

Stainless-steel cylinders

FESTO



Key features

Their applications

Reliable components need to be fully functional and operational, even in harsh operating conditions. The aim is to maximise availability of machinery while minimising downtimes. Stainless-steel cylinders are therefore used in applications where the surface finish of normal pneumatic drives would not be able to withstand the surrounding media. However, designing a corrosion-resistant system involves more than simply selecting a suitable steel: it also requires the selection of a matching concept for mounting components and accessories.

Sample application:

The atmosphere in the maturing cellar of a cheese factory consists of an unpleasant mix of ammonia, lactic acid and 98% humidity.

Our strength

Festo's stainless-steel cylinders are characterised by resistant materials, such as 1.4301 and 1.4401. These popular high-alloy, stainless austenitic chrome-nickel and chrome-nickel-molybdenum steels protect against chemical or electrochemical stress as well as damage to the surface materials caused by cleaning agents or disinfectants. These groups of materials are particularly resistant to uniform surface corrosion and offer increased protection against pitting and crevice corrosion.

The benefits to you

Festo's worldwide service network ensures optimum availability of stainless-steel cylinders. As well as a comprehensive range of standards-based cylinders to DIN ISO 15552 and 6432, we also offer a range of matching mounting components and accessories. The stainless-steel cylinders are assembled with grease that is compliant with NSF-H1 and wipers in accordance with BGVV (Federal Institute for Risk Assessment) guidelines. This means that they are suitable for use in the food area. We will be pleased to provide you with further information about future additions to our stainless-steel range. Just get in touch with us.

Good to know

Our many years of experience in the area of stainless steel are invaluable when you are investigating solutions for harsh environments. Our experts will answer any questions you might have about surface finishes and chemical resistance.

Key features

Resistance

Complete resistance to pitting and crevice corrosion is not always possible, even with ideal application parameters. The following parameters increase the pitting effect of chloride ions:

- Concentration of chloride ions
- Duration of contact
- Temperature
- Decreasing pH value

It must therefore be ensured during design, assembly and operation that all parts of the machinery can be properly cleaned to avoid an accumulation of chloride ions.

Selected sealing materials ensure very high resistance to a wide range of chemical compounds.

Further information on media resistance can be obtained on the Internet at www.festo.com.

In principle, we recommend that the cylinder be cleaned with the piston rod in the retracted position to avoid the risk of washing out the lifetime lubrication.

Various types of machinery contamination make cleaning processes necessary in many industry sectors. The degree of cleaning required ranges from wiping the machinery with a dry cloth to wet cleaning to foam cleaning with different exposure times and concentrations.

It is therefore impossible to make a general recommendation on compatibility.

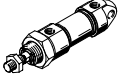


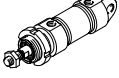
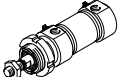
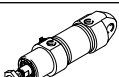
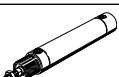
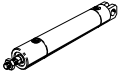

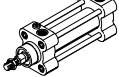
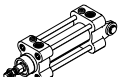


Wet cleaning



Foam cleaning

Product range overview

Function	Design	Type	Piston ø	Stroke	Piston rod					
					Through	Extended	Male thread		Female thread	
							Extended	Custom thread		
			[mm]	[mm]	S2	K8	K2	K5	K3	
Double-acting	Standards-based cylinders to ISO 6432									
		CRDSNU Piston rod at one end	12, 16	1 ... 200	■	■	■	■	From diam. 25	■
			20	1 ... 320						
			25	1 ... 500						
		CRDSNU-MQ Short end cap without swivel mounting	12, 16	1 ... 200	-	■	■	■	From diam. 25	■
			20	1 ... 320						
			25	1 ... 500						
		CRDSNU-MG Bearing cap without mounting thread	12, 16	1 ... 200	-	■	■	■	From diam. 25	■
			20	1 ... 320						
			25	1 ... 500						
		CRDSNU-B-MG Bearing cap without mounting thread (stocked parts)	16	10, 25, 40, 50, 80, 100, 125, 160, 200	-	-	-	-	-	-
	20, 25	10, 25, 40, 50, 80, 100, 125, 160, 200								
	Round cylinders									
		CRDSNU Piston rod at one end	32, 40, 50, 63	1 ... 500	■	■	■	■	■	■
			80, 100	1 ... 500						
	CRDSNU-MQ Short end cap without swivel mounting	32, 40, 50, 63	1 ... 500	-	■	■	■	■	■	
		80, 100	1 ... 500							
	CRDSNU-MG Bearing cap without mounting thread	32, 40, 50, 63	1 ... 500	-	■	■	■	■	■	
		80, 100	1 ... 500							
	CRDSNU-B-MG Bearing cap without mounting thread (stocked parts)	32, 40	10, 25, 40, 50, 80, 100, 125, 160, 200	-	-	-	-	-	-	
	CRHD-MQ Bearing cap with male thread	32, 40, 50, 63, 80, 100	10 ... 500 Special lengths on request	-	-	-	-	-	-	
	CRHD-MC End cap with clevis	32, 40, 50, 63, 80, 100	10 ... 500 Special lengths on request	-	-	-	-	-	-	
	CRHD-MS End cap with lug	32, 40, 50, 63, 80, 100	10 ... 500 Special lengths on request	-	-	-	-	-	-	
Standards-based cylinders to ISO 15552 (ISO 6431 and VDMA 24562)										
	CRDNG Piston rod at one end	32, 40, 50, 63, 80, 100, 125	10 ... 2000	■	-	-	-	-	-	
Standards-based cylinders with swivel bearing at rear to ISO 15552 (ISO 6431 and VDMA 24562)										
	CRDNGS Piston rod at one end	32, 40, 50, 63, 80, 100, 125	10 ... 2000	-	-	-	-	-	-	

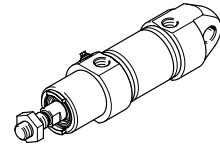
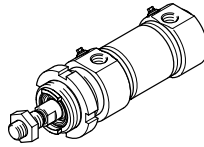
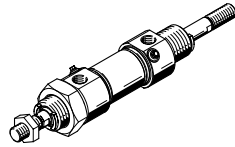
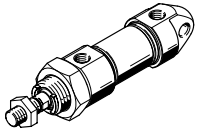
Product range overview

Type	Position sensing	Cushioning			Wiper variant			Heat-resistant seal	Low temperature	EU certification	→ Page/ Internet
		Fixed	Adjustable	Self-adjusting	Increased chem. resistance	Hard wiper	Unlubricated operation				
A	P	PPV	PPS	A1	A2	A3	S6	TT	EX4		
Standards-based cylinders to ISO 6432											
CRDSNU Piston rod at one end	■	■	■ From diam. 20	■ From diam. 16	■	■	■	■	■ From diam. 16	■	6
CRDSNU-MQ Short end cap without swivel mounting	■	■	■ From diam. 20	■ From diam. 20	■	■	■	■	■ From diam. 16	■	6
CRDSNU-MG Bearing cap without mounting thread	■	■	■ From diam. 20	■ From diam.	■	–	■	■	–	■	6
CRDSNU-B-MG Bearing cap without mounting thread (stocked parts)	■	■	–	–	■	–	–	–	–	■	
Round cylinders											
CRDSNU Piston rod at one end	■	■	■	■	■	■	■	■	■	■	19
	■	■	■	■	■	–	■	■	–	■	
CRDSNU-MQ Short end cap without swivel mounting	■	■	■	■	■	■	■	■	■	■	19
	■	■	■	■	■	–	■	■	–	■	
CRDSNU-MG Bearing cap without mounting thread	■	■	■	■	■	–	■	■	–	■	19
	■	■	■	■	■	–	■	■	–	■	
CRDSNU-B-MG Bearing cap without mounting thread (stocked parts)	■	–	–	■	■	–	–	–	–	■	
CRHD-MQ Bearing cap with male thread	■	–	■	–	–	–	–	■	–	–	32
CRHD-MC End cap with clevis	■	–	■	–	–	–	–	■	–	–	32
CRHD-MS End cap with lug	■	–	■	–	–	–	–	■	–	–	32
Standards-based cylinders to ISO 15552 (ISO 6431 and VDMA 24562)											
CRDNG Piston rod at one end	■	–	■	–	–	–	–	■	–	–	40
Standards-based cylinders with swivel bearing at rear to ISO 15552 (ISO 6431 and VDMA 24562)											
CRDNGS Piston rod at one end	■	–	■	–	–	–	–	■	–	–	40

