



Spherical bearing

Rod end bearings and bearing blocks for hydro-cylinders and block cylinders

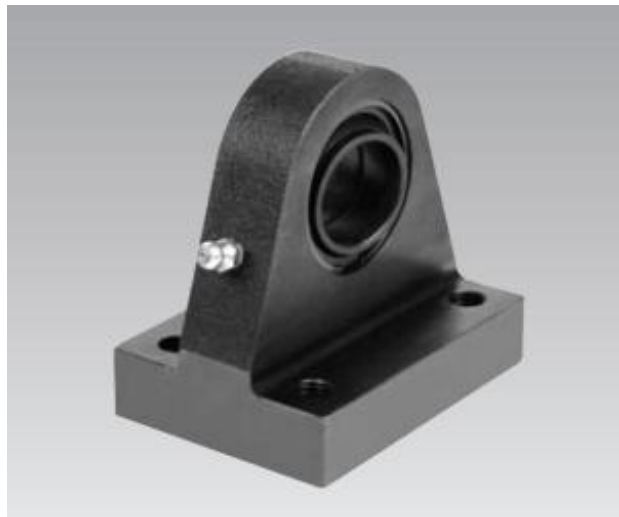


Table of contents

1	Description of the product	2
2	Validity of the documentation	2
3	Target group of this document	2
4	Symbols and signal words	2
5	For your safety.....	3
6	Application	3
7	Installation.....	4
8	Technical characteristics	5
9	Maintenance.....	5
10	Disposal.....	5
11	Declaration of manufacture	7

1 Description of the product

Rod end bearings

The rod end bearings consist of a spherical bearing mounted in a housing that can be screwed onto the piston rod of hydro-cylinders or block cylinders.

The spherical bearing is a plain bearing that allows a force transmission with a tilting angle of a maximum of 4°.

Bearing blocks

The bearing blocks consist of a spherical bearing mounted in a housing that can be screwed onto the cylinder base of hydro-cylinders or block cylinders.

The spherical bearing is a plain bearing that allows a force transmission with a tilting angle of a maximum of 4°.

Cylinders for mounting of spherical bearings:

Hydro-cylinders: Data sheet B 1.282

Block cylinders: Data sheet B 1.542

2 Validity of the documentation

These operating instructions apply to spherical bearings with the following part numbers:

For hydro-cylinder B1.282

- 1293, 1294, 1295, 1296, 1297, 1298 1X XXXX

Rod end bearing

- 3890 023, 012, 017, 014, 018, 025

Bearing block

- 1293 940

For block cylinder B1.542

- 1543, 1544, 1545, 1546 26X

- 1547 27X

Rod end bearing

- 3890 012, 017, 014, 018, 025

Bearing block

- 0155 300, 400, 500, 600, 700

3 Target group of this document

- Specialists, fitters and set-up men of machines and installations with hydraulic expert knowledge.

Qualification of the personnel

Expert knowledge means that the personnel must

- be in the position to read and completely understand technical specifications such as circuit diagrams and product-specific drawing documents,
- have expert knowledge (electric, hydraulic, pneumatic knowledge, etc.) of function and design of the corresponding components.

An **expert** is somebody who has due to its professional education and experiences sufficient knowledge and is familiar with the relevant regulations so that he

- can judge the entrusted works,
- can recognize the possible dangers,
- can take the required measures to eliminate dangers,
- knows the acknowledged standards, rules and guidelines of the technology.
- has the required knowledge for repair and mounting.

4 Symbols and signal words

CAUTION

Easy injuries / property damage

Stands for a possibly dangerous situation.

If it is not avoided, minor injuries or material damages will result.



Hazardous to the environment

The symbol stands for important information for the proper handling with materials that are hazardous to the environment.

Ignoring these notes can lead to heavy damages to the environment.

NOTE

This symbol stands for tips for users or especially useful information. This is no signal word for a dangerous or harmful situation.

5 For your safety

5.1 Basic information

The operating instructions serve for information and avoidance of dangers when installing the products into the machine as well as information and references for transport, storage and maintenance.

