

# HAAKE®

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## Valve interlocks HSV®



## Safety must not be left to chance

Valves play an important role in many industrial production lines and energy networks. Valves perform essential functions regarding safety and process control systems. The correct setting and operation of valves is crucial for ensuring the operational safety of entire installations.

Valve interlock systems provide a fail-safe system for the controlled opening and closing of valves. They are used whenever a specific opening and closing sequence for several valves is involved for the purpose of accident prevention, protection of materials, or guaranteeing process safety.

Chains and padlocks do not provide adequate protection against operational error, vandalism or theft. A simple and safe-to-use interlock system guarantees the best possible protection against physical injury and/or damage to assets or the environment. Valve interlock systems protect investments.

Some typical applications for valve interlock systems include:

- » Power plants
- » Oil and natural gas networks
- » Water supplies
- » Filling plants
- » Paper mills
- » Chemical production plants
- » Depots



### Advantages of mechanical valve interlocks

High level of safety

Ease of use

Controlled processes

Significantly reduced risk of accidents

Can be retrofitted

Prevent operational error

Protect against physical injury and/or damage to assets or the environment

# Safety and convenience from Haake Technik

## High-quality »Made in Germany« products

Valve interlocks from Haake Technik are made of stainless steel and offer the highest level of safety and convenience in operation.

The interlocks can be fitted to all types of valves: lever operated ball, plug and butterfly valves, gate and globe valves, shut-off and slide valves, and gear box operated valves. All possible sizes and dimensions can be accommodated by using standard and customer-specific adaptors.

The modular system allows for a number of variations. Useful accessories, including a key exchange unit or a key cabinet, supplement the system. It is also possible to combine the valve interlocks with the Haake Technik range door interlocks.

Anti-tamper locks protect against vandalism and theft.

## Convenience is the key to widespread approval

The individually coded keys ensure a high level of safety. The intelligent key design allows for convenient handling: a significant advantage for valves that are difficult to access or positioned overhead.

The key position provides a visual indication of the valve open or closed position (**tOPen**).

**Continuous Closing** feature (patent pending): enables a further rotation of the hand wheel to the closed position without the need to insert the close key. This feature is crucial if the valve is leaking and the close key is trapped in another valve.

## System technology for safe processes

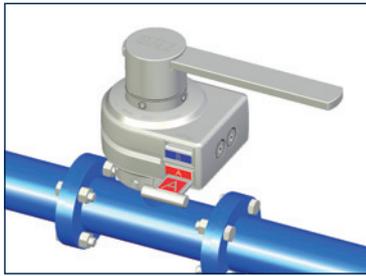
A valve interlock system from Haake Technik enforces a pre-determined sequence to be maintained when to opening and closing a number of valves. The key coding is customised to the specific process, guaranteeing maximum protection of the system.

### Haake Technik valve interlocks

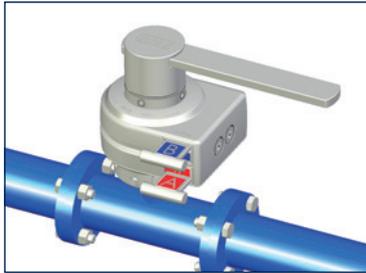
Fulfil highest safety standards	System can be expanded
AISI 316 (1.4401) stainless steel	Maintenance-free
Ease of use is maintained	Valve can be serviced
Intelligent key design	Continuous Closing (patent pending)
Individual key coding	tOPen
Simple installation	Anti-tamper locks protect against vandalism and theft



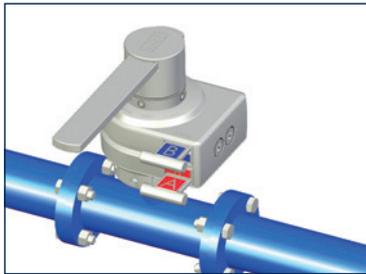
## Application: simple valve interlock



The valve is open. This can be seen by the vacant upper key slot **B** (blue) – **Open**. The valve cannot be operated; it is locked. The lower key **A** (red) is trapped in the key slot.



