

I11.5 ANTARES Manual

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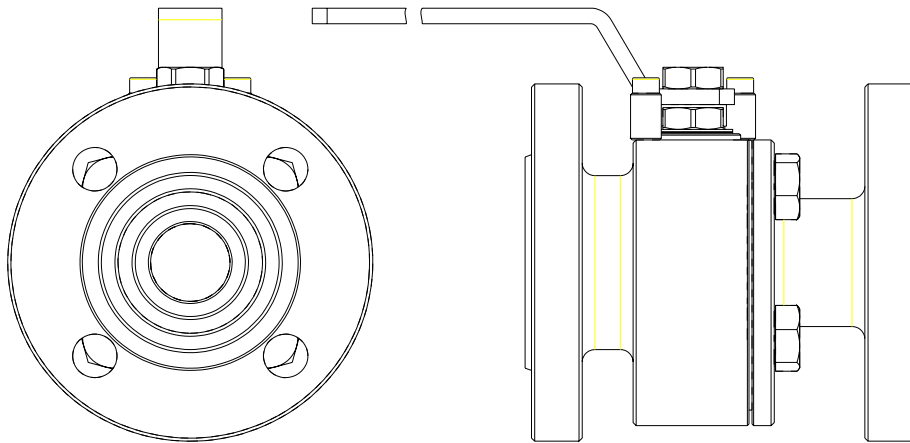
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LIST OF ANNEXES/DOCUMENTATION FILING

	Document	Resp. / Filing Time / Medium type

"ANTARES" full bore ball valves

"INSTALLATION AND MAINTENANCE MANUAL"



Contents:

- 1 - Application
- 2 - General information
- 3 - Instructions before installation/maintenance
- 4 - Installation
- 5 - Maintenance
- 6 - Guarantee

1 - APPLICATION

- 1.1 – Long life and best results are obtained with BINOX ball valves if the normal operating conditions suggested and the basic installation and maintenance conditions of the process lines are observed. Bear in mind that the best valve seal is obtained only if the ball lapped surface and the seat made of soft material are perfectly coupled. Dirt, slag, sand etc. generate adhesion, abrasion, scoring phenomena that damage the sealing surfaces with consequent leaks from the seats. For this reason it is very important that during installation and maintenance works fluids, lines and tools are perfectly clean and any foreign material is removed from the plant before it is started up.
- 1.2 – All BINOX ball valves are controlled, tested and certified, upon request, according to the project data and customer's needs.
- 1.3 – The use of these valves under pressures/temperatures other than those required by the instructions, non-conforming installation and other causes may damage objects and/or persons (see also the "Instructions for the user" supplied with the valve):

BINOX sas BEARS NON RESPONSIBILITY FOR DAMAGES CAUSED BY IMPROPER USE OF THE PRODUCT.

- 1.4 – Limitations of use; please note that the max. rated pressure is 20°C.

Tmin °C	Tmax °C	Max flange	Material	Notes
-20	+180	Up to PN40, ANSI 150	AISI 316, AISI 304, ASTM A350 LF2	
-10	+180	Up to PN40, ANSI 150	ASTM A105	

Table 1

2 – GENERAL INFORMATION

- 2.1 – The BINOX ball valves are always to be installed with the ball in open position.
- 2.2 – As for the manual valves the handle position indicates the current valve position (open/closed):
- 2.2.1 - OPEN : the handle is aligned with the valve and the pipe.
 - 2.2.2 - CLOSED : the handle crosses the pipe.
- 2.3 – As for the pneumatic motor-driven valves the open/closed position is determined by the direction of the notch on the stem protrusion or by the indicators of the fittings mounted.
- 2.4 – The valves are supplied with the ball slightly greased. Grease can be removed with a suitable solvent.
- 2.5 – The use with oxygen, hydrogen, chlorine or for food application must be specified when placing the order to be sure that the valves are supplied perfectly clean.
- 2.6 – The protection caps must be removed ONLY at valve installation.
- 2.7 – The valves are of bidirectional type and can be mounted on the pipe in any space direction, unless otherwise specified.
- 2.8 – Pipes are not to be subject to stress due to expansion and/or other phenomena.