Only in strict compliance with these operating instructions, accidents and property damages can be avoided as well as trouble-free operation of the products can be guaranteed.

Furthermore, the consideration of the operating instructions will:

- avoid injuries
- reduce down times and repair costs,
- increase the service life of the products.

5.2 Safety instructions

The product was manufactured in accordance with the generally accepted rules of the technology.

Observe the safety instructions and the operating instructions given in this manual, in order to avoid personal damage or material damage.

- Read these operating instructions thoroughly and completely, before you work with the product.
- Keep these operating instructions so that they are accessible to all users at any time.
- Pay attention to the current safety regulations, regulations for accident prevention and environmental protection of the country in which the product will be used.
- Use the ROEMHELD product only in perfect technical condition.
- Observe all notes on the product.
- Use only accessories and spare parts approved by the manufacturer in order to exclude danger to persons because of not suited spare parts.
- Respect the intended use.
- You only may start up the product, when it has been found that the incomplete machine or machine, in which the product shall be mounted, corresponds to the country-specific provisions, safety regulations and standards.
- Perform a risk analysis for the incomplete machine, or the machine.

Due to the interactions between the product and the machine/fixture or the environment, risks may arise that only can be determined and minimized by the user, e.g. :

- generated forces,
- generated movements,
- Influence of hydraulic and electrical control,
- etc.

6 Application

6.1 Intended use

Spherical bearings are used in applications where dynamic loads are involved. These spherical bearings allow for force transmission at a tilting angle of up to 4°.

They are used in the following data sheets:

- Hydro-cylinder B1282
- Block cylinder B1542

6.2 Misapplication

Use of the spherical bearing is not permitted:

- For domestic use.
- For other use on products such as those described.
- If, due to vibrations or other physical / chemical effects, damage to the products can be caused.
- In machines, on pallets or machine tool tables that are used to change the characteristics of the material (magnetise, radiation, photochemical procedures, etc.).
- In the case of deviating operating and environmental conditions (see technical characteristics)

