

1 . INFORMATION

These operating instructions have the purpose of helping the customer properly assemble and service shutting valves to allow disturbance-free operation. Herberholz shutting valves should remain in the factory packaging until they are used (i.e., assembled) and they should be stored dust-free and protected against light. They do not have to be preserved if they are properly stored. Only trained personnel may assemble, disassemble and repair them. However, before commencing disassembly work, the responsible department should clear the corresponding pipeline conduit and ensure that there is no pressure. The responsible personnel are in charge of shutting down the actuators for the Herberholz shutting valves (clearing, disassembling and securing actuator connections). Herberholz shutting valves are designed for special customer functions and the fittings should only be used as intended.

2. DESCRIPTION

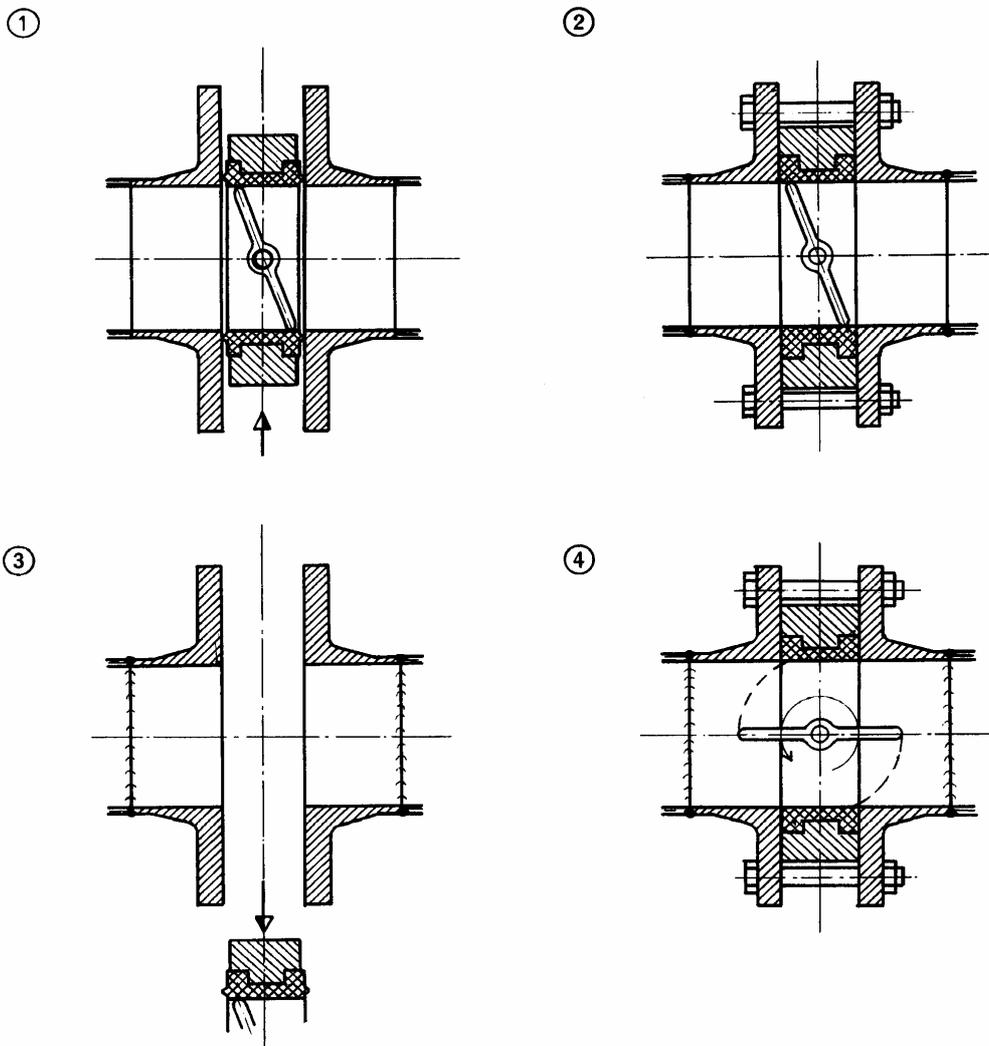
Herberholz shutting valves have important shutting and regulating functions in pipelines such as reliably shutting off liquid and gaseous substances and bulk materials. The AK/DVGW shutting valve is only licensed for gases as per DVGW's G260 work sheet.

