Guided drives DGRF-C, Clean Design

FESTO

Guided drives DGRF-C, Clean Design

Features and Product range overview

At a glance

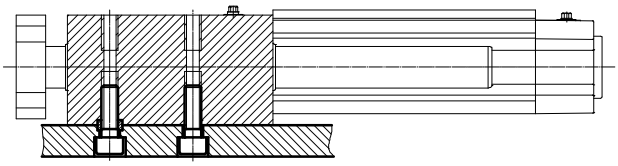
- The guided drive is used wherever hygiene, ease of cleaning and resistance are important, predominantly in dry and splash zones in the food and packaging industry.
- Corrosion-resistant in harsh environmental conditions
- Easy-to-clean design
- NSF-H1 compliant lubrication
- Resistant to conventional cleaning agents
- For hygiene reasons, the threads on the end caps should be sealed with suitable blanking screws
- With a dry-running seal (A3), the cylinder will continue to function reliably even if the lubricant has been washed away due to frequent cleaning.

Areas of application:

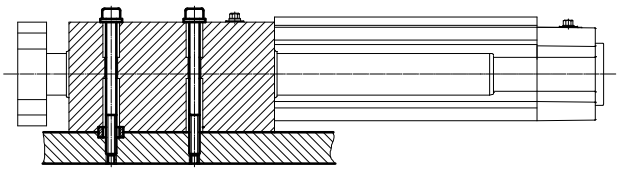
- Bottling systems in the beverage industry
  - Labelling and palletising machines
- Milk processing
  - Filling ice cream and yoghurt containers, etc.
- Meat processing
- Confectionery production
- Bakery production
- Packaging industry
  - Food, pharmaceuticals, cosmetics, chemicals, beverages and tobacco

Mounting options

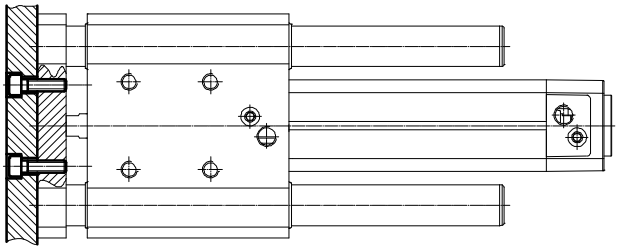
Underneath



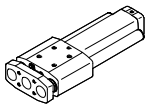
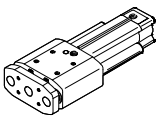
On top



On the yoke plate



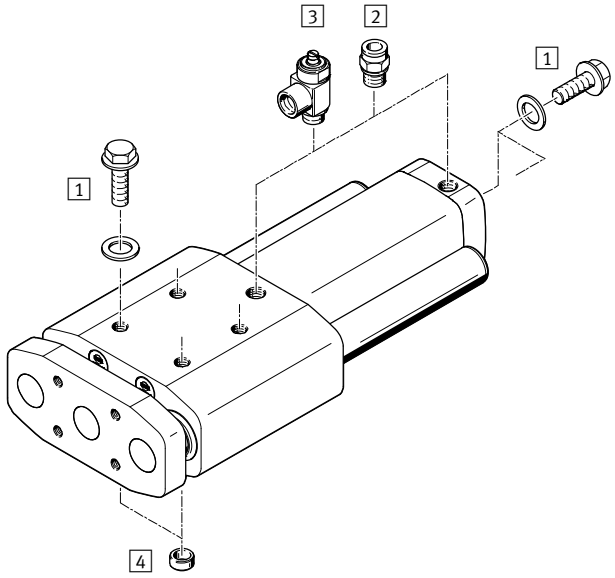
Product range overview

Function	Type	Piston ∅	Stroke	Cushioning			Position sensing	Mounting rail	Unlubricated operation
				P	PPV	PPS	A	R	A3
Double-acting	**DGRF-C-GF**								
		20, 25	10 … 400	■	–	–	–	–	■
		32	10 … 400	■	■	■	■	■	■
		40, 50, 63	10 … 400	–	■	■	■	■	■

