

## Cylinder with holding brake DFLL/G

**FESTO**



## Key features

### At a glance

Holding brakes are generally used to dynamically brake a movement or to prevent round rods of different lengths from starting up at any position. The double-acting cylinders with holding brake DFLLC/G can brake or clamp the piston rod. During clamping, the piston

rod is securely locked so that the application of external force does not produce any relative motion. A rod can be locked at any position along the stroke, whether in the end positions or the intermediate positions. This provides protection in the event of a pressure fail-

ure and secures the piston rod during intermediate stops for process operations.

- The clamping force is released when compressed air is supplied to the holding brake
- Static holding force up to 17000 N

- The cylinders with holding brake are based on ISO 15552 (previously also VDMA 24562, ISO 6431, NF E49 003.1, UNI 10290)

### Note

The cylinders with holding brake DFLLC/G-...-S are a safety device as defined in the Machinery Directive 2006/42/EC and have been tested and certified to relevant standards. More information: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

The cylinders with holding brake DFLLC/G-...-EX4-S are suitable for use in ATEX zones in "static holding" mode.

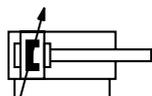
Possible safety functions:

- Holding function: retains the piston rod by clamping with frictional locking
- Emergency braking function: the movement of the piston rod is stopped by clamping with frictional locking

The safety functions are triggered by switching off the compressed air supply or by the failure of the compressed air supply.

### Cushioning

[PPV] Pneumatic cushioning, adjustable at both ends



- The drive is fitted with pneumatic end-position cushioning, which can be adjusted by the operator for maximum performance according to the moved mass and speed.
- Very powerful

### Corrosion protection

[R3] High corrosion protection



- Protects the drive against corrosion

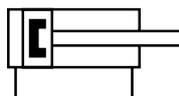
### Certification

[S] Safety device

- To Machinery Directive 2006/42/EC

### Position sensing

[A] Via proximity switch



- For monitoring the switching status of the holding brake

### EU certification

[EX4] II 2GD

- ATEX category for gas II 2G
- ATEX category for dust II 2D
- Ex ignition protection type for gas Ex h IIC T4 Gb
- Ex ignition protection type for dust Ex h IIIC T120°C Db
- Explosion-proof ambient temperature  $-20 \leq T_a \leq +60$

## Type codes

001	Series	
<b>DFLL</b>	Cylinder with holding brake	

002	Piston diameter	
<b>40</b>	40	
<b>63</b>	63	
<b>100</b>	100	

003	Stroke	
...	10 ... 2000	

004	Cushioning	
<b>PPV</b>	Pneumatic cushioning, adjustable at both ends	

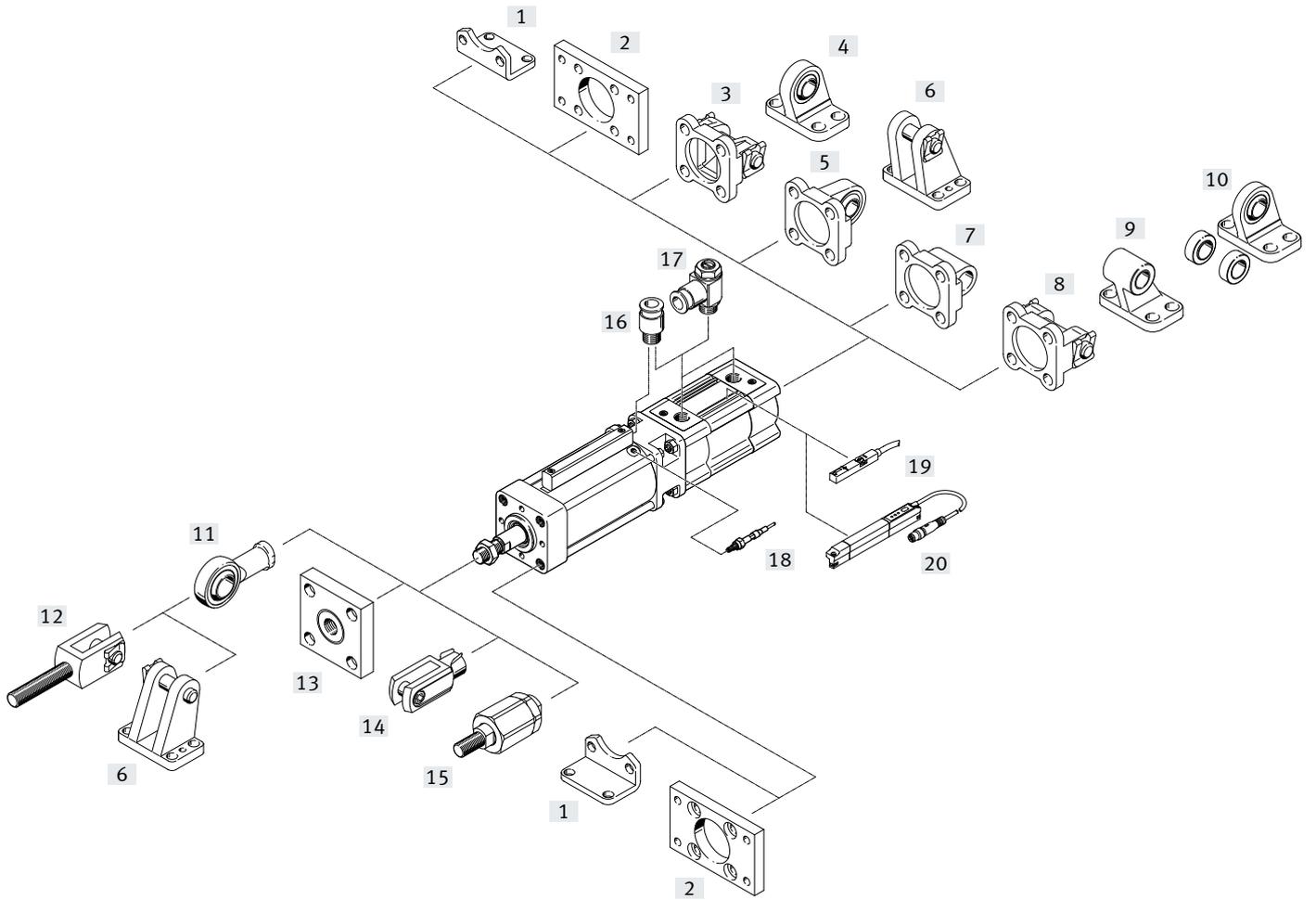
005	Position sensing	
<b>A</b>	For proximity sensor	

006	Corrosion protection	
	Standard	
<b>R3</b>	High corrosion protection	

007	EU certification	
	None	
<b>EX4</b>	II 2GD	

008	Certification	
<b>S</b>	Safety component to Machinery Directive 2006/42/EC	

Peripherals overview



## Peripherals overview

Accessories		
Type/order code	Description	→ Page/Internet
[1] Foot mounting HNC/CRHNC	For bearing or end caps	22
[2] Flange mounting FNC/CRFNG	<ul style="list-style-type: none"> <li>• For bearing or end caps</li> <li>• Suitable for emergency stop applications/dynamic braking</li> </ul>	24
[3] Swivel flange SNC	For end caps	26
[4] Clevis foot LSNG	Weld-on, with spherical bearing	32
[5] Swivel flange SNCS/SNCS-...-R3	With spherical bearing for end caps	27
[6] Clevis foot LBG/LBG-...-R3	–	32
[7] Swivel flange SNCL	For end caps	28
[8] Swivel flange SNCB/SNCB-...-R3	For end caps	29
[9] Clevis foot LNG/CRLNG	–	32
[10] Clevis foot LSN	With spherical bearing	32
[11] Rod eye SGS/CRSGS	With spherical bearing	33
[12] Rod clevis SGA	With male thread	33
[13] Coupling piece KSG	To compensate for radial deviations	33
[14] Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	33
[15] Self-aligning rod coupler FK, CRFK	To compensate for radial and angular deviations	33
[16] Push-in fitting QS	For connecting tubing with standard O.D.	qs
[17] One-way flow control valve GRLA	For regulating speed	37
[18] Sensor kit DADG	<ul style="list-style-type: none"> <li>• Inductive sensor kit for status sensing of the clamping function</li> <li>• Not included in the scope of delivery</li> </ul>	34
[19] Proximity switch SMT-8M-A	<ul style="list-style-type: none"> <li>• For sensing the piston position</li> <li>• Not included in the scope of delivery</li> </ul>	35
Proximity switch SDBT-MS	<ul style="list-style-type: none"> <li>• For sensing the piston position</li> <li>• Not included in the scope of delivery</li> </ul>	35
[20] Position transmitter SDAT-MHS	<ul style="list-style-type: none"> <li>• Continuously senses the position of the piston</li> <li>• Has an analogue output</li> <li>• Not included in the scope of delivery</li> </ul>	36

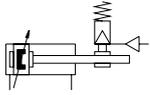
 **Note**

Only the flange mounting FNC/CRFNG is permissible for emergency stop applications/dynamic braking. Additional accessories for this application are available on request.

