Standard cylinders DNC, ISO 15552

FESTO

Standard cylinders DNC, ISO 15552

Key features

At a glance

- Standards-based cylinders to ISO 15552 (corresponds to the withdrawn standards ISO 6431, DIN ISO 6431, VDMA 24 562, NF E 49 003.1 and UNI 10290)
- The modern design and construction save up to 11% on fitting space compared to ordinary standard cylinders, thus permitting a considerably more compact system design
- An extensive range of accessories makes it possible to install the cylinder virtually anywhere
- The widest range of variants on the market provides the right DNC cylinder for every application

Cylinder with clamping units

DNC-KP

- Piston rod can be held or clamped in any position
- Piston rod can be held in position for long periods even with alternating loads, fluctuating operating pressure or leaks in the system

DNCKE

- Suitable for use in safety-related control systems in compliance with EN 954-1, EN 1050, EN 292 and EN 983
- Fail-safe
- Piston rod can be clamped in any position

Cylinder with end-position locking

DNC- ... -EL

- Mechanical locking when the end position is reached
- Lock is only automatically released when pressure is supplied to the cylinder
- End-position locking at one or both ends

Cylinder/valve combination

DNC-V1 ... V6

- The cylinder/valve combination is assembled and fitted with tubing ready for connection
- Particularly suitable for decentralised use in larger systems

Tandem cylinder

DNCT

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

Longer service life thanks to the bellows kit DADB

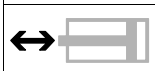
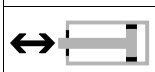
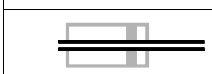
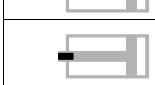
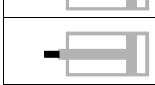
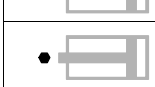
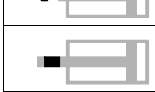
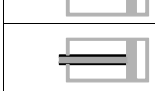
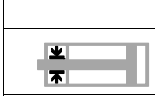
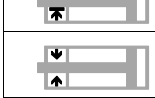
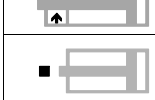
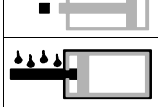
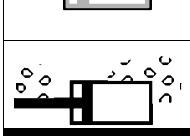
The bellows kit is a leak-free system. To prevent unwanted media being drawn in, the supply and exhaust air must be ducted via a pressure compensation hole in the connection part 1.

The kit protects the piston rod, seal and bearings from a wide range of media, for example:

- dust,
- chips,
- oil,
- grease,
- fuel.

Standard cylinders DNC, ISO 15552

Key features

Variants from the modular product system			
Symbol	Key features		Description
	S2	Through piston rod	For working at both ends with the same force in the forward and return stroke, for attaching external stops
	S6	Heat-resistant seals	Temperature resistance up to max. 120 °C
	S10	Constant motion (slow speed) 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	Special seals considerably reduce system wear. This means a considerably lower response pressure. Seal contains silicone grease (not free of paint-wetting impairment substances)
	S20	Through, hollow piston rod	For supplying vacuum, small parts, media, etc.
	K2	Extended male piston rod thread	–
	K3	Female piston rod thread	–
	K5	Special piston rod thread	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 working loads – Harder surface compared to steel – Long service life
	KP	With clamping unit	Integrated clamping unit on the piston rod
	EL	With end-position locking	Positive locking in the end position as a drop guard. If there is a drop in pressure, the piston rod is secured in its end position to prevent it from dropping
	Q	Square piston rod	Protection against rotation. For correctly oriented feeding
	R3	High corrosion protection	All external cylinder surfaces comply with corrosion resistance class 3 to Festo standard 940 070. The piston rod is made from corrosion and acid-resistant steel
	R8	Dust protection (wiper seal)	The cylinder is equipped with a hard-chrome plated piston rod and a rigid wiper seal, which protects against dry, dusty media

Software tools
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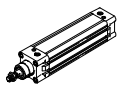
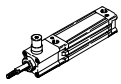
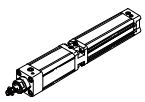
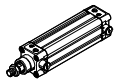
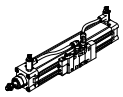
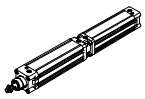
Configuration of Festo modular products
➔ www.festo.com

Standard cylinders DNC, ISO 15552

Product range overview

Function	Design	Type	Piston ∅	Stroke		Position sensing	Protection against rotation	Through/hollow piston rod	Extended male piston rod thread	Female piston rod thread	Special piston rod thread
			[mm]	[mm]		A	Q	S2/S20	K2	K3	K5
Double-acting	**Basic version**										
		**DNC**	32, 40, 50, 63, 80, 100, 125	20, 25, 30, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320, 400, 500	10 … 2000	■	■	■	■	■	■
	Standard hole pattern, with clamping unit										
		**DNC-KP**	32, 40, 50, 63, 80, 100, 125	–	10 … 2000	■	■	■ S2	■	■	■
		**DNCKE**	40, 63, 100	–	10 … 2000	■	–	–	–	–	–
	Standard hole pattern, with end-position locking										
		**DNC-…-EL**	32, 40, 50, 63, 80, 100	–	10 … 2000	■	–	■ S2	■	■	■
	Standard hole pattern, cylinder/valve combination										
		**DNC-V1 … V6**	32, 40, 50, 63, 80, 100	–	100 … 2000	■	■	■	■	■	■
	Standard hole pattern, tandem cylinder										
		**DNCT**	32, 40, 50	–	2 … 500	■	–	–	–	–	–
			63, 80, 100, 125		3 … 500						

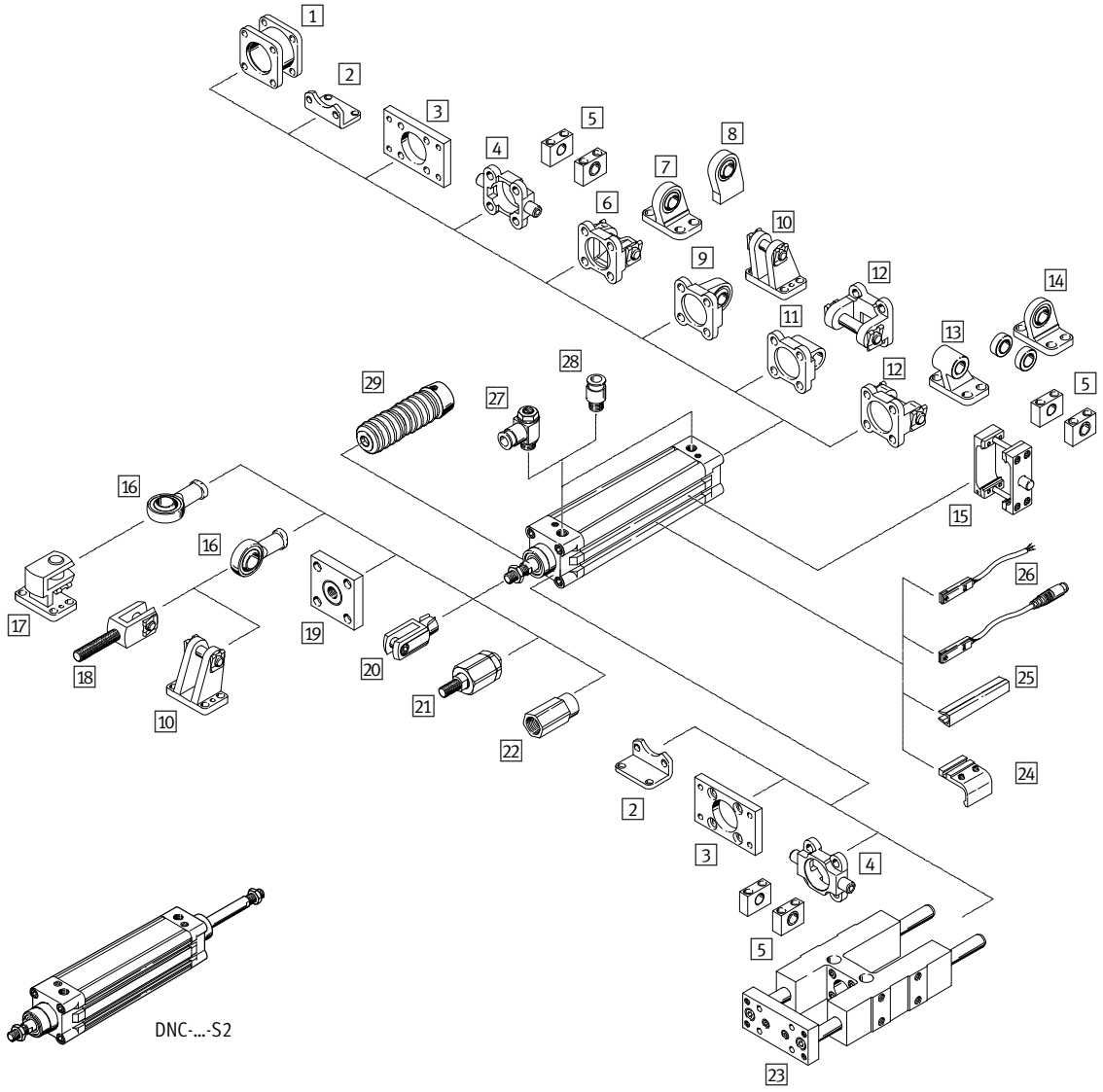
Standard cylinders DNC, ISO 15552

Product range overview

Type	Special spanner flats	Extended piston rod	Smooth anodised piston rod	Heat-resistant seals to max. 120 °C	Slow speed (constant motion)	Low friction	High corrosion protection	Dust protection	Cylinder/valve combination	→ Page/Internet
	K7	K8	K10	S6	S10	S11	R3	R8	V1 … V6	
Basic version										
DNC	■	■	■	■	■	■	■	■	–	9
Standard hole pattern, with clamping unit										
DNC-KP	■	■	–	–	–	–	–	–	■	25
DNCKE	–	–	–	–	–	–	–	–	–	2
Standard hole pattern, with end-position locking										
DNC-...-EL	–	■	–	–	–	–	–	–	–	33
Standard hole pattern, cylinder/valve combination										
DNC-V1 … V6	■	■	■	–	■	■	–	■	■	40
Standard hole pattern, tandem cylinder										
DNCT	–	–	–	■	–	–	–	–	–	2

Standard cylinders DNC, ISO 15552

Peripherals overview



DNC-...-S2

Mounting attachments and accessories							
		Description	DNC				➔ Page/ Internet
			Basic version	KP	EL	V1 ... V6	
1	Multi-position kit DPNC	For connecting two cylinders with identical piston diameters to form a multi-position cylinder	■1)	■	■	■1)	49
2	Foot mounting HNC/CRHNC	For bearing or end caps	■	■	■	■	50
3	Flange mounting FNC/CRFNG	– For bearing or end caps – Cannot be used on the bearing cap in combination with bellows kit DADB	■	■	■	■	51
4	Trunnion flange ZNCF/CRZNG	– For bearing or end caps – Cannot be used on the bearing cap in combination with bellows kit DADB	■	■	■	■	52
5	Trunnion support LNZG/CRLNZG	–	■	■	■	■	54
6	Swivel flange SNC	For end caps	■1)	■1)	■	■1)	55
7	Clevis foot LSNG	With spherical bearing	■1)	■1)	■	■1)	58
8	Clevis foot LSNSG	Weld-on, with spherical bearing	■1)	■1)	■	■1)	58

Standard cylinders DNC, ISO 15552

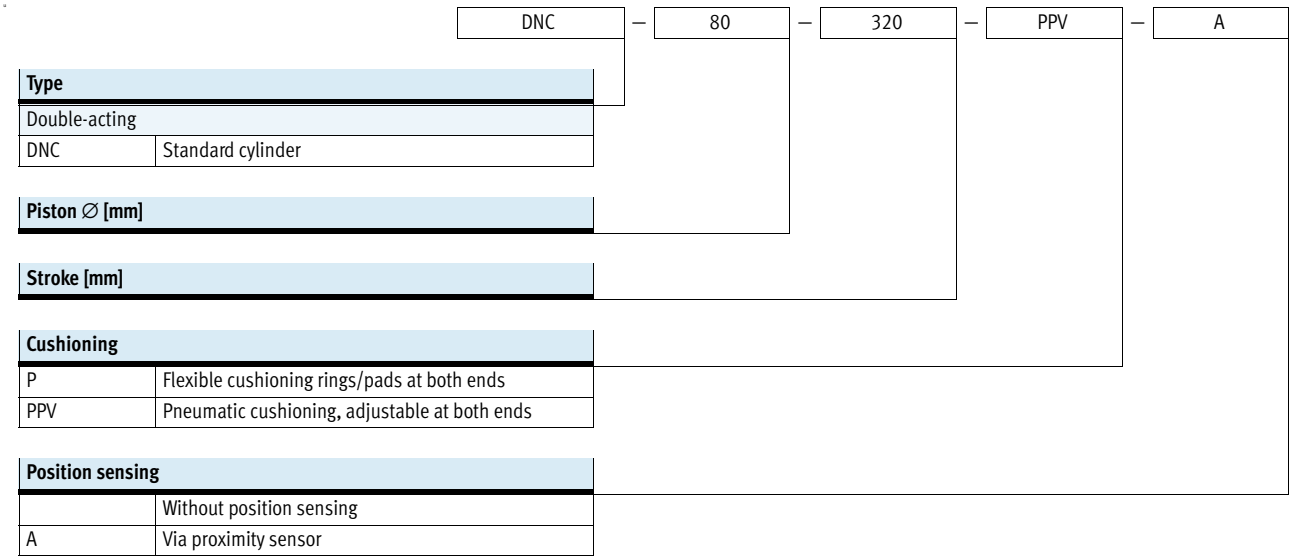
Peripherals overview

Mounting attachments and accessories							
		Description	DNC				➔ Page/ Internet
			Basic version	KP	EL	V1 … V6	
9	Swivel flange SNCS	With spherical bearing for end caps	■[1]	■[1]	■	■[1]	57
10	Clevis foot LBG	–	■[1]	■	■	■[1]	58
11	Swivel flange SNCL	For end caps	■[1]	■[1]	■	■[1]	57
12	Swivel flange SNCB/SNCB-…-R3	For end caps	■[1]	■[1]	■	■[1]	56
13	Clevis foot LNG/CRLNG	–	■[1]	■[1]	■	■[1]	58
14	Clevis foot LSN	With spherical bearing	■[1]	■[1]	■	■[1]	58
15	Trunnion mounting kit DAMT	For mounting anywhere along the cylinder profile barrel	■	■	■	■	53
16	Rod eye SGS/CRSGS	With spherical bearing	■	■	■	■	59
17	Right-angle clevis foot LQG	–	■	■	■	■	58
18	Rod clevis SGA	With male thread	■	■	■	■	59
19	Coupling piece KSG	To compensate for radial deviations	■	■	■	■	59
	Coupling piece KSZ	For cylinders with a non-rotating piston rod to compensate for radial deviations	■	■	■	■	59
20	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	■	■	59
21	Self-aligning rod coupler FK/CRFK	For compensating radial and angular deviations	■	■	■	■	59
22	Adapter AD	For fitting a suction cup on a hollow cylinder piston rod	■	–	–	■	59
23	Guide unit FENG	For protecting standard cylinders against rotation at high torque loads	■	■ ∅ 50 and above	–	–	64
24	Mounting kit SMB-8-FENG	For attaching proximity sensor SMT-8 to cylinders in combination with guide unit FENG	■[2]	■ ∅ 50 and above	■	–	64
25	Slot cover ABP-5-S	For protecting the sensor cables and keeping dirt out of the sensor slots	■	■	■	■	65
26	Proximity sensor SME/SMT-8	Can be integrated in the cylinder profile barrel	■	■	■	■	65
27	One-way flow control valve GRLA	For regulating speed	■	■	■	■	66
28	Push-in fitting QS	For connecting compressed air tubing with standard outside diameter	■	■	■	■	quick star
29	Bellows kit DADB	– Protects the cylinder (piston rod, seal and bearings) against a wide range of media and thus prevents premature wear – The kit can only be used in combination with an extended piston rod (K8)	■	–	■	■	60

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

Standard cylinders DNC, ISO 15552

Type codes



Type	
Double-acting	
DNC	Standard cylinder

Piston ∅ [mm]

Stroke [mm]

Cushioning	
P	Flexible cushioning rings/pads at both ends
PPV	Pneumatic cushioning, adjustable at both ends

Position sensing	
	Without position sensing
A	Via proximity sensor

Note

The standard cylinder DNC can be ordered using either a fixed part number and type designation or via the modular product system.
The type code listed above only applies to the DNC standard cylinder with fixed part number and type designation.
Variants can only be ordered using the modular product system.

Standard cylinders DNC, ISO 15552

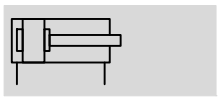
Technical data

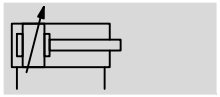
FESTO

Function

DNC-...

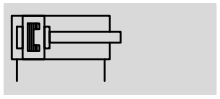
Without position sensing

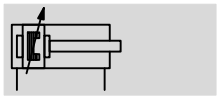




DNC-...-A-...

