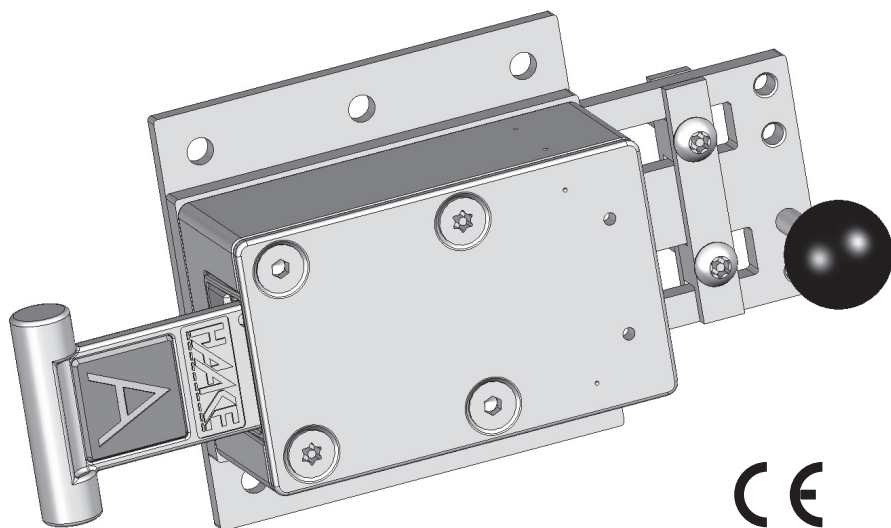


# Installation and Operating Manual for Units

## HSV<sup>®</sup>-CL-1 HSV<sup>®</sup>-CL-2

Interlock for pig trap doors



CE

**HAKE<sup>®</sup>**

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### **Attention!**

Warnings are indicated in the relevant sections by a box labelled **Attention!**

## 1 Scope

This installation and operating manual is intended for persons who have been authorised to carry out tasks involving the installation or operation of the HSV interlock for pig trap doors. International, national and, where appropriate, regional regulations are to be observed when handling piping, doors, gates, and access points. This installation and operating manual is applicable to the models

- HSV-CL-1
- HSV-CL-2

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

This interlock for pig trap doors serves the purpose of locking pig trap doors and other doors. This interlock for pig trap doors may be utilised indoors or outdoors. The interlock for pig trap doors must only be installed in accordance with the key interlock sequence plan of the interlock system. Other applications are prohibited.

Do not use this interlock for pig trap doors as a tumbler to keep pressurised components closed or as a mechanical stop. Incorrect use, for instance, includes under water application areas.

## 3 Foreseeable misuse

Only use the control element for operating the interlock. Do not attempt to use any other object other than the assigned key to unlock the valve interlock. Do not attempt to insert or remove a key by applying excessive force or with the aid of a tool (hammer).

## 4 Identification

Precise identification of the interlock is provided by the model designation and serial number on the name plate located on the underside of the housing. Note these details (prior to installation, if necessary), so that they can be provided in case of questions or for ordering spare parts.

The name plate also indicates the door designation for which the interlock is intended. These details can be obtained from the key interlock sequence plan with the exception of the serial number if the component is part of a system.

## 5 Safety-related functioning

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

- Activation of door with inserted, assigned, and coded key.
- Interlocking of door when the key is missing.
- Blocking of key removal when the door is opened.