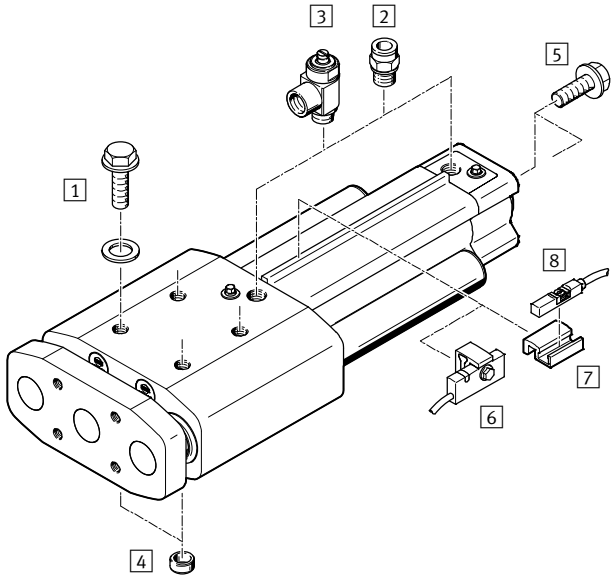
Guided drives DGRF-C, Clean Design

Peripherals overview

Piston ∅ 20, 25



Piston ∅ 32, 40, 50, 63

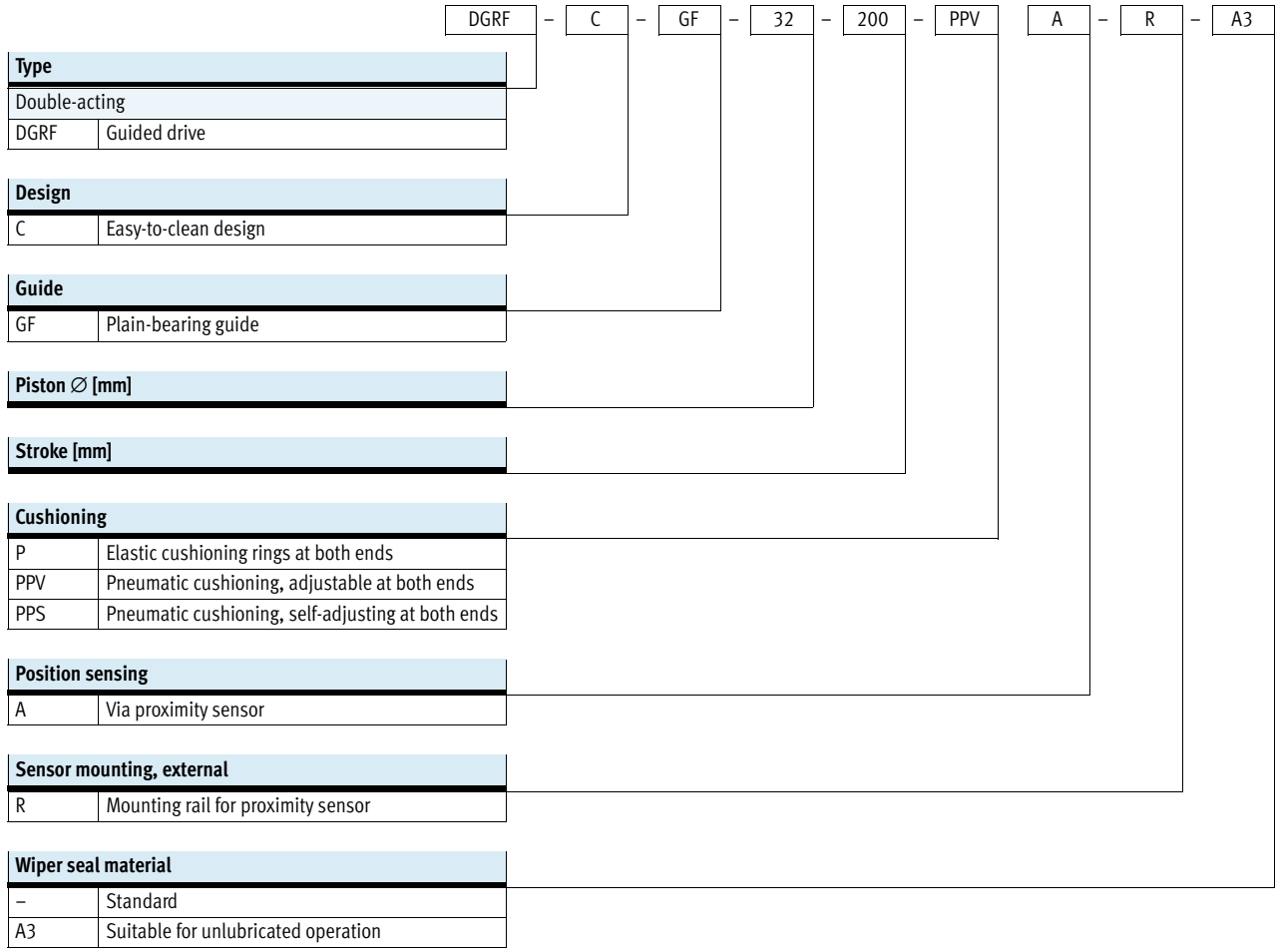


Accessories						
		Description	DGRF-...-			➔ Page/ Internet
			P	PPV	PPS	
1	Plug screw DAMD	• For sealing unused mounting threads • The cover plate is included with the screw • The screws are not included with the drive	■	■	■	15
2	Push-in fitting NPQH/CRQS/CRQSL/NPQP	For connecting overall toleranced tubing	■	■	■	13
3	One-way flow control valve CRGRLA/VFOH	For regulating speed	■	■	■	14
4	Centring sleeve ZBH	• For centring the guided drive • Two centring sleeves are included in the scope of delivery	■	■	■	15
5	Plug screw DAMD	• For sealing unused mounting threads • The screws are not included with the drive	■	■	■	15
6	Proximity sensor SMT-C1	• For sensing the piston rod position • Proximity sensor is mounted on the sensor mounting rail	■	■	■	12
7	Mounting kit SMB-8-C	• For mounting the proximity sensor CRSMT-8M • Mounting kit is mounted on the sensor mounting rail	–	■[1)]	■	12
8	Proximity sensor CRSMT-8M	• For sensing the piston rod position	–	■[1)]	■	12

1) Possible when ordering cylinders from 02/2014 (series E2).

