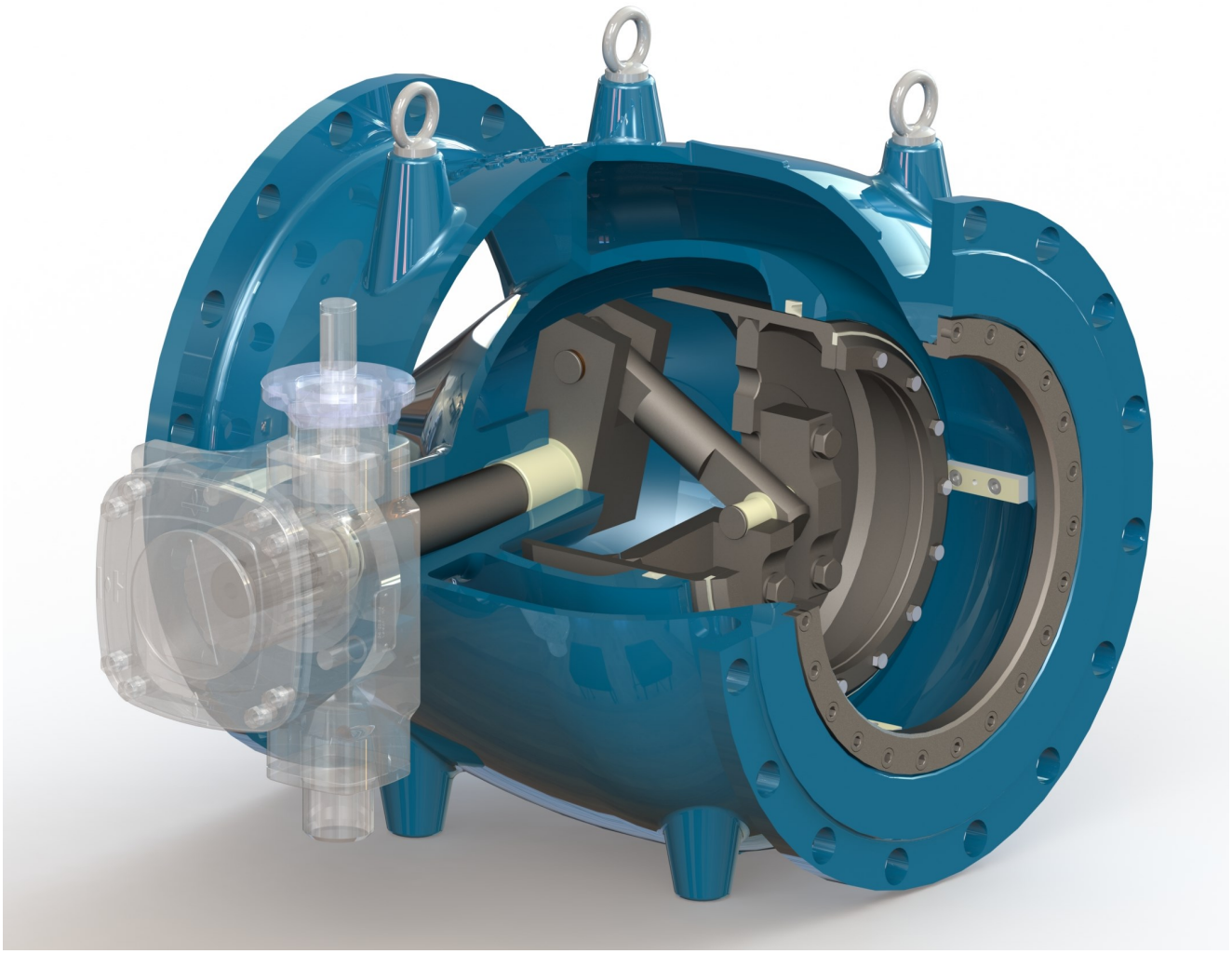
PLUNGER FLOW CONTROL VALVE
F500 / F550 / F560

MANUAL OF INSTRUCTIONS FOR USE AND MAINTENANCE



INDEX

1. WARRANTY

All T.I.S. Nuoval valves, before being sent to the customer, are subjected to appropriate tests according to standard EN1074-5 into force on the control valves, designed to drinking water supply. The company La T.I.S. Nuoval warrants its products for a period of 24 months. The start date of the period of coverage will be the date of purchase/delivery. Any defects/faults of the product should be reported within eight days of purchase/delivery.