With position sensing





Diameter
32 ... 125 mm

Stroke length
10 ... 2000 mm

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Wearing parts kits
➔ 24

- Standards-based cylinders to ISO 15552 (corresponds to the withdrawn standards ISO 6431, DIN ISO 6431, VDMA 24 562, NF E 49 003.1 and UNI 10290)

General technical data								
Piston ∅		32	40	50	63	80	100	125
Pneumatic connection		G⅛	G¼	G¼	G⅜	G⅜	G½	G½
Piston rod thread		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						
		Profile barrel						
Max. torsional backlash of piston rod [°]	Q	±0.65	±0.6	±0.45	±0.45	±0.45	±0.45	–
Cushioning		Flexible cushioning rings/pads at both ends						
		Pneumatic cushioning, adjustable at both ends						
Cushioning length PPV	[mm]	20	20	22	22	32	32	42
Position sensing		Via proximity sensor						
Type of mounting		Via female thread						
		Via accessories						
Mounting position		Any						

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Operating and environmental conditions								
Piston ∅		32	40	50	63	80	100	125
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]						
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)						
Operating pressure		0.6 ... 12						0.6 ... 10
[bar]	R8	1.5 ... 12						1.5 ... 10
	S11	After 10 strokes						
		0.16 ... 12		0.1 ... 12		0.06 ... 12		0.06 ... 10
		After 24 hours						
		0.3 ... 12		0.2 ... 12		0.1 ... 12		0.1 ... 10
Ambient temperature[1]		–20 ... +80						
[°C]	S6	0 ... 120						
Corrosion resistance class		2						
CRC[2]	R3	3						
Certification		Germanischer Lloyd						
ATEX		Specified types ➔ www.festo.com						

1) Note operating range of proximity sensors

2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Force [N] and impact energy [J]								
Piston ∅		32	40	50	63	80	100	125
Theoretical force at 6 bar,		483	754	1178	1870	3016	4712	7363
advancing	S2/S20	415	633	990	1682	2721	4418	6881
Theoretical force at 6 bar,		415	633	990	1682	2721	4418	6881
retracting	S2/S20	415	633	990	1682	2721	4418	6881
Max. impact energy at the end positions[1]		0.1	0.2	0.2	0.5	0.9	1.2	5

1) The permissible 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:

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

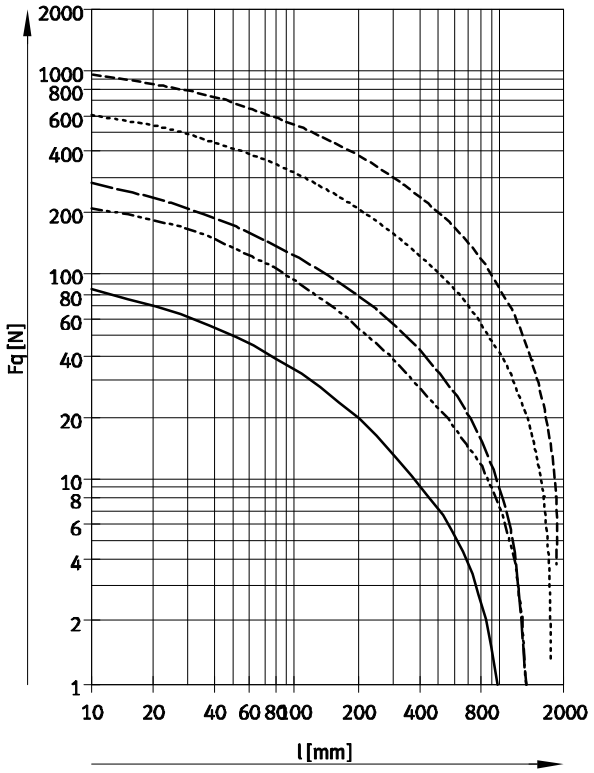
$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
$m_{Intrinsic}$ Moving load (drive)
m_{Load} Moving effective load

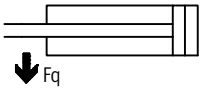
- Note

This data represents the maximum values that can be achieved. The maximum permissible impact energy must be observed.

Lateral force Fq as a function of stroke length l

Basic version





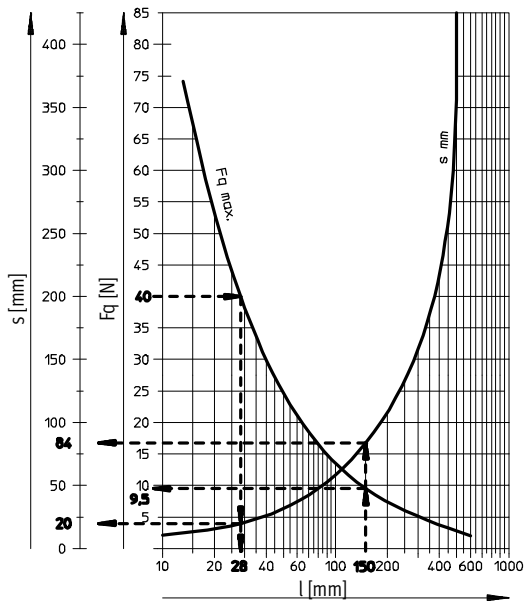
- ∅ 32
- ∅ 40
- ∅ 50/63
- ∅ 80/100
- ∅ 125

Lateral force Fq as a function of stroke length l and lever arm s

Q – Square piston rod

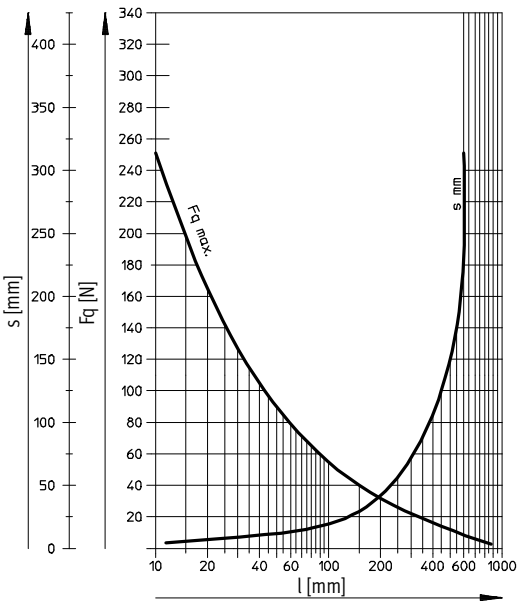
∅ 32

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



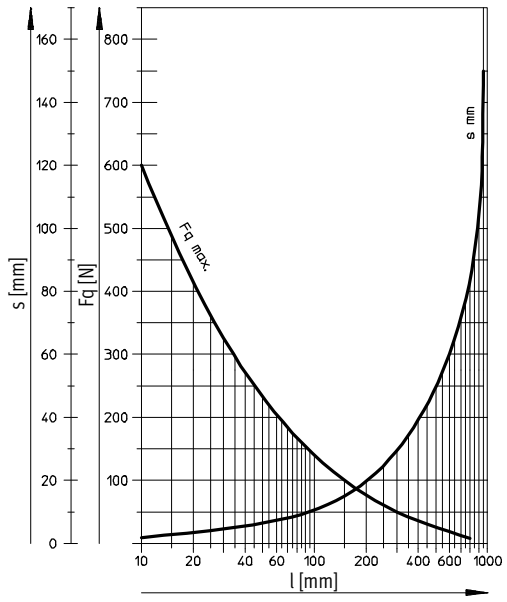
∅ 40

Max. torque = 1100 Nmm / Max. stroke = 400 mm



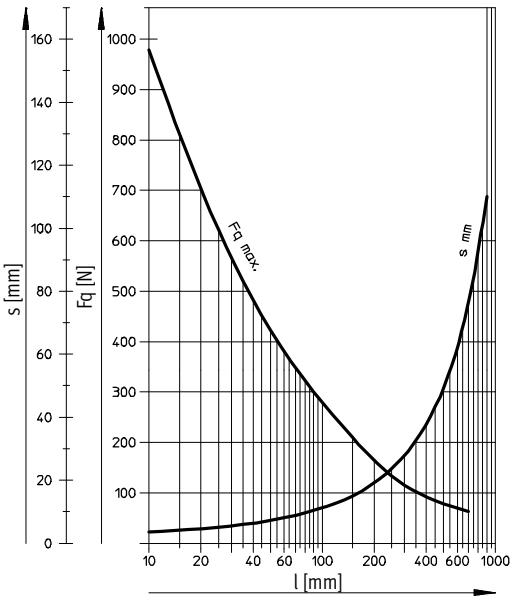
∅ 50/63

Max. torque = 1500 Nmm / Max. stroke = 500 mm



∅ 80/100

Max. torque = 3000 Nmm / Max. stroke = 600 mm



Examples for piston ∅ 32 mm

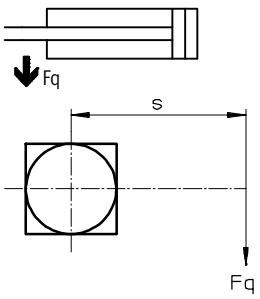
Example 1:
Stroke length l = 150 mm
Result: permissible
Lateral force Fq = 9.5 N
Lever arm s = 84 mm

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 = 100 mm

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

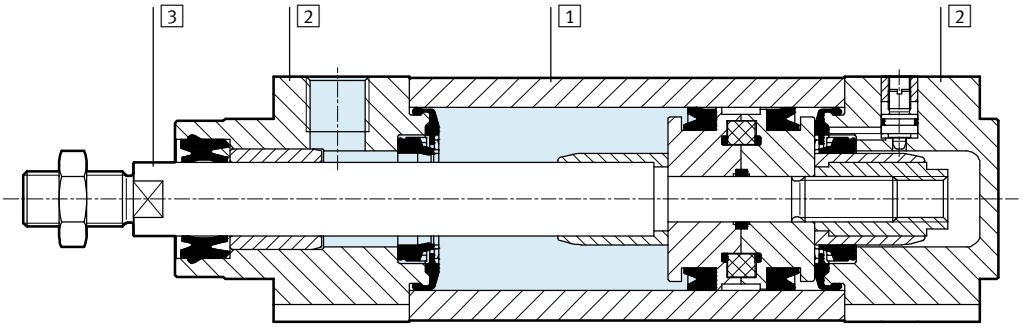
= 8 N
Result: permissible
Fq = 8 N < $Fq_{max.}$ = 9.5 N



Weight [g]							
Piston ∅	32	40	50	63	80	100	125
Basic version							
Product weight with 0 mm stroke	517	800	1260	1709	2790	4653	6771
Additional weight per 10 mm stroke	30	45	64	73	106	115	168
Moving load with 0 mm stroke	162	307	538	663	1131	1544	2809
Additional load per 10 mm stroke	9	16	25	25	38	38	63
Q – Square piston rod							
Product weight with 0 mm stroke	504	738	1187	1632	2652	4508	–
Additional weight per 10 mm stroke	29	41	60	68	99	108	–
Moving load with 0 mm stroke	149	244	465	587	994	1399	–
Additional load per 10 mm stroke	8	11	20	20	31	31	–
S2 – Through piston rod							
Product weight with 0 mm stroke	576	895	1390	1917	3114	5297	7529
Additional weight per 10 mm stroke	39	61	89	98	144	153	231
Moving load with 0 mm stroke	170	330	560	711	1200	1660	2925
Additional load per 10 mm stroke	18	32	50	50	76	76	126
K10 – Smooth anodised piston rod							
Product weight with 0 mm stroke	443	655	1001	1437	2302	4138	5719
Additional weight per 10 mm stroke	24	35	47	57	81	90	127
Moving load with 0 mm stroke	88	162	279	391	643	1029	1757
Additional load per 10 mm stroke	3	6	8	9	13	13	22
S2-K10 – Through, smooth anodised piston rod							
Product weight with 0 mm stroke	514	766	1181	1676	2701	4821	6674
Additional weight per 10 mm stroke	27	40	56	65	94	103	148
Moving load with 0 mm stroke	108	201	351	470	787	1184	2070
Additional load per 10 mm stroke	6	11	17	17	26	26	43

Materials

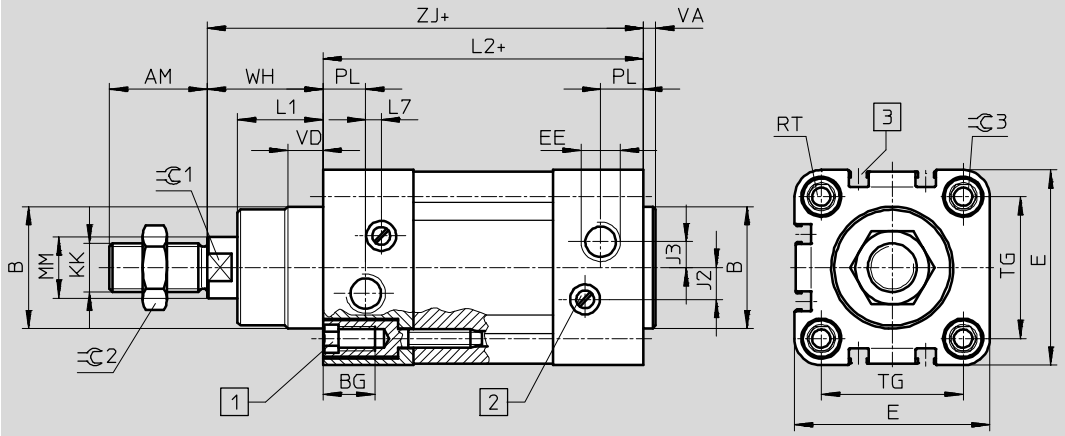
Sectional view



Standard cylinder		Basic version	K10	R3
1	Profile barrel	Wrought aluminium alloy, smooth anodised	Wrought aluminium alloy, smooth anodised	
2	Bearing and end caps	Die-cast aluminium		
3	Piston rod	High-alloy steel	Wrought aluminium alloy, anodised	High-alloy stainless steel
–	Seals	Polyurethane, nitrile rubber		
	Note on materials	RoHS compliant		

Standard cylinder		R8	S6	S10	S11
1	Profile barrel	Wrought aluminium alloy, smooth anodised			
2	Bearing and end caps	Die-cast aluminium			
3	Piston rod	Tempered steel, hard-chromium plated	High-alloy steel		
–	Seals	Polyurethane, nitrile rubber	Fluoro rubber		
	Note on materials	RoHS compliant			

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



1 For mounting attachments:
∅ 32 ... 100: Socket head screw with female thread
∅ 125: Thread in the end cap

2 Regulating screw for adjustable end-position cushioning

3 Slot for proximity sensor SME/SMT-8

\+ = plus stroke length

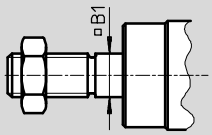
∅ [mm]	AM	B ∅ d11	BG	E	EE	J2	J3	KK	L1	L2
32	22	30	16	45	G⅛	6	5.2	M10x1.25	18	94
40	24	35	16	54	G¼	8	6	M12x1.25	21.5	105
50	32	40	17	64	G¼	10.4	8.5	M16x1.5	28	106
63	32	45	17	75	G⅜	12.4	10	M16x1.5	28.5	121
80	40	45	17	93	G⅜	12.5	8	M20x1.5	34.7	128
100	40	55	17	110	G½	12	10	M20x1.5	38.2	138
125	54	60	22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

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

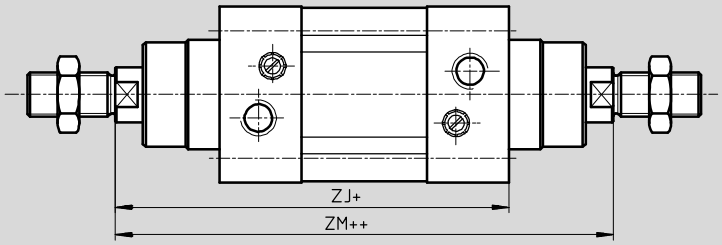
Note: This product conforms to ISO 1179-1 and to ISO 228-1

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

Q – Square piston rod

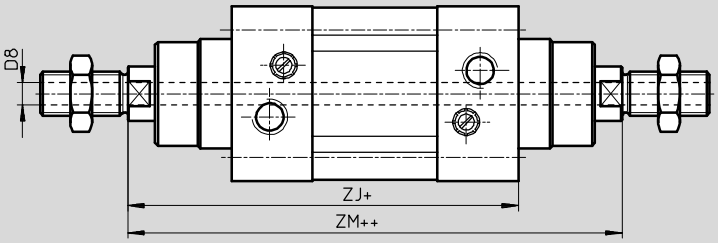


S2 – Through piston rod



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

S20 – Through hollow piston rod



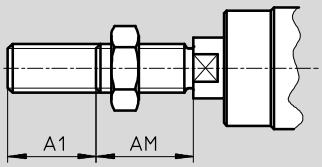
\+ = plus stroke length
++ = plus 2x stroke length

∅ [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

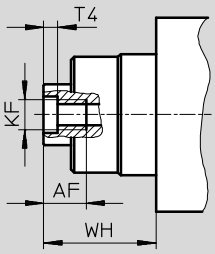
1) Internal narrowing to ∅ 5.5 mm
2) Internal narrowing to ∅ 10.2 mm

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

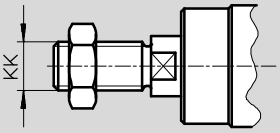
K2 – Extended male piston rod thread



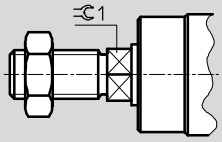
K3 – Female piston rod thread



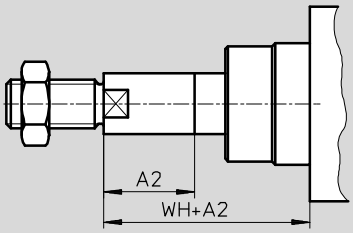
K5 – Special piston rod thread



K7 – Piston rod with external hexagon



K8 – Extended piston rod



Note

In combination with variant S2/S20, the piston rod is extended at one end. In combination with variant Q, the square piston rod is extended.

