

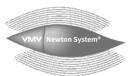
#### ZHEJIANG NEWTON FLUID CONTROL CO.,LTD.

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Secure System Generates
Smart Energy Conservation



#### After-sales service department:

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www.vmvvalve.com



### **Secure System Generates Smart Energy Conservation**

VMV Newton is globally committed to providing overall solutions for steam and thermal energy systems,complete sets of high quality system products.

Effective control and utilization of steam thermal oil .hot water.highly corrosive and highly toxic media.compressed air.etc. Service for various industrial fluids and special working conditions, we are one of the powerful brand manufactures in the filed of steam and thermal



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VMV was established in 1998 the headquaters covers 75000 square meters and realizes digital intelligence integration workshop.

Our products have applied to steam system thermal oil system, petroleum industry, natural aas industry, chemical industry etc.

We have aslo aualified with CE,ISO,TS A1,API,CCS and FAC certificates

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#### Dear users

Thank you very much for choosing VMV's Bellows Sealed Valves. As a type of pressure equipment, valves have potential pressure hazards and hidden dangers of medium leakage.

For safety reasons, please read the manual carefully before use to ensure correct installation and use.

If you have any problems, please call us free,

#### User Notice

1. First of all to ensure the safety of personnel in any case.

- 2. The valve should be used according to the temperature and pressure grade requirements of the pressure pipeline.
- 3. It should be ensured that the selected material can resist the corrosion. and wear of the medium.
- 4. The working temperature should be limited when the medium is flammable and explosive.
- 5.It should be ensured that the valve is always in a depressurized, vented and drained state during the repair/maintenance process.
- 6. Appropriate protection should be used, and there should be no unauthorized open flames on site during the repair/maintenance process.
- 7. Valves must be inspected regularly.
- a, Bolt/nut connection tightening (body/bonnet, gland, flange connection)
- b. Corrosion/wear hazards (impact, pitting, thickness reduction);
- c. Make sure that the valve is in the fully open/fully closed position.





Emergency Response If you need any help, please call VMV After sales department or leave message to email. Tel:86-577-67978268

E-mail:vmv9@vmv-valve.com

Application & Performance

Structure & Principle BELLOWS SEAL VALVE OPERATION INSTRUCTION

### 1.1 Application

VMV bellows valves are widely used, especially suitable for flammable, explosive, toxic, high temperature and other dangerous media and occasions with strict environmental protection requirements; This series of valves is suitable for chemical. petroleum, fertilizer, new energy, paper, pharmaceutical, tobacco and other industries, cutting or connecting pipelines to ensure



#### 1.2 Technical Performance

Design standard: EN12516

Flange size: EN1092

Welding end standard: EN12627

Structure length: EN558-1 Inspection standard: EN12266

Nominal size: DN15~DN200 Nominal pressure: PN16

**Suitable temperature:** -10~350 °C

Bellows Test: MSS SP-117

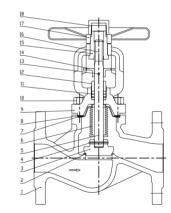
performance

### 2.1 The structure of DIN

standard bellow seal globe valve(JS1049) DN15~ DN80 / PN16 See picture

#### Components name

1-Body	7-Sealing member	13-Pin
2-Seat	8-Gasket	14-Locator
3-Disc	9-Bonnet	15-Stem nut
4-Pin	10-Bolt	16-Oil cup
5-Stem	11-Packing	17-Handwhee
6-Bellows	12-Threaded gland	18-Cap



#### BELLOWS SEAL VALVE

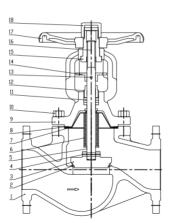
OPERATION INSTRUCTION

# 2.2 The structure of DIN standard bellow seal globe valve(JS1049)

DN100~ DN200 / PN16 See picture

#### Components name

1-Body	7-Sealing	13-Pin
2-Seat	member	14-Locator
3-Disc	8-Gasket	15-Stem nut
4-Pin	9-Bonnet	16-Oil cup
5-Stem	10-Bolt	17-Handwheel
6-Bellows	11-Packing	18-Cap
	12-Threaded gland	



#### 2.5 Material of main parts

Structure

& Principle

The user should select the material and valve pressure according to the working temperature, working pressure and medium type based on the corresponding pressure grade table.

The manufacturer is only responsible for the material, valve pressure rating specified on the order. It is not responsible for inconsistencies with the conditions of use due to the user's selection of incorrect materials or pressure ratings.

No.	Main parts	Material
1	Body,Bonnet	JS1049
2	Stem	2Cr13
3	Flange gasket,Flexible graphite	SS304+Flexible graphite
4	Packing	Flexible graphite
5	Bolt,Eye bolt	A193-B7
6	Nut	A194-2H
7	Stem nut	Steel / Copper
8	Bellows	SS304
9	Disc	13Cr / A105+13Cr
10	Sealing menber	SS304

Valves with special materials can be customized, such as 316Ti, Hastellov, Monel, etc.

