

# MOUNTING AND OPERATION INSTRUCTIONS: Clamping element manually Series HK, miniHK, HKR

## 1. Supporting documents

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

- Catalogs, drawings, performance data
- Detailed installation and operating instructions
- General Terms and Conditions (special specifications to guarantee and warranty)

## 2. Safety notes

These installation and operating instructions are intended for installation and maintenance technicians as well as design engineers requiring the clamping 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.

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

- Contusion during assembly due to unsecured connection structure
- Missing or loosened fastening screws
- Not switching off the machine (plant) during assembly or repair work
- Human error
- Failure to observe the safety and warning instructions during installation and start-up

Installation instructions have to be followed and the necessary equipment and supplies have to be used during installation, modifications, maintenance and repair. Throughout every working process on the clamping elements the appropriate accident prevention regulations and installation instructions have to be followed.

## 3. Proper use

**Note:** The clamping element of the HK, miniHK or HKR series 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 models HK/HKR and miniHK are conceived for the process of static clamping. The HK-model is a manually operated clamping element. By operating the freely adjustable clamping lever the contact sections are synchronically pressed onto the non-attached areas of the track guide. The symmetrical force transmission onto the track guide is guaranteed by the floatingly stored contact sections. The position of the clamping lever can be changed by lifting.

**Danger:** The clamping elements of the HK, HKR and miniHK series are not suitable for securing suspended loads. **Danger of life!**

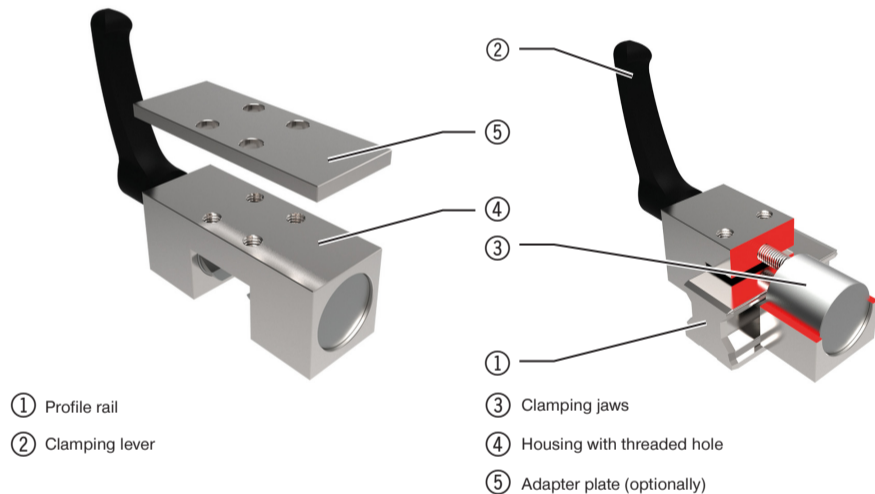
## 4. Product description

The clamping technology of the model HK / HKR and miniHK is preset to the appropriate track gauge ex factory. The contact sections are pressed onto the non-attached areas of the track guide. Therefore the process of clamping does not influence the precision and the economic life-time of the track. The clamping elements of the series HKR are designed only for use on round and shaft guides. The clamping is done manually by turning the clamping lever or the knurled screw.

**Caution:** Non-compliance may result in severe injuries. Clamping processes during motion can lead to damage of the clamping element as well as the linear guide

Abb.1: HK clamping element

Abb.2: HK clamping element cross section



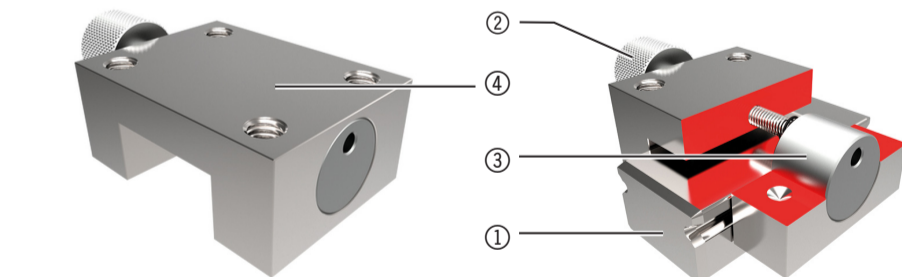
- ① Profile rail
- ② Clamping lever

- ③ Clamping jaws
- ④ Housing with threaded hole
- ⑤ Adapter plate (optionally)

**Note:** The clamping elements of the series HKR are designed only for use on round and shaft guides. The technical design meets the HK series.

