Three-point grippers HGDD, sealed

FESTO

New

Three-point grippers HGDD, sealed

Key features

At a glance

General information

The fully encapsulated gripper kinematics enable the gripper to be used in extremely harsh ambient conditions.

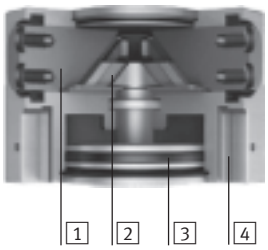
Sturdy and precise kinematics for maximum torque resistance and long service life.
The force generated by the linear motion is translated into the gripper jaw movement via a wedge mechanism with forced motion sequence. This also guarantees synchronous movement of the gripper jaw. The ground gripper jaws and slideway ensure a virtually backlash-free movement.

Flexible range of applications

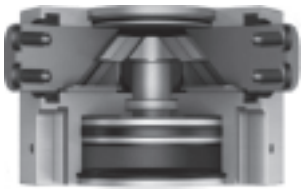
- Can be used as a double-acting and single-acting gripper
- Compression spring for supplementary or retaining gripping forces
- Suitable for external and internal gripping

The technology in detail

Gripper closed



Gripper open



1 Gripper jaw
2 Wedge with forced guidance
3 Piston with magnet
4 Slot for proximity sensor

Note

Gripper selection sizing software
➔ www.festo.com

Position sensing/force control

With position transmitter SMAT-8M

Infinite position sensing possible
- Analogue output 0 ... 10 V

With proportional pressure regulator VPPM

Infinite adjustment of the gripping force possible
- Setpoint input
  - 0 ... 10 V
  - 4 ... 20 mA

With proximity sensor SMT-8G

Multiple positions can be sensed:
- Open
- Closed
- Workpiece gripped

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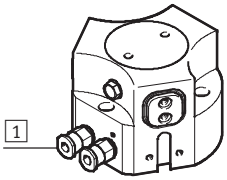
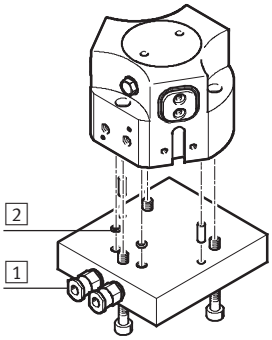
Key features

Wide range of supply ports

Direct
From the front

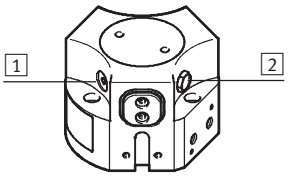


Via adapter plate
From underneath



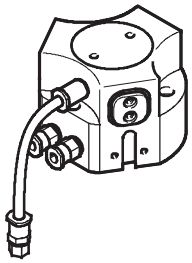
1 Supply ports
2 O-rings

Other ports



1 Port for lubrication nipple
2 Exhaust hole or sealing air port

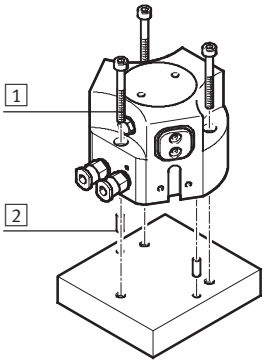
Use in harsh ambient conditions



When using the gripper in damp environments or with liquid/gaseous media, make sure that the filter is installed in a neutral environment. The same applies to unused supply ports when operating the gripper as a single-acting gripper.

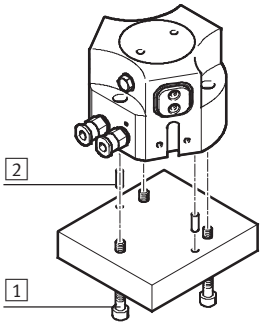
Mounting options

Direct mounting
From above



1 Mounting screws
2 Centring pins

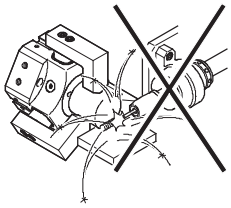
Via adapter plate
From underneath



Note

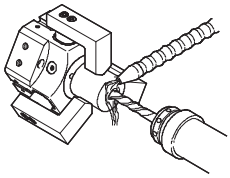
These grippers are not suitable or are of limited suitability for the following sample applications:

Not suitable for:

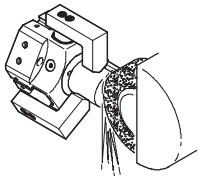


- Welding spatter

Of limited suitability for:



- Aggressive media only possible after consultation with Festo



- Grinding dust

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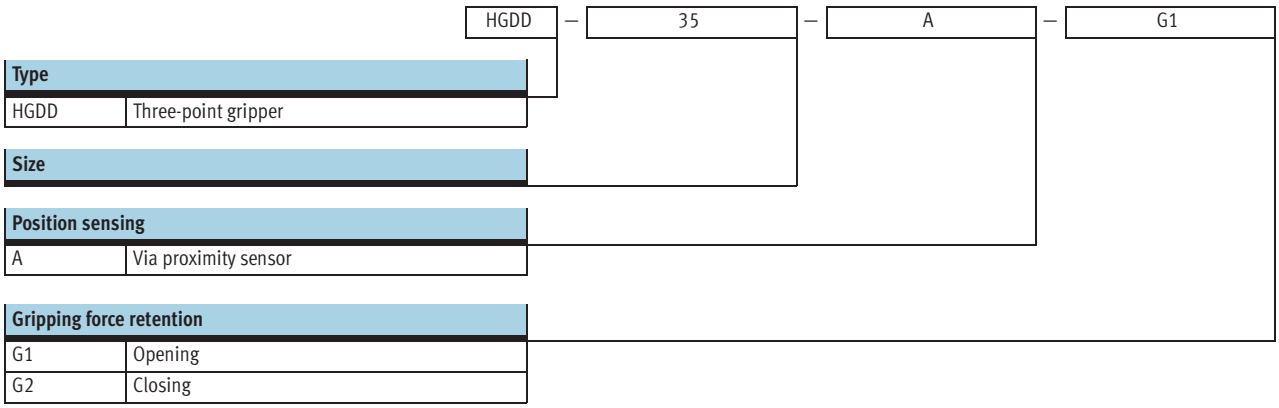
Type codes



