

Standard cylinders DNG/DNGZS, ISO 15552



- 7 - Type discontinued  
Available up until 2016

## Standard cylinders DNG/DNGZS, ISO 15552

Features

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### Brief description

- Double-acting
- For contactless position sensing
- With adjustable end-position cushioning at both ends
- Robust tie rod design
- Standards-based cylinders to ISO 15552 (corresponds to the withdrawn standards ISO 6431, DIN ISO 6431, VDMA 24 562, NF E 49 003.1 and UNI 10290)



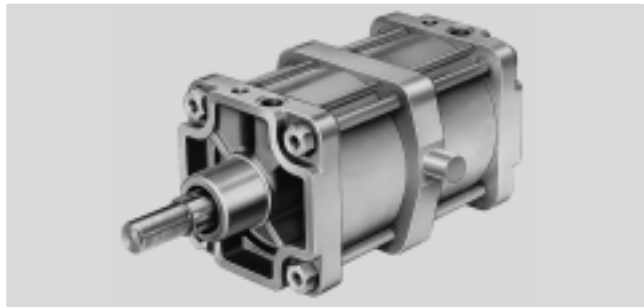
DIN



DNG



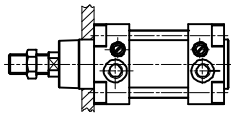
DNGZS with central trunnion mounting (fixed)



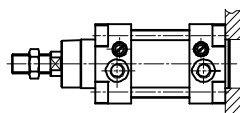
### Mounting options

Installation of basic version

Mounting at front



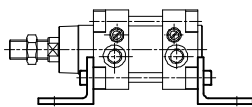
Mounting at rear



Installation options using mounting attachments

Foot mounting MS1<sup>1)</sup>

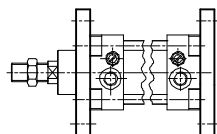
HNG



Flange mounting MF1/MF2<sup>1)</sup>

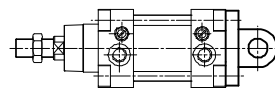
FNG

at front      at rear



Swivel flange MP2<sup>1)</sup>

SNG/SNGB/SNGL



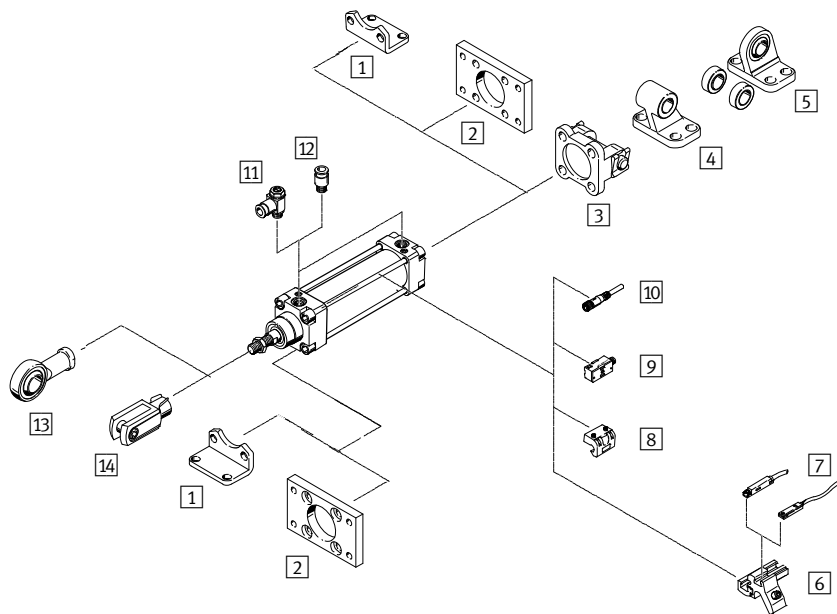
1) Standard designation to ISO 15552 (ISO 6431)

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## Standard cylinders DNG/DNGZK/DNGZS, ISO 15552