Key features

Variants

CRDSNU Basic version	CRDSNU-S2: Through piston rod	CRDSNU-MQ: Short end cap without swivel mounting	CRDSNU-MG/CRDSNU-B-MG: Bearing cap without mounting thread
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Further variants Symbol	Key features	Description
	S2 Through piston rod	For working at both ends, equal force in the forward and return stroke, for attaching external stops
	S6 Heat-resistant seal	Temperature resistance up to max. 120°C
	K2 Extended male piston rod thread	–
	K3 Female piston rod thread	–
	K5 Custom piston rod thread	Metric standard thread to ISO
	K8 Extended piston rod	–
	A1 Wiper variant	Increased chemical resistance: Wiper made from fluoro rubber
	A2 Wiper variant	Hard wiper: Cylinder with hard wiper seal for dust, particles and viscous media
	A3 Wiper variant	Unlubricated operation: Cleaning processes degrease the piston rod. A special piston rod seal permits a longer service life compared to the standard seal.
	TT Low temperature	Temperature resistance down to max. –40°C

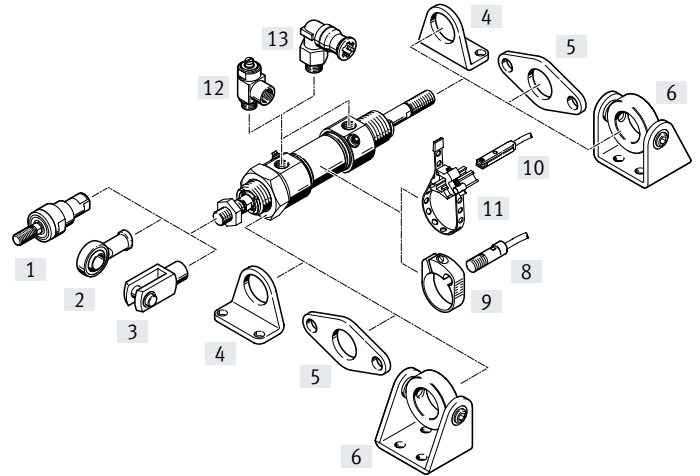
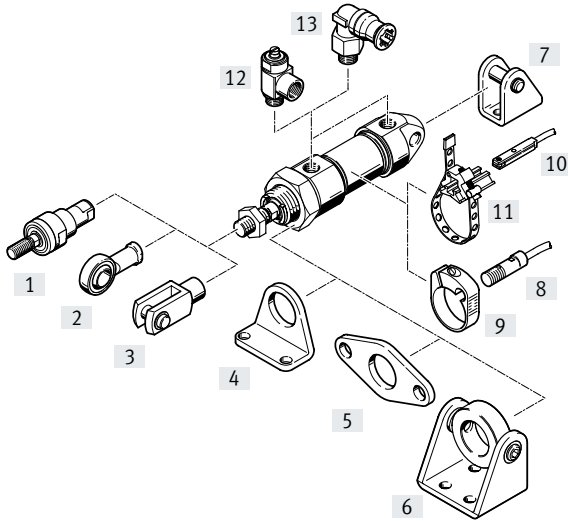
Cushioning types

	Cushioning P	Cushioning PPS	Cushioning PPV
Mode of operation	<ul style="list-style-type: none"> The drive is equipped with polymer flexible end-position cushioning 	<ul style="list-style-type: none"> The drive is equipped with self-adjusting end-position cushioning 	<ul style="list-style-type: none"> The drive is equipped with adjustable end-position cushioning
Application	<ul style="list-style-type: none"> Small loads Low speeds Low impact energies 	<ul style="list-style-type: none"> Small to medium loads Low to medium speeds Medium impact energies 	<ul style="list-style-type: none"> Medium to high loads High speeds High impact energies
Advantages	<ul style="list-style-type: none"> No adjustment required Saves time 	<ul style="list-style-type: none"> No adjustment required Saves time Powerful 	<ul style="list-style-type: none"> Very powerful

Peripherals overview

CRDSNU-...

CRDSNU-...S2



Mounting attachments and accessories

	Description	CRDSNU-				CRDSNU-B	→ Page/ Internet
		Basic version	MQ	MG	S2	MG	
[1]	Self-aligning rod coupler CRFK	To compensate for radial and angular deviations	■	■	■	■	56
[2]	Rod eye CRSGS	With spherical bearing	■	■	■	■	56
[3]	Rod clevis CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	■	■	56
[4]	Foot mounting CRHBN	<ul style="list-style-type: none"> For bearing caps With CRDSNU-S2 for bearing and end caps 	■	■	–	–	48
[5]	Flange mounting CRFBN	<ul style="list-style-type: none"> For bearing caps With CRDSNU-S2 for bearing and end caps 	■	■	–	–	50
[6]	Swivel mounting CRSBN	<ul style="list-style-type: none"> For bearing caps With CRDSNU-S2 for bearing and end caps 	■	■	–	–	48
[7]	Clevis foot CRLBN	For end caps	■	–	■	–	53
[8]	Proximity switch CRSMEO-4	<ul style="list-style-type: none"> Round design For position sensing 	■	■	■	■	56
[9]	Mounting kit CRSMBR	For proximity switches CRSMEO-4	■	■	■	■	57
[10]	Proximity switch CRSMT-8M	<ul style="list-style-type: none"> Design for T-slot For position sensing 	■	■	■	■	56
[11]	Mounting kit SMBR	For proximity switches CRSMT-8	■	■	■	■	57
[12]	One-way flow control valve CRGRLA	For regulating speed	■	■	■	■	57
[13]	Push-in fitting CRQS	For connecting tubing with standard O.D.	■	■	■	■	qs

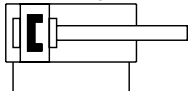
Type codes




001	Series	
CRDSNU	Round cylinder, double-acting, stainless steel	
002	Piston diameter [mm]	
12	12	
16	16	
20	20	
25	25	
003	Stroke range [mm]	
...	1 ... 500	
004	Cushioning	
P	Elastic cushioning rings/plates on both sides	
PPS	Pneumatic cushioning, self-adjusting at both ends	
PPV	Pneumatic cushioning, adjustable at both ends	
005	Position sensing	
A	For proximity sensor	
006	Cylinder end cap	
	Standard	
MQ	Short end cap without swivel mounting	
MG	Bearing cap without mounting thread	
007	Scraper variant	
	None	
A1	Increased chemical resistance	
A2	Hard scraper	
A3	For unlubricated operation	

008	Piston rod type	
	At one end	
S2	Through piston rod	
009	Piston rod thread type	
	Male thread	
K3	Female thread	
010	Custom thread	
"M10"K5	M10	
011	Piston rod extension	
	None	
...K8	1 ... 500 mm	
012	Temperature resistance	
	Standard	
S6	Heat-resistant seals max. 120 °C	
013	Temperature range	
	Standard	
TT	-40 ... +80°C	
014	EU certification	
	None	
EX4	II 2GD	

Data sheet

P cushioning



-  Diameter
12 ... 25 mm
-  Stroke length
1 ... 500 mm
Longer strokes on request
-  Spare parts service



General technical data

Piston Ø	12	16	20	25
Pneumatic connection	M5	M5	G1/8	G1/8
Piston rod thread	M6	M6	M8	M10x1.25
Design	Piston			
	Piston rod			
	Cylinder barrel			
Cushioning	P	Elastic cushioning rings/pads at both ends		
	PPV	–	Cushioning, adjustable at both ends	
	PPS	–	Cushioning, self-adjusting at both ends	
Cushioning length	PPV [mm]	–	15	17
	PPS [mm]	–	12	17
Position sensing	Via proximity switch			
Type of mounting	With accessories			
	With male thread			
Mounting position	Any			

Operating conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on the operating/ pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)			
Operating pressure ¹⁾	[MPa]	0.1 ... 1		
	[bar]	1 ... 10		
	[psi]	14.5 ... 145		
Food-safe ²⁾	→ Supplementary material information			

1) An increase in the minimum operating pressure is possible with variants

2) Additional information www.festo.com/sp → Certificates.

Environmental conditions

Standards-based cylinders	Basic type/A3	A1	TT	S6
Ambient temperature ¹⁾ [°C]	–20 ... +80	0 ... +80	–40 ... +80	0 ... +120
Corrosion resistance class CRC ²⁾	3			

1) Note operating range of proximity switches

2) 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 surface requirements which are in direct contact with a normal industrial environment.

Data sheet

ATEX ¹⁾	
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T4 Gb
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIICT120°C Db
Explosion-proof ambient temperature	-20°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

1) Note the ATEX certification of the accessories.