Type	
HGDD	Three-point gripper

Size

Position sensing	
A	Via proximity sensor

Gripping force retention	
G1	Opening
G2	Closing

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Peripherals overview

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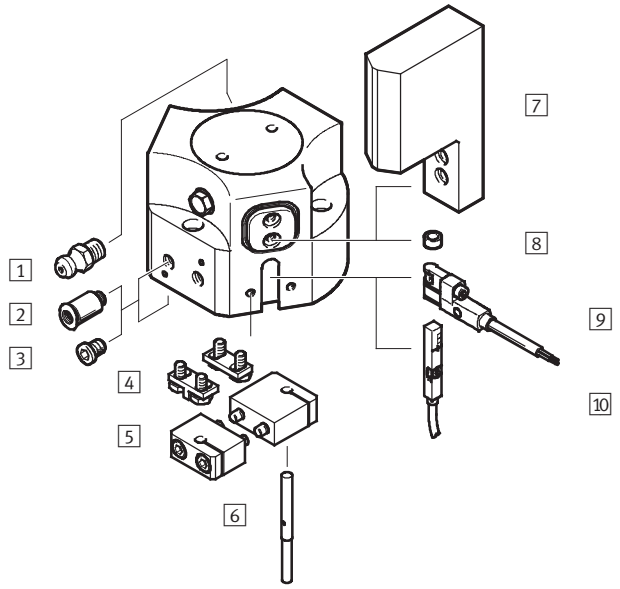
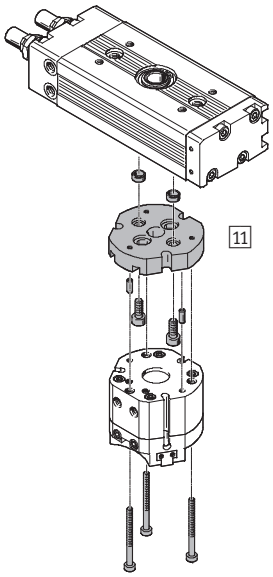
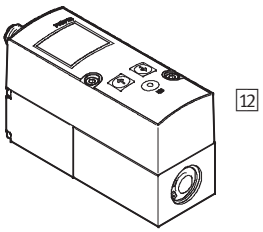
Peripherals overview



System product for handling and assembly technology



Proportional pressure regulator VPPM



Accessories

	Type	Brief description	→ Page/Internet
1	Lubrication nipple	Included in the scope of delivery of the gripper	–
2	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	quick star
3	Blanking plug B	For sealing the supply ports when using the lower supply ports	17
4	Sensor bracket DASI	Switch lug for sensing the gripper jaw position. Mounted on the gripper jaw blank	17
5	Sensor bracket DASI	Clamping block for securing the proximity sensors SIEH or SIEN	17
6	Proximity sensor SIEH/SIEN	For sensing the piston position	18
7	Gripper jaw blank BUB-HGDD	Blank specially matched to the gripper jaws for custom fabrication of gripper fingers	16
8	Centring sleeve ZBH	• For centring gripper jaw blanks/gripper fingers on the gripper jaws • 6 centring sleeves included in the scope of delivery of the gripper	17
9	Proximity sensor SMT-8G	• For sensing the piston position, 3 slots available • Proximity sensor does not project past the housing at the bottom	17
10	Position transmitter SMAT-8M	Continuously senses the position of the piston. Has an analogue output with an output signal in proportion to the piston position.	18
11	Adapter plate DHAA	Connecting plate between drive and gripper	14
12	Proportional pressure regulator VPPM	For infinite adjustment of the gripping force	vppm

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Technical data

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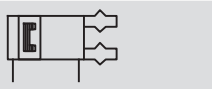
Function
Double-acting
HGDD-...



35 ... 80 mm

4 ... 12 mm

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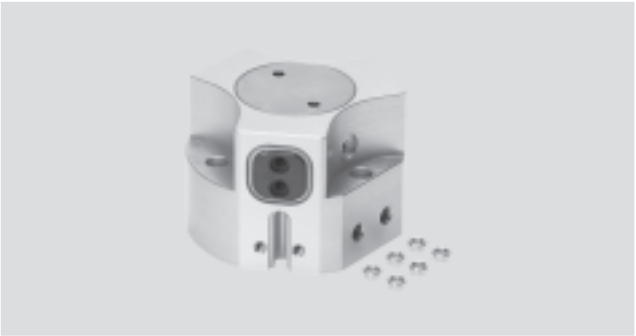
Function – Variants
Single-acting or
with gripping force retention ...
... opening HGDD-...-G1

... closing HGDD-...-G2



General technical data						
Size		35	40	50	63	80
Design		Wedge-shaped actuator				
		Forced motion sequence				
Mode of operation		Double-acting				
Gripper function		3-point				
Number of gripper jaws		3				
Max. applied load per external gripper finger[1]	[N]	0.57	1.30	2.76	4.40	7.90
Stroke per gripper jaw	[mm]	4	6	8	10	12
Pneumatic connection		M5	M5	G1⁄8	G1⁄8	G1⁄8
Pneumatic connection for sealing air		M3	M3	M5	M5	G1⁄8
Pneumatic connection for lubrication nipple		M3	M3	M5	M5	M5
Repetition accuracy[2]	[mm]	≤ 0.03			≤ 0.05	
Max. interchangeability	[mm]	≤ ±0.2				
Max. operating frequency	[Hz]	≤ 4				
Rotational symmetry	[mm]	< ∅ 0.2				
Position sensing		Via proximity sensor				
Type of mounting		Via through-hole and dowel pin				
		Via female thread and dowel pin				
Mounting position		Any				

1) Valid for unthrottled operation
2) End-position drift under constant conditions of use with 100 consecutive strokes, concentric to the central shaft

Operating and environmental conditions		
Min. operating pressure		
HGDD-...-A	[bar]	3
HGDD-...-A-G	[bar]	4
Max. operating pressure	[bar]	8
Operating pressure for sealing air	[bar]	0 ... 0.5
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature[1]	[°C]	+5 ... +60
Corrosion resistance class CRC[2]		2

1) Note operating range of proximity sensors
2) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

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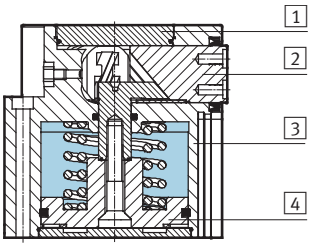
Weight [g]						
Size		35	40	50	63	80
HGDD-...-A		309	599	1,117	2,175	3,522
HGDD-...-A-G		370	775	1,495	2,848	4,788