# Cylinder with holding brake DFCL

## Datasheet

### Function



-  - Diameter  
40 ... 100 mm
-  - Stroke length  
10 ... 2000 mm



General technical data			
Piston ø	40	63	100
Design	Piston		
	Piston rod		
	Profile barrel		
Variants	Piston rod at one end		
Operating mode	Double-acting		
Pneumatic connection			
Cylinders	G1/4	G3/8	G1/2
Holding brake	G1/8	G1/8	G3/8
Piston rod thread	M12x1.25	M16x1.5	M20x1.5
Piston rod end	Male thread		
Cushioning	Pneumatic cushioning adjustable at both ends		
Cushioning length [mm]	19	22	31
Position sensing	Via proximity switch		
Type of mounting	With female thread		
	With accessories		
Clamping type with operating direction	On both sides		
	Clamping via spring force, released via compressed air		
Mounting position	Any		

Operating and environmental conditions			
Piston ø	40	63	100
Cylinders			
Operating pressure [bar]	0.6 ... 8		
Holding brake			
Min. release pressure [bar]	3.8		
Max. permissible test pressure [bar]	8		
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]		
Note on the operating/pilot medium	Lubricated operation not possible		
Ambient temperature <sup>1)</sup> [°C]	-20 ... +80		-10 ... +80
Corrosion resistance class CRC <sup>2)</sup>			
[ ] Standard	1		
[R3] High corrosion protection	3		

1) Note operating range of proximity switches.  
2) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Datasheet

Safety characteristics			
Piston ø	40	63	100
Conforms to standard	This product is based on ISO 15552 (previously also VDMA 24562, ISO 6431, NF E49 003.1, UNI 10290)		
Safety function	Holding and stopping a movement		
Performance level (PL)	Stopping, holding, blocking a movement/category 1, Performance Level c		
Certification	German Technical Control Board (TÜV)		
Certificate-issuing authority	German Technical Control Board (TÜV) CA 697		
CE marking (see declaration of conformity) <sup>1)</sup>	To EU Machinery Directive		
UKCA marking (see declaration of conformity) <sup>1)</sup>	To UK explosion regulations		

1) More information [www.festo.com/catalogue/qs](http://www.festo.com/catalogue/qs) → Support/Downloads

ATEX			
Piston ø	40	63	100
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 [°C]	-20 ≤ Ta ≤ +60		

Weight [g]			
Piston ø	40	63	100
Basic weight with 0 mm stroke	2930	6185	19120
Additional weight per 10 mm stroke	37	62	101
Moving mass with 0 mm stroke	502	955	1940
Additional moving mass per 10 mm stroke	16	25	40

Forces [N]			
Piston ø	40	63	100
Theoretical force at 6 bar, advancing	754	1870	4712
Theoretical force at 6 bar, retracting	633	1682	4418
Static holding force	1350	3300	8200

 Note

The specified holding force refers to a static load. If this value is exceeded, slippage may occur. Dynamic forces occurring during operation must

not exceed the static holding force if slippage is to be avoided. The holding brake is backlash-free in the clamped condition when varying loads are applied to the piston rod.

Lateral loads and bending moments on the piston rod can impair the function. (Make sure that the load on the piston rod is only in the direction of movement.)

When the holding brake is released and force is applied internally or externally, there is a risk of accidents caused by jerky movements of the drive. There is also increased wear on the holding brake.

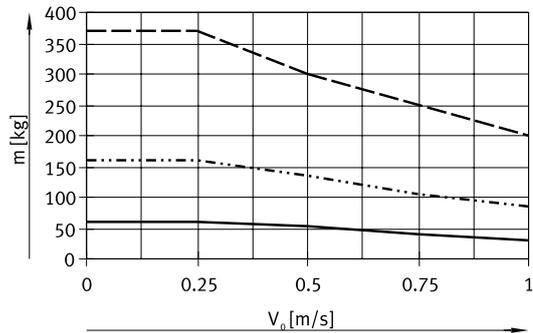
Internal forces occur, for example, because of different pressures in the piston chambers. External forces are generated, for example, by the gravitational force of vertical axes.

The actuator is not expected to move when used as intended and when sufficiently pressurised.

More information  
→ User documentation

Datasheet

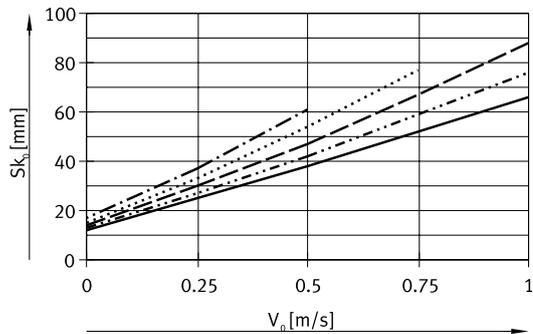
Load mass  $m$  as a function of piston speed  $v_0$



- DFCL-100
- · - · - DFCL-63
- DFCL-40

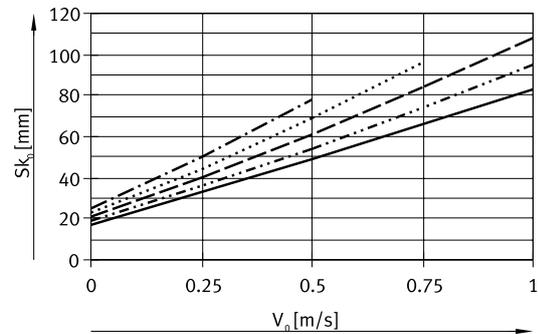
Stopping distance  $sk_0$  as a function of piston speed  $v_0$

∅ 40



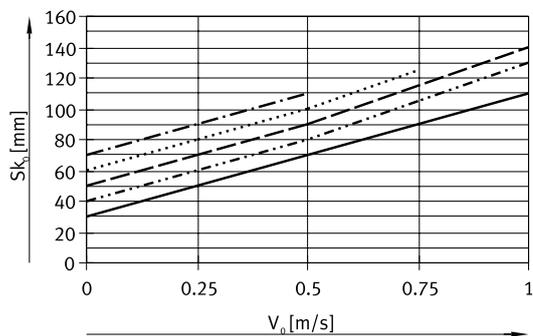
- · - · - 50 kg
- 40 kg
- 30 kg
- · - · - 20 kg
- 10 kg

∅ 63



- · - · - 125 kg
- 100 kg
- 75 kg
- · - · - 50 kg
- 25 kg

∅ 100



- · - · - 300 kg
- 250 kg
- 200 kg
- · - · - 150 kg
- 100 kg

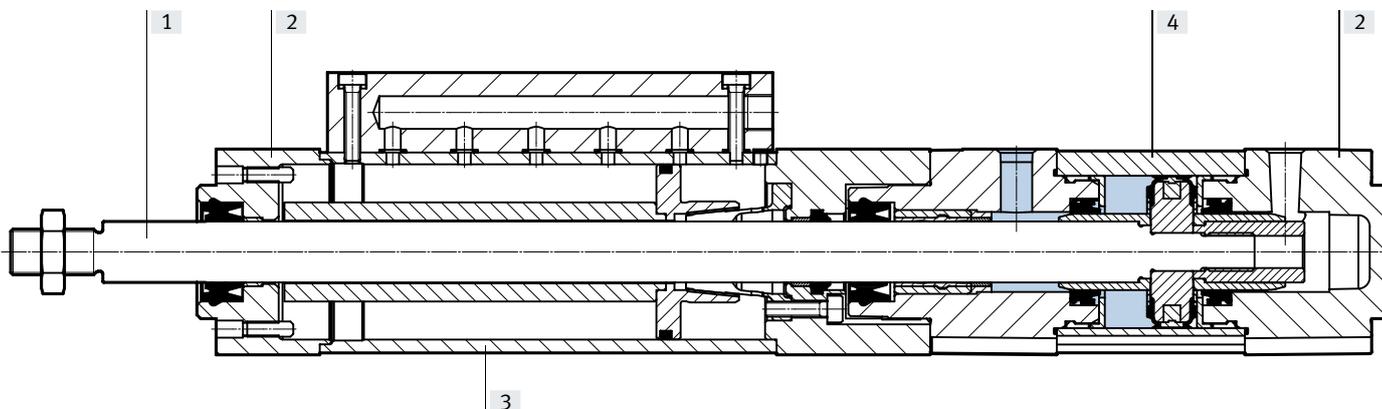
**Note**

All data in the graphs is intended exclusively for the purposes of preselection when configuring the emergency braking function and must be checked mathematically and in practice prior to commissioning. More information [www.festo.com/sp](http://www.festo.com/sp) → User documentation.

## Datasheet

### Materials

Sectional view



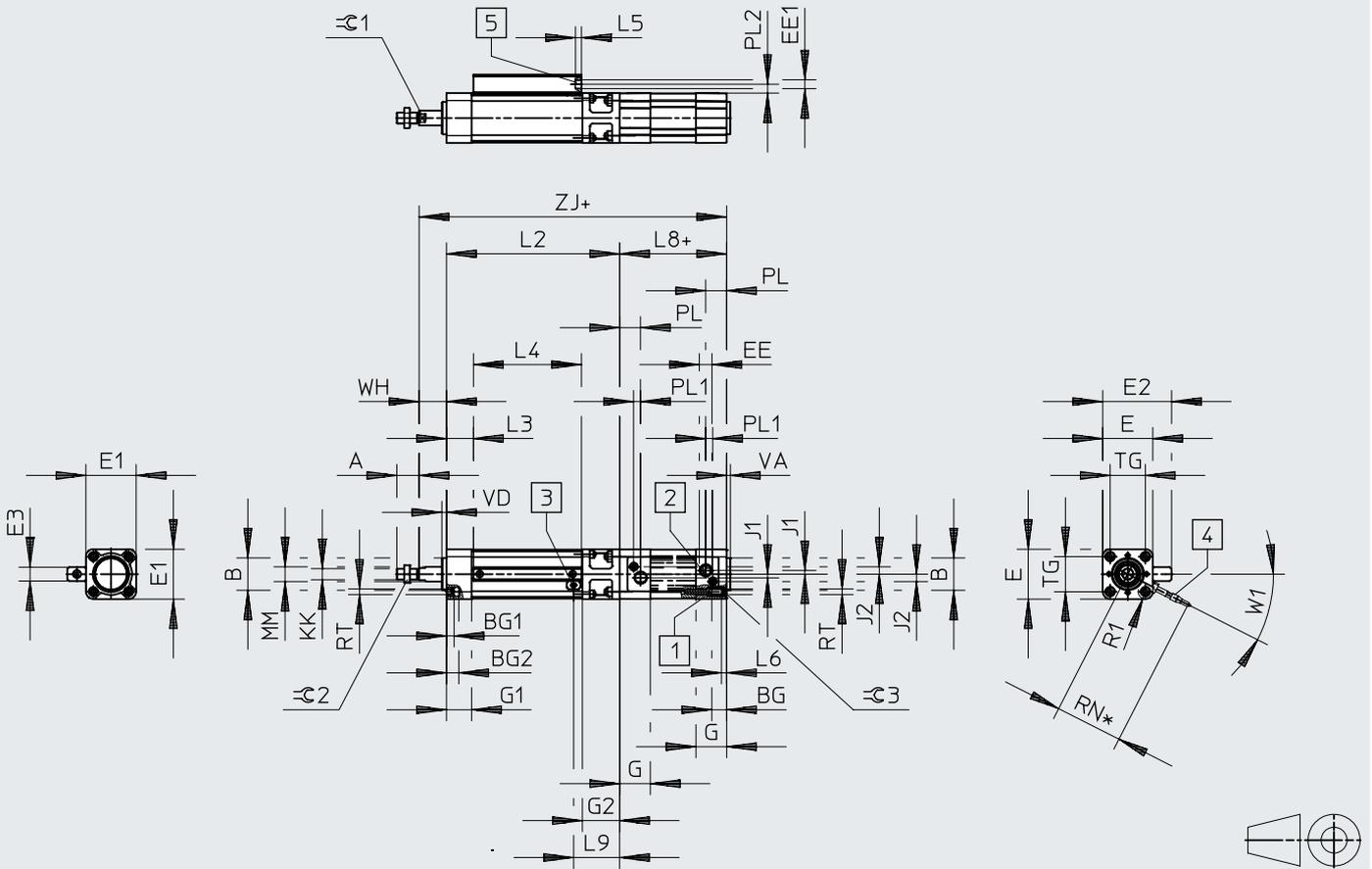
Cylinder with holding brake

[1] Piston rod	Hard-chrome-plated steel
[2] Cover	Die-cast aluminium Wrought aluminium alloy
[3] Housing	
DFLC-...	Steel
DFLC-...-R3	High-alloy stainless steel
[4] Cylinder barrel	
DFLC-...	Smooth-anodised wrought aluminium alloy
DFLC-...-R3	High-alloy stainless steel
- Seals	NBR TPE-U(PU)
LABS (PWIS) conformity	VDMA24364-Zone III
Note on materials	RoHS-compliant

