Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Key features

At a glance

ISO 6432
DIN ISO 6432

DIN

- Round cylinders with piston diameters from 8 to 25 mm conform to ISO 6432, DIN ISO 6432. Variants are based on these standards
- The series is not repairable
- Stainless steel piston rod
- The cap is swaged onto the barrel

Wide choice of variants

DSNU-...

- Cylinder barrel made of stainless steel
- Bearing and end caps made of wrought aluminium alloy

DSNUP-...

- Cylinder barrel made of wrought aluminium alloy
- Bearing and end caps made of polyamide
- Cost optimised

DSNU/ESNU-...MA

- Threaded bearing cap
- Short end cap with axial supply port

DSNU-...MQ

- Threaded bearing cap
- Short end cap with lateral supply port

DSNU-...MH

- Direct mounting on bearing cap
- Short end cap with lateral supply port

DSNU-...KP

- With clamping unit

DSNU-...-Q

- With square piston rod

Cushioning types

	Cushioning P	Cushioning PPS	Cushioning PPV
Mode of operation	• The drive is fitted with flexible polymer end position cushioning	• The drive is fitted with self-adjusting end position cushioning	• The drive is fitted with adjustable end position cushioning
Application	• Small loads • Low speeds • Low impact energy	• Small to medium loads • Low to medium speeds • Medium impact energy	• Medium to large loads • High speeds • High impact energy
Advantages	• No adjustment required • Time-saving	• No adjustment required • Time-saving • Powerful	• Very powerful

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Key features

Additional variants

Symbol	Key features	Description
	S2 Through piston rod	For working at both ends with the same force in the advance and return stroke, for attaching external stops
	S6 Heat resistant seals	Temperature resistance up to max. 120 °C
	S10 Constant (slow speed) operation at low piston speeds	Suitable for slow stroke movements at a constant, stick-slip-free speed over the full stroke of the cylinder. Seal contains silicone grease (not free of paint-wetting impairment substances)
	S11 Low friction	The special seals considerably reduce system wear. This corresponds to a considerably lower response pressure. Seal contains silicone grease (not free of paint-wetting impairment substances)
	K2 Extended male piston rod thread	–
	K3 Female piston rod thread	–
	K5 Special thread on piston rod	Metric standard thread to ISO
	K6 Shortened male piston rod thread	–
	K8 Extended piston rod	–
	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

Longer service life with bellows kit DADB

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

The kit protects the piston rod, seal and bearing against a wide variety of media, for example:

- dust
- chippings
- oil
- grease
- fuel

Standard cylinders DSNU/DSNUP/DSN, ISO 6432

Product range overview

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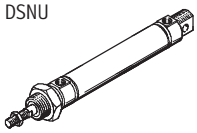
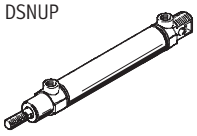
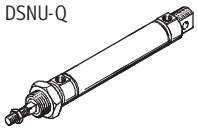
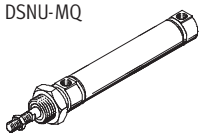
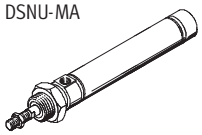
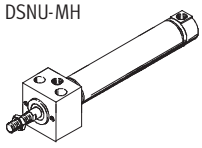
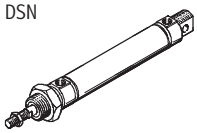
Function	Version	Piston ∅ [mm]	Stroke [mm]	Variable stroke[1] [mm]	Piston rod					
					Through S2	Extended K8	Male thread			Female thread K3
							Extended K2	Shortened K6	Special thread K5	
Double-acting	**Basic version with position sensing (cylinder barrel made of stainless steel)**									
	DSNU 	8, 10	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300, 320, 400, 500	1 … 100	■	■	■	■	■	■
		12, 16		1 … 200						
		20		1 … 320						
		25		1 … 500						
	Basic version with or without position sensing (cylinder barrel made of aluminium)									
	DSNUP 	16	25, 50, 100	2)	–	–	–	–	–	–
		20								
		25								
	Protected against rotation									
	DSNU-Q 	12, 16	–	5 … 160	■	■	■	■	■	■
		20	–	5 … 200						
		25	–	5 … 250						
	Lateral air connection									
	DSNU-MQ 	8, 10	–	1 … 100	–	■	■	■	■	■
		12, 16	–	1 … 200						
		20	–	1 … 320						
		25	–	1 … 500						
	Axial air connection									
	DSNU-MA 	8, 10	–	1 … 100	–	■	■	■	■	■
		12, 16	–	1 … 200						
		20	–	1 … 320						
		25	–	1 … 500						
	Direct mounting									
	DSNU-MH 	8, 10	–	1 … 100	–	■	■	■	■	■
		12, 16	–	1 … 200						
		20	–	1 … 320						
		25	–	1 … 500						
	Basic version without position sensing									
	DSN 	8, 10	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300, 320, 400, 500	1 … 100	■	–	–	–	–	–
		12, 16		1 … 200						
		20		1 … 320						
		25		1 … 500						

1) Cylinders with position sensing require a minimum stroke of 10 mm to ensure reliable sensing
2) Variable stroke on request

Standard cylinders DSNU/DSNUP/DSN, ISO 6432

Product range overview

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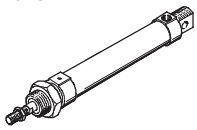
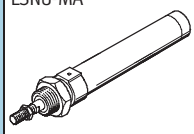
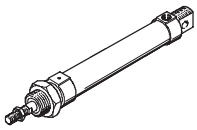
Version	Cushioning			Position sensing	Clamping unit	Heat-resistant seal	Slow speed (constant motion operation)	Low friction	Corrosion protection	→ Page/ Internet
	Fixed	Adjustable ∅ 16 and above PPV[2)]	Self-adjusting ∅ 16 and above PPS	A	KP	S6	S10	S11	R3	
Basic version with position sensing (cylinder barrel made of stainless steel)										
DSNU	■	■	■	■	■	■	■	■	■	12
Basic version with or without position sensing (cylinder barrel made of aluminium)										
DSNUP	■	–	–	■	–	–	–	–	–	21
Protected against rotation										
DSNU-Q	■ ∅ 12	■ ∅ 16 … 25	–	■	■	–	–	–	■ ∅ 12 … 25	24
Lateral air connection										
DSNU-MQ	■	■	■	■	■	■	–	–	■	12
Axial air connection										
DSNU-MA	■	–	–	■	■	■	–	–	■	12
Direct mounting										
DSNU-MH	■	■	–	■	–	■	–	–	■	12
Basic version without position sensing										
DSN	■	■	–	–	–	–	–	–	–	44

2) In the modular product system from ∅ 12 mm

Standard cylinders ESNU/ESN, ISO 6432

Product range overview

Function	Version	Piston∅ [mm]	Stroke [mm]	Variable stroke[1] [mm]	Cushioning Fixed P	Position sensing A
Single-acting	**Basic version with position sensing**					
	ESNU 	8, 10, 12, 16, 20, 25	10, 25, 50	1 … 50	■	■
	Axial air connection					
	ESNU-MA 	8, 10, 12, 16, 20, 25	–	1 … 50	■	■
	Basic version without position sensing					
	ESN 	8, 10, 12, 16, 20, 25	10, 25, 50	1 … 50	■	–

1) Cylinders with position sensing require a minimum stroke of 10 mm to ensure reliable sensing

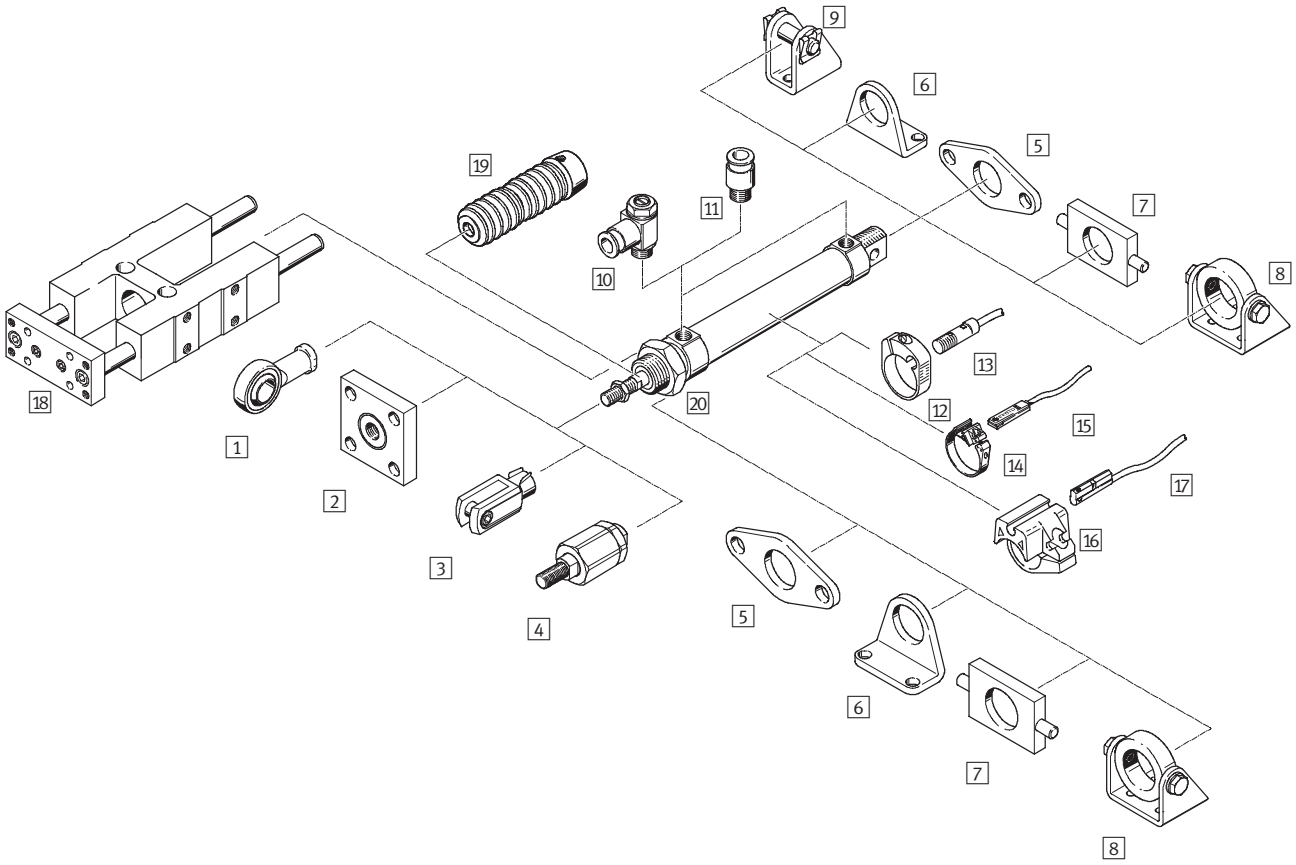
Standard cylinders ESNU/ESN, ISO 6432

Product range overview

Version	Piston rod					→ Page/Internet
	Extended	Male thread			Female thread	
		Extended	Shortened	Special thread		
	K8	K2	K6	K5	K3	
Basic version with position sensing						
ESNU	■	■	■	■	■	36
Axial air connection						
ESNU-MA	■	■	■	■	■	36
Basic version without position sensing						
ESN	–	–	–	–	–	50

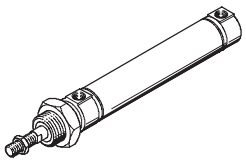
Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Peripherals overview

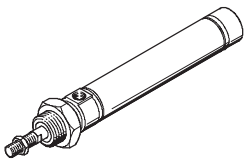


Variants

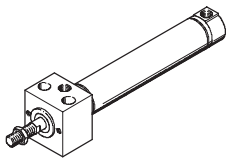
DSNU-MQ



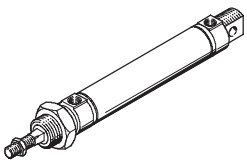
DSNU-MA



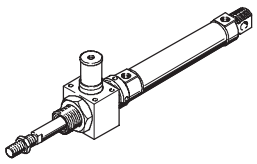
DSNU-MH



DSNU-Q

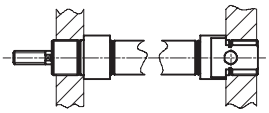


DSNU-KP

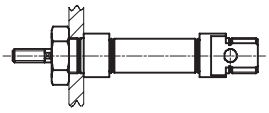


Mounting options

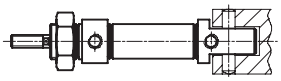
Mounting front and rear



Mounting with hex nut

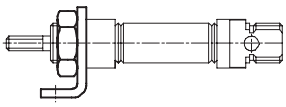


Swivel mounting

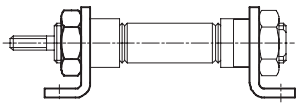


Installation variants with mounting attachments

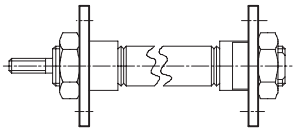
Foot mounting (for short strokes)



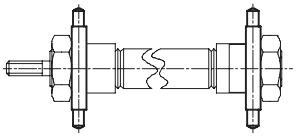
Foot mounting



Flange mounting



Swivel mounting



Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Peripherals overview

Mounting attachments and accessories	DSNU/ ESNU	DSNUP	DSNU/ ESNU	DSNU			DSNU-Q	DSN/ESN	→ Page/Internet
			MA	MQ	MH	KP			
1 Rod eye SGS/CRSGS	■	■	■	■	■	■	■	■	57
2 Coupling piece KSG/KSZ	■	■	■	■	■	■	■	■	57
3 Rod clevis SG/CRSG	■	■	■	■	■	■	■	■	57
4 Self-aligning rod coupler FK	■	■	■	■	■	■	■	■	57
5 Flange mounting FBN/CRFBN	■	■	■	■	–	■	■	■	55
6 Foot mounting HBN/CRHBN	■	■	■	■	–	■	■	■	54
7 Swivel mounting[1] WBN	■	■	■	■	–	■	■	■	56
8 Swivel mounting[1] SBN	■	–	■	■	–	■	■	■	55
9 Clevis foot LBN/CRLBN	■	■	–	–	–	■	■	■	56
10 One-way flow control valve[2] GRLA/GRLZ/CRGRLA	■	■	■	■	■	■	■	■	65
11 Push-in fitting[2] QS	■	■	■	■	■	■	■	■	quick star
12 Mounting kit SMBR/CRSMBR	■	–	■	■	■	■	■	–	62
13 Proximity sensor SMEO/SMTO/CRSMEO-4	■	–	■	■	■	■	■	–	62
14 Mounting kit SMBR-8	■	■	■	■	■	■	■	–	63
15 Proximity sensor SME/SMT-8	■	■	■	■	■	■	■	–	63
16 Mounting kit SMBR-10	■	–	■	■	■	■	■	–	64
17 Proximity sensor SME/SMT-10	■	–	■	■	■	■	■	–	64
18 Guide unit FEN	■	–	■	■	–	–	–	■	57
19 Bellows kit[3] DADB	■	–	■	■	–	–	–	–	58
20 Hex nut MSK	■	–	■	■	■	■	■	■	57

Note

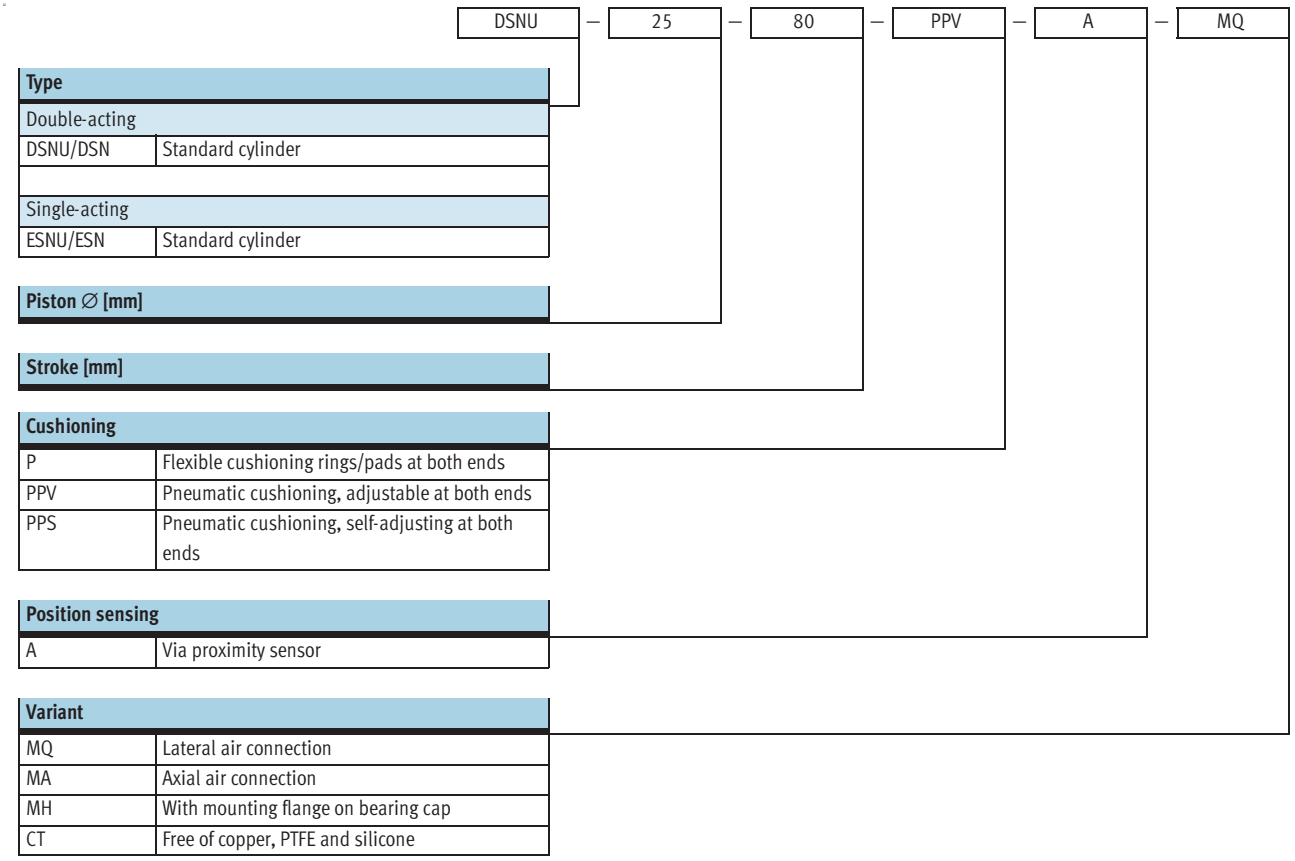
1) Cannot be used on the bearing cap in combination with bellows kit DADB.

