

USE AND MAINTENANCE INSTRUCTION MANUAL

ATEX Valves

Models: *****EX



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INTRODUCTION

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

This "Instruction, Use and Maintenance Manual" forms an integral part of the control unit and the valve.

Before proceeding with installation, use or maintenance of each type of control unit and valve it is compulsory to read and understand this manual.

This manual must be kept for all future reference

It being understood that the essential characteristics of the control unit and valve types described herein shall remain the same, the manufacturer reserves the right to amend and/or integrate and/or update the data and/or information relative to use of the control unit and valve provided in the "Instruction, Use and Maintenance Manual", at any time and without prior notice.

The latest, updated version of the "Instruction, Use and Maintenance Manual" is always available at www.bardiani.com

The manufacturer shall not in any way be held liable for any consequences resulting from a failure to correctly observe the prescriptions provided in the relative manual concerning installation, use, maintenance and care of the product.

All rights reserved. It is prohibited, without prior written authorization from the manufacturer, to totally and/or partially reproduce and/or transmission and/or record any part of this "Instruction, Use and Maintenance Manual" using any means and/or support, including IT and/or electronic and/or mechanical and/or paper formats, or by means of any other system to save and/or reuse it for purposes different to the exclusive use by the purchaser.

1. Symbols used



General WARNING sign indicating that special instructions **MUST** be followed to avoid serious injuries to personnel.



General CAUTION sign indicating that special instructions **MUST** be followed to avoid damage to equipment and the environment.



PROHIBITION sign indicating that to avoid harm to persons and the environment certain activities or actions **MUST NOT** be done.

NOTE! Identifies **IMPORTANT** information aimed at improving comprehension of the instructions.

2. Safety instructions



ALWAYS read the technical data carefully before machine installation, operation and maintenance.

The Giotto Top® and J-Giotto Top® must **ALWAYS** be installed, operated and maintained by authorized personnel. Said personnel must know and understand both the Giotto Top® and J-Giotto Top® and the contents of the manual.

Use the valve, the Giotto Top® and J-Giotto Top® for their intended use **ONLY**.

ALWAYS handle heavy valves with care using appropriate hoisting equipment.

ALWAYS Take care over any separate parts of the valves and Giotto Top® and J-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® and J-Giotto Top® and in the valve.

NEVER touch a hot valve.

ALWAYS handle detergents with care.

NEVER remove a valve from piping or disassemble it when the valve and/or the piping are pressurized.

Instructions for safe use in explosion hazard areas

Use in compliance with Directive 2014/34/EC:

Control unit assembly without solenoid valve installed on Bardiani valve

II 2G Ex ib IIB T6 Gb X
II 2D Ex ib IIIC T90° C Db X
T_{amb} -10°C .. +40°C

X: The control unit must be used in the presence of a potentially explosive atmosphere, only if it is installed on Bardian's valves certified in accordance with Directive 2014/34/EU ATEX; if it isn't intalled on Bardiani's valves certified in accordance with Directive 2014/34/EU ATEX this Declaration is not valid.

Control unit assembly with solenoid valve installed on Bardiani valve certified in accordance with Directive 2014/34/EC

II 2G Ex ib IIB T6 Gb X
T_{amb} -10°C .. +40°C

X: The control unit must be used in the presence of a potentially explosive atmosphere, only if it is installed on Bardian's valves certified in accordance with Directive 2014/34/EU ATEX; if it isn't intalled on Bardiani's valves certified in accordance with Directive 2014/34/EU ATEX this Declaration is not valid.

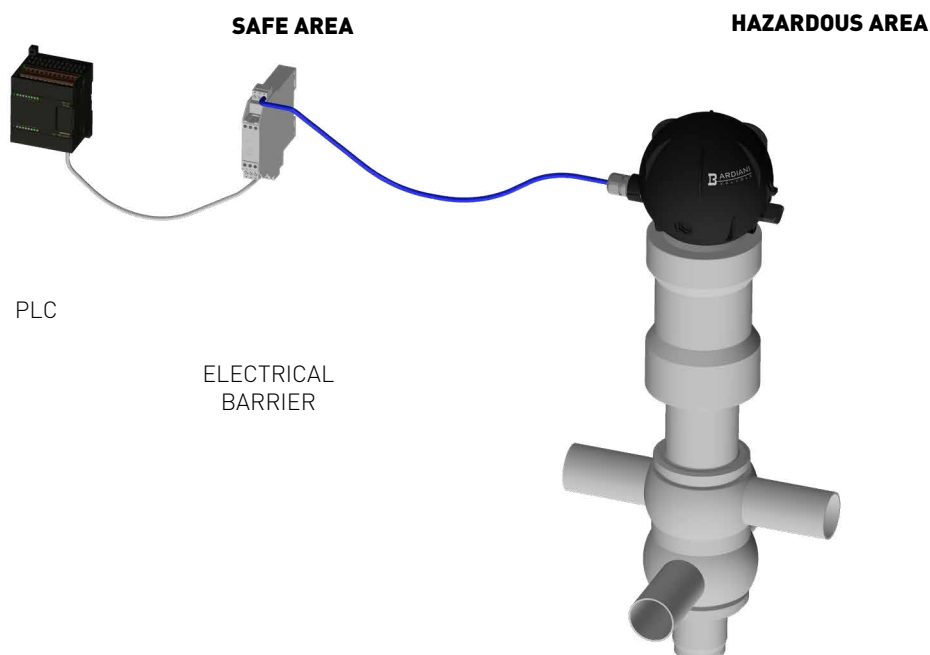
It is forbidden to use the control unit in this configuration in explosion and/or fire hazard areas classified as Zone 0, 20, 21, 22.

For these valves the internal zone must be safe and consequently not potentially explosive. It is prohibited to use the valves if their interior may present an explosion risk zone.

The valves and their components must be assembled, connected and put into service by expert personnel only.

The expert personnel must have adequate knowledge of types of explosion protection, standards and regulations for means of production in explosion hazard zones. Make sure, based on its classification, that the components are suitable for the application in question.

- Only connect to an intrinsically safe circuit which is complete with EC approval testing certificate and which does not exceed the maximum values indicated in the relative manuals.



The operating conditions of the electrical components in the control unit are indicated in the following pdf documents attached to this manual.

Description	File name
Sensor manual (English)	80231773UK
CE certificate, sensor	8002078
EC type-examination, sensor (1D)	BVS04ATEXE153
EC type-examination, sensor (1G)	PTB01ATEX2191
Solenoid valve manual (English)	MA6144-Manual-EU-ML 1512 04
CE certificate, solenoid valve	SOLENOID VALVE Burkert 6510 ATEX certificate
EC type-examination, solenoid valve	PTB07ATEX2048X_ia_6144_Issue02_en

ATEX Sensor information	
Type	NS...
Max internal capacitance	80nF
Max internal inductance	110μH

ATEX solenoid valve information	
Coil Type	6144
R20 resistance	320Ω

For further information on the components, it is mandatory to consult the relative manuals.

- Permitted ambient temperature in the place of use (with reference to the maximum power supplied)

-10°C...+40°C

Installation and assembly instructions

- abide by the relative directives and regulations in force.
- Avoid static loads on plastic parts and cables, in particular on the Giotto Top® and J-Giotto Top®.
- Protect the Giotto Top® and J-Giotto Top® and cables against damage.

- Deposit of file no.:

TUV IT 07 ATEX 010 AR Rev.002



Use clean air only.



DO NOT use flames and/or hot gases.



The temperature of the outer surfaces of the valve also depends on the fluid which flows through it.



In the event of dropping/hitting the valve, it is compulsory to check correct operation as any friction caused by component deformation may cause malfunctions and sources of ignition



Each valve must be promptly taken out of service or correctly maintained before excessive wear ensues.



Mechanical damage, in most cases, results in blocked operation; consequently there are no direct risks of ignition



It is prohibited to use the valves in the absence of fluid, when there is a pressure drop or the valve is malfunctioning. In the event of any malfunction, the valve **MUST** be stopped.



Lightning protection measures and protection against currents caused by lightning in nearby areas are required.



The maximum permitted measured and declared temperature for products is such that it does not reduce the level of protection. The temperature of the outer surfaces depends on the fluid which flows through it. Fluids must be at ambient temperature (or never over 86°C).



The valve must be earthed using the relative connection.



Any electrical accessories, installed on board the valve, must comply with directive 2014/34/EC and must be compatible with its classification.



During assembly take care to ensure foreign bodies are not left inside.



During assembly take care to prevent the formation of sparks caused by rubbing oxidizable substances such as iron or steel.



The fluid being conveyed must be free from foreign bodies.



Keep the valve clear of any potentially explosive dust deposits. Do not allow dust to build up to over 5 mm in depth.



Consult the attached use and maintenance manuals.



If the valve on which the control unit is installed operates with potentially explosive products, the end user must classify the operating areas in accordance with ATEX Directive 199/92/EC as any valve emissions may create a potentially explosive atmosphere.



The end user is responsible for assessing the risk of explosion and classification of the unit and zone of application in accordance with Directive 1999/92/EC.



Make sure, based on its classification, that the control unit and its components are suitable for the application in question.



The internal electrical components which can be installed in the J-Giotto Top® for ATEX valves must be selected based on the classification of the group and the zone in which the control unit will be used.

Component	ATEX Certified	Category
Sensor	PTB 01 ATEX 2191	II 1G Ex ia IIB T6 Ga II 2G EX ia IIC T6 Gb II 1D Ex ia IIIC T90°C Da
Solenoid valve	PTB 07 ATEX 2048	II 2G Ex ia IIC T6 Gb



Installation and assembly instructions:

- abide by the relative directives and regulations in force
- protect the J-Giotto Top® control units for ATEX valves and the cables from damage.



