Round cylinders ESNU

Key features

At a glance

ESNU-8 ... 63

- Stainless steel piston rod
- Good running performance and long service life
- Piston rod with male and female thread
- Extensive range of accessories makes it possible to install the cylinder virtually anywhere

ESNU-8 ... 25

- The basic versions conform to ISO 6432, variants are based on these standards

Wide choice of variants

ESNU-...

- Piston diameter 8 ... 63 mm
- Cylinder barrel made of stainless steel
- Bearing and end caps made of wrought aluminium alloy

ESNU-...-MA

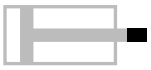
- Piston diameter 8 ... 63 mm
- Cylinder barrel made of stainless steel
- Bearing cap with threaded flange
- Short end cap with axial supply port

Cushioning types

	Cushioning P
Operating mode	• The drive is equipped with flexible polymer end-position cushioning
Application	• Small loads • Low speeds • Low impact energies
Advantages	• No adjustment required • Saves time

Key features

Further variants

Symbol	Key features	Description
	K2 Extended male piston rod thread	–
	K3 Female piston rod thread	–
	K5 Custom piston rod thread	Metric standard thread to ISO
	K6 Shortened male piston rod thread	–
	K8 Extended piston rod	–
	A6 Metal scraper (32 ... 63 mm)	The cylinder has a hard-chrome-plated piston rod and metal scraper, which scrapes off hard particles (e.g. welding spatter) that stick to the piston rod. For use in welding systems, for example

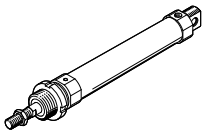
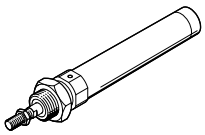
Longer service life with bellows kit DADB

The bellows protects the piston rod, the seal and the bearing from the effects of a wide range of media, which has a positive impact on the service life of these components.

The bellows kit is a leak-free system. To prevent unwanted media from being drawn in, the supply and exhaust air for the kit must be ducted via a pressure compensation hole in the connection part [1].
The kit protects the piston rod, seal and bearing against a wide variety of media, for example:

- Dust
- Chippings
- Oil
- Grease
- Petrol

Product range overview

Function	Version	Piston diameter [mm]	Stroke [mm]	Variable stroke[1] [mm]	Cushioning Fixed P	Position sensing A
Single-acting	**ESNU-... – With position sensing**					
		8 ... 63	10, 25, 50	1 ... 50	■	■
	ESNU-MA-... – Axial supply port					
		8 ... 63	–	1 ... 50	■	■

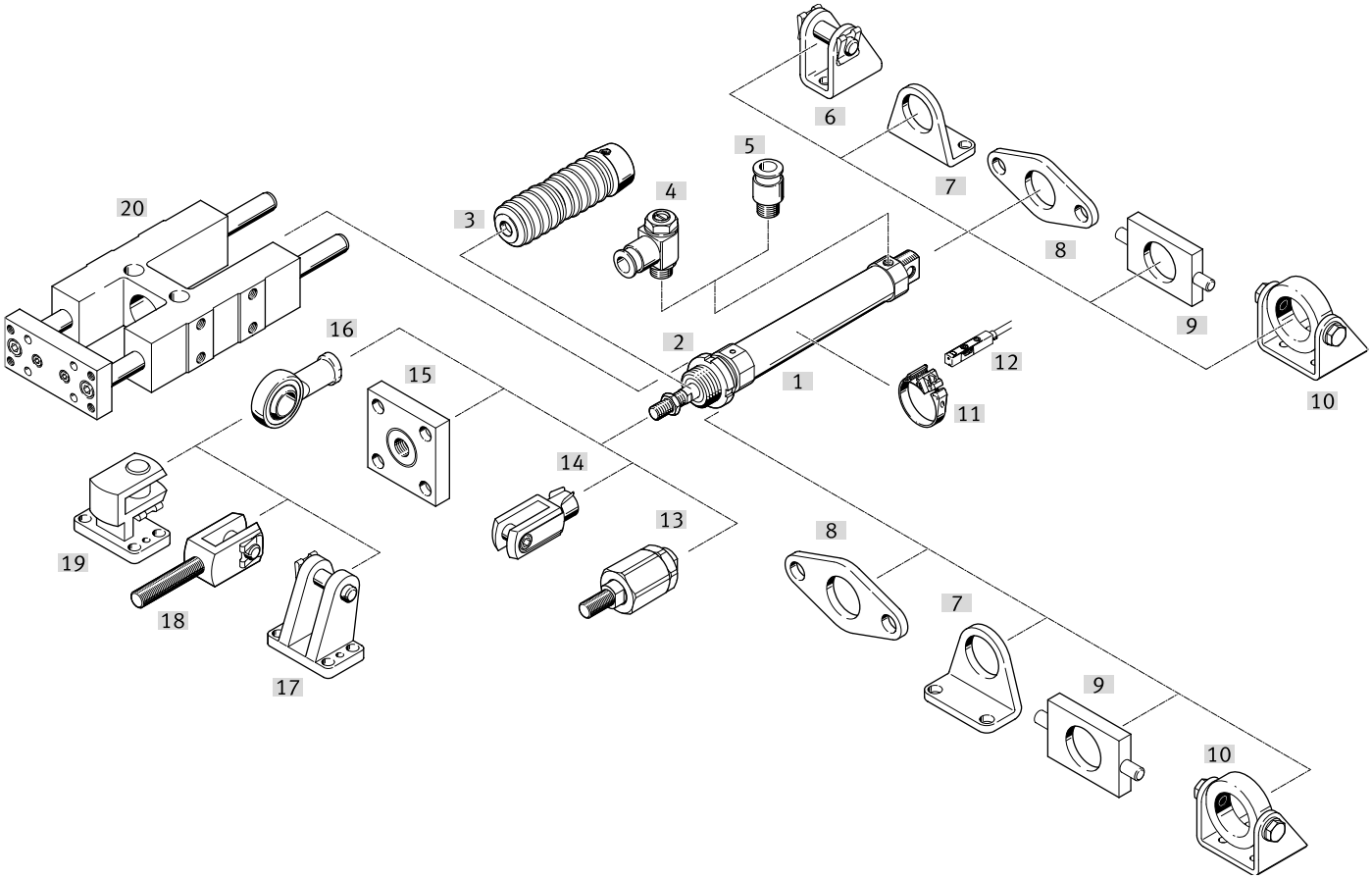
1) Cylinders with position sensing require a minimum stroke of 10 mm to ensure reliable sensing

Product range overview

Piston diameter	Piston rod					→ Page/ Internet
	Extended	Male thread			Female thread	
		Extended	Shortened	Custom thread		
	K8	K2	K6	K5	K3	
ESNU-... – With position sensing						
8 ... 63	■	■	■	■	■	9
ESNU-MA-... – Axial supply port						
8 ... 63	■	■	■	■	■	9

Peripherals overview

ESNU-...



