

# Safety Instructions for Linear Motion Systems

R320103152/2015.01

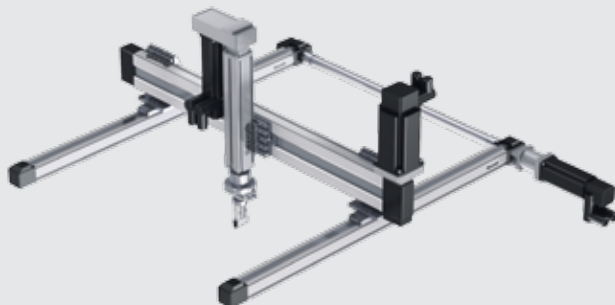
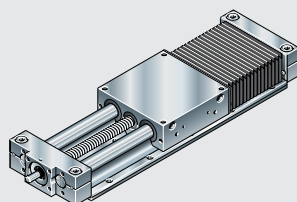
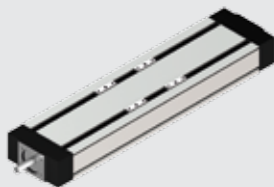
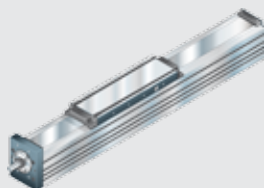
Replaces:

R320103152/2013.06

R320103140/2009.12

EN

## Safety Instructions



DE

EN

FR

IT

ES

PT

CS

The data specified above describes the product. If there is also information on use, it is only to be regarded as application examples and proposals.

Catalog information does not constitute warranted properties.

The information provided does not release the user from the obligation to exercise their own judgment and verification. Our products are subject to a natural process of wear and aging.

© Bosch Rexroth AG reserves all rights, including the right to apply for patent protection. It may not be reproduced or transferred to third parties without our consent.

The cover shows a sample configuration. This means that the supplied product may differ from the photo shown.

The original documentation is in the German language.

Any dissemination of the product must include these safety instructions.

Die vorliegende Dokumentation ist in folgenden Sprachen verfügbar.

This documentation is available in the following languages.

La présente documentation est disponible dans les langues suivantes.

La presente documentazione è disponibile nelle lingue seguenti.

Esta documentación está disponible en los siguientes idiomas.

A documentação está disponível nos seguintes idiomas.

Tato dokumentace je k dispozici v několika různých jazykových verzích.

DE Deutsch (Original documentation)

EN English

FR Français

IT Italiano

ES Español

PT Português

CS Český

## Contents





1	Representation of information .....	4
2	Safety Instructions .....	5
2.1	Intended use .....	6
2.2	Improper use.....	6
2.3	Personnel training and qualifications .....	7
2.4	General safety instructions.....	8
2.5	Safety instructions specific to the product .....	9
2.6	Personal protective equipment.....	11
2.7	Responsibilities of the machine builder or distributor.....	12
3	General notes on damage to the product and property .....	13

# 1 Representation of information

To enable you to work rapidly and safely with the product, this documentation uses uniform symbols. To improve understanding, they are explained.

The following symbols indicate information that is not safety-relevant but makes the documentation easier to understand.

**Table 1: Meaning of the symbols**

Symbol	Meaning
	If this information is not observed, the product cannot be used and/or operated in an optimum way.
	Individual, independent action
1.	Numbered instruction
2.	The numbers indicate that the actions must be carried out one after the other.
3.	
⇒ 7	See section 7
⇒ Fig. 7.1	See figure 7.1
	Screw with strength class...
	Tightening torque
μ	Friction factor for screws

## 2 Safety Instructions

The product has been manufactured according to the generally accepted state-of-the-art. Nevertheless, if these safety instructions and the safety and warning notices given in the related documentation (instruction manuals, product catalogs, etc.) are not adhered to, there is a risk of personal injury and damage to property when using the product.

These safety instructions form part of the product instructions.

To prevent personal injury and damage to property:

- ▶ Before commencing any work with the product, be sure to read the product documentation carefully and completely.
- ▶ Make sure these safety instructions and the product documentation are always accessible to all users.
- ▶ When passing the product on to third parties, always include these safety instructions and all the required documentation.
- ▶ The product may only be mounted, started up and maintained in accordance with these safety instructions and the information given in the product documentation.

## 2.1 Intended use

Single- and multiple-axis linear motion systems are considered to be “partly completed machinery” (as per EU Machinery Directive 2006/42/EC).

