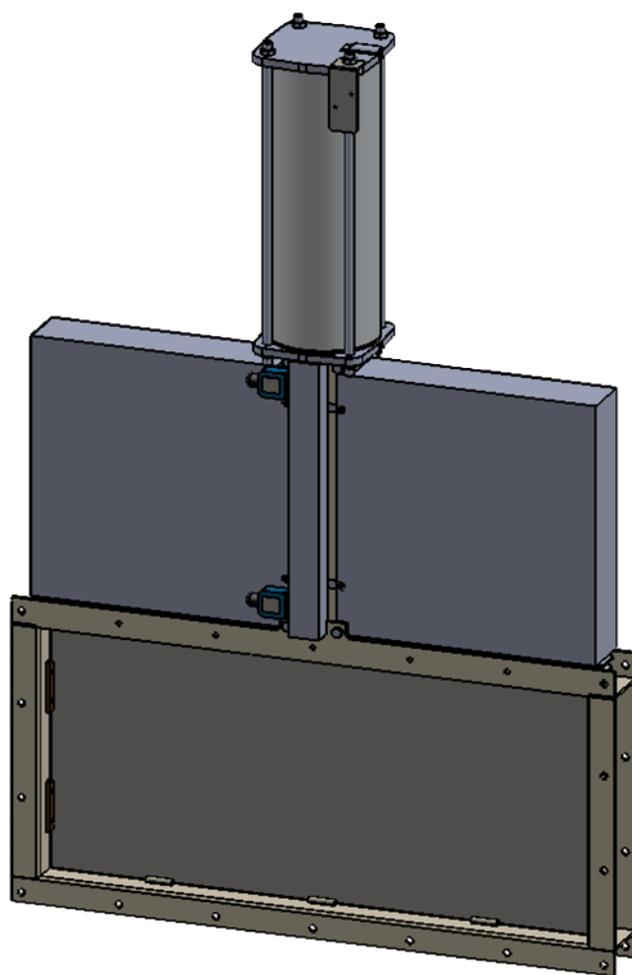


# Square silo knife gate valves

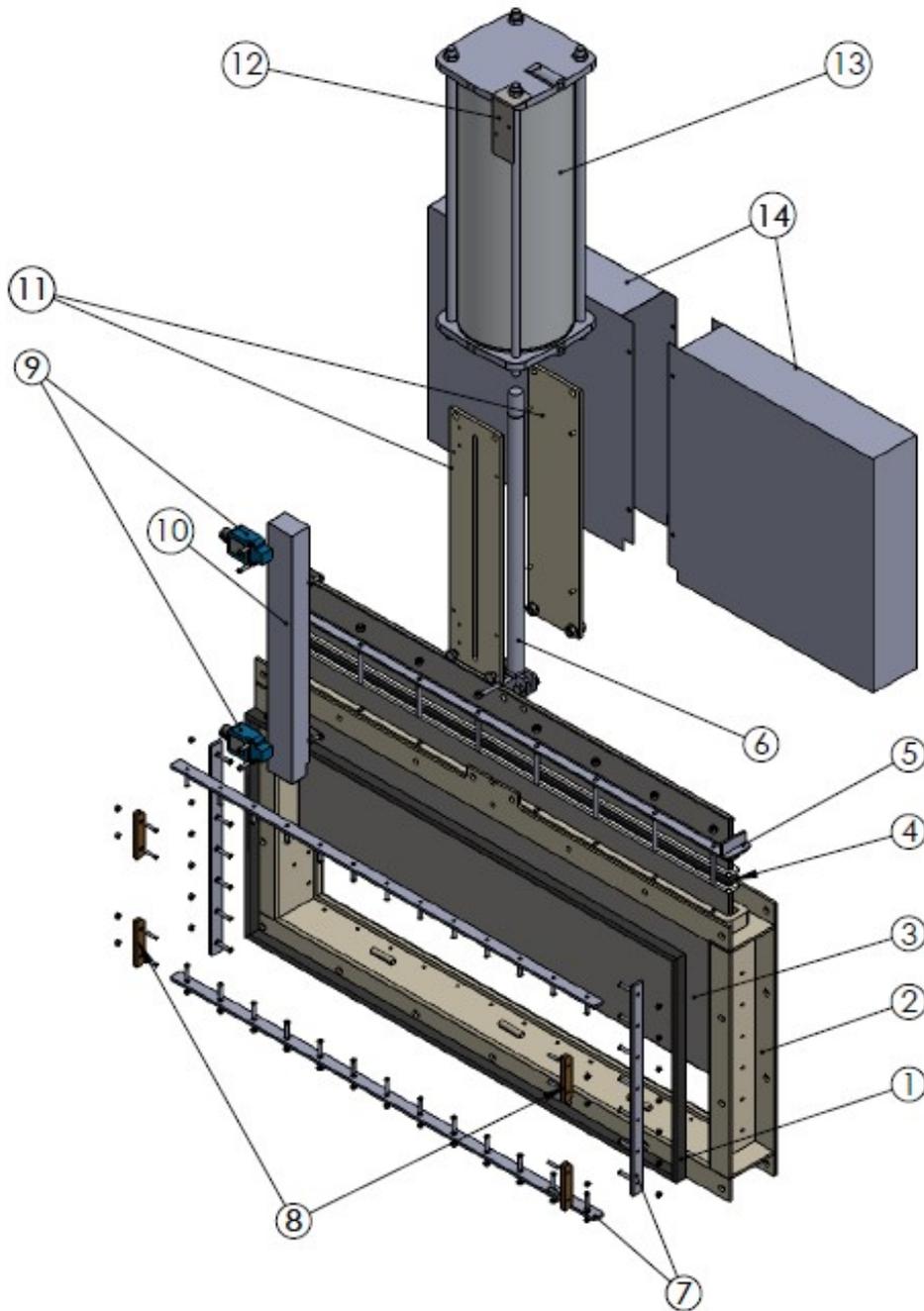
INSTALLATION, OPERATION & MAINTENANCE MANUAL



