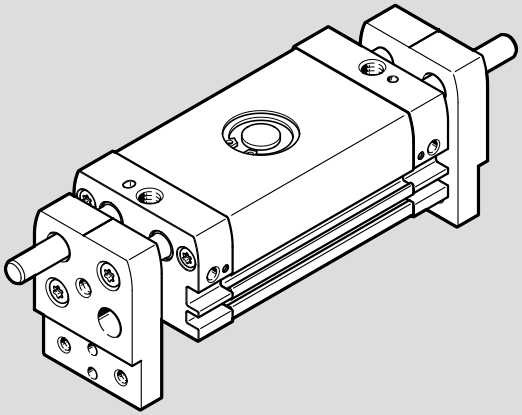
DHPL
Parallel gripper



FESTO

Operating instruction

8201362

8201362
2023-10b
[8201364]

Translation of the original instructions

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1 Applicable documents

All available documents for the product ➔ www.festo.com/sp.

2 Safety

2.1 Safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Observe the identifications on the product.
- Take into account the ambient conditions at the location of use.
- Store the product in a cool, dry environment protected from UV and corrosion. Keep storage times short.
- Before working on the product, switch off the compressed air supply and lock it to prevent it from being switched on again.

2.2 Intended use

The parallel gripper grips and holds payloads. The gripper fingers are custom-designed and attached by the customer.

2.3 Training of qualified personnel

Work on the product may only be carried out by qualified personnel who can evaluate the work and detect dangers. The qualified personnel have knowledge and experience in dealing with pneumatic drives and pneumatic axes.

3 Additional information

- Contact the regional Festo contact if you have technical problems ➔ www.festo.com.
- Accessories and spare parts ➔ www.festo.com/catalogue.

4 Product overview

4.1 Product design

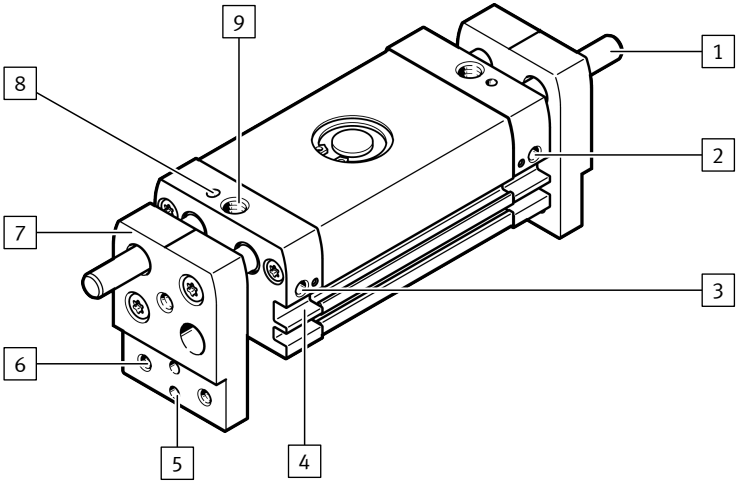

Fig. 1: Configuration

1	Gear rack	6	Thread for mounting gripper finger
2	Supply port, close	7	Gripper jaw
3	Supply port, open	8	Locating hole for direct fastening
4	Slot for optional proximity switch (at both ends)	9	Thread for direct fastening
5	Locating hole for mounting gripper finger		

4.2 Function

Alternating pressurisation of the supply ports moves two pistons in the gripper. This results in a double-acting function.
The gripper jaws are mechanically connected and move synchronously with each other. Gripper fingers are attached to the gripper jaws. Closing or opening the gripper fingers clamps the payload by the outer contour or the inner contour. Integrated slots can be used for mounting position transmitters to detect and monitor the piston positions.

5 Assembly

5.1 Preparing the gripper fingers

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The gripper fingers are not included in the delivery.

Requirements for the gripper fingers:
- Observe the maximum permissible forces and maximum permissible torques at the gripper jaw.
- Use gripper fingers that are as short and light as possible.
- Observe the maximum length and weight.
- Manufacture gripper fingers that are suitable for the payload and type of gripping action.