3. ASSEMBLY

Herberholz shutting valves are engineered for installation between flanges in conformity with form A, form B or form E of DIN EN 1092-1. The manufacturer should be notified of other flanges being used. The medium may flow through in either direction and the shutting valve may be installed in any position. The sleeve of Herberholz shutting valves acts as a flange seal. **Please do not use any additional flange seals.** Furthermore, flanges may not be welded to the pipeline when the shutting valve is mounted because it burns the sleeve and destroys it. Insert the shutting valve between the flanges with a slightly opened valve disc, tighten slightly and align the shutting valve with 4 flange bolts. If the flanges are too close to one another in a finished pipeline, they have to be pressed apart with an expansion tool until the valve can be inserted with a slight amount of play (refer to Figure 1). Attach the pipeline flange to the pipeline with electrical spot welding (refer to Figure 2), remove the flange screws again and remove the shutting valve. Then weld the flanges

onto the pipeline (refer to Figure 3). After the flanges have cooled off, install the shutting valve again. It must be possible to easily insert the fittings between the flanges to ensure that the sleeve is not damaged. Align the shutting valve and tighten the 4 flange bolts slightly. Then open the valve disc and check to see whether it can move freely. Then leave the valve disc slightly open. Tighten all flange bolts crosswise. Check to see that it functions properly again by opening and closing again completely (refer to Figure 4).

Important: The flanges should always be parallel to one another, have carefully worked surfaces and be connected tension-free. With rated widths \geq DN 200, we recommend installing the shutting valves with horizontal shafts. In this case, the lower half of the disc should close in the direction of flow (for self-cleaning).



4. OPERATION

Before starting, check whether the shutting valve agrees with specifications (i.e., design, connected loads and machine identification). The sleeve and valve disc have to be resistant to the flowthrough medium. Herberholz shutting valves are dimensioned to ensure that they can be used for throttling function in the adjusting angle range of 15 to 70 degrees. Please also ensure that fittings are not exposed to cavitation.

Acceptable flow velocities:

liquids up to 4.5 m/sec

gases up to 20 m/sec

The shutting valves should be opened or closed slowly to prevent water hammer in the pipeline system.

5. DISASSEMBLY

The responsible department should clear for disassembly (i.e., clear the conduit with pressure-less pipe connections) and the authorised personnel should shut down the actuating or control actuators to the shutting valves before disassembly (clear the actuators and disassembling and secure the actuator connections). Remove the shutting valve with a closed valve disc from the pipeline by carefully loosening the flange bolts (since the pipe connections may still be under pressure). Then take out the shutting valve and set it down on a proper base (such as a wood board).

6. SERVICE

Herberholz shutting valves do not require service if they are properly operated. However, we recommend making a visual inspection once a year and a test to see if the shutting valves are in good working order.

7. MAINTENANCE

The shutting valve have to be properly disassembled before commencing maintenance work (refer to 5. Disassembly). Clamp the shutting valve to ensure that the sleeve is not damaged. Then disassemble the actuator of the shutting valve (also refer to the disassembly instructions for electrical or pneumatic actuators)

REMOVING AND REPLACING PARTS

A) shutting valves with continuous shaft

After removing the shaft, the valve disc moves freely in the sleeve. Therefore, please ensure that the valve disc cannot fall out

- remove the safety ring from the housing.
- pull the shaft from the housing (using a screwed-in threaded rod if necessary).
- press the valve disc from the sleeve.
- leverage the sleeve from the housing with a suitable dull tool.
- check the sleeve and replace if necessary
- treat the sleeve with talcum powder on the side towards the housing before installation
- press one shaft duct of the sleeve precisely onto the lower drill hole opposite it on the housing.
- press half of the sleeve into the housing to ensure that the upper shaft duct is exactly flush with the upper drill hole opposite it on the housing.
- press the sleeve into the housing all the way.
- check to see whether the upper and lower shaft ducts of the sleeve are sitting properly (flush with the upper and lower drill hole opposite it on the housing).

B) shutting valves with divided shaft

After removing the upper and lower shaft, the valve disc moves freely in the sleeve. Therefore, please ensure that the valve disc cannot fall out

- remove the safety ring from the housing

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- pull the upper shaft from the housing (using a screwed-in threaded rod if necessary).
- unscrew the thread plugs.
- remove the seal ring from the thread plugs, check and replace if necessary.
- pull the lower shaft from the housing (using a screwed in threaded rod if necessary).
- press the valve disc from the sleeve.
- leverage the sleeve from the housing with a suitable dull tool.
- check sleeve and replace if necessary.
- treat the sleeve with talcum powder on the side towards the housing before installation
- press one shaft duct of the sleeve precisely onto the lower drill hole opposite it on the housing.
- press half of the sleeve into the housing to ensure that the upper shaft duct is exactly flush with the upper drill hole opposite it on the housing.
- press the sleeve into the housing all the way.
- check to see whether the upper and lower shaft ducts of the sleeve are sitting properly (flush with the upper and lower drill hole opposite it on the housing).

