

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. Attaching a holding brake to a pneumatic cylinder allows the piston to be braked or clamped. During clamping, the round rod or 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 failure and secures the round rod or 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

Note

The holding brakes DACS-...-S are a safety device as defined in the Machinery Directive 2006/42/EC and have been tested and certified to relevant standards. Additional information is available at www.festo.com/sp \rightarrow Certificates.

The holding brakes DACS-...-S are suitable for use in ATEX zones in "static holding" mode.

Possible safety functions:

- · Holding function: retaining a round rod by clamping with frictional locking
- Emergency braking function: stopping the movement of a round rod 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.

Position sensing

- [A] Via proximity switch
- · For monitoring the switching status

Certification

- [S] Safety device
- To Machinery Directive 2006/42/EC

Corrosion protection

[R3] High corrosion protection

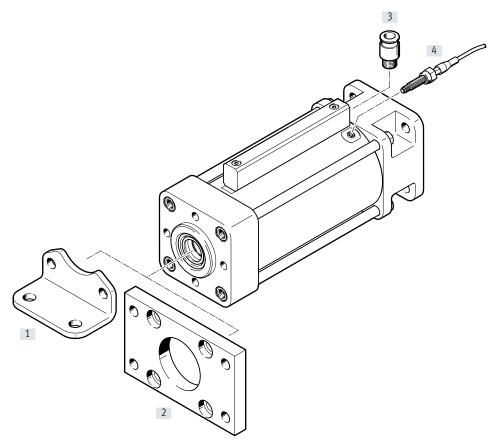
· Protects the holding brake against corrosion

Type codes

001	Series	
DACS	Holding brake	
002	Piston rod diameter [mm]	
16	16	
1.0	10	
20	20	

003	Position sensing	
A	For proximity sensor	
004	Corrosion protection	
	Standard	
R3	High corrosion protection	
005	Certification	
S	Safety component to Machinery Directive 2006/42/EC	

Peripherals overview



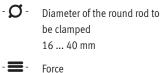
Acces	ccessories						
	Type/order code	Description	→ Page/Internet				
[1]	Foot mounting HNG/HNC/CRHNC	For bearing cap	9				
[2]	Flange mounting FNG/FNC/CRFNG	 For bearing cap Suitable for emergency stop applications/dynamic braking 	10/11				
[3]	Push-in fitting QS	For connecting tubing with standard outside diameters	qs				
[4]	Sensor kit DADG	Inductive sensor kit for status sensing of the clamping function	12				

-- Note

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

Data sheet





1350 ... 17000 N



General technical data

For round rod diameter	16	20	25	40				
Release connection	G1/8		G3/8					
Position sensing	Via proximity swit	Via proximity switch						
Type of mounting	Via female thread	Via female thread						
	With accessories							
Type of clamping with active direction	At both ends							
	Clamping via spri	ng force, released via compresse	ed air					
Mounting position Any								
For round rod diameter	16	20	25	40				
Operating pressure [bar]	3.8 8							
Min. release pressure [bar]	3.8							
Max. permissible test pressure [bar]	8							
Operating medium	Compressed air to	o ISO 8573-1:2010 [7:4:4]						
Requirements on the round rod								
Tolerance	h7 f7							
Quality	At least HRC 60 or	r hard chromium-plated (minimu	ım thickness 20 μm)					
	Surface roughnes							
Lead-in chamfer	3 mm wide 15° cł	hamfer on the end of the round r	od					
Ambient temperature ¹⁾ [°C]	-20 +80		-10 +80	-20 +80				
Corrosion resistance class CRC ²⁾								
[] Standard	1							
[R3] High corrosion protection	3							

1) Note operating range of proximity switches.

2) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions). Corrosion resistance class CRC 3 to Festo standard FN 940070

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

Safety data				
For round rod diameter	16	20	25	40
Safety function	Holding and stopping a movem	nent		
Performance Level (PL)	Stopping, holding, blocking a r	novement/category 1, Performar	nce Level c	
Certification	German Technical Control Boar	d (TÜV)		
Certificate issuing authority	TÜV CA 697			
CE marking ¹⁾ (see declaration of conformity)	To EU Machinery Directive			

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp \rightarrow Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

I

Data sheet

Weights [g]

For round rod diameter		16	20	25	40
Product weight	[g]	1483	3143	12832	34500
Forces [N]					
For round rod diameter		16	20	25	40
Static holding force		1350	3300	8200	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

is to be avoided. The holding brake is backlash-free in the clamped condition when varying loads are applied to the round rod.

not exceed the static holding force if slippage Lateral loads and bending moments on the round rod can impair the function. (Make the direction of movement.)

