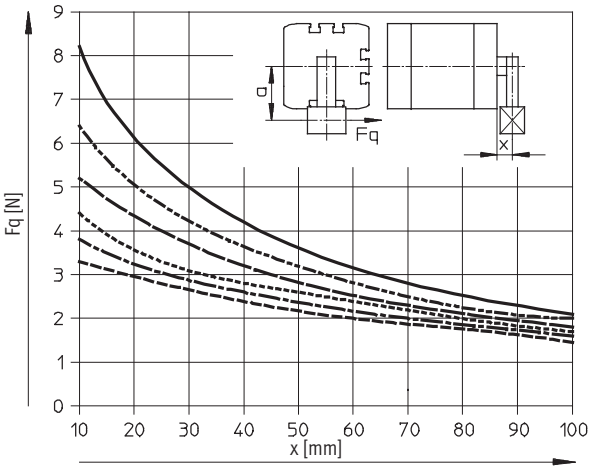
Q – Square piston rod

∅ 12



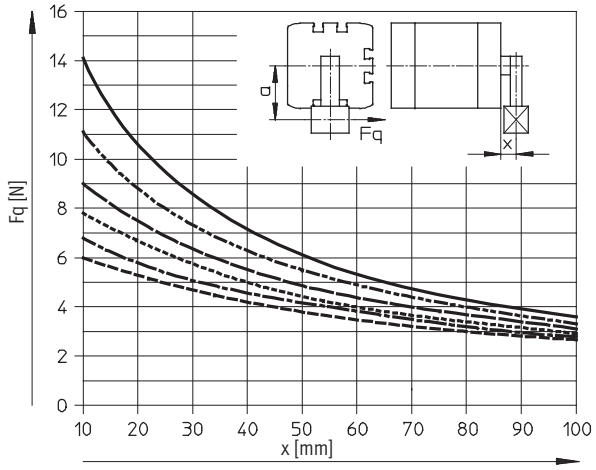
- a = 5 mm
- a = 10 mm
- a = 15 mm
- a = 20 mm
- a = 25 mm
- a = 30 mm

∅ 16



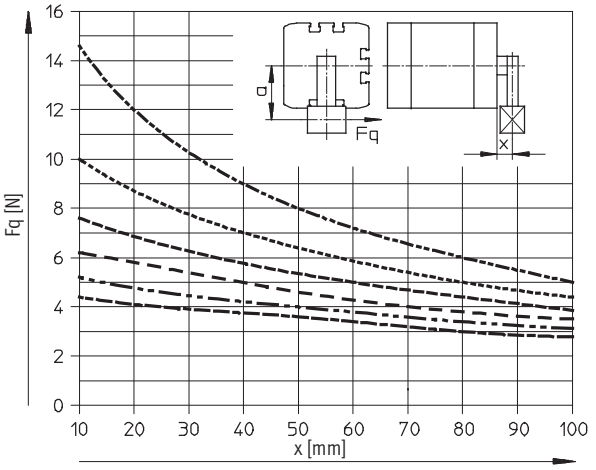
- a = 5 mm
- a = 10 mm
- a = 15 mm
- a = 20 mm
- a = 25 mm
- a = 30 mm

∅ 20/25



- a = 5 mm
- a = 10 mm
- a = 15 mm
- a = 20 mm
- a = 25 mm
- a = 30 mm

∅ 32/40



- a = 10 mm
- a = 20 mm
- a = 30 mm
- a = 40 mm
- a = 50 mm
- a = 60 mm

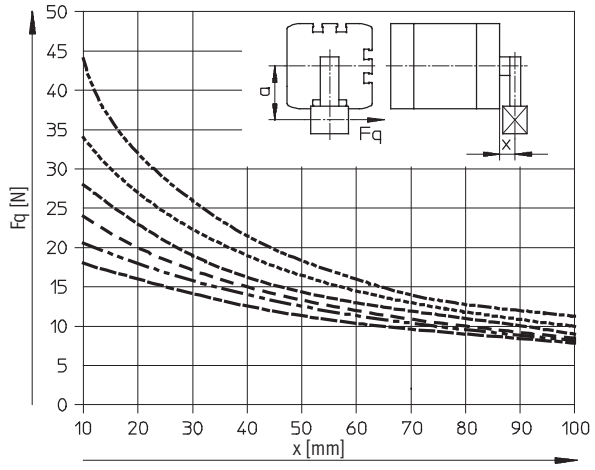
Note

- Torques on the piston rod are to be excluded with projections greater than those shown in the graphs.
- If a = 0, the corresponding lateral load line of the basic ADN version can be used (➔ 15).

Max. lateral force Fq as a function of the projection x and the lever arm a

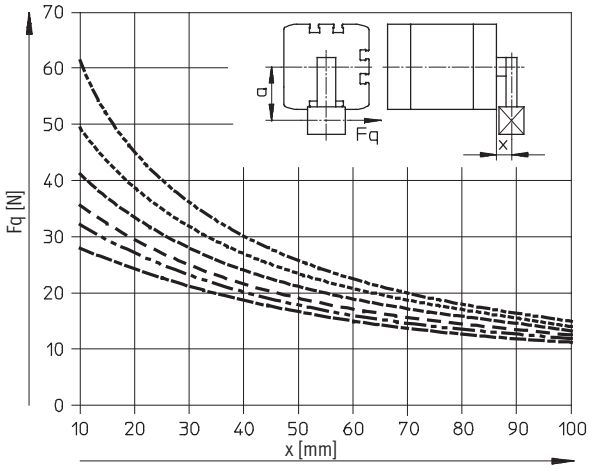
Q – Square piston rod

∅ 50/63



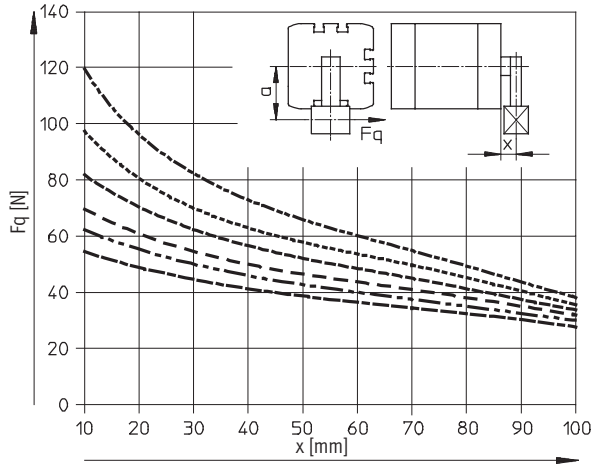
- a = 10 mm
- a = 20 mm
- a = 30 mm
- a = 40 mm
- a = 50 mm
- a = 60 mm

∅ 80/100



- a = 10 mm
- a = 20 mm
- a = 30 mm
- a = 40 mm
- a = 50 mm
- a = 60 mm

∅ 125



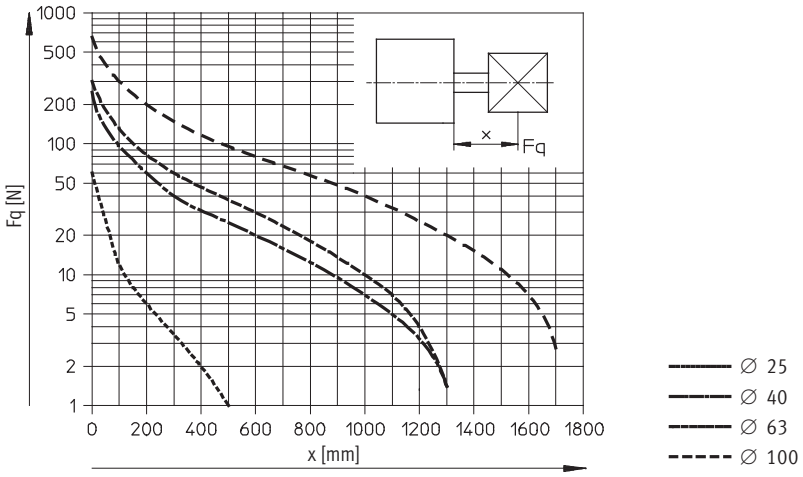
- a = 10 mm
- a = 20 mm
- a = 30 mm
- a = 40 mm
- a = 50 mm
- a = 60 mm

Note

- Torques on the piston rod are to be excluded with projections greater than those shown in the graphs.
- If a = 0, the corresponding lateral load line of the basic ADN version can be used (➔ 15).

Max. lateral force Fq as a function of the projection x

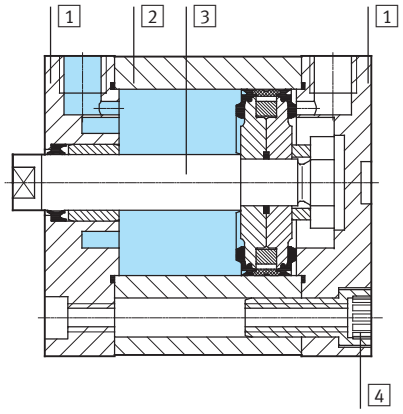
S1 – Reinforced piston rod



Weight [g]											
Piston Ø	12	16	20	25	32	40	50	63	80	100	125
Product weight with 0 mm stroke	77	79	131	156	265	346	540	722	1300	2154	2880
Additional weight per 10 mm stroke	12	14	21	23	30	37	51	59	79	98	117
Moving load with 0 mm stroke	9	15	30	50	60	80	140	180	400	570	1080
Additional load per 10 mm stroke	2	4	6	6	9	9	16	16	25	25	39

Materials

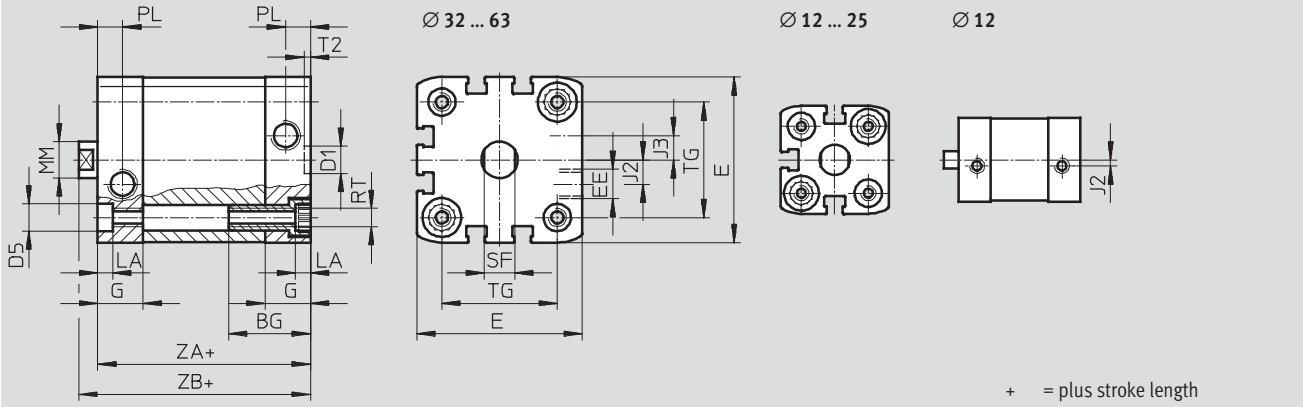
Sectional view



Compact cylinder			Basic version, Q	R8	S6, S10, S11	R3	K10
1	Cover		Anodised aluminium				
2	Cylinder barrel		Anodised aluminium				
3	Piston rod		High-alloy steel	Tempered steel, hard-chromium plated	High-alloy steel		Anodised aluminium
4	Flange screws	Ø 12 ... 16	High-alloy steel			High-alloy steel	–
		Ø 20 ... 25	Galvanised steel			High-alloy steel	Galvanised steel
		Ø 32 ... 63	Galvanised steel			Steel, zinc flake coating	Galvanised steel
		Ø 80 ... 125	Standard screws, galvanised steel			Standard screws, high-alloy steel	Standard screws, galvanised steel
–	Seals		Polyurethane		Fluoro elastomer	Polyurethane	
	Note on materials		RoHS compliant				

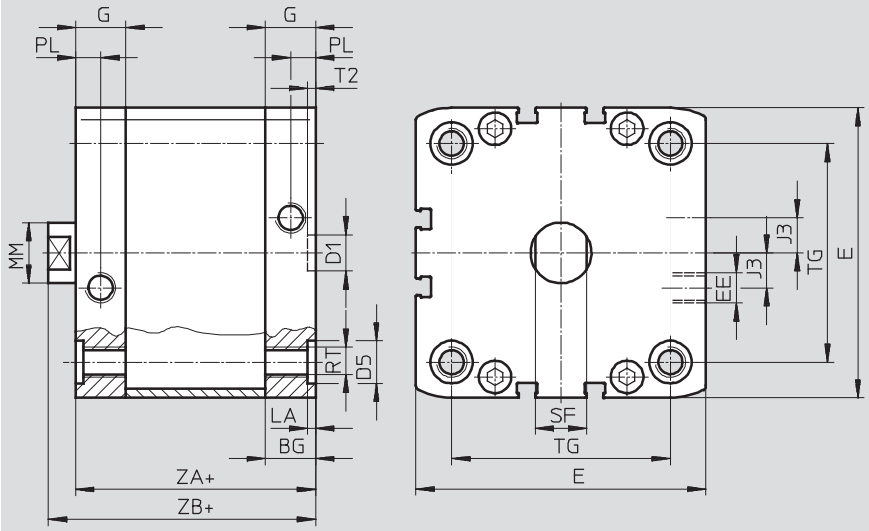
Dimensions – Basic version Download CAD data ➔ **www.festo.com**

∅ 12 ... 63



\+ = plus stroke length

∅ 80 ... 125

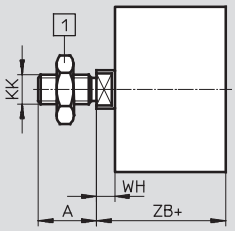


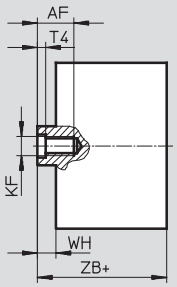
\+ = plus stroke length

∅ [mm]	BG min.	D1 ∅ H9	D5 ∅ F9	E	EE	G	J2	J3	LA +0.2	MM ∅ h8	PL +0.2	RT	SF h13	T2 +0.1	TG ±0.2	ZA ±0.3	ZB +1.2
12	17	9	6	27.5 +0.3	M5	10.5	2	–	3.5	6	6	M4	5	2.1	16	35	39.2
16				29 +0.3		11	2.6			8			7		18		39.7
20	19.5		9	35.5 +0.3		12			5	10		M5	9		22	37	42.5
25				39.5 +0.3											26	39	44.5
32	26			47 +0.3	G⅛	15	6			12	8.2	M6	10		32.5	44	50
40				54.5 +0.3			8								38	45	51.1
50	27		12	65.5 +0.3						16		M8	13		46.5		53.2
63				75.5 +0.3			11.5								56.5	49	57.1
80	17	12	15	95.5 +0.6		16.5			2.6	20		M10	17	2.6	72	54	62.9
100	21.5			113.5 +0.6		21.5	20				10.5				89	67	76
125	20		–	134.6 +0.3	G¼	20	21.15		–	25		M12	21		110	81	92

Dimensions – Variants Download CAD data ➔ **www.festo.com**

Basic version

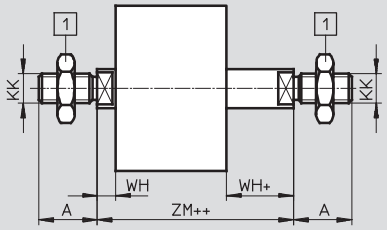


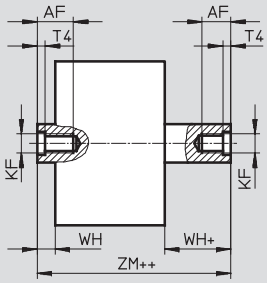


1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

S2 – Through piston rod



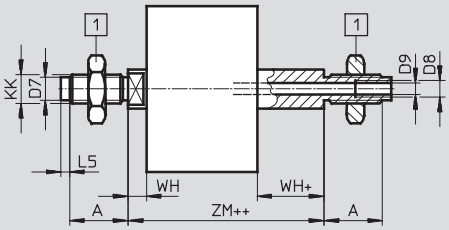


1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

++ = plus 2x stroke length

S20 – Through, hollow piston rod



Note

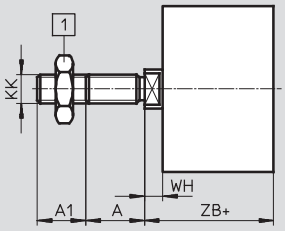
Piston rod extension is performed at one end in combination with the S2/S20 variants.

1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

++ = plus 2x stroke length

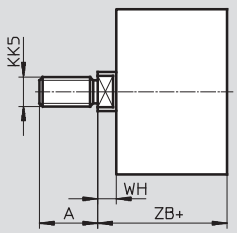
K2 – Extended male piston rod thread

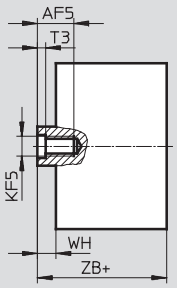


1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

K5 – Special piston rod thread





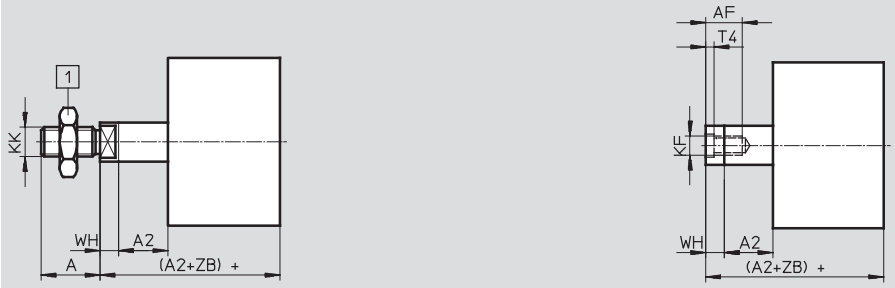
\+ = plus stroke length

Compact cylinders ADN, to ISO 21287

Technical data

Dimensions – Variants Download CAD data ➔ **www.festo.com**

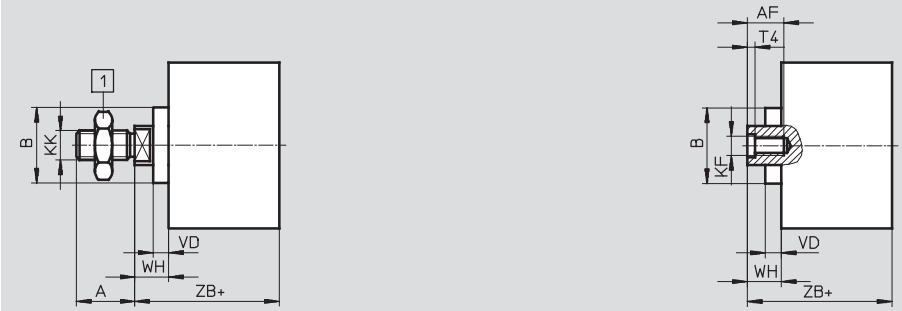
K8 – Extended piston rod



1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

R8 – Dust protection / TT – Low temperature



1 Hex nut to DIN 439-B only with ∅ 32 ... 125

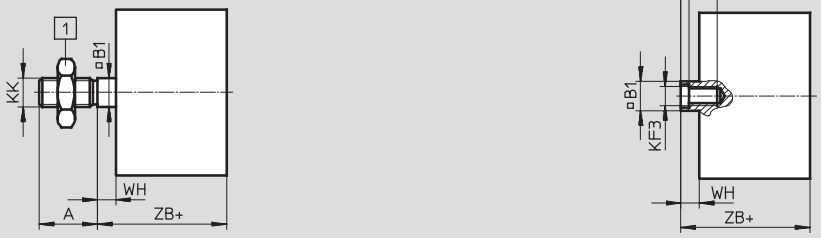
\+ = plus stroke length

∅ [mm]	A −0.5	A1	A2	AF min.	AF5 min.	B ∅	D7 ∅	D8	D9 ∅	L5	KF
12	10	1 ... 10	1 ... 300	8	–	–	–	–	–	–	M3
16	12			10			4.5		3.2	3	M4
20	16	1 ... 20		14	12	18	6	–	3.8	2	M6
25											
32	19		1 ...400	16	14	27	8		4.5	3	M8
40											
50	22			20	16	31	10		6	3.5	M10
63											
80	28	1 ... 30	1 ... 500		20	35	–	G⅛	8	–	M12
100											
125	40	1 ... 40		25	–	–		G¼	11.7		M16

∅ [mm]	KF5	KK	KK5	T3	T4	VD	WH +1.3		ZB +1.2		ZM
								R8/TT		R8/TT	
12	–	M5	M6	–	1.5	–	4.2	–	39.2	–	44.5 +0.5
16		M6	M8				4.7		39.7		45.7 +0.5
20	M5	M8	M10x1.25	2	2.6	5.2	5.5	10.5	42.5	47.5	49.5 +0.5
25			M10						44.5	49.5	51.5 +0.5
32	M6	M10x1.25	M10	2.6	3.3	6.4	6	12.5	50	56.5	57.5 +0.5
40			M12				6.1		51.1	57.5	58.6 +0.6
50	M8	M12x1.25	M12	3.3	4.7		8.2	14.7	53.2	59.7	62.8 +0.6
63			M16				8.1	14.6	57.1	63.6	66.6 +0.6
80	M10	M16x1.5	M16	4.7	6.1		8.9	15.4	62.9	69.4	73.2 +0.6
100			M20x1.5 M20				9	15.5	76	82.5	86.4 +0.6
125	–	M20x1.5	M20	–	7	–	11	–	92	–	104.4 +0.6

Dimensions – Variants Download CAD data ➔ **www.festo.com**

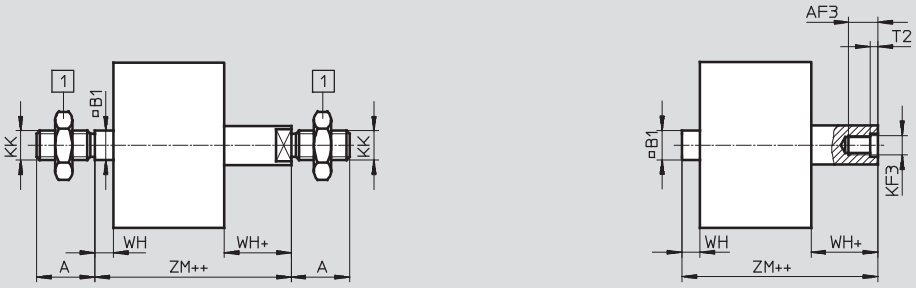
Q – Square piston rod



1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

Q-S2 – Square, through piston rod

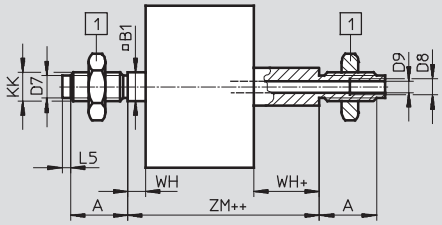


1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

++ = plus 2x stroke length

Q-S20 – Square, through, hollow piston rod



Note

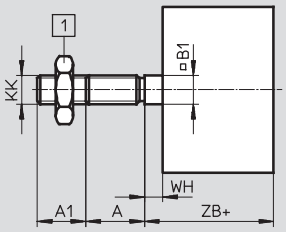
Piston rod extension is performed at one end at the square piston rod in combination with the S2/S20 variants.