Datasheet

Dimensions

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



- [1] Socket head screw with female thread for mounting components
- [2] Adjusting screw for adjustable end-position cushioning
- [3] Position for proximity switch (thread M6x0.75)
- [4] Sensor kit DADG-D-F8
- [5] Connection to release clamping function

+ = plus stroke length

\* = installation space for sensor kit DADG-D-F8

Datasheet

∅	A	B ∅ d11	BG min.	BG1	BG2	E	E1	E2	E3	EE
[mm]	-0.5					±0.8	+0.5	±1		
40	24	35	16	8	13.2	54	54	74.1	15	G1/4
63	32	45	16	9	14.8	78	75	98.1	15	G3/8
100	40	55	17	10	14.8	124	110	152.1	22	G1/2

∅	EE1	G	G1	G2	J1	J2	KK	L2	L3	L4
[mm]								±1		
40	G1/8	33	27	40	4	8	M12x1.25	186	29	116
63	G1/8	40.5	30	44	6.25	12.75	M16x1.5	210	38.4	122.5
100	G3/8	48	35	54	10	13.5	M20x1.5	255	47.1	148.5

∅	L5	L6	L8+	L9	MM ∅	PL	PL1	PL2	R1	RN
[mm]			±0.4							
40	6.5	5.5	105	49.4	16	22.5	7.5	9.6	R8	98
63	6.5	6	121	53.6	20	27.5	9	9.6	R10	100
100	8	–	138	65.3	25	31.5	7.5	13.6	R15	120

∅	RT	TG	VA	VD	W1	WH	Zj+	≈G1	≈G2	≈G3
[mm]		±0.3	-0.2	±0.2		+3.2/-1	+2.6/-0.4			
40	M6	38	4	5	27°	28.7	319.7	13	19	6
63	M8	56.5	4	5	20°	35.9	366.9	17	24	8
100	M10	89	4	5	20°	49.3	442.3	22	30	6

Ordering data – Modular product system

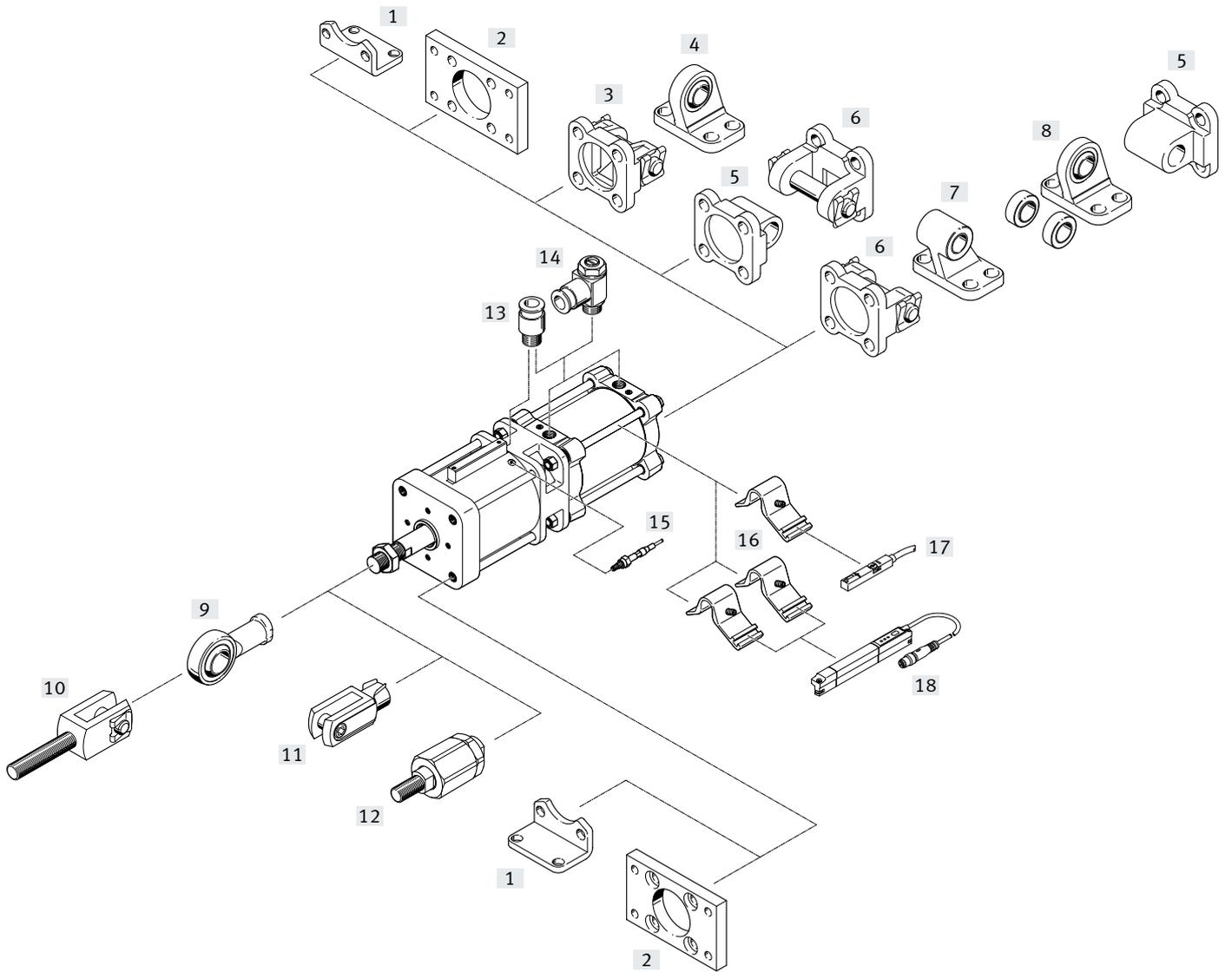
Ordering table						
Size	40	63	100	Conditions	Code	Enter code
Module no.	8073331	8073332	8073333			
Function	Cylinder with holding brake, double-acting				<b>DFLC</b>	DFLC
Piston ø [mm]	40	63	100		-...	
Stroke [mm]	10 ... 2000				-...	
Cushioning	Pneumatic cushioning, adjustable at both ends				<b>-PPV</b>	-PPV
Position sensing	Via proximity switch				<b>A</b>	A
Corrosion protection	Standard					
	High corrosion protection				<b>-R3</b>	
EU certification	None					
	II 2GD				<b>-EX4</b>	
Certification	Safety device to Machinery Directive 2006/42/EC				<b>-S</b>	-S

## Type codes

001	Series	
<b>DFLG</b>	Cylinder with holding brake	
002	Piston diameter	
<b>160</b>	160	
003	Stroke	
...	10 ... 2000	
004	Cushioning	
<b>PPV</b>	Pneumatic cushioning, adjustable at both ends	

005	Position sensing	
<b>A</b>	For proximity sensor	
006	Corrosion protection	
	Standard	
<b>R3</b>	High corrosion protection	
007	EU certification	
	None	
<b>EX4</b>	II 2GD	
008	Certification	
<b>S</b>	Safety component to Machinery Directive 2006/42/EC	

Peripherals overview



## Peripherals overview

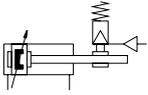
Accessories			
	Type/order code	Description	→ Page/Internet
[1]	Foot mounting HNG	For bearing and end caps, corresponds to MS1 according to ISO 15552	23
[2]	Flange mounting FNG	<ul style="list-style-type: none"> <li>• For bearing or end caps, corresponds to MF1/MF2 to ISO 15552</li> <li>• Suitable for emergency stop applications/dynamic braking</li> </ul>	25
[3]	Swivel flange SNG	For end caps	30
[4]	Clevis foot LSNG	With spherical bearing	32
[5]	Swivel flange SNGL	For end caps, corresponds to MP2 to ISO 15552	30
[6]	Swivel flange SNGB	For end caps, corresponds to MP2 to ISO 15552	31
[7]	Clevis foot LN	For swivel flange SNGB	32
[8]	Clevis foot LSN	With spherical bearing	32
[9]	Rod eye SGS	With spherical bearing	33
[10]	Rod clevis SGA	Suitable for spherical mounting of cylinders in conjunction with rod eye SGS	33
[11]	Rod clevis SG	Permits a swivelling movement of the cylinder in one plane	33
[12]	Self-aligning rod coupler FK	To compensate for radial and angular deviations	33
[13]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[14]	One-way flow control valve GRLA	For regulating speed	37
[15]	Sensor kit DADG	<ul style="list-style-type: none"> <li>• Inductive sensor kit for status sensing of the clamping function</li> <li>• Not included in the scope of delivery</li> </ul>	34
[16]	Sensor mounting DASP	For proximity switch SMT-8M-A and position transmitter SDAT-MHS	36
[17]	Proximity switch SMT-8M-A	<ul style="list-style-type: none"> <li>• For sensing the piston position</li> <li>• Can be integrated in the cylinder profile barrel</li> <li>• Not included in the scope of delivery</li> </ul>	35
	Proximity switch SDBT-MS	<ul style="list-style-type: none"> <li>• For sensing the piston position</li> <li>• Can be integrated in the cylinder profile barrel</li> <li>• Not included in the scope of delivery</li> </ul>	35
[18]	Position transmitter SDAT-MHS	<ul style="list-style-type: none"> <li>• Continuously senses the position of the piston</li> <li>• Has an analogue output</li> <li>• Can be integrated in the cylinder profile barrel</li> <li>• 2 sensor mountings DASP are required for mounting</li> <li>• Not included in the scope of delivery</li> </ul>	36

 **Note**

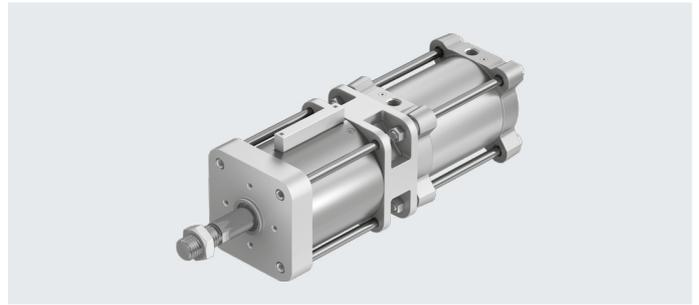
Only the flange mounting FNG is permissible for emergency stop applications/dynamic braking. Additional accessories for this application are available on request.

