



■ Standard cylinder with strokes of up to 2,000 mm

■ Latest profile design

■ Proximity sensors fit flush in the sensor slot

■ Numerous variants

Specified types in accordance with ATEX directive for potentially explosive atmospheres
→ www.festo.com/en/ex

Standard cylinders DNC, ISO 15552

Key features

FESTO

Basic cylinder DNC

General data



Standardised dimensions

Conforms to

- ISO 15552
- ISO 6431
- VDMA 24562
- NFE 49003.1
- UNI 10290



DIN



- The modern design and construction saves up to 11% on space compared to ordinary standard cylinders, thus permitting a considerably more compact system design.

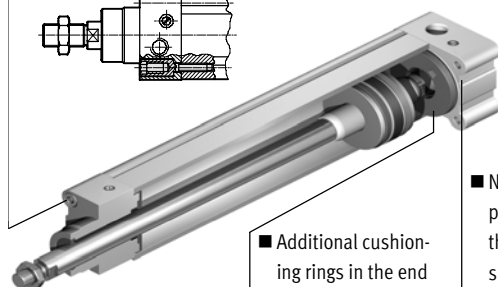
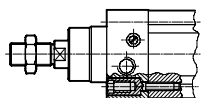
- An extensive range of accessories makes it possible to install the cylinder virtually anywhere.

- The widest range of variants on the market provides the right DNC cylinder for every application.

- The proximity sensors fit flush in the profile slot. On the one hand, this does away with the need for additional mounting kits and on the other, it protects the proximity sensor against mechanical damage.

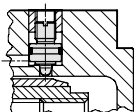
Design features

- Socket head screw with female threads for mounting attachments



- A broad range of accessories

- Additional cushioning rings in the end positions for absorbing the residual energy from high speeds and machine cycles.



- No protruding proximity sensors thanks to profile slots

- Smooth, closed surface using slot covers for the sensor slots (protects the sensor cable and keeps dirt out of the profile slots)

Standard cylinders DNC, ISO 15552

Key features

FESTO

Tandem cylinder

DNCT



- Connection of 2 cylinders with the same piston $\varnothing$ and stroke in series
- Double the thrust and return force in comparison to a standard cylinder

Cylinder with clamping units

Clamping cartridge for piston rod DNC-KP



- Holding and clamping of piston rods in any position during clamping, processing or handling tasks
- Compact design of the clamping unit
- The piston rod can be held in position for long periods even with alternating loads, fluctuating operating pressure or leaks in the system
- With own modular product system

Cylinders with clamping unit DNCKE



- Used in safety relevant control systems EN 954-1, EN 1050, EN 292 and EN 983
- Zero-fault proof
- Piston rod can be clamped in any position

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinders DNC, ISO 15552

Key features

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Cylinder with end-position lock

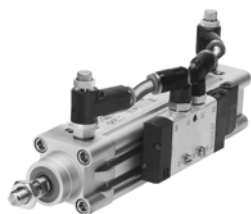
Cylinder DNC- ... -EL



- Mechanical lock when the end position is reached
- Lock is only automatically released when pressure is supplied to the cylinder
- End position locking in advanced, retracted or both end positions
- The end position lock does not require any additional valves or sensors for actuation as is the case with other force-locked systems

Cylinder/valve combination

DNC-V1 ... -V6

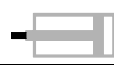
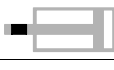
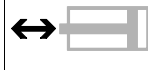
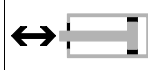
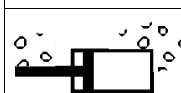
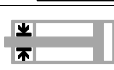
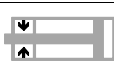


- The drive unit is fitted and tubed, ready for connection, with a CPE solenoid valve and one-way flow control valves
- Quick installation of drive unit
- Particularly suitable for decentralised use in larger systems
- With own modular product system

Standard cylinders DNC, ISO 15552

Key features

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Variants from the modular system		
Symbol	Key features	Description
	Q Square piston rod	Protection against torsion
	S2 Through piston rod	The thread designs on both piston rod ends are identical
	S20 Through, hollow piston rod	Suitable for vacuum applications
	K2 Extended male piston rod thread	–
	K3 Female piston rod thread	–
	K5 Special thread on piston rod	Metric standard thread to ISO
	K7 Piston rod with external hexagon	Special spanner flats
	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
	S6 Heat-resistant seals for temperatures up to 150 °C	Temperature-resistant
	S10 Slow speed (constant motion at low piston speeds)	Suitable for slow stroke movements at a constant, stick-slip-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).
	CT Free of copper, PTFE and silicone	–
	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 using wiper seals	The cylinder is equipped with a hard-chrome plated piston rod and a rigid scraper, which protects against dry, dusty media.
	KP With clamping cartridge	Integrated clamping unit on piston rod
	EL With end position lock	Positive-locking end position lock as drop guard for safety-related applications. If there is a drop in pressure, the piston rod is secured in its end position to prevent it from dropping.



Software tools on CD-ROM:
Configuration of Festo product
modules
www.festo.com

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

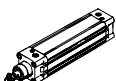
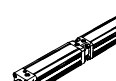
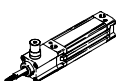
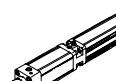
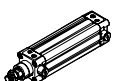
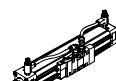
Standard cylinders DNC, ISO 15552

Product range overview

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ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

Function	Design	Type	Piston Ø [mm]	Stroke [mm]	Position sensing A	Protec- tion against torsion Q	Type of piston rod S2/S20	Male thread extended K2	Female thread K3	Special thread K5
Double- acting	Basic cylinder									
		DNC	32, 40, 50, 63, 80, 100, 125	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	10 ... 2,000	■	■	■	■	■
	Tandem/high-power cylinder									
		DNCT	32, 40, 50 63, 80, 100, 125	– 2 ... 500 3 ... 500	■	–	–	–	–	–
	Cylinder with clamping units									
		DNC-KP	32, 40, 50, 63, 80, 100, 125	– 10 ... 2,000	■	■	■ S2	■	■	■
		DNCKE	40, 63, 100	– 10 ... 2,000	■	–	–	–	–	–
	Cylinder with end-position lock									
		DNC-...-EL	32, 40, 50, 63, 80, 100	– 10 ... 2,000	■	–	■ S2	■	■	■
	Cylinder/valve combination									
		DNC-V1 ... V6	32, 40, 50, 63, 80, 100	– 100 ... 2,000	■	■	■	■	■	■

Standard cylinders DNC, ISO 15552

Product range overview

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Type	Special spanner flats	Piston rod extended	Improved running perform- ance	Heat-resis- tant up to 150 °C	Constant motion (at low speed)	Low friction	Free of copper, PTFE and silicone CT	High cor- rosion protection	Wiper seal	Cylinder/ valve com- bination	→Page
	K7	K8	K10	S6	S10	S11	CT	R3	R8	V1 ... V6	
Basic cylinder											
DNC	■	■	■	■	■	■	■	■	■	-	1 / 1.2-12
Tandem/high-power cylinder											
DNCT	-	-	-	■	-	-	-	-	-	-	NO TAG www.festo.com
Cylinder with clamping units											
DNC-KP	■	■	-	-	-	-	-	-	-	■	1 / 1.2-26
DNCKE	-	-	-	-	-	-	-	-	-	-	NO TAG www.festo.com
Cylinder with end-position lock											
DNC-...-EL	-	■	-	-	-	-	-	-	-	-	1 / 1.2-36 www.festo.com
Cylinder/valve combination											
DNC-V1 ... V6	■	■	■	-	■	■	-	-	■	■	1 / 1.2-44

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

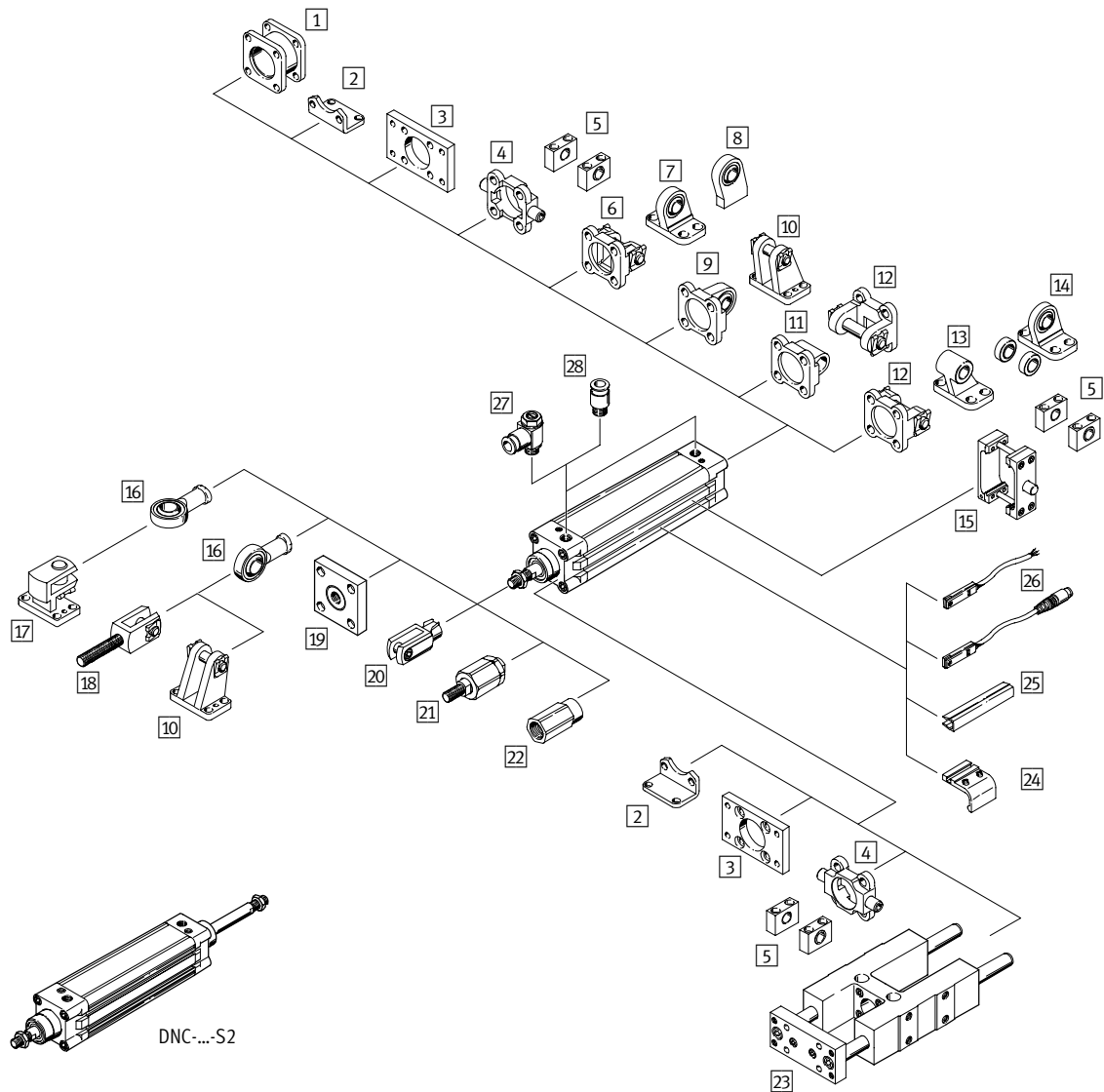
1.2

Standard cylinders DNC, ISO 15552

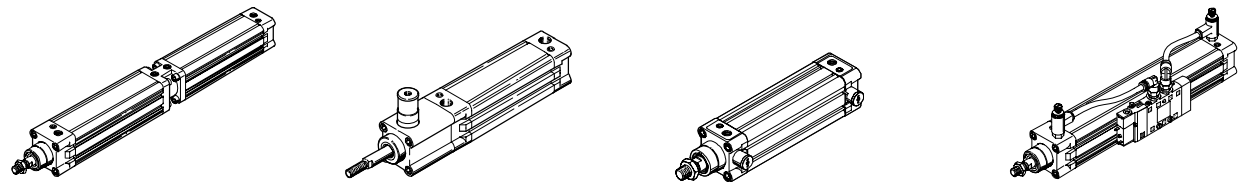
Peripherals overview



ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)
1.2



Variants			
DNCT	DNC-...-KP	DNC-...-EL	DNC-...-V1...6



Mounting attachments and accessories						
	Brief description	DNC				→Page
		Basic version	KP	EL	V1 ... V6	
1	Adapter kit DPNC	For connecting two cylinders with identical piston Ø to form a multi-position cylinder	■ ¹⁾	■	■	1 / 1.2-53
2	Foot mounting HNC/CRHNC	For bearing and end cap	■	■	■	1 / 1.2-54
3	Flange mounting FNC/CRFNG	For bearing or end cap	■	■	■	1 / 1.2-55

Standard cylinders DNC, ISO 15552

Peripherals overview

FESTO

Mounting attachments and accessories							
		Brief description	DNC				→Page
			Basic version	KP	EL	V1 ... V6	
4	Trunnion flange ZNCF/CRZNG	For bearing or end cap	■	■	■	■	1 / 1.2-56
5	Trunnion support LNZG/CRLNZG	–	■	■	■	■	1 / 1.2-58
6	Swivel flange SNC	For end cap	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-59
7	Clevis foot LSNG	With spherical bearing	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-62
8	Clevis foot LSNSG	Weld-on, with spherical bearing	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-62
9	Swivel flange SNCS	With spherical bearing for end caps	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-61
10	Clevis foot LBG	–	■ ¹⁾	■	■	■ ¹⁾	1 / 1.2-62
11	Swivel flange SNCL	For end cap	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-61
12	Swivel flange SNCB/SNCB-...-R3	For end cap	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-60
13	Clevis foot LNG/CRLNG	–	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-62
14	Clevis foot LSN	With spherical bearing	■ ¹⁾	■ ¹⁾	■	■ ¹⁾	1 / 1.2-62
15	Trunnion mounting kit ZNCM	For mounting anywhere along the cylinder profile barrel	■	■	■	■	1 / 1.2-57
16	Rod eye SGS/CRSGS	With spherical bearing	■	■	■	■	1 / 1.2-63
17	Clevis foot, lateral LQG	–	■	■	■	■	1 / 1.2-62
18	Rod clevis SGA	With male thread	■	■	■	■	1 / 1.2-63
19	Coupling piece KSG	For compensating radial deviations	■	■	■	■	1 / 1.2-63
	Coupling piece KSZ	For cylinders with a non-rotating piston rod to compensate for radial deviations	■ Q	■ Q	■	■ Q	1 / 1.2-63
20	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	■	■	1 / 1.2-63
21	Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	■	■	1 / 1.2-63
22	Adapter AD	For a vacuum suction cup	■ S20	–	–	■ S20	1 / 1.2-63
23	Guide unit FENG	For protecting standard cylinders from torsion at high torque loads	■ ²⁾	■ Ø 50 ... 125	–	–	1 / 1.2-64
24	Sensor mounting kit SMB-8-FENG	For proximity sensor SMT-8 when attaching to cylinders in combination with guide unit FENG	■ ²⁾	■ Ø 50 ... 125	■	–	1 / 1.2-64
25	Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	■	■	■	■	1 / 1.2-65
26	Proximity sensor SME/SMT-8	Can be integrated in the cylinder profile barrel from above	■	■	■	■	1 / 1.2-65
27	One-way flow control valve GRLA	For speed regulation	■	■	■	■	1 / 1.2-67
28	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	■	■	■	■	Volume 3 www.festo.com

1) Not with variants S2 or S20

2) For piston Ø 32, 40 mm only with variant R3

Standard cylinders DNC, ISO 15552



Type codes

		DNC	–	80	–	320	–	PPV	–	A
Type										
Double-acting										
DNC	Standard cylinder									
Piston Ø [mm]										
Stroke [mm]										
Cushioning										
P	Non-adjustable at either end									
PPV	Adjustable at both ends									
Position sensing										
	Without position sensing									
A	With position sensing									

Note

The standard cylinder DNC can be ordered using either a fixed part number and type designation or via the product module system. It is not possible to order variants using the part number and type code ordering method; this is only possible using the module system. The type code listed above designates only the DNC standard cylinder with fixed part number and type designation.

Standard cylinders DNC, ISO 15552

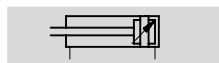
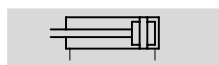
FESTO

Technical data

Function

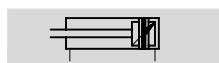
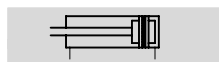
DNC-...

without position sensing



DNC-...-A-...

with position sensing



- Ø - Diameter
32 ... 125 mm

- I - Stroke length
10 ... 2,000 mm

- T - [www.festo.com/en/
Spare_parts_service](http://www.festo.com/en/Spare_parts_service)

Wearing parts kits
→ 1 / 1.2-25

- W - Repair service
Piston Ø 80 mm with variable stroke or with variants
Piston Ø 100, 125 mm

- W - Repair service
Piston Ø 80 mm with variable stroke or with variants
Piston Ø 100, 125 mm



Conforms to
■ ISO 15552
■ ISO 6431
■ VDMA 24562
■ NFE 49003.1
■ UNI 10290



DIN



ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

General technical data		32	40	50	63	80	100	125
Stroke [mm]	Basic version	10 ... 2,000						
	Q	10 ... 1,500	10 ... 1,500	10 ... 1,500		10 ... 1,500		-
	K10	10 ... 1,000						-
	S10	10 ... 500						-
	S11	10 ... 500						
	S20	10 ... 850						
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{1}{2}$
Piston rod thread	Basic version	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2
	K3	M6	M8	M10	M10	M12	M12	M16
	K5	M10	M12	M16	M16	M20	M20	M27
Constructional design	Piston							
	Piston rod							
	Cylinder barrel							
Cushioning P		Non-adjustable at either end						
Cushioning PPV		Adjustable at both ends						
Cushioning length PPV	[mm]	20	20	22	22	32	32	42
Position sensing		With proximity sensor						
Type of mounting		Via female thread						
		Via accessories						
Assembly position		Any						

Operating conditions		32	40	50	63	80	100	125
Operating medium		Filtered compressed air, lubricated or unlubricated						
Operating pressure [bar]	Basic version	0.6 ... 12						0.6 ... 10
	R8	1.5 ... 12						1.5 ... 10
	S11	0.1 ... 12						0.1 ... 10

Standard cylinders DNC, ISO 15552

FESTO

Technical data

Ambient conditions			
Variant	Basic version	R3	S6
Ambient temperature ¹⁾ [°C]	−20 ... +80	−20 ... +80	−20 ... +150
Corrosion resistance class CRC ²⁾	2	3	2

1) Note operating range of proximity sensors.

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

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

Corrosion resistance class 3 according to Festo standard 940 070

Components 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.

Speed [mm/s]								
Piston Ø		32	40	50	63	80	100	125
Maximum speed	Basic version	Dependent on the application (mounting position, moving mass, operating pressure, controlling valve, tube length)						
	S10	100						–
Minimum speed	Basic version	≤ 50						
	S10 ¹⁾	8			5			–

1) Minimum speed for stick-slip-free running, 6 bar exhaust air restrictor, horizontal, without load

Forces [N] and impact energy [J]								
Piston Ø		32	40	50	63	80	100	125
Theoretical force at 6 bar, advancing		483	754	1,178	1,870	3,016	4,712	7,363
	S2/S20	415	633	990	1,682	2,721	4,418	6,881
Theoretical force at 6 bar, retracting		415	633	990	1,682	2,721	4,418	6,881
	S2/S20	415	633	990	1,682	2,721	4,418	6,881
Max. impact energy at the end positions ¹⁾		0.1	0.2	0.2	0.5	0.9	1.2	5

1) The permitted impact energy is reduced by approx. 10% for variants K10 and S20.