Peripherals overview



Mounting attachments and accessories			
	Brief description	→ Page/Internet	
1	Foot mounting HNG	For bearing and end caps corresponds to MS1 to ISO 15552	11
2	Flange mounting FNG	For bearing or end caps corresponds to MF1/MF2 to ISO 15552	11
3	Swivel flange SNGB	For end caps corresponds to MP2 to ISO 15552	12
4	Clevis foot mounting LN	For swivel flange SNGB	12
5	Clevis foot mounting LSN	With spherical bearing	12
6	Sensor mounting kit SMBZ-8- ...	For proximity sensor SME/SMT-8	13
7	Proximity sensors SME/SMT-8	-	13
8	Sensor mounting kit SMB-1	For proximity sensor SMEO-1/SMTO-1	14
9	Proximity sensors SMEO-1/SMTO-1	-	14
10	Connecting cable, straight NEBU	-	13
	Connecting cable, angled NEBU	-	13
11	One-way flow control valve GRLA	For speed regulation	grla
12	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	qs
13	Rod eye SGS	With spherical bearing	12
14	Rod clevis SG	Permits a swivelling movement of the cylinder in one plane	12

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## Standard cylinders DNG/DNGZS, ISO 15552

Type codes

		DNG	-	250	-	80	-	PPV	-	A	-		-	
<b>Type</b>														
Double-acting														
DNG	Standard cylinder													
DNGZS	Standard cylinder with central trunnion mounting (fixed)													
<b>Piston Ø [mm]</b>														
<b>Stroke [mm]</b>														
<b>Cushioning</b>														
PPV	Adjustable at both ends													
<b>Position sensing</b>														
A	For proximity sensing													
<b>Trunnion flange axis distance</b>														
XV	Trunnion flange position													
<b>Variants</b>														
S2	Through piston rod													
S3	Stainless steel piston rod													
S6	Heat resistant seal for temperatures up to 120 °C													
S8	High corrosion protection													

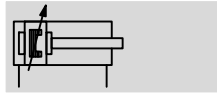
- 2 - Type discontinued  
Available up until 2016

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## Standard cylinders DNG/DNGZS, ISO 15552

Technical data

### Function



- $\varnothing$  - Diameter  
250 ... 320 mm
- | - Stroke length  
10 ... 2000 mm

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



DIN



### Variants



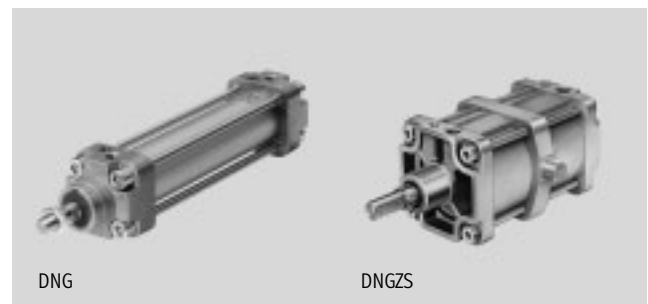
[www.festo.com](http://www.festo.com)

S2

S3

S6

S8



DNG

DNGZS

### General technical data

Piston $\varnothing$	250	320
Pneumatic connection	G1	G1
Piston rod thread	M42x2	M48x2
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Design	Piston	
	Piston rod	
	Profile barrel	
Cushioning	Adjustable at both ends	
Cushioning length [mm]	60	66
Position sensing	For proximity sensing	
Type of mounting	Via accessories	
Mounting position	Any	

### Operating and environmental conditions

Operating pressure [bar]	0.6 ... 10
Ambient temperature <sup>1)</sup> [°C]	-20 ... +80

1) Note operating range of proximity sensors

### Forces [N]

Piston $\varnothing$	250	320
Theoretical force at 6 bar, advancing	29,450	48,250
Theoretical force at 6 bar, retracting	28,270	46,380

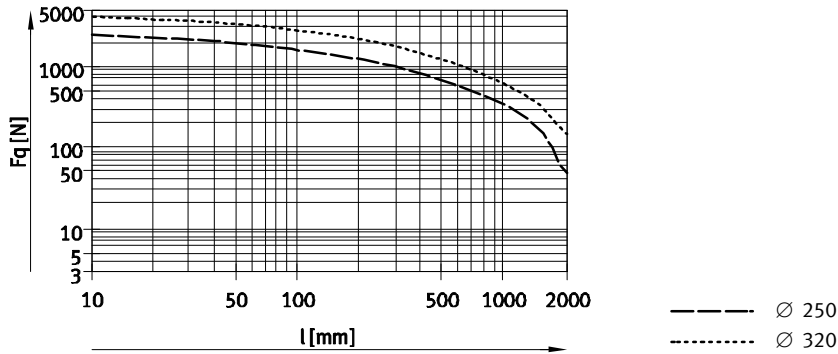
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Technical data