7 Installation

7.1 Design

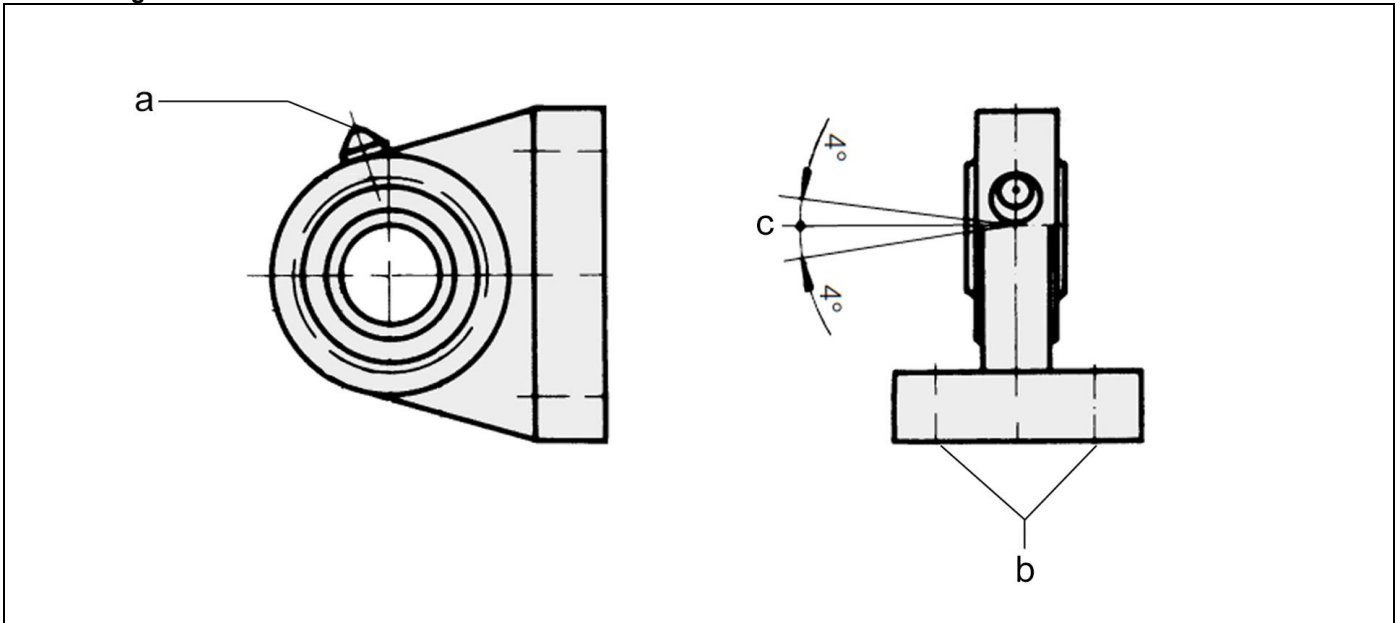


Fig. 1: Bearing block

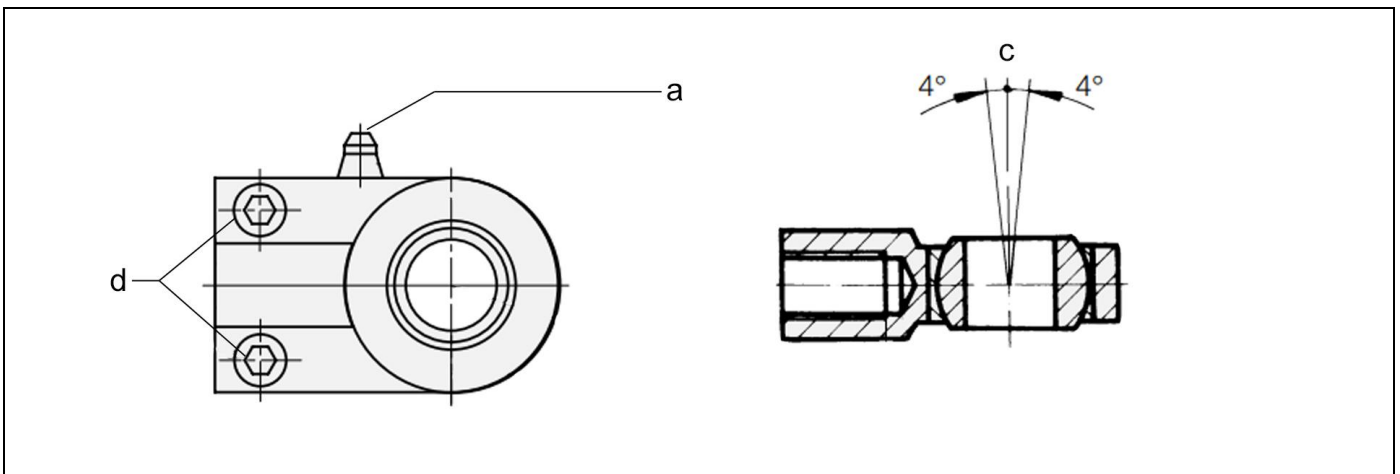


Fig. 2: Rod end bearing

a Lubricating nipple	c Tilting angle
b Mounting holes	d Locking screws

7.1.1 Mounting principle

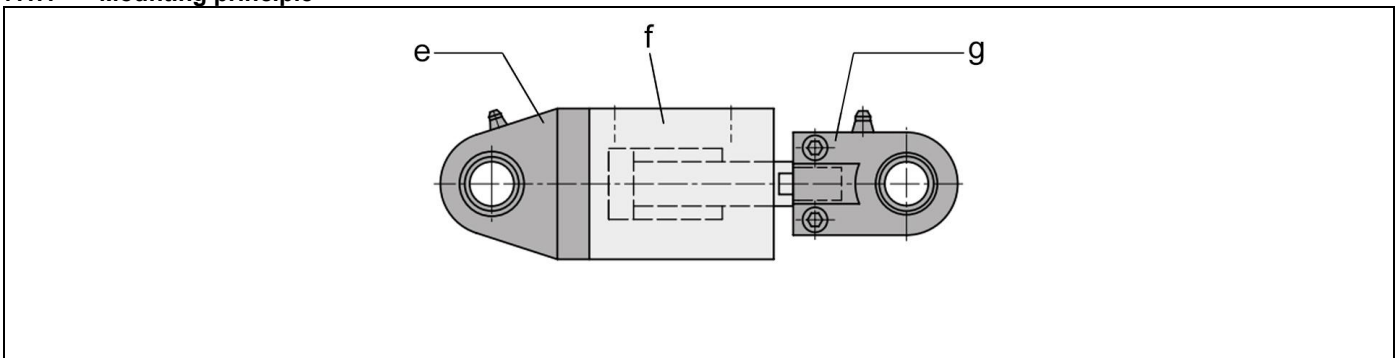


Fig. 3: Assembly example

e Bearing block	g Rod end bearing
f Block cylinder	

7.1.2 Mounting of spherical bearing

The rod end bearing has to be screwed firmly against the piston rod shoulder and fastened by two clamping screws. This applies a certain amount of preload to the thread, which prevents it from loosening under alternating loads.

- Screw the spherical bearing firmly against the piston rod shoulder.
- Tighten the clamping screws just enough so that the spherical bearing can still be turned on the piston rod thread.
- Clamp the spherical bearing carefully in a vice and tighten the piston rod firmly with an open-ended wrench against the spherical bearing.
- Tighten the locking screw.

CAUTION

Minor injuries / property damage

When connecting the spherical bearing joint type, ensure that the hydraulic hoses are not twisted in any stroke position.

7.1.3 Clevis pin design

NOTICE

Clevis pin fit

Select the clevis pin fit as m6. In certain cases, f7 may be used for a case-hardened pin with lubrication through the pin.

Further details

For tolerances, further operating conditions and other information, see data sheet A0100.

8 Technical characteristics

Rod end bearing B1282	
Max. operating pressure, dynamic	160 bar
Max. operating pressure, static	200 bar

Rod end bearing B1542	
Max. operating pressure, dynamic	250 bar
Max. operating pressure, static	500 bar

Max. tilting angle	4°
--------------------	----

Tightening torques for bearing block fixing screws

Thread	Tightening torques (MA)
	[Nm]
	8.8
M8	25
M10	49
M12	85
M16	210

NOTICE

Further technical characteristics regarding the spherical bearing are included in ROEMHELD data sheet G3810.

9 Maintenance

9.1 Lubrication