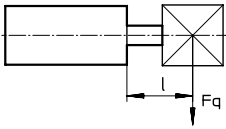
Forces [N] and impact energy [J]				
Piston ø	12	16	20	25
Theoretical force at 0.6 MPa (6 bar, 87 psi) advancing	68	121	188	295
Theoretical force at 0.6 MPa (6 bar, 87 psi), retracting	51	104	158	247
Impact energy in the end positions for P cushioning ¹⁾	0.07	0.15	0.20	0.30

1) The values are reduced by approx. 50% at an ambient temperature of 80°C

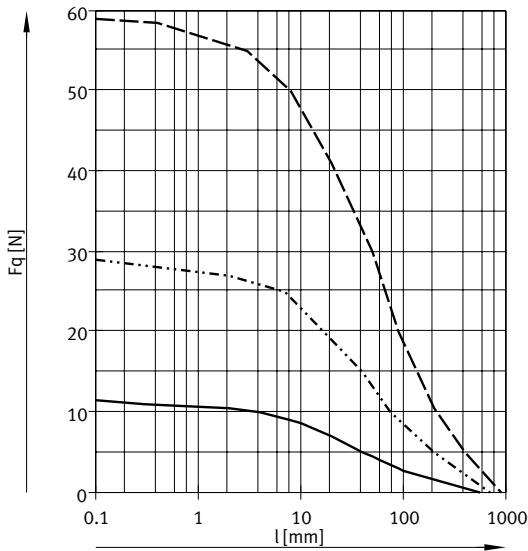
Weight [g]				
Piston ø	12	16	20	25
Basic weight with 0 mm stroke	101	130	310	410
Additional weight per 10 mm stroke	4	5	7	11
Moving mass with 0 mm stroke	19	21	42	73
Add. moving mass per 10 mm stroke	2	2	4	6

Data sheet

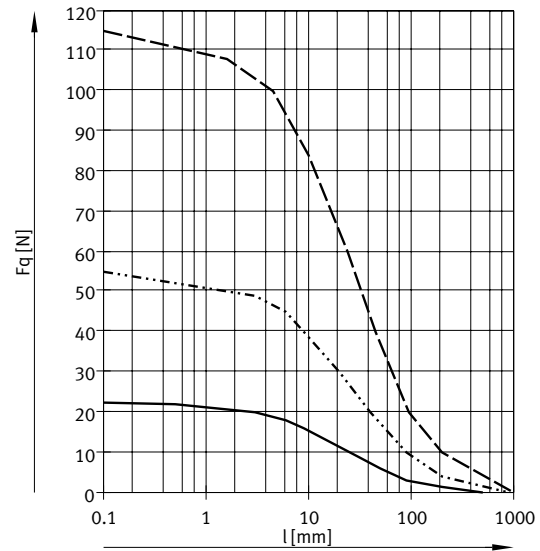
Max. transverse force F_q as a function of projection l



Basic version



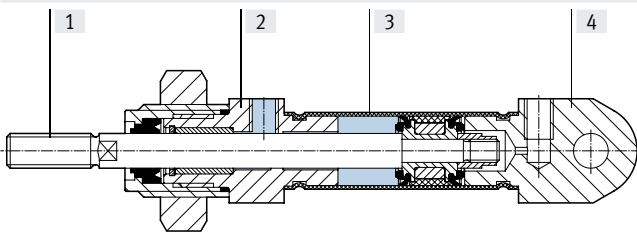
S2 – Through piston rod



- DSNU-12/16
- DSNU-20
- - - DSNU-25

Materials

Sectional view



Standards-based cylinders	Basic version	A1	A3	TT	S6
[1] Piston rod	High-alloy stainless steel				
[2] Bearing cap	High-alloy stainless steel				
[3] Cylinder barrel	High-alloy stainless steel				
[4] End cap	High-alloy stainless steel				
- Seals	TPE-U (PUR) media seal (modified for resistance to hydrolysis and cleaning)	FPM	UHMW-PE	TPE-U (PUR) (suitable for low temperatures)	FPM
Note on materials	RoHS-compliant				
PWS conformity	VDMA24364-B2-L		Contains paint-wetting impairment substances		-
Maritime classification ¹⁾	See certificate				

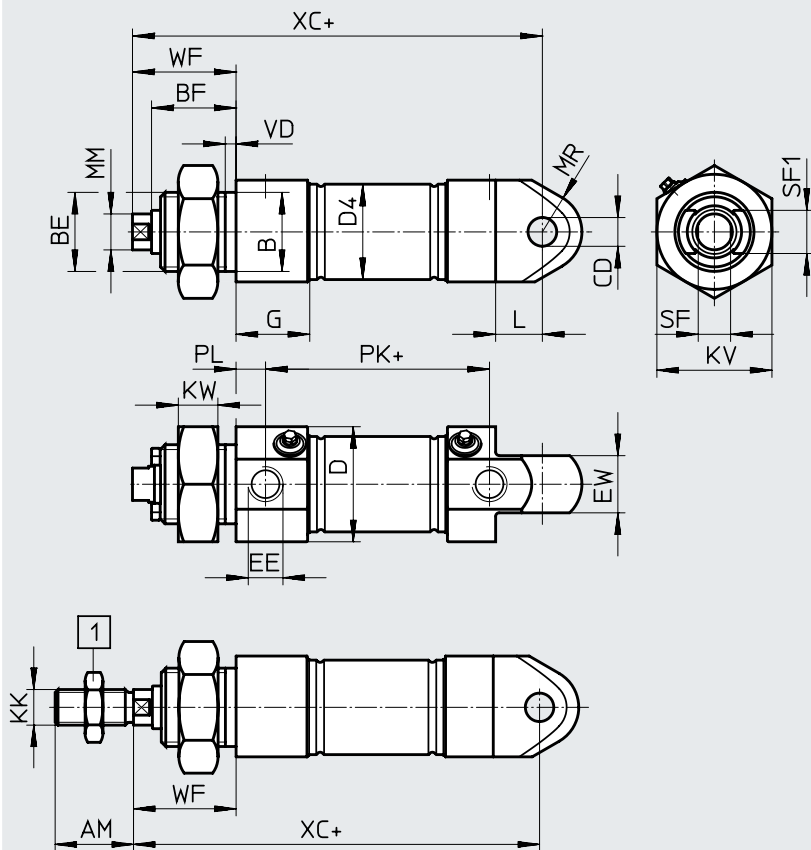
1) Additional information www.festo.com/sp → Certificates

Data sheet

Dimensions

Download CAD data → www.festo.com

Basic version



- - **Note**
 [1] Piston rod nut is not included in the scope of delivery for diameter 8 ... 20.
 + = plus stroke length

∅ [mm]	AM	B ∅ h9	BE	BF	CD ∅ H8	D ∅	D4 ∅
12	16	16	M16x1.5	18	6	20	13.3
16	16	16	M16x1.5	18	6	20	17.3
20	20	22	M22x1.5	20.7	8	30	21.3
25	22	22	M22x1.5	23.5	8	32	26.5

∅ [mm]	EE	EW	G	KK	KV	KW	L	MM ∅
12	M5	12	9.5	M6	24	8	10	6
16	M5	12	9.7	M6	24	8	10	6
20	G1/8	16	20.5	M8	32	11	13	8
25	G1/8	16	20.5	M10x1.25	32	11	13	10

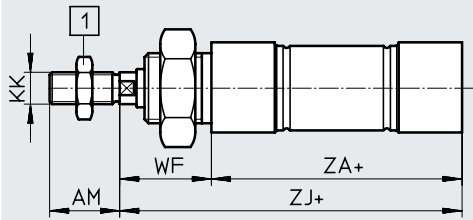
∅ [mm]	MR	PL	SF	SF1	VD	WF	XC ±1
12	8	6	5	9	3.5	22	75
16	8	6	5	9	3.5	22	82
20	11	8.2	7	12	3.5	24	95
25	11	8.2	9	12	3.5	28	104

Data sheet

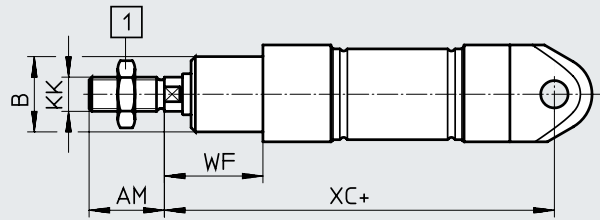
Dimensions

Download CAD data → www.festo.com

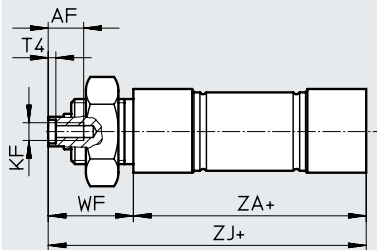
MQ – Short end cap without swivel mounting



