

Instruction, Use and Maintenance Manual



SINGLE SEAT VALVE

BBZP - BBZR - BBZT

BBYP - BBYR - BBYT

Bardiani Valvole S.p.A.

via G. di Vittorio, 50/52 - 43045 Fornovo di Taro (PR) - Italy

tel. +39 0525 - Fax 0525 3408

bardiani@bardiani.com - www.bardiani.com

INDEX

1	Safety, Warning and Mandatory Signs	5
1.1	Operator training	8
2	Safety	9
2.1	General safety warnings	9
2.2	Electrical device	9
3	Technical Data	10
4	Checking / Unpacking / Lifting	11
5	Installation	13
6	Operation	17
7	Troubleshooting	18
8	Cleaning	19
9	Disposal	21
10	Maintenance	22
10.1	General maintenance	22
10.2	Scheduled maintenance	23
10.3	Tools useful for Disassembly/Reassembly	24
10.4	Pneumatic valves BBZP - BBZR - BBZT - BBYP - BBYR - BBYT	25
10.5	Disassembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT	27
A	Disassembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT	29
B	Disassembly of the BBZP P7-LL	36
10.6	Assembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT	44
10.6.1	Select normally close or normally open cylinder	46
A	Assembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT	51
B	Assembly of the BBZP P7-LL	59
10.7	Pneumatic Valves BBZP - BBZR - BBZT - BBYP - BBYR - BBYT Diverters	64
10.8	Disassembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT Diverters	68
A	Disassembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT Diverters	70
B	Disassembly of the BBZP M8-LLL Diverter	78
C	Disassembly of the BBZP M8-LLL Diverter with PTFE	87
10.9	Assembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT Diverters	96
10.9.1	Select normally close or normally open cylinder	98
A	Assembly of the BB ZP - BBZR - BBZT - BBYP - BBYR - BBYT Diverters	103
B	Assembly of the BBZP M8-LLL Diverter	115
C	Assembly of the BBZP M8-LLL Diverter PTFE	123
10.10	Pneumatic Valves BBZT - BBYT	131
10.11	Disassembly of the BBZT - BBYT	133
10.12	Assembly of the BBZT - BBYT	137
10.13	Shaft stroke limiter	145
10.14	Shaft stroke limiter disassembly	147

10.15	Shaft stroke limiter assembly	148
10.16	Idraulic damper	151
10.17	Idraulic Damper disassembly	152
10.18	Idraulic Damper assembly	156
11	Annexes	160
12	2D diagram BBZP	161
13	2D diagram BBZP M8-LL	162
14	2D diagram BBZP P7-LL	163
15	2D diagram BBZR	164
16	2D diagram BBZT	165
17	2D diagram BBYP	166
18	2D diagram BBYR	167
19	2D diagram BBYT	168
20	2D Diagram BBZP M8 Solid Body	169
21	2D diagram BBZP Diverter	170
22	Diagram BBZP M8-LLL Diverter	171
23	Diagram BBZP M9-LLL Diverter	172
24	2D diagram BBZR Diverter	173
25	2D diagram BBZT Diverter	174
26	2D diagram BBYP Diverter	175
27	2D diagram BBYR Diverter	176
28	2D diagram BBYT Diverter	177
29	2D Diagram BBZP cylinder with damper	178
30	2D diagram BBZP stroke limiter	179
31	2D diagram BBZP stroke limiter	180
32	Warranty	181
33	Recommendations	182

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.





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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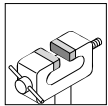
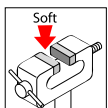
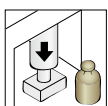
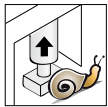


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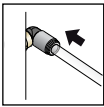
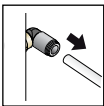





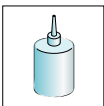



1 Safety, Warning and Mandatory Signs

WARNING SIGNS		
Pictogram	Description	Notes
	WARNING General	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.
	WARNING Hand crushing	Exercise caution in executing the procedure Hand crushing hazard Never touch the moving parts if the actuator is supplied with compressed air.
	WARNING Heavy loads	Exercise caution in executing the procedure Heavy suspended loads.
	WARNING Severe burns	Heat emission hazard Very hot surface, risk of severe burns
	WARNING Risk of explosions	Take Care, risk of explosions
	WARNING! Do not disperse in the environment	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
	OBLIGATION General	Special instructions must be followed to avoid injury to persons.
	PROTECTIVE GLOVES	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..
	HARD HAT	Hard hats must be available when lifting heavy parts.
	FOOTWEAR	Use safety footwear to protect against injuries caused by falling objects during maintenance operations (particularly when dismantling parts).

MANDATORY SIGNS (FOR THE OPERATOR IN CHARGE OF MECHANICAL MAINTENANCE AND THE OPERATOR IN CHARGE OF ASSEMBLY/DISASSEMBLY)		
Pictogram	Description	Notes
	SUITABLE CLOTHING	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.
	SAFETY GLASSES	Protective glasses must be available when there is the possibility of contact with harmful substances which could cause eye injuries.

OPERATING SIGNS		
Pictogram	Description	Notes
	SKILLED PERSONNEL	Dismantling/Assembling and maintenance operations must be carried out by expert technicians only.
	NOTE	Follow the indicated note with care
	ENVIRONMENTAL NOTE	Follow the regulations in force in the country of use governing waste disposal.
	CLAMP	Use of a clamp
	CLAMP WITH SOFT JAWS	Use of a clamp with jaws made from soft material
	PRESS	Use of a press
	PRESS (release)	Use of a press Gradual release of the pressure force
	ELECTRICAL CONNECTION	Electrical connection to the control unit (consult the relative instruction manual).
	ELECTRICAL DISCONNECTION	Electrical disconnection from the control unit (consult the relative instruction manual).

OPERATING SIGNS		
Pictogram	Description	Notes
	PNEUMATIC CONNECTION	Connection of the air to the valve.
	PNEUMATIC DISCONNECTION	Disconnection of the air from the valve
	DO NOT CONNECT AIR	Don't connect compressed air
	APPLICATION OF FOODSAFE GREASE	Use CIP-FILM grease or similar.
	APPLICATION OF FOODSAFE GREASE	Use FOODLUBE Multi-paste grease or similar.
	APPLICATION OF FOODSAFE GREASE	Use FOODLUBE HI-TEMP 2 grease or similar.
	APPLICATION OF MULTIPURPOSE GREASE	Use AGIP GREASE MU EP 2 SE or similar.
	THREADLOCK APPLICATION	Use SPEED BOND M500 threadlock or similar.
	ASSEMBLY / DISASSEMBLY SEQUENCE	Sequence of assembly disassembly operations
	Oil	Use SPRINTER ADPV32 or similar
	OPTIONAL	

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 Safety

2.1 General safety warnings

**Intended use**

Bardiani valves have been exclusively for moving fluids.

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 and indicated in the valve's technical data.
- 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 device

[see the control unit manual]

3 Technical Data

VALVE DATA	
Maximum pressure	From DN10 To DN80 PN12 Other PN10
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, HNBR 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" BSP
Steam maximum temperature	130°C [266°F]
Gaskets material	FKM

PNEUMATIC ACTUATOR DATA	
Connectors	1/8" BSP
Pipe dimensions	6 mm external diameter, 4 mm internal diameter
Air pressure	from 6 bar [87 psi] to 8 bar [116 psi]
Air quality	Class 2, 4, 3 ISO8573-1
External material	AISI 304L [1.4307]
Seals	NBR
Noise levels	76 dB
Electrical supply	See Giotto Top

GASKET MATERIALS COMPATIBILITY				
Product	EPDM	FKM	HNBR	MVQ
Temperature (applications with air)	from -10°C to +140°C	from -10°C to +200°C	from -10°C to +130°C	from -70°C to +230°C
Caustic soda <5%	From 1°C to 80°C	From 1°C to 80°C	To be checked	Unsuitable
Nitric Acid <2%	From 1°C to 80°C	From 1°C to 65°C	To be checked	Unsuitable
Saturated steam	130° C	120° C	Suitable	Unsuitable
Greases	Unsuitable	Suitable	Suitable	Unsuitable
Alcohols	Suitable	Unsuitable	Suitable	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 DN25 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 DN between DN32 and DN100 (included) with group 1 fluids;
- valves with DN125 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

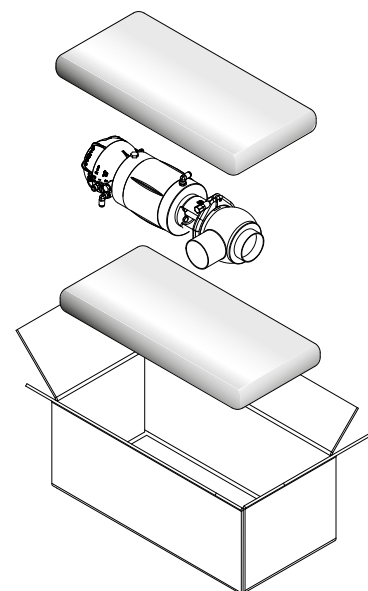
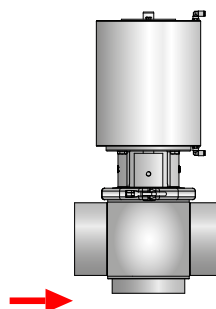
1. CHECK:

- 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:

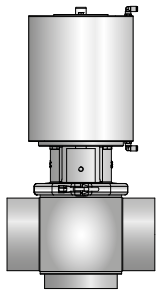
Take care as to the type of valve you are handling. Based on the size there are different lifting procedures.



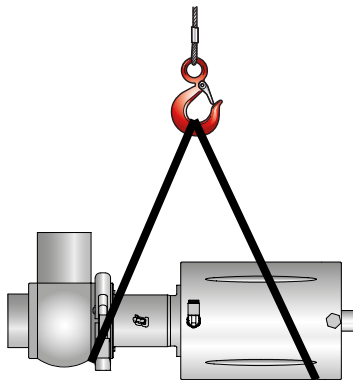
CAUTION!

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.

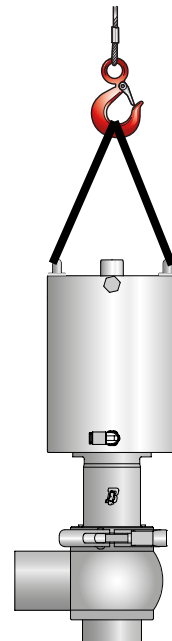
A



B



C



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



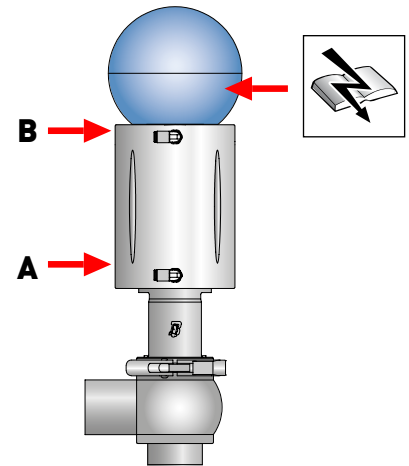
1. ELECTRICAL AND PNEUMATIC ENERGY SUPPLY

- 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.



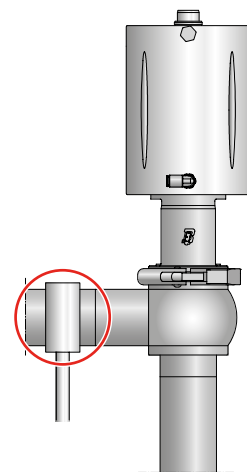
2. REDUCING THE STRESS TO WHICH THE VALVE IS SUBJECTED:

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



CAUTION!

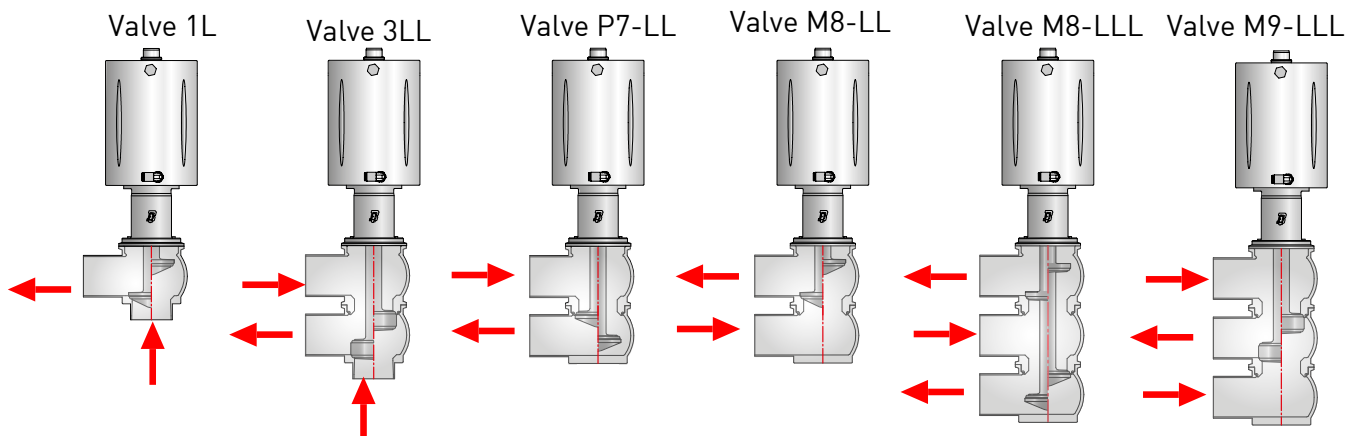
The seal seats may become deformed or cause valve malfunctioning.





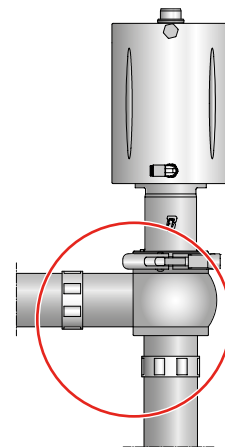
3. CORRECT DIRECTION OF FLOW:

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



4. VALVE CONNECTIONS/CONNECTORS:

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



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.



5. 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.



CAUTION!

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.

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



6. MINIMUM MAINTENANCE CLEARANCES:

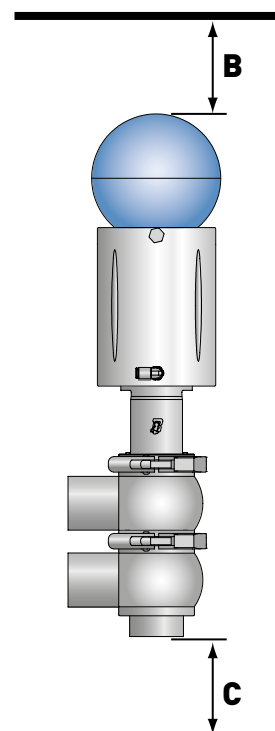
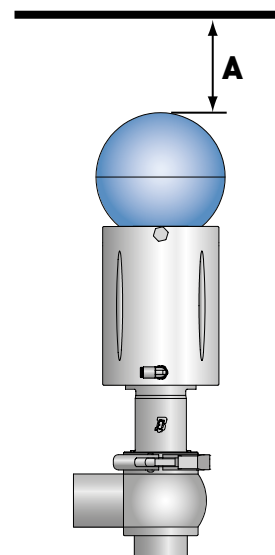
Make sure there is enough room around the valve for it to be disassembled (with the control unit installed).

BBZP-BBZM - BBYP - BBZT - BBZR			
DN	A (mm)	B (mm)	C (mm)
10-25	440	440	440
32-40	465	455	455
50	480	470	470
65	490	485	485
80	500	500	500
100	525	515	515
125	660	650	650
150	690	675	675



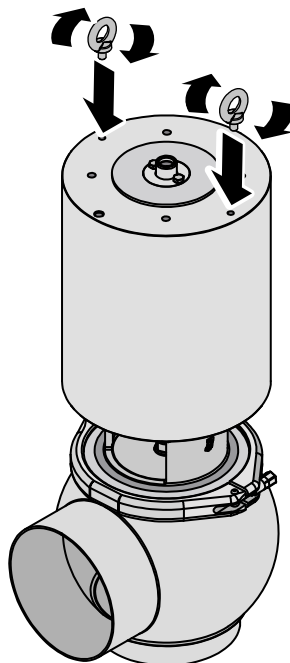
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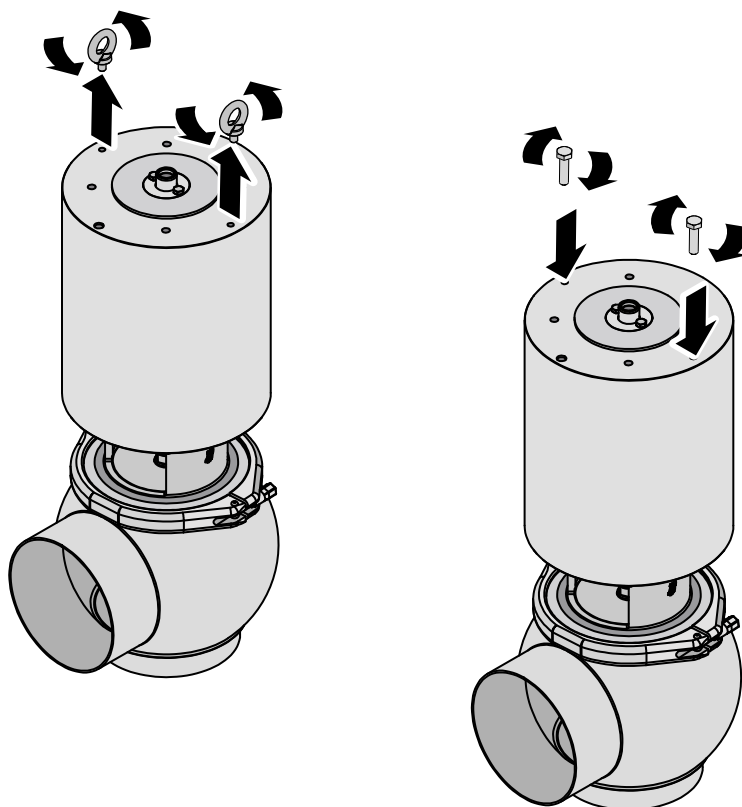


**7. PREPARING THE VALVE FOR INSTALLATION:**

To move the valve (dn125-dn150), first screw in the eye bolts.



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



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

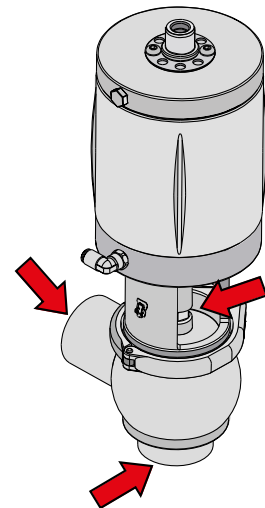
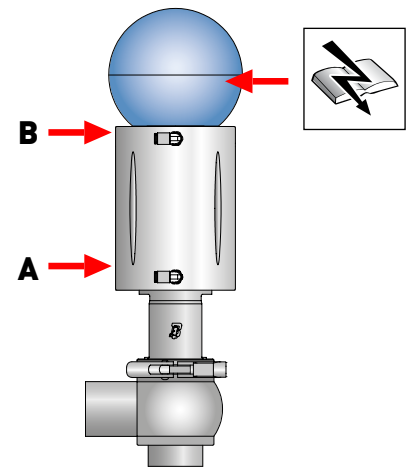
In single acting valves there is only one of the aforementioned commands.



CAUTION!

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

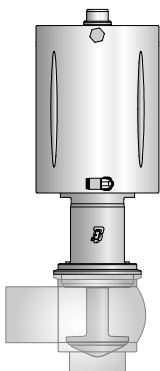
Never touch the moving parts if the actuator is supplied with compressed air



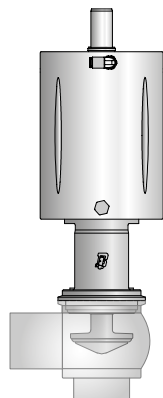
2. DUAL FUNCTION OF THE VALVE CYLINDER:

Depending on how the valve cylinder is turned and installed, operation will be in normally open or normally closed mode.

Normally closed



Normally open



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	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	Change from normally open (NO) to normally closed (NC) 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.



CAUTION!

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



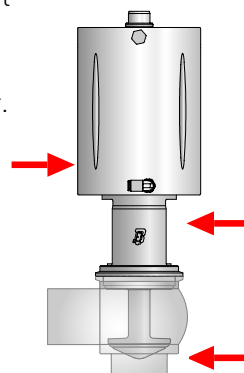
WARNING

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

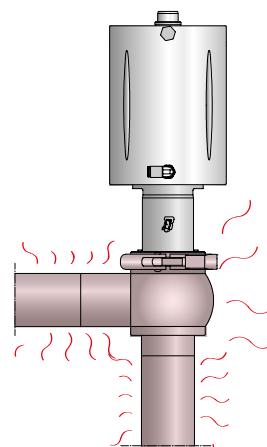
To meet EHEDG guideline requirements and ensure correct cleaning of the valve, it is advisable to carry out the washing procedure in several successive steps, including a mandatory step performed with the valve in the open position.

This procedure must be performed for the following valve body combinations: LT, TL and TT.

Risk of
stainless steel
corrosion



Risk of damage
elastomers



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 ₃) at 0.5%
End rinse	Environment	Chlorine- and chloride-free water

Recommended washing product velocity = 2m/s

EN-IST-BBZP-1025

CLEANING PARAMETERS		
Product	EPDM	FKM
Product		
Max temperature	95° C	95° C
Minimum temperature	-20° C	-5° C
Steam		
Max temperature (during working)	130° C	120° C
Max temperature (for a period of time 15-20 min)	150° C	140° C
Sodium hydroxide		
Diluted cleaning solution	<5%	<5%
Minimum temperature	1° C	1° C
Max temperature	80° C	80° C
Acid (Nitric / Phosphoric / Peracetic acid)		
Diluted cleaning solution	<2%	<2%
Minimum temperature	1 °C	1° C
Max temperature	40 °C	65 °C
Disinfection		
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 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



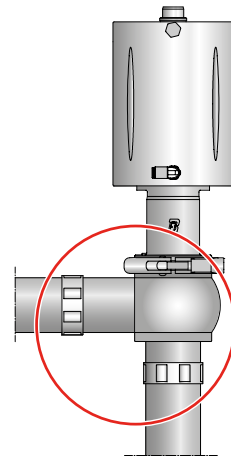
1. MAINTENANCE PRECAUTIONS

Maintenance operations must be carried out by expert technicians only.



CAUTION!

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



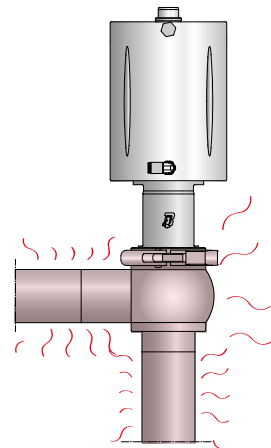
CAUTION!

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



CAUTION!

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.



CAUTION!

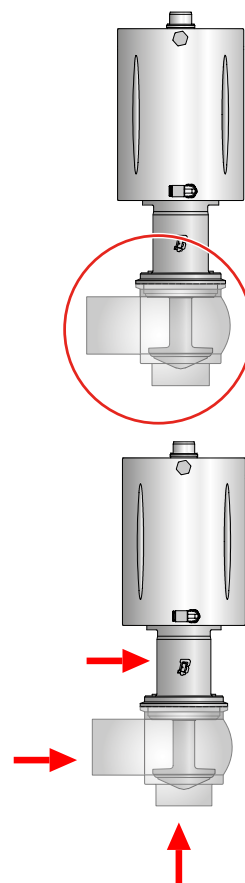
Hand crushing hazard. During operation there is a risk of crushing inside the valve body and in the area between the actuator and the valve body.

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



3. REPLACEMENT OF WORN VALVE PARTS:

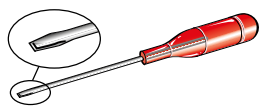



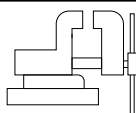
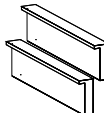
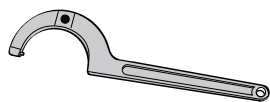
Always use original spare parts



10.2 Scheduled maintenance

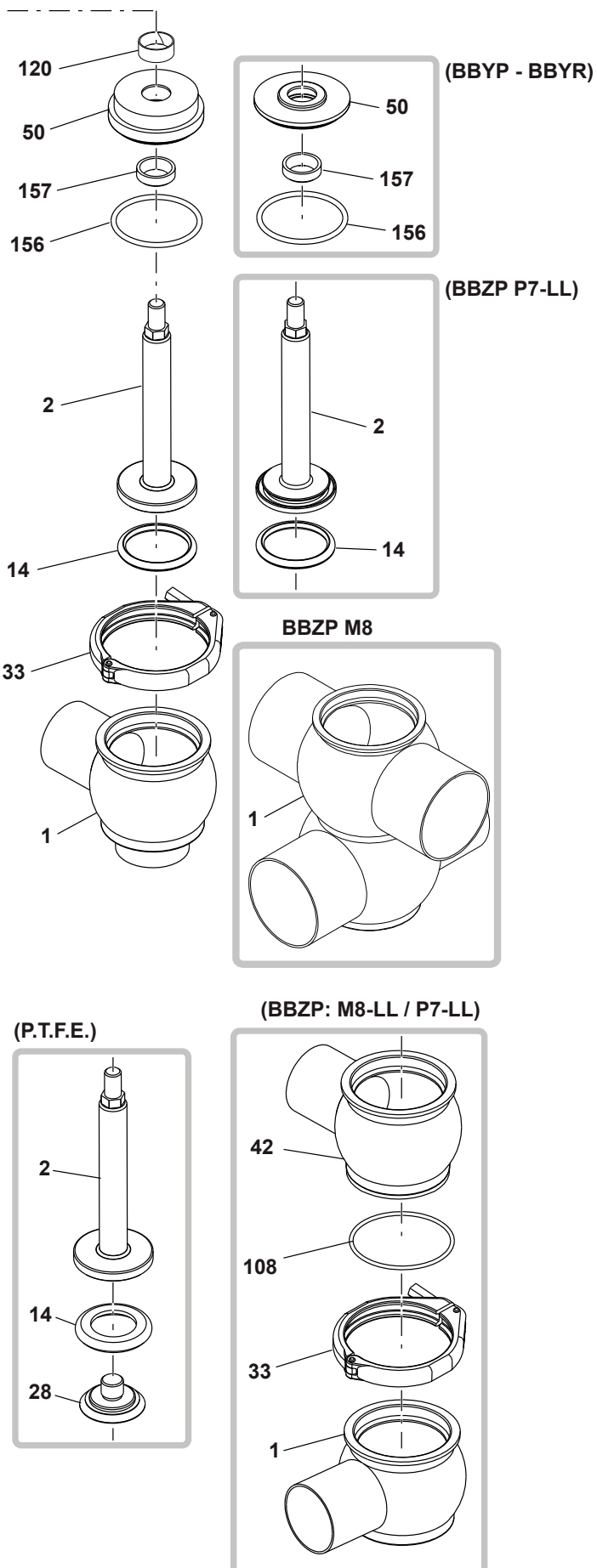
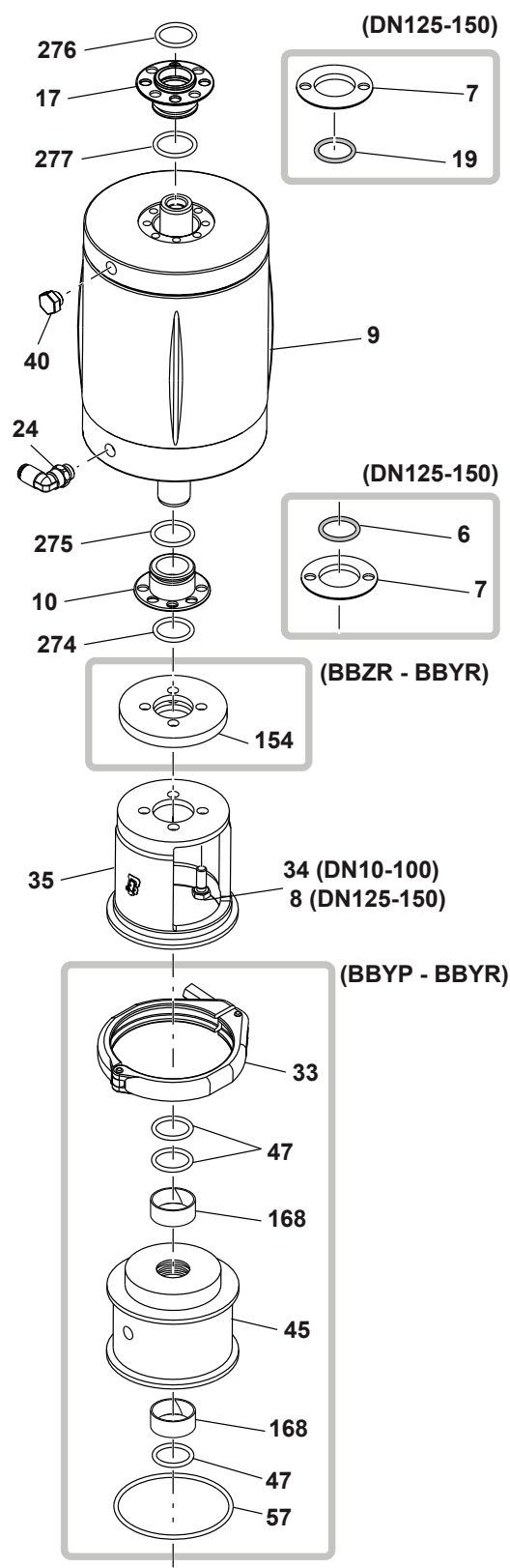
SCHEDULED MAINTENANCE	VALVE GASKETS	ACTUATOR GASKETS
Preventive	Replace after 12 months	Replace in the event of leaks
In the event of leaks	Replace at the end of the day	Replace in the event of leaks
Periodical	Check correct operation and that there are no leaks	Check correct operation and that there 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	DN125	DN150
	✓								
	4 - 6 - 8								
	10-12 -13-19 -24	10-12-13-17- 19-24		10-12- 13-15- 17-19- 24	10-12- 13-15- 17-19- 22-24	10-12-13-15- 19-21-22-24		10-12-13-19- 20-22-24	
	✓								
	✓								
	✓								
	BETA 99ST 35-50								

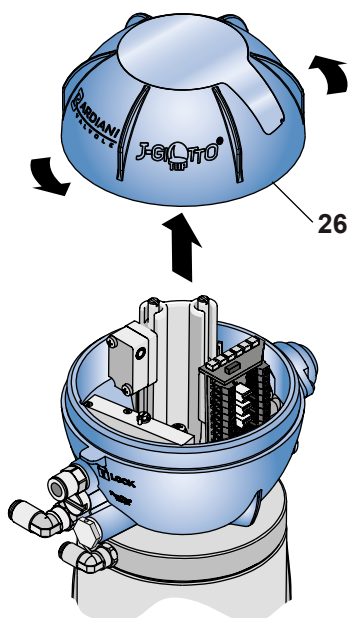
10.4 Pneumatic valves BBZP - BBZR - BBZT- BBYP - BBYR - BBYT

NO.	DESCRIPTION
1	Lower body
2	Shutter
6	Sealing ring
7	Sealing washer
8	Screw
9	Cylinder
10	Bush
14	Sealing ring
17	Bush
19	Sealing ring
24	Air connector
28	Shutter nut
33	Clamp
34	Screw
35	Assembly
40	Cap
42	Upper body
45	Steam barrier
47	Sealing ring
50	Gasket holder disc
57	Sealing ring
108	Sealing ring
120	Bush
154	Thickness
156	Sealing ring
157	Sealing ring
168	Bush
274	Sealing ring
275	Sealing ring
276	Sealing ring
277	Sealing ring

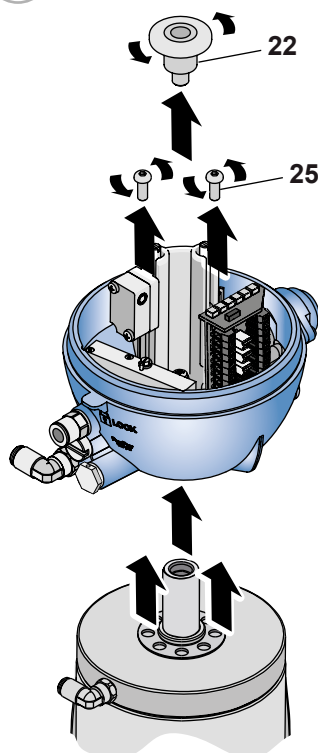


10.5 Disassembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT

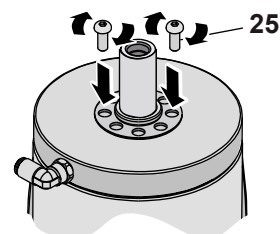
①-①



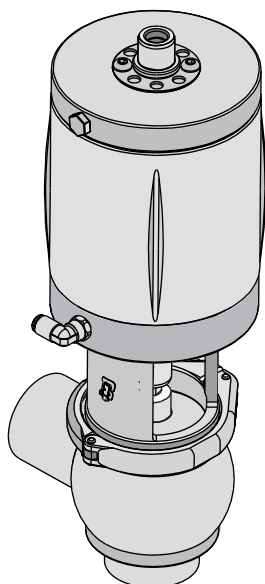
①-②



①-③

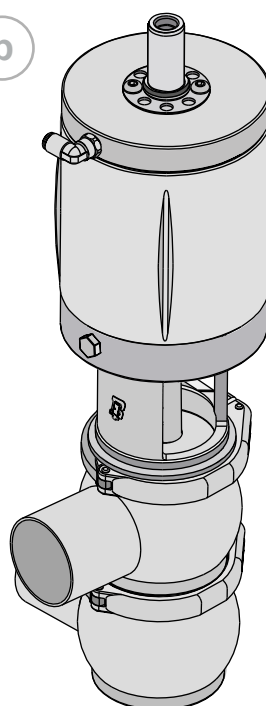


a



[A S BBZP]

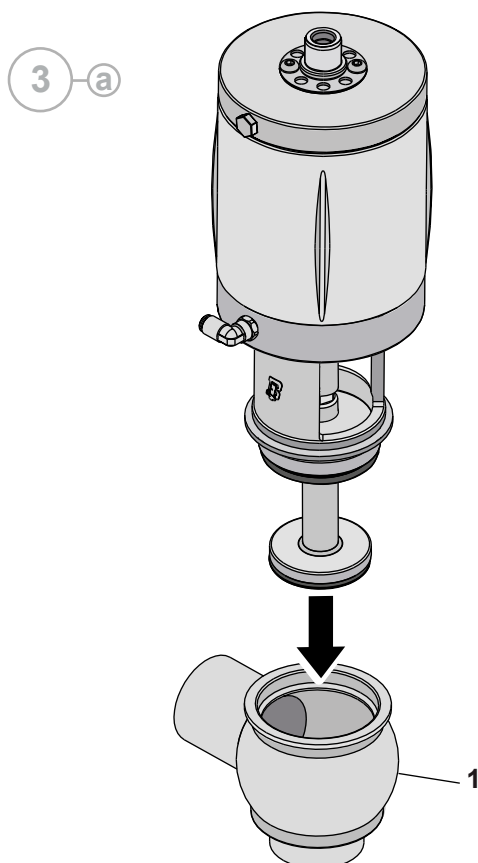
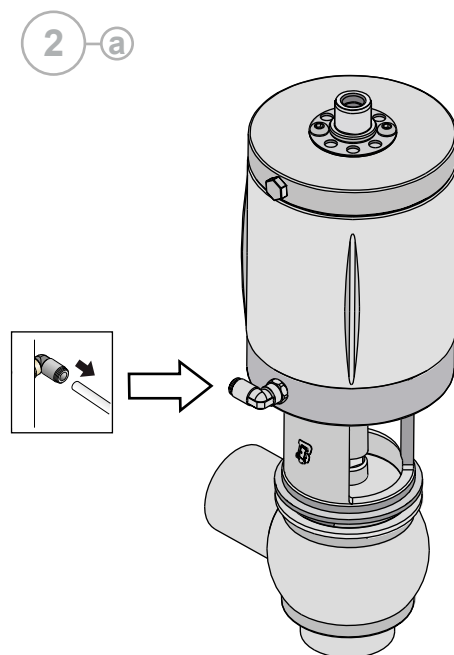
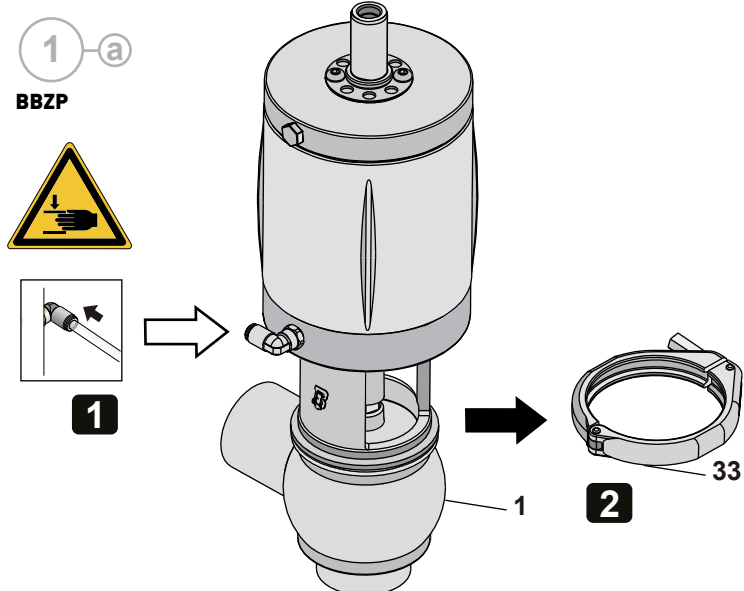
b



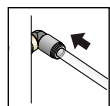
[B S BBZP P7-LL]

A Disassembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT

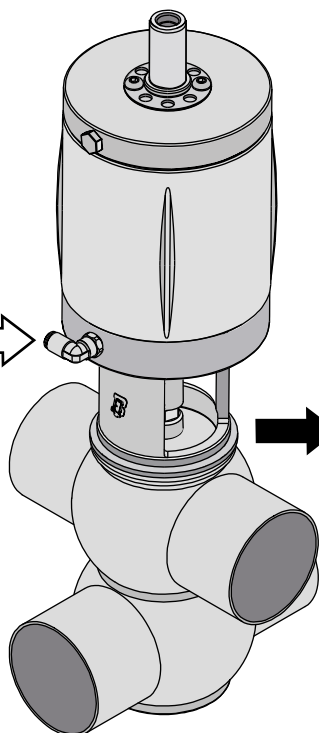
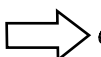
(Normally closed)



1 a1
M8



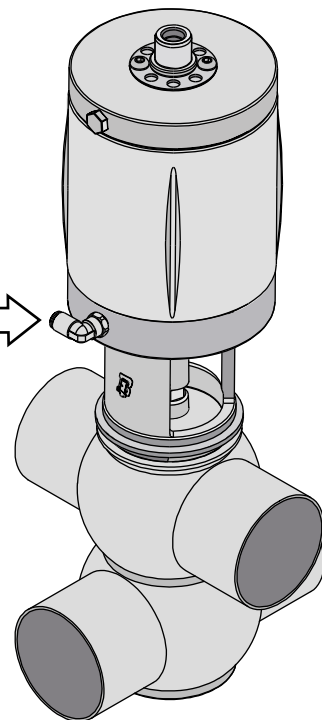
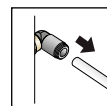
1



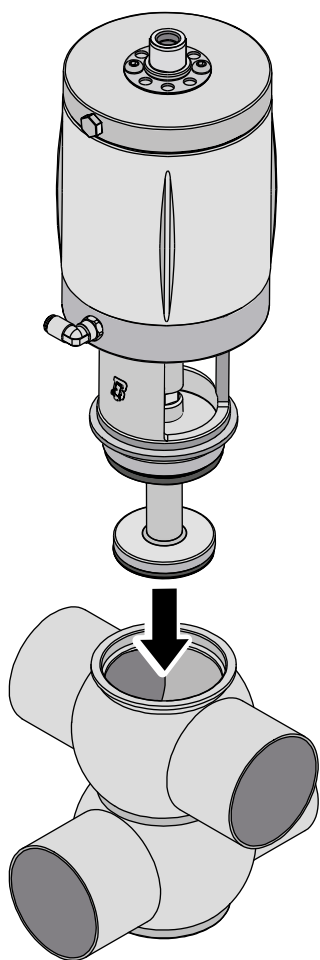
2

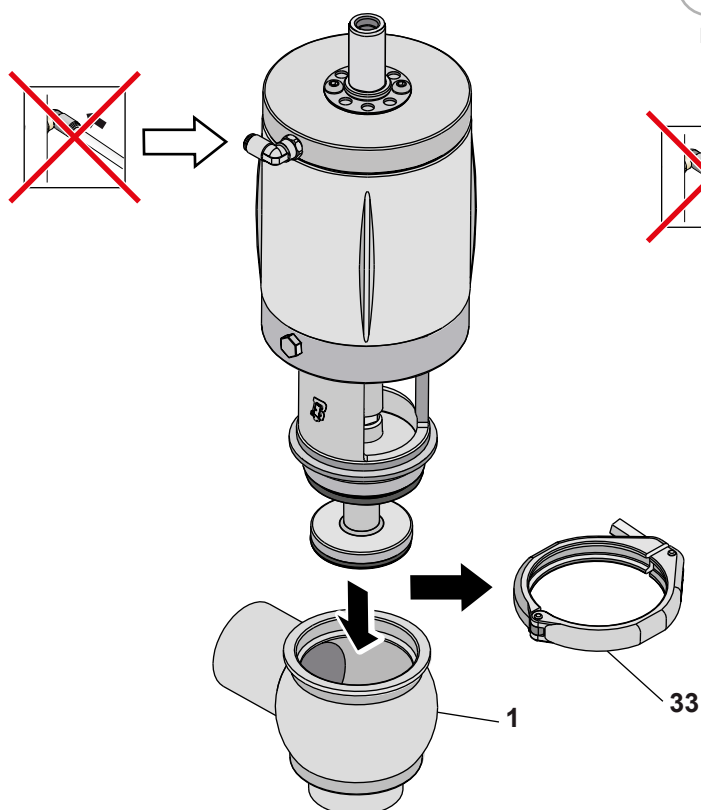
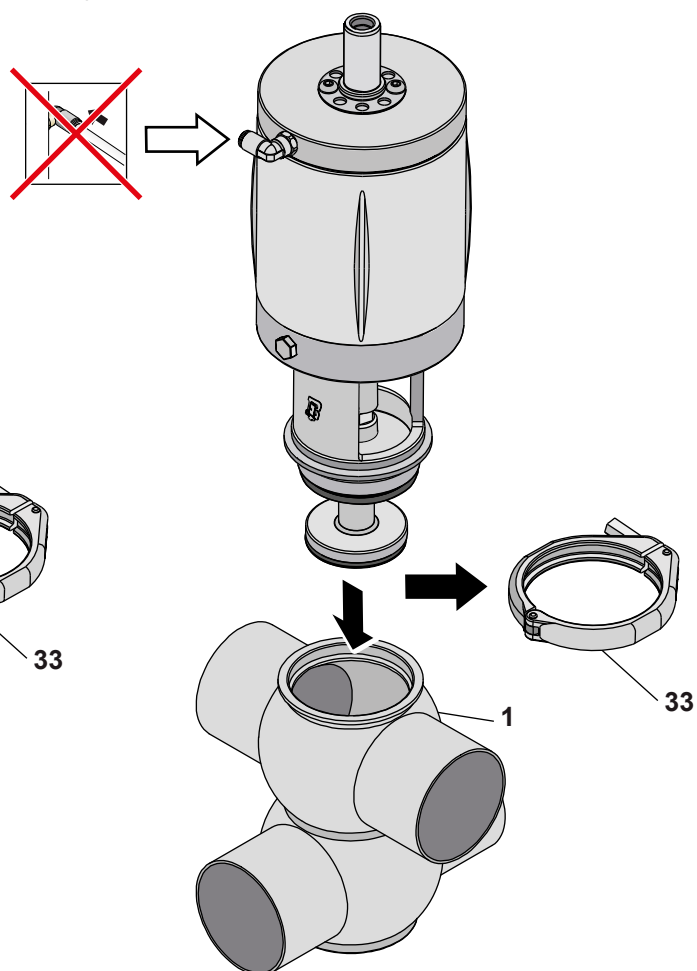
33

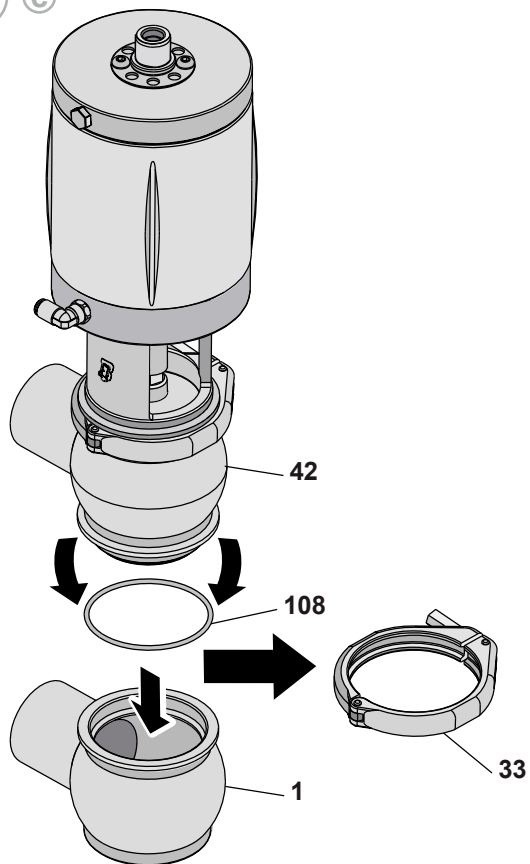
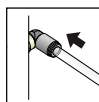
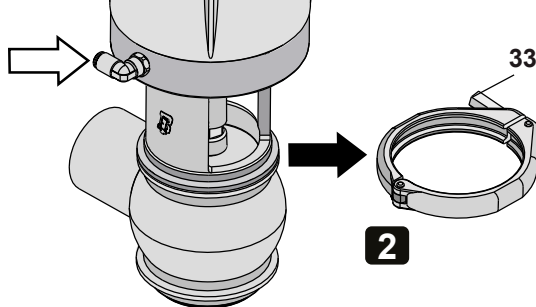
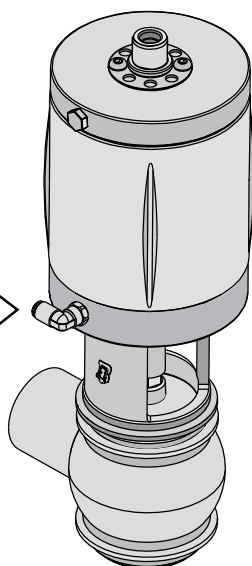
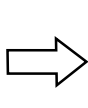
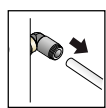
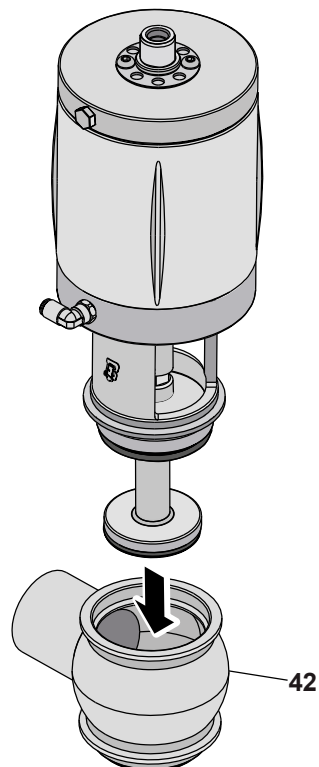
2 a1