Permissible impact velocity:

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

Maximum permissible load:

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



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.

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

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Standard cylinders DNC, ISO 15552

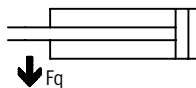
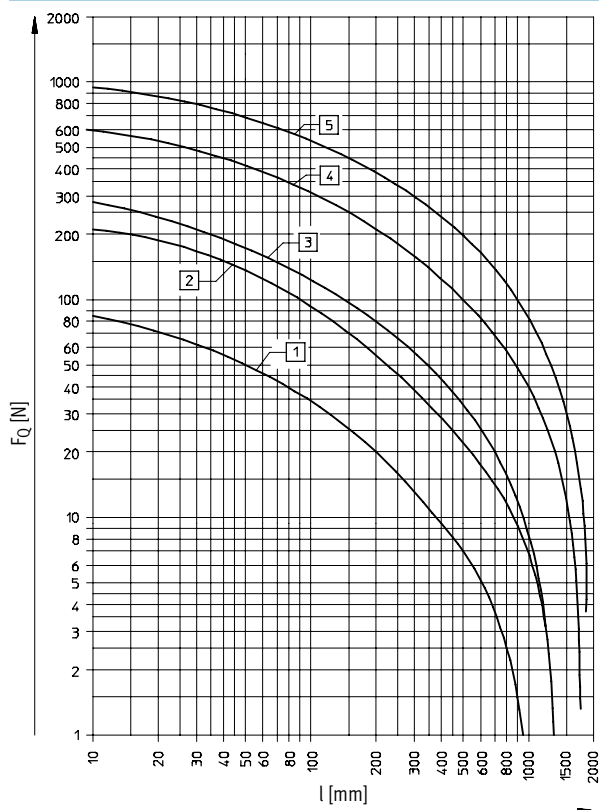
Technical data

FESTO

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

Lateral force F_q as a function of stroke length l in the basic version



- 1 Ø 32
- 2 Ø 40
- 3 Ø 50, 63
- 4 Ø 80, 100
- 5 Ø 125

Technical data, variant Q

Piston Ø	32	40	50	63	80	100
Max. torque at the piston rod	0.8	1.1	1.5	1.5	3	3
Max. torsional backlash of piston rod	±0.65	±0.6	±0.45	±0.45	±0.45	±0.45

Max. permissible torque at the piston rod for variant Q

Graphs → 1 / 1.2-15

Examples for piston Ø 32 mm

Example 1:

Stroke length l = 150 mm

Result: Permissible

Lateral force F_q = 9.5 N

Lever arm s = 84 mm

Example 2:

Lateral force F_q = 40 N

Result: Permissible

Stroke length l = 28 mm

Lever arm s = 20 mm

Example 3:

Stroke length l = 150 mm

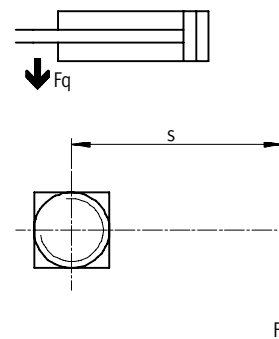
Lever arm s = 20 mm

$$F_q = \frac{\text{Max. torque } 800 \text{ Nmm}}{\text{Lever arm } 100 \text{ mm}}$$

$$= 8 \text{ N}$$

Result: Permissible

$$F_q = 8 \text{ N} < F_{q \text{ max.}} = 9.5 \text{ N}$$



Standard cylinders DNC, ISO 15552

Technical data

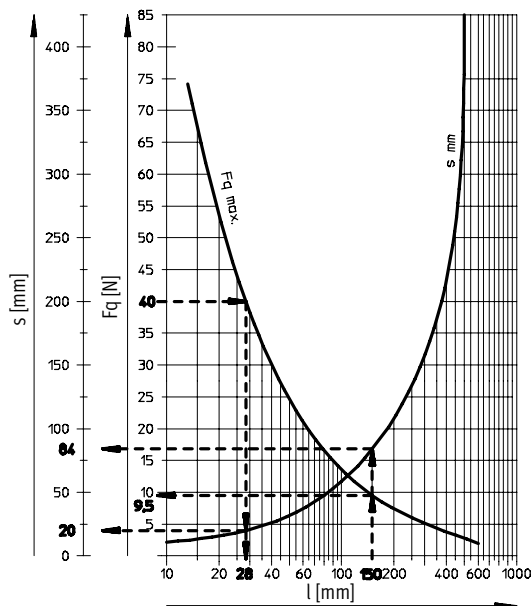


Lateral force F_q as a function of the stroke length l and lever arm s in variant Q

Piston $\varnothing$ 32 mm

Max. torque = 800 Nmm

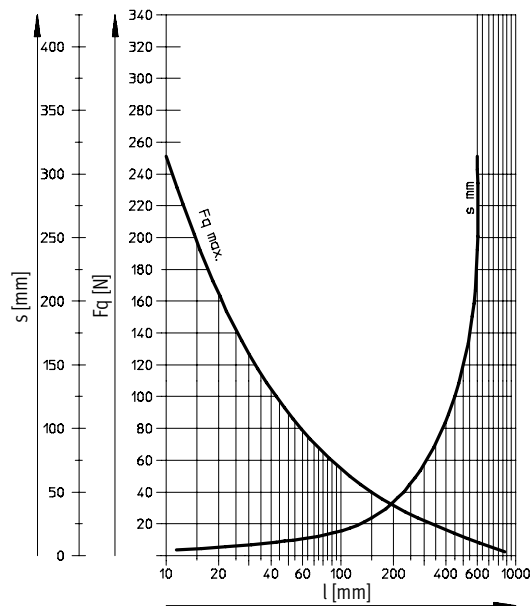
Max. stroke = 300 mm



Piston $\varnothing$ 40 mm

Max. torque = 1,100 Nmm

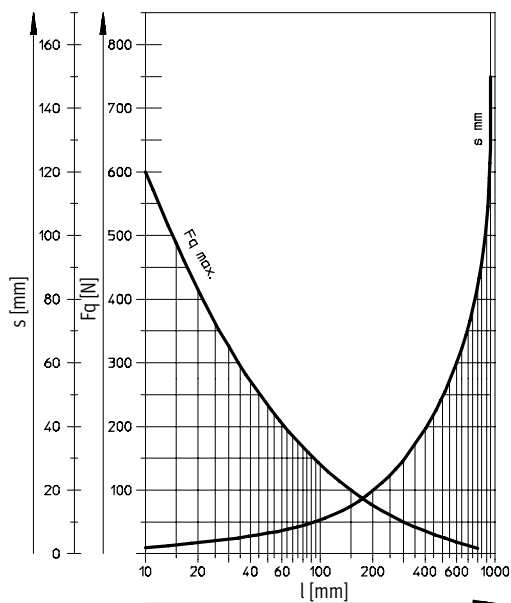
Max. stroke = 400 mm



Piston $\varnothing$ 50, 63 mm

Max. torque = 1,500 Nmm

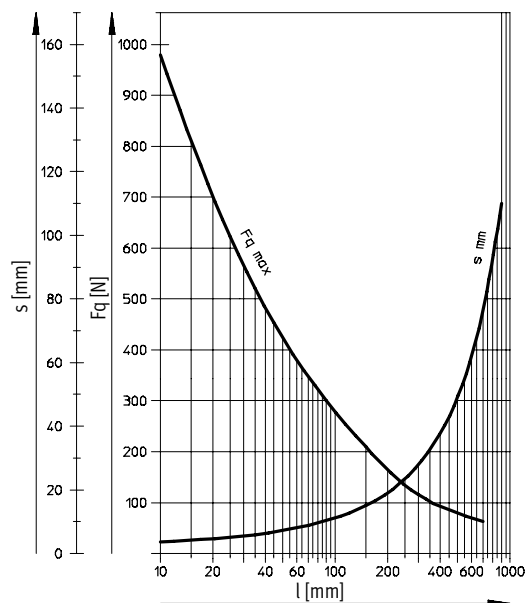
Max. stroke = 500 mm



Piston $\varnothing$ 80, 100 mm

Max. torque = 3,000 Nmm

Max. stroke = 600 mm



Standard cylinders DNC, ISO 15552

FESTO

Technical data

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

Weights [g]							
Piston Ø	32	40	50	63	80	100	125
Basic version							
Product weight at 0 mm stroke	517	800	1,260	1,709	2,790	4,653	6,771
Additional weight per 10 mm stroke	30	45	64	73	106	115	168
Moving load at 0 mm stroke	162	307	538	663	1,131	1,544	2,809
Additional load per 10 mm stroke	9	16	25	25	38	38	63
Variant K10 – Aluminium piston rod							
Product weight at 0 mm stroke	443	655	1,001	1,437	2,302	4,138	5,719
Additional weight per 10 mm stroke	24	35	47	57	81	90	127
Moving load at 0 mm stroke	88	162	279	391	643	1,029	1,757
Additional load per 10 mm stroke	3	6	8	9	13	13	22
Variant Q – Square piston rod							
Product weight at 0 mm stroke	504	738	1,187	1,632	2,652	4,508	–
Additional weight per 10 mm stroke	29	41	60	68	99	108	–
Moving load at 0 mm stroke	149	244	465	587	994	1,399	–
Additional load per 10 mm stroke	8	11	20	20	31	31	–
Variant S2 – Through piston rod							
Product weight at 0 mm stroke	576	895	1,390	1,917	3,114	5,297	7,529
Additional weight per 10 mm stroke	39	61	89	98	144	153	231
Moving load at 0 mm stroke	170	330	560	711	1,200	1,660	2,925
Additional load per 10 mm stroke	18	32	50	50	76	76	126
Variant S2 – Through piston rod, Variant K10 – Aluminium piston rod							
Product weight at 0 mm stroke	514	766	1,181	1,676	2,701	4,821	6,674
Additional weight per 10 mm stroke	27	40	56	65	94	103	148
Moving load at 0 mm stroke	108	201	351	470	787	1,184	2,070
Additional load per 10 mm stroke	6	11	17	17	26	26	43

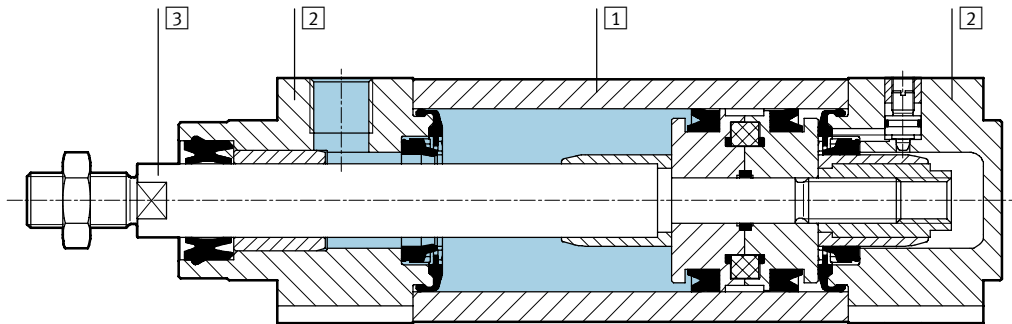
Standard cylinders DNC, ISO 15552

Technical data

FESTO

Materials

Sectional view



Variant	Basic version	CT	K10	R3
[1] Cylinder barrel	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised
[2] Bearing and end cap	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium
[3] Piston rod	High-alloy steel	High-alloy steel	Wrought aluminium alloy, anodised	High-alloy stainless steel
– Seals	Polyurethane, nitrile rubber	Polyurethane, nitrile rubber	Polyurethane, nitrile rubber	Polyurethane, nitrile rubber

Variant	R8	S6	S10	S11
[1] Cylinder barrel	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised
[2] Bearing and end cap	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium
[3] Piston rod	Tempered steel	High-alloy steel	High-alloy steel	High-alloy steel
– Seals	Polyurethane, nitrile rubber	Fluorocarbon rubber	Fluorocarbon rubber	Fluorocarbon rubber

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

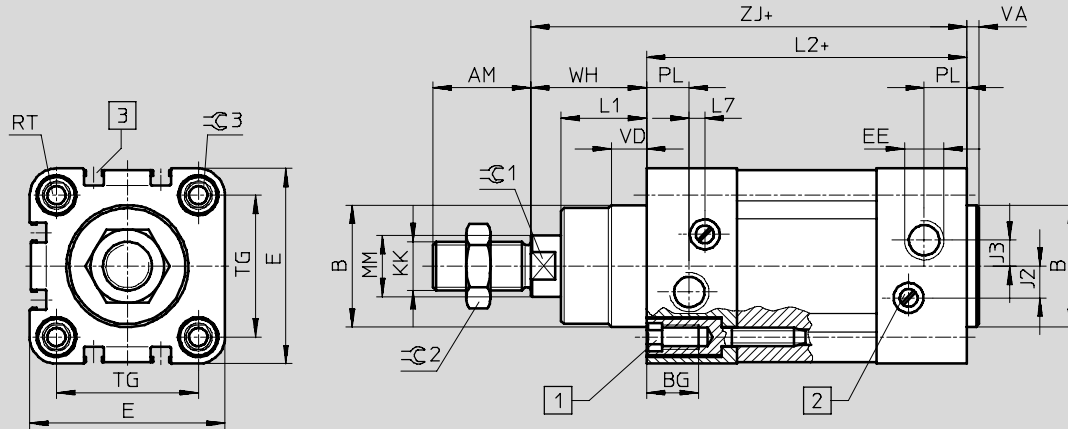
Standard cylinders DNC, ISO 15552

Technical data

FESTO

Dimensions – Basic cylinders

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



- 1 Socket head screw with female thread for mounting attachments
2 Regulating screw for adjustable end-position cushioning
3 Sensor slot for proximity sensor SME/SMT-8
+ = plus stroke length

Ø [mm]	AM	B Ø d11	BG	E	EE	J2	J3	KK	L1	L2
32	22	30	16	45	G1/8	6	5.2	M10x1.25	18	94
40	24	35	16	54	G1/4	8	6	M12x1.25	21.5	105
50	32	40	17	64	G1/4	10.4	8.5	M16x1.5	28	106
63	32	45	17	75	G3/8	12.4	10	M16x1.5	28.5	121
80	40	45	17	93	G3/8	12.5	8	M20x1.5	34.7	128
100	40	55	17	110	G1/2	12	10	M20x1.5	38.2	138
125	54	60	22	134	G1/2	13	8	M27x2	46	160

Ø [mm]	L7	MM Ø	PL	RT	TG	VA	VD	WH	ZJ	1	2	3
32	3.3	12	15.6	M6	32.5	4	10	26	120	10	16	6
40	3.6	16	14	M6	38	4	10.5	30	135	13	18	6
50	5.1	20	14	M8	46.5	4	11.5	37	143	17	24	8
63	6.6	20	17	M8	56.5	4	15	37	158	17	24	8
80	10.5	25	16.4	M10	72	4	15.7	46	174	22	30	6
100	8	25	18.8	M10	89	4	19.2	51	189	22	30	6
125	14	32	18	M12	110	6	20.5	65	225	27	36	8

Standard cylinders DNC, ISO 15552

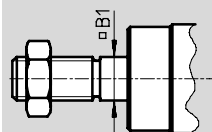
Technical data

FESTO

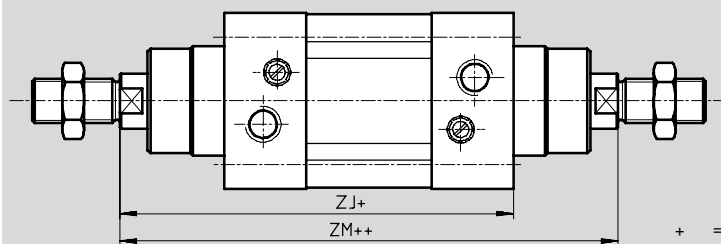
Dimensions – Variants

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

Q – Square piston rod



S2 – Through piston rod

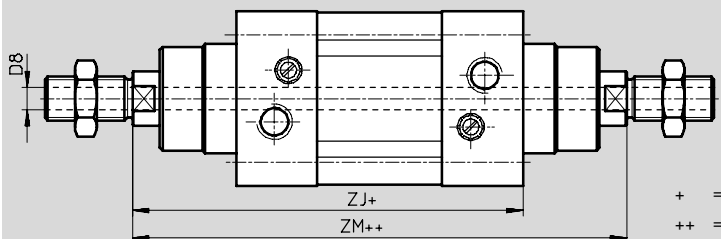


+ = plus stroke length
++ = plus 2 stroke lengths

-  - Note

The thread designs on both piston rod ends are identical. In combination with variant Q, the front piston rod is square, the rear piston rod round.

S20 – Through, hollow piston rod



+ = plus stroke length
++ = plus 2 stroke lengths

-  - Note

The max. stroke length for all piston rod is 850 mm.
In combination with variant K8, the piston rod is extended on one side at the bearing cap.

Ø [mm]	B1 □	D8 Ø	ZJ	ZM
32	10	4.5	120	148
40	12	5.5	135	167
50	16	8 ¹⁾	143	183
63	16	8	158	199
80	20	11.7	174	222
100	20	11.7	189	240
125	–	13	225	291

1) Internal narrowing to Ø 5.5 mm

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinders DNC, ISO 15552

Technical data

FESTO

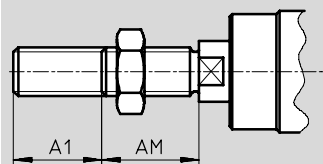
ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

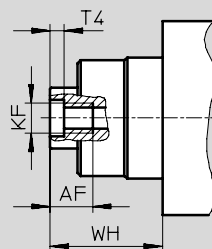
Dimensions – Variants

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

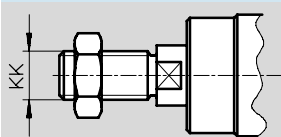
K2 – Extended male piston rod thread



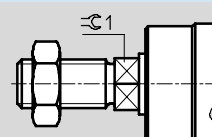
K3 – Female piston rod thread



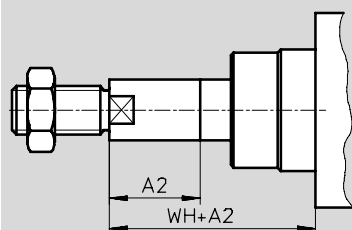
K5 – Special piston rod thread



K7 – Piston rod with external hexagon



K8 – Extended piston rod



- Note

In combination with variant S2, the piston rod is extended on one side at the bearing cap. If variant Q is also required, the extension will be added to the square piston rod. In combination with variant S20, the piston rod is extended on both sides.