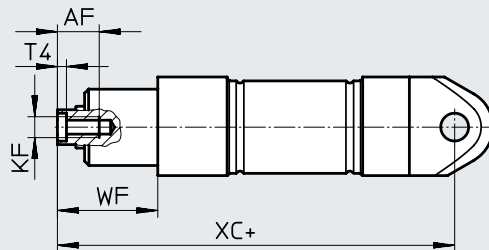
MG – Bearing cap without mounting thread



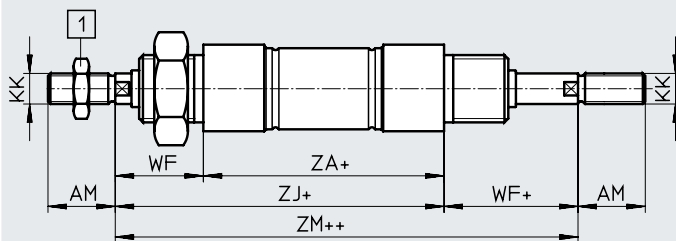
MQ-K3 – Short end cap without swivel mounting, with female piston rod thread



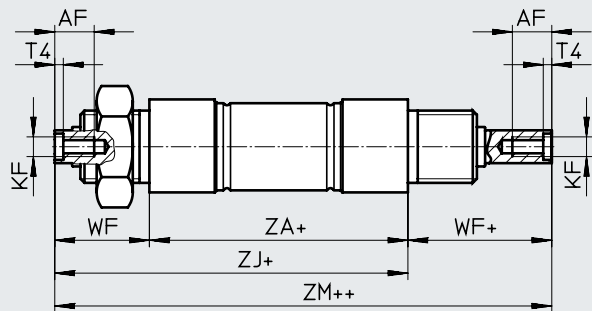
MG-K3 – Bearing cap without mounting thread, with female piston rod thread



S2 – Through piston rod



S2-K3 – Through piston rod, with female thread



- [1] - Note

[1] Piston rod nut is not included in the scope of delivery for diameter 8 ... 20.

+ = plus stroke length

++ = plus 2x stroke length

∅	AF	AM	B	KF	KK
[mm]			∅ h9		
12	–	16	16	–	M6
16	–	16	16	–	M6
20	12	20	22	M4	M8
25	12	22	22	M6	M10x1.25

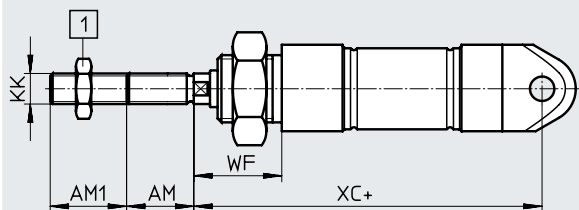
∅	T4	WF	XC	ZA	ZJ	ZM
[mm]			±1			
12	–	22	75	50	72	95
16	–	22	82	56	78	101
20	2	24	95	68	92	117
25	2.6	28	104	69.5	97.5	126

Data sheet

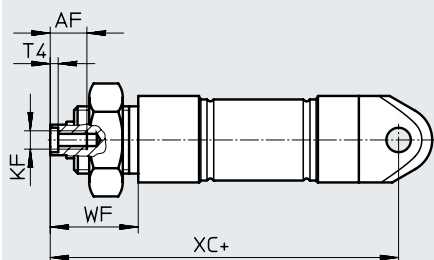
Dimensions

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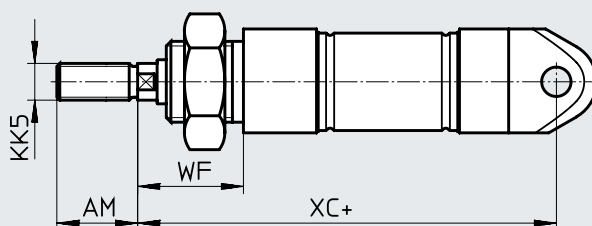
K2 – Extended male piston rod thread



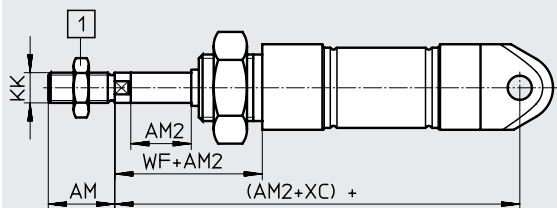
K3 – Female piston rod thread



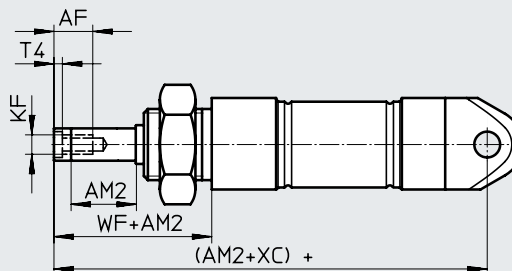
K5 – Custom piston rod thread



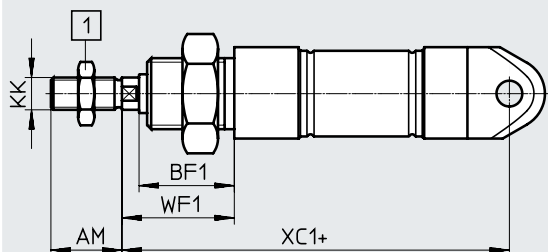
K8 – Extended piston rod




K3-K8 – Extended piston rod, with female thread



TT – Low temperature / A2 – Hard wiper



-  - **Note**
 [1] Piston rod nut is not included in the scope of delivery for diameter 8 ... 20.
 + = plus stroke length


Data sheet

∅ [mm]	AF	AM	AM1 max.	AM2 max.
12	–	16	1 ... 20	1 ... 100
16	–	16	1 ... 20	1 ... 100
20	12	20	1 ... 25	1 ... 100
25	12	22	1 ... 35	1 ... 100


∅ [mm]	BF1	KF	KK	KK5
12	24	–	M6	–
16	24	–	M6	–
20	26.7	M4	M8	–
25	29.5	M6	M10x1.25	M10


∅ [mm]	T4	WF	WF1	XC ±1	XC1 ±1
12	–	22	28	75	81
16	–	22	28	82	88
20	2	24	30	95	101
25	2.6	28	34	104	110

Ordering data

Ordering data				
Type	Piston ø [mm]	Stroke [mm]	P – Elastic cushioning rings/plates A – With position sensing	
			Part no.	Type
	12	10	8152524	CRDSNU-12-10-P-A
		25	8152525	CRDSNU-12-25-P-A
		40	8152526	CRDSNU-12-40-P-A
		50	8152527	CRDSNU-12-50-P-A
		80	8152528	CRDSNU-12-80-P-A
		100	8152529	CRDSNU-12-100-P-A
	16	10	8152548	CRDSNU-16-10-P-A
		15	8152549	CRDSNU-16-15-P-A
		20	8152550	CRDSNU-16-20-P-A
		25	8152551	CRDSNU-16-25-P-A
		40	8152552	CRDSNU-16-40-P-A
		50	8152553	CRDSNU-16-50-P-A
		80	8152554	CRDSNU-16-80-P-A
		100	8152555	CRDSNU-16-100-P-A
	20	10	8152557	CRDSNU-20-10-P-A
		15	8152558	CRDSNU-20-15-P-A
		20	8152559	CRDSNU-20-20-P-A
		25	8152560	CRDSNU-20-25-P-A
		40	8152561	CRDSNU-20-40-P-A
		50	8152562	CRDSNU-20-50-P-A
		80	8152563	CRDSNU-20-80-P-A
		100	8152564	CRDSNU-20-100-P-A
	25	10	8152627	CRDSNU-25-10-P-A
		15	8152628	CRDSNU-25-15-P-A
		20	8152629	CRDSNU-25-20-P-A
		25	8152630	CRDSNU-25-25-P-A
		40	8152631	CRDSNU-25-40-P-A
		50	8152632	CRDSNU-25-50-P-A
80		8152633	CRDSNU-25-80-P-A	
100		8152634	CRDSNU-25-100-P-A	

