KNIFE GATE VALVES

UNI-DIRECTIONAL SEALING MANUALLY|PNEUMATICALLY OPERATED

These operating instructions contain important information concerning the installation, function, maintenance and storage of WESA knife gate valves. Please read them thoroughly and keep them for any queries. Only instructed and qualified personnel should service these valves.

CAUTION!

If the following and warning notes are not followed, hazards could result and the distributor's warranty could become invalid. The distributor is available for any queries.

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TABLE OF CONTENT

1. DESCRIPTION

Uni-directional knife gate valve suitable for general industrial use. The design of the body and seat ensures clog-free closing even with solids.

2. HANDLING

When handling a knife-gate valve, pay particular attention to the following points:

- Do not lift the knife-gate valve by the actuator or the protective covers.
  These parts are not designed to bear weight and can easily be damaged.
- Do not lift the slider at the opening or at the passage. This can damage the seat and the seals.

When using a crane or hoist to transport the gate valve, use at least two eyebolts screwed into the threaded holes of the valve body.

Safety information:

Make sure that:

- The crane is designed for the capacity to lift the weight.
- The eyebolts have the same thread as the threaded holes of the slider and that they are well tightened.

The use of slings is recommended for lifting the slide during installation. These slings should be placed in the upper part of the slide.

3. INSTALLATION

To prevent personal injury or damage to property during transport and installation of the valve, the following safety instructions must be observed:

- Handling and maintenance of the valve must be carried out by trained specialist personnel.
- Use suitable personal protective equipment (gloves, safety shoes, etc.).
- All lines connected to the knife-gate valve must be disconnected.
- Isolate the knife-gate valve completely from the system.
- Release the pressure in the system.

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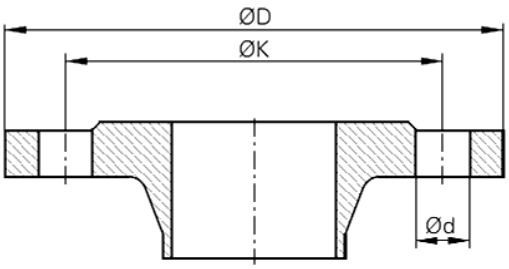
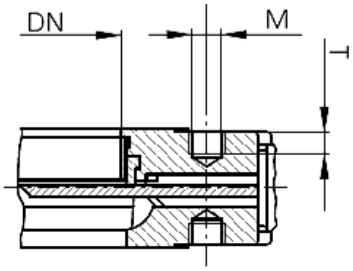
Before installation, inspect the knife-gate valve for possible damage that may have occurred during shipping or storage. Check the inside of the knife-gate valve for contamination. This applies in particular to the area of the seat. Also, make sure that the area around the knife-gate valve mounting location (flanges, pipes, etc.) are clean.
Pay particular attention to the correct spacing between the connecting flanges and ensure that they are aligned exactly and parallel. If the connecting flanges are not positioned correctly, this can lead to deformation of the gate valve and thus impair gate valve operation.
For the installation of the knife-gate valve we recommend flanges according to EN 10921-1 PN10 type 11 form B, as well as connecting and mounting material with sufficient strength values.



Flange acc.to EN 10921-1 PN10 Typ 11 Form B

TIGHTENING TORQUES

for screws and the minimum screw-in stiffness (T) in the threaded holes.



DN	50	65	80	100	125	150	200	250	300
T (mm)	10	10	10	10	10	14	14	18	18
Nm	60	60	60	60	70	70	70	77	77
	350	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**
	22	24	24	24	24	20	20	20	20
Nm	150	150	190	190	230	230	280	280	340

The knife-gate valve should preferably be installed vertically in a horizontal pipe (see "A" in the figure below), if the plant allows this.

The knife-gate valve should be installed vertically up to max. 45° to the vertical. In other installation positions, e.g., horizontally, it must be ensured for larger nominal sizes and especially for knife-gate valves with actuators that no bending stress occurs on the spindle, bridge, piston rod, etc., otherwise proper functioning of the actuators and tightness of the knife-gate valve can no longer be guaranteed. Suitable support or suspension must be provided. Hanging installation of the knife-gate valve must be avoided!

After installation of the knife-gate valve, the flanges and the electrical and/or pneumatic connections must be checked for correct fastening. If the knife-gate valve is equipped with electrical accessories (motor drive, electropneumatic actuating mechanism), the corresponding ground connections must be made before start-up.