Guided drives DGRF-C, Clean Design

Type codes



Type	
Double-acting	
DGRF	Guided drive

Design	
C	Easy-to-clean design

Guide	
GF	Plain-bearing guide

Piston ∅ [mm]

Stroke [mm]

Cushioning	
P	Elastic cushioning rings at both ends
PPV	Pneumatic cushioning, adjustable at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends

Position sensing	
A	Via proximity sensor

Sensor mounting, external	
R	Mounting rail for proximity sensor

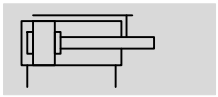
Wiper seal material	
–	Standard
A3	Suitable for unlubricated operation

Guided drives DGRF-C, Clean Design

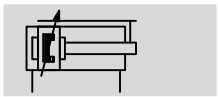
Technical data

Function

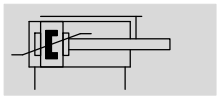
P cushioning



PPV cushioning



PPS cushioning



Diameter
20 ... 63 mm

Stroke length
10 ... 400 mm

www.festo.com

General technical data							
Piston ∅		20	25	32	40	50	63
Pneumatic connection		M5	M5	G⅛	G¼	G¼	G⅜
Mode of operation		Double-acting					
Design		Guide					
		Guide rods with yoke					
Guide		Plain-bearing guide					
Cushioning	P	Elastic cushioning rings at both ends			–		
	PPV	–		Pneumatic cushioning, adjustable at both ends			
	PPS	–		Pneumatic cushioning, self-adjusting at both ends			
Cushioning length	[mm]	–		20	20	22	22
Position sensing		–		Via proximity sensor			
Type of mounting		Via through-hole					
		Via female thread					
Mounting position		Any					
Torsional backlash[1]	[°]	0.13	0.11	0.10	0.09	0.07	0.06

1) Retracted state, without load

Operating and environmental conditions								
Piston ∅		20	25	32		40	50	63
Variant				P	PPV/PPS			
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]	2.5 ... 10		2 ... 10	2 ... 12	2 ... 12		1.5 ... 12
A3	[bar]	2 ... 10			2 ... 12	1.5 ... 12		
Ambient temperature	[°C]	–20 ... +80						
Suitable for use in the food industry[1]		As per manufacturer's declaration						
Corrosion resistance class CRC[2]		3						

1) Additional information www.festo.com/sp ➔ User documentation.
2) CRC3: Corrosion resistance class to Festo standard 940 070
Components with heavy corrosion exposure. Externally visible components in direct contact with normal industrial atmosphere or media such as solvents and cleaning agents, where the surface requirement is predominantly functional.

Guided drives DGRF-C, Clean Design

Technical data

Forces [N] and impact energy [J]						
Piston ∅	20	25	32	40	50	63
Theoretical force at 6 bar, advancing	189	295	483	754	1178	1870
Theoretical force at 6 bar, retracting	141	247	415	633	990	1682
Max. impact energy in the end positions with P cushioning	0.2	0.3	0.4	–	–	–

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

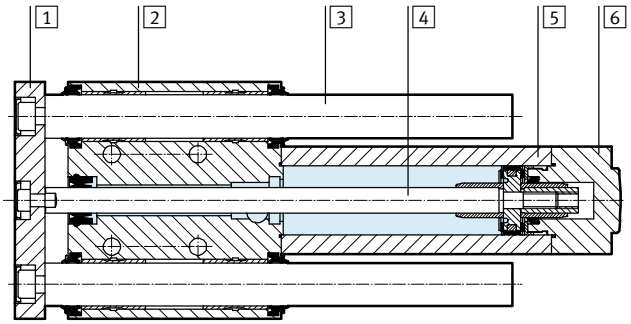
- Note

These specifications represent the maximum values that can be achieved. Note the maximum permissible impact energy.

Weight [g]							
Piston ∅	20	25	32		40	50	63
Variant			P	PPV/PPS			
Product weight with 0 mm stroke	885	1199	2090	2305	3000	4800	6405
Additional weight per 10 mm stroke	52	55	80	78	90	140	143
Moving mass with 0 mm stroke	417	486	902	904	1065	1792	2114
Moving mass per 10 mm stroke	38	38	58	58	65	102	102

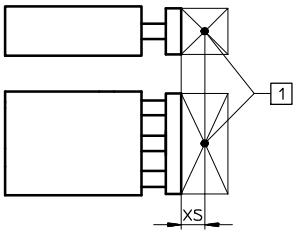
Materials

Sectional view



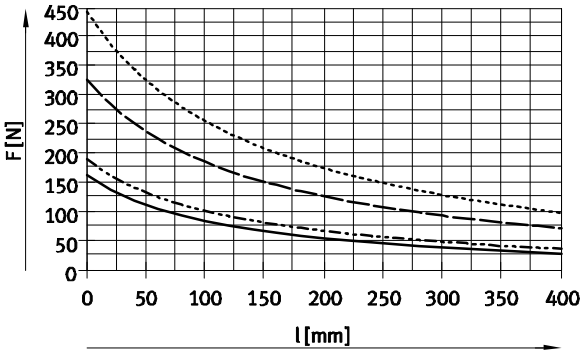
Guided drive		
1	Yoke plate	Anodised wrought aluminium alloy
2	Housing	Anodised wrought aluminium alloy
3	Guide rod	High-alloy stainless steel
4	Piston rod	High-alloy stainless steel
5	Cylinder barrel	Anodised wrought aluminium alloy
6	Cover	
	DGRF-...-20/-25/-32-P	Anodised wrought aluminium alloy
	DGRF-...-32-PPV/-PPS	Die-cast aluminium, coated
	DGRF-...-40/-50/-63	Die-cast aluminium, coated
–	Seal	
	DGRF-...	TPE-U (PUR) media sealing (modified for resistance to hydrolysis and cleaning agents)
	DGRF-...-A3	PE
	Note on materials	RoHS-compliant

