

MATCH

INSTALLATION AND OPERATING INSTRUCTIONS

Magnetic gripper
LWR50L-26

DDOC01464

THE KNOW-HOW FACTORY

ZIMMER group

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DOC01464 / a EN / 2026-09-23

1 Introduction

1.1 Supporting documents

NOTICE



Read through the instructions before installing or working with the product.

The instructions contain important notes for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime.



The documents listed below are available for download on our website www.zimmer-group.com.

- Instructions
- Catalogs, drawings, CAD data, performance data
- Information on accessories
- Technical data sheets
- General Terms and Conditions, including warranty information.

⇨ Only those documents currently available on the website are valid.

In these instructions, "product" refers to the product designation on the title page!

1.2 Notices and graphics in the instructions

DANGER



This notice warns of an imminent danger to the life and health of people. Ignoring these notices can lead to serious injury or even death.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

WARNING



This notice warns of a situation that is potentially hazardous to personal health. Ignoring these notices can cause serious injury or damage to health.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

CAUTION



This notice warns of a situation that is potentially hazardous to persons. Ignoring these notices can cause minor, reversible injuries.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

NOTICE



This notice warns of possible material and environmental damage. Ignoring these notices can result in damage to the product or the environment.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

INFORMATION



This category contains useful tips for handling the product efficiently. Failure to observe these tips will not result in damage to the product. This information does not include any information relevant to health or workplace safety.

2 Safety notices

DANGER



Risk of death due to accidental ignition sources

Magnets can trigger sparks when in contact with certain materials or under mechanical strain. In an environment with combustible gases or dust, an explosion may occur.

► Do not use the product in a potentially explosive environment.

WARNING



Health hazard due to magnetic field

The product contains a permanent magnet and can affect implants such as cardiac pacemakers.

► If you wear any electronic implants, keep a sufficient distance from the magnetic field.

CAUTION



Risk of injury and material damage in case of non-compliance

The product is state-of-the-art.

The following are examples of situations in which the product may cause a hazard:

- The product is not properly installed, used or maintained.
- The product is not used for its designated purpose.
- The locally applicable regulations, laws, directives or guidelines are not observed.

► The product may only be used in accordance with these instructions and the product's technical data. Any changes or additions to the intended use of the product, as well as modifications to the product, such as those in the following examples, require the written permission of the manufacturer:

- Use of the product under extreme conditions, such as aggressive fluids or abrasive dusts
- Additional drilled holes or threads

⇨ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

► Make sure that the power supply is disconnected before you mount, adjust, modify, maintain or repair the product.

► Whenever work is carried out on the product, make sure that the product cannot be actuated by mistake.

► Perform maintenance tasks, renovation work or attachment work outside of the machine's danger zone when possible.

► Do not reach into the operational range of the product.

► Always adhere to the required maintenance intervals.

► When using the product under extreme conditions, adjust the maintenance interval according to the degree of contamination.

3 Proper use

NOTICE



Material damage and malfunction in case of non-compliance

The product is only to be used in its original state with its original accessories, with no unauthorized changes and within the stipulated parameter limits and operating conditions.

Any other or secondary use is deemed improper.

- ▶ Operate the product only in compliance with the associated instructions.
- ▶ Operate the product only when it is in a technical condition that corresponds to the guaranteed parameters and operating conditions.
- ⇨ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

- The product is to be used as intended in enclosed rooms for temporary gripping, handling and holding.
- The product is intended for industrial use.
- The product is not suited for use in a potentially explosive atmosphere.
- Direct contact with perishable goods/food is not permitted.
- The product is not suitable for holding workpieces during a machining process.
- The product acts as a permanent magnet. Therefore, it can only handle workpieces made of ferromagnetic solids.
- The product is designed specifically for use on robot systems in combination with other products from the MATCH tool-changing system.

4 Personnel qualification

WARNING



Inadequate qualification can cause injury and material damage

If inadequately qualified personnel perform work on the product, this can cause serious injuries and significant material damage.

- ▶ All work on the product must be performed by qualified personnel.
- ▶ Before working with the product, read the document in its entirety and make sure that you have understood everything.
- ▶ Observe country-specific accident prevention regulations and the general safety notices.

The following qualifications are a prerequisite for performing various work on the product.

4.1 Electricians

Electricians are able to perform work on electrical systems, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.2 Specialists

Specialists are able to perform the assigned work, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.3 Instructed personnel

Instructed personnel have been trained by the operating company on the tasks and possible dangers of improper behavior.