∅ [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 mounting nut on the piston rod thread is included in the scope of delivery

Ordering data – Without position sensing

Piston ∅ [mm]	Stroke [mm]	Part No.	Type[1)]	Piston ∅ [mm]	Stroke [mm]	Part No.	Type[1)]
32	25	**163319**	**DNC-32-25-PPV**	40	25	**163351**	**DNC-40-25-PPV**
	40	**163320**	**DNC-32-40-PPV**		40	**163352**	**DNC-40-40-PPV**
	50	**163321**	**DNC-32-50-PPV**		50	**163353**	**DNC-40-50-PPV**
	80	**163322**	**DNC-32-80-PPV**		80	**163354**	**DNC-40-80-PPV**
	100	**163323**	**DNC-32-100-PPV**		100	**163355**	**DNC-40-100-PPV**
	125	**163324**	**DNC-32-125-PPV**		125	**163356**	**DNC-40-125-PPV**
	160	**163325**	**DNC-32-160-PPV**		160	**163357**	**DNC-40-160-PPV**
	200	**163326**	**DNC-32-200-PPV**		200	**163358**	**DNC-40-200-PPV**
	250	**163327**	**DNC-32-250-PPV**		250	**163359**	**DNC-40-250-PPV**
	320	**163328**	**DNC-32-320-PPV**		320	**163360**	**DNC-40-320-PPV**
	400	**163329**	**DNC-32-400-PPV**		400	**163361**	**DNC-40-400-PPV**
	500	**163330**	**DNC-32-500-PPV**		500	**163362**	**DNC-40-500-PPV**
50	25	**163383**	**DNC-50-25-PPV**	63	25	**163415**	**DNC-63-25-PPV**
	40	**163384**	**DNC-50-40-PPV**		40	**163416**	**DNC-63-40-PPV**
	50	**163385**	**DNC-50-50-PPV**		50	**163417**	**DNC-63-50-PPV**
	80	**163386**	**DNC-50-80-PPV**		80	**163418**	**DNC-63-80-PPV**
	100	**163387**	**DNC-50-100-PPV**		100	**163419**	**DNC-63-100-PPV**
	125	**163388**	**DNC-50-125-PPV**		125	**163420**	**DNC-63-125-PPV**
	160	**163389**	**DNC-50-160-PPV**		160	**163421**	**DNC-63-160-PPV**
	200	**163390**	**DNC-50-200-PPV**		200	**163422**	**DNC-63-200-PPV**
	250	**163391**	**DNC-50-250-PPV**		250	**163423**	**DNC-63-250-PPV**
	320	**163392**	**DNC-50-320-PPV**		320	**163424**	**DNC-63-320-PPV**
	400	**163393**	**DNC-50-400-PPV**		400	**163425**	**DNC-63-400-PPV**
	500	**163394**	**DNC-50-500-PPV**		500	**163426**	**DNC-63-500-PPV**
80	25	**163447**	**DNC-80-25-PPV**	100	25	**163479**	**DNC-100-25-PPV**
	40	**163448**	**DNC-80-40-PPV**		40	**163480**	**DNC-100-40-PPV**
	50	**163449**	**DNC-80-50-PPV**		50	**163481**	**DNC-100-50-PPV**
	80	**163450**	**DNC-80-80-PPV**		80	**163482**	**DNC-100-80-PPV**
	100	**163451**	**DNC-80-100-PPV**		100	**163483**	**DNC-100-100-PPV**
	125	**163452**	**DNC-80-125-PPV**		125	**163484**	**DNC-100-125-PPV**
	160	**163453**	**DNC-80-160-PPV**		160	**163485**	**DNC-100-160-PPV**
	200	**163454**	**DNC-80-200-PPV**		200	**163486**	**DNC-100-200-PPV**
	250	**163455**	**DNC-80-250-PPV**		250	**163487**	**DNC-100-250-PPV**
	320	**163456**	**DNC-80-320-PPV**		320	**163488**	**DNC-100-320-PPV**
	400	**163457**	**DNC-80-400-PPV**		400	**163489**	**DNC-100-400-PPV**
	500	**163458**	**DNC-80-500-PPV**		500	**163490**	**DNC-100-500-PPV**
125	25	**163511**	**DNC-125-25-PPV**				
	40	**163512**	**DNC-125-40-PPV**				
	50	**163513**	**DNC-125-50-PPV**				
	80	**163514**	**DNC-125-80-PPV**				
	100	**163515**	**DNC-125-100-PPV**				
	125	**163516**	**DNC-125-125-PPV**				
	160	**163517**	**DNC-125-160-PPV**				
	200	**163518**	**DNC-125-200-PPV**				
	250	**163519**	**DNC-125-250-PPV**				
	320	**163520**	**DNC-125-320-PPV**				
	400	**163521**	**DNC-125-400-PPV**				
	500	**163522**	**DNC-125-500-PPV**				

1) The mounting nut on the piston rod thread is included in the scope of delivery

Ordering data – With position sensing							
Piston ∅ [mm]	Stroke [mm]	Part No.	Type[1)]	Piston ∅ [mm]	Stroke [mm]	Part No.	Type[1)]
32	20	**1922617**	**DNC-32-20-PPV-A**	40	20	**1922623**	**DNC-40-20-PPV-A**
	25	**163305**	**DNC-32-25-PPV-A**		25	**163337**	**DNC-40-25-PPV-A**
	30	**1922618**	**DNC-32-30-PPV-A**		30	**1922624**	**DNC-40-30-PPV-A**
	40	**163306**	**DNC-32-40-PPV-A**		40	**163338**	**DNC-40-40-PPV-A**
	50	**163307**	**DNC-32-50-PPV-A**		50	**163339**	**DNC-40-50-PPV-A**
	60	**1922619**	**DNC-32-60-PPV-A**		60	**1922625**	**DNC-40-60-PPV-A**
	70	**1922620**	**DNC-32-70-PPV-A**		70	**1922626**	**DNC-40-70-PPV-A**
	80	**163308**	**DNC-32-80-PPV-A**		80	**163340**	**DNC-40-80-PPV-A**
	100	**163309**	**DNC-32-100-PPV-A**		100	**163341**	**DNC-40-100-PPV-A**
	125	**163310**	**DNC-32-125-PPV-A**		125	**163342**	**DNC-40-125-PPV-A**
	150	**1922621**	**DNC-32-150-PPV-A**		150	**1922627**	**DNC-40-150-PPV-A**
	160	**163311**	**DNC-32-160-PPV-A**		160	**163343**	**DNC-40-160-PPV-A**
	200	**163312**	**DNC-32-200-PPV-A**		200	**163344**	**DNC-40-200-PPV-A**
	250	**163313**	**DNC-32-250-PPV-A**		250	**163345**	**DNC-40-250-PPV-A**
	300	**1922622**	**DNC-32-300-PPV-A**		300	**1922628**	**DNC-40-300-PPV-A**
	320	**163314**	**DNC-32-320-PPV-A**		320	**163346**	**DNC-40-320-PPV-A**
	400	**163315**	**DNC-32-400-PPV-A**		400	**163347**	**DNC-40-400-PPV-A**
	500	**163316**	**DNC-32-500-PPV-A**		500	**163348**	**DNC-40-500-PPV-A**
50	20	**1922629**	**DNC-50-20-PPV-A**	63	20	**1922635**	**DNC-63-20-PPV-A**
	25	**163369**	**DNC-50-25-PPV-A**		25	**163401**	**DNC-63-25-PPV-A**
	30	**1922630**	**DNC-50-30-PPV-A**		30	**1922636**	**DNC-63-30-PPV-A**
	40	**163370**	**DNC-50-40-PPV-A**		40	**163402**	**DNC-63-40-PPV-A**
	50	**163371**	**DNC-50-50-PPV-A**		50	**163403**	**DNC-63-50-PPV-A**
	60	**1922631**	**DNC-50-60-PPV-A**		60	**1922637**	**DNC-63-60-PPV-A**
	70	**1922632**	**DNC-50-70-PPV-A**		70	**1922638**	**DNC-63-70-PPV-A**
	80	**163372**	**DNC-50-80-PPV-A**		80	**163404**	**DNC-63-80-PPV-A**
	100	**163373**	**DNC-50-100-PPV-A**		100	**163405**	**DNC-63-100-PPV-A**
	125	**163374**	**DNC-50-125-PPV-A**		125	**163406**	**DNC-63-125-PPV-A**
	150	**1922633**	**DNC-50-150-PPV-A**		150	**1922639**	**DNC-63-150-PPV-A**
	160	**163375**	**DNC-50-160-PPV-A**		160	**163407**	**DNC-63-160-PPV-A**
	200	**163376**	**DNC-50-200-PPV-A**		200	**163408**	**DNC-63-200-PPV-A**
	250	**163377**	**DNC-50-250-PPV-A**		250	**163409**	**DNC-63-250-PPV-A**
	300	**1922634**	**DNC-50-300-PPV-A**		300	**1922640**	**DNC-63-300-PPV-A**
	320	**163378**	**DNC-50-320-PPV-A**		320	**163410**	**DNC-63-320-PPV-A**
	400	**163379**	**DNC-50-400-PPV-A**		400	**163411**	**DNC-63-400-PPV-A**
	500	**163380**	**DNC-50-500-PPV-A**		500	**163412**	**DNC-63-500-PPV-A**

1) The mounting nut on the piston rod thread is included in the scope of delivery

Ordering data – With position sensing			
Piston ∅ [mm]	Stroke [mm]	Part No.	Type[1)]
80	20	**1922641**	**DNC-80-20-PPV-A**
	25	**163433**	**DNC-80-25-PPV-A**
	30	**1922642**	**DNC-80-30-PPV-A**
	40	**163434**	**DNC-80-40-PPV-A**
	50	**163435**	**DNC-80-50-PPV-A**
	60	**1922643**	**DNC-80-60-PPV-A**
	70	**1922644**	**DNC-80-70-PPV-A**
	80	**163436**	**DNC-80-80-PPV-A**
	100	**163437**	**DNC-80-100-PPV-A**
	125	**163438**	**DNC-80-125-PPV-A**
	150	**1922645**	**DNC-80-150-PPV-A**
	160	**163439**	**DNC-80-160-PPV-A**
	200	**163440**	**DNC-80-200-PPV-A**
	250	**163441**	**DNC-80-250-PPV-A**
	300	**1922646**	**DNC-80-300-PPV-A**
	320	**163442**	**DNC-80-320-PPV-A**
	400	**163443**	**DNC-80-400-PPV-A**
	500	**163444**	**DNC-80-500-PPV-A**
100	25	**163465**	**DNC-100-25-PPV-A**
	40	**163466**	**DNC-100-40-PPV-A**
	50	**163467**	**DNC-100-50-PPV-A**
	80	**163468**	**DNC-100-80-PPV-A**
	100	**163469**	**DNC-100-100-PPV-A**
	125	**163470**	**DNC-100-125-PPV-A**
	160	**163471**	**DNC-100-160-PPV-A**
	200	**163472**	**DNC-100-200-PPV-A**
	250	**163473**	**DNC-100-250-PPV-A**
	320	**163474**	**DNC-100-320-PPV-A**
	400	**163475**	**DNC-100-400-PPV-A**
	500	**163476**	**DNC-100-500-PPV-A**
125	25	**163497**	**DNC-125-25-PPV-A**
	40	**163498**	**DNC-125-40-PPV-A**
	50	**163499**	**DNC-125-50-PPV-A**
	80	**163500**	**DNC-125-80-PPV-A**
	100	**163501**	**DNC-125-100-PPV-A**
	125	**163502**	**DNC-125-125-PPV-A**
	160	**163503**	**DNC-125-160-PPV-A**
	200	**163504**	**DNC-125-200-PPV-A**
	250	**163505**	**DNC-125-250-PPV-A**
	320	**163506**	**DNC-125-320-PPV-A**
	400	**163507**	**DNC-125-400-PPV-A**
	500	**163508**	**DNC-125-500-PPV-A**

1) The mounting nut on the piston rod thread is included in the scope of delivery

Ordering data – Variable stroke			
Piston ∅	Stroke	Without position sensing	
[mm]	[mm]	Part No.	Type[1]
32	10 ... 2000	**163318**	**DNC-32-...-PPV**
40	10 ... 2000	**163350**	**DNC-40-...-PPV**
50	10 ... 2000	**163382**	**DNC-50-...-PPV**
63	10 ... 2000	**163414**	**DNC-63-...-PPV**
80	10 ... 2000	**163446**	**DNC-80-...-PPV**
100	10 ... 2000	**163478**	**DNC-100-...-PPV**
125	10 ... 2000	**163510**	**DNC-125-...-PPV**

1) The mounting nut on the piston rod thread is included in the scope of delivery

Ordering data – Variable stroke			
Piston ∅	Stroke	With position sensing	
[mm]	[mm]	Part No.	Type[1]
32	10 ... 2000	**163304**	**DNC-32-...-PPV-A**
40	10 ... 2000	**163336**	**DNC-40-...-PPV-A**
50	10 ... 2000	**163368**	**DNC-50-...-PPV-A**
63	10 ... 2000	**163400**	**DNC-63-...-PPV-A**
80	10 ... 2000	**163432**	**DNC-80-...-PPV-A**
100	10 ... 2000	**163464**	**DNC-100-...-PPV-A**
125	10 ... 2000	**163496**	**DNC-125-...-PPV-A**

1) The mounting nut on the piston rod thread is included in the scope of delivery

FESTO

M Mandatory data						O Options					
Module No.	Function	Piston ∅	Stroke	Cushioning		Position sensing	Protection against rotation	Type of piston rod	Extended male thread	Female thread	Special thread
163302	DNC	32	10 … 2000	P		A	Q	S2	…K2	K3	…K5
163334		40		PPV				S20			
163366		50									
163398		63									
163430		80									
163462		100									
163494		125									
Order example											
163430	**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.		**163302**	**163334**	**163366**	**163398**	**163430**	**163462**	**163494**			
	Function		Standard cylinder, double-acting, based on ISO 15552								**DNC**	DNC
	Piston ∅	[mm]	32	40	50	63	80	100	125		**-…**	
	Stroke	[mm]	10 … 2000								**-…**	
	Cushioning		Flexible cushioning rings/pads at both ends								**-P**	
			Pneumatic cushioning, adjustable at both ends							15	**-PPV**	
O	Position sensing		Via proximity sensor								**-A**	
	Protection against rotation		Square piston rod						–	2	**-Q**	
	Type of piston rod		Through piston rod							3	**-S2**	
			Through, hollow piston rod							4	**-S20**	
	Extended male thread	[mm]	Piston rod with extended male thread 1 … 35		1 … 70					5	**-…K2**	
	Female thread		Piston rod with female thread (M6)	(M8)	(M10)	(M10)	(M12)	(M12)	(M16)	6	**-K3**	
	Special thread		Piston rod with special thread M10	M12	M16	M16	M20	M20	M27	7	**-…K5**	

15 **PPV** For piston ∅ 125 not with S11

2 **Q** Max. stroke: 10 … 1500 mm.
In combination with S2: square piston rod at bearing cap end only.
Not with S20, K7, K10, S10, S11, R8

3 **S2** In combination with K2: thread extended at both ends.
In combination with K3: female thread at both ends.
In combination with K5: special thread at both ends.
In combination with K8: piston rod extended at bearing cap end only.
Not with K7, S10, S11

4 **S20** Max. stroke: 850 mm.
Not with K2, K3, K5, K8, K10, S6, S10, S11, R8

5 **K2** Not with K3, K10

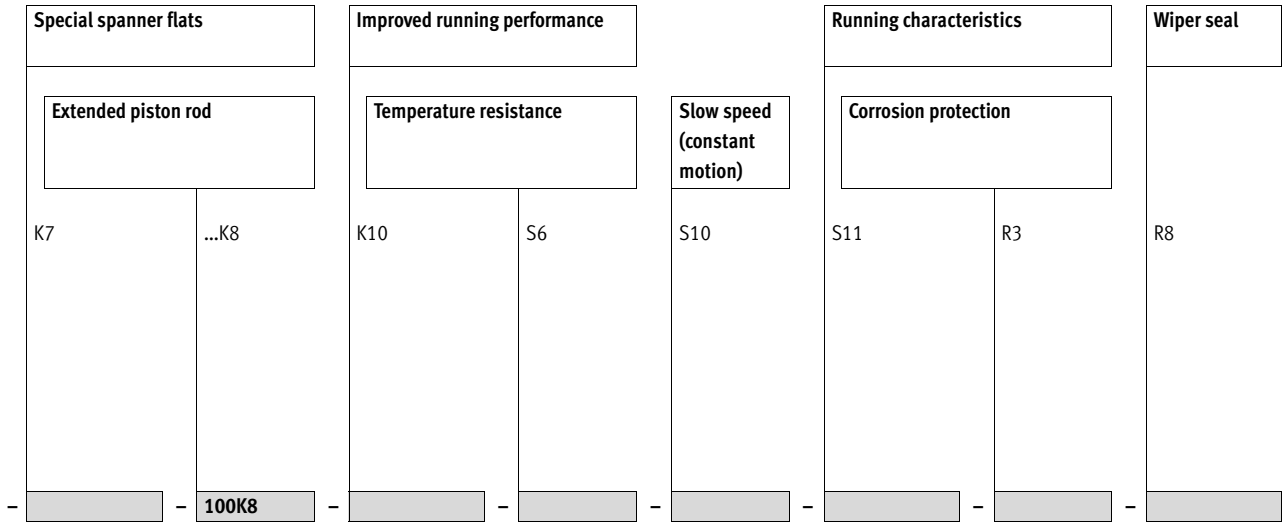
6 **K3** With K5: on request.
Not with K7

7 **K5** Not with K10

Transfer order code

	DNC	–	–	–	–	–	–	–	–	–

➔ 0 Options



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 Extended piston rod [mm]	Extended piston rod 1 … 500								**-...K8**		
Improved running performance	Smooth anodised aluminium coated piston rod						–	9	**-K10**		
Temperature resistance	Heat-resistant seals for temperatures up to 120 °C							10	**-S6**		
Slow speed (constant motion)	Slow speed (constant motion at low piston speeds)						–	12	**-S10**		
Running characteristics	Low friction							13	**-S11**		
Corrosion protection	High corrosion protection							14	**-R3**		
Wiper seal	Dust protection								**-R8**		

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

9 **K10** Max. stroke: 1,000 mm. Not with S6, R3, R8

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

12 **S10** Max. stroke: 500 mm; additional strokes on request. Not with S11, R3, R8

13 **S11** Max. stroke: 500 mm; additional strokes on request. Not with R3, R8

14 **CT, R3** Not with R8

Transfer order code

– [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Wearing parts kits

	Part No.	Type		Part No.	Type
Piston ∅	Basic version			S6 – Heat-resistant seals up to max. 120 °C	
32	**369195**	**DNC-32-...-PPV-(A)**		**384214**	**DNC-32-...-PPV-(A)-S6**
40	**369196**	**DNC-40-...-PPV-(A)**		**384215**	**DNC-40-...-PPV-(A)-S6**
50	**369197**	**DNC-50-...-PPV-(A)**		**384216**	**DNC-50-...-PPV-(A)-S6**
63	**369198**	**DNC-63-...-PPV-(A)**		**384217**	**DNC-63-...-PPV-(A)-S6**
80	**369199**	**DNC-80-...-PPV-(A)**		**384218**	**DNC-80-...-PPV-(A)-S6**
100	**369200**	**DNC-100-...-PPV-(A)**		**384219**	**DNC-100-...-PPV-(A)-S6**
125	**369201**	**DNC-125-...-PPV-(A)**		**384220**	**DNC-125-...-PPV-(A)-S6**

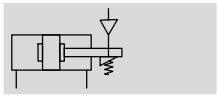
Standard cylinders DNC-KP, standard hole pattern, with clamping unit

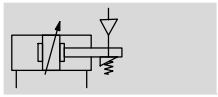
Technical data

Function

DNC-...-KP

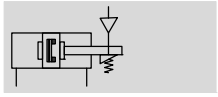
Without position sensing

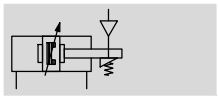




DNC-...-A-...-KP

With position sensing





Diameter
32 ... 125 mm

Stroke length
10 ... 2000 mm

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Wearing parts kits
➔ 32

Note

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

General technical data								
Piston ∅		32	40	50	63	80	100	125
Pneumatic connection	Cylinder	G⅛	G¼	G¼	G⅜	G⅜	G½	G½
	KP	M5	G⅛	G⅛	G⅛	G⅛	G⅛	G⅛
Piston rod thread		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
Axial play under load	[mm]	0.5		0.8				1.8
Constructional design		Piston						
		Piston rod						
		Profile barrel						
		Clamping unit						
Cushioning		Flexible cushioning rings/pads at both ends						
		Pneumatic cushioning, adjustable at both ends						
Cushioning length PPV	[mm]	20	20	22	22	32	32	42
Position sensing		Via proximity sensor						
Type of mounting		Via female thread						
		Via accessories						
Mounting position		Any						
Clamping type with effective direction		At both ends						

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Operating and environmental conditions		
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)
Operating pressure	[bar]	1.5 ... 10
Min. release pressure	[bar]	3
Ambient temperature[1]	[°C]	–10 ... +80
Corrosion resistance class CRC[2]		2
Certification		Germanischer Lloyd

1) Note operating range of proximity sensors

2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Standard cylinders DNC-KP, standard hole pattern, with clamping unit

Technical data

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:

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

$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
$m_{Intrinsic}$ Moving load (drive)
m_{Load} Moving effective load

- Note

This data represents the maximum values that can be achieved. The maximum permissible impact energy must be observed.

