



# INSTALLATION AND OPERATING INSTRUCTION

FGR series  
Axis compensation module

DDOC00258

THE KNOW-HOW FACTORY

## Contents

1	Supporting documents .....	3
2	Safety notes .....	3
3	Proper use.....	4
4	Personnal qualification .....	4
5	Product description.....	4
5.1	Forces and moments .....	4
6	Function .....	5
7	Installation.....	6
7.1	Safety notes.....	6
7.2	Installation on the robot side.....	6
7.3	Installation on the tool side .....	6
7.4	Installation pneumatic connections.....	7
7.5	Mounting accessories .....	7
8	Maintenance .....	7
9	Declaration of incorporation.....	7

## 1 Supporting documents

### NOTE:



Read the installation and operating instructions carefully before installing the product!  
The assembly and operating instructions contain important information for your personal safety. It must be read and understood by all persons who work or deal with the product in any phase of its life.



The following documents can be downloaded from our website.  
Only the documents currently obtained via the homepage are valid.

- Catalogues, drawings, CAD data, performance data
- Information about accessories
- Detailed assembly and operating instructions
- Technical data
- General terms and conditions (AGB), among other things information on the warranty

## 2 Safety notes

### CAUTION:



Failure to do so may result in serious injury!

1. Installation, commissioning, maintenance and repairs may only be undertaken by qualified experts in accordance with these installation and operating instructions.
2. The axis compensation module is state-of-the-art. It is fitted to industrial machines and is used to hold tools. Hazards can originate from the axis compensation module only if, for example...
  - the axis compensation module is not properly mounted, used or maintained,
  - the axis compensation module is not used for its intended purpose,
  - the local regulations (laws, regulations, directives), e.g. the EC Machinery Directive,
  - the accident prevention regulations (UVV) and the assembly and operating instructions are not observed.
3. The axis compensation module may be used only in accordance with its proper use and technical data. ZIMMER GmbH shall accept no liability for any damage caused by improper use.
4. Any use other than the intended use requires written approval from ZIMMER GmbH.
5. Do not reach into the operating range of the installed tools.
6. Make sure that the transmission lines are disconnected before you install, refit, maintain or repair the axis compensation module.
7. In case of maintenance, retrofitting or expansion work, remove the axis compensation module from the machine and carry out the work outside the danger zone.
8. When commissioning or testing, make sure that the axis compensation module or installed tools cannot be actuated by mistake.
9. Modifications to the axis compensation module, such as adding boreholes or threads, may be made only with prior approval from ZIMMER GmbH.
10. The specified maintenance intervals and compressed air quality specifications are to be observed; also refer to the Maintenance section. When the axis compensation module is used under extreme conditions, the maintenance interval must be adapted depending on the extent of the contamination. Please contact our hotline for this purpose.
11. Use of the axis compensation module under extreme conditions, such as aggressive liquids and abrasive dust, is subject to prior approval from ZIMMER GmbH.

### 3 Proper use

**NOTE:**



The axis compensation module is only to be used in its original condition, with original accessories, without any unauthorized modification and within the scope of its defined operating parameters. ZIMMER GmbH is not liable for any damage resulting from improper use.

The axis compensation module may only be used in its original condition with original accessories. Use outside the defined parameters is not permitted. Unauthorized electrical or mechanical modifications must not be made.

The axis compensation module is designed exclusively for operation with compressed air. It is not suitable for operation with other media such as liquids or gases. Axis compensation module is intended for use in closed rooms to compensate for alignment differences in one plane. It is not suitable for holding tools or workpieces during a machining process or for direct contact with perishable goods.

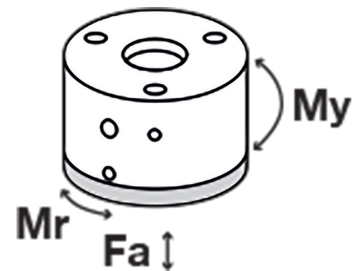
### 4 Personnel qualification

Installation, commissioning and maintenance may only be carried out by trained specialist personnel. The prerequisite for this is that these persons have completely read and understood the installation and operating instructions.

### 5 Product description

#### 5.1 Forces and moments

The adjacent figure shows static forces and moments which may impact on the compensation module.