1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

++ = plus 2x stroke length

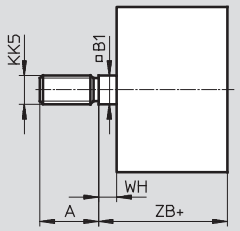
Q-K2 – Square, extended male piston rod thread



1 Hex nut to DIN 439-B only with ∅ 32 ... 125

\+ = plus stroke length

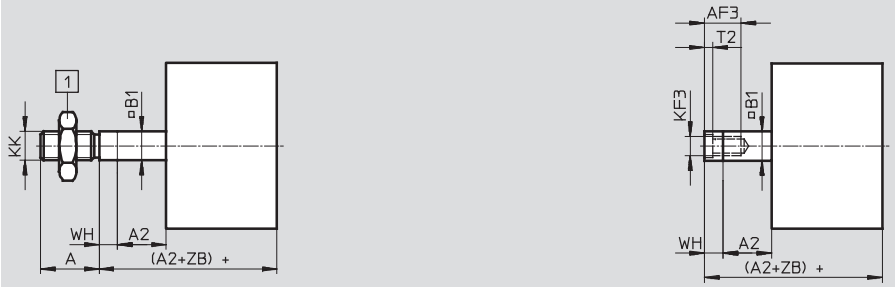
Q-K5 – Square, special piston rod thread



\+ = plus stroke length

Dimensions – Variants Download CAD data ➔ **www.festo.com**

Q-K8 – Square, extended piston rod



1 Hex nut to DIN 439-B
only with ∅ 32 ... 125

\+ = plus stroke length

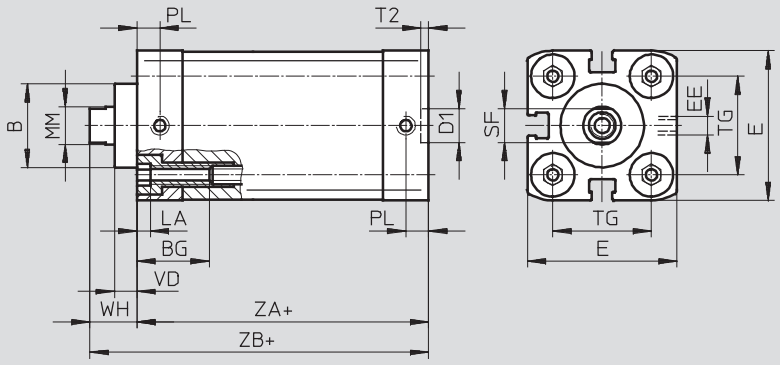
∅ [mm]	A −0.5	A1	A2	AF3 min.	B1 □	D7 ∅	D8	D9 ∅
12	10	1 ... 10	1 ... 300	8	5.5	–	–	–
16	12			10	7	4.5		3.2
20	16	1 ... 20		12	9	6		3.8
25								
32	19		1 ...400	14	10	8		4.5
40								
50	22			16	12	10		6
63								
80	28	1 ... 30	1 ... 500	20	16	–	G⅛	8
100								
125	40	1 ... 40		24	20		G¼	11.7

∅ [mm]	L5	KF3	KK	KK5	T2	WH +1.3	ZB +1.2	ZM
12	–	M3	M5	M6	1.5	4.2	39.2	44.5 +0.5
16	3	M4	M6	M8		4.7	39.7	45.7 +0.5
20	2	M5	M8	M10x1.25	2	5.5	42.5	49.5 +0.5
25				M10			44.5	51.5 +0.5
32	3	M6	M10x1.25	M10	2.6	6	50	57.5 +0.5
40						6.1	51.1	58.6 +0.6
50	3.5	M8	M12x1.25	M16	3.3	8.2	53.2	62.8 +0.6
63						8.1	57.1	66.6 +0.6
80	–	M10	M16x1.5	M16	4.7	8.9	62.9	73.2 +0.6
100						9	76	86.4 +0.6
125		M12	M20x1.5	M20	6.1	11	92	104.4 +0.6

Dimensions – Variants Download CAD data ➔ **www.festo.com**

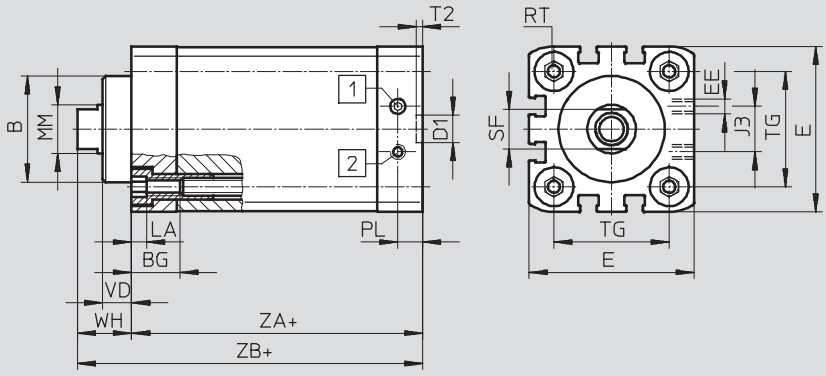
S1 – Reinforced piston rod

∅ 25



\+ = plus stroke length

∅ 40 ... 100



1 Cylinder advancing
2 Cylinder retracting

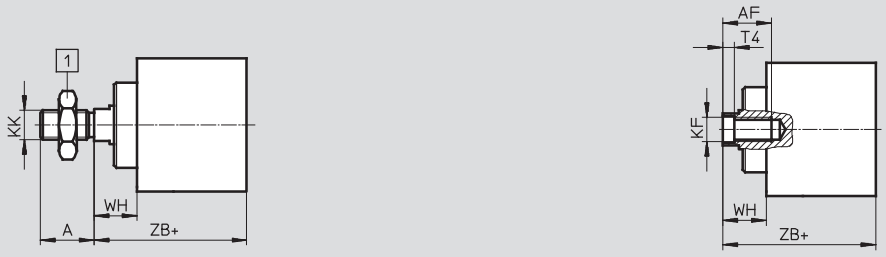
\+ = plus stroke length

∅ [mm]	B ∅ f8	BG min.	D1 ∅ H9	E	EE	J3	LA	MM ∅ h9	PL
25	22	15	9	39.5 +0.3	M5	–	5	10	6
40	35	16		54.5 +0.3		15		16	8.2
63	42		12	75.5 +0.3	G1⁄8	23		20	
100	55	17		113.5 +0.6		40		25	10.5

∅ [mm]	RT	SF h13	T2 +0.1	TG ±0.2	VD	WH +1.3	ZA ±0.3	ZB +1.2
25	M5	9	2.1	26	6	11.8	39	50.9
40	M6	13		38	9.5	18	45	62.9
63	M8	17	2.6	56.5	12	21	49	70.2
100	M10	21		89	15.5	26.5	67	93.5

Dimensions – Variants Download CAD data ➔ **www.festo.com**

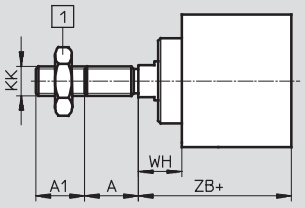
S1 – Reinforced piston rod



1 Hex nut to DIN 439-B only with ∅ 40 ... 100

\+ = plus stroke length

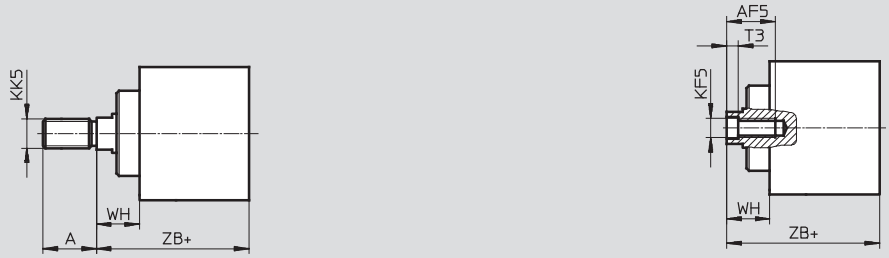
S1-K2 – Reinforced piston rod with extended male piston rod thread



1 Hex nut to DIN 439-B only with ∅ 40 ... 100

\+ = plus stroke length

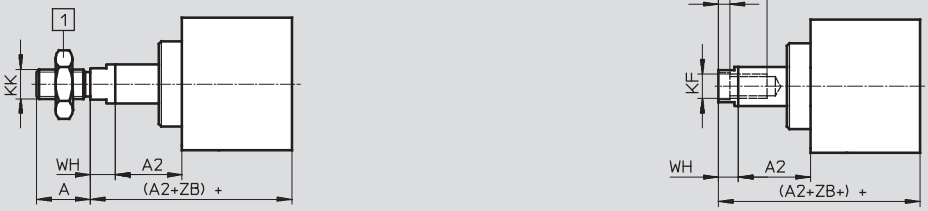
S1-K5 – Reinforced piston rod with special piston rod thread



1 Hex nut to DIN 439-B only with ∅ 40 ... 100

\+ = plus stroke length

S1-K8 – Reinforced piston rod with extended piston rod



1 Hex nut to DIN 439-B only with ∅ 40 ... 100

\+ = plus stroke length

∅ [mm]	A −0.5	A1	A2	AF min.	AF5 min.	KF	KF5	KK	KK5	T3	T4	WH +1.3	ZB +1.2
25	16	1 ... 20	1 ... 300	14	12	M6	M5	M8	M10x1.25 M10	2	2.6	11.8	50.9
40	22		1 ... 400	20	16	M10	M8	M12x1.25	M10x1.25 M12	3.3	4.7	18	62.9
63	28				20	M12	M10	M16x1.5	M12x1.25 M16	4.7	6.1	21	70.2
100	40	1 ... 30	1 ... 500	25	–	M16	–	M20x1.5	M16x1.5 M20	–	7	26.5	93.5

Ordering data

Type	Piston ∅ [mm]	Stroke [mm]	Female piston rod thread		Male piston rod thread	
			Part No.	Type	Part No.	Type
	12	5	536 211	ADN-12-5-I-P-A	536 204	ADN-12-5-A-P-A
		10	536 212	ADN-12-10-I-P-A	536 205	ADN-12-10-A-P-A
		15	536 213	ADN-12-15-I-P-A	536 206	ADN-12-15-A-P-A
		20	536 214	ADN-12-20-I-P-A	536 207	ADN-12-20-A-P-A
		25	536 215	ADN-12-25-I-P-A	536 208	ADN-12-25-A-P-A
		30	536 216	ADN-12-30-I-P-A	536 209	ADN-12-30-A-P-A
		40	536 217	ADN-12-40-I-P-A	536 210	ADN-12-40-A-P-A
	16	5	536 226	ADN-16-5-I-P-A	536 219	ADN-16-5-A-P-A
		10	536 227	ADN-16-10-I-P-A	536 220	ADN-16-10-A-P-A
		15	536 228	ADN-16-15-I-P-A	536 221	ADN-16-15-A-P-A
		20	536 229	ADN-16-20-I-P-A	536 222	ADN-16-20-A-P-A
		25	536 230	ADN-16-25-I-P-A	536 223	ADN-16-25-A-P-A
		30	536 231	ADN-16-30-I-P-A	536 224	ADN-16-30-A-P-A
		40	536 232	ADN-16-40-I-P-A	536 225	ADN-16-40-A-P-A
		50	536 341	ADN-16-50-I-P-A	536 331	ADN-16-50-A-P-A
	20	5	536 242	ADN-20-5-I-P-A	536 234	ADN-20-5-A-P-A
		10	536 243	ADN-20-10-I-P-A	536 235	ADN-20-10-A-P-A
		15	536 244	ADN-20-15-I-P-A	536 236	ADN-20-15-A-P-A
		20	536 245	ADN-20-20-I-P-A	536 237	ADN-20-20-A-P-A
		25	536 246	ADN-20-25-I-P-A	536 238	ADN-20-25-A-P-A
		30	536 247	ADN-20-30-I-P-A	536 239	ADN-20-30-A-P-A
		40	536 248	ADN-20-40-I-P-A	536 240	ADN-20-40-A-P-A
		50	536 249	ADN-20-50-I-P-A	536 241	ADN-20-50-A-P-A
		60	536 362	ADN-20-60-I-P-A	536 352	ADN-20-60-A-P-A
	25	5	536 259	ADN-25-5-I-P-A	536 251	ADN-25-5-A-P-A
		10	536 260	ADN-25-10-I-P-A	536 252	ADN-25-10-A-P-A
		15	536 261	ADN-25-15-I-P-A	536 253	ADN-25-15-A-P-A
		20	536 262	ADN-25-20-I-P-A	536 254	ADN-25-20-A-P-A
		25	536 263	ADN-25-25-I-P-A	536 255	ADN-25-25-A-P-A
		30	536 264	ADN-25-30-I-P-A	536 256	ADN-25-30-A-P-A
		40	536 265	ADN-25-40-I-P-A	536 257	ADN-25-40-A-P-A
		50	536 266	ADN-25-50-I-P-A	536 258	ADN-25-50-A-P-A
		60	536 383	ADN-25-60-I-P-A	536 373	ADN-25-60-A-P-A
	32	5	536 278	ADN-32-5-I-P-A	536 268	ADN-32-5-A-P-A
		10	536 279	ADN-32-10-I-P-A	536 269	ADN-32-10-A-P-A
		15	536 280	ADN-32-15-I-P-A	536 270	ADN-32-15-A-P-A
		20	536 281	ADN-32-20-I-P-A	536 271	ADN-32-20-A-P-A
		25	536 282	ADN-32-25-I-P-A	536 272	ADN-32-25-A-P-A
		30	536 283	ADN-32-30-I-P-A	536 273	ADN-32-30-A-P-A
		40	536 284	ADN-32-40-I-P-A	536 274	ADN-32-40-A-P-A
		50	536 285	ADN-32-50-I-P-A	536 275	ADN-32-50-A-P-A
		60	536 286	ADN-32-60-I-P-A	536 276	ADN-32-60-A-P-A
		80	536 287	ADN-32-80-I-P-A	536 277	ADN-32-80-A-P-A

Ordering data

Type	Piston ∅ [mm]	Stroke [mm]	Female piston rod thread Part No.	Female piston rod thread Type	Male piston rod thread Part No.	Male piston rod thread Type
	40	5	536 299	ADN-40-5-I-P-A	536 289	ADN-40-5-A-P-A
		10	536 300	ADN-40-10-I-P-A	536 290	ADN-40-10-A-P-A
		15	536 301	ADN-40-15-I-P-A	536 291	ADN-40-15-A-P-A
		20	536 302	ADN-40-20-I-P-A	536 292	ADN-40-20-A-P-A
		25	536 303	ADN-40-25-I-P-A	536 293	ADN-40-25-A-P-A
		30	536 304	ADN-40-30-I-P-A	536 294	ADN-40-30-A-P-A
		40	536 305	ADN-40-40-I-P-A	536 295	ADN-40-40-A-P-A
		50	536 306	ADN-40-50-I-P-A	536 296	ADN-40-50-A-P-A
		60	536 307	ADN-40-60-I-P-A	536 297	ADN-40-60-A-P-A
		80	536 308	ADN-40-80-I-P-A	536 298	ADN-40-80-A-P-A
	50	5	536 320	ADN-50-5-I-P-A	536 310	ADN-50-5-A-P-A
		10	536 321	ADN-50-10-I-P-A	536 311	ADN-50-10-A-P-A
		15	536 322	ADN-50-15-I-P-A	536 312	ADN-50-15-A-P-A
		20	536 323	ADN-50-20-I-P-A	536 313	ADN-50-20-A-P-A
		25	536 324	ADN-50-25-I-P-A	536 314	ADN-50-25-A-P-A
		30	536 325	ADN-50-30-I-P-A	536 315	ADN-50-30-A-P-A
		40	536 326	ADN-50-40-I-P-A	536 316	ADN-50-40-A-P-A
		50	536 327	ADN-50-50-I-P-A	536 317	ADN-50-50-A-P-A
		60	536 328	ADN-50-60-I-P-A	536 318	ADN-50-60-A-P-A
		80	536 329	ADN-50-80-I-P-A	536 319	ADN-50-80-A-P-A
	63	10	536 342	ADN-63-10-I-P-A	536 332	ADN-63-10-A-P-A
		15	536 343	ADN-63-15-I-P-A	536 333	ADN-63-15-A-P-A
		20	536 344	ADN-63-20-I-P-A	536 334	ADN-63-20-A-P-A
		25	536 345	ADN-63-25-I-P-A	536 335	ADN-63-25-A-P-A
		30	536 346	ADN-63-30-I-P-A	536 336	ADN-63-30-A-P-A
		40	536 347	ADN-63-40-I-P-A	536 337	ADN-63-40-A-P-A
		50	536 348	ADN-63-50-I-P-A	536 338	ADN-63-50-A-P-A
		60	536 349	ADN-63-60-I-P-A	536 339	ADN-63-60-A-P-A
		80	536 350	ADN-63-80-I-P-A	536 340	ADN-63-80-A-P-A
	80	10	536 363	ADN-80-10-I-P-A	536 353	ADN-80-10-A-P-A
		15	536 364	ADN-80-15-I-P-A	536 354	ADN-80-15-A-P-A
		20	536 365	ADN-80-20-I-P-A	536 355	ADN-80-20-A-P-A
		25	536 366	ADN-80-25-I-P-A	536 356	ADN-80-25-A-P-A
		30	536 367	ADN-80-30-I-P-A	536 357	ADN-80-30-A-P-A
		40	536 368	ADN-80-40-I-P-A	536 358	ADN-80-40-A-P-A
		50	536 369	ADN-80-50-I-P-A	536 359	ADN-80-50-A-P-A
		60	536 370	ADN-80-60-I-P-A	536 360	ADN-80-60-A-P-A
		80	536 371	ADN-80-80-I-P-A	536 361	ADN-80-80-A-P-A
	100	10	536 384	ADN-100-10-I-P-A	536 374	ADN-100-10-A-P-A
		15	536 385	ADN-100-15-I-P-A	536 375	ADN-100-15-A-P-A
		20	536 386	ADN-100-20-I-P-A	536 376	ADN-100-20-A-P-A
		25	536 387	ADN-100-25-I-P-A	536 377	ADN-100-25-A-P-A
		30	536 388	ADN-100-30-I-P-A	536 378	ADN-100-30-A-P-A
		40	536 389	ADN-100-40-I-P-A	536 379	ADN-100-40-A-P-A
		50	536 390	ADN-100-50-I-P-A	536 380	ADN-100-50-A-P-A
		60	536 391	ADN-100-60-I-P-A	536 381	ADN-100-60-A-P-A
		80	536 392	ADN-100-80-I-P-A	536 382	ADN-100-80-A-P-A

Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, basic version and variants

FESTO

M Mandatory data →

Module No.	Function		Stroke		Cushioning	
	Piston ∅		Piston rod thread		Position sensing	
536 203	ADN	12	1 … 500	A	P	A
536 218		16		I		
536 233		20				
536 250		25				
536 267		32				
536 288		40				
Order example						
536 309	**ADN**	**– 40**	**– 250**	**– A**	**– P**	**– A**

Ordering table

Size		12	16	20	25	32	40	Condi-tions	Code		Enter Code
M	Module No.	**536 203**	**536 218**	**536 233**	**536 250**	**536 267**	**536 288**				
	Function	Compact cylinder, double-acting, based on ISO 21287							**ADN**		ADN
	Piston ∅ [mm]	12	16	20	25	32	40		**-...**		
	Stroke [mm]	1 … 300				1 … 400			**-...**		
	Piston rod thread	Male thread							**-A**		
		Female thread						1	**-I**		
	Cushioning	Flexible cushioning rings/pads at both ends							**-P**		-P
↓	Position sensing	Via proximity sensor							**-A**		-A

1 **I** Not with piston rod type S20
Not with extended male thread K2

Transfer order code

	ADN	–		–		–		–	P	–	A

Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, basic version and variants

FESTO

➔ 0 **Options**

Type of piston rod		Special thread		Improved running performance		Corrosion protection		Low temperature	
Male thread extended		Piston rod extended		Temperature resistance		Captive rating plate		Wiper seal	
S2 S20	...K2	"..."K5	...K8	K10	S6	R3	TL	TT	R8

–	S2	–	15K2	–	"M16"K5	–	50K8	–		–	S6	–		–		–		–	

Ordering table

Size		12	16	20	25	32	40	Conditions	Code		Enter Code
0 Type of piston rod		Through piston rod						2	**-S2**		
	[mm]	–	Through, hollow piston rod 1 ... 300			1 ... 400		2	**-S20**		
Male thread extended	[mm]	Extended male piston rod thread 1 ... 10		1 ... 20					**-...K2**		
Special piston rod thread	Male thread	M6	M8	M10x1,25 M10	M10x1,25 M10	M10 M12	M10 M12		**-"..."K5**		
	Female thread	–	–	M5	M5	M6	M6				
Piston rod extended	[mm]	Extended piston rod 1 ... 300				1 ... 400		3	**-...K8**		
Improved running performance		–	–	Smooth anodised aluminium coated piston rod				4	**-K10**		
Temperature resistance		Heat-resistant seals up to max. 120 °C							**-S6**		
Corrosion protection		High corrosion protection						5	**-R3**		
Captive rating plate		Laser etched rating plate							**-TL**		
Low temperature	[°C]	–	–	–40 ... +80				6 7	**-TT**		
Wiper seal		–	–	Dust protection				6	**-R8**		

2 **S2, S20** Not with improved running performance K10
Not with corrosion protection R3

3 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

4 **K10** Not with extended male thread K2
Not with special piston rod thread K5
Not with corrosion protection R3

5 **R3** Not with captive rating plate TL
Not with low temperature TT
Not with wiper seal R8

6 **TT, R8** Not with improved running performance K10
Not with temperature resistance S6

