

USE AND MAINTENANCE INSTRUCTIONS

Giotto-Top®



BARDIANI
VALVOLE

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Foreword

The instruction manual herein is an integral part of the Giotto Top® supply.

- To be able to use the ATEX models, it is mandatory to consult their specific manual

- Always read carefully before using Giotto Top®

- Always keep with care for future consultation

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This instruction manual has been written explicitly for technical personnel. For this reason, some of the information that is easily deducible by reading the text and by examining the illustrations and drawings has not been specified further in detail. The editor is not responsible for any consequences resulting from incorrect operations by the user. The data and the information supplied in this manual are subject to modifications or updates without written notice or other obligations for the manufacturer.

1. Symbols used.



General WARNING symbol pointing out that special instructions MUST be observed to avoid serious personal injuries.



General CAUTION symbol pointing out that special instructions MUST be observed to avoid damages to equipment and the environment.

NOTA!

NOTE! It points out IMPORTANT information required to better comprehend the instructions.

2. Safety instructions

ALWAYS read the technical data before starting any installation, operation and maintenance work.



ALWAYS employ authorised personnel to install, operate and service Giotto Top®. All personnel shall be perfectly familiar with Giotto Top® and the instruction manual.

ONLY use Giotto Top® for its designed and intended purpose.

ALWAYS handle heavy valves with care and using the required lifting equipment.



ALWAYS pay utmost attention to any loose parts supplied with Giotto Top® when unpacking.

ALWAYS connect the air supply with utmost caution and disconnect it after use.

ALWAYS connect the electrical supply with utmost caution and disconnect it after use.

NEVER touch the moving parts of Giotto Top®

NEVER touch a hot valve.

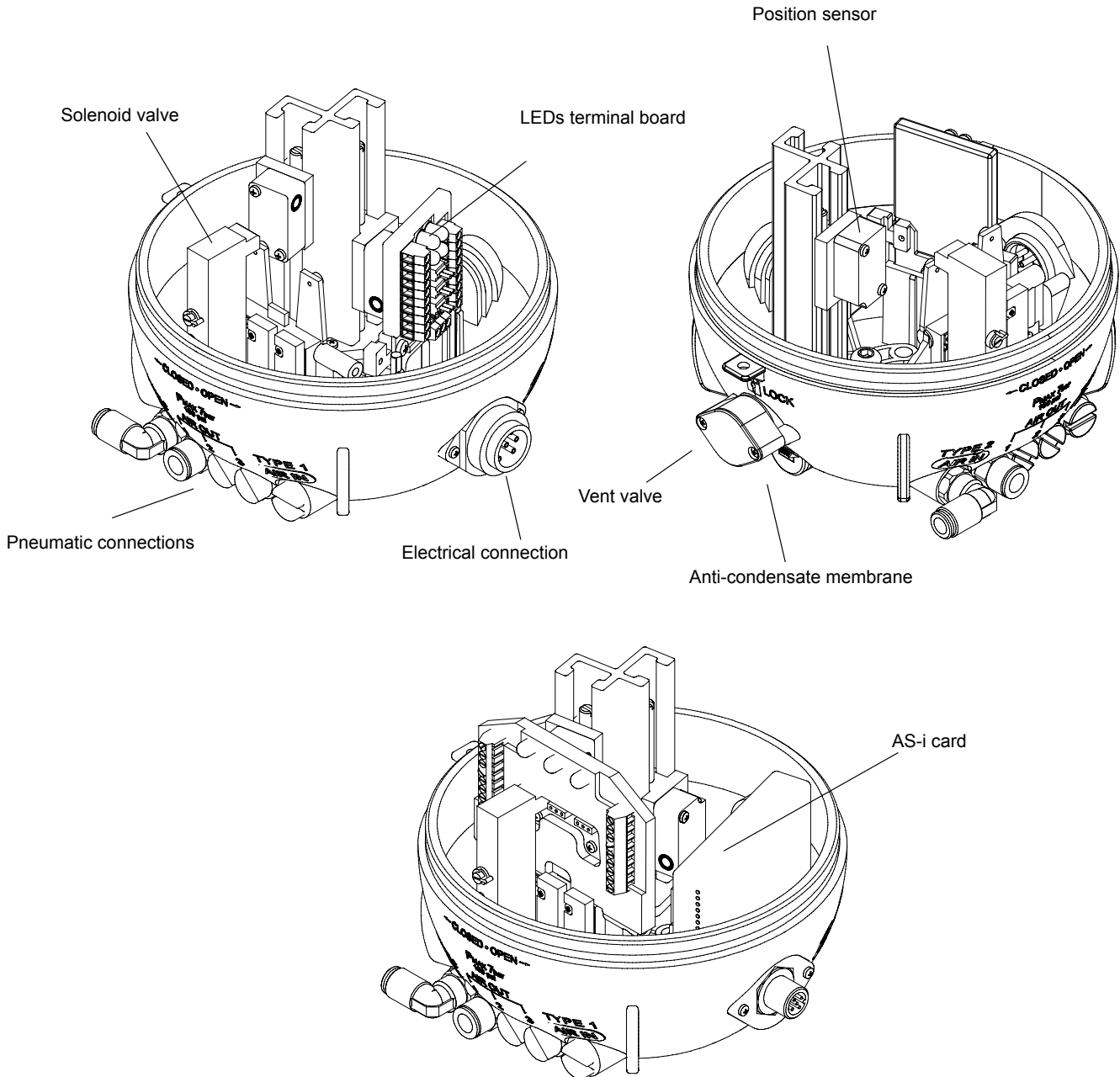
ALWAYS handle detergents with utmost caution.

NEVER remove a valve from a hose, or disassemble it, while the valve or the hose are pressurized.

We decline all forms of responsibility for incorrect installation, use and maintenance!

3. Structure and functions of Giotto Top®

The control unit is designed to control pneumatically-operated process valves. Giotto Top® can be equipped with a maximum of three solenoid valves to control the process valve and up to a maximum of three inductive sensors, the third one external, to control the position.



There are three different configurations for the electrical connections inside the control unit:

- **LEDs terminal board:** The LEDs indicate the status of the valve, in presence of the respective sensor: green light, valve open; yellow light, valve closed; white light, lower lift activated; blue light, upper lift activated.
- **AS-i card:** the LEDs indicate the status of the corresponding solenoid valve.

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 upper lift	2
Mixproof valves with air supply for opening, upper and lower lift	3

Electrical connections

7-pole connector or M12 5 or 8 pole.

Threaded union for cable gland PG11 or M20X1.5

Field bus connections

Actuator sensor interface (AS-i)



UL STANDARDS

Inside the control unit there are LOW VOLTAGE LIMITED ENERGY CIRCUIT. Circuit protections must be sized accordingly to UL508A standard.



Air supply	Class 2, 4, 3 pursuant to ISO 8573-1
Working temperature	-10...+50°C



Always MAKE SURE the electrical and pneumatic connections are NOT activated while working on Giotto Top® and that the power supply voltage is always and only 24 Vdc.



4. Technical data

Technical data of the control unit

Weight	from 0.55 kg to 0.65 kg in accordance with the configuration
Casing material	Shock proof PMMA (methacrylate) and PA6-GF30 (Nylon reinforced with fibreglass)
Gasket material	NBR
Protection class	IP67
Air inlet and discharge connections	1/8" (BSP)
Air hose connections	6 mm / Ø6.35 (1/4")
Vibration	1mm amplitude, f=10..55Hz
Storage temperature	-25..+70°C

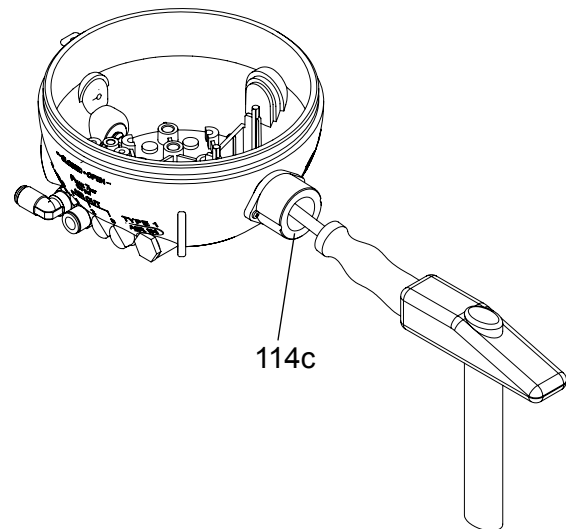
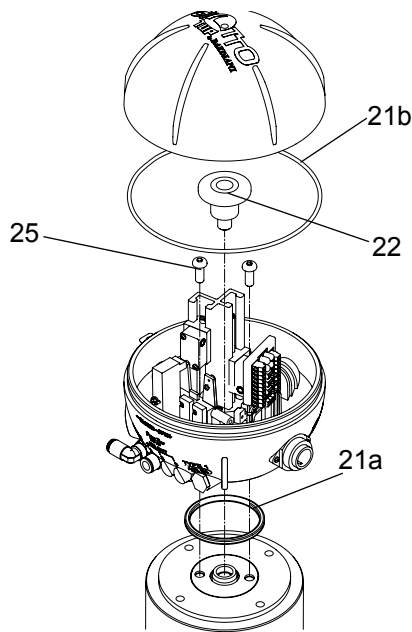
Technical data of the solenoid valves

Electrical power supply	24 Vdc
Air supply pressure	max. 7bar min. 6bar
Technical data of the Inductive sensor	

Technical data of the Inductive sensor

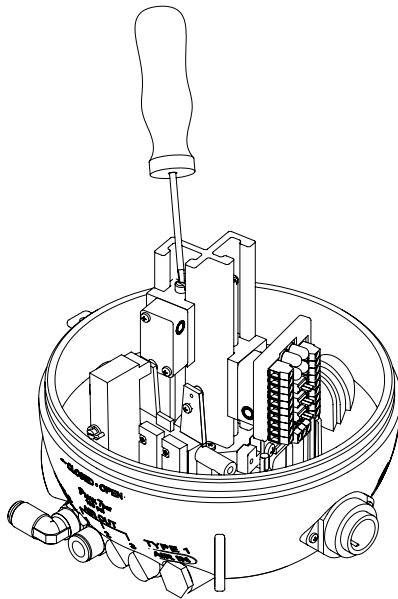
Electrical power supply	24 Vdc
For further information concerning the component, please consult the relevant manuals.	