Max. payload F as a function of stroke l



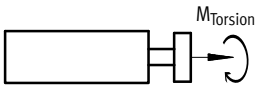
1 Centre of gravity of load

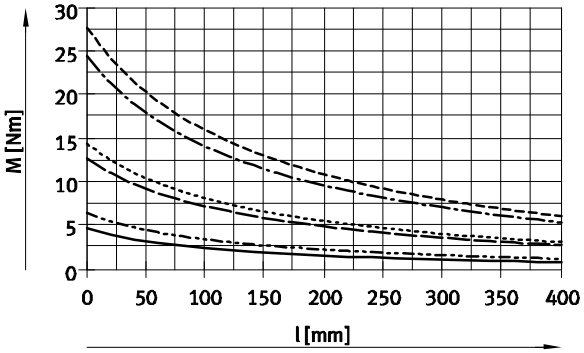
- Load data are based on a distance from the centre of gravity of XS = 50 mm
- Load data for larger distances on request



— ∅ 20
– · – · – ∅ 25
— — — ∅ 32/40
· · · · · · · ∅ 50/63

Max. torque load M as a function of stroke l

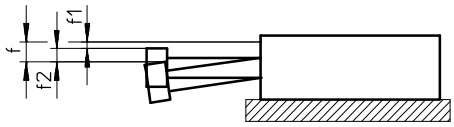




— ∅ 20
– · – · – ∅ 25
— — — ∅ 32
· · · · · · · ∅ 40
— · — · — ∅ 50
– – – – – – ∅ 63

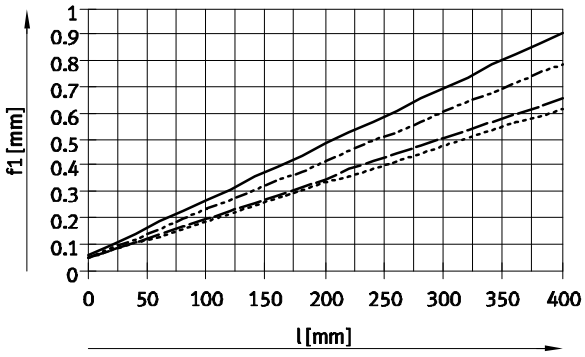
Deflection of piston rod

Deflection f1 due to bearing clearance as a function of stroke l



f = f1 + f2
f = Total deflection of piston rod
f1 = Deflection due to bearing clearance
f2 = Deflection due to lateral force

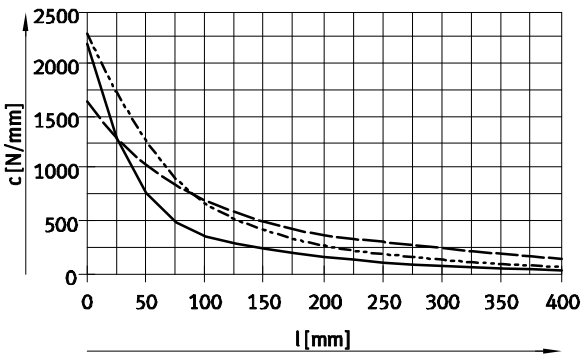
Deflection f1,
due to bearing clearance as a function of stroke l



∅ 20
∅ 25
∅ 32/40
∅ 50/63

Deflection f2,
due to useful load F and rigidity c as a function of stroke l

$$f2 = \frac{F}{c}$$

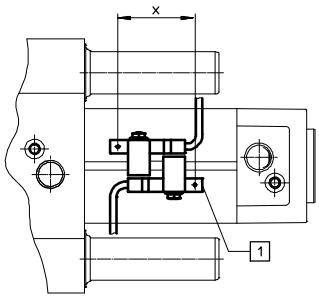


∅ 20/25
∅ 32/40
∅ 50/63

End-position sensing

With proximity sensor SMT-C1

A minimum stroke is required to be able to sense both end positions at the cylinder.

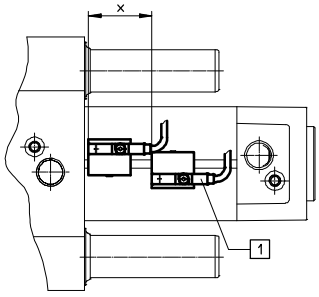


1 Position of the proximity sensor within the housing.

Piston ∅		32	40	50	63
Minimum stroke x	[mm]	35	35	35	30

With mounting kit SMB-8-C and proximity sensor CRSMT-8M

A minimum stroke is required to be able to sense both end positions at the cylinder.