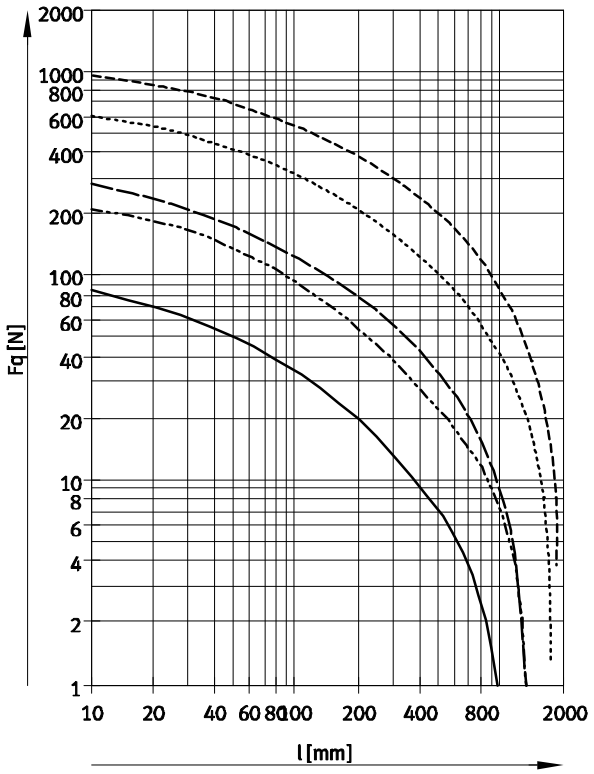
Forces [N]								
Piston ∅		32	40	50	63	80	100	125
Theoretical force at 6 bar, advancing		483	754	1178	1870	3016	4712	7363
	S2	415	633	990	1682	2721	4418	6881
Theoretical force at 6 bar, retracting		415	633	990	1682	2721	4418	6881
	S2	415	633	990	1682	2721	4418	6881
Static holding force		600	1000	1400	2000	5000	5000	7500

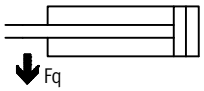
- Note

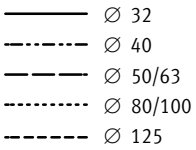
The specified holding force refers to a static load. If this value is exceeded, slippage may occur. Dynamic forces occurring during operation must not exceed the static holding force. The clamping unit is not backlash-free in the clamped condition if varying loads are applied to the piston rod.

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

Max. lateral force Fq as a function of stroke length l

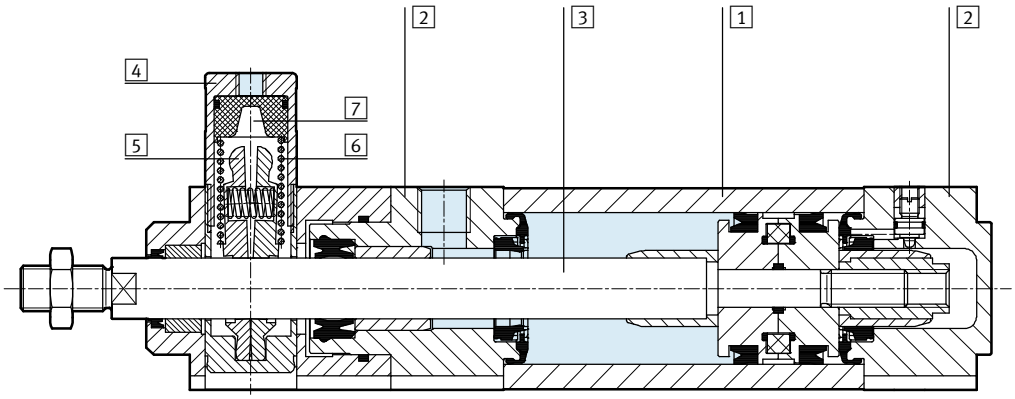






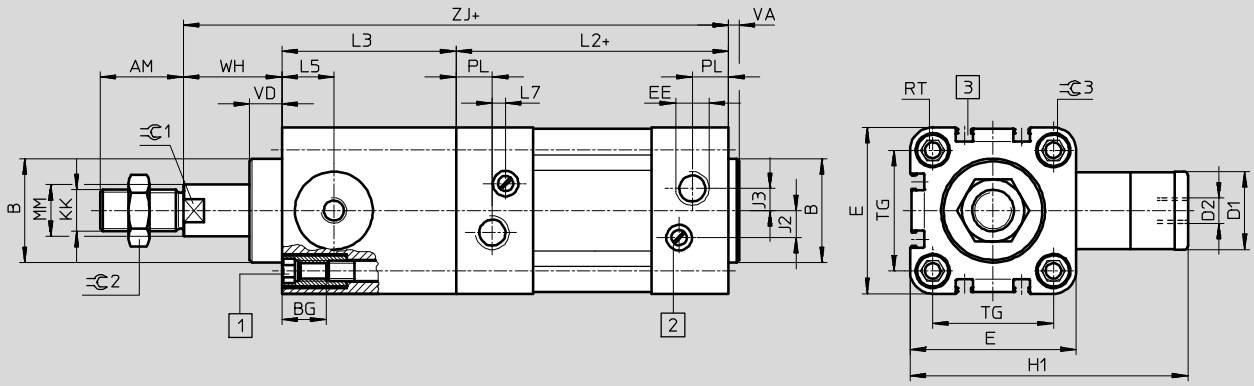
Materials

Sectional view



Standard cylinder		
1	Profile barrel	Wrought aluminium alloy, smooth anodised
2	Bearing and end caps	Die-cast aluminium
3	Piston rod	High-alloy steel
4	Housing, clamping unit	Wrought aluminium alloy, anodised
5	Clamping jaws	Brass
6	Spring	Spring steel
7	Piston	Polyacetal
–	Seals	Polyurethane, nitrile rubber
	Note on materials	RoHS compliant

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



1 For mounting attachments:
∅ 32 ... 100: Socket head screw with female thread
∅ 125: Thread in the end cap

2 Regulating screw for adjustable end-position cushioning

3 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 ∅	PL	RT	TG	VA	VD	WH	ZJ	=C1	=C2	=C3
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

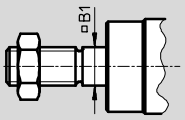
Note: This product conforms to ISO 1179-1 and to ISO 228-1

Note

The dimensions for the cylinder/valve combination are on page ➔ 44

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

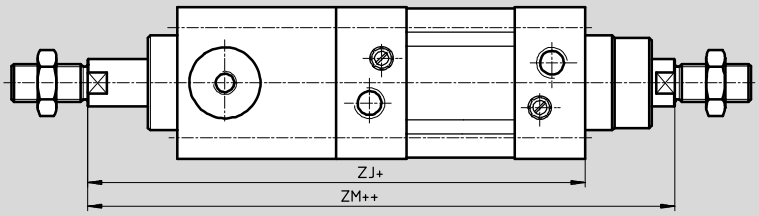
Q – Square piston rod



Note

Clamping unit and variant Q only in combination with S2.

S2 – Through piston rod



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

Note

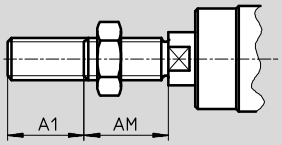
The thread types at both piston rod ends are identical.

In combination with variant Q, the left-hand piston rod is round,

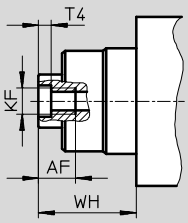
the right-hand piston rod square. The clamping unit is mounted on

the left-hand, round piston rod.

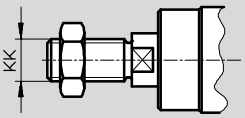
K2 – Extended male piston rod thread



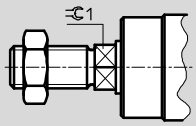
K3 – Female piston rod thread



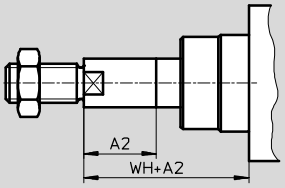
K5 – Special piston rod thread



K7 – Piston rod with external hexagon



K8 – Extended piston rod



Note

In combination with variant S2, the piston rod is extended at one end. 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 mounting nut on the piston rod thread is included in the scope of delivery

FESTO

M Mandatory data					O Options		
Module No.	**Function**	**Piston ∅**	**Stroke**	**Cushioning**	**Position sensing**	**Protection against rotation**	**Type of piston rod**
163302 163334 163366 163398 163430 163462 163494	DNC	32 40 50 63 80 100 125	10 … 2000	P PPV	A	Q	S2
Order 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.		**163302**	**163334**	**163366**	**163398**	**163430**	**163462**	**163494**			
	Function		Standard cylinder, double-acting, standard hole pattern, with clamping unit								**DNC**	DNC
	Piston ∅	[mm]	32	40	50	63	80	100	125		**-...**	
	Stroke	[mm]	10 … 2000								**-...**	
	Cushioning		Flexible cushioning rings/pads at both ends								**-P**	
			Pneumatic cushioning, adjustable at both ends								**-PPV**	
O	Position sensing		Via proximity sensor								**-A**	
	Protection against rotation		Square piston rod						–	1	**-Q**	
	Type of piston rod		Through piston rod							2	**-S2**	

1 **Q** Max. stroke: 10 … 1500 mm
In combination with S2: square piston rod at bearing cap end only
In combination with KP: only supplied with S2
Not with K7

2 **S2** In combination with K2: extended thread at both ends
In combination with K3: female thread at both ends
In combination with K5: special thread at both ends
In combination with K8: piston rod extended at bearing cap end only
In combination with KP: clamping unit at end cap
Not with K7

Transfer order code

	DNC	–	–	–	–	–	–

Standard cylinders DNC-KP, standard hole pattern, with clamping unit

Ordering data – Modular products

➔ [0] Options					[M]	[0]
Extended male thread	Female thread	Special thread	Special spanner flats	Extended piston rod	Clamping unit	Cylinder/valve combination
...K2	K3	...K5	K7	...K8	KP	V1 V2 V3 V4 V5 V6
–	– K3	–	–	– 100K8	– KP	–

Ordering table

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

[3] **K2** Not with K3

[4] **K3** With K5: on request
Not with K7

[5] **KP** Without S2: position of the clamping unit at the bearing cap

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

Transfer order code

–		–		–		–		–	KP	–	

Standard cylinders DNC-KP, standard hole pattern, with clamping unit

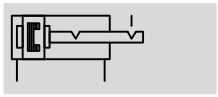
Ordering data

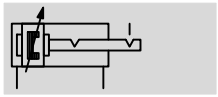
Wearing parts kits		
	Part No.	Type
Piston ∅	Basic version	
32	**369195**	**DNC-32-...-PPV-(A)**
40	**369196**	**DNC-40-...-PPV-(A)**
50	**369197**	**DNC-50-...-PPV-(A)**
63	**369198**	**DNC-63-...-PPV-(A)**
80	**369199**	**DNC-80-...-PPV-(A)**
100	**369200**	**DNC-100-...-PPV-(A)**
125	**369201**	**DNC-125-...-PPV-(A)**

Standard cylinders DNC-EL, standard hole pattern, with end-position locking

Technical data

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





Diameter
32 ... 100 mm

Stroke length
10 ... 2000 mm

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Wearing parts kits
➔ 24

Note

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

General technical data							
Piston ∅		32	40	50	63	80	100
Pneumatic connection		G⅛	G¼	G¼	G⅜	G⅜	G½
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5
Max. axial backlash with end position locked	[mm]	≤ 1.3				≤ 2.1	
Constructional design		Piston					
		Piston rod					
		Profile barrel					
End-position locking	ELB	At both ends					
	ELV	At front					
	ELH	At rear					
Cushioning		Flexible cushioning rings/pads at both ends					
		Pneumatic cushioning, adjustable at both ends					
Cushioning length PPV		20	20	22	22	32	32
[mm]	EL	8.2	8.3	7.3	10.8	9.8	11.8
Position sensing		Via proximity sensor					
Type of mounting		Via female thread					
		Via accessories					
Mounting position		Any					

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Note

- End-position locking should only be operated in conjunction with double-acting cylinders with exhaust air flow control 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 end-position locking, as there is a risk that the function will be impaired if they are screwed in too deeply.
- The exhaust hole must not be closed.
- Locking can be performed from any stroke position once the drive is brought mechanically into its end position.
- End-position locking has been designed to prevent the load dropping in case of pressure failure.
- An excessive end-position cushioning setting (more than 50% closed) can result in the locking bolt not engaging reliably, resulting in premature wear.

Standard cylinders DNC-EL, standard hole pattern, with end-position locking

Technical data

Operating and environmental conditions							
Piston ∅		32	40	50	63	80	100
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]					
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)					
Operating pressure	[bar]	2.5 ... 12		1.5 ... 12			
Ambient temperature[1]	[°C]	–20 ... +80					
Corrosion resistance class CRC[2]		2					
Certification		Germanischer Lloyd					

1) Note operating range of proximity sensors
2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Impact energy [J]						
Piston ∅	32	40	50	63	80	100
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:

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

$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
$m_{Intrinsic}$ Moving load (drive)
m_{Load} Moving effective load

- - Note

This data represents the maximum values that can be achieved. The maximum permissible impact energy must be observed.

Forces [N]						
Piston ∅	32	40	50	63	80	100
Theoretical force at 6 bar, advancing	483	754	1178	1870	3016	4712
Theoretical force at 6 bar, retracting	415	633	990	1682	2721	4418
Static holding force	500		2000		5000	

Sizing example

- - Note

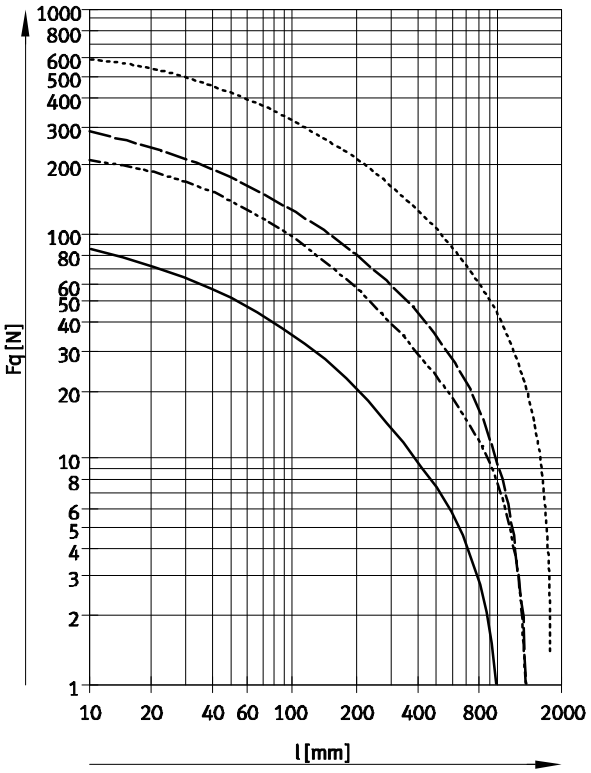
When sizing pneumatic cylinders it is recommended as a basic principle that only 50% of the indicated theoretical forces (see above) be used.