3 – INSTRUCTIONS BEFORE INSTALLATION/MAINTENANCE

- 3.1 – Before carrying out any operation read thoroughly the instructions.
- 3.2 – If the packing glands or body-coupling connections are to be tightened, maintenance works can be carried out with the valve under pressure by using the normal protections suggested such as goggles, gloves etc., according to the type of fluid running through the plant.
- 3.3 – If a valve or parts of it are to be mounted/replaced, the pipe has NOT to be under pressure. In particular:
- 3.3.1 – make sure of the fluid nature, ascertaining if it is toxic, polluting, flammable etc.,
 - 3.3.2 – make sure that valve and pipe are not under pressure,

- 3.3.3 – use protection gloves, helmet and overalls,
- 3.3.4 – use goggles or protection visor,
- 3.3.5 – make sure that running water is available nearby as well as efficient extinguishers,
- 3.3.6 – for motor-driven valves refer also to the actuator operating manual.

4 - INSTALLATION

- 4.1 – Make sure that the valve supplied corresponds to the type ordered.
- 4.2 – Remove the caps from the valve ends.
- 4.3 – Check that the ball is in totally open position.
- 4.4 – Position the valve, paying attention that the max distance between flanges is not > 3mm, and put the packings between the flanges.
- 4.5 – Insert the bolts in the flanges.
- 4.6 – Tighten the nuts using suitable wrenches. To obtain a correct assembly see the table below indicating the max tightening force to be applied to the screws (resistance class 8.8):

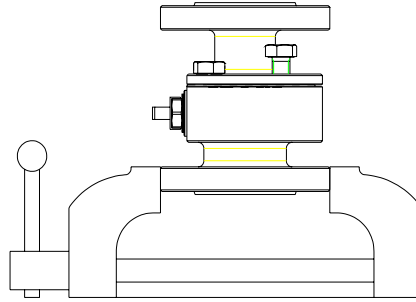
Screw	Preload (N)	Tightening moment (N/m)
M12	37800	84.4
M16	70300	205

Table 2

- 4.7 – During the tightening operations consider that the stress due to the pipe traction on the plants may cause problems, therefore consider that the space between the installation flanges and the valve must be as small as possible.

5 - MAINTENANCE

- 5.1 - BINOX valves do not need maintenance, if correctly used.
- 5.2 – The seal can be replaced with simple operations, if necessary.
- 5.3 – If packing glands or the body/flange connection need repairs, follow the instructions in point : “3.0 - Instructions before installation / maintenance”.
- 5.4 – To make repairs operate as follows:
 - 5.4.1 – Elimination of a leak from the stem.
 - 5.4.1.1 – Adjust the Belleville washers clamping using the nut, after removing the nut stop.
 - 5.4.1.2 – Should this be insufficient to stop the leak, disassemble the valve, remove the ball and the stem and replace the damaged parts following the instructions in point 5.5.
 - 5.4.2 – Elimination of a leak between body and connections.
 - 5.4.2.1 – Check the bolts tightening and correct it, if necessary, paying attention not to damage screws/nuts.
 - 5.4.2.2 – Should this be insufficient to eliminate the leak, disassemble the valve and replace the damaged parts as specified in point 5.5.
 - 5.4.3 – Elimination of a leak inside the valve.
 - 5.4.3.1 – Check that the valve is totally closed and check the tightening of screws and/or ring nut.
 - 5.4.3.2 – If the leak is still present, disassemble the valve and replace the seats paying attention that seats are encapsulated and if the containing metal lip is damaged, the valve seal could be jeopardized in case of fire. The valve has to be disassembled according to the instructions in point 5.5.
 - 5.4.3.3 – Remove the valve from the line with the ball in open position.
- 5.5 – After removing the valve from the line disassemble the valve as follows:
 - 5.5.1 – Remove the upper nut and the lever, put the valve directly in the vice and unloose the clamping screws of the flange using a suitable wrench.



- 5.5.2 – Remove flange, ball and packings. **WARNING:** handle the ball with care to avoid damaging it.
- 5.5.3 – Position the valve vertically in the vice and remove nut, Belleville washers and rotation stops from the stem.
- 5.5.4 – Remove stem and seal seat from the valve body.
- 5.5.5 – Carefully clean the valve body and the other elements using alcohol or other suitable material: do not use abrasive products not to damage the sealing surfaces.
- 5.5.6 – Replace all packings/seats etc. and any other damaged parts. Use only BINOX spare parts.
- 5.5.7 – Remount stem, rotation stops, Belleville washers by tightening the nut.
- 5.5.8 – Mount a new seat in the valve body keeping the valve in horizontal position in the vice, grease the seats; mount the ball and the flange with the relevant packings and the sealing seat.
- 5.5.9 – First screw manually and then tighten the screws using a suitable wrench and alternating the screws in cross order: the screwing operation must be effortless. To obtain a correct assembly see the table below indicating the max tightening force to be applied to the screws (resistance class 8.8):

Screw	Preload (N)	Tightening moment (N/m)
M12	37800	84.8
M16	70300	205

Table 3

- 5.5.10- Check for correct operation running some full opening/closing cycles.
- 5.5.11- Complete the assembly with the lever and the nut and test the valve according to the applicable standards, if possible.
- 5.5.12- Remount the valve on the line as described in point 4.