Ø [mm]	A1 max.	A2 max.	AF	AM	KF	KK		T4	WH	1
						Basic thread	Special thread ¹⁾			
32	35	500	12	22	M6	M10x1.25	M10	2.6	26	10
40	35	500	12	24	M8	M12x1.25	M12	3.3	30	13
50	70	500	16	32	M10	M16x1.5	M16	4.7	37	17
63	70	500	16	32	M10	M16x1.5	M16	4.7	37	17
80	70	500	20	40	M12	M20x1.5	M20	6.1	46	22
100	70	500	20	40	M12	M20x1.5	M20	6.1	51	22
125	70	500	32	54	M16	M27x2	M27	8	65	27

1) The special threads are only available as male threads. The scope of delivery does not include a hex nut for the piston rod thread.

Standard cylinders DNC, ISO 15552

FESTO

Technical data

Ordering data – Basic version						
Type	Piston Ø [mm]	Stroke [mm]	Without position sensing		With position sensing	
			Part No.	Type ¹⁾	Part No.	Type ¹⁾
	32	25	163 319	DNC-32-25-PPV	163 305	DNC-32-25-PPV-A
		40	163 320	DNC-32-40-PPV	163 306	DNC-32-40-PPV-A
		50	163 321	DNC-32-50-PPV	163 307	DNC-32-50-PPV-A
		80	163 322	DNC-32-80-PPV	163 308	DNC-32-80-PPV-A
		100	163 323	DNC-32-100-PPV	163 309	DNC-32-100-PPV-A
		125	163 324	DNC-32-125-PPV	163 310	DNC-32-125-PPV-A
		160	163 325	DNC-32-160-PPV	163 311	DNC-32-160-PPV-A
		200	163 326	DNC-32-200-PPV	163 312	DNC-32-200-PPV-A
		250	163 327	DNC-32-250-PPV	163 313	DNC-32-250-PPV-A
		320	163 328	DNC-32-320-PPV	163 314	DNC-32-320-PPV-A
		400	163 329	DNC-32-400-PPV	163 315	DNC-32-400-PPV-A
		500	163 330	DNC-32-500-PPV	163 316	DNC-32-500-PPV-A
	40	25	163 351	DNC-40-25-PPV	163 337	DNC-40-25-PPV-A
		40	163 352	DNC-40-40-PPV	163 338	DNC-40-40-PPV-A
		50	163 353	DNC-40-50-PPV	163 339	DNC-40-50-PPV-A
		80	163 354	DNC-40-80-PPV	163 340	DNC-40-80-PPV-A
		100	163 355	DNC-40-100-PPV	163 341	DNC-40-100-PPV-A
		125	163 356	DNC-40-125-PPV	163 342	DNC-40-125-PPV-A
		160	163 357	DNC-40-160-PPV	163 343	DNC-40-160-PPV-A
		200	163 358	DNC-40-200-PPV	163 344	DNC-40-200-PPV-A
		250	163 359	DNC-40-250-PPV	163 345	DNC-40-250-PPV-A
		320	163 360	DNC-40-320-PPV	163 346	DNC-40-320-PPV-A
		400	163 361	DNC-40-400-PPV	163 347	DNC-40-400-PPV-A
		500	163 362	DNC-40-500-PPV	163 348	DNC-40-500-PPV-A
	50	25	163 383	DNC-50-25-PPV	163 369	DNC-50-25-PPV-A
		40	163 384	DNC-50-40-PPV	163 370	DNC-50-40-PPV-A
		50	163 385	DNC-50-50-PPV	163 371	DNC-50-50-PPV-A
		80	163 386	DNC-50-80-PPV	163 372	DNC-50-80-PPV-A
		100	163 387	DNC-50-100-PPV	163 373	DNC-50-100-PPV-A
		125	163 388	DNC-50-125-PPV	163 374	DNC-50-125-PPV-A
		160	163 389	DNC-50-160-PPV	163 375	DNC-50-160-PPV-A
		200	163 390	DNC-50-200-PPV	163 376	DNC-50-200-PPV-A
		250	163 391	DNC-50-250-PPV	163 377	DNC-50-250-PPV-A
		320	163 392	DNC-50-320-PPV	163 378	DNC-50-320-PPV-A
		400	163 393	DNC-50-400-PPV	163 379	DNC-50-400-PPV-A
		500	163 394	DNC-50-500-PPV	163 380	DNC-50-500-PPV-A
	63	25	163 415	DNC-63-25-PPV	163 401	DNC-63-25-PPV-A
		40	163 416	DNC-63-40-PPV	163 402	DNC-63-40-PPV-A
		50	163 417	DNC-63-50-PPV	163 403	DNC-63-50-PPV-A
		80	163 418	DNC-63-80-PPV	163 404	DNC-63-80-PPV-A
		100	163 419	DNC-63-100-PPV	163 405	DNC-63-100-PPV-A
		125	163 420	DNC-63-125-PPV	163 406	DNC-63-125-PPV-A
		160	163 421	DNC-63-160-PPV	163 407	DNC-63-160-PPV-A
		200	163 422	DNC-63-200-PPV	163 408	DNC-63-200-PPV-A
		250	163 423	DNC-63-250-PPV	163 409	DNC-63-250-PPV-A
		320	163 424	DNC-63-320-PPV	163 410	DNC-63-320-PPV-A
		400	163 425	DNC-63-400-PPV	163 411	DNC-63-400-PPV-A
		500	163 426	DNC-63-500-PPV	163 412	DNC-63-500-PPV-A

1) Mounting nut on the piston rod thread included in the scope of delivery.

 Core Range

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinders DNC, ISO 15552

FESTO

Technical data

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

Ordering data – Basic version					
Type	Piston Ø [mm]	Stroke [mm]	Without position sensing		With position sensing
			Part No.	Type ¹⁾	Part No. Type ¹⁾
	80	25	163 447	DNC-80-25-PPV	163 433 DNC-80-25-PPV-A
		40	163 448	DNC-80-40-PPV	163 434 DNC-80-40-PPV-A
		50	163 449	DNC-80-50-PPV	163 435 DNC-80-50-PPV-A
		80	163 450	DNC-80-80-PPV	163 436 DNC-80-80-PPV-A
		100	163 451	DNC-80-100-PPV	163 437 DNC-80-100-PPV-A
		125	163 452	DNC-80-125-PPV	163 438 DNC-80-125-PPV-A
		160	163 453	DNC-80-160-PPV	163 439 DNC-80-160-PPV-A
		200	163 454	DNC-80-200-PPV	163 440 DNC-80-200-PPV-A
		250	163 455	DNC-80-250-PPV	163 441 DNC-80-250-PPV-A
		320	163 456	DNC-80-320-PPV	163 442 DNC-80-320-PPV-A
		400	163 457	DNC-80-400-PPV	163 443 DNC-80-400-PPV-A
		500	163 458	DNC-80-500-PPV	163 444 DNC-80-500-PPV-A
	100	25	163 479	DNC-100-25-PPV	163 465 DNC-100-25-PPV-A
		40	163 480	DNC-100-40-PPV	163 466 DNC-100-40-PPV-A
		50	163 481	DNC-100-50-PPV	163 467 DNC-100-50-PPV-A
		80	163 482	DNC-100-80-PPV	163 468 DNC-100-80-PPV-A
		100	163 483	DNC-100-100-PPV	163 469 DNC-100-100-PPV-A
		125	163 484	DNC-100-125-PPV	163 470 DNC-100-125-PPV-A
		160	163 485	DNC-100-160-PPV	163 471 DNC-100-160-PPV-A
		200	163 486	DNC-100-200-PPV	163 472 DNC-100-200-PPV-A
		250	163 487	DNC-100-250-PPV	163 473 DNC-100-250-PPV-A
		320	163 488	DNC-100-320-PPV	163 474 DNC-100-320-PPV-A
		400	163 489	DNC-100-400-PPV	163 475 DNC-100-400-PPV-A
		500	163 490	DNC-100-500-PPV	163 476 DNC-100-500-PPV-A
	125	25	163 511	DNC-125-25-PPV	163 497 DNC-125-25-PPV-A
		40	163 512	DNC-125-40-PPV	163 498 DNC-125-40-PPV-A
		50	163 513	DNC-125-50-PPV	163 499 DNC-125-50-PPV-A
		80	163 514	DNC-125-80-PPV	163 500 DNC-125-80-PPV-A
		100	163 515	DNC-125-100-PPV	163 501 DNC-125-100-PPV-A
		125	163 516	DNC-125-125-PPV	163 502 DNC-125-125-PPV-A
		160	163 517	DNC-125-160-PPV	163 503 DNC-125-160-PPV-A
		200	163 518	DNC-125-200-PPV	163 504 DNC-125-200-PPV-A
		250	163 519	DNC-125-250-PPV	163 505 DNC-125-250-PPV-A
		320	163 520	DNC-125-320-PPV	163 506 DNC-125-320-PPV-A
		400	163 521	DNC-125-400-PPV	163 507 DNC-125-400-PPV-A
		500	163 522	DNC-125-500-PPV	163 508 DNC-125-500-PPV-A

Ordering data – Variants						
Type	Piston Ø [mm]	Stroke [mm]	Without position sensing		With position sensing	
			Part No.	Type ¹⁾	Part No.	Type ¹⁾
Variable stroke						
	32	10 ... 2000	163 318 DNC-32-...-PPV		163 304	DNC-32-...-PPV-A
	40	10 ... 2000	163 350 DNC-40-...-PPV		163 336	DNC-40-...-PPV-A
	50	10 ... 2000	163 382 DNC-50-...-PPV		163 368	DNC-50-...-PPV-A
	63	10 ... 2000	163 414 DNC-63-...-PPV		163 400	DNC-63-...-PPV-A
	80	10 ... 2000	163 446 DNC-80-...-PPV		163 432	DNC-80-...-PPV-A
	100	10 ... 2000	163 478 DNC-100-...-PPV		163 464	DNC-100-...-PPV-A
	125	10 ... 2000	163 510 DNC-125-...-PPV		163 496	DNC-125-...-PPV-A

1) Mounting nut on the piston rod thread included in the scope of delivery.

 Core Range

Standard cylinders DNC, ISO 15552

Ordering data – Modular products

FESTO

M Mandatory data					O Options					
Module No.	Function	Piston Ø	Stroke	Cushion- ing	Position sensing	Protec- tion against torsion	Type of piston rod	Male thread ex- tended	Female thread	Special thread
163 302 163 334 163 366 163 398 163 430 163 462 163 494 Ordering example	DNC	32 40 50 63 80 100 125	10 ... 2000	P PPV	A	Q	S2 S20	...K2	K3	...K5
163 430	DNC	- 80	- 550	- PPV	- A	- Q	- S2	-	- K3	-

Ordering table										
Size	32	40	50	63	80	100	125	Condi- tions	Code	Enter code
M	Module No.	163 302	163 334	163 366	163 398	163 430	163 462	163 494		
	Function	Standard cylinder, double-acting, based on ISO 15552								DNC
	Piston Ø [mm]	32	40	50	63	80	100	125		-...
	Stroke [mm]	10 ... 2000								-...
	Cushioning	Flexible cushioning rings/plates at both ends							1	-P
		Pneumatic cushioning adjustable at both ends							2	-PPV
O	Position sensing	For proximity sensors								-A
	Protection against torsion	Square piston rod						-	3	-Q
	Type of piston rod	Through piston rod							4	-S2
		Through, hollow piston rod							5	-S20
	Male thread extended [mm]	Piston rod with extended male thread								
		1 ... 35		1 ... 70				6	-...K2	
	Female thread	Female piston rod thread								
		(M6)	(M8)	(M10)	(M10)	(M12)	(M12)	(M16)	7	-K3
Special thread	Special piston rod thread									
	M10	M12	M16	M16	M20	M20	M27	8	-...K5	
↓										

- 1 P Not with CT.
2 PPV Not with S10, S11.
3 Q Max. stroke: 10 ... 1,500 mm
In combination with S2: Square piston rod at bearing cap end only.
Not with S20, K7, K10, S10, S11, CT, R8.
4 S2 In combination with K2: Thread extension on both ends.
In combination with K3: Female thread on both ends.
In combination with K5: Special thread on both ends.
In combination with K8: Piston rod extended at bearing cap end only.
Not with S20, K7, S10, S11.

- 5 S20 Max. stroke: 850 mm.
In combination with K8: Piston rod extended on both ends.
Not with K2, K3, K5, K10, S10, S11, R8.
6 K2 Not with K3, K10.
7 K3 With K5: On request.
Not with K7.
8 K5 Not with K10.

Transfer order code

DNC
 -
 -
 -
 -
 -
 -
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 -
 -

Standard cylinders DNC, ISO 15552

Ordering data – Modular products



ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

→ 0 Options								
Special spanner flats	Piston rod extended	Improved runnin performance	Tempera- ture resistant	Constant motion (at low speed)	Running characteristics	Special-materials	Corrosion protection	Wiper seal
K7	...K8	K10	S6	S10	S11	CT	R3	R8
-	- 100K8	-	-	-	-	-	-	-

Ordering table										
Size	32	40	50	63	80	100	125	Condi- tions	Code	Enter code
↓	Special spanner flats	Piston rod with external hexagon						9	-K7	
0	Piston rod extended	Extended piston rod							-...K8	
	[mm]	1 ... 500								
	Improved running performance	Smooth anodised aluminium coated piston rod						–	10	-K10
	Temperature-resistant	Heat-resistant seals up to max. 150 °C							11	-S6
	Constant motion (at low speed)	Slow speed (constant motion at low piston speeds)						–	12	-S10
	Running characteristics	Low friction							13	-S11
	Special materials	Free of copper, PTFE and silicone							14	-CT
	Corrosion protection	High corrosion protection							14	-R3
	Wiper seal	Dust protection								-R8

- 9

K7

Not with Q, S2, K10.
- 10

K10

Max. stroke: 1,000 mm.
Not with R3, R8.
- 11

S6

Not with S10, S11, CT, R8.
- 12

S10

Max. stroke: 500 mm; further strokes on request.
Not with S11, CT, R3, R8.

- 13

S11

Max. stroke: 500 mm; further strokes on request.
Not with CT, R3, R8.
- 14

CT, R3

Not with R8.

Transfer order code

-

-

-

-

-

-

-

-

-

-

Standard cylinders DNC, ISO 15552

Ordering data



Wearing parts kits			
	Part No.	Type	
Piston Ø	Basic version		S6 – Heat resistant up to 150 °C
32	369 195	DNC-32-...-PPV-(A)	384 214 DNC-32-...-PPV-(A)-S6
40	369 196	DNC-40-...-PPV-(A)	384 215 DNC-40-...-PPV-(A)-S6
50	369 197	DNC-50-...-PPV-(A)	384 216 DNC-50-...-PPV-(A)-S6
63	369 198	DNC-63-...-PPV-(A)	384 217 DNC-63-...-PPV-(A)-S6
80	369 199	DNC-80-...-PPV-(A)	384 218 DNC-80-...-PPV-(A)-S6
100	369 200	DNC-100-...-PPV-(A)	384 219 DNC-100-...-PPV-(A)-S6
125	369 201	DNC-125-...-PPV-(A)	384 220 DNC-125-...-PPV-(A)-S6

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

Standard cylinder DNC-KP, clamping cartridge for piston rod

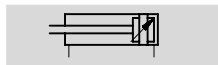
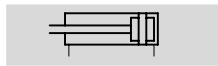
FESTO

Technical data

Function

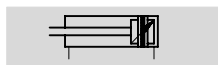
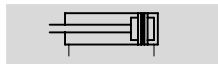
DNC-...

without position sensing



DNC-...-A-...

with position sensing



KP

Ø Diameter
32 ... 125 mm

Stroke length
10 ... 2,000 mm



[www.festo.com/en/
Spare_parts_service](http://www.festo.com/en/Spare_parts_service)

Wearing parts kits

→ 1 / 1.2-35



Conforms to

- ISO 15552
- ISO 6431
- VDMA 24562
- NFE 49003.1
- UNI 10290



DIN



General technical data								
Piston Ø		32	40	50	63	80	100	125
Stroke [mm]	Basic version	10 ... 2,000						
	Q	10 ... 1,500	10 ... 1,500	10 ... 1,500	10 ... 1,500	10 ... 1,500	10 ... 1,500	–
Pneumatic connection	Cylinder	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{1}{2}$
	Clamping cartridge	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod thread	Basic version	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2
	K3	M6	M8	M10	M10	M12	M12	M16
	K5	M10	M12	M16	M16	M20	M20	M27
Constructional design		Piston						
		Piston rod						
		Cylinder barrel						
		Clamping cartridge						
Cushioning P		Non-adjustable at either end						
Cushioning PPV		Adjustable at both ends						
Cushioning length	[mm]	20	20	22	22	32	32	42
Position sensing		With proximity sensor						
Type of mounting		Via female thread						
		Via accessories						
Assembly position		Any						

Operating and environmental conditions								
Piston Ø		32	40	50	63	80	100	125
Operating medium		Filtered compressed air, lubricated or unlubricated						
Operating pressure	[bar]	1.5 ... 10						
Min. release pressure	[bar]	3						
Ambient temperature ¹⁾	[°C]	–10 ... +80						
Corrosion resistance class CRC ²⁾		2						

1) Note operating range of proximity sensors.

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

Components requiring moderate corrosion resistance. 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.

Standard cylinder DNC-KP, clamping cartridge for piston rod

FESTO

Technical data

Forces [N]							
Piston Ø	32	40	50	63	80	100	125
Theoretical force at 6 bar, advancing	483	754	1,178	1,870	3,016	4,712	7,363
S2	415	633	990	1,682	2,721	4,418	6,881
Theoretical force at 6 bar, retracting	415	633	990	1,682	2,721	4,418	6,881
S2	415	633	990	1,682	2,721	4,418	6,881
Static holding force	600	1,000	1,400	2,000	5,000	5,000	7,500



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.

Impact energy [J]							
Piston Ø	32	40	50	63	80	100	125
Max. impact energy at the end positions	0.1	0.2	0.2	0.5	0.9	1.2	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.