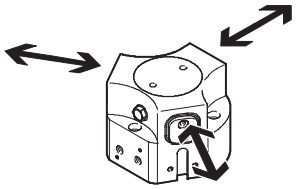
Materials

Sectional view



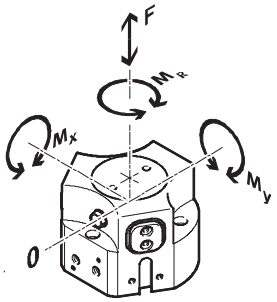
Three-point gripper		
1	Cover cap	High-alloy stainless steel
2	Gripper jaw	Hardened steel
3	Housing	Anodised aluminium
4	Piston	Hard anodised aluminium
–	Seals	Nitrile rubber
–	Note on materials	Free of copper and PTFE
		RoHS-compliant

Gripping force [N] at 6 bar



Size		35	40	50	63	80
Gripping force per gripper jaw						
HGDD-...-A	Opening	122	216	371	582	943
	Closing	112	200	348	553	915
Total gripping force						
HGDD-...-A	Opening	366	648	1,113	1,746	2,829
	Closing	336	600	1,044	1,659	2,745

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 due to the workpiece or external gripper fingers and acceleration forces occurring during movement.

The zero coordinate line (gripper finger point of rotation) must be taken into consideration for the calculation of torques.

Size		35	40	50	63	80
Max. permissible force F_z	[N]	300	700	1,300	2,300	3,600
Max. permissible torque M_x	[Nm]	12	25	45	70	100
Max. permissible torque M_y	[Nm]	8	18	30	45	65
Max. permissible torque Mr	[Nm]	8	20	30	50	75

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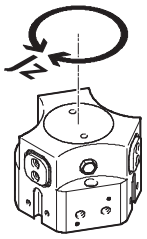
Technical data

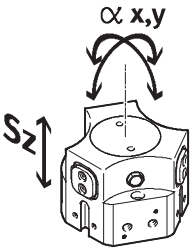
Mass moment of inertia [kgcm²]



Mass moment of inertia of the three-point gripper in relation to the central axis, without external gripper fingers, without load.

Size	35	40	50	63	80
HGDD-...-A	1.01	3.31	9.65	29	70.22
HGDD-...-A-G	1.37	5.01	15.07	45.05	109

Gripper jaw backlash

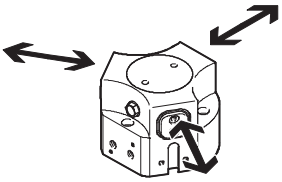


The plain-bearing guide used in the grippers means that there is backlash between the gripper jaws and the guide element. The values entered in the table for the backlash were calculated in accordance with the traditional accumulative tolerance method.

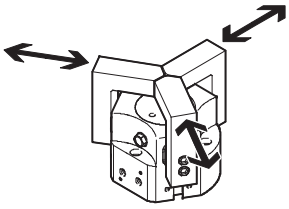
Size		35	40	50	63	80
Max. gripper jaw backlash Sz	[mm]	0.05				
Max. gripper jaw angular backlash ax, ay	[°]	0.1				

Opening and closing times [ms] at 6 bar

Without external gripper fingers



With external gripper fingers



The indicated opening and closing times [ms] were measured at room temperature at an operating pressure of 6 bar with horizontally mounted grippers without additional gripper fingers. The grippers must be throttled for greater applied loads. Opening and closing times must then be adjusted accordingly.

Size		35	40	50	63	80
Without external gripper fingers						
HGDD-...-A	Opening	44	78	93	115	152
	Closing	52	106	128	145	142
HGDD-...-A-G1	Opening	38	70	25	48	72
	Closing	85	211	160	190	246
HGDD-...-A-G2	Opening	81	144	111	135	159
	Closing	42	110	87	68	107
With external gripper fingers per gripper finger (as a function of applied load)						
HGDD-...	2 N	52	–	–	–	–
	4 N	74	70	–	–	–
	5 N	83	78	–	–	–
	8 N	105	99	106	–	–
	10 N	–	111	118	128	–
	15 N	–	–	145	157	209
	18 N	–	–	–	172	229
	20 N	–	–	–	181	241
	22 N	–	–	–	–	253
	24 N	–	–	–	–	264

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Technical data

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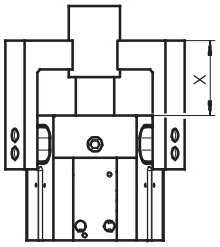
Gripping force F_H per gripper jaw as a function of operating pressure and lever arm x

The gripping forces as a function of operating pressure and lever arm can be determined from the following graphs.



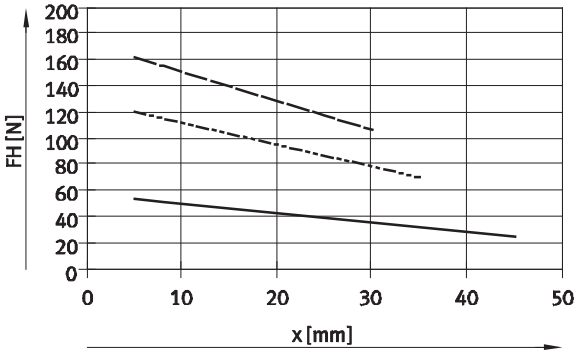
3 bar
6 bar
8 bar

Note

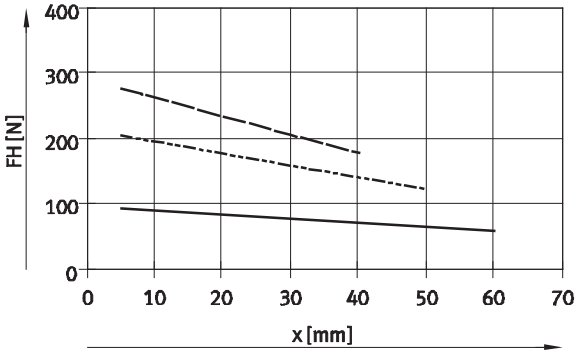
Gripper selection sizing software
➔ www.festo.com

External gripping (closing)