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OPERATION INSTRUCTION

86-577-67978269

## Shipping & Storage

**3.1 Valve** As a metal product, the valve should avoid being **shipping** damaged during shipping. Ropes, lifting equipment and shipping tools should be prepared, and the valve packaging should be checked. If the packaging is damaged, it should be fixed; The packaging should meet the standard requirements, and it is not allowed to rotate the packaged valve handwheel at will; the valve should be in a fully closed state. For the valve that has been opened by mistake, the sealing surface should be wiped clean and then closed tightly to close the passages at both ends.

When the valve is lifted to moving, the rope should be tied to the valve bracket, and not allowed to be tied to the handwheel or valve stem. The valve should be lifted and placed gently, do not hit other objects, and should be placed stably.

The paint, nameplate and flange sealing surface of the valve should be protected during the shipping. It is not allowed to drag the valve on the ground and it is not allowed to touch the sealing surface at both

3.1 Valve Valve that will not be installed temporarily shipping at the construction site should not be unpacked, and should be protected from rain.dust and rust.

## storage

3.2 Valve The valve should be stored in a dry and ventilated room and placed neatly. The valve stem should not be stressed, and the valve channel and flange surface should be closed by covers. For valve that need to be stored for a long time, the valve stem and machined surface should be coated with rush inhibitor. It should be re-checked to remove the dirt before using.Please notice the cleaning of the sealing surface to prevent damage to the sealing

surface, and have a pressure test once

Valve storage more before using.

### 2.6 Working principle

The working principle of the series of bellows seal valves: When the handwheel is rotated clockwise, the valve disc/gate will drop to cut off the channel, and it is closed: when the handwheel is rotated counterclockwise, the valve disc/gate will rise, and it is



#### 2.7 Structure description

The conventional operation of this series of bellows seal valves is hand wheel. The middle cavity seal adopts stainless steel clamp flexible graphite gasket. The valve stem adopts the double sealing structure of bellows seal and packing seal. The bellows are provided by well-known domestic and international manufacturers. Materials including 304, 321, 316L, 316Ti, Hastelloy276, INCONEL625 etc. The valve can be in the form of conical, flat, throttle type sealing, and the sealing surface material can be selected according to the API600 internal parts table or according to user requirements.

Valve shipping ends of the valve to the ground and move.

principle opened



#### 4.1 Valve installation

Before installation, please carefully check if the model, pressure and diameter of the valve meet the requirements. The direction indicated by the arrow should be consistent with the flow direction of the pipeline medium, and the installation can be performed after confirmation. Before installation, please ensure that the inner cavity and sealing surface are clean. and check the sealing surface, bolt connection, packing compression, and whether the valve stem rotates freely. For the valve on the horizontal pipeline. the valve stem is recommended to be vertically upward, and it is not suitable to install the valve stem downward: the valve stem downward is not only inconvenient to operate and maintain. but also easy to make the valve corrode.

& Use



not be less than 100mm.

#### 4.1 Valve installation

For valves with flange end, the user should select suitable studs and gaskets according to the operating temperature, operating pressure and operating medium, and tighten the connecting bolts and nuts evenly and symmetrically.

For valves with butt-welded end, the user should carry out welding and heat treatment according to the standard requirements, and the welding should be carried out by qualified personnel, and only after the process qualification is qualified.

When the valve is opened or closed, please notice the stroke of the positioning piece. Do not open or close it roughly. Excessive force with the wrench will easily lead to distortion and damage to the valve internals.

The valve installed on the pipeline should have space for operation, maintenance, and disassembly, and the reserved space for the handwheel should

#### 4.2 Valve use

After the valve is installed, if the temperature of the medium is higher than 100°C, the packing gland should be gently opened to fully evaporate the water in the cavity formed by the bellows and the packing, and then the packing gland should be tightened.

The valve must be in the fully closed or fully opened position when the system or pipeline is pressure tested, and must not be partially opened for flow regulation or emergency discharge. The manufacturer is not responsible for any harm caused by such cases. In general, the bellows globe valve has no insulation part. When the medium is high temperature or low temperature fluid, do not touch the surface of the valve to prevent burns or frosthite

#### 4.2 Valve use

The surface and moving parts of the valve. such as the trapezoidal thread of the valve stem and the valve stem nut, the sliding parts of the valve nut and the bracket, are prone to accumulation of dust, oil and medium residues, which are easy to wear and corrode the valve and even generate frictional heat

This is very dangerous for flammable gases and should be cleaned frequently according to the working conditions. If there is water in the valve cavity, in the case of low temperature (such as medium is liquid nitrogen), Opening and closing valve will easily cause damage to the bellows. The water should be drained



before installation to avoid freezing in the Valve use valve cavity.



