

Installation and operating instructions LBHS  
 Im Salmenkopf D-77866 Rheinau, Germany  
 ☎ +49 7844 9138-5556  
 Fax: +49 7844 9138 80  
 DDOC00219  
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 EN / 04.04.2022 www.zimmer-group.com

## 1 Supporting documents

### NOTE:

The documents mentioned below are available for download on our website [www.zimmer-group.com](http://www.zimmer-group.com). Only the documents currently available on the website are valid.

- Catalogs, drawings, CAD data, performance data
- Detailed installation and operating instructions
- General Terms and Conditions of Business with specifications for the warranty entitlement

## 2 Safety notes

### CAUTION:

Non-compliance may result in severe injuries!  
 Injuries/malfunctions can occur especially with:

- Pinching during installation due to an unsecured mounting piece
  - Improperly assembled hydraulic connections
  - Hydraulic supply faults, e.g. due to pressure fluctuations
  - Damaged or loose hydraulic lines
  - Missing or loose mounting screws
  - Removal of the safety cover
  - Failure to switch off the working medium during assembly or repair work on the element
  - Human error
  - Failure to observe the safety and warning instructions during installation and start-up
- These installation and operating instructions are intended for installation and maintenance technicians as well as design engineers requiring the element for an application. Please read through all of the installation and operating instructions carefully before start-up and pay special attention to the following hazard warnings and notes.

## 3 Proper use

### NOTE:

The element should only be used in its original state with its original accessories, without any unauthorized changes and within the scope of the defined parameters for use. Zimmer GmbH shall accept no liability for any damage caused by improper use.

In accordance with EN ISO 13849-1, the LBHS element is a safety related component of control systems. Furthermore, we can confirm that the product is manufactured using the basic and proven safety principles (EN 13849-2, Annex C.1 and C.2) and thus regard the LBHS element as a proven component in accordance with EN 13849-1, Chap. 6.2.4, Para. b. The element can be used without any control engineering measures in control systems of Category B or 1; for category 2 control systems, a test channel must be provided. For use in higher control categories, the control must be implemented using multiple channels, where each channel must implement the safety function for itself.

The element may not be used in any application other than those approved by the manufacturer.

Without additional protection or control engineering measures, the element may not:

- be installed in facilities that are used for transporting people (e.g. elevators).
- be used in vehicles.
- be used underwater or in other fluids.
- be used in a corrosive environment (for example, in connection with acids).
- come in contact with abrasive media (such as grinding dust).
- be used in a vacuum.
- come in direct contact with food.
- be used in areas with a potentially explosive atmosphere.

The guidance must be provided externally. The element does not feature any guide characteristics.

For questions regarding use of the LBHS series element, please contact Zimmer GmbH.

## 4 Personnel qualification

### DANGER:

Never open the housing. Intervention is not permitted and can lead to serious injuries.  
 ⇒ Warranty and disclaimer.

The installation, start-up, maintenance and repairs may be undertaken only in accordance with these installation and operating instructions and only by qualified personnel who have the professional expertise and know the conditions, as well as the dangers, of the machine into which the element is being installed.

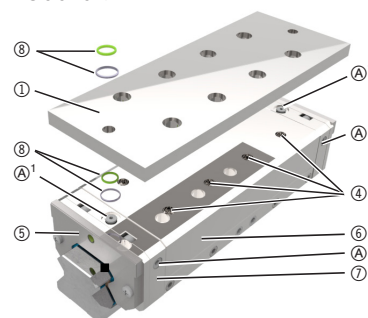
## 5 Product description

The hydraulically operated LBHS series is a safety component. It is designed for clamping and braking on linear guide rails. The function is based on the internal stress of the material for depressurized clamping and braking. The eroding contour inside of the housing enables a low and narrow design that simultaneously features high holding forces. The internal stress of the material makes it possible to close the element without pressure. Any damage to the contact surface of the linear guide rail is prevented by the pairing of rail and contact profile materials as well as by the contact profile geometry. The elements are configured to the respective rail dimension at the factory.

⇒ Increased displacement resistance when using wipers, due to front and longitudinal seals.