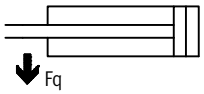
Given:
Installation position = Vertical
Workpiece load = 44 kg
F = m x g = 44 kg x 9.81 m/s^2
= 431.6 N

To be calculated:
Suitable piston ∅

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

Max. lateral force Fq as a function of stroke length l



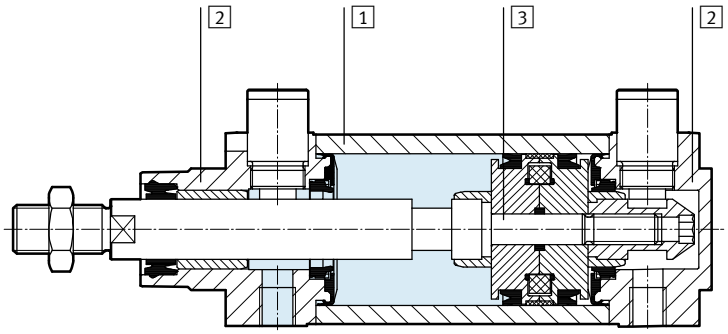


∅ 32
∅ 40
∅ 50/63
∅ 80/100

Weight [g]						
Piston ∅	32	40	50	63	80	100
Basic version						
Product weight with 0 mm stroke	537	820	1320	1769	2970	4833
Additional weight per 10 mm stroke	30	45	64	73	106	115
S2 – Through piston rod						
Product weight with 0 mm stroke	596	915	1450	1977	3294	5477
Additional weight per 10 mm stroke	39	61	89	98	144	153

Materials

Sectional view

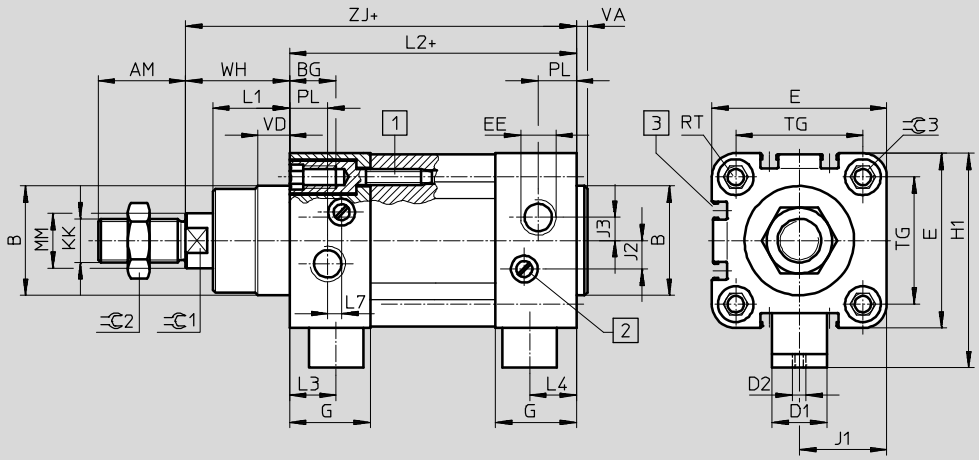


Standard cylinder		
1	Profile barrel	Wrought aluminium alloy, smooth anodised
2	Bearing and end caps	Die-cast aluminium
3	Piston rod	High-alloy steel
–	Seals	Polyurethane, nitrile rubber
	Note on materials	RoHS compliant

Standard cylinders DNC-EL, standard hole pattern, with end-position locking

Technical data

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



1 Socket head screw with female thread for mounting attachments

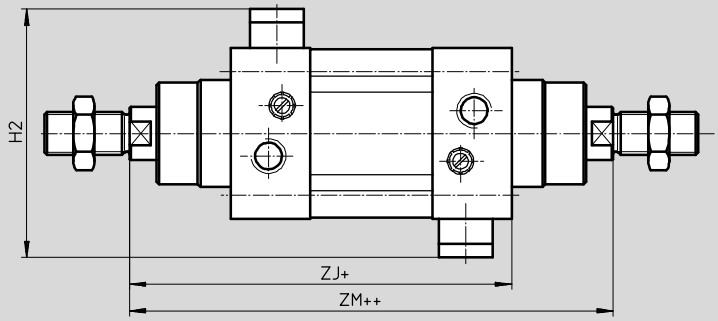
2 Regulating screw for adjustable end-position cushioning

3 Slot for proximity sensor

\+ = plus stroke length

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

S2 – Through piston rod



\+ = plus stroke length

++ = plus 2x stroke length

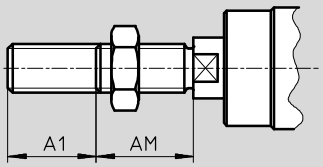
∅ [mm]	AM	B ∅ d11	BG	D1 ∅ f8	D2	E	EE	G	H1	H2	J1	J2	J3	KK	L1
32	22	30	16	13	M3	45	G1⁄8	25.1	57.5	70	22.5	6	5.2	M10x1.25	18
40	24	35	16	13	M3	54	G1⁄4	29.6	64	74	27	8	6	M12x1.25	21.5
50	32	40	17	20	M5	64	G1⁄4	29.6	78.5	93	32	10.4	8.5	M16x1.5	28
63	32	45	17	20	M5	75	G3⁄8	35.6	84.5	93	37.5	12.4	10	M16x1.5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

∅ [mm]	L2	L3	L4	L7	MM ∅	PL	RT	TG	VA	VD	WH ±2	ZM	ZJ	⌯1	⌯2	⌯3
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

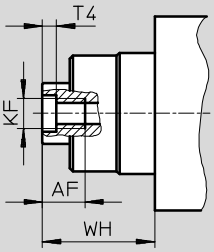
Note: This product conforms to ISO 1179-1 and to ISO 228-1

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

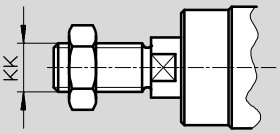
K2 – Extended male piston rod thread



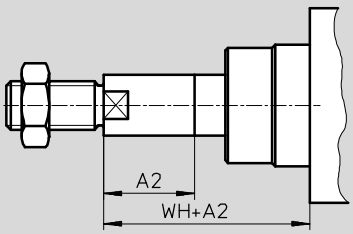
K3 – Female piston rod thread



K5 – Special piston rod thread



K8 – Extended piston rod



Note

In combination with variant S2, the piston rod is extended at one end.

∅ [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 mounting nut on the piston rod thread is included in the scope of delivery

Standard cylinders DNC-EL, standard hole pattern, with end-position locking

Ordering data – Modular products

FESTO

M Mandatory data						O Options ➔	
Module No.	**Function**	**Piston ∅**	**Stroke**	**Cushioning**	**Position sensing**	**Type of piston rod**
163302	DNC	32	10 ... 2000	P	A	S2
163334		40		PPV		
163366		50				
163398		63				
163430		80				
163462		100				
Order example						
163430	**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, standard hole pattern, with end-position locking							**DNC**		DNC
	Piston ∅	[mm]	32	40	50	63	80	100		**-...**		
	Stroke	[mm]	10 ... 2000							**-...**		
	Cushioning		Flexible cushioning rings/pads at both ends							**-P**		
			Pneumatic cushioning, adjustable at both ends							**-PPV**		
O	Position sensing		Via proximity sensor							**-A**		
↓	Type of piston rod		Through piston rod						1	**-S2**		

1 **S2** In combination with K2: extended thread at both ends
In combination with K3: female thread at both ends
In combination with K5: special thread at both ends

Transfer order code

	DNC	–		–		–		–		–	

Standard cylinders DNC-EL, standard hole pattern, with end-position locking

Ordering data – Modular products

➔ 0 Options				M
Extended male thread	Female thread	Special thread	Extended piston rod	End-position locking
...K2	K3	...K5	...K8	ELB ELV ELH
–	– K3	–	– 100K8	–

Ordering table

Size	32	40	50	63	80	100	Condi-tions	Code		Enter code
↓ Extended male thread	Piston rod with extended male thread									
0 [mm]	1 ... 35		1 ... 70				2	-...K2		
Female thread	Piston rod with female thread									
	(M6)	(M8)	(M10)	(M10)	(M12)	(M12)	3	-K3		
Special thread	Piston rod with special thread									
	M10	M12	M16	M16	M20	M20		-...K5		
Extended piston rod	Extended piston rod									
[mm]	1 ... 500							-...K8		
M End-position locking	At both ends						4	-ELB		
	At front						4	-ELV		
	At rear						4	-ELH		

2 **K2** Not with K3

3 **K3** With K5: on request

4 **ELB, ELV, ELH**

In combination with K8 and S2: on request only

Transfer order code

–		–		–		–		–	

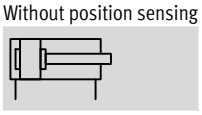
Standard cylinders DNC-V1 ... V6, standard hole pattern, cyl./valve combination

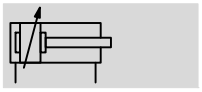
Technical data

Function

DNC-...

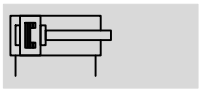
Without position sensing

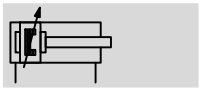




DNC-...-A-...

With position sensing





Diameter
32 ... 100 mm

Stroke length
100 ... 2000 mm

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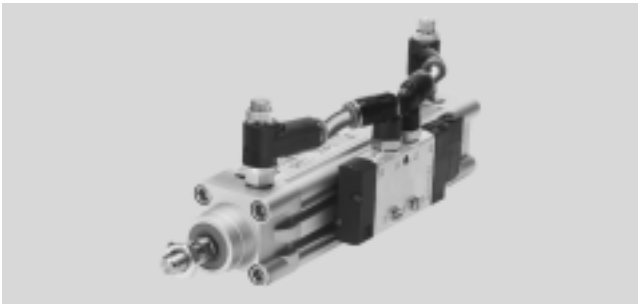
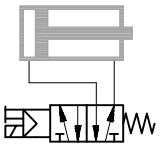
Wearing parts kits
➔ 32

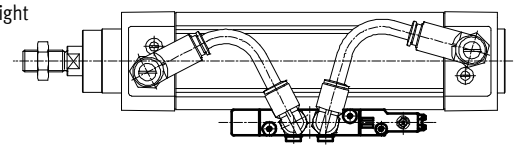


Valve variants

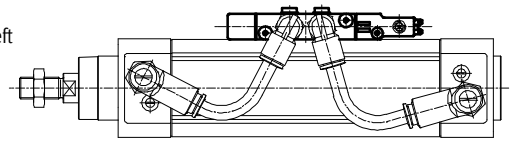
Single solenoid valve unactuated, piston rod retracted



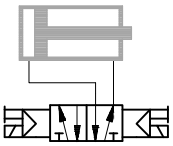
DNC-...-V1
fitted on right



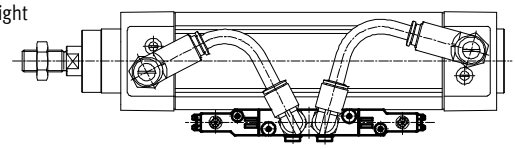
DNC-...-V4
fitted on left



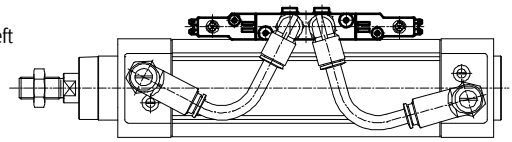
Double solenoid valve unactuated, piston rod retracted



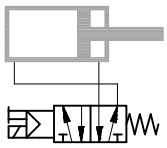
DNC-...-V3
fitted on right



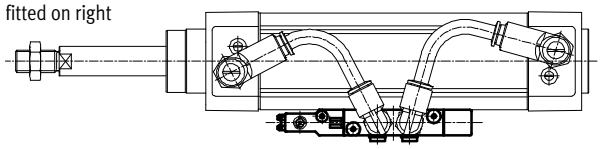
DNC-...-V6
fitted on left



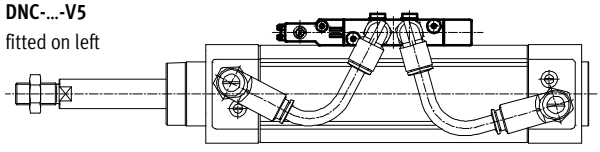
Single solenoid valve unactuated, piston rod advanced



DNC-...-V2
fitted on right



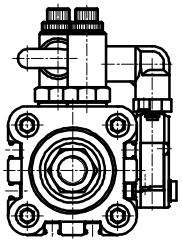
DNC-...-V5
fitted on left



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 fitted on the right.



Standard cylinders DNC-V1 … V6, standard hole pattern, cyl./valve combination

Technical data

General technical data							
Piston ∅		32	40	50	63	80	100
Cylinder							
Pneumatic connection		G⅛	G¼	G¼	G⅜	G⅜	G½
Piston rod thread		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					
		Profile barrel					
Cushioning		Flexible cushioning rings/pads at both ends					
		Pneumatic cushioning, adjustable at both ends					
Cushioning length PPV	[mm]	20	20	22	22	32	32
Position sensing		Via proximity sensor					
Type of mounting		Via female thread					
		Via accessories					
Mounting position		Any					
Valve						Ordering data – Valves and accessories → 48	
Valve used	single solenoid	CPE14-M1BH-5L-⅛		CPE18-M1H-5L-¼		CPE24-M1H-5L-⅜	
	double solenoid	CPE14-M1BH-5J-⅛		CPE18-M1H-5J-¼		CPE24-M1H-5J-⅜	
Pneumatic connection		G⅛		G¼		G⅜	
Constructional design		Piston spool valve					
Type of mounting		Via mounting kit					
Operating voltage	[V DC]	24 +10/–15%					
Power consumption	[W]	1		1.5			
Duty cycle		100%					
Protection class with plug socket		IP65					

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Operating and environmental conditions							
Piston ∅		32	40	50	63	80	100
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]					
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)					
Operating pressure	[bar]	3 … 8		2.5 … 10			
Ambient temperature[1]	[°C]	0 … +50					
Corrosion resistance class CRC[2]		2					
Certification		Germanischer Lloyd					

1) Note operating range of proximity sensors

2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Standard cylinders DNC-V1 ... V6, standard hole pattern, cyl./valve combination

Technical data

Force [N] and impact energy [J]							
Piston ∅		32	40	50	63	80	100
Theoretical force at 6 bar, advancing		483	754	1178	1870	3016	4712
	S2/S20	415	633	990	1682	2721	4418
Theoretical force at 6 bar, retracting		415	633	990	1682	2721	4418
	S2/S20	415	633	990	1682	2721	4418
Max. impact energy at the end positions[1)]		0.1	0.2	0.2	0.5	0.9	1.2

1) The permissible 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:

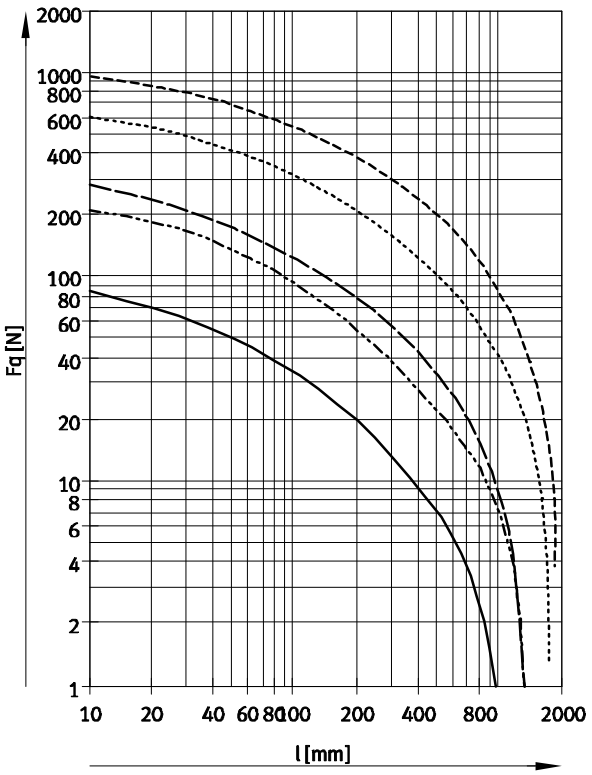
$$m_{load} = \frac{2 \times E_{perm.}}{v^2} - m_{dead}$$

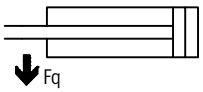
$v_{perm.}$ Permissible impact velocity
$E_{perm.}$ Max. impact energy
$m_{Intrinsic}$ Moving load (drive)
m_{Load} Moving effective load

- - Note

This data represents the maximum values that can be achieved. The maximum permissible impact energy must be observed.

Max. lateral force Fq as a function of stroke length l

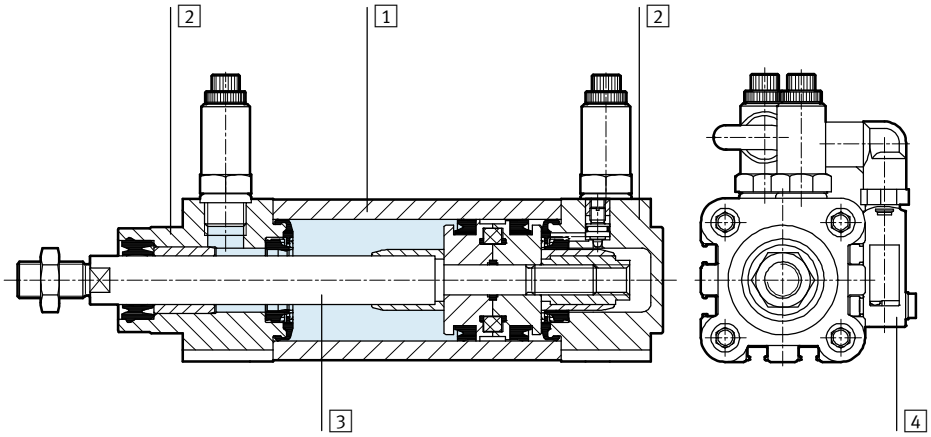




∅ 32
∅ 40
∅ 50/63
∅ 80/100

Materials

Sectional view

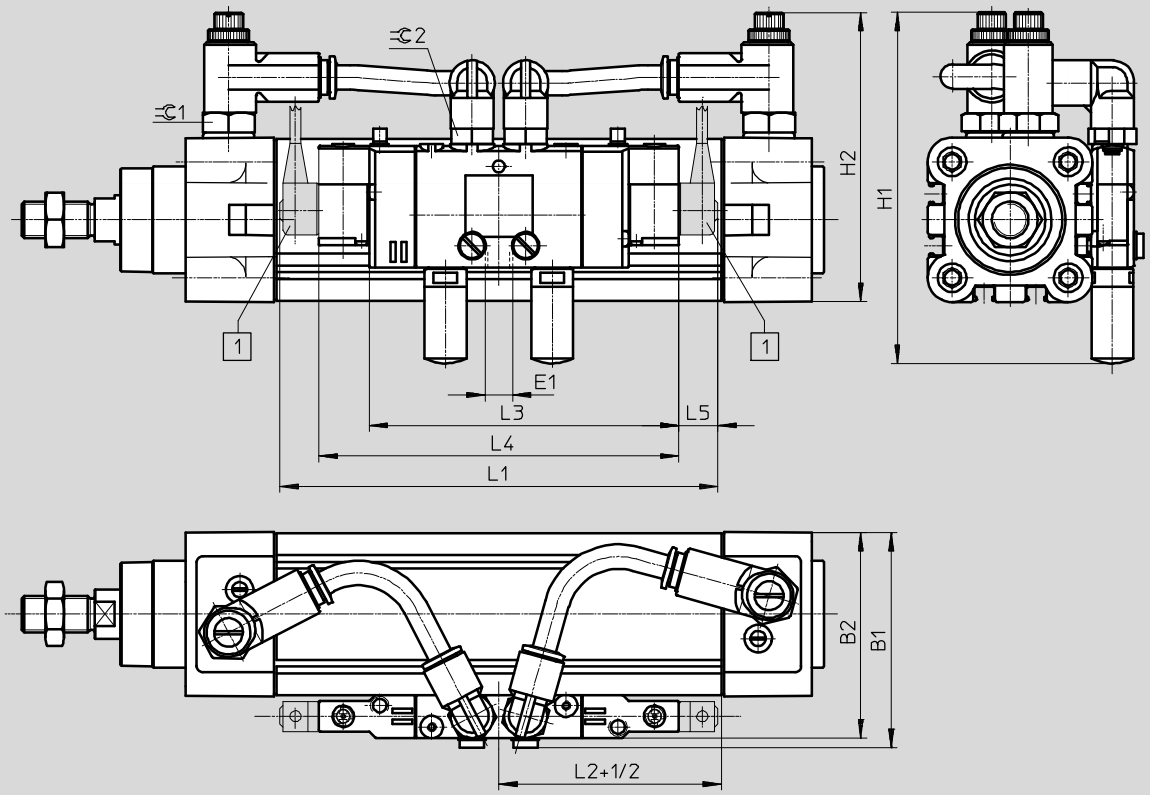


Standard cylinder		Basic version	R8	S10	S11	K10
1	Profile barrel	Wrought aluminium alloy, smooth anodised				
2	Bearing and end caps	Die-cast aluminium				
3	Piston rod	High-alloy steel	Tempered steel	High-alloy steel		Wrought aluminium alloy, anodised
–	Seals, cylinder	Polyurethane, nitrile rubber		Fluoro rubber		Polyurethane, nitrile rubber
4	Housing, valve	Die-cast aluminium, polyamide, steel				
–	Seals, valve	Nitrile rubber				
	Note on materials	RoHS compliant				

Standard cylinders DNC-V1 … V6, standard hole pattern, cyl./valve combination

Technical data

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



1 Connecting cable not included in scope of delivery

+½ = plus half stroke length

Standard cylinders DNC-V1 ... V6, standard hole pattern, cyl./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: This product conforms to ISO 1179-1 and to ISO 228-1

Note

Additional dimensions relating to the basic version and its variants are provided on page ➔ 15, with clamping unit on page ➔ 28.

