

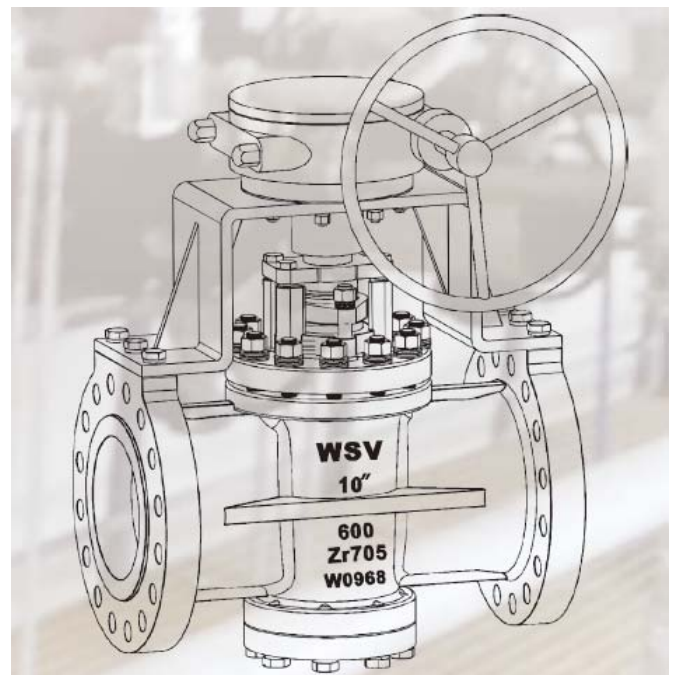


# PLUG VALVES

## INSTALLATION, OPERATION, MAINTENANCE MANUAL

### TABLE OF CONTENTS

1.0 Prior to Installation.....	Page 2
2.0 Installation.....	Page 3
3.0 Operation.....	Page 3
4.0. Maintenance.....	Page 3
5.0 Troubleshooting.....	Page 4



The manual provides customers with all information on Weidouli plug valves storage, installation, operation and maintenance.

- This manual being applied substantially, it is essential to take proper measure that comes from the experience and common idea the operator
- Such information as technical data on relevant dimensions, spare parts, part material, tools, fixtures are not covered in this manual. Details refer to each purchase order and Weidouli GA drawings.
- If have any additional doubt or questions please contact Weidouli office.

## 1.0 PRIOR TO INSTALLATION

---

### Transportation and Storage

#### 1.1 Transportation.

- a) The valve and the actuator can be integrated or separated to be placed in the plywood case(s) suitable for transportation. Each plywood case is marked with gross weight, net weight, case number and other related mark.
- b) While loading or unloading, check for and adhere to any markings or arrows on the box which may be present to indicate upward orientation.
- c) The user should select proper tools and lifting equipment to transport the goods to avoid damages to it after transported to the

warehouse or outdoor storage of the installation site.

#### 1.2 Storage

- a) **IMPORTANT:** End-cap protectors should always be left in place until the valve is actually being installed in the pipeline.
- b) Plug valves should be stored with protective end caps in place and be stored free from dust and humidity environment.
- c) Factory grease and end cap protectors should be adequate for storage up to six months if properly protected. Longer term storage should include a suitable inspection process and are suitably maintained in good condition.

## 2.0 INSTALLATION

---

2.1 **IMPORTANT:** the valve should be on the full-open position before valve installation.

2.2 Before installation, remove the end protectors and clean the valve ends and bore. Check that the valve and its accessories have not been damaged during transportation.

2.3 Before the installation, please check the instruction carefully and ensure conditions are consistent with the requirements of the valve using

2.4 The valve after the long term storage, should be cleaned and tested prior to installation make sure the valve is flexible, to ensure the reliability of

operation.

2.5 Before installing the valves, the pipes must be flushed clean of all debris, weld slag, dirt etc. to prevent damage to the seats and ball surface. Failure to do so may result in damage to the soft seat, metal seat and other parts during operation.

#### 2.6 Threaded ends plug valve installation

- a) Valve should be installed onto a suitable sized mating male threaded connection. Use the appropriate thread sealant compound to minimize the risk of galling.

b) Use correct size wrenches with flat jaws on the hexagon ends. DO NOT apply wrench to the body section or opposite side when making up pipe as this may result in damage to the body or breaking loose the threaded adapter to body connection.

### **2.7 Weld ends installation**

a) All welding operations must be done by a qualified welder and according to related ASME welding procedure.

b) Let valve in full open position while welding. Use tempil stick or other method to assure that the temperature in the seat and seal areas DO NOT exceed 250°F (120°C) during welding.

c) In case plug valves with short butt-weld ends, proceed with next steps

Dismount the valve body. Secure seats from falling with tape. Finish welding both end caps on the pipe.

### **3.0 OPERATION**

---

3.1 Prior to commissioning the valve, the pressure, temperature and material data sheet on the valve should be compared to the actual operating conditions in the piping system to check whether the valve can withstand the loads occurring in the system.