The control unit must not be exposed to direct sunlight

The manufacturer shall decline all liability in the following cases:

- Improper use of the assembly by personnel who have not been adequately trained or are not familiar with the information provided in this manual;
- Incorrect installation;
- Power supply faults;
- Lack of maintenance on both the valve and the system in which it is installed;
- Modifications or interventions which have not been authorized by the manufacturer;
- Total or partial failure to observe the instructions;
- Use which does not comply with specific national standards.

The manufacturer also prohibits:

- Tampering with or modifying the guards installed;
- Use of the devices with the safety devices removed.

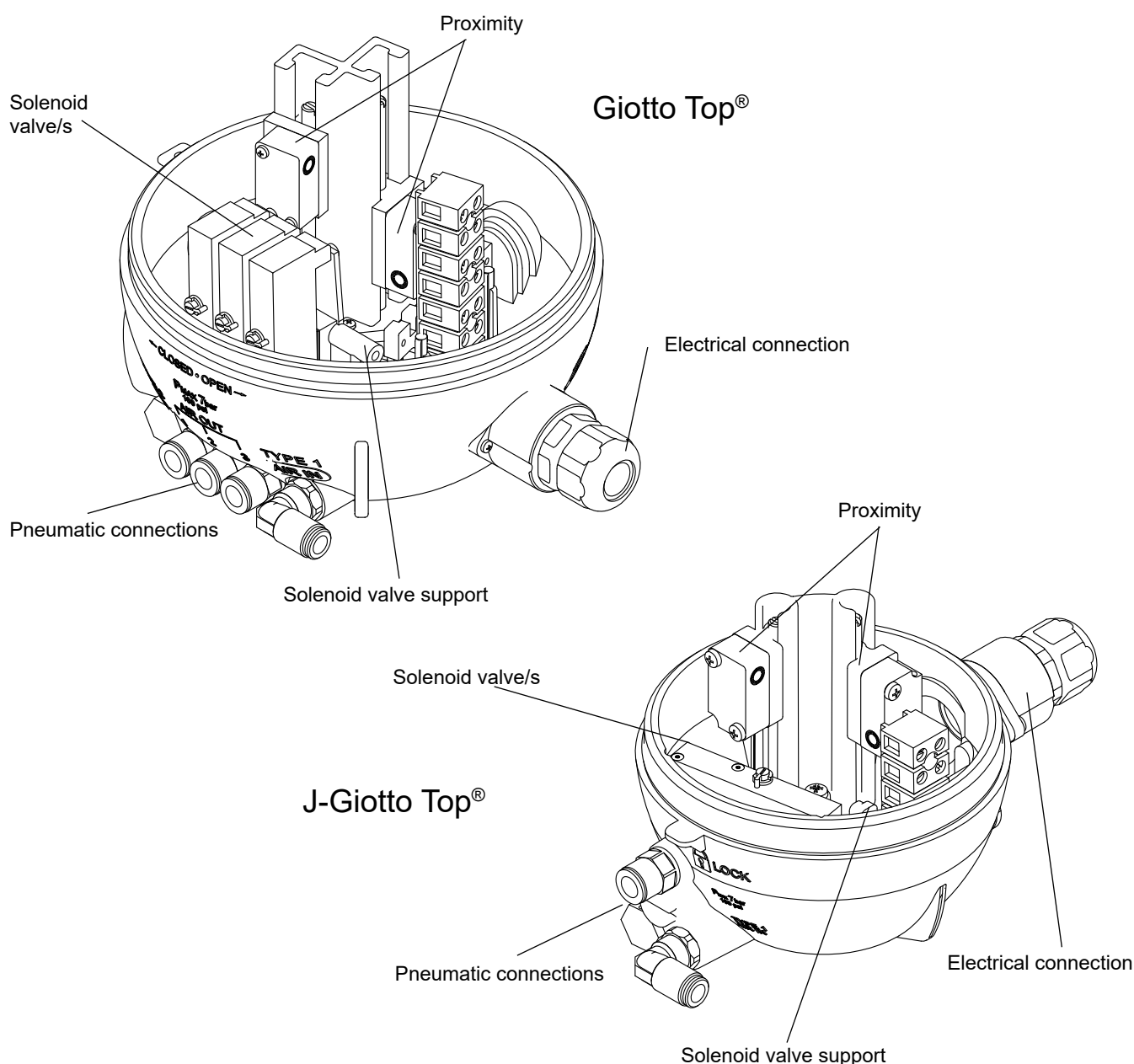


Do not use the valve differently to the manner envisaged by Bardiani Valvole SpA and indicated in the Use and Maintenance Manual.

3. Structure and functions of Giotto Top® and J-Giotto Top®

The Giotto Top® and J-Giotto Top® control units have been designed to control the pneumatically operated process valves.

Based on the initial configuration it is possible to fit the Giotto Top® and J-Giotto Top® with a maximum of three solenoid valves (Giotto Top®) or two solenoid valves (J-Giotto Top®), for controlling the process valve and up to a maximum of three inductive sensors (Giotto Top® only), including an external one for controlling the position.



The solenoid valves are electronically controlled by a PLC (Programmable Logic Controller) and when they are activated the compressed air activates the pneumatic actuator. All the solenoid valves are equipped with a manual switch so that they can be opened or closed even when there is no power supply.

NOTE!

The Giotto Top® and J-Giotto Top® can be installed at any time on any of our valves. They can also be updated at any time with other solenoid valves or sensors.

4. Technical data

Number of solenoid valves

Type of application	Number of solenoid valves
Single Acting Valves	1
Double Acting Valves (1 normally open and 1 normally closed), Mixproof and Twin-Stop valves with opening and top lift	2
Mixproof valves with air supply for opening, top and bottom lift	3



ALWAYS make sure the electrical connection is NOT active when carrying out work on the Giotto Top® and J-Giotto Top® and that the power supply voltage is always and only that indicated on the technical data sheet accompanying the proximity switches and solenoid valves.



Air supply	Non-lubricated, clean and dry compressed air
Operating temperature	-10...+50°C
Protection class	IP 67

Technical data of Giotto Top® and J-Giotto Top®

Weight	from 0.55 Kg to 0.65 Kg depending on the configuration Giotto Top® from 0.24 Kg to 0.42 Kg depending on the configuration J-Giotto Top®
Casing material	PMMA (methacrylate) and PA6-GF30 (glass fibre reinforced nylon)
Gaskets material	NBR
Protection class	IP67
Air supply and vent connections	1/8" BSP
Air line connections	Ø6 mm / Ø6.35 (1/4")

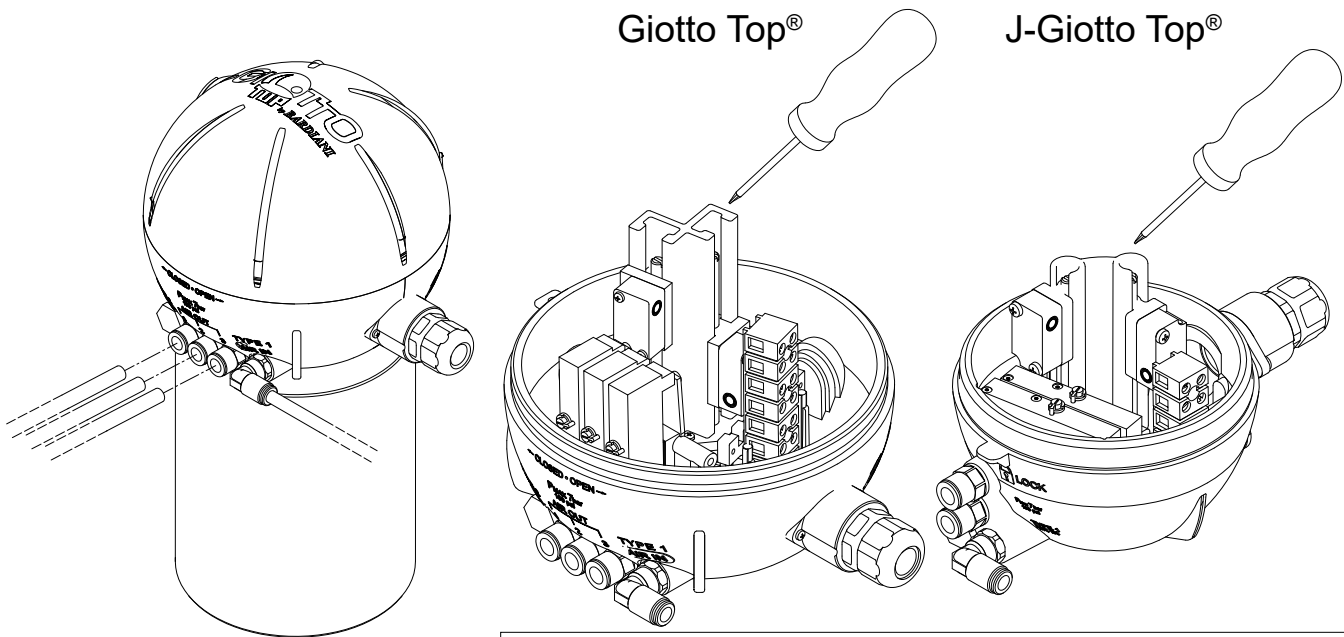
Solenoid valve technical data

For further information on the components, it is suggested to consult the relative manuals.