The product may be used in accordance with the technical documentation (➡ product catalog) for the following purpose:

- For precise two-dimensional or three-dimensional positioning in time and space of firmly fastened loads.

The type-specific load data from the relevant catalogs and the supplementary technical documents provided by our company must be considered in all cases.

The product is exclusively intended for incorporation into a final machine or a system or for assembly with other components for the purpose of building a final machine or a system.

The product is exclusively intended for professional use and not for private use.

Use for the intended purpose requires that you must have read and understood the product documentation completely, in particular these “Safety instructions”.

## 2.2 Improper use

Use of the product in any other way than as described at “Intended use” is considered to be misuse and is therefore not permitted.

You are only allowed to use the product in applications or environments that constitute a danger to the health and life of people if this use is expressly specified and permitted in the product documentation.

Improper use of the product includes:

- the transport of persons
- use in explosive environments
- use in direct contact with unpacked foodstuffs

Bosch Rexroth AG does not assume any liability for damage caused by improper use. The user assumes all risks resulting from improper use.

## **2.3 Personnel training and qualifications**

The activities described in these safety instructions and the product documentation require a basic knowledge of mechanical and electrical engineering principles and familiarity with the associated technical terms. For transporting and handling the product, additional knowledge of how to handle lifting tools and the necessary attachment devices is required.

In order to ensure safe use, these activities may only be carried out by a suitable expert or trained person under the direction and supervision of an expert.

Experts are people who can recognize potential dangers and apply the appropriate safety measures due to their technical training, knowledge and experience, as well as their understanding of the relevant provisions pertaining to the work to be undertaken. An expert must observe the relevant specific professional rules and have the necessary expert knowledge.

## 2.4 General safety instructions

- ▶ People who assemble, operate, disassemble or maintain Rexroth products must not be under the influence of alcohol, drugs or medication that may affect their ability to react.
- ▶ The safety rules and regulations of the country in which the product is used must be complied with.
- ▶ All applicable accident prevention and environmental regulations must be adhered to.
- ▶ Inspect the product for damage and use it only if it is in technically perfect condition.
- ▶ All notices on the product itself must be complied with.
- ▶ To rule out hazards to people due to inappropriate spare parts, only use accessories and spare parts authorized by Bosch Rexroth AG.
- ▶ The technical data and environmental conditions stated in the documentation for the product and accessories must be complied with.
- ▶ The product must not be put into service until it has been verified that the final product (for example a machine or system) into which the product has been installed complies with the country-specific requirements, safety regulations and standards for the application.
- ▶ Make sure that the product has not been modified or changed unless this is allowed in the product documentation.
- ▶ The product must never be disassembled. The only exceptions are activities described in the section "Removal and replacement" of the product instructions.
- ▶ Parts of the product may heat up considerably during operation. These parts must be allowed to cool before touching them, or users must wear appropriate protective clothing, e.g. heat-resistant gloves, to protect themselves against burns.
- ▶ The product must never be used as a handle or step.
- ▶ Do not place any objects on the product without fixing them.



## 2.5 Safety instructions specific to the product

### Service life/premature wear

- ▶ Linear motion technology products are not designed on a high-endurance basis but rather for specific periods of operation. To be able to detect possible failures due to wear or material fatigue in good time, you must carry out visual and functional tests on a regular basis. When the product reaches the end of its life cycle, you must check that it is functioning perfectly. Non-observance can lead to the failure of fastening elements and/or the limiting and transfer elements in the drive chain. This can have a negative effect on machinery safety. If replacement or repairs are needed, please contact Bosch Rexroth.

### Incorrect loading/improper use

- ▶ Do not expose the product to any mechanical loads under any circumstances. In this connection, you must observe and comply to the letter with the technical data in the product catalog, the information in the instructions and the safety information in this documentation. Non-observance can lead to the failure of fastening elements and/or the limiting and transfer elements in the drive chain. This can have a negative effect on machinery safety.

### Vertical and diagonal installation

- ▶ Linear motion technology products are not self-locking; this means that if they are used vertically or at an angle, they can drop or move in an uncontrolled way. To prevent this, the machine builder or distributor must take protective measures by appropriate installation. Amongst other sources, the Division Information Sheet on "Gravity-Loaded Axes" of DGUV Fachbereich Holz und Metall, the Woodworking and Metalworking Division of the German statutory accident assurance association (DGUV) offers further information on this topic.

### Safety instructions for electric drives and controls

- ▶ Before handling the product, read and take note of the safety instructions in the motor or controller project planning manuals.