1 Position of the proximity sensor within the housing.

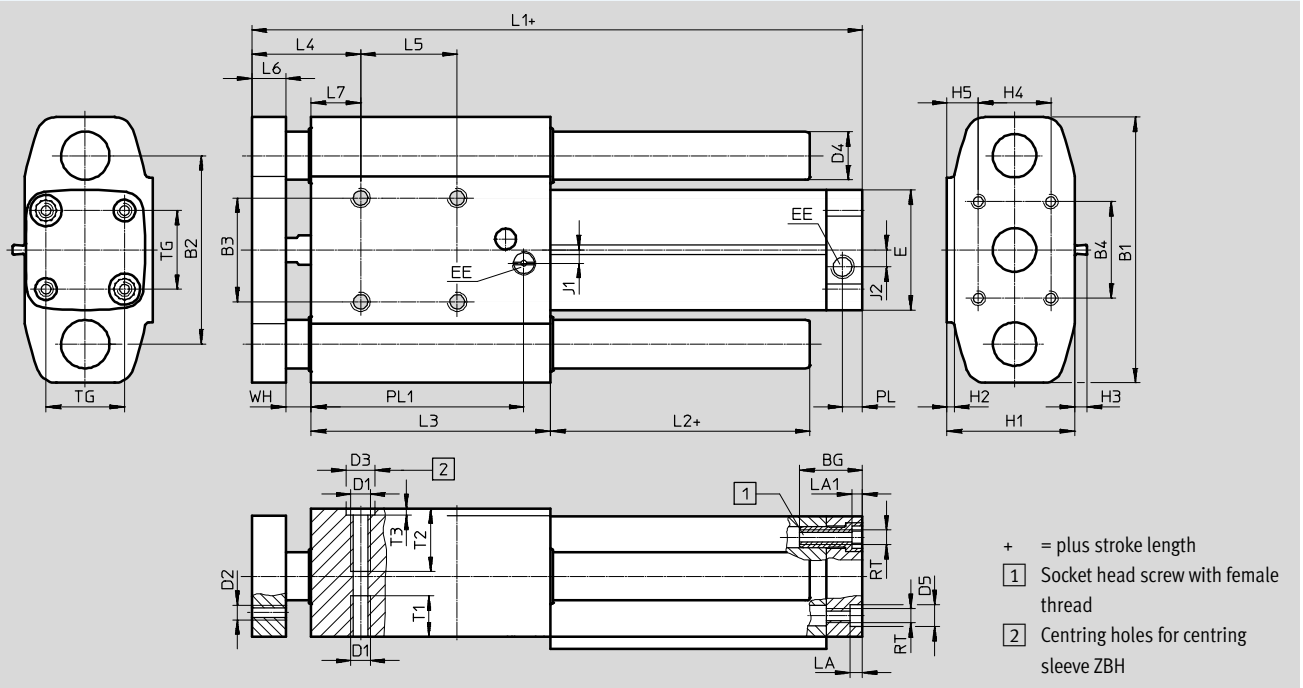
Piston ∅		32	40	50	63
Minimum stroke x	[mm]	30	30	30	30

Guided drives DGRF-C, Clean Design

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

DGRF-...-P – elastic cushioning rings at both ends



∅ [mm]	BG	B1	B2	B3[2]	B4	D1	D2	D3[3] ∅ H7	D4 ∅	D5 ∅ F9	E	EE
20	19.5	83	58	30	30	M6	M5	9	16	9	37	M5
25	19.5	95	68	35	40	M6	M6	9	16	9	42	M5
32	26	110	78	43	40	M8	M6	12	20	9	50	G1⁄8

∅ [mm]	H1	H2	H3[1]	H4	H5	J1	J2	L1	L2	L3	L4	L5
20	39	2	–	20	10.5	0	0	115 +1.4/–0.8	7	68	40 +1/–0.9	30
25	44	2	–	20	13	0	0	126 +1.4/–0.8	7	77	40+1/–0.9	40
32	53	3	5	30	13	5.5	7	152.8 ±1.1	7.4	99	45+0.9/–1	40

∅ [mm]	L6	L7	LA	LA1	PL	PL1	RT	T1	T2	T3	TG	WH
20	12	18	4.9	4.6	6	62	M5	13	20	2.1	22	10 +0.5/–0.7
25	12	18	4.9	4.6	6	71	M5	13	25	2.1	26	10 +0.5/–0.7
32	14	20.4	5.1	4.6	8.2	88	M6	17	26	2.6	32.5	10.7 +0.3/–0.9

1) Only in combination with sensor mounting rail (DGRF-32-...-R)
2) Tolerance between centring holes ±0.02 mm
3) Two centring sleeves included in the scope of delivery