Proximity technical data

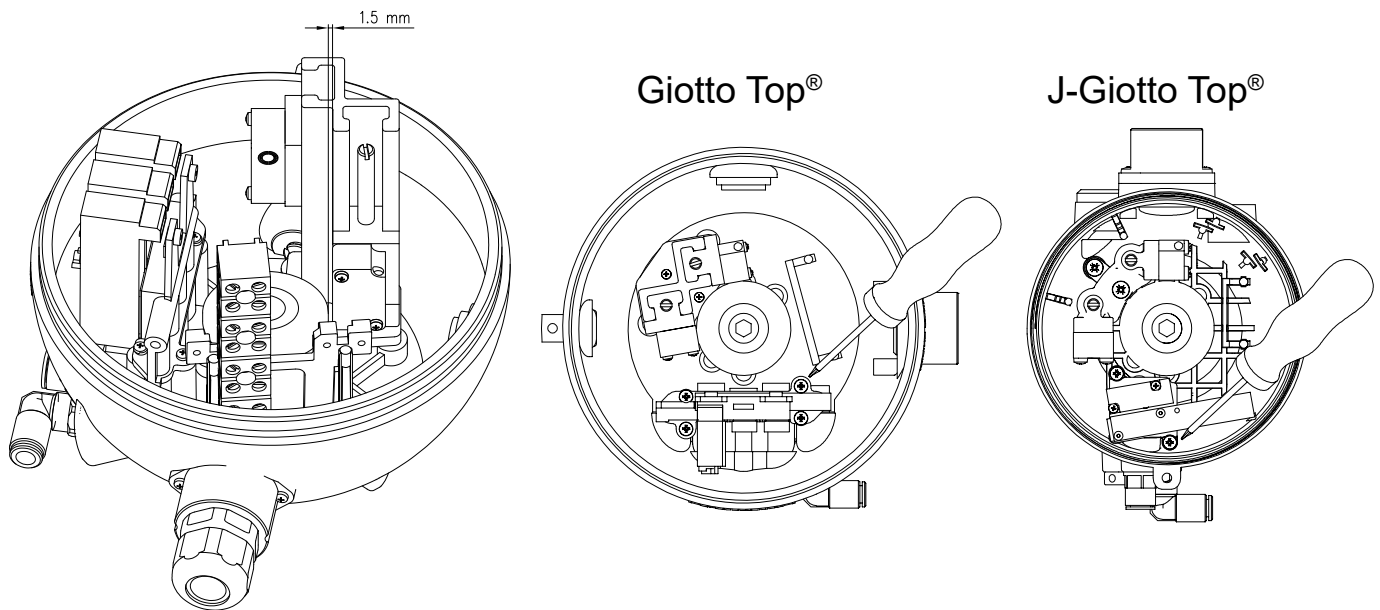
For further information on the components, it is suggested to consult the relative manuals.

5. Installation



1. Connect the electrical and pneumatic power supplies.

2. Check that the sensors are in the correct position, if this is not the case they can be adjusted in height by acting on the screws on the double guide.



3. To ensure that the sensors correctly read the position, make sure the **maximum** distance between the cam and the proximity switch is 1.5 mm.

4. Always make sure that all wires are connected and securely fastened and that the solenoid valves, solenoid valves support and any other parts inside the Giotto Top® and J-Giotto Top® are well assembled and secured.

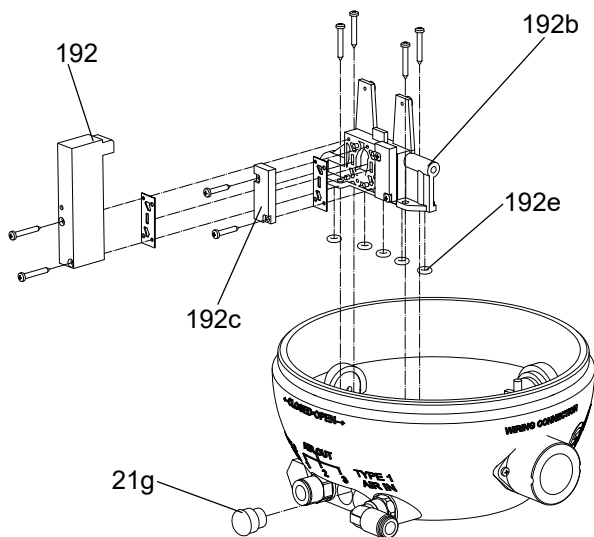


ALWAYS make sure the electrical connection is NOT active when carrying out work on the Giotto Top® and J-Giotto Top® and that the power supply voltage is always and only that indicated on the technical data sheet accompanying the proximity switches and solenoid valves.

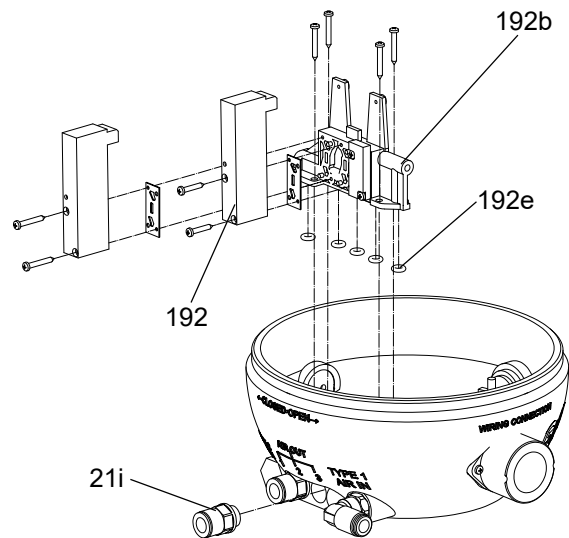


Installation of Giotto Top® solenoid valves

It is possible to have up to three solenoid valves in the Giotto Top® and it is possible to switch from one to two or three at any time.



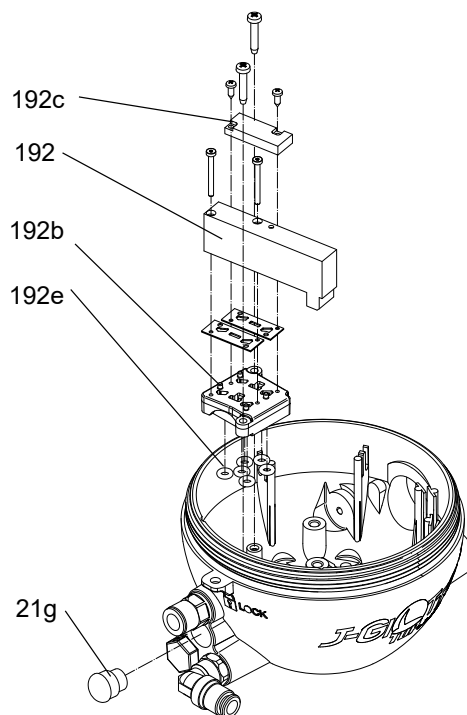
1. Remove the solenoid valves support (192b), the solenoid valve and plugs (192c) taking care over the relative gaskets and the support sealing rings (192e) and remove the air coupling plug (21g).



2. Install the additional solenoid valves (192) taking care over the relative gaskets. Install the solenoid valves support (192b) and the support sealing rings (192e). Install the air connectors (21i).

Installation of J-Giotto Top® solenoid valves

It is possible to have one solenoid valve in the J-Giotto Top® and this can be installed at any time.



1. Insert the solenoid valves support (192b), the solenoid valve (192), the plug (192c) and the air lines (21f, 21e, 21g) taking care over the relative gaskets and support sealing rings (192e).

6. Troubleshooting

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Air leak from solenoid valve support	No gaskets or loose fitting	Check the gasket presence and tighten the screws
Air leaks in safety valve		
The solenoid valve does not activate	Damaged solenoid valve	Replace solenoid valve
	Incorrect air supply pressure	Consult the Technical Data section in the manual
	Electrical connections not made properly	Check the connections in the control panel
The proximity switches aren't working	Damaged Proximity	Replace proximity
	Electrical connections not made properly	Check the connections in the control panel

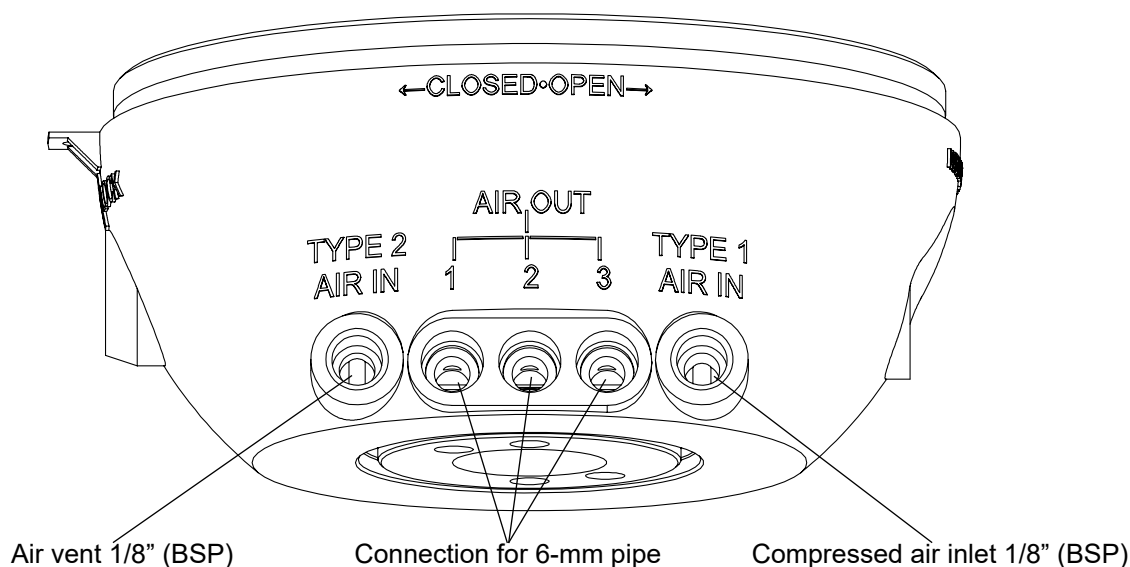


ALWAYS make sure the electrical connection is NOT active when carrying out work on the Giotto Top® and J-Giotto Top® and that the power supply voltage is always and only that indicated on the technical data sheet accompanying the inductive sensors and solenoid valves.

