

Operating Instructions For ABO Knife Gate Valves, Series 300

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1. Introduction

Knife gate valve series 300 is an inter-flange valve, sealing in both flow directions. It is suitable for liquids with high content of solid substances, highly dense liquids and highly concentrated sludge.

When the knife is in the fully opened position, the flow through the valve is clean, without "dead" spaces, preventing the risk of sediment formation.

The knife is always made of stainless material, while the body is made of cast iron or stainless steel. For detailed information on dimensions, pressures, temperatures and other conditions of use, see the product data sheet or consult the manufacturer.

2. Safety Instructions

Installation, operation and maintenance may only be performed by properly trained and instructed staff. For detailed safety regulations, see the separate document, which should be read carefully before installation.

3. Knife gate valve identification

All information on the parameters of knife gate valves are stated on the index plate attached to each fitting.

4. Transportation and Storage

The product may only be transported in an appropriate packaging which prevents mechanical damage and protects it from elements.

Fittings and valves should be stored at a closed and dry space without dust at normal temperatures.

5. Installation into Pipes

The procedure is graphically described in the document Installation Instructions.

Before installation, it is necessary to check the following:

- If the PN, DN and material design of the supplied fittings and valves correspond to the intended use,
- whether any damage occurred during transport (checking the correct functioning of the valves and fittings).

Piping flanges have to be parallel and aligned. No forces or momentums may be transmitted to the valves and fittings.

The installation position is arbitrary (including the vertical piping). Using a different position than the one with the piping axis horizontally and the valve spindle vertically upwards poses the risk of higher component wear and increased maintenance costs (for media containing solid substances).

Knife gate valves are fixed between flanges with bolts and screw studs. There are more bolts for both flanges along the perimeter of the valve. Screw studs with washers and nuts must be used in the upper part to ensure strong and safe connection between the flanges.

If flanges are welded on before installation, the installation may only be started after the relevant part has completely cooled down.

A gasket is inserted between the slide valve and the flange; it is therefore necessary to use flanges with flat sealing strips, e.g. B shape according to EN 1092.

6. Pipe Pressure Test

The valve and fitting is pressurized by the manufacturer. When fitted in the pipeline, the entire pipe section with valves and fittings needs to be pressurized. The following must be observed:

- newly installed section must be carefully rinsed (cleaned) to remove any mechanical impurities,
- sliding valves in open position: pressure at 1.5 times the PN,
- sliding valves in closed position: pressure at 1.1 times the PN,

7. Operation and Maintenance

The lubrication of the spindle, nut, knife gate and its seal must be checked during commissioning and renewed, if necessary. The lubrication must be renewed at least once in each six months.

If the sliding valve remains in the same position for a long time, it is appropriate to carry out the whole open-closed-cycle at least 4 times a year.

8. Troubleshooting

In case of failure and repair it is necessary to observe all safety rules – see the separate document Safety Instructions.

Failure	Possible Cause	Remedy
Leak between the sliding valve and the flange	Insufficiently tightened bolts, or defective seal	Tighten the bolts on flanges. If the leak continues, replace the defective seal between the sliding valve and the flange
High control forces, wrong knife gate movement	Too high preloading of the knife sealing	Loosen the knife gate sealing bolts slightly and evenly
	Dirty knife	In the fully open position, clean and lubricate the knife
	Spindle and nut dirty, without lubrication	Clean and lubricate
Cap leak	Foreign object caught by the knife	Open and close the sliding valve, repeat if necessary
	Knife seal damage	Replace the seal
Leak at knife gate discharge	Insufficiently tightened seal	Tighten evenly
	Knife seal damage	Remove the seal, clean and lubricate the knife
	Heavily soiled knife	Clean and lubricate