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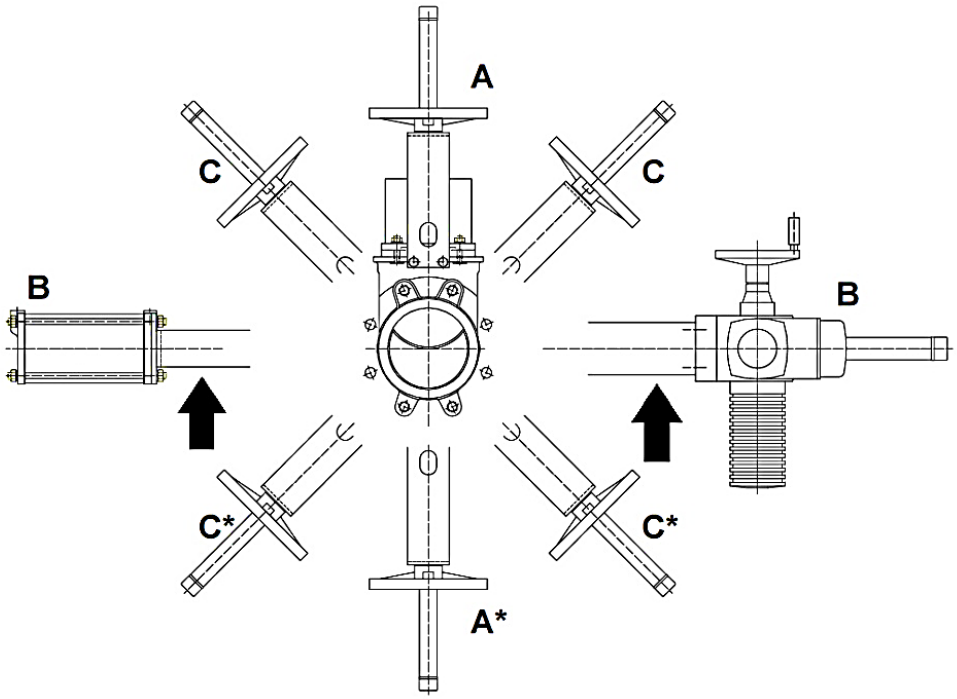
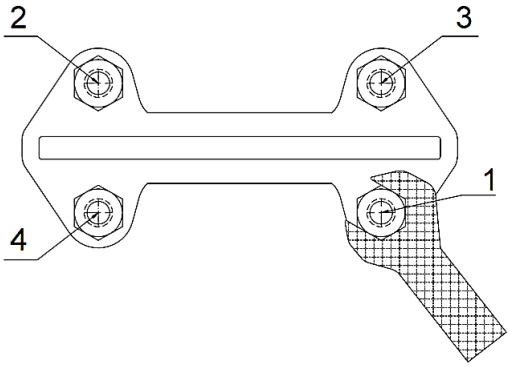


* PLEASE CONSULT THE TECHNICAL SERVICE FOR THESE POSITIONS

Actuate the knife-gate valve first without load and then with load for the function and tightness test. It must be noted here that the packing may have settled during shipping / storage of the knife-gate valve, which may cause a small leakage. This can be prevented by tightening the packing gland (5) during installation.



The screws must be alternately tightened crosswise until a seal is achieved (next picture). There must be no metallic contact between the packing gland and the housing. If the stuffing box screws are tightened too much, the actuating forces increase accordingly; the stuffing box packing is compressed too much and the function of the knife-gate valve is impaired. The table below lists the maximum tightening torques of the stuffing box screws that are permissible for sealing the stuffing box. After the functional test, the knife-gate valve can start normal operation

