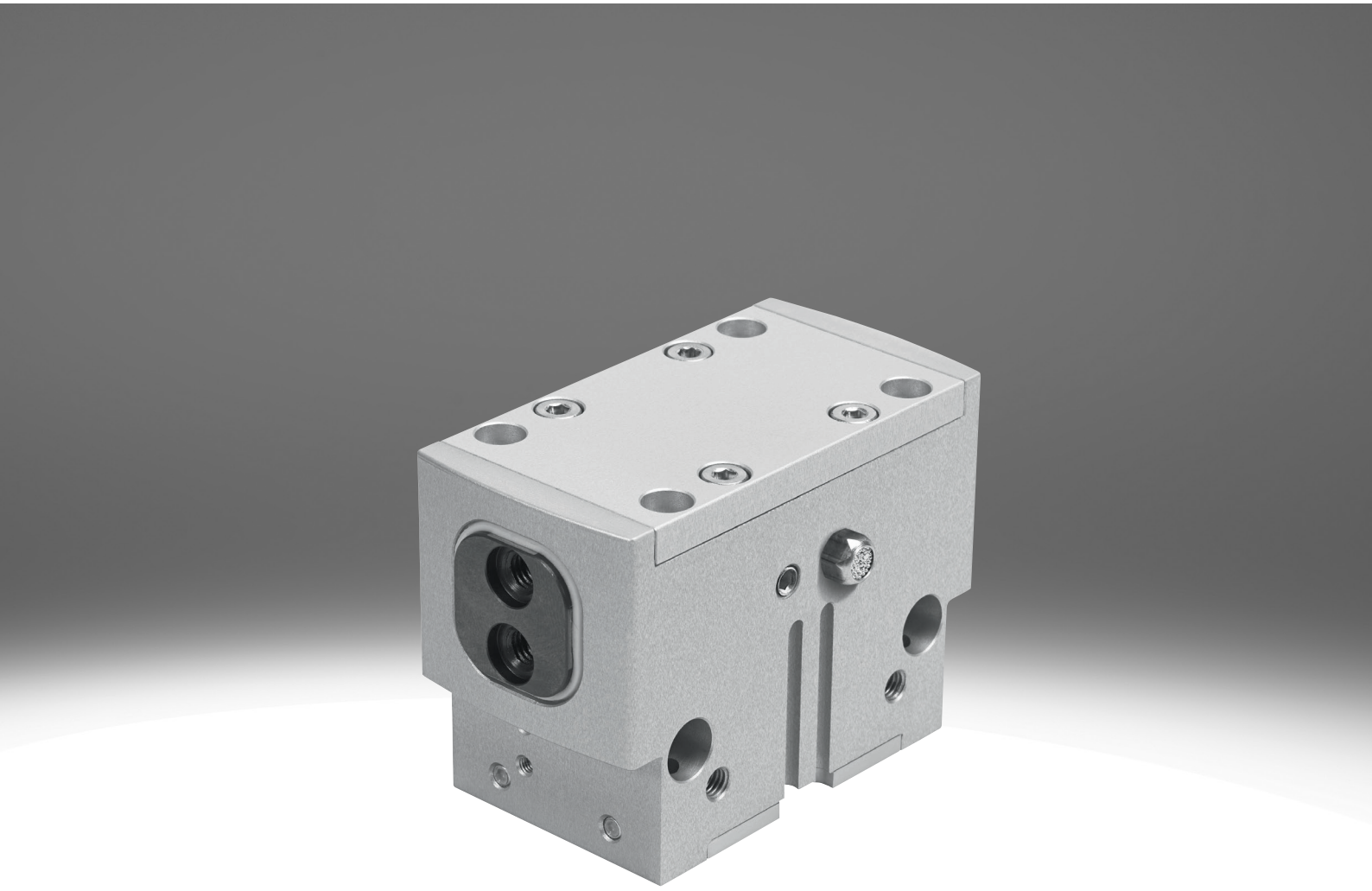
Parallel gripper HGPD

FESTO



Characteristics

At a glance Link hgpd

The gripper kinematics are fully encapsulated so they can be used in extremely harsh ambient conditions. The kinematics are sturdy and precise for maximum torque absorption and a long service life. The force generated by the linear motion is translated into the gripper jaw movement via a wedge mechanism with force-guided motion. This also guarantees synchronous movement of the gripper jaws. The plain-bearing guide is virtually backlash-free thanks to the ground-in gripper jaws.

Flexible range of applications:
- Can be used as a double-acting and single-acting gripper
- Compression spring for supporting or retaining the gripping forces
- Suitable for external and internal gripping

These grippers are not suited or are only of limited suitability for the following application examples:
- Aggressive media: only possible after consultation with Festo
- Grinding dust
- Welding spatter

Compressed air connections for harsh ambient conditions:
- When using the gripper in humid environments or when using liquid/gaseous media, make sure that the filter is installed in a neutral environment. The same applies to compressed air connections that are not required when using the gripper as a single-acting gripper.

Engineering tools Link engineering tools

Save time with engineering tools: Smart engineering for the optimal solution. Our goal is to increase your productivity. Our engineering tools play an integral part in achieving this goal. They help you size your system correctly, tap into unimagined productivity reserves and generate additional productivity along the entire value chain. In every phase of your project, from the initial contact to the modernisation of your machine, you will come across a number of different tools that will be of use to you.

Gripper selection:
- This tool helps you to select the right grippers by simply entering the exact parameters for your application

Diagrams Link hgpd

The diagrams shown in this document are also available online. These can be used to display precise values.

Special material properties

Product:
Metals with more than 5% copper by mass are excluded from use. Exceptions are circuit boards, cables, electrical plug connectors and coils

Accessories:
Please contact your Festo representative for information on which accessories are suitable for manufacturing lithium-ion batteries

Position sensing

[A]	For proximity sensor

By using proximity switches, any position can be detected.

Gripping force backup

[G1]	Opening

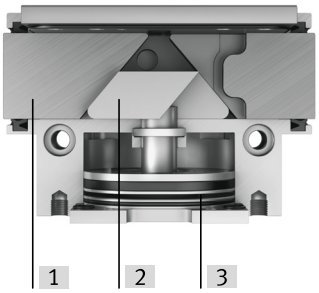
Opened by spring force in depressurised state

[G2]	Closing

Closed by spring force in depressurised state

Characteristics

Overview



[1] Gripper jaw
[2] Wedge with forced-guided motion
[3] Piston with magnet

Type code

001	Series	
HGPD	Parallel gripper, sealed	

002	Size [mm]	
16	16	
20	20	
25	25	
35	35	
40	40	
50	50	
63	63	
80	80	

003	Position sensing	
A	For proximity sensor	

004	Gripping force backup	
	None	
G1	Opening	
G2	Closing	

Datasheet

General technical data								
Size	16	20	25	35	40	50	63	80
Stroke per gripper jaws	3 mm	4 mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm
Design	Wedge-shaped drive Force pilot operated motion sequence							
Mode of operation	Double-acting							
Gripping force backup	None Opening Closing							
Gripper function	Parallel							
Number of gripper jaws	2							
Max. mass per external gripper finger [1]	25 g	57 g	138 g	278 g	445 g	318 g, 813 g	1,340 g	2,170 g
Pneumatic connection	M5					G1/8		G1/4
Pneumatic connection, blocked air	M3		M5					
Repetition accuracy, gripper [2]	≤0.03 mm	≤0.04 mm		≤0.05 mm				
Max. replacement accuracy	≤0.2 mm							
Max. operating frequency of gripper	≤3 Hz				≤2 Hz			
Rotationally symmetrical	≤0.2 mm							
Position detection	Via proximity switch							
Type of mounting	Either: Via female thread and centring sleeve Via through-hole and centring sleeve Via through-hole and dowel pin Via female thread and dowel pin							
Mounting position	optional							

1) Valid for unthrottled operation

2) Under constant exposure to operating conditions, end-position drift occurs in the direction of movement of the gripper jaws, at 100 consecutive strokes

Operating and environmental conditions								
Size	16	20	25	35	40	50	63	80
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]							
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)							
Ambient temperature [1]	5 ... 60°C							
Degree of protection	IP65							
Corrosion resistance class CRC [2]	2 - Moderate corrosion stress							
Lubrication interval for guide components	5 MioCyc							

1) Note the operating range of the proximity switches

2) More information www.festo.com/catalogue/crc

Operating pressure – HGPD-16 ... 35												
Size	16			20			25			35		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Operating pressure	3 ... 8 bar	4 ... 8 bar		3 ... 8 bar	4 ... 8 bar		3 ... 8 bar	4 ... 8 bar		3 ... 8 bar	4 ... 8 bar	
Operating pressure of blocked air	0 ... 0.5 bar											

