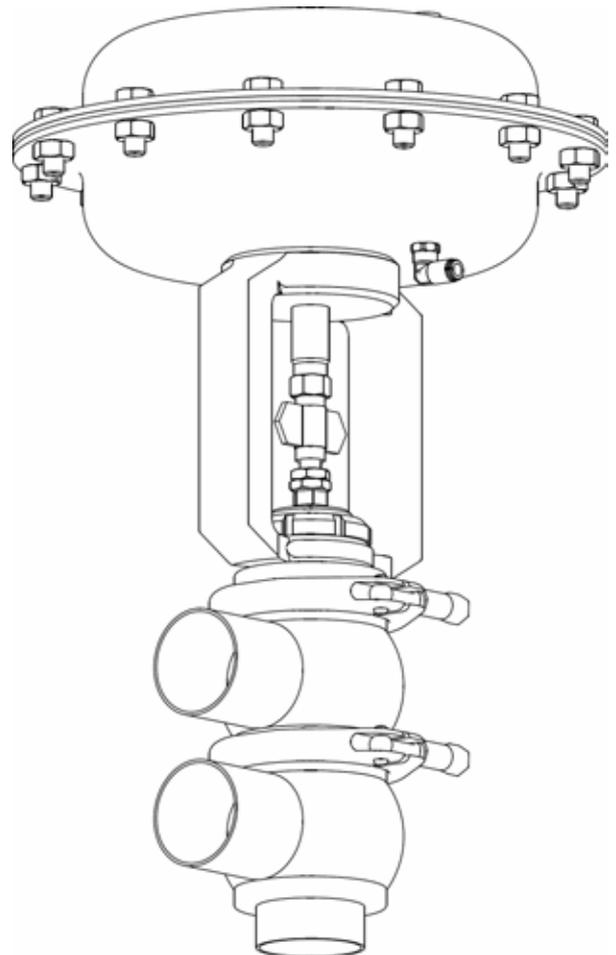
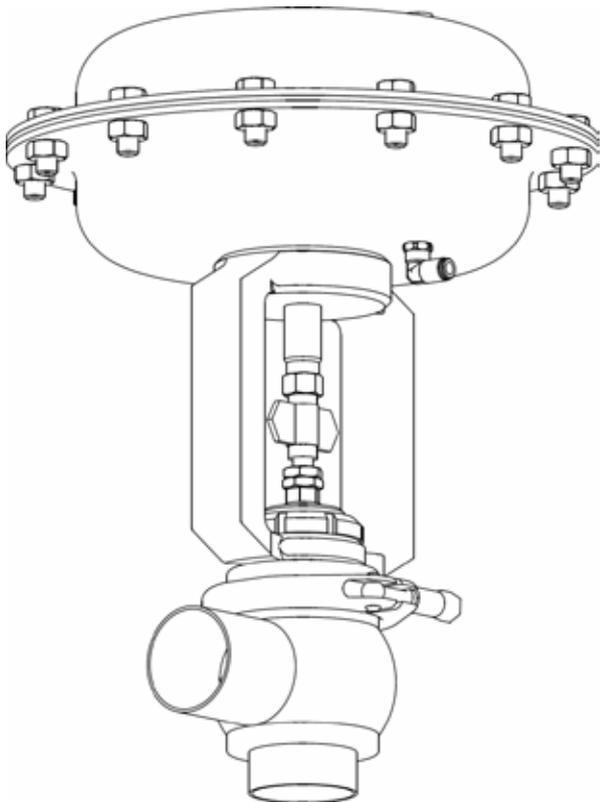


OPERATING AND MAINTENANCE INSTRUCTIONS

BBZK-BBYK MODULATING valve



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.**

All rights are reserved. It is forbidden to reproduce or transit any part of the instruction manual by any means, either electronic or mechanical, including photo copies, recording or any other memorisation or retrieval system for purposes other than the exclusively personal use by the purchaser – without prior written permission by the manufacturer.

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 authorized personnel to install, operate and service the valve. The personnel 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 valve loose parts when unpacking the delivery.

ALWAYS connect air supply carefully and disconnect after use.

ALWAYS connect electrical supply carefully and disconnect after use.

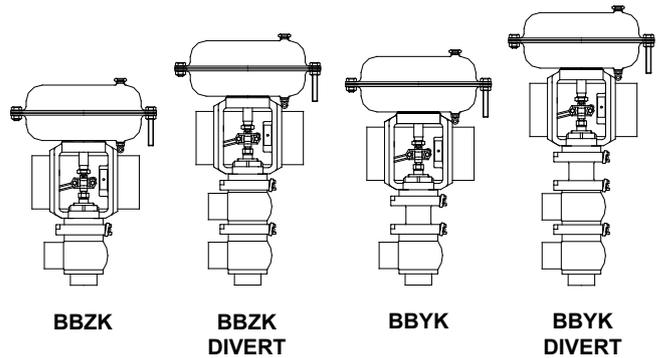
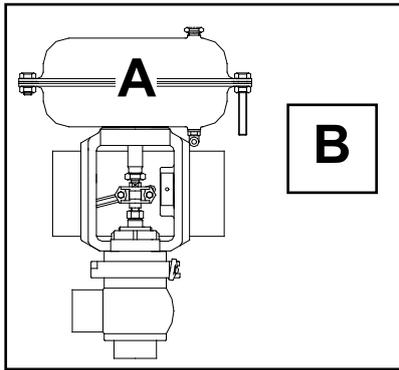
NEVER touch moving valve parts.

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!

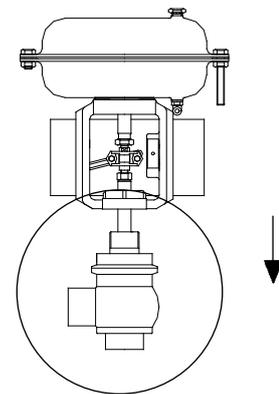
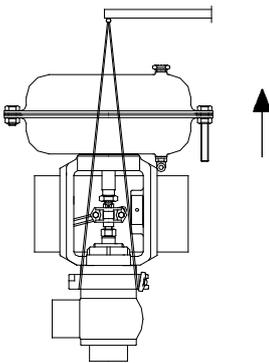


1. UNPACK AND CHECK VALVE DELIVERY:

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

2. IDENTIFY VALVE TYPE SUPPLIED:

- BBZK: Modulating valve
- BBZK: Modulating valve divert
- BBYK: Steam barrier modulating valve
- BBYK: Steam barrier modulating valve divert



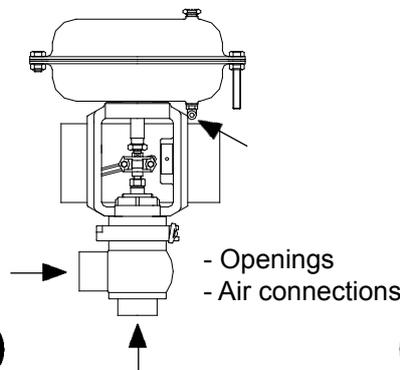
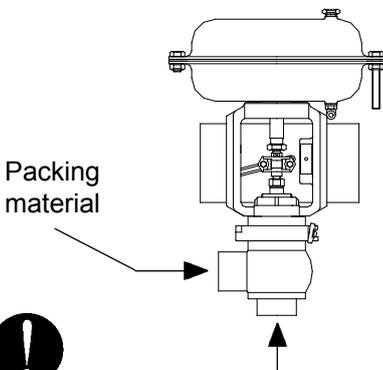
3. LIFTING OF HEAVY VALVES:

- Use lifting means, if necessary.
- Use the weight table on page 23.

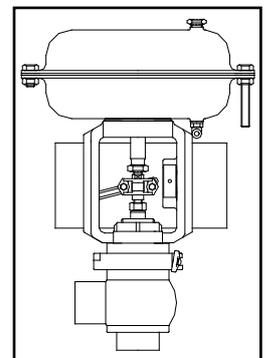


4. HANDLING OF LOOSE VALVE PARTS:

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



Valve safety guards!