DN	**50 - 100**	**125 - 200**	**250 - 1000**
Nm	20	30	35

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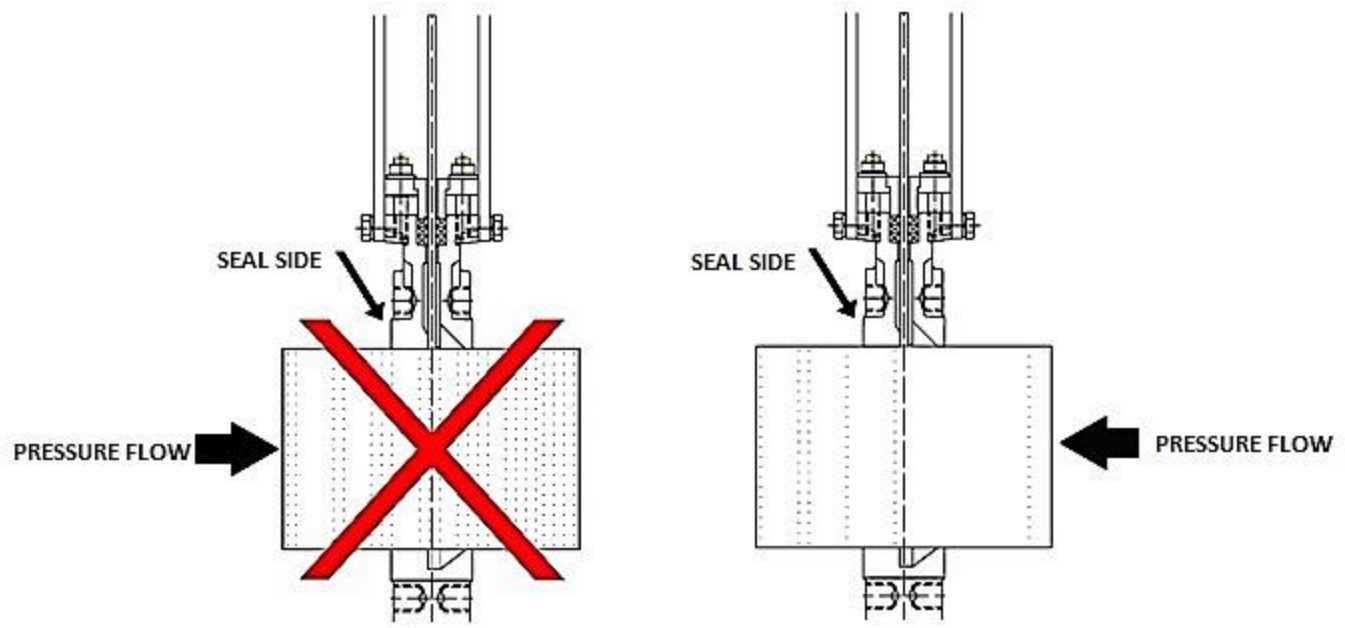
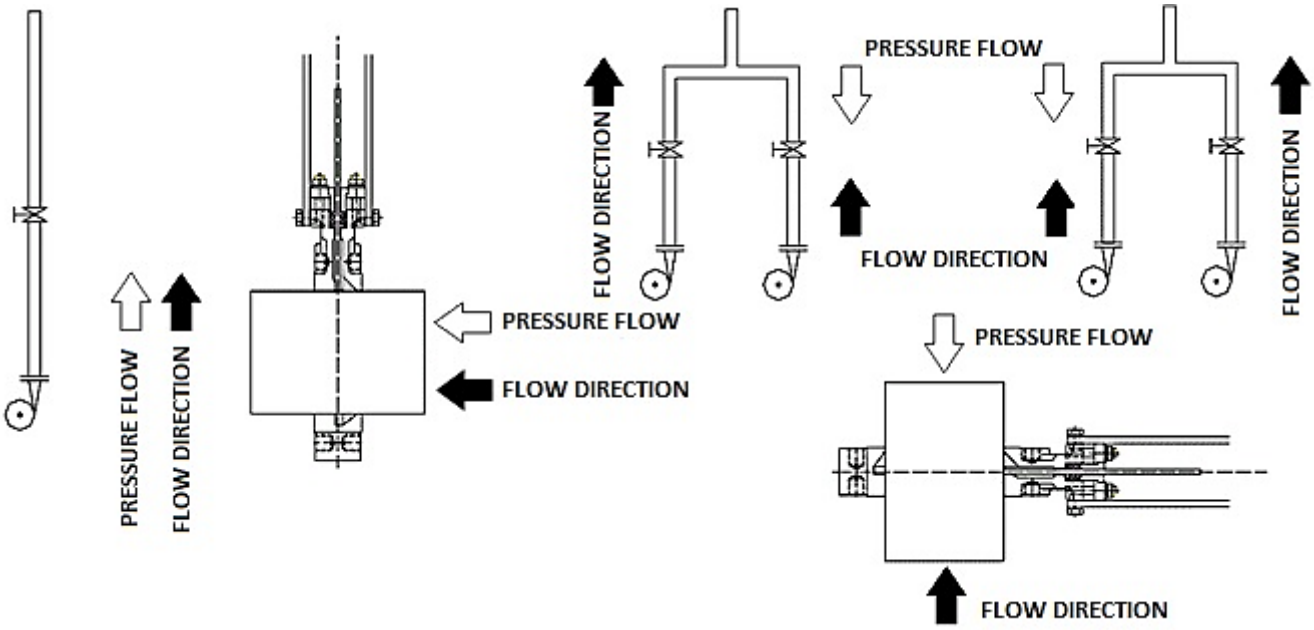
The knife-gate valve is designed to seal on one side and is installed against the seal seat in the direction of pressure. The standard flow direction is marked with a cast arrow on the body. Correct installation in flow direction is the responsibility of the installer.
When installed under a silo, the knife-gate valve must be installed against the direction of flow.



