

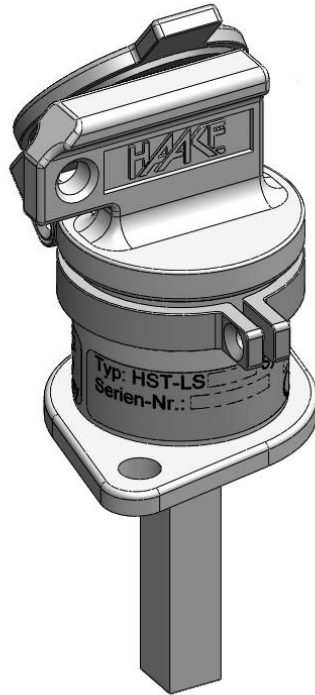
Installation and Operating Manual for Components

HST[®]-LS

Interlocking device
(Translation of Original Manual)

HST-LS Ident.-No.: 10268

HST-LS Ident.-No.: 10269



HST-LS, pictured Ident-Nr. 10269
The image may differ from the product.

Read the operating manual before beginning any work!

HAKE[®]



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1 Scope

This installation and operating manual is intended for persons who have been authorized to carry out tasks involving the installation or operation of the HST- series. International, national and, where appropriate, regional regulations are to be observed when handling key transfer systems.

If you have any questions which are not answered in this manual, please get in touch with your regional customer service centre or else make direct contact with

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2 Intended use

The Interlocking device HST-LS is used for actuating switches, which are not included in the scope of the Haake key transfer system HST. Removing the key safeguards against it being switched back on. The Interlocking device and the HST-LS switches to be actuated must be mounted to each other in such a way that the square axis of the clamping ram of the interlocking device locks the HST-LS switch securely and positively.

The switch must be turned to the OFF position by removing the key, thus disconnecting the load circuit from the drive assembly.

This safety function is not an integral component of the HST system.

Other applications are prohibited.

3 Symbol Explanation

Warnings are indicated by symbols. The notices are introduced by signal words to indicate the extent of the hazard.



Attention!

... indicates a potentially hazardous situation, which may lead to personal injury and damage to property if it is not avoided.



NOTE!

... highlights useful tips and recommendations as well as information for efficient and fault-free operation.

4 Disposal



The device must be properly disposed of in accordance with national laws and regulations.

5 Foreseeable misuse

Never operate the keys with extended lever arms. This can damage the internal components and may render the safety function inoperative.

Do not attempt to unlock the component with objects other than the corresponding keys.

Do not attempt to insert or remove a key by applying excessive force or with the aid of a tool (hammer).

6 Identification

You can find the model designation and serial number on the component's type label for exact identification.

If the component is part of a key transfer system, this information, except for the serial number, can also be found on the key plan.

Note these details (prior to installation, if necessary), so that they can be provided in case of questions or for ordering spare parts.

7 Safety-related functioning

The safety-related function is performed according to the following requirements:

- 1.No rotary actuator of the square shaft in coded keys, which are not inserted and turned.
- 2.No removal of the switch key in position 1 (cf. section 10).

8 Defects which cannot occur

Due to the construction, materials, and components used for the component, the faults listed in the table can be excluded:

Potential Defect	Elimination of Defect	Limitations of Use	Reason
Wear, corrosion.	Permissible acc. To tables A.4 and A.5 of DIN EN ISO 13849-2.	See sections 2 Intended use and sections 19 Technical data.	Application of carefully selected materials and manufacturing processes; use of proven springs and special mounting methods.
Non –tightening /Loosening (parts of the component).	Permissible acc. To tables A.4 and A.5 of DIN EN ISO 13849-2.	See section 2 Intended use.	Application of carefully selected materials and manufacturing processes; use of proven springs and special mounting methods.
Weakening of force due to remaining deformation or fracture.	Permissible acc. To table A.5 of DIN EN ISO 13849-2.	See section 14 Operation.	Use of proven spring and special mounting methods.
Fracture, deformation due excessive load.	Permissible acc. To tables A.4 and A.5 of DIN EN ISO 13849-2.	See section 14 Operation.	Application of carefully selected materials; over dimensioning using safety factor 2 and replication of parts; use of proven springs and special mounting methods.
Stiffness/Getting stuck.	Permissible acc. To tables A.4 and A.5 of DIN EN ISO 13849-2.	See sections 2 Intended use and sections 14 Operation.	Application of carefully selected materials; over dimensioning using safety factor 2 and replication of parts; use of proven springs and special mounting methods.