## Datasheet

### Function



-  - Diameter  
160 mm
-  - Stroke length  
10 ... 2000 mm



General technical data	
Piston $\varnothing$	160
Design	Piston
	Piston rod
	Profile barrel
Variants	Piston rod at one end
Operating mode	Double-acting
Pneumatic connection	
Cylinders	G3/4
Holding brake	G3/8
Piston rod thread	M36x2
Piston rod end	Male thread
Cushioning	Pneumatic cushioning adjustable at both ends
Cushioning length [mm]	48
Position sensing	Via proximity switch
Type of mounting	With female thread
	With accessories
Clamping type with operating direction	On both sides
	Clamping via spring force, released via compressed air
Mounting position	Any

Operating and environmental conditions	
Piston $\varnothing$	160
Cylinders	
Operating pressure [bar]	0.6 ... 8
Holding brake	
Min. release pressure [bar]	3.8
Max. permissible test pressure [bar]	8
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating/pilot medium	Lubricated operation not possible
Ambient temperature <sup>1)</sup> [°C]	-20 ... +80
Corrosion resistance class CRC <sup>2)</sup>	
[ ] Standard	1
[R3] High corrosion protection	3

1) Note operating range of proximity switches.  
 2) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Datasheet

<b>Safety characteristics</b>	
Piston $\varnothing$	160
Conforms to standard	This product is based on ISO 15552 (previously also VDMA 24562, ISO 6431, NF E49 003.1, UNI 10290)
Safety function	Holding and stopping a movement
Performance level (PL)	Stopping, holding, blocking a movement/category 1, Performance Level c
Certification	German Technical Control Board (TÜV)
Certificate-issuing authority	German Technical Control Board (TÜV) CA 697
CE marking (see declaration of conformity) <sup>1)</sup>	To EU Machinery Directive
UKCA marking (see declaration of conformity) <sup>1)</sup>	To UK explosion regulations

1) More information [www.festo.com/catalogue/dflg](http://www.festo.com/catalogue/dflg) → Support/Downloads

<b>ATEX</b>	
Piston $\varnothing$	160
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 [°C]	$-20 \leq T_a \leq +60$

<b>Weight [g]</b>	
Piston $\varnothing$	160
Basic weight with 0 mm stroke	49660
Additional weight per 10 mm stroke	208
Moving mass with 0 mm stroke	7085
Additional moving mass per 10 mm stroke	97

<b>Forces [N]</b>	
Piston $\varnothing$	160
Theoretical force at 6 bar, advancing	12064
Theoretical force at 6 bar, retracting	11310
Static holding force	17000



### Note

The specified holding force refers to a static load. If this value is exceeded, slippage may occur. Dynamic forces occurring during operation must

not exceed the static holding force if slippage is to be avoided. The holding brake is backlash-free in the clamped condition when varying loads are applied to the piston rod.

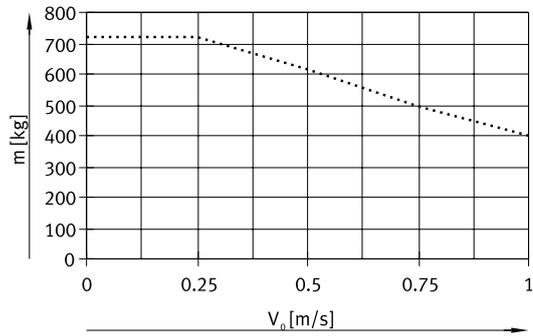
Lateral loads and bending moments on the piston rod can impair the function. (Make sure that the load on the piston rod is only in the direction of movement.)

### Control:

The holding brake may only be released when the forces on the piston rod are balanced. Otherwise there is a risk of accidents caused by the sudden movement of the piston rod. Blocking off the compressed air supply at both ends (e.g. with a 5/3-way valve) does not provide any safety.

## Datasheet

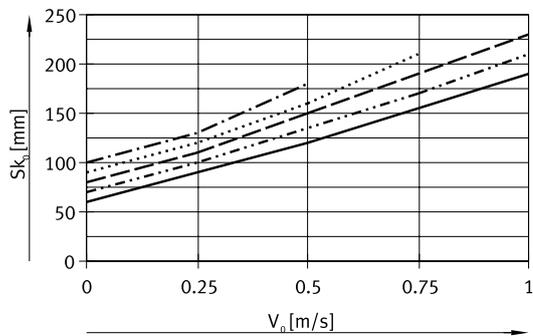
### Load mass $m$ as a function of piston speed $v_0$



..... DFLG-160

### Stopping distance $sk_0$ as a function of piston speed $v_0$

$\varnothing 160$



- - - - - 700 kg
- ..... 600 kg
- - - - - 500 kg
- · - · - · 400 kg
- 300 kg

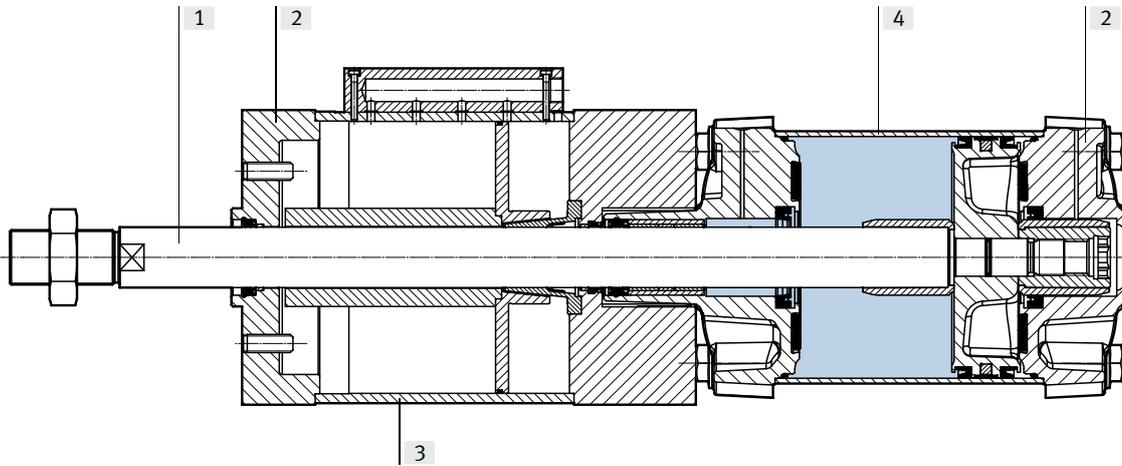
#### Note

All data in the graphs is intended exclusively for the purposes of preselection when configuring the emergency braking function and must be checked mathematically and in practice prior to commissioning. More information [www.festo.com/sp](http://www.festo.com/sp) → User documentation.

## Datasheet

### Materials

Sectional view



Cylinder with holding brake

[1] Piston rod	Hard-chrome-plated steel
[2] Cover	Die-cast aluminium
	Wrought aluminium alloy
[3] Housing	
DFLG-...	Steel
DFLG-...-R3	High-alloy stainless steel
[4] Cylinder barrel	
DFLG-...	Smooth-anodised wrought aluminium alloy
DFLG-...-R3	High-alloy stainless steel
- Seals	NBR
	TPE-U(PU)
LABS (PWIS) conformity	VDMA24364-Zone III
Note on materials	RoHS-compliant



## Ordering data – Modular product system

Ordering table		Conditions	Code	Enter code
Size	160			
Module no.	8073334			
Function	Cylinder with holding brake, double-acting		<b>DFLG</b>	DFLG
Piston ø [mm]	160		<b>-160</b>	-160
Stroke [mm]	10 ... 2000		<b>-...</b>	
Cushioning	Pneumatic cushioning, adjustable at both ends		<b>-PPV</b>	-PPV
Position sensing	Via proximity switch		<b>A</b>	A
Corrosion protection	Standard			
	High corrosion protection		<b>-R3</b>	
EU certification	None			
	II 2GD		<b>-EX4</b>	
Certification	Safety device to Machinery Directive 2006/42/EC		<b>-S</b>	-S

## Accessories

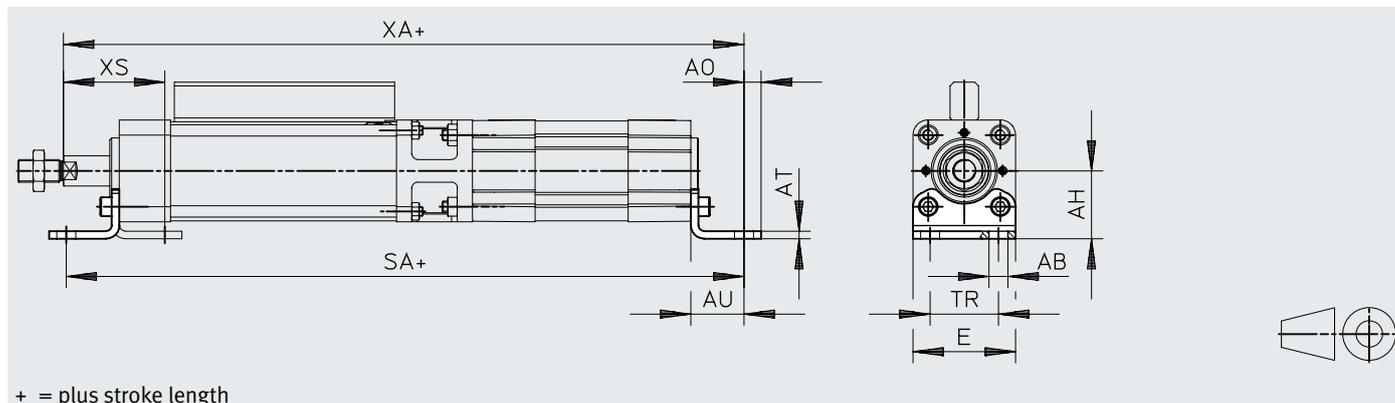
### Foot mounting HNC/CRHNC

For DFLL

Material:

HNC: Galvanised steel

CRHNC: High-alloy steel



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	AB $\varnothing$	AH	AO	AT	AU	E	SA	TR	XA	XS
40	10	36	9	4	28	54	347	36	347.7	56.7
63	10	50	12.5	5	32	75	395	50	398.9	67.9
100	14.5	71	17.5	6	41	110	475	75	483.3	90.3

For $\varnothing$	Basic version				Corrosion resistant			
	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>
40	1	193	<b>174370</b>	<b>HNC-40</b>	4	188	<b>176938</b>	<b>CRHNC-40</b>
63	1	436	<b>174372</b>	<b>HNC-63</b>	4	424	<b>176940</b>	<b>CRHNC-63</b>
100	1	1009	<b>174374</b>	<b>HNC-100</b>	4	990	<b>176942</b>	<b>CRHNC-100</b>

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

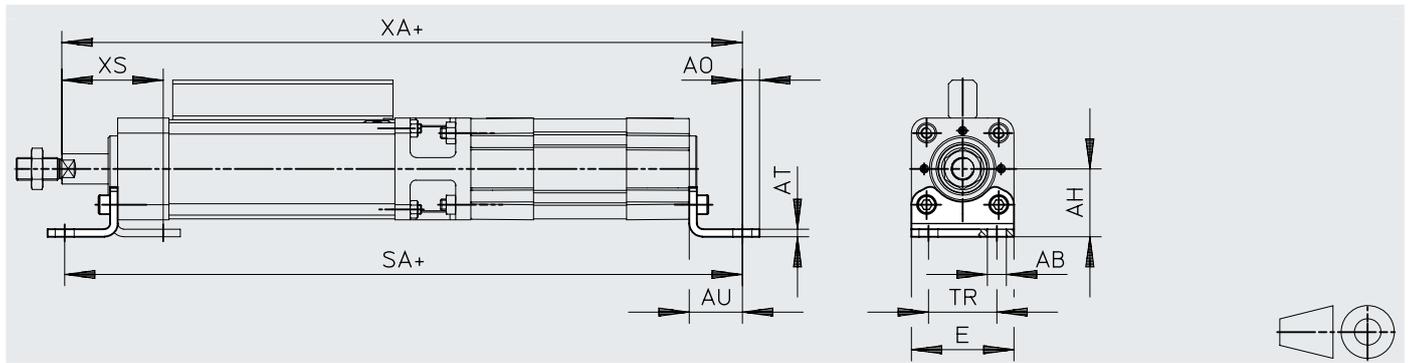
2) Suitable for ATEX

## Accessories

### Foot mounting HNG

For DFLG

Material:  
Galvanised steel



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	AB $\varnothing$	AH	AO	AT	AU	E	SA	TR	XA	XS	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>
160	18.5	115	20	10	60	169	598	115	618	140	1	3931	<b>34476</b>	<b>HNG-160</b>

- 1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)  
 2) Suitable for ATEX

## Accessories

### Flange mounting FNC/CRFNG

For DFCL

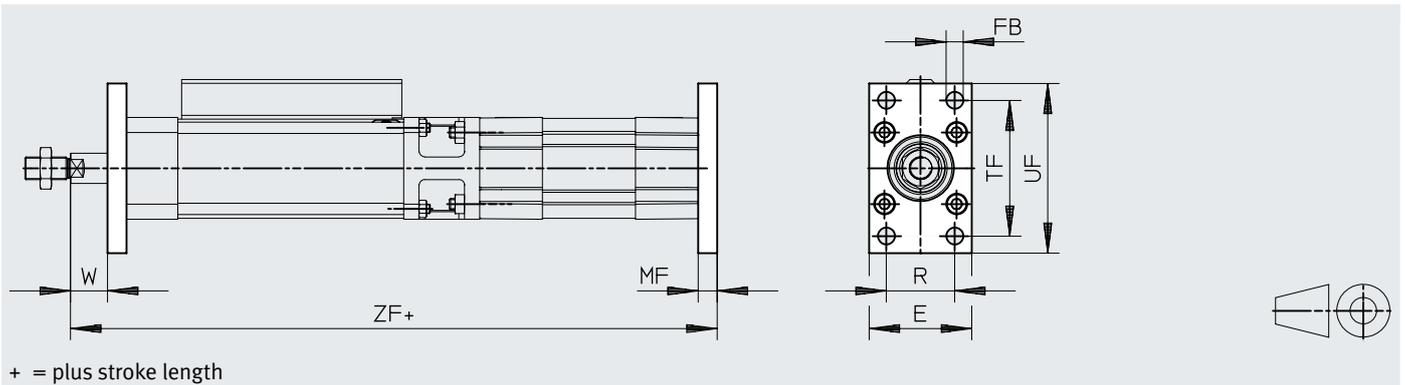
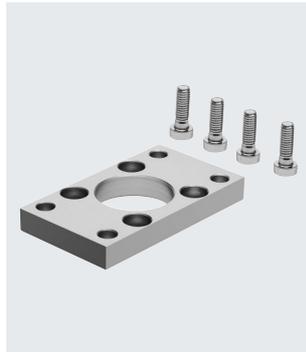
Suitable for emergency stop applications/  
dynamic braking

Material:

FNC: Galvanised steel

CRFNG: high-alloy steel

RoHS-compliant



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$ [mm]	E	FB $\varnothing$ H13	MF	R	TF	UF	W	ZF
40	54	9	10	36	72	90	18.7	329.7
63	75	9	12	50	100	120	23.9	378.9
100	110	14	16	75	150	175	33.3	458.3

For $\varnothing$ [mm]	Basic version				Corrosion resistant			
	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>
40	1	291	<b>174377</b>	<b>FNC-40</b>	4	291	<b>161847</b>	<b>CRFNG-40</b>
63	1	679	<b>174379</b>	<b>FNC-63</b>	4	680	<b>161849</b>	<b>CRFNG-63</b>
100	1	2041	<b>174381</b>	<b>FNC-100</b>	4	2054	<b>161851</b>	<b>CRFNG-100</b>

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) Suitable for ATEX

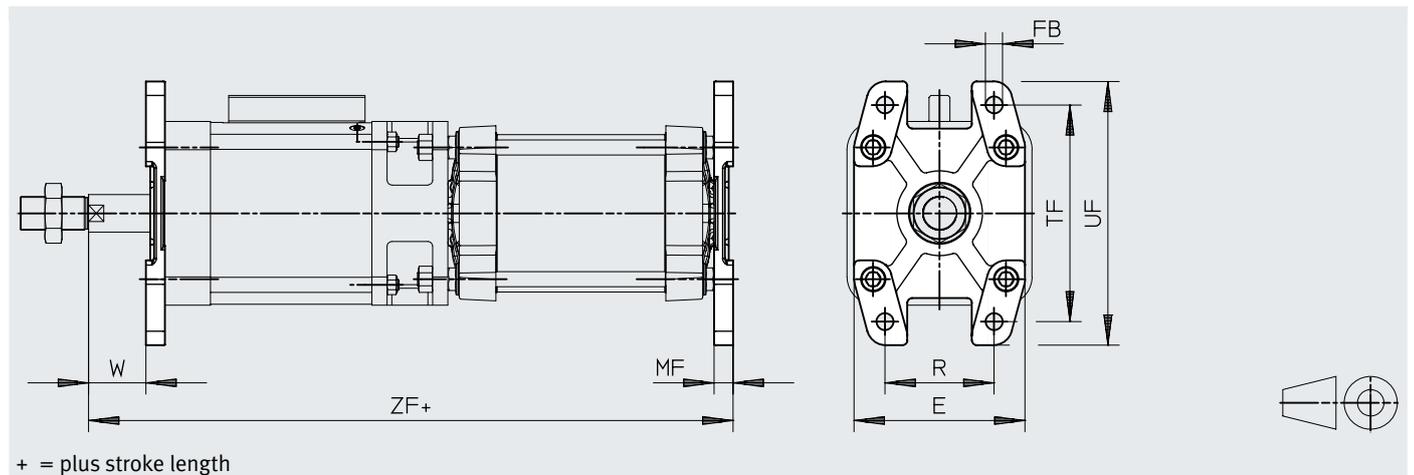
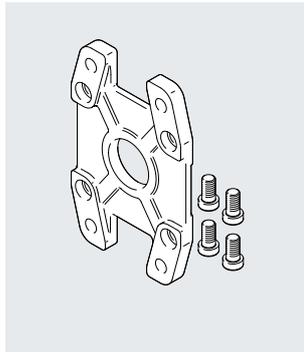
## Accessories

### Flange mounting FNG

For DFLLG

Suitable for emergency stop applications/  
dynamic braking

Material:  
Painted spheroidal graphite cast  
iron  
RoHS-compliant



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	E	FB $\varnothing$ H13	MF	R	TF	UF	W	ZF	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>
160	180	18	20	115	230	280	60	578	1	3550	<b>34478</b>	<b>FNG-160</b>

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) Suitable for ATEX

## Accessories

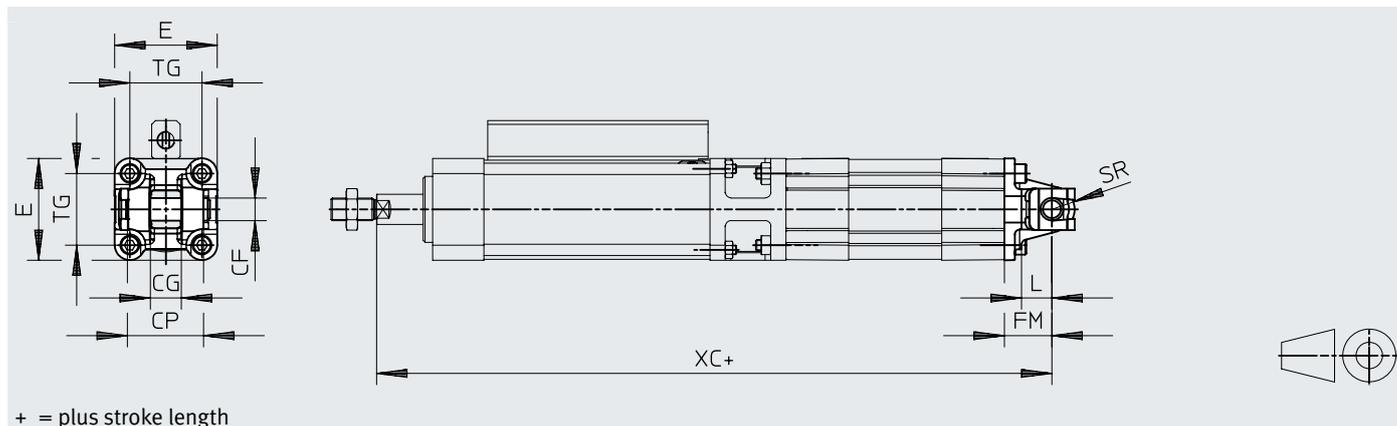
### Swivel flange SNC

For DFCL

Material:

Die-cast aluminium

RoHS-compliant



#### Dimensions and ordering data

For $\varnothing$	CF $\varnothing$	CG	CP	E	FM	L	SR
[mm]	E7/h9	H14	h14		$\pm 0.2$		
40	12	16	40	$54_{-0.5}$	25	16	12
63	16	21	51	$75_{-0.6}$	32	21	16
100	20	25	75	$110_{+0.3/-0.8}$	41	27	20

For $\varnothing$	TG	XC	CRC <sup>1)</sup>	Weight	Part no.	Type <sup>2)</sup>
[mm]				[g]		
40	38	344.7	1	140	<b>174384</b>	<b>SNC-40</b>
63	56.5	398.9	1	331	<b>174386</b>	<b>SNC-63</b>
100	89	483.3	1	865	<b>174388</b>	<b>SNC-100</b>

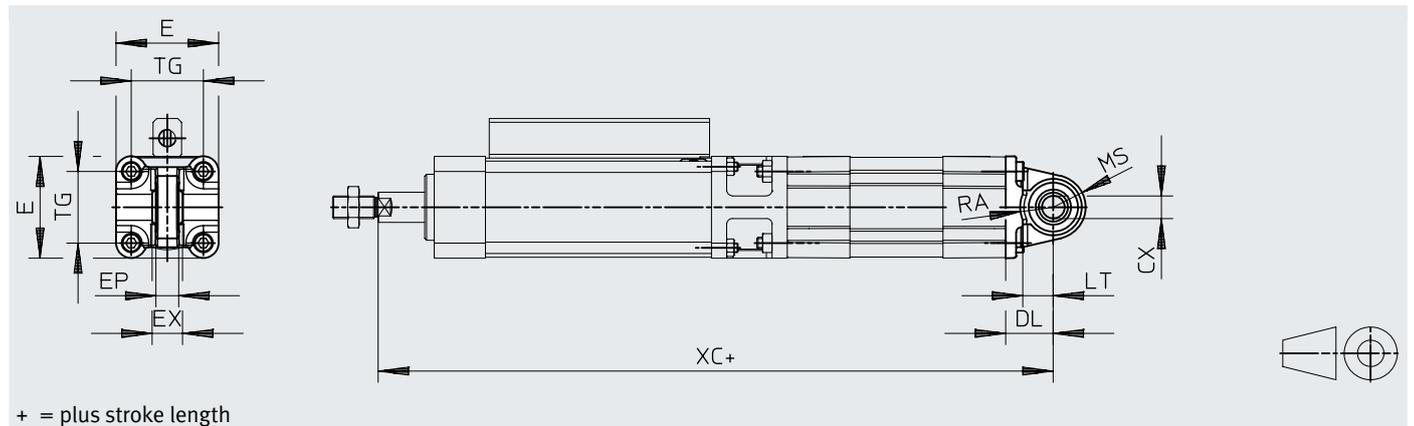
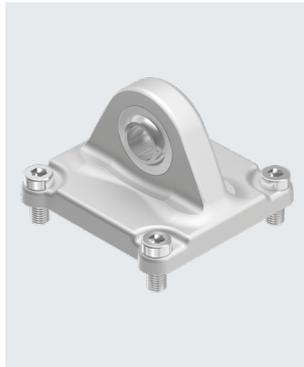
1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) Suitable for ATEX

## Accessories

**Swivel flange SNCS/SNCS-...-R3**  
For DF/LC

Material:  
SNCS 40: Die-cast aluminium  
SNCS 63 ... 100:  
Wrought aluminium alloy  
SNCS-...-R3 100:  
Wrought aluminium alloy with  
protective coating  
RoHS-compliant



Dimensions and ordering data								
For $\varnothing$	CX			DL	E			EP
		[CRSNCS]	[SNCS-...-R3]			[CRSNCS]	[SNCS-...-R3]	
[mm]				$\pm 0.2$				$\pm 0.2$
40	$12_{+0.015}$	$12_{+0.018/-0.04}$	–	25	$54_{-0.5}$	$54_{-0.5}$	–	12
63	$16_{+0.015}$	$16_{+0.018/-0.14}$	–	32	$74.5_{\pm 0.5}$	$75_{-0.6}$	–	15
100	$20_{+0.018}$	–	$20_{+0.021/-0.04}$	41	$109_{+1/-0.7}$	–	$109_{+1/-0.7}$	18

Dimensions and ordering data										
For $\varnothing$	EX	LT	MS			RA			TG	XC
				[CRSNCS]	[SNCS-...-R3]		[CRSNCS]	[SNCS-...-R3]		
[mm]						+1	+1	+1		
40	16	16	$17_{+0.5}$	$17_{+0.5}$	–	17.5	17.5	–	38	344.7
63	21	21	$23_{-0.5}$	$22_{+0.5}$	–	23	23	–	56.5	398.9
100	25	27	$30_{\pm 0.5}$	–	$30_{\pm 0.5}$	95	–	100	89	483.3

For $\varnothing$	Basic version				High corrosion protection			
	CRC <sup>1)</sup>	Weight [g]	Part no.	Type	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
40	1	122	<b>174398</b>	<b>SNCS-40</b>	4	239	<b>2895921</b>	<b>CRSNCS-40</b>
63	2	281	<b>174400</b>	<b>SNCS-63</b>	4	576	<b>2895923</b>	<b>CRSNCS-63</b>
100	2	683	<b>174402</b>	<b>SNCS-100</b>	3	684	<b>2895925</b>	<b>SNCS-100-R3</b>

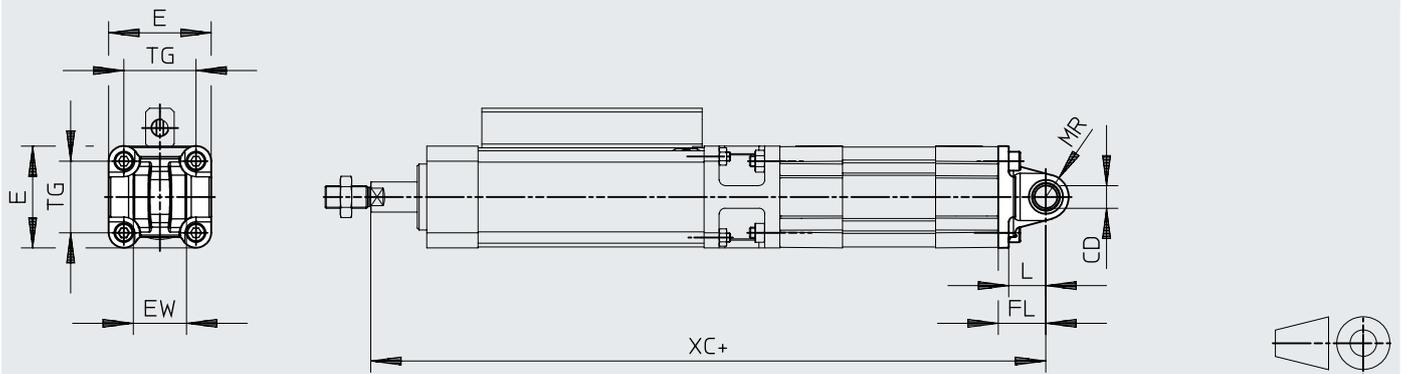
1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

Accessories

**Swivel flange SNCL**

For DFCL

Material:  
Die-cast aluminium  
RoHS-compliant



+ = plus stroke length

**Dimensions and ordering data**

For $\varnothing$	CD	E	EW	FL	L	MR
[mm]	H10		-0.2 -0.6	$\pm 0.2$		
40	12	54 <sub>-0.5</sub>	28	25	16	12
63	16	75 <sub>-0.6</sub>	40	32	21	16
100	60	41	27	20	89	483.3

For $\varnothing$	TG	XC	CRC <sup>1)</sup>	Weight	Part no.	Type
[mm]				[g]		
40	38	344.7	1	95	<b>174405</b>	<b>SNCL-40</b>
63	56.5	398.9	1	225	<b>174407</b>	<b>SNCL-63</b>
100	89	483.3	1	606	<b>174409</b>	<b>SNCL-100</b>

1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Accessories

### Swivel flange SNCB/SNCB-...-R3

For DF/LC

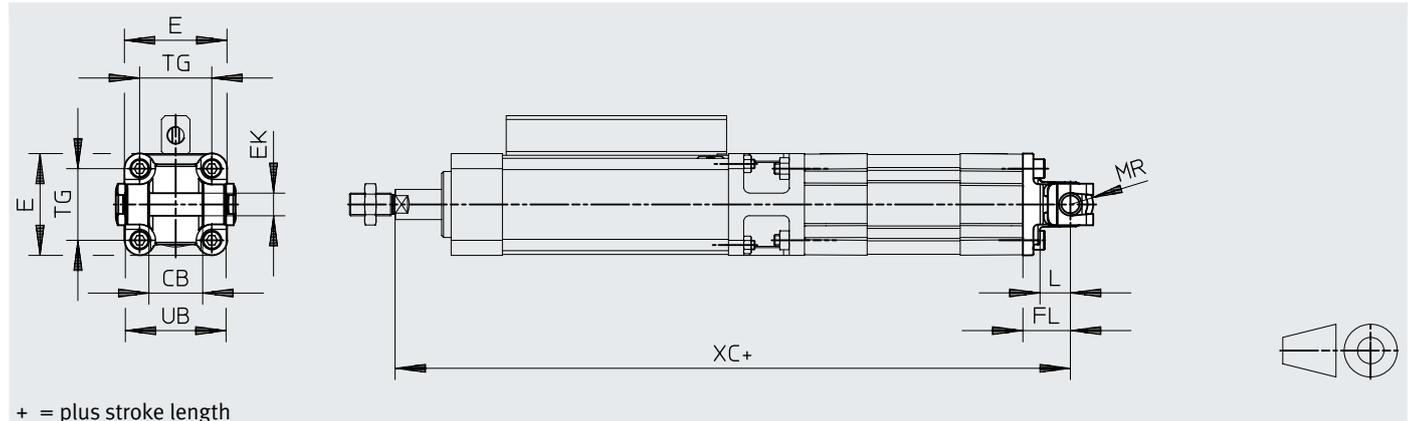
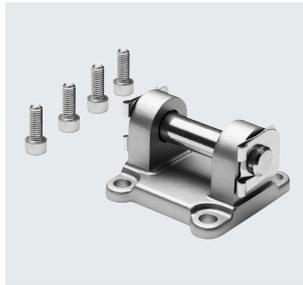
Material:

SNCB: Die-cast aluminium

SNCB-...-R3: Die-cast aluminium

with protective coating

RoHS-compliant



#### Dimensions and ordering data

For $\varnothing$	CB	E	EK $\varnothing$	FL	L	MR	TG	UB	XC
[mm]	H14		H10/e8	$\pm 0.2$		-0.5		h14	
40	28	54 <sub>-0.5</sub>	12	25	16	12	38	52	344.7
63	40	75 <sub>-0.6</sub>	16	32	21	16	56.5	70	398.9
100	60	110 <sub>+0.3/-0.8</sub>	20	41	27	20	89	110	483.3

For $\varnothing$	Basic version				R3 – High corrosion protection			
	CRC <sup>1)</sup>	Weight [g]	Part no.	Type	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
40	1	155	<b>174391</b>	<b>SNCB-40</b>	3	151	<b>176945</b>	<b>SNCB-40-R3</b>
63	1	375	<b>174393</b>	<b>SNCB-63</b>	3	371	<b>176947</b>	<b>SNCB-63-R3</b>
100	1	1035	<b>174395</b>	<b>SNCB-100</b>	3	986	<b>176949</b>	<b>SNCB-100-R3</b>

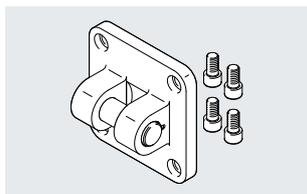
1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

# Cylinder with holding brake DFLL/G

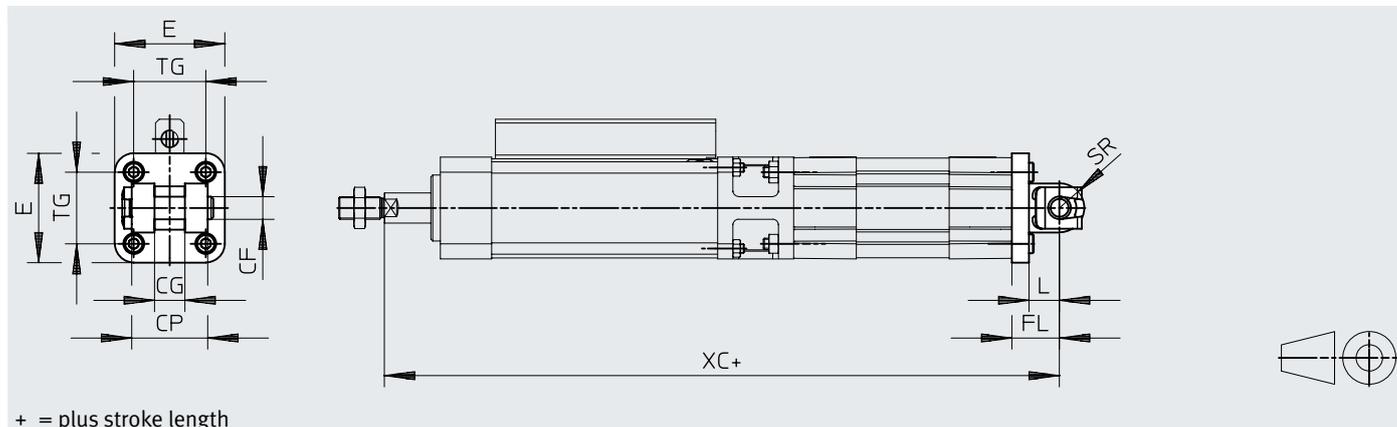
## Accessories

### Swivel flange SNG

For DFLG



Material:  
Die-cast aluminium  
RoHS-compliant



+ = plus stroke length

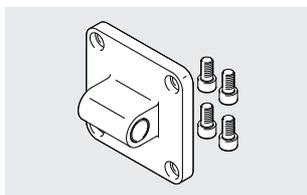
#### Dimensions and ordering data

For $\varnothing$	CF	CG	CP	E	FL	L	SR	TG	XC	CRC <sup>1)</sup>	Weight	Part no.	Type
[mm]	F7/h9	H14	d12	max.	$\pm 0.2$		max.	$140_{\pm 0.3}$			[g]		
160	35	43	122	186	55	35	32	140 $\pm 0.3$	613	2	3577	<b>152597</b>	<b>SNG-160</b>

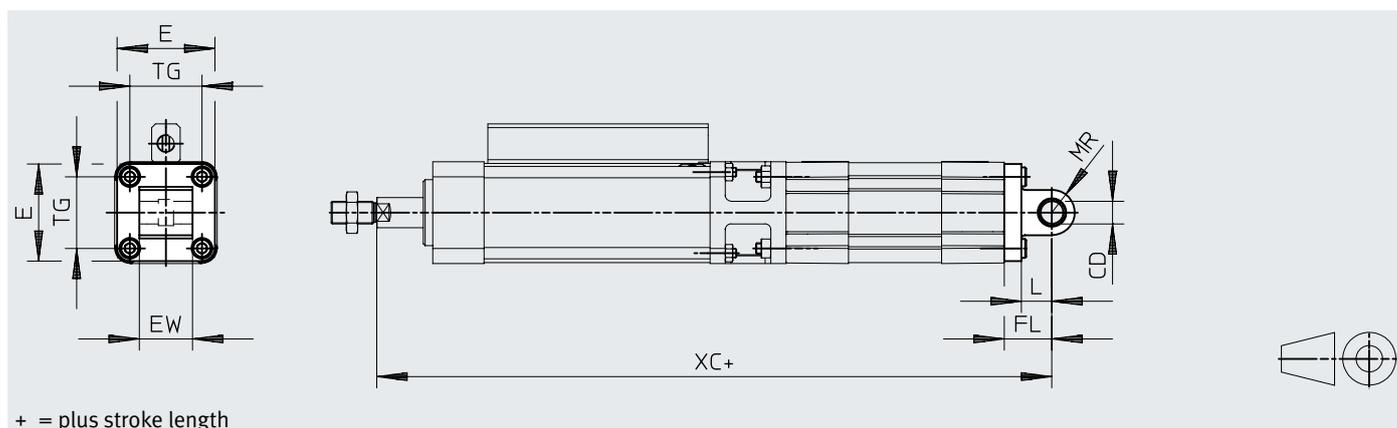
1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

### Swivel flange SNG1

For DFLG



Material:  
Die-cast aluminium



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	CD	EW	E	FL	L	MR	TG	XC	CRC <sup>1)</sup>	Weight	Part no.	Type
[mm]	$\varnothing$ H9		$\pm 0.5$	$\pm 0.2$						[g]		
160	30	90 $_{-0.5/-1.2}$	179.5	55	35	25	140	613	2	2358	<b>151534</b>	<b>SNG1-160</b>

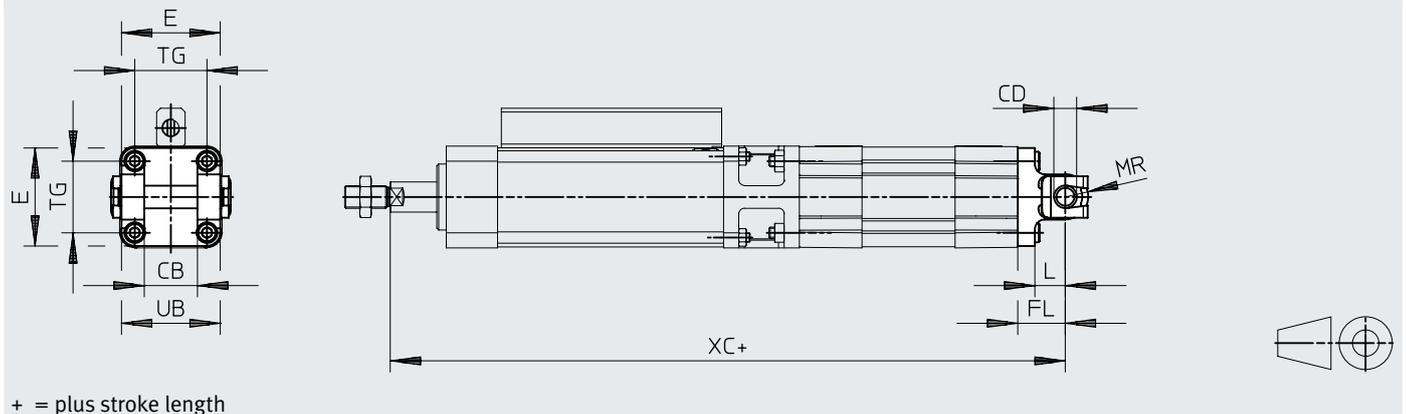
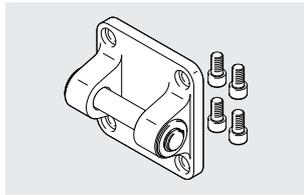
1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Accessories

### Swivel flange SNGB

For DFLLG

Material:  
Die-cast aluminium  
RoHS-compliant



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	CB	CD $\varnothing$	E	FL	L	MR	TG	UB	XC	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
160	H14	E10	$\pm 0.5$	$\pm 0.2$	35	25	140 $\pm 0.3$	h14	613	2	3445	<b>34547</b>	<b>SNGB-160</b>

1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Accessories

### Ordering data – Mounting components

Datasheets → Internet: clevis foot

Designation	For ø	Part no.	Type
<b>Clevis foot LN/LNG</b>			
	40	<b>33891</b>	<b>LNG-40</b>
	63	<b>33893</b>	<b>LNG-63</b>
	100	<b>33895</b>	<b>LNG-100</b>
	160	<b>9037</b>	<b>LN-160</b>
<b>Clevis foot LSNG</b>			
	40	<b>31741</b>	<b>LSNG-40</b>
	63	<b>31743</b>	<b>LSNG-63</b>
	100	<b>31745</b>	<b>LSNG-100</b>
	160	<b>152599</b>	<b>LSNG-160</b>