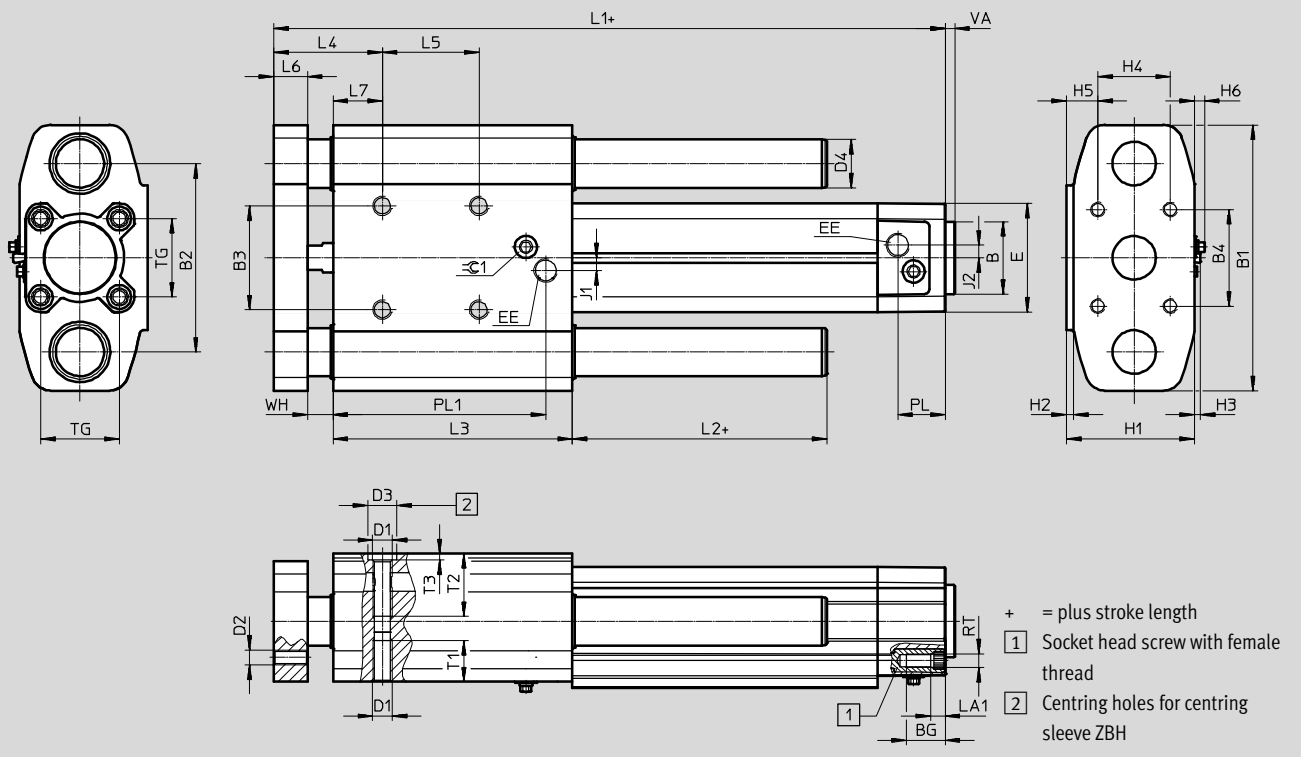
Guided drives DGRF-C, Clean Design

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

DGRF-...-PPV – pneumatic cushioning, adjustable at both ends

DGRF-...-PPS – pneumatic cushioning, self-adjusting at both ends



∅ [mm]	B ∅ d11	BG	B1	B2	B3[2]	B4	D1	D2	D3[3] ∅ H7	D4 ∅	E	EE	H1	H2
32	30	16	110	78	43	40	M8	M6	12	20	45	G1/8	53	3
40	35	16	120	88	51	50	M8	M6	12	20	54	G1/4	61	3
50	40	17	148	110	64	60	M8	M8	12	25	64	G1/4	73	3
63	45	17	162	125	80	80	M10	M8	12	25	75	G3/8	84	3

∅ [mm]	H3[1]	H4	H5	H6	J1	J2	L1	L2	L3	L4	L5
32	2.5	30	13	5.6	5.3	5.3	177.6 +1.9/–1.2	7.4	99	45 +1.5/–1.1	40
40	3	30	17	5.6	4	4	183.5 +1.9/–1.3	7.5	99	45 +1.5/–1.1	40
50	2	40	18	7.5	5.5	5.5	193.5 +1.7/–1.3	7.7	105	50 +1.3/–1.2	40
63	2	40	23.5	9.3	6.3	6.3	207.3 +1.7/–1.3	7.5	105	50 +1.3/–1.2	40

∅ [mm]	L6	L7	LA1	PL	PL1	RT	T1	T2	T3	TG	VA	WH	⌯ 1
32	14	20.4	5.6	19.5	88	M6	17	26	2.6	32.5	4	10.6 +1/–0.9	4
40	14	20.5	5.6	22.5	83	M6	17	26	2.6	38	4	10.5 ±1/–1	4
50	16	22.7	6.1	22.5	89	M8	17	20	2.6	46.5	4	11.3 +0.8/–1	4
63	20	18.5	6.1	27.5	88	M8	17	24	2.6	56.5	4	11.5 +0.8/–1	4

1) Only in combination with sensor mounting rail (DGRF-...-R)
2) Tolerance between centring holes ±0.02 mm
3) Two centring sleeves included in the scope of delivery

Guided drives DGRF-C, Clean Design

Ordering data – Modular products

Ordering table

Size		20	25	32	40	50	63	Condi-tions	Code		Entry code
M	Module No.	**562216**	**562217**	**563366**	**562219**	**562220**	**562221**				
	Function	Guided drive							**DGRF**		DGRF
	Product version	Easy-to-clean design							**-C**		-C
	Guide	Plain-bearing guide							**-GF**		-GF
	Piston ∅ [mm]	20	25	32	40	50	63		**-...**		
	Stroke [mm]	10 ... 400							**-...**		
	Cushioning	Elastic cushioning rings at both ends							**-P**		
				Pneumatic cushioning, adjustable at both ends					**-PPV**		
				Pneumatic cushioning, self-adjusting at both ends					**-PPS**		
	Position sensing			Via proximity sensor				1	**A**		
	Sensor mounting, external			Mounting rail for proximity sensor				1	**-R**		
O	Wiper seal variant	Standard									
		For unlubricated operation							**-A3**		

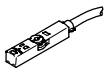
1 **A, R** Always included with piston ∅ 32 ... 63.

Transfer order code

	DGRF	–	**C**	–	**GF**	–		–		–			–		–			

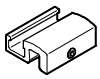
With DGRF-...-PPV[1)]/-PPS permissible:

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						
	Insertable in the slot from above, flush with the mounting kit	PNP	Cable, 3-wire	5.0	**574380**	**CRSMT-8M-PS-24V-K-5,0-OE**
			Cable, 3-wire	10.0	**574381**	**CRSMT-8M-PS-24V-K-10,0-OE**
			Plug M8x1, 3-pin	0.3	**574383**	**CRSMT-8M-PS-24V-K-0,3-M8D**
			Plug M12x1, 3-pin	0.3	**574382**	**CRSMT-8M-PS-24V-K-0,3-M12**

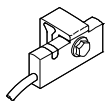
1) Possible when ordering cylinders from 02/2014 (series E2).