Warranty will not apply to damages:

- At valves equipped with accessories not authorized by T.I.S. Nuoval.
- by misuse, accident or other casualty, negligence, overloading.
- due to lack of regular maintenance service.
- for any non-genuine spare part equipped.
- for any unauthorized modification.
- caused by wear.

2. GENERAL INSTRUCTIONS

2.1 SAFETY INSTRUCTIONS

These operating and maintenance instructions must be observed at all times.
The user must not change or modify this product or the mounting parts/fittings supplied with it. T.I.S. Nuoval doesn't assume any warranty or liability for consequential damage arising from the non-compliance with these instructions.
T.I.S. Nuoval valves are manufactured and designed in accordance with international design and engineering standards.

All valves can be a source of danger if used improperly or for purposes other than those for which they were designed.

The valves must only be installed by qualified staff, therefore installation must not be carried out by untrained personal.

Before removing any protection device and/or beginning to work on the valves, the concerned pipeline section has to be isolated. Any unauthorized, mistaken or sudden operation of the valve must be prevented; care should also be taken to ensure any stored energy is removed.

If the valve at the end of a pressurized pipeline has to be opened, it has to be done in such a way that the emerging fluid doesn't cause any injury or damage; So every time you will have to operate the valve or the pipeline must be observed the respective laws and directive for accident prevention, health and safety.

If the valve has to be dismantled, some fluid may leak out from the valve or from the pipe, so make sure that the conduct was completely emptied before the dismantling.

2.2 PRODUCT, FUNCTION DESCRIPTION AND FIELD OF APPLICATION

Plunger valves are designed to fulfill regulating functions in the water supply and, unlike the gate or butterfly valves that function only for opening and closing, they meet the special requirements of regulating operations.

Valve can be used only with water and raw water, so most of the internal components in contact with water are made of stainless steel.
All sealing parts of the cylinder, of the shaft and of the other seats guarantee good corrosion protection and high performance. If the valve will be operated under deviant conditions and/or in other fields of application, the manufacturer MUST be consulted.

2.3 MARKING

According to UNI EN 19:2002 every valve is marked with:

Seagull / T.I.S Nuoval	Manufacturer Marks
DN	Nominal Diameter of the valve
PN	Nominal Pressure of the valve
GJS-400-15 / GJS-500-7	Body material according to EN 1503-3
FXX.XX.X.X.XX.X.X	Internal product identification code
AAMMGG	Data production batch: Year/month/day
→	Arrow to denote the outflow valve
S.N.: XX/0XXXX	Serial number

Label identifying the product T.I.S. Nuoval.

Code should report in assistance.

3. STORAGE & TRANSPORTATION

3.1 STORAGE

The valves can be kept referring to the horizzontal axis of the tube or in vertical position. The direct valves exposure to heat can damage the protective coating. The relevant components to the proper functioning of the valve must be protected against dust and other dirt from adequate coverage.

3.2 LIFTING

It's preferable that the lifting equipment such as ropes and belts should only be connected to the body or to the appropriate lifting devices present on the valve, should not be, for any reason, connected to the actuator or gear. Check the weight chart (Par. 3.4) before you pick up any item.

3.3 TRANSPORT

To move the valve to the installation site, it must be kept stable and packing into appropriate size. It's important, that, during transport, the valve is always in constant contact with the base of the packing box to ensure that the protection of the coating is not damaged for the contact of the parties against the walls of the container used to transport or directly the walls of the transport.