Standard cylinders DNC-V1 … V6, standard hole pattern, cyl./valve combination

Ordering data – Modular products

M Mandatory data					O Options		
Module No.	**Function**	**Piston ∅**	**Stroke**	**Cushioning**	**Position sensing**	**Protection against rotation**	**Type of piston rod**
163302 163334 163366 163398 163430 163462	DNC	32 40 50 63 80 100	100 … 2000	P PPV	A	Q	S2 S20
Order example							
163430	**DNC**	**80**	**550**	**PPV**	**A**	**Q**	**S2**

Ordering table

Size		32	40	50	63	80	100	Conditions	Code	Enter code
M	Module No.	**163302**	**163334**	**163366**	**163398**	**163430**	**163462**			
	Function	Standard cylinder, double-acting, standard hole pattern, cylinder/valve combination							**DNC**	DNC
	Piston ∅ [mm]	32	40	50	63	80	100		**-...**	
	Stroke [mm]	100 … 2000							**-...**	
	Cushioning	Flexible cushioning rings/pads at both ends							**-P**	
		Pneumatic cushioning, adjustable at both ends							**-PPV**	
O	Position sensing	Via proximity sensor							**-A**	
	Protection against rotation	Square piston rod						1	**-Q**	
	Type of piston rod	Through piston rod						2	**-S2**	
		Through, hollow piston rod						3	**-S20**	

1 **Q** Max. stroke: 100 … 1500 mm
In combination with S2: square piston rod at bearing cap end only
In combination with KP: only supplied with S2
Not with S20, K7, K10, S10, S11

2 **S2** In combination with K2: extended thread at both ends
In combination with K3: female thread at both ends
In combination with K5: special thread at both ends
In combination with K8: piston rod extended at bearing cap end only
In combination with KP: clamping unit at end cap
Not with S20, K7, S10, S11

3 **S20** Max. stroke: 850 mm
Not with K2, K3, K5, K8, K10, KP, S10, S11

Transfer order code

	DNC	–		–		–		–		–		–

Standard cylinders DNC-V1 … V6, standard hole pattern, cyl./valve combination

FESTO

Ordering data – Modular products

➔ 0 Options									M
Extended male thread	Female thread	Special thread	Special spanner flats	Extended piston rod	Improved running performance	Clamping unit	Slow speed (constant motion)	Running characteristics	Cylinder/valve combination
…K2	K3	…K5	K7	…K8	K10	KP	S10	S11	V1 V2 V3 V4 V5 V6
–	–	–	–	– **100K8**	–	–	–	–	– **V2**

Ordering table

Size	32	40	50	63	80	100	Conditions	Code	Enter code
↓ Extended male thread	Piston rod with extended male thread								
0 [mm]	1 … 35		1 … 70				4	**-…K2**	
Female thread	Piston rod with female thread								
	(M6)	(M8)	(M10)	(M10)	(M12)	(M12)	5	**-K3**	
Special thread	Piston rod with special thread								
	M10	M12	M16	M16	M20	M20	6	**-…K5**	
Special spanner flats	Piston rod with external hexagon						7	**-K7**	
Extended piston rod [mm]	Extended piston rod 1 … 500							**-…K8**	
Improved running performance	Smooth anodised aluminium coated piston rod						8	**-K10**	
Clamping unit	Attached						9	**-KP**	
Slow speed (constant motion)	Slow speed (constant motion at low piston speeds)						10	**-S10**	
Running characteristics	Low friction						11	**-S11**	
M Cylinder/valve combination	Single solenoid valve, fitted on right, piston rod retracted when unactuated							**-V1**	
	Single solenoid valve, fitted on right, piston rod advanced when unactuated							**-V2**	
	Double solenoid valve, fitted on right							**-V3**	
	Single solenoid valve, fitted on left, piston rod retracted when unactuated							**-V4**	
	Single solenoid valve, fitted on left, piston rod advanced when unactuated							**-V5**	
	Double solenoid valve, fitted on left							**-V6**	

4 **K2** Not with K3, K10

5 **K3** With K5: on request
Not with K7

6 **K5** Not with K10

7 **K7** Not with Q, S2, K10

8 **K10** Max. stroke: 1000 mm
Not with KP

9 **KP** Without S2: position of the clamping unit at the bearing cap
Not with S10, S11

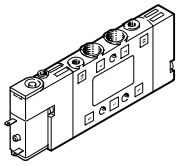
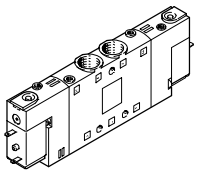
10 **S10** Max. stroke: 500 mm; additional strokes on request
Not with S11

11 **S11** Max. stroke: 500 mm; additional strokes on request

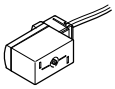
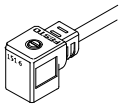
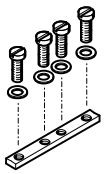
Transfer order code

–		–		–		–		–		–		–		–		–	

Ordering data – Valves — Technical data ➔ Internet: cpe

	For ∅ [mm]	Pneumatic connection	Protection class	Part No.	Type
Single solenoid					
	32	G1/8	IP65	**196941**	**CPE14-M1BH-5L-1/8**
	40				
	50	G1/4	IP65	**163142**	**CPE18-M1H-5L-1/4**
	63				
	80	G3/8	IP65	**163166**	**CPE24-M1H-5L-3/8**
	100				
Double solenoid					
	32	G1/8	IP65	**196939**	**CPE14-M1BH-5J-1/8**
	40				
	50	G1/4	IP65	**163143**	**CPE18-M1H-5J-1/4**
	63				
	80	G3/8	IP65	**163167**	**CPE24-M1H-5J-3/8**
	100				

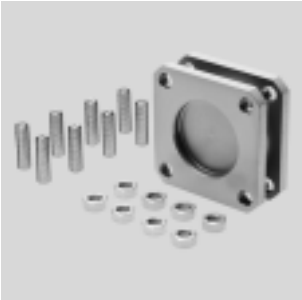
Ordering data – Valve accessories

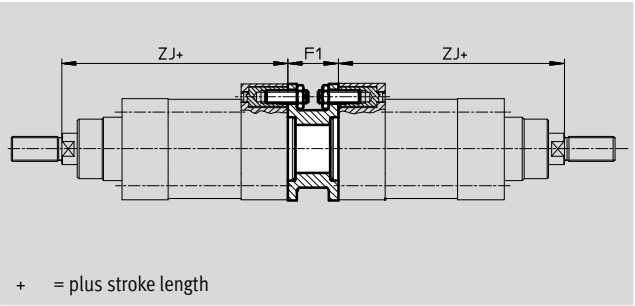
	For valve		Part No.	Type	PU[1]
Push-in fitting QS				Technical data ➔ Internet: quick star	
	CPE14		**153015**	**QS-1/8-8-I**	10
	CPE18		**153018**	**QS-1/4-10-I**	10
	CPE24		**153020**	**QS-3/8-12-I**	10
Connecting cable KMYZ/KMEB				Technical data ➔ Internet: kmyz	
	CPE14	24 V DC, with PUR cable 2.5 m	**193687**	**KMYZ-9-24-2,5-LED-PUR-B**	1
		24 V DC, with PUR cable 5 m	**193689**	**KMYZ-9-24-5-LED-PUR-B**	
	CPE18 CPE24	24 V DC, with PVC cable 2.5 m, LED	**151688**	**KMEB-1-24-2,5-LED**	1
		24 V DC, with PVC cable 5 m, LED	**151689**	**KMEB-1-24-5-LED**	
		24 V DC, with PVC cable 10 m, LED	**193457**	**KMEB-1-24-10-LED**	
Mounting kit ZVB					
	CPE14		**185705**	**ZVB-8-14/18**	–
	CPE18				
	CPE24		**187388**	**ZVB-8-24**	–

1) Packaging unit quantity

Multi-position kit DPNC

Material:
Flange: Wrought aluminium alloy
Threaded studs, hex nuts:
Galvanised steel
Free of copper and PTFE
RoHS-compliant





\+ = plus stroke length

Dimensions and ordering data

For ∅ [mm]	F1	ZJ		Max. overall stroke length [mm]	Weight [g]	Part No.	Type
		Basic version	KP				
32	27	120	165	1000	292	**174418**	**DPNC-32**
40	27	135	188	1000	410	**174419**	**DPNC-40**
50	32	143	210	1000	335	**174420**	**DPNC-50**
63	28	158	234	1000	390	**174421**	**DPNC-63**
80	38	174	269	1000	847	**174422**	**DPNC-80**
100	38	189	287	1000	1200	**174423**	**DPNC-100**
125	48	225	350	1000	2102	**174424**	**DPNC-125**

- Note

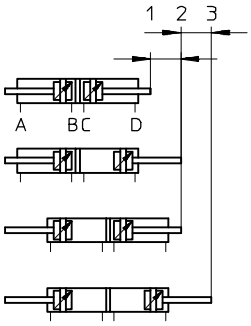
The maximum overall stroke length must not be exceeded when combining cylinders and multi-position kits.

Connecting two cylinders with identical piston diameter 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 on actuation and stroke division, 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's connections must be flexible.

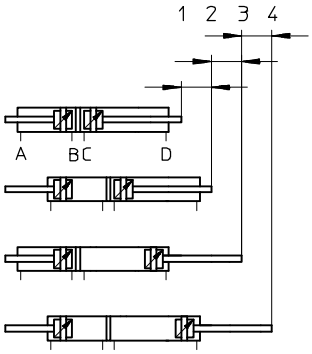
To achieve 3 positions

Two cylinders with identical stroke length must be connected together.



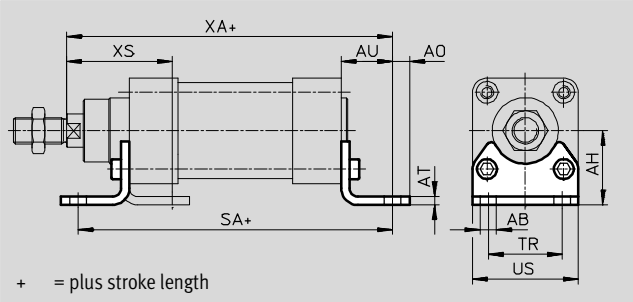
To achieve 4 positions

Two cylinders with different stroke lengths must be connected together.



Foot mounting HNC/CRHNC

Material:
HNC: Galvanised steel
CRHNC: High-alloy steel
Free of copper and PTFE



Dimensions and ordering data

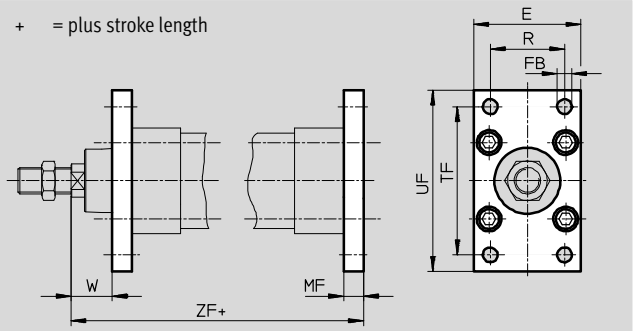
For ∅ [mm]	AB ∅	AH	AO	AT	AU	SA		TR	US	XA		XS
						Basic version	KP			Basic version	KP	
32	7	32	6.5	4	24	142	187	32	45	144	189	45
40	10	36	9	4	28	161	214	36	54	163	216	53
50	10	45	9.5	5	32	170	237	45	64	175	242	62
63	10	50	12.5	5	32	185	261	50	75	190	266	63
80	12	63	15	6	41	210	305	63	93	215	310	81
100	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	144	**174369**	**HNC-32**	4	139	**176937**	**CRHNC-32**
40	2	193	**174370**	**HNC-40**	4	188	**176938**	**CRHNC-40**
50	2	353	**174371**	**HNC-50**	4	341	**176939**	**CRHNC-50**
63	2	436	**174372**	**HNC-63**	4	424	**176940**	**CRHNC-63**
80	2	829	**174373**	**HNC-80**	4	809	**176941**	**CRHNC-80**
100	2	1009	**174374**	**HNC-100**	4	990	**176942**	**CRHNC-100**
125	2	1902	**174375**	**HNC-125**	4	1920	**176943**	**CRHNC-125**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, for instance in the chemical or food industries. These applications may need to be supported by special tests (→ also FN 940082) using appropriate media.

Flange mounting FNC/CRFNG

Material:
FNC: Galvanised steel
CRFNG: High-alloy steel
Free of copper and PTFE
RoHS-compliant
Cannot be used on the bearing cap in combination with the bellows kit DADB



Dimensions and ordering data

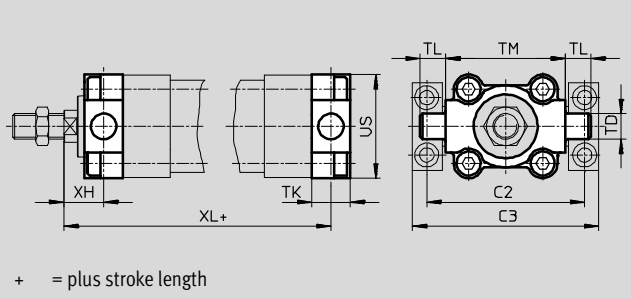
For ∅ [mm]	E	FB ∅ H13	MF	R	TF	UF	W	ZF	
								Basic version	KP
32	45	7	10	32	64	80	16	130	175
40	54	9	10	36	72	90	20	145	198
50	65	9	12	45	90	110	25	155	222
63	75	9	12	50	100	120	25	170	246
80	93	12	16	63	126	150	30	190	285
100	110	14	16	75	150	175	35	205	303
125	132	16	20	90	180	210	45	245	370

For ∅ [mm]	Basic version				High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	1	221	**174376**	**FNC-32**	4	220	**161846**	**CRFNG-32**
40	1	291	**174377**	**FNC-40**	4	291	**161847**	**CRFNG-40**
50	1	536	**174378**	**FNC-50**	4	526	**161848**	**CRFNG-50**
63	1	679	**174379**	**FNC-63**	4	680	**161849**	**CRFNG-63**
80	1	1495	**174380**	**FNC-80**	4	1508	**161850**	**CRFNG-80**
100	1	2041	**174381**	**FNC-100**	4	2054	**161851**	**CRFNG-100**
125	1	3775	**174382**	**FNC-125**	4	3787	**185363**	**CRFNG-125**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, for instance in the chemical or food industries. These applications may need to be supported by special tests (➔ also FN 940082) using appropriate media.

Trunnion flange ZNCF/CRZNG

Material:
ZNCF: Special steel casting
CRZNG: Electrolytically polished special steel casting
Free of copper and PTFE
RoHS-compliant
Cannot be used on the bearing cap in combination with the bellows kit DADB



\+ = plus stroke length

Dimensions and ordering data

For ∅ [mm]	C2	C3	TD ∅ e9	TK	TL	TM	US	XH	XL	
									Basic version	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

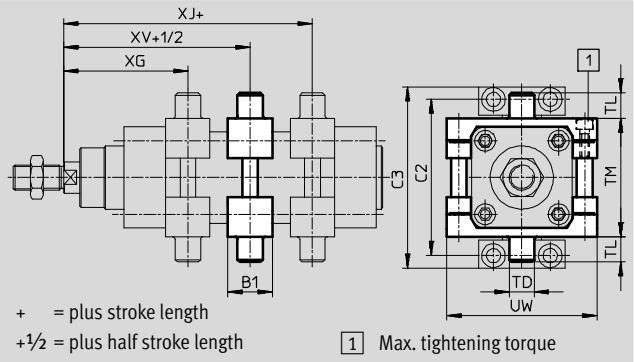
For ∅ [mm]	Basic version				High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	2	150	**174411**	**ZNCF-32**	4	150	**161852**	**CRZNG-32**
40	2	285	**174412**	**ZNCF-40**	4	285	**161853**	**CRZNG-40**
50	2	473	**174413**	**ZNCF-50**	4	473	**161854**	**CRZNG-50**
63	2	687	**174414**	**ZNCF-63**	4	687	**161855**	**CRZNG-63**
80	2	1296	**174415**	**ZNCF-80**	4	1296	**161856**	**CRZNG-80**
100	2	2254	**174416**	**ZNCF-100**	4	2254	**161857**	**CRZNG-100**
125	2	3484	**174417**	**ZNCF-125**	4	3484	**185362**	**CRZNG-125**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, for instance in the chemical or food industries. These applications may need to be supported by special tests (➔ also FN 940082) using appropriate media.

