
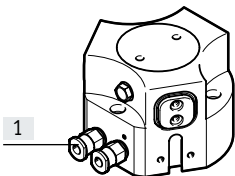


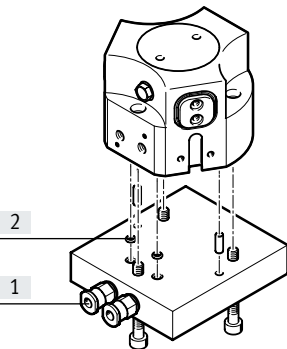
Key features

At a glance	
General	Flexible range of applications
<p>The fully encapsulated gripper kinematics enable the gripper to be used in extremely harsh ambient conditions.</p> <p>The sturdy and precise kinematics provide maximum torque resistance and a long service life.</p> <p>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 virtually backlash-free plain-bearing guide is realised using ground-in gripper jaws.</p>	
<div><div></div><div><b>Note</b> Engineering software Gripper selection → <a href="http://www.festo.com">www.festo.com</a></div></div>	
<ul style="list-style-type: none"><li>• Can be used as a double-acting and single-acting gripper</li><li>• Compression spring for supplementing or retaining the gripping forces</li><li>• Suitable for external and internal gripping</li></ul>	

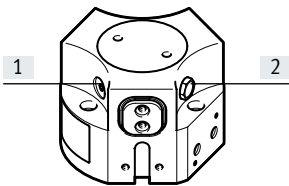
Wide range of supply ports	
Directly from the front	Via adapter plate from underneath



[1] Compressed air supply ports  
[2] O-rings

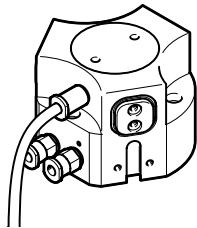


Other connections
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[1] Port for lubrication nipple  
[2] Exhaust hole or sealing air connection

Use in harsh ambient conditions
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When using the gripper in humid 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.

Type codes

001	Series	
HGDD	Three-point gripper, sealed	

002	Size	
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	N/O contact	

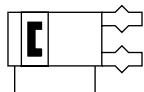
## Three-point grippers HGDD, sealed


### Data sheet


#### Function

Double-acting

HGDD-...



-  Size  
35 ... 80 mm

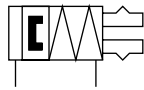
-  Total stroke  
4 ... 12 mm

 [www.festo.com](http://www.festo.com)

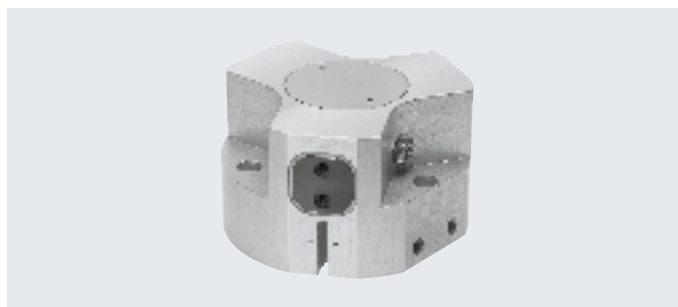
#### Function – Variant

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				
		Force-guided motion				
Mode of operation		Double-acting				
Gripper function		3-point				
Number of gripper jaws		3				
Max. load per gripper finger <sup>1)</sup>	[g]	57	130	276	440	790
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 <sup>2)</sup>	[mm]	≤ 0.03			≤ 0.05	
Max. interchangeability	[mm]	≤ ±0.2				
Max. operating frequency	[Hz]	≤ 4				
Rotational symmetry	[mm]	< Ø 0.2				
Position sensing		Via proximity sensor				
Type of mounting		With through-hole and dowel pin				
		With female thread and dowel pin				
Mounting position		Any				

1) Applies to unthrottled operation

2) Under constant exposure to operating conditions, end-position drift occurs, concentric to the central shaft, at 100 consecutive strokes

#### 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 to ISO 8573-1:2010 [7:4:4]	
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Ambient temperature <sup>1)</sup>	[°C]	+5 ... +60
Degree of protection	IP65	
Corrosion resistance class CRC <sup>2)</sup>	2	