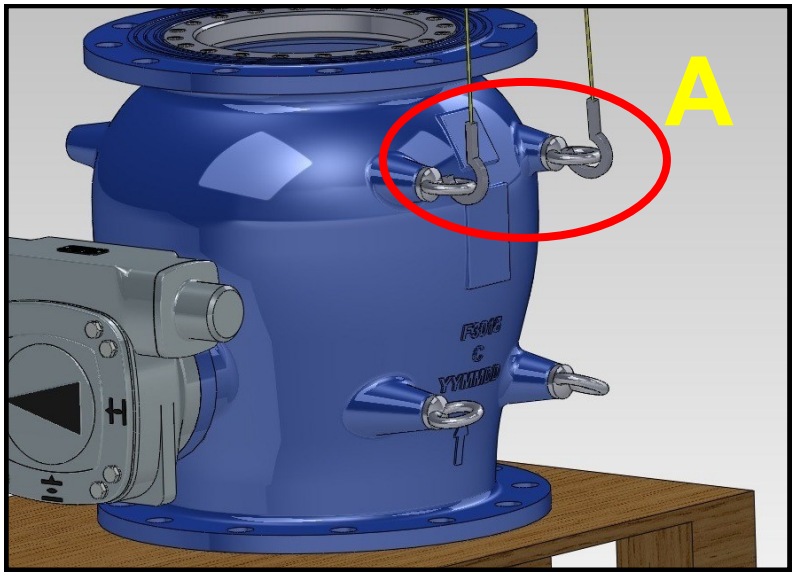
3.4 WEIGHT CHART FOR LIFTING

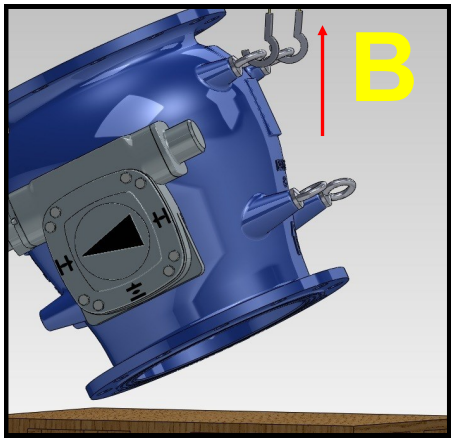
WEIGHT CHART		
	DN	Weight [kg]
F560	80	55
	100	65
	125	67
F500	150	105
	200	170
	250	220
	300	310
	350	355
	400	480
	450	535
	500	630
	600	860
	700	1300
	800	1680
	900	2250
	1000	2950
	1200	3820
	1400	5285
F550	1600	11100
	1800	14700

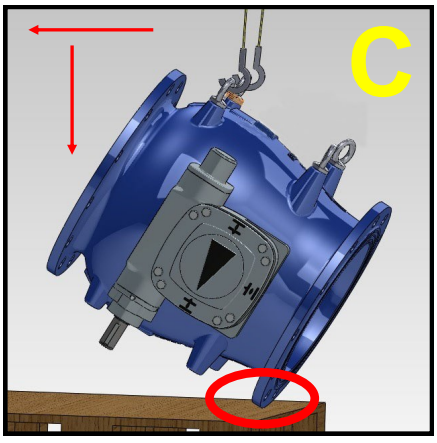
Below, in alphabetical order, shows the recommended way to bring the valve to the vertical on the horizontal position, preventing the protective coating, or flanges, are ruined.

A) CATCH THE VALVE TO THE TWO EYEBOLTS;
B) RAISE SLOWLY THE VALVE;
C) PLACE THE FLANGE VALVE ON PIECE OF WOOD, IN WAY TO NOT RUIN THE COATING OF THE FLANGE THEN PUT THE VALVE SLOWLY ON ALL ITS LEGS.

The valve is now ready to be hooked to all the eyebolts and raised for mounting on the pipe.







4. INSTALLATION

4.1 RECOMMENDATIONS

!!!WARNING!!!

The installation of the valve is forbidden for not qualified staff.

Before installing the valve verify that the pipes are clean and free of any residues. If the liquid contains foreign bodies (sand, stones, etc.), verify that a suitable filter is fitted and located up-stream of the valve. It needs to be ensured that the space left between the flanges of the pipes is large enough to prevent damage of the coating during the valve installation.
Make sure that the valve is in opened position when lifted up or down.
From open to closed position, valve stroke is 60°.