7 **TT** Not with wiper seal R8

Transfer order code

–		–		–		–		–		–		–		–		–	

Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, basic version and variants

FESTO

M Mandatory data

Module No.	Function		Stroke		Cushioning	
	Piston ∅		Piston rod thread		Position sensing	
536 309	ADN	50	1 … 500	A	P	A
536 330		63		I		
536 351		80				
536 372		100				
536 393		125				
Order example						
536 309	**ADN**	**50**	**350**	**A**	**P**	**A**

Ordering table

Size		50	63	80	100	125	Condi-tions	Code	Enter Code
M	Module No.	**536 309**	**536 330**	**536 351**	**536 372**	**536 393**			
	Function	Compact cylinder, double-acting, based on ISO 21287						**ADN**	ADN
	Piston ∅ [mm]	50	63	80	100	125		**-...**	
	Stroke [mm]	1 … 400		1 … 500				**-...**	
	Piston rod thread	Male thread						**-A**	
		Female thread					1	**-I**	
	Cushioning	Flexible cushioning rings/pads at both ends						**-P**	-P
↓	Position sensing	Via proximity sensor						**-A**	-A

1 **I** Not with piston rod type S20
Not with extended male thread K2

Transfer order code

	ADN	–		–		–		–	P	–	A

➔ 0 **Options**

Type of piston rod		Special thread		Improved running performance		Corrosion protection		Low temperature	
Male thread extended		Piston rod extended		Temperature resistance		Captive rating plate		Wiper seal	
S2 S20	...K2	"..."K5	...K8	K10	S6	R3	TL	TT	R8
– **S2**	– **15K2**	– **"M16"K5**	– **50K8**	–	– **S6**	–	–	–	–

Ordering table

Size		50	63	80	100	125	Conditions	Code		Enter Code
0 Type of piston rod		Through piston rod					2	**-S2**		
		Through, hollow piston rod					2	**-S20**		
	[mm]	1 ... 400		1 ... 500						
Male thread extended		Extended male piston rod thread								
	[mm]	1 ... 20		1 ... 30		1 ... 40		**-...K2**		
Special piston rod thread	Male thread	M12 M16	M12 M16	M16 M20 M20x1,5	M16 M20 M20x1,5	M20		**-"..."K5**		
	Female thread	M8	M8	M10	M10	–				
Piston rod extended		Extended piston rod								
	[mm]	1 ... 400		1 ... 500			3	**-...K8**		
Improved running performance		Smooth anodised aluminium coated piston rod Restricted stroke					4	**-K10**		
	[mm]	2 ... 400	5 ... 400	5 ... 500						
Temperature resistance		Heat-resistant seals up to max. 120 °C						**-S6**		
Corrosion protection		High corrosion protection					5	**-R3**		
Captive rating plate		Laser etched rating plate						**-TL**		
Low temperature	[°C]	–40 ... +80				–	6 7	**-TT**		
Wiper seal		Dust protection				–	6	**-R8**		

2 **S2, S20** Not with improved running performance K10
Not with corrosion protection R3

3 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

4 **K10** Not with extended male thread K2
Not with special piston rod thread K5
Not with corrosion protection R3

5 **R3** Not with captive rating plate TL
Not with low temperature TT
Not with wiper seal R8

6 **TT, R8** Not with improved running performance K10
Not with temperature resistance S6

7 **TT** Not with wiper seal R8

Transfer order code

– | – | – | – | – | – | – | – | – | – |

Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, S10 – Version with constant motion, S11 – Version with low friction

FESTO

M **Mandatory data** →

Module No.	Function		Piston ∅		Stroke		Piston rod thread		Cushioning		Position sensing
536 203	ADN		12		1 … 500		A		P		A
536 218			16				I				
536 233			20								
536 250			25								
536 267			32								
536 288			40								
536 309			50								
536 330			63								
536 351			80								
536 372			100								
536 393			125								
Order example											
536 309	**ADN**	–	**50**	–	**350**	–	**A**	–	**P**	–	**A**

Ordering table

Size			12	16	20	25	32	40	Conditions	Code		Enter code
M	Module No.		**536 203**	**536 218**	**536 233**	**536 250**	**536 267**	**536 288**				
	Function		Compact cylinder, double-acting, based on ISO 21287							**ADN**		ADN
	Piston ∅	[mm]	12	16	20	25	32	40		**-...**		
	Stroke	[mm]	1 … 300				1 … 400			**-...**		
	Piston rod thread		Male thread							**-A**		
			Female thread						1	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends							**-P**		-P
	Position sensing		Via proximity sensor							**-A**		-A
O	Male thread extended		Extended male piston rod thread									
		[mm]	1 … 10		1 … 20					**-...K2**		
	Special piston rod thread	Male thread	M6	M8	M10x1.25 M10	M10x1.25 M10	M10 M12	M10 M12		**-"..."K5**		
		Female thread	–	–	M5	M5	M6	M6				
	Piston rod extended		Extended piston rod									
		[mm]	1 … 300				1 … 400		2	**-...K8**		
	Improved running performance		–	–	Smooth anodised aluminium coated piston rod				3	**-K10**		
	Constant motion		Slow speed (constant motion at low piston speeds)						4	**-S10**		
			Restricted stroke									
		[mm]	20 … 300				20 … 400					
	Low friction		Low friction						5	**-S11**		
	Corrosion protection		High corrosion protection						6	**-R3**		
	Captive rating plate		Laser etched rating plate							**-TL**		

1 **I** Not with extended male thread K2

2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

3 **K10** Not with extended male thread K2
Not with special piston rod thread K5
Not with corrosion protection R3

4 **S10** Not with low friction S11

5 **S11** Not with constant motion S10

6 **R3** Not with captive rating plate TL

Transfer order code

	ADN	–		–		–		–	**P**	–	**A**

Compact cylinders ADN, to ISO 21287

FESTO

Ordering data – Modular products, S10 – Version with constant motion, S11 – Version with low friction

➔ 0 **Options**

	Male thread extended		Special thread		Piston rod extended		Improved running performance		Constant motion		Low friction		Corrosion protection		Captive rating plate
	...K2		"..."K5		...K8		K10		S10		S11		R3		TL
–		–	**"M16"K5**	–	**50K8**	–		–	**S10**	–		–	**R3**	–	

Ordering table

Size			50	63	80	100	125	Conditions	Code		Enter code
M	Module No.		**536 309**	**536 330**	**536 351**	**536 372**	**536 393**				
	Function		Compact cylinder, double-acting, based on ISO 21287						**ADN**		ADN
	Piston ∅	[mm]	50	63	80	100	125		**-...**		
	Stroke	[mm]	1 ... 400		1 ... 500				**-...**		
	Piston rod thread		Male thread						**-A**		
			Female thread					1	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends						**-P**		-P
	Position sensing		Via proximity sensor						**-A**		-A
0	Male thread extended		Extended male piston rod thread								
		[mm]	1 ... 20		1 ... 30		1 ... 40		**-...K2**		
	Special piston rod thread	Male thread	M12 M16	M12 M16	M16 M20 M20x1.5	M16 M20 M20x1.5	M20		**-"..."K5**		
		Female thread	M8	M8	M10	M10	–				
	Piston rod extended		Extended piston rod								
		[mm]	1 ... 400		1 ... 500			2	**-...K8**		
	Improved running performance		Smooth anodised aluminium coated piston rod Restricted stroke					3	**-K10**		
		[mm]	2 ... 400	5 ... 400	5 ... 500						
	Constant motion		Slow speed (constant motion at low piston speeds) Restricted stroke					4	**-S10**		
		[mm]	20 ... 400		20 ... 500						
	Low friction		Low friction					5	**-S11**		
	Corrosion protection		High corrosion protection					6	**-R3**		
	Captive rating plate		Laser etched rating plate						**-TL**		

1 **I** Not with extended male thread K2

2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

3 **K10** Not with extended male thread K2
Not with special piston rod thread K5
Not with corrosion protection R3

4 **S10** Not with low friction S11

5 **S11** Not with constant motion S10

6 **R3** Not with captive rating plate TL

Transfer order code

–		–		–		–		–		–		–		–	

Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, Q – Version with square piston rod, non-rotating

FESTO

M Mandatory data →

Module No.	Function		Piston ∅		Stroke		Piston rod thread		Cushioning		Position sensing
536 203	ADN		12		1 … 500		A		P		A
536 218			16				I				
536 233			20								
536 250			25								
536 267			32								
536 288			40								
536 309			50								
536 330			63								
536 351			80								
536 372			100								
536 393			125								
Order example											
536 309	**ADN**	–	**50**	–	**350**	–	**A**	–	**P**	–	**A**

Ordering table

Size			12	16	20	25	32	40	Conditions	Code		Enter code
M	Module No.		**536 203**	**536 218**	**536 233**	**536 250**	**536 267**	**536 288**				
	Function		Compact cylinder, double-acting, based on ISO 21287							**ADN**		ADN
	Piston ∅	[mm]	12	16	20	25	32	40		**-...**		
	Stroke	[mm]	1 … 300				1 … 400			**-...**		
	Piston rod thread		Male thread							**-A**		
			Female thread						1	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends							**-P**		-P
	Position sensing		Via proximity sensor							**-A**		-A
O	Protection against torsion		Square piston rod							**-Q**		-Q
	Type of piston rod		Through piston rod							**-S2**		
			–	Through, hollow piston rod Restricted stroke						**-S20**		
		[mm]		1 … 200			1 … 300					
	Male thread extended		Extended male piston rod thread									
		[mm]	1 … 10		1 … 20					**-...K2**		
	Special piston rod thread	Male thread	M6	M8	M10x1.25 M10	M10x1.25 M10	M10	M10		**-"..."K5**		
	Piston rod extended		Extended piston rod									
		[mm]	1 … 300				1 … 400		2	**-...K8**		
	Temperature resistance		Heat-resistant seals up to max. 120 °C							**-S6**		
	Captive rating plate		Laser etched rating plate							**-TL**		

1 **I** Not with piston rod type S20
Not with extended male thread K2

2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

	ADN	–		–		–		–	**P**	–	**A**

Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, Q – Version with square piston rod, non-rotating

FESTO

➔ [O] **Options**

Protection against torsion	Type of piston rod	Male thread extended	Special thread	Piston rod extended	Temperature resistance	Captive rating plate
Q	S2 S20	...K2	"..."K5	...K8	S6	TL

–	**Q**	–	**S2**	–	**15K2**	–	**"M16"K5**	–	**50K8**	–	**S6**	–

Ordering table

Size			50	63	80	100	125	Condi-tions	Code		Enter code
[M]	Module No.		**536 309**	**536 330**	**536 351**	**536 372**	**536 393**				
	Function		Compact cylinder, double-acting, based on ISO 21287						**ADN**		ADN
	Piston ∅	[mm]	50	63	80	100	125		**-...**		
	Stroke	[mm]	1 ... 400		1 ... 500				**-...**		
	Piston rod thread		Male thread						**-A**		
			Female thread					[1]	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends						**-P**		-P
	Position sensing		Via proximity sensor						**-A**		-A
[O]	Protection against torsion		Square piston rod						**-Q**		-Q
	Type of piston rod		Through piston rod						**-S2**		
			Through, hollow piston rod Restricted stroke						**-S20**		
		[mm]	1 ... 300			1 ... 400					
	Male thread extended		Extended male piston rod thread								
		[mm]	1 ... 20		1 ... 30		1 ... 40		**-...K2**		
	Special piston rod thread	Male thread	M12	M12	M16	M16	M20		**-"..."K5**		
	Piston rod extended		Extended piston rod								
		[mm]	1 ... 400		1 ... 500			[2]	**-...K8**		
	Temperature resistance		Heat-resistant seals up to max. 120 °C						**-S6**		
	Captive rating plate		Laser etched rating plate						**-TL**		

[1] **I** Not with piston rod type S20
Not with extended male thread K2

[2] **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–	**Q**	–		–		–		–		–		–

Compact cylinders ADN, to ISO 21287

Ordering data – Modular products, S1 – Version with reinforced piston rod

FESTO

M Mandatory data							O Options					
Module No.	Function	Piston ∅	Stroke	Piston rod thread	Cushioning	Position sensing	Male thread extended	Special thread	Piston rod extended	Temperature resistance	Reinforced piston rod	Captive rating plate
536 250 536 288 536 330 536 372	ADN	25 40 63 100	5 ... 500	A I	P	A	...K2	"..."K5	...K8	S6	S1	TL
Order example												
536 288	**ADN**	**40**	**320**	**I**	**P**	**A**			**50K8**	**S6**	**S1**	**TL**

Ordering table

Size			25	40	63	100	Conditions	Code	Enter code
M	Module No.		**536 250**	**536 288**	**536 330**	**536 372**			
	Function		Compact cylinder, double-acting, based on ISO 21287					**ADN**	ADN
	Piston ∅	[mm]	25	40	63	100		**-...**	
	Stroke	[mm]	5 ... 300	10 ... 400		10 ... 500		**-...**	
	Piston rod thread		Male thread					**-A**	
			Female thread				1	**-I**	
	Cushioning		Flexible cushioning rings/pads at both ends					**-P**	-P
	Position sensing		Via proximity sensor					**-A**	-A
O	Male thread extended		Extended male piston rod thread						
		[mm]	1 ... 20			1 ... 30		**-...K2**	
	Special piston rod thread	Male thread	M10x1.25 M10	M10x1.25 M12	M12x1.25 M16	M16x1.5 M20		**-"..."K5**	
		Female thread	M5	M8	M10	–			
	Piston rod extended		Extended piston rod						
		[mm]	1 ... 300	1 ... 400		1 ... 500	2	**-...K8**	
	Temperature resistance		Heat-resistant seals up to max. 120 °C					**-S6**	
	Reinforced piston rod		Reinforced piston rod or extended piston rod bearing					**-S1**	-S1
	Captive rating plate		Laser etched rating plate					**-TL**	

1 **I** Not with extended male thread K2

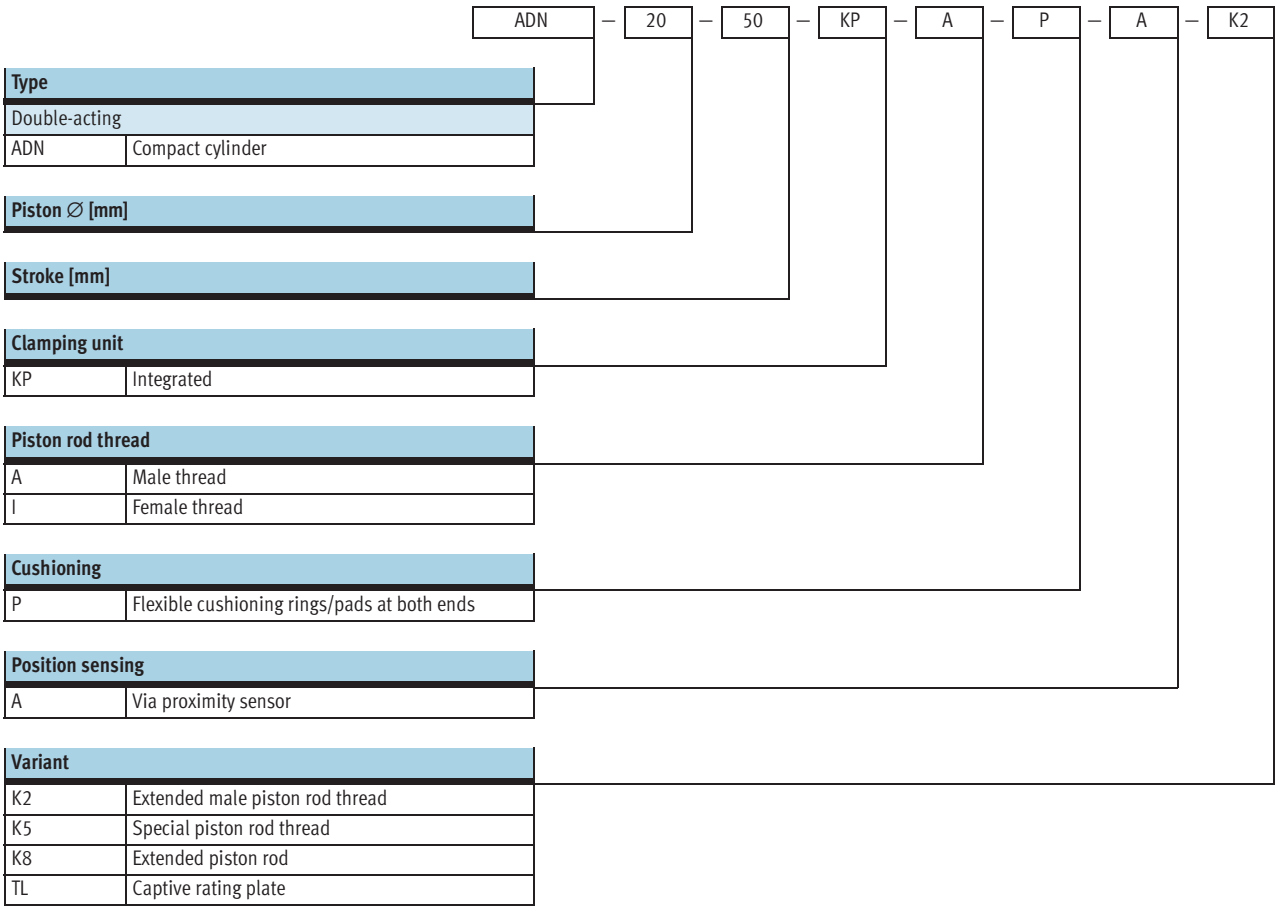
2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

	ADN	–		–		–		–	P	–	A	–		–		–		–		–	S1	–	

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Type codes



Type	
Double-acting	
ADN	Compact cylinder

Piston ∅ [mm]	

Stroke [mm]	

Clamping unit	
KP	Integrated

Piston rod thread	
A	Male thread
I	Female thread

Cushioning	
P	Flexible cushioning rings/pads at both ends

Position sensing	
A	Via proximity sensor

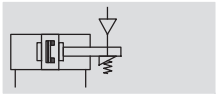
Variant	
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
TL	Captive rating plate

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Technical data

FESTO

Function



- Ø - Diameter
  20 ... 100 mm
- I - Stroke length
  10 ... 500 mm

Variants

K2

K5

K8

- Note

Additional measures are required for use in safety-related control systems; in Europe, for example, the standards listed under the EC Machinery Directive must be observed. Without additional measures in accordance with statutory minimum requirements, the product is not suitable for use in safety-related sections of control systems.

General technical data									
Piston Ø		20	25	32	40	50	63	80	100
Pneumatic connection	Cylinder	M5	M5	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8
	KP	M5	M5	M5	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8
Female piston rod thread		M6		M8		M10		M12	
	K5	M5		M6		M8		M10	
Male piston rod thread		M8		M10x1.25		M12x1.25		M16x1.5	
	K5	M10, M10x1.25		M10, M12		M12, M16		M16, M20, M20x1.5	
Max. axial backlash with clamped piston rod without load	[mm]	0.5				0.7			
Constructional design		Piston							
		Piston rod							
		Cylinder barrel							
Cushioning		Flexible cushioning rings/pads at both ends							
Position sensing		Via proximity sensor							
Type of mounting		Via through-holes							
		Via female threads							
		Via accessories							
Mounting position		Any							
Clamping type with effective direction of action		From both sides							

Operating and environmental conditions		
Operating medium		Filtered compressed air, lubricated or unlubricated
Operating pressure	[bar]	1.5 ... 10
Min. release pressure	[bar]	3
Ambient temperature[1]	[°C]	–10 ... +80
Corrosion resistance class CRC[2]		2

1) Note operating range of proximity sensors
2) Corrosion resistance class 2 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

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Technical data

Impact energy [J]								
Piston ∅	20	25	32	40	50	63	80	100
Max. impact energy at the end positions	0.2	0.3	0.4	0.7	1	1.3	1.8	2.5

Permissible impact velocity:

$$v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{dead} + m_{load}}}$$

Maximum permissible load:

$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
m_{dead} Moving load (drive)
m_{load} Moving work load

- Note

These specifications represent the maximum values which can be reached. Note the maximum permitted impact energy.

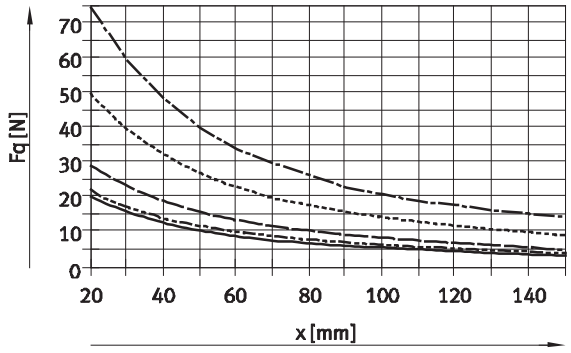
Forces [N]								
Piston ∅	20	25	32	40	50	63	80	100
Theoretical force at 6 bar, advancing	188	295	483	754	1178	1870	3016	4712
Theoretical force at 6 bar, retracting	141	247	415	633	990	1682	2721	4418
Static holding force	350	350	600	1000	1400	2000	5000	5000

- Note

The specified holding force refers to a static load. If this value is exceeded, slippage may occur. Dynamic forces occurring during operation must not exceed the static holding force. The clamping unit is not backlash-free in the clamped condition if varying loads are applied to the piston rod.

Activation:
The clamping unit may only be released if the forces at the piston have reached equilibrium. Otherwise, there is a risk of accidents due to sudden movement of the piston rod. Blocking off the air supply at both ends (e.g. with a 5/3-way valve) does not provide any safety.