Operating pressure – HGPD-40 ... 80												
Size	40			50			63			80		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Operating pressure	3 ... 8 bar	4 ... 8 bar		3 ... 8 bar	4 ... 8 bar		3 ... 8 bar	4 ... 8 bar		3 ... 8 bar	4 ... 8 bar	
Operating pressure of blocked air	0 ... 0.5 bar											

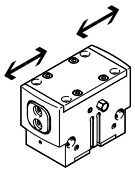
Datasheet

Weight – HGPD-16 ... 35												
Size	16			20			25			35		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Product weight	100 g	117 g		163 g	182 g		327 g	361 g		572 g	682 g	

Weight – HGPD-40 ... 80												
Size	40			50			63			80		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Product weight	1,044 g	1,223 g		1,766 g	2,150 g		3,365 g	3,998 g		6,252 g	7,484 g	

Materials	
Material housing	Anodised aluminium
Material gripper jaws	Hardened steel
Material cover cap	High-alloy stainless steel
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B2-L
Suitability for the production of Li-ion batteries	Metals with more than 5% by mass of copper are excluded from use. Exceptions are printed circuit boards, cables, electrical plug connectors and coils

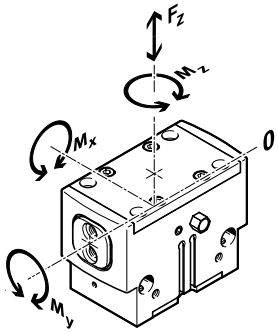
Measured gripping force with a lever arm of 20 mm



Size	16	20	25	35	40	50	63	80
Total gripping force, closing, 0.6MPa (6bar, 87 psi)	94 N	150 N	266 N	534 N	598 N	894 N	1,856 N	3,716 N
Total gripping force, opening, 0.6MPa (6bar, 87 psi)	107 N	159 N	288 N	581 N	630 N	944 N	1,935 N	3,922 N
Gripper force per gripper jaw, closing, 0.6 MPa (6 bar, 87 psi)	47 N	75 N	133 N	267 N		447 N	928 N	1,858 N
Gripper force per gripper jaw, opening, 0.6 MPa (6 bar, 87 psi)	54 N	80 N	144 N	291 N	315 N	472 N	967 N	1,961 N

Datasheet

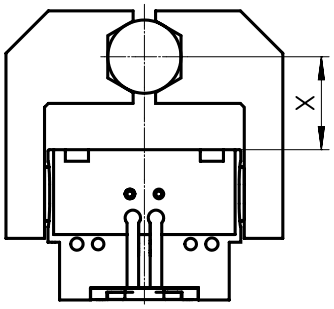
Characteristic load values at the gripper jaws



The indicated permissible forces and torques apply to a single gripper jaw. They include the lever arm, additional applied loads created by the workpiece or external gripper fingers and acceleration forces occurring during movement. The zero coordinate line (gripper jaw guide) must be taken into account when calculating torques.

Size	16	20	25	35	40	50	63	80
Max. force on gripper jaw Fz static	150 N	250 N	500 N	750 N	1,200 N	2,000 N	3,000 N	6,000 N
Max. torque at gripper Mx static	8 Nm	12 Nm	30 Nm	40 Nm	70 Nm	90 Nm	120 Nm	170 Nm
Max. torque at gripper My static	4 Nm	7 Nm	25 Nm	30 Nm	45 Nm	60 Nm	80 Nm	130 Nm
Max. torque at gripper Mz static	3 Nm	6 Nm	15 Nm	25 Nm	35 Nm	50 Nm	65 Nm	110 Nm

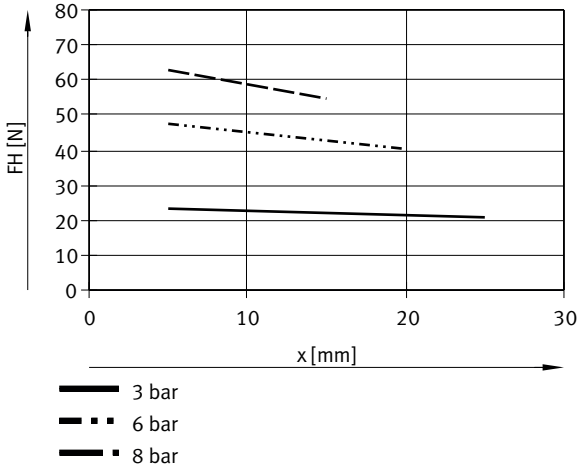
Gripping force FH per gripper jaw as a function of operating pressure and lever arm x



The gripping forces as a function of operating pressure and lever arm can be determined from the following graphs.
The gripping torque is not constant across the opening angle.

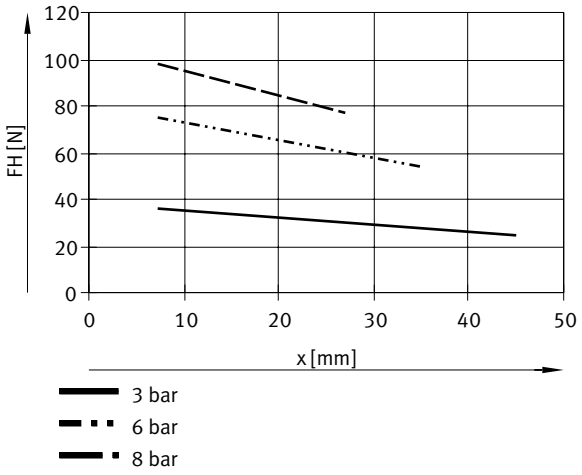
Sizing software for gripper selection → https://www.festo.com/x/topic/eng

Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-16

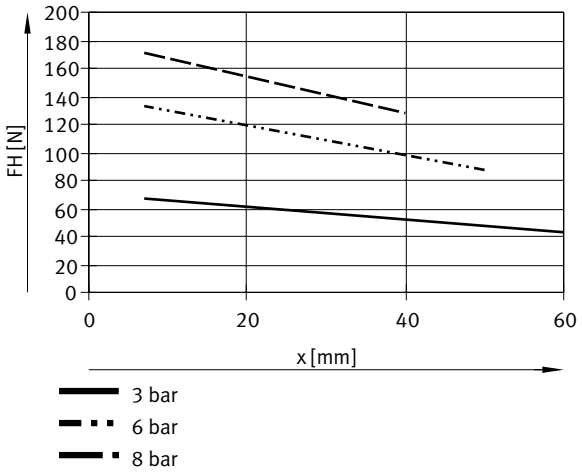


Datasheet

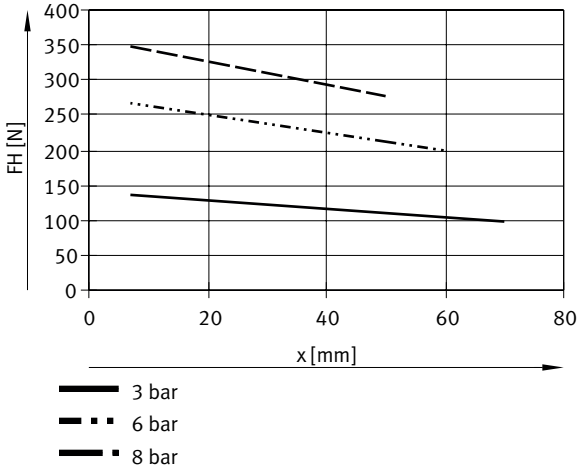
Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-20



Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-25

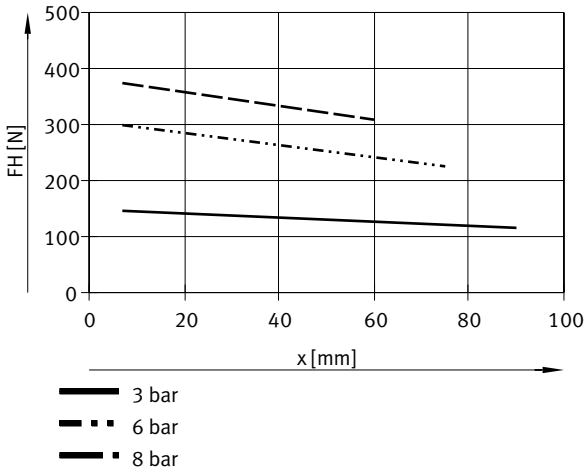


Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-35

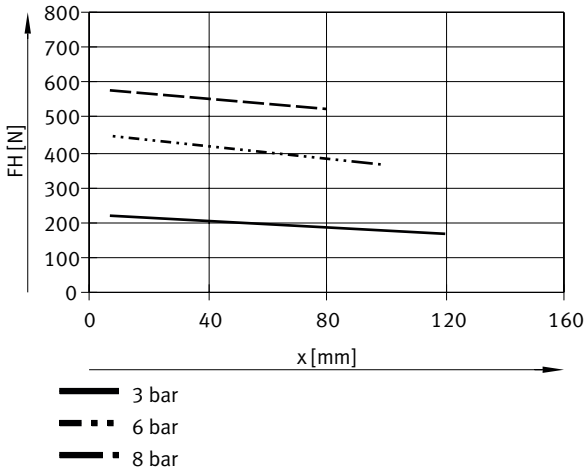


Datasheet

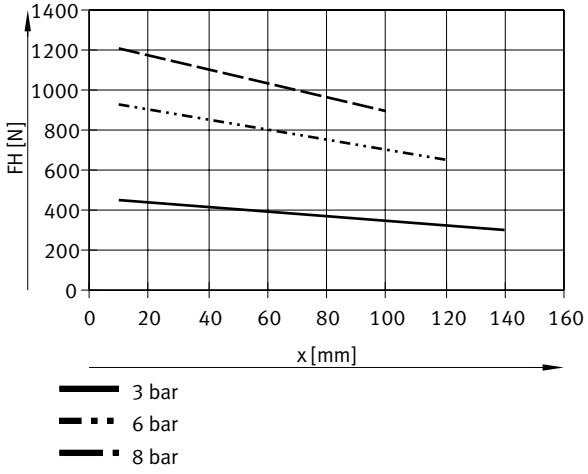
Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-40



Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-50

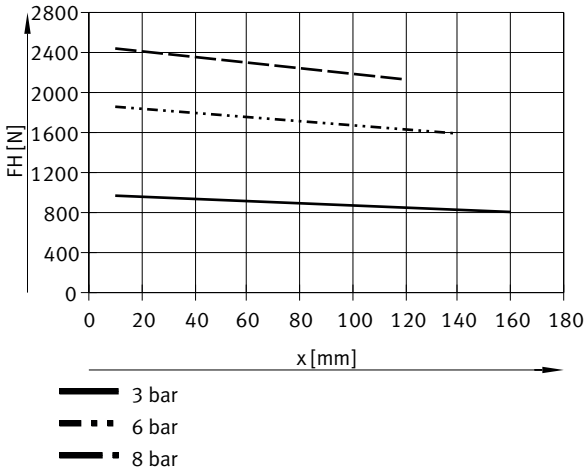


Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-63

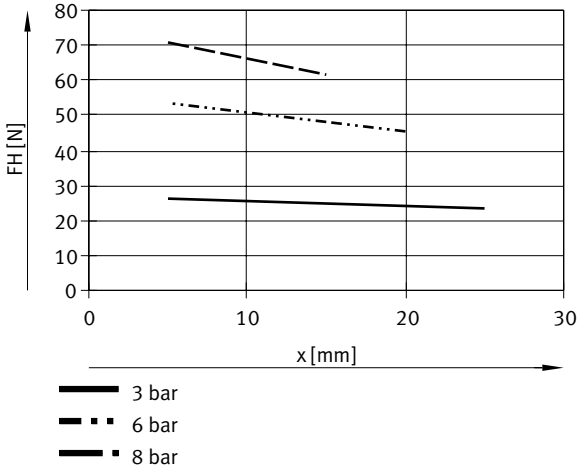


Datasheet

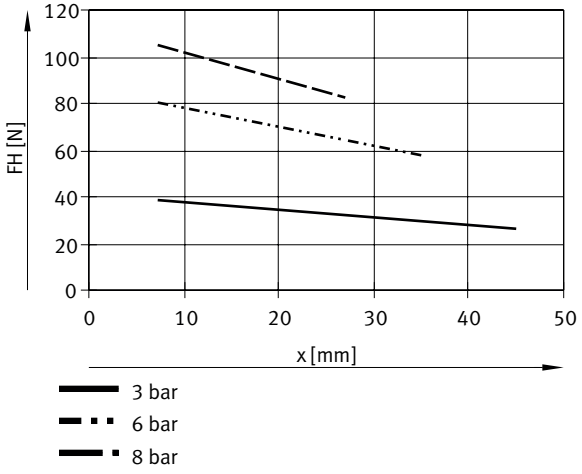
Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – external gripping (closing), double-acting – HGPD-80



Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-16

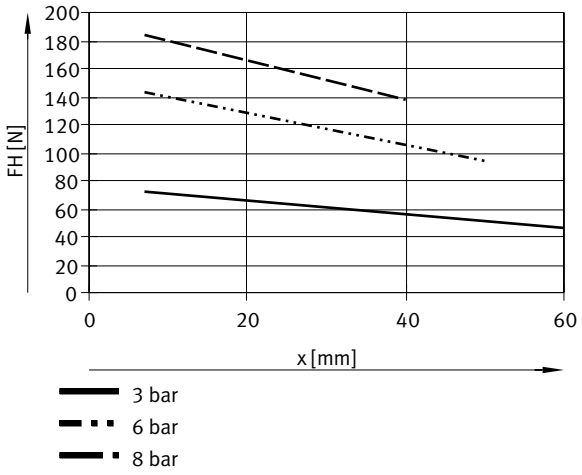


Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-20

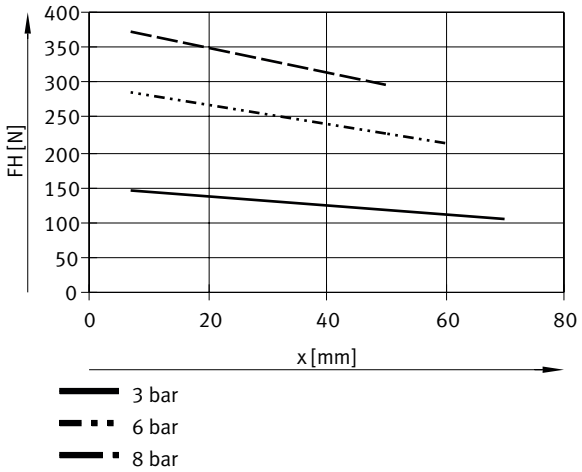


Datasheet

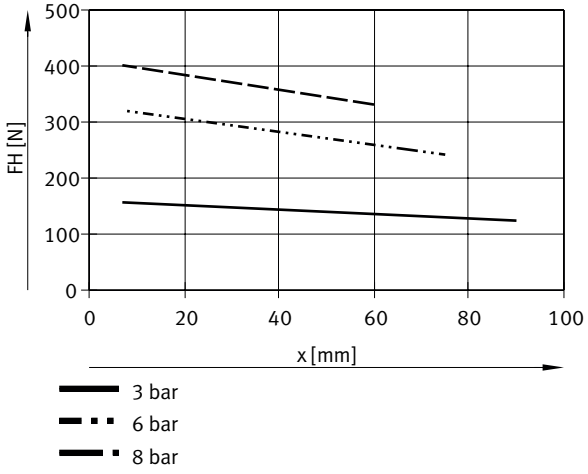
Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-25



Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-35

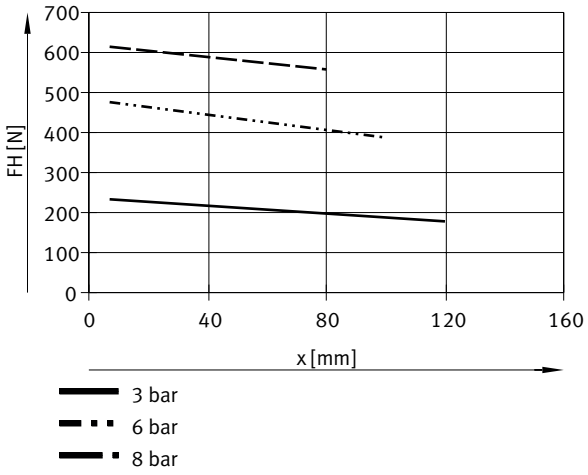


Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-40

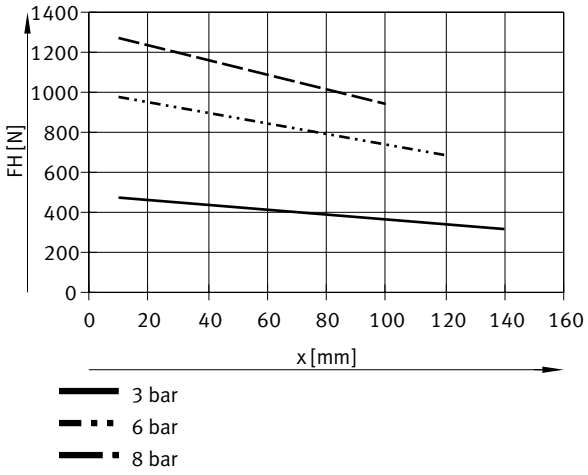


Datasheet

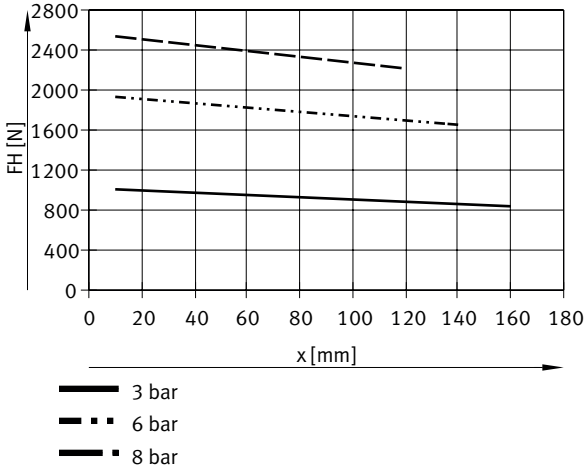
Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-50



Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-63

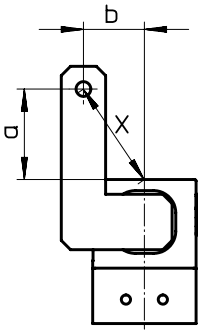


Gripping force FH per gripper jaw as a function of operating pressure and lever arm x – internal gripping (opening), double-acting – HGPD-80



Datasheet

Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x and eccentricity a and b



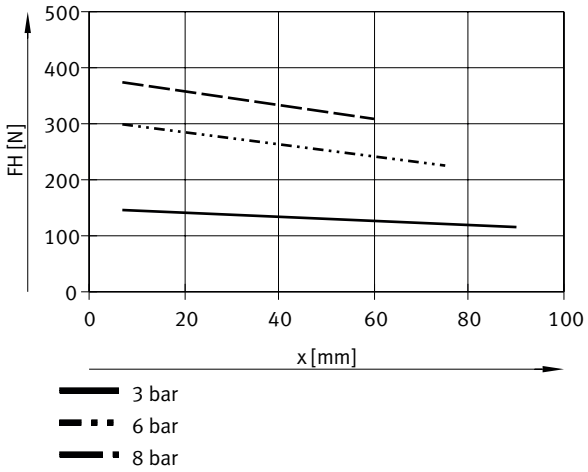
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x and eccentricity a and b

$x = \sqrt{a^2 + b^2} = \sqrt{45^2 + 40^2} = 60$ mm

The formula (on the left) must be used to calculate the lever arm x with eccentric gripping.
The gripping force FH can then be read from the graphs using the calculated value x.

Calculation example:
Where:
Distance a = 45 mm
Distance b = 40 mm
To be determined:
The gripping force at 6 bar with an HGPD-40, used as an external gripper.

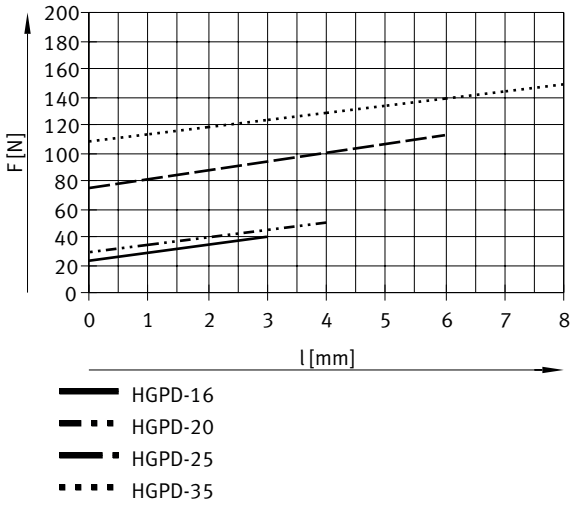
Gripping force FH per gripper jaw at 0.6 MPa (6 bar, 87 psi) as a function of lever arm x and eccentricity a and b



The graph gives a value of FH = 240 N for the gripping force.

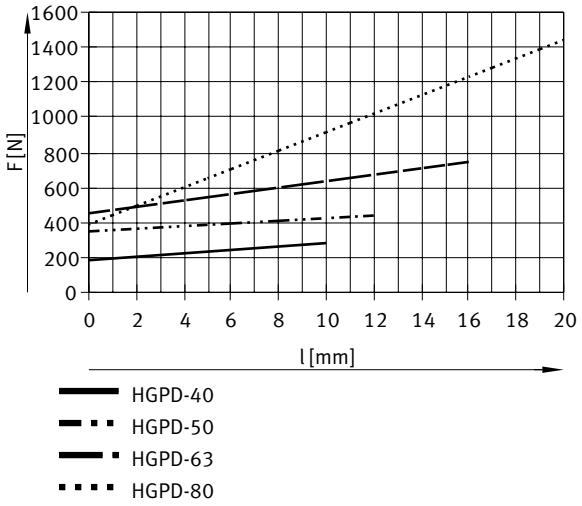
Datasheet

Spring force FF as a function of size and gripper jaw stroke l – gripping force retention for HGPD-16 ... 35-G...



The spring forces FF can be determined from the graph (left) as a function of the gripper jaw stroke l.

Spring force FF as a function of size and gripper jaw stroke l – gripping force retention for HGPD-40 ... 80-G...



The spring forces FF can be determined from the graph (left) as a function of the gripper jaw stroke l.

Datasheet

Spring force FF as a function of size, gripper jaw stroke l and lever arm x per gripper finger

To determine the actual spring force FFtot, the lever arm x must be taken into account.

Formulas for calculating the spring force FFtot per gripper finger:
HGPD-16-...-G1: -0.25 * x + 0.6 * FF
HGPD-20-...-G1: -0.25 * x + 0.6 * FF
HGPD-25-...-G1: -0.65 * x + 0.6 * FF
HGPD-35-...-G1: -0.75 * x + 0.8 * FF
HGPD-40-...-G1: -0.7 * x + 0.65 * FF
HGPD-50-...-G1: -0.8 * x + 0.5 * FF
HGPD-63-...-G1: -0.8 * x + 0.65 * FF
HGPD-80-...-G1: -1.3 * x + 0.6 * FF

HGPD-16-...-G2: -0.05 * x + 0.6 * FF
HGPD-20-...-G2: -0.5 * x + 0.6 * FF
HGPD-25-...-G2: -0.65 * x + 0.6 * FF
HGPD-35-...-G2: -0.15 * x + 0.8 * FF
HGPD-40-...-G2: -0.6 * x + 0.65 * FF
HGPD-50-...-G2: -0.15 * x + 0.5 * FF
HGPD-63-...-G2: -1 * x + 0.65 * FF
HGPD-80-...-G2: -0.25 * x + 0.6 * FF

Determining the actual gripping forces FGr per gripper finger for HGPD-...-G1 and HGPD-...-G2 as a function of the application

The parallel grippers with integrated spring type HGPD-...-G1 (gripping force backup, opening) and HGPD-...-G2 (gripping force backup, closing) can be used as:
- Single-acting grippers
- Gripper with gripping force support and
- Grippers with gripping force backup

.

To calculate the available gripping forces FGr (per gripper jaw), the data for gripping force FH and spring force FFtot must be combined accordingly.

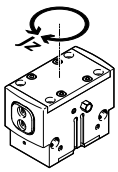
Determining the actual gripping forces FGr per gripper finger for HGPD-...-G1 and HGPD-...-G2 as a function of the application – application

Single-acting:
- Gripping with spring force: FGr = FFtot
- Gripping with pressure force:: FGr = FH – FFtot

Gripping force support:
- Gripping with pressure and spring force: FGr = FH + FFtot

Gripping force retention
- Gripping with spring force: FGr = FFtot

Mass moments of inertia – HGPD-16 ... 35



Mass moment of inertia of the gripper in relation to the central axis, without external gripper fingers, with no load.

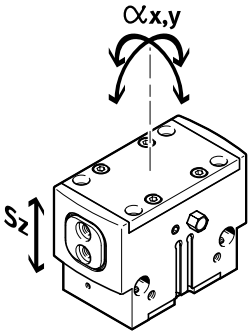
Size	16			20			25			35		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Mass moment of inertia	0.22 kg-cm²	0.27 kgcm²		0.4 kgcm²	0.52 kgcm²		1.32 kg-cm²	1.72 kgcm²		3.56 kg-cm²	4.88 kgcm²	

Datasheet

Mass moments of inertia – HGPD-40 ... 80

Size	40			50			63			80		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Mass moment of inertia	10.1 kg-cm²	14.09 kgcm²		26.19 kg-cm²	36.74 kgcm²		80.33 kg-cm²	116.19 kgcm²		236.48 kgcm²	319.95 kgcm²	

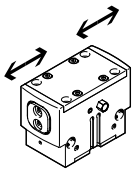
Gripper jaw backlash



Because of the plain-bearing guide used in the grippers, there is backlash between the gripper jaws and the housing. The backlash values listed in the table have been calculated based on the traditional accumulative tolerance method.