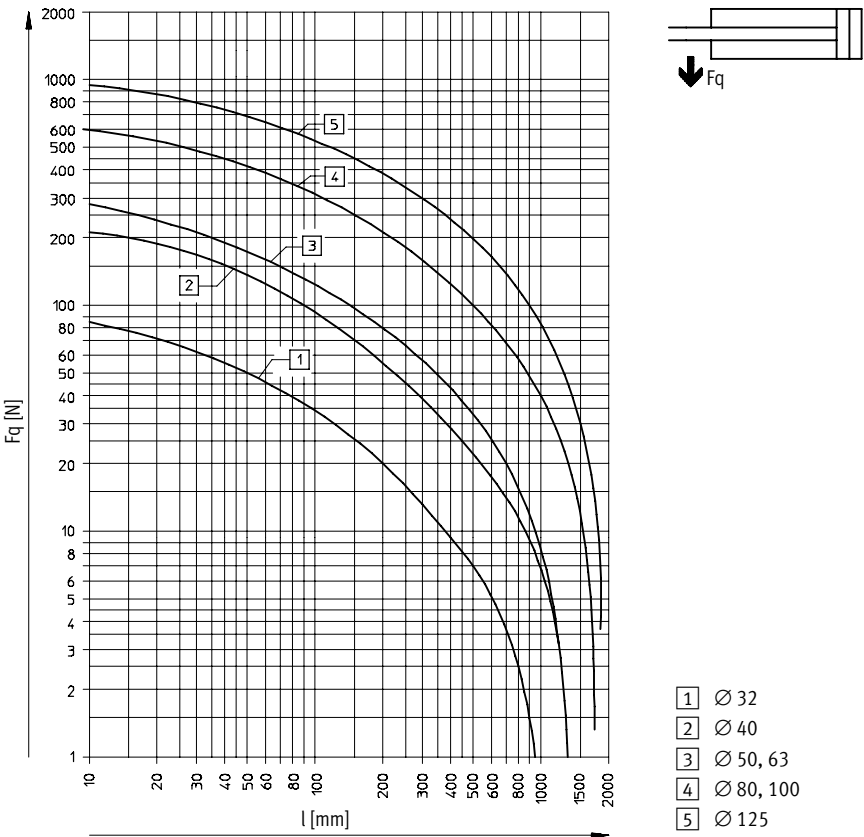
Standard cylinder DNC-KP, clamping cartridge for piston rod

Technical data

FESTO

Axial backlash at the piston rod [mm]							
Piston Ø	32	40	50	63	80	100	125
Max. axial backlash at the clamped piston rod	0.25	0.25	0.30	0.30	0.30	0.30	0.30

Lateral force Fq as a function of stroke length l



Standard cylinder DNC-KP, clamping cartridge for piston rod

FESTO

Technical data

Technical data, variant Q – Square piston rod						
Piston Ø	32	40	50	63	80	100
Max. torque at the piston rod [Nm]	0.8	1.1	1.5	1.5	3	3
Max. torsional backlash of piston rod [°]	±0.65	±0.6	±0.45	±0.45	±0.45	±0.45

Max. permissible torque at the piston rod for variant Q

Graphs → see below

Examples for piston Ø 32 mm

Example 1:

Stroke length l = 150 mm

Result: Permissible

Lateral force F_q = 9.5 N

Lever arm s = 84 mm

Example 2:

Lateral force F_q = 40 N

Result: Permissible

Stroke length l = 28 mm

Lever arm s = 20 mm

Example 3:

Stroke length l = 150 mm

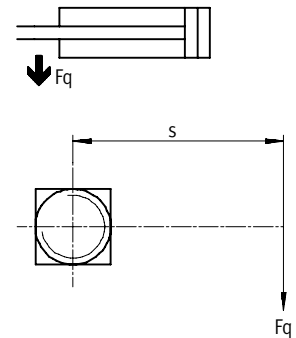
Lever arm s = 20 mm

$$F_q = \frac{\text{Max. torque } 800 \text{ Nmm}}{\text{Lever arm } 100 \text{ mm}}$$

$$= 8 \text{ N}$$

Result: Permissible

$$F_q = 8 \text{ N} < F_{q \text{ max.}} = 9.5 \text{ N}$$

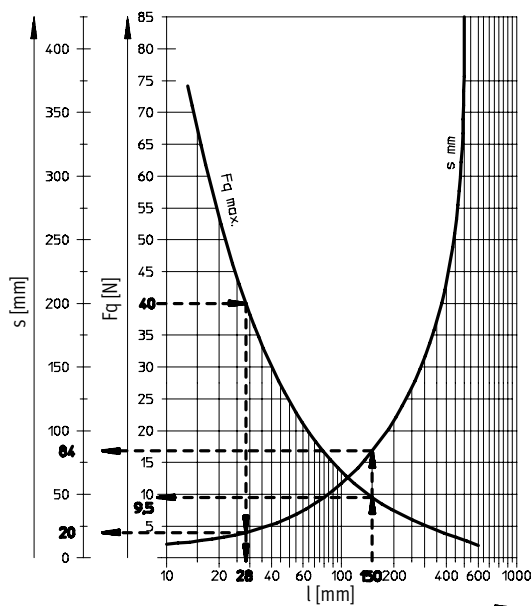


Lateral force F_q as a function of the stroke length l and lever arm s in variant Q

Piston Ø 32 mm

Max. torque = 800 Nmm

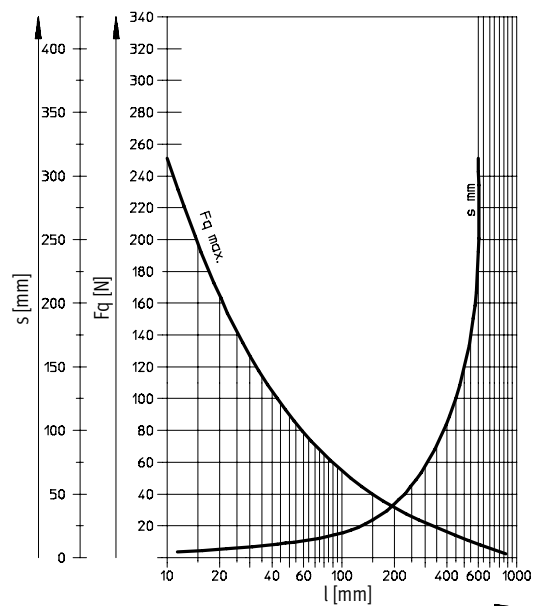
Max. stroke = 300 mm



Piston Ø 40 mm

Max. torque = 1,100 Nmm

Max. stroke = 400 mm

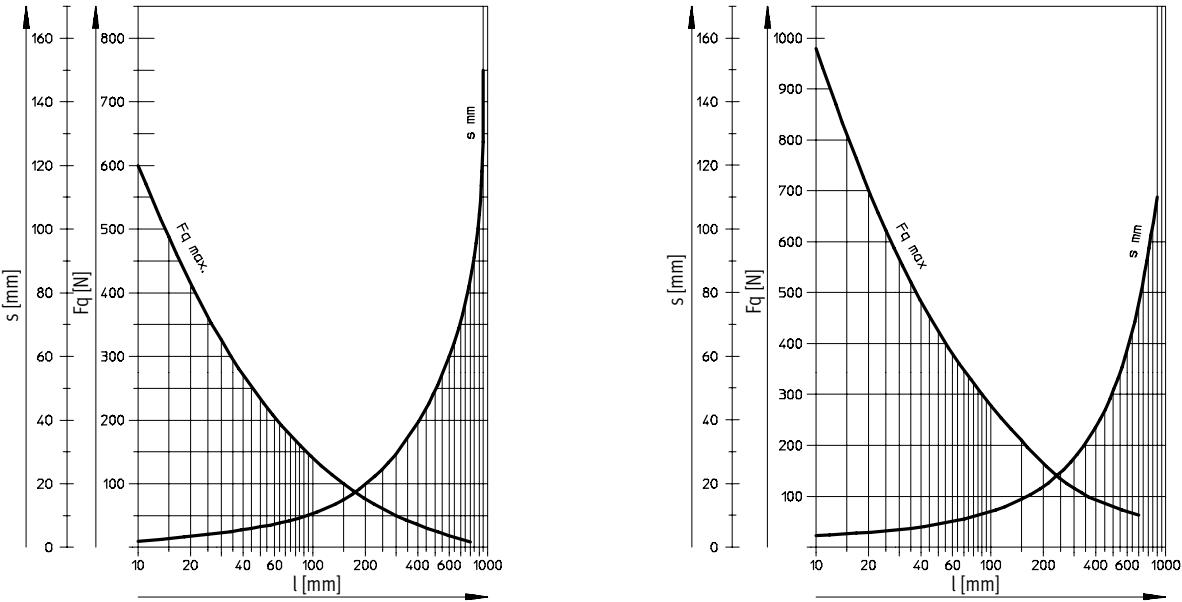


Standard cylinder DNC-KP, clamping cartridge for piston rod

Technical data

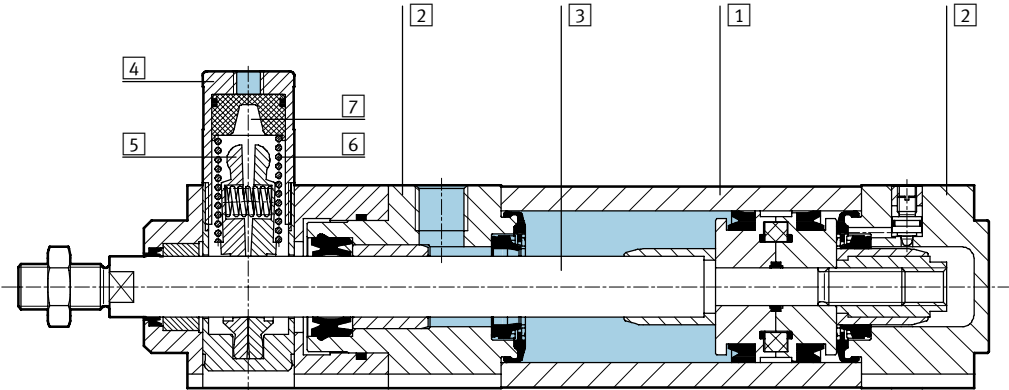


Piston Ø 50, 63 mm Max. torque = 1,500 Nmm Max. stroke = 500 mm	Piston Ø 80, 100 mm Max. torque = 3,000 Nmm Max. stroke = 600 mm
---	--



Materials

Sectional view



Cylinder with clamping cartridge		
1	Cylinder barrel	Wrought aluminium alloy, smooth-anodised
2	Bearing and end cap	Die-cast aluminium
3	Piston rod	High-alloy steel
4	Housing	Wrought aluminium alloy, anodised
5	Clamping jaws	Brass
6	Spring	Spring steel
7	Piston	Polyacetal
–	Seals	Polyurethane, nitrile rubber

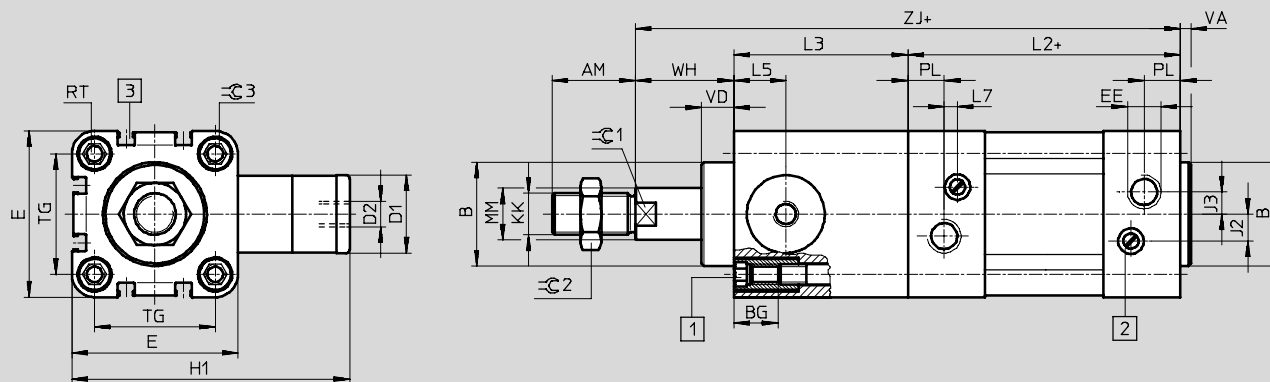
Standard cylinder DNC-KP, clamping cartridge for piston rod

FESTO

Technical data

Dimensions – Basic cylinders

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



1 Socket head screw with female thread for mounting attachments

2 Regulating screw for adjustable end-position cushioning

3 Sensor slot for proximity sensor SME/SMT-8

+ = plus stroke length

Ø [mm]	AM	B Ø d11	BG	D1 Ø f9	D2	E	EE	H1	J2	J3	KK	L2	L3
32	22	30	16	20	M5	45	G $\frac{1}{8}$	67	6	5.2	M10x1.25	94	45
40	24	35	16	24	G $\frac{1}{8}$	54	G $\frac{1}{4}$	88	8	6	M12x1.25	105	53
50	32	40	17	30	G $\frac{1}{8}$	64	G $\frac{1}{4}$	107	10.4	8.5	M16x1.5	106	67
63	32	45	17	38	G $\frac{1}{8}$	75	G $\frac{3}{8}$	123	12.4	10	M16x1.5	121	76
80	40	45	17	48	G $\frac{1}{8}$	93	G $\frac{3}{8}$	165.5	12.5	8	M20x1.5	128	95
100	40	55	17	48	G $\frac{1}{8}$	110	G $\frac{1}{2}$	174	12	10	M20x1.5	138	98
125	54	60	22	65	G $\frac{1}{8}$	134	G $\frac{1}{2}$	207	13	8	M27x2	160	125

Ø [mm]	L5	L7	MM Ø	PL	RT	TG	VA	VD	WH	ZJ	⌀1	⌀2	⌀3
32	14	3.3	12	15.6	M6	32.5	4	11.5	26	165	10	16	6
40	16	3.6	16	14	M6	38	4	11.5	30	188	13	18	6
50	20	5.1	20	14	M8	46.5	4	11	37	210	17	24	8
63	24	6.6	20	17	M8	56.5	4	11	37	234	17	24	8
80	31.5	10.5	25	16.4	M10	72	4	12.5	46	269	22	30	6
100	31	8	25	18.8	M10	89	4	12	51	287	22	30	6
125	42	14	32	18	M12	110	6	27.5	65	350	27	36	8

- - Note

The dimensions for the cylinder/
valve combination are on page

→ 1 / 1.2-48

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinder DNC-KP, clamping cartridge for piston rod

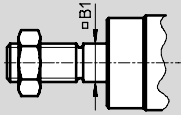
Technical data

FESTO

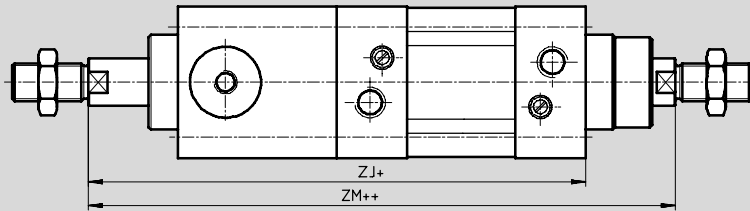
Dimensions – Variants

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

Q – Square piston rod



S2 – Through piston rod



+ = plus stroke length
++ = plus 2 stroke lengths

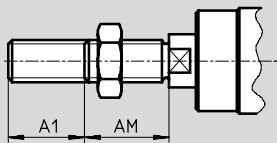
The thread designs on both piston rod ends are identical. The clamping cartridge is mounted on only one side.

In combination with variant Q, the front piston rod is square, the rear

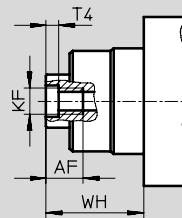
piston rod round. The clamping cartridge is mounted on the rear,

round piston rod.

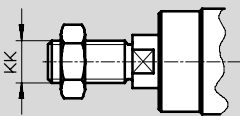
K2 – Extended male piston rod thread



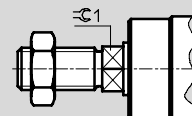
K3 – Female piston rod thread



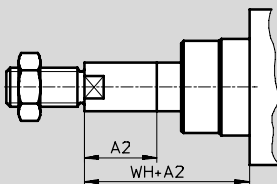
K5 – Special piston rod thread



K7 – Piston rod with external hexagon



K8 – Extended piston rod



In combination with variant S2, the piston rod is extended on one side at the bearing cap. The clamping unit is

mounted on the side of the piston rod that is not extended. If variant Q is

also required, the extension will only be added to the square piston rod.

Ø [mm]	A1 max.	A2 max.	AF	AM	B1 □	KF	KK		T4	WH	ZJ	ZM	$\approx C1$
							Basic thread	Special thread ¹⁾					
32	35	500	12	22	10	M6	M10x1.25	M10	2.6	26	165	193	10
40	35	500	12	24	12	M8	M12x1.25	M12	3.3	30	188	220	13
50	70	500	16	32	16	M10	M16x1.5	M16	4.7	37	210	250	17
63	70	500	16	32	16	M10	M16x1.5	M16	4.7	37	234	275	17
80	70	500	20	40	20	M12	M20x1.5	M20	6.1	46	269	317	22
100	70	500	20	40	20	M12	M20x1.5	M20	6.1	51	287	338	22
125	70	500	32	54	–	M16	M27x2	M27	8	65	350	416	27

1) The special threads are only available as male threads. The scope of delivery does not include a hex nut for the piston rod thread.

Standard cylinder DNC-KP, clamping cartridge for piston rod

FESTO

Ordering data – Modular products

Mandatory data					Options		
Module No.	Drive function	Piston Ø	Stroke	Cushioning	Position sensing	Protection against torsion	Type of piston rod
163 302	DNC	32	10 ... 2000	P PPV	A	Q	S2
163 334		40					
163 366		50					
163 398		63					
163 430		80					
163 462		100					
163 494		125					
Ordering example							
163 430	DNC	- 80	- 550	- PPV	- A	- Q	- S2

Ordering table										
Size	32	40	50	63	80	100	125	Condi- tions	Code	Enter code
M Module No.	163 302	163 334	163 366	163 398	163 430	163 462	163 494			
Drive function	Double-acting cylinder based on ISO 15552								DNC	DNC
Piston Ø [mm]	32	40	50	63	80	100	125		-...	
Stroke [mm]	10 ... 2000								-...	
Cushioning	Flexible cushioning rings/plates at both ends								-P	
	Pneumatic cushioning adjustable at both ends								-PPV	
O Position sensing	For proximity sensors								-A	
Protection against torsion	Square piston rod							-	1 -Q	
↓ Type of piston rod	Through piston rod								2 -S2	

1 Q Max. stroke: 10 ... 1,500 mm
In combination with S2: Square piston rod at bearing cap end only.
In combination with KP: Only supplied with S2.
Not with K7.

2 S2 In combination with K2: Thread extension on both ends.
In combination with K3: Female thread on both ends.
In combination with K5: Special thread on both ends.
In combination with K8: Piston rod extended at bearing cap end only.
In combination with KP: Clamping cartridge on the end cap.
Not with K7.

Transfer order code

	DNC	-		-		-		-		-	
--	-----	---	--	---	--	---	--	---	--	---	--

Standard cylinder DNC-KP, clamping cartridge for piston rod

Ordering data – Modular products

FESTO

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

Options					M	O
Male thread extended	Female thread	Special thread	Special spanner flats	Piston rod extended	Clamping unit	Cylinder/valve combination
...K2	K3	...K5	K7	...K8	KP	V1 V2 V3 V4 V5 V6
-	- K3	-	-	- 100K8	- KP	-

Ordering table										
Size	32	40	50	63	80	100	125	Condi- tions	Code	Enter code
↓	Male thread extended	Piston rod with extended male thread								
[O]	[mm]	1 ... 35		1 ... 70				[3]	-...K2	
	Female thread	Piston rod with female thread								
		(M6)	(M8)	(M10)	(M10)	(M12)	(M12)	(M16)	[4]	-K3
	Special thread	Special piston rod thread								
		M10	M12	M16	M16	M20	M20	M27		-...K5
	Special spanner flats	Piston rod with external hexagon							-K7	
	Piston rod extended	Extended piston rod								
	[mm]	1 ... 500							-...K8	
[M]	Clamping unit	Clamping unit on the piston rod						[5]	-KP	-KP
[O]	Cylinder/valve combination	Single solenoid valve, fitted on right, unactuated piston rod retracted					—	[6]	-V1	
		Single solenoid valve, fitted on right, unactuated piston rod advanced					—	[6]	-V2	
		Double solenoid valve, fitted on right, unactuated piston rod retracted					—	[6]	-V3	
		Single solenoid valve, fitted on left, unactuated piston rod retracted					—	[6]	-V4	
		Single solenoid valve, fitted on left, unactuated piston rod advanced					—	[6]	-V5	
		Double solenoid valve, fitted on left, unactuated piston rod retracted					—	[6]	-V6	

[3] K2 Not with K3.