Max. lateral force Fq as a function of the projection x



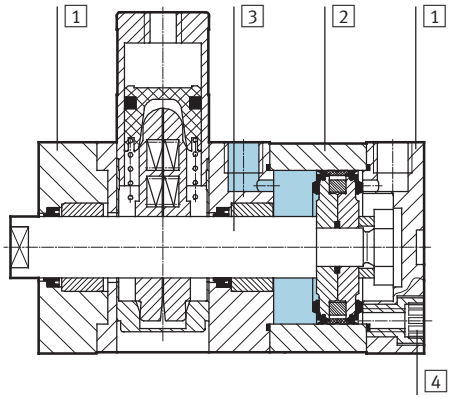
Weight [g]								
Piston ∅	20	25	32	40	50	63	80	100
Product weight with 0 mm stroke	282	344	503	789	1268	1894	3973	5497
Additional weight per 10 mm stroke	22	26	29	45	60	68	93	112
Moving load with 0 mm stroke	53	63	100	173	296	368	755	932
Additional load per 10 mm stroke	6	6	9	16	25	25	39	39

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Technical data

Materials

Sectional view



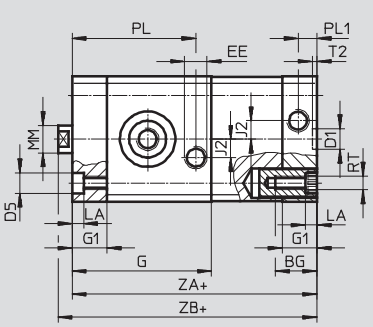
Compact cylinder			
1	Cover		Anodised aluminium
2	Cylinder barrel		Anodised aluminium
3	Piston rod		High-alloy steel
4	Flange screws	∅ 20 ... 63	Galvanised steel
		∅ 80 ... 100	Standard screws, galvanised steel
–	Seals		Polyurethane, nitrile rubber
	Note on materials		RoHS compliant

Compact cylinders ADN-KP, standard port pattern, with clamping unit

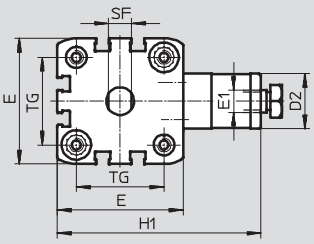
Technical data

Dimensions – Basic version Download CAD data ➔ **www.festo.com**

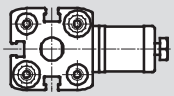
∅ 20 ... 63



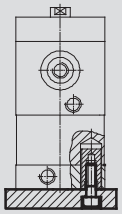
∅ 32 ... 63



∅ 20, 25

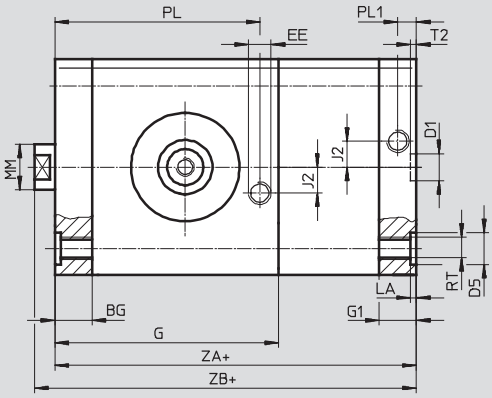


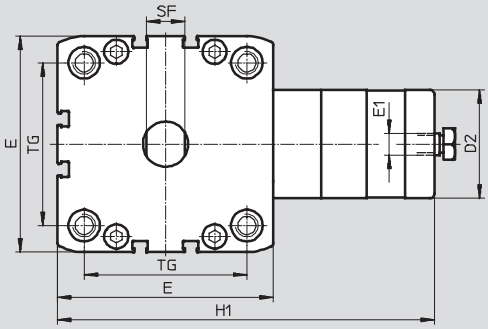
This variant only supports direct mounting.



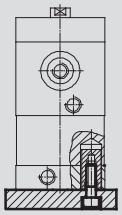
\+ = plus stroke length

∅ 80, 100





This variant only supports direct mounting.



\+ = plus stroke length

∅ [mm]	BG min.	D1 ∅ H9	D2 ∅	D5 ∅ F9	E	E1	EE	G	G1	H1	J2
20	19.5	9	20	9	35.5 +0.3	M5	M5	49.8	12	63	2.6
25					39.5 +0.3			50.6		65	
32	26				47 +0.3		G⅛	56.4	15	68	6
40			24		54.5 +0.3	G⅛		60.4		89	8
50	27	12	30	12	65.5 +0.3			67.4		108	
63			38		75.5 +0.3			76.8		120	11.5
80	17		48	15	95.5 +0.6			99	16.5	167	
100	21.5				113.5 +0.6			99.6	21.5	176	20

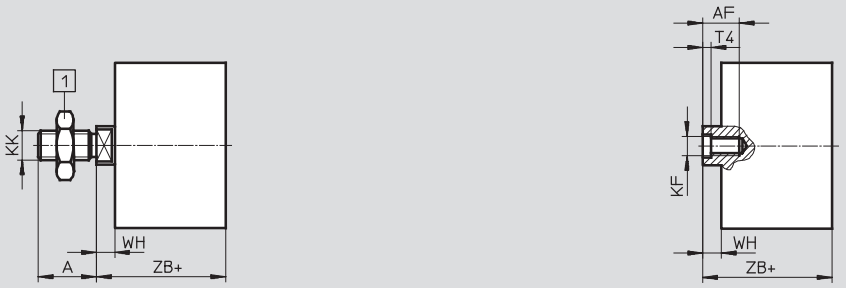
∅ [mm]	LA +0.2	MM ∅ h8	PL +0.2	PL1 +0.2	RT	SF h13	T2 +0.2	TG ±0.2	ZA ±0.3	ZB +1.2
20	5	10	42.8	6	M5	9	2.1	22	74.8	80.8
25			44.6					26	77.6	83.1
32		12	49.6	8.2	M6	10		32.5	85.4	91.4
40		16	53.6			13		38	90.4	96.5
50		20	60.6		M8	17	2.6	46.5	97.4	105.6
63			70					56.5	110.8	118.9
80	2.6	25	90.7		M10	21		72	136.5	145.4
100			88.6	10.5				89	145.1	154.1

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Technical data

Dimensions – Variants Download CAD data ➔ **www.festo.com**

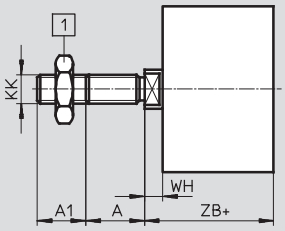
Basic version



1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

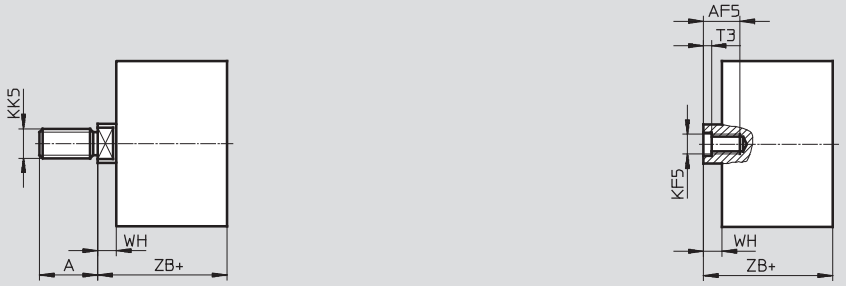
K2 – Extended male piston rod thread



1 Hex nut to DIN 439-B only with ∅ 32 ... 100

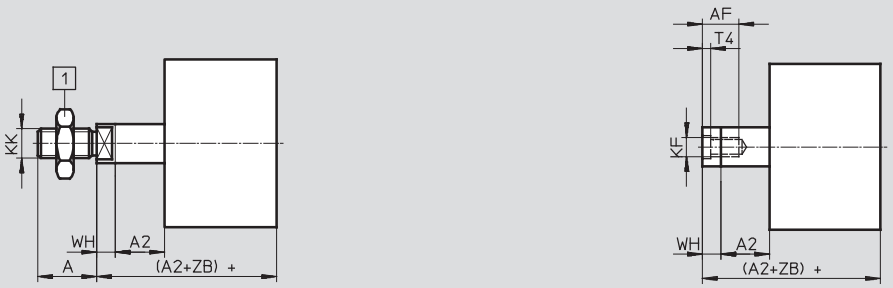
\+ = plus stroke length

K5 – Special piston rod thread



\+ = plus stroke length

K8 – Extended piston rod



1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Technical data

∅ [mm]	A –0.5	A1	A2	AF min.	AF5 min.	KF	KF5
20	16	1 ... 20	1 ... 300	14	12	M6	M5
25							
32	19		1 ... 400	16	14	M8	M6
40							
50	22			20	16	M10	M8
63							
80	28	1 ... 30	1 ... 500		20	M12	M10
100							

∅ [mm]	KK	KK5	T3	T4	WH +1.3	ZB +1.2
20	M8	M10x1.25	2	2.6	5.5	80.8
25		M10				83.1
32	M10x1.25	M10	2.6	3.3	6	91.4
40		M12			6.1	96.5
50	M12x1.25	M12	3.3	4.7	8.2	105.6
63		M16			8.1	118.9
80	M16x1.5	M16	4.7	6.1	8.9	145.4
100		M20x1.5 M20			9	154.1

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Ordering data – Modular products

FESTO

M **Mandatory data** →

Module No.	Function	Piston ∅	Stroke	Clamping unit	Piston rod thread	Cushioning	Position sensing
548 206	ADN	20	10 … 500	KP	A	P	A
548 207		25			I		
548 208		32					
548 209		40					
548 210		50					
548 211		63					
548 212		80					
548 213		100					
Order example							
548 209	**ADN**	**40**	**350**	**KP**	**A**	**P**	**A**

Ordering table

Size			20	25	32	40	Conditions	Code	Enter code
M	Module No.		**548 206**	**548 207**	**548 208**	**548 209**			
	Function		Compact cylinder, double-acting, standard port pattern, with clamping unit					**ADN**	ADN
	Piston ∅	[mm]	20	25	32	40		**-...**	
	Stroke	[mm]	10 … 300		10 … 400			**-...**	
	Clamping unit		Integrated					**-KP**	-KP
	Piston rod thread		Male thread					**-A**	
			Female thread				1	**-I**	
	Cushioning		Flexible cushioning rings/pads at both ends					**-P**	-P
	Position sensing		Via proximity sensor					**-A**	-A
O	Male thread extended	[mm]	Extended male piston rod thread 1 … 20					**-...K2**	
	Special piston rod thread	Male thread	M10x1.25 M10	M10x1.25 M10	M10 M12	M10 M12		**-"...”K5**	
		Female thread	M5	M5	M6	M6			
	Piston rod extended	[mm]	Extended piston rod 1 … 300		1 … 400		2	**-...K8**	
	Captive rating plate		Laser etched rating plate					**-TL**	

1 **I** Not with extended male thread K2

2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

	ADN	–		–		–	**KP**	–		–	**P**	–	**A**

Compact cylinders ADN-KP, standard port pattern, with clamping unit

Ordering data – Modular products

FESTO

➔ 0 **Options**

	Male thread extended		Special thread		Piston rod extended		Captive rating plate
	...K2		"..."K5		...K8		TL
–	**20K2**	–	**"M10"K5**	–		–	**TL**

Ordering table

Size			50	63	80	100	Conditions	Code		Enter code
M	Module No.		**548 210**	**548 211**	**548 212**	**548 213**				
	Function		Compact cylinder, double-acting, standard port pattern, with clamping unit					**ADN**		ADN
	Piston ∅	[mm]	50	63	80	100		**-...**		
	Stroke	[mm]	10 ... 400		10 ... 500			**-...**		
	Clamping unit		Integrated					**-KP**		-KP
	Piston rod thread		Male thread					**-A**		
			Female thread				1	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends					**-P**		-P
	Position sensing		Via proximity sensor					**-A**		-A
0	Male thread extended	[mm]	Extended male piston rod thread 1 ... 20		1 ... 30			**-...K2**		
	Special piston rod thread	Male thread	M12 M16	M12 M16	M16 M20 M20x1.5	M16 M20 M20x1.5		**-"..."K5**		
		Female thread	M8	M8	M10	M10				
	Piston rod extended	[mm]	Extended piston rod 1 ... 400		1 ... 500		2	**-...K8**		
	Captive rating plate		Laser etched rating plate					**-TL**		

1 **I** Not with extended male thread K2

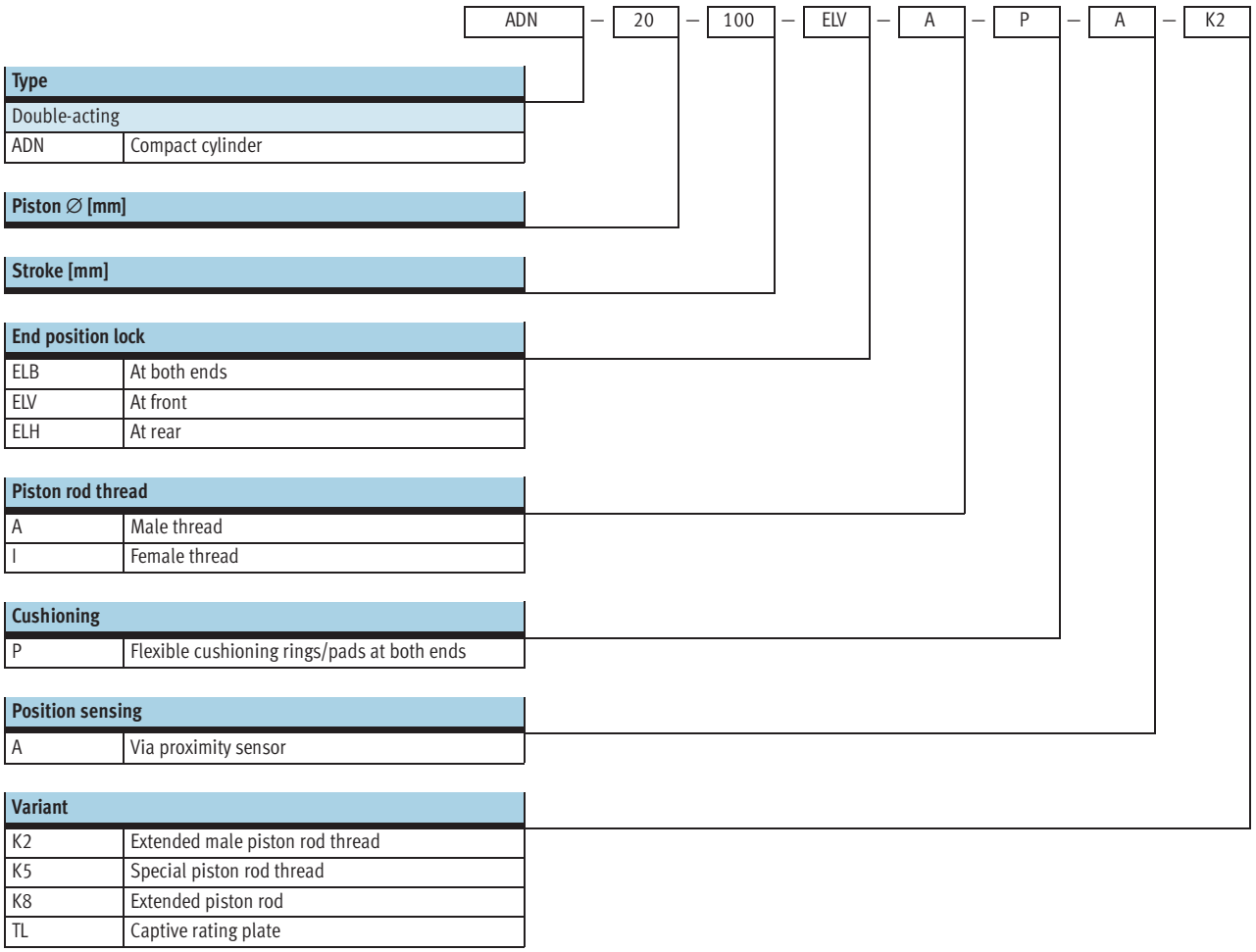
2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–		–		–		–	

Compact cylinders ADN-EL, standard port pattern, with end position lock

Type codes



Type	
Double-acting	
ADN	Compact cylinder

Piston ∅ [mm]	

Stroke [mm]	

End position lock	
ELB	At both ends
ELV	At front
ELH	At rear

Piston rod thread	
A	Male thread
I	Female thread

Cushioning	
P	Flexible cushioning rings/pads at both ends

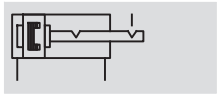
Position sensing	
A	Via proximity sensor

Variant	
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
TL	Captive rating plate

Compact cylinders ADN-EL, standard port pattern, with end position lock

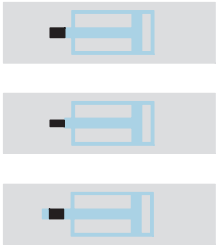
Technical data

Function



- Ø - Diameter
  20 ... 100 mm
- I - Stroke length
  10 ... 500 mm

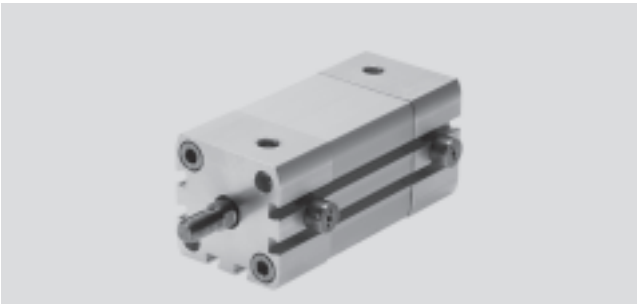
Variants



K2

K5

K8



- Note

Additional measures are required for use in safety-related control systems; in Europe, for example, the standards listed under the EC Machinery Directive must be observed. Without additional measures in accordance with statutory minimum requirements, the product is not suitable for use in safety-related sections of control systems.

General technical data									
Piston ∅		20	25	32	40	50	63	80	100
Pneumatic connection		M5	M5	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8
Female piston rod thread		M6		M8		M10		M12	
	K5	M5		M6		M8		M10	
Male piston rod thread		M8		M10x1.25		M12x1.25		M16x1.5	
	K5	M10		M10		M12		M16	
Max. axial backlash with end position locked	[mm]	1.3						2.1	
Constructional design		Piston							
		Piston rod							
		Cylinder barrel							
End position lock	ELB	At both ends							
	ELV	At front							
	ELH	At rear							
Cushioning		Flexible cushioning rings/pads at both ends							
Position sensing		Via proximity sensor							
Type of mounting		Via female threads							
		Via accessories							
Mounting position		Any							

- Note

- No screws with a head or similar may be used in place of the end position lock, as there is a risk that the function will be impaired if they are screwed in too deeply.
- The exhaust hole must not be closed.
- Locking can be performed from any stroke position, once the drive is brought mechanically into its end position.
- The end position lock has been designed to guard against the load dropping in case of pressure failure.
- Operation of the cylinder in conjunction with a 3-way valve (especially with the function “mid-position closed” and those with “metallic sealing”) should be avoided. The residual pressure that is enclosed on the locking side of the cylinder can release the locking function.
- The cylinder must not be operated with external stops (e.g. shock absorber, buffer, oil brake, etc.):
  – It may not be possible to reliably reach the internal end position.
  – The locking mechanism can wear out prematurely. (In the event of pressure drop in the opposite chamber to less than the locking pressure, the locking piston will prematurely fall to its end position.)

Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

Operating and environmental conditions									
Piston ∅		20	25	32	40	50	63	80	100
Operating medium		Filtered compressed air, lubricated or unlubricated							
Operating pressure	[bar]	2.5 ... 10				1.5 ... 10			
Ambient temperature[1]	[°C]	–20 ... +80							
Corrosion resistance class CRC[2]		2							

1) Note operating range of proximity sensors
2) Corrosion resistance class 2 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

Forces [N]								
Piston ∅	20	25	32	40	50	63	80	100
Theoretical force at 6 bar, advancing	188	295	483	754	1178	1870	3016	4712
Theoretical force at 6 bar, retracting	141	247	415	686	1057	1750	2827	4524
Static holding force	250	500			2000		5000	

Sizing example

- Note

When sizing pneumatic cylinders it is recommended as a basic principle that only 50% of the indicated theoretical forces (see above) be used.

Given:
Installation position = Vertical
Workpiece load = 44 kg
F = m x g = 44 kg x 9.81 m/s^2
= 431.6 N

To be calculated:
Suitable piston ∅

Analysis with 32 mm piston ∅:
Theoretical force at 6 bar, advancing = 483 N
50% of the theoretical force = 241.5 N
Static holding force with 32 mm piston ∅ = 500 N
The static force on the end position lock is within the permissible range (max. 500 N) with a workpiece load of 44 kg (431.6 N), however the cylinder would be at 89% capacity.
Result:
A cylinder with a piston ∅ of 40 mm is therefore recommended for this application.

Impact energy [J]								
Piston ∅	20	25	32	40	50	63	80	100
Max. impact energy at the end positions	0.2	0.3	0.4	0.7	1	1.3	1.8	2.5

Permissible impact velocity:

$$v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{dead} + m_{load}}}$$

Maximum permissible load:

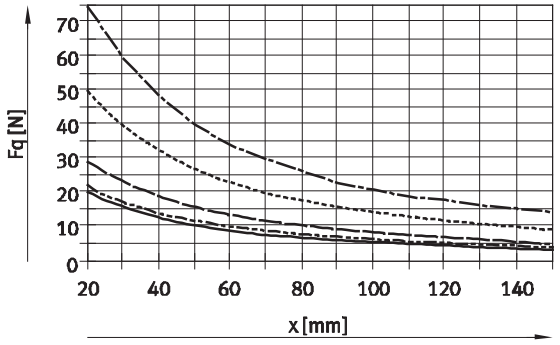
$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
m_{dead} Moving load (drive)
m_{load} Moving work load

- Note

These specifications represent the maximum values which can be reached. Note the maximum permitted impact energy.

