Standard cylinders DNC, ISO 6431 and VDMA 24 562

FESTO

- 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 6431 and VDMA 24 562

Key features

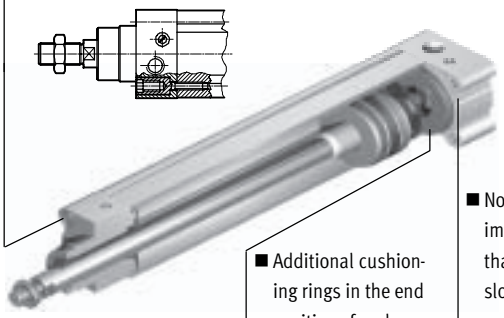
Basic cylinder DNC

General data

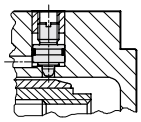
- Double-acting cylinder to DIN ISO 6431 and VDMA 24 562, NF E49 0003.1 and UNI 10 290

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

- 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 6431 and VDMA 24 562

Key features

Tandem cylinder

DNCT

- Connection of 2 cylinders with the same piston ∅ 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

Standard cylinders DNC, ISO 6431 and VDMA 24 562

Key features

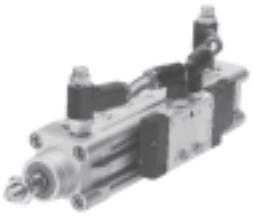
Cylinder with end-position lock

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

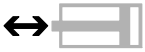
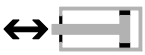
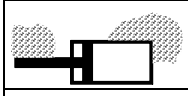
DNC-V1 ... -V6



- 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 6431 and VDMA 24 562

Key features

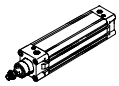
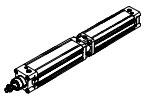
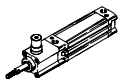
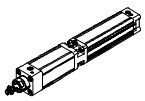
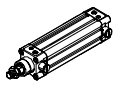
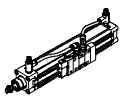
Variants from the modular system			
Symbol	Key features		Description
	Q	Square piston rod	Protection against torsion
	S2	Through piston rod	The thread designs on both piston rod ends are identical
	S20	Through, hollow piston rod	Suitable for vacuum applications
	K2	Extended male piston rod thread	–
	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	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

Standard cylinders DNC, ISO 6431 and VDMA 24 562

Product range overview

FESTO

Function	Design	Type	Piston ∅ [mm]	Stroke [mm]		Position sensing A	Protection 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	–	2 ... 500	■	–	–	–	–	–
			63, 80, 100, 125		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 6431 and VDMA 24 562

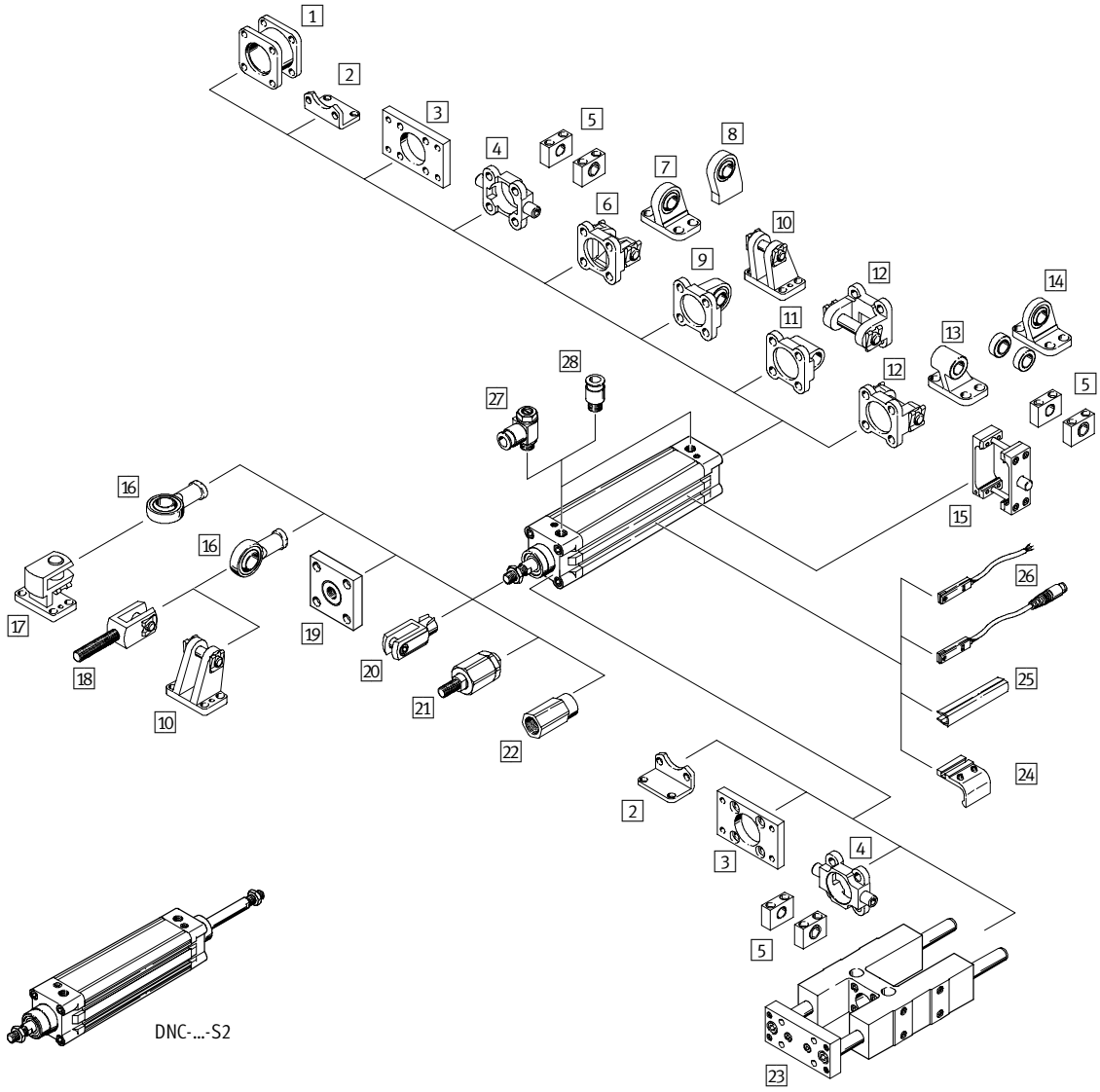
Product range overview

FESTO

Type	Special spanner flats K7	Piston rod extended K8	Improved running performance K10	Heat-resistant up to 150 °C S6	Constant motion (at low speed) S10	Low friction S11	Free of copper, PTFE and silicone CT	High corrosion protection R3	Wiper seal R8	Cylinder/valve combination V1 ... V6	➔Page
Basic cylinder											
DNC	■	■	■	■	■	■	■	■	■	–	1 / 1.2-33
Tandem/high-power cylinder											
DNCT	–	–	–	■	–	–	–	–	–	–	1 / 5.7-2
Cylinder with clamping units											
DNC-KP	■	■	–	–	–	–	–	–	–	■	1 / 1.2-47
DNCKE	–	–	–	–	–	–	–	–	–	–	1 / 5.11-2
Cylinder with end-position lock											
DNC-...-EL	–	■	–	–	–	–	–	–	■	–	1 / 1.2-57
Cylinder/valve combination											
DNC-V1 ... V6	■	■	■	–	■	■	–	–	■	■	1 / 1.2-66

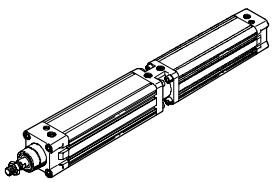
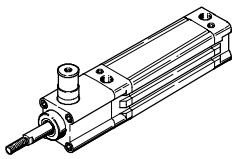
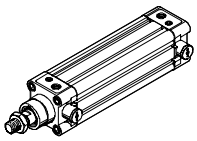
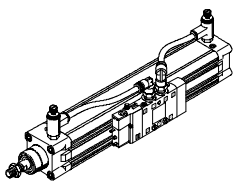
Standard cylinders DNC, ISO 6431 and VDMA 24 562

Peripherals overview



DNC-...-S2

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 ∅ to form a multi-position cylinder	■1)	■	■	■1)	1 / 1.2-75
2 Foot mounting HNC/CRHNC	For bearing and end cap	■	■	■	■	1 / 1.2-76
3 Flange mounting FNC/CRFNG	For bearing or end cap	■	■	■	■	1 / 1.2-77