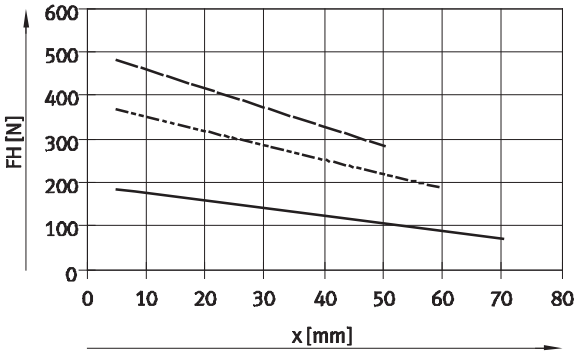
HGDD-35-A



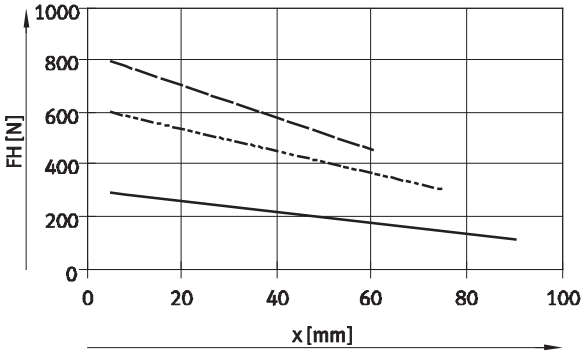
HGDD-40-A



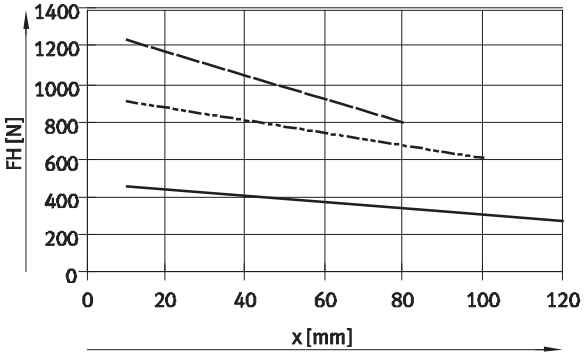
HGDD-50-A



HGDD-63-A



HGDD-80-A



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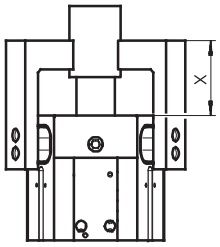
Gripping force F_H per gripper jaw as a function of operating pressure and lever arm x

The gripping forces as a function of operating pressure and lever arm can be determined from the following graphs.



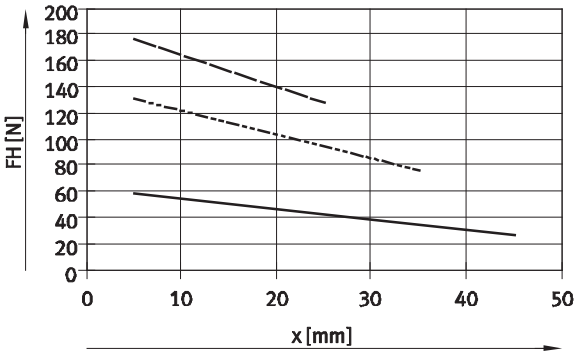
3 bar
6 bar
8 bar

Note

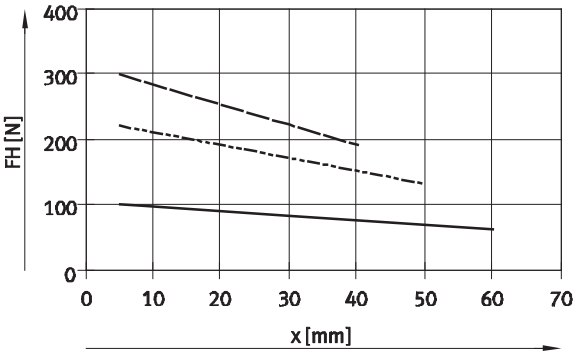
Gripper selection sizing software
➔ www.festo.com

Internal gripping (opening)

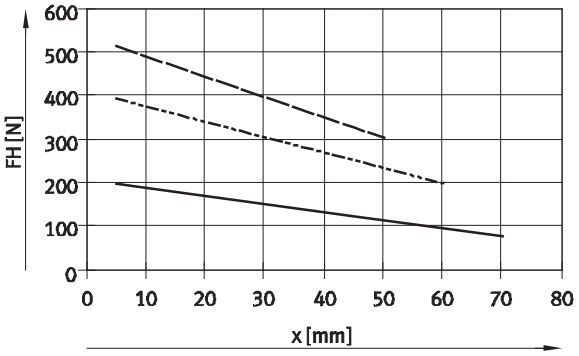
HGDD-35-A



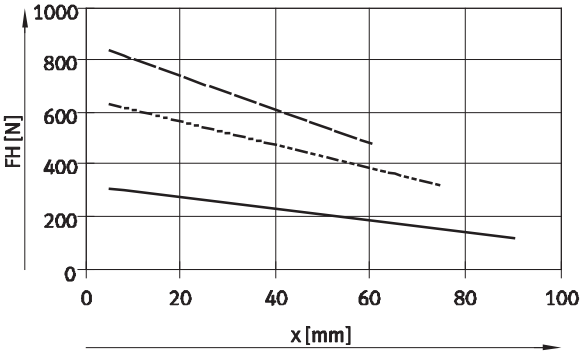
HGDD-40-A



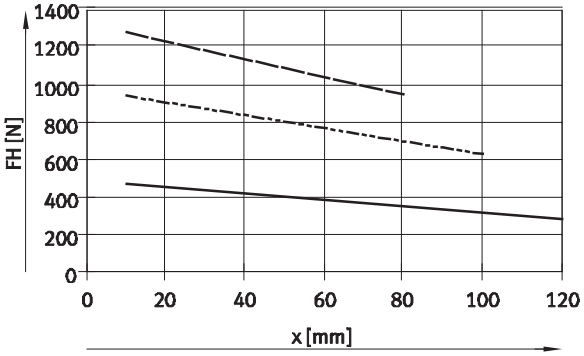
HGDD-50-A



HGDD-63-A



HGDD-80-A



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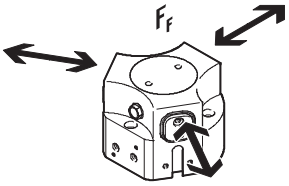
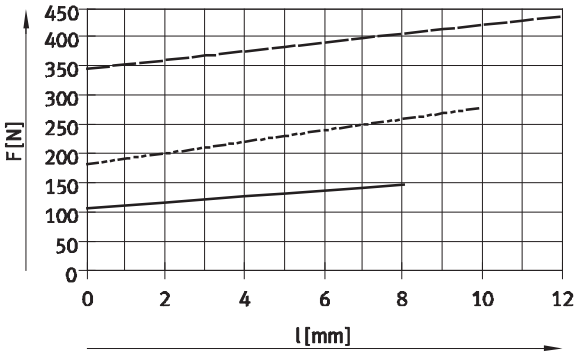
Spring force F_F as a function of size and gripper jaw stroke l per gripper finger

Gripping force retention for HGDD-...-G...