Peripherals overview

Mounting attachments and accessories		Piston diameter	ESNU		→ Page/ Internet
				MA	
[1]	Round cylinders ESNU				
[2]	Hex nut MSK	16 ... 25	■	■	26
[3]	Bellows kit[2] DADB	12 ... 63	■	■	28
[4]	One-way flow control valve GRLZ	8 ... 63	■	■	32
[5]	Push-in fitting QS	8 ... 63	■	■	qs
[6]	Clevis foot LBN/CRLBN	8 ... 63	■	–	25
[7]	Foot mounting HBN/CRHBN/CRH	8 ... 63	■	■	20
[8]	Flange mounting FBN/CRFBN/CRFV	8 ... 63	■	■	22
[9]	Swivel mounting[1] WBN	8 ... 63	■	■	24
[10]	Swivel mounting[1] SBN	20 ... 63	■	■	24
[11]	Mounting kit SMBR	12 ... 63	■	■	31
[12]	Proximity switch SMT/SDBT	8 ... 63	■	■	31
	Position transmitter SDAS/SDAT/SMAT	8 ... 63	■	■	31
[13]	Self-aligning rod coupler FK/CRFK	8 ... 63	■	■	26
[14]	Rod clevis SG/CRSG	8 ... 63	■	■	26
[15]	Coupling piece KSG/KSZ	12 ... 63	■	■	26
[16]	Rod eye SGS/CRSGS	8 ... 63	■	■	26
[17]	Clevis foot LBG	32 ... 63	■	■	25
[18]	Rod clevis SGA	32 ... 63	■	■	26
[19]	Right-angle clevis foot LQG	32 ... 63	■	■	25
[20]	Guide unit FEN	8 ... 25	■	■	27

Note

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

2) 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)

Type codes

ESNU-...

001	Series	
ESNU	Round cylinder, single-acting, pressing, based on ISO 6432	

002	Piston diameter	
8	8	
10	10	
12	12	
16	16	
20	20	
25	25	
32	32	
40	40	
50	50	
63	63	

003	Stroke	
...	1 ... 50	

004	Cushioning	
P	Elastic cushioning rings/plates on both sides	

005	Position sensing	
A	For proximity sensor	

006	End cap	
	Standard	
MA	Axial supply port	

007	Piston rod thread extension	
	None	
K2	1 ... 35 mm	

008	K6 - Shortened male piston rod thread	
	None	
K6	1 ... 10 mm	

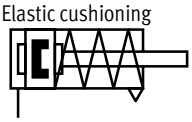
009	Piston rod thread type	
	Male thread	
K3	Female thread	

010	Custom thread	
“M10”K5	M10	
“M12”K5	M12	
“M16”K5	M16	

011	Piston rod extension	
	None	
...K8	1 ... 50 mm	

Datasheet

Elastic cushioning



- Ø - Diameter
  8 ... 25 mm
  ISO 6432

- Ø - Diameter
  32 ... 63 mm

- | - Stroke length
  1 ... 50 mm

General technical data											
Piston diameter		8	10	12	16	20	25	32	40	50	63
Conforms to standard		ISO 6432						–			
Pneumatic connection		M5	M5	M5	M5	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
Piston rod thread		M4	M4	M6	M6	M8	M10x1.25	M10x1.25	M12x1.25	M16x1.5	M16x1.5
Stroke[1]	[mm]	1 ... 50									
Design		Piston/piston rod/cylinder barrel									
Cushioning		Elastic cushioning rings/plates at both ends									
Position sensing		For proximity switch									
Type of mounting		Via accessories									
Mounting position		Any									

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

Operating and environmental conditions											
		8	10	12	16	20	25	32	40	50	63
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]									
Note on the operating/ pilot medium		Lubricated operation possible (required for further operation)									
Operating pressure	[MPa]	0.15 ... 1			0.12 ... 1						
	[bar]	1.5 ... 10			1.2 ... 10						
Ambient temperature[1]	[°C]	–20 ... +80									
Corrosion resistance class CRC[2]		2									

1) Note operating range of proximity switches

2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements that are in direct contact with a normal industrial environment.

Datasheet

Forces [N] and impact energy [J]										
Piston diameter	8	10	12	16	20	25	32	40	50	63
Theoretical force at 0.6 MPa (6 bar), advancing	24	41	61	107	169	270	442	688	1071	1763
Theoretical spring return force										
Stroke 10 mm	4.9	4.9	6.3	13.2	18.3	22.9	36	60	95	95
Stroke 25 mm	4.1	4.1	5.4	11.9	16.5	21.2	30	50	82	82
Stroke 50 mm	2.8	4.8	3.9	9.8	13.6	18.5	20	30	60	60
Impact energy in the end positions[1)]	0.03	0.05	0.07	0.15	0.20	0.30	0.40	0.70	1	1.3

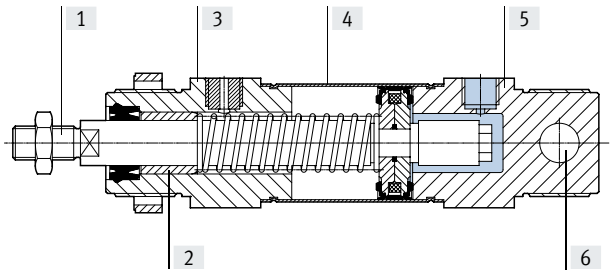
1) The values are reduced by approx. 50% at ambient temperatures of 80 °C

Weight ESNU-... [g]										
Piston diameter	8	10	12	16	20	25	32	40	50	63
Product weight with 0 mm stroke	35	37.3	75	89.9	186.8	238	370.5	661	1087	1445
Additional weight per 10 mm stroke	2.4	2.7	4	4.6	7.2	11	15.5	24	40	44

Weight ESNU-...-MA [g]										
Piston diameter	8	10	12	16	20	25	32	40	50	63
Product weight with 0 mm stroke	30	33	65	81	167	222	330	585	1013	1369
Additional weight per 10 mm stroke	2.4	2.7	4	4.6	7.2	11	15.5	24	40	44

Materials

Sectional view

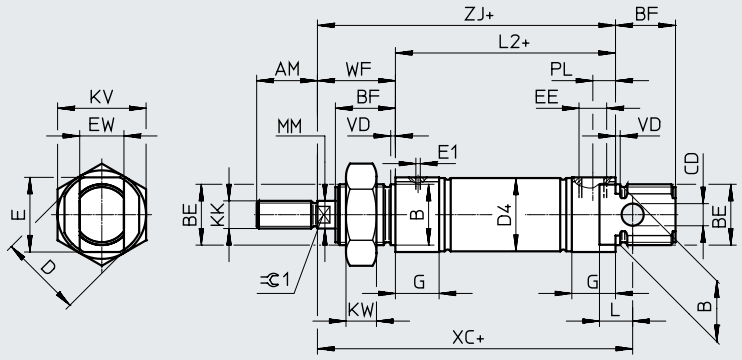


Round cylinders		
[1]	Piston rod	High-alloy steel
[2]	Piston rod bearing	Sintered bronze
[3]	Bearing cap	Anodised aluminium
[4]	Cylinder barrel	High-alloy stainless steel
[5]	End cap	Anodised aluminium
–	Seals	NBR, TPE-U(PU)
–	Spring	Spring steel
	LABS (PWIS) conformity	VDMA24364-B1/B2-L
	Note on materials	RoHS-compliant
[6]	Swivel bearing	Polymer