Standard cylinders DNC, ISO 6431 and VDMA 24 562

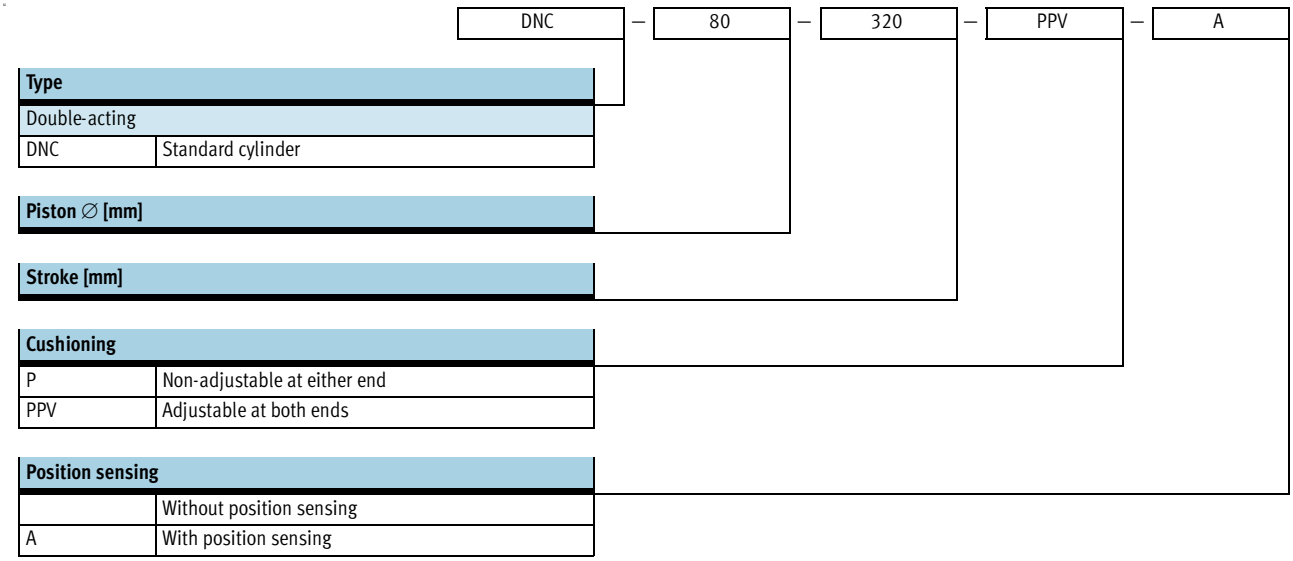
Peripherals overview

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 / 1.2-78
5	Trunnion support LNZG/CRLNZG	–	■	■	■	■	1 / 1.2-80
6	Swivel flange SNC	For end cap	■[1]	■[1]	■	■[1]	1 / 1.2-81
7	Clevis foot LSNG	With spherical bearing	■[1]	■[1]	■	■[1]	1 / 1.2-84
8	Clevis foot LSNSG	Weld-on, with spherical bearing	■[1]	■[1]	■	■[1]	1 / 1.2-84
9	Swivel flange SNCS	With spherical bearing for end caps	■[1]	■[1]	■	■[1]	1 / 1.2-83
10	Clevis foot LBG	–	■[1]	■	■	■[1]	1 / 1.2-84
11	Swivel flange SNCL	For end cap	■[1]	■[1]	■	■[1]	1 / 1.2-83
12	Swivel flange SNCB/SNCB-...-R3	For end cap	■[1]	■[1]	■	■[1]	1 / 1.2-82
13	Clevis foot LNG/CRLNG	–	■[1]	■[1]	■	■[1]	1 / 1.2-84
14	Clevis foot LSN	With spherical bearing	■[1]	■[1]	■	■[1]	1 / 1.2-84
15	Trunnion mounting kit ZNCM	For mounting anywhere along the cylinder profile barrel	■	■	■	■	1 / 1.2-79
16	Rod eye SGS/CRSGS	With spherical bearing	■	■	■	■	1 / 1.2-85
17	Clevis foot, lateral LQG	–	■	■	■	■	1 / 1.2-84
18	Rod clevis SGA	With male thread	■	■	■	■	1 / 1.2-85
19	Coupling piece KSG	For compensating radial deviations	■	■	■	■	1 / 1.2-85
	Coupling piece KSZ	For cylinders with a non-rotating piston rod to compensate for radial deviations	■ Q	■ Q	■	■ Q	1 / 1.2-85
20	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	■	■	1 / 1.2-85
21	Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	■	■	1 / 1.2-85
22	Adapter AD	For a vacuum suction cup	■ S20	–	–	■ S20	1 / 1.2-85
23	Guide unit FENG	For protecting standard cylinders from torsion at high torque loads	■[2]	■ ∅ 50 ... 125	■	–	1 / 1.2-86
24	Sensor mounting kit SMB-8-FENG	For proximity sensor SMT-8 when attaching to cylinders in combination with guide unit FENG	■[2]	■ ∅ 50 ... 125	■	–	1 / 1.2-86
25	Slot cover ABP-5-S	For protecting the sensor cable and keeping dirt out of the sensor slots	■	■	■	■	1 / 1.2-87
26	Proximity sensor SME/SMT-8	Can be integrated in the cylinder profile barrel from above	■	■	■	■	1 / 1.2-87
27	One-way flow control valve GRLA	For speed regulation	■	■	■	■	1 / 1.2-88
28	Push-in fitting QS	For connecting compressed air tubing with standard O.D. to CETOP RP 54 P	■	■	■	■	Volume 3

1) Not with variants S2 or S20
2) For piston ∅ 32, 40 mm only with variant R3

Standard cylinders DNC, ISO 6431 and VDMA 24 562

Type codes



- 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 6431 and VDMA 24 562

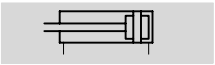
Technical data

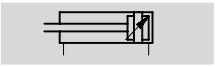
FESTO

Function

DNC-...

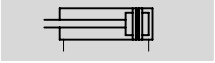
without position sensing

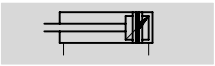




DNC-...-A-...

with position sensing





Diameter
32 ... 125 mm

Stroke length
10 ... 2,000 mm

www.festo.com/en/Spare_parts_service

Wearing parts kits
➔ 1 / 1.2-46

General technical data								
Piston ∅		32	40	50	63	80	100	125
Stroke [mm]	Basic version	10 ... 2,000						
	Q	10 ... 300	10 ... 400	10 ... 500		10 ... 600		–
	K10	10 ... 1,000						–
	S10	10 ... 500						–
	S11	10 ... 500						
	S20	10 ... 850						
Pneumatic connection		G⅛	G¼	G¼	G⅜	G⅜	G½	G½
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								
Piston ∅		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 6431 and VDMA 24 562

Technical data

FESTO

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 ∅		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 ∅		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:

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

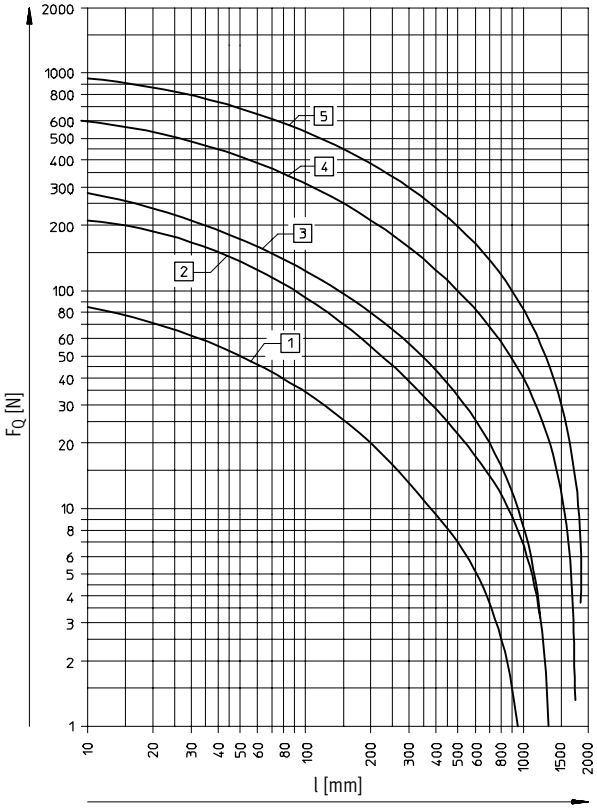
Maximum permissible load:

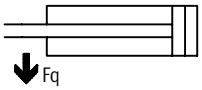
$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

- 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 Fq as a function of stroke length l in the basic version





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

Technical data, variant Q							
Piston ∅		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 / 1.2-36

Examples for piston ∅ 32 mm

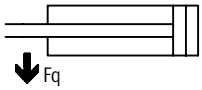
Example 1:
Stroke length l = 150 mm
Result: Permissible
Lateral force Fq = 9.5 N
Lever arm s = 84 mm

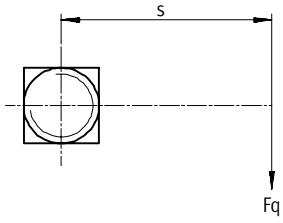
Example 2:
Lateral force Fq = 40 N
Result: Permissible
Stroke length l = 28 mm
Lever arm s = 20 mm

Example 3:
Stroke length l = 150 mm
Lever arm s = 20 mm

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

= 8 N
Result: Permissible
Fq = 8 N < $Fq_{max.}$ = 9.5 N





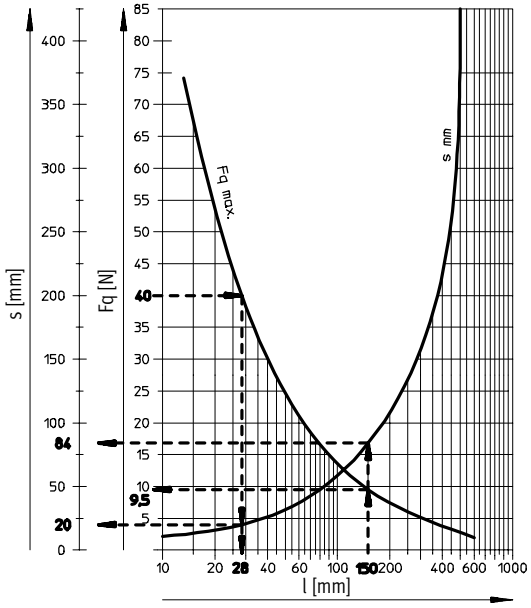
Standard cylinders DNC, ISO 6431 and VDMA 24 562

Technical data

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

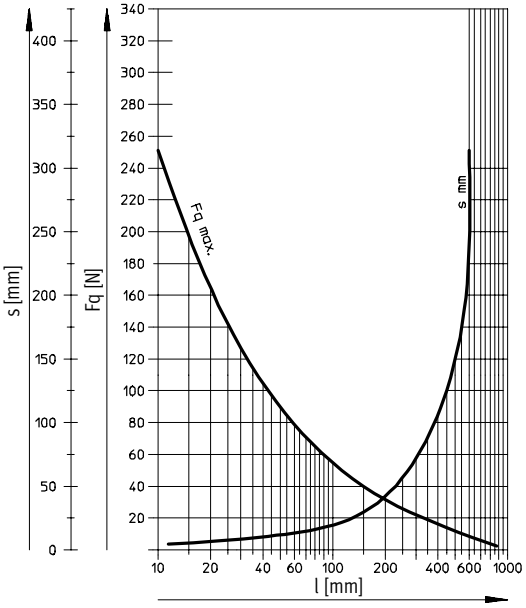
Piston ∅ 32 mm

Max. torque = 800 Nmm
Max. stroke = 300 mm



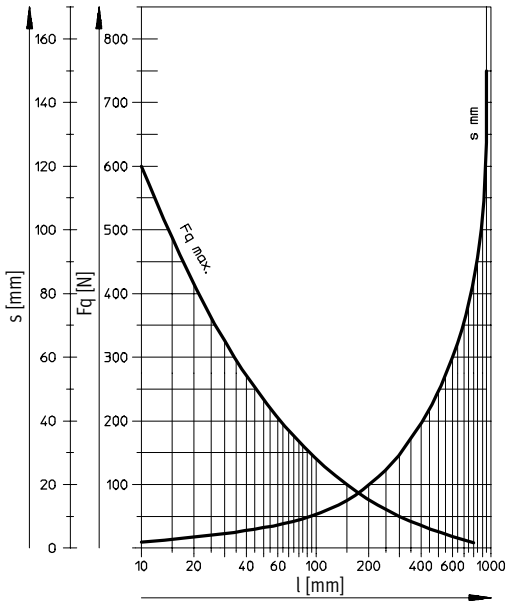
Piston ∅ 40 mm

Max. torque = 1,100 Nmm
Max. stroke = 400 mm



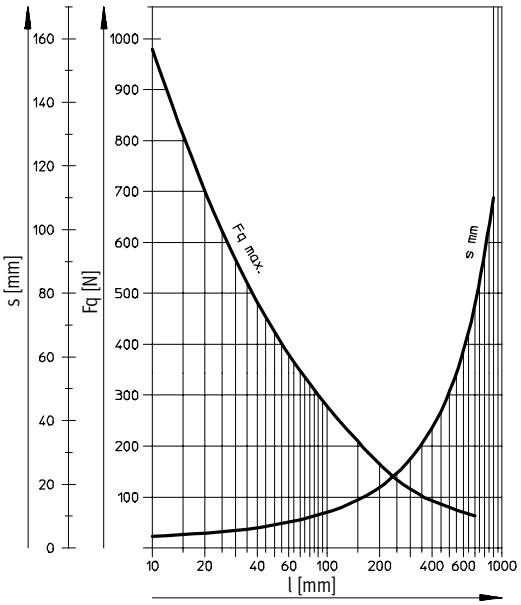
Piston ∅ 50, 63 mm

Max. torque = 1,500 Nmm
Max. stroke = 500 mm



Piston ∅ 80, 100 mm

Max. torque = 3,000 Nmm
Max. stroke = 600 mm



Weights [g]							
Piston ∅	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

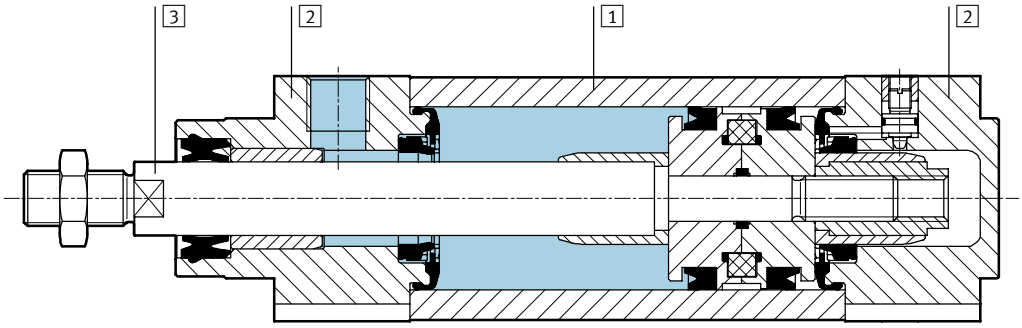
Standard cylinders DNC, ISO 6431 and VDMA 24 562