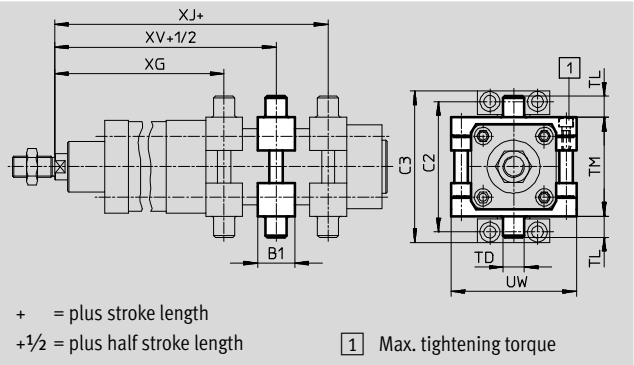
Trunnion mounting kit DAMT for basic version DNC

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

Material:
Tempered steel
Free of copper and PTFE



for DNC-KP



Dimensions and ordering data

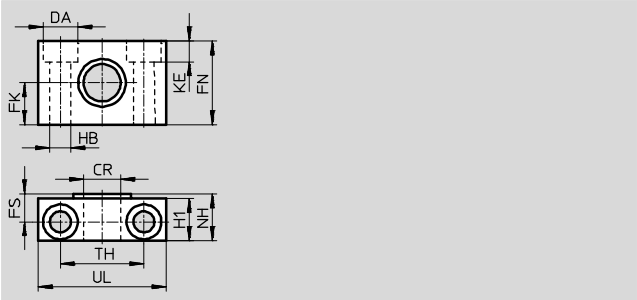
For ∅ [mm]	B1	C2	C3	TD ∅ e9	TL	TM	UW	XG	
								Basic version	KP
32	30	71	86	12	12	50	65	66.1	111.1
40	32	87	105	16	16	63	75	75.6	128.6
50	34	99	117	16	16	75	95	83.6	150.6
63	41	116	136	20	20	90	105	93.1	169.1
80	44	136	156	20	20	110	130	103.9	198.9
100	48	164	189	25	25	132	145	113.8	211.8
125	50	192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

For ∅ [mm]	XJ		XV		Max. tightening torque [Nm]	CRC[1)]	Weight [g]	Part No.	Type
		KP		KP					
32	79.9	124.9	73	118	4+1	2	213	**2213233**	**DAMT-V1-32-A**
40	89.4	142.4	82.5	135.5	8+1	2	388	**2214899**	**DAMT-V1-40-A**
50	96.4	163.4	90	157	8+2	2	608	**2214909**	**DAMT-V1-50-A**
63	101.9	177.9	97.5	173.5	18+2	2	911	**2214971**	**DAMT-V1-63-A**
80	116.1	211.1	110	205	28+2	2	1494	**163529**	**DAMT-V1-80-A**
100	126.2	224.2	120	218	28+2	2	2095	**163530**	**DAMT-V1-100-A**
125	155.3	280.3	145	270	40+2	2	3013	**163531**	**DAMT-V7-125-A**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Trunnion support LNZG

Material:
Trunnion support:
Anodised aluminium
Plain bearing: Polymer
Free of copper and PTFE
RoHS-compliant



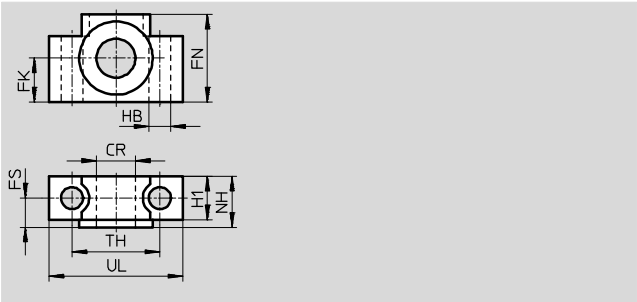
Dimensions and ordering data

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	83	**32959**	**LNZG-32**
40, 50	16	15	18	36	12	18	9	9	21	36	55	2	129	**32960**	**LNZG-40/50**
63, 80	20	18	20	40	13	20	11	11	23	42	65	2	178	**32961**	**LNZG-63/80**
100, 125	25	20	25	50	16	24.5	14	13	28.5	50	75	2	306	**32962**	**LNZG-100/125**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Trunnion support CRLNZG

Material:
High-alloy steel
Free of copper and PTFE
RoHS-compliant



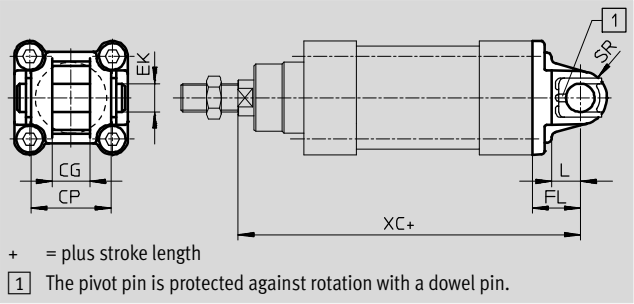
Dimensions and ordering data

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	205	**161874**	**CRLNZG-32**
40, 50	16	18	36	12	18	9	21	36	55	4	323	**161875**	**CRLNZG-40/50**
63, 80	20	20	40	13	20	11	23	42	65	4	435	**161876**	**CRLNZG-63/80**
100, 125	25	25	50	16	24.5	14	28.5	50	75	4	739	**161877**	**CRLNZG-100**

1) Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, for instance in the chemical or food industries. These applications may need to be supported by special tests (→ also FN 940082) using appropriate media.

Swivel flange SNC

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



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

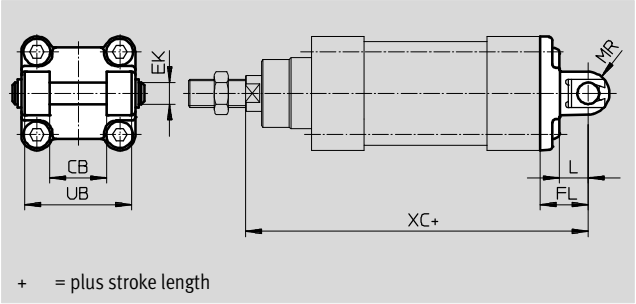
Dimensions and ordering data

For ∅ [mm]	CG H14	CP h14	EK ∅ H9	FL ±0.2	L	SR	XC	KP	CRC[1)]	Weight [g]	Part No.	Type
32	14	34	10	22	13	10	142	187	2	93	**174383**	**SNC-32**
40	16	40	12	25	16	12	160	213	2	140	**174384**	**SNC-40**
50	21	45	16	27	16	12	170	237	2	234	**174385**	**SNC-50**
63	21	51	16	32	21	16	190	266	2	331	**174386**	**SNC-63**
80	25	65	20	36	22	16	210	305	2	618	**174387**	**SNC-80**
100	25	75	20	41	27	20	230	328	2	865	**174388**	**SNC-100**
125	37	97	30	50	30	25	275	400	2	1728	**174389**	**SNC-125**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Swivel flange
SNCB/SNCB-...-R3

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



\+ = plus stroke length

Dimensions and ordering data

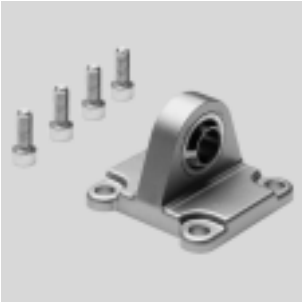
For ∅ [mm]	CB H14	EK ∅ e8	FL ±0.2	L	MR	UB h14	XC	
								KP
32	26	10	22	13	8.5	45	142	187
40	28	12	25	16	12	52	160	213
50	32	12	27	16	12	60	170	237
63	40	16	32	21	16	70	190	266
80	50	16	36	22	16	90	210	305
100	60	20	41	27	20	110	230	328
125	70	25	50	30	25	130	275	400

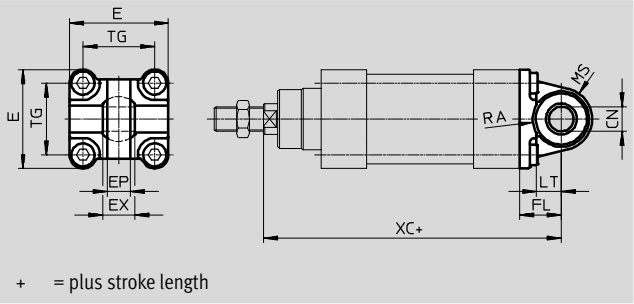
For ∅ [mm]	Basic version				Variant R3 – High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
32	2	103	**174390**	**SNCB-32**	3	100	**176944**	**SNCB-32-R3**
40	2	155	**174391**	**SNCB-40**	3	151	**176945**	**SNCB-40-R3**
50	2	232	**174392**	**SNCB-50**	3	228	**176946**	**SNCB-50-R3**
63	2	375	**174393**	**SNCB-63**	3	371	**176947**	**SNCB-63-R3**
80	2	636	**174394**	**SNCB-80**	3	632	**176948**	**SNCB-80-R3**
100	2	1035	**174395**	**SNCB-100**	3	986	**176949**	**SNCB-100-R3**
125	2	1860	**174396**	**SNCB-125**	3	1776	**176950**	**SNCB-125-R3**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Swivel flange SNCS

Material:
SNCS 32 ... 80:
Die-cast aluminium
SNCS 100 ... 125:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant





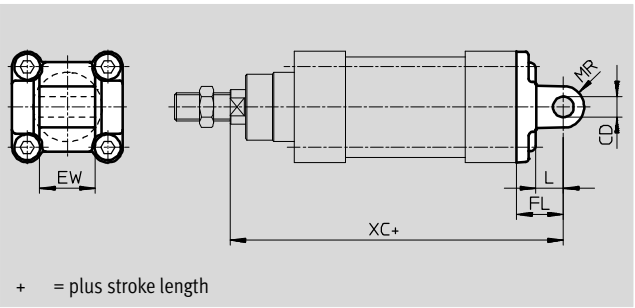
Dimensions and ordering data

For ∅ [mm]	CN ∅	E	EP ±0.2	EX	FL ±0.2	LT	MS	RA +1	TG	XC	KP	CRC[1]	Weight [g]	Part No.	Type
32	$10^{+0.013}$	$45^{+0.2/-0.5}$	10.5	14	22	13	$15^{+0.5}$	14.5	32.5	142	187	2	86	**174397**	**SNCS-32**
40	$12^{+0.015}$	$54_{-0.5}$	12	16	25	16	$17^{+0.5}$	17.5	38	160	213	2	122	**174398**	**SNCS-40**
50	$16^{+0.015}$	$64_{-0.6}$	15	21	27	16	$20^{+0.5}$	18.5	46.5	170	237	2	216	**174399**	**SNCS-50**
63	$16^{+0.015}$	$75_{-0.6}$	15	21	32	21	$23_{-0.5}$	23	56.5	190	266	2	281	**174400**	**SNCS-63**
80	$20^{+0.018}$	$93_{-0.8}$	18	25	36	22	$28_{-0.5}$	25	72	210	305	2	557	**174401**	**SNCS-80**
100	$20^{+0.018}$	$109^{+1/-0.7}$	18	25	41	27	30±0.5	95	89	230	328	2	683	**174402**	**SNCS-100**
125	$30^{+0.018}$	$132^{+1/-0.7}$	25	37	50	30	39±0.5	100	110	275	400	2	1369	**174403**	**SNCS-125**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Swivel flange SNCL

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

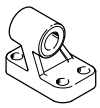
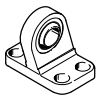
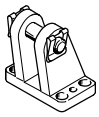


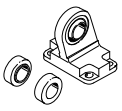
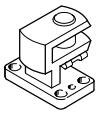
Dimensions and ordering data

For ∅ [mm]	CD ∅ H9	EW −0.2/−0.6	FL ±0.2	L	MR	XC	KP	CRC[1]	Weight [g]	Part No.	Type
32	10	26	22	13	10	142	187	2	71	**174404**	**SNCL-32**
40	12	28	25	16	12	160	213	2	95	**174405**	**SNCL-40**
50	12	32	27	16	12	170	237	2	158	**174406**	**SNCL-50**
63	16	40	32	21	16	190	266	2	225	**174407**	**SNCL-63**
80	16	50	36	22	16	210	305	2	436	**174408**	**SNCL-80**
100	20	60	41	27	20	230	328	2	606	**174409**	**SNCL-100**
125	25	70	50	30	25	275	400	2	1135	**174410**	**SNCL-125**

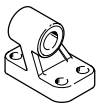
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

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

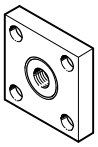
Designation	For ∅	Part No.	Type
Clevis foot LNG			
	32	**33890**	**LNG-32**
	40	**33891**	**LNG-40**
	50	**33892**	**LNG-50**
	63	**33893**	**LNG-63**
	80	**33894**	**LNG-80**
	100	**33895**	**LNG-100**
	125	**33896**	**LNG-125**
Clevis foot LSNG			
	32	**31740**	**LSNG-32**
	40	**31741**	**LSNG-40**
	50	**31742**	**LSNG-50**
	63	**31743**	**LSNG-63**
	80	**31744**	**LSNG-80**
	100	**31745**	**LSNG-100**
	125	**31746**	**LSNG-125**
Clevis foot LBG			
	32	**31761**	**LBG-32**
	40	**31762**	**LBG-40**
	50	**31763**	**LBG-50**
	63	**31764**	**LBG-63**
	80	**31765**	**LBG-80**
	100	**31766**	**LBG-100**
	125	**31767**	**LBG-125**

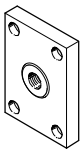
Designation	For ∅	Part No.	Type
Clevis foot LSN			
	32	**5561**	**LSN-32**
	40	**5562**	**LSN-40**
	50	**5563**	**LSN-50**
	63	**5564**	**LSN-63**
	80	**5565**	**LSN-80**
	100	**5566**	**LSN-100**
	125	**6987**	**LSN-125**
Clevis foot for welding LSNSG			
	32	**31747**	**LSNSG-32**
	40	**31748**	**LSNSG-40**
	50	**31749**	**LSNSG-50**
	63	**31750**	**LSNSG-63**
	80	**31751**	**LSNSG-80**
	100	**31752**	**LSNSG-100**
	125	**31753**	**LSNSG-125**
Right-angle clevis foot LQG			
	32	**31768**	**LQG-32**
	40	**31769**	**LQG-40**
	50	**31770**	**LQG-50**
	63	**31771**	**LQG-63**
	80	**31772**	**LQG-80**
	100	**31773**	**LQG-100**
	125	**31774**	**LQG-125**

Ordering data – Mounting attachments, corrosion-resistant Technical data ➔ Internet: crlng

Designation	For ∅	Part No.	Type
Clevis foot CRLNG			
	32	**161840**	**CRLNG-32**
	40	**161841**	**CRLNG-40**
	50	**161842**	**CRLNG-50**
	63	**161843**	**CRLNG-63**
	80	**161844**	**CRLNG-80**
	100	**161845**	**CRLNG-100**
	125	**176951**	**CRLNG-125**

Ordering data – Piston rod attachments — Technical data ➔ Internet: piston rod attachment

Designation	For ∅	Part No.	Type
Rod eye SGS			
	32	**9261**	**SGS-M10x1,25**
	40	**9262**	**SGS-M12x1,25**
	50	**9263**	**SGS-M16x1,5**
	63		
	80	**9264**	**SGS-M20x1,5**
	100		
	125	**10774**	**SGS-M27x2**
Rod clevis SG			
	32	**6144**	**SG-M10x1,25**
	40	**6145**	**SG-M12x1,25**
	50	**6146**	**SG-M16x1,5**
	63		
	80	**6147**	**SG-M20x1,5**
	100		
	125	**14987**	**SG-M27x2-B**
Coupling piece KSG			
	32	**32963**	**KSG-M10x1,25**
	40	**32964**	**KSG-M12x1,25**
	50	**32965**	**KSG-M16x1,5**
	63		
	80	**32966**	**KSG-M20x1,5**
	100		
	125	**32967**	**KSG-M27x2**
Adapter AD			
	32	**157333**	**AD-M10x1,25-⅛**
		157334	**AD-M10x1,25-¼**
	40	**160256**	**AD-M12x1,25-¼**
		160257	**AD-M12x1,25-⅜**

Designation	For ∅	Part No.	Type
Rod clevis SGA			
	32	**32954**	**SGA-M10x1,25**
	40	**10767**	**SGA-M12x1,25**
	50	**10768**	**SGA-M16x1,5**
	63		
	80	**10769**	**SGA-M20x1,5**
	100		
	125	**10770**	**SGA-M27x2**
Self-aligning rod coupler FK			
	32	**6140**	**FK-M10x1,25**
	40	**6141**	**FK-M12x1,25**
	50	**6142**	**FK-M16x1,5**
	63		
	80	**6143**	**FK-M20x1,5**
	100		
	125	**10485**	**FK-M27x2**
Coupling piece KSZ			
	32	**36125**	**KSZ-M10x1,25**
	40	**36126**	**KSZ-M12x1,25**
	50	**36127**	**KSZ-M16x1,5**
	63		
	80	**36128**	**KSZ-M20x1,5**
	100		
	125	–	–

Ordering data – Piston rod attachments, corrosion-resistant — Technical data ➔ Internet: crsg

Designation	For ∅	Part No.	Type
Rod eye CRSGS			
	32	**195582**	**CRSGS-M10x1,25**
	40	**195583**	**CRSGS-M12x1,25**
	50	**195584**	**CRSGS-M16x1,5**
	63		
	80	**195585**	**CRSGS-M20x1,5**
	100		
	125	**195586**	**CRSGS-M27x2**
Self-aligning rod coupler CRFK			
	32	**2305778**	**CRFK-M10x1,25**
	40	**2305779**	**CRFK-M12x1,25**
	50	**2490673**	**CRFK-M16x1,5**
	63		
	80	**2545677**	**CRFK-M20x1,5**
	100		

Designation	For ∅	Part No.	Type
Rod clevis CRSG			
	32	**13569**	**CRSG-M10x1,25**
	40	**13570**	**CRSG-M12x1,25**
	50	**13571**	**CRSG-M16x1,5**
	63		
	80	**13572**	**CRSG-M20x1,5**
	100		
	125	**185361**	**CRSG-M27x2**

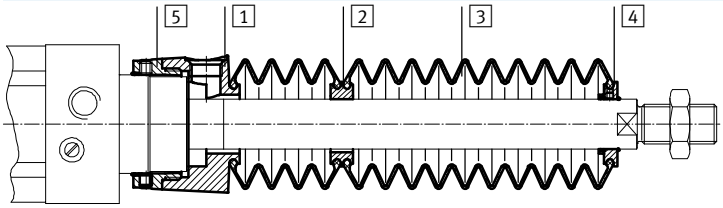
Bellows kit DADB

General technical data							
Type DADB-V6-		32	40	50	63	80	100
Max. cylinder stroke range[1)]	[mm]	10 … 500	10 … 500	10 … 500	10 … 500	10 … 500	10 … 500
Type of mounting		Via threaded pin					
Mounting position		Any					
Resistance to media		Dust, chips, oil, grease, fuel (➔ Internet: media resistance)					
Ambient temperature[2)]	[°C]	–10 … +80					
Protection class		IP54					
Corrosion resistance class CRC[3)]		3					

1) In combination with the bellows kit DADB
2) Note operating range of proximity sensors and cylinder
3) Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

Materials

Sectional view



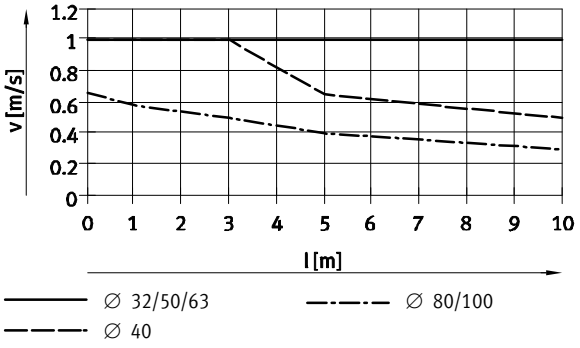
Bellows		
1	Connection	Polyamide
2	Intermediate piece	Polyamide
3	Bellows	Nitrile rubber
4	End piece	Polyamide
5	Connector	Polyamide
–	O-ring	Nitrile rubber
	Note on materials	Free of copper and PTFE
		RoHS-compliant

Weight [g]						
Type DADB-V6- Stroke [mm]	32	40	50	63	80	100
10 … 50	29	42	71	69	99	124
51 … 125	41	56	91	89	127	152
126 … 175	52	68	105	103	140	165
176 … 250	66	85	129	127	193	218
251 … 300	79	100	147	145	231	255
301 … 350	92	115	166	164	268	293
351 … 375	92	115	167	165	259	284
376 … 425	104	129	185	183	296	321
426 … 475	117	144	204	202	334	359
476 … 500	117	144	205	203	324	349

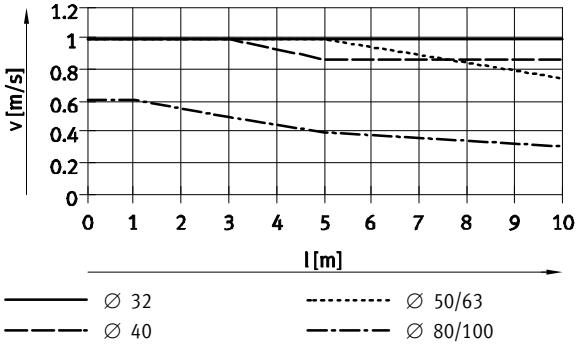
Travel velocity v as a function of tubing length l

The bellows kit is a leak-free system. To prevent unwanted media being drawn in, the supply and exhaust air must be ducted via a pressure compensation hole in the connection part 1.
The pressure generated in the bellows kit by the positioning motion is primarily defined by travel velocity and tubing length. The recommended tubing length based on the travel velocity of the drive can be read from the graph.