4.4 Service personnel

Service personnel are able to perform the assigned work and can recognize and avoid possible dangers due to their technical training, knowledge and experience.

4.5 Additional qualifications

Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

Personnel who work with the product must have facility-issued authorization to commission, program, configure, operate, maintain and also decommission this product.

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5 Product description

The MATCH End-of-Arm Ecosystem is equipped with an extensive range of functions and universal communication interfaces. MATCH is compatible with all common lightweight robots. The system can be mounted on the robot flange and set up with a few manual adjustments.

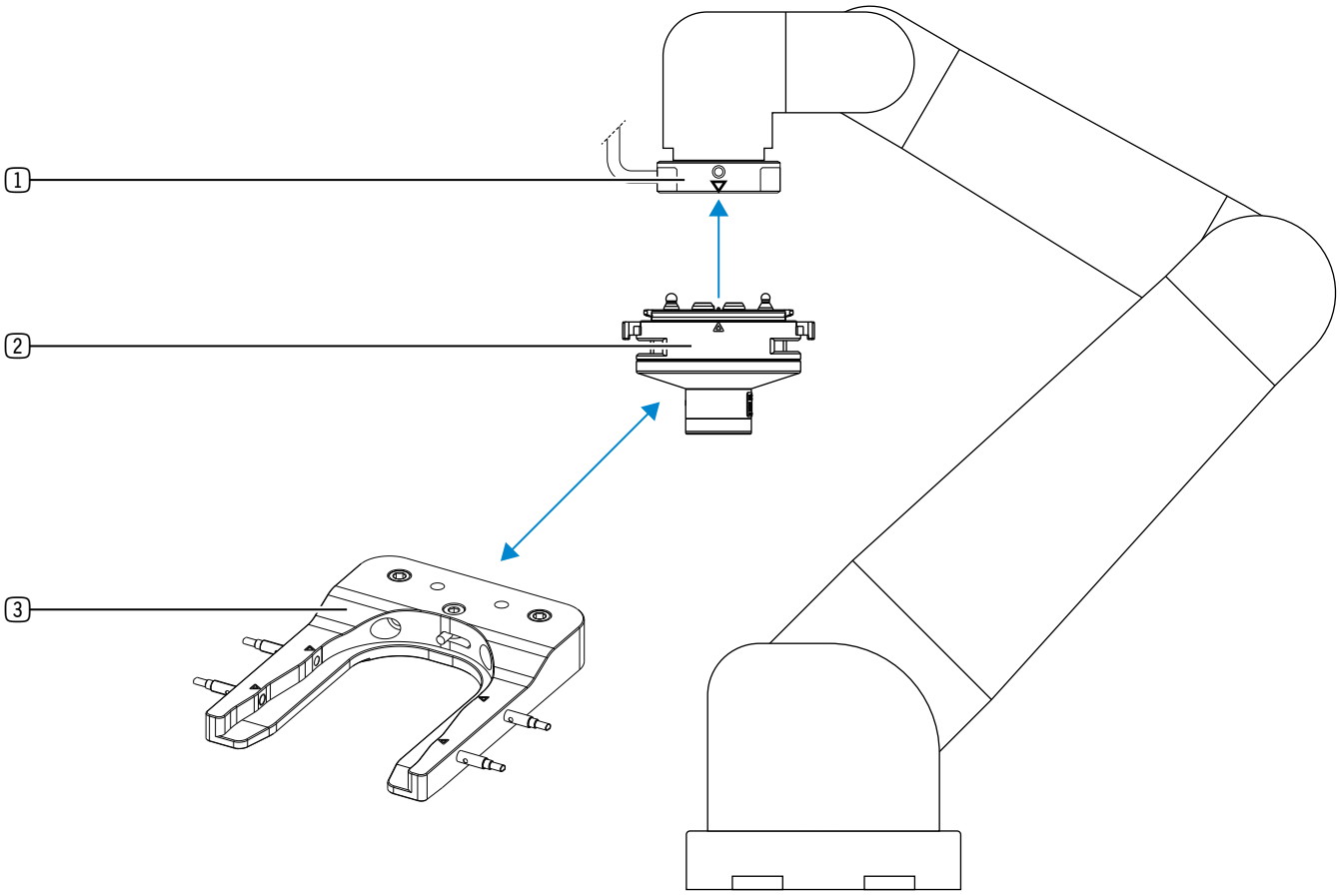
The product is a combination of a gripper and a loose part.