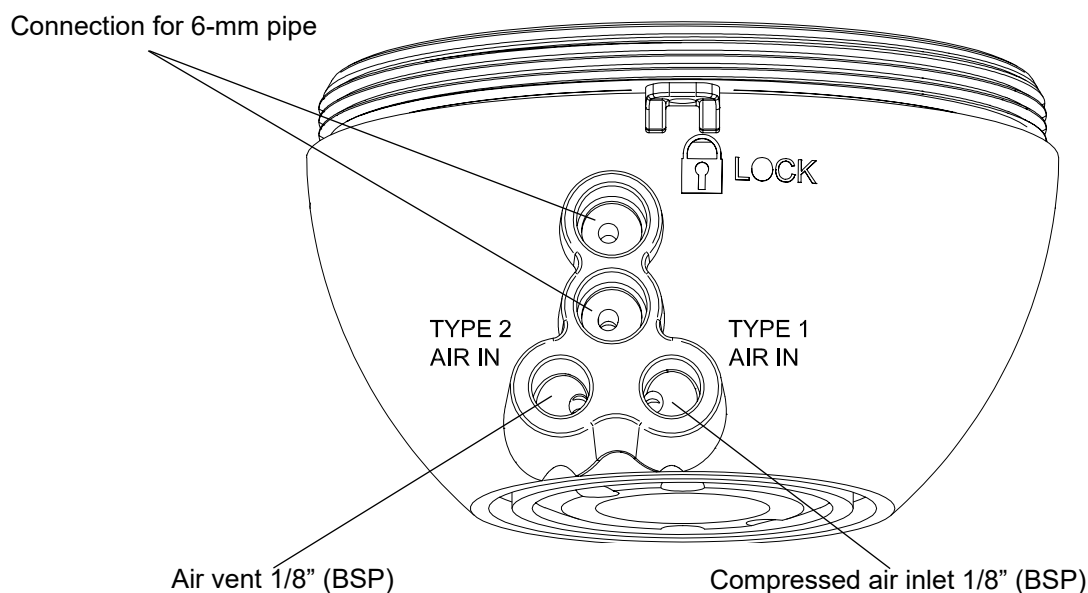


7. Pneumatic connections

Giotto Top®



J-Giotto Top®

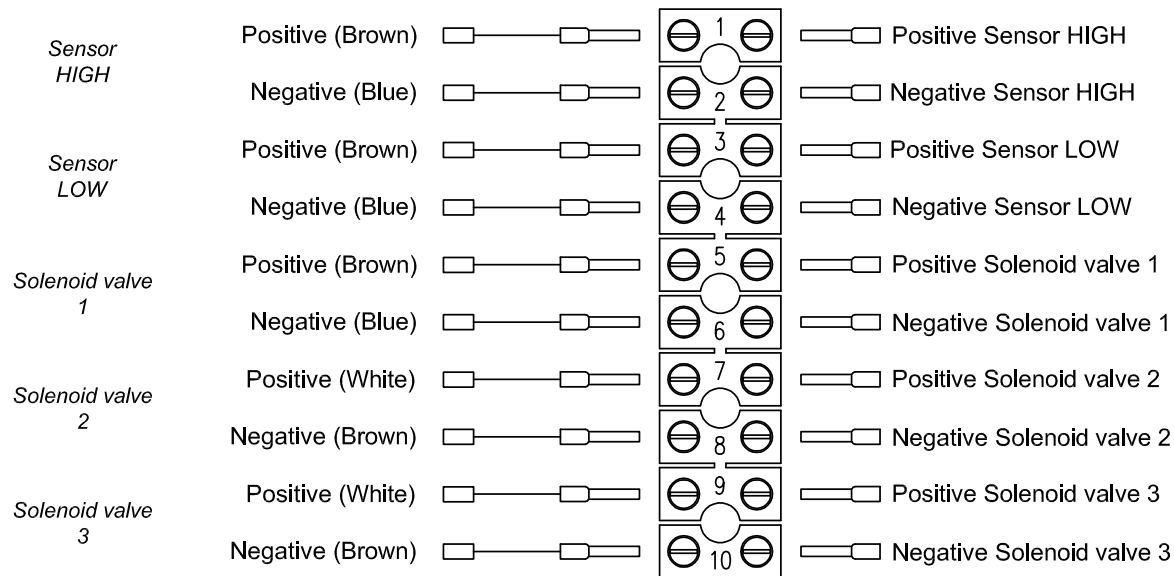


Use only pipes with an external diameter of 6 mm.
Cut these pipes only with a suitable cutter to avoid damaging the pipe which could lead to Giotto Top® and J-Giotto Top® malfunctions.
Select a suitable length of pipe which allows the Giotto Top® and J-Giotto Top® to be removed by unscrewing the anchoring screws.

8. Electrical connections

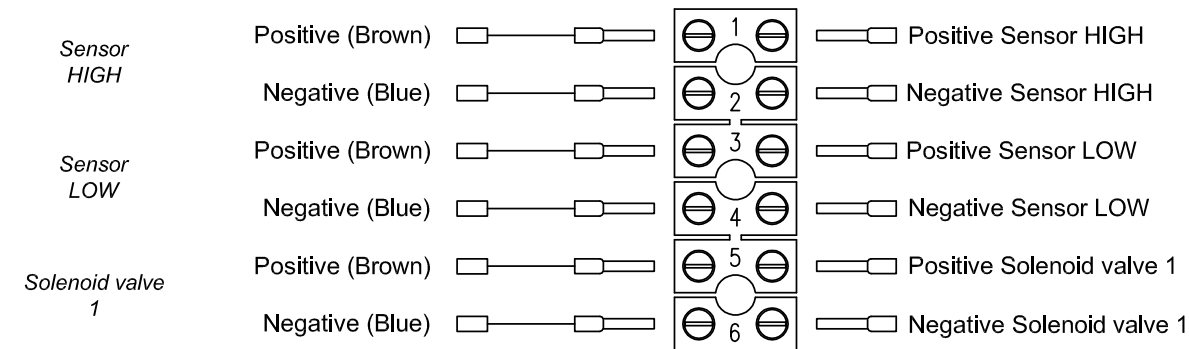
Giotto Top®

2 sensors ATEX with 3 solenoid valves TYPE1 ATEX normally closed



J-Giotto Top®

2 sensors ATEX with 1 solenoid valve TYPE1 ATEX normally closed



ALWAYS make sure the electrical connection is NOT active when carrying out work on the Giotto Top® and J-Giotto Top® and that the power supply voltage is always and only that indicated on the technical data sheet accompanying the proximity switches and solenoid valves.



ALWAYS make sure, if connections are made on a terminal board or by means of wiring, that they are in any case compliant with ATEX regulations.
Make sure the supply voltage is correct, as indicated in the Use and Maintenance manual accompanying the Giotto Top® and J-Giotto Top® and the electrical components installed therein.



9. Maintenance

When used correctly the Giotto Top® and J-Giotto Top® do not need any special maintenance. Any repair work must be carried out by authorized personnel only, making sure that the electrical power supply has been DISCONNECTED before carrying out any operation inside the Giotto Top® and J-Giotto Top®.



Before using cleaning products **MAKE SURE** they are compatible with the materials used to construct the Giotto Top® and J-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® and J-Giotto Top® are immediately rinsed with clean water.

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



NEVER open the bleed valve during maintenance or washing operations as this would compromise correct operation and may result in damage to things or injuries to people.



