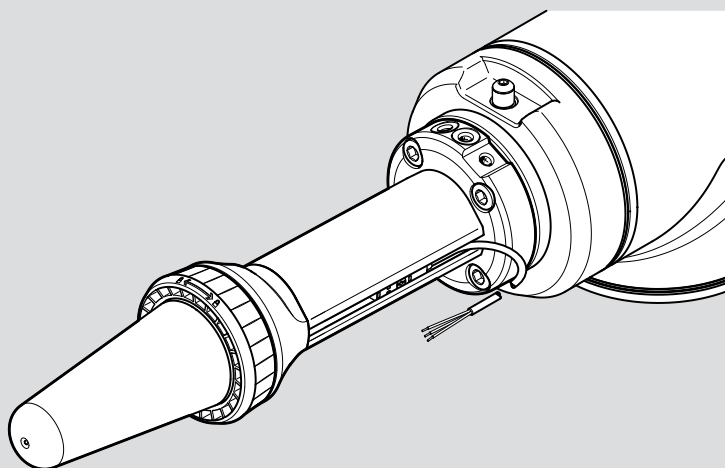


DHEF-20-A-RA50

Adaptive shape gripper kit for robots

FESTO

Operating instruction



8217800

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2024-12
[8217802]

Original instructions

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1 Applicable documents



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

Documents	Product	Contents
Operating instruction	Adaptive shape gripper DHEF	–
Operating instruction	Positions transmitter SMT-8M-A-...-24V-E-...	–
Operating instruction	Proportional-pressure regulator VEAB	–
Assembly instructions	Connecting cable NEBA-M8G4-U-5-N-LE4	–
Assembly instructions	Connecting cable NEBA-M8G3-U-5-N-LE3	–

Tab. 1: Applicable documents

2 Safety

2.1 Safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Observe the identifications on the product.
- Before working on the product: Switch off the power supply, ensure that it is off and secure it against being switched on again.
- Before working on the product, switch off the compressed air supply and lock it to prevent it from being switched on again.
- Store the product in a cool, dry environment protected from UV and corrosion. Keep storage times short.

2.2 Intended use

The adaptive shape gripper kit for robots is mounted on a robot to perform payload handling tasks.

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 skills and experience in dealing with pneumatic (open-loop) control technology.

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

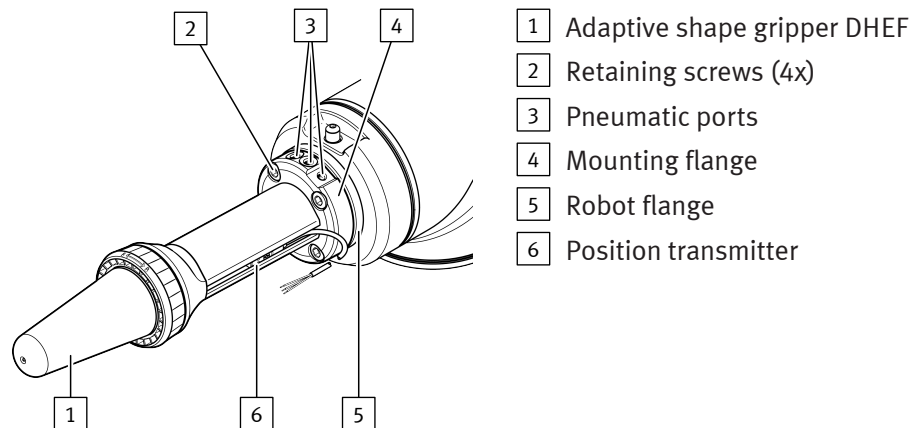


Fig. 1: Product design

4.2 Function

Grip/release

The function is used when the robot arm is not performing a traversing movement.

- Grip: the lower cylinder chamber is pressurised. The piston rod retracts.
- Release: the upper cylinder chamber is pressurised while the lower cylinder chamber is exhausted. The piston rod advances. Then both cylinder chambers are exhausted (neutral position).

Smart gripping

The function is used when the robot arm performs a traversing movement.

- The robot arm moves the workpiece distance in the direction of the Z-axis.
- The workpiece is detected and the proximity sensor switches.
- After detection of the workpiece, the robot arm moves the adaptive shape gripper further down in the direction of the Z-axis direction to the workpiece. At the same time the piston rod moves into the adaptive shape gripper and the cap wraps around the workpiece.
- After travel over the defined path, the lower piston chamber is pressurised and the piston rod is fully retracted. The adaptive shape gripper does not move further down during the active retracting process.

Smart release

When the workpiece is released, the gripper moves upwards in the direction of the Z-axis over the full stroke of 66 mm. At the same time, the upper piston chamber is pressurised with a pressure pulse. The piston rod extends again to release the workpiece.