The spring forces F_F as a function of gripper jaw stroke can be determined from the following graph.

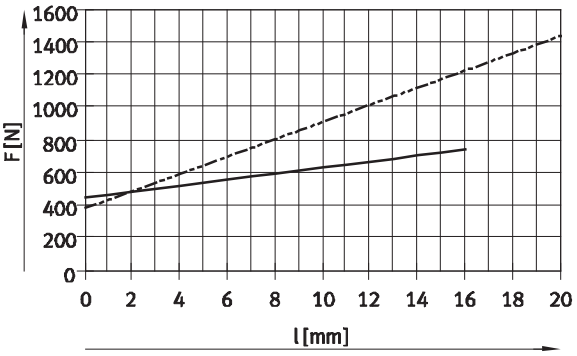


Size 35 ... 50



HGDD-35-A-G
HGDD-40-A-G
HGDD-50-A-G

Size 63 ... 80



HGDD-63-A-G
HGDD-80-A-G

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

The lever arm x must be taken into consideration when determining the actual spring force F_{Ftotal}.

The formulae for calculating the spring force are provided in the table below.

Gripping force retention	Size	F_{Ftotal} per gripper finger
G1	35	$-0.85* x+0.45* F_F$
	40	$-0.55* x+0.35* F_F$
	50	$-2.5* x+0.75* F_F$
	63	$-0.2* x+0.4* F_F$
	80	$-1.5* x+0.35* F_F$

Gripping force retention	Size	F_{Ftotal} per gripper finger
G2	35	$-0.6* x+0.45* F_F$
	40	$-0.55* x+0.35* F_F$
	50	$-2.5* x+0.6* F_F$
	63	$-1.0* x+0.4* F_F$
	80	$-4.0* x+0.85* F_F$

Determination of the actual gripping forces F_{Gr} for HGDD-...-G1 and HGDD-...-G2 as a function of application

The three-point grippers with integrated spring type HGDD-...-G1 (opening gripping force retention) and HGDD-...-G2 (closing gripping force retention) can be used as

- single-acting grippers
- grippers with supplementary gripping force and
- grippers with gripping force retention

depending on requirements.

In order to calculate the available gripping forces F_{Gr} (per gripper finger), the gripping force (F_H) and spring force (F_{Ftotal}) must be combined accordingly.

Application forces per gripper finger

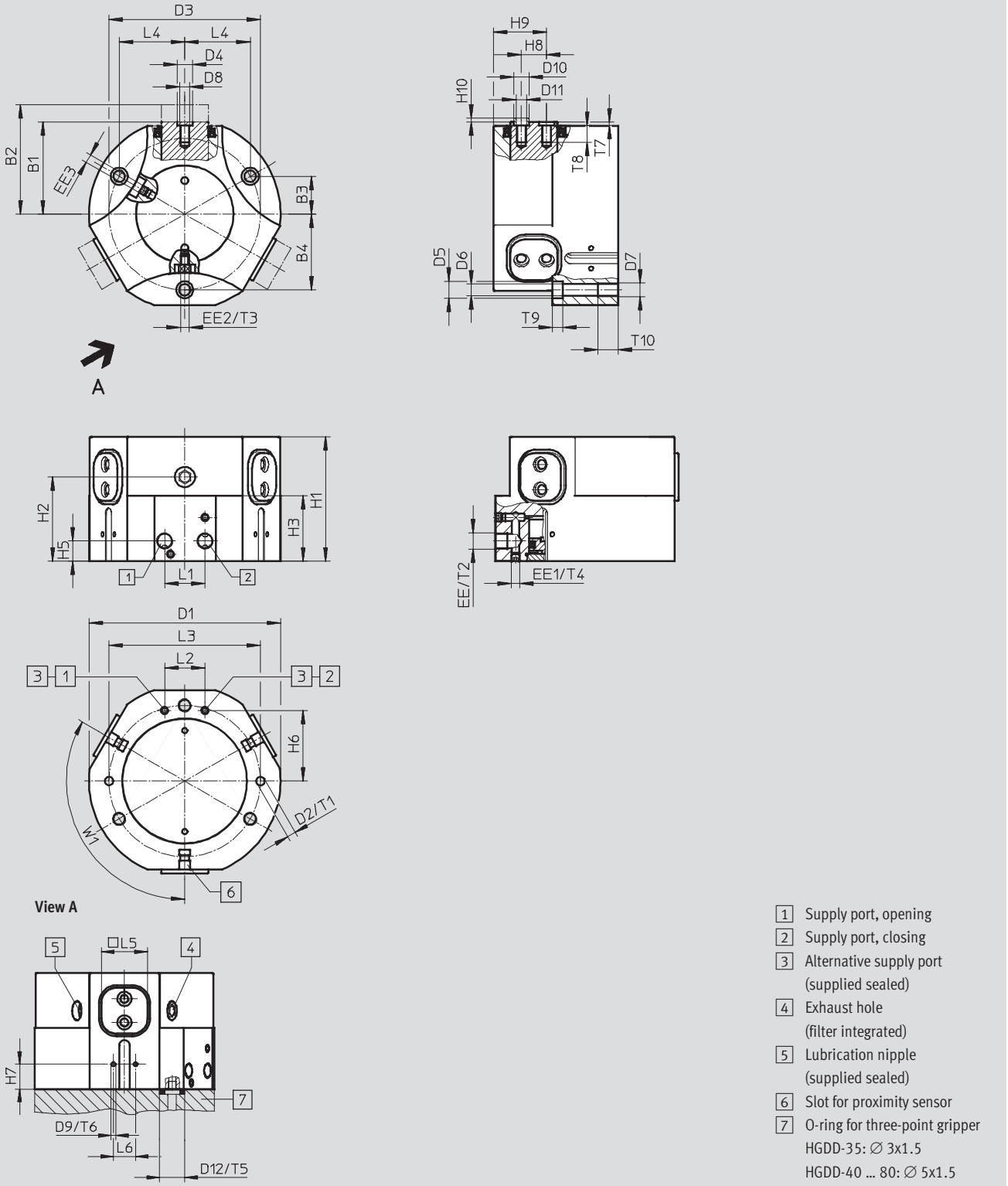
Single-acting	Supplementary gripping force	Gripping force retention
• Gripping with spring force: $F_{Gr} = F_{Ftotal}$	• Gripping with pressure and spring force: $F_{Gr} = F_H + F_{Ftotal}$	• Gripping with spring force: $F_{Gr} = F_{Ftotal}$
• Gripping with pressure force: $F_{Gr} = F_H - F_{Ftotal}$		