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**Part list and drawing**



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**Description**

Our square silo knife gate is low pressure valve for solid loaded fluids, mainly used in bulk handling and silo outlet applications.

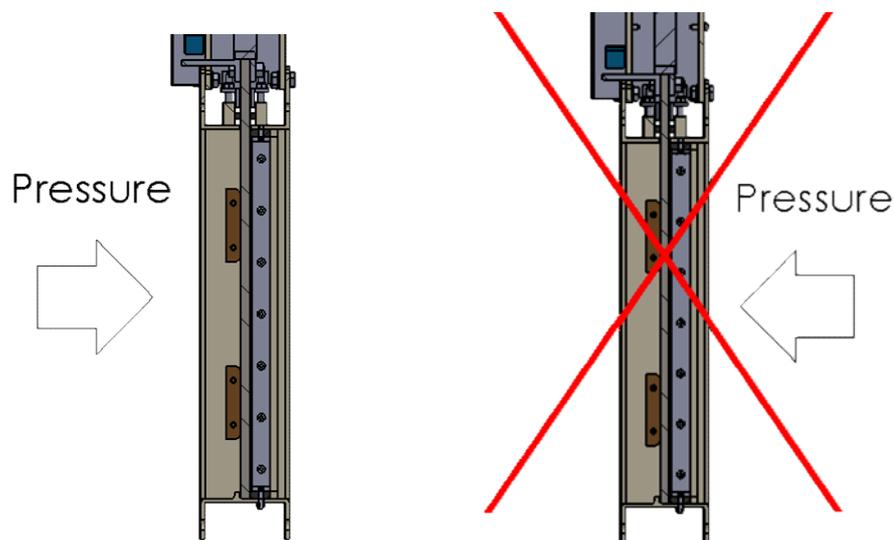
Our square silo knife gate valve complies the following European directives:

2006/42/CE (Machinery Directive)

2014/68/EU (PED)

## INSTALLATION

*Square type valves* are unidirectional, and you should therefore bear in mind when installing them that the greatest pressure should be exerted on the seat (note that the pressure does not necessarily have to coincide with the direction of flow). When square knife gate valves are used as outlet closures (under hopper or silo), where the pressure is relatively low, they should be assembled in the opposite direction.



Depending on the drive, and providing the installation so permits, the valves may be assembled vertically, horizontally and even upside down, although we recommend that they be installed vertically.

