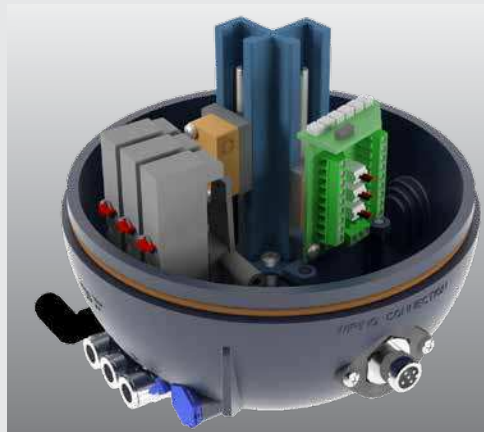


Instruction, Use and Maintenance Manual



CONTROL UNITS
GIOTTO TOP®

Bardiani Valvole S.p.A.

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MANUAL REVISION	DATE

INDEX

1	Safety, Warning and Mandatory Signs	5
2	General safety warnings	6
3	Technical Data	8
4	Giotto Top [®] Control unit	9
5	Giotto Top [®] Assembly / Disassembly	10
6	Giotto Top [®] Installation	14
7	Giotto Top [®] Pneumatic connections	17
8	Giotto Top [®] Electrical connections	20
9	Troubleshooting	23
10	Maintenance and Cleaning	24
11	Ce Certificate	25
12	Warranty	26
13	Recommendations	27

INTRODUCTION

This "Instruction, Use and Maintenance Manual" has been drawn up expressly for expert technical personnel. Consequently any information which can easily be deduced from reading the text and/or examining the illustrations and/or drawings provided herein shall not be the object of further explanation.

It forms an integral part of the Products supplied and must be read prior to any installation, operation and/or maintenance of all types of control unit provided.

This manual must be saved for future reference and be kept readily available at the unit.

With regards to the use of valves compliant with EU Directive 2014/34/UE (ATEX), consultation of a specific manual is mandatory.

The essential characteristics of all types of control unit described herein being consistent, the Manufacturer reserves the right to alter and or complement and or update at any time and with no obligation to notify so in writing, the data and or information relevant to the use of the control unit described in this "Instruction, Use and Maintenance Manual".

A constantly updated version of this "Instruction, Use and Maintenance Manual" is available at the Manufacturer's website www.bardianivalvole.it.

Under no circumstance shall the Manufacturer be held liable for consequences resulting from failure and or improper use of the instructions contained in this Manual and relating to the installation, operating, maintenance and storage of the products.

All rights reserved.

Full or part reproduction, transfer and or recording of any part of this "Instruction, Use and Maintenance Manual" by all means, whether it be electronic, on hard copy, mechanical or any other means or recording or reuse is strictly prohibited without the prior written consent of the Manufacturer and for any use other than that of the Buyer.

(Translation of the Original Instructions in the italian Language)

1 Safety, Warning and Mandatory Signs

SIGNALS		
Pictogram	Description	Notes
	WARNING! General	This tells the person in question that the operation described involves (when not performed in accordance with the relative safety regulations) the risk of personal injury.
	OBLIGATION General	Special instructions must be followed to avoid injury to persons.
	PERSONAL PERSONNEL	Dismantling/Assembling and maintenance operations must be carried out by expert technicians only.
	NOTE	Follow the indicated note with care
	ELECTRICAL CONNECTION	Electrical connection to the control unit
	ELECTRICAL DISCONNECTION	Electrical disconnection from the control unit
	PNEUMATIC CONNECTION	Compressed air connection to the control unit
	PNEUMATIC DISCONNECTION	Compressed air disconnection from the control unit

2 General safety warnings

The control unit has been designed to control the pneumatically controlled process valves manufactured by Bardiani Valvole S.p.A.. It is possible to fit the Giotto Top® with a maximum of three solenoid valves for controlling the process valve and up to a maximum of four inductive sensors, including an external one for controlling the position.

For the electrical connections inside the control unit, there are three different configurations:

- LED terminal block and AS-i card: the LEDs indicate, in the presence of the relative inductive sensor, the status of the valve: green light = valve open; yellow light = valve closed; white light = bottom or top lift activated.
- 10-pole terminal block: no LEDs.
-

General warnings

- Always read the technical data carefully before machine installation, operation and maintenance.
- The Giotto Top® must always be installed, operated and maintained by authorized personnel. Said personnel must know and understand both the unit and the contents of the manual.
- Take care over any separate parts of the Giotto Top® when removing it from its packaging.
- Always connect the air supply carefully and disconnect it after use.
- Always connect the power supply carefully and disconnect it after use.
- Never touch the moving parts in the Giotto Top® or valves.
- Always handle detergents with care.
-

Prohibited use

Use of the control unit is not envisaged:

- for any operations other than those for which it was designed.
-



WARNING

The machine may not be used inside premises where there is a potentially explosive atmosphere or risk of fire unless otherwise stated by the manufacturer (in the case of valves certified in accordance with Directive 2014/34/EU please refer to the ATEX Manual).



WARNING

The control unit contains circuits classified as LOW VOLTAGE LIMITED ENERGY CIRCUIT. For correct use in North America dimension the protection circuits in accordance with Standard UL508A.



WARNING

ALWAYS make sure the electrical and pneumatic connections are NOT active when executing operations on the Giotto Top® and that the power supply voltage is only 24 Vdc.



WARNING

Under normal circumstance (exposure time, eye pupils, observation distance) it is assumed that no endangerment to the eye exists from the LEDs. As a matter of principle, however, it has to be mentioned that intense light sources have high secondary exposure potential due to their blinding effect. As is also true when viewing other bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages may occur, leading to irritation, annoyance, visual impairment, and even accidents, depending on the situation



BARDIANI VALVOLE S.p.A. declines all liability for installation, use or maintenance which fails to comply with the indications provided in this manual!

3 Technical Data

CONTROL UNIT TECHNICAL DATA	
Weight	from 0.55 Kg to 0.65 Kg depending on the configuration
Casing material	PA66 + PA6-GF30 (glass fibre reinforced nylon)
Gaskets material	NBR
Protection class	IP67
Air supply and vent connections	1/8" BSP
Air line connections	6 mm / 1/4" (ON REQUEST)
Electrical connections	7-pole connector or M12 5- or 8-pole connector
	Threaded fitting for cable gland PG11 or M20x1.5
Field bus connections	Actuator Sensor interface (AS-i).
Vibrations	1mm amplitude f=10..55Hz
Storage temperature	-25..+70°C
Operating temperature	-10...+50°C
Air supply	Class 2,4,3 according to ISO 8573-1

SOLENOID VALVE APPLICATION CRITERIA	
Single Acting Valves	1 Solenoid valve
Double Acting Valves (1 normally open and 1 normally closed), Mixproof and Twin-Stop valves (2 normally closed)	2 Solenoid valves
Mixproof valves with air supply for opening, top and bottom lift (3 normally closed)	3 Solenoid valves

SOLENOID VALVE TECHNICAL DATA	
Electrical power supply	24 Vdc
Air pressure supply	max. 7bar min. 6bar