In addition with HSV-CL-2

- Locking of the secondary key when the primary key has not been inserted.
- Release of the secondary key through insertion of the coded primary key.
- Release of the plug-in element through removal of the coded secondary key.
- Interlocking of primary key when the secondary key is removed.
- Interlocking of (secondary) key shaft when the plug-in element is not inserted.
- Interlocking of plug-in element up to a force of 5,000 N lateral to the direction of actuation; 1,000 N in the direction of actuation

## 6 Defects which cannot occur

Defects which cannot occur are outlined in the table. These have been eliminated due to the design and selection of materials and components for the unit:

Potential Defect	Elimination of Defect	Limitations of Use	Explanation
Wear, corrosion	Permissible acc. to tables A.4 and A.5 of DIN EN ISO 13849-2	See sections <b>Intended use</b> on page 3 and <b>Technical data</b> on page 16	Application of carefully selected materials and manufacturing processes; use of proven springs and special mounting methods
Non-tightening/Loosening	Permissible acc. to tables A.4 and A.5 of DIN EN ISO 13849-2	See section <b>Intended use</b> on page 3	Application of carefully selected safety controls and treatment procedures; use of proven springs and special mounting methods
Weakening of force due to permanent deformation or fracture	Permissible acc. to table A.5 of DIN EN ISO 13849-2	See section <b>Operation</b> on page 13	Use of reliable springs and special mounting methods
Fracture, deformation due to excessive load	Permissible acc. to tables A.4 and A.5 of DIN EN ISO 13849-2	See section <b>Operation</b> on page 13	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 caught	Permissible acc. to tables A.4 and A.5 of DIN EN ISO 13849-2	See sections <b>Intended use</b> on page 3 and <b>Operation</b> on page 13	Application of carefully selected materials and lubrication. Careful selection, combination, arrangement, assembly and installation of components. Over-dimensioning using safety factor 2

## 7 Scope of delivery

- 1 Interlock base body  
(HSV-CL-1 or HSV-CL-2)
- 1 Guide element (2 cross-members)
- 1 Plug-in element
- 1 or 2 HSV-K key(s)  
Fixing material

### **Please note:**

Corresponding HSV-K keys are separate components.

## 8 Structure and function

The interlock for pig trap doors consists of a base body, a guide element, a plug-in element with control element, and one or two keys. The housing and the guide element are connected with the door. The control element is used for opening the door after it has been released. The housing has two key shafts, depending on the model.

The HSV-CL-1 interlock for pig trap doors is used to lock the closed door and then to release the key. The key remains locked in the interlock if the door is opened.

The HSV-CL-2 interlock for pig trap doors comes with a personal key. The door can only be opened after the personal key has been removed and it must be inserted for the interlock to be locked.

The keys are labelled with coloured markings and can be inserted from either side into the appropriate key shafts.

Individual keys may already be inserted and locked in other components of the interlock system upon delivery.

## **9 Safety measures**

### **9.1 Organisational measures**

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

The owner of the installation or machine has to ensure that a safe and secure procedure takes place when the interlock for pig trap doors is installed or removed, by implementing suitable measures.

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

### **9.3 Operating conditions and limitations of use**

Comply with the operating conditions and technical data described in this manual. Tumblers with an additional key to be removed or equivalent measures should be taken if the possibility of persons getting locked in the hazard area cannot be excluded based on risk assessment results.

### **9.4 Assembly/Disassembly**

Check the name plate to make sure that the interlock is appropriate and intended for use with the door prior to commencing installation tasks.

It is necessary to open the door while installation tasks are in progress. Take appropriate measures to ensure that there is no hazard posed by this process. It may be necessary to inform other persons and to obtain permission to open the door.

Only use fixing material supplied with the interlock. Do not attach another control element.

### **9.5 Repairs**

Do not carry out any repairs on the interlock. Do not replace or exchange any parts. For repair of a damaged or defective interlock, send it to Haake Technik GmbH.

Do not make any changes to the interlock or its components. Severe malfunctions may occur otherwise, which could result in serious injury to personnel and permanent damage to property.

## 10 Installation

### 10.1 Preparation

The following tools are required for installing the interlock for pig trap doors:

- Open-jawed spanner (width: 10 mm)
- Torx-TR keys (Tx 30) for Torx star-shaped screws
- Drill and 4.8 mm and 6.5 mm drill bits
- M6 thread cutter/tap
- Screwlock (for example: Loctite)

Check the name plate and the key interlock sequence plan to make sure that the interlock is appropriate and intended for use with the door prior to commencing installation tasks.