5.2 Mounting gripper fingers

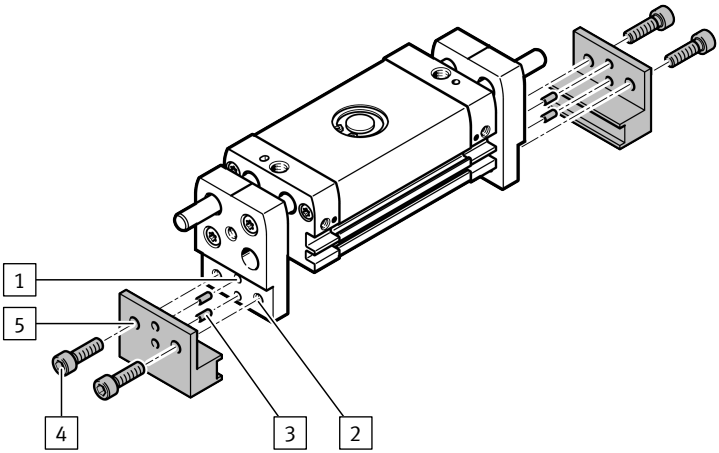


Fig. 2: Mounting gripper fingers

1	Locating hole	4	Screw
2	Thread	5	Gripper fingers
3	Centring pin		

1. Position the gripper fingers [5] with matching centring pins [3] on the locating holes [1] of the gripper jaws.
2. Fasten the gripper fingers with the screws [4] in the threads for mounting . Observe the maximum tightening torque.

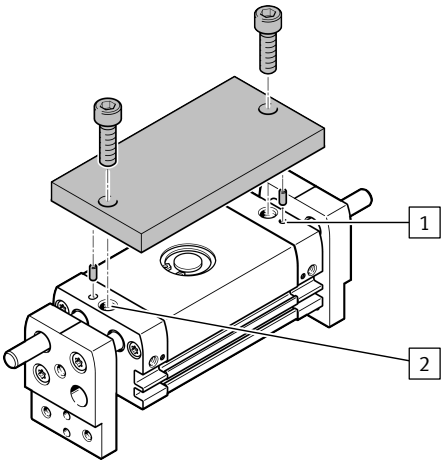
DHPL		**-10**	**-16**	**-20**	**-25**	**-32**	**-40**
Thread [2]		M4	M5	M6	M8	M10	M12
Max. tightening torque	[Nm]	3	6	8	24	47	68
Locating hole [1]	[mm]	⌀ 3 H9	⌀ 4 H9	⌀ 5 H9	⌀ 6 H9	⌀ 8 H9	⌀ 10 H9

Tab. 1: Mounting the gripper fingers

5.3 Mounting gripper

If necessary, mount the position transmitter before mounting the gripper.
When using position transmitters for sensing the end position, take the following into account:
- Interference from ferritic attachments, e.g. retaining screws made of ferritic steel.
- Possibly protruding position transmitters.
- Cable outlet direction of the position transmitters.
- Sufficient space for the connection elements.
- When sensing both end positions: use separate slots for the position transmitters.

5.3.1 Mounting gripper from above with 2 screws



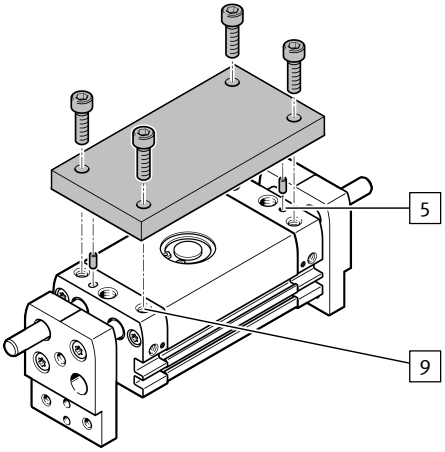
1 Locating hole
2 Thread

Fig. 3: Mounting gripper from above with 2 screws

DHPL		-10	-16	-20	-25	-32	-40
Thread[2]		M6	M8	M8	M12	M12	–
Thread depth	[mm]	12	16	16	18	24	–
Max. tightening torque	[Nm]	8	24	24	68	68	–
Locating hole [1]	[mm]	⌀ 3 H9	⌀ 3 H9	⌀ 4 H9	⌀ 4 H9	⌀ 6 H9	–
Depth of locating hole	[mm]	4	3	4.5	4.5	6	–

Tab. 2: Mounting gripper from above with 2 screws

5.3.2 Mounting gripper from above with 4 screws



5 Locating hole

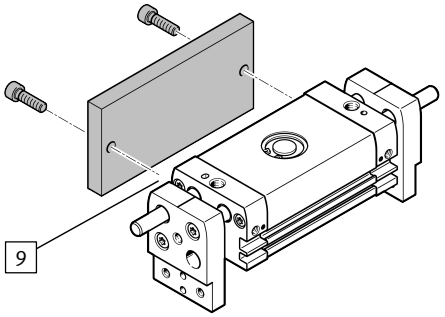
9 Thread for direct fastening

Fig. 4: Mounting gripper from above with 4 screws

DHPL		-10	-16	-20	-25	-32	-40
Thread for direct fastening [9]		–	–	–	M6	M8	M10
Thread depth	[mm]	–	–	–	8	18	20
Tightening torque	[Nm]	–	–	–	8	24	47
Locating hole [5]	[mm]	–	–	–	Ø 4 H9	Ø 6 H9	Ø 6 H9
Depth of locating hole	[mm]	–	–	–	4.5	6	8