INDUCTIVE SENSOR TECHNICAL DATA	
Electrical power supply	24 Vdc

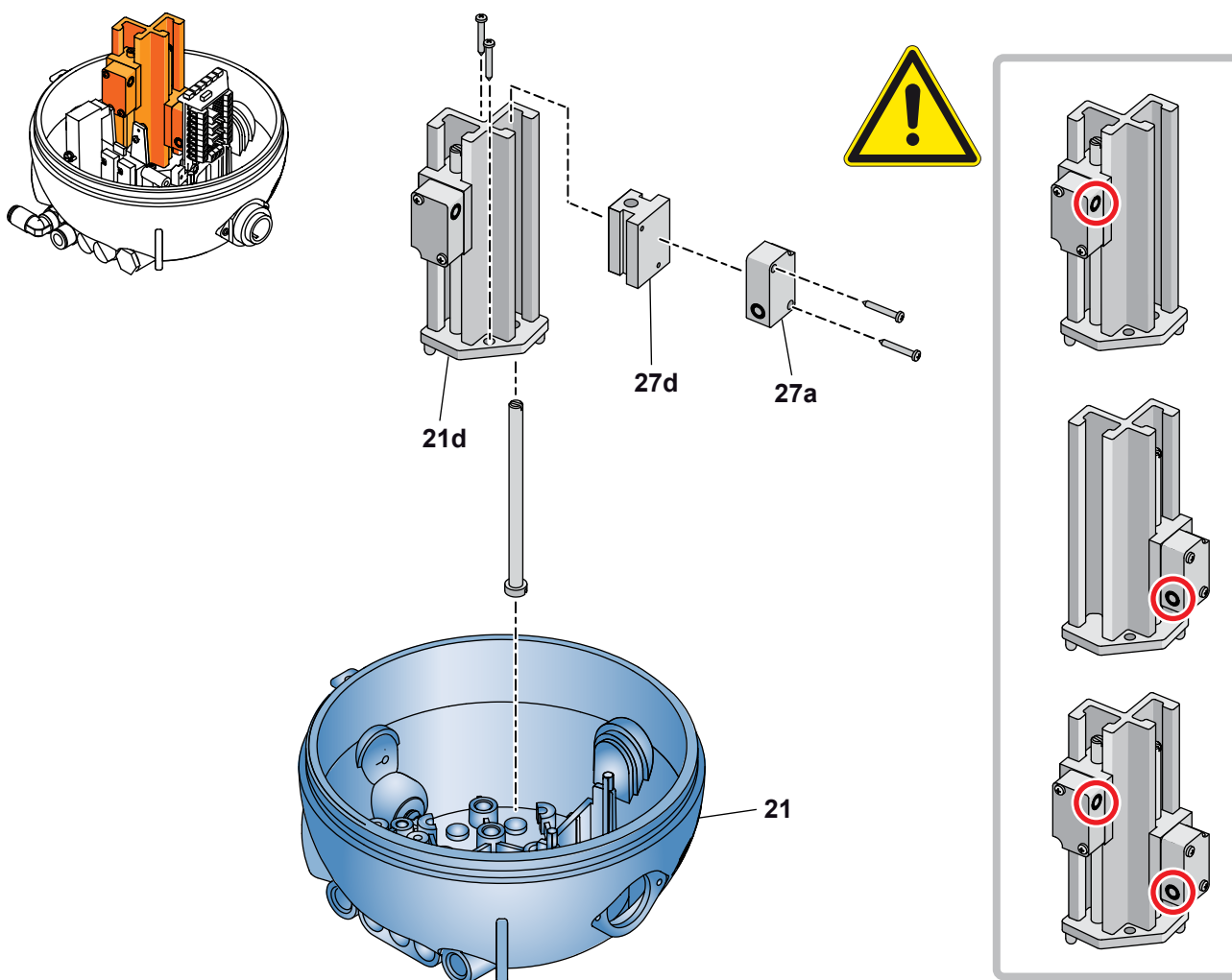
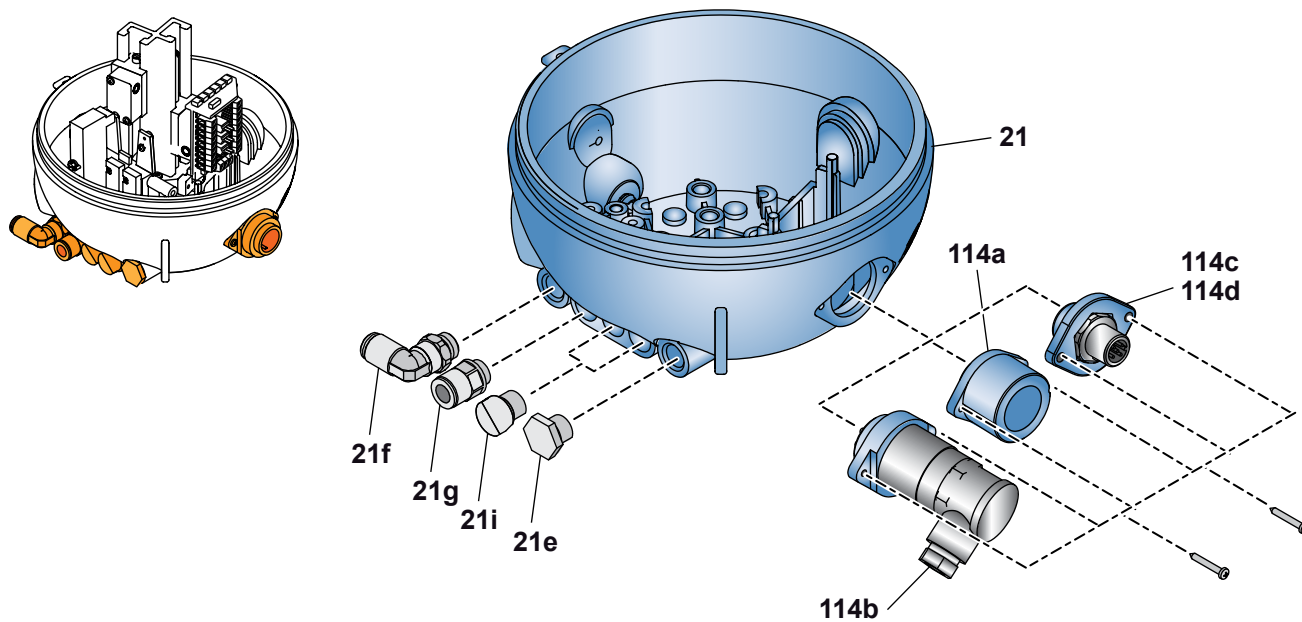
AS-i BOARD TECHNICAL DATA	
Inputs N° / type	4 / PNP
Output N° / type	3 / PNP
MAX current consumption	220 mA
Total MAX current (IN+OUT)	150 mA
AS-interface Profile	S-7.A.7.F
As-interface specification	V 3.0
AS-interface IC	ASI4U
Extended addressing mode	✓
Type B solenoid valves	✓
Type S solenoid valves	✓

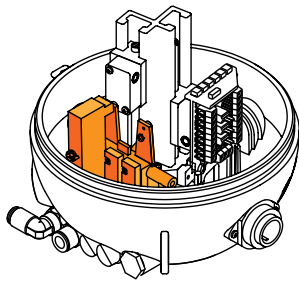
In the event of any doubt, please contact Bardiani Valvole S.p.A.

4 Giotto Top® Control unit

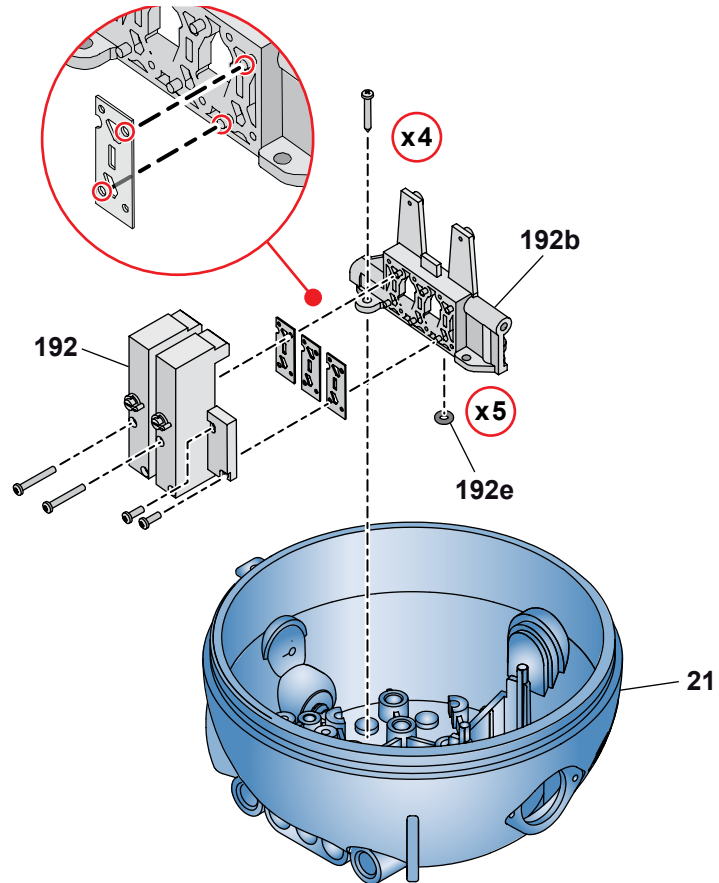
NO.	DESCRIPTION
21	Base
21a	Sealing ring
21b	Sealing ring
21d	Double guide
21e	Vent plug
21f	Air coupling
21g	Air coupling
21i	Cap
21k	Terminal block with support
22	Cam
25	Screw
26	Bardiani case
27a	Sensor
27d	Micro-size inductive sensors holder slide
114a	Sleeve for cable gland
114b	7-pole connector
114c	5-pole connector
114d	8-pole connector
192	Solenoid valve
192b	Solenoid valve support
192c	Cap
192d	Solenoid valve board
192e	Sealing ring
283	AS-i board

