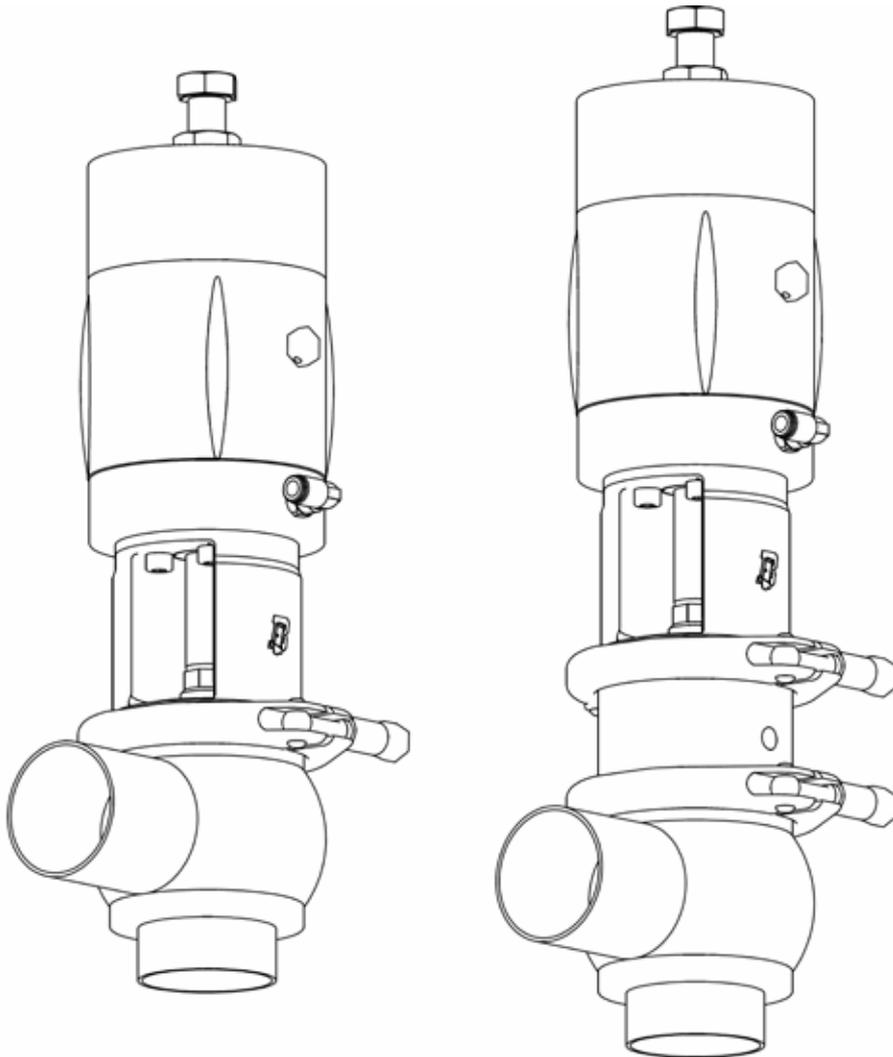


OPERATING AND MAINTENANCE INSTRUCTIONS

By-pass settable pneumatic valve BBZS5 - BBYS5



BARDIANI
VALVOLE

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Foreword

This instruction manual is an integral part of the valve delivery.

- **To use the Atex valve model is obligatory to consult the appropriate manual.**
- **Always read it carefully before using the valve.**
- **Always keep it for future reference.**

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This instruction manual is expressly intended for use by technicians. Therefore, some information which can easily be inferred by reading the text and examining the illustrations and drawings has not been further specified. The publisher is not responsible for any consequences of incorrect operations by the user.

The data and information in this instruction manual are subject to modifications or updates without any further notice or obligations on the part of the manufacturer.

1. Safety/Caution Signs



General WARNING sign, which indicates that special instructions **MUST** be followed to avoid serious personal injuries.



General CAUTION sign, which indicates that special instructions **MUST** be followed to avoid damage of equipment and environment.

NOTE! Indicates **IMPORTANT** information, which improves the understanding of the instructions.

2. General Safety Precautions



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

ALWAYS use authorised personnel to install, operate and service the valve. The personal should know the valve and the instruction manual thoroughly.

ONLY use the valve for the designed purpose.

ALWAYS handle heavy valves carefully and use lifting tools where necessary.

ALWAYS pay attention to possible loose valve parts when unpacking the delivery.

NEVER touch moving valve parts.

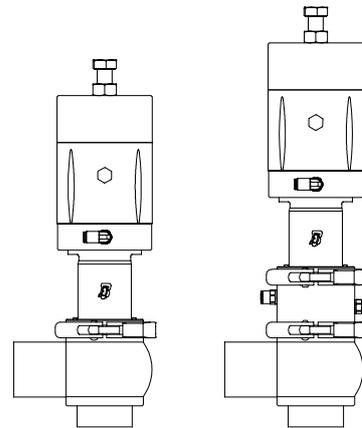
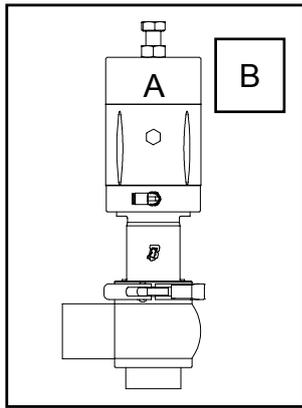
NEVER touch a hot valve.

ALWAYS handle cleaning agents carefully.

NEVER remove a valve from piping or disassemble it when the valve or piping are pressurised.

**We cannot be held liable for incorrect installation,
operation and maintenance!**

3. Receiving/Unpacking/Storage



BBZS5

BBYS5

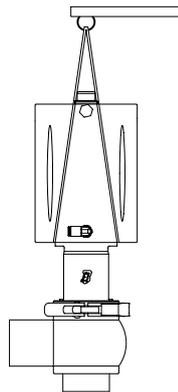
ATTENTION!

1. UNPACK AND CHECK VALVE DELIVERY:

- A. Complete valve.
- B. Instruction Manual.

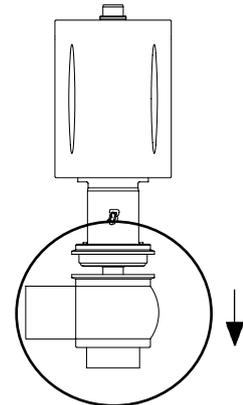
2. IDENTIFY VALVE TYPE SUPPLIED:

- BBZS5:** by pass settable pneumatic valve
- BBYS5:** by-pass settable pneumatic valve with steam barrier



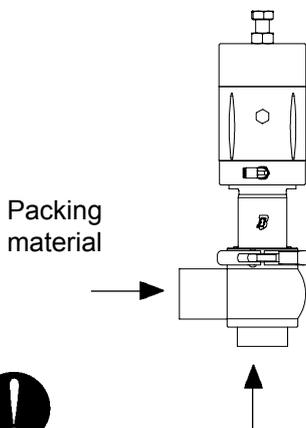
3. LIFTING OF WEIGHY VALVES:

- Use lifting tool, if necessary.
- Fix the valve to lifting tool.

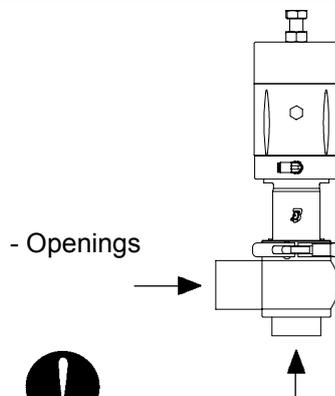


4. HANDLING OF LOOSE VALVE PARTS:

- Avoid falling loose valve parts
- Assemble and tighten loose valve parts.



Packing material



- Openings



5. PACKING MATERIAL:

- Inspect the interior of the valve.
- Remove material and dispose of according to current directives.