**INFORMATION:**



Please refer to our website for technical data on forces and torques:

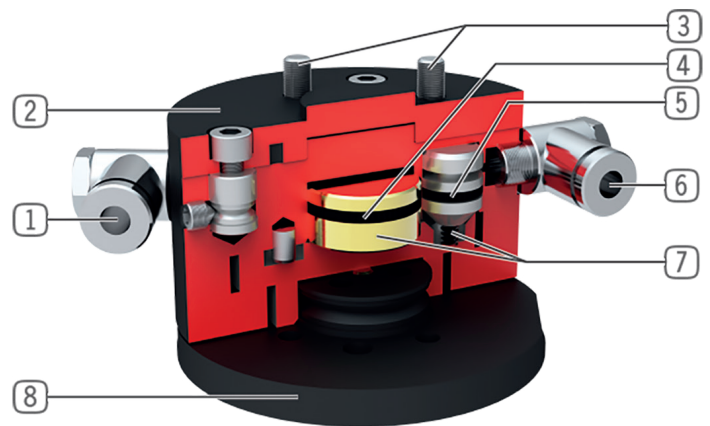
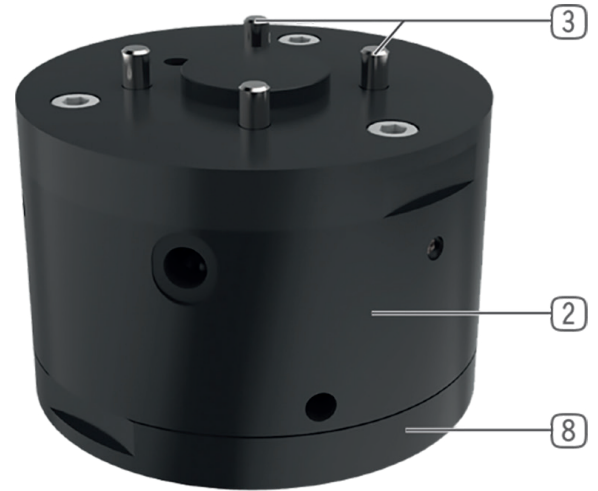
⇒ [www.zimmer-group.com](http://www.zimmer-group.com)

Should you have any further questions regarding the product or the technical data, please contact ZIMMER Customer Service.

## 6 Function

The axis compensation module is designed to compensate for alignment differences in a plane (see the Technical data). In the depressurized state, the axis compensation module can move freely in the compensation plane. Appropriate venting by means of a single-acting pneumatic cylinder clamps the axis compensation module in a centered or off-centered position.

①	Energy supply
②	Robust, lightweight housing
③	Robot flange
④	Drive eccentric mounting
⑤	Drive centering
⑥	Energy supply
⑦	Force transfer
⑧	Compensation



## 7 Installation

### 7.1 Safety notes

**CAUTION:**

**Non-observance can lead to minor to severe injuries**

Risk of injury in the event of unexpected movements of the machine or system in which the axis compensation module is to be installed.

- ▶ Switch off the energy supply to the machine before all work is carried out.
- ▶ Secure the machine against being switched on unintentionally.
- ▶ Check the machine for any residual energy.

### 7.2 Installation on the robot side

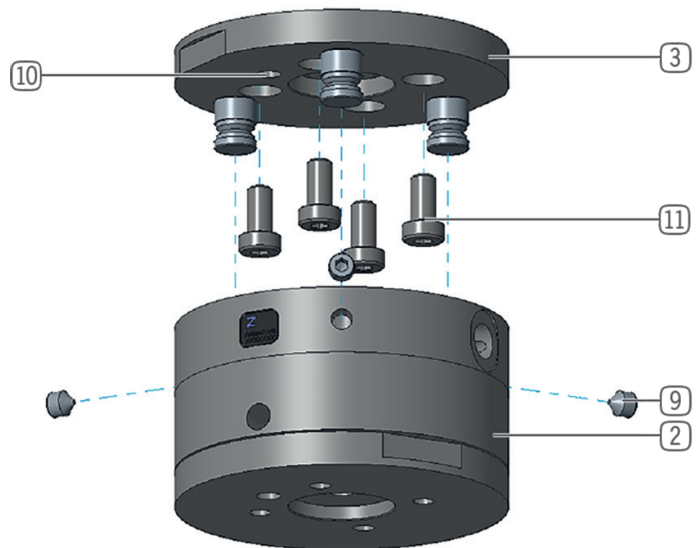
The axis compensation module can be mounted directly on the robot arm via the standardized connecting flange according to EN ISO 9409-1.

The following specifications for flatness must be observed:

Length of the mounting surface [mm]	Permitted unevenness [mm]
< 100	< 0,02
> 100	> 0,05

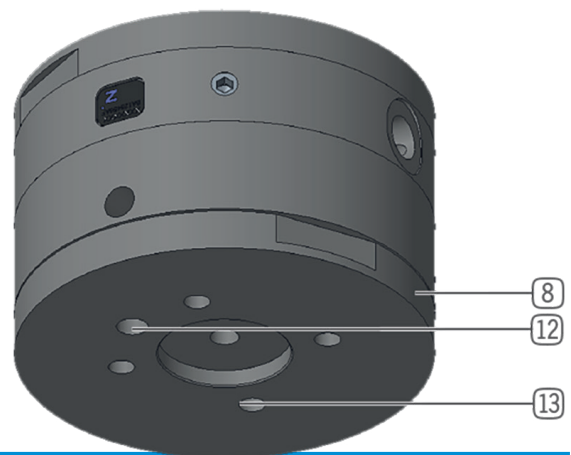
The following steps must be carried out to mount the axis compensation module:

- ▶ Remove the 3 studs (9).
- ▶ Remove the robot flange (3) from the housing (2) of the axis compensation module.
- ▶ Position the robot flange (3) on the robot arm using the straight pin (10).
- ▶ Install the robot flange (3) on the robot arm using the 4 screws (11).
- ▶ Put the housing (2) of the axis compensation module back on the robot flange (3).
- ▶ Fasten the housing (2) of the axis compensation module on the robot flange (3) again using the 3 studs (9).



### 7.3 Installation on the tool side

- ▶ Position the tool with the straight pin in the hole (12) on the tool flange (8).
- ▶ Mount the tool at the installation boreholes (13) of the tool flange (8) using the screws with the strength class 8.8 and the specified length (see the Technical data).
  - ⇒ Observe the permitted tightening torque.
  - ⇒ [www.schrauben-normen.de/anziehmomente.html](http://www.schrauben-normen.de/anziehmomente.html)



**NOTE:**

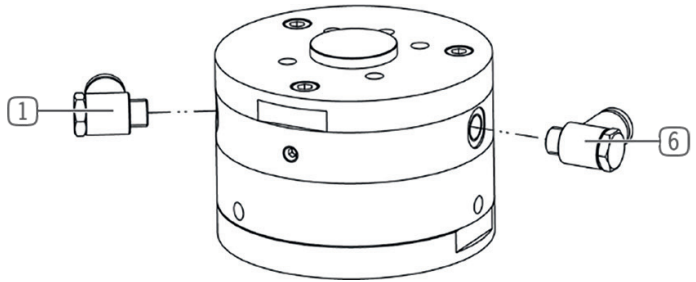


Non-compliance can lead to material damage.  
The specified screw lengths must be observed.

**7.4 Installation pneumatic connections**

Connection with the marking „A“ (6) : eccentric clamping

Connection with the marking „B“ (1) : centered clamping



**7.5 Mounting accessories**

**INFORMATION:**



A complete overview of accessories for the FGR series can be found on our website.

⇒ [www.zimmer-group.com](http://www.zimmer-group.com)

Should you have any further questions regarding the product or the technical data, please contact ZIMMER Customer Service.

**8 Maintenance**

The axis compensation module is maintenance-free up to an operating time of **5 million cycles**.

The operating time of up to **5 million cycles** may be reduced in the following circumstances:

- Driven with compressed air that does not correspond to EN ISO 8573-1:2001, Class 2.4.1.
- Dirty environment.
- Improper use not in accordance with the intended use.
- Improper use not in accordance with approved performance data and parameters.
- Ambient temperature above 60°C.

In spite of the aforementioned freedom from maintenance, the axle compensation must be regularly checked monthly for possible corrosion, damage and contamination by means of a visual inspection.

If necessary, clean the axle compensation with commercially available machine cleaning agent and then apply a corrosion-protective agent to the housing.

It is recommended that repairs be carried out by Zimmer Group Repair Service.

If the axle compensation is disassembled and reassembled without authorization, complications may occur as special assembly devices may be required. In addition, the warranty expires if the axle compensation is opened.

**9 Declaration of incorporation**

... In terms of the EU-Machinery Directive 2006/42/EG on Machinery (Annex II 1 B)

Name and address of the manufacturer:

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau Germany • Tel.: +49 7844 9138 0 • [www.zimmer-group.de](http://www.zimmer-group.de)

We hereby declare that the incomplete machines described below

**Product designation: Axis compensation module**

**Type designation: FGR[ ][ ]-Serie**

satisfy the following basic requirements of the Machinery Directive 2006/42/EC:

Nr. 1.1.2, Nr. 1.1.3, Nr. 1.1.5, Nr. 1.3.1, Nr. 1.3.2, Nr. 1.3.4, Nr. 1.3.7, Nr. 1.5.1, Nr. 1.5.3, Nr. 1.5.4, Nr. 1.6.4, Nr. 1.7.1, Nr. 1.7.4

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 the machine or system in which the incomplete machine is to be installed has been determined to satisfy the conditions of the Machinery Directive 2006/42/EC and the EC Declaration of Conformity has been produced in accordance with Annex II 1 A.**

**Authorized representative for compiling relevant technical documents**

Kurt Ross	See manufacturer's address	Rheinau, Germany, 2019-02-20	Martin Zimmer
First name, last name	Address	(Place an date of issuance)	(Legally binding signature) Managing Director