Ordering data

Ordering data – Stocked parts				
Type	Piston ø	Stroke	P – Elastic cushioning rings/plates PPS – Pneumatic cushioning, self-adjusting at both ends A – With position sensing MG – Bearing cap without mounting thread A1 – Wiper variant: increased chemical resistance	
			Part no.	Type
	16	10	8073759	CRDSNU-B-16-10-P-A-MG-A1
		25	8073760	CRDSNU-B-16-25-P-A-MG-A1
		40	8073761	CRDSNU-B-16-40-P-A-MG-A1
		50	8073762	CRDSNU-B-16-50-P-A-MG-A1
		80	8073763	CRDSNU-B-16-80-P-A-MG-A1
		100	8073764	CRDSNU-B-16-100-P-A-MG-A1
		125	8073765	CRDSNU-B-16-125-P-A-MG-A1
		160	8073766	CRDSNU-B-16-160-P-A-MG-A1
		200	8073767	CRDSNU-B-16-200-P-A-MG-A1
	20	10	8073980	CRDSNU-B-20-10-PPS-A-MG-A1
		25	8073979	CRDSNU-B-20-25-PPS-A-MG-A1
		40	8073978	CRDSNU-B-20-40-PPS-A-MG-A1
		50	8073977	CRDSNU-B-20-50-PPS-A-MG-A1
		80	8073976	CRDSNU-B-20-80-PPS-A-MG-A1
		100	8073975	CRDSNU-B-20-100-PPS-A-MG-A1
		125	8073974	CRDSNU-B-20-125-PPS-A-MG-A1
		160	8073973	CRDSNU-B-20-160-PPS-A-MG-A1
	25	10	2159636	CRDSNU-B-25-10-PPS-A-MG-A1
		25	2159637	CRDSNU-B-25-25-PPS-A-MG-A1
		40	2159638	CRDSNU-B-25-40-PPS-A-MG-A1
		50	2159639	CRDSNU-B-25-50-PPS-A-MG-A1
		80	2159640	CRDSNU-B-25-80-PPS-A-MG-A1
		100	2159641	CRDSNU-B-25-100-PPS-A-MG-A1
		125	2159642	CRDSNU-B-25-125-PPS-A-MG-A1
		160	2159643	CRDSNU-B-25-160-PPS-A-MG-A1
200		2159644	CRDSNU-B-25-200-PPS-A-MG-A1	

 **Note**

The bearing cap on stocked parts is made of one piece.
 When ordered using the modular product system, the bearing cap is made of two pieces, which makes it possible to exchange the wiper in the event of a repair.

Ordering data

Ordering table – Modular product system							
Size	12	16	20	25	Conditions	Code	Enter code
Module no.	552787	552788	552789	552790			
Design	Stainless steel					CR	CR
Function	Standards-based cylinder, double-acting, to ISO 6432					DSNU	DSNU
Piston Ø [mm]	12	16	20	25		-...	
Stroke [mm]	1 ... 200		1 ... 320	1 ... 500	[1]	-...	
Cushioning	Elastic cushioning rings/pads at both ends				[10]	-P	
	-		Pneumatic cushioning, self-adjusting		[2] [8]	-PPS	
	-		Pneumatic cushioning, adjustable at both ends			-PPV	
Position sensing	Via proximity switch					-A	-A
Cylinder cap	Short end cap without swivel mounting					-MQ	
	Bearing cap without mounting thread					-MG	
Wiper variant	Increased chemical resistance				[2]	-A1	
	Hard wiper				[2] [3] [9]	-A2	
	Unlubricated operation				[2]	-A3	
Piston rod	Through piston rod				[3] [4]	-S2	
Extended male thread	Extended male piston rod thread						
	[mm]	1 ... 20		1 ... 25	1 ... 35		-...K2
Female thread	Piston rod with female thread						
	-	-	(M4)	(M6)	[5]	-K3	
Custom thread	Custom thread on the piston rod						
	-	-	-	M10		-“...”K5	
Extended piston rod [mm]	1 ... 100					-...K8	
Temperature resistance	Heat-resistant seal up to max. 120°C					-S6	
Low temperature	-	Seals and lubricating grease from -40°C ... +80°C			[3] [6] [9]	-TT	
EU certification	II 2GD				[7]	-EX4	

- [1] -... Longer strokes on request
- [2] PPS, A1, A2, A3 Not with S6, TT
- [3] A2, S2, TT Not with MG
- [4] S2 Not with MQ
- [5] K3 Not with K2, K5
- [6] TT Not with S6
- [7] EX4 Not with S6, TT
- [8] PPS Not with MQ for piston Ø 16
- [9] A2, TT Not with S2, K3
- [10] P Not with B except for piston Ø 16

Key features

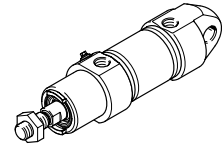
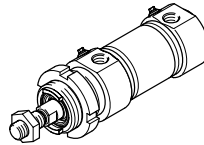
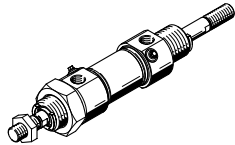
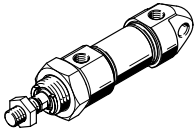
Variants

CRDSNU
Basic version

CRDSNU-S2:
Through piston rod

CRDSNU-MQ:
Short end cap without swivel
mounting

CRDSNU-MG:
Bearing cap without mounting
thread



Further variants Symbol	Key features	Description
	S2 Through piston rod	For working at both ends, equal force in the forward and return stroke, for attaching external stops
	S6 Heat-resistant seal	Temperature resistance up to max. 120°C
	K2 Extended male piston rod thread	–
	K3 Female piston rod thread	–
	K5 Custom piston rod thread	Metric standard thread to ISO
	K8 Extended piston rod	–
	A1 Wiper variant	Increased chemical resistance
	A2 Wiper variant	Hard wiper: Cylinder with hard
	A3 Wiper variant	Unlubricated operation: Cleaning processes degrease the piston rod. A special piston rod seal permits a longer service life compared to the standard seal.
	TT Low temperature	Temperature resistance down to max. –40°C

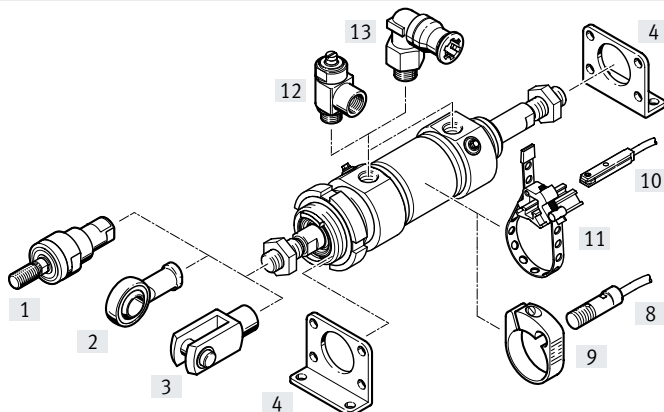
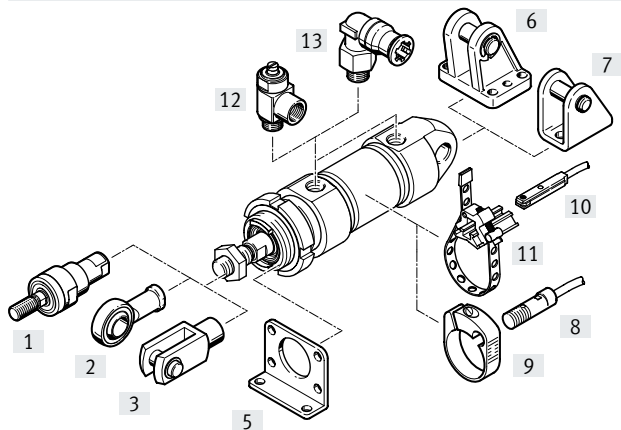
Cushioning types

	Cushioning P	Cushioning PPS	Cushioning PPV
Mode of operation	<ul style="list-style-type: none"> The drive is equipped with polymer flexible end-position cushioning 	<ul style="list-style-type: none"> The drive is equipped with self-adjusting end-position cushioning 	<ul style="list-style-type: none"> The drive is equipped with adjustable end-position cushioning
Application	<ul style="list-style-type: none"> Small loads Low speeds Low impact energies 	<ul style="list-style-type: none"> Small to medium loads Low to medium speeds Medium impact energies 	<ul style="list-style-type: none"> Medium to high loads High speeds High impact energies
Advantages	<ul style="list-style-type: none"> No adjustment required Saves time 	<ul style="list-style-type: none"> No adjustment required Saves time Powerful 	<ul style="list-style-type: none"> Very powerful

Peripherals overview

CRDSNU-...