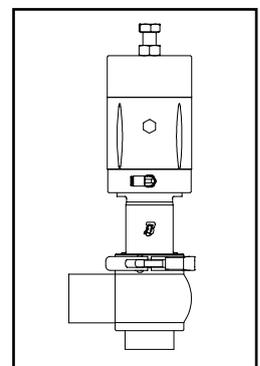


6. INSPECTION/CLAIMS:

- Document/check for damage, missing or wrong parts.
- Follow current claim procedures, if necessary.



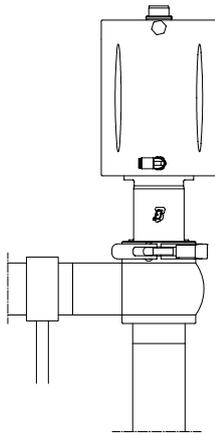
Valve safety guards!



7. STORAGE/PROTECTION:

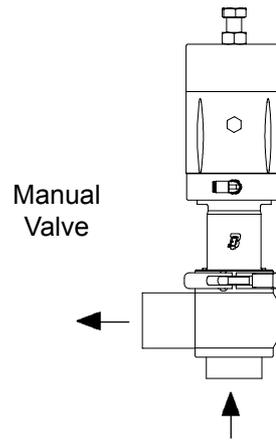
- Avoid dust, humidity, wet areas, heat etc.
- Avoid vibration.
- Min.: - 10 °C
- Max.: + 50 °C

4. Installation



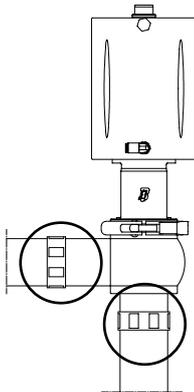
1. AVOID VALVE OVERLOADING AND COMPENSATE FOR:

- Vibration
- Thermal expansion



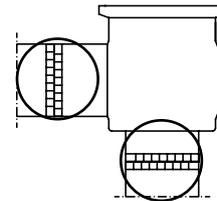
2. CORRECT FLOW DIRECTION:

- If possible, have flow against valve closing direction to avoid or minimise water hammer.



3. VALVE CONNECTIONS/UNIONS:

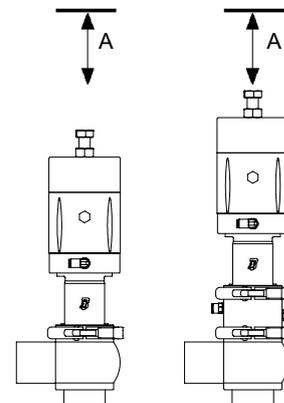
- Ensure tight connections between valve and piping.
- Remember gaskets and fit correctly.
- Tighten unions firmly and carefully.



4. WELDING VALVE BODY INTO PIPING:

- Remove inner valve parts.
- Weld body carefully into piping.
- Assemble valve.
- See assembly instructions.

VALVE SIZE	BBZS5 A (mm)	BBYS5 A (mm)
DN10-25	270	270
DN32-40	295	295
DN50	310	310
DN65	330	330
DN80	350	350
DN100	370	370



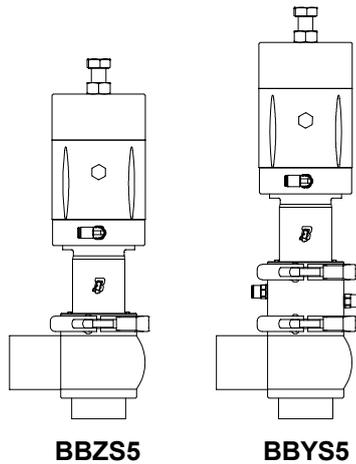
BBZS5

BBYS5

5. INSTALLING VALVE INTO PIPING:

- Ensure sufficient clearance for valve disassembly.

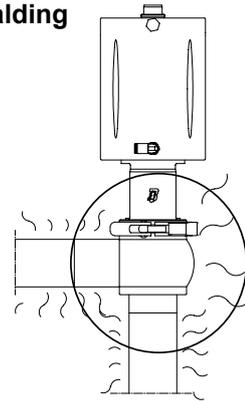
5. Operation



BBZS5

BBYS5

RISK of scalding



1. ONLY USE VALVE FOR DESIGNED PURPOSE

BBZS5: by pass settable pneumatic valve

BBYS5: by-pass settable pneumatic valve with steam barrier



2. HOT VALVE/PIPING

- Never touch hot valve or piping, if possible.
- Alternatively use protective gloves.

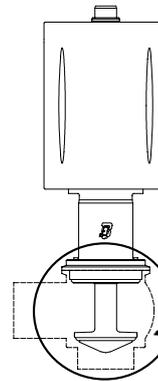
6. Troubleshooting



1. TROUBLESHOOTING VALVE:

Always study operation and maintenance instructions carefully before troubleshooting.

Corrosion risk of stainless steel!



Check and replace gaskets!

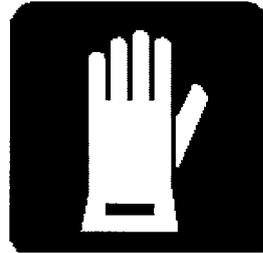


2. REPLACING WORN VALVE PARTS:

- See page 9 for spare parts ordering.

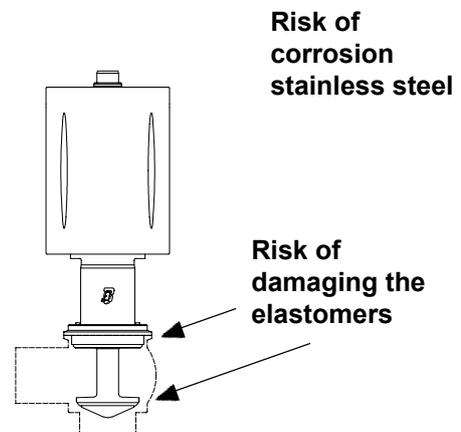
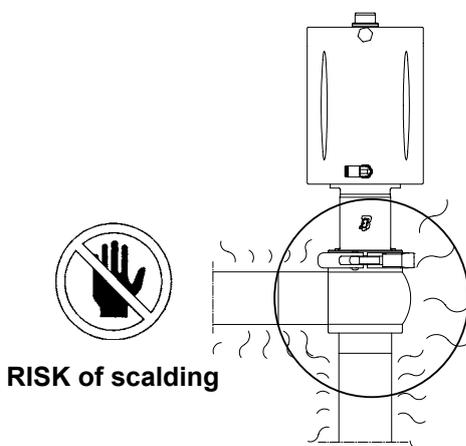
Problem	Possible cause	Possible remedy
External leakage	Worn out gasket	Replace gasket
Internal leakage with closed valve, caused by normal wear		
External leakage	Too high pressure	Replace with gasket of different elastomer type
	Too high temperature	
Internal leakage with closed valve occurring earlier than normal wear	Aggressive fluids	Modify operation conditions
	Too many active control	
Difficult opening and closing	Incorrect elastomer type of gaskets	Replace with gasket of different elastomer type
	Incorrect positioning of actuator	Assemble actuator correctly
	Incorrect operation of actuator	Change from normally open (NO) to normally closed (NC) or vice versa
	Dirt in actuator	Check and service actuator
	Incorrect positioning of valve body	Disassemble and reposition valve body

7. Cleaning



1. CLEANING VALVE WITH CLEANING AGENTS:

- Use authorised personnel to clean the valve.
- Observe concentrations of cleaning agents.
- Follow instructions of cleaning agent suppliers.
- Always use protective goggles and gloves



2. HOT VALVE/PIPING:

- Never touch hot valve or piping, if possible.
- Alternatively use protective gloves

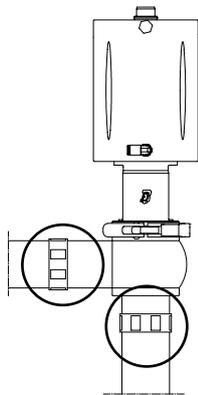
3. HANDLING OF CLEANING AGENTS:

- Dose cleaning agents regularly to avoid excessive concentration.
- Always rinse carefully with clean water after cleaning.
- Check compatibility of valve materials.

