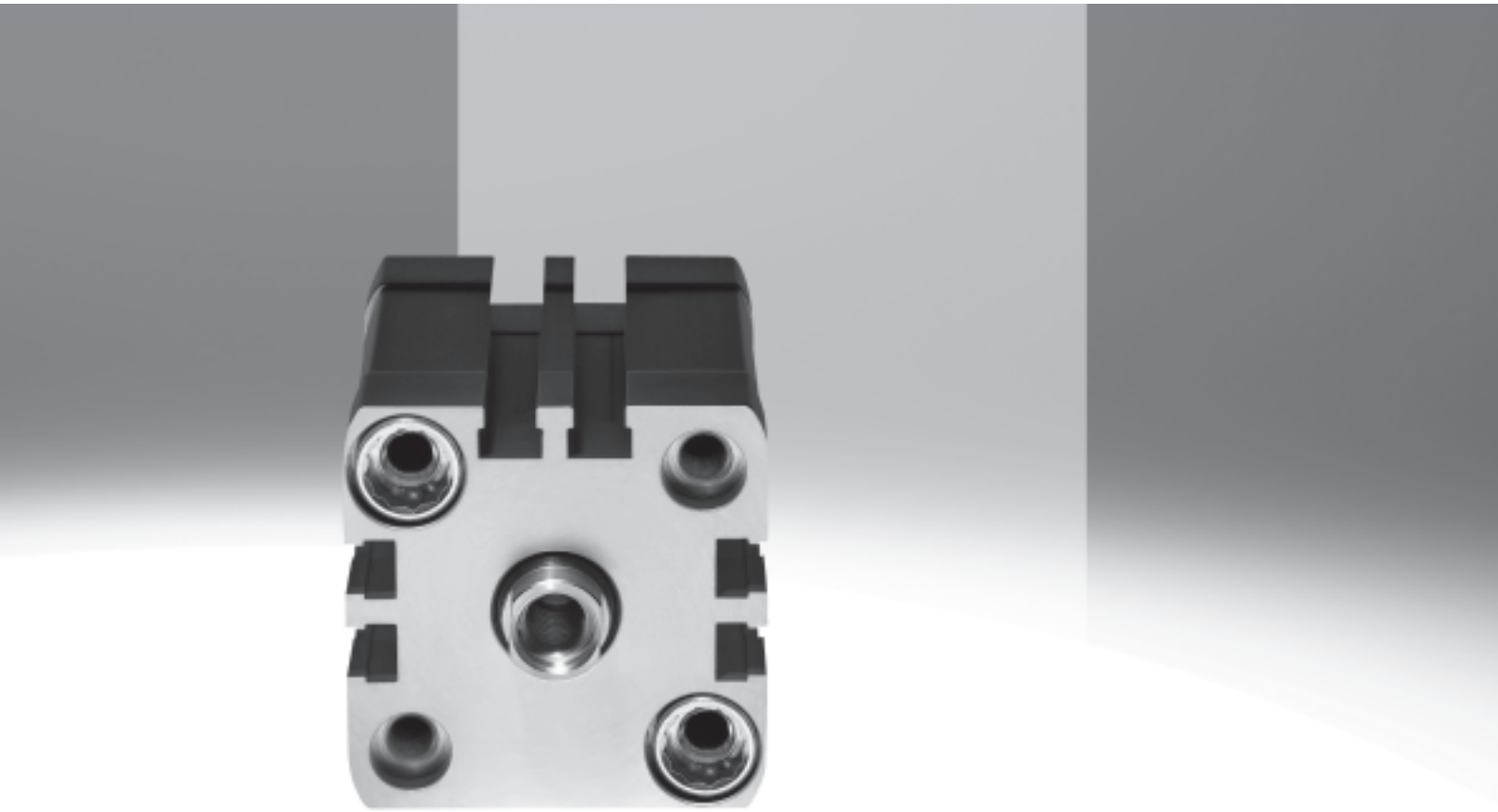
Compact cylinders ADN/AEN to ISO 21287

FESTO

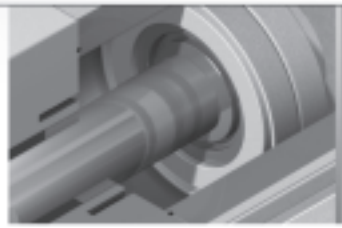


Sturdy, reliable, economical

Info 127

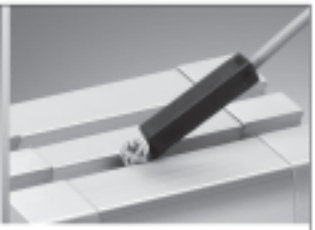
Compact cylinders ADN/AEN: World class

First class reliability for design and assembly
With sizes from 12 to 125 mm and individual standard and non-standard variants, the ADN/AEN stands for innovative technology, high performance and reduced installation space requirements.



Patented 3K piston

Compact design



SM...-8F: one for all

Simply greater efficiency with Festo services
- Festo software tools for reliable planning and design
- CAD models for easier and faster construction
- Service worldwide – on-site in over 170 countries

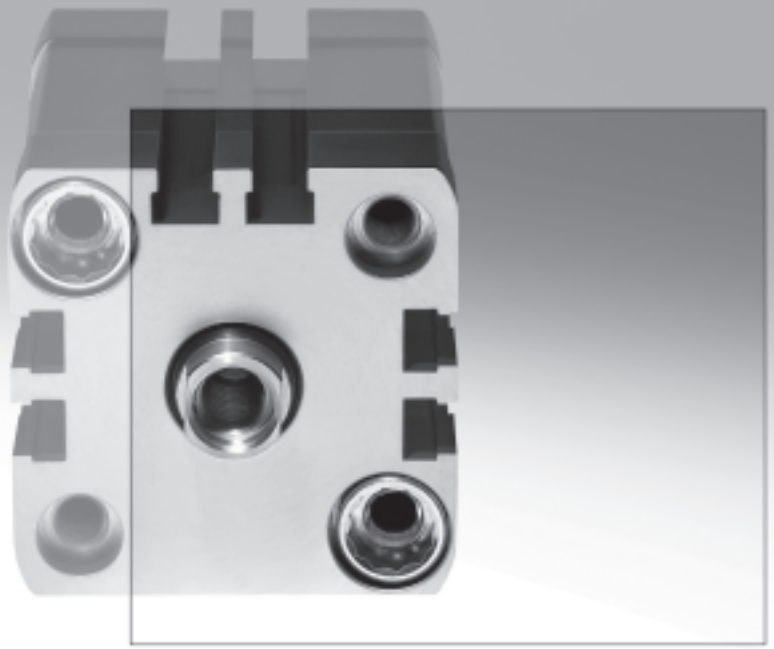
Attractive price + time-saving services = reduced costs!

Higher performance
- Faster machine cycles thanks to excellent running characteristics and outstanding cushioning characteristics
- Up to 50% less fitting space compared with large standard cylinders to ISO 15552

Innovation + quality = world class ADN/AEN!

Systematically thought out
- The proximity sensor SM...-8F can be inserted in the T-slot on three sides for all sizes and many other cylinder families
- Comprehensive range of mounting accessories
- Shortest delivery times and most attractive price

Standard + functions = maximum range of applications!



For maximum productivity in confined spaces, there is only one choice – ADN/AEN.

	Advantages for designers	Advantages for purchasers
Compact cylinders to standard ISO 21287	• Standardised dimensions for easy replacement with many existing products • Multiple use of identical components simplifies construction and documentation • Space-saving thanks to compact design	• Reduced procurement and warehousing costs thanks to standard types and use of the same accessories for different product families • Worldwide availability, even for servicing
Standard types and modular products	• Best possible technical solution for almost every application saves on expensive in-house constructions • Excellent reliability even for modular solutions, as all components are harmonised and tested	• Cost savings as you only pay for the functions you actually need • Solution from a single source – just one supplier for pneumatic components • Rapid availability reduces logistics and warehousing costs
Planning and design tools, 2D/3D CAD models, circuit diagrams, electronic catalogue	• Reliable product selection and quick design save time and money • Additional cost savings thanks to prevention of oversizing	• Time savings thanks to simplified order processing

Compact cylinders ADN/AEN

More than just power – the 3K principle
The strength lies in the detail. One such example is the patented 3K piston with excellent running characteristics and outstanding cushioning characteristics in the end positions – for high speeds and machine cycles. The compact 3K piston also saves on fitting space, which is utilised for a longer piston rod bearing.

The effect: greater guide precision and higher load capacity to resist lateral forces. And all of this in up to 50% less fitting space compared with large standard cylinders to ISO 15552.

Standard types for fast acquisition, modular types for greater flexibility
Defined standard types, which are simply ordered using part numbers, cover the most popular sizes and are available ex-stock at a very favourable price.

The ADN modular system offers a comprehensive range with many features to ensure that all requirements can be met. The individual combination means a high level of functionality and guarantees the best possible technical solution for almost every application.

Comprehensive functions in a modular system

Male piston rod thread (A), female piston rod thread (I), extended male piston rod thread (K2), special piston rod thread (K5), extended piston rod (K8)
All piston rod variants can be easily ordered via the modular system to adapt the cylinder to an existing interface.

The ADN modular product range
The combination of a few basic versions with many features results in the technically optimum cylinder for almost every application.

AEN

Single-acting
Defined piston rod position in case of pressure failure. Compressed air in working stroke only.

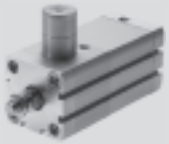
Piston ∅: 12 ... 100 mm
Stroke: 1 ... 25 mm

ADN

Double-acting

Piston ∅: 12 ... 125 mm
Stroke: 1 ... 500 mm

ADN-...-KP



Double-acting with clamping unit
Mechanical locking for secure clamping in the event of a pressure drop. Effective over the entire stroke range.

Piston ∅: 20 ... 100 mm
Stroke: 10 ... 500 mm

ADN-...-EL

Double-acting with end position lock
Positive locking in the end position for avoiding uncontrolled movements.

Piston ∅: 20 ... 100 mm
Stroke: 10 ... 500 mm

Reinforced piston rod (S1)
Absorbs many times more lateral force than a basic cylinder.

Through piston rod (S2)
For working at both ends with the same forces in the advance and return stroke, for attaching external stops, etc.

Heat resistant seals up to 120 °C (S6)
Suitable for use in heating furnaces, etc.

Constant motion (S10)
Ideal for slow and constant speeds.

Low friction (S11)
Low friction values for smooth operation, for example as balancers for maintaining the tension of cords, belts, paper, etc.

Through, hollow piston rod (S20)
For example for conducting vacuum, small parts, media, etc.

Smooth anodised aluminium piston rod (K10)
Makes it difficult for welding spatter to adhere to the piston rod and therefore increases the service life of the cylinder in welding applications.

Square piston rod (Q)
For applications requiring correctly oriented feeding where rotation of the piston rod is not permissible, for example.

High corrosion protection (R3)
Suitable for harsh environments thanks to the reinforced anodised layer and high-quality steel parts.

Dust protection (R8)
Wiper seal and hard-chromium plated piston rod for protection against dry, dusty media.

Laser etched rating plate (TL)
For easy identification of plates when it comes to replacement, even after years in a harsh environment.

Low temperature (TT)
For use in cooling chambers or in mobile technology, for example.

Explosion protection to ATEX (EX)
Selected types for explosive atmospheres ➔ www.festo.com/en/ex

Single-acting, pulling (Z)
With piston rod extended in non-pressurised condition.

ADNP

Double-acting with polymer end caps
Core range for simple automation tasks.

Piston ∅: 20, 25, 32, 40, 50 mm
Stroke: 5 ... 80 mm in 5 mm increments

ADNGF

Double-acting with guide rods
Non-rotating with plain-bearing guide. For correctly oriented feeding and for absorbing torques and increased lateral forces.

Piston ∅: 12 ... 100 mm
Stroke: 1 ... 400 mm

ADNH

High force cylinder
If the force is inadequate or there is insufficient installation space. Up to 4 times the force for the same cross-section.

Piston ∅: 25, 40, 63, 100 mm
Stroke: 1 ... 150 mm

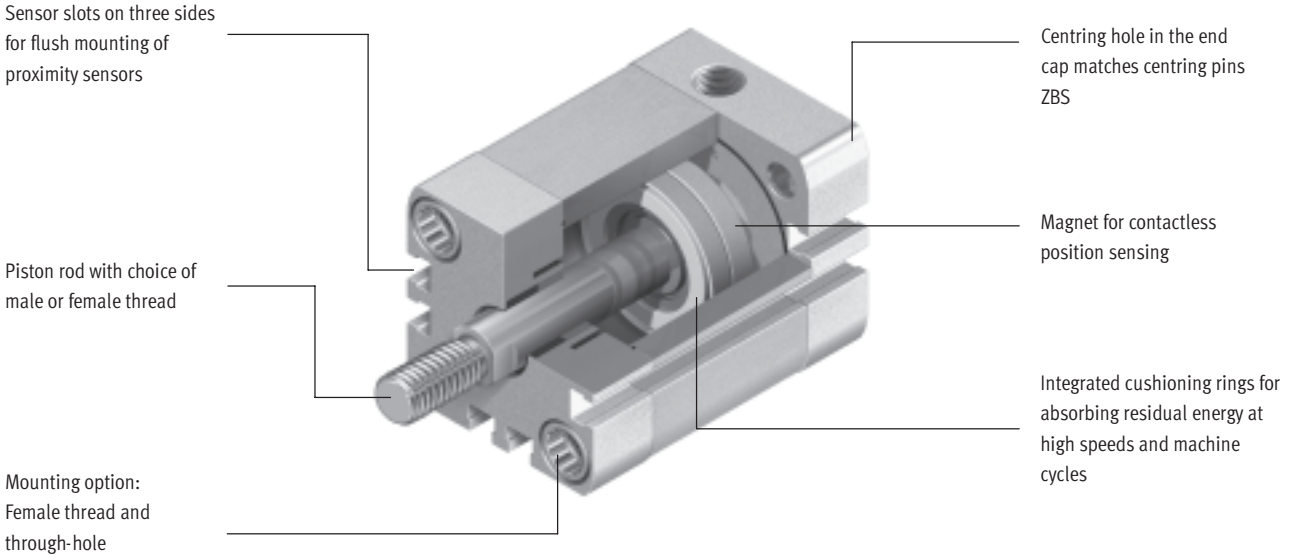
ADNM

Multi-position cylinder
The in-line connection of multiple cylinders of different length facilitates advancing by up to 5 positions.

Piston ∅: 25, 40, 63, 100 mm
Stroke: 1 ... 400 mm

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 and integrated QS push-in fittings is distinguished by its low weight

Convenient

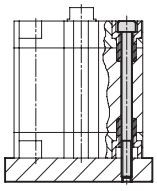
- Easy to mount with a comprehensive range of mounting accessories for just about every type of installation
- Highly flexible thanks to the wide range of variants
- Contactless position sensing using proximity sensors

Reliable

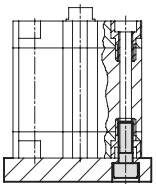
- Optimised manufacturing methods, patented technology and more than 40 years of experience in the field of cylinders make Festo and ADN/AEN a great team

Mounting options

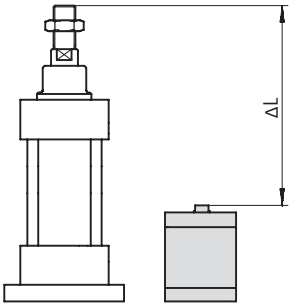
With through screw



Direct mounting



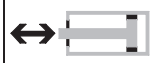
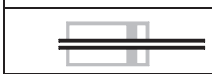
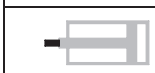
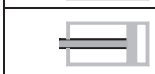
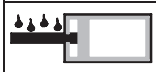
Size



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

Compact cylinders ADN, to ISO 21287

Key features

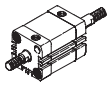
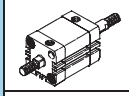
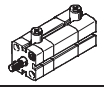
Variants from the modular system		
Symbol	Key features	Description
	S1 Reinforced piston rod	Increased lateral forces. Absorbs many times more lateral force than a basic cylinder
	S2 Through piston rod	For working at both ends with the same forces in the advance and return stroke, for attaching external stops
	S6 Heat-resistant seals up to max. 120 °C	Temperature resistance
	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	–
	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

Software tools on CD-ROM:
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	–	1 … 400		
			63, 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		
	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

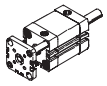
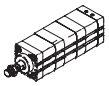
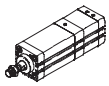
FESTO

Type	Male piston rod thread	Female piston rod thread	Through, hollow piston rod	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
	A	I	S20	K2	K5	K8	K10	S6	S10	S11	R3	R8	TT	
Basic version														
ADN	■	■	■ ∅ 16 and above	■	■	■	■ ∅ 20 and above	■	■	■	■	■ ∅ 20 and above	■ ∅ 20 and above	17
ADN-...-S2 Through piston rod	■	■	–	■	■	■	–	■	–	–	–	–	■ ∅ 20 and above	17
Reinforced piston rod														
ADN-...-S1	■	■	–	■	■	■	–	■	–	–	■	–	–	17
Non-rotating with square piston rod														
ADN-...-Q	■	■	■ ∅ 16 and above	■	■	■	–	■	–	–	–	–	–	17
ADN-...-Q-S2 Through piston rod	■	■	■ ∅ 16 and above	■	■	■	–	■	–	–	–	–	–	17
Standard port pattern, with clamping unit														
ADN-...-KP	■	■	–	■	■	■	–	–	–	–	–	–	–	42
Standard port pattern, with end position lock														
ADN-...-EL	■	■	–	■	■	■	–	–	–	–	–	–	–	49
With polymer end cap														
ADNP	■	■	–	–	–	–	–	–	–	–	–	–	–	71

New

Compact cylinders ADN, to ISO 21287

Product range overview

Function	Version	Type	Piston ∅ [mm]	Stroke [mm]		Position sensing A	Cushioning 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				

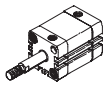
Compact cylinders ADN, to ISO 21287

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
	A	I	K2	K5	K8	S6	
Standard port pattern, non-rotating with yoke							
ADNGF	–	–	–	–	–	■	77
ADNGF-...-S2 Through piston rod	–	–	–	–	–	■	77
Standard port pattern, high-force cylinder							
ADNH	■	■	■	■	■	■	87
Standard port pattern, multi-position cylinder							
ADNM	■	■	■	■	■	■	98

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		

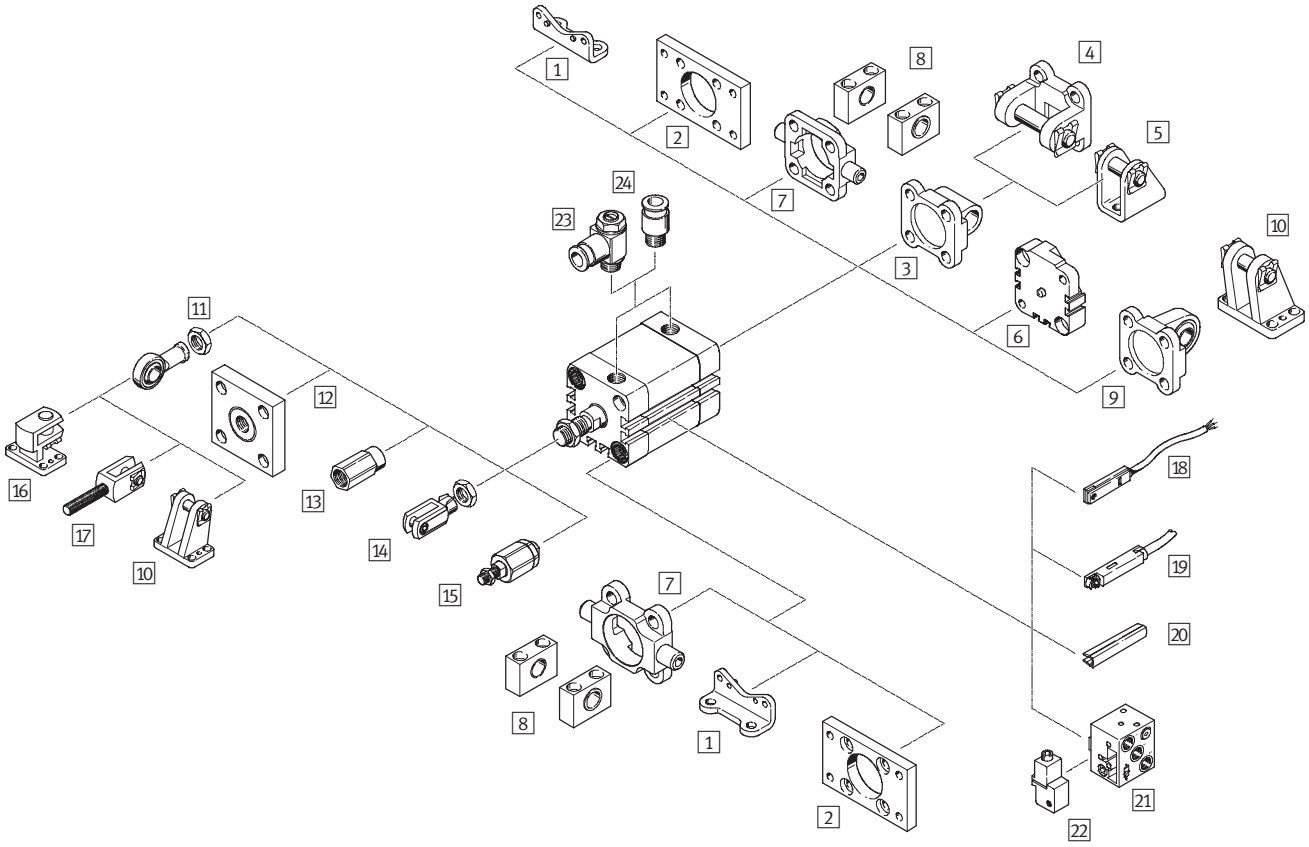
Compact cylinders AEN, to ISO 21287

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
	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

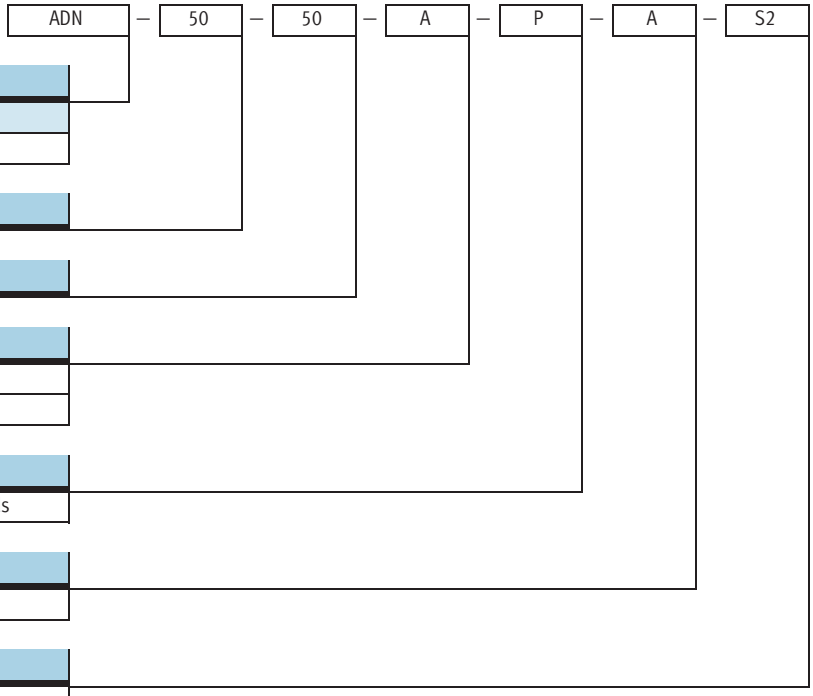
Peripherals overview

Mounting attachments and accessories		
	Brief description	**➔ Page**
1 Foot mounting HNA	For bearing or end caps	106
2 Flange mounting FNC	For bearing or end caps	107
3 Swivel flange SNCL	For end caps	108
4 Swivel flange SNCB	For swivel flange SNCL	112
5 Clevis foot LBN/CRLBN	For swivel flange SNCL	111
6 Multi-position kit DPNA	For connecting two cylinders with identical piston ∅ to form a multi-position cylinder	110
7 Trunnion flange ZNCF/CRZNG	For bearing caps	113
8 Trunnion support LNZG	For trunnion flange ZNCF/CRZNG	114
9 Swivel flange SNCS	For end caps	109
10 Clevis foot LBG	For swivel flange SNCS	109
11 Rod eye SGS/CRSGS	With spherical bearing	115
12 Coupling piece KSG/KSZ	For compensating radial deviations	115
13 Adapter AD	For mounting a vacuum suction cup on a hollow cylinder piston rod	115
14 Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	115
15 Self-aligning rod coupler FK	For compensating radial and angular deviations	115
16 Right-angle clevis foot LQG	For rod eye SGS	116
17 Rod clevis SGA	With male thread	115
18 Proximity sensor SME/SMT-8	Can be integrated in the sensor slot of the cylinder profile barrel	118
19 Proximity sensor SME/SMT-8M	Can be integrated in the sensor slot of the cylinder profile barrel	118
20 Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	118
21 Proximity sensor SMPO-8E	Pneumatic output signal	118
22 Mounting kit SMB-8E	For proximity sensor SMPO-8E	118
23 One-way flow control valve GRLA/GRLZ	For speed regulation	116
24 Push-in fitting QS	For connecting compressed air tubing with standard external diameters	www.festo.com

Compact cylinders ADN, to ISO 21287

Type codes

FESTO



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

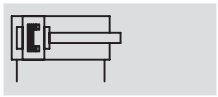
Variant	
Q	Square piston rod
S1	Reinforced piston rod
S2	Through piston rod
S20	Through, hollow piston rod
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
K10	Smooth anodised piston rod
S6	Heat-resistant seals up to max. 120 °C
S10	Slow speed (constant motion)
S11	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

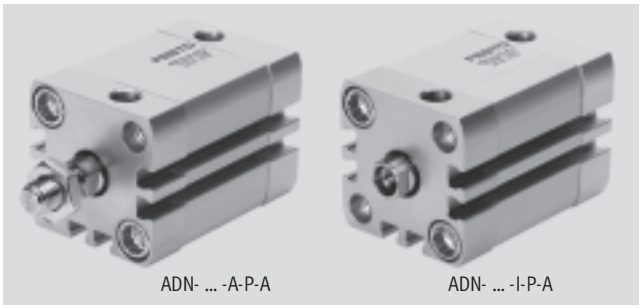
FESTO

Function

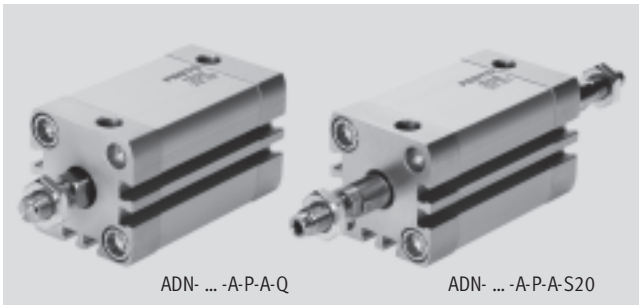


Variants → 7

- Diameter
  12 ... 125 mm
- Stroke length
  1 ... 500 mm
- www.festo.com/en/
  Spare_parts_service



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

Compact cylinders ADN, to ISO 21287

Technical data

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 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	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:

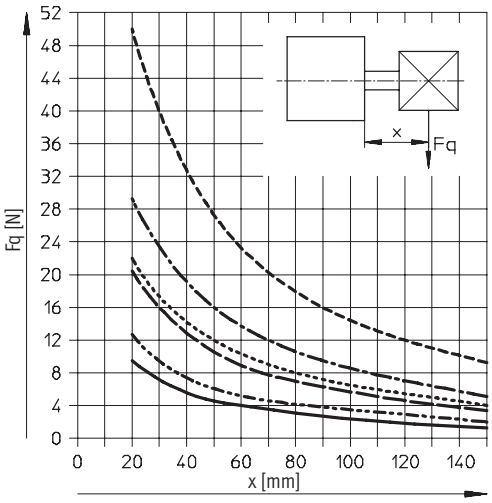
$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

- Note

This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load. Allowance must also be made for the limits of the cushioning capacity of the drive and the permissible impact energy.