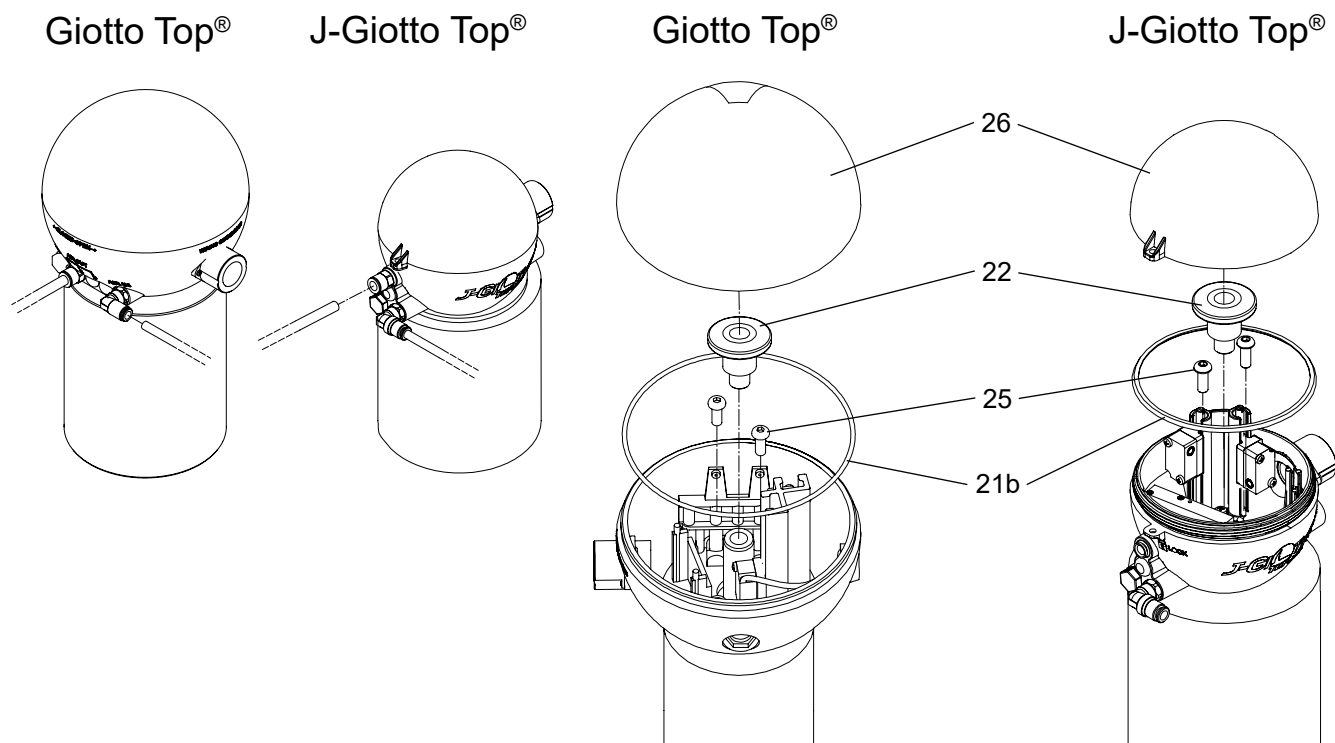
Furthermore, each time the casing is open, make sure that the various cables inside it are repositioned where they do not interfere with cam movement.



Should it be necessary to replace any component of the Giotto Top® and J-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.



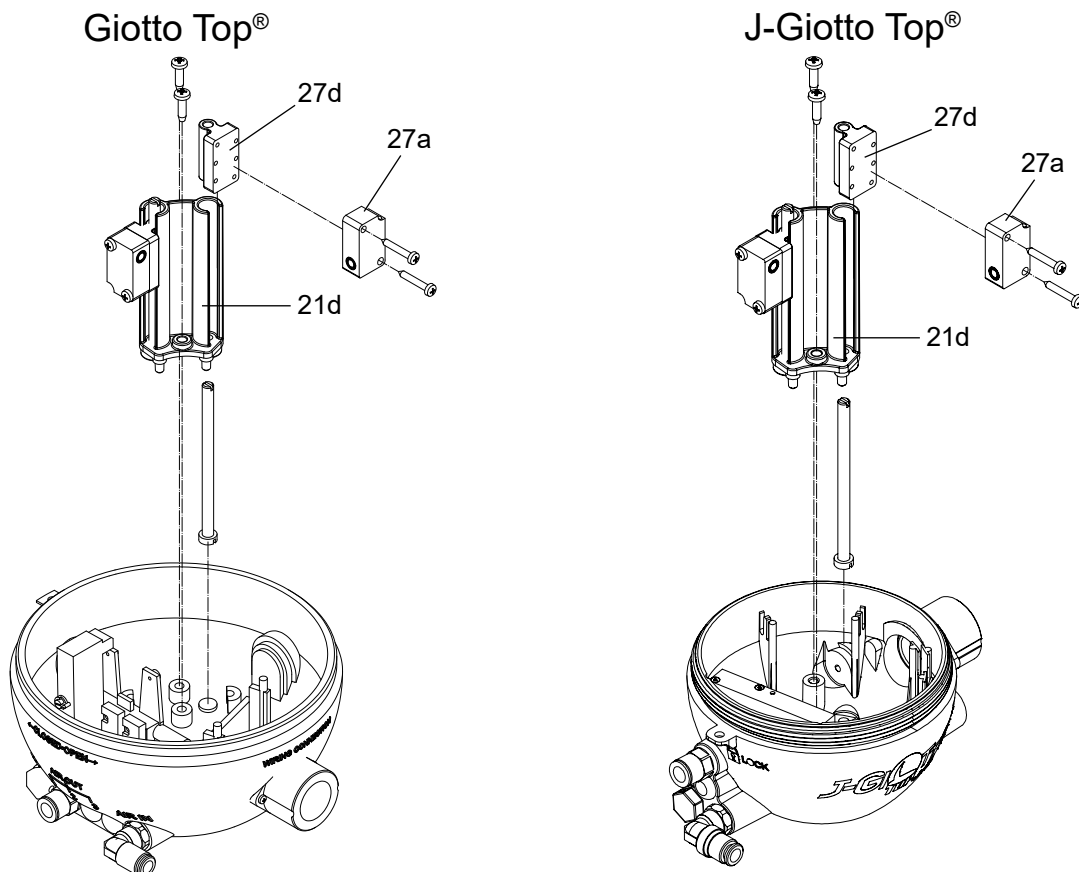
10. Disassembly of the Giotto Top® and J-Giotto Top®



1. Disconnect the electrical and pneumatic supply.

2. Giotto Top® J-Giotto Top®.

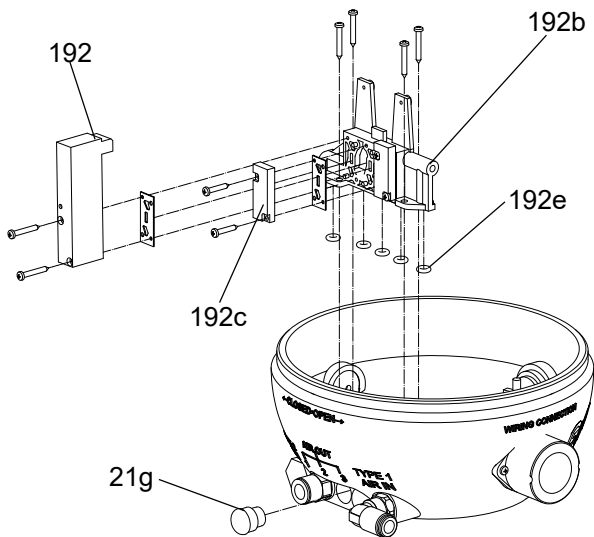
Unscrew the casing (26), the cam (22) and the two screws (25) which secure the Giotto Top® and J-Giotto Top® to the cylinders. Remove the gasket (21b).



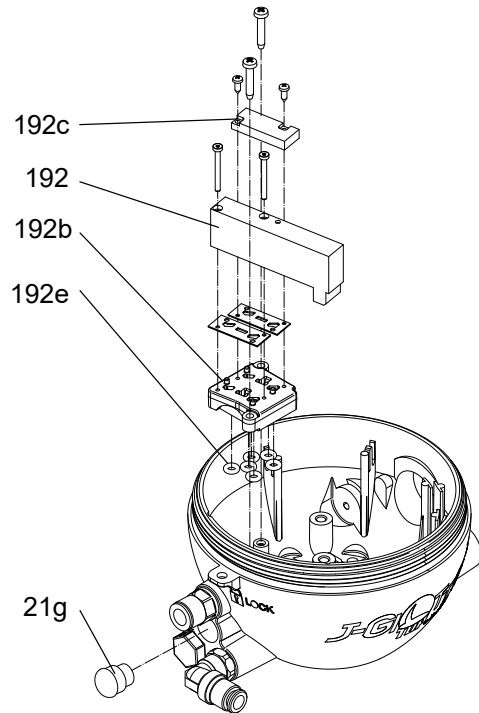
3. Giotto Top® J-Giotto Top®

Unscrew the double guide (21d), the proximity switch holder slide (27d) and the proximity switch (27a).

Giotto Top®



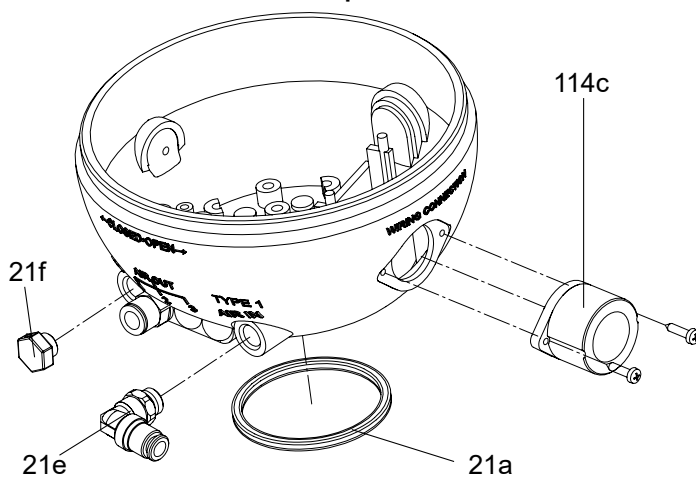
J-Giotto Top®



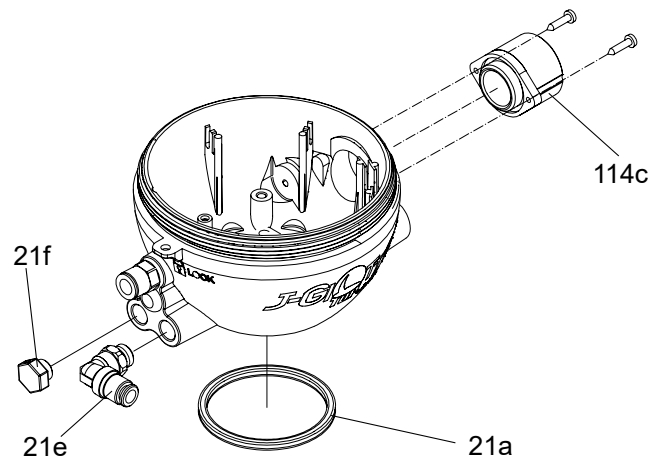
4. Giotto Top® J-Giotto Top®.