5. Installation

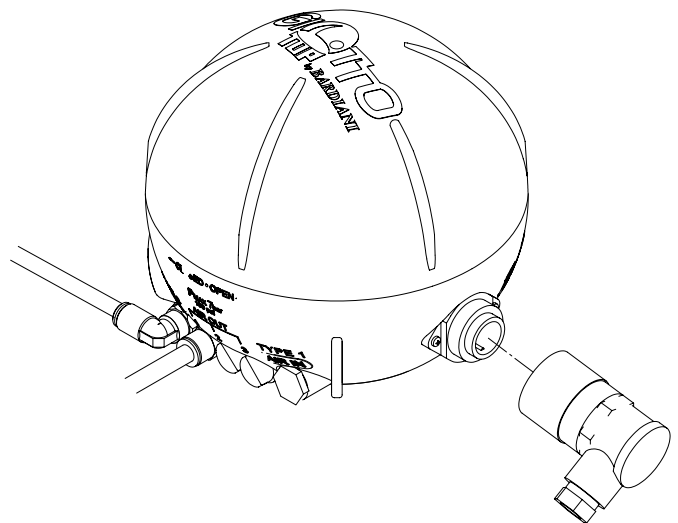


1. Open Giotto Top® and make sure the gaskets are positioned correctly (21a and 21b). Screw the two screws in place (25). Screw the cam (22).

2. To fit the cable gland (114c), remove the enclosing disc of the cable gland sleeve using a screwdriver and a mallet. Refer to the following pages for the connection instructions.



3. Make sure the sensors are in the correct position, otherwise adjust their height by means of the screws on the double guide.



4. Connect the electrical and pneumatic supplies.

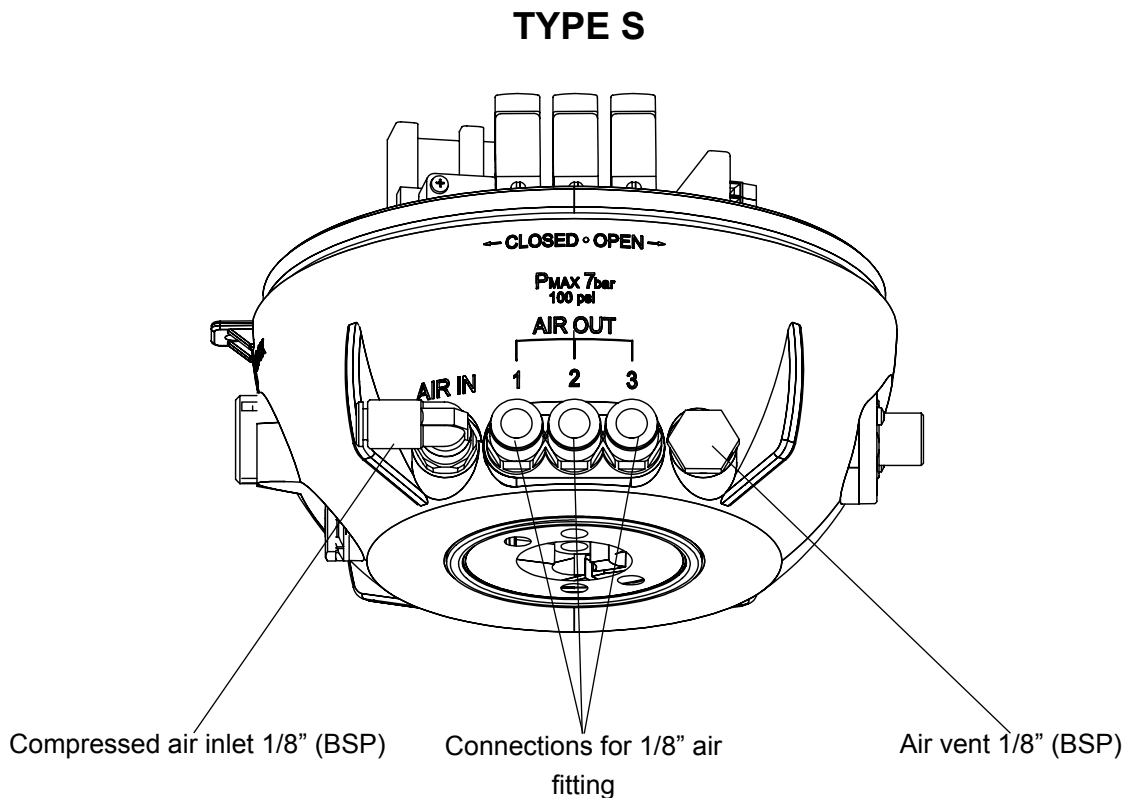
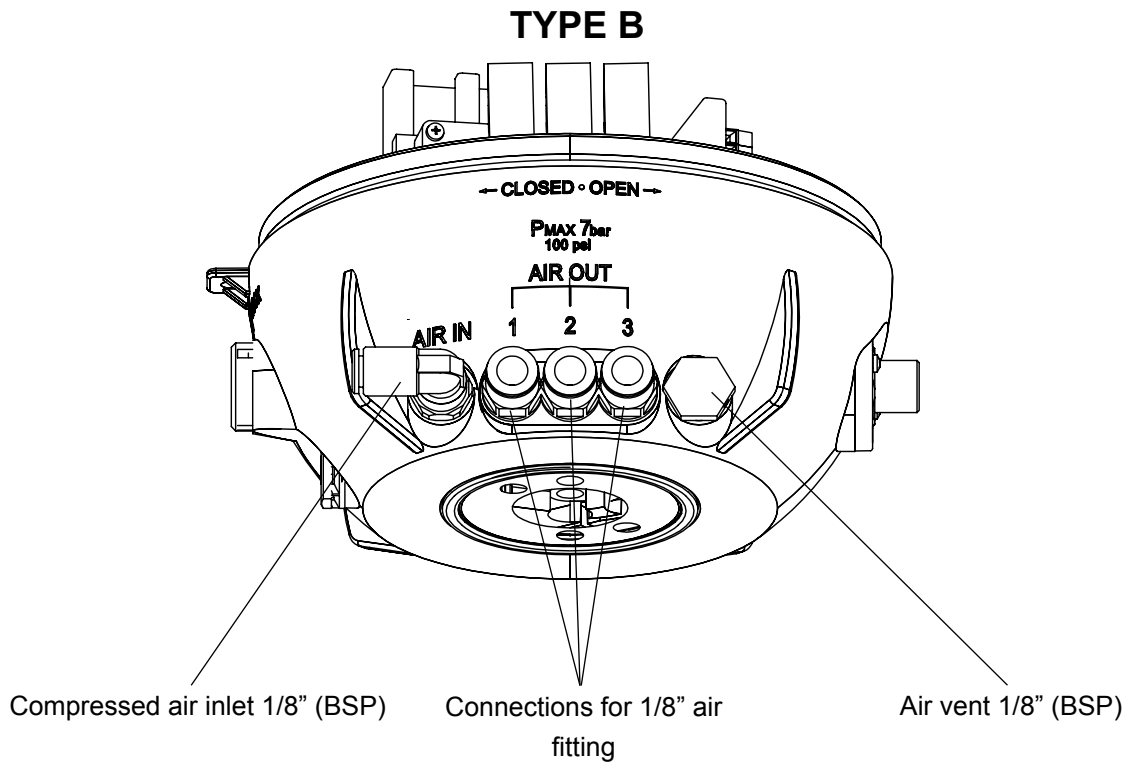
5. Always make sure all the wires are connected and tight in the terminals, that the solenoid valves, their support, the AS-i card and the LEDs terminal board (where installed) and other parts inside Giotto Top® are secured firmly and assembled.



Always **MAKE SURE** the electrical and pneumatic connections are **NOT** activated whilst working on Giotto Top® and that the power supply voltage is always and only 24 Vdc.



6. Pneumatic connections



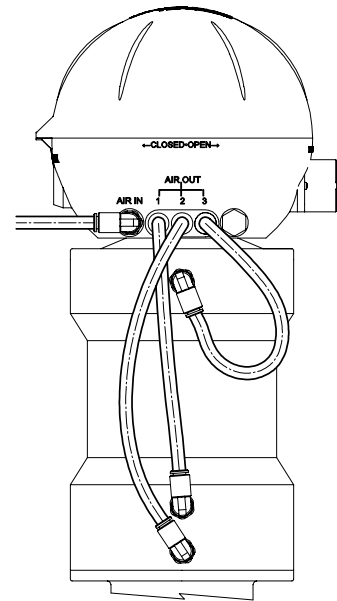
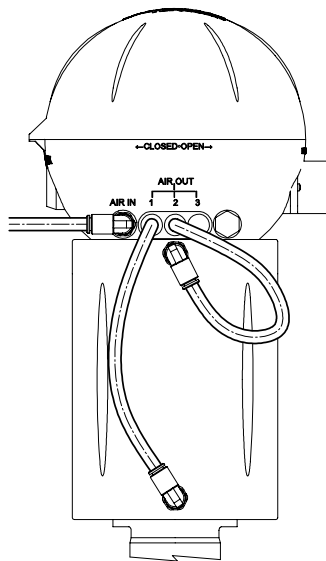
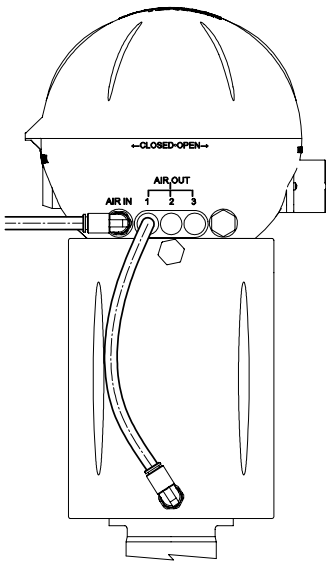
Use exclusively hoses with outside diameter of 6 mm.

Cut these hoses exclusively using a pipe cutting pliers to avoid damaging the hoses, which could cause Giotto Top® to malfunction.

Select the appropriate length of the hoses so that Giotto Top® can be removed by unscrewing the anchoring screws.

6. Pneumatic connections

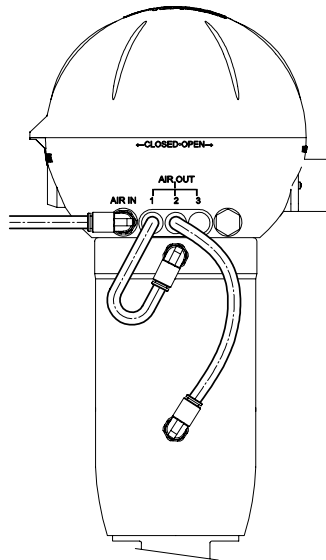
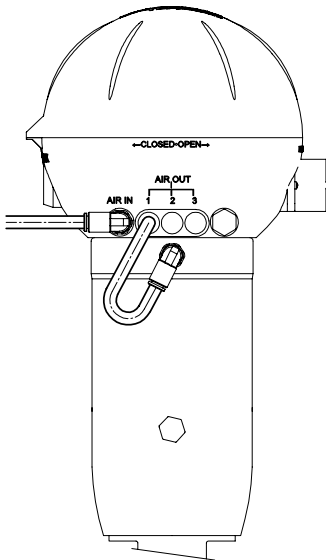
Examples of pneumatic connections



S.E.N.C.: Valve with single acting actuator (spring closes/air opens).