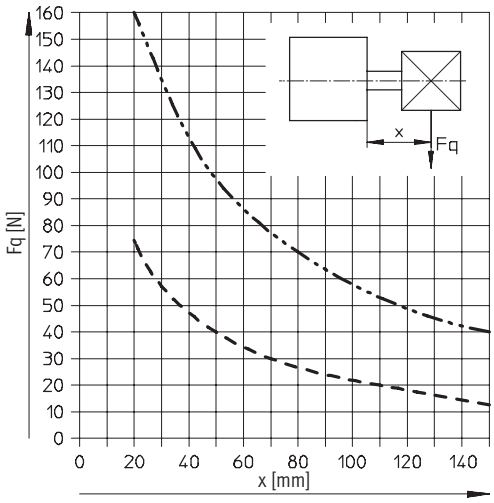
Max. lateral force Fq as a function of the projection x

∅ 12 ... 63



∅ 12
∅ 16
∅ 20
∅ 25
∅ 32/40
∅ 50/63

∅ 80 ... 125

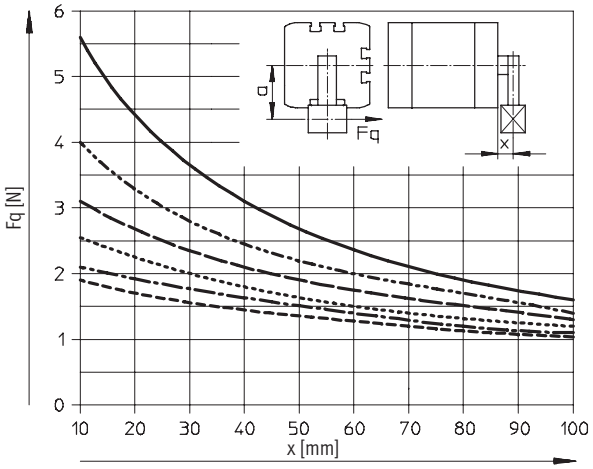


∅ 80/100
∅ 125

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

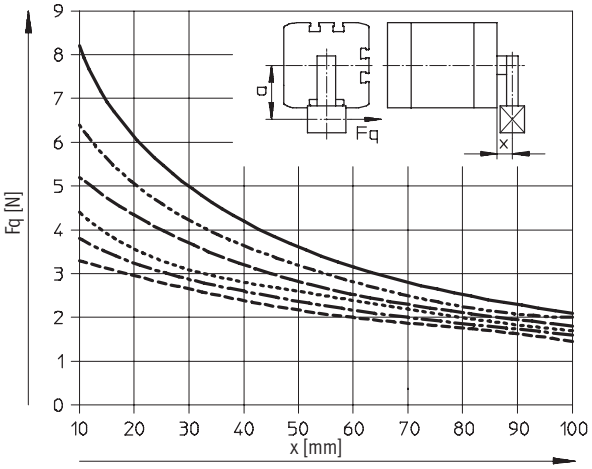
Q – Square piston rod

∅ 12



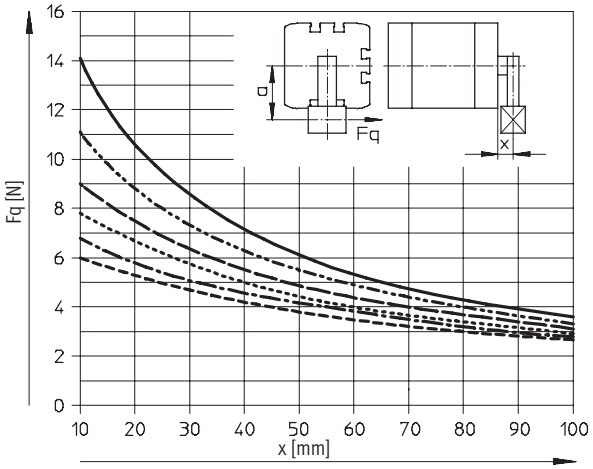
- a = 5 mm
- a = 10 mm
- a = 15 mm
- a = 20 mm
- a = 25 mm
- a = 30 mm

∅ 16



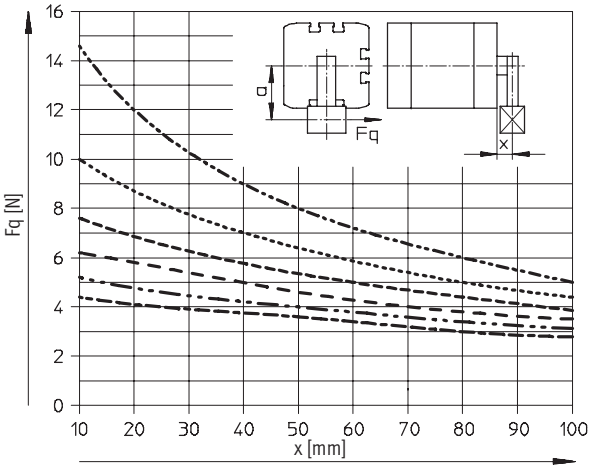
- a = 5 mm
- a = 10 mm
- a = 15 mm
- a = 20 mm
- a = 25 mm
- a = 30 mm

∅ 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

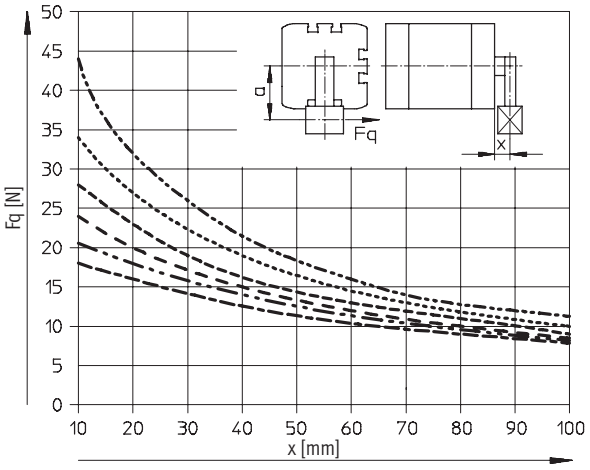
Note

- 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 (➔ 19).

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

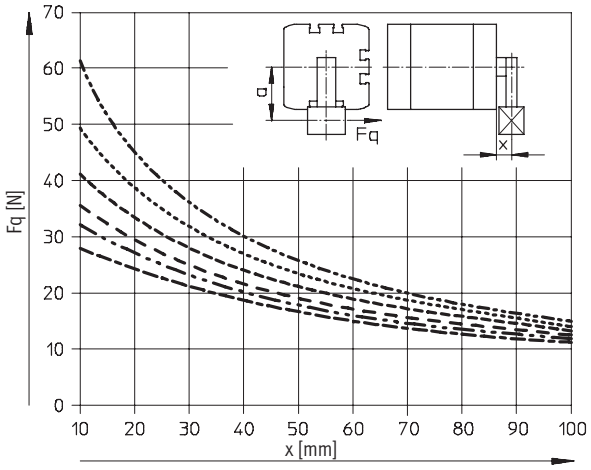
Q – Square piston rod

∅ 50/63



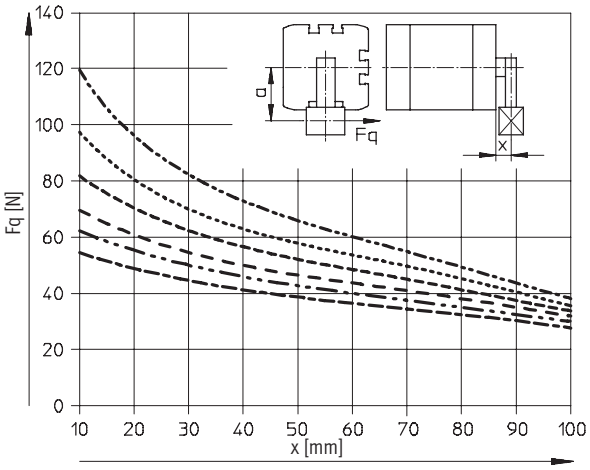
- a = 10 mm
- a = 20 mm
- a = 30 mm
- a = 40 mm
- a = 50 mm
- a = 60 mm

∅ 80/100



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

∅ 125



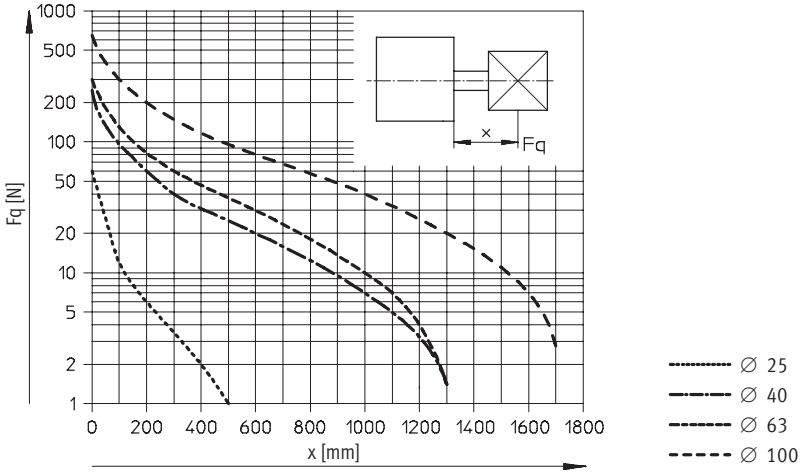
- a = 10 mm
- a = 20 mm
- a = 30 mm
- a = 40 mm
- a = 50 mm
- a = 60 mm

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 (➔ 19).

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

S1 – Reinforced piston rod

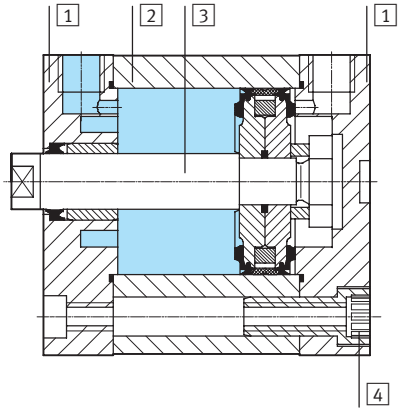


Weight [g]

Piston ∅	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

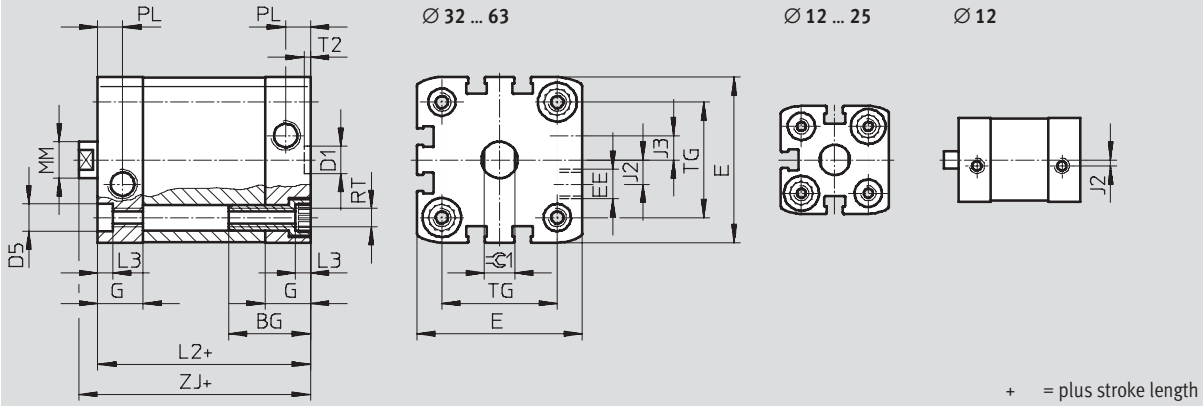
Sectional view



Compact cylinder			Basic version, Q	S6, S10, S11	R3	K10
1	Cover		Anodised aluminium			
2	Cylinder barrel		Anodised aluminium			
3	Piston rod		High-alloy steel			Anodised aluminium
4	Flange screws	∅ 12 ... 16	High-alloy steel			
		∅ 20 ... 63	Galvanised steel			
		∅ 80 ... 100	Standard screws, galvanised steel			
–	Seals		Polyurethane	Fluoro elastomer	Polyurethane	

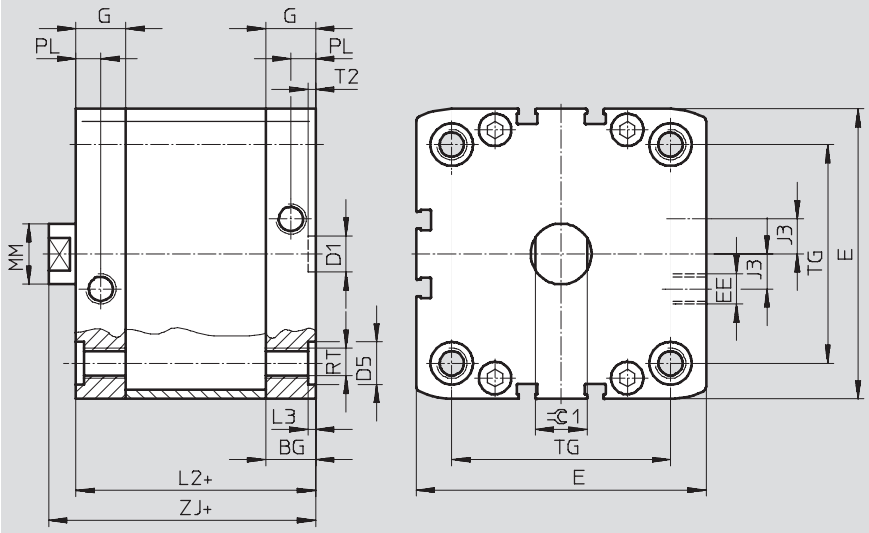
Dimensions – Basic version Download CAD data ➔ **www.festo.com/en/engineering**

∅ 12 ... 63



\+ = plus stroke length

∅ 80 ... 125



\+ = plus stroke length

∅ [mm]	BG	D1 ∅ H9	D5 ∅ F9	E	EE	G	J2	J3	L2 max.	L3 +0.2	MM ∅	PL +0.2	RT	T2 +0.1	TG ±0.2	ZJ +1	⫧1 h13
12	17	9	6	27.5+0.3	M5	10.5	2	–	35	3.5	6	6	M4	2.1	16	39.2	5
16				29+0.3		11	2.6				8				18	39.9	7
20	19.5		9	35.5+0.3		12			37	5	10		M5		22	42.7	9
25				39.5+0.3					39						26	44.7	
32	27			47+0.3	G⅛	15	6		44		12	8.2	M6		32.5	50.2	10
40				54.5+0.3			8		45						38	51.2	
50		12	12	65.5+0.3							16		M8	2.6	46.5	53.2	13
63				75.5+0.3			11.5		49						56.5	57.2	
80	17		15	95.5+0.6		16.5			54	2.6	20		M10		72	63	17
100	21.5			113.5+0.6		21.5	20		67	2.6		10.5			89	76	
125	20		–	134.6+0.3	G¼	20	21.15		81	–	25		M12		110	92	21

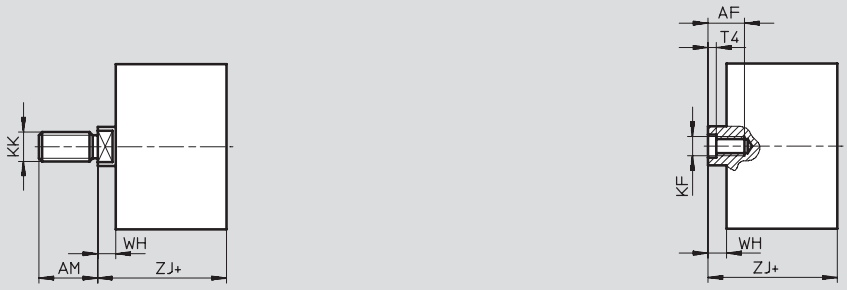
Compact cylinders ADN, to ISO 21287

Technical data

FESTO

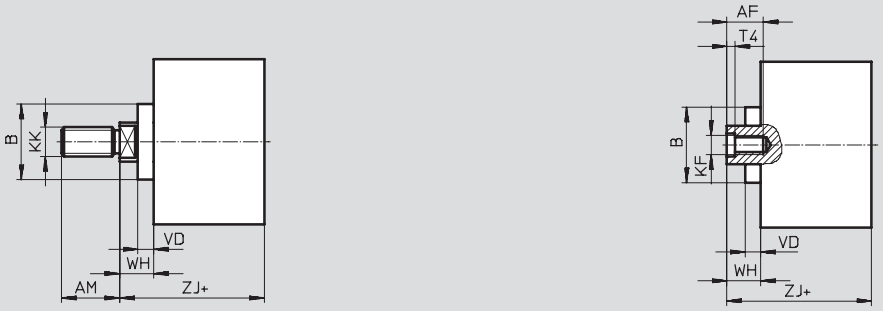
Dimensions – Variants Download CAD data ➔ **www.festo.com/en/engineering**

Basic version



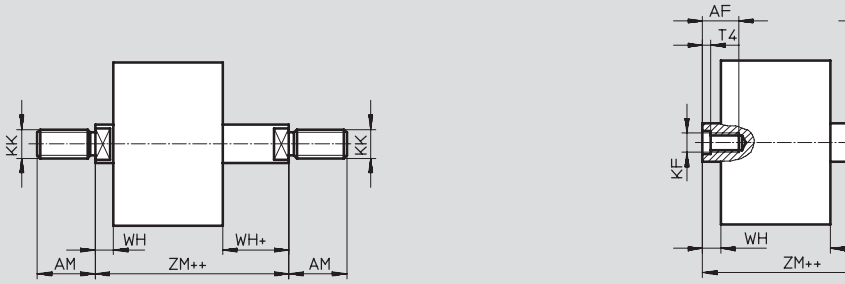
\+ = plus stroke length

R8 – Dust protection



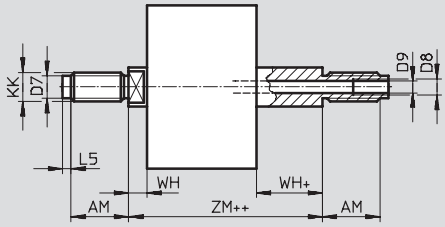
\+ = plus stroke length

S2 – Through piston rod



\+ = plus stroke length
++ = plus 2x stroke length

S20 – Through, hollow piston rod



\+ = plus stroke length
++ = plus 2x stroke length

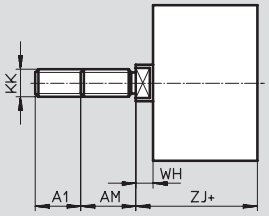
Compact cylinders ADN, to ISO 21287

Technical data

∅	AF	AM	B	D7	D8	D9	L5	KF	KK	T4	VD	WH		ZJ		ZM
			∅	∅								+1	+1			
[mm]	min.	–0.5											R8		R8	
12	8	10	–	–	–	–	–	M3	M5	1.5	–	4.2	–	39.2	–	43.4
16	10	12		4.5		3.2	3	M4	M6			4.9		39.9		44.8
20	14	16	18	6	–	3.8	2	M6	M8	2.6	5.2	5.7	10.85	42.7	48.2	48.4
25														44.7	50.2	50.4
32	16	19	27	8		4.5	3	M8	M10x1.25	3.3	6.4	6.2	12.55	50.2	56.4	56.4
40														51.2	57.4	57.4
50	20	22	31	10		6	3.5	M10	M12x1.25	4.7		8.2	14.65	53.2	59.4	61.4
63														57.2	63.4	65.4
80	20	28	35	–	G⅛	8	–	M12	M16x1.5	6.1		9	15.4	63	69.4	71
100					G¼									76	82.4	84
125	25	40	–		G¼	11.7		M16	M20x1.5	7	–	11	–	92	–	103

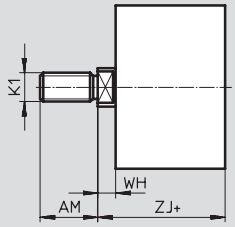
Dimensions – Variants Download CAD data ➔ **www.festo.com/en/engineering**

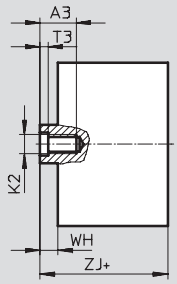
K2 – Extended male piston rod thread



\+ = plus stroke length

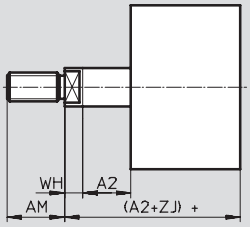
K5 – Special piston rod thread

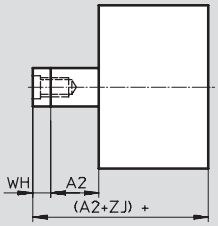




\+ = plus stroke length

K8 – Extended piston rod





Note

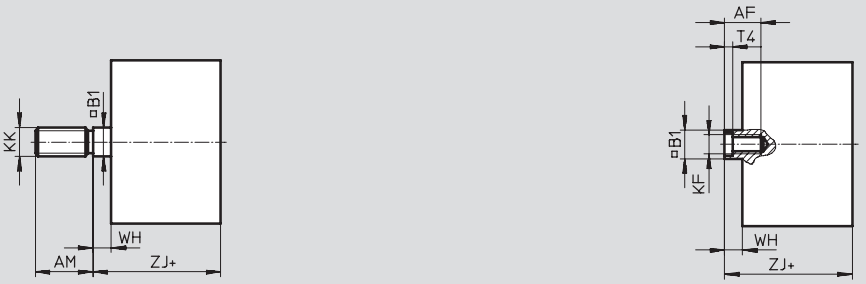
Piston rod extension is performed at one end in combination with the S2/S20 variants (at the square piston rod in combination with the Q variant).

\+ = plus stroke length

∅ [mm]	A1	A2	A3 min.	AM –0.5	K1	K2	KK	T3	WH +1	ZJ +1
12	1 … 10	1 … 300	–	10	M6	–	M5	–	4.2	40
16				12	M8		M6		4.85	
20	1 … 20		12	16	M10	M5	M8	2	5.65	43
					M10x1.25					
25					M10					45
					M10x1.25					
32		1 … 400	14	19	M10	M6	M10x1.25	2.6	6.15	50
					M12					
40					M10					51
					M12					
50			16	22	M12	M8	M12x1.25	3.3	8.25	53
					M16					
63					M12					57
					M16					
80	1 … 30	1 … 500	20	28	M16	M10	M16x1.5	4.7	9	63
					M20					
					M20x1.5					
100					M16					76
					M20					
					M20x1.5					
125	1 … 40		–	40	M20	–	M20x1.5	–	10.8	92

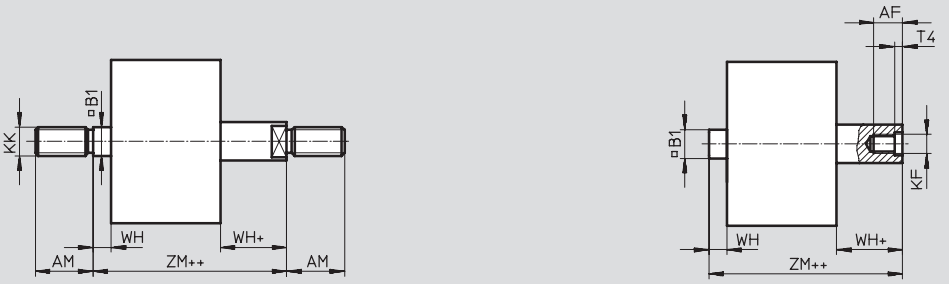
Dimensions – Variants Download CAD data ➔ **www.festo.com/en/engineering**

Q – Square piston rod



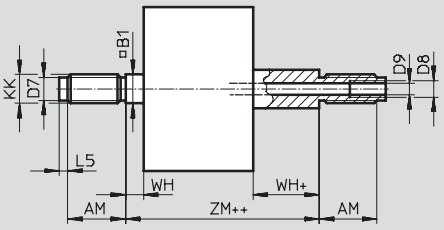
\+ = plus stroke length

Q-S2 – Square, through piston rod



\+ = plus stroke length
++ = plus 2x stroke length

Q-S20 – Square, through, hollow piston rod



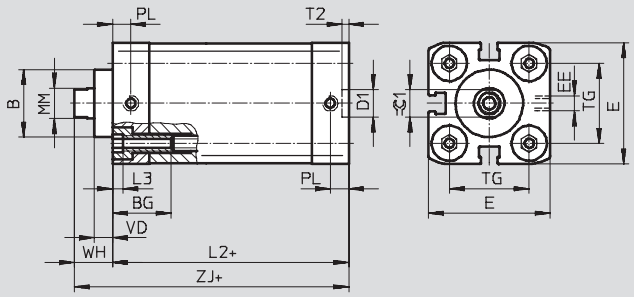
\+ = plus stroke length
++ = plus 2x stroke length

∅ [mm]	AF min.	AM −0.5	B1 □	D7 ∅	D8	D9	KF	KK	L5	T4	WH +1	ZJ +1	ZM
12	8	10	5.5	–	–	–	M3	M5	3	1.5	4.2	39.2	43.4
16	10	12	7	4.5		3.2	M4	M6			4.9	39.9	44.8
20	12	16	9	6		3.8	M5	M8	2	2	5.7	42.7	48.4
25												44.7	50.4
32	14	19	10	8		4.5	M6	M10x1.25	3	2.6	9.2	50.2	56.4
40												51.2	57.4
50	16	22	12	10		6	M8	M12x1.25	3.5	3.3	8.2	53.2	61.4
63												57.2	65.4
80	20	28	16	–	G⅛	8.5	M10	M16x1.5	–	4.7	9	63	71
100						8.8						76	84
125	24	40	20		G¼	11.5	M12	M20x1.5		6.1	11	92	103

