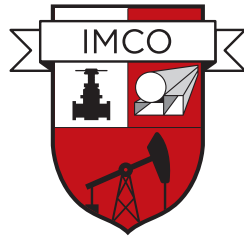


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Operation and Maintenance Manuals

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Scope

This manual includes gate valves & air valve with nominal diameter DN15mm-600mm (1/2"-24") and nominal pressure PN1.0MPa-1.6MP manual and electric operation.

Use

- This gate valve is suitable for the cut-off and opening of pipeline fluid.
- This air valves are completely automatic in operation and are capable of fulfilling the venting requirement of the pipeline.
- Select the material of the valve according to the medium.

Operation

Manual valves turn the handwheel by hand, electric valves are driven by valve electric device, which makes the stem rise and fall, thus driving the gate up and down movement to open and close the valve. Clockwise rotation, the gate plate descends, and the valve closes. Counterclockwise rotation, the gate plate rises and the valve opens.

Structure

- The basic structure of the gate valve is shown in Figure 1
- The basic structure of the air valve is shown in Figure 2

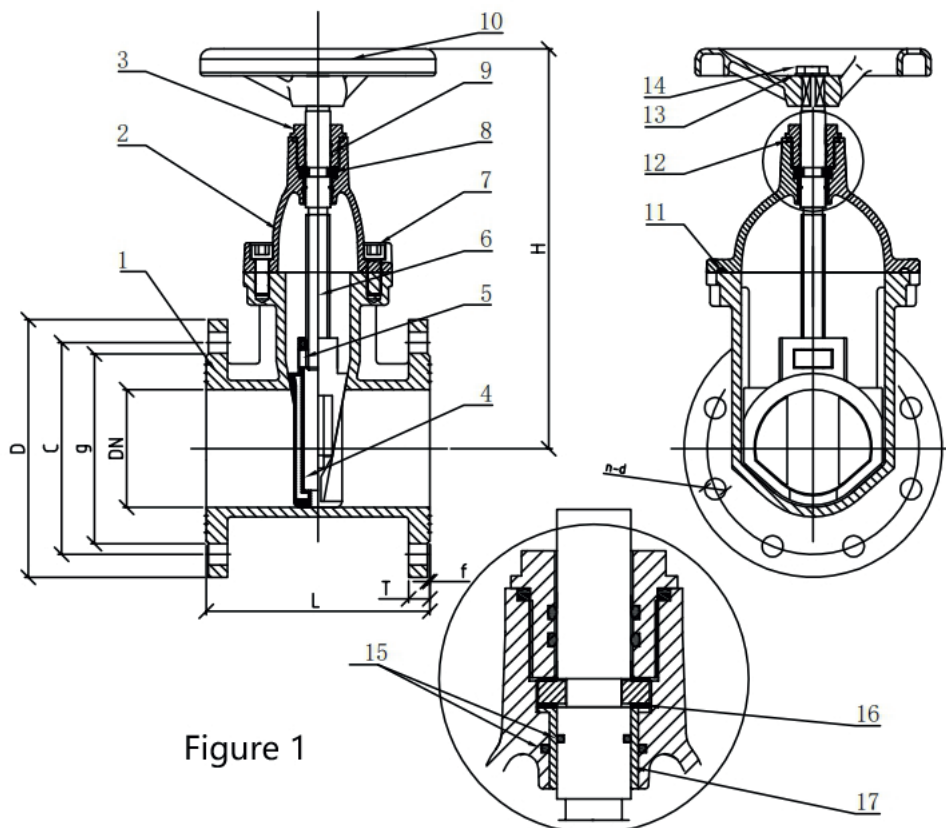


Figure 1

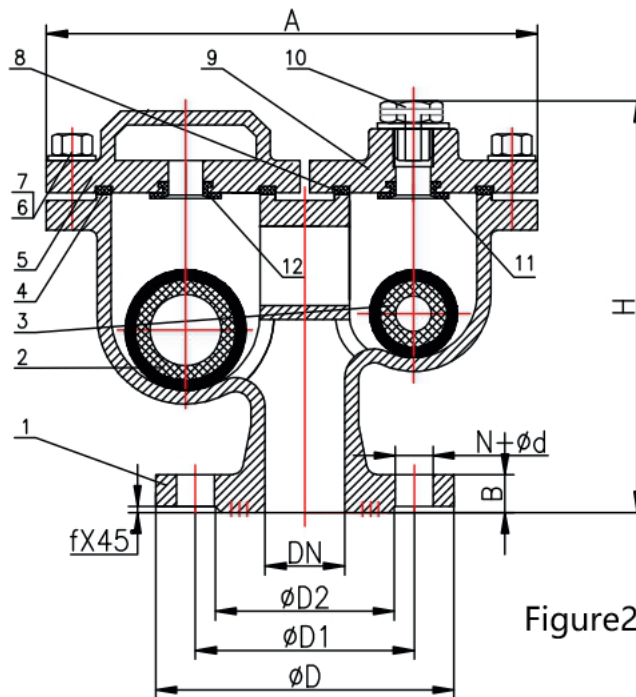


Figure2

Storage, maintenance, installation and use

- The valve should be stored in a dry, ventilated room, and the valve channel should be blocked at both ends.
- Valves stored for a long time should be regularly inspected and cleared of dirt. Special attention should be paid to the cleaning of the sealing surface to prevent damage to the sealing surface.
- Check carefully whether the valve markings are consistent with the use requirements before installation.
- The inner cavity and sealing surface of the valve should be inspected before installation, and if there is dirt, it should be wiped clean with a clean cloth.
- Check whether the packing is pressed tightly before installation, it should ensure the sealing of the packing, and at the same time should not hinder the rotation of the valve stem.
- After installation system or pipeline pressure test, the valve should be in the fully open position.
- In use, the gate should be fully open or closed, and the gate should not be partially opened to regulate the flow.
- When in use, lubricate the stem trapezoidal threads frequently.
- Manual valve, in the opening or closing operation, should use the hand wheel to open and close, not with the aid of auxiliary levers or other tools.
- The valve should be inspected regularly after use to check the sealing surface, stem, etc. for wear and tear as well as the gasket and packing. If the damage fails, it should be repaired or replaced in time.
- Electric, pneumatic valve transmission device, its storage, maintenance, installation and use, see the "valve electric device instructions".

Possible failures, causes and elimination methods:

Possible failures	The reason for the malfunction	Elimination method
Leakage of packing	<ol style="list-style-type: none"> 1. Gland is not pressed tightly 2. The seal fails due to overuse or improper storage 	<ol style="list-style-type: none"> 1. Tighten the nut evenly and press the seal tightly 2. Replace the seal
Leakage between the sealing surfaces of the gate plate	<ol style="list-style-type: none"> 1. The sealing surface has dirt and debris attached 2. Seal surface damage 	<ol style="list-style-type: none"> 1. remove the dirt and debris 2. Re-machining and repair or replacement
Leakage at the connection between the valve body and the valve cover	<ol style="list-style-type: none"> 1. Uneven tightening of connecting bolts 2. Flange sealing surface damage 3. Gasket rupture or failure 	<ol style="list-style-type: none"> 1. Tighten evenly 2. Re-trimming 3. Replace the new gasket