6 - GUARANTEE

- 6.1 - BINOX sas bears no responsibility and guarantee for products repaired by third party.
- 6.2 – The spare parts must be original BINOX parts: other spare parts are not compatible with BINOX products and can not ensure the consolidated BINOX quality.

7 – APPENDIX A

The following table describes the risks correlated with the use, installation or handling of equipment under pressure produced by BINOX in compliance with the Directive 97/23/CE (PED) annex 1.2; it also contains the instructions to avoid the generation of the risks described.

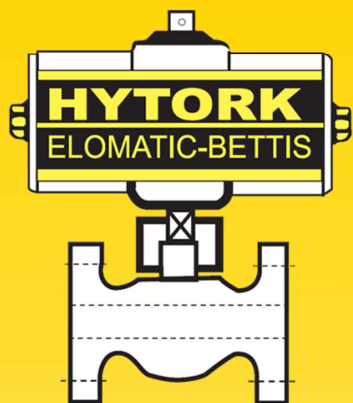
Classification of the solutions adopted:

1. Solution to eliminate the risk.
2. Implementation of protection measures against constant risks
3. Information of residual risks for users

CAUSE	Overpressure exceeding nominal pressure (NP)
EFFECT	Elastic strain, permanent set, cracks, breaking, explosion
DANGER	Modest leaks, fluid spillage, projection of metal splints.
SOLUTION	<ol style="list-style-type: none"> 1. Element sizing using suitable safety factors. 2. Minimal safety measures to be observed during plant construction using suitable safety valves 3. Instructions for the use and proper marks indicating the NP
CAUSE	Overheating over the max running temperature
EFFECT	Inner overpressure and possible deformations
DANGER	Elastic strain, permanent set, fluid spillage
SOLUTION	<ol style="list-style-type: none"> 1. Safety systems to control the running temperature (T°) 3. Instructions for the use with indication of the max running T°
CAUSE	Outer stress
EFFECT	Deformation, structural failure
DANGER	Elastic strain, permanent set, fluid spillage, explosion
SOLUTION	<ol style="list-style-type: none"> 1. It is forbidden to apply external loads to the valve; both installer and user must protect the valve from outer stress. 3. Instructions for the use with the requirement stated in point 1
CAUSE	Installation and/or use non complying with the regulations in force
EFFECT	Improper installation, corrosion, brittleness, breakage of the valve.
DANGER	Valve malfunction, fluid spillage.
SOLUTION	<ol style="list-style-type: none"> 1. It is forbidden to apply external loads to the valve; both installer and user must protect the valve from outer stress. The instructions given in the technical data sheet are to be strictly observed. 3. Instructions for the use with the requirement stated in point 1

CAUSE	Incorrect tightening during installation
EFFECT	Deformation, structural failure of valve and seals
DANGER	Elastic strain, permanent set, fluid spillage, explosion
SOLUTION	<ol style="list-style-type: none"> 3. Instructions for the use with indication of max driving torque.
CAUSE	Impact
EFFECT	Permanent deformations, breakages and structural failure
DANGER	Modest leaks, fluid spillage, explosion.
SOLUTION	<ol style="list-style-type: none"> 1. The valve is protected by suitable packaging and has to be handled with suitable tools 2. The valve has to be installed in protected environment. 3. The valve has to be installed and used according to the Instructions for the use and maintenance.
CAUSE	Corrosion of valve components
EFFECT	Corrosion and thinning of the pressure resistant walls and sealing elements
DANGER	Malfunction, leaks and blow-by, fluid spillage, explosion.
SOLUTION	<ol style="list-style-type: none"> 1. Use of the valve only with the fluids specified in the technical instructions and within the T° and PS limits 2. Definition of chemical compatibility with the materials used for the construction of pressure elements. 3. Instructions to the user for the use of pressure equipment according to the requirements of the technical specifications
CAUSE	Valve maintenance with plant under pressure
EFFECT	Fluid spillage, explosion
DANGER	Risk of fluid spillage and projection of metal splints
SOLUTION	<ol style="list-style-type: none"> 1. Maintenance works are to be carried out when the plant is not under pressure. 3. The instructions require that maintenance (if necessary) is carried out when the plant is not under pressure.
CAUSE	Seal wear
EFFECT	Seal deformation
DANGER	Malfunction, leaks and blow-by, fluid spillage, explosion.
SOLUTION	<ol style="list-style-type: none"> 1. Periodical check of the valve 2. Valve replacement, if necessary 3. Check for valve minimum guarantee in the instructions.