Technical data

FESTO

Materials

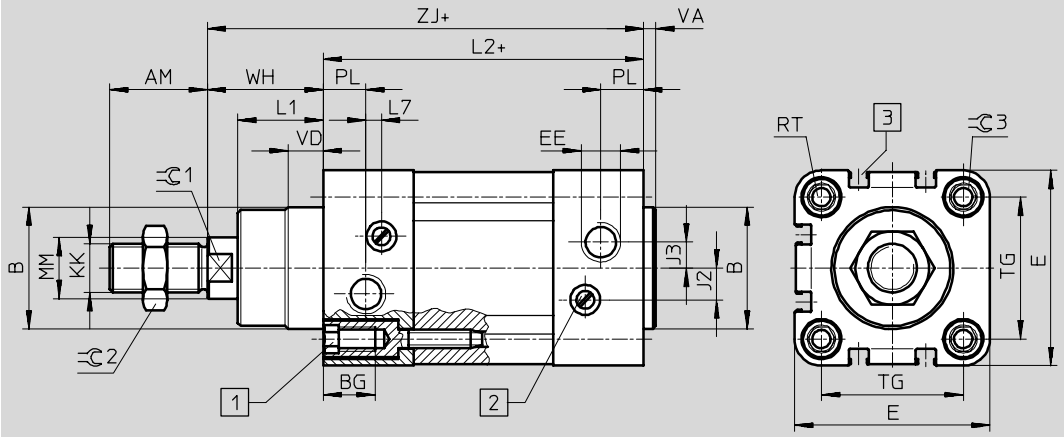
Sectional view



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

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

∅ [mm]	AM	B ∅ d11	BG	E	EE	J2	J3	KK	L1	L2
32	22	30	16	45	G⅛	6	5.2	M10x1.25	18	94
40	24	35	16	54	G¼	8	6	M12x1.25	21.5	105
50	32	40	17	64	G¼	10.4	8.5	M16x1.5	28	106
63	32	45	17	75	G⅜	12.4	10	M16x1.5	28.5	121
80	40	45	17	93	G⅜	12.5	8	M20x1.5	34.7	128
100	40	55	17	110	G½	12	10	M20x1.5	38.2	138
125	54	60	22	134	G½	13	8	M27x2	46	160

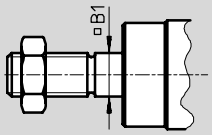
∅ [mm]	L7	MM ∅ f8	PL	RT	TG	VA	VD	WH	ZJ	=C1	=C2	=C3
32	3.3	12	15.6	M6	32.5	4	10	26	120	10	16	6
40	3.6	16	14	M6	38	4	10.5	30	135	13	18	6
50	5.1	20	14	M8	46.5	4	11.5	37	143	17	24	8
63	6.6	20	17	M8	56.5	4	15	37	158	17	24	8
80	10.5	25	16.4	M10	72	4	15.7	46	174	22	30	6
100	8	25	18.8	M10	89	4	19.2	51	189	22	30	6
125	14	32	18	M12	110	6	20.5	65	225	27	36	8

Standard cylinders DNC, ISO 6431 and VDMA 24 562

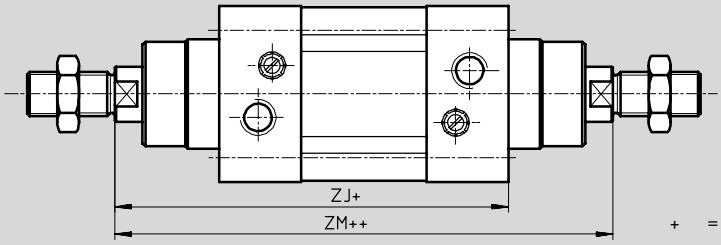
Technical data

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

Q – Square piston rod



S2 – Through piston rod

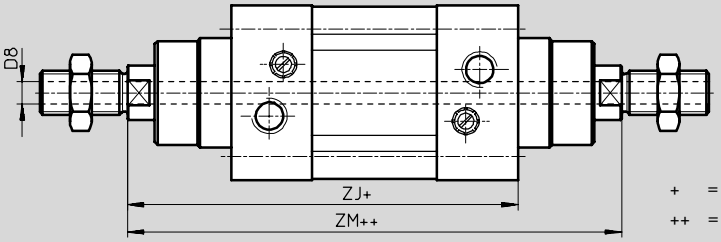


\+ = plus stroke length
++ = plus 2 stroke lengths

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

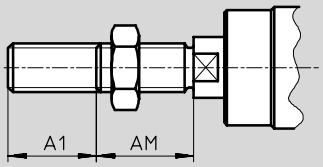
The max. stroke length for all piston ∅ is 850 mm.
In combination with variant K8, the piston rod is extended on one side at the bearing cap.

∅ [mm]	B1 □	D8 ∅	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

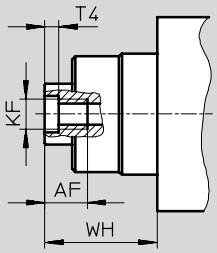
1) Internal narrowing to ∅ 5.5 mm

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

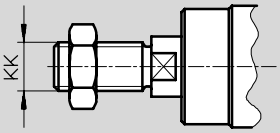
K2 – Extended male piston rod thread



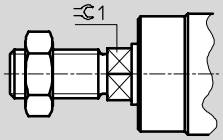
K3 – Female piston rod thread



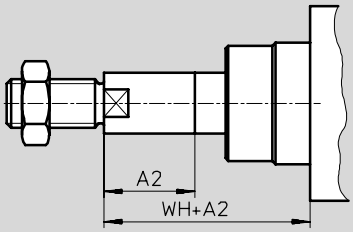
K5 – Special piston rod thread



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.

∅ [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 6431 and VDMA 24 562

Technical data

FESTO

Ordering data – Basic version

Type	Piston ∅ [mm]	Stroke [mm]	Without position sensing Part No.	Type[1)]	With position sensing 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

Standard cylinders DNC, ISO 6431 and VDMA 24 562

Technical data

Ordering data – Basic version

Type	Piston ∅ [mm]	Stroke [mm]	Without position sensing Part No.	Type[1)]	With position sensing 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 ∅ [mm]	Stroke [mm]	Without position sensing Part No.	Type[1)]	With position sensing 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 6431 and VDMA 24 562

Ordering data – Modular products

FESTO

M Mandatory data					O Options					
Module No.	Function	Piston ∅	Stroke	Cushioning	Position sensing	Protection against torsion	Type of piston rod	Male thread extended	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	Conditions	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 6431 and VDMA								**DNC**	DNC
	Piston ∅ [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							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**	
	Male thread extended [mm]	Piston rod with extended male thread 1 ... 35		1 ... 70					5	**-...K2**	
	Female thread	Female piston rod thread (M6)	(M8)	(M10)	(M10)	(M12)	(M12)	(M16)	6	**-K3**	
↓	Special thread	Special piston rod thread M10	M12	M16	M16	M20	M20	M27	7	**-...K5**	

1 **PPV** Not with S10, S11, CT.

2 **Q** Max. stroke: Piston ∅ 32 mm: 10 ... 300 mm
Piston ∅ 40 mm: 10 ... 400 mm
Piston ∅ 50 mm: 10 ... 500 mm
Piston ∅ 63 mm: 10 ... 500 mm
Piston ∅ 80 mm: 10 ... 600 mm
Piston ∅ 100 mm: 10 ... 600 mm
Not with S20, K10, S10, S11, CT, R8, K7.
In combination with S2: Square piston rod at bearing cap end only.

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.
Not with S10, S11, S20, K7.

4 **S20** Max. stroke: 850 mm.
Not with K2, K3, K5, K10, S10, S11, R8.

5 **K2** Not with K3, K10.

6 **K3** With K5: On request.
Not with K7.

7 **K5** Not with K10.

Transfer order code

	DNC	–		–		–		–		–		–		–		–		–	

Standard cylinders DNC, ISO 6431 and VDMA 24 562

Ordering data – Modular products

FESTO

0 Options

	Special spanner flats	Piston rod extended	Improved runnin per-formance	Tempera-ture resistant	Constant motion (at low speed)	Running characteris-tics	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							8	-K7		
0 Piston rod extended [mm]	Extended piston rod 1 ... 500								-...K8		
Improved running performance	Smooth anodised aluminium coated piston rod						–	9	-K10		
Temperature-resistant	Heat-resistant seals up to max. 150 °C							10	-S6		
Constant motion (at low speed)	Slow speed (constant motion at low piston speeds)						–	11	-S10		
Running characteristics	Low friction							12	-S11		
Special materials	Free of copper, PTFE and silicone							13	-CT		
Corrosion protection	High corrosion protection							13	-R3		
Wiper seal	Dust protection								-R8		

8 **K7** Not with K10, Q, S2.

9 **K10** Max. stroke: 1,000 mm.
Not with R3, R8.

10 **S6** Not with S10, S11, CT, R8.

11 **S10** Max. stroke: 500 mm; further strokes on request.
Not with S11, CT, R3, R8.

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

13 **CT, R3** Not with R8.

Transfer order code

–		–		–		–		–		–		–		–		–	

Wearing parts kits

	Part No.	Type		Part No.	Type
Piston ∅	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**

Standard cylinder DNC-KP, clamping cartridge for piston rod

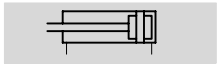
Technical data

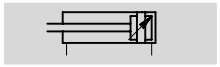
FESTO

Function

DNC-...

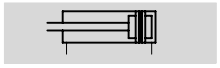
without position sensing

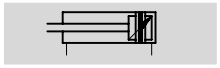




DNC-...-A-...

with position sensing



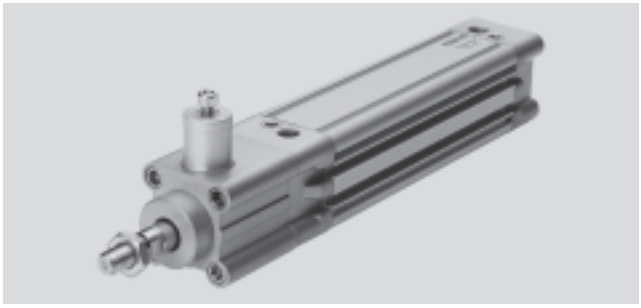


- Ø - Diameter
  32 ... 125 mm
- I - Stroke length
  10 ... 2,000 mm

- www.festo.com/en/Spare_parts_service

Wearing parts kits
➔ 1 / 1.2-56

KP



General technical data								
Piston ∅		32	40	50	63	80	100	125
Stroke [mm]	Basic version	10 ... 2,000						
	Q	10 ... 300	10 ... 400	10 ... 500	10 ... 500	10 ... 600	10 ... 600	–
Pneumatic connection	Cylinder	G1⁄8	G1⁄4	G1⁄4	G3⁄8	G3⁄8	G1⁄2	G1⁄2
	Clamping cartridge	M5	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8	G1⁄8
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 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 and environmental conditions								
Piston ∅		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

Technical data

FESTO

Forces [N]								
Piston ∅		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 sir supply at both ends (e.g. with a 5/3-way valve) does not provide any safety.

Impact energy [J]							
Piston ∅	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

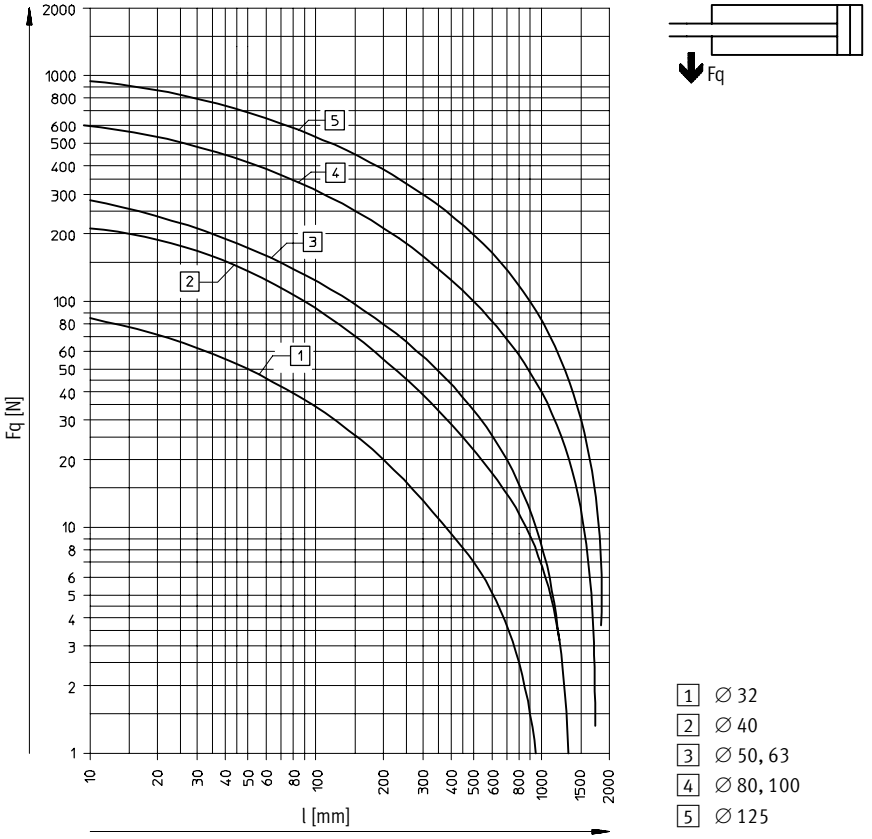
This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load. Allowance must also be made for the limits of the cushioning capacity of the drive and the permissible impact energy.