Three-point grippers HGDD, sealed

Technical data

FESTO

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



1 Supply port, opening
2 Supply port, closing
3 Alternative supply port (supplied sealed)
4 Exhaust hole (filter integrated)
5 Lubrication nipple (supplied sealed)
6 Slot for proximity sensor
7 O-ring for three-point gripper
HGDD-35: ∅ 3x1.5
HGDD-40 ... 80: ∅ 5x1.5

Three-point grippers HGDD, sealed

FESTO

Technical data

Size	B1	B2	B3	B4	D1	D2	D3	D4	D5	D6	D7	D8	D9
					∅	∅	∅	∅	∅	∅			
[mm]	±0.5	±0.5			±0.1	H8	±0.1	H8	H13	H13			
35	28	32	11	22	58	3	44	5	5.9	3.3	M4	M3	M3
40	36	42	14	28	74	4	56	7	9.4	5.1	M6	M4	M3
50	44.5	52.5	17.5	35	93	5	70	9	10.2	6.8	M8	M6	M3
63	55	65	22.5	45	114	5	90	9	10.2	6.8	M8	M6	M3
80	68	80	28	56	139	6	112	9	13.5	8.4	M10	M6	M3

Size	D10	D11	D12	EE	EE1	EE2	EE3	H1		H2	
	∅	∅	∅						-G		-G
[mm]	h7		+0.2					±0.05	±0.05		
35	5	3.2	6	M5	M3	M3	M3	41	51	29	39
40	7	5.3	8	M5	M5	M3	M3	48.5	66	34.5	52
50	9	6.4	8	G1⁄8	M5	M5	M5	58.5	83.5	40.4	65.4
63	9	6.4	8	G1⁄8	M5	M5	M5	74	104	50	80
80	9	6.4	8	G1⁄8	M5	G1⁄8	M5	83.5	120.5	55.5	92.5

Size	H3		H5	H6	H7		H8[1]	H9	H10	L1	L2	L3	L4
		-G				-G							
[mm]	−0.2	−0.2	±0.1	±0.1	±0.1	±0.1		−0.02	−0.3	±0.1	±0.1	±0.02	
35	23	33	9	18.5	7	17	7	15.5	1.2	12	15	45	19.05
40	27.5	45	9	25	10	27.5	10	19	1.4	12	18	56	24.25
50	32.5	57.5	12	32	12.5	37.5	12	24.1	1.9	24	18	70	30.31
63	39	69	12	42	16	46	15	31.5	1.9	24	24	90	38.97
80	43	80	12	53	21	58	18	37	1.9	30	30	112	48.5

Size	L5	L6	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	W1
[mm]	−0.02	±0.1	min.	min.	min.	min.	+0.1	min.	+0.1	min.	+0.2	min.	
35	14	12	5	5	3	3	1.2	4	1.3	5	3.2	8	120°
40	18	12	6	6	3	5	1.2	5	1.6	6	5	10	120°
50	22	12	8	7	6	5	1.2	5	2.1	10	6.1	12	120°
63	28	14	8	7	6	5	1.2	5	2.1	10	6.1	12	120°
80	32	14	10	8	10	5	1.2	5	2.1	10	8	15	120°

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

Ordering data

Size	Double-acting without compression spring		Single-acting or with gripping force retention			
			Opening		Closing	
[mm]	Part No.	Type	Part No.	Type	Part No.	Type
35	**1163037**	**HGDD-35-A**	**1163038**	**HGDD-35-A-G1**	**1163039**	**HGDD-35-A-G2**
40	**1163040**	**HGDD-40-A**	**1163041**	**HGDD-40-A-G1**	**1163042**	**HGDD-40-A-G2**
50	**1163043**	**HGDD-50-A**	**1163044**	**HGDD-50-A-G1**	**1163045**	**HGDD-50-A-G2**
63	**1163046**	**HGDD-63-A**	**1163047**	**HGDD-63-A-G1**	**1163048**	**HGDD-63-A-G2**
80	**1163049**	**HGDD-80-A**	**1163050**	**HGDD-80-A-G1**	**1163051**	**HGDD-80-A-G2**

Three-point grippers HGDD, sealed

Accessories

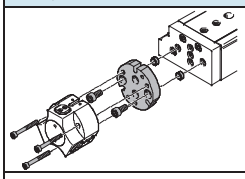
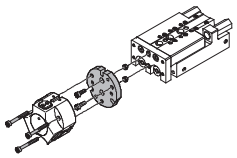
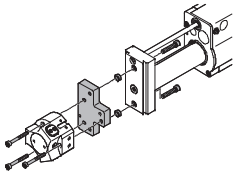
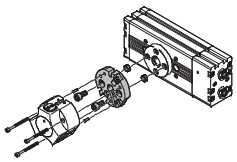
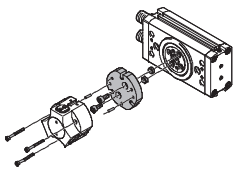
FESTO

Adapter kit
HMSV, HAPG, DHAA

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant

Note
The kit includes the individual mounting interface as well as the necessary mounting material.