It should be noted that when the knife-gate valve is closed, the flow direction and differential pressure do not always correspond.



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4. ACTUATING manually

HAND WHEEL

To open the slider, turn the handwheel counterclockwise.
To close the slider, turn the handwheel clockwise.

HAND WHEEL

HAND LEVER

If the slide is to be operated via the manual control lever, first loosen the locking lever in the upper area of the cover frame. Then move the lever in the opening or closing direction. Finally, lock the position with the locking lever.

5. MAINTENANCE

To avoid personal injury or material damage during transport and installation of the knife-gate valve, the following safety instructions must be observed:

- Handling and maintenance of the knife-gate valve must be carried out by trained specialist personnel.
- Use suitable personal protective equipment.
- All lines that influence the knife-gate valve must be disconnected.
- A sign indicating work on the knife-gate valve is to be erected
- Isolate the knife-gate valve completely from the system.
- Release the pressure in the system
- In the soft seal version, only the gland seal and seat ring need to be replaced when worn. The durability of these sealing elements depends on the operating conditions of the knife-gate valve, as well as on pressure, temperature, abrasion, chemicals in the environment and number of cycles.

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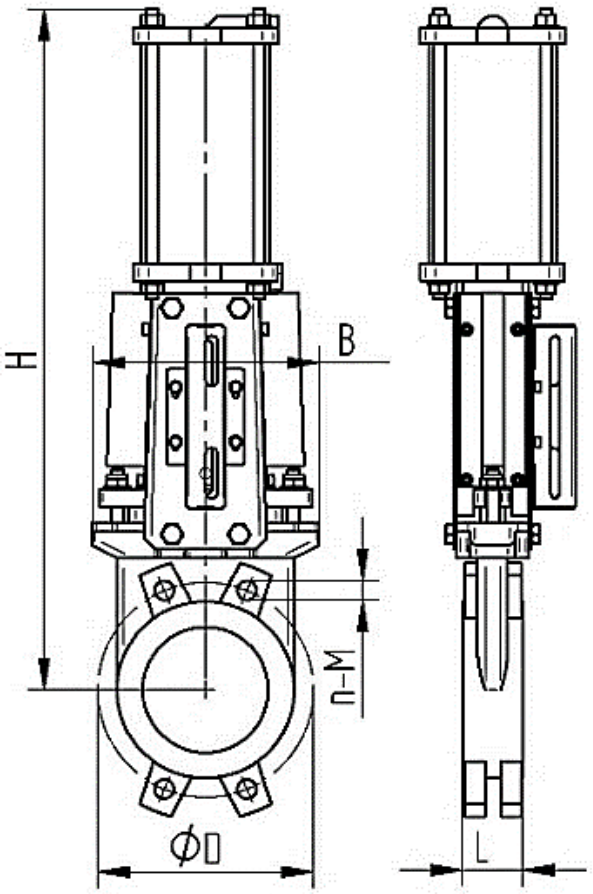

4. ACTUATING pneumatically

Normally the knife-gate valves are supplied with **double-acting cylinder**. The supply pressure should be approx. 5,6 bar. The prerequisite for the optimum durability of the cylinder is the supply of completely dry, filtered and oiled compressed air. After installation of the cylinder in the line, it should be actuated 3-4 times before start-up.