9 Scope of delivery

1 x Interlocking device HST-LS unit consisting of a lock, a square axle and a mounting plate
1 x properly coded key



NOTE!

Means of attachment are **not** included in the scope of the delivery.

10 Structure and function

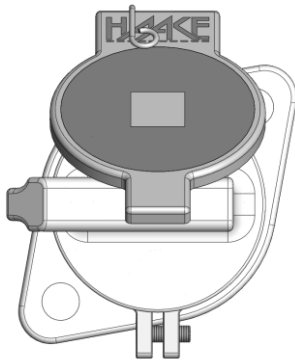
10.1 Description

The Interlocking device consists of a lock and a square axle, which are secured on a mounting plate.

The key which belongs with it can only be inserted and removed in position 0.

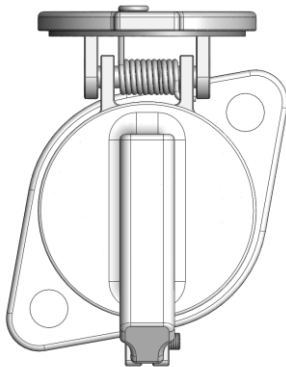
The positive connection in the square axle on the switch device ensures that the turning movement of the key turns on the switching device. From this, the switching device's contacts can be closed or opened.

10.2 Example



Position 1

The key cannot be retracted



Position 0

The key is free

Figure shows HST-LS Ident.-No.: 10269

11 Safety measures

11.1 Organisational measures

Persons who have been authorised to carry out tasks involving the installation or removal of the component must have read and understood this manual prior to commencing such tasks.

The operator of the plant or machine has an obligation to ensure the installation and de-installation is carried out safely and with no hazards by implementing appropriate safety measures.

11.2 Safety of persons

Personnel responsible for installation or removal tasks have to be suitably skilled or else have to be instructed by suitably skilled persons. On account of their technical training and experience, such skilled persons have sufficient knowledge of the installation or machine. These persons are sufficiently familiar with the applicable domestic work protection and accident prevention regulations of relevance here, that they are able to assess the operational safety of the installation or machine.

It is necessary to implement accident- and fall-prevention measures, whenever tasks are performed or areas are traversed at height.

11.3 Operating conditions and limitations of use

Please note the **intended use** (cf. section 2) and the **technical information** (cf. section 19) described in this manual.

11.4 Assembly

Before beginning installation, ensure that the component is intended and suitable for the particular installation site, based on the information on the type label. Always carry out a function test after installation.

Do not make any alterations to the installation after the function test has been successfully carried out.

11.5 Repairs / Alterations

Do not carry out any repairs to the component. Do not replace or exchange any parts. Send damaged or faulty components to Haake Technik GmbH to be repaired.

Do not make any alterations to the component. Otherwise, this could lead to malfunctions, which can cause serious personal injury and irreparable damage to property.

In the event of non-compliance, the guarantee is invalidated and Haake Technik GmbH does not accept any liability.

12 Installation



Attention!

When installing the component, choose a means of attachment that cannot easily be detached (e.g. riveting or safety screws).

12.1 Preparation

Before beginning installation, ensure that the identification number given in this installation and operation manual corresponds to the identification number of the component.

Installing the component requires the following items that are **not** included in the scope of the delivery:

- 2 M6 safety screws x “length corresponding to installation site” from A2-70 as well as screw nuts if necessary
- Screw locking devices (toothed lock washers, disc springs, shaft washers, or screw adhesive)

Clean the work environment by removing dirt, grease and oil.

12.2 General approach

Use suitable tools when installing the component. Otherwise, bolts and nuts may become damaged and unusable.

When tightening the screws listed in section 12.1, do not exceed the max. tightening torque.

Use the items listed in section 12.1 to secure the screw connections.

12.3 Installation instructions

Make the mounting holes according to the design of the component. The mounting holes should be arranged as shown in the diagrams (cf. section 20: **Dimensions**).

The component must be installed in very close proximity to the control element of the switchgear on a fixed part and the bolt must not close into nothing.

No liability is accepted in the event of improper installation!

13 Performance check



Attention!

The protective effectiveness of the component must be checked regularly

- at least once a year
- or
- in intervals according to national operating instructions

Once installed, do not loosen any bolts or nuts or remove any pins; otherwise, the effectiveness of the safety-related functions is no longer guaranteed.