CRDSNU-...S2



Mounting attachments and accessories

	Description	CRDSNU-				→ Page/ Internet	
		Basic version	MQ	MG	S2		
[1]	Self-aligning rod coupler CRFK	To compensate for radial and angular deviations	■	■	■	■	56
[2]	Rod eye CRSGS	With spherical bearing	■	■	■	■	56
[3]	Rod clevis CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	■	■	56
[4]	Foot mounting CRH	<ul style="list-style-type: none"> • 2 included in the scope of delivery • With CRDSNU-S2 for bearing and end caps 	-	-	-	■	49
[5]	Flange mounting CRFV	<ul style="list-style-type: none"> • 1 included in the scope of delivery • For bearing caps 	■	■	-	-	50
[6]	Clevis foot CRLBN	For end caps	■	-	■	-	53
[7]	Clevis foot LBG	For end caps	■	-	■	-	54
[8]	Proximity switch CRSMEO-4	<ul style="list-style-type: none"> • Round design • For position sensing 	■	■	■	■	56
[9]	Mounting kit CRSMBR	For proximity switches CRSMEO-4	■	■	■	■	57
[10]	Proximity switch CRSMT-8M	<ul style="list-style-type: none"> • Design for T-slot • For position sensing 	■	■	■	■	56
[11]	Mounting kit SMBR	For proximity switches CRSMT-8	■	■	■	■	57
[12]	One-way flow control valve CRGRLA	For regulating speed	■	■	■	■	57
[13]	Push-in fitting CRQS	For connecting tubing with standard O.D.	■	■	■	■	qs

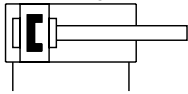
Type codes




001	Series	
CRDSNU	Round cylinder, double-acting, stainless steel	
002	Piston diameter	
32	32	
40	40	
50	50	
63	63	
80	80	
100	100	
003	Stroke	
...	1 ... 500	
004	Cushioning	
P	Elastic cushioning rings/plates on both sides	
PPS	Pneumatic cushioning, self-adjusting at both ends	
PPV	Pneumatic cushioning, adjustable at both ends	
005	Position sensing	
A	For proximity sensor	
006	Cylinder end cap	
	Standard	
MQ	Short end cap without swivel mounting	
MG	Bearing cap without mounting thread	
007	Scraper variant	
	None	
A1	Increased chemical resistance	
A2	Hard scraper	
A3	For unlubricated operation	

008	Piston rod type	
	At one end	
S2	Through piston rod	
009	Piston rod thread extension	
	None	
...K2	1 ... 70 mm	
010	Piston rod thread type	
	Male thread	
K3	Female thread	
011	Custom thread	
"M10"K5	M10	
"M12"K5	M12	
"M16"K5	M16	
"M20"K5	M20	
012	Piston rod extension	
	None	
...K8	1 ... 500 mm	
013	Temperature resistance	
	Standard	
S6	Heat-resistant seals max. 120 °C	
014	Temperature range	
	Standard	
TT	-40 ... +80°C	
015	EU certification	
	None	
EX4	II 2GD	

Data sheet

P cushioning



-  - Diameter
32 ... 100 mm
-  - Stroke length
1 ... 500 mm
Longer strokes on request
-  - Spare parts service



General technical data		32	40	50	63	80	100
Piston \varnothing		32	40	50	63	80	100
Pneumatic connection		G1/8	G1/4	G1/4	G3/8	G3/8	G1/2
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5
Design	Piston						
	Piston rod						
	Cylinder barrel						
Cushioning	P	Elastic cushioning rings/pads at both ends					
	PPV	Cushioning, adjustable at both ends					
	PPS	Cushioning, self-adjusting at both ends					
Cushioning length	PPV [mm]	14	18	20	21	31	31
	PPS [mm]	14	18	20	21	31	31
Position sensing		Via proximity switch					
Type of mounting		With accessories					
		With male thread					
Mounting position		Any					

Operating conditions		
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure ¹⁾	[MPa]	0.1 ... 1
	[bar]	1 ... 10
	[psi]	14.5 ... 145
Food-safe ²⁾	→ Supplementary material information	

1) An increase in the minimum operating pressure is possible with variants

2) Additional information www.festo.com/sp → Certificates.

Environmental conditions		Basic type/A3	A1	TT	S6
Standards-based cylinders					
Ambient temperature ¹⁾	[°C]	-20 ... +80	0 ... +80	-40 ... +80	0 ... +120
Corrosion resistance class CRC					
\varnothing 32 ... 63		3 ²⁾			
\varnothing 80 ... 100		4 ³⁾			

1) Note operating range of proximity switches

2) 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 surface requirements which are in direct contact with a normal industrial environment.

3) 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, e.g. in the chemical or food industries. Such applications may need to be safeguarded by means of special testing (→ also FN 940082), using appropriate media.

Data sheet

ATEX ¹⁾	
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T4 Gb
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIIC T120°C Db
Explosion-proof ambient temperature	-20°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

1) Note the ATEX certification of the accessories.

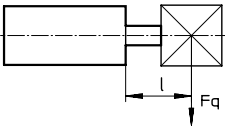
Forces [N] and impact energy [J]						
Piston ø	32	40	50	63	80	100
Theoretical force at 0.6 MPa (6 bar, 87 psi), advancing	483	754	1178	1870	3016	4712
Theoretical force at 0.6 MPa (6 bar, 87 psi), retracting	415	633	990	1682	2721	4418
Impact energy in the end positions for P cushioning ¹⁾	0.4	0.7	1.0	1.3	1.8	2.5

1) The values are reduced by approx. 50% at an ambient temperature of 80°C

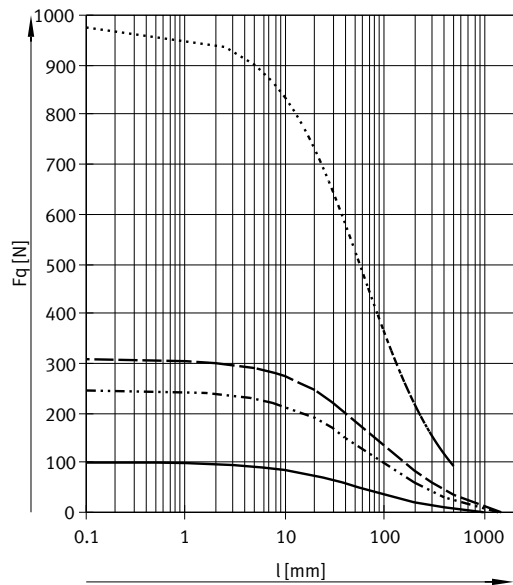
Weight [g]						
Piston ø	32	40	50	63	80	100
Basic weight with 0 mm stroke	670	1327	2020	2943	5891	8527
Additional weight per 10 mm stroke	15	24	40	44	68	75
Moving mass with 0 mm stroke	118	232	416	472	860	1018
Add. moving mass per 10 mm stroke	9	16	25	25	39	39

Data sheet

Max. transverse force F_q as a function of projection l

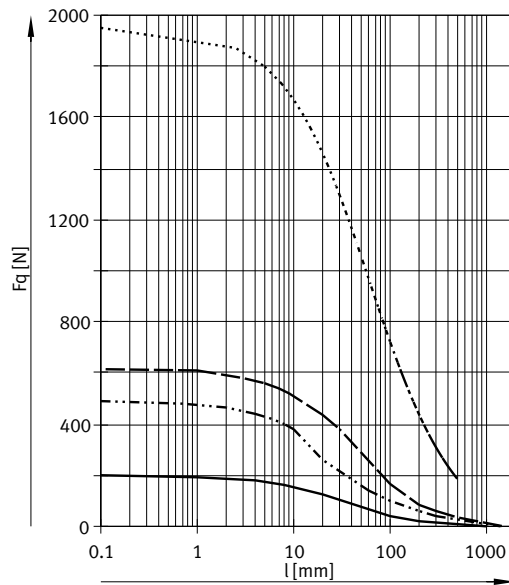


Basic version



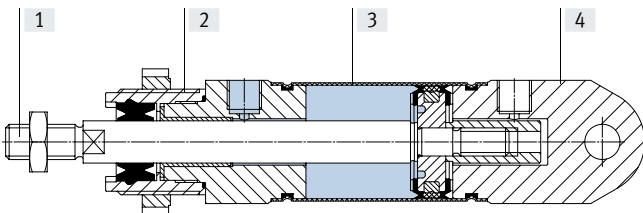
- DSNU-32
- DSNU-40
- - - DSNU-50/63
- · - · DSNU-80/100