Standard cylinder DNC-KP, clamping cartridge for piston rod

Technical data

Axial backlash at the piston rod [mm]							
Piston ∅	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



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

Standard cylinder DNC-KP, clamping cartridge for piston rod

Technical data

Technical data, variant Q – Square piston rod							
Piston ∅		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 ∅ 32 mm

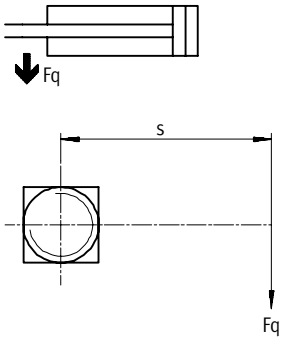
Example 1:
Stroke length l = 150 mm
Result: Permissible
Lateral force Fq = 9.5 N
Lever arm s = 84 mm

Example 2:
Lateral force Fq = 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

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

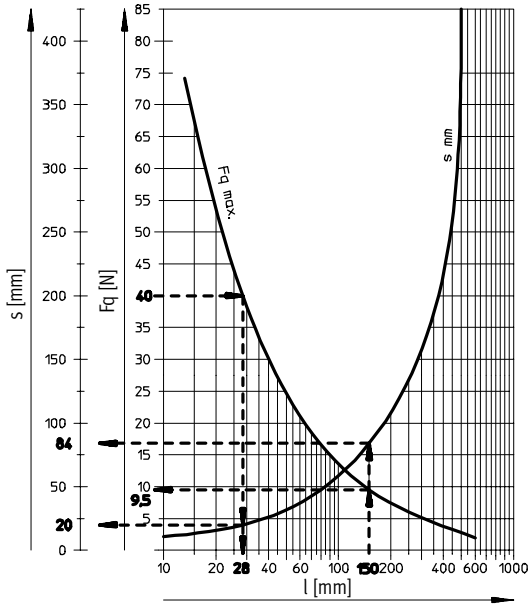
= 8 N
Result: Permissible
Fq = 8 N < $Fq_{max.}$ = 9.5 N



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

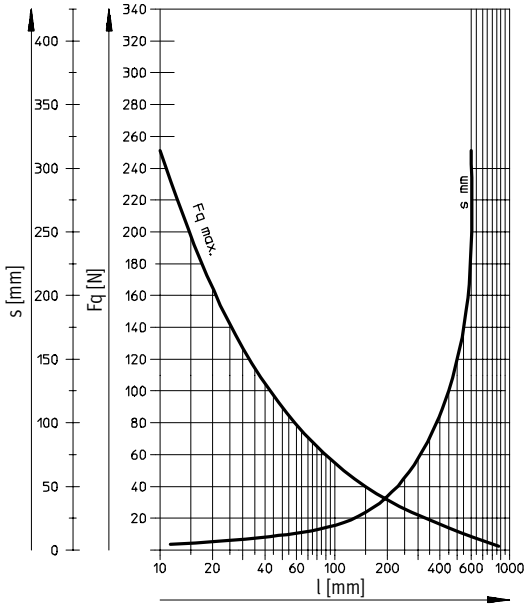
Piston ∅ 32 mm

Max. torque = 800 Nmm
Max. stroke = 300 mm



Piston ∅ 40 mm

Max. torque = 1,100 Nmm
Max. stroke = 400 mm



Standard cylinder DNC-KP, clamping cartridge for piston rod

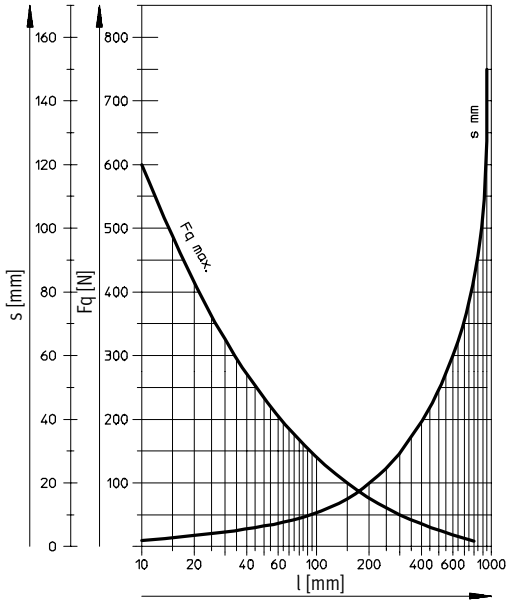
Technical data

FESTO

Piston ∅ 50, 63 mm

Max. torque = 1,500 Nmm

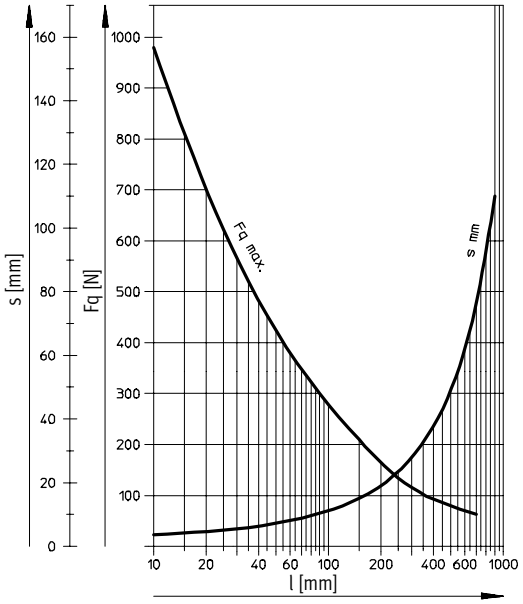
Max. stroke = 500 mm



Piston ∅ 80, 100 mm

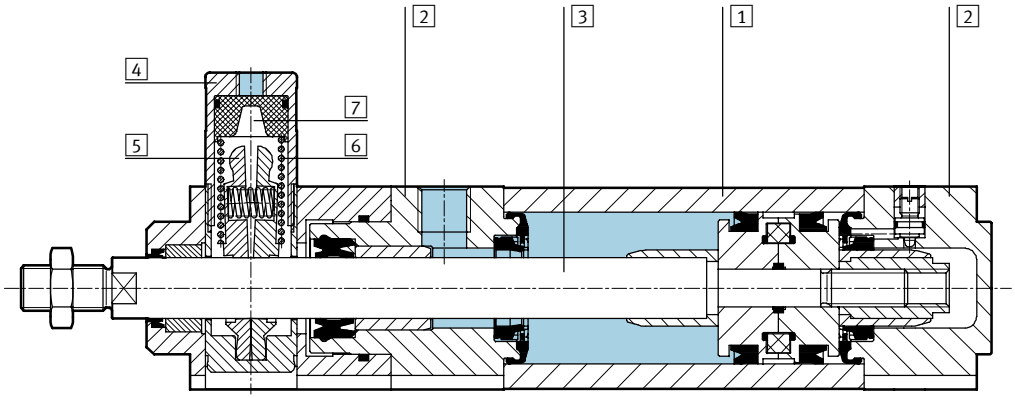
Max. torque = 3,000 Nmm

Max. stroke = 600 mm



Materials

Sectional view



Cylinder with clamping cartridge

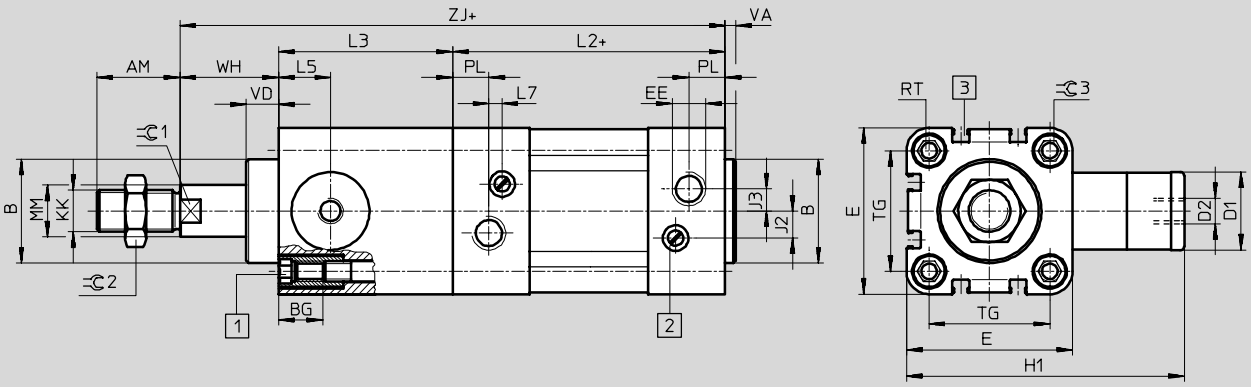
1	Cylinder barrel	Wrought aluminium alloy, smooth-anodised
2	Bearing and end cap	Die-cast aluminium
3	Piston rod	High-alloy steel
4	Housing	Wrought aluminium alloy, anodised
5	Clamping jaws	Brass
6	Spring	Spring steel
7	Piston	Polyacetal
–	Seals	Polyurethane, nitrile rubber

Standard cylinder DNC-KP, clamping cartridge for piston rod

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

∅ [mm]	AM	B ∅ d11	BG	D1 ∅ f9	D2	E	EE	H1	J2	J3	KK	L2	L3
32	22	30	16	20	M5	45	G⅛	67	6	5.2	M10x1.25	94	45
40	24	35	16	24	G⅛	54	G¼	88	8	6	M12x1.25	105	53
50	32	40	17	30	G⅛	64	G¼	107	10.4	8.5	M16x1.5	106	67
63	32	45	17	38	G⅛	75	G⅜	123	12.4	10	M16x1.5	121	76
80	40	45	17	48	G⅛	93	G⅜	165.5	12.5	8	M20x1.5	128	95
100	40	55	17	48	G⅛	110	G½	174	12	10	M20x1.5	138	98
125	54	60	22	65	G⅛	134	G½	207	13	8	M27x2	160	125

∅ [mm]	L5	L7	MM ∅ f8	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

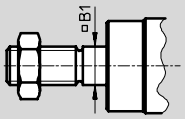
The dimensions for the cylinder/valve combination are on page ➔ 1 / 1.2-70

Standard cylinder DNC-KP, clamping cartridge for piston rod

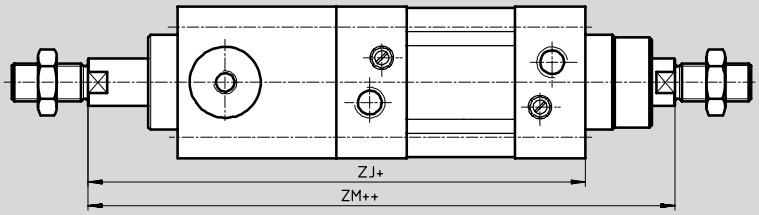
Technical data

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

Q – Square piston rod



S2 – Through piston rod

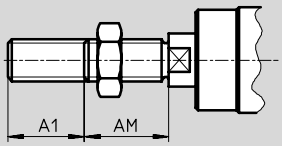


\+ = plus stroke length
++ = plus 2 stroke lengths

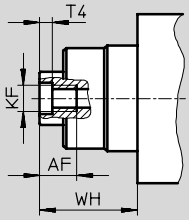
The thread designs on both piston rod ends are identical. The clamping cartridge is mounted on only one side.