Remove the solenoid valves support (192b), the plug (192c), the solenoid valve (192) and the support sealing rings (192e), then remove the air coupling plug (21g).

Giotto Top®



J-Giotto Top®



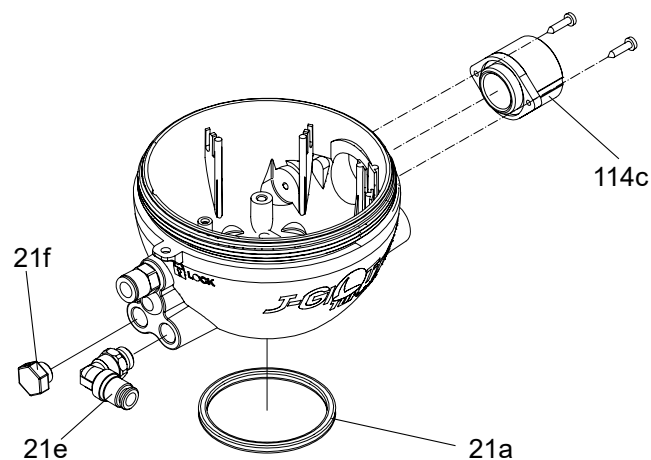
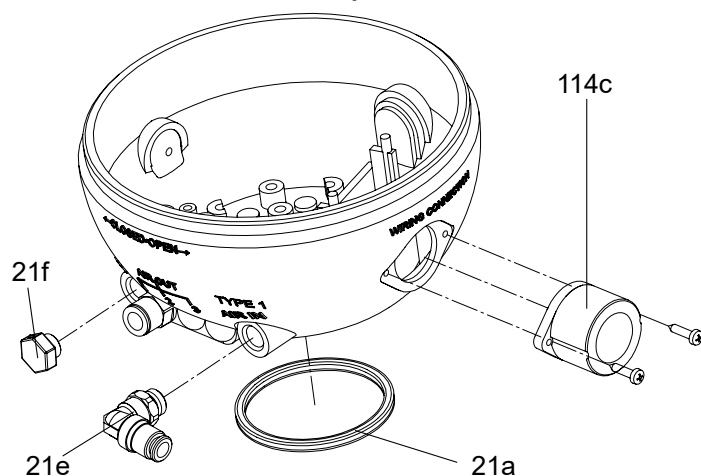
5. Giotto Top® J-Giotto Top®.

Remove the sealing ring (21a) from the bottom of the base, the air coupling (21e) and the vent plug (21f). Unscrew the cable gland plug (114c).

11. Assembly of the Giotto Top® and J-Giotto Top®

Giotto Top®

J-Giotto Top®

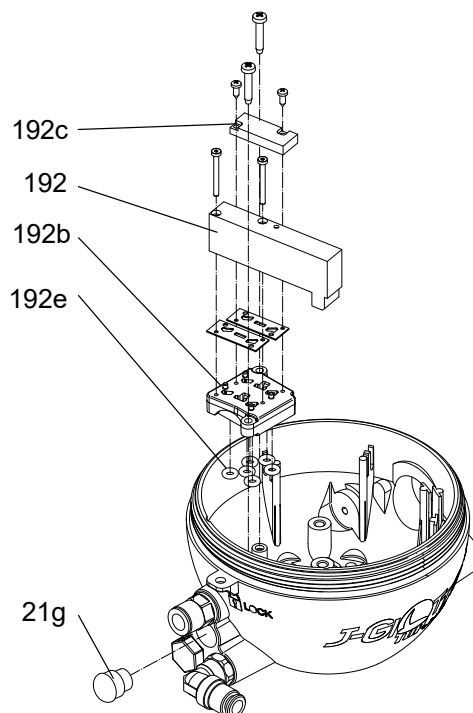
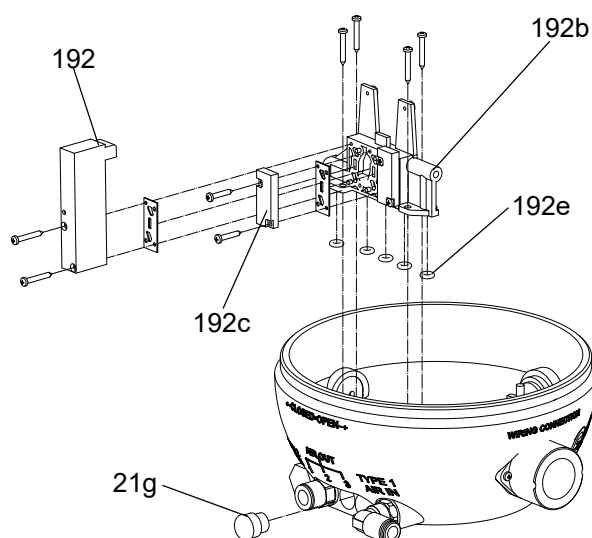


1. Giotto Top® J-Giotto Top®.

Insert the sealing ring (21a) in the bottom of the base, the air coupling (21e) and the vent plug (21f). Tighten the cable gland plug (114c).

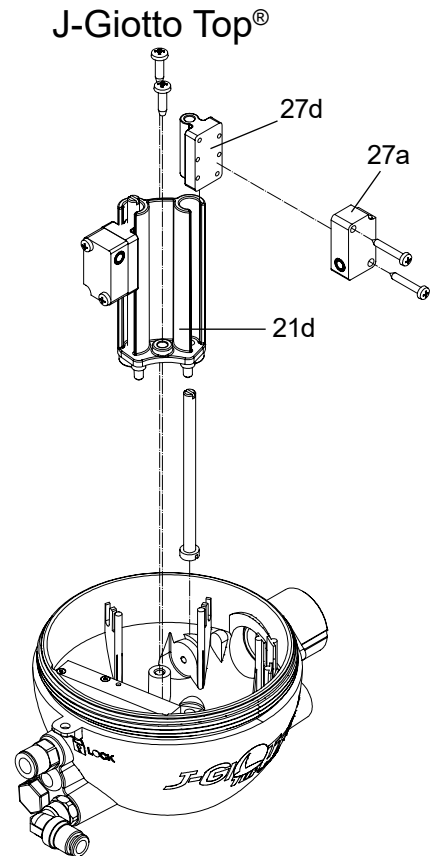
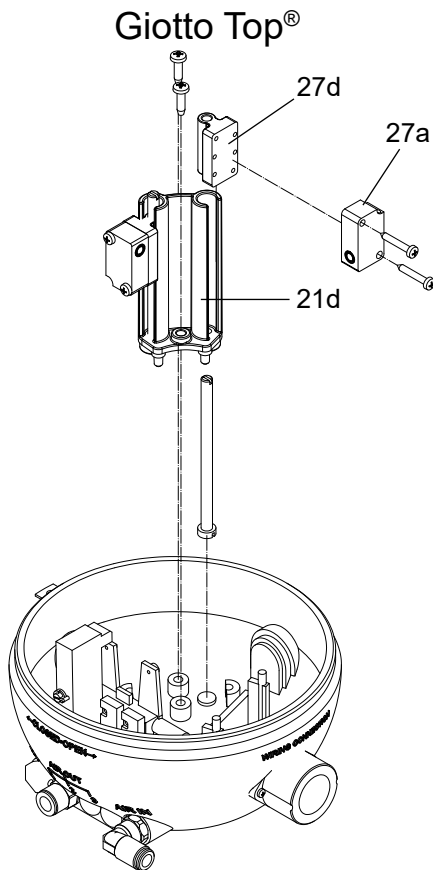
Giotto Top®

J-Giotto Top®



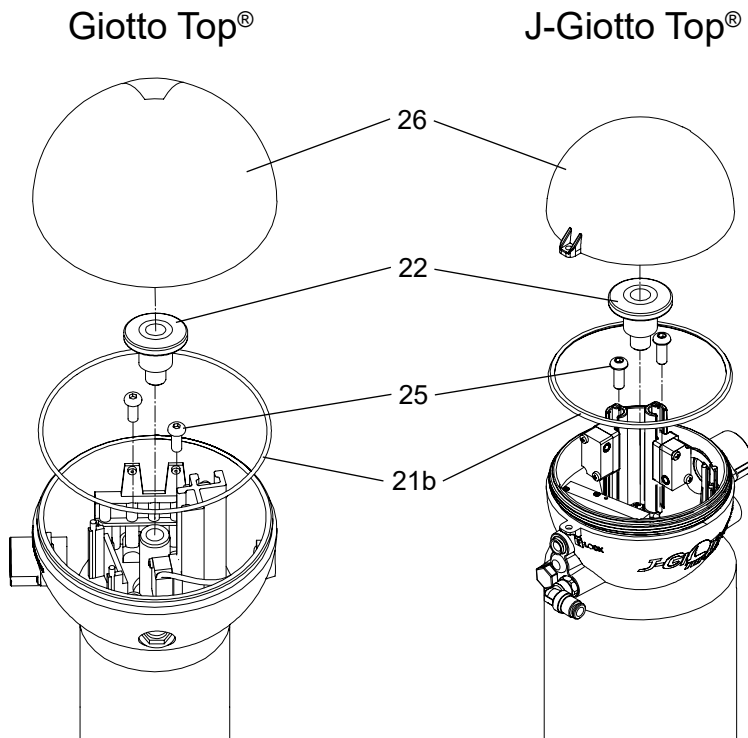
2. Giotto Top® J-Giotto Top®.