OPERATION INSTRUCTION



## Maintenance & Diagnosis

#### 5.1 Valve maintenance

After the valve is used, regular in-service inspections should be carried out, and the sealing and wear of the sealing surface should be checked frequently; whether the packing is failing; whether the valve body is corroded, if the above conditions are found, it should be repaired or replaced in time. It is recommended to overhaul every 3 months for water and oil media, and every 1 month for corrosive media, or according to local regulations. When the valve is overhauled and reassembled and adjusted, be careful not to let the welding slag splash on the surface of the hellows or cause other mechanical damage to the bellows: in addition, it is not allowed to adjust the installation deviation of the pipeline by deforming the bellows.



#### 5.1 Valve maintenance

It will affect the normal function of the bellows and reduce the service life. After assembly, carry out the sealing performance test and make relevant records.

The user can choose the appropriate size to replace the valve packing gasket bolt and nut. However, it is forbidden to open the bonnet or gland to replace them when the valve is under pressure.

After replacement, it should be used after passing the pressure test.

The user can repair the sealing surface of the valve by himself, but the sealing should be ensured and used after passing the pressure test. Valve internals are generally recommended to be replaced, not repaired.



The pressure-bearing parts of the valve are not recommended to be repaired. If the pressure-bearing parts are found to be defective due to the long maintenance use time, which affects the safety, the user should replace the new valve in time.

#### 6.1 Valve faults and solutions

Faults

& Solutions

Fault conditions	Reason of fault caused	Solutions	
Stuck during operation	1. The packing is too tight 2. The thread of the stem nut is severely worn 3. There are between the valve stem nut, gland, pressure sleeve and the valve stem 4. The valve stem is bent	Loosen the gland nut properly     Replace the stem nut     Remove foreign objects     Correct or replace the valve stem	
Bellows leak	Incorrect welding between the two ends of the bellows and the sealing member or valve stem, incomplete penetration, stress crack defects, etc.     The bellows fail due to long-term use.	The welding seam at both ends of the bellows should be carried out according to the relevant welding regulations, and the welding quality inspection should be carried out after welding.      Replace the bellows	
Leakage at the connection between the valve body and the bonnet	Uneven tightening of connecting bolts     Damaged flange sealing surface     Cracked or failed gasket	Tighten the bolts evenly     Repair     Replace the gasket	
Leakage between sealing surfaces	The sealing surface has contaminants attached     The sealing surface is damaged     The sealing surface is worn out after long-term use	Remove dirt     Repair and maintenance     Repair and maintenance	If you have an questions,plea
Leakage at packing	The bellows is broken     The packing gland nut is loose     The number of packing turns is not enough	In an emergency, the packing gland can be tightened first, and the bellows can be replaced later     Tighten the packing gland nut     Increase the number of packing turns	feel free to contact with V After sales
Leakage due to body and bonnet damage	Water hammer damaged valve     Fatigue damage     Freeze crack	To be stable, avoid to stop pump suddenly and close the valve rapidly.     If it exceeds the service life and has early fatigue defects, it should be replaced.     Valves not used in winter should exclude water medium.	department, Tel:86-577-679

# Faults & Solutions

## Faults & Solutions

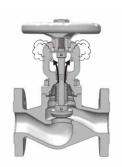
# 6.2 How to solve the problem that the valve is difficult to open for the first time?

The valve has passed the sealing test of 1.1 times from the nominal pressure when it leaves the factory. When it is opened for the first time, the end flanges on both sides of the valve should be fixed by the correct method (such as clamping with a tool or installing it on the pipeline), and be careful not to damage the flange sealing. At this time, the valve should be opened counterclockwise, and the action will be light and flexible after first opening.



# 6.2 Do not think that the product is leaking when steam is emitted from the packing for the first use.

When the bellows valve is subjected to a hydraulic test before leaving the factory, the loose packing will absorb water. After the product is installed on the pipeline and running, if the internal medium temperature is higher than 100 °C, the water vapor in the inner cavity of the bellows will be converted into steam and emerging from the packing. At this time, it is not the leakage of the product, just loosen the packing sleeve, let the water evaporate completely naturally, and then tighten it. Generally, after 5-10 minutes, there will be no steam coming out.





At this point, the tool can be used to lock the packing gland clockwise.

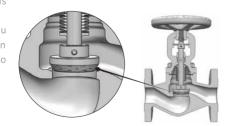
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# Faults & Solutions

## BELLOWS SEAL VALVE OPERATION INSTRUCTION

### 6.3 The valve cannot be closed tightly

When the valve cannot be closed tightly when operating, most likely due to the debris stuck on the sealing surface of the valve. At this time, do not use brute force to close, you can open the handwheel for half a turn, open and close it several times, use the medium to wash away the sundries on the sealing surface, and then close at a constant speed. (Notice: it is recommended that a strainer should be installed at the front end of the valve to keep the medium clean, reducing the damage to the sealing surface and prolong the service life).



Good Service Achieve Customer's Success , Exert All One's Energies Walk The Walk, Take Responsibility.

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