Example of suggested CIP		
Step	Temperature °C	Cip product
First rinsing	Atmosphere	Water without chlorine or chlorids
Washing	70°	Soda (NaOH) at 1%
Intermediate washing	Atmosphere	Water without chlorine or chlorids
Washing	70°	Nitric acid (HNO3) at 0,5%
Final rinsing	Atmosphere	Water without chlorine or chlorids

Recommended claning speed = 2 m/s

8. General Maintenance

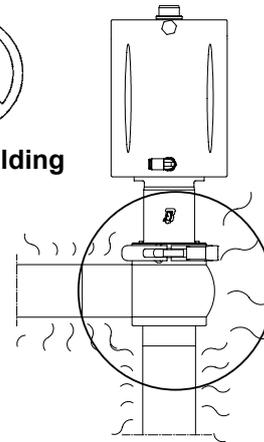


1. PRESSURISED VALVE/PIPING:

- Always release fluid pressure from valve and piping before disassembling the valve.



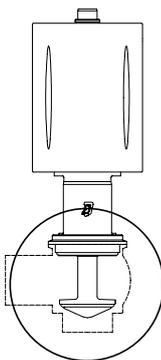
RISK of scalding



2. HOT VALVE/PIPING:

- Never touch hot valve or piping, if possible.
- Alternatively use protective gloves.

Wash and clean!



3. CLEANING OF DEPOSITS

- Wash and clean all valve parts thoroughly before disassembly and assembly!
- Pay attention to possible deposits of cleaning agents and other aggressive fluids!
- Always use protective goggles and gloves, if necessary.



4. REPLACING WORN VALVE PARTS:

- Always use original spare parts.
- See page 9 for spare parts ordering.

9. Planned Maintenance

Planned maintenance	Valve gaskets
Preventive	Replace after 12 months
In case of leak	Replace at the end of the day
Periodical	Check for proper operation and make sure there are no leaks
	Record all actions

10. Spare Parts Ordering Form



NOTE!

Please copy this page, fill it out and fax it to below address.

To:
BARDIANI VALVOLES S.P.A. – Ufficio Ricambi
Fax: +3905253408

From:			
Valve type:			
Serial number:			
Month/year of purchase:			
Shipping instructions:			
Quantity:		Position No.:	
Description:			
Quantity:		Position No.:	
Description:			
Quantity:		Position No.:	
Description:			
Quantity:		Position No.:	
Description:			
Quantity:		Position No.:	
Description:			

11. Disassembly of the BBZS5 - BBYS5

1. Fix the guide bushing (17) through 2 screw M6x10 and supply air to fitting (24).

2. Remove clamp (33) and body (1).

3. Release air pressure to air fitting (24).

4. Unscrew shutter (2).

5. Remove shutter ring (14) to the shutter (2).

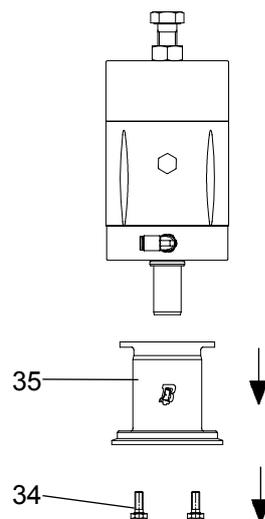
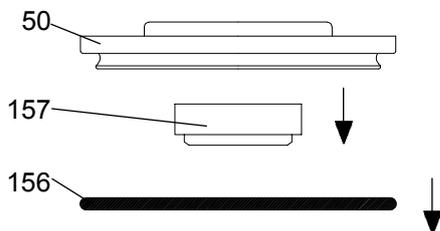
6. P.T.F.E. SHUTTER: Unscrew shutter nut (28) and remove shutter ring (14).

7. Reassemble in sequence, the pivot (11), the spring (31), the adjusting sleeve (5) and the cap (26) in to the part assembly part(15).

8. BBYS5. Remove the clamp (33) between steam barrier (45) and assembly (35). Remove the cap (50).

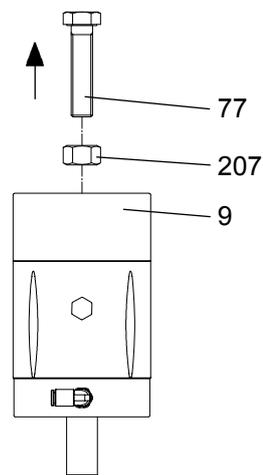
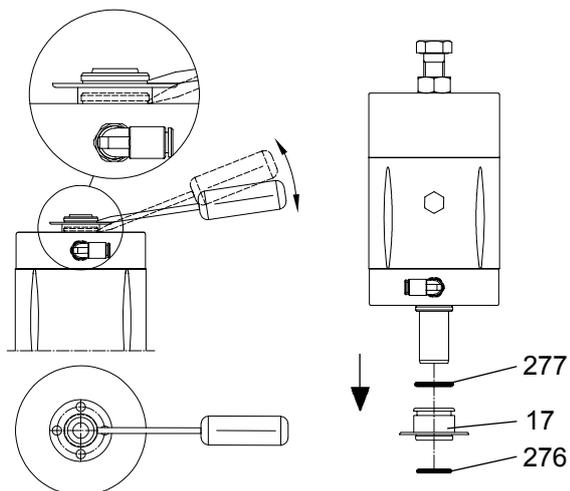
9. BBYS5. Remove seal rings (47, 57) and bushing (168) from steam barrier (45).

11. Disassembly of the BBZS5 - BBYS5



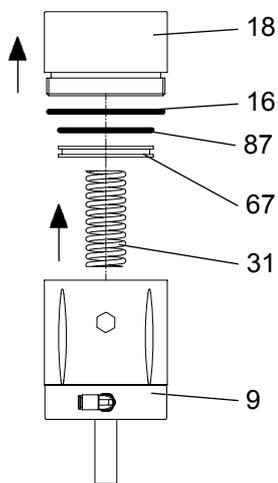
10. Remove seal rings (156 and 157) from cap (50).

11. Remove screws (34) and assembly (35).



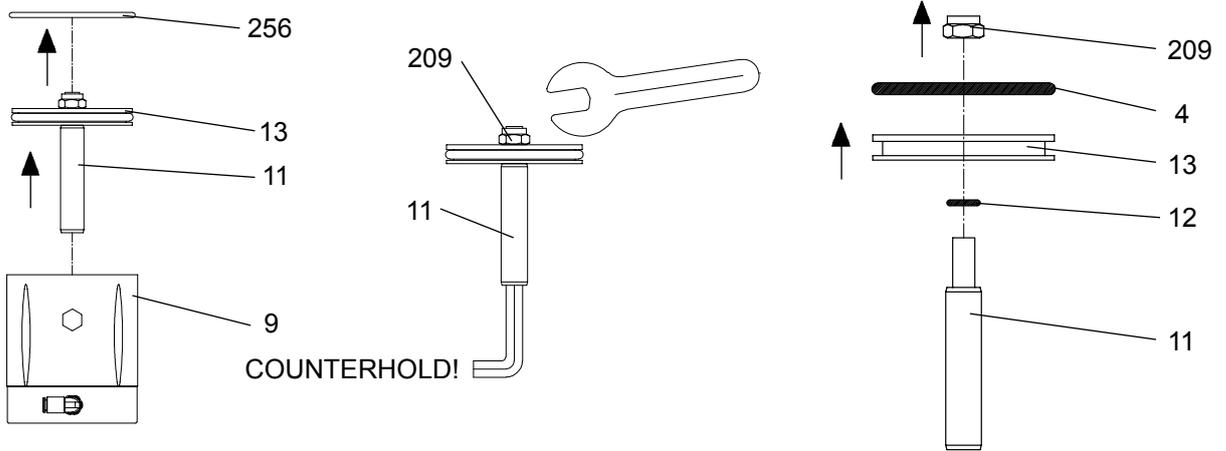
12. Remove screws M6x10 and guide bushing from the cylinder (17) with a suitable tool. Remove seal rings (277 e 276).

