Knife Gate Valves
Uni-Directional Sealing – Technical Sheet | Pneumatic Operation | Installation Guide

Description

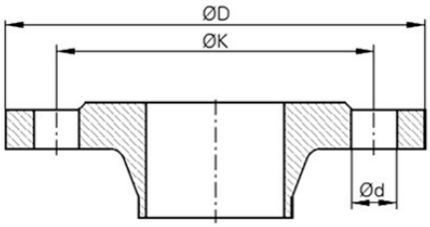
A uni-directional knife gate valve engineered for general industrial applications. The body and seat design ensure non-clogging closure, even in the presence of solid materials.

Handling

- Do not lift the valve by the actuator or protective covers to prevent damage.
- Avoid lifting by the gate opening to prevent seat and seal damage.
- Use a crane or hoist with at least two eyebolts threaded into the valve body for transport.
- Safety Precautions: Ensure the crane capacity matches the valve weight and that eyebolts are properly secured.
- Recommended Handling Equipment: Use lifting slings positioned at the top section of the valve.

Installation

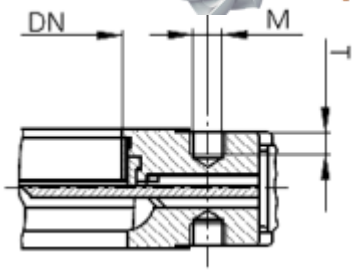
To ensure safety and prevent damage, follow these precautions:



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

- Installation and maintenance should be performed by trained personnel.
- Use appropriate personal protective equipment (PPE) such as gloves and safety boots.
- Ensure all pipeline connections to the valve are disconnected.
- Completely isolate and depressurize the valve before installation.
- Inspect the valve for any damage incurred during transportation.
- Verify the sealing area is free of contaminants.
- Ensure proper flange alignment to avoid deformation and operational inefficiency.
- Recommended flanges: EN 1092-1 PN10 Type 11 Form B.
- Follow specified tightening torques to achieve a proper seal.

Torgue



Screw Tightening Stiffness (T)

•Minimum screw-in stiffness (T) values in threaded holes:

- **60 Nm, 70 Nm, 77 Nm** (Smaller sizes)
- **150 Nm to 340 Nm** (Larger sizes)

Valve Positioning

•**Preferred:** Vertical installation in a horizontal pipeline.

•**Maximum Tilt:** Up to **45°** from vertical; beyond this, ensure structural support.

•**Avoid Stress:** Prevent bending on spindle, bridge, and piston rod, especially for actuator-equipped valves.

Support & Fastening

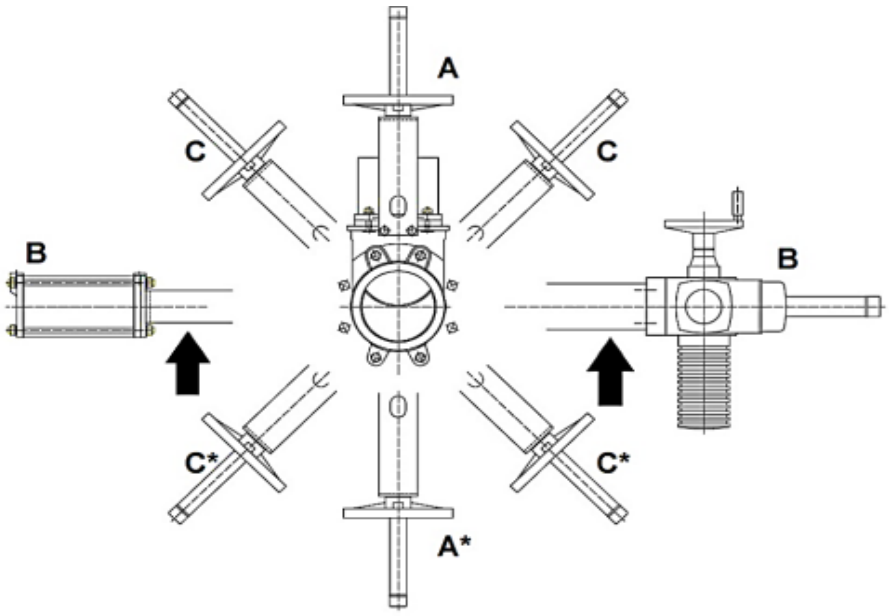
- **No Hanging Installation** to maintain function and sealing.
- **Secure all connections** (flanges, electrical, pneumatic) after installation.
- **Grounding Required** for motorized or electropneumatic actuators before startup.

Preferred Installation Position: Vertical orientation in a horizontal pipeline.