The original parts from Zimmer Group GmbH required for the safety principles are:

1 MATCH robot module (LWR50F-xx)

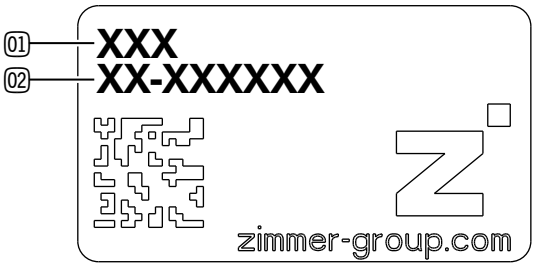
2 MATCH gripper (LWR50L-xx)

3 MATCH storage station (ALWR1-50-A)



5.1 Type plate

A type plate is attached to the product.



01 Article number

02 Confirmation number

5.2 Product variants

INFORMATION

- ▶ You can find information about product variants and their compatibility on our website.
- ▶ Please contact Customer Service if you have any questions.

6 Functional description

The robot module and gripper are coupled manually or automatically via a storage station. When moving out of the storage station, the gripper automatically locks with the robot module.

When they are coupled, the internal spring contacts are contacted for signal transmission.

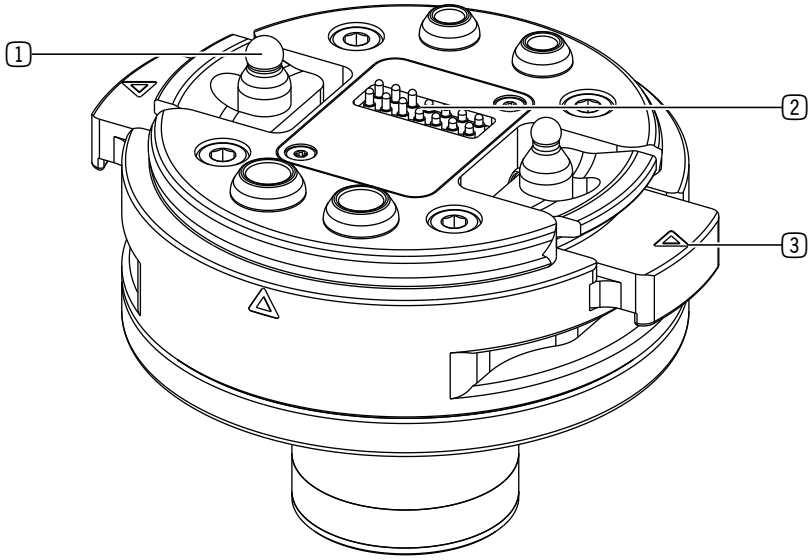
The hot-plug function enables coupling and decoupling while electrified.

Differently sized centering pins and markings ensure that the robot module and gripper cannot be connected incorrectly. The product is also designed in such a way that it cannot be inserted incorrectly into the storage station.

The product has a single-acting pneumatic cylinder.

A permanent magnet is held in the gripping position by a spring and the piston is only pressurized with compressed air to deposit the workpiece.

The residual holding force is then less than 1 N and a rubber pad ensures that the workpiece is deposited reliably.



1 Centering pin

2 Signal transmission

3 Locking

6.1 Functional safety

For the overall safety of the function, all three components (robot module, gripper and storage station) must be taken into account.

The safety function of the product that ensures secure locking between the robot module and gripper is implemented via a pneumatic action channel that consists of a mechanical locking and springs.

Technical supplementary safety measures (sensors) provide a high degree of diagnostic coverage.

Fault elimination in accordance with DIN EN ISO 13849-2, Annex A, Table A2 and A3 for the helical compression springs used can be given.

7 Technical data

INFORMATION



► You can find the information in the technical data sheet on our website.

This data varies within the series, depending on the specific design.

8 Accessories/scope of delivery

INFORMATION



If any accessories not sold or authorized by Zimmer Group GmbH are used, the function of the product cannot be guaranteed. Zimmer Group GmbH accessories are specifically tailored to the individual products.

► For optional accessories and those included in the scope of delivery, refer to our website.

9 Transportation/storage/preservation

► Transport and storage of the product must be done only with the original packaging.

► If the product has already been installed on the superordinate machine unit, care must be taken during transport to ensure that no unexpected movements can occur.