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### Lateral force $F_Q$ as a function of the stroke length $l$

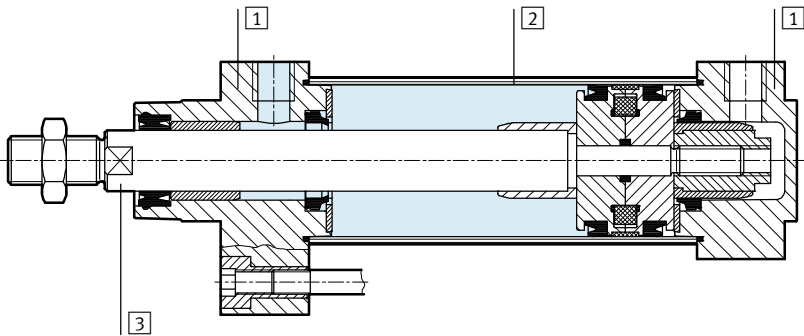


### Weights [g]


Piston Ø	250	320
Product weight at 0 mm stroke	30,800	53,200
Additional weight per 10 mm stroke	360	570

### Materials

Sectional view DNG



Standard cylinder		
1	Bearing and end caps	Aluminium
2	Cylinder barrel	High-alloy steel
3	Piston rod, tie rod	High-alloy steel
-	Seals	NBR, TPE-U (PU)

-  - Type discontinued  
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## Standard cylinders DNG/DNGZS, ISO 15552

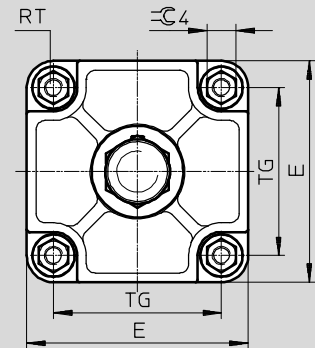
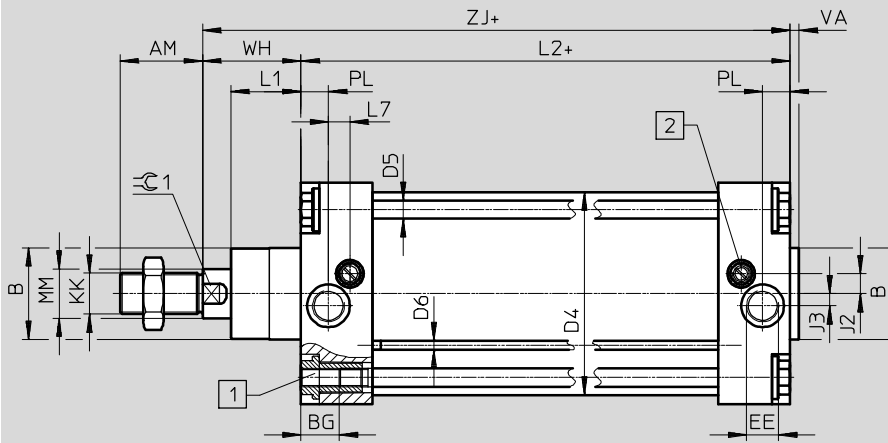
Technical data

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### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

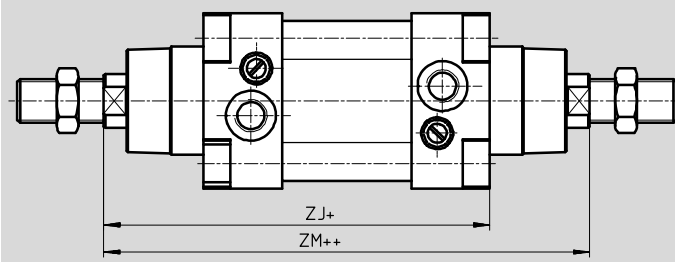
DNG



- 1 Socket head screw with female thread for mounting attachments
- 2 Regulating screw for adjustable end-position cushioning