- Maximum allowable tilt: 45° from vertical.
- Avoid overloading the spindle, bridge, or actuator components in non-vertical installations.
- Use additional structural supports when necessary.
- Hanging installations should be avoided.

After installation, verify the integrity of:

- Flange connections
- Pneumatic or electrical interfaces (if applicable)
- Grounding connections for motorized or electropneumatic actuators



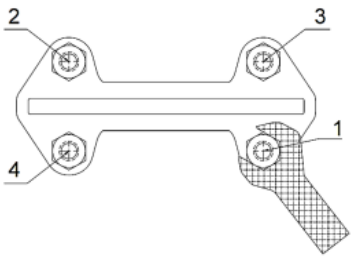
Actuation Type	Operation
Handwheel	Rotate counterclockwise to open; clockwise to close.
Hand Lever	Loosen the locking mechanism, move the lever to the desired position, and secure it.

Knife-Gate Valve Installation & Operation Guidelines

Function & Tightness Testing

1.Actuation Sequence: Operate the valve **without load**, then **with load** to verify functionality and sealing.

2.Packing Adjustment: Packing may settle during shipping/storage, potentially causing minor leakage. To prevent this, tighten the **packing gland (5)** during installation.



DN	200	250-1000
Nm	30	35

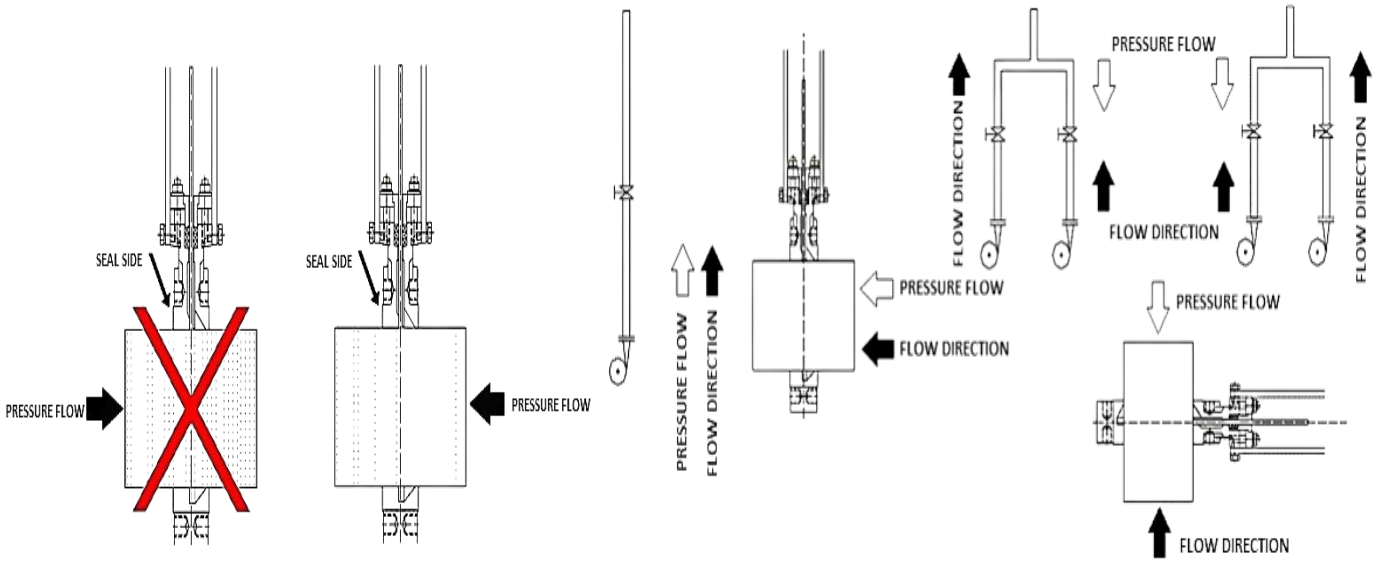
Packing Gland Tightening

•**Even Tightening:** Tighten screws alternately in a **crosswise pattern** to ensure a uniform seal.

•**No Metal Contact:** Ensure the packing gland does not touch the housing.

•**Avoid Over-Tightening:** Excess pressure increases actuation force, over compresses the packing, and impairs valve function.

•**Follow Torque Limits:** Refer to the provided torque table for permissible tightening values.



Installation Requirements

•The **knife-gate valve** is **unidirectional**, sealing against the **seat in the pressure direction**.

•The **standard flow direction** is indicated by a **cast arrow** on the valve body. Proper installation is the installer's responsibility.

•**Silo Installation:** When mounted under a silo, the valve must be installed **against the flow direction**.