  ► Before commissioning the product and after transport, check all power and communication connections as well as all mechanical connections.

► If the product is stored for an extended period, the following points are to be observed:

  ► Keep the storage location as dust-free and dry as possible.

  ► Avoid temperature fluctuations.

  ► Avoid wind/drafts/water condensation formation.

  ► Pack the product and do not expose it to direct sunlight during storage.

► Clean all components. There must be no soiling left on the components.

► Visually inspect all components.

► Remove all foreign substances.

► Properly remove potential corrosion spots.

► Close off unused connections using pressure-resistant closures.

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10 Installation

WARNING

Risk of injury due to uncontrolled movements

Risk of injury in case of unexpected movement of the machine or system into which the product is to be installed.

- ▶ Switch off the energy supply of the machine before any work.
- ▶ Secure the power supply against being switched on unintentionally.
- ▶ Check the machine for any residual energy that may be present.

10.1 Installing the storage station

INFORMATION

The storage station is available as an accessory.

- ▶ Please refer to our website for information about the storage station.

A storage station is a device in which a tool can be kept in a defined position ready for use.

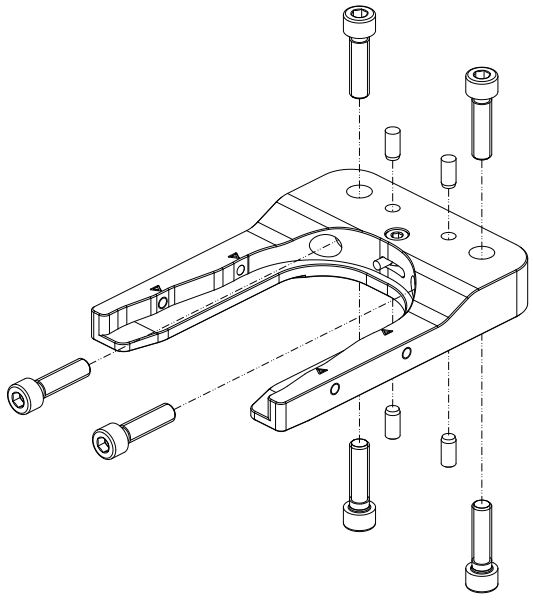
Multiple storage stations can keep loose parts from different loose parts – each with different configurations – in stock for use with a robot module.

Assembly requirements	
Permissible flatness tolerance [mm]	0,03
Strength class of the mounting screws	8.8

- ▶ Install the product on an appropriate mounting surface in accordance with the flatness specifications.
- ▶ Make sure that the mounting piece is sufficiently rigid.
- ▶ Ensure the cleanliness of the connection surfaces.
- ▶ Please note the permitted tightening torques of the mounting screws at www.zimmer-group.com/en/td.

The product can be installed from multiple sides.

- ▶ Insert straight pins into the fits of the storage station.
- ▶ Position the product on the mounting piece.
- ▶ Mount the product on the mounting piece using the appropriate mounting screws.



10.2 Mounting the sensors on the storage station

NOTICE

Non-compliance may result in material damage.

Cables must be installed with sufficient length.

► Ensure that the cables cannot be pinched, crushed, or torn off within the movement and swivel ranges.

The figure shows a combination consisting of a robot module, gripper and storage station.

Sensors can optionally be mounted in the storage station. Check two sensors on the storage position to see whether the gripper is present in the storage station.

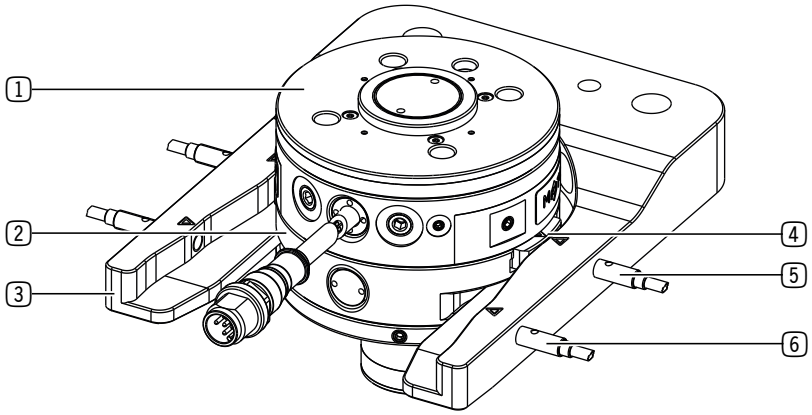
The robot module moves from above onto the gripper in the storage station. The centering pins of the gripper help with insertion.