An authorised person inserts key **B** (blue) into the vacant upper key slot. This overrides the locking action and the valve can now be operated.



The authorised person closes the valve. During operation, keys **A** (red) and **B** (blue) are both trapped. As soon as the valve lever is in its final position, key **A** (red) is released.

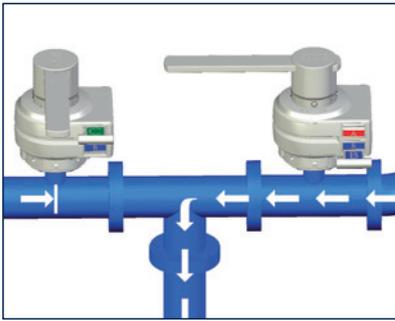


The valve is closed. The lower key **A** (red) can be removed. Upon removal of the key the valve is locked again and can no longer be operated. The upper key **B** (blue) remains trapped in the slot. The state of the valve (closed) is clearly visible from the vacant lower key slot.

The keys have been designed and coded so as to ensure that each key fits only the correspondingly designated key slot. Each key is clearly identifiable.

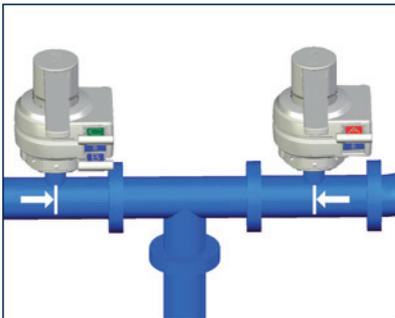


## Application: using a valve interlock system to switch media

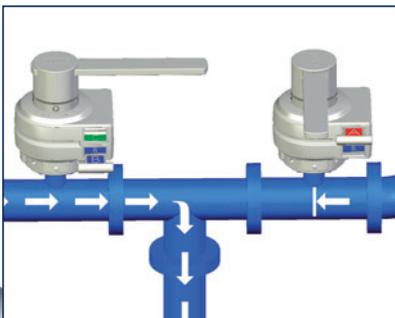


This example shows the switch over from one media (right pipe) to another (left pipe). Any mixing of both media must be avoided.

The media is flowing in the right pipe, where the valve is open. This is shown by the free upper key shaft **A** (red). It is impossible to operate the valve; it is locked. The lower key **B** (blue) is trapped in the shaft. The valve of the left pipe is closed, so no media can flow in this pipe.



An authorised person inserts the key **A** (red) into the right interlock. The lock is released and the operator can close the right valve. As soon as the valve is closed, the key **B** (blue) can be removed. Upon removal of the key the valve is locked again and cannot be operated. The media in the right pipe can no longer flow on.



Now the operator inserts the key **B** (blue) into the left interlock. The lock is released and the operator can open the left valve. As soon as the valve is open, the key **C** (green) can be removed. Now the media can flow in the left pipe. By removing the key, this valve is also locked and can no longer be operated.

Even extensive interlock systems with a number of valves can be set up by applying this principle of interdependent keys and locks. The details of such applications are adapted to the specific process requirements.

In summary interlock systems, when fitted to valves, enforce a fail-safe system of control to ensure the correct opening and closing sequence of safety or process critical valves in a system.