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

### 10.2 General approach

Only use precisely fitting tools (spanners) for removing and tightening bolts and nuts. Otherwise bolts and nuts may become damaged and unusable.

Observe the acceptable tightening torques:

M4: 2.5 Nm

M5: 4 Nm

M6: 7 Nm

M8: 18 Nm

M10: 35 Nm

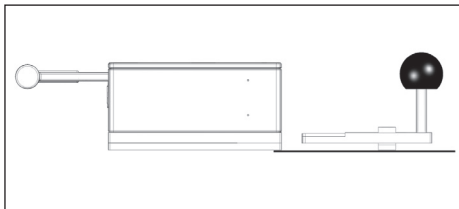
Use appropriate means to secure all threaded fittings, for example, Loctite. For application procedures follow the instructions of the corresponding manufacturer.



### 10.3 Installation on door (non-pressurised)

The installation position between door and door frame must be in one plane. Otherwise, appropriate material should be used to line the component.

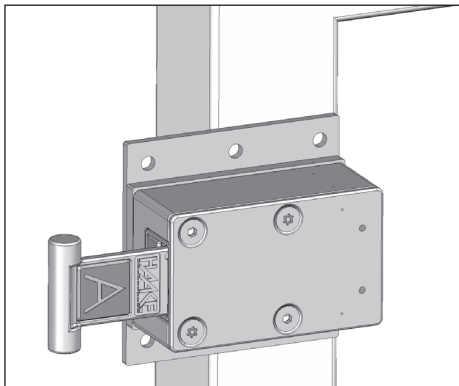
Close the door.



Insert the key into the key shaft and remove the plug-in element.

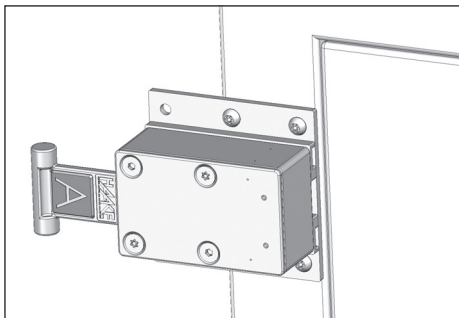
Position the base body on the door frame so that the key shaft is easily accessible.

Mark four of the six mounting holes in the base plate on the door frame. Alternatively you could use the dimension drawing (see **Dimensions** section) for marking the holes to be drilled accordingly.



Depending on the depth and type of frame material and the type of fixation, either tap four M6 threads or drill four holes to accommodate the M6 screws on the markings.

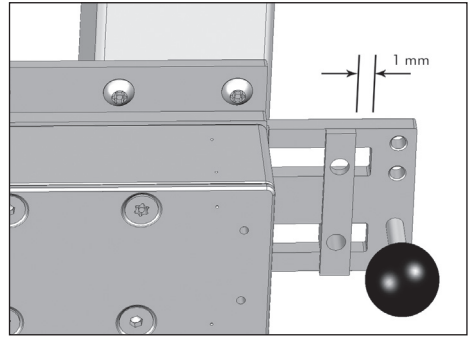
Use the supplied fixing material to firmly screw the base body to the door frame. Shorten the screws as needed.



Insert the plug-in element into the base body and remove the key.

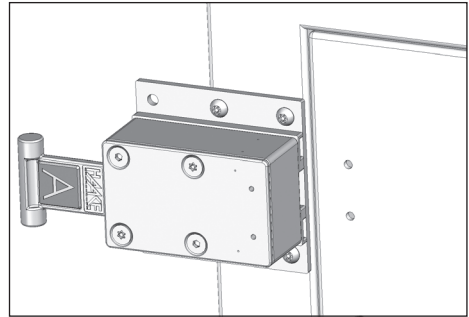
Position one cross-member of the guide element in the plug-in element so that it is approximately 1 mm away from the stop.