Install the solenoid valves (192) and the plugs (192c) on the solenoid valves support. Assemble the solenoid valves support (192b) on the base paying special attention to the sealing rings (192e). Install the air connection plug (21g) on the base.



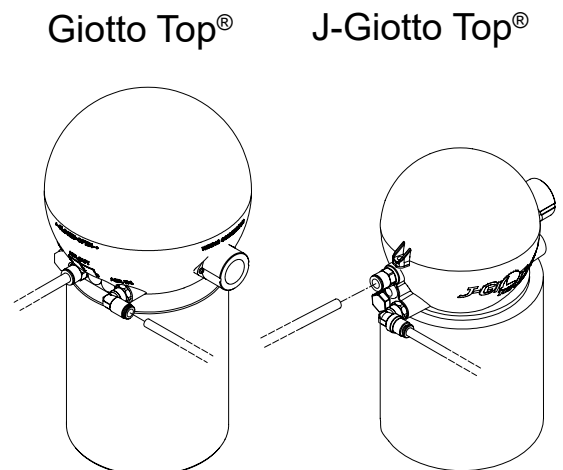
3. Giotto Top® J-Giotto Top®

Install the proximity switch (27a) on the proximity switch holder slide (27d) and screw the double guide (21d) to the base.



4. Giotto Top® J-Giotto Top®.

Tighten the two screws (25) to fasten the Giotto Top® or J-Giotto Top® to the cylinder and the cam (22). Insert the gasket (21b) and screw on the top casing (26).

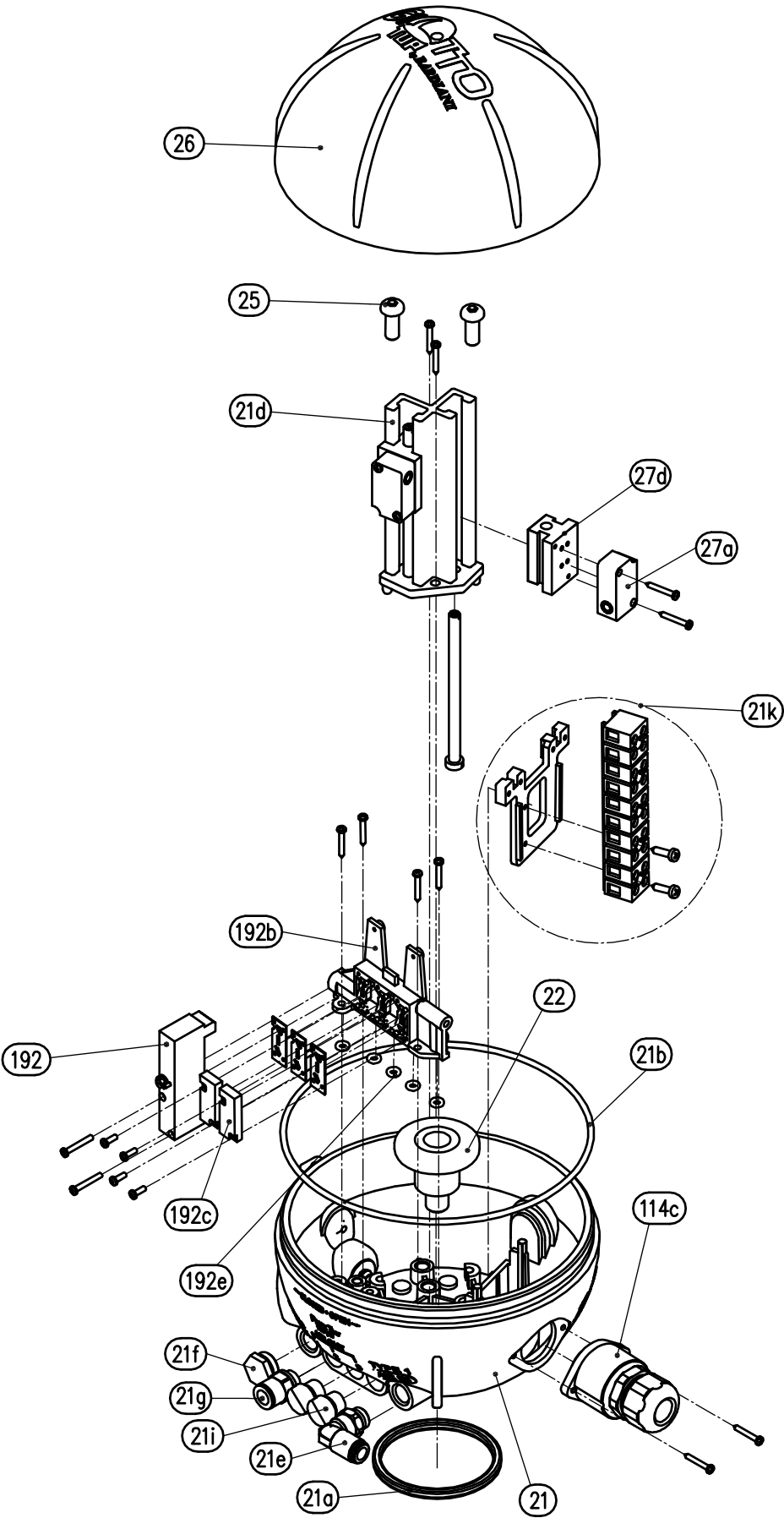


5. Giotto Top® J-Giotto Top®.

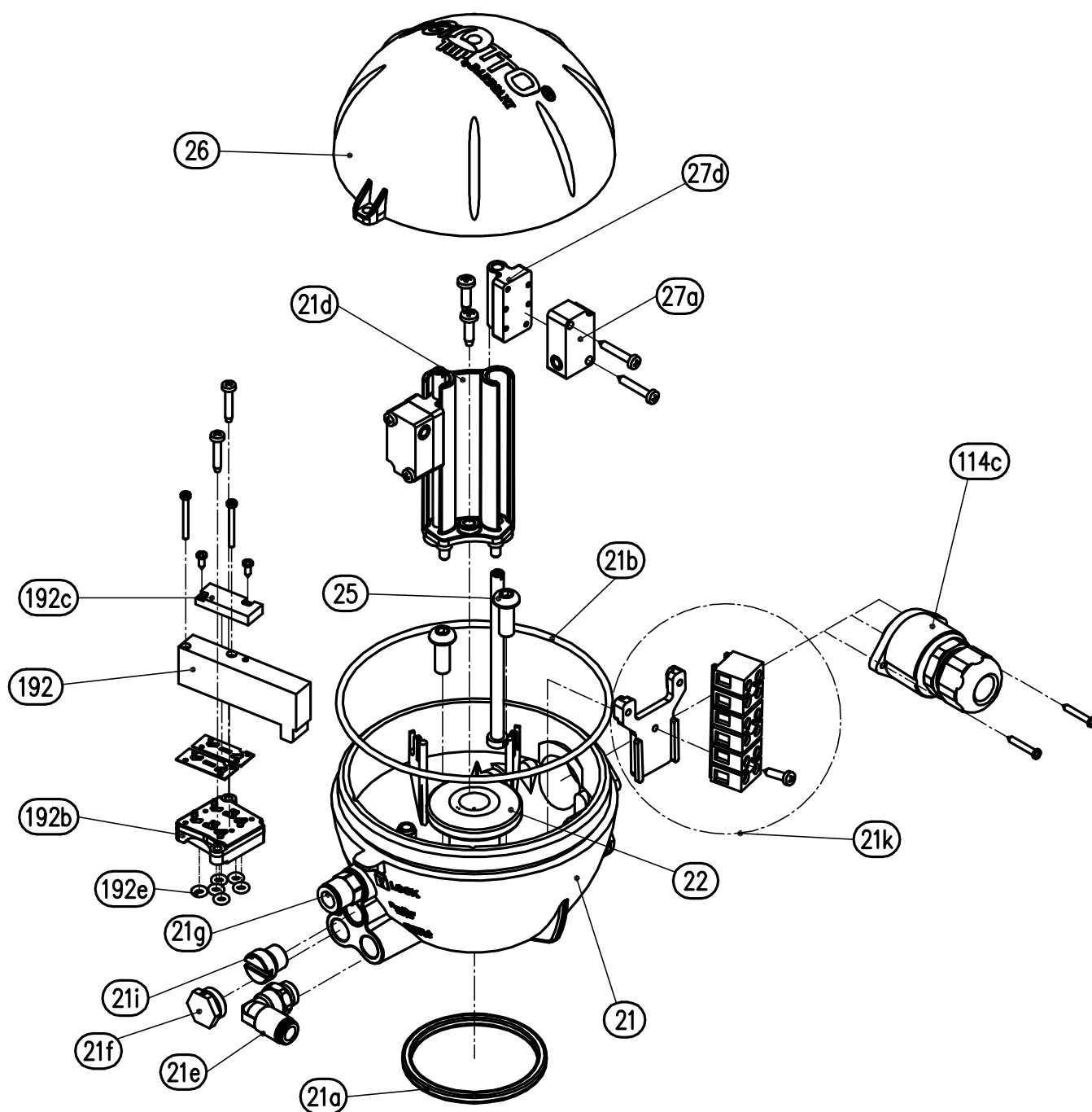
Connect the electrical and pneumatic supply.

