



MATCH

INSTALLATION AND OPERATING INSTRUCTIONS

MATCH-Angle flange

LWR50L-29-00001-A

DDOC02345

THE KNOW-HOW FACTORY

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1 Supporting documents

NOTICE



Read through the installation and operating instructions before installing or working with the product.

The installation and operating 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.

- Installation and operating 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 installation and operating instructions, "product" refers to the product designation on the title page!

1.1 Notices and graphics in the installation and operating 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

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

- The product is designed specifically for cooperative and collaborative use on robot systems and in combination with the MATCH tool exchange system.
- The product is designed exclusively for electric operation using a 24 V DC power supply.
- The product must always be mounted on materials that dissipate heat.
- The product is intended for industrial use.
- The product is to be used as intended in enclosed rooms for temporary gripping, handling and holding.
- Direct contact with perishable goods/food is not permitted.

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

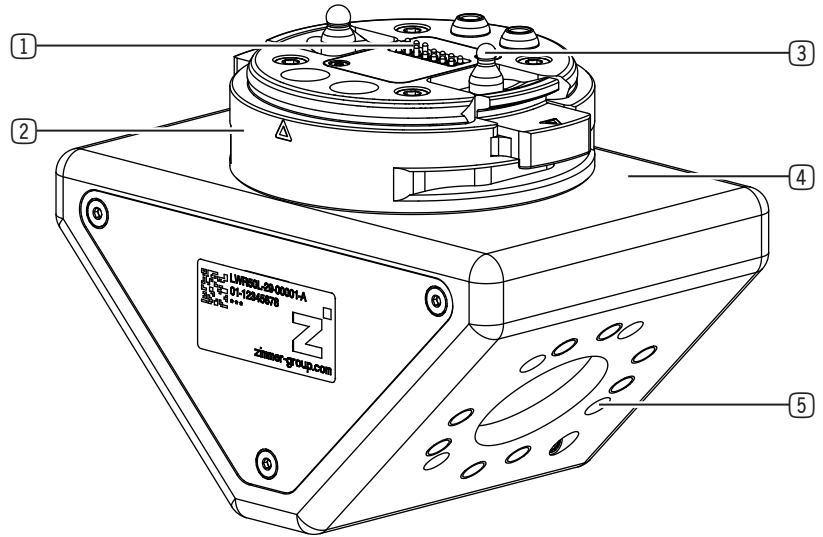
Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

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

5 Product description

The product is a loose part for the MATCH tool exchange system.

It has an angle flange that allows you to connect two grippers at a 90° angle to each other thanks to adapter plates. 2-jaw parallel grippers and 3-jaw concentric grippers for electric or pneumatic intelligent operation can be mounted on the product.



- ① Signal transmission
- ② Loose part
- ③ Rotation lock
- ④ Angle flange
- ⑤ Connection for adapter plate

5.1 Product variants and compatibility

The product is compatible with the following robot modules:

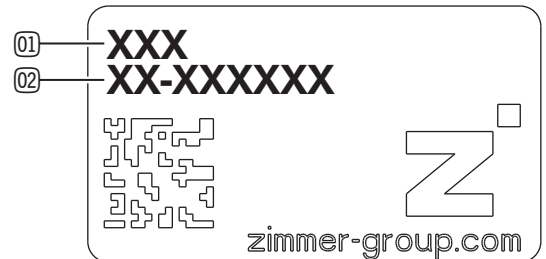
- LWR50F-13-04-A
- LWR50F-00-06-A

5.2 Type plate

A type plate is attached to the product.

The type plate shows the part number and serial number.

- ① Article number
- ② Confirmation number



6 Functional description

The product is mounted on a MATCH tool exchange system robot module. Energy can flow to the loose part through integrated electrical contacts and pneumatic channels.

Electrical and pneumatic lines are mounted in the angle flange that lead to the outer connections and can be used for the energy supply to the selected grippers.

The product has the hot plug function, which enables coupling or decoupling while electrified.

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 GmbH are used, the function of the product cannot be guaranteed. Zimmer 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.

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.