Mark the two holes to be drilled in the door through the holes in the cross-member.



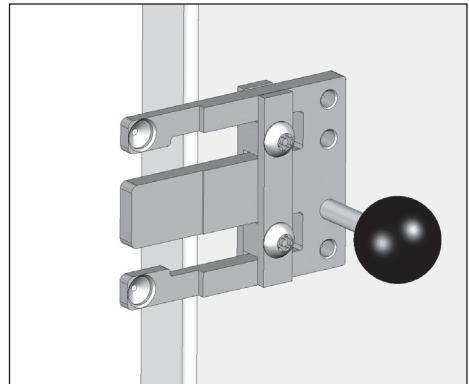
Re-insert the key and remove the plug-in element.

Depending on the depth and type of door material and the type of fixation, either tap four M6 threads or drill four holes to accommodate the M6 screws on the markings.



Open the door.

Position both cross-members of the guide element above the holes and firmly screw everything together on the door using the supplied fixing material.



## 10.4 Installation on pig trap door (pressurised)

### Explosion hazard!

Never drill holes into pressurised components. Work involving pressurised components may result in the escape of the pressurised medium (for example oil or gas) and cause an explosion.

This may result in hazards for persons and the environment as well as significant damage to the system.

Installation procedures on a pig trap door depend on the design of the pig trap door and the specific conditions at the site.

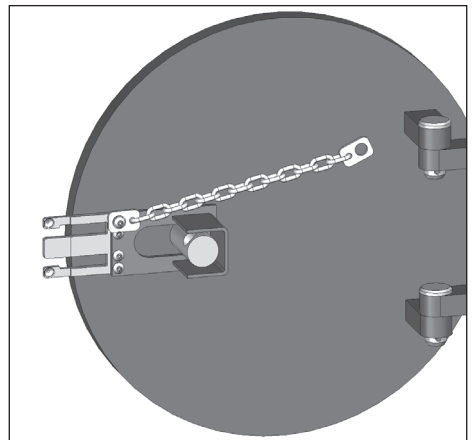
Installation procedures relevant to pig trap doors with ventilation bolts are given below.

Please contact Haake Technik if your system or pig trap door requires a different procedures. We will provide you with a description specific to your system.

Open the pig trap door.

Position the plug-in element above the ventilation bolt so that it is not possible to insert the actuation lever into the bolt, and secure the chain at the clip of the bolt.

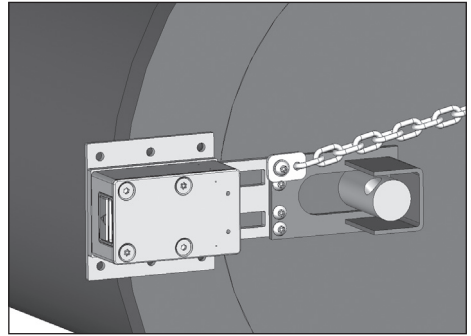
Check to ensure that the bolt cannot be disconnected from the plug-in element. Shorten the chain as needed.



Insert the plug-in element into the base body and remove the key.

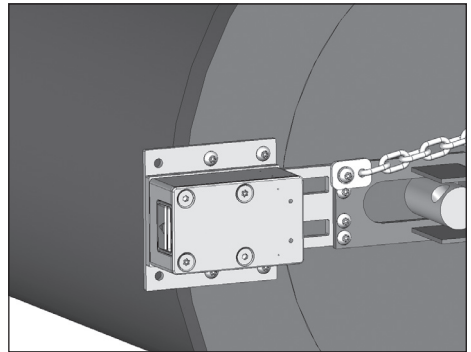
Position the base body in front of the collar of the pig trap door so that the key shaft is easily accessible.

Mark four of the six mounting holes in the base plate on the door frame. Alternatively you could use the dimension drawing (see **Dimensions** section) for marking the holes to be drilled accordingly.