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

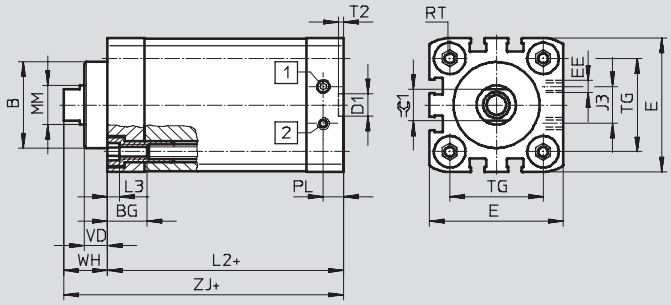
S1 – Reinforced piston rod

∅ 25



\+ = plus stroke length

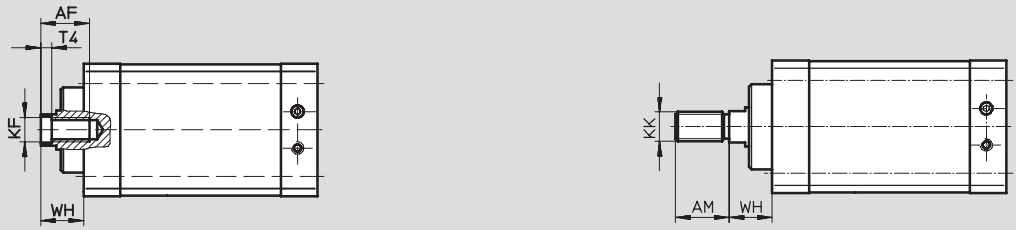
∅ 40 ... 100



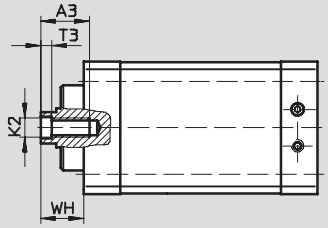
1 Cylinder advancing
2 Cylinder retracting

\+ = plus stroke length

S1 – Reinforced piston rod



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



Compact cylinders ADN, to ISO 21287

Technical data

FESTO

∅ [mm]	A3 min.	AF min.	AM –0.5	B ∅ F8	BG min.	D1 ∅ H9	E +0.3	EE	J3	K2	KF	KK	L2
25	12	14	16	22	15	9	39.5	M5	–	M5	M6	M8	39
40	16	20	22	35	16		54.5		15	M8	M10	M12x1.25	45
63	20		28	42		12	75.5	G1⁄8	23	M10	M12	M16x1.5	49
100	–	25	40	55	17		113.5		40	–	M16	M20x1.5	67

∅ [mm]	L3	MM ∅	PM	RT	T2	T3	T4	TG	VD	WH +1.3	ZJ	⫧1 h13
25	5	10	6	M5	2.1	2	2.6	26	6	11.65	50.65	9
40		16	8.2	M6		3.3	4.7	38	9.5	17.75	62.75	13
63		20		M8	2.6	4.7	6.1	56.5	12	21	70	17
100		25	10.5	M10		–	7	89	15.5	26.3	93.3	21

Compact cylinders ADN, to ISO 21287

Technical data

FESTO

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
	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

Compact cylinders ADN, to ISO 21287

Technical data

FESTO

Ordering data						
Type	Piston ∅ [mm]	Stroke [mm]	Female piston rod thread		Male piston rod thread	
			Part No.	Type	Part No.	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		
		–	Through, hollow piston rod Restricted stroke					2	-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 M12	M10 M12		-"..."K5		
	Female thread	–	–	M5	M5	M6	M6				
Piston rod extended		Extended piston rod									
	[mm]	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

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		50	63	80	100	125	Conditions	Code	Enter Code
0 Type of piston rod		Through piston rod					2	-S2	
		Through, hollow piston rod Restricted stroke					2	-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 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	[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		2	**-...K8**		
	Improved running performance		–	–	Smooth anodised aluminium coated piston rod				3	**-K10**		
	Constant motion	[mm]	Slow speed (constant motion at low piston speeds) Restricted stroke 20 ... 300				20 ... 400		4	**-S10**		
	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

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	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
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						**-S20**		
			Restricted stroke								
		[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 [mm]	Extended male piston rod thread 1 … 20			1 … 30		**-…K2**	
	Special piston rod thread – Male thread	M10x1.25 M10	M10x1.25 M12	M12x1.25 M16	M16x1.5 M20		**-"…"K5**	
	Special piston rod thread – Female thread	M5	M8	M10	–		**-"…"K5**	
	Piston rod extended [mm]	Extended piston rod 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

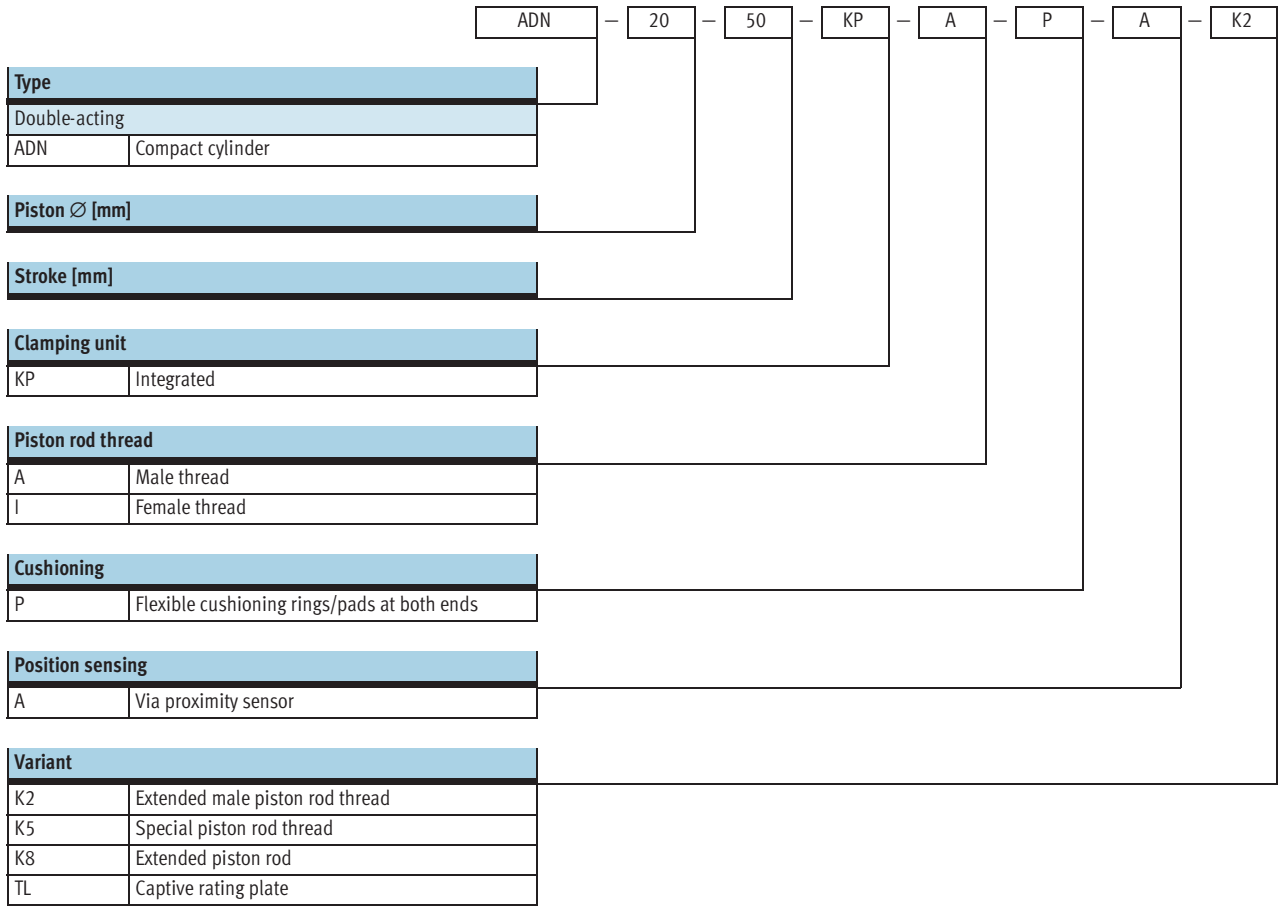
2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

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

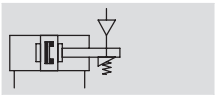
Variant	
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
TL	Captive rating plate

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

Technical data

FESTO

Function



Diameter
20 ... 100 mm

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

Note

This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load. Allowance must also be made for the limits of the cushioning capacity of the drive and the permissible 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

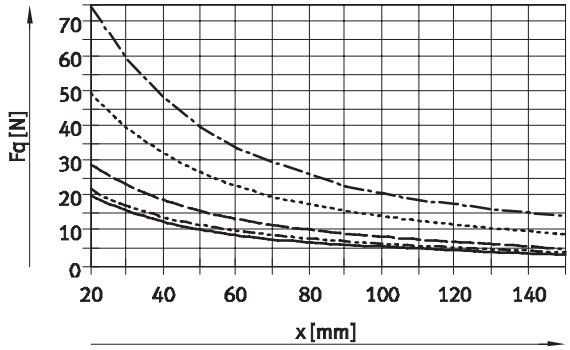
Note

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

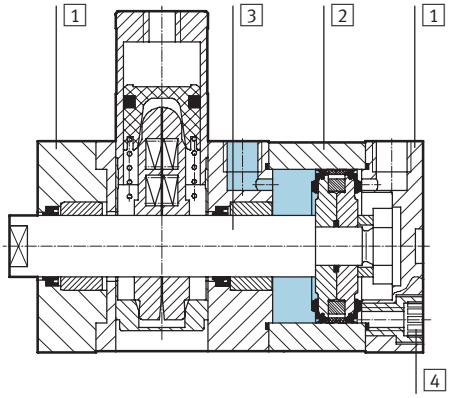
Compact cylinders ADN-KP, standard port pattern, with clamping unit

Technical data

FESTO

Materials

Sectional view

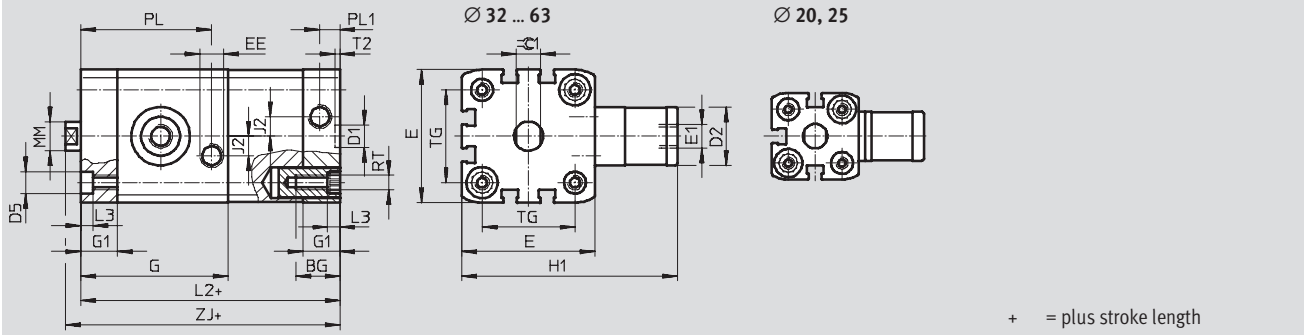


Compact cylinder			
1	Cover		Anodised aluminium
2	Cylinder barrel		Anodised aluminium
3	Piston rod		High-alloy steel
4	Flange	∅ 20 ... 63	Galvanised steel
	screws	∅ 80 ... 100	Standard screws, galvanised steel
–	Seals		Polyurethane, nitrile rubber

Dimensions – Basic version

Download CAD data ➔ **www.festo.com/en/engineering**

∅ 20 ... 63



\+ = plus stroke length

∅ [mm]	BG	D1 ∅ H9	D2 ∅	D5 ∅ F9	E +0.3	E1	EE	G	G1	H1	J2
20	19.5	9	20	9	35.5	M5	M5	49.5	12	75	2.6
25					39.5			50.6			
32	27				47	G1/8	G1/8	56.4	15	80	6
40			24		54.5			60.4		100	8
50		12	30	12	65.5			67.4		115	
63			38		75.5			76.8		130	11.5

∅ [mm]	J3	L2 max.	L3 +0.2	MM ∅ h8	PL	PL1	RT	T2 +0.1	TG ±0.2	ZJ h13	=C1
20	–	74.9	5	10	42.8	6	M5	2.1	22	81.6	9
25		77.7			44.6				26	83.9	
32		85.5		12	49.6	8.2	M6		32.5	92.2	10
40		90.5		16	53.6				38	97.3	13
50		97.5		20	60.6		M8	2.6	46.5	106.4	17
63		110.9			70				56.5	119.7	

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

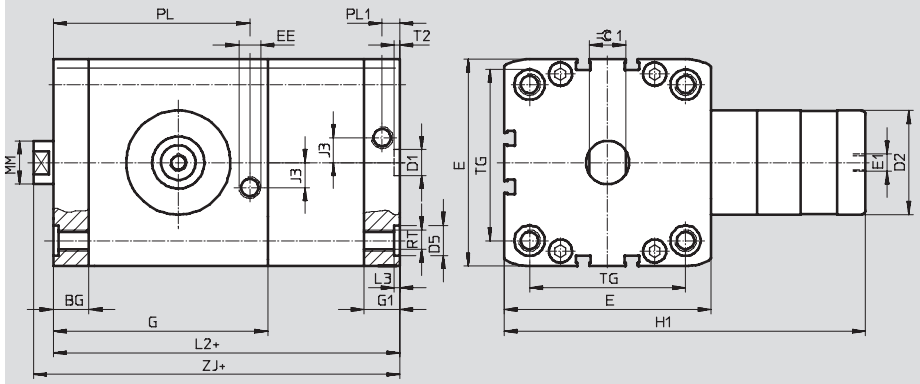
Technical data

FESTO

Dimensions – Basic version

Download CAD data ➔ www.festo.com/en/engineering

∅ 80, 100



\+ = plus stroke length

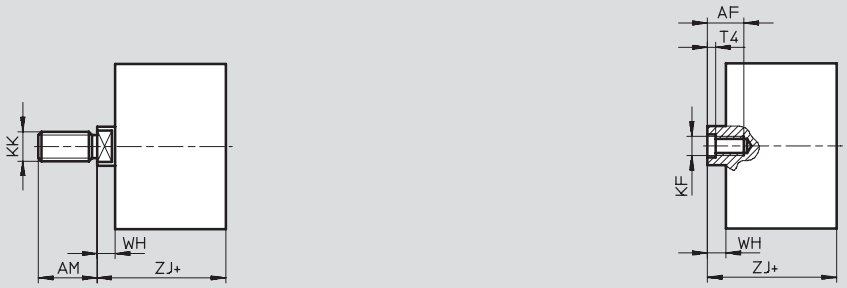
∅ [mm]	BG	D1 ∅ H9	D2 ∅	D5 ∅ F9	E +0.6	E1	EE	G	G1	H1	J2
80	16.5	12	48	15	95.5	G1⁄8	G1⁄8	99	16.5	175	–
100	21.5				113.5			99.6	21.5	185	

∅ [mm]	J3	L2 max.	L3 +0.2	MM ∅ h8	PL	PL1	RT	T2 +0.1	TG ±0.2	ZJ h13	=C1
80	11.5	136.6	2.6	25	90.7	8.2	M10	2.6	72	146.2	21
100	20	145.2			88.6	10.5			89	154.9	

Dimensions – Variants

Download CAD data ➔ www.festo.com/en/engineering

Basic version



\+ = plus stroke length

∅ [mm]	AF min.	AM	KF	KK	T4 min.	WH +1	ZJ
20	14	16	M6	M6	2.6	5.7	81.6
25				M8			83.9
32	16	19	M8	M10x1.25	3.3	6.15	92.2
40						6.8	97.3
50	20	22	M10	M12x1.25	4.7	8.85	106.4
63						8.8	119.7
80		28		M16x1.5	6.1	9.55	146.2
100						9.7	154.9

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

FESTO

Ordering data – Modular products

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	Condi-tions	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	Condi-tions	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		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

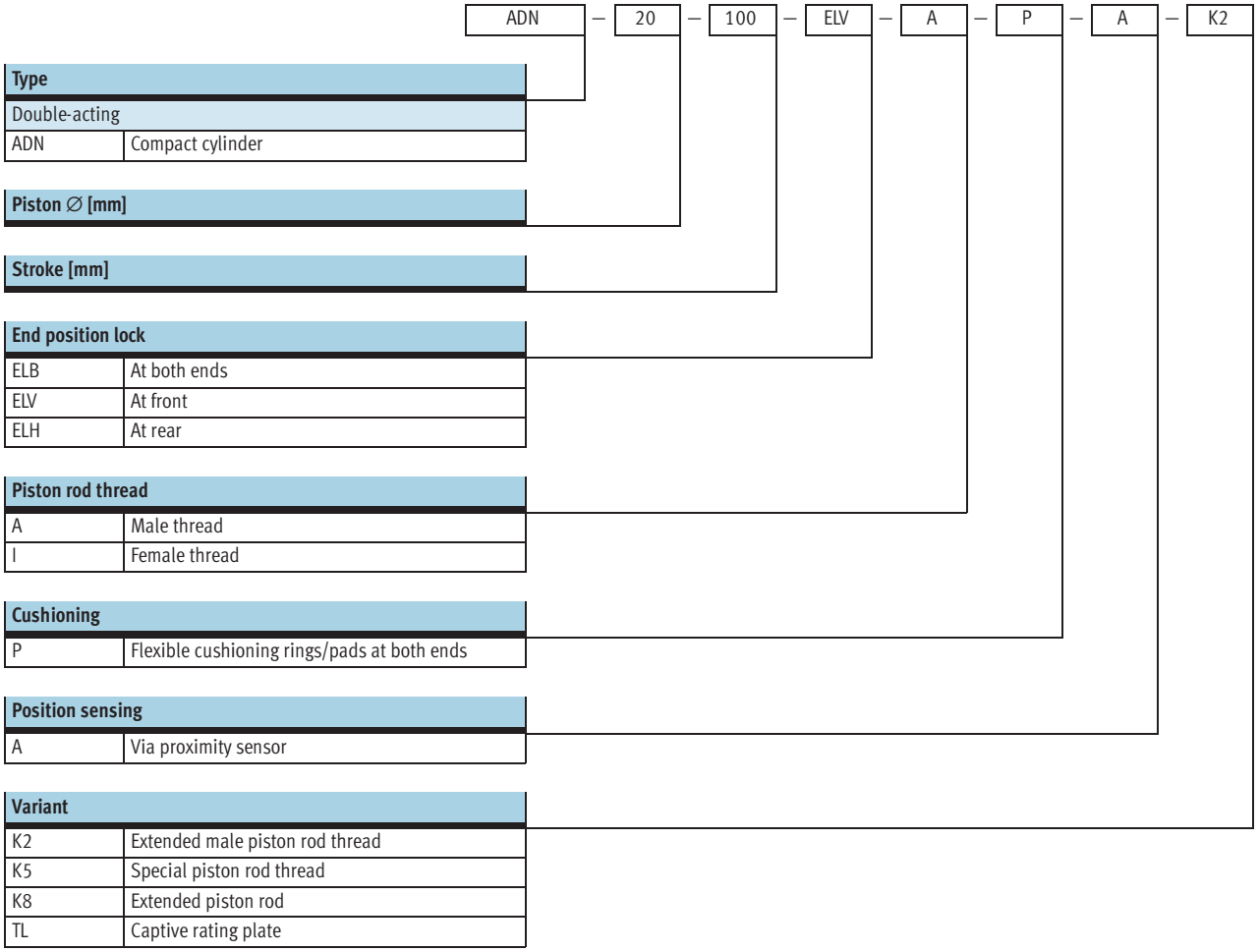
2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–		–		–		–	

Compact cylinders 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

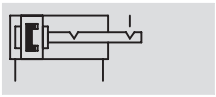
Variant	
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
TL	Captive rating plate

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

Technical data

FESTO

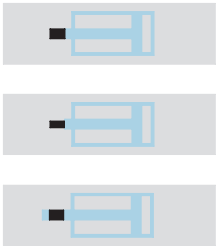
Function



Diameter
20 ... 100 mm

Stroke length
10 ... 500 mm

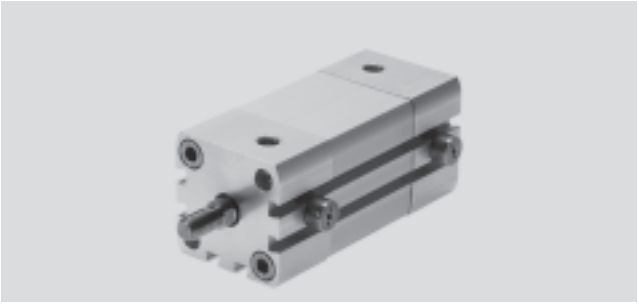
Variants



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

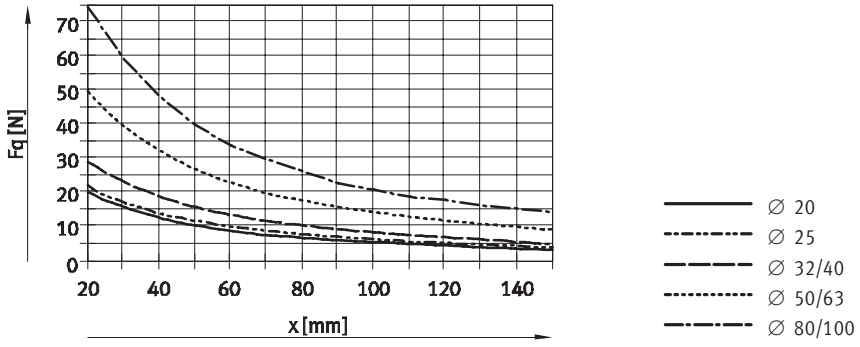
Permissible impact velocity: $v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{dead} + m_{load}}}$

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

Note

This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load. Allowance must also be made for the limits of the cushioning capacity of the drive and the permissible impact energy.

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



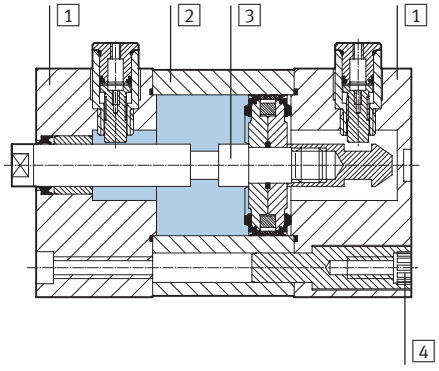
Compact cylinders ADN-EL, standard port pattern, with end position lock

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	∅ 20 ... 63	Galvanised steel
	screws	∅ 80 ... 100	Standard screws, galvanised steel
–	Seals		Polyurethane, nitrile rubber

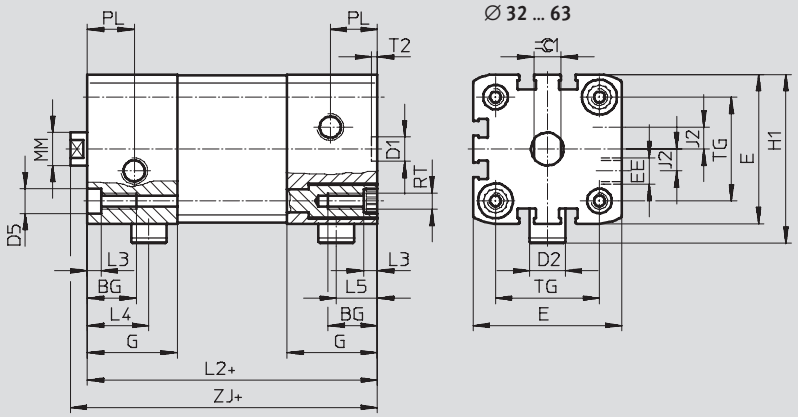
Compact cylinders ADN-EL, standard port pattern, with end position lock

Technical data

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

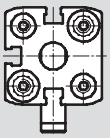
ELB – End position lock at both ends

∅ 20 ... 63



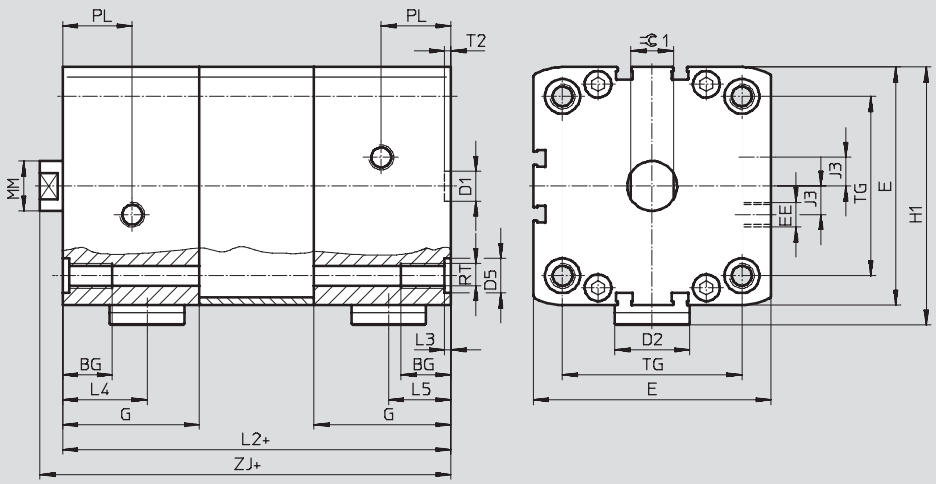
∅ 32 ... 63

∅ 20, 25



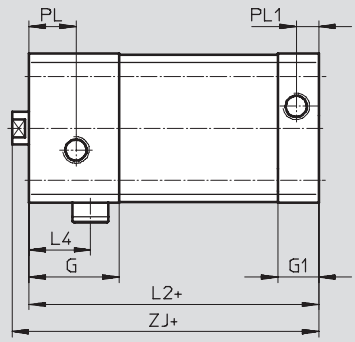
\+ = plus stroke length

∅ 80 ... 100

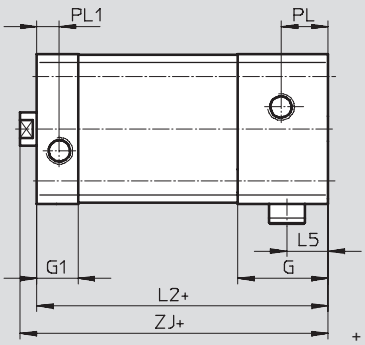


\+ = plus stroke length

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

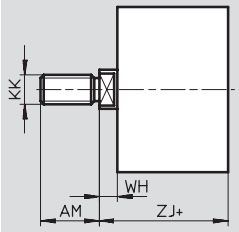
∅ [mm]	BG	D1 ∅ H9	D2 ∅	D5 ∅ F9	E +0.3	EE	G	G1	H1	J2	L2 ELB	L2 ELV, ELH
20	18	9	9	9	35.5	M5	25	12	45.5	2.6	63	50
25			13		39.5		29.5		53.3		74	56.5
32					47	G1⅛	33	15	58	6	80	62
40					54.5				61.8	8	81	63
50	20	12	20	12	65.5		43		77		101	73
63					75.5				82	11.5	105	77
80			30	15	95.5		55	16.5	103.5		131	92.5
100					113.5		57	21.5	113.5	20	138	102.5

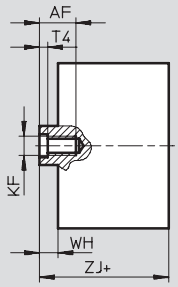
∅ [mm]	L3 +0.2	L4 max.	L5	MM ∅ h8	PL	PL1	RT	T2 +0.1	TG ±0.2	ZJ ELB	ZJ ELV, ELH	⌀1 h13
20	5	18.5	12.5	10	6	6	M5	2.1	22	69	56	9
25		20.8	14						26	80	62.5	
32		22.5	15	12	16	8.2	M6		32.5	86	68	10
40									38	87	69	
50		27.5	20.5	16	21		M8	2.6	46.5	109	81	13
63									56.5	113	85	
80	2.6	34	25	20	28		M10		72	140	101.5	17
100		35	27			10.5			89	147	111.5	