\*In vertical pipelines, the construction of appropriate support is always required

Before starting operation it is very important to ensure that all the air lines, solenoid control valves and pneumatic tubes have been checked and cleaned correctly by air injection. The air used should be lubricated and filtered, and its pressure should not exceed 6 bars, nor drop below 5 bars. Once the pneumatic tube has been installed, we recommend that you activate it 3-4 times before switching it on.

\*Valve water tightness tests are carried out at the pressures indicated in the order. If this pressure has not been specified, the tests are carried out at a medium closing pressure of between 4 and 6kg, depending on the diameter of the valve, and of 6kg in the case of compressed air.

The body of the valve should be correctly aligned with the pipe flanges in order to avoid stress. Before assembly, check the condition of the body (especially the seat) and the installation (flanges, pipes, etc.). Make sure everything is clean. When inserting the screws in the valve's blind holes, make sure they do not touch the bottom of the holes in order to prevent thread cutting.

### **HANDLING**

When assembling the valves, try to avoid handling through the protections or the valve drive. You should also avoid supporting the valves by the passage when lifting. We recommend that you use slings attached to the upper part of the body or insert eyebolts when carrying out any manoeuvres.

### **IMPORTANT**

The compressed air pressure should be calculated in accordance with the working pressure in the pipes. We recommend that you use the minimum working pressure that guarantees the water tightness of the valve. If necessary, insert a regulator into the air inlet.

## **MAINTENANCE**

To ensure the correct working of the valves and prolong their working life, certain parts should be replaced periodically.

### **Replacing the packing:**

When the packing needs to be changed, either as a result of periodic revisions or due to a malfunction, proceed as follows:

- 1.-Without releasing the body from the pipe, eliminate the pressure from the circuit and place the valve in its closed position.
- 2.-Release the lower screws in the support plate.



- 3.-Similarly, release the stem-gate union screws, thereby freeing the valve drive.
- 4.-Next, loosen the nuts that attach the packing gland and remove this element.



- 5.-Replace the packing with a new one, after cleaning the housing.
- 6.-Then reinstall the packing gland by tightening the nuts in a cross formation.
- 7.-Replace the stem-gate union screws and the support plate screws.
- 8.-Carry out several manoeuvres to check for any leaks.

**Replacing the sealing or closing gaskets:**

These gaskets are only fitted in those valves with a soft seated closing system. When the gasket needs to be changed, either as a result of periodic revisions or due to a malfunction, proceed as follows:

- 1.-Release the valve from the circuit.
- 2.-Place the valve in its open position.
- 3.-Next, remove the flanges that support the sealing gasket.



- 4.-Replace the gasket with a new one and place the gasket union at the top of the body, after cleaning the housing.
- 5.-Next, replace the sealing gasket fixing element.
- 6.-Place the valve in its closed position.
- 7.-Carry out several manoeuvres to check for any leaks.

**Replacing the pneumatic actuators:**

The actuators should be replaced when you notice that the two chambers of the pneumatic tube are linked. This link is due to the deterioration of the closing gaskets or the pneumatic tube itself.