5 Mounting

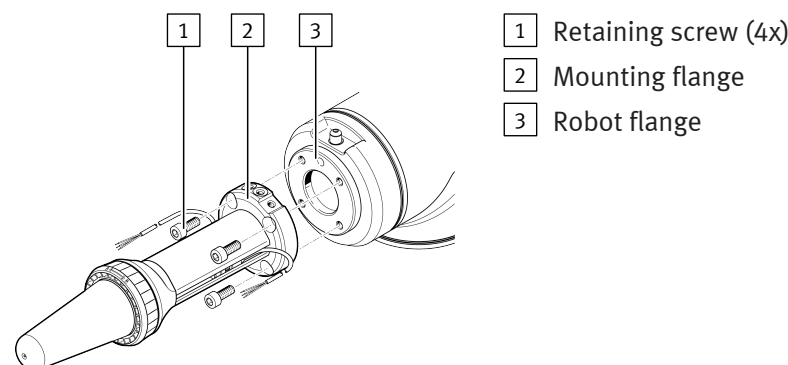


Fig. 2: Mounting

1. Position the mounting flange correctly on the robot flange.
2. Screw in and tighten the retaining screws. Tightening torque: 8 Nm $\pm$ 20%.

6 Installation

6.1 Installation, pneumatic

1. Screw the push-in fittings into the pneumatic port (A) and pneumatic port (B) on the adaptive shape gripper DHEF and tighten them. ➔ 1 Applicable documents. Tightening torque: 1.33 Nm $\pm$ 20%.
2. Screw the push-in fitting into the pneumatic port (C) on the adaptive shape gripper DHEF and tighten it. Tightening torque: 1.33 Nm $\pm$ 20%.
3. Screw the push-in fittings into the following pneumatic ports of the solenoid valve and tighten them ➔ 1 Applicable documents. Tightening torque: 1.33 Nm $\pm$ 20%.
 - Pneumatic port (1)
 - Pneumatic port (2)
 - Pneumatic port (4)
4. Screw a silencer into the following pneumatic ports of the solenoid valve and tighten it.
 - Pneumatic port (3)
 - Pneumatic port (5)
5. Plug a silencer into the pneumatic port (3) on the proportional-pressure regulator VEAB ➔ 1 Applicable documents.
6. Mount the solenoid valve and the proportional-pressure regulator VEAB at a suitable position on the robot foot.
7. Connect tubing to the pneumatic ports.

Tubing from	Pneumatic port	Tubing to	Pneumatic port	Tubing
Adaptive shape gripper DHEF	(A)	Solenoid valve	(2)	PUN-6
Adaptive shape gripper DHEF	(B)	Solenoid valve	(4)	PUN-6
Adaptive shape gripper DHEF	(C)	Proportional-pressure regulator VEAB	(2)	PUN-4
Solenoid valve	(1)	Compressed air supply	–	PUN-6
Proportional-pressure regulator VEAB	(1)	Compressed air supply	–	PUN-4

8. Lay cables and tubing along the robot arm.

6.2 Installation, electrical

1. Switch off power to the controller and lock it to prevent it from being switched on again unintentionally.
2. Insert and fasten the position transmitters in the grooves. Place one position transmitter on the flange side and one on the cap side ➔ 1 Applicable documents.
3. Connect the solenoid valve with the supplied connecting cables NEBA-M8G3-U-5-N-LE3 ➔ 1 Applicable documents.

- 4. Connect the proportional-pressure regulator VEAB to the supplied connecting cable NEBA-M8G4-U-5-N-LE4 ➔ 1 Applicable documents.

Installing connecting cables

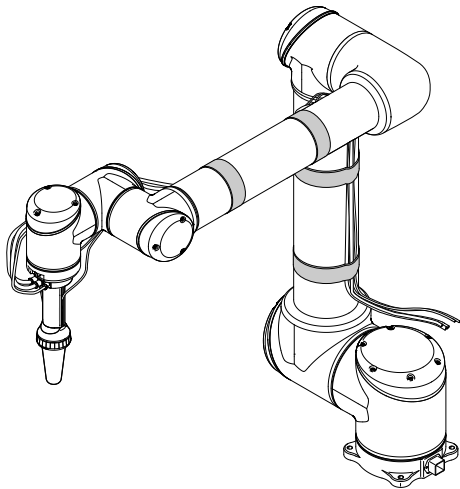


Fig. 3: Installing connecting cables

- i** The connecting cables and tubing must be fastened to the outside of the robot arm with the supplied Velcro strips to prevent the internal cables of the robot from overload.
- i** Observe the prescribed bending radii.
- i** The freedom of movement of the robot must not be restricted by the connecting cables and tubing.

- 1. Cut the supplied Velcro straps to length.
- 2. Position the connecting cables and tubing along the robot arm.
- 3. Fasten the connecting cables and tubing with Velcro straps.
- 1. Lay out the connecting cables without crushing, kinking or stretching them.
- 2. Connect the connecting cables from the position transmitters ➔ 1 Applicable documents.
- 3. Connect the connecting cables NEBA-M8G3-U-5-N-LE3 from the solenoid valve ➔ 1 Applicable documents.
- 4. Connect the connecting cable NEBA-M8G4-U-5-N-LE4 from the proportional-pressure regulator VEAB ➔ 1 Applicable documents.

Attaching connecting cables

7 Cleaning

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

8 Technical data

DHEF-20-A-RA50		
Certificates, declaration of conformity		➔ www.festo.com/sp
Product weight with position transmitter (moving mass)	[g]	485

Tab. 2: Technical data

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