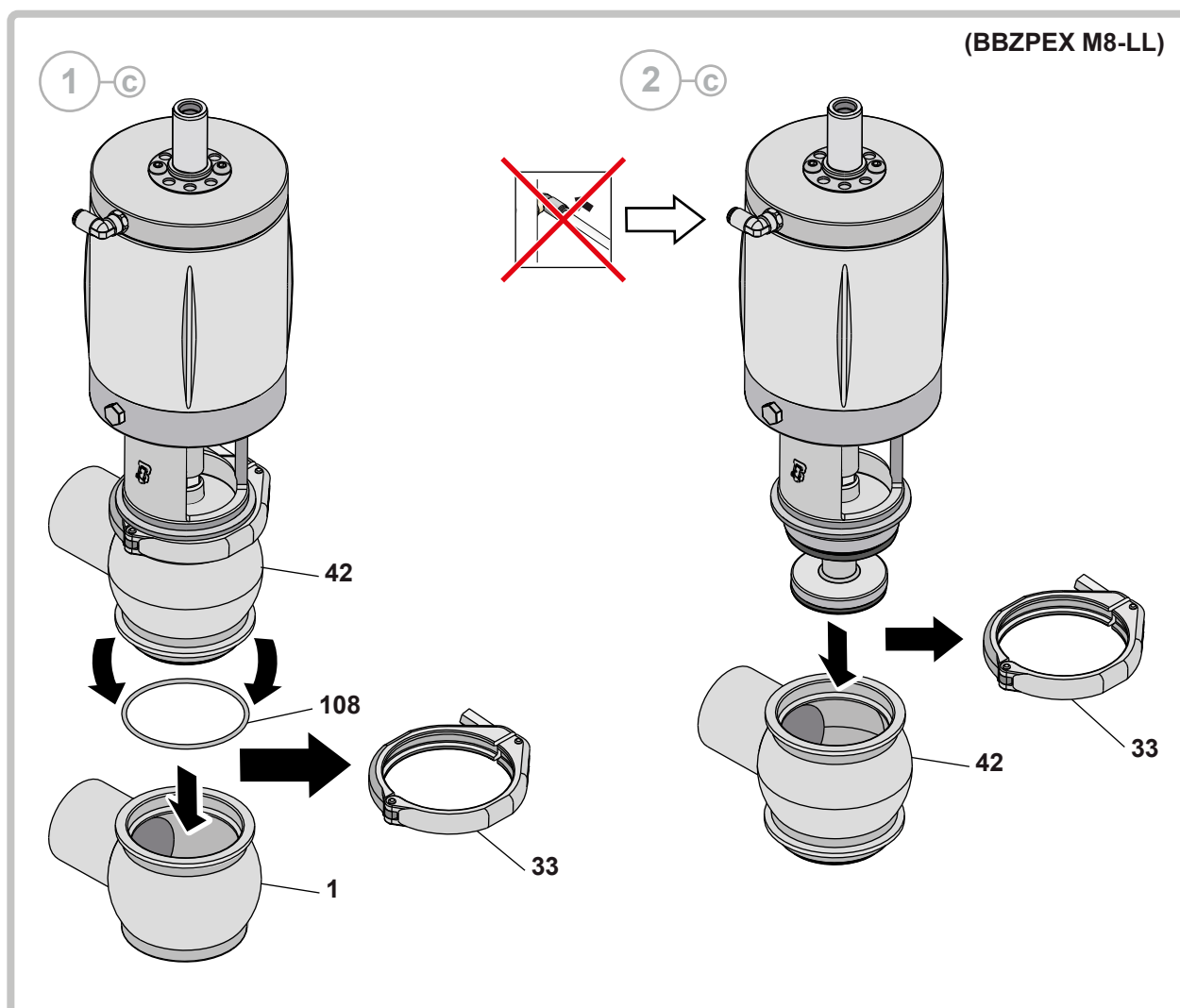


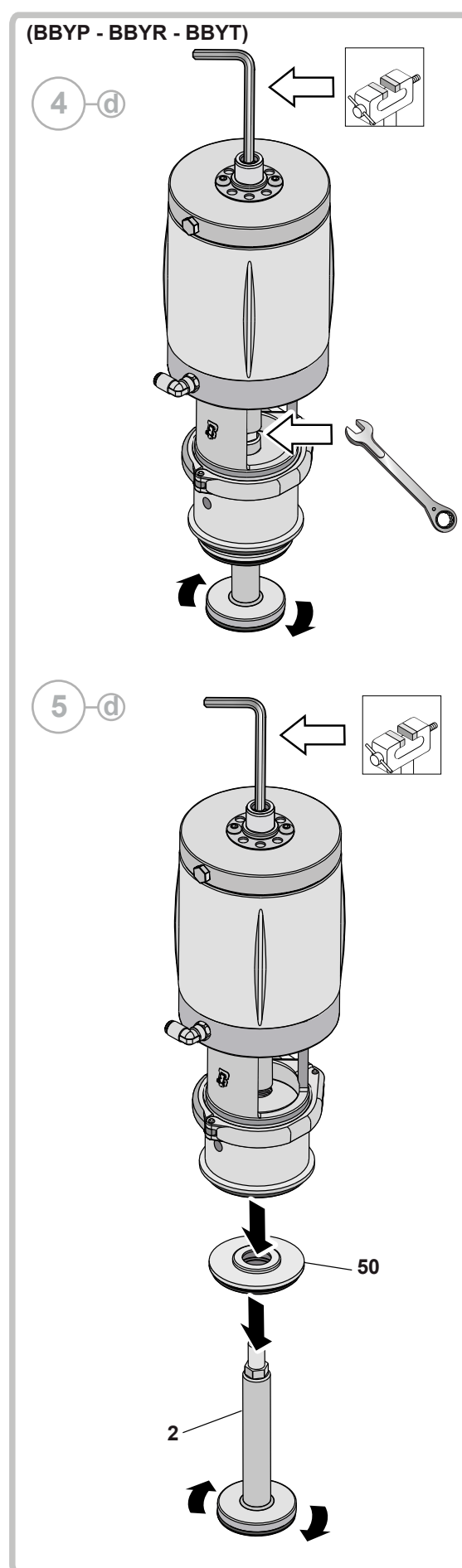
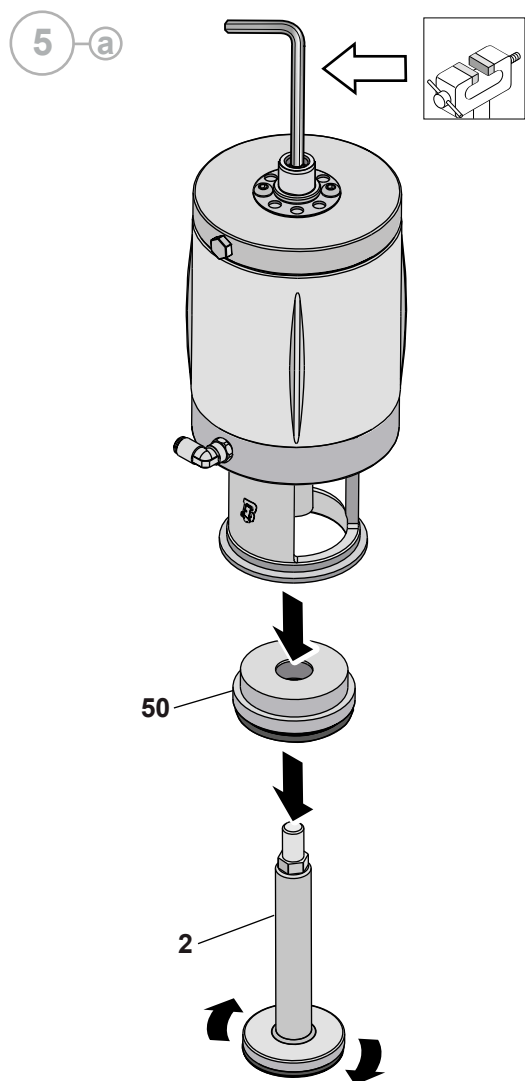
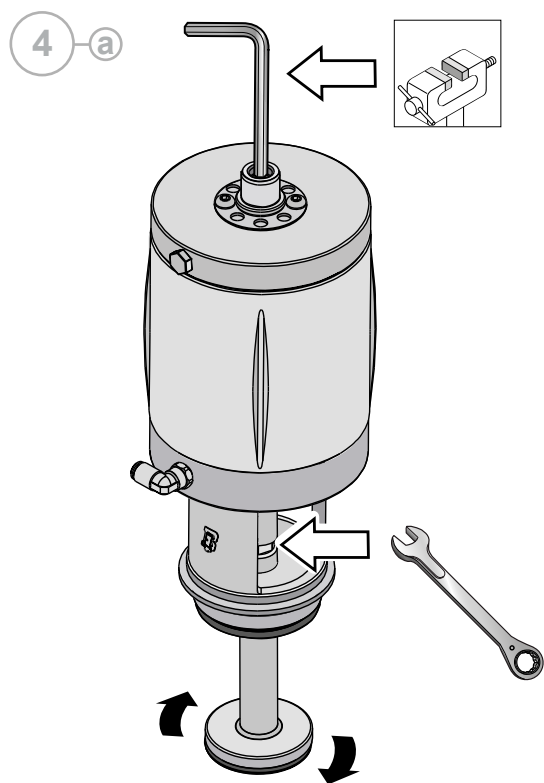
3 a1

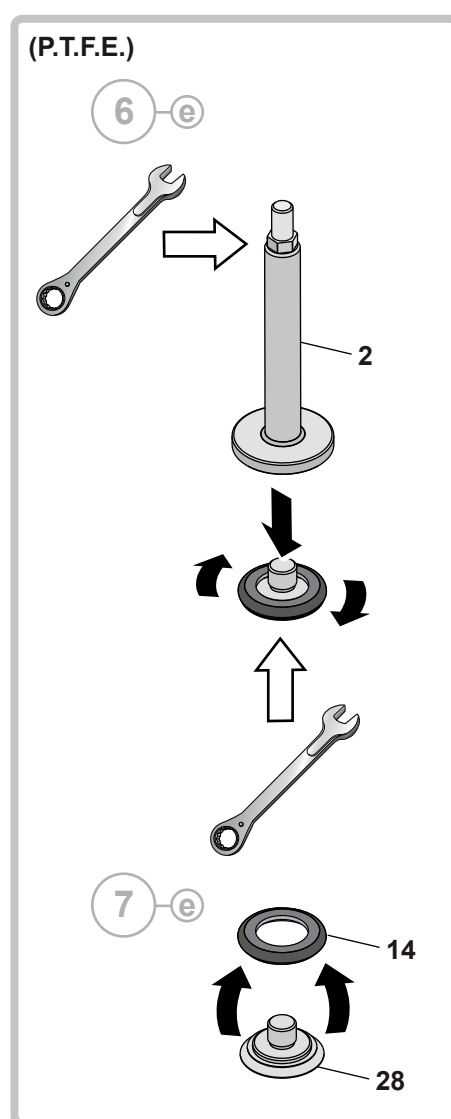
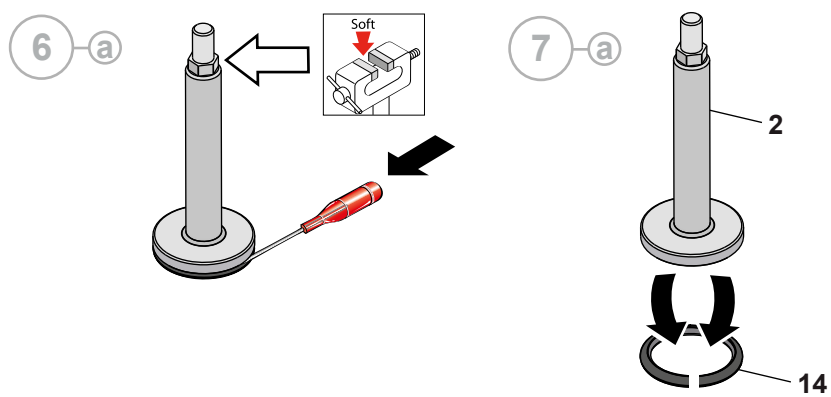


(Normally open or double acting)**1** **a****BBZP****1** **a1****M8**

Normally closed**(BBZPEX M8-LL)****1** - C**2** - C**1****3** - C**4** - C

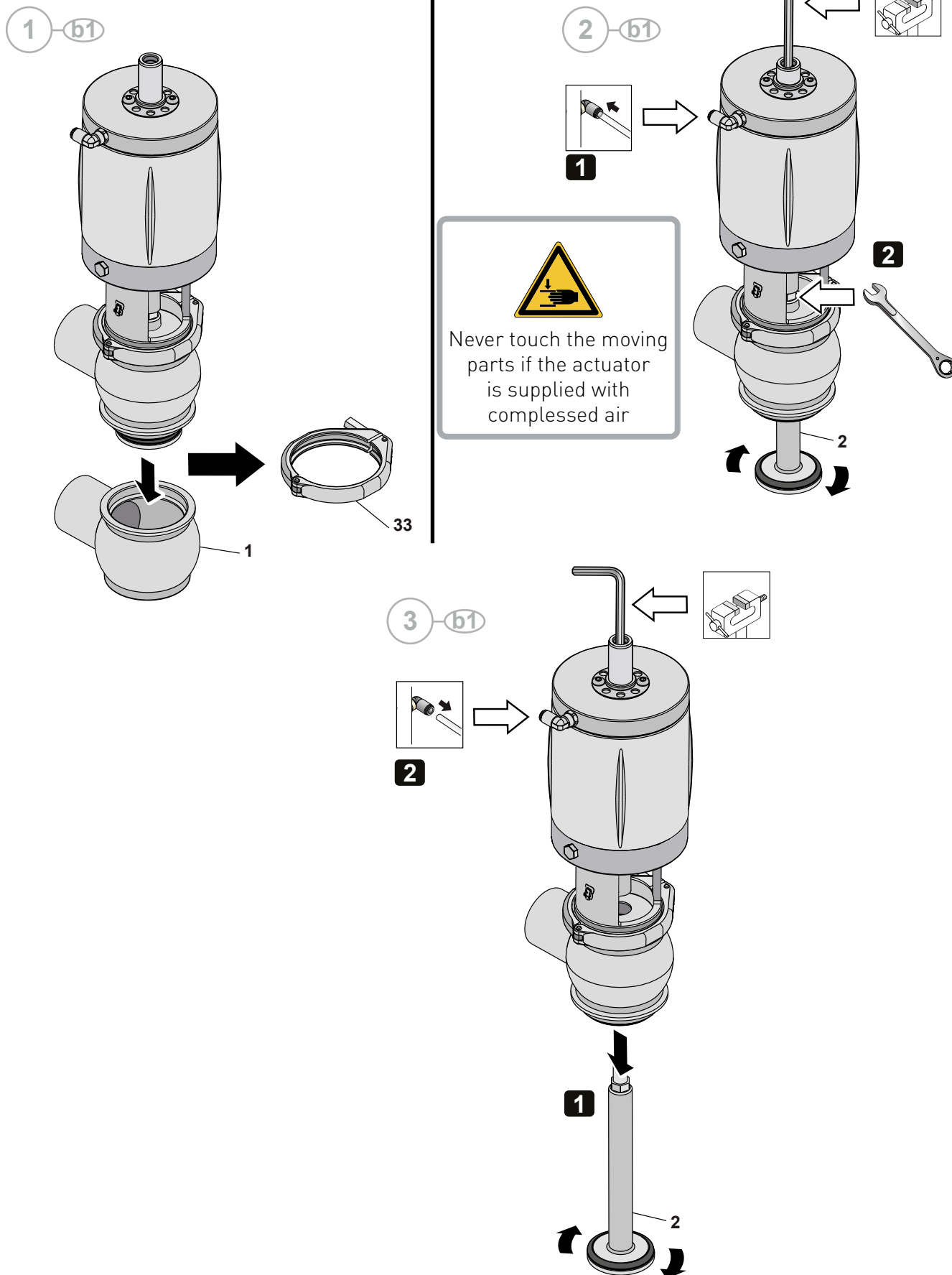
Normally open or double acting

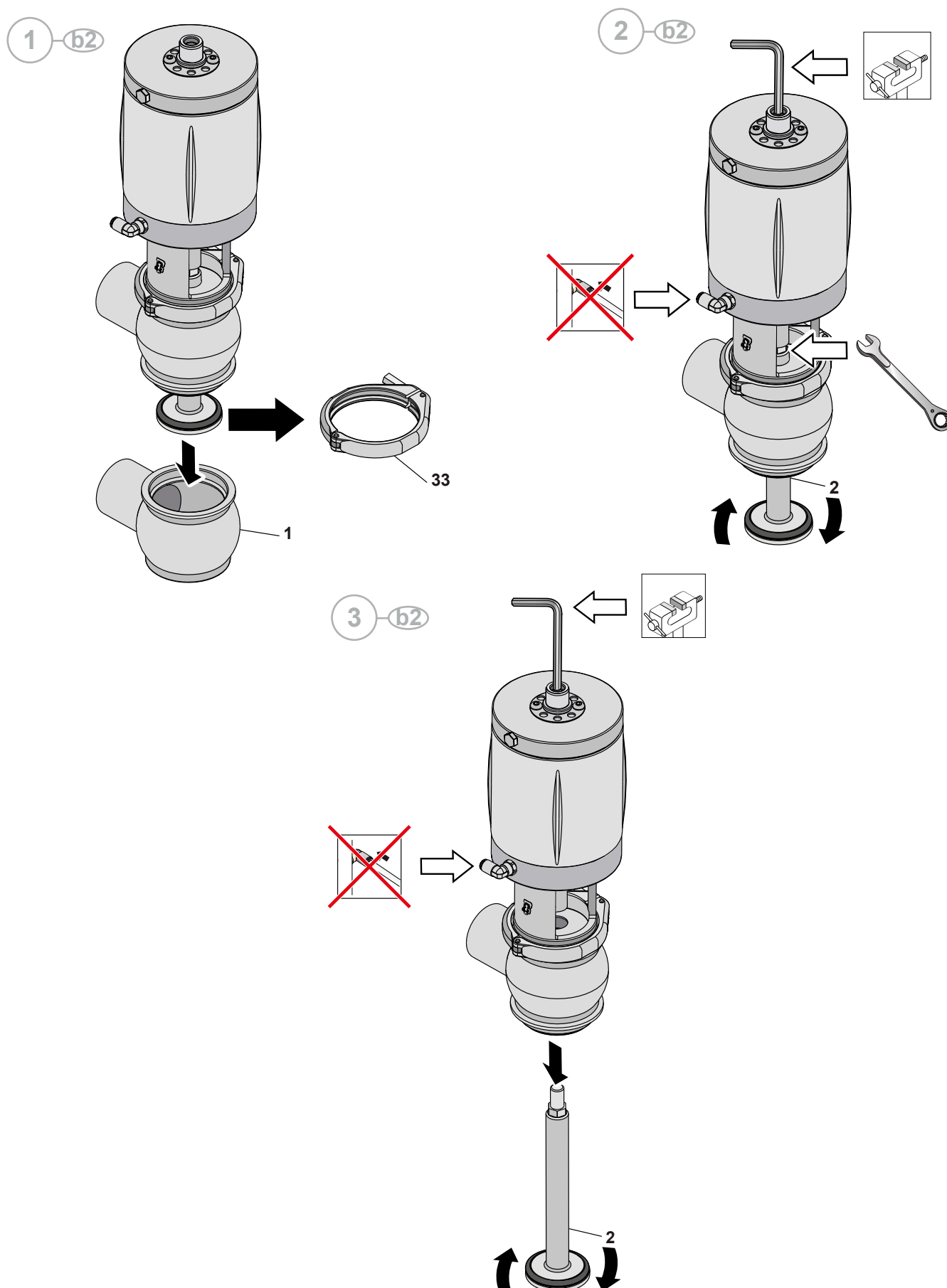


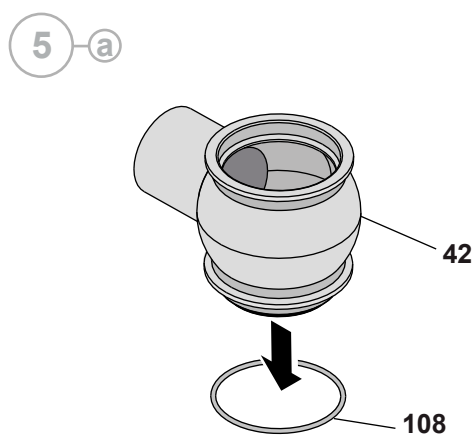
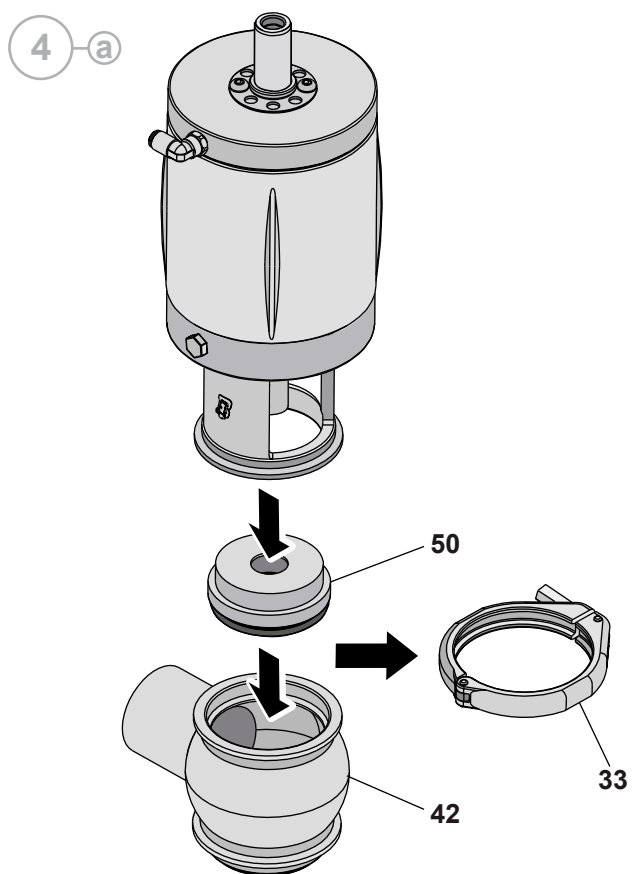
**[S BBZP]**

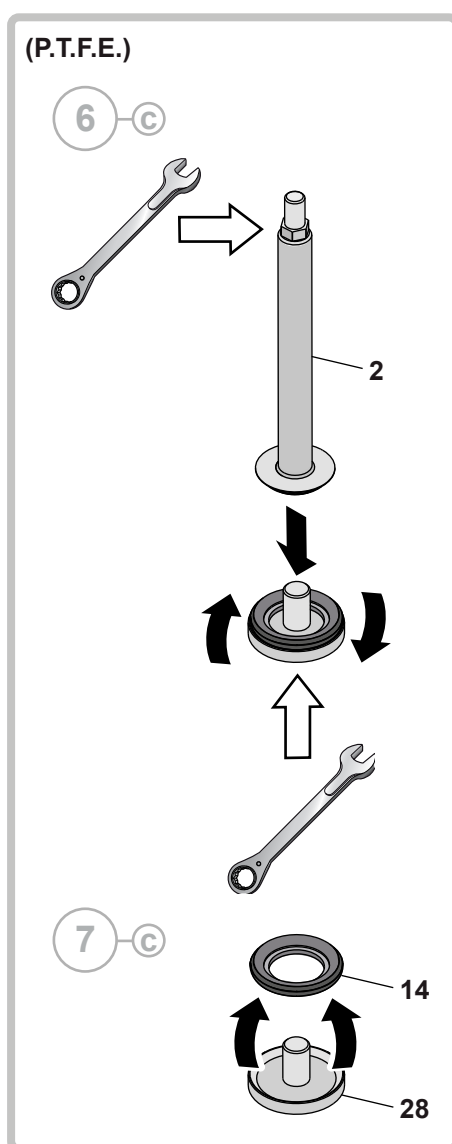
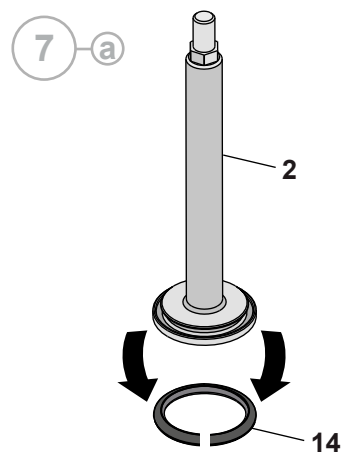
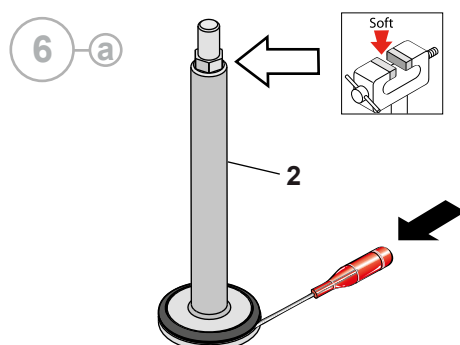
B Disassembly of the BBZP P7-LL

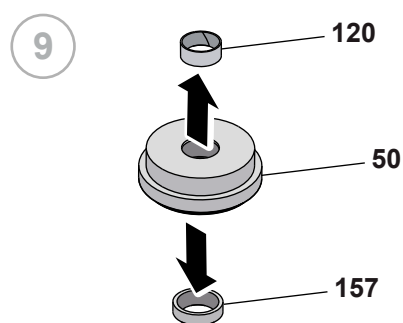
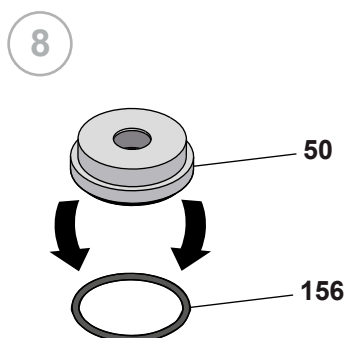
(Normally closed)



Normally open or double acting

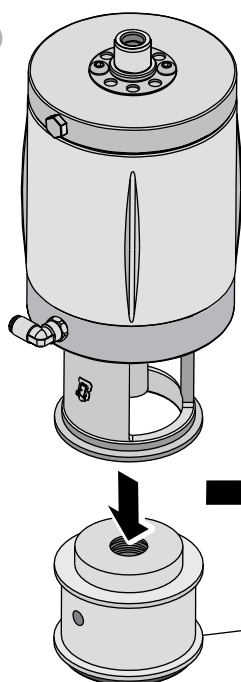




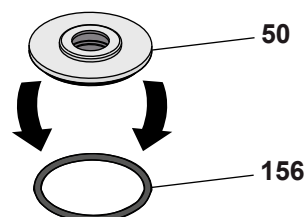


(BBYP - BBYR - BBYT)

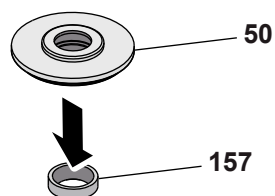
8-d



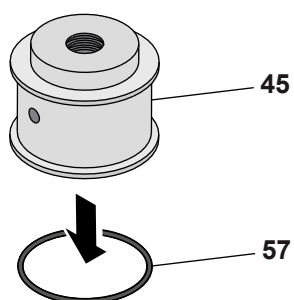
9-d



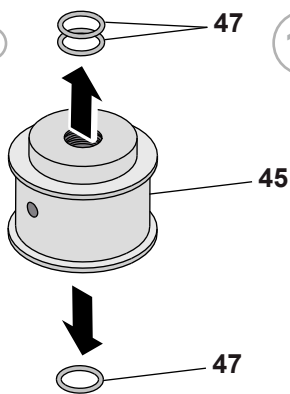
10-d



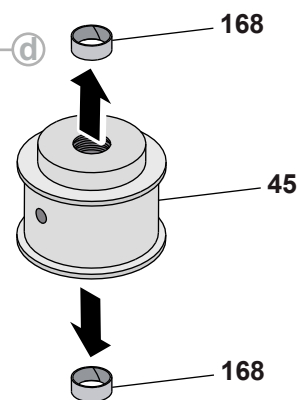
11-d



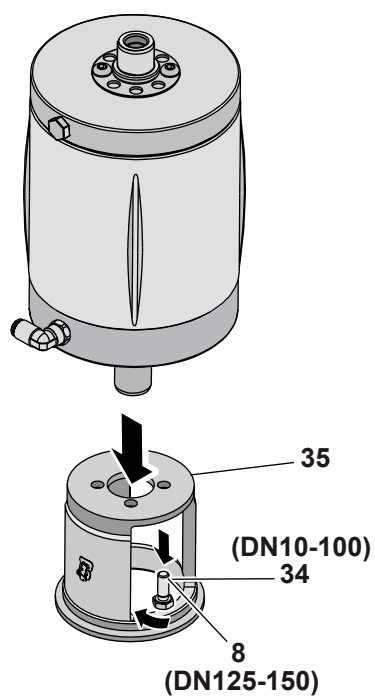
12-d



13-d

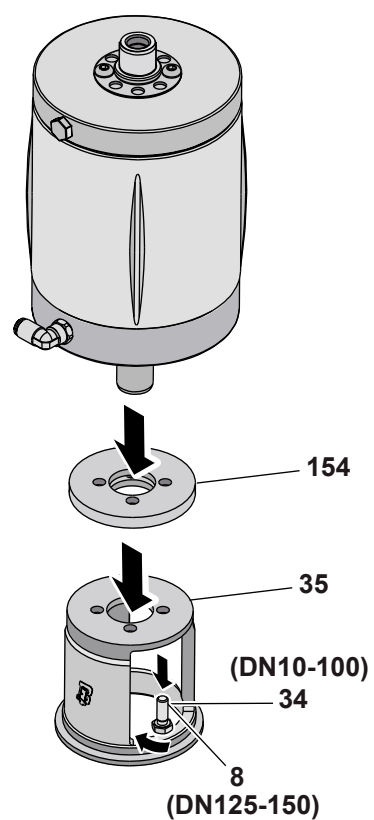


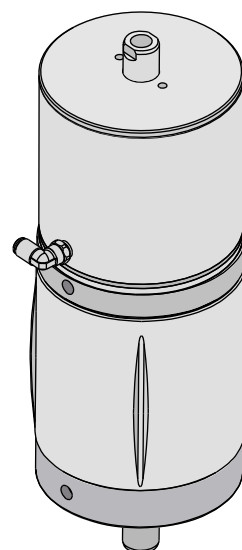
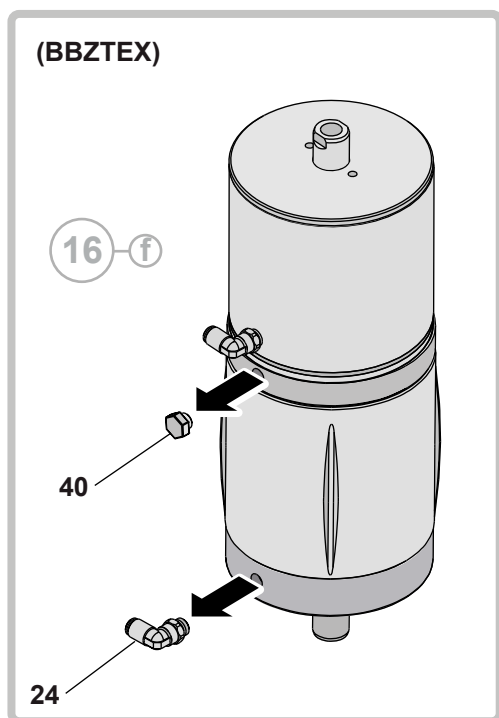
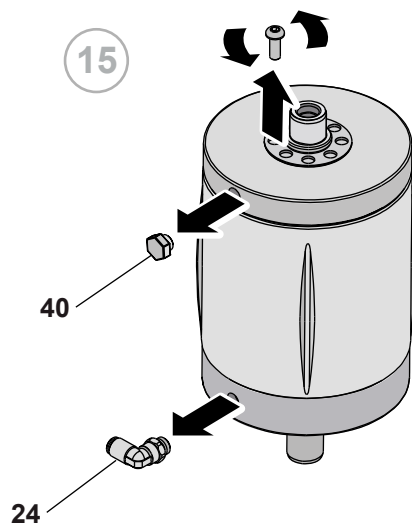
14



(BBZR - BBYR)

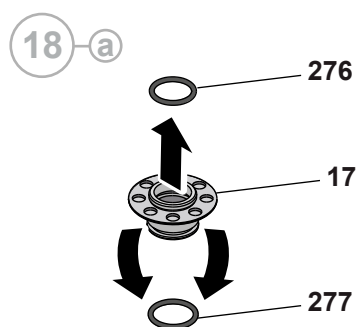
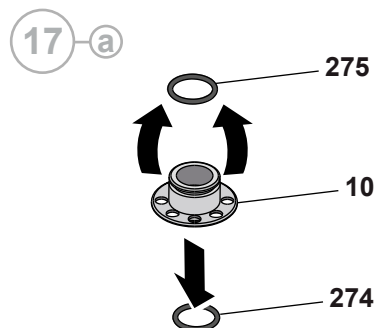
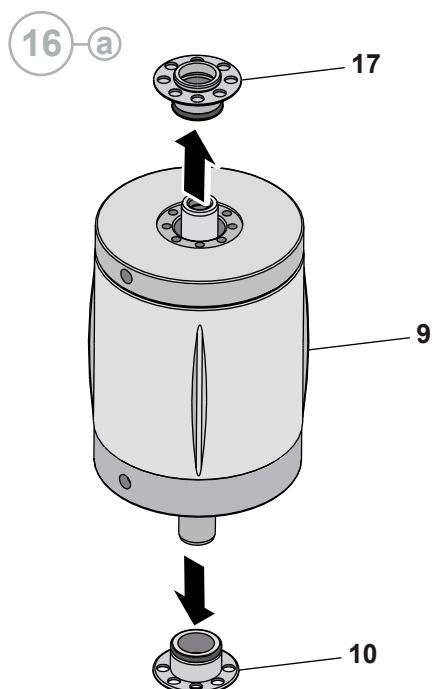
14 e



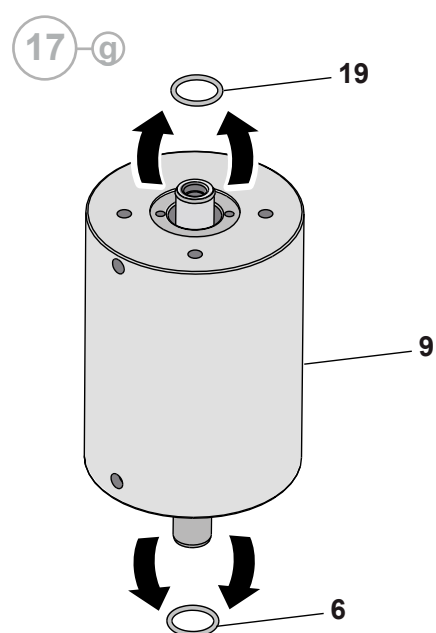
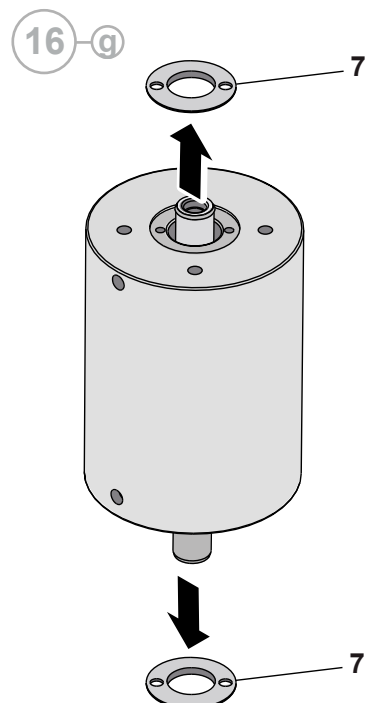


[BBZT]

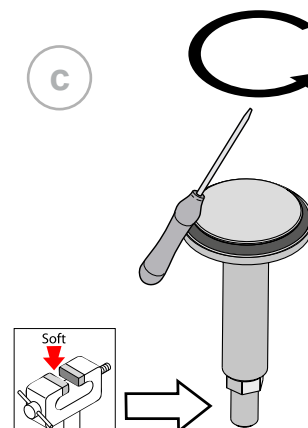
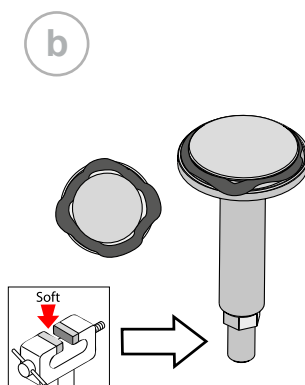
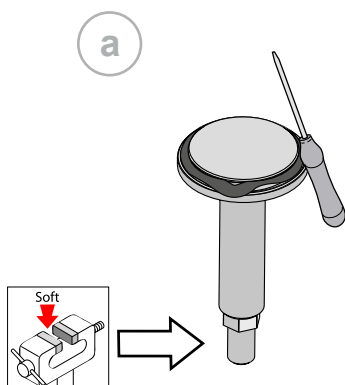
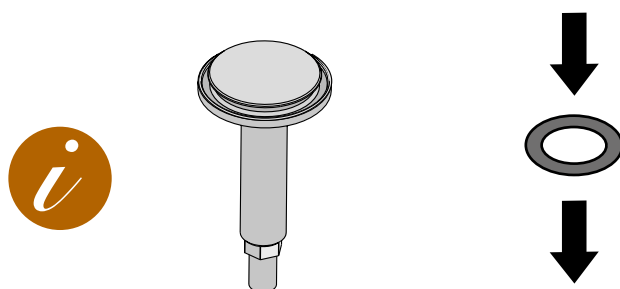
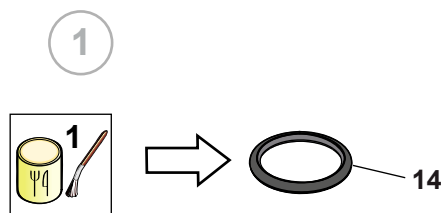
(DN 10-100)



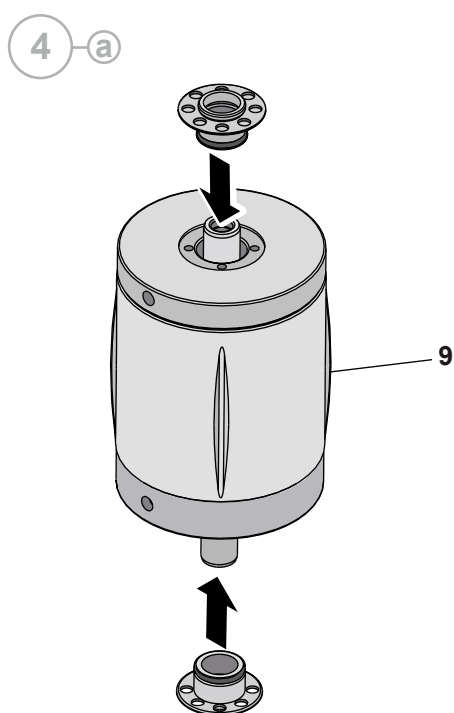
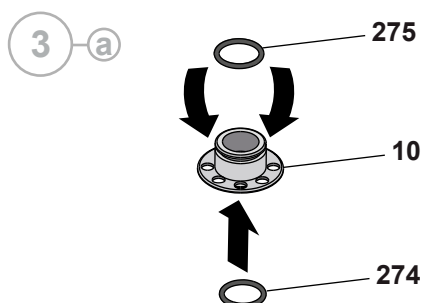
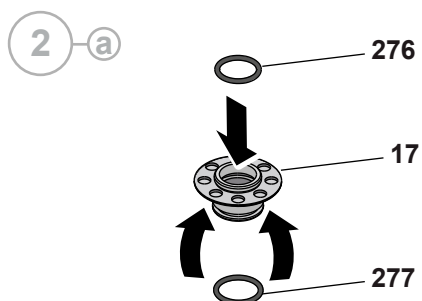
(DN 125-150)



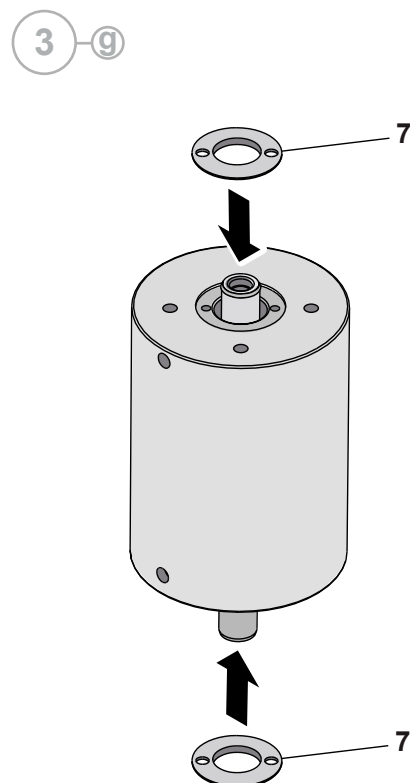
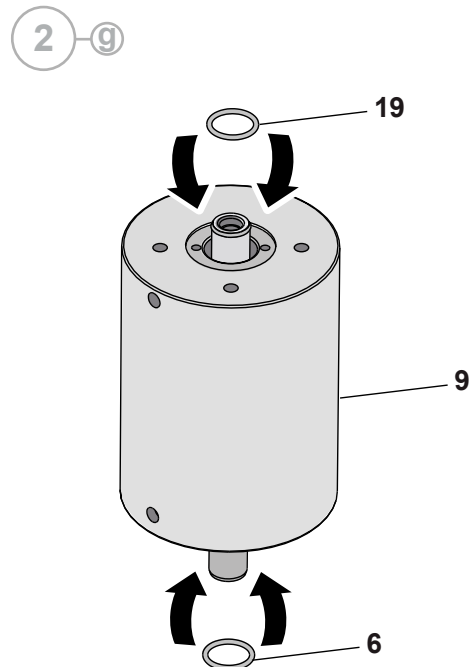
10.6 Assembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT



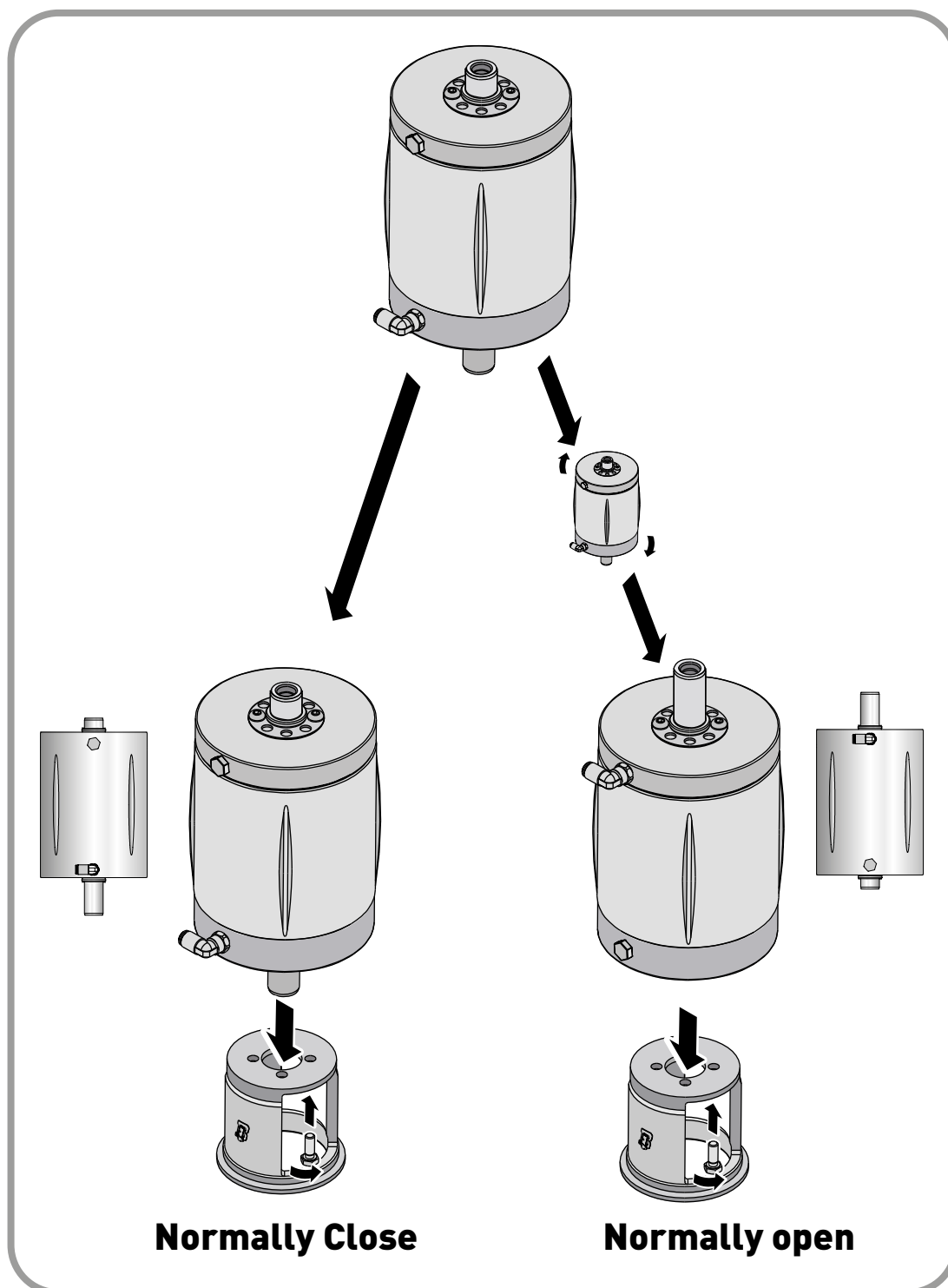
(DN 10-100)