5. PACKING MATERIAL:

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



6. INSPECTION/CLAIMS:

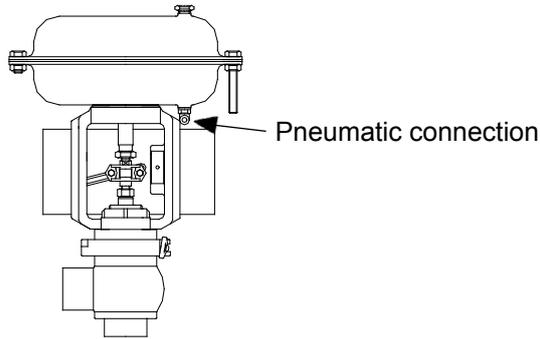
- Inspect valve connections.
- Document/verify damage, missing or wrong parts.
- Follow current claims procedure, if necessary.



7. STORAGE/PROTECTION:

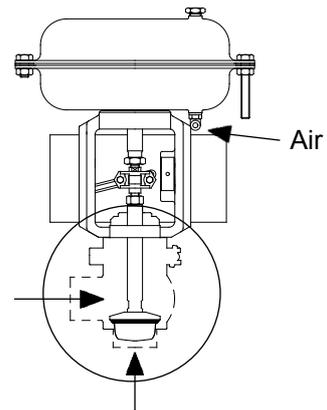
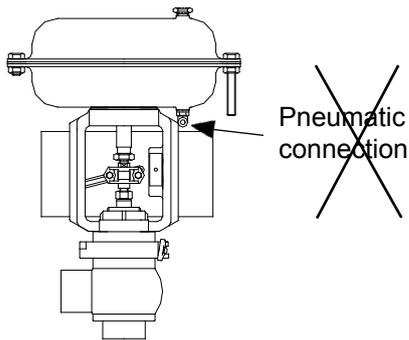
- Avoid dust, humidity, wet areas, heat etc.
- Avoid vibration.
- Min.: - 10 °C
- Max.: + 50 °C

4. Installation



1. AIR CONNECTION:

- Use authorised personnel to install/remove the valve.
- Check correct air pressure and quality (page 25).

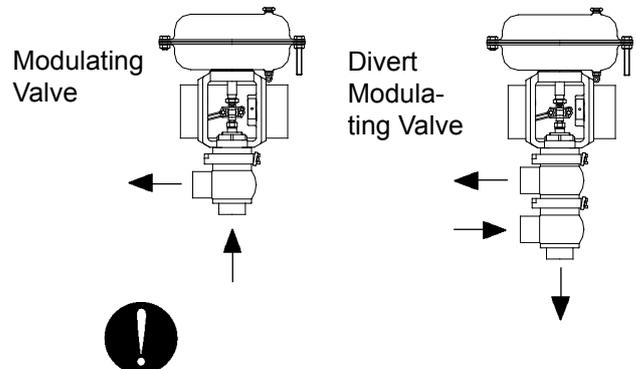
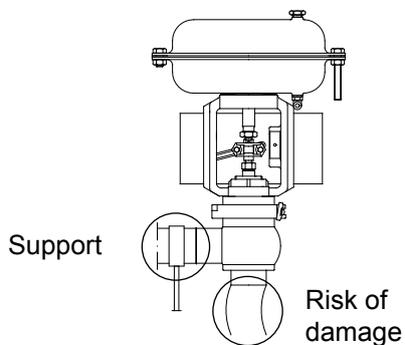


2. DISCONNECT SUPPLIES AFTER USE:

- Disconnect air supply.

3. MOVING VALVE PARTS:

- Never stick your fingers into valve ports.
- Never touch the pin valve during operation.



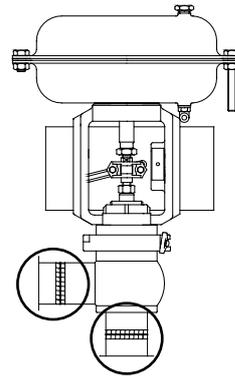
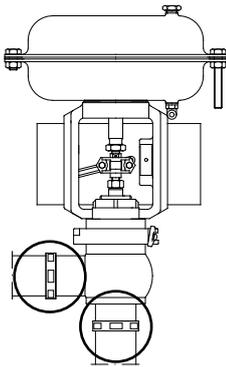
4. DO NOT OVERLOAD THE VALVE AND COMPENSATE FOR:

- Vibration
- Thermal expansion

5. CORRECT FLOW DIRECTION:

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

4. Installation



6. VALVE CONNECTIONS/UNIONS:

- Ensure tight connections between valve and piping.
- Remember gasket and fit them properly.
- Tighten unions firmly and carefully.

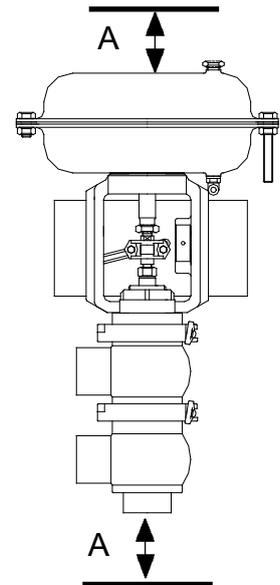


7. WELDING VALVE BODY INTO PIPING:

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

BBZK - BBYK

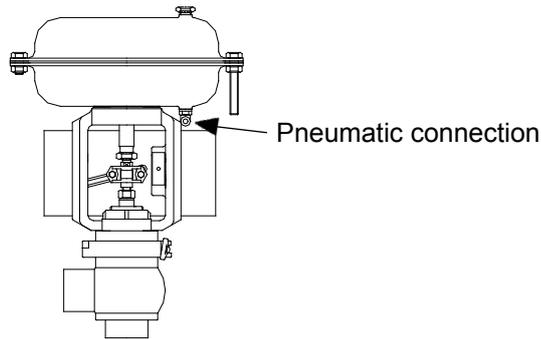
| Valve size | BBZK A (mm) | BBYK A (mm) |
|------------|----------------|----------------|
| DN25-40 | 290 | 290 |
| DN50 | 310 | 310 |
| DN65 | 330 | 330 |
| DN80 | 350 | 350 |
| DN100 | 370 | 370 |



8. INSTALLING VALVE INTO PIPING:

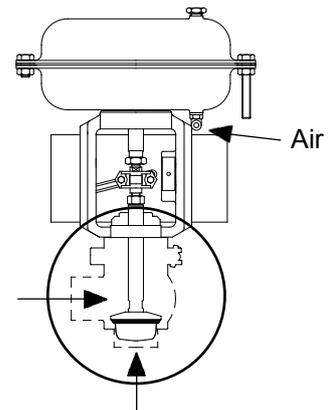
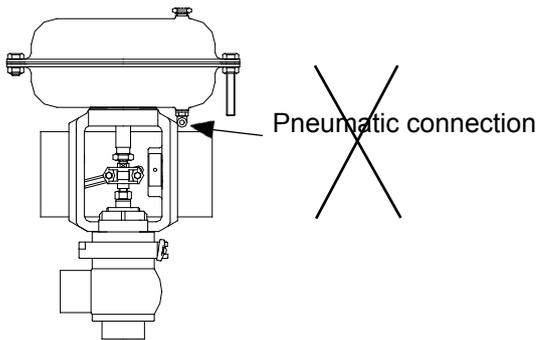
- Ensure sufficient clearance for valve disassembly.

5. Operation



1. AIR SUPPLY TO THE VALVE:

- Use authorised personnel to operate the valve.
- Ensure correct air pressure and quality (page 25).



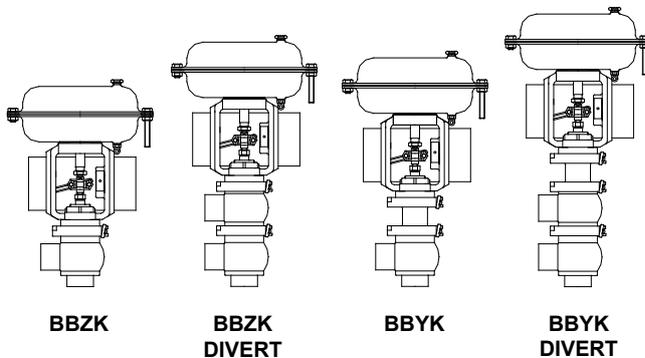
2. DISCONNECT SUPPLIES AFTER USE:

- Disconnect air supply.



3. MOVING VALVE PARTS:

- Never stick your fingers into valve ports.
- Never touch the valve's shutter/stem during operation.