Depending on the depth and type of frame material and the type of fixation, either tap four M6 threads or drill four holes to accommodate the M6 screws on the markings.

Use the supplied fixing material to firmly screw the base body to the door frame. Shorten the screws as needed.



## 11 Performance check

### Attention!

The protective effectiveness of the interlock for pig trap doors is to be checked regularly within the scope of and in accordance with the German Ordinance on Industrial Safety and Health (Betriebssicherheitsverordnung).

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 installation is complete, carry out the following inspections:

- Check all bolted connections for tightness and ensure that the bolts cannot come loose by themselves.
- Check whether the key(s) can be easily inserted and whether the key(s) only fit in one given shaft.
- Check whether the plug-in element remains firmly seated and cannot be removed in the locked state.
- Remove the plug-in element and check whether the key is locked in the base body.
- Record the results of the performance check.

## 12 Operation

### Attention!

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

### HSV-CL-1

The key can be removed in the locked state. The key remains locked in the interlock in the opened state.

- Insert the key into the key shaft. The interlock is disengaged.
- Remove the plug-in element from the interlock and open the door.
- Close the door. Slide the plug-in element into the interlock and remove the key from the key shaft.

### HSV-CL-2

The upper key can be removed in the locked state; whereas the lower key can be removed in the opened state. One of the two keys remains locked in the interlock, depending on the corresponding state.

- Insert the key into the vacant key shaft and remove the other key. The interlock is disengaged.
- Remove the plug-in element from the interlock and open the door.
- Close the door. Slide the plug-in element into the interlock and insert the key into the key shaft. Remove the other key.

## 13 Maintenance

The interlock for pig trap doors requires little maintenance and has been lubricated for life.

### Attention!

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

We recommend introducing the following measures within the scope of preventative maintenance:

- Check the interlock for the pig trap door at regular intervals (at least once a year) for external damage.
- Clean a soiled interlock for a pig trap door using neutral soap suds and a cloth.
- Check for signs of corrosion and check the interlock for the pig trap door for proper working order as needed.

## 14 Disassembly

Disassembly procedures depend on the conditions at the site. Observe the following essential instructions:

Only use precisely fitting tools (spanners) for removing and tightening bolts and nuts. Otherwise bolts and nuts may become damaged and unusable.

Carefully loosen all bolts/screws. It may be necessary to drill out stuck bolts/screws.

Loosen and remove the fixing screws of the guide element with the door and loosen and remove the fixing screws of the base body with the door frame.

If present, loosen and remove the fixing screws of the chain.

Completely remove the interlock for the pig trap door.

Do not dismantle the interlock for the pig trap door on your own.

## 15 Troubleshooting

Fault	Possible cause	Remedy
You cannot remove the key.	Plug-in element has not been inserted far enough.	Insert plug-in element right up to the stop.
	The other key is not completely inserted.	Insert key right up to the stop.
You cannot insert the key.	Wrong key.	Check identification of key and key shaft.
	Foreign matter in the key shaft.	Carefully remove foreign matter. If this is not possible, contact Haake Technik.
	Formation of ice.	Slightly warm up the valve interlock. <b>Do not use excessive heat!</b>
	Deformed key.	Check key. Contact Haake Technik in case of deformation.
Logic circuit not safe.		Check key interlock sequence plan; check installation; contact Haake Technik.
Lost keys.		Contact Haake Technik.