3.2 The valves must not be operated beyond the limits. The using temperature and pressure conditions of valve should not exceed the maximum limited temperature and pressure. Nonobservance of this warning may lead to personal injury or property damage.

3.3 When the valve is used in the pipeline, it should be fully open or fully closed, to avoid it

d) Clean all weld slag from bore before close valve. Failure to do so may result in damage to the soft seats.

### **2.8 Flanged ends installation**

a) Use correct size counter flanges, gaskets and fasteners, these parts should be suitable for the operating conditions.

b) Tighten all bolts to finger tight. Before flushing valve should remain in fully open position.

### **2.9 Big size valves lift**

Select proper tools and lifting equipment to transport the goods. To hoist the valve, the actuator should not be the pick-up point. It can be carried through the lifting plate specially designed on the valve. It should be noted to avoid knocks

is in the semi-closed or half-open state for long term and cause sealing ring cold flow changed.

3.4 Valves should be opened and closed slowly to avoid hammering effect on the valve.

3.5 Handling a valve requires skilled and experienced personnel. Operator's errors concerning the valve may have serious consequences for the entire plant, such as fluid escape, downtime of the plant.

3.6 The counter flanges connection and gasket should be checked for tightness after pressure rise at the valves. In case of leakage at the gasket, the connection should be tightened

crosswise evenly and in clockwise direction.

### 3.7 Once proper installation has been **MAINTENANCE**

---

4.11 Before the disassembly operation, it's necessary to make sure the pressure of pipeline sections in the upper and lower reaches of the plug valve has been relieved.

4.12 It's necessary to be careful not to damage the sealing surface of parts during disassembly and reassembly.

4.13 The bolts on the flange must be screwed down in a symmetric, successive and uniform manner during the assembly.

4.14 The cleaning agent should be compatible with rubber, plastic and metal parts of plug valve as well as the working medium (such as gas). When the working medium is gas, the gas can be used to clean the metal parts. The non-metal parts can be cleaned with pure water or alcohol.

4.15 The single disassembled part can be cleaned in a way of immersion cleaning. Those metal parts integrated with non-metal parts can be wiped with clean and fine silk cloth (to avoid the fiber from falling and being attached on parts) dipped with cleaning agent. Before cleaning, it's necessary to remove all grease, filth, adhesive deposit, dust and the like sticking on the wall surface.

successfully completed, gradually increase system pressure until working pressure is reached.

4.16 The non-metal parts should be taken out of the cleaning agent immediately after the cleaning but not be soaked in it for long.

4.17 After cleaning, it's necessary to wait until the cleaning agent on the cleaned wall surface volatilizes (use the silk cloth not dipped in the cleaning agent to wipe) before assembly. However, it should not be put aside for long; otherwise, it will go rusty and be polluted by dust.

4.18 New parts should also be cleaned before assembly.

4.19 Use the grease for lubrication. The grease should be compatible with all metal materials and rubber and plastic parts of the ball valve as well as the working medium. When the working medium is gas, the special grease can be used. Apply a thin film of grease onto the surface of the mounting groove of sealing elements, the rubber sealing elements and the sealing and friction surfaces of the stem.

4.20 During the assembly, no metal scraps, fibers, grease (except those stated), dust or any other impurities are allowed to pollute, adhere to or stay on the part surfaces or enter into the inner chamber

### 4.3 Off-line Maintenance---Replacing Seat, Gasket Ring and So on

It's very important to take the following measures to conduct any disassembly operations for the valve in the working state to ensure your safety.

#### 4.3.1 How to unload valve from pipeline

1) To unload a valve with an actuator, close the valve first and then separate auxiliary jackets, pneumatic or electric connecting wires and the like of all pipelines.

2) As for working when the medium still remains in the pipeline, the working clothes must be worn properly.

3) Relieve the pressure of all pipelines, empty the fluid medium in the system, and open and close the valve for many times to exhaust any remaining pressure.

4) Keep the valve full-open to disassemble and place it on the platform.

#### Caution!

**The valve should not be disassembled in a closed state**

## 5.0 TROUBLESHOOTING

Faults	Probable cause	Solution
Internal and external leakage	overpressure and temperature	Keep attention on maximum allowed operating pressure and temperature.
	demands and requirements by aggressive medium	Use applicability material for related service.
Seat leakage	Impurities in medium damage seat	Disassemble, clean and replace seat with a new one.
	No proper measures are taken for valve with welding ends, thus resulting in damages to seat	Weld butt welding ends in accordance with the operating manual.
	Too high medium temperature causes damages to seat	Check applicability of seat material and medium temperature
	Closing position of actuator is improper	Adjust limit screw of actuator
	Flange end face of valve is unparallel with that of pipeline.	Correct position between flanges until they are parallel.
	Fluid viscosity is too high	Check designed applicability of material;
	Air supply of pneumatic valve is under-pressure	Supplement pressure of air supply to normal value;
If have	Damages are caused during transportation.	Replace damaged part and make a record;