Permissible drive/gripper combinations with adapter kit — Download CAD data ➔ **www.festo.com**

Combination	Drive	Gripper	Adapter kit		
	Size	Size	CRC[1]	Part No.	Type
DGSL/HGDD	DGSL	HGDD	HAPG		
	16, 20, 25	35	2	**542436**	**HAPG-94**
	20, 25	40		**542437**	**HAPG-95**
	25	50		**542443**	**HAPG-SD2-36**
SLT/HGDD	SLT	HGDD	HAPG		
	16	35	2	**542435**	**HAPG-99**
	20, 25	35		**542436**	**HAPG-94**
	20, 25	40		**542437**	**HAPG-95**
	25	50		**542443**	**HAPG-SD2-36**
HMP/HGDD	HMP	HGDD	HAPG		
	16	35	2	**542434**	**HAPG-98**
	16, 20, 25	40		**542437**	**HAPG-95**
	20, 25, 32	50		**542443**	**HAPG-SD2-36**
	25, 32	63		**542438**	**HAPG-96**
DRQD/HGDD	DRQD	HGDD	HAPG		
	20, 25, 32	35	2	**542441**	**HAPG-SD2-34**
	20[2], 25/32[3]	35		**542441**	**HAPG-SD2-34**
	25, 32	40		**542442**	**HAPG-SD2-35**
	25/32[3]	40		**542442**	**HAPG-SD2-35**
	32	50		**542443**	**HAPG-SD2-36**
	32[3]	50		**542443**	**HAPG-SD2-36**
	DRQD	HGDD-G1/G2	DHAA		
	20, 25, 32	35	2	**2376297**	**DHAA-G-Q5-20-B13-35**
	25, 32	40		**2376728**	**DHAA-G-Q5-25-B13-40**
	32	50		**2377625**	**DHAA-G-H2-20-B13-50**
DRRD/HGDD	DRRD	HGDD	DHAA		
	20	35	2	**2075498**	**DHAA-G-Q11-20-B13-35**
	25	35		**1718041**	**DHAA-G-Q11-25-B13-35**
	25	40		**1718564**	**DHAA-G-Q11-25-B13-40**
	32	40		**2077119**	**DHAA-G-Q11-32-B13-40**
	32	50		**2078975**	**DHAA-G-Q11-32-B13-50**
	35	50		**2079171**	**DHAA-G-Q11-35-B13-50**
	35, 40	63		**2079579**	**DHAA-G-Q11-35/40-B13-63**

1) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
2) In combination with DRQD-...-E422 (flanged shaft with energy through-feed).
3) In combination with DRQD-...-E444 (flanged shaft with energy through-feed).

Three-point grippers HGDD, sealed

Accessories

FESTO

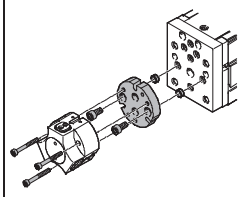
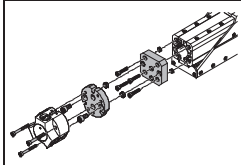
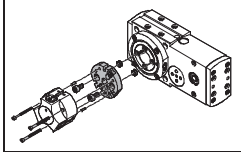
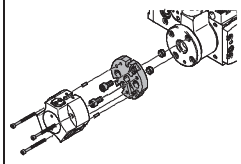
Adapter kit
HMSV, HAPG, DHAA

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant

Note
The kit includes the individual mounting interface as well as the necessary mounting material.

Permissible drive/gripper combinations with adapter kit

Download CAD data ➔ **www.festo.com**

Combination	Drive	Gripper	Adapter kit		
	Size	Size	CRC[1)]	Part No.	Type
EGSL/HGDD	EGSL	HGDD	HAPG		
	45, 55, 75	35	2	**542436**	**HAPG-94**
	75	40		**542437**	**HAPG-95**
	75	50		**542443**	**HAPG-SD2-36**
EGSA/HGDD	EGSA	HGDD	HAPG, HMSV		
	50	35	2	**542436**	**HAPG-94**
				560017	**HMSV-61**
				548805	**ZBV-9-7**
	60	35		**542436**	**HAPG-94**
				560018	**HMSV-62**
				548806	**ZBV-12-9**
	60	40		**542437**	**HAPG-95**
				560018	**HMSV-62**
				548806	**ZBV-12-9**
ERMB/HGDD	ERMB	HGDD	HAPG		
	20, 25, 32	35	2	**542441**	**HAPG-SD2-34**
	25, 32	40		**542442**	**HAPG-SD2-35**
	32	50		**542443**	**HAPG-SD2-36**
EHMB/HGDD	EHMB	HGDD	HAPG		
	20	35	2	**542441**	**HAPG-SD2-34**
	20	40		**542442**	**HAPG-SD2-35**
	25, 32	63		**542443**	**HAPG-SD2-36**

1) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

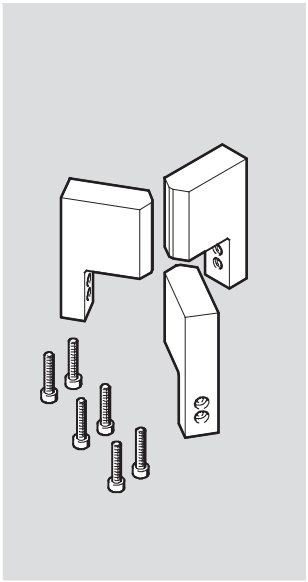
New

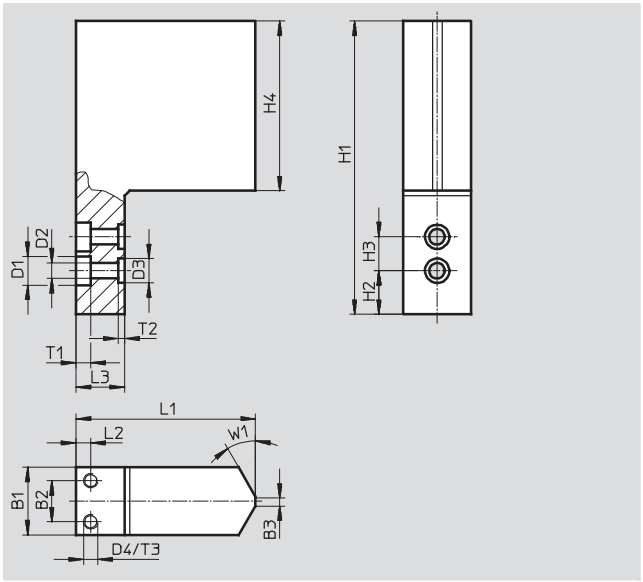
Three-point grippers HGDD, sealed

Accessories

Gripper jaw blank BUB-HGDD
(scope of delivery: 3 pieces)