Once finished with installation tasks, carry out the following inspections:

- Check all bolted connections for tightness and ensure that the bolts cannot come loose by themselves.
- Check whether the component is stuck.
- Check whether all keys can be inserted and turned easily.
- Check whether the **safety-relevant functions** (cf. section 7) are ensured.
- Record the results of performance check.

14 Operation



Attention!

Never operate the key with extended lever arms. This may destroy the inner components and disable the safety function.

Do not attempt to unlock the component with objects other than the corresponding keys.

Do not ever attempt to insert or remove a key by applying excessive force or with the aid of a tool (hammer).

14.1 Inserting the key

Insert the key into position 0 and turn it until the stop (see section 10)

14.2 Removing the key

Turn the key from position 1 to position 0 and remove it (see section 10).

15 Maintenance



Attention!

Adapt the frequency of checks to the environmental conditions at the application site.

No maintenance of the internal parts of the component is required.

We recommend the following maintenance measures:

- Check the component at regular intervals (at least once a year) for external damage.
- Check the protective dust cover is securely in place and the seal is functioning.

Damaged or faulty devices must be replaced.

16 Cleaning

No cleaning is required, as a rule.



Attention!

In dusty environments (e.g. cement dust, colour dust), only clean the component with compressed air.

Only use other cleaning methods after prior consultation with the manufacturer.

17 De-installation



Attention!

Only uninstall the component when power to the electrical system is switched off.

Separate the positive connection on the switching device and loosen the selected attachment.

18 Troubleshooting

Fault	Possible cause	Remedy
The key cannot be inserted/turned.	Wrong key / wrong coding.	Check labelling on the key and on the component.
	Deformed key.	Check key. Contact Haake Technik in case of deformation.
	Key inserted incorrectly.	Remove the key and if necessary insert it rotated 180°.
	Mechanical fault.	Contact Haake Technik.
Lock can only be operated with difficulty.	Mechanism is stiff.	Clean (cf. section 16) If necessary contact Haake Technik GmbH.
Safety-relevant function (cf. section 7) not fulfilled.		Contact Haake Technik.
You cannot remove the key.	Mechanical fault.	Contact Haake Technik.
	Locking bolt not in safety-relevant final position.	Ensure that the locking bolt is in the safety-relevant final position.
Lost key.		Contact Haake Technik.