Dimensions – Variants

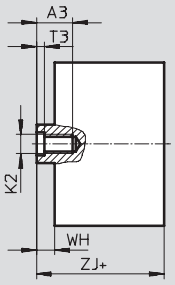
Download CAD data ➔ **www.festo.com/en/engineering**

Basic version





K5 – Special piston rod thread



\+ = plus stroke length

∅ [mm]	A3	AF	AM	K2	KF	KK	T3 min.	T4 min.	WH +1	ZJ ELB	ZJ ELV, ELH
20	12	14	16	M5	M6	M8	2	2.6	5.7	69	56
25										80	62.5
32	14	16	19	M6	M8	M10x1.25	2.6	3.3	6.2	86	68
40										87	69
50	16	20	22	M8	M10	M12x1.25	3.3	4.7	8.2	109	81
63										113	85
80	20		28	M10	M12	M16x1.5	4.7	6.1	9	140	101.5
100										147	111.5

New

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

FESTO

Ordering data – Modular products

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

➔ O **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	Conditions	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
O	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

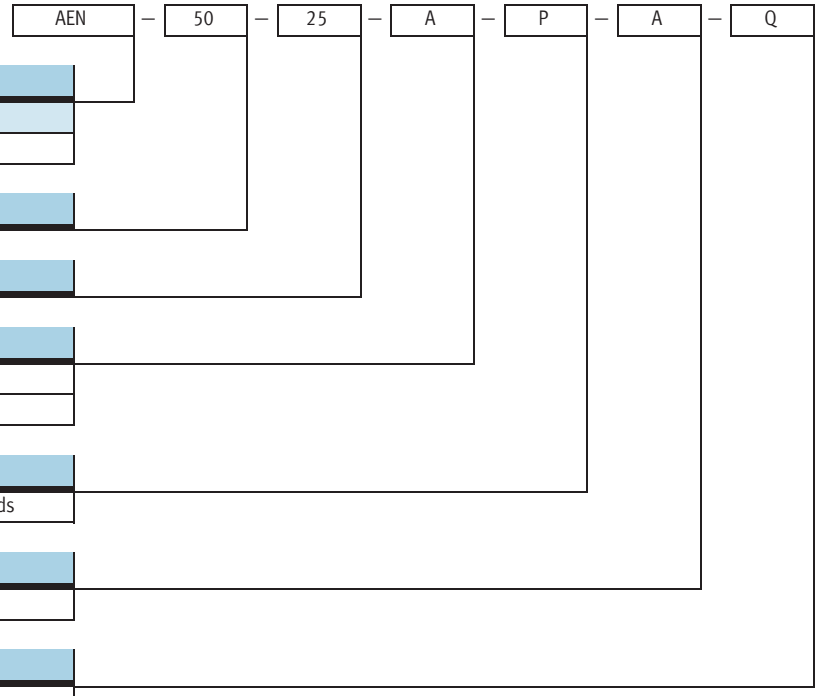
2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

– | | – | | – | | – | |

Compact cylinders 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

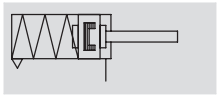
Variant	
Z	Single-acting, pulling
Q	Square piston rod
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
K10	Smooth anodised piston rod
S6	Heat-resistant seals up to max. 120 °C
TL	Captive rating plate

Compact cylinders AEN, to ISO 21287

Technical data

FESTO

Function



- Diameter
  12 ... 100 mm
- Stroke length
  1 ... 25 mm
- www.festo.com/en/
  Spare_parts_service

Variants

S6

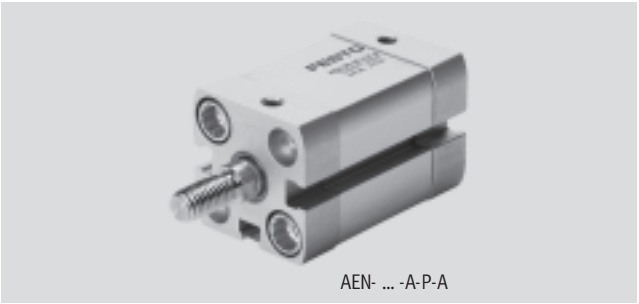
K2

K5

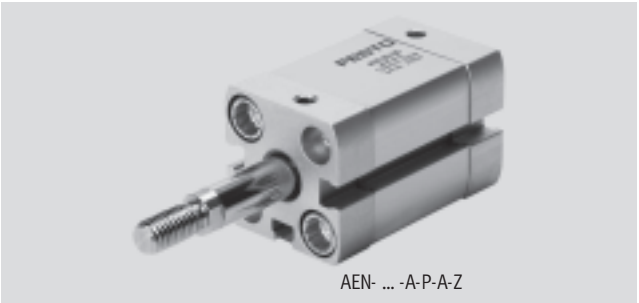
K8

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

Compact cylinders AEN, to ISO 21287

Technical data

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:

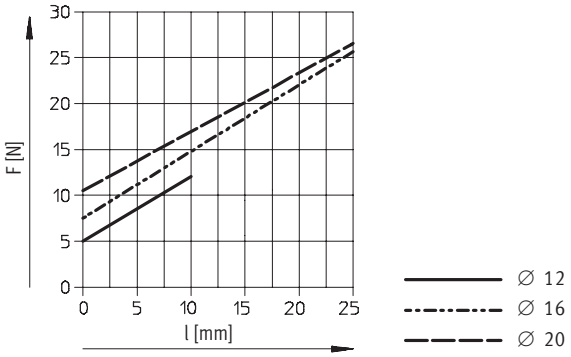
$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

- Note

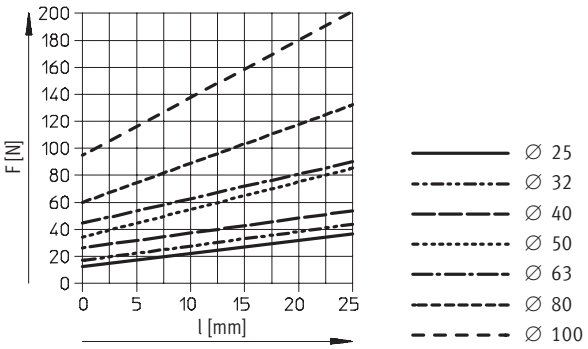
This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load. Allowance must also be made for the limits of the cushioning capacity of the drive and the permissible impact energy.

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.

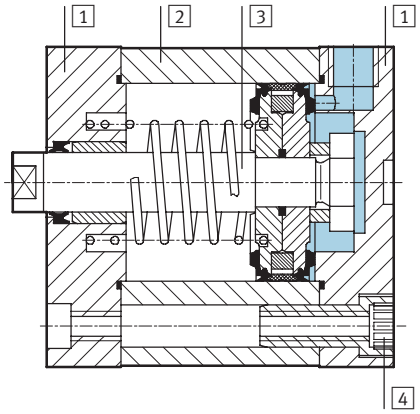
Compact cylinders AEN, to ISO 21287

Technical data

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

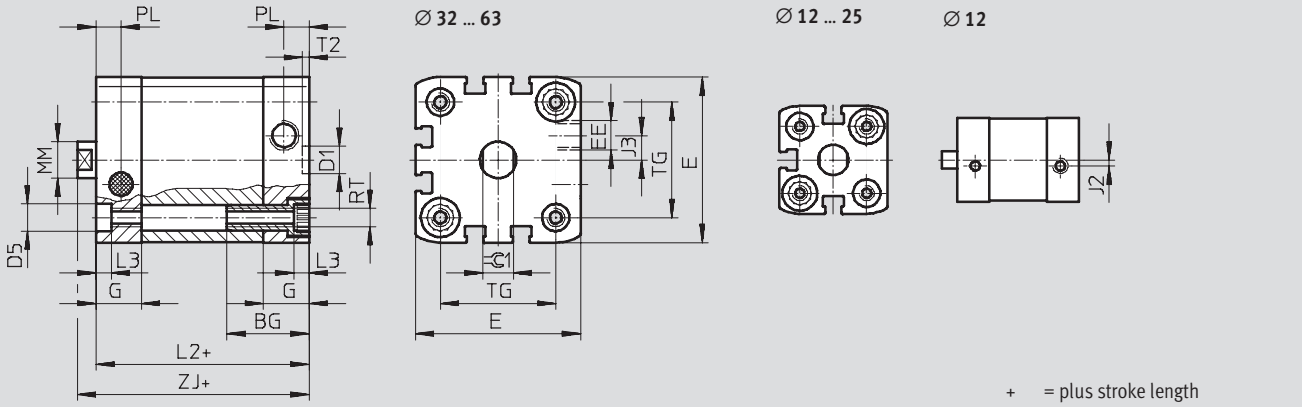
Sectional view



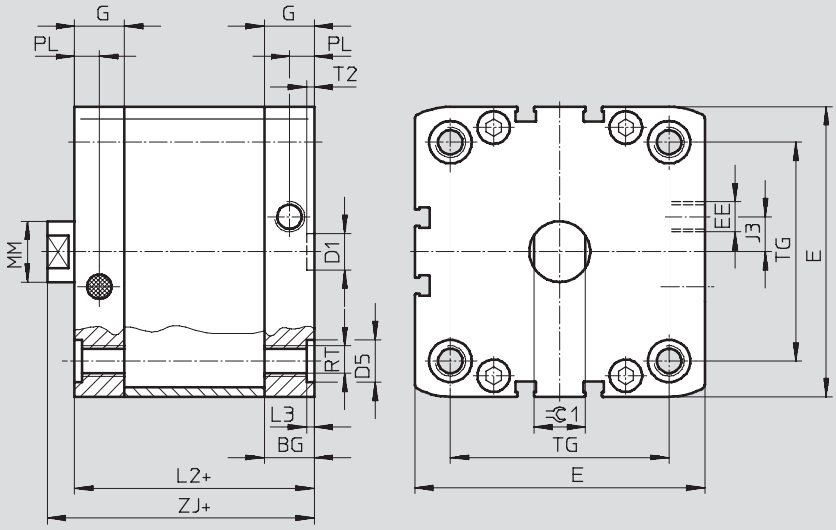
Compact cylinder			Basic version	S6
1	Cover		Anodised aluminium	
2	Cylinder barrel		Anodised aluminium	
3	Piston rod		High-alloy steel	
4	Flange screws	∅ 12 ... 16	High-alloy steel	
		∅ 20 ... 63	Galvanised steel	
		∅ 80 ... 100	Standard screws, galvanised steel	
–	Seals		Polyurethane	Fluoro elastomer

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

∅ 12 ... 63



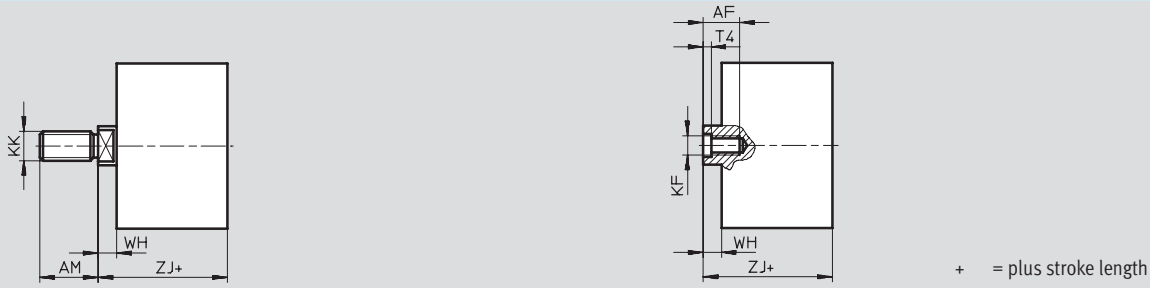
∅ 80 ... 100



∅ [mm]	BG	D1 ∅ H9	D5 ∅ F9	E	EE	G	J2	J3	L2 max.	L3 +0.2	MM ∅ h8	PL +0.2	RT	T2 +0.1	TG ±0.2	ZJ +1	⌀1 h13
12	17	9	6	$27.5^{+0.3}$	M5	10.5	2	–	35	3.5	6	6	M4	2.1	16	39.2	5
16				$29^{+0.3}$		11	–	2.6			8				18	39.9	7
20	19.5		9	$35.5^{+0.3}$		12			37	5	10		M5		22	42.7	9
25				$39.5^{+0.3}$					39						26	44.7	
32	27			$47^{+0.3}$	G⅛	15		6	44		12	8.2	M6		32.5	50.2	10
40				$54.5^{+0.3}$				8	45						38	51.2	
50		12	12	$65.5^{+0.3}$							16		M8	2.6	46.5	53.2	13
63				$75.5^{+0.3}$				11.5	49						56.5	57.2	
80	17		15	$95.5^{+0.6}$		16.5			54	2.6	20		M10		72	63	17
100	21.5			$113.5^{+0.6}$		21.5		20	67			10.5			89	76	

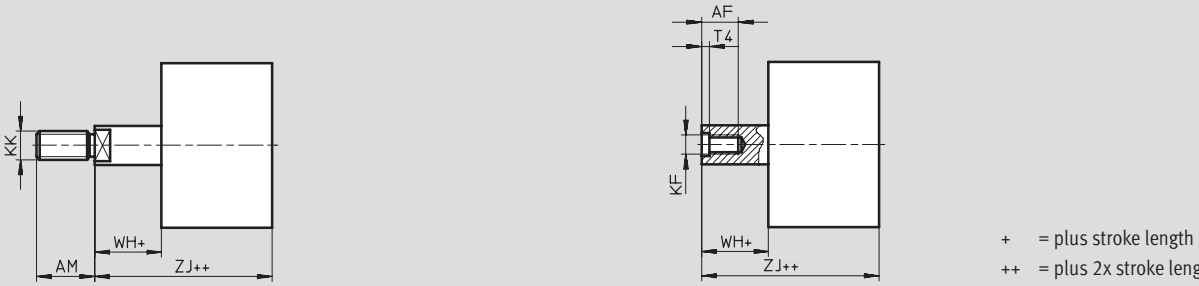
Dimensions – Variants Download CAD data ➔ **www.festo.com/en/engineering**

Basic version



\+ = plus stroke length

Z – Pulling



\+ = plus stroke length

++ = plus 2x stroke length

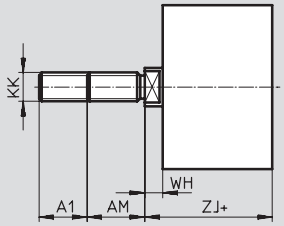
∅ [mm]	AF min.	AM −0.5	KF	KK	T4	WH +1	ZJ +1
12	8	10	M3	M5	1.5	4.2	39.2
16	10	12	M4	M6		4.9	39.9
20	14	16	M6	M8	2.6	5.7	42.7
25							44.7
32	16	19	M8	M10x1.25	3.3	6.2	50.2
40							51.2
50	20	22	M10	M12x1.25	4.7	8.2	53.2
63							57.2
80		28	M12	M16x1.5	6.1	9	63
100							76

Compact cylinders AEN, to ISO 21287

Technical data

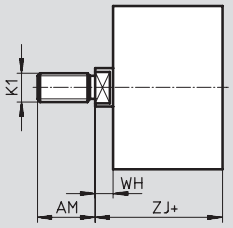
Dimensions – Variants Download CAD data ➔ **www.festo.com/en/engineering**

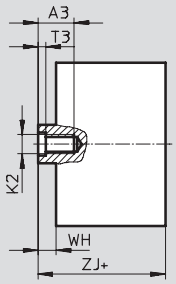
K2 – Extended male piston rod thread



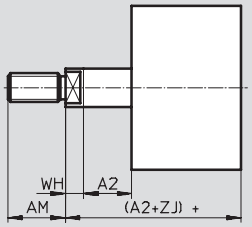
\+ = plus stroke length

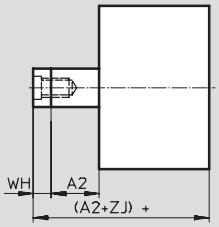
K5 – Special piston rod thread





K8 – Extended piston rod

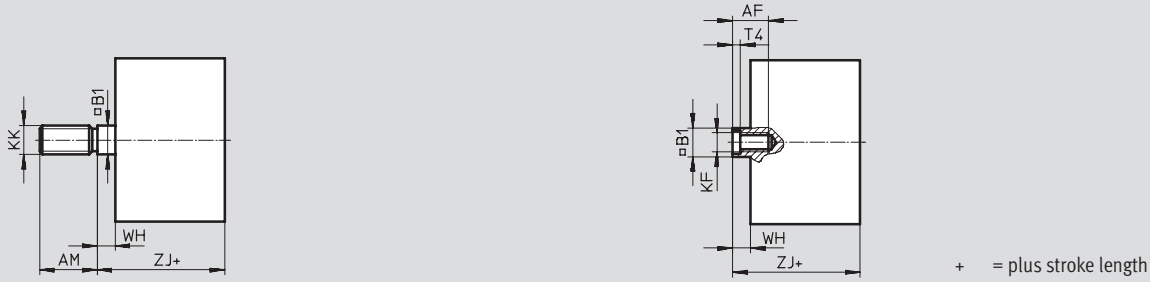




∅ [mm]	A1	A2	A3 min.	AM −0.5	K1	K2	KK	T3	WH +1	ZJ +1
12	1 … 10	1 … 10	–	10	M6	–	M5	–	4.2	39.2
16				12	M8		M6		4.9	39.9
20	1 … 20	1 … 25	14	16	M10	M5	M8	2	5.7	42.7
					M10x1.25					
25					M10					44.7
					M10x1.25					
32			16	19	M10	M6	M10x1.25	2.6	6.2	50.2
					M12					
40					M10					51.2
					M12					
50			20	22	M12	M8	M12x1.25	3.3	8.2	53.2
					M16					
63					M12					57.2
					M16					
80	1 … 30			28	M16	M10	M16x1.5	4.7	9	63
					M20					
					M20x1.5					
100					M16					76
					M20					
					M20x1.5					

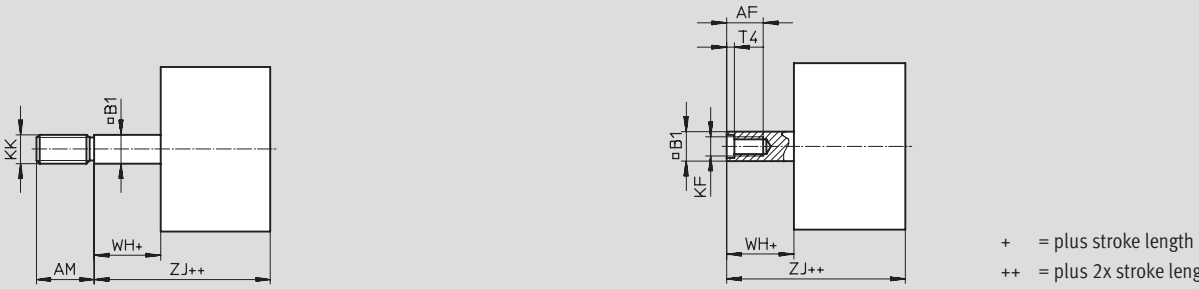
Dimensions – Variants Download CAD data ➔ **www.festo.com/en/engineering**

Q – Square piston rod



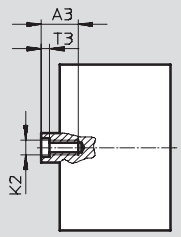
\+ = plus stroke length

Z – Pulling



\+ = plus stroke length
++ = plus 2x stroke length

Q-K5 – Square piston rod with special piston rod thread



∅ [mm]	A3 min.	AF min.	AM –0.5	B1 □	K2	KF	KK	T3	T4	WH +1	ZJ +1
16	–	10	12	7	–	M4	M6	–	1.5	4.9	39.9
20	12	12	16	9	M5	M5	M8	2	2	5.7	42.7
25											44.7
32	14	14	19	10	M6	M6	M10x1.25	2.6	2.6	6.2	50.2
40											51.2
50	16	16	22	12	M8	M8	M12x1.25	3.3	3.3	8.2	53.2
63											57.2
80	20	20	28	16	M10	M10	M16x1.5	4.7	4.7	9	63
100											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

➔ O **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	Condi-tions	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**		
	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

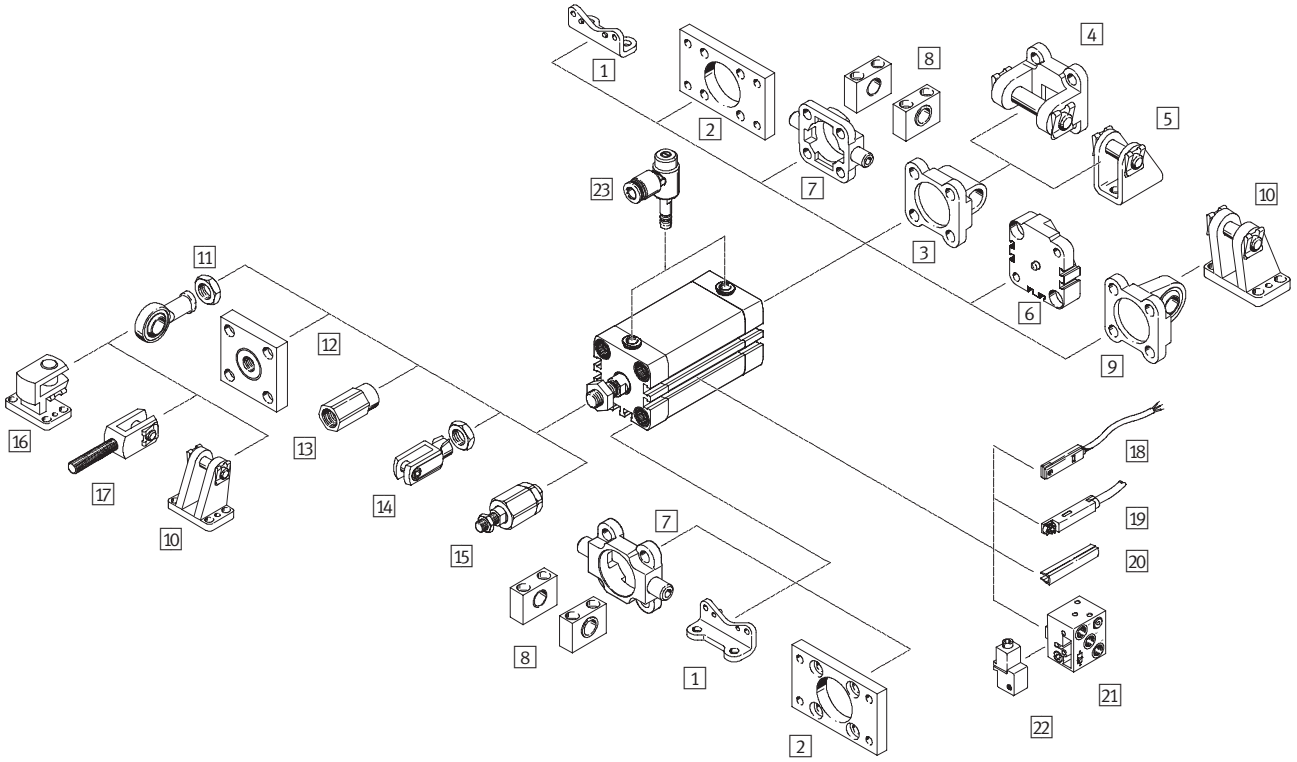
2 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–		–	Q	–		–		–		–		–	

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

Peripherals overview



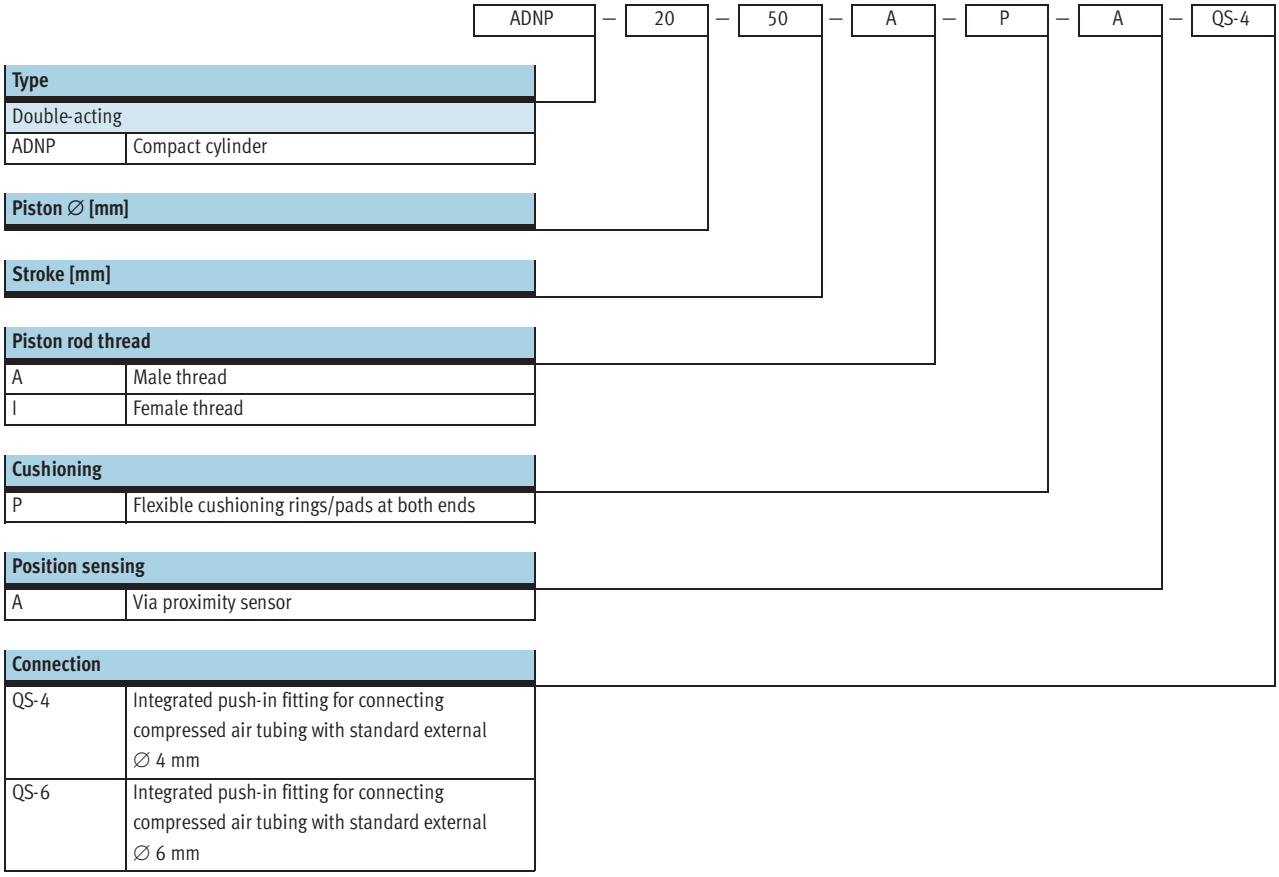
Compact cylinders ADNP, to ISO 21287, with polymer end caps