5 Giotto Top® Assembly / Disassembly

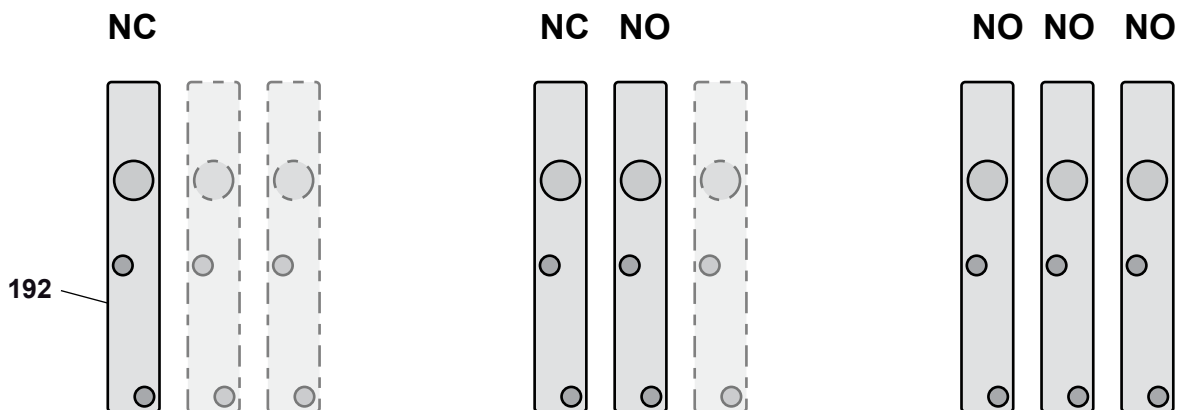


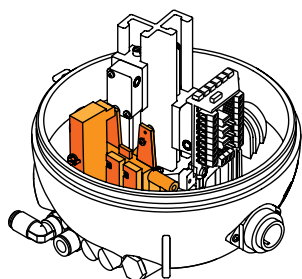


TYPE B

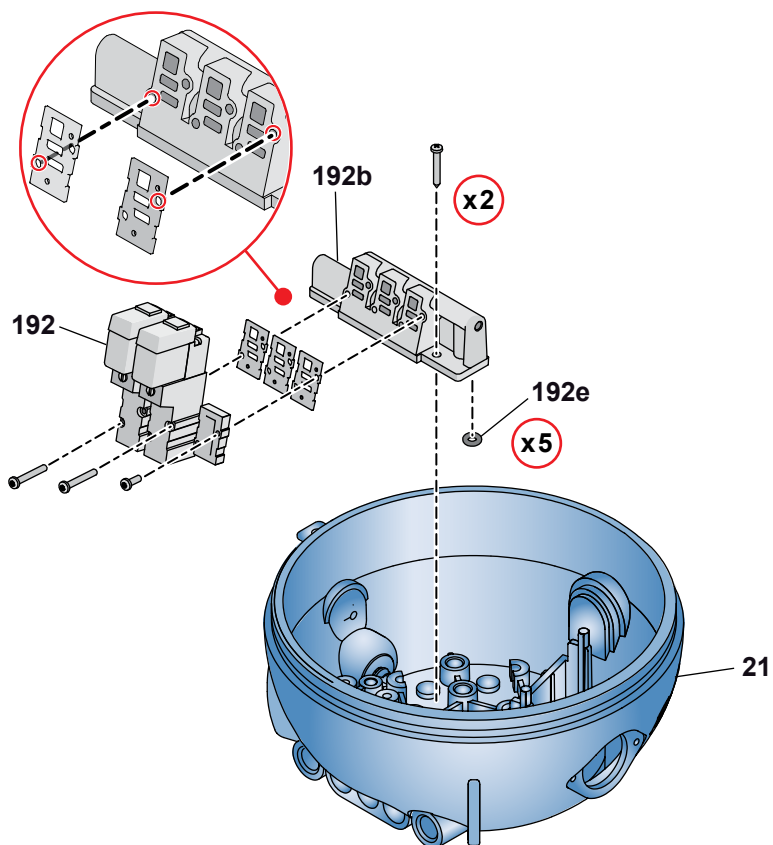


Solenoid valve sequence

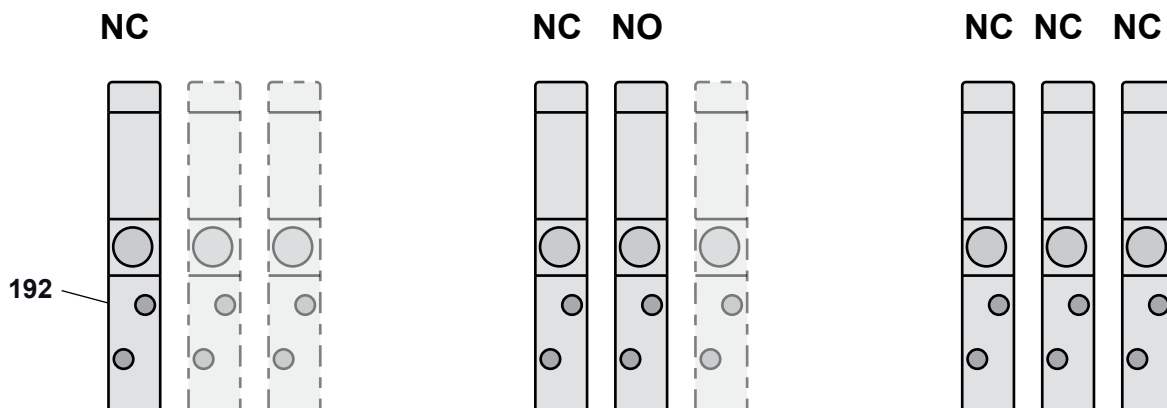


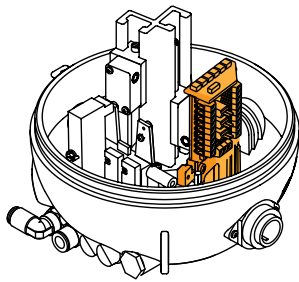


TYPE S

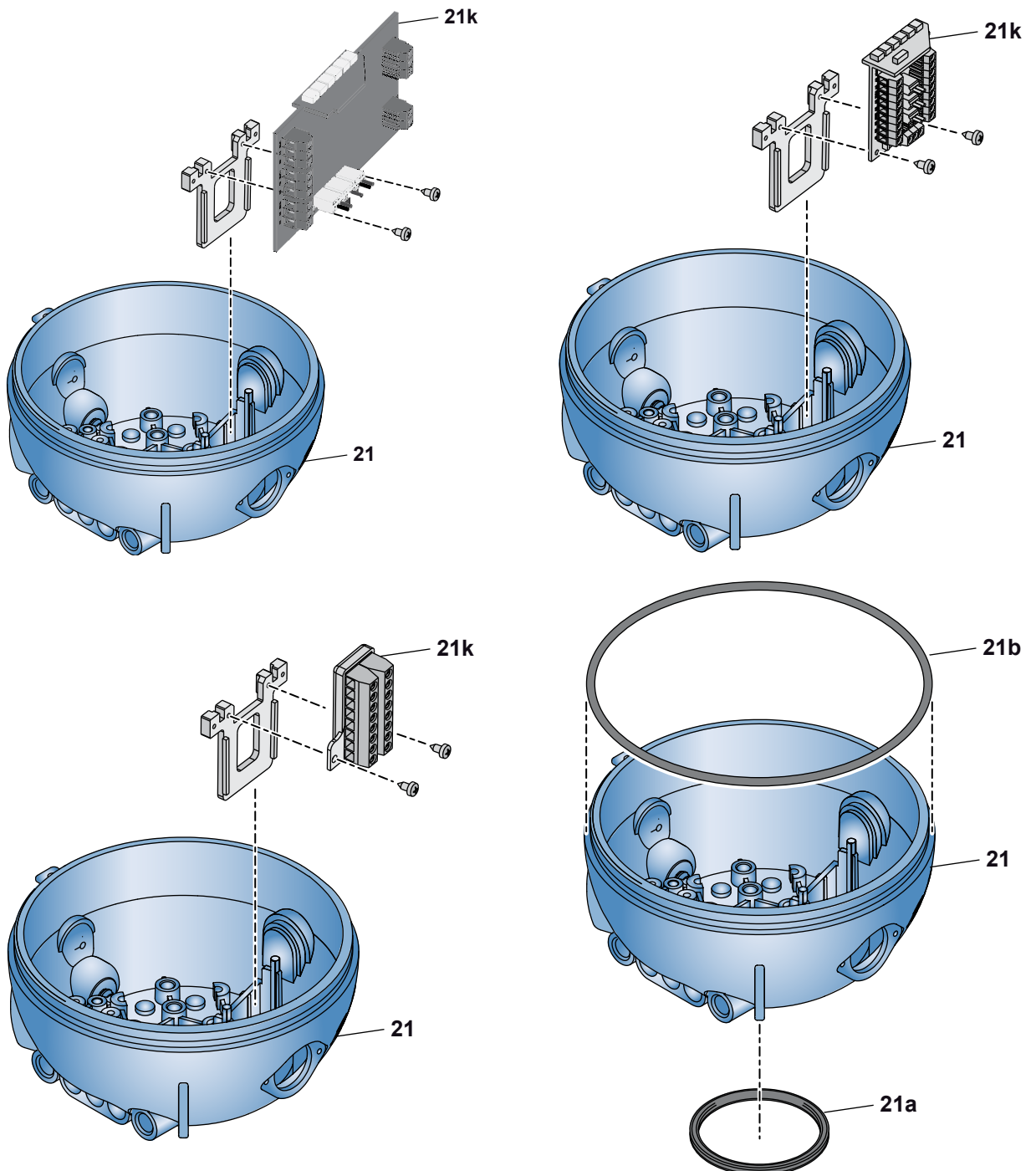


Solenoid valve sequence

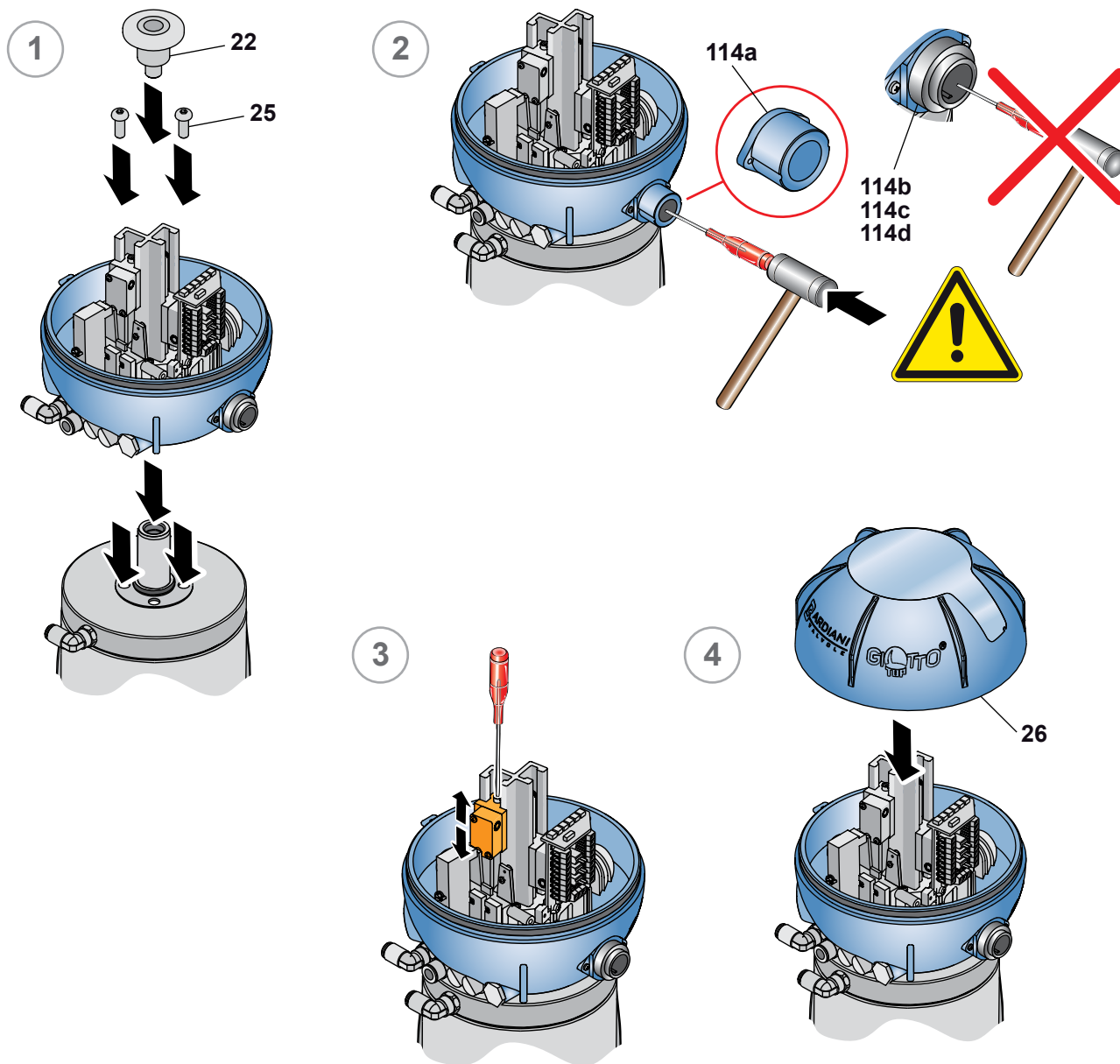




TYPE B - TYPE S



6 Giotto Top® Installation



WARNING

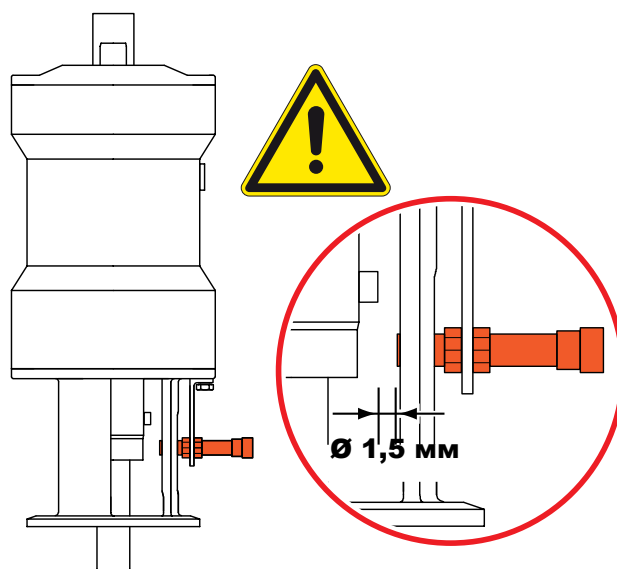
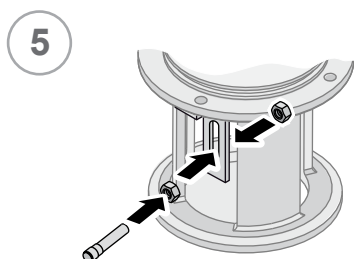
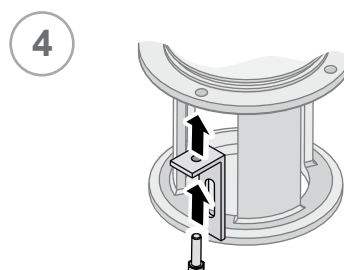
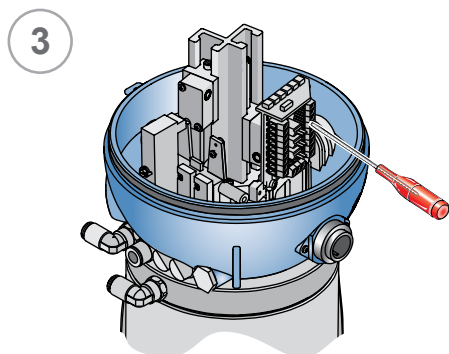
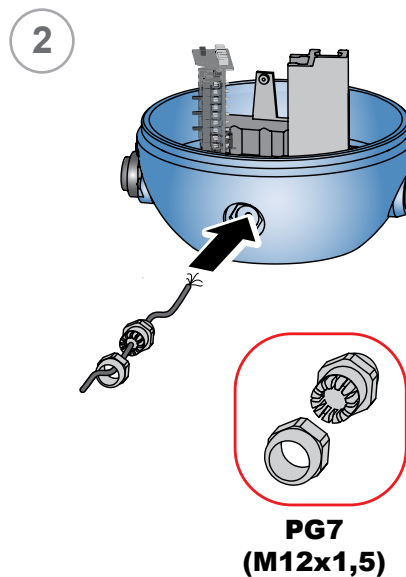