Max. lateral force Fq as a function of the projection x



∅ 20
∅ 25
∅ 32/40
∅ 50/63
∅ 80/100

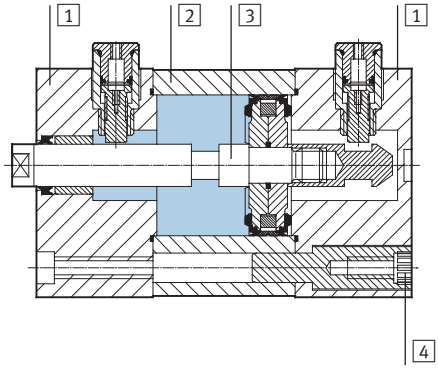
Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

Weight [g]								
Piston ∅	20	25	32	40	50	63	80	100
End position lock at both ends								
Product weight with 0 mm stroke	234	339	518	665	1334	1734	3300	4735
Additional weight per 10 mm stroke	22	26	29	38	51	59	79	98
Moving load with 0 mm stroke	43	53	85	101	199	248	475	637
Additional load per 10 mm stroke	6	6	9	9	16	16	25	25
End position lock at front								
Product weight with 0 mm stroke	177	248	387	498	922	1228	2296	3448
Additional weight per 10 mm stroke	22	26	29	38	51	59	79	98
Moving load with 0 mm stroke	35	46	75	98	175	225	464	626
Additional load per 10 mm stroke	6	6	9	9	16	16	25	25
End position lock at rear								
Product weight with 0 mm stroke	181	252	380	505	920	1217	2233	3409
Additional weight per 10 mm stroke	22	26	29	38	51	59	79	98
Moving load with 0 mm stroke	37	45	73	89	168	217	413	582
Additional load per 10 mm stroke	6	6	9	9	16	16	25	25

Materials

Sectional view

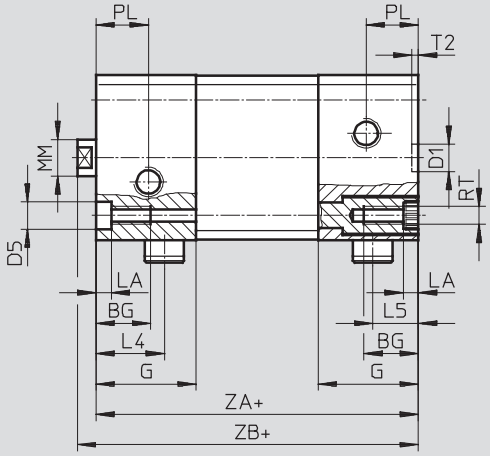


Compact cylinder			
1	Cover		Anodised aluminium
2	Cylinder barrel		Anodised aluminium
3	Piston rod		High-alloy steel
4	Flange screws	∅ 20 ... 63	Galvanised steel
		∅ 80 ... 100	Standard screws, galvanised steel
–	Seals		Polyurethane, nitrile rubber
	Note on materials		RoHS compliant

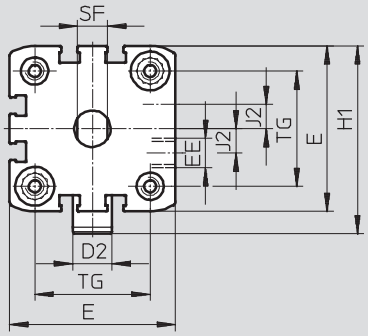
Dimensions – Basic version Download CAD data ➔ **www.festo.com**

ELB – End position lock at both ends

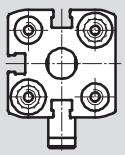
∅ 20 ... 63



∅ 32 ... 63

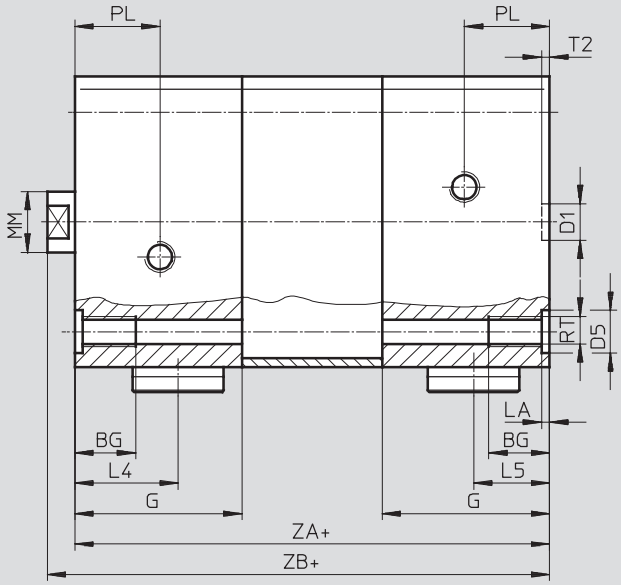


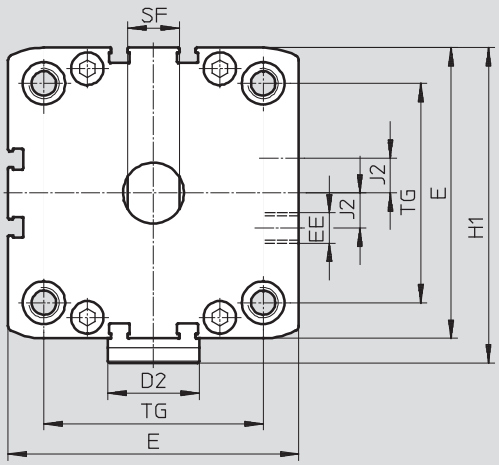
∅ 20, 25



\+ = plus stroke length

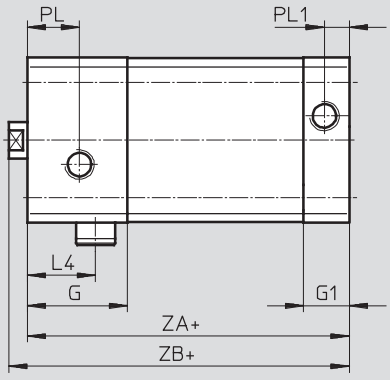
∅ 80 ... 100



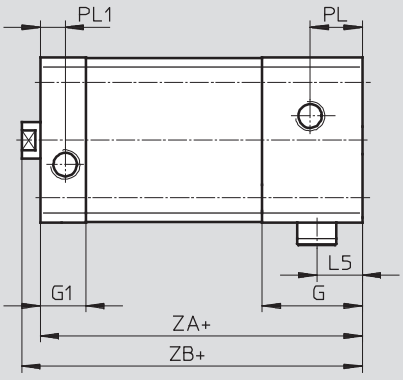


\+ = plus stroke length

ELV – End position lock at front



ELH – End position lock at rear



\+ = plus stroke length

Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

∅ [mm]	BG min.	D1 ∅ H9	D2 ∅	D5 ∅ F9	E	EE	G	G1	H1	J2	L4	L5
20	18	9	9	9	35.5 +0.3	M5	25	12	45.5	2.6	18.5	12.5
25			13		39.5 +0.3		29.5		53.3		20.8	14
32					47 +0.3	G⅛	33	15	58	6	22.5	15
40					54.5 +0.3				61.8	8		
50	20	12	20	12	65.5 +0.3		43		77		27.5	20.5
63					75.5 +0.3				82	11.5		21.7
80			30	15	95.5 +0.6		55	16.5	103.5		34	25
100					113.5 +0.6		57	21.5	113.5	20	35	27

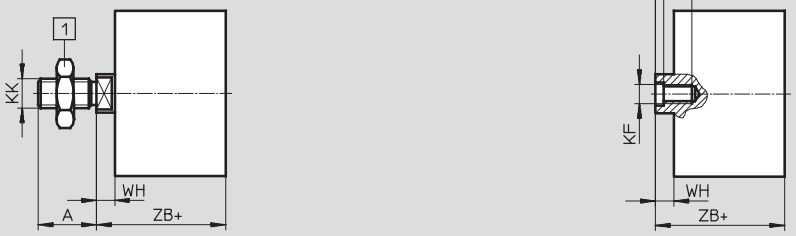
∅ [mm]	LA +0.2	MM ∅ h8	PL	PL1	RT	SF h13	T2 +0.1	TG ±0.2	ZA ±0.3		ZB +1.2	
									ELB	ELV. ELH	ELB	ELV. ELH
20	5	10	6	6	M5	9	2.1	22	63	50	68.8	55.5
25								26	74	56.5	79.5	62
32		12	16	8.2	M6	10		32.5	80	62	86	68
40								38	81	63	87.1	69
50		16	21		M8	13	2.6	46.5	101	73	109.2	81.2
63								56.5	105	77	113.1	85.1
80	2.6	20	28		M10	17		72	131	92.5	139.9	101.4
100				10.5				89	138	102.5	147	111.5

Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

Dimensions – Variants Download CAD data ➔ **www.festo.com**

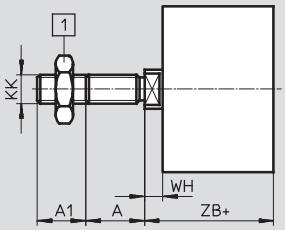
Basic version



[1] Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

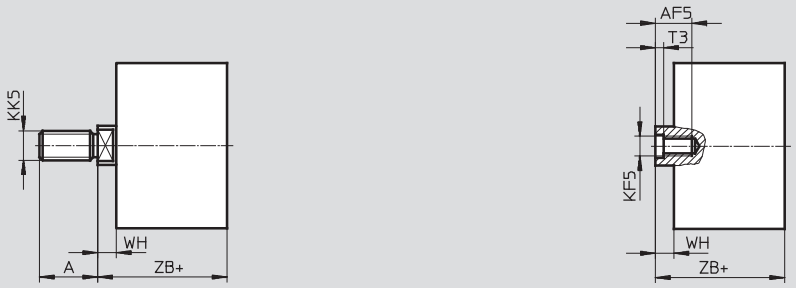
K2 – Extended male piston rod thread



[1] Hex nut to DIN 439-B only with ∅ 32 ... 100

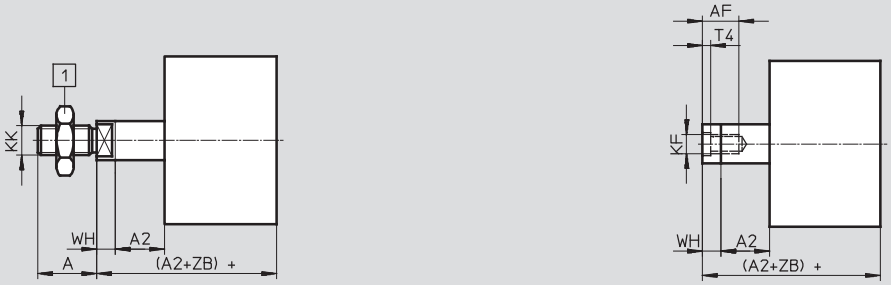
\+ = plus stroke length

K5 – Special piston rod thread



\+ = plus stroke length

K8 – Extended piston rod



[1] Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

∅ [mm]	A –0.5	A1	A2	AF min.	AF5 min.	KF	KF5
20	16	1 ... 20	1 ... 300	14	12	M6	M5
25							
32	19		1 ... 400	16	14	M8	M6
40							
50	22			20	16	M10	M8
63							
80	28	1 ... 30	1 ... 500		20	M12	M10
100							

∅ [mm]	KK	KK5	T3	T4	WH +1.3	ZB +1.2 ELB	ZB +1.2 ELV. ELH
20	M8	M10x1.25	2	2.6	5.5	68.8	55.5
25		M10				79.5	62
32	M10x1.25	M10	2.6	3.3	6	86	68
40		M12			6.1	87.1	69
50	M12x1.25	M12	3.3	4.7	8.2	109.2	81.2
63		M16			8.1	113.1	85.1
80	M16x1.5	M16 M20x1.5	4.7	6.1	8.9	139.9	101.4
100		M20			9	147	111.5

Compact cylinders ADN-EL, standard port pattern, with end position lock

Ordering data – Modular products

FESTO

M **Mandatory data** →

Module No.	Function	Piston ∅	Stroke	End position lock	Piston rod thread	Cushioning	Position sensing
548 214	ADN	20	10 ... 500	ELB	A	P	A
548 215		25		ELV	I		
548 216		32		ELH			
548 217		40					
548 218		50					
548 219		63					
548 220		80					
548 221		100					
Order example							
548 220	**ADN**	**80**	**450**	**ELV**	**I**	**P**	**A**

Ordering table

Size		20	25	32	40	Condi-tions	Code	Enter code
M	Module No.	**548 214**	**548 215**	**548 216**	**548 217**			
	Function	Compact cylinder, double-acting, standard port pattern, with end position lock					**ADN**	ADN
	Piston ∅ [mm]	20	25	32	40		**-...**	
	Stroke [mm]	10 ... 300		10 ... 400			**-...**	
	End position lock	At both ends					**-ELB**	
		At front					**-ELV**	
		At rear					**-ELH**	
	Piston rod thread	Male thread					**-A**	
		Female thread				1	**-I**	
	Cushioning	Flexible cushioning rings/pads at both ends					**-P**	-P
	Position sensing	Via proximity sensor					**-A**	-A
O	Male thread extended [mm]	Extended male piston rod thread 1 ... 20					**-...K2**	
	Special piston rod thread Male thread	M10x1.25 M10	M10x1.25 M10	M10 M12	M10 M12		**-"..."K5**	
	Female thread	M5	M5	M6	M6			
	Piston rod extended [mm]	Extended piston rod 1 ... 300		1 ... 400		2	**-...K8**	
	Captive rating plate	Laser etched rating plate					**-TL**	

1 **I** Not with extended male thread K2

2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

	ADN	–		–		–		–		–	**P**	– **A**

Compact cylinders ADN-EL, standard port pattern, with end position lock

Ordering data – Modular products

FESTO

➔ [0] **Options**

	Male thread extended		**Special thread**		**Piston rod extended**		**Captive rating plate**
	...K2		"..."K5		...K8		TL
–		–	**"M10"K5**	–	**50K8**	–	**TL**

Ordering table

Size			50	63	80	100	Condi-tions	Code		Enter code
[M]	Module No.		**548 218**	**548 219**	**548 220**	**548 221**				
	Function		Compact cylinder, double-acting, standard port pattern, with end position lock					**ADN**		ADN
	Piston ∅	[mm]	50	63	80	100		**-...**		
	Stroke	[mm]	10 ... 400		10 ... 500			**-...**		
	End position lock		At both ends					**-ELB**		
			At front					**-ELV**		
			At rear					**-ELH**		
	Piston rod thread		Male thread					**-A**		
			Female thread				[1]	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends					**-P**		-P
	Position sensing		Via proximity sensor					**-A**		-A
[0]	Male thread extended		Extended male piston rod thread							
		[mm]	1 ... 20		1 ... 30			**-...K2**		
	Special piston rod thread	Male thread	M12 M16	M12 M16	M16 M20 M20x1.5	M16 M20 M20x1.5		**-"..."K5**		
		Female thread	M8	M8	M10	M10				
	Piston rod extended		Extended piston rod							
		[mm]	1 ... 400		1 ... 500		[2]	**-...K8**		
	Captive rating plate		Laser etched rating plate					**-TL**		

[1] **I** Not with extended male thread K2

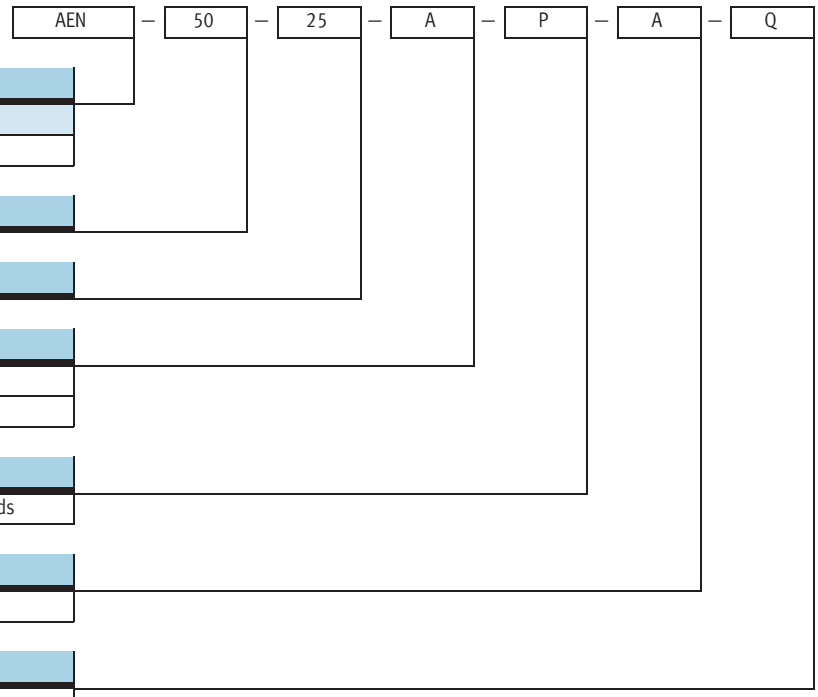
[2] **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–		–		–		–	

Compact cylinders AEN, to ISO 21287

Type codes



Type	
Single-acting	
AEN	Compact cylinder

Piston ∅ [mm]	

Stroke [mm]	

Piston rod thread	
A	Male thread
I	Female thread

Cushioning	
P	Flexible cushioning rings/pads at both ends

Position sensing	
A	Via proximity sensor

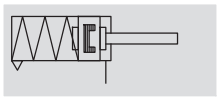
Variant	
Z	Single-acting, pulling
Q	Square piston rod
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
K10	Smooth anodised piston rod
S6	Heat-resistant seals up to max. 120 °C
TL	Captive rating plate

Compact cylinders AEN, to ISO 21287

Technical data

FESTO

Function



Diameter
12 ... 100 mm

Stroke length
1 ... 25 mm

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Variants

S6

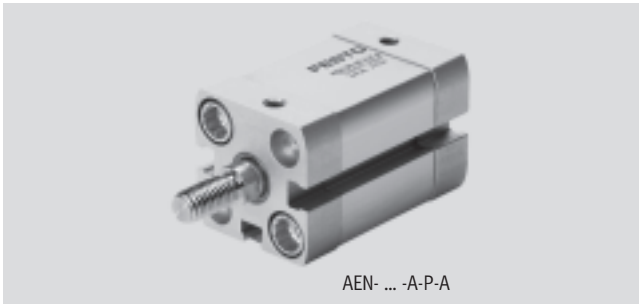
K2

K5

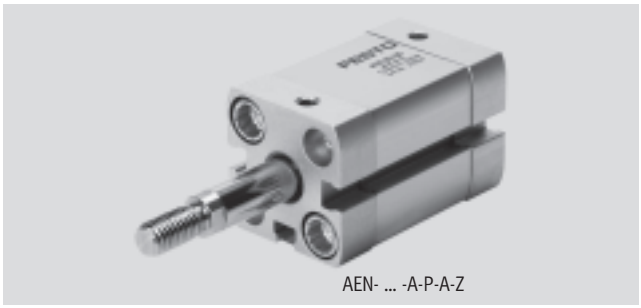
K8

K10

Q



AEN- ... -A-P-A



AEN- ... -A-P-A-Z

General technical data											
Piston ∅		12	16	20	25	32	40	50	63	80	100
Pneumatic connection		M5	M5	M5	M5	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8
Piston rod thread	Female	M3	M4	M6	M6	M8	M8	M10	M10	M12	M12
	Male	M5	M6	M8	M8	M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
Constructional design		Piston									
		Piston rod									
		Cylinder barrel									
Cushioning		Flexible cushioning rings/pads at both ends									
Position sensing		Via proximity sensor									
Type of mounting		Via through-holes									
		Via female threads									
		Via accessories									
Mounting position		Any									

Operating and environmental conditions											
Piston ∅		12	16	20	25	32	40	50	63	80	100
Operating medium		Filtered compressed air, lubricated or unlubricated									
Operating pressure		1.5 ... 10		1 ... 10							
[bar]	Z	1.7 ... 10	2.2 ... 10	1.3 ... 10		0.7 ... 10	0.6 ... 10				
	Q	1.5 ... 10		1 ... 10							
Ambient temperature[1]		–20 ... +80									
[°C]	S6	0 ... +120									
Corrosion resistance class CRC[2]		2									

1) Note operating range of proximity sensors

2) Corrosion resistance class 2 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

Forces [N] and impact energy [J]										
Piston ∅	12	16	20	25	32	40	50	63	80	100
AEN										
Theoretical force at 6 bar, advancing	59	95	161	260	440	700	1100	1780	2870	4510
AEN-...-Z, pulling										
Theoretical force at 6 bar, retracting	40	65	115	210	380	632	980	1660	2700	4324
	0.04	0.04	0.04	0.08	0.1	0.15	0.18	0.28	0.35	0.7

Permissible impact velocity:

$$v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{dead} + m_{load}}}$$

Maximum permissible load:

$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

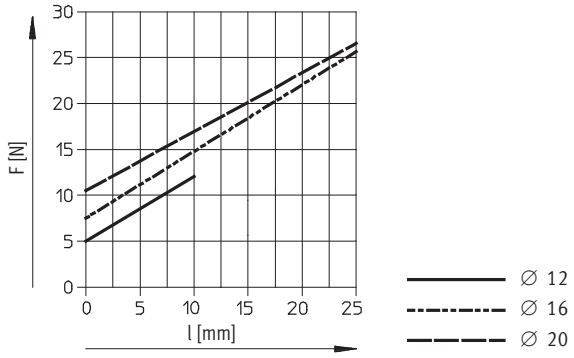
$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
m_{dead} Moving load (drive)
m_{load} Moving work load

- - Note

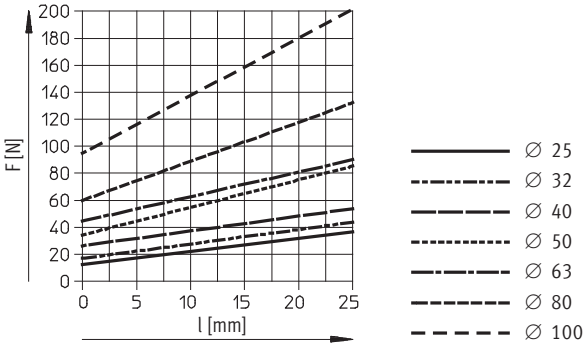
These specifications represent the maximum values which can be reached. Note the maximum permitted impact energy.

Spring return force F as a function of the stroke l

∅ 12 ... 20



∅ 25 ... 100



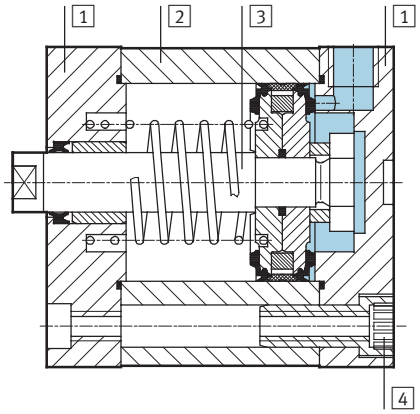
- - Note

The degree of friction depends upon the assembly position and the type of load involved. Single-acting cylinders should as far as possible be operated without lateral forces.