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.

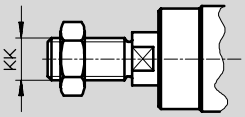
K2 – Extended male piston rod thread



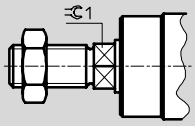
K3 – Female piston rod thread



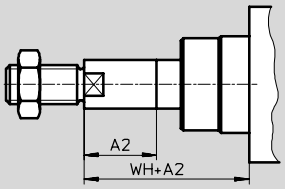
K5 – Special piston rod thread



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.

∅ [mm]	A1 max.	A2 max.	AF	AM	B1 □	KF	KK		T4	WH	ZJ	ZM	⌯1
							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

Ordering data – Modular products

FESTO

M Mandatory data					O Options →		
Module No.	**Drive function**	**Piston ∅**	**Stroke**	**Cushioning**	**Position sensing**	**Protection against torsion**	**Type of piston rod**
163 302	DNC	32	10 ... 2000	P	A	Q	S2
163 334		40		PPV			
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	Conditions	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 DIN ISO 6431 and VDMA								**DNC**		DNC
	Piston ∅	[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: Piston ∅ 32 mm: 10 ... 300 mm
Piston ∅ 40 mm: 10 ... 400 mm
Piston ∅ 50 mm: 10 ... 500 mm
Piston ∅ 63 mm: 10 ... 500 mm
Piston ∅ 80 mm: 10 ... 600 mm
Piston ∅ 100 mm: 10 ... 600 mm.
Not with S20, K7.
In combination with S2: Square piston rod at bearing cap end only.
In combination with KP: Only supplied with S2.

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 S20, K7.

Transfer order code

	DNC	–		–		–		–		–		–

Standard cylinder DNC-KP, clamping cartridge for piston rod

Ordering data – Modular products

FESTO

0 Options

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	Conditions	Code		Enter code
0 Male thread extended [mm]	Piston rod with extended male thread 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 [mm]	Extended piston rod 1 ... 500								**-...K8**		
Clamping unit	Clamping unit on the piston rod							5	**-KP**		-KP
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

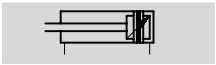
Wearing parts kits		
	Part No.	Type
Piston ∅	Basic version	
32	**369 195**	**DNC-32-...-PPV-(A)**
40	**369 196**	**DNC-40-...-PPV-(A)**
50	**369 197**	**DNC-50-...-PPV-(A)**
63	**369 198**	**DNC-63-...-PPV-(A)**
80	**369 199**	**DNC-80-...-PPV-(A)**
100	**369 200**	**DNC-100-...-PPV-(A)**
125	**369 201**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

Standard cylinder DNC-EL, with end position lock

Technical data

FESTO

Function
DNC-...-A-...-EL
with position sensing



Diameter
32 ... 100 mm

Stroke length
10 ... 2,000 mm

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Spare_parts_service

Wearing parts kits
➔ 1 / 1.2-46

EL

General technical data							
Piston ∅		32	40	50	63	80	100
Stroke [mm]	Basic version	10 ... 2000					
Pneumatic connection	Basic version	G1⁄8	G1⁄4	G1⁄4	G3⁄8	G3⁄8	G1⁄2
	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 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.
- 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.

Operating and environmental conditions							
Piston ∅		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.

Standard cylinder DNC-EL, with end position lock

Technical data

FESTO

Forces [N] and impact energy [J]							
Piston ∅		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	-EL	500		2000		5000	
Max. impact energy at the end positions		0.1	0.2	0.2	0.5	0.9	1.2

Permissible impact velocity:

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

Maximum permissible load:

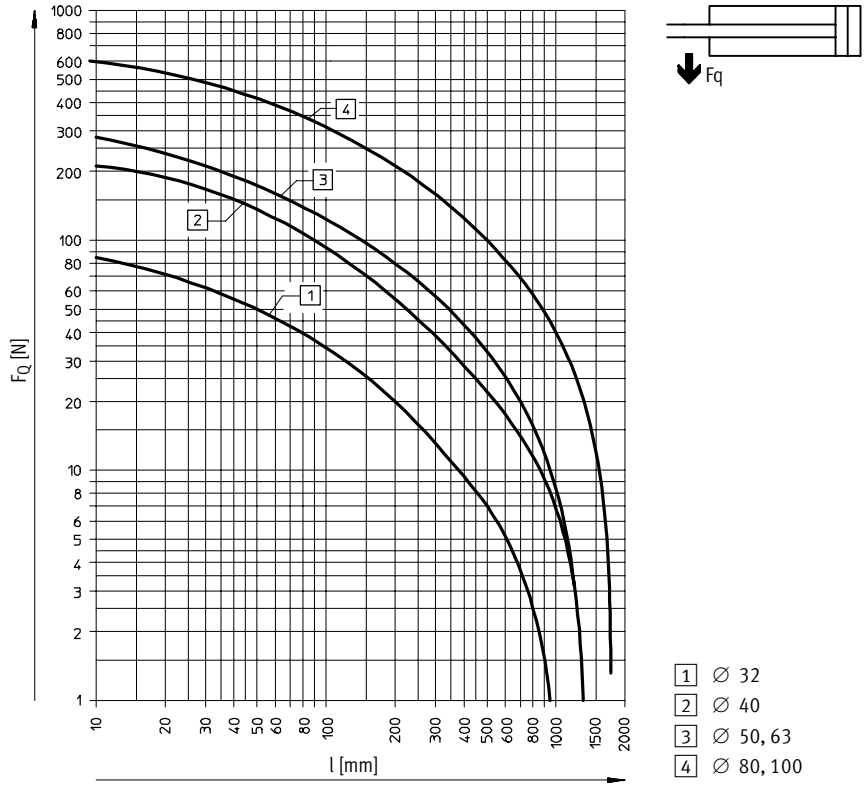
$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

- 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.

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

Lateral force Fq as a function of stroke length l



1 ∅ 32
2 ∅ 40
3 ∅ 50, 63
4 ∅ 80, 100

Standard cylinder DNC-EL, with end position lock

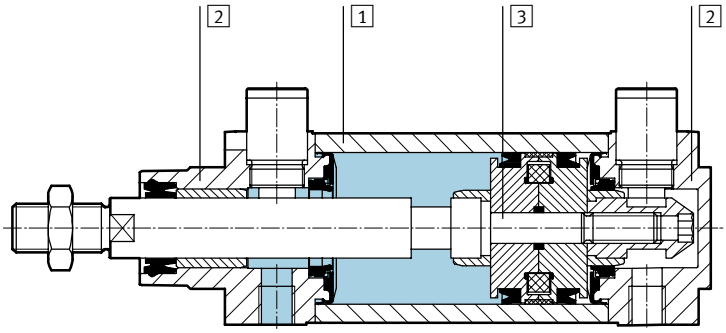
Technical data

FESTO

Weights [g]						
Piston ∅	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

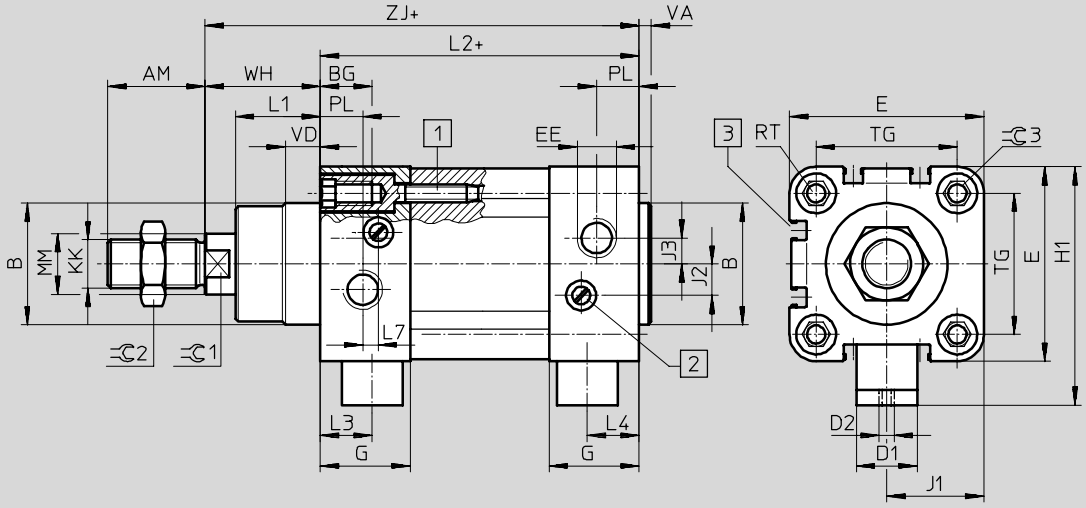
Standard cylinder DNC-EL, with end position lock

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

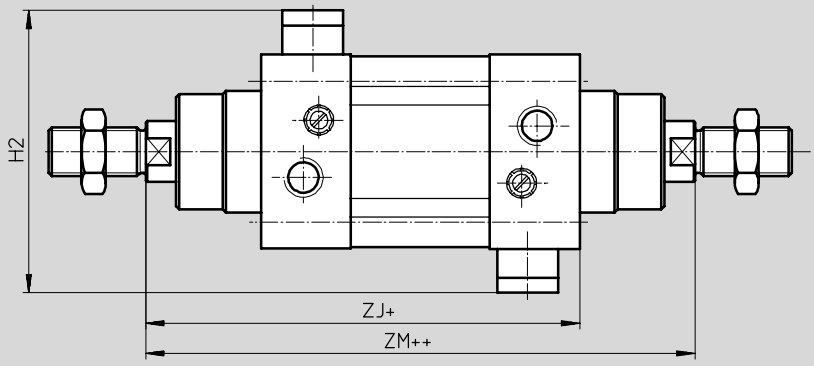
3 Sensor slot for proximity sensor

\+ = plus stroke length

Dimensions – Variants

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

S2 – Through piston rod



\+ = plus stroke length

++ = plus 2 stroke lengths

Standard cylinder DNC-EL, with end position lock

Technical data

∅ [mm]	AM	B ∅ d11	BG	D1 ∅ f8	D2	E	EE	G	H1	H2	J1	J2	J3	KK	L1
32	22	30	16	13	M3	45	G1/8	25.1	57.5	70	22.5	6	5.2	M10x1.25	18
40	24	35	16	13	M3	54	G1/4	29.6	64	74	27	8	6	M12x1.25	21.5
50	32	40	17	20	M5	64	G1/4	29.6	78.5	93	32	10.4	8.5	M16x1.5	28
63	32	45	17	20	M5	75	G3/8	35.6	84.5	93	37.5	12.4	10	M16x1.5	28.5
80	40	45	17	20	M5	93	G3/8	35.9	104.5	116	46.5	12.5	8	M20x1.5	34.7
100	40	55	17	20	M5	110	G1/2	38.8	113.5	116	55	12	10	M20x1.5	38.2

∅ [mm]	L2	L3	L4	L7	MM ∅ f8	PL	RT	TG	VA	VD	WH ±2	ZM	ZJ	⌀G1	⌀G2	⌀G3
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

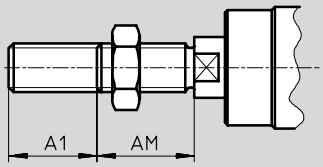
Standard cylinder DNC-EL, with end position lock

Technical data

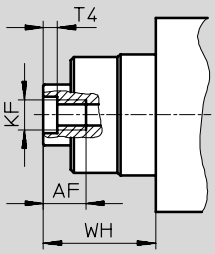
FESTO

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

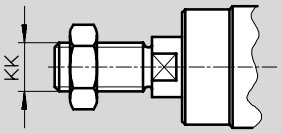
K2 – Extended male piston rod thread



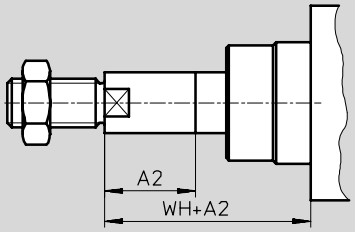
K3 – Female piston rod thread



K5 – Special piston rod thread



K8 – Extended piston rod



Note

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

Standard cylinder DNC-EL, with end position lock

Technical data

∅ [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

M Mandatory data					O Options →	
Module No.	**Function**	**Piston ∅**	**Stroke**	**Cushioning**	**Position sensing**	**Type of piston rod**
163 302	DNC	32	10 ... 2000	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 6431 and VDMA							**DNC**		DNC
	Piston ∅ [mm]	32	40	50	63	80	100		**-...**		
	Stroke [mm]	10 ... 2000							**-...**		
	Cushioning	Pneumatic cushioning adjustable at both ends							**-PPV**		-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.
In combination with K8: Piston rod extended at bearing cap end only.