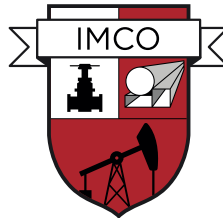
Gate valve & Air valve maintenance and installation and use precautions

- This valve should be stored in a dry room, no stacking storage
- Long-term storage of the gate valve& air valve, should be regularly inspected to remove dirt.
- The use should be carefully checked before installation to see if it is consistent with the provisions of the logo.
- This valve is suitable for installation on horizontal pipeline with stem in vertical position and handwheel in the upper part, or it can be installed in any direction, but the stem should be in horizontal position.
- This valve should be installed in such a way that it is easy to work, repair or replace.
- The valve in use is required to fully open or fully closed gate valve, does not allow only part of the opening and closing as a means of regulating the flow, in case the media flow rate is high when the sealing surface is easily damaged.
- The valve shall be opened and closed by rotating the handwheel using the gate, without the aid of other auxiliary levers. (Other tools shall not be larger than the outer diameter of the handwheel)
- When lifting this valve, the sling is not allowed to be tied to the handwheel or the stem.
- The following work should be performed during installation.
 - Clean the inner cavity and sealing surface without allowing dirt to adhere.
 - Check that the connecting bolts are evenly tightened.
 - Check that the valve stem rotation is flexible.
- Detailed records of the overhaul will be kept after each overhaul for inspection.

Valve failure and elimination methods:

Common faults	Causes	Exclusion method
Leakage of valve body and bonnet	Sky freeze fracture	For the temperature in 0°C and 0°C below the environment, the valve should be insulated, stop using the valve should be removed from the water
	Valve damaged by heavy object impact	Prohibit the stacking of heavy objects on the valve, do not allow the use of hand hammer to hit the valve, large-diameter gate installation should be bracket
Leakage of sealing surfaces	The sealing surface is not closed tightly or the slit appears due to the cold shrinkage after closing, producing the phenomenon of erosion	The valve should be opened and closed strictly in accordance with the indicated direction. In the high temperature environment, the slit that appears after the parents close the cold shrinkage should be closed again after an interval
	The valve has been fully closed position, continue to apply excessive closing force, including the incorrect use of long lever operation, the sealing surface is crushed and squeezed deformation	Replacement of sealing parts
	Seal surface wear is too large, that is, the sealing surface can not be a good fit	Replacement of the gate plate
Leakage of foreign objects embedded between sealing surfaces	The seal surface that is not often opened and closed is easy to accumulate some spoil	Infrequent opening and closing of the valve, in the case of conditions permitting, should often open and close once
	The medium is not clean, containing abrasive rust, welding slag and other foreign matter	Replacement of sealing parts
Inflexible valve stem operation	Foreign matter at the trapezoidal thread	The valve should be set up before the drainage, filtering and other devices or regularly open the valve cover to clean
	Poor operation, deformation, wear and damage to the valve stem and related parts	Replacement of related parts

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