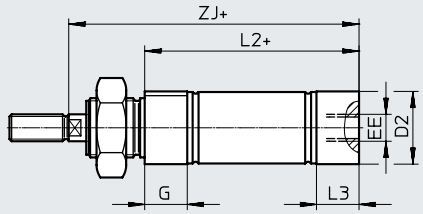
Datasheet

Dimensions Download CAD data ➔ www.festo.com

ESNU-8 ... 25



MA – Axial supply port



Note

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

\+ = plus stroke length

ø [mm]	AM	B ø h8	BE	BF	CD ø H9	D ø	D2 ø -MA	D4 ø	E	E1	EE	EW	G	KK
8	12	12	M12x1.25	12	4	16	10.5	9.3	14	1	M5	8	10	M4
10							12.5	11.3						
12	16	16	M16x1.5	17	6	20	14.5	13.3	18			12		M6
16							17.5	17.3		1.6				
20	20	22	M22x1.5	20	8	30	21.7	21.3	26		G1/8	16	16	M8
25	22			22			26.7	26.5	27	2				M10x1.25

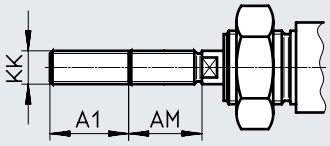
ø [mm]	KV	KW	MM ø	L	L2		L3	PL	VD	WF ±1.2	XC ±1	ZJ		=C1
					ESNU- ...	-MA	-MA					ESNU- ...	-MA	
8	19	6	4	6	46	43.6	7.6	6	2	16	64	62	59.6	–
10						43.1	7.1						59.1	
12	24	8	6	9	50	47.7	7.7			22	75	72	69.7	5
16					56	53.7					82	78	75.7	
20	32	11	8	12	68	66.5	14.5	8.2		24	95	92	90.5	7
25			10		69.5	68.5	14			28	104	97.5	96.5	9

Datasheet

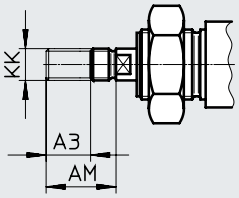
Dimensions Download CAD data ➔ www.festo.com

ESNU-8 ... 25

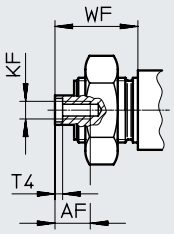
K2 – Extended male piston rod thread



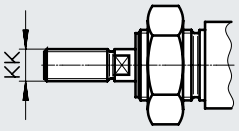
K6 – Shortened male piston rod thread



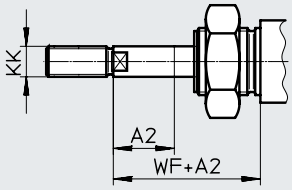
K3 – Female piston rod thread



K5 – Custom piston rod thread



K8 – Extended piston rod



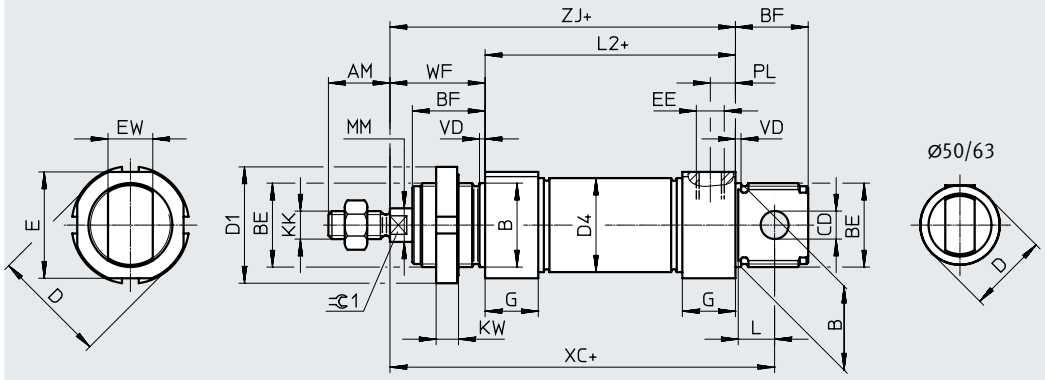
ø [mm]	A1 max.	A2 max.	A3 max.	AF	AM	KF	KK		T4	WF ±1.2
							Basic thread	Custom thread[1]		
8	15	50	4	–	12	–	M4	–	–	16
10				–		–		–	–	
12	20			–	16	–	M6	–	–	22
16				–		–		–	–	
20	25		8	12	20	M4	M8	–	2	24
25	35				22	M6	M10x1.25	M10	2.6	28

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

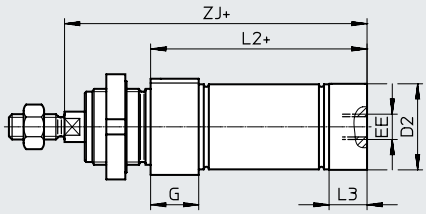
Datasheet

Dimensions Download CAD data ➔ www.festo.com

ESNU-32 ... 63



MA – Axial supply port



\+ = plus stroke length

⌀ [mm]	AM	B ⌀ h8	BE	BF	CD ⌀ H9	D ⌀	D1 ⌀	D2 ⌀	D4 ⌀	E	EE	EW	G	KK
32	22	30	M30x1.5	26	10	41	42	34	33.6	38	G1/8	16	19	M10x1.25
40	24	38	M38x1.5	30	12	49	50	42	41.6	45	G1/4	18	25	M12x1.25
50	32	45	M45x1.5	33	16	57	60	53	52.4	–		21		M16x1.5
63						70		66	65.4	–	G3/8		28	

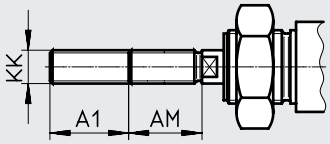
⌀ [mm]	KW	L	L2 ESNU- ...		L3	PL	MM ⌀	VD	WF ±1.2	XC ±1	ZJ ESNU- ...		⌀1
				-MA								-MA	
32	8	13	69.5	65.5	15	9	12	2	34	117.5	103.5	99.5	10
40	10	15	84.6	77.6	18	12	16	3	39	139.6	123.6	116.6	13
50		16	86.2	86.2	25		20		44	147.2	130.2	130.2	17
63			94.2	94.2	28	13			45	156.2	139.2	139.2	

Datasheet

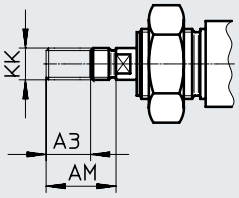
Dimensions Download CAD data ➔ www.festo.com

ESNU-32 ... 63

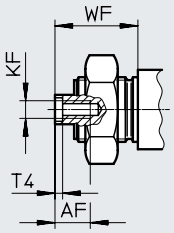
K2 – Extended male piston rod thread



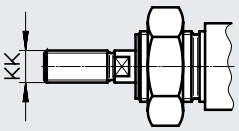
K6 – Shortened male piston rod thread



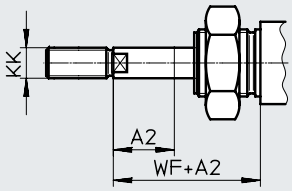
K3 – Female piston rod thread



K5 – Custom piston rod thread



K8 – Extended piston rod



ø [mm]	A1 max.	A2 max.	A3 max.	AF	AM	KF	KK		T4	WF ±1.2
							Basic thread	Custom thread[1]		
32	35	50	8	12	22	M6	M10x1.25	M10	2.6	34
40					24	M8	M12x1.25	M12	3.3	39
50			10	16	32	M10	M16x1.5	M16	4.7	44
63										45