Transfer order code

	DNC	–		–		–	**PPV**	–		–	

Standard cylinder DNC-EL, with end position lock

Ordering data – Modular products

FESTO

0 Options

Male thread extended	Female thread	Special thread	Piston rod extended	Wiper seal	End lock
...K2	K3	...K5	...K8	R8	ELB ELV ELH
–	– **K3**	–	– **100K8**	–	–

Ordering table

Size	32	40	50	63	80	100	Conditions	Code		Enter code
↓ Male thread extended [mm]	Piston rod with extended male thread 1 ... 35		1 ... 70				2	**-...K2**		
Female thread	Female piston rod thread (M6)	(M8)	(M10)	(M10)	(M12)	(M12)	3	**-K3**		
Special thread	Special piston rod thread M10	M12	M16	M16	M20	M20		**-...K5**		
Piston rod extended [mm]	Extended piston rod 1 ... 500							**-...K8**		
Wiper seal	Dust protection							**-R8**		
End lock	End position lock on both sides							**-ELB**		
	End position lock, front							**-ELV**		
	End position lock, rear							**-ELH**		

2 **K2** Not with K3.

3 **K3** With K5: On request.

Transfer order code

–		–		–		–		–		–	

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

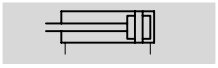
Technical data

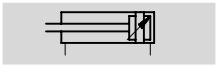
FESTO

Function

DNC-...

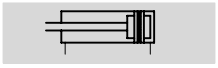
without position sensing

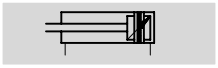




DNC-...-A-...

with position sensing





Diameter
32 ... 100 mm

Stroke length
100 ... 2,000 mm

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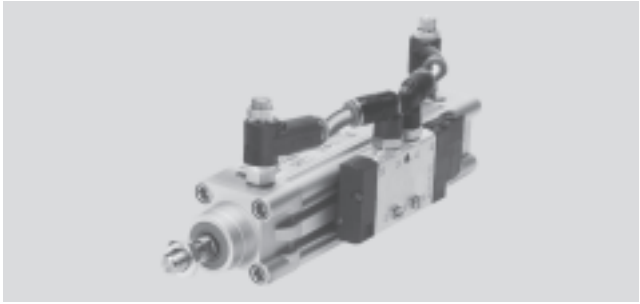
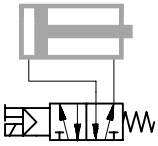
Wearing parts kits
➔ 1 / 1.2-56

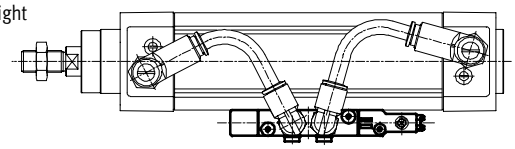


Valve variants

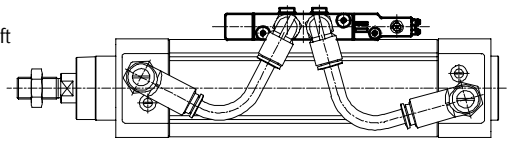
Single solenoid valve unactuated, piston rod retracted



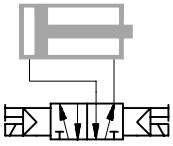
DNC-...-V1
fitted on right



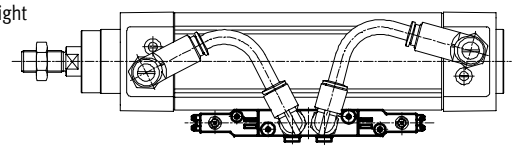
DNC-...-V4
fitted on left



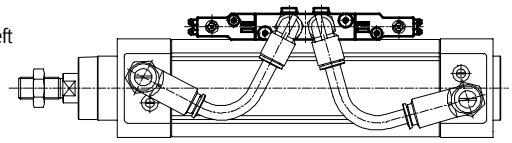
Double solenoid valve unactuated, piston rod retracted



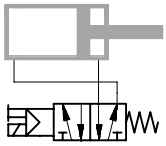
DNC-...-V3
fitted on right



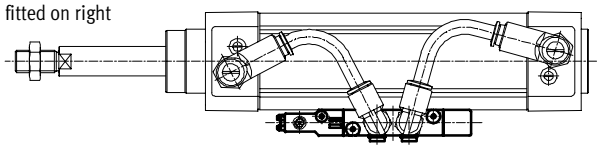
DNC-...-V6
fitted on left



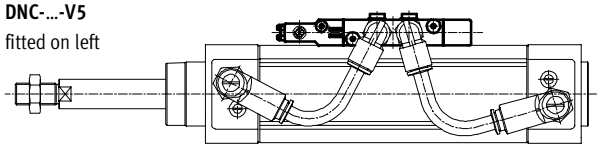
Single solenoid valve unactuated, piston rod advanced



DNC-...-V2
fitted on right



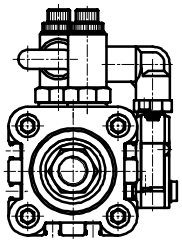
DNC-...-V5
fitted on left



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

Technical data

FESTO

General technical data							
Piston ∅		32	40	50	63	80	100
Cylinder							
Stroke [mm]	Basic version	100 ... 2,000					
	Q	100 ... 300	100 ... 400	100 ... 500		100 ... 600	
	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 / 1.2-74	
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 ∅		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.

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

Technical data

Forces [N] and impact energy [J]							
Piston ∅		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:

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

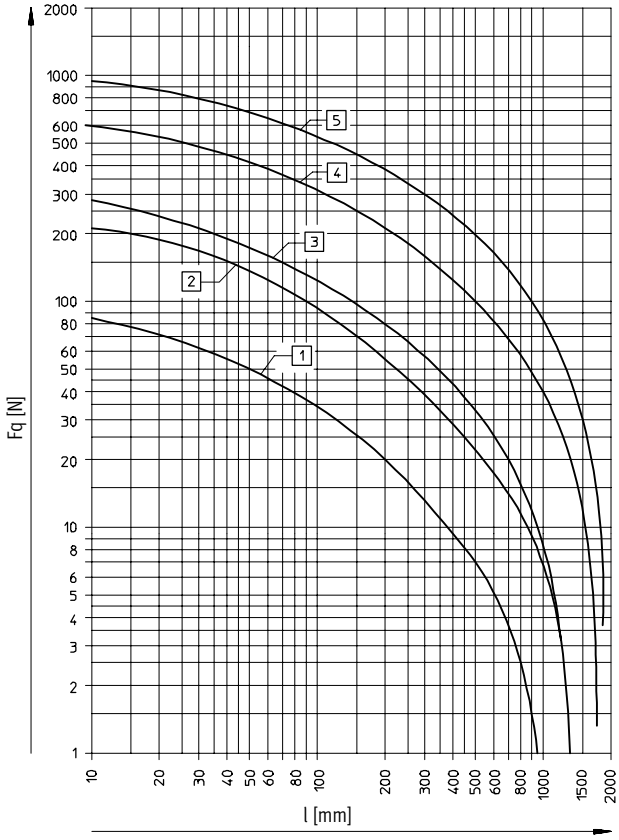
Maximum permissible load:

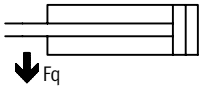
$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

- 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 Fq as a function of stroke length l in the basic version





1 ∅ 32
2 ∅ 40
3 ∅ 50, 63
4 ∅ 80, 100

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

Technical data

FESTO

Technical data, variant Q							
Piston ∅		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 / 1.2-36

Examples for piston ∅ 32 mm

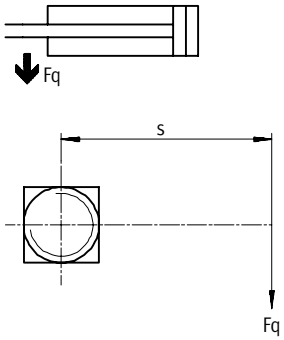
Example 1:
Stroke length l = 150 mm
Result: Permissible
Lateral force Fq = 9.5 N
Lever arm s = 84 mm

Example 2:
Lateral force Fq = 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

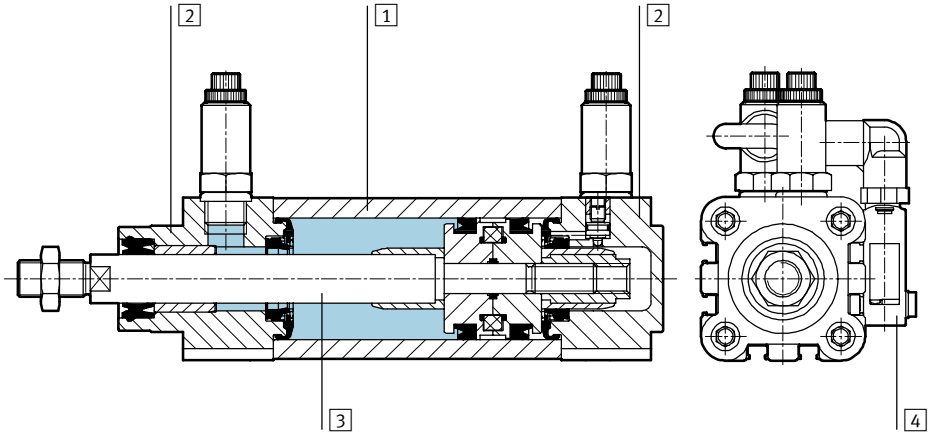
$$F_q = \frac{\text{Max. torque 800 Nmm}}{\text{Lever arm. 100 mm}}$$

= 8 N
Result: Permissible
Fq = 8 N < $Fq_{max.}$ = 9.5 N



Materials

Sectional view

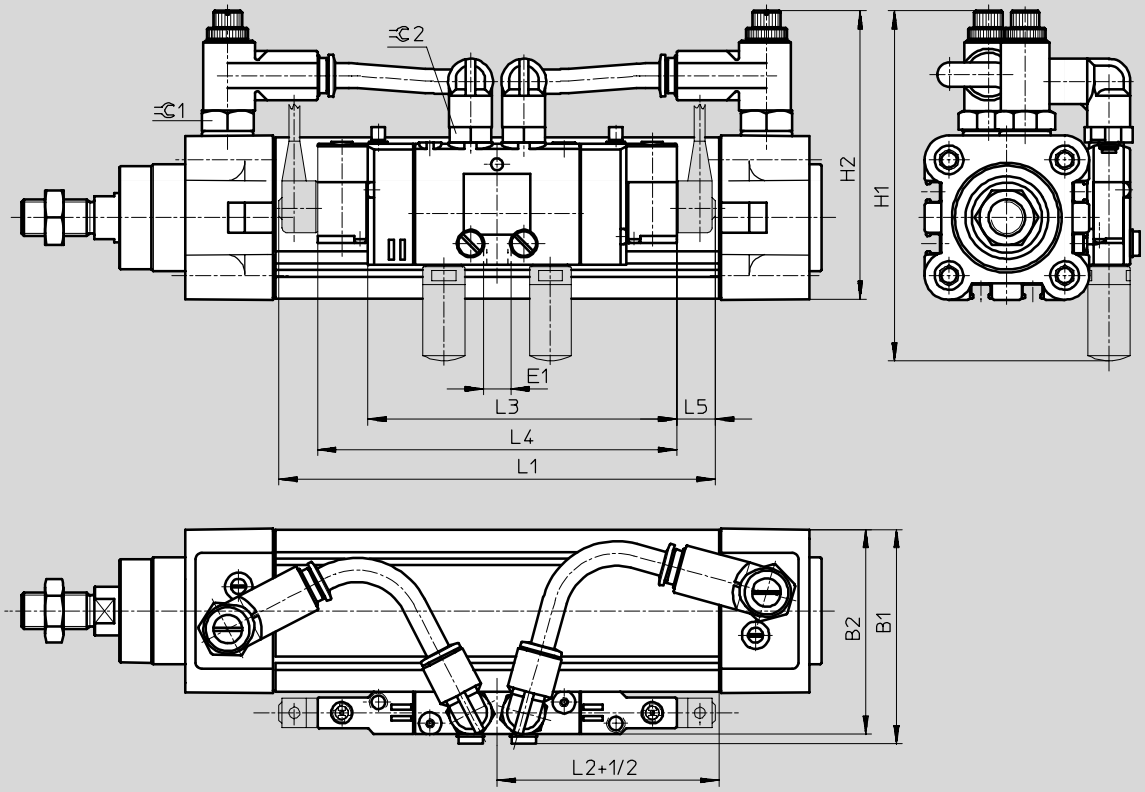


Variant		Basic version	R8	S10	S11	K10
1	Cylinder barrel	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised	Wrought aluminium alloy, smooth-anodised
2	Bearing and end cap	Die-cast aluminium	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				