1	Spacer plate (optional)/including sealing set (8)
A	Hydraulic connection (4x for each element)**
A'	Flat surface on top (2x for each element)
4	Thread for mounting screws
5	Wiper (optional)
6	Housing
7	Cover
8	Sealing set (included)

Fig. 1: LBHS element



## 6 Connections

### NOTE:

Only an A or A' connection must be occupied for the LBHS element to function safely. All unused connections must be closed off.

The element of the LBHS series has four A and two A' hydraulic connections. The hydraulic connections are provided with plug screws at the factory. Each of the 6 connections can be used. For the A' connections, the cutting ring and the O-ring (sealing set 8) included in the scope of delivery must be installed.

## 7 Installation

### NOTE:

If the plug screws in the A or A' connection options are removed or loosened, it must be ensured afterwards that they are reinstalled with the prescribed tightening torque. The plug screws have a maximum tightening torque of 4 Nm.

- ▶ Check the element for any damage before installing it.
  - The element may only be used in conjunction with linear rail carriages.
- ▶ The mounting face of the element has to be completely covered with the mounting piece.
  - Make sure the mounting piece is sufficiently rigid.
  - Mount the element using 8 screws.
  - Arrange the screws symmetrically.
  - If necessary, use a spacer plate (accessory) to make a level surface.
  - Use screws with a strength class of 8.8.
    - ⇒ <http://www.schrauben-normen.de/anziehmomente.html> ⇒ DIN 912 bzw. ISO 4762
- ▶ To ensure a short response time, choose hydraulic hoses of the shortest possible length.

## 7.1 Procedure for installing on the A connections

### CAUTION:



Improperly filled hydraulic systems can cause destruction of the element due to the undissolved air in the hydraulic medium.

- ▶ Remove the desired plug screw and attach the M5 or G1/8 hydraulic connection to one of the A connections. The A connections that are not required must be closed off with a plug screw.
- ▶ Fill the hydraulic lines.
- ▶ Bleed the system:
  - ⇒ Loosen the plug screws of the unused hydraulic connections.
  - ⇒ Loosen the hydraulic connection on the element.
  - ⇒ Keep filling the hydraulic system until fluid comes out of both connections.
  - ⇒ Close the plug screws again and tighten the hydraulic connection.
- ▶ Connect the hydraulic system; open the element using a max. pressure of 120 bar at the A or A' connection.
- ▶ Make sure the mounting face is clean and flat.
- ▶ Push the element onto the guide rail from the end. Depending on the rail manufacturer and thus the shape of the contact profile, it may also be possible to put the element on from above.
- ▶ If necessary, insert the spacer plate 1 between the element and the mounting piece.
- ▶ Manually screw the mounting screws into the threaded holes. Note the minimum screw-in depth of 0,5 x Ø.
- ▶ The element centers itself as a result of multiple cycles (opening at least 20 times).
- ▶ Switch the element into a depressurized state, thereby clamping it. Tighten the mounting screws using the specified tightening torque.

## 7.2 Procedure for installing on the A' connections

### CAUTION:



If the mounting screws are tightened when the element is not clamped, the element can shift and consequently be unable to achieve the optimum clamping force! Furthermore, the guide rail could become damaged.

- ▶ Remove the desired plug screw in cover 7 (A' above).
- ▶ Insert cutting ring 8.
- ▶ Insert O-ring 8.
- ▶ Install the element on the mounting or spacer plate.

## 7.3 Checking operational readiness

After the element has been properly installed, check whether it is ready to be operated according to the following characteristics:

- Check the ease of movement by manually sliding the linear guide.
- Check the clamping process by trying to slide the mounting piece.
- Check all hydraulic connections by performing a visual inspection.
- Check all elements for leaks when there is pressurization.
- Check to make sure all screw connections fit securely and are tightened to the specified tightening torque.

## 7.4 Disassembly

### NOTE:



After disassembly in the event of failure, make sure the element is not used again or pressurized. The housing can be damaged (crack formation) from being bent up.