+ = plus stroke length

### Variant S2 – Through piston rod



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

∅	AM	B	BG	D4	D5	D6	E	EE	J2	J3	KK	L1
[mm]		∅ d11		∅	∅							
250	84	90	25.5	254	18.3 ... 20	6	270	G1	25	25	M42x2	67
320	96	110	28.5	325	22 ... 25	6	340	G1	30	30	M48x2	82

∅	L2	L7	MM	PL	RT	TG	VA	WH	ZJ	ZM	∅C1	∅C4
[mm]			∅									
250	200 ±2	0	50	31	M20	220	10	105	305	410	46	36
320	220 ±2	0	63	31	M24	270	10	120	340	460	55	46

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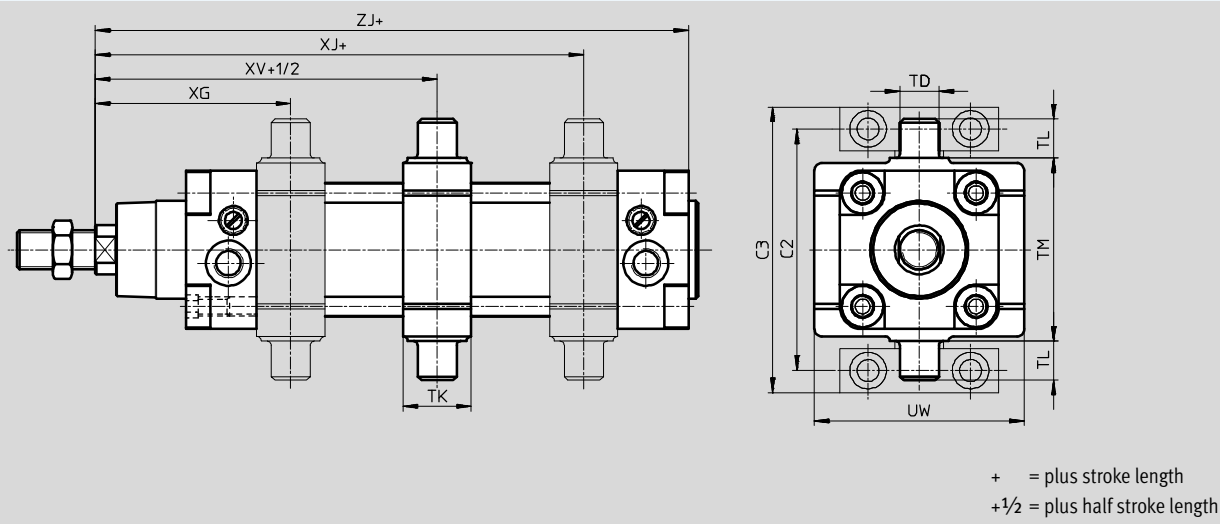
Technical data

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### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

DNGZS – with central trunnion mounting, fixed



∅	C2	C3	TD	TK	TL	TM
[mm]			∅ e9			
250	375	420	40	60	40	320
320	465	520	50	70	50	400

∅	UW	XG	XJ	XV	ZJ
[mm]					
250	270	187	223	205	305
320	340	211	249	230	340

- 8 - Note

DNGZS-...-PPV-A:

The central trunnion mounting is fitted as standard tightly screwed with the tie rods in the cylinder mid-section. As a special design,

mounting is possible between the dimensions XG and XJ. The required dimension XV must be entered in the order (→ 10).