Designation	For ø	Part no.	Type
<b>Clevis foot LBG<sup>1)</sup></b>			
For DFCL			
	40	<b>31762</b>	<b>LBG-40</b>
	63	<b>31764</b>	<b>LBG-63</b>
	100	<b>31766</b>	<b>LBG-100</b>
<b>Clevis foot LSN</b>			
	40	<b>5562</b>	<b>LSN-40</b>
	63	<b>5564</b>	<b>LSN-63</b>
	100	<b>5566</b>	<b>LSN-100</b>
	160	<b>6988</b>	<b>LSN-160</b>

1) Suitable for ATEX

### Ordering data – Mounting components, corrosion-resistant

Datasheets → Internet: crlng

Designation	For ø	Part no.	Type
<b>Clevis foot CRLNG</b>			
For DFCL			
	40	<b>161841</b>	<b>CRLNG-40</b>
	63	<b>161843</b>	<b>CRLNG-63</b>
	100	<b>161845</b>	<b>CRLNG-100</b>

### Ordering data – Mounting components, high corrosion protection

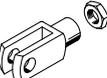
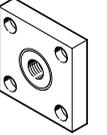
Datasheets → Internet: lbg

Designation	For ø	Part no.	Type <sup>1)</sup>
<b>Clevis foot LBG-R3</b>			
For DFCL			
	40	<b>2078792</b>	<b>LBG-40-R3</b>
	63	<b>2078795</b>	<b>LBG-63-R3</b>
	100	<b>2078799</b>	<b>LBG-100-R3</b>

1) Suitable for ATEX

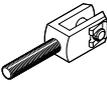
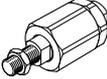
## Accessories

### Ordering data – Piston rod attachments

Designation	For ø	Part no.	Type
<b>Rod eye SGS</b>			
	40	9262	SGS-M12x1.25
	63	9263	SGS-M16x1.5
	100	9264	SGS-M20x1.5
	160	10775	SGS-M36x2
<b>Rod clevis SG<sup>1)</sup></b>			
	40	6145	SG-M12x1.25
	63	6146	SG-M16x1.5
	100	6147	SG-M20x1.5
	160	9581	SG-M36x2
<b>Coupling piece KSG<sup>1)</sup></b>			
For DFCL			
	40	32964	KSG-M12x1.25
	63	32965	KSG-M16x1.5
	100	32966	KSG-M20x1.5

1) Suitable for ATEX

Datasheets → Internet: piston rod attachment

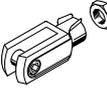
Designation	For ø	Part no.	Type
<b>Rod clevis SGA<sup>1)</sup></b>			
	40	10767	SGA-M12x1.25
	63	10768	SGA-M16x1.5
	100	10769	SGA-M20x1.5
	160	10771	SGA-M36x2
<b>Self-aligning rod coupler FK<sup>1)</sup></b>			
	40	6141	FK-M12x1.25
	63	6142	FK-M16x1.5
	100	6143	FK-M20x1.5
	160	10746	FK-M36x2

### Ordering data – Piston rod attachments, corrosion-resistant

Designation	For ø	Part no.	Type
<b>Rod eye CRSGS</b>			
For DFCL			
	40	195583	CRSGS-M12x1.25
	63	195584	CRSGS-M16x1.5
	100	195585	CRSGS-M20x1.5
<b>Self-aligning rod coupler CRFK<sup>1)</sup></b>			
For DFCL			
	40	2305779	CRFK-M12x1.25
	63	2490673	CRFK-M16x1.5
	100	2545677	CRFK-M20x1.5

1) Suitable for ATEX

Datasheets → Internet: piston rod attachment

Designation	For ø	Part no.	Type
<b>Rod clevis CRSG<sup>1)</sup></b>			
For DFCL			
	40	13570	CRSG-M12x1.25
	63	13571	CRSG-M16x1.5
	100	13572	CRSG-M20x1.5

## Accessories

### Proximity switch DADG

#### General technical data

For ø	40; 63	100	160
Size	M4		
Type of mounting	Screw-clamped		
Type of mounting	Flush		
Housing material	Steel		
Cable sheath material	TPE-U(PUR)		
Note on materials	Contains paint-wetting impairment substances RoHS-compliant		
Product weight [g]	26	30	32
Conforms to standard	EN 60947-5-2		
Certification	RCM c UL us (OL)		
CE marking (see declaration of conformity)	To EU EMC Directive		
Degree of protection	IP67		

#### Operating and environmental conditions

For ø	40; 63	100	160
Switching output	PNP		
Switching element function	N/O		
Electrical connection 1, connection type	Cable		
Electrical connection 1, connection technology	Open end		
Electrical connection 1, number of pins/wires	3		
Cable length [m]	2		
Operating voltage range DC [V]	10 ... 30		
Max. switching frequency	5000 Hz		
Max. switching frequency DC	5000 Hz		
Max. output current [mA]	100		
No-load current [mA]	≤ 10		
Voltage drop [V]	2		
Residual ripple [%]	10		
Reverse polarity protection	For all electrical connections		
Short circuit current rating	Clamped		
Rated operating distance [mm]	0.6		
Assured operating distance [mm]	0.64		
Reduction factors	Aluminium = 0.55 Stainless steel St 18/8 = 0.8 Copper = 0.5 Brass = 0.65 Steel St 37 = 1.0		
Repetition accuracy [mm]	0.01		
Ambient temperature [°C]	-25 ... +70		

#### Ordering data

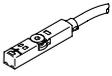
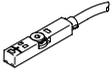
Datasheets → Internet: dadg

	For ø	Part no.	Type
	40; 63	8072857	DADG-D-F8-16/20
	100	8072858	DADG-D-F8-25
	160	8072859	DADG-D-F8-40

## Accessories

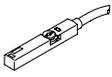
### Ordering data – Proximity switch for T-slot, magneto-resistive

Datasheets → Internet: smt

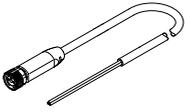
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O</b>						
	Inserted in the slot from above, flush with cylinder profile, Short design	PNP	Cable, 3-core	2.5	<b>574335</b>	<b>SMT-8M-A-PS-24V-E-2.5-OE</b>
			Plug M8x1, 3-pin	0.3	<b>574334</b>	<b>SMT-8M-A-PS-24V-E-0.3-M8D</b>
		NPN	Cable, 3-core	2.5	<b>574338</b>	<b>SMT-8M-A-NS-24V-E-2.5-OE</b>
			1x M8 plug, 3-pin	0.3	<b>574339</b>	<b>SMT-8M-A-NS-24V-E-0.3-M8D</b>
<b>N/C</b>						
	Inserted in the slot from above, flush with cylinder profile, Short design	PNP	Cable, 3-core	7.5	<b>574340</b>	<b>SMT-8M-A-PO-24V-E-7.5-OE</b>

### Ordering data – Proximity switch for T-slot, NAMUR

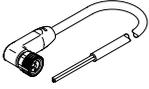
Datasheets → Internet: sdbt

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O</b>						
	Inserted in the slot from above, flush with cylinder profile	NAMUR	Cable, 2-core	5	<b>579071</b>	<b>SDBT-MS-20NL-ZN-E-5-LE-EX6</b>
				10	<b>579072</b>	<b>SDBT-MS-20NL-ZN-E-10-LE-EX6</b>

### Connecting cables NEBA, straight

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	<b>8078223</b>	<b>NEBA-M8G3-U-2.5-N-LE3</b>
				5 m	<b>8078224</b>	<b>NEBA-M8G3-U-5-N-LE3</b>

### Connecting cables NEBA, angled

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	<b>8078230</b>	<b>NEBA-M8W3-U-2.5-N-LE3</b>
				5 m	<b>8078231</b>	<b>NEBA-M8W3-U-5-N-LE3</b>

## Accessories

### Position transmitter

The position transmitter continuously senses the position of the piston.  
It has an analogue output with an output signal that is proportional to the piston position.

#### Ordering data – Position transmitter for T-slot

Datasheets → Internet: sdat

	Position measuring range	Analogue output [mA]	Type of mounting	Electrical connection	Cable length [m]	Part no.	Type
	0 ... 50	4 ... 20	Inserted in the slot from above	Plug 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>

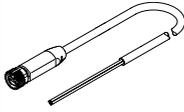
#### Ordering data – Sensor bracket for proximity switch SMT-8M and position transmitter SDAT-MHS

Datasheets → Internet: dasp

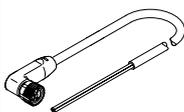
For DFLG

	For ø	Materials	Part no.	Type
	160	Rail: Anodised wrought aluminium alloy Screws: High-alloy stainless steel	<b>1553813</b>	<b>DASP-M4-160-A</b>

#### Connecting cables NEBA, straight, M8 connection

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	4	2.5 m	<b>8078227</b>	<b>NEBA-M8G4-U-2.5-N-LE4</b>
				5 m	<b>8078228</b>	<b>NEBA-M8G4-U-5-N-LE4</b>

#### Connecting cables NEBA, angled, M8 connection

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	4	2.5 m	<b>8078233</b>	<b>NEBA-M8W4-U-2.5-N-LE4</b>
				5 m	<b>8078234</b>	<b>NEBA-M8W4-U-5-N-LE4</b>

## Accessories

Ordering data – One-way flow control valves					Datasheets → Internet: grla			
	Connection		Material	Part no.	Type			
	Thread	For tubing O.D.						
for DFCL – exhaust air								
	G1/8	4	Metal design	<b>193143</b>	<b>GRLA-1/8-QS-4-D</b>			
		6		<b>193144</b>	<b>GRLA-1/8-QS-6-D</b>			
		8		<b>193145</b>	<b>GRLA-1/8-QS-8-D</b>			
	G1/4	6		<b>193146</b>	<b>GRLA-1/4-QS-6-D</b>			
		8		<b>193147</b>	<b>GRLA-1/4-QS-8-D</b>			
		10		<b>193148</b>	<b>GRLA-1/4-QS-10-D</b>			
	G3/8	6		<b>193149</b>	<b>GRLA-3/8-QS-6-D</b>			
		8		<b>193150</b>	<b>GRLA-3/8-QS-8-D</b>			
		10		<b>193151</b>	<b>GRLA-3/8-QS-10-D</b>			
	G1/2	12		<b>193152</b>	<b>GRLA-1/2-QS-12-D</b>			
	for DFLG – exhaust air							
		G3/4		22		<b>151180</b>	<b>GRLA-3/4-B</b>	