2) Only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used for the compressed air ports in conjunction with the DSNUP.

3) The bellows kit protects the cylinder (piston rod, seal and bearings) against a wide range of media and thus prevents premature wear. It can only be used in combination with an extended piston rod (K8).

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Type codes



Type	
Double-acting	
DSNU/DSN	Standard cylinder
Single-acting	
ESNU/ESN	Standard cylinder

Piston ∅ [mm]

Stroke [mm]

Cushioning	
P	Flexible cushioning rings/pads at both ends
PPV	Pneumatic cushioning, adjustable at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends

Position sensing	
A	Via proximity sensor

Variant	
MQ	Lateral air connection
MA	Axial air connection
MH	With mounting flange on bearing cap
CT	Free of copper, PTFE and silicone

Modular product system

Individually configurable

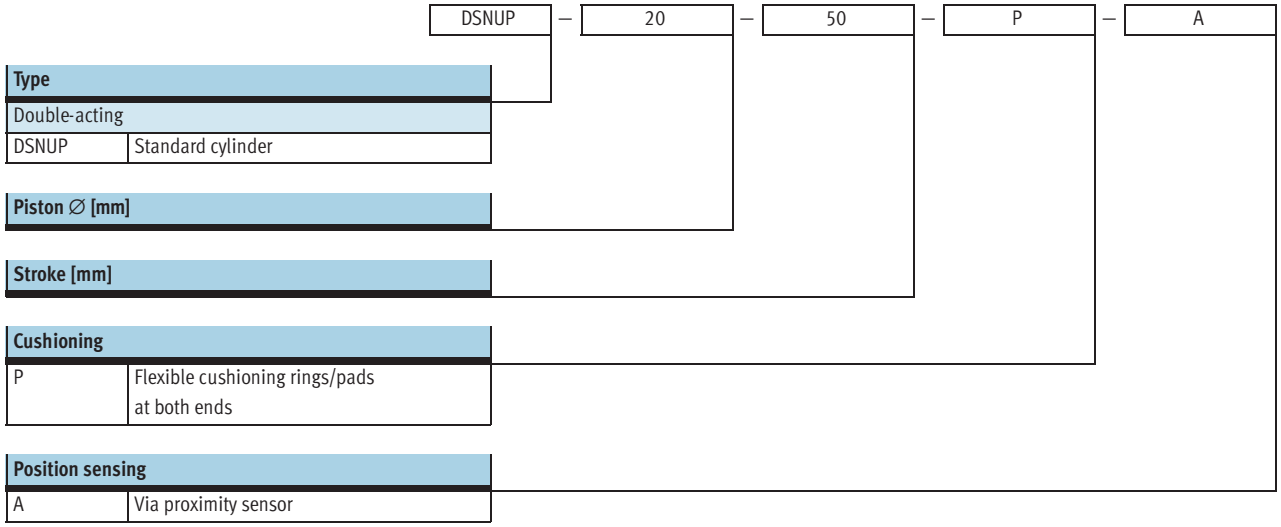
DSNU ➔ 32

ESNU ➔ 42

- Square piston rod (protection against rotation)
- Through piston rod (piston rod type)
- Extended male piston rod thread
- Male piston rod thread, shortened at one end
- Female piston rod thread (female thread)
- Special piston rod thread (special thread)
- Extended piston rod at front
- Clamping unit on the piston rod
- Heat-resistant seals for temperatures up to 120 °C (temperature resistance)
- Slow speed (constant motion at low piston rod speeds)
- Low friction
- All external cylinder surfaces conform to corrosion resistance class CRC 3 (corrosion protection)

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Type codes

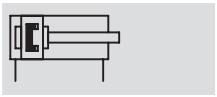


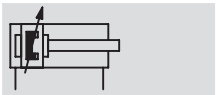
Standard cylinders DSNU, ISO 6432

Technical data

FESTO

Function





- Ø - Diameter
  8 ... 25 mm

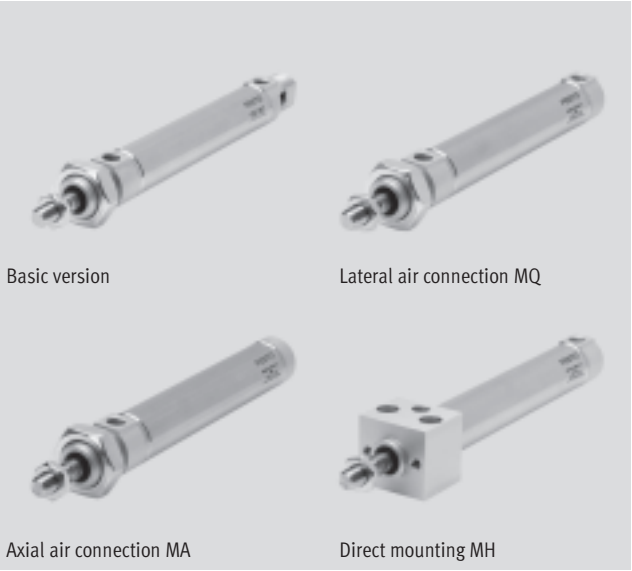
- I - Stroke length
  1 ... 500 mm

Variant

CT-free

Additional variants

➔ 17



Basic version | Lateral air connection MQ

Axial air connection MA | Direct mounting MH

General technical data							
Piston Ø			8	10	12	16	20	25
Pneumatic connection			M5	M5	M5	M5	G1/8	G1/8
Piston rod thread			M4	M4	M6	M6	M8	M10x1.25
Constructional design			Piston					
			Piston rod					
			Cylinder barrel					
Cushioning	P		Flexible cushioning rings/pads at both ends					
	PPV		–		Adjustable cushioning at both ends			
	PPS		–			Self-adjusting cushioning at both ends		
Cushioning length	PPV	[mm]	–		9	12	15	17
	PPS	[mm]	–			12	15	17
Position sensing			Via proximity sensor					
Type of mounting			Direct mounting (MH variant only)					
			Via accessories					
Mounting position			Any					

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Operating conditions								
Piston Ø			8	10	12	16	20	25
Operating medium			Filtered compressed air, lubricated or unlubricated					
Operating pressure	Basic version	[bar]	1.5 ... 10[1]			1 ... 10		
	S10		–		1.5 ... 10		1 ... 10	
	S11		–		0.45 ... 10	0.3 ... 10		

1) With DSNU-12- ... -PPV (pneumatic cushioning adjustable at both ends): 2 ... 10 bar

Ambient conditions							
Standard cylinder		Basic version	CT	S6	S10	S11	R3
Ambient temperature[1]	[°C]	–20 ... +80		0 ... +120	+5 ... +80		–20 ... +80
Corrosion resistance class CRC[2]		2	2	2	2	2	3
ATEX		Specified types ➔ www.festo.com					

1) Note operating range of proximity sensors.

2) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 3 as per Festo standard 940 070
Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

Speed [mm/s]				
Piston ∅		16	20	25
Speed with stick-slip-free operation, horizontal, without load, at 6 bar	S10	10 ... 100		
Minimum speed, advancing	S11	2.7	5.3	<1 [1]
Minimum speed, retracting	S11	3.2	4.7	<1 [1]

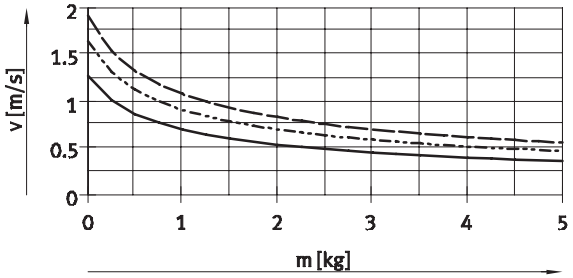
1) Measurements of less than 1 mm/s were not conducted

Force [N] and impact energy [J]						
Piston ∅	8	10	12	16	20	25
Theoretical force at 6 bar, advancing	30	47	68	121	189	295
Theoretical force at 6 bar, retracting	23	40	51	104	158	247
Max. impact energy at the end positions for flexible cushioning elements [1]	0.03	0.05	0.07	0.15	0.20	0.30

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

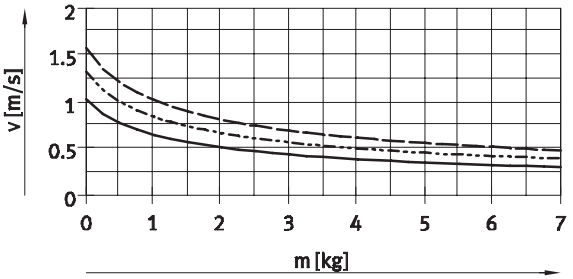
Average piston speed v as a function of applied load m in combination with PPS cushionings

Piston ∅ 16



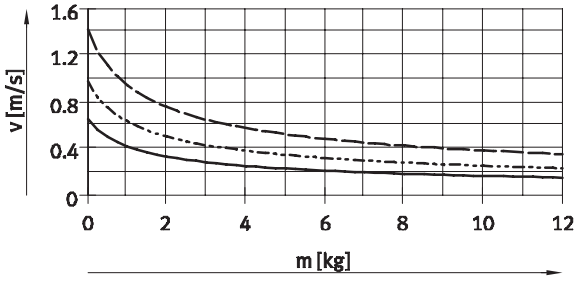
DSNU-16-50
DSNU-16-100
DSNU-16-200

Piston ∅ 20



DSNU-20-50
DSNU-20-100
DSNU-20-200

Piston ∅ 25



DSNU-25-50
DSNU-25-100
DSNU-25-200

Note

Average piston speed
= stroke/movement time

Note

Design software
for flexible cushioning elements
➔ ProDrive

Additional graphs
for PPS cushioning
➔ www.festo.com

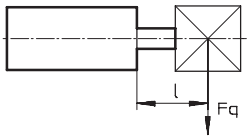
Design software
for PPV cushioning
➔ ProDrive

Standard cylinders DSNU, ISO 6432

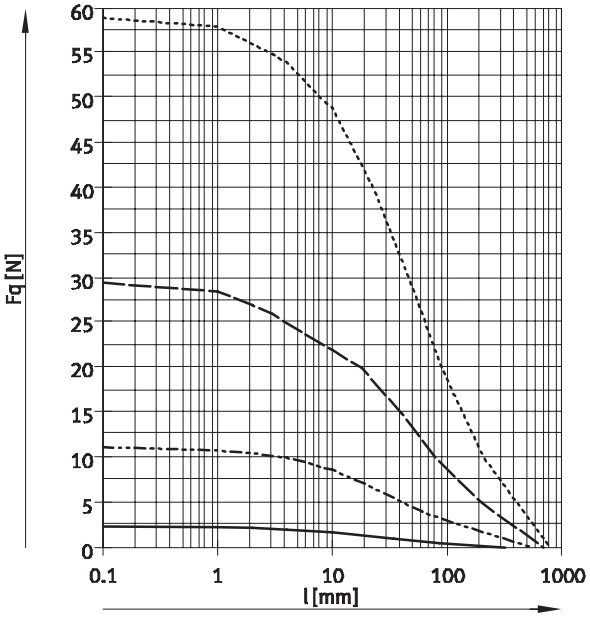
Technical data

Weight [g]						
Piston ∅	8	10	12	16	20	25
Product weight with 0 mm stroke	34.6	37.3	75	89.9	186.8	238
Additional weight per 10 mm stroke	2.4	2.7	4	4.6	7.2	11

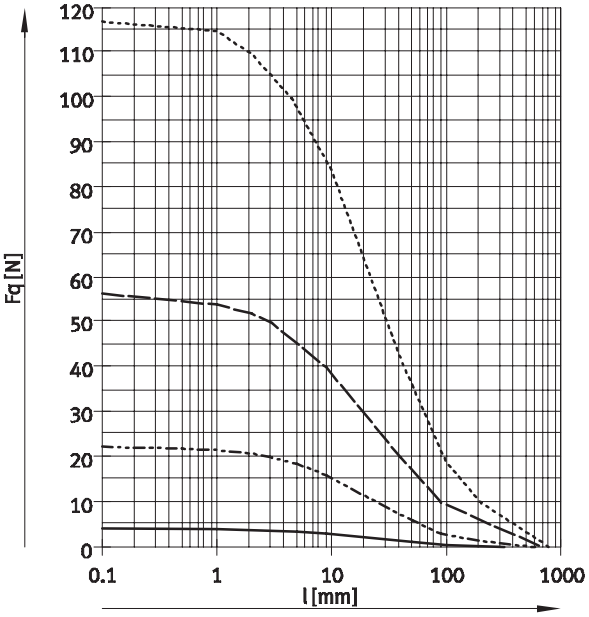
Max. lateral force Fq as a function of stroke length l



Basic version



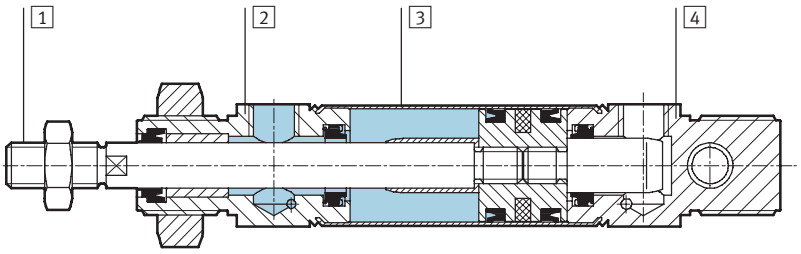
S2 – Through piston rod



— ∅ 8/10
-·-·- ∅ 12/16
— — — ∅ 20
---------- ∅ 25

Materials

Sectional view



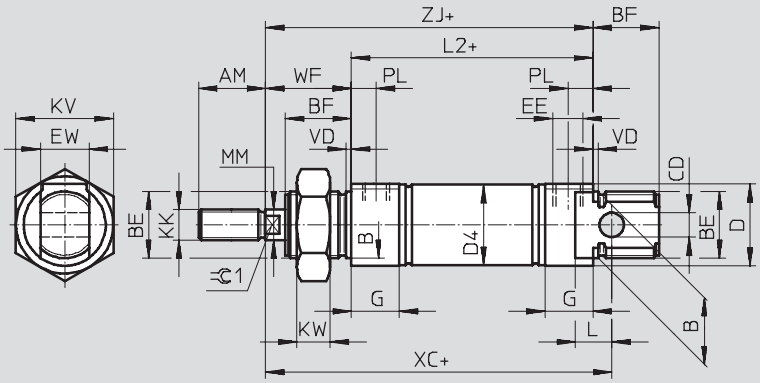
Standard cylinder		Basic version	R3	CT	S6	S10	S11
1	Piston rod	High-alloy stainless steel					
2	Bearing cap	Wrought aluminium alloy					
3	Cylinder barrel	High-alloy stainless steel					
4	End cap	Wrought aluminium alloy					
–	Seals	Polyurethane, nitrile rubber			Fluoro elastomer		

Standard cylinders DSNU, ISO 6432

Technical data

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

Basic version



Note

Piston rod nut is not included in scope of delivery for ∅ 8 ... 20.