Lubrication intervals must be adapted to existing operating conditions. If the equipment is operated near its load limit, daily lubrication is recommended. Compared to weekly lubrication, the service life is then approximately seven times longer.

10 Disposal



Hazardous to the environment

Due to possible environmental pollution, the individual components must be disposed only by an authorised expert company.

The individual materials have to be disposed as per the existing regulations and directives as well as the environmental conditions.



Special attention has to be drawn to the disposal of components with residual portions of hydraulic fluids. The instructions for the disposal at the material safety data sheet have to be considered.

For the disposal of electrical and electronic components (e.g. stroke measuring systems, proximity switches, etc.) country-specific legal regulations and specifications have to be kept.

11 Declaration of manufacture

Manufacturer

Römheld GmbH Friedrichshütte
Römheldstraße 1-5
35321 Laubach, Germany
Tel.: +49 (0) 64 05 / 89-0
Fax: +49 (0) 64 05 / 89-211
E-mail: info@roemheld.de
www.roemheld.com

Responsible person for the documentation:

Dipl.-Ing. (FH) Jürgen Niesner, Tel.: +49(0)6405 89-0.

Declaration of manufacture of the products

They are designed and manufactured in line with the relevant versions of the directives **2006/42/EC** (EC MSRL) and in compliance with the valid technical rules and standards.

In accordance with EC-MSRL, these products are components that are not yet ready for use and are exclusively designed for the installation in a machine, a fixture or a plant.

The products may only be put into operation after it was assessed that the incomplete machine / machine, in which the product shall be installed, corresponds to the machinery directives (2006/42/EC).

The manufacturer commits to transmit the special documents of the products to state authorities on request.
The technical documentation as per appendix VII part B was prepared for the products.

Laubach, 28.04.26