13. Unscrew the socket screw (77) and remove from the cylinder (9) the nut (207).



14. Unscrew from the cylinder (9) il tampone (18), **pay attention to the preload of the spring** and then remove the spring (31) and the upper piston (67). Remove the seal rings (87,16).

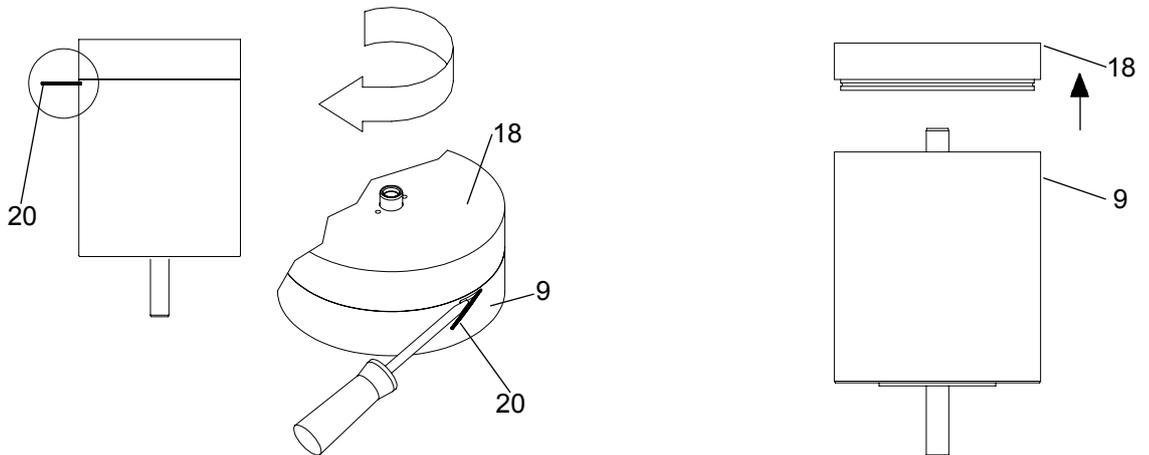
11. Disassembly of the BBZS5 - BBYS5



15. Remove the Snap ring (256) and the pivot (13-11), to cylinder (9).

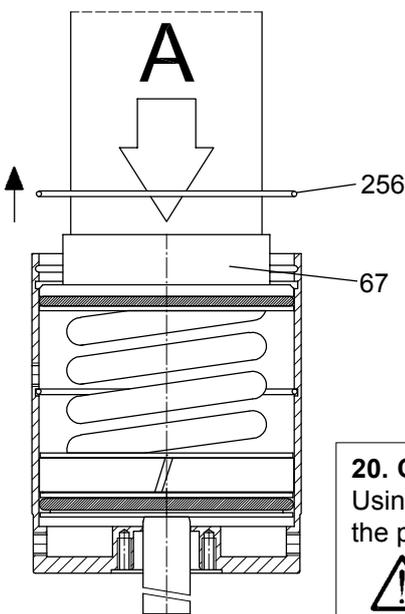
16. Unscrew the nut (209) counterholding the pivot (11) with an allen wrench.

17. Unscrew the nut (209) from the piston (11-13). Remove the seal rings (4,12).



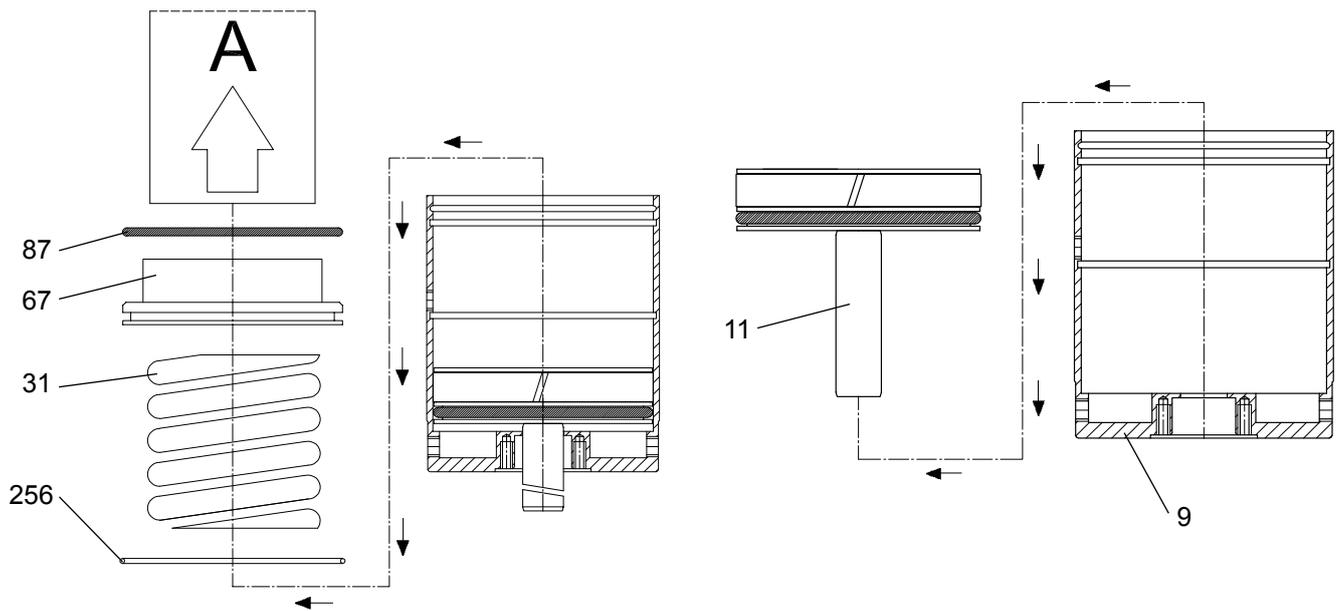
18. CYLINDER 108-134:
Remove elastic thread (20) by rotating plug (18) until the end part of the elastic thread is visible through cylinder slot (9). Pull out completely the end part by a pointed tool.

19. CYLINDER 108-134:
Remove plug (18) to the cilinder (9).



20. CYLINDER 108-134:
Using a press with a plug specially made for the operation (A) preload the spring on the piston upper (67) and remove the seeger (256).
⚠ This operation must be carried out with great care by a specialised person.

11. Disassembly of the BBZS5 - BBYS5

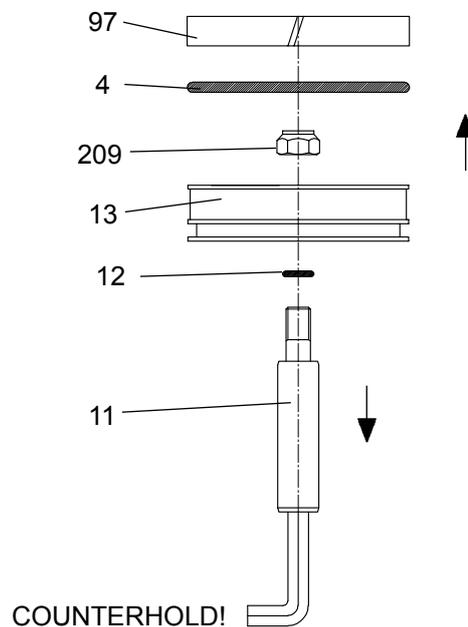


21. CYLINDER 108-134:

Gradually reduce the press force exercised by the device (A) on the spring (31), Remove the plate (67), seal rings (87) and spring (31). Remove the lower seeger (256).

22. CYLINDER 108-134:

Remove from the cylinder (9) the pivot (11).

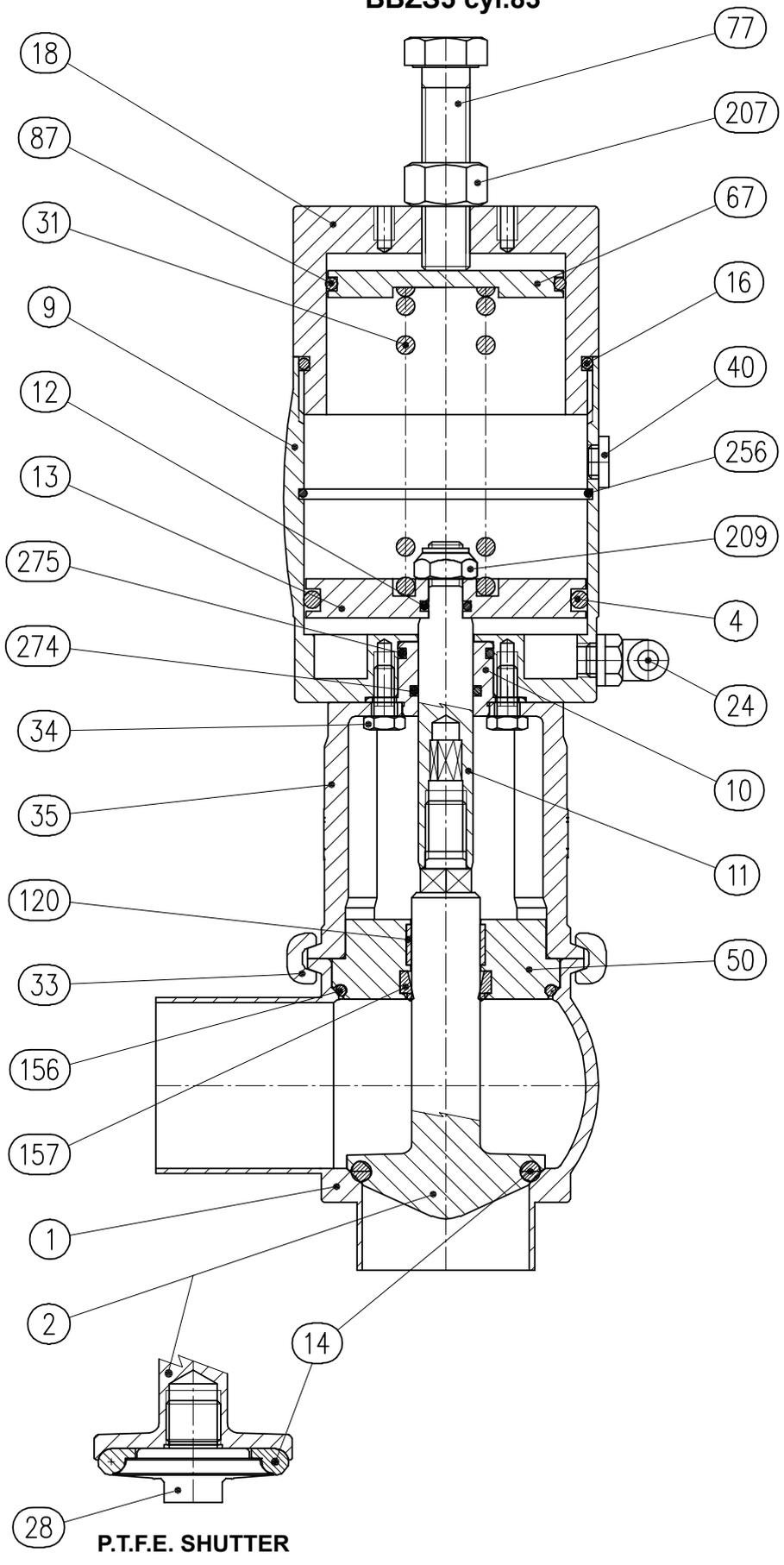


23. CYLINDER 108-134:

Unscrew the nut (209) from the pivot-piston(11-13) counterhold the pivot with an allen wrench. Remove the seal rings(12,4) and the guide bushing (97) from the piston (13).

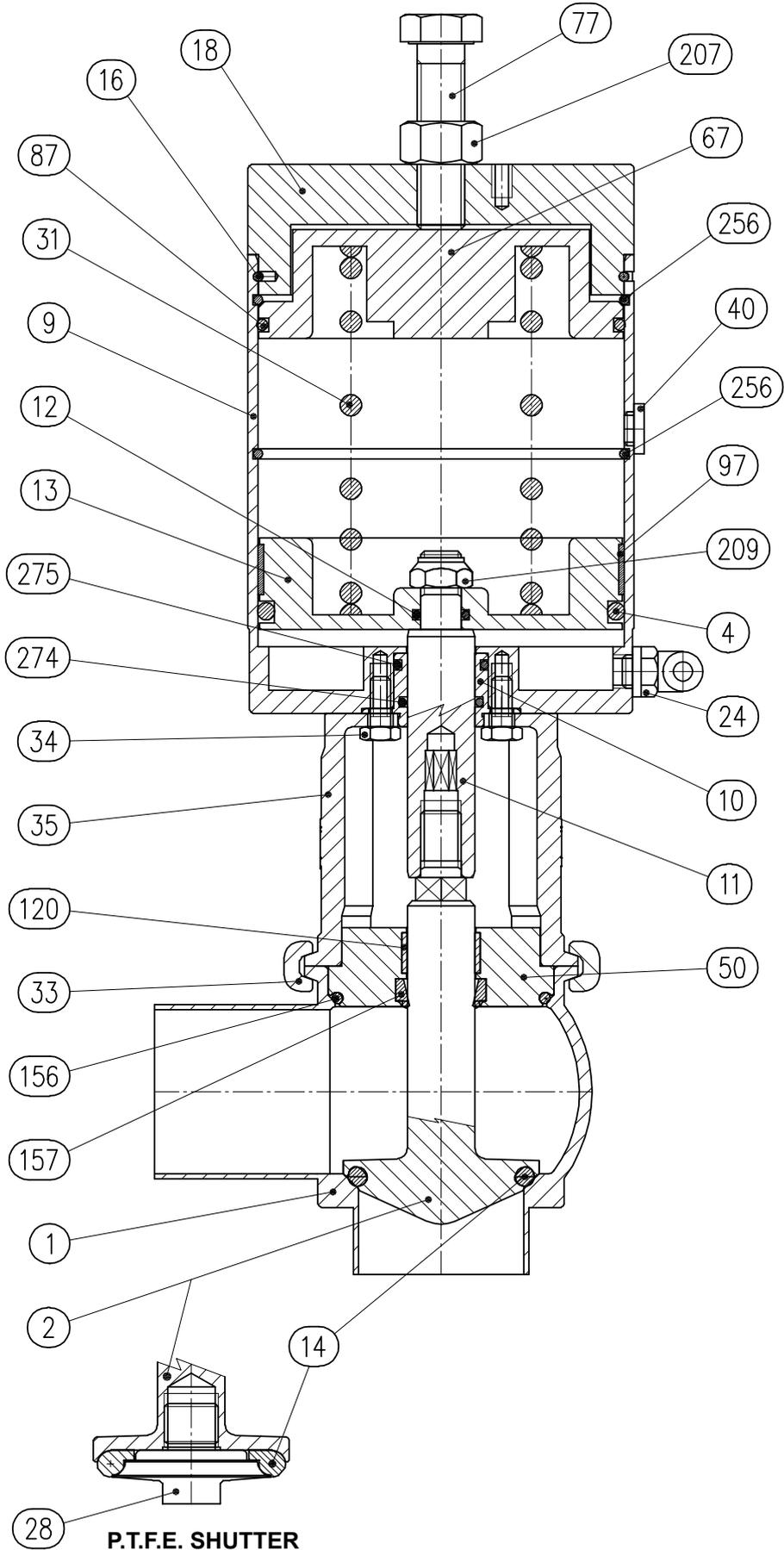
11. Disassembly of the BBZS5 - BBYS5

BBZS5 cyl.83

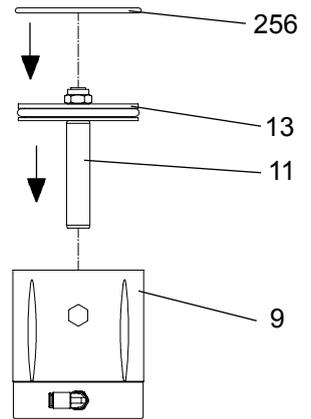
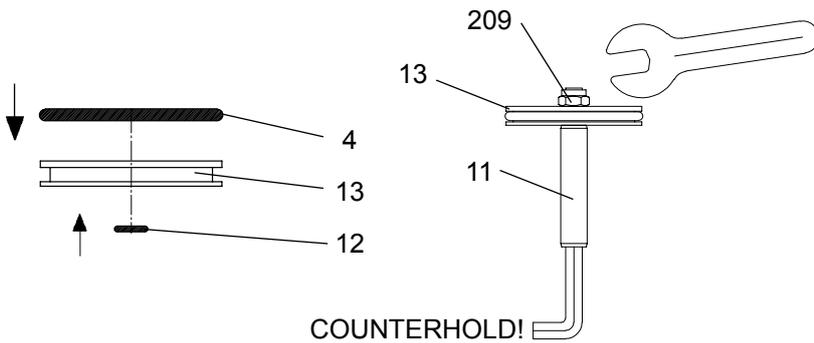


11. Disassembly of the BBZS5 - BBYS5

BBZS5 cyl. 108-134



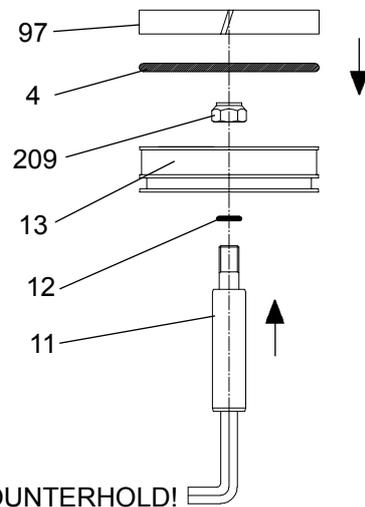
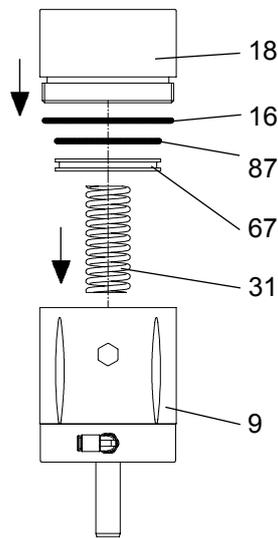
12. Assembly of the BBZS5 - BBYS5



1. Insert to the piston (13) the seal ring (4 and 12).

2. Assemble the piston (13) on the pivot (11) and screw the nut (209) counterholding the pivot (11) with an allen wrench.

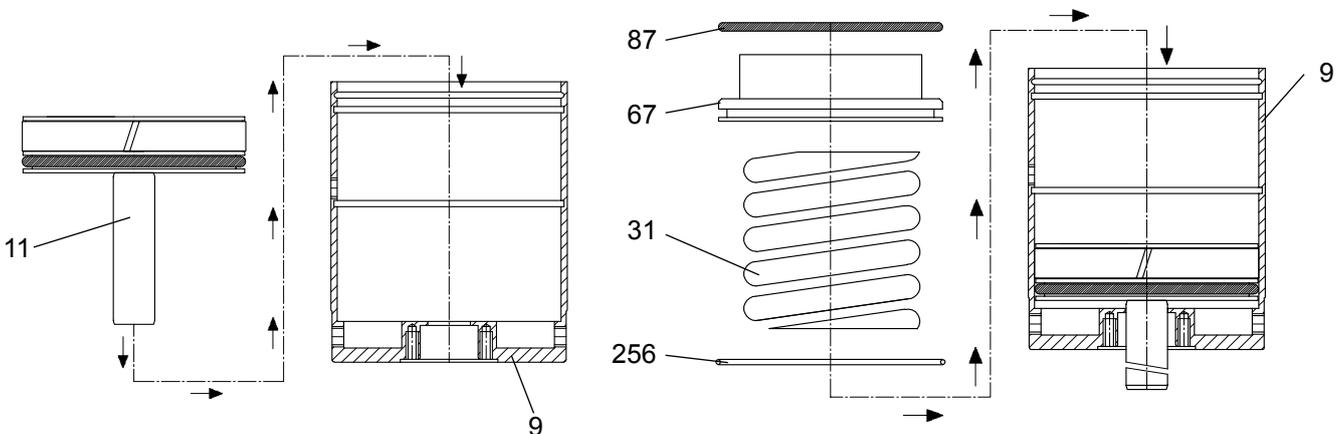
3. Insert into the cylinder (9) the pivot piston (11-13) and the seeger (256).



4. Assemble the seal ring (87) on the upper piston (67). Insert into the cylinder (9) the spring (31) and the upper piston (87). Assemble the seal ring (16) on the stopper (18) and **paying attention to the preload of the spring**, screw the stopper (18) on the cylinder (9).

5. CYLINDER 108-134:

Insert the seal rings (4,12) and the guide bushing (97) on the piston (13), block the piston with the nut (209) on the pivot (11), counterholding the pivot with an allen wrench.

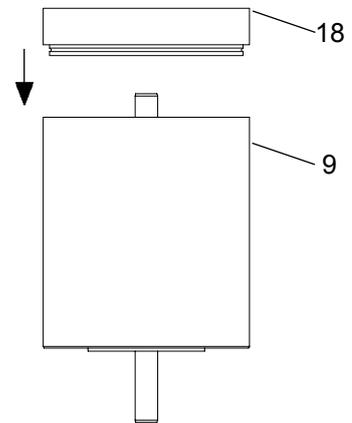
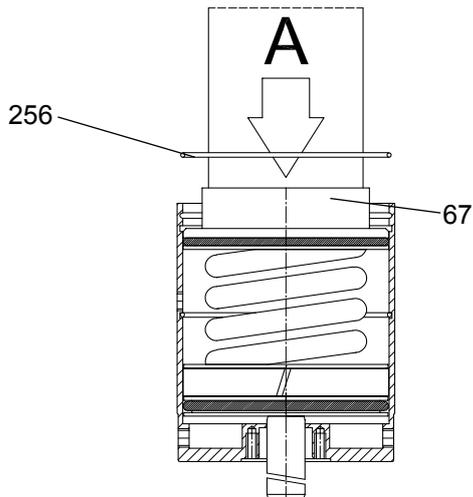


6. CYLINDER 108-134:
Put the pivot (11) into the cylinder (9).

7. CYLINDER 108-134:

Assembly on the cylinder (9) the seeger (256) and insert the spring (31). Assemble on the upper piston (67) the seal ring (87) and insert them inside the cylinder (9).

14. Assembly of the BBZS5 - BBYS5



8. CYLINDER 108-134:

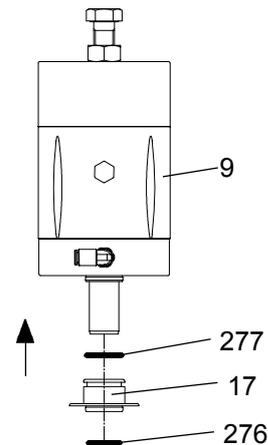
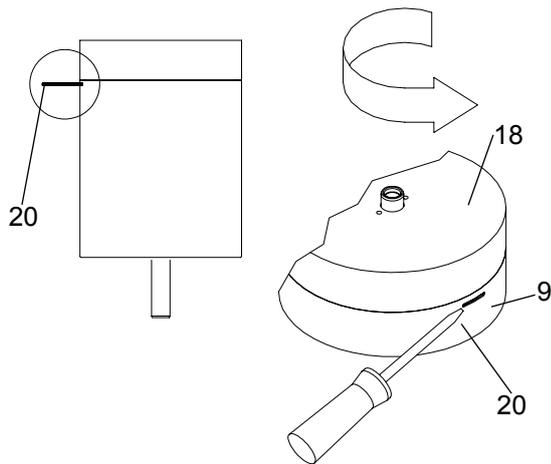
Insert the upper seeger (256) making sure it is correctly seated.



Remove with caution the pressure exerted on the upper piston (67).

9. CYLINDER 108-134:

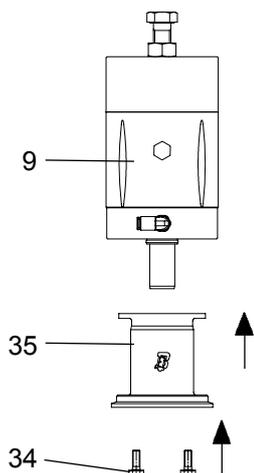
Insert the plug (18) to the cilinder (9).



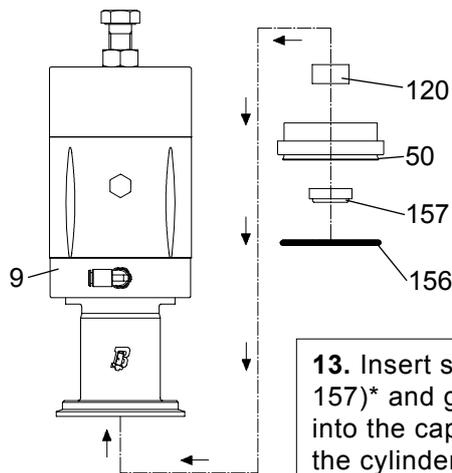
10. CYLINDER 108-134:

Position the retaining ring (20) in the plug (18) through the cylinder slot (9). Rotate the plug until it is completely inserted.

11. Insert seal rings (276 and 277) on the guide bushing (17) and assembly them on the cylinder (9)



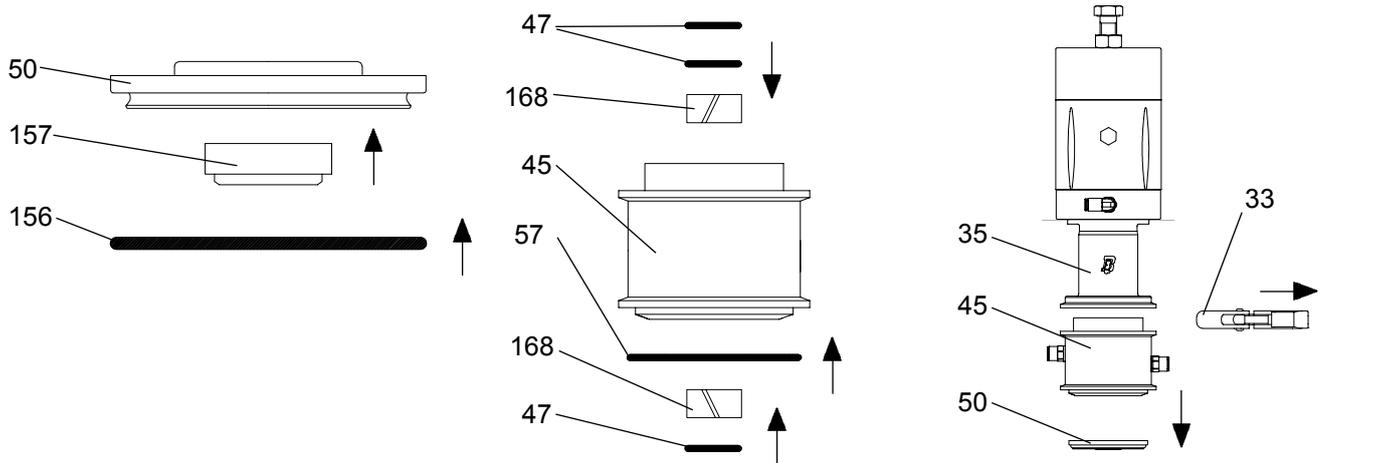
12. Fit assembly (35) to cylinder (9) with screws (34).



13. Insert seal rings (156 e 157)* and guide bushing (120)* into the cap (50). Fit the cap on the cylinder (9).



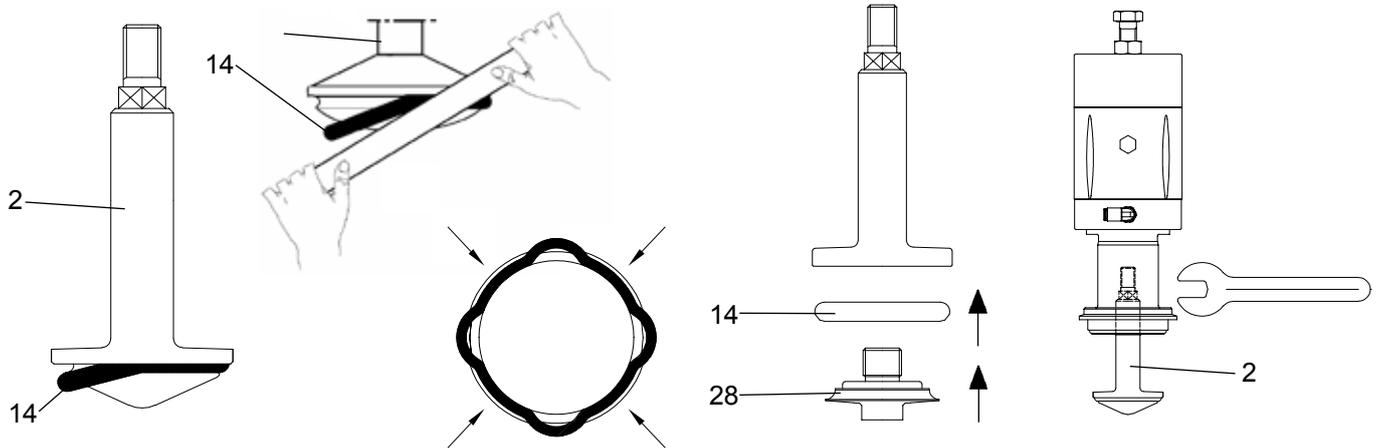
14. Assembly of the BBZS5 - BBYS5



14. BBYS5. Insert seal rings (156, 157)* into the cap (50).

15. BBYS5. Insert seal rings (47, 57)* and bushing (168) into steam barrier (45).

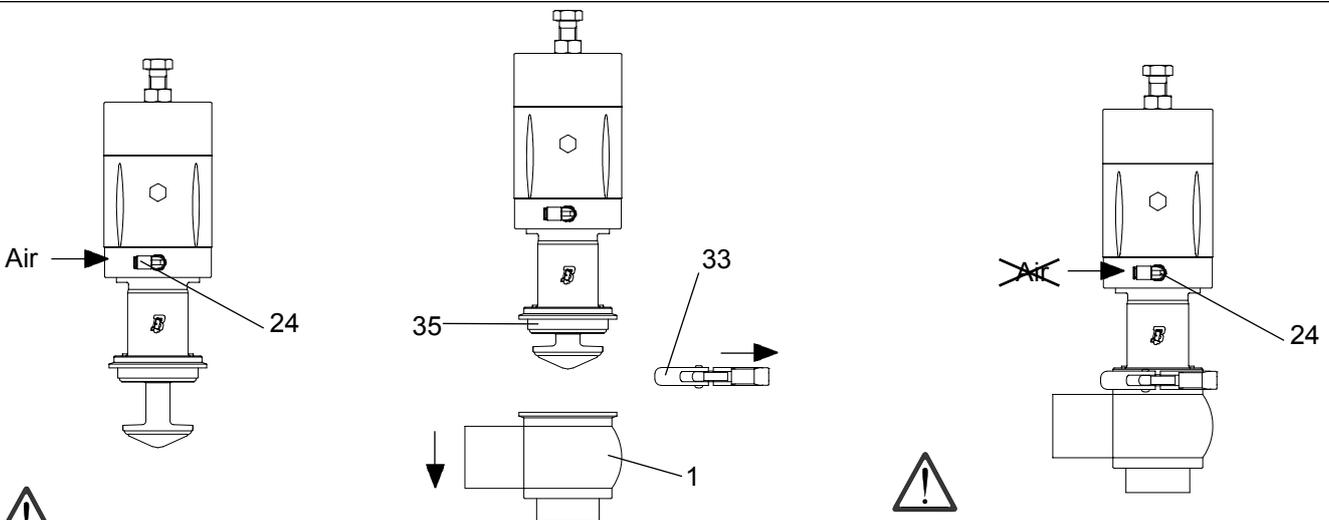
16. BBYS5. Insert steam barrier (45) into the assembly (35) with clamp (33) and the cap (50).



17. Pre-heat shutter ring (14*) to approx. 80°C to make it softer and insert it in shutter slot (2). Insert the ring in a crosswise manner using a plastic cylindrical tool.

18. PTFE SHUTTER: Assemble the P.T.F.E. seal ring (14) on the shutter (2) and the shutter nut (28).

19. Screw shutter (2) into cylinder pivot (9).



21. Supply air to fitting (24).

20. Release air pressure to air fitting (24).

22. Assemble body (1) and part assembly (35) with clamp (33).

13. Spare Parts List

N°	Description	N°	Description
1	Lower body	156	Seal ring
2	Shutter	157	Seal ring
4	Seal ring	168	Guide bushing
9	Cylinder	207	Nut
10	Guide bushing	209	Nut
11	Pivot	256	Snap ring
12	Seal ring	274	Seal ring
13	Piston	275	Seal ring
14	Seal ring		
16	Snap ring		
18	Stopper		
24	Air fitting		
28	Shutter nut		
31	Spring		
33	Clamp		
34	Socket screw		
35	Part assembling		
40	Plug		
45	Steam barrier		
47	Seal ring		
50	Cap		
57	Seal ring		
67	Piston upper		
77	Socket screw		
97	Guide bushing		
120	Guide bushing		

14. Technical data

Valve technical specifications:

Max. working pressure:	10 bar (145 psi)
Min. working pressure:	Full vacuum
Max. product temperature:	140° C (284° F)
Min. product temperature:	-10° C (14°F)
Material in contact with the product:	AISI 316L (1.4404)
Seals in contact with the product (FDA homologation):	EPDM, FKM, HNBR, P.T.F.E. (other seals available upon request).
Finish on surfaces in contact with the product:	Ra 0.8 µm (other types of surface finish on request).

Steam barrier specifications:

Connectors:	1/8" (BSP)
Max. steam temperature	130°C (266°F)
Seal / gasket material:	FKM

Pneumatic actuator specifications:

Connectors:	1/8" (BSP) for tube 6x4mm
Air pressure:	from 6bar (87psi) to 8bar (116psi)
Material:	AISI 304L (1.4307)
Seal / gasket material:	NBR

PED Directive 97/23/EEC, with special reference to Annex III, Module A regarding internal production control as Conformity Assessment Procedure in force valve sizes DN10--25 are not included in accordance with Article 3 paragraph 1.3:

Valves intended for gases, liquified gases, gases dissolved under pressure, vapours and those liquids whose vapour pressure at the maximum allowable temperature is greater than 0,5 bar above normal atmospheric pressure (1013 mbar) within the following limits

- For fluids in Group 1 with a DN greater than 25

DISCLAIMER

1. CONTRACTUAL WARRANTIES AND LIABILITY

- 1.1 Bardiani Valvole S.p.A. warrant that their products are free from defects in design, material and workmanship. Bardiani Valvole S.p.A. shall be liable should any such defects be found within 12 (twelve) months from the date of delivery of the products.
- 1.2 Any claim regarding defects and/or faults found in the products shall be notified in full and in writing to Bardiani Valvole S.p.A. within 8 (eight) days from the date they were found. Adequate documentation shall be provided as evidence of said defects at the time the claim is filed.

2. LIMITATION IN LIABILITY

- 2.1 Without prejudice to any statutory right of the Buyer, Bardiani Valvole S.p.A. shall be under no liability in respect of electric components or elastomers that are part of their products.
- 2.2 The Seller shall be under no liability in respect of defects/faults specified in the following points:
- defects and/or faults arising from failure to follow the instructions contained in the "Manual of Instruction for the Use and Maintenance of the Product" as to the use and storage of the products by the Buyer;
 - defects and/or faults arising from fair wear and tear of the products or their parts or their components;
 - defects and/or faults arising from repairs or interventions of the goods carried out by unauthorized or unqualified staff;
 - defects and/or faults arising from misuse, accidents, negligence and abnormal working conditions caused by the Buyer.

3. WARRANTY

- 3.1 Bardiani Valvole S.p.A. shall, at their discretion, repair or replace the products that are acknowledged to be defective.
- 3.2 Should repair or replacement of the product or of its components occur, the parts returned shall become the property of Bardiani Valvole S.p.A. The relevant freight costs involved in the return of the goods or their components shall be entirely met by Bardiani Valvole S.p.A..
- 3.3 Under no circumstance shall Bardiani Valvole S.p.A. be liable to indemnify immaterial or indirect damages such as damages or consequential loss, whether loss of profit, loss of business, loss of business opportunities, loss of time, loss of goodwill and damage to corporate image, etc.
- 3.4 The performance of repair or replacement under the above warranty shall not entail any extension of the warranty period of 12 (twelve months), such term being unconditional.
- 3.5 No distributor, agent or staff to Bardiani Valvole S.p.A. is entitled to make any amendment, extension or addition to the above warranty.

WARRANTY

1. All the statements, indications and technical data listed in this document are based on technical tests carried out by Bardiani Valvole S.p.A.. However accurate and reliable, such tests do not reflect all possible circumstances under which the products may be used.
It is therefore advisable that the Buyer should always ascertain the suitability of the product in its application. The Buyer will be entirely liable for all risks and damages incurred by said products.
Bardiani Valvole S.p.A. are not liable for any accident, loss or damage incurred, whether they be directly or indirectly caused by the use or misuse of the products.
No further guarantees other than those stated in this document shall be granted.
2. All our customers are advised to consult our technicians as well as our offices who will supply all information pertaining the technical characteristics of our products.
3. The pictures contained in this document are intended to be general representations. They are not to be intended either legally binding or detailed representations of our products.
4. The data and statements listed in this document only refer to our standard products. They do not apply in any case to any tailor-made products that might have been purchased by the customers.
5. Bardiani Valvole S.p.A. are not liable for any defects or faults resulting from the incorrect installation of their products. Such installation is to be carried out in full compliance with the instructions contained in the "Manual of Instructions for the Use and Maintenance of the Product". Bardiani Valvole S.p.A. are not liable for any defects or faults resulting from the incorrect use of their products.
6. Bardiani Valvole S.p.A. are not liable for any defects or faults resulting from the incorrect transportation and/or incorrect storage and/or incorrect maintenance of their products.
7. Bardiani Valvole S.p.A. cannot accept any liability for any faults or damages deriving from mishandling of the products and/or interventions carried out by unqualified personnel. No liability is accepted for damages caused by hits, dents, carelessness, negligence or any other any acts that cannot be considered as construction faults or faults related to the materials used in production.