\+ = plus stroke length

∅ [mm]	AM	B ∅ h9	BE	BF	CD ∅ E10	D ∅	D4 ∅	EE	EW	G	KK	KV
8	12	12	M12x1.25	12	4	15	9.3	M5	8	10	M4	19
10							11.3					
12	16	16	M16x1.5	17	6	20	13.3		12		M6	24
16							17.3					
20	20	22	M22x1.5	20	8	27	21.3	G1⁄8	16	16	M8	32
25	22			22			26.5				M10x1.25	

∅ [mm]	KW	L	L2	MM ∅	PL	TO	VD	WF	XC ±1	ZJ	⫧1
8	6	6	46	4	6	18	2	16	64	62	–
10											
12	8	9	50	6		23		22	75	72	5
16			56						82	78	
20	11	12	68	8	8.2	31		24	95	92	7
25			69.5	10				28	104	97.5	9

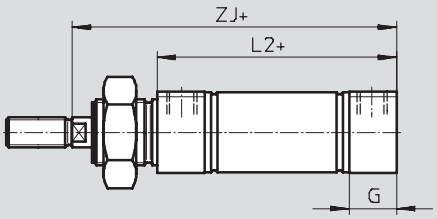
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard cylinders DSNU, ISO 6432

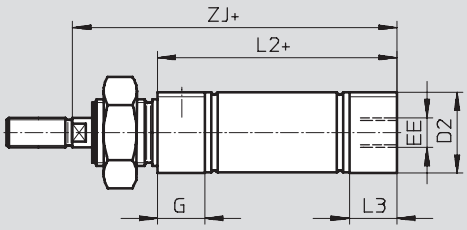
Technical data

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

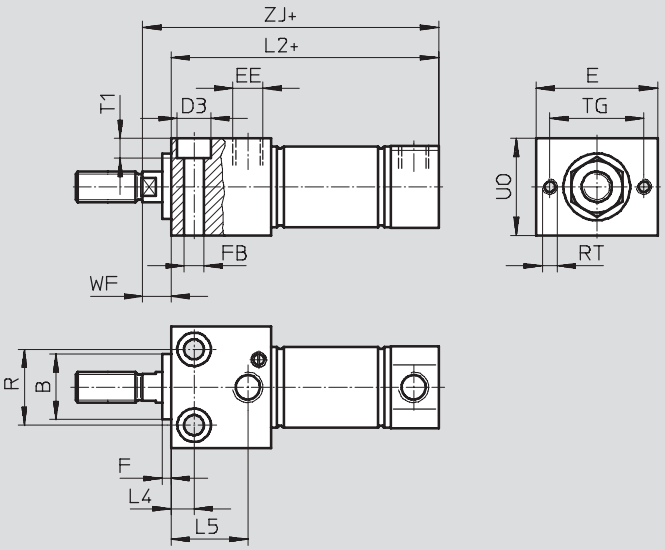
MQ – Lateral air connection



MA – Axial air connection



MH – With direct mounting



\+ = plus stroke length

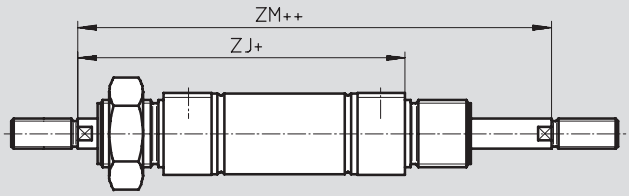
∅ [mm]	B ∅ h9	D2 ∅	D3 ∅	E	EE	F	FB ∅	G	L2 -MQ	L2 -MA	L2 -MH
8	12	10.5	6	24	M5	3	3.4	10	46	43.6	53.5
10		12.5								43.1	53.8
12	16	14.5	8	30			4.5		50	47.7	62
16		17.5							56	53.7	67.5
20	22	21.7	10	40	G⅛		5.5	16	68	66.5	81.5
25		26.7	11				6.6		69.5	68.5	86.2

∅ [mm]	L3	L4	L5	R	RT	TG	T1	UO	WF	ZJ -MQ	ZJ -MA	ZJ -MH
8	7.6	5	14	12	M3	18	3.4	16	8	62	59.6	61.5
10	7.1										59.1	61.8
12	7.7	6	18.1	16	M4	23	4.5	22	10	72	69.7	72
16										78	75.7	77.8
20	14.5	7.5	22.4	22	M5	31	5.5	28		92	90.5	91.5
25	14		25.2	25			6.6	32	11	97.5	96.5	97.2

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

S2 – Through piston rod

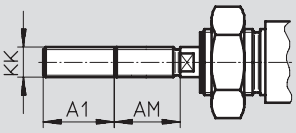


Note

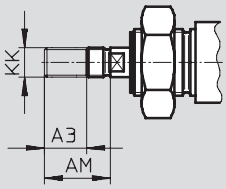
The thread types at both piston rod ends are identical. In combination with variant Q, the left-hand piston rod end is square, the right-hand piston rod end round.

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

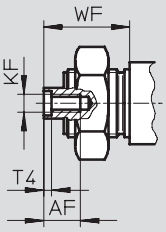
K2 – Extended male piston rod thread



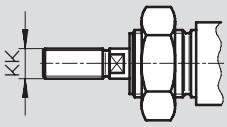
K6 – Shortened male piston rod thread



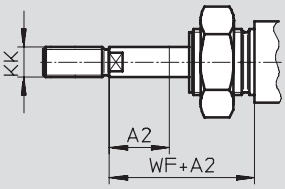
K3 – Female piston rod thread



K5 – Special thread on piston rod



K8 – Extended piston rod



Note

If variant K8 is required in combination with S2, the piston rod will only be extended on one side.

∅ [mm]	A1 max.	A2 max.	A3 max.	AM	AF	KF	KK		T4	WF	ZJ			ZM
							Basic thread	Special thread[1)]			-MQ	-MA	-MH	
8	15	50	4	12	–	–	M4	–	–	16	62	59.6	61.5	78.4
10					–	–		–	–			59.1	61.8	
12	20	100		16	–	–	M6	–	–	22	72	69.7	72	94
16					–	–		–	–		78	75.7	77.8	100
20	25	110	8	20	12	M4	M8	–	2	24	92	90.5	91.5	116
25	35	150		22		M6	M10x1.25	M10	2.6	28	97.5	96.5	97.2	125.5

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

Standard cylinders DSNU, ISO 6432

Technical data

Ordering data								
Type	Piston ∅	Stroke	P – Flexible cushioning rings/ pads at both ends A – With position sensing			PPV – Pneumatic cushioning, adjustable at both ends A – With position sensing	
	[mm]	[mm]	Part No.	Type		Part No.	Type
Basic version							
	8	10	**19 177**	**DSNU-8-10-P-A**		–	
		25	**19 178**	**DSNU-8-25-P-A**			
		40	**19 179**	**DSNU-8-40-P-A**			
		50	**19 180**	**DSNU-8-50-P-A**			
		80	**19 181**	**DSNU-8-80-P-A**			
		100	**19 182**	**DSNU-8-100-P-A**			
	10	10	**19 183**	**DSNU-10-10-P-A**		–	
		25	**19 184**	**DSNU-10-25-P-A**			
		40	**19 185**	**DSNU-10-40-P-A**			
		50	**19 186**	**DSNU-10-50-P-A**			
		80	**19 187**	**DSNU-10-80-P-A**			
		100	**19 188**	**DSNU-10-100-P-A**			
	12	10	**19 189**	**DSNU-12-10-P-A**		–	
		25	**19 190**	**DSNU-12-25-P-A**			
		40	**19 191**	**DSNU-12-40-P-A**			
		50	**19 192**	**DSNU-12-50-P-A**			
		80	**19 193**	**DSNU-12-80-P-A**			
		100	**19 194**	**DSNU-12-100-P-A**			
		125	**19 195**	**DSNU-12-125-P-A**			
		160	**19 196**	**DSNU-12-160-P-A**			
		200	**19 197**	**DSNU-12-200-P-A**			
	16	10	**19 198**	**DSNU-16-10-P-A**		–	
		25	**19 199**	**DSNU-16-25-P-A**		**33 973**	**DSNU-16-25-PPV-A**
		40	**19 200**	**DSNU-16-40-P-A**		**19 229**	**DSNU-16-40-PPV-A**
		50	**19 201**	**DSNU-16-50-P-A**		**19 230**	**DSNU-16-50-PPV-A**
		80	**19 202**	**DSNU-16-80-P-A**		**19 231**	**DSNU-16-80-PPV-A**
		100	**19 203**	**DSNU-16-100-P-A**		**19 232**	**DSNU-16-100-PPV-A**
		125	**19 204**	**DSNU-16-125-P-A**		**19 233**	**DSNU-16-125-PPV-A**
		160	**19 205**	**DSNU-16-160-P-A**		**19 234**	**DSNU-16-160-PPV-A**
		200	**19 206**	**DSNU-16-200-P-A**		**19 235**	**DSNU-16-200-PPV-A**
	20	10	**19 207**	**DSNU-20-10-P-A**		–	
		25	**19 208**	**DSNU-20-25-P-A**		**33 974**	**DSNU-20-25-PPV-A**
		40	**19 209**	**DSNU-20-40-P-A**		**19 236**	**DSNU-20-40-PPV-A**
		50	**19 210**	**DSNU-20-50-P-A**		**19 237**	**DSNU-20-50-PPV-A**
		80	**19 211**	**DSNU-20-80-P-A**		**19 238**	**DSNU-20-80-PPV-A**
		100	**19 212**	**DSNU-20-100-P-A**		**19 239**	**DSNU-20-100-PPV-A**
		125	**19 213**	**DSNU-20-125-P-A**		**19 240**	**DSNU-20-125-PPV-A**
		160	**19 214**	**DSNU-20-160-P-A**		**19 241**	**DSNU-20-160-PPV-A**
		200	**19 215**	**DSNU-20-200-P-A**		**19 242**	**DSNU-20-200-PPV-A**
		250	**19 216**	**DSNU-20-250-P-A**		**19 243**	**DSNU-20-250-PPV-A**
		300	**19 217**	**DSNU-20-300-P-A**		**19 244**	**DSNU-20-300-PPV-A**
		320	**34 718**	**DSNU-20-320-P-A**		**34 720**	**DSNU-20-320-PPV-A**

Standard cylinders DSNU, ISO 6432

Technical data

FESTO

Ordering data							
Type	Piston ∅	Stroke	P – Flexible cushioning rings/ pads at both ends A – With position sensing			PPV – Pneumatic cushioning, adjustable at both ends A – With position sensing	
	[mm]	[mm]	Part No.	Type		Part No.	Type
Basic version							
	25	10	**19 218**	**DSNU-25-10-P-A**		**–**	
		25	**19 219**	**DSNU-25-25-P-A**		**33 975**	**DSNU-25-25-PPV-A**
		40	**19 220**	**DSNU-25-40-P-A**		**19 245**	**DSNU-25-40-PPV-A**
		50	**19 221**	**DSNU-25-50-P-A**		**19 246**	**DSNU-25-50-PPV-A**
		80	**19 222**	**DSNU-25-80-P-A**		**19 247**	**DSNU-25-80-PPV-A**
		100	**19 223**	**DSNU-25-100-P-A**		**19 248**	**DSNU-25-100-PPV-A**
		125	**19 224**	**DSNU-25-125-P-A**		**19 249**	**DSNU-25-125-PPV-A**
		160	**19 225**	**DSNU-25-160-P-A**		**19 250**	**DSNU-25-160-PPV-A**
		200	**19 226**	**DSNU-25-200-P-A**		**19 251**	**DSNU-25-200-PPV-A**
		250	**19 227**	**DSNU-25-250-P-A**		**19 252**	**DSNU-25-250-PPV-A**
		300	**19 228**	**DSNU-25-300-P-A**		**19 253**	**DSNU-25-300-PPV-A**
		320	**34 719**	**DSNU-25-320-P-A**		**34 721**	**DSNU-25-320-PPV-A**
		400	**35 191**	**DSNU-25-400-P-A**		**35 193**	**DSNU-25-400-PPV-A**
		500	**35 192**	**DSNU-25-500-P-A**		**35 194**	**DSNU-25-500-PPV-A**

Ordering data							
Type	Piston ∅	Stroke	P – Flexible cushioning rings/ pads at both ends A – With position sensing			PPV – Pneumatic cushioning, adjustable at both ends A – With position sensing	
	[mm]	[mm]	Part No.	Type		Part No.	Type
Variable stroke lengths							
	8	10 ... 100	**14 326**	**DSNU-8-...-P-A**		**–**	
	10	10 ... 100	**14 325**	**DSNU-10-...-P-A**			
	12	10 ... 200	**14 324**	**DSNU-12-...-P-A**			
	16	10 ... 200	**14 323**	**DSNU-16-...-P-A**		**14 320**	**DSNU-16-...-PPV-A**
	20	10 ... 320	**14 328**	**DSNU-20-...-P-A**		**14 321**	**DSNU-20-...-PPV-A**
	25	10 ... 500	**14 327**	**DSNU-25-...-P-A**		**14 322**	**DSNU-25-...-PPV-A**
Variable stroke lengths, free of copper, PTFE and silicone							
 CT-free	8	10 ... 100	**170 121**	**DSNU-8-...-P-A-CT**		**–**	
	10	10 ... 100	**170 122**	**DSNU-10-...-P-A-CT**			
	12	10 ... 200	**170 123**	**DSNU-12-...-P-A-CT**			
	16	10 ... 200	**170 124**	**DSNU-16-...-P-A-CT**		**170 127**	**DSNU-16-...-PPV-A-CT**
	20	10 ... 320	**170 125**	**DSNU-20-...-P-A-CT**		**170 128**	**DSNU-20-...-PPV-A-CT**
	25	10 ... 500	**170 126**	**DSNU-25-...-P-A-CT**		**170 129**	**DSNU-25-...-PPV-A-CT**

- Note

Additional variants can be configured and ordered via the DSNU product modules ➔ 32.

Standard cylinders DSNU, ISO 6432

Technical data

FESTO

Ordering data							
Type	Piston ∅	Stroke	PPS – Pneumatic cushioning, self-adjustable at both ends Without position sensing			PPS – Pneumatic cushioning, self-adjustable at both ends A – With position sensing	
	[mm]	[mm]	Part No.	Type		Part No.	Type
Basic version							
	16	25	–			559 263	DSNU-16-25-PPS-A
		40	559 234	DSNU-16-40-PPS		559 264	DSNU-16-40-PPS-A
		50	559 235	DSNU-16-50-PPS		559 265	DSNU-16-50-PPS-A
		80	559 236	DSNU-16-80-PPS		559 266	DSNU-16-80-PPS-A
		100	559 237	DSNU-16-100-PPS		559 267	DSNU-16-100-PPS-A
		125	559 238	DSNU-16-125-PPS		559 268	DSNU-16-125-PPS-A
		160	559 239	DSNU-16-160-PPS		559 269	DSNU-16-160-PPS-A
		200	559 240	DSNU-16-200-PPS		559 270	DSNU-16-200-PPS-A
	20	25	–			559 271	DSNU-20-25-PPS-A
		40	559 241	DSNU-20-40-PPS		559 272	DSNU-20-40-PPS-A
		50	559 242	DSNU-20-50-PPS		559 273	DSNU-20-50-PPS-A
		80	559 243	DSNU-20-80-PPS		559 274	DSNU-20-80-PPS-A
		100	559 244	DSNU-20-100-PPS		559 275	DSNU-20-100-PPS-A
		125	559 245	DSNU-20-125-PPS		559 276	DSNU-20-125-PPS-A
		160	559 246	DSNU-20-160-PPS		559 277	DSNU-20-160-PPS-A
		200	559 247	DSNU-20-200-PPS		559 278	DSNU-20-200-PPS-A
		250	559 248	DSNU-20-250-PPS		559 279	DSNU-20-250-PPS-A
		300	559 249	DSNU-20-300-PPS		559 280	DSNU-20-300-PPS-A
		320	559 250	DSNU-20-320-PPS		559 281	DSNU-20-320-PPS-A
	25	25	–			559 282	DSNU-25-25-PPS-A
		40	559 251	DSNU-25-40-PPS		559 283	DSNU-25-40-PPS-A
		50	559 252	DSNU-25-50-PPS		559 284	DSNU-25-50-PPS-A
		80	559 253	DSNU-25-80-PPS		559 285	DSNU-25-80-PPS-A
		100	559 254	DSNU-25-100-PPS		559 286	DSNU-25-100-PPS-A
		125	559 255	DSNU-25-125-PPS		559 287	DSNU-25-125-PPS-A
		160	559 256	DSNU-25-160-PPS		559 288	DSNU-25-160-PPS-A
		200	559 257	DSNU-25-200-PPS		559 289	DSNU-25-200-PPS-A
		250	559 258	DSNU-25-250-PPS		559 290	DSNU-25-250-PPS-A
		300	559 269	DSNU-25-300-PPS		559 291	DSNU-25-300-PPS-A
		320	559 260	DSNU-25-320-PPS		559 292	DSNU-25-320-PPS-A
		400	559 261	DSNU-25-400-PPS		559 293	DSNU-25-400-PPS-A
		500	559 262	DSNU-25-500-PPS		559 294	DSNU-25-500-PPS-A

Note

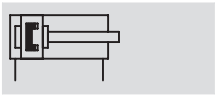
Variable stroke lengths and additional variants can be configured and ordered via the DSNU product modules ➔ 32.