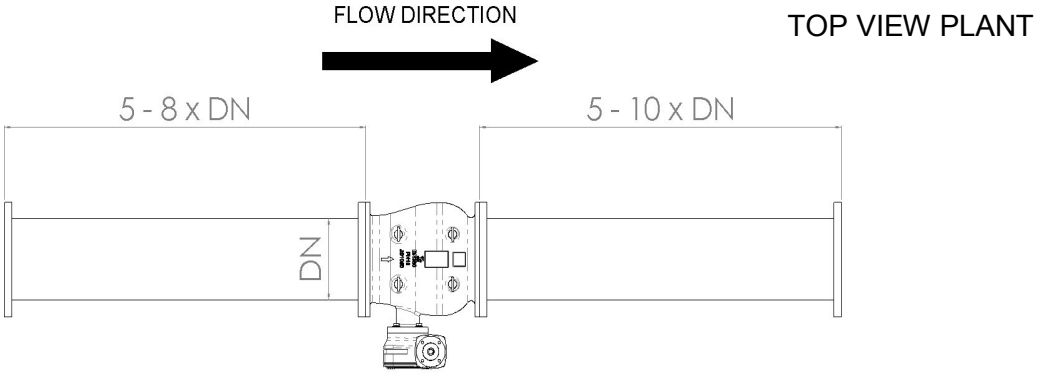
CLOSED POSITION

OPEN POSITION

Verify that, during the installation on the pipe, in particular, in absence of specific dismantling joints, during tightening of the bolts, to avoid creating tensions likely to prejudice/deform the flanges of the body valve. It's important that the two bottom of the pipe where the valve will mounted, still be perfectly aligned with each other.

4.2 INSTALLATION POSITION

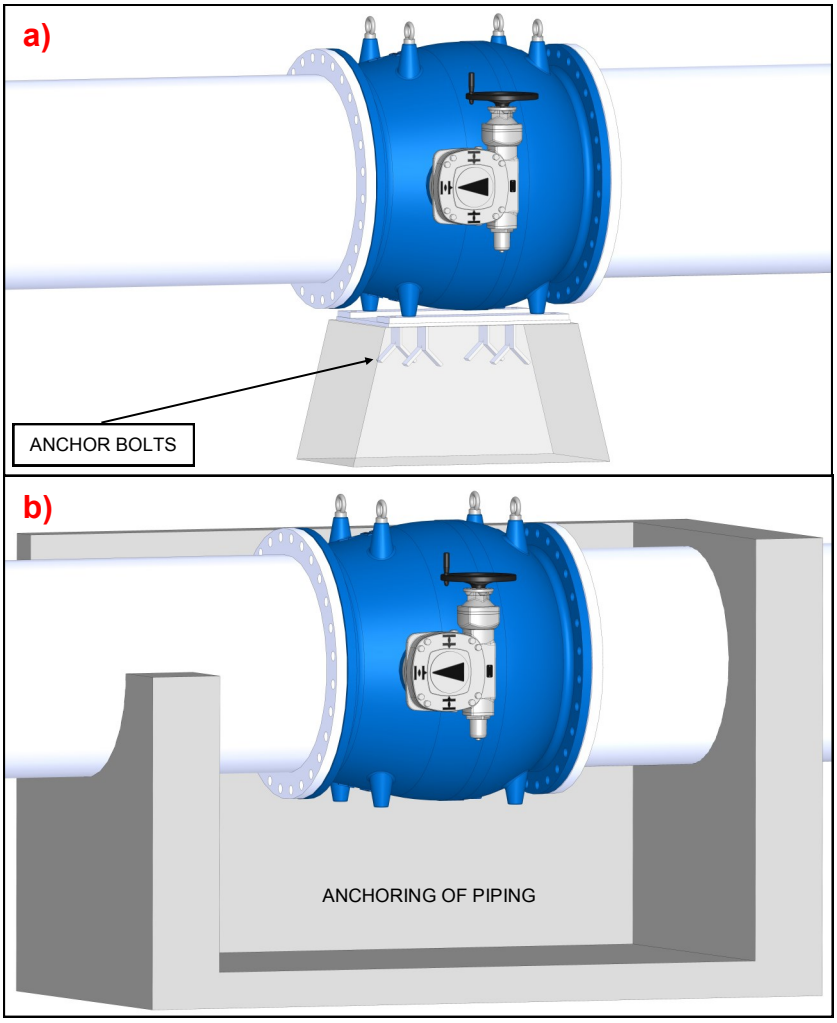
The valve can be installed in both horizontal and vertical position. Make sure that the direction of the fluid is in agreement with the direction of the arrow on the valve.