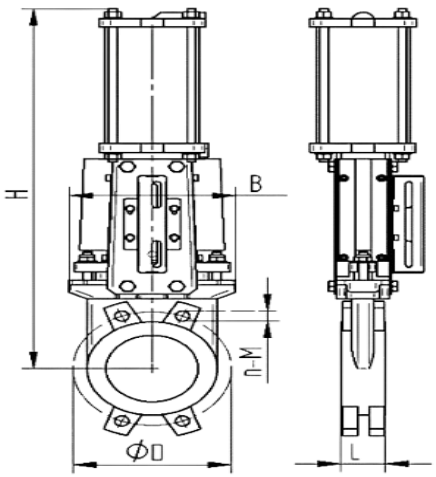
•Note that **differential pressure and flow direction** may not always align when the valve is closed.

Once functional testing is complete, the valve is **ready for normal operation**

Maintenance

Safety Precautions:

- Only qualified personnel should perform maintenance.
- Use PPE as required.
- Disconnect all influencing system lines.
- Post warning signs indicating ongoing maintenance.
- Fully isolate and depressurize the system.



Packing Gland Replacement

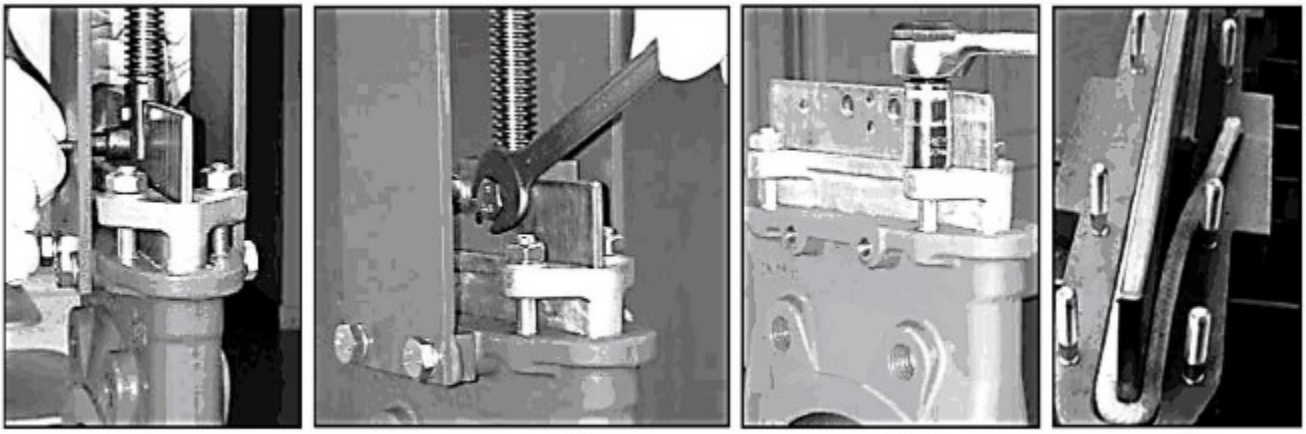
- Replace only if leakage occurs or wear is evident.
- Over-tightening gland packing increases actuation force and impairs valve function.

Pneumatic Actuation

- **Standard Configuration**: The valve is typically equipped with a **double-acting pneumatic cylinder**.
- **Operating Pressure**: Recommended supply pressure is **approximately 5.6 bar**.
- **Air Quality Requirements**: For optimal cylinder performance and longevity, use **completely dry, filtered, and oiled compressed air**.
- **Pre-Operation Check**: After installation, actuate the valve **3-4 times** before system startup to ensure proper function.

DN	L	Ø D	H	B	PN
200	60	295	890	286	10
250	70	350	1.12	388	10
300	70	400	1.23	388	10
350	96	460	1.37	460	10
400	100	515	1.57	500	10
450	103	565	1.74	520	10
500	110	620	1.85	560	10
550	110	700	2.013	620	10
600	115	760	2.046	620	10

REPLACING OF THE PACKING GLAND



1 2 3 4

- **Depressurize the System** – Ensure the system is pressure-free and **close the valve**.
- **Remove Protective Covers** – Detach any covers for access.
- **For Rising Stem Valves** – Loosen the **stem (6) or valve rod (2)**.
- **For Non-Rising Stem Valves** – Loosen screws **connecting the slider (2) to the drive nut (7)**.
- **Remove Cover Frame** – Loosen frame screws without **removing the actuator**.
- **Detach Packing Gland** – Loosen and remove the **gland (5)**.
- **Replace Packing Set** – Remove the old **packing set (4)**, clean the chamber, and insert a **new set with alternating joints**.
- **Reassemble Components** – Secure the gland **evenly but not too tightly**.
- **Reconnect the Stem/Rod** – Fasten **stem (6) or drive nut (7)** as per valve type.
- **Reinstall Protective Covers**.
- **Test Operation** – Perform multiple loaded cycles and tighten the **packing gland (5) just enough to prevent leaks**.