# System components for all applications and scales

## The keys to the system

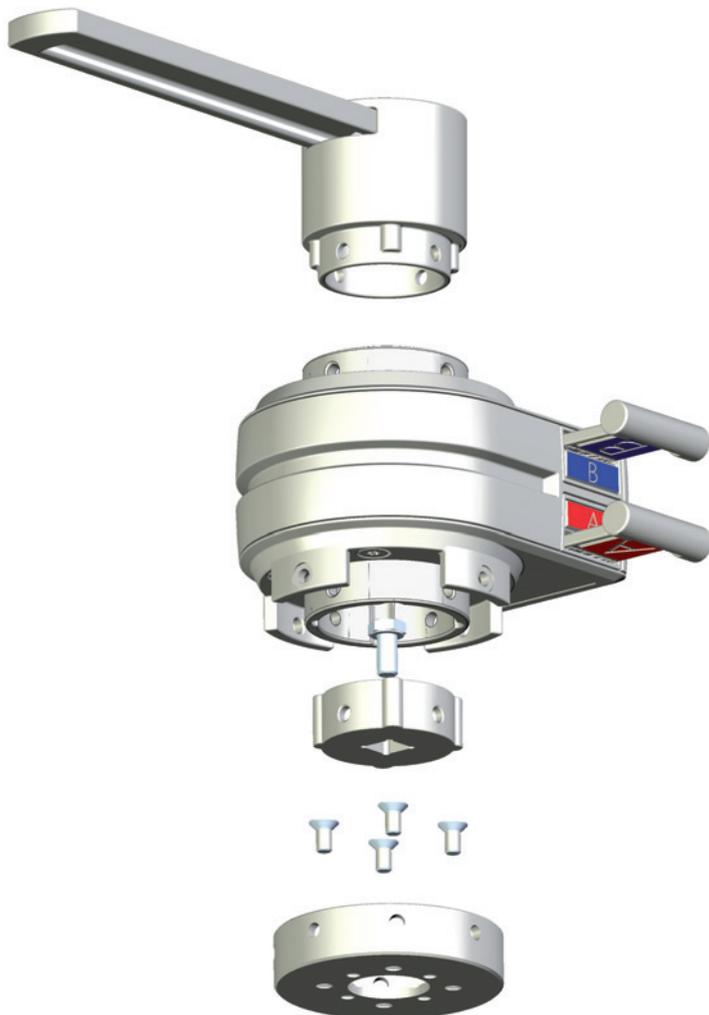
The valve interlocks as well as the keys are made of stainless steel. Individual coding guarantees the highest level of safety. It is not possible to have copies made of the keys (as can be done with simple padlock keys) due to the unique design and coding of each key.

The coded keys have been designed with ergonomics in mind and offer ease of use due to their shape, even when wearing heavy-duty safety gloves. There is no up or down position of the key. The coded keys can therefore be inserted into the lock from either direction. Inserting a key by just a few millimetres into the lock is sufficient to know that there is a correct match of key and lock (patent pending). These features guarantee a speedy work flow.

Coloured tagging make it easy to match the keys with the corresponding interlocks. Up to four lines of text are available for customer-specific engravings.



For extensive technical data sheets and scale diagrams of all products, please visit [www.haake-technik.com](http://www.haake-technik.com)



## HSV-Q valve interlocks

**HSV-Q** valve interlocks are utilised for lever-actuated valves such as ball valves, shut-off valves and plug valves. All types of valves that operate with a 90° or 180° rotation can be fitted with **HSV-Q** valve interlocks.

Standard delivery includes a stainless steel lever that is available in different lengths. The interlock can be perfectly aligned at different positions on the valve to guarantee optimal access to the key slots.

Valves that are already in operation can also be fitted retrospectively with **HSV-Q** valve interlocks without damaging or changing the valve fittings or seals.