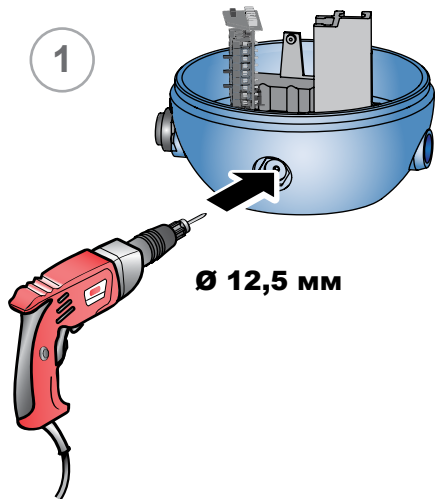
Always make sure that all wires are connected and securely fastened to the terminals and that the solenoid valves, solenoid valves support, AS-i card and LED terminal block (when present) and any other parts inside the Giotto Top ® are well assembled and secured.



WARNING

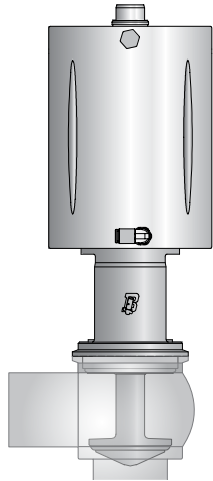
Always make sure that the electrical and pneumatic connections are disconnected when carrying out operations on the Giotto Top®.

External inductive sensor installation

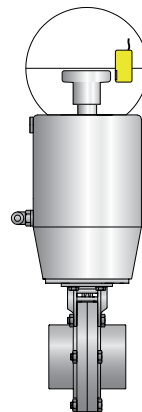
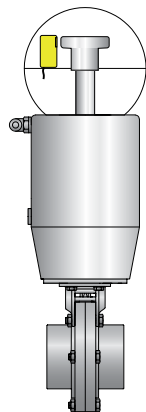
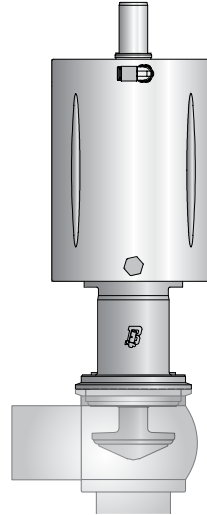