Peripherals overview

Mounting attachments and accessories		
	Brief description	**→ Page**
1 Foot mounting HNA	For bearing or end caps	106
2 Flange mounting FNC	For bearing or end caps	107
3 Swivel flange SNCL	For end caps	108
4 Swivel flange SNCB	For swivel flange SNCL	112
5 Clevis foot LBN/CRLBN	For swivel flange SNCL	111
6 Multi-position kit DPNA	For connecting two cylinders with identical piston ∅ to form a multi-position cylinder	110
7 Trunnion flange ZNCF/CRZNG	For bearing caps	113
8 Trunnion support LNZG	For trunnion flange ZNCF/CRZNG	114
9 Swivel flange SNCS	For end caps	109
10 Clevis foot LBG	For swivel flange SNCS	109
11 Rod eye SGS/CRSGS	With spherical bearing	115
12 Coupling piece KSG/KSZ	For compensating radial deviations	115
13 Adapter AD	For mounting a vacuum suction cup on a hollow cylinder piston rod	115
14 Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	115
15 Self-aligning rod coupler FK	For compensating radial and angular deviations	115
16 Right-angle clevis foot LQG	For rod eye SGS	116
17 Rod clevis SGA	With male thread	115
18 Proximity sensor SME/SMT-8	Can be integrated in the sensor slot of the cylinder profile barrel	118
19 Proximity sensor SME/SMT-8M	Can be integrated in the sensor slot of the cylinder profile barrel	118
20 Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	118
21 Proximity sensor SMPO-8E	Pneumatic output signal	118
22 Mounting kit SMB-8E	For proximity sensor SMPO-8E	118
23 One-way flow control valve VFOC	For speed regulation	117

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

Type codes



Type	
Double-acting	
ADNP	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

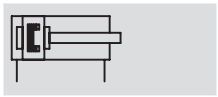
Connection	
QS-4	Integrated push-in fitting for connecting compressed air tubing with standard external ∅ 4 mm
QS-6	Integrated push-in fitting for connecting compressed air tubing with standard external ∅ 6 mm

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

Technical data

FESTO

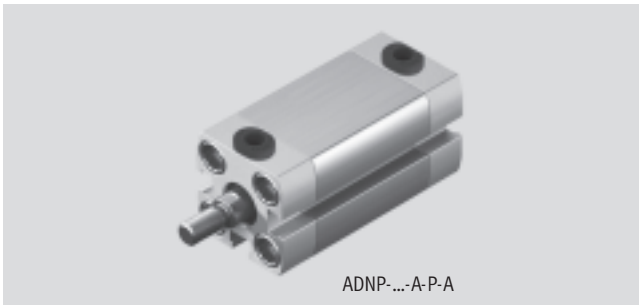
Function



Diameter
20 ... 50 mm

Stroke length
5 ... 80 mm

www.festo.com/en/
Spare_parts_service



ADNP-...-A-P-A

ADNP-...-I-P-A

General technical data						
Piston ∅		20	25	32	40	50
Pneumatic connection		QS-4	QS-4	QS-6	QS-6	QS-6
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

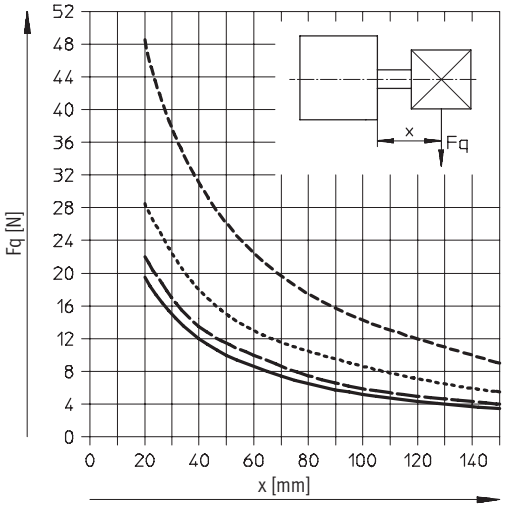
1) Note operating range of proximity sensors
2) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such 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

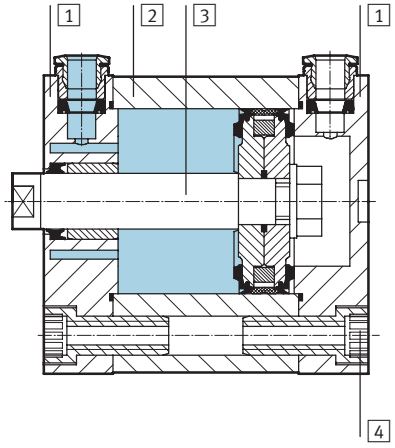


∅ 20
∅ 25
∅ 32/40
∅ 50

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

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

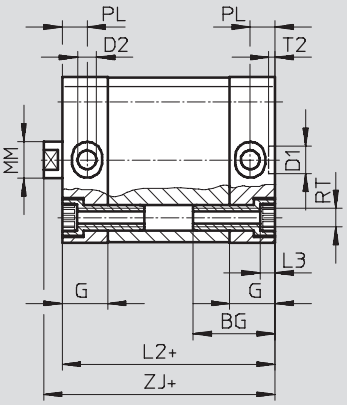
Technical data

FESTO

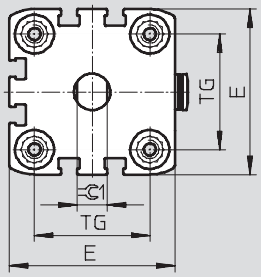
Dimensions – Basic version

Download CAD data ➔ www.festo.com/en/engineering

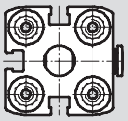
∅ 20 ... 50



∅ 32 ... 50



∅ 20 ... 25



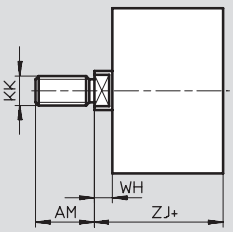
\+ = plus stroke length

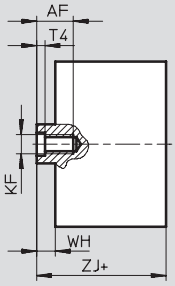
∅ [mm]	BG	D1 ∅ H9	D2 ∅	E +0.3	G	L2 max.	L3	MM ∅	PL	RT	T2	TG ±0.2	ZJ	⌭1
20	19.5	9	4	35.5	12	37	5	10	6	M5	2.1	22	42,7	8
25				39.5		39						26	44,7	
32	26		6	47	15	44		12	8.2	M6		32.5	50,2	10
40				54.5		45						38	51,2	
50	27	12		65.5				16		M8	2.6	46.5	53,2	13

Dimensions – Variants

Download CAD data ➔ www.festo.com/en/engineering

Basic version





\+ = plus stroke length

∅ [mm]	AF min.	AM −0.5	D9	KF	KK	T4	WH +1	ZJ +1
20	14	16	3.8	M6	M8	2.6	5.7	42,7
25								44,7
32	16	19	4.5	M8	M10x1.25	3.3	6.2	50,2
40								51,2
50	20	22	6	M10	M12x1.25	4.7	8.2	53,2

New

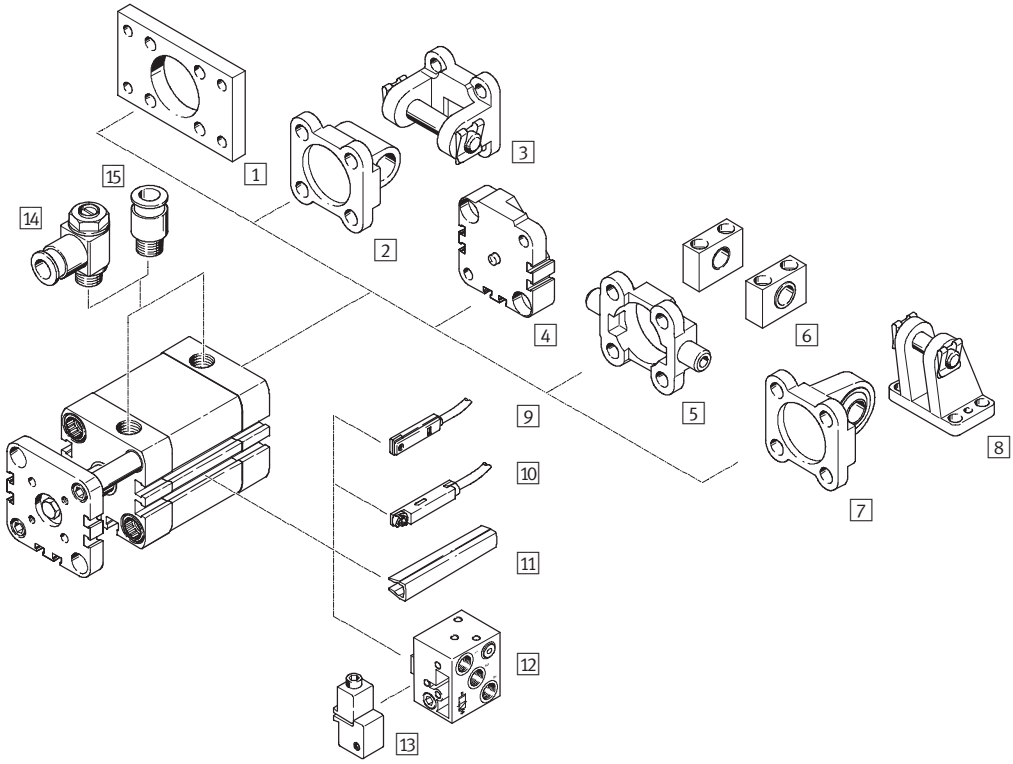
Compact cylinders ADNP, to ISO 21287, with polymer end caps

Technical data

Ordering data						
Type	Piston ∅ [mm]	Stroke [mm]	Female piston rod thread		Male piston rod thread	
			Part No.	Type	Part No.	Type
	20	5	539 435	ADNP-20-5-I-P-A-QS-4	539 390	ADNP-20-5-A-P-A-QS-4
		10	539 436	ADNP-20-10-I-P-A-QS-4	539 391	ADNP-20-10-A-P-A-QS-4
		15	539 437	ADNP-20-15-I-P-A-QS-4	539 392	ADNP-20-15-A-P-A-QS-4
		20	539 438	ADNP-20-20-I-P-A-QS-4	539 393	ADNP-20-20-A-P-A-QS-4
		25	539 439	ADNP-20-25-I-P-A-QS-4	539 394	ADNP-20-25-A-P-A-QS-4
		30	539 440	ADNP-20-30-I-P-A-QS-4	539 395	ADNP-20-30-A-P-A-QS-4
		40	539 441	ADNP-20-40-I-P-A-QS-4	539 396	ADNP-20-40-A-P-A-QS-4
		50	539 442	ADNP-20-50-I-P-A-QS-4	539 397	ADNP-20-50-A-P-A-QS-4
		60	539 443	ADNP-20-60-I-P-A-QS-4	539 398	ADNP-20-60-A-P-A-QS-4
	25	5	539 444	ADNP-25-5-I-P-A-QS-4	539 399	ADNP-25-5-A-P-A-QS-4
		10	539 445	ADNP-25-10-I-P-A-QS-4	539 400	ADNP-25-10-A-P-A-QS-4
		15	539 446	ADNP-25-15-I-P-A-QS-4	539 401	ADNP-25-15-A-P-A-QS-4
		20	539 447	ADNP-25-20-I-P-A-QS-4	539 402	ADNP-25-20-A-P-A-QS-4
		25	539 448	ADNP-25-25-I-P-A-QS-4	539 403	ADNP-25-25-A-P-A-QS-4
		30	539 449	ADNP-25-30-I-P-A-QS-4	539 404	ADNP-25-30-A-P-A-QS-4
		40	539 450	ADNP-25-40-I-P-A-QS-4	539 405	ADNP-25-40-A-P-A-QS-4
		50	539 451	ADNP-25-50-I-P-A-QS-4	539 406	ADNP-25-50-A-P-A-QS-4
		60	539 452	ADNP-25-60-I-P-A-QS-4	539 407	ADNP-25-60-A-P-A-QS-4
	32	10	539 453	ADNP-32-10-I-P-A-QS-6	539 408	ADNP-32-10-A-P-A-QS-6
		15	539 454	ADNP-32-15-I-P-A-QS-6	539 409	ADNP-32-15-A-P-A-QS-6
		20	539 455	ADNP-32-20-I-P-A-QS-6	539 410	ADNP-32-20-A-P-A-QS-6
		25	539 456	ADNP-32-25-I-P-A-QS-6	539 411	ADNP-32-25-A-P-A-QS-6
		30	539 457	ADNP-32-30-I-P-A-QS-6	539 412	ADNP-32-30-A-P-A-QS-6
		40	539 458	ADNP-32-40-I-P-A-QS-6	539 413	ADNP-32-40-A-P-A-QS-6
		50	539 459	ADNP-32-50-I-P-A-QS-6	539 414	ADNP-32-50-A-P-A-QS-6
		60	539 460	ADNP-32-60-I-P-A-QS-6	539 415	ADNP-32-60-A-P-A-QS-6
		80	539 461	ADNP-32-80-I-P-A-QS-6	539 416	ADNP-32-80-A-P-A-QS-6
	40	10	539 462	ADNP-40-10-I-P-A-QS-6	539 417	ADNP-40-10-A-P-A-QS-6
		15	539 463	ADNP-40-15-I-P-A-QS-6	539 418	ADNP-40-15-A-P-A-QS-6
		20	539 464	ADNP-40-20-I-P-A-QS-6	539 419	ADNP-40-20-A-P-A-QS-6
		25	539 465	ADNP-40-25-I-P-A-QS-6	539 420	ADNP-40-25-A-P-A-QS-6
		30	539 466	ADNP-40-30-I-P-A-QS-6	539 421	ADNP-40-30-A-P-A-QS-6
		40	539 467	ADNP-40-40-I-P-A-QS-6	539 422	ADNP-40-40-A-P-A-QS-6
		50	539 468	ADNP-40-50-I-P-A-QS-6	539 423	ADNP-40-50-A-P-A-QS-6
		60	539 469	ADNP-40-60-I-P-A-QS-6	539 424	ADNP-40-60-A-P-A-QS-6
		80	539 470	ADNP-40-80-I-P-A-QS-6	539 425	ADNP-40-80-A-P-A-QS-6
	50	10	539 471	ADNP-50-10-I-P-A-QS-6	539 426	ADNP-50-10-A-P-A-QS-6
		15	539 472	ADNP-50-15-I-P-A-QS-6	539 427	ADNP-50-15-A-P-A-QS-6
		20	539 473	ADNP-50-20-I-P-A-QS-6	539 428	ADNP-50-20-A-P-A-QS-6
		25	539 474	ADNP-50-25-I-P-A-QS-6	539 429	ADNP-50-25-A-P-A-QS-6
		30	539 475	ADNP-50-30-I-P-A-QS-6	539 430	ADNP-50-30-A-P-A-QS-6
		40	539 476	ADNP-50-40-I-P-A-QS-6	539 431	ADNP-50-40-A-P-A-QS-6
		50	539 477	ADNP-50-50-I-P-A-QS-6	539 432	ADNP-50-50-A-P-A-QS-6
		60	539 478	ADNP-50-60-I-P-A-QS-6	539 433	ADNP-50-60-A-P-A-QS-6
		80	539 479	ADNP-50-80-I-P-A-QS-6	539 434	ADNP-50-80-A-P-A-QS-6

Compact cylinders ADNGF, standard port pattern

Peripherals overview



Mounting attachments and accessories			
		Brief description	➔ Page
1	Flange mounting FNC	For end caps	107
2	Swivel flange SNCL	For end caps	108
3	Swivel flange SNCB	For end caps	112
4	Multi-position kit DPNA	For connecting two cylinders with identical piston ∅ to form a multi-position cylinder	110
5	Trunnion flange ZNCF/CRZNG	For end caps	113
6	Trunnion support LNZG	For trunnion flange ZNCF/CRZNG	114
7	Swivel flange SNCS	For end caps	109
8	Clevis foot LBG	For swivel flange SNCS	109
9	Proximity sensor SME/SMT-8	Can be integrated in the sensor slot of the cylinder profile barrel	118
10	Proximity sensor SME/SMT-8M	Can be integrated in the sensor slot of the cylinder profile barrel	118
11	Slot cover ABP-5-S	To protect the sensor cable and keep dirt out of the sensor slots	118
12	Proximity sensor SMPO-8E	Pneumatic output signal	118
13	Mounting kit SMB-8E	For proximity sensor SMPO-8E	118
14	One-way flow control valve GRLA/GRLZ	For speed regulation	116
15	Push-in fitting QS	For connecting compressed air tubing with standard external diameters	www.festo.com

Compact cylinders ADNGF, standard port pattern

Type codes

ADNGF	–	50	–	25	–	P	–	A	–	S6

Type	
Double-acting	
ADNGF	Compact cylinder

Piston ∅ [mm]

Stroke [mm]

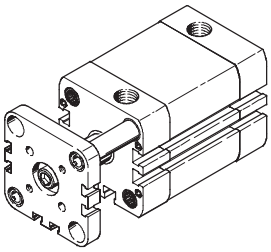
Cushioning	
P	Flexible cushioning rings/pads at both ends

Position sensing	
A	Via proximity sensor

Variant	
S2	Through piston rod
S6	Heat-resistant seals up to max. 120 °C
TL	Captive rating plate

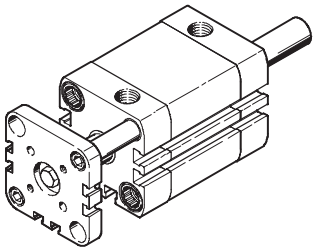
With guide rods and yoke plate

ADNGF-...



With guide rods, yoke plate and through piston rod

ADNGF-...-S2

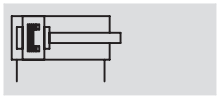


Compact cylinders ADNGF, standard port pattern

Technical data

FESTO

Function



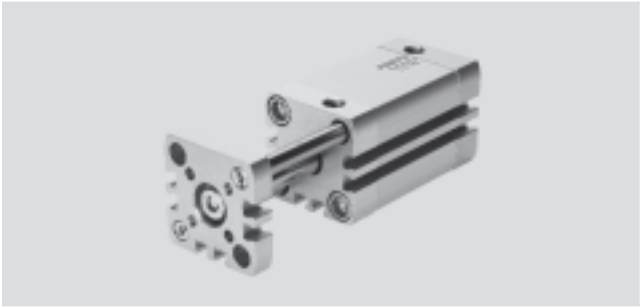
Diameter
12 ... 100 mm

Stroke length
1 ... 400 mm

Variants

S2

S6



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
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]	S2	1.5 ... 10				1 ... 10					
Ambient temperature[1]		–20 ... +80									
[°C]	S6	0 ... +120									
Corrosion resistance class CRC[2]		2									

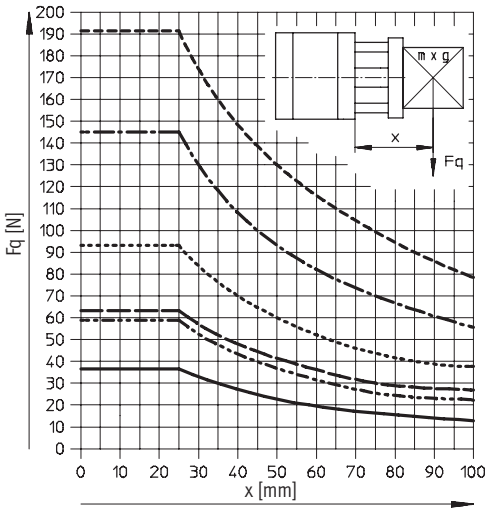
1) Note operating range of proximity sensors
2) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such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

Forces [N] and impact energy [J]											
Piston ∅		12	16	20	25	32	40	50	63	80	100
Theoretical force at 6 bar,		68	121	188	295	483	754	1178	1870	3016	4712
advancing	S2	51	90	141	247	415	686	1057	1750	2827	4524
Theoretical force at 6 bar,		51	90	141	247	415	686	1057	1750	2827	4524
retracting	S2	51	90	141	247	415	686	1057	1750	2827	4524
Max. impact energy at the end positions		0.07	0.15	0.2	0.3	0.4	0.7	1.0	1.3	1.8	2.5

Compact cylinders ADNGF, standard port pattern

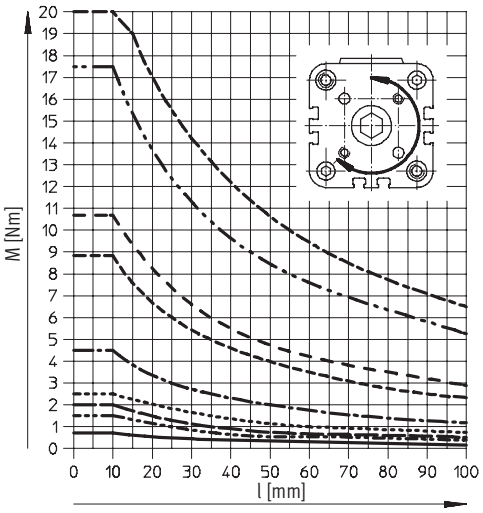
Technical data

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



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

Torque M as a function of the stroke length l

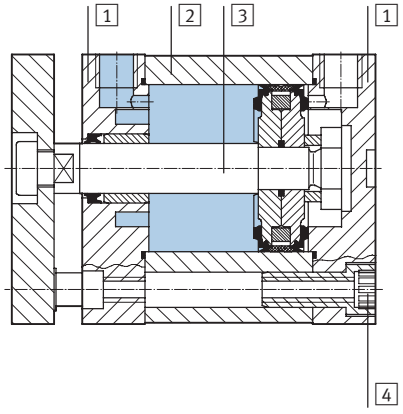


- ∅ 12/16
- ∅ 20
- ∅ 25
- ∅ 32
- ∅ 40
- ∅ 50
- ∅ 63
- ∅ 80
- ∅ 100

Weight [g]										
Piston ∅	12	16	20	25	32	40	50	63	80	100
Product weight with 0 mm stroke	90	93	161	191	327	430	687	915	1678	2673
Additional weight per 10 mm stroke	14	16	26	28	38	45	64	72	97	116
Moving load with 0 mm stroke	22	29	60	85	122	164	287	373	778	1089
Additional load per 10 mm stroke	4	6	11	11	17	17	29	29	43	43

Materials

Sectional view



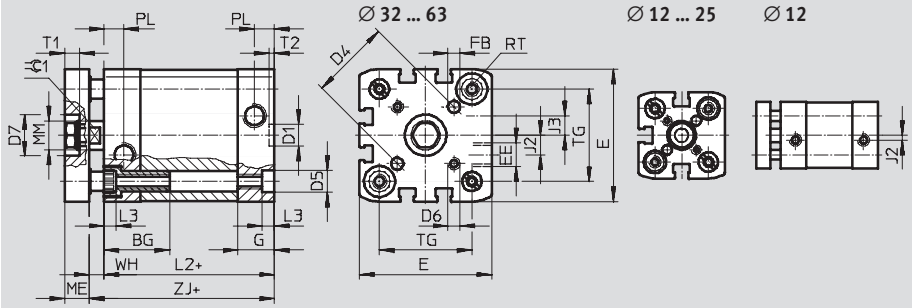
Compact cylinder			Basic version	S6
1	Cover		Anodised aluminium	
2	Cylinder barrel		Anodised aluminium	
3	Piston rod		High-alloy steel	
4	Flange screws	∅ 12 ... 16	High-alloy steel	
		∅ 20 ... 63	Galvanised steel	
		∅ 80 ... 100	Standard screws, galvanised steel	
–	Seals		Polyurethane	Fluoro elastomer

Compact cylinders ADNGF, standard port pattern

Technical data

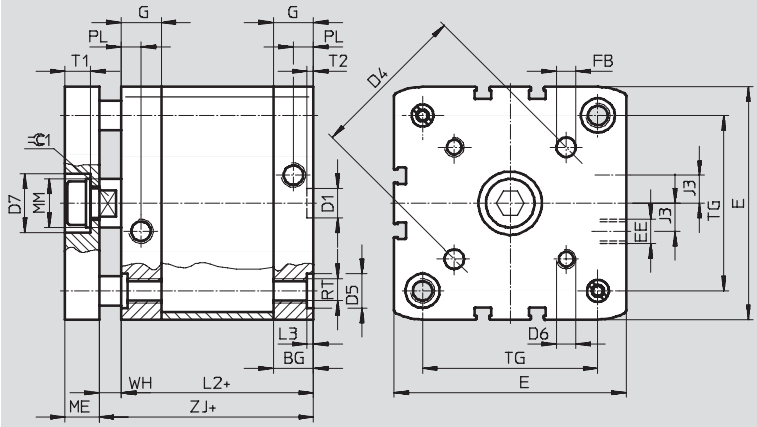
Dimensions – Basic version Download CAD data ➔ **www.festo.com/en/engineering**

∅ 12 ... 63



\+ = plus stroke length

∅ 80 ... 100



\+ = plus stroke length

∅ [mm]	BG	D1 ∅ H9	D4 ∅	D5 ∅ F9	D6	D7 ∅ H9	E	EE	FB ∅ H8	G	J2	J3
12	17	9	12	6	M3	–	$27.5^{+0.3}$	M5	3	10.5	2	–
16			14				$29^{+0.3}$			11	2.6	
20	19.5		17	9	M4		$35.5^{+0.3}$		4	12		
25			22		M5	14	$39.5^{+0.3}$		5			
32	27		28			17	$47^{+0.3}$	G1⁄8		15	6	
40			33				$54.5^{+0.3}$				8	
50		12	42	12	M6	22	$65.5^{+0.3}$		6		11.5	
63			50				$75.5^{+0.3}$					
80	17		65	15	M8	24	$95.5^{+0.6}$		8	16.5		
100	21.5		80		M10		$113.5^{+0.6}$		10	21.5	20	

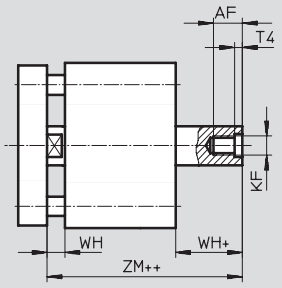
∅ [mm]	L2 max.	L3 +0.2	ME	MM ∅ h8	PL +0.2	RT	T1	T2 +0.1	TG ±0.2	WH +1	ZJ +1	⌯1 h13
12	35	3.5	6	6	6	M4	–	2.1	16	4.2	39.2	5
16				8					18	4.9	39.9	7
20	37	5	8	10		M5	5		22	5.7	42.7	9
25	39								26		44.7	
32	44		10	12	8.2	M6	6		32.5	6.2	50.2	10
40	45								38		51.2	
50			12	16		M8	7.5	2.6	46.5	8.2	53.2	13
63	49								56.5		57.2	
80	54	2.6	14	20		M10	10.5	2.6	72	9	63	17
100	67				10.5				89		76	

Compact cylinders ADNGF, standard port pattern

Technical data

Dimensions – Variant Download CAD data ➔ **www.festo.com/en/engineering**

S2 – Through piston rod



\+ = plus stroke length
++ = plus 2x stroke length

∅ [mm]	AF min.	KF	T4	WH +1	ZJ +1	ZM
12	8	M3	1.5	4.2	39.2	43.4
16	10	M4		4.9	39.9	44.8
20	14	M6	2.6	5.7	42.7	48.4
25					44.7	50.4
32	16	M8	3.3	6.2	50.2	56.4
40					51.2	57.4
50	20	M10	4.7	8.2	53.2	61.4
63					57.2	65.4
80		M12	6.1	9	63	71
100					76	84

