

INSTALLATION AND MAINTENANCE INSTRUCTIONS HIGH PURITY BALL VALVES M3HP TRUE BORE

GENERAL

- These instructions must be carefully read before any work involving products supplied by VALSTEAM ADCA ENGINEERING S.A. is undertaken.
- The installation procedure is a critical stage in a life of a valve and care should be taken to avoid damage to the valve or equipment.
- They give their maximum performance only when the equipment associated with them is correctly sized and installed in accordance with our recommendations.
- M3HP three pieces body ball valves are isolating valves designed for use on clean steam, condensate and other gases and liquids used in high purity and aseptic processes. The valve is not designed as a control valve and should be used only as an isolating valve, fully open or fully closed.
- The product was mainly designed for the pharmaceutical, biotech, semiconductor, cosmetics, fine chemical, food and beverage industries.

Note:

- Current regional safety regulations should be take in to account and followed, while doing the installation and maintenance work.
- Handling, installation and maintenance work must be carried out by trained personnel. A supervisor must follow and check all activities.
- For the problems that cannot be solve with the help of this instructions, please contact the supplier or the manufacturer.
- The manufacturer reserves the right to change the design and material of this product without notice.

CE Marking: This product has been designed for use on water, clean steam and other liquids or gases which are in Group 1 and 2 of the PED-European Pressure Equipment Directive 97/23/EC and it complies with those requirements.

CE MARKING (PED - European Directive 97/23/EC)		
PN 100	PN 64	Category
DN 1/2" to 1"	/	SEP - art. 3, paragraph3
/	DN 1 1/2" -2"	1 (CE Marked)



ATTENTION

- If malfunction of any other equipment or system operation failure may result in a dangerous overpressure, over temperature or even vacuum condition, a safety device must be included in the system to prevent such situations.
- At start up, the presence of small particles in the fluid (dirt, scale, weld splatters, etc) may cause an imperfect closure of the seat. If this occurs, proceed to an accurate cleaning.
- Do not touch the equipment without appropriate protection during working operation because it may conduct heat if the used fluid is at high temperature.
- Before starting maintenance be sure that the equipment is not pressurized or hot.

- The equipments must be used within the working temperature and pressure limits laid down for them, otherwise they may fail (refer to nameplate and/or IS- Information Sheet).
- Manual handling of products may present a risk of injury. You are advised to assess the risks taking into account the task, the individual, the load and the working environment.
- Special care should be taken when harmful fluids (toxic, contaminant, corrosive, etc.) have flowed through the valve. Recommended PPE (Personal Protective Equipments) should be use.
- Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine ADCA replacement parts.
- Do not remove the marking in the equipment. Serial number and other useful information is there.
- Do not apply the valve for oxygen service, if it hasn't been specifically manufacture for that purpose.
- During the assembly work, apply protective measures against dirt and all kinds of contamination.
- The equipment should be carefully handled, to prevent any damage in its surfaces.
- Correct installation of the equipment is full responsibility of the contractor
- Valves are designed to be applied in places protected from exposure to weather.

CLEANING AND PACKING

- This equipment is packed by a proper machine with a special film used by food industry.
- These equipments are degreased and cleaned ultrasonically.
- For oxygen application a special cleaning process is applied.

TRANSPORT AND STORAGE



ATTENTION

- Handling and lifting of materials should be made with adequate equipments.
- The valves and equipments should be protected from impacts and forces during transportation and storage.
- We advice that all the protective packing in the valves, is kept during storage to avoid damage and contamination. The environment should be as clean and dry as possible.
- The valve should be in fully open or closed position to prevent the ball edges to cause damage to the seats.
- The manufacturer doesn't assume the responsibility of damaged equipments due to inappropriate handling during the transportation and storage.

INSTALLATION



ATTENTION

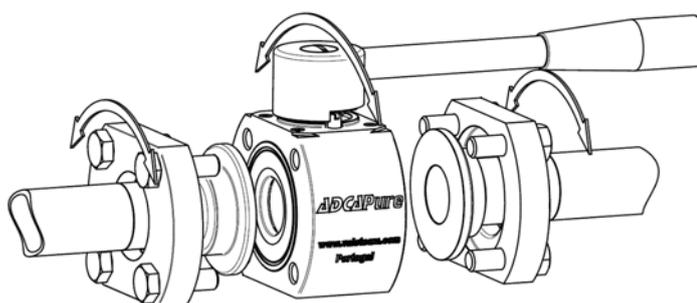
- Account for over pressure conditions, according with the local laws or standards.
- Valve mountings such as actuators, handwheels, hoods must not be used with other purpose than the one they were built for (e.g. climbing aids or as connecting points for lifting gear)
- For the problems that cannot be solve with the help of this instructions, please contact the supplier or the manufacturer.