Size	16	20	25	35	40	50	63	80
Max. gripper jaw backlash Sz	0.02 mm							
Max. angular gripper jaw backlash ax, ay	0.1 deg							

Opening and closing times – HGPD-16 ... 35



The indicated opening and closing times were measured at room temperature at an operating pressure of 0.6 MPa (6 bar, 87 psi) with a horizontally mounted gripper without additional gripper fingers.
The grippers must be throttled for masses that are higher than the specified unthrottled maximum mass per external gripper finger. Opening and closing times must then be adjusted accordingly.

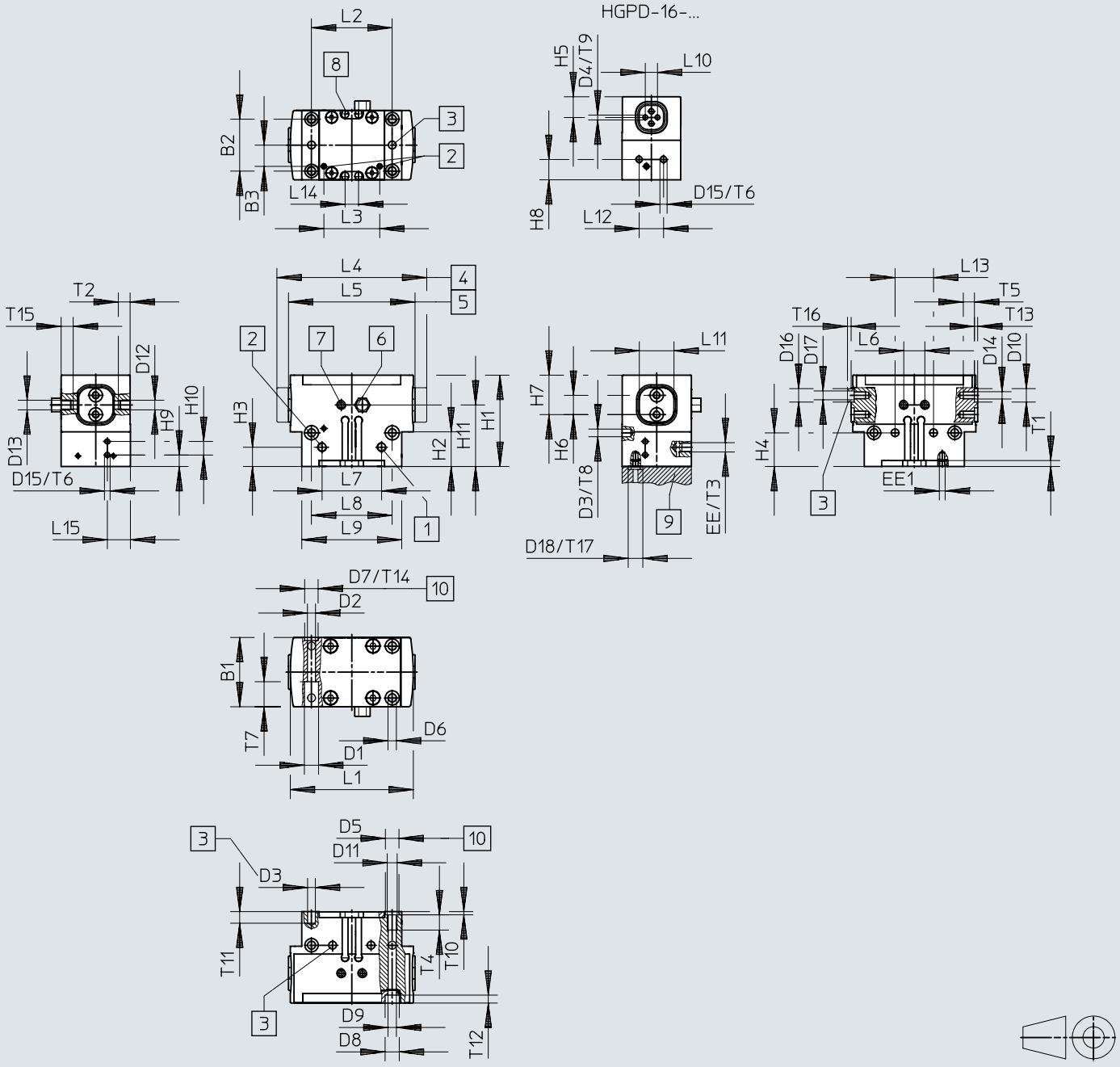
Size	16			20			25			35		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Min. closing time at 0.6 MPa (6 bar, 87 psi)	17 ms	32 ms	15 ms	31 ms	25 ms	18 ms	35 ms	51 ms	28 ms	37 ms	62 ms	36 ms
Min. opening time at 0.6 MPa (6 bar, 87 psi)	15 ms		30 ms	28 ms	13 ms	35 ms	29 ms	24 ms	48 ms	33 ms	31 ms	50 ms

Opening and closing times – HGPD-40 ... 80

Size	40			50			63			80		
Gripping force backup	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing	None	Opening	Closing
Min. closing time at 0.6 MPa (6 bar, 87 psi)	77 ms	157 ms	71 ms	100 ms	176 ms	87 ms	162 ms	328 ms	185 ms	218 ms	353 ms	240 ms
Min. opening time at 0.6 MPa (6 bar, 87 psi)	73 ms		143 ms	90 ms	85 ms	170 ms	150 ms	170 ms	294 ms	214 ms	235 ms	379 ms

Dimensions

Dimensions – Parallel gripper HGPD Download CAD data www.festo.com



[1] Compressed air connection opening, either on the side or underneath (delivery status: connection underneath sealed)
[2] Compressed air connection closing, either at the side or underneath (delivery status: connection underneath sealed)
[3] Drilled hole for dowel pin (not included in the scope of delivery)/centring sleeves ZBH (4 pieces included in the scope of delivery)
[4] Gripper jaws open
[5] Gripper jaws closed
[6] Exhaust hole
[7] Lubrication nipple (sealed on delivery)
[8] Slot for proximity switch
[9] O-ring for parallel gripper HGPD-20...35: Ø 3x1 / HGPD-40...80: Ø 5x1.5
[10] Hole for centring sleeve ZBH

Dimensions

	B1 ±0,05	B2[1]	B3 ±0,1	D1 Ø H13	D2 Ø	D3 Ø H8	D4 Ø H8	D5 Ø H8	D6 Ø	D7 Ø H8	D8 Ø H13	D9 Ø	D10 Ø H8	D11	D12
HGPD-16	24	17	4	4,6	2,6	2	2	5	2,6	–	4,6	–	–	M3	M3
HGPD-20[2]	28	22	8,7	5,6	3,2	3	–	5	3,2	–	–	–	5	M4	M3
HGPD-25	36	27	11	7,4	4,2	4	–	7	4,2	7	7,4	4,3	7	M5	M5
HGPD-35	42	32	13	9,2	5,2	4	–	7	4,2	7	7,4	4,3	9	M5	M5
HGPD-40	50	38	17	10,4	6,2	5	–	9	5,2	9	9,4	5,3	9	M6	M5
HGPD-50	60	45	20	13,5	8,2	6	–	12	6,1	12	10,4	6,4	12	M8	M5
HGPD-63	72	56	24,5	13,5	8,4	6	–	12	6,4	12	10,4	–	12	M8	M5
HGPD-80	100	70	39,5	18,5	12,2	8	–	12	8,5	15	13,5	8,4	15	M10	M5

	D13	D14	D15	D16 Ø h7	D17 Ø	D18 Ø +0,2	EE	EE1	H1 ±0,05	H1 -G ±0,05	H2	H2 -G	H3 ±0,1	H3 -G ±0,1
HGPD-16	M3	M2,5	M3	–	–	–	M5	M3	34	41,5	16,2	23,6	12	12
HGPD-20	M3	M3	M3	5	3,2	5	M5	M3	39	46	15	22	10	15
HGPD-25	M5	M4	M3	7	5,3	5	M5	M3	47,5	55,5	18	26	10	20
HGPD-35	M5	M6	M3	9	6,4	5	M5	M3	57,5	74	21,5	38	12	23,5
HGPD-40	M5	M6	M3	9	6,4	8	M5	M3	67	85	27	45	15	36
HGPD-50	G1/8	M6	M3	12	10,3	8	G1/8	M5	77,5	102,5	32	57	15	30
HGPD-63	G1/8	M8	M3	12	10,3	8	G1/8	M5	94	124	39	69	18	26
HGPD-80	G1/8	M10	M3	15	12,4	8	G1/4	M5	110	146	48	84	22	33