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## Standard cylinders DNG/DNGZS, ISO 15552

Technical data

Ordering data					
Design	Stroke [mm]	Piston Ø 250 [mm]		Piston Ø 320 [mm]	
		Part No.	Type <sup>1)</sup>	Part No.	Type <sup>1)</sup>
Basic version					
Variable stroke	1 ... ,2,000 <sup>2)</sup>	<b>151892</b>	<b>DNG-250-...-PPV-A</b>	<b>151897</b>	<b>DNG-320-...-PPV-A</b>
Variant S2	1 ... 2,000 <sup>2)</sup>	<b>151893</b>	<b>DNG-250-...-PPV-A-S2</b>	<b>151898</b>	<b>DNG-320-...-PPV-A-S2</b>
Variant S3	1 ... 2,000 <sup>2)</sup>	<b>151894</b>	<b>DNG-250-...-PPV-A-S3</b>	<b>151899</b>	<b>DNG-320-...-PPV-A-S3</b>
Variant S6	1 ... 2,000 <sup>2)</sup>	<b>151895</b>	<b>DNG-250-...-PPV-A-S6</b>	<b>151900</b>	<b>DNG-320-...-PPV-A-S6</b>
Variant S8	1 ... 2,000 <sup>2)</sup>	<b>151896</b>	<b>DNG-250-...-PPV-A-S8</b>	<b>151901</b>	<b>DNG-320-...-PPV-A-S8</b>
With fixed central trunnion mounting					
Variable stroke	10 ... 1,100	→ 10			

1) The scope of delivery includes a hex nut for the piston rod thread.

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

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## Standard cylinders DNG/DNGZS, to ISO 15552

Ordering data – Modular product DNGZS

M Mandatory data						O Options		
Module No.	Function	Piston Ø	Stroke	Cushioning	Position sensing	Trunnion flange position	Temperature-resistant	Corrosion protection
157500 157504	DNGZS	250 320	10 ... 1 100	PPV	A	...XV	S6	S3 S8
<b>Ordering example</b>								
<b>157504</b>	<b>DNGZS</b>	<b>- 320</b>	<b>- 600</b>	<b>- PPV</b>	<b>- A</b>	<b>- 215XV</b>	<b>- S6</b>	<b>- S3</b>

Ordering table							
Size	250		320		Condi- tions	Code	Enter code
M	Module No.	<b>157500</b>		<b>157504</b>			
	Function	Standard cylinder, double-acting, with central trunnion mounting to ISO 15552				<b>DNGZS</b>	DNGZS
	Piston Ø [mm]	250	320			-...	
	Stroke [mm]	10 ... 1 100					
	Cushioning	Pneumatic cushioning adjustable at both ends				<b>-PPV</b>	-PPV
	Position sensing	For proximity sensing				<b>-A</b>	-A
O	Trunnion flange position [mm]	187 ... 1 323		211 ... 1 349		[1]	...XV
	Temperature-resistant	Heat-resistant seals up to max. 120 °C					<b>-S6</b>
	Corrosion protection	Stainless steel piston rod					<b>- S3</b>
		High corrosion protection including piston rod, stainless steel				[2]	<b>-S8</b>

[1] ...XV Trunnion flange at standard mid-position of cylinder:  
Piston Ø 250 mm:  $205 \text{ mm} + \frac{\text{Stroke}}{2}$   
Piston Ø 320 mm:  $230 \text{ mm} + \frac{\text{Stroke}}{2}$

[2] S8 Not with S6.

Transfer order code

	<b>DNGZS</b>	-		-		-	<b>PPV</b>	-	<b>A</b>	-		-		-	
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## Standard cylinders DNG/DNGZS, ISO 15552

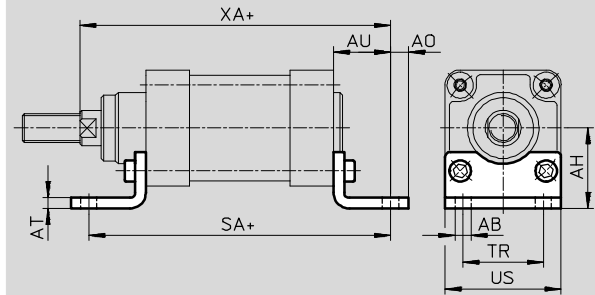
Accessories

### Foot mounting HNG

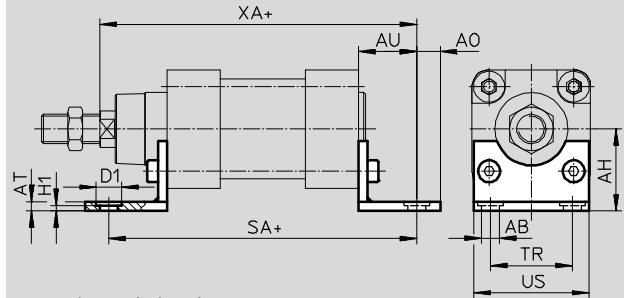
Material:  
Galvanised steel  
Free of copper and PTFE