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

Technical data

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



1 Plug socket not included in scope of delivery

+½ = plus half stroke length

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

Technical data

∅ [mm]	B1	B2	E1	H1	H2	L1 max.	L2 ±3	L3	L4	L5	⌀1	⌀2
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 / 1.2-39, with clamping cartridge on page ➔ 1 / 1.2-52.

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

Ordering data – Modular products

FESTO

M Mandatory data					O Options →		
Module No.	**Drive function**	**Piston ∅**	**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	Conditions	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 DIN ISO 6431 and VDMA							**DNC**	DNC
	Piston ∅ [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: Piston ∅ 32 mm: 100 ... 300 mm
Piston ∅ 40 mm: 100 ... 400 mm
Piston ∅ 50 mm: 100 ... 500 mm
Piston ∅ 63 mm: 100 ... 500 mm
Piston ∅ 80 mm: 100 ... 600 mm
Piston ∅ 100 mm: 100 ... 600 mm
Not with S20, K10, S10, S11, R8, K7.
In combination with S2: Square piston rod at bearing cap end only.
In combination with KP: Only supplied with S2.

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 S10, S11, S20, K7.

4 **S20** Max. stroke: 850 mm.
Not with K2, K3, K5, K10, KP, S10, S11, R8.

Transfer order code

	DNC	–		–		–		–		–		–

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

Ordering data – Modular products

FESTO

O Options										M
Male thread extended	Female thread	Special thread	Special spanner flats	Piston rod extended	Improved running performance	Clamping unit	Slow speed	Low friction	Wiper seal	Cylinder/valve combination
...K2	K3	...K5	K7	...K8	K10	KP	S10	S11	R8	V1 V2 V3 V4 V5 V6
–	–	–	–	– **100K8**	–	–	–	–	–	– **V2**

Ordering table

Size	32	40	50	63	80	100	Conditions	Code	Enter code
↓ Male thread extended	Male thread extended								
O [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 [mm]	Extended piston rod 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	
Wiper seal	Dust protection, hard wiper seal with hard-chromium plated piston rod							-R8	
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 K10.

9 **K10** Max. stroke: 1000 mm.
Not with KP, R8.

10 **KP** Without S2: Position of the clamping cartridge on the bearing cap.
Not with S10, S11, R8.

11 **S10** Max. stroke: 500 mm; further strokes on request.
Not with S11, R8.

12 **S11** Max. stroke: 500 mm; further strokes on request.
Not with R8.

Transfer order code

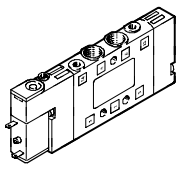
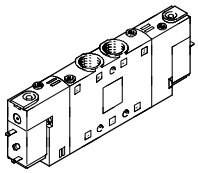
–	–	–	–	–	–	–	–	–	–	– **V**

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

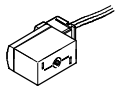
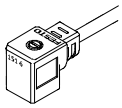
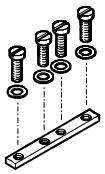
Accessories

FESTO

Ordering data – Valve — Technical data ➔ Volume 2

	For ∅ [mm]	Pneumatic connection	Protection class	Part No.	Type
Single solenoid					
	32	G1/8	IP65	**196 941**	**CPE14-M1BH-5L-1/8**
	40				
	50	G1/4	IP65	**163 142**	**CPE18-M1H-5L-1/4**
	63				
	80	G3/8	IP65	**163 166**	**CPE24-M1H-5L-3/8**
	100				
Double solenoid					
	32	G1/8	IP65	**196 939**	**CPE14-M1BH-5J-1/8**
	40				
	50	G1/4	IP65	**163 143**	**CPE18-M1H-5J-1/4**
	63				
	80	G3/8	IP65	**163 167**	**CPE24-M1H-5J-3/8**
	100				

Ordering data – Valve accessories

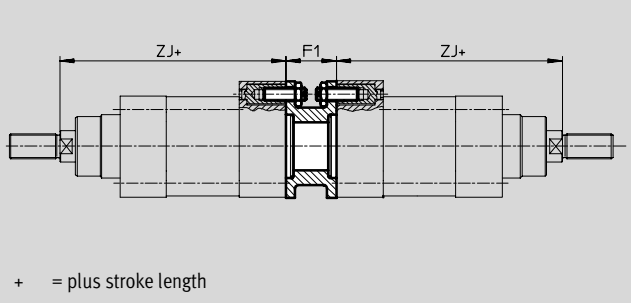
	for valve		Part No.	Type	PU[1]
Push-in/threaded fittings QS				Technical data ➔ Volume 3	
	CPE14		**153 012**	**QS-1/8-4-I**	10
	CPE18		**153 016**	**QS-1/4-8-I**	10
	CPE24		**153 020**	**QS-3/8-12-I**	10
Plug socket KMYZ/KMEB				Technical data ➔ Volume 2	
	CPE14	24 V DC, with PVC cable 0.5 m	**185 519**	**KMYZ-4-24-0.5**	–
		24 V DC, with PVC cable 2.5 m	**185 520**	**KMYZ-4-24-2,5**	–
	CPE18 CPE24	24 V DC, with PVC cable 2.5 m, LED	**151 688**	**KMEB-1-24-2,5-LED**	–
		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

Adapter kit DPNC

Material:
Flange: Wrought aluminium alloy
Threaded studs, hex nuts: Galvanised steel



\+ = plus stroke length

- Note

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

Dimensions and ordering data

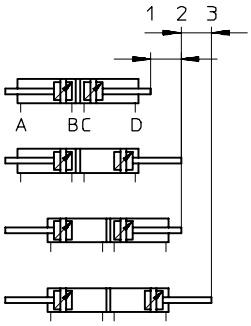
For ∅ [mm]	F1	ZJ		Max. overall stroke length [mm]	Weight [g]	Part No.	Type
		Basic cylinder	KP				
32	27	120	165	1,000	85	**174 418**	**DPNC-32**
40	27	135	188	1,000	115	**174 419**	**DPNC-40**
50	32	143	210	1,000	210	**174 420**	**DPNC-50**
63	28	158	234	1,000	360	**174 421**	**DPNC-63**
80	38	174	269	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**

Connecting two cylinders with identical piston ∅ 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.

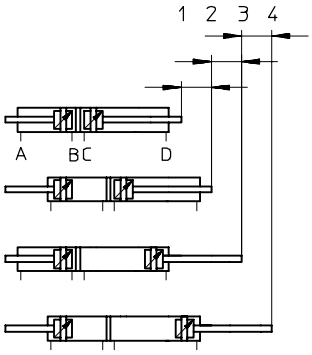
To achieve 3 positions

Two cylinders with identical stroke length must be connected together.



To achieve 4 positions

Two cylinders with different stroke lengths must be connected together.



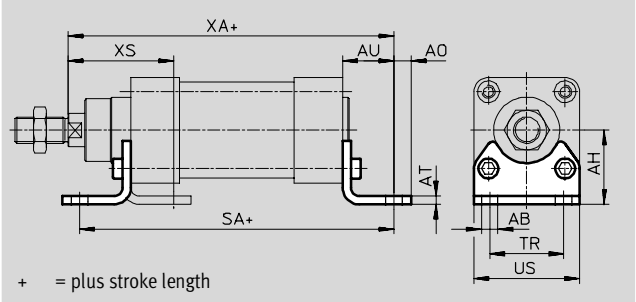
Standard cylinders DNC, ISO 6431 and VDMA 24 562

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 ∅ [mm]	AB ∅	AH	AO	AT	AU	SA		TR	US	XA		XS
						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

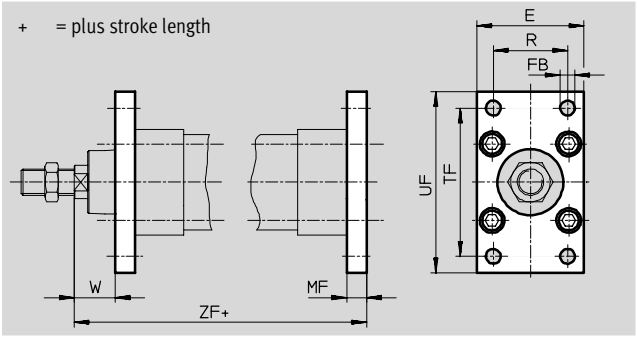
For ∅ [mm]	Basic version				High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	2	135	**174 369**	**HNC-32**	4	135	**176 937**	**CRHNC-32**
40	2	180	**174 370**	**HNC-40**	4	180	**176 938**	**CRHNC-40**
50	2	325	**174 371**	**HNC-50**	4	325	**176 939**	**CRHNC-50**
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

Flange mounting FNC/CRFNG

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



Dimensions and ordering data

For ∅ [mm]	E	FB ∅ H13	MF	R	TF	UF	W	ZF	
								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

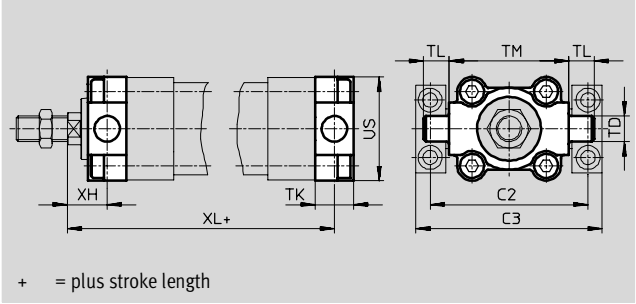
For ∅ [mm]	Basic version				High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	2	240	**174 376**	**FNC-32**	4	240	**161 846**	**CRFNG-32**
40	2	280	**174 377**	**FNC-40**	4	300	**161 847**	**CRFNG-40**
50	2	520	**174 378**	**FNC-50**	4	550	**161 848**	**CRFNG-50**
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

Trunnion flange ZNCF/CRZNG

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



\+ = plus stroke length

Dimensions and ordering data

For ∅ [mm]	C2	C3	TD ∅ e9	TK	TL	TM	US	XH	XL	
									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 ∅ [mm]	Basic version				High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	2	130	**174 411**	**ZNCF-32**	4	150	**161 852**	**CRZNG-32**
40	2	240	**174 412**	**ZNCF-40**	4	260	**161 853**	**CRZNG-40**
50	2	390	**174 413**	**ZNCF-50**	4	430	**161 854**	**CRZNG-50**
63	2	600	**174 414**	**ZNCF-63**	4	640	**161 855**	**CRZNG-63**
80	2	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.