When the robot module and gripper are coupled, the internal spring-pin contacts make contact, thereby ensuring electrical signal transmission.

The robot then moves out of the storage station with the robot module and coupled gripper.

Two sensors at the test position check whether the locking mechanism is extended and the robot module and gripper are securely connected.

Then, the Connect LED changes color from red to green and a Connect signal is passed to the higher-level control system, depending on the product variant.



1 Robot module

2 Gripper

3 Storage station

4 Locking

5 Sensor in storage position

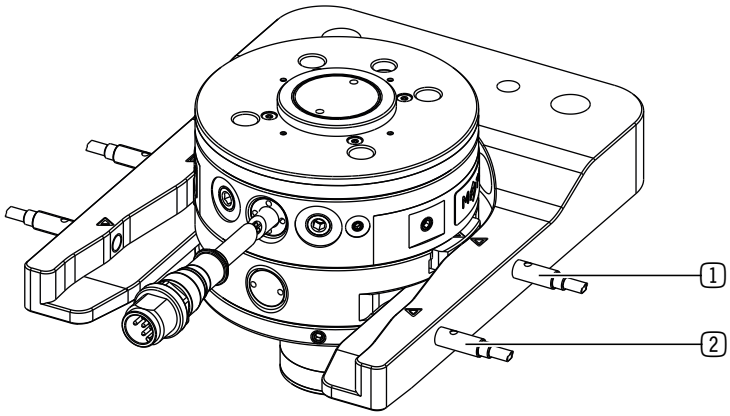
6 Sensor in inspection position

10.2.1 Adjust the sensors in the inspection position

- ▶ Position the markings on the locking mechanism on the markings of the test position.
- ▶ Turn in the sensors until they emit a signal.
- ▶ Fasten the sensors at this position.
- ▶ Coat the sensors with sealing lacquer.

10.2.2 Adjust the sensors in the storage position

- ▶ Position the markings on the locking mechanism on the markings of the storage position.
- ▶ Turn in the sensors until they emit a signal.
- ▶ Fasten the sensors at this position.
- ▶ Coat the sensors with sealing lacquer.



[1] Sensor in storage position

[2] Sensor in inspection position

10.3 Coupling the robot module and gripper

WARNING



Suspended loads can cause injury

Falling loads can cause severe injuries.

► Always keep an adequate safety distance from suspended loads.

NOTICE



Non-compliance may result in material damage.

► Align the loose part parallel to the storage station, adjusting its height and orientation so that it can be fed into the storage station with as little force as possible.

► Please refer to the technical data sheet on our website for the locking and unlocking forces.

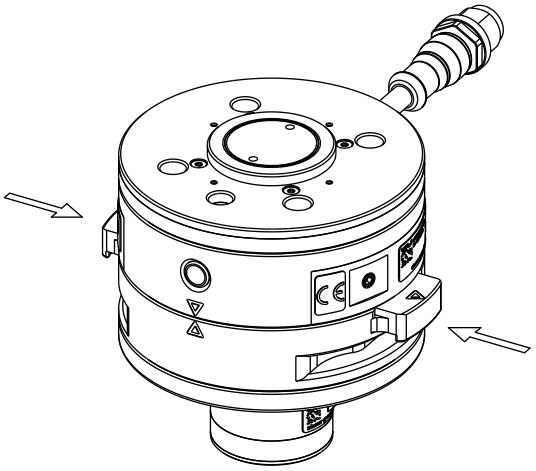
Manual exchange:

The gripper can be installed on the robot module and locked manually.

► Press the locking mechanism together.

► Position the gripper on the robot module.

► Let go of the locking mechanism.



Automatic exchange:

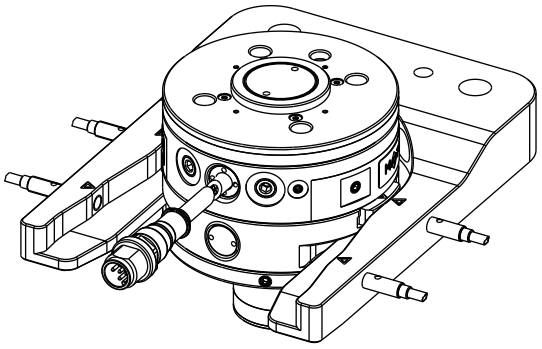
The gripper can be automatically locked to the robot module via the storage station.