BBZK

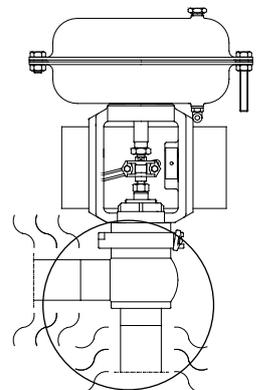
BBZK
DIVERT

BBYK

BBYK
DIVERT



RISK of scalding



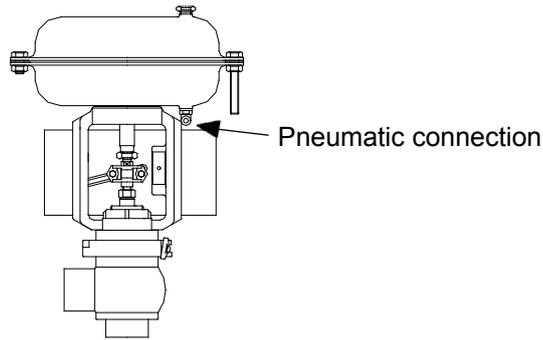
4. ONLY USE VALVE FOR DESIGNED USE

- BBZK: Modulating valve
- BBZK: Modulating valve divert
- BBYK: Steam barrier modulating valve
- BBYK: Steam barrier modulating valve divert

5. HOT VALVE/PIPING:

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

5. Operation



6. CHECK THE VALVE BEFORE OPERATION

- Supply the actuator with air.
- Open and close the valve several times.
- Check that the valve can work properly and smoothly.

6. Troubleshooting



1. VALVE TROUBLESHOOTING:

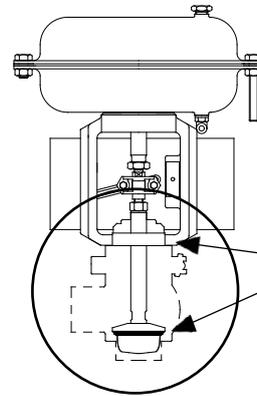
Always study operating and maintenance instructions carefully before troubleshooting.



2. REPLACING WORN VALVE PARTS:

- See page 12 for ordering spare parts.

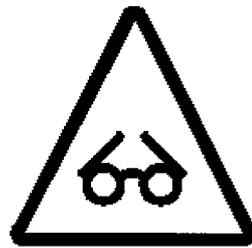
Risk of corrosion stainless steel



Risk of damaging the elastomers

| PROBLEM | POSSIBLE CAUSE | POSSIBLE REMEDY |
|--|--|---|
| External leak | Worn gasket | Replace gasket |
| Internal leak with closed valve, caused by normal wear | | |
| External leak | Excess pressure | Replace with gasket made of a different type of elastomer |
| | Excess temperature | |
| Early internal leak, with closed valve | Aggressive fluids | Modify working conditions |
| | Too many controls enabled | |
| Difficult opening and closing | Wrong type of gasket elastomers | Replace with gasket made of a different type of elastomer |
| | Wrong positioning of the actuator | Mount the actuator properly |
| | Improper operation of the actuator | Shift from normally closed to normally open or vice-versa |
| | Dirty actuator | Service the actuator |
| | Improper positioning of the valve body | Disassemble and re-install the valve body |

7. Cleaning

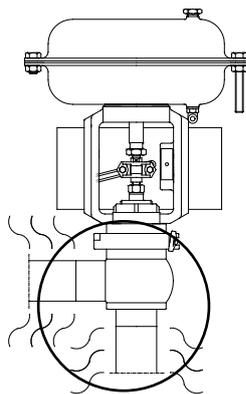


1. CLEAN VALVE WITH CLEANING AGENTS:

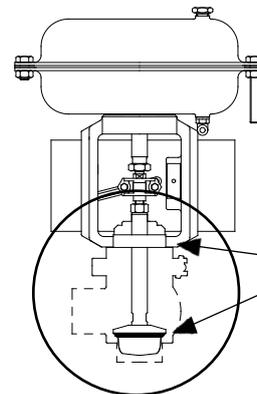
- Use authorised personnel to clean the valve
- Observe concentrations of cleaning agents.
- Follow instructions of cleaning agent suppliers.
- Always use protective goggles and gloves.



RISK of scalding



Risk of corrosion a stainless steel



Risk of damage to elastomers



2. HOT VALVE/PIPING:

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

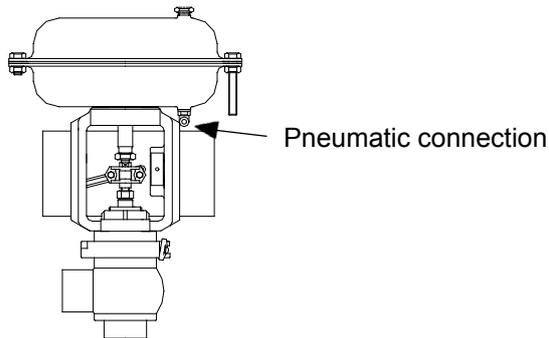
3. HANDLING OF CLEANING AGENTS:

- Dose cleaning agents regularly to avoid excessive concentrations.
- 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 |

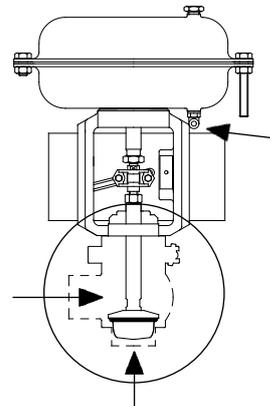
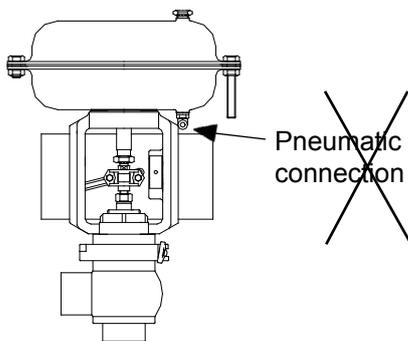
Recommended claning speed = 2 m/s

8. General Maintenance



1. AIR SUPPLY TO THE VALVE:

- Use authorised personnel to service the valve.
- Ensure correct air pressure and quality (page 25).



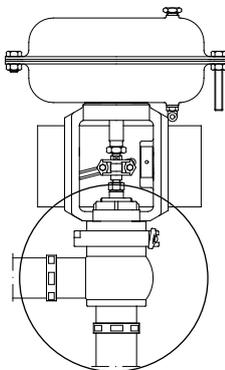
2. DISCONNECT SUPPLIES AFTER USE:

- Disconnect air supply.

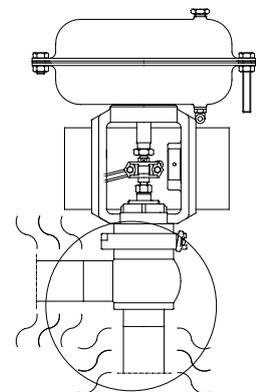
3. MOVING VALVE PARTS:

- Never stick your fingers into valve ports.
- Never touch the valve's shutter/stem during operation.

Atmospheric pressure required!



RISK of scalding



4. PRESSURISED VALVE/PIPING:

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

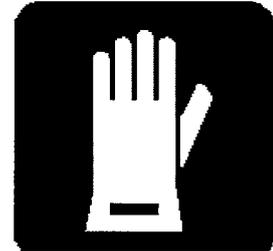
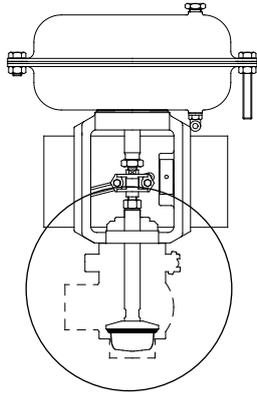


5. HOT VALVE/PIPING:

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

8. General Maintenance

Wash and clean thoroughly!



6. CLEANING OF DEPOSITS

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



7. REPLACING THE WORN PARTS OF THE VALVE:

- Always use original spare parts.
- See page 12 to order spare parts.

9. Planned Maintenance

| Planned maintenance | Valve gaskets | Pneumatic actuator gaskets |
|---------------------|--|---|
| Preventive | Replace after 12 months | Replace after 24 months |
| In case of leaks | Replace at the end of the day | Replace in case of leakage |
| Periodical | Check for correct operation and absence of leaks | Check for correct operation and absence of leak |
| | Record all actions | Record all actions |

10. Spare Parts Order Form



NOTE!