**When transporting**

- ▶ Pay attention to the transportation information.
- ▶ When transporting the product, support it only at the designated points.
- ▶ Take note of the weight and use suitable and safety-inspected load hoisting equipment to lift and transport the product.
- ▶ Do not stand under hoisted loads.

**During installation**

- ▶ Use appropriate protective equipment to protect against contact with any anti-corrosion oils.
- ▶ Before installing the product and connecting or disconnecting plugs, the relevant part of the machine or system must always be de-energized.
- ▶ Safety interlocks must be provided to prevent inadvertent switching on of the machine or system part.
- ▶ Cables and wires must be routed in such a way that they will not be damaged and no one can become entangled in them.
- ▶ Take note of the weight and use suitable and safety-inspected load hoisting equipment to lift and transport the product.

**During commissioning**

- ▶ Do not stand under hoisted loads.
- ▶ The product may only be put into service when it has been completely installed and fixed. Ensure that all electrical connections are connected up or sealed off.
- ▶ Do not attempt to grasp any moving or rotating parts (e.g. carriages).
- ▶ If the product generates excessive noise, personnel should wear ear protectors and check the product for any damage.

**During operation**

- ▶ Ensure that any adjustment devices on components and parts are actuated only by personnel authorized by the owner, and only within the scope of the intended use of the product.

- ▶ It must be ensured that only persons so authorized by the equipment user are granted access to the immediate operating zone of the product. This also applies when the product is at a standstill.
- ▶ In the event of an emergency, fault or other irregularity, the product must be de-activated and secured against reactivation.
- ▶ Do not attempt to grasp any moving or rotating parts (e.g. carriages).
- ▶ If the product generates excessive noise, personnel should wear ear protectors and check the product for any damage.
- ▶ Take note of safety functions and devices and do not deactivate them.

EN

## 2.6 Personal protective equipment

- ▶ When handling the product, personnel must wear appropriate protective equipment or clothing (e.g. safety shoes, gloves, etc.) All parts of the personal protective equipment must be intact.

## **2.7 Responsibilities of the machine builder or distributor**

The responsibility for the safety design of the machine rests with the builder or distributor of the machine. As delivered, the product is not completely equipped with certain facilities to protect machine operators (e.g. safety equipment according to EN ISO 13849, gravity-loaded axes with integrated safety devices, etc.)

Since the product is used as partly completed machinery, i.e. part of an overall system (machine), it is only possible to guarantee safety by the concept of an overall system (a machine concept, for example).

This means that before using the product, the machine builder or distributor must carry out a basic risk assessment with regard to the concrete application and implement the necessary measures/mechanisms.

### 3 General notes on damage to the product and property

The warranty only applies to the agreed configuration.

Bosch Rexroth accepts no liability for defects to the product that are due to faulty installation, commissioning and operation as well as due to improper use.

#### During installation

- ▶ All installation work must be performed with a high regard for cleanliness to avoid contamination that could lead to premature wear and malfunctioning of the product.

#### During commissioning

- ▶ Before starting up the product, all seals and plug-in connections must be checked for correct installation and intactness in order to prevent liquids and foreign matter from working their way into the product.
- ▶ In case of critical ambient temperatures, ➡ the chapter entitled "Operating Conditions" in the guide associated with the product; allow the product to acclimatize for a few hours before commissioning.

#### During operation

- ▶ Take suitable precautions to collect any escaping lubricant and dispose of it in the proper way.

#### When cleaning

- ▶ Seal all the openings such that no cleaning agents can enter the system.
- ▶ Never use solvents or caustic cleaning agents.
- ▶ Use only a slightly dampened, lint-free cloth to clean the product.
- ▶ Do not use high-pressure cleaning equipment to clean the product.
- ▶ Take suitable precautions to collect any escaping lubricant and dispose of it in the proper way.

When carrying out maintenance and repair work

- ▶ Perform the specified maintenance work at the intervals stated in the product instruction manual.
- ▶ Take suitable precautions to collect any escaping lubricant and dispose of it in the proper way.

During disposal

- ▶ Dispose of the product in compliance with applicable national regulations.



The Drive & Control Company

**Rexroth**  
**Bosch Group**

Bosch Rexroth AG  
Ernst-Sachs-Straße 100  
97424 Schweinfurt, Germany  
Tel. +49 9721 937-0  
Fax +49 9721 937-275  
[www.boschrexroth.com](http://www.boschrexroth.com)

Subject to change without  
notice  
Printed in Germany  
R320103152/2015.01