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

Datasheet

Ordering data			
Piston diameter [mm]	Stroke [mm]	Part no.	Type
8	10	**19254**	**ESNU-8-10-P-A**
	25	**19255**	**ESNU-8-25-P-A**
	50	**19256**	**ESNU-8-50-P-A**
10	10	**19257**	**ESNU-10-10-P-A**
	25	**19258**	**ESNU-10-25-P-A**
	50	**19259**	**ESNU-10-50-P-A**
12	10	**19260**	**ESNU-12-10-P-A**
	25	**19261**	**ESNU-12-25-P-A**
	50	**19262**	**ESNU-12-50-P-A**
16	10	**19263**	**ESNU-16-10-P-A**
	25	**19264**	**ESNU-16-25-P-A**
	50	**19265**	**ESNU-16-50-P-A**
20	10	**19266**	**ESNU-20-10-P-A**
	25	**19267**	**ESNU-20-25-P-A**
	50	**19268**	**ESNU-20-50-P-A**
25	10	**19269**	**ESNU-25-10-P-A**
	25	**19270**	**ESNU-25-25-P-A**
	50	**19271**	**ESNU-25-50-P-A**
32	10	**196376**	**ESNU-32-10-P-A**
	25	**196377**	**ESNU-32-25-P-A**
	50	**196378**	**ESNU-32-50-P-A**
40	10	**196379**	**ESNU-40-10-P-A**
	25	**196380**	**ESNU-40-25-P-A**
	50	**196381**	**ESNU-40-50-P-A**
50	10	**196382**	**ESNU-50-10-P-A**
	25	**196383**	**ESNU-50-25-P-A**
	50	**196384**	**ESNU-50-50-P-A**
63	10	**196385**	**ESNU-63-10-P-A**
	25	**196386**	**ESNU-63-25-P-A**
	50	**196387**	**ESNU-63-50-P-A**

Ordering data			
Piston diameter [mm]	Stroke [mm]	Part no.	Type
Variable stroke			
8	1 ... 50	**14119**	**ESNU-8-...-P-A**
10	1 ... 50	**14118**	**ESNU-10-...-P-A**
12	1 ... 50	**14317**	**ESNU-12-...-P-A**
16	1 ... 50	**14316**	**ESNU-16-...-P-A**
20	1 ... 50	**14319**	**ESNU-20-...-P-A**
25	1 ... 50	**14318**	**ESNU-25-...-P-A**

Ordering data – Modular product system

Ordering table

Size		8	10	12	16	20	25	Conditions	Code		Enter code
Module no.		**193996**	**193997**	**193998**	**193999**	**194000**	**194001**				
Function		Round cylinder, single-acting, pushing, based on ISO 6432							**ESNU**		ESNU
Piston diameter	[mm]	8	10	12	16	20	25		**-...**		
Stroke	[mm]	1 ... 50							**-...**		
Cushioning		Elastic cushioning rings/plates at both ends							**-P**		-P
Position sensing		For proximity switch						[1]	**-A**		-A
End cap		Axial supply port							**-MA**		

[1] A Minimum stroke ≥ 10 mm required for reliable sensing

Note

Cylinders with position sensing require a minimum stroke of 10 mm to ensure reliable sensing.
Longer strokes on request

Ordering data – Modular product system

Ordering table

Size		8	10	12	16	20	25	Conditions	Code	Enter code
Extended male thread		Extended male piston rod thread								
	[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		Piston rod with female thread								
		–	–	–	–	(M4)	(M6)	[3]	**-K3**	
Custom thread		Custom piston rod 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 custom thread K5, shortened male thread K6

Ordering data – Modular product system

Ordering table

Size		32	40	50	63	Conditions	Code		Enter code
Module no.		**194002**	**194003**	**194004**	**194005**				
Function		Single-acting round cylinder					**ESNU**		ESNU
Piston diameter	[mm]	32	40	50	63		**-...**		
Stroke	[mm]	1 ... 50					**-...**		
Cushioning		Elastic cushioning rings/plates at both ends					**-P**		-P
Position sensing		For proximity switch				[1]	**-A**		-A
End cap		Axial supply port					**-MA**		

[1] A Minimum stroke ≥ 10 mm required for reliable sensing

Note

Cylinders with position sensing require a minimum stroke of 10 mm to ensure reliable sensing.
Longer strokes on request

Ordering data – Modular product system

Ordering table

Size		32	40	50	63	Conditions	Code		Enter code
Extended male thread		Extended male piston rod thread							
	[mm]	1 ... 35				[2]	**-...K2**		
Shortened male thread		Shortened male piston rod thread							
	[mm]	1 ... 8		1 ... 10			**-...K6**		
Female thread		Piston rod with female thread							
		(M6)	(M8)	(M10)		[3]	**-K3**		
Custom thread		Custom piston rod thread							
		M10	M12	M16			**-"..."K5**		
Extended piston rod		Extended piston rod							
	[mm]	1 ... 50					**...K8**		

[2] K2 Not with female thread K3, shortened male thread K6

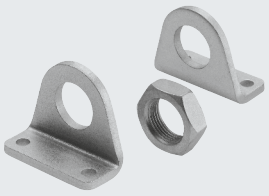
[3] K3 Not with custom thread K5, shortened male thread K6

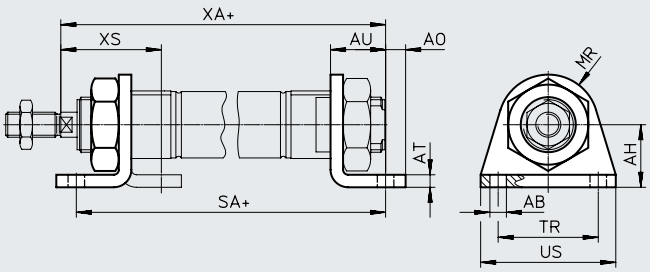
Accessories

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 and PTFE
RoHS-compliant





\+ = plus stroke length

Dimensions and ordering data

For Ø [mm]	AB Ø	AH	AO	AT	AU	R1	SA	TR	US	XA	XS
8, 10	4.5	16	5	3	11	10	68	25	35	73	24
12	5.5	20	6	4	14	13	78	32	42	86	32
16	5.5	20	6	4	14	13	84	32	42	92	32
20	6.6	25	8	5	17	20	102	40	54	109	36
25	6.6	25	8	5	17	20	103.5	40	54	114.5	40

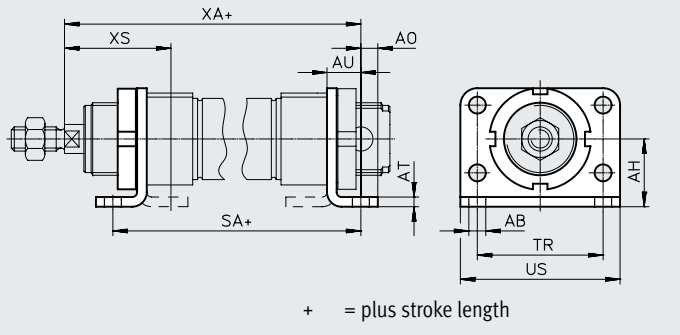
For Ø	Basic version				High corrosion protection			
[mm]	CRC[1)]	Weight [g]	Part no.	Type	CRC[1)]	Weight [g]	Part no.	Type
8, 10	1	22	**5123**	**HBN-8/10x1**	–	–	**–**	
	1	54	**5124**	**HBN-8/10x2**	–	–	**–**	
12, 16	1	43	**5125**	**HBN-12/16x1**	4	43	**161866**	**CRHBN-12/16x1**
	1	107	**5126**	**HBN-12/16x2**	4	107	**162999**	**CRHBN-12/16x2**
20, 25	1	95	**5127**	**HBN-20/25x1**	4	94	**161867**	**CRHBN-20/25x1**
	1	237	**5128**	**HBN-20/25x2**	4	236	**162998**	**CRHBN-20/25x2**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded with special tests (→ also FN 940082) using appropriate media.

Accessories

Foot mounting HBN/CRH

Material:
HBN: Galvanised steel
CRH: High-alloy stainless steel
Free of copper and PTFE
RoHS-compliant



Dimensions and ordering data

For Ø [mm]	AB Ø	AH	AO	AT	AU	SA	TR	US	XA	XS
32	7	28	7	4	14	97.5	52	66	117.5	44
40	9	33	10	5	20	124.6	60	80	143.6	54
50	9	40	10	6	20	126.2	70	90	150.2	58
63	9	45	10	6	20	134.2	76	96	159.2	59

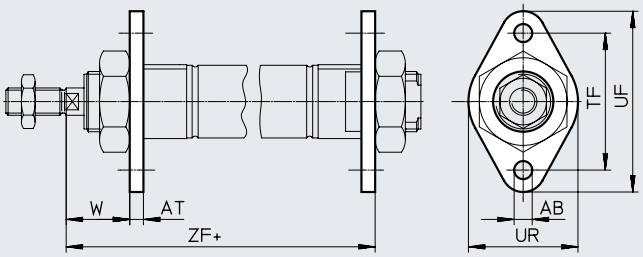
For Ø	Basic version				High corrosion protection			
[mm]	CRC[1)]	Weight [g]	Part no.	Type	CRC[1)]	Weight [g]	Part no.	Type
32	1	353	**195851**	**HBN-32x2**	4	353	**162951**	**CRH-32**
40	1	611	**195852**	**HBN-40x2**	4	611	**162952**	**CRH-40**
50	1	916	**195853**	**HBN-50x2**	4	916	**162953**	**CRH-50**
63	1	1066	**195854**	**HBN-63x2**	4	1066	**162954**	**CRH-63**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded with special tests (→ also FN 940082) using appropriate media.

Accessories

Flange mounting FBN/CRFBN

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



Dimensions and ordering data

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

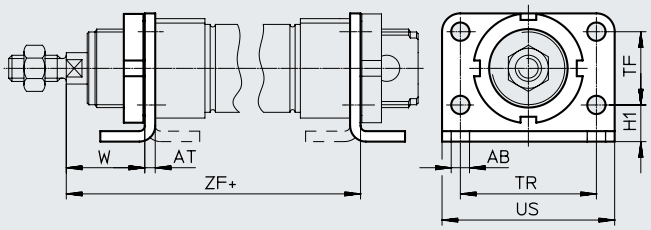
For ø	Basic version				High corrosion protection			
[mm]	CRC[1)]	Weight [g]	Part no.	Type	CRC[1)]	Weight [g]	Part no.	Type
8, 10	1	12	**5129**	**FBN-8/10**	–	–	**–**	**–**
12, 16	1	26	**5130**	**FBN-12/16**	4	26	**161864**	**CRFBN-12/16**
20, 25	1	52	**5131**	**FBN-20/25**	4	52	**161865**	**CRFBN-20/25**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded with special tests (→ also FN 940082) using appropriate media.

Accessories

Flange mounting FBN/CRFV

Material:
FBN: Galvanised steel
CRFV: High-alloy stainless steel
Free of copper and PTFE
RoHS-compliant



\+ = plus stroke length

Dimensions and ordering data

For Ø [mm]	AB Ø	AT	H1	TF	TR	US	W	ZF
32	7	4	14	28	52	66	30	107.5
40	9	5	18	30	60	80	29	128.6
50	9	6	20	40	70	90	38	136.2
63	9	6	20	50	76	96	39	145.2

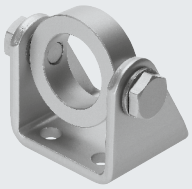
For Ø	Basic version				High corrosion protection			
[mm]	CRC[1)]	Weight [g]	Part no.	Type	CRC[1)]	Weight [g]	Part no.	Type
32	1	103	**195855**	**FBN-32**	4	103	**161858**	**CRFV-32**
40	1	191	**195856**	**FBN-40**	4	191	**161859**	**CRFV-40**
50	1	292	**195857**	**FBN-50**	4	292	**161860**	**CRFV-50**
63	1	367	**195858**	**FBN-63**	4	367	**161861**	**CRFV-63**

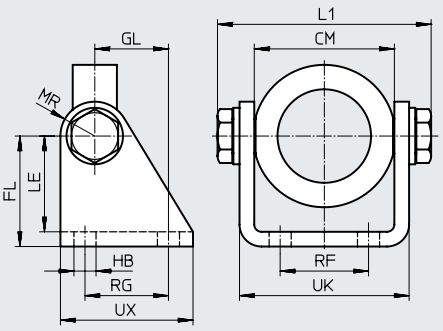
1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded with special tests (→ also FN 940082) using appropriate media.

Accessories

Swivel mounting SBN

Material:
Retaining ring: Anodised wrought aluminium alloy
Bearing: Bronze
Screws: Galvanised steel
Bracket: Steel
Cannot be used on the bearing cap in combination with bellows kit DADB.





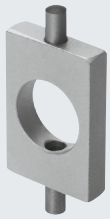
Dimensions and ordering data

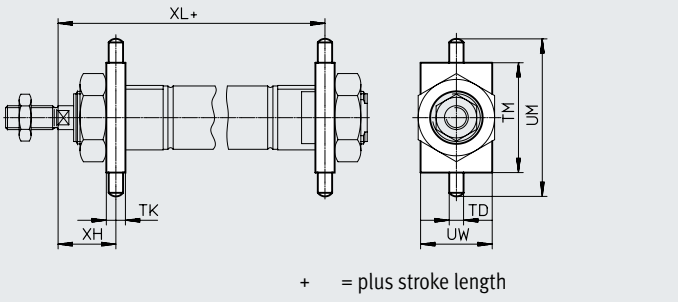
For Ø [mm]	CM	FL	GL	HB	L1 max.	LE	MR	RF	RG	UK	UX	CRC[1]	Weight [g]	Part no.	Type
20/25	38.1+0.4	35	20	7	60.2	31	12	20	24	46.1	40	1	238	**539927**	**SBN-20/25**
32	46.1+0.2	40	27	9	72.2	35	13	28	30	56.1	50	1	361	**539924**	**SBN-32**
40	57.1+0.2	45	30	9	88.2	39	14	36	34	69.1	54	1	593	**539925**	**SBN-40**
50/63	70.1+0.4	50	34	9	102.2	44	16	42	35	82.1	65	1	894	**539926**	**SBN-50/63**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).

Swivel mounting WBN

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





Dimensions and ordering data

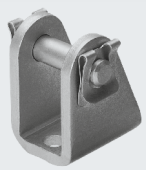
For Ø [mm]	TD Ø –0.01/ –0.05	TK	TM	UM	UW	XH	XL	CRC[1]	Weight [g]	Part no.	Type
8, 10	4	6	26	38	20	13	65	1	20	**8608**	**WBN-8/10**
12	6	8	38	58	25	18	76	1	51	**8609**	**WBN-12/16**
16	6	8	38	58	25	18	82	1	51	**8609**	**WBN-12/16**
20	6	8	46	66	30	20	96	1	67	**8610**	**WBN-20/25**
25	6	8	46	66	30	24	101.5	1	67	**8610**	**WBN-20/25**
32	8	12	50	76	40	28	109.5	1	131	**195863**	**WBN-32**
40	10	15	60	92	50	31.5	126.1	1	238	**195864**	**WBN-40**
50	12	20	80	116	65	34	140.2	1	596	**195865**	**WBN-50/63**
63	12	20	80	116	65	35	149.2	1	596	**195865**	**WBN-50/63**

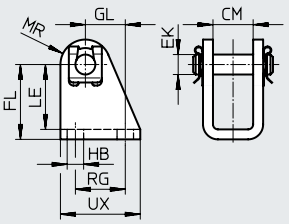
1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).

Accessories

Clevis foot LBN/CRLBN

Material:
LBN: galvanised steel
CRLBN: High-alloy stainless steel
Free of copper and PTFE
RoHS-compliant





Dimensions and ordering data

For Ø [mm]	CM	EK Ø	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
32	16.1	10	35 +0.4/–0.2	18.5	6.6	31	11	24	35
40	18.1	12	40 +0.4/–0.2	24.5	9	35	13	30	45
50, 63	21.1	16	45 +0.5/–0.2	28	9	39	14	34	50

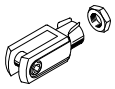
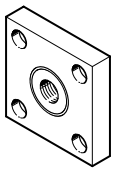
For Ø	Basic version				High corrosion protection			
[mm]	CRC[1]	Weight [g]	Part no.	Type	CRC[1]	Weight [g]	Part no.	Type
8, 10	1	20	**6057**	**LBN-8/10**	–	–	**–**	
12, 16	1	40	**6058**	**LBN-12/16**	4	39	**161862**	**CRLBN-12/16**
20, 25	1	84	**6059**	**LBN-20/25**	4	82	**161863**	**CRLBN-20/25**
32	1	110	**195860**	**LBN-32**	4	106	**195866**	**CRLBN-32**
40	1	191	**195861**	**LBN-40**	4	185	**195867**	**CRLBN-40**
50, 63	1	300	**195862**	**LBN-50/63**	4	283	**195868**	**CRLBN-50/63**

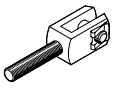
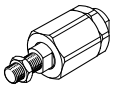
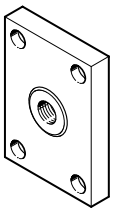
1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, or parts that are covered in the application (e.g. drive trunnions).
Corrosion resistance class CRC 4 to Festo standard FN 940070
Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded with special tests (→ also FN 940082) using appropriate media.

Accessories

Ordering data – Piston rod attachments

Datasheets → Internet: piston rod attachment

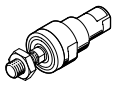
Designation	For ⌀	Part no.	Type
Rod eye SGS			
	8	**9253**	**SGS-M4**
	10		
	12	**9254**	**SGS-M6**
	16		
	20	**9255**	**SGS-M8**
	25	**9261**	**SGS-M10x1.25**
	32		
	40	**9262**	**SGS-M12x1.25**
	50	**9263**	**SGS-M16x1.5**
	63		
Rod clevis SG			
	8	**6532**	**SG-M4**
	10		
	12	**3110**	**SG-M6**
	16		
	20	**3111**	**SG-M8**
	25	**6144**	**SG-M10x1.25**
	32		
	40	**6145**	**SG-M12x1.25**
	50	**6146**	**SG-M16x1.5**
	63		
Coupling piece KSG			
	12	–	
	16		
	20		
	25	**32963**	**KSG-M10x1.25**
	32		
	40	**32964**	**KSG-M12x1.25**
	50	**32965**	**KSG-M16x1.5**
	63		
Hex nut MSK			
	16	**189007**	**MSK-M16x1.5**
	20	**189009**	**MSK-M22x1.5**
	25		

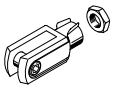
Designation	For ⌀	Part no.	Type
Rod clevis SGA			
	8	–	
	10		
	12		
	16		
	20		
	25		
	32	**32954**	**SGA-M10x1.25**
	40	**10767**	**SGA-M12x1.25**
	50	**10768**	**SGA-M16x1.5**
	63		
Self-aligning rod coupler FK			
	8	**6528**	**FK-M4**
	10		
	12	**2061**	**FK-M6**
	16		
	20	**2062**	**FK-M8**
	25	**6140**	**FK-M10x1.25**
	32		
	40	**6141**	**FK-M12x1.25**
	50	**6142**	**FK-M16x1.5**
	63		
Coupling piece KSZ			
	12	**36123**	**KSZ-M6**
	16		
	20	**36124**	**KSZ-M8**
	25	**36125**	**KSZ-M10x1.25**
	32		
	40	**36126**	**KSZ-M12x1.25**
	50	**36127**	**KSZ-M16x1.5**
	63		

Accessories

Ordering data – Piston-rod attachments, corrosion-resistant

Datasheets → Internet: piston rod attachment

Designation	For ø	Part no.	Type
Rod eye CRSGS			
	12	195580	CRSGS-M6
	16		
	20	195581	CRSGS-M8
	25	195582	CRSGS-M10x1.25
	32		
	40	195583	CRSGS-M12x1.25
	50	195584	CRSGS-M16x1.5
	63		
Self-aligning rod coupler CRFK			
	25	2305778	CRFK-M10x1.25
	32		
	40	2305779	CRFK-M12x1.25
	50	2490673	CRFK-M16x1.5
	63		

Designation	For ø	Part no.	Type
Rod clevis CRSG			
	12	13567	CRSG-M6
	16		
	20	13568	CRSG-M8
	25	13569	CRSG-M10x1.25
	32		
	40	13570	CRSG-M12x1.25
	50	13571	CRSG-M16x1.5
	63		

Ordering data – Mounting components

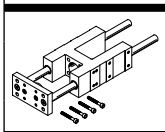
Datasheets → Internet: clevis foot

Designation	For ø	Part no.	Type
Clevis foot LBG			
	32	31761	LBG-32
	40	31762	LBG-40
	50	31763	LBG-50
	63	31764	LBG-63

Designation	For ø	Part no.	Type
Right angle clevis foot LQG			
	32	31768	LQG-32
	40	31769	LQG-40
	50	31770	LQG-50
	63	31771	LQG-63

Ordering data – Guide units

Datasheets → Internet: feng

	For ø	Stroke [mm]	With recirculating ball bearing guide		With plain-bearing guide	
			Part no.	Type	Part no.	Type
	8, 10	1 ... 100	35197	FEN-8/10-...-KF	35196	FEN-8/10-...-GF
	12, 16	1 ... 200	33481	FEN-12/16-...-KF	19168	FEN-12/16-...-GF
	20	2 ... 250	33482	FEN-20-...-KF	19169	FEN-20-...-GF
	25	2 ... 250	33483	FEN-25-...-KF	19170	FEN-25-...-GF

Accessories

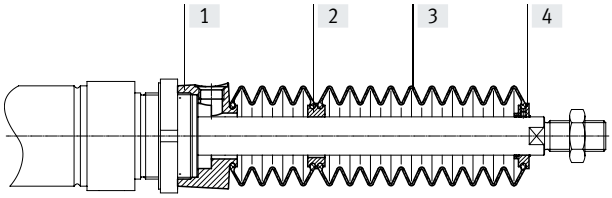
Bellows kit DADB

General technical data							
Type DADB-S1-		20	25	32	40	50	63
Max. stroke range of the cylinder[1)2)]	[mm]	10 ... 50					
Type of mounting		Via threaded pin					
Mounting position		Any					
Media resistance		Dust, chippings, oil, grease, fuel (→ Internet: media resistance)					
Ambient temperature[3)]	[°C]	–10 ... +80					
Corrosion resistance class CRC[4)]		3					

1) In conjunction with the bellows kit DADB
2) Slight change in spring return force
3) Note operating range of proximity switches and cylinder
4) Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional surface requirements that are in direct contact with the normal surrounding industrial environment.