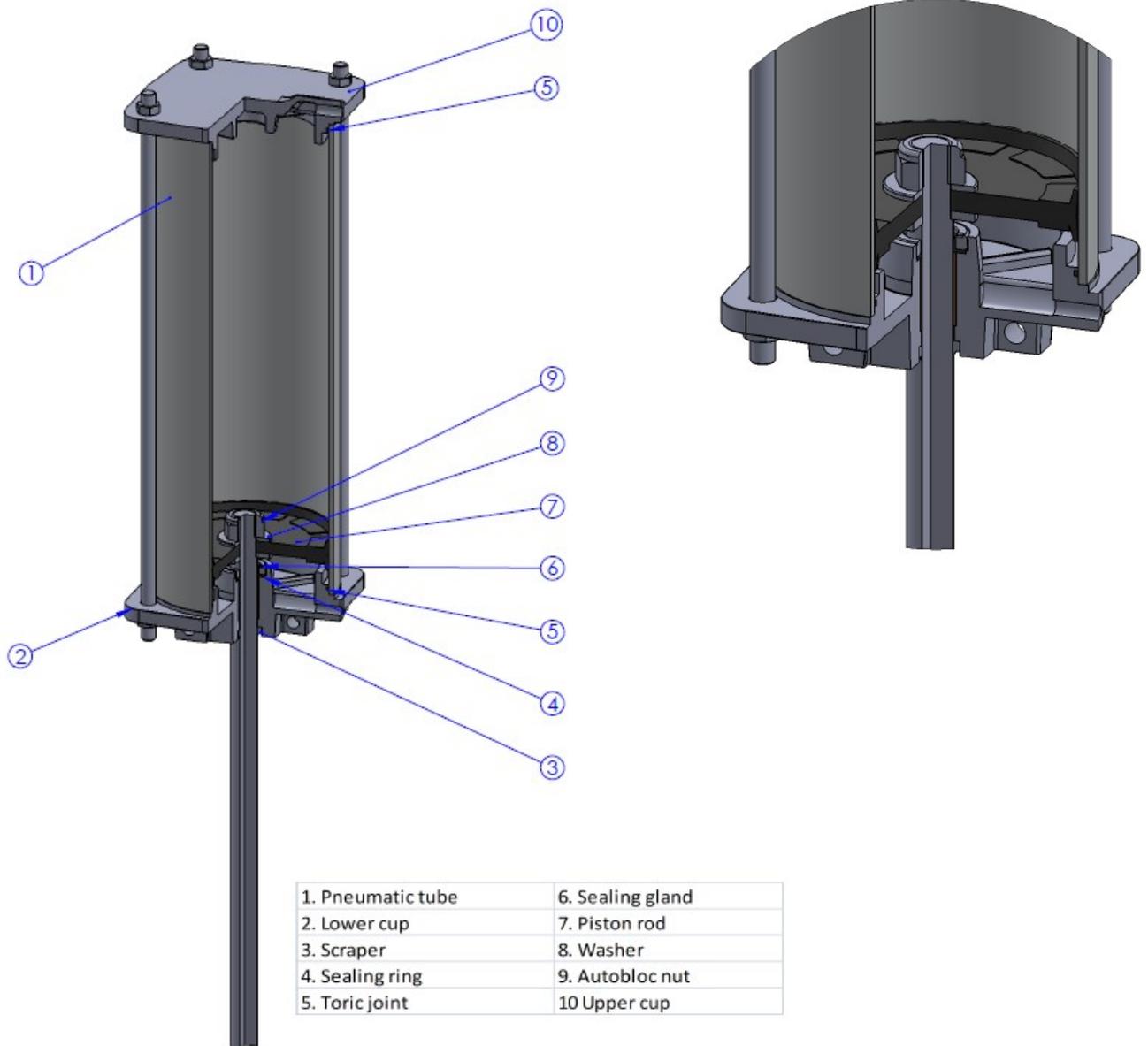
\*To replace the complete pneumatic drive, proceed as follows:

- 1.-Without releasing the body from the pipe, eliminate the pressure from the circuit and place the valve in its closed position.
- 2.-Release the lower screws in the support plate.
- 3.-Similarly, release the stem-gate union screws, thereby freeing the valve drive.
- 4.-Next, insert the new drive, joining the new stem to the gate.
- 5.-Replace the lower screws in the support plate.

6.- Carry out several manoeuvres before switching on, injecting air at a pressure no higher than 7 bar and no lower than 5 bar, in order to check that the pneumatic drive is working properly.

\*When replacing the components of the pneumatic drive, follow steps 1-2-3 and then:

- to replace the toric joints of the covers, simply release the covers from the drive.
- to replace the piston rod, remove the upper cover and the pneumatic tube, thus accessing the inner part of the drive. Then release the autobloc nut and the washer that attaches the piston rod.
- to change the sealing ring, release the lower cover and the scraper 8° to access the damaged ring



To ensure the correct maintenance of the valve, we recommend that you lubricate the stem at least once every 6 months.

### **RECOMMENDATIONS**

To ensure the correct maintenance of the valves, we recommend that you replace the aforementioned parts on a regular basis. Their working life will depend on the working conditions, temperature and chemical attacks to which they are exposed

### **STORAGE**

- When the valves have to be stored for a long time it is important that the place is well ventilated and temperatures do not exceed 30°C; some soft seal may deteriorate from high temperatures and humidity.
- It is recommended to store under covered but if not possible and must be outside, the valve should be packed for better conservation.
- The movement areas of the valve must keep lubricated for this it is important to make revision and periodic lubrications.