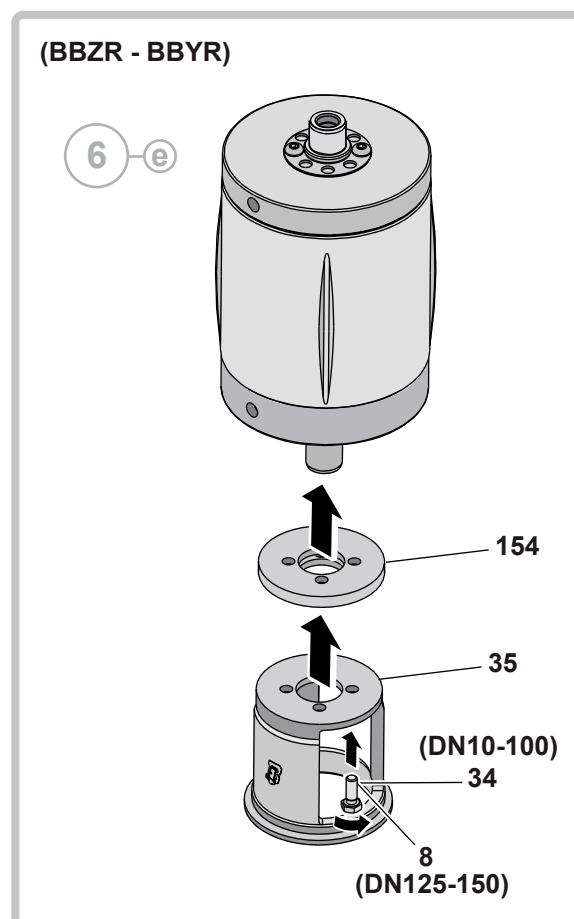
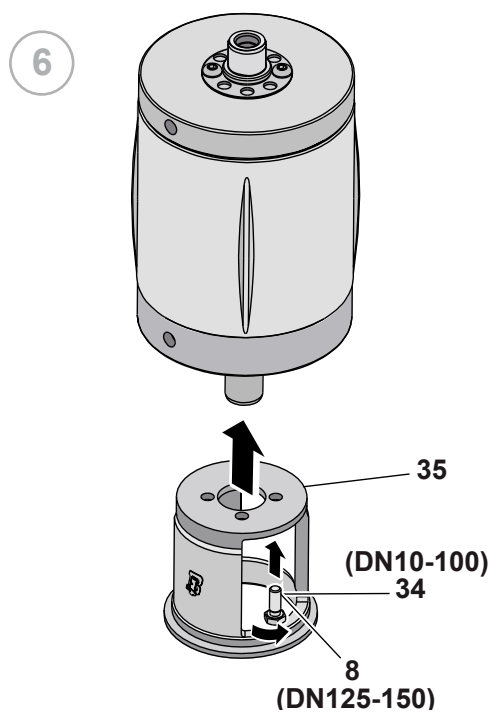
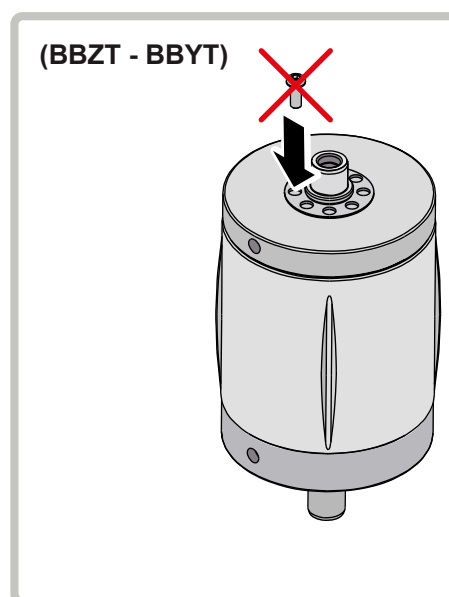
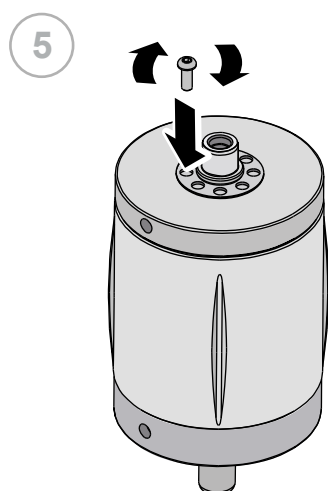


(DN 125-150)

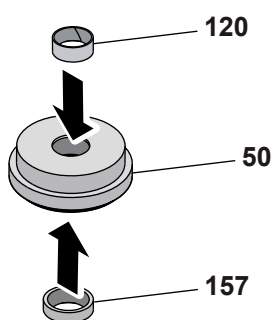


10.6.1 Select normally close or normally open cylinder

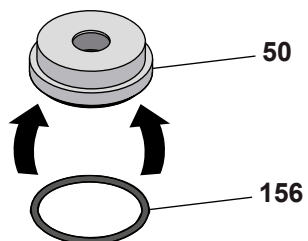




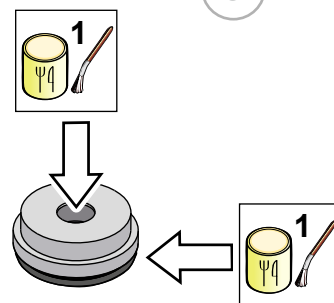
7



8

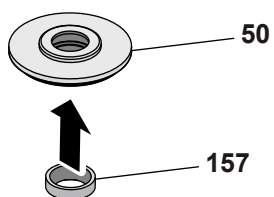


9

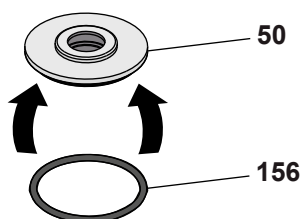


(BBYP - BBYR - BBYT)

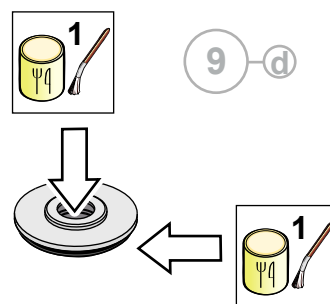
7-d



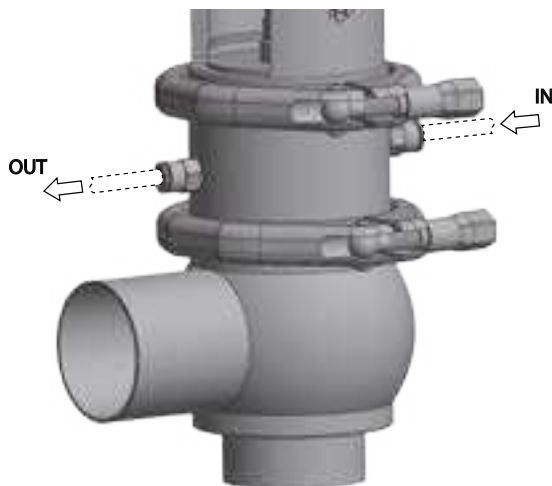
8-d



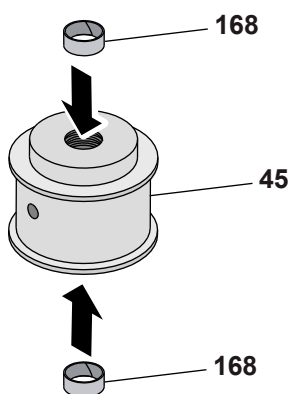
9-d



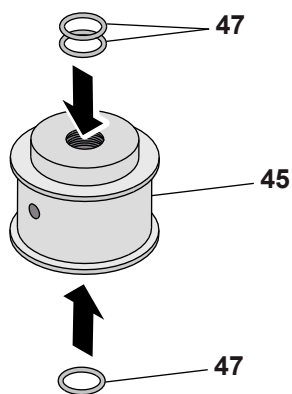
(BBYP - BBYR - BBYT)



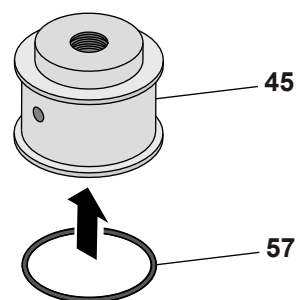
10-d



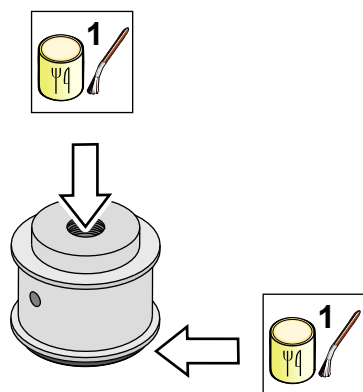
11-d



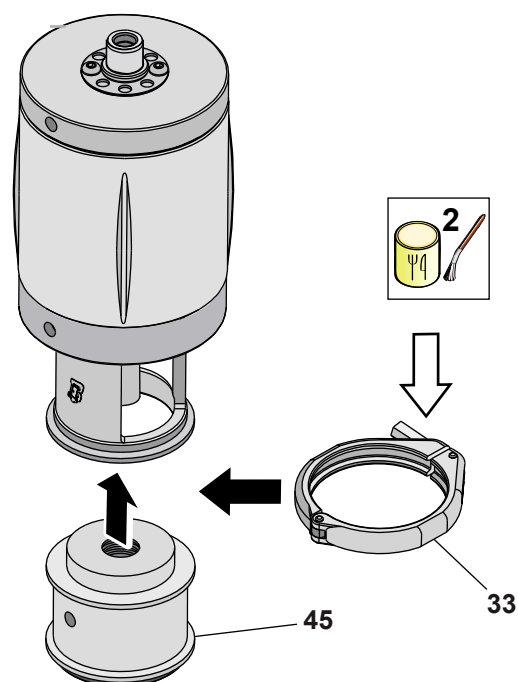
12-d

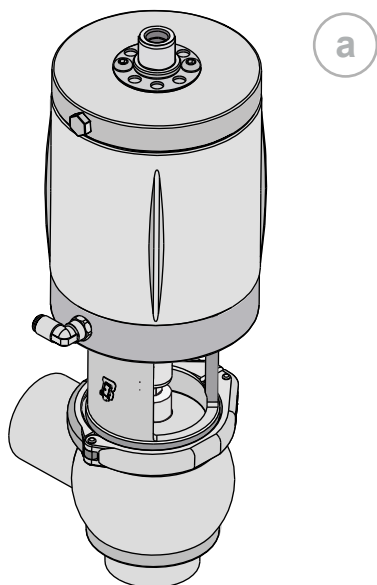


13-d

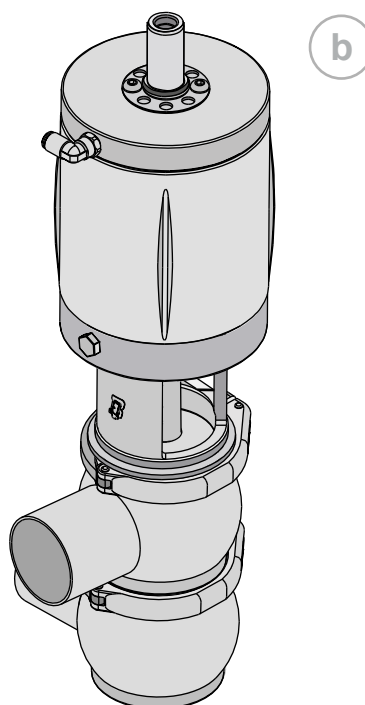


14-d



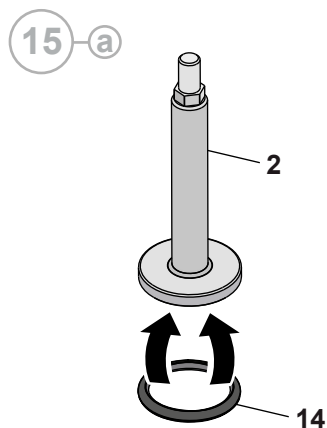


[A M BBZP]



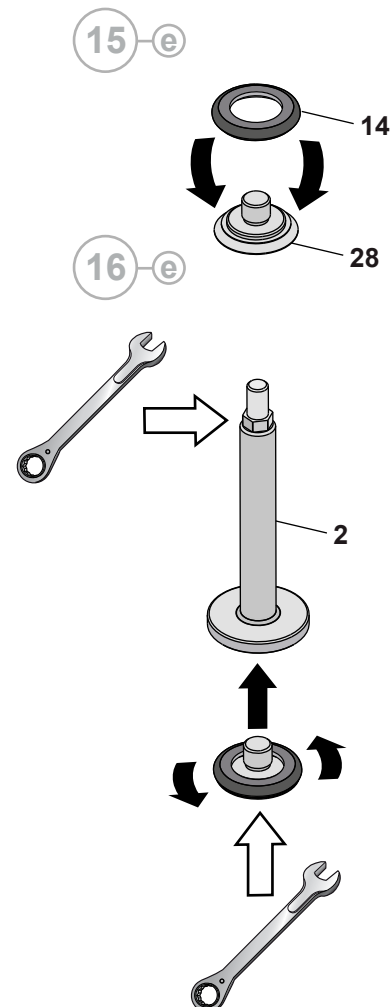
[B M BBZP P7-LL]

A Assembly of the BBZP - BBZR - BBZT - BBYP - BBYR - BBYT

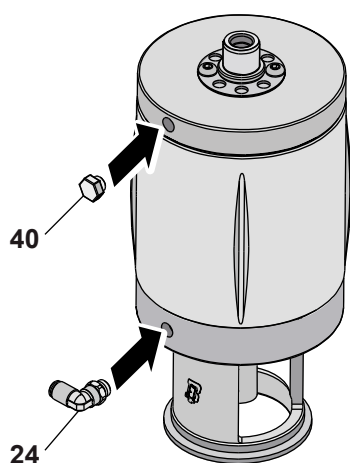


17-a

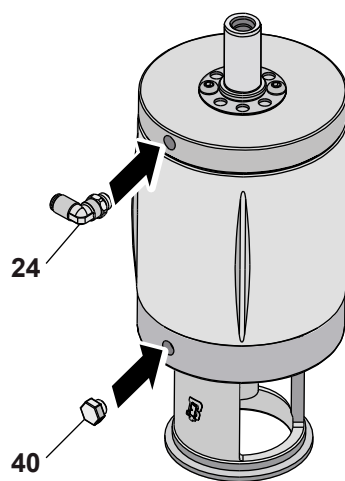
(P.T.F.E.)

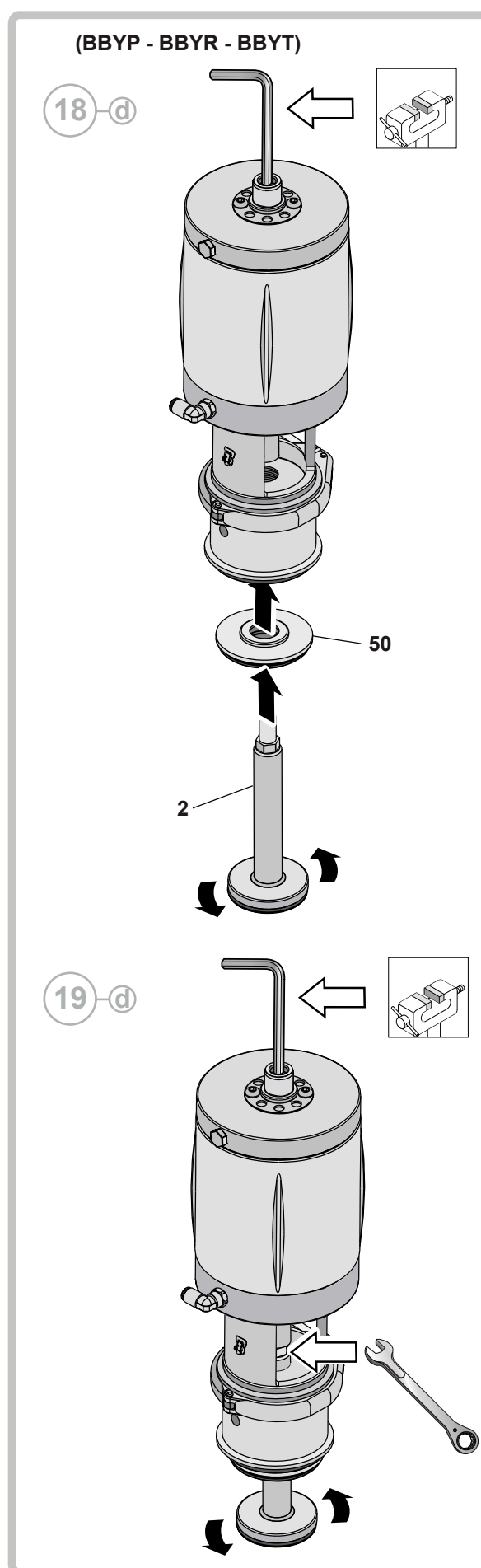
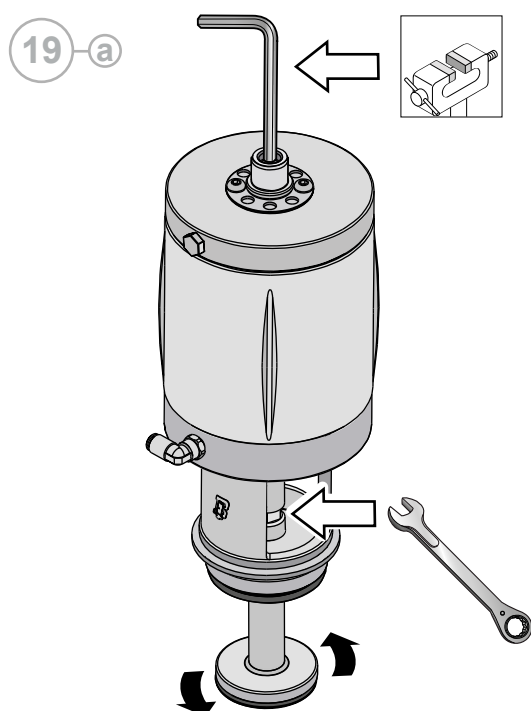
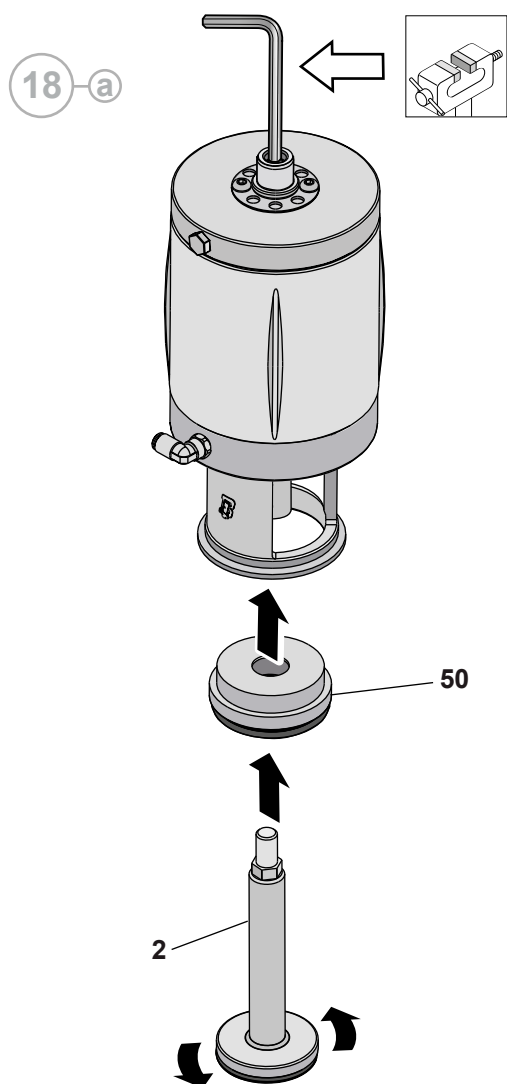


Normally Close



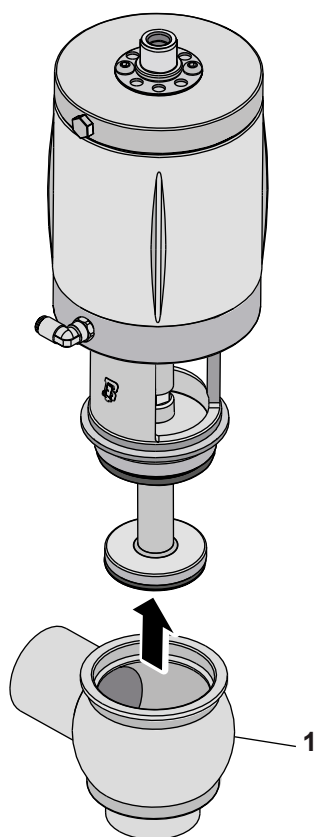
Normally open



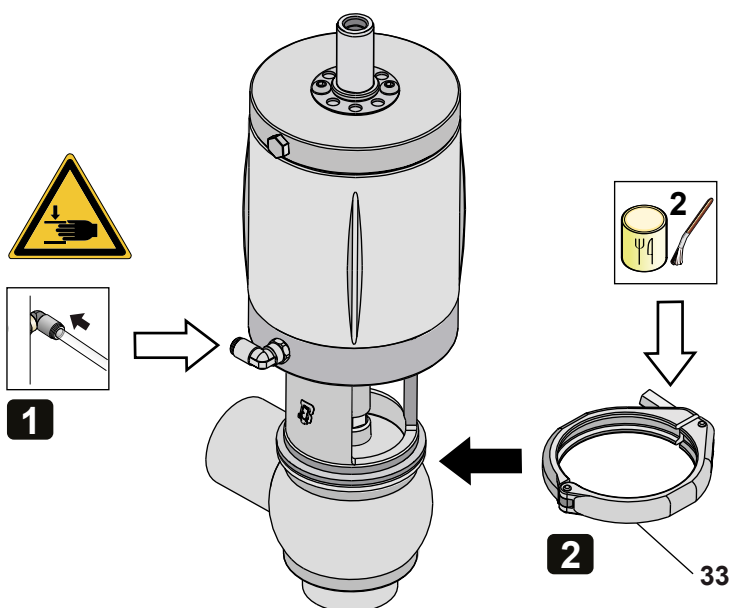


Normally closed

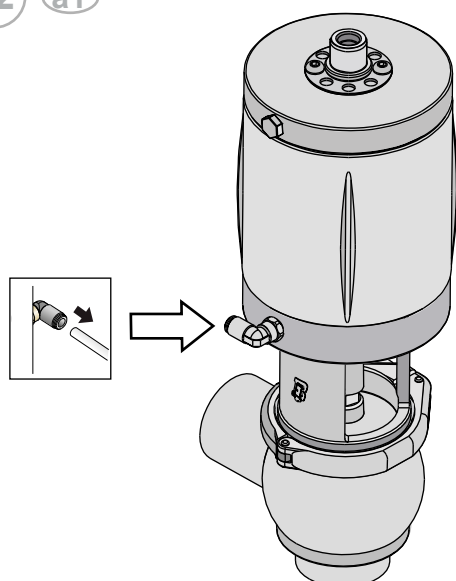
20-a1



21-a1

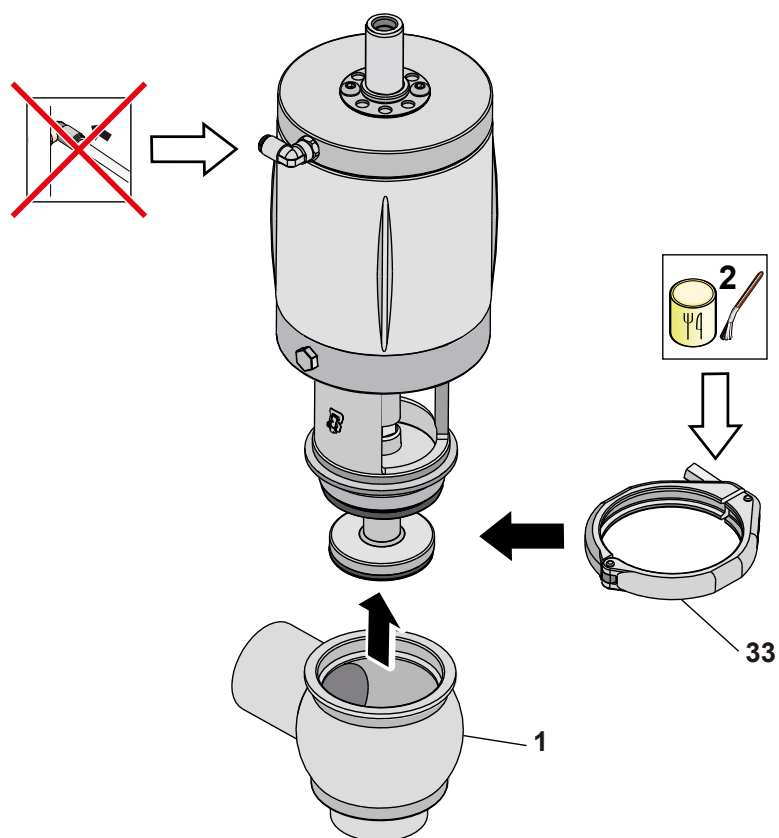


22-a1

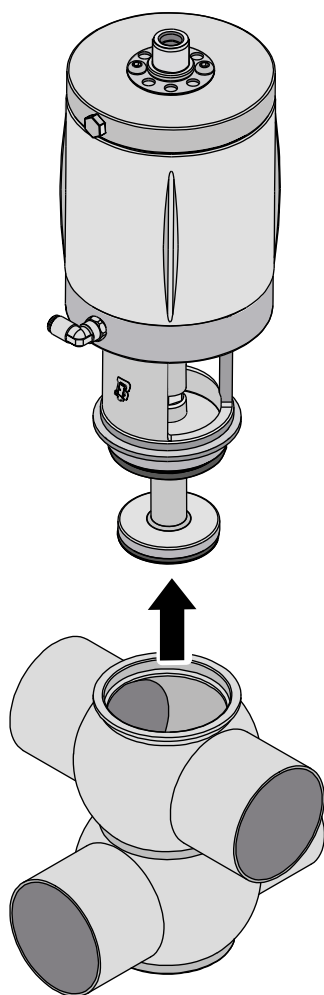


Normally open or double acting

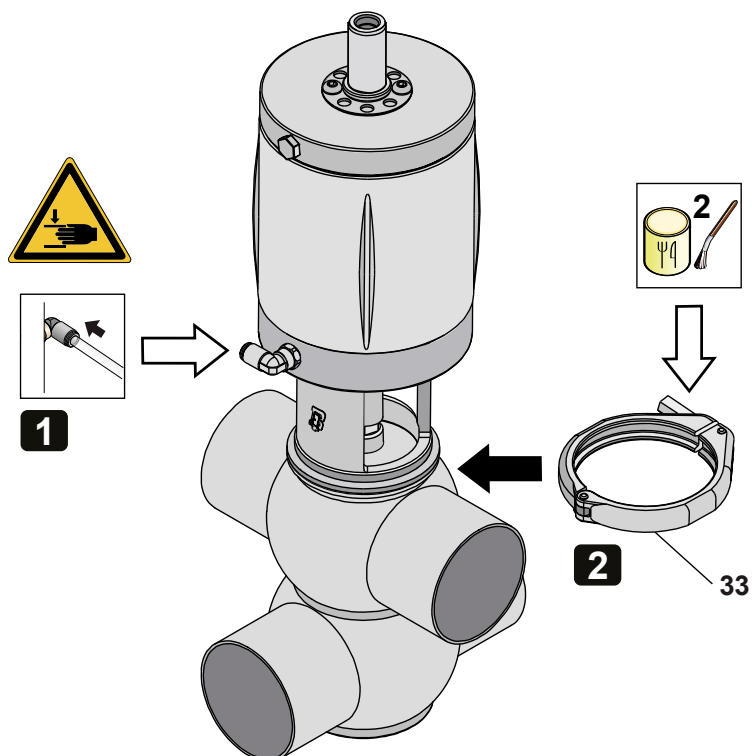
20 a2



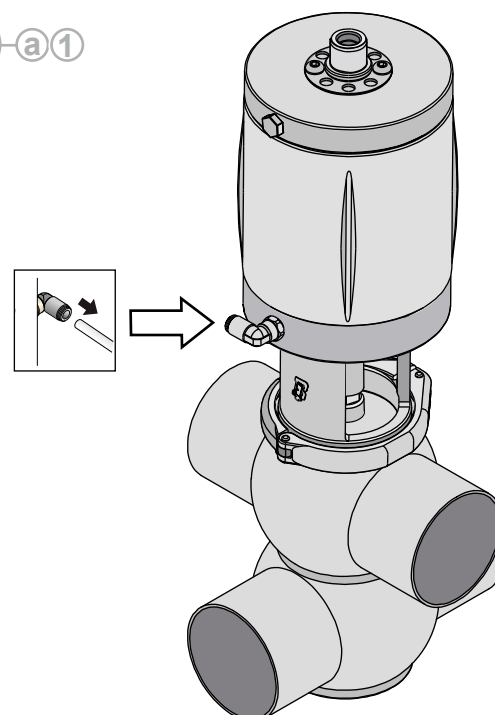
20-a1 (Normally closed)
M8

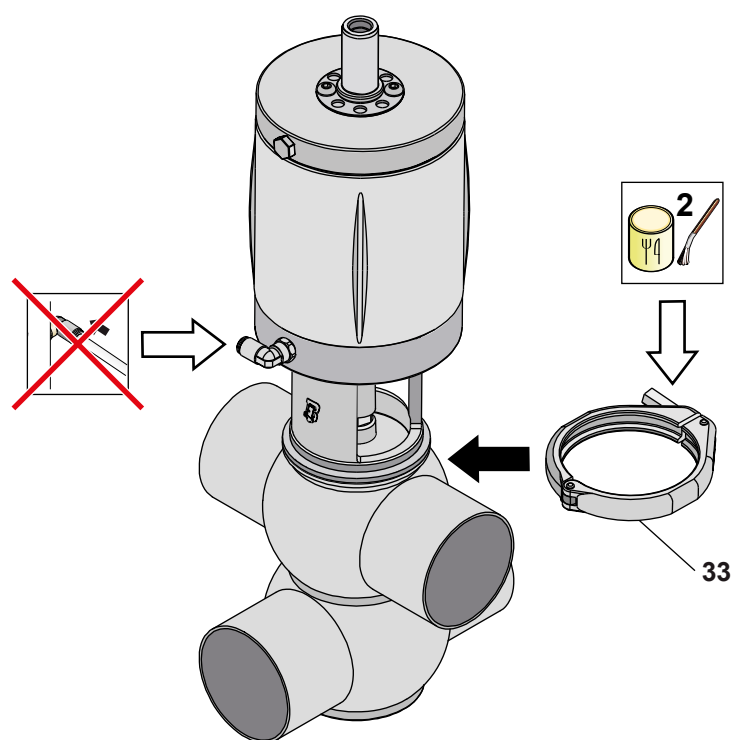


21-a1

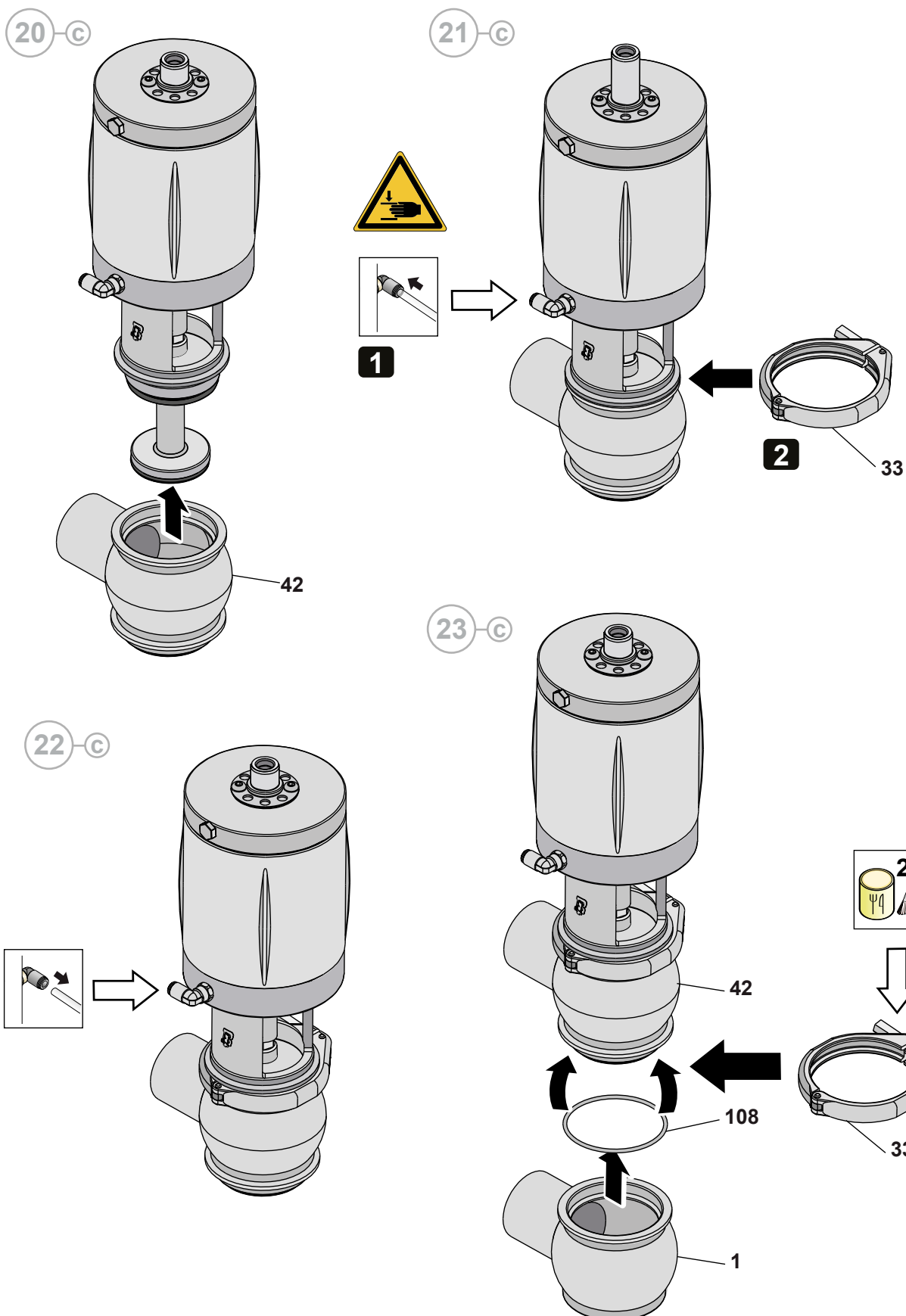


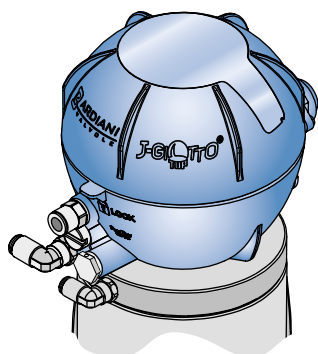
22-a1



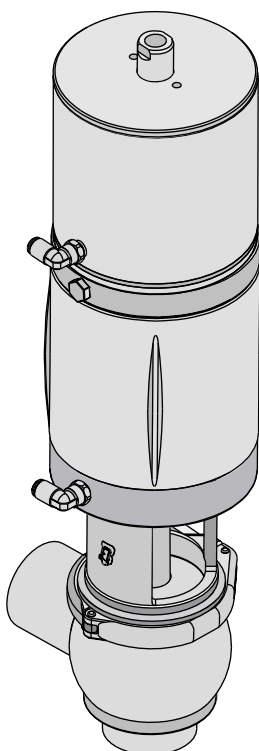
20-a-2 Normally open or double acting**M8**

(BBZP M8-LL)





[GIOTTO]



[BBZT]

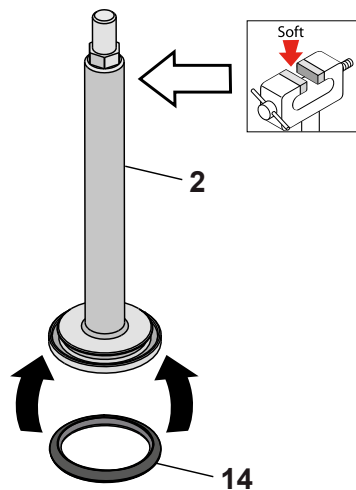


[BBZP DEV]

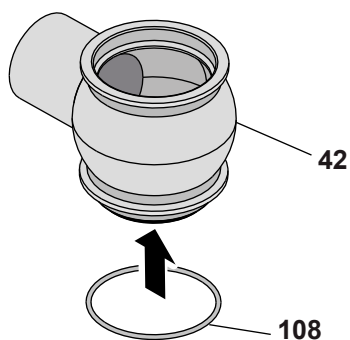


B Assembly of the BBZP P7-LL

15-b

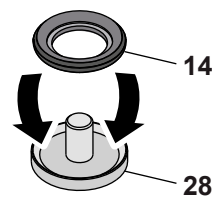


17-b

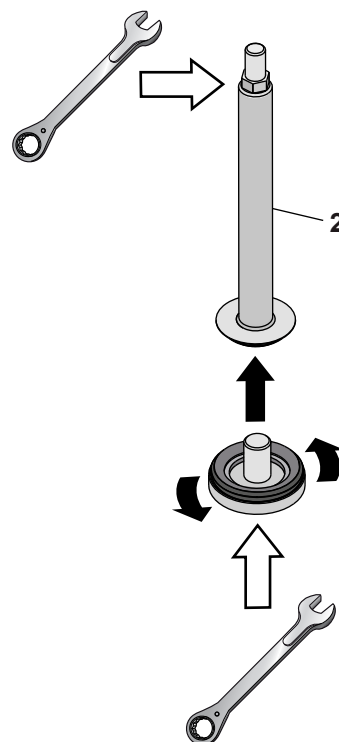


(P.T.F.E.)

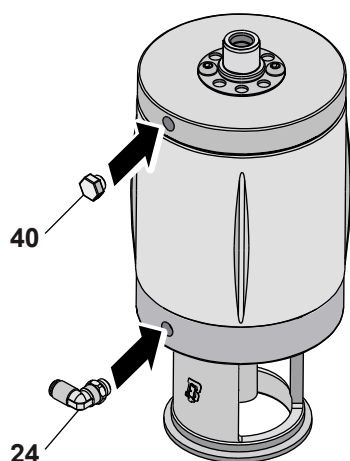
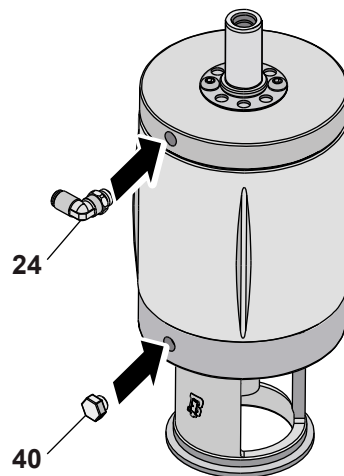
15-e



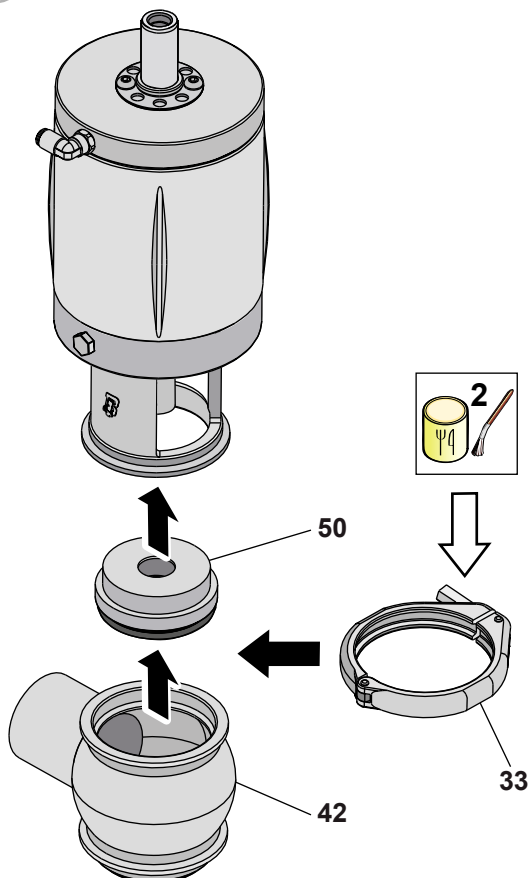
16-e



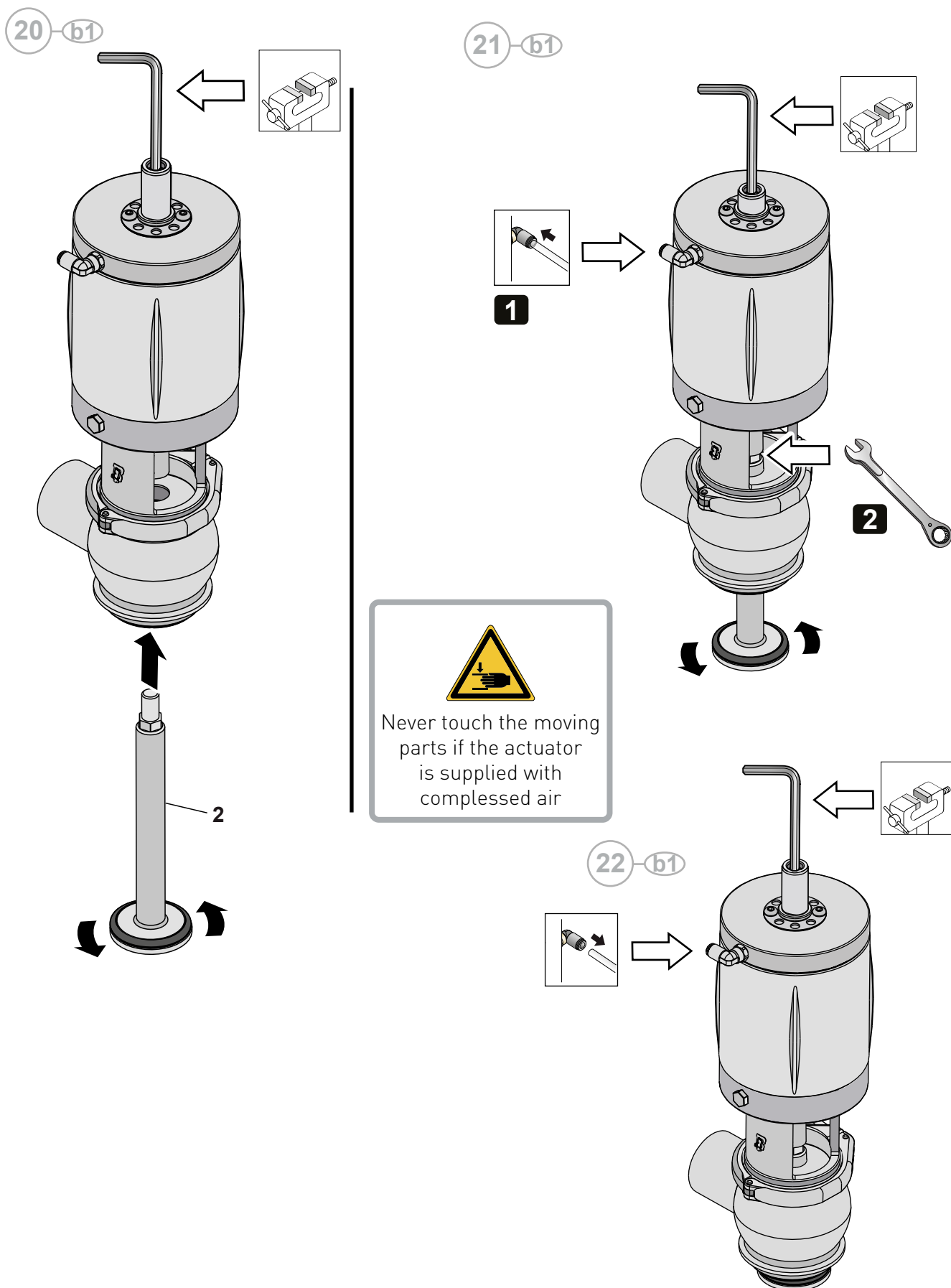
18-b

Normally Close**Normally open**

19-b

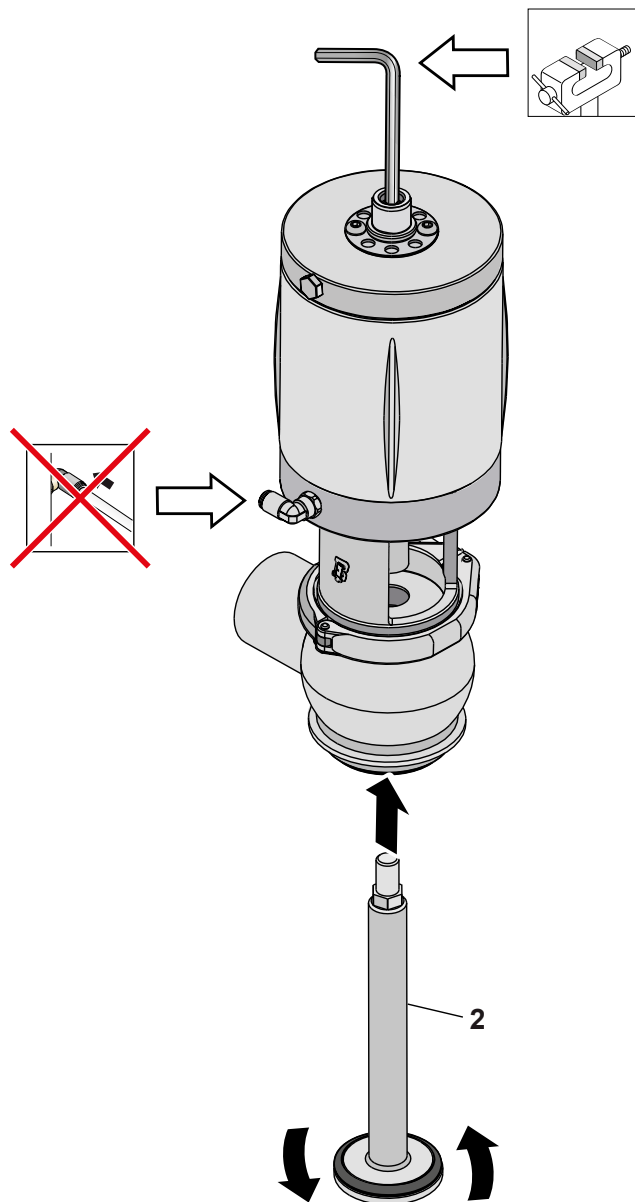


(Normally closed)

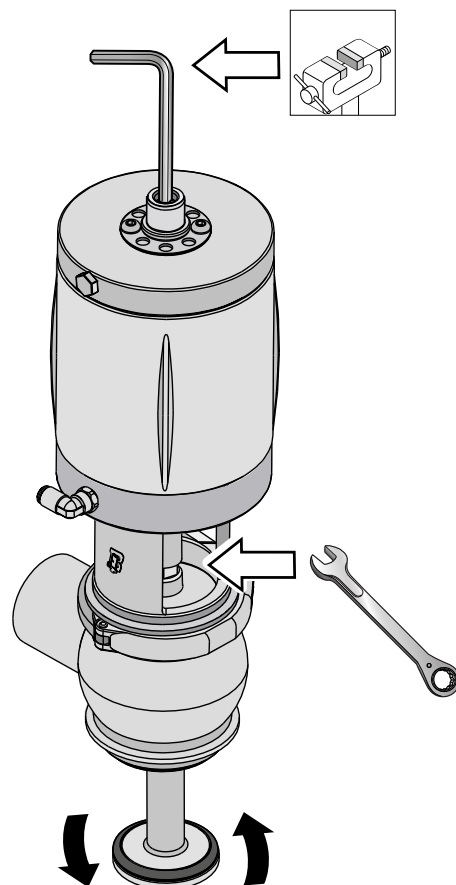


(Normally open or double acting)

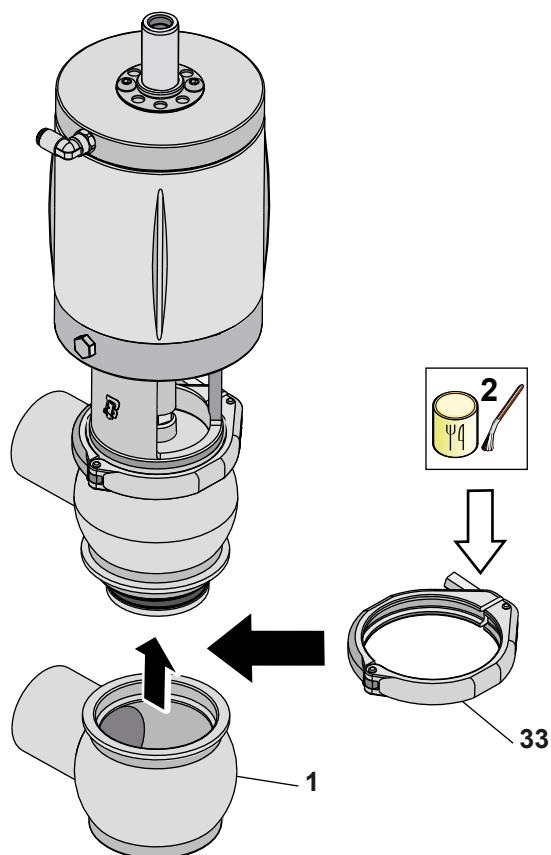
20 b2



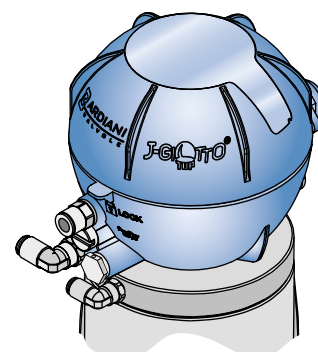
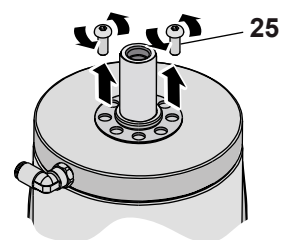
21 b2



(23) b



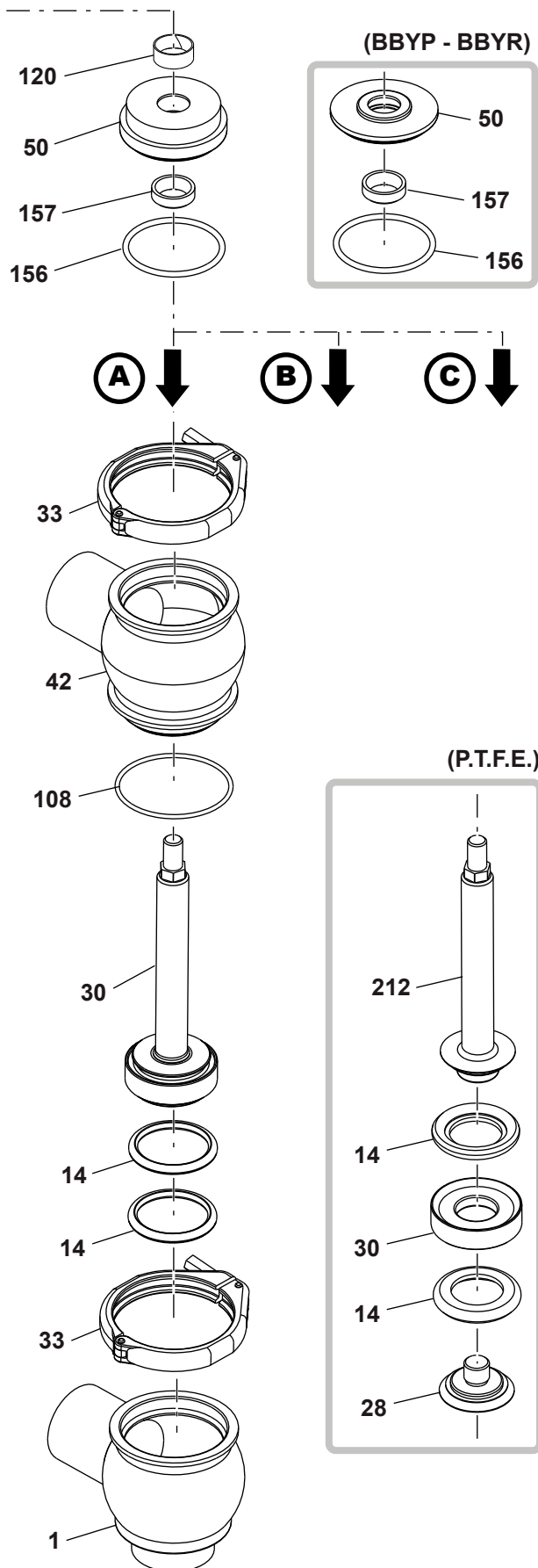
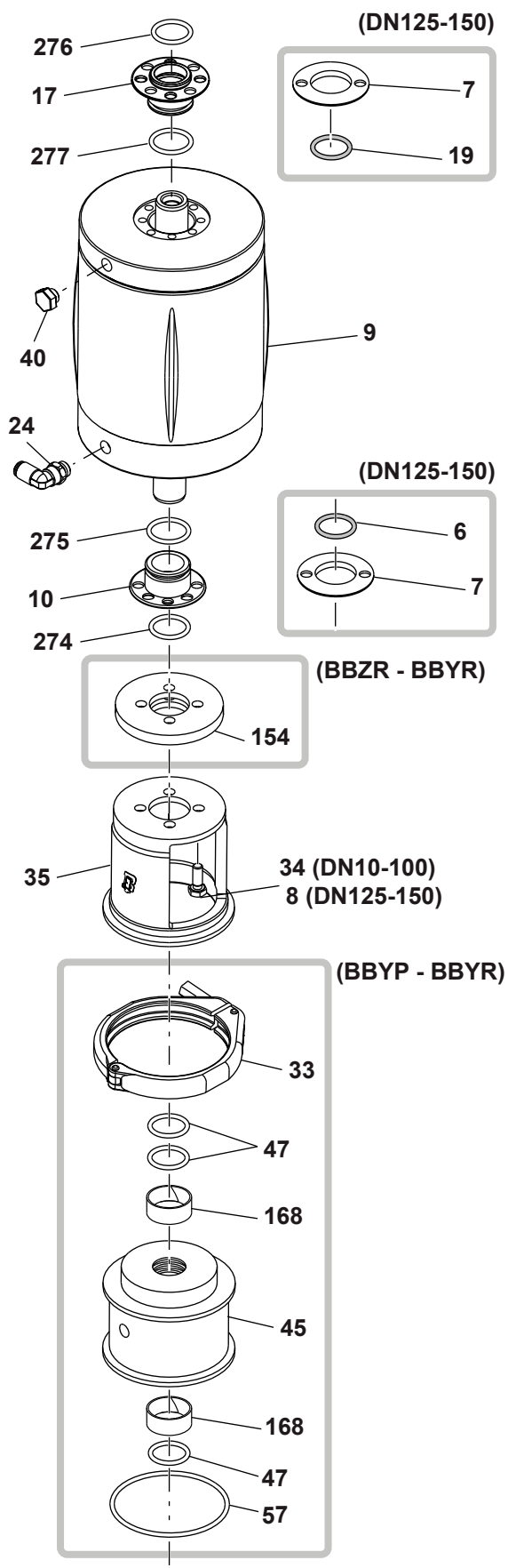
(24) b

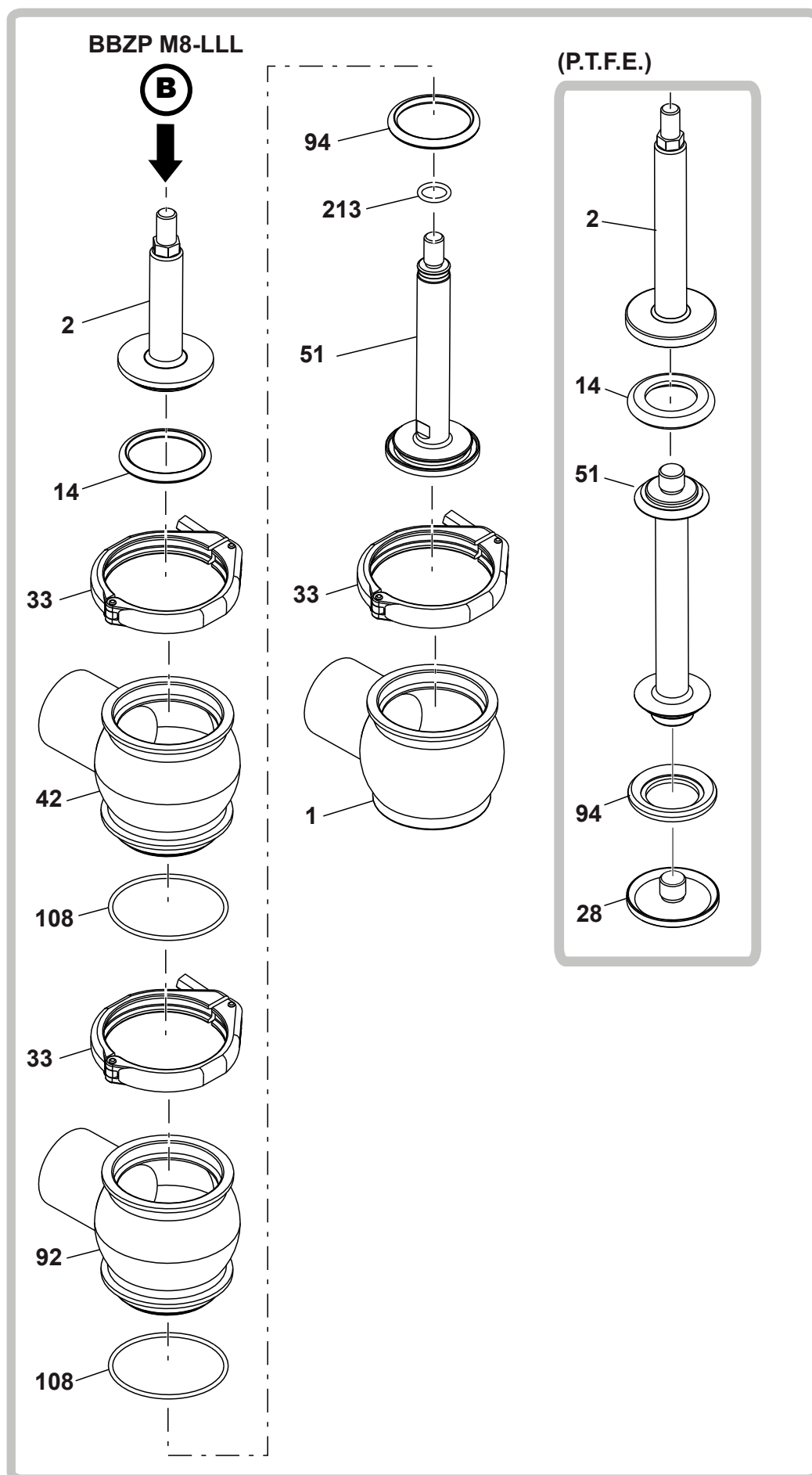


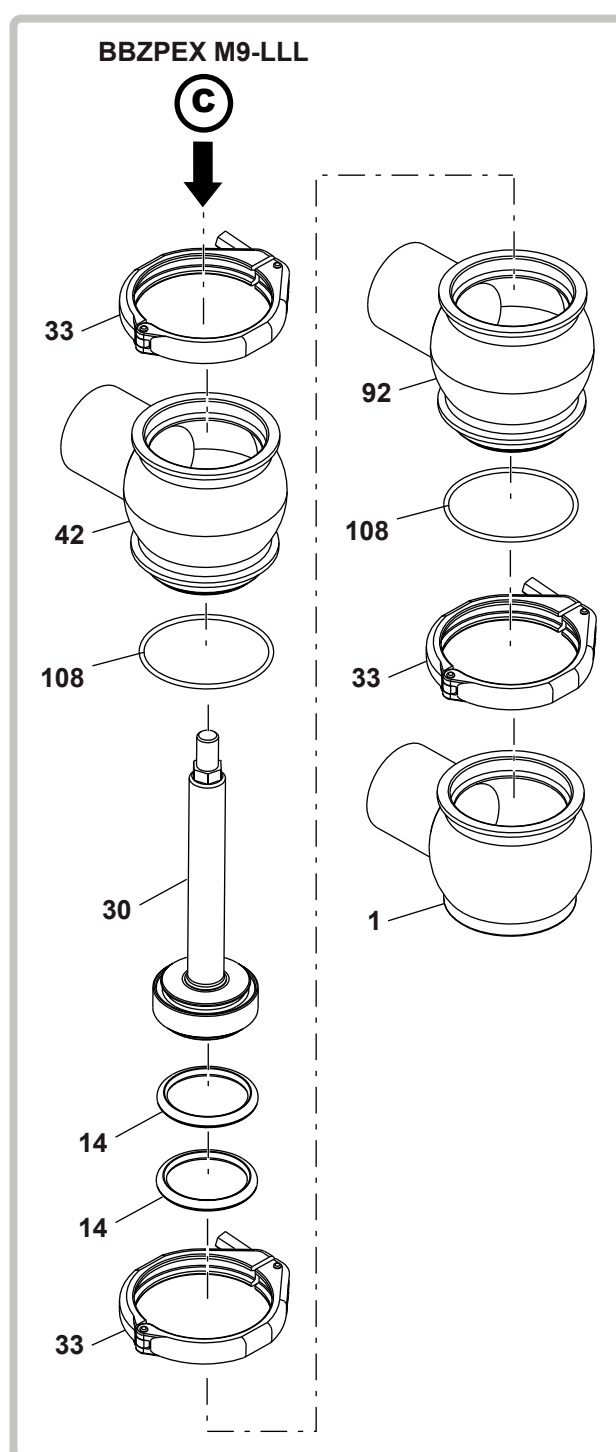
[GIOTTO]

10.7 Pneumatic Valves BBZP - BBZR - BBZT- BBYP - BBYR - BBYT Diverters

NO.	DESCRIPTION
1	Lower body
2	Upper shutter
6	Sealing ring
7	Sealing washer
8	Screw
9	Cylinder
10	Bush
14	Sealing ring
17	Bush
19	Sealing ring
24	Air connector
28	Shutter nut
30	Double shutter
33	Clamp
34	Screw
35	Assembly
40	Cap
42	Upper body
45	Steam barrier
47	Sealing ring
50	Gasket holder disc
51	Lower shutter
57	Sealing ring
92	Intermediate body
94	Sealing ring
108	Sealing ring
120	Bush
154	Thickness
156	Sealing ring
157	Sealing ring
168	Bush
212	Shutter stem
213	Sealing ring
274	Sealing ring
275	Sealing ring
276	Sealing ring
277	Sealing ring

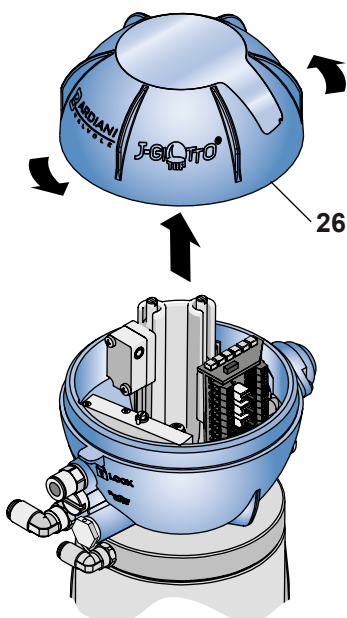




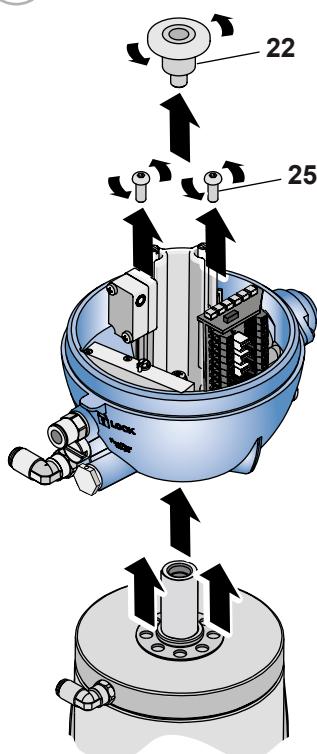


10.8 Disassembly of the BBZP - BBZR - BBZT- BBYP - BBYR - BBYT Diverters

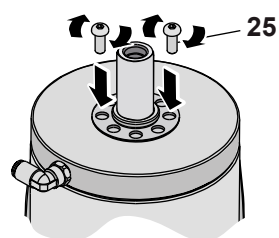
1-1



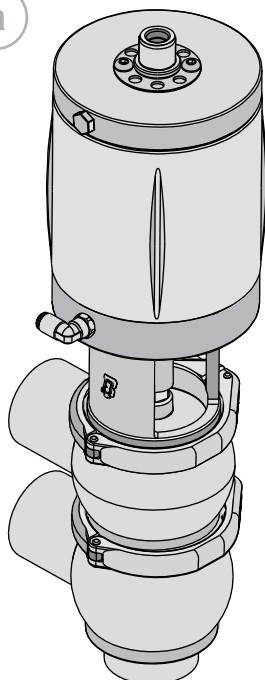
1-2



1-3

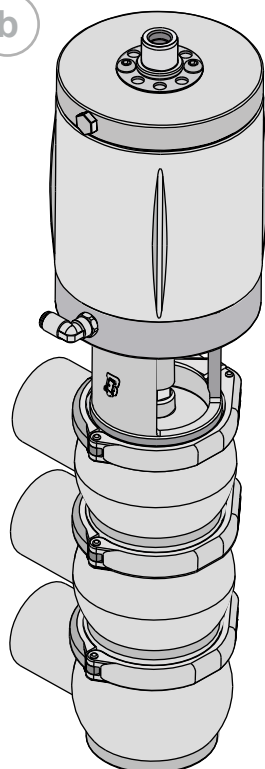


a



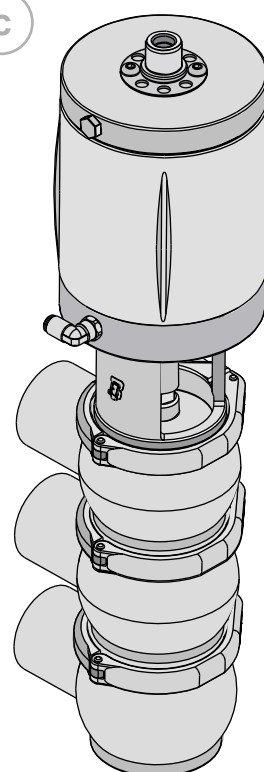
[A S BBZP DEV]

b



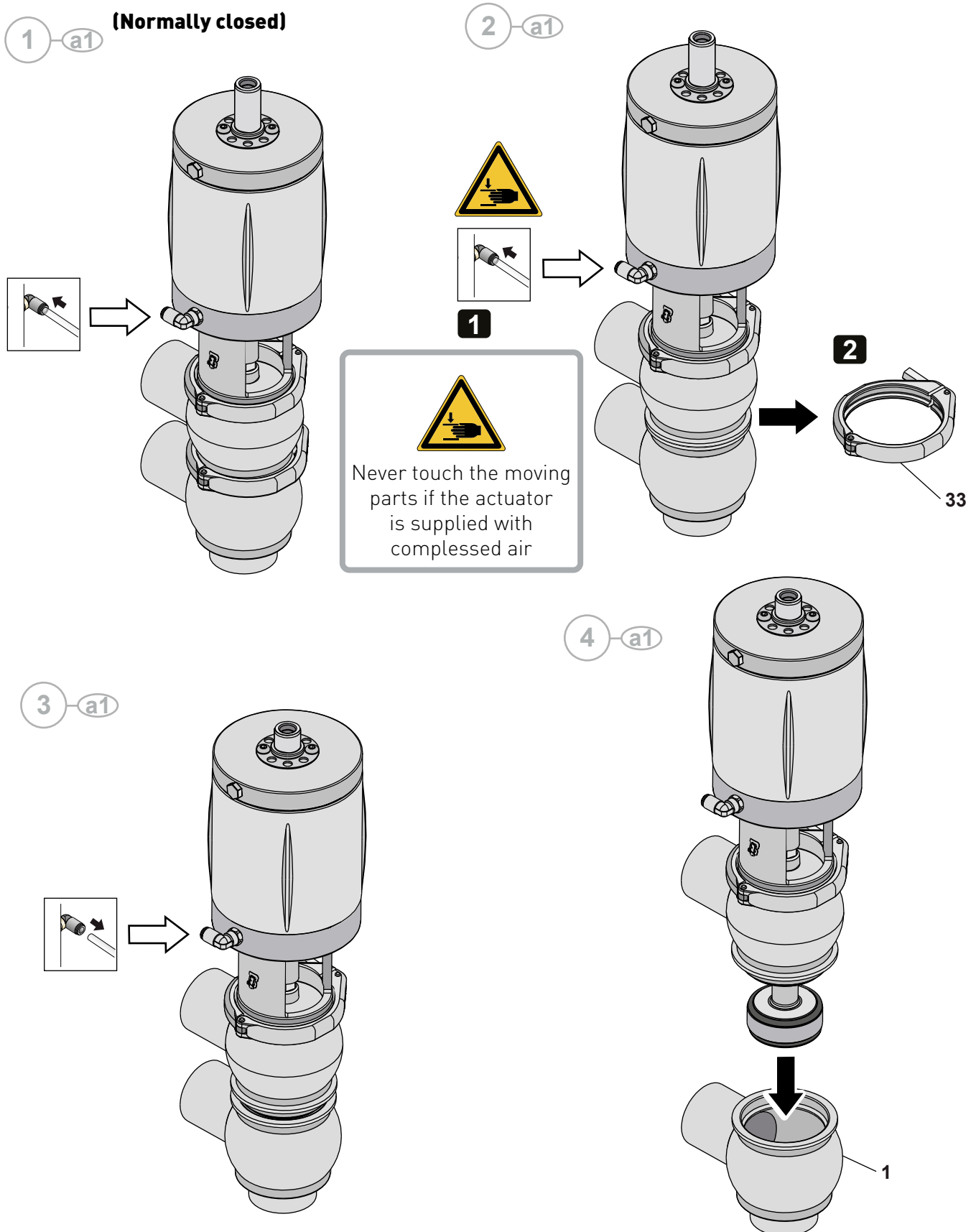
[B S BBZP M8-LLL]

c

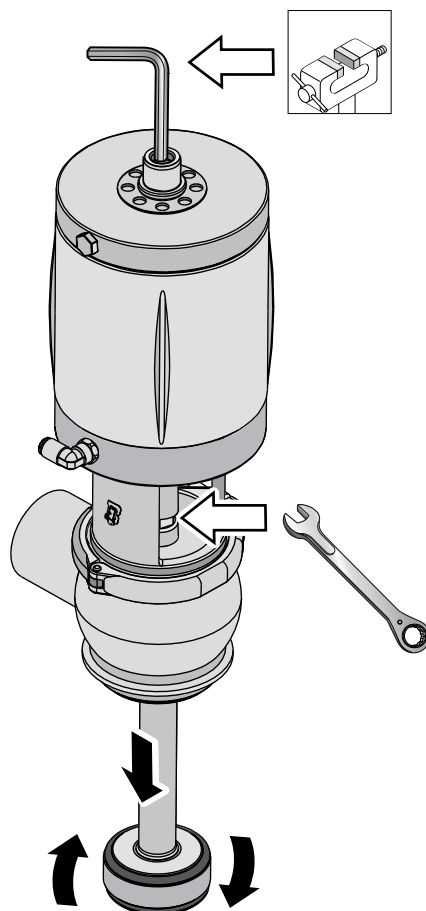


[C S BBZP M8-LLL PTFE]

A Disassembly of the BBZP - BBZR - BBZT- BBYP - BBYR - BBYT Diverters

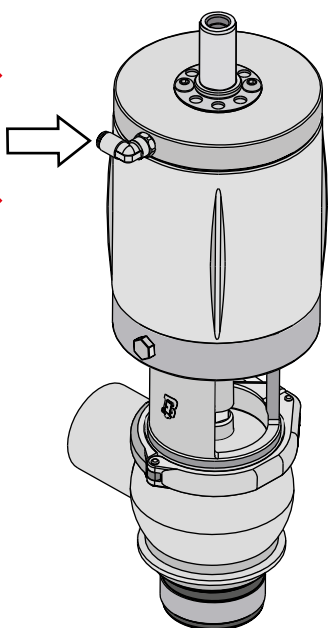


5 a1

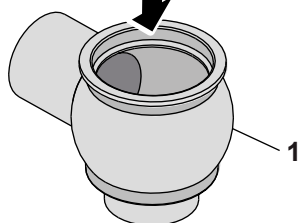
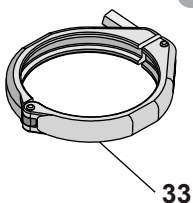


Normally open or double acting

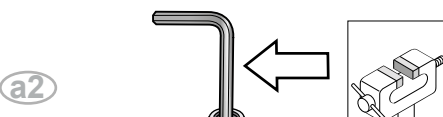
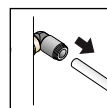
1 a2



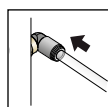
Never touch the moving parts if the actuator is supplied with compressed air



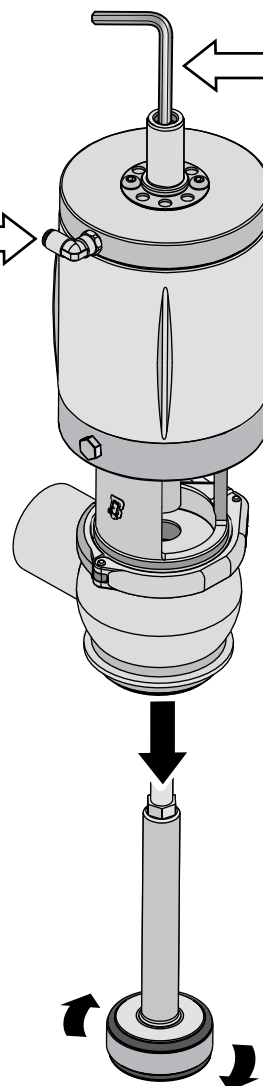
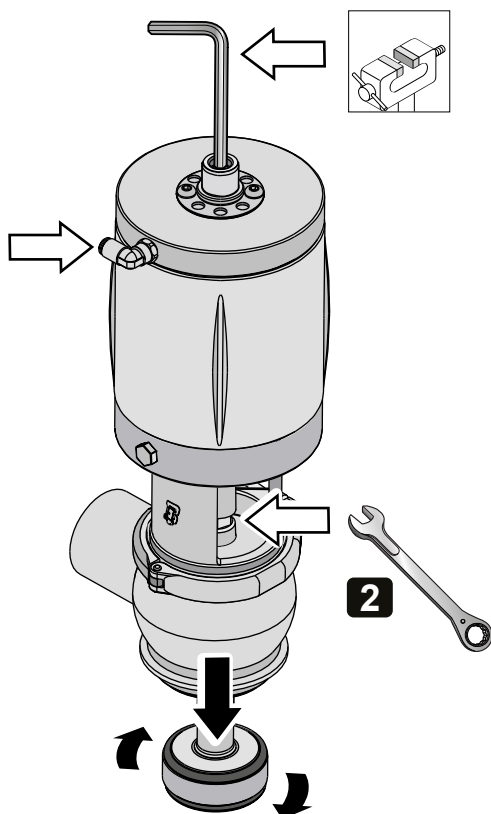
3 a2

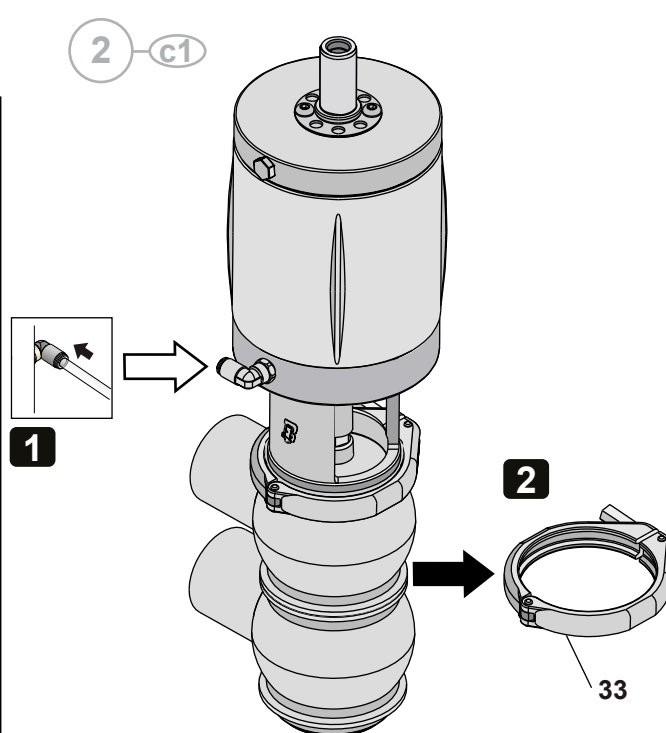
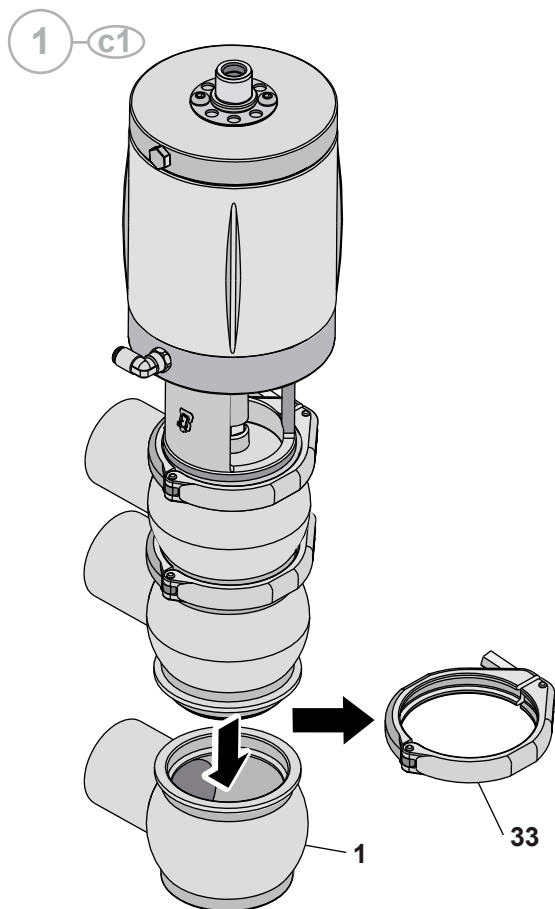


2 a2

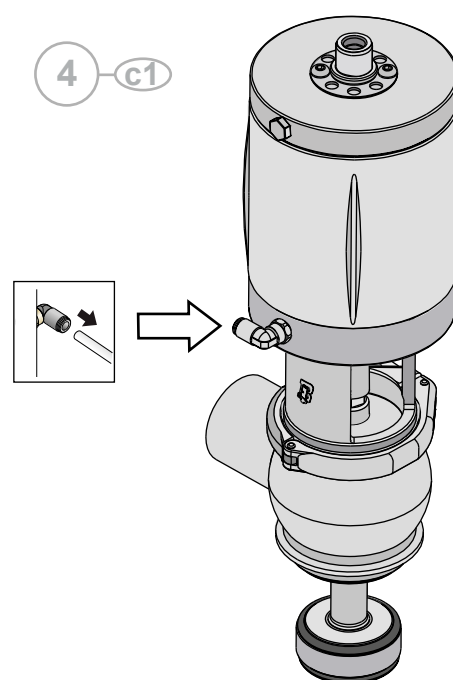
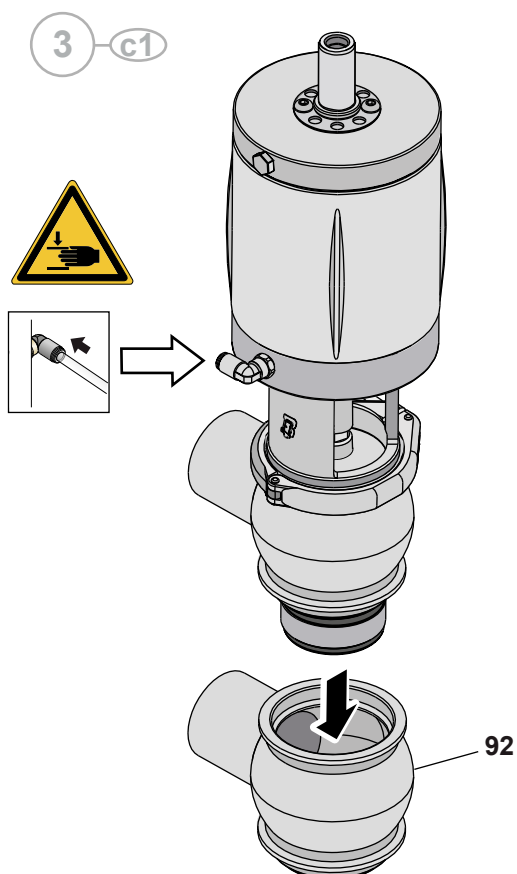


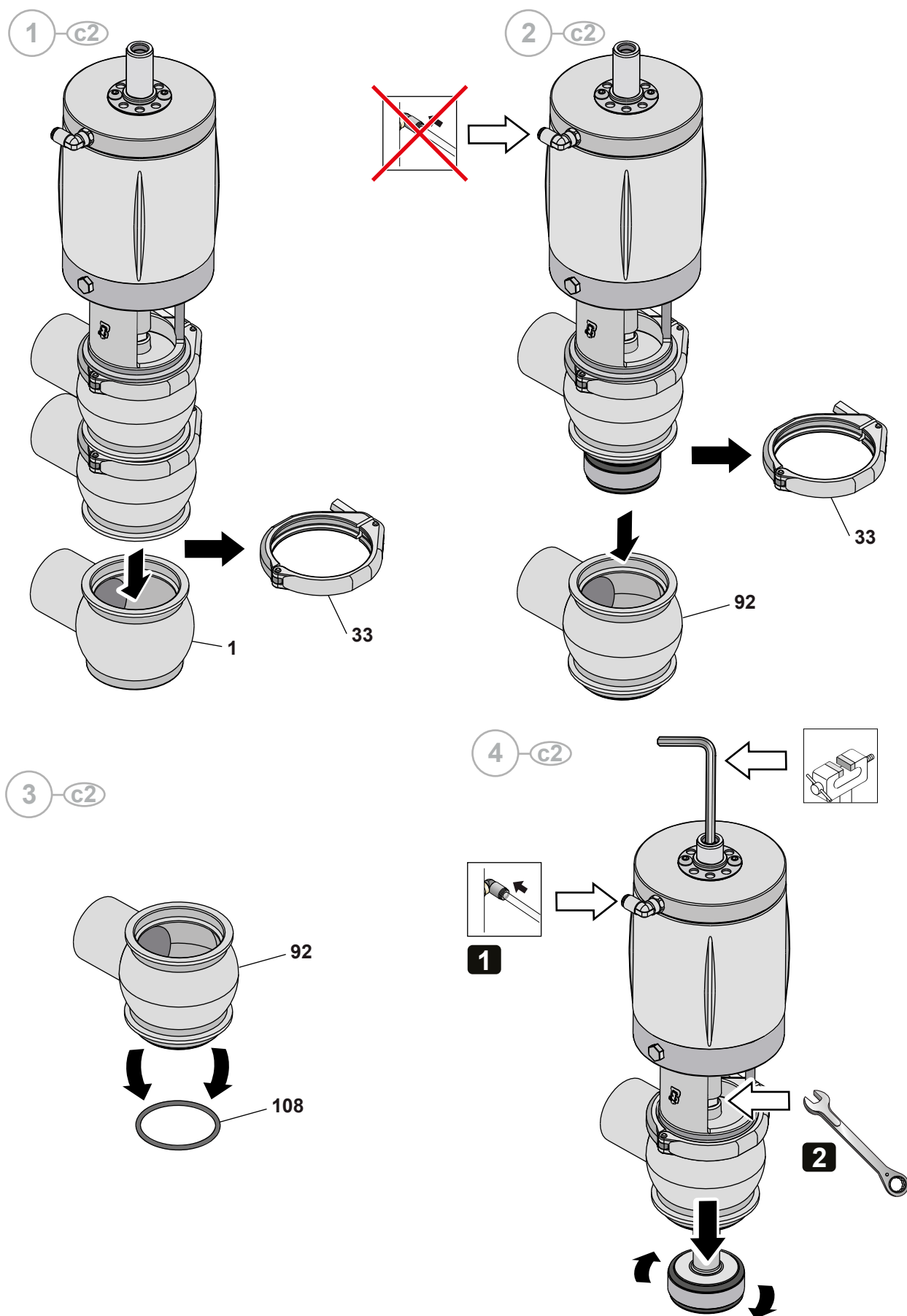
1

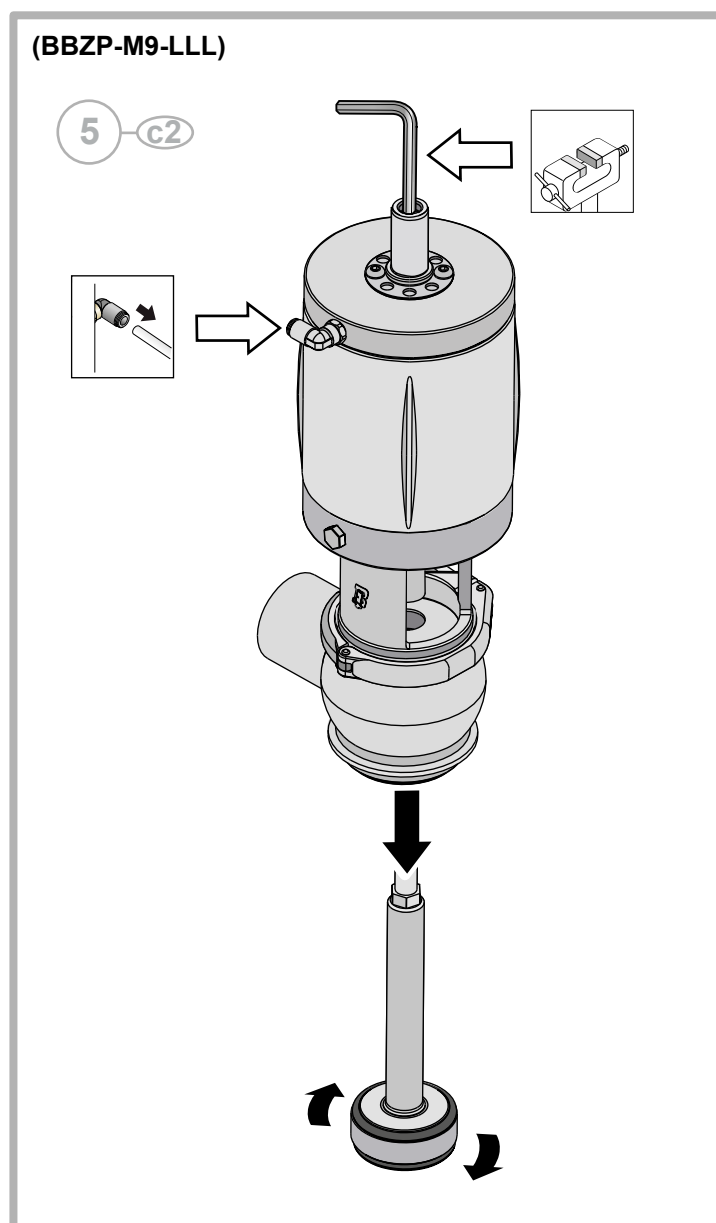


(BBZP M9-LLL) (Normally closed)

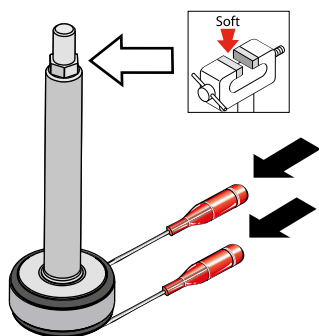
Never touch the moving parts if the actuator is supplied with compressed air



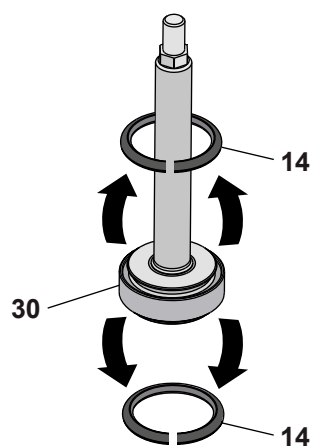
(BBZP M9-LLL) (Normally open or double acting)



7-a

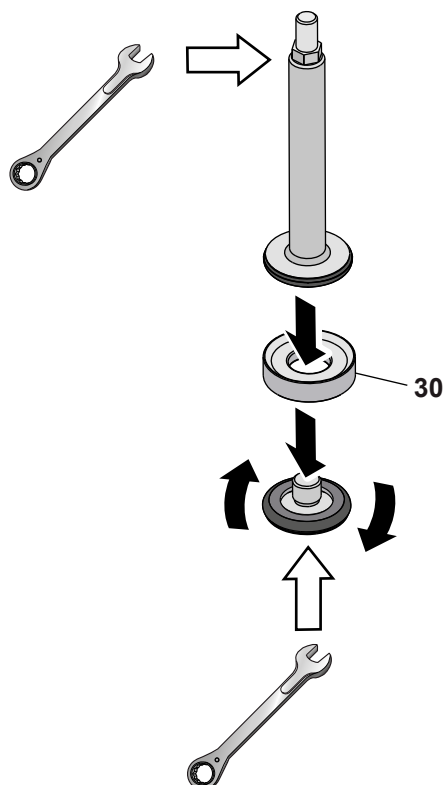


8-a

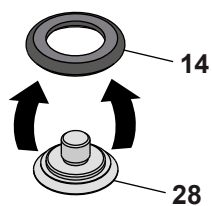


(P.T.F.E.)

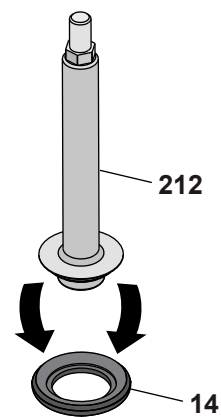
7-e



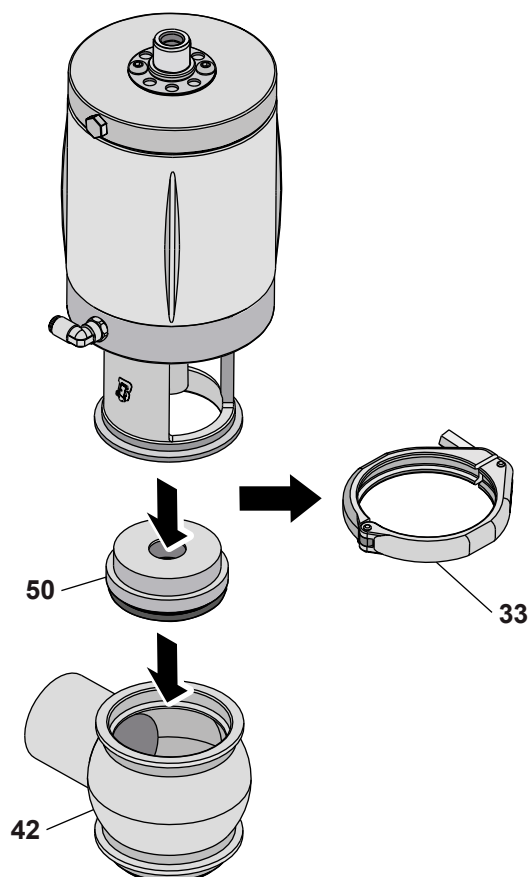
8-e



9-e

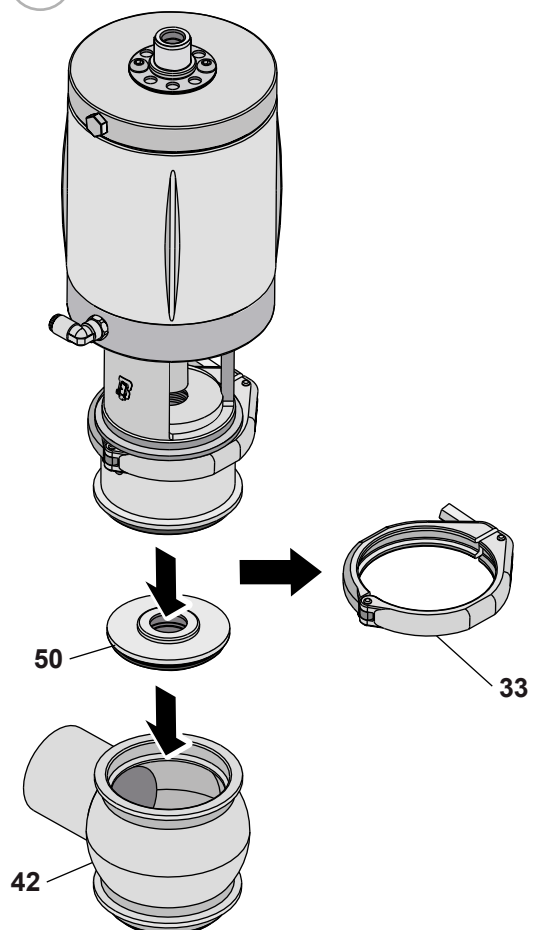


9 a

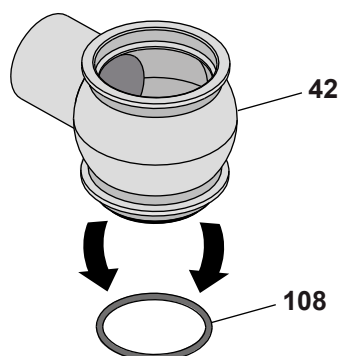


(BBYP - BBYR - BBYT)

9 d



10 a

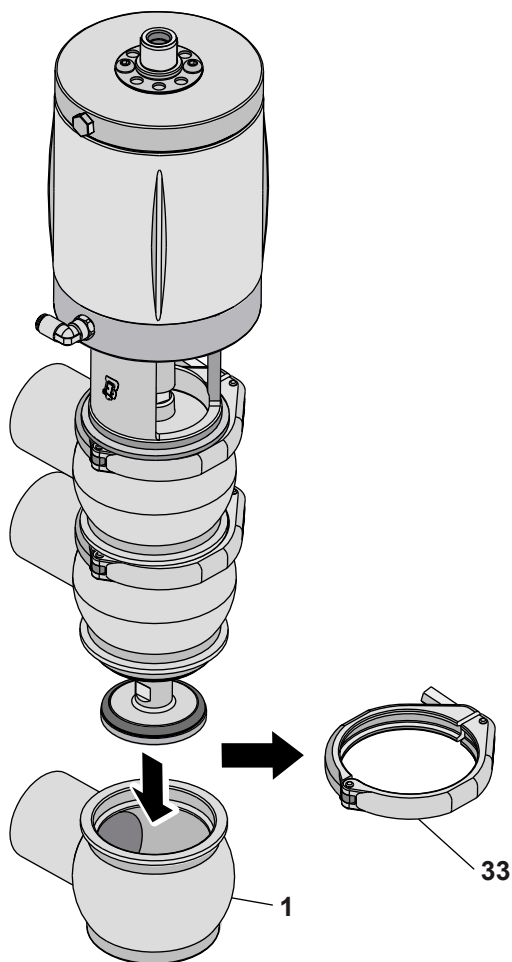


[B S BBZP DEV]

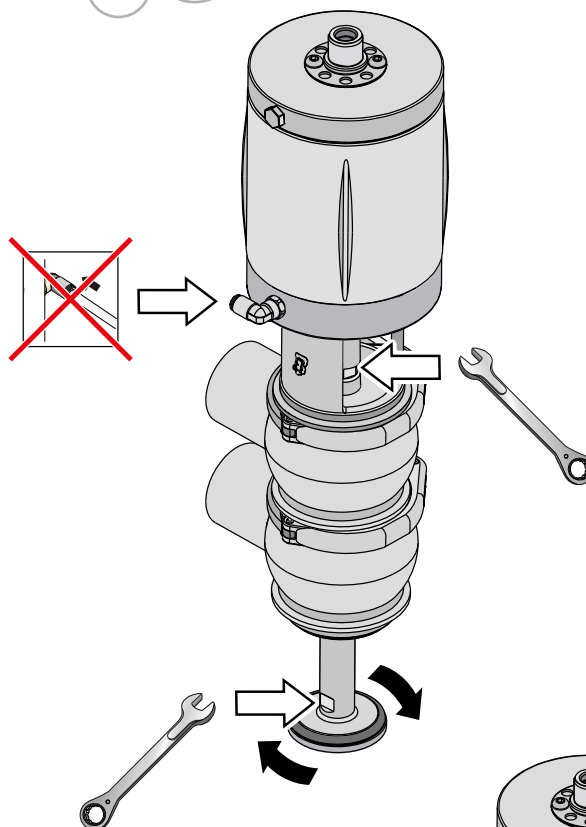


B Disassembly of the BBZP M8-LLL Diverter

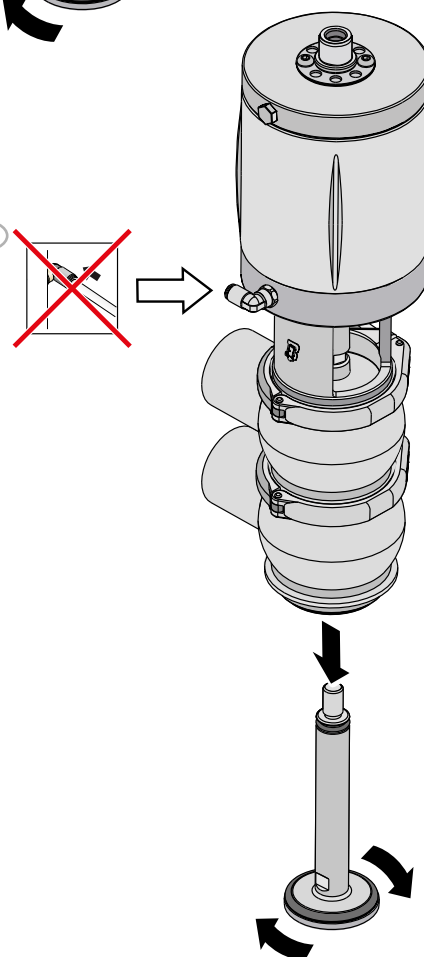
1 - b1 (Normally closed)



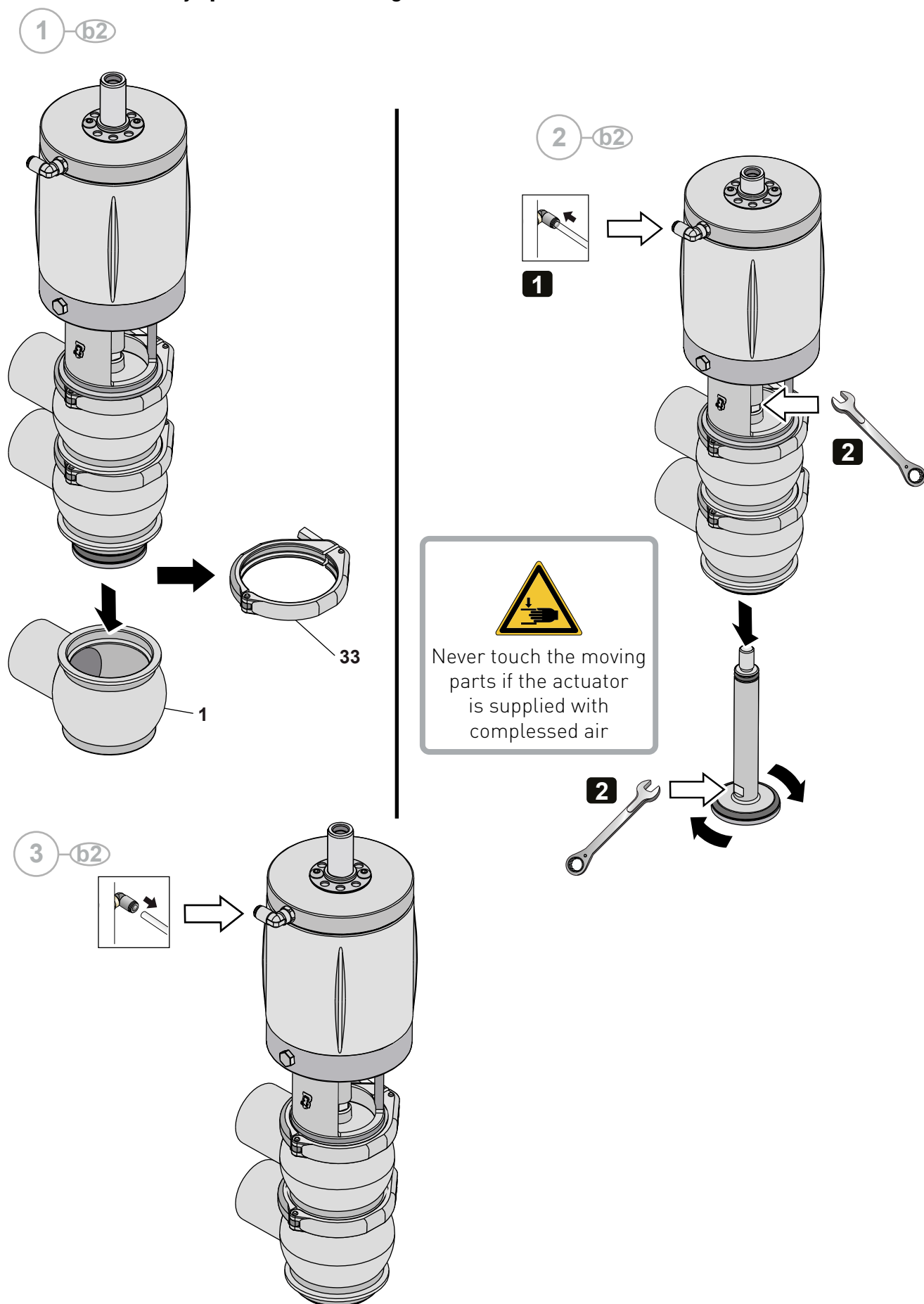
2 - b1



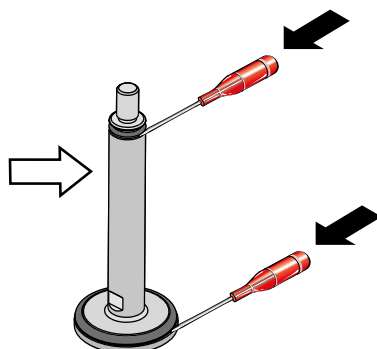
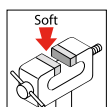
3 - b1



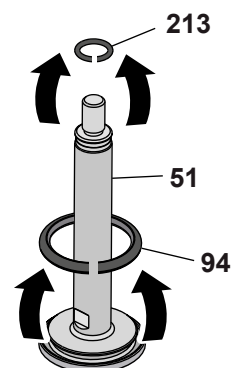
(Normally open or double acting)



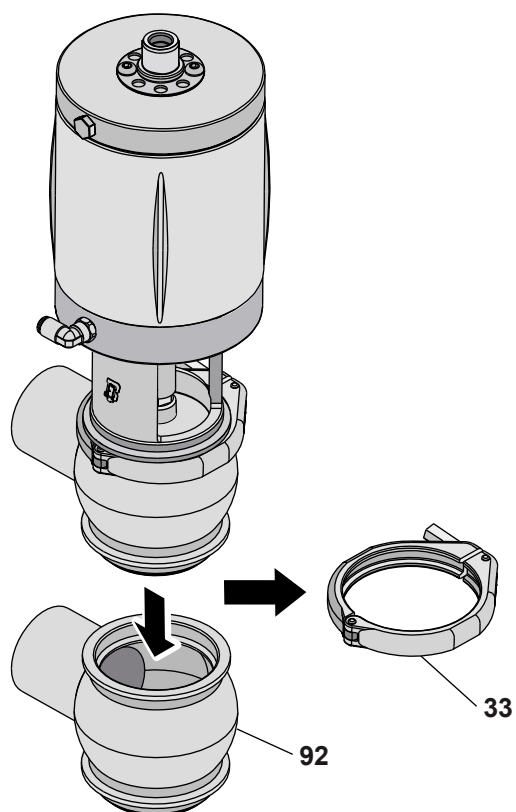
4-b



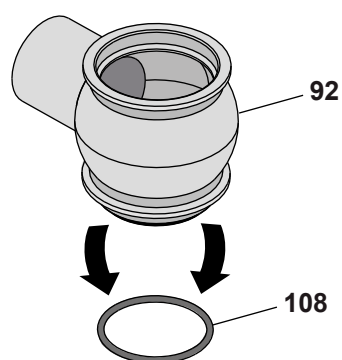
5-b

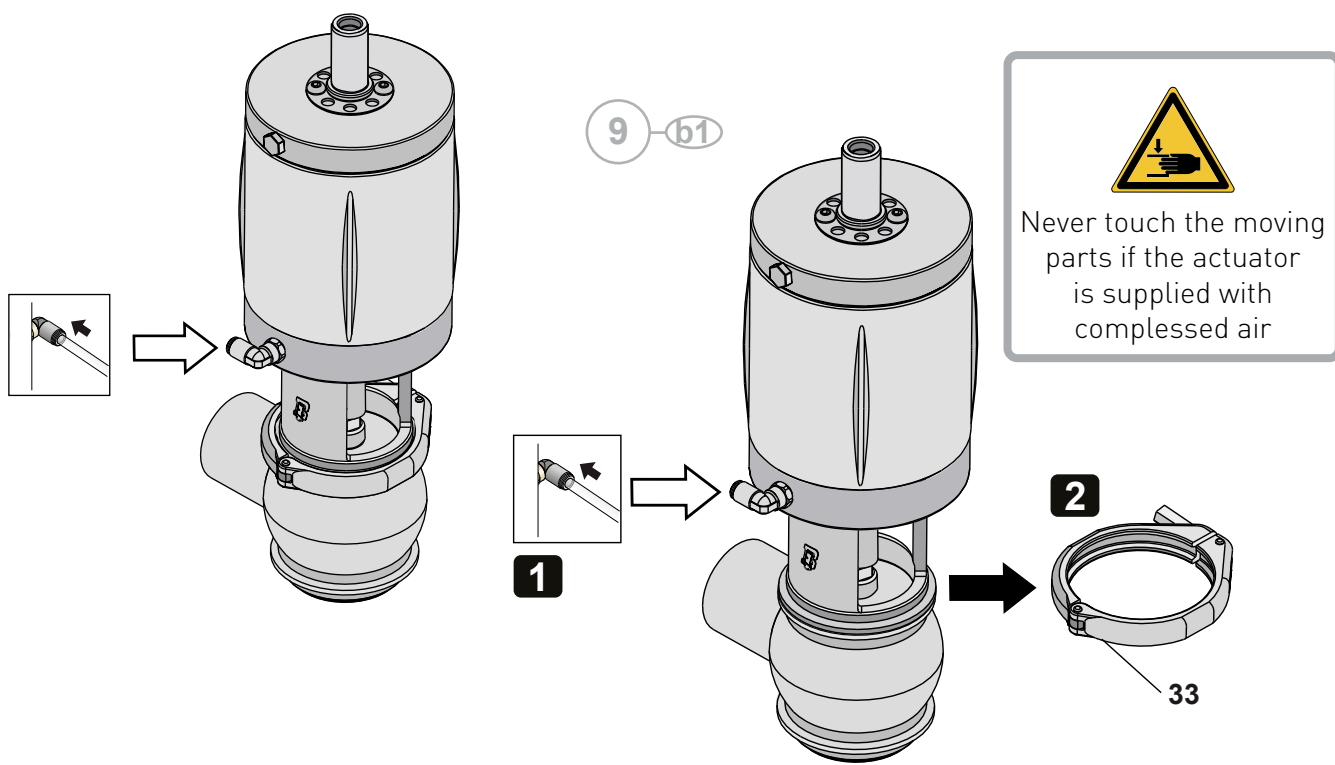
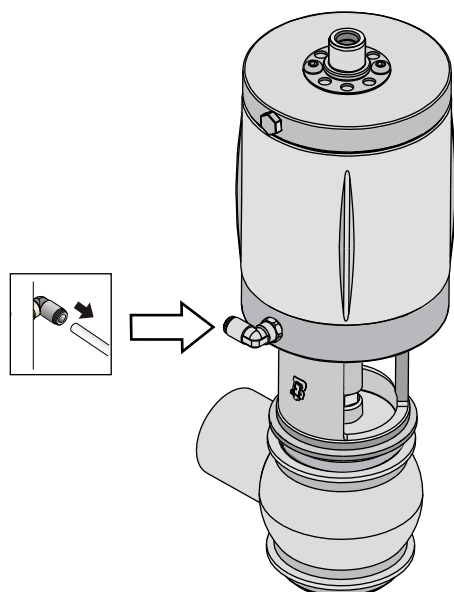
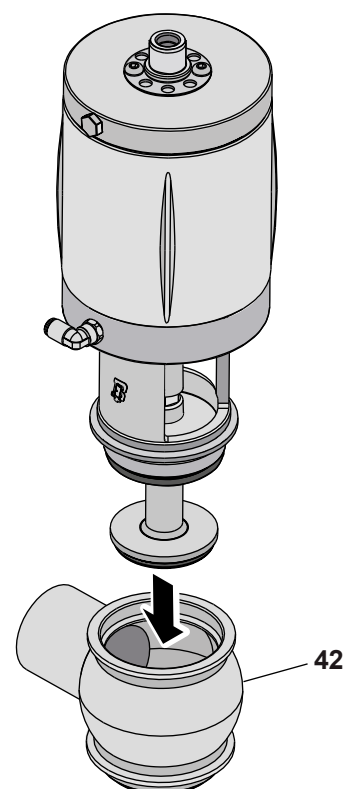


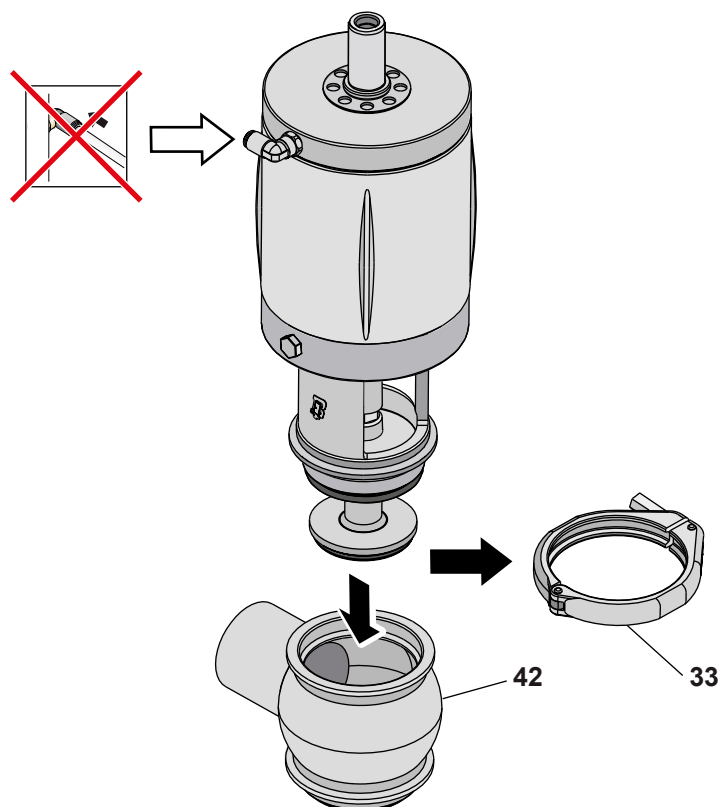
6-b

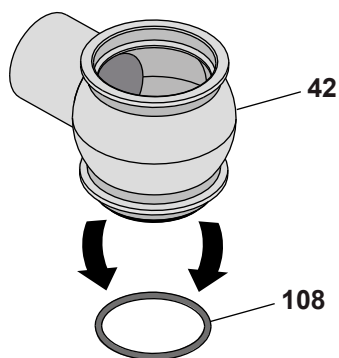
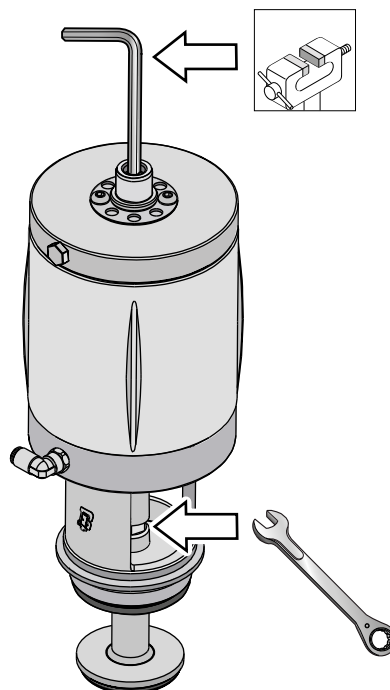
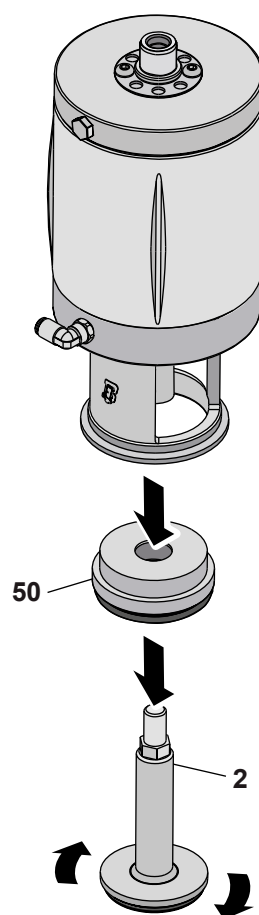
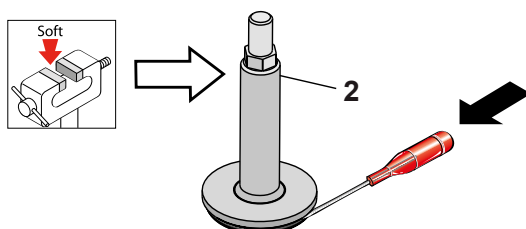
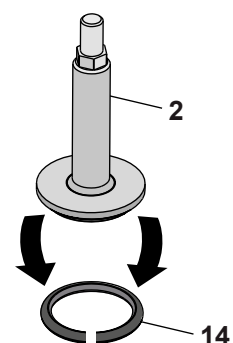


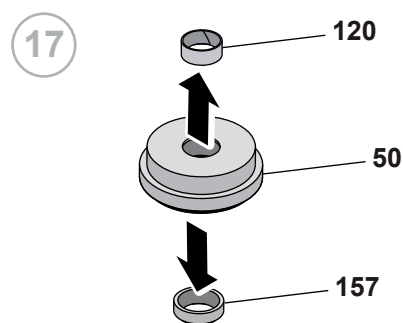
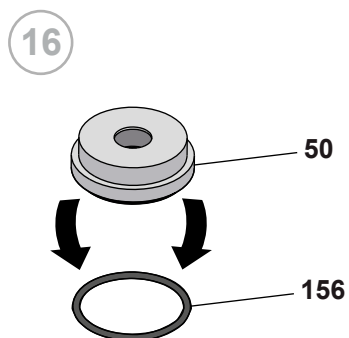
7-b



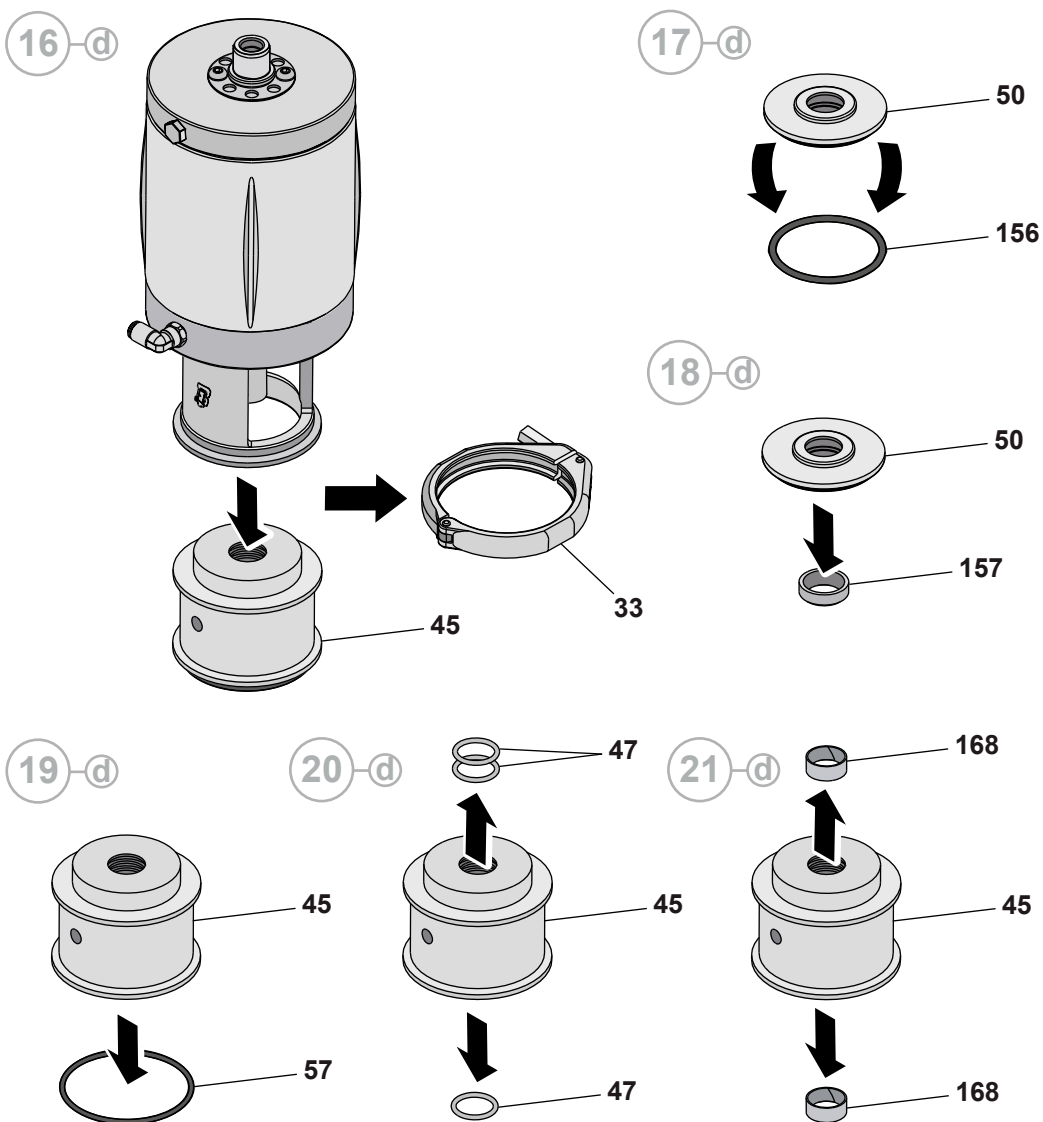
8 **b1** (Normally closed)**10** **b1****11** **b1**

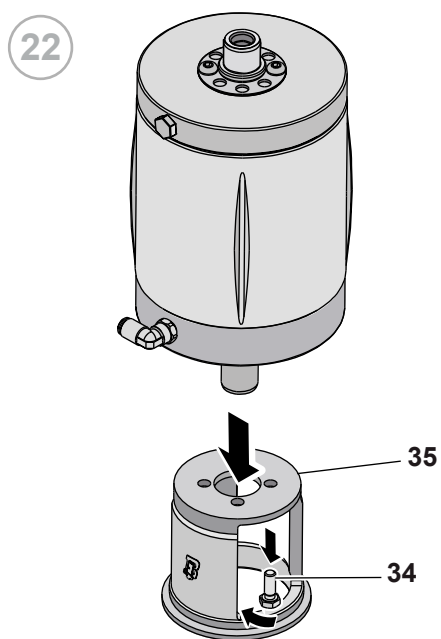
10 **(Normally open or double acting)**

11—b**12**—b**13**—b**14**—b**15**—b

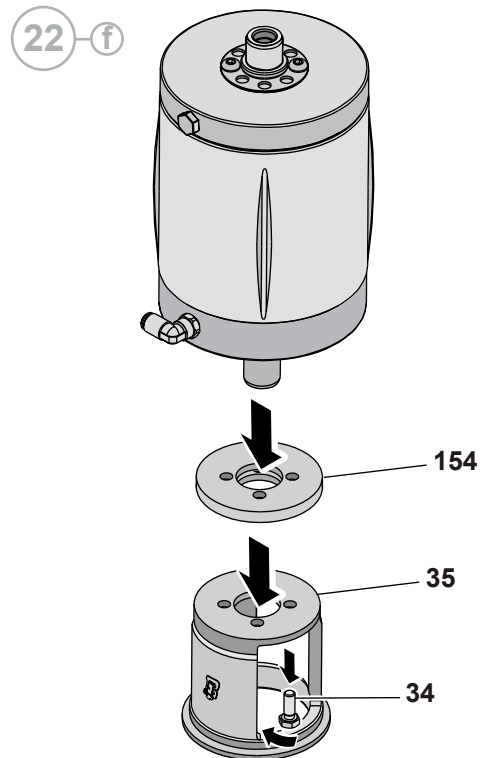


(BBYP - BBYR - BBYT)

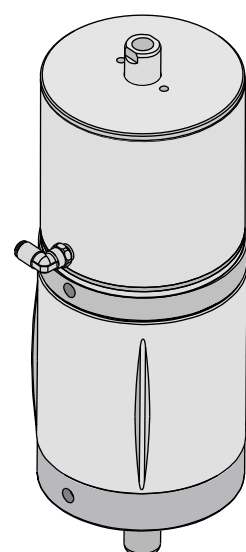




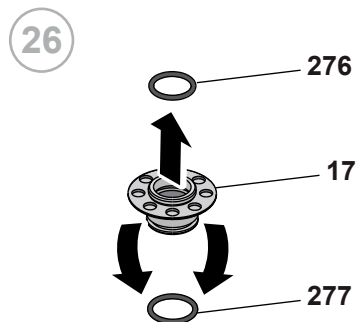
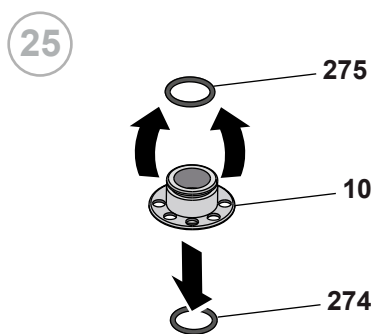
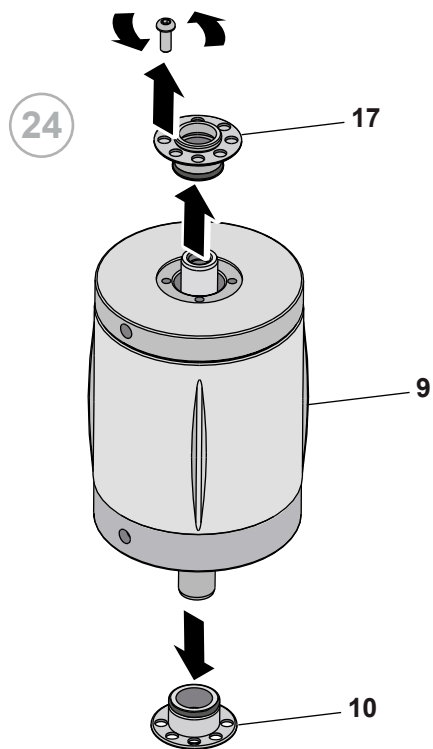
(BBZR - BBYR)



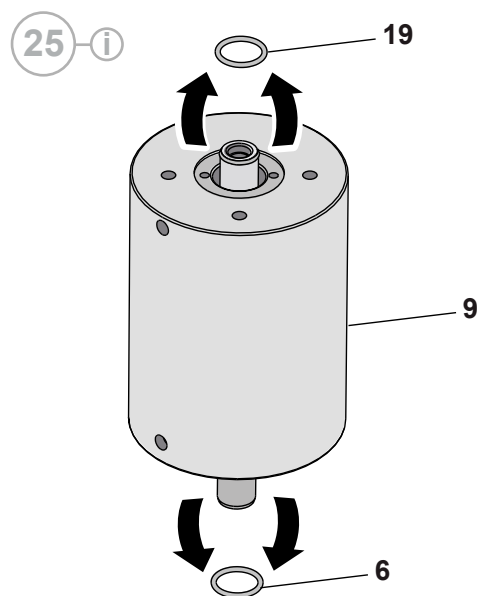
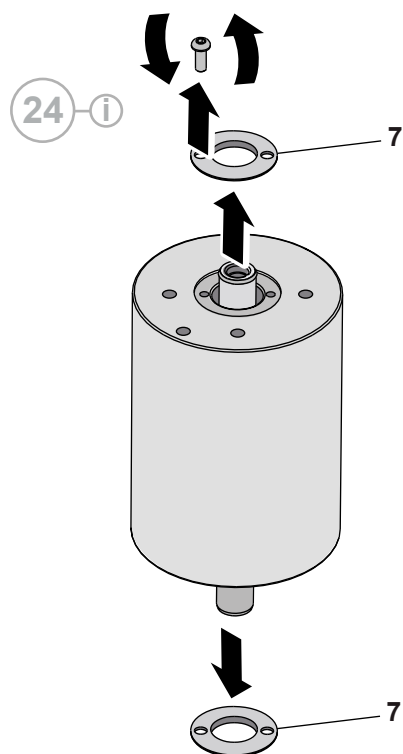
23



[BBZT]



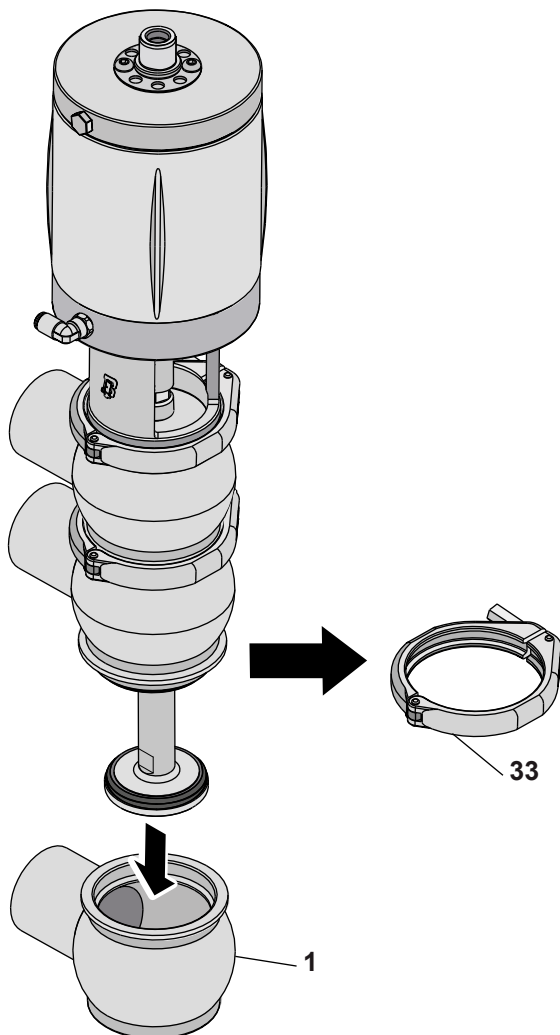
(DN 125-150)



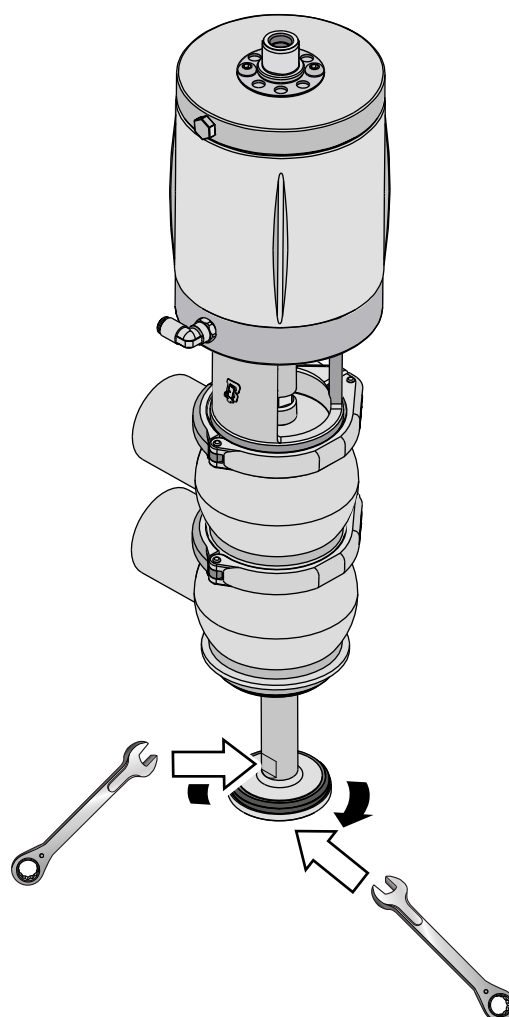
[M BBZP DEV]

C Disassembly of the BBZP M8-LLL Diverter with PTFE

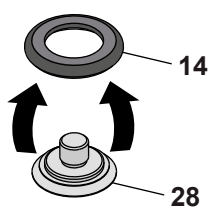
1 c1



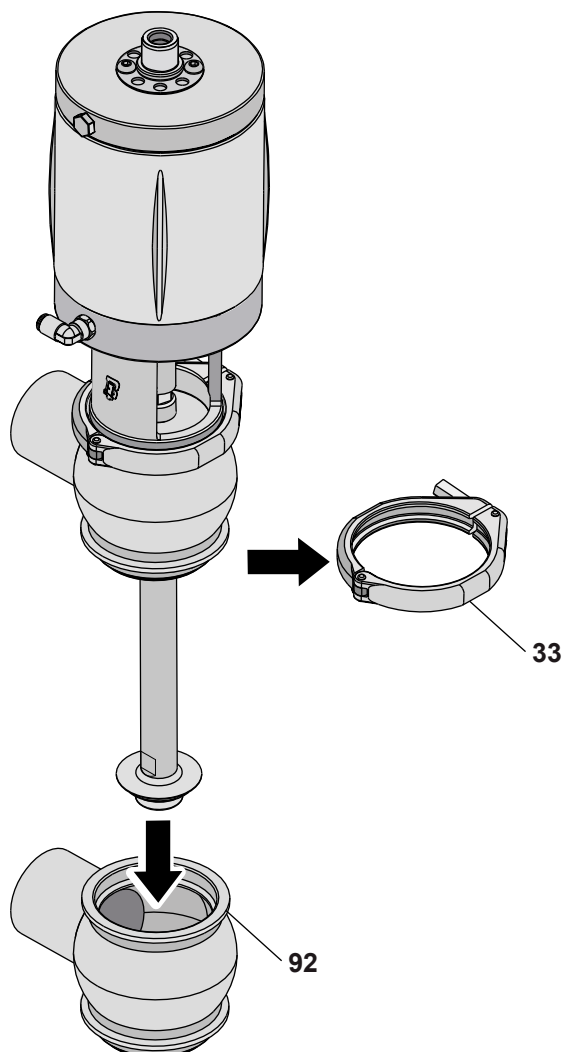
2 c1



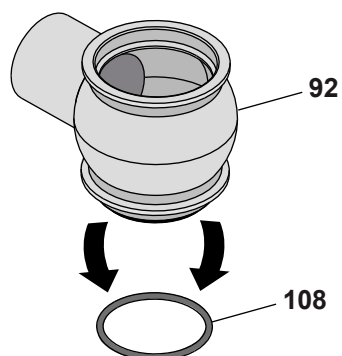
3 c1



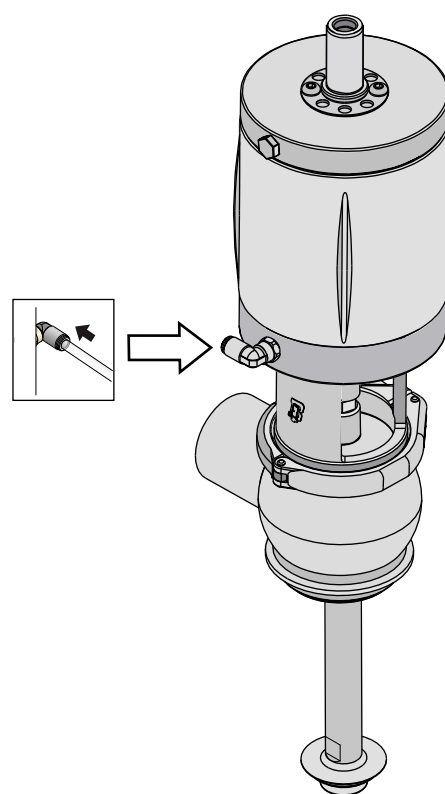
4 - c1

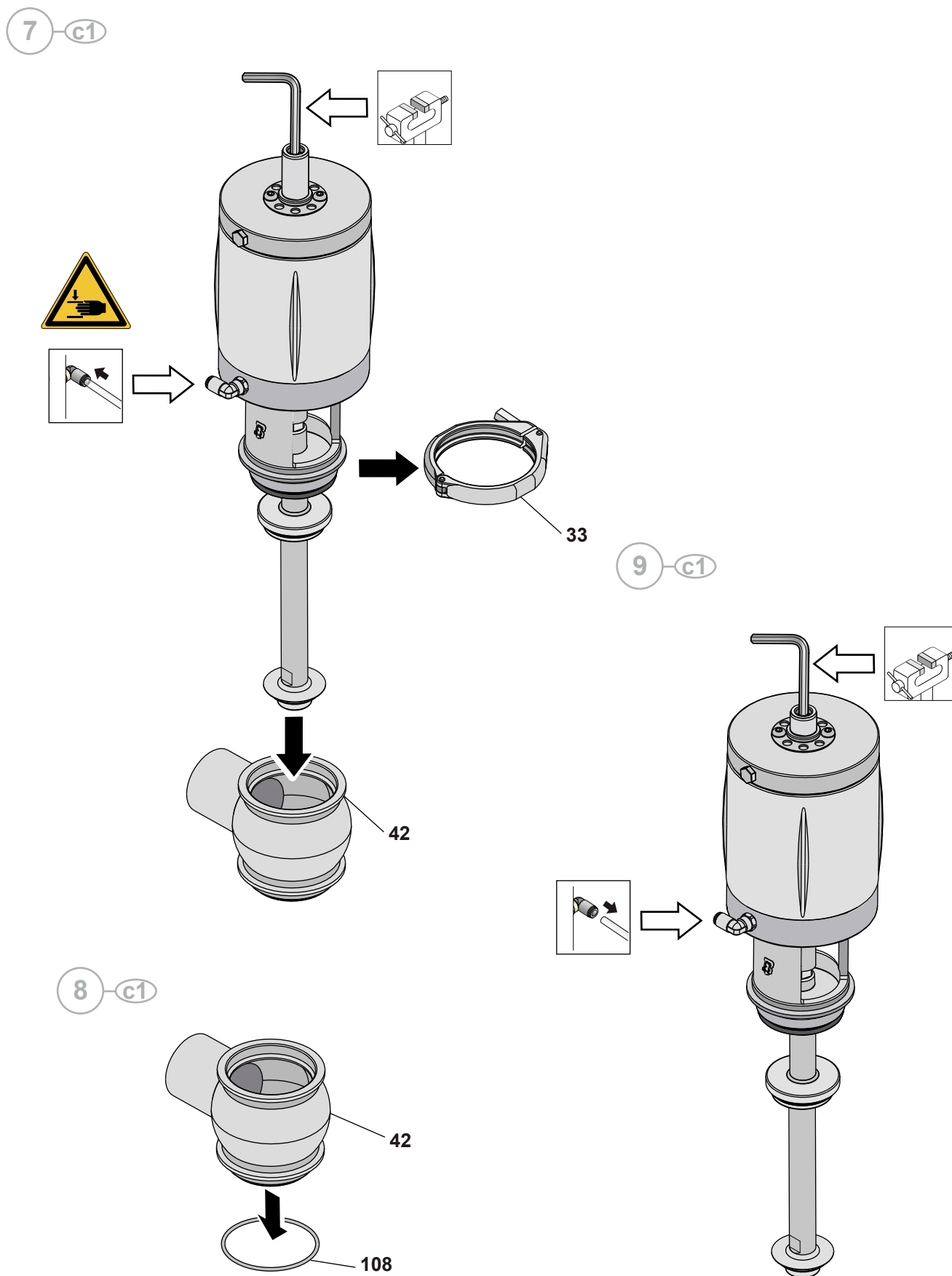


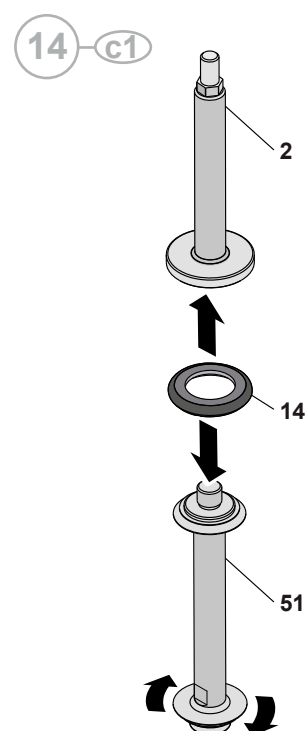
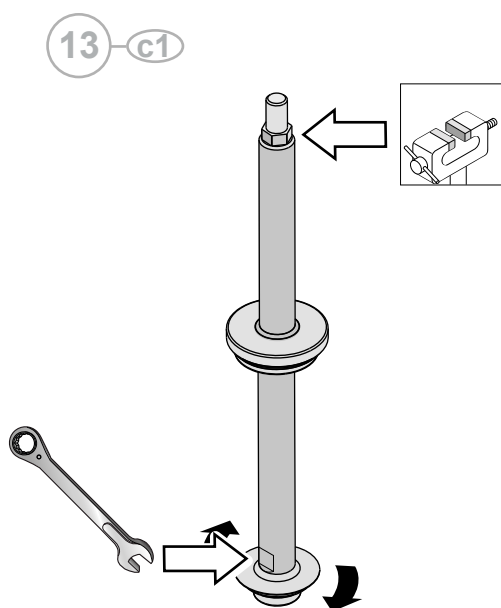
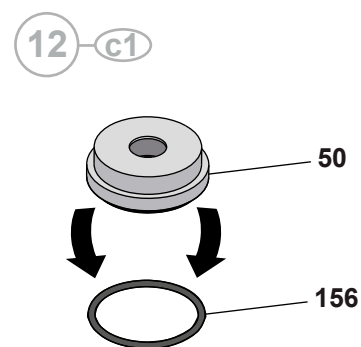
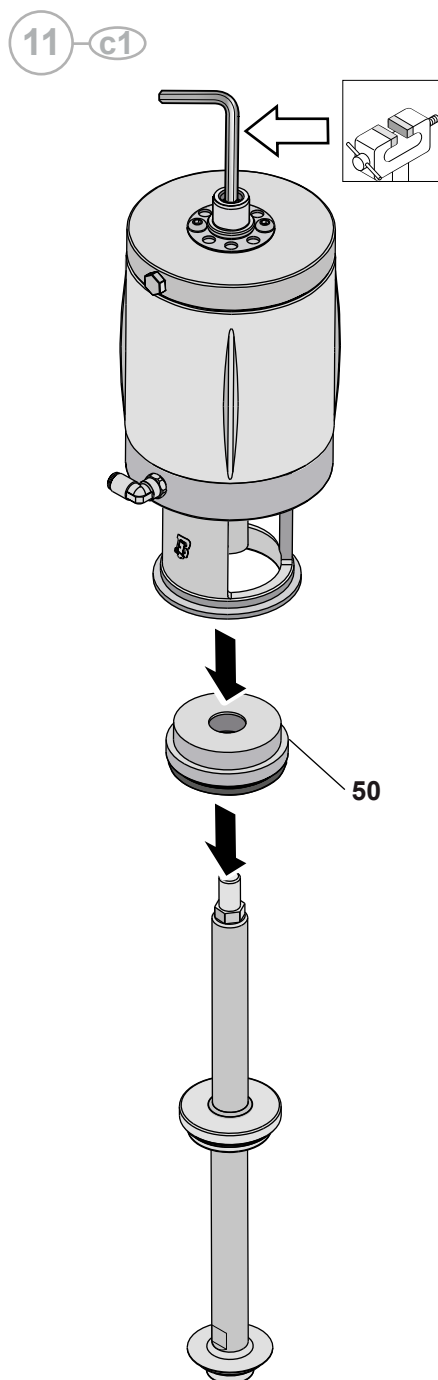
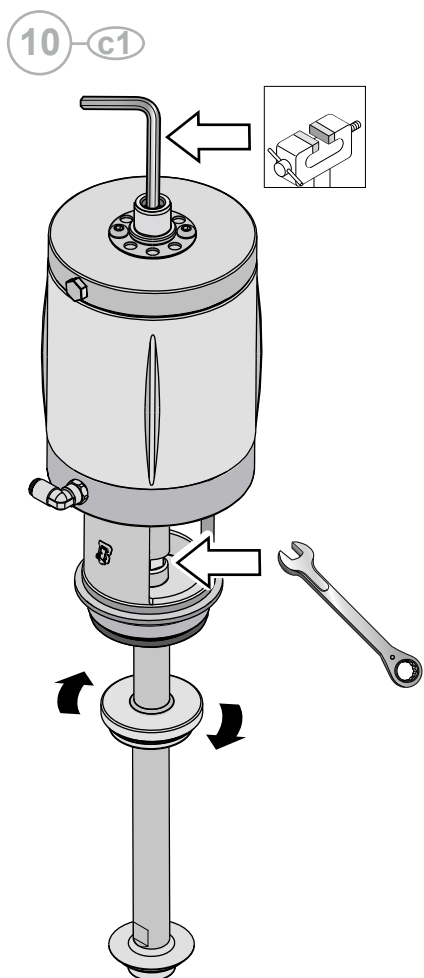
5 - c1

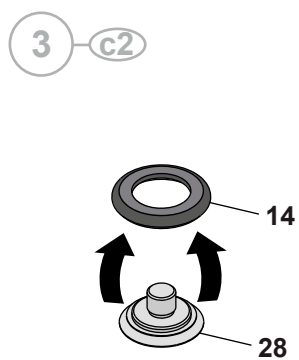
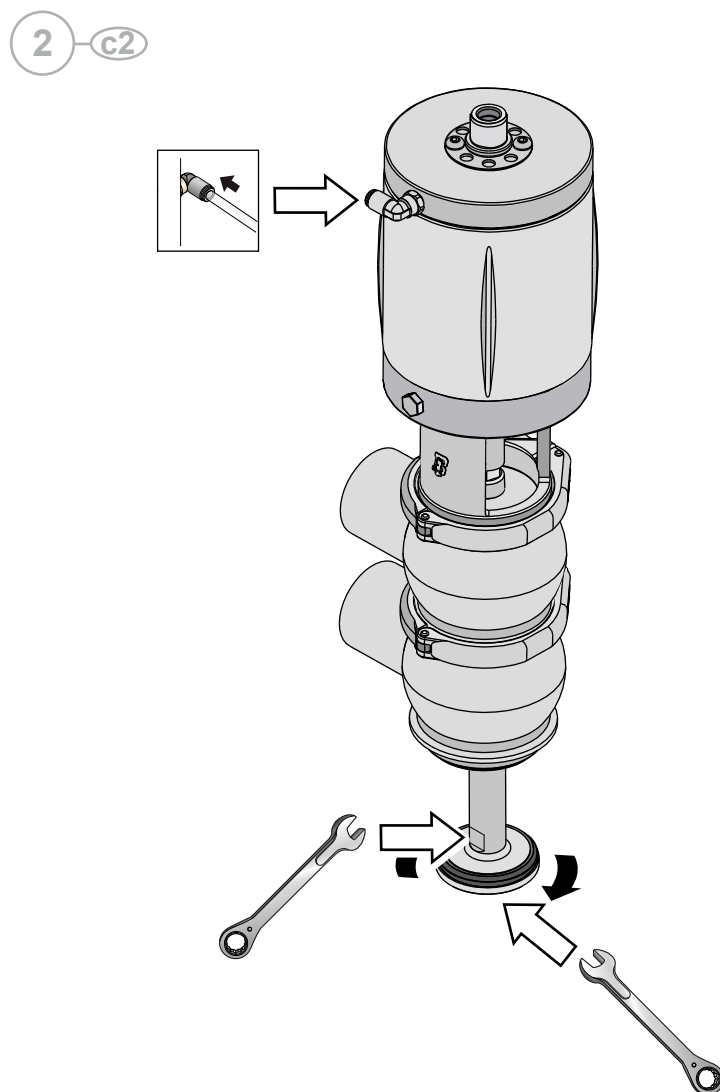
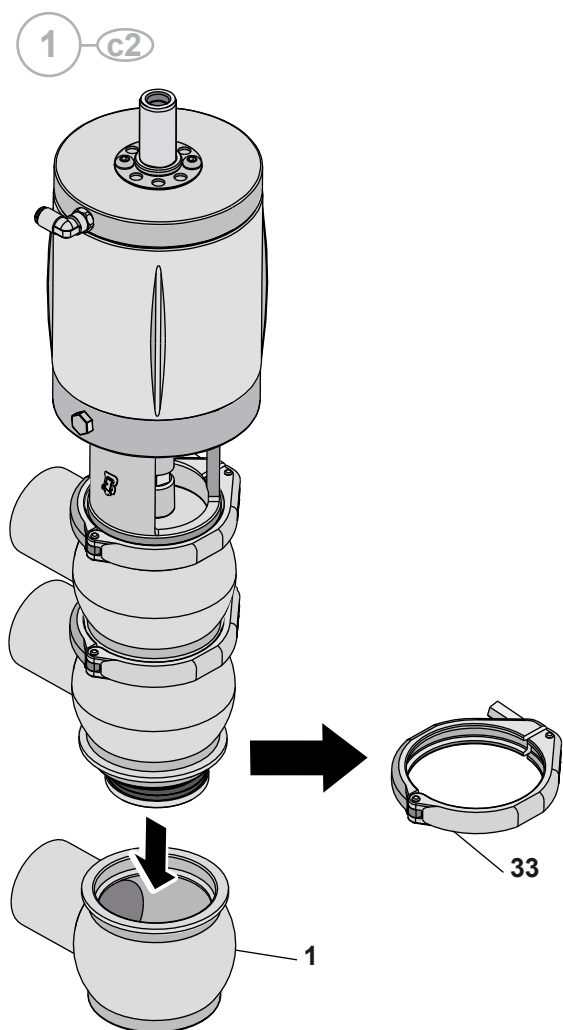


6 - c1

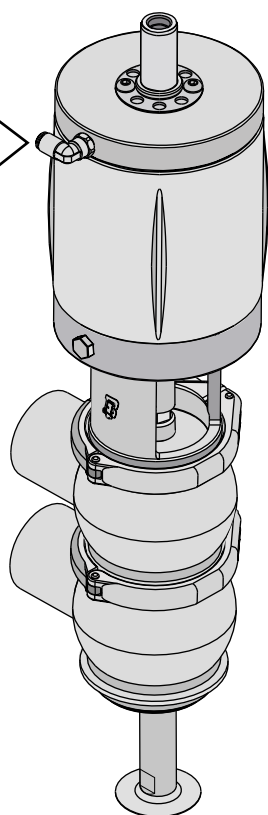
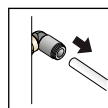




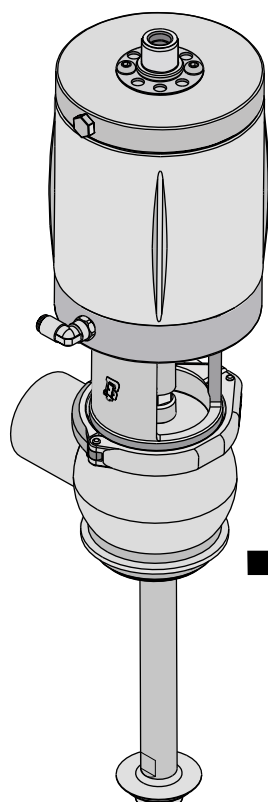




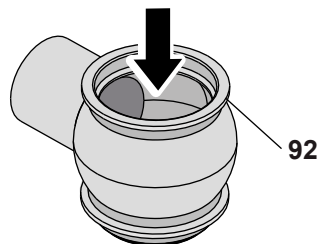
4 c2



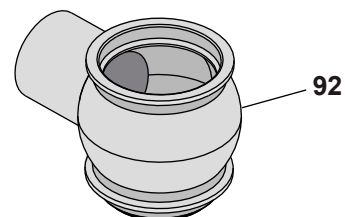
5 c2



33

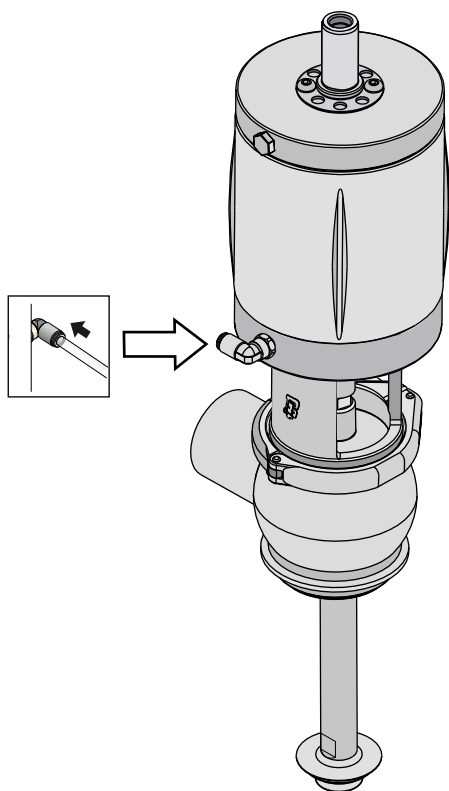


6 c2

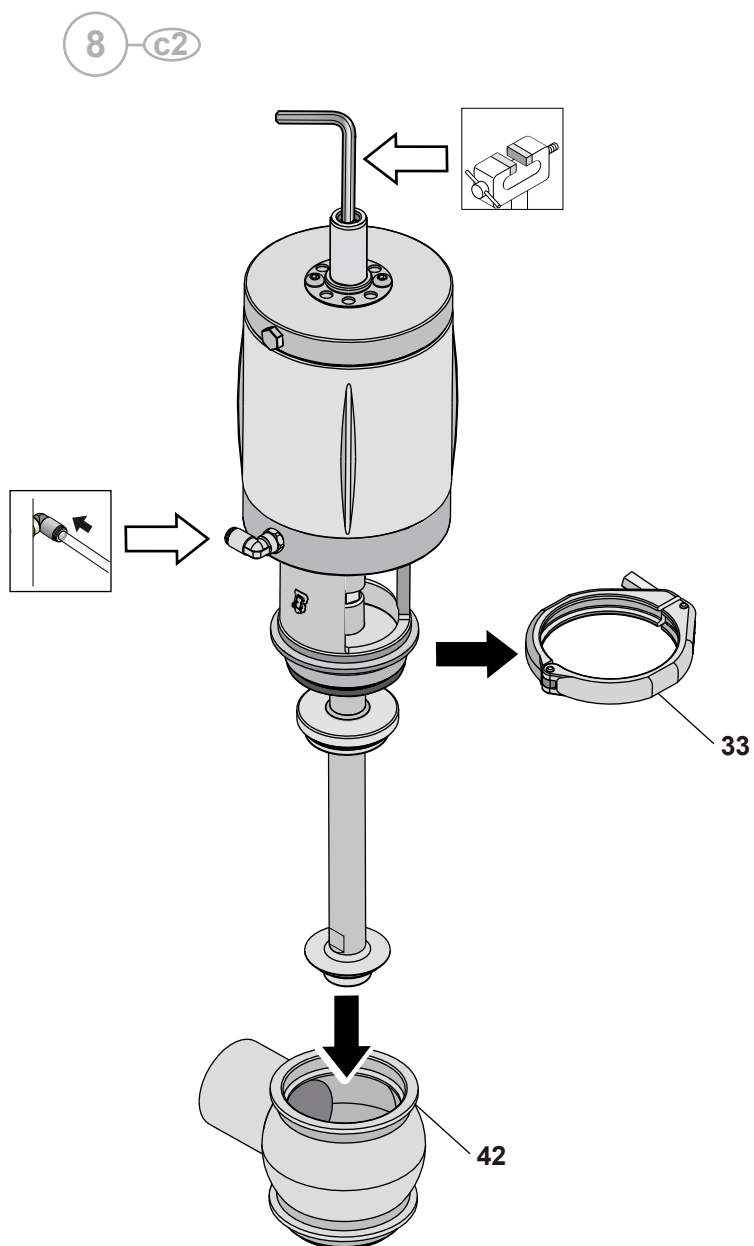


108

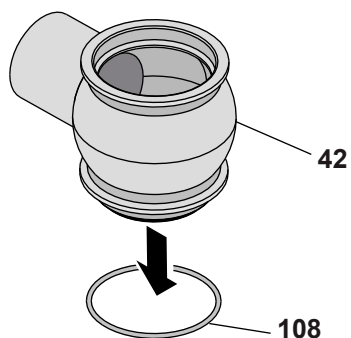
7 c2



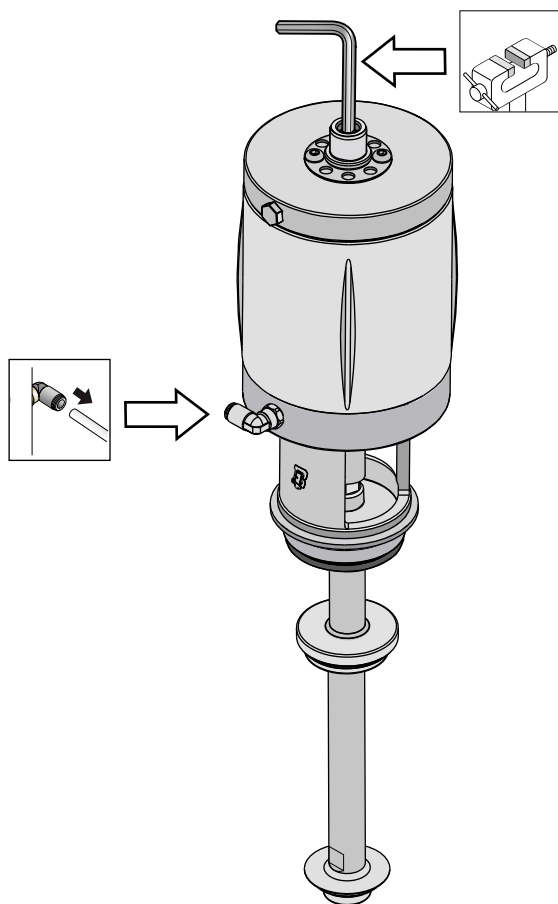
8 c2



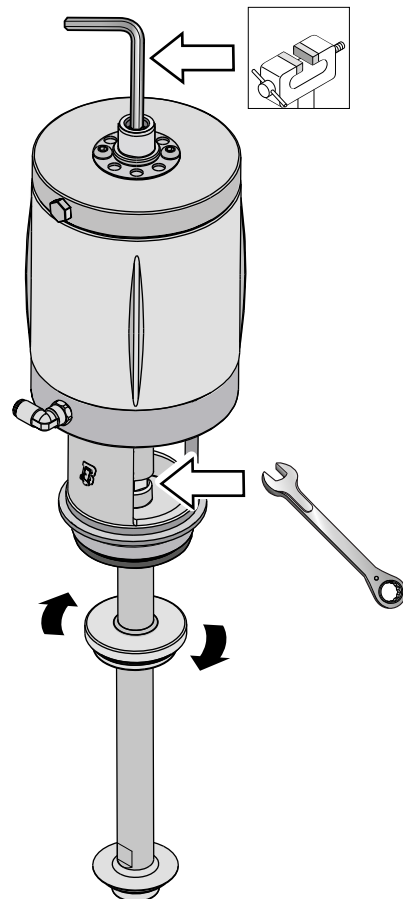
9 c2



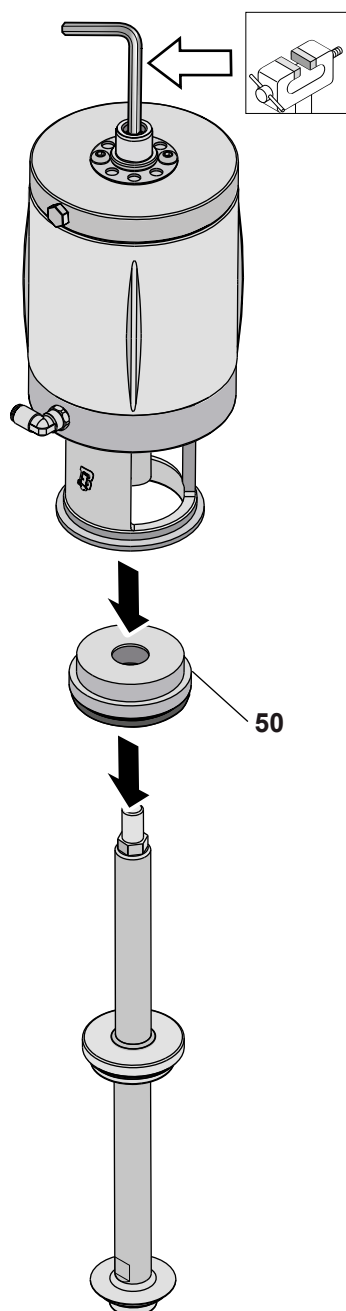
10 c2



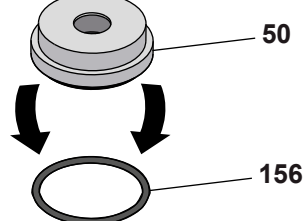
11 c2



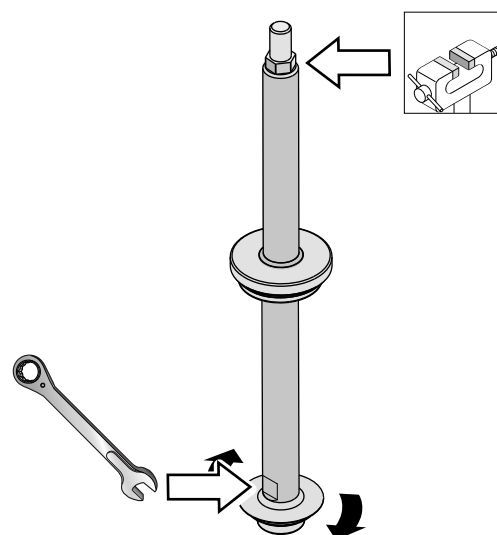
12-c2



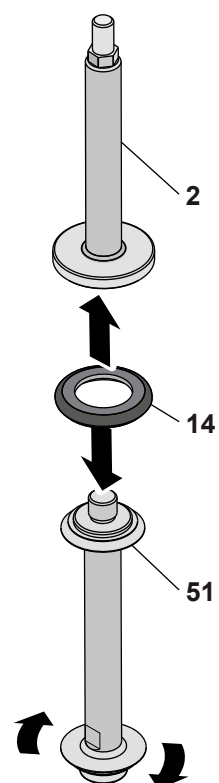
13-c2



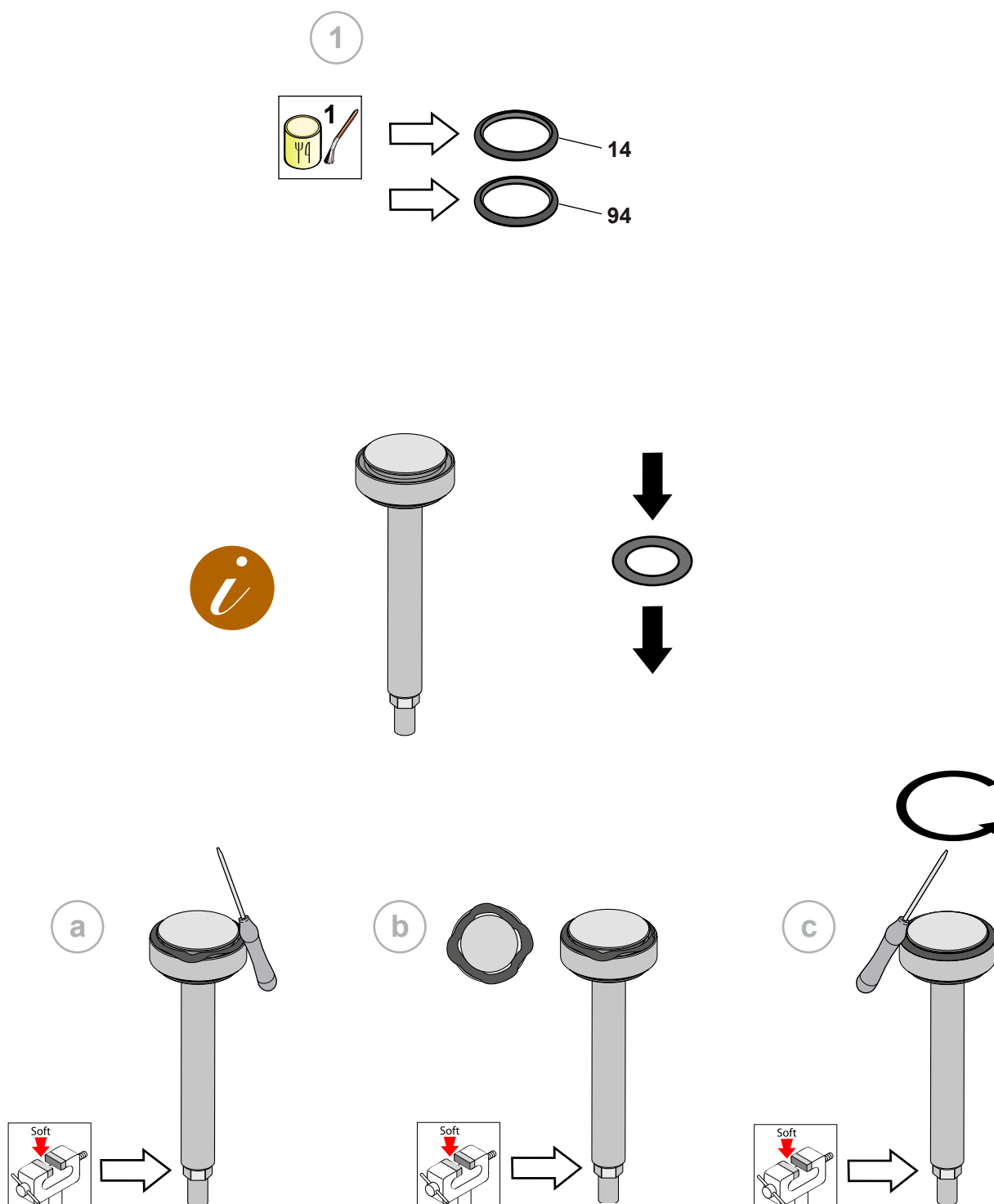
14-c2

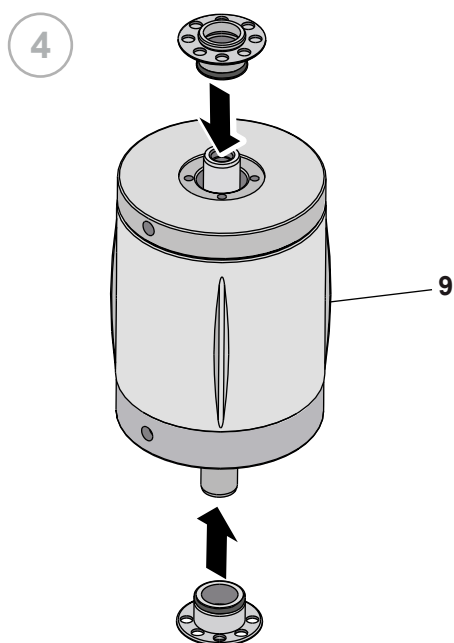
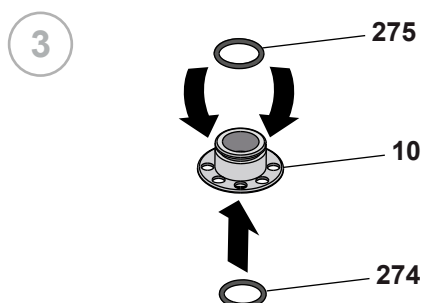
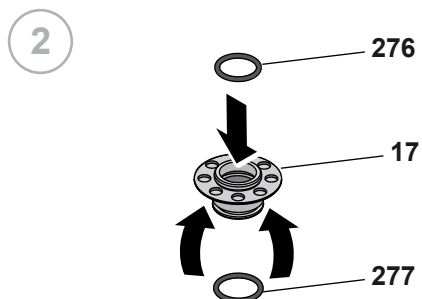


15-c2

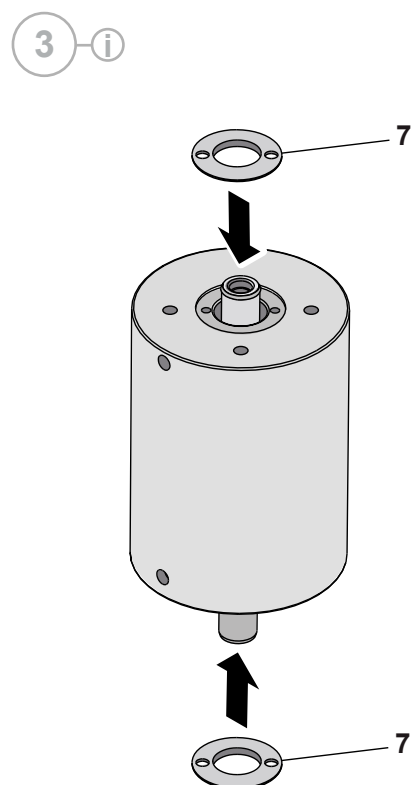
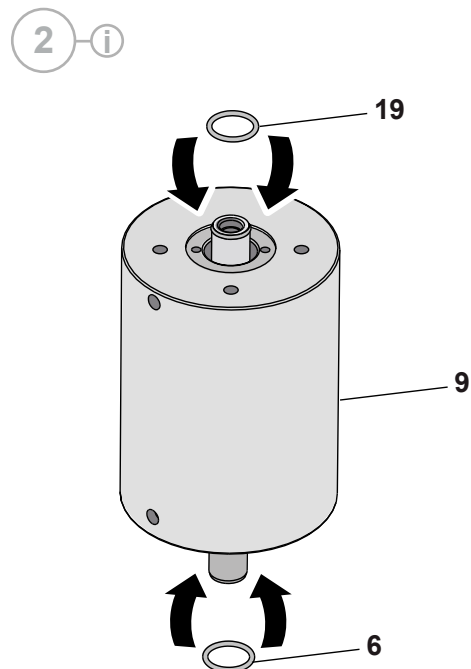


10.9 Assembly of the BBZP - BBZR - BBZT- BBYP - BBYR - BBYT Diverters

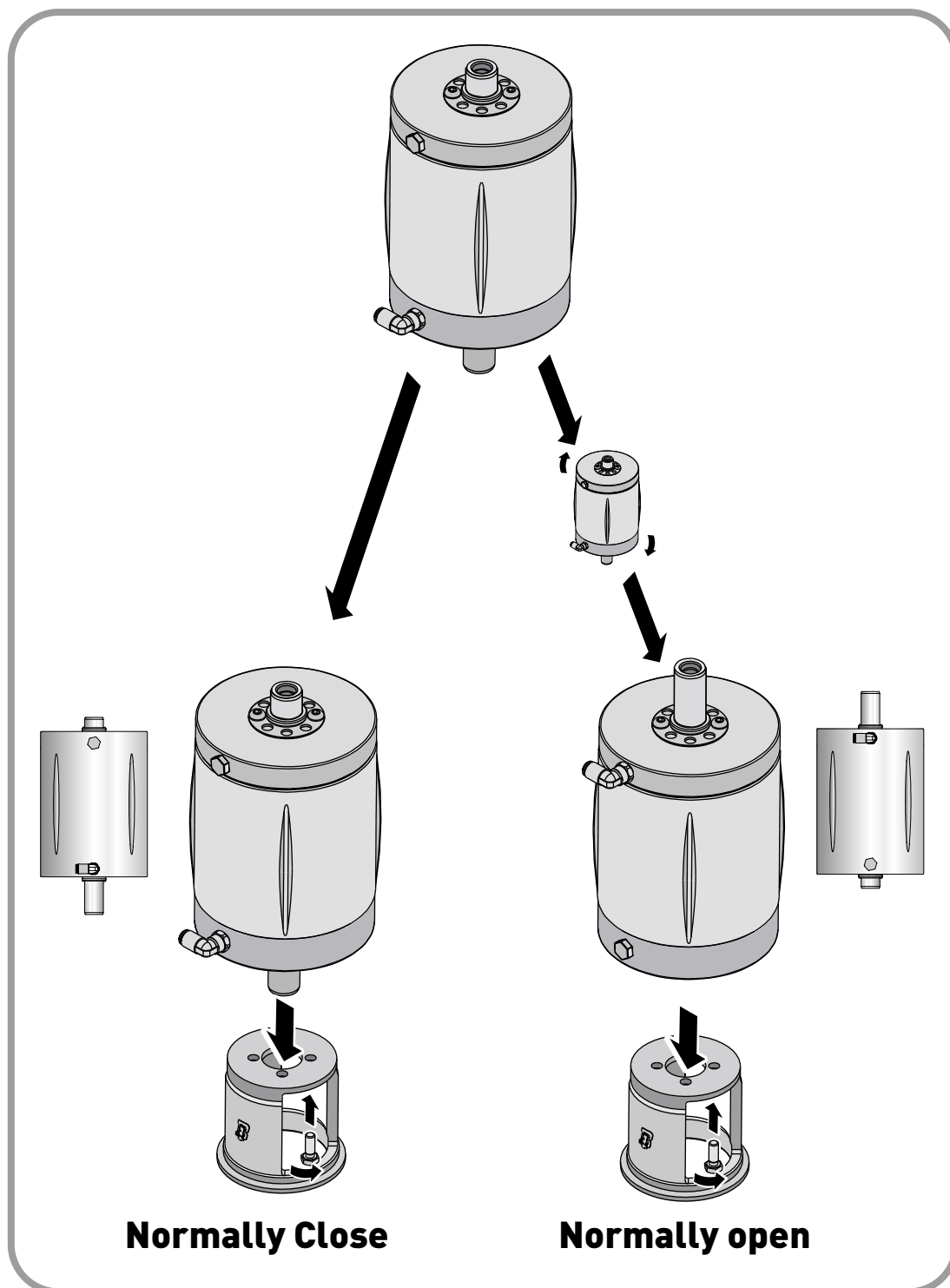


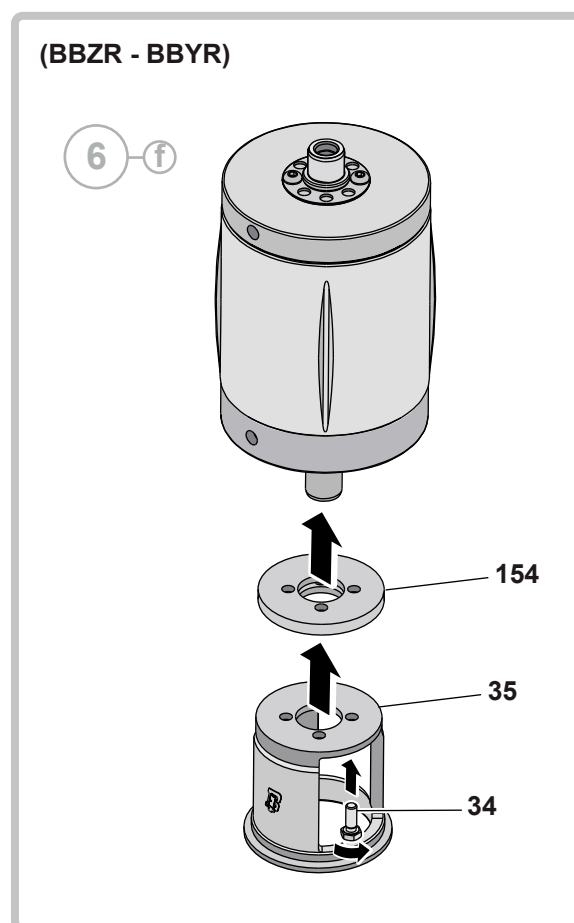
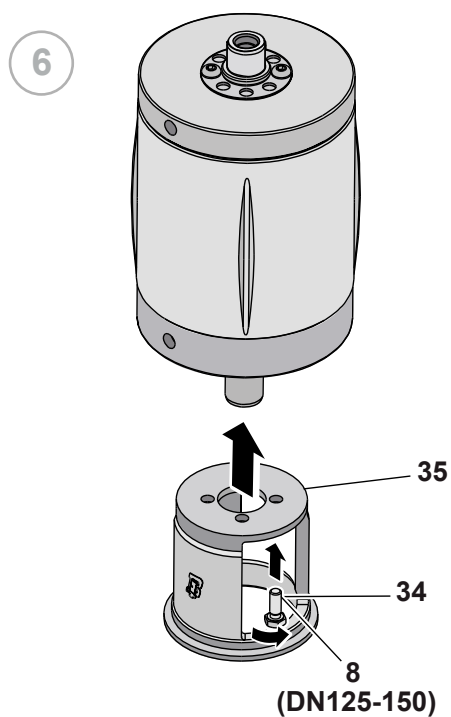
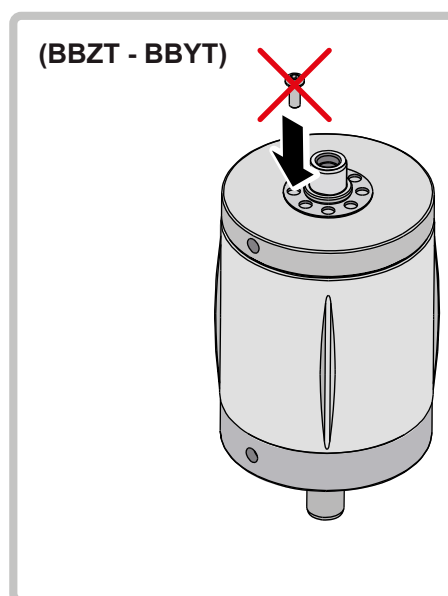


(DN 125-150)

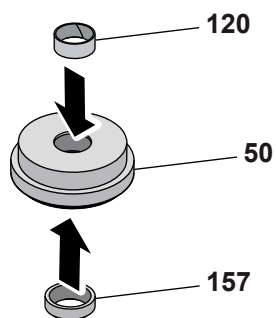


10.9.1 Select normally close or normally open cylinder

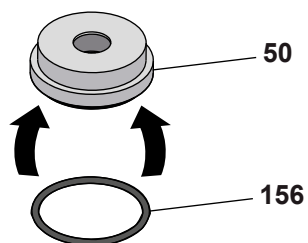




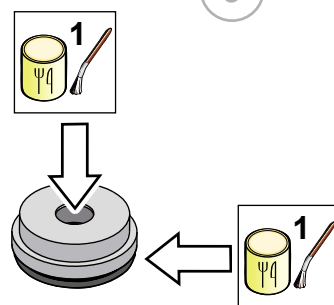
7



8

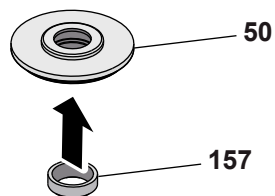


9

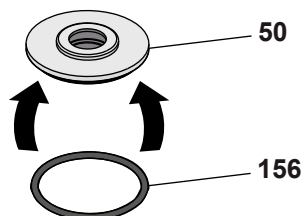


(BBYP - BBYR - BBYT)

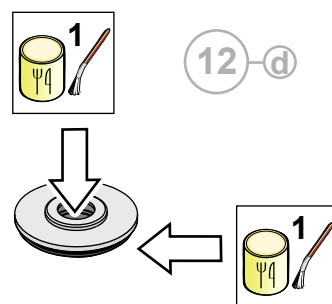
10-d



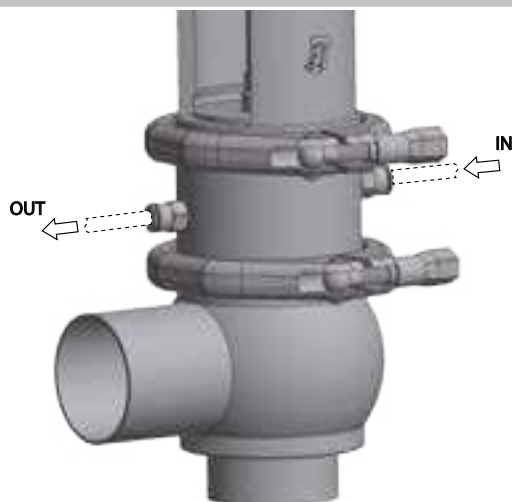
11-d



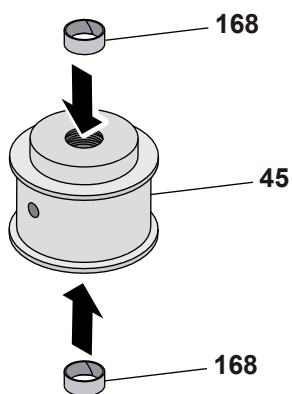
12-d



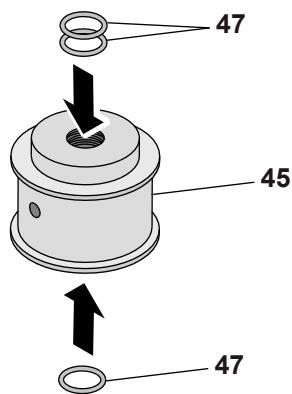
(BBYP - BBYR - BBYT)



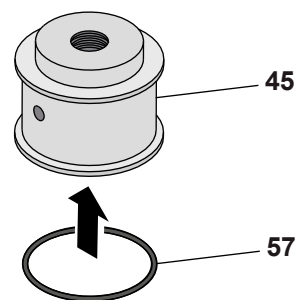
7-d



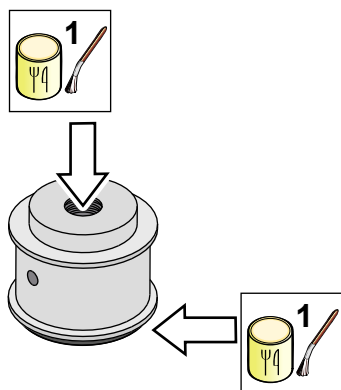
8-d



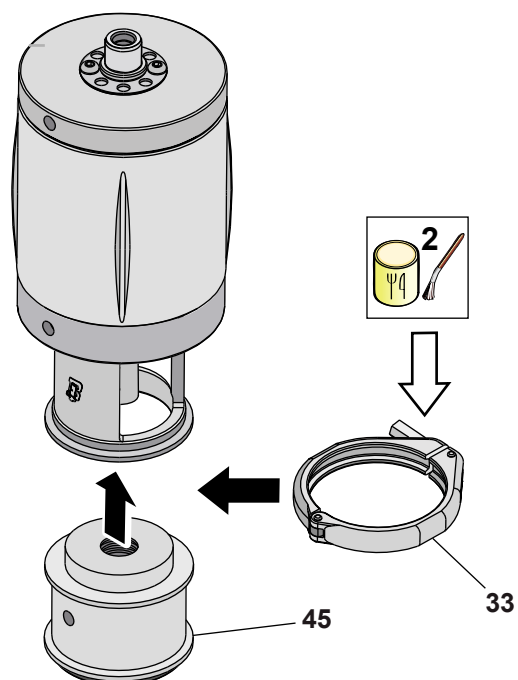
9-d

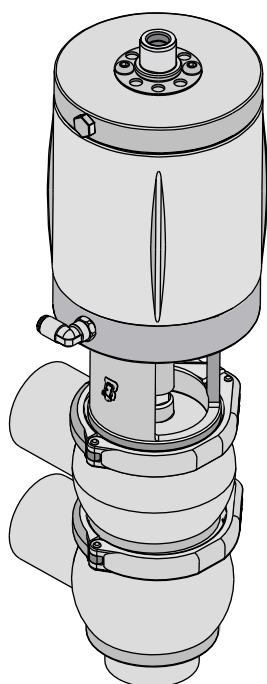


10-d



11-d

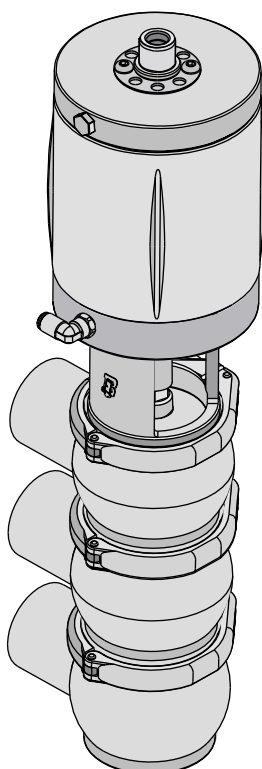




a



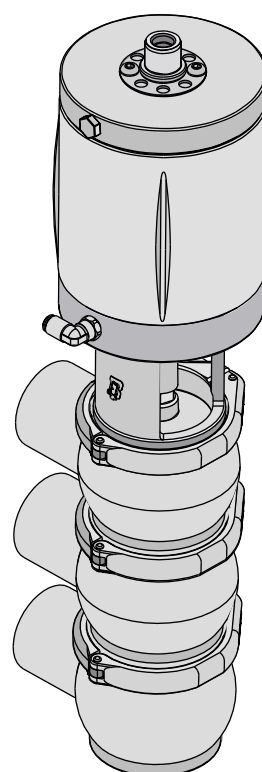
[A M BBZP DEV]



b



[B M BBZP M8-LLL]

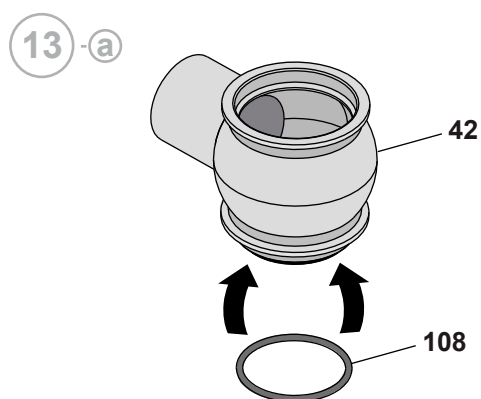


c

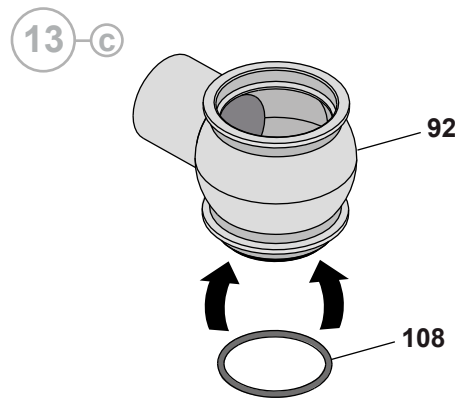


[C M BBZP M8-LLL PTFE]

A Assembly of the BB ZP - BBZR - BBZT- BBYP - BBYR - BBYT Diverters

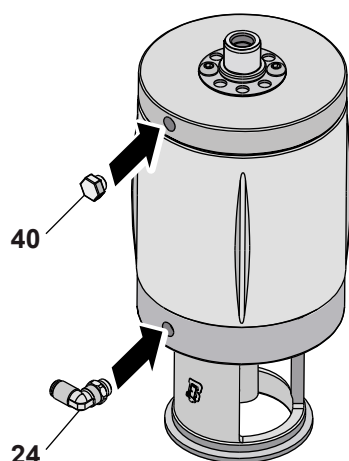


(BBZP M9-LLL)

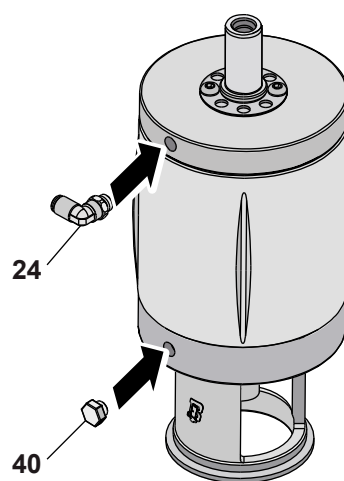


14-a

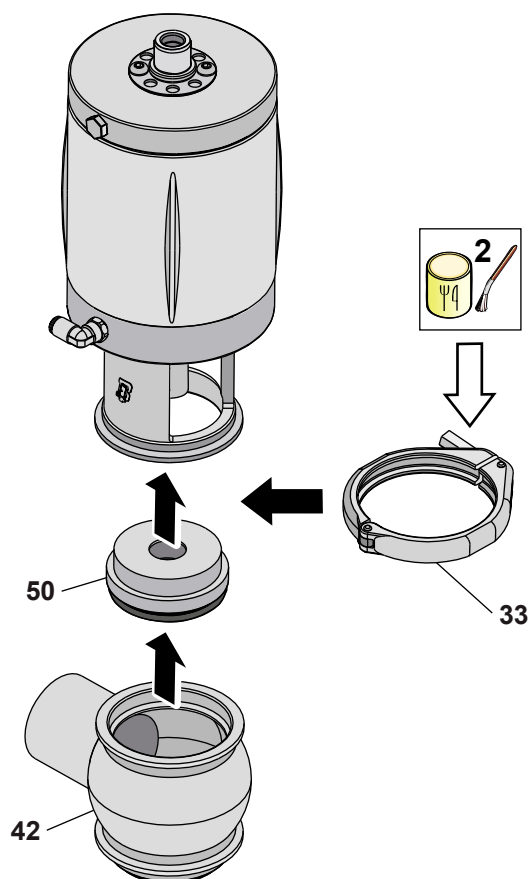
Normally Close



Normally open

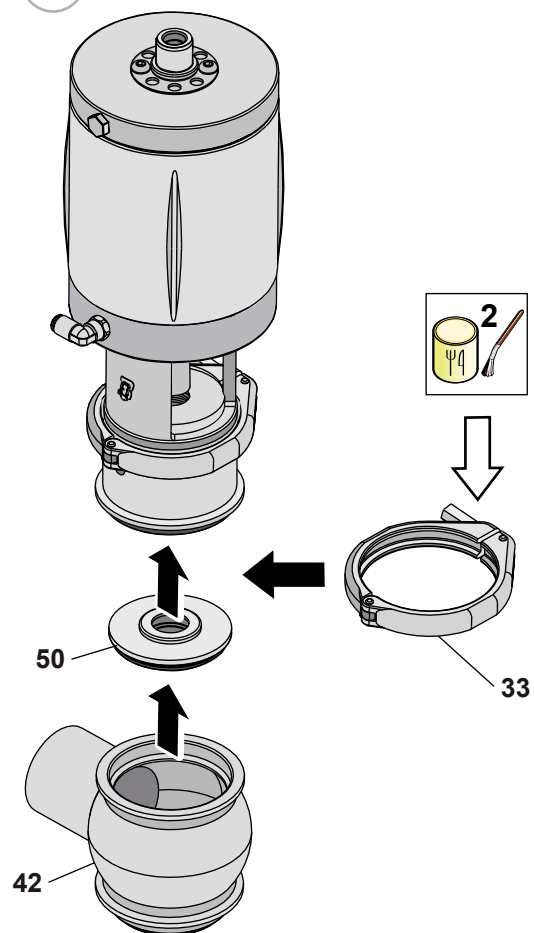


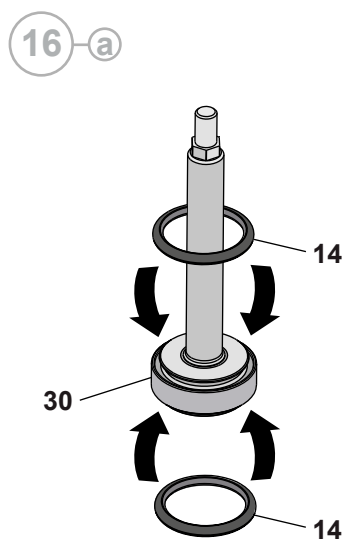
15-a



(BBYP - BBYR - BBYT)

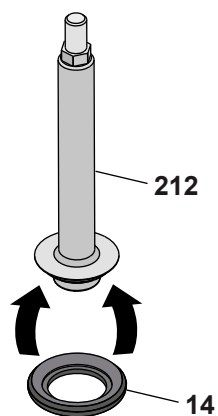
15-d



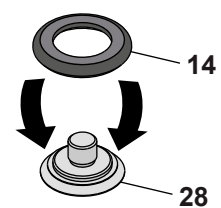


(P.T.F.E.)

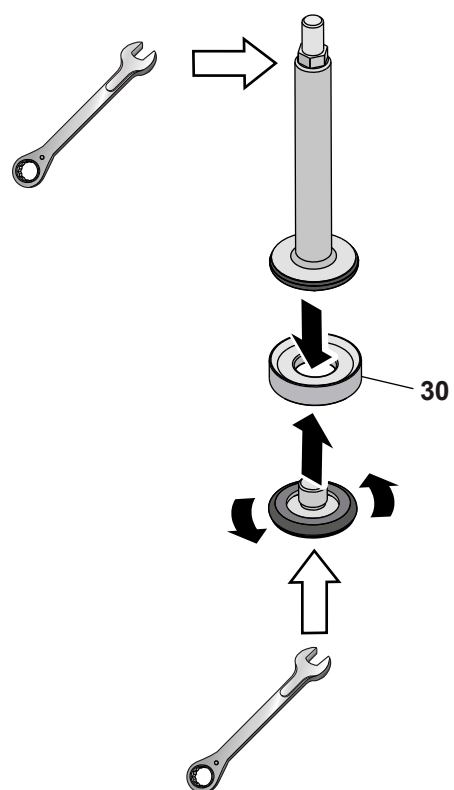
16-e



17-e

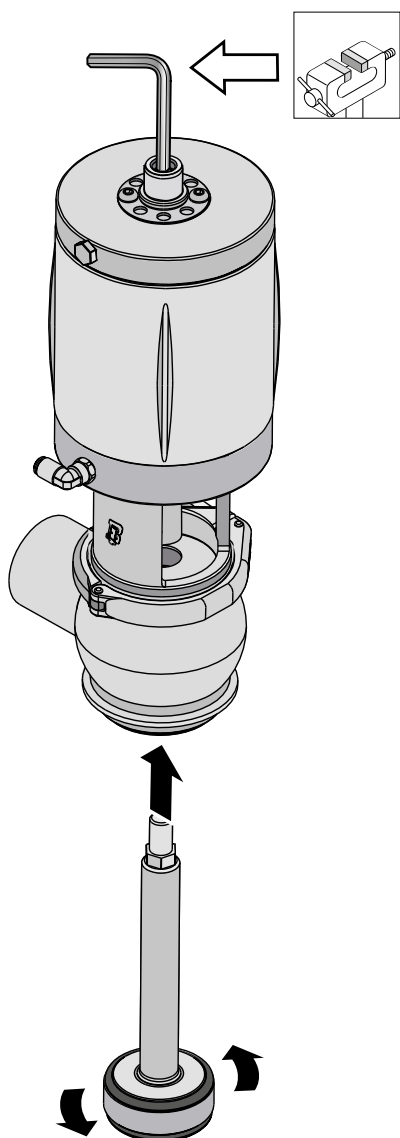


18-e

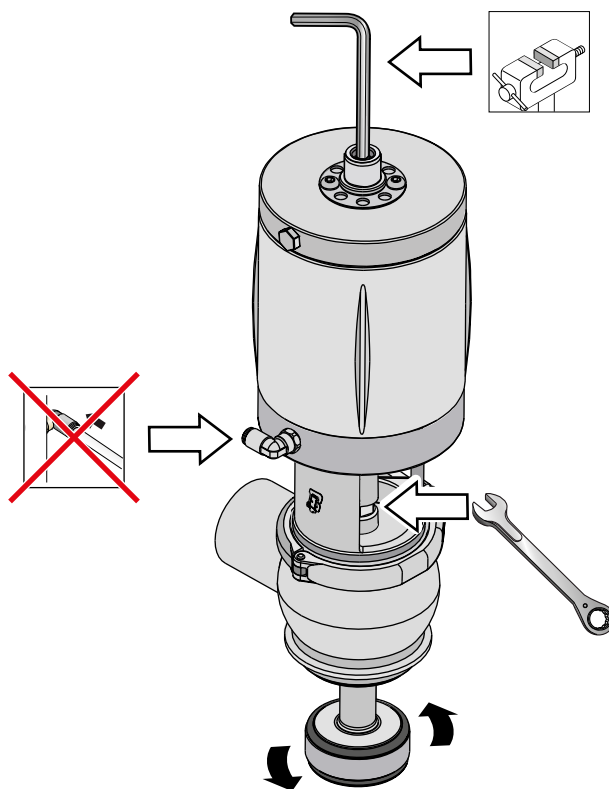


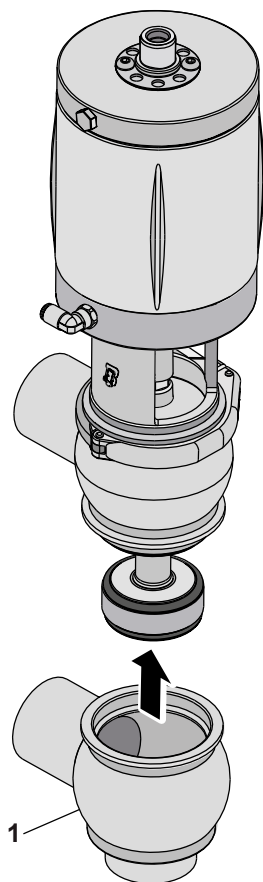
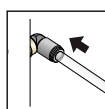
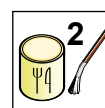
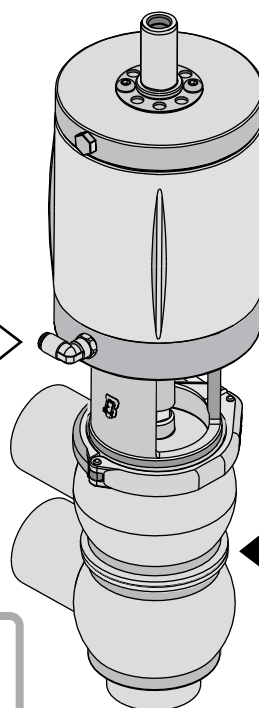
(Normally closed)

19 a1

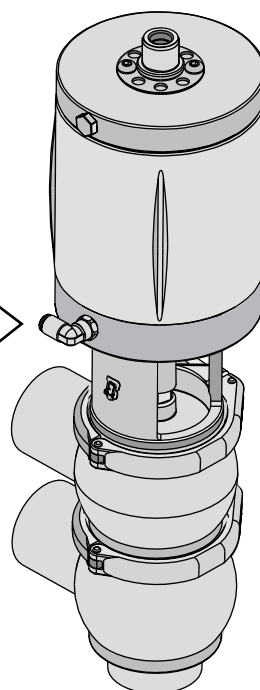
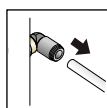


20 a1



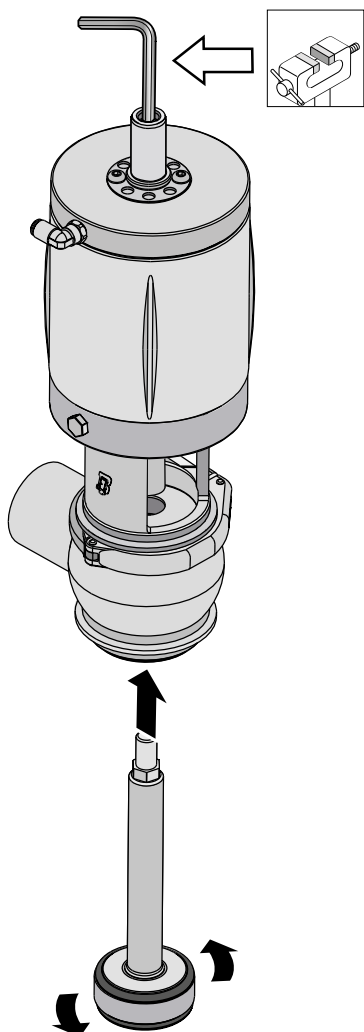
21 a1**22** a1**1****2****33**

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

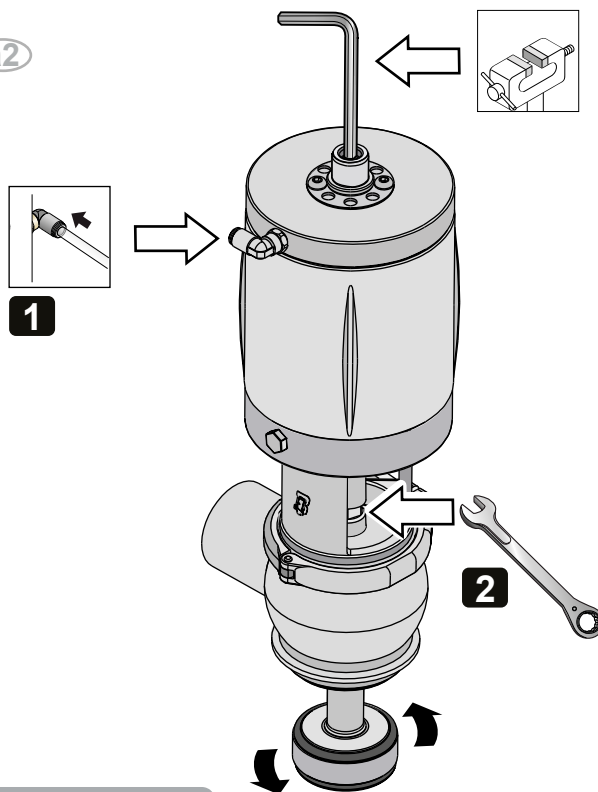
23 a1

(Normally open or double acting)

19 a2

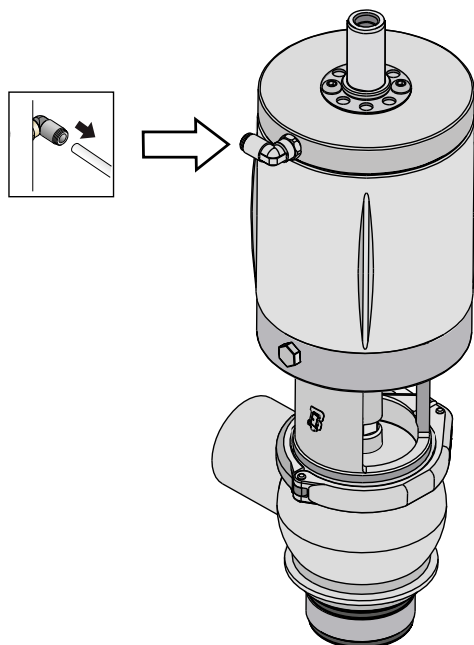


20 a2

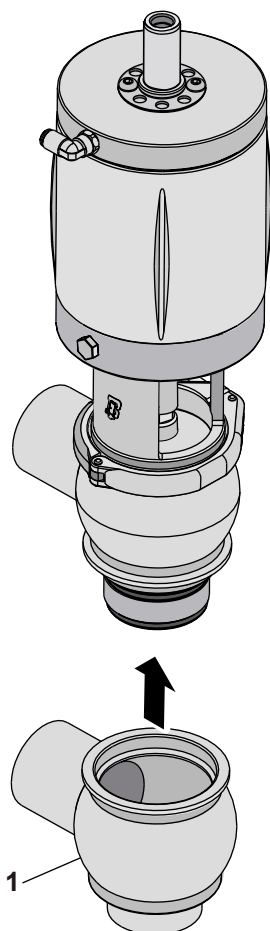


Never touch the moving parts if the actuator is supplied with compressed air

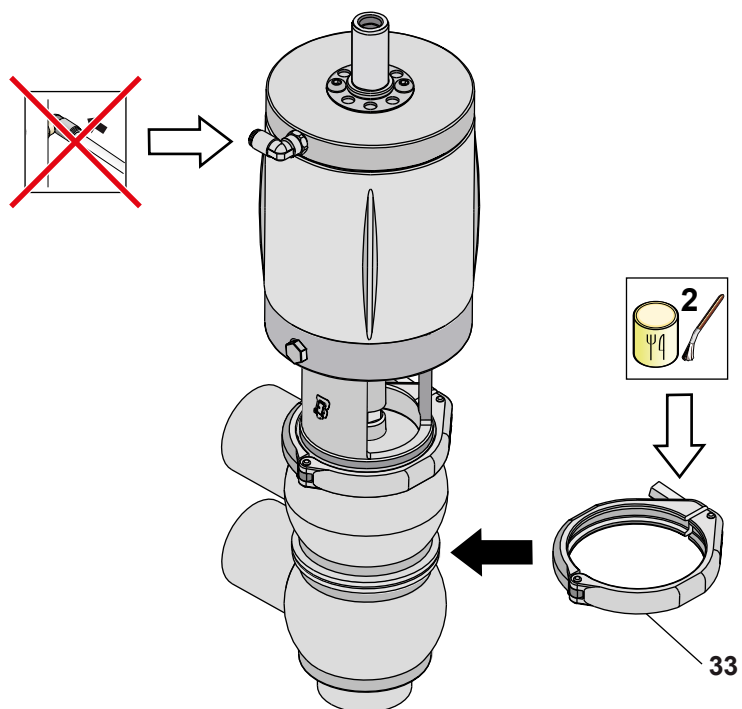
21 a2

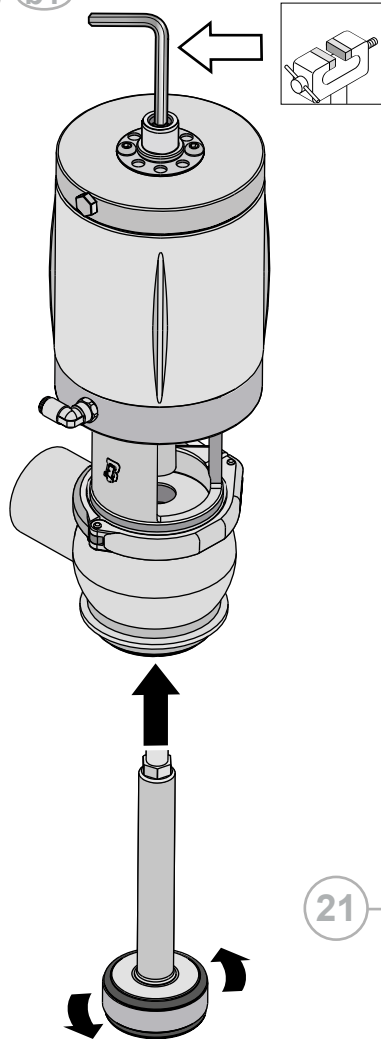
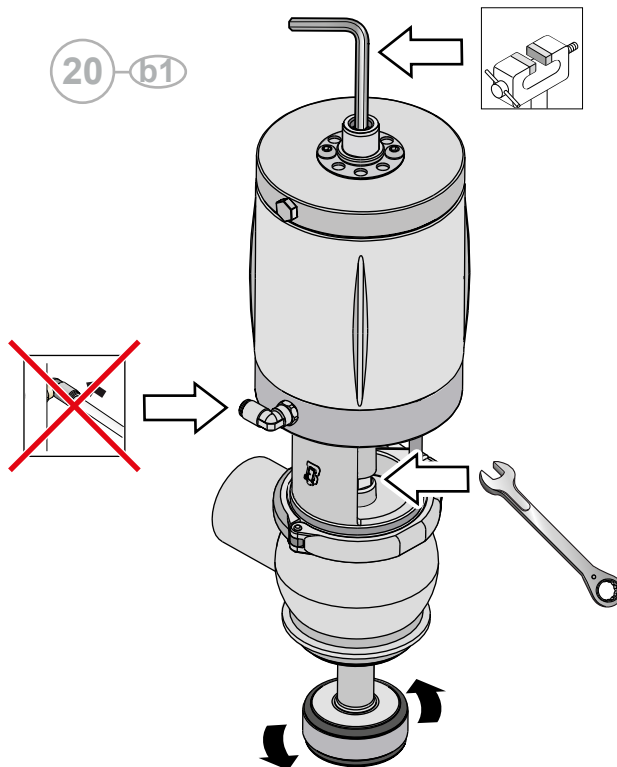
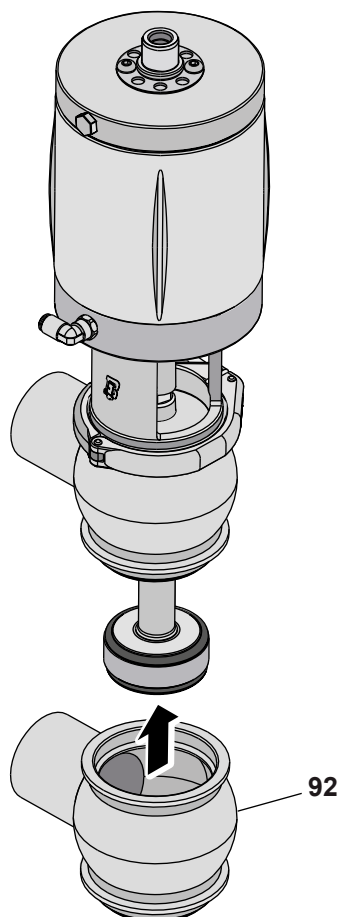


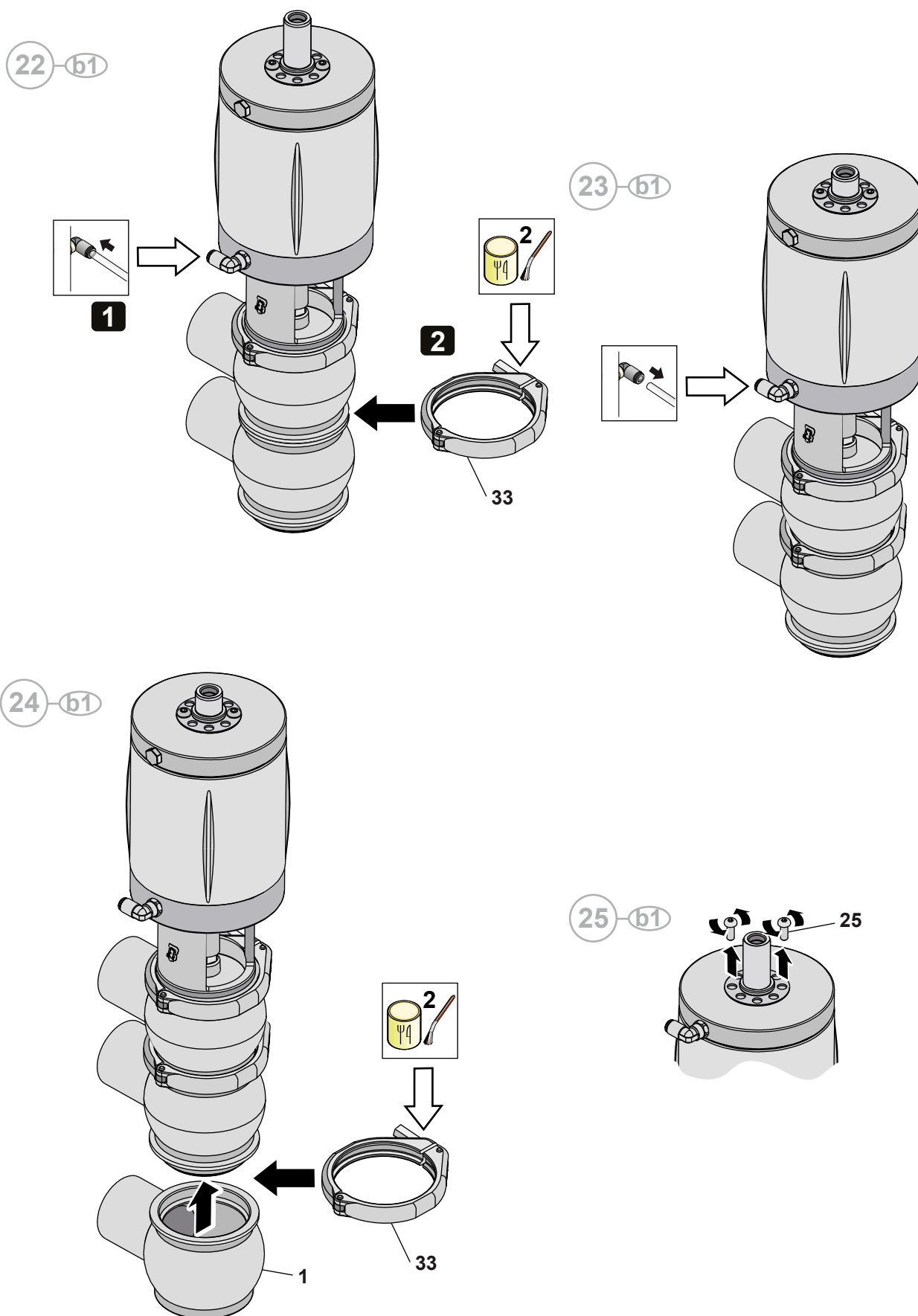
22 a2

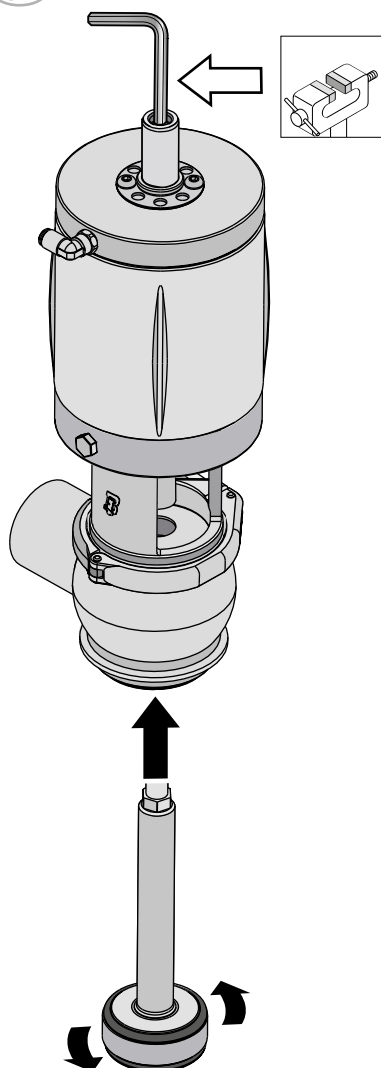
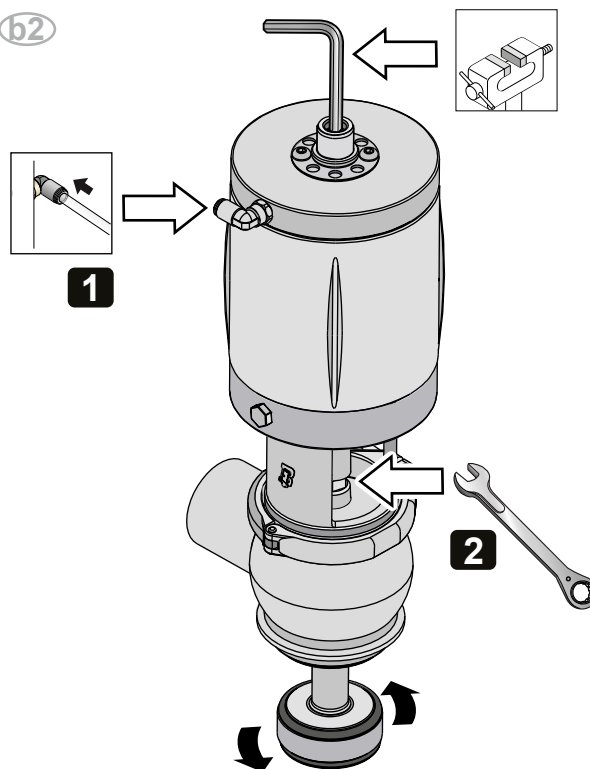
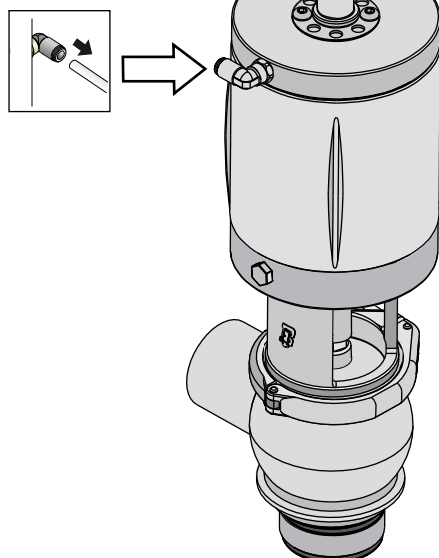


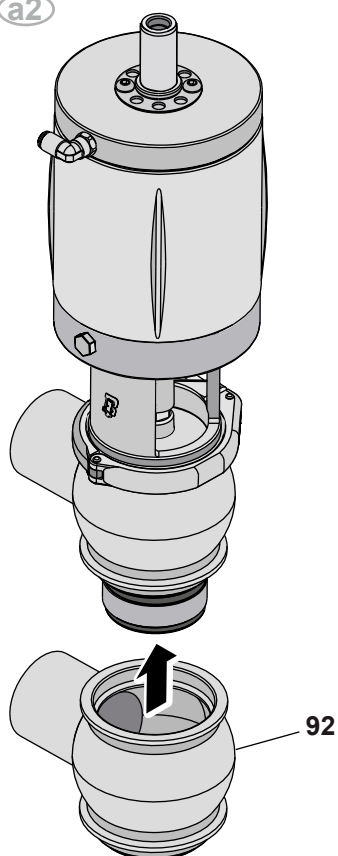
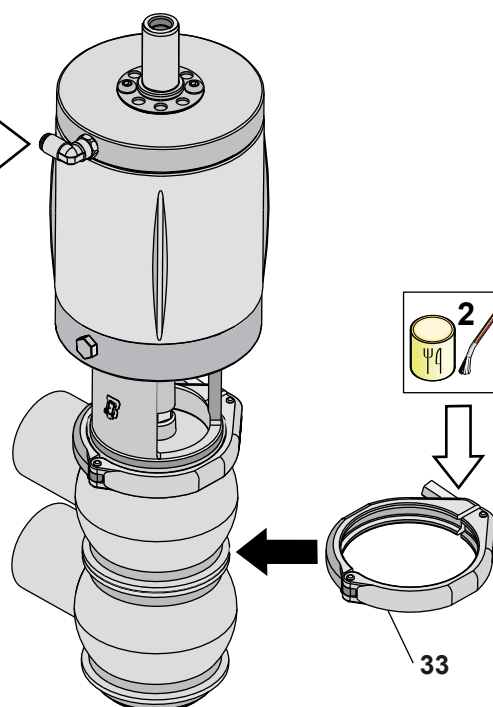
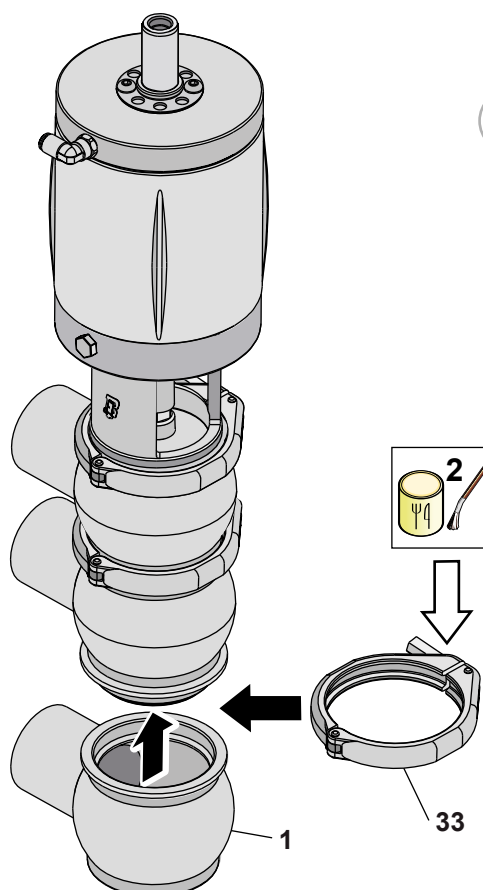
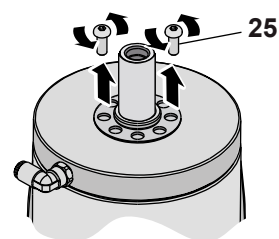
23 a2

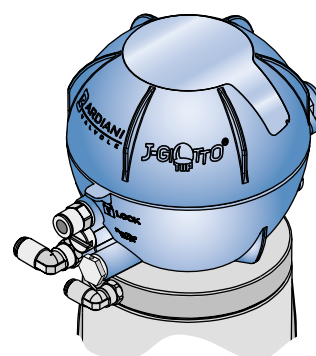
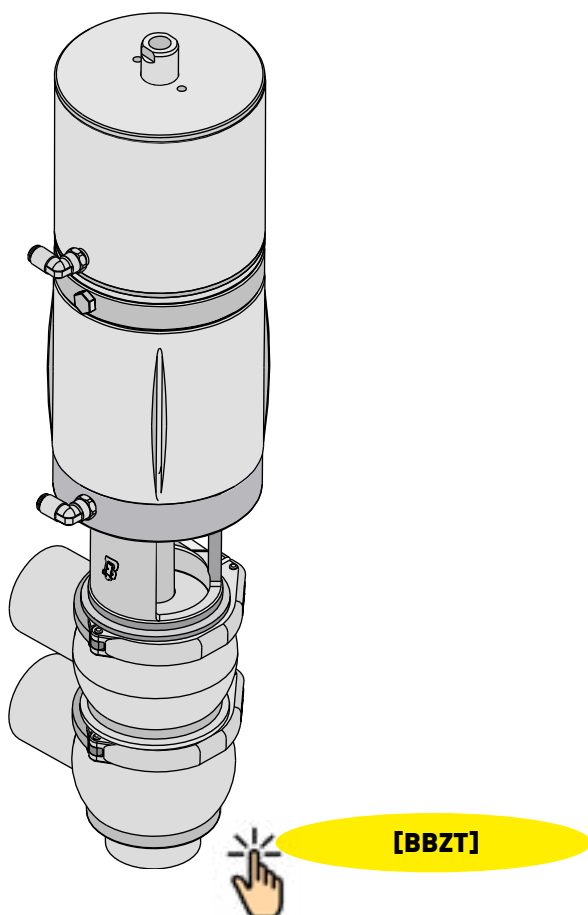


(BBZP M9-LLL)**19** **b1****20** **b1****21** **b1****92**

(BBZP M9-LLL)

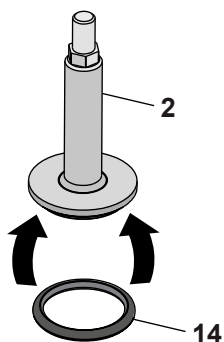
(BBZP M9-LLL)**19** - **b2****20** - **b2****21** - **b2**

(BBZP M9-LLL)**22** a2**23** a2**24** a2**25** a2



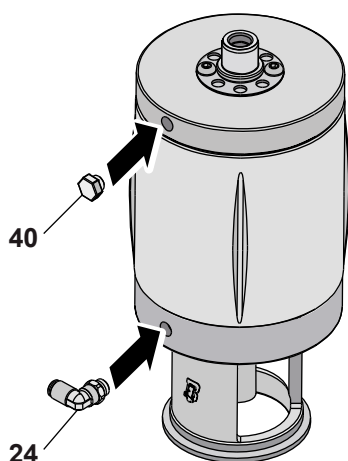
B Assembly of the BBZP M8-LLL Diverter

13-b

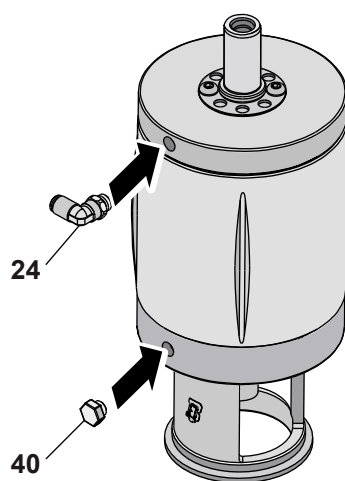


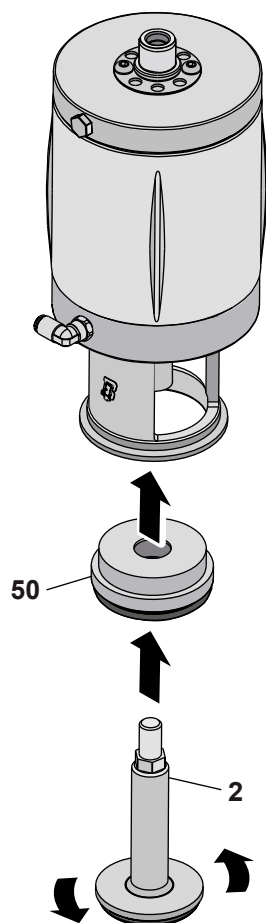
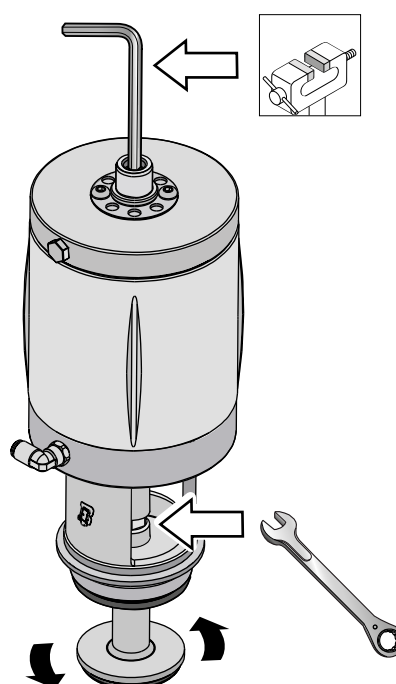
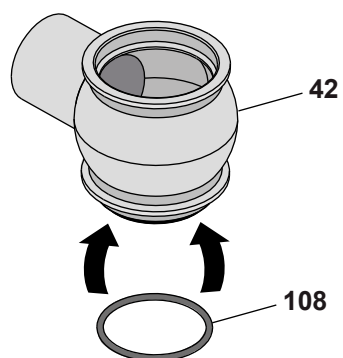
14-b

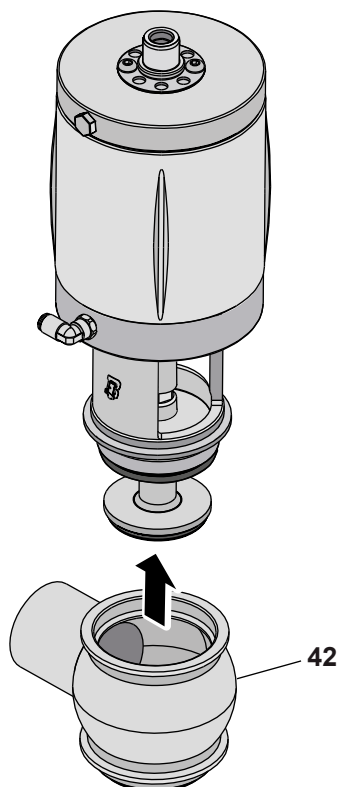
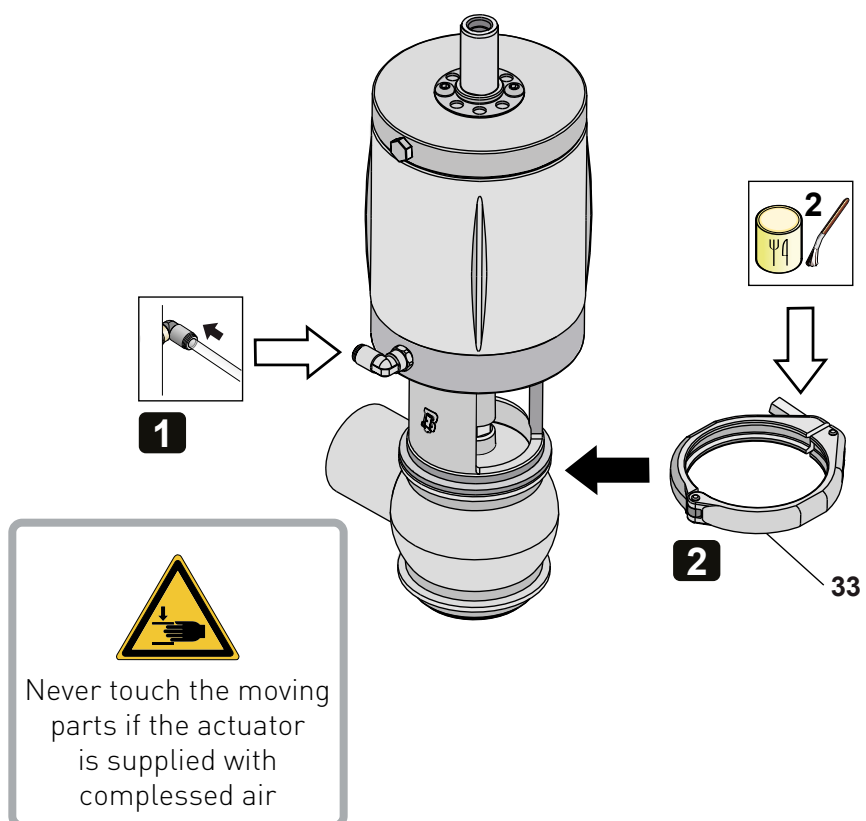
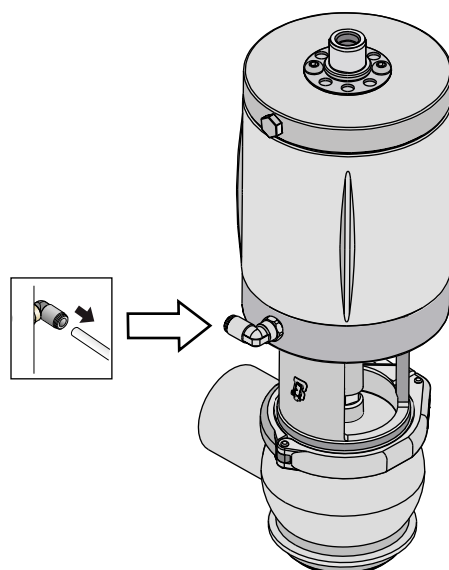
Normally Close

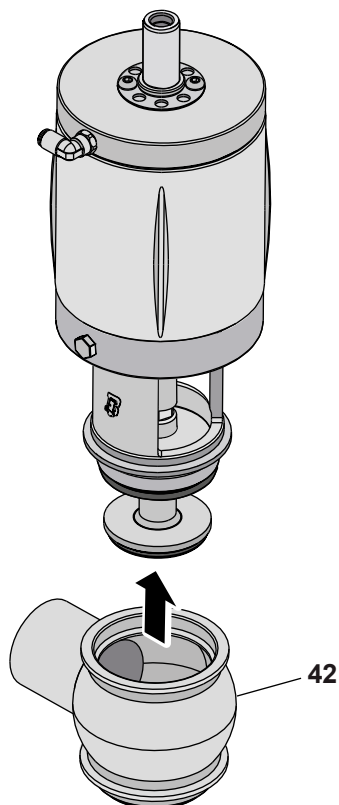
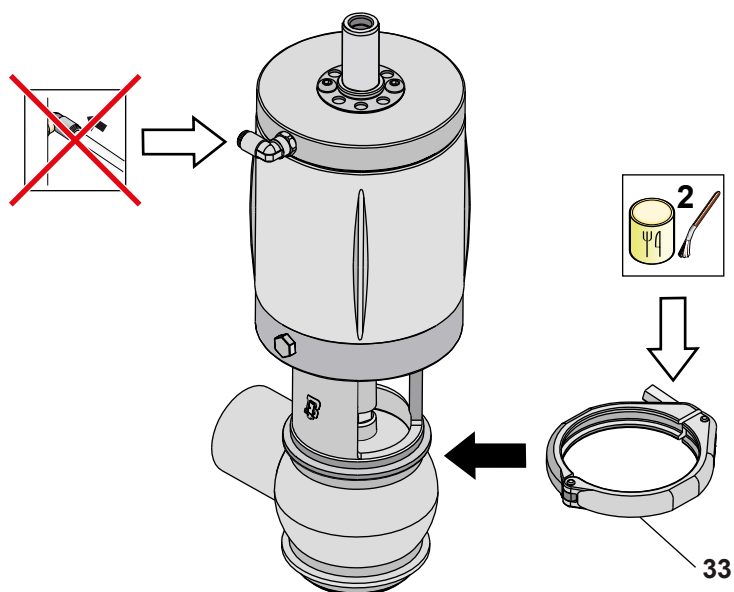
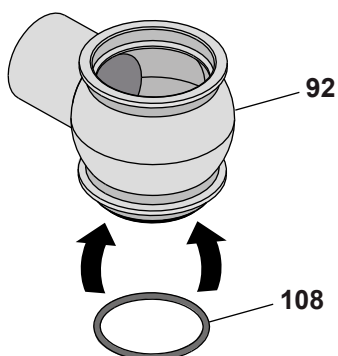


Normally open

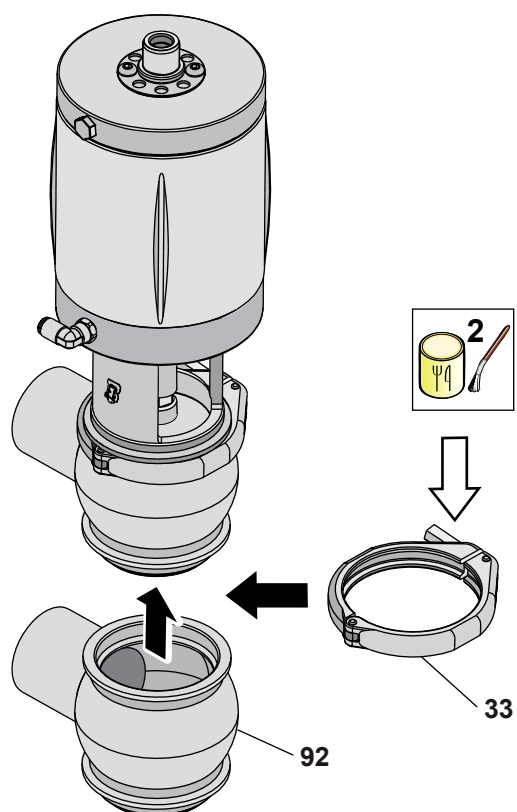


15—b**16**—b**17**—b

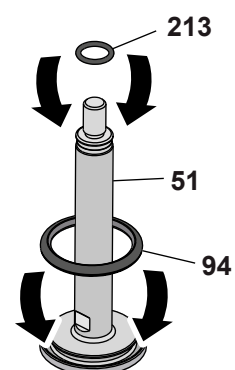
(Normally closed)**18** **b1****19** **b1****20** **b1**

(Normally open or double acting)**18** **b2****19** **b2****20** **b2**

21-b

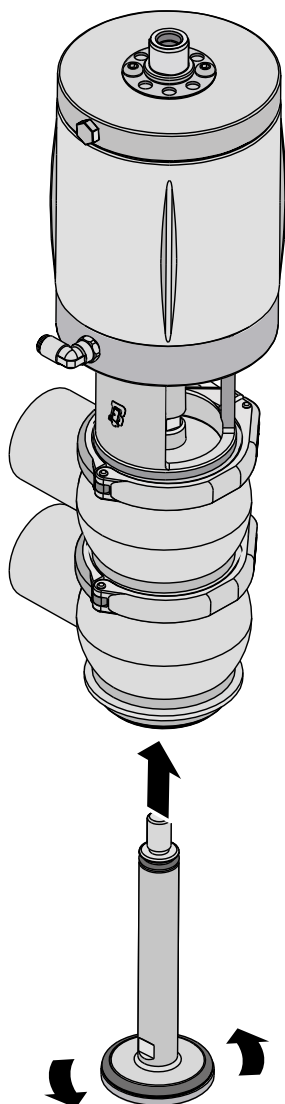


22-b

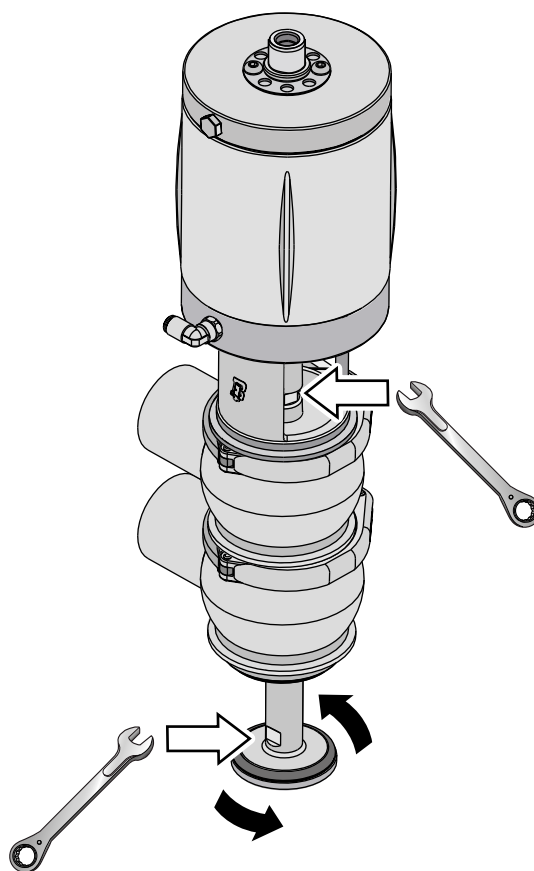


(Normally closed)

23 b1

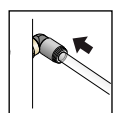


24 b1

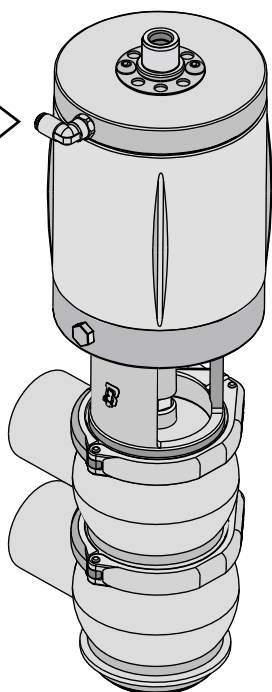


(Normally open or double acting)

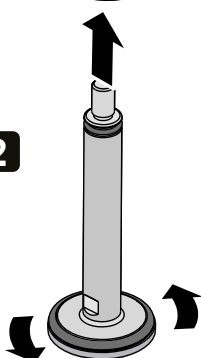
23-b2



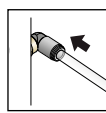
1



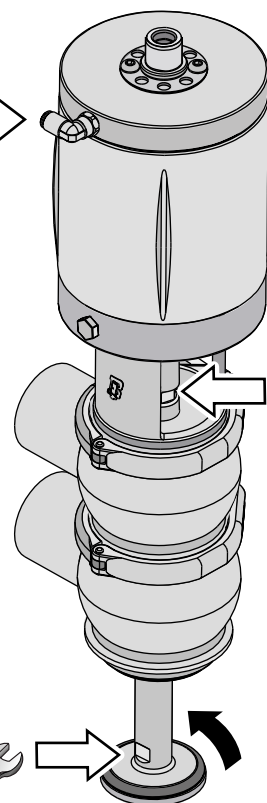
2



24-b2



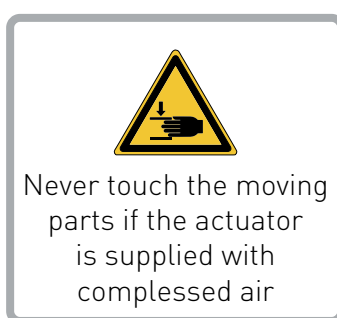
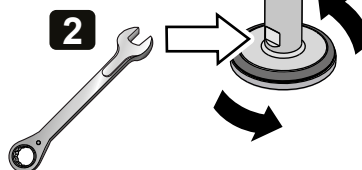
1



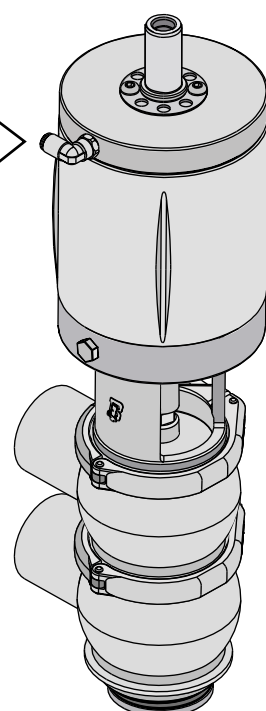
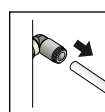
2



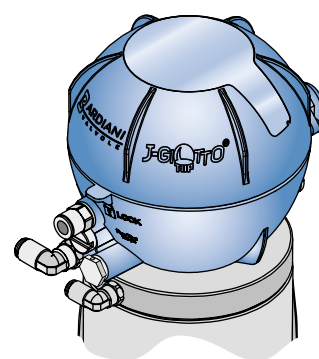
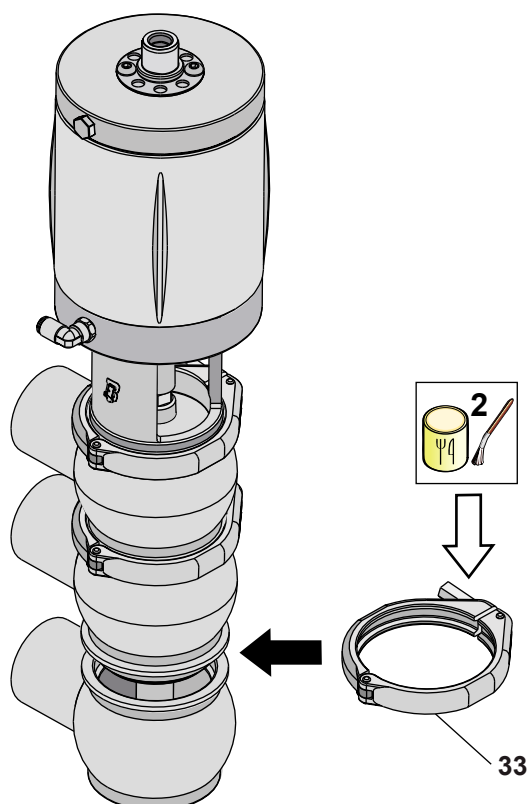
2



25-b2

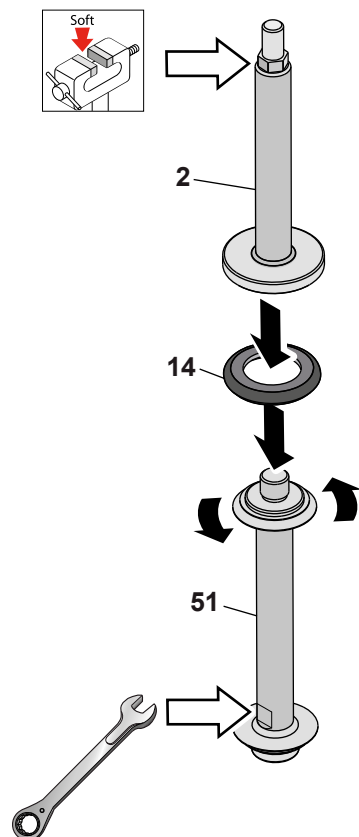
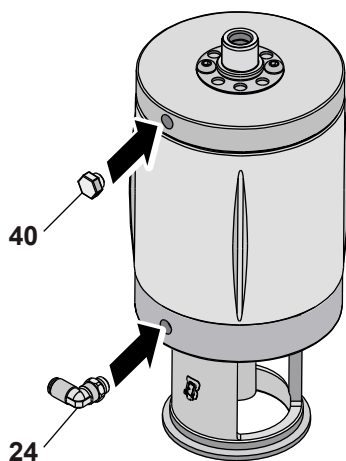
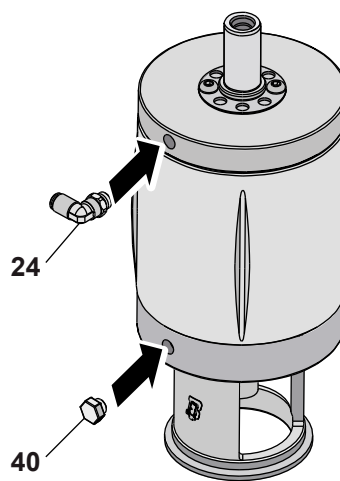


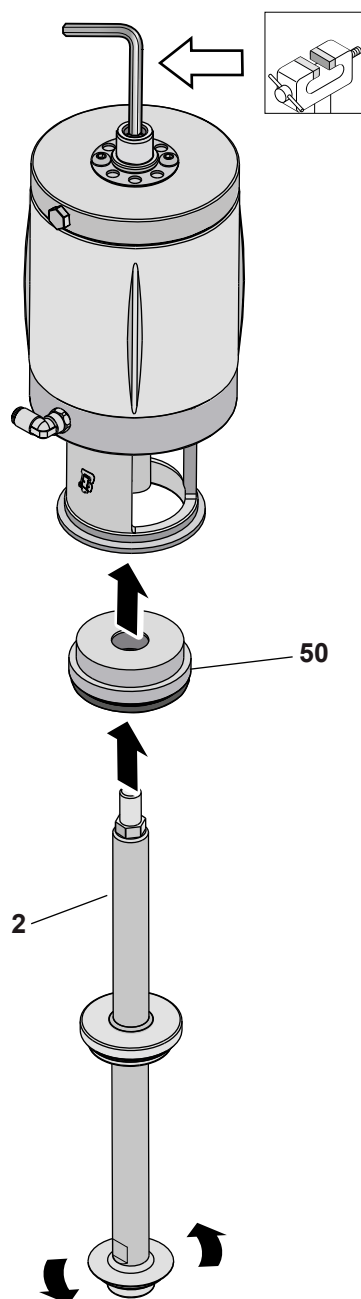
26 (b)

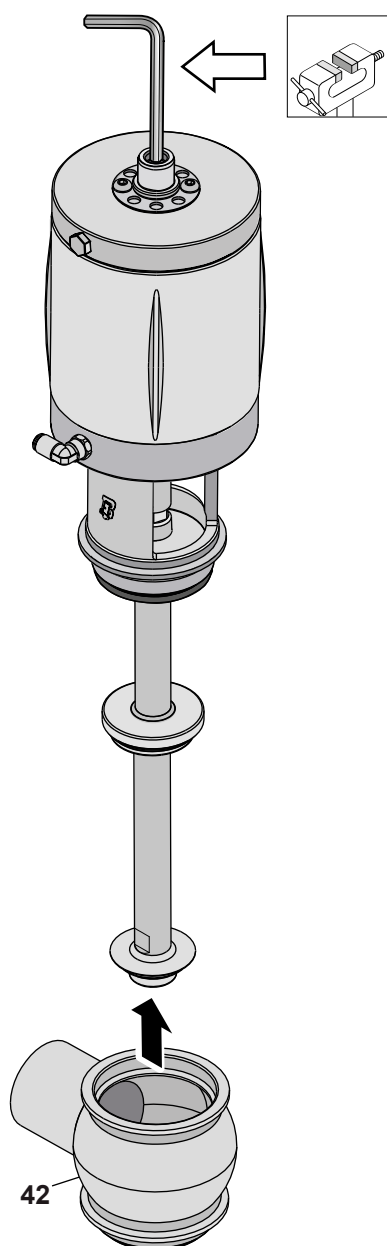
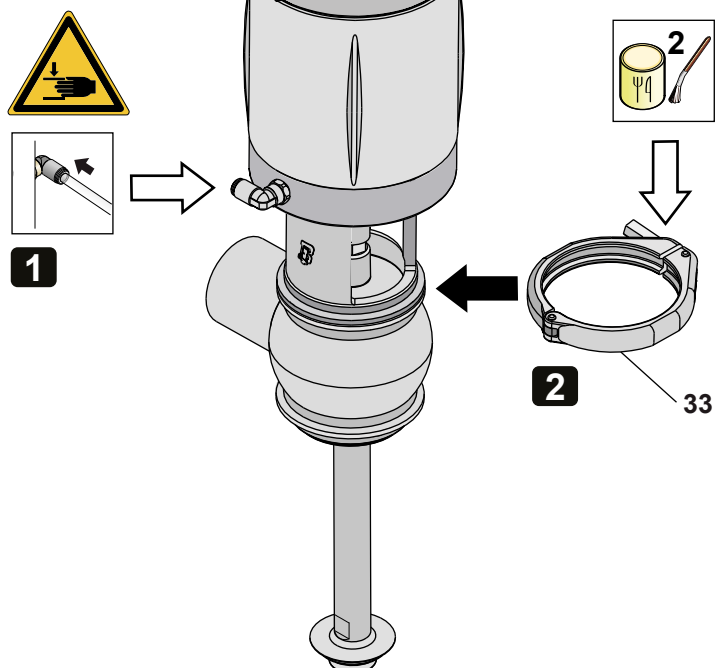


[GIOTTO]

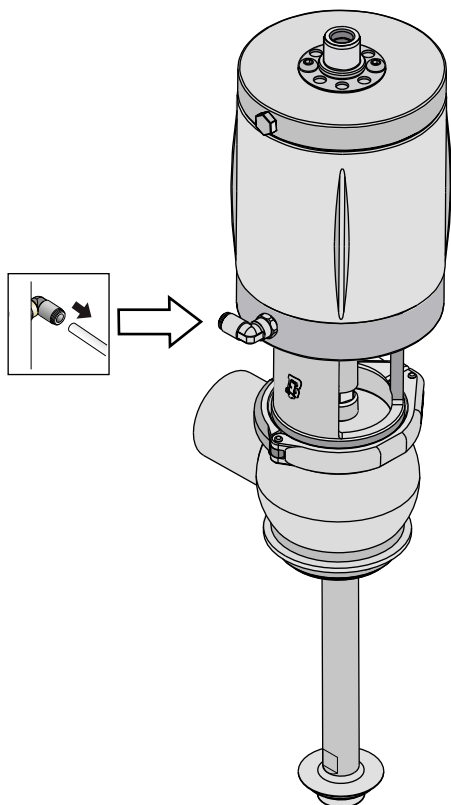
C Assembly of the BBZP M8-LLL Diverter PTFE

13—C**14**—C**Normally Close****Normally open**

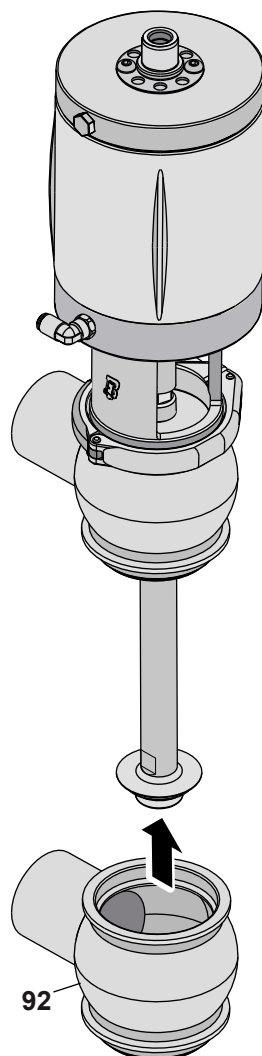
15—C

(Normally closed)**16** c1**17** c1

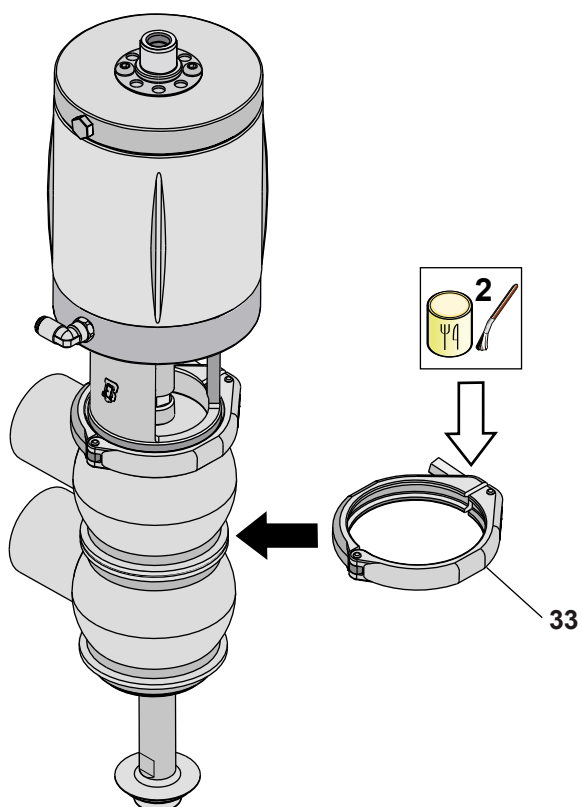
18-c1



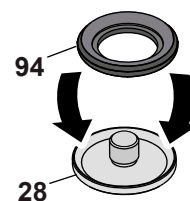
19-c1



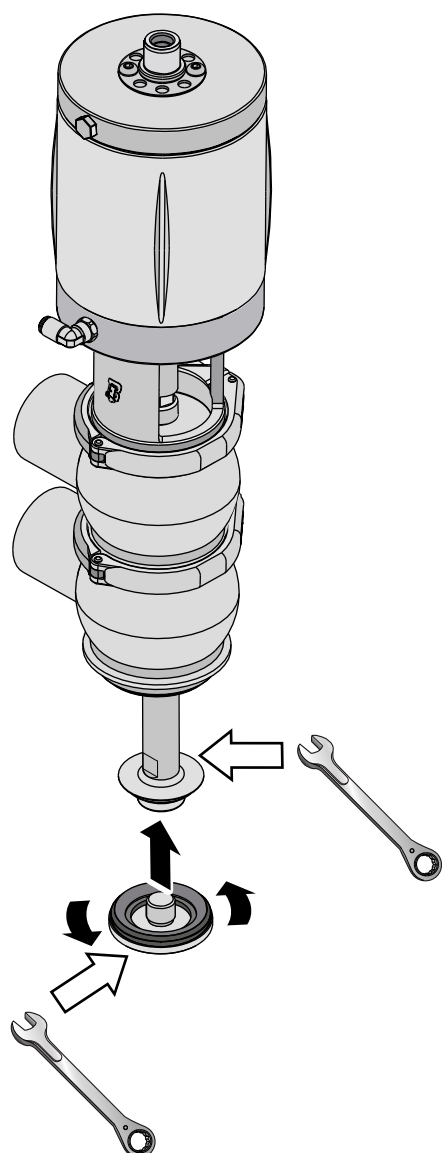
20-c1



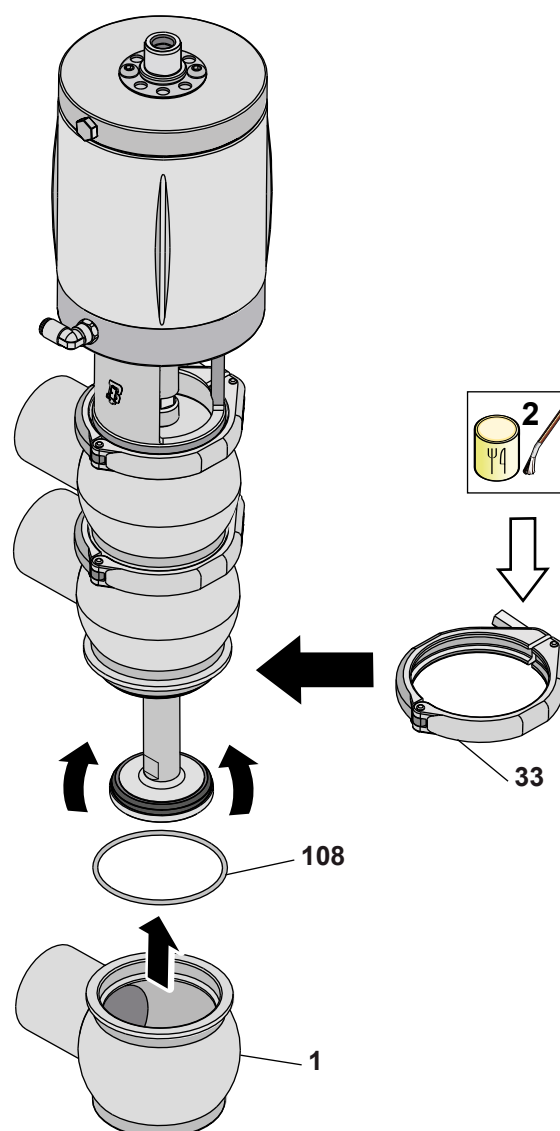
21-c1

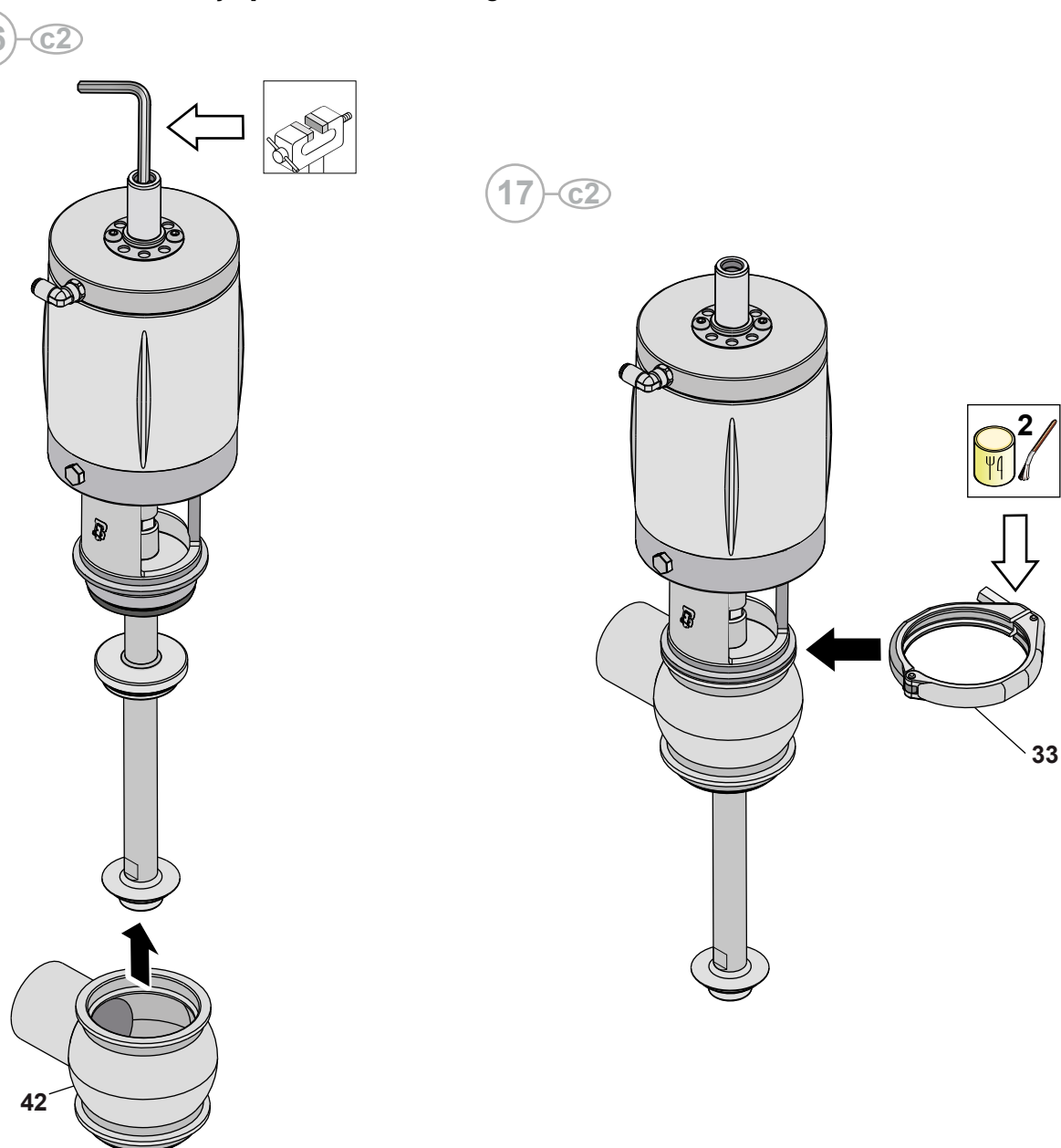


22 c1

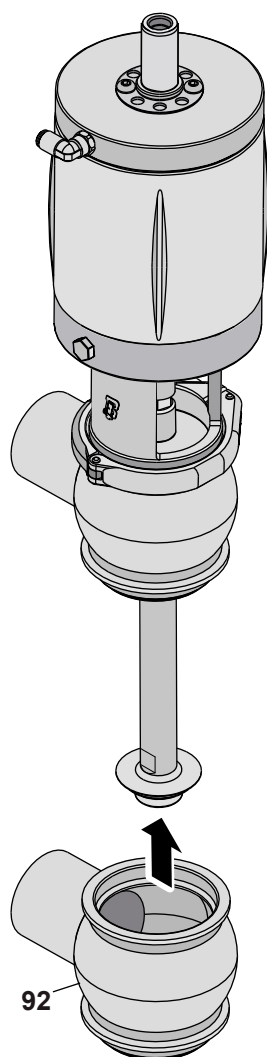


23 c1

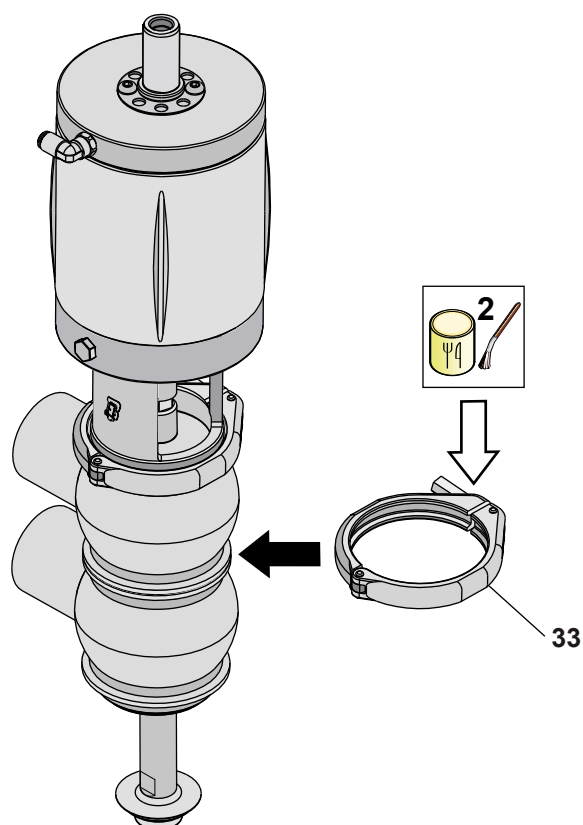


(Normally open or double acting)

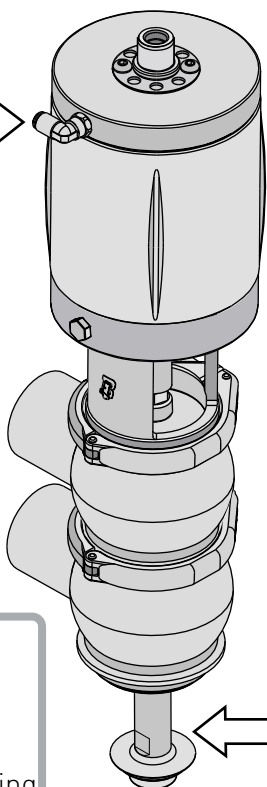
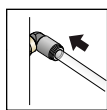
18 c2



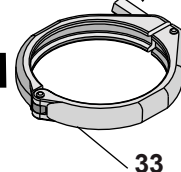
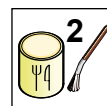
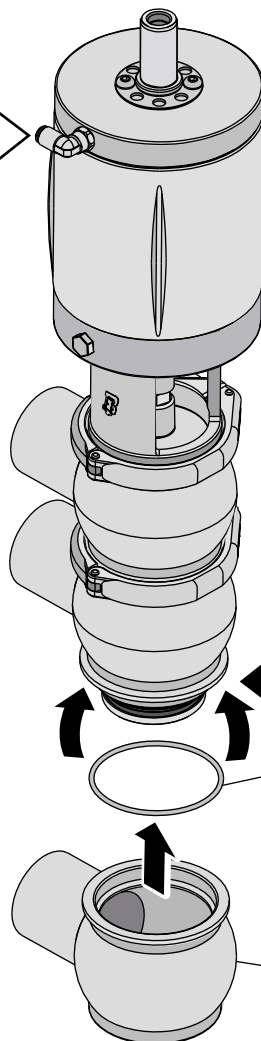
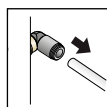
19 c2



20 c2



21 c2



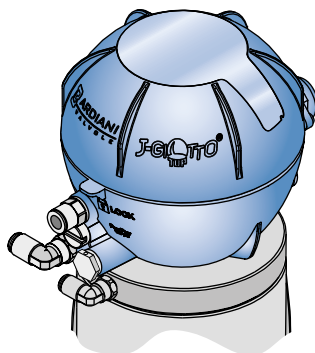
1

108

33

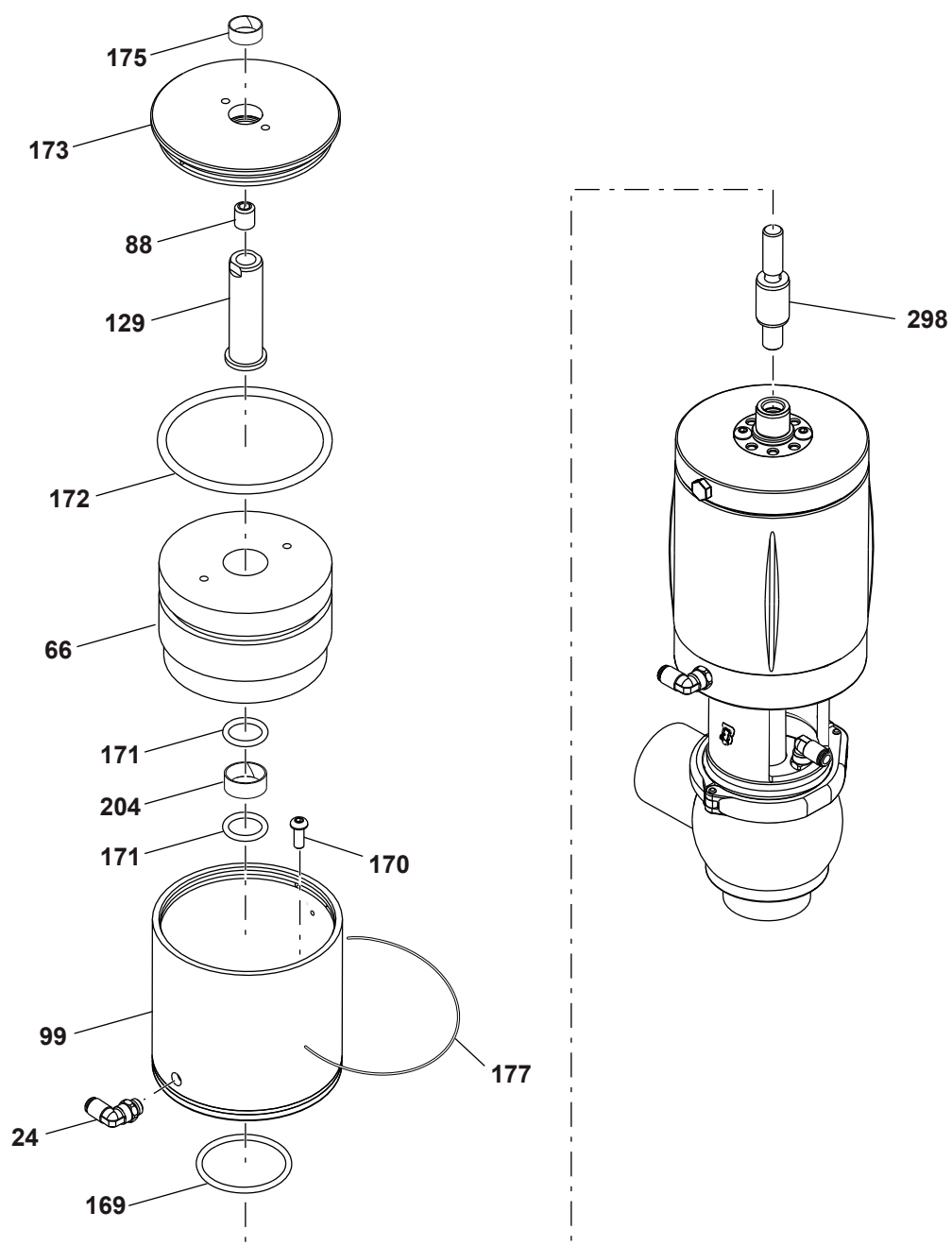


Never touch the moving parts if the actuator is supplied with compressed air

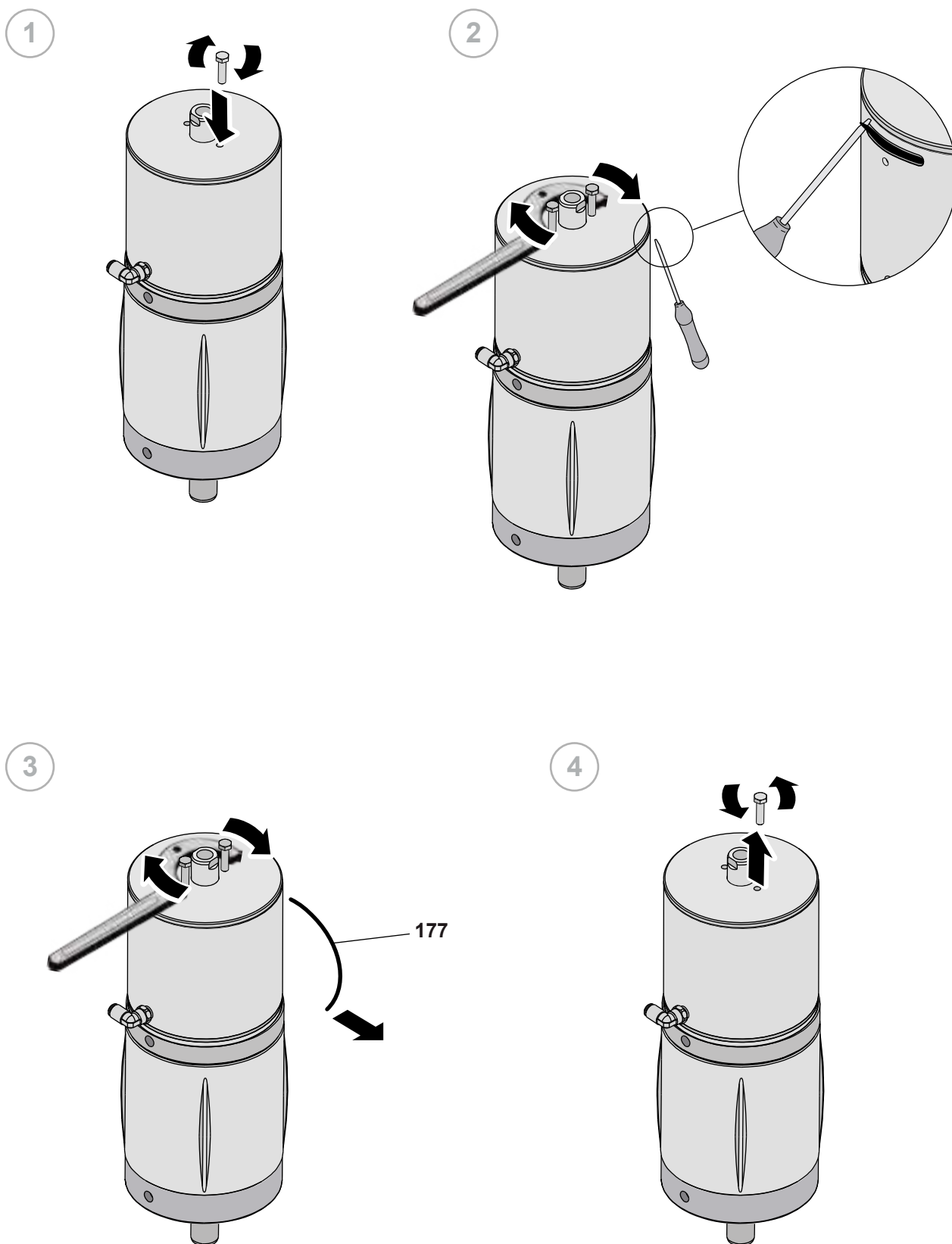

[GIOTTO]

10.10 Pneumatic Valves BBZT - BBYT

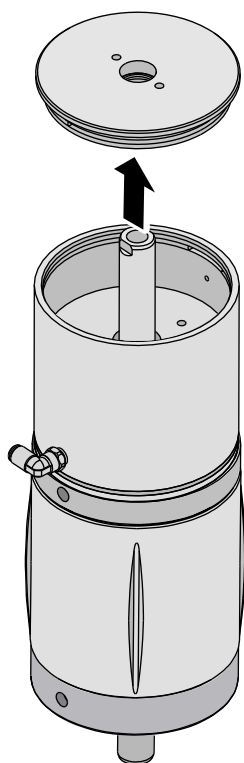
NO.	DESCRIPTION
24	Air connector
66	Piston
88	Grub screw
99	Cylinder
129	Pin
169	Sealing ring
170	Screw
171	Sealing ring
172	Sealing ring
173	Buffer
175	Bush
177	Elastic wire
204	Bush
298	Upper pin



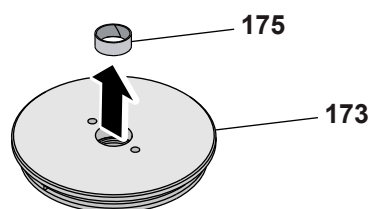
10.11 Disassembly of the BBZT - BBYT



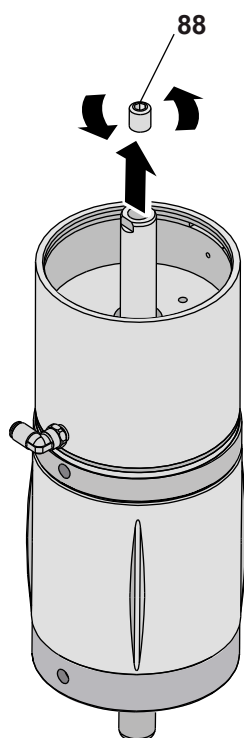
5



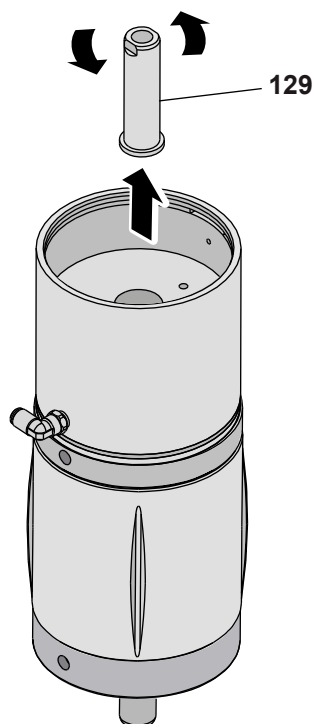
6



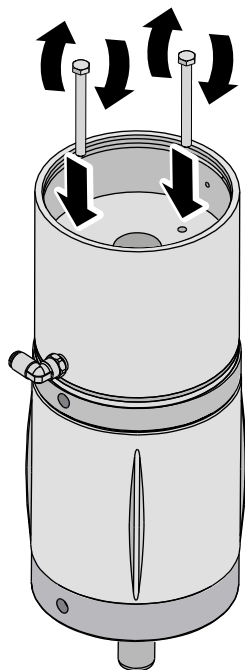
7



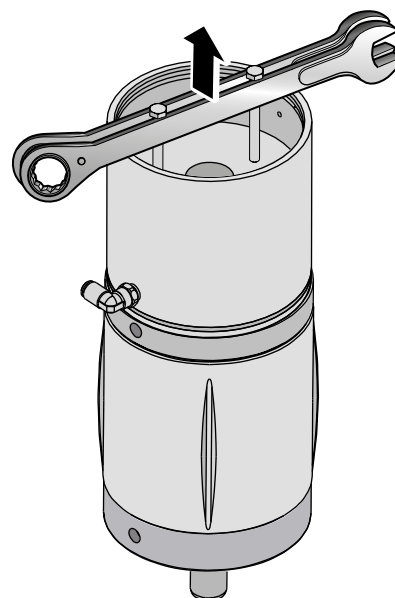
8



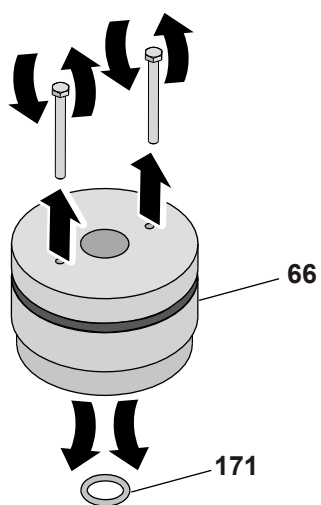
9



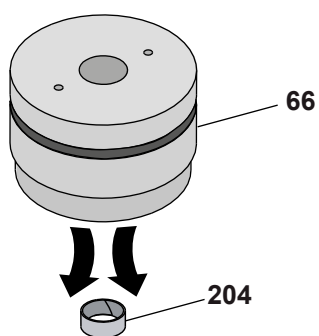
10



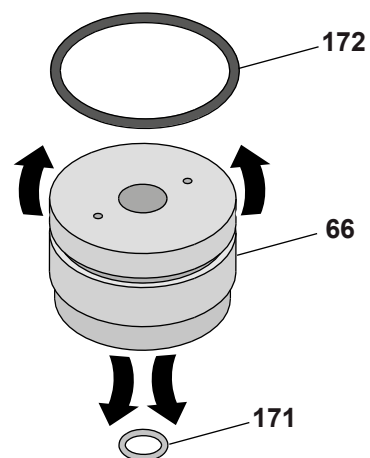
11



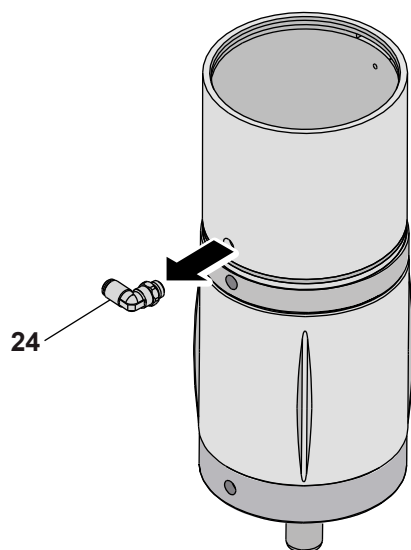
12



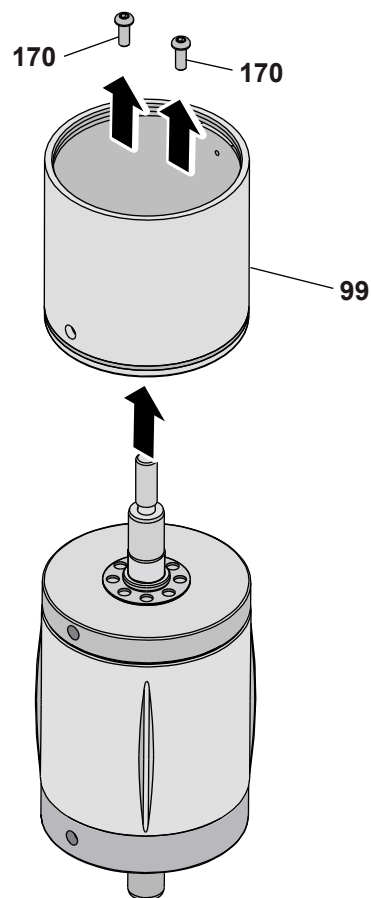
13



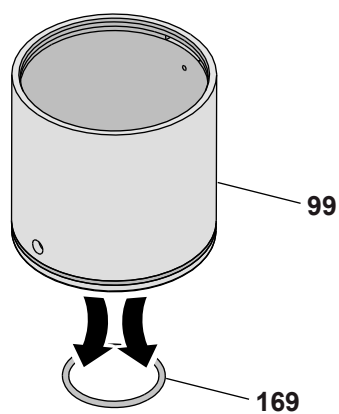
14



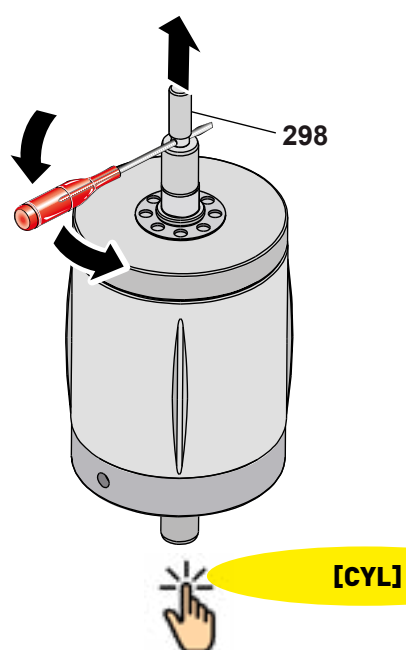
15



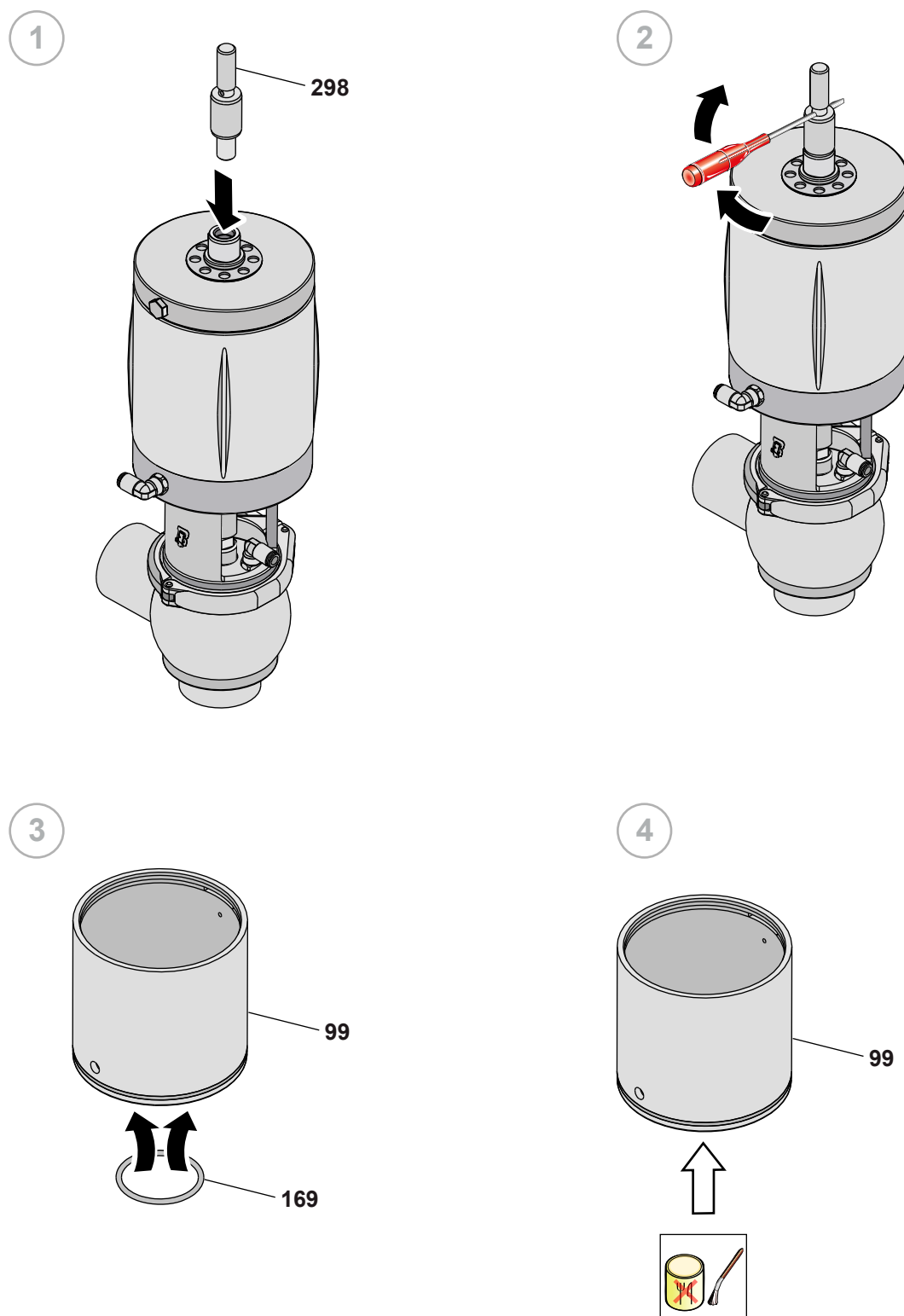
16

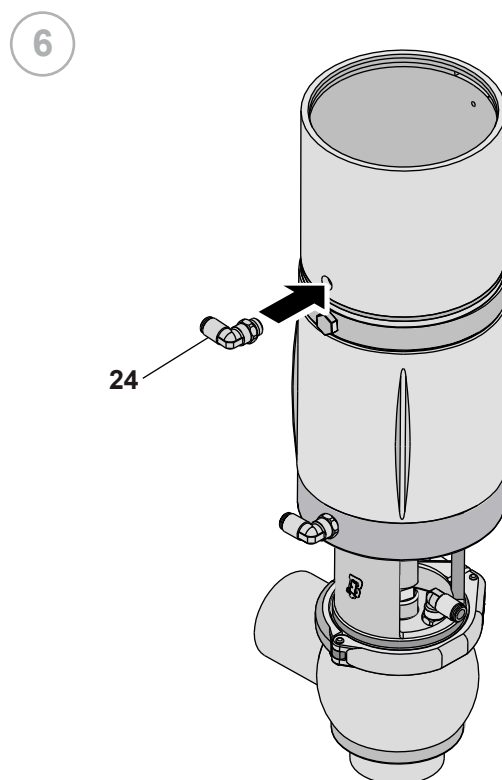
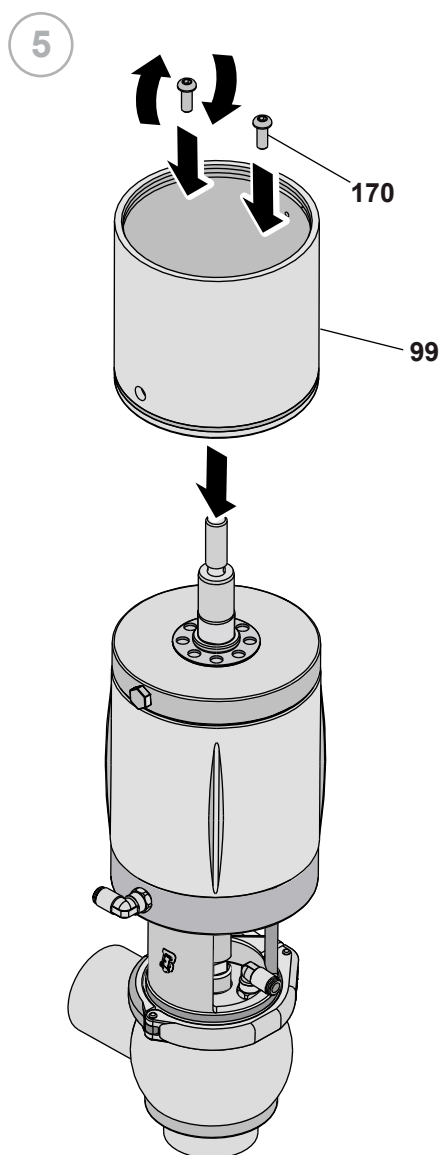


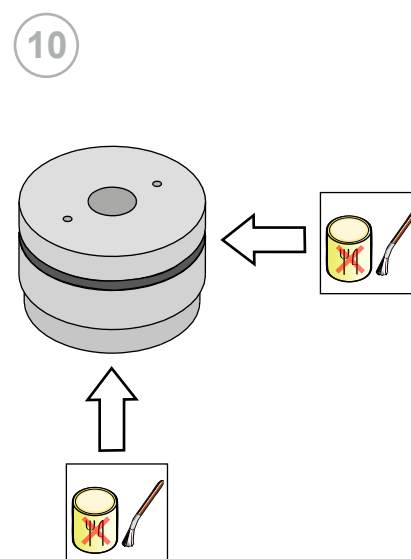
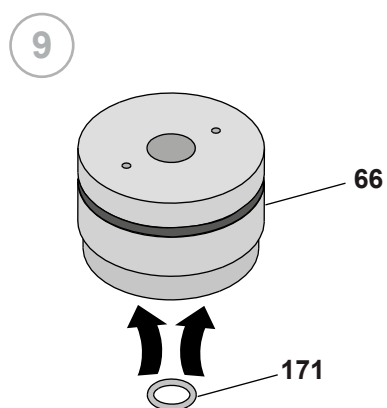
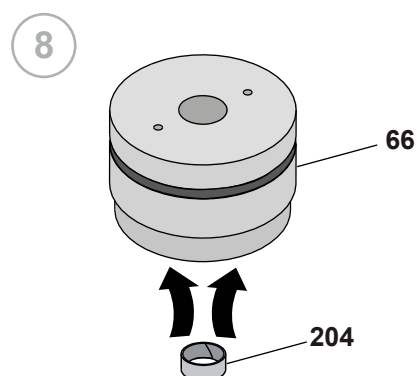
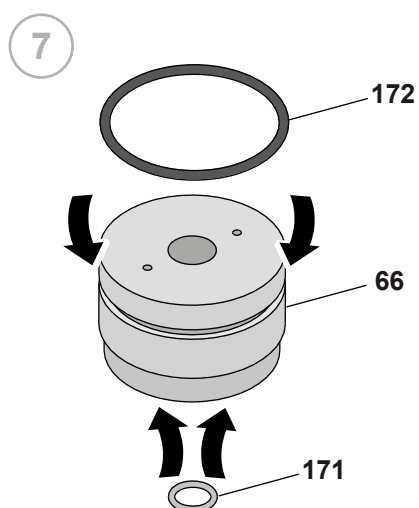
17