Compact cylinders ADNGF, standard port pattern

Technical data

Ordering data				
Type	Piston ∅ [mm]	Stroke [mm]	Non-rotating with yoke	
			Part No.	Type
	12	5	554 205	ADNGF-12-5-P-A
		10	554 206	ADNGF-12-10-P-A
		15	554 207	ADNGF-12-15-P-A
		20	554 208	ADNGF-12-20-P-A
		25	554 209	ADNGF-12-25-P-A
		30	554 210	ADNGF-12-30-P-A
		40	554 211	ADNGF-12-40-P-A
	16	5	554 212	ADNGF-16-5-P-A
		10	554 213	ADNGF-16-10-P-A
		15	554 214	ADNGF-16-15-P-A
		20	554 215	ADNGF-16-20-P-A
		25	554 216	ADNGF-16-25-P-A
		30	554 217	ADNGF-16-30-P-A
		40	554 218	ADNGF-16-40-P-A
		50	554 219	ADNGF-16-50-P-A
	20	5	554 220	ADNGF-20-5-P-A
		10	554 221	ADNGF-20-10-P-A
		15	554 222	ADNGF-20-15-P-A
		20	554 223	ADNGF-20-20-P-A
		25	554 224	ADNGF-20-25-P-A
		30	554 225	ADNGF-20-30-P-A
		40	554 226	ADNGF-20-40-P-A
		50	554 227	ADNGF-20-50-P-A
		60	554 228	ADNGF-20-60-P-A
	25	5	554 229	ADNGF-25-5-P-A
		10	554 230	ADNGF-25-10-P-A
		15	554 231	ADNGF-25-15-P-A
		20	554 232	ADNGF-25-20-P-A
		25	554 233	ADNGF-25-25-P-A
		30	554 234	ADNGF-25-30-P-A
		40	554 235	ADNGF-25-40-P-A
		50	554 236	ADNGF-25-50-P-A
		60	554 237	ADNGF-25-60-P-A
	32	5	554 238	ADNGF-32-5-P-A
		10	554 239	ADNGF-32-10-P-A
		15	554 240	ADNGF-32-15-P-A
		20	554 241	ADNGF-32-20-P-A
		25	554 242	ADNGF-32-25-P-A
		30	554 243	ADNGF-32-30-P-A
		40	554 244	ADNGF-32-40-P-A
		50	554 245	ADNGF-32-50-P-A
		60	554 246	ADNGF-32-60-P-A
		80	554 247	ADNGF-32-80-P-A

Compact cylinders ADNGF, standard port pattern

Technical data

FESTO

Ordering data				
Type	Piston ∅ [mm]	Stroke [mm]	Non-rotating with yoke	
			Part No.	Type
	40	5	**554 248**	**ADNGF-40-5-P-A**
		10	**554 249**	**ADNGF-40-10-P-A**
		15	**554 250**	**ADNGF-40-15-P-A**
		20	**554 251**	**ADNGF-40-20-P-A**
		25	**554 252**	**ADNGF-40-25-P-A**
		30	**554 253**	**ADNGF-40-30-P-A**
		40	**554 254**	**ADNGF-40-40-P-A**
		50	**554 255**	**ADNGF-40-50-P-A**
		60	**554 256**	**ADNGF-40-60-P-A**
		80	**554 257**	**ADNGF-40-80-P-A**
	50	5	**554 258**	**ADNGF-50-5-P-A**
		10	**554 259**	**ADNGF-50-10-P-A**
		15	**554 260**	**ADNGF-50-15-P-A**
		20	**554 261**	**ADNGF-50-20-P-A**
		25	**554 262**	**ADNGF-50-25-P-A**
		30	**554 263**	**ADNGF-50-30-P-A**
		40	**554 264**	**ADNGF-50-40-P-A**
		50	**554 265**	**ADNGF-50-50-P-A**
		60	**554 266**	**ADNGF-50-60-P-A**
		80	**554 267**	**ADNGF-50-80-P-A**
	63	10	**554 268**	**ADNGF-63-10-P-A**
		15	**554 269**	**ADNGF-63-15-P-A**
		20	**554 270**	**ADNGF-63-20-P-A**
		25	**554 271**	**ADNGF-63-25-P-A**
		30	**554 272**	**ADNGF-63-30-P-A**
		40	**554 273**	**ADNGF-63-40-P-A**
		50	**554 274**	**ADNGF-63-50-P-A**
		60	**554 275**	**ADNGF-63-60-P-A**
		80	**554 276**	**ADNGF-63-80-P-A**
	80	10	**554 277**	**ADNGF-80-10-P-A**
		15	**554 278**	**ADNGF-80-15-P-A**
		20	**554 279**	**ADNGF-80-20-P-A**
		25	**554 280**	**ADNGF-80-25-P-A**
		30	**554 281**	**ADNGF-80-30-P-A**
		40	**554 282**	**ADNGF-80-40-P-A**
		50	**554 283**	**ADNGF-80-50-P-A**
		60	**554 284**	**ADNGF-80-60-P-A**
		80	**554 285**	**ADNGF-80-80-P-A**
	100	10	**554 286**	**ADNGF-100-10-P-A**
		15	**554 287**	**ADNGF-100-15-P-A**
		20	**554 288**	**ADNGF-100-20-P-A**
		25	**554 289**	**ADNGF-100-25-P-A**
		30	**554 290**	**ADNGF-100-30-P-A**
		40	**554 291**	**ADNGF-100-40-P-A**
		50	**554 292**	**ADNGF-100-50-P-A**
		60	**554 293**	**ADNGF-100-60-P-A**
		80	**554 294**	**ADNGF-100-80-P-A**

Compact cylinders ADNGF, standard port pattern

Ordering data – Modular products

FESTO

[M] Mandatory data						[O] Options		
Module No.	Function	Size	Stroke	Cushioning	Position sensing	Type of piston rod	Temperature resistance	Captive rating plate
537 123	ADNGF	12	1 ... 400	P	A	S2		
537 124		16						
537 125		20						
537 126		25						
537 127		32						
537 128		40						
537 129		50						
537 130		63						
537 131		80						
537 132		100						
Order example								
537 128	**ADNGF**	**40**	**250**	**P**	**A**	**S2**	**S6**	**TL**

Ordering table

Size		12	16	20	25	32	40	50	63	80	100	Condi-tions	Code		Enter code
[M]	Module No.	**537123**	**537124**	**537125**	**537126**	**537127**	**537128**	**537129**	**537130**	**537131**	**537132**				
	Function	Compact cylinder, double-acting, standard port pattern											**ADNGF**		ADNGF
	Size [mm]	12	16	20	25	32	40	50	63	80	100		**-...**		
	Stroke [mm]	1 ... 200		3 ... 200		5 ... 300					5 ... 400		**-...**		
	Cushioning	Flexible cushioning rings/pads at both ends											**-P**		-P
	Position sensing	Via proximity sensor											**-A**		-A
[O]	Type of piston rod	Through piston rod											**-S2**		
	Temperature resistance	Heat-resistant seals up to max. 120 °C										[1]	**-S6**		
	Captive rating plate	Laser etched rating plate											**-TL**		

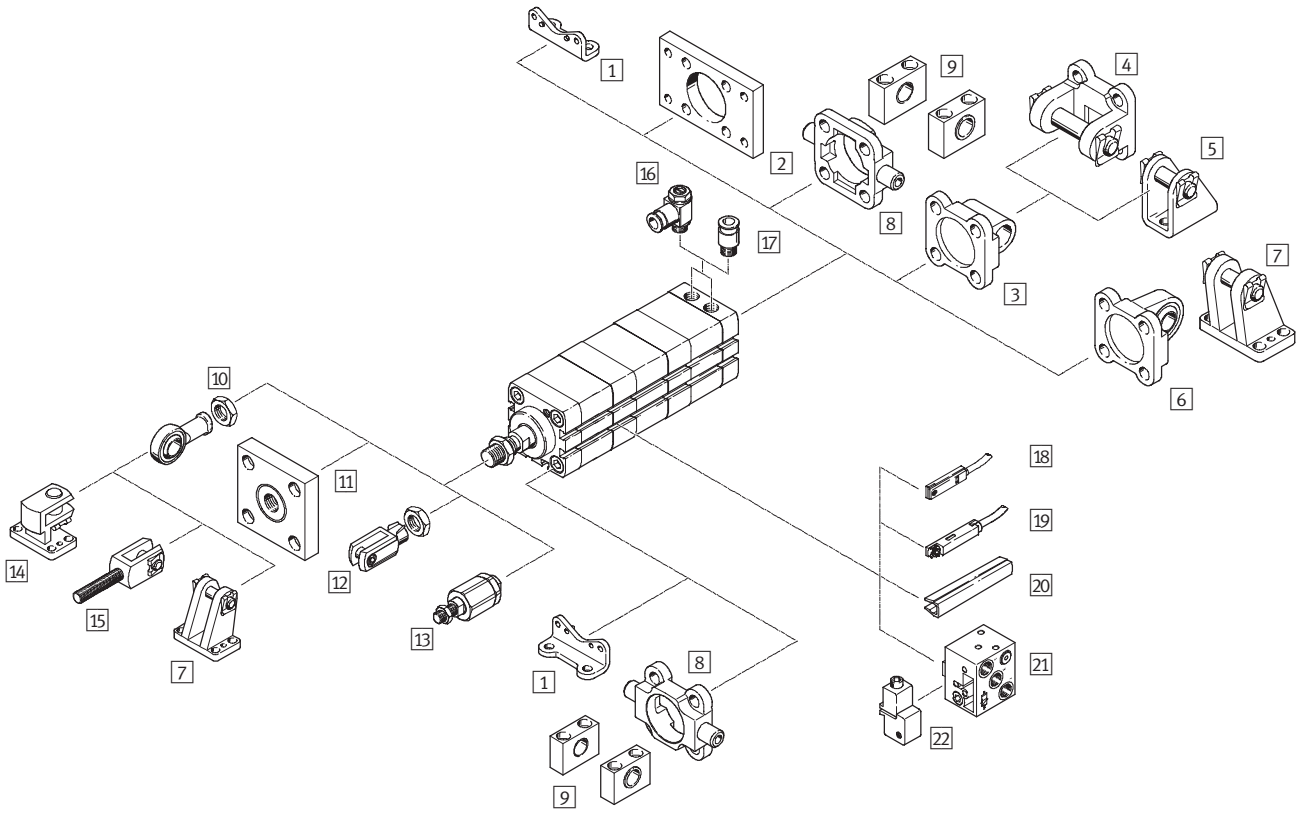
[1] **S6** Max. stroke: 250 mm

Transfer order code

	ADNGF	–		–		–	P	–	A	–		–		–	

High-force cylinders ADNH, standard port pattern

Peripherals overview



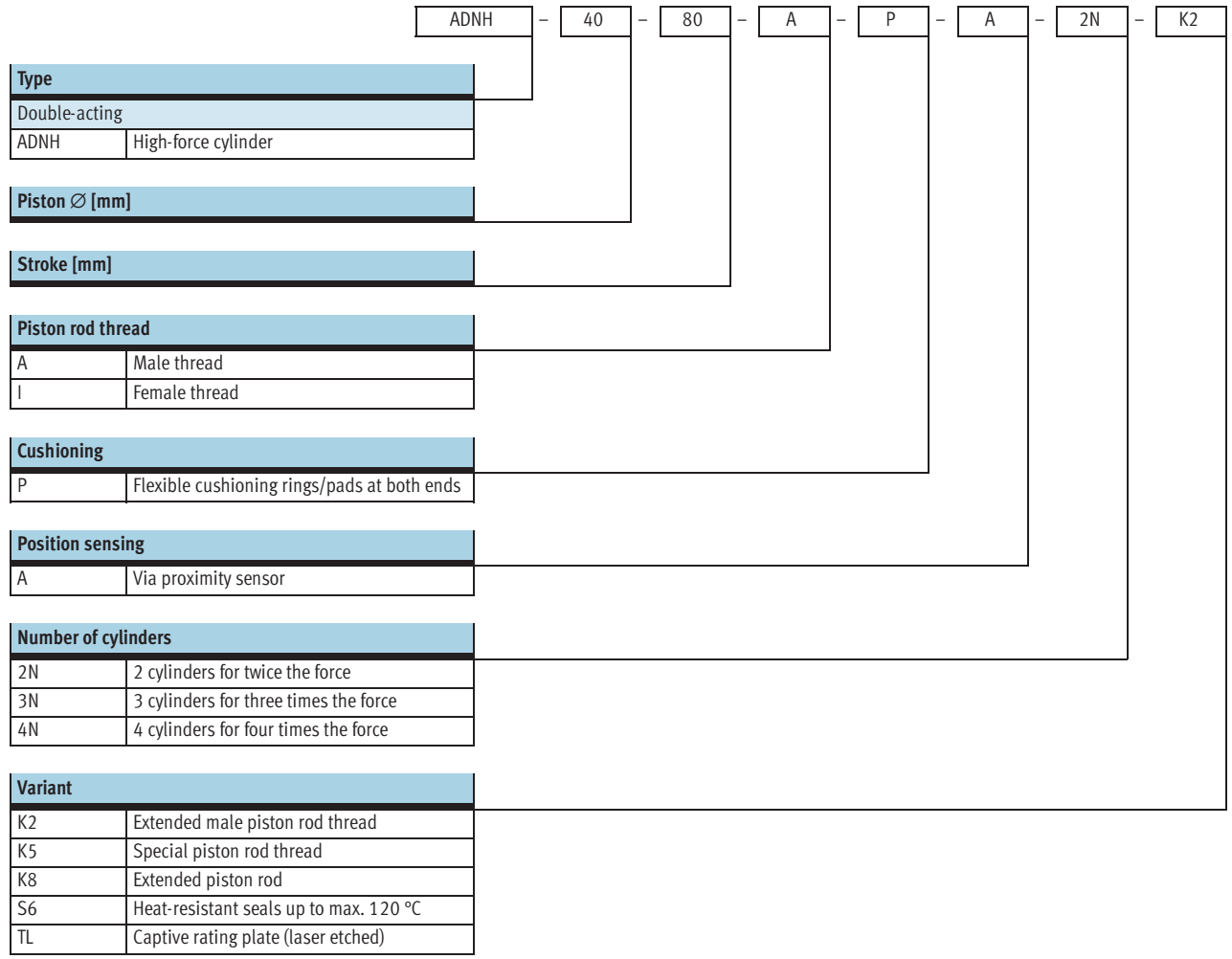
High-force cylinders ADNH, standard port pattern

Peripherals overview

Mounting attachments and accessories				
	Brief description	∅ 25	∅ 40, 63, 100	➔ Page
1 Foot mounting HNA	For bearing and end caps	■	■	106
2 Flange mounting FNC	For end caps	■	■	107
3 Swivel flange SNCL	For end caps	■	■	108
4 Swivel flange SNCB	For swivel flange SNCL	–	■	112
5 Clevis foot LBN/CRLBN	For swivel flange SNCL	■	–	111
6 Swivel flange SNCS	For end caps	–	■	109
7 Clevis foot LBG	For swivel flange SNCS	–	■	109
8 Trunnion flange ZNCF/CRZNG	For end caps	–	■	113
9 Trunnion support LNZG	For trunnion flange ZNCF/CRZNG	–	■	114
10 Rod eye SGS/CRSGS	With spherical bearing	■	■	115
11 Coupling piece KSG	For compensating radial deviations	■	■	115
12 Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	115
13 Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	115
14 Right-angle clevis foot LQG	For rod eye SGS	–	■	116
15 Rod clevis SGA	With male thread	–	■	115
16 One-way flow control valve GRLA	For speed regulation	■	■	116
17 Push-in fitting QS	For connecting compressed air tubing with standard external diameters	■	■	www.festo.com
18 Proximity sensor SME/SMT-8	Can be integrated in the sensor slot of the cylinder profile barrel	■	■	118
19 Proximity sensor SME/SMT-8M	Can be integrated in the sensor slot of the cylinder profile barrel	■	■	118
20 Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	■	■	118
21 Proximity sensor SMPO-8E	Pneumatic output signal	■	■	118
22 Mounting kit SMB-8E	For proximity sensor SMPO-8E	■	■	118

High-force cylinders ADNH, standard port pattern

Type codes



Type	
Double-acting	
ADNH	High-force 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

Number of cylinders	
2N	2 cylinders for twice the force
3N	3 cylinders for three times the force
4N	4 cylinders for four times the force

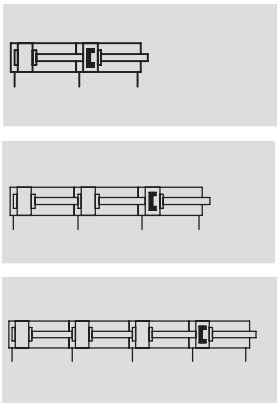
Variant	
K2	Extended male piston rod thread
K5	Special piston rod thread
K8	Extended piston rod
S6	Heat-resistant seals up to max. 120 °C
TL	Captive rating plate (laser etched)

High-force cylinders ADNH, standard port pattern

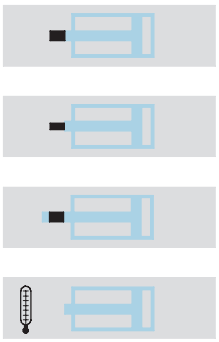
Technical data

FESTO

Function



Variants

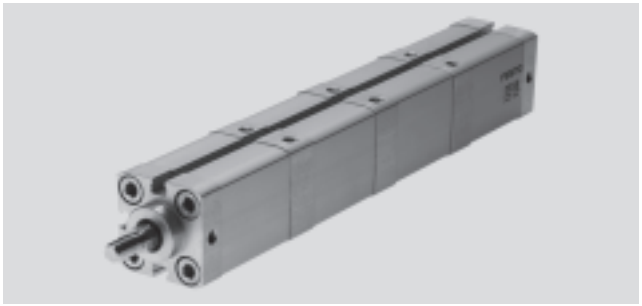


K2

K5

K8

S6



- Ø - Diameter
  25 ... 100 mm

- l - Stroke length
  1 ... 150 mm

General technical data					
Piston ∅		25	40	63	100
Pneumatic connection		M5	M5	G1⁄8	G1⁄8
Piston rod thread	Female	M6	M10	M12	M16
	Male	M8	M12x1.25	M16x1.5	M20x1.5
Constructional design		Piston			
		Piston rod			
		Cylinder barrel			
Cushioning		Flexible cushioning rings/pads at both ends			
Position sensing		Via proximity sensor			
Type of mounting		Via female threads			
		Via accessories			
Mounting position		Any			

Operating and environmental conditions					
Piston ∅		25	40	63	100
Operating medium		Filtered compressed air, lubricated or unlubricated			
Operating pressure [bar]	2 cylinders	0.8 ... 10		0.6 ... 10	
	3 cylinders	1.1 ... 10		0.9 ... 10	
	4 cylinders	1.4 ... 10		1.2 ... 10	
Ambient temperature[1] [°C]		–20 ... +80			
	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

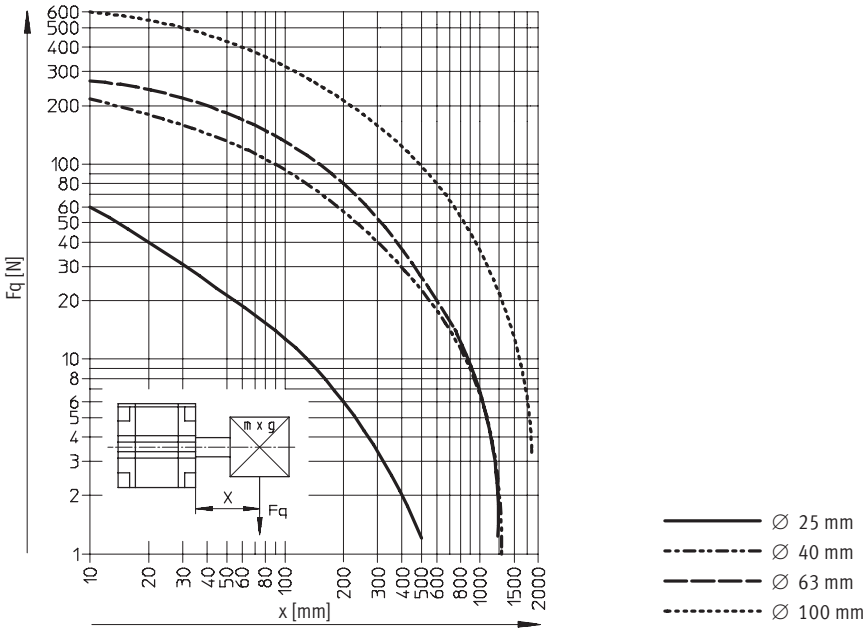
High-force cylinders ADNH, standard port pattern

Technical data

Forces [N] and impact energy [J]					
Piston ∅		25	40	63	100
Theoretical force at 6 bar, advancing	2 cylinders	542	1440	3619	9235
	3 cylinders	789	2126	5369	13758
	4 cylinders	1036	2812	7120	18281
Theoretical force at 6 bar, retracting[1)]		247	633	1681	4417
Max. impact energy at the end positions		0.3	0.7	1.3	2.5
	S6	0.15	0.35	0.65	1.25

1) During retraction only the force of one cylinder is available

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

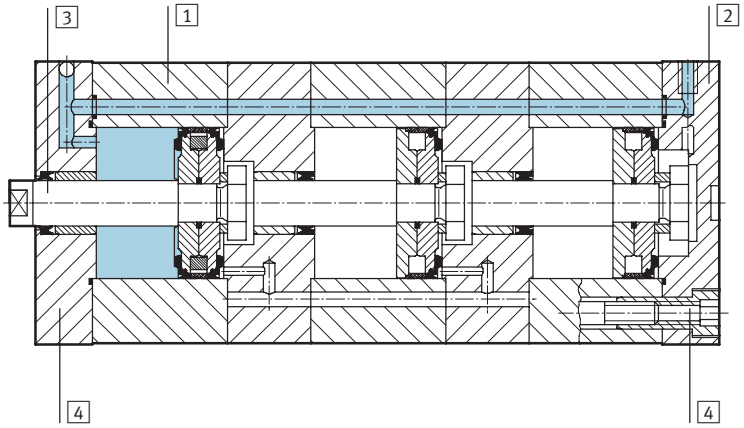


High-force cylinders ADNH, standard port pattern

Technical data

Materials

Sectional view



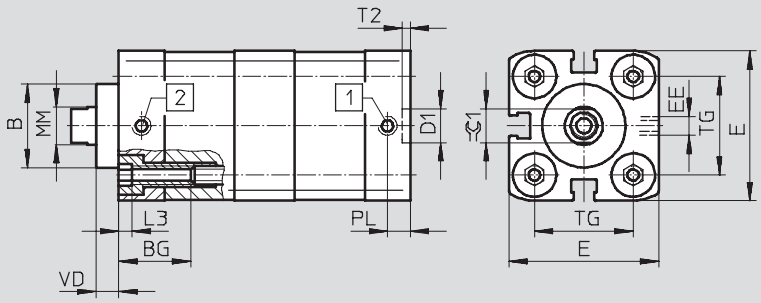
High-force cylinder		Basic version	S6
1	Cylinder barrel	Anodised aluminium	Anodised aluminium
2	Cover	Anodised aluminium	Anodised aluminium
3	Piston rod	High-alloy steel	High-alloy steel
4	Flange screws	Galvanised steel	Galvanised steel
–	Seals	Polyurethane, nitrile rubber	Fluoro elastomer

High-force cylinders ADNH, standard port pattern

Technical data

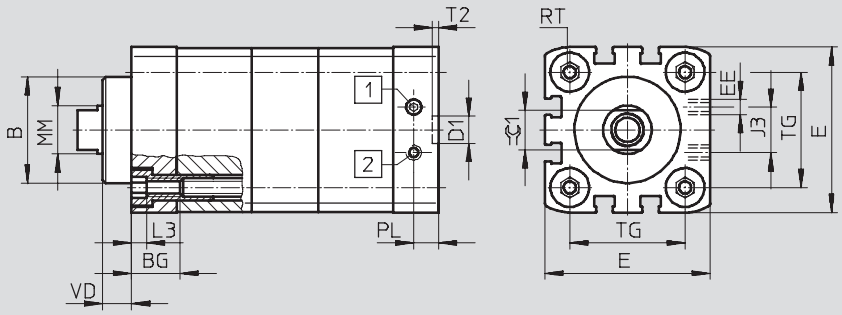
Dimensions – Basic version Download CAD data ➔ **www.festo.com/en/engineering**

∅ 25



1 Air connection cylinder advancing
2 Air connection cylinder retracting

∅ 40 ... 100



1 Air connection cylinder advancing
2 Air connection cylinder retracting

∅ [mm]	B ∅ f8	BG min.	D1 ∅ H9	E +0.3	EE	J3	L3
25	22	15	9	39.5	M5	–	5
40	35	16	9	54.5	M5	15	5
63	42	16	12	75.5	G1⁄8	23	5
100	55	17	12	113.5	G1⁄8	40	5

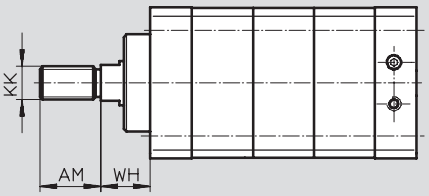
∅ [mm]	MM ∅	PL	RT	T2	TG	VD	⊄1
25	10	6	M5	2.1	26	6	9
40	16	8.2	M6	2.1	38	9.5	13
63	20	8.2	M8	2.6	56.5	12	17
100	25	10.5	M10	2.6	89	15.5	21

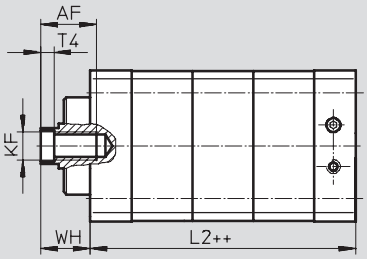
High-force cylinders ADNH, standard port pattern

Technical data

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

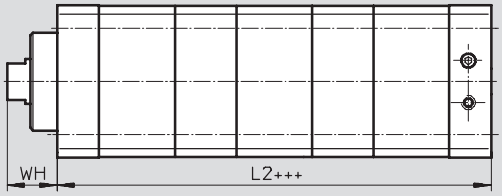
Basic version





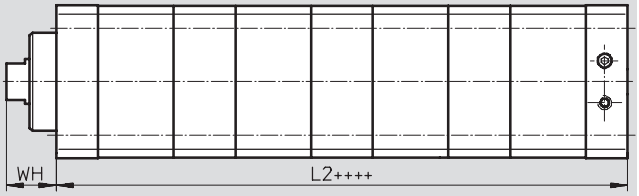
++ = plus 2x stroke length

3N – 3 cylinders



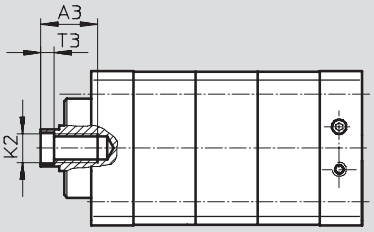
+++ = plus 3x stroke lengths

4N – 4 cylinders



++++ = plus 4x stroke lengths

K5 – Special piston rod thread



∅ [mm]	A3 min.	AF min.	AM –0.5	K2	KF	KK	L2 Number of cylinders 2	3	4	T3	T4	WH +1.3
25	12	14	16	M5	M6	M8	76	110	144	2	2.6	11.65
40	16	20	22	M8	M10	M12x1.25	86	125	165	3.3	4.7	17.75
63	20	20	28	M10	M12	M16x1.5	93	136	178	4.7	6.1	21
100	–	25	40	–	M16	M20x1.5	121	173	225	–	7	26.3

Note

When using high-force cylinders, the parallel connection of two, three or four cylinders of the same piston diameter and stroke length results in a substantial increase in the thrust. The safety margins within the components needed to ensure this thrust at least over the entire nominal stroke can result in positive stroke deviations of several millimetres.