	H4[1]	H4[1] -G	H5 –0,02	H6[1]	H7 –0,02	H8 ±0,1	H8 -G ±0,1	H9 ±0,1	H9 -G ±0,1	H10 ±0,1	H11 ±0,1	H11 -G ±0,1	L1 ±0,05	L2[1]	L3 ±0,1
HGPD-16	17,5	24,5	8,5	5	11	8,3	15,8	–	–	–	25,5	33	50	29	22
HGPD-20	14,5	21,5	–	7	15	6,5	13,5	–	–	–	27,5	34,5	50	35	22,6
HGPD-25	17,5	26	–	10	20,5	–	–	6	14	7	32	40	64	42	29
HGPD-35	20	37,5	–	12	24	–	–	9,5	26	7	39,5	56	80	52	39
HGPD-40	25	42,5	–	15	28,5	–	–	15	33	8	46	64	101	66	47,4
HGPD-50	30	55	–	18	32	–	–	15,5	40,5	8	54,5	79,5	126	82	61
HGPD-63	28	68	–	24	40	–	–	26	56	8	66	96	161	100	75
HGPD-80	34	76	–	24	42	–	–	35	71	8	80	116	201	130	82

	L4 ±0,5	L5 ±0,5	L6 ±0,1	L7 ±0,1	L8[1]	L9 ±0,1	L10 ±0,05	L11 –0,02	L12 ±0,1	L13 ±0,02	L14 +0,1	L15 ±0,1	T1 min.	T2 min.	T3 min.
HGPD-16	58	52	6,5	20	29	36	5	10	10	20	6	–	3	5,5	5,5
HGPD-20	60	52	7,5	24	35	44	–	14	10	24	6	–	3	5,5	5,5
HGPD-25	78	66	11	31	42	52	–	18	–	20	7	12	3	6,7	5,5
HGPD-35	98	82	11	40	52	64	–	22	–	40	7	15	3	6,5	5,5
HGPD-40	122	102	11	49	66	81	–	28	–	50	10	19	4	6,5	6,5
HGPD-50	151	127	11	63	82	101	–	32	–	60	10	24	4	6,5	8,5
HGPD-63	194	162	11	74	100	126	–	40	–	76	10	42	4	6,5	8,5
HGPD-80	242	202	11	82	130	154	–	45	–	100	10	56	5,5	6,5	10

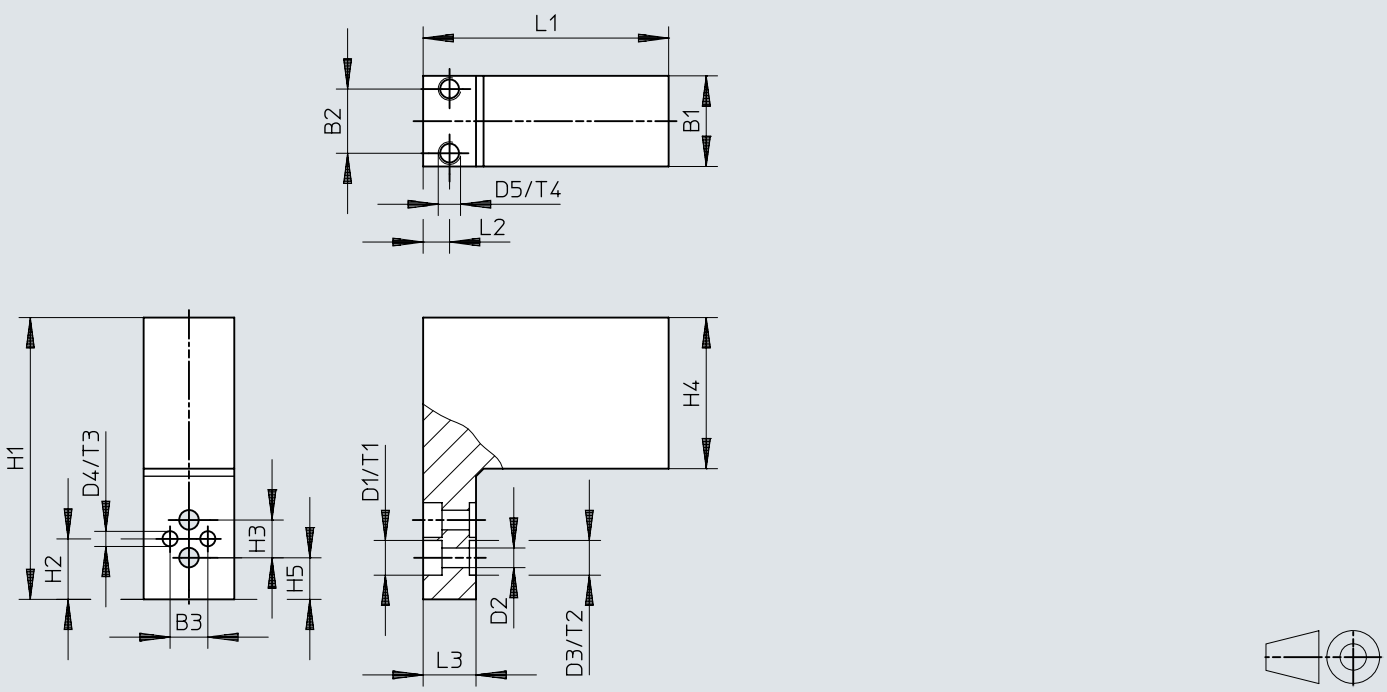
	T4 min.	T4 -G min.	T5 min.	T6 min.	T7	T8 min.	T9 +0,1	T10 +0,1	T11 min.	T12 +0,2	T13 +0,1	T14 +0,1	T15 min.	T16 –0,3	T17 +0,1
HGPD-16	5,5	–	5	3,5	14	4,5	2,6	1,3	4	19,8	–	–	5,5	–	–
HGPD-20	6,5	–	5	5	18	4	–	1,3	5	3	1,3	–	5,5	1,2	0,6
HGPD-25	10,5	–	6	5	13	4,5	–	1,6	6	4,1	1,6	1,6	6,7	1,4	0,6
HGPD-35	8,5	–	7,9	5	16	4,5	–	1,6	6	4,1	2,1	1,6	6,5	1,9	0,6
HGPD-40	12,5	–	7,9	5	28	6	–	2,1	7	5,1	2,1	2,1	6,5	1,9	1,1
HGPD-50	12,5	–	10	5	24	6	–	2,6	8	6,1	2,6	2,6	6,5	2,4	1,1
HGPD-63	12,5	–	12	5	27	6	–	2,6	8	4,5	2,6	2,6	6,5	2,4	1,1
HGPD-80	12,4	15	15	5	41	10	–	2,6	10	5,5	3,1	3,1	6,5	2,9	1,1

1) Tolerance for centring hole ±0.02 mm Tolerance for thread ±0.1 mm

2) Dowel pins must be used when mounted from below.