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

To:
 BARDIANI VALVOLE 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: | | | |
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| Quantity: | | Position no.: | |
| Description: | | | |
| | | | |
| | | | |
| Quantity: | | Position no.: | |
| Description: | | | |
| | | | |
| | | | |

11. Disassembly of the BBZK - BBYK valve

1. Supply air to fitting (24). remove clamp (33) between head body (15) and lower body (1).

2. Exhaust air from fitting (24), unscrew the nut (77), unscrew shutter (2), remove the cap (50). Remove, from the same, gaskets (156 e 157) and the guide bushing (120).

3. BBYP. Exhaust air from fitting (24), unscrew the nut (77), unscrew shutter (2), remove the cap (50) from the steam barrier (45) and the gaskets (57).

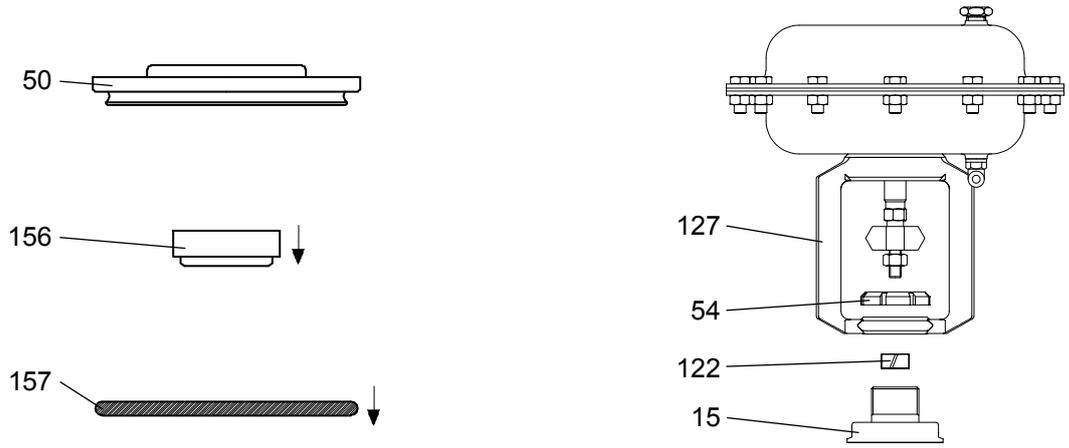
4. Remove shutter ring (14) to the shutter (2).

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

6. BBYK. Remove clamp (33) between head body (15) and steam barrier (45).

7. BBYK. Disassemble seal rings (47) and bushing (168) from steam barrier (45).

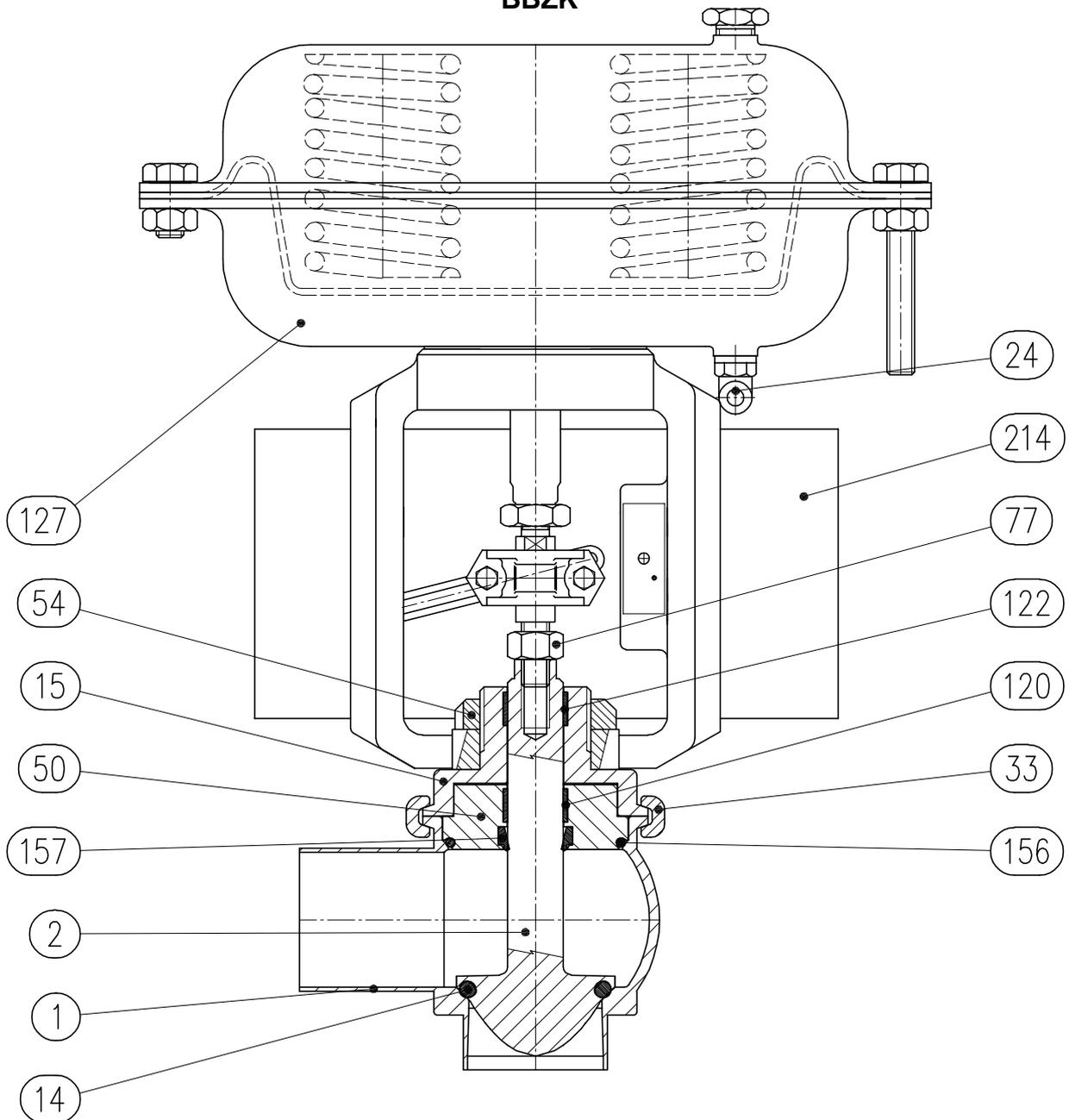
11. Disassembly of the BBZK - BBYK valve



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

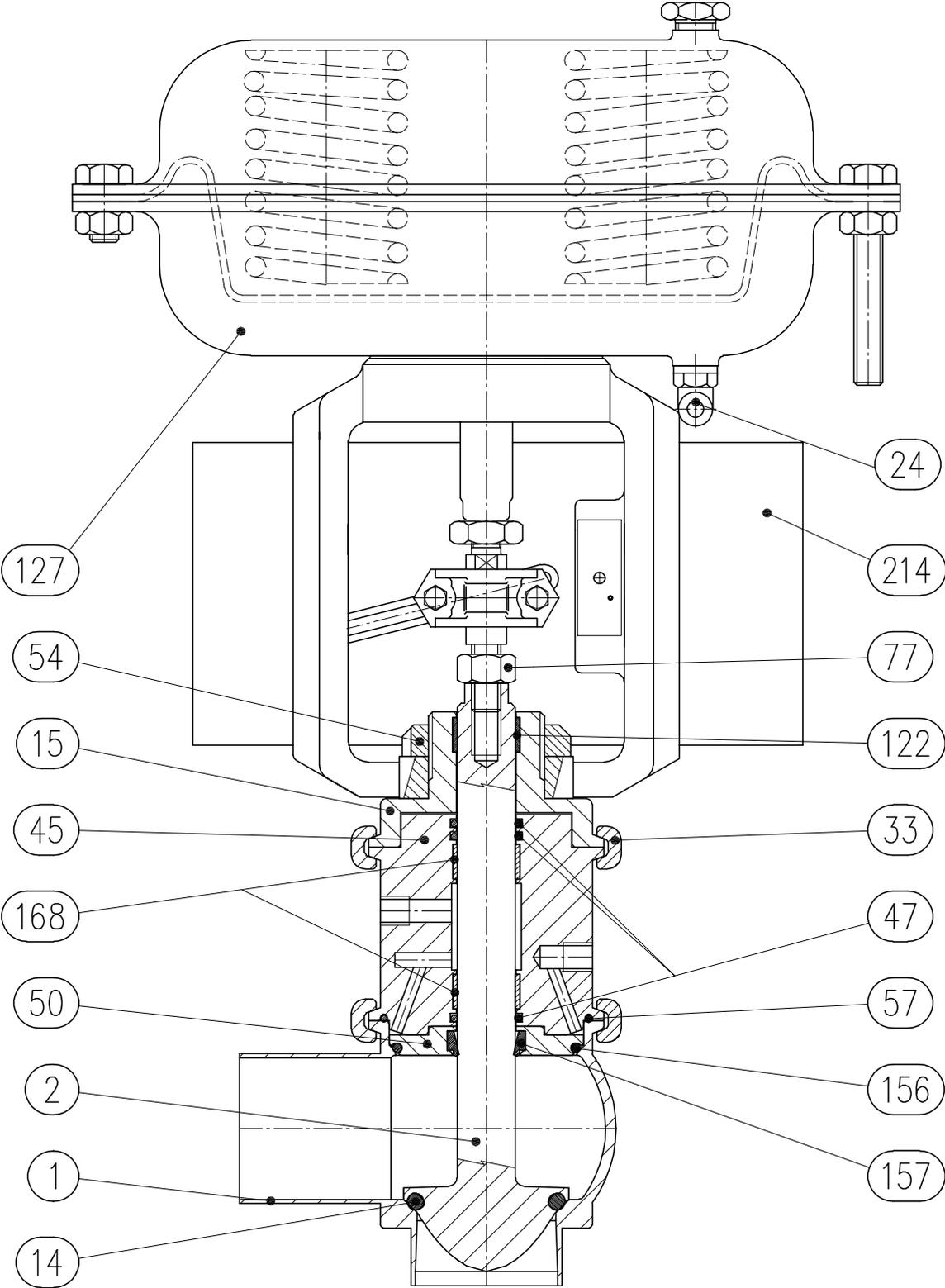
5. Unscrew ring-nut (54) and remove head body (15) from actuator (127). Remove bushing (122).