Cylinder configuration

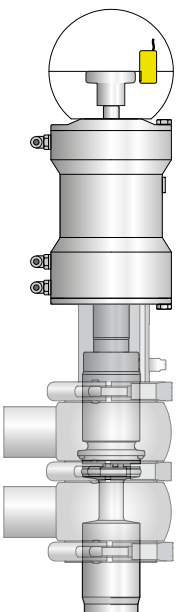
Normally closed



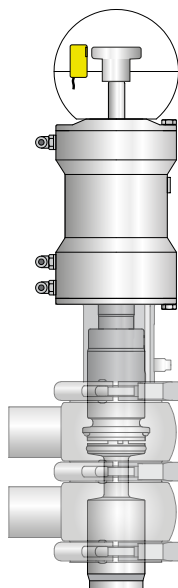
Normally open



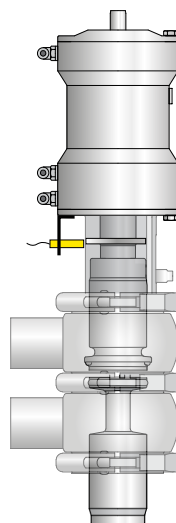
closed



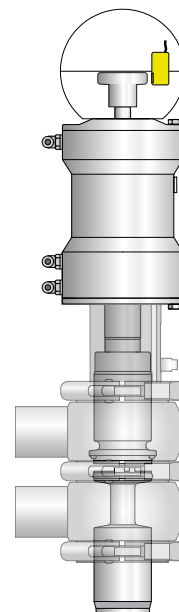
open



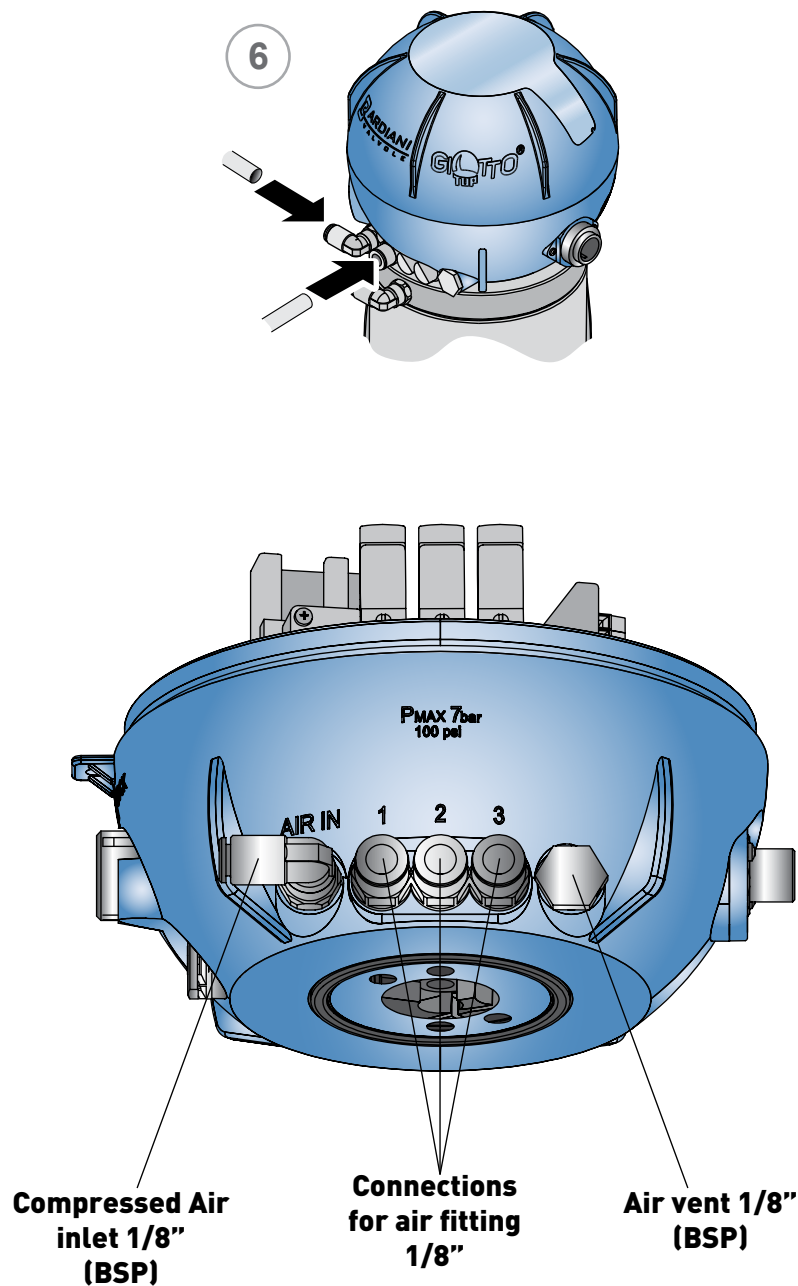
upper lift



lower lift



7 Giotto Top® Pneumatic connections



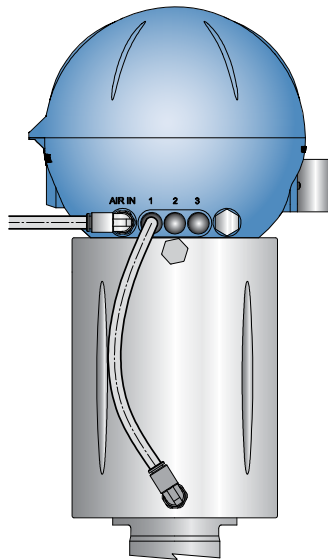
WARNING

Use only pipes with an external **diameter of 6 mm**.

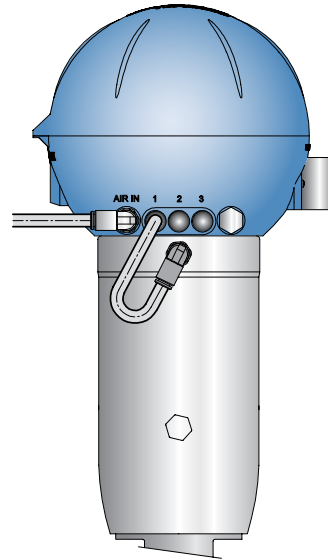
Cut these pipes with a suitable cutter to avoid damaging the pipe which could lead to Giotto Top® malfunctions.

Select a suitable length of pipe which allows the Giotto Top® to be removed without unscrewing the anchoring.