Weight [g]										
Piston ∅	12	16	20	25	32	40	50	63	80	100
Product weight with 0 mm stroke	77	79	131	156	265	346	540	722	1300	2154
Additional weight per 10 mm stroke	12	14	21	23	30	37	51	59	79	98
Moving load with 0 mm stroke	9	15	30	50	60	80	140	180	400	570
Additional load per 10 mm stroke	2	4	6	6	9	9	16	16	25	25

Materials

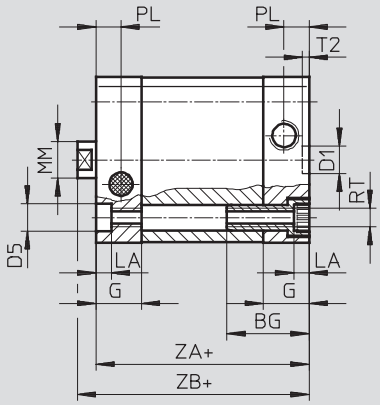
Sectional view



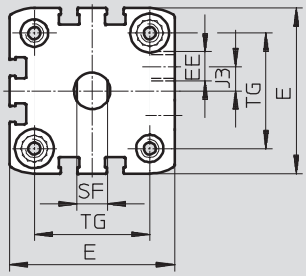
Compact cylinder			Basic version	S6
1	Cover		Anodised aluminium	
2	Cylinder barrel		Anodised aluminium	
3	Piston rod		High-alloy steel	
4	Flange screws	∅ 12 ... 16	High-alloy steel	
		∅ 20 ... 63	Galvanised steel	
		∅ 80 ... 100	Standard screws, galvanised steel	
–	Seals		Polyurethane	Fluoro elastomer
	Note on materials		RoHS compliant	

Dimensions – Basic version Download CAD data ➔ **www.festo.com**

∅ 12 ... 63

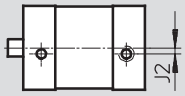


∅ 32 ... 63



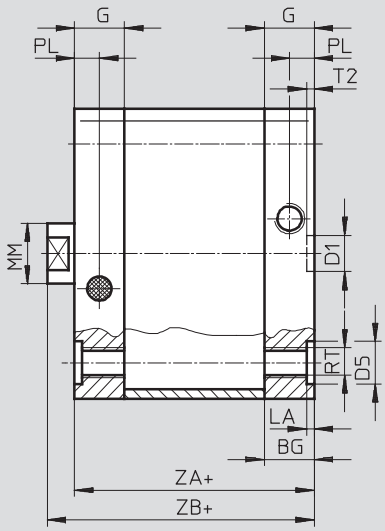
∅ 12 ... 25

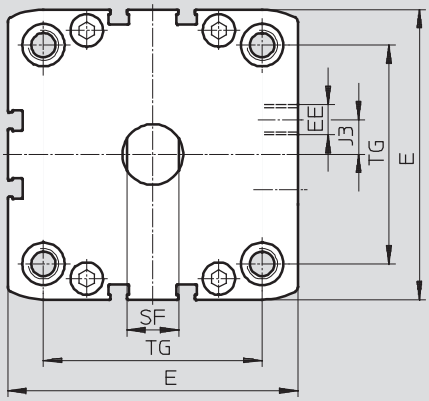
∅ 12



\+ = plus stroke length

∅ 80 ... 100





\+ = plus stroke length

Compact cylinders AEN, to ISO 21287

Technical data

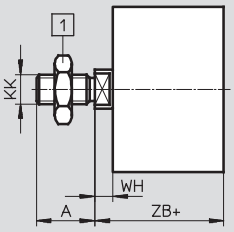
FESTO

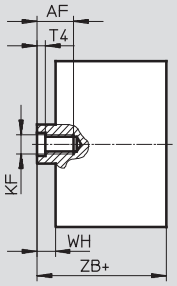
∅ [mm]	BG min.	D1 ∅ H9	D5 ∅ F9	E	EE	G	J2	J3	LA +0.2
12	17	9	6	27.5 +0.3	M5	10.5	2	–	3.5
16				29 +0.3		11	2.6		
20	19.5		9	35.5 +0.3		12			5
25				39.5 +0.3					
32	26			47 +0.3	G⅛	15	6		
40				54.5 +0.3			8		
50	27	12	12	65.5 +0.3			11.5		
63				75.5 +0.3					
80	17		15	95.5 +0.6		16.5			2.6
100	21.5			113.5 +0.6		21.5	20		

∅ [mm]	MM ∅ h8	PL +0.2	RT	SF h13	T2 +0.1	TG ±0.2	ZA ±0.3	ZB +1.2
12	6	6	M4	5	2.1	16	35	39.2
16	8			7		18		39.7
20	10		M5	9		22	37	42.5
25						26	39	44.5
32	12	8.2	M6	10		32.5	44	50
40						38	45	51.1
50	16		M8	13	2.6	46.5		53.2
63						56.5	49	57.1
80	20		M10	17		72	54	62.9
100		10.5				89	67	76

Dimensions – Variants Download CAD data ➔ **www.festo.com**

Basic version

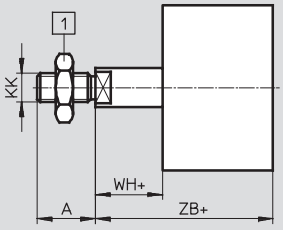


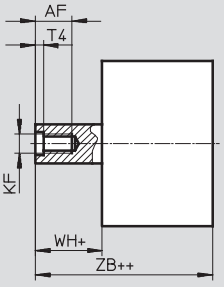


1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

Z – Pulling



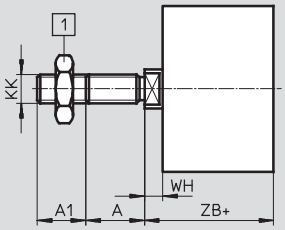


1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

++ = plus 2x stroke length

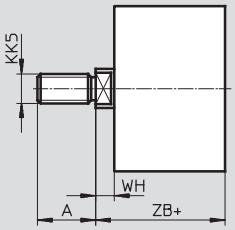
K2 – Extended male piston rod thread

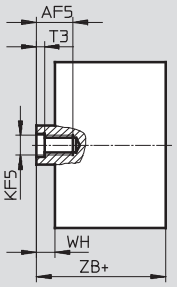


1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

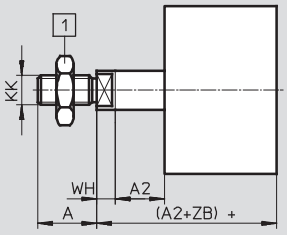
K5 – Special piston rod thread

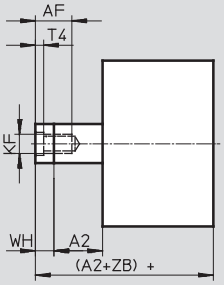




\+ = plus stroke length

K8 – Extended piston rod





1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

Compact cylinders AEN, to ISO 21287

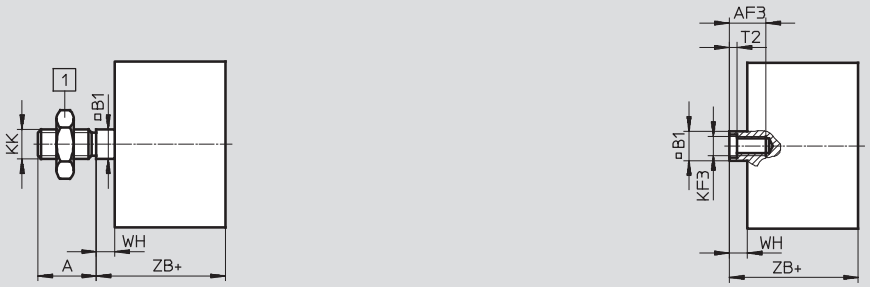
Technical data

∅ [mm]	A −0.5	A1	A2	AF min.	AF5 min.	KF	KF5
12	10	1 ... 10	1 ... 300	8	–	M3	–
16	12			10		M4	
20	16	1 ... 20		14	12	M6	M5
25							
32	19		1 ... 400	16	14	M8	M6
40							
50	22			20	16	M10	M8
63							
80	28	1 ... 30	1 ... 500		20	M12	M10
100							

∅ [mm]	KK	KK5	T3	T4	WH +1.3	ZB +1.2
12	M5	M6	–	1.5	4.2	39.2
16	M6	M8			4.7	39.7
20	M8	M10x1.25	2	2.6	5.5	42.5
25		M10				44.5
32	M10x1.25	M10	2.6	3.3	6	50
40		M12			6.1	51.1
50	M12x1.25	M12	3.3	4.7	8.2	53.2
63		M16			8.1	57.1
80	M16x1.5	M16	4.7	6.1	8.9	62.9
100		M20x1.5 M20			9	76

Dimensions – Variants Download CAD data ➔ **www.festo.com**

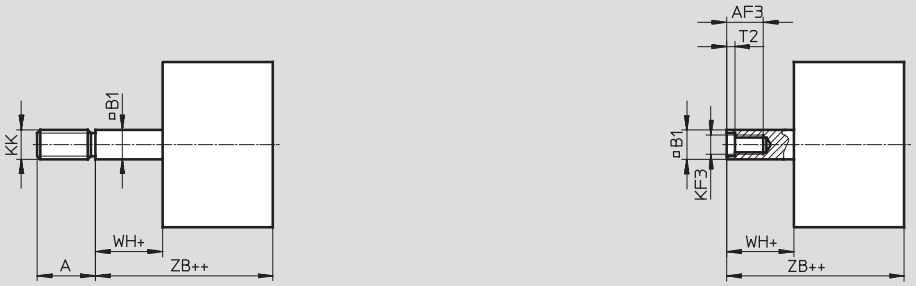
Q – Square piston rod



1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

Q – Z – Pulling

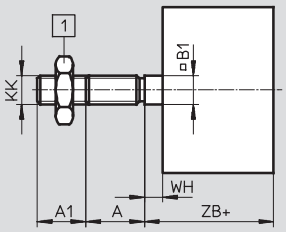


1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

++ = plus 2x stroke length

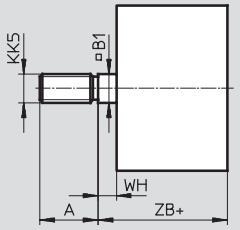
Q-K2 – Square, extended male piston rod thread



1 Hex nut to DIN 439-B only with ∅ 32 ... 100

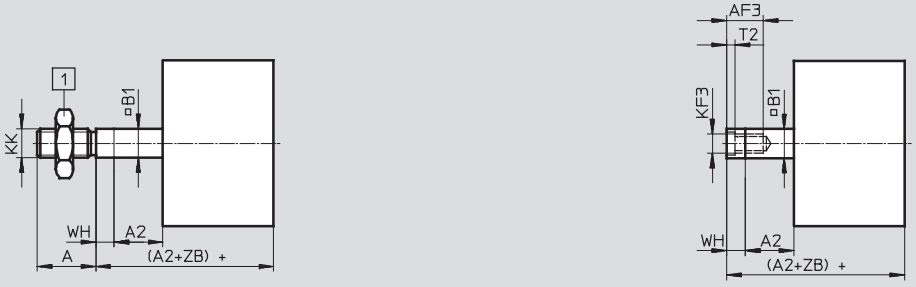
\+ = plus stroke length

Q-K5 – Square, special piston rod thread



\+ = plus stroke length

Q-K8 – Square, extended piston rod



1 Hex nut to DIN 439-B only with ∅ 32 ... 100

\+ = plus stroke length

Compact cylinders AEN, to ISO 21287

Technical data

∅ [mm]	A –0.5	A1	A2	AF3 min.	B1 □	KF3
12	10	1 ... 10	1 ... 300	8	5.5	M3
16	12			10	7	M4
20	16	1 ... 20		12	9	M5
25						
32	19		1 ... 400	14	10	M6
40						
50	22			16	12	M8
63						
80	28	1 ... 30	1 ... 500	20	16	M10
100						

∅ [mm]	KK	KK5	T2	WH +1.3	ZB +1.2
12	M5	M6	1.5	4.2	39.2
16	M6	M8		4.7	39.7
20	M8	M10x1.25	2	5.5	42.5
25		M10			44.5
32	M10x1.25	M10	2.6	6	50
40				6.1	51.1
50	M12x1.25	M16	3.3	8.2	53.2
63				8.1	57.1
80	M16x1.5	M16	4.7	8.9	62.9
100				9	76

Compact cylinders AEN, to ISO 21287

Ordering data – Modular products, basic version and variants

FESTO

M Mandatory data →

Module No.	Function		Piston ∅		Stroke		Type of thread		Cushioning		Position sensing
536 414	AEN		12		1 … 25		A		P		A
536 415			16				I				
536 416			20								
536 417			25								
536 418			32								
536 419			40								
536 420			50								
536 421			63								
536 422			80								
536 423			100								
Order example											
536 423	**AEN**	**–**	**100**	**–**	**21**	**–**	**A**	**–**	**P**	**–**	**A**

Ordering table

Size			12	16	20	25	32	Condi-tions	Code		Enter code
M	Module No.		**536 414**	**536 415**	**536 416**	**536 417**	**536 418**				
	Function		Compact cylinder, single-acting, based on ISO 21287						**AEN**		AEN
	Piston ∅	[mm]	12	16	20	25	32		**-...**		
	Stroke	[mm]	1 … 10	1 … 25					**-...**		
	Type of thread		Male thread						**-A**		
			Female thread					1	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends						**-P**		-P
	Position sensing		Via proximity sensor						**-A**		-A
O	Effective direction of action		Single-acting, pulling						**-Z**		
	Male thread extended	[mm]	Extended male piston rod thread 1 … 10		1 … 20			2	**-...K2**		
	Special piston rod thread	Male thread	M6	M8	M10x1.25 M10	M10x1.25 M10	M10 M12	2	**-"..."K5**		
		Female thread	–	–	M5	M5	M6				
	Piston rod extended	[mm]	Extended piston rod 1 … 10	1 … 25				3	**-...K8**		
	Improved running performance		–	–	Smooth anodised aluminium coated piston rod				**-K10**		
	Temperature resistance		Heat-resistant seals up to max. 120 °C						**-S6**		
	Captive rating plate		Laser etched rating plate						**-TL**		

1 **I** Not with extended male thread K2

2 **K2, K5** Not with improved running performance K10

3 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

	AEN	**–**		**–**		**–**		**–**	**P**	**–**	**A**

Compact cylinders AEN, to ISO 21287

Ordering data – Modular products, basic version and variants

FESTO

➔ [0] **Options**

	Effective direction of action		Male thread extended		Special thread		Piston rod extended		Improved running performance		Temperature resistance		Captive rating plate
	Z		...K2		"..."K5		...K8		K10		S6		TL
–		–	**25K2**	–		–	**4K8**	–		–	**S6**	–	**TL**

Ordering table

Size			40	50	63	80	100	Conditions	Code		Enter code
[M]	Module No.		**536 419**	**536 420**	**536 421**	**536 422**	**536 423**				
	Function		Compact cylinder, single-acting, based on ISO 21287						**AEN**		AEN
	Piston ∅	[mm]	40	50	63	80	100		**-...**		
	Stroke	[mm]	1 ... 25						**-...**		
	Type of thread		Male thread						**-A**		
			Female thread					[1]	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends						**-P**		-P
	Position sensing		Via proximity sensor						**-A**		-A
[0]	Effective direction of action		Single-acting, pulling						**-Z**		
	Male thread extended	[mm]	Extended male piston rod thread 1 ... 20			1 ... 30		[2]	**-...K2**		
	Special piston rod thread	Male thread	M10 M12	M12 M16	M12 M16	M16 M20 M20x1.5	M16 M20 M20x1.5	[2]	**-"..."K5**		
		Female thread	M6	M8	M8	M10	M10				
	Piston rod extended	[mm]	Extended piston rod 1 ... 25					[3]	**-...K8**		
	Improved running performance		Smooth anodised aluminium coated piston rod						**-K10**		
	Temperature resistance		Heat-resistant seals up to max. 120 °C						**-S6**		
	Captive rating plate		Laser etched rating plate						**-TL**		

[1] **I** Not with extended male thread K2

[2] **K2, K5** Not with improved running performance K10

[3] **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–		–		–		–		–		–		–	

Compact cylinders AEN, to ISO 21287

Ordering data – Modular products, Q – Version with square piston rod, non-rotating

FESTO

M Mandatory data →

Module No.	Function		Piston ∅		Stroke		Type of thread		Cushioning		Position sensing
536 415	AEN		16		1 ... 25		A		P		A
536 416			20				I				
536 417			25								
536 418			32								
536 419			40								
536 420			50								
536 421			63								
536 422			80								
536 423			100								
Order example											
536 423	**AEN**	–	**100**	–	**21**	–	**A**	–	**P**	–	**A**

Ordering table

Size			16	20	25	32	Condi-tions	Code		Enter code
M	Module No.		**536 415**	**536 416**	**536 417**	**536 418**				
	Function		Compact cylinder, single-acting, based on ISO 21287					**AEN**		AEN
	Piston ∅	[mm]	16	20	25	32		**-...**		
	Stroke	[mm]	1 ... 25					**-...**		
	Type of thread		Male thread					**-A**		
			Female thread				1	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends					**-P**		-P
	Position sensing		Via proximity sensor					**-A**		-A
O	Effective direction of action		Single-acting, pulling					**-Z**		
	Protection against torsion		Square piston rod					**-Q**		-Q
	Male thread extended	[mm]	Extended male piston rod thread 1 ... 10	1 ... 20				**-...K2**		
	Special piston rod thread	Male thread	M8	M10x1.25 M10	M10x1.25 M10	M10		**-"..."K5**		
	Piston rod extended	[mm]	Extended piston rod 1 ... 25				2	**-...K8**		
	Temperature resistance		Heat-resistant seals up to max. 120 °C					**-S6**		
	Captive rating plate		Laser etched rating plate					**-TL**		

1 **I** Not with extended male thread K2

2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

	AEN	–		–		–		–	**P**	–	**A**

Compact cylinders AEN, to ISO 21287

Ordering data – Modular products, Q – Version with square piston rod, non-rotating

FESTO

➔ [O] **Options**

	Effective direction of action		Protection against torsion		Male thread extended		Special thread		Piston rod extended		Temperature resistance		Captive rating plate
	Z		Q		...K2		"..."K5		...K8		S6		TL
–	**Z**	–	**Q**	–	**25K2**	–		–	**4K8**	–		–	**TL**

Ordering table

Size			40	50	63	80	100	Conditions	Code		Enter code
[M]	Module No.		**536 419**	**536 420**	**536 421**	**536 422**	**536 423**				
	Function		Compact cylinder, single-acting, based on ISO 21287						**AEN**		AEN
	Piston ∅	[mm]	40	50	63	80	100		**-...**		
	Stroke	[mm]	1 ... 25						**-...**		
	Type of thread		Male thread						**-A**		
			Female thread					[1]	**-I**		
	Cushioning		Flexible cushioning rings/pads at both ends						**-P**		-P
	Position sensing		Via proximity sensor						**-A**		-A
[O]	Effective direction of action		Single-acting, pulling						**-Z**		
	Protection against torsion		Square piston rod						**-Q**		-Q
	Male thread extended	[mm]	Extended male piston rod thread 1 ... 20			1 ... 30			**-...K2**		
	Special piston rod thread	Male thread	M10	M12	M12	M16	M16		**-"..."K5**		
	Piston rod extended	[mm]	Extended piston rod 1 ... 25					[2]	**-...K8**		
	Temperature resistance		Heat-resistant seals up to max. 120 °C						**-S6**		
	Captive rating plate		Laser etched rating plate						**-TL**		

[1] **I** Not with extended male thread K2

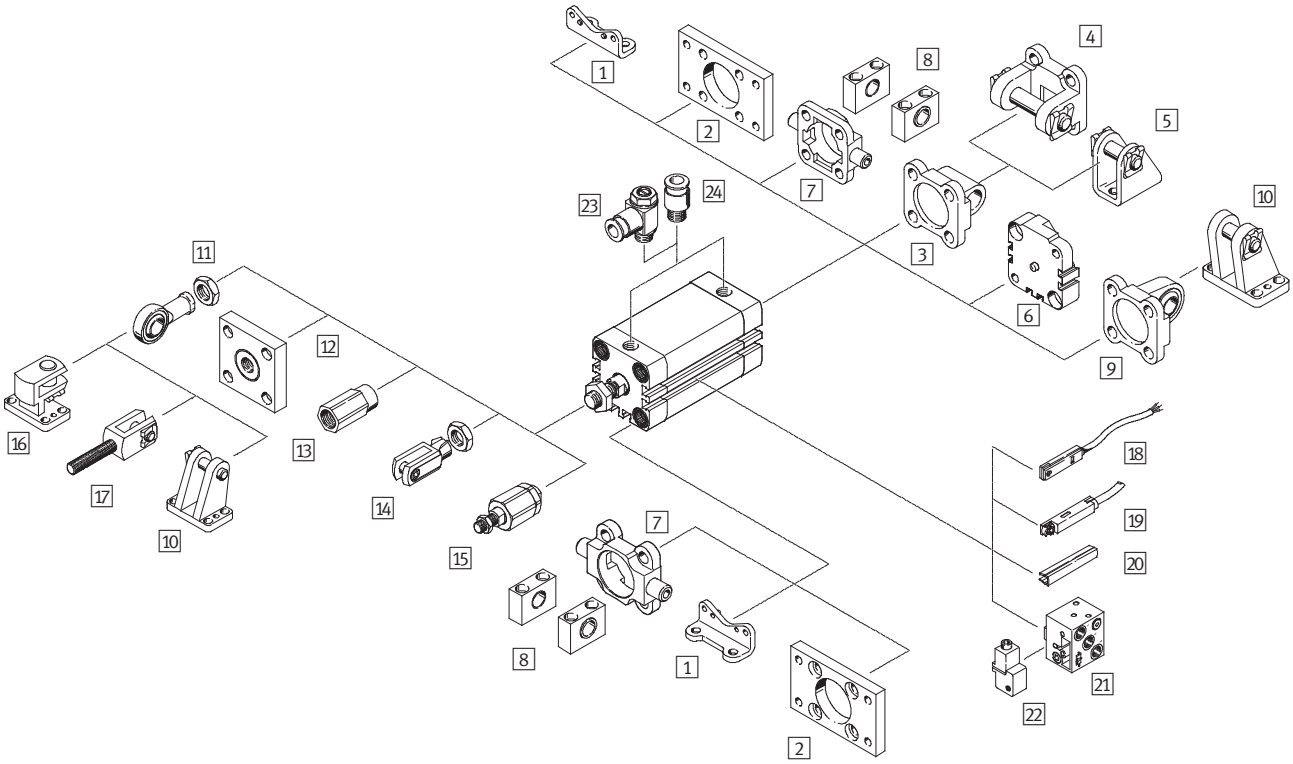
[2] **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–		–	**Q**	–		–		–		–		–	