ARTICLE	DN	L	Ø D	H	B	PN
DW004871-09	50	40	125	430	136	10
DW004871-10	65	40	145	460	151	10
DW004871-11	80	50	160	510	170	10
DW004871-12	100	50	180	570	190	10
DW004871-13	125	50	210	660	212	10
DW004871-14	150	60	240	720	230	10
DW004871-15	200	60	295	890	286	10
DW004871-16	250	70	350	1.120	338	10
DW004871-17	300	70	400	1.230	388	10
DW004871-18	350	96	460	1.370	460	10
DW004871-19	400	100	515	1.570	520	10

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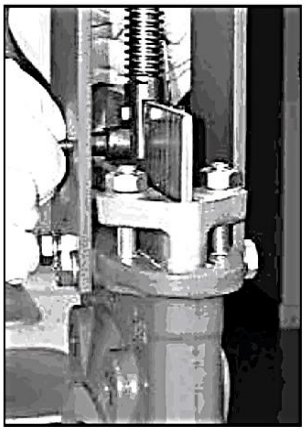
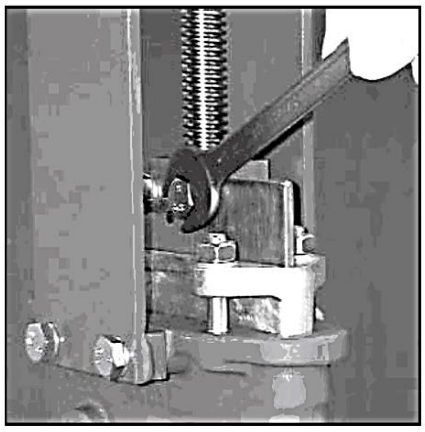
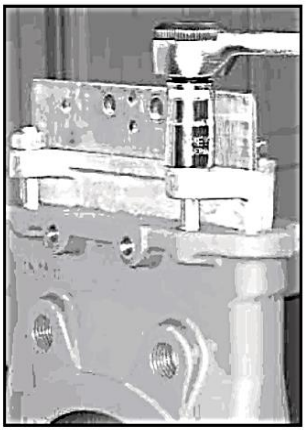
REPLACING OF THE PACKING GLAND



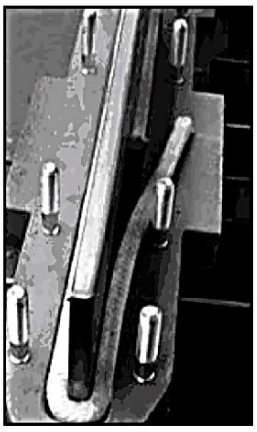
1



2



3



4

1. Release the pressure from the system and close the slider. 2.
2. Remove protective covers
3. Gate valve with rising stem (photo 1): loosen stem (6) or rod of gate valve (2)
4. Slide with non-rising stem (photo 2): loosen screws connecting slide (2) with drive nut
5. Loosen screws of the cover frame and remove the frame (do not loosen the actuator)
6. Loosen the screws of the gland (5) and remove the gland (see photo)
7. Remove the packing set (4) to be replaced and clean the packing chamber
8. Insert the new packing set (4). Make sure that the packing joints are arranged alternately. The first joint on one slide side, the next one on the other side (see photo).
9. After the necessary packing rings have been inserted and the packing gland has been tightened, at first not quite firmly, but evenly (see photo)
10. Fasten the stem or the rod (6) to the slider (2) (slider with rising stem-photo 1) or tighten the screws connecting the slider (2) to the drive nut (7) (slider with non-rising stem-photo 2)
11. Install protective covers
12. Perform a few runs with the system loaded and tighten the packing gland (5) just enough to prevent leaks.

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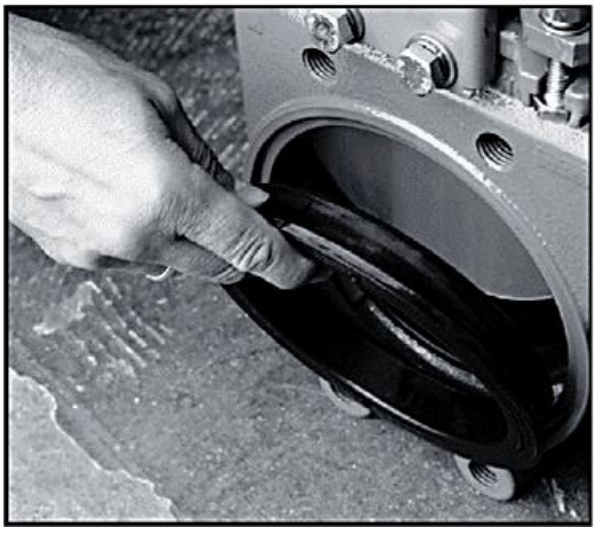
REPLACING OF THE SEAT



The old seat ring (see photo) is removed and replaced with a new one.

LUBRICATION

It is recommended to remove the protective tube cap twice a year and fill the protective tube (13) up to half with a calcium-based grease with the following properties: water repellent, low ash content and very good adhesion.