Valve with single acting actuator

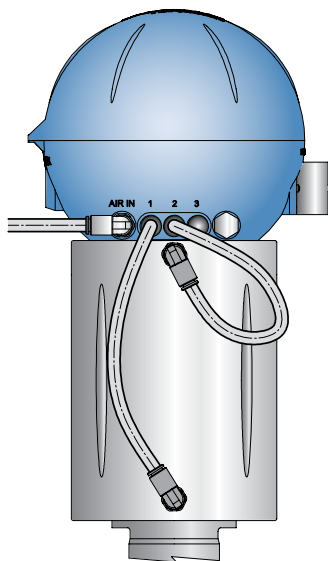


**BBZP - BBYP -
BBWP**

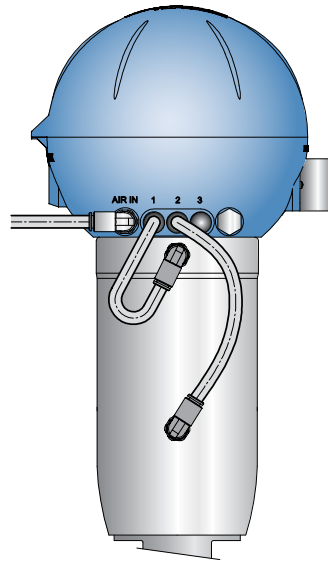


ZVF

Valve with double acting actuator

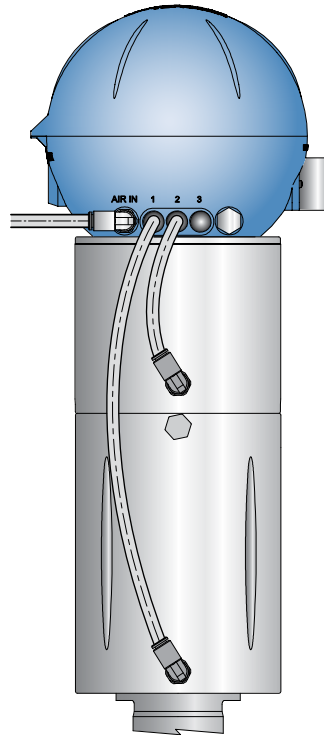


**BBZP - BBYP -
BBZQ**



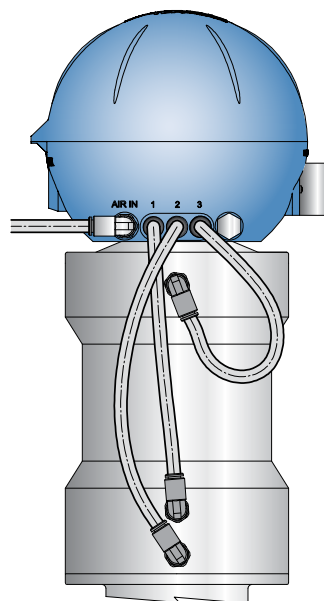
ZVF

Valve with single acting actuator with Twin Stop



BBZT

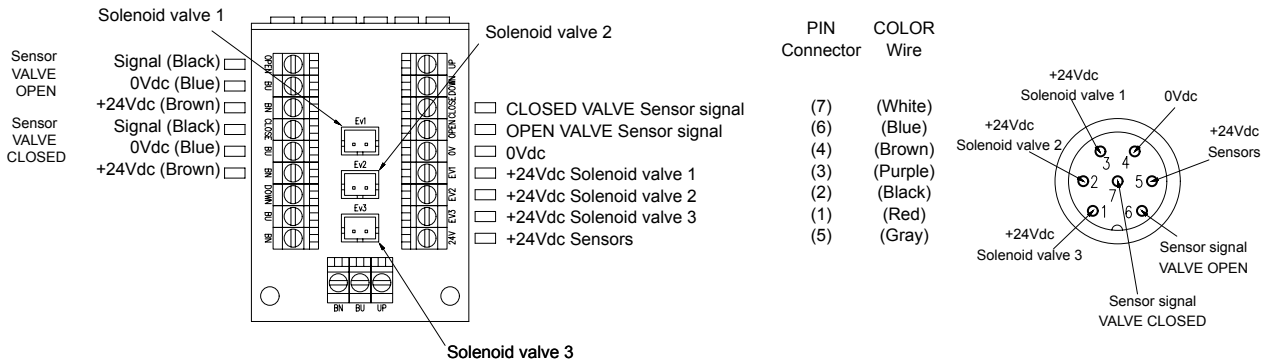
Mixproof valve



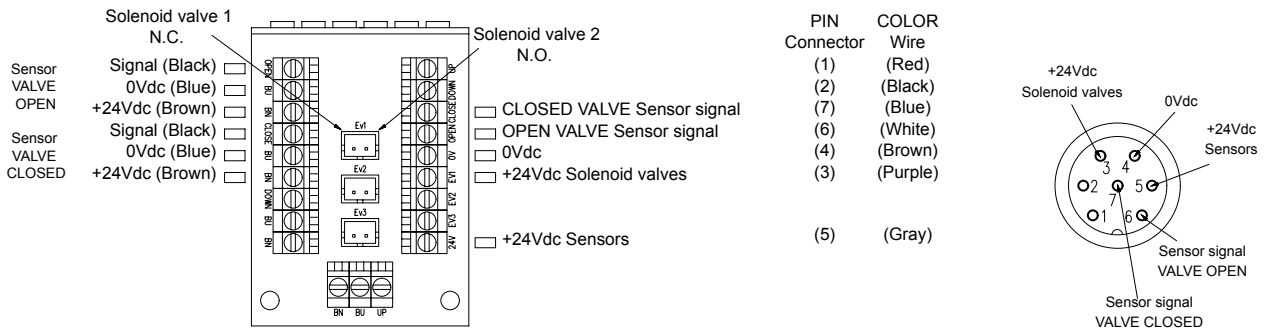
B925 - B935

8 Giotto Top® Electrical connections

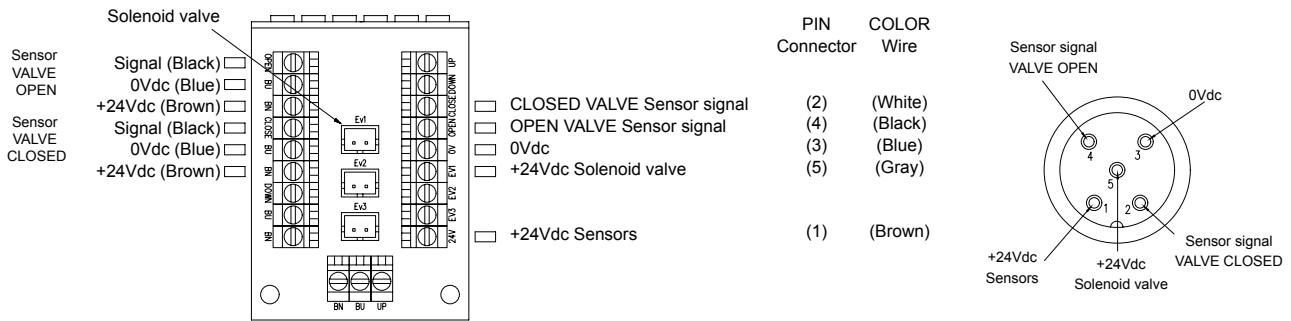
1,2 PNP sensors with 1,2,3 normally closed solenoid valves and 7-pole connector



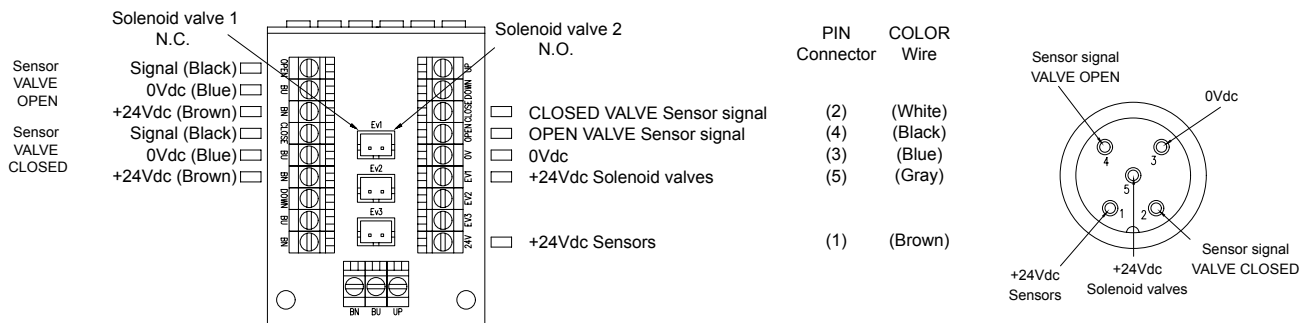
1,2 PNP sensors with 2 solenoid valves (1 N.C. and 1 N.O.) for double acting 7-pole connector



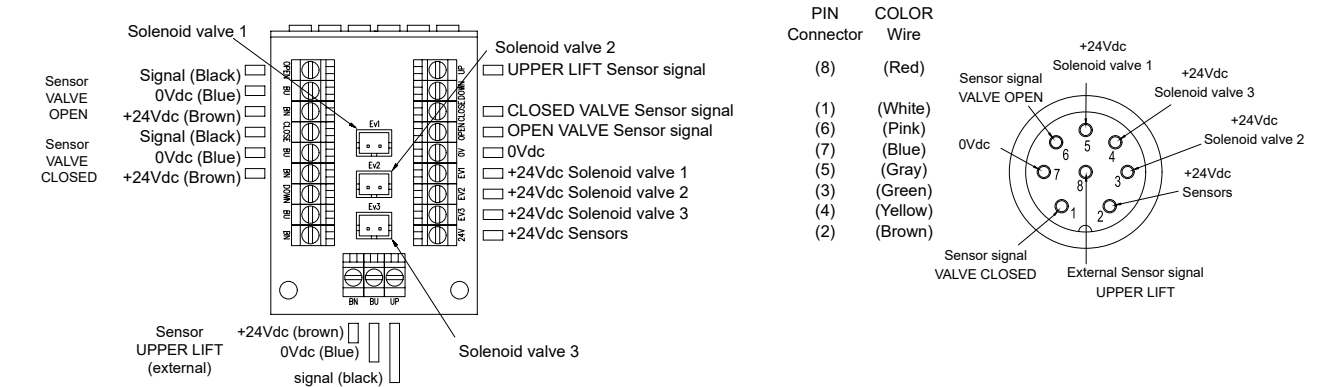
1,2 PNP sensors with 1 normally closed solenoid valves and 5-pole connector



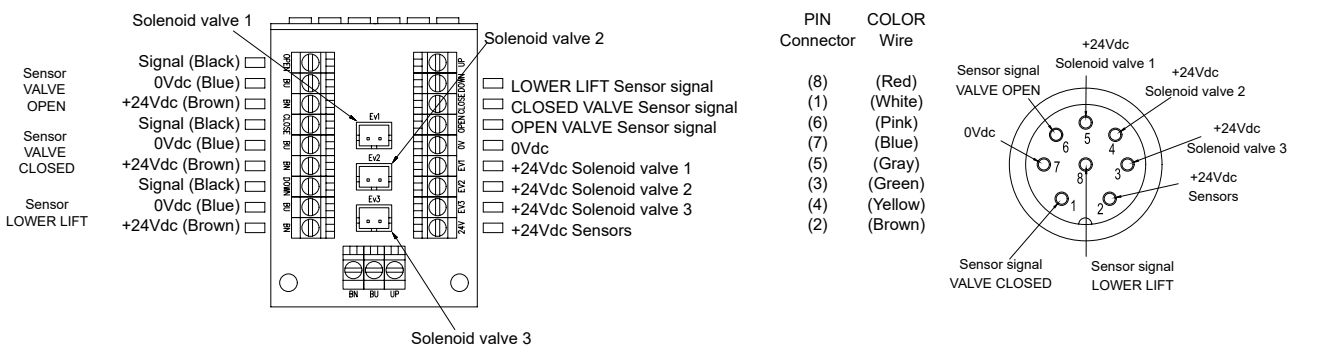
1,2 PNP sensors with 2 solenoid valves (1 N.C. and 1 N.O.) for double acting 5-pole connector