Compact cylinders ADNP, to ISO 21287, with polymer end caps

Peripherals overview



Compact cylinders ADNP, to ISO 21287, with polymer end caps

Peripherals overview

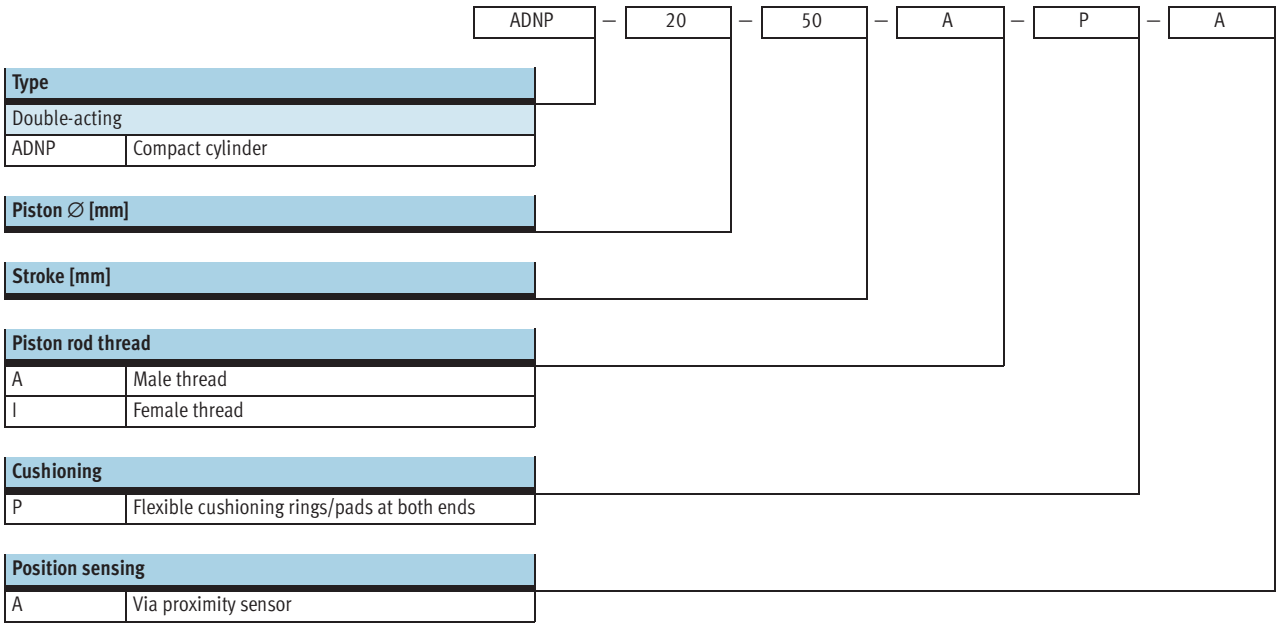
Mounting attachments and accessories			
		Brief description	→ Page/Internet
1	Foot mounting HNA	For bearing or end caps	77
2	Flange mounting FNC	For bearing or end caps	78
3	Swivel flange SNCL	For end caps	79
4	Swivel flange SNCB	For swivel flange SNCL	83
5	Clevis foot LBN/CRLBN	For swivel flange SNCL	82
6	Multi-position kit DPNA	For connecting two cylinders with identical piston ∅ to form a multi-position cylinder	81
7	Trunnion flange ZNCF/CRZNG	For bearing caps	84
8	Trunnion support LNZG	For trunnion flange ZNCF/CRZNG	85
9	Swivel flange SNCS	For end caps	80
10	Clevis foot LBG	For swivel flange SNCS	80
11	Rod eye SGS/CRSGS	With spherical bearing	86
12	Coupling piece KSG/KSZ	For compensating radial deviations	86
13	Adapter AD	For mounting a vacuum suction cup on a hollow cylinder piston rod	86
14	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	86
15	Self-aligning rod coupler FK	For compensating radial and angular deviations	86
16	Right-angle clevis foot LQG	For rod eye SGS	87
17	Rod clevis SGA	With male thread	86
18	Proximity sensor SME/SMT-8	Can be integrated in the sensor slot of the cylinder profile barrel	89
19	Proximity sensor SME/SMT-8M	Can be integrated in the sensor slot of the cylinder profile barrel	89
20	Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	89
21	Proximity sensor SMPO-8E	Pneumatic output signal	89
22	Mounting kit SMB-8E	For proximity sensor SMPO-8E	89
23	One-way flow control valve GRLA/GRLZ	For speed regulation	87
24	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	quick star

Note

For the compressed air ports only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used.

Compact cylinders ADNP, to ISO 21287, with polymer end caps

Type codes

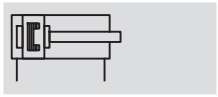


Compact cylinders ADNP, to ISO 21287, with polymer end caps

Technical data

FESTO

Function



Diameter
20 ... 50 mm

Stroke length
5 ... 80 mm

www.festo.com

ADNP-...-A-P-A

ADNP-...-I-P-A

General technical data						
Piston ∅		20	25	32	40	50
Pneumatic connection		M5	M5	G1⁄8	G1⁄8	G1⁄8
Piston rod thread	Female	M6	M6	M8	M8	M10
	Male	M8	M8	M10x1.25	M10x1.25	M10x1.25
Constructional design		Piston				
		Piston rod				
		Cylinder barrel				
Cushioning		Flexible cushioning rings/pads at both ends				
Position sensing		Via proximity sensor				
Type of mounting		Via through-holes				
		Via female threads				
		Via accessories				
Mounting position		Any				

Operating and environmental conditions		
Operating medium		Filtered compressed air, lubricated or unlubricated
Operating pressure	[bar]	0.6 ... 10
Ambient temperature[1]	[°C]	–10 ... +60
Corrosion resistance class CRC[2]		2

1) Note operating range of proximity sensors

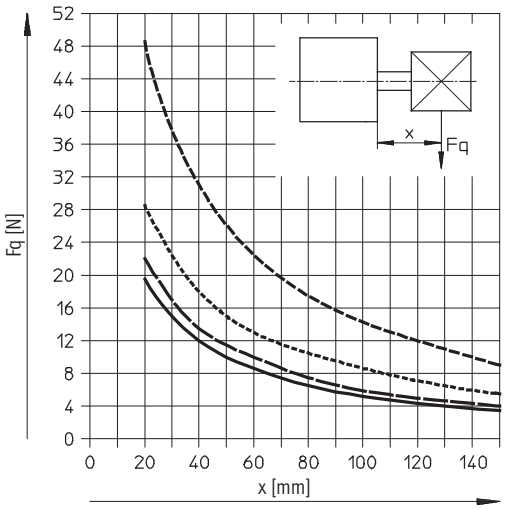
2) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

Compact cylinders ADNP, to ISO 21287, with polymer end caps

Technical data

Forces [N] and impact energy [J]					
Piston ∅	20	25	32	40	50
Theoretical force at 6 bar, advancing	188	295	483	754	1178
Theoretical force at 6 bar, retracting	141	247	415	686	1057
Max. impact energy at the end positions	0.16	0.24	0.32	0.56	0.80

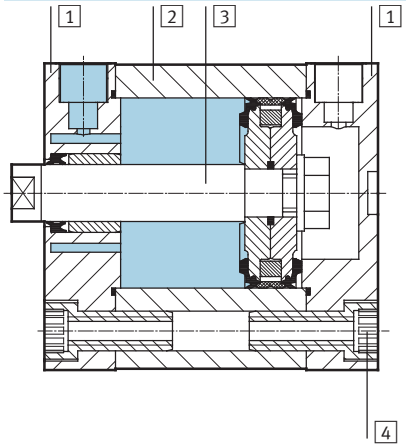
Max. lateral force Fq as a function of the projection x



Weight [g]					
Piston ∅	20	25	32	40	50
Product weight with 0 mm stroke	115	116	204	240	380
Additional weight per 10 mm stroke	17	19	24	32	41
Moving load with 0 mm stroke	20	20	45	55	94
Additional load per 10 mm stroke	2	2	3	3	6

Materials

Sectional view



Compact cylinder		
1	Cover	Polyarylamide
2	Cylinder barrel	Smooth anodised aluminium
3	Piston rod	Smooth anodised aluminium, steel insert with male thread
4	Flange screws	Galvanised steel
–	Seals	Polyurethane, nitrile rubber
	Note on materials	RoHS compliant

Compact cylinders ADNP, to ISO 21287, with polymer end caps

Technical data

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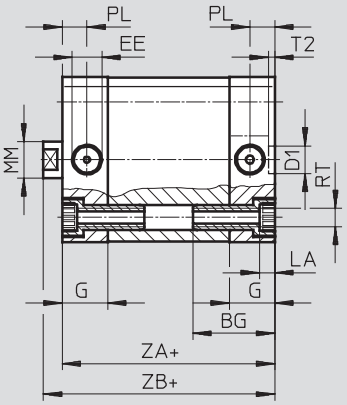
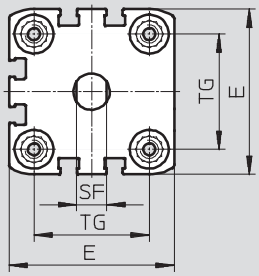
Dimensions – Basic version

Download CAD data ➔ www.festo.com

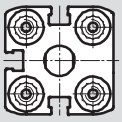
∅ 20 ... 50



∅ 32 ... 50



∅ 20, 25



Note

For the compressed air ports only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used.

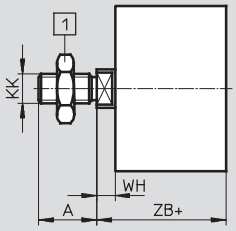
\+ = plus stroke length

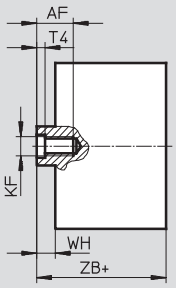
∅ [mm]	BG min.	D1 ∅ H9	EE	E +0.3	G	LA +0.2	MM ∅ h8	PL	RT	SF h13	T2 +0.1	TG ±0.2	ZA ±0.3	ZB +1.2
20	19.5	9	M5	35.5	12	5	10	6	M5	9	2.1	22	37	42.5
25			M5	39.5								26	39	44.5
32	26		G1⁄8	47	15		12	8.2	M6	10		32.5	44	50
40			G1⁄8	54.5								38	45	51.1
50	27	12	G1⁄8	65.5			16		M8	13	2.6	46.5		53.2

Dimensions – Variants

Download CAD data ➔ www.festo.com

Basic version





[1] Hex nut to DIN 439-B only with ∅ 32 ... 50

\+ = plus stroke length

∅ [mm]	A –0.5	AF min.	KF	KK	T4	WH +1.3	ZB +1.2
20	16	14	M6	M8	2.6	5.5	42.5
25							44.5
32	19	16	M8	M10x1.25	3.3	6	50
40						6.1	51.1
50	22	20	M10	M12x1.25	4.7	8.2	53.2

New

Compact cylinders ADNP, to ISO 21287, with polymer end caps

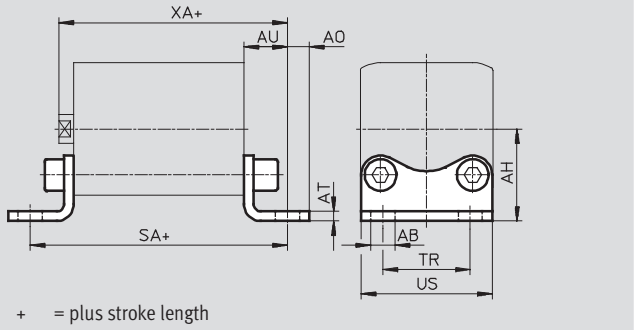
Technical data

FESTO

Ordering data							
Type	Piston ∅ [mm]	Stroke [mm]	Female piston rod thread			Male piston rod thread	
			Part No.	Type		Part No.	Type
	20	5	571971	ADNP-20-5-I-P-A		571926	ADNP-20-5-A-P-A
		10	571972	ADNP-20-10-I-P-A		571927	ADNP-20-10-A-P-A
		15	571973	ADNP-20-15-I-P-A		571928	ADNP-20-15-A-P-A
		20	571974	ADNP-20-20-I-P-A		571929	ADNP-20-20-A-P-A
		25	571975	ADNP-20-25-I-P-A		571930	ADNP-20-25-A-P-A
		30	571976	ADNP-20-30-I-P-A		571931	ADNP-20-30-A-P-A
		40	571977	ADNP-20-40-I-P-A		571932	ADNP-20-40-A-P-A
		50	571978	ADNP-20-50-I-P-A		571933	ADNP-20-50-A-P-A
		60	571979	ADNP-20-60-I-P-A		571934	ADNP-20-60-A-P-A
	25	5	571980	ADNP-25-5-I-P-A		571935	ADNP-25-5-A-P-A
		10	571981	ADNP-25-10-I-P-A		571936	ADNP-25-10-A-P-A
		15	571982	ADNP-25-15-I-P-A		571937	ADNP-25-15-A-P-A
		20	571983	ADNP-25-20-I-P-A		571938	ADNP-25-20-A-P-A
		25	571984	ADNP-25-25-I-P-A		571939	ADNP-25-25-A-P-A
		30	571985	ADNP-25-30-I-P-A		571940	ADNP-25-30-A-P-A
		40	571986	ADNP-25-40-I-P-A		571941	ADNP-25-40-A-P-A
		50	571987	ADNP-25-50-I-P-A		571942	ADNP-25-50-A-P-A
		60	571988	ADNP-25-60-I-P-A		571943	ADNP-25-60-A-P-A
	32	10	571989	ADNP-32-10-I-P-A		571944	ADNP-32-10-A-P-A
		15	571990	ADNP-32-15-I-P-A		571945	ADNP-32-15-A-P-A
		20	571991	ADNP-32-20-I-P-A		571946	ADNP-32-20-A-P-A
		25	571992	ADNP-32-25-I-P-A		571947	ADNP-32-25-A-P-A
		30	571993	ADNP-32-30-I-P-A		571948	ADNP-32-30-A-P-A
		40	571994	ADNP-32-40-I-P-A		571949	ADNP-32-40-A-P-A
		50	571995	ADNP-32-50-I-P-A		571950	ADNP-32-50-A-P-A
		60	571996	ADNP-32-60-I-P-A		571951	ADNP-32-60-A-P-A
		80	571997	ADNP-32-80-I-P-A		571952	ADNP-32-80-A-P-A
	40	10	571998	ADNP-40-10-I-P-A		571953	ADNP-40-10-A-P-A
		15	571999	ADNP-40-15-I-P-A		571954	ADNP-40-15-A-P-A
		20	572000	ADNP-40-20-I-P-A		571955	ADNP-40-20-A-P-A
		25	572001	ADNP-40-25-I-P-A		571956	ADNP-40-25-A-P-A
		30	572002	ADNP-40-30-I-P-A		571957	ADNP-40-30-A-P-A
		40	572003	ADNP-40-40-I-P-A		571958	ADNP-40-40-A-P-A
		50	572004	ADNP-40-50-I-P-A		571959	ADNP-40-50-A-P-A
		60	572005	ADNP-40-60-I-P-A		571960	ADNP-40-60-A-P-A
		80	572006	ADNP-40-80-I-P-A		571961	ADNP-40-80-A-P-A
	50	10	572007	ADNP-50-10-I-P-A		571962	ADNP-50-10-A-P-A
		15	572008	ADNP-50-15-I-P-A		571963	ADNP-50-15-A-P-A
		20	572009	ADNP-50-20-I-P-A		571964	ADNP-50-20-A-P-A
		25	572010	ADNP-50-25-I-P-A		571965	ADNP-50-25-A-P-A
		30	572011	ADNP-50-30-I-P-A		571966	ADNP-50-30-A-P-A
		40	572012	ADNP-50-40-I-P-A		571967	ADNP-50-40-A-P-A
		50	572013	ADNP-50-50-I-P-A		571968	ADNP-50-50-A-P-A
		60	572014	ADNP-50-60-I-P-A		571969	ADNP-50-60-A-P-A
		80	572015	ADNP-50-80-I-P-A		571970	ADNP-50-80-A-P-A

Foot mounting HNA

Material:
HNA: Galvanised steel
HNA-...-R3: Steel with protective coating
Free of copper, PTFE and silicone



Dimensions and ordering data

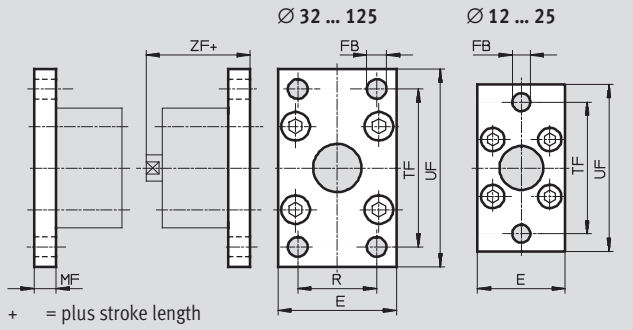
For ∅ [mm]	AB ∅ H14	AH JS14	AO	AT ±0.5	AU ±0.2	SA	TR ±0.2	US –0.5	XA
12	5.8	21	5	3	13	61	16	26	52.2
16		22	4.75				18	27.5	52.9
20	7	27	6.25	4	16	69	22	34.5	58.7
25		29				71	26	38.5	60.7
32		33.5	7			76	32	46	66.2
40	10	38	9		18	81	36	54	69.2
50		45	8	5	21	87	45	64	74.2
63		50				91	50	75	78.2
80	12	63	10.5	6	26	106	63	63	89
100	14.5	74	12.5		27	121	75	110	103

For ∅	Basic version				R3 – High corrosion protection			
[mm]	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
12	2	25	**537 237**	**HNA-12**	3	25	**537 252**	**HNA-12-R3**
16	2	30	**537 238**	**HNA-16**	3	30	**537 253**	**HNA-16-R3**
20	2	50	**537 239**	**HNA-20**	3	50	**537 254**	**HNA-20-R3**
25	2	55	**537 240**	**HNA-25**	3	55	**537 255**	**HNA-25-R3**
32	2	70	**537 241**	**HNA-32**	3	70	**537 256**	**HNA-32-R3**
40	2	90	**537 242**	**HNA-40**	3	90	**537 257**	**HNA-40-R3**
50	2	160	**537 243**	**HNA-50**	3	160	**537 258**	**HNA-50-R3**
63	2	180	**537 244**	**HNA-63**	3	180	**537 259**	**HNA-63-R3**
80	2	380	**537 249**	**HNA-80**	3	380	**537 260**	**HNA-80-R3**
100	2	470	**537 250**	**HNA-100**	3	470	**537 261**	**HNA-100-R3**

1) Corrosion resistance class 2 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 to Festo standard 940 070
Components requiring higher corrosion resistance. 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

Flange mounting FNC

Material:
Galvanised steel
Free of copper, PTFE and silicone



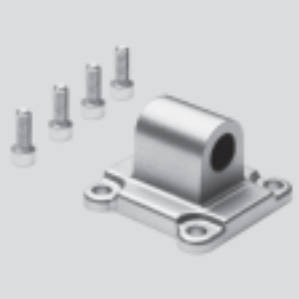
Dimensions and ordering data

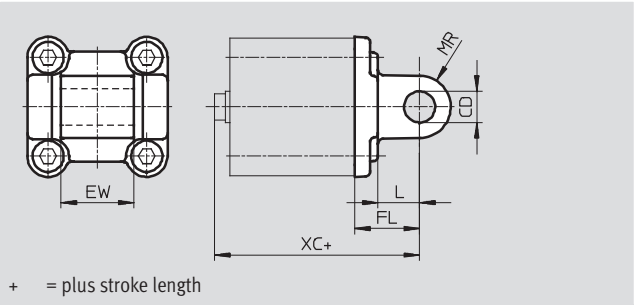
For ∅ [mm]	E	FB ∅	MF	R	TF	UF ±1	ZF	CRC[1]	Weight [g]	Part No.	Type
12	28	5.5	8	–	40	50	47.2	2	80	**537 245**	**FNC-12**
16	29				43	55	47.9	2	90	**537 246**	**FNC-16**
20	36	6.6			55	70	50.7	2	145	**537 247**	**FNC-20**
25	40				60	76	52.7	2	170	**537 248**	**FNC-25**
32	45	7	10	32	64	80	60.2	2	240	**174 376**	**FNC-32**
40	54	9		36	72	90	61.2	2	280	**174 377**	**FNC-40**
50	65		12	45	90	110	65.2	2	520	**174 378**	**FNC-50**
63	75			50	100	120	69.2	2	690	**174 379**	**FNC-63**
80	93	12	16	63	126	150	79	2	1650	**174 380**	**FNC-80**
100	110	14		75	150	175	92	2	2400	**174 381**	**FNC-100**
125	132	16	20	90	180	210	112	2	3750	**174 382**	**FNC-125**

1) Corrosion resistance class 2 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

Swivel flange SNCL

Material:
SNCL: Die-cast aluminium
SNCL-...-R3: Die-cast aluminium with protective coating
Free of copper, PTFE and silicone





\+ = plus stroke length

Dimensions and ordering data

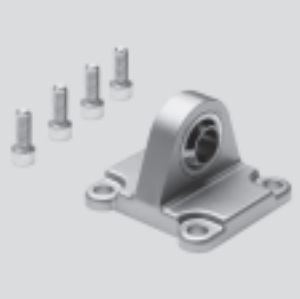
For ∅ [mm]	CD ∅ H9	EW	FL ±0.2	L	MR	XC
12	6	12_{h12}	16	10	6	55.2
16						55.9
20	8	16_{h12}	20	14	8	62.7
25						64.7
32	10	$26_{-0.2/-0.6}$	22	13	10	72.2
40	12	$28_{-0.2/-0.6}$	25	16	12	75.2
50		$32_{-0.2/-0.6}$	27			80.2
63	16	$40_{-0.2/-0.6}$	32	21	16	89.2
80		$50_{-0.2/-0.6}$	36	22		99
100	20	$60_{-0.2/-0.6}$	41	27	20	117
125	25	$70_{-0.2/-0.6}$	50	30	25	142

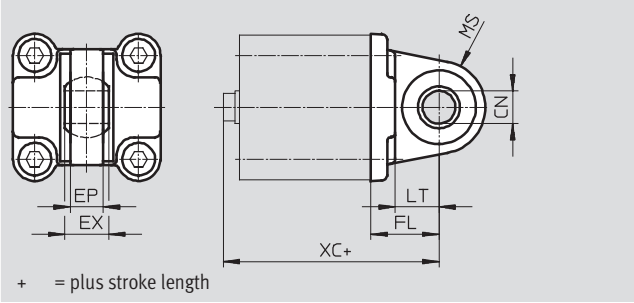
For ∅ [mm]	Basic version				R3 – High corrosion protection			
	CRC[1]	Weight [g]	Part No.	Type	CRC[1]	Weight [g]	Part No.	Type
12	2	20	**537 790**	**SNCL-12**	3	20	**537 794**	**SNCL-12-R3**
16	2	25	**537 791**	**SNCL-16**	3	25	**537 795**	**SNCL-16-R3**
20	2	40	**537 792**	**SNCL-20**	3	40	**537 796**	**SNCL-20-R3**
25	2	45	**537 793**	**SNCL-25**	3	45	**537 797**	**SNCL-25-R3**
32	2	85	**174 404**	**SNCL-32**	–	–	–	
40	2	115	**174 405**	**SNCL-40**	–	–	–	
50	2	180	**174 406**	**SNCL-50**	–	–	–	
63	2	270	**174 407**	**SNCL-63**	–	–	–	
80	2	480	**174 408**	**SNCL-80**	–	–	–	
100	2	700	**174 409**	**SNCL-100**	–	–	–	
125	2	1300	**174 410**	**SNCL-125**	–	–	–	

1) Corrosion resistance class 2 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 to Festo standard 940 070
Components requiring higher corrosion resistance. 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

Swivel flange SNCS

Material:
Die-cast aluminium





Dimensions and ordering data

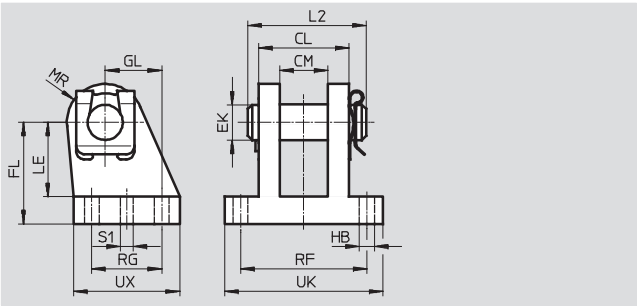
For ∅ [mm]	CN ∅ H7	EP ±0.2	EX	FL ±0.2	LT	MS	XC	CRC[1]	Weight [g]	Part No.	Type
32	10	10.5	14	22	13	15	72.2	2	85	**174 397**	**SNCS-32**
40	12	12	16	25	16	17	75.2	2	125	**174 398**	**SNCS-40**
50	16	15	21	27	16	20	80.2	2	210	**174 399**	**SNCS-50**
63	16	15	21	32	21	22	89.2	2	280	**174 400**	**SNCS-63**
80	20	18	25	36	22	27	99	2	540	**174 401**	**SNCS-80**
100	20	18	25	41	27	29	117	2	700	**174 402**	**SNCS-100**
125	30	25	37	50	30	39	142	2	1410	**174 403**	**SNCS-125**

1) Corrosion resistance class 2 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

Clevis foot LBG

The clevis foot is secured against rotation with a dowel pin.