For piston  $\varnothing$  250



For piston  $\varnothing$  320



+ = plus stroke length

#### Dimensions and ordering data

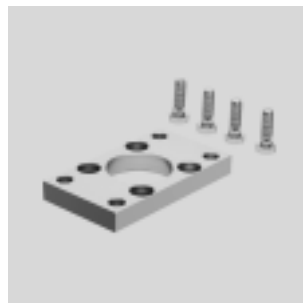
For $\varnothing$ [mm]	AB $\varnothing$ H14	AH	AO	AT	AU	D1	H1	SA	TR	US	XA	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
250	28	165	35	20	75	-	-	350	165	270	380	2	17084	<b>157510</b>	<b>HNG-250</b>
320	35	200	40	25	85	60	23	390	200	340	425	2	29968	<b>157511</b>	<b>HNG-320</b>

1) Corrosion resistance class 2 according to Festo standard 940 070

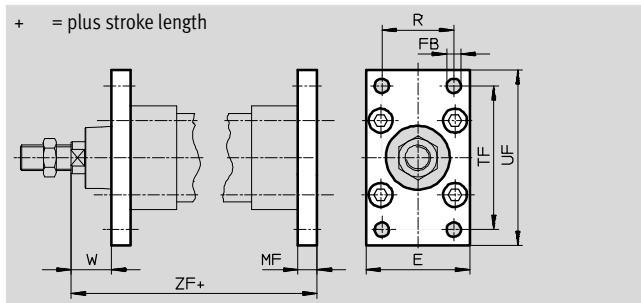
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents

### Flange mounting FNG

Material:  
Painted nodular graphite cast iron  
Free of copper and PTFE



+ = plus stroke length



#### Dimensions and ordering data

For $\varnothing$ [mm]	E	FB $\varnothing$	MF	R	TF	UF	W	ZF	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
250	270	26	25	165	330	390	80	330	1	8657	<b>157508</b>	<b>FNG-250</b>
320	340	33	30	200	400	470	90	370	1	15109	<b>157509</b>	<b>FNG-320</b>

1) Corrosion resistance class 1 according to Festo standard 940 070

Components with light corrosion exposure. Protection for transport and storage. Components without significant decorative function or surface, e.g. installed out of sight internally or behind covers.

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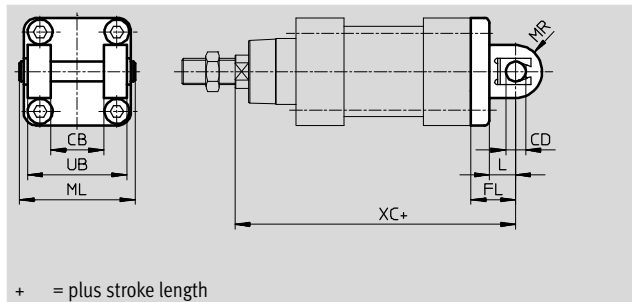
## Standard cylinders DNG/DNGZS, ISO 15552

Accessories

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**Swivel flange SNGB**  
for clevis foot LN/LSN

Material:  
Die-cast aluminium



Dimensions and ordering data												
For Ø	CB	CD	FL	L	ML	MR	UB	XC	CRC <sup>1)</sup>	Weight	Part No.	Type
[mm]	Ø	Ø					h14			[g]		
250	110	40	70	47	231	40	200	375	2	15200	<b>157512</b>	<b>SNGB-250</b>
320	120	45	80	52	253	45	220	420	2	26450	<b>157513</b>	<b>SNGB-320</b>

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

Ordering data – Mounting attachments			
Designation	For Ø	Part No.	Type
Clevis foot LN			
	250	<b>9039</b>	<b>LN-250</b>
	320	<b>9040</b>	<b>LN-320</b>
Clevis foot LSN			
	250	<b>6990</b>	<b>LSN-250</b>
	320	<b>6991</b>	<b>LSN-320</b>