12. Drawings - Giotto Top® e J-Giotto Top®

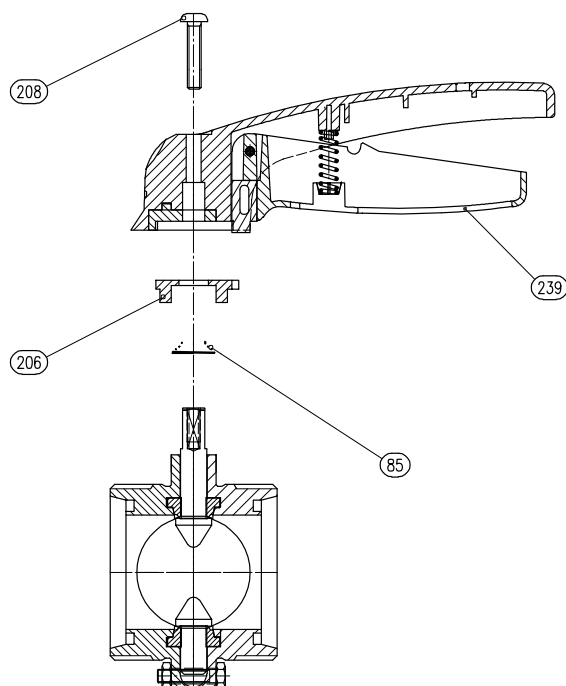
Giotto Top®



J-Giotto Top®

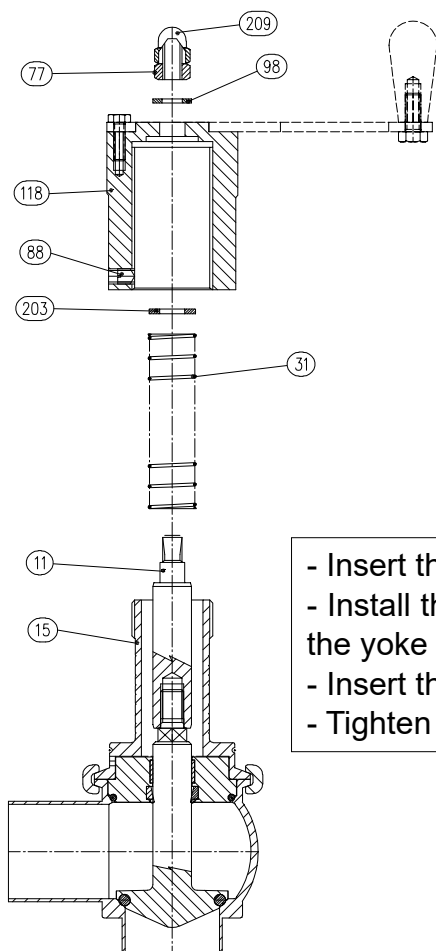


13. Assembly of the conical spring in the VVFEX valve



- Install the conical spring (85) on the valve body pin.
- Insert the ratchet (206), the handle (239) and tighten the screw (208).
- Finally, make sure that there is conductivity between the butterfly vane and the outside of the valve body.

14. Assembly of the spring in the BBZMEX-BBZMREX valve



- Insert the spring (31) in the yoke (15)
- Install the washer (203) on the pin (11) and screw the handle (118) into the yoke (15).
- Insert the washer (98) and tighten the nuts (77 and 209)
- Tighten the grub screw (88).

15. Packing list

No.	Description	No.	Description
11	pin	192c	solenoid valve plugs
15	yoke	192e	sealing ring
21	base	203	washer
21a	sealing ring	206	ratchet
21b	sealing ring	208	screw
21d	double guide	209	nut
21e	air coupling	239	handle
21f	vent plug		
21g	bush cap		
21i	air coupling bush		
21k	terminal box		
22	cam		
25	screws		
26	casing		
27a	Inductive sensor		
27d	Micro-size inductive micro-sensors holder slide		
31	spring		
77	nut		
85	conical spring		
88	Threaded grub screw		
98	washer		
118	handle		
114c	sleeve for cable gland		
192	solenoid valve		
192b	solenoid valve support		

16. Valve complete with control unit containing sensors only



EC Declaration of Conformity
ATEX

EC DECLARATION OF CONFORMITY

(EC) 2006/42, Annex II, p. 1, let. A
(EU) 2014/34, Annex X

BARDIANI VALVOLE S.p.A.

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

Declares

under its own responsibility that the machine:

Type:	Pneumatic valve
Model:	
Serial number:	
Function:	Fluid handling
Year of construction:	
Tech. Ref. File	Fascicolo Tecnico valvole_Atex 2014-34_01_02
Deposited on N.B.	TUV IT 19 ATEX 085 AR
Reference	Our reference Your PO

complies with all relevant provisions of the following EU directives:

- **2006/42/EC** (machinery)
- **2014/34/EU** (potentially explosive atmospheres, ATEX)
- **2014/30/EU** (electromagnetic compatibility)

and also complies with the following EU Regulations:

- **(EC) 2023/2006** and subsequent amendments and additions with regard on good manufacturing practices of materials and articles intended to come into contact with food
- **(EC) 1935/2004** and subsequent amendments and additions with regard to steel and elastomers in contact with the product

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

- **EN ISO 12100:2010**
- **EN 1127-1:2019**
- **EN ISO 80079-36:2016**
- **EN ISO 80079-37:2016**
- **EN 60079-0:2018**
- **EN 60079-11:2012**

The equipment is classified as follows:



II 2G Ex h ib IIB T6 Gb X
II 2D Ex h ib IIIC T90°C Db X
T_{amb} -10°C ..+40°C

X: T_{max} product +85°C

BARDIANI VALVOLE S.p.a.
Amministratore Delegato

Emanuela Bardiani

Fornovo di Taro

PEX01

BARDIANI VALVOLE S.p.A.
Via G. di Vittorio 50/52
43045 Fornovo di Taro (Pr) ITALY
Reg. Impr. Parma, C.F. - P.I.V.A. n. 01511810341
R.E.A. Parma n. 159144 • Cap. Soc. € 1.186.800 i.v.

17. Valve complete with control unit containing at least one solenoid valve



EC Declaration of Conformity
ATEX

EC DECLARATION OF CONFORMITY

(EC) 2006/42, Annex II, p. 1, let. A
(EU) 2014/34, Annex X

BARDIANI VALVOLE S.p.A.

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

Declares

under its own responsibility that the machine:

Type:	Pneumatic valve
Model:	
Serial number:	
Function:	Fluid handling
Year of construction:	
Tech. Ref. File	Fascicolo Tecnico valvole_Atex 2014-34_01_02
Deposited on N.B.	TUV IT 19 ATEX 085 AR
Reference	Our reference Your PO

complies with all relevant provisions of the following EU directives:

- **2006/42/EC** (machinery)
- **2014/34/EU** (potentially explosive atmospheres, ATEX)
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- **EN 60079-0:2018**
- **EN 60079-11:2012**

The equipment is classified as follows:



II 2G Ex h ib IIB T6 Gb X
Tamb -10 ..+40°C

X: Tmax product +85°C

BARDIANI VALVOLE S.p.a.
Amministratore Delegato

Emanuela Bardiani

Fornovo di Taro

PEX03

BARDIANI VALVOLE S.p.A.
Via G. di Vittorio 50/52
43045 Fornovo di Taro (Pr) ITALY
Reg. Impr. Parma, C.F.- P.I.V.A. n. 01511810341
R.E.A. Parma n. 159144 • Cap. Soc. € 1.186.800 i.v.

18 Warranty

1. VALIDITY

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 of coming to light, providing adequate documentation of the defect/fault encountered can be provided 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

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 at the expense of 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. EXCLUSIONS FROM THE WARRANTY

All purchaser rights, as established and recognized by law being understood and unaffected, elastomers and electrical components are expressly excluded from this warranty.

This warranty does not cover design faults whenever a product is built by Bardiani Valvole S.p.A. based on designs and/or technical specifications provided by the purchaser.

Application of this warranty also excludes:

- faults and/or defects resulting from incorrect and/or unsuitable and/or improper transport;
- faults and/or defects resulting from installation of the product which fails to observe the indications provided in the "Instruction, Use and Maintenance Manual" or in any case caused by incorrect and/or unsuitable and/or improper installation;
- faults and/or defects resulting from use and/or maintenance operations and/or storage of the products which fail to observe the prescriptions provided in the "Instruction, Use and Maintenance Manual" or in any case which are incorrect and/or unsuitable and/or improper;
- faults and/or defects in 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 if interventions and/or repairs have been carried out by personnel not authorized by Bardiani Valvole S.p.A. and/or not professionally qualified;
- faults and/or defects in the product and/or its parts and/or its components ascribable to it being dropped and/or banged and/or dented and/or misuse and/or tampering and/or breakage and/or accidents caused by negligence and/or lack of care by the purchaser 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 due to negligence and/or carelessness and/or neglect by the purchaser;
- faults and/or defects in the product and/or its parts and/or its components caused by other events outside the control of Bardiani Valvole S.p.A. or determined by force majeure or mishap.

19 Recommendations

1. All the information, indications, statements and technical details provided herein are based on test data which Bardiani Valvole S.p.A. holds to be reliable but which cannot be expected to cover every possible use of the products.

2. The illustrations and drawings provided are all indicative and are not binding, consequently they may not fully match the real appearance of the products.

3. Being as the conditions of product use and applications cannot be controlled by Bardiani Valvole S.p.A., the purchaser must ascertain suitability of the use he intends to make of the products beforehand and assume all risks and liabilities which may result from the same.

4. Customers are strongly advised to consult Bardiani Valvole S.p.A.'s technical-commercial collaborators to request any specific information concerning the technical characteristics of the products.

5. The information provided in this document refers to standard production Bardiani Valvole S.p.A. products and therefore cannot be considered a basic reference for products built to meet specific requirements.