Assembly requirements

Permissible flatness tolerance [mm]	Mounting surface length [mm] ≤ 100	0.02
	Mounting surface length [mm] > 100	0.05
Strength class of the mounting screws	8.8	

INFORMATION



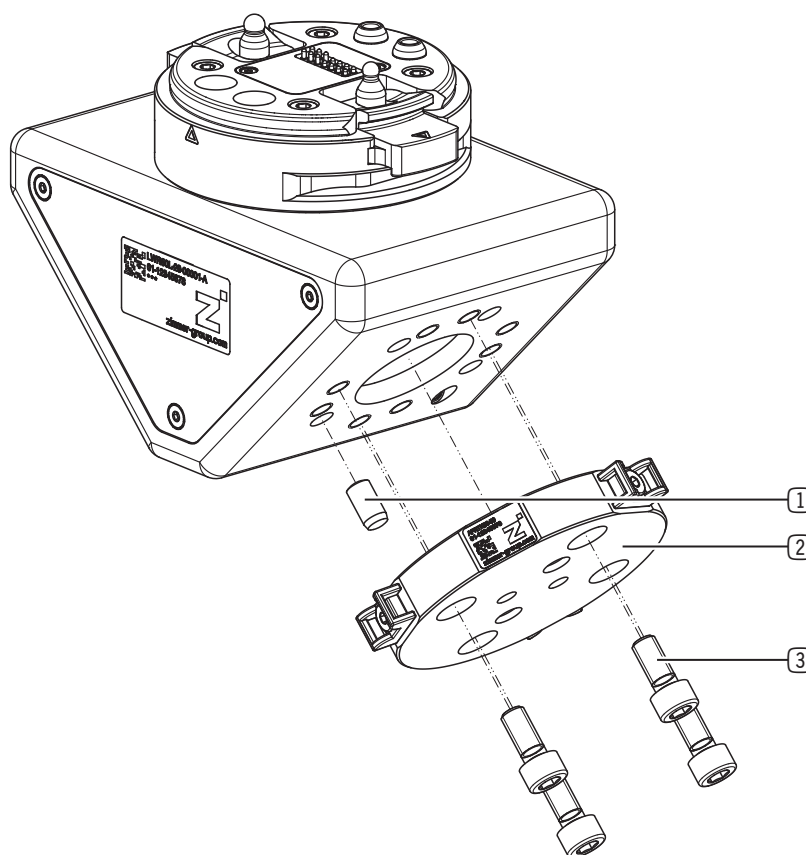
Further installation information:

- The mounting screws are not included in the scope of delivery.

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

10.1 Installing adapter plates

- ▶ Depending on the selected gripper, first install the gripper on the adapter plate.
- ▶ Position the adapter plate on the product with the straight pin.
- ▶ Install the adapter plate by using the mounting screws.



- ① Straight pins
- ② Adapter plate
- ③ Mounting screw

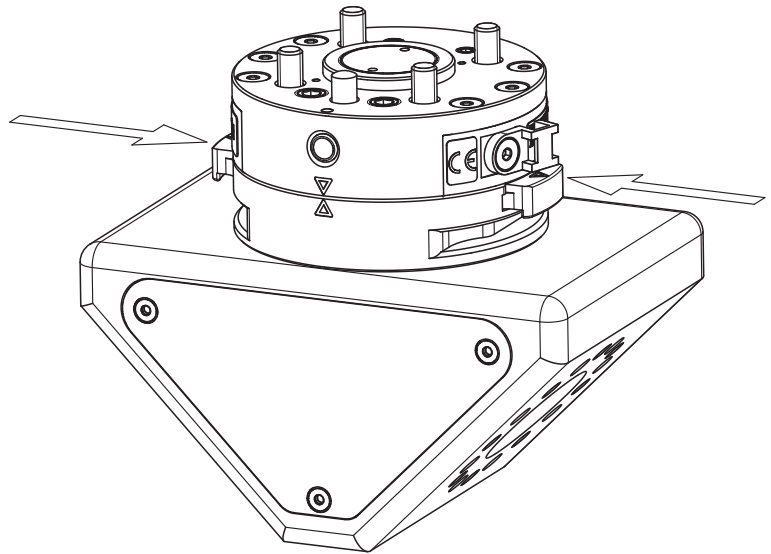
10.2 Coupling the stationary part and loose part

The design rules out incorrect joining of stationary and loose parts, because the loose part is equipped with two different pins.