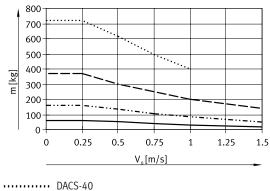
Actuation:

The holding brake may only be released when the forces on the round rod are in equisure that the load on the round rod is only in librium. Otherwise there is a risk of accidents due to the sudden movement of the round rod. Blocking off the compressed air supply at both ends (e.g. with a 5/3-way valve) does not provide any safety.

Materials				
For round rod diameter	16	20	25	40
Spring	High-alloy steel	-		
Housing	Steel			
Clamping jaws	Tool steel			
Piston	Steel			
Seals	NBR			
	TPE-U(PU)			
Note on materials	RoHS-compliant			

Data sheet

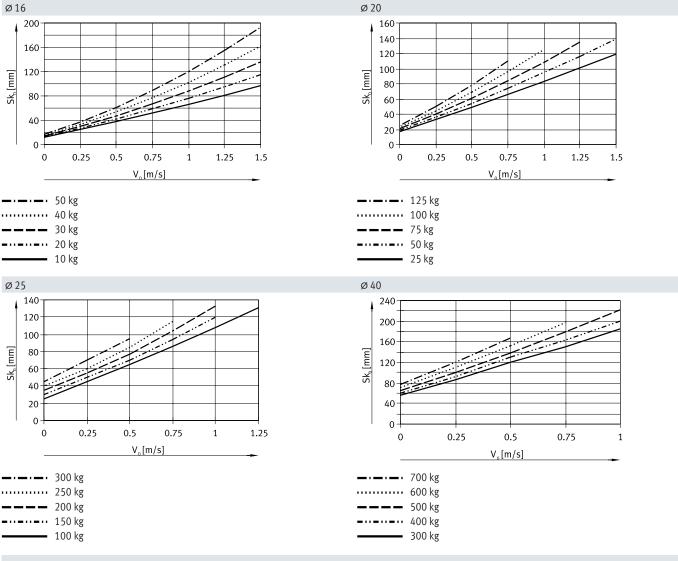
Load mass m as a function of drive speed $v_{\rm 0}$



— — — DACS-25

DACS-16

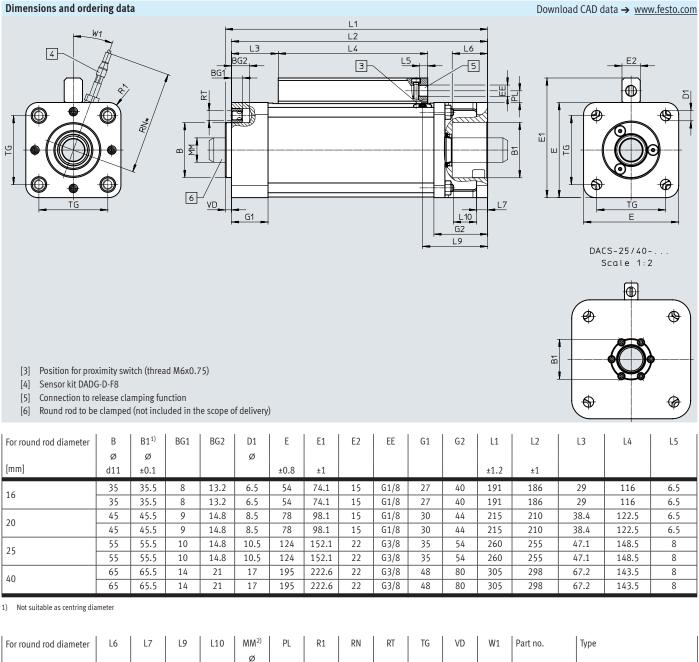
Stopping distance sk_0 as a function of drive speed v_0 ø 16



- 🖡 - 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. Additional information is available at www.festo.com/sp \rightarrow User documentation.

Data sheet



[mm]	+0.3				Ø					±0.2	±0.2			
16	22	8	49.4	17 ₊₁	16	9.6	R8	98	M6	38	5	27°	8072770	DACS-16-A-S
10	22	8	49.4	17,1	16	9.6	R8	98	M6	38	5	27°	8072774	DACS-16-A-R3-S
20	29	9	53.6	18+1	20	9.6	R10	100	M 8	56.5	5	20°	8072771	DACS-20-A-S
20	29	9	53.6	18+1	20	9.6	R10	100	M 8	56.5	5	20°	8072775	DACS-20-A-R3-S
25	38.5	12	65.3	20+1.5	25	13.6	R15	120	M10	89	5	20°	8072772	DACS-25-A-S
25	38.5	12	65.3	20+1.5	25	13.6	R15	120	M10	89	5	20°	8072776	DACS-25-A-R3-S
40	61.5	16	95.5	34 _{+1.5}	40	13.6	R30	155	M16	140	7	20°	8072773	DACS-40-A-S
40	61.5	16	95.5	34+1.5	40	13.6	R30	155	M16	140	7	20°	8072777	DACS-40-A-R3-S

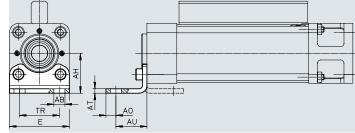
2) Round rod to be clamped: observe specifications (e.g. diameters, tolerances) in data sheet, p. 5

Accessories

Foot mounting HNG/HNC/CRHNC



Material: HNG/HNC: galvanised steel CRHNC: high-alloy steel Free of copper and PTFE



Note

The foot mounting can also be fitted on the side of the end cap. Separate screws are required for this.