Tab. 3: Mounting gripper from above with 4 screws

5.3.3 Mounting gripper from behind



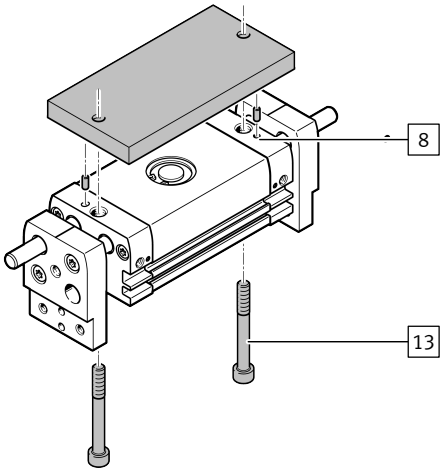
9 Thread for direct fastening

Fig. 5: Mounting gripper from behind

DHPL		-10	-16	-20	-25	-32	-40
Thread for direct fastening [9]		M4	M5	M6	M8	M8	M10
Thread depth	[mm]	5	7	7	8	11	15
Tightening torque	[Nm]	3	6	8	24	24	47

Tab. 4: Mounting gripper from behind

5.3.4 Mounting gripper from below



8 Locating hole
13 Screw

Fig. 6: Mounting gripper from below

DHPL		-10	-16	-20	-25	-32	-40
Screw [13]		M4	M6	M6	M8	M10	M10
Tightening torque	[Nm]	3	8	8	24	47	47
Locating hole [8]	[mm]	⌀ 3 H9	⌀ 3 H9	⌀ 4 H9	⌀ 4 H9	⌀ 6 H9	⌀ 6 H9
Depth of locating hole	[mm]	4	3	4.5	4.5	6	8

Tab. 5: Mounting gripper from below

6 Installation

6.1 Installation, pneumatic

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The use of a check valve prevents the payload from dropping in the event of a sudden pressure drop. The use of a one-way flow control valve also permits adjustment of the opening and closing times.

- Connect the compressed air supply to the close [2] and open [3] ports.

6.2 Installation, electrical

- Connect the position transmitters ➔ 1 Applicable documents.

7 Commissioning

1. Pressurise the product slowly.
2. Set the opening and closing times with an upstream one-way flow control valve: screw in the flow control screw completely and then unscrew it one turn.
3. Perform a test run without payload.
   Check the following:
   – Allocation of the supply ports
   – Safe function of the position transmitters, if installed
   – Stop noise of the piston: the piston stop must be soft, not audibly hard or metallic

Piston stop	Detection/consequence
Soft	The gripper speed is correct or can be increased. With an upstream one-way flow control valve: unscrew the flow control screw a little ➔ the gripper speed increases.
Hard/metallic	The gripper speed is too high. With an upstream one-way flow control valve: screw in the flow control screw until the piston stop is no longer audibly hard or metallic ➔ the gripper speed is reduced.

4. Perform a test run with payload.
   ↳ The product must hold the payload securely.
5. After a successful test run:
   – Remove the payload or lock it to prevent it from falling.
   – Exhaust the product.

8 Cleaning

- Clean the product with a clean, soft cloth and non-abrasive cleaning agents.

9 Fault clearance

Malfunction	Cause	Remedy
The product does not hold the payload securely.	The operating pressure is too low	– Increase the operating pressure.
	The pressure point of the gripper fingers is too far outwards.	– Move the pressure point inwards.
	The payload is too heavy.	– Reduce the payload. – Select a larger size.

Malfunction	Cause	Remedy
The product does not hold the payload securely.	Gripping only with return spring force with incorrect gripping direction.	– Use the specified gripping direction.
The product does not open or close.	Compressed air not available.	– Check the supply ports.
	The product is defective.	– Replace the product.
The position transmitter does not show the position.	The position transmitter is incorrectly adjusted.	– Check and adjust the position of the position transmitter.
	The connecting cable is faulty.	– Replace the connecting cable. – Replace the position transmitter.

Tab. 6: Fault clearance

10 Technical data

10.1 Technical data, general

DHPL		-10	-16	-20	-25	-32	-40
Design		Gear rack/pinion					
Mode of operation		Double-acting					
Mounting position		Any					
Pneumatic port		M5				G 1/8	
Ambient temperature	[°C]	–10 … +60					

Tab. 7: Technical data, general

10.2 Technical data, pneumatic

DHPL		-10	-16	-20	-25	-32	-40
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]					
Information on the operating medium		Lubricated operation possible, in which case lubricated operation will always be required					
Operating pressure	[MPa]	0.25 … 0.8	0.15 … 0.8				
	[bar]	2.5 … 8	1.5 … 8				
	[psi]	36 … 116	21.75 … 116				

Tab. 8: Technical data, pneumatic

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