Ordering data – Mounting kit

	Description	Part No.	Type
	For mounting the proximity sensor CRSMT-8M on the mounting rail	**1806790**	**SMB-8-C**

With DGRF-...-P/-PPV/-PPS permissible:

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						
	Is mounted on the mounting rail	PNP	Cable, 3-wire	5.0	**571339**	**SMT-C1-PS-24V-K-5,0-OE**
			Plug M8x1, 3-pin	0.3	**571342**	**SMT-C1-PS-24V-K-0,3-M8D**
			Plug M12x1, 3-pin	0.3	**571341**	**SMT-C1-PS-24V-K-0,3-M12**

Ordering data – Connecting cables for SMT-C1-... — Technical data ➔ Internet: nebu

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541334**	**NEBU-M8G3-K-5-LE3**
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541363**	**NEBU-M12G5-K-2.5-LE3**
			5	**541364**	**NEBU-M12G5-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541341**	**NEBU-M8W3-K-5-LE3**
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	**541367**	**NEBU-M12W5-K-2.5-LE3**
			5	**541370**	**NEBU-M12W5-K-5-LE3**

Ordering data – Push-in fittings Technical data ➔ Internet: quick star

	Connection		Material	Weight	Part No.	Type	PU[2]
	Thread	Tubing O.D. ∅		[g]			
With external hexagon							
	M5	4	High-alloy stainless steel	4.2	**1857681**	**NPCK-C-D-M5-K4**	1
	G1⁄8	6		14.1	**1366257**	**NPCK-C-D-G18-K6**	
		8		13.4	**1490383**	**NPCK-C-D-G18-K8**	
	G1⁄4	8		28.85	**1691701**	**NPCK-C-D-G14-K8**	
		10		32.9	**1489336**	**NPCK-C-D-G14-K10**	
	G3⁄8	10		51.15	**1489614**	**NPCK-C-D-G38-K10**	
	M5	4	Nickel- and chrome-plated brass	5.8	**578334**	**NPQH-D-M5-Q4-P10**	10
		6		11.2	**578335**	**NPQH-D-M5-Q6-P10**	
	G1⁄8	4		6.3	**578338**	**NPQH-D-G18-Q4-P10**	
		6		9.2	**578339**	**NPQH-D-G18-Q6-P10**	
		8		11.9	**578340**	**NPQH-D-G18-Q8-P10**	
	G1⁄4	6		13.1	**578341**	**NPQH-D-G14-Q6-P10**	
		8		14.1	**578342**	**NPQH-D-G14-Q8-P10**	
		10		17.5	**578343**	**NPQH-D-G14-Q10-P10**	
	G3⁄8	8		20.6	**578345**	**NPQH-D-G38-Q8-P10**	
		10		22.7	**578346**	**NPQH-D-G38-Q10-P10**	
		12		29.8	**578347**	**NPQH-D-G38-Q12-P10**	
	M5	4	Stainless steel	6.0	**162860**	**CRQS-M5-4[1]**	1
		6		8.4	**162861**	**CRQS-M5-6[1]**	
	R1⁄8	4		8.7	**132643**	**CRQS-1⁄8-4**	
		6		9.9	**162862**	**CRQS-1⁄8-6**	
		8		12	**162863**	**CRQS-1⁄8-8**	
	R1⁄4	6		18	**132644**	**CRQS-1⁄4-6**	
		8		18	**162864**	**CRQS-1⁄4-8**	
		10		22	**162865**	**CRQS-1⁄4-10**	
	R3⁄8	10		29	**162866**	**CRQS-3⁄8-10**	
		12		37	**162867**	**CRQS-3⁄8-12**	
	R1⁄8	4	Polypropylene	2.5	**133041**	**NPQP-D-R18-Q4-FD-P10**	10
		6		3.0	**133043**	**NPQP-D-R18-Q6-FD-P10**	
		8		4.5	**133045**	**NPQP-D-R18-Q8-FD-P10**	
	R1⁄4	6		3.5	**133044**	**NPQP-D-R14-Q6-FD-P10**	
		8		4.5	**133046**	**NPQP-D-R14-Q8-FD-P10**	
		10		7.0	**133047**	**NPQP-D-R14-Q10-FD-P10**	
	R3⁄8	10		8.0	**133048**	**NPQP-D-R38-Q10-FD-P10**	
		12		12.0	**133049**	**NPQP-D-R38-Q12-FD-P10**	
With internal hexagon							
	M5	4	Nickel- and chrome-plated brass	4.5	**578370**	**NPQH-DK-M5-Q4-P10**	10
		6		8.8	**578371**	**NPQH-DK-M5-Q6-P10**	
	G1⁄8	4		6.2	**578374**	**NPQH-DK-G18-Q4-P10**	
		6		9.1	**578375**	**NPQH-DK-G18-Q6-P10**	
		8		12.8	**578376**	**NPQH-DK-G18-Q8-P10**	
	G1⁄4	8		14.4	**578377**	**NPQH-DK-G14-Q8-P10**	
		10		18.6	**578378**	**NPQH-DK-G14-Q10-P10**	
	G3⁄8	12		28.2	**578379**	**NPQH-DK-G38-Q12-P10**	
	M5	4	Stainless steel	5	**132328**	**CRQS-M5-4-I[1]**	1
		6		7.7	**132329**	**CRQS-M5-6-I[1]**	
	R1⁄8	6		8.4	**132330**	**CRQS-1⁄8-6-I**	
		8		12	**132331**	**CRQS-1⁄8-8-I**	
	R1⁄4	8		15	**132332**	**CRQS-1⁄4-8-I**	
		10		21	**132333**	**CRQS-1⁄4-10-I**	
	R3⁄8	10		24	**132334**	**CRQS-3⁄8-10-I**	