Manual exchange:

The loose part can be installed on the stationary part and locked manually.

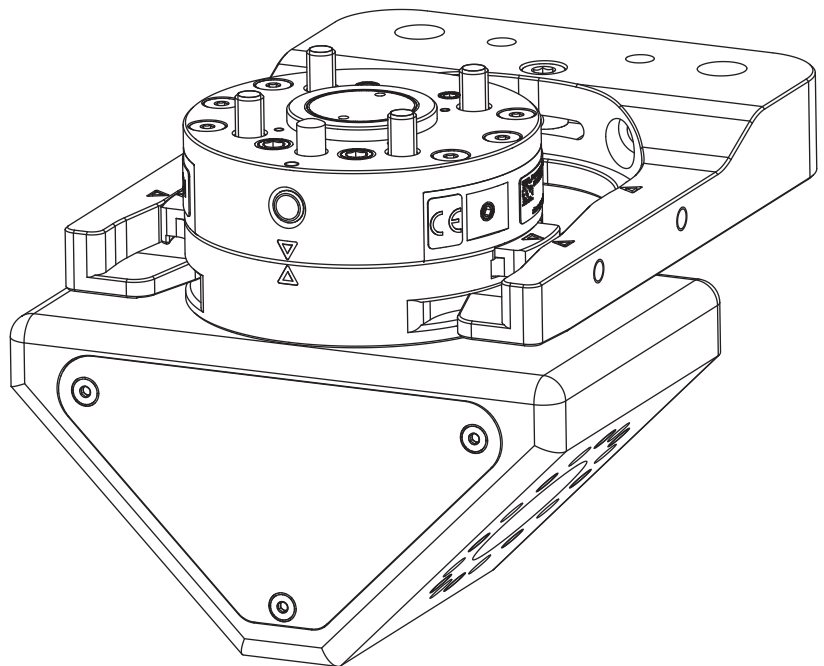
- ▶ Press the locking mechanism together.
- ▶ Position the loose part on the stationary part.
- ▶ Let go of the locking mechanism.



Automatic exchange:

The robot module is moved to the loose part in the storage station and locked by means of the storage station.

- ▶ Position the stationary part above the loose part.
- ▶ Lower the stationary part.
- ⇒ The loose part automatically locks with the stationary part during automatic extending out of the storage station.



10.3 Installing the energy supply

INFORMATION



- ▶ You can find information on available pneumatic connections on our website.

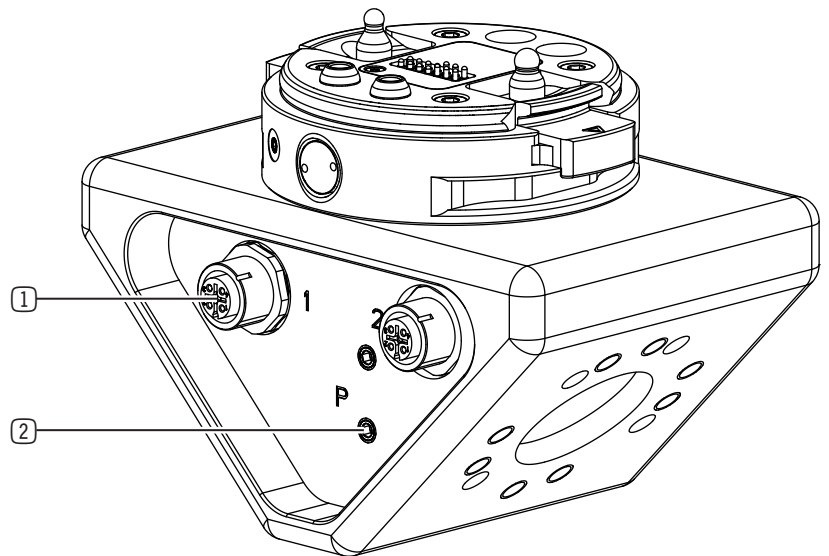
When coupled, power is supplied automatically via the integrated contacts and pneumatic channels.

Electrical and pneumatic lines are routed through the angle flange to the connections to supply power to the selected grippers.

There are two connecting sockets that are available for the transmission of IO-Link signals to the selected gripper.

There are two pneumatic connections that are available for the transfer of compressed air to the selected gripper.