Dimensions and ordering data

Dimensions and	oruering uata						
For diameter	AB	AH	AO	AT	AU	E	TR
	Ø						
[mm]							
16	10	36	9	4	28	54	36
20	10	50	12.5	5	32	75	50
25	14.5	71	17.5	6	41	110	75
40	18.5	115	20	10	60	169	115

For diameter	Basic type				Corrosion-re	sistant		
	CRC ¹⁾	Weight	Part no.	Type ²⁾	CRC ¹⁾	Weight	Part no.	Type ²⁾
[mm]		[g]				[g]		
16	2	193	174370	HNC-40	4	188	176938	CRHNC-40
20	2	436	174372	HNC-63	4	424	176940	CRHNC-63
25	2	1009	174374	HNC-100	4	990	176942	CRHNC-100
40	2	3931	34476	HNG-160				

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

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment. Corrosion resistance class CRC 4 to Festo standard FN 940070

Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded by means of special testing (→ also FN 940082), using appropriate media.
2) Suitable for ATEX areas

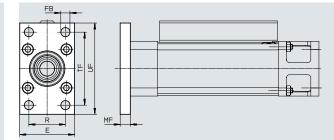
Accessories

Flange mounting FNC/CRFNG

Suitable for emergency stop applications/ dynamic braking



Material: FNC: galvanised steel CRFNG: high-alloy steel Free of copper and PTFE RoHS-compliant



Dimensions and ordering data

For diameter	E	FB Ø	MF	R	TF	UF
[mm]		-				
16	54	9	10	36	72	90
16 20	54 75	9 9		36 50	72 100	90 120

For diameter	Basic type				Corrosion-res	sistant		
	CRC ¹⁾	Weight	Part no.	Type ²⁾	CRC ¹⁾	Weight	Part no.	Type ²⁾
[mm]		[g]				[g]		
16	1	291	174377	FNC-40	4	291	161847	CRFNG-40
20	1	679	174379	FNC-63	4	680	161849	CRFNG-63

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions). Corrosion resistance class CRC 4 to Festo standard FN 940070

Particularly high corrosion stress. Outdoor exposure under extreme corrosive conditions. Parts exposed to aggressive media, e.g. in the chemical or food industries. Such applications may need to be safeguarded by means of special testing (
adjusted also FN 940082), using appropriate media.

2) Suitable for ATEX areas

Accessories

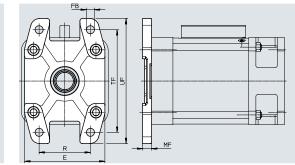
Flange mounting FNG

Suitable for emergency stop applications/ dynamic braking



Material:

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



Dimensions and ordering data

Dimensions										
For	E	FB	MF	R	TF	UF	CRC ¹⁾	Weight	Part no.	Type ²⁾
diameter		ø								
[mm]								[g]		
40	180	18	20	115	230	280	1	3550	34478	FNG-160

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry internal application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions). 2) Suitable for ATEX areas

Accessories

Proximity switch DADG

General technical data						
For diameter	16; 20	25	40			
Size	M4					
Type of mounting	Screwed on					
Type of installation	Flush					
Housing material	Steel					
Cable sheath material	TPE-U(PUR)					
Note on materials	Contains paint-wetting impairment substances					
Note on matchats	RoHS-compliant					
Product weight [g]	26	30	32			
Conforms to standard	EN 60947-5-2					
Certification	RCM compliance mark					
	c UL us (OL)					
CE marking (see declaration of conformity)	To EU EMC Directive					
Degree of protection	IP67					
Operating and environmental conditions						
For diameter	16; 20	25	40			
Switching output	PNP					
Switching element function	N/O contact					
Electrical connection 1,	Cable					
connection type						
Electrical connection 1,	Open end					
connection technology						
Electrical connection 1,	3					
number of pins/wires						
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 supply current [mA]	≤ 10					
Voltage drop [V]	2					
Residual ripple [%]	10					
Reverse polarity protection	For all electrical connections					
Short circuit current rating	Pulsed					
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	Data sheets → Internet: dadg		
	For diameter	Part no.	Туре
	16; 20	8072857	DADG-D-F8-16/20
Talla	25	8072858	DADG-D-F8-25
	40	8072859	DADG-D-F8-40

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