INSTALLATION AND OPERATING INSTRUCTION: Clamping element hydraulic Series KWH

Installation and operating instruction KWH

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1 Supporting documents

Note:

The documents mentioned below are available for download on our website www.zimmer-group.de.
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

2 Safety notes

Caution:

Non-compliance may result in severe injuries.

Injuries/malfunctions can occur especially with:

- Contusion during assembly due to unsecured connection structure
- Improperly assembled hydraulic connections
- Hydraulic supply interferences, e.g. due to pressure fluctuations
- Damaged or loose hydraulic lines
- Missing or loosened fastening screws
- Removal of the safety cover
- Not switching 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 all installation and operation instructions carefully before start-up and pay Special attention to the following hazard warnings and notes.

3 Proper use

Note:

The element KWH should only be used in its original state with its original accessories, with no unauthorized changes and within the scope of its defined parameters for use. Zimmer GmbH accepts no liability for any damage caused by improper use.

The element KWH are designed for operation with hydraulic oil. The elements are not suited for operation with any other media. The KWH element is designed for operation with hydraulic fluid only. According to EN ISO 13849-1, the element is to be regarded as a safety-relevant component of controls. Furthermore, we can confirm the manufacture of the product using the basic and proven safety principles (Annex C.1 and C.2 of EN 13849-2). Thus, according to EN 13849-1, chap. 6.2.4, para. b the element KWH can be regarded as a proven component.
The element can be used in control systems of category B or 1 without further control measures. For category 2 controls, a Test channel must be provided. For use in higher control categories, the control must be executed in a multi-channel manner, whereby each channel must realize the safety function itself.
The element must not be mounted on a linear guide rail other than what the manufacturer has specified.
The element without additional protection or control measures must 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

If you have any questions regarding the use of the KWH series element, please contact Zimmer GmbH.

4 Personnel qualification

The assembly, commissioning, maintenance and repairs may only be undertaken according to the present installation and operating instructions and by only 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.

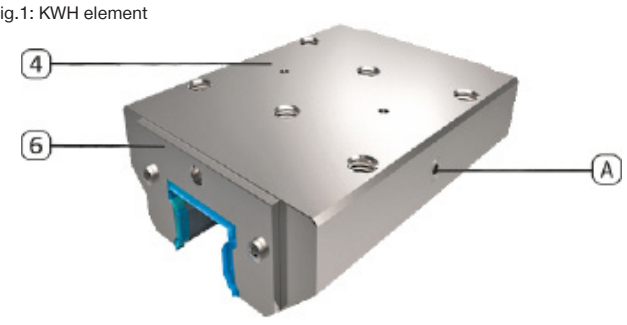
Danger:

Never open the housing. No intervention is permitted and can lead to serious injuries.
Warranty and disclaimer.

5 Product description

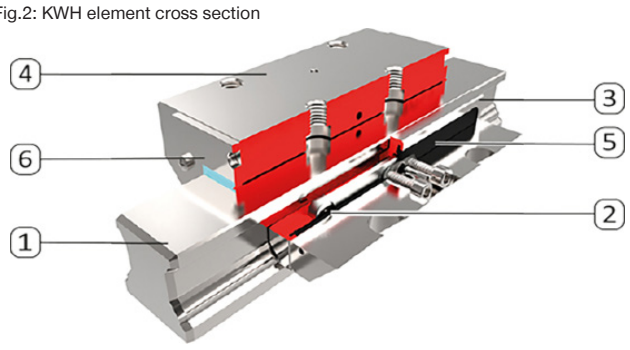
The hydraulically operated element KWH is designed for static clamping, suitable for heavy load applications. Large contact surface are pressed onto the non-attached areas of the LM guide by the hydraulic oil via reciprocating principle. The elements of KWH series are normally open (NO). The seals in the element made of the synthetic rubber NBR. A corresponding tolerance towards external influences must be given. The model KWH is delivered with a hydraulic oil filling (HLP 46) ex factory. A mixture with other, incompatible hydraulic oils lead to malfunctions. With tact times smaller than 100 ms problems can appear on account of the response times of the elements. Moreover, please contact our technical services.
⇨ Significant displacement resistance when using stripping, due to front and longitudinal seals.

Fig.1: KWH element



1	Profile rail guide
2	Return spring
3	Clamping jaw
4	Housing
5	Membran
6	Scraper
A	Hydraulic connection

Fig.2: KWH element cross section



6 Installation instructions

- ► Before assembly check the element for damage.
  - The element may only be used in conjunction with linear guide carriage.
- ► The maximum holding load is reached only by a rigid connection construction which must cover the complete connection surface of the element.
- ► The attachment screws in the middle do have a significant influence on the rigidity of the element.
  - In all cases, the middle mounting holes must be used jointly. The element must be mounted at least with 3 screws.
  - The connection construction must cover the entire connection surface of the element.
- ► Screws used have to comply with the category of solidity of min. 8.8
  ⇨ http://www.schrauben-normen.de/anziehmomente.html ⇨ DIN 912 bzw. ISO 4762

6.1 Procedure for the assembly

Caution:

Unreleased air inside of improperly filled hydraulic lines may cause the destruction of the element .
The pressurizing with hydraulic pressure must take place after the installation and on the linear guide, exclusively.