► Place the gripper as indicated by the markings in the storage station.

► Position the robot module above the gripper.

► Lower the robot module.

⇨ The gripper automatically locks with the robot module when it extends out of the storage station.



10.4 Installing the energy supply

NOTICE



Malfunction in case of non-compliance

The power supply is internal. This means that the gripper is equipped with integrated contacts. These contacts transmit all signals.

- ► The contacts of the energy supply must be dry, clean and undamaged at all times.

10.5 Static charge

NOTICE



Material damage from static charge

Electrostatic voltages can occur if the product is mounted on insulating surfaces and no effective dissipation of static charges is possible.

- ► Please note that ESD-sensitive parts can be damaged if they come into contact with the product.
- ► Ground the product for applications that require high EMC resistance.

10.6 Installing accessories

NOTICE



Non-compliance may result in material damage.

- ► Before installing an accessory, make sure it is suitable for use with the selected variant.
- ► You can find information on our website.
- ► Please contact Customer Service if you have any questions.

11 Commissioning

WARNING



Suspended loads can cause injury

Falling loads can cause severe injuries.

► Always keep an adequate safety distance from suspended loads.

CAUTION



Reduction of the holding force can cause injury and material damage

Reduced holding force can cause injuries or material damage because the components can no longer be securely gripped and transported.

► Observe the permitted total load.

► Always keep an adequate safety distance from suspended loads.

NOTICE



Malfunction in case of non-compliance

► Do not handle any workpieces that generate a magnetic field themselves or act as permanent magnets.

INFORMATION



The holding force depends on the surface quality and material thickness of the workpieces to be handled.

- The more rough and uneven the surface, the lower the residual holding force will be.
- The thinner the material thickness, the lower the holding force will be.

The holding force depends on the ferromagnetic properties of the workpieces being handled.

Assuming a holding force of 100% for technically pure iron, the following materials may be assumed to have:

- St37: 94%
- St34: 82%
- St50: 75%
- St70: 70%
- 20MnCr5: 50%
- GG: 30%

11.1 Transport lock

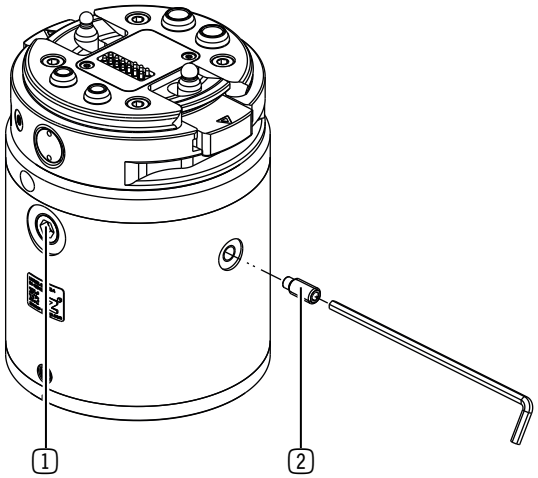
INFORMATION

The LWR50L-26-00003-A has a transport lock.

For protection during transport and storage, the permanent magnet is held in the retracted position by a transport lock to prevent exposure to the emitted magnetic field.

► Apply pressure of 3 bar to the product.

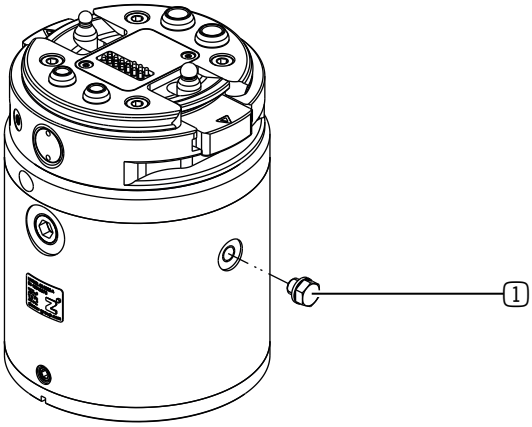
► Remove the transport lock using an Allen key.



1 Pneumatic connection

2 Transport lock

► Seal the drilled hole with the included pressure-resistant stopper.



1 Dummy plug

12 Maintenance

NOTICE



Material damage resulting from blowing out with compressed air

Blowing out the product with compressed air can cause malfunctions.