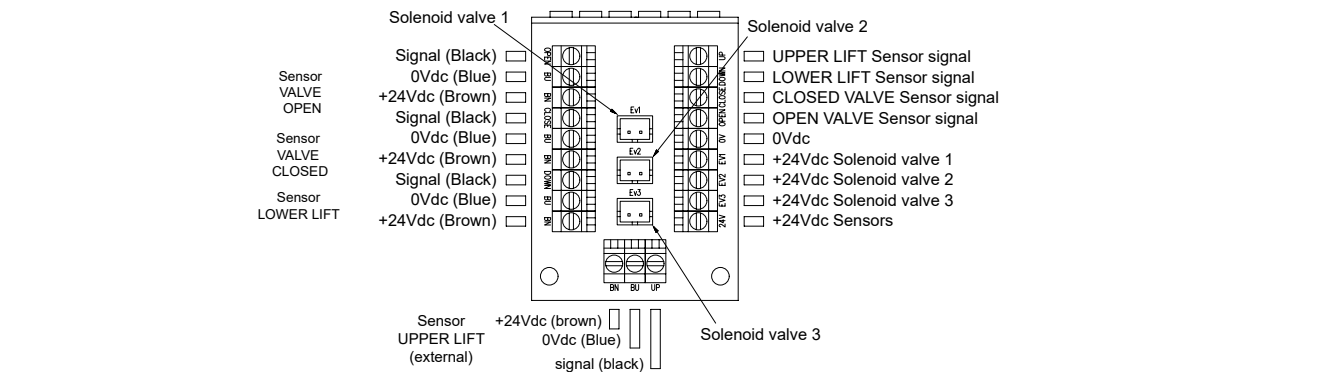
1,2,3 PNP sensors with 1,2,3 normally closed solenoid valves and 8-pole connector



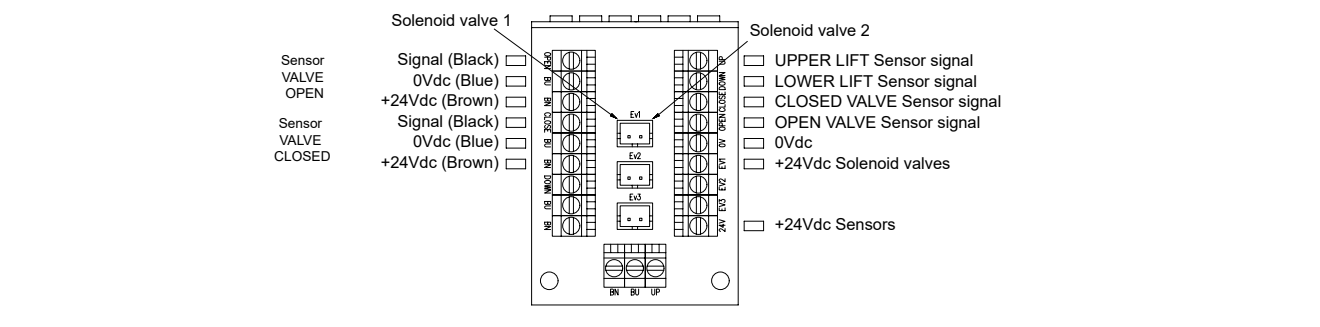
1,2,3 PNP sensors with 1,2,3 normally closed solenoid valves and 8-pole connector



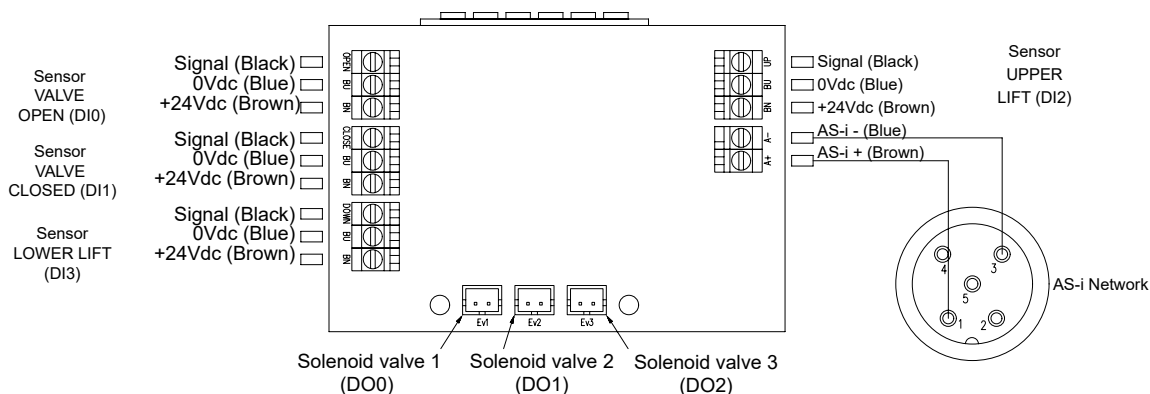
1,2,3,4 PNP sensors with 1,2,3 normally closed solenoid valves



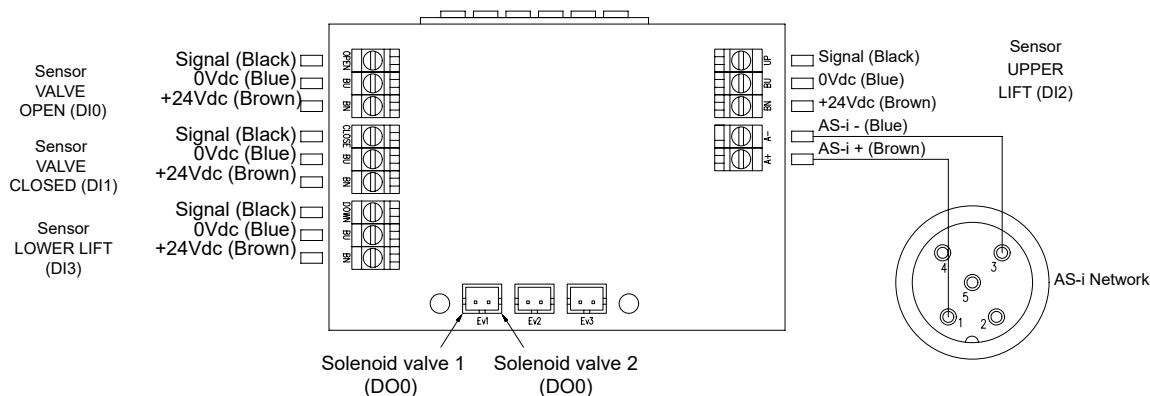
1,2 PNP sensors with 2 solenoid valves (1 N.C. and 1 N.O.) for double acting



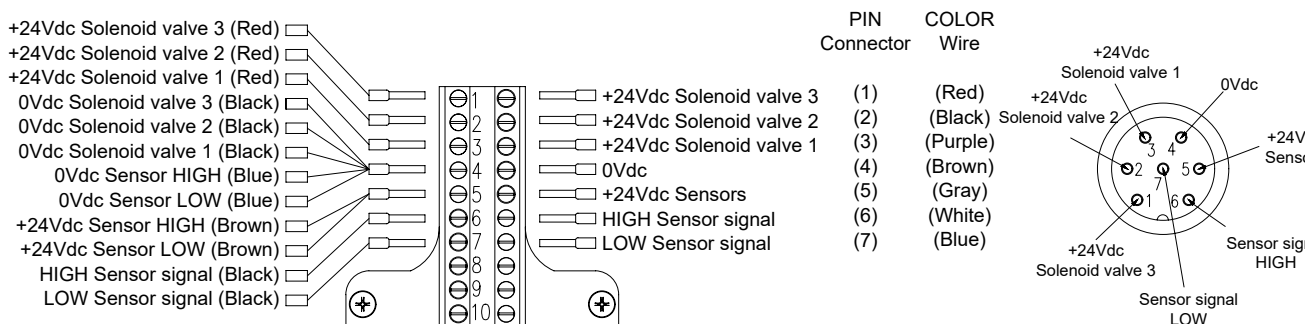
AS-i 360° Board 1,2,3,4 PNP sensors with 1,2,3 normally closed solenoid valves



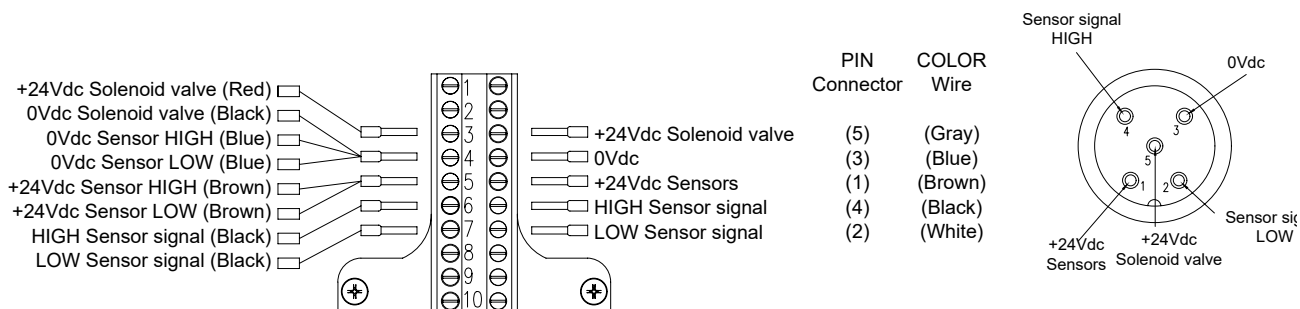
AS-i 360° Board 1,2 PNP sensors with 2 solenoid valves (1 N.C. and 1 N.O.) for double acting