Before installation, it is important to ensure that in the conduct there are no waste materials, stones or other objects that could compromise the proper functioning of the product. So should conduct an appropriate cleaning with fluid at a rate of v> 1.5 m/s.

4.3 INSTALLATION PLACE

Make sure that the valve is correctly positioned on the system, the arrow on the valve body shall be according to the flow direction.
The valve should be installed in a properly designed room with adequate space for installation and maintenance of the valve.
The same room, if buried, will be accompanied by drainage to prevent flooding. For installation, however, open the valve must be protected from the elements, such as the formation of ice. In any case must be studied an appropriate thermic insulation.
Valves need to be properly supported on their installation site because they are subject to significant loads of different nature. These loads shall be discharged to the ground by using a proper support system.
The most common supporting systems are:



a) using as anchoring the four feet of the valve or by means of the plate (not included) fitted with anchor bolts, which allows an appropriate locking in concrete;
b) anchoring of piping upstream and downstream in a concrete casting.

Several factors shall be taken into account in the choice of the proper supporting system.
The most common factors are the type of pipes (steel pipe, plastic pipe, etc.) and their conditions (new pipes, old pipes) as well as some installation factors like e.g. the presence of dismantling joints: typically they are not able to support any significant axial thrust.
T.I.S. Nuoval as valve manufacturer, leave the choice of the supporting systems and its sizing to the system engineer. We can just provide the loads that are acting on the valve.
The plunger valve can be anchored to the ground by either (a) the four legs provided on each side of the valve or (b) by the inlet and the outlet pipes. Note that the opposite is not valid i.e. the valve shall not be used to support inlet and outlet pipes which shall therefore be provided by a dedicated supporting system. Furthermore, if the solution b) is used (the valve is supported by the pipeline), the anchoring of the pipeline shall designed so that the pipes will not produce any significant bending or torsion moment on the valve.

4.4 INSTALLATION IN VERTICAL POSITION

Normally the valve is installed in horizontal position (standard position).

The valve can be installed also in vertical position, without any particular problem. In this case, contact the T.I.S NUOVAL technical office in order to provide a correct position of the gearbox and the actuator.

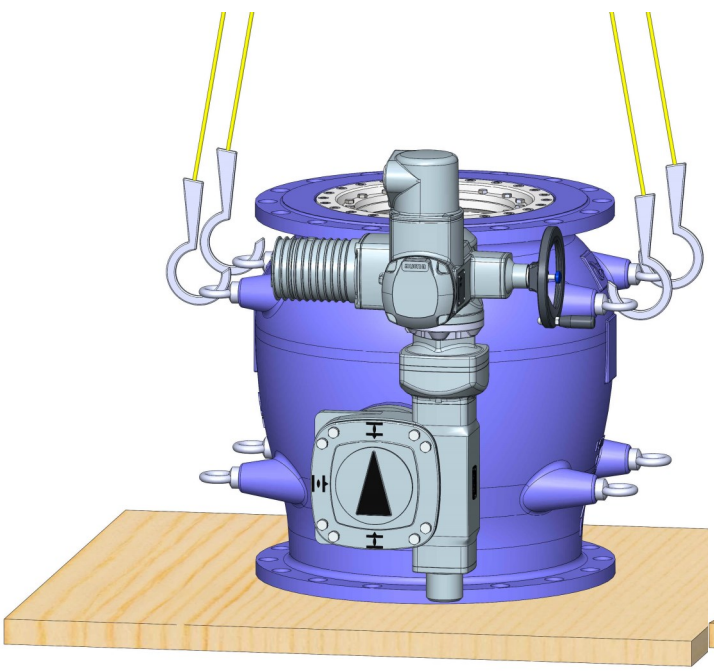
Below, shows the recommended way to bring the valve in vertical position:

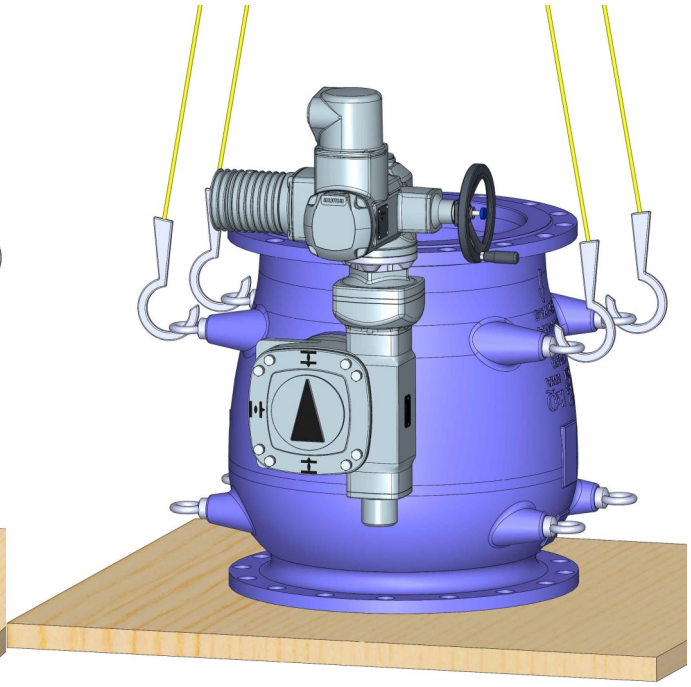
A) Hook the valve to the 4 superior eyebolts and raise slowly the valve;

B) Place the flange valve on piece of wood, in way to not ruin the coating of the flange.

In case of installation in vertical position, gearbox and actuator are generally mounted in vertical position too, so the operator can properly check the position of the plunger (See the pictures below).

The valve is now ready to be hooked to the eyebolts and raised for mounting on the pipe.

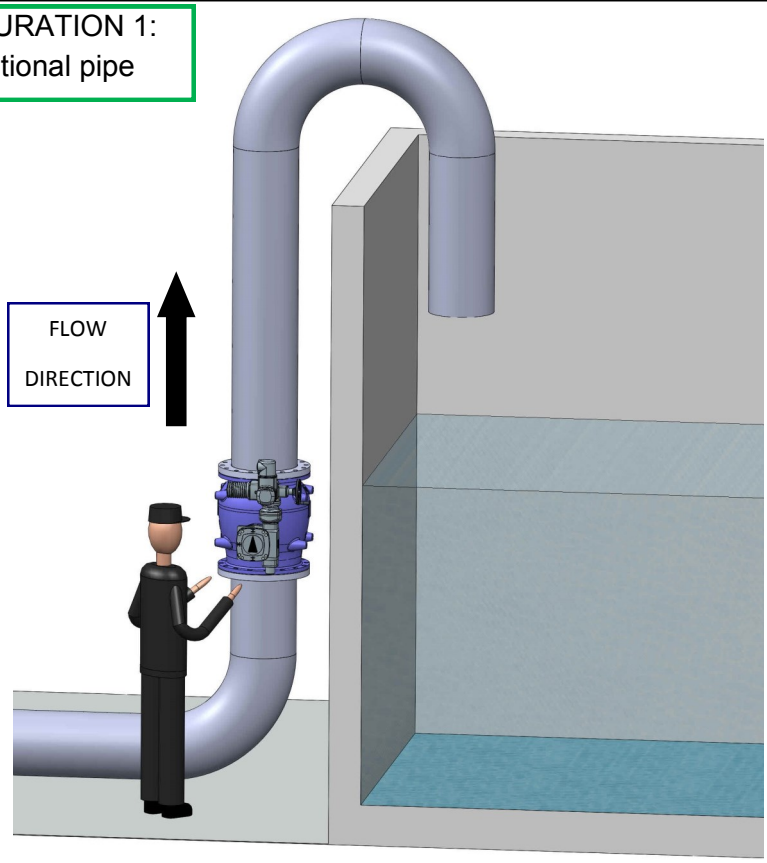




EXAMPLES OF INSTALLATION IN VERTICAL POSITION

Make sure that the direction of the fluid is in agreement with the direction of the arrow on the valve.