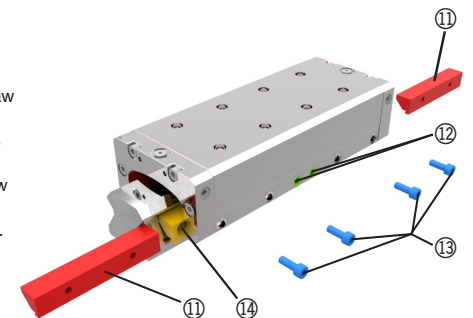
Perform the disassembly (with pressure) in the reverse order. Disassembly in the event of failure (depressurized) is carried out in the following sequence:

#### Sizes 25 to 65:

- ▶ Remove all mounting screws 13.
- ▶ Screw the two setscrews 12 on one side of the element into the disassembly hole (disassembly jaw 14 is pressed against the rail).
- ▶ The housing of the LBHS opens ⇒ Clamping jaws and brake pads 11 can be removed.
- ▶ Remove the setscrews 12 and the disassembly jaw 14 again.
- ▶ Repeat the process on the other side of the LBHS.

#### Size 20:

- ▶ Remove all mounting screws 13.
- ▶ Screw the three setscrews 12 on one side of the element into the disassembly hole.
- ▶ As soon as the housing has lifted, remove the outer setscrews ⇒ Only the middle setscrew 12 stays screwed in ⇒ The clamping jaws and brake pads 11 can be removed.
- ▶ Remove the middle setscrew and the disassembly jaw 14 again.



## 8 Maintenance

The element is maintenance-free up to the number of cycles listed in point 9 under the following conditions:

- HLP 46 hydraulic fluid
- The guide rail must be clean and free of greasy films.
- ▶ Even though the element is, as mentioned, maintenance-free, perform a regular visual inspection to check for corrosion, damage and contamination.
- ▶ Clean the element as needed using a commercially available machine cleaning agent and then apply an anti-corrosion agent to the housing.

## 9 Technical data

### INFORMATION:



Please refer to our website [www.zimmer-group.com/en/it-td](http://www.zimmer-group.com/en/it-td) for technical data. If you should have further questions about products or technical data, please contact ZIMMER GmbH customer service. For this purpose, please call our technology hotline at ☎ +49 7844 9138-5556.

- ▶ The displacement resistance for the element of the LBHS is 150 N.

## 10 Troubleshooting

### INFORMATION:



For an accurate and detailed overview of possible faults and their remedies, visit our website at [www.zimmer-group.com/en/it-faq](http://www.zimmer-group.com/en/it-faq). If the described measures for corrective actions are unsuccessful, contact the customer service department at ZIMMER GmbH. For this purpose, please call our technology hotline at ☎ +49 7844 9138-5556.

## 11 Transport and storage

The clamping element is to be transported and stored only in the packaging supplied by Zimmer GmbH. If the element is stored or transported differently, an agent for corrosion protection must be provided as a precaution.

## 12 Declaration of conformity

in terms of the EU Machinery Directive 2006/42/EC (Annex II 1 A)

### Name and address of the manufacturer:

ZIMMER GmbH • Im Salmenkopf 5 • D-77866 Rheinau, Germany • Phone: +49 7844 9138 0 • Fax: +49 7844 9138 80 • [www.zimmer-group.de](http://www.zimmer-group.de)

We hereby declare that, as incomplete machines, the following, identically constructed elements

Product designation: Clamping element  
 Type designation: LBHS

conform to the requirements of the 2006/42/EC directive in their design and the version we put on the market.

The following harmonized standards have been used: (The manufacturer has a full list of the applied standards.)

DIN EN ISO 12100:2011-03 Safety of machinery – General principles – Risk assessment and risk reduction  
 DIN EN ISO 13849-1 / -2 Safety of machinery – Safety-related parts of control systems  
 DIN EN ISO 4413 Safety-related requirements for hydraulic systems and their components

Authorized representative for compiling the relevant documents:

Michael Hemler First name, last name	(see manufacturer's address) Address	Rheinau, Germany 2018-07-18 Place and date of issuance	Martin Zimmer (Legally binding signature)
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