S2 – Through piston rod



Materials

Sectional view



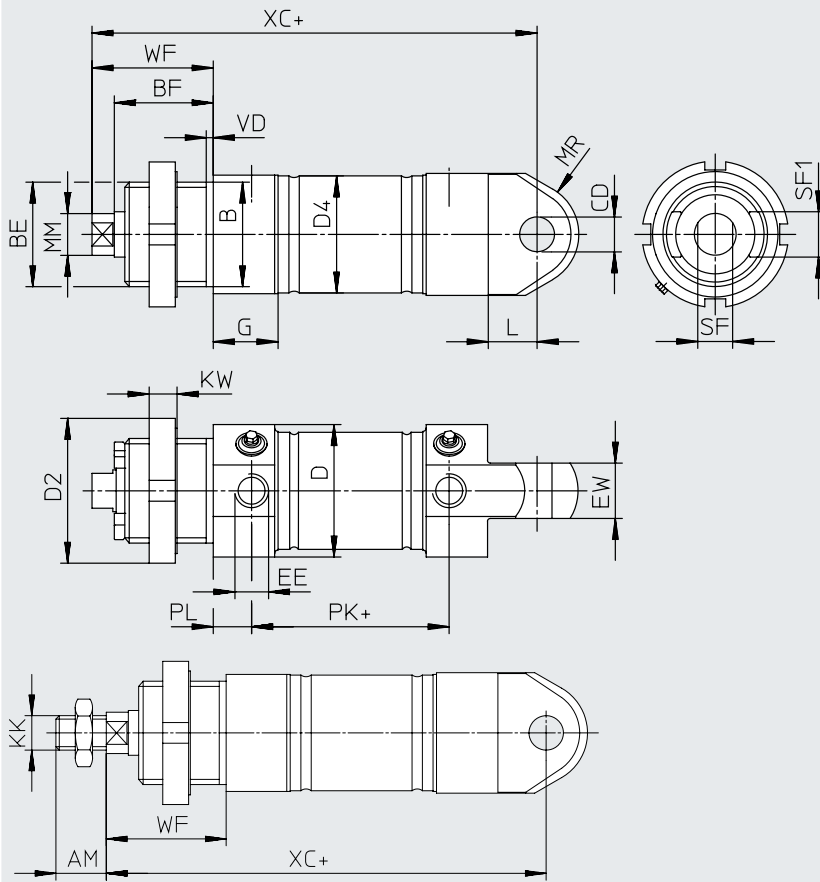
Standards-based cylinders	Basic version	A1	A3	TT	S6
[1] Piston rod	High-alloy stainless steel				
[2] Bearing cap	High-alloy stainless steel				
[3] Cylinder barrel	High-alloy stainless steel				
[4] End cap	High-alloy stainless steel				
- Seals	TPE-U (PUR) media seal (modified for resistance to hydrolysis and cleaning)	FPM	UHMW-PE	TPE-U (PUR) (suitable for low temperatures)	FPM
Note on materials	RoHS-compliant				
PWIS conformity	VDMA24364-B2-L			Contains paint-wetting impairment substances	

Data sheet

Dimensions

 Download CAD data → www.festo.com

Basic version



+ = plus stroke length

∅ [mm]	AM	B ∅ h9	BE	BF	CD ∅ H8	D ∅	D2 ∅	D4 ∅
32	22	30	M30x1.5	28.4	10	38	42	33.6
40	24	38	M38x1.5	32	12	49	50	41.6
50	32	45	M45x1.5	36.4	16	57	60	52.4
63	32	45	M45x1.5	36.4	16	70	60	65.4
80	40	50	M50x2	42.2	20	88	75	82.8
100	40	50	M50x2	42.2	20	108	75	102.8

∅ [mm]	EE	EW	G	KK	KW	L	MM ∅
32	G1/8	16	18.6	M10x1.25	8	14	12
40	G1/4	18	24.7	M12x1.25	10	16	16
50	G1/4	21	24.4	M16x1.5	10	17	20
63	G3/8	21	27.4	M16x1.5	10	17	20
80	G3/8	35	32.4	M20x1.5	13	22	25
100	G1/2	35	32.4	M20x1.5	13	22	25

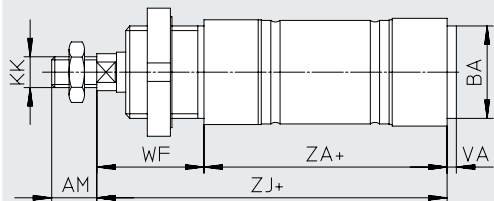
∅ [mm]	MR	PL	SF	SF1	VD	WF	XC ±1
32	15	9	10	13	4.3	34	118
40	19	12	13	18	4.3	39	140
50	22.5	12	17	22	4.3	44	147
63	22.5	13	17	22	4.3	44	156
80	30	16	22	22	4.5	50	193
100	36	16	22	22	4.5	50	196

Data sheet

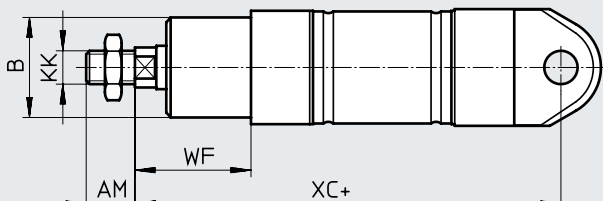
Dimensions

Download CAD data → www.festo.com

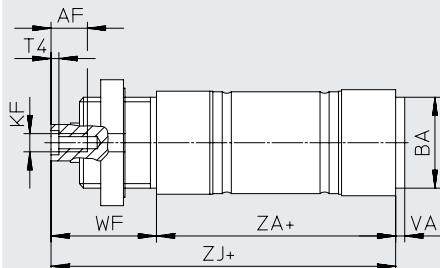
MQ – Short end cap without swivel mounting



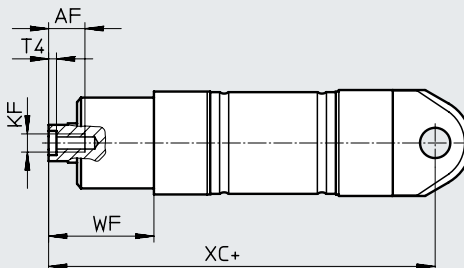
MG – Bearing cap without mounting thread



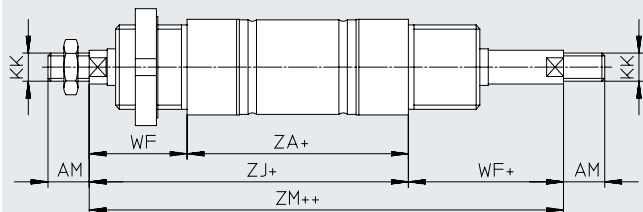
MQ-K3 – Short end cap without swivel mounting, with female piston rod thread



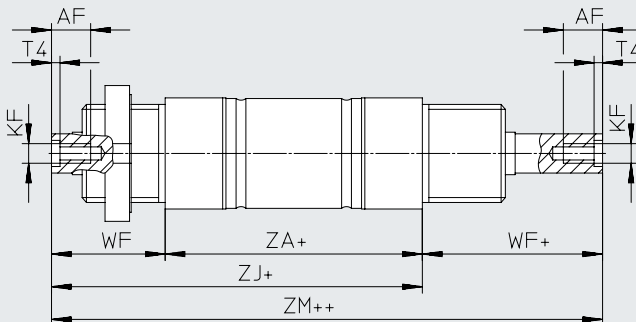
MG-K3 – Bearing cap without mounting thread, with female piston rod thread



S2 – Through piston rod



S2-K3 – Through piston rod, with female thread



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

Data sheet

∅ [mm]	AF	AM	B ∅ h9	BA h9	KF	KK
32	12	22	30	30	M6	M10x1.25
40	12	24	38	38	M8	M12x1.25
50	16	32	45	45	M10	M16x1.5
63	16	32	45	45	M10	M16x1.5
80	20	40	50	45	M12	M20x1.5
100	20	40	50	55	M12	M20x1.5