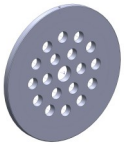
CONFIGURATION 1:
With additional pipe



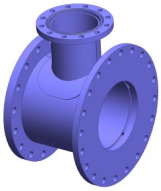
Possible additional devices*:

DISSIPATING CYLINDER

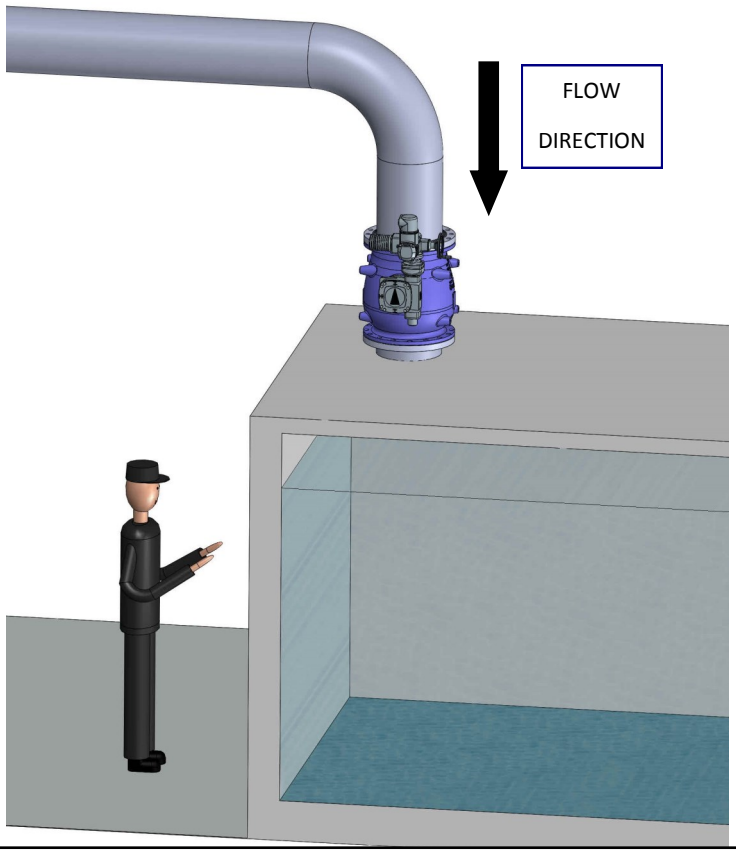
DISSIPATING PLATE



VENTING DEVICE



CONFIGURATION 2:
Free discharge



*: For more details see the Technical Data Sheet of Plunger Valve.

5. BEFORE COMMISSIONING

Before the start-up of the valve, all functional parts must be subjected to visual inspection. All screwed connections need to be checked as to whether they are tightly fastened.
Before putting a new installation into operation and especially after preparation works, open the valves completely and purge the pipeline system. When using cleaning or disinfecting agents, take care that these do not attack the materials of the valve.

The valves are designed to be operated by hand wheel/actuator. The aperture is limited by a limit switch in the outside gearbox. Avoid excessive loads on all the internal parts operating manuals.

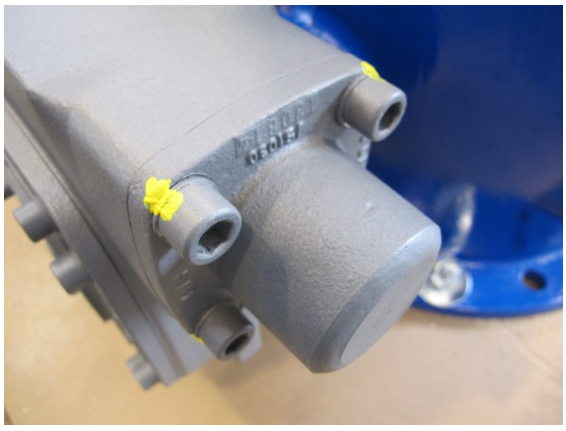
Is recommended before installing the valve, to make a generic test on the movement of opening and closing to verify that all parties play their role properly.