D.E.: Valve with double acting actuator (air opens/air closes).

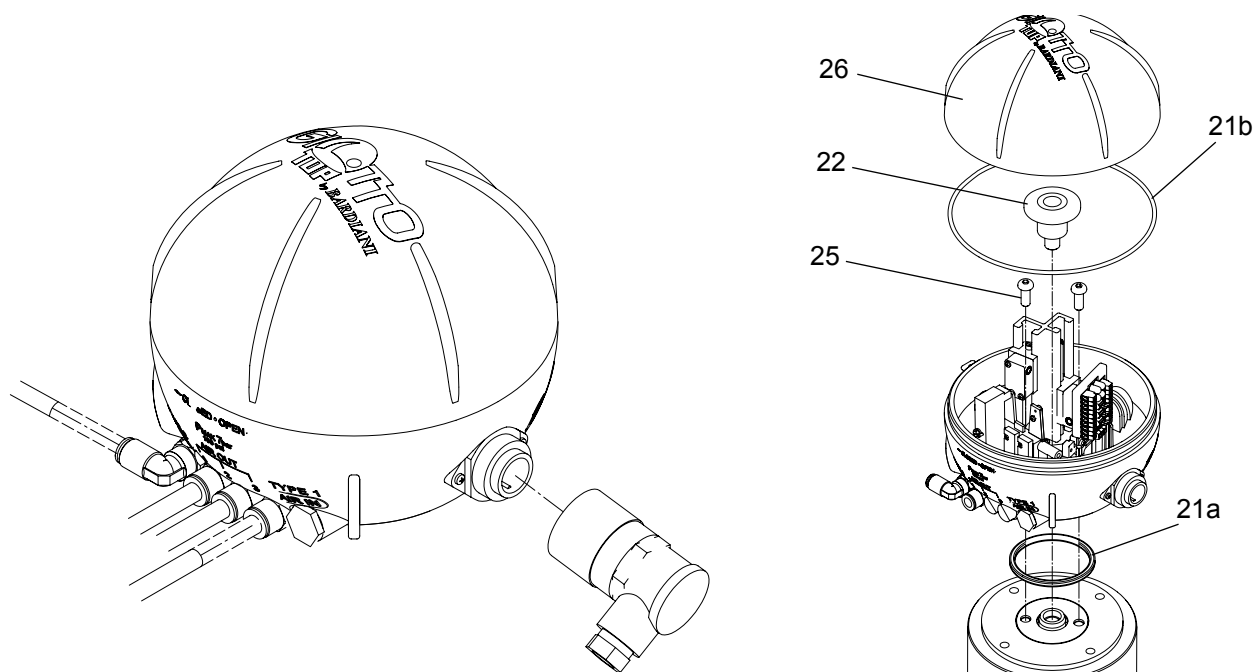
B925: Valve open "AIR OUT 1"
Upper seat flushing "AIR OUT 2"
Lower seat flushing "AIT OUT 3"



ZVF, ZVS S.E.: Valve with single acting actuator

ZVF, ZVS D.E.: Valve with double acting actuator

7. Disassembling Giotto Top®



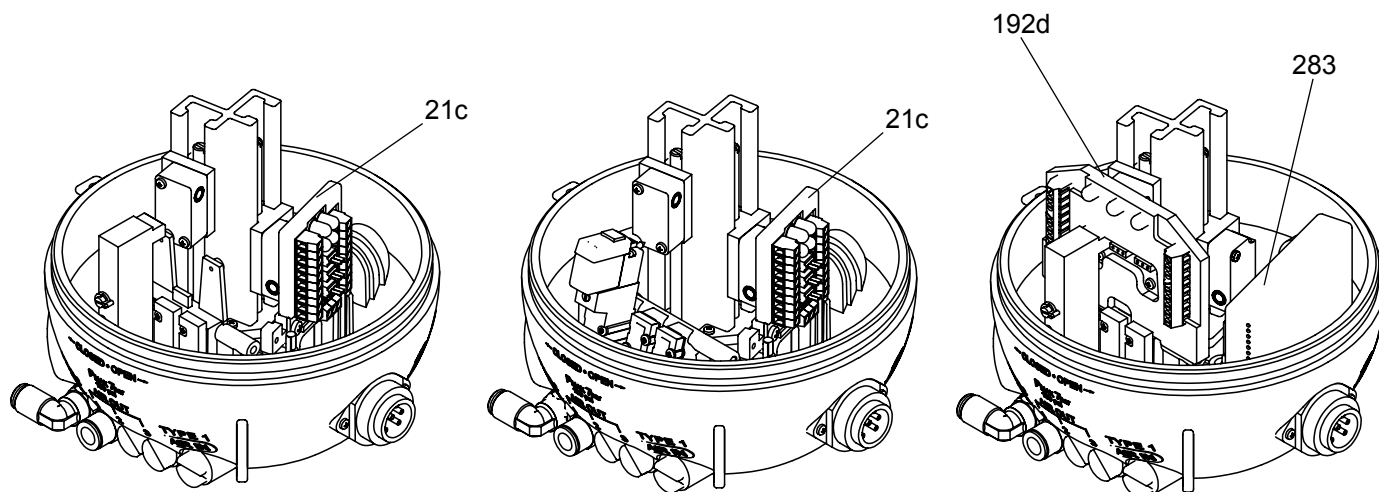
1. Disconnect the electrical and pneumatic supplies.

2. Unscrew the cover (26), the cam (22) and the two screws (25). Remove the gaskets (21b and 21a).

TYPE B

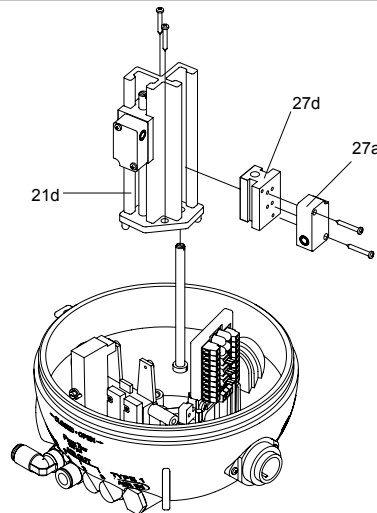
TYPE S

AS-i

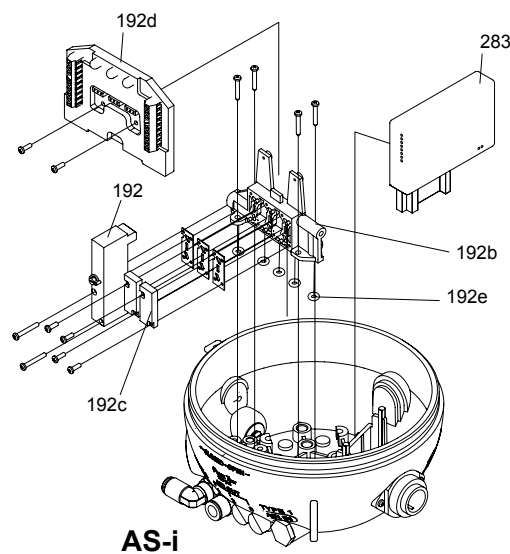
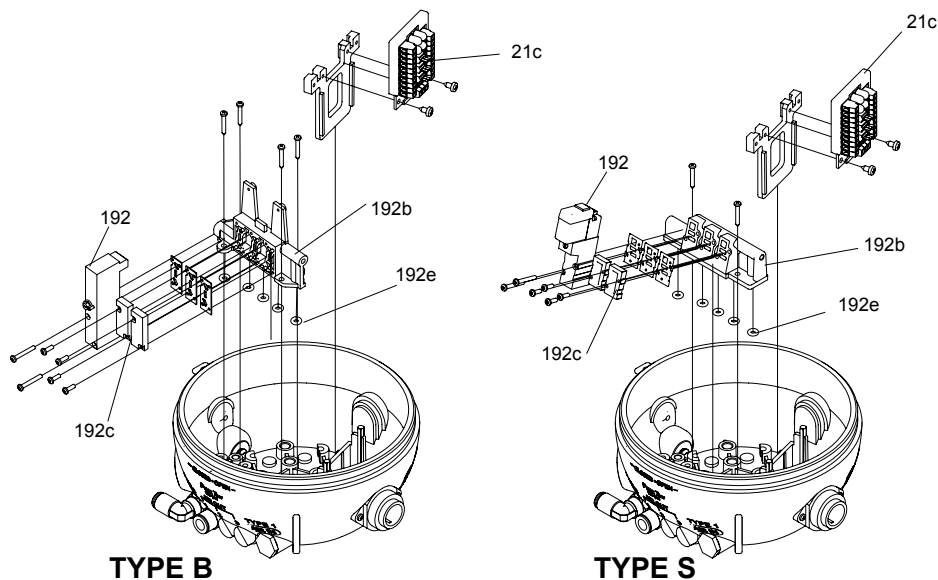


3. Disconnect the inductive sensors and power supply cables from the LED board (21c). With AS-i card disconnect the solenoid valves board (192d), the sensors and the AS-i card. Be very careful **not** to do this with the electrical power supply still connected.