Dimensions

Dimensions – Gripper jaw blank BUB-HGPD Download CAD data www.festo.com



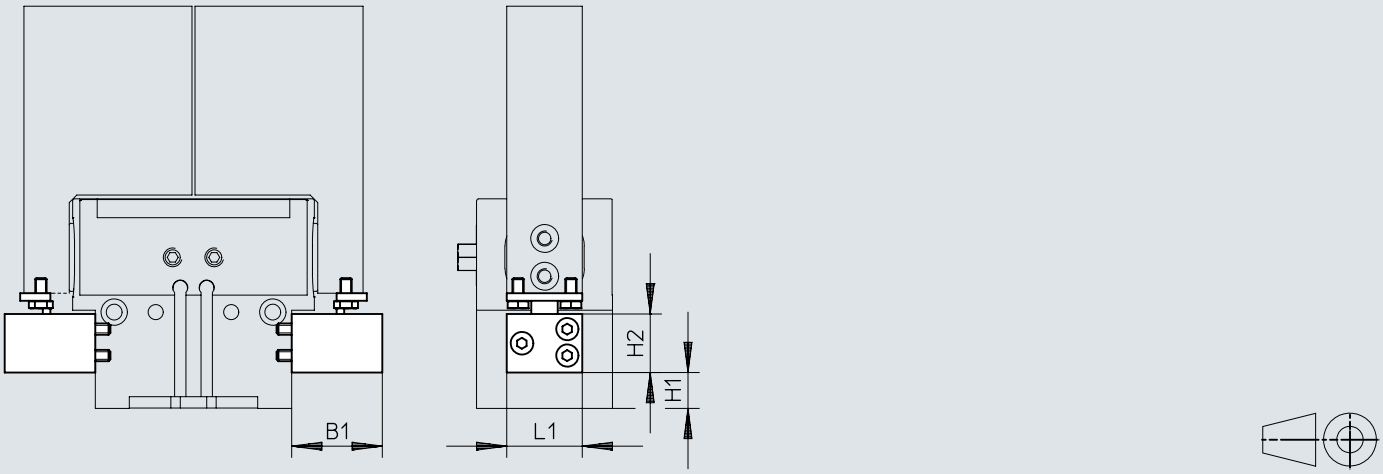
	B1 ±0,05	B2	B3 ±0,01	D1 ø H13	D2 ø H13	D3 ø H8	D4 ø H7	D5	H1 ±0,05	H2 ±0,02
BUB-HGPD-16	12	8,5	5	4,6	2,6	–	2	M3	37,3	8
BUB-HGPD-20	14	8,5	–	5,9	3,2	5	–	M3	59	–
BUB-HGPD-25	20	14	–	7,4	4,3	7	–	M3	76	–
BUB-HGPD-35	29	23	–	10,4	6,4	9	–	M3	92,5	–
BUB-HGPD-40	32	26	–	10,4	6,4	9	–	M3	110	–
BUB-HGPD-50	35	26	–	10,4	6,4	12	–	M3	144	–
BUB-HGPD-63	40	26	–	13,5	8,4	12	–	M3	171,5	–
BUB-HGPD-80	44	26	–	16,5	10,5	15	–	M3	198	–

	H3	H4	H5	L1 ±0,05	L2	L3	T1 +0,1	T2 +0,1	T3 +0,1	T4
BUB-HGPD-16	5±0,1	20	–	32,5	3,5	7	2,5	–	2,1	4
BUB-HGPD-20	7±0,01[1)]	35	8	35,5	3	10	3,1	1,3	–	5
BUB-HGPD-25	10±0,01[1)]	49,5	4,5	44,5	4,5	12	4,2	1,6	–	5
BUB-HGPD-35	12±0,01[1)]	59	7,5	52,5	6	12	6,2	2,1	–	5
BUB-HGPD-40	15±0,01[1)]	73,5	6	62,5	6	12	6,2	2,1	–	5
BUB-HGPD-50	18±0,01[1)]	99	11	78	10	15	6,2	2,6	–	5
BUB-HGPD-63	24±0,01[1)]	119	10	98,5	10,5	15	8,2	2,6	–	5
BUB-HGPD-80	24±0,01[1)]	139	15	120,5	10	20	10,2	3,1	–	5

1) ±0.02 and ±0.01 apply to the centring hole D3 / ±0.1 applies to the through-holes D1 and D2

Dimensions

Dimensions – Sensor bracket DASI Download CAD data www.festo.com



		B1	H1	H1 -G	H2	L1
HGPD-16	DASI-B12-16-S3	18	4,3	11,8	8	18
HGPD-20	DASI-B12-20-S3	18	2,5	9,5	8	18
HGPD-25	DASI-B12-25-S8	24	1,5	9,5	15,5	20
HGPD-35	DASI-B12-35-S8	24	5	21,5	15,5	20
HGPD-40	DASI-B12-40-S8	29	11,2	29,2	15,6	20
HGPD-50	DASI-B12-50-S8	34	12	37	16	20
HGPD-63	DASI-B12-63-S8	54	22	52	16	20
HGPD-80	DASI-B12-63-S8	54	31	67	16	20

Ordering data

Double-acting, without compression spring

	Size	Stroke per gripper jaws	Product weight	Part no.	Type
	16	3 mm	100 g	**1132936**	**HGPD-16-A**
	20	4 mm	163 g	**1132939**	**HGPD-20-A**
	25	6 mm	327 g	**1132942**	**HGPD-25-A**
	35	8 mm	572 g	**1132945**	**HGPD-35-A**
	40	10 mm	1,044 g	**1132948**	**HGPD-40-A**
	50	12 mm	1,766 g	**1132951**	**HGPD-50-A**
	63	16 mm	3,365 g	**1132954**	**HGPD-63-A**
	80	20 mm	6,252 g	**1132957**	**HGPD-80-A**

Single-acting or with gripping force backup, opening

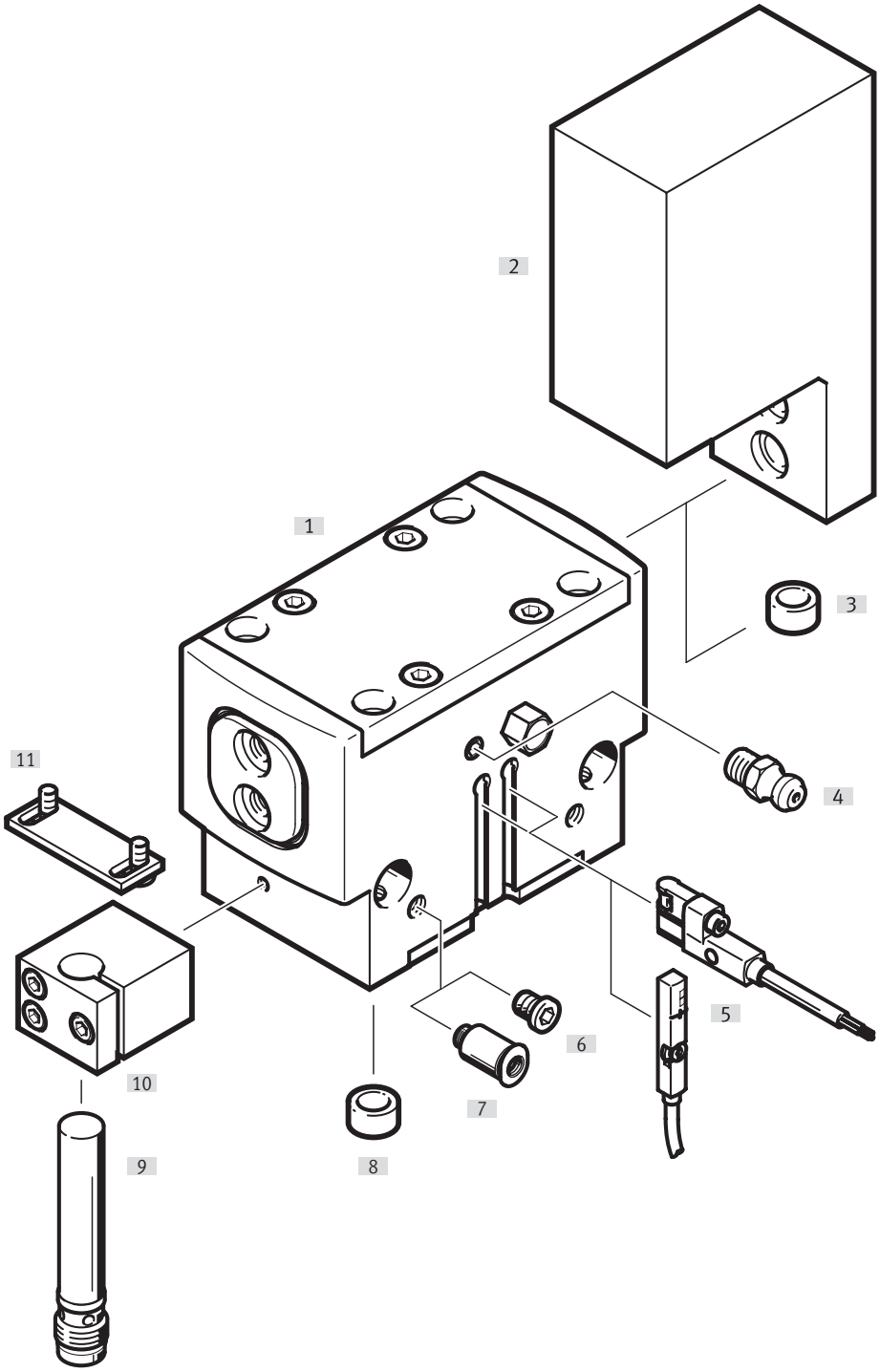
	Size	Stroke per gripper jaws	Product weight	Part no.	Type
	16	3 mm	117 g	**1132937**	**HGPD-16-A-G1**
	20	4 mm	182 g	**1132940**	**HGPD-20-A-G1**
	25	6 mm	361 g	**1132943**	**HGPD-25-A-G1**
	35	8 mm	682 g	**1132946**	**HGPD-35-A-G1**
	40	10 mm	1,223 g	**1132949**	**HGPD-40-A-G1**
	50	12 mm	2,150 g	**1132952**	**HGPD-50-A-G1**
	63	16 mm	3,998 g	**1132955**	**HGPD-63-A-G1**
	80	20 mm	7,484 g	**1132958**	**HGPD-80-A-G1**