Advancing



Returning



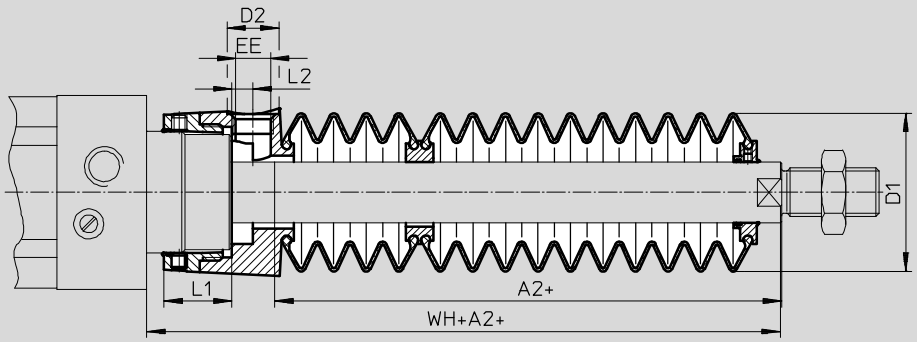
- Note

The push-in fittings opposite must be used for the pressure compensation hole.
Silencers can also be used as an alternative. This reduces the travel velocity slightly.

Tubing size and push-in fitting for pressure compensation hole

∅ [mm]	Tubing O.D. [mm]	Push-in fitting Part No.	Type
32, 40	8	**186109**	**QS-G⅛-8-I**
		578376	**NPQH-DK-G18-Q8-P10**
		578362	**QS-F-G⅛-8H**
50, 63, 80, 100	12	**186350**	**QS-G¼-12**
		578344	**NPQH-D-G14-Q12-P10**
		578366	**NPQH-D-G14-S12-P10**

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



\+ = plus stroke length

∅	32							40						
Stroke [mm]	A2[1]	D1 max.	D2	EE	L1	L2	WH+A2	A2[1]	D1 max.	D2	EE	L1	L2	WH+A2
10 … 50	29	38	14	G⅛	12.9	5.4	55	28	46	14	G⅛	16.3	5.4	58
51 … 125	47						73	43						73
126 … 175	61						87	56						86
176 … 250	80						106	72						102
251 … 300	96						122	86						116
301 … 350	112						138	100						130
351 … 375	114						140	101						131
376 … 425	130						156	115						145
426 … 475	145						171	130						160
476 … 500	147						173	131						161

∅	50							63						
Stroke [mm]	A2[1]	D1 max.	D2	EE	L1	L2	WH+A2	A2[1]	D1 max.	D2	EE	L1	L2	WH+A2
10 … 50	28	57	17	G¼	22.35	7	65	28	57	17	G¼	22.4	7	65
51 … 125	46						83	46						83
126 … 175	56						93	56						93
176 … 250	73						110	73						110
251 … 300	86						123	86						123
301 … 350	97						134	97						134
351 … 375	105						142	105						142
376 … 425	116						153	116						153
426 … 475	126						163	126						163
476 … 500	134						171	134						171

∅	80							100						
Stroke [mm]	A2[1]	D1 max.	D2	EE	L1	L2	WH+A2	A2[1]	D1 max.	D2	EE	L1	L2	WH+A2
10 … 50	25	93	17	G¼	28	4	71	25	93	17	G¼	28	4	71
51 … 125	37						83	37						83
126 … 175	49						95	49						95
176 … 250	62						108	62						108
251 … 300	74						120	74						120
301 … 350	86						132	86						132
351 … 375	87						133	87						133
376 … 425	98						144	98						144
426 … 475	110						156	110						156
476 … 500	111						157	111						157

1) The dimension corresponds to the K8 value (extended piston rod) of the drive

Ordering data – Bellows kit

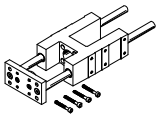
An extended piston rod (order code K8) is absolutely necessary when using a bellows kit.
➔ Ordering data – Modular products.

The necessary dimension for K8 as a function of piston diameter and cylinder stroke as well as the associated bellows kit is indicated in the following table:

Order example:
Selected standard cylinder:
DNC-32-320-PPV-A-...
Dimension for the corresponding K8 value (see table):
112 mm
Complete type designation for the standard cylinder:
DNC-32-320-PPV-A-...-112K8
Associated bellows kit:
DADB-V6-32-S301-350

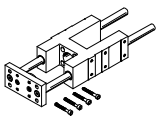
Cylinder data			Bellows kit		Cylinder data			Bellows kit	
∅ [mm]	Stroke [mm]	Dimension for K8 [mm]	Part No.	Type	∅ [mm]	Stroke [mm]	Dimension for K8 [mm]	Part No.	Type
32	10 ... 50	29	**553271**	**DADB-V6-32-S10-50**	40	10 ... 50	28	**553291**	**DADB-V6-40-S10-50**
	51 ... 125	47	**553273**	**DADB-V6-32-S51-125**		51 ... 125	43	**553293**	**DADB-V6-40-S51-125**
	126 ... 175	61	**553275**	**DADB-V6-32-S126-175**		126 ... 175	56	**553295**	**DADB-V6-40-S126-175**
	176 ... 250	80	**553277**	**DADB-V6-32-S176-250**		176 ... 250	72	**553297**	**DADB-V6-40-S176-250**
	251 ... 300	96	**553279**	**DADB-V6-32-S251-300**		251 ... 300	86	**553399**	**DADB-V6-40-S251-300**
	301 ... 350	112	**553281**	**DADB-V6-32-S301-350**		301 ... 350	100	**553301**	**DADB-V6-40-S301-350**
	351 ... 375	114	**553283**	**DADB-V6-32-S351-375**		351 ... 375	101	**553303**	**DADB-V6-40-S351-375**
	376 ... 425	130	**553285**	**DADB-V6-32-S376-425**		376 ... 425	115	**553305**	**DADB-V6-40-S376-425**
	426 ... 475	145	**553287**	**DADB-V6-32-S426-475**		426 ... 475	130	**553307**	**DADB-V6-40-S426-475**
	476 ... 500	147	**553289**	**DADB-V6-32-S476-500**		476 ... 500	131	**553309**	**DADB-V6-40-S476-500**
50	10 ... 50	28	**553311**	**DADB-V6-50-S10-50**	63	10 ... 50	28	**553331**	**DADB-V6-63-S10-50**
	51 ... 125	46	**553313**	**DADB-V6-50-S51-125**		51 ... 125	46	**553333**	**DADB-V6-63-S51-125**
	126 ... 175	56	**553315**	**DADB-V6-50-S126-175**		126 ... 175	56	**553335**	**DADB-V6-63-S126-175**
	176 ... 250	73	**553317**	**DADB-V6-50-S176-250**		176 ... 250	73	**553337**	**DADB-V6-63-S176-250**
	251 ... 300	86	**553319**	**DADB-V6-50-S251-300**		251 ... 300	86	**553339**	**DADB-V6-63-S251-300**
	301 ... 350	97	**553321**	**DADB-V6-50-S301-350**		301 ... 350	97	**553341**	**DADB-V6-63-S301-350**
	351 ... 375	105	**553323**	**DADB-V6-50-S351-375**		351 ... 375	105	**553343**	**DADB-V6-63-S351-375**
	376 ... 425	116	**553325**	**DADB-V6-50-S376-425**		376 ... 425	116	**553345**	**DADB-V6-63-S376-425**
	426 ... 475	126	**553327**	**DADB-V6-50-S426-475**		426 ... 475	126	**553347**	**DADB-V6-63-S426-475**
	476 ... 500	134	**553329**	**DADB-V6-50-S476-500**		476 ... 500	134	**553349**	**DADB-V6-63-S476-500**
80	10 ... 50	25	**553351**	**DADB-V6-80-S10-50**	100	10 ... 50	25	**553371**	**DADB-V6-100-S10-50**
	51 ... 125	37	**553353**	**DADB-V6-80-S51-125**		51 ... 125	37	**553373**	**DADB-V6-100-S51-125**
	126 ... 175	49	**553355**	**DADB-V6-80-S126-175**		126 ... 175	49	**553375**	**DADB-V6-100-S126-175**
	176 ... 250	62	**553357**	**DADB-V6-80-S176-250**		176 ... 250	62	**553377**	**DADB-V6-100-S176-250**
	251 ... 300	74	**553359**	**DADB-V6-80-S251-300**		251 ... 300	74	**553379**	**DADB-V6-100-S251-300**
	301 ... 350	86	**553361**	**DADB-V6-80-S301-350**		301 ... 350	86	**553381**	**DADB-V6-100-S301-350**
	351 ... 375	87	**553363**	**DADB-V6-80-S351-375**		351 ... 375	87	**553383**	**DADB-V6-100-S351-375**
	376 ... 425	98	**553365**	**DADB-V6-80-S376-425**		376 ... 425	98	**553385**	**DADB-V6-100-S376-425**
	426 ... 475	110	**553367**	**DADB-V6-80-S426-475**		426 ... 475	110	**553387**	**DADB-V6-100-S426-475**
	476 ... 500	111	**553369**	**DADB-V6-80-S476-500**		476 ... 500	111	**553389**	**DADB-V6-100-S476-500**

Ordering data – Guide units for fixed strokes (recirculating ball bearing guide only) — Technical data ➔ Internet: feng



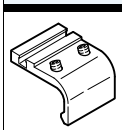
Stroke [mm]	Part No.	Type	Stroke [mm]	Part No.	Type
For ∅ 32 mm			For ∅ 40 mm		
10 … 50	**34493**	**FENG-32-50-KF**	10 … 50	**34499**	**FENG-40-50-KF**
10 … 100	**34494**	**FENG-32-100-KF**	10 … 100	**34500**	**FENG-40-100-KF**
10 … 160	**34495**	**FENG-32-160-KF**	10 … 160	**34501**	**FENG-40-160-KF**
10 … 200	**34496**	**FENG-32-200-KF**	10 … 200	**34502**	**FENG-40-200-KF**
10 … 250	**150289**	**FENG-32-250-KF**	10 … 250	**34503**	**FENG-40-250-KF**
10 … 320	**34497**	**FENG-32-320-KF**	10 … 320	**34504**	**FENG-40-320-KF**
10 … 400	**150290**	**FENG-32-400-KF**	10 … 400	**150291**	**FENG-40-400-KF**
10 … 500	**34498**	**FENG-32-500-KF**	10 … 500	**34505**	**FENG-40-500-KF**
For ∅ 50 mm			For ∅ 63 mm		
10 … 50	**34506**	**FENG-50-50-KF**	10 … 50	**34513**	**FENG-63-50-KF**
10 … 100	**34507**	**FENG-50-100-KF**	10 … 100	**34514**	**FENG-63-100-KF**
10 … 160	**34508**	**FENG-50-160-KF**	10 … 160	**34515**	**FENG-63-160-KF**
10 … 200	**34509**	**FENG-50-200-KF**	10 … 200	**34516**	**FENG-63-200-KF**
10 … 250	**34510**	**FENG-50-250-KF**	10 … 250	**34517**	**FENG-63-250-KF**
10 … 320	**34511**	**FENG-50-320-KF**	10 … 320	**34518**	**FENG-63-320-KF**
10 … 400	**150292**	**FENG-50-400-KF**	10 … 400	**34519**	**FENG-63-400-KF**
10 … 500	**34512**	**FENG-50-500-KF**	10 … 500	**34520**	**FENG-63-500-KF**
For ∅ 80 mm			For ∅ 100 mm		
10 … 50	**34521**	**FENG-80-50-KF**	10 … 50	**34529**	**FENG-100-50-KF**
10 … 100	**34522**	**FENG-80-100-KF**	10 … 100	**34530**	**FENG-100-100-KF**
10 … 160	**34523**	**FENG-80-160-KF**	10 … 160	**34531**	**FENG-100-160-KF**
10 … 200	**34524**	**FENG-80-200-KF**	10 … 200	**34532**	**FENG-100-200-KF**
10 … 250	**34525**	**FENG-80-250-KF**	10 … 250	**34533**	**FENG-100-250-KF**
10 … 320	**34526**	**FENG-80-320-KF**	10 … 320	**34534**	**FENG-100-320-KF**
10 … 400	**34527**	**FENG-80-400-KF**	10 … 400	**34535**	**FENG-100-400-KF**
10 … 500	**34528**	**FENG-80-500-KF**	10 … 500	**34536**	**FENG-100-500-KF**

Ordering data – Guide units for variable strokes — Technical data ➔ Internet: feng



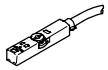
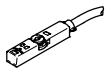
For ∅ [mm]	Stroke [mm]	With recirculating ball bearing guide Part No.	Type	With plain-bearing guide Part No.	Type
32	10 … 500	**34487**	**FENG-32-…-KF**	**34481**	**FENG-32-…-GF**
40	10 … 500	**34488**	**FENG-40-…-KF**	**34482**	**FENG-40-…-GF**
50	10 … 500	**34489**	**FENG-50-…-KF**	**34483**	**FENG-50-…-GF**
63	10 … 500	**34490**	**FENG-63-…-KF**	**34484**	**FENG-63-…-GF**
80	10 … 500	**34491**	**FENG-80-…-KF**	**34485**	**FENG-80-…-GF**
100	10 … 500	**34492**	**FENG-100-…-KF**	**34486**	**FENG-100-…-GF**

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

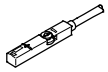


For ∅ [mm]	Part No.	Type
32	**175705**	**SMB-8-FENG-32/40**
40		
50	**175706**	**SMB-8-FENG-50/63**
63		
80	**175707**	**SMB-8-FENG-80/100**
100		

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

	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	2.5	**574335**	**SMT-8M-A-PS-24V-E-2,5-OE**
			Plug M8x1, 3-pin	0.3	**574334**	**SMT-8M-A-PS-24V-E-0,3-M8D**
			Plug M12x1, 3-pin	0.3	**574337**	**SMT-8M-A-PS-24V-E-0,3-M12**
		NPN	Cable, 3-wire	2.5	**574338**	**SMT-8M-A-NS-24V-E-2,5-OE**
			Plug M8x1, 3-pin	0.3	**574339**	**SMT-8M-A-NS-24V-E-0,3-M8D**
N/C contact						
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	7.5	**574340**	**SMT-8M-A-PO-24V-E-7,5-OE**

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

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	**543862**	**SME-8M-DS-24V-K-2,5-OE**
				5.0	**543863**	**SME-8M-DS-24V-K-5,0-OE**
			Cable, 2-wire	2.5	**543872**	**SME-8M-ZS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543861**	**SME-8M-DS-24V-K-0,3-M8D**
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	**150855**	**SME-8-K-LED-24**
			Plug M8x1, 3-pin	0.3	**150857**	**SME-8-S-LED-24**
N/C contact						
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	**160251**	**SME-8-O-K-LED-24**

Ordering data – Connecting cables — Technical data ➔ Internet: nebu

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541334**	**NEBU-M8G3-K-5-LE3**
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541363**	**NEBU-M12G5-K-2.5-LE3**
			5	**541364**	**NEBU-M12G5-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541341**	**NEBU-M8W3-K-5-LE3**
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541367**	**NEBU-M12W5-K-2.5-LE3**
			5	**541370**	**NEBU-M12W5-K-5-LE3**

Ordering data – Slot covers for T-slot

	Assembly	Length	Part No.	Type
	Insertable from above	2x 0.5 m	**151680**	**ABP-5-S**

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

	Connection		Material	Part No.	Type
	Thread	For tubing O.D.			
	G1/8	3	Metal design	**193142**	**GRLA-1/8-QS-3-D**
		4		**193143**	**GRLA-1/8-QS-4-D**
		6		**193144**	**GRLA-1/8-QS-6-D**
		8		**193145**	**GRLA-1/8-QS-8-D**
	G1/4	6		**193146**	**GRLA-1/4-QS-6-D**
		8		**193147**	**GRLA-1/4-QS-8-D**
		10		**193148**	**GRLA-1/4-QS-10-D**
	G3/8	6		**193149**	**GRLA-3/8-QS-6-D**
		8		**193150**	**GRLA-3/8-QS-8-D**
		10		**193151**	**GRLA-3/8-QS-10-D**
	G1/2	12		**193152**	**GRLA-1/2-QS-12-D**