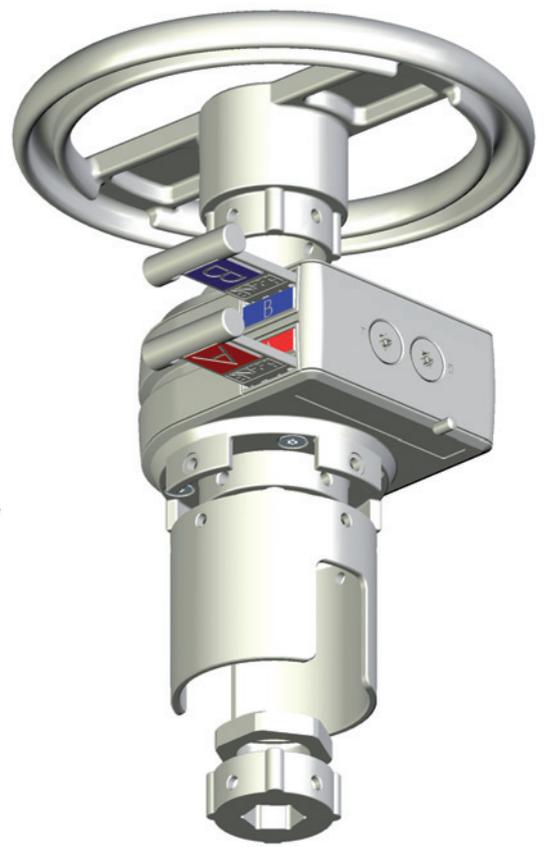
During installation of the **HSV-Q**, the valve body remains unchanged; the existing lever is replaced as part of the valve interlock assembly includes a replacement lever which corresponds to the size of the original lever. The valve interlock can be supplied with either one or two operating keys depending on the type of system control required.

## HSV-R valve interlocks

**HSV-R** valve interlocks are utilised for valves actuated by hand wheels such as slide valves, gate valves or gear box operated valves.

The number of rotations required for opening or closing varies depending on the type of valve. For this reason, the **HSV-R** valve interlocks are equipped with a count-release mechanism that adapts the locking action to the number of rotations required for corresponding final position. In this way, any valve position can be set as the locked open or closed position.

The valve interlock assembly includes a replacement hand wheel which corresponds to the size of the original hand wheel. The valve interlock can be supplied with either one or two operating keys depending on the type of system control required.



## HSV-AT anti-tamper locks

**HSV-AT** anti-tamper locks protect against unauthorised actuation of valves, vandalism or theft. This type of technology is currently used in petrochemical, gas and water treatment plants around the world. A mechanism in the body of the lock ensures that the lock rotates freely around the internal drive spindle of the body. No force is transferred to the spindle in this state and the valve cannot be operated. The coded key has to be inserted to engage the drive spindle and hence to open or close the valve.

**HSV-AT** anti-tamper locks are suitable for any type of valve (ball, butterfly, gate, globe, gear box driven, slide valves etc.) and come equipped with either a lever or a hand wheel.

## HSV-CL pig trap door locks

**HSV-CL** door interlock is an integral part of a valve interlocking system that controls access to pig trap launchers and receivers. The valve interlock control system will ensure that all pressure and residual material is removed from the pig trap before the door can be opened.

## HSV-X key exchange unit

The purpose of the **HSV-X** key exchange unit is to release or trap keys according to a pre-determined sequence and in accordance to the valve interlock system requirements.

The **HSV-X** is based on a modular installation system and can easily be expanded.

The special **HSV-X-HST** variant accommodates the combination of **HSV** valve interlock keys with **HST** interlocks from Haake Technik.

## HSV-KC key cabinet

The purpose of the **HSV-KC** key cabinet is to facilitate the local supervision and monitoring of valve interlock keys. Different cabinet sizes are available.

Every key slot on the cabinet is individually coded and assigned one matching key only. Colour codes and numbers make it easy to match the corresponding keys.



Haake Technik GmbH has been developing, producing and supplying safety equipment for machinery and plants for over 20 years.

As a family enterprise, the name Haake Technik GmbH has become synonymous with consistently high-quality products and service.

Haake Technik is certified in accordance with ISO 9001. The products are »Made in Germany« and have been tested and certified by independent institutes.



Haake Technik GmbH produces and sells

**HSV®** Valve interlocks

**HST®** Door interlocks

**HSC®** Safety edges

**HSB®** Bumpers

**HSM®** Safety mats

The Haake Technik GmbH website provides detailed information on the entire product range. For current data sheets, please visit

[www.haake-technik.com](http://www.haake-technik.com)

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