Standard cylinders DSNUP, ISO 6432

Technical data

FESTO

Function



Diameter
16 ... 25 mm

Stroke length
25 ... 100 mm

General technical data			
Piston ∅	16	20	25
Pneumatic connection	M5	G1⁄8	G1⁄8
Constructional design	Piston		
	Piston rod		
	Cylinder barrel		
Mode of operation	Double-acting		
Cushioning	Flexible cushioning rings/pads at both ends		
Position sensing	Via proximity sensor		
Type of mounting	Via accessories		
Mounting position	Any		

Operating and environmental conditions		
Operating medium		Filtered compressed air, lubricated or unlubricated
Operating pressure[1]	[bar]	1 ... 8
Ambient temperature	[°C]	–10 ... +60
Corrosion resistance class CRC[2]		2

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

Force [N] and impact energy [J]			
Piston ∅	16	20	25
Theoretical force at 6 bar, advancing	121	189	295
Theoretical force at 6 bar, retracting	104	158	247
Impact energy at end positions	0.15	0.20	0.30

Weight [g]			
Piston ∅	16	20	25
Product weight with 0 mm stroke	47	83	111
Additional weight per 10 mm stroke	4	6	8
Moving load at 0 mm stroke	23	44	71
Additional load per 10 mm stroke	2	4	6

Standard cylinders DSNUP, ISO 6432

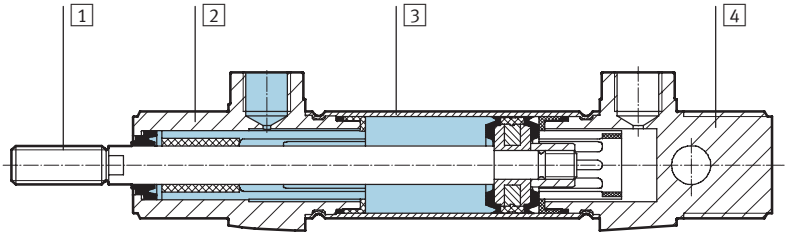
Technical data

FESTO

Speed without applied load [m/s]			
Piston ∅	16	20	25
Advancing			
Minimum	0.015	0.02	0.015
Maximum	2.3	2.3	2.3
Retracting			
Minimum	0.015	0.02	0.015
Maximum	1.9	1.7	2.0

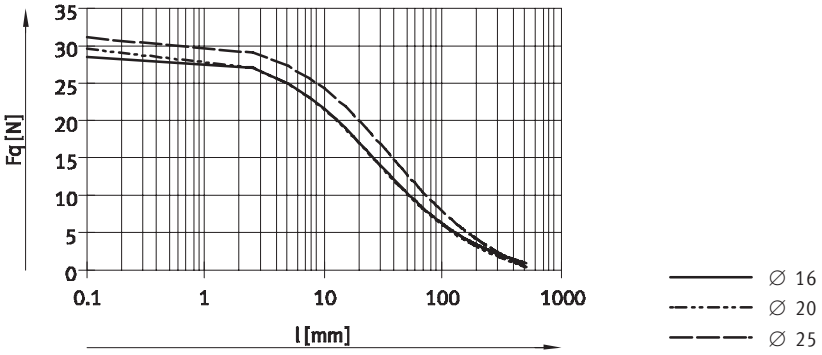
Materials

Sectional view

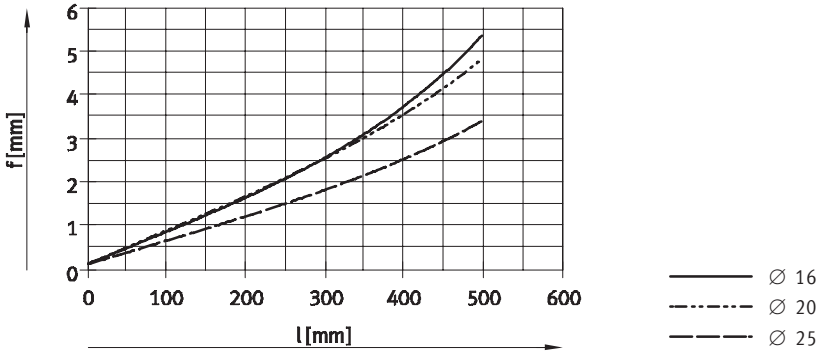


Standard cylinder		
1	Piston rod	High-alloy stainless steel
2	Bearing cap	Polyamide
3	Cylinder barrel	Wrought aluminium alloy
4	End cap	Polyamide
–	Seals	Polyurethane, nitrile rubber
	Note on materials	RoHS-compliant

Permissible lateral force Fq as a function of stroke length l



Permissible piston rod displacement f as a function of stroke length l

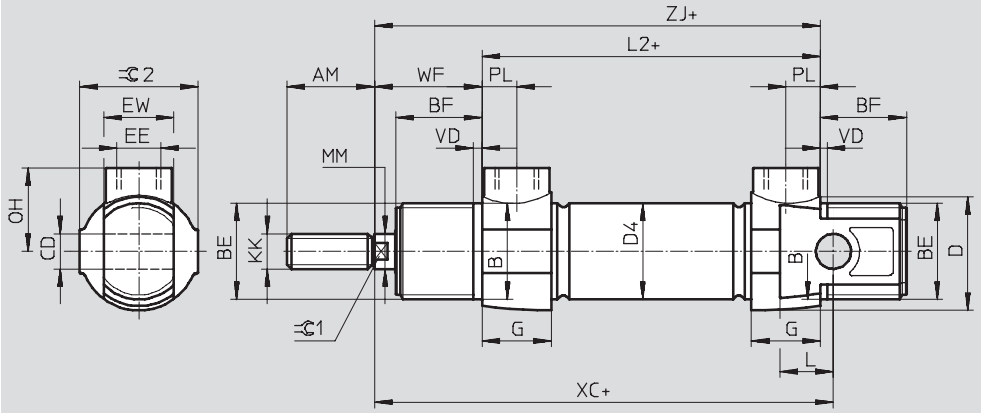


Standard cylinders DSNUP, ISO 6432

Technical data

FESTO

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



Note

For the compressed air ports only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used. Piston rod nut is not included in scope of delivery for ∅ 16/20.

∅ [mm]	AM	B ∅ h9	BE	BF	CD ∅ H9	D ∅	D4 ∅	EE
16	16	16	M16x1.5	17	6	20	18	M5
20	20	22	M22x1.5	20	8	27	22	G1⁄8
25	22	22	M22x1.5	22	8	27	27	G1⁄8

∅ [mm]	EW	G	KK	L	L2	MM ∅	OH	PL	VD
16	12	10	M6	8	56	6	14	4.9	2
20	16	16	M8	12	68	8	19	7.9	2
25	16	16	M10x1.25	12	70	10	19	7.9	2

∅ [mm]	WF	XC ±1	ZJ	⌀ 1	⌀ 2	Max. tightening torque of thread [Nm]	
						BE[1)]	EE
16	22	82	78	5	19	12/8	1.3
20	24	95	92	7	27	22/15	6
25	28	104	98	9	27	22/15	6

1) Bearing cap/end cap

Note

Variable strokes on request.

Ordering data

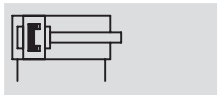
Piston ∅ [mm]	Stroke [mm]	Part No.	Type
16	25	**551 668**	**DSNUP-16-25-P-A**
	50	**551 669**	**DSNUP-16-50-P-A**
	100	**551 670**	**DSNUP-16-100-P-A**
20	25	**551 671**	**DSNUP-20-25-P-A**
	50	**551 672**	**DSNUP-20-50-P-A**
	100	**551 673**	**DSNUP-20-100-P-A**
25	25	**551 674**	**DSNUP-25-25-P-A**
	50	**551 675**	**DSNUP-25-50-P-A**
	100	**551 676**	**DSNUP-25-100-P-A**

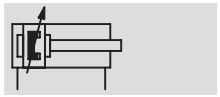
Standard cylinders DSNU-Q, protected against rotation

Technical data

FESTO

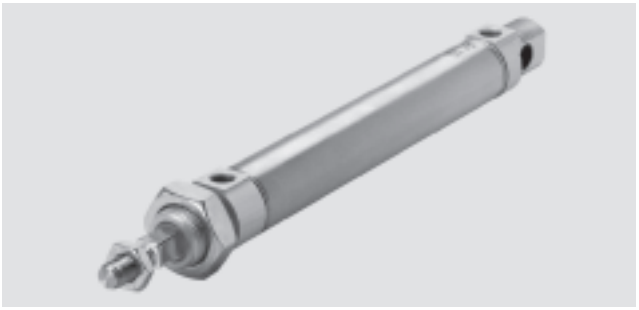
Function





- Ø - Diameter
  12 ... 25 mm

- | - Stroke length
  1 ... 250 mm



General technical data					
Piston∅		12	16	20	25
Pneumatic connection		M5	M5	G1⁄8	G1⁄8
Piston rod thread		M6	M6	M8	M10x1.25
Operating medium		Compressed air, filtered, lubricated or unlubricated			
Constructional design		Piston			
		Protected against rotation with square piston rod			
Max. torque at the piston rod	[Nm]	0.10	0.10	0.20	0.45
Cushioning		Flexible cushioning rings/ pads at both ends	–		
		Adjustable cushioning at both ends			
Cushioning length (PPV)	[mm]	–	12	15	17
Position sensing		Via proximity sensor			
Type of mounting		Via accessories			
Mounting position		Any			

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Operating conditions					
Piston ∅		12	16	20	25
Operating medium		Filtered compressed air, lubricated or unlubricated			
Operating pressure	[bar]	1.5 ... 10[1)]	1 ... 10		

1) With DSNU-12- ... -Q- PPV (pneumatic cushioning adjustable at both ends): 2 ... 10 bar

Ambient conditions			
Standard cylinder		Basic version	R3
Ambient temperature[1)]	[°C]	–20 ... +80	
Corrosion resistance class CRC[2)]		2	3

1) Note operating range of proximity sensors.
2) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 3 as per Festo standard 940 070
Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

Standard cylinders DSNU-Q, protected against rotation

Technical data

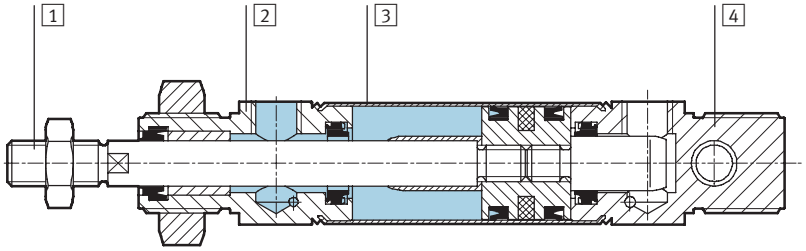
Forces [N] and impact energy [J]				
Piston ∅	12	16	20	25
Theoretical force at 6 bar, advancing	68	121	189	295
Theoretical force at 6 bar, retracting	51	104	158	247
Max. impact energy at the end positions for flexible cushioning elements[1)]	0.07	0.15	0.20	0.30

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

Weight [g]				
Piston ∅	12	16	20	25
Product weight with 0 mm stroke	80	110	215	275
Additional weight per 10 mm stroke	4.1	4.7	7.1	10.9

Materials

Sectional view



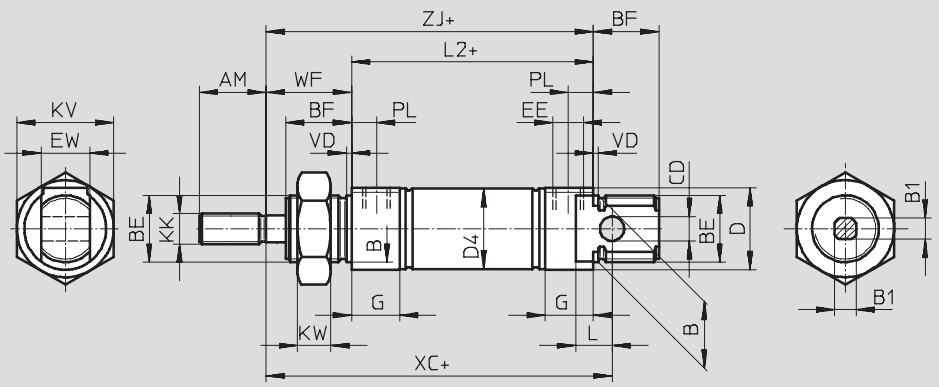
Standard cylinder		
1	Piston rod	High-alloy stainless steel
2	Bearing cap	Wrought aluminium alloy
3	Cylinder barrel	High-alloy stainless steel
4	End cap	Wrought aluminium alloy
–	Seals	Polyurethane, nitrile rubber

Standard cylinders DSNU-Q, protected against rotation

Technical data

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

Basic version



- - Note

Piston rod nut is not included in scope of delivery for ∅ 12 ... 20.

\+ = plus stroke length

∅ [mm]	AM	B ∅ h9	B1 □	BE	BF	CD ∅ E10	D ∅	D4 ∅	EE	EW
12	16	16	5.5	M16x1.5	17	6	20	13.3	M5	12
16								17.3		
20	20	22	7	M22x1.5	20	8	27	21.3	G⅛	16
25	22		9		22			26.5		

∅ [mm]	G	KK	KV	KW	L	L2	PL	VD	WF	XC ±1	ZJ
12	10	M6	24	8	9	50	6	2	22	75	72
16						56				82	78
20	16	M8	32	11	12	68	8.2		24	95	92
25		M10x1.25				69.5			28	104	97.5

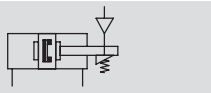
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

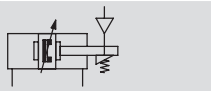
Standard cylinders DSNU-KP, with clamping unit

Technical data

FESTO

Function



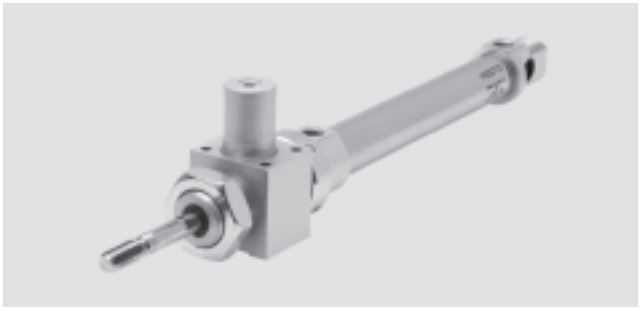


- Ø - Diameter
  8 ... 25 mm

- | - Stroke length
  1 ... 500 mm

- | - 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 ∅			8	10	12	16	20	25
Pneumatic connection			M5	M5	M5	M5	G1⁄8	G1⁄8
Piston rod thread			M4	M4	M6	M6	M8	M10x1.25
Constructional design			Piston					
			Piston rod					
			Cylinder barrel					
Cushioning	P		Flexible cushioning rings/pads at both ends					
	PPV		–		Pneumatic cushioning, adjustable at both ends			
	PPS		–			Self-adjusting cushioning at both ends		
Cushioning length	PPV	[mm]	–		9	12	15	17
	PPS	[mm]	–			12	15	17
Position sensing			Via proximity sensor					
Type of mounting			Via through-holes					
			Via accessories					
Mounting position			Any					
Holding force of the clamping unit		[N]	80	80	180	180	350	350
Max. axial backlash with clamped piston rod without load		[mm]	0.2		0.3			0.5
Pneumatic connection of the clamping unit			M5					

- | - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Operating conditions								
Piston ∅			8	10	12	16	20	25
Operating medium			Filtered compressed air, lubricated or unlubricated					
Operating pressure		[bar]	3 ... 10					

Ambient conditions				
Standard cylinder		Basic version		R3
Ambient temperature[1]	[°C]	–10 ... +80		
Corrosion resistance class CRC[2]		2		3

1) Note operating range of proximity sensors.

2) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 3 as per Festo standard 940 070
Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

Standard cylinders DSNU-KP, with clamping unit

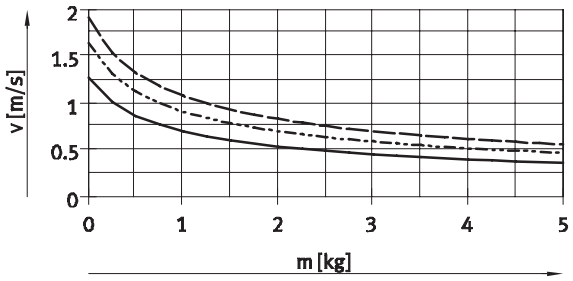
Technical data

Force [N] and impact energy [J]						
Piston ∅	8	10	12	16	20	25
Theoretical force at 6 bar, advancing	30	47	68	121	189	295
Theoretical force at 6 bar, retracting	23	40	51	104	158	247
Max. impact energy at the end positions for flexible cushioning elements[1)]	0.03	0.05	0.07	0.15	0.20	0.30

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

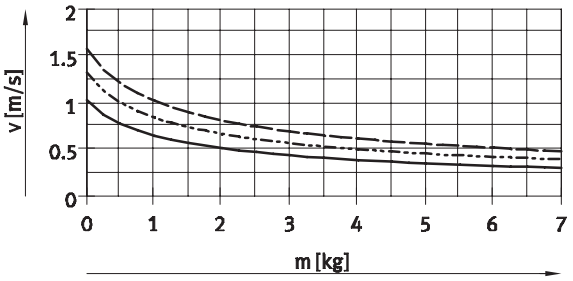
Average piston speed v as a function of applied load m in combination with cushioning PPS

Piston ∅ 16



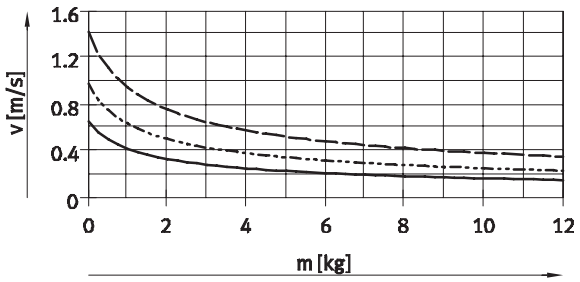
DSNU-16-50
DSNU-16-100
DSNU-16-200

Piston ∅ 20



DSNU-20-50
DSNU-20-100
DSNU-20-200

Piston ∅ 25



DSNU-25-50
DSNU-25-100
DSNU-25-200

Note

Average piston speed
= stroke/movement time

Note

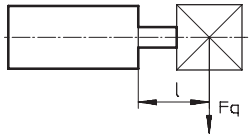
Design software
for flexible cushioning elements
➔ ProDrive

Additional graphs
for PPS cushioning
➔ www.festo.com

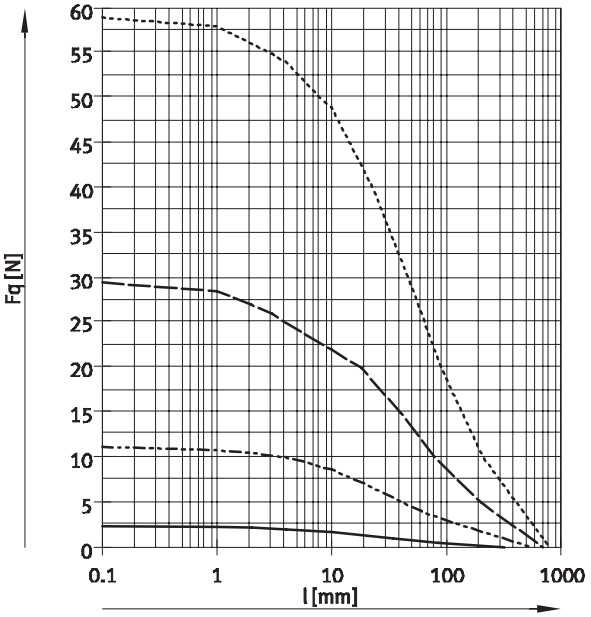
Design software
for PPV cushioning
➔ ProDrive

Weight [g]						
Piston ∅	8	10	12	16	20	25
Product weight with 0 mm stroke	97.6	100.3	193	207.9	393.8	456
Additional weight per 10 mm stroke	2.4	2.7	4	4.6	7.2	11

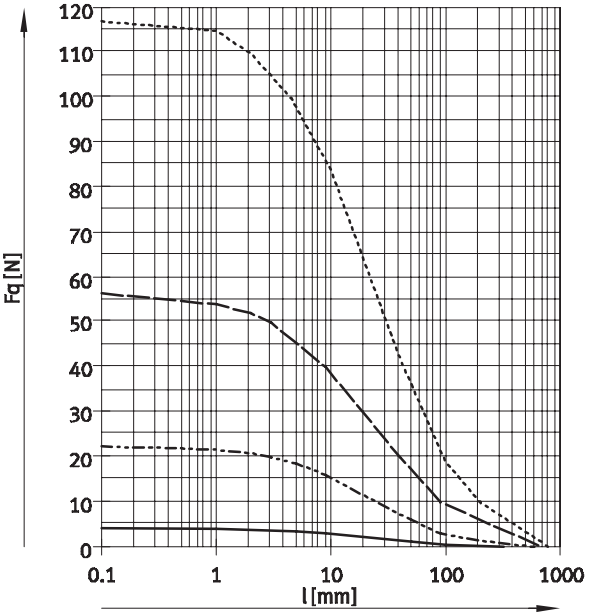
Max. lateral force Fq as a function of the projection l



Basic version



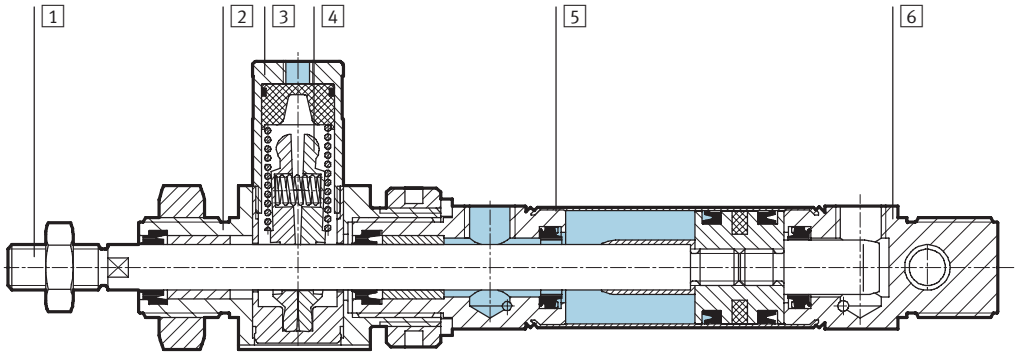
S2 – Through piston rod



— ∅ 8/10
-·-·- ∅ 12/16
– – – ∅ 20
---------- ∅ 25

Materials

Sectional view



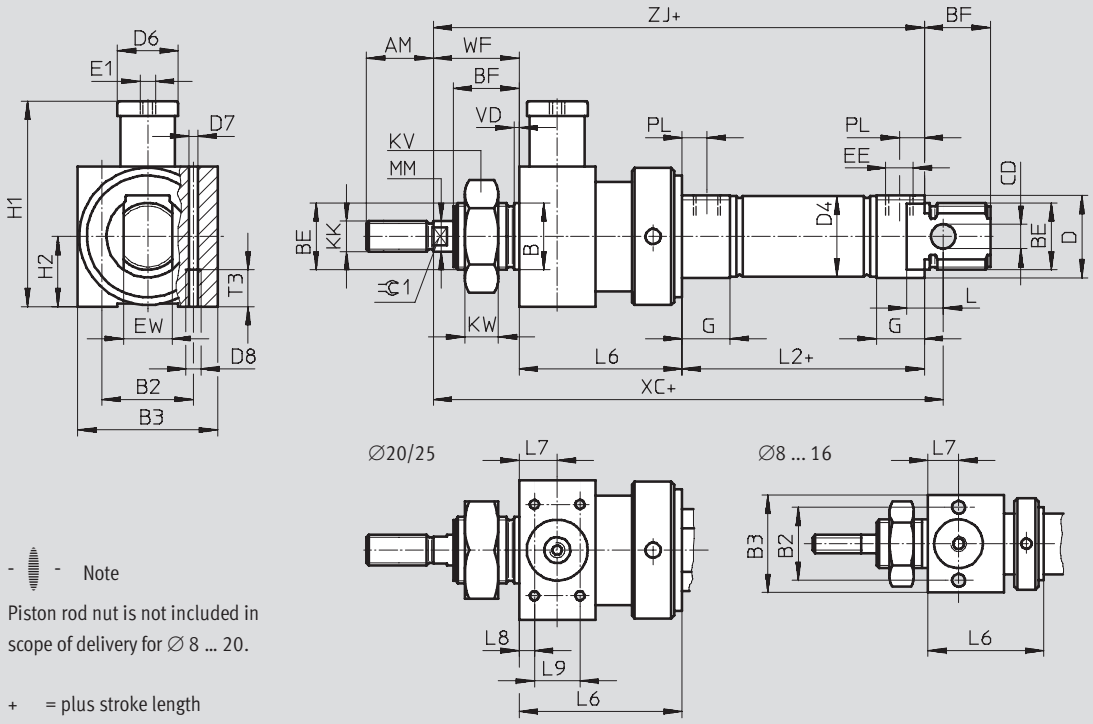
Standard cylinder		
1	Piston rod	High-alloy stainless steel
2	Bearing cap	Wrought aluminium alloy
3	Housing, clamping unit	Wrought aluminium alloy
4	Clamping jaws	Brass
5	Cylinder barrel	High-alloy stainless steel
6	End cap	Wrought aluminium alloy
–	Piston, clamping unit	Polyacetate
–	Spring	Spring steel
–	Seals	Polyurethane, nitrile rubber

Standard cylinders DSNU-KP, with clamping unit

Technical data

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

Basic version

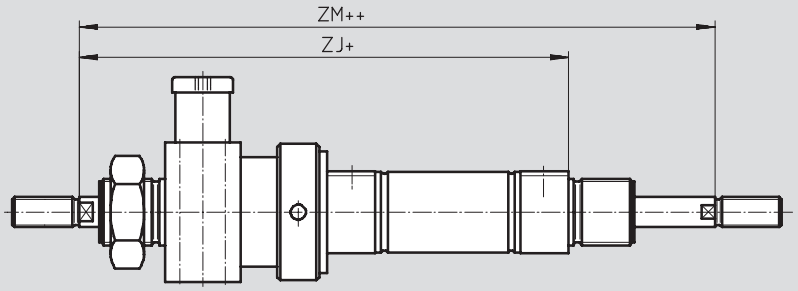


- - Note

Piston rod nut is not included in scope of delivery for ∅ 8 ... 20.

\+ = plus stroke length

S2 – Through piston rod



- - Note

The thread types at both piston rod ends are identical. The clamping unit is mounted on only one side. In combination with variant Q, the right-hand piston rod is square, the left-hand piston rod round. The clamping unit is mounted on the left-hand, round piston rod.

\+ = plus stroke length

++ = plus 2x stroke length

Standard cylinders DSNU-KP, with clamping unit

Technical data

∅ [mm]	AM	B ∅ h9	B2	B3	BE	BF	CD ∅ E10	D ∅	D4 ∅	D6 ∅	D7 ∅	D8
8	12	12	19.5	27	M12x1.25	12	4	15	9.3	12	4.2	M5
10									11.3			
12	16	16	24	32	M16x1.5	17	6	20	13.3	16		
16									17.3			
20	20	22	27	36	M22x1.5	20	8	27	21.3	20		
25	22					22			26.5			

∅ [mm]	E1	EE	EW	G	H1	H2	KK	KV	KW	MM ∅	L	L2
8	M5	M5	8	10	34.5	13.5	M4	19	6	4	6	46
10												
12			12		41	16	M6	24	8	6	9	50
16												56
20		G⅛	16	16	62.5	18	M8	32	11	8	12	68
25							M10x1.25			10		69.5

∅ [mm]	L6	L7	L8	L9	T3	PL	VD	WF	XC ±1	ZJ	ZM	⌀1
8	29 ±0.65	8	–	–	11	6	2	16	93	91	107	–
10			–	–								–
12	38 ±0.75	10	–	–				22	113	110	132	5
16			–	–					120	116	138	
20	47 ±0.75	13	4.5	20		8.2		24	142	139	163	7
25	48 ±0.75							28	152	145.5	173.5	9

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard cylinders DSNU, ISO 6432

Ordering data – Modular products

FESTO

M Mandatory data					O Options →		
Module No.	Function	Piston ∅	Stroke	Cushioning	Position sensing	Cylinder end cap	Type of piston rod
193 986 193 987 193 988 193 989 193 990 193 991 **Order example**	DSNU	8 10 12 16 20 25	1 … 500	P PPV PPS	A	MQ MA MH	S2
193 991	**DSNU** –	**25** –	**350** –	**PPV** –	**A** –	**MH** –	**S2**

Ordering table

Size			8	10	12	16	20	25	Condi-tions	Code	Enter code
M	Module No.		**193 986**	**193 987**	**193 988**	**193 989**	**193 990**	**193 991**			
	Function		Standard cylinder, double-acting, based on ISO 6432							**DSNU**	DSNU
	Piston ∅	[mm]	8	10	12	16	20	25		**-...**	
	Stroke	[mm]	1 … 100		1 … 200		1 … 320	1 … 500		**-...**	
	Cushioning		Flexible cushioning rings/pads at both ends							**-P**	
			–	–	Pneumatic cushioning, adjustable at both ends				1	**-PPV**	
			–	–	–	Pneumatic cushioning, self-adjusting at both ends			13	**-PPS**	
O	Position sensing		Via proximity sensor						2	**-A**	
	Cylinder end cap		Lateral supply port, end cap						3	**-MQ**	
			Axial supply port, end cap						3	**-MA**	
			With mounting flange at front (direct mounting), bearing cap						4	**-MH**	
↓	Type of piston rod		Through piston rod						5	**-S2**	

1 **PPV** Not with MA.
In combination with S6, S10, S11 not with piston ∅ 12 mm

2 **A** Minimum stroke: 10 mm

3 **MQ, MA** Not with S2, S10, S11

4 **MH** Not with combination S6-R3.
Not with KP, S10, S11

5 **S2** Not with S10, S11

13 **PPS** Not with MA, MH, S6, S10, S11
and not with combination MQ-R3

Note

The bellows kit DADB must not be used in combination with the variant MH.
The running characteristics change slightly when the bellows kit DADB is combined with the variant S10 or S11.

Transfer order code

	DSNU	–		–		–		–		–		–

Standard cylinders DSNU, ISO 6432

Ordering data – Modular products

FESTO

0 Options

	Extended male thread	Shortened male thread	Female thread	Special thread	Extended piston rod	Clamping unit	Temperature resistance	Slow speed (constant motion)	Low friction	Corrosion protection
	...K2	...K6	K3	"..."K5	...K8	KP	S6	S10	S11	R3
–		7K6		"M10"K5						R3

Ordering table

Size	8	10	12	16	20	25	Conditions	Code	Enter code
0 Extended male thread [mm]	Extended male piston rod thread 1 ... 15		1 ... 20		1 ... 25	1 ... 35	6	-...K2	
Shortened male thread [mm]	Shortened male piston rod thread 1 ... 4				1 ... 8	1 ... 10	7	-...K6	
Female thread	Female piston rod thread –	–	–	–	(M4)	(M6)	8	-K3	
Special thread	Piston rod with special thread –	–	–	–	–	M10		-"..."K5	
Piston rod extended at one end [mm]	Extended piston rod at one end 1 ... 50		1 ... 100		1 ... 110	1 ... 150		...K8	
Clamping unit	Attached						9	-KP	
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)				11	-S10	
Low friction	–	–	Low friction				12	-S11	
Corrosion protection	–	–	High corrosion protection					-R3	

6 **K2** Not with K3, K6
7 **K6** Not with K3
8 **K3** Not with K5
9 **KP** Not with S6, S10, S11, R3
10 **S6** Not with S10, S11
11 **S10** Not with S11, R3
12 **S11** Not with R3

Transfer order code

–		–		–		–		–		–		–		–		–	

Standard cylinders DSNU-Q, protected against rotation

Ordering data – Modular products

FESTO

M Mandatory data					O Options			
Module No.	**Function**	**Piston ∅**	**Stroke**	**Cushioning**	**Position sensing**	**Cylinder end cap**	**Protection against rotation**	**Type of piston rod**
193 988	DSNU	12	1 … 500	P	A	MQ	Q	S2
193 989		16		PPV		MA		
193 990		20				MH		
193 991		25						
Order example								
193 990	**DSNU**	– **20**	– **150**	– **PPV**	– **A**	– **MQ**	– **Q**	–

Ordering table

Size		12	16	20	25	Condi-tions	Code	Enter code
M	Module No.	**193 988**	**193 989**	**193 990**	**193 991**			
	Function	Standard cylinder, double-acting, based on ISO 6432					**DSNU**	DSNU
	Piston ∅ [mm]	12	16	20	25		**-...**	
	Stroke [mm]	5 … 160		5 … 200	5 … 250		**-...**	
	Cushioning	Flexible cushioning rings/pads at both ends	–	–	–		**-P**	
		–	Pneumatic cushioning, adjustable at both ends				**-PPV**	
O	Position sensing	Via proximity sensor				1	**-A**	
	Cylinder end cap	Lateral supply port, end cap				2	**-MQ**	
		Axial supply port, end cap	–	–	–	2	**-MA**	
		–	With mounting flange at front (direct mounting), bearing cap			3	**-MH**	
	Protection against rotation	Square piston rod					**-Q**	-Q
↓	Type of piston rod	Through piston rod					**-S2**	

1 **A** Minimum stroke: 10 mm
2 **MQ, MA** Not with S2
3 **MH** Not with combination Q-R3

- Note

The bellows kit DADB must not be used in combination with the variant Q.

Transfer order code

	DSNU	–		–		–		–		–		–	**Q**	–

➔ 0 **Options**

	Extended male thread	Shortened male thread	Female thread	Special thread	Extended piston rod	Clamping unit	Corrosion protection
	...K2	...K6	K3	"..."K5	...K8	KP	R3
–	**20K2**				**60K8**	**KP**	

Ordering table

Size	12	16	20	25	Conditions	Code	Enter code
↓ Extended male thread	Extended male piston rod thread						
0 [mm]	1 ... 20		1 ... 25	1 ... 35	4	**-...K2**	
Shortened male thread	Shortened male piston rod thread						
[mm]	1 ... 4		1 ... 8	1 ... 10	5	**-...K6**	
Female thread	Female piston rod thread						
	–	–	(M4)	(M6)	6	**-K3**	
Special thread	Piston rod with special thread						
	–	–	–	M10		**-"..."K5**	
Piston rod extended at one end	Extended piston rod at one end						
[mm]	1 ... 100		1 ... 110	1 ... 150		**...K8**	
Clamping unit	Attached				7	**-KP**	
Corrosion protection	–	High corrosion protection				**-R3**	

4 **K2** Not with K3, K6

5 **K6** Not with K3

6 **K3** Not with K5

7 **KP** Only with S2.
Not with R3

Transfer order code

–		–		–		–		–		–		–	

Standard cylinders ESNU, ISO 6432

Technical data

FESTO

Function

Variant

CT-free

Additional variants

➔39

- Ø - Diameter
  8 ... 25 mm

- I - Stroke length
  1 ... 50 mm

Basic version

Axial air connection MA

General technical data						
Piston ∅	8	10	12	16	20	25
Pneumatic connection	M5	M5	M5	M5	G1⁄8	G1⁄8
Piston rod thread	M4	M4	M6	M6	M8	M10x1.25
Constructional design	Piston					
	Piston rod					
	Cylinder barrel					
Cushioning	Flexible cushioning rings/pads at both ends					
Position sensing	Via proximity sensor					
Type of mounting	Via accessories					
Mounting position	Any					

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Operating conditions							
Piston ∅		8	10	12	16	20	25
Operating medium		Filtered compressed air, lubricated or unlubricated					
Operating pressure	[bar]	1.5 ... 10			1.2 ... 10		

Ambient conditions		
Standard cylinder		
Ambient temperature[1]	[°C]	–20 ... +80
Corrosion resistance class CRC[2]		2

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

Standard cylinders ESNU, ISO 6432

Technical data

Force [N] and impact energy [J]						
Piston ∅	8	10	12	16	20	25
Theoretical force at 6 bar, advancing	24	41	61	107	169	270
Spring return force 10 mm stroke	4.9	4.9	6.3	13.2	18.3	22.9
Spring return force 25 mm stroke	4.1	4.1	5.4	11.9	16.5	21.2
Spring return force 50 mm stroke	2.8	4.8	3.9	9.8	13.6	18.5
Max. impact energy at the end positions[1)]	0.03	0.05	0.07	0.15	0.20	0.30

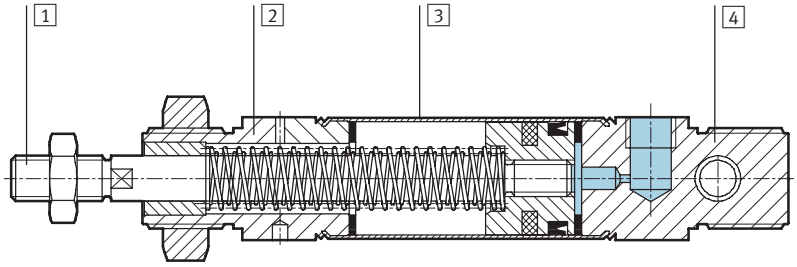
1) The values are reduced by approx. 50% at ambient temperatures of 80 °C

Weight ESNU-... [g]						
Piston ∅	8	10	12	16	20	25
Product weight with 0 mm stroke	35	37.3	75	89.9	186.8	238
Additional weight per 10 mm stroke	2.4	2.7	4	4.6	7.2	11

Weight ESNU-...-MA [g]						
Piston ∅	8	10	12	16	20	25
Product weight with 0 mm stroke	30	33	65	81	167	222
Additional weight per 10 mm stroke	2.4	2.7	4	4.6	7.2	11

Materials

Sectional view



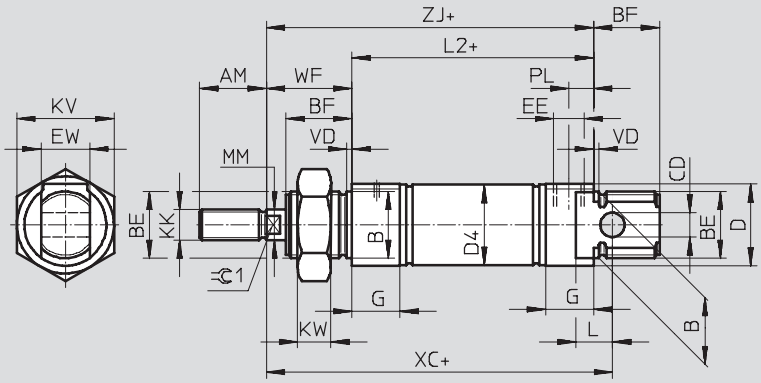
Standard cylinder		
1	Piston rod	High-alloy stainless steel
2	Bearing cap	Wrought aluminium alloy
3	Cylinder barrel	High-alloy stainless steel
4	End cap	Wrought aluminium alloy
–	Seals	Polyurethane, nitrile rubber
–	Spring	Spring steel

Standard cylinders ESNU, ISO 6432

Technical data

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

Basic version

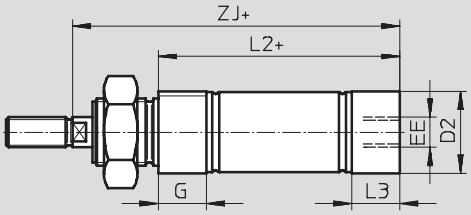


Note

Piston rod nut is not included in scope of delivery for ∅ 8 ... 20.