Installation area requirements:

- The installation area should have easy access and provide enough space for maintenance and removing operations.

Procedure:

- Prior to install check that the product is suitable for the intended application: materials and pressure/temperature ratings.
- Before installing remove plastic covers placed on flanges or connection ends.
- Take care with jointing material to ensure that none may be permitted to block or enter the valve.
- External stresses that may be induced by the system due to pipe expansion, etc, can affect this product. The necessary precautions are recommended during the systems design and equipment assembly.
- The valve pipework should be properly supported and free from strain and it should not be subjected to undue surges of pressure.
- This valves can be installed in any direction and way.
- In case of clamps connections do not over-tighten them because that can damage the gasket.
- The M3HP with tube weld connections don't need to be disassembled prior to welding procedure, nevertheless sometimes disassemble it can became more practical for the welder due to weight, especially in bigger valves. In those cases follow these steps:
 1. Remove the bolts to separate the valve body from the body connectors;
 2. Carefully remove the body seals and put them on a clean surface along with the body;
 3. Prepare the surfaces to be welded;
 4. Fit the connectors with the flange into the pipe and proceed with the welding according to the applicable standards and good practices. Note that the flanges don't need to be align since they can rotate freely to meet any required valve body position;
 5. Let the welding surfaces cold down and clean them to remove weld slag and other particles that can cause seal and seat damage during startup;
 6. Pick up the valve body, turn the ball into the closing position to prevent any seat damage during the assembly and install the body seals;
 7. Assemble the valve body into the welded connectors by putting the flange bolts in place and tighten them evenly in a diagonal pattern. Before the final tightening, align the valve by rotating the complete set into the desired position;



NOTE: When welding the valve completely assembled, the welder must guaranty that the valve is fully closed, otherwise unevenly seats deformation may occur during the heat transmission. Apart from being welded assembled or disassembled, a pipe flushing may be necessary to assure a proper cleaning of the system.

START UP



ATTENTION

- Current regional safety regulations should be taken into account and followed.
- Protective insulation and warning notice may be required.
- Until the start up of an existing or a new plant, the following must be checked:
 - All works are completed;
 - The valve is correctly installed;
 - All the necessary safety devices have been installed;
- **At start up, the presence of small particles in the fluid may cause an imperfect closure of the seat. If this occurs, proceed to an accurate cleaning.**

Procedure:

1. Stop valve should be closed.
2. Turn the lever slowly to open the stop valve and prevent hammering effects or sudden pressure increase on downstream equipments and pipeline. M3HP ball valves are 1/4 turn open/close valves. When the lever is in line with the pipeline the valve is open, when it is perpendicular it's closed.
3. The valve is ready.

Periodical checking:

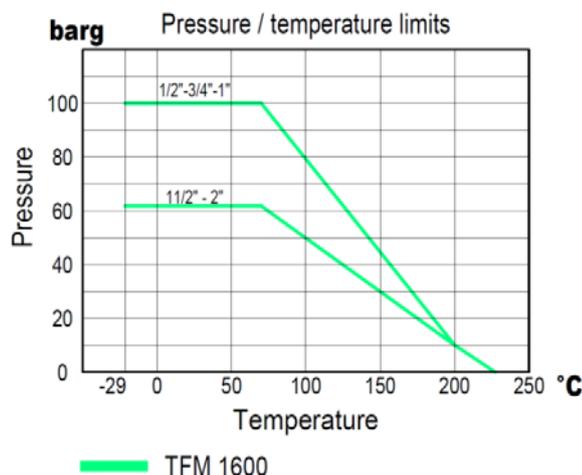
- 24 hours after the start up, it is recommended to check pipe connections for leaks and retighten the connections if necessary.