1,2,3 normally closed solenoid valves and 7-pole connector



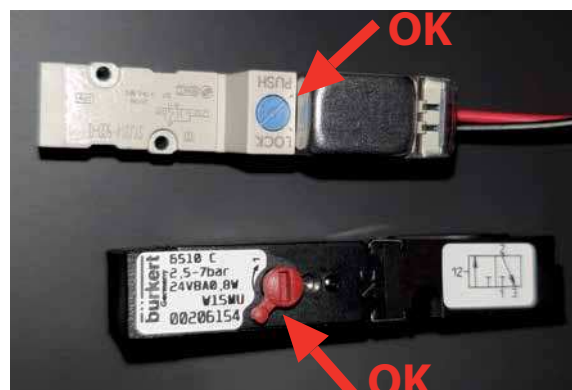
1,2,3 normally closed solenoid valves and 5-pole connector



9 Troubleshooting



PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Air leak from solenoid valve support	No gaskets or loose fitting	Check the sealing capacity of the gaskets and tighten the screws
Air leaks in safety valve		
The LED do not come on	Circuit board damaged	Replace the circuit board
	Damaged LEDs	
	Inductive sensors not working	Check the sensor connections in the terminal block and restore if necessary
The solenoid valve does not activate	Damaged solenoid valve	Replace solenoid valve
	Circuit board damaged	Replace the circuit board
	Air supply pressure incorrect	Consult the Technical Data section in the Manual
	Solenoid valve support damaged	Replace solenoid valve support
	Electrical connections not made properly	Check the connections in the terminal block on the electrical board and tighten the screws.
	Solenoid valve manual command activated	Reposition the manual command in the default position, see image below
The inductive sensors are not working	Inductive sensors damaged	Replace inductive sensors
	Electrical connections not made properly	Check the connections in the terminal block on the electrical board and tighten the screws.
	Distance between the cam and the inductive sensors greater than 1.5 mm.	Check the centring of the Giotto and the fastening to the double guide



10 Maintenance and Cleaning

When used correctly the Giotto Top® does not need any special maintenance.

Any repair work must be carried out by authorized personnel only, making sure that the electrical and pneumatic power supplies have been disconnected before carrying out any operation inside the Giotto Top®.



WARNING

Before using cleaning products make sure they are compatible with the materials used to construct the Giotto Top®, both the casing and the gaskets.

If solvents or cleaning agents containing acids or alkaline substances are used, always make sure the Giotto Top® is immediately rinsed with clean water.

When so doing, pay particular attention to those areas where there are orifices or openings.



WARNING

Each time the casing is open, make sure that the various cables inside it are repositioned where they do not interfere with cam movement.



WARNING

Should it be necessary to replace any component of the Giotto Top®, contact Bardiani Valvole S.p.A. to purchase the necessary spare part as the use of any products not supplied by us may compromise correct valve operation or constitute a hazard for personnel.

11 Ce Certificate



GB - EC Declaration of conformity - A3-P-PRG-GB

EC DECLARATION OF CONFORMITY OF THE MACHINERY

(EC) 2006/42, Annex. II, p. 1 A

BARDIANI VALVOLE S.p.A.

Via G. di Vittorio 50/52 – 43045 Fornovo di Taro (Pr) – Italy

Declares

under its own responsibility that the machine:

Type:	PNEUMATIC VALVES
Model:	
Serial number:	
Function:	Fluid handling
Year of construction:	2016
Reference	

complies with all relevant provisions of the following EC directives:

(EC) 2006/42 MACHINERY

and also comply with the following EC Directives and Regulations:

(EU) 2014/30 ELECTROMAGNETIC COMPATIBILITY DIRECTIVE (EMC)

and the following harmonized standards, rules and / or technical specifications applied:

EN ISO 12100:2010

REGULATION (EC) 1935/2004 and subsequent amendments and additions with regard to steel and elastomers in contact with the product

REGULATION (EC) 10/2011 and subsequent amendments and additions with regard to PTFE in contact with the product



Fornovo di Taro
10/10/2016

Emanuela Bardiani
Legal representative

A3-P-PRG-GB Ed. 1. Rev. 0

BARDIANI VALVOLE S.p.A.
Via G. di Vittorio 50/52
43045 Fornovo di Taro (Pr)

12 Warranty

1. VALIDITY

Bardiani Valvole's Products are manufactured in compliance with the technical specifications laid out in their "Instruction, Use and Maintenance Manual" and are fully compliant with the directives specifically mentioned in these manuals.

Bardiani Valvole S.p.A. guarantees its own Products against any design and/or construction and/or material defects and/or faults for a period of 12 (twelve) months from the date of delivery.

Notification of any Product defects and/or faults must be sent in writing to Bardiani Valvole S.p.A. within 8 (eight) days from their detection, providing adequate documentation of the defect/fault encountered as evidence.

Services provided in the warranty period shall not result in an extension of the warranty beyond the stipulated 12 (twelve)-month period, as this warranty validity period is to be considered mandatory.

2. CONTENTS OF THE WARRANTY

Notwithstanding and without prejudice to the rights of the Buyer, which may be acknowledged by applicable law, this warranty is to be intended as limited, at the discretion of Bardiani Valvole S.p.A., to the repair and/or replacement of the Product and/or part of the Product and/or its components which is/are found to be defective due to design and/or manufacturing and/or material faults.

In the event of repair and/or replacement of the Product and/or any one of its parts and/or components, any returned item/s shall become the property of Bardiani Valvole S.p.A. and the relative shipping costs shall be charged to Bardiani Valvole S.p.A.

Bardiani Valvole S.p.A., shall be under no obligation to compensate for any immaterial and/or indirect damages and shall in no way be held liable for consequential damages and/or losses, such as (by way of example only), damages due to loss of business, contracts, opportunities, time, production, profits, goodwill, image etc.

No retailer or distributor or dealer or agent or representative or employee or person appointed by Bardiani Valvole S.p.A. is authorized to make any amendments and/or integrations and/or extensions to this warranty.

3. WARRANTY EXCLUSIONS

- Elastomers and electrical components are expressly excluded from this warranty.
- This warranty does not cover design faults emerging whenever a Product is manufactured by Bardiani Valvole S.p.A. based on designs and/or technical specifications provided by the Buyer.
- Moreover this warranty excludes the following:
- faults and/or defects resulting from incorrect and/or unsuitable and/or inadequate transportation of the Product;
- faults and/or defects resulting from failure to comply with the indications laid out in the "Instruction, Use and Maintenance Manual" with regards to installation of the Product or in any event caused by incorrect and/or unsuitable and/or improper installation;
- faults and/or defects resulting from failure to comply with indications laid out in the "Instruction, Use and Maintenance Manual" with regards to use and/or maintenance operations and/or storage of the Product or in any event caused by incorrect and/or unsuitable and/or improper use and/or maintenance operations and/or storage;
- faults and/or defects due to normal wear and tear of the Product and/or its parts and/or its components;
- faults and/or defects in the Product and/or its parts and/or its components for work and/or repairs being carried out by unskilled staff or staff that has not been authorised by Bardiani Valvole S.p.A.;
- faults and/or defects in the Product and/or its parts and/or its components caused by its being dropped and/or banged and/or dented and/or misused and/or tampering and/or breakage and/or accidents and/or any other event caused by negligence and/or carelessness and/or neglect by the Buyer and in general for any causes not ascribable to design and/or manufacturing and/or material defects;
- faults and/or defects in the Product and/or its parts and/or its components caused by other events beyond the control of Bardiani Valvole S.p.A., such as force majeure or unforeseeable circumstances.

13 Recommendations

1. Consultation of the "Instruction, Use and Maintenance Manual" is mandatory prior to the installation, use and maintenance of the products of all Products. All the information, indications, specifications, technical details provided herein are based on test data which the Manufacturer Bardiani Valvole S.p.A. holds to be reliable nevertheless the above is not deemed to be assumed as fully exhaustive inasmuch as not every possible use has been envisaged.

2. All the illustrations and drawings provided are to be intended as indicative and therefore not binding, the Products illustrations being for presentation purposes only.

3. It is the Buyer's duty to assess the suitability of the products for the use he intends to make of the same prior to placing the order as he/she will take the risks and accept liability in case of incorrect choice and use of the Products.

4. The Manufacturer strongly recommends the Buyer to contact their sales team and request any information that might be needed in relation to the specifications and uses of the Products.

5. The information provided in this manual refers to the standard products manufactured by Bardiani Valvole S.p.A. and therefore cannot be assumed to apply to customized products as well.

6. Bardiani Valvole S.p.A. reserves the right to amend and/or integrate and/or update the data and/or information and/or technical details relative to Products at any time and without prior notice. Please visit the website www.bardiani.com, where the latest updated of the "Instruction, Use and Maintenance Manual" can be found".

7. The content and validity of the warranty covering the Products of Bardiani Valvole S.p.A are dealt with in the relevant section in the "Instruction, Use and Maintenance Manual" which constitutes an integral part of the Products themselves.

8. Bardiani Valvole S.p.A., shall not in any way be held liable for immaterial, indirect and consequential damages, such as (by way of example only), damages or loss of business, contracts, opportunities, time, production, profits, goodwill, image etc..

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