\+ = plus stroke length

MA – Axial air connection



\+ = plus stroke length

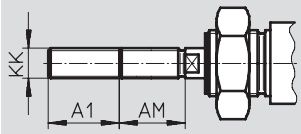
∅ [mm]	AM	B ∅ h9	BE	BF	CD ∅ E10	D ∅	D2 ∅	D4 ∅	EE	EW	G	KK	KV
8	12	12	M12x1.25	12	4	15	10.5	9.3	M5	8	10	M4	19
10							12.5	11.3					
12	16	16	M16x1.5	17	6	20	14.5	13.3		12		M6	24
16							17.5	17.3					
20	20	22	M22x1.5	20	8	27	21.7	21.3	G⅛	16	16	M8	32
25	22			22			26.7	26.5				M10x1.25	

∅ [mm]	KW	L	L2		L3	MM ∅	PL	VD	WF	XC ±1	ZJ		⫧1
				-MA								-MA	
8	6	6	46	43.6	7.6	4	6	2	16	64	62	59.6	–
10				43.1	7.1							59.1	
12	8	9	50	47.7	7.7	6			22	75	72	69.7	5
16			56	53.7						82	78	75.7	
20	11	12	68	66.5	14.5	8	8.2		24	95	92	90.5	7
25			69.5	68.5	14	10			28	104	97.5	96.5	9

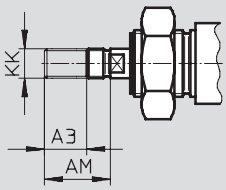
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

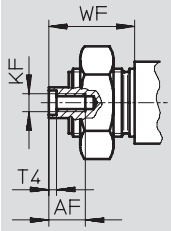
K2 – Extended male piston rod thread



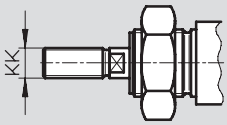
K6 – Shortened male piston rod thread



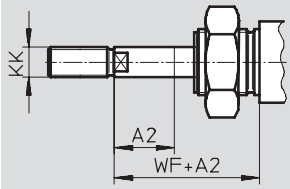
K3 – Female piston rod thread



K5 – Special piston rod thread



K8 – Extended piston rod



∅ [mm]	A1 max.	A2 max.	A3 max.	AF	AM	KF	KK		T4	WF
							Basic thread	Special thread[1)]		
8	15	50	4	–	12	–	M4	–	–	16
10				–		–		–	–	
12	20			–	16	–	M6	–	–	22
16				–		–		–	–	
20	25		8	12	20	M4	M8	–	2	24
25	35				22	M6	M10x1.25	M10	2.6	28

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

Standard cylinders ESNU, ISO 6432

Technical data

Ordering data			
Type	Stroke [mm]	Part No.	Type
Basic version			
	∅ 8 mm		
	10	**19 254**	**ESNU-8-10-P-A**
	25	**19 255**	**ESNU-8-25-P-A**
	50	**19 256**	**ESNU-8-50-P-A**
	∅ 10 mm		
	10	**19 257**	**ESNU-10-10-P-A**
	25	**19 258**	**ESNU-10-25-P-A**
	50	**19 259**	**ESNU-10-50-P-A**
	∅ 12 mm		
	10	**19 260**	**ESNU-12-10-P-A**
	25	**19 261**	**ESNU-12-25-P-A**
	50	**19 262**	**ESNU-12-50-P-A**
	∅ 16 mm		
	10	**19 263**	**ESNU-16-10-P-A**
	25	**19 264**	**ESNU-16-25-P-A**
	50	**19 265**	**ESNU-16-50-P-A**
	∅ 20 mm		
	10	**19 266**	**ESNU-20-10-P-A**
	25	**19 267**	**ESNU-20-25-P-A**
	50	**19 268**	**ESNU-20-50-P-A**
	∅ 25 mm		
	10	**19 269**	**ESNU-25-10-P-A**
	25	**19 270**	**ESNU-25-25-P-A**
	50	**19 271**	**ESNU-25-50-P-A**

Standard cylinders ESNU, ISO 6432

Technical data

Ordering data				
Type	∅ [mm]	Stroke [mm]	Part No.	Type
Variable stroke lengths				
	8	1 … 50	**14 119**	**ESNU-8-…-P-A**
	10	1 … 50	**14 118**	**ESNU-10-…-P-A**
	12	1 … 50	**14 317**	**ESNU-12-…-P-A**
	16	1 … 50	**14 316**	**ESNU-16-…-P-A**
	20	1 … 50	**14 319**	**ESNU-20-…-P-A**
	25	1 … 50	**14 318**	**ESNU-25-…-P-A**
Free of copper, PTFE and silicone				
 CT-free	8	1 … 50	**170 130**	**ESNU-8-…-P-A-CT**
	10	1 … 50	**170 131**	**ESNU-10-…-P-A-CT**
	12	1 … 50	**170 132**	**ESNU-12-…-P-A-CT**
	16	1 … 50	**170 133**	**ESNU-16-…-P-A-CT**
	20	1 … 50	**170 134**	**ESNU-20-…-P-A-CT**
	25	1 … 50	**170 135**	**ESNU-25-…-P-A-CT**

Standard cylinders ESNU, ISO 6432

Ordering data – Modular products

FESTO

M Mandatory data					O Options →	
Module No.	**Function**	**Piston ∅**	**Stroke**	**Cushioning**	**Position sensing**	**End cap**
193 996	ESNU	8	1 … 50	P	A	MA
193 997		10				
193 998		12				
193 999		16				
194 000		20				
194 001		25				
Order example						
194 002	**ESNU**	– **25**	– **45**	– **P**	– **A**	– **MA**

Ordering table

Size		8	10	12	16	20	25	Condi-tions	Code		Enter code
M	Module No.	**193 996**	**193 997**	**193 998**	**193 999**	**194 000**	**194 001**				
	Function	Standard cylinder, single-acting pushing, based on ISO 6432							**ESNU**		ESNU
	Piston ∅ [mm]	8	10	12	16	20	25		**-...**		
	Stroke [mm]	1 … 50							**-...**		
	Cushioning	Flexible cushioning rings/pads at both ends							**-P**		-P
O	Position sensing	Via proximity sensor						1	**-A**		
↓	End cap	Axial air connection							**-MA**		

1 **A** Minimum stroke: 10 mm

Transfer order code

	ESNU	–		–		–	**P**	–		–	

0 Options

Extended male thread	Shortened male thread	Female thread	Special thread	Extended piston rod
...K2	...K6	K3	"..."K5	...K8
– **30K2**	–	–	– **"M10"K5**	– **30K8**

Ordering table

Size	8	10	12	16	20	25	Condi-tions	Code		Enter code
↓ Extended male thread	Extended male piston rod thread									
0 [mm]	1 ... 15		1 ... 20		1 ... 25	1 ... 35	2	**-...K2**		
Shortened male thread	Shortened male piston rod thread									
[mm]	1 ... 4				1 ... 8			**-...K6**		
Female thread	Female piston rod thread									
	–	–	–	–	(M4)	(M6)	3	**-K3**		
Special thread	Piston rod with special thread									
	–	–	–	–	–	M10		**-"..."K5**		
Extended piston rod	Extended piston rod									
[mm]	1 ... 50							**...K8**		

2 **K2** Not with female thread K3, shortened male thread K6

3 **K3** Not with special thread K5, shortened male thread K6

Transfer order code

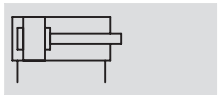
–		–		–		–		–	

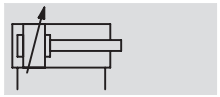
Standard cylinders DSN, ISO 6432

Technical data

FESTO

Function





Diameter
8 ... 25 mm

Stroke length
1 ... 500 mm

Variant

S2

General technical data							
Piston ∅		8	10	12	16	20	25
Pneumatic connection		M5	M5	M5	M5	G1/8	G1/8
Piston rod thread		M4	M4	M6	M6	M8	M10x1.25
Constructional design		Piston					
		Piston rod					
		Cylinder barrel					
Cushioning		Flexible cushioning rings/pads at both ends					
		–			Pneumatic cushioning, adjustable at both ends		
Cushioning length (PPV)	[mm]	–			14	17	
Type of mounting		Via accessories					
Mounting position		Any					

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Operating conditions							
Piston ∅		8	10	12	16	20	25
Operating medium		Filtered compressed air, lubricated or unlubricated					
Operating pressure	[bar]	1.5 ... 10			1 ... 10		

Ambient conditions		
Standard cylinder		
Ambient temperature	[°C]	–20 ... +80
Corrosion resistance class CRC[1)]		2

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

Standard cylinders DSN, ISO 6432

Technical data

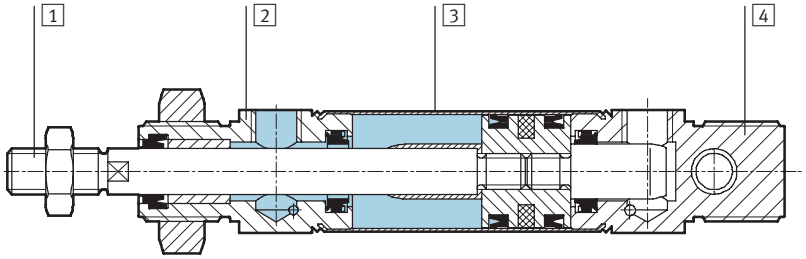
Forces [N]						
Piston ∅	8	10	12	16	20	25
Theoretical force at 6 bar, advancing[1)]	30	47	68	121	189	295
Theoretical force at 6 bar, retracting[1)]	23	40	51	104	158	247

1) The force in the advance stroke is the same as the force in the return stroke with the variant S2

Weights [g]						
Piston ∅	8	10	12	16	20	25
Product weight with 0 mm stroke	40	43	80	96	200	260
Additional weight per 10 mm stroke	2.3	2.5	4.1	4.7	7.1	10.9

Materials

Sectional view



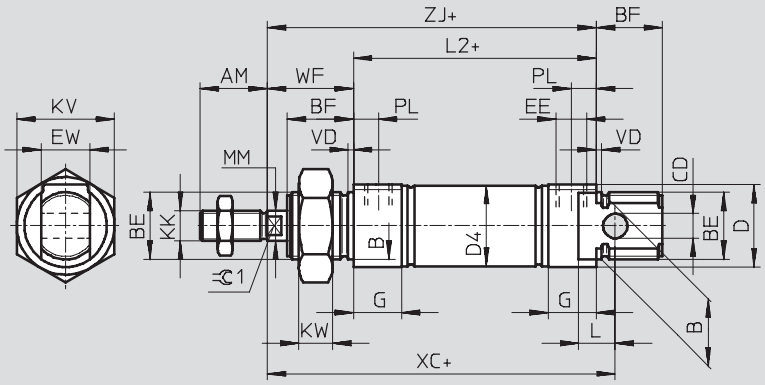
Standard cylinder		
1	Piston rod	High-alloy stainless steel
2	Bearing cap	Wrought aluminium alloy
3	Cylinder barrel	High-alloy stainless steel
4	End cap	Wrought aluminium alloy
–	Seals	Polyurethane, nitrile rubber

Standard cylinders DSN, ISO 6432

Technical data

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

Basic version

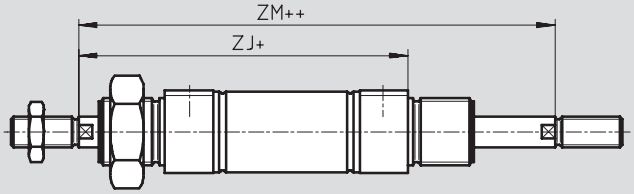


- - Note

Piston rod nut is not included in scope of delivery for ∅ 8 ... 20.

\+ = plus stroke length

S2 – Through piston rod



\+ = plus stroke length

++ = plus 2x stroke length

∅ [mm]	AM	B ∅ h9	BE	BF	CD ∅ E10	D ∅	D4 ∅	EE	EW	G	KK
8	12	12	M12x1.25	12	4	15	9.3	M5	8	10	M4
10							11.3				
12	16	16	M16x1.5	17	6	20	13.3		12		M6
16							17.3				
20	20	22	M22x1.5	20	8	27	21.3	G⅛	16	16	M8
25	22			22			26.5				M10x1.25

∅ [mm]	KV	KW	L	L2	MM ∅	PL	VD	WF	XC ±1	ZJ	ZM	⌀C1
8	19	6	6	46	4	6	2	16	64	62	78.4	–
10												
12	24	8	9	50	6			22	75	72	94	5
16				56					82	78	100	
20	32	11	12	68	8	8.2		24	95	92	116	7
25				69.5	10			28	104	97.5	125.5	9

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard cylinders DSN, ISO 6432

Technical data

Ordering data				
Type	Piston ∅ [mm]	Stroke [mm]	Flexible cushioning rings/pads at both ends	
			Part No.	Type
Basic version				
	8	10	**5 033**	**DSN-8-10-P**
		25	**5 034**	**DSN-8-25-P**
		40	**5 035**	**DSN-8-40-P**
		50	**5 036**	**DSN-8-50-P**
		80	**5 037**	**DSN-8-80-P**
		100	**5 038**	**DSN-8-100-P**
	10	10	**5 040**	**DSN-10-10-P**
		25	**5 041**	**DSN-10-25-P**
		40	**5 042**	**DSN-10-40-P**
		50	**5 043**	**DSN-10-50-P**
		80	**5 044**	**DSN-10-80-P**
		100	**5 045**	**DSN-10-100-P**
	12	10	**5 047**	**DSN-12-10-P**
		25	**5 048**	**DSN-12-25-P**
		40	**5 049**	**DSN-12-40-P**
		50	**5 050**	**DSN-12-50-P**
		80	**5 051**	**DSN-12-80-P**
		100	**5 052**	**DSN-12-100-P**
		125	**8 519**	**DSN-12-125-P**
		160	**5 053**	**DSN-12-160-P**
		200	**5 054**	**DSN-12-200-P**

Ordering data							
Type	Piston ∅ [mm]	Stroke [mm]	Flexible cushioning rings/pads at both ends			Pneumatic cushioning, adjustable at both ends	
			Part No.	Type		Part No.	Type
Basic version							
	16	10	5 056	DSN-16-10-P		–	
		25	5 057	DSN-16-25-P			
		40	5 058	DSN-16-40-P		14 534	DSN-16-40-PPV
		50	5 059	DSN-16-50-P		14 535	DSN-16-50-PPV
		80	5 060	DSN-16-80-P		14 536	DSN-16-80-PPV
		100	5 061	DSN-16-100-P		14 537	DSN-16-100-PPV
		125	8 520	DSN-16-125-P		14 538	DSN-16-125-PPV
		160	5 062	DSN-16-160-P		14 539	DSN-16-160-PPV
		200	5 063	DSN-16-200-P		14 540	DSN-16-200-PPV
	20	10	5 065	DSN-20-10-P		–	
		25	5 066	DSN-20-25-P			
		40	5 067	DSN-20-40-P		8 743	DSN-20-40-PPV
		50	5 068	DSN-20-50-P		8 744	DSN-20-50-PPV
		80	5 069	DSN-20-80-P		8 745	DSN-20-80-PPV
		100	5 070	DSN-20-100-P		8 746	DSN-20-100-PPV
		125	8 521	DSN-20-125-P		8 747	DSN-20-125-PPV
		160	5 071	DSN-20-160-P		8 748	DSN-20-160-PPV
		200	5 072	DSN-20-200-P		8 749	DSN-20-200-PPV
		250	8 522	DSN-20-250-P		8 750	DSN-20-250-PPV
		300	5 073	DSN-20-300-P		8 751	DSN-20-300-PPV
		320	34 710	DSN-20-320-P		34 712	DSN-20-320-PPV
	25	10	5 075	DSN-25-10-P		–	
		25	5 076	DSN-25-25-P			
		40	5 077	DSN-25-40-P		9 666	DSN-25-40-PPV
		50	5 078	DSN-25-50-P		9 667	DSN-25-50-PPV
		80	5 079	DSN-25-80-P		9 668	DSN-25-80-PPV
		100	5 080	DSN-25-100-P		9 669	DSN-25-100-PPV
		125	8 523	DSN-25-125-P		8 531	DSN-25-125-PPV
		160	5 081	DSN-25-160-P		9 670	DSN-25-160-PPV
		200	5 082	DSN-25-200-P		9 671	DSN-25-200-PPV
		250	8 524	DSN-25-250-P		8 532	DSN-25-250-PPV
		300	5 083	DSN-25-300-P		9 672	DSN-25-300-PPV
		320	34 711	DSN-25-320-P		34 713	DSN-25-320-PPV
		400	32 298	DSN-25-400-P		32 300	DSN-25-40-PPV
		500	32 299	DSN-25-500-P		32 301	DSN-25-500-PPV