High-force cylinders ADNH, standard port pattern

Ordering data – Modular products

FESTO

M Mandatory data

Module No.	Function	Size	Stroke	Type of thread	Cushioning	Position sensing	Number of cylinders
539 691	ADNH	25	1 … 150	A	P	A	2N
539 692		40		I			3N
539 693		63					4N
539 694		100					
Order example							
539 694	**ADNH**	**– 100**	**– 120**	**– A**	**– P**	**– A**	**– 4N**

Ordering table

	Size	25	40	63	100	Condi-tions	Code		Enter code
M	Module No.	**539 691**	**539 692**	**539 693**	**539 694**				
	Function	Compact tandem cylinder, based on ISO 21287					**ADNH**		ADNH
	Size [mm]	25	40	63	100		**-...**		
	Stroke [mm]	1 … 150					**-...**		
	Type of thread	Male thread					**-A**		
		Female thread					**-I**		
	Cushioning	Flexible cushioning rings/pads at both ends					**-P**		-P
	Position sensing	Via proximity sensor					**-A**		-A
	Number of cylinders	2 cylinders for twice the force					**-2N**		- ... N
		3 cylinders for three times the force					**-3N**		
↓		4 cylinders for four times the force					**-4N**		

Transfer order code

	ADNH	**–**		**–**		**–**		**– P**	**–**	**A**	**– ...N**

High-force cylinders ADNH, standard port pattern

Ordering data – Modular products

FESTO

➔ 0 **Options**

	Male thread extended		Special thread		Piston rod extended		Temperature resistance		Captive rating plate
	...K2		"..."K5		...K8		S6		TL
–	**25K2**	–	**"M16x1.5"K5**	–		–	**S6**	–	

Ordering table

Size		25	40	63	100	Condi-tions	Code		Enter code
0	Male thread extended	Extended male piston rod thread							
	[mm]	1 ... 20	1 ... 20	1 ... 20	1 ... 30		**-...K2**		
	Special piston rod thread	M10x1.25 M10	M10x1.25 M12	M12x1.25 M16	M16x1.5 M20	1	**-"..."K5**		
		M5	M8	M10	–	2			
	Piston rod extended	Extended piston rod							
	[mm]	1 ... 150	1 ... 150	1 ... 150	1 ... 150	3	**-...K8**		
	Temperature resistance	Heat-resistant seals up to max. 120 °C					**-S6**		
	Captive rating plate	Laser etched rating plate					**-TL**		

1 **K5** Only with piston rod thread A (male thread)

2 **K5** Only with piston rod thread I (female thread)

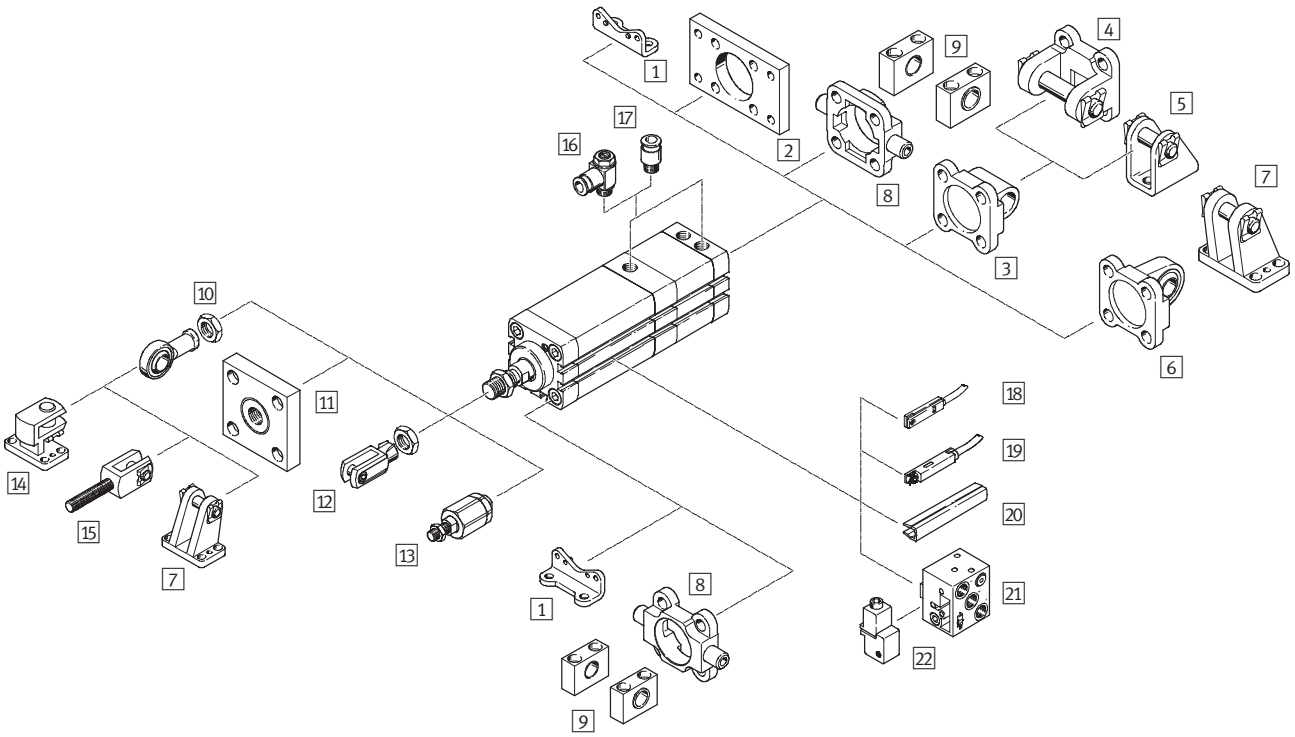
3 **K8** The sum of the stroke length and piston rod extension must not exceed the maximum permissible stroke length

Transfer order code

–		–		–		–		–	

Multi-position cylinders ADNM, standard port pattern

Peripherals overview



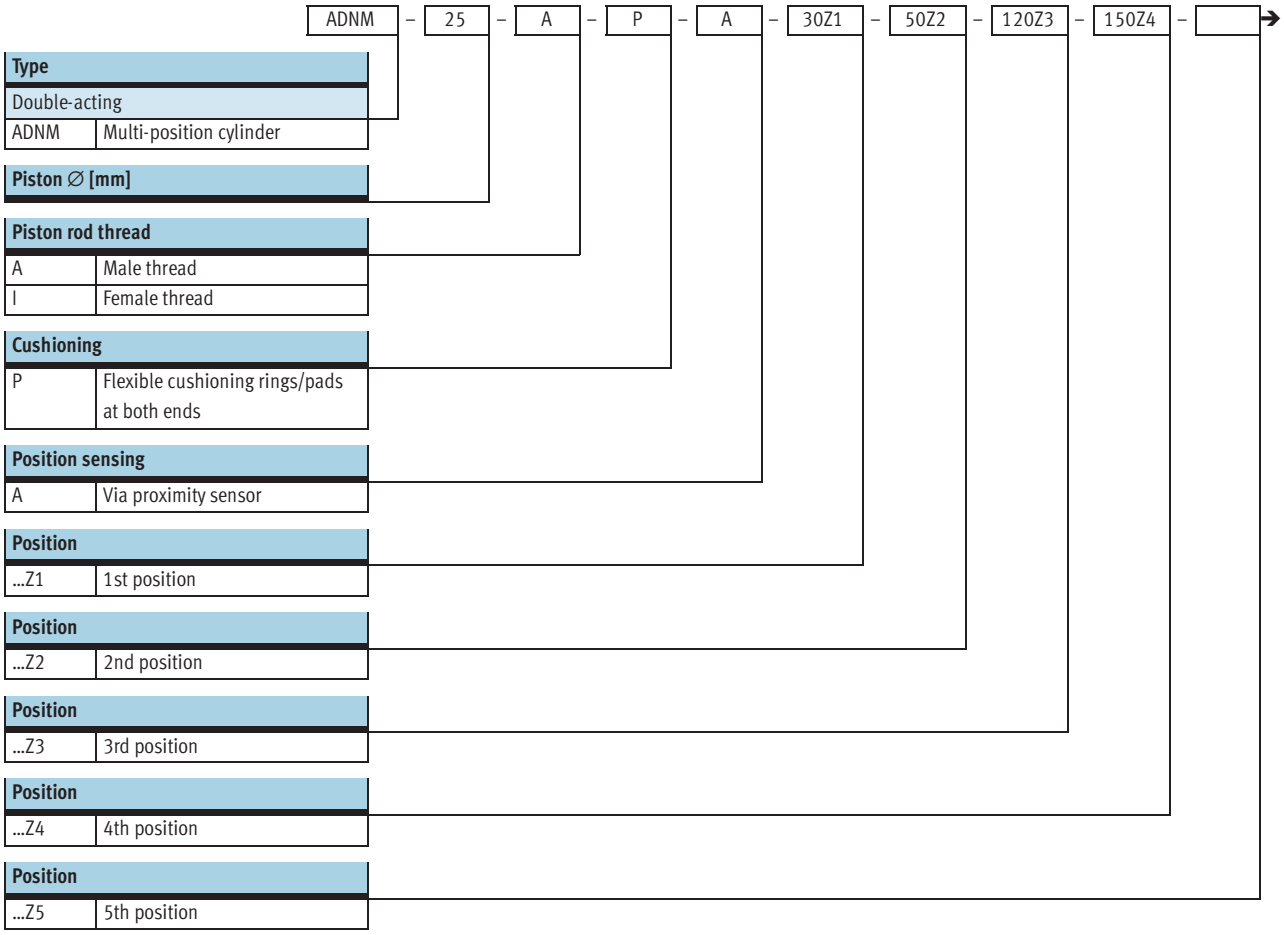
Multi-position cylinders ADNM, standard port pattern

Peripherals overview

Mounting attachments and accessories					
		Brief description	∅ 25	∅ 40, 63, 100	➔ Page
1	Foot mounting HNA	For bearing and end caps	■	■	106
2	Flange mounting FNC	For end caps	■	■	107
3	Swivel flange SNCL	For end caps	■	■	108
4	Swivel flange SNCB	For swivel flange SNCL	–	■	112
5	Clevis foot LBN/CRLBN	For swivel flange SNCL	■	–	111
6	Swivel flange SNCS	For end caps	–	■	109
7	Clevis foot LBG	For swivel flange SNCS	–	■	109
8	Trunnion flange ZNCF/CRZNG	For bearing caps	–	■	113
9	Trunnion support LNZG	For trunnion flange ZNCF/CRZNG	–	■	114
10	Rod eye SGS/CRSGS	With spherical bearing	■	■	115
11	Coupling piece KSG	For compensating radial deviations	■	■	115
12	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	115
13	Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	115
14	Right-angle clevis foot LQG	For rod eye SGS	–	■	116
15	Rod clevis SGA	With male thread	–	■	115
16	One-way flow control valve GRLA	For speed regulation	■	■	116
17	Push-in fitting QS	For connecting compressed air tubing with standard external diameters	■	■	www.festo.com
18	Proximity sensor SME/SMT-8	Can be integrated in the sensor slot of the cylinder profile barrel	■	■	118
19	Proximity sensor SME/SMT-8M	Can be integrated in the sensor slot of the cylinder profile barrel	■	■	118
20	Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	■	■	118
21	Proximity sensor SMPO-8E	Pneumatic output signal	■	■	118
22	Mounting kit SMB-8E	For proximity sensor SMPO-8E	■	■	118

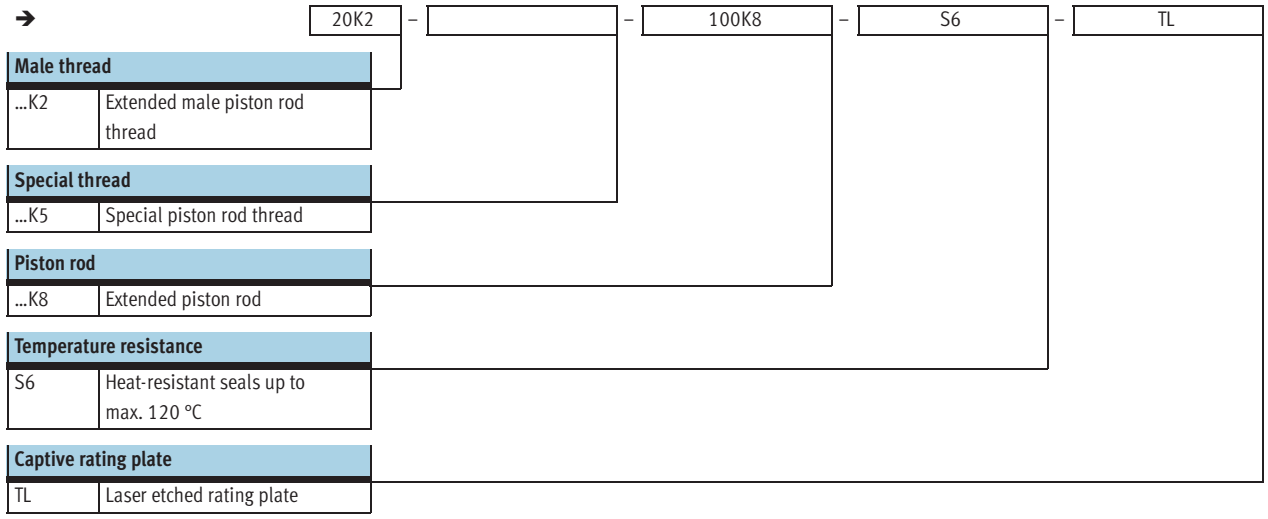
Multi-position cylinders ADNM, standard port pattern

Type codes



Multi-position cylinders ADNM, standard port pattern

Type codes

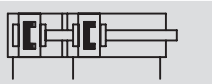


Multi-position cylinders ADNM, standard port pattern

Technical data

FESTO

Function



- Ø - Diameter
  25 ... 100 mm
- l - Stroke length
  1 ... 2,000 mm

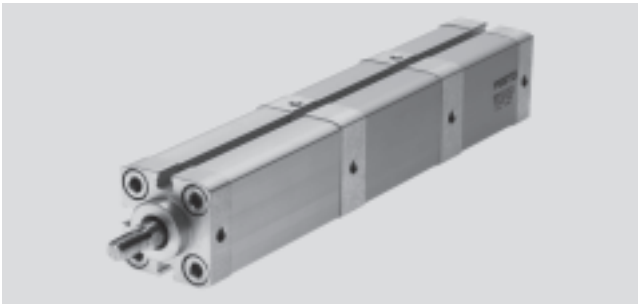
Variants

K2

K5

K8

S6



General technical data					
Piston ∅		25	40	63	100
Pneumatic connection		M5	M5	G1/8	G1/8
Piston rod thread	Female	M6	M10	M12	M16
	Male	M8	M12x1.25	M16x1.5	M20x1.5
Constructional design		Piston			
		Piston rod			
		Cylinder barrel			
Cushioning		Flexible cushioning rings/pads at both ends			
Position sensing		Via proximity sensor			
Type of mounting		Via female threads			
		Via accessories			
Mounting position		Any			

Operating and environmental conditions					
Piston ∅		25	40	63	100
Operating medium		Filtered compressed air, lubricated or unlubricated			
Operating pressure [bar]	2nd position	0.8 ... 10		0.6 ... 10	
	3rd position	1.1 ... 10		0.9 ... 10	
	4th position	1.4 ... 10		1.2 ... 10	
	5th position	1.7 ... 10		1.5 ... 10	
Ambient temperature[1] [°C]		–20 ... +80			
	S6	0 ... +120			
Corrosion resistance class CRC[2]		2			

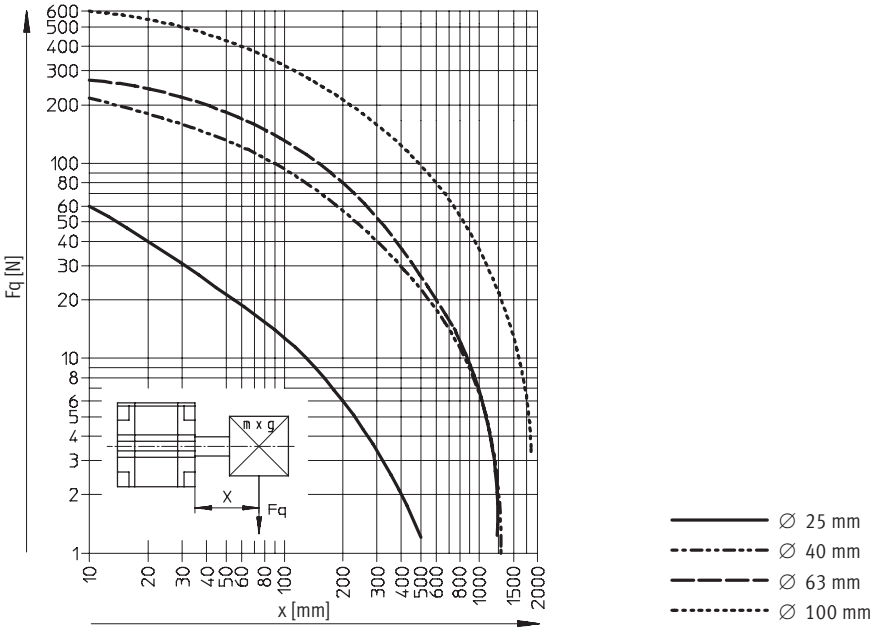
1) Note operating range of proximity sensors
2) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such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

Multi-position cylinders ADNM, standard port pattern

Technical data

Forces [N] and impact energy [J]					
Piston ∅		25	40	63	100
Theoretical force at 6 bar, advancing		295	754	1870	4712
Theoretical force at 6 bar, retracting		247	633	1681	4417
Max. impact energy at the end positions		0.3	0.7	1.3	2.5
	S6	0.15	0.35	0.65	1.25

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

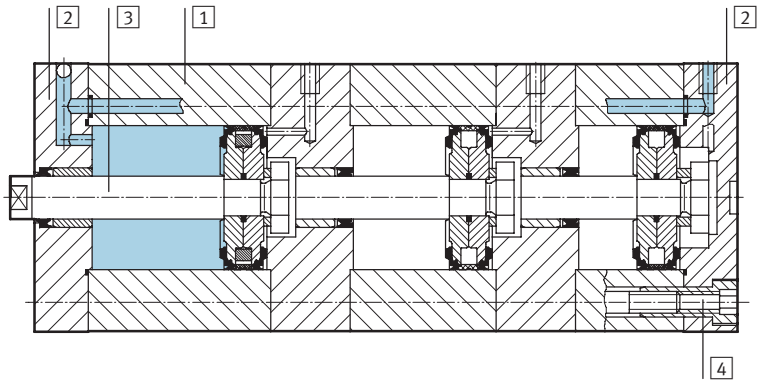


Multi-position cylinders ADNM, standard port pattern

Technical data

Materials

Sectional view



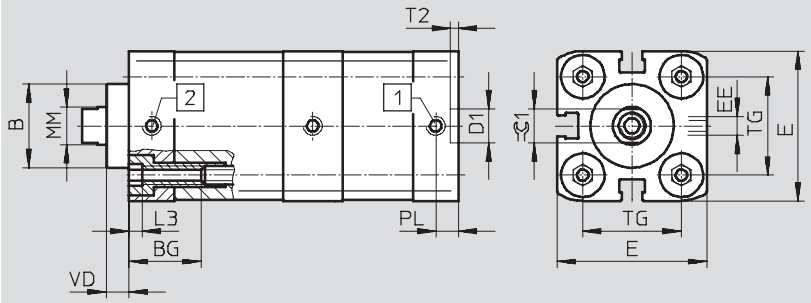
Multi-position cylinder		Basic version	S6
1	Cylinder barrel	Anodised aluminium	Anodised aluminium
2	Cover	Anodised aluminium	Anodised aluminium
3	Piston rod	High-alloy steel	High-alloy steel
4	Flange screws	Galvanised steel	Galvanised steel
–	Seals	Polyurethane	Fluoro elastomer

Multi-position cylinders ADNM, standard port pattern

Technical data

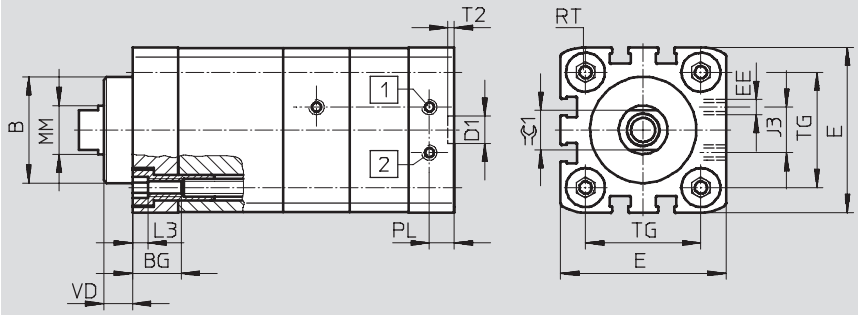
Dimensions – Basic version Download CAD data ➔ **www.festo.com/en/engineering**

∅ 25



1 Cylinder 1 advancing
2 Cylinder retracting

∅ 40 ... 100



1 Cylinder 1 advancing
2 Cylinder retracting

∅ [mm]	B ∅ f8	BG min.	D1 ∅ H9	E +0.3	EE	J3	L3
25	22	15	9	39.5	M5	–	5
40	35	16		54.5		15	
63	42		12	75.5	G1⁄8	23	
100	55	17		113.5		40	

∅ [mm]	MM ∅	PL	RT	T2	TG	VD	⫧1
25	10	6	M5	2.1	26	6	9
40	16	8.2	M6		38	9.5	13
63	20		M8	2.6	56.5	12	17
100	25	10.5	M10		89	15.5	21

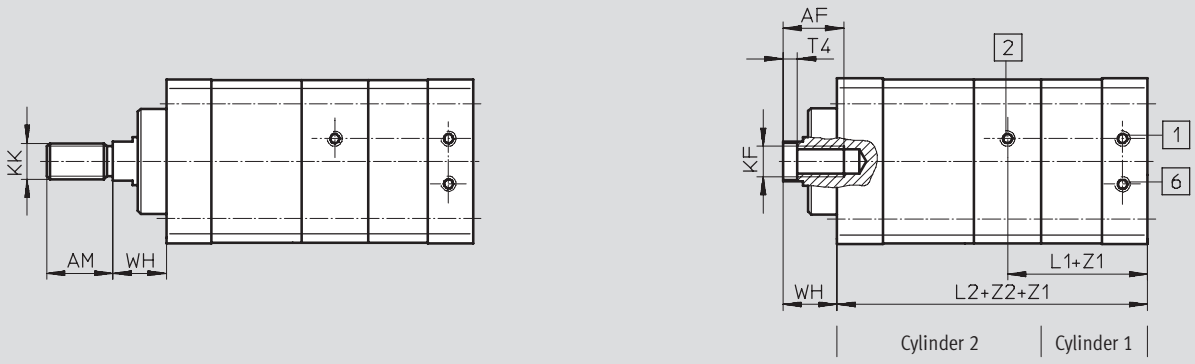
Multi-position cylinders ADNM, standard port pattern

Technical data

FESTO

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

Basic version



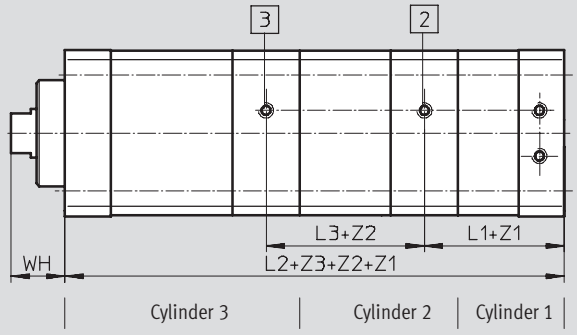
1 Air connection cylinder 1 advancing

2 Air connection cylinder 2 advancing

6 Air connection all cylinders retra

Z1 = Stroke of cylinder 1
Z2 = Stroke of cylinder 2

Z3 – 3 cylinders

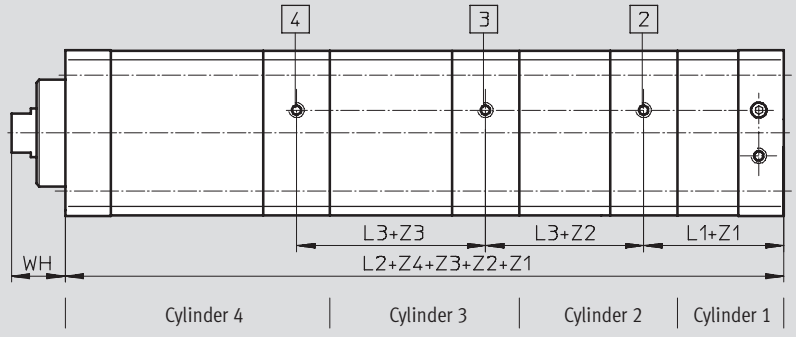


2 Air connection cylinder 2 advancing

3 Air connection cylinder 3 advancing

Z1 = Stroke of cylinder 1
Z2 = Stroke of cylinder 2
Z3 = Stroke of cylinder 3

Z4 – 4 cylinders



2 Air connection cylinder 2 advancing

3 Air connection cylinder 3 advancing

4 Air connection cylinder 4 advancing

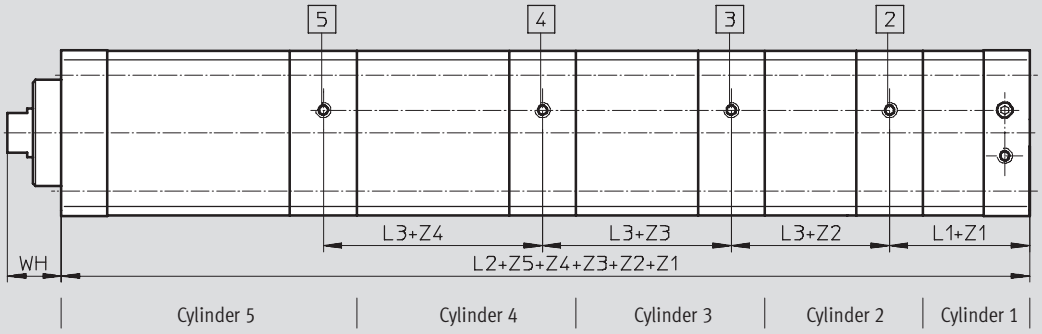
Z1 = Stroke of cylinder 1
Z2 = Stroke of cylinder 2
Z3 = Stroke of cylinder 3
Z4 = Stroke of cylinder 4

Multi-position cylinders ADNM, standard port pattern

Technical data

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

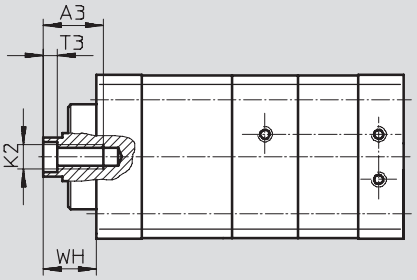
Z5 – 5 cylinders



2 Air connection cylinder 2 advancing
3 Air connection cylinder 3 advancing
4 Air connection cylinder 4 advancing
5 Air connection cylinder 5 advancing

Z1 = Stroke of cylinder 1
Z2 = Stroke of cylinder 2
Z3 = Stroke of cylinder 3
Z4 = Stroke of cylinder 4
Z5 = Stroke of cylinder 5

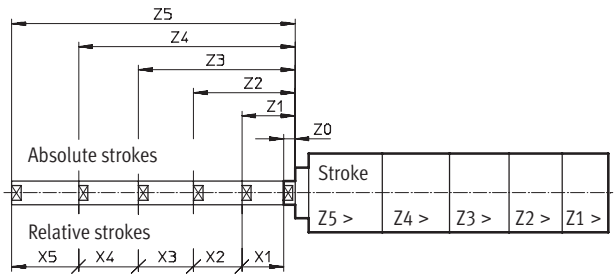
K5 – Special piston rod thread



∅	A3	AF	AM	KF		KK	L1	L2 Number of cylinders				L3	T4		WH +1.3	
[mm]	min.		–0.5		K5			2	3	4	5			K5		K5
25	12	14	16	M6	M5	M8	38.3	76	110	144	178	34.2	2.6	2	11.65	11.65
40	16	20	22	M10	M8	M12x1.25	40.4	86	125	167	210	39.5	4.7	3.3	17.75	17.75
63	20		28	M12	M10	M16x1.5	44	93	136	180	226	42	6.1	4.7	21	21
100	–	25	40	M16	–	M20x1.5	51.2	121	173	227	283	52	7	–	26.3	–

Note

Each individual movement always corresponds to at least the nominal stroke, with both relative and absolute dimensions. The safety margins within the components needed for this can result in positive stroke deviations of several millimetres.