REPLACING OF THE SEAT

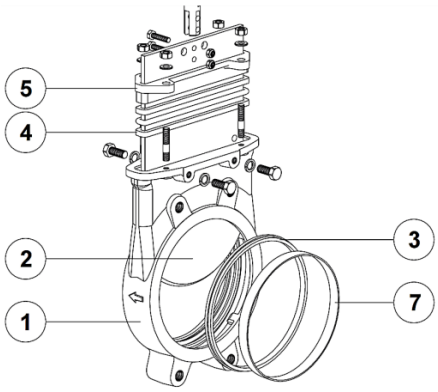
The old seat ring (see photo) is removed and replaced with a new one.

Lubrication Procedure

- **Frequency:** Perform lubrication **twice a year**.
- **Procedure:**
  - **Remove the protective tube cap**.
  - **Fill the protective tube (13) halfway** with calcium-based grease.
- **Grease Requirements:**
  - **Water-repellent**
  - **Low ash content**
  - **High adhesion** for optimal performance.

STORAGE GUIDELINES

- Store in a **well-ventilated indoor facility**.
- Avoid **temperatures above 86°F (30°C)** to prevent elastomer degradation.
- If **outdoor storage is unavoidable**, protect the valve from **direct sunlight and extreme weather** using a cover.
- Maintain **proper air circulation** to minimize humidity and condensation risks.



1	Housing Body
2	Knife
3	Seat
4	Packing Gland
5	Stuffing Gland Box
6	Stem
7	Retainer Ring

WARRANTY TERMS

- The warranty follows the **current terms and conditions** at the time of purchase or as specified in the **sales contract**.
- **Exclusions:**
  - Damage due to **incorrect installation, handling, or maintenance**.
  - Failure to comply with **ANSI, ASME, NFPA, or other relevant U.S. industry standards**.
  - Operating conditions **outside the specified range** in the technical data sheet or agreed terms.
  - **No automatic replacement or reimbursement** beyond the stated warranty coverage.

WARRANTY EXCLUSIONS

- **Use of non-OEM (foreign) parts**, modifications to the valve design, and **normal wear and tear** are **not covered** under warranty.
- **Transport Damage:** Any shipping-related damage **must be reported immediately** to the **freight carrier, railroad, or shipping company** responsible for delivery. Claims for compensation **will be forfeited** if not reported directly to the carrier, **unless in a case where company is directly responsible for freight.**

DN	øP	L	L1	øR	n x øS	øT	Y	h	N	ISO 5211	H	øA	J	K	WEIGHT	TORQUE	Kv
2”	49	292	146	127	8x19,1	165	25,4	131,5	100	F10	30	19,9	8	22,5	33	151	366
3”	76	356	178	168,3	8x22,2	210	31,8	163	139	F12	31	26	10	30	75	318	938
4”	100	432	216	215,9	8x25,4	275	38,1	181,5	164	F12	47,5	29,9	10	34	136	469	1.465
6”	152	559	279,5	292,1	12x28,6	355	47,7	278	278	F16	61,5	44,9	14	51,4	300	1.044	3.297
8”	203	660	330	349,2	12x31,8	420	55,6	334,5	296	F25	67,5	54,9	14	61,4	561	2.629	5.861
10”	254	787	393,5	431,8	16x34,9	510	63,5	371	365	F25	75	59,9	2 x 16	67	828	3.366	9.454
12”	305	838	419	489	20x34,9	560	66,7	432,5	419	F25	94	69,9	2 x 18	78	1.238	4.403	13.631
14”	337	889	444,5	527	20x38,1	605	69,9	464,5	450	F30	109,5	79,9	2 x 22	87,9	1.532	5.210	16.641
16”	387	991	495,5	603,2	20x41,3	685	76,2	499,5	505	F30	121,5	84,9	2 x 22	94,9	2.137	6.513	23.554
18”	436	1.092	546	654	20x44,5	745	82,6	551,5	568	F30	138	99,9	2 x 28	111,9	2.595	10.644	29.672
20”	488	1.194	597	723,9	24x44,5	815	88,9	586,5	581	F35	138	99,9	2 x 28	111,9	3.454	14.653	36.633
24”	589	1.397	698,5	838,2	24x50,8	940	101,6	684	758	F35	153,5	120	32	134	6.250	21.533	52.751

Dimensions in mm, weight in kg and Torque in Nm.
Weights and dimensions can be changed without notice.
(1) Bigger sizes available under customer's request