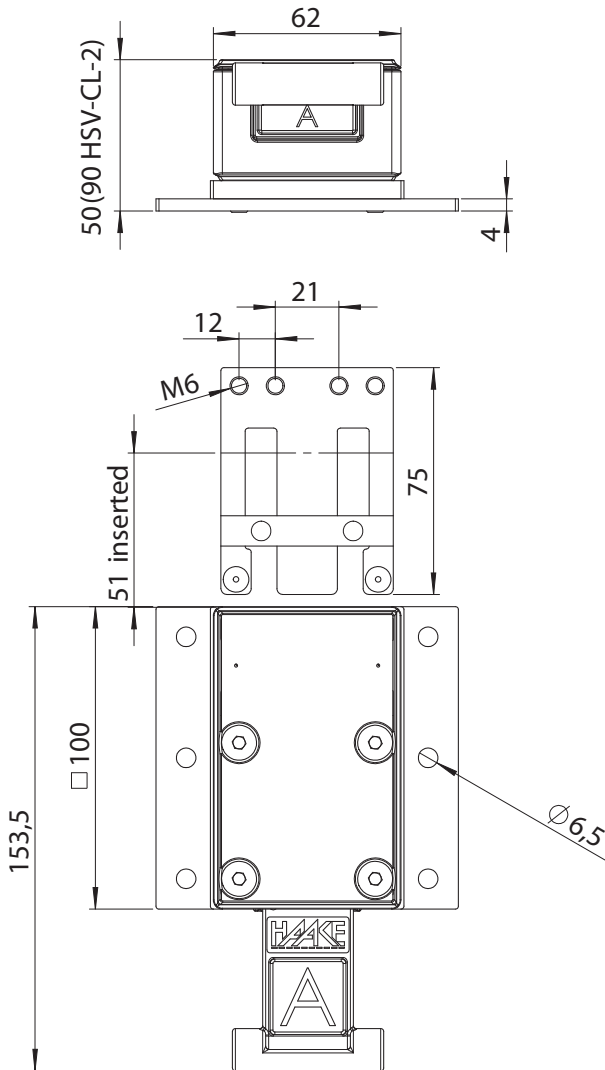
## 16 Technical data

Material	316 stainless steel
Ambient temperature	-40 to +80 °C
Application areas	Water supply networks, power plants, oil and gas networks, tank farms, bottling plants, paper mills
Application environment	Outside/Inside
Ambient atmosphere	Industrial environment
Vibration resistance	150 Hz max.
Impact resistance	30 g max.
Mechanical life	10,000 actuations MTTF <sub>d</sub> 150 years
Service life	30 years
Position of use/Installation position	Horizontal/Vertical
Fastening	On door frame and door or locking elements
Weight	HSV-CL-1: 2 to 3 kg (dependent on fixing material) HSV-CL-2: 3 to 4 kg (dependent on fixing material)
Holding force	5,000 N (lateral to direction of actuation) 1,000 N (in direction of actuation)
Year of manufacture	2011



# 17 Dimensions

## HSV-CL-1 / HSV-CL-2



Dimensional specifications in mm.

## 18 EC Declaration of Conformity

### EG-Konformitätserklärung im Sinne der EG-Richtlinie 2006/42/EG Anhang II 1. A

Hiermit erklärt die Firma: **Haake Technik GmbH**  
**Master Esch 72**  
**48691 Vreden**

dass das Sicherheitsbauteil: **Molchfürverriegelung**

Typ: **HSV-CL-1; HSV-CL-2 ; HSV-CL-2-PK**

Seriennummer: **siehe Angabe auf dem Produkt**

in der gelieferten Ausführung folgenden einschlägigen Bestimmungen entspricht:

EG-Richtlinien: **Maschinenrichtlinie 2006/42/EG**

Prüfspezifikation: **GS-ET 31 (in Anlehnung)**

Das o.a. Sicherheitsbauteil dient zum Verriegeln von Molch Türen und anderen Türen.

Durch unser Qualitätssicherungssystem ist gewährleistet, dass alle Sicherheitsbauteile in gleicher Qualität gefertigt werden.  
Daher gilt die ausgestellte Konformitätserklärung für alle, ab der Seriennummer 1137557 produzierten Sicherheitsbauteile des o. a. Typs.

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen ist:

HAAKE Technik GmbH  
Herr Jens Schoppen  
Master Esch 72  
48691 Vreden

Vreden, den 12.07.11



André Haake  
(Geschäftsführer)

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KE-K-HSV-CL

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