7. Disassembling Giotto Top®



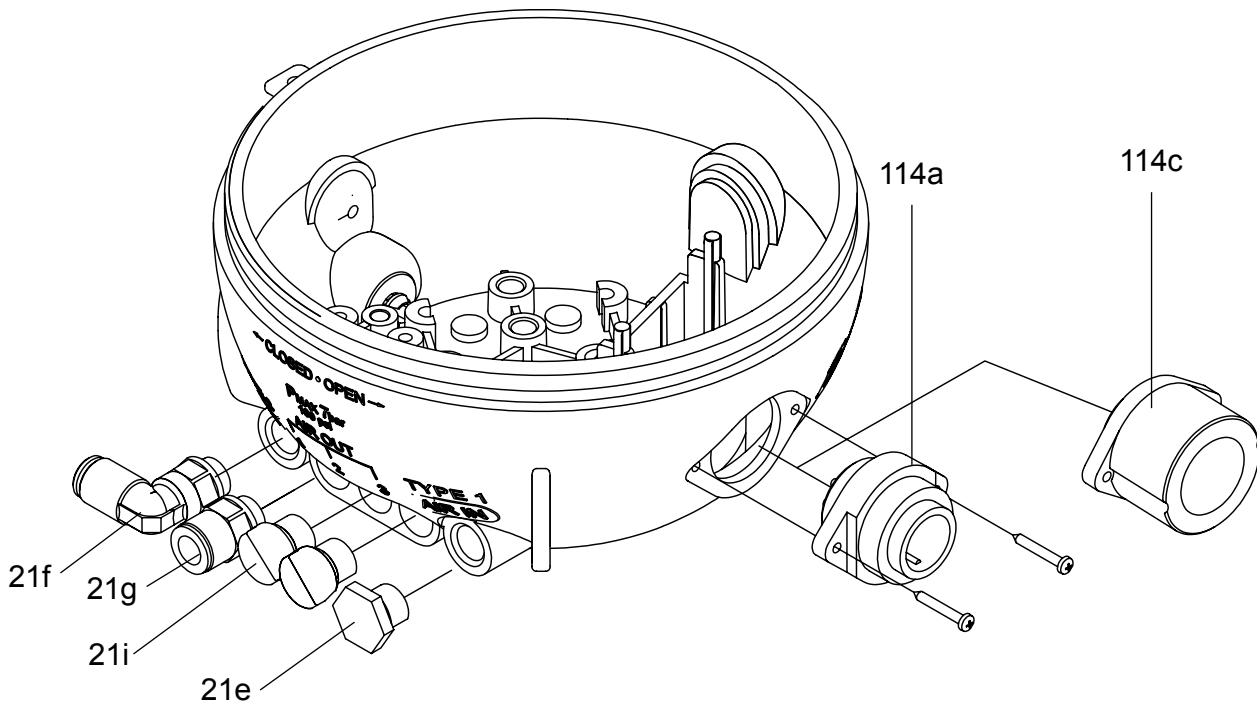
4. Unscrew the double guide (21d), the inductive sensor block (27d) and the inductive (27a).



5. TYPE B; TYPE S

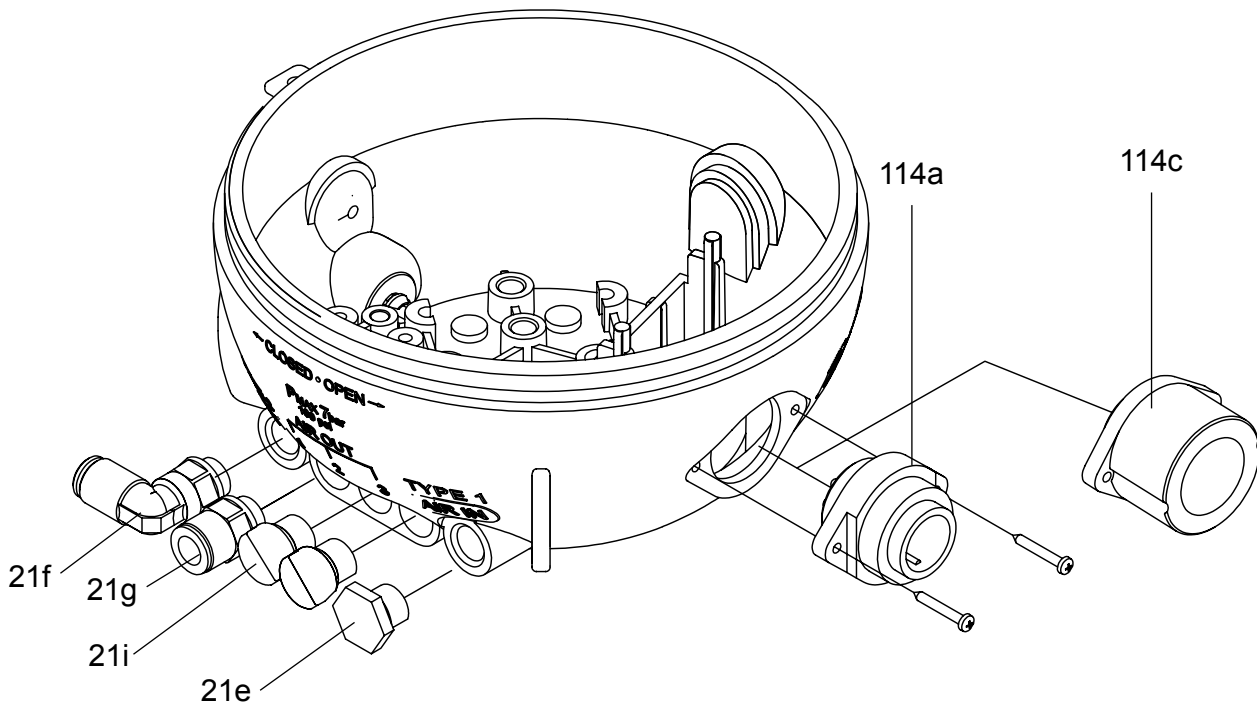
Remove the solenoid valve support (192b) making sure not to lose or damage the relevant seal rings (192e), disassemble the solenoid valves (192) and the caps (192c) with the relevant gaskets, remove the terminal board (21c) or the solenoid valve board (192d) and the AS-I card (283).

7. Disassembling Giotto Top®



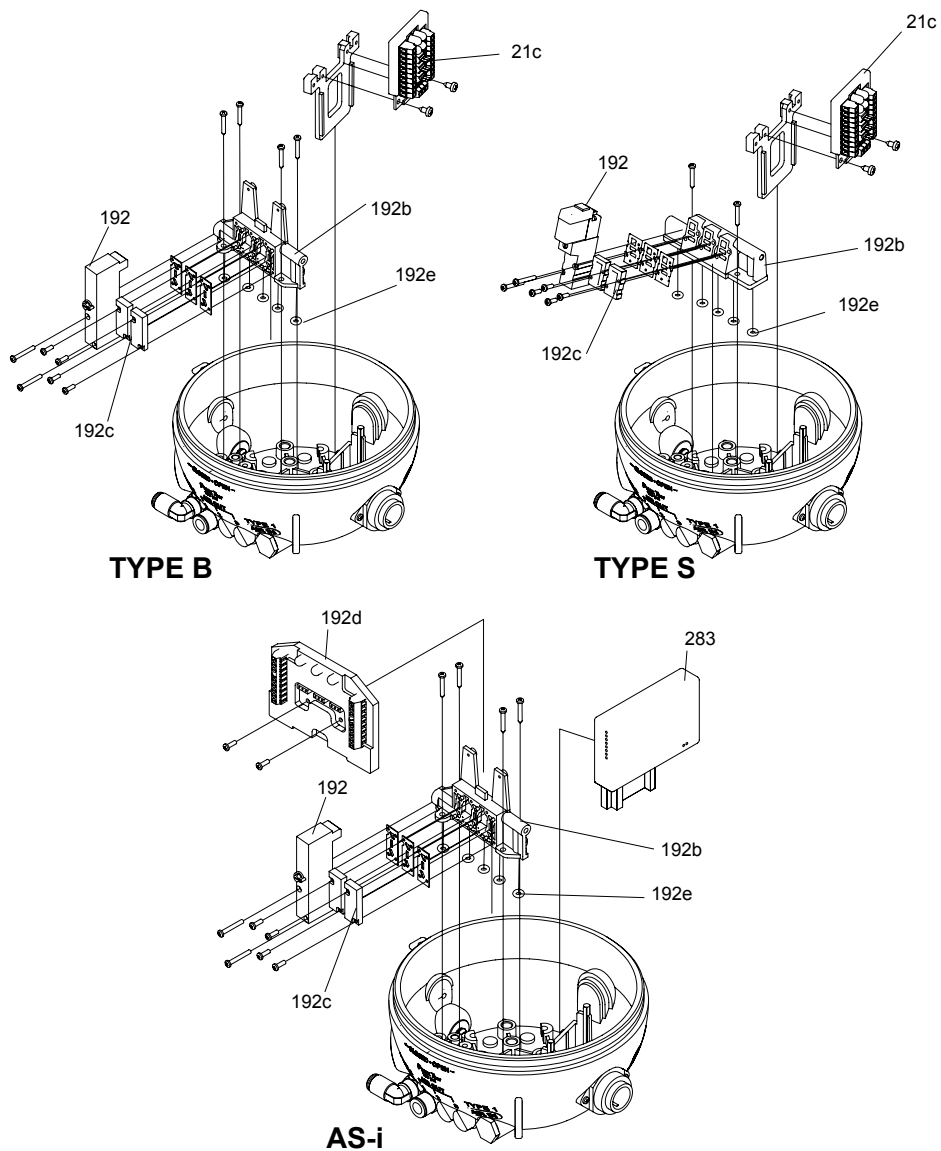
6. Remove the air fittings (21e and 21g), the air caps (21i) and the air vent (21f). Unscrew the connector (114a) or the cable gland sleeve (114c).

8. Assembling Giotto Top®



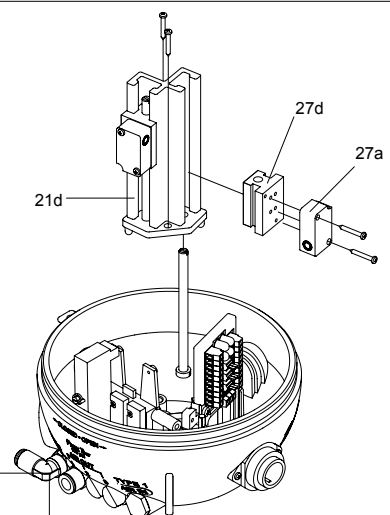
1. Fit the air fittings (21e and 21g), the air caps (21i) and the air vent (21f). Screw the electrical connection in place (114a) or the cable gland sleeve (114c).

8. Assembling Giotto Top®



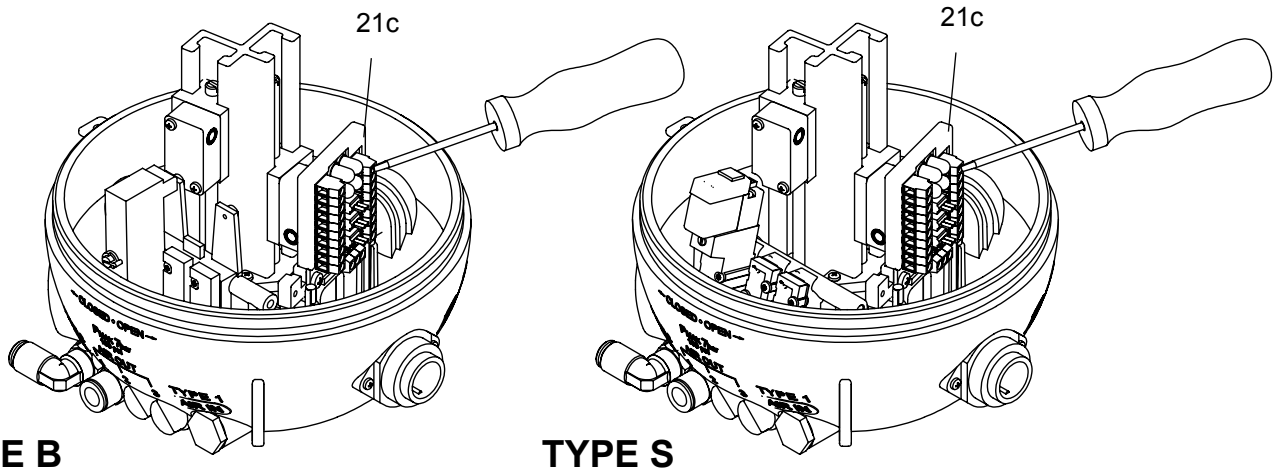
2. TYPE B; TYPE S

Fit the solenoid valves (192) being careful not to damage or lose the relevant gaskets. Fit the solenoid valve support (192b) back in place with the board (192d), if present, and the seal rings of the support (192e). Insert the terminal board (21c) or the AS-i card (283).