Multi-position cylinders ADNM, standard port pattern

Ordering data – Modular products

FESTO

M Mandatory data								O Options		
Module No.	Function	Size	Type of thread	Cushioning	Position sensing	1st position	2nd position	3rd position	4th position	5th position
539 695 539 696 539 697 539 698	ADNM	25 40 63 100	A I	P	A	...Z1	...Z2	...Z3	...Z4	...Z5
Order example										
539 695	**ADNM**	**25**	**A**	**P**	**A**	**30Z1**	**50Z2**	**120Z3**	**200Z4**	

Ordering table

	Size		25	40	63	100	Conditions	Code	Enter code
M	Module No.		539 695	539 696	539 697	539 698			
	Function		Multi-position cylinder, standard port pattern					ADNM	ADNM
	Size	[mm]	25	40	63	100		-...	
	Type of thread		Male thread					**-A**	
			Female thread					**-I**	
	Cushioning		Flexible cushioning rings/pads at both ends					**-P**	-P
	Position sensing		Via proximity sensor					**-A**	-A
	1st position	[mm]	1 ... 200	1 ... 300	1 ... 300	1 ... 400	1	**-...Z1**	- ... Z1
	2nd position	[mm]	1 ... 300	1 ... 1000	1 ... 1000	1 ... 1000	1 2	**-...Z2**	- ... Z2
O	3rd position	[mm]	1 ... 300	1 ... 1000	1 ... 1000	1 ... 1000	1 2	**-...Z3**	
	4th position	[mm]	1 ... 300	1 ... 1000	1 ... 1000	1 ... 1000	1 2	**-...Z4**	
↓	5th position	[mm]	1 ... 300	1 ... 1000	1 ... 1000	1 ... 1000	1 2	**-...Z5**	

The end of the retracted piston rod is the reference point for all positions.

1 **Z1 ... Z5** The subsequent position must be larger than the one that precedes it:
Z1 < Z2 < Z3 < Z4 < Z5.
Max. total of all positions:
Size 25: max. 500 mm
Size 40, 63, 100: max. 2000 mm

2 **Z2 ... Z5** Max. permissible stroke except for the last position (visible piston rod):
Size 25: 200 mm
Size 40, 63: 300 mm
Size 100: 400 mm

Transfer order code

	ADNM	–		–		–	**P**	–	**A**	–	**...Z1**	–	**...Z2**	–		–		–	

Multi-position cylinders ADNM, standard port pattern

Ordering data – Modular products

FESTO

→ 0 Options

	Male thread extended		Special thread		Piston rod extended		Temperature resistance		Captive rating plate
	...K2		"..."K5		...K8		S6		TL
–	**20K2**	–	**"M10"K5**	–	**100K8**	–		–	

Ordering table

Size		25	40	63	100	Conditions	Code		Enter code
↓	Male thread extended	Extended male piston rod thread							
0	[mm]	1 ... 20	1 ... 20	1 ... 20	1 ... 30		**-...K2**		
	Special piston rod thread	M10x1.25 M10	M10x1.25 M12	M12x1.25 M16	M16x1.5 M20	3	**-"..."K5**		
		M5	M8	M10	–	4			
	Piston rod extended	Extended piston rod							
	[mm]	1 ... 300	1 ... 400	1 ... 400	1 ... 500	5	**-...K8**		
	Temperature resistance	Heat-resistant seals up to max. 120 °C					**-S6**		
	Captive rating plate	Laser etched rating plate					**-TL**		

3 **K5** Only with piston rod thread A (male thread)

4 **K5** Only with piston rod thread I (female thread)

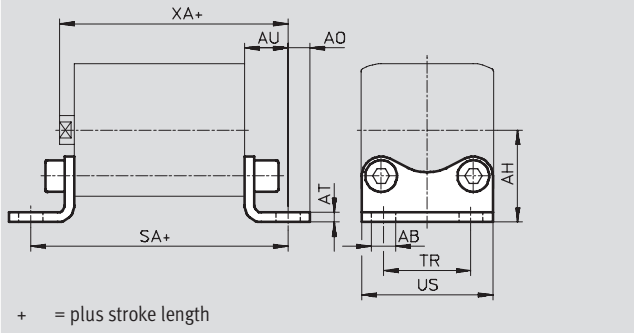
5 **K8** The sum of the length of the last position and piston rod extension must not exceed the maximum permissible length of the last position

Transfer order code

–		–		–		–		–	

Foot mounting HNA

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



Dimensions and ordering data

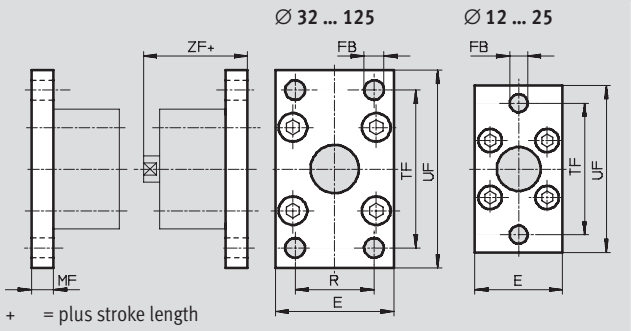
For ∅ [mm]	AB ∅ H14	AH JS14	AO	AT ±0.5	AU ±0.2	SA	TR ±0.2	US −0.5	XA
12	5.8	21	5	3	13	61	16	26	52.2
16		22	4.75				18	27.5	52.9
20	7	27	6.25	4	16	69	22	34.5	58.7
25		29				71	26	38.5	60.7
32		33.5	7			76	32	46	66.2
40	10	38	9		18	81	36	54	69.2
50		45	8	5	21	87	45	64	74.2
63		50				91	50	75	78.2
80	12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

For ∅ [mm]	Basic version				R3 – High corrosion protection			
	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

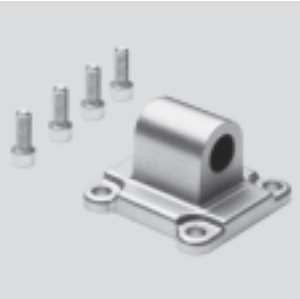
Compact cylinders ADN/AEN, to ISO 21287

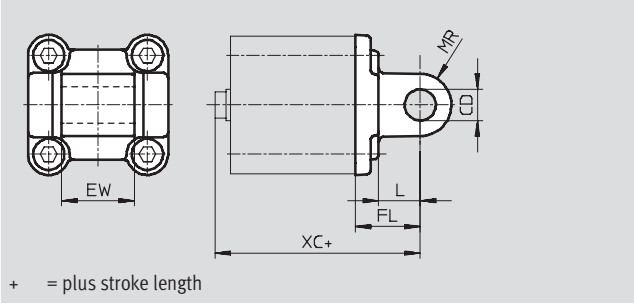
Accessories

FESTO

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

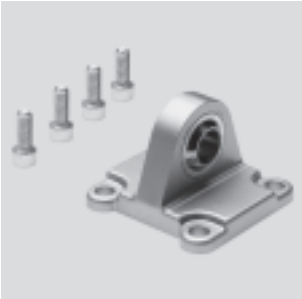
Dimensions and ordering data						
For ∅ [mm]	CD ∅ H9	EW h12	FL ±0.2	L	MR	XC
12	6	12	16	10	6	55.2
16						55.9
20	8	16	20	14	8	62.7
25						64.7
32	10	26	22	13	10	72.2
40	12	28	25	16	12	75.2
50		32	27			80.2
63	16	40	32	21	16	89.2
80		50	36	22		99
100	20	60	41	27	20	117
125	25	70	50	30		142

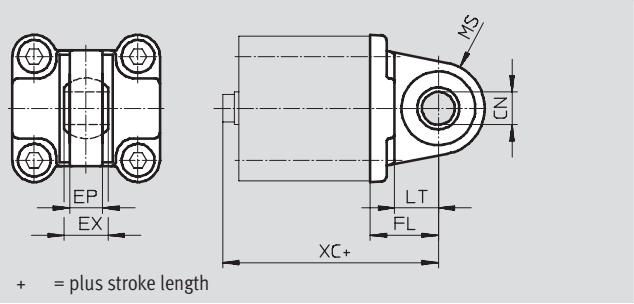
For ∅	Basic version				R3 – High corrosion protection			
[mm]	CRC[1]	Weight [g]	Part No.	Type	CRC[1]	Weight [g]	Part No.	Type
12	2	20	**537 790**	**SNCL-12**	3	20	**537 794**	**SNCL-12-R3**
16	2	25	**537 791**	**SNCL-16**	3	25	**537 795**	**SNCL-16-R3**
20	2	40	**537 792**	**SNCL-20**	3	40	**537 796**	**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

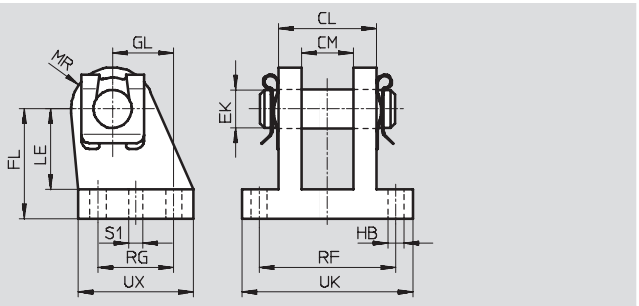
For ∅ [mm]	CN ∅ H7	EP +0.2	EX	FL ±0.2	LT	MS	XC	CRC[1]	Weight [g]	Part No.	Type
32	10	10.5	14	22	13	15	72.2	2	85	**174 397**	**SNCS-32**
40	12	12	16	25	16	17	75.2	2	125	**174 398**	**SNCS-40**
50	16	15	21	27	16	20	80.2	2	210	**174 399**	**SNCS-50**
63	16	15	21	32	21	22	89.2	2	280	**174 400**	**SNCS-63**
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



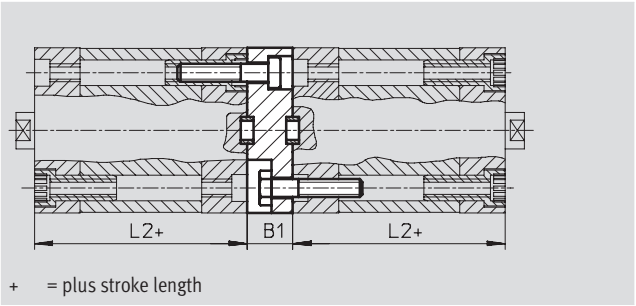
Dimensions and ordering data

For ∅ [mm]	CL	CM	EK ∅	FL	GL	HB ∅	LE	MR	RF	RG	S1 ∅	UK	UX	CRC[1]	Weight [g]	Part No.	Type
32	28	14.1	10	32	16	6.8	24	12	42	20	4.8	56	36	2	220	**31 761**	**LBG-32**
40	30	16.1	12	36	20	6.8	26	14	44	26	5.8	58	41.5	2	300	**31 762**	**LBG-40**
50	40	21.1	16	45	25	9.2	33	15	56	31	5.8	70	47	2	540	**31 763**	**LBG-50**
63	40	21.1	16	50	25	9	38	17	56	31	7.8	70	47	2	580	**31 764**	**LBG-63**
80	50	25.1	20	63	30	11	49	18	70	36	7.8	89	57	2	1050	**31 765**	**LBG-80**
100	50	25.1	20	71	41	11	56	22	70	46	9.8	89	67.5	2	1375	**31 766**	**LBG-100**
125	80	37.2	30	90	60	14	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**

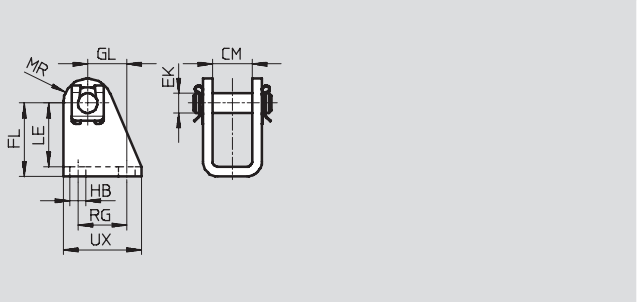
1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

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



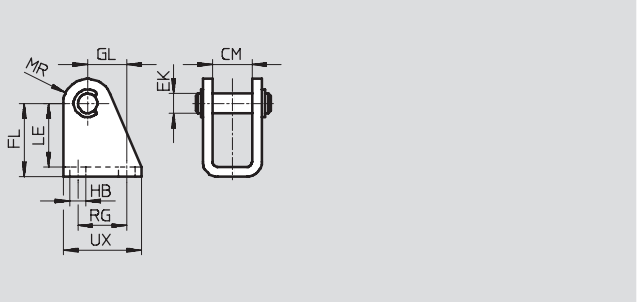
Dimensions and ordering data

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



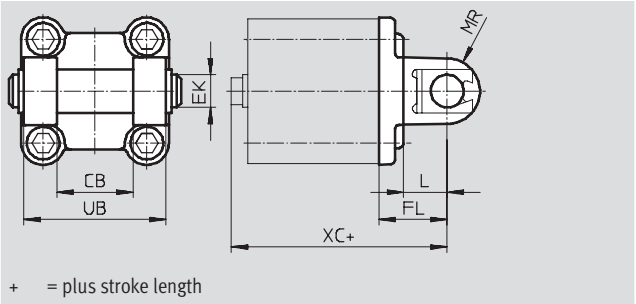
Dimensions and ordering data

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

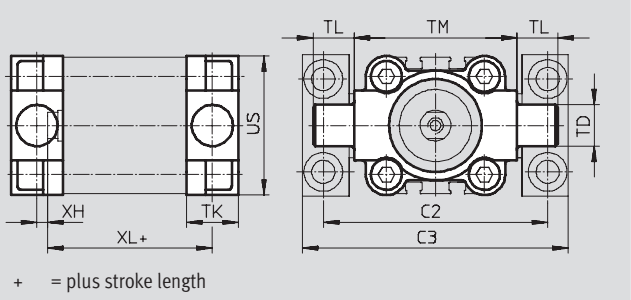
For ∅ [mm]	CB H14	EK ∅ e8	FL ±0.2	L	MR	UB h14	XC
32	26	10	22	13	10	45	72
40	28	12	25	16	12	52	76
50	32	12	27	16	12	60	80
63	40	16	32	21	16	70	89
80	50	16	36	22	16	90	99
100	60	20	41	27	20	110	117
125	70	25	50	30	25	130	142

For ∅ [mm]	Basic version				R3 – High corrosion protection			
	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



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

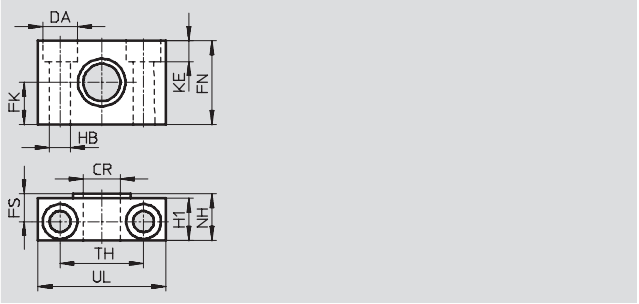
For ∅ [mm]	Basic version				R3 – High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	2	130	**174 411**	**ZNCF-32**	4	150	**161 852**	**CRZNG-32**
40	2	240	**174 412**	**ZNCF-40**	4	260	**161 853**	**CRZNG-40**
50	2	390	**174 413**	**ZNCF-50**	4	430	**161 854**	**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

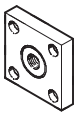
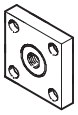


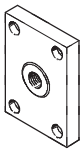
Dimensions and ordering data

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 ➔ www.festo.com

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 eye SGS for cylinder ADNH and ADNM			
	25	**9 255**	**SGS-M8**
	40	**9 262**	**SGS-M12x1,25**
	63	**9 263**	**SGS-M16x1,5**
	100	**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**
Rod clevis SG for cylinder ADNH and ADNM			
	25	**3 111**	**SG-M8**
	40	**6 145**	**SG-M12x1,25**
	63	**6 146**	**SG-M16x1,5**
	100	**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**
Coupling piece KSG for cylinder ADNH and ADNM			
	25	–	
	40	**32 964**	**KSG-M12x1,25**
	63	**32 965**	**KSG-M16x1,5**
	100	**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-M16x1,25**
	125	**10 769**	**SGA-M20x1,25**
Rod clevis SGA used in combination with rod eye SGS for cylinder ADNH and ADNM			
	25	–	
	40	**10 767**	**SGA-M12x1,25**
	63	**10 768**	**SGA-M16x1,5**
	100	**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**
Self-aligning rod coupler FK for cylinder ADNH and ADNM			
	25	**2 062**	**FK-M8**
	40	**6 141**	**FK-M12x1,25**
	63	**6 142**	**FK-M16x1,5**
	100	**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 ➔ www.festo.com

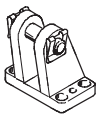
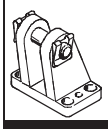
Designation	For ∅	Part No.	Type
Rod eye CRSGS			
	12	–	
	16	**195 580**	**CRSGS-M6**
	20, 25	**195 581**	**CRSGS-M8**
	32, 40	**195 582**	**CRSGS-M10x1,25**
	50, 63	**195 583**	**CRSGS-M12x1,25**
	80, 100	**195 584**	**CRSGS-M16x1,5**
	125	**195 585**	**CRSGS-M20x1,5**
Rod eye CRSGS for cylinder ADNH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

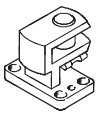
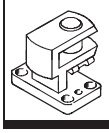
Designation	For ∅	Part No.	Type
Rod clevis CRSG			
	12	–	
	16, 20	**13 567**	**CRSG-M6**
	20, 25	**13 568**	**CRSG-M8**
	32, 40	**13 569**	**CRSG-M10x1,25**
	50, 63	**13 570**	**CRSG-M12x1,25**
	80, 100	**13 571**	**CRSG-M16x1,5**
	125	**13 572**	**CRSG-M20x1,5**
Rod clevis CRSG for cylinder ADNH and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

Note

Piston rod attachments for cylinders with special piston rod thread (variant K5) ➔ www.festo.com

Ordering data – Mounting attachments — Technical data ➔ www.festo.com

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**
Clevis foot LBG for rod eye SGS for cylinder ADNH and ADNM			
	25	–	
	40	**31 762**	**LBG-40**
	63	**31 764**	**LBG-63**
	100	**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**
Right-angle clevis foot LQG for rod eye SGS for cylinder ADNH and ADNM			
	25	–	
	40	**31 769**	**LQG-40**
	63	**31 771**	**LQG-63**
	100	**31 773**	**LQG-100**

Ordering data – One-way flow control valves — Technical data ➔ www.festo.com

	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 ➔ www.festo.com

	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

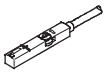
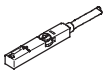
Ordering data – One-way flow control valves for cylinder ADNH and ADNM — Technical data ➔ www.festo.com

	Connection		Material	Part No.	Type
	For ∅	For tubing O.D.			
For exhaust air					
	25, 40	3	Metal design	193 137	GRLA-M5-QS-3-D
		4		193 138	GRLA-M5-QS-4-D
	63, 100	4		193 143	GRLA-⅛-QS-4-D
		6		193 144	GRLA-⅛-QS-6-D
		8		193 145	GRLA-⅛-QS-8-D

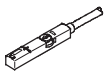
Ordering data – One-way flow control valves for cylinder ADNP — Technical data ➔ www.festo.com

	Connection	Part No.	Type
	For ∅		
Inline			
	20, 25	540 362	VFOC-E-S4-Q4
	32, 40, 50	540 363	VFOC-E-S6-Q6

Ordering data – Proximity sensors for T-slot, magneto-resistive — Technical data ➔ www.festo.com/catalogue/sm

	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

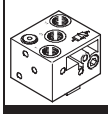
Ordering data – Proximity sensors for T-slot, magnetic reed — Technical data ➔ www.festo.com/catalogue/sm

	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 ➔ www.festo.com/catalogue/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**

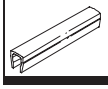
Ordering data – Rectangular proximity sensors, pneumatic — Technical data ➔ www.festo.com/catalogue/sm

	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 ➔ www.festo.com/catalogue/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**

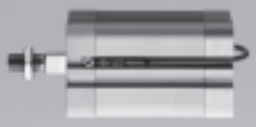
What must be observed when using Festo components?

Specified limit values for technical data and any specific instructions must be adhered to by the user in order to ensure recommended operating conditions.
When pneumatic components are used, the user shall ensure that they are operated using correctly prepared compressed air without aggressive media.
When Festo components are used in safety-oriented applications, the user shall ensure that all applicable national and local safety laws and regulations, for example the machine directive, together with the relevant references to standards are observed.
Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permissible.
Festo does not accept any liability for resulting damages.
You should contact Festo's advisors if one of the following apply to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.

Products and services – everything from a single source

Products incorporating new ideas are created when enthusiasm for technology and efficiency come together. Tailor-made service goes without saying when the customer is the focus of attention.



Pneumatic and electrical drives

- Pneumatic cylinders
- Semi-rotary drives
- Handling modules
- Servopneumatic positioning systems
- Electromechanical drives
- Positioning controllers and controllers

Valves and valve terminals

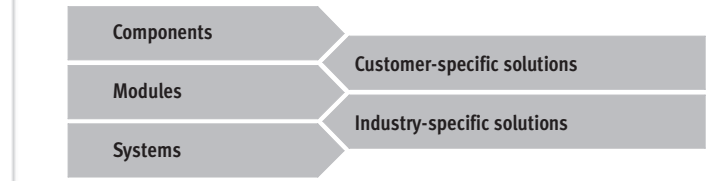
- Standard valves
- Universal and application-optimised valves
- Manually and mechanically actuated valves
- Shut-off, pressure control and flow control valves
- Proportional valves
- Safety valves

Fieldbus systems/ electrical peripherals

- Fieldbus Direct
- Installation system CP/CPI
- Modular electrical terminal CPX

Compressed air preparation

- Service unit combinations
- Filter regulators
- Filters
- Pressure regulators
- Lubricators
- On-off and soft-start valves
- Dryers
- Pressure amplifiers
- Accessories for compressed air preparation



Services from Festo to increase your productivity – across the entire value creation sequence

Engineering – for greater speed in the development process

- CAD models
- 14 engineering tools
- Digital catalogue
- FluidDRAW®
- More than 1,000 technical consultants and project engineers worldwide
- Technical hotlines

Supply chain – for greater speed in the procurement process

- E-commerce and online shop
- Online order tracking
- Euro special manufacturing service
- Logistics optimisation

Gripping and vacuum technology

- Vacuum generators
- Vacuum grippers
- Vacuum security valves
- Vacuum accessories
- Standard grippers
- Micro grippers
- Precision grippers
- Heavy-duty grippers

Sensors and monitoring units

- Proximity sensors
- Pressure and flow sensors
- Display and operating units
- Inductive and optical proximity sensors
- Displacement encoders for positioning cylinders
- Optical orientation detection and quality inspection

Controllers/bus systems

- Pneumatic and electropneumatic controllers
- Programmable logic controllers
- Fieldbus systems and accessories
- Timers/counters
- Software for visualisation and data acquisition
- Display and operating units

Accessories

- Pipes
- Tubing
- Pipe connectors and fittings
- Electrical connection technology
- Silencers
- Reservoirs
- Air guns

All in all, 100% product and service quality

A customer-oriented range with unlimited flexibility:
Components combine to produce ready-to-install modules and systems. Included in this are special designs – since at Festo, most industry-specific products and customer-specific solutions are based on the 23,000 plus catalogue products. Combined with the services for the entire value creation sequence, the end result is unbeatable economy.

Assembly – for greater speed in the assembly/commissioning process

- Prepack
- Preassembly
- Turnkey pneumatics
- Handling solutions

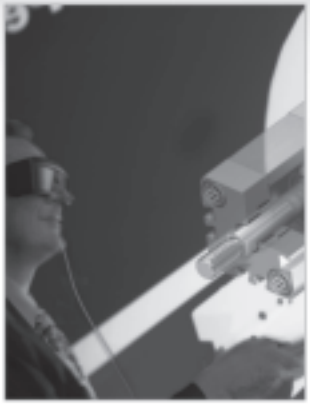
Operation – for greater speed in the operational process

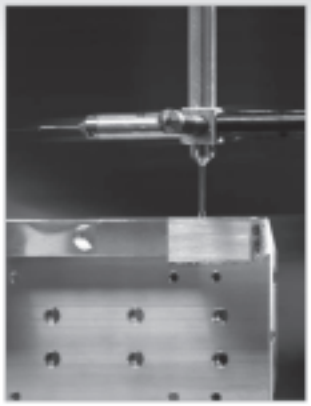
- Spare parts service
- Energy saving service
- Compressed air consumption analysis
- Compressed air quality analysis
- Customer service

Aspects of quality

Quality can be viewed from a number of aspects. A short virtual tour of the Research and Development department, the Production department or the Customer Service Centre speaks more than a thousand words.

3D engineering and simulation





Innovation quality

Let's look at some of the figures:

- 6.5% of turnover
- 2,800 patents with 100 new applications every year
- 3D engineering and simulation
- 10,600 employees worldwide
- Each and every one of them a lateral thinker

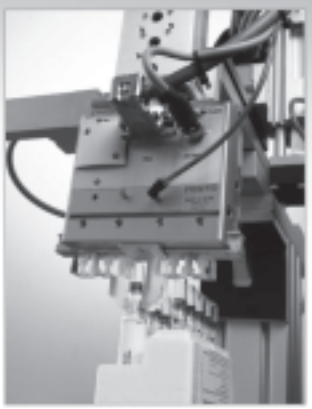
Production quality

Your interest is quality and economy – therefore we place considerable value on:

- Minimum production tolerances
- Ultra-modern, proprietary production methods
- Core competencies in production
- Defined quality standards across the entire production chain
- Strict quality assurance systems: on that you can depend.

Price quality

More service for less money. Many of the new and further developments in the Festo product range have one thing in common: they are technically superior and more attractively priced than their predecessor product. Examples are to be found in all product segments: among the drives, valves, valve terminals; among the service units, and among the range of accessories.



Range quality

For individual solutions. Festo offers components as industry-specific catalogue products as well as standards-based and highly individual special designs. Ready-to-install combinations of these components play an integral part in the Festo product portfolio as modules or systems. Incidentally, an increasing number of components can be individually configured as modular products.

Didactic quality

To complement the products and services for automation, Festo Didactic offers exceptionally efficient training hardware, learning software and seminars of the highest quality. Optimally tailored to your value creation sequence.
In short – training in practical applications for practical application.