Material:
Wrought aluminium alloy
Free of copper and PTFE
RoHS-compliant





Dimensions and ordering data							
For size	B1	B2	B3	D1 ∅	D2 ∅	D3 ∅	D4
[mm]	±0.05			H13	H13	H8	
35	14	8.5	2	5.9	3.2	5	M3
40	20	14	2	7.4	4.3	7	M3
50	29	23	2	10.4	6.4	9	M3
63	32	26	2	10.4	6.4	9	M3
80	35	26	2	10.4	6.4	9	M3

For size	H1	H2	H3[1)]	H4	L1	L2	L3
[mm]	±0.05	±0.02			±0.05		
35	60.5	9	7	35	37	3	10
40	77	7	10	50	45	5	10
50	96	11	12	60	55	6	12
63	121	13.5	15	75	64	6	12
80	153.5	15.5	18	100	79.4	10	15

For size	T1	T2	T3	W1	Weight per blank	Part No.	Type
[mm]		+0.1			[g]		
35	$3^{+0.2}$	1.3	5	30°	57	**1180955**	**BUB-HGDD-35**
40	$4^{+0.2}$	1.6	5	30°	131	**1180956**	**BUB-HGDD-40**
50	$6.1^{+0.1}$	2.1	5	30°	276	**1180957**	**BUB-HGDD-50**
63	$6.1^{+0.1}$	2.1	5	30°	440	**1180958**	**BUB-HGDD-63**
80	$6.1^{+0.1}$	2.1	5	30°	793	**1180959**	**BUB-HGDD-80**

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

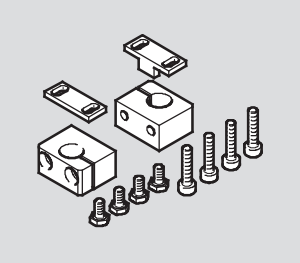
Three-point grippers HGDD, sealed

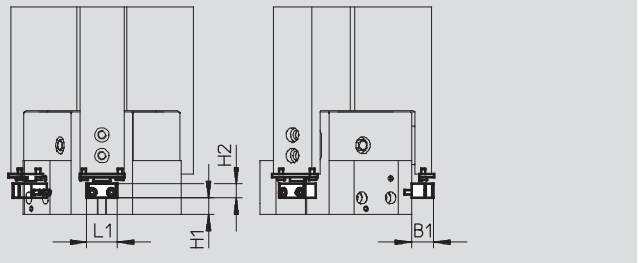
Accessories

FESTO

Sensor bracket DASI
(scope of delivery: 1 piece)

Material:
Wrought aluminium alloy
RoHS-compliant





Dimensions and ordering data

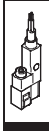
For size [mm]	B1	H1	H1 -G	H2	L1	Weight [g]	Part No.	Type
35	13	3	13	8	21	20	**1435236**	**DASI-B13-35-S3**
40	16	6	23.5	10	20	27	**1435232**	**DASI-B13-40-S8**
50	16	8.5	33.5	10	20	30	**1435233**	**DASI-B13-50-S8**
63	16	10	36	10	22	35	**1435234**	**DASI-B13-63-S8**
80	22	10	47	15	22	45	**1435235**	**DASI-B13-80-S8**

Ordering data — Technical data ➔ www.festo.com

	For size [mm]	Comment	Weight [g]	Part No.	Type	PU[1]
Centring sleeve ZBH					Technical data ➔ Internet: zbh	
	35	For centring gripper jaw blanks/gripper fingers on the gripper jaws	1	**189652**	**ZBH-5**	10
	40		1	**186717**	**ZBH-7**	
	50, 63, 80		1	**150927**	**ZBH-9**	
Blanking plug B					Technical data ➔ Internet: blanking plug	
	35, 40	For sealing the supply ports	1	**174308**	**B-M5-B**	10
	50, 63, 80		5	**3568**	**B-⅛**	

1) Packaging unit

Ordering data – Proximity sensors for T-slot, magneto-resistive — Technical data ➔ Internet: smt

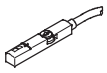
	Type of mounting	Electrical connection, connection direction	Switching output	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot lengthwise	Cable, 3-wire, lateral	PNP	2.5	**547859**	**SMT-8G-PS-24V-E-2,5Q-OE**
		Plug M8x1, 3-pin, lateral		0.3	**547860**	**SMT-8G-PS-24V-E-0,3Q-M8D**

Three-point grippers HGDD, sealed

Accessories

FESTO

Ordering data – Position transmitters for T-slot — Technical data ➔ Internet: smat

	Type of mounting	Electrical connection, connection direction	Analogue output [V]	Cable length [m]	Part No.	Type
	Insertable in the slot from above	Plug M8x1, 3-pin, in-line	0 … 10	0.3	**553744**	**SMAT-8M-U-E-0,3-M8D**

Note

Mode of operation:
The position transmitter continuously senses the position of the piston. It has an analogue output with an output signal in proportion to the piston position.

Proximity sensor for size 35

Ordering data – Proximity sensors 3 mm (round design), inductive — Technical data ➔ Internet: sieh

	Electrical connection	LED	Switching output	Cable length [m]	Part No.	Type
N/O contact						
	Cable, 3-wire	■	PNP	2.5	**538264**	**SIEH-3B-PS-K-L**
	Plug M8x1, 3-pin	■		–	**538263**	**SIEH-3B-PS-S-L**

Proximity sensor for size 40 … 80

Ordering data – Proximity sensors M8 (round design), inductive — Technical data ➔ Internet: sien

	Electrical connection	LED	Switching output	Cable length [m]	Part No.	Type
N/O contact						
	Cable, 3-wire	■	PNP	2.5	**150386**	**SIEN-M8B-PS-K-L**
	Plug M8x1, 3-pin	■		–	**150387**	**SIEN-M8B-PS-S-L**

Ordering data – Connecting cables — Technical data ➔ Internet: nebu

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541334**	**NEBU-M8G3-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**

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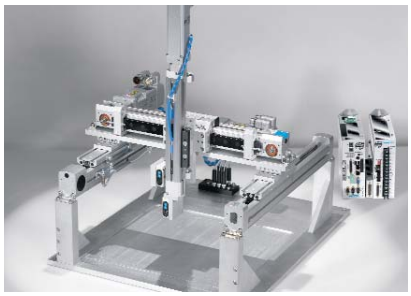

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