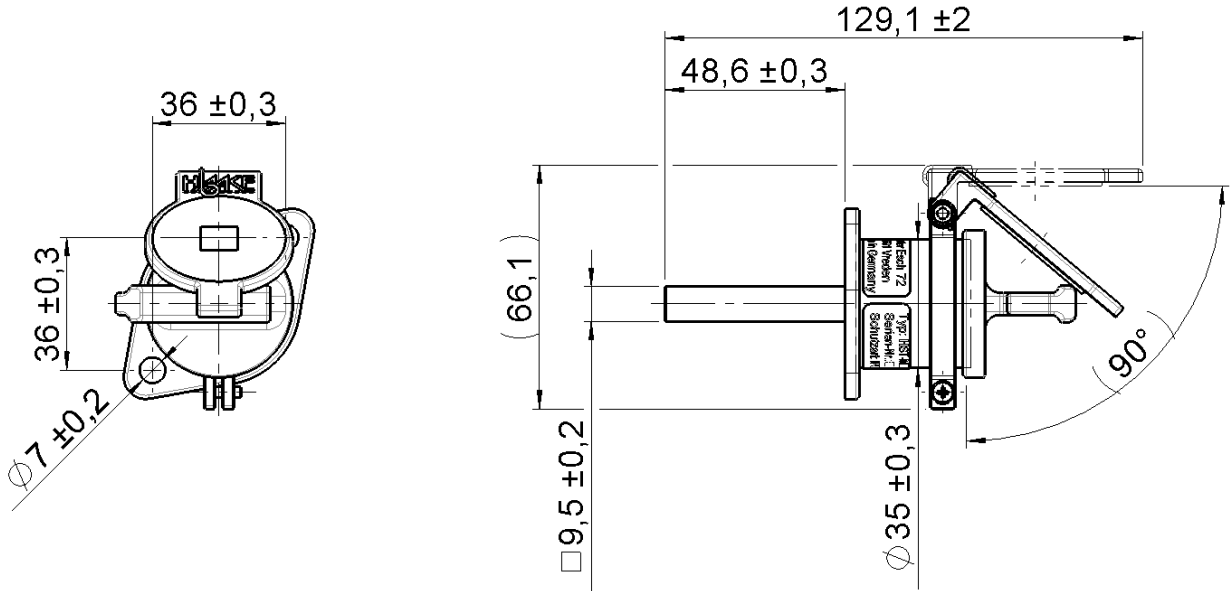
19 Technical data

Environment:	Indoor / outdoor
Ambient temperature:	-25°C to +80°C
Humidity:	to 100 % (standard climate)
Material:	stainless steel
Ambient atmosphere:	industrial environments
mounting position:	all
Mechanical service life:	280,000 actuations
Service life:	15 years
Mean Time To Failure (MTTF _d):	150 years

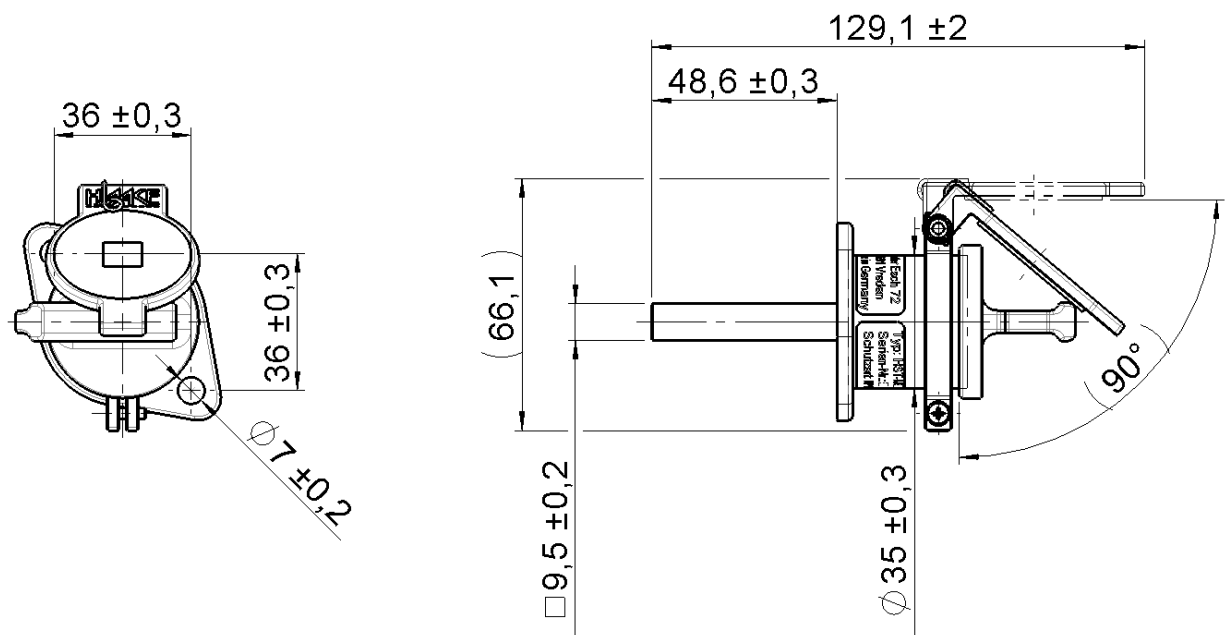
20 Dimensions

Dimensional specifications in mm.

HST-LS Ident.-No.: 10268



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21 EC Declaration of Conformity

EC Declaration of Conformity in accordance with EC Directive 2006/42/EC Annex II 1. A

The company: **Haake Technik GmbH**
Master Esch 72
48691 Vreden

hereby declares that
the safety components: **Interlocking device**

Type: **HST-LS**

Serial Number: **see information on the product**

in the delivered version is in accordance with the following relevant regulations:

EC Directives: **Directive on machinery 2006/42/EC**

Test Specification: **GS-ET 31**
Principles of testing and certification for
Interlocking devices with key transfer systems

The HST-LS interlocking device is used to actuate switching elements not included in the Haake key transfer system. Accidental actuation is prevented by removing the key.

Our quality assurance system ensures that all safety components are manufactured with the same quality.
Therefore the Declaration of Conformity issued applies for all safety components of the above types produced from serial number 1144252.

Authorized representative to compile the technical documentation is:

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Vreden, 07.12.2012


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