[4] K3 With K5: On request.
Not with K7.

[5] KP Without S2: Position of the clamping cartridge on the bearing cap.

[6] V... Min. stroke: 100 mm

Transfer order code

- [] - [] - [] - [] - [] - KP - []

Standard cylinder DNC-KP, clamping cartridge for piston rod

Ordering data



Wearing parts kits		
	Part No.	Type
Piston Ø	Basic version	
32	369 195	DNC-32-...-PPV-(A)
40	369 196	DNC-40-...-PPV-(A)
50	369 197	DNC-50-...-PPV-(A)
63	369 198	DNC-63-...-PPV-(A)
80	369 199	DNC-80-...-PPV-(A)
100	369 200	DNC-100-...-PPV-(A)
125	369 201	DNC-125-...-PPV-(A)

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

Standard cylinder DNC-EL, with end position lock

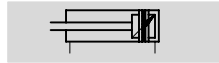
Technical data

FESTO

Function

DNC-...-A-...-EL

with position sensing



EL



[www.festo.com/en/
Spare_parts_service](http://www.festo.com/en/Spare_parts_service)

Wearing parts kits

→ 1 / 1.2-25



Ø - Diameter
32 ... 100 mm

└ - Stroke length
10 ... 2,000 mm

Conforms to

- ISO 15552
- ISO 6431
- VDMA 24562
- NFE 49003.1
- UNI 10290



DIN



General technical data							
Piston Ø		32	40	50	63	80	100
Stroke [mm]	Basic version	10 ... 2000					
Pneumatic connection	Basic version	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{3}{8}$	G $\frac{1}{2}$
	EL	M3		M5			
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5
Constructional design		Piston					
		Piston rod					
		Cylinder barrel					
End position lock	ELV	Advanced end position					
	ELH	Retracted end position					
	ELB	Both end positions					
Cushioning P		Non-adjustable at either end					
Cushioning PPV		Adjustable at both ends					
Cushioning length	Basic version	20	20	22	22	32	32
PPV [mm]	EL	8.2	8.3	7.3	10.8	9.8	11.8
Position sensing		With proximity sensor					
Type of mounting		Via female thread					
		Via accessories					
Assembly position		Any					



Note

- The end position lock should only be operated in conjunction with double-acting exhaust-air restricted cylinders, in order to ensure that the lock is always completely released prior to starting the drive movement.
- 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 end position locking is to be used as a piston rod safety device in the event of pressure failure.
- Locking can be performed from any stroke position, once the drive is brought mechanically into its end position.
- The exhaust hole must not be closed.
- If the end position cushioning is set too high (more than 50% closed), the locking screw may not engage securely and therefore be subject to premature wear.

Standard cylinder DNC-EL, with end position lock

FESTO

Technical data

Operating and environmental conditions						
Piston Ø	32	40	50	63	80	100
Operating medium	Filtered compressed air, lubricated or unlubricated					
Operating pressure [bar]	1.5 ... 12					
Min. release pressure [bar]	≤ 1.5					
Ambient temperature ¹⁾ [°C]	−20 ... +80					
Corrosion resistance class CRC ²⁾	2					

1) Note operating range of proximity sensors.

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

Components requiring moderate corrosion resistance. 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 Ø	32	40	50	63	80	100
Theoretical force at 6 bar, advancing Basic version	483	754	1,178	1,870	3,016	4,712
Theoretical force at 6 bar, retracting Basic version	415	633	990	1,682	2,721	4,418
Static holding force ¹⁾ -EL	500		2000		5000	
Max. impact energy at the end positions	0.1	0.2	0.2	0.5	0.9	1.2

1) Not more than 50% of the theoretical cylinder force.

Permissible impact velocity:

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

Maximum permissible load:

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



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.

Axial backlash at the piston rod [mm]						
Piston Ø	32	40	50	63	80	100
Max. axial backlash at locked end lock	≤ 1.3				≤ 2.1	

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

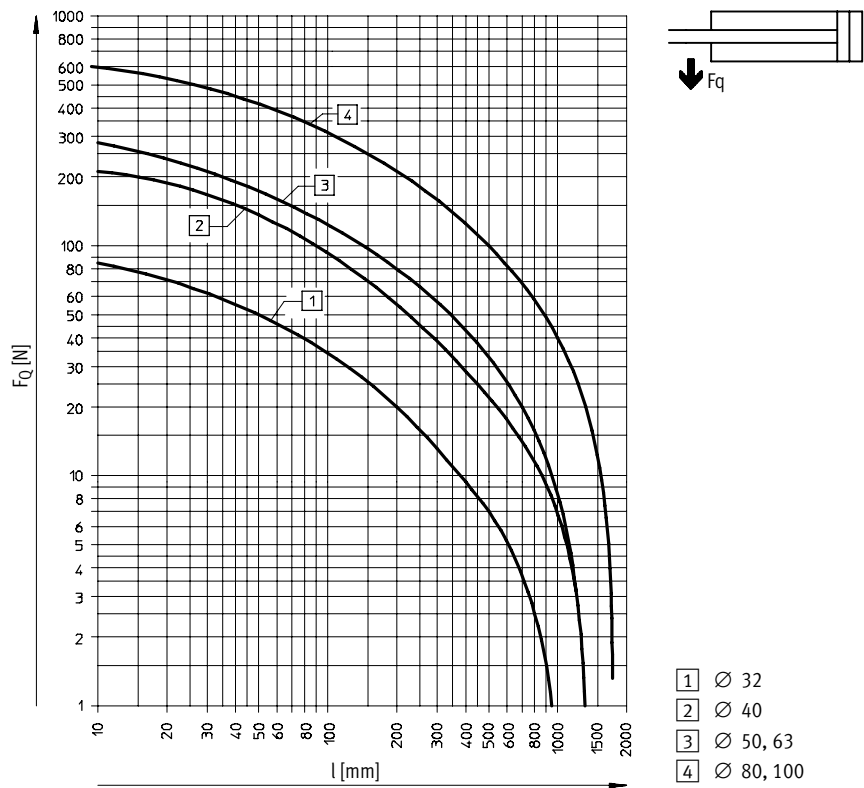
Standard cylinder DNC-EL, with end position lock

Technical data



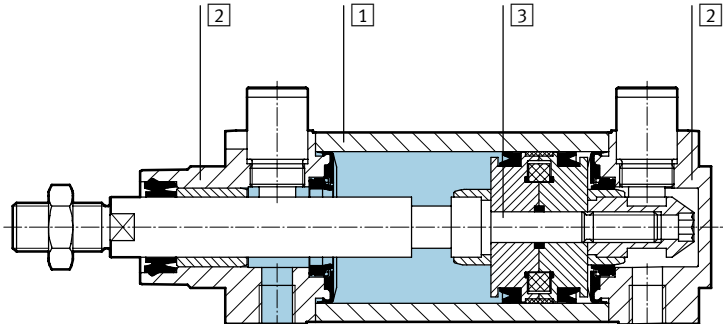
ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)
1.2

Lateral force F_Q as a function of stroke length l



Weights [g]						
Piston Ø	32	40	50	63	80	100
Product weight	20		60		180	
Moving load, end lock piston	3		14		41	

Materials
Sectional view



Cylinder with clamping cartridge		
1	Cylinder barrel	Wrought aluminium alloy, smooth-anodised
2	Bearing and end cap	Die-cast aluminium
3	Piston rod	High-alloy steel
-	Seals	Polyurethane, nitrile rubber

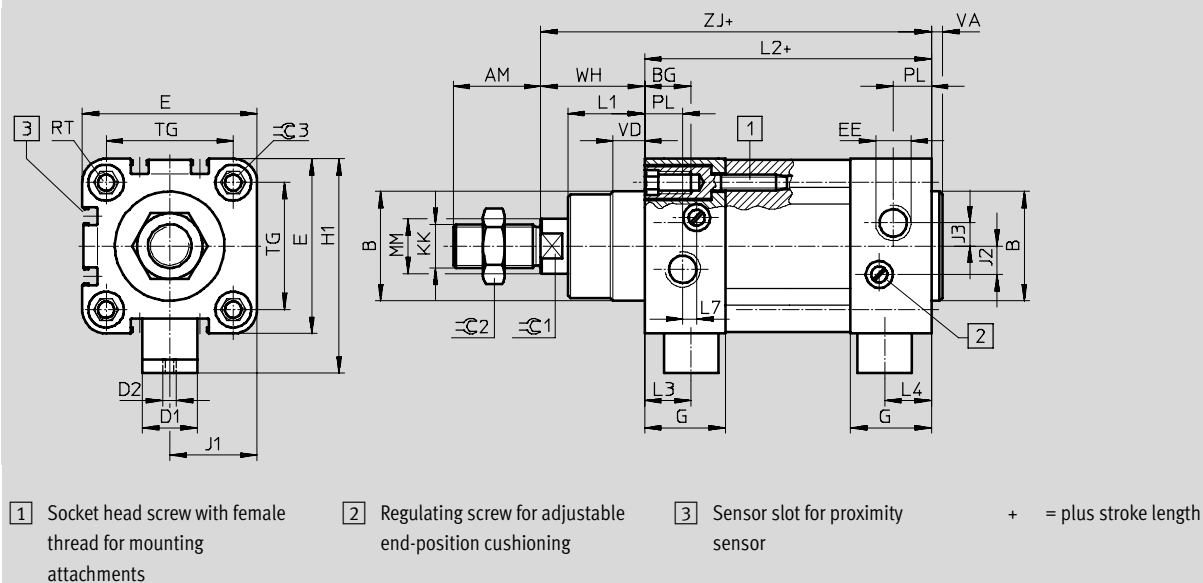
Standard cylinder DNC-EL, with end position lock

FESTO

Technical data

Dimensions – Basic cylinders

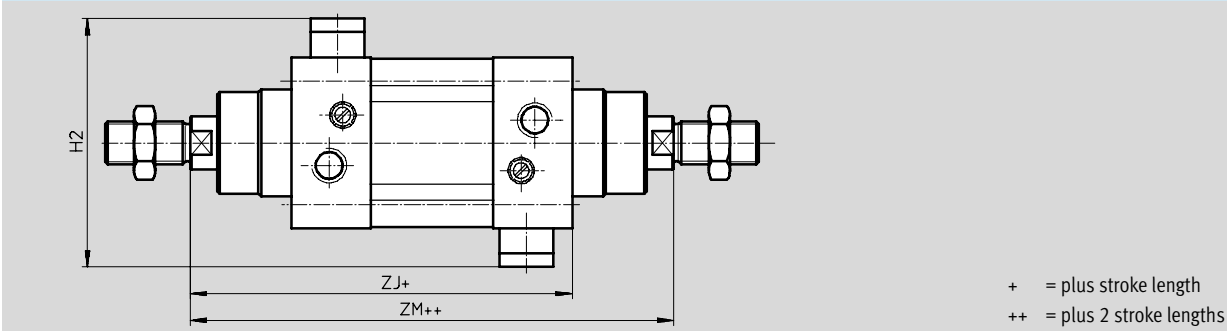
Download CAD data → www.festo.com/en/engineering



Dimensions – Variants

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

S2 – Through piston rod



Ø [mm]	AM	B Ø d11	BG	D1 Ø f8	D2	E	EE	G	H1	H2	J1	J2	J3	KK	L1
32	22	30	16	13	M3	45	G ¹ / ₈	25.1	57.5	70	22.5	6	5.2	M10x1.25	18
40	24	35	16	13	M3	54	G ¹ / ₄	29.6	64	74	27	8	6	M12x1.25	21.5
50	32	40	17	20	M5	64	G ¹ / ₄	29.6	78.5	93	32	10.4	8.5	M16x1.5	28
63	32	45	17	20	M5	75	G ³ / ₈	35.6	84.5	93	37.5	12.4	10	M16x1.5	28.5
80	40	45	17	20	M5	93	G ³ / ₈	35.9	104.5	116	46.5	12.5	8	M20x1.5	34.7
100	40	55	17	20	M5	110	G ¹ / ₂	38.8	113.5	116	55	12	10	M20x1.5	38.2

Ø [mm]	L2	L3	L4	L7	MM Ø	PL	RT	TG	VA	VD	WH ±2	ZM	ZJ	≤C1	≤C2	≤C3
32	94	13.8	12	3.3	12	15.6	M6	32.5	4	10	26	148	120	10	16	6
40	105	16.6	16.6	3.6	16	14	M6	38	4	10.5	30	167	135	13	18	6
50	106	17.1	17.1	5.1	20	14	M8	46.5	4	11.5	37	183	143	17	24	8
63	121	16.6	16.6	6.6	20	17	M8	56.5	4	15	37	199	158	17	24	8
80	128	19.9	19.9	10.5	25	16.4	M10	72	4	15.7	46	222	174	22	30	6
100	138	22.8	22.8	8	25	18.8	M10	89	4	19.2	51	240	189	22	30	6

Standard cylinder DNC-EL, with end position lock

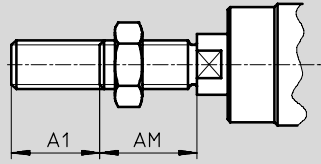
Technical data

FESTO

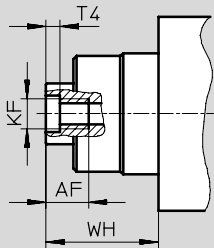
Dimensions – Variants

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

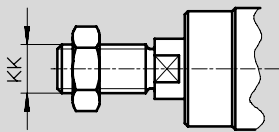
K2 – Extended male piston rod thread



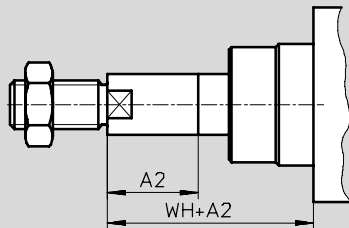
K3 – Female piston rod thread



K5 – Special piston rod thread



K8 – Extended piston rod



In combination with variant S2, the piston rod is extended on one side at the bearing cap.

Ø [mm]	A1 max.	A2 max.	AF	AM	KF	KK		T4	WH	≈±1
						Basic thread	Special thread ¹⁾			
32	35	500	12	22	M6	M10x1.25	M10	2.6	26	10
40	35	500	12	24	M8	M12x1.25	M12	3.3	30	13
50	70	500	16	32	M10	M16x1.5	M16	4.7	37	17
63	70	500	16	32	M10	M16x1.5	M16	4.7	37	17
80	70	500	20	40	M12	M20x1.5	M20	6.1	46	22
100	70	500	20	40	M12	M20x1.5	M20	6.1	51	22

1) The special threads are only available as male threads. The scope of delivery does not include a hex nut for the piston rod thread.

Standard cylinder DNC-EL, with end position lock

Ordering data – Modular products

FESTO

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

M Mandatory data					O Options →	
Module No.	Function	Piston Ø	Stroke	Cushioning	Position sensing	Type of piston rod
163 302	DNC	32	10 ... 2000	P PPV	A	S2
163 334		40				
163 366		50				
163 398		63				
163 430		80				
163 462		100				
Ordering example						
163 430	DNC	- 80	- 550	- PPV	- A	- S2

Ordering table									
Size	32	40	50	63	80	100	Condi- tions	Code	Enter code
M Module No.	163 302	163 334	163 366	163 398	163 430	163 462			
Function	Standard cylinder, double-acting, based on ISO 15552							DNC	DNC
Piston Ø [mm]	32	40	50	63	80	100		-...	
Stroke [mm]	10 ... 2000							-...	
Cushioning	Flexible cushioning rings/plates at both ends							-P	
	Pneumatic cushioning adjustable at both ends							-PPV	
O Position sensing	For proximity sensors							-A	
↓ Type of piston rod	Through piston rod						1	-S2	

- 1 S2 In combination with K2: Thread extension on both ends.
In combination with K3: Female thread on both ends.
In combination with K5: Special thread on both ends.

Transfer order code

	DNC	-		-		-		-	
--	-----	---	--	---	--	---	--	---	--

Standard cylinder DNC-EL, with end position lock

Ordering data – Modular products



→ 0 Options

M

Male thread extended	Female thread	Special thread	Piston rod extended	End lock
...K2	K3	...K5	...K8	ELB ELV ELH
-	- K3	-	- 100K8	-

Ordering table									
Size	32	40	50	63	80	100	Condi- tions	Code	Enter code
0	Male thread extended [mm]	Piston rod with extended male thread					2	-...K2	
	Female thread	Female piston rod thread					3	-K3	
	Special thread	Special piston rod thread						-...K5	
	Piston rod extended [mm]	Extended piston rod						-...K8	
M	End lock	End position lock on both sides					4	-ELB	
		End position lock, front					4	-ELV	
		End position lock, rear					4	-ELH	

- 2 K2 Not with K3.
- 3 K3 With K5: On request.
- 4 ELB, ELV, ELH In combination with K8 and S2: On request.

Transfer order code

-

-

-

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-

Standard cylinder DNC-V1 ... V6, cylinder/valve combination

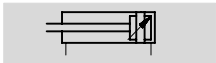
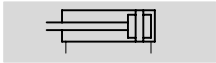
Technical data

FESTO

Function

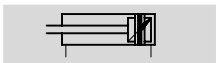
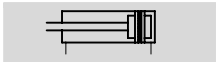
DNC-...

without position sensing



DNC-...-A-...

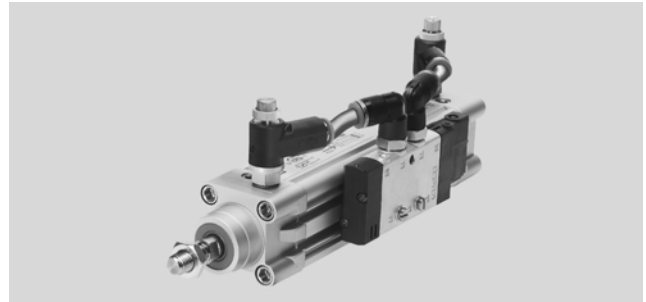
with position sensing



-  Diameter
32 ... 100 mm
-  Stroke length
100 ... 2,000 mm

-  www.festo.com/en/Spare_parts_service

Wearing parts kits
→ 1 / 1.2-35



Conforms to

- ISO 15552
- ISO 6431
- VDMA 24562
- NFE 49003.1
- UNI 10290

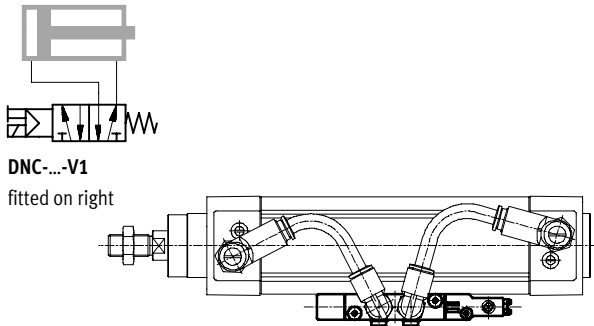


DIN



Valve variants

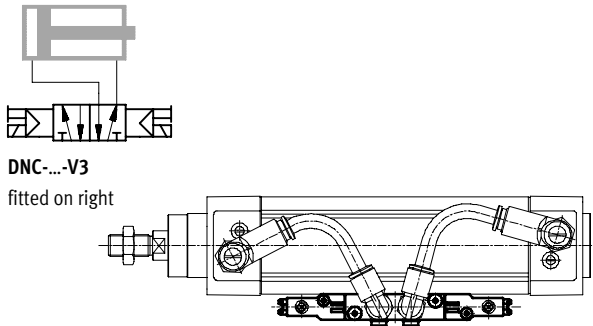
Single solenoid valve unactuated, piston rod retracted



DNC-...-V1

fitted on right

Double solenoid valve unactuated, piston rod retracted



DNC-...-V3

fitted on right

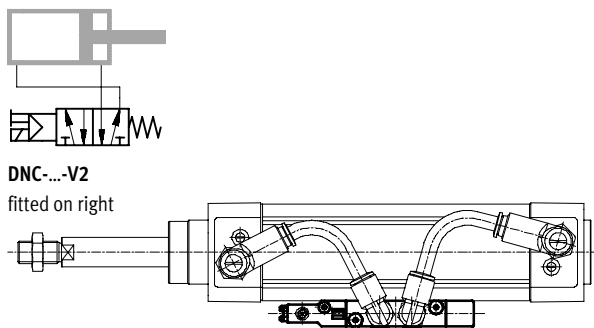
DNC-...-V4

fitted on left

DNC-...-V6

fitted on left

Single solenoid valve unactuated, piston rod advanced



DNC-...-V2

fitted on right

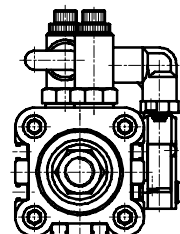
DNC-...-V5

fitted on left

-  Note

As viewed from the front of the cylinder (piston rod end) with valve fitted on left or right.