Abb.3: miniHK clamping element

Abb.4: miniHK clamping element cross section



- ① Profile rail
- ② Knurled screw

- ③ Clamping jaws
- ④ Housing with threaded hole

## 5. Montage

- Before assembly check the clamping element for damage.
- The clamping element may only be used in conjunction with linear guide carriage.
- The maximum holding load is reached only by a rigid connection construction.
- The connection construction must cover the complete connection surface of the clamping element.
- Screws used have to comply with the category of solidity of min. 8.8 (Tighten attachment screws with required moment).
- ▶ Put clamping element onto linear guide
- ▶ In case of using an adapter plate PHK, place this adapter plate between the clamping element and the connecting construction as a device of leveling.
- ▶ Turn the screws loosely into the screw threads
- ▶ Tighten Clamping lever / Knurled screw ②
- ▶ Tighten attachment screws with the required moment

**Note:** For uninstalling perform in reverse order.

### 5.1 Checking operational readiness

- After the appropriate installation of the clamping 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
  - All attachment screws have to be checked for their required moment.

## 6. Maintenance

The clamping elements are maintenance-free up to the number of cycles listed in point 7 under the following conditions:

- Compliance with the maximum permissible holding forces and the maximum permissible tightening torques of the clamping lever
- 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 clamping element.

### 6.1 Care

Clean the clamping element as needed using a commercially available machine cleaning agent and then apply an anti-corrosion agent to the housing.

## 7. Technical Data

Size of HK-series (selection)	15	20	25	30	35	45	55	65
Holding forces [N]	1.200	1.200	1.200	2.000	2.000	2.000	2.000	2.000
Tightening torque clamping lever [Nm]	5	5-7	7	15	15	15	22	22
Mounting screws category of solidity min 8.8	M4	M5	M6	M6	M8	M10	M14	M16
Tightening torque mounting screws [Nm]	2,9	6,0	10,2	10,2	24,9	49,4	138,0	214,9
ambient temperature [°C]	- 30 to +100							
static clamping cycles	up to 50.000							

Size of mini-HK-series (selection)	6	8	10	12	14	16	20	25
Holding forces [N]	40	65	100	100	150	180	220	300
Tightening torque knurled screw [Nm]	0,07	0,11	0,17	0,17	0,35	0,75	1,3	2,5
Mounting screws category of solidity min 8.8	M2	M2	M3	M3	M3	M3	M4	M6
Tightening torque mounting screws [Nm]	0,35	0,35	1,3	1,3	1,3	1,3	2,9	10,2
ambient temperature [°C]	- 30 to +100							
static clamping cycles	up to 50.000							

**Note:** For all clamping elements of the series HK, HKR and miniHK the data sheets must be observed. The technical data and all available sizes can be found as well on the Internet at [www.zimmer-group.de](http://www.zimmer-group.de). Reserve technical changes.

## 8. Troubleshooting

The following table displays a list of possible faults. The described measures for corrective actions must be carried out by an expert maintenance/service technician. If the described measures for corrective actions are unsuccessful, contact the customer service department at Zimmer GmbH.

Fault	Cause	Possible cause	Solution
Clamping element does not clamp	to low holding forces	Clamping levers / knurled screw insufficiently tensioned	Tighten clamping lever / knurled screw admissible torque
		Damage thread of the clamping lever / knurled screw	Disassembly and replace clamping element ☎ Service Zimmer GmbH
clamping element can not be loosen	Clamping element has tilted on the profile rail	Clamping levers / knurled screw was clamped with excessive torque	Loosen clamping element carefully Check clamping jaws and profile rails for damage, replace damaged elements ☎ Service Zimmer GmbH
		Clamping element is clamped during movement	clamping jaws and contact surface of the profile rails are damaged ☎ Service Zimmer GmbH

## 9. Transport and storage

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

## 10. 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](http://www.zimmer-group.de)  
**We hereby declare that the undermentioned identical elements**

**Product designation:** Clamping element  
**Type description:** HK, miniHK, HKR

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 894-3 Safety of machinery - Ergonomics requirements for the design of control actuators  
DIN EN 1005-3 Safety of machinery - Recommended force limits for machinery operation

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 satisfies 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, 13.03.2008	Martin Zimmer
First name, last name address	Place and date	(legally binding signature)