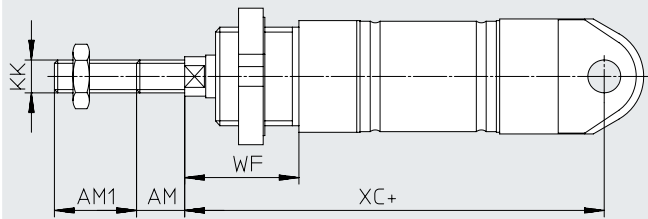
∅ [mm]	T4	VA	WF	XC ±1	ZA	ZJ	ZM
32	2.6	3	34	118	69.5	104	138
40	3.3	4	39	140	84.6	124	163
50	4.7	4	44	147	86.2	130	175
63	4.7	4	44	156	94.2	139	183
80	6.1	4	50	193	120.7	171	221
100	6.1	4	50	196	123.7	174	224

Data sheet

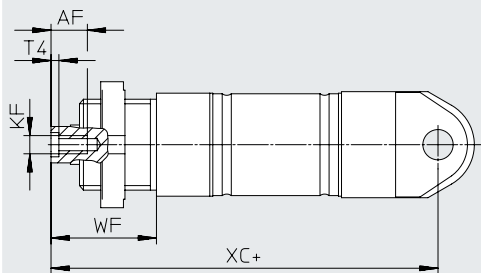
Dimensions

Download CAD data → www.festo.com

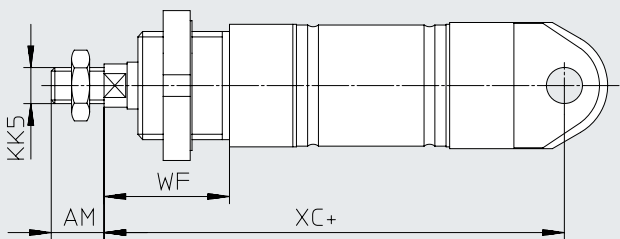
K2 – Extended male piston rod thread



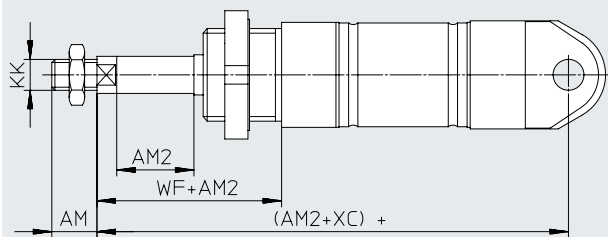
K3 – Female piston rod thread



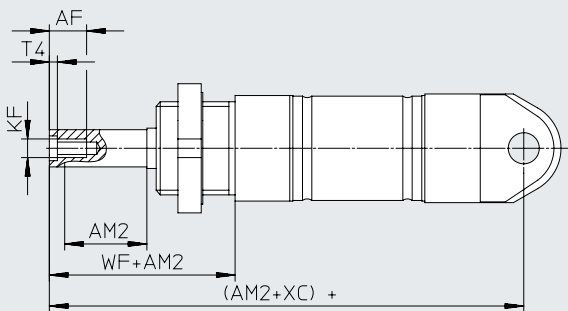
K5 – Custom piston rod thread



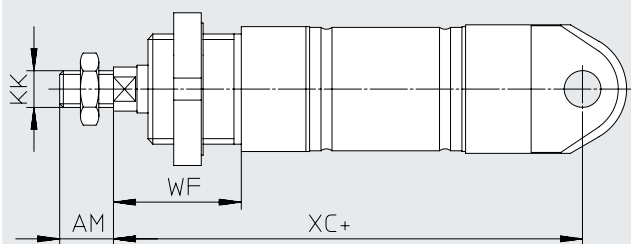
K8 – Extended piston rod



K3-K8 – Extended piston rod, with female thread



TT – Low temperature / A2 – Hard wiper




+ = plus stroke length


Data sheet


∅ [mm]	AF	AM	AM1 max.	AM2 max.	KF
32	12	22	1 ... 35	1 ... 500	M6
40	12	24	1 ... 35	1 ... 500	M8
50	16	32	1 ... 70	1 ... 500	M10
63	16	32	1 ... 70	1 ... 500	M10
80	20	40	1 ... 70	1 ... 500	M12
100	20	40	1 ... 70	1 ... 500	M12

∅ [mm]	KK	KK5	T4	WF	XC ±1
32	M10x1.25	M10	2.6	34	118
40	M12x1.25	M12	3.3	39	140
50	M16x1.5	M16	4.7	44	147
63	M16x1.5	M16	4.7	44	156
80	M20x1.5	M20	6.1	50	193
100	M20x1.5	M20	6.1	50	196

Ordering data

Ordering data				
Type	Piston ø	Stroke	P – Elastic cushioning rings/plates	
	[mm]		Part no.	Type
	32	10	8152637	CRDSNU-32-10-P-A
		25	8152638	CRDSNU-32-25-P-A
		40	8152639	CRDSNU-32-40-P-A
		50	8152640	CRDSNU-32-50-P-A
		80	8152641	CRDSNU-32-80-P-A
		100	8152642	CRDSNU-32-100-P-A

Ordering data – Stocked parts				
Type	Piston ø	Stroke	PPS – Pneumatic cushioning, self-adjusting at both ends	
	[mm]		Part no.	Type
	32	10	2176399	CRDSNU-B-32-10-PPS-A-MG-A1
		25	2176400	CRDSNU-B-32-25-PPS-A-MG-A1
		40	2176401	CRDSNU-B-32-40-PPS-A-MG-A1
		50	2176402	CRDSNU-B-32-50-PPS-A-MG-A1
		80	2176403	CRDSNU-B-32-80-PPS-A-MG-A1
		100	2176404	CRDSNU-B-32-100-PPS-A-MG-A1
		125	2176405	CRDSNU-B-32-125-PPS-A-MG-A1
		160	2176406	CRDSNU-B-32-160-PPS-A-MG-A1
		200	2176407	CRDSNU-B-32-200-PPS-A-MG-A1
	40	10	8073989	CRDSNU-B-40-10-PPS-A-MG-A1
		25	8073988	CRDSNU-B-40-25-PPS-A-MG-A1
		40	8073987	CRDSNU-B-40-40-PPS-A-MG-A1
		50	8073986	CRDSNU-B-40-50-PPS-A-MG-A1
		80	8073985	CRDSNU-B-40-80-PPS-A-MG-A1
		100	8073984	CRDSNU-B-40-100-PPS-A-MG-A1
		125	8073983	CRDSNU-B-40-125-PPS-A-MG-A1
		160	8073982	CRDSNU-B-40-160-PPS-A-MG-A1
		200	8073981	CRDSNU-B-40-200-PPS-A-MG-A1

 **Note**

The bearing cap on stocked parts is made of one piece.
When ordered using the modular product system, the bearing cap is made of two pieces, which makes it possible to exchange the wiper in the event of a repair.

Ordering data

Ordering table – Modular product system										
Size	32	40	50	63	80	100	Conditions	Code	Enter code	
Module no.	552791	552792	552793	552794	8126418	8126417				
Design	Stainless steel							CR	CR	
Function	Round cylinder, double-acting							DSNU	DSNU	
Piston Ø [mm]	32	40	50	63	80	100		-...		
Stroke [mm]	1 ... 500						[1]		-...	
Cushioning	Elastic cushioning rings/pads at both ends							-P		
	Pneumatic cushioning, self-adjusting						[2]	-PPS		
	Pneumatic cushioning, adjustable at both ends							-PPV		
Position sensing	Via proximity switch							-A	-A	
Cylinder cap	Short end cap without swivel mounting							-MQ		
	Bearing cap without mounting thread							-MG		
Wiper variant	Increased chemical resistance						[2]	-A1		
	Hard wiper				-		[2] [3]	-A2		
	Unlubricated operation						[2]	-A3		
Piston rod	Through piston rod						[3] [4]	-S2		
Extended male thread	Extended male piston rod thread									
	[mm]	1 ... 35		1 ... 70				-...K2		
Female thread	Piston rod with female thread									
	M6	M8	M10	M10	M12	M12	[5]	-K3		
Custom thread	Custom thread on the piston rod									
	M10	M12	M16	M16	M20	M20		-“...”K5		
Extended piston rod [mm]	1 ... 500								-...K8	
Temperature resistance	Heat-resistant seal up to max. 120°C								-S6	
Low temperature	Seals and lubricating grease from -40°C ... +80°C				-		[3] [6]	-TT		
EU certification	II 2GD						[7]	-EX4		

- [1] -... Longer strokes on request
 [2] PPS, A1, A2, A3 Not with S6, TT
 [3] A2, S2, TT Not with MG
 [4] S2 Not with MQ
 [5] K3 Not with K2, K5
 [6] TT Not with S6
 [7] EX4 Not with S6, TT