In this example, the valve is mounted on the right-hand side.



Standard cylinder DNC-V1 ... V6, cylinder/valve combination

FESTO

Technical data

General technical data							
Piston Ø		32	40	50	63	80	100
Cylinder							
Stroke [mm]	Basic version	100 ... 2,000					
	Q	100 ... 1,500	100 ... 1,500	100 ... 1,500		100 ... 1,500	
	K10	100 ... 1,000					
	S10	100 ... 500					
	S11	100 ... 500			100 ... 1,000		
	S20	100 ... 850					
Pneumatic connection		G1/8	G1/4	G1/4	G3/8	G3/8	G1/2
Piston rod thread	Basic version	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5
	K3	M6	M8	M10	M10	M12	M12
	K5	M10	M12	M16	M16	M20	M20
Constructional design		Piston					
		Piston rod					
		Cylinder barrel					
Cushioning P		Non-adjustable at either end					
Cushioning PPV		Adjustable at both ends					
Cushioning length PPV	[mm]	20	20	22	22	32	32
Position sensing		With proximity sensor					
Type of mounting		Via female thread					
		Via accessories					
Assembly position		Any					
Valve		Ordering data, valve and accessories ➔ 1 / 1.2-52					
Valve used	single solenoid	CPE14-M1BH-5L-1/8		CPE18-M1H-5L-1/4		CPE24-M1H-5L-3/8	
	double solenoid	CPE14-M1BH-5J-1/8		CPE18-M1H-5J-1/4		CPE24-M1H-5J-3/8	
Pneumatic connection		G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
Constructional design		Piston spool valve					
Type of mounting		With mounting kit					
Operating voltage	V DC	24 +10/-15%					
Power consumption	[W]	1		1.5			
Duty cycle		100%					
Protection class with plug socket		IP65					

Operating conditions							
Piston Ø		32	40	50	63	80	100
Operating medium		Filtered compressed air, lubricated or unlubricated					
Operating pressure [bar]		3 ... 8	3 ... 8	2.5 ... 10	2.5 ... 10	2.5 ... 10	2.5 ... 10

Ambient conditions	
Variant	Basic version
Ambient temperature ¹⁾ [°C]	0 ... +50
Corrosion resistance class CRC ²⁾	2

1) Note operating range of proximity sensors.

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

Components requiring moderate corrosion resistance. 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.

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinder DNC-V1 ... V6, cylinder/valve combination

Technical data

FESTO

Forces [N] and impact energy [J]						
Piston Ø	32	40	50	63	80	100
Theoretical force at 6 bar, advancing	483	754	1,178	1,870	3,016	4,712
S2/S20	415	633	990	1,682	2,721	4,418
Theoretical force at 6 bar, retracting	415	633	990	1,682	2,721	4,418
S2/S20	415	633	990	1,682	2,721	4,418
Max. impact energy at the end positions ¹⁾	0.1	0.2	0.2	0.5	0.9	1.2

1) The permitted impact energy is reduced by approx. 10% for variants K10 and S20.

Permissible impact velocity:

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

Maximum permissible load:

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

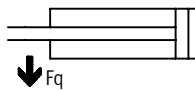
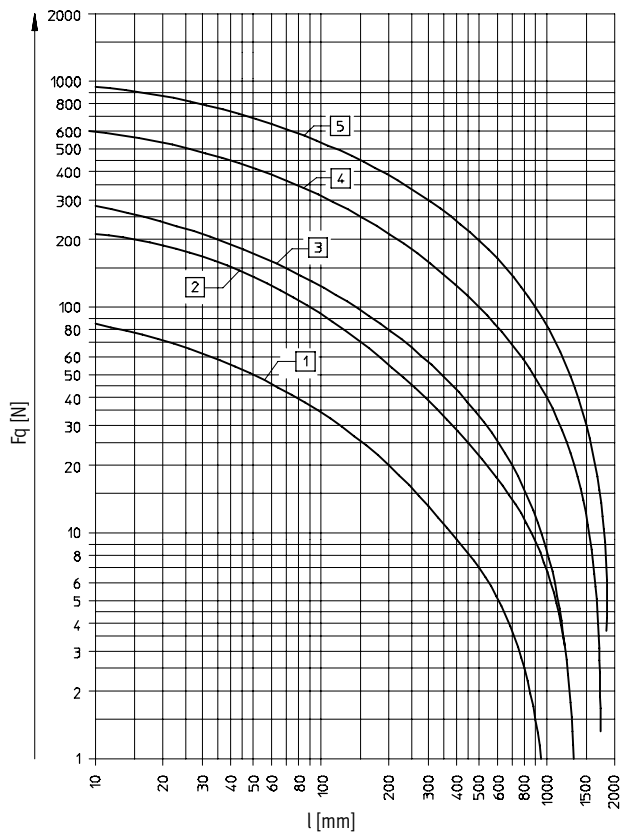


Note

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.

Lateral force F_q as a function of stroke length l in the basic version



- 1 Ø 32
- 2 Ø 40
- 3 Ø 50, 63
- 4 Ø 80, 100

Standard cylinder DNC-V1 ... V6, cylinder/valve combination

FESTO

Technical data

Technical data, variant Q						
Piston Ø	32	40	50	63	80	100
Max. torque at the piston rod [Nm]	0.8	1.1	1.5	1.5	3	3
Max. torsional backlash of piston rod [°]	±0.65	±0.6	±0.45	±0.45	±0.45	±0.45

Max. permissible torque at the piston rod for variant Q

Graphs → 1 / 1.2-15

Examples for piston Ø 32 mm

Example 1:

Stroke length l = 150 mm

Result: Permissible

Lateral force F_q = 9.5 N

Lever arm s = 84 mm

Example 2:

Lateral force F_q = 40 N

Result: Permissible

Stroke length l = 28 mm

Lever arm s = 20 mm

Example 3:

Stroke length l = 150 mm

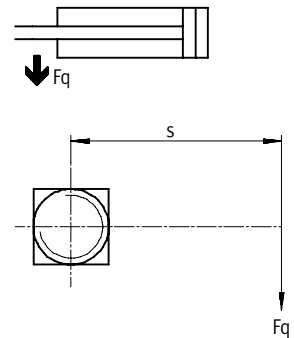
Lever arm s = 20 mm

$F_q = \frac{\text{Max. torque } 800 \text{ Nmm}}{\text{Lever arm } 100 \text{ mm}}$

= 8 N

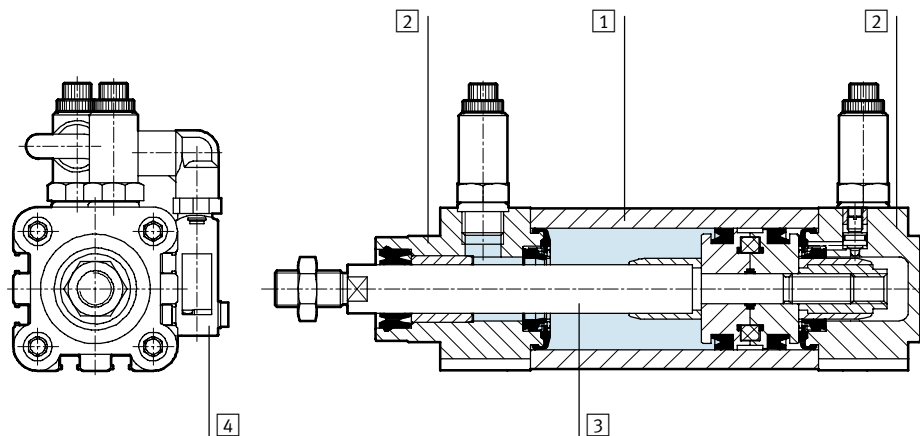
Result: Permissible

F_q = 8 N < F_{q max.} = 9.5 N



Materials

Sectional view



Variant	Basic version	R8	S10	S11	K10
1 Cylinder barrel	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised
2 Bearing and end cap	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium
3 Piston rod	High-alloy steel	Tempered steel	High-alloy steel	High-alloy steel	Wrought aluminium alloy, anodised
– Seals, cylinder	Polyurethane, nitrile rubber	Polyurethane, nitrile rubber	Fluorocarbon rubber	Fluorocarbon rubber	Polyurethane, nitrile rubber
4 Housing, valve	Die-cast aluminium, polyamide, steel				
– Seals, valve	Nitrile rubber				

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

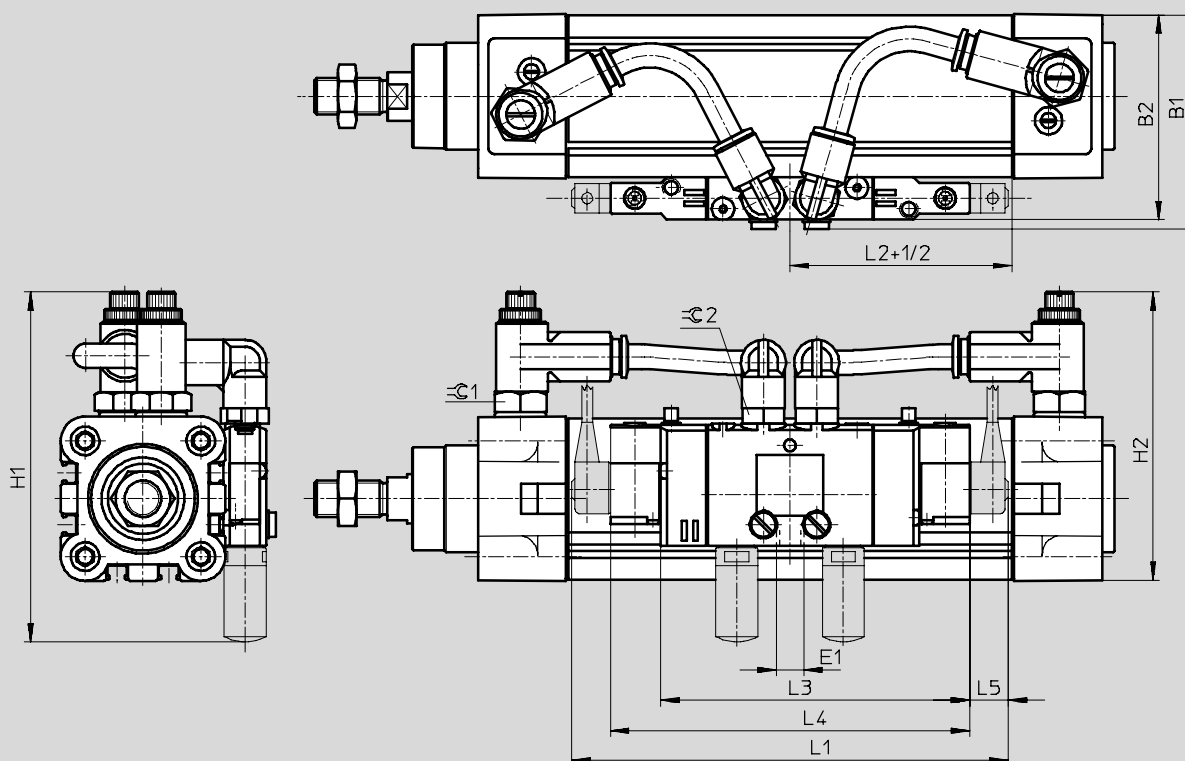
Standard cylinder DNC-V1 ... V6, cylinder/valve combination

Technical data

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Dimensions

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



1 Plug socket not included in scope of delivery

+1/2 = plus half stroke length

Standard cylinder DNC-V1 ... V6, cylinder/valve combination

FESTO

Technical data

Ø	B1	B2	E1	H1	H2	L1 max.	L2 ±3	L3	L4	L5	⌀C1	⌀C2
[mm]												
32	62	59	G1/8	109+5.5	86+5.5	152	22	102	118	13	13	14
40	71	68	G1/8	114+5.5	94+5.5	152	23	102	118	13	17	14
50	85	82	G1/4	131+5.5	104+5.5	215	24	138	163	25	17	14
63	96	93	G1/4	142+5.5	115+5.5	215	25	138	163	25	19	14
80	123	119	G3/8	194+5.5	133+5.5	242	28	165	165	25	19	17
100	140	136	G3/8	213+2	158+2	242	30	165	165	25	27	17

-  - Note

Further dimensions relating to the basic cylinder and its variants are provided on page → 1 / 1.2-18, with clamping cartridge on page → 1 / 1.2-31.

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinder DNC-V1 ... V6, cylinder/valve combination

Ordering data – Modular products

FESTO

M Mandatory data					O Options				
Module No.	Drive function	Piston Ø	Stroke	Cushioning	Position sensing	Protection against torsion	Type of piston rod		
163 302 163 334 163 366 163 398 163 430 163 462	DNC	32 40 50 63 80 100	100 ... 2000	P PPV	A	Q	S2 S20		
Ordering example									
163 430	DNC	- 80	- 550	- PPV	- A	- Q	- S2		

Ordering table										
Size	32	40	50	63	80	100	Condi- tions	Code	Enter code	
M Module No.	163 302	163 334	163 366	163 398	163 430	163 462				
Drive function	Double-acting cylinder based on ISO 15552							DNC	DNC	
Piston Ø [mm]	32	40	50	63	80	100		-...		
Stroke [mm]	100 ... 2000							-...		
Cushioning	Flexible cushioning rings/plates at both ends							-P		
	Pneumatic cushioning adjustable at both ends						1	-PPV		
O Position sensing	For proximity sensors							-A		
Protection against torsion	Square piston rod						2	-Q		
Type of piston rod	Through piston rod						3	-S2		
	Through, hollow piston rod						4	-S20		

1 PPV Not with S10, S11.

2 Q Max. stroke: 100 ... 1,500 mm
In combination with S2: Square piston rod at bearing cap end only.
In combination with KP: Only supplied with S2.
Not with S20, K7, K10, S10, S11.

3 S2 In combination with K2: Thread extension on both ends.
In combination with K3: Female thread on both ends.
In combination with K5: Special thread on both ends.
In combination with K8: Piston rod extended at bearing cap end only.
In combination with KP: Clamping cartridge on the end cap.
Not with S20, K7, S10, S11.

4 S20 Max. stroke: 850 mm.
In combination with K8: Piston rod extended on both ends.
Not with K2, K3, K5, K10, KP, S10, S11.

Transfer order code

	DNC	-		-		-		-		-		-	
--	-----	---	--	---	--	---	--	---	--	---	--	---	--

Standard cylinder DNC-V1 ... V6, cylinder/valve combination

FESTO

Ordering data – Modular products

Options									M
Male thread extended	Female thread	Special thread	Special spanner flats	Piston rod extended	Improved running performance	Clamping unit	Slow speed	Low friction	Cylinder/valve combination
...K2	K3	...K5	K7	...K8	K10	KP	S10	S11	V1 V2 V3 V4 V5 V6
-	-	-	-	100K8	-	-	-	-	V2

Ordering table										
Size		32	40	50	63	80	100	Condi- tions	Code	Enter code
↓	Male thread extended	Male thread extended								
0	[mm]	1 ... 35			1 ... 70			5	-...K2	
	Female thread	Piston rod with female thread								
		(M6)	(M8)	(M10)	(M10)	(M12)	(M12)	6	-K3	
	Special thread	Special piston rod thread								
		M10	M12	M16	M16	M20	M20	7	-...K5	
	Special spanner flats	Piston rod with external hexagon						8	-K7	
	Piston rod extended	Extended piston rod								
	[mm]	1 ... 500							-...K8	
	Improved running performance	Smooth anodised aluminium coated piston rod						9	-K10	
	Clamping unit	Clamping unit on the piston rod						10	-KP	
	Slow speed	Slow speed (constant motion at low piston speeds)						11	-S10	
	Low friction	Low friction						12	-S11	
M	Cylinder/valve combination	Single solenoid valve, fitted on right, unactuated piston rod retracted							-V1	
		Single solenoid valve, fitted on right, unactuated piston rod advanced							-V2	
		Double solenoid valve, fitted on right, unactuated piston rod retracted							-V3	
		Single solenoid valve, fitted on left, unactuated piston rod retracted							-V4	
		Single solenoid valve, fitted on left, unactuated piston rod advanced							-V5	
		Double solenoid valve, fitted on left, unactuated piston rod retracted							-V6	

- 5 K2 Not with K3, K10.
6 K3 With K5: On request.
Not with K7.
7 K5 Not with K10.
8 K7 Not with Q, S2, K10.

- 9 K10 Max. stroke: 1000 mm.
Not with KP.
10 KP Without S2: Position of the clamping cartridge on the bearing cap.
Not with S10, S11.
11 S10 Max. stroke: 500 mm; further strokes on request.
Not with S11.
12 S11 Max. stroke: 500 mm; further strokes on request.