Single-acting or with gripping force backup, closing

	Size	Stroke per gripper jaws	Product weight	Part no.	Type
	16	3 mm	117 g	**1132938**	**HGPD-16-A-G2**
	20	4 mm	182 g	**1132941**	**HGPD-20-A-G2**
	25	6 mm	361 g	**1132944**	**HGPD-25-A-G2**
	35	8 mm	682 g	**1132947**	**HGPD-35-A-G2**
	40	10 mm	1,223 g	**1132950**	**HGPD-40-A-G2**
	50	12 mm	2,150 g	**1132953**	**HGPD-50-A-G2**
	63	16 mm	3,998 g	**1132956**	**HGPD-63-A-G2**
	80	20 mm	7,484 g	**1132959**	**HGPD-80-A-G2**

Peripherals

Peripherals overview



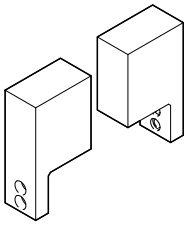
Accessories			→ Link
	Type/order code	Description	
[1]	Parallel gripper HGPD	Double-acting	hgpd
[2]	Gripper jaw blank BUB-HGPD	Blanks specially matched to the gripper jaws for custom manufacturing of gripper fingers	24
[3]	Centring pin ZBS/centring sleeve ZBH	• For centring the gripper jaw blanks/gripper fingers on the gripper jaws • 4 centring pins/sleeves are included in the scope of delivery of the gripper	24
[4]	Lubrication nipple	Included in the scope of delivery of the gripper	hgpd
[5]	Proximity switch SMT-8G	• For sensing the piston position • Proximity switch does not project underneath the housing	25
[5]	Proximity switch SMT-10G	• For sensing the piston position • Proximity switch does not project underneath the housing	25
[6]	Blanking plug B	For sealing the compressed air ports when using the bottom compressed air ports	25

Peripherals

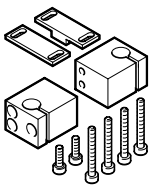
Accessories			→ Link
	Type/order code	Description	
[7]	Push-in fitting QS	For connecting tubing with standard O.D	qs
[8]	Centring sleeve ZBH	For centring the gripper during mounting	24
[9]	Proximity switch SIEH	For sensing the piston position	25
[9]	Proximity switch SIEN	For sensing the piston position	26
[10]	Sensor bracket DASI (terminal block)	Clamping terminal for securing the proximity switches SIEH or SIEN	24
[11]	Sensor bracket DASI (switch lug)	Switch lug for sensing the gripper jaw position. It is attached to the gripper jaw blank	24
[12]	Adapter kit DHAA, HAPG	Connecting plate between drive and gripper	dhaa
[13]	Proportional-pressure regulator VPPM	For infinitely variable adjustment of the gripping force	vppm

Accessories

Gripper jaw blank BUB-HGPD

	Description	Product weight per gripper jaw	Part no.	Type
	For size 16	25 g	**1180947**	**BUB-HGPD-16**
	For size 20	57 g	**1180948**	**BUB-HGPD-20**
	For size 25	138 g	**1180949**	**BUB-HGPD-25**
	For size 35	278 g	**1180950**	**BUB-HGPD-35**
	For size 40	445 g	**1180951**	**BUB-HGPD-40**
	For size 50	814 g	**1180952**	**BUB-HGPD-50**
	For size 63	1,340 g	**1180953**	**BUB-HGPD-63**
	For size 80	2,170 g	**1180954**	**BUB-HGPD-80**

Sensor bracket DASI

	Description	Product weight	Part no.	Type
	For size 16	25 g	**1435225**	**DASI-B12-16-S3**
	For size 20	22 g	**1435226**	**DASI-B12-20-S3**
	For size 25	50 g	**1435227**	**DASI-B12-25-S8**
	For size 35	55 g	**1435228**	**DASI-B12-35-S8**
	For size 40	65 g	**1435229**	**DASI-B12-40-S8**
	For size 50	70 g	**1435230**	**DASI-B12-50-S8**
	For size 63, For size 80	95 g	**1435231**	**DASI-B12-63-S8**

Centring pin ZBS-2

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 16	Steel	10	1 g	**525273**	**ZBS-2**

Centring sleeve ZBH-5

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 16, For size 20	Steel	10	1 g	**8146543**	**ZBH-5-B**

Centring sleeve ZBH-7

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 25, For size 35	Steel	10	1 g	**8146544**	**ZBH-7-B**

Centring sleeve ZBH-9

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 35, For size 40	Steel	10	2 g	**8137184**	**ZBH-9-B**

Centring sleeve ZBH-12

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 50, 63, 80	Steel	10	1 g	**8137185**	**ZBH-12-B**

Centring sleeve ZBH-15

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 80	High-alloy stainless steel	10	3 g	**191409**	**ZBH-15**

Accessories

Blanking plug B-M3-S9

	Description	Material blanking plug	Size of pack	Product weight	Part no.	Type
	For size 16, For size 20	High-alloy stainless steel	10	1 g	**30979**	**B-M3-S9**

Blanking plug B-M5

	Description	Material blanking plug	Size of pack	Product weight	Part no.	Type
	For size 25, For size 35, For size 40	Galvanised steel	10	1 g	**174308**	**B-M5-B**

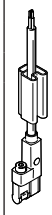
Blanking plug B-1/8

	Description	Material blanking plug	Size of pack	Product weight	Part no.	Type
	For size 50, 63	Galvanised steel	10	7 g	**3568**	**B-1/8**

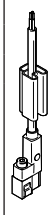
Blanking plug B-1/4

	Description	Material blanking plug	Size of pack	Product weight	Part no.	Type
	For size 80	Galvanised steel	10	15 g	**3569**	**B-1/4**

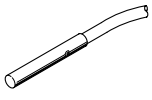
Proximity switch SMT-10G for round slot, magneto-resistive – for sizes 16 ... 35 Link smt

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in C-slot, Insertable in the slot lengthwise	3-wire NPN N/O contact	Open end	2.5 m	**8065030**	**SMT-10G-NS-24V-E-2,5Q-OE**
			Plug M8, A-coded	0.3 m	**8065029**	**SMT-10G-NS-24V-E-0,3Q-M8D**
		3-wire PNP N/O contact	Open end	2.5 m	**547862**	**SMT-10G-PS-24V-E-2,5Q-OE**
			Plug M8, A-coded	0.3 m	**547863**	**SMT-10G-PS-24V-E-0,3Q-M8D**

Proximity switch SMT-8G for T-slot, magneto-resistive – for sizes 40 ... 80 Link smt

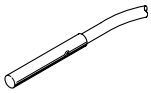
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in T-slot, Insertable in the slot lengthwise	3-wire NPN N/O contact	Open end	2.5 m	**8065028**	**SMT-8G-NS-24V-E-2,5Q-OE**
			Plug M8, A-coded	0.3 m	**8065027**	**SMT-8G-NS-24V-E-0,3Q-M8D**
		3-wire PNP N/O contact	Open end	2.5 m	**547859**	**SMT-8G-PS-24V-E-2,5Q-OE**
			Plug M8, A-coded	0.3 m	**547860**	**SMT-8G-PS-24V-E-0,3Q-M8D**

Proximity switch SIEH – 3 mm (round design), inductive – for size 16 ... 20 Link sieh

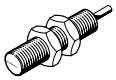
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped	PNP	Open end	2.5 m	**538264**	**SIEH-3B-PS-K-L**

Accessories

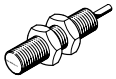
Proximity switch SIEH – 3 mm (round design), inductive – for size 16 ... 20 Link sieh

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped	PNP	Plug M8, A-coded	0.15 m	**538263**	**SIEH-3B-PS-S-L**

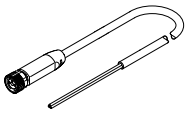
Proximity switch SIEN, with cable, inductive – for size 25 ... 80 Link sien

	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Via lock nut	PNP	Open end	2.5 m	**150386**	**SIEN-M8B-PS-K-L**

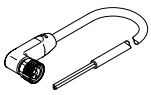
Proximity switch SIEN, without cable, inductive – for size 25 ... 80 Link sien

	Type of mounting	Switching output	Electrical connection	Part no.	Type
	Via lock nut	PNP	Plug M8, A-coded	**150387**	**SIEN-M8B-PS-S-L**

Connecting cables NEBA, straight

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

Connecting cables NEBA, angled

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