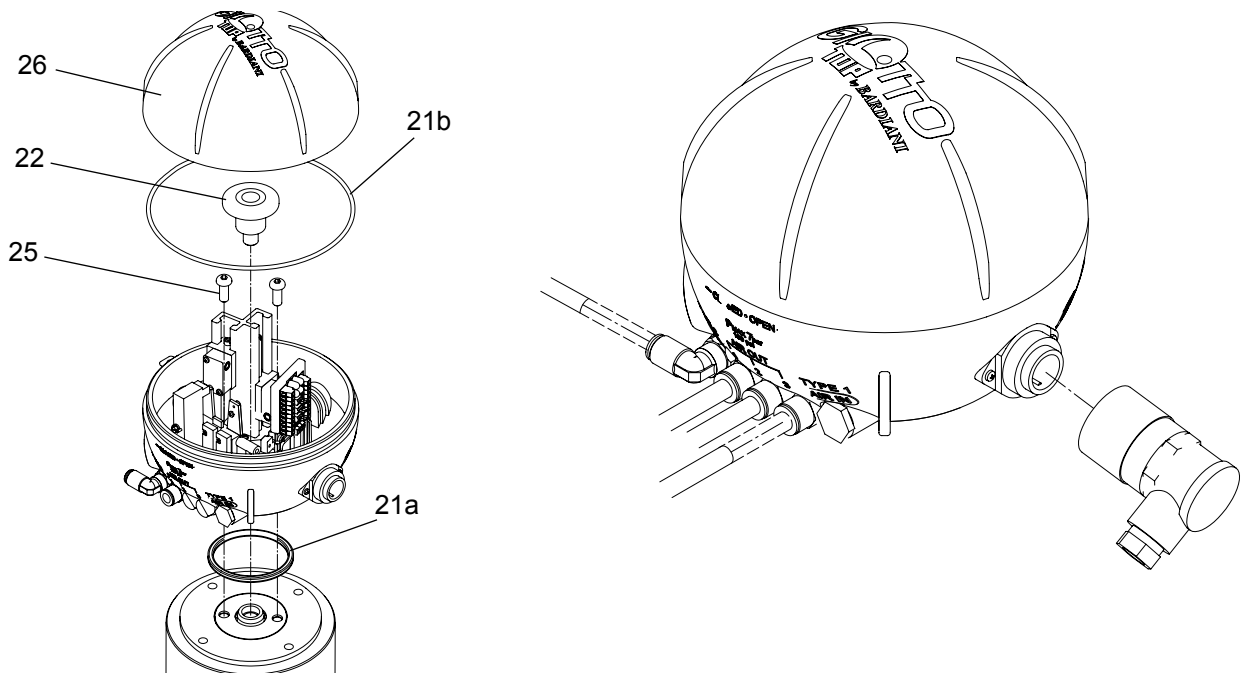


3. Screw the double guide (21d), the inductive sensor block (27d) and any inductive sensors (27a)

8. Assembly of Giotto-Top®



4. Connect the inductive sensors, the power supply cables and the solenoid valves to the LEDs terminal board (21c) or to the solenoid valve board. If present, connect the AS-I card to the solenoid valve board. Be very careful not to do this when the electrical power supply is connected.



5. Insert the gaskets (21a and 21b). Screw the two screws (25) to secure Giotto Top® to the cylinder and screw the cam (22) in place. Screw the upper cover on (26).

6. Connect the electrical and pneumatic supplies.

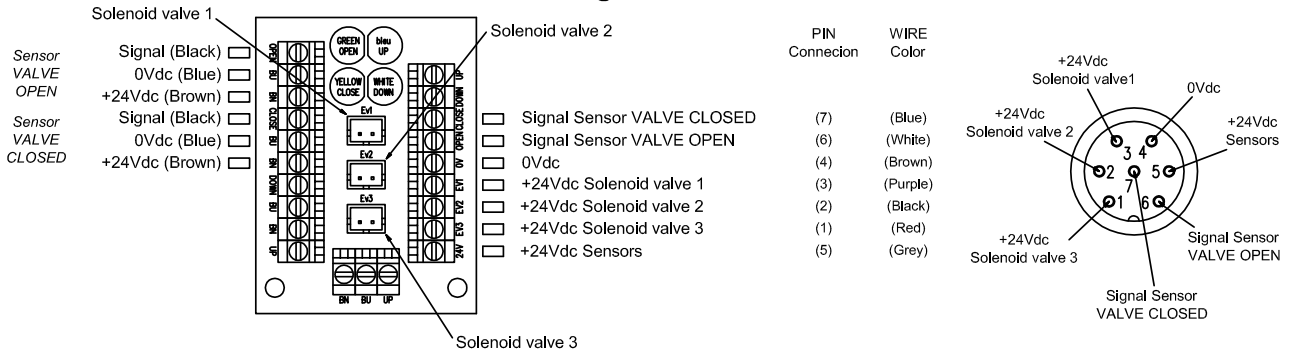


Always **MAKE SURE** the electrical and pneumatic connections are **NOT** activated whilst working on Giotto Top® and that the power supply voltage is always and only 24 Vdc.

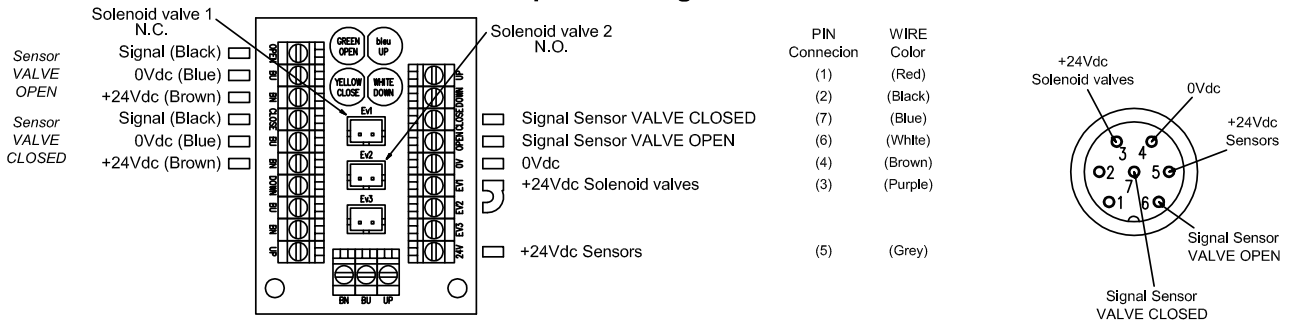


9. Electrical connections

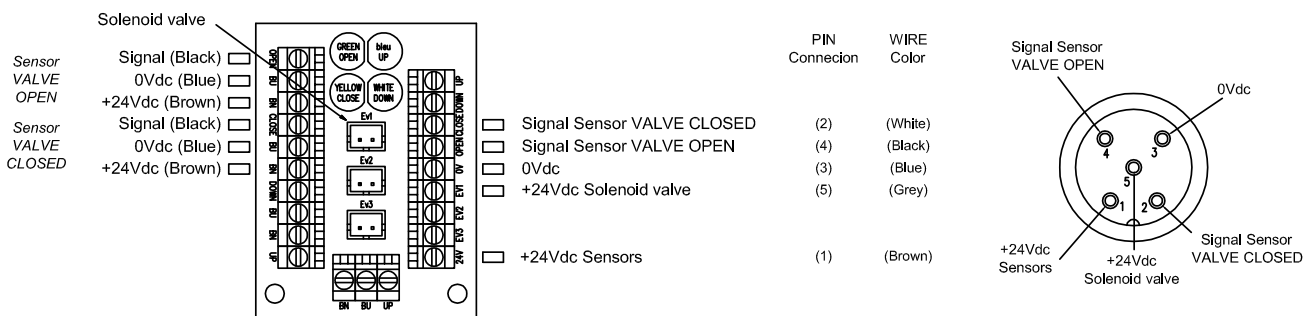
1,2 PNP sensors with 1,2,3 solenoid valves TYPE B and TYPE S normally closed and 7-poles wiring connection



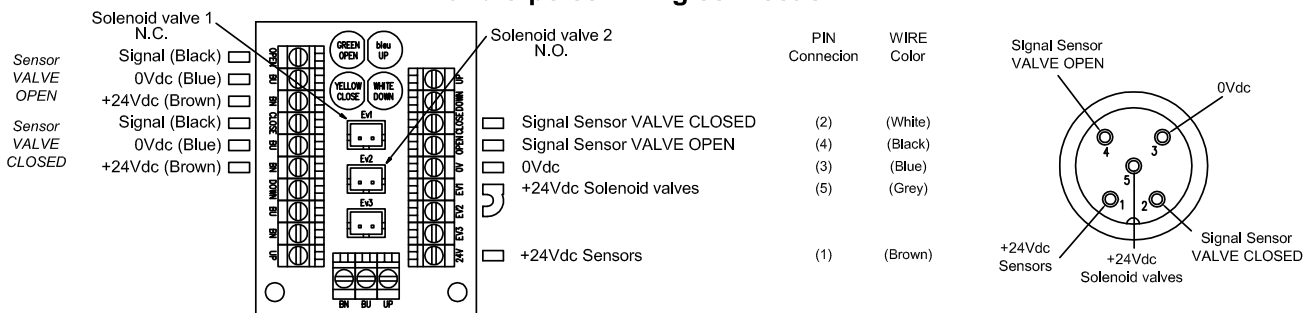
1,2 PNP sensors with 2 solenoid valves (1 N.C. and 1 N.O.) TYPE B or TYPE S for double effect and 7-poles wiring connection