CAUSE	External fire
EFFECT	Deformation and structural failure of the valve and seals
DANGER	Valve malfunction and explosion.
SOLUTION	<ol style="list-style-type: none">1. The plant must include suitable devices that trip in case of fire, unless the valve is already provided with them3. The instructions inform on the need of suitable precautionary measures.

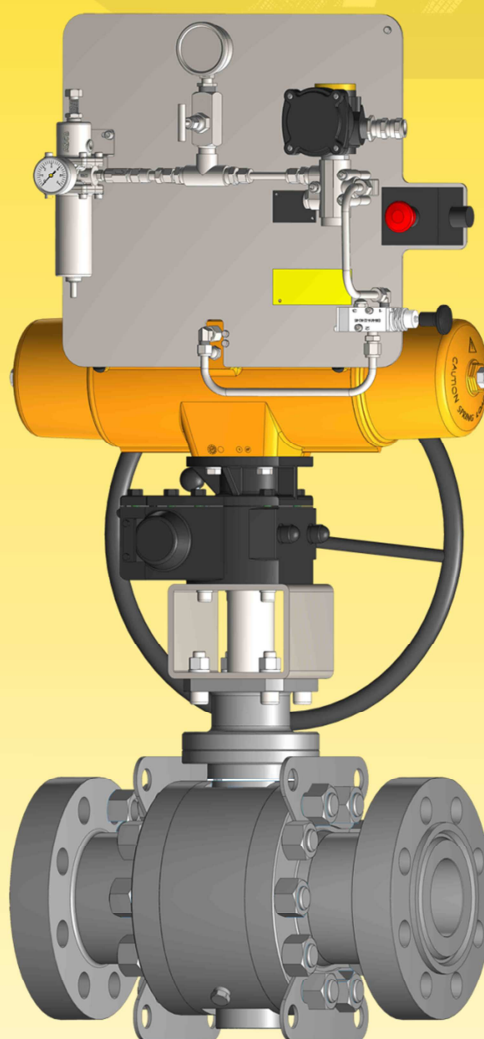
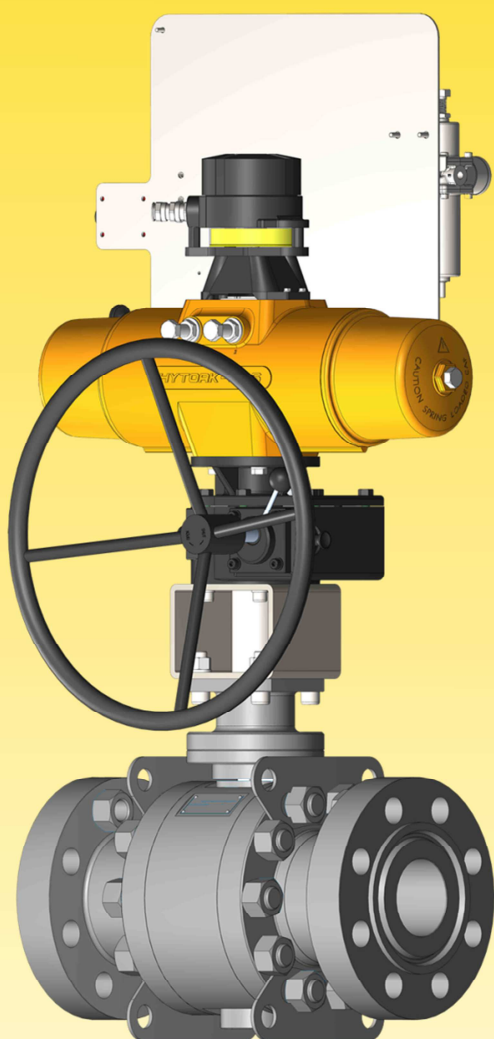


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