Transfer order code

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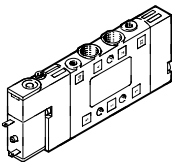
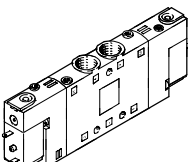
Standard cylinder DNC-V1 ... V6, cylinder/valve combination

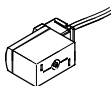
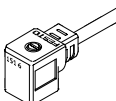
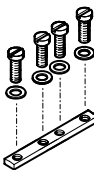
FESTO

Accessories

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

Ordering data – Valve					Technical data → Volume 2
Ordering data – Valve					Technical data → www.festo.com
	For Ø [mm]	Pneumatic connection	Protection class	Part No.	Type
Single solenoid					
	32	G $\frac{1}{8}$	IP65	196 941	CPE14-M1BH-5L- $\frac{1}{8}$
	40				
	50	G $\frac{1}{4}$	IP65	163 142	CPE18-M1H-5L- $\frac{1}{4}$
	63				
	80	G $\frac{3}{8}$	IP65	163 166	CPE24-M1H-5L- $\frac{3}{8}$
	100				
Double solenoid					
	32	G $\frac{1}{8}$	IP65	196 939	CPE14-M1BH-5J- $\frac{1}{8}$
	40				
	50	G $\frac{1}{4}$	IP65	163 143	CPE18-M1H-5J- $\frac{1}{4}$
	63				
	80	G $\frac{3}{8}$	IP65	163 167	CPE24-M1H-5J- $\frac{3}{8}$
	100				

Ordering data – Valve accessories					
For valve		Part No.	Type	PU ¹⁾	
Push-in/threaded fittings QS				Technical data → Volume 3	
Push-in/threaded fittings QS				Technical data → www.festo.com	
	CPE14	153 015	QS- $\frac{1}{8}$ -8-I	10	
	CPE18	153 018	QS- $\frac{1}{4}$ -10-I	10	
	CPE24	153 020	QS- $\frac{3}{8}$ -12-I	10	
Plug socket KMYZ/KMEB				Technical data → Volume 2	
Plug socket KMYZ/KMEB				Technical data → www.festo.com	
	CPE14	24 V DC, with PVC cable 0.5 m	185 519	KMYZ-4-24-0.5	–
		24 V DC, with PVC cable 2.5 m	185 520	KMYZ-4-24-2,5	–
	CPE18	24 V DC, with PVC cable 2.5 m, LED	151 688	KMEB-1-24-2,5-LED	–
	CPE24	24 V DC, with PVC cable 5 m, LED	151 689	KMEB-1-24-5-LED	–
		24 V DC, with PVC cable 10 m, LED	193 457	KMEB-1-24-10-LED	–
Mounting kit ZVB					
	CPE14	185 705	ZVB-8-14/18	–	
	CPE18				
	CPE24	187 388	ZVB-8-24	–	

1) Packaging unit quantity

 Core Range

Standard cylinders DNC, ISO 15552

Accessories

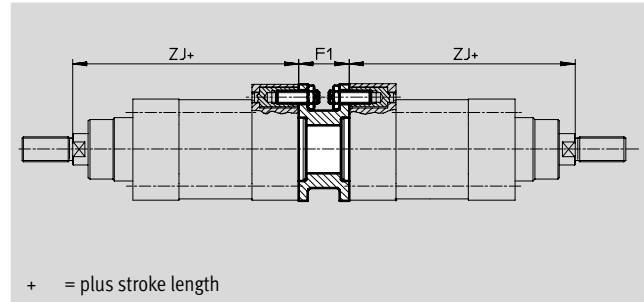
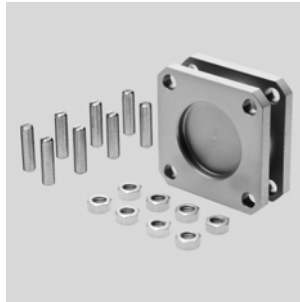
FESTO

Adapter kit DPNC

Material:

Flange: Wrought aluminium alloy

Threaded studs, hex nuts: Galvanised steel



Dimensions and ordering data							
For Ø	F1	ZJ		Max. overall stroke length	Weight	Part No.	Type
[mm]		Basic cylinder	KP	[mm]	[g]		
32	27	120	165	1,000	85	174 418	DPNC-32
40	27	135	188	1,000	115	174 419	DPNC-40
50	32	143	210	1,000	210	174 420	DPNC-50
63	28	158	234	1,000	360	174 421	DPNC-63
80	38	174	269	1,000	620	174 422	DPNC-80
100	38	189	287	1,000	1,190	174 423	DPNC-100
125	48	225	350	1,000	1,600	174 424	DPNC-125

 Note
The maximum overall stroke length must not be exceeded when combining cylinders and the adapter kit.

Connecting two cylinders with identical piston Ø as a 3 or 4-position cylinder

A 3 or 4-position cylinder consists of two separate cylinders whose piston rods advance in opposing directions.

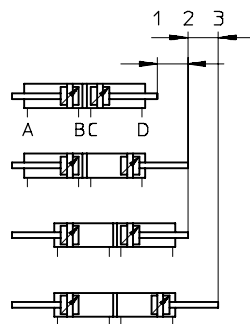
This means that depending upon actuation and stroke pattern, this type of cylinder can assume up to four

positions. In each case the cylinder is driven precisely against a stop. Note that when one end of the piston rod is

fixed, the cylinder barrel executes the movement. The cylinder must be connected with flexible line connections.

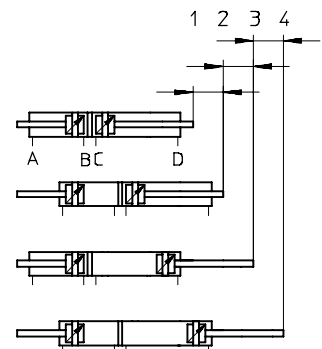
To achieve 3 positions

Two cylinders with identical stroke length must be connected together.



To achieve 4 positions

Two cylinders with different stroke lengths must be connected together.



Standard cylinders DNC, ISO 15552

Accessories

FESTO

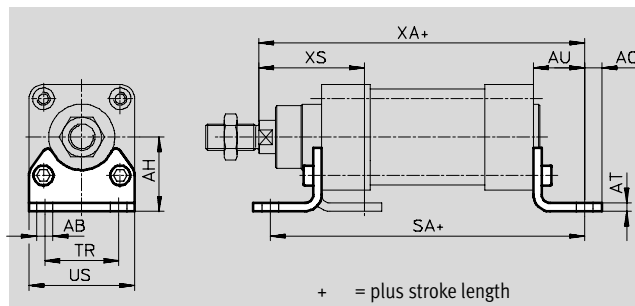
Foot mounting HNC/CRHNC

Material:

HNC: Galvanised steel

CRHNC: High-alloy steel

Free of copper, PTFE and silicone



Dimensions and ordering data												
For Ø	AB Ø	AH	AO	AT	AU	SA		TR	US	XA		XS
[mm]						Basic cylinder	KP			Basic cylinder	KP	
32	7	32	6.5	4	24	142	187	32	45	144	189	45
40	10	36	9	4	28	161	214	36	54	163	216	53
50	10	45	9.5	5	32	170	237	45	64	175	242	62
63	10	50	12.5	5	32	185	261	50	75	190	266	63
80	12	63	15	6	41	210	305	63	93	215	310	81
100	14.5	71	17.5	6	41	220	318	75	110	230	328	86
125	16.5	90	22	8	45	250	375	90	131	270	395	102

For Ø	Basic version				High corrosion protection			
	CRC ¹⁾	Weight [g]	Part No.	Type	CRC ¹⁾	Weight [g]	Part No.	Type
[mm]								
32	2	135	174 369	HNC-32	4	135	176 937	CRHNC-32
40	2	180	174 370	HNC-40	4	180	176 938	CRHNC-40
50	2	325	174 371	HNC-50	4	325	176 939	CRHNC-50
63	2	405	174 372	HNC-63	4	405	176 940	CRHNC-63
80	2	820	174 373	HNC-80	4	820	176 941	CRHNC-80
100	2	1,000	174 374	HNC-100	4	1,000	176 942	CRHNC-100
125	2	1,840	174 375	HNC-125	4	1,840	176 943	CRHNC-125

- 1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components 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.

Core Range

Standard cylinders DNC, ISO 15552

Accessories

FESTO

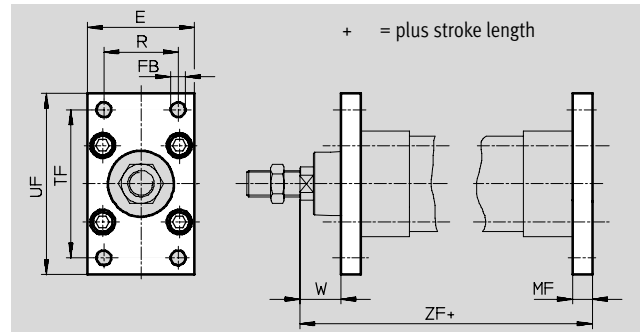
Flange mounting FNC/CRFNG

Material:

FNC: Galvanised steel

CRFNG: High-alloy steel

Free of copper, PTFE and silicone



Dimensions and ordering data									
For Ø	E	FB	MF	R	TF	UF	W	ZF	
[mm]		Ø H13						Basic cylinder	KP
32	45	7	10	32	64	80	16	130	175
40	54	9	10	36	72	90	20	145	198
50	65	9	12	45	90	110	25	155	222
63	75	9	12	50	100	120	25	170	246
80	93	12	16	63	126	150	30	190	285
100	110	14	16	75	150	175	35	205	303
125	132	16	20	90	180	210	45	245	370

For Ø	Basic version				High corrosion protection			
	CRC ¹⁾	Weight [g]	Part No.	Type	CRC ¹⁾	Weight [g]	Part No.	Type
[mm]								
32	2	240	174 376	FNC-32	4	240	161 846	CRFNG-32
40	2	280	174 377	FNC-40	4	300	161 847	CRFNG-40
50	2	520	174 378	FNC-50	4	550	161 848	CRFNG-50
63	2	690	174 379	FNC-63	4	710	161 849	CRFNG-63
80	2	1,650	174 380	FNC-80	4	1,680	161 850	CRFNG-80
100	2	2,400	174 381	FNC-100	4	2,450	161 851	CRFNG-100
125	2	3,750	174 382	FNC-125	4	3,660	185 363	CRFNG-125

- 1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components 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.

Core Range

Standard cylinders DNC, ISO 15552

Accessories

FESTO

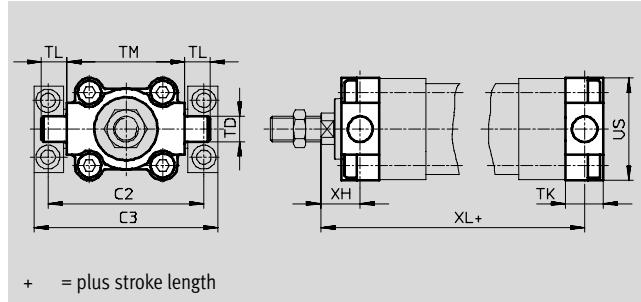
Trunnion flange ZNCF/CRZNG

Material:

ZNCF: Special steel casting

CRZNG: Electrolytically polished
stainless steel casting

Free of copper, PTFE and silicone



Dimensions and ordering data										
For Ø	C2	C3	TD Ø e9	TK	TL	TM	US	XH	XL	
[mm]									Basic cylinder	KP
32	71	86	12	16	12	50	45	18	128	173
40	87	105	16	20	16	63	54	20	145	198
50	99	117	16	24	16	75	64	25	155	222
63	116	136	20	24	20	90	75	25	170	246
80	136	156	20	28	20	110	93	32	188	283
100	164	189	25	38	25	132	110	32	208	306
125	192	217	25	50	25	160	131	40	250	375

For Ø	Basic version				High corrosion protection			
	CRC ¹⁾	Weight [g]	Part No.	Type	CRC ¹⁾	Weight [g]	Part No.	Type
[mm]								
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	1,150	174 415	ZNCF-80	4	1,300	161 856	CRZNG-80
100	2	2,030	174 416	ZNCF-100	4	2,400	161 857	CRZNG-100
125	2	3,490	174 417	ZNCF-125	4	3,600	185 362	CRZNG-125

- 1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components 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.

Standard cylinders DNC, ISO 15552

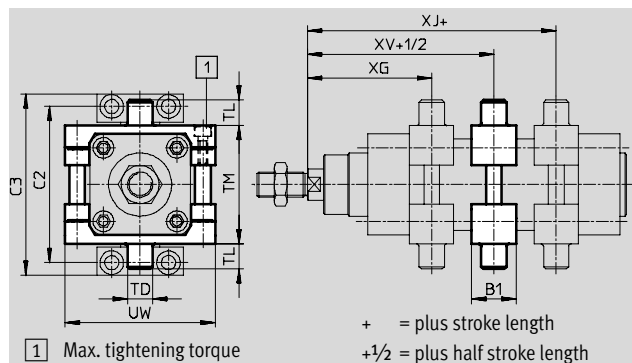
Accessories

FESTO

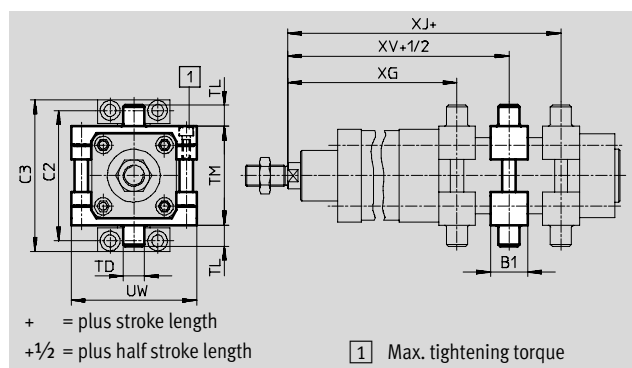
Trunnion mounting kit ZNCM for basic cylinder DNC

The mounting kit can be attached at any position along the profile barrel of a cylinder.

Material:
Tempered steel



for DNC-KP



Dimensions and ordering data

For Ø	B1	C2	C3	TD Ø e9	TL	TM	UW	XG	
[mm]								Basic cylinder	KP
32	30	71	86	12	12	50	65	66.1	111.1
40	32	87	105	16	16	63	75	75.6	128.6
50	34	99	117	16	16	75	95	83.6	150.6
63	41	116	136	20	20	90	105	93.1	169.1
80	44	136	156	20	20	110	130	103.9	198.9
100	48	164	189	25	25	132	145	113.8	211.8
125	50	192	217	25	25	160	175	134.7	259.7

For Ø	XJ		XV		Max. tightening torque	CRC ¹⁾	Weight	Part No.	Type
[mm]	Basic cylinder	KP	Basic cylinder	KP	[Nm]		[g]		
32	79.9	124.9	73	118	4+1	2	210	163 525	ZNCM-32
40	89.4	142.4	82.5	135.5	8+1	2	385	163 526	ZNCM-40
50	96.4	163.4	90	157	8+2	2	595	163 527	ZNCM-50
63	101.9	177.9	97.5	173.5	18+2	2	890	163 528	ZNCM-63
80	116.1	211.1	110	205	28+2	2	1,450	163 529	ZNCM-80
100	126.2	224.2	120	218	28+2	2	2,045	163 530	ZNCM-100
125	155.3	280.3	145	270	40+2	2	2,940	163 531	ZNCM-125

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

Components requiring moderate corrosion resistance. 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.

Core Range

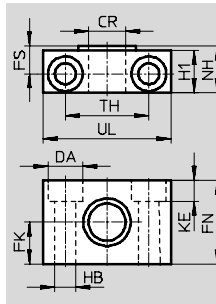
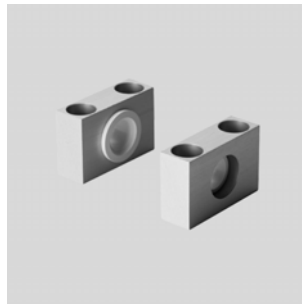
Standard cylinders DNC, ISO 15552

Accessories

FESTO

Trunnion support LNZG

Material:
Galvanised steel
Free of copper, PTFE and silicone

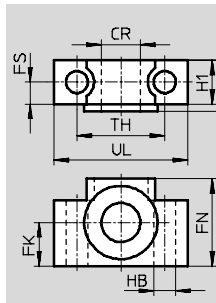
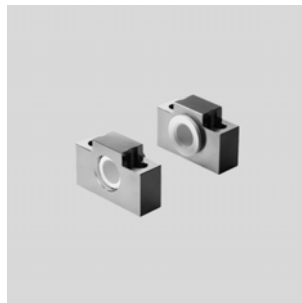


Dimensions and ordering data															
For Ø	CR	DA	FK	FN	FS	H1	HB	KE	NH	TH	UL	CRC ¹⁾	Weight	Part No.	Type
[mm]	Ø D11	Ø H13	Ø ±0.1				Ø H13			±0.2			[g]		
32	12	11	15	30	10.5	15	6.6	6.8	18	32	46	2	125	32 959	LNZG-32
40, 50	16	15	18	36	12	18	9	9	21	36	55	2	400	32 960	LNZG-40/50
63, 80	20	18	20	40	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 according to Festo standard 940 070
Components requiring moderate corrosion resistance. 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.

Trunnion support CRLNZG

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



Dimensions and ordering data													
For Ø	CR Ø	FK Ø	FN	FS	H1	HB Ø	NH	TH	UL	CRC ¹⁾	Weight	Part No.	Type
[mm]	D11	±0.1				H13		±0.2			[g]		
32	12	15	30	10.5	15	6.6	18	32	46	4	200	161 874	CRLNZG-32
40, 50	16	18	36	12	18	9	21	36	55	4	330	161 875	CRLNZG-40/50
63, 80	20	20	40	13	20	11	23	42	65	4	440	161 876	CRLNZG-63/80
100, 125	25	25	50	16	24.5	14	28.5	50	75	4	740	161 877	CRLNZG-100

- 1) Corrosion resistance class 4 according 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.

Core Range

Standard cylinders DNC, ISO 15552

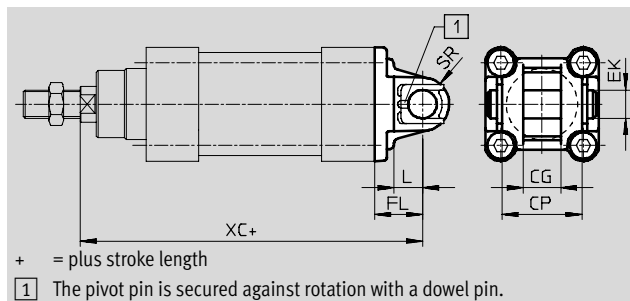
Accessories

FESTO

Swivel flange SNC

Material:

Wrought aluminium alloy



Dimensions and ordering data												
For Ø	CG	CP	EK Ø	FL	L	SR	XC		CRC ¹⁾	Weight [g]	Part No.	Type
[mm]	H14	d12		±0.2			Basic cyl- inder	KP				
32	14	34	10	22	13	10	142	187	2	90	174 383	SNC-32
40	16	40	12	25	16	12	160	213	2	120	174 384	SNC-40
50	21	45	16	27	16	16	170	237	2	240	174 385	SNC-50
63	21	51	16	32	21	16	190	266	2	320	174 386	SNC-63
80	25	65	20	36	22	20	210	305	2	625	174 387	SNC-80
100	25	75	20	41	27	20	230	328	2	830	174 388	SNC-100
125	37	97	30	50	30	30	275	400	2	1,785	174 389	SNC-125

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

Components requiring moderate corrosion resistance. 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.