Materials

Sectional view



Bellows		
[1]	Connection	Polyamide
[2]	Adapter	Polyamide
[3]	Bellows	NBR
[4]	End piece	Polyamide
–	O-ring	NBR
	Note on materials	Free of copper and PTFE
		RoHS-compliant

Weight [g]			
Type DADB-S1-	20	25	32
Stroke [mm]			
10 ... 50	20	19	29

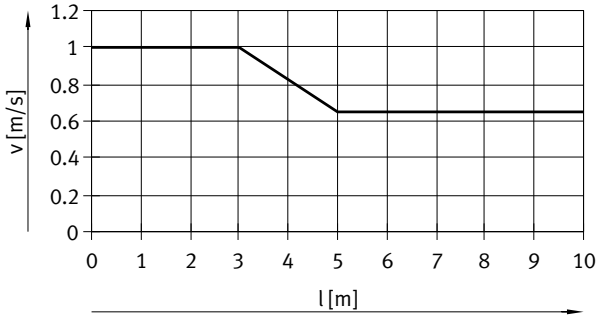
Type DADB-S1-	40	50	63
Stroke [mm]			
10 ... 50	34	55	55

Accessories

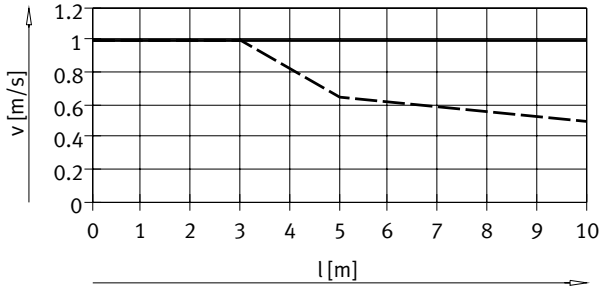
Travel speed v as a function of tubing length l

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 pressure compensation hole in the connection part.
The pressure generated in the bellows kit by the positioning motion is primarily defined by the travel speed and tubing length. The recommended tubing length based on the travel speed of the drive can be read from the graph.

Advancing

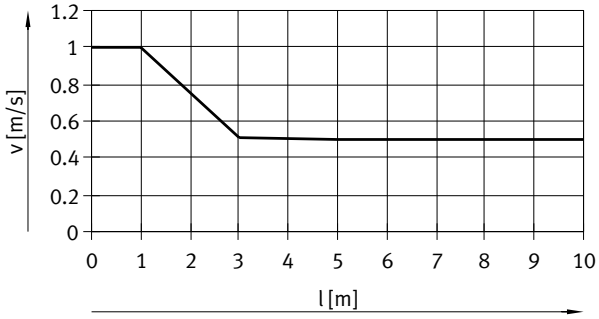


ESNU-20/25

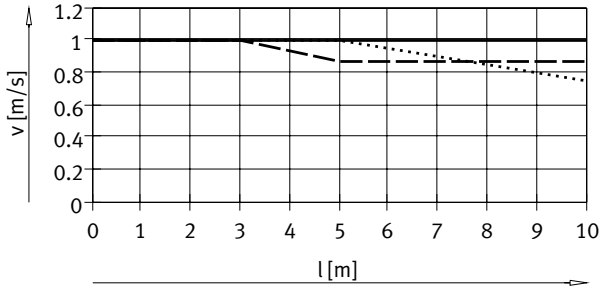


ESNU-32/50/63
ESNU-40

Retracting



ESNU-20/25



ESNU-32
ESNU-40
ESNU-50/63

Note

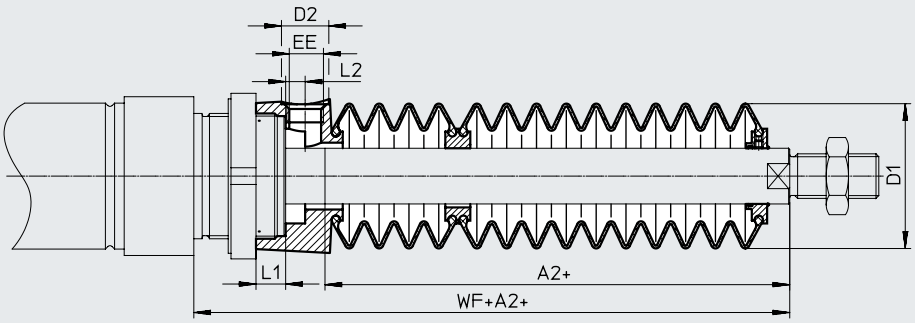
The push-in fittings in the adjacent table must be used for the pressure compensation hole.
Silencers can be used as an alternative. This reduces the travel speed slightly.

Tubing size and push-in fitting for pressure compensation hole

ø [mm]	Tubing O.D. [mm]	Push-in fitting Part no.	Type
20, 25	6	★ **153317**	**QSM-M5-6-I**
		578371	**NPQH-DK-M5-Q6-P10**
		578335	**NPQH-D-M5-Q6-P10**
		578359	**NPQH-D-M5-S6-P10**
32, 40	8	★ **186109**	**QS-G1/8-8-I**
		578376	**NPQH-DK-G18-Q8-P10**
		578362	**NPQH-D-G18-S8-P10**
50, 63	12	★ **186350**	**QS-G1/4-12**
		578344	**NPQH-D-G14-Q12-P10**
		578366	**NPQH-D-G14-S12-P10**

Accessories

Dimensions Download CAD data ➔ www.festo.com



ø	20							25						
Stroke [mm]	A2[1]	D1 ø max.	D2 ø	EE	L1	L2	WF+A2	A2[1]	D1 ø max.	D2 ø	EE	L1	L2	WF+A2
10 ... 50	22	29	8.5	M5	4.2	2.7	46	22	29	8.5	M5	4.2	2.7	50

ø	32							40						
Stroke [mm]	A2[1]	D1 ø max.	D2 ø	EE	L1	L2	WF+A2	A2[1]	D1 ø max.	D2 ø	EE	L1	L2	WF+A2
10 ... 50	30	38	14	G1/8	12.9	5.4	64	29	46	14	G1/8	8.1	5.4	68

ø	50/63						
Stroke [mm]	A2[1]	D1 ø max.	D2 ø	EE	L1	L2	WF+A2
10 ... 50	30	57	17	G1/4	10.65	7	74/75