INSTALLING THE VALVE DISC

A) shutting valves with continuous shaft

- apply suitable grease to shaft (such as Bernlub Hydrohaf 2 fittings grease).
- position the valve disc in the sleeve to ensure that the shaft receptacles for the valve disc (square on the bottom) are flush with the upper and lower drill hole opposite it on the sleeve and housing.
- insert the shaft into the housing to ensure that the square catch on the shaft parallel is parallel to the position of the valve disc.
- if the shaft bends backwards when being inserted into the housing, air is compressed in the lower shaft receptacle of the valve disc. Keep the shaft pressed in, carefully press a suitable tool (such as a dull screwdriver) between the sleeve and lower shaft receptacle of the valve disc to let the compressed air escape. Then press the shaft in all the way.
- mount and adjust the actuator element (refer to the assembly instructions for the electrical actuators).
- make sealing test before assembling the serviced fittings.

B) shutting valves with divided shaft

- apply suitable grease to upper and lower shaft (such as Bernlub Hydrohaf 2).
- position the valve disc in the sleeve to ensure that the shaft receptacles for the valve disc (dihedral on the top) are flush with the upper and lower drill hole opposite it on the sleeve and housing.
- insert the lower shaft into the housing: loosely screw in the thread plugs with the seal ring.
- insert the upper shaft into the housing to ensure that the dihedral catch in the shaft is parallel or the square catch with the serrated cut is diagonal to the position of the valve disc.
- if the upper shaft bends backwards when being inserted into the housing, air is compressed in the upper shaft receptacle of the valve disc. Keep the upper shaft pressed in, carefully press a suitable tool (such as a dull screwdriver) between the sleeve and upper shaft receptacle of the valve disc to let the compressed air escape. Then press the upper shaft in all the way.
- mount and adjust the actuator element (refer to the assembly instructions for the electrical actuators).
- make sealing test before assembling the serviced fittings.

8. TROUBLESHOOTING TABLE

Experience has shown that a number of defects occur. They re listed in the troubleshooting table below along with how to correct them.

IMPORTANT!

Please observe the safety instructions for assembly and maintenance work before troubleshooting.

Only trained personnel should do troubleshooting and only after the responsible department has cleared the work (clearing)

the defect	the cause of the defect	how to correct the defect
pipe flange leaky	shutting valve is not centred	<ul style="list-style-type: none"> - clear the pipeline conduit - disassemble the shutting valve - check the sleeve for damage - mount the shutting valve (refer to the „Assembly Instructions“) - make sure it is good working order
	the flange or flanging diameter is too large	<ul style="list-style-type: none"> - clear the pipeline conduit; - disassemble the shutting valve - check the sleeve for damage; - check flange or flanging diameter - mount the flange or flanging with sufficient base area - mount the shutting valve (refer to „Assembly Instructions“) - make sure it is good working order
pipe flange is leaky	the sleeve is burned	<ul style="list-style-type: none"> - clear the pipeline conduit; - disassemble the shutting valve; - check the sleeve for damage and repair - mount the shutting valve (refer to „Assembly Instructions“) - make sure it is good working order
shutting valve cannot be closed	solid matter between the sleeve and valve disc	<ul style="list-style-type: none"> - clear the pipeline conduit; - disassemble the shutting valve - remove the solid matter - check the sleeve and valve disc for damage and repair if necessary - mount the shutting valve (refer to „Assembly Instructions“) - make sure it is good working order.

the defect	the cause of the defect	how to correct the defect
valve disc is leaky in closed position	the sleeve is porous	<ul style="list-style-type: none"> - check the operating temperature and determine if it satisfies specifications - clear the pipeline conduit; - disassemble the shutting valve; - check the sleeve for damage and service if necessary - mount the shutting valve (refer to „Assembly Instructions“) - make sure it is good working order.
	the pressure of the medium in the pipeline is too high (actuator performance too low)	<ul style="list-style-type: none"> - check the operating pressure and determine if it satisfies specifications - (also refer to "Troubleshooting" for actuators).
	the sleeve is worn (natural wear and tear)	<ul style="list-style-type: none"> - clear the pipeline conduit; - disassemble the shutting valve; - check the sleeve for wear and tear and service if necessary - mount the shutting valve (refer to „Assembly Instructions“) - make sure it is good working order; - maintain or shorten service intervals
	the sleeve and possibly the valve disc are is worn (erosion from excessive moisture or flow velocity of the medium)	<ul style="list-style-type: none"> - check the moisture or flow velocity of the medium and determine whether they satisfy the specifications - clear the pipeline conduit - disassemble the shutting valve - check the sleeve and valve disc for wear and tear and service if necessary - mount the shutting valve (refer to „Assembly Instructions“) - make sure it is good working order - install drying develop if necessary

the defect	the cause of the defect	how to correct the defect
	the position of the valve disc and position indicator or valve control mechanism do not agree	- check the actual position of the valve disc (observe the groove for square of the upper shaft or dihedral surface) - (also refer to "Troubleshooting" for actuators)