Material:
Nodular graphite cast iron
Free of copper, PTFE and silicone



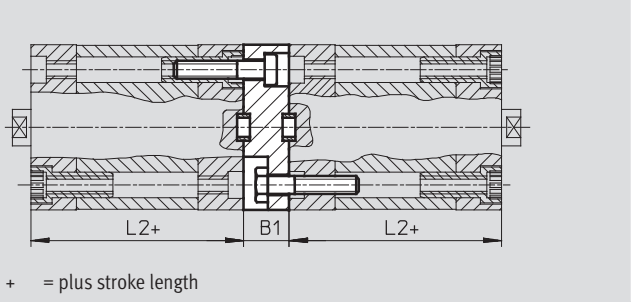
Dimensions and ordering data

For ∅ [mm]	CL ±0.2	CM	EK ∅	FL	GL	HB ∅	L2	LE	MR	RF	RG	S1 ∅	UK	UX	CRC[1]	Weight [g]	Part No.	Type
32	28	14.1	10	32	16±0.25	6.8	35	24	12	42	20±0.3	4.8	56	36	2	220	**31 761**	**LBG-32**
40	30	16.1	12	36	20±0.3	6.8	39	26	14	44	26±0.3	5.8	58	41.5	2	300	**31 762**	**LBG-40**
50	40	21.1	16	45	25±0.3	9.2	50	33	15	56	31±0.4	5.8	70	47	2	540	**31 763**	**LBG-50**
63	40	21.1	16	50	25±0.3	9	50	38	17	56	31±0.4	7.8	70	45	2	580	**31 764**	**LBG-63**
80	50	25.1	20	63	30	11	60	49	18	70	36	7.8	89	55	2	1050	**31 765**	**LBG-80**
100	50	25.1	20	71	41	11	60	56	22	70	46	9.8	89	65	2	1375	**31 766**	**LBG-100**
125	80	37.2	30	90	60	14	89	70	26	106	70	11.8	128	96	2	4140	**31 767**	**LBG-125**

1) Corrosion resistance class 2 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

Multi-position kit DPNA

Material:
Flange: Aluminium
Screws: Galvanised steel
Free of copper, PTFE and silicone



\+ = plus stroke length

Dimensions and ordering data

For ∅ [mm]	L2	B1	Max. overall stroke length [mm]	CRC[1)]	Part No.	Type
12	35	13	600	2	**537 263**	**DPNA-12**
16			600	2	**537 264**	**DPNA-16**
20	37		600	2	**537 265**	**DPNA-20**
25	39		600	2	**537 266**	**DPNA-25**
32	44	15	800	2	**537 267**	**DPNA-32**
40	45		800	2	**537 268**	**DPNA-40**
50			800	2	**537 269**	**DPNA-50**
63	49		800	2	**537 270**	**DPNA-63**
80	54	17	1000	2	**537 271**	**DPNA-80**
100	67	19.5	1000	2	**537 272**	**DPNA-100**

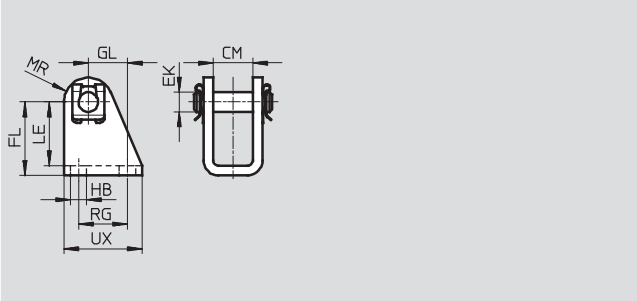
1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

- Note

The maximum overall stroke length may not be exceeded when combining cylinders and multi-position kits.

Clevis foot LBN

Material:
Galvanised steel
Free of copper, PTFE and silicone



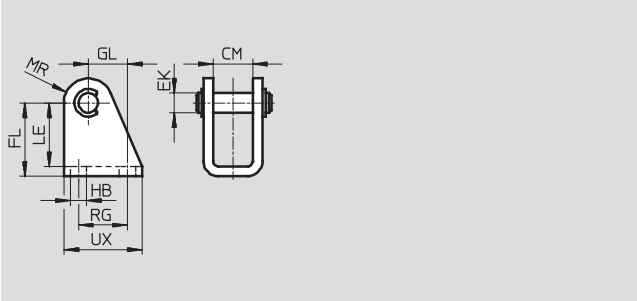
Dimensions and ordering data

For ∅ [mm]	CM	EK ∅	FL	GL	HB ∅	LE	MR	RG	UX	CRC[1]	Weight [g]	Part No.	Type
12/16	12.1	6	27 +0.3/–0.2	13	5.5	24	7	15	25	2	40	**6 058**	**LBN-12/16**
20/25	16.1	8	30 +0.4/–0.2	16	6.6	26	10	20	32	2	81	**6 059**	**LBN-20/25**

1) Corrosion resistance class 2 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

Clevis foot CRLBN, stainless steel

Material:
High-alloy steel
Free of copper, PTFE and silicone



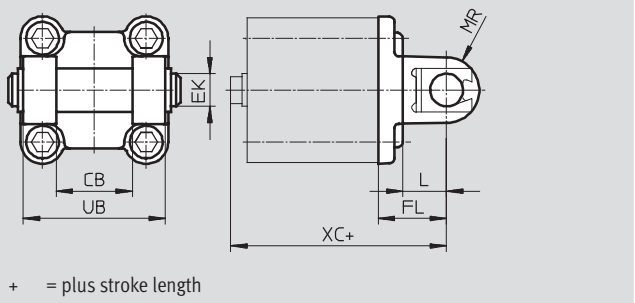
Dimensions and ordering data

For ∅ [mm]	CM	EK ∅	FL	GL	HB	LE	MR	RG	UX	CRC[1]	Weight [g]	Part No.	Type
12/16	12.1	6	27 +0.3/–0.2	13	5.5	24	7	15	25	4	55	**161 862**	**CRLBN-12/16**
20/25	16.1	8	30 +0.4/–0.2	16	6.6	26	10	20	32	4	62	**161 863**	**CRLBN-20/25**

1) Corrosion resistance class 4 to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required

Swivel flange
SNCB/SNCB-...-R3

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



\+ = plus stroke length

Dimensions and ordering data

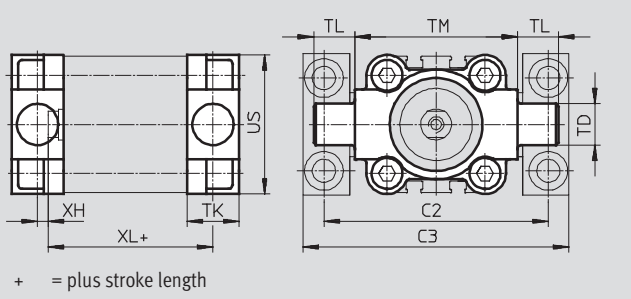
For ∅ [mm]	CB H14	EK ∅ e8	FL ±0.2	L	MR	UB h14	XC
32	26	10	22	13	8.5	45	72
40	28	12	25	16	12	52	76
50	32	12	27	16	12	60	80
63	40	16	32	21	16	70	89
80	50	16	36	22	16	90	99
100	60	20	41	27	20	110	117
125	70	25	50	30	25	130	142

For ∅	Basic version				R3 – High corrosion protection			
[mm]	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	2	100	**174 390**	**SNCB-32**	3	100	**176 944**	**SNCB-32-R3**
40	2	150	**174 391**	**SNCB-40**	3	150	**176 945**	**SNCB-40-R3**
50	2	225	**174 392**	**SNCB-50**	3	225	**176 946**	**SNCB-50-R3**
63	2	365	**174 393**	**SNCB-63**	3	365	**176 947**	**SNCB-63-R3**
80	2	610	**174 394**	**SNCB-80**	3	610	**176 948**	**SNCB-80-R3**
100	2	925	**174 395**	**SNCB-100**	3	925	**176 949**	**SNCB-100-R3**
125	2	1785	**174 396**	**SNCB-125**	3	1785	**176 950**	**SNCB-125-R3**

1) Corrosion resistance class 2 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 to Festo standard 940 070
Components requiring higher corrosion resistance. 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

Trunnion flange ZNCF/CRZNG

Material:
ZNCF: Special steel casting
CRZNG: Electrolytically polished special steel casting
Free of copper, PTFE and silicone



\+ = plus stroke length

Dimensions and ordering data

For ∅ [mm]	C2	C3	TD ∅ e9	TK	TL	TM	US	XH	XL
32	71	86	12	16	12	50	45	2	52
40	87	105	16	20	16	63	54	4	55
50	99	117	16	24	16	75	64	4	57
63	116	136	20	24	20	90	75	4	61
80	136	156	20	28	20	110	93	5	81
100	164	189	25	38	25	132	110	10	86
125	192	217	25	50	25	160	131	14	106

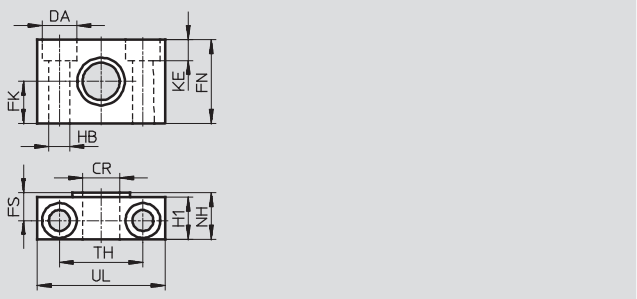
For ∅	Basic version				R3 – High corrosion protection			
	CRC[1)]	Weight	Part No.	Type	CRC[1)]	Weight	Part No.	Type
[mm]		[g]				[g]		
32	2	130	**174 411**	**ZNCF-32**	4	150	**161 852**	**CRZNG-32**
40	2	240	**174 412**	**ZNCF-40**	4	260	**161 853**	**CRZNG-40**
50	2	390	**174 413**	**ZNCF-50**	4	430	**161 854**	**CRZNG-50**
63	2	600	**174 414**	**ZNCF-63**	4	640	**161 855**	**CRZNG-63**
80	2	1150	**174 415**	**ZNCF-80**	4	1300	**161 856**	**CRZNG-80**
100	2	2030	**174 416**	**ZNCF-100**	4	2400	**161 857**	**CRZNG-100**
125	2	3490	**174 417**	**ZNCF-125**	4	3600	**185 362**	**CRZNG-125**

1) Corrosion resistance class 2 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 to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required

Trunnion support LNZG

Material:
Trunnion support: Anodised aluminium
Plain bearing: Plastic

Free of copper, PTFE and silicone



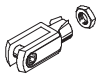
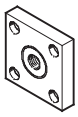
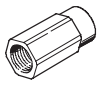
Dimensions and ordering data

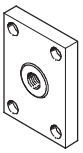
For ∅ [mm]	CR ∅ D11	DA ∅ H13	FK ∅ ±0.1	FN	FS	H1	HB ∅ H13	KE	NH	TH ±0.2	UL	CRC[1]	Weight [g]	Part No.	Type
32	12	11	15	30	10.5	15	6.6	6.8	18	32	46	2	125	**32 959**	**LNZG-32**
40, 50	16	15	18	36	12	18	9	9	21	36	55	2	400	**32 960**	**LNZG-40/50**
63, 80	20	18	20	40	13	20	11	11	23	42	65	2	480	**32 961**	**LNZG-63/80**
100, 125	25	20	25	50	16	24.5	14	13	28.5	50	75	2	960	**32 962**	**LNZG-100/125**

1) Corrosion resistance class 2 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

Ordering data – Piston rod attachments

Technical data ➔ Internet: piston-rod attachment

Designation	For ∅	Part No.	Type
Rod eye SGS			
	12	–	
	16	**9 254**	**SGS-M6**
	20, 25	**9 255**	**SGS-M8**
	32, 40	**9 261**	**SGS-M10x1,25**
	50, 63	**9 262**	**SGS-M12x1,25**
	80, 100	**9 263**	**SGS-M16x1,5**
	125	**9 264**	**SGS-M20x1,5**
Rod clevis SG			
	12	–	
	16	**3 110**	**SG-M6**
	20, 25	**3 111**	**SG-M8**
	32, 40	**6 144**	**SG-M10x1,25**
	50, 63	**6 145**	**SG-M12x1,25**
	80, 100	**6 146**	**SG-M16x1,5**
	125	**6 147**	**SG-M20x1,5**
Coupling piece KSG			
	12, 16, 20, 25	–	
	32, 40	**32 963**	**KSG-M10x1,25**
	50, 63	**32 964**	**KSG-M12x1,25**
	80, 100	**32 965**	**KSG-M16x1,5**
	125	**32 966**	**KSG-M20x1,5**
Adapter AD			
	12	–	
	16	**157 328**	**AD-M6-M5**
		157 329	**AD-M6-⅛**
		157 330	**AD-M6-¼**
	20	**157 331**	**AD-M8-⅛**
	25	**157 332**	**AD-M8-¼**
	32	**157 333**	**AD-M10x1,25-⅛**
	40	**157 334**	**AD-M10x1,25-¼**
	50	**160 256**	**AD-M12x1,25-¼**
	63	**160 257**	**AD-M12x1,25-⅜**

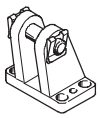
Designation	For ∅	Part No.	Type
Rod clevis SGA used in combination with rod eye SGS			
	12, 16, 20, 25	–	
	32, 40	**32 954**	**SGA-M10x1,25**
	50, 63	**10 767**	**SGA-M12x1,25**
	80, 100	**10 768**	**SGA-M16x1,5**
	125	**10 769**	**SGA-M20x1,5**
Self-aligning rod coupler FK			
	12	**30 984**	**FK-M5**
	16	**2 061**	**FK-M6**
	20, 25	**2 062**	**FK-M8**
	32, 40	**6 140**	**FK-M10x1,25**
	50, 63	**6 141**	**FK-M12x1,25**
	80, 100	**6 142**	**FK-M16x1,5**
	125	**6 143**	**FK-M20x1,5**
Coupling piece KSZ			
	12	–	
	16	**36 123**	**KSZ-M6**
	20, 25	**36 124**	**KSZ-M8**
	32, 40	**36 125**	**KSZ-M10x1,25**
	50, 63	**36 126**	**KSZ-M12x1,25**
	80, 100	**36 127**	**KSZ-M16x1,5**
	125	**36 128**	**KSZ-M20x1,5**

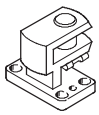
Ordering data – Corrosion and acid resistant piston rod attachments — Technical data ➔ Internet: crsg

Designation	For ∅	Part No.	Type
Rod eye CRSGS			
	12	–	
	16	**195 580**	**CRSGS-M6**
	20, 25	**195 581**	**CRSGS-M8**
	32, 40	**195 582**	**CRSGS-M10x1,25**
	50, 63	**195 583**	**CRSGS-M12x1,25**
	80, 100	**195 584**	**CRSGS-M16x1,5**
	125	**195 585**	**CRSGS-M20x1,5**

Designation	For ∅	Part No.	Type
Rod clevis CRSG			
	12	–	
	16, 20	**13 567**	**CRSG-M6**
	20, 25	**13 568**	**CRSG-M8**
	32, 40	**13 569**	**CRSG-M10x1,25**
	50, 63	**13 570**	**CRSG-M12x1,25**
	80, 100	**13 571**	**CRSG-M16x1,5**
	125	**13 572**	**CRSG-M20x1,5**

Ordering data – Mounting attachments — Technical data ➔ Internet: clevis foot

Designation	For ∅	Part No.	Type
Clevis foot LBG for rod eye SGS			
	32, 40	**31 761**	**LBG-32**
	50, 63	**31 762**	**LBG-40**
	80, 100	**31 763**	**LBG-50**
		31 764	**LBG-63**
	125	**31 765**	**LBG-80**
		31 766	**LBG-100**

Designation	For ∅	Part No.	Type
Right-angle clevis foot LQG for rod eye SGS			
	32, 40	**31 768**	**LQG-32**
	50, 63	**31 769**	**LQG-40**
	80, 100	**31 770**	**LQG-50**
		31 771	**LQG-63**
	125	**31 772**	**LQG-80**
		31 773	**LQG-100**

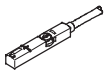
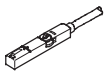
Ordering data – One-way flow control valves — Technical data ➔ Internet: grla

	Connection		Material	Part No.	Type
	For ∅	For tubing O.D.			
For exhaust air					
	12, 16, 20, 25	3	Metal design	**193 137**	**GRLA-M5-QS-3-D**
		4		**193 138**	**GRLA-M5-QS-4-D**
		6		**193 139**	**GRLA-M5-QS-6-D**
	32, 40, 50, 63, 80, 100	3		**193 142**	**GRLA-⅛-QS-3-D**
		4		**193 143**	**GRLA-⅛-QS-4-D**
		6		**193 144**	**GRLA-⅛-QS-6-D**
		8		**193 145**	**GRLA-⅛-QS-8-D**
	125	6		**193 146**	**GRLA-¼-QS-6-D**
		8		**193 147**	**GRLA-¼-QS-8-D**
		10		**193 148**	**GRLA-¼-QS-10-D**

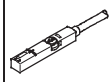
Ordering data – One-way flow control valves — Technical data ➔ Internet: grlz

	Connection		Material	Part No.	Type
	For ∅	For tubing O.D.			
For supply air					
	12, 16, 20, 25	3	Metal design	**193 153**	**GRLZ-M5-QS-3-D**
		4		**193 154**	**GRLZ-M5-QS-4-D**
		6		**193 155**	**GRLZ-M5-QS-6-D**
	32, 40, 50, 63, 80, 100	3		**193 156**	**GRLZ-⅛-QS-3-D**
		4		**193 157**	**GRLZ-⅛-QS-4-D**
		6		**193 158**	**GRLZ-⅛-QS-6-D**
		8		**193 159**	**GRLZ-⅛-QS-8-D**
	125	–		**151 195**	**GRLZ-¼-B**

Ordering data – Proximity sensors for T-slot, magneto-resistive — Technical data ➔ Internet: smt

	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with cylinder profile	PNP	Cable, 3-wire	2.5	**543 867**	**SMT-8M-PS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543 866**	**SMT-8M-PS-24V-K-0,3-M8D**
			Plug M12x1, 3-pin	0.3	**543 869**	**SMT-8M-PS-24V-K-0,3-M12**
		NPN	Cable, 3-wire	2.5	**543 870**	**SMT-8M-NS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543 871**	**SMT-8M-NS-24V-K-0,3-M8D**
	Insertable in the slot lengthwise, flush with the cylinder profile	PNP	Cable, 3-wire	2.5	**175 436**	**SMT-8-PS-K-LED-24-B**
			Plug M8x1, 3-pin	0.3	**175 484**	**SMT-8-PS-S-LED-24-B**
N/C contact						
	Insertable in the slot from above, flush with cylinder profile	PNP	Cable, 3-wire	7.5	**543 873**	**SMT-8M-PO-24V-K7,5-OE**

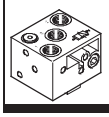
Ordering data – Proximity sensors for T-slot, magnetic reed — Technical data ➔ Internet: sme

	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with cylinder profile	Contacting	Cable, 3-wire	2.5	**543 862**	**SME-8M-DS-24V-K-2,5-OE**
				5.0	**543 863**	**SME-8M-DS-24V-K-5,0-OE**
			Cable, 3-wire	2.5	**543 872**	**SME-8M-ZS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543 861**	**SME-8M-DS-24V-K-0,3-M8D**
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	**150 855**	**SME-8-K-LED-24**
			Plug M8x1, 3-pin	0.3	**150 857**	**SME-8-S-LED-24**
N/C contact						
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	**160 251**	**SME-8-O-K-LED-24**

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	**541 333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541 334**	**NEBU-M8G3-K-5-LE3**
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541 363**	**NEBU-M12G5-K-2.5-LE3**
			5	**541 364**	**NEBU-M12G5-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541 338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541 341**	**NEBU-M8W3-K-5-LE3**
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541 367**	**NEBU-M12W5-K-2.5-LE3**
			5	**541 370**	**NEBU-M12W5-K-5-LE3**

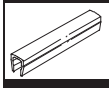
Ordering data – Rectangular proximity sensors, pneumatic — Technical data ➔ Internet: smpo

	Pneumatic connection	Part No.	Type
3/2-way valve, normally closed			
	Female thread M5	**178 563**	**SMPO-8E**

Ordering data – Mounting kits for proximity sensors SMPO-8E — Technical data ➔ Internet: smb

	Assembly	Part No.	Type
	Clamped in T-slot	**178 230**	**SMB-8E**

Ordering data – Slot cover for T-slot

	Assembly	Length	Part No.	Type
	Insertable from above	2x 0.5 m	**151 680**	**ABP-5-S**