STORAGE

For longer storage periods, a well-ventilated storage area is recommended for the knife-gate valve. The knife-gate valve must not be exposed to temperatures above 30° C, as some elastomers may be damaged. If outdoor storage is essential, the valves must be protected from heat and direct sunlight with a cover. The storage place should be well ventilated to avoid humidity.

WARRANTY

Warranty is the valid edition of the general terms and conditions of WESA-Armaturen GmbH at the time of delivery or deviating from it stated in the sales contract. No warranty claims can be made for damage caused by improper handling or non-observance of these installation and operating instructions, the EN, DIN, VDE standards and other regulations. Damage caused during operation by operating conditions deviating from the data sheet or other agreements is also not covered by the warranty. Claims exceeding the warranty are excluded. There is no entitlement to a replacement delivery.

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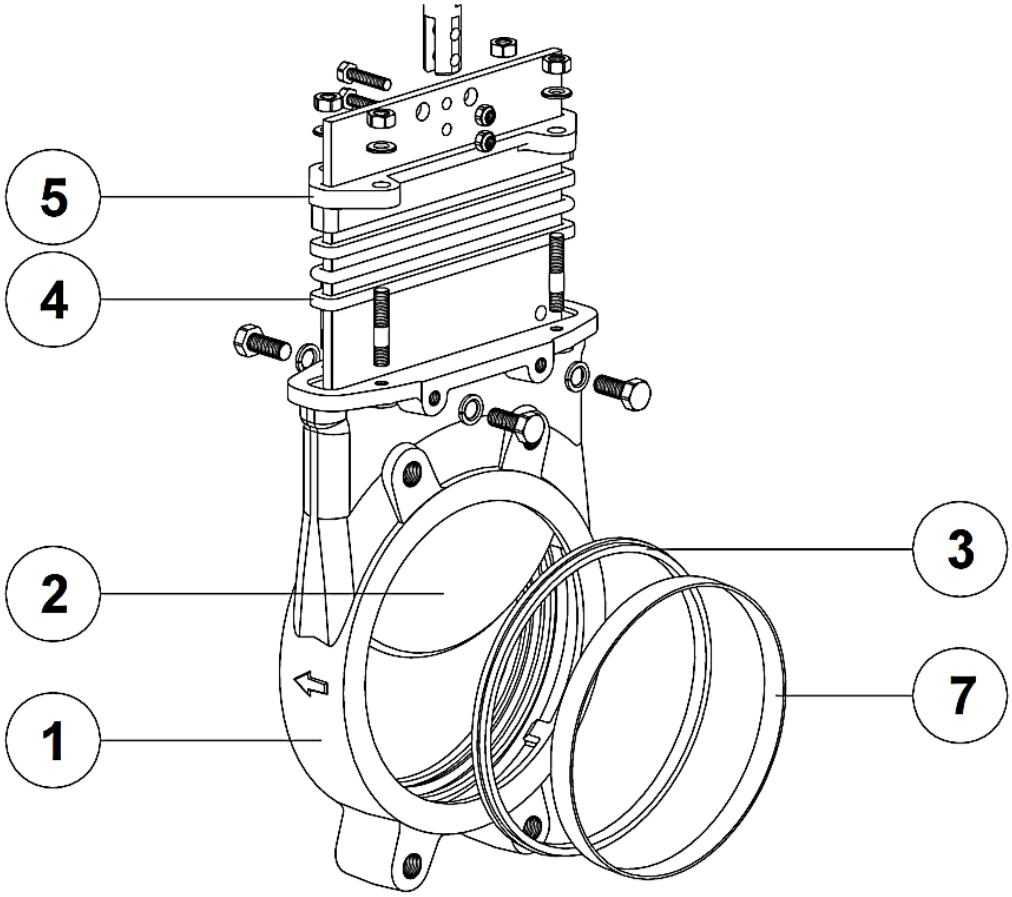
6. EXPLODED VIEW DRAWING

Installation of foreign parts, changes in the construction as well as natural wear and tear are excluded from the warranty. Any transport damage must not be reported to us, but immediately to your responsible freight office, the railroad or the forwarding agent, otherwise claims for compensation against this company will be lost.



Nr.	ITEM
1	HOUSING|BODY
2	KNIFE
3	SEAT
4	PACKING GLAND
5	STUFFING GLAND BOX
6	STEM
7	RETAINER RING

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