Ordering data							
Type	Piston ∅ [mm]	Stroke [mm]	Flexible cushioning rings/pads at both ends			Pneumatic cushioning, adjustable at both ends	
			Part No.	Type		Part No.	Type
Variable stroke lengths							
	8	1 … 100	**5 032**	**DSN-8-…-P**		–	
	10	1 … 100	**5 039**	**DSN-10-…-P**			
	12	1 … 200	**5 046**	**DSN-12-…-P**			
	16	1 … 200	**5 055**	**DSN-16-…-P**			
	20	1 … 320	**5 064**	**DSN-20-…-P**			
	25	1 … 500	**5 074**	**DSN-25-…-P**			
Variable stroke lengths							
	16	1 … 200	–			**14 533**	**DSN-16-…-PPV**
	20	1 … 320				**8 742**	**DSN-20-…-PPV**
	25	1 … 500				**9 665**	**DSN-25-…-PPV**
Variable stroke, through piston rod							
	20	10 … 320	–			**11 893**	**DSN-20-…-PPV-S2**
	25	10 … 500				**11 894**	**DSN-25-…-PPV-S2**

Standard cylinders ESN, ISO 6432

Technical data

FESTO

Function

- Ø - Diameter
  8 ... 25 mm

- | - Stroke length
  1 ... 50 mm

General technical data						
Piston ∅	8	10	12	16	20	25
Pneumatic connection	M5	M5	M5	M5	G1⁄8	G1⁄8
Piston rod thread	M4	M4	M6	M6	M8	M10x1.25
Constructional design	Piston					
	Piston rod					
	Cylinder barrel					
Cushioning	Flexible cushioning rings/pads at both ends					
Type of mounting	Via accessories					
Mounting position	Any					

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Operating conditions							
Piston ∅		8	10	12	16	20	25
Operating medium		Filtered compressed air, lubricated or unlubricated					
Operating pressure	[bar]	1.5 ... 10			1.2 ... 10		

Ambient conditions		
Standard cylinder		
Ambient temperature	[°C]	–20 ... +80
Corrosion resistance class CRC[1)]		2

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

Standard cylinders ESN, ISO 6432

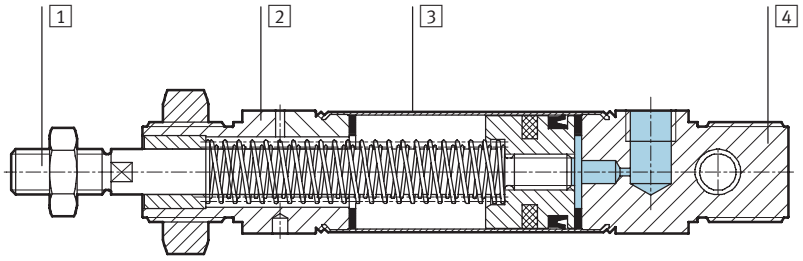
Technical data

Force [N] and impact energy [J]						
Piston ∅	8	10	12	16	20	25
Theoretical force at 6 bar, advancing	24	41	61	107	169	270
Spring return force 10 mm stroke	4.9	4.9	6.3	13.2	18.3	22.9
Spring return force 25 mm stroke	4.1	4.1	5.4	11.9	16.5	21.2
Spring return force 50 mm stroke	2.8	4.8	3.9	9.8	13.6	18.5
Impact energy at end positions	0.03	0.05	0.07	0.15	0.20	0.30

Weight [g]						
Piston ∅	8	10	12	16	20	25
Product weight with 0 mm stroke	40	43	80	96	200	260
Additional weight per 10 mm stroke	2.3	2.5	4.1	4.7	7.1	10.9

Materials

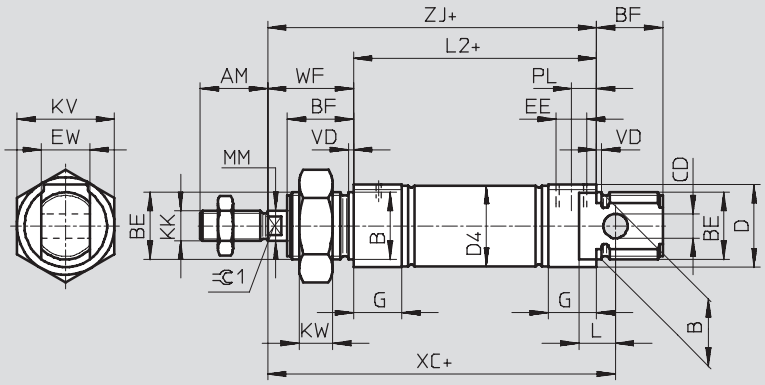
Sectional view



Standard cylinder		
1	Piston rod	High-alloy stainless steel
2	Bearing cap	Wrought aluminium alloy
3	Cylinder barrel	High-alloy stainless steel
4	End cap	Wrought aluminium alloy
–	Seals	Polyurethane, nitrile rubber
–	Spring	Spring steel

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

Basic version



- - Note

Piston rod nut is not included in scope of delivery for ∅ 8 ... 20.

\+ = plus stroke length

∅ [mm]	AM	B ∅ h9	BE	BF	CD ∅ E10	D ∅	D4 ∅	EE	EW	G	KK
8	12	12	M12x1.25	12	4	15	9.3	M5	8	10	M4
10							11.3				
12	16	16	M16x1.5	17	6	20	13.3		12		M6
16							17.3				
20	20	22	M22x1.5	20	8	27	21.3	G⅛	16	16	M8
25	22			22			26.5				M10x1.25

∅ [mm]	KV	KW	L	L2	MM ∅	PL	VD	WF	XC ±1	ZJ	=C1
8	19	6	6	46	4	6	2	16	64	62	–
10											
12	24	8	9	50	6			22	75	72	5
16				56					82	78	
20	32	11	12	68	8	8.2		24	95	92	7
25				69.5	10			28	104	97.5	9

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard cylinders ESN, ISO 6432

Technical data

FESTO

Ordering data			
Type	Stroke [mm]	Part No.	Type
Basic version			
	∅ 8 mm		
	10	**5 086**	**ESN-8-10-P**
	25	**5 087**	**ESN-8-25-P**
	50	**5 088**	**ESN-8-50-P**
	∅ 10 mm		
	10	**5 089**	**ESN-10-10-P**
	25	**5 090**	**ESN-10-25-P**
	50	**5 091**	**ESN-10-50-P**
	∅ 12 mm		
	10	**5 092**	**ESN-12-10-P**
	25	**5 093**	**ESN-12-25-P**
	50	**5 094**	**ESN-12-50-P**
	∅ 16 mm		
	10	**5 095**	**ESN-16-10-P**
	25	**5 096**	**ESN-16-25-P**
	50	**5 097**	**ESN-16-50-P**
	∅ 20 mm		
	10	**5 098**	**ESN-20-10-P**
	25	**5 099**	**ESN-20-25-P**
	50	**5 100**	**ESN-20-50-P**
	∅ 25 mm		
	10	**5 101**	**ESN-25-10-P**
	25	**5 102**	**ESN-25-25-P**
	50	**5 103**	**ESN-25-50-P**

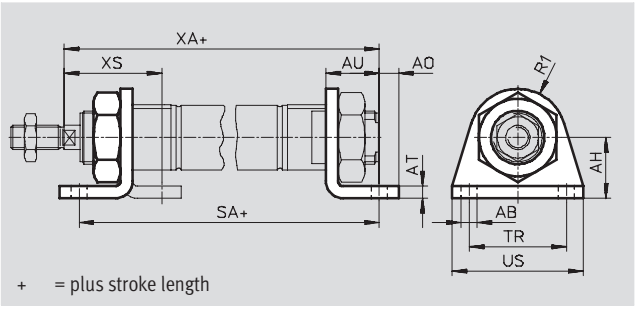
Ordering data				
Type	∅ [mm]	Stroke [mm]	Part No.	Type
Variable stroke lengths				
	8	1 … 50	**11 651**	**ESN-8-…-P**
	10	1 … 50	**11 652**	**ESN-10-…-P**
	12	1 … 50	**11 653**	**ESN-12-…-P**
	16	1 … 50	**11 654**	**ESN-16-…-P**
	20	1 … 50	**11 655**	**ESN-20-…-P**
	25	1 … 50	**11 656**	**ESN-25-…-P**

Foot mounting HBN/CRHBN

Scope of delivery:
HBN/CRHBN-...x1: 1 foot
HBN/CRHBN-...x2: 2 feet and 1 nut

Material:
HBN: Galvanised steel
CRHBN: High-alloy stainless steel
Free of copper, PTFE and silicone

HBN/CRHBN-...x2



+ = plus stroke length

Dimensions and ordering data

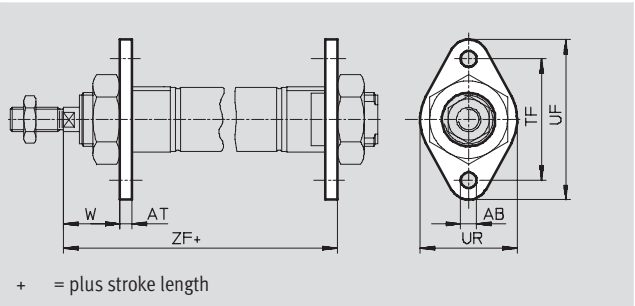
For ∅ [mm]	AB ∅	AH	AO	AT	AU	R1	SA	SA -KP	TR	US	XA	XA -KP	XS	XS -KP
8, 10	4.5	16	5	3	11	10	68	97	25	35	73	102	24	–
12	5.5	20	6	4	14	13	78	116	32	42	86	124	32	–
16	5.5	20	6	4	14	13	84	122	32	42	92	130	32	–
20	6.6	25	8	5	17	20	102	149	40	54	109	156	36	–
25	6.6	25	8	5	17	20	103.5	151.5	40	54	114.5	162.5	40	–

For ∅ [mm]	Basic version				High corrosion protection			
	CRC[1)]	Weight [g]	Part No.	Type	CRC[1)]	Weight [g]	Part No.	Type
8, 10	2	20	**5 123**	**HBN-8/10x1**	–	–	**–**	
	2	55	**5 124**	**HBN-8/10x2**	–	–	**–**	
12, 16	2	40	**5 125**	**HBN-12/16x1**	4	40	**161 866**	**CRHBN-12/16x1**
	2	105	**5 126**	**HBN-12/16x2**	4	97	**162 999**	**CRHBN-12/16x2**
20, 25	2	90	**5 127**	**HBN-20/25x1**	4	55	**161 867**	**CRHBN-20/25x1**
	2	220	**5 128**	**HBN-20/25x2**	4	100	**162 998**	**CRHBN-20/25x2**

1) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 as per Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

Flange mounting FBN/CRFBN

Material:
FBN: Galvanised steel
CRFBN: High-alloy stainless steel
Free of copper, PTFE and silicone



\+ = plus stroke length

Dimensions and ordering data

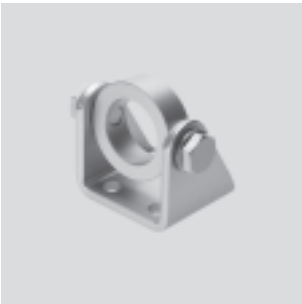
For ∅ [mm]	AB ∅	AT	TF	UF	UR	W	ZF	ZF -KP
8, 10	4.5	3	30	40	25	13	65	94
12	5.5	4	40	53	30	18	76	114
16	5.5	4	40	53	30	18	82	120
20	6.6	5	50	66	40	19	97	144
25	6.6	5	50	66	40	23	102.5	150.5

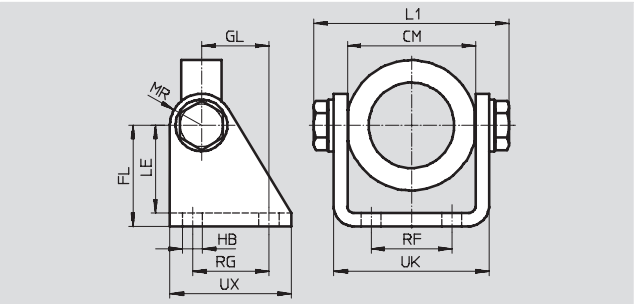
For ∅	Basic version				High corrosion protection			
[mm]	CRC[1]	Weight [g]	Part No.	Type	CRC[1]	Weight [g]	Part No.	Type
8, 10	2	12	**5 129**	**FBN-8/10**	–	–	**–**	**–**
12, 16	2	25	**5 130**	**FBN-12/16**	4	25	**161 864**	**CRFBN-12/16**
20, 25	2	45	**5 131**	**FBN-20/25**	4	45	**161 865**	**CRFBN-20/25**

1) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 as per Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

Swivel mounting SBN

Material:
Mounting ring: Wrought aluminium alloy, anodised
Bearing: Bronze
Screws: Galvanised steel
Bracket: Steel
Cannot be used on the bearing cap in combination with bellows kit DADB.





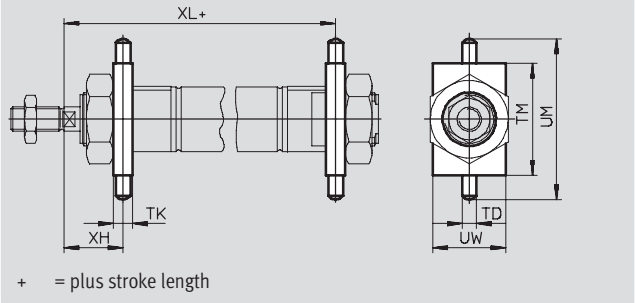
Dimensions and ordering data

For ∅ [mm]	CM	FL	GL	HB	L1 max.	LE	MR	RF	RG	UK	UX	CRC[1]	Weight [g]	Part No.	Type
20/25	38.1$^{+0.4}$	35	20	7	60.2	31	12	20	24	46.1	40	2	200	**539 927**	**SBN-20/25**

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

Swivel mounting WBN

Material:
Galvanised steel
Free of copper, PTFE and silicone
Cannot be used on the bearing cap in combination with bellows kit DADB.



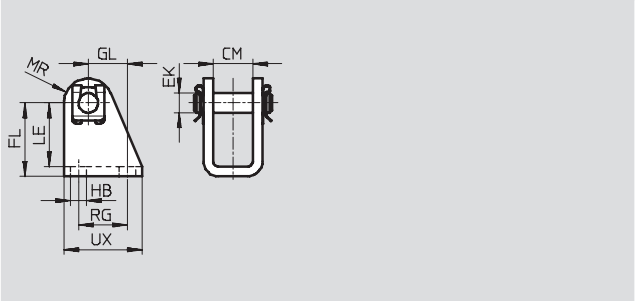
Dimensions and ordering data

For ∅ [mm]	TD ∅ f8	TK	TM	UM	UW	XH	XL	XL -KP	CRC[1]	Weight [g]	Part No.	Type
8, 10	4	6	26	38	20	13	65	94	2	20	**8 608**	**WBN-8/10**
12	6	8	38	58	25	18	76	114	2	50	**8 609**	**WBN-12/16**
16	6	8	38	58	25	18	82	120	2	50	**8 609**	**WBN-12/16**
20	6	8	46	66	30	20	96	143	2	70	**8 610**	**WBN-20/25**
25	6	8	46	66	30	24	101.5	149.5	2	70	**8 610**	**WBN-20/25**

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

Clevis foot LBN/CRLBN

Material:
LBN: Galvanised steel
CRLBN: High-alloy stainless steel
Free of copper, PTFE and silicone



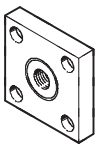
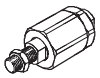
Dimensions and ordering data

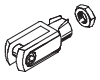
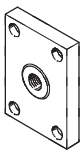
For ∅ [mm]	CM	EK ∅	FL	GL	HB	LE	MR	RG	UX
8, 10	8.1	4	24 +0.3/–0.2	13.8	4.5	21.5	5	12.5	20
12, 16	12.1	6	27 +0.3/–0.2	13	5.5	24	7	15	25
20, 25	16.1	8	30 +0.4/–0.2	16	6.6	26	10	20	32

For ∅	Basic version				High corrosion protection			
[mm]	CRC[1]	Weight [g]	Part No.	Type	CRC[1]	Weight [g]	Part No.	Type
8, 10	2	22	**6 057**	**LBN-8/10**	–	–	**–**	
12, 16	2	40	**6 058**	**LBN-12/16**	4	55	**161 862**	**CRLBN-12/16**
20, 25	2	81	**6 059**	**LBN-20/25**	4	62	**161 863**	**CRLBN-20/25**

1) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 as per Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

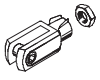
Ordering data – Piston rod attachments — Technical data ➔ Internet: piston rod attachments

Designation	For ∅	Part No.	Type
Rod eye SGS			
	8	**9 253**	**SGS-M4**
	10		
	12	**9 254**	**SGS-M6**
	16		
	20	**9 255**	**SGS-M8**
	25	**9 261**	**SGS-M10x1,25**
Coupling piece KSG			
	8	–	
	10		
	12		
	16		
	20		
	25	**32 963**	**KSG-M10x1,25**
Self-aligning rod coupler FK			
	8	**6 528**	**FK-M4**
	10		
	12	**2 061**	**FK-M6**
	16		
	20	**2 062**	**FK-M8**
	25	**6 140**	**FK-M10x1,25**