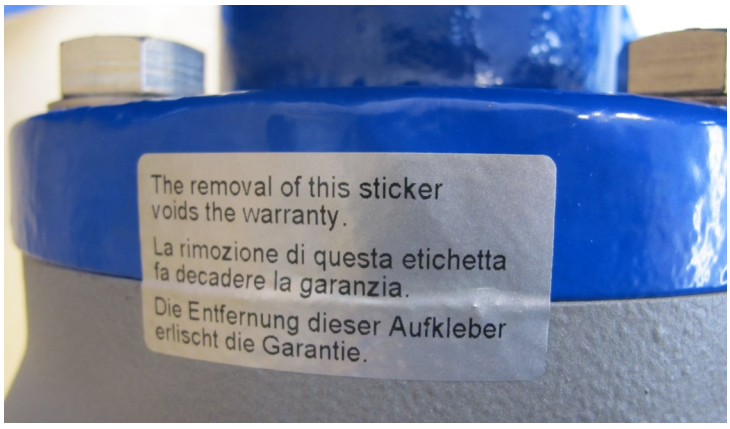
6. MAINTENANCE

Thanks to its design, the T.I.S. Nuoval valve doesn't require special maintenance. When installation is done and before starting, check that no parts are damaged, and provide where necessary, adjustments to the paint to prevent corrosion. It's recommended once every 24 months to make a closing/opening, to verify proper electrical and mechanical operation of the valve, and a visual inspection to verify proper isolation of the flange of the actuator.

Unplanned maintenance on the internal organs, requiring removal of the valve axis behavior.

The T.I.S. Nuoval plunger valve is an extremely reliable product. However, if you have any problems or other malfunctions, it's INADVISABLE DISASSEMBLE IT; contact T.I.S. Nuoval technical department to agree on actions to be taken. To remove the valve, see Par 2.1. For extraordinary maintenance if there are gearbox and/or actuator, you should visit www.auma.com or contact the T.I.S. Nuoval technical department.





MARKINGS ON THE GEARBOX : If they are tampered with , the product warranty is not valid more.

7. TROUBLESHOOTING

Here are some problem and their possible causes:

The valve make noises:

⇒ *Installation position of the valve unfavourable;* the valve may have been installed close to other valves, elbows, tees or other equipment, which may cause irregular upstream flow and thus disturb the function of the control valve.

The valve can't be operated:

⇒ *Foreign particle in the seat* or between the slots of the basket sink;
⇒ *Blocked Gearbox;*
⇒ *Electric actuator not connected to power supply.*

Leaks in the body seat:

⇒ *Valve not completely closed;*
⇒ *valve sealing Damaged or worn;*
⇒ *Foreign particle in the seat* or between the slots of the basket sink.

Troubleshooting not covered in this manual, contact the technical department of T.I.S. NUOVAL.

8. DISPOSAL AND RECYCLING

Although T.I.S. Nuoval valves are designed and constructed to ensure extremely long life, at the end of their lives will require their removal or replacement.

Must have to disassemble, separate and divide the various parties on the basis of the materials that compose them:

⇒ various metals;

⇒ plastic components.

If there is gearbox, it's advisable, during dismantlig, to collect the oil or grease, because they are pollutants liquids and they shouldn't be released into the environment.

MAKE SURE THAT YOU ALWAYS RESPECT THE RULES FOR THE PROPER COLLECTION AND WASTE DISPOSAL OF MATERIALS DISASSEMBLED AND/OR THE MATERIALS RECYCLING.
Carefully observe all phases of the national standards for the waste disposal and recycling.

T.I.S Service S.P.A

Via Lago d'Iseo 4,6

24060 BOLGARE (BG) - ITALY

Tel. +*39* 0461 753842 Fax. +*39* 0461 759220

E-mail: **nuoval@nuoval.com**