Including fitting edge: (fitting edge guarantees exact position)

- ► Align the element exactly at the fitting edge of the connecting construction
- ► Pay attention to cleanliness and evenness of the mounting areas.
- ► Mount element together with the guiding slide at the connecting construction.
- ► Slide the connecting construction with mounted carriage and elements on the guide rails.
- ► (see further mounting)

Without fitting edge:

- ► Slide elements together guiding slide on the linear guiding rails.
- ► Put on the connecting construction and mounting screws by hand screwing not tighten .
- ► The distance between contact section and linear guide has to be tested by means of a 0,05mm feeler gauge.
- ► After the distance test, the element can be mounted with the specified torque.
- ► (see further mounting)

Further mounting:

- ► Tighten attachment screws of wiper (supply)
- ► Remove blanking plug Ⓐ on both sides
- ► Install hydraulic connection of the appropriate size (see technical data)
- ► Filling the hydraulic piping
- ► Vent the system:
  - ⇨ Loosen blanking plug on the opposite side of the hydraulic connection
  - ⇨ Loosen hydraulic connection at the element
  - ⇨ Fill hydraulic continue until oil comes out at both connections
  - ⇨ Closing blanking plug and tighten the hydraulic connection
- ► Please note that the mounting screws of the scrapers are only hand-tight. These have to be tightened after mounting and alignment of the element on the linear guide rail with the necessary tightening torque.

6.2 Checking operational readiness

After the appropriate installation of the element the operating readiness has to be tested:

- The mobility has to be tested by manually moving the slide.
- The process of clamping has to be tested by manually moving the connecting construction.
- The appropriate mounting of the fixed and flexible hydraulic pipe installation has to be tested by visual control.
- All hydraulic connections at the pressurized element have to be visually checked for leakage.
- All attachment screws have to be checked for their required moment.

7 Maintenance

The elements are maintenance-free up to the number of cycles listed in point 8 under the following conditions:

- used hydraulic oil as quality HLP 46 or other mixable oil types.
- Compliance with the maximum hydraulic pressures as well as the maximum permissible holding forces.
- The guide rail must be clean and free from greasy films.

► Even though the element is, as mentioned, maintenance-free, perform a regular visual inspection for possible corrosion, damage and contamination on the element.
► Clean the element as needed using a commercially available machine cleaning agent and then apply an anti-corrosion agent to the housing.

8 Technical Data

Information:

The technical data can be found on our homepage www.zimmer-group.com/en/lt-td .
If you have any further questions about the product or the technical data, please contact the customer Service of ZIMMER GmbH.
Our technical hotline ☎ +49 7844 9138-5556 is available for this.

► The displacement resistance for the element of the KWH is 150 N.

9 Troubleshooting

Information:

For an exact and detailed overview of possible malfunctions and their remedies, please visit our website www.zimmer-group.com/en/lt-faq.
If these measures do not lead to success, please contact the customer service of ZIMMER GmbH.
For this purpose our technical-hotline ☎ +49 7844 9138-5556 is available.

10 Transport and Storage

The element is to be transported and stored only in the packaging supplied by Zimmer GmbH. If the element is stored differently or transported, it must be provided with corrosion protection to prevent any corrosion.

11 Declaration of incorporation

in terms of the EC Directive 2006/42/EC on Machinery (appendix II 1 B)
Name and Address of the manufacturer:
ZIMMER GmbH • Im Salmenkopf 5 • D-77866 Rheinau • Tel.: +49 (0)7844 9138 0 • Fax.: +49 (0)7844 9138 80 • www.zimmer-group.de

We hereby declare that the incomplete machines described below

Product designation: Clamping element
Type description: **KWH**

conform to the requirements of the 2006/42/EU in their design and the version we put on the market.
The following harmonized standards have been used: (A full list of applied standards is available at the manufacturer's facilities.)

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	Hydraulic fluid power — General rules and safety requirements for systems and their components

We also declare that the special 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 the incomplete machine's Special documents via 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 satisfy as 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.

Authorized representative for compiling the relevant documents:

Michael Hemler	(see manufacturer's address)	Rheinau, 30.06.2014	Martin Zimmer
First name, last name	*address*	*Place and date*	*(legally binding signature)*