► Never purge the product with compressed air.

NOTICE



Material damage caused by unsuitable cleaning materials

Seals, insulation, coatings and other surfaces may be damaged by solvent-based cleaning agents.

► Make sure that no liquids penetrate the product.

► Use chemically and biologically neutral cleaning agents.

► Use cleaning agents that are categorized as being nonhazardous to health.

► Use soft, lint-free cloths for cleaning the surface.

The use of the following cleaning agents is strictly prohibited:

- Acetone
- Cleaning solvent
- Nitrocellulose thinner/turpentine oil (solvents)

Maintenance-free operation of the product is guaranteed for up to **100,000 change cycles** and **5 million gripping cycles**.

► Note that the product could become damaged under the following circumstances:

- Dirty environment
- Improper use and use that does not comply with the performance data
- Permissible temperature range not observed

► Even though the product is maintenance-free as mentioned above, perform a regular visual inspection to check for any damage or contamination.

► Have maintenance work that requires disassembly of the product performed by customer service only.

⇨ Dismantling and reassembling the product without authorization may result in complications, as special installation equipment is required in some cases. Zimmer Group GmbH accepts no liability for any resulting malfunctions or damage.

13 Decommissioning/disposal

INFORMATION



When the product reaches the end of its operational phase, it can be disposed of.

► Disconnect the product completely from the power supply.

► Comply with the locally applicable environmental and disposal regulations.

14 Declaration of Incorporation (Machinery Directive)

In terms of the EU Machinery Directive 2006/42/EC (Annex II 1 B)

Name and address of the manufacturer:

Zimmer Group GmbH

Am Glockenloch 2
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation:	Magnetic gripper
Type designation:	LWR50L-26

conforms to the requirements of the Machinery Directive, 2006/42/EC, Article 2g, Annex VII, b – Annex II, b, in its design and the version we put on the market.

We hereby confirm that all the relevant basic health and safety requirements for the product have been observed and implemented.

A full list of applied standards can be obtained from the manufacturer.

We also declare that the specific technical documents were produced in accordance with Annex VII Part B of this Directive. We undertake to provide the market supervisory bodies with electronic versions of special documents for the incomplete machine through our documentation department, should they have reason to request them.

The incomplete machine may only be commissioned if it has been ascertained, if applicable, that the machine or system in which the incomplete machine is to be installed satisfies the requirements of Directive 2006/42/EC on Machinery and an EC Declaration of Conformity has been drawn up in accordance with Annex II 1 A.

Kurt Ross	Rheinau, Germany, 2022-05-17	
Authorized representative for compiling the relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

15 Declaration of Incorporation

In terms of the EU Machinery Regulation 2023/1230, Annex V, Part B

Name and address of the manufacturer:

Zimmer Group GmbH

Am Glockenloch 2
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: Magnetic gripper

Type designation: LWR50L-26

in their design and in the version we have placed on the market comply with the requirements of Regulation 2023/1230, Article 3.10, Annex III, Annex IV, Part B and Annex V, Part B.

A complete list of the standards applied and the essential health and safety requirements is available from the manufacturer.

The incomplete machine must not be commissioned until it has been determined that - where applicable - the machine into which the incomplete machine is to be incorporated complies with the provisions of EU Machinery Regulation 2023/1230 and the EC Declaration of Conformity has been issued in accordance with Annex V, Part A.

Kurt Ross	Rheinau, Germany, 2027-01-20	
Authorized representative for compiling the relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

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16 Declaration of Conformity

As defined by the EC Directive 2014/30/EU on electromagnetic compatibility

Name and address of the manufacturer:

Zimmer Group GmbH
Am Glockenloch 2
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the product described below

Product designation:	Magnetic gripper
Type designation:	LWR50L-26

conforms to the requirements of the Electromagnetic Compatibility Directive 2014/30/EU in its design and the version we put on the market.

The following harmonized standards have been used:

DIN EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
DIN EN 61000-6-3	EMC Generic standard, Emission standard for residential, commercial and light-industrial
DIN EN 61000-6-2	EMC Generic standard, Emission standard for industrial environments
DIN EN 61000-6-4	EMC Generic standard, Immunity for industrial environments

A full list of applied standards can be obtained from the manufacturer.

Kurt Ross	Rheinau, Germany, 2022-05-17	
Authorized representative for compiling the relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner