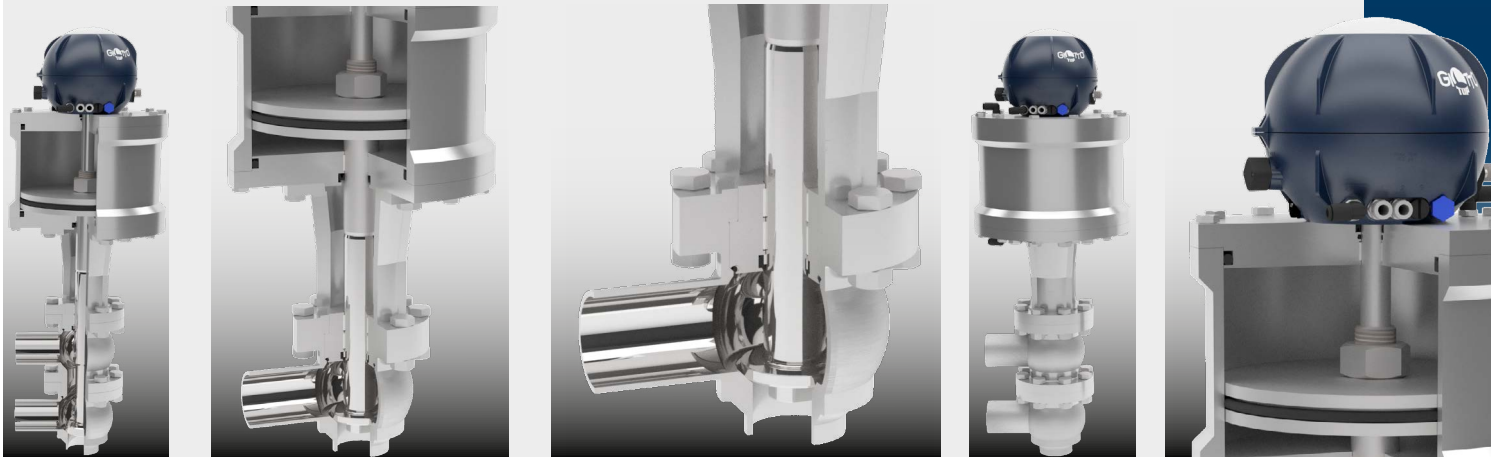


## Instruction, Use and Maintenance Manual



# HIGH-PRESSURE PNEUMATIC VALVE **BBZQ - BBYQ - BBZU**

**Bardiani Valvole S.p.A.**

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| MANUAL REVISION | DATE |
|-----------------|------|
|                 |      |

# INTRODUCTION

This "Instruction, Use and Maintenance Manual" has been prepared to provide guidance and recommendations to assist qualified skilled technicians in the understanding, running and maintenance of the Products supplied.

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

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

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

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

**A constantly updated version of this "Instruction, Use and Maintenance Manual" is available at the Manufacturer's website [www.bardianivalvole.it](http://www.bardianivalvole.it).**

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

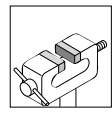
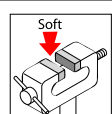
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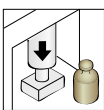
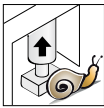
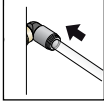
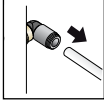
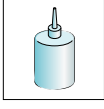
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# 1 Safety, Warning and Mandatory Signs

| WARNING SIGNS                                                                       |                                                        |                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pictogram                                                                           | Description                                            | Notes                                                                                                                                                                        |
|    | <b>WARNING!<br/>General</b>                            | This tells the person in question that the operation described involves (when not performed in accordance with the relative safety regulations) the risk of personal injury. |
|    | <b>WARNING!<br/>Hand crushing</b>                      | Exercise caution in executing the procedure<br>Hand crushing hazard<br>Never touch the moving parts if the actuator is supplied with compressed Air.                         |
|    | <b>WARNING!<br/>Heavy loads</b>                        | Exercise caution in executing the procedure<br>Heavy suspended loads.                                                                                                        |
|    | <b>WARNING!<br/>Severe burns</b>                       | Heat emission hazard Very hot surface, risk of severe burns                                                                                                                  |
|   | <b>WARNING!<br/>Risk of explosions</b>                 | Take Care, risk of explosions                                                                                                                                                |
|  | <b>WARNING!<br/>Do not disperse in the environment</b> | Spent oil must be collected in appropriate containers and disposed of in accordance with the relative legislation in force                                                   |

| MANDATORY SIGNS (FOR THE OPERATOR IN CHARGE OF MECHANICAL MAINTENANCE AND THE OPERATOR IN CHARGE OF ASSEMBLY/DISASSEMBLY) |                           |                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pictogram                                                                                                                 | Description               | Notes                                                                                                                                                                                 |
|                                          | <b>OBLIGATION General</b> | Special instructions must be followed to avoid injury to persons.                                                                                                                     |
|                                          | <b>PROTECTIVE GLOVES</b>  | Protective gloves must be available for handling objects which could cause hand injuries or when there is the possibility of coming into contact with harmful substances..            |
|                                          | <b>HARD HAT</b>           | Hard hats must be available when lifting heavy parts.                                                                                                                                 |
|                                          | <b>FOOTWEAR</b>           | Use safety footwear to protect against injuries caused by falling objects during maintenance operations (particularly when dismantling parts).                                        |
|                                         | <b>SUITABLE CLOTHING</b>  | Suitable clothing such as overalls. It is strictly prohibited to wear clothes with large flapping sleeves and/or other loose items which could easily get caught up in machine parts. |
|                                        | <b>SAFETY GLASSES</b>     | Protective glasses must be available when there is the possibility of contact which harmful substances which could cause eye injuries.                                                |

| OPERATING SIGNS                                                                     |                                        |                                                                                                   |
|-------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------|
| Pictogram                                                                           | Description                            | Notes                                                                                             |
|  | <b>PERSONAL PERSONNEL</b>              | Dismantling/Assembling and maintenance operations must be carried out by expert technicians only. |
|  | <b>NOTE</b>                            | Follow the indicated note with care                                                               |
|  | <b>ENVIRONMENTAL NOTE</b>              | Follow the regulations in force in the country of used governing waste disposal.                  |
|  | <b>CLAMP</b>                           | Use of a clamp                                                                                    |
|  | <b>CLAMP WITH SOFT JAWS</b>            | Use of a clamp with jaws made from soft material                                                  |
|  | <b>ASSEMBLY / DISASSEMBLY SEQUENCE</b> | Sequence of assembly disassembly operations                                                       |

| OPERATING SIGNS                                                                     |                                           |                                                                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------|
| Pictogram                                                                           | Description                               | Notes                                                                                     |
|    | <b>PRESS</b>                              | Use of a press                                                                            |
|    | <b>PRESS (release)</b>                    | Use of a press Gradual release of the pressure force                                      |
|    | <b>ELECTRICAL CONNECTION</b>              | Electrical connection to the control unit (consult the relative instruction manual).      |
|    | <b>ELECTRICAL DISCONNECTION</b>           | Electrical disconnection from the control unit (consult the relative instruction manual). |
|    | <b>PNEUMATIC CONNECTION</b>               | Connection of the air to the valve.                                                       |
|   | <b>PNEUMATIC DISCONNECTION</b>            | Disconnection of the air from the valve                                                   |
|  | <b>DO NOT CONNECT AIR</b>                 | Don't connect compressed air                                                              |
|  | <b>APPLICATION OF FOODSAFE GREASE</b>     | Use CIP-FILM grease or similar                                                            |
|  | <b>APPLICATION OF FOODSAFE GREASE</b>     | Use FOODLUBE Multi-paste grease or similar                                                |
|  | <b>APPLICATION OF MULTIPURPOSE GREASE</b> | Use AGIP GREASE MU EP 2 SE or similar                                                     |
|  | <b>THREADLOCK APPLICATION</b>             | Use SPEED BOND M500 threadlock or similar                                                 |
|  | <b>Oil</b>                                | Use SPRINTER ADPV32 or similar                                                            |
|  | <b>OPTIONAL</b>                           |                                                                                           |

| OPERATING SIGNS                                                                   |                           |                                                                                                                                       |
|-----------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Pictogram                                                                         | Description               | Notes                                                                                                                                 |
|  | <b>UTILIZZARE LE MANI</b> | In tutte quelle fasi in cui è presente questo simbolo si possono utilizzare solo le mani per svitare / vitare i dispositivi indicati. |

## 1.1 Operator training



All persons who have to work on the valve must be qualified to carry out the relative maintenance tasks. They must be informed as to the possible hazards involved and must observe all the safety instructions set out in this manual. Allow expert personnel only to work on the electrical components.

## 2 General safety warnings

### 2.1 General safety warnings

**Intended use**

Bardiani valves are intended exclusively for the handling of fluids and powders.

**Prohibited use**

The valve must not be used:

- for any operations different to those described under the heading "Intended Use",
- for handling fluids different to the type specified by the manufacturer;
- for moving fluids at different pressures to those envisaged by the manufacturer and indicated in the valve's technical data.

**Limitations on valve use**

It is forbidden to:

- use the valve in a construction configuration different to the one envisaged by the manufacturer.
- use the valve where there is a risk of explosion and/or fire, unless envisaged by the manufacturer (if the valves are certified in accordance with Directive 2014/34/EU, please refer to the ATEX Manual) -;
- integrate other systems and/or equipment which were not considered by the manufacturer during the executive design phase,
- use the valve for purposes other than those specifically envisaged by the manufacturer.

**WARNING!**

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



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

### 2.2 Electrical devices

(see the control unit manual)

### 3 Technical data

| VALVE DATA                                  |                                                                                                    |                                                     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Maximum pressure (PN)                       | 150 bar (2173 psi) DN25 -80 / 1" - 3"                                                              | Maximum value based on type of fittings/connections |
|                                             | 55 bar (798 psi) DN100 / 4"                                                                        |                                                     |
| Maximum seal pressure                       | See catalogue                                                                                      |                                                     |
| Storage temperature                         | from -10°C to +25°C                                                                                |                                                     |
| Material in contact with the product        | AISI 316L (1.4404) . Check the resistance to corrosion in relation to products and detergents      |                                                     |
| Gasket material in contact with the product | EPDM, FKM, P.T.F.E. and other gaskets on request. Check compatibility with products and detergents |                                                     |
| Surface finish in contact with the product  | Ra 0.8 µm. Other finishes available on request                                                     |                                                     |

| VAPOUR BARRIER DATA       |               |
|---------------------------|---------------|
| Connectors                | 1/8" BSPP     |
| Steam maximum temperature | 130°C (266°F) |
| Seals                     | FKM           |

| PNEUMATIC ACTUATOR DATA |                                                               |
|-------------------------|---------------------------------------------------------------|
| Connectors              | 1/8" BSPP                                                     |
| Pipe dimensions         | 6 mm external diameter, 4 mm internal diameter                |
| Air pressure            | from 6 bar (87 psi) to 8 bar (116 psi) for cylinder 108 - 156 |
|                         | from 6 bar (87 psi) to 7 bar (101 psi) for cylinder 207 - 360 |
| Air pressure            | from 6 bar (87 psi) to 8 bar (116 psi)                        |
| External material       | AISI 304L (1.4307)                                            |
| Seals                   | NBR                                                           |
| Noise levels            | 76 dB                                                         |
| Electrical supply       | See Giotto Top                                                |

| GASKET MATERIALS COMPATIBILITY      |                      |                      |
|-------------------------------------|----------------------|----------------------|
| Product                             | FKM                  | EPDM                 |
| Temperature (applications with air) | from -10°C to +150°C | from -10°C to +140°C |
| Caustic soda 2%                     | 30°C                 | 60°C                 |
| Nitric Acid 2%                      | 80°C                 | 60°C                 |
| Saturated steam 125°C               | Suitable             | Suitable             |
| Greases                             | Suitable             | Unsuitable           |
| Alcohols                            | Unsuitable           | Suitable             |



**The valve complies with PED 2014/68/EU directive, with special reference to Annex III, Module A, concerning internal manufacturing checks as indicated in the Conformity Assessment Procedures.**



Valves with DN equal or smaller than DN32 are not included in compliance with Article 4, paragraph 3.

Valves designed for use with gases, liquefied gases, gases dissolved under pressure, vapours and also those liquids whose vapour pressure at the maximum allowable temperature is greater than 0,5 bar above normal atmospheric pressure (1 013 mbar) are included within the following limits:

- valves with DN40 or bigger with group 2 fluids.

The end user must carry out noise assessment testing once the valve has been installed in the plant.

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



## 4 Checking / Unpacking / Lifting

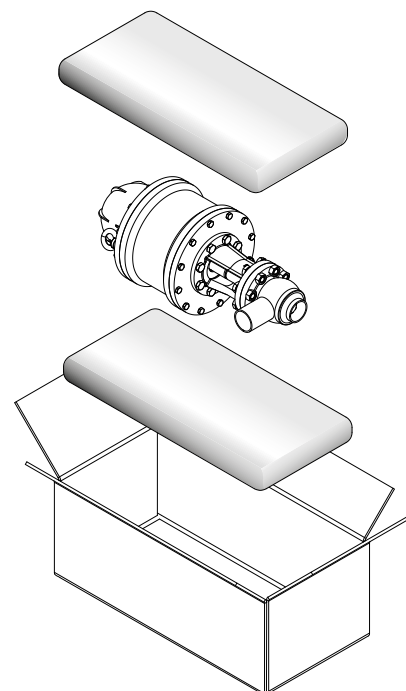
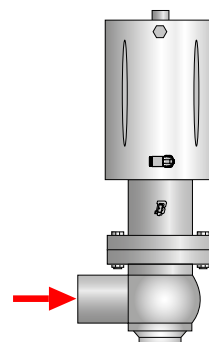
### 1. CHECK:

- Check the valve show no signs of damage caused during transport and that it corresponds with the order;
- Check the inside of the valve.



### 2. UNPACKING

The valve packaging is made up of cardboard, wood and plastic. The valve is mainly made up of metal materials. The gaskets are usually made from elastomers. Disposal must be in compliance with local legislation.

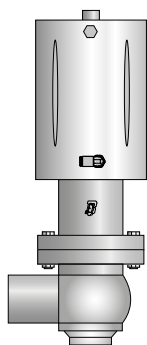
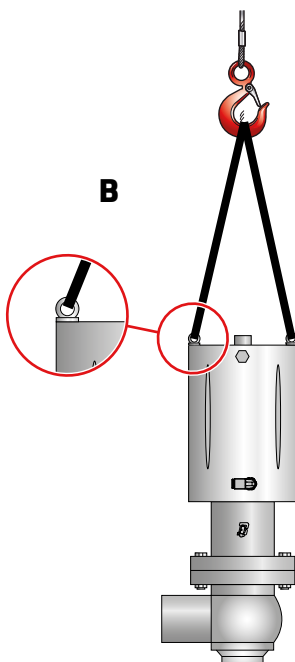


**3. VALVE LIFTING:**

Take care as to the type of valve you are handling. Based on the size there are different lifting procedures.

**CAUTION!**

Before lifting the valve, make sure there are no disassembled or separate valve parts which could fall off causing injury to persons and damage to the valve.

**A****B****CAUTION!**

The figures above are used purely to represent the methods and procedures for hoisting the valves. Handle the device according to the regulations in force in the country of use.

Bardiani Valvole S.p.A. declines all liability for any damage to things and/or injuries to persons caused by improper and/or incorrect hoisting of the valve.

## 5 Installation



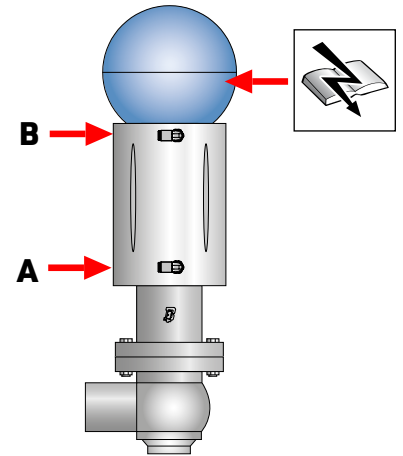
### 1. ELECTRICAL AND PNEUMATIC ENERGY SUPPLY

- Use expert personnel for installation/uninstallation operations;
- Check that the air pressure and quality are correct (see "Technical Data");
- Check the power supply to the control unit is correct (consult the relative instruction manual).

A = Upward movement of the valve member

B = Downward movement of the valve member

In single acting valves there is only one of the aforementioned commands.



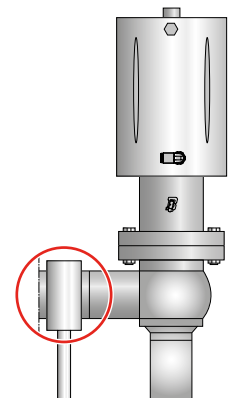
### 2. REDUCING THE STRESS TO WHICH THE VALVE IS SUBJECTED:

- Vibrations;
- Thermal expansion of the piping;
- Excessive welding;
- Overload.



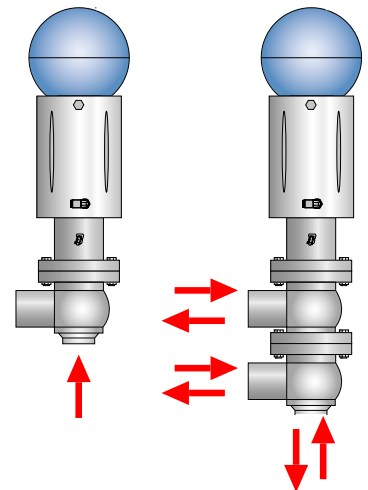
#### CAUTION!

The seal seats may become deformed or cause valve malfunctioning.



### 3. CORRECT DIRECTION OF FLOW:

Flow in the opposite direction to valve closure minimizes water hammer.



#### CAUTION!

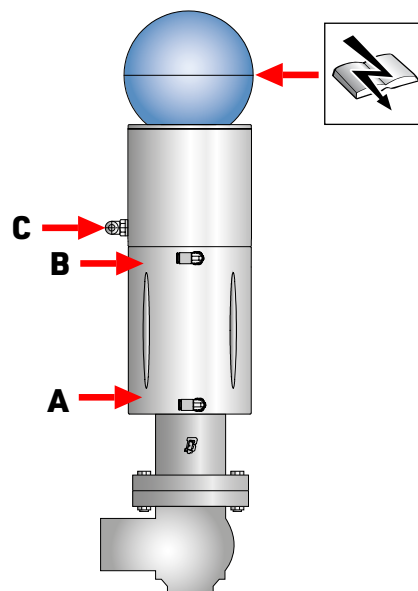
Bardiani Valvole S.p.A. declines all liability for any damage to things and/or injuries to persons caused by any failure to correctly follow the installation procedures.



#### 4. ELECTRICAL AND PNEUMATIC ENERGY SUPPLY BBZU DOUBLE ACTING

- Use expert personnel for installation/uninstallation operations;
- Check that the air pressure and quality are correct (see "Technical Data");
- Check the power supply to the control unit is correct (consult the relative instruction manual).

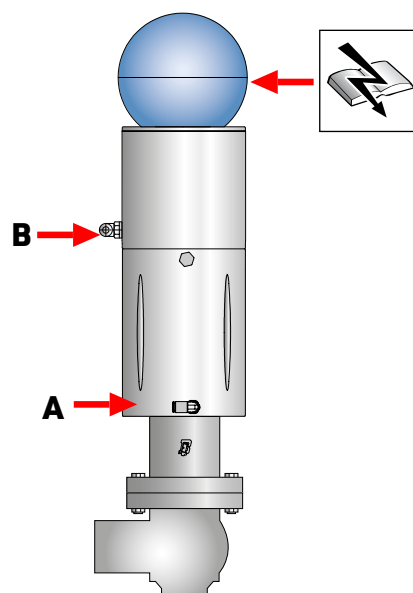
A = Upward movement of the valve member  
 B = Downward movement of the valve member  
 C = Upper lift



#### 5. ELECTRICAL AND PNEUMATIC ENERGY SUPPLY SINGLE ACTING

- Use expert personnel for installation/uninstallation operations;
- Check that the air pressure and quality are correct (see "Technical Data");
- Check the power supply to the control unit is correct (consult the relative instruction manual).

A = Upward movement of the valve member  
 B = Upper lift





## 6. VALVE CONNECTIONS/CONNECTORS:

If the valve is fitted with connectors, you may proceed with installation. Correctly insert the gaskets and tighten the connectors.



## 7. WELDING THE VALVE BODY ONTO PIPING:

Remove the body from the rest of the valve before proceeding with welding operations. Please refer to the following pages in this manual.



### WARNING!

Hand crushing hazard. During operation there is a risk of crushing inside the valve body in the area between the actuator and the valve

body.

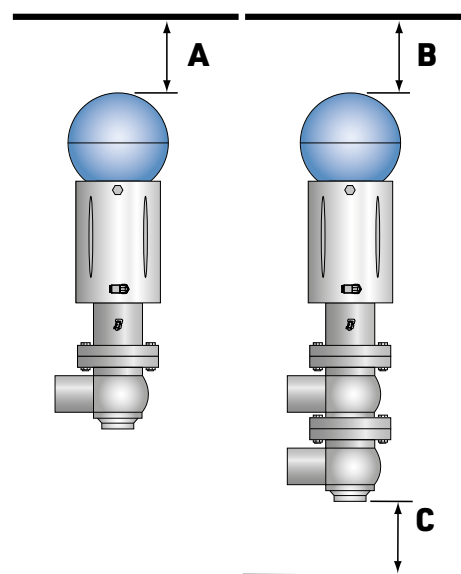
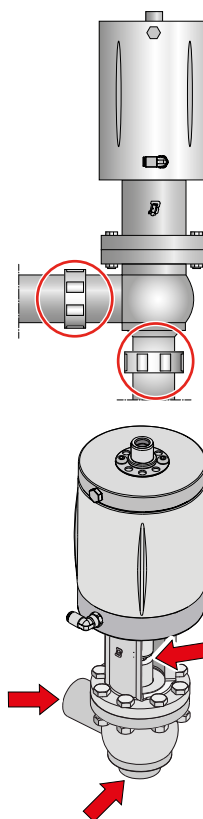


## 8. MINIMUM MAINTENANCE CLEARANCES:

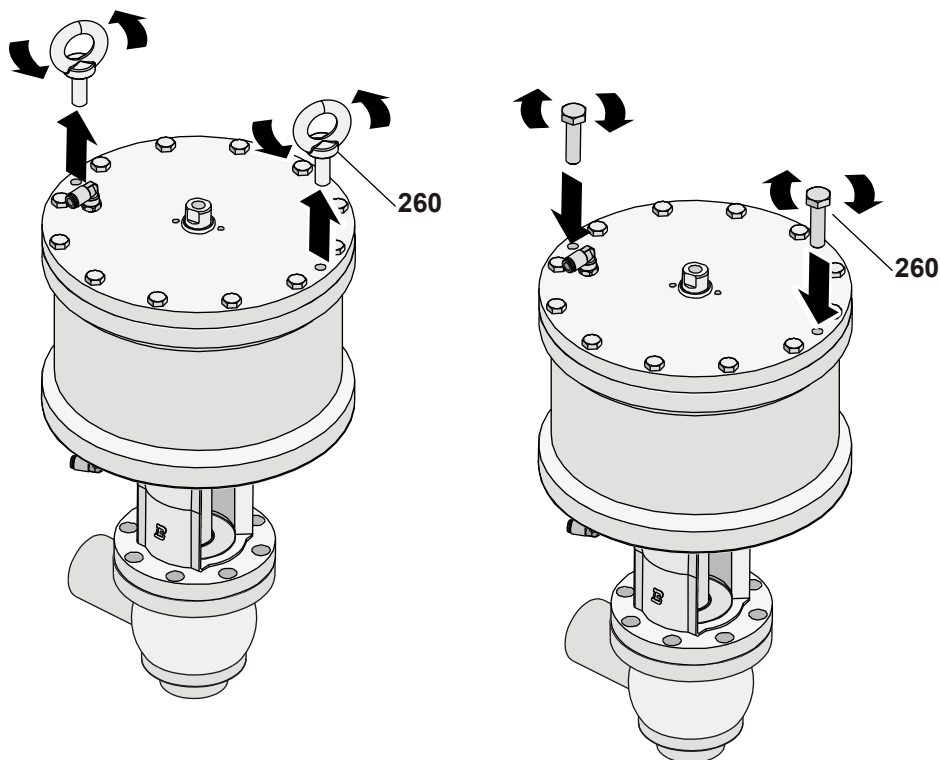
Make sure there is enough room around the valve for it to be disassembled (with the control unit installed).

| BBZQ (cyl. 108-156)  |        |        |        |
|----------------------|--------|--------|--------|
| Valve dimension (DN) | A (mm) | B (mm) | C (mm) |
| 25-40                | 225    | 225    | 225    |
| 50                   | 283    | 283    | 283    |
| 65                   | 240    | 240    | 240    |
| 80                   | 315    | 315    | 315    |
| 100                  | 240    | 315    | 315    |

| BBZQ (cyl. 207-360)  |        |        |        |
|----------------------|--------|--------|--------|
| Valve dimension (DN) | A (mm) | B (mm) | C (mm) |
| 25-40                | 275    | 275    | 275    |
| 50                   | 344    | 335    | 335    |
| 65                   | 290    | 305    | 305    |
| 80                   | 377    | 366    | 366    |
| 100                  | 310    | 385    | 385    |

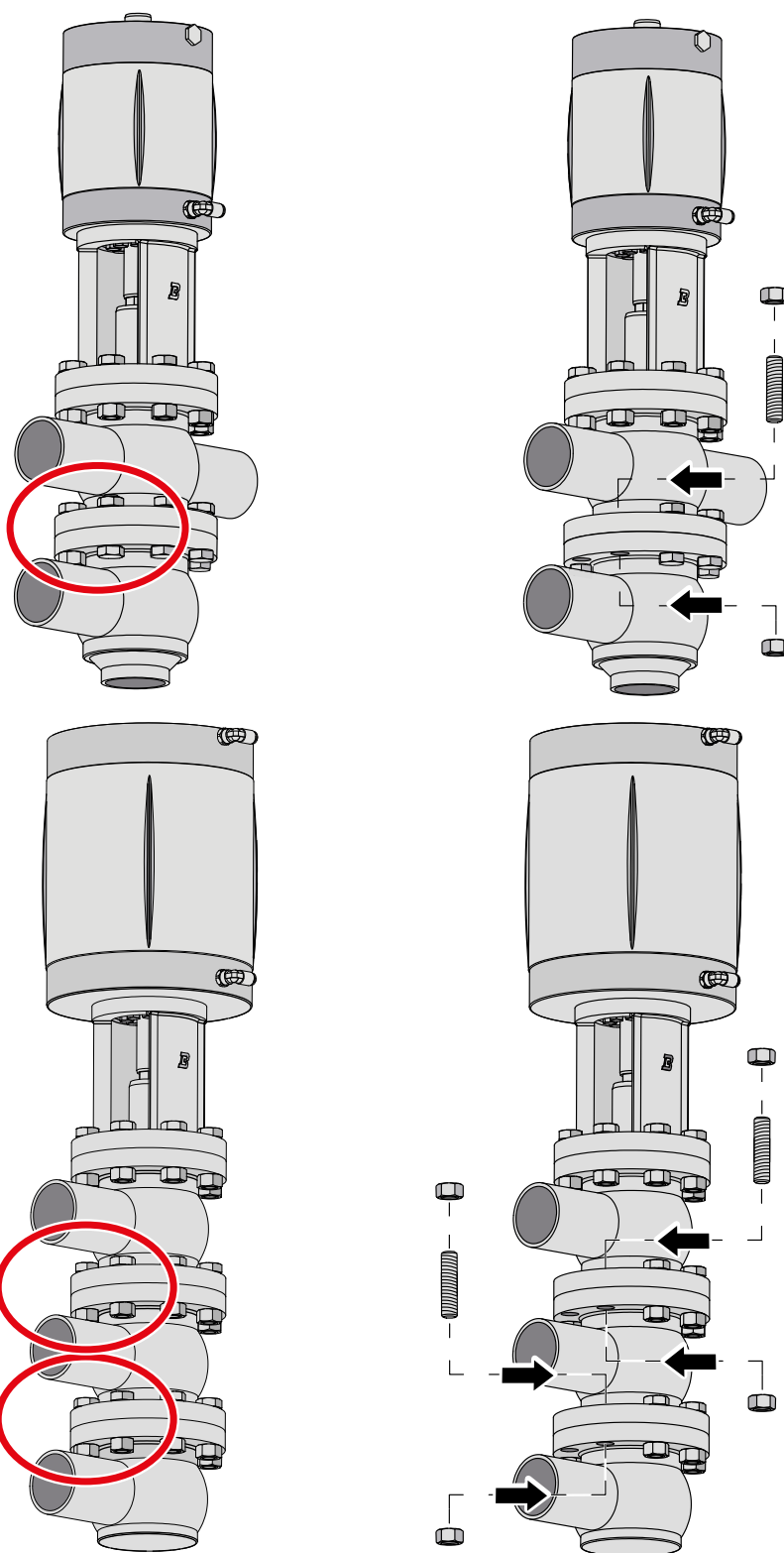


Once valve installation has been completed, remove the eyebolts and put the screws back in

**CAUTION!**

Bardiani Valvole S.p.A. declines all liability for any damage to things and/or injuries to persons caused by any failure to correctly follow the installation procedures.

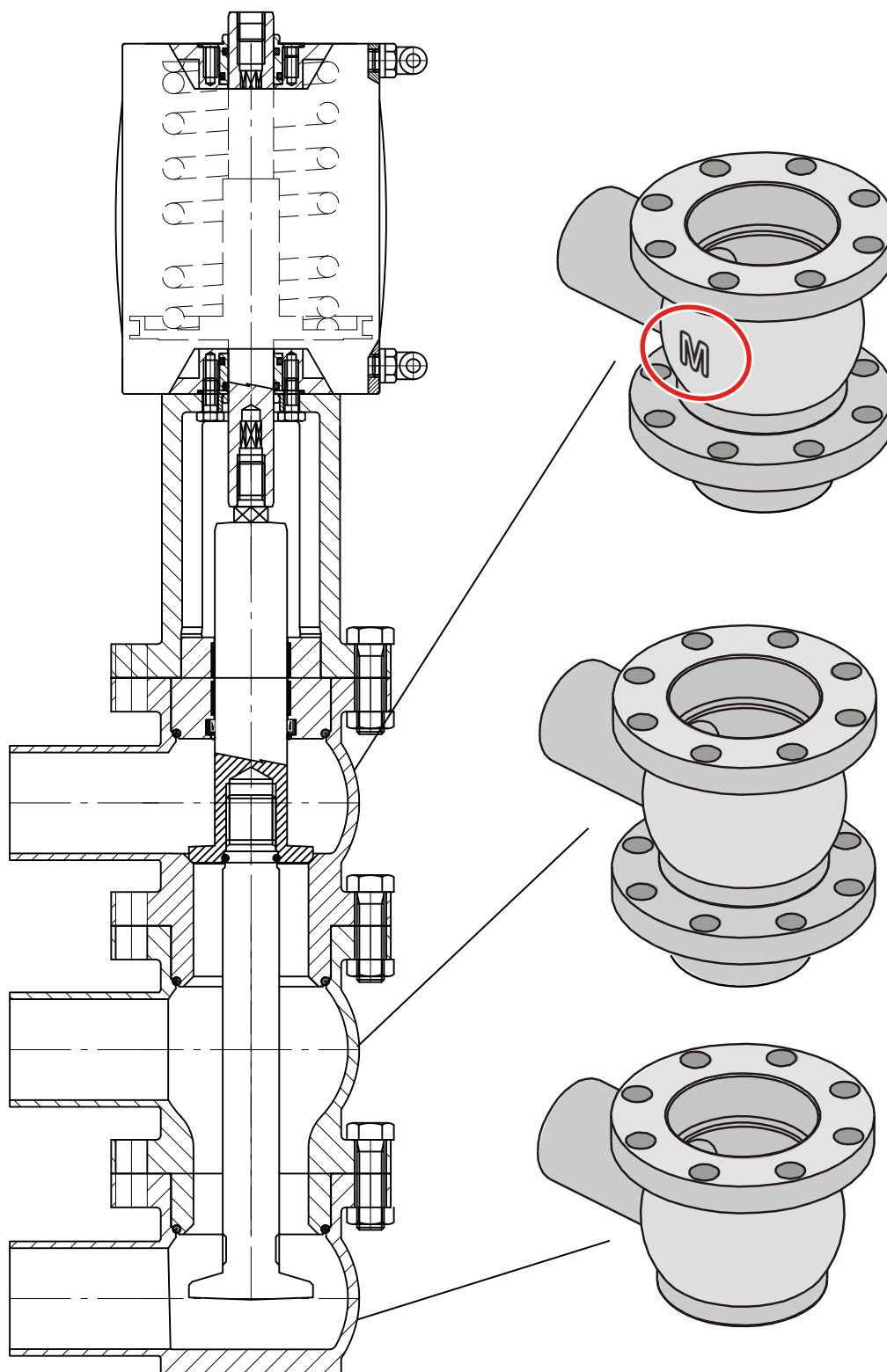
### Assembly with overlapping connections



| DN     |        |
|--------|--------|
| 25--40 | M10X50 |
| 50     | M12X55 |
| 65     | M14X55 |
| 80     | M14X55 |
| 100    | M14X55 |

(Not part of our supply)

## 5.1 Body assembly BBZQ M8-LLL





## 6 Operation



### 1. VALVE INSPECTION BEFORE OPERATION:

- Supply air to the actuator;
- Power the valve (via the control unit);
- Open and close the valve several times;
- Check that the valve works correctly and accurately.

A = Upward movement of the valve member

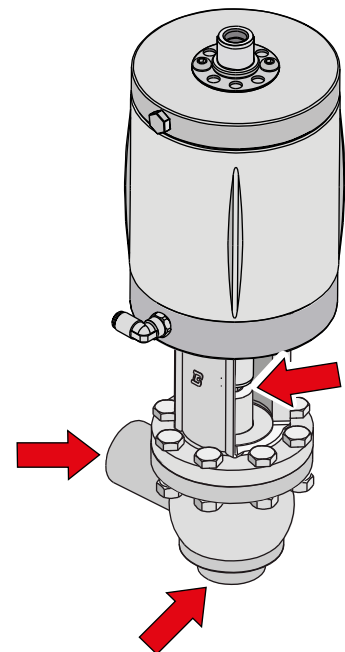
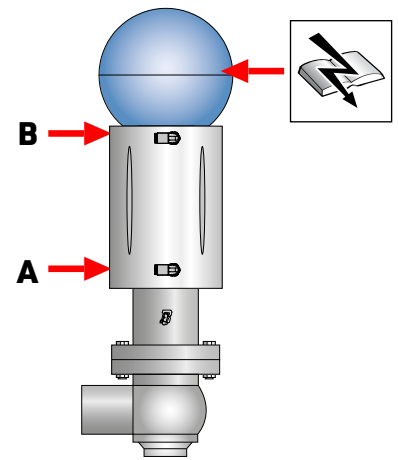
B = Downward movement of the valve member

In single acting valves there is only one of the aforementioned commands.



### WARNING!

Hand crushing hazard. During operation there is a risk of crushing inside the valve body in the area between the actuator and the valve body.



## 7 Troubleshooting



| PROBLEM                                             | POSSIBLE CAUSE                                   | POSSIBLE SOLUTION                                      |
|-----------------------------------------------------|--------------------------------------------------|--------------------------------------------------------|
| External leak                                       | Worn gasket                                      | Replace the seal                                       |
| Leaks inside the closed valve caused by normal wear |                                                  |                                                        |
| External leak                                       | Excessive pressure                               | Replace with a gasket of a different type of elastomer |
|                                                     | Excessive temperature                            |                                                        |
| Premature leaks inside the closed valve             | Aggressive fluids                                | Modify the operating conditions                        |
|                                                     | Too many commands active                         |                                                        |
| Difficulty opening and closing                      | Incorrect type of elastomer used for the gaskets | Replace with a gasket of a different type of elastomer |
|                                                     | Incorrect positioning of the actuator            | Install the actuator correctly                         |
|                                                     | Incorrect operation of the actuator              | Switch from NC to NA or vice versa                     |
|                                                     | Impurities in the actuator                       | Actuator inspection and maintenance                    |
|                                                     | Incorrect valve body positioning                 | Disassemble and correctly reposition the valve body    |

## 8 Cleaning



### 1. VALVE CLEANING WITH DETERGENTS:

The system in which the valve is installed must be cleaned by expert personnel in observance of the following:

- Abide by the indicated detergent concentration values;
- Observe the instructions provided by the detergent manufacturer.
- Always wear protective safety glasses and gloves.



### IMPORTANT!

- Accurately dose detergents to avoid excessive concentration;
- Always rinse thoroughly with clean water after washing.
- Check compatibility of valve materials.



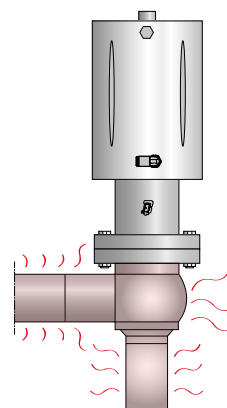
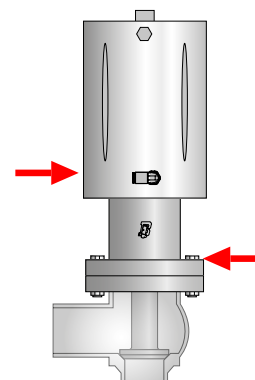
### WARNING!

Burns hazard. The valves and piping may be very hot. Wear protective gloves



### WARNING

After installing a new or serviced valve, perform an internal washing cycle before using the piping for food liquids. If it there has been any welding work, passivation treatment must be carried out.



| EXAMPLE OF INTERNAL WASHING CYCLE (CIP) |                |                                         |
|-----------------------------------------|----------------|-----------------------------------------|
| Phases                                  | Temperature °C | Washing product                         |
| Initial rinse                           | Environment    | Chlorine- and chloride-free water       |
| Washing                                 | 70 °C          | Caustic soda (NaOH) at 1%               |
| Intermediate rinse                      | Environment    | Chlorine- and chloride-free water       |
| Washing                                 | 70 °C          | Nitric acid (HNO <sub>3</sub> ) at 0.5% |
| End rinse                               | Environment    | Chlorine- and chloride-free water       |

Recommended washing product velocity = 2m/s

|                     | EPDM   | FKM   |
|---------------------|--------|-------|
| <b>Product</b>      |        |       |
| Max temperature     | 95°C   | 95°C  |
| Minimum temperature | -20 °C | -5 °C |

|                                                  | EPDM   | FKM    |
|--------------------------------------------------|--------|--------|
| <b>Steam</b>                                     |        |        |
| Max temperature (during working)                 | 130°C  | 120°C  |
| Max temperature (for a period of time 15-20 min) | 150 °C | 140 °C |

|                           | EPDM  | FKM   |
|---------------------------|-------|-------|
| <b>Sodium hydroxide</b>   |       |       |
| Diluted cleaning solution | <5%   | <5%   |
| Minimum temperature       | 1 °C  | 1° C  |
| Max temperature           | 80 °C | 80 °C |

|                                                     | EPDM  | FKM   |
|-----------------------------------------------------|-------|-------|
| <b>Acid ( Nitric / Phosphoric / Peracetic acid)</b> |       |       |
| Diluted cleaning solution                           | <2%   | <2%   |
| Minimum temperature                                 | 1 °C  | 1° C  |
| Max temperature                                     | 40 °C | 65 °C |

|                                                | EPDM  | FKM   |
|------------------------------------------------|-------|-------|
| <b>Disinfection</b>                            |       |       |
| Diluted disinfectant (based on peracetic acid) | <0,7% | <0,7% |
| Minimum temperature                            | 1 °C  | 1° C  |
| Max temperature                                | 30 °C | 30 °C |

## 9 Disposal



At the end of its service life, the device must be recycled in accordance with the legislation in force in the country of valve use.

Any hazardous residues must be taken into consideration and adequately handled.

The valve is made of AISI 316L and AISI 304 stainless steel, elastomers (gaskets), plastic (control unit) and electrical components (terminal boards, solenoid valves, sensors).

Adhere to the following steps before disconnecting the valve and refer to the heading "General Maintenance".

- make sure the line on which the valve is installed in is not in use
- empty the line on which the valve is installed and clean if necessary
- disconnect the air supply if it is not required during dismantling
- disconnect the valve from the power supply
- remove the valve from the system
- move the valve in observance of the rules set out in the heading "Lifting"
- to dismantle the valve, refer to the heading "Disassembly"

# 10 Maintenance

## 10.1 General maintenance



### 1. MAINTENANCE PRECAUTIONS

Maintenance operations must be carried out by expert technicians only.



#### **WARNING!**

Maintenance operations must be carried out with the line stopped and all utilities (electricity, compressed air) disconnected.



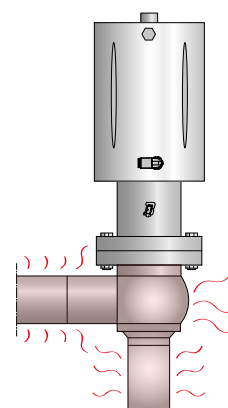
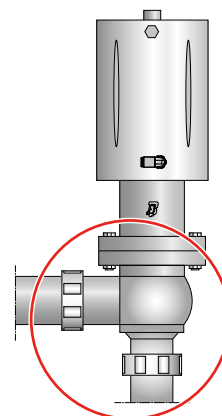
#### **WARNING!**

Always discharge the fluid pressure in the valve and piping before disassembling the valve.



#### **WARNING!**

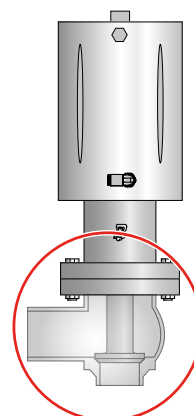
Burns hazard. The valves and piping may be very hot. Wear protective gloves





## 2. CLEANING AWAY DEPOSITS:

- Thoroughly wash and clean all the valve parts before disassembly;
- Pay attention to any possible detergent or other aggressive fluid deposits (see "Cleaning");
- Always use protective safety glasses and gloves when required.



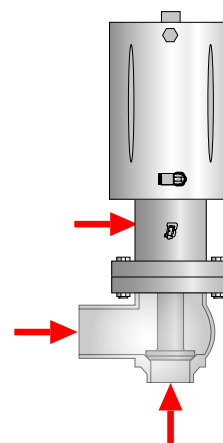
### WARNING!

Hand crushing hazard. During operation there is a risk of crushing inside the valve body in the area between the actuator and the valve body.



## 3. REPLACEMENT OF WORN VALVE PARTS:

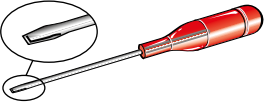
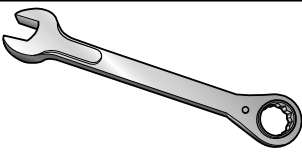
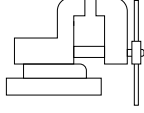
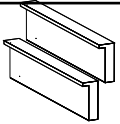
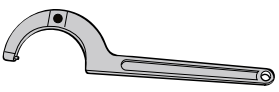
Always use original spare parts



## 10.2 Scheduled maintenance

| SCHEDULED MAINTENANCE | VALVE GASKETS                                       | ACTUATOR GASKETS                                    |
|-----------------------|-----------------------------------------------------|-----------------------------------------------------|
| Periodical            | Replace after 12 months                             | Replace after 24 months                             |
| In the event of leaks | Replace at the end of the day                       | Replace in the event of leaks                       |
| Preventive            | Check correct operation and that there are no leaks | Check correct operation and that there are no leaks |
|                       | Record the actions carried out                      | Record the actions carried out                      |

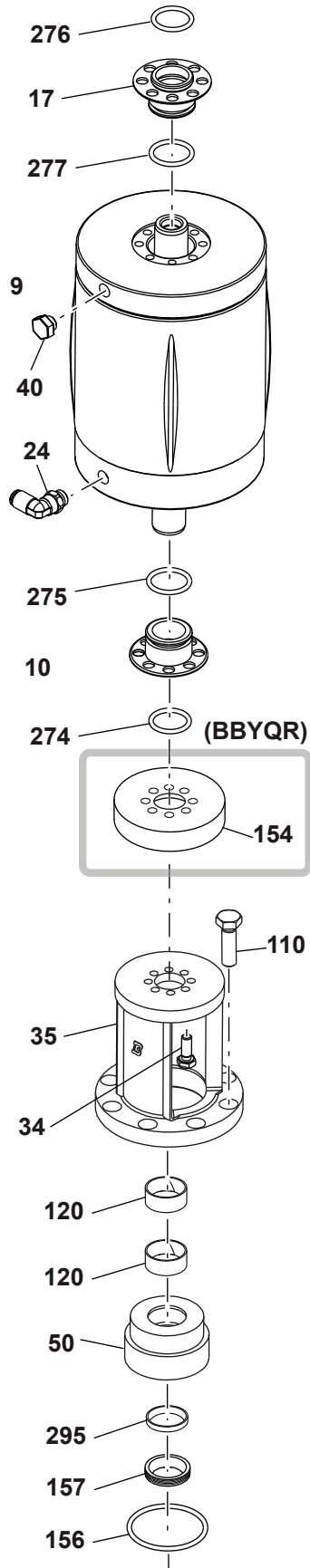
### 10.3 Tools useful for Disassembly/Reassembly

| TOOLS                                                                               | DN25                   | DN32                  | DN40                             | DN50                                | DN65                        | DN80 | DN100 |
|-------------------------------------------------------------------------------------|------------------------|-----------------------|----------------------------------|-------------------------------------|-----------------------------|------|-------|
|    | ✓                      |                       |                                  |                                     |                             |      |       |
|    | 4 - 6 - 8              |                       |                                  |                                     |                             |      |       |
|    | 10-12<br>-13-19<br>-24 | 10-12-13-17-<br>19-24 | 10-12-<br>13-15-<br>17-19-<br>24 | 10-12-<br>13-15-<br>17-19-<br>22-24 | 10-12-13-15-<br>19-21-22-24 |      |       |
|    | ✓                      |                       |                                  |                                     |                             |      |       |
|   | ✓                      |                       |                                  |                                     |                             |      |       |
|  | BETA 99ST 35-50        |                       |                                  |                                     |                             |      |       |

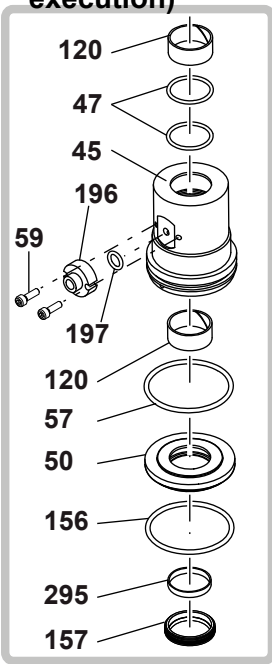


## 10.4 Pneumatic Valve BBZQ - BBYQ cylinder 108-156

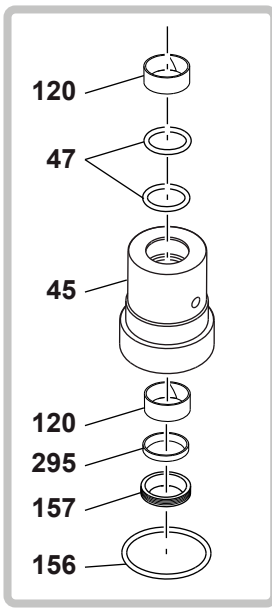
| NO. | DESCRIPTION        |
|-----|--------------------|
| 1   | Lower body         |
| 2   | Shutter            |
| 9   | Cylinder           |
| 10  | Bush               |
| 14  | Sealing ring       |
| 17  | Bush               |
| 24  | Air connector      |
| 28  | Shutter nut        |
| 34  | Screw              |
| 35  | Assembly           |
| 40  | Cap                |
| 45  | Steam barrier      |
| 47  | Sealing ring       |
| 50  | Gasket holder disc |
| 57  | Sealing ring       |
| 59  | Screw              |
| 110 | Screw              |
| 120 | Bush               |
| 156 | Sealing ring       |
| 157 | Sealing ring       |
| 196 | Steam connection   |
| 197 | Sealing ring       |
| 205 | Nut                |
| 274 | Sealing ring       |
| 275 | Sealing ring       |
| 276 | Sealing ring       |
| 277 | Sealing ring       |
| 295 | Bush               |



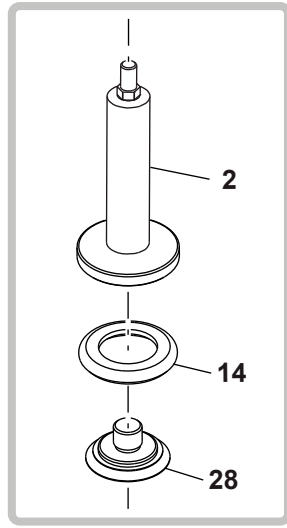
**(BBYQ Special execution)**



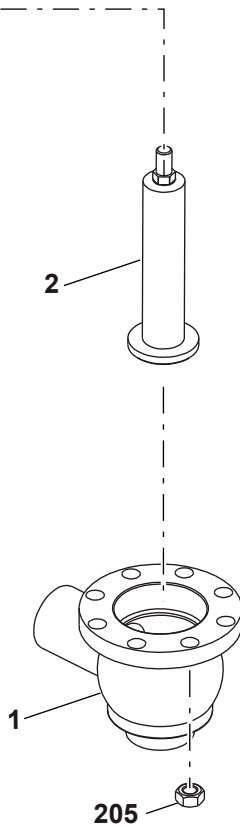
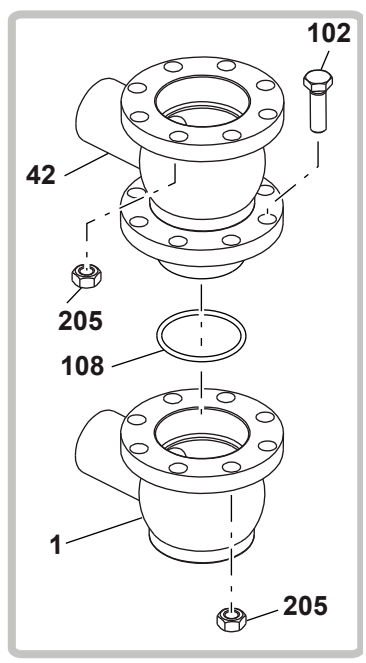
**(BBYQ)**



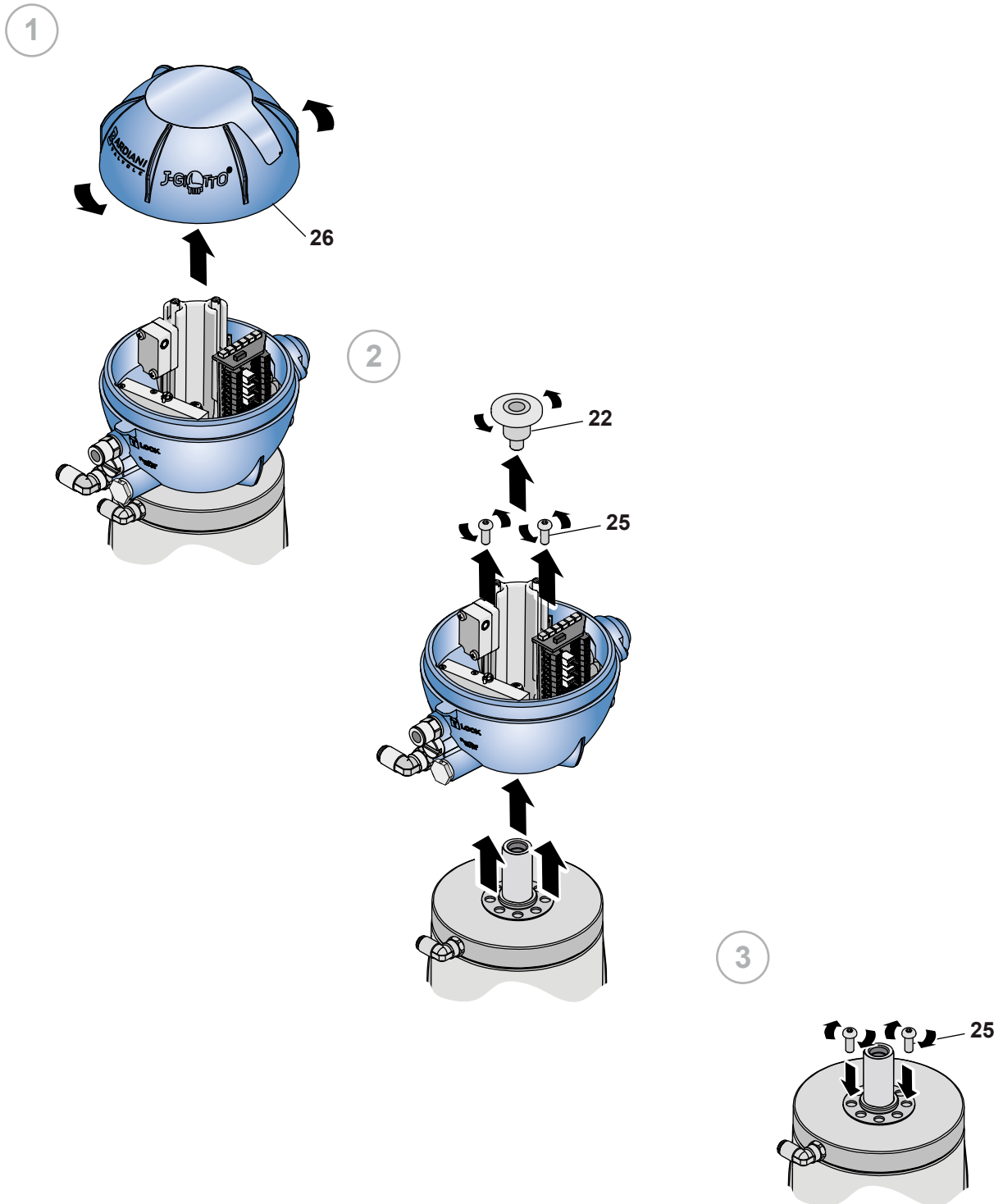
**(PTFE)**



**(M8)**

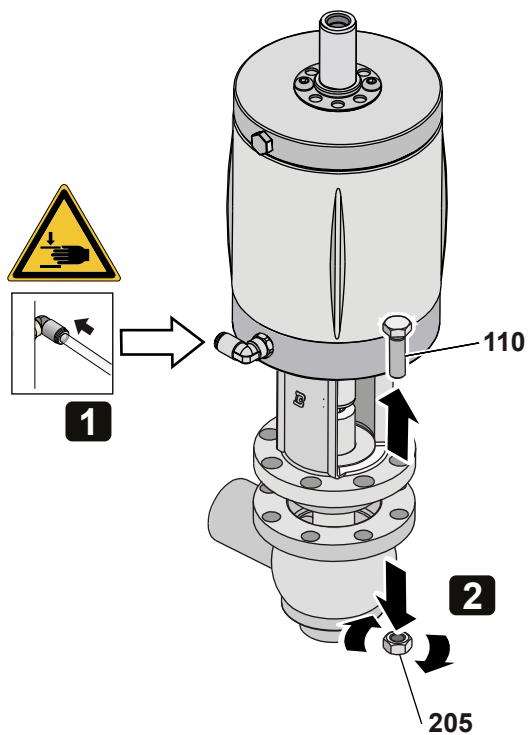


## 10.5 Disassembly of the BBZQ - BBYQ cylinder 108-156

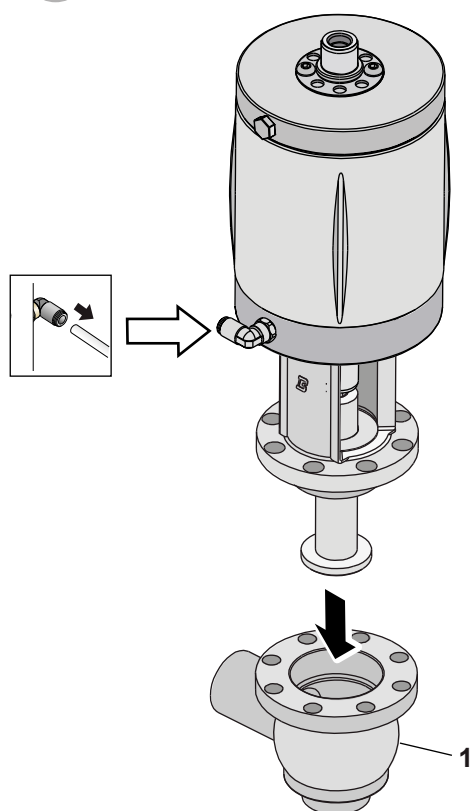


**(Normally closed)**

1 a

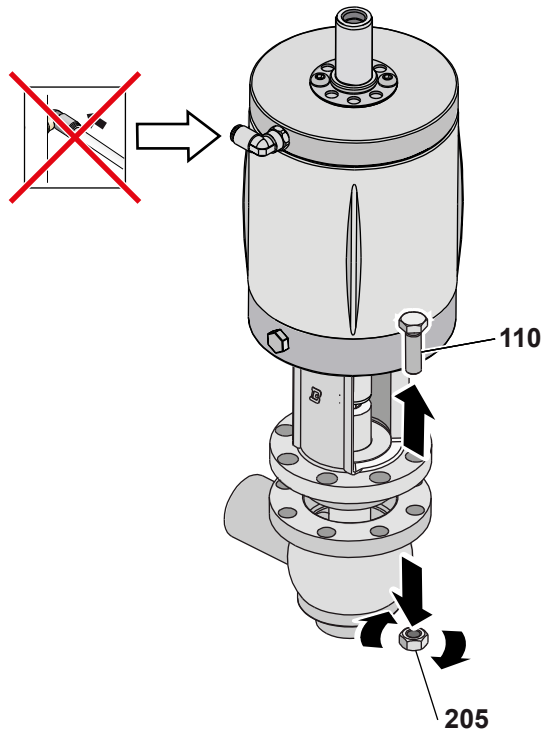


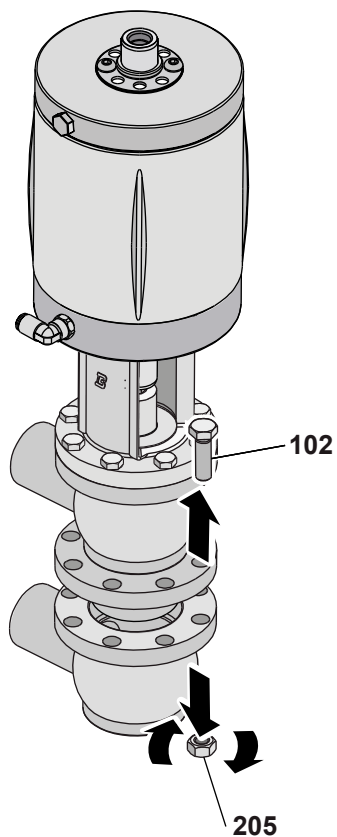
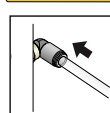
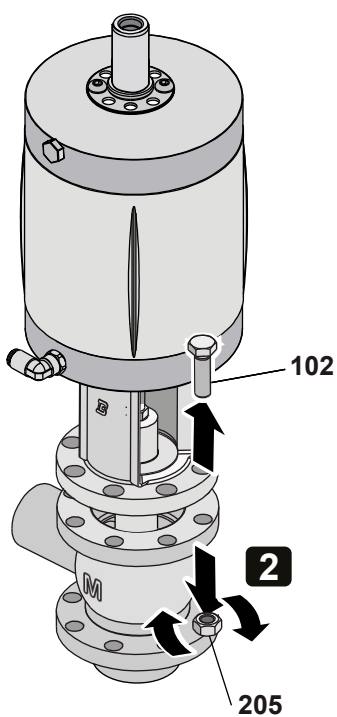
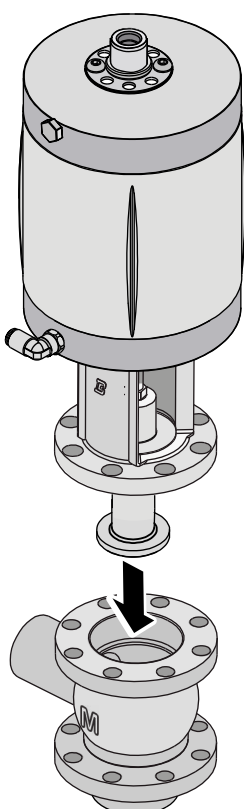
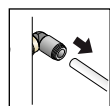
2 a

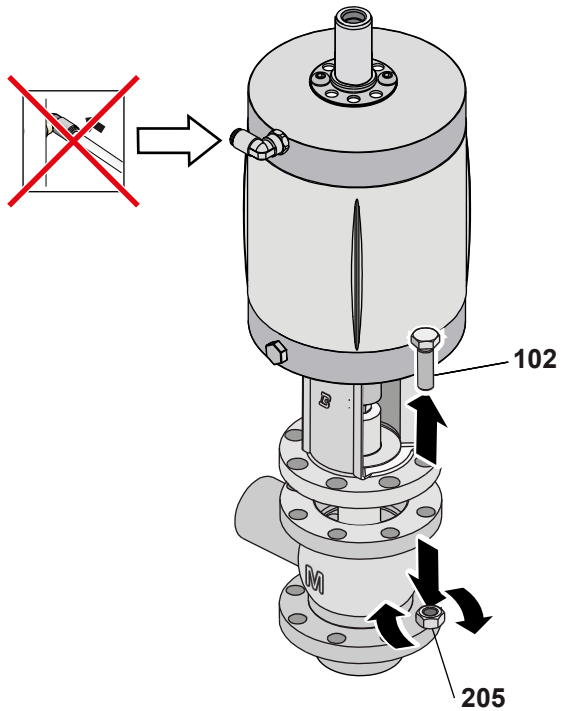
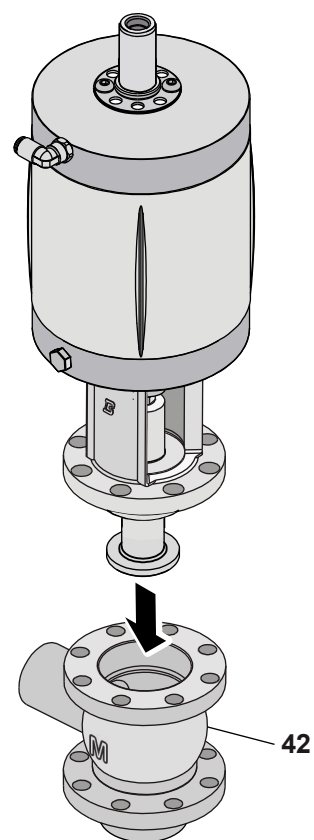


**(Normally open or double acting)**

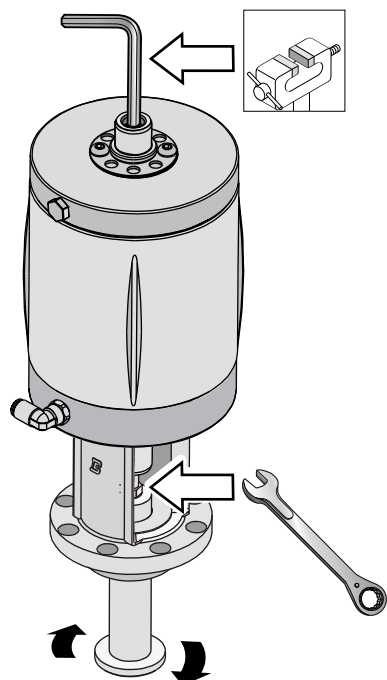
1-b



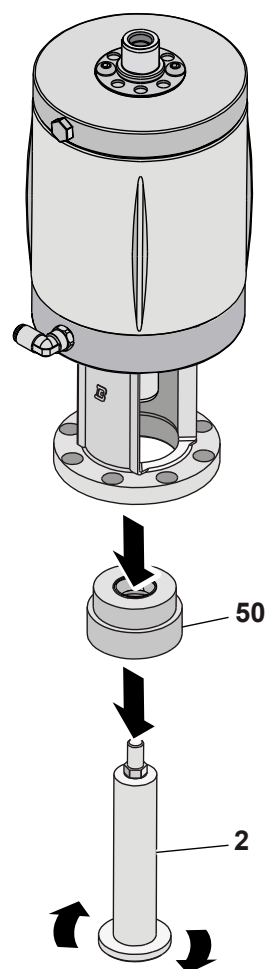
**(M8 Normally closed)****1** - C**2** - C**1****2****3** - C

**(M8 Normally open or double acting)****2** - d**3** - d

4



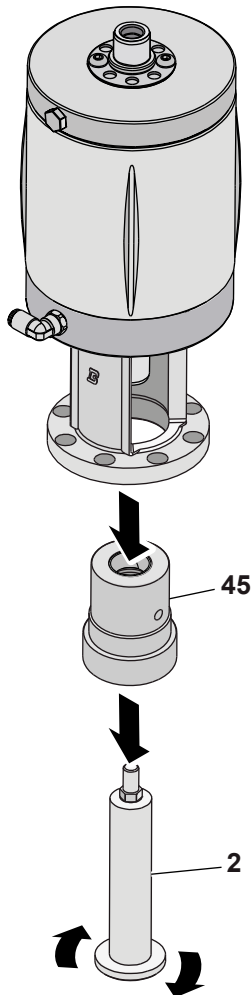
5





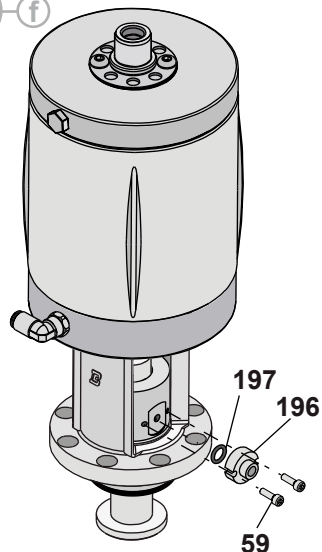
**(BBYQ)**

5-d

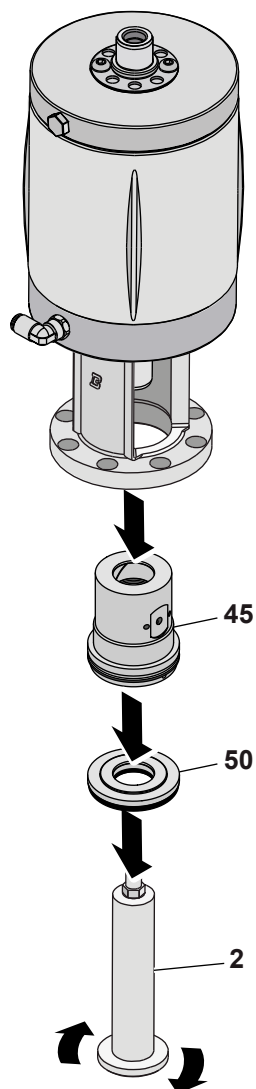


**(BBYQ Special execution)**

5-f

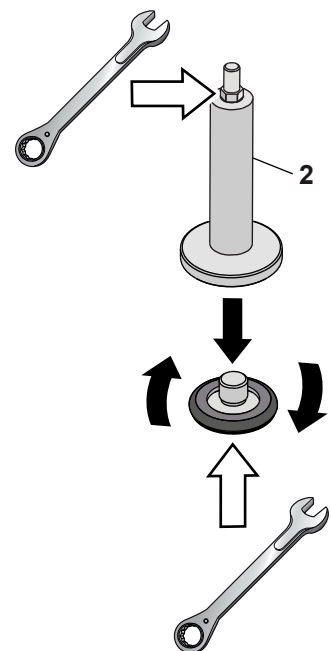


6-f

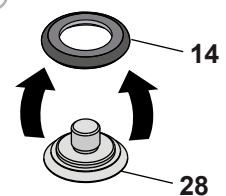


**(P.T.F.E.)**

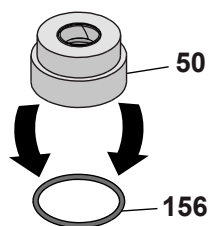
7-e



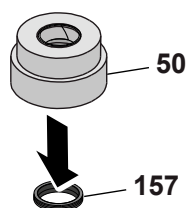
8-e



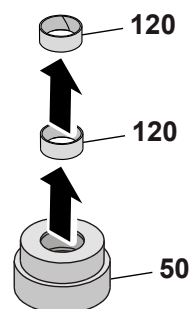
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10

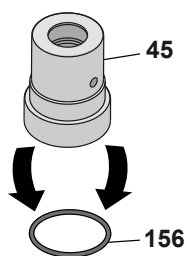


11

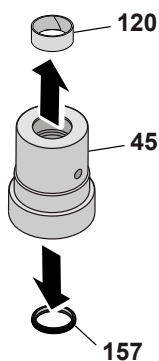


(BBYQ)

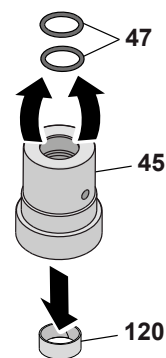
9-d



10-d

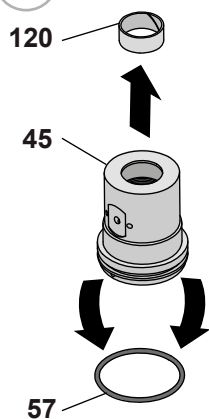


11-d

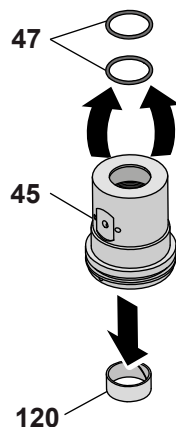


(BBYQ Special execution)

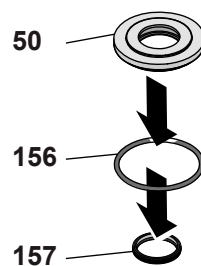
9-f

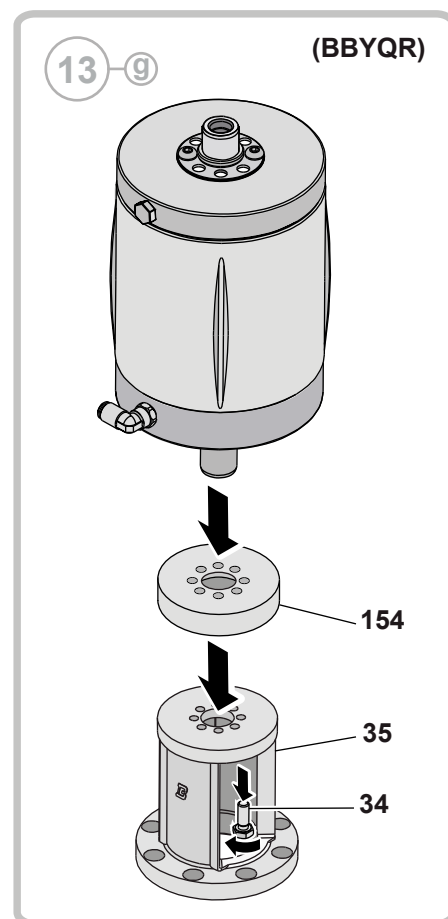
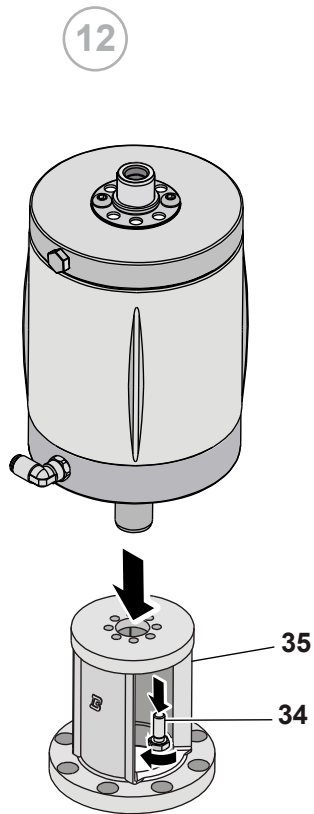


10-f

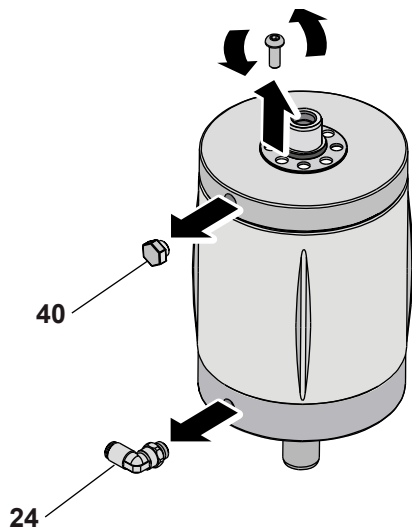


11-f

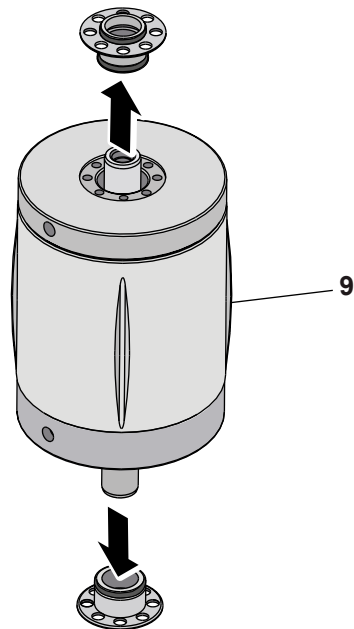




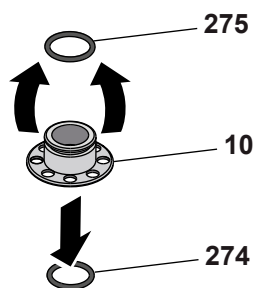
13



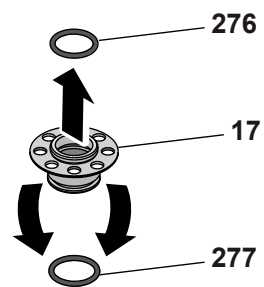
14



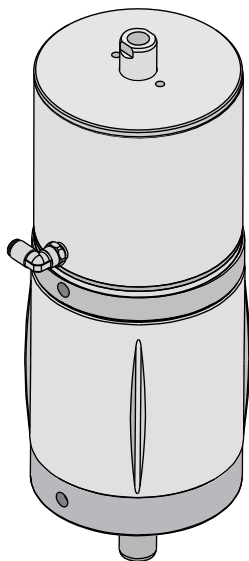
15



16

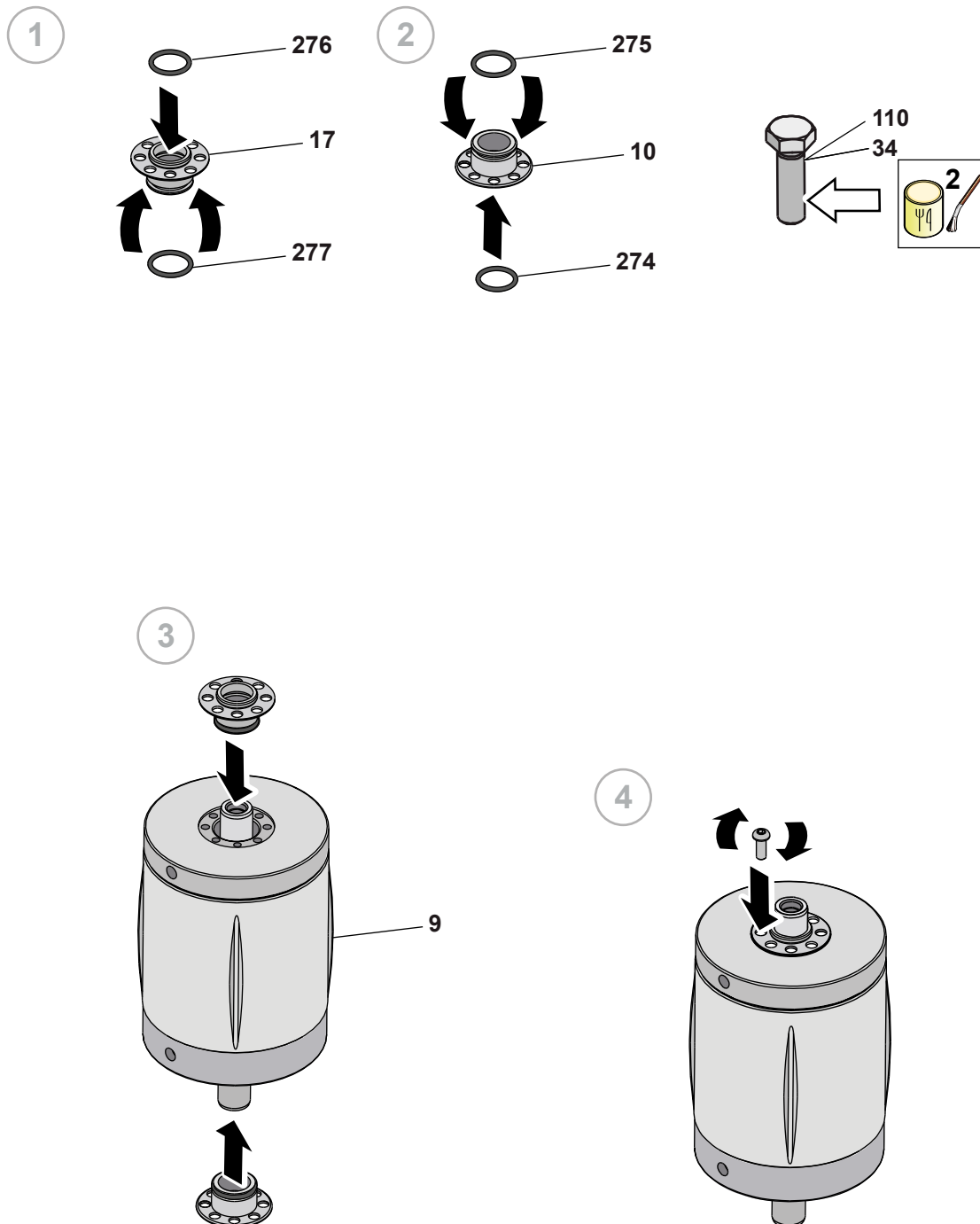


17



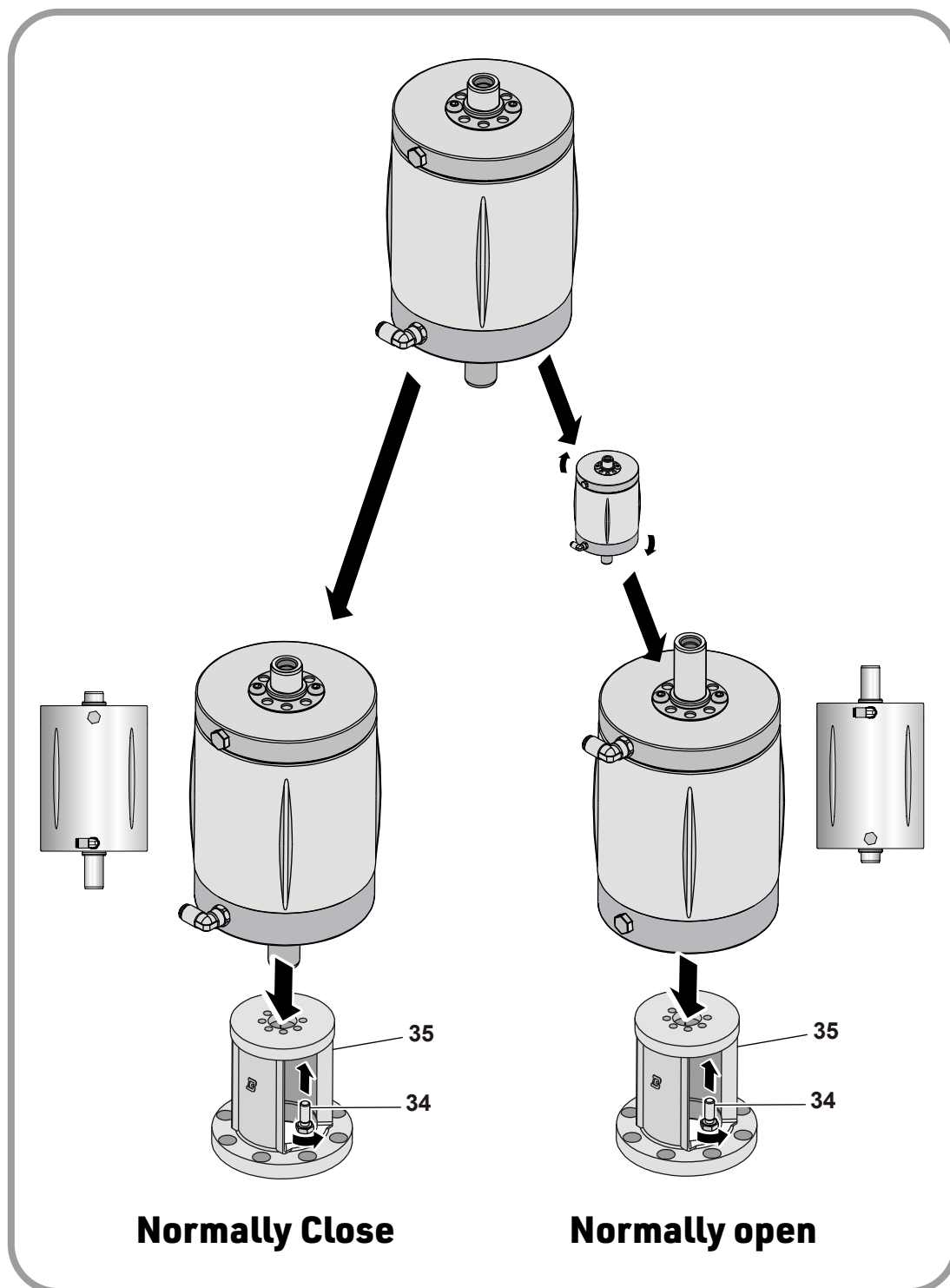
[BBZU]

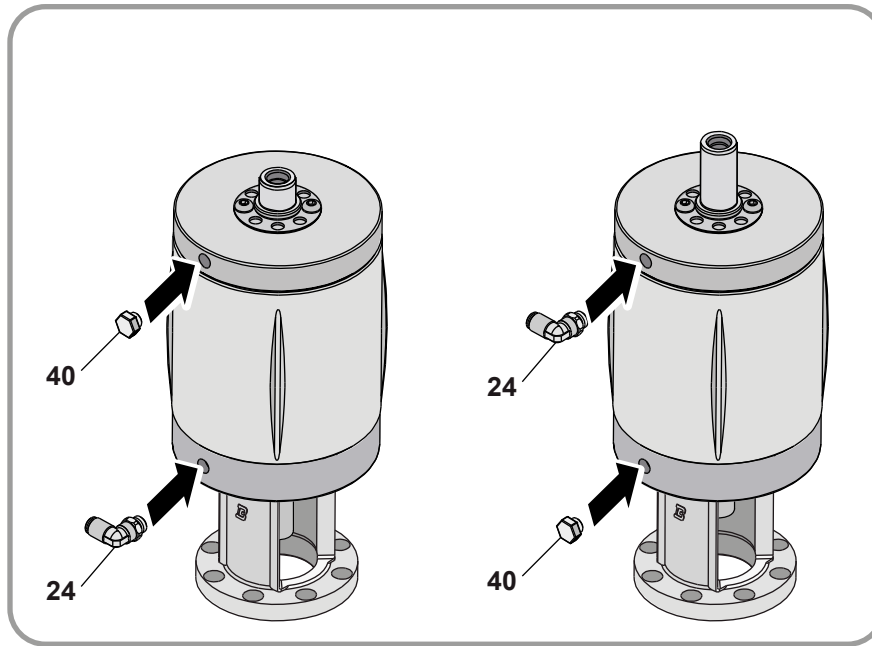
## 10.6 Assembly of the BBZQ - BBYQ cylinder 108-156



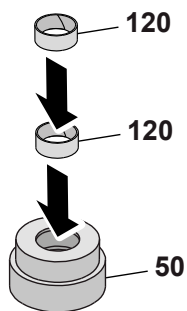
### 10.6.1 Select normally close or normally open cylinder

5

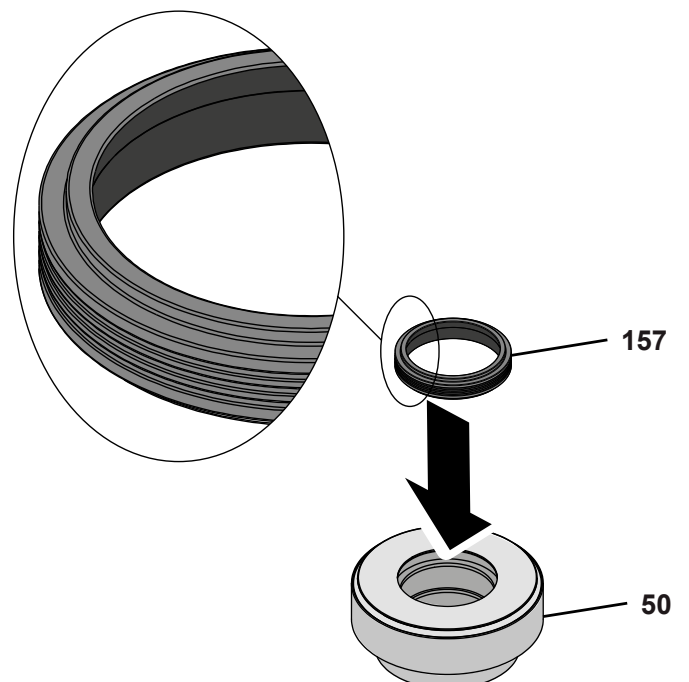
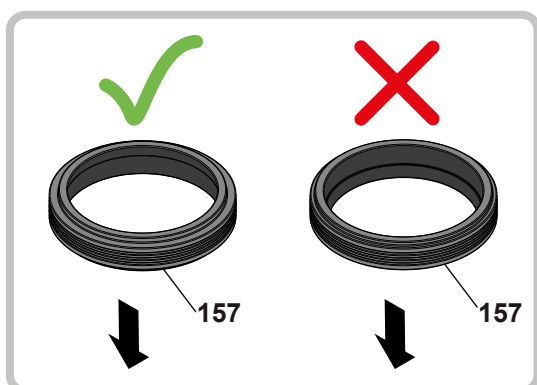


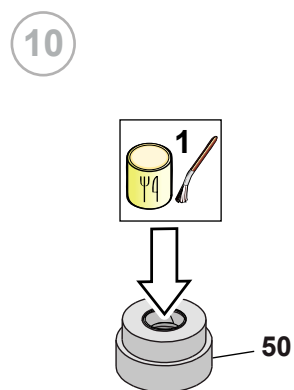
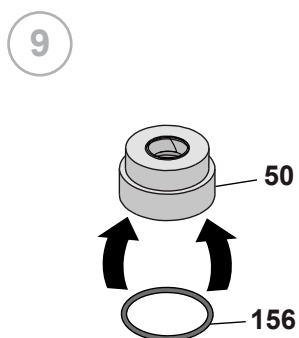
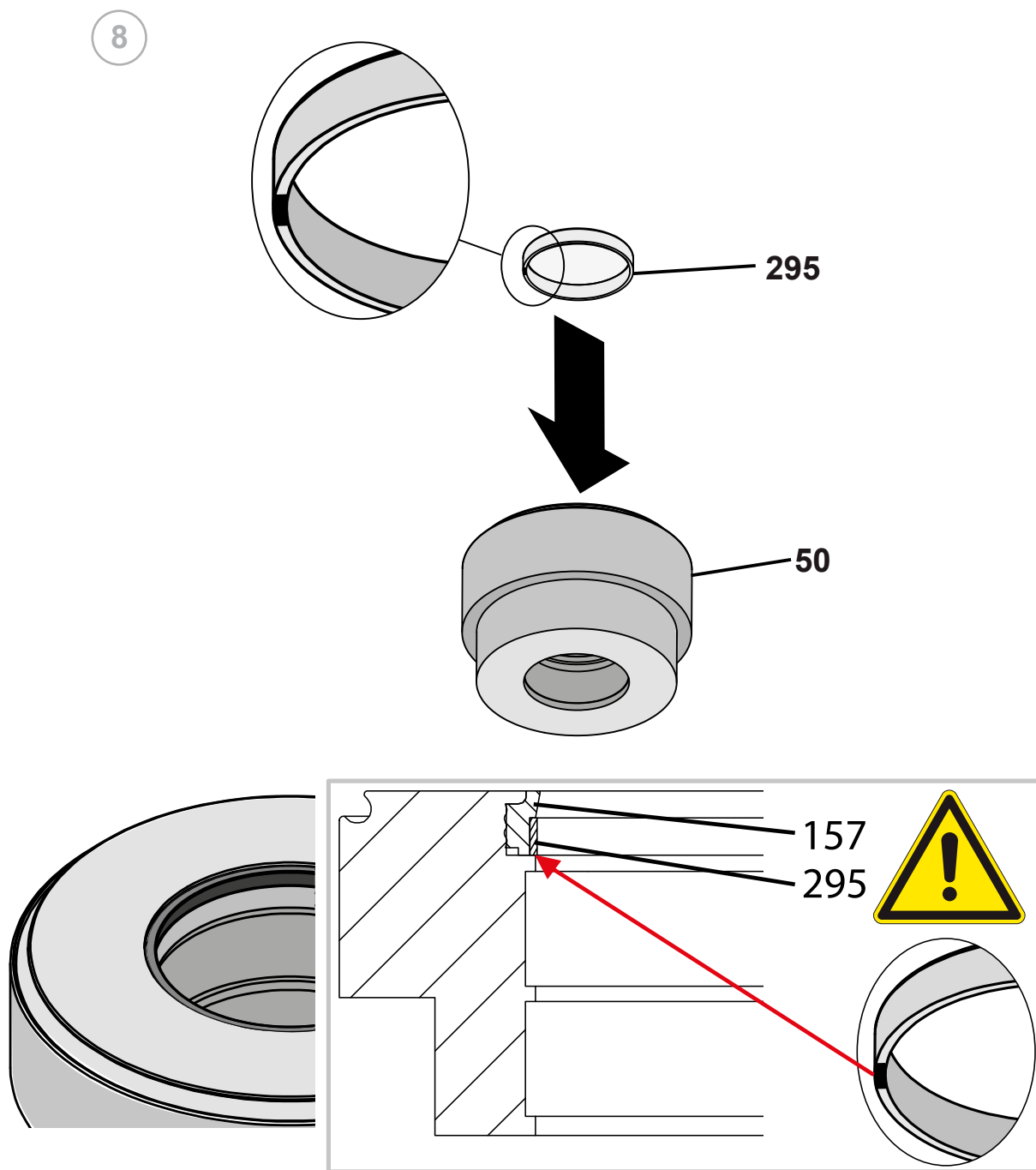


6



7

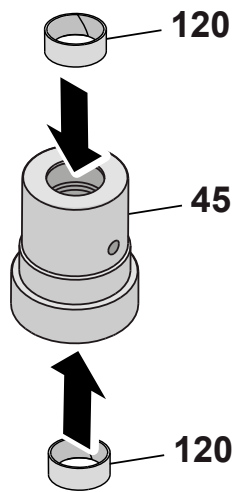




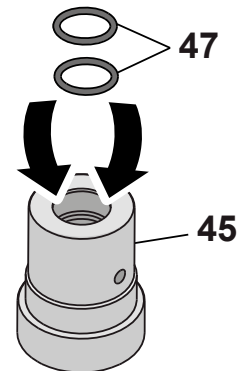


(BBYQ)

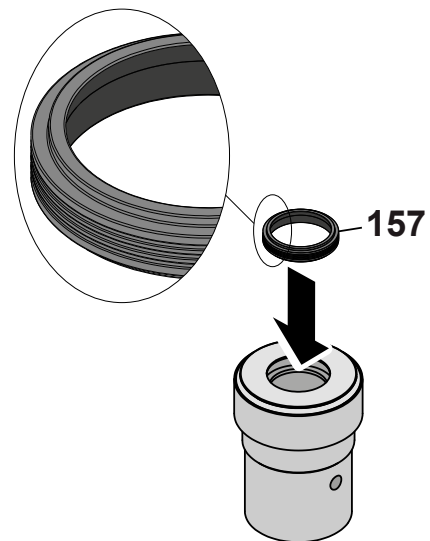
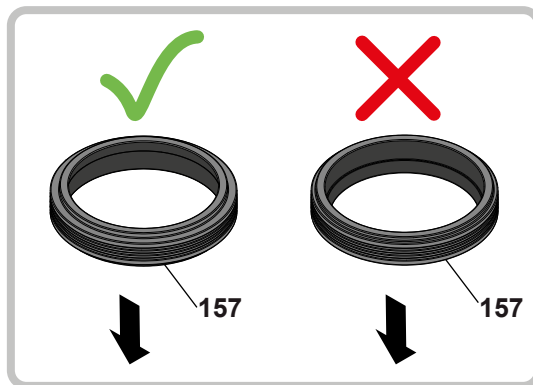
6-d



7-d

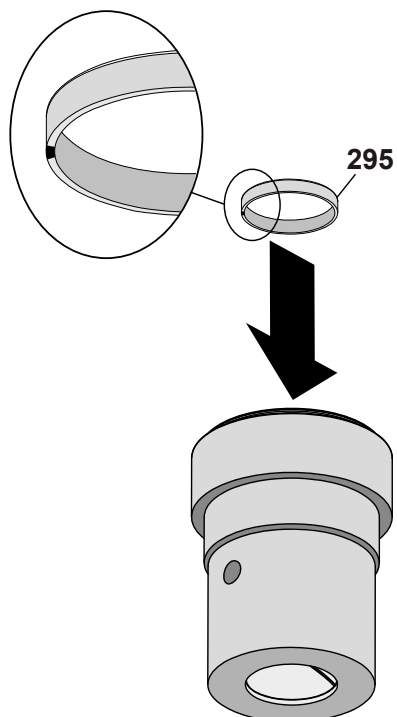


8-d

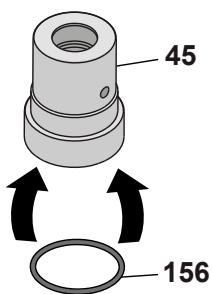


(BBYQ)

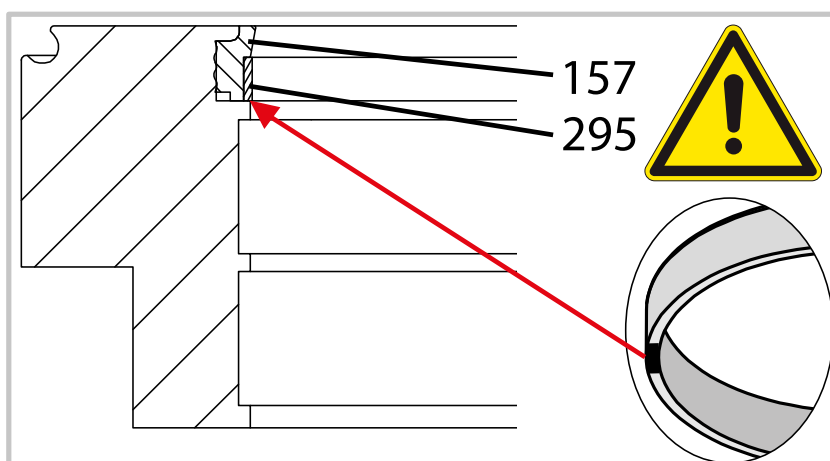
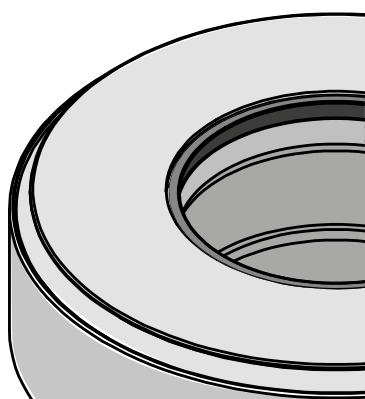
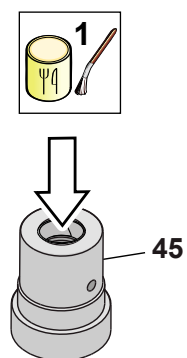
9-d

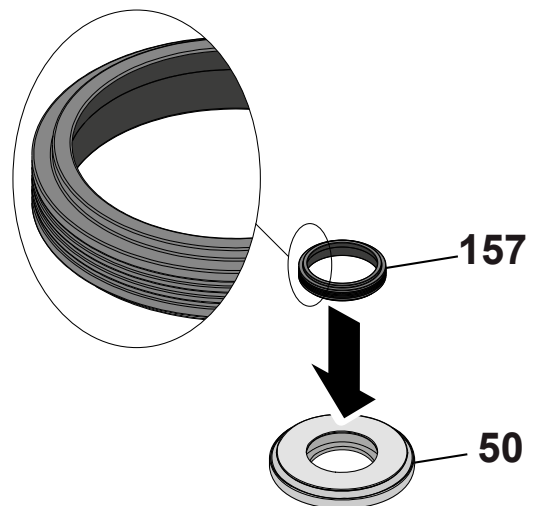
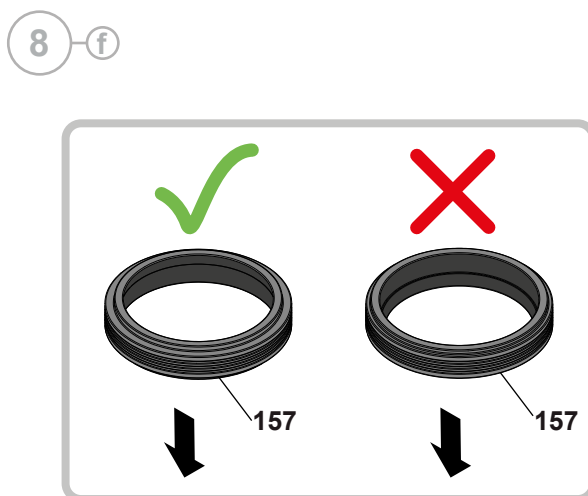
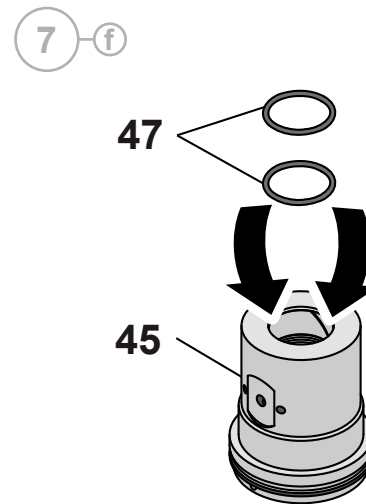
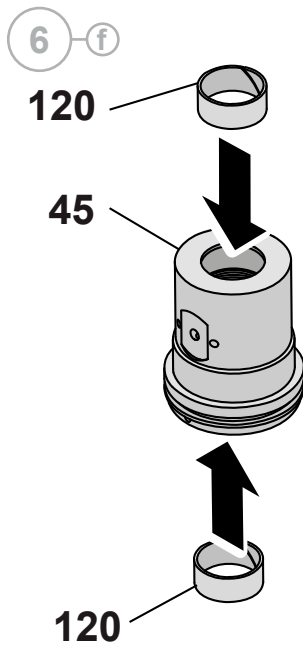


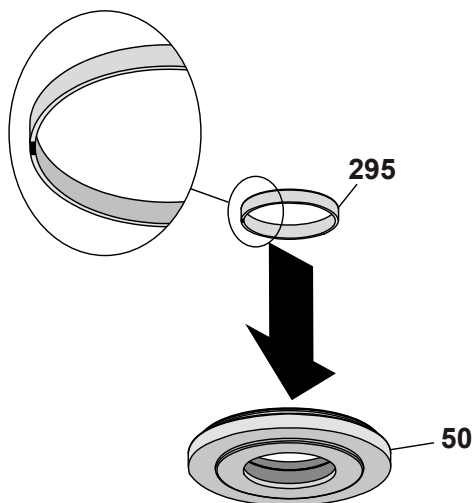
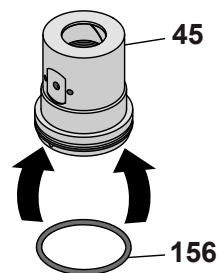
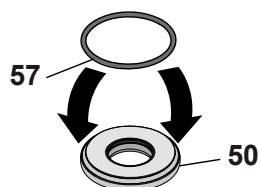
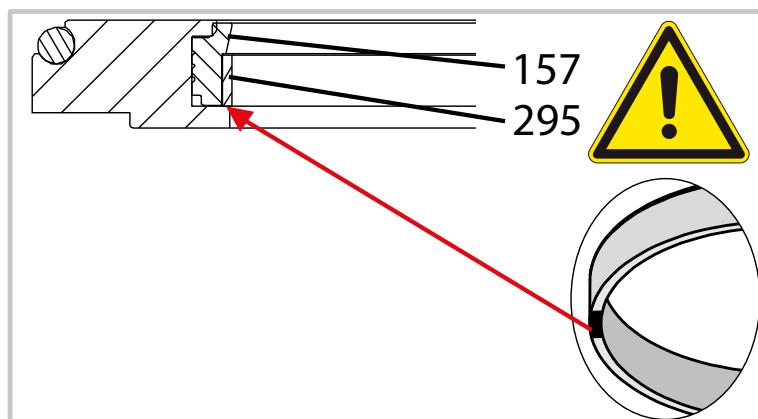
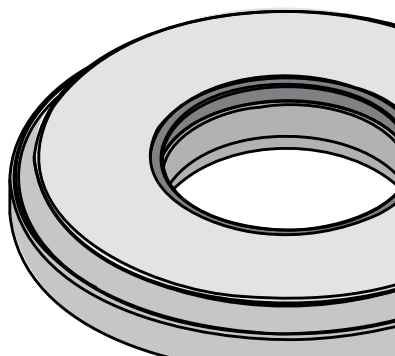
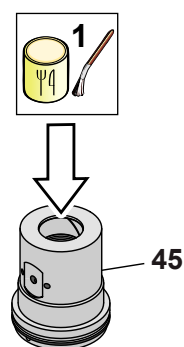
10-d



11-d

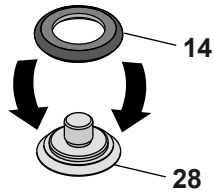


**(BBYQ Special execution)**

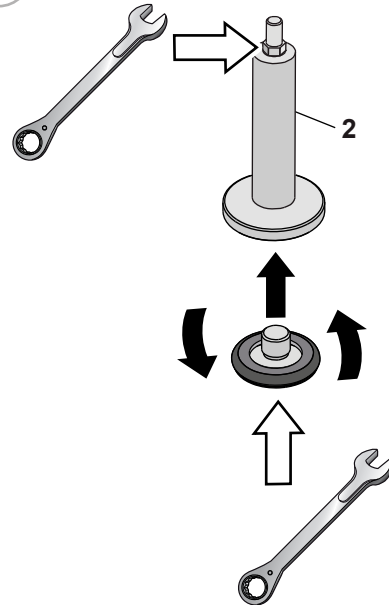
**(BBYQ Special  
execution)****9** - f**10** - f**11** - f**12** - f

(P.T.F.E.)

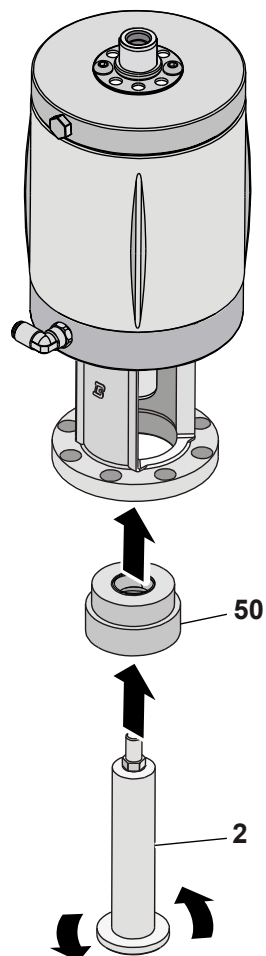
13-e



14-e

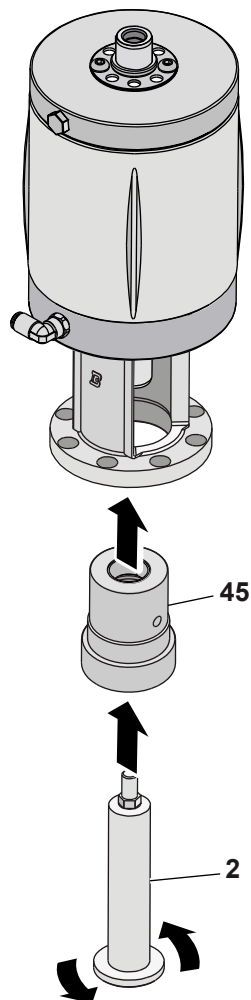


15



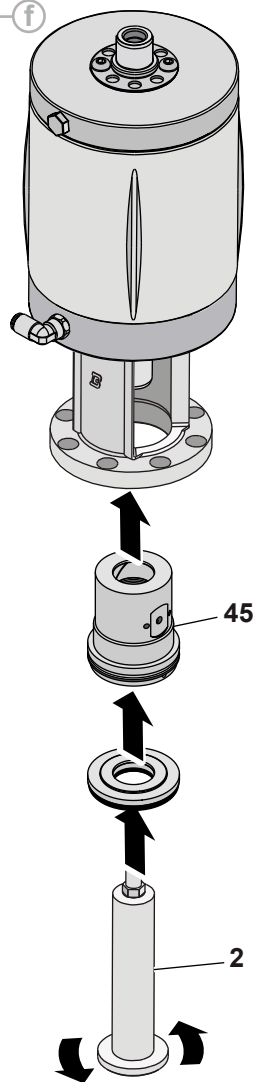
(BBYQ)

(15-d)

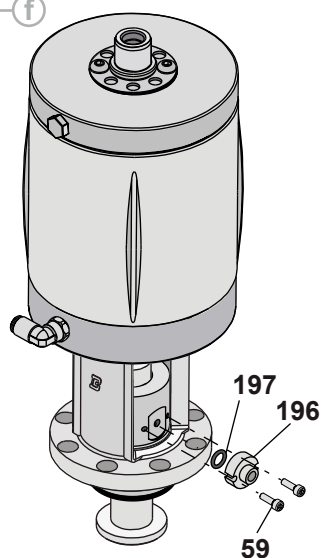


(BBYQ Special execution)

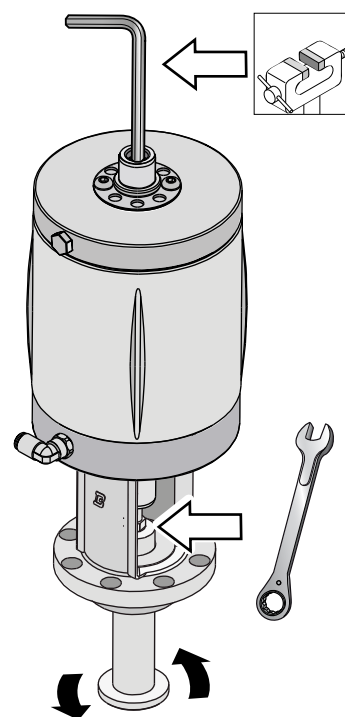
(15-f)

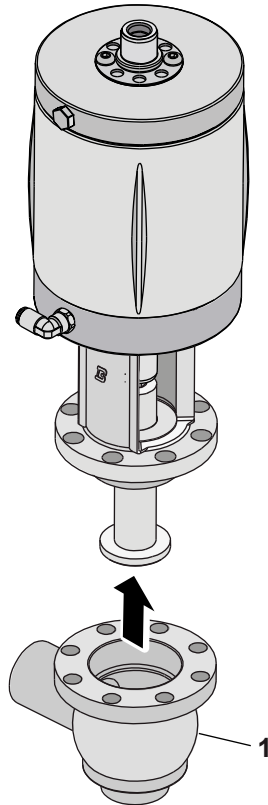
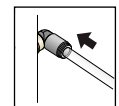
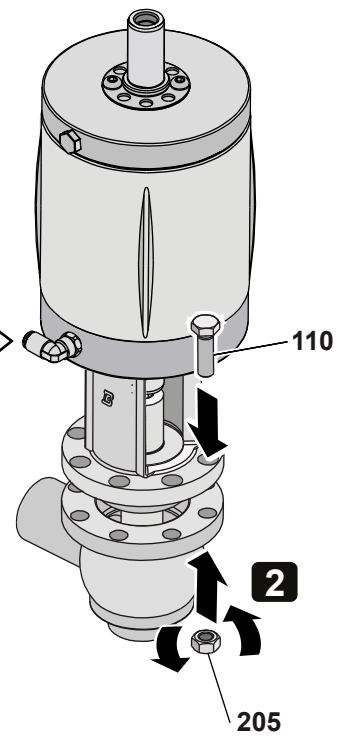
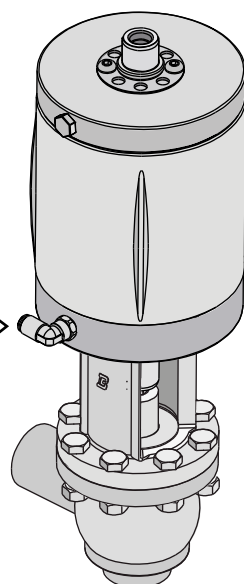
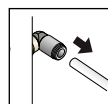


(16-f)



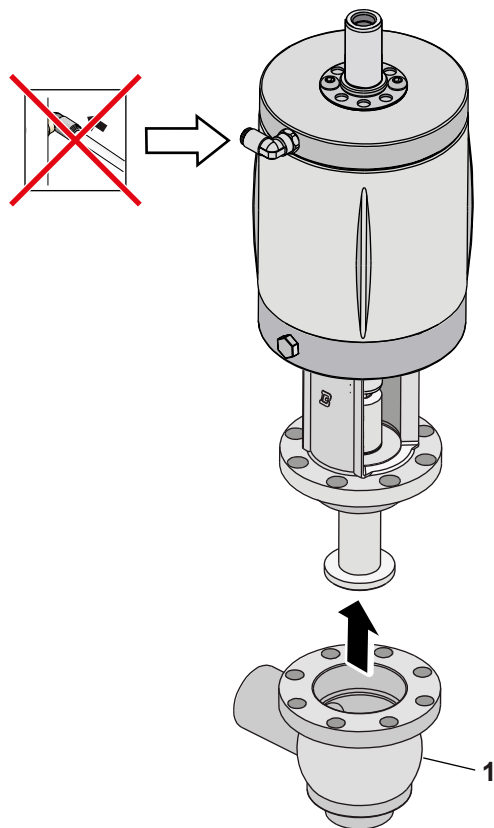
(17)



**(Normally closed)****18** a**19** a**1****2****20** a

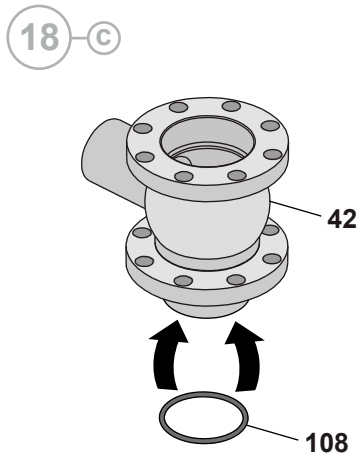
**(Normally open or double acting)**

18-b

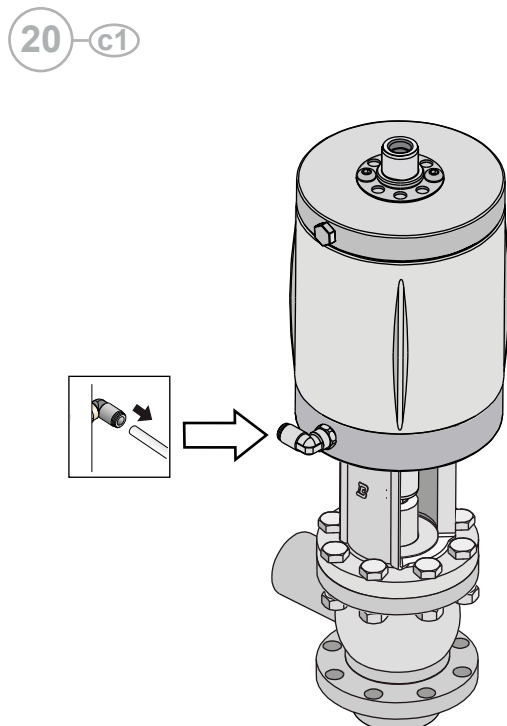
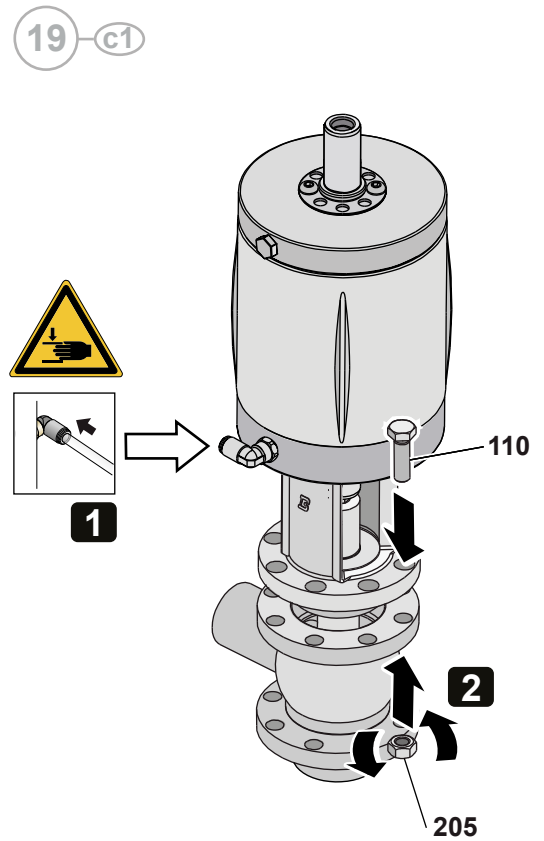




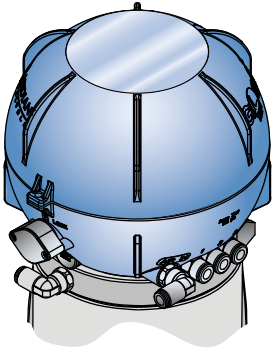
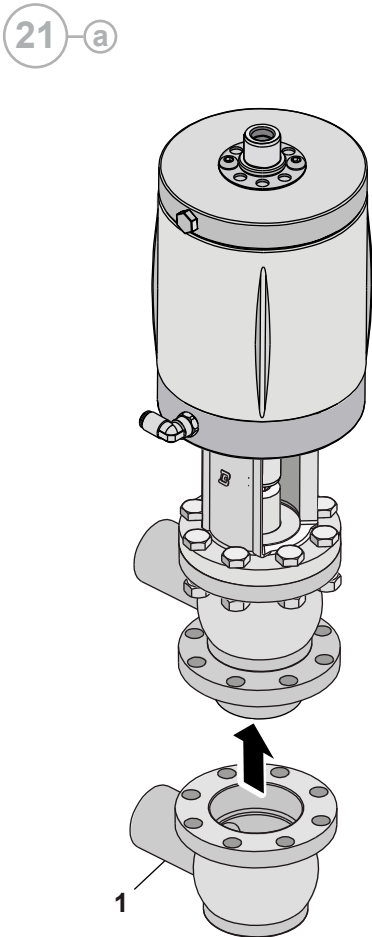
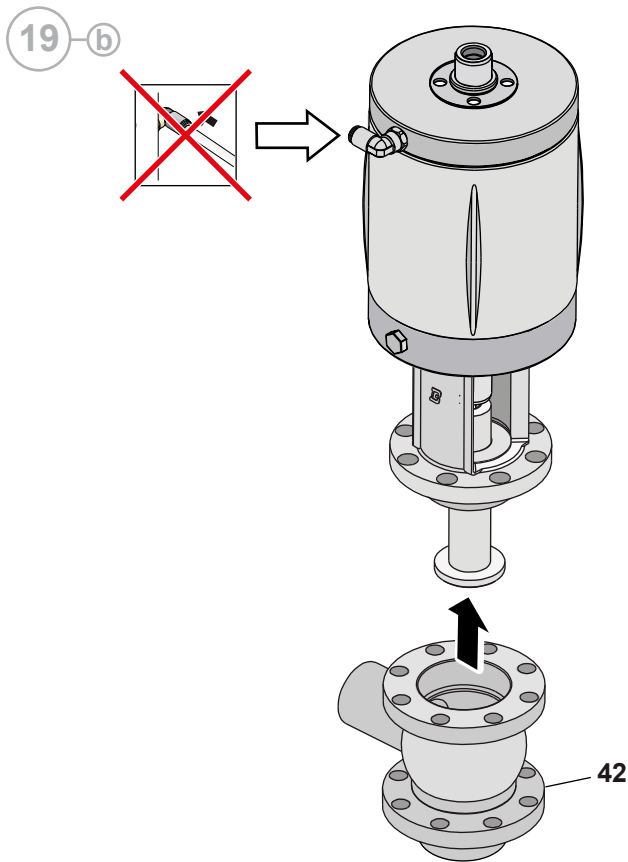
**(M8)**



**(Normally closed)**



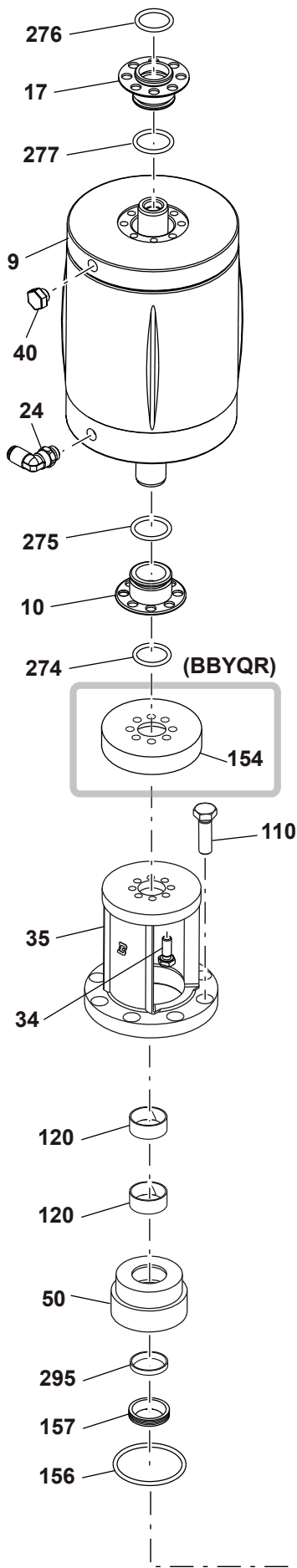
**(Normally open or double acting)**



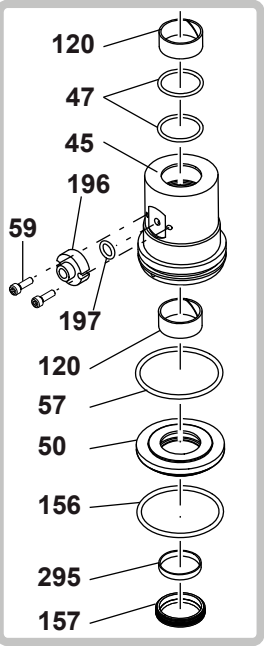
**[M GIOTTO]**

## 10.7 Pneumatic Valve BBZQ - BBYQ cylinder 108-156 Diverter

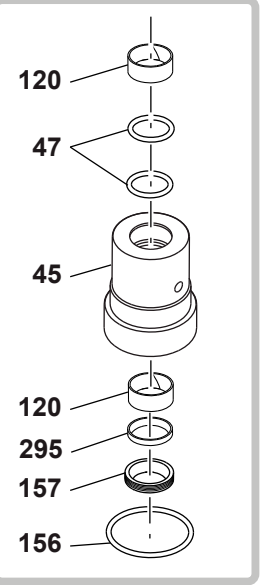
| NO. | DESCRIPTION         |
|-----|---------------------|
| 1   | Lower body          |
| 9   | Cylinder            |
| 10  | Bush                |
| 14  | Sealing ring        |
| 17  | Bush                |
| 23  | Pin                 |
| 24  | Air connector       |
| 28  | Shutter nut         |
| 30  | Double shutter      |
| 33  | Clamp               |
| 34  | Screw               |
| 35  | Assembly            |
| 40  | Cap                 |
| 42  | Upper body          |
| 50  | Gasket holder disc  |
| 57  | Sealing ring        |
| 59  | Screw               |
| 77  | Diaphragm nut       |
| 108 | Sealing ring        |
| 120 | Bush                |
| 128 | Diaphragm           |
| 154 | Spacer              |
| 156 | Sealing ring        |
| 157 | Sealing ring        |
| 196 | Steam connetor      |
| 197 | Sealing ring        |
| 212 | Double shutter stem |
| 274 | Sealing ring        |
| 275 | Sealing ring        |
| 276 | Sealing ring        |
| 277 | Sealing ring        |
| 286 | Air connector       |
| 295 | Bush                |



(BBYQ Special execution)



(BBYQ)

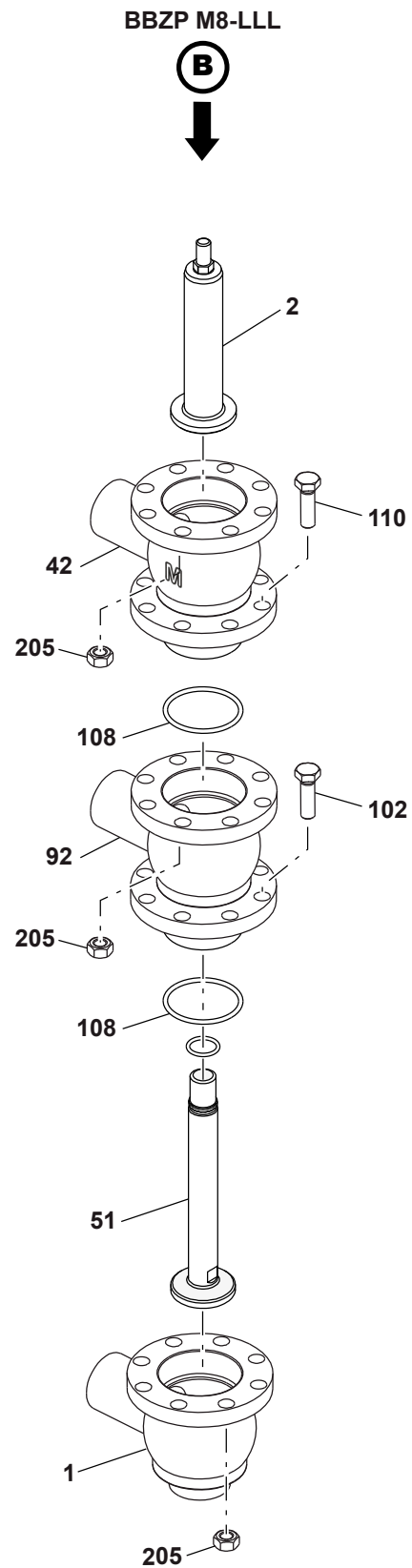
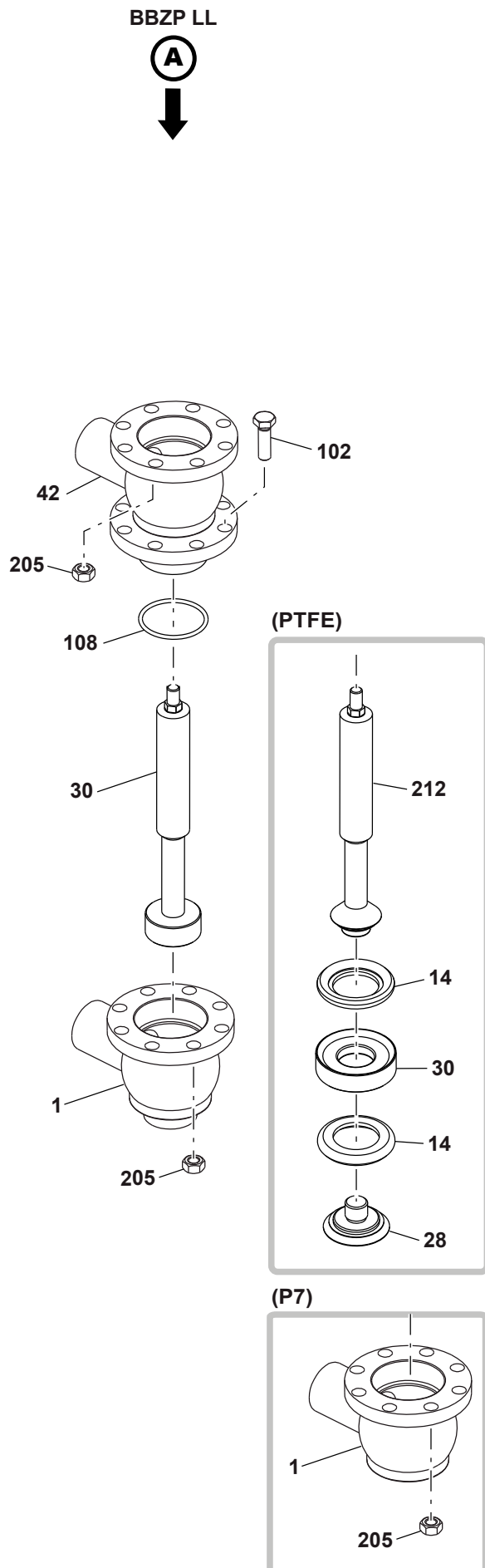


BBZP LL



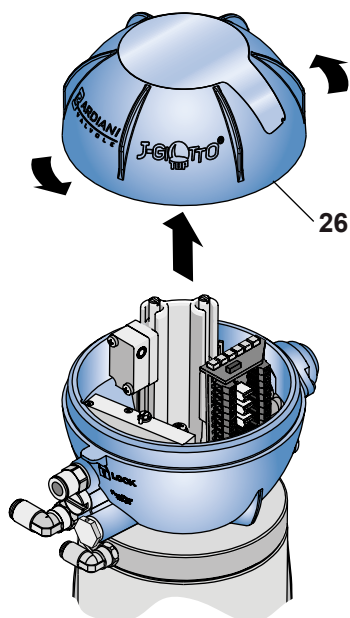
BBZP M8-LLL



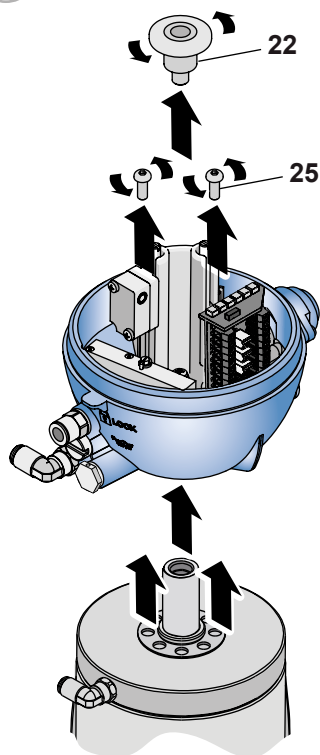


## 10.8 Disassembly of the BBZQ - BBYQ cylinder 108-156 Diverter

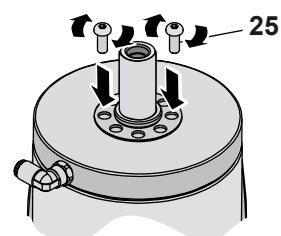
1



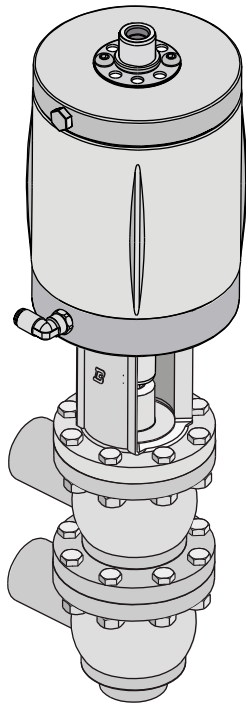
2



3

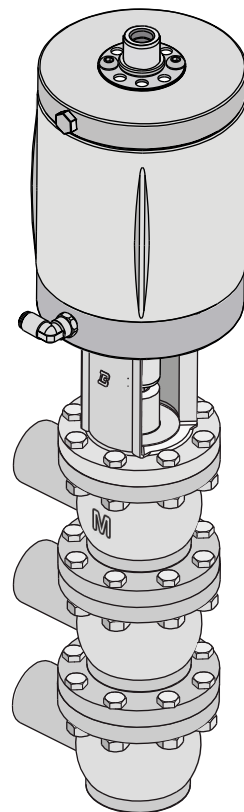


a



**[A S BBZQ-LL-108-156]**

b

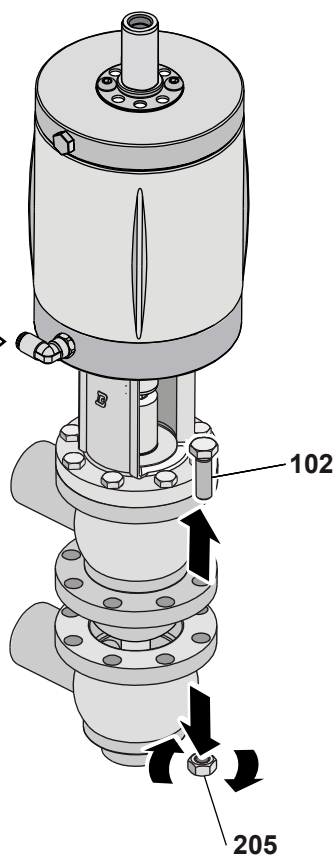
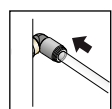


**[B S BBZQ-M8-LLL108-156]**

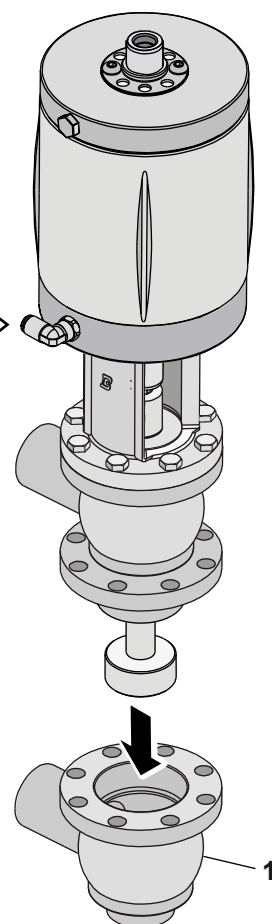
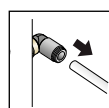
# **A Disassembly Of The BBZQ - BBYQ LL - BBZQ P7 - BBYQ P7**

**(Normally closed)**

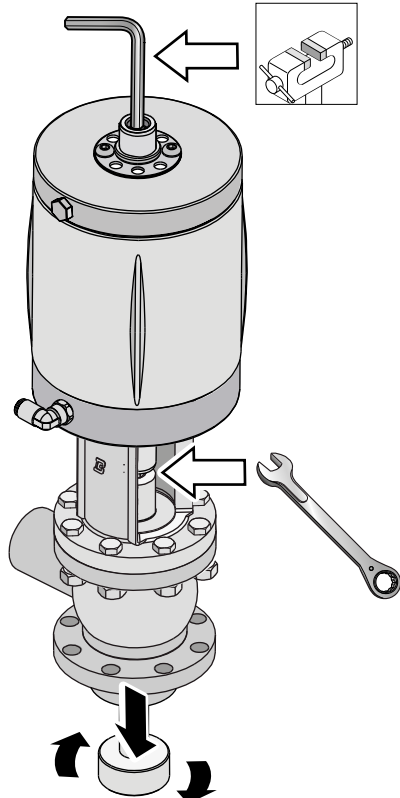
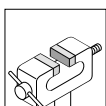
1 a1



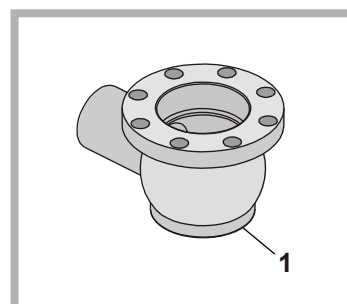
2 a1



3 a1

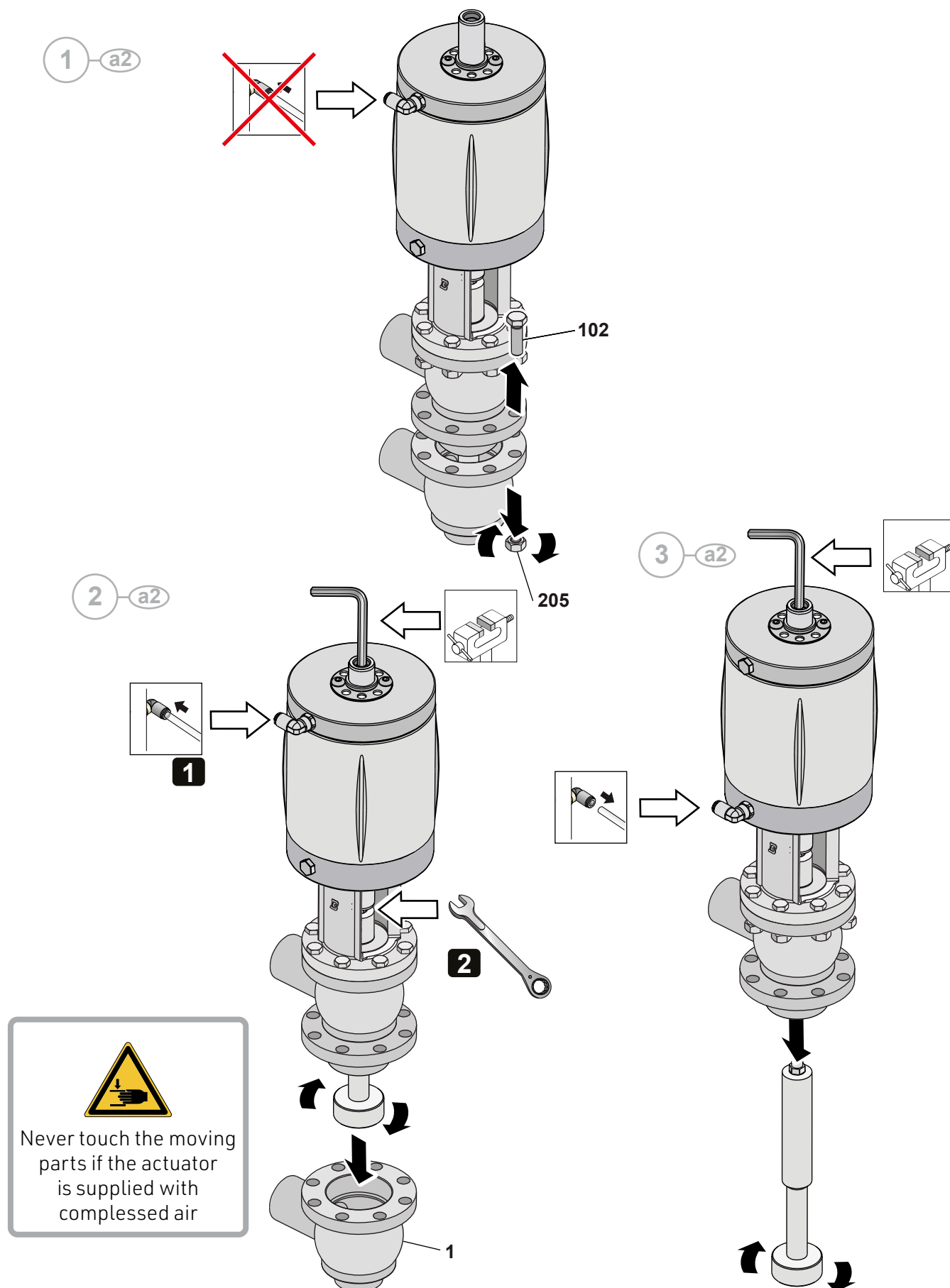


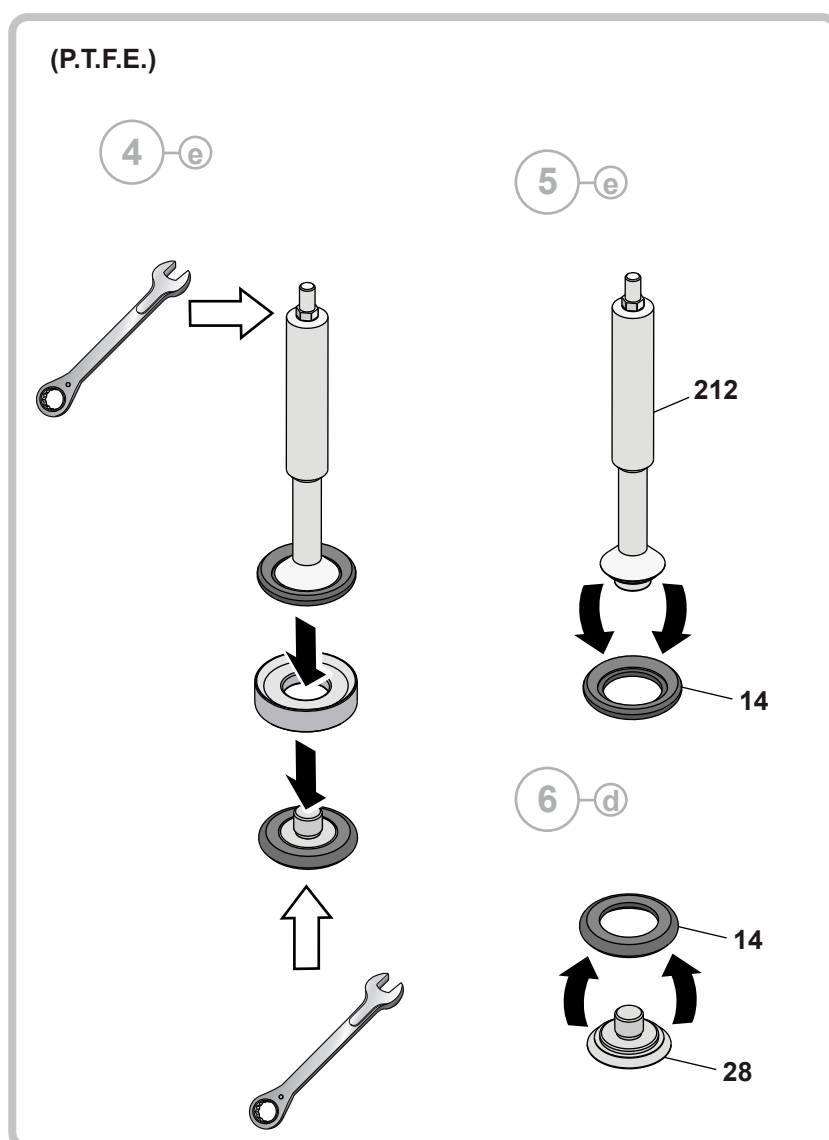
**P7**



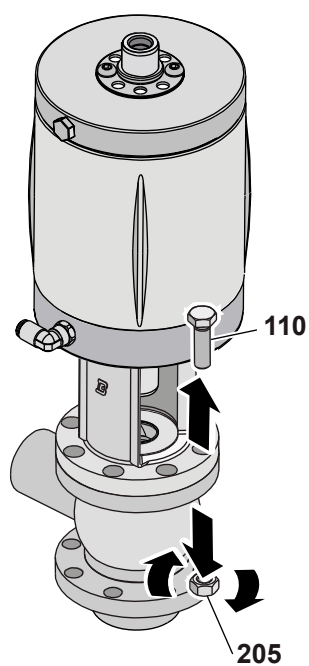


**(Normally open or double acting)**

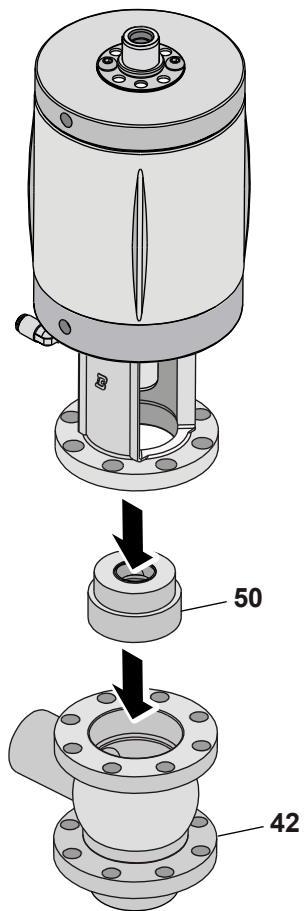




7-a

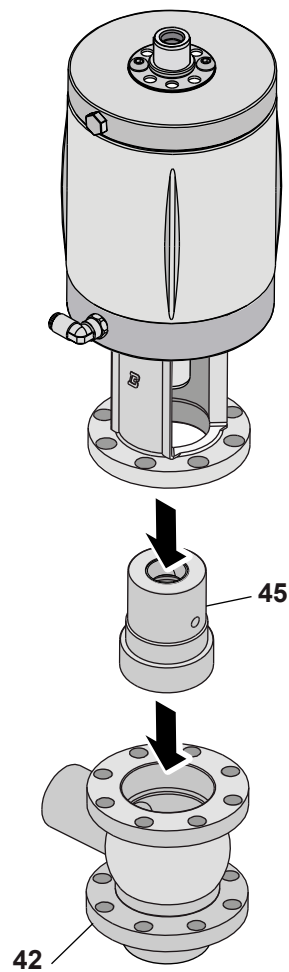


8 a



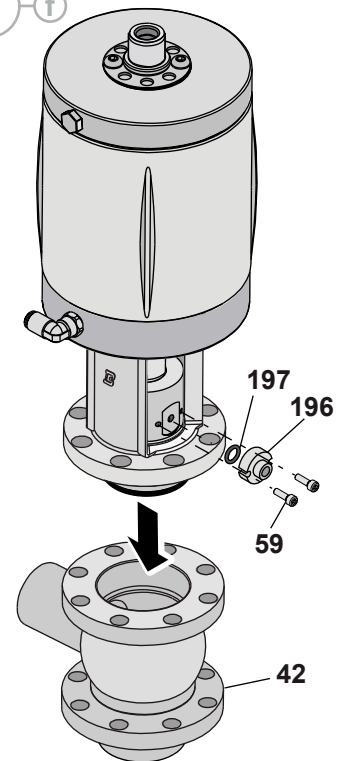
(BBYQ)

8 d

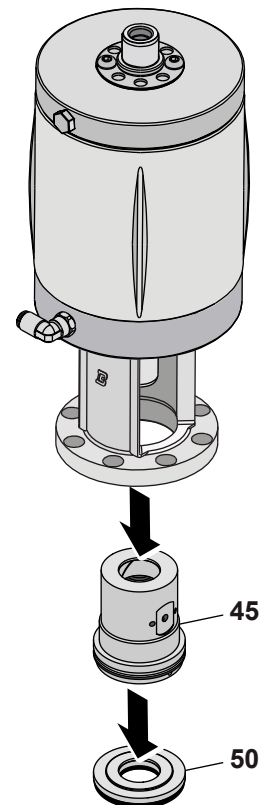


(BBYQ Special execution)

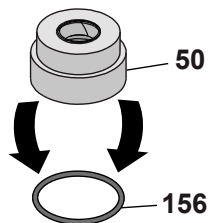
8 f



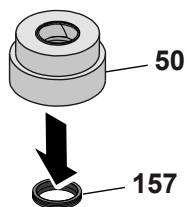
9 f



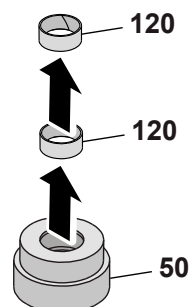
10-a



11-a

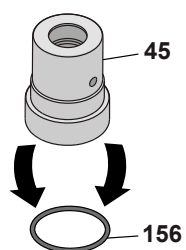


12-a

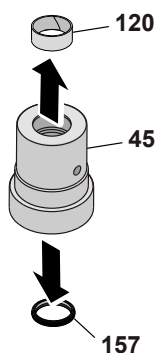


(BBYQ)

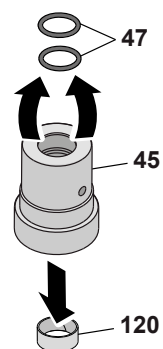
10-d



11-d

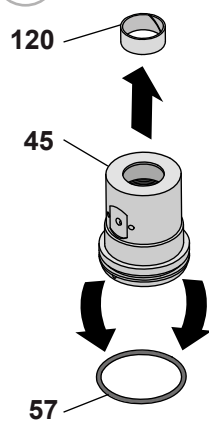


12-d

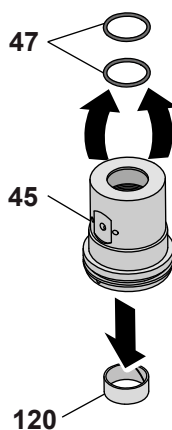


(BBYQ Special execution)

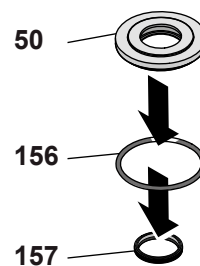
10-f



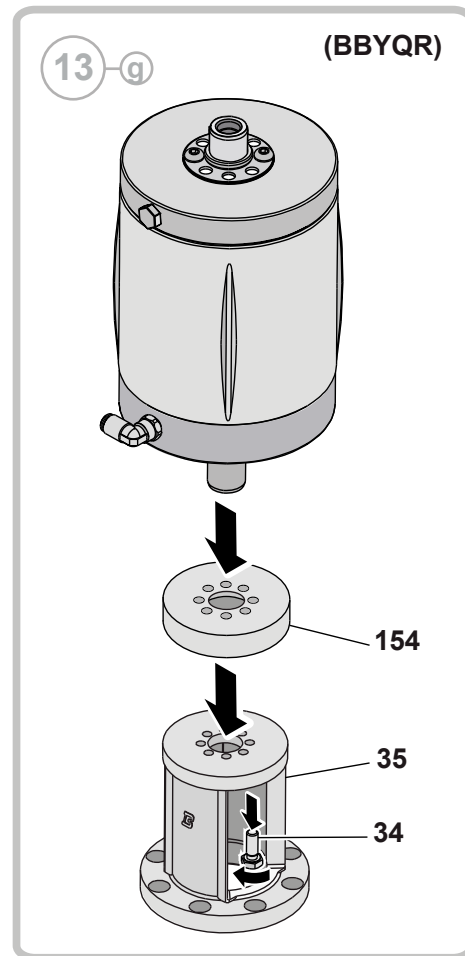
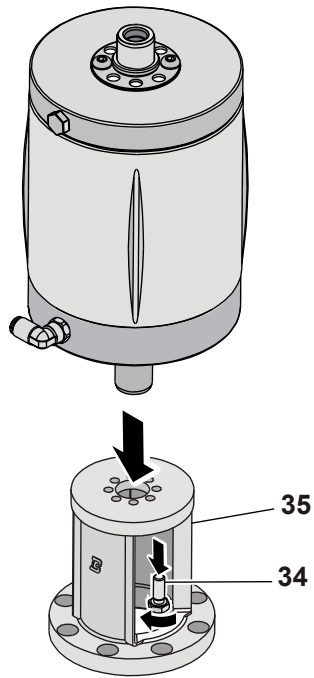
11-f



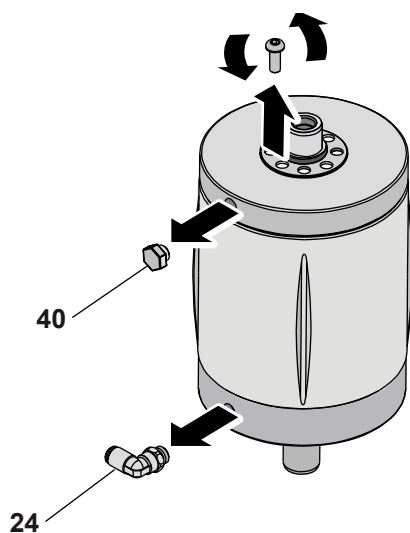
12-f



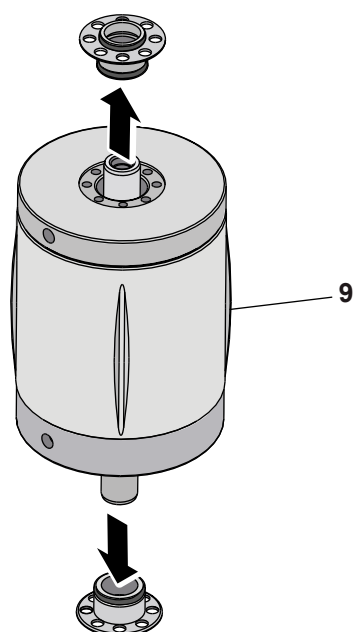
13-a



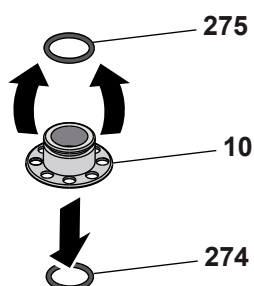
14-a



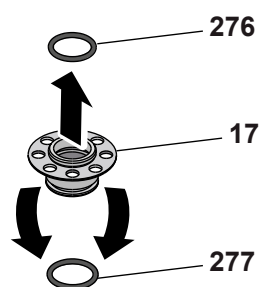
15-a



16



17

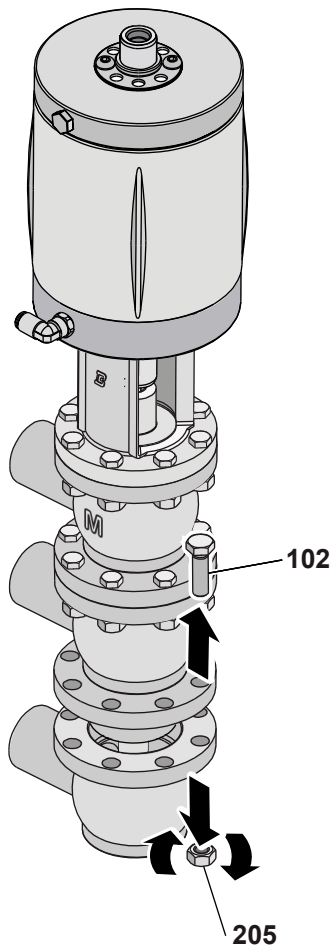


[M D BBZQ-108-156]

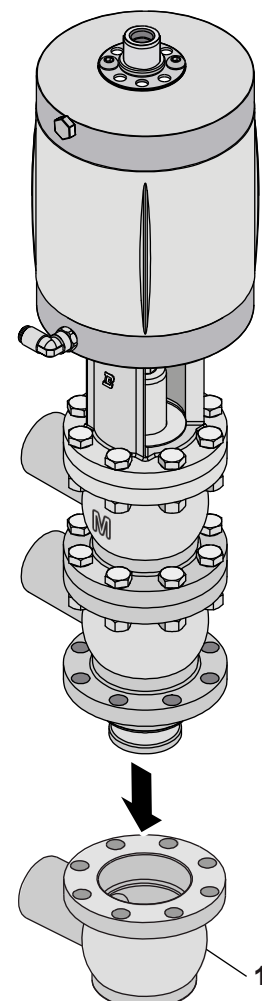
## B Disassembly Of The BBZQ M8-LLL

(Normally closed)

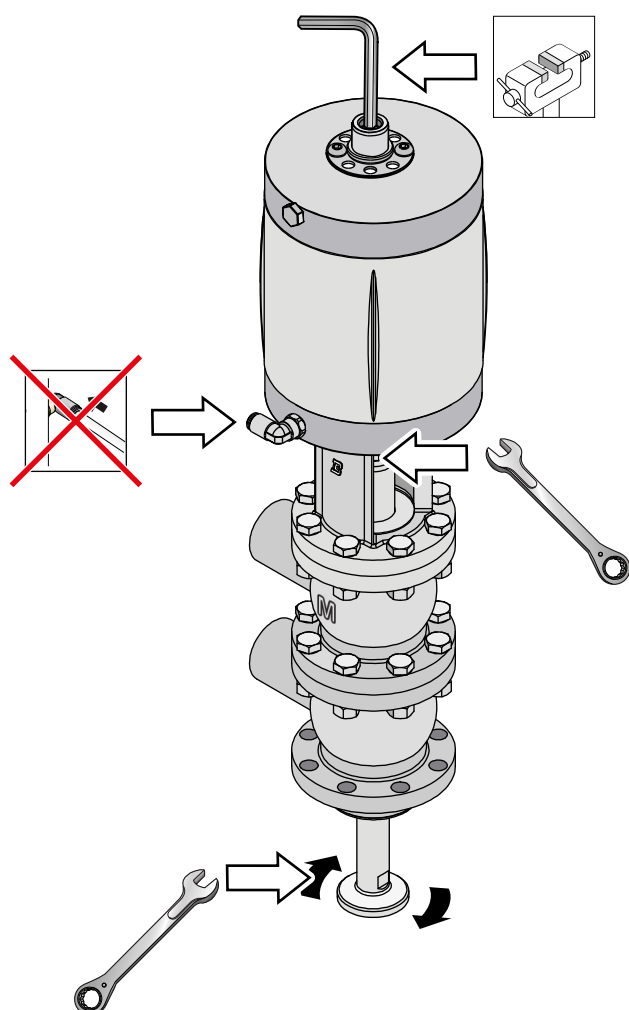
1 b1



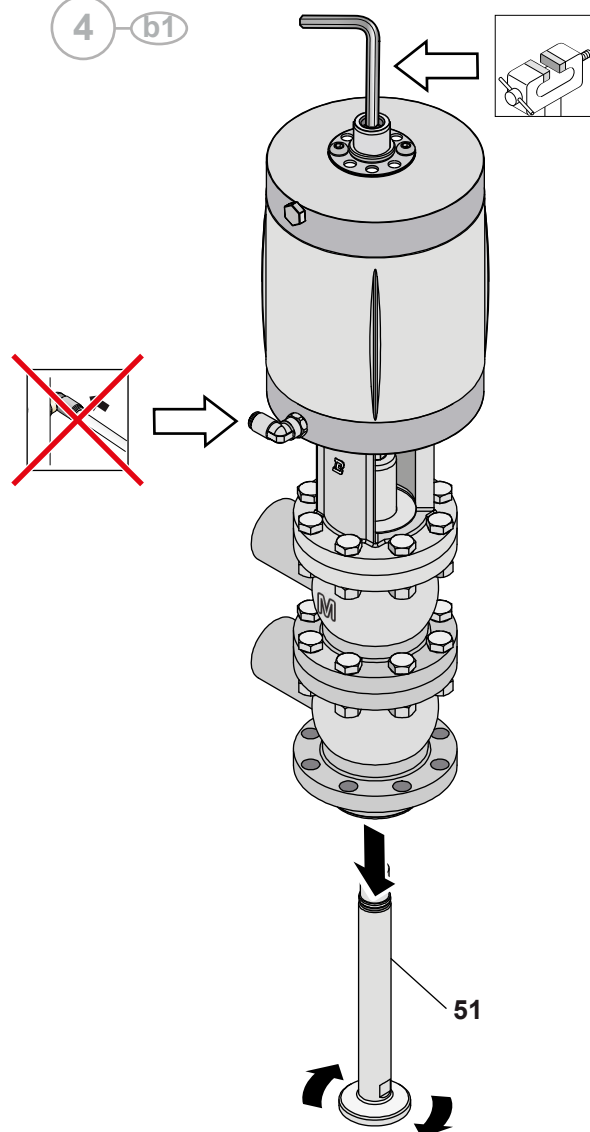
2 b1



3 b1

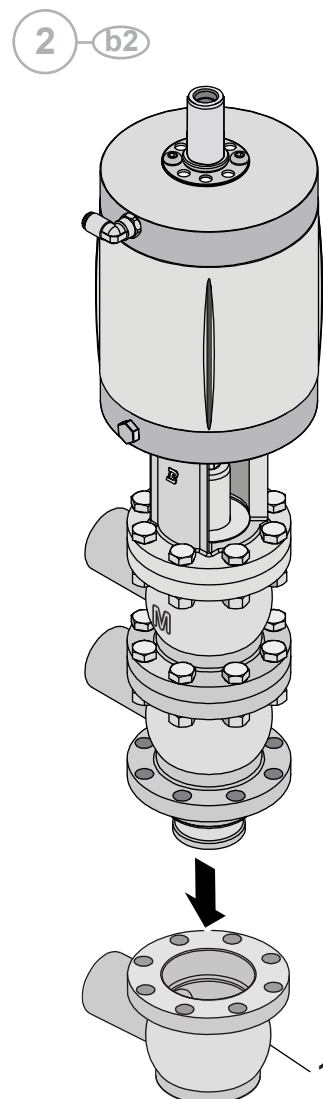
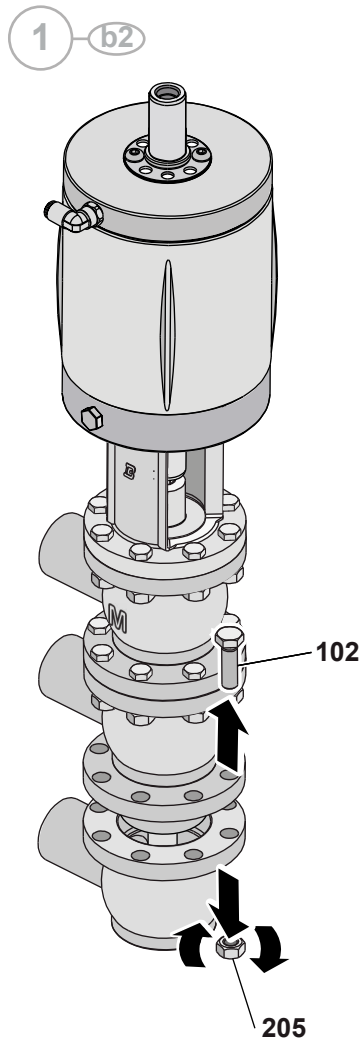


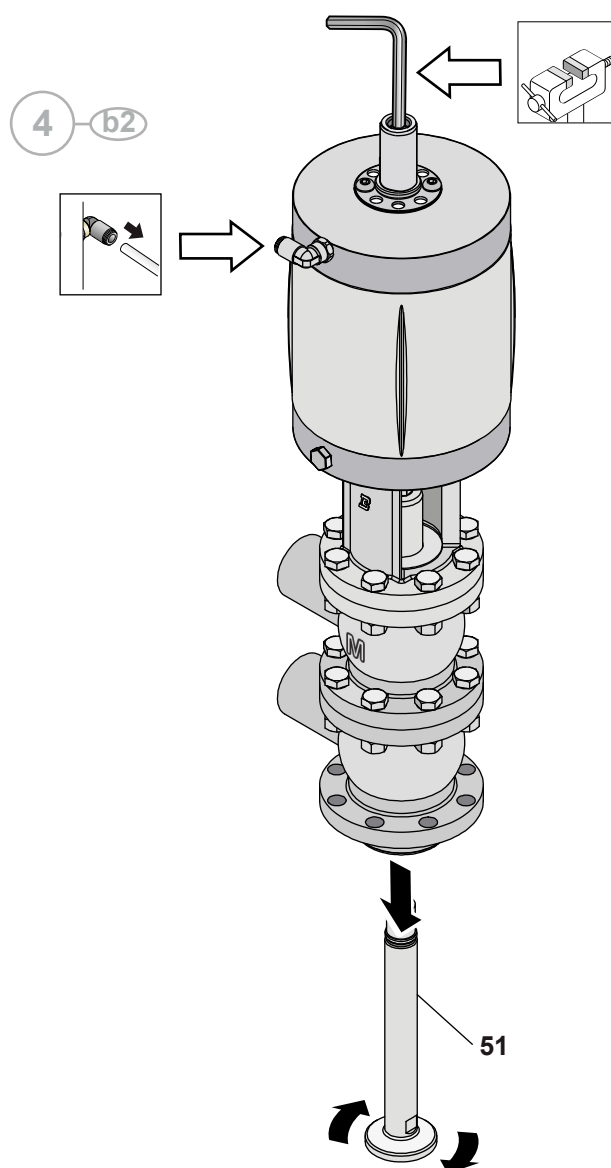
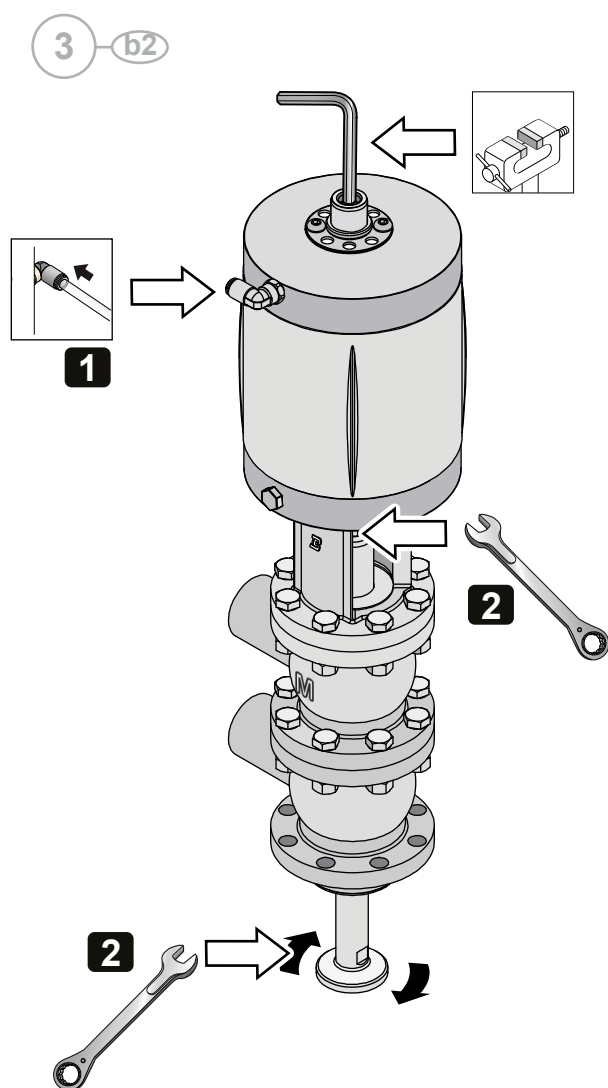
4 b1

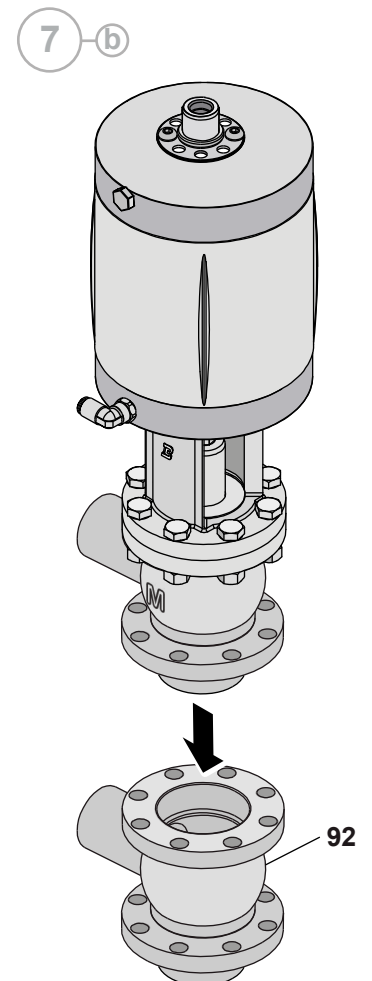
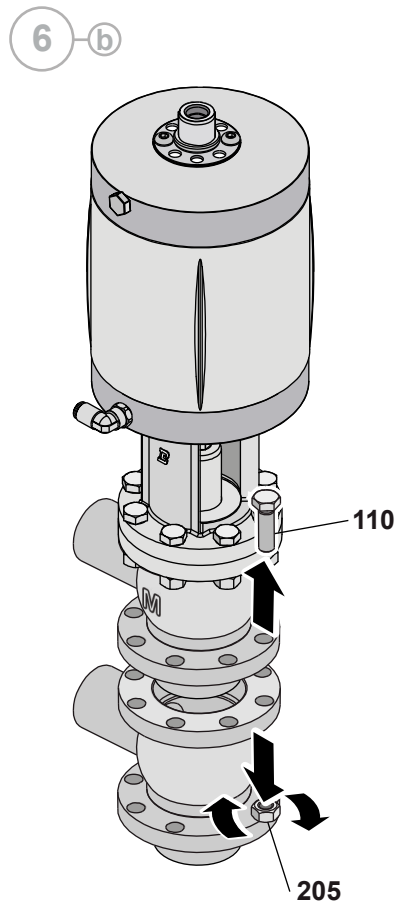
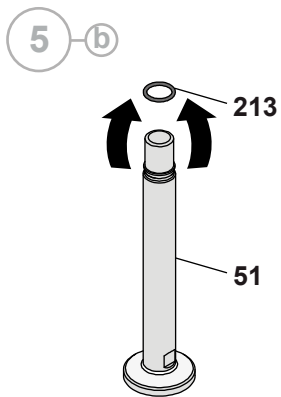




**(Normally open or double acting)**

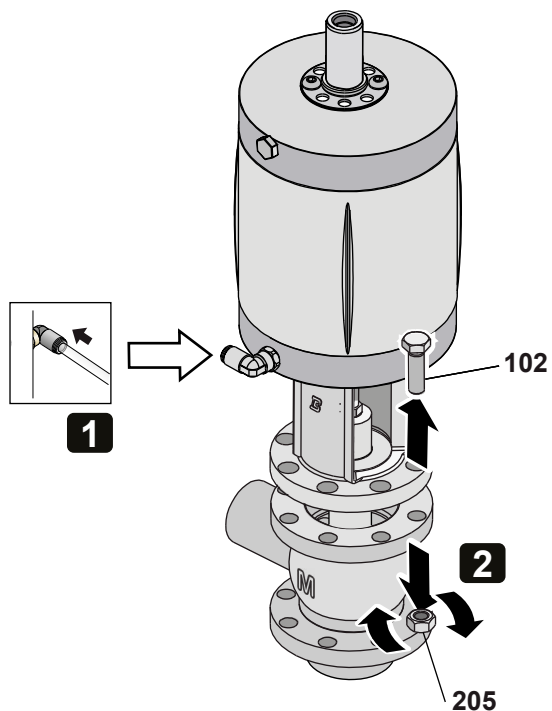






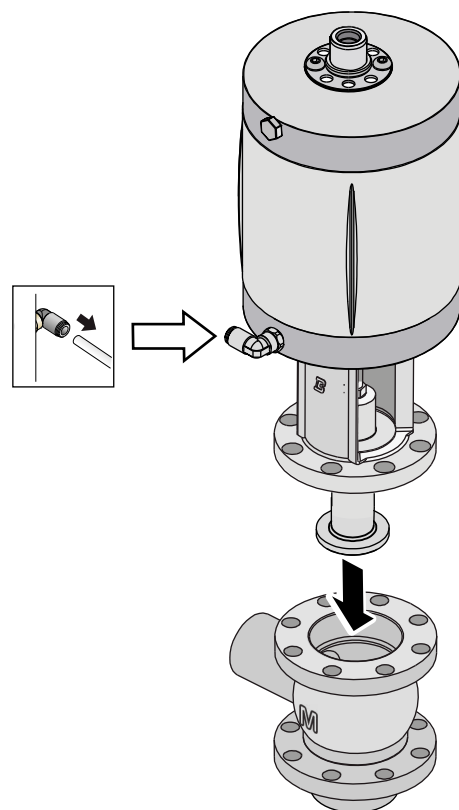
**(Normally closed)**

8 b1



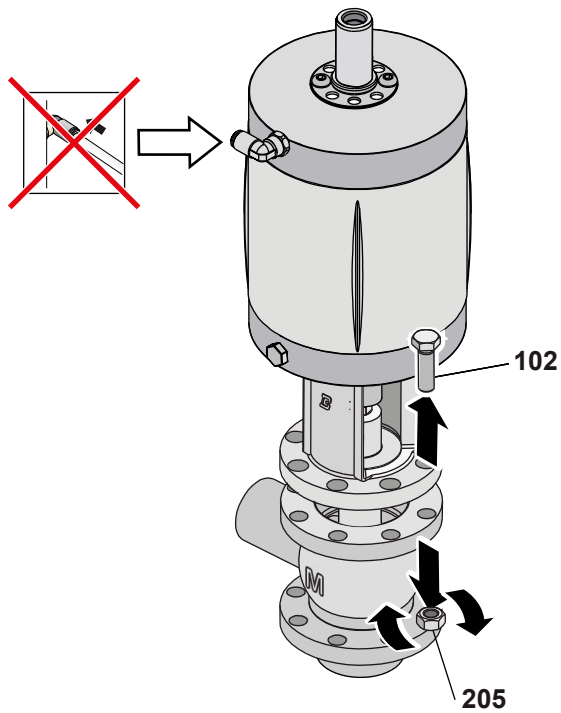
Never touch the moving parts if the actuator is supplied with compressed air

9 b1

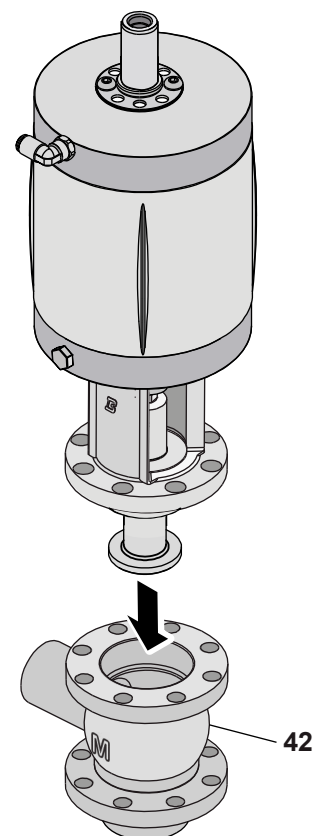


**(Normally open or double acting)**

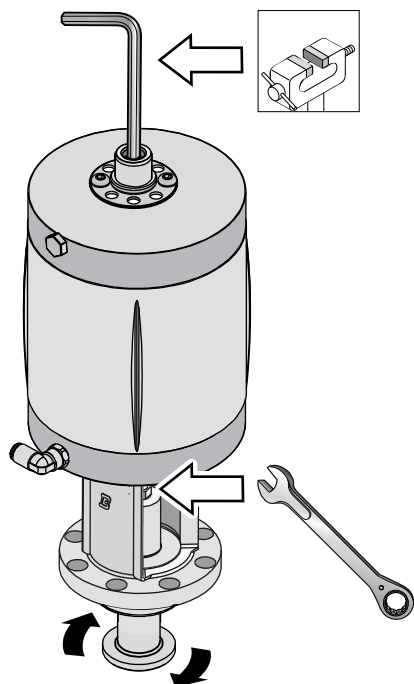
8 b2



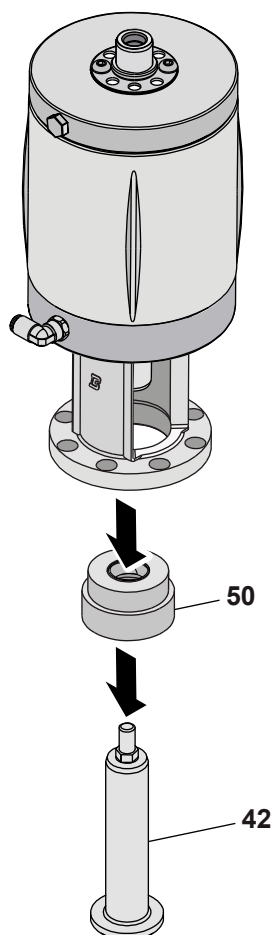
9 b2



10-b

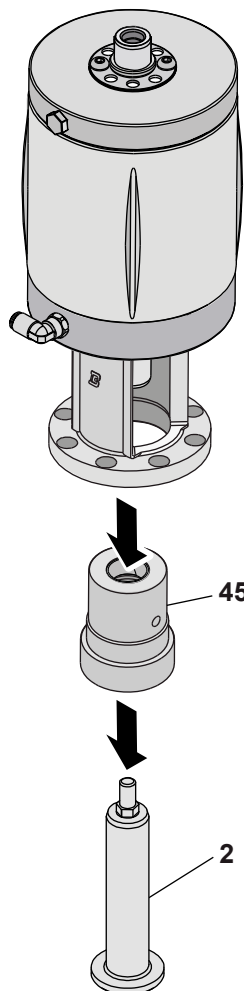


11-b



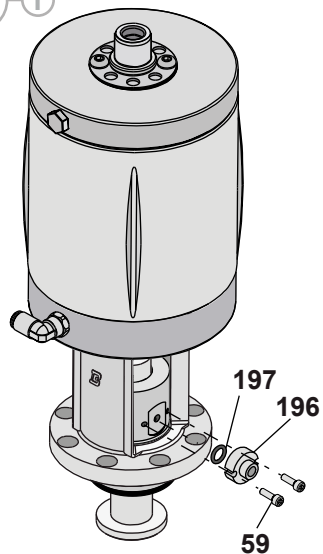
(BBYQ)

11-c

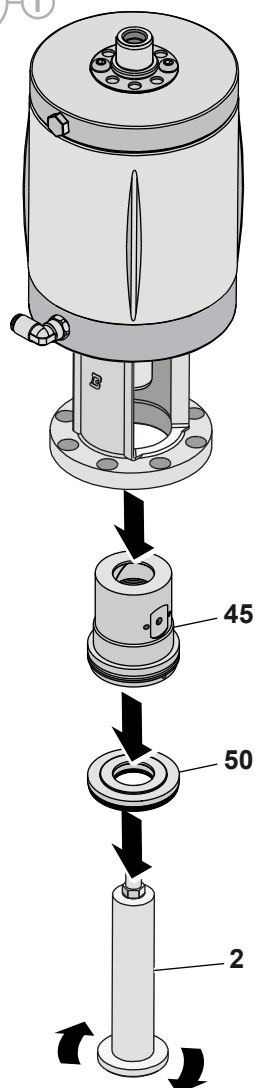


(BBYQ Special execution)

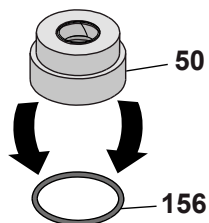
11-f



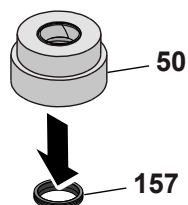
12-f



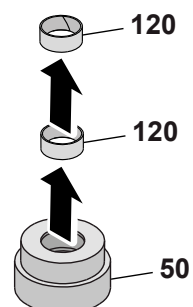
13-b



14-b

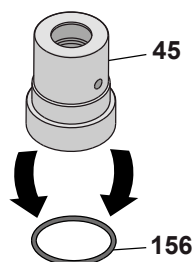


15-b

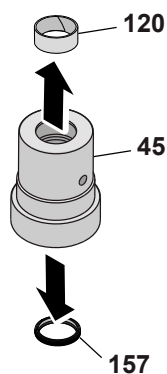


(BBYQ)

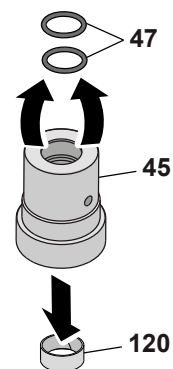
13-d



14-d

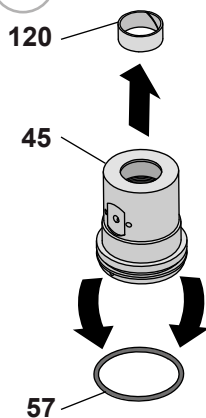


15-d

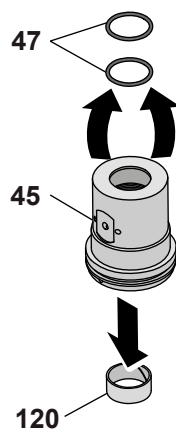


(BBYQ Special execution)

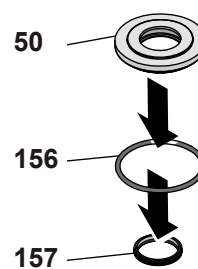
13-f



14-f

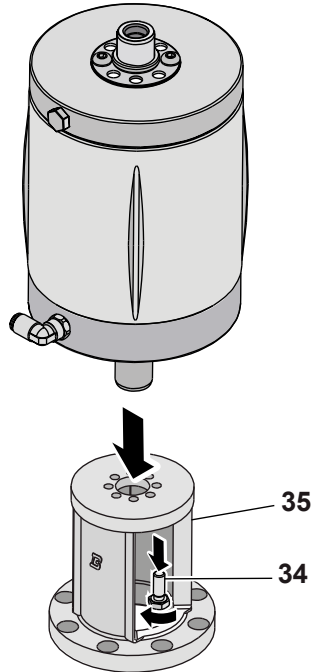


15-f

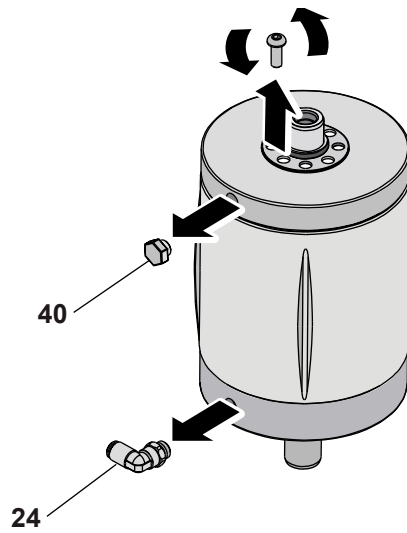




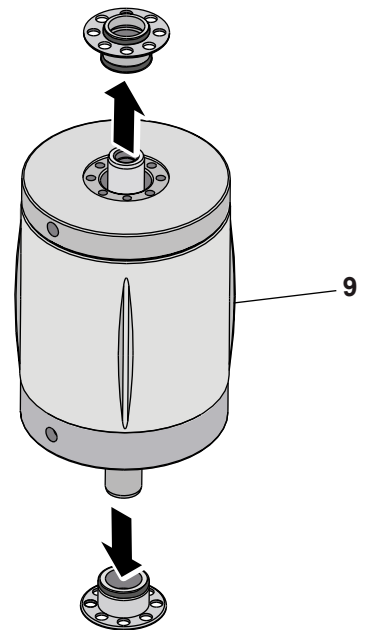
16-b



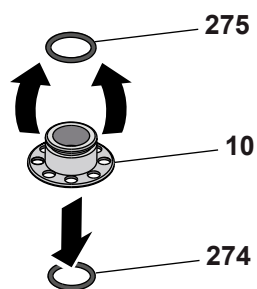
17-b



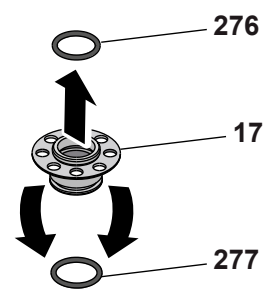
18-b



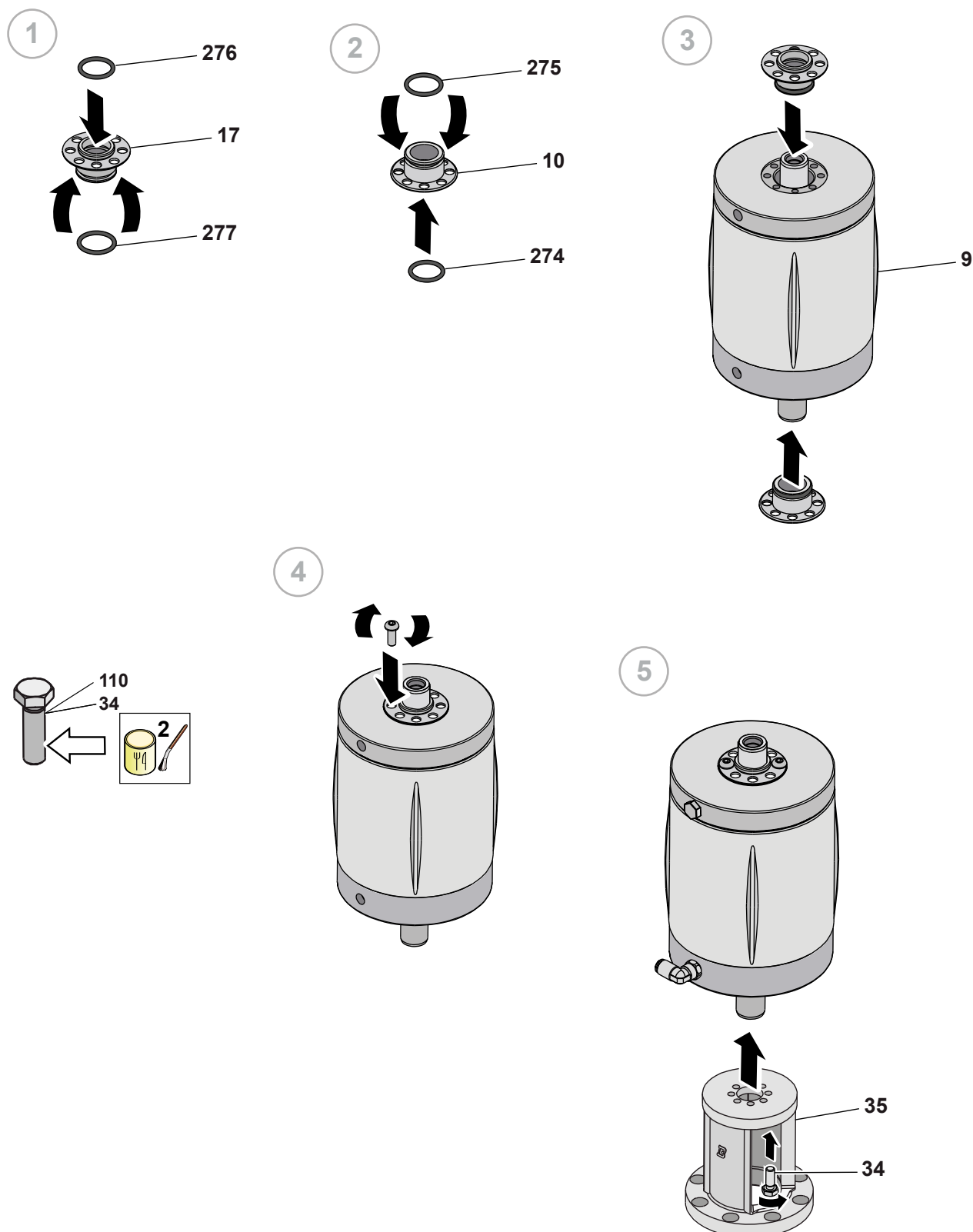
19-b



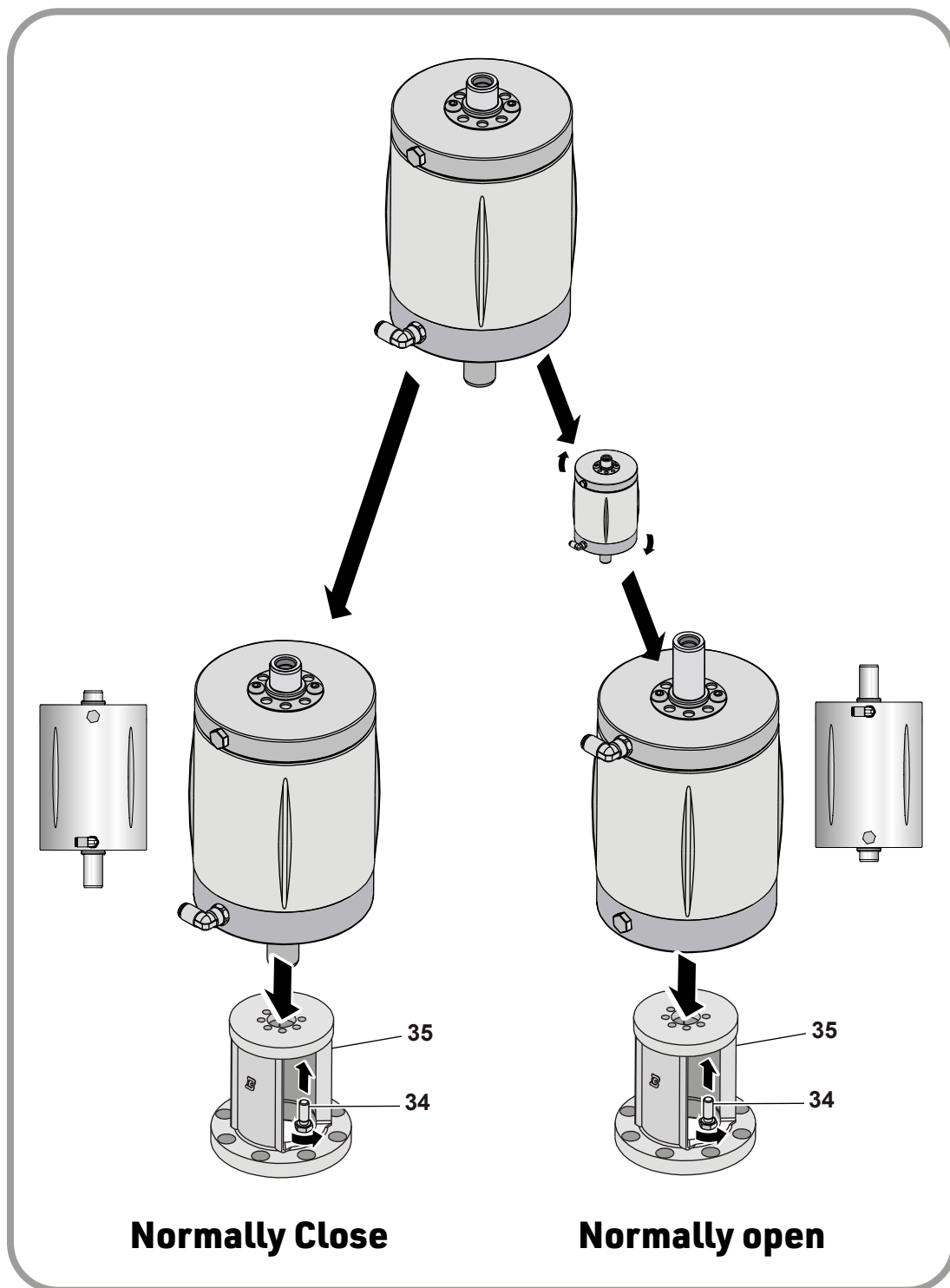
20-b

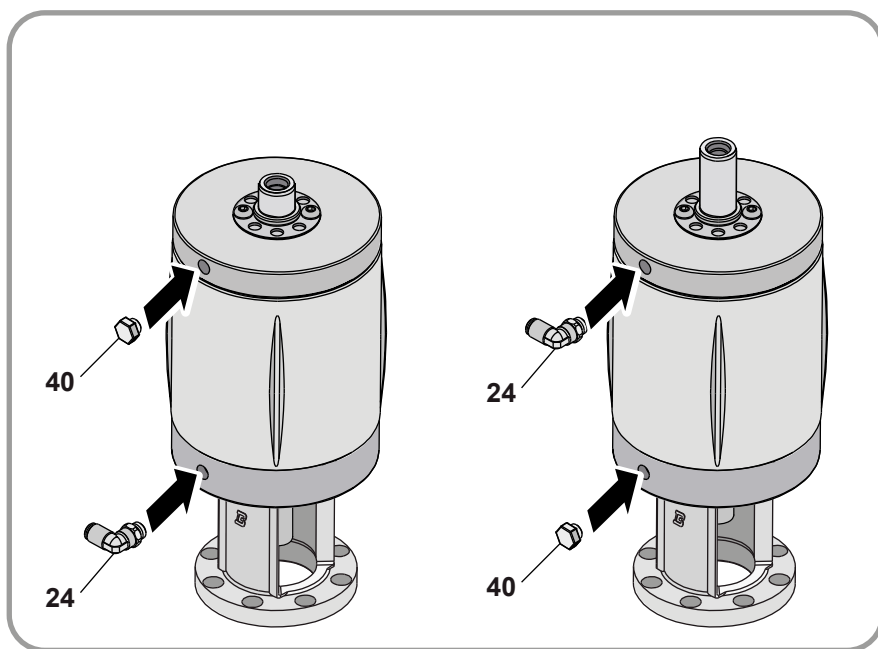


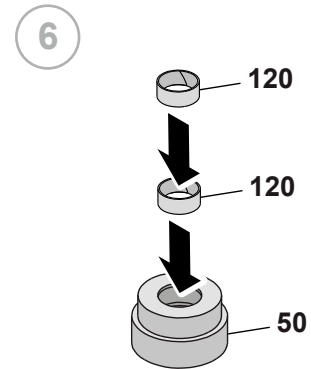
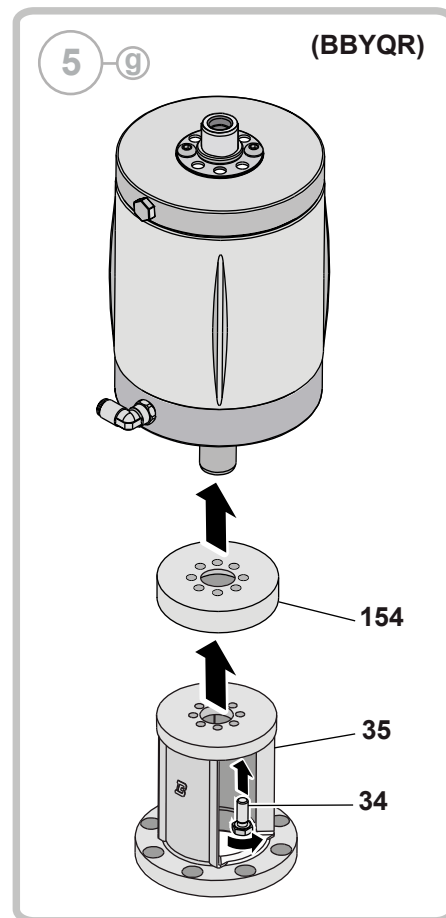
## 10.9 Assembly of the BBZQ - BBYQ cylinder 108-156 Diverter



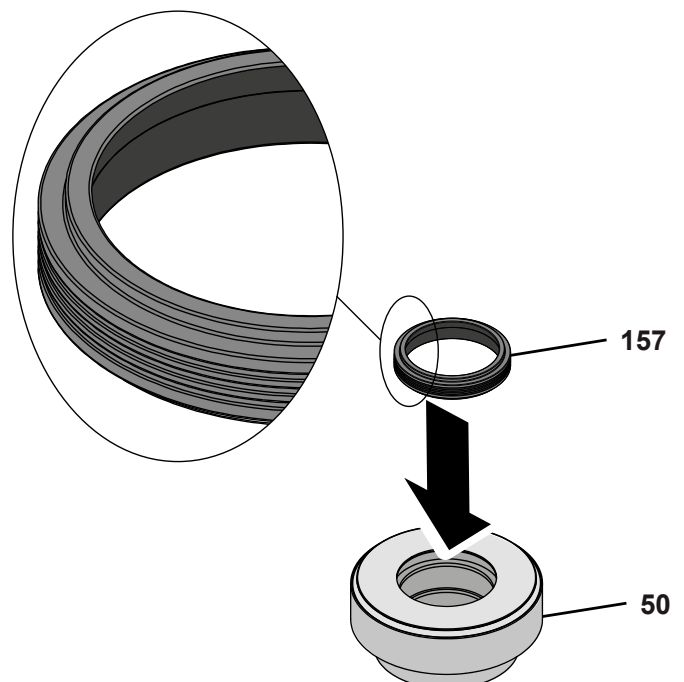
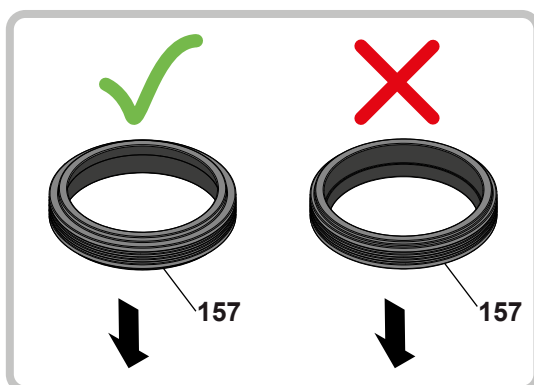
### 10.9.1 Select normally close or normally open cylinder



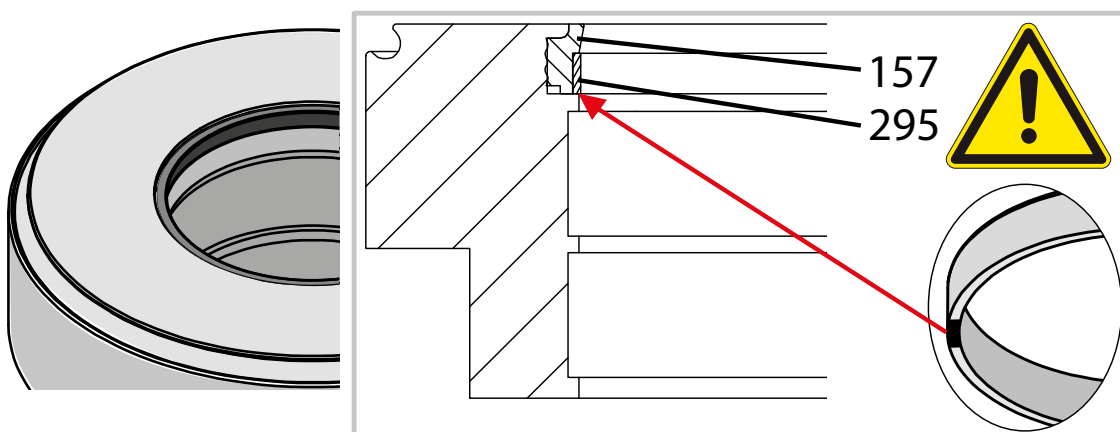
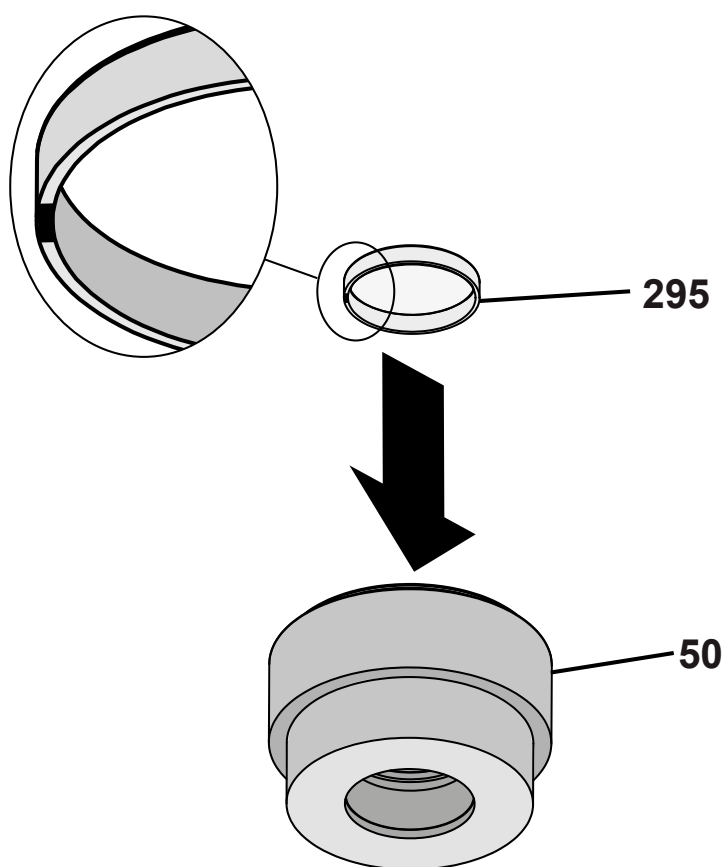




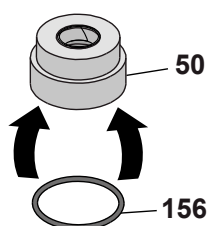
7



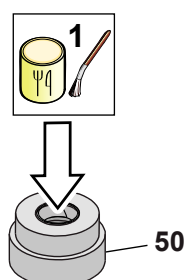
8



9

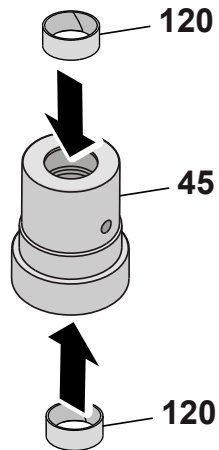


10

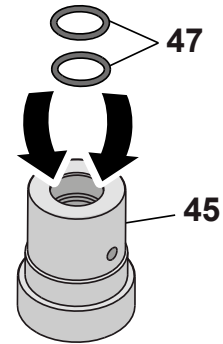


(BBYQ)

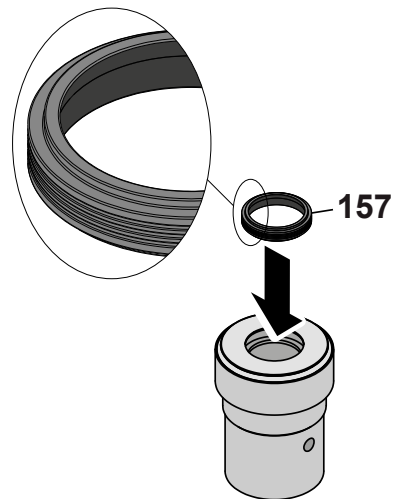
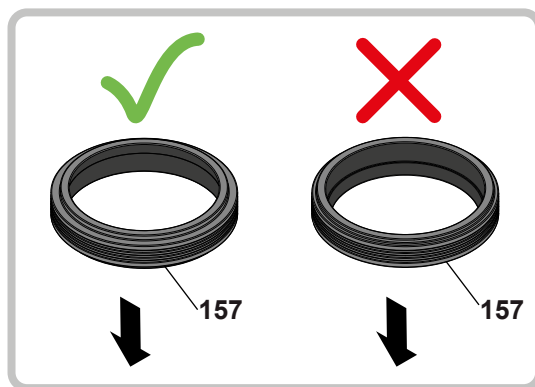
6-d



7-d

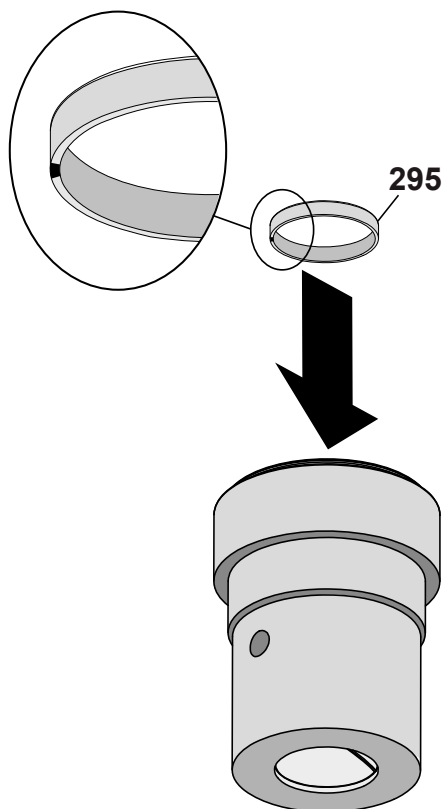


8-d

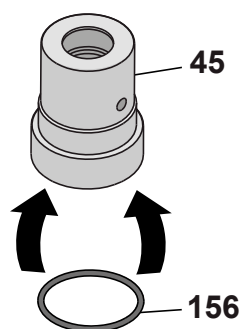


(BBYQ)

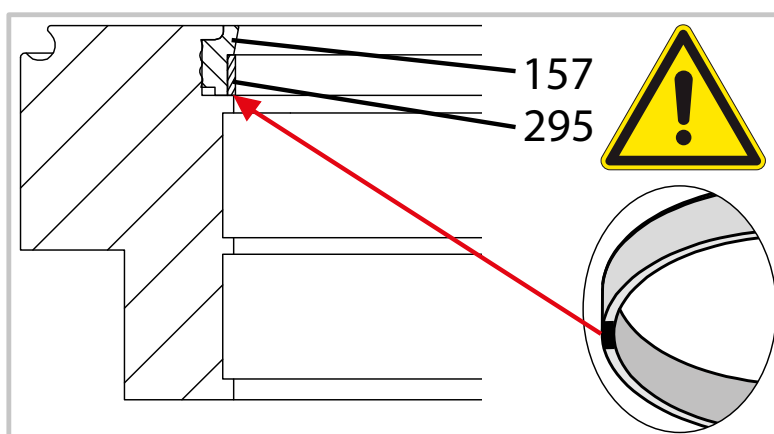
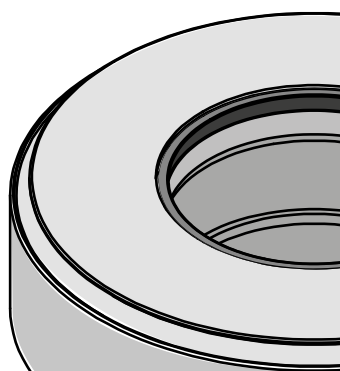
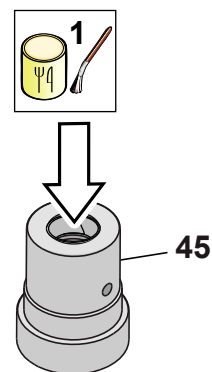
9-d



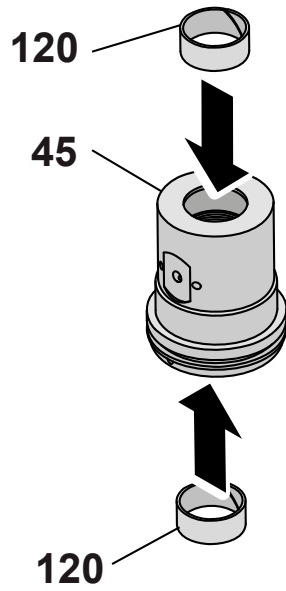
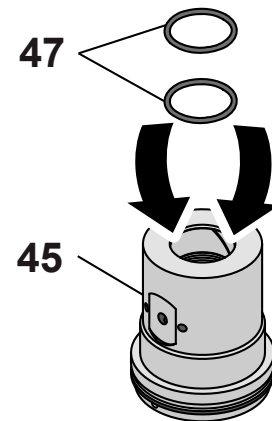
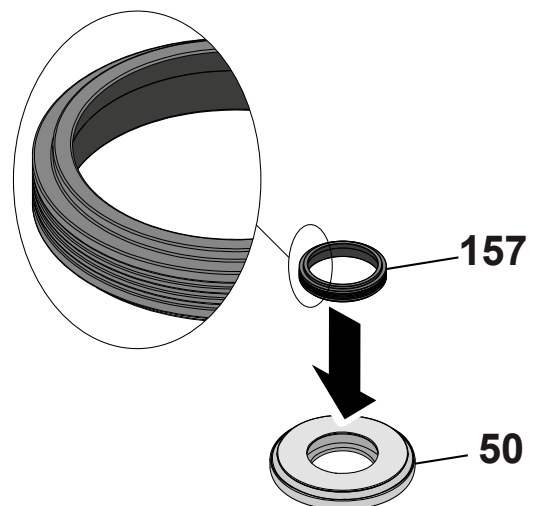
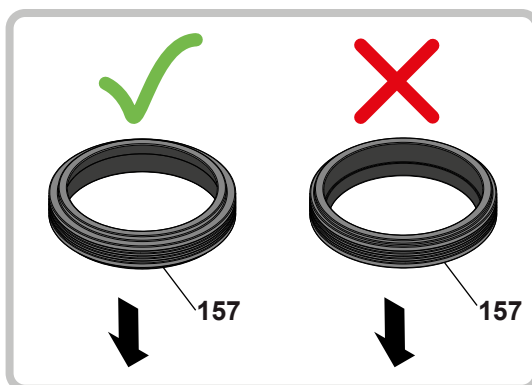
10-d

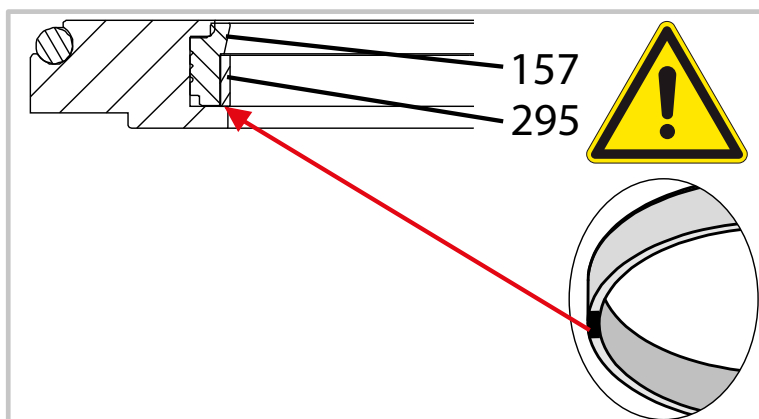
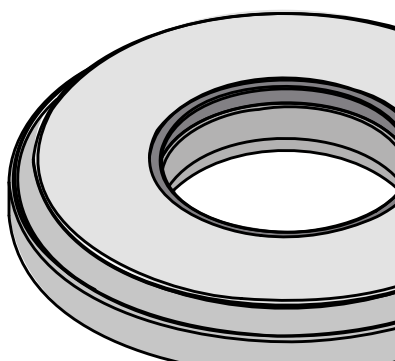
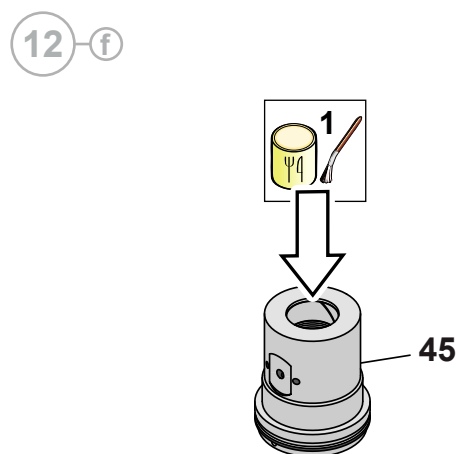
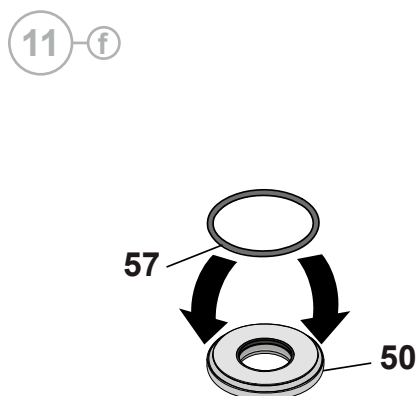
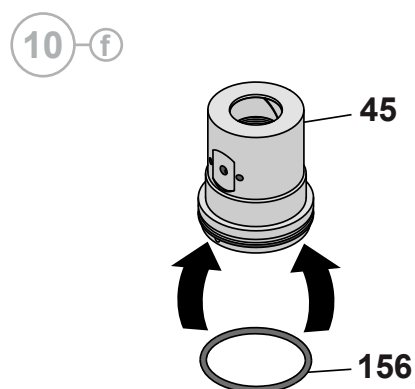
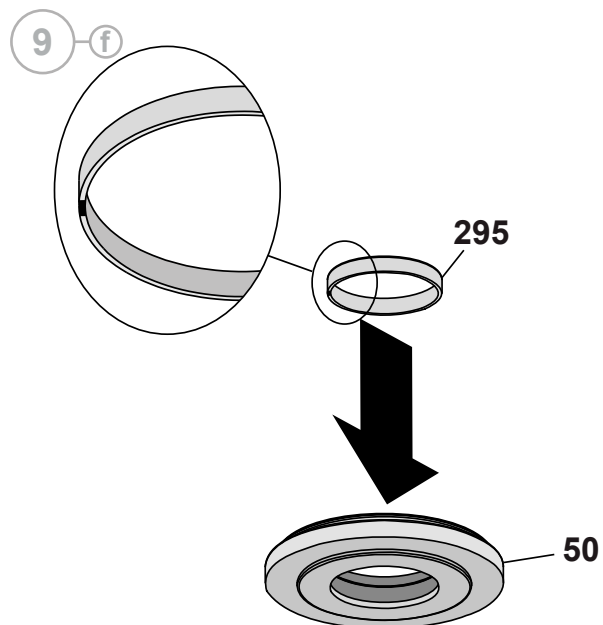


11-d

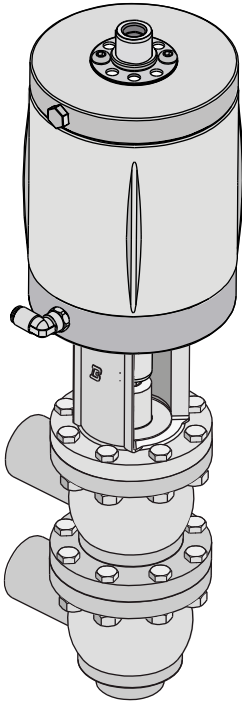




**(BBYQ Special execution)****6** f**7** f**8** f

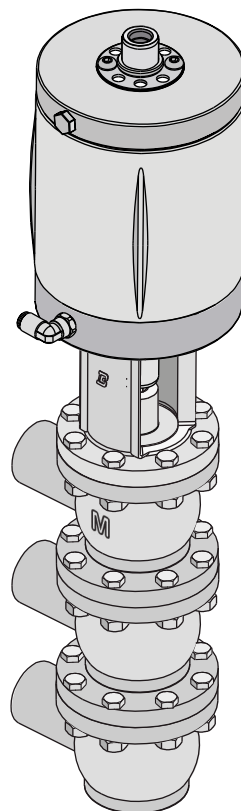
**(BBYQ Special execution)**

a



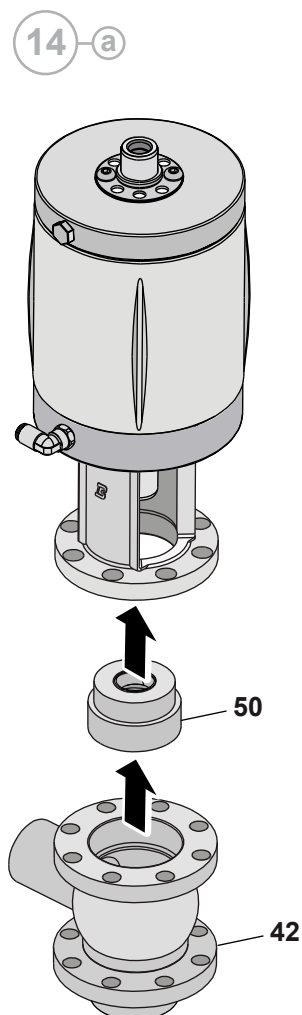
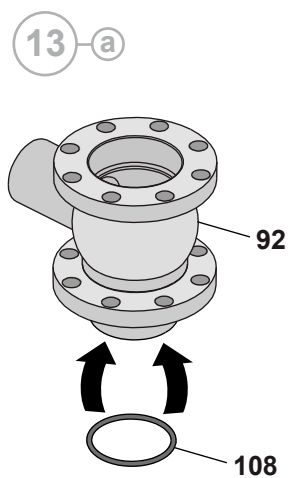
**[A M BBZQ-LL108-156]**

b

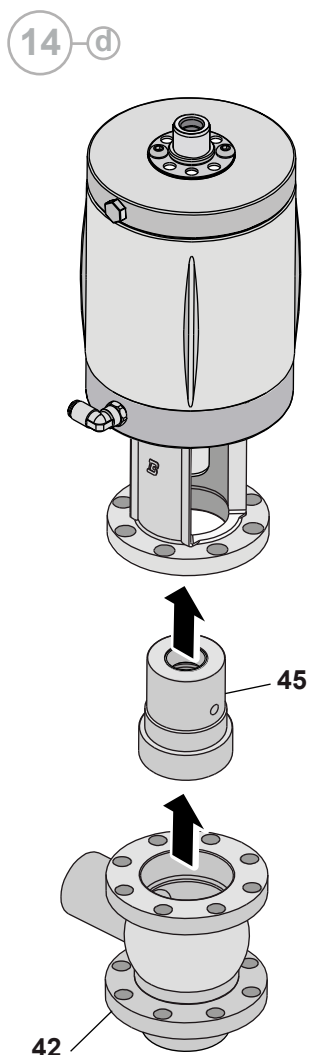


**[B M BBZQ-M8-LLL108-156]**

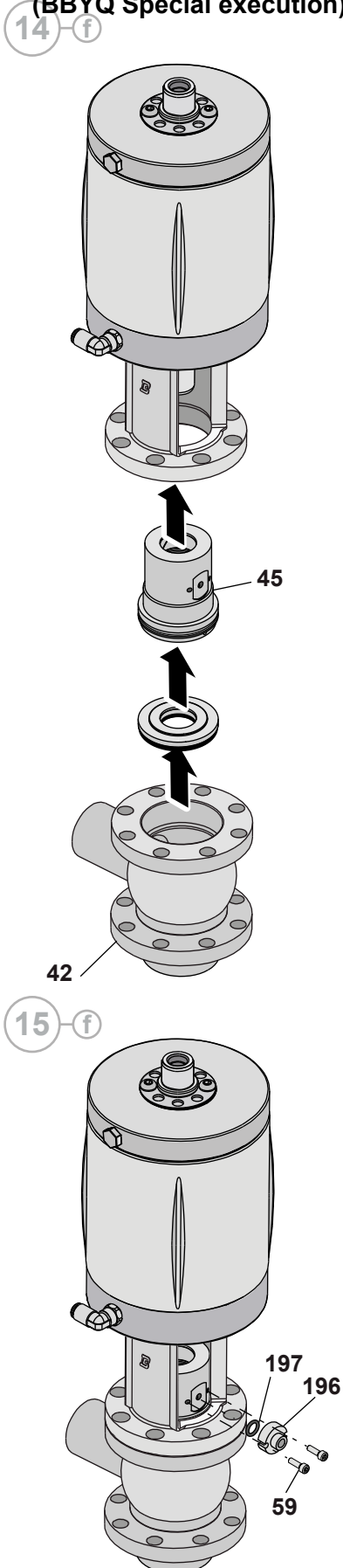
# **A Assembly of the BBZQ - BBYQ LL - BBZQ P7 - BBYQ P7**



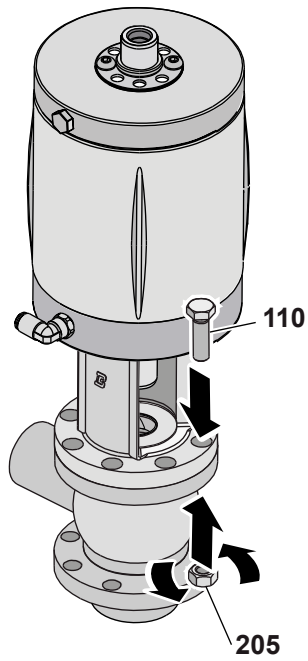
(BBYQ)



(BBYQ Special execution)

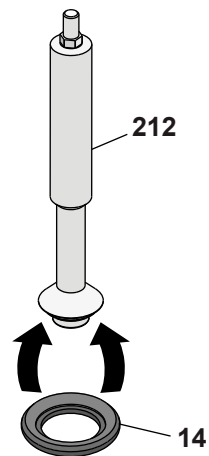


16-a

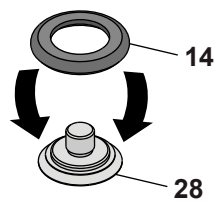


(P.T.F.E.)

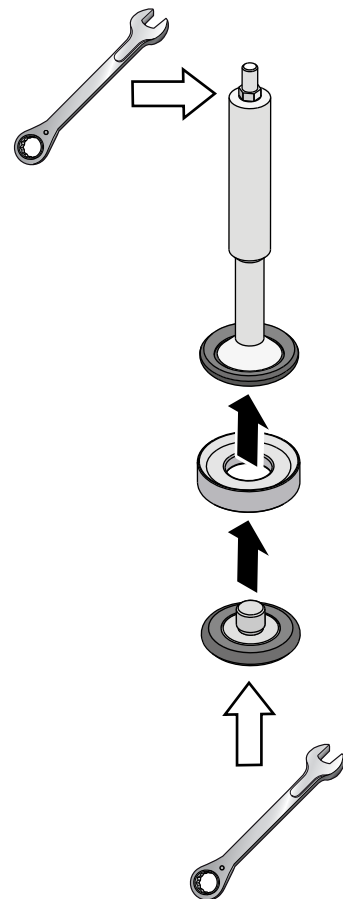
17-e



18-d

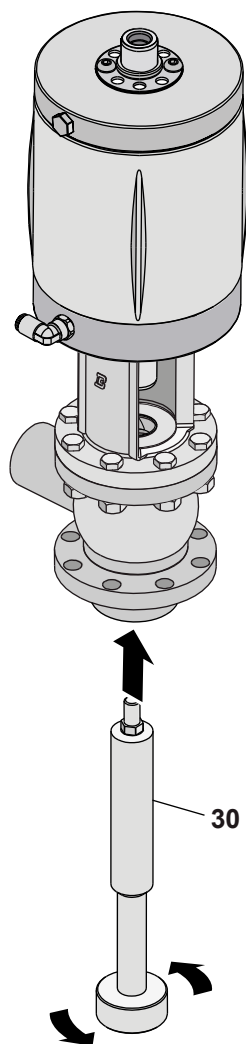


19-e

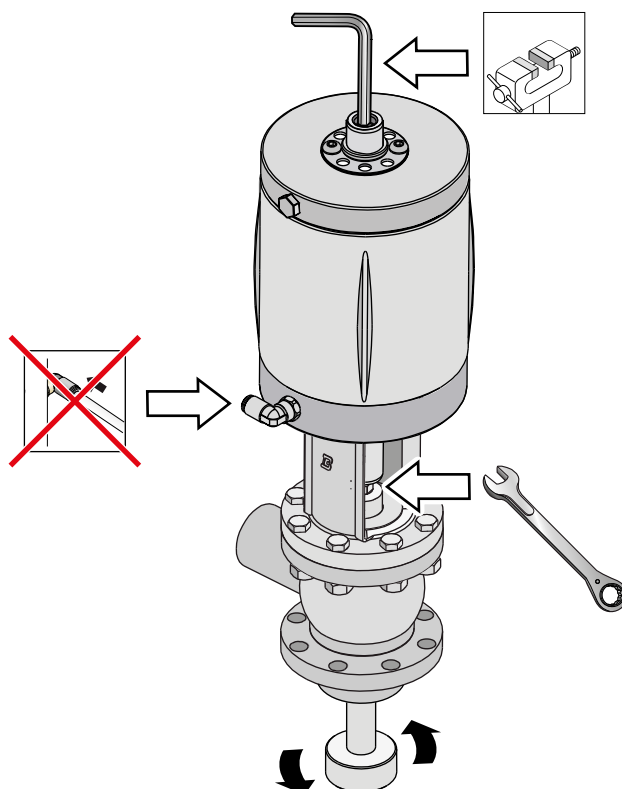


**(Normally closed)**

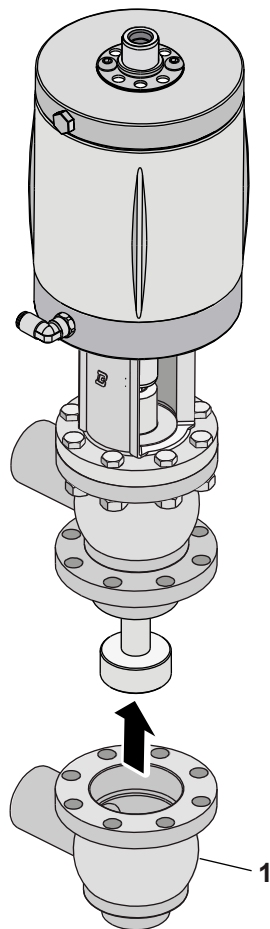
20 a1



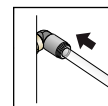
21 a1



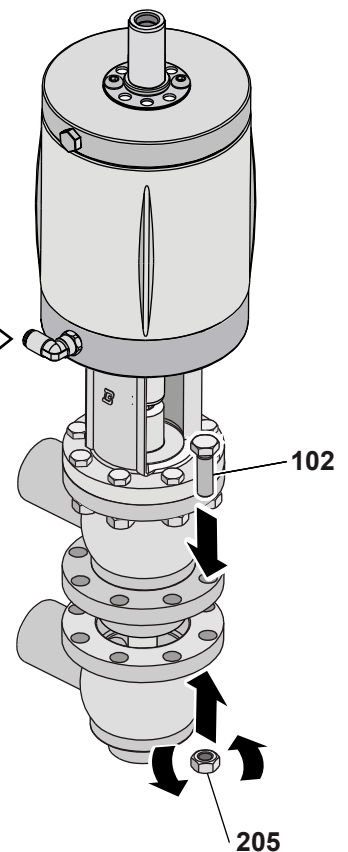
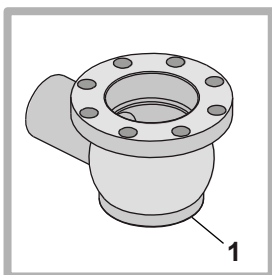
22 a1



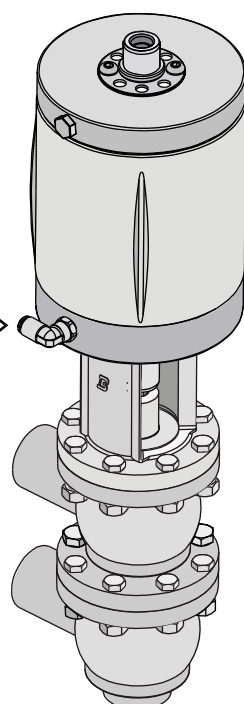
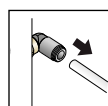
23 a1

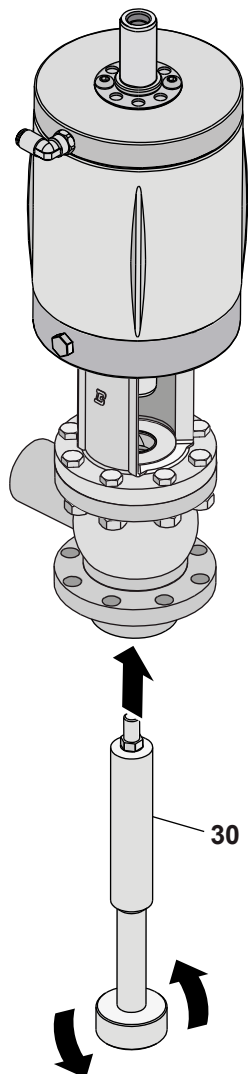
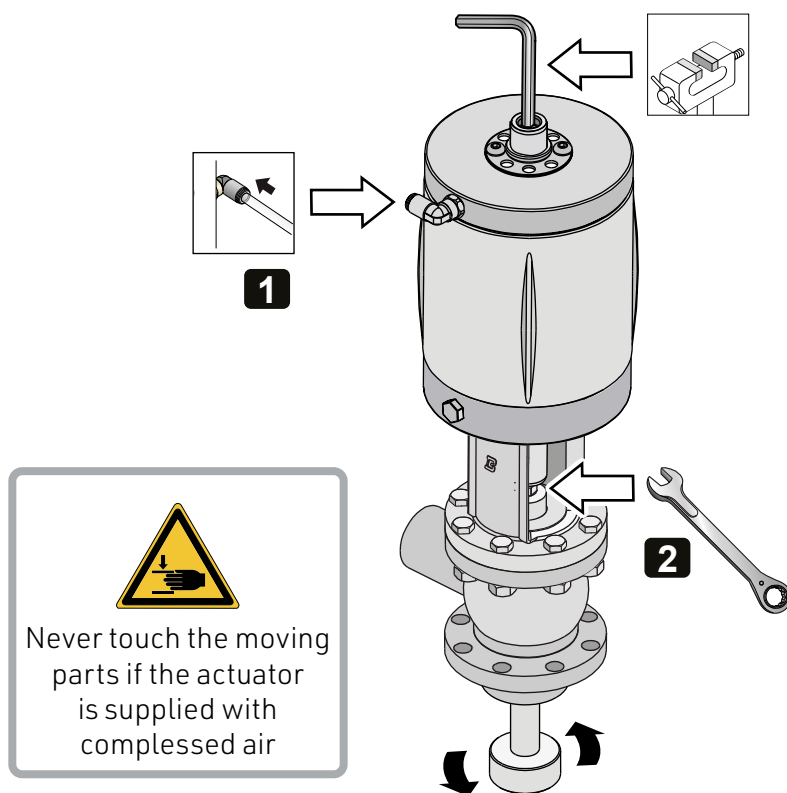
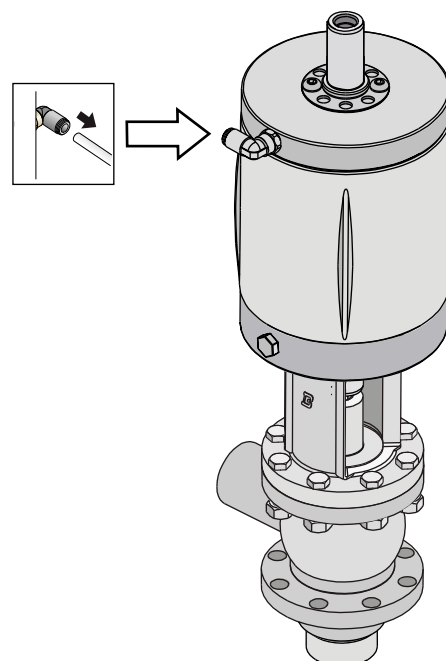


Never touch the moving parts if the actuator is supplied with compressed air

**P7**

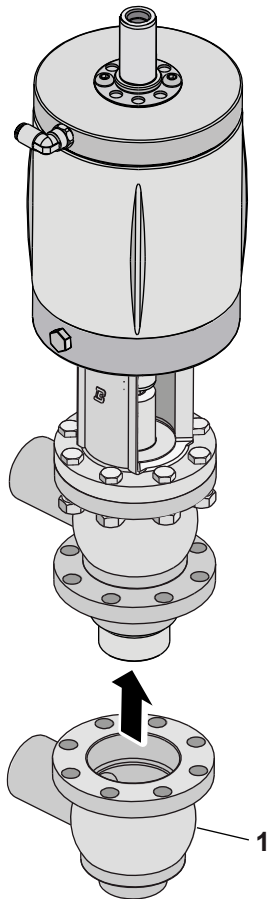
24 a1



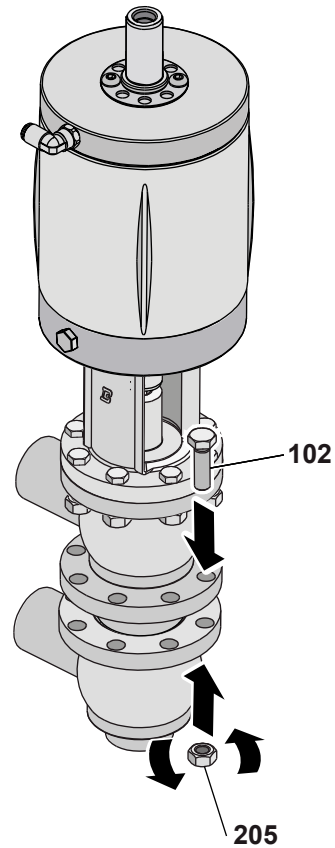
**(Normally open or double acting)****20** a2**21** a2**22** a2



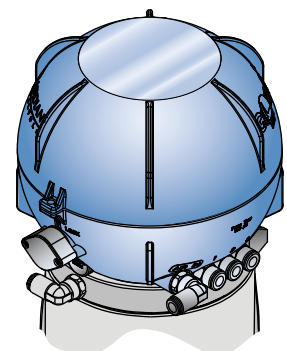
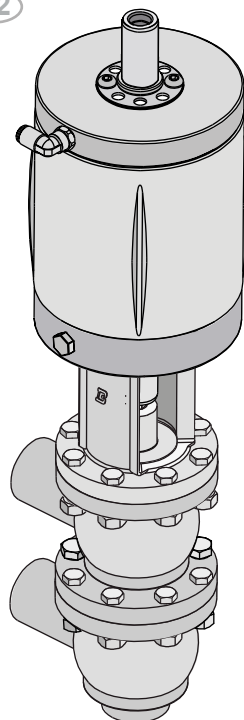
23 a2



24 a2



25 a2

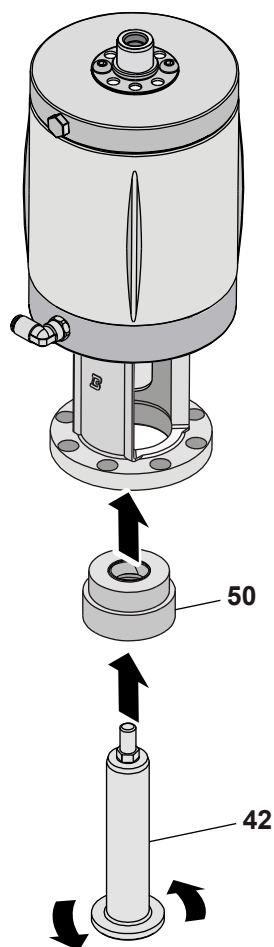


**[M GIOTTO]**

## B Assembly of the BBZQ - M8-LLL

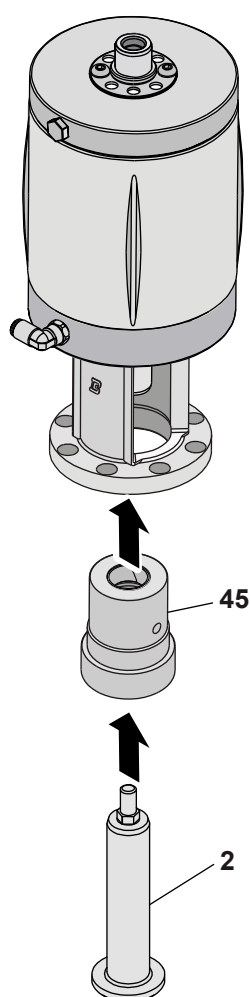
(BBYQ Special execution)

13-b

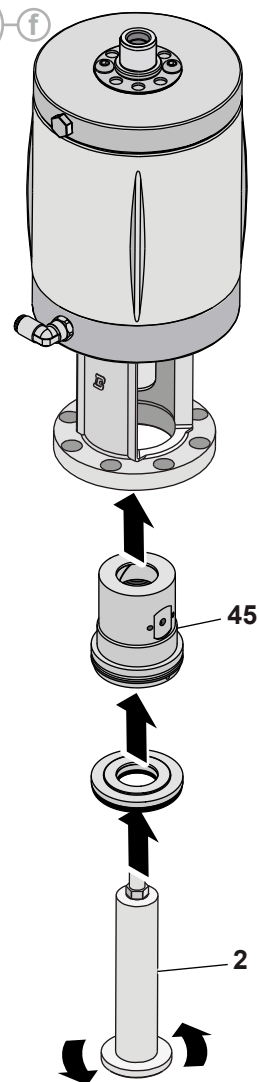


(BBYQ)

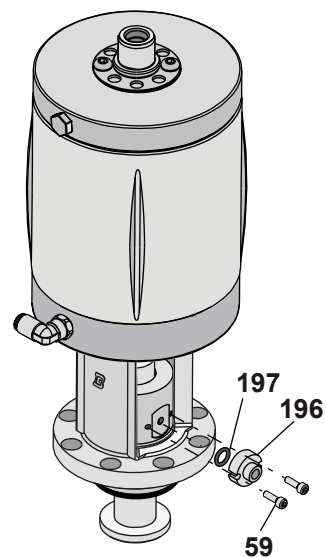
13-d



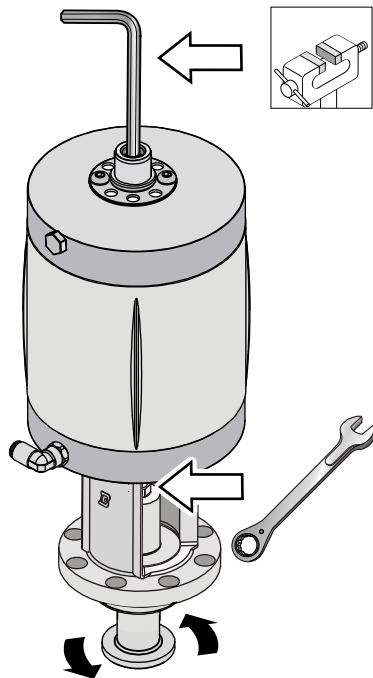
13-f



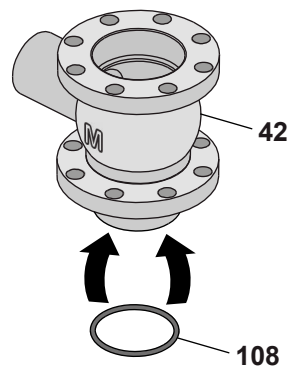
14-f



15-b

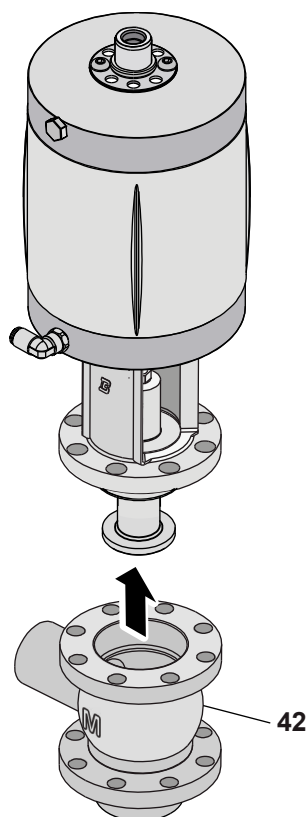


16-b

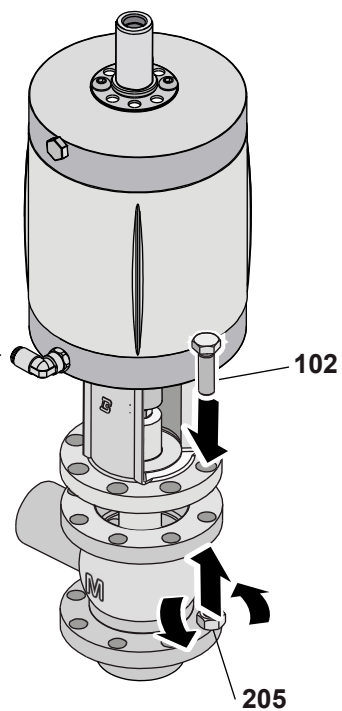
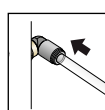


**(Normally closed)**

17 b1

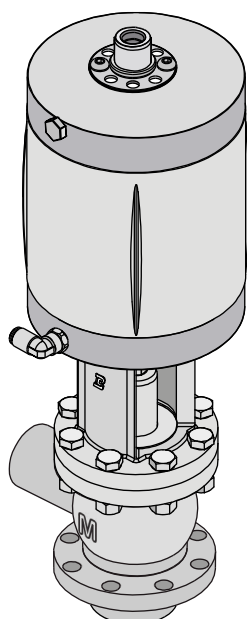
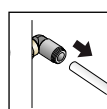


18 b1



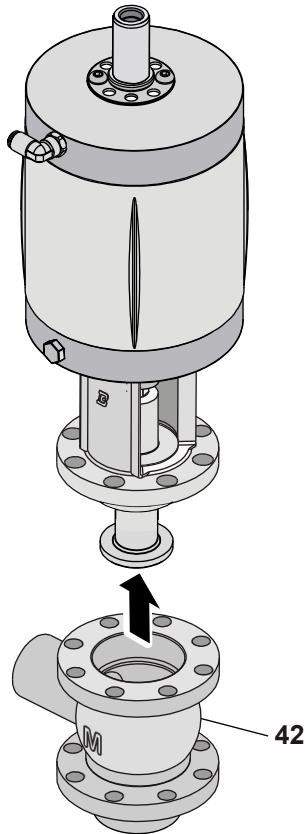
Never touch the moving parts if the actuator is supplied with compressed air

19 b1

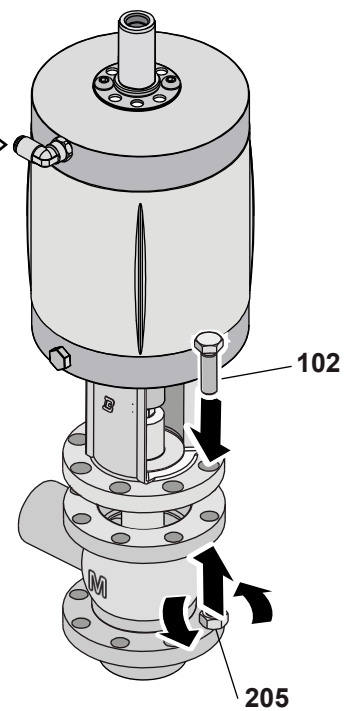
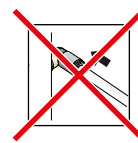


**(Normally open or double acting)**

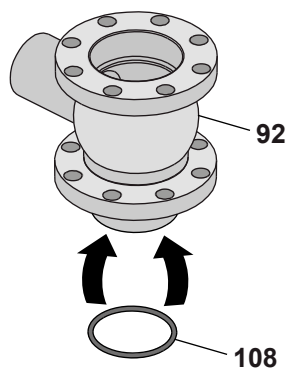
17 b2



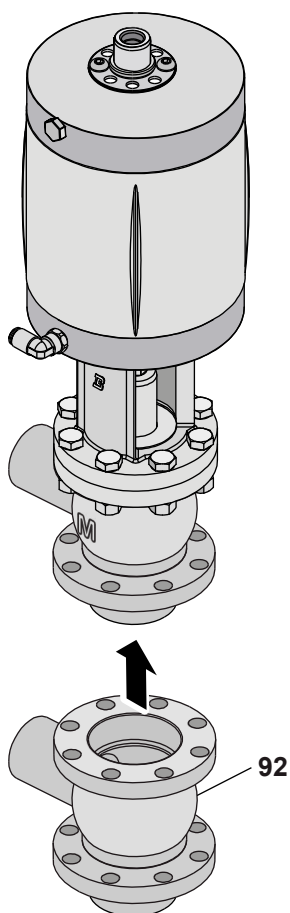
18 b2



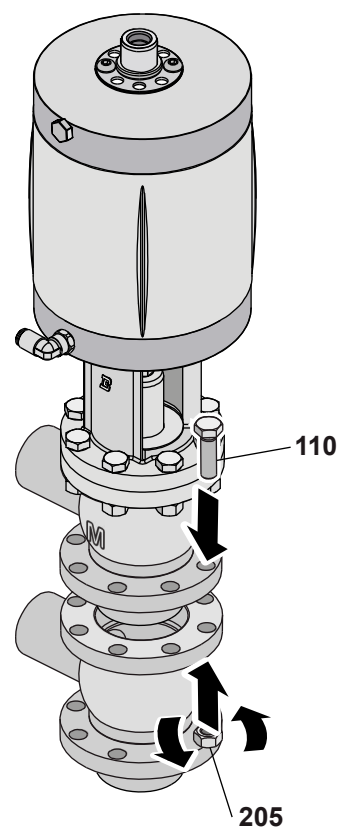
(20)-b



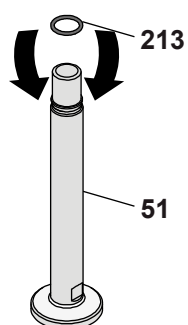
(21)-b



(22)-b

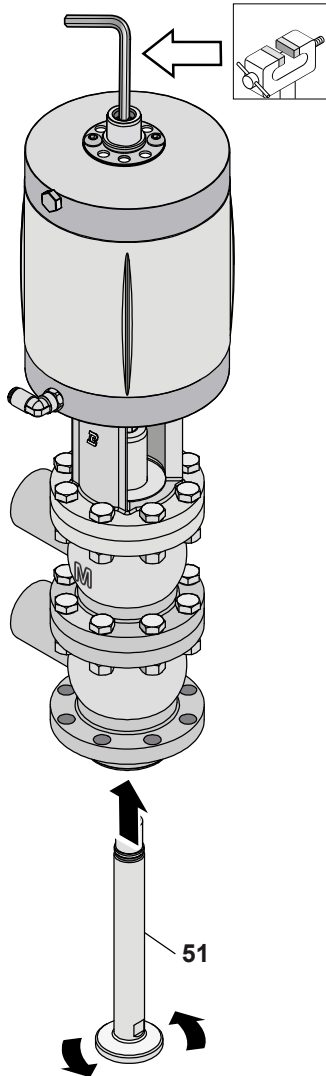


(23)-b

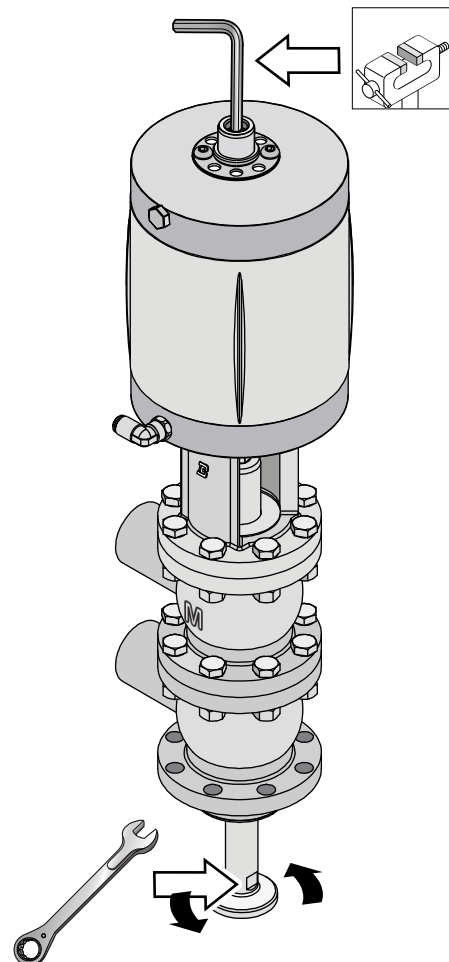


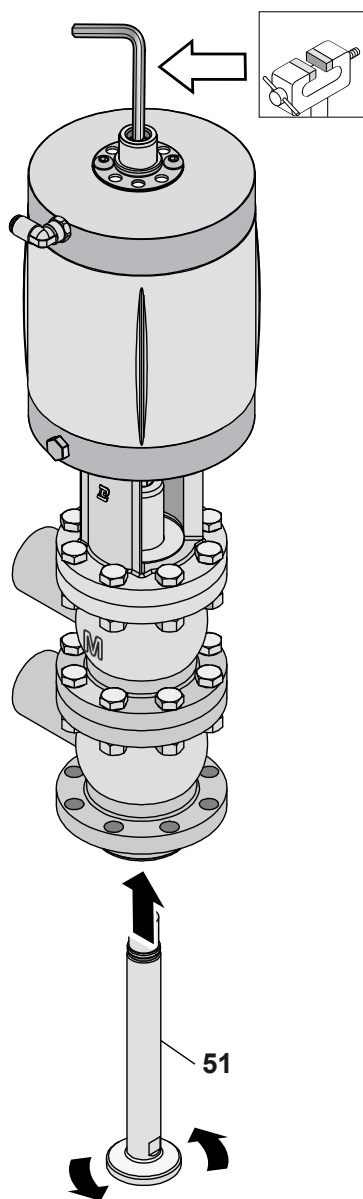
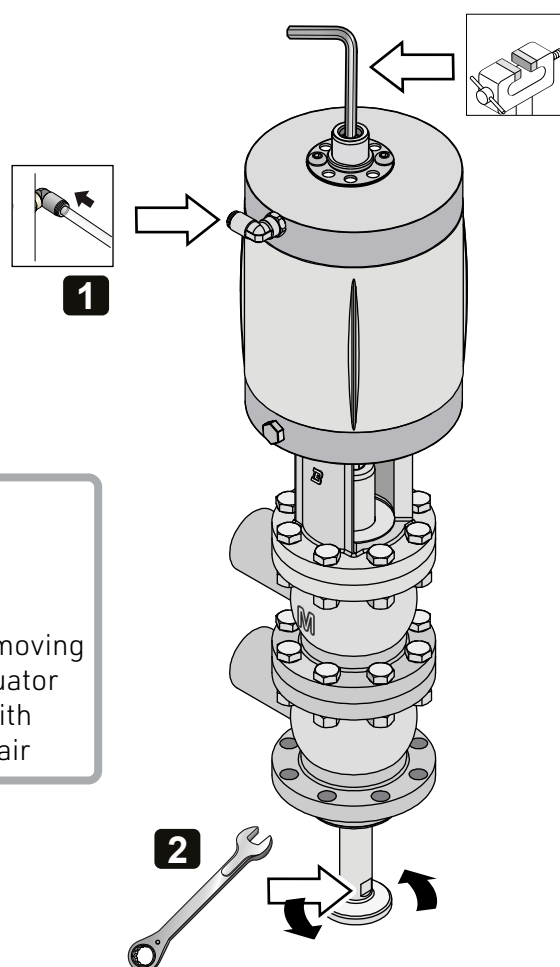
**(Normally  
closed)**

24 b1



25 b1

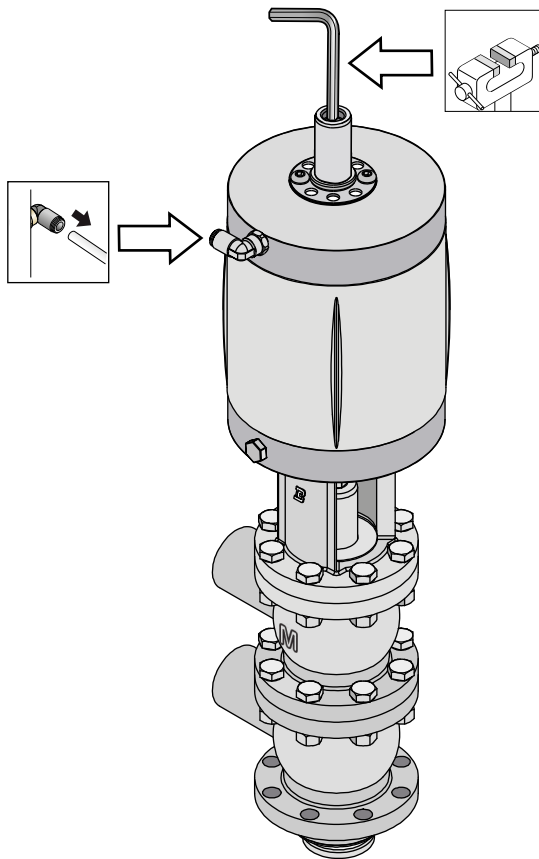


**(Normally open or double acting)****24** **b2****25** **b2**

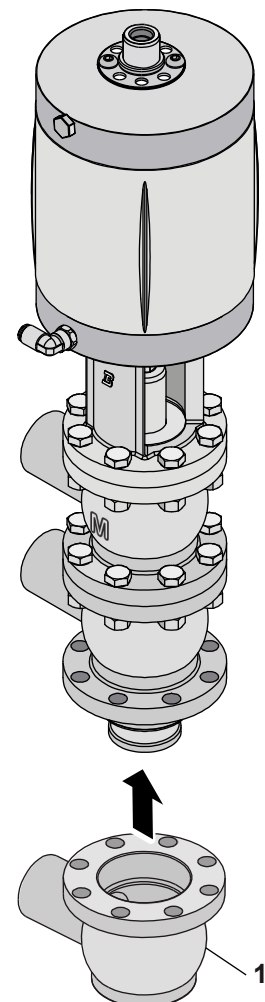
Never touch the moving parts if the actuator is supplied with compressed air



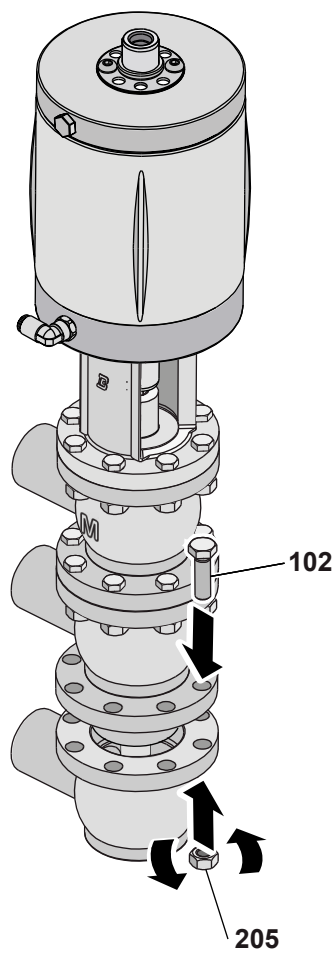
26-b2



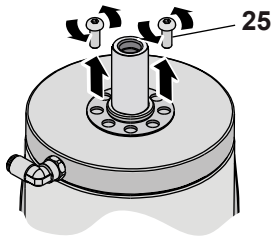
27-b



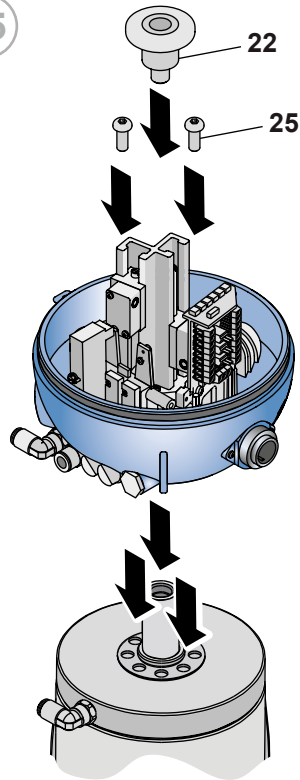
28 b



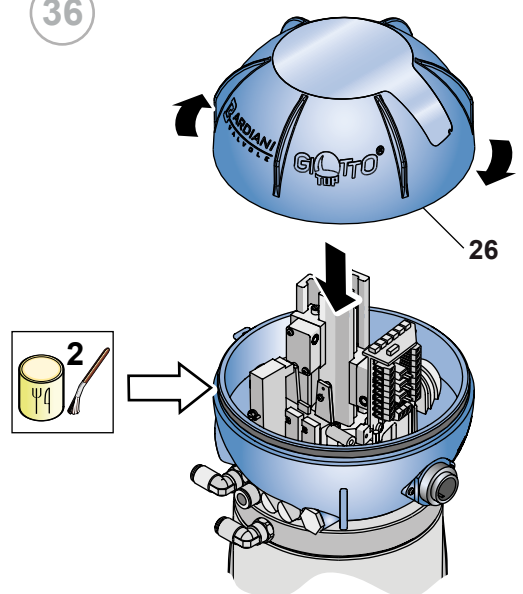
34



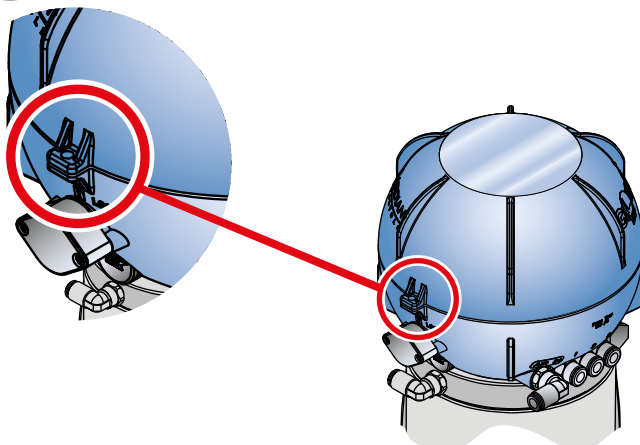
35



36

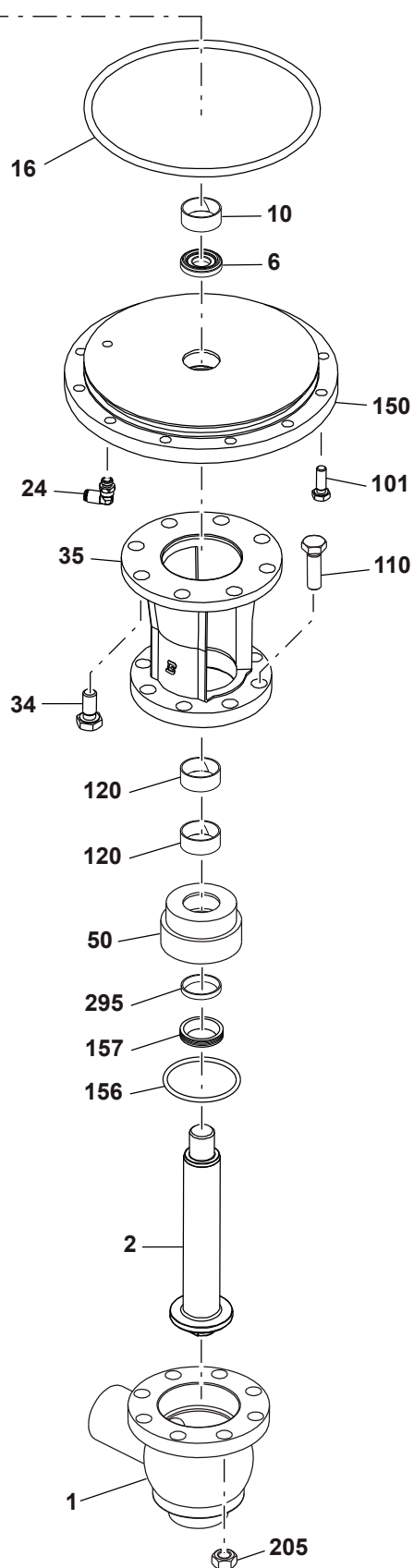
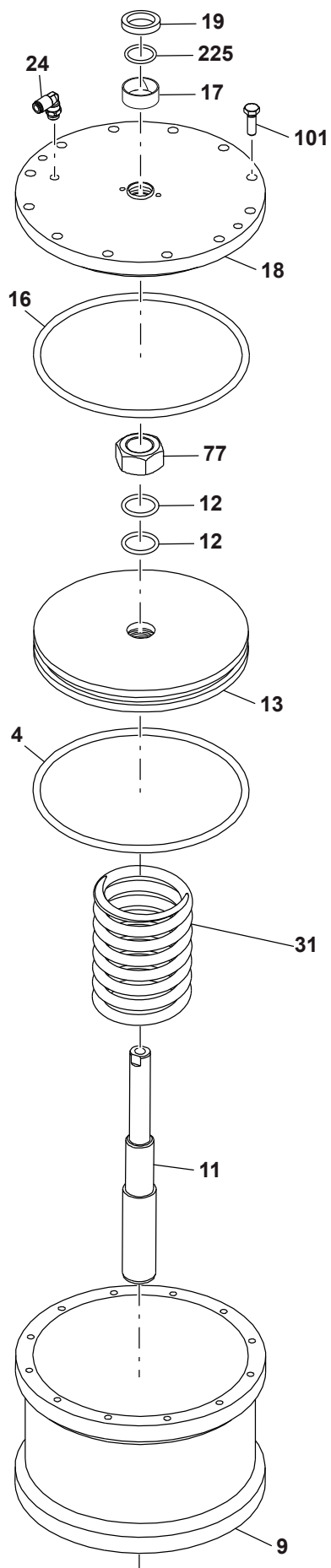


37

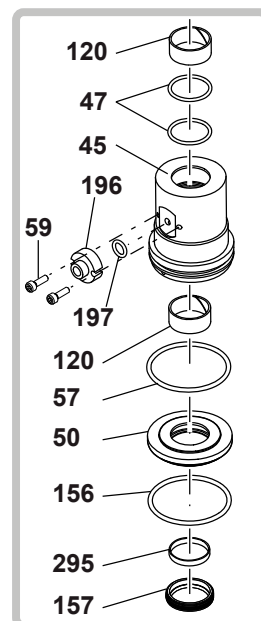


## 10.10 Pneumatic Valve BBZQ - BBYQ cylinder 207-360

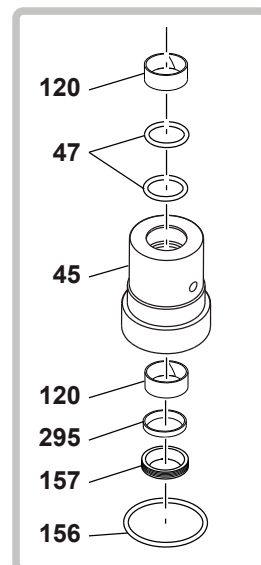
| NO. | DESCRIPTION        |
|-----|--------------------|
| 1   | Lower body         |
| 2   | Shutter            |
| 4   | Sealing ring       |
| 6   | Sealing ring       |
| 9   | Cylinder           |
| 10  | Bush               |
| 11  | Pin                |
| 12  | Sealing ring       |
| 13  | Piston             |
| 16  | Sealing ring       |
| 17  | Bush               |
| 18  | Buffer             |
| 19  | Sealing ring       |
| 24  | Air connector      |
| 31  | Spring             |
| 34  | Screw              |
| 35  | Assembly           |
| 45  | Steam barrier      |
| 47  | Sealing ring       |
| 50  | Gasket holder disc |
| 57  | Sealing ring       |
| 59  | Screw              |
| 77  | Nut                |
| 101 | Screw              |
| 110 | Screw              |
| 120 | Bush               |
| 150 | Bottom stopper     |
| 156 | Sealing ring       |
| 157 | Sealing ring       |
| 196 | Steam connector    |
| 197 | Sealing ring       |
| 205 | Nut                |
| 225 | Sealing ring       |
| 295 | Bush               |



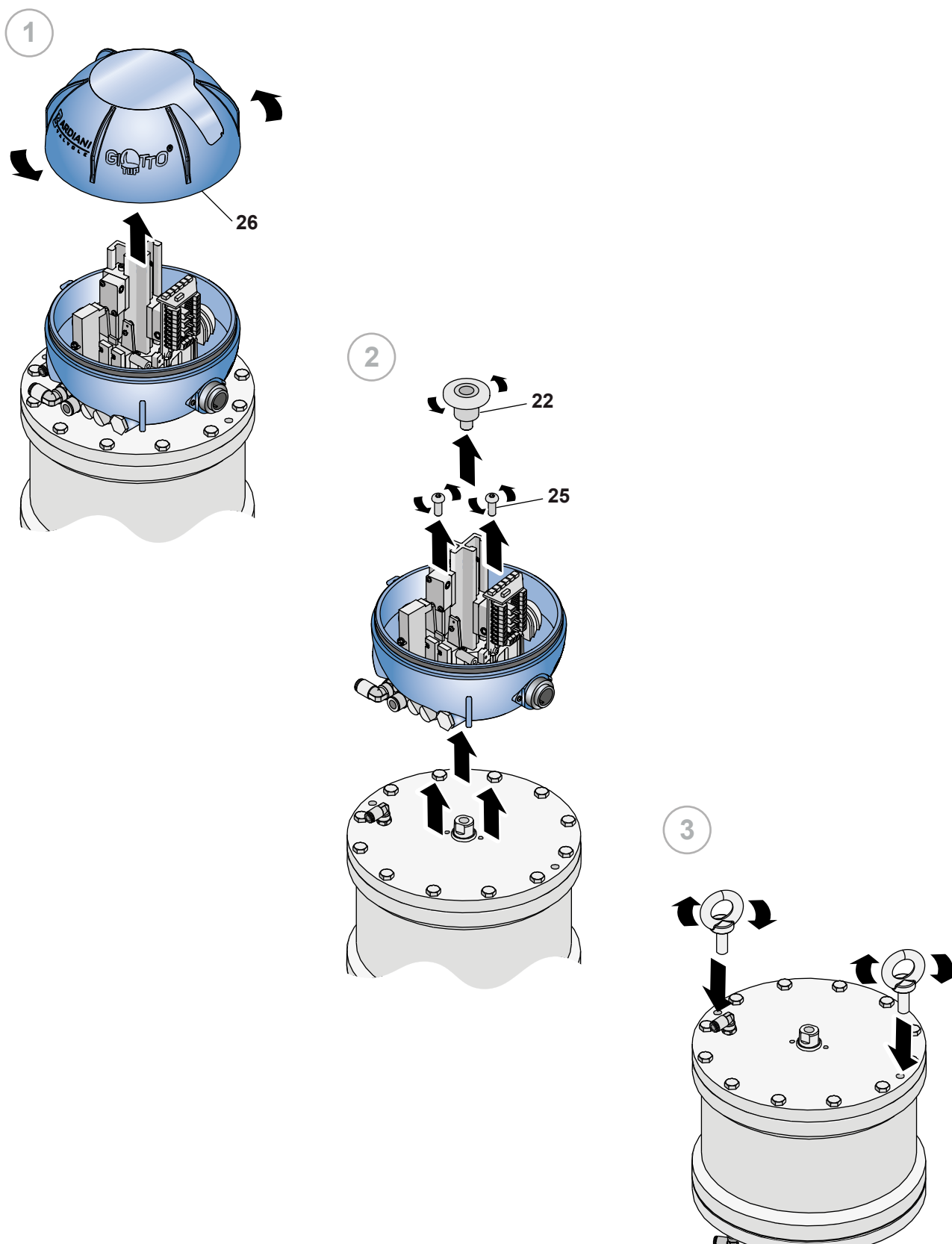
**(BBYQ Special execution)**



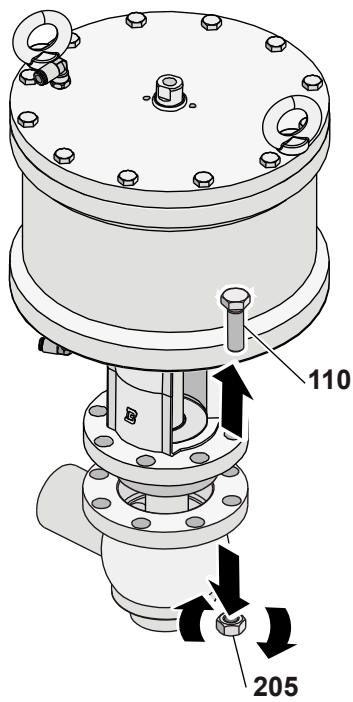
**(BBYQ)**



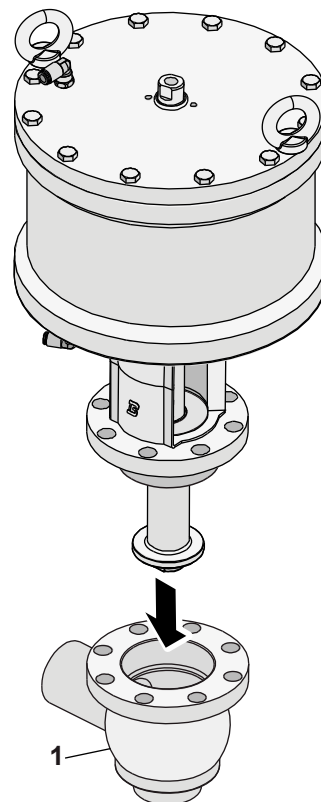
## 10.11 Disassembly of the BBZQ - BBYQ cylinder 207-360

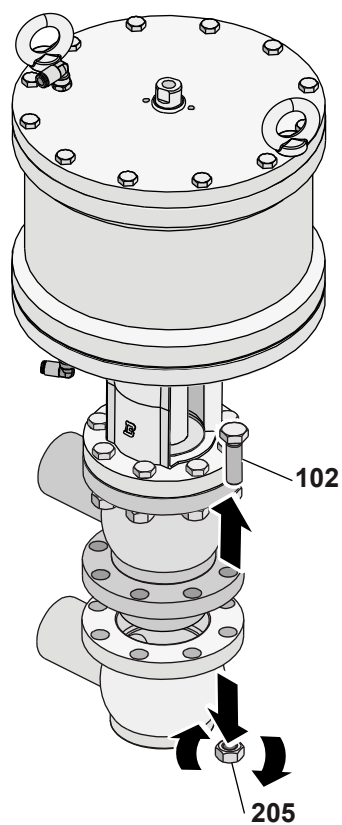
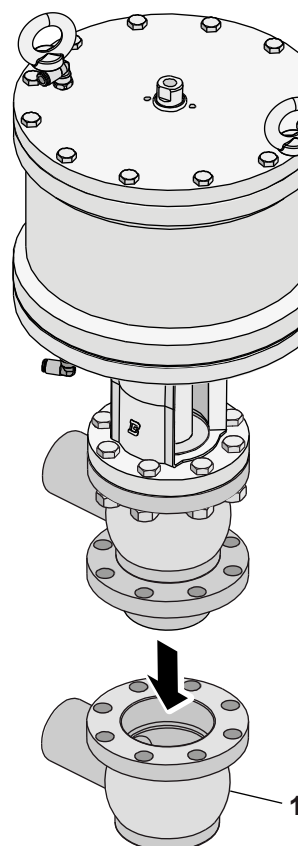


4



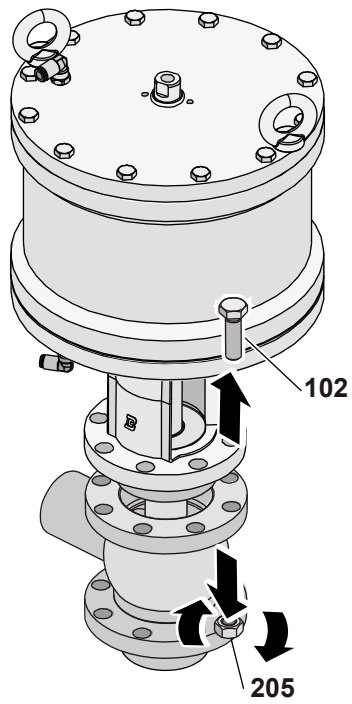
5



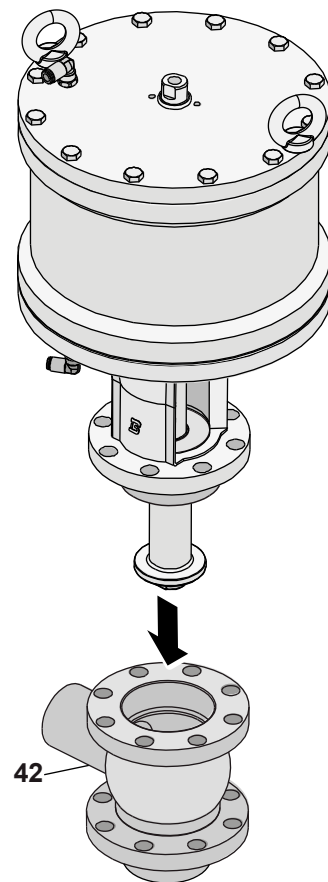
**(M8)****6** a**7** a



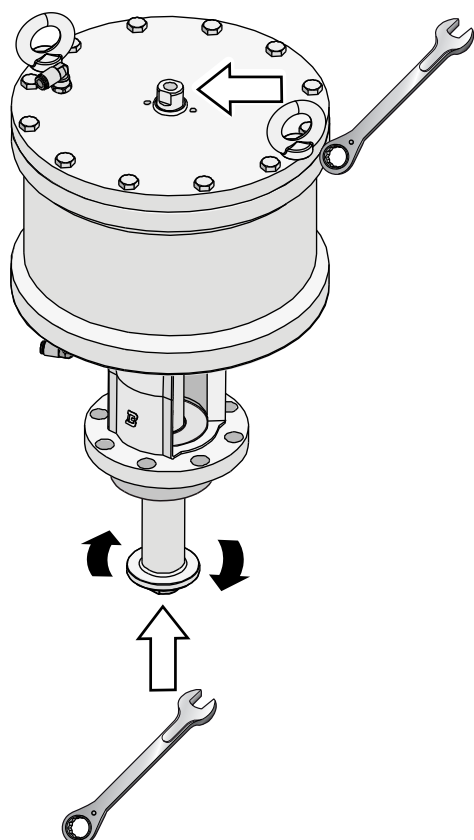
8 a



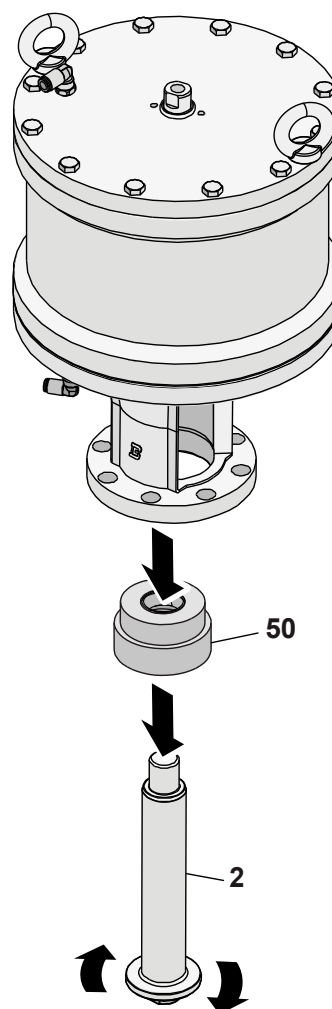
9 a

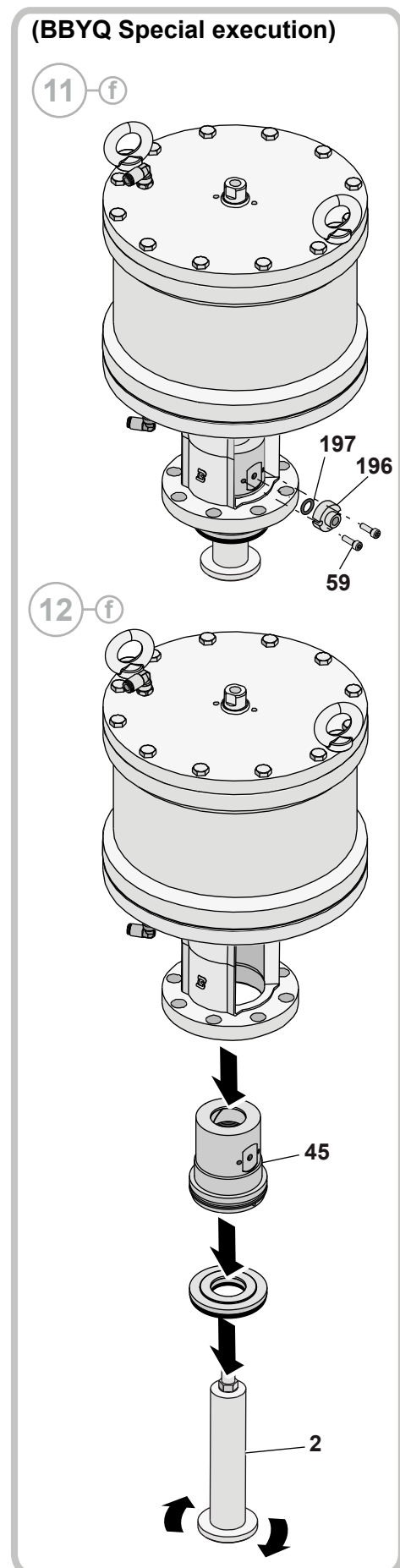
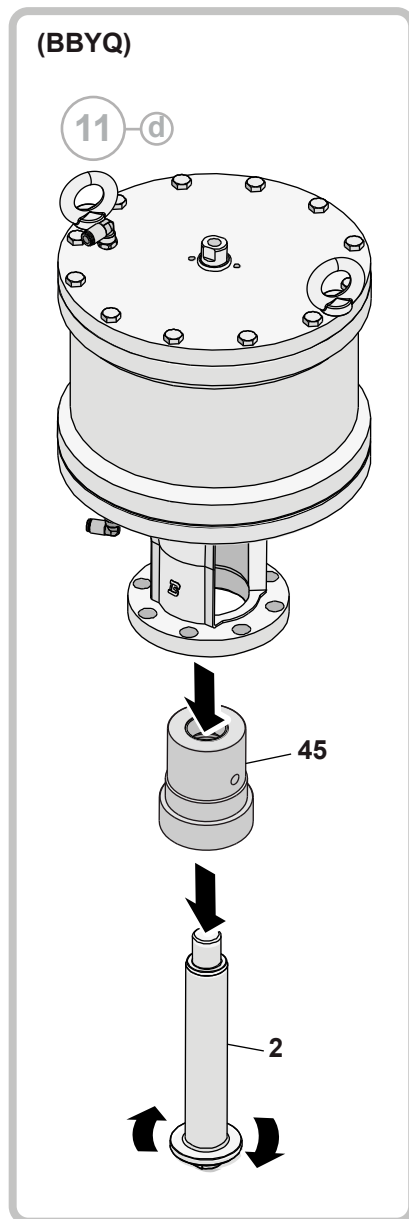


10

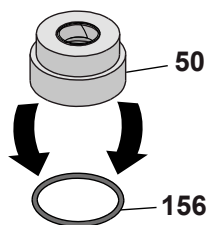


11

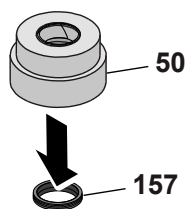




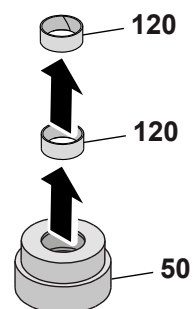
13



14

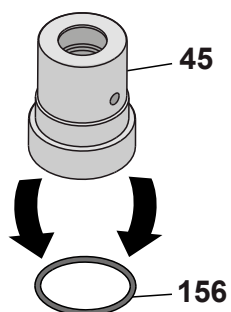


15

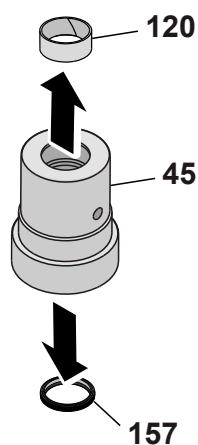


(BBYQ)

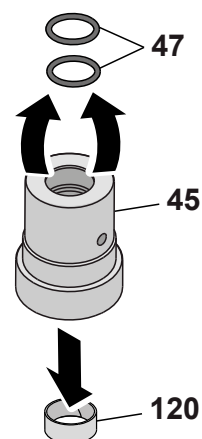
13-d



14-d

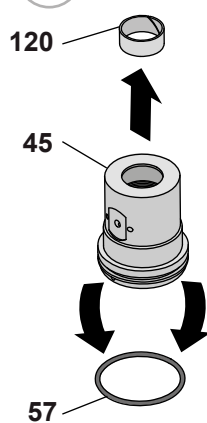


15-d

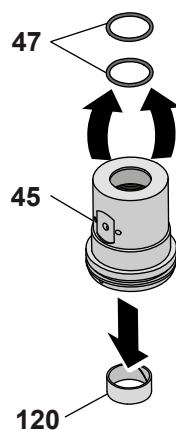


(BBYQ Special execution)

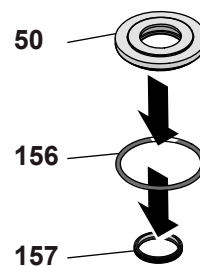
13-f



14-f

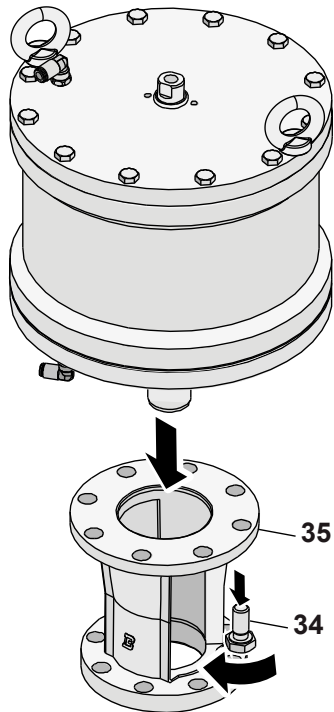


15-f

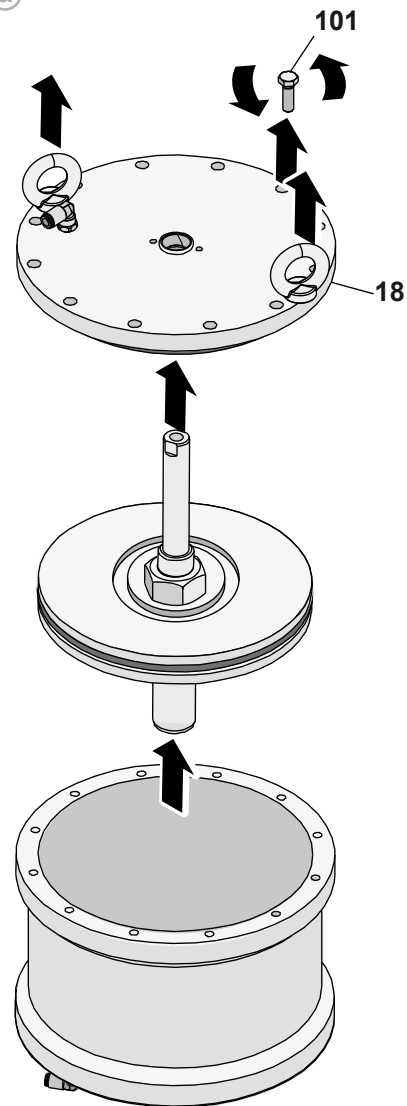


**(Double acting)**

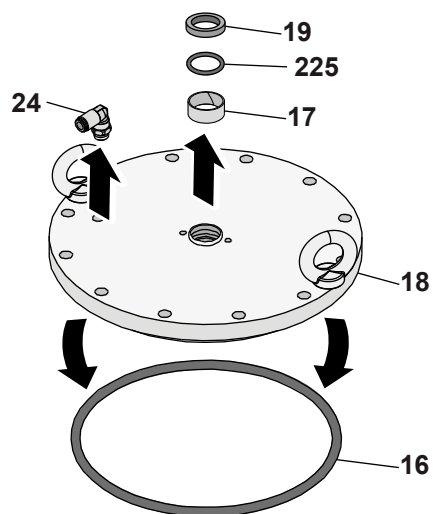
16-a

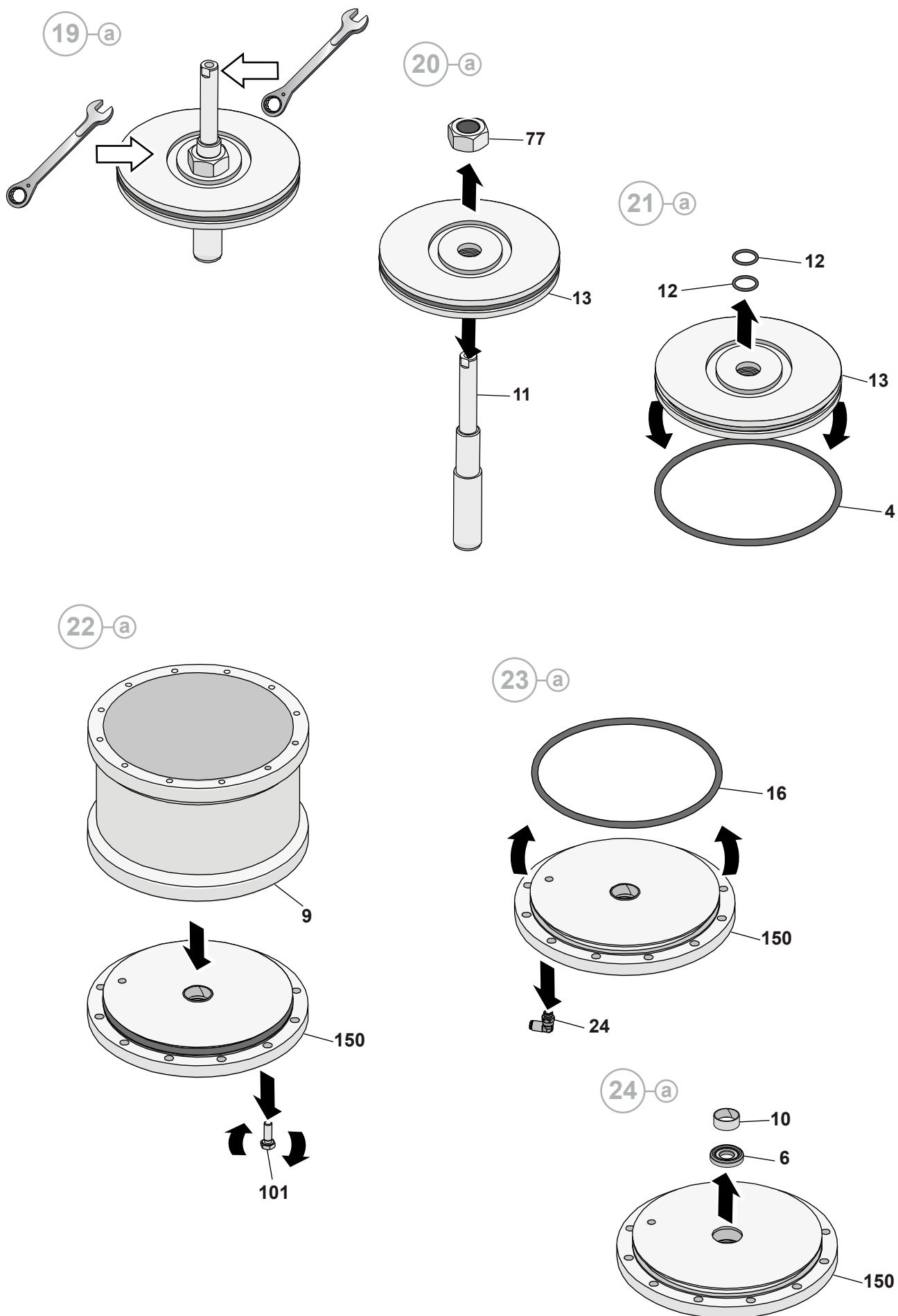


17-a



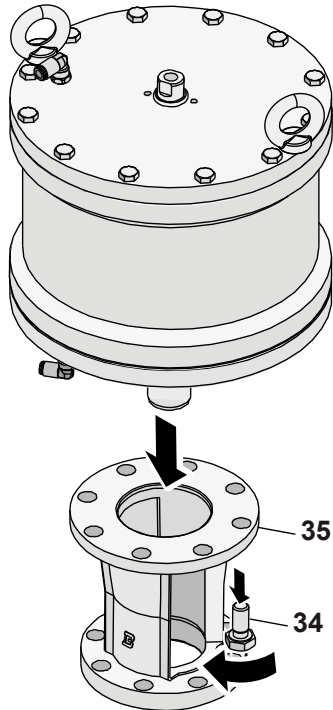
18-a



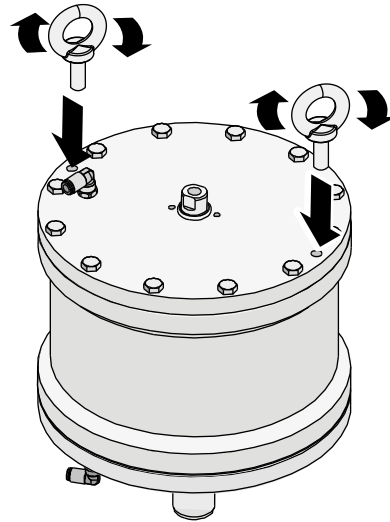


**(Normally closed)**

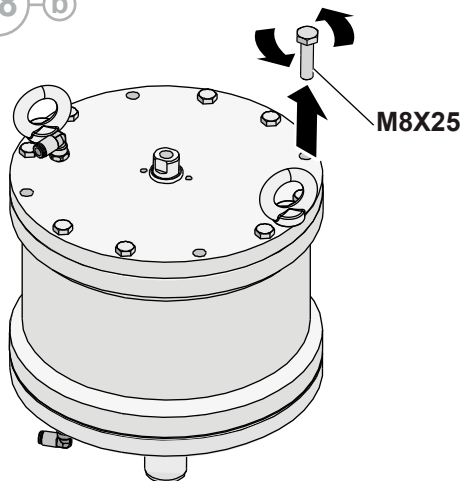
16-b



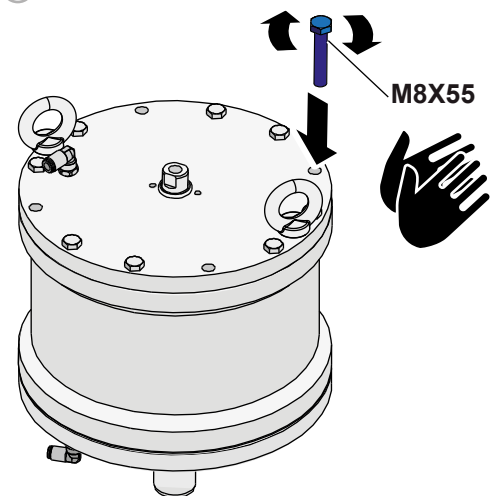
17-b

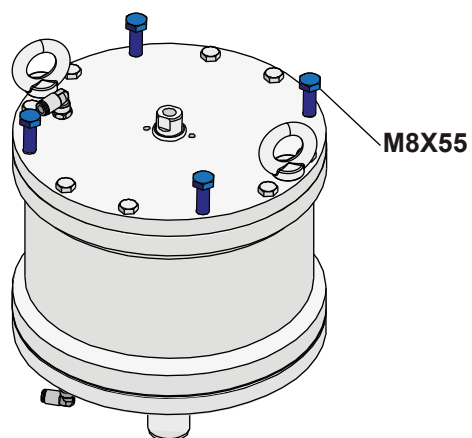
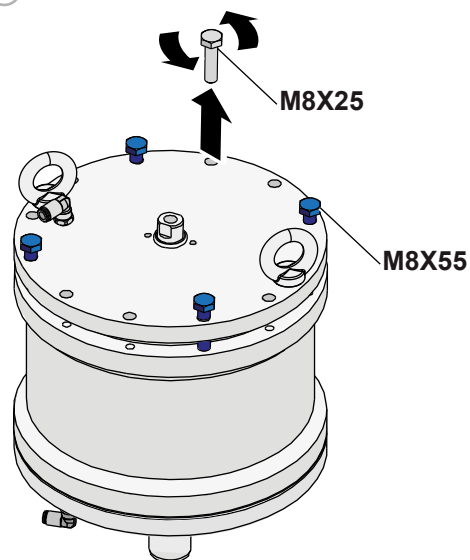
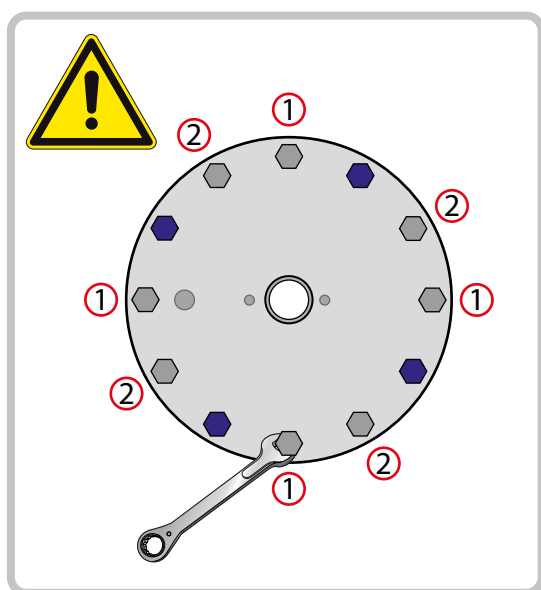


18-b



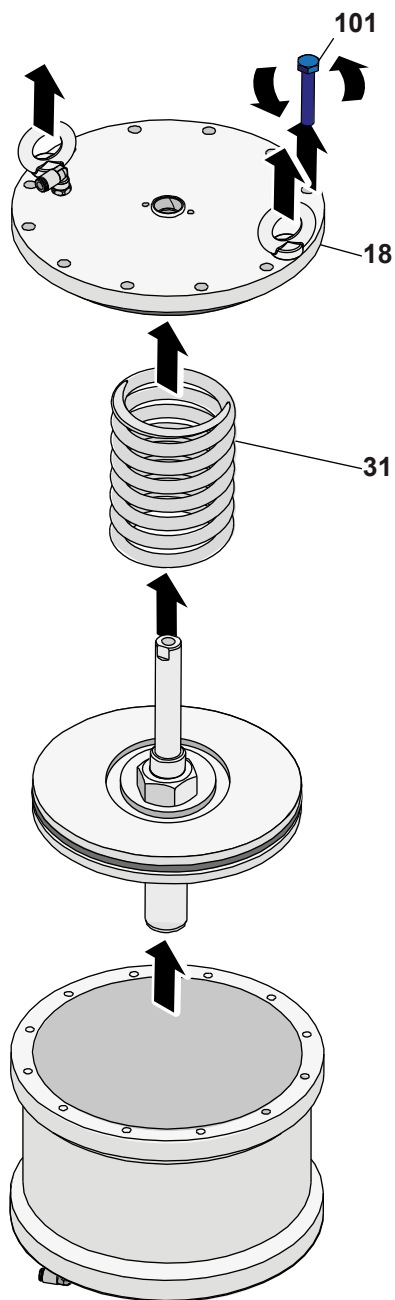
19-b



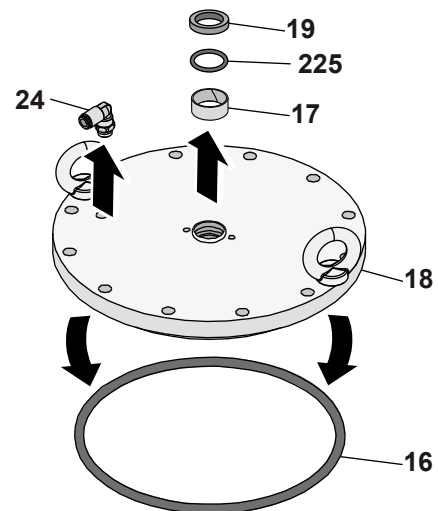
20 <sup>(b)</sup>21 <sup>(b)</sup>



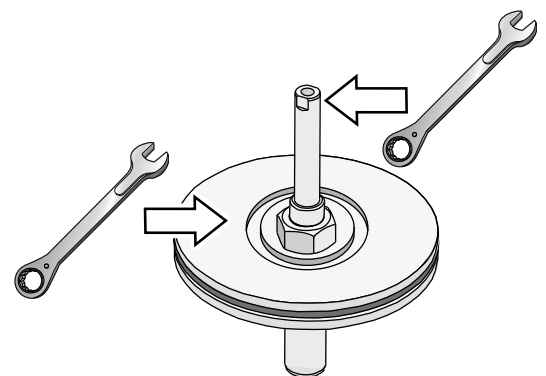
22-b



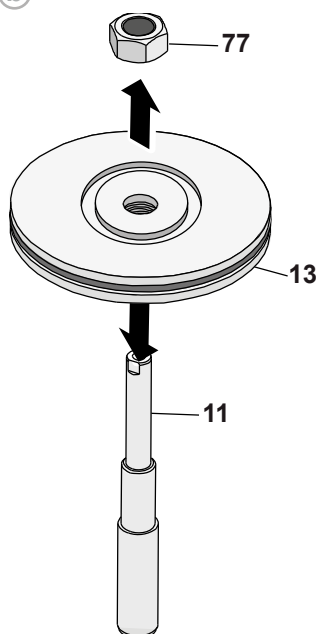
23-b



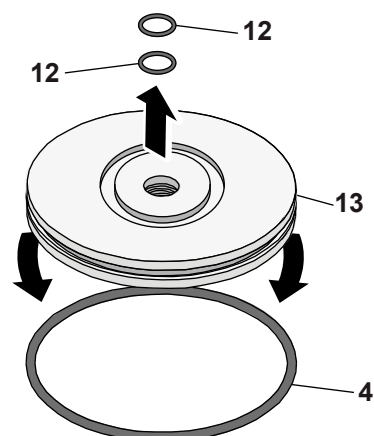
24-b



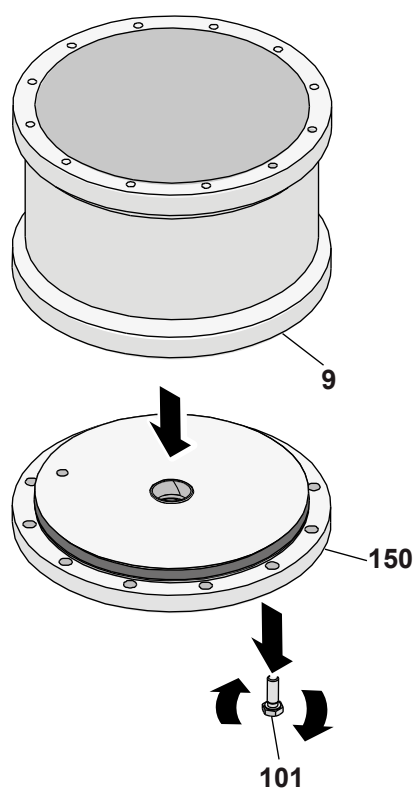
(25) b



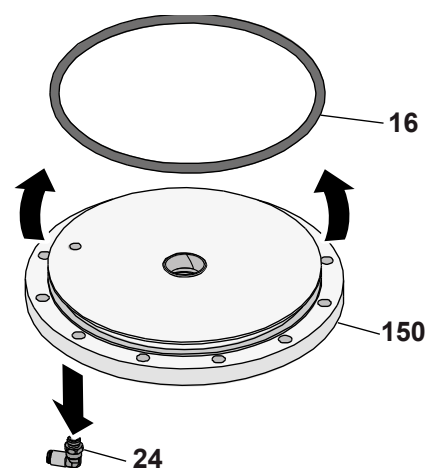
(26) b



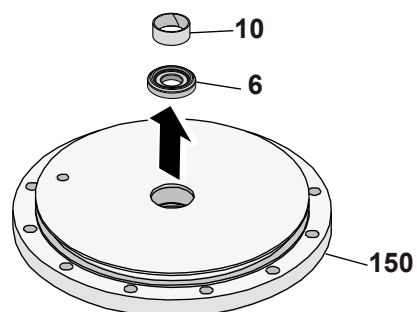
(27) b



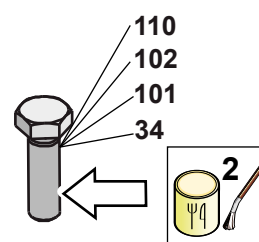
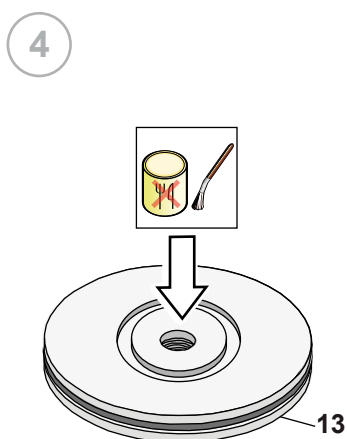
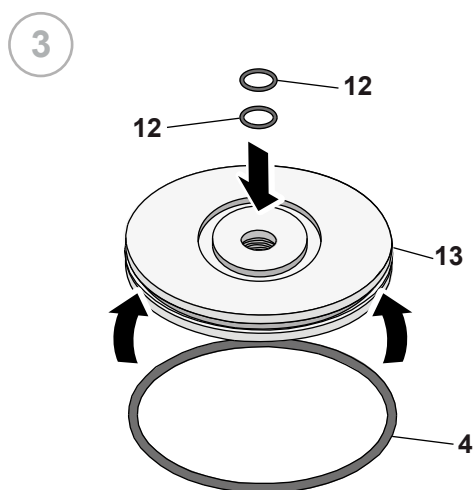
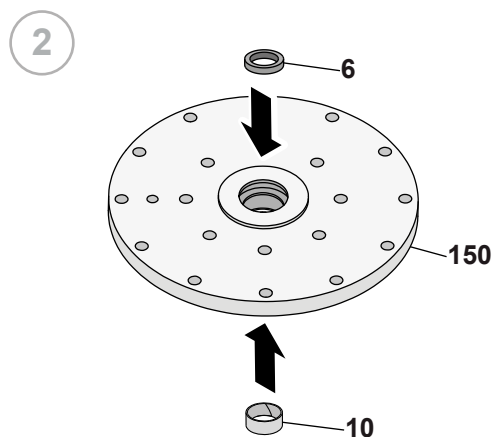
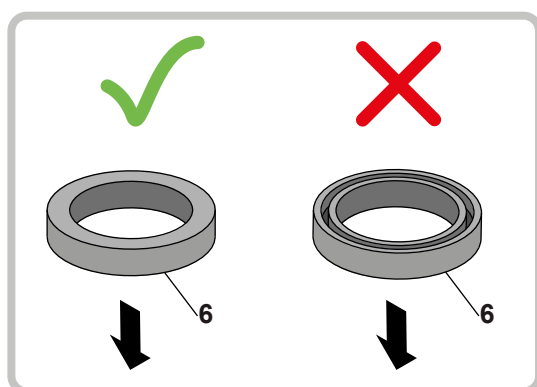
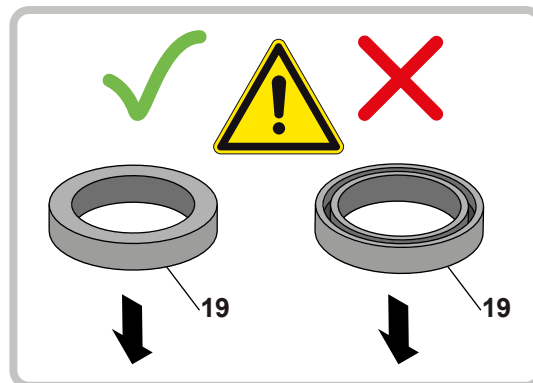
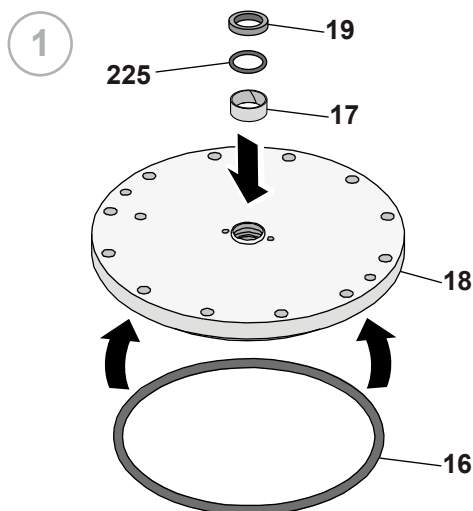
(28) b

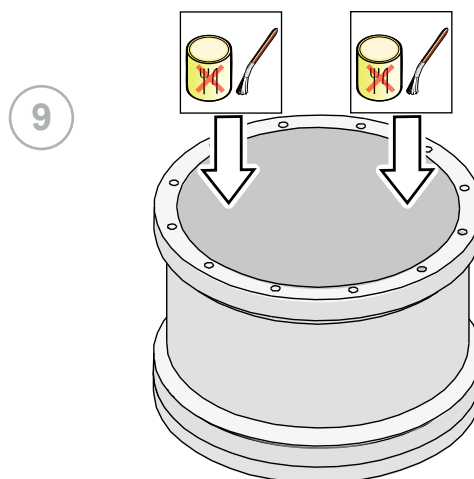
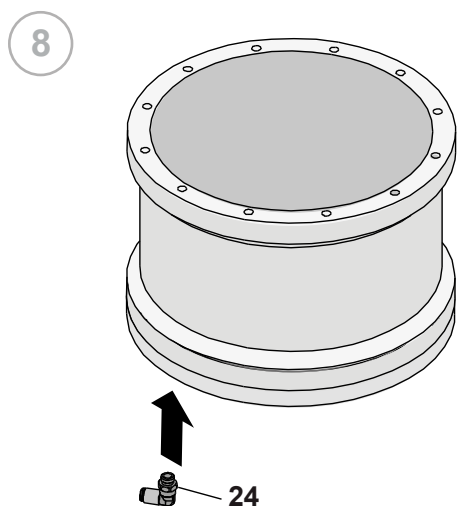
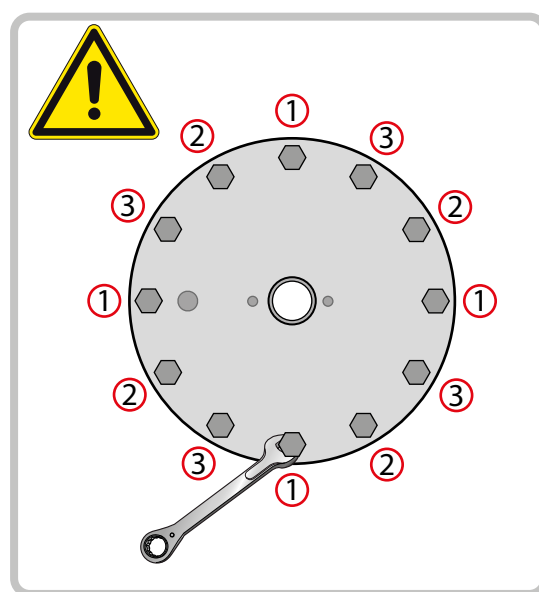
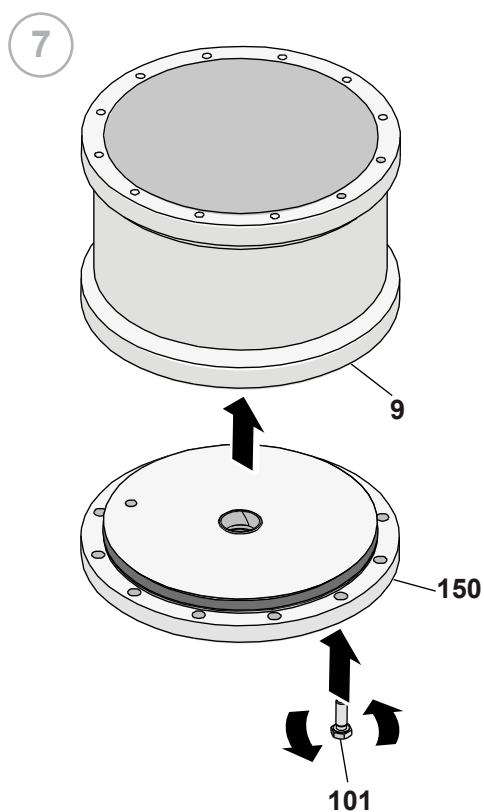
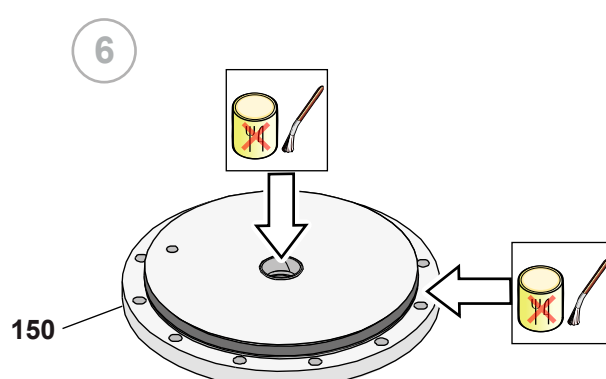
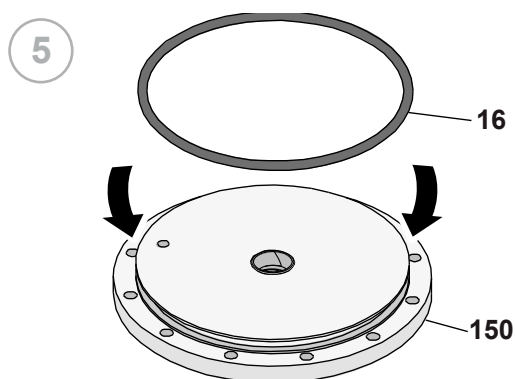


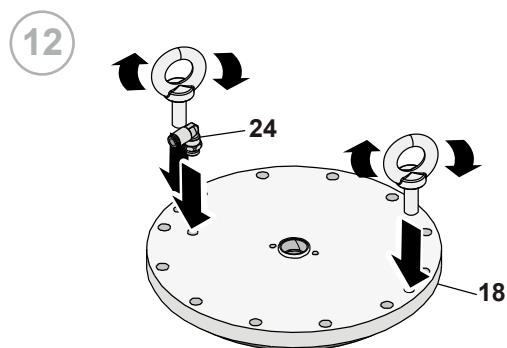
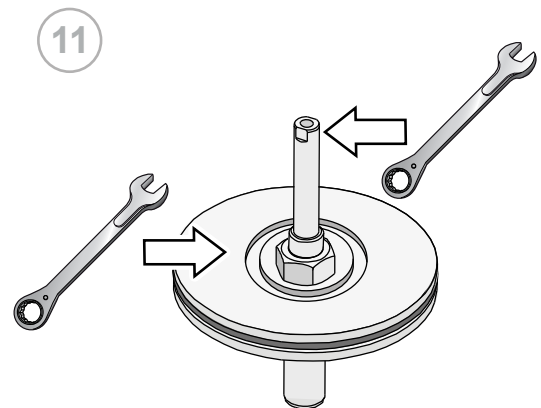
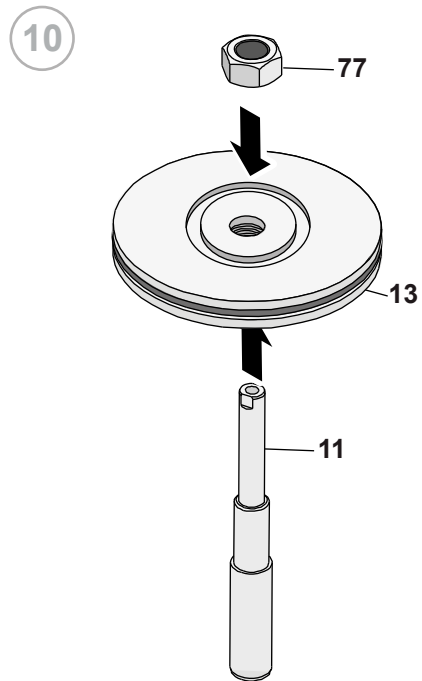
(29) b



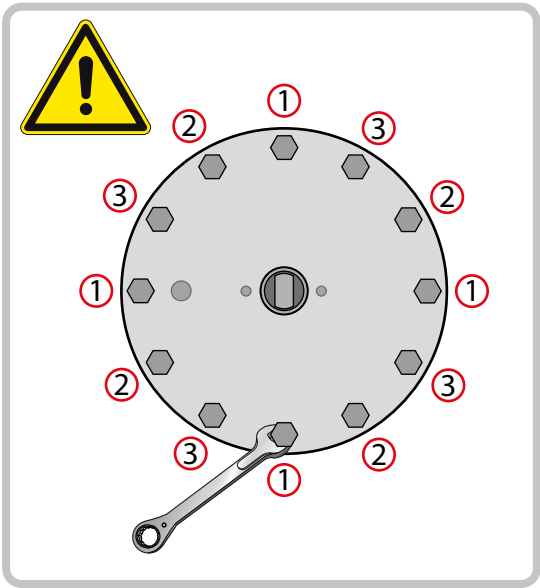
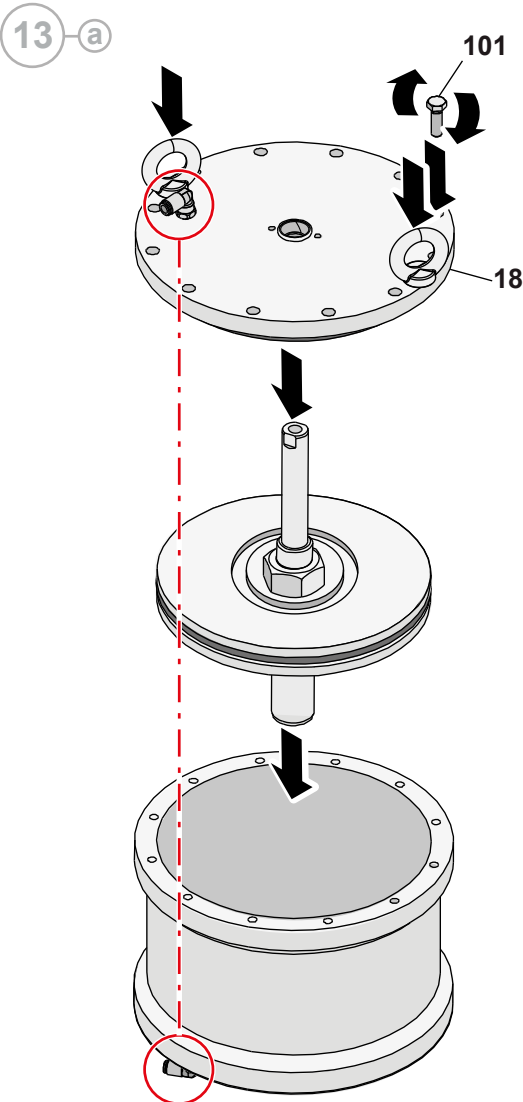
## 10.12 Assembly of the BBZQ - BBYQ cylinder 207-360

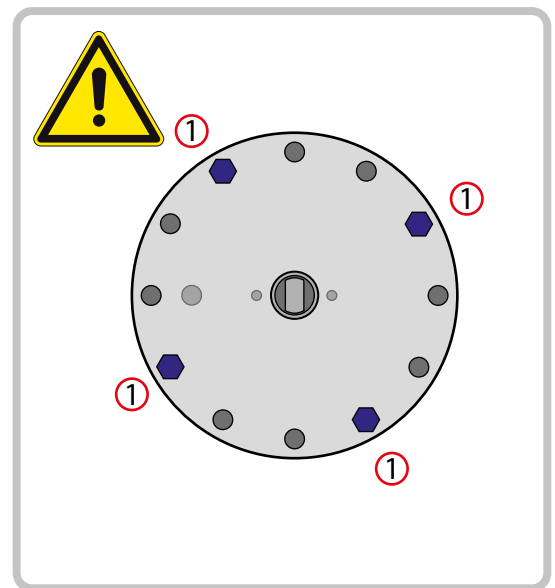
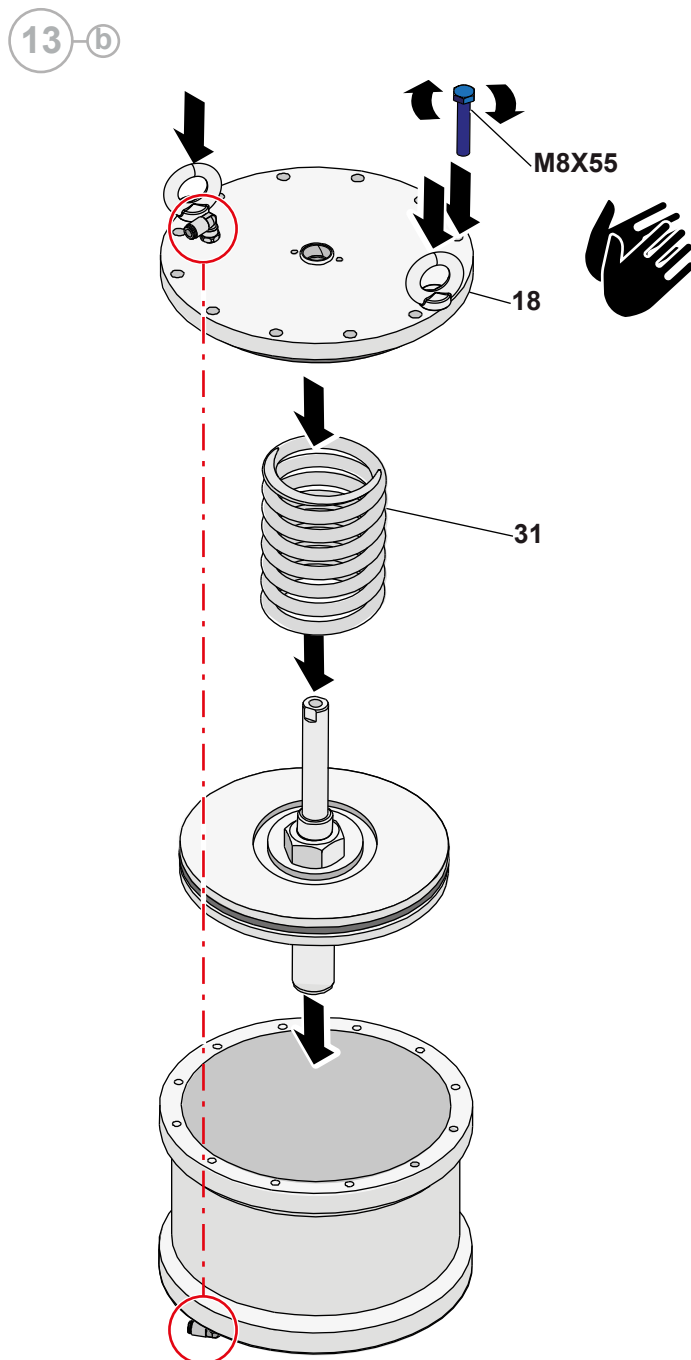




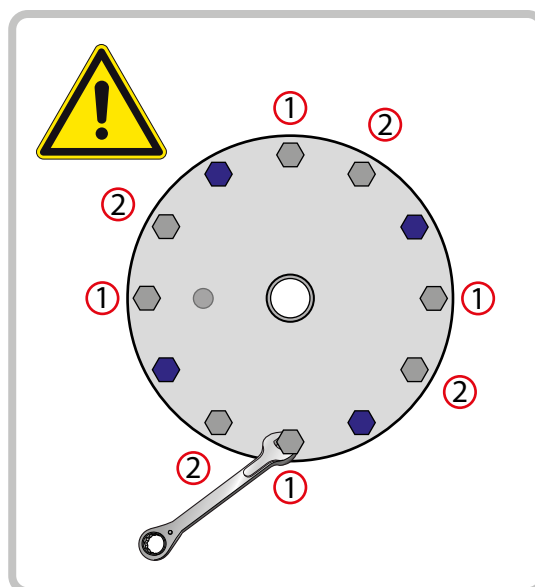
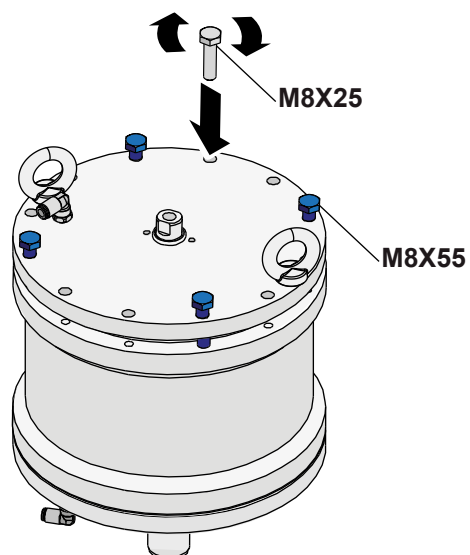


(Double  
acting)

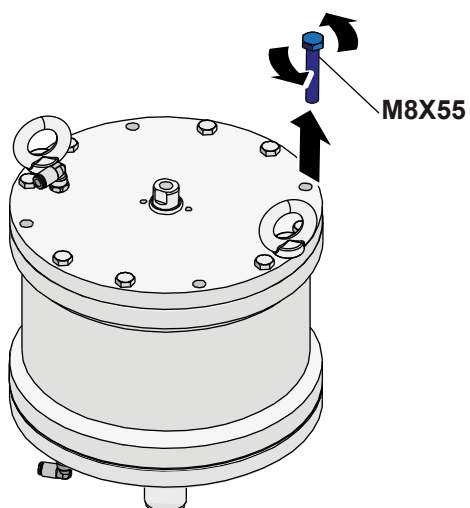


**(Normally closed)**

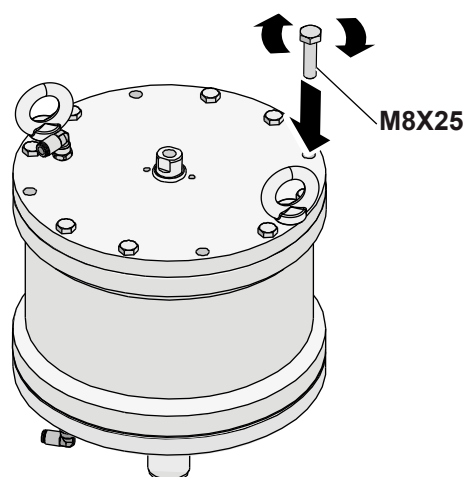
14-b



15-b

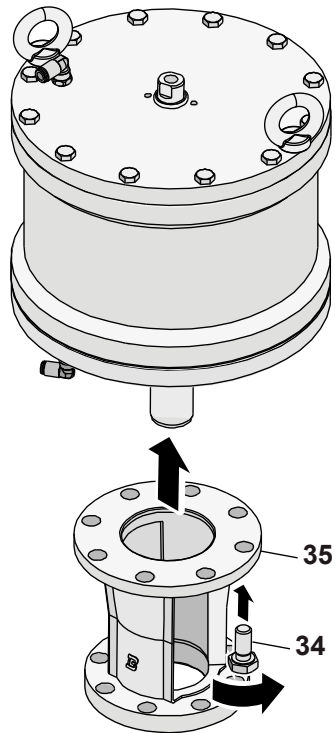


16-b

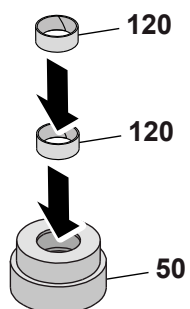




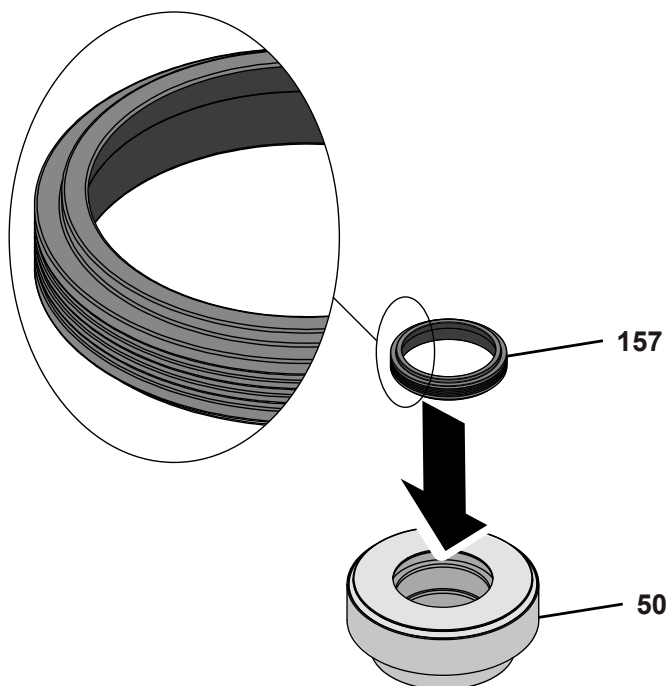
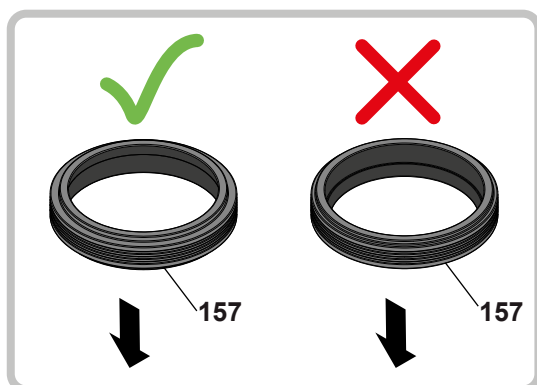
17



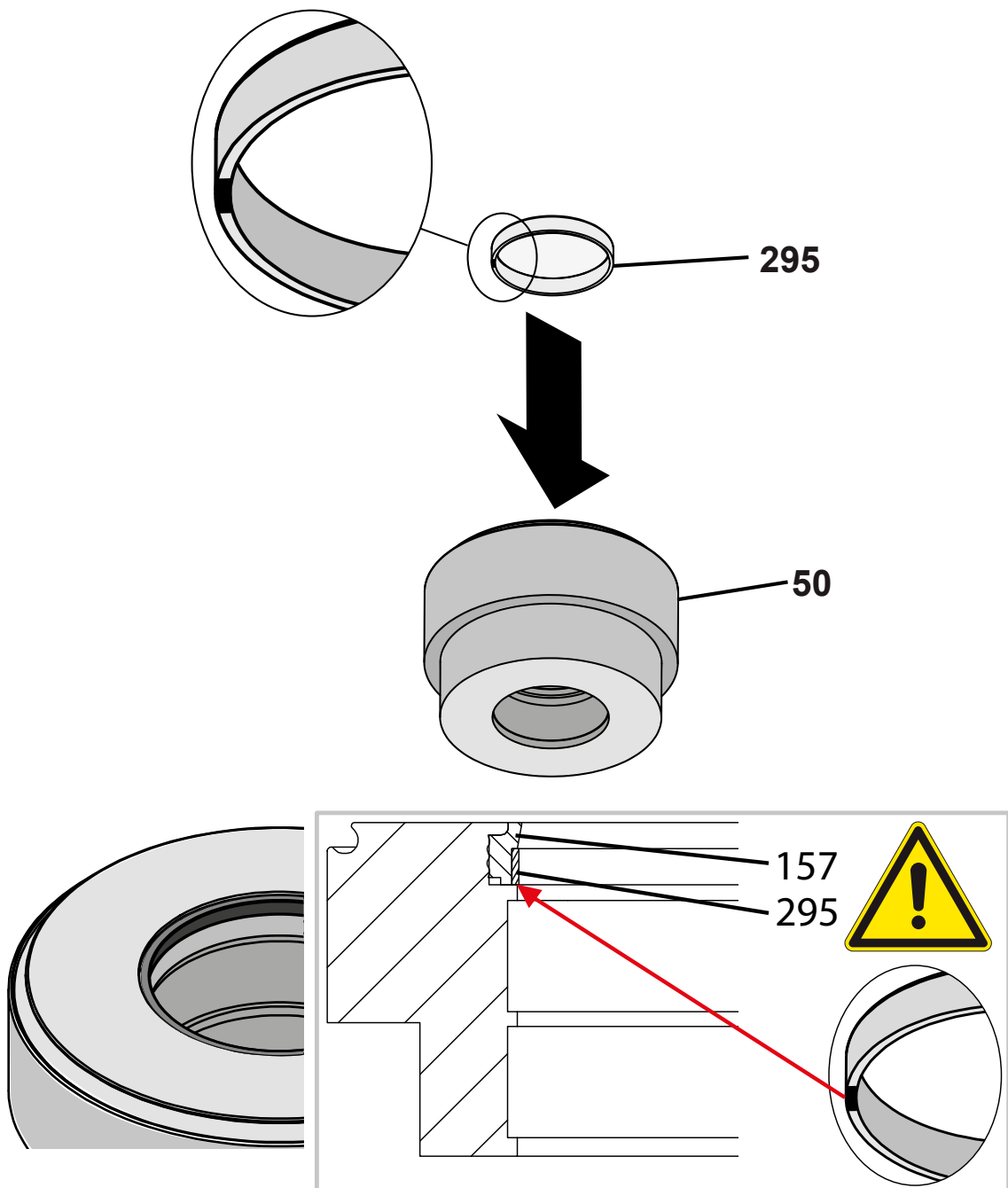
18



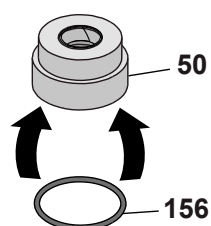
19



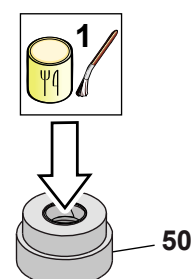
20



21

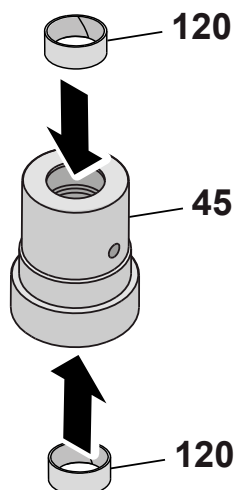


22

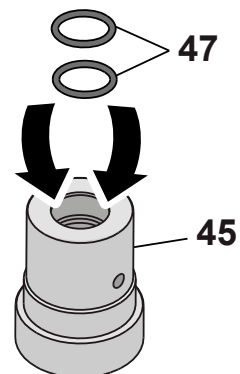


(BBYQ)

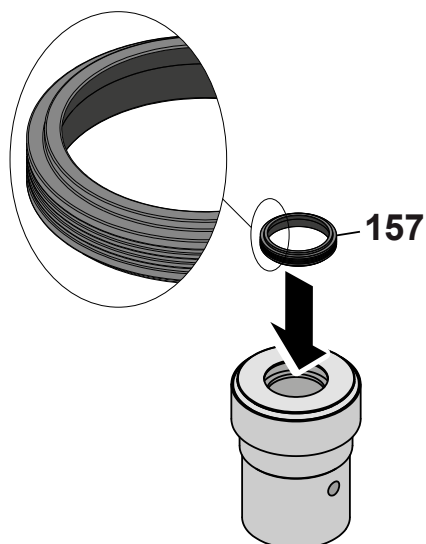
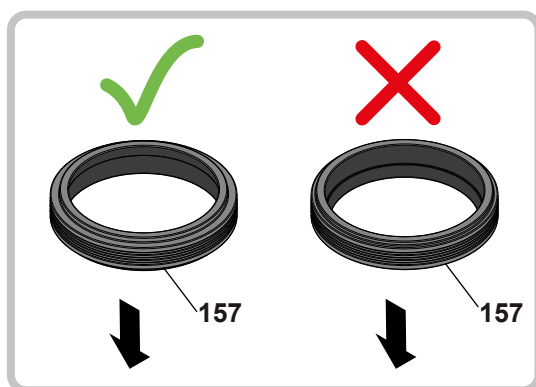
(18) d



(19) d

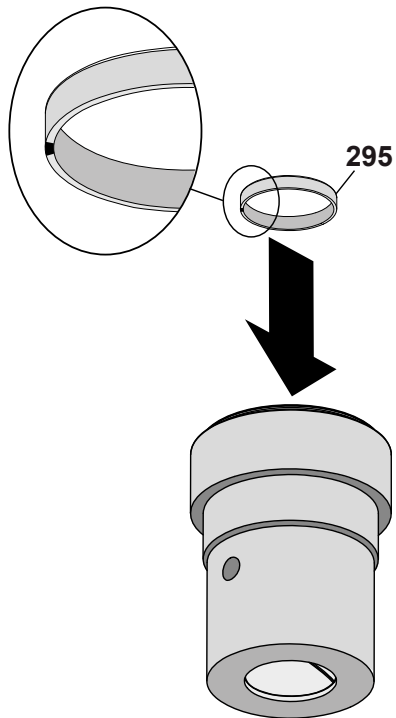


(20) d

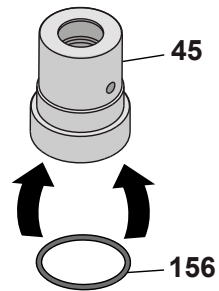


(BBYQ)

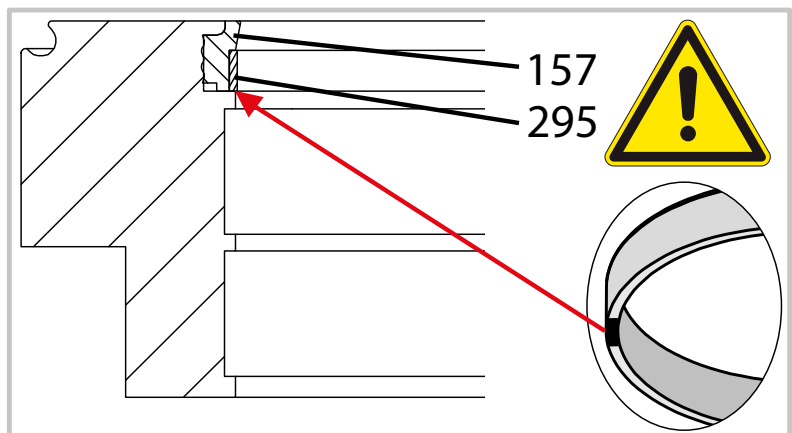
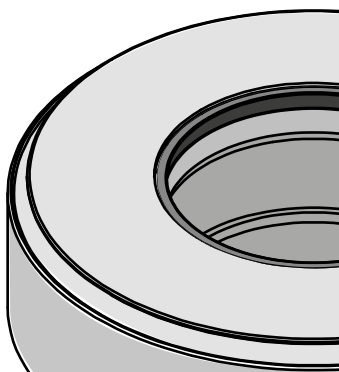
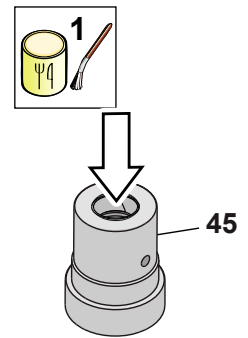
21-d



22-d

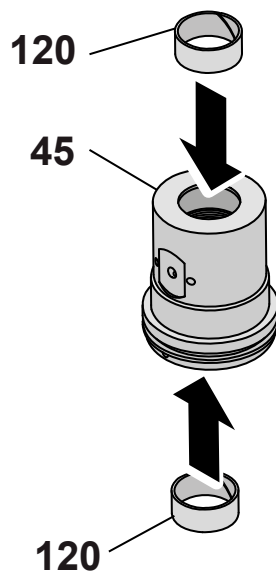


23-d

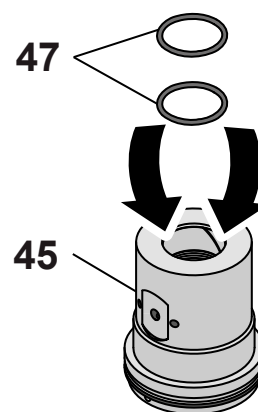


(BBYQ Special  
execution)

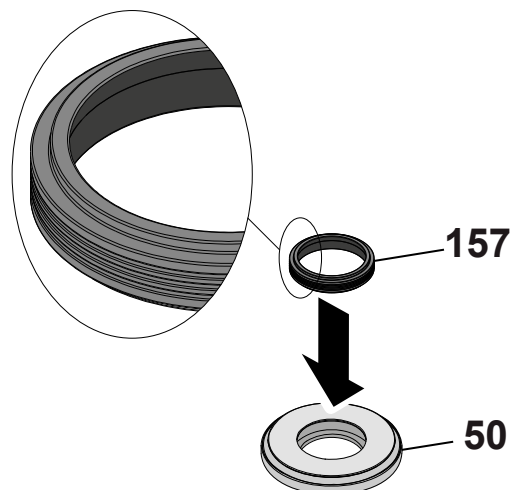
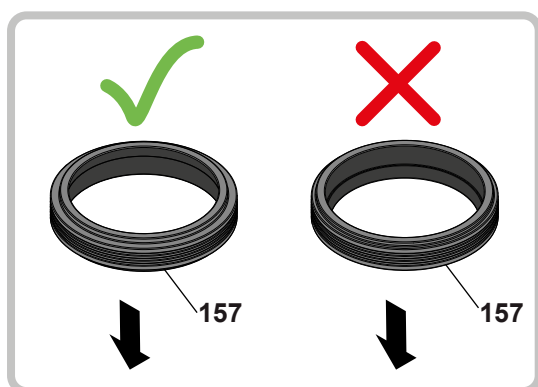
18-f



19-f

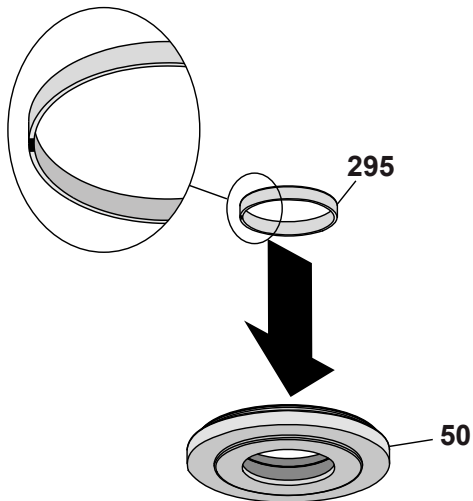


20-f

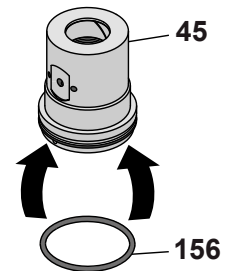


(BBYQ Special  
execution)

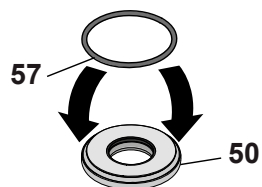
21-f



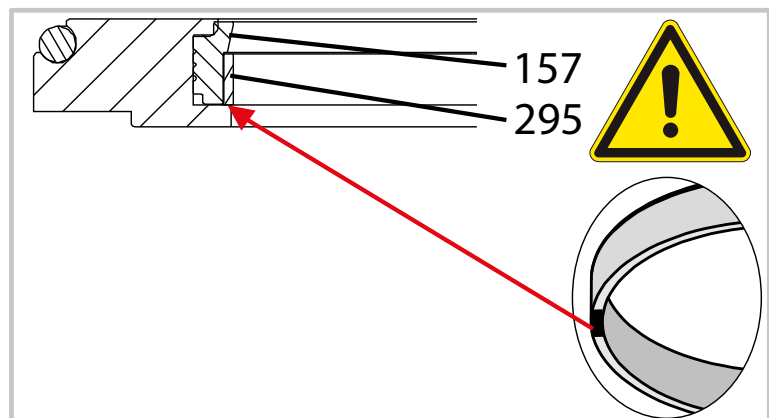
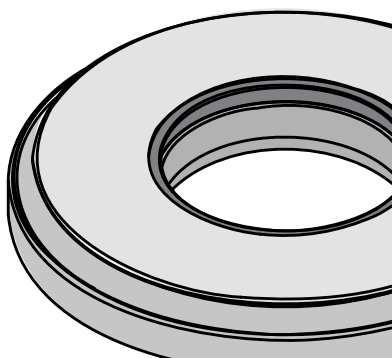
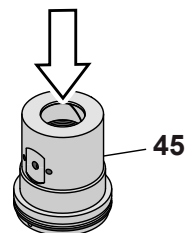
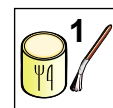
22-f

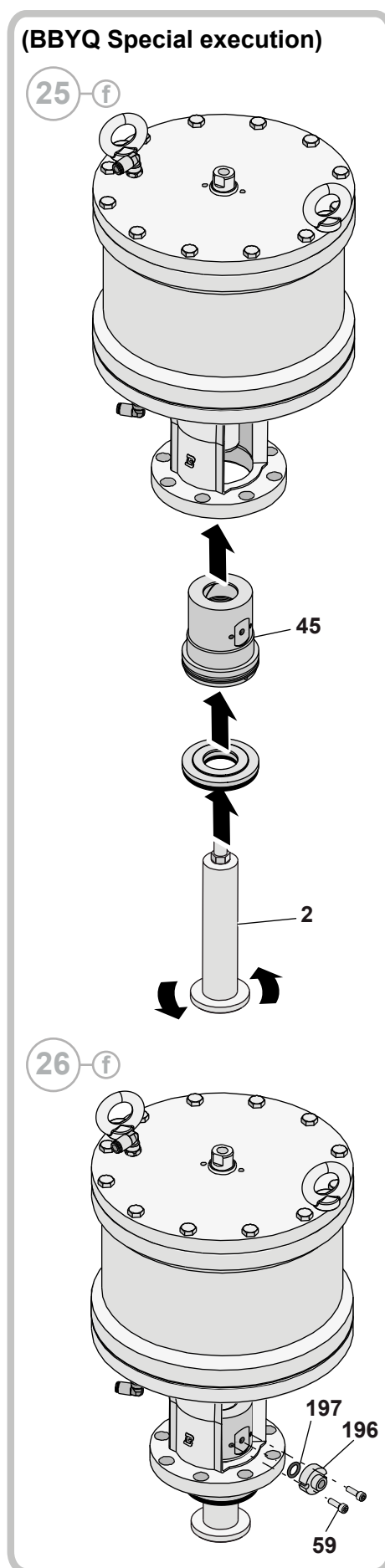
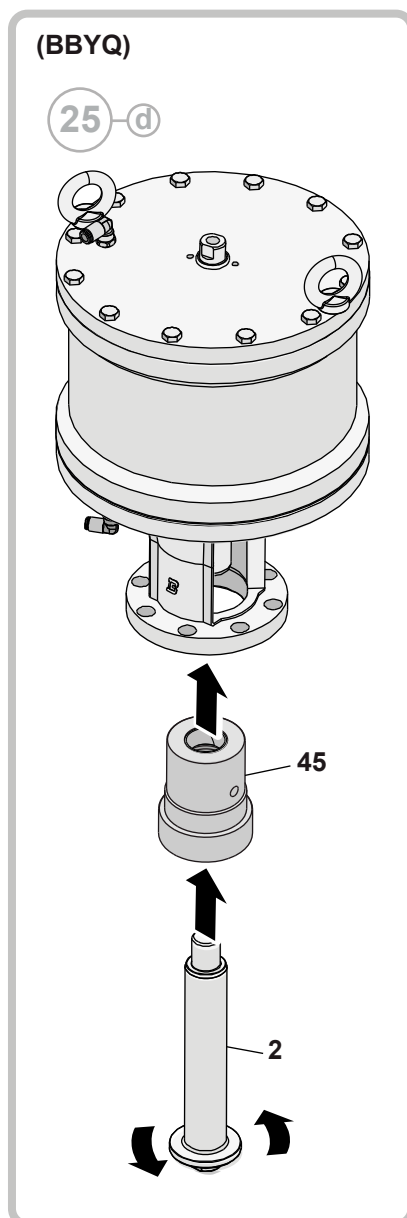
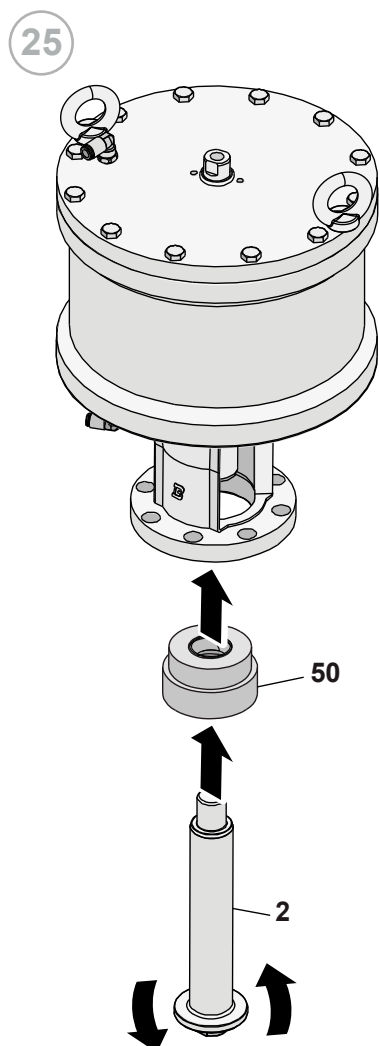


23-f



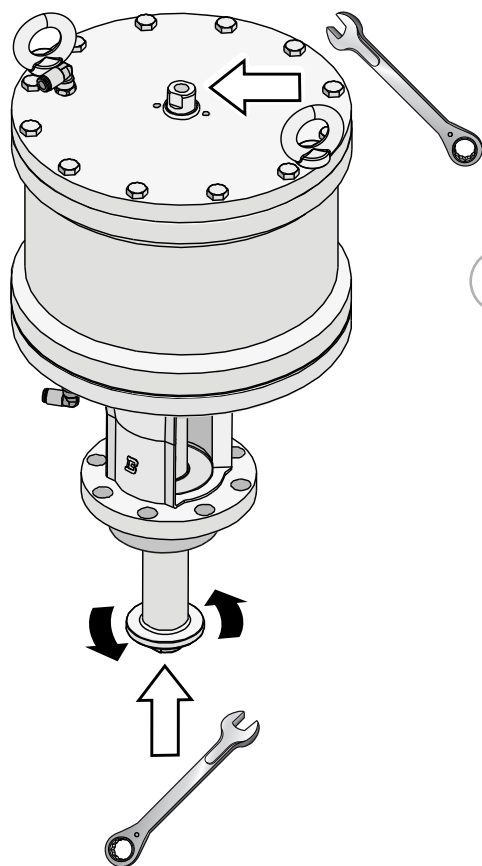
24-f



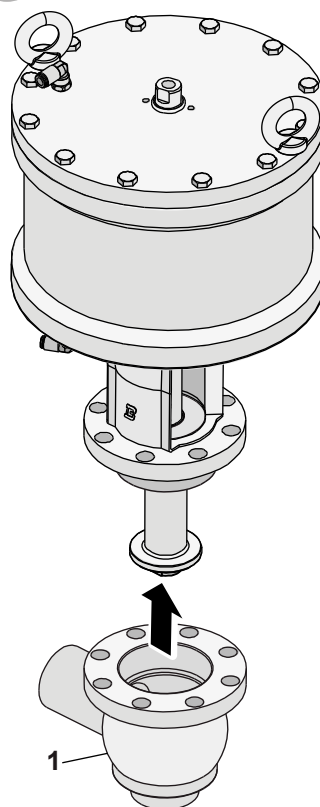




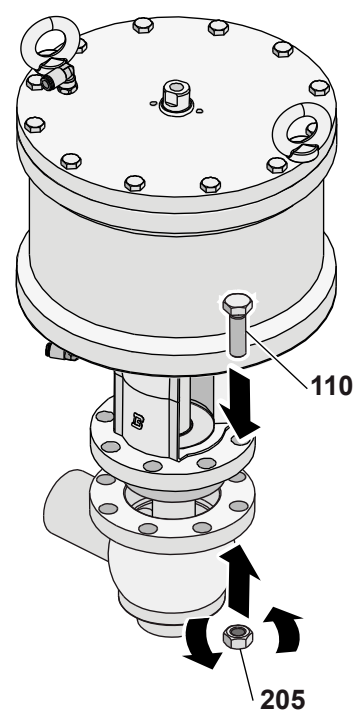
27



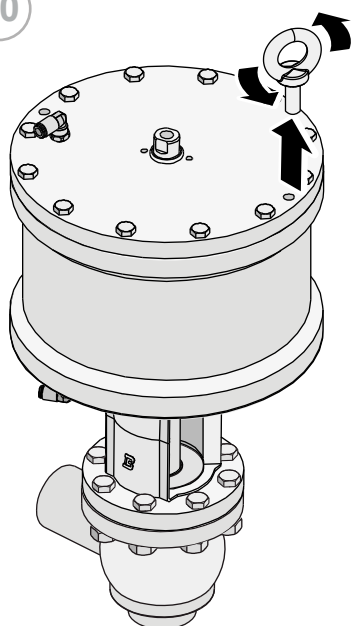
28



29

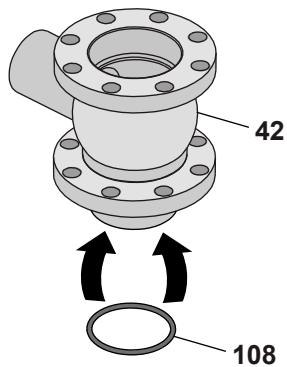


30

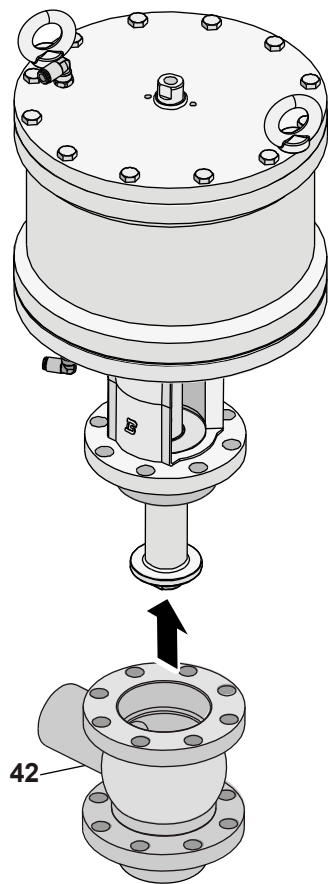


(M8)

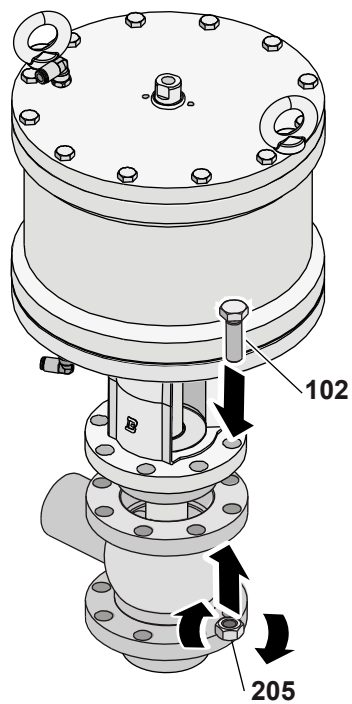
28 a



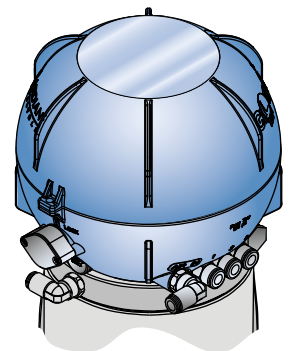
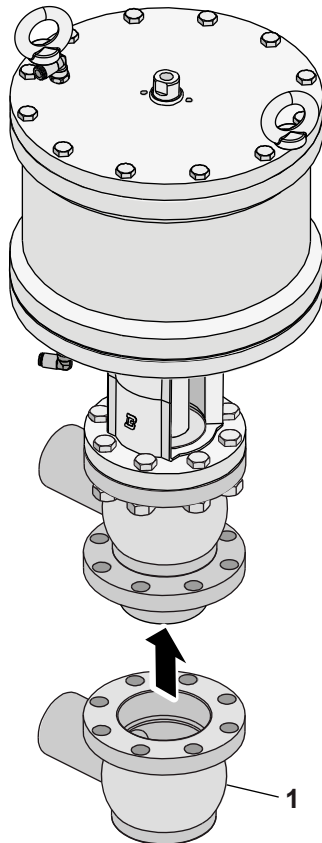
29 a



30 a



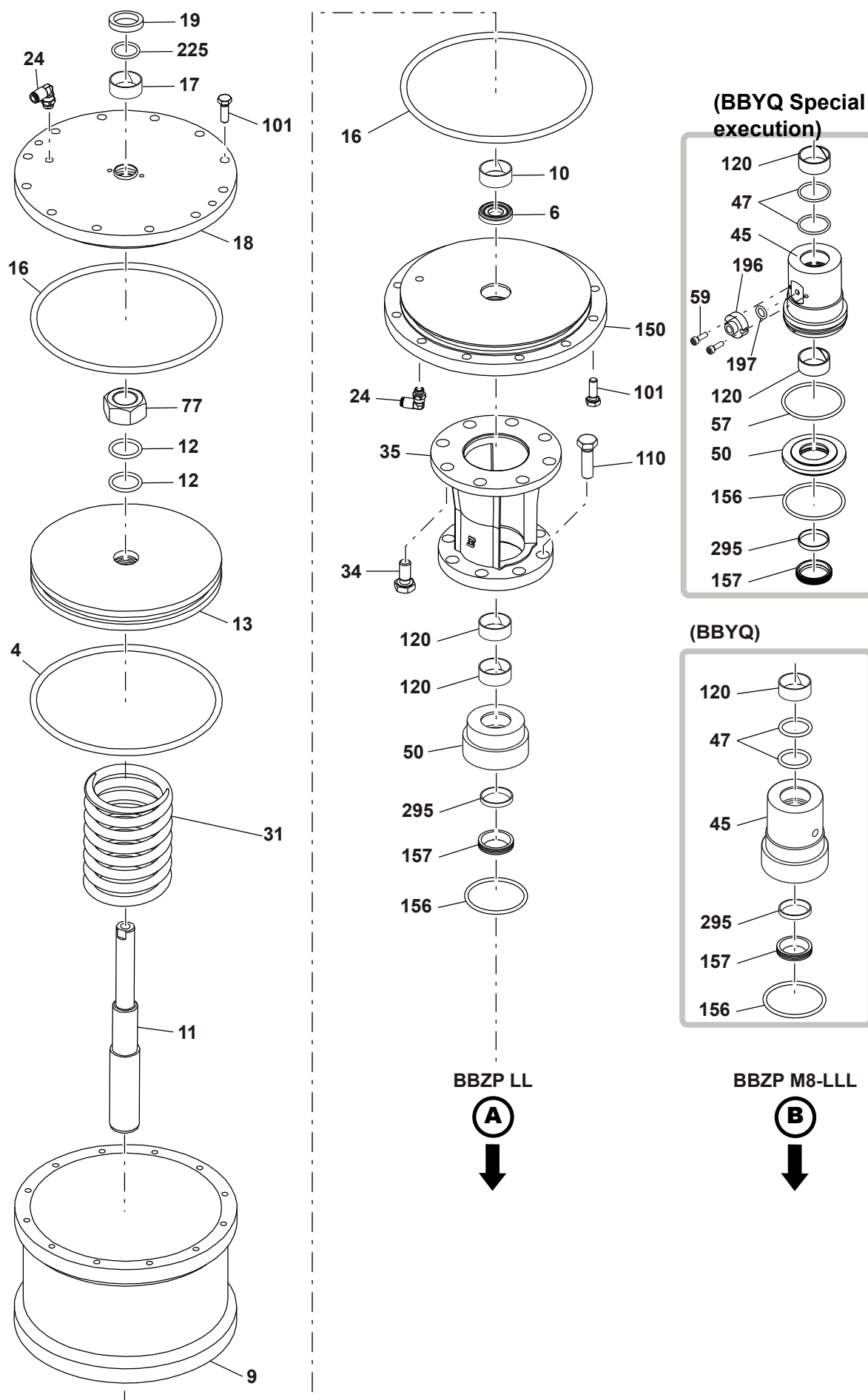
31 a

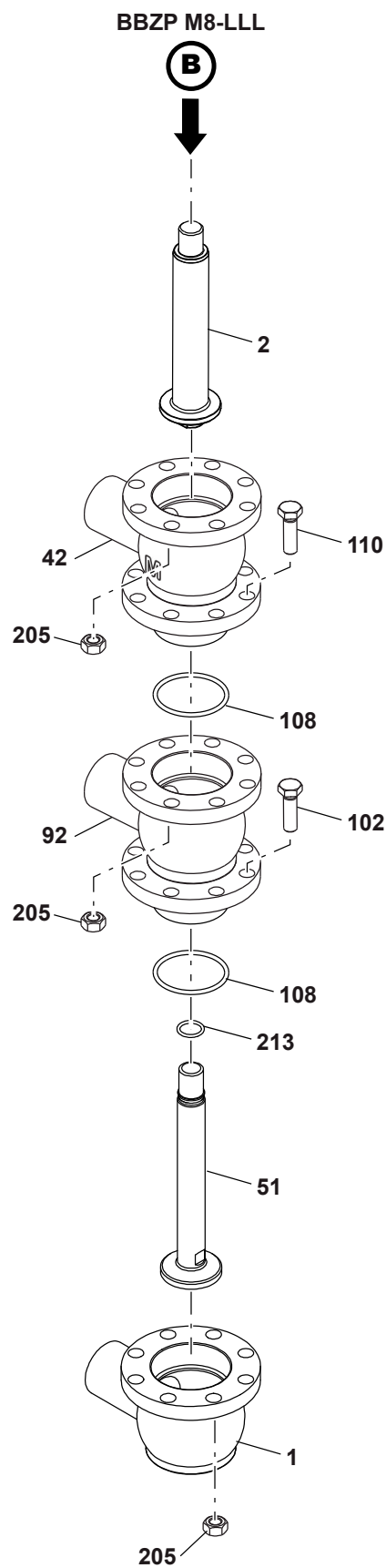
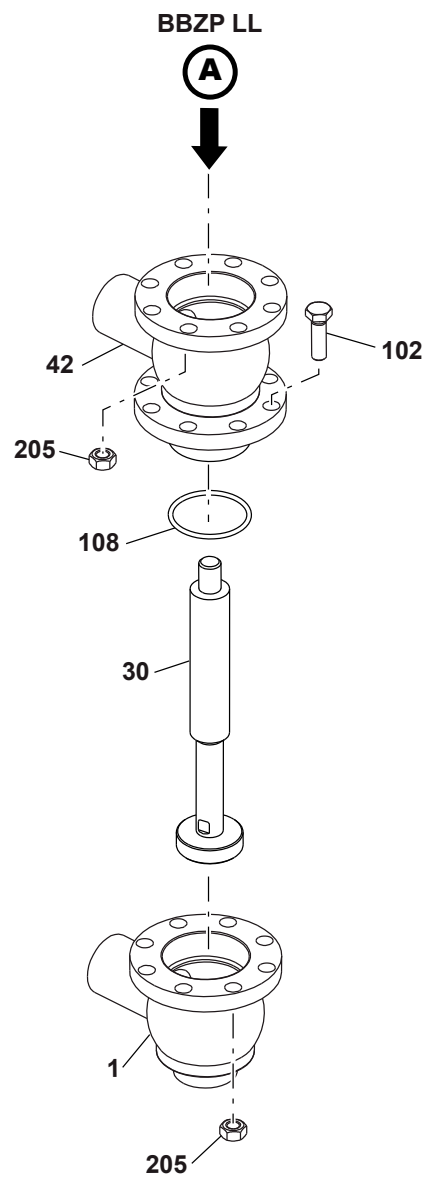


**[M GIOTTO CYL.207]**

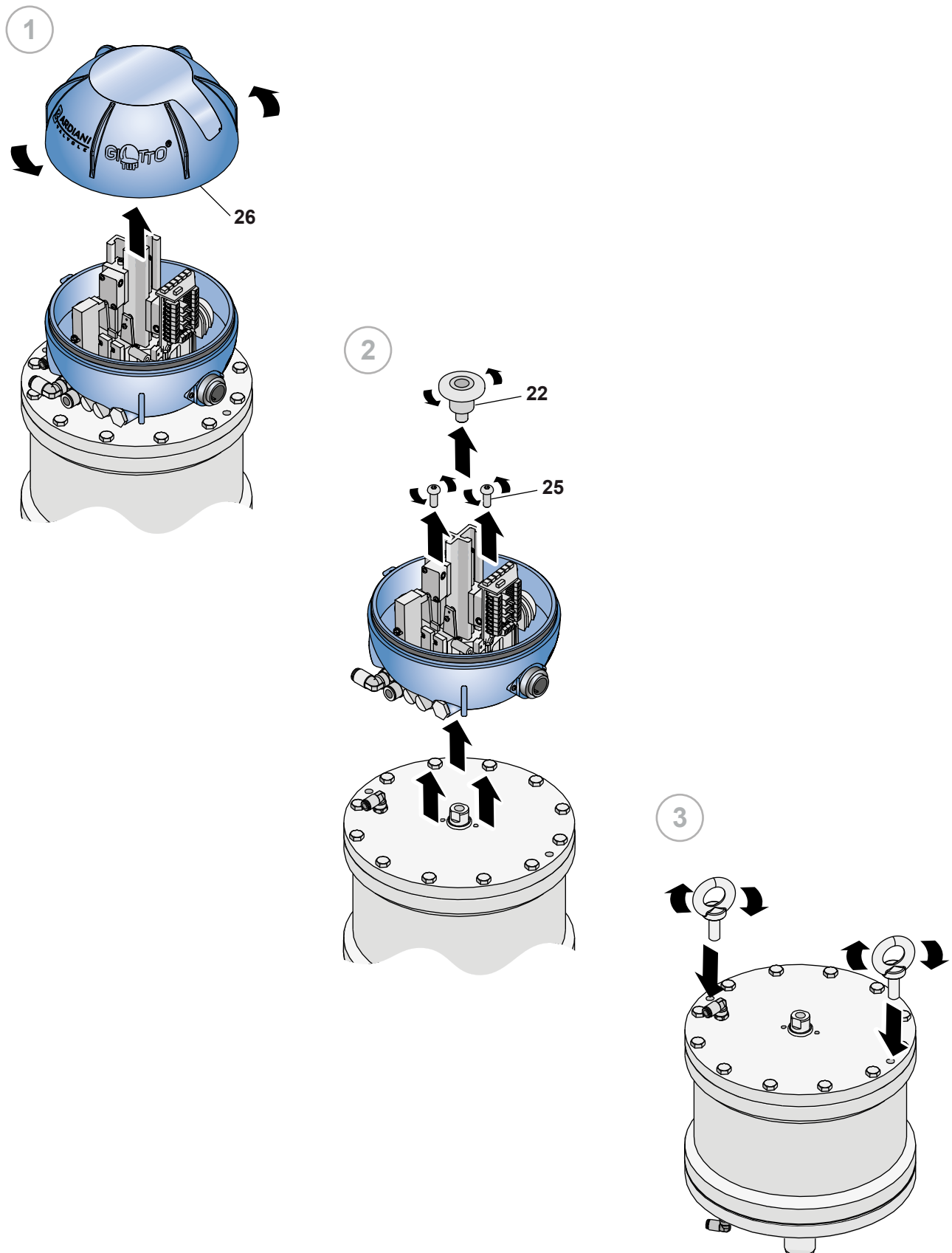
### 10.13 Pneumatic Valve BBZQ - BBYQ cylinder 207-360 Diverter

| NO. | DESCRIPTION        |
|-----|--------------------|
| 1   | Lower body         |
| 4   | Sealing ring       |
| 6   | Sealing ring       |
| 9   | Cylinder           |
| 10  | Bush               |
| 11  | Pin                |
| 12  | Sealing ring       |
| 13  | Piston             |
| 16  | Sealing ring       |
| 17  | Bush               |
| 18  | Buffer             |
| 19  | Sealing ring       |
| 24  | Air connector      |
| 30  | Double shutter     |
| 31  | Spring             |
| 34  | Screw              |
| 35  | Assembly           |
| 42  | Upper body         |
| 45  | Steam barrier      |
| 47  | Sealing ring       |
| 50  | Gasket holder disc |
| 57  | Sealing ring       |
| 59  | Screw              |
| 77  | Nut                |
| 101 | Screw              |
| 102 | Screw              |
| 108 | Sealing ring       |
| 110 | Screw              |
| 120 | Bush               |
| 150 | Bottom stopper     |
| 156 | Sealing ring       |
| 157 | Sealing ring       |
| 196 | Steam connection   |
| 197 | Sealing ring       |
| 205 | Nut                |
| 225 | Sealing ring       |
| 295 | Bush               |

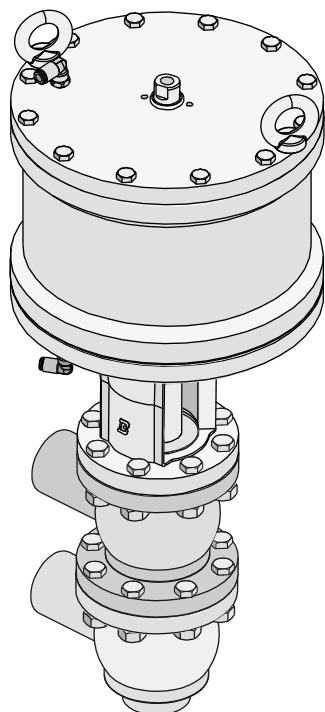




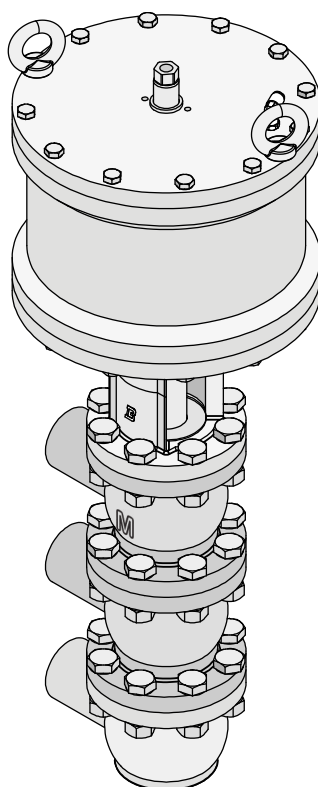
## 10.14 Disassembly of the BBZQ - BBYQ cylinder 207-360 Diverter



a

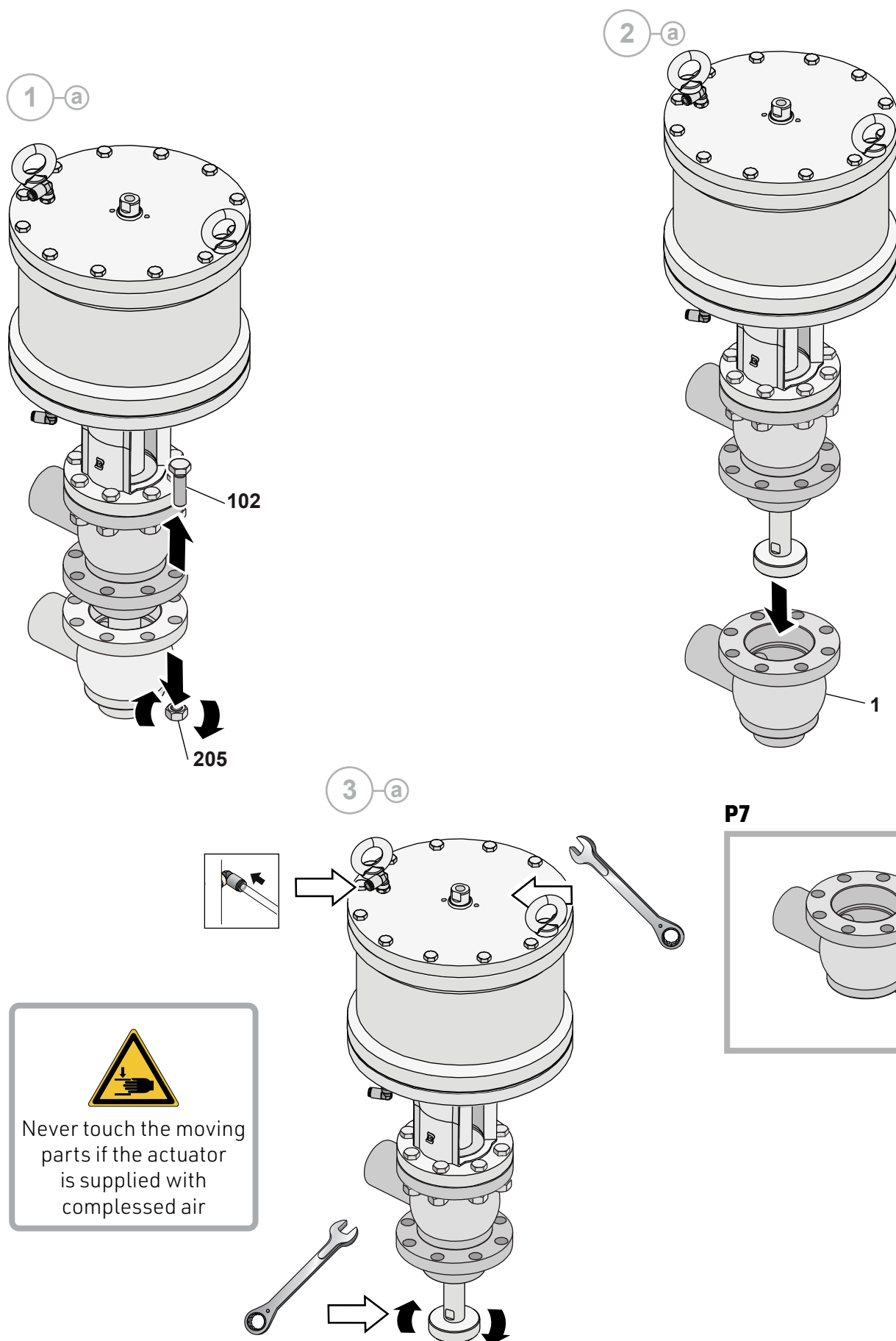
**[A S BBZQ LL-207-360]**

b

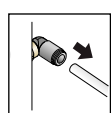
**[B S BBZQ-M8-LLL-207-360]**



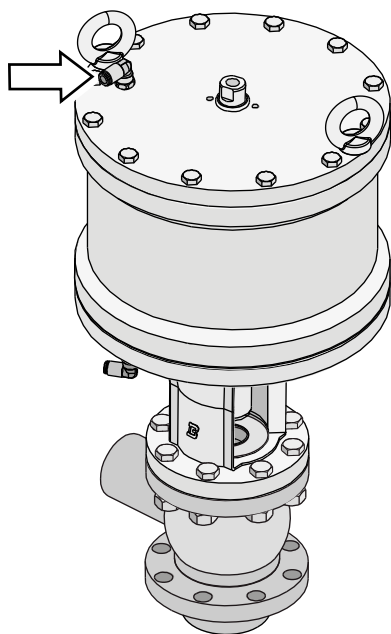
## A Dsassembly of the BBZQ - BBYQ cylinder 207-360



4-a

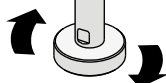


1

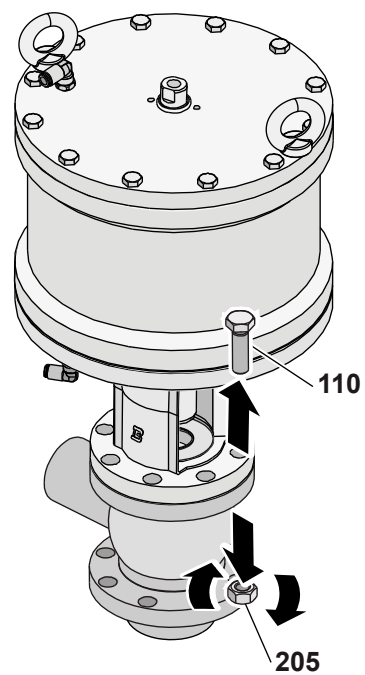


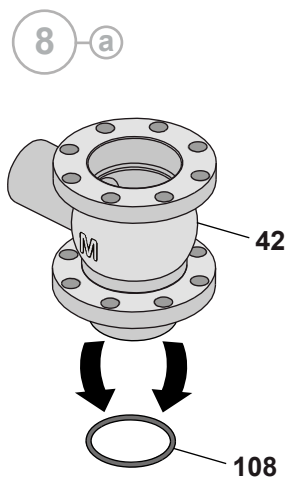
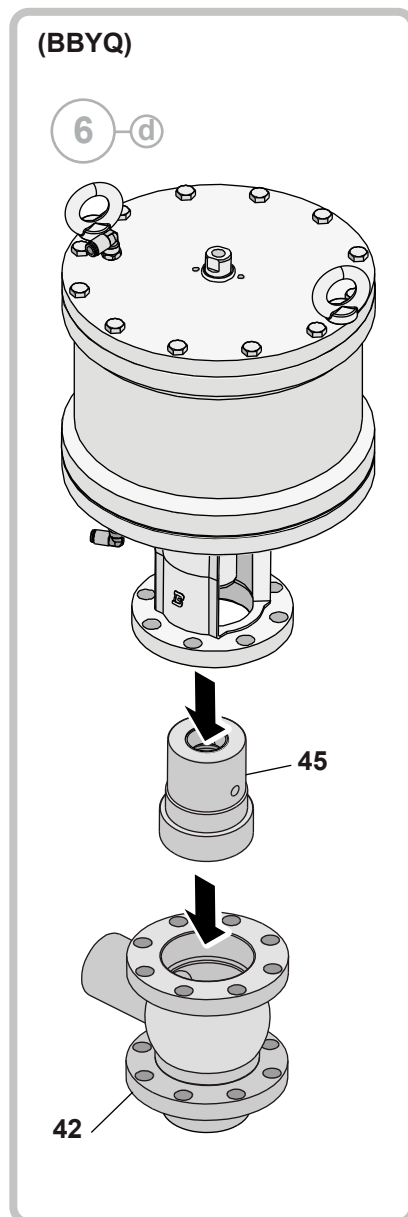
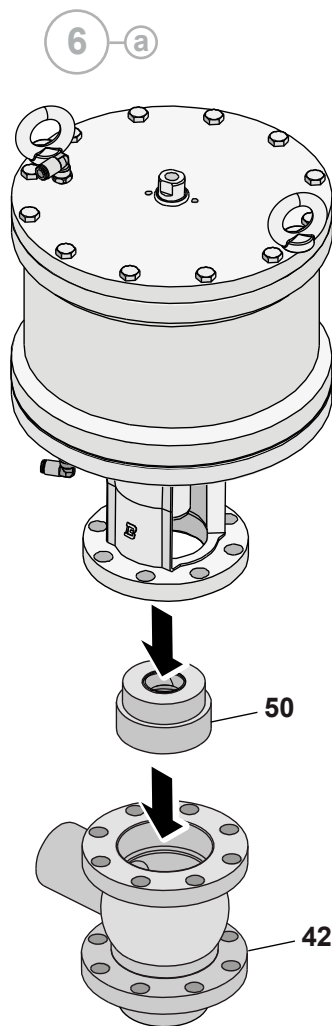
2

30

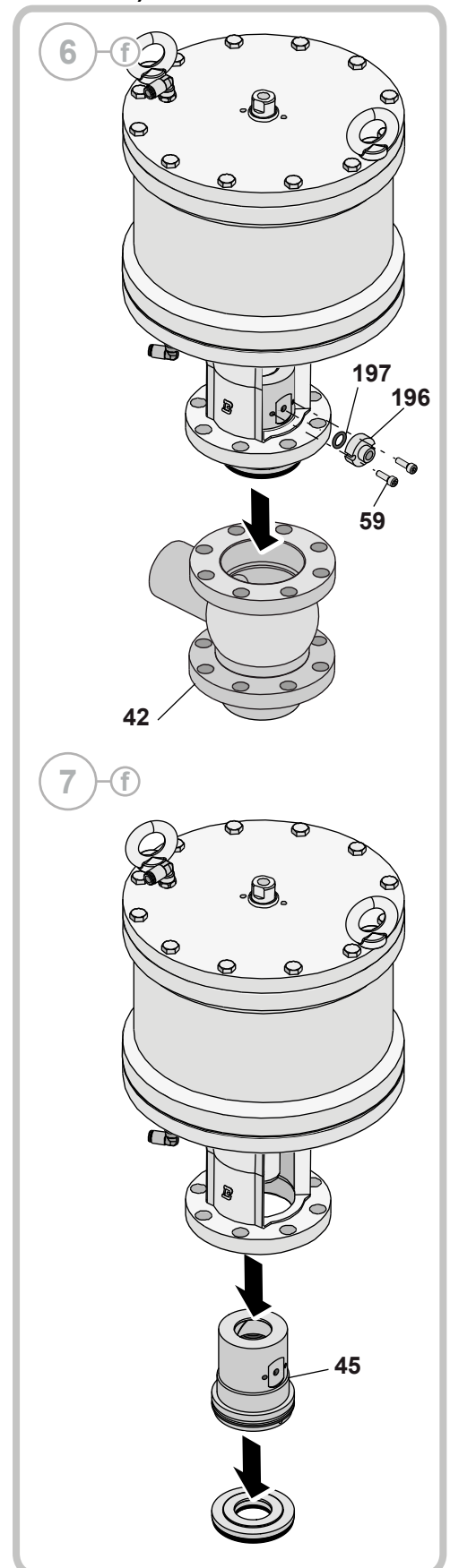


5-a

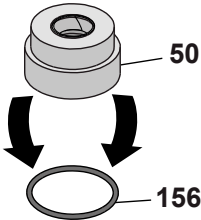




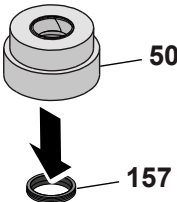
(BBYQ Special execution)



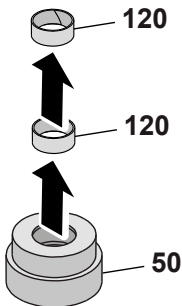
9-a



10-a

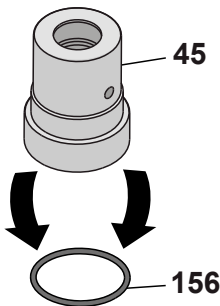


11-a

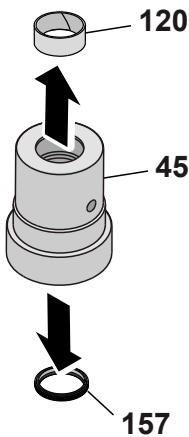


**(BBYQ)**

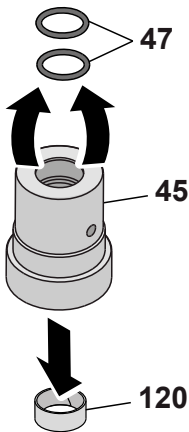
9-d



10-d

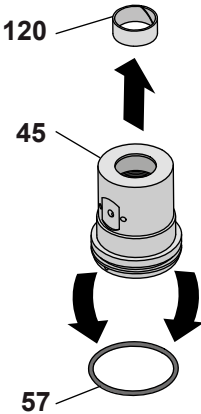


11-d

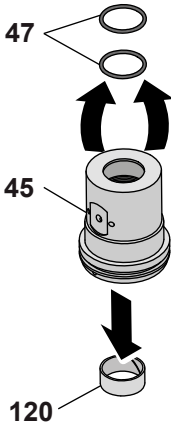


**(BBYQ Special execution)**

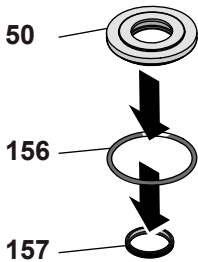
9-f

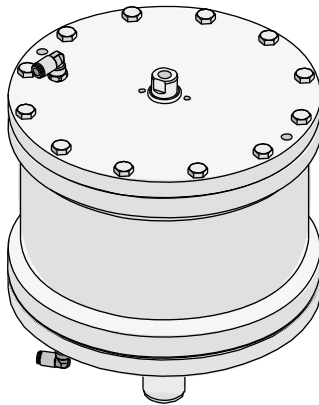


10-f

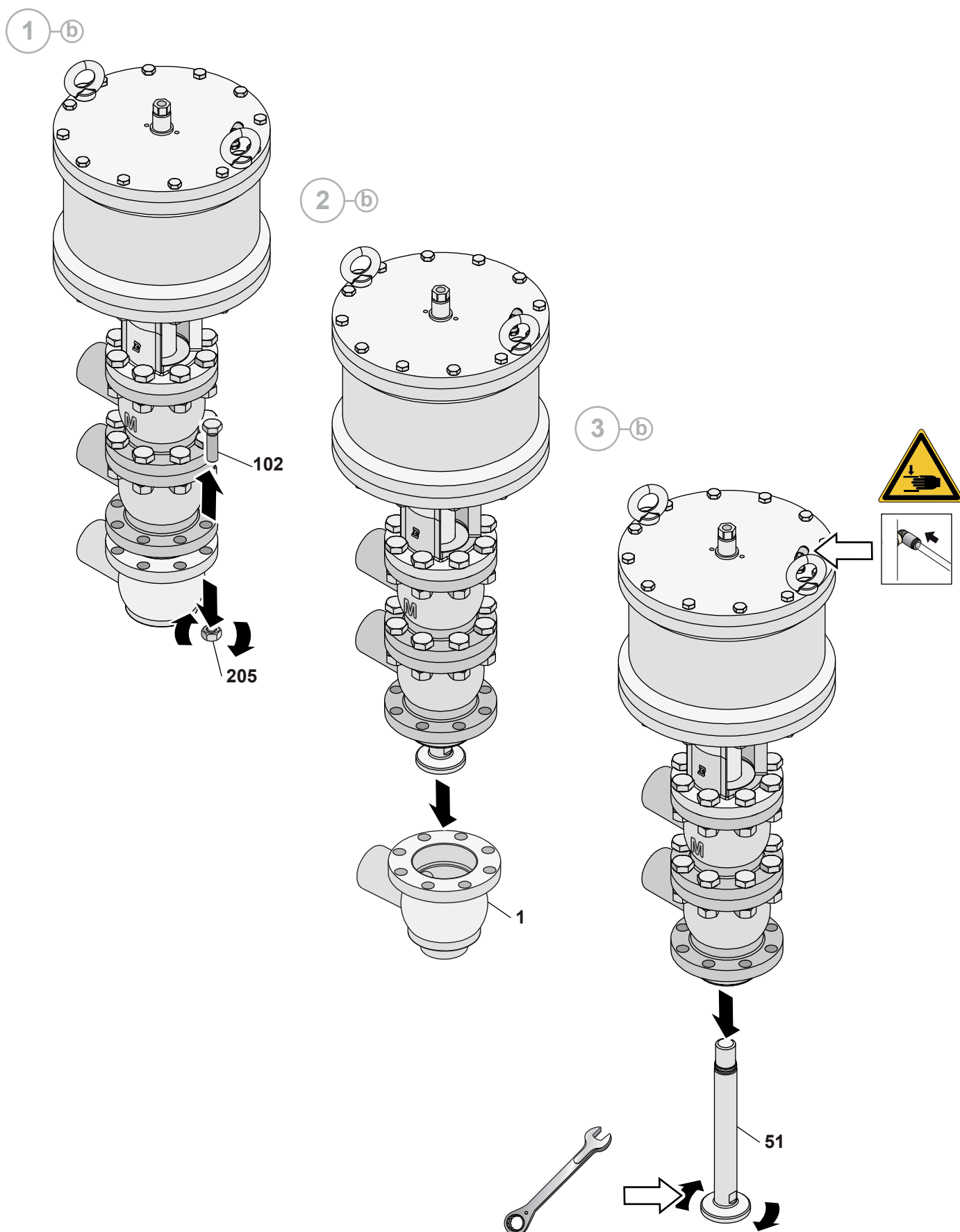


11-f

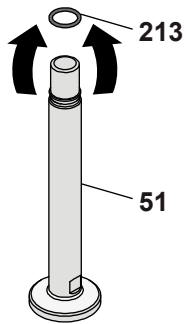




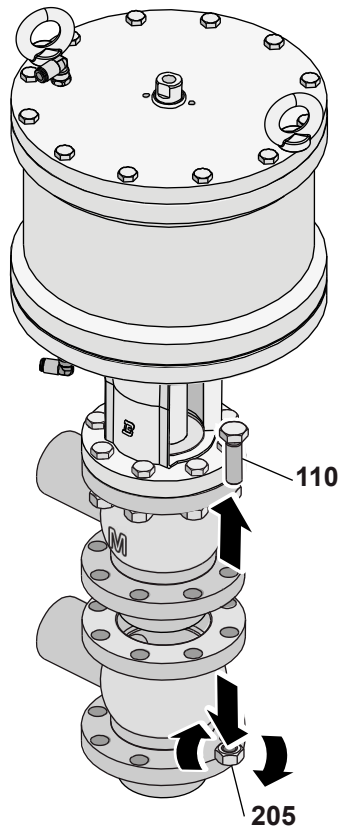
**[A S CYL 207-360]**

**B Dsassembly of the BBZQ - M8-LLL cylinder 207-360**

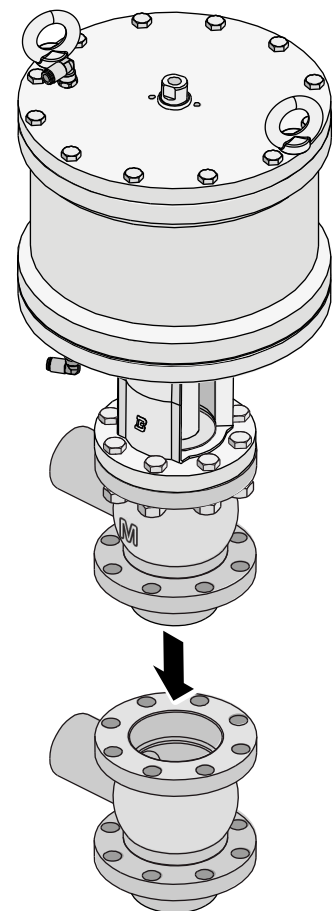
4-b



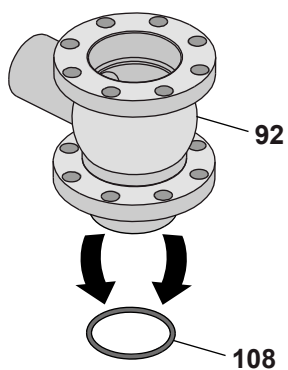
5-b



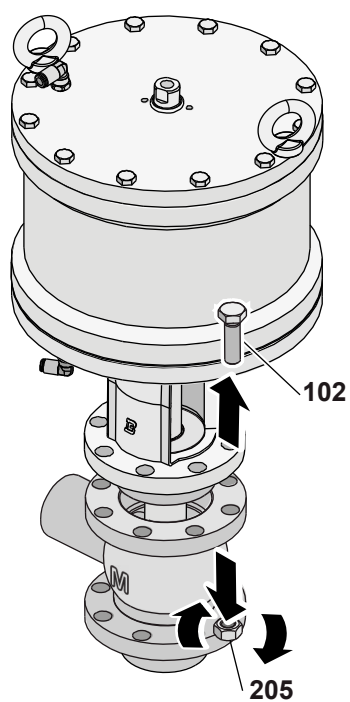
6-b



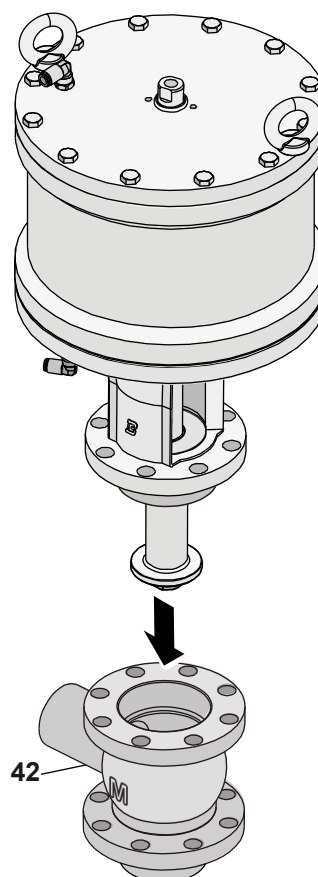
7-b



8-b

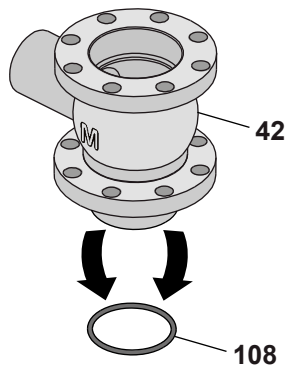


9-b

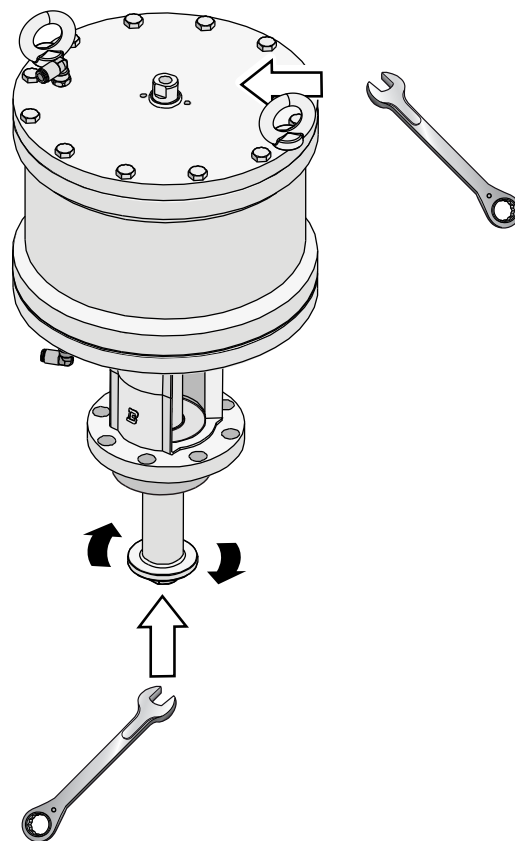




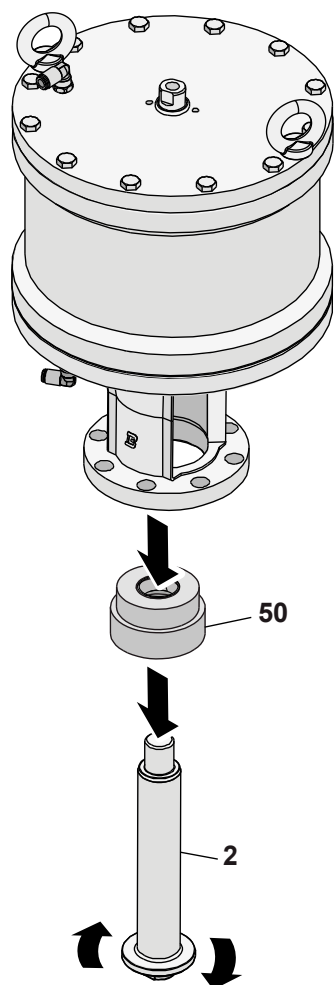
10-b



11-b

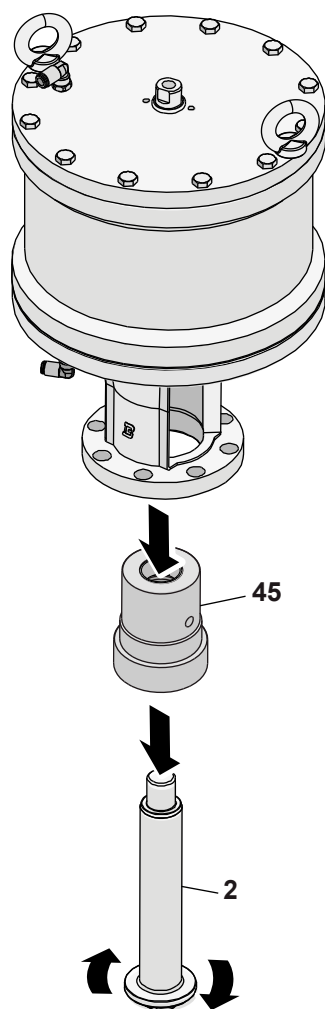


12-b



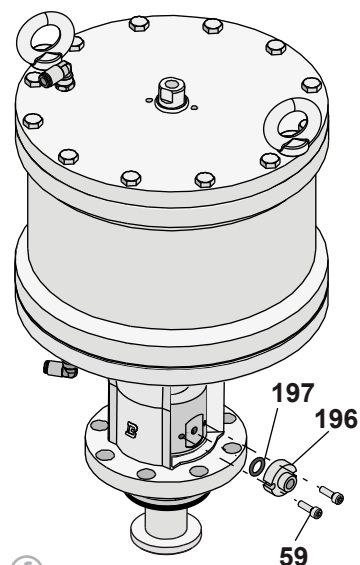
(BBYQ)

12-d

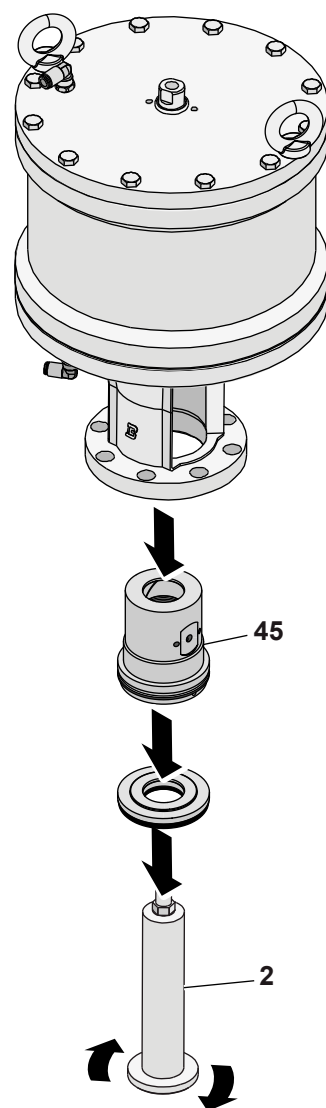


(BBYQ Special execution)

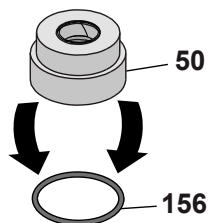
12-f



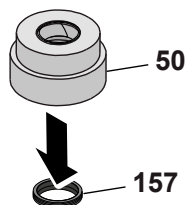
13-f



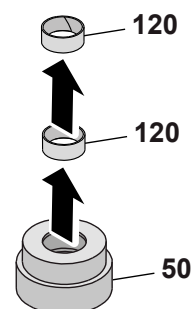
14-b



15-b

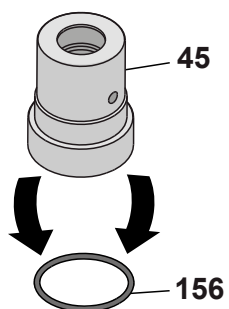


16-b

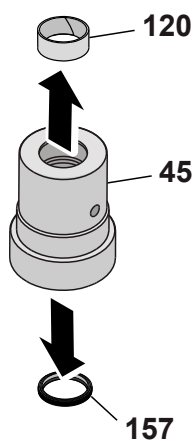


(BBYQ)

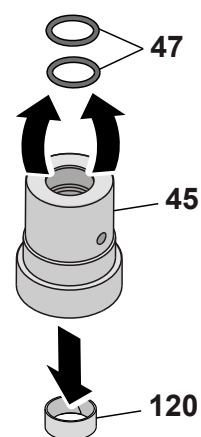
14-d



15-d

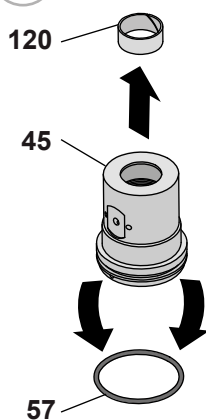


16-d

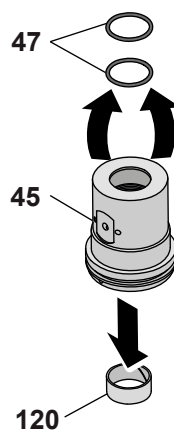


(BBYQ Special execution)

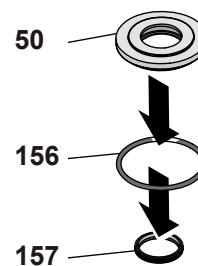
14-f

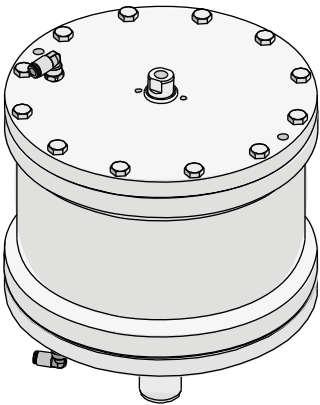
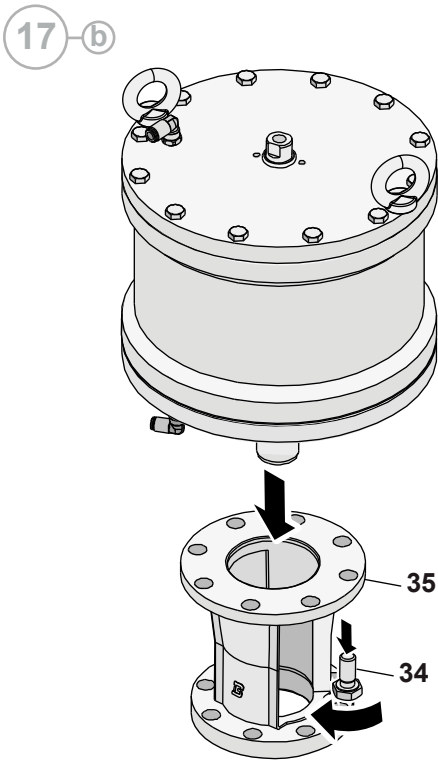


15-f



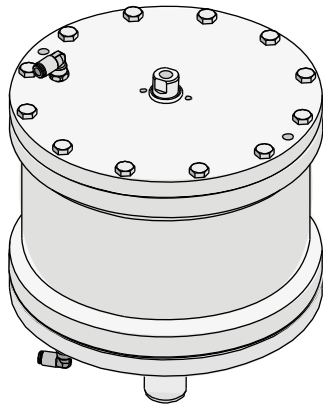
16-f



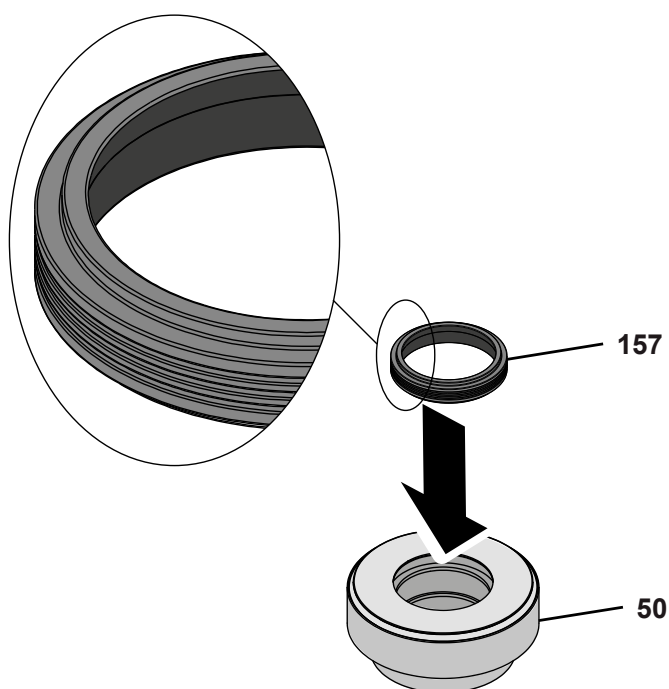
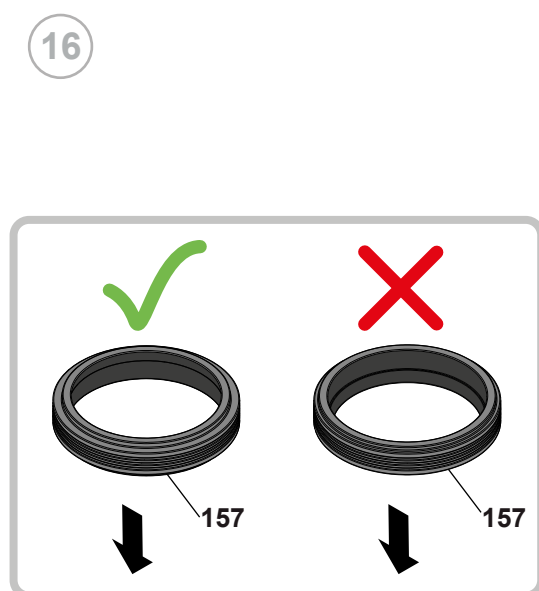
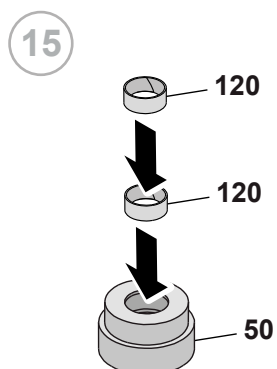


**[A S CYL 207-360]**

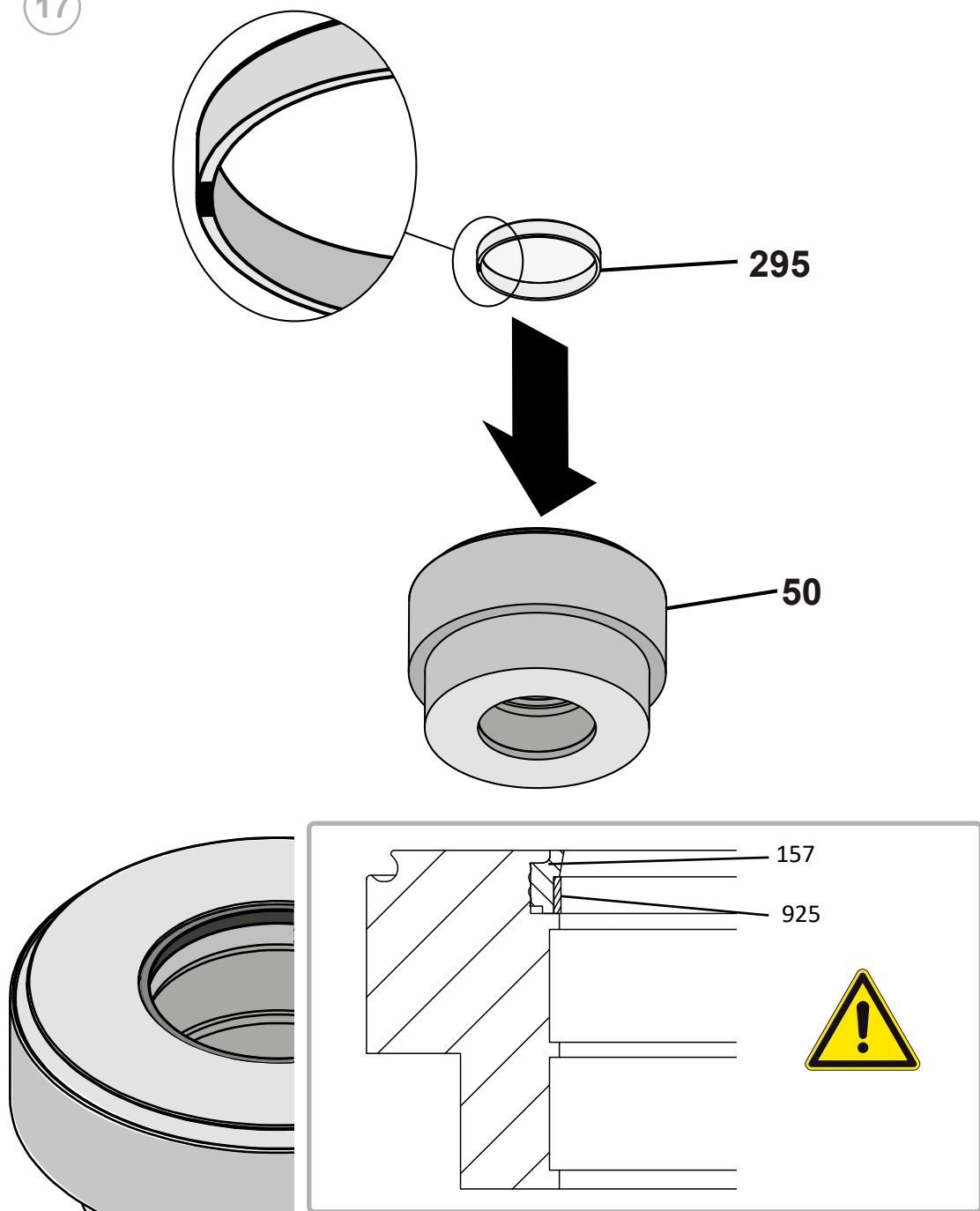
## 10.15 Assembly of the BBZQ - BBYQ cylinder 207-360 Diverter



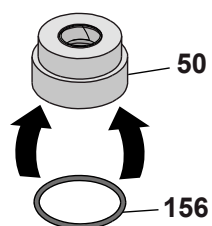
**[A M CYL 207-360]**



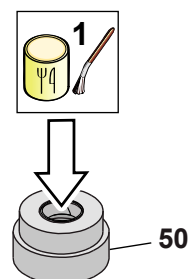
17



18

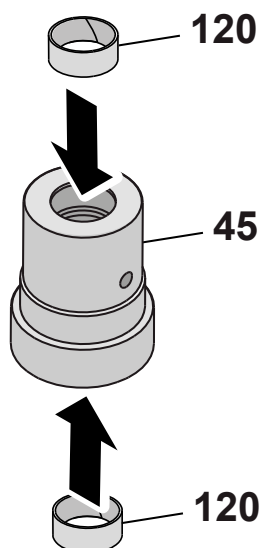


19

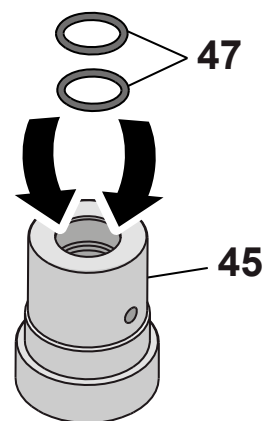


(BBYQ)

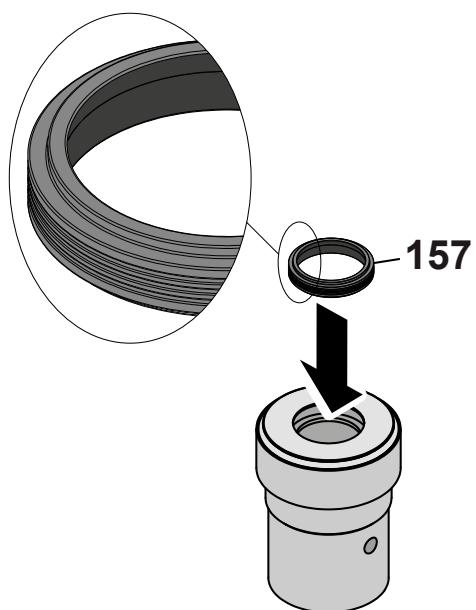
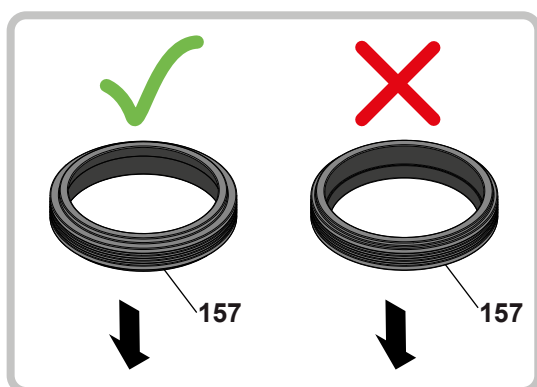
15-d



16-d



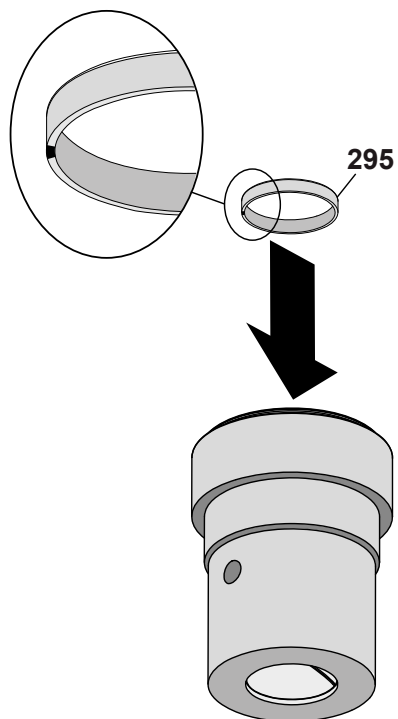
17-d



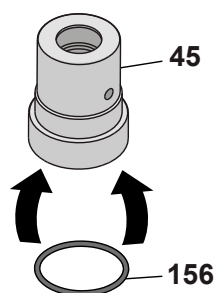


(BBYQ)

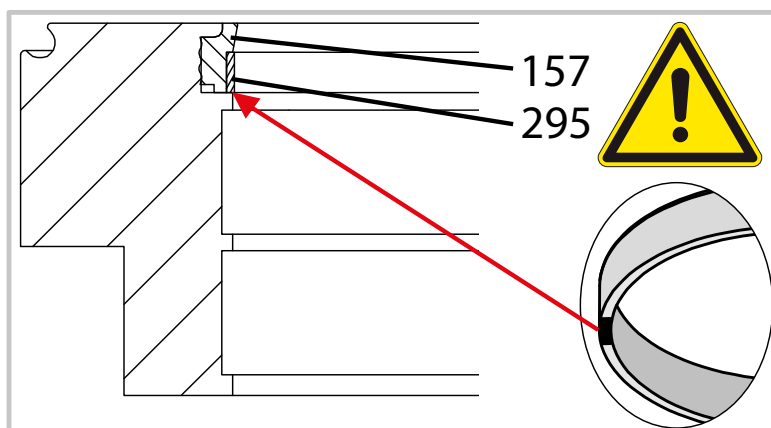
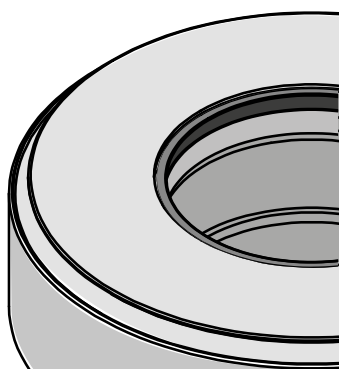
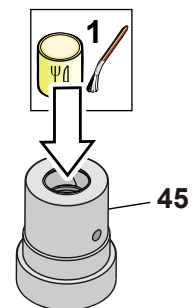
19-d

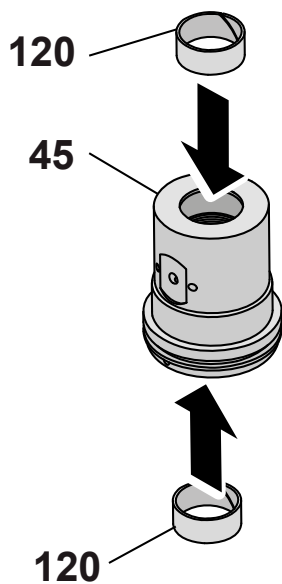
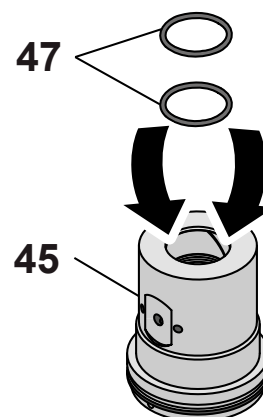
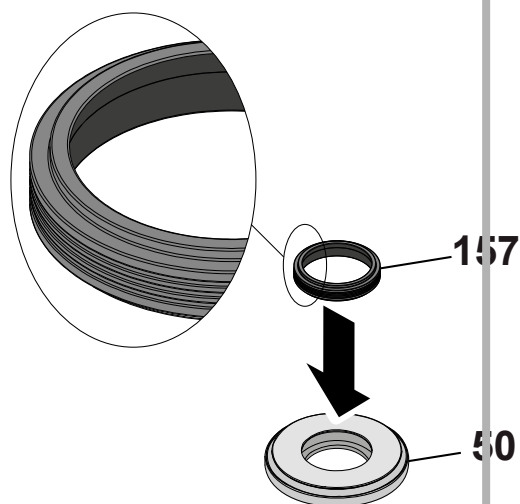
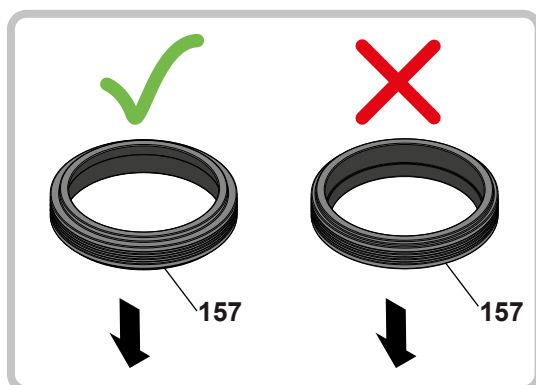


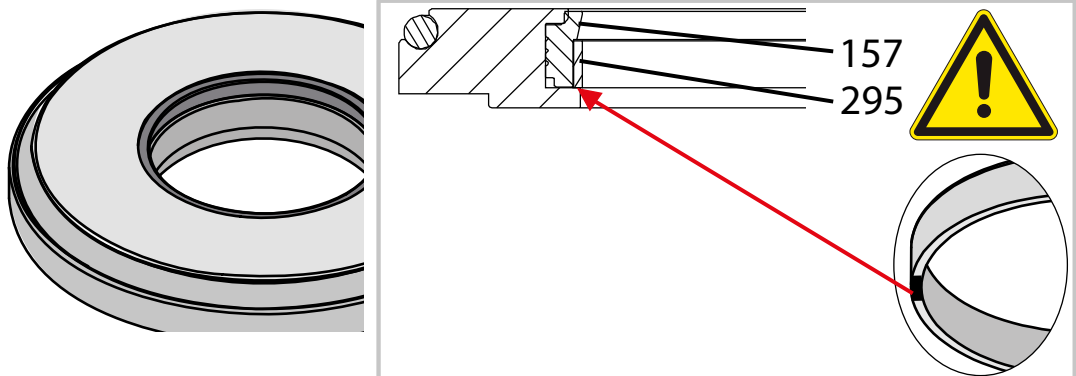
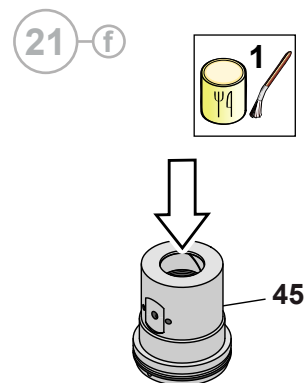
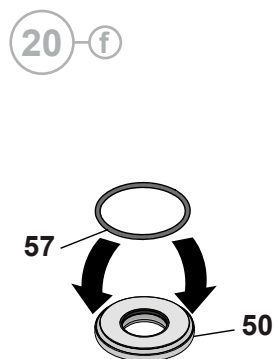
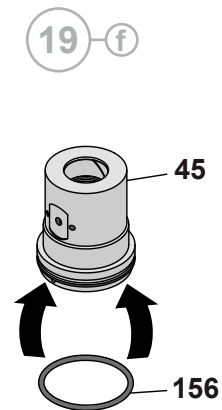
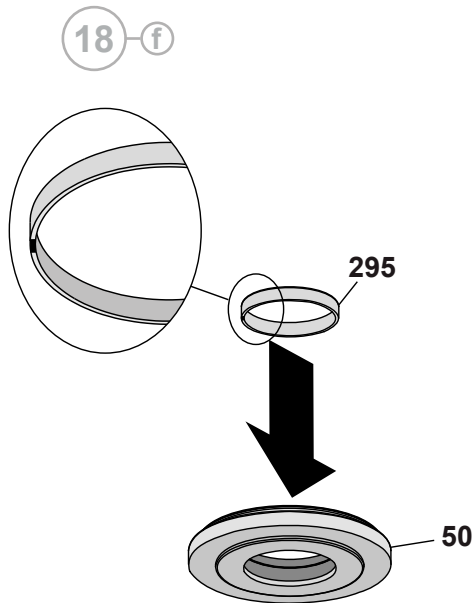
20-d



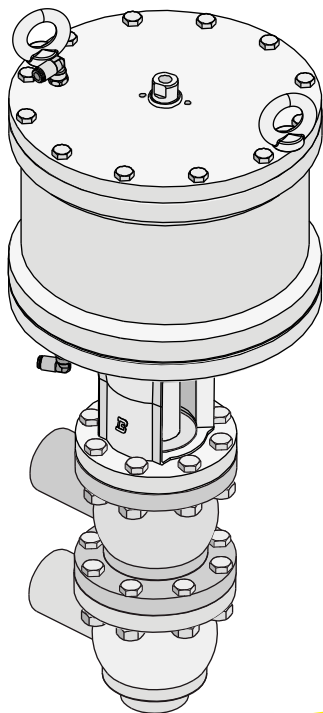
21-d



**(BBYQ Special execution)****15** f**16** f**17** f

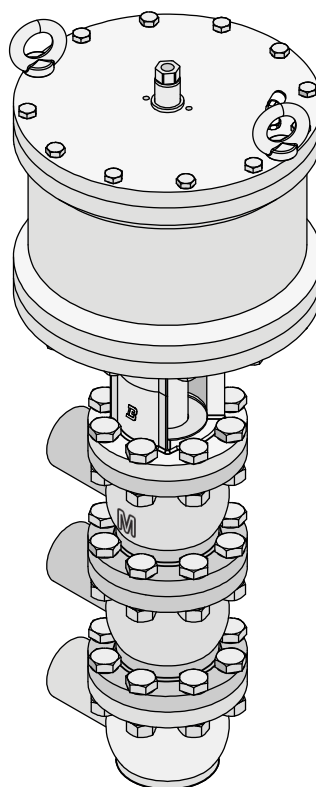
**(BBYQ Special  
execution)**

a

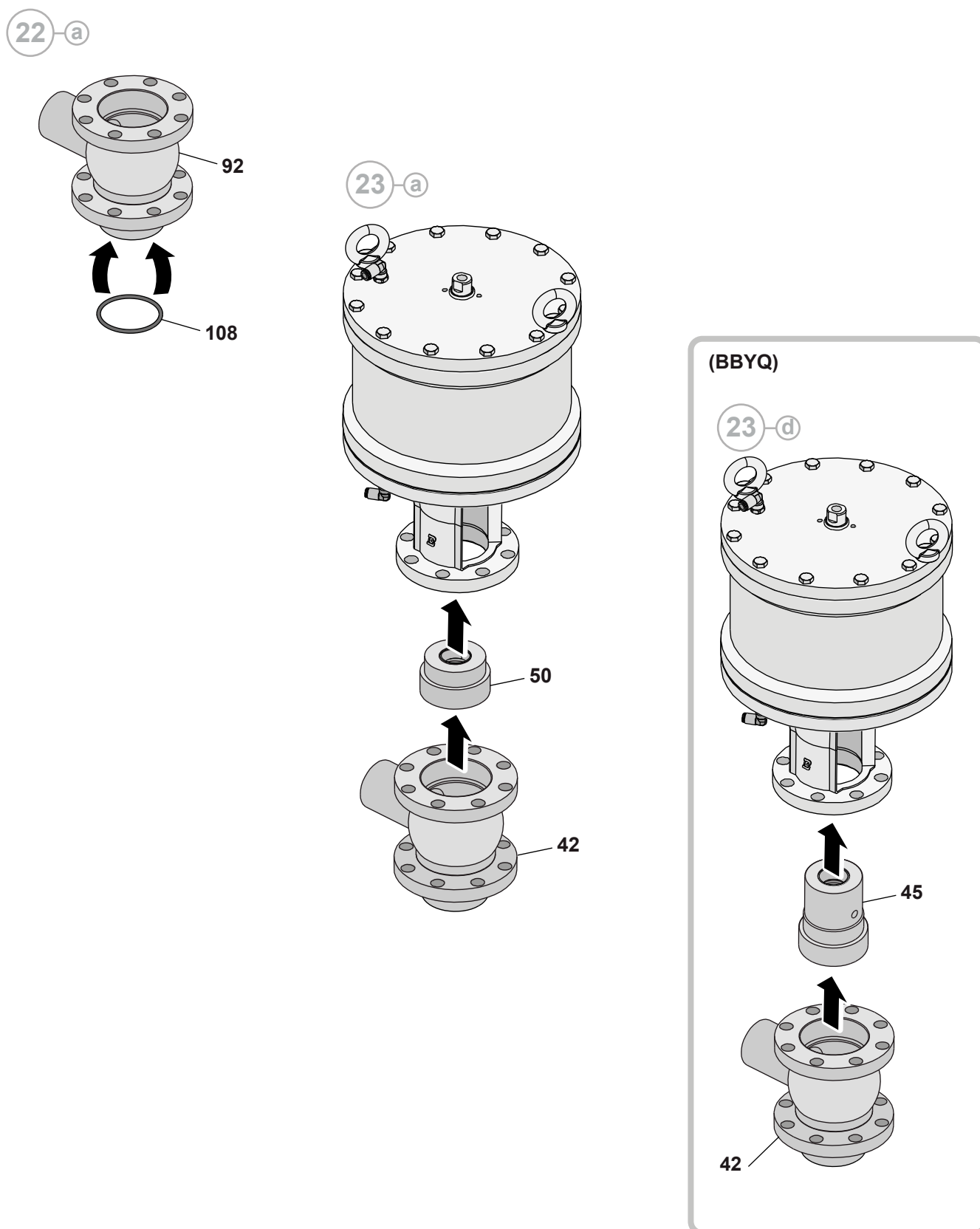


**[A M D BBZQ-  
LL-207-360]**

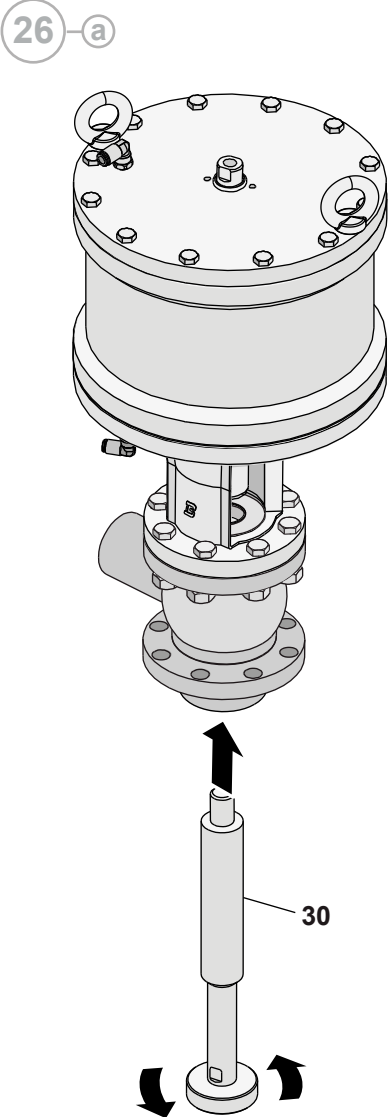
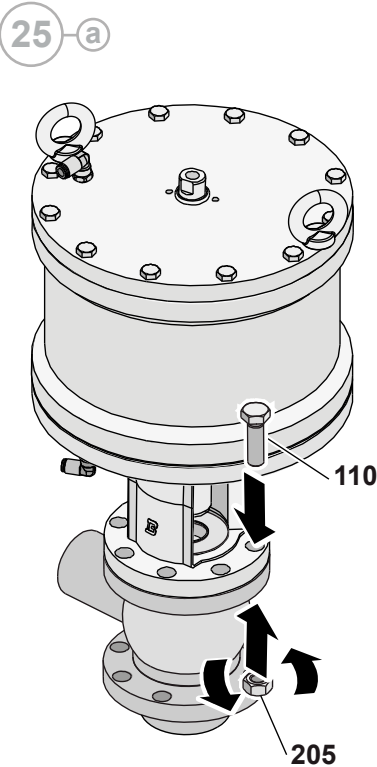
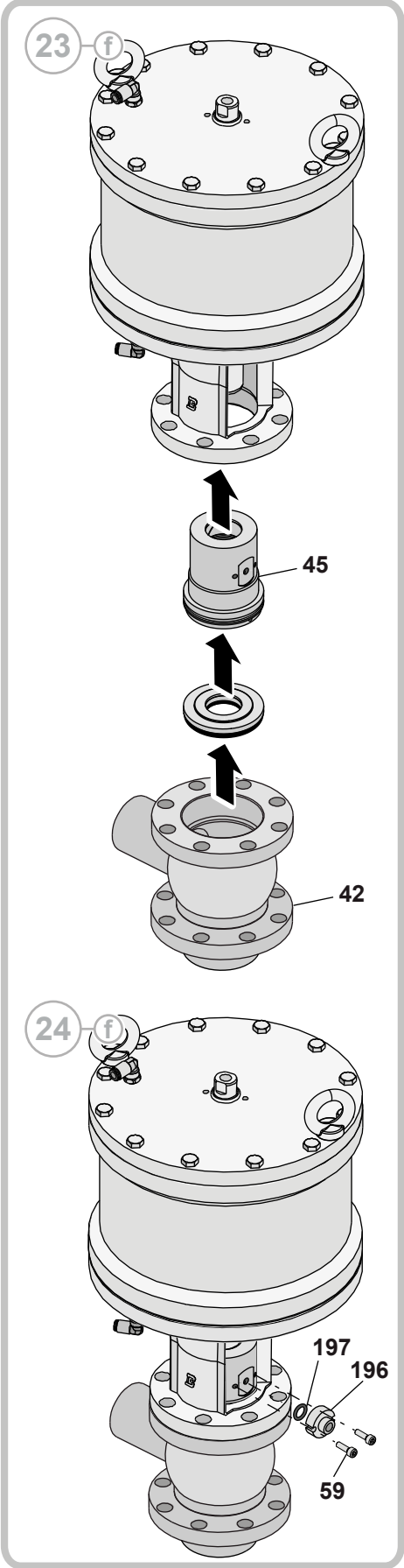
b



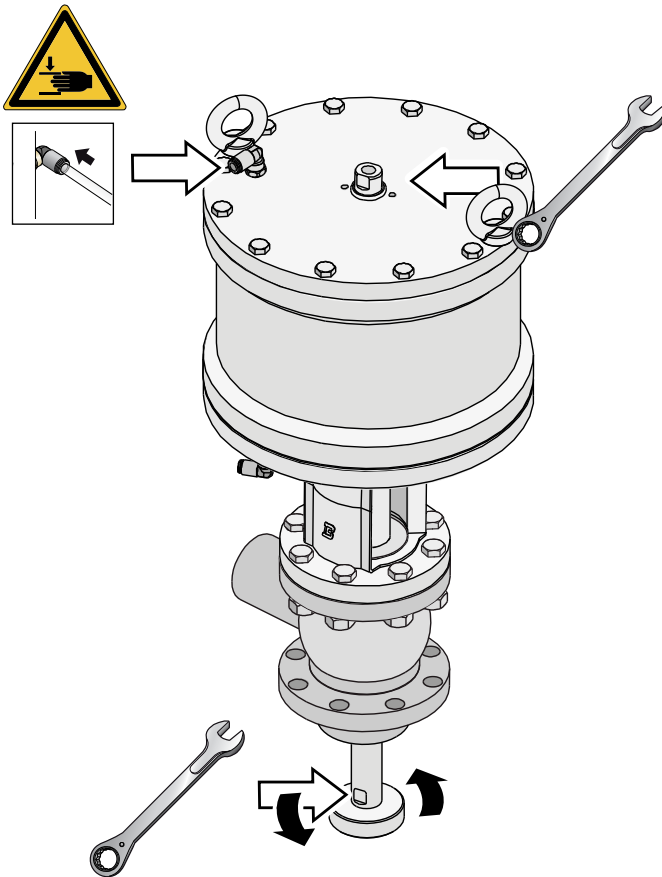
**[B M BBZQ-M8LLL-207-360]**

**A Assembly of the BBZQ - BBYQ cylinder 207-360 Diverter**

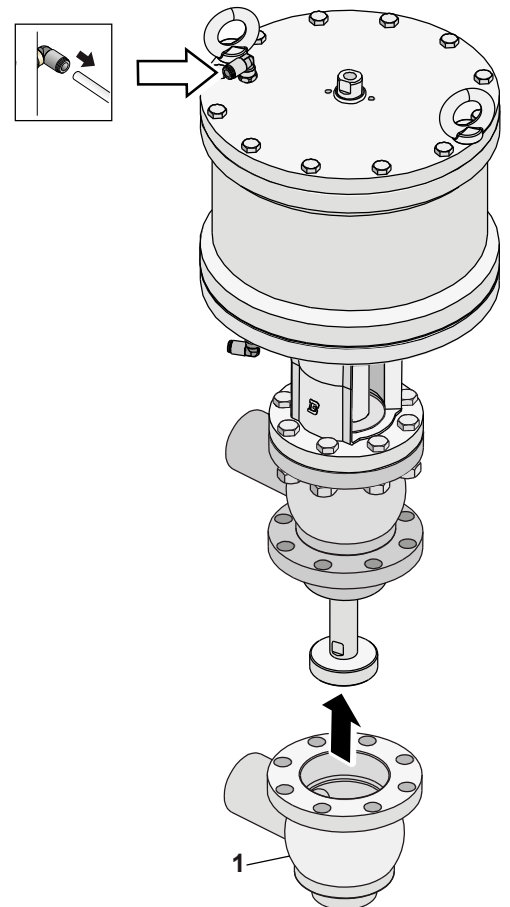
(BBYQ Special execution)



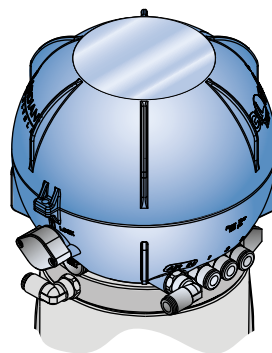
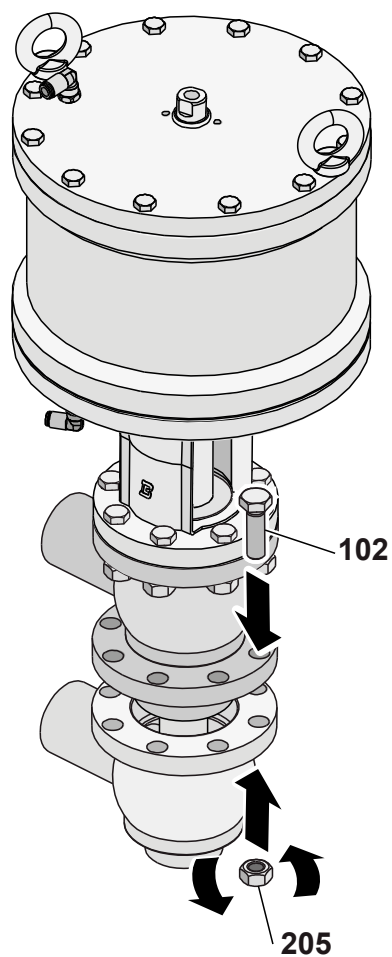
27-a



28-a



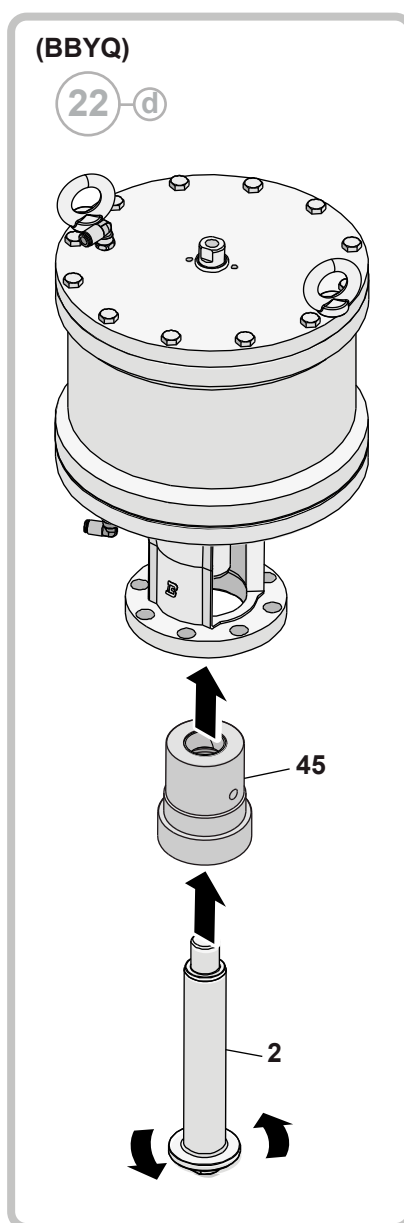
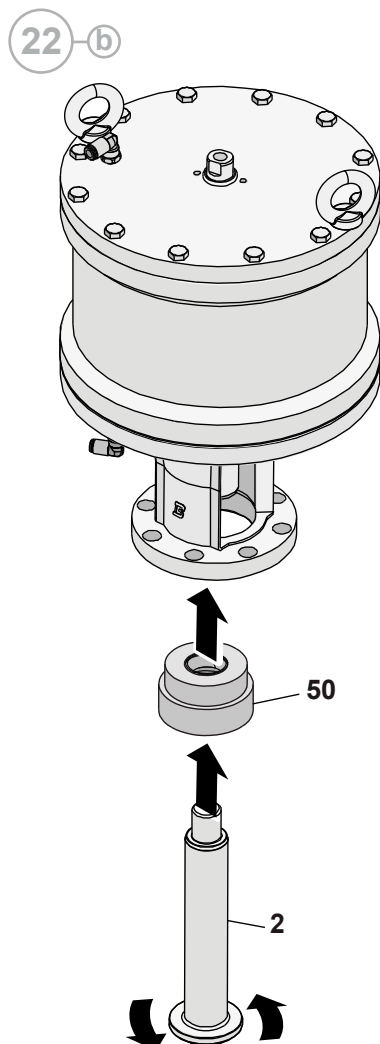
29 a



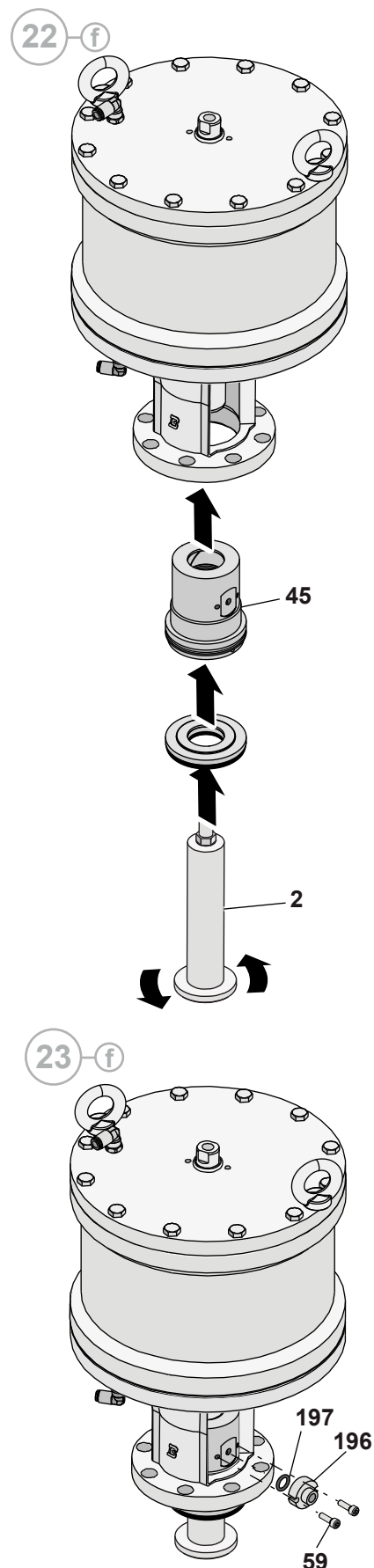
**[M GIOTTO CYL.207]**

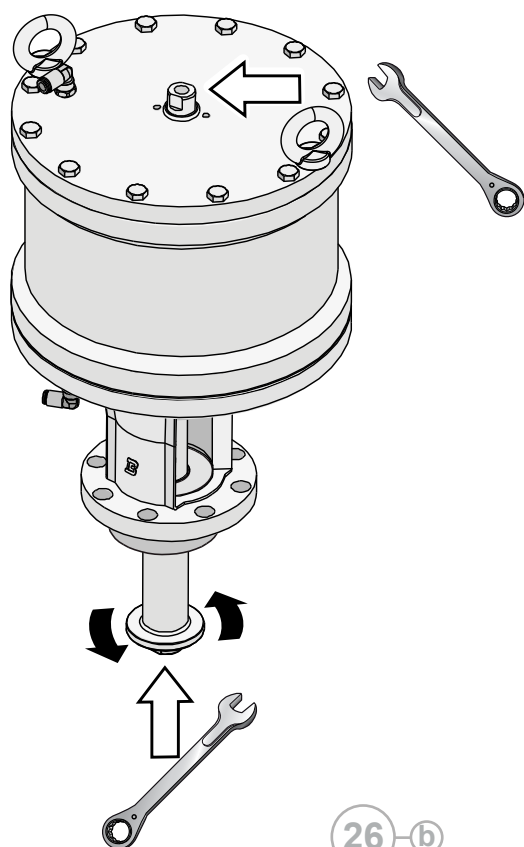
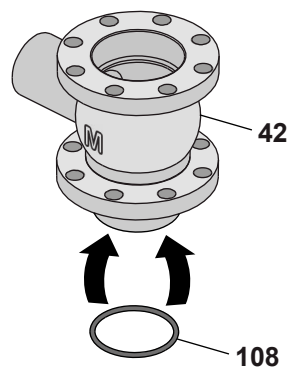
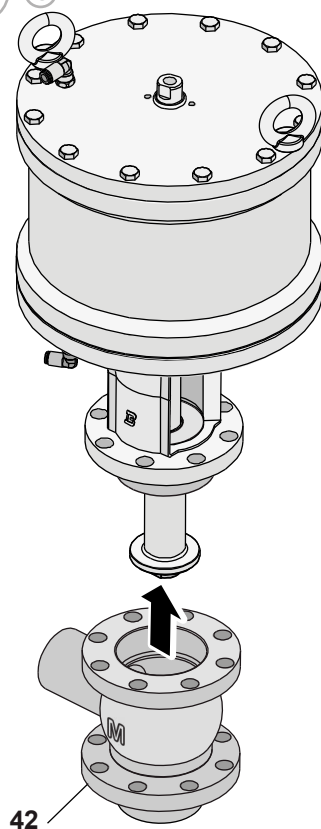
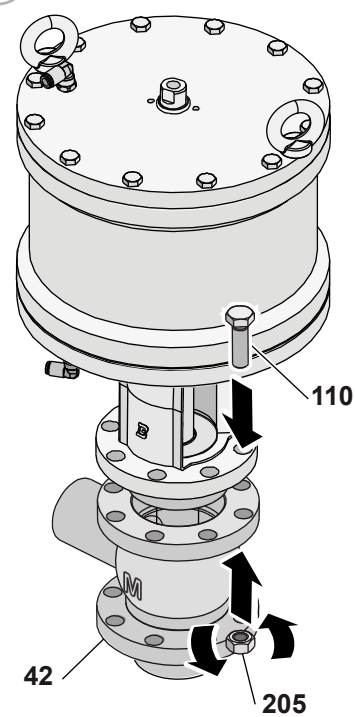


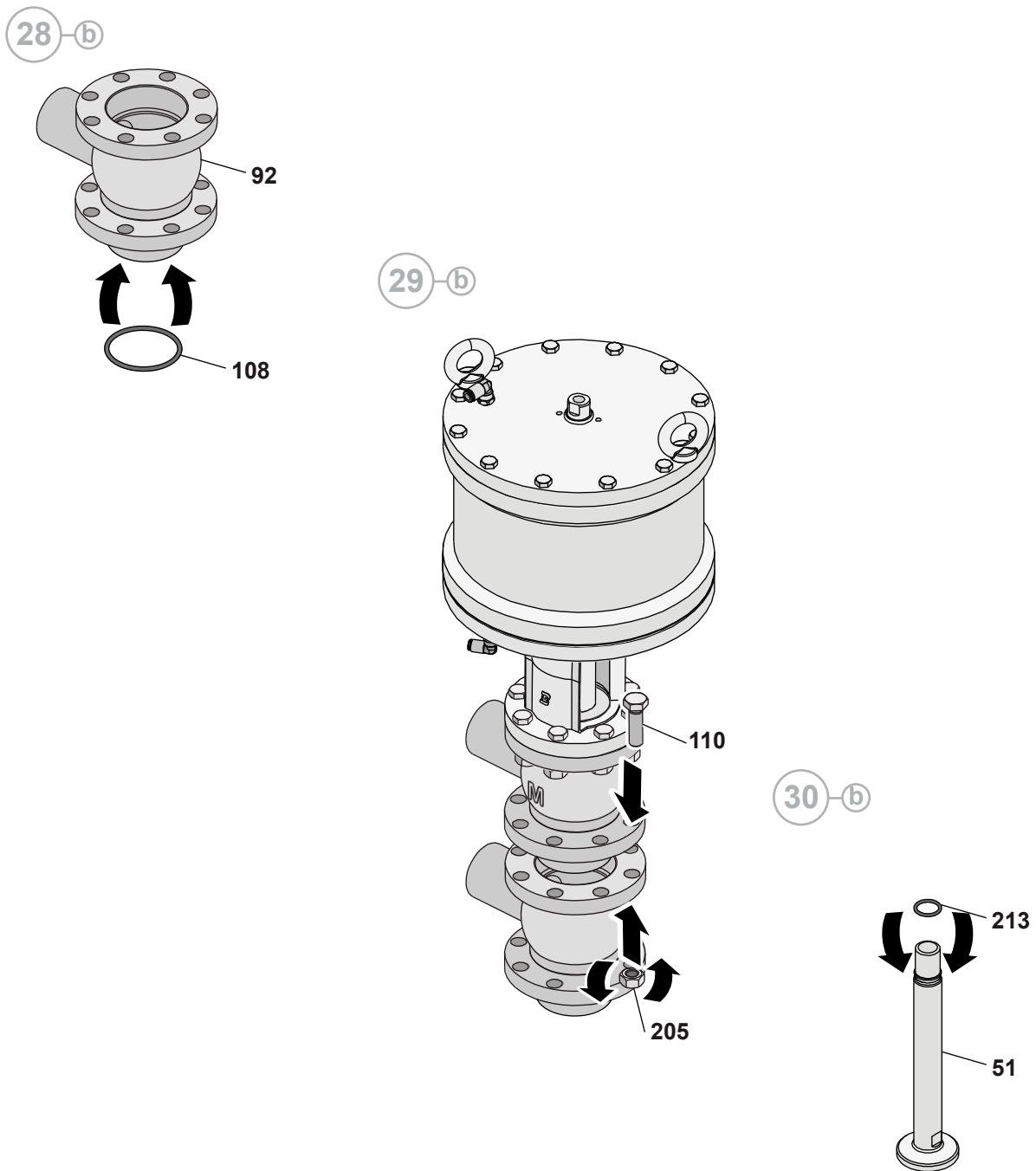
## B Assembly of the BBZQ M8-LLL cylinder 207-360 Diverter

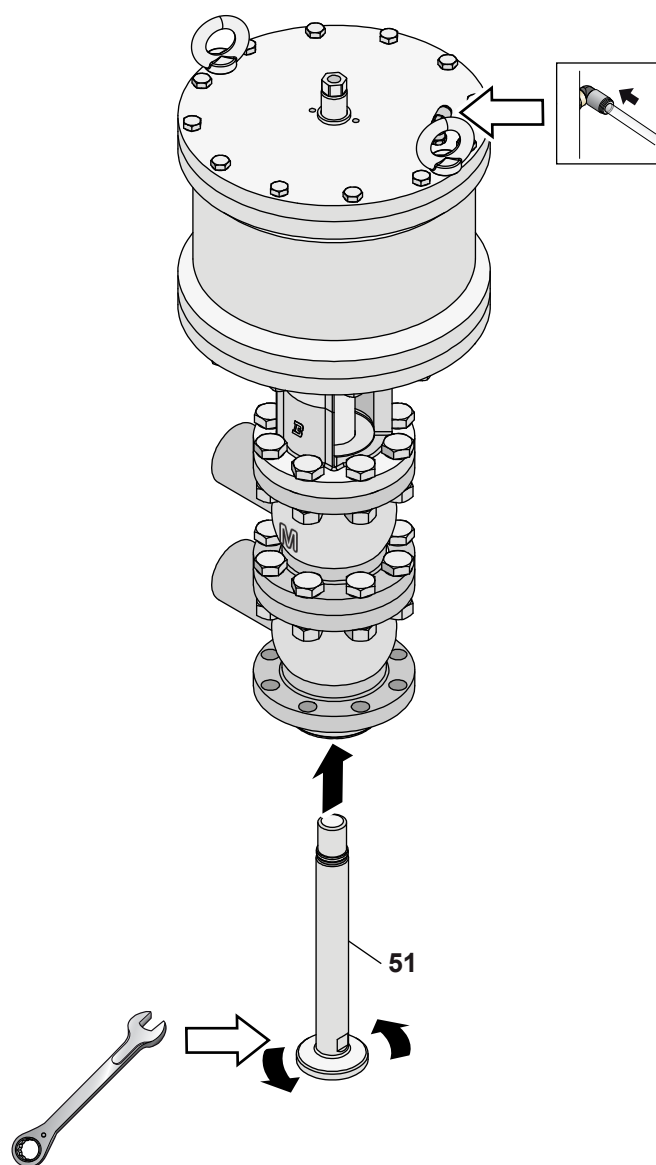
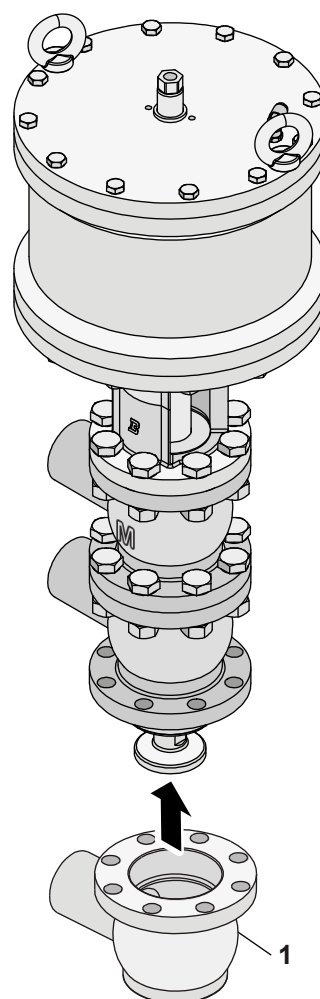


### (BBYQ Special execution)

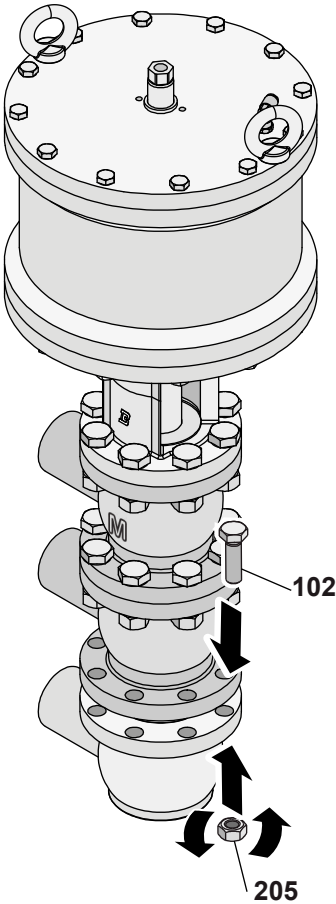


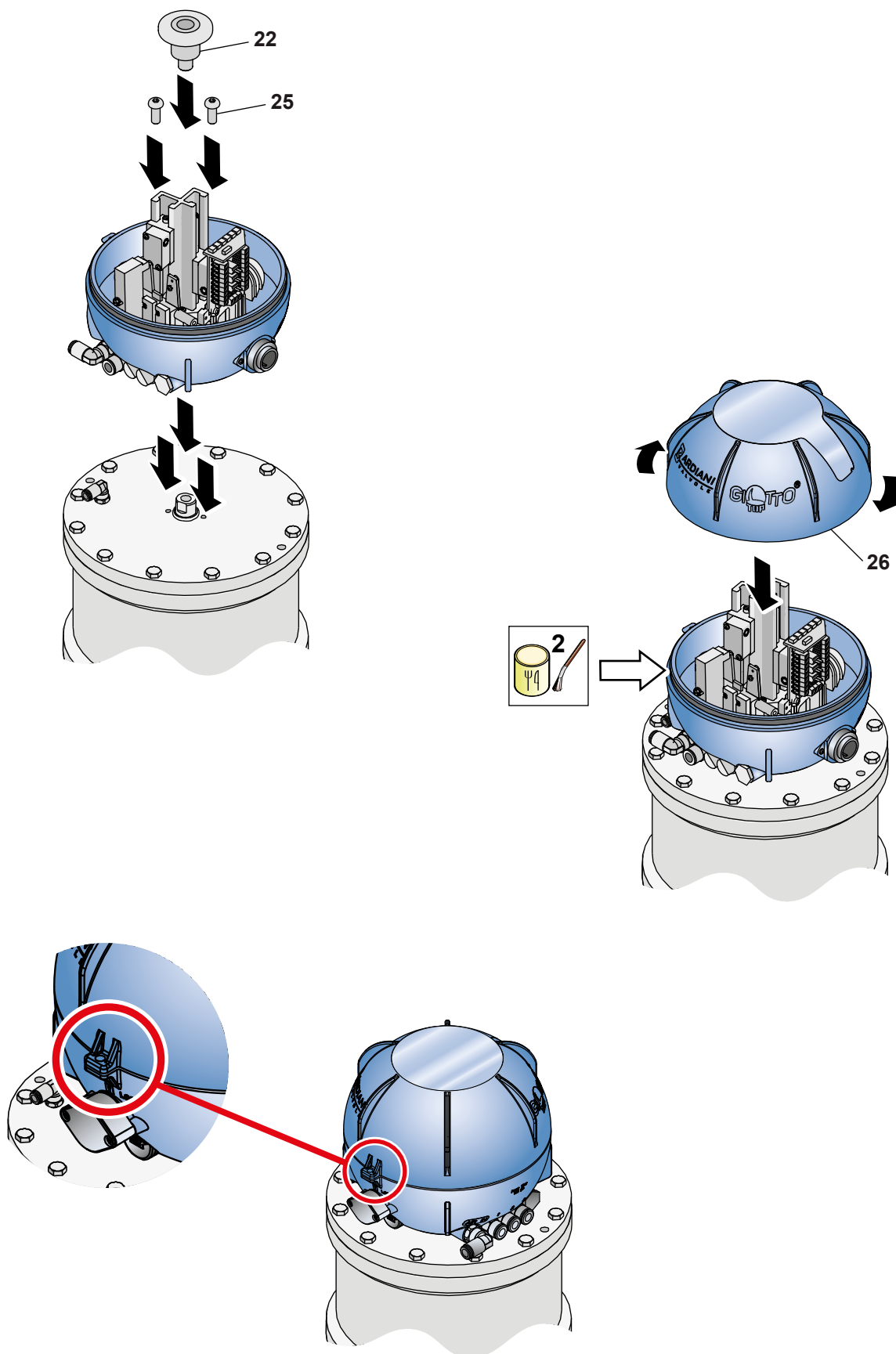
**24** - b**25** - b**26** - b**27** - b



**31** (b)**32** (b)

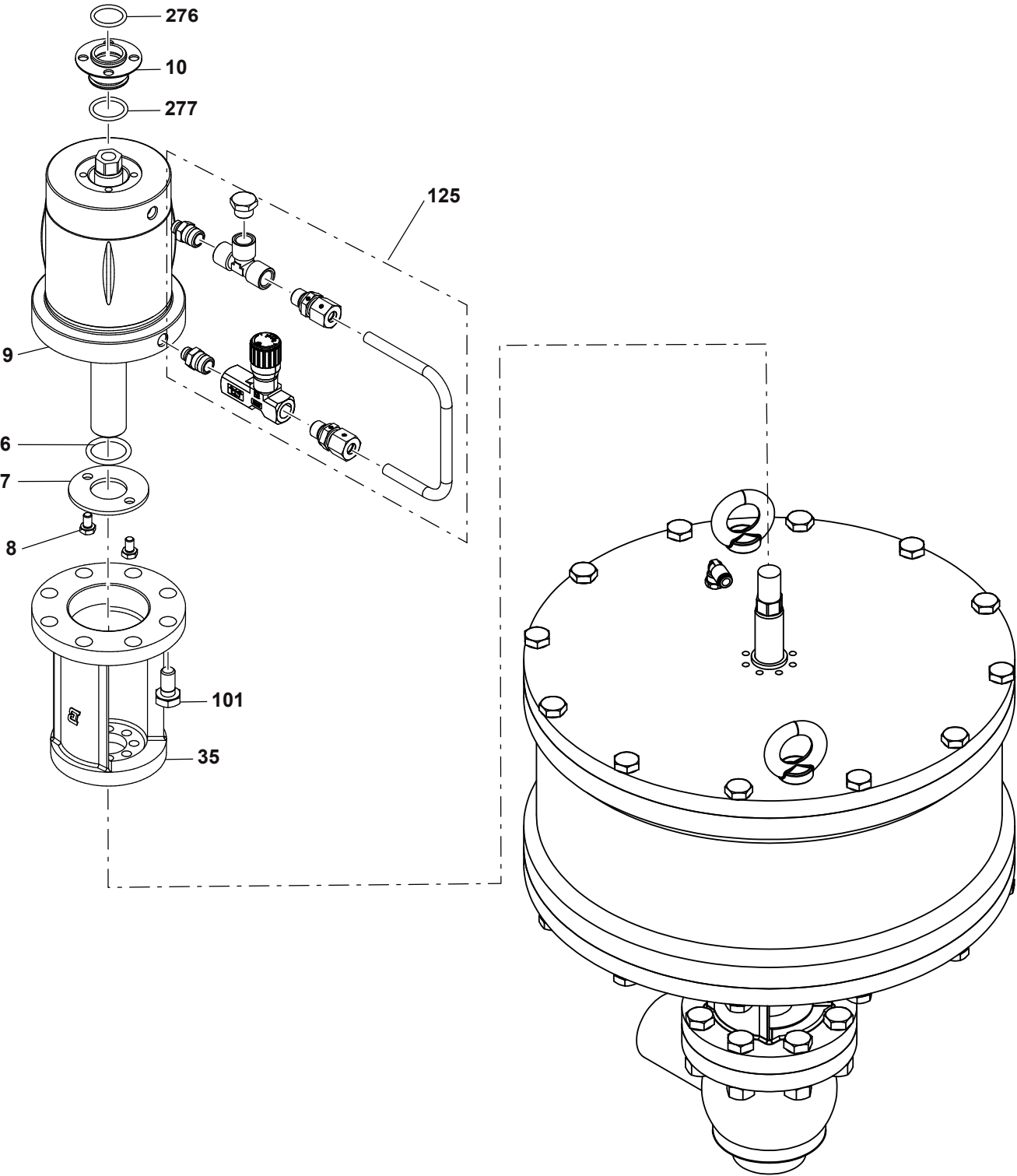
33 b





## 10.16 Idraulic damper for cylinder 207-360

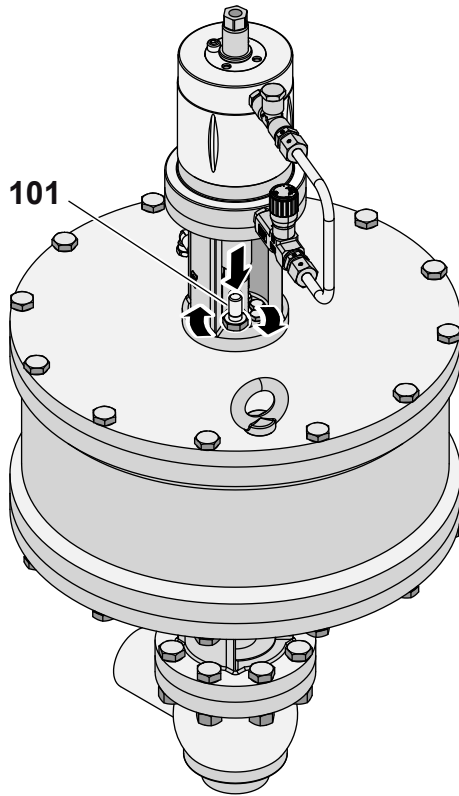
| NO. | DESCRIPTION    |
|-----|----------------|
| 6   | Sealing ring   |
| 7   | Sealing washer |
| 8   | Screw          |
| 9   | Cylinder       |
| 10  | Bush           |
| 35  | Assembly       |
| 125 | Damper         |
| 276 | Sealing ring   |
| 277 | Sealing ring   |



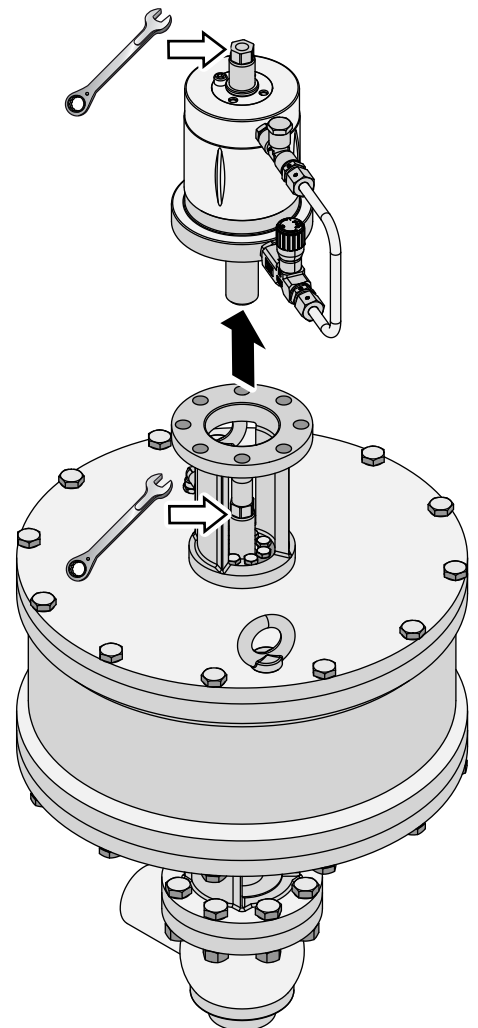


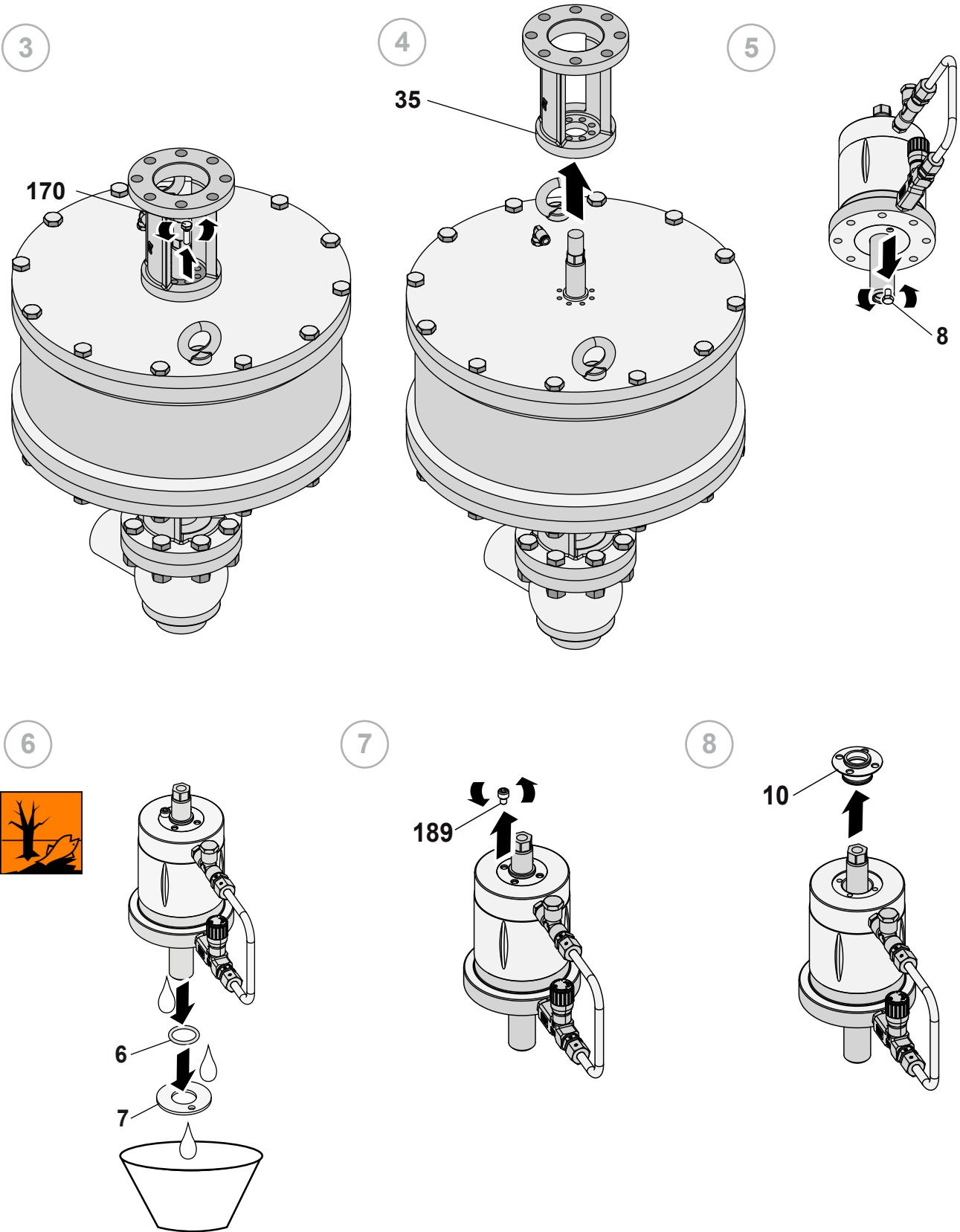
**10.17 Disassembly of idraulic damper for cilynder 207-360**

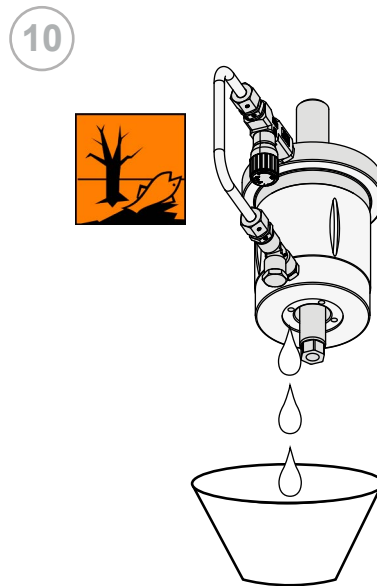
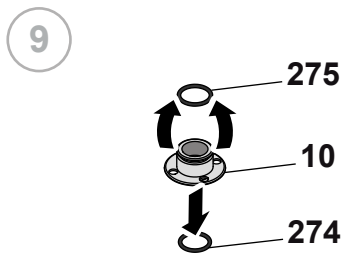
1

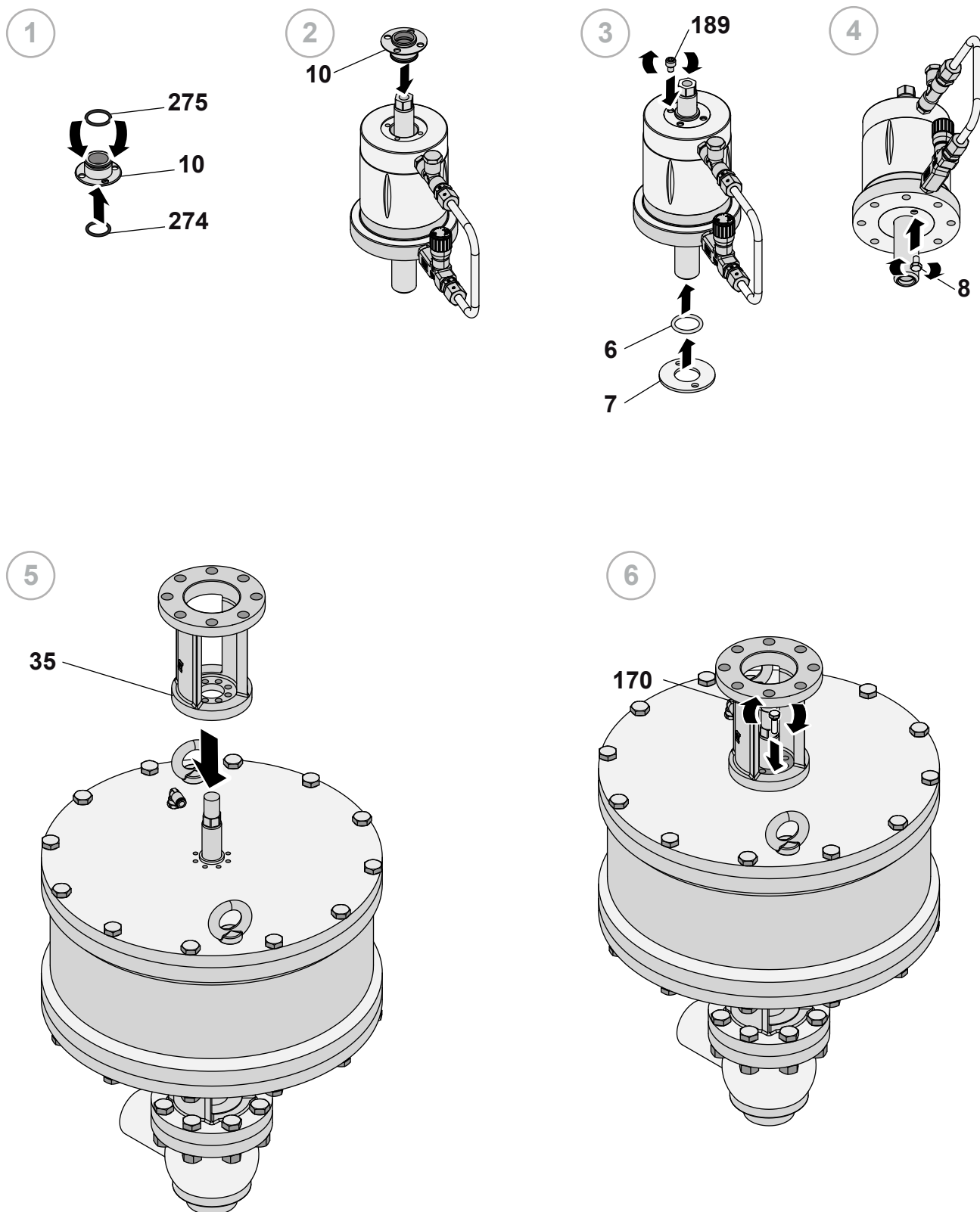


2

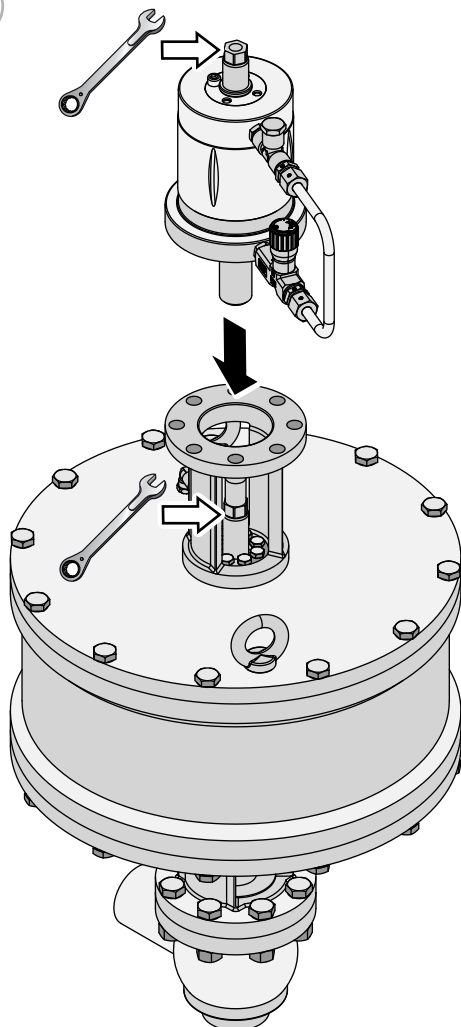




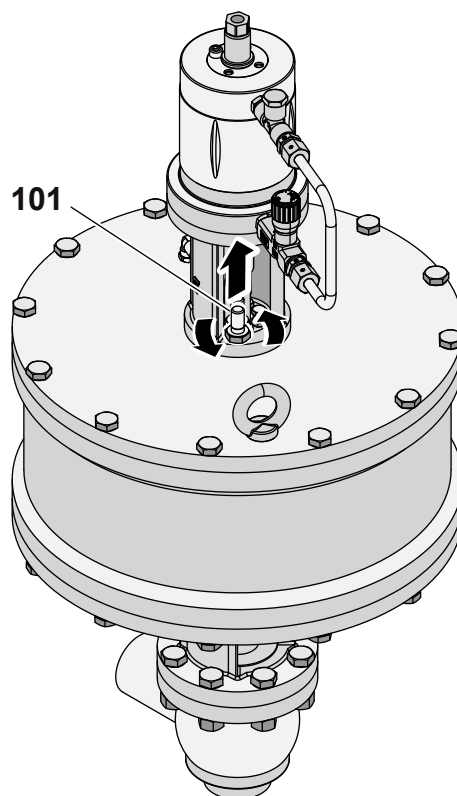


**10.18 Assembly idraulic of damper for cilynder 207-360**

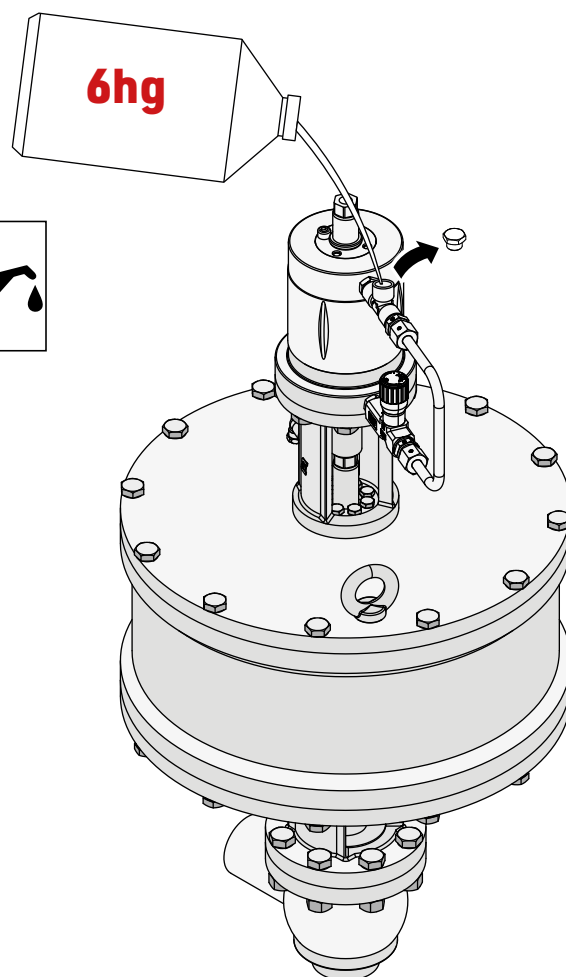
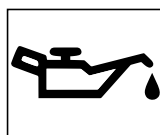
7



8

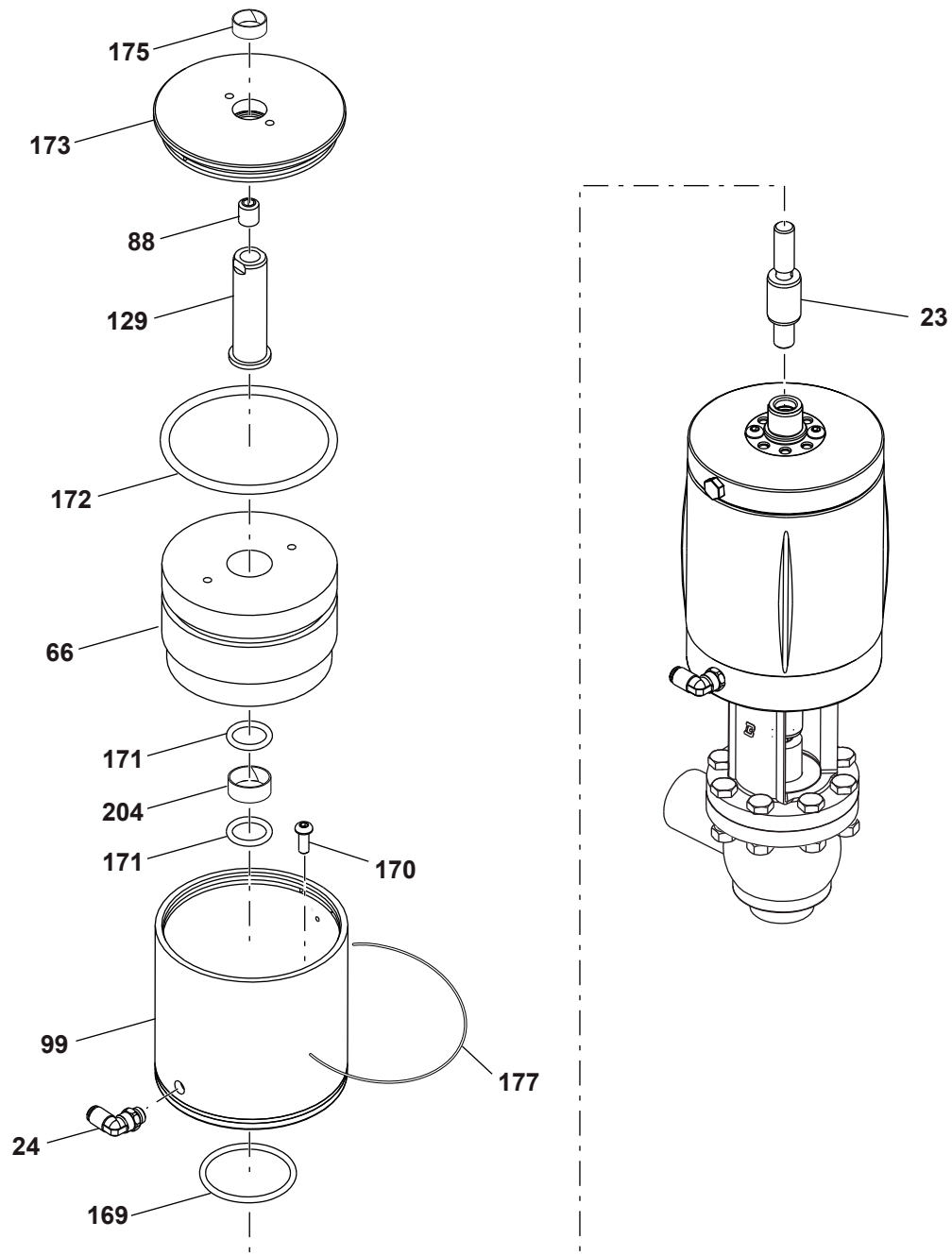


9

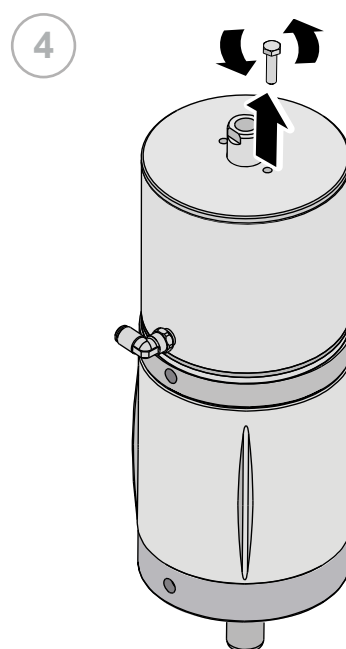
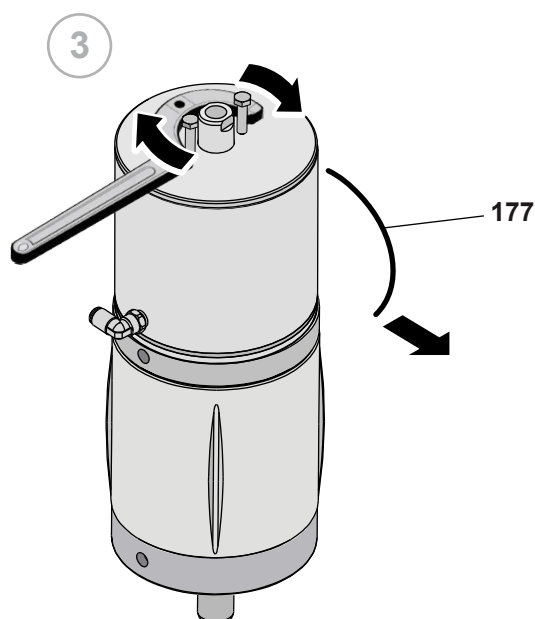
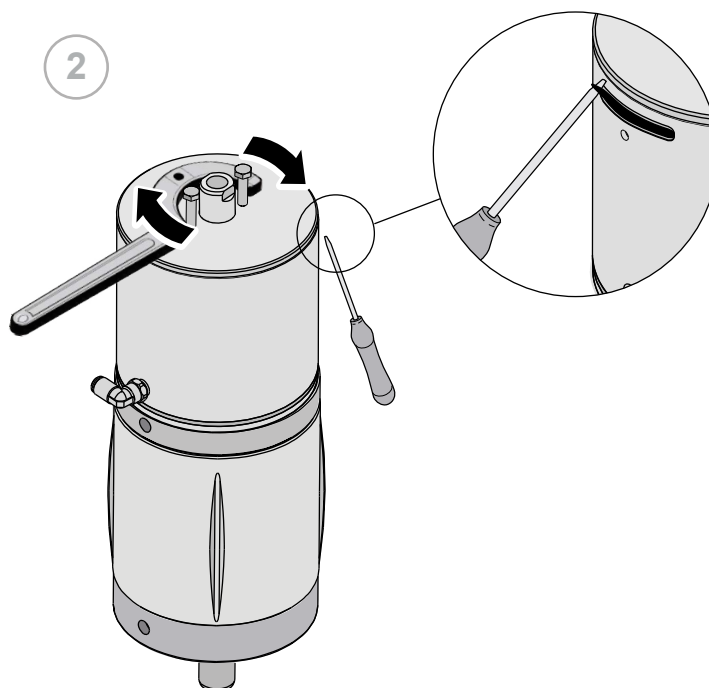
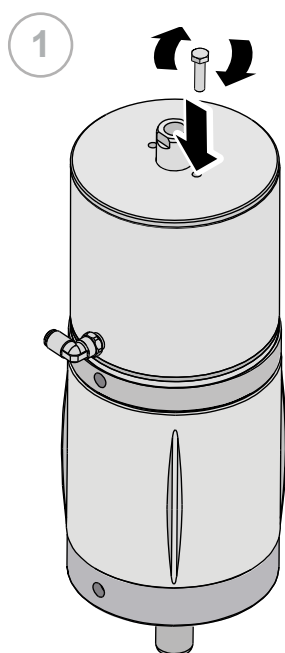


## 10.19 Pneumatic Valves BBZU

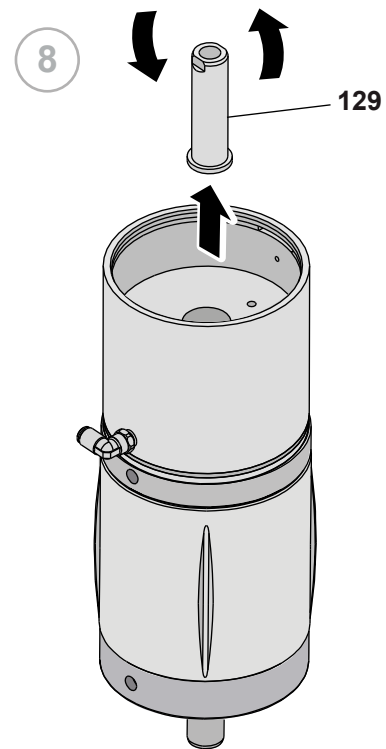
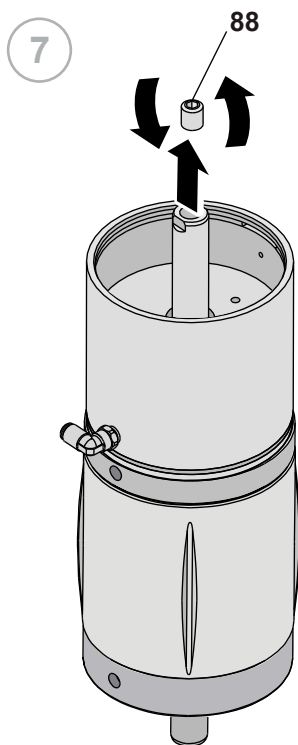
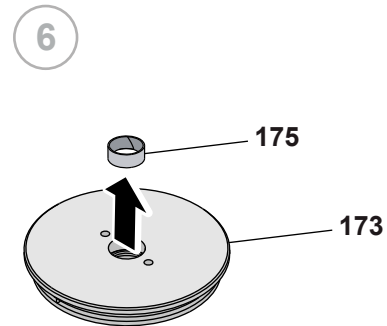
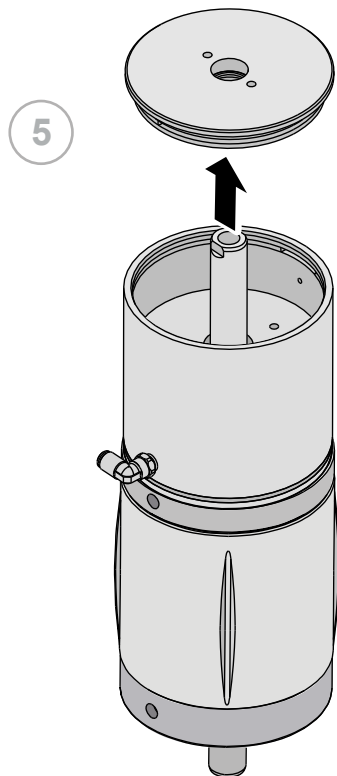
| NO. | DESCRIPTION   |
|-----|---------------|
| 23  | Upper pin     |
| 24  | Air connector |
| 66  | Piston        |
| 88  | Grub screw    |
| 99  | Cylinder      |
| 129 | Pin           |
| 169 | Sealing ring  |
| 170 | Screw         |
| 171 | Sealing ring  |
| 172 | Sealing ring  |
| 173 | Buffer        |
| 175 | Bush          |
| 177 | Elastic wire  |
| 204 | Bush          |



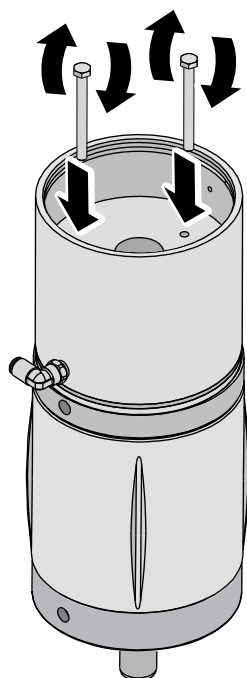
## 10.20 Disassembly of the BBZU



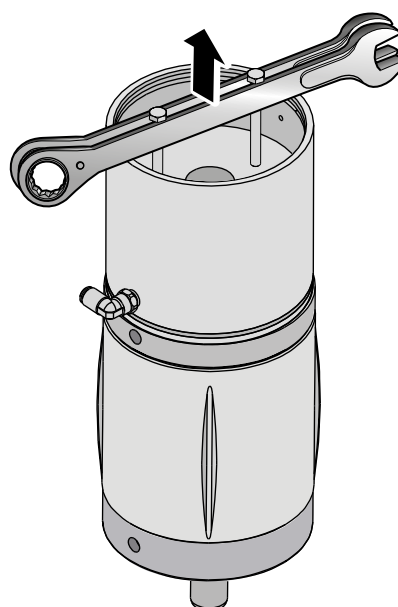




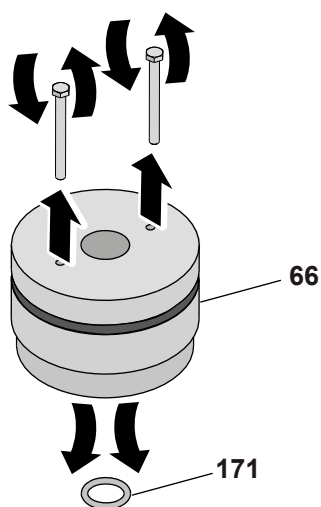
9



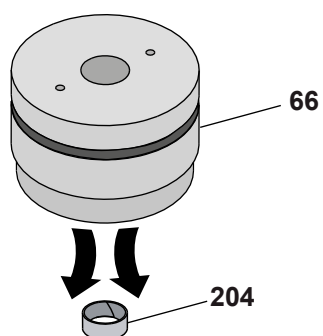
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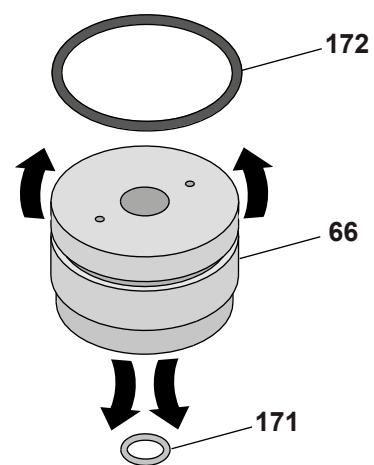
11

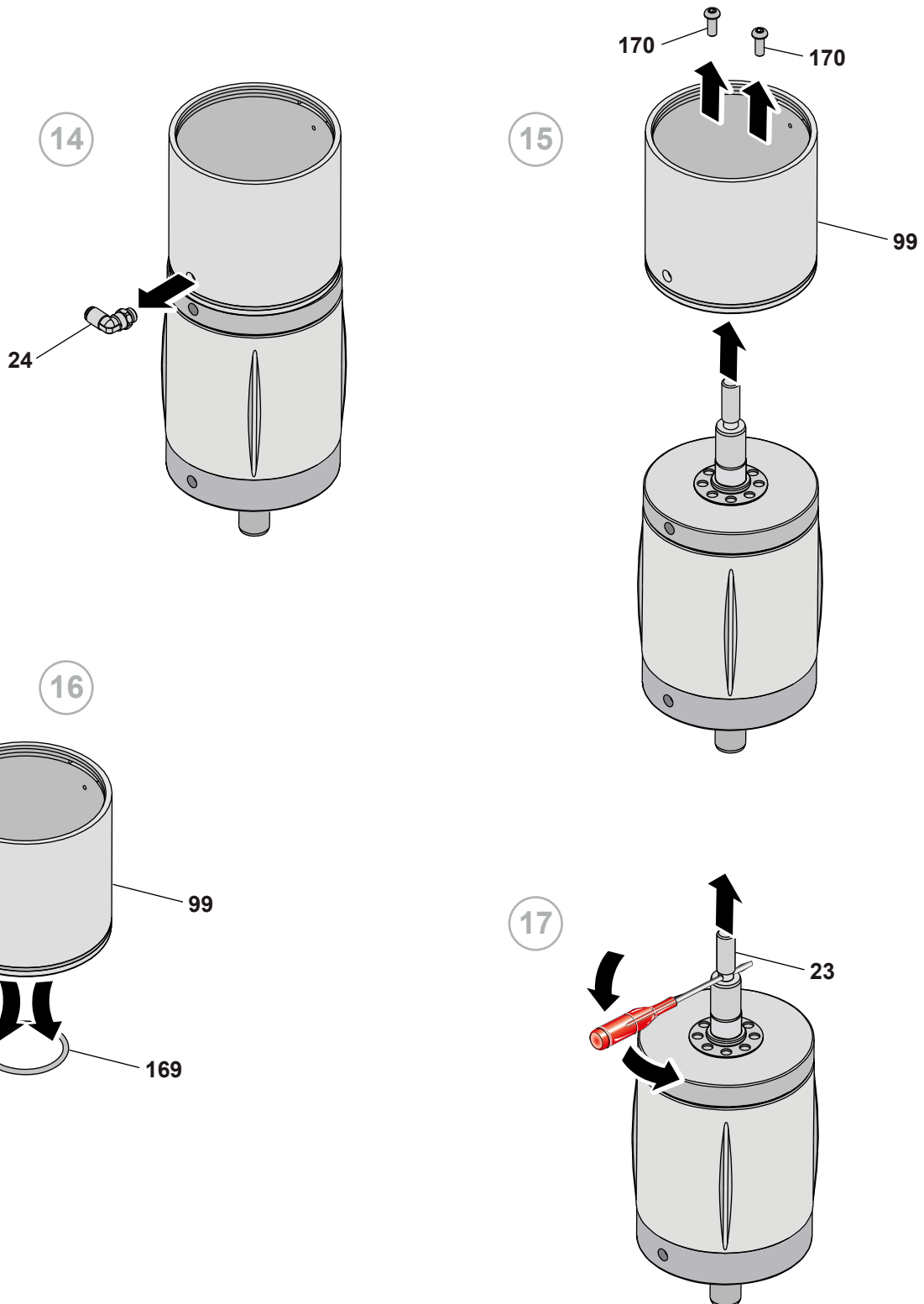


12

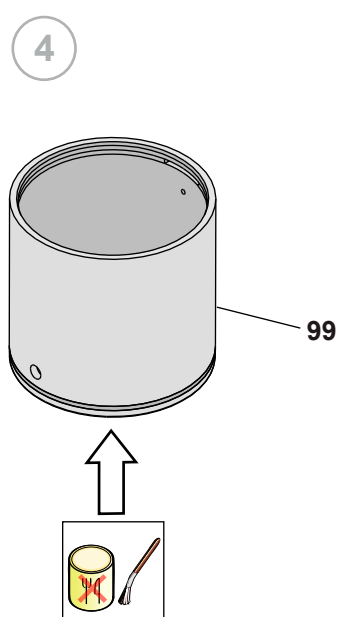
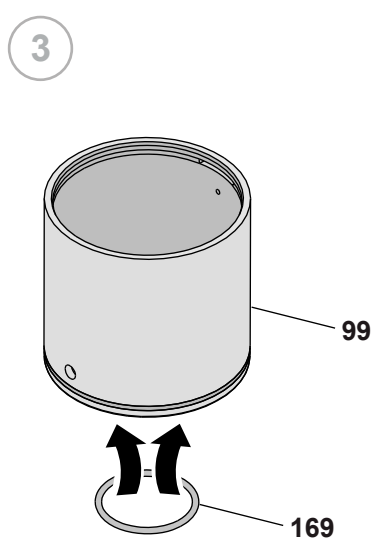
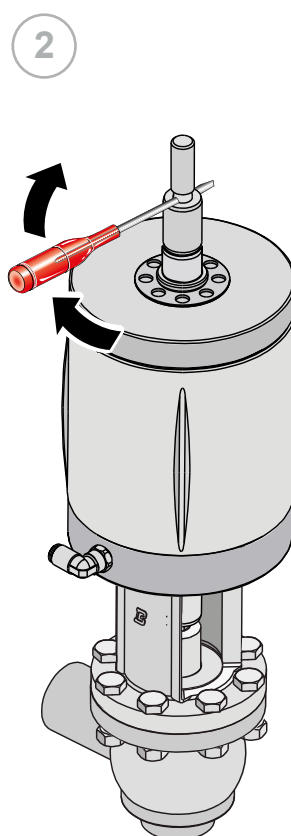
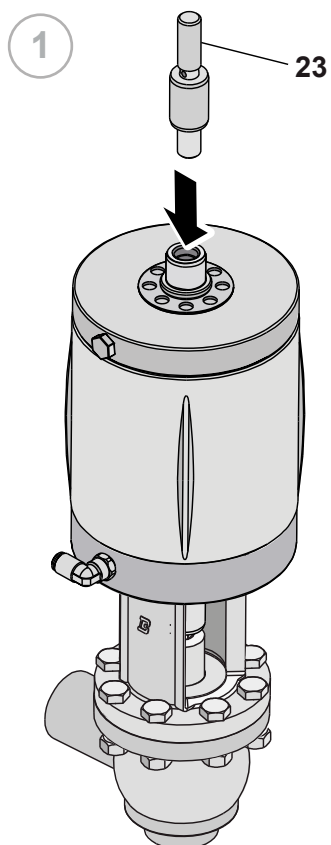


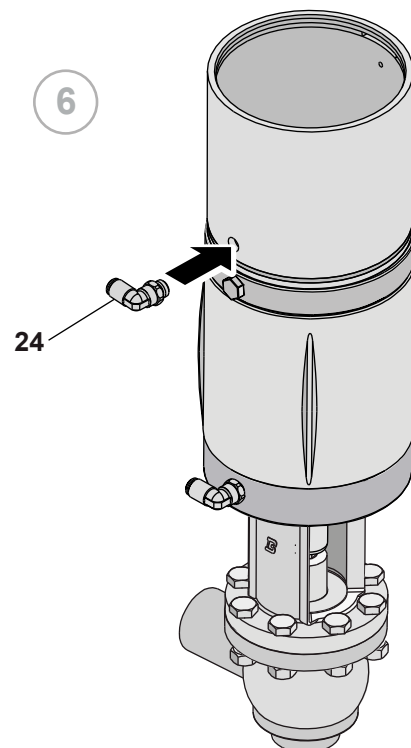
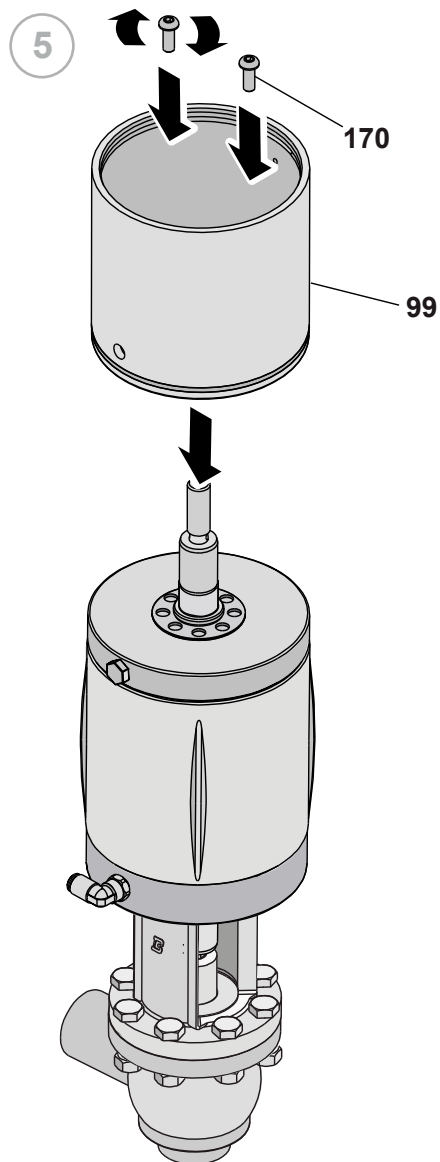
13

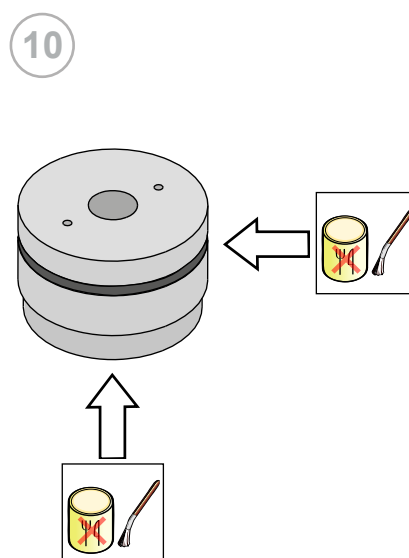
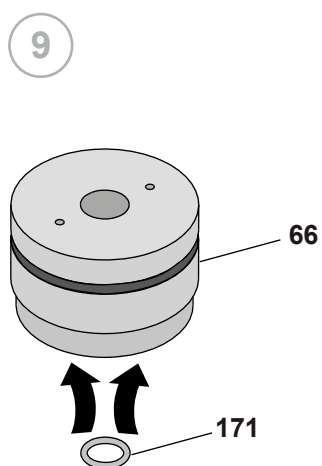
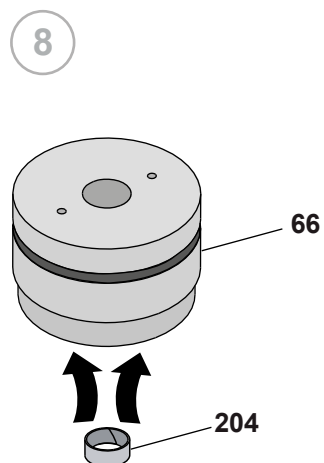
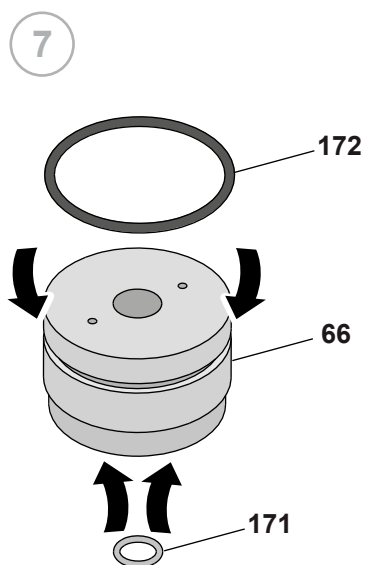


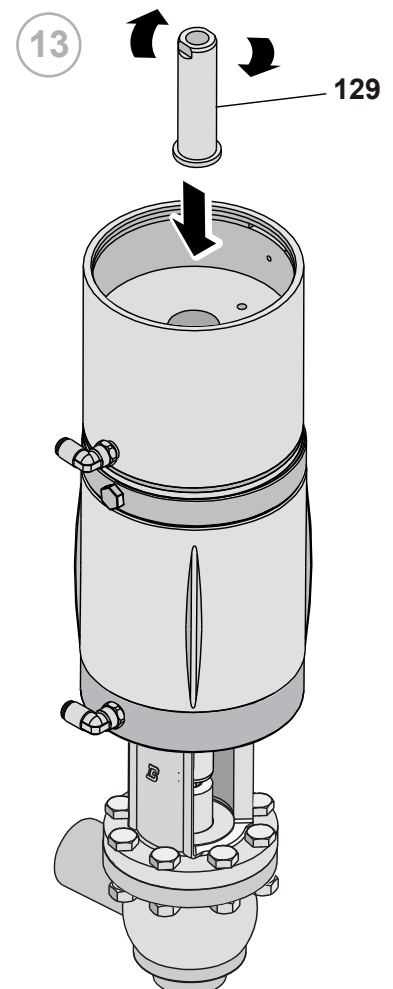
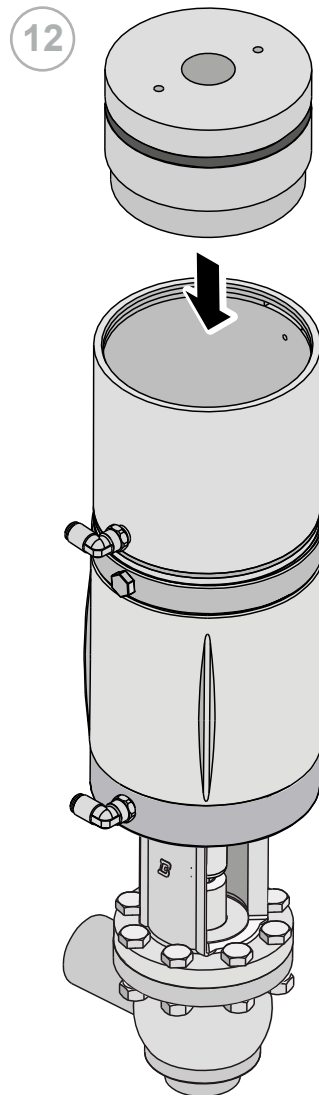
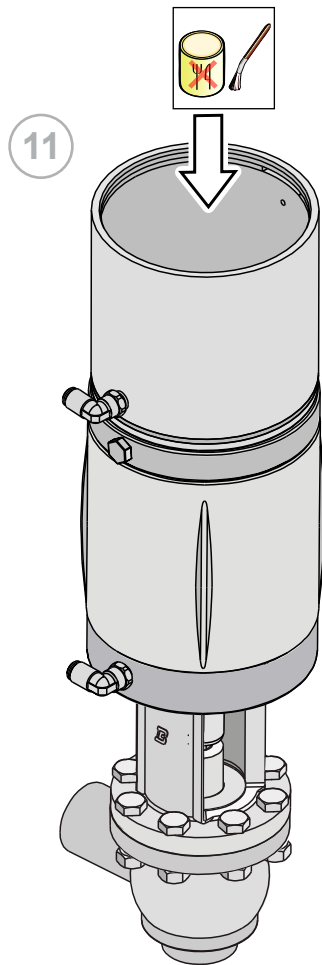


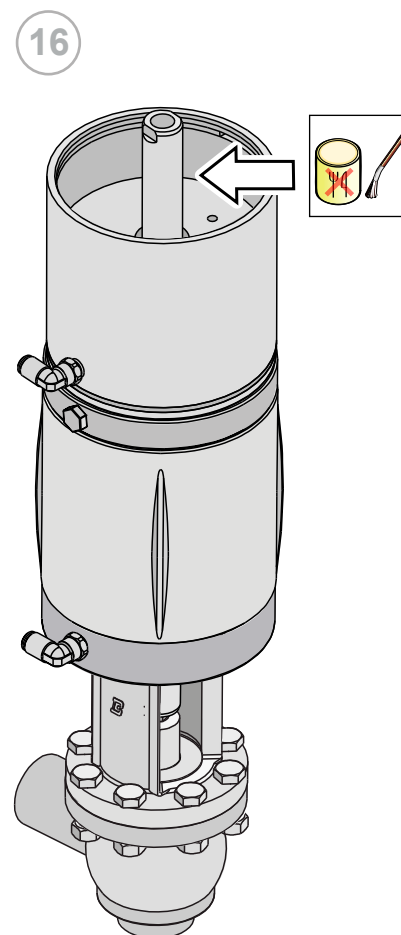
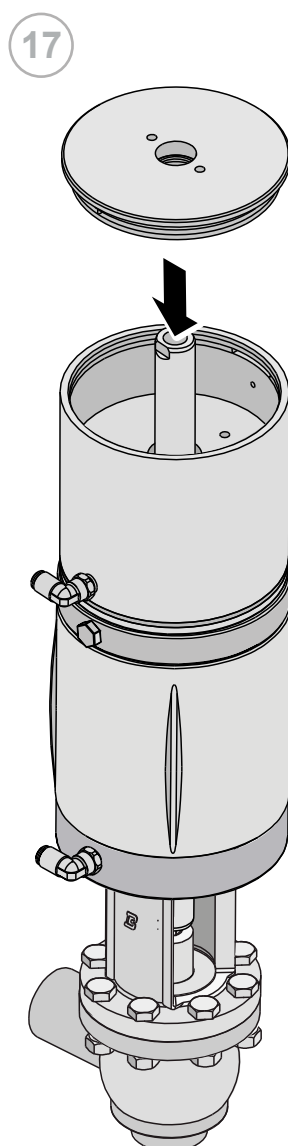
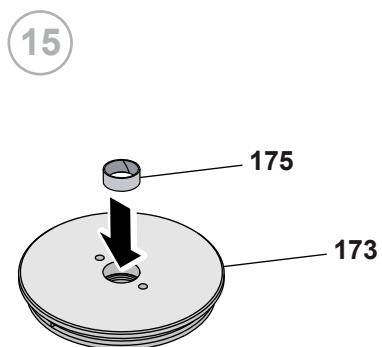
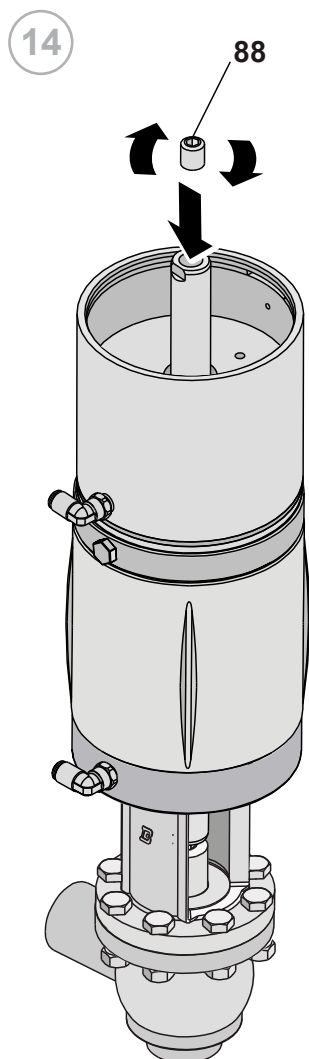
## 10.21 Assembly of the BBZU





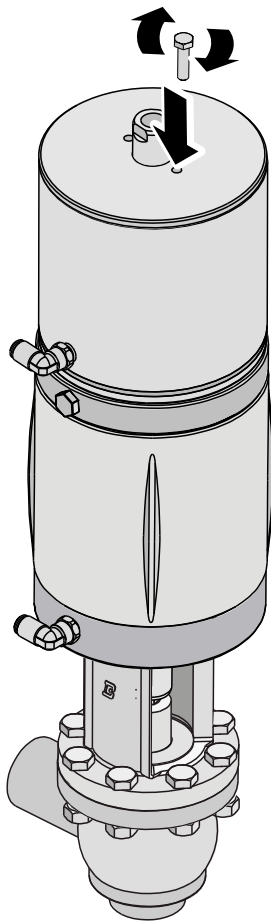




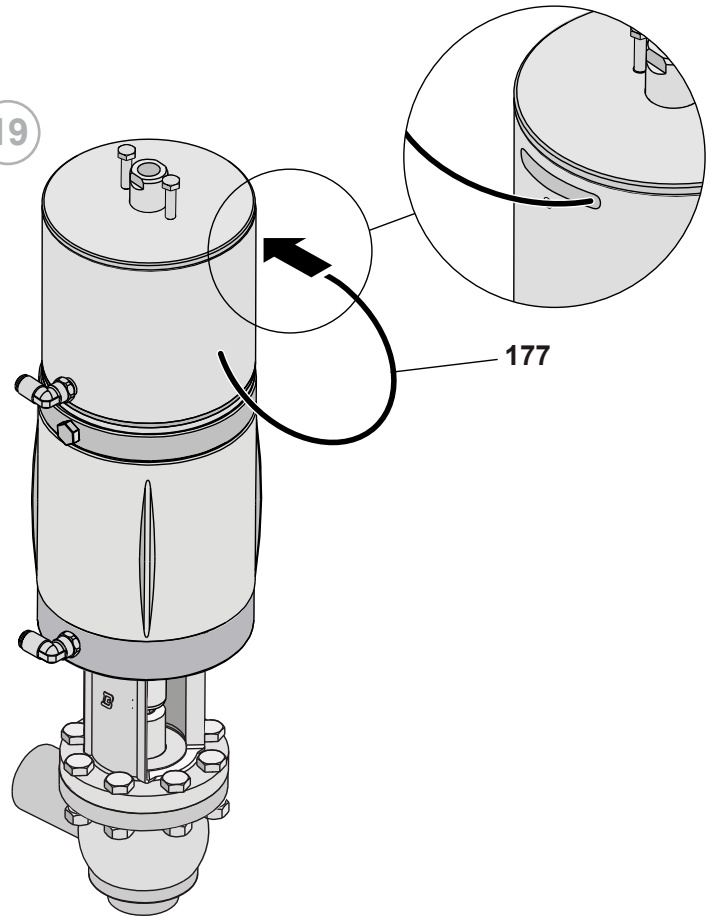




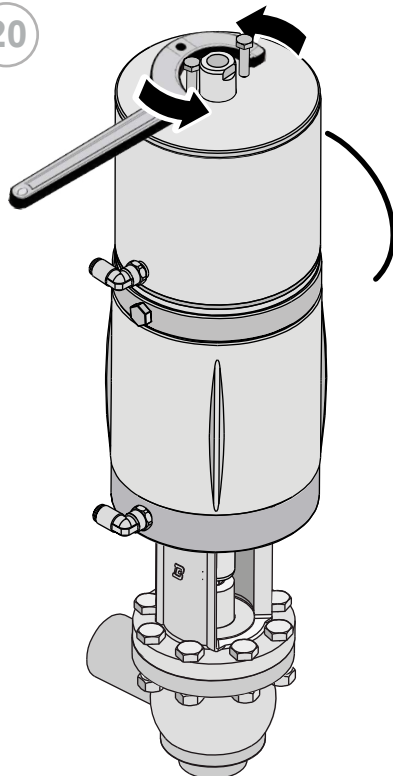
18



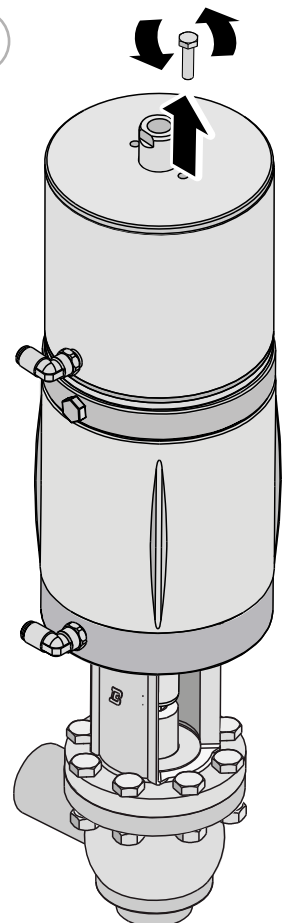
19

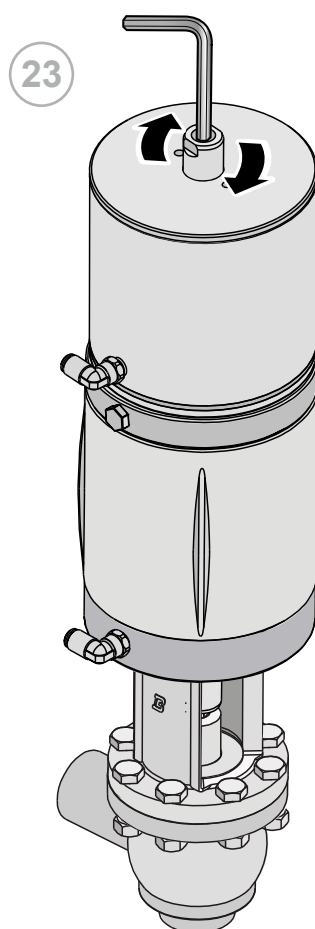
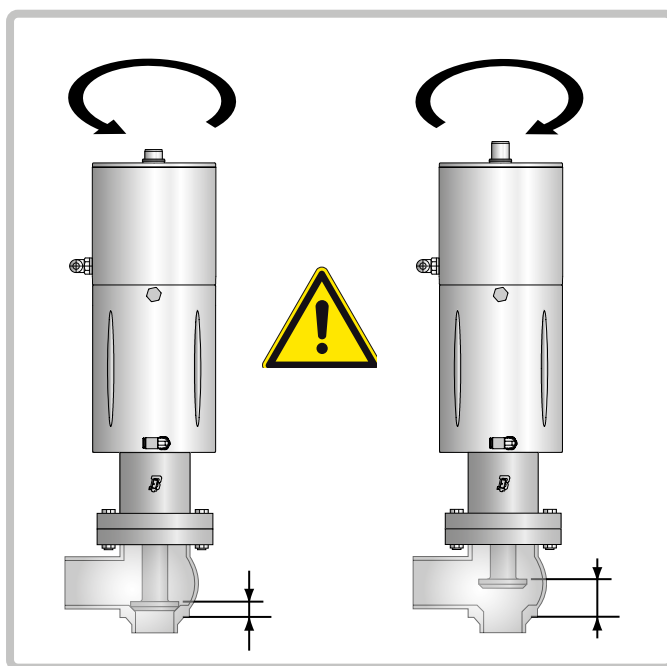
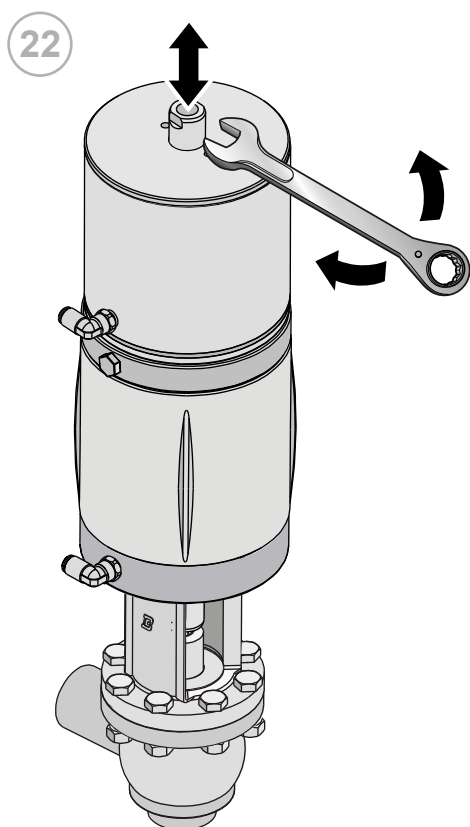


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# 11 Annexes



EC Declaration of Conformity

## EC DECLARATION OF CONFORMITY OF THE MACHINERY

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

### BARDIANI VALVOLE S.p.A.

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

#### Declares

*under its own responsibility that the machine:*

|                       |                        |
|-----------------------|------------------------|
| Type:                 | <b>Pneumatic valve</b> |
| Model:                | #####                  |
| Serial number:        | #####                  |
| Function:             | <b>Fluid handling</b>  |
| Year of construction: | ####                   |
| Reference             | #####                  |

complies with all relevant provisions of the following EC directives:

**(EC) 2006/42 MACHINERY**

and also comply with the following EC Regulations:

**(EC) 2023/2006** and subsequent amendments and additions with regard on good manufacturing practices of materials and articles intended to come into contact with food

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

EN ISO 12100:2010

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

Fornovo di Taro

##.##.####

\_\_\_\_\_  
Legal Representative

BARDIANI VALVOLE S.p.A.

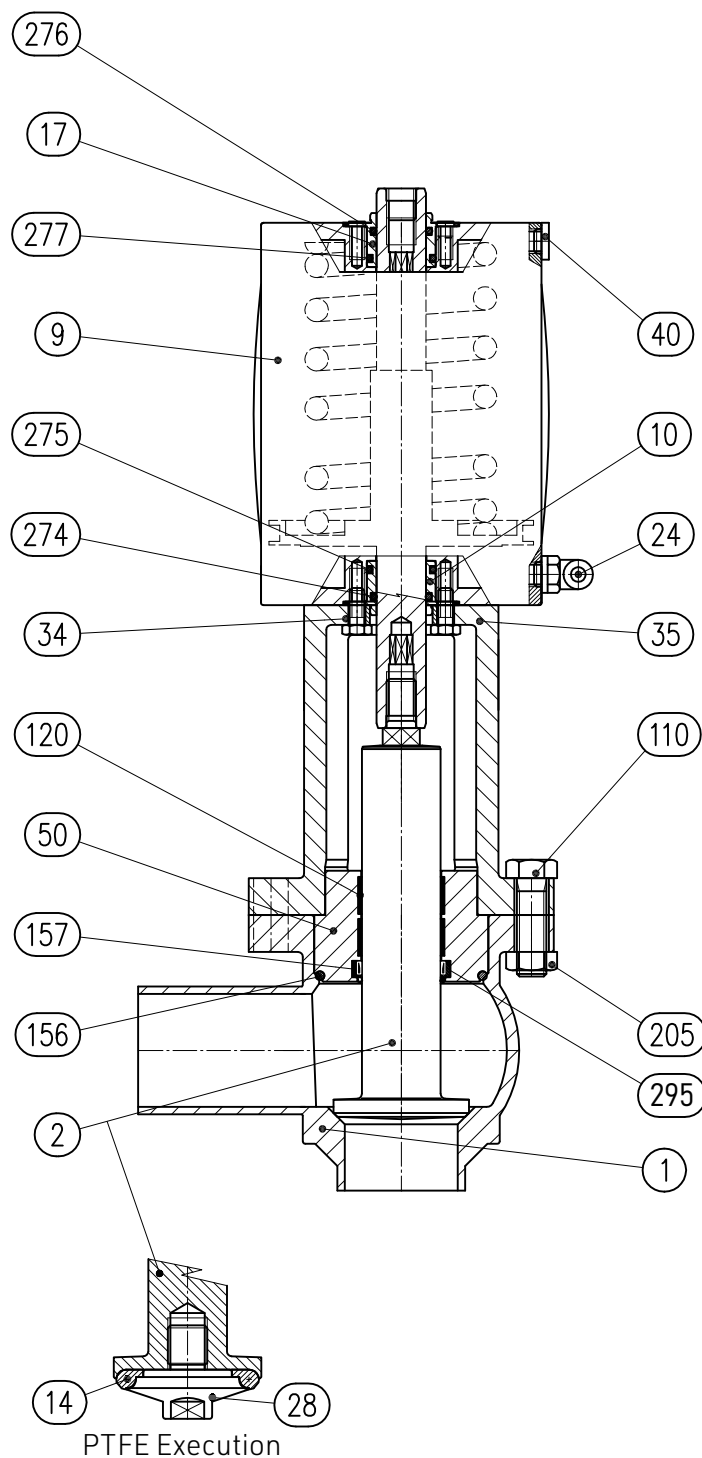
Via G. di Vittorio 50/52

43045 Forno di Taro (Pr) ITALY

Reg. Impr. Parma, C.F.- P.I.V.A. n. 01511810341

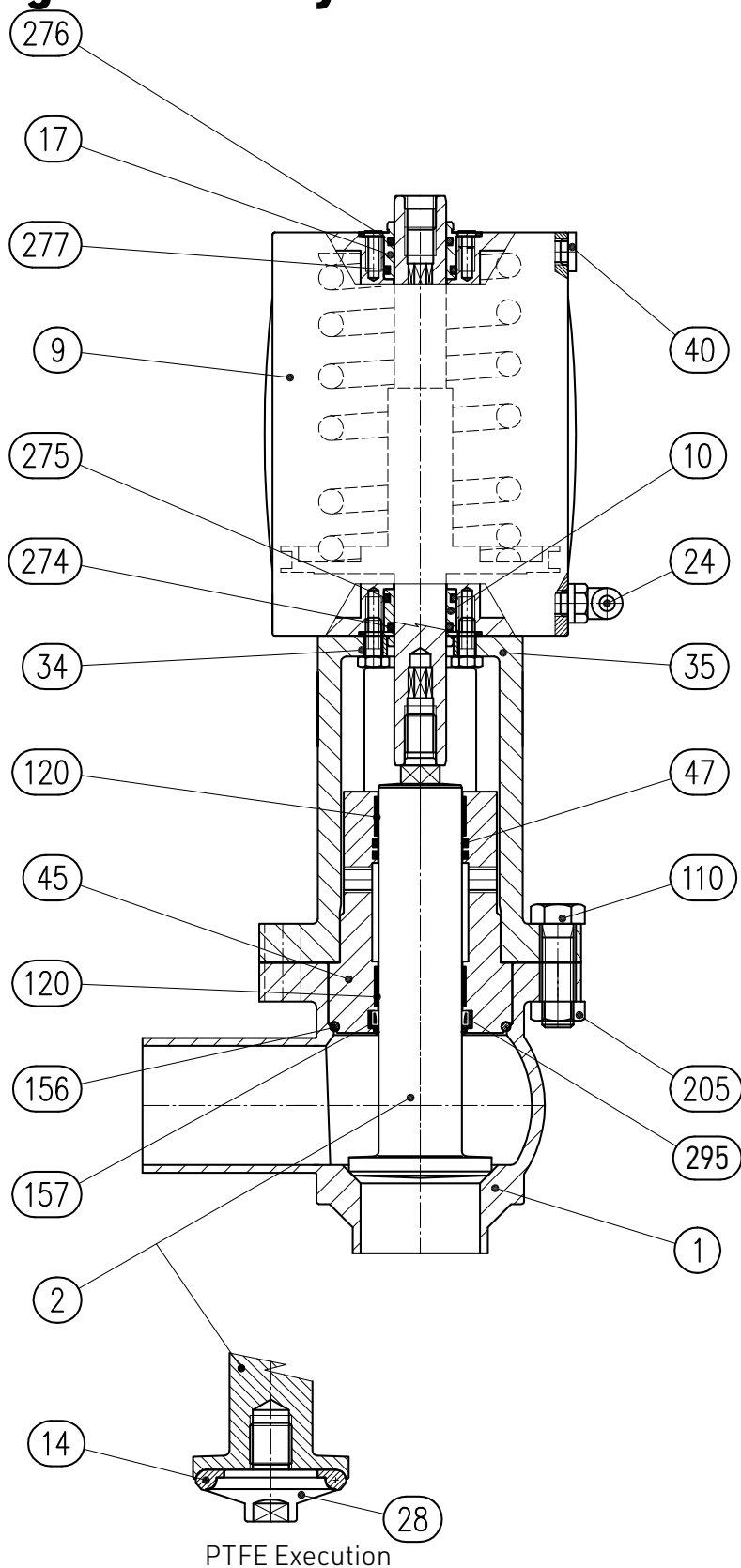
R.E.A. Parma n. 159144 • Cap. Soc. € 1.186.800 i.v.

## 12 2D Diagram BBZQ cylinder 108-156

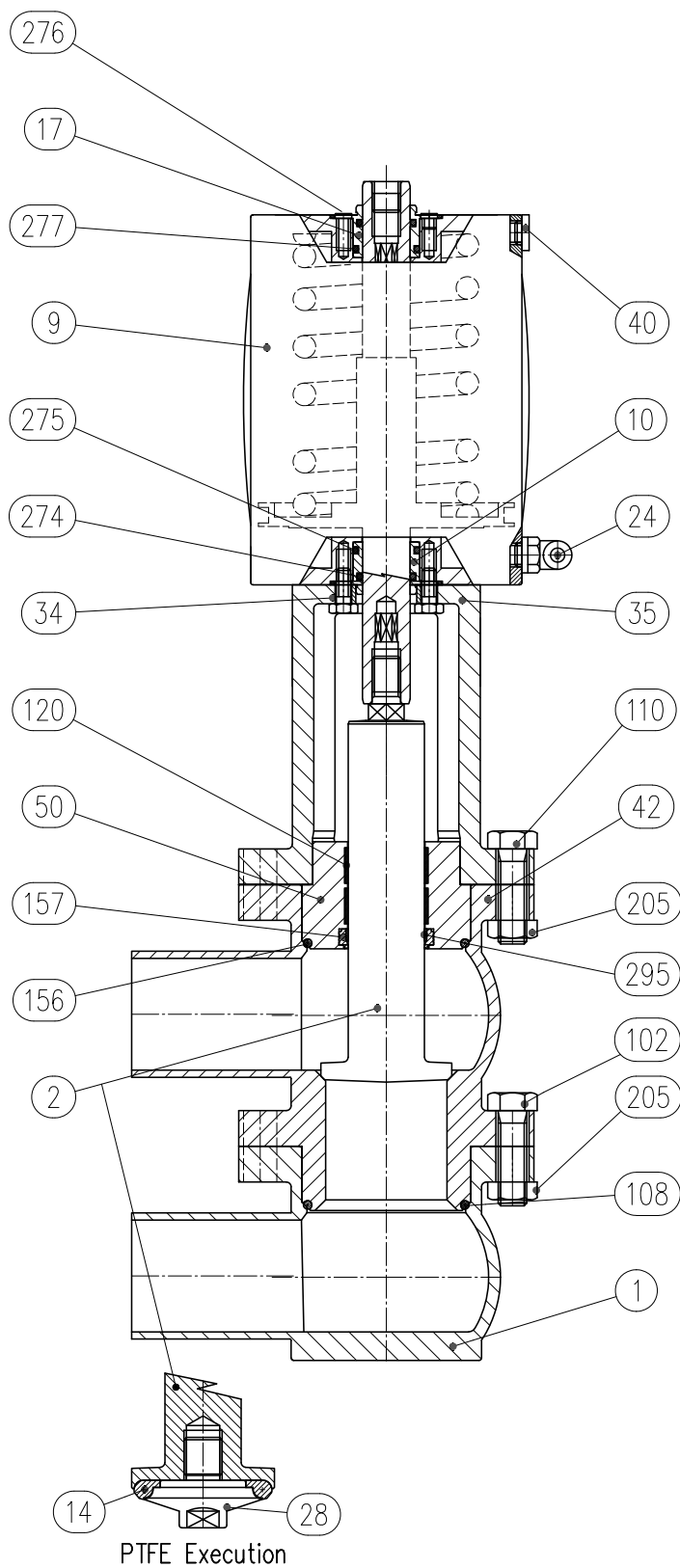


**[BBZQ-108-156]**

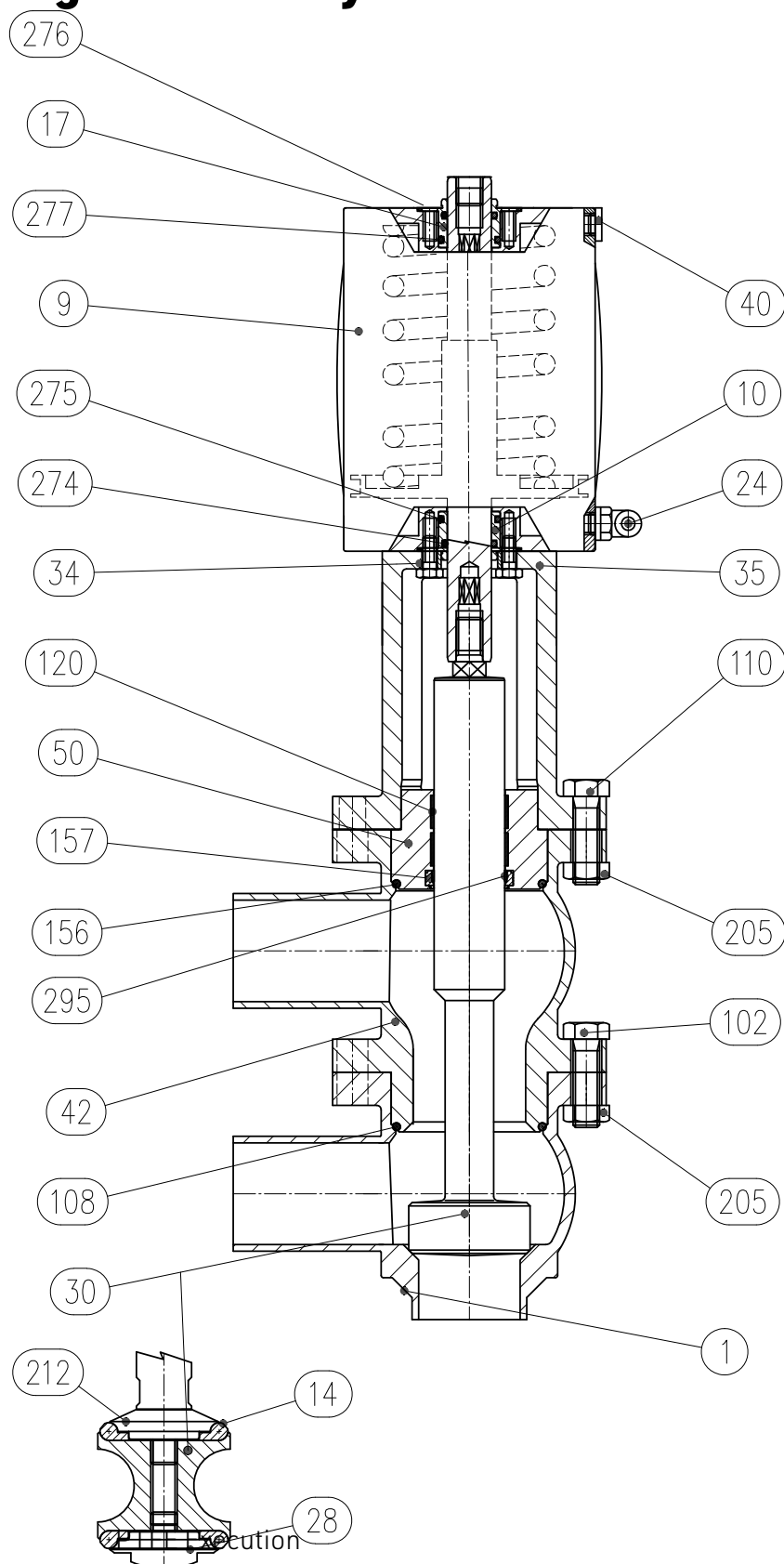
# 13 2D Diagram BBYQ cylinder 108-156

**[BBZQ-108-156]**

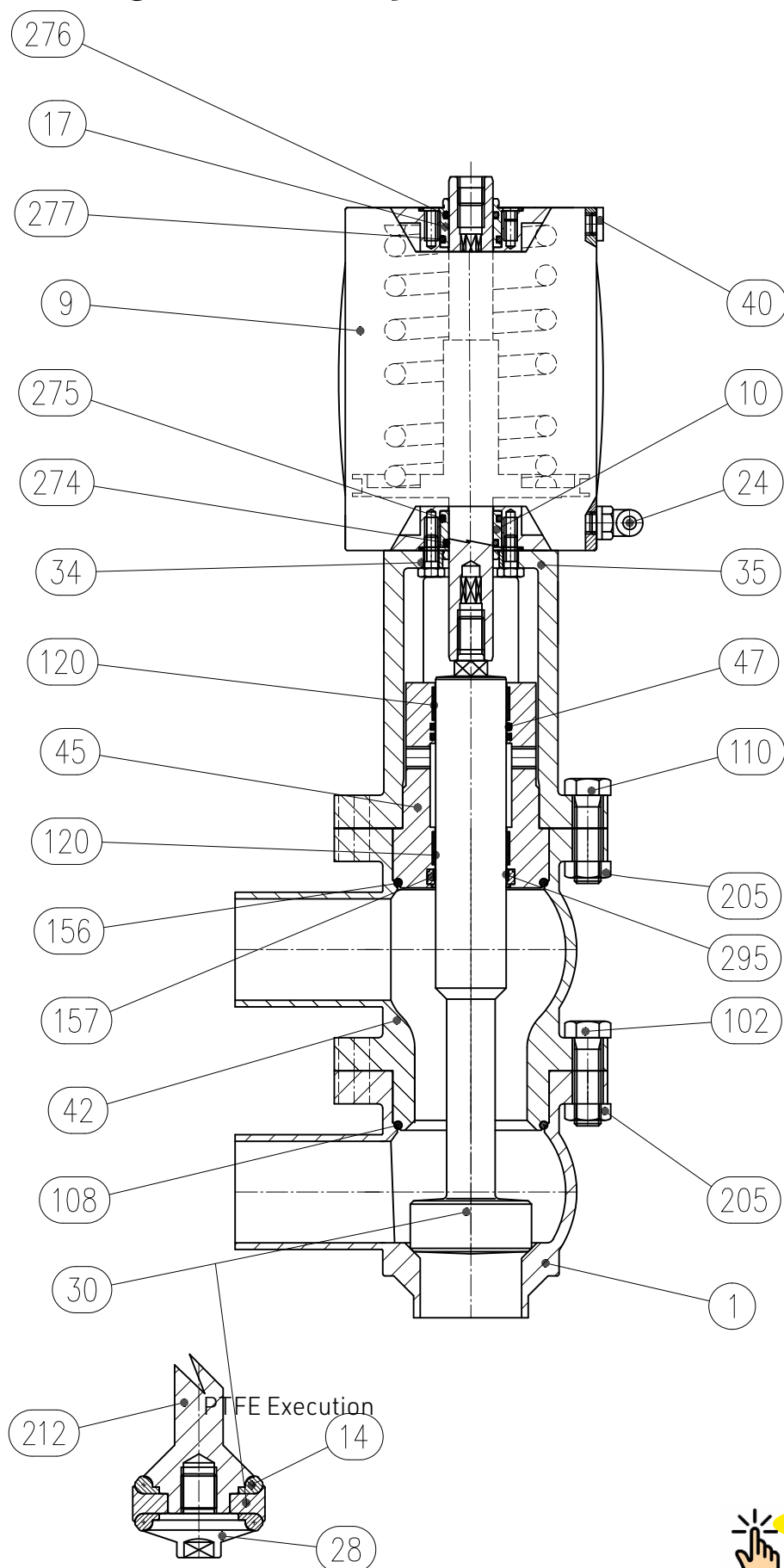
## 14 2D Diagram BBYQ M8 cylinder 108-156

**[BBZQ-108-156]**

## 15 2D Diagram BBZQ cylinder 108-156 Diverter

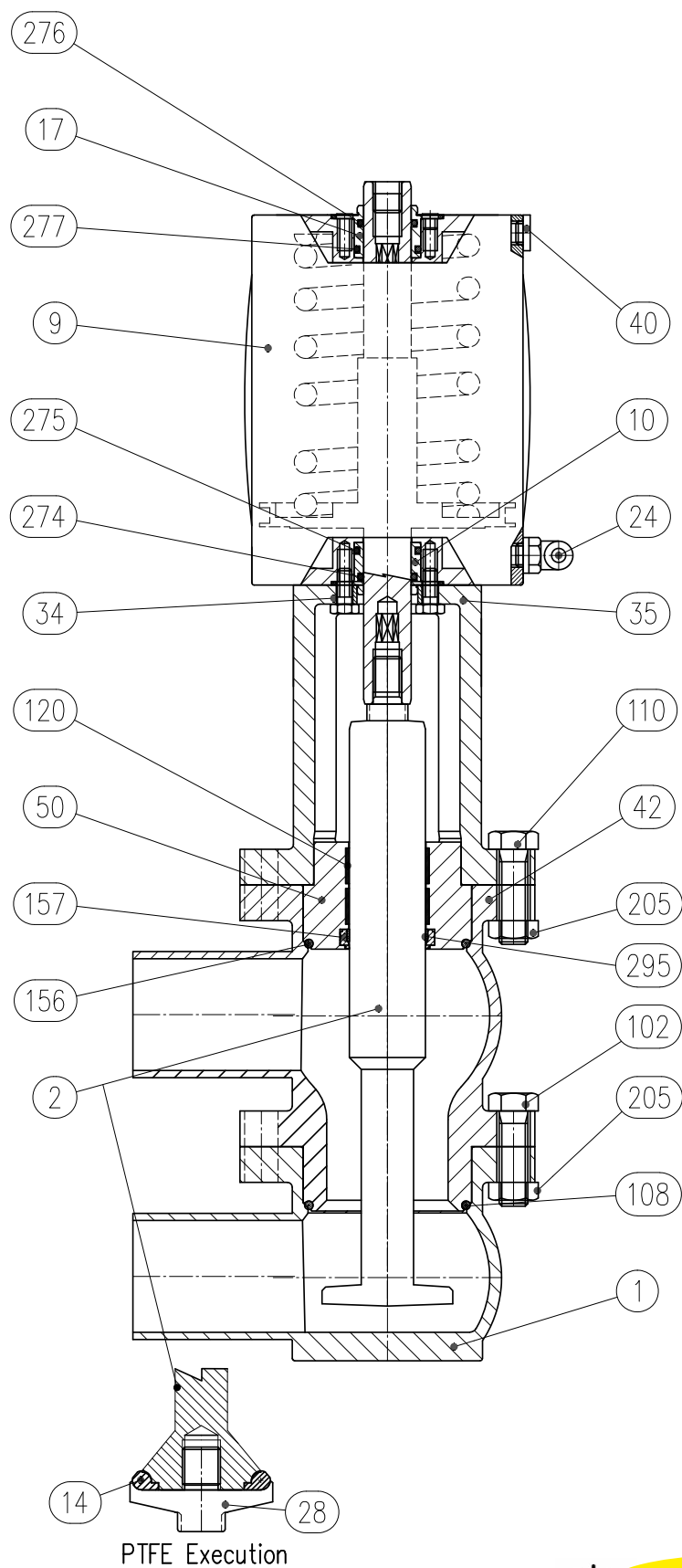
**[BBZQ-108-156 DEV]**

## 16 2D Diagram BBYQ cylinder 108-156 Diverter

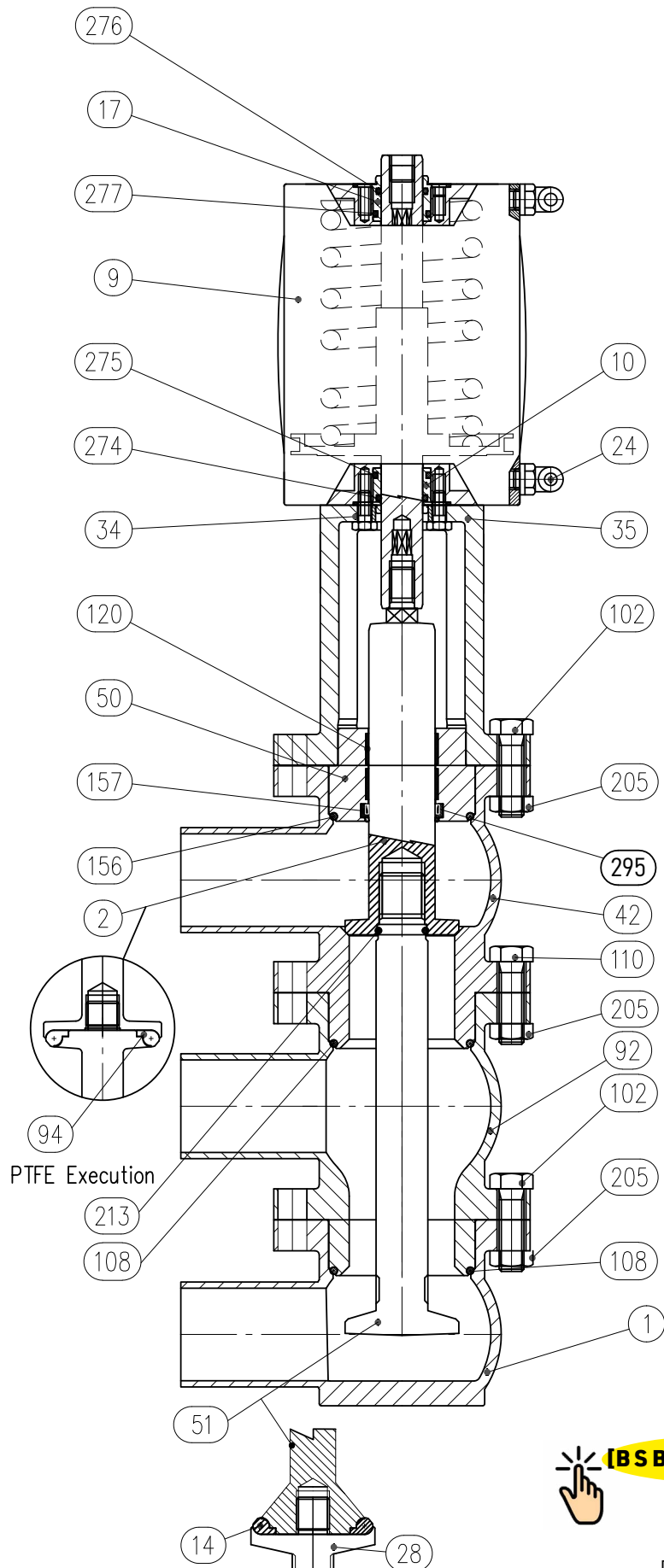
**[BBZQ-108-156 DEV]**



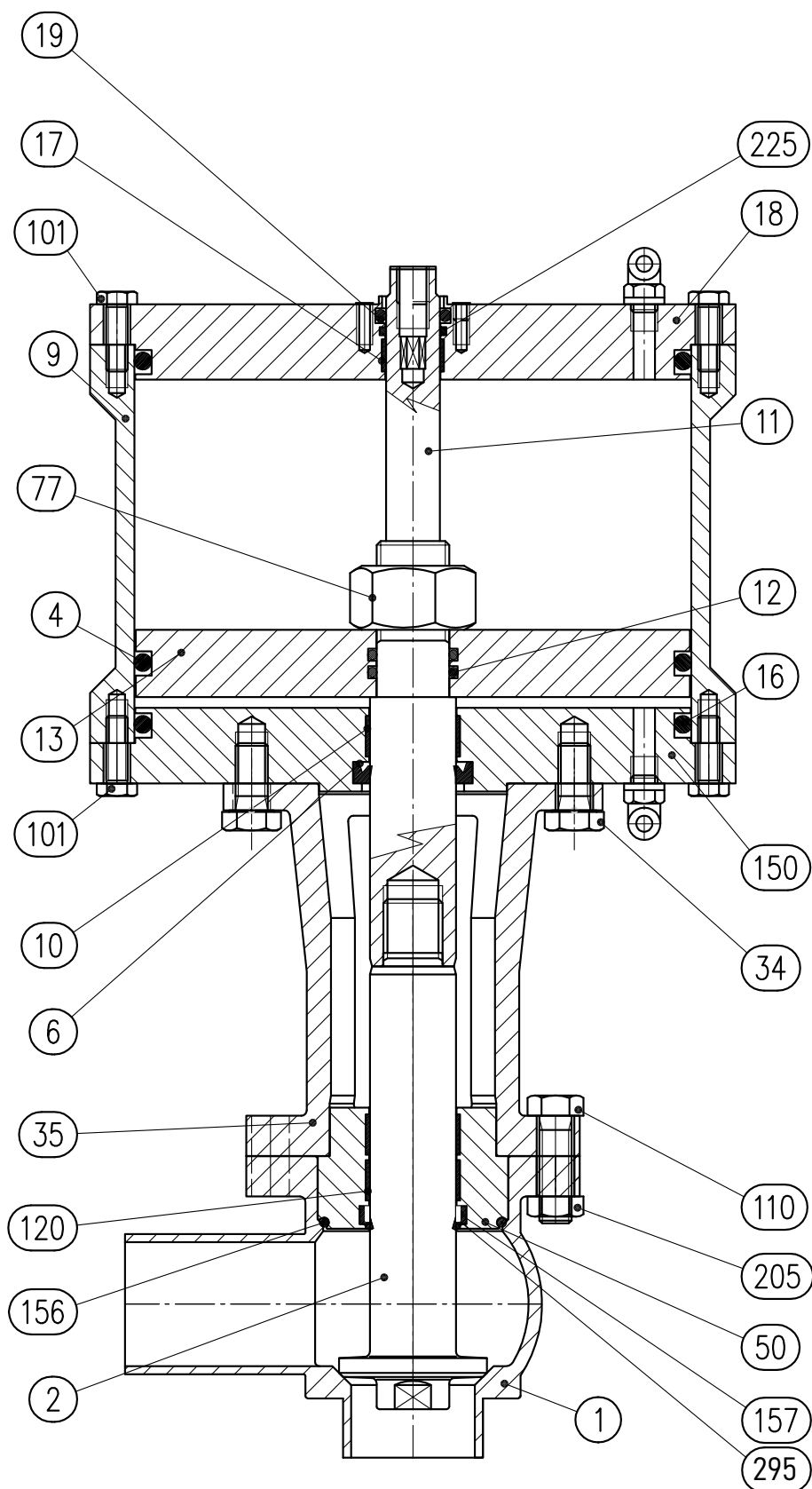
## 17 2D Diagram BBYQ P7 cylinder 108-156 Diverter

**[BBZQ-108-156 DEV]**

## 18 2D Diagram BBYQ cylinder 108-156

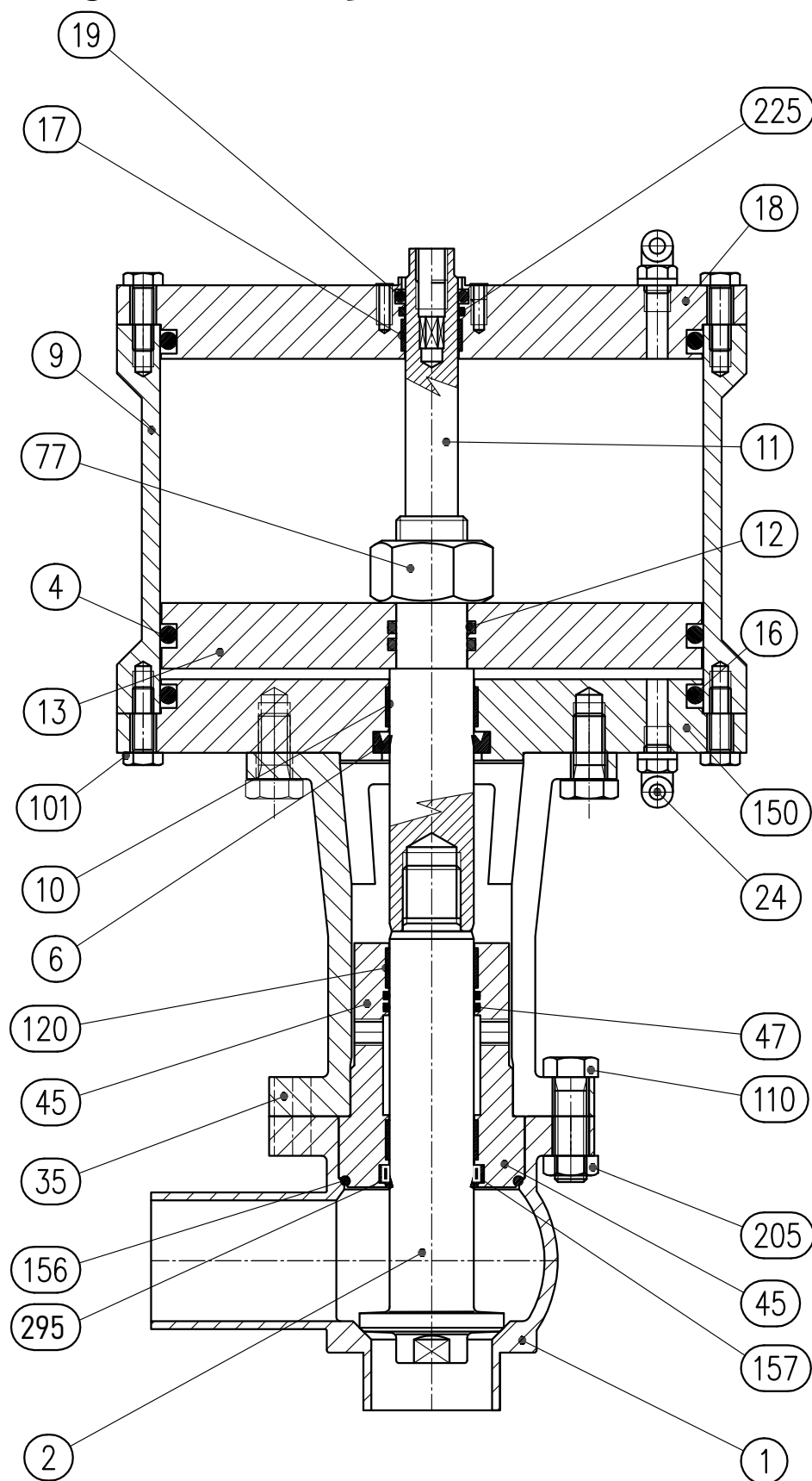


## 19 2D Diagram BBZQ cylinder 207-360



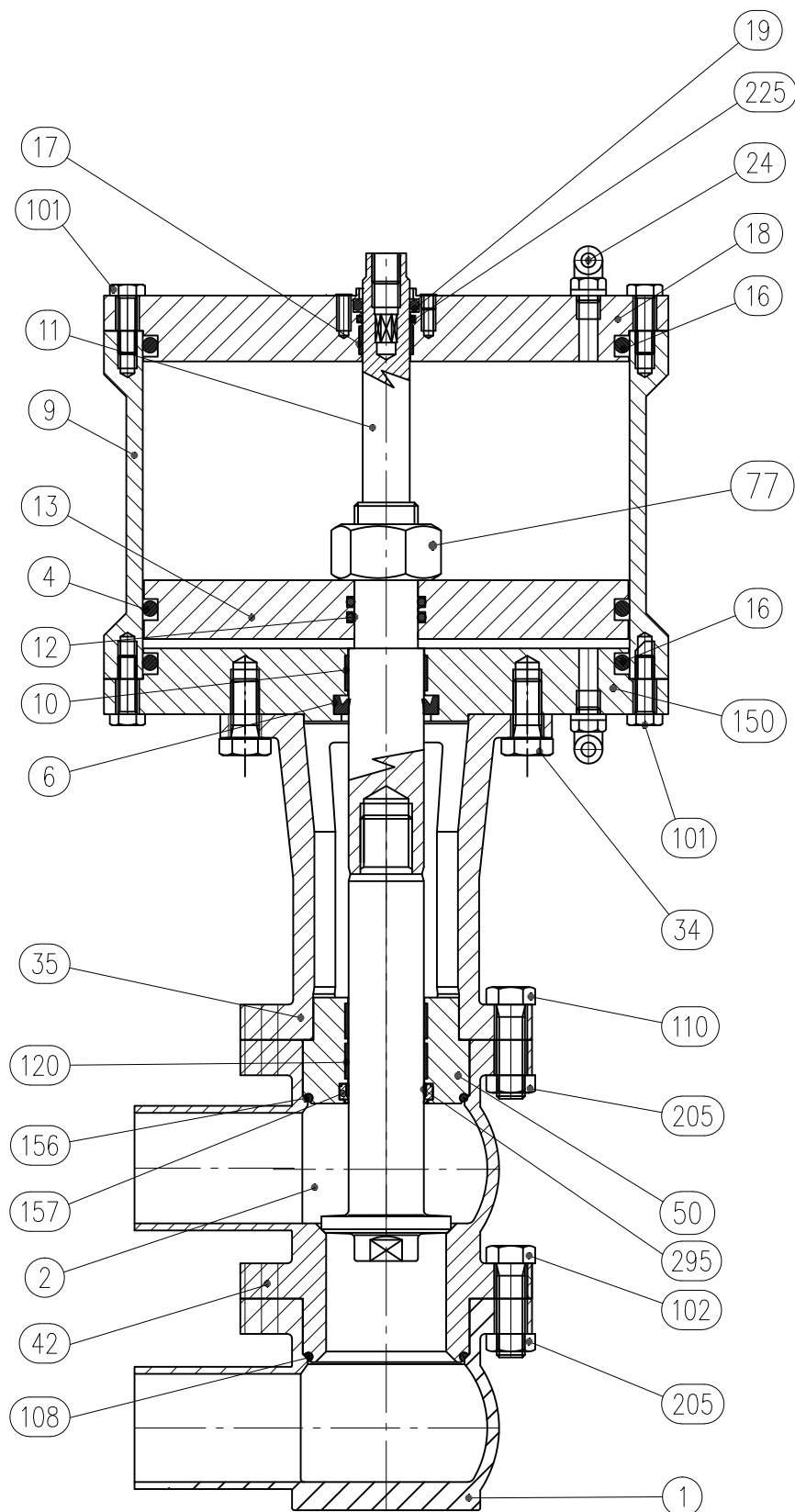
[S BBZQ-207-360]

## 20 2D Diagram BBYQ cylinder 207-360



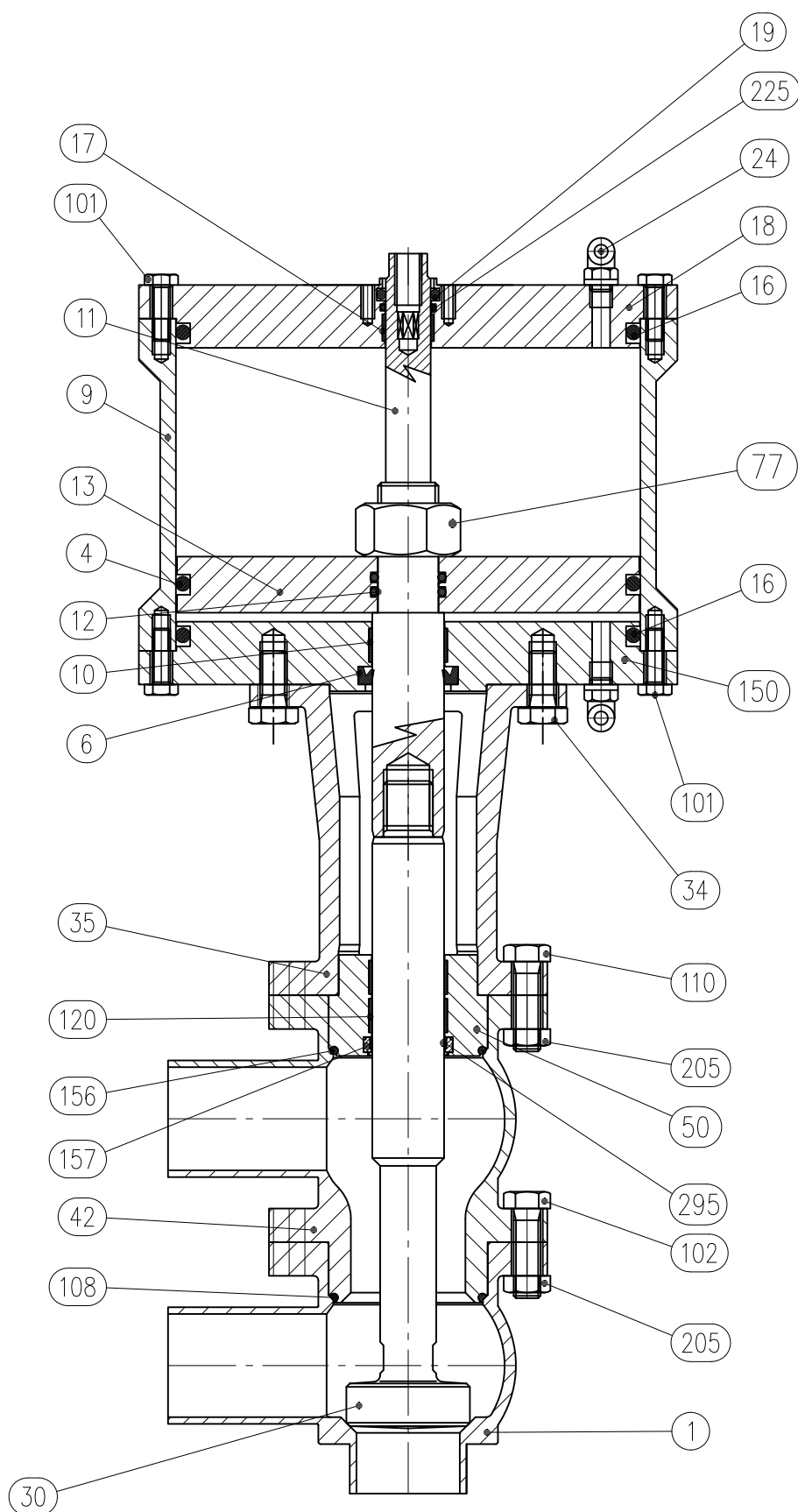
**[S BBZQ-207-360]**

## 21 2D Diagram BBYQ M8 cylinder 207-360



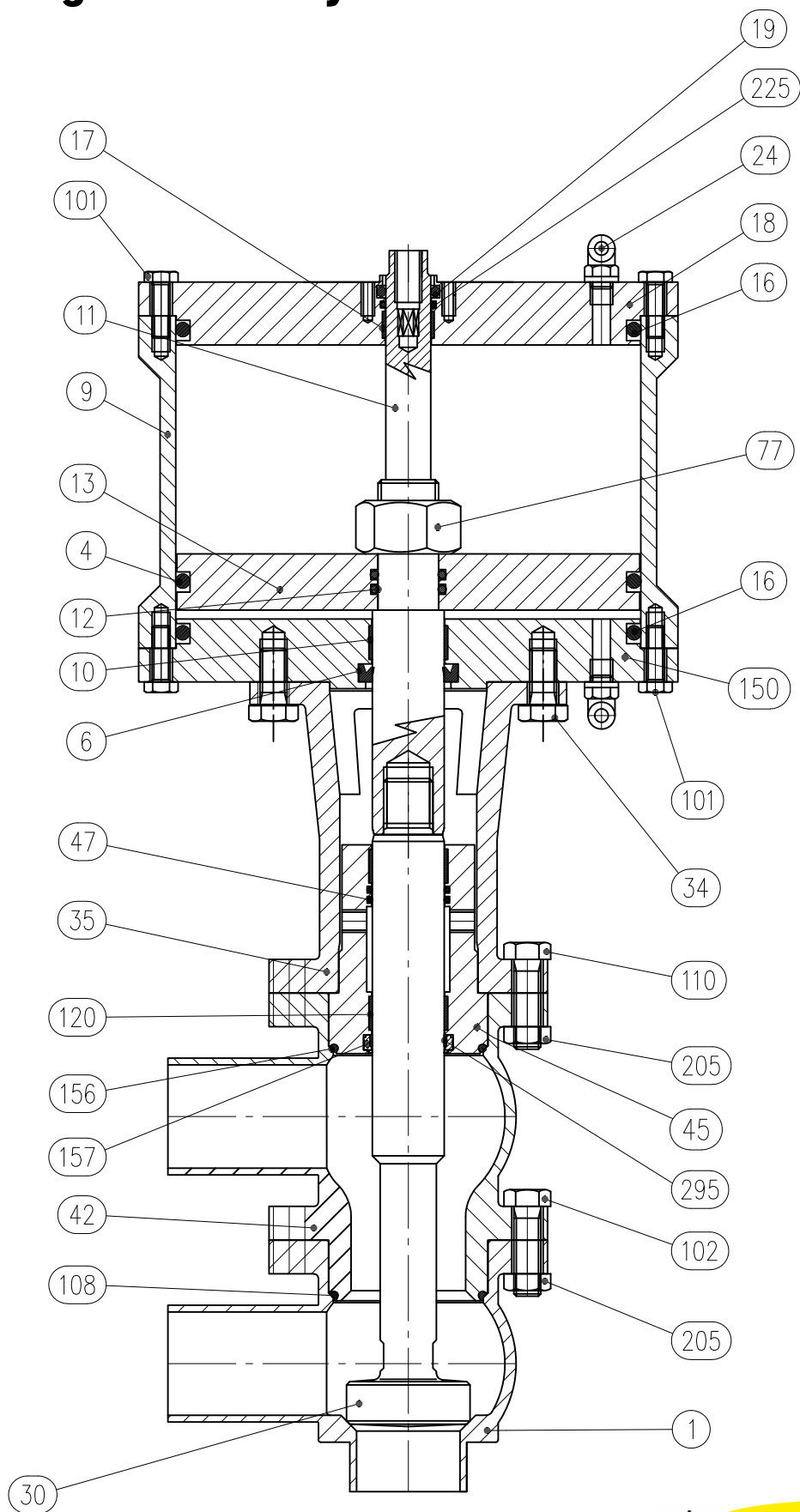
**[S BBZQ-207-360]**

## 22 2D Diagram BBZQ cylinder 207-360 Diverter



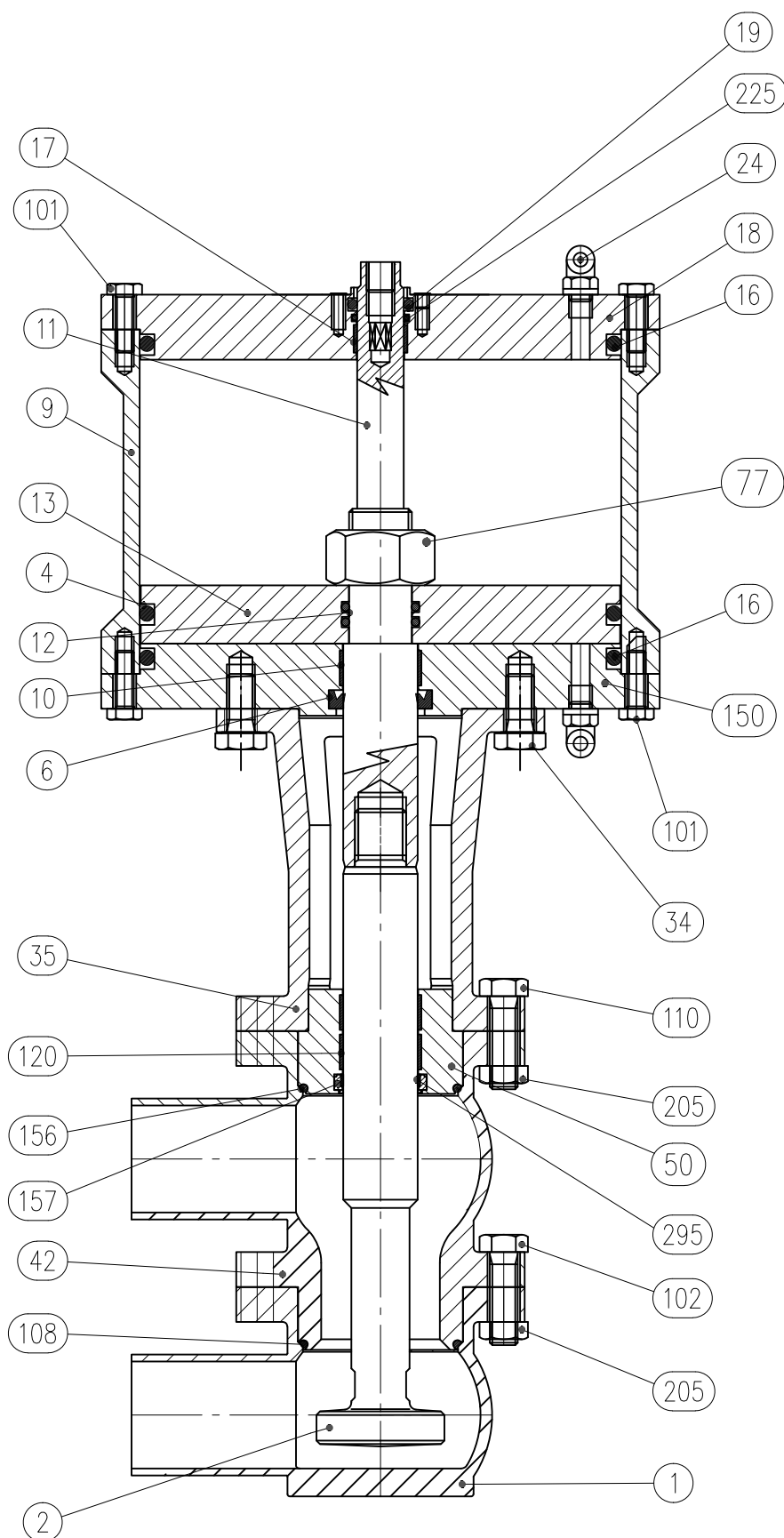
[BBZQ-207-360 DEV]

## 23 2D Diagram BBYQ cylinder 207-360 Diverter



**[BBZQ-207-360 DEV]**

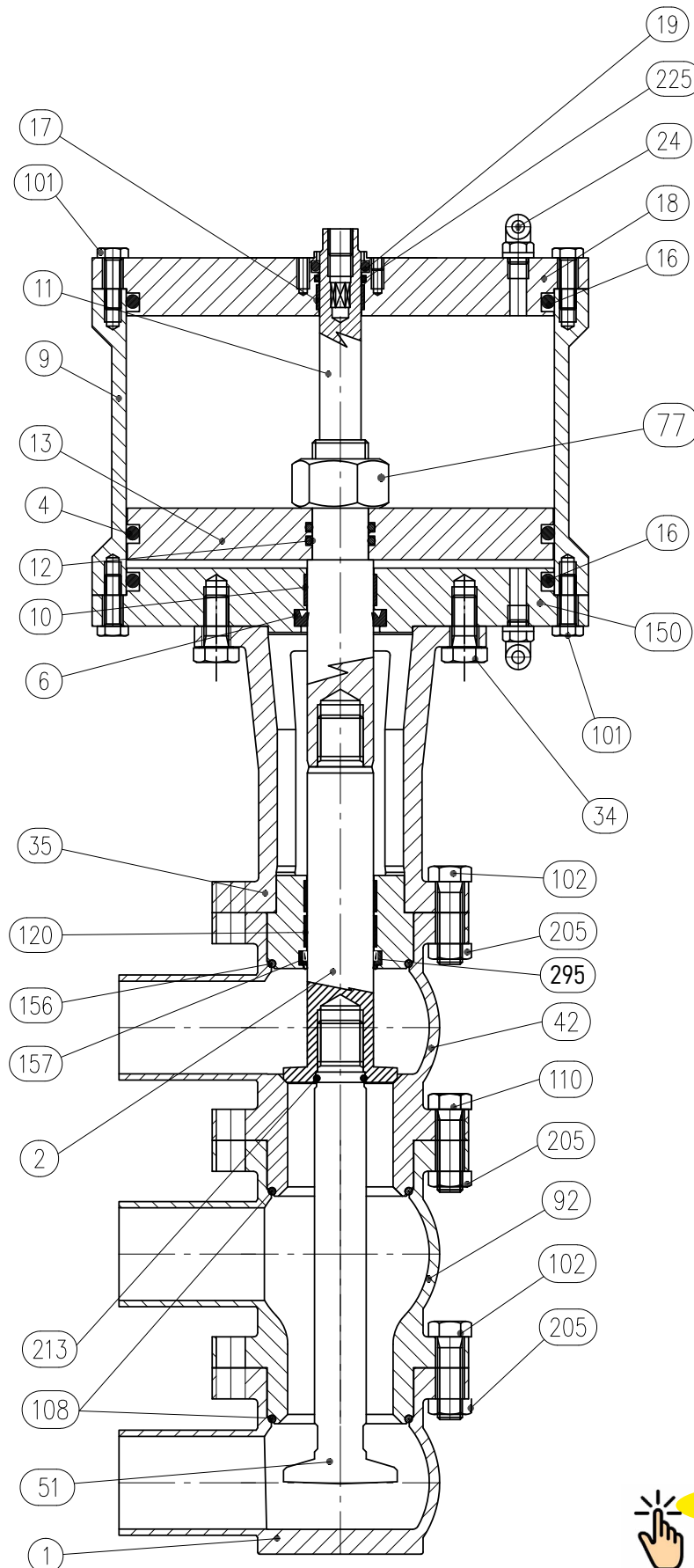
## 24 2D Diagram BBYQ P7 cylinder 207-360 Diverter



[BBZQ-207-360 DEV]

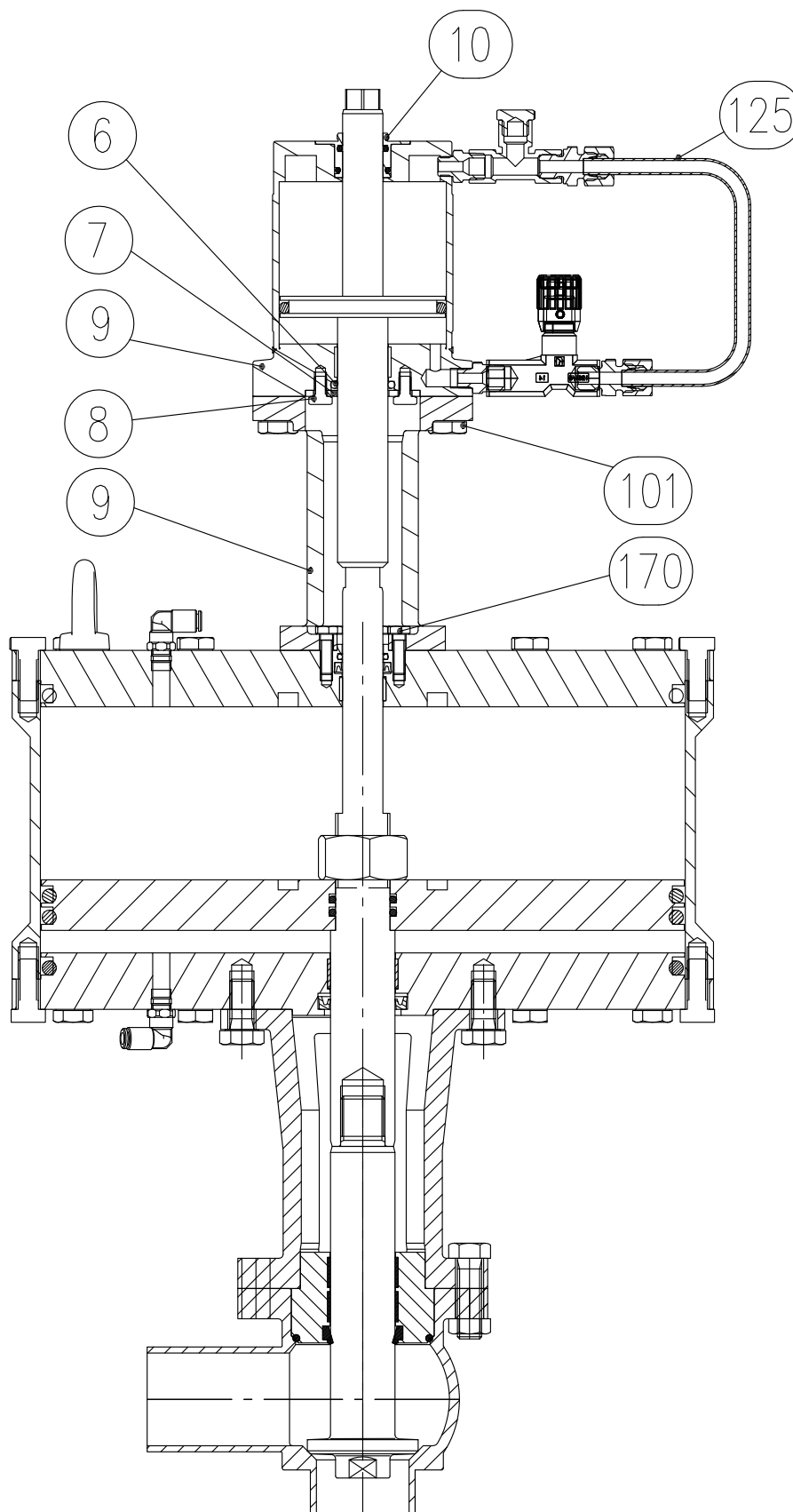


## 25 2D Diagram BBYQ M8-LLL cylinder 207-360 Diverter



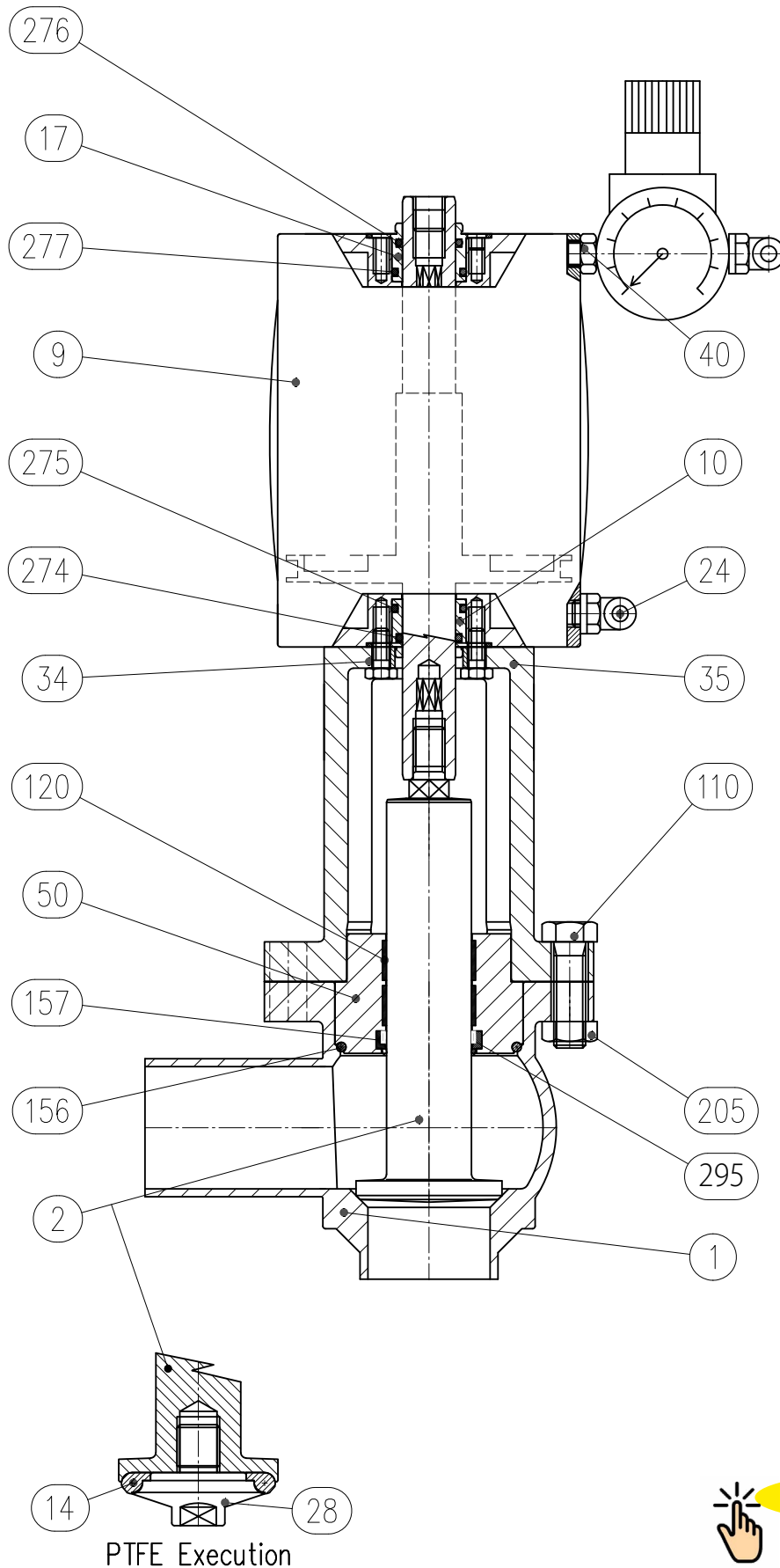
**[BBZQ-207-360 DEV]**

## 26 2D Diagram BBYQ cylinder with damper 207-360

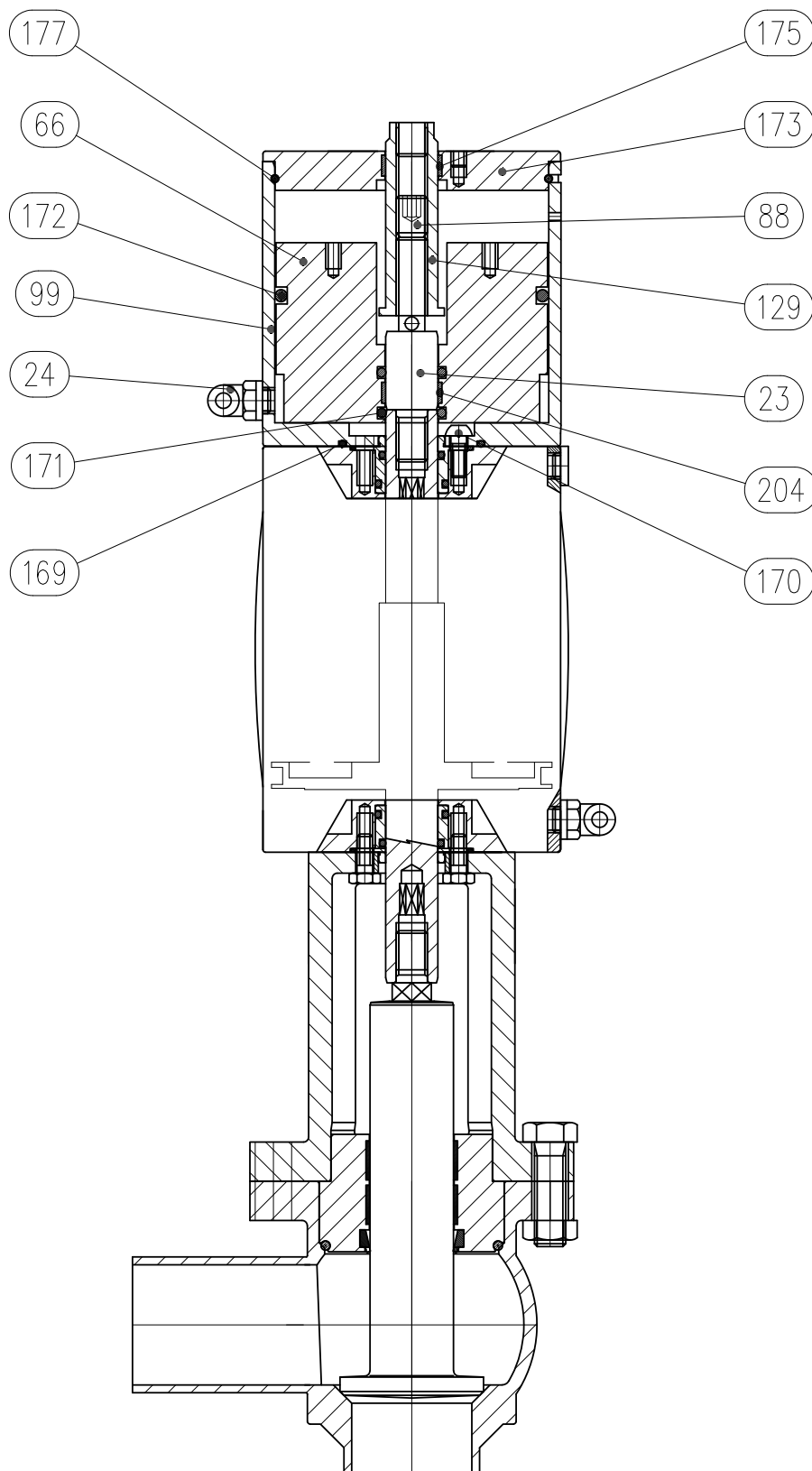


**[SMORZ BBZQ-207-360]**

## 27 2D Diagram BBZQ cylinder 108-156 With Pressure Regulator

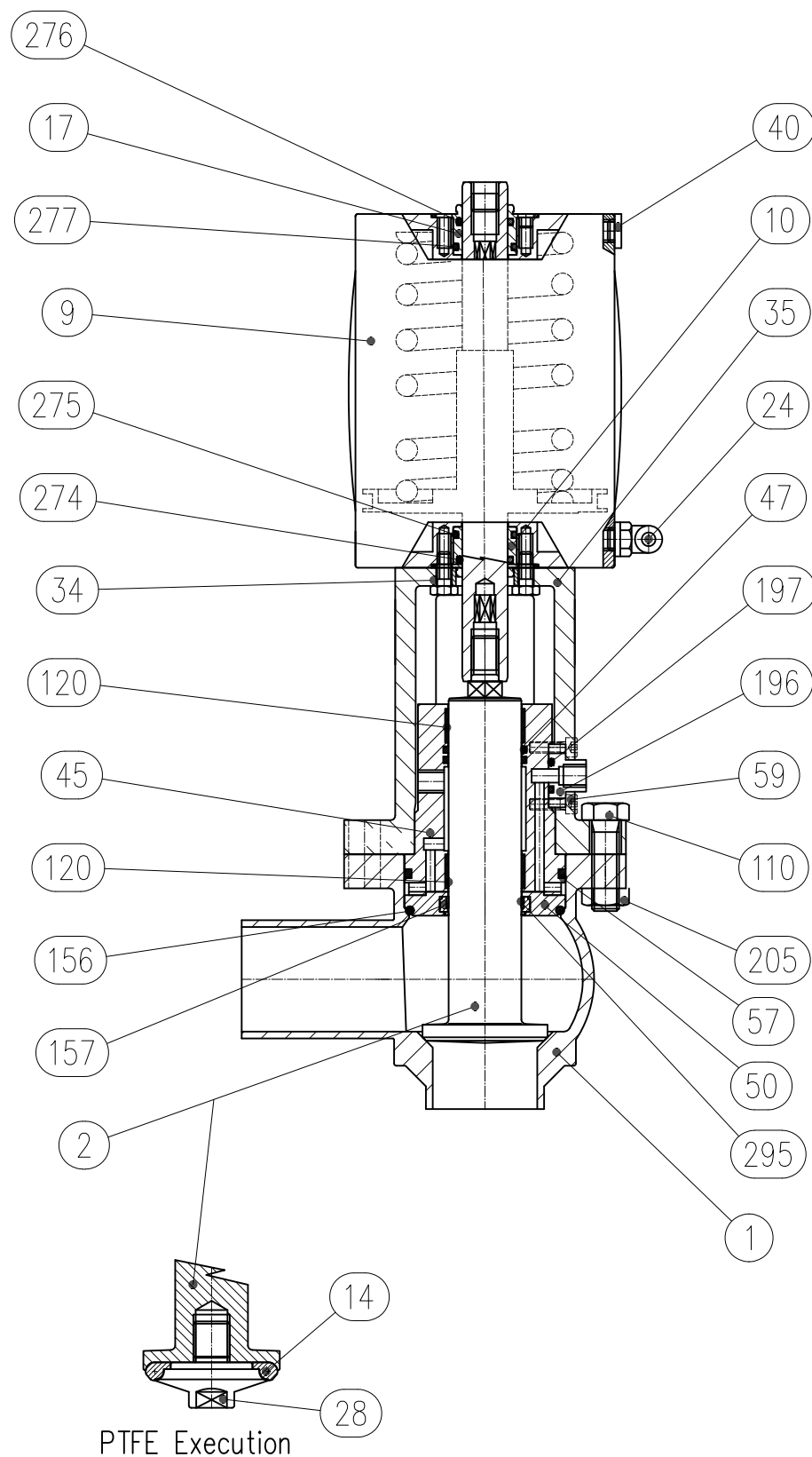


## 28 2D Diagram BBZU cylinder 108-156



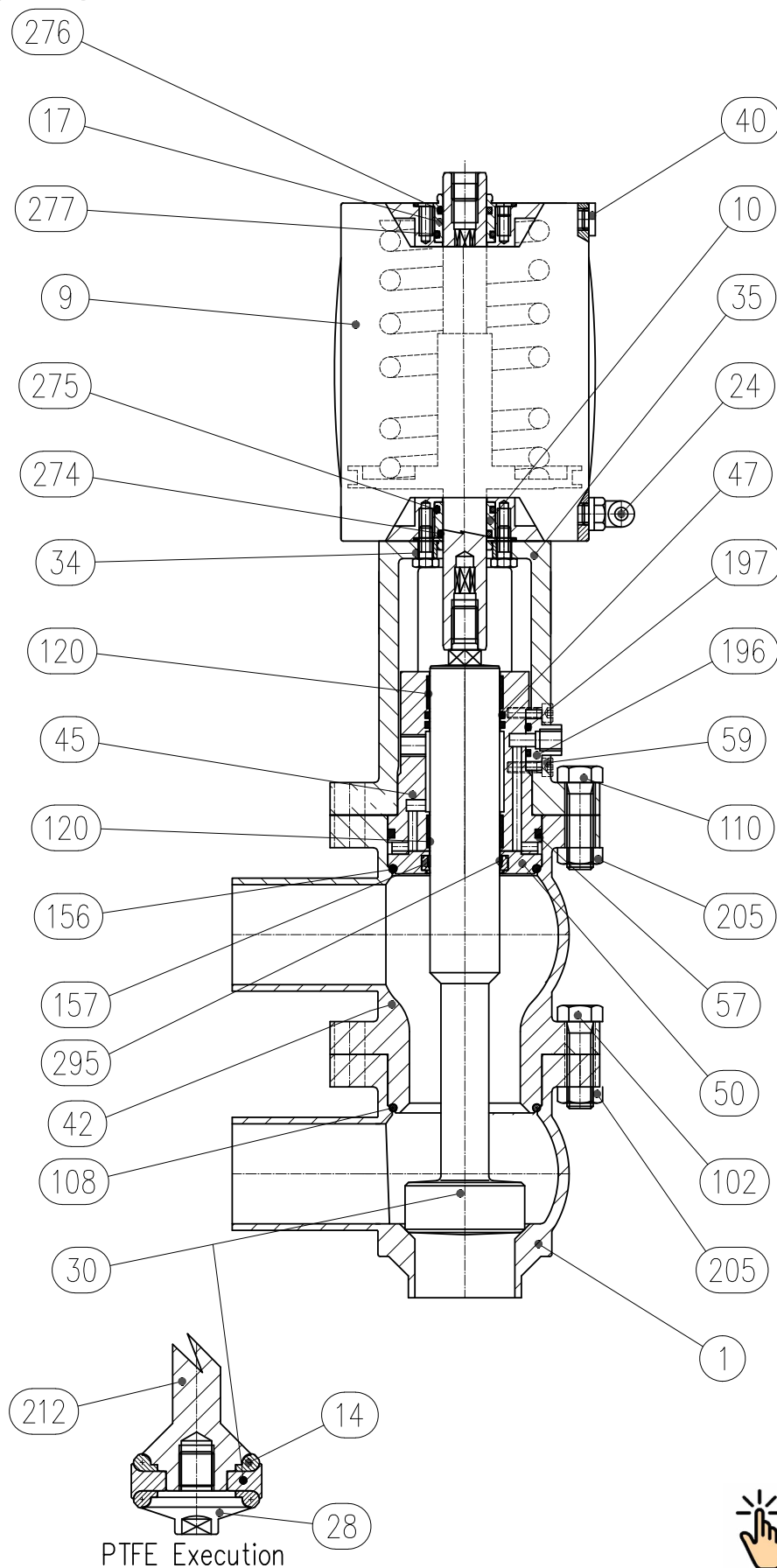
**[BBZU]**

## 29 2D Diagram BBYQ cylinder 108-156 SPECIAL



**[BBZQ-108-156]**

## 30 2D Diagram BBYQ cylinder 108-156 Diverter SPECIAL



**[BBZQ-108-156 DEV]**



## 31 Warranty

### 1. VALIDITY

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

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

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

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

### 2. CONTENTS OF THE WARRANTY

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

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

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

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

### 3. WARRANTY EXCLUSIONS

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

## 32 Recommendations

- 1.** Consultation of the "Instruction, Use and Maintenance Manual" is mandatory prior to the installation, use and maintenance of the products of all Products. All the information, indications, specifications, technical details provided herein are based on test data which the Manufacturer Bardiani Valvole S.p.A. holds to be reliable nevertheless the above is not deemed to be assumed as fully exhaustive inasmuch as not every possible use has been envisaged.
- 2.** All the illustrations and drawings provided are to be intended as indicative and therefore not binding, the illustrations being for presentation purposes only.
- 3.** It is the Buyer's duty to assess the suitability of the products for the use he intends to make of the same prior to placing the order as he/she will take the risks and accept liability in case of incorrect choice and use of the Products.
- 4.** The Manufacturer strongly recommends the Buyer to contact their sales team and request any information that might be needed in relation to the specifications and uses of the Products.
- 5.** The information provided in this manual refers to the standard products manufactured by Bardiani Valvole S.p.A. and therefore cannot be assumed to apply to customized products as well.
- 6.** Bardiani Valvole S.p.A. reserves the right to amend and/or integrate and/or update the data and/or information and/or technical details relative to Products at any time and without prior notice. Please visit the website [www.bardiani.com](http://www.bardiani.com), where the latest updated of the "Instruction, Use and Maintenance Manual" can be found".
- 7.** The content and validity of the warranty covering the Products of Bardiani Valvole S.p.A. are dealt with in the relevant section in the "Instruction, Use and Maintenance Manual" which constitutes an integral part of the Products themselves.
- 8.** Bardiani Valvole S.p.A., shall not in any way be held liable for immaterial, indirect and consequential damages, such as (by way of example only), damages or loss of business, contracts, opportunities, time, production, profits, goodwill, image etc..



NOTES

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