1) With sealing ring
2) Packaging unit quantity

Ordering data – Push-in L-fittings — Technical data ➔ Internet: quick star

	Connection		Material	Weight [g]	Part No.	Type	PU[2]
	Thread	Tubing O.D. ∅					
With external hexagon							
	M5	4	Nickel- and chrome-plated brass	8.9	**578276**	**NPQH-L-M5-Q4-P10**	10
		6		12.2	**578277**	**NPQH-L-M5-Q6-P10**	
	G1/8	4		16.3	**578280**	**NPQH-L-G18-Q4-P10**	
		6		19.3	**578281**	**NPQH-L-G18-Q6-P10**	
		8		22.2	**578282**	**NPQH-L-G18-Q8-P10**	
	G1/4	6		22.4	**578283**	**NPQH-L-G14-Q6-P10**	
		8		25.8	**578284**	**NPQH-L-G14-Q8-P10**	
		10		33.1	**578285**	**NPQH-L-G14-Q10-P10**	
		12		59.6	**578286**	**NPQH-L-G14-Q12-P10**	
	G3/8	8		36.7	**578287**	**NPQH-L-G38-Q8-P10**	
		10		38.2	**578288**	**NPQH-L-G38-Q10-P10**	
		12		58.2	**578289**	**NPQH-L-G38-Q12-P10**	
	M5	4	Stainless steel	12	**162870**	**CRQSL-M5-4[1]**	1
		6		18	**162871**	**CRQSL-M5-6[1]**	
	R1/8	4		14	**132598**	**CRQSL-1/8-4**	
		6		19	**162872**	**CRQSL-1/8-6**	
		8		26	**162873**	**CRQSL-1/8-8**	
	R1/4	6		26	**132599**	**CRQSL-1/4-6**	
		8		30	**162874**	**CRQSL-1/4-8**	
		10		42	**162875**	**CRQSL-1/4-10**	
	R3/8	10		49	**162876**	**CRQSL-3/8-10**	
		12		65	**162877**	**CRQSL-3/8-12**	
	R1/8	4	Polypropylene	4.0	**133051**	**NPQP-L-R18-Q4-FD-P10**	10
		6		5.0	**133053**	**NPQP-L-R18-Q6-FD-P10**	
		8		7.0	**133055**	**NPQP-L-R18-Q8-FD-P10**	
	R1/4	6		5.5	**133054**	**NPQP-L-R14-Q6-FD-P10**	
		8		7.5	**133056**	**NPQP-L-R14-Q8-FD-P10**	
		10		12	**133057**	**NPQP-L-R14-Q10-FD-P10**	
	R3/8	10		13	**133058**	**NPQP-L-R38-Q10-FD-P10**	
		12		18	**133059**	**NPQP-L-R38-Q12-FD-P10**	

1) With sealing ring
2) Packaging unit quantity

Ordering data – One-way flow control valves — Technical data ➔ Internet: crgrla

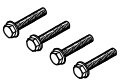
	Connection		Material	Part No.	Type	PU[1]
	Thread	For push-in fitting				
	M5	CRQS/CRQSL/CRQST, Quick Star	Electropolished stainless steel casting	**161403**	**CRGRLA-M5-B**	1
	G1/8			**161404**	**CRGRLA-1/8-B**	
	G1/4			**161405**	**CRGRLA-1/4-B**	
	G3/8			**161406**	**CRGRLA-3/8-B**	
	G1/8	Push-in connector is integrated	Nickel-plated brass	**578797**	**VFOH-LE-A-G18-Q4**	1
				578798	**VFOH-LE-A-G18-Q6**	
				578799	**VFOH-LE-A-G18-Q8**	
	G1/4			**578800**	**VFOH-LE-A-G14-Q8**	
				578801	**VFOH-LE-A-G14-Q10**	

1) Packaging unit quantity

Ordering data – Plastic tubing, standard O.D. Technical data ➔ Internet: tubing

		Type
	Approved for use in the food industry and resistant to hydrolysis	**PUN-H**
	Good resistance to chemicals and hydrolysis	**PLN**
	Pneumatic tubing with resistance to high temperatures and chemicals	**PFAN**

Ordering data – Blanking screws, corrosion-resistant

	For ∅	Description	Part No.	Type	PU[1]
For mounting thread on the guide					
	20, 25	With cover plate	**543715**	**DAMD-P-M6-12-R1**	4
	32, 40, 50		**543716**	**DAMD-P-M8-16-R1**	
	63		**543717**	**DAMD-P-M10-16-R1**	
For mounting thread on the end cap					
	20, 25	With cover plate	**543714**	**DAMD-P-M5-10-R1**	4
	32[2]		**543715**	**DAMD-P-M6-12-R1**	
	32[3], 40	–	**1355016**	**DAMD-PS-M6-12-R1**	
	50, 63		**650121**	**DAMD-PS-M8-16-R1**	

1) Packaging unit quantity
2) For cylinder with P cushioning
3) For cylinder with PPV/PPS cushioning

Ordering data – Centring sleeves Technical data ➔ Internet: zbh

	For ∅	Part No.	Type	PU[1]
	20, 25	**150927**	**ZBH-9**	10
	32, 40, 50, 63	**189653**	**ZBH-12**	

1) Packaging unit quantity