2 PNP sensors with 1 solenoid valve TYPE B or TYPE S normally closed and 5-poles wiring connection

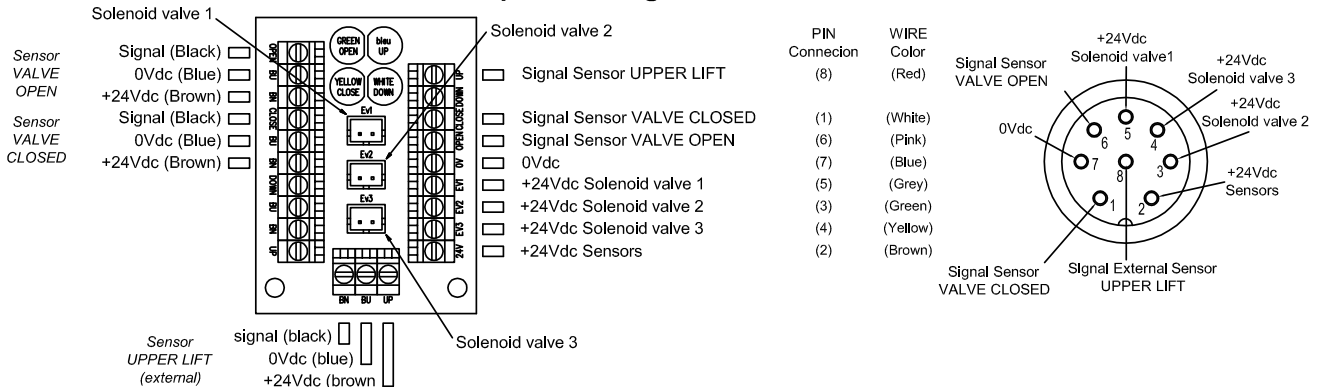


1,2 PNP sensors with 2 solenoid valves (1 N.C. and 1 N.O.) TYPE B or TYPE S for double effect and 5-poles wiring connection

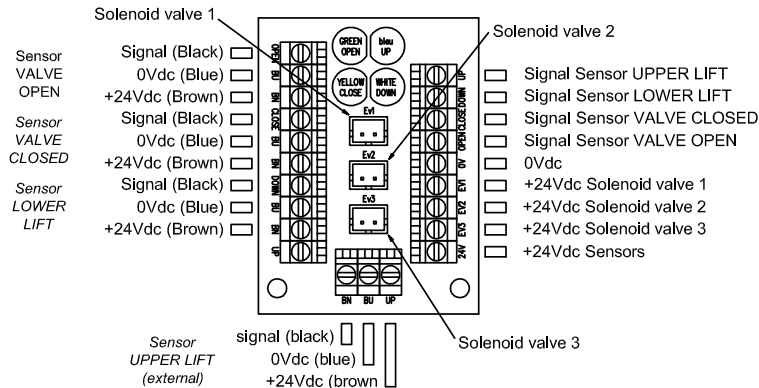


8. Electrical Connections

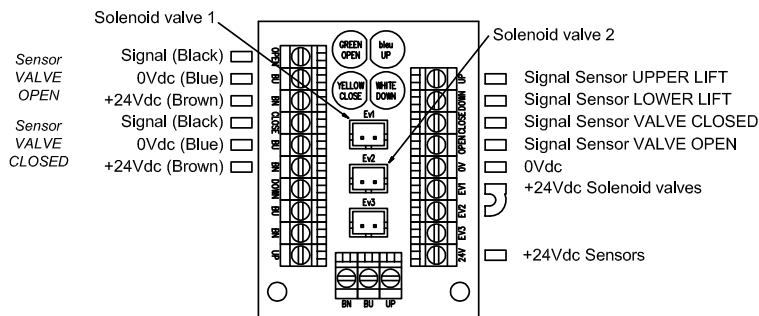
1,2,3 PNP sensors with 1,2,3 solenoid valves normally closed TYPE B or TYPE S and 8-poles wiring connection



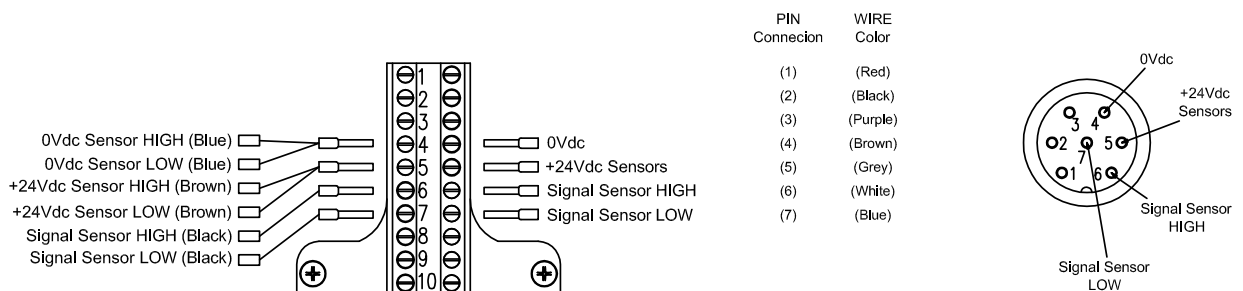
1,2,3,4 PNP sensors with 1,2,3 solenoid valves TYPE B or TYPE S normally closed



1,2 PNP sensors with 2 solenoid valves (1 N.C. and 1 N.O.) TYPE B or TYPE S for double effect

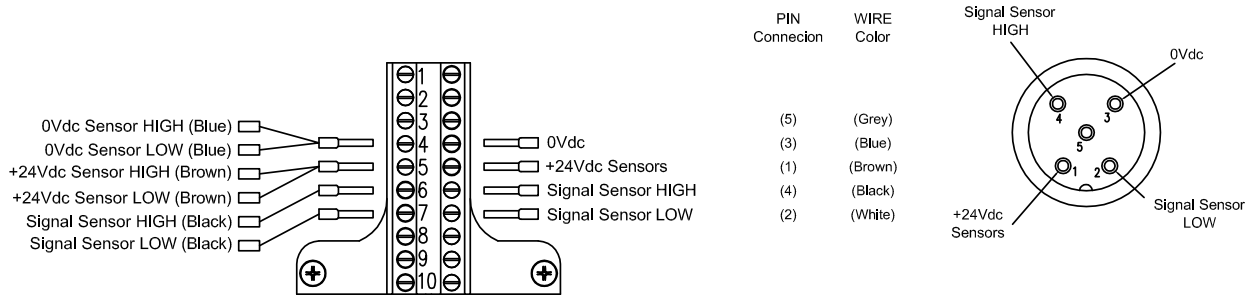


1,2 PNP sensors and 7-poles wiring connection

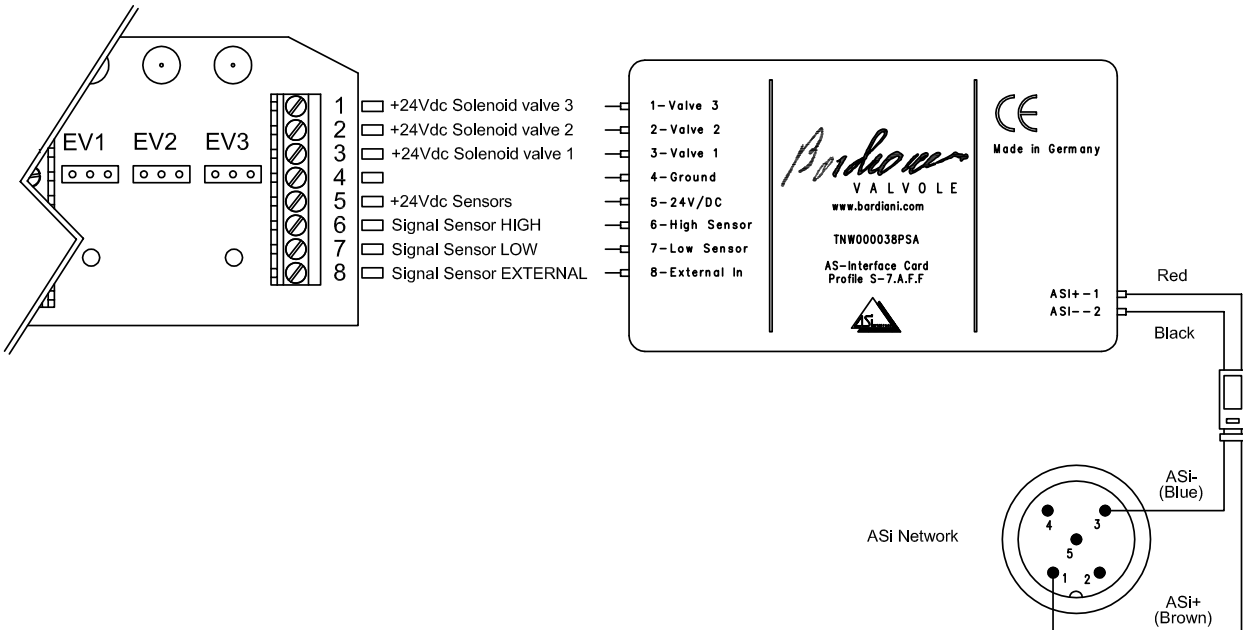


8. Electrical Connections

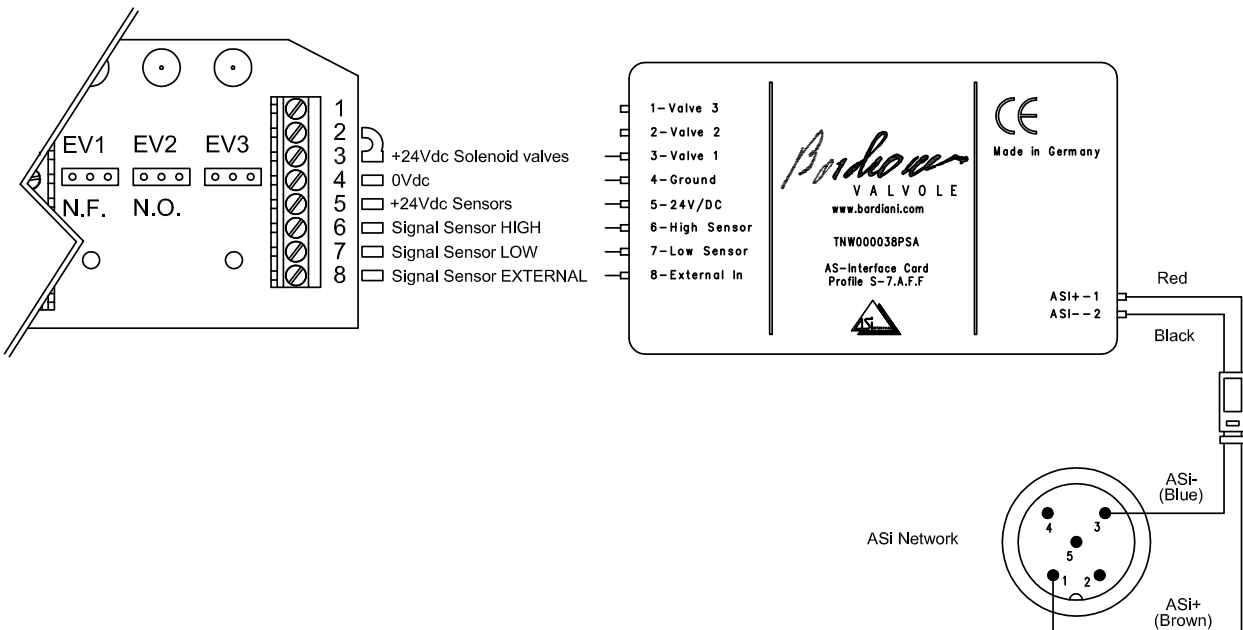
1,2 PNP sensors and 5-poles wiring connection



AS-i card with 1,2,3 PNP sensors and 1,2,3 normally closed solenoid valves TYPE B

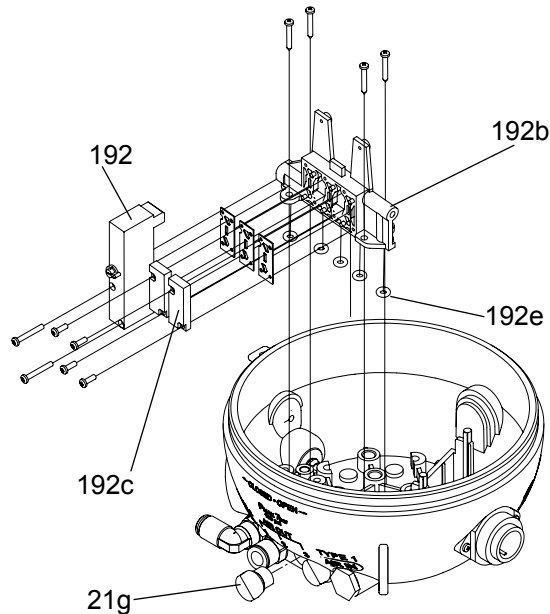


ASi card with 1,2 PNP sensors and 2 solenoid valves TYPE B (1 N.C. and 1 N.O.) for double effect

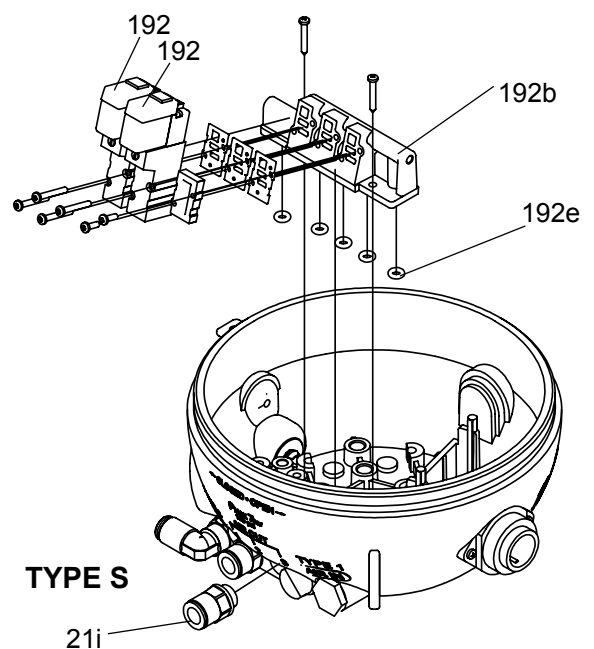
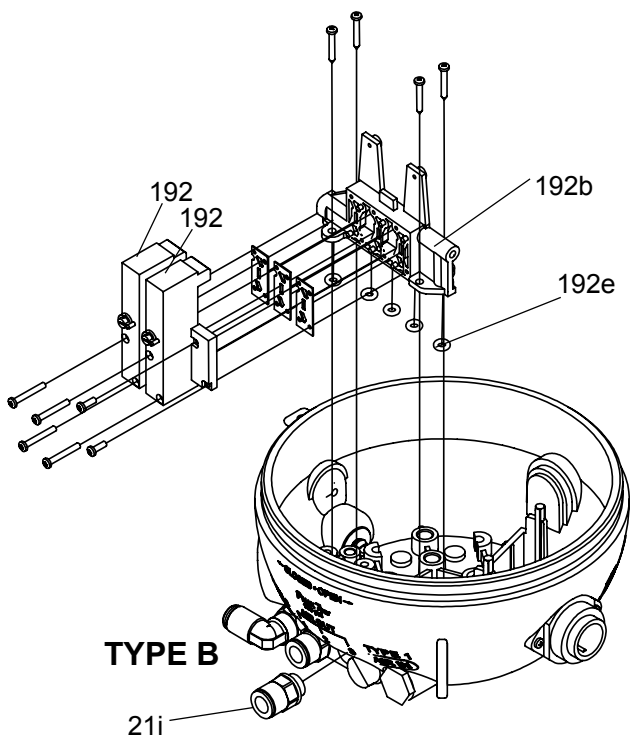


10. Installing solenoid valves

Giotto Top® may have up to three solenoid valves and their number can be changed at any time. To install additional solenoid valves use the following instruction.



1. Remove the solenoid valve support (192b) from the base, remove the caps (192c) making sure not to damage or lose the relevant gaskets and seal rings of the support (192e) and remove the air connection plug (21g).

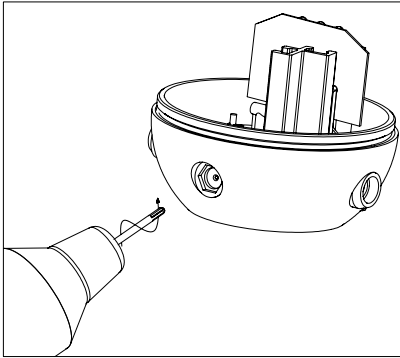


2. TYPE B TYPE S

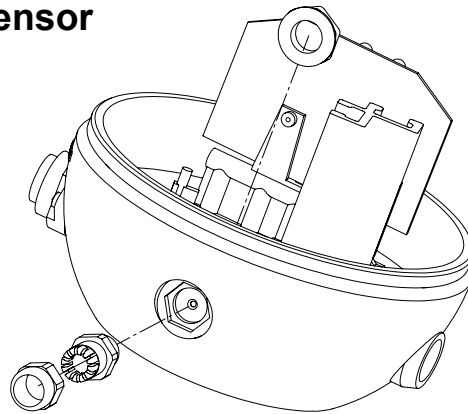
Fit the additional solenoid valves (192) being careful not to damage or lose the relevant gaskets. Fit the solenoid valve support (192b) and the seal rings of the support (192e). Fit the air fitting (21i) and connect the additional solenoid valve to the LEDs terminal board.

10. Installing solenoid valves

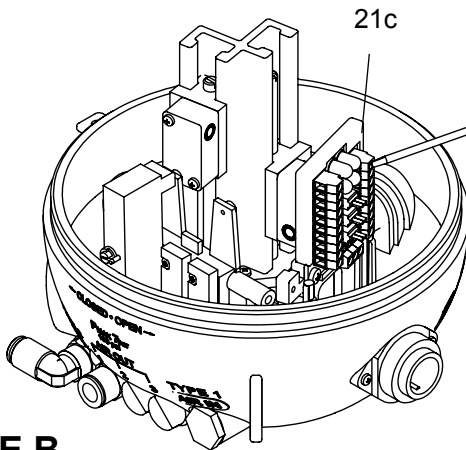
Installing the external inductive sensor



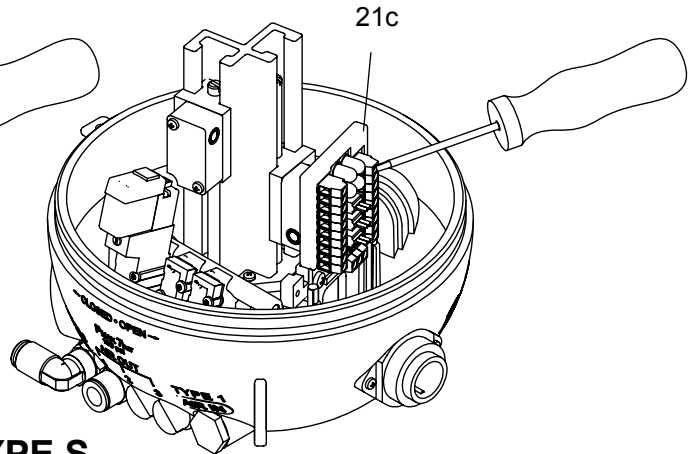
1. Drill Giotto Top® by the pre-arranged imprint.



2. Insert the cable gland (PG7 or M12x1.5) in the hole and block it in place with the ring nut, insert the cable of the external inductive sensor and block the pressure dome of the cable gland.



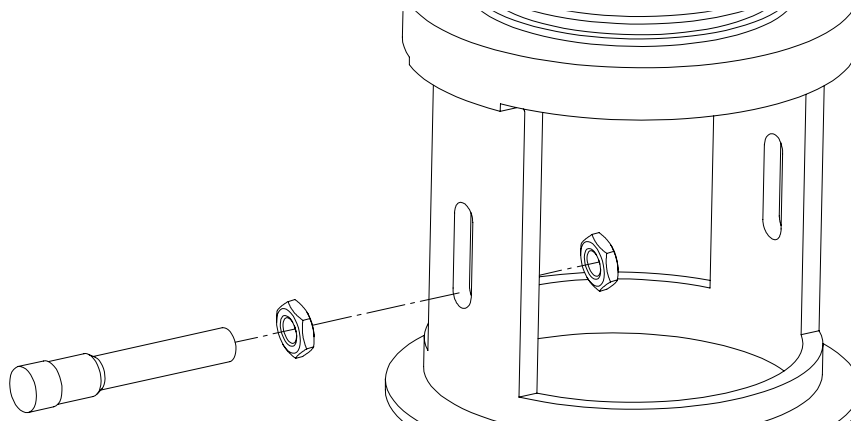
TYPE B



TYPE S

4. TYPE B TYPE S

Connect the inductive sensor following the instructions from page 15.



4. Connect the external inductive sensor, inserting it in the dedicated slot in the assembling part and adjust the vertical and horizontal position by means of the two adjustment screws. Make sure the distance from the stem is less than 1.5 mm to ensure correct operation.