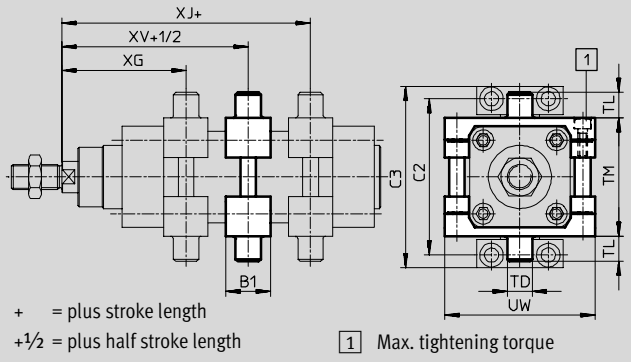
Standard cylinders DNC, ISO 6431 and VDMA 24 562

Accessories

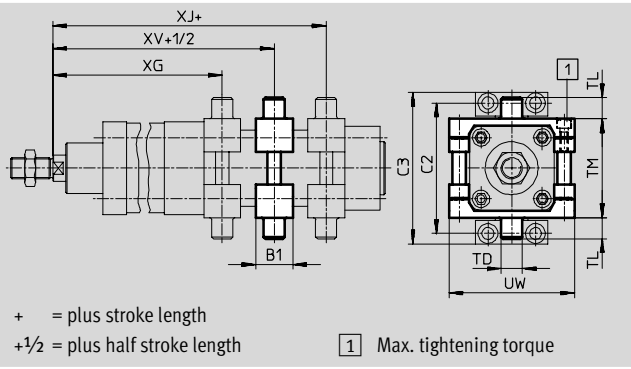
Trunnion mounting kit ZNCM for basic cylinder DNC

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 ∅ [mm]	B1	C2	C3	TD ∅ e9	TL	TM	UW	XG	
								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

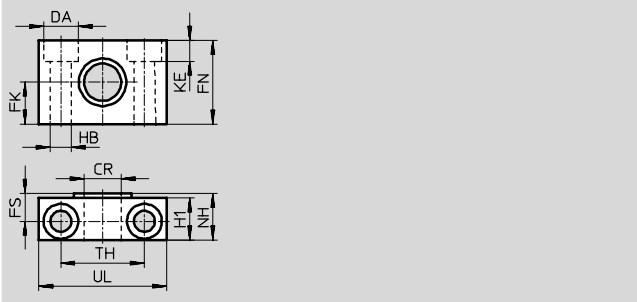
For ∅ [mm]	XJ		XV		Max. tightening torque [Nm]	CRC[1]	Weight [g]	Part No.	Type
	Basic cylinder	KP	Basic cylinder	KP					
32	79.9	124.9	73	118	4+1	2	210	**163 525**	**ZNCM-32**
40	89.4	142.4	82.5	135.5	8+1	2	385	**163 526**	**ZNCM-40**
50	96.4	163.4	90	157	8+2	2	595	**163 527**	**ZNCM-50**
63	101.9	177.9	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

Trunnion support LNZG

Material:
Galvanised steel
Free of copper, PTFE and silicone



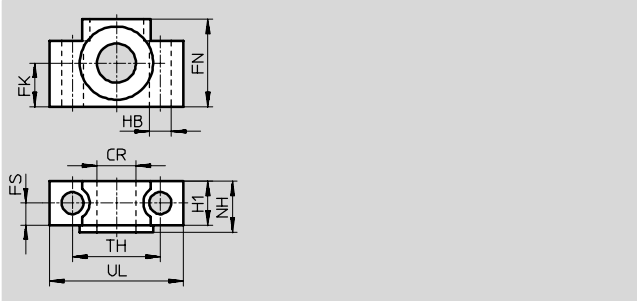
Dimensions and ordering data

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

1) Corrosion resistance class 2 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 ∅ [mm]	CR ∅ D11	FK ∅ ±0.1	FN	FS	H1	HB ∅ H13	NH	TH ±0.2	UL	CRC[1]	Weight [g]	Part No.	Type
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.

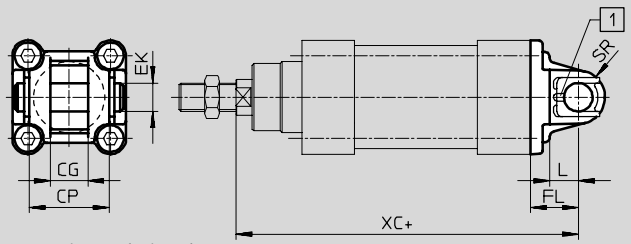
Core Range

Standard cylinders DNC, ISO 6431 and VDMA 24 562

Accessories

Swivel flange SNC

Material:
Wrought aluminium alloy



\+ = plus stroke length
1 The pivot pin is secured against rotation with a dowel pin.

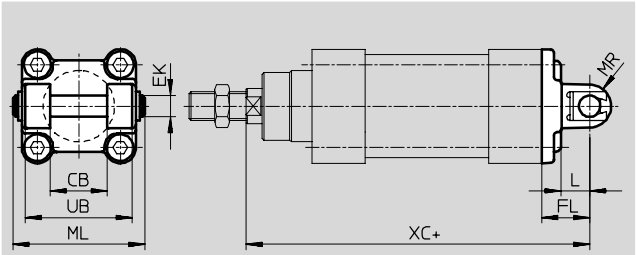
Dimensions and ordering data

For ∅ [mm]	CG H14	CP d12	EK ∅	FL ±0.2	L	SR	XC Basic cylinder	XC KP	CRC[1)]	Weight [g]	Part No.	Type
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.

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 ∅ [mm]	CB H14	EK ∅ e8	FL ±0.2	L	ML	MR	UB h14	XC Basic cylinder	XC 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

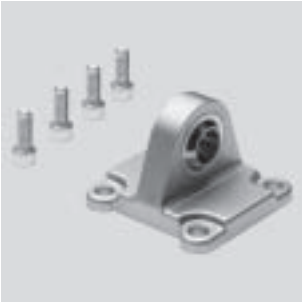
For ∅ [mm]	Basic version CRC[1)]	Weight [g]	Part No.	Type	Variant R3 – High corrosion protection CRC[1)]	Weight [g]	Part No.	Type
32	2	100	**174 390**	**SNCB-32**	3	100	**176 944**	**SNCB-32-R3**
40	2	150	**174 391**	**SNCB-40**	3	150	**176 945**	**SNCB-40-R3**
50	2	225	**174 392**	**SNCB-50**	3	225	**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**

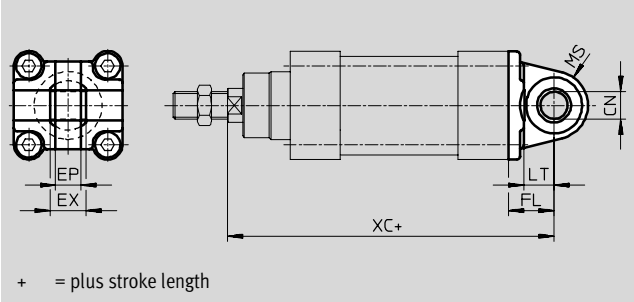
1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.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

Core Range

Swivel flange SNCS

Material:
Wrought aluminium alloy





\+ = plus stroke length

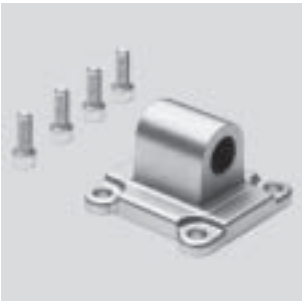
Dimensions and ordering data

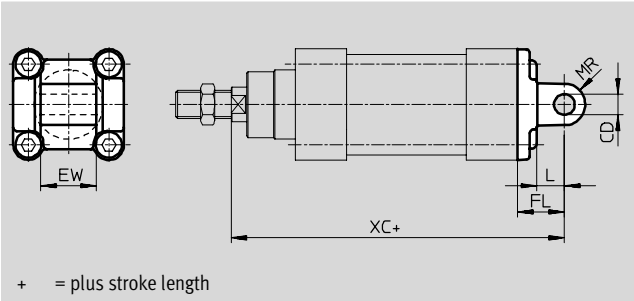
For ∅ [mm]	CN ∅	EP −0.2	EX	FL ±0.2	LT	MS	XC		CRC[1]	Weight [g]	Part No.	Type
							Basic cylinder	KP				
32	10	10.5	14	22	13	15	142	187	2	85	**174 397**	**SNCS-32**
40	12	12	16	25	16	17	160	213	2	125	**174 398**	**SNCS-40**
50	16	15	21	27	18	20	170	237	2	210	**174 399**	**SNCS-50**
63	16	15	21	32	21	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





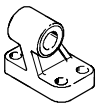
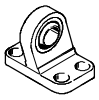
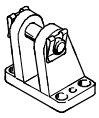
\+ = plus stroke length

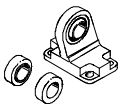
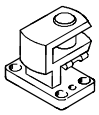
Dimensions and ordering data

For ∅ [mm]	CD ∅	EW h14	FL ±0.2	L	MR	XC		CRC[1]	Weight [g]	Part No.	Type
						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**

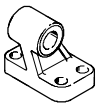
1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Ordering data – Mounting attachments Technical data ➔ 1 / 10.1-2

Designation	For ∅	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**

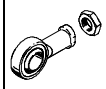
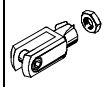
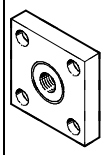
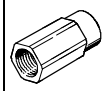
Designation	For ∅	Part No.	Type
Clevis foot mounting LSN			
	32	**5 561**	**LSN-32**
	40	**5 562**	**LSN-40**
	50	**5 563**	**LSN-50**
	63	**5 564**	**LSN-63**
	80	**5 565**	**LSN-80**
	100	**5 566**	**LSN-100**
	125	**6 987**	**LSN-125**
Weld-on clevis foot mounting LSNSG			
	32	**31 747**	**LSNSG-32**
	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**

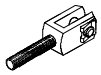
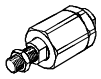
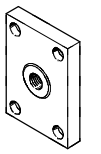
Ordering data – Corrosion resistant mounting attachments Technical data ➔ 1 / 10.1-2

Designation	For ∅	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**

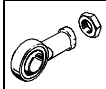
Core Range

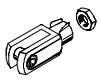
Ordering data – Piston rod attachments — Technical data ➔ 1 / 10.3-2

Designation	For ∅	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-M10x1,25-⅛**
		157 334	**AD-M10x1,25-¼**
	40	**160 256**	**AD-M12x1,25-¼**
		160 257	**AD-M12x1,25-⅜**

Designation	For ∅	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 ➔ 1 / 10.3-2

Designation	For ∅	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 ∅	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**

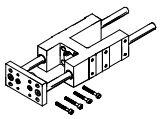
Core Range

Standard cylinders DNC, ISO 6431 and VDMA 24 562

Accessories

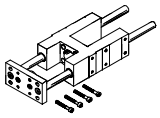
FESTO

Ordering data – Guide units for fixed strokes (recirculating ball bearing guide only) Technical data → 1 / 10.4-2



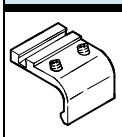
Stroke [mm]	Part No.	Type	Stroke [mm]	Part No.	Type
for ∅ 32 mm			for ∅ 40 mm		
10 … 50	**34 493**	**FENG-32-50-KF**	10 … 50	**34 499**	**FENG-40-50-KF**
10 … 100	**34 494**	**FENG-32-100-KF**	10 … 100	**34 500**	**FENG-40-100-KF**
10 … 160	**34 495**	**FENG-32-160-KF**	10 … 160	**34 501**	**FENG-40-160-KF**
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 ∅ 50 mm			for ∅ 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 ∅ 80 mm			for ∅ 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 → 1 / 10.4-2



For ∅ [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 → 1 / 10.2-40



For ∅ [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

Ordering data – Proximity sensor for slot type 8, magneto-resistive — Technical data ➔ 1 / 10.2-13

	Mounting	Switch output	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 ➔ 1 / 10.2-16

	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 ➔ 1 / 10.2-100

	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**

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**

Core Range

Ordering data – One-way flow control valves Technical data ➔ Volume 2

	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**

Core Range