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

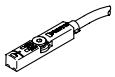
Ordering data – Bellows kit

An extended piston rod (order code K8) is absolutely essential when using a bellows kit ➔ Ordering data – Modular product system.
The necessary dimension for K8 as a function of piston diameter and cylinder stroke as well as the corresponding bellows kit is indicated in the table below:

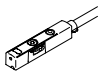
Cylinder data			Bellows kit		Cylinder data			Bellows kit	
ø [mm]	Stroke [mm]	Dimension for K8 [mm]	Part no.	Type	ø [mm]	Stroke [mm]	Dimension for K8 [mm]	Part no.	Type
20	10 ... 50	22	**553407**	**DADB-S1-20-S10-50**	25	10 ... 50	22	**553421**	**DADB-S1-25-S10-50**
32	10 ... 50	30	**553441**	**DADB-S1-32-S10-50**	40	10 ... 50	29	**553461**	**DADB-S1-40-S10-50**
50	10 ... 50	30	**553481**	**DADB-S1-50-S10-50**	63	10 ... 50	30	**553501**	**DADB-S1-63-S10-50**

Accessories

Ordering data – Proximity switch for T-slot, magneto-resistive Datasheets → Internet: smt

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-core	2.5	**574335**	**SMT-8M-A-PS-24V-E-2.5-OE**
			Cable, 2-core	5	**8165237**	**SMT-8M-A-ZS-24V-E-5.0-OE**
			1x M8 plug, 3-pin	0.3	**574334**	**SMT-8M-A-PS-24V-E-0.3-M8D**
		NPN	Cable, 3-core	2.5	**574338**	**SMT-8M-A-NS-24V-E-2.5-OE**
			1x M8 plug, 3-pin	0.3	**574339**	**SMT-8M-A-NS-24V-E-0.3-M8D**

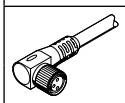
Ordering data – Proximity switch for T-slot, magnetic Hall Datasheets → Internet: sdbt

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O or N/C contact, switchable						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP Switchable to NPN	1x M8 plug, 3-pin	0.3	**8059120**	**SDBT-MSX-1L-PU-E-0.3-N-M8**
			Cable, 3-core	2.5	**8059121**	**SDBT-MSX-1L-PU-E-2.5-N-LE**
		NPN, Switchable to PNP	1x M8 plug, 3-pin	0.3	**8059123**	**SDBT-MSX-1L-NU-E-0.3-N-M8**
			Cable, 3-core	2.5	**8059124**	**SDBT-MSX-1L-NU-E-2.5-N-LE**

Ordering data – Mounting kits for proximity switches SMT/SDBT Datasheets → Internet: smbr

Designation	For ø	Part no.	Type
Mounting kit SMBR-8			
	8	**175091**	**SMBR-8-8**
	10	**175092**	**SMBR-8-10**
	12	**175093**	**SMBR-8-12**
	16	**175094**	**SMBR-8-16**
	20	**175095**	**SMBR-8-20**
	25	**175096**	**SMBR-8-25**
	32	**175097**	**SMBR-8-32**
	40	**175098**	**SMBR-8-40**
	50	**175099**	**SMBR-8-50**
	63	**175100**	**SMBR-8-63**

Ordering data – Connecting cables Datasheets → Internet: nebu

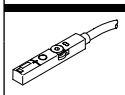
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-core	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541334**	**NEBU-M8G3-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-core	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541341**	**NEBU-M8W3-K-5-LE3**

Position transmitter

The position transmitter continuously senses the position of the piston.

It has an analogue output with an output signal relative to the piston position.

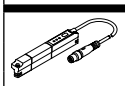
Ordering data – Position transmitters for T-slot Datasheets → Internet: sdas

	Position measuring range	Description	Type of mounting	Electrical connection	Cable length [m]	Part no.	Type
	≤ 52	Choice of two operating modes: • two adjustable switching outputs • IO-Link®	Inserted in the slot from above	1x M8 plug, 4-pin, in-line	0.3	**8063974**	**SDAS-MHS-M40-1L-PNLK-PN-E-0.3-M8**

Accessories

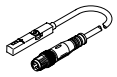
Ordering data – Position transmitters for T-slot

Datasheets → Internet: sdat

	Position measuring range	Analogue output [V]	Analogue output [mA]	Type of mounting	Electrical connection	Cable length [m]	Part no.	Type
	0 ... 50	–	4 ... 20	Inserted in the slot from above	1x M8 plug, 4-pin, in-line	0.3	**1531265**	**SDAT-MHS-M50-1L-SA-E-0.3-M8**
	0 ... 80						**1531266**	**SDAT-MHS-M80-1L-SA-E-0.3-M8**
	0 ... 100						**1531267**	**SDAT-MHS-M100-1L-SA-E-0.3-M8**
	0 ... 125						**1531268**	**SDAT-MHS-M125-1L-SA-E-0.3-M8**
	0 ... 160						**1531269**	**SDAT-MHS-M160-1L-SA-E-0.3-M8**

Ordering data – Position transmitters for T-slot

Datasheets → Internet: smat

	Position measuring range	Analogue output [V]	Analogue output [mA]	Type of mounting	Electrical connection	Cable length [m]	Part no.	Type
	0 ... 40	0 ... 10	–	Inserted in the slot from above	1x M8 plug, 4-pin, in-line	0.3	**553744**	**SMAT-8M-U-E-0.3-M8D**

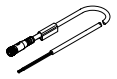
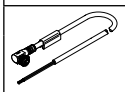
Ordering data – Mounting kits for position transmitters SDAS/SDAT/SMAT

Datasheets → Internet: smbr

Designation	For Ø	Part no.	Type
Mounting kit SMBR-8			
	8	**175091**	**SMBR-8-8**
	10	**175092**	**SMBR-8-10**
	12	**175093**	**SMBR-8-12**
	16	**175094**	**SMBR-8-16**
	20	**175095**	**SMBR-8-20**
	25	**175096**	**SMBR-8-25**
	32	**175097**	**SMBR-8-32**
	40	**175098**	**SMBR-8-40**
	50	**175099**	**SMBR-8-50**
	63	**175100**	**SMBR-8-63**

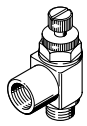
Ordering data – Connecting cables

Datasheets → Internet: nebu

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Straight socket, M8x1, 4-pin	Cable, open end, 4-core	2.5	**541342**	**NEBU-M8G4-K-2.5-LE4**
			5	**541343**	**NEBU-M8G4-K-5-LE4**
	Angled socket, M8x1, 4-pin	Cable, open end, 4-core	2.5	**541344**	**NEBU-M8W4-K-2.5-LE4**
			5	**541345**	**NEBU-M8W4-K-5-LE4**

Ordering data – One-way flow control valves

Datasheets → Internet: grl

	Connection Thread	For tubing O.D.	Material	Part no.	Type
For supply air					
	M5	3	Metal design	**193153**	**GRLZ-M5-QS-3-D**
		4		**193154**	**GRLZ-M5-QS-4-D**
		6		**193155**	**GRLZ-M5-QS-6-D**
	G1/8	3		**193156**	**GRLZ-1/8-QS-3-D**
		4		**193157**	**GRLZ-1/8-QS-4-D**
		6		**193158**	**GRLZ-1/8-QS-6-D**
		8		**193159**	**GRLZ-1/8-QS-8-D**