- ▶ Remove the grub screws.
- ▶ Mount the screw fittings in the provided connections.
- ▶ Connect the gripper and the angle flange to pneumatic hoses.
- ▶ Install the gripper plugs in the connecting sockets.



- ① Connecting socket
- ② Pneumatic connection

10.3.1 Pin assignment

INFORMATION



Pins 1, 2, 3 and 5 of cables 1 and 2 are each connected in the product.

Pin	Color	Function	Explanation	Connecting socket 1, M12
1	Brown	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	White	PWR actuator	24 V DC supply voltage for actuator	
3	Blue	GND sensor	0 V DC supply voltage for IO-Link communication	
4	Black	C/Q 1	IO-Link communication	
5	Gray	GND actuator	0 V DC supply voltage for actuator	

Pin	Color	Function	Explanation	Connecting socket 2, M12
1	Brown	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	White	PWR actuator	24 V DC supply voltage for actuator	
3	Blue	GND sensor	0 V DC supply voltage for IO-Link communication	
4	Black	C/Q 2	IO-Link communication	
5	Gray	GND actuator	0 V DC supply voltage for actuator	

10.4 Static charge

NOTICE



Non-compliance may result in material damage.

Grounding the product is recommended if ESD sensitive parts come into contact with the product.

Grounding is also recommended in applications that require high EMC shielding.

10.5 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 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**

Liquid and solvent-based cleaning agents can cause malfunctions.

- ▶ Do not clean the product with any cleaning agents that are liquid or contain solvents.

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

- ▶ Note that the product could become damaged under the following circumstances:
 - Operation with impermissible compressed air
 - 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 GmbH accepts no liability for any resulting malfunctions or damage.

12 Decommissioning/disposal

INFORMATION



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

- ▶ Disconnect the product completely from the power supply.
- ▶ Dispose of the components properly according to the material groups.
- ▶ Comply with the locally applicable environmental and disposal regulations.

13 RoHS declaration

in terms of the EU Regulation 2011/65/EU

Name and address of the manufacturer:

Zimmer GmbH

-  Im Salmenkopf
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: MATCH-Angle flange

Type designation: LWR50L-29-00001-A

conforms to the requirements of the directive in its design and the version we put on the market.

Michael Hoch

Authorized representative for the compilation of relevant technical documents

Rheinau, Germany, 2024-10-25

(Place and date of issuance)



Martin Zimmer
(Legally binding signature)
Managing Partner

14 REACH declaration

In terms of the EC Regulation 1907/2006

Name and address of the manufacturer:

Zimmer GmbH

-  Im Salmenkopf
77866 Rheinau, Germany
-  +49 7844 9138 0
-  info@zimmer-group.com
-  www.zimmer-group.com

REACH stands for **R**egistration, **E**valuation, **A**uthorisation and **R**estriction of **C**hemicals.

A full declaration of REACH can be obtained from the manufacturer due to the duty to notify in accordance with Art. 33 of the REACH regulation (“Duty to communicate information on substances in articles”).

Michael Hoch

Authorized representative for the compilation of relevant technical documents

Rheinau, Germany, 2024-10-25

(Place and date of issuance)



Martin Zimmer
(Legally binding signature)
Managing Partner

15 Declaration of Incorporation

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

Name and address of the manufacturer:

Zimmer GmbH

 Im Salmenkopf
 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: MATCH-Angle flange

Type designation: LWR50L-29-00001-A

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.

Basic health and safety requirements:

No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.2, No. 1.3.4, No. 1.3.7, No. 1.5.1, No. 1.5.3, No. 1.5.4, No. 1.6.4, No. 1.7.2, No. 1.7.4

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

Authorized representative for the compilation of relevant technical documents

Rheinau, Germany, 2024-10-25

(Place and date of issuance)



Martin Zimmer
(Legally binding signature)
Managing Partner

16 Declaration of Conformity

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

Name and address of the manufacturer:

Zimmer GmbH

 Im Salmenkopf
 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: MATCH-Angle flange

Type designation: LWR50L-29-00001-A

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
 Authorized representative for the compilation of relevant technical documents

Rheinau, Germany, 2024-10-25
 (Place and date of issuance)



Martin Zimmer
 (Legally binding signature)
 Managing Partner