

Standard cylinders DSBG, to ISO 15552



# Standard cylinders DSBG, to ISO 15552

Key features

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## At a glance



DIN








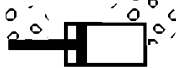
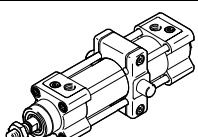
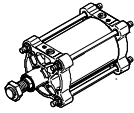


• Cylinders to ISO 15552 (corresponds to the withdrawn standards ISO 6431, DIN ISO 6431, VDMA 24562, NF E 49 003.1 and UNI 10290)

- Sturdy tie rod design
- Double-acting
- For contactless position sensing
- EX4: for use in potentially explosive areas
- Extensive range of accessories makes it possible to install the cylinder virtually anywhere

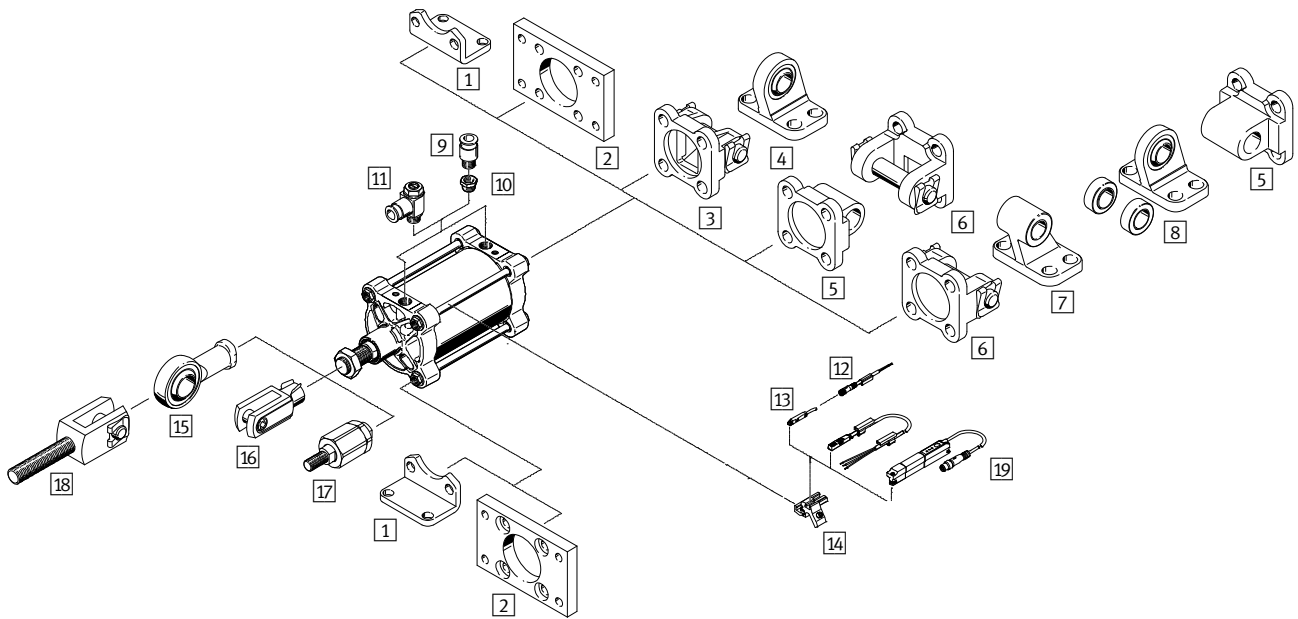
- Choice of two cushioning types:
  - P cushioning: elastic cushioning rings/pads at both ends
  - PPV cushioning: pneumatic cushioning, adjustable at both ends

- The variants can be configured according to individual needs using a modular product system
- High flexibility thanks to the wide range of variants

Variants from the modular product system		
Symbol	Features	Description
	T Through piston rod	For working at both ends, equal force in the forward and return stroke, for attaching external stops
	F Female piston rod thread	–
	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
	T1 Heat-resistant seals	Temperature range 0 ... +120 °C
	T4 Heat-resistant seals	Temperature range 0 ... +150 °C
	...E Piston rod extension	1 ... 500 mm
	...L Piston rod thread extension	1 ... 100 mm
	...S Piston rod thread shortening	1 ... 86 mm
	M... Piston rod thread	Piston rod thread version: M16/M16x1.5/M20/M20x1.5/M24/M27/M27x2/M30x2/M36/M36x2/M42/M42x2/M48
	A6 Wiper seal variant	Metal wiper seal: The cylinder is fitted with a hard-chrome plated piston rod and metal wiper seal which scrapes off hard particles (e.g. welding spatter) that stick to the piston rod. For use in welding systems, for example
	V Central swivel mounting	<ul style="list-style-type: none"> <li>• For piston Ø 160, 200</li> <li>• Swivel mounting, clamped centrally between the end caps</li> <li>• Position can be moved at any time</li> </ul>
	...Y Swivel mounting position	<ul style="list-style-type: none"> <li>• For piston Ø 250, 320</li> <li>• Swivel mounting, position freely selectable, positive-locking screw connection</li> <li>• Position cannot be changed subsequently</li> </ul>
	B Integrated stud bolts	<ul style="list-style-type: none"> <li>• B1: At both ends</li> <li>• B2: On the bearing cap</li> <li>• B3: On the end cap</li> </ul>
	Thread length of spacer bolts: ...LB2 On the bearing cap ...LB3 On the end cap	<ul style="list-style-type: none"> <li>• Variable thread length: 32 ... 140 mm</li> <li>• Optionally on the bearing or end cap</li> </ul>

# Standard cylinders DSBG, to ISO 15552

Peripherals overview



Mounting components and accessories			
	For Ø	Description	→ Page/ Internet
1	160 ... 320	Foot mounting HNG For bearing and end cap, corresponds to MS1 to ISO 15552	16
2	160 ... 320	Flange mounting FNG For bearing or end cap, corresponds to MF1/MF2 to ISO 15552	16
3	160, 200	Swivel flange SNG For end caps	17
4	160, 200	Clevis foot LSNG With spherical bearing	19
5	160, 200	Swivel flange SNGL For end cap, corresponds to MP2 to ISO 15552	18
6	160 ... 320	Swivel flange SNGB For end cap, corresponds to MP2 to ISO 15552	17
7	160 ... 320	Clevis foot LN/LNG For swivel flange SNGB	19
8	160 ... 320	Clevis foot LSN With spherical bearing	19
9	160, 200	Push-in fitting QS For connecting compressed air tubing with standard O.D.	19
10	160, 200	Reducing nipple NPFC For connecting QS fittings with thread G $\frac{1}{2}$ to cylinders with thread G $\frac{3}{4}$	19
	250, 320	Reducing nipple D For connecting QS fittings with thread G $\frac{1}{2}$ to cylinders with thread G1	
11	160, 200	One-way flow control valve GRLA For regulating speed	gria
12	160 ... 320	Connecting cable NEBU -	20
13	160 ... 320	Proximity sensor SME/SMT-8 For sensing the piston position	20
14	160 ... 320	Sensor bracket DASP For proximity sensors SME/SMT-8	21
15	160 ... 320	Rod eye SGS With spherical bearing	19
16	160 ... 320	Rod clevis SG Permits a swivelling movement of the cylinder in one plane	19
17	160, 200	Self-aligning rod coupler FK For compensating radial and angular misalignments	19
18	160, 200	Rod clevis SGA Suitable for spherical mounting of cylinders in conjunction with rod eye SGS	19
19	160, 200	Position transmitter SDAT - Continuously senses the position of the piston - Has an analogue output	21
-	160 ... 320	Trunnion support LNZG For mounting the cylinder in combination with central swivel mounting or swivel mounting position	18

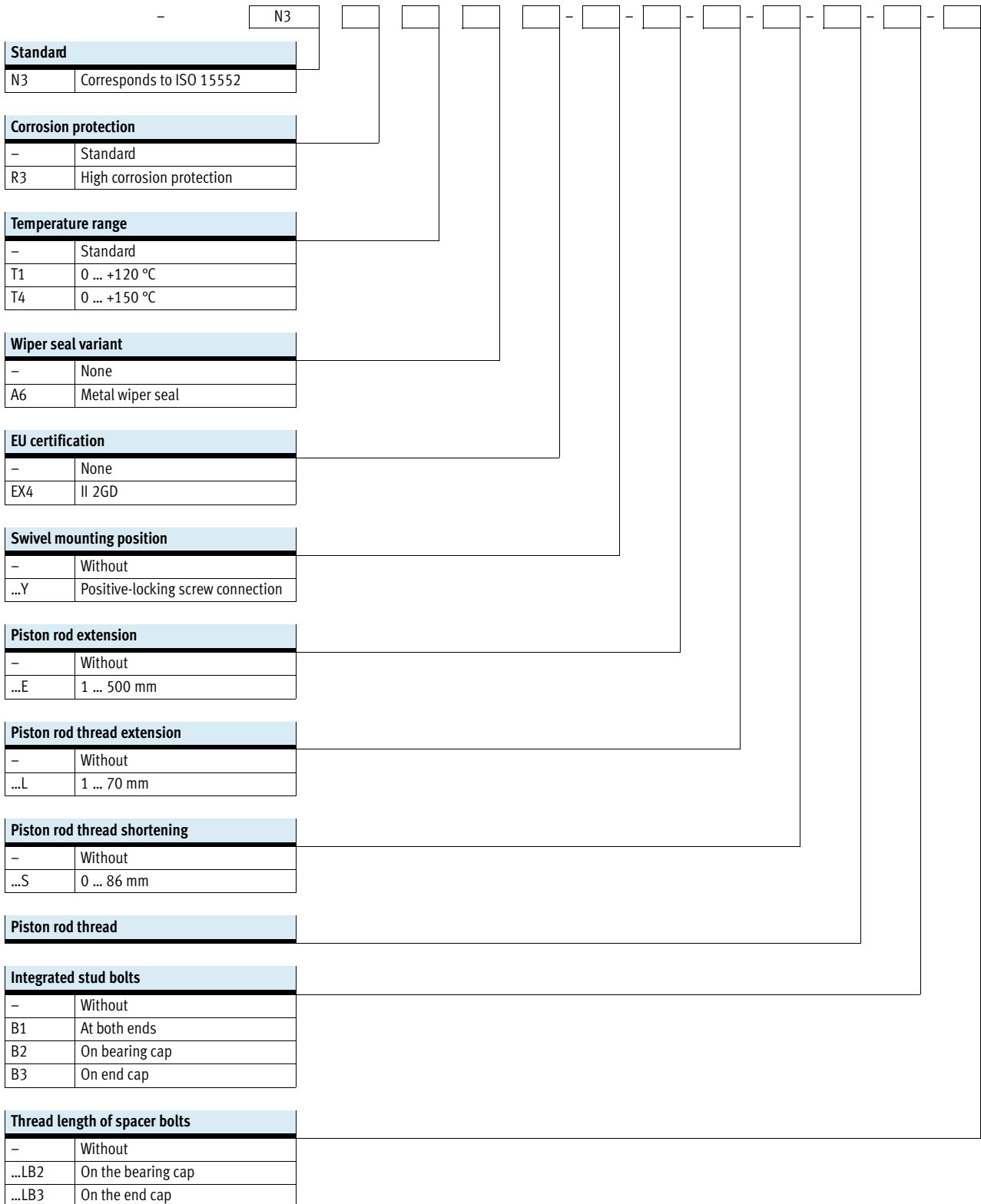
# Standard cylinders DSBG, to ISO 15552

Type codes

		DSBG	-		-	160	-	50	-		-		-	PPV	-	A
<b>Type</b>																
Double-acting																
DSBG	ISO cylinder															
<b>Central swivel mounting</b>																
-	Without															
V	Centrally clamped															
<b>Piston Ø [mm]</b>																
<b>Stroke [mm]</b>																
<b>Piston rod type</b>																
-	Single-ended piston rod															
T	Through piston rod															
<b>Piston rod thread type</b>																
-	Male thread															
F	Female thread															
<b>Cushioning</b>																
P	Elastic cushioning rings/pads at both ends															
PPV	Pneumatic cushioning, adjustable at both ends															
<b>Position sensing</b>																
A	Via proximity sensor															

# Standard cylinders DSBG, to ISO 15552

Type codes

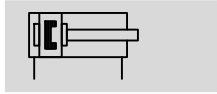


# Standard cylinders DSBG, to ISO 15552

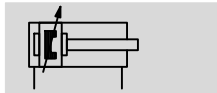
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Technical data

Function  
P cushioning





PPV cushioning



DIN



-  - Diameter  
160 ... 320 mm

-  - Stroke length  
1 ... 2700 mm

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



General technical data					
Piston $\varnothing$		160	200	250	320
Design	Piston/piston rod/cylinder barrel				
Mode of operation	Double-acting				
Pneumatic connection		G3/4	G3/4	G1	G1
Stroke <sup>1)</sup>					
DSBG-...	[mm]	1 ... 2700		1 ... 2250	
DSBG-...-...E	[mm]	1 ... 2000			
DSBG-...-...L	[mm]	1 ... 2000			
Cushioning					
DSBG-...-P	Elastic cushioning rings/pads at both ends				
DSBG-...-PPV	Pneumatic cushioning, adjustable at both ends				
Cushioning length	[mm]	48		55	65
Position sensing	Via proximity sensor				
Type of mounting	Via internal thread/accessories				
Mounting position	Any				

1) In combination with the position sensing option, the minimum stroke is 10 mm

Operating and environmental conditions			
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]		
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)		
Operating pressure	[bar]	0.6 ... 10	
Ambient temperature <sup>1)</sup>			
DSBG-...	[°C]	-20 ... +80	
DSBG-...-T1	[°C]	0 ... +120	
DSBG-...-T4	[°C]	0 ... +150	-
DSBG-...-EX4	[°C]	-20 ... +60	
Corrosion resistance class CRC			
DSBG-...	2 <sup>2)</sup>		
DSBG-...-R3	3 <sup>3)</sup>		

1) Note operating range of proximity sensors

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

3) Corrosion resistance class CRC 3 to Festo standard FN 940070

High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

# Standard cylinders DSBG, to ISO 15552

Technical data

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

1) Note the ATEX certification of the accessories.

Forces [N] and impact energy [J]				
Piston Ø	160	200	250	320
Theoretical force at 6 bar, advancing	12064	18850	29452	48255
Theoretical force at 6 bar, retracting	11310	18096	28274	46385
Max. impact energy in the end positions				
DSBG-...	3.3	4.8	7.2	12.6
DSBG-...-T1/-T4	2.3	4	4.2	6

Permissible impact velocity

$$v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{intrinsic} + m_{Load}}}$$

Maximum permissible load:

$$m_{Load} = \frac{2 \times E_{perm.}}{v^2} - m_{intrinsic}$$

$v_{perm.}$  Permissible impact velocity  
 $E_{perm.}$  Maximum impact energy  
 $m_{intrinsic}$  Moving mass (drive)  
 $m_{Load}$  Moving payload

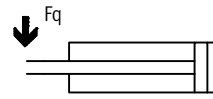
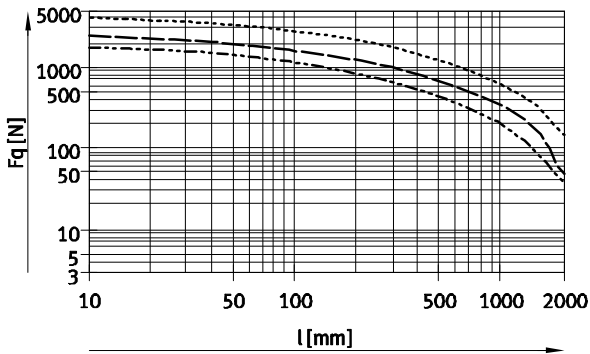
Weight [g]				
Piston Ø	160	200	250	320
DSBG-...				
Product weight with 0 mm stroke	11751	15493	29313	50231
Additional weight per 10 mm stroke	208	246	384	623
Moving mass with 0 mm stroke	4292	5348	9978	16912
Moving mass per 10 mm stroke	97	97	157	249
DSBG-...-T				
Product weight with 0 mm stroke	13487	17356	31979	54775
Additional weight per 10 mm stroke	304	343	541	872
Moving mass with 0 mm stroke	6028	7210	12,643	21455
Moving mass per 10 mm stroke	194	194	314	499

# Standard cylinders DSBG, to ISO 15552

Technical data

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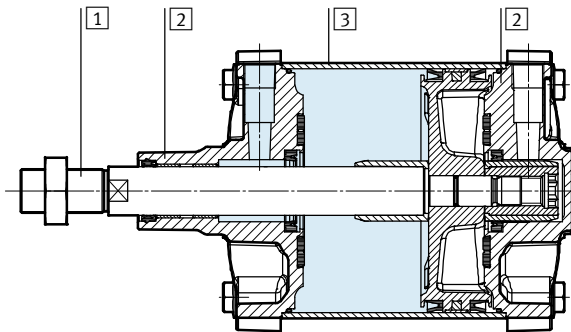
Max. lateral force  $F_q$  as a function of stroke length  $l$



- Ø 160/200
- Ø 250
- Ø 320

## Materials

Sectional view



## ISO cylinder

1	Piston rod, tie rod	
	DSBG-...	High-alloy steel
	DSBG-...-R3	High-alloy stainless steel
	DSBG-...-A6	Hard-chromium plated tempered steel
2	Cover	Coated die-cast aluminium
3	Cylinder barrel	Anodised wrought aluminium alloy
-	Piston rod seal	
	DSBG-...	NBR
	DSBG-...-T1/-T4	FPM
	Piston rod wiper seal	
	DSBG-...-A6	CuZn
	Cushioning seal	
	DSBG-...	PUR
	DSBG-...-T1/-T4	FPM
	Cushioning boss	
	DSBG-...	POM
	DSBG-...-T1/-T4	Wrought aluminium alloy
-	Note on materials	
	DSBG-...	RoHS-compliant
	DSBG-...-T4	Contains PWIS (paint-wetting impairment substances)



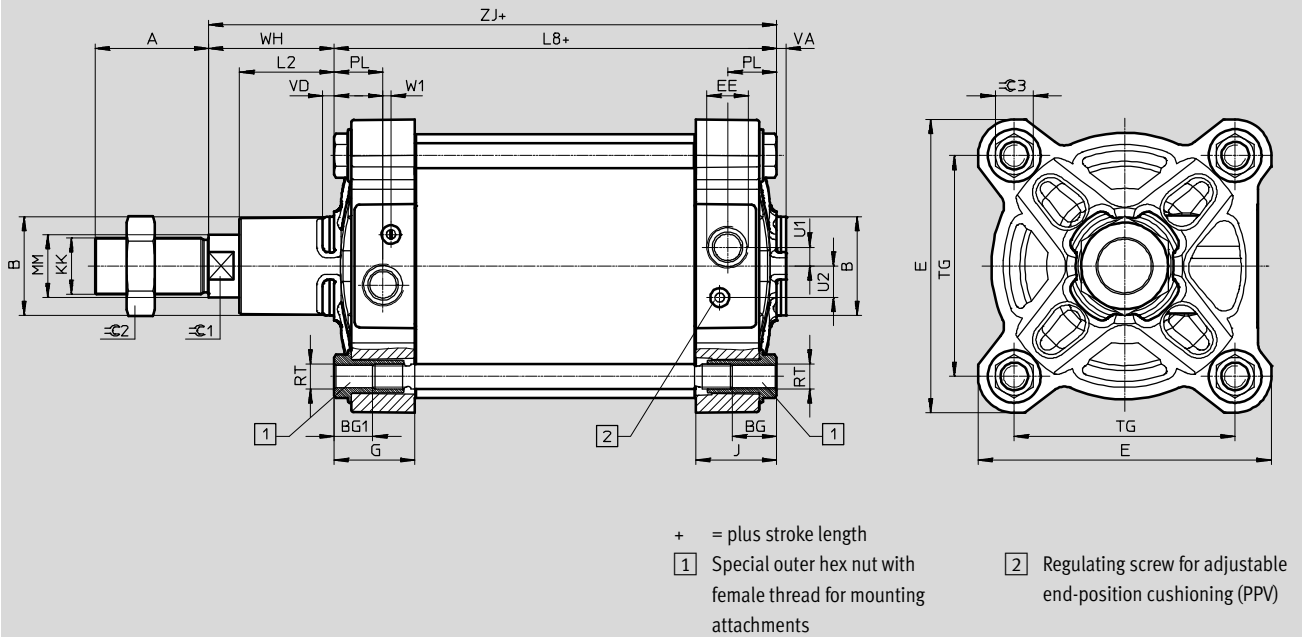
# Standard cylinders DSBG, to ISO 15552

Technical data

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## Dimensions

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



∅	A	B	BG	BG1	E	EE	G	J
[mm]	-0.5	∅ d11	min.	±0.5	±0.9			
160	72	65	24	25	186	G3/4	50.7	50.7
200	72	75	24	25	230	G3/4	46.9	46.7
250	84	90	25	26	284	G1	51.2	51.2
320	96	110	28	29	347	G1	58.2	58.2

∅	L2	L8	MM	PL	RT	TG	U1	U2
[mm]						±1.1		
160	60	180±1	40	31	M16	140	12	20
200	70	180±1.2	40	30	M16	175	12	20
250	80	200±1.6	50	32	M20	220	25	25
320	90	220±2.2	63	37.5	M24	270	25	25

∅	VA	VD	W1	WH	ZJ	∅C1	∅C2	∅C3
[mm]	-1				±1			
160	6	7	5	80±1.3	260	36	55	24 <sub>h13</sub>
200	6	6.5	5	95±1.4	275	36	55	24 <sub>h13</sub>
250	10	13.7	3	105±1.5	305	46	65	41 <sub>h14</sub>
320	10	10.7	1.5	120±1.5	340	55	75	50 <sub>h14</sub>

∅	KK	
	DSBG-...	-M... <sup>1)</sup>
[mm]		
160	M36x2	M16/M16x1.5/M20/M20x1.5/M24/M27/M27x2/M30x2/M36
200	M36x2	M20/M20x1.5/M24/M27/M27x2/M30x2/M36
250	M42x2	M24/M27/M27x2/M30x2/M36x2/M42
320	M48x2	M27/M27x2/M30x2/M36x2/M42x2/M48

1) Threads with smaller nominal diameter than in the basic version can generally not withstand such high loads. If necessary, the screw connection must be engineered.

# Standard cylinders DSBG, to ISO 15552

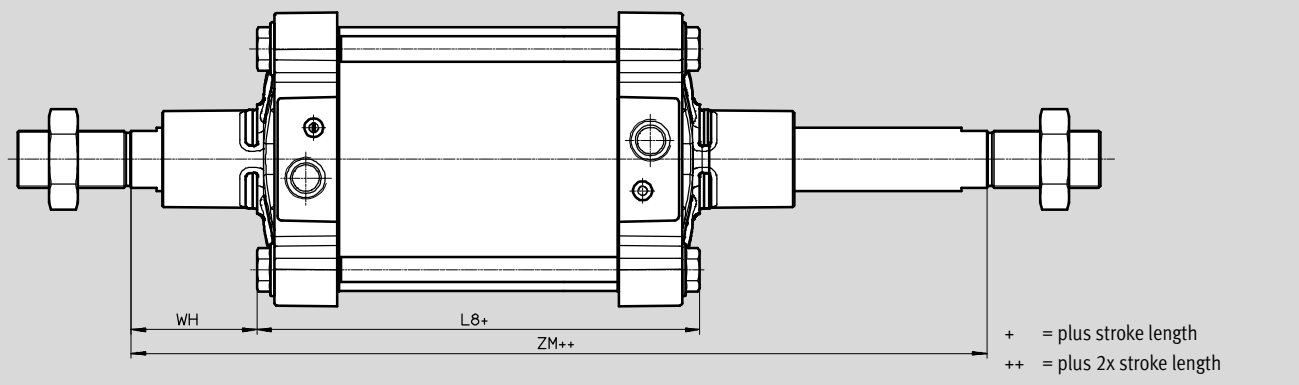
Technical data

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## Dimensions – Variants

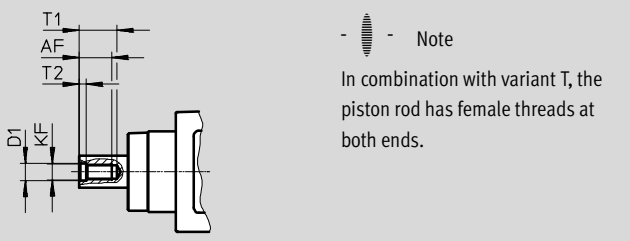
Download CAD data → [www.festo.com](http://www.festo.com)

T – Through piston rod

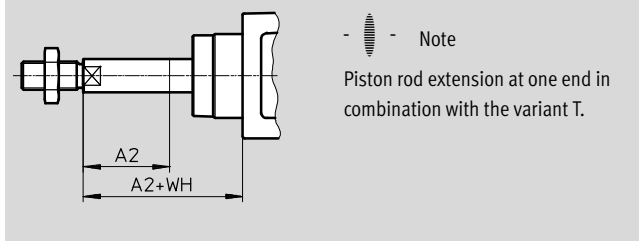


∅	L8	WH	ZM
[mm]			
160	180±1.1	80±1.3	342±1
200	180±1	95±1.4	372±1.2
250	200±1	105±1.5	410±1.6
320	220±2.2	120±1.5	462±1

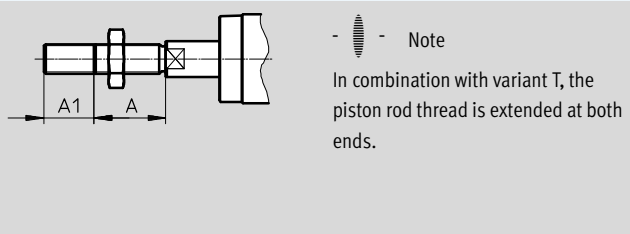
### F – Female thread



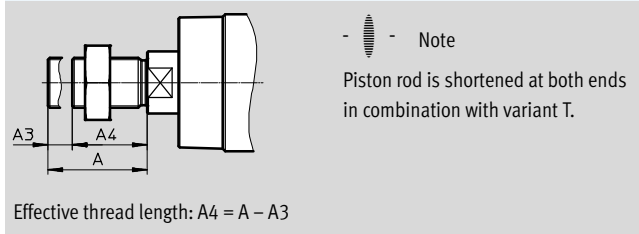
### ...E – Piston rod extension



### ...L – Piston rod thread extension



### ...S – Piston rod thread shortening



∅	A	A1		A2		A3	
		Min.	Max.	Min.	Max.	Min.	Max.
[mm]							
160	72	1	70	1	500	1	62
200	72	1	70	1	500	1	62
250	84	1	100	1	500	1	74
320	96	1	100	1	500	1	86

∅	AF	D1	KF	T1	T2	WH
[mm]		H9				
160	36	25	M24	40	10	80±1.3
200	36	25	M24	40	10	95±1.4
250	50	31	M30	60	10	105±1.5
320	55	37	M36	65	13	120±1.5

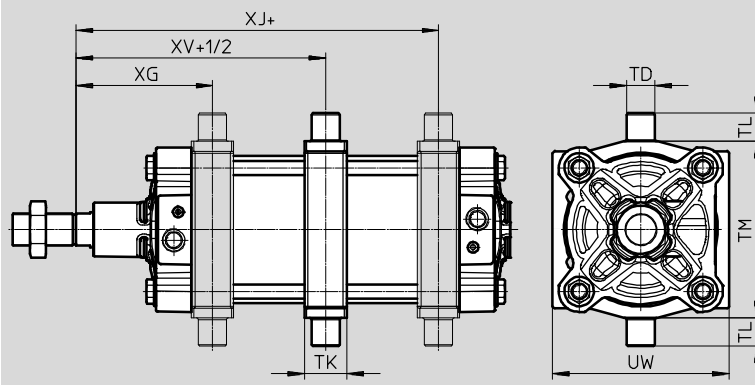
# Standard cylinders DSBG, to ISO 15552

Technical data

## Dimensions – Variants

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### V – Central swivel mounting



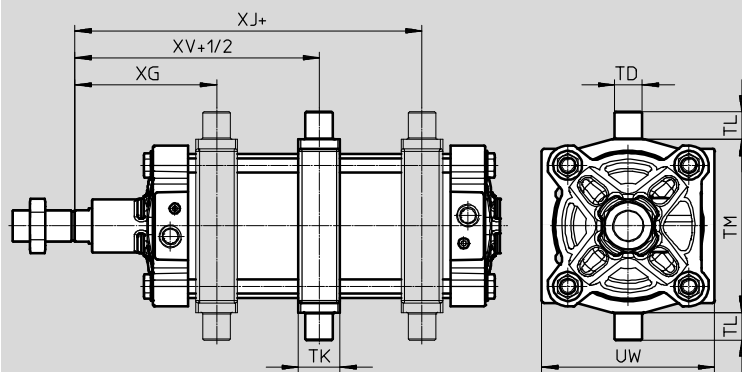
-  - Note

The swivel mounting is mounted centrally on delivery but can be moved at any time.

+ = plus stroke length  
+1/2 = plus half stroke length

∅	TD	TK	TL	TM	UW	XG	XJ	XV
[mm]	∅ e8		h14	h14		±0.5	±0.5	
160	32	48	32	200	200	157.5	182.5	170
200	32	48	32	250	240	169	200.5	185

### ...Y – Swivel mounting position



-  - Note

The dimensions for the trunnion flange mounting position (...Y) refer to the basic design without piston rod extension.

The swivel mounting has a positive-locking screw connection. This means that the position cannot be changed subsequently.

+ = plus stroke length  
+1/2 = plus half stroke length

∅	TD	TK	TL	TM	UW	XG	XJ	XV
[mm]	∅ e8		h14	h14		±2.4	±2.4	±2.4
250	40	60	40	320	319	198	209	205
320	50	70	50	400	385	226	233	230

# Standard cylinders DSBG, to ISO 15552

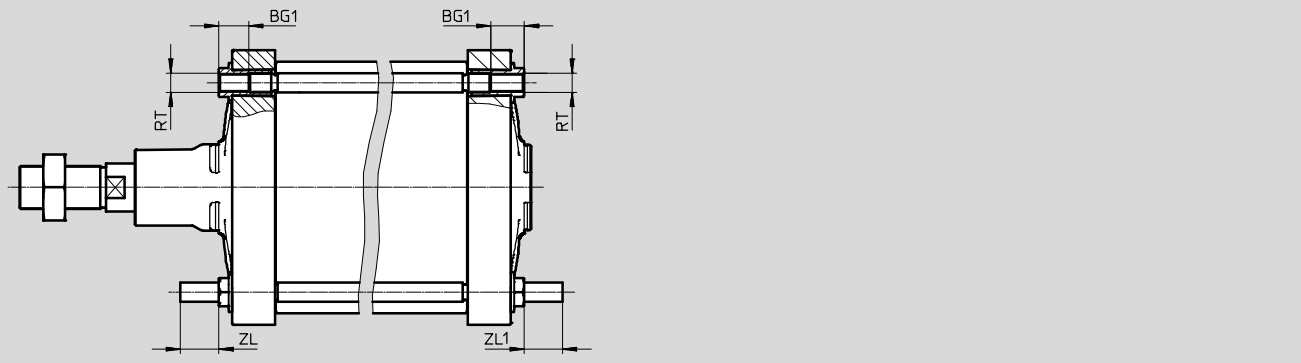
Technical data

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## Dimensions – Variants

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

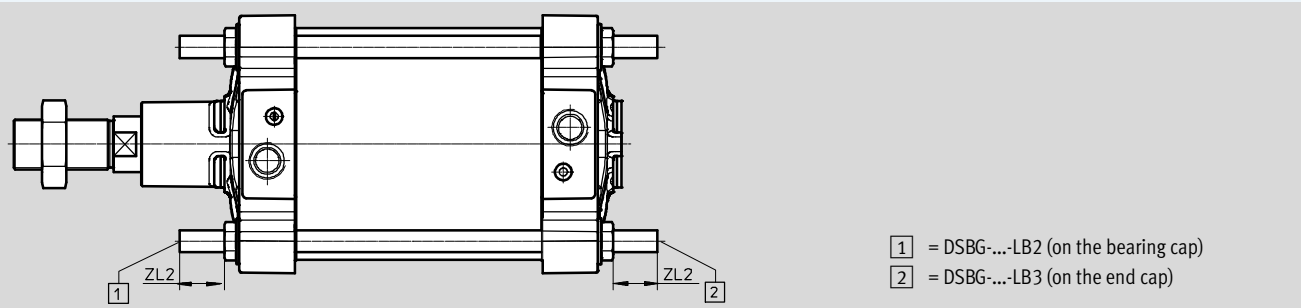
### B1/B2/B3 – Integrated stud bolt



∅	BG	BG1	RT	ZL	ZL1 <sup>1)</sup>
[mm]	min.	±0.5		±0.5	
160	24	25	M16	32	32
200	24	25	M16	32	32
250	25	26	M20	40	40
320	28	29	M24	50	50

1) Tolerances depending on variant:  
B1: ZL1 = +1/-2; B3: ZL1 = ±0.5

### ...LB2/-LB3 – Thread length of spacer bolts




∅	ZL2	
	Min.	Max.
[mm]	±1	
160	32	140
200	32	140
250	40	140
320	50	140

# Standard cylinders DSBG, to ISO 15552

Technical data

Ordering data					
Piston Ø [mm]	Stroke [mm]	With PPV cushioning		With P cushioning	
		Part No.	Type	Part No.	Type
160	25	2029462	DSBG-160-25-PPVA-N3	2536747	DSBG-160-25-P-N3
	40	2029463	DSBG-160-40-PPVA-N3	2536748	DSBG-160-40-P-N3
	50	2029464	DSBG-160-50-PPVA-N3	2536749	DSBG-160-50-P-N3
	80	2029465	DSBG-160-80-PPVA-N3	2536750	DSBG-160-80-P-N3
	100	2029466	DSBG-160-100-PPVA-N3	2536751	DSBG-160-100-P-N3
	125	2029467	DSBG-160-125-PPVA-N3	2536752	DSBG-160-125-P-N3
	160	2029468	DSBG-160-160-PPVA-N3	2536753	DSBG-160-160-P-N3
	200	2029469	DSBG-160-200-PPVA-N3	2536754	DSBG-160-200-P-N3
	250	2029470	DSBG-160-250-PPVA-N3	2536755	DSBG-160-250-P-N3
	320	2029471	DSBG-160-320-PPVA-N3	2536756	DSBG-160-320-P-N3
	400	2029472	DSBG-160-400-PPVA-N3	2536758	DSBG-160-400-P-N3
	500	2029473	DSBG-160-500-PPVA-N3	2536759	DSBG-160-500-P-N3
	1 ... 2700 <sup>1)</sup>	2035926	DSBG-160-...-PPVA-N3	2537196	DSBG-160-...-P-N3
200	25	2390139	DSBG-200-25-PPVA-N3	2537448	DSBG-200-25-P-N3
	40	2390140	DSBG-200-40-PPVA-N3	2537449	DSBG-200-40-P-N3
	50	2390141	DSBG-200-50-PPVA-N3	2537450	DSBG-200-50-P-N3
	80	2390142	DSBG-200-80-PPVA-N3	2537451	DSBG-200-80-P-N3
	100	2390143	DSBG-200-100-PPVA-N3	2537452	DSBG-200-100-P-N3
	125	2390144	DSBG-200-125-PPVA-N3	2537454	DSBG-200-125-P-N3
	160	2390145	DSBG-200-160-PPVA-N3	2537455	DSBG-200-160-P-N3
	200	2390146	DSBG-200-200-PPVA-N3	2537456	DSBG-200-200-P-N3
	250	2390147	DSBG-200-250-PPVA-N3	2537457	DSBG-200-250-P-N3
	320	2390148	DSBG-200-320-PPVA-N3	2537458	DSBG-200-320-P-N3
	400	2390149	DSBG-200-400-PPVA-N3	2537459	DSBG-200-400-P-N3
	500	2390150	DSBG-200-500-PPVA-N3	2537460	DSBG-200-500-P-N3
	1 ... 2700 <sup>1)</sup>	2389803	DSBG-200-...-PPVA-N3	2537445	DSBG-200-...-P-N3
250	1 ... 2250 <sup>1)</sup>	2865078	DSBG-250-...-PPVA-N3	2865145	DSBG-250-...-P-N3
320	1 ... 2250 <sup>1)</sup>	3150987	DSBG-320-...-PPVA-N3	3178601	DSBG-320-...-P-N3

1) In combination with the position sensing option, the minimum stroke is 10 mm.

 Note  
Other variants in the modular product system → page 14

# Standard cylinders DSBG, to ISO 15552

Ordering data – Modular product system



Ordering table							
Size	160	200	250	320	Condi- tions	Code	Enter code
<b>M</b> Module no.	<b>2036032</b>	<b>2344936</b>	<b>2732003</b>	<b>2776472</b>			
Function	Standards-based cylinder, double-acting, based on ISO 15552					<b>DSBG</b>	DSBG
<b>O</b> Central swivel mounting	None						
	Centrally clamped					<b>-V</b>	
<b>M</b> Piston Ø [mm]	160	200	250	320		<b>-...</b>	
Stroke [mm]	1 ... 2700		1 ... 2250		<b>1</b>	<b>-...</b>	
<b>O</b> Piston rod type	On one side						
	Through piston rod					<b>-T</b>	
Piston rod thread type	Male thread						
	Female thread				<b>2</b>	<b>-F</b>	
<b>M</b> Cushioning	Elastic cushioning rings/pads at both ends					<b>-P</b>	
	Pneumatic cushioning, adjustable at both ends					<b>-PPV</b>	
<b>O</b> Position sensing	None						
	For proximity sensor					<b>A</b>	
Standard	Corresponds to ISO 15552					<b>-N3</b>	
Corrosion protection	Standard						
	High corrosion protection				<b>3</b>	<b>R3</b>	
Temperature range	Standard						
	Heat-resistant seals up to max. 120					<b>T1</b>	
	0 ... +150		-		<b>4</b>	<b>T4</b>	
Wiper seal variant	None						
	Metal scraper					<b>A6</b>	
EU certification	None						
	II 2GD				<b>5</b>	<b>EX4</b>	
Trunnion flange mounting position [mm]	None						
	-		198 ... 2459	226 ... 2483	<b>6</b>	<b>-...Y</b>	

- 1** ... In combination with the position sensing option A, the minimum stroke is 10 mm
- 2** **F** Not with N3, ...L, M...
- 3** **R3** Not with V, ...Y
- 4** **T4** Not with A6
- 5** **EX4** Not with V, P, T1, T4, B1, B2, B3, ...LB2, ...LB3
- 6** **-...Y** Not with ...LB2, ...LB3

- M** Mandatory data
- O** Options

### Transfer order code


	<b>DSBG</b>	-		-		-		-		-		-		-		-	
--	-------------	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--

# Standard cylinders DSBG, to ISO 15552

Ordering data – Modular products

Ordering table									
Size	160	200	250	320	Condi- tions	Code	Enter code		
<input type="checkbox"/> Piston rod extension [mm]	None								
	1 ... 500				<input type="checkbox"/>	-...E			
<input type="checkbox"/> Piston rod thread extension [mm]	None								
	1 ... 70		1 ... 100		<input type="checkbox"/>	-...L			
<input type="checkbox"/> Piston rod thread shortening [mm]	None								
	1 ... 62		1 ... 74	1 ... 86		-...S			
<input type="checkbox"/> Piston rod thread	Standard (→ 9)								
	M16	-	-	-	<input type="checkbox"/>	-M16			
	M16x1.5	-	-	-	<input type="checkbox"/>	-M16P			
	M20	-	-	-	<input type="checkbox"/>	-M20			
	M20x1.5	-	-	-	<input type="checkbox"/>	-M20P			
	M24			-	-	<input type="checkbox"/>		-M24	
	M27				-	-		<input type="checkbox"/>	-M27
	M27x2				-	-		<input type="checkbox"/>	-M27P
	M30x2				-	-		<input type="checkbox"/>	-M30P
	M36		-	-	-	<input type="checkbox"/>		-M36	
	M36x2				-	-		<input type="checkbox"/>	-M36P
	-		M42	-	-	<input type="checkbox"/>		-M42	
	-		M42x2		-	-		<input type="checkbox"/>	-M42P
	-			M48	-	-		<input type="checkbox"/>	-M48
<input type="checkbox"/> Integrated stud bolts	None								
	At both ends				<input type="checkbox"/>	<input type="checkbox"/>		-B1	
	On the bearing cap				<input type="checkbox"/>	<input type="checkbox"/>		-B2	
	On the end cap				<input type="checkbox"/>	<input type="checkbox"/>		-B3	
<input type="checkbox"/> Thread length of spacer bolts [mm]	None								
	On the bearing cap				<input type="checkbox"/>			-...LB2	
	32 ... 140		40 ... 140	50 ... 140					
	On the end cap				<input type="checkbox"/>			-...LB3	
32 ... 140		40 ... 140	50 ... 140						

- ...E, ...L Only up to stroke 2000 mm.  
Not with N3
- B1, B2, B3 Not with ...LB2, ...LB3
- M..., B..., LB... Not with N3

 Note  
 If a thread smaller than the standard thread is selected for feature M... (piston rod thread), this may reduce the load capacity.

- Mandatory data
- Options

Transfer order code

-  -  -  -  -  -

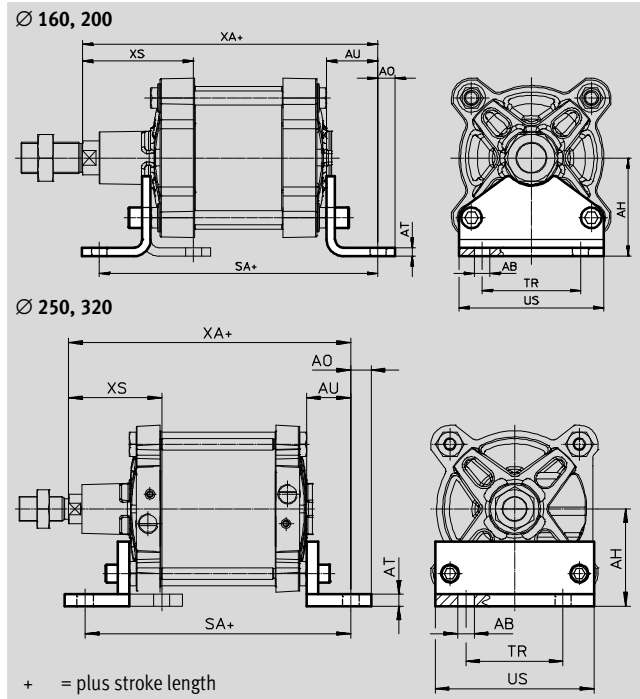
# Standard cylinders DSBG, to ISO 15552

Accessories



## Foot mounting HNG

Material:  
Galvanised steel  
Free of copper and PTFE

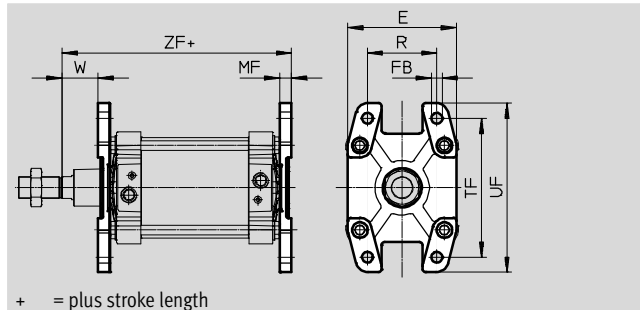
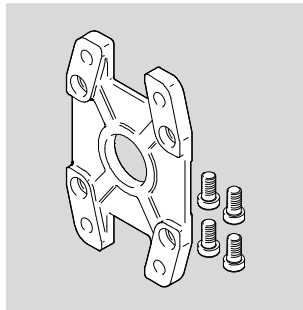


Dimensions and ordering data														
For Ø	AB	AH	AO	AT	AU	SA	TR	US	XA	XS	CRC <sup>1)</sup>	Weight	Part No.	Type
[mm]	Ø											[g]		
160	18.5	115	20	10	60	300	115	169	320	130	2	3931	<b>34476</b>	<b>HNG-160</b>
200	24	135	30	12	70	320	135	214	345	153	2	6896	<b>34477</b>	<b>HNG-200</b>
250	28	165	35	20	75	350	165	270	380	160	2	17084	<b>157510</b>	<b>HNG-250</b>
320	35	200	40	25	85	390	200	340	425	180	2	29968	<b>157511</b>	<b>HNG-320</b>

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

## Flange mounting FNG

Material:  
Painted spheroidal graphite cast iron  
Free of copper and PTFE  
RoHS-compliant



Dimensions and ordering data														
For Ø	E	FB	MF	R	TF	UF	W	ZF	CRC <sup>1)</sup>	Weight	Part No.	Type		
[mm]		Ø H13								[g]				
160	180	18	20	115	230	280	60	280	1	3550	<b>34478</b>	<b>FNG-160</b>		
200	220	22	25	135	270	320	70	300	1	5321	<b>34479</b>	<b>FNG-200</b>		
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 CRC 1 to Festo standard FN 940070  
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

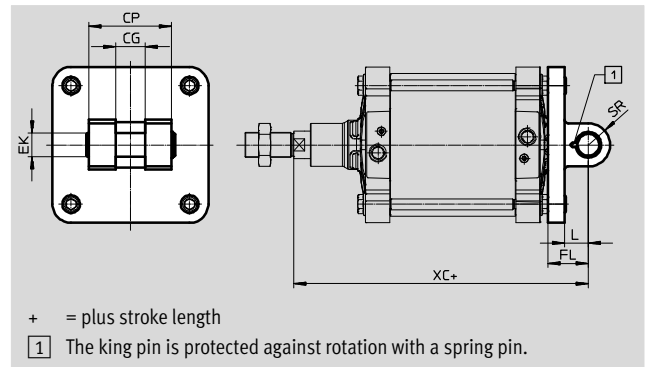


# Standard cylinders DSBG, to ISO 15552

Accessories

## Swivel flange SNG

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

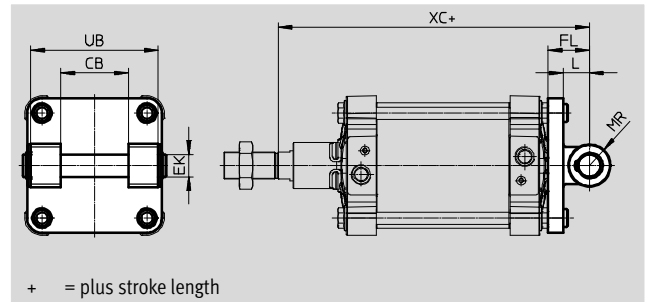


Dimensions and ordering data											
For Ø	CG	CP	EK Ø	FL	L	SR	XC	CRC <sup>1)</sup>	Weight	Part No.	Type
[mm]	H14	d12	F7 h9	±0.2		max.			[g]		
160	43	122	35	55	35	32	315	2	3577	<b>152597</b>	<b>SNG-160</b>
200	43	122	35	60	35	32	335	2	5160	<b>152598</b>	<b>SNG-200</b>

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

## Swivel flange SNGB

Material:  
Ø160: Die-cast aluminium  
Ø200: Galvanised steel  
Ø250/320: Spheroidal graphite cast iron  
Free of copper and PTFE  
RoHS-compliant



Dimensions and ordering data											
For Ø	CB	EK	FL	L	MR	UB	XC	CRC <sup>1)</sup>	Weight	Part No.	Type
[mm]	Ø H14	Ø E10	±0.2			h14			[g]		
160	90	30	55	37	30	170	315	2	3445	<b>34547</b>	<b>SNGB-160</b>
200	90	30	60	40	25	170	335	2	10020	<b>562455</b>	<b>SNGB-200-B</b>
250	110	40	70	47	40	200	375	1	16141	<b>157512</b>	<b>SNGB-250</b>
320	120	45	80	52	45	220	420	1	26636	<b>157513</b>	<b>SNGB-320</b>

1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).  
Corrosion resistance class CRC 2 to Festo standard FN 940070  
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

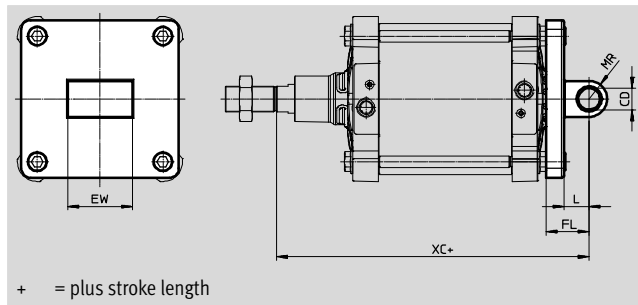
# Standard cylinders DSBG, to ISO 15552



Accessories

## Swivel flange SINGL

Material:  
Die-cast aluminium  
Free of copper and PTFE

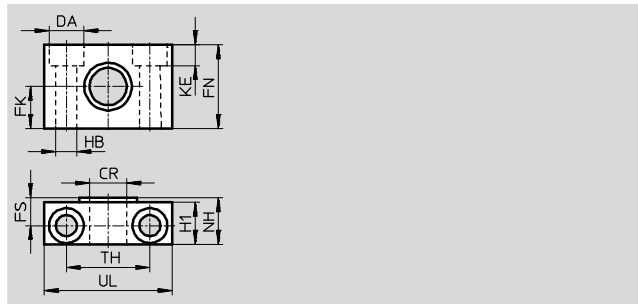
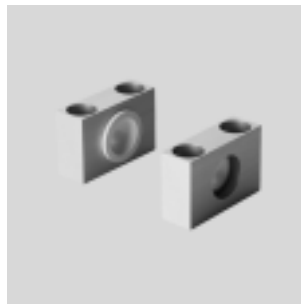


Dimensions and ordering data										
For $\varnothing$	CD	EW	FL	L	MR	XC	CRC <sup>1)</sup>	Weight	Part No.	Type
[mm]	$\varnothing$		$\pm 0.2$					[g]		
160	30	90	55	35	25	315	2	2358	<b>151534</b>	<b>SINGL-160</b>
200	30	90	60	35	25	335	2	3713	<b>151535</b>	<b>SINGL-200</b>

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

## Trunnion support LNZG

Material:  
Mounting: Galvanised steel  
Plain bearing: Plastic  
Free of copper and PTFE  
RoHS-compliant



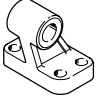
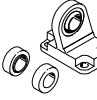
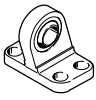
Dimensions and ordering data									
For $\varnothing$	CR	DA	FK	FN	FS	H1	HB	KE	
[mm]	$\varnothing$	$\varnothing$	$\pm 0.2$				$\varnothing$		
160, 200	32 <sup>D11</sup>	26	30	60	22.5	36	18	17	
250	40 <sup>G7</sup>	33	35	70	27.5	45	22	21.5	
320	50 <sup>G7</sup>	40	40	80	32.5	55	26	25.5	



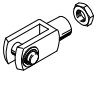
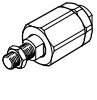
For $\varnothing$	NH	TH	UL	CRC <sup>1)</sup>	Weight	Part No.	Type
[mm]		$\pm 0.3$			[g]		
160, 200	40	60	92	2	659	<b>35780</b>	<b>LNZG-160/200</b>
250	50	90	140	2	2218	<b>157516</b>	<b>LNZG-250</b>
320	60	100	150	2	2934	<b>157517</b>	<b>LNZG-320</b>


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

# Standard cylinders DSBG, to ISO 15552


Accessories

Ordering data – Mounting components				Technical data → Internet: mounting component			
Designation	For Ø	Part No.	Type	Designation	For Ø	Part No.	Type
<b>Clevis foot LN/LNG</b>				<b>Clevis foot LSN</b>			
	160	9037	LN-160		160	6988	LSN-160
	200	33898	LNG-200		200	6989	LSN-200
	250	9039	LN-250		250	6990	LSN-250
	320	9040	LN-320		320	6991	LSN-320
<b>Clevis foot LSNG</b>							
	160	152599	LSNG-160				
	200	152600	LSNG-200				

Ordering data – Piston rod attachments				Technical data → Internet: piston rod attachment				
Designation	For Ø	Part No.	Type	Designation	For Ø	Part No.	Type	
<b>Rod eye SGS</b>				<b>Rod clevis SGA</b>				
	160, 200	10775	SGS-M36x2		160, 200	10771	SGA-M36x2	
	250	10776	SGS-M42x2					
	320	10777	SGS-M48x2					
<b>Rod eye SG</b>				<b>Self-aligning rod coupler FK</b>				
	160, 200	9581	SG-M36x2		160, 200	10746	FK-M36x2	
	250	9582	SG-M42x2					
	320	9583	SG-M48x2					

Ordering data – Push-in fittings					Technical data → Internet: qs	
	For diameter	Connection		Part No.	Type	PU <sup>1)</sup>
		Thread	Tubing O.D.			
<b>G thread with external hexagon</b>						
	160, 200	G3/4	22	8040613	QS-G3/4-22	1

1) Packaging unit

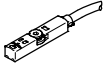
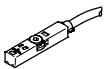
Ordering data – Reducing nipple						
	For diameter	Description	Part No.	Type	PU <sup>1)</sup>	
	<b>Reducing nipple NPFC</b>					
	160, 200	For connecting QS fittings with thread G1/2 to cylinders with thread G3/4	8030313	NPFC-R-G34-G12-MF	1	
	<b>Reducing nipple D</b>					
	250, 320	For connecting QS fittings with thread G1/2 to cylinders with thread G1	197634	D-1/2I-1A	1	

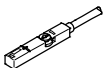
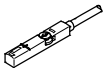
1) Packaging unit



# Standard cylinders DSBG, to ISO 15552

Accessories

FESTO

Ordering data – Proximity sensor 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						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	<b>574335</b>	<b>SMT-8M-A-PS-24V-E-2,5-OE</b>
			Plug connector M8x1, 3-pin	0.3	<b>574334</b>	<b>SMT-8M-A-PS-24V-E-0,3-M8D</b>
		NPN	Cable, 3-wire	2.5	<b>574338</b>	<b>SMT-8M-A-NS-24V-E-2,5-OE</b>
			Plug connector M8x1, 3-pin	0.3	<b>574339</b>	<b>SMT-8M-A-NS-24V-E-0,3-M8D</b>
N/C contact						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	7.5	<b>574340</b>	<b>SMT-8M-A-PO-24V-E-7,5-OE</b>

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						
	Inserted in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	<b>543862</b>	<b>SME-8M-DS-24V-K-2,5-OE</b>
				5.0	<b>543863</b>	<b>SME-8M-DS-24V-K-5,0-OE</b>
			Cable, 2-wire	2.5	<b>543872</b>	<b>SME-8M-ZS-24V-K-2,5-OE</b>
			Plug connector M8x1, 3-pin	0.3	<b>543861</b>	<b>SME-8M-DS-24V-K-0,3-M8D</b>
N/C contact						
	Insertable in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	<b>546799</b>	<b>SME-8M-DO-24V-K-7,5-OE</b>

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	<b>541333</b>	<b>NEBU-M8G3-K-2.5-LE3</b>
			5	<b>541334</b>	<b>NEBU-M8G3-K-5-LE3</b>
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	<b>541363</b>	<b>NEBU-M12G5-K-2.5-LE3</b>
			5	<b>541364</b>	<b>NEBU-M12G5-K-5-LE3</b>
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	<b>541338</b>	<b>NEBU-M8W3-K-2.5-LE3</b>
			5	<b>541341</b>	<b>NEBU-M8W3-K-5-LE3</b>
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	<b>541367</b>	<b>NEBU-M12W5-K-2.5-LE3</b>
			5	<b>541370</b>	<b>NEBU-M12W5-K-5-LE3</b>

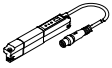
# Standard cylinders DSBG, to ISO 15552

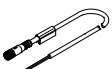

Accessories


## Position sensor

The position sensor continuously senses the position of the piston.

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

Ordering data – Position sensor for T-slot							Technical data → Internet: position sensor	
	For diameter	Position measuring range	Analogue output [mA]	Type of mounting	Electrical connection	Cable length [m]	Part No.	Type
	160, 200	0 ... 50	4 ... 20	Inserted in the slot from above	Plug connector M8x1, 4-pin, in-line	0.3	<b>1531265</b>	<b>SDAT-MHS-M50-1L-SA-E-0.3-M8</b>
		0 ... 80					<b>1531266</b>	<b>SDAT-MHS-M80-1L-SA-E-0.3-M8</b>
		0 ... 100					<b>1531267</b>	<b>SDAT-MHS-M100-1L-SA-E-0.3-M8</b>
		0 ... 125					<b>1531268</b>	<b>SDAT-MHS-M125-1L-SA-E-0.3-M8</b>
		0 ... 160					<b>1531269</b>	<b>SDAT-MHS-M160-1L-SA-E-0.3-M8</b>

Ordering data – Connecting cables				Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	<b>541342</b>	<b>NEBU-M8G4-K-2.5-LE4</b>
			5	<b>541343</b>	<b>NEBU-M8G4-K-5-LE4</b>
	Angled socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	<b>541344</b>	<b>NEBU-M8W4-K-2.5-LE4</b>
			5	<b>541345</b>	<b>NEBU-M8W4-K-5-LE4</b>

Ordering data – Sensor bracket for proximity sensor			Part No.	Type
	For diameter	Materials		
	160, 200	Rail: Anodised wrought aluminium alloy	<b>1553813</b>	<b>DASP-M4-160-A</b>
	250	Screws: High-alloy stainless steel	<b>1456781</b>	<b>DASP-M4-250-A</b>
	320		<b>3015256</b>	<b>DASP-M4-320-A</b>