ISO standard cylinders
 ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

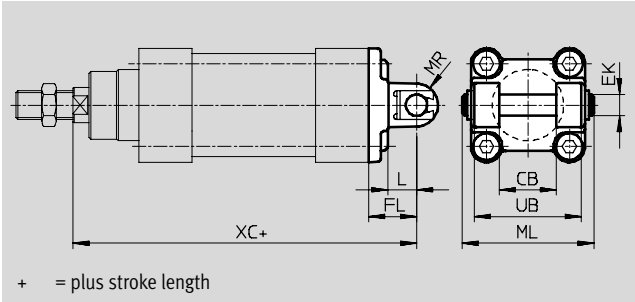
Standard cylinders DNC, ISO 15552

Accessories

FESTO

Swivel flange SNCB/SNCB-...-R3

Material:
SNCB: Wrought aluminium alloy
SNCB-...-R3: Wrought aluminium alloy,
silver protective coating, high
corrosion protection
Free of copper, PTFE and silicone



+ = plus stroke length

Dimensions and ordering data									
For Ø	CB	EK Ø	FL	L	ML	MR	UB	XC	
[mm]	H14	e8	±0.2				h14	Basic cylinder	KP
32	26	10	22	13	55	10	45	142	187
40	28	12	25	16	63	12	52	160	213
50	32	12	27	16	71	12	60	170	237
63	40	16	32	21	83	16	70	190	266
80	50	16	36	22	103	16	90	210	305
100	60	20	41	27	127	20	110	230	328
125	70	25	50	30	148	25	130	275	400

For Ø [mm]	Basic version				Variant 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	1,785	174 396	SNCB-125	3	1,785	176 950	SNCB-125-R3

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 3 according to Festo standard 940 070
Components 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.

Standard cylinders DNC, ISO 15552

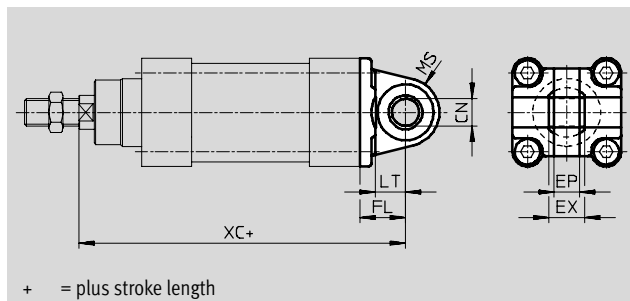
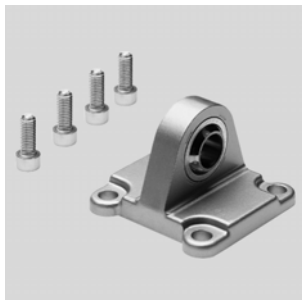
Accessories

FESTO

Swivel flange SNCS

Material:

Wrought aluminium alloy



+ = plus stroke length

Dimensions and ordering data												
For Ø	CN	EP	EX	FL	LT	MS	XC		CRC ¹⁾	Weight	Part No.	Type
[mm]	Ø	-0.2		±0.2			Basic cylinder	KP		[g]		
32	10	10.5	14	22	13	15	142	187	2	85	174 397	SNCS-32
40	12	12	16	25	16	17	160	213	2	125	174 398	SNCS-40
50	16	15	21	27	18	20	170	237	2	210	174 399	SNCS-50
63	16	15	21	32	21	22	190	266	2	280	174 400	SNCS-63
80	20	18	25	36	22	27	210	305	2	540	174 401	SNCS-80
100	20	18	25	41	27	29	230	328	2	700	174 402	SNCS-100
125	30	25	37	50	30	39	275	400	2	1,410	174 403	SNCS-125

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

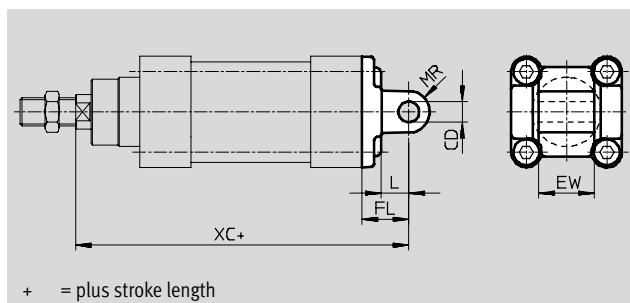
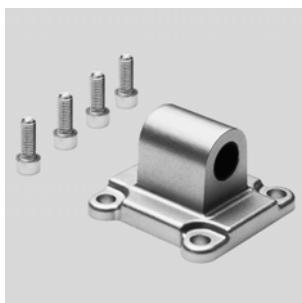
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Swivel flange SNCL

Material:

Wrought aluminium alloy

Free of copper, PTFE and silicone



+ = plus stroke length

Dimensions and ordering data											
For Ø	CD Ø	EW	FL	L	MR	XC		CRC ¹⁾	Weight	Part No.	Type
[mm]		h14	±0.2			Basic cylinder	KP				
32	10	26	22	13	10	142	187	2	75	174 404	SNCL-32
40	12	28	25	16	12	160	213	2	100	174 405	SNCL-40
50	12	32	27	16	12	170	237	2	160	174 406	SNCL-50
63	16	40	32	21	16	190	266	2	250	174 407	SNCL-63
80	16	50	36	22	16	210	305	2	405	174 408	SNCL-80
100	20	60	41	27	20	230	328	2	655	174 409	SNCL-100
125	25	70	50	30	25	275	400	2	1,245	174 410	SNCL-125

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

Components requiring moderate corrosion resistance. 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.

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinders DNC, ISO 15552

Accessories

FESTO

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

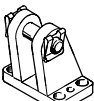
1.2

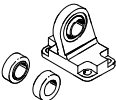
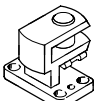
Ordering data – Mounting attachments

Technical data → NO TAG

Ordering data – Mounting attachments

Technical data → www.festo.com

Designation	For Ø	Part No.	Type
Clevis foot mounting LNG			
	32	33 890	LNG-32
	40	33 891	LNG-40
	50	33 892	LNG-50
	63	33 893	LNG-63
	80	33 894	LNG-80
	100	33 895	LNG-100
	125	33 896	LNG-125
Clevis foot mounting LSNG			
	32	31 740	LSNG-32
	40	31 741	LSNG-40
	50	31 742	LSNG-50
	63	31 743	LSNG-63
	80	31 744	LSNG-80
	100	31 745	LSNG-100
	125	31 746	LSNG-125
Clevis foot mounting LBG			
	32	31 761	LBG-32
	40	31 762	LBG-40
	50	31 763	LBG-50
	63	31 764	LBG-63
	80	31 765	LBG-80
	100	31 766	LBG-100
	125	31 767	LBG-125

Designation	For Ø	Part No.	Type
Clevis foot mounting LSN			
	32	5 561	LSN-32
	40	5 562	LSN-40
	50	5 563	LSN-50
	63	5 564	LSN-63
	80	5 565	LSN-80
	100	5 566	LSN-100
	125	6 987	LSN-125
Weld-on clevis foot mounting LSNSG			
	32	31 747	LSNSG-32
	40	31 748	LSNSG-40
	50	31 749	LSNSG-50
	63	31 750	LSNSG-63
	80	31 751	LSNSG-80
	100	31 752	LSNSG-100
	125	31 753	LSNSG-125
Clevis foot, right-angled LQG			
	32	31 768	LQG-32
	40	31 769	LQG-40
	50	31 770	LQG-50
	63	31 771	LQG-63
	80	31 772	LQG-80
	100	31 773	LQG-100
	125	31 774	LQG-125

Ordering data – Corrosion resistant mounting attachments

Technical data → NO TAG

Ordering data – Corrosion resistant mounting attachments

Technical data → www.festo.com

Designation	For Ø	Part No.	Type
Clevis foot mounting CRLNG			
	32	161 840	CRLNG-32
	40	161 841	CRLNG-40
	50	161 842	CRLNG-50
	63	161 843	CRLNG-63
	80	161 844	CRLNG-80
	100	161 845	CRLNG-100
	125	176 951	CRLNG-125

 Core Range

Standard cylinders DNC, ISO 15552

Accessories

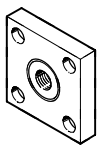
FESTO

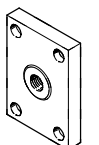
Ordering data – Piston rod attachments

Technical data → NO TAG

Ordering data – Piston rod attachments

Technical data → www.festo.com

Designation	For Ø	Part No.	Type
Rod eye SGS			
	32	9 261	SGS-M10x1,25
	40	9 262	SGS-M12x1,25
	50	9 263	SGS-M16x1,5
	63		
	80	9 264	SGS-M20x1,5
	100		
	125	10 774	SGS-M27x2
Rod clevis SG			
	32	6 144	SG-M10x1,25
	40	6 145	SG-M12x1,25
	50	6 146	SG-M16x1,5
	63		
	80	6 147	SG-M20x1,5
	100		
	125	14 987	SG-M27x2-B
Coupling piece KSG			
	32	32 963	KSG-M10x1,25
	40	32 964	KSG-M12x1,25
	50	32 965	KSG-M16x1,5
	63		
	80	32 966	KSG-M20x1,5
	100		
	125	32 967	KSG-M27x2
Adapters AD			
	32	157 333	AD-M10x1,25-1/8
		157 334	AD-M10x1,25-1/4
	40	160 256	AD-M12x1,25-1/4
		160 257	AD-M12x1,25-3/8

Designation	For Ø	Part No.	Type
Rod clevis SGA			
	32	32 954	SGA-M10x1,25
	40	10 767	SGA-M12x1,25
	50	10 768	SGA-M16x1,5
	63		
	80	10 769	SGA-M20x1,5
	100		
	125	10 770	SGA-M27x2
Self-aligning rod coupler FK			
	32	6 140	FK-M10x1,25
	40	6 141	FK-M12x1,25
	50	6 142	FK-M16x1,5
	63		
	80	6 143	FK-M20x1,5
	100		
	125	10 485	FK-M27x2
Coupling piece KSZ			
	32	36 125	KSZ-M10x1,25
	40	36 126	KSZ-M12x1,25
	50	36 127	KSZ-M16x1,5
	63		
	80	36 128	KSZ-M20x1,5
	100		
	125	–	–

Ordering data – Corrosion resistant piston rod attachments

Technical data → NO TAG

Ordering data – Corrosion resistant piston rod attachments

Technical data → www.festo.com

Designation	For Ø	Part No.	Type
Rod eye CRSGS			
	32	195 582	CRSGS-M10x1,25
	40	195 583	CRSGS-M12x1,25
	50	195 584	CRSGS-M16x1,5
	63		
	80	195 585	CRSGS-M20x1,5
	100		
	125	195 586	CRSGS-M27x2

Designation	For Ø	Part No.	Type
Rod clevis CRSG			
	32	13 569	CRSG-M10x1,25
	40	13 570	CRSG-M12x1,25
	50	13 571	CRSG-M16x1,5
	63		
	80	13 572	CRSG-M20x1,5
	100		
	125	185 361	CRSG-M27x2

 Core Range

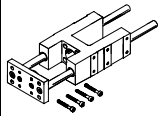
Standard cylinders DNC, ISO 15552

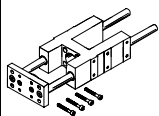
Accessories

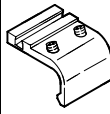
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ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24562)

1.2

Ordering data – Guide units for fixed strokes (recirculating ball bearing guide only)				Technical data → NO TAG			
Ordering data – Guide units for fixed strokes (recirculating ball bearing guide only)				Technical data → www.festo.com			
	Stroke [mm]	Part No.	Type		Stroke [mm]	Part No.	Type
	for Ø 32 mm				for Ø 40 mm		
	10 ... 50	34 493	FENG-32-50-KF		10 ... 50	34 499	FENG-40-50-KF
	10 ... 100	34 494	FENG-32-100-KF		10 ... 100	34 500	FENG-40-100-KF
	10 ... 160	34 495	FENG-32-160-KF		10 ... 160	34 501	FENG-40-160-KF
	10 ... 200	34 496	FENG-32-200-KF		10 ... 200	34 502	FENG-40-200-KF
	10 ... 250	150 289	FENG-32-250-KF		10 ... 250	34 503	FENG-40-250-KF
	10 ... 320	34 497	FENG-32-320-KF		10 ... 320	34 504	FENG-40-320-KF
	10 ... 400	150 290	FENG-32-400-KF		10 ... 400	150 291	FENG-40-400-KF
	10 ... 500	34 498	FENG-32-500-KF		10 ... 500	34 505	FENG-40-500-KF
	for Ø 50 mm				for Ø 63 mm		
	10 ... 50	34 506	FENG-50-50-KF		10 ... 50	34 513	FENG-63-50-KF
	10 ... 100	34 507	FENG-50-100-KF		10 ... 100	34 514	FENG-63-100-KF
	10 ... 160	34 508	FENG-50-160-KF		10 ... 160	34 515	FENG-63-160-KF
	10 ... 200	34 509	FENG-50-200-KF		10 ... 200	34 516	FENG-63-200-KF
	10 ... 250	34 510	FENG-50-250-KF		10 ... 250	34 517	FENG-63-250-KF
	10 ... 320	34 511	FENG-50-320-KF		10 ... 320	34 518	FENG-63-320-KF
	10 ... 400	150 292	FENG-50-400-KF		10 ... 400	34 519	FENG-63-400-KF
	10 ... 500	34 512	FENG-50-500-KF		10 ... 500	34 520	FENG-63-500-KF
	for Ø 80 mm				for Ø 100 mm		
	10 ... 50	34 521	FENG-80-50-KF		10 ... 50	34 529	FENG-100-50-KF
	10 ... 100	34 522	FENG-80-100-KF		10 ... 100	34 530	FENG-100-100-KF
	10 ... 160	34 523	FENG-80-160-KF		10 ... 160	34 531	FENG-100-160-KF
	10 ... 200	34 524	FENG-80-200-KF		10 ... 200	34 532	FENG-100-200-KF
	10 ... 250	34 525	FENG-80-250-KF		10 ... 250	34 533	FENG-100-250-KF
	10 ... 320	34 526	FENG-80-320-KF		10 ... 320	34 534	FENG-100-320-KF
	10 ... 400	34 527	FENG-80-400-KF		10 ... 400	34 535	FENG-100-400-KF
	10 ... 500	34 528	FENG-80-500-KF		10 ... 500	34 536	FENG-100-500-KF

Ordering data – Guide units for variable strokes				Technical data → NO TAG			
Ordering data – Guide units for variable strokes				Technical data → www.festo.com			
	For Ø [mm]	Stroke [mm]	with recirculating ball bearing guide Part No. Type		with plain bearing guide Part No. Type		
	32	10 ... 500	34 487 FENG-32-...-KF		34 481	FENG-32-...	
	40	10 ... 500	34 488 FENG-40-...-KF		34 482	FENG-40-...	
	50	10 ... 500	34 489 FENG-50-...-KF		34 483	FENG-50-...	
	63	10 ... 500	34 490 FENG-63-...-KF		34 484	FENG-63-...	
	80	10 ... 500	34 491 FENG-80-...-KF		34 485	FENG-80-...	
	100	10 ... 500	34 492 FENG-100-...-KF		34 486	FENG-100-...	

Ordering data – Mounting kit for proximity sensor SMT-8			Technical data → NO TAG		
Ordering data – Mounting kit for proximity sensors SME/SMT-8			Technical data → www.festo.com		
	For Ø [mm]	Part No. Type			
	32	175 705 SMB-8-FENG-32/40			
	40				
	50	175 706 SMB-8-FENG-50/63			
	63				
	80	175 707 SMB-8-FENG-80/100			
	100				

 Core Range

Standard cylinders DNC, ISO 15552

Accessories

FESTO

Ordering data – Proximity sensor for slot type 8, magneto-resistive							Technical data → NO TAG	
Ordering data – Proximity sensor for slot type 8, magneto-resistive							Technical data → www.festo.com	
	Mounting	Switch out-put	Electrical connection			Cable length [m]	Part No.	Type
			Cable	M8 plug	M12 plug			
NO contact								
	Insertable from above	PNP	3-wire	–	–	2.5	525 898	SMT-8F-PS-24V-K2,5-OE
		NPN					525 909	SMT-8F-NS-24V-K2,5-OE
		–	2-wire	–	–	2.5	525 908	SMT-8F-ZS-24V-K2,5-OE
		PNP	–	3-pin	–	0.3	525 899	SMT-8F-PS-24V-K0,3-M8D
		NPN					525 910	SMT-8F-NS-24V-K0,3-M8D
		PNP	–	–	3-pin	0.3	525 900	SMT-8F-PS-24V-K0,3-M12
	Insertable from end, flush with the cylinder profile	PNP	3-wire	–	–	2.5	175 436	SMT-8-PS-K-LED-24-B
		–	3-pin	–	0.3	175 484	SMT-8-PS-S-LED-24-B	
NC contact								
	Insertable from above	PNP	3-wire	–	–	7.5	525 911	SMT-8F-PO-24V-K7,5-OE

Ordering data – Proximity sensor for slot type 8, magnetic reed						Technical data → NO TAG	
Ordering data – Proximity sensor for slot type 8, magnetic reed						Technical data → www.festo.com	
	Mounting	Electrical connection		Cable length [m]	Part No.	Type	
		Cable	M8 plug				
NO contact							
	Insertable from above	3-wire	–	2.5	525 895	SME-8F-DS-24V-K2,5-OE	
				5.0	525 897	SME-8F-DS-24V-K5,0-OE	
		2-wire	–	2.5	525 907	SME-8F-ZS-24V-K2,5-OE	
		–	3-pin	0.3	525 896	SME-8F-DS-24V-K0,3-M8D	
	Insertable from end, flush with the cylinder profile	3-wire	–	2.5	150 855	SME-8-K-LED-24	
		–	3-pin	0.3	150 857	SME-8-S-LED-24	
NC contact							
	Insertable from above	3-wire	–	7.5	525 906	SME-8F-DO-24V-K7,5-OE	

Ordering data – Plug sockets							Technical data → NO TAG	
Ordering data – Plug sockets							Technical data → www.festo.com	
	Mounting	Switch output		Connection	Cable length [m]	Part No.	Type	
		PNP	NPN					
Straight plug socket								
	Union nut M8			3-pin	2.5	159 420	SIM-M8-3GD-2,5-PU	
					5	159 421	SIM-M8-3GD-5-PU	
	Union nut M12			3-pin	2.5	159 428	SIM-M12-3GD-2,5-PU	
					5	159 429	SIM-M12-3GD-5-PU	
Angled plug socket								
	Union nut M8			3-pin	2.5	159 422	SIM-M8-3WD-2,5-PU	
					5	159 423	SIM-M8-3WD-5-PU	
	Union nut M12			3-pin	2.5	159 430	SIM-M12-3WD-2,5-PU	
					5	159 431	SIM-M12-3WD-5-PU	

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

Standard cylinders DNC, ISO 15552

Accessories



Ordering data – Slot cover for slot type 8				
	Mounting	Length [m]	Part No.	Type
	Insertable from above	2x 0.5	151 680	ABP-5-S

Standard cylinders DNC, ISO 15552

Accessories

FESTO

Ordering data – One-way flow control valves				Technical data → Volume 2	
Ordering data – One-way flow control valves				Technical data → www.festo.com	
	Connection		Material	Part No.	Type
	Thread	For tubing O.D.			
	G1/8	3	Metal design	193 142	GRLA-1/8-QS-3-D
		4		193 143	GRLA-1/8-QS-4-D
		6		193 144	GRLA-1/8-QS-6-D
		8		193 145	GRLA-1/8-QS-8-D
	G1/4	6		193 146	GRLA-1/4-QS-6-D
		8		193 147	GRLA-1/4-QS-8-D
		10		193 148	GRLA-1/4-QS-10-D
	G3/8	6		193 149	GRLA-3/8-QS-6-D
		8		193 150	GRLA-3/8-QS-8-D
		10		193 151	GRLA-3/8-QS-10-D
	G1/2	12		193 152	GRLA-1/2-QS-12-D

ISO standard cylinders
ISO 15552 (ISO 6431 and VDMA 24 562)

1.2

 Core Range