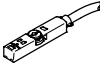
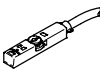
Ordering data – Piston rod attachments			
Designation	For Ø	Part No.	Type
Rod eye SGS			
	250	<b>10776</b>	<b>SGS-M42x2</b>
	320	<b>10777</b>	<b>SGS-M48x2</b>
Rod clevis SG			
	250	<b>9582</b>	<b>SG-M42x2</b>
	320	<b>9583</b>	<b>SG-M48x2</b>

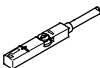


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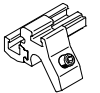
## Standard cylinders DNG/DNGZS, ISO 15552

Accessories

Ordering data – Proximity sensors for T-slot, magneto-resistive						Technical data → Internet: smt	
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type	
<b>N/O contact</b>							
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2,5-OE	
			Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
			Plug M12x1, 3-pin	0.3	574337	SMT-8M-A-PS-24V-E-0,3-M12	
		NPN	Cable, 3-wire	2.5	574338	SMT-8M-A-NS-24V-E-2,5-OE	
			Plug M8x1, 3-pin	0.3	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
<b>N/C contact</b>							
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7,5-OE	

Ordering data – Proximity sensors for T-slot, magnetic reed						Technical data → Internet: sme		
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type		
<b>N/O contact</b>								
	Insertable in the slot from above, flush with cylinder profile	Contacting	Cable, 3-wire	2.5	543862	SME-8M-DS-24V-K-2,5-OE		
				5.0	543863	SME-8M-DS-24V-K-5,0-OE		
			Plug M8x1, 3-pin	Cable, 2-wire	2.5	543872	SME-8M-ZS-24V-K-2,5-OE	
				0.3	543861	SME-8M-DS-24V-K-0,3-M8D		
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	150855	SME-8-K-LED-24		
			Plug M8x1, 3-pin	0.3	150857	SME-8-S-LED-24		
<b>N/C contact</b>								
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	160251	SME-8-0-K-LED-24		

Ordering data – Connecting cables					Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type	
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3	
			5	541334	NEBU-M8G3-K-5-LE3	
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541338	NEBU-M8W3-K-2.5-LE3	
			5	541341	NEBU-M8W3-K-5-LE3	


Ordering data – Mounting kits for proximity sensors SME/SMT-8				Technical data → Internet: smbz	
	For Ø	Materials	Part No.	Type	
	250, 320 mm	Rail: Wrought aluminium alloy, anodised Screws: High-alloy steel Free of copper and PTFE	537808	SMBZ-8-125/320	


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
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## Standard cylinders DNG/DNGZS, ISO 15552

Accessories

Ordering data – Rectangular proximity sensors, magneto-resistive						Technical data → Internet: smto	
	Mounting	Switch output	Electrical connection		Cable length [m]	Part No.	Type
			Cables	M8 plug			
NO contact							
	Via accessories	PNP	3-wire	–	2.5	<b>151683</b>	<b>SMTO-1-PS-K-LED-24-C</b>
			–	3-pin	–	<b>151685</b>	<b>SMTO-1-PS-S-LED-24-C</b>
		NPN	3-wire	–	2.5	<b>151684</b>	<b>SMTO-1-NS-K-LED-24-C</b>
			–	3-pin	–	<b>151686</b>	<b>SMTO-1-NS-S-LED-24-C</b>

Ordering data – Rectangular proximity sensors, magnetic reed						Technical data → Internet: smeo	
	Mounting	Electrical connection		Cable length [m]	Part No.	Type	
		Cables	M8 plug				
NO contact							
	Via accessories	3-wire	–	2.5	<b>30459</b>	<b>SMEO-1-LED-24-B</b>	
		3-wire	–	5.0	<b>151672</b>	<b>SMEO-1-LED-24-K5-B</b>	
		–	3-pin	–	<b>150848</b>	<b>SMEO-1-S-LED-24-B</b>	

Ordering data – Mounting kits for proximity sensors SMEO/SMTO-1					Technical data → Internet: smb	
	For Ø	Mounting		Part No.	Type	
	250, 320 mm	Directly on the mounting or tie rod		<b>11886</b>	<b>SMB-1</b>	