1) Note operating range of proximity sensors

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

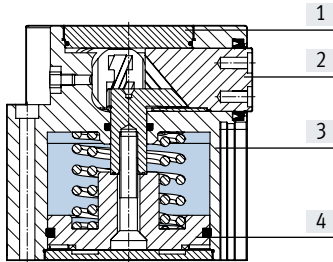
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Data sheet

Weight [g]					
Size	35	40	50	63	80
HGDD-...-A	309	599	1117	2175	3522
HGDD-...-A-G	370	775	1495	2848	4788

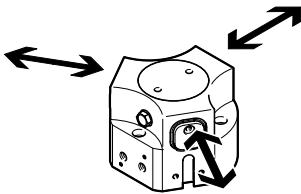
## Sectional view

## Materials



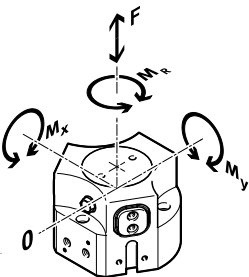
Size	35	40	50	63	80
[1] Cover cap	High-alloy stainless steel				
[2] Gripper jaw	Hardened steel				
[3] Housing	Anodised aluminium				
[4] Piston	Hard-anodised aluminium				
– Seals	Nitrile rubber				
– Note on materials	Free of copper and PTFE			–	
	RoHS-compliant				

## Gripping force [N] at 6 bar



Size		35	40	50	63	80
<b>Gripping force per gripper jaw</b>						
HGDD-...-A	Opening	122	216	371	582	943
	Closing	112	200	348	553	915
<b>Total gripping force</b>						
HGDD-...-A	Opening	366	648	1113	1746	2829
	Closing	336	600	1044	1659	2745

## Characteristic load values at the gripper jaws



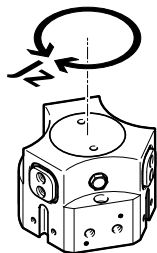
The indicated permissible forces and torques apply to a single gripper jaw. They include the lever arm, additional applied loads due to the workpiece or external gripper fingers and acceleration forces occurring during movement.

The zero coordinate line (gripper jaws 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	1300	2300	3600
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 $M_r$	[Nm]	8	20	30	50	75

## Data sheet

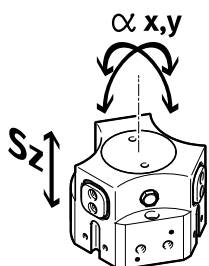
### Mass moments of inertia [kgcm<sup>2</sup>]



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



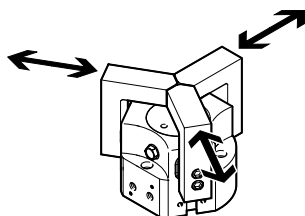
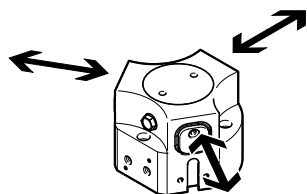
The plain-bearing guide used in the grippers means that there is backlash between the gripper jaws and the guide element. The backlash values listed in the table have been calculated based on the traditional accumulative tolerance method.

Size	35	40	50	63	80
Max. gripper jaw backlash $S_z$	[mm]	0.05			
Max. gripper jaw angular backlash $\alpha_x, \alpha_y$	[°]	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 a horizontally mounted gripper without additional gripper fingers. The grippers must be throttled for larger loads [g]. Opening and closing times must then be adjusted accordingly.

Size	35	40	50	63	80
<b>Without external gripper fingers</b>					
HGDD-...-A	Opening	44	78	93	115
	Closing	52	106	128	145
HGDD-...-A-G1	Opening	38	70	25	48
	Closing	85	211	160	190
HGDD-...-A-G2	Opening	81	144	111	135
	Closing	42	110	87	68
<b>With external gripper fingers (as a function of the load per gripper finger)</b>					
HGDD-...	200 g	52	–	–	–
	400 g	74	70	–	–
	500 g	83	78	–	–
	800 g	105	99	106	–
	1000 g	–	111	118	128
	1500 g	–	–	145	157
	1800 g	–	–	–	172
	2000 g	–	–	–	181
	2200 g	–	–	–	–
	2400 g	–	–	–	–
					253
					264