11. Trouble shooting

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Air leak from solenoid valve support	Gaskets missing or screws not tight	Check the seal of the gaskets and tighten the screws
Air leak from the safety valve		
The LEDs do not switch on	Electrical board damaged	Replace the electric board
	LEDs damaged	
	Electrical connections not connected correctly	Check the connections on the terminal board on the electrical board and tighten the screw
The solenoid valve does not activate	Solenoid valve damaged	Replace the solenoid valve
	Electrical board damaged	Replace the electrical board
	Supply air pressure not correct	Consult the Technical Data of the manual
	Solenoid valve support damaged	Replace the solenoid valve support
	Electrical connections not connected correctly	Check the connections on the terminal board on the electrical board and tighten the screws
The inductive sensors of the microswitches do not work	Inductive sensors or microswitches damaged	Replace the inductive sensors or microswitches
	Electrical connections not connected correctly	Check the connections on the terminal board on the electrical board and tighten the screws
	Distance between the cam and the inductive sensor more than 1.5 mm	Check if Giotto is centred and secure the double guide



ALWAYS MAKE SURE the electrical and pneumatic connections are **NOT** live or pressurised while working on Giotto Top® and that the power supply voltage is always and only 24 Vdc.



12. Maintenance

MAINTENANCE

When used correctly, Giotto Top® does not need any maintenance in particular. Feasible repairs shall be carried out exclusively by authorised personnel and making sure to DISCONNECT the electrical power supply before starting any work inside Giotto Top®.



Before using any cleaning products, **MAKE SURE** they are compatible with the constructional material of Giotto Top®, both its cover and its gaskets. If solvents or cleaning agents containing acids or alkaline substances are used, always make sure Giotto Top® is rinsed straight afterwards with clean water. In doing so, be careful around zones where there are orifices or hollows.



During maintenance work or cleaning **NEVER** open the breather valve as this could cause damage to the installation or personnel.



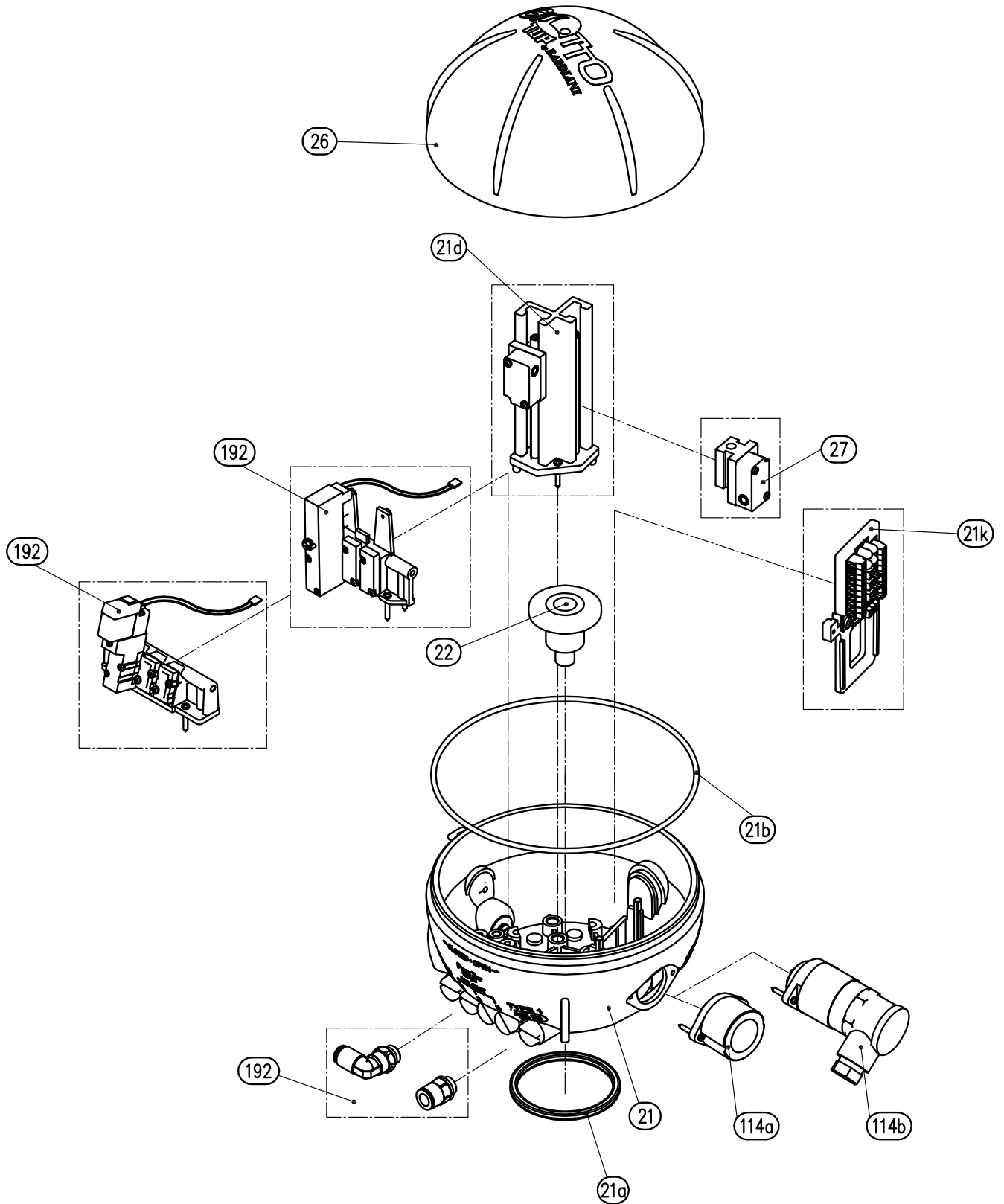
Every time the cover is opened make sure the various wires are re-positioned as not to interfere with the movement of internal parts.



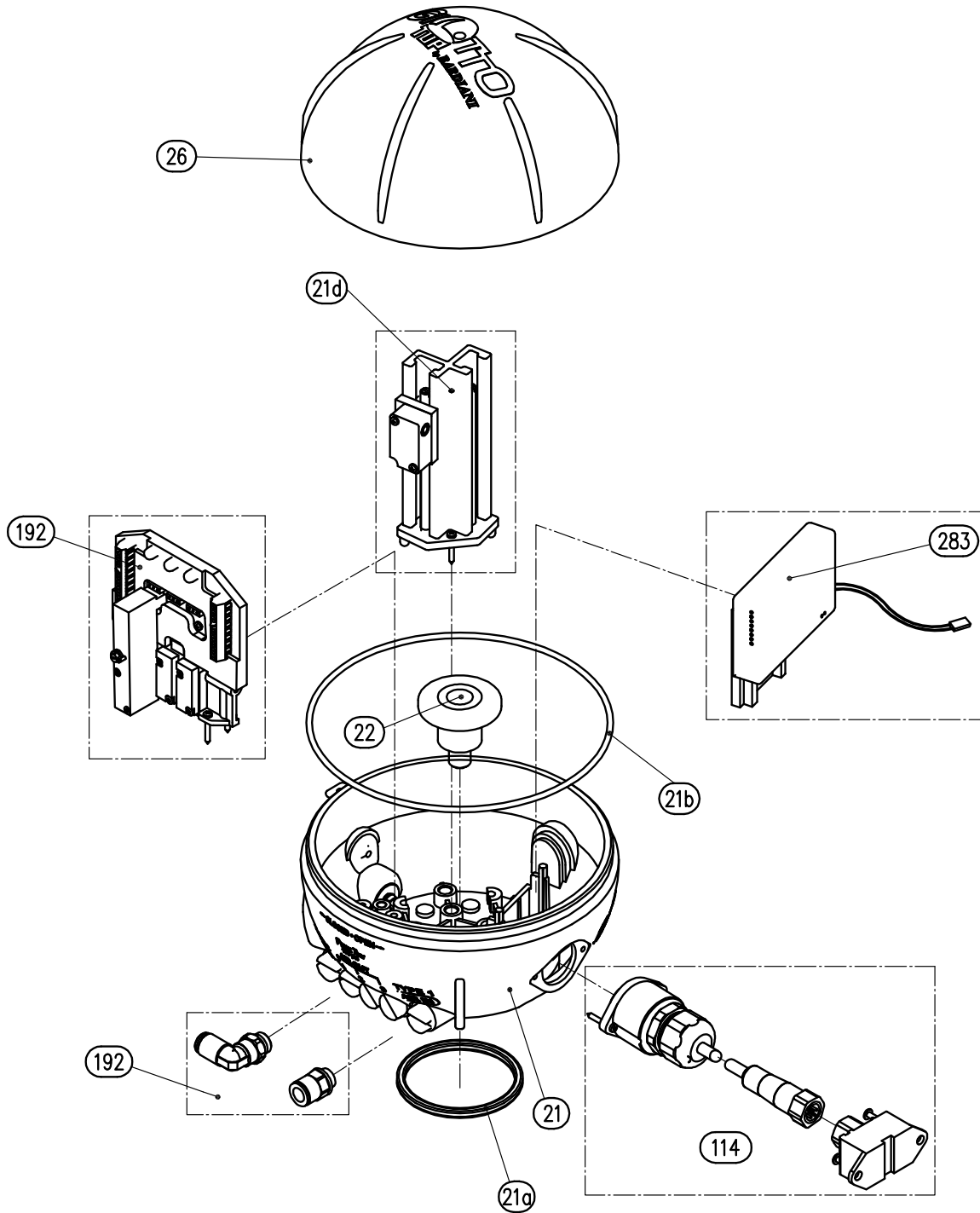
If any component of Giotto Top® should need replacing, contact Bardiani valvole s.p.a. to purchase the spare part required, because the feasible use of a product that is not supplied by our company could compromise correct operation and could cause hazards for personnel.



13. Part list



13. Part list



13. Parts List

POS.	DESCRIPTION	POS.	DESCRIPTION
21	Base		
21a	Seal ring		
21b	Seal ring		
21d	Double guide		
21k	Terminal board + support		
22	Cam		
26	Cover		
114	Cable with plug		
114a	Male connector		
114b	Female connector		
114c	Sleeve for cable gland		
192	Solenoid valve		
283	AS-i cards		

Foreword

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

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

Keep this manual for future reference.

When using valves which comply with ATEX Directive 94/9/EC (ATEX) it is compulsory to read the relative manual.

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 being understood that the essential characteristics of the valve type 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 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 failure to observe all the prescriptions provided in the relative manual concerning installation, use, maintenance and care of the product.

All rights are reserved. It is forbidden, without due written authorization from the manufacturer, to copy totally and/or partially and /or transfer 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 form or any other means or system for recording and/or reusing the information contained herein for any purposes other than for the purchaser's personal use.

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.

Any repairs made during the warranty period do not extend said period over the stipulated 12 (twelve) months which remains definite.

2. CONTENTS OF THE WARRANTY

This warranty it 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.

This warranty also does not cover:

- 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 ascribable 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 whenever interventions and/or repairs have been performed by persons not authorized by Bardiani Valvole S.p.A. and/or who are not suitably 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 ascribable to negligence and/or carelessness and/or lack of care 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**.

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 product.

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 product 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.