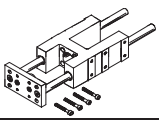
Designation	For ∅	Part No.	Type
Rod clevis SG			
	8	**6 532**	**SG-M4**
	10		
	12	**3 110**	**SG-M6**
	16		
	20	**3 111**	**SG-M8**
	25	**6 144**	**SG-M10x1,25**
Coupling piece KSZ			
	12	**36 123**	**KSZ-M6**
	16		
	20	**36 124**	**KSZ-M8**
	25	**36 125**	**KSZ-M10x1,25**
Hex nut MSK			
	16	**189 007**	**MSK-M16X1,5**
	20, 25	**189 009**	**MSK-M22X1,5**

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

Designation	For ∅	Part No.	Type
Rod eye CRSGS			
	12	**195 580**	**CRSGS-M6**
	16		
	20	**195 581**	**CRSGS-M8**
	25	**195 582**	**CRSGS-M10x1,25**

Designation	For ∅	Part No.	Type
Rod clevis CRSG			
	12	**13 567**	**CRSG-M6**
	16		
	20	**13 568**	**CRSG-M8**
	25	**13 569**	**CRSG-M10x1,25**

Ordering data – Guide units — Technical data ➔ Internet: feng

	For ∅	Stroke [mm]	With recirculating ball bearing guide Part No.	Type	With plain-bearing guide Part No.	Type
	8, 10	1 … 200	**35 197**	**FEN-8/10-…-KF**	**35 196**	**FEN-8/10-…**
	12, 16	1 … 200	**33 481**	**FEN-12/16-…-KF**	**19 168**	**FEN-12/16-…**
	20	2 … 250	**33 482**	**FEN-20-…-KF**	**19 169**	**FEN-20-…**
	25	2 … 250	**33 483**	**FEN-25-…-KF**	**19 170**	**FEN-25-…**

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Accessories

FESTO

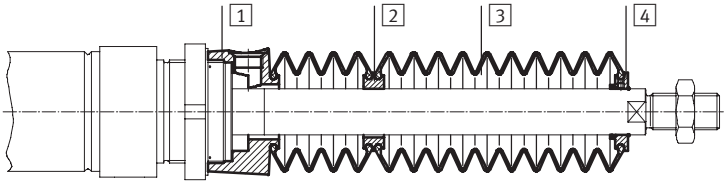
Bellows kit DADB

General technical data						
Type DADB-S1-			12	16	20	25
Max. stroke range of cylinder[1]	DSNU	[mm]	10 ... 50	10 ... 50	10 ... 320	10 ... 500
	ESNU[2]	[mm]	–		10 ... 50	10 ... 50
Type of mounting			With threaded pin			
Mounting position			Any			
Resistance to media			Dust, chippings, oil, grease, fuel (➔ Internet: Resistance to media)			
Ambient temperature[3]		[°C]	–10 ... +80			
Corrosion resistance class CRC[4]			3			

1) In combination with the bellows kit DADB
2) Slight change in spring return force
3) Note operating range of proximity sensors and cylinder
4) Corrosion resistance class 3 as per Festo standard 940 070
Components with heavy corrosion exposure. Externally visible components in direct contact with normal industrial atmosphere or media such as solvents and cleaning agents, where the surface requirement is predominantly functional.

Materials

Sectional view



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

Weight [g]				
Type DADB-S1- Stroke [mm]	12	16	20	25
10 ... 50	7	7	20	19
51 ... 100	–	–	32	31
101 ... 150	–	–	45	44
151 ... 200	–	–	58	57
201 ... 250	–	–	73	72
251 ... 300	–	–	85	84
301 ... 350	–	–	100	98
351 ... 400	–	–	–	109
401 ... 450	–	–	–	124
451 ... 500	–	–	–	136

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

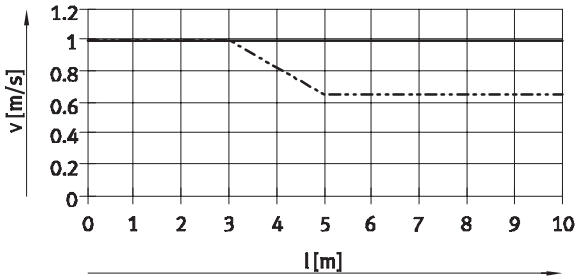
Accessories

FESTO

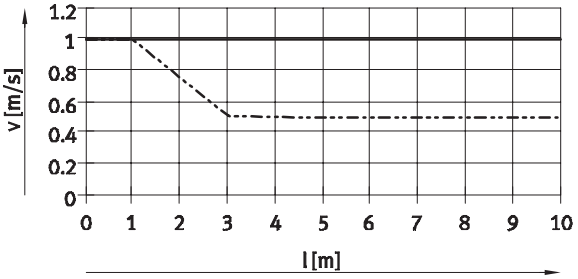
Speed of travel v as a function of tube length l

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

Advancing



Retracting



— ∅ 12/16
– · – · – ∅ 20/25

Note

The push-in fittings opposite must be used for the venting hole. Silencers can be used as an alternative. This reduces the travel speed slightly.

Tubing length and push-in fitting for venting hole

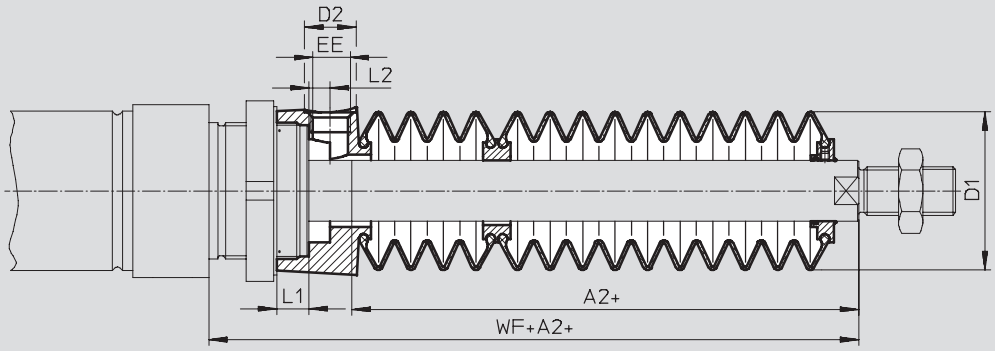
∅ [mm]	Tubing O.D. [mm]	Push-in fitting Part No.	Type
12, 16, 20, 25	6	**153 317**	**QSM-M5-6-I**
		537 014	**QS-F-M5-6-I**
		533 845	**QS-F-M5-6H**
		533 875	**QS-F-M5-6**

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Accessories

FESTO

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



\+ = plus stroke length

∅ Stroke [mm]	12/16							20						
	A2[1]	D1 max.	D2	EE	L1	L2	WF+A2	A2[1]	D1 max.	D2	EE	L1	L2	WF+A2
10 … 50	23	22	8.5	M5	5	3.2	45	22	29	8.5	M5	4.2	2.7	46
51 … 100	–						–	34						58
101 … 150	–						–	47						71
151 … 200	–						–	60						84
201 … 250	–						–	75						99
251 … 300	–						–	86						110
301 … 350	–						–	101						125
351 … 400	–						–	–						–
401 … 450	–						–	–						–
451 … 500	–						–	–						–

∅ Stroke [mm]	25						
	A2[1]	D1 max.	D2	EE	L1	L2	WF+A2
10 … 50	22	29	8.5	M5	4.2	2.7	50
51 … 100	34						62
101 … 150	47						75
151 … 200	60						88
201 … 250	75						103
251 … 300	86						114
301 … 350	101						129
351 … 400	112						140
401 … 450	127						155
451 … 500	138						166

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

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Accessories

FESTO

Ordering data – Bellows kit

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

The necessary dimensions for K8 as a function of piston diameter and cylinder stroke as well as the corresponding bellows kit are indicated in the table below:

Order example:
Selected standard cylinder:
DSNU-25-320-PPV-A-MQ-...
The dimension for the corresponding K8 value (see table):
101 mm
Complete type code for standard cylinder:
DSNU-25-320-PPV-A-MQ-...-101K8
The corresponding bellows kit:
DADB-S1-25-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
12	10 ... 50	23	**553 391**	**DADB-S1-12-S10-50**	16	10 ... 50	23	**553 399**	**DADB-S1-16-S10-50**
20	10 ... 50	22	**553 407**	**DADB-S1-20-S10-50**	25	10 ... 50	22	**553 421**	**DADB-S1-25-S10-50**
	51 ... 100	34	**553 409**	**DADB-S1-20-S51-100**		51 ... 100	34	**553 423**	**DADB-S1-25-S51-100**
	101 ... 150	47	**553 411**	**DADB-S1-20-S101-150**		101 ... 150	47	**553 425**	**DADB-S1-25-S101-150**
	151 ... 200	60	**553 413**	**DADB-S1-20-S151-200**		151 ... 200	60	**553 427**	**DADB-S1-25-S151-200**
	201 ... 250	75	**553 415**	**DADB-S1-20-S201-250**		201 ... 250	75	**553 429**	**DADB-S1-25-S201-250**
	251 ... 300	86	**553 417**	**DADB-S1-20-S251-300**		251 ... 300	86	**553 431**	**DADB-S1-25-S251-300**
	301 ... 320	101	**553 419**	**DADB-S1-20-S301-350**		301 ... 350	101	**553 433**	**DADB-S1-25-S301-350**
						351 ... 400	112	**553 435**	**DADB-S1-25-S351-400**
						401 ... 450	127	**553 437**	**DADB-S1-25-S401-450**
						451 ... 500	138	**553 439**	**DADB-S1-25-S451-500**

Note

Can only be used with piston ∅ 20 and 25 of the single-acting standard cylinder ESNU.

Ordering data – Proximity sensors, round design, magneto-resistive — Technical data ➔ Internet: smto

	Assembly	Switching output	Electrical connection		Cable length [m]	Connection direction	Part No.	Type
			Cable	Plug M8				
N/O contact								
	Via accessories	PNP	3-wire	–	2.5	In-line	**152 836**	**SMTO-4U-PS-K-LED-24**
			–	3-pin	–	In-line	**152 742**	**SMTO-4U-PS-S-LED-24**
		NPN	3-wire	–	2.5	In-line	**152 837**	**SMTO-4U-NS-K-LED-24**
			–	3-pin	–	In-line	**152 743**	**SMTO-4U-NS-S-LED-24**

Ordering data – Proximity sensors, round design, magnetic reed — Technical data ➔ Internet: smeo

	Assembly	Electrical connection		Cable length [m]	Connection direction	Part No.	Type
		Cable	Plug M8				
N/O contact							
	Via accessories	3-wire	–	2.5	In-line	**36 198**	**SMEO-4U-K-LED-24**
				5	In-line	**175 401**	**SMEO-4U-K5-LED-24**
		–	3-pin	–	In-line	**151 526**	**SMEO-4U-S-LED-24-B**

Ordering data – Proximity sensors, round design, magnetic reed, corrosion resistant — Technical data ➔ Internet: crsmeo

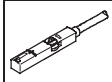
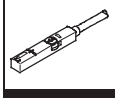
	Assembly	Electrical connection		Cable length [m]	Connection direction	Part No.	Type
		Cable	Plug M8				
N/O contact							
	Via accessories	3-wire	–	2.5	In-line	**161 775**	**CRSMEO-4-K-LED-24**

Ordering data – Mounting kits for proximity sensors SMEO/SMTO/CRSMEO — Technical data ➔ Internet: smbr

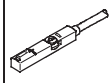
Designation	For ∅	Part No.	Type
Mounting kit SMBR			
	8	**19 272**	**SMBR-8**
	10	**19 273**	**SMBR-10**
	12	**19 274**	**SMBR-12**
	16	**19 275**	**SMBR-16**
	20	**19 276**	**SMBR-20**
	25	**19 277**	**SMBR-25**

Designation	For ∅	Part No.	Type
Mounting kit CRSMBR, corrosion resistant			
	8	–	–
	10	–	–
	12	**164 581**	**CRSMBR-12**
	16	**164 582**	**CRSMBR-16**
	20	**164 583**	**CRSMBR-20**
	25	**164 584**	**CRSMBR-25**

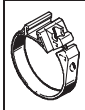
Ordering data – Proximity sensors for T-slot, magneto-resistive — Technical data ➔ Internet: smt

	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	PNP	Cable, 3-wire	2.5	**543 867**	**SMT-8M-PS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543 866**	**SMT-8M-PS-24V-K-0,3-M8D**
			Plug M12x1, 3-pin	0.3	**543 869**	**SMT-8M-PS-24V-K-0,3-M12**
		NPN	Cable, 3-wire	2.5	**543 870**	**SMT-8M-NS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543 871**	**SMT-8M-NS-24V-K-0,3-M8D**
	Insertable in the slot lengthwise, flush with the cylinder profile	PNP	Cable, 3-wire	2.5	**175 436**	**SMT-8-PS-K-LED-24-B**
			Plug M8x1, 3-pin	0.3	**175 484**	**SMT-8-PS-S-LED-24-B**
N/C contact						
	Insertable in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	**543 873**	**SMT-8M-PO-24V-K7,5-OE**

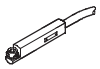
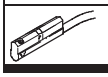
Ordering data – Proximity sensors for T-slot, magnetic reed — Technical data ➔ Internet: sme

	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	**543 862**	**SME-8M-DS-24V-K-2,5-OE**
				5.0	**543 863**	**SME-8M-DS-24V-K-5,0-OE**
			Cable, 2-wire	2.5	**543 872**	**SME-8M-ZS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543 861**	**SME-8M-DS-24V-K-0,3-M8D**
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	**150 855**	**SME-8-K-LED-24**
			Plug M8x1, 3-pin	0.3	**150 857**	**SME-8-S-LED-24**
N/C contact						
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	**160 251**	**SME-8-O-K-LED-24**

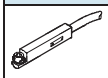
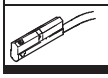
Ordering data – Mounting kits for proximity sensors SME/SMT-8 — Technical data ➔ Internet: smbr

Designation	For ∅	Part No.	Type
Mounting kit SMBR-8			
	8	**175 091**	**SMBR-8-8**
	10	**175 092**	**SMBR-8-10**
	12	**175 093**	**SMBR-8-12**
	16	**175 094**	**SMBR-8-16**
	20	**175 095**	**SMBR-8-20**
	25	**175 096**	**SMBR-8-25**

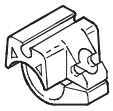
Ordering data – Proximity sensors for slot type 10 (C-slot), magneto-resistive — Technical data ➔ Internet: smt

	Type of mounting	Switching output	Electrical connection, connection direction	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire, in-line	2.5	**525 915**	**SMT-10F-PS-24V-K2,5L-OE**
			Plug M8x1, 3-pin, in-line	0.3	**525 916**	**SMT-10F-PS-24V-K0,3L-M8D**
			Plug M8x1, 3-pin, angled	0.3	**526 675**	**SMT-10F-PS-24V-K0,3Q-M8D**
	Insertable in slot lengthwise	PNP	Plug M8x1, 3-pin, in-line	0.3	**173 220**	**SMT-10-PS-SL-LED-24**
			Cable, 3-wire, in-line	2.5	**173 218**	**SMT-10-PS-KL-LED-24**

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

	Type of mounting	Switching output	Electrical connection, connection direction	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with the cylinder profile	Contacting	Plug M8x1, 3-pin, in-line	0.3	**525 914**	**SME-10F-DS-24V-K0,3L-M8D**
			Cable, 3-wire, in-line	2.5	**525 913**	**SME-10F-DS-24V-K2,5L-OE**
			Cable, 2-wire, in-line	2.5	**526 672**	**SME-10F-ZS-24V-K2,5L-OE**
	Insertable in slot lengthwise	Contacting	Plug M8x1, 3-pin, in-line	0.3	**173 212**	**SME-10-SL-LED-24**
			Cable, 3-wire, in-line	2.5	**173 210**	**SME-10-KL-LED-24**

Ordering data – Mounting kits for proximity sensors SME/SMT-10 — Technical data ➔ Internet: smbr

Designation	For ∅	Part No.	Type
Mounting kit SMBR-10			
	8	**175 101**	**SMBR-10-8**
	10	**173 227**	**SMBR-10-10**
	12	**175 102**	**SMBR-10-12**
	16	**173 228**	**SMBR-10-16**
	20	**175 103**	**SMBR-10-20**
	25	**175 104**	**SMBR-10-25**

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	**541 333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541 334**	**NEBU-M8G3-K-5-LE3**
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541 363**	**NEBU-M12G5-K-2.5-LE3**
			5	**541 364**	**NEBU-M12G5-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541 338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541 341**	**NEBU-M8W3-K-5-LE3**
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541 367**	**NEBU-M12W5-K-2.5-LE3**
			5	**541 370**	**NEBU-M12W5-K-5-LE3**

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

	Port		Material	Part No.	Type
	Thread	For tubing O.D.			
For exhaust air					
	M5	3	Metal design	193 137	GRLA-M5-QS-3-D
		4		193 138	GRLA-M5-QS-4-D
		6		193 139	GRLA-M5-QS-6-D
	G1/8	3		193 142	GRLA-1/8-QS-3-D
		4		193 143	GRLA-1/8-QS-4-D
		6		193 144	GRLA-1/8-QS-6-D
		8		193 145	GRLA-1/8-QS-8-D
For supply air					
	M5	3	Metal design	193 153	GRLZ-M5-QS-3-D
		4		193 154	GRLZ-M5-QS-4-D
		6		193 155	GRLZ-M5-QS-6-D
	G1/8	3		193 156	GRLZ-1/8-QS-3-D
		4		193 157	GRLZ-1/8-QS-4-D
		6		193 158	GRLZ-1/8-QS-6-D
		8		193 159	GRLZ-1/8-QS-8-D

Ordering data – One-way flow control valves, corrosion resistant — Technical data ➔ Internet: crgrla

	Port		Material	Part No.	Type
	Thread	For push-in fitting			
For exhaust air					
	M5	CRQS/CRQSL/CRQST	Electrolytically polished stainless steel casting	161 403	CRGRLA-M5-B
	G1/8			161 404	CRGRLA-1/8-B

Note

Only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used for the compressed air ports in conjunction with the DSNUP.