MAINTENANCE

- We recommend the ball valves to be serviced as necessary. Ball valves should be checked periodically (at least yearly), to verify if they are operating correctly, if they have any leakages and to clean the internal parts if necessary.
- When reassembling make sure that all gasket faces are clean and use a new gasket if required.
- Lubrication must be avoided for oxygen service. When it's necessary, only the lubricants recommended by the manufacture should be used.
- During maintenance operations care should be taken to avoid any scratches or damage in the ball surfaces, seals and seats. Leakage and other malfunctions may result from that.
- Maintenance should proceed as follows:

Disassembling the valve for seats, body seals or ball replacement:

1. Unscrew all the bolts (17) from the body;
2. Take out the valve body with the ball (6) in the open position;
3. Put the ball in the close position;
4. Carefully remove the body seals (9) and seats (7,8) without damaging their surfaces. **Caution to prevent the ball to fall off;**
5. Carefully remove the ball (6) from the valve body without damaging the surfaces;
6. Inspect the body seals, seats and ball for any damages and replace for new parts if necessary;



Working pressure may be limited by the valve connections.

TROUBLESHOOTING



ATTENTION

- If the malfunctions cannot be solved with the help of the following chart, please consult the manufacture.

TRUBLE SHOOTING CHART

FAULT	POSSIBLE REASON	SOLUTION
Leakage at body joints	Untighten fixing bolts Damaged body seals	Retighten the fixing bolts (17). If the problem remains, disassemble the valve body and change the body seals (9).
Stem leakage	Loosen spring washers Damaged stem seals	Remove the lever (12,13), the lock washer (16) and inspect. If the spring washers (14) are in good conditions but loosen, retighten the compression nut (15); if the spring washers are damaged remove the compression nut and replace the spring washers. If the leakage remains disassemble the stem assembly, check if the stem seals (10) are damaged and replace if necessary.
Leakage through the valve	Damaged seats Damaged ball surfaces	Check, with the valve closed, if there's flow at the valve outlet. If yes, than disassemble the valve body and check for damages in the seats and ball surfaces. Replace for new ones if necessary.

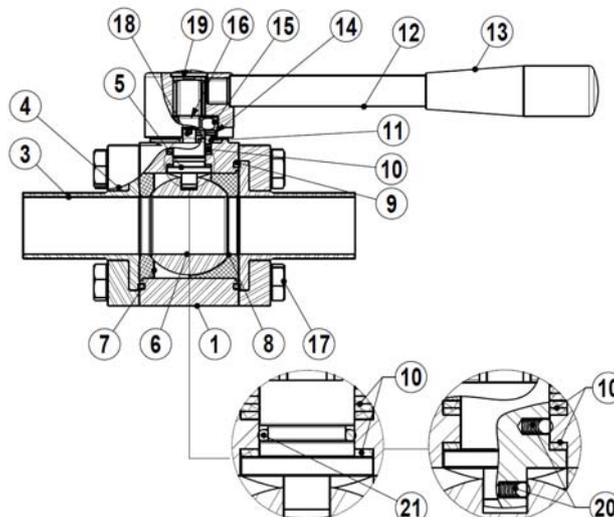
SPARE PARTS

MATERIALS		
POS.	DESIGNATION	MATERIAL
1	Valve body	AISI316L / 1.4404
2	TC end connection	AISI316L / 1.4404
3	Tube weld end conn.	AISI316L / 1.4404
4	Flange	AISI316L / 1.4404
5	Stem	AISI316L / 1.4404
6	* Valve ball	AISI316L / 1.4404
7	* Standard seat	TFM 1600
8	* Cavity filler seat	TFM 1600
9	* Body seal	PTFE
10	* Stem seals	TFM 1600
11	* Spacer	AISI316 / 1.4401
12	Lever	AISI304 / 1.4301
13	Lever end	AISI304 / 1.4301
14	* Spring washers	AISI304 / 1.4301
15	Compression nut	AISI304 / 1.4301
16	* Lock washers	AISI304 / 1.4301
17	Fixing bolt	AISI304 / 1.4301
18	Stop pin	AISI304 / 1.4301
19	Fixing screw	AISI304 / 1.4301
20	Antistatic device	AISI316 / 1.4401
21	O-ring	VITON

* Available spare parts. ** On request

Remarks: FDA/USP Class VI seals certificate on request

All valves have a serial number. In case of non-standard valves this number must be supplied if spare parts are ordered.


PRODUCTS RETURNING


ATTENTION

- Information regarding any hazards and precautions to be considered because of contaminating fluids and residues or mechanical damage that may represent a health, safety or environmental risk, must be provided in writing by the distributors and costumers when returning products to Valsteam ADCA engineering.
- Health and safety data sheets regarding substances identified as hazardous or potentially hazardous must be provided with the information mention above.



ATTENTION

- **LOSS OF GUARANTEE:** Total or partial disregard of above instructions involves loss of any right to guarantee.