BBZK

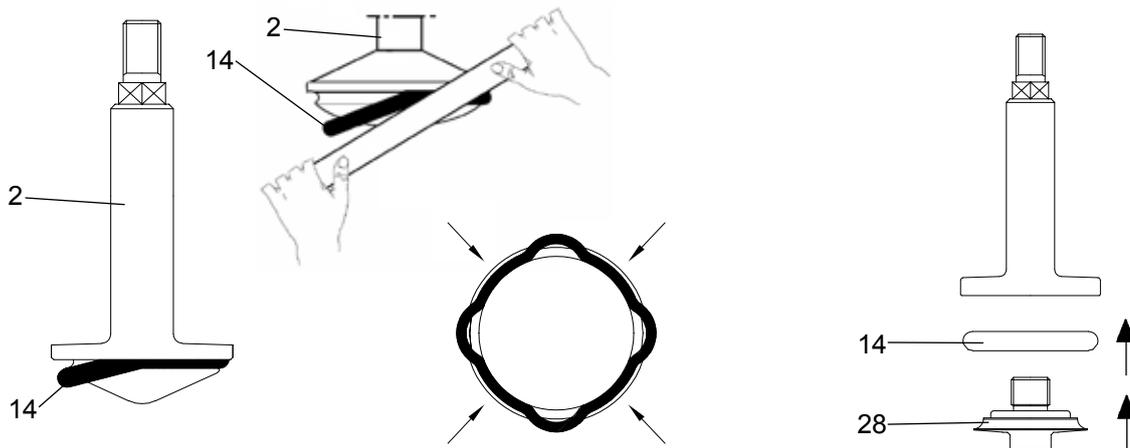


11. Disassembly of the BBZK - BBYK valve

BBYK



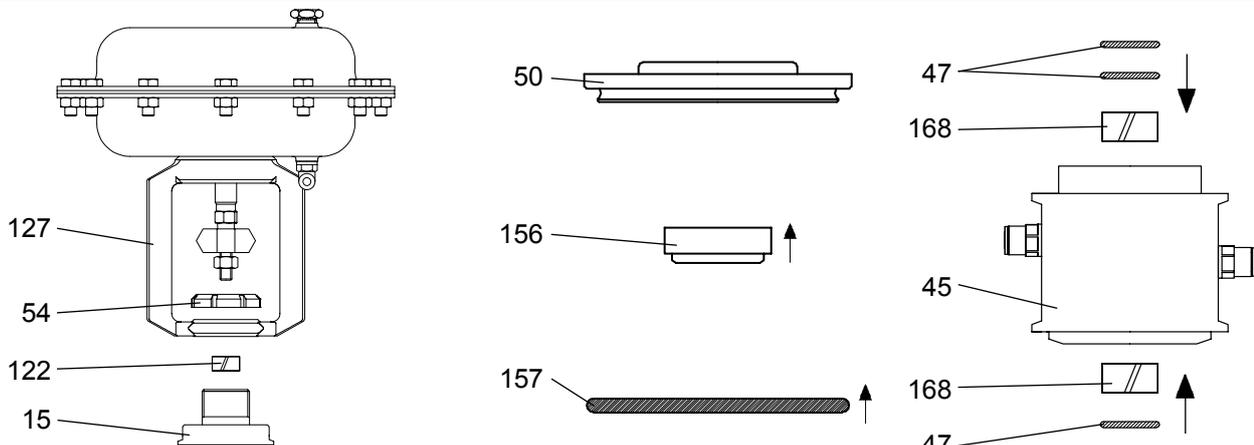
12. Assembly of the BBZK - BBYK valve



1. 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.

2. PTFE SHUTTER:

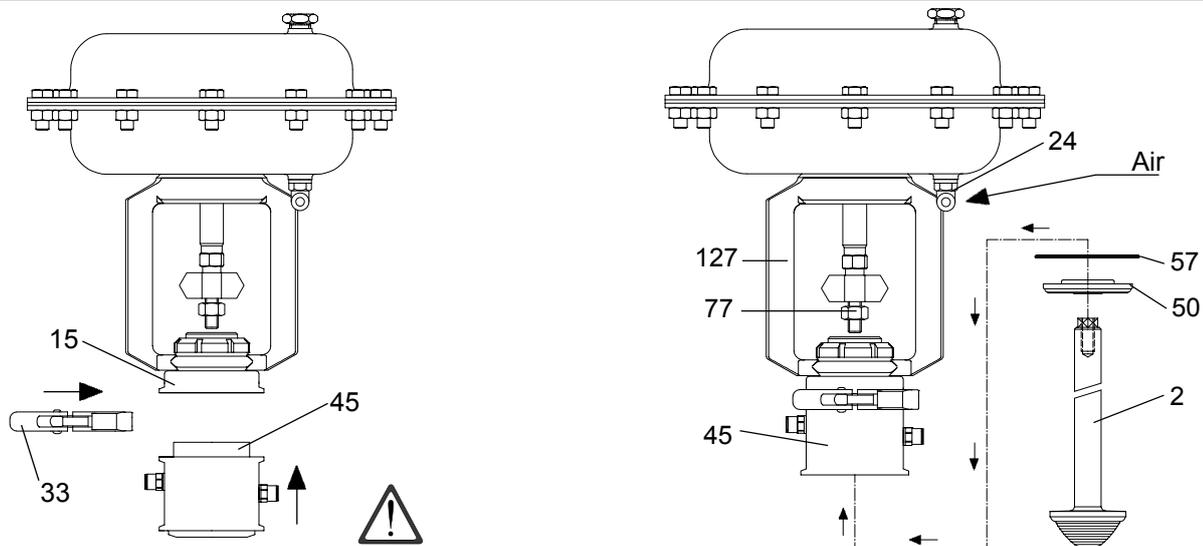
Assembly the P.T.F.E. seal ring (14) on the shutter (2) and the shutter nut (28).



3. Fit bushing (122)* into head body (15). Assemble head body (15) on to the actuator (127) and tighten ring-nut (54).

4. BBYK. Insert seal rings (156, 157)* into the cap (50).

5. BBYK. Fit seal rings (47)* and bushing (168)* on steam barrier (45).

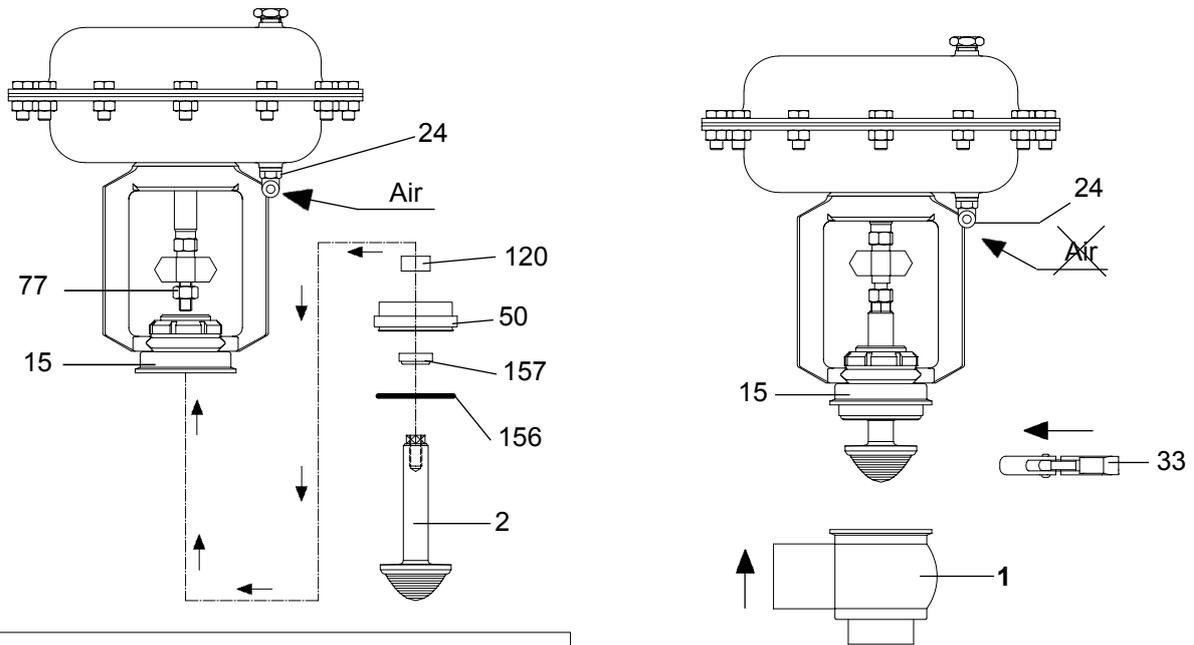


3. BBYK. Assemble steam barrier (45) on to head body (15) using the clamp (33).

7. BBYK. Insert seal ring (57) and cap (50) on the steam barrier (45), assemble the shutter (2) and the actuator (127) together and close with the nut (77). Supply air to the actuator into the air connection (24).



12. Assembly of the BBZK - BBYK valve



8. BBYK. Insert seal rings (156 e 157)* and guide bushing (120)* into the cap (50). Fit the cap (50) on the head body (15). Assemble the shutter (2) and the actuator and close with the nut (77). Supply air to the actuator into the air connection (24).

5. Assemble lower body (1) onto head body (15) using clamp (33). Exhaust air from fitting (24)



13. Disassembly of the BBZK - BBYK divert valve

1. Supply air to fitting (24). Remove clamp (33) between upper body (42) and lower body (1).

2. Exhaust air from fitting (24).

3. Loosen nut (77). Unscrew double shutter (30).

4a. STANDARD SHUTTER:
Remove shutter rings (14).

4b. P.T.F.E. SHUTTER:
Unscrew il dado otturatore (28) from the double shutter stem (212), remove from the double shutter (30) the P.T.F.E. seal ring (14).

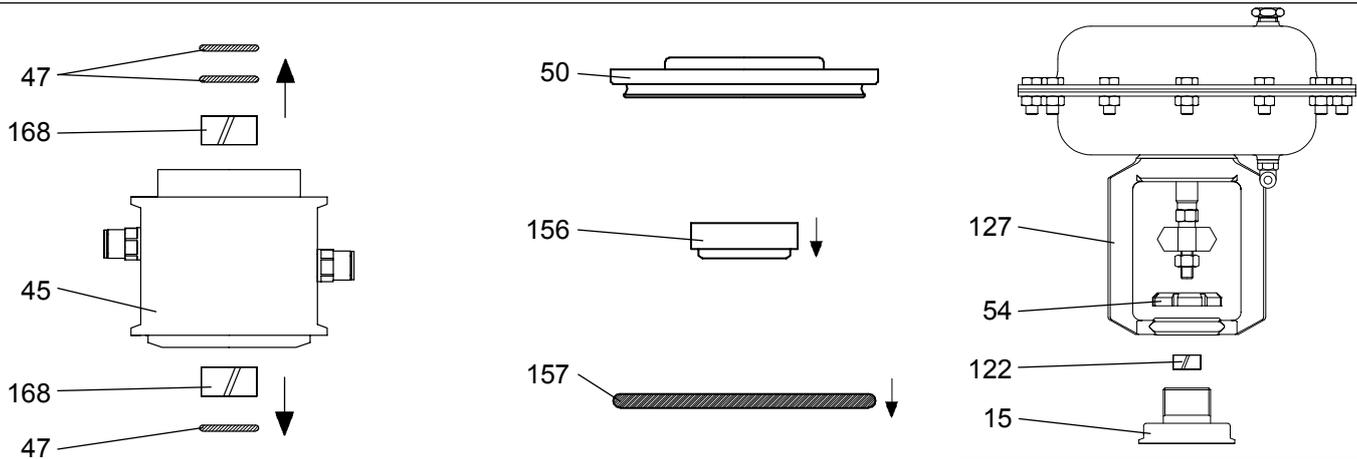
5. BBYK. Remove clamp (33), remove upper body (42) and the cap (50) from steam barrier (45). Remove seal ring (57) from steam barrier (45). Remove seal ring (108) from upper body (42).

6. Remove clamp (33) and upper body (42) from head body (15) remove seal ring (108) from upper body (42).

7. Remove the cap (50). Remove the seal rings (156 and 157) and the guide bushing (120).

8. BBYK. Remove clamp (33) between head body (15) and steam barrier (45). Remove steam barrier (45).

13. Disassembly of the BBZK - BBYK divert valve

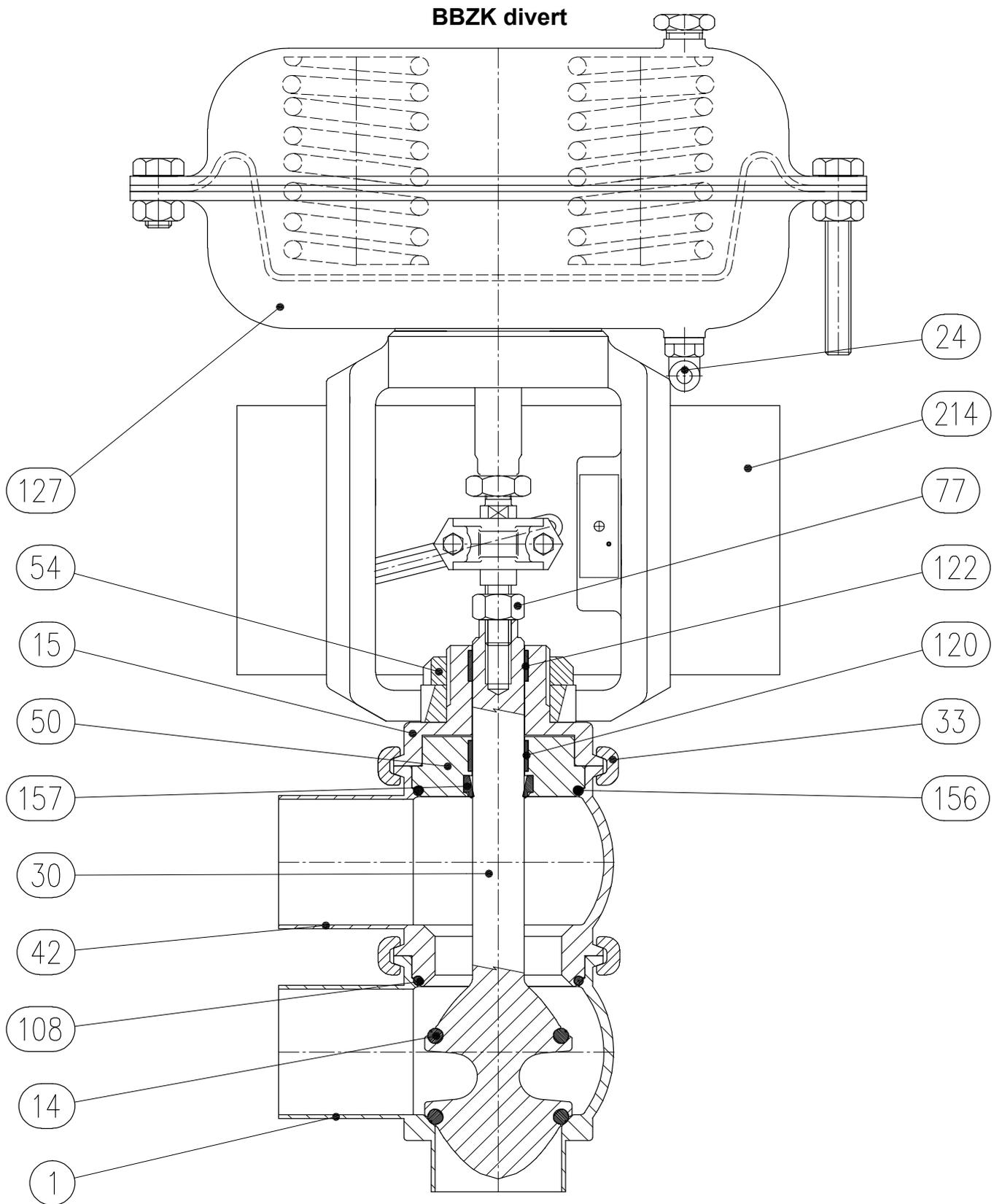


10. BBYK. Remove seal rings (45, 57) from the cap (55).

9. BBYK. Fit seal rings (47,) and bushing (168) on steam barrier (45).

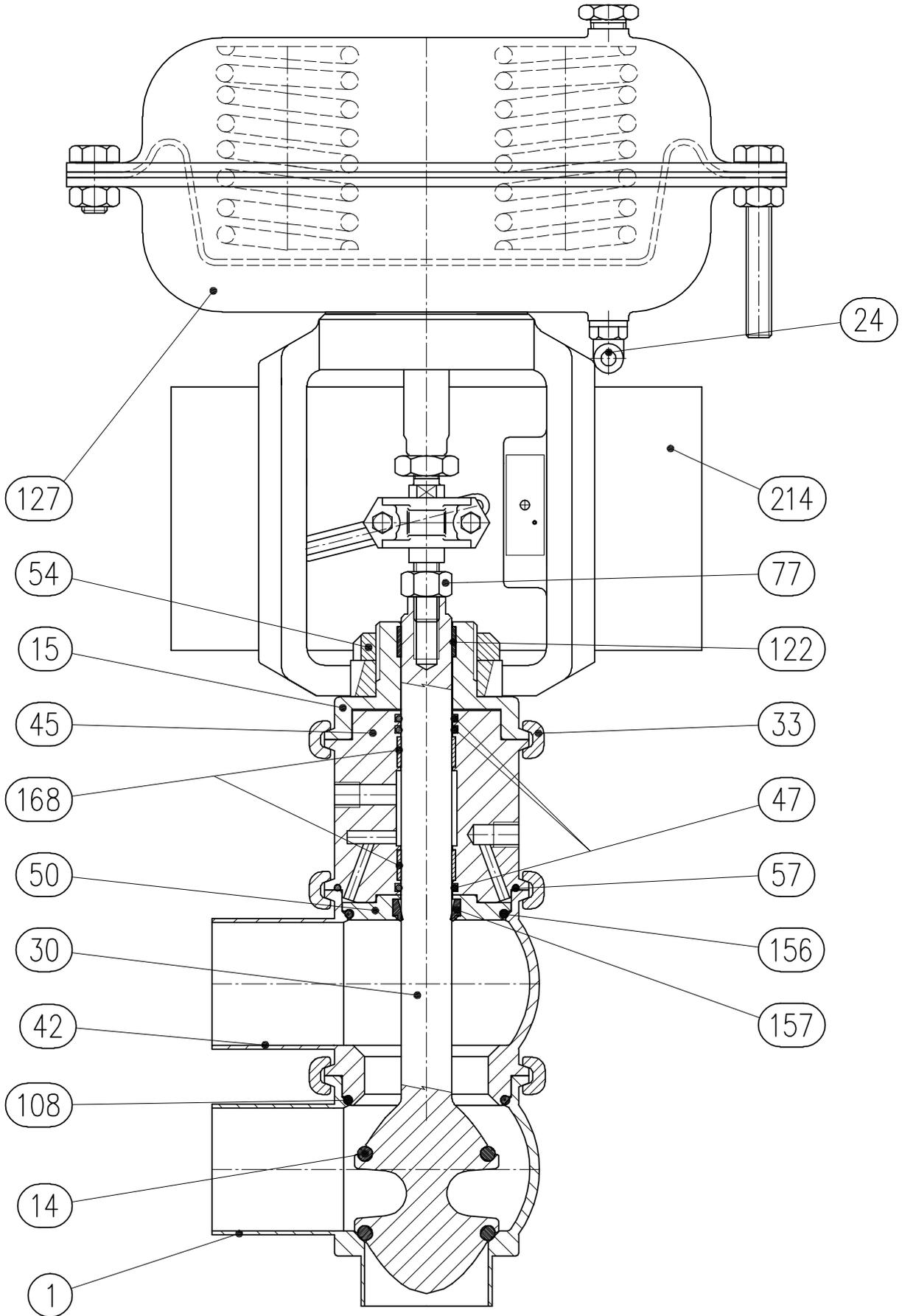
11. Unscrew ring-nut (54) and remove head body (15) from actuator (127). Remove bushings (122).

13. Disassembly of the BBZK - BBYK divert valve

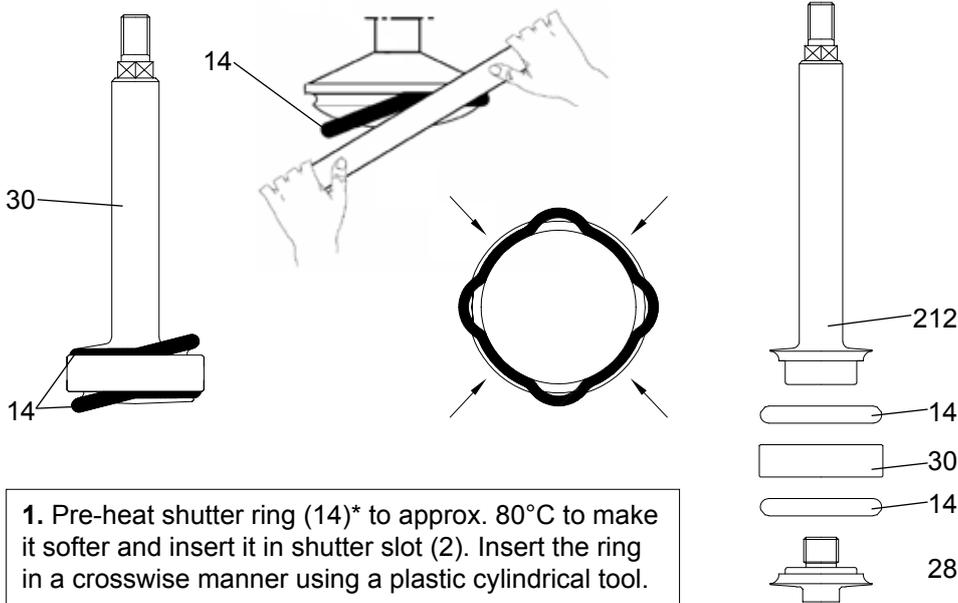


13. Disassembly of the BBZK - BBYK divert valve

BBYK divert

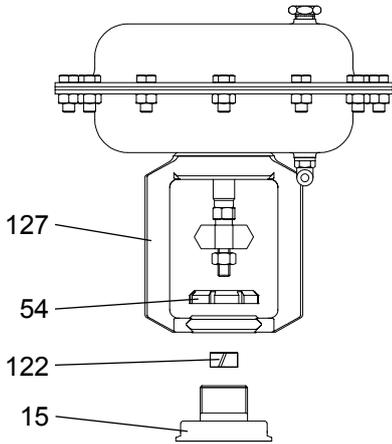


14. Assembly of the BBZK - BBYK divert valve

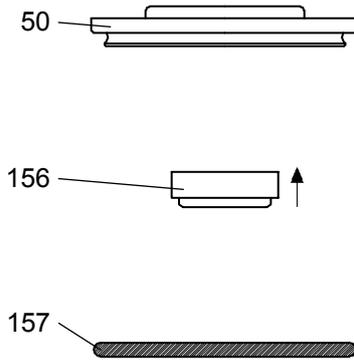


1. Pre-heat shutter ring (14)* to approx. 80°C to make it softer and insert it in shutter slot (2). Insert the ring in a crosswise manner using a plastic cylindrical tool.

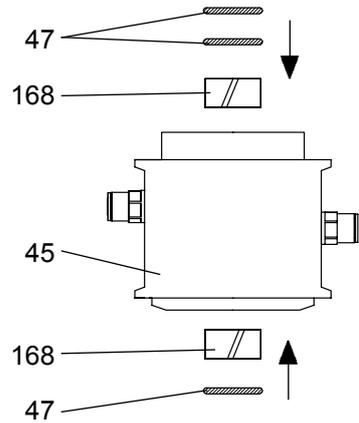
2. PTFE SHUTTER:
 Assembly shutter ring (14) and shutter (30) with the stem (212). Assembly shutter ring (14) and shutter nut (28).



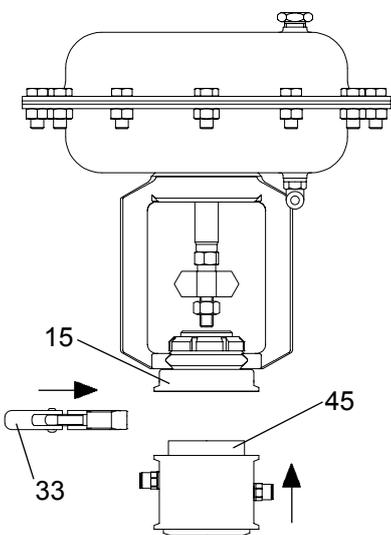
3. Fit bushings (122)* head body (15)
 Assemble head body (15) onto the actuator (127) and tighten ring-nut (54).



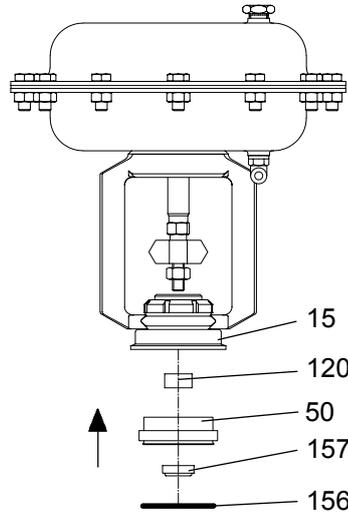
4. BBYK. Insert seal rings (156 and 157)* into the cap (50).



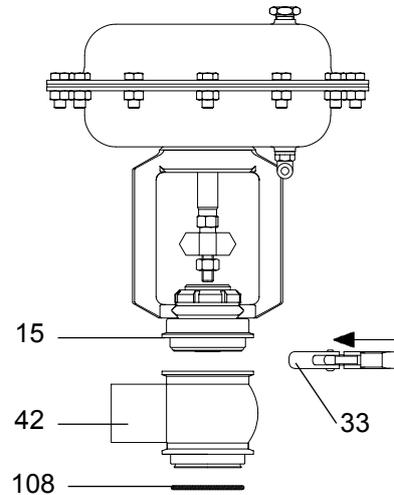
5. BBYK. Fit seal rings (47)* and bushing (168)* on steam barrier (45).



6. BBYK. Assemble steam barrier (45) on to head body (15) using the clamp (33).

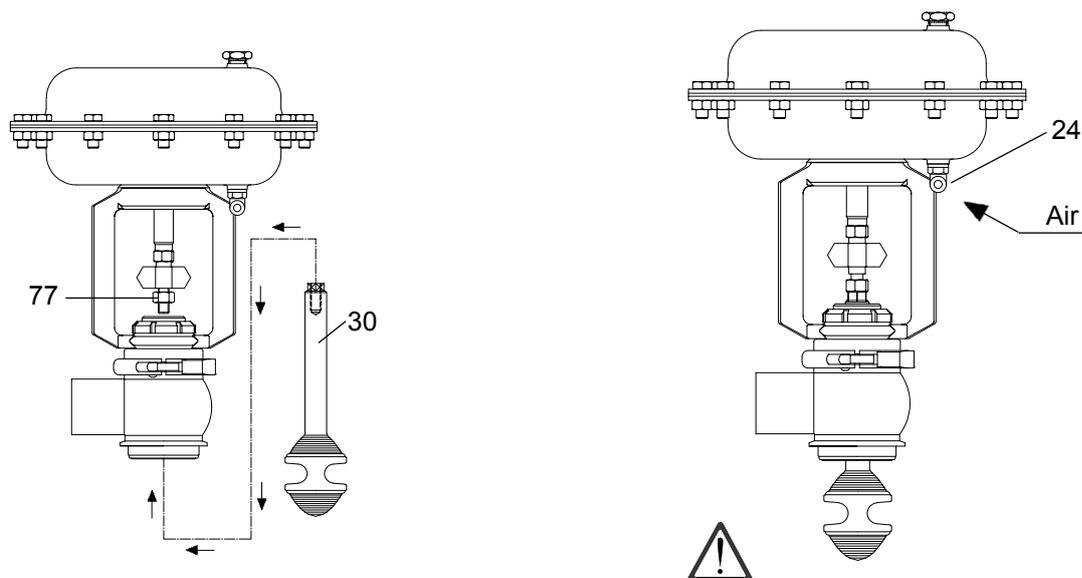


7. Insert seal rings (156 e 157)* and guide bushing (120)* into the cap (50). Fit the cap on the head body (15).



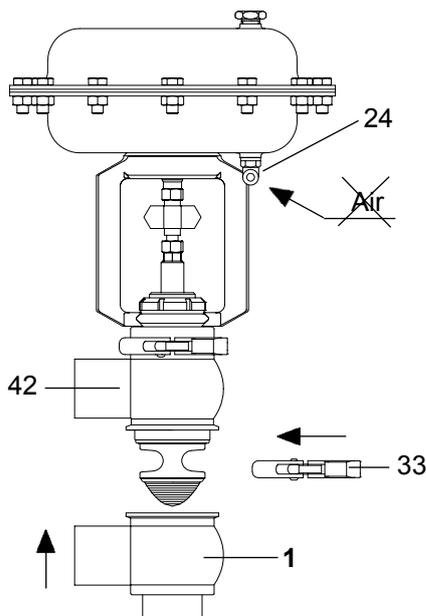
8. Assemble upper body (42) onto head body (15) with clamp (33). Insert seal ring (108) in to upper body (42).

14. Assembly of the BBZK - BBYK divert valve



9. Assemble the shutter (30) and the actuator and close with the nut (77)

10. Supply air to fitting (24).



10. Assemble lower body (1) and upper body (42) using clamp (33). Exhaust air from fitting (24).

15. Parts list

| N° | Descrizione | N° | Descrizione |
|-----|--------------------|-----|-------------|
| 1 | Lower body | 200 | Seal ring |
| 2 | Shutter | 201 | Seal ring |
| 14 | Seal ring | 214 | Positioner |
| 15 | Head body | 226 | Seal ring |
| 24 | Air fitting | | |
| 30 | Double shutter | | |
| 33 | Clamp | | |
| 42 | Upper body | | |
| 45 | Steam barrier | | |
| 47 | Seal ring | | |
| 50 | Cap | | |
| 54 | Nut | | |
| 55 | Seal ring | | |
| 57 | Seal ring | | |
| 77 | Nut | | |
| 108 | Seal ring | | |
| 120 | Bushing | | |
| 122 | Bushing | | |
| 127 | Pneumatic actuator | | |
| 136 | Seal ring | | |
| 156 | Seal ring | | |
| 157 | Seal ring | | |
| 168 | Bushing | | |

16. Technical data

Valve technical specifications:

| | |
|---|--|
| Max. working pressure: | 10 bar (145 psi) |
| Min. working pressure: | 0 bar (0 psi) vacuum is not recommended in aseptic applications. |
| 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 |

Other data:

| | |
|-------------|---------------------------------------|
| Actuator: | See the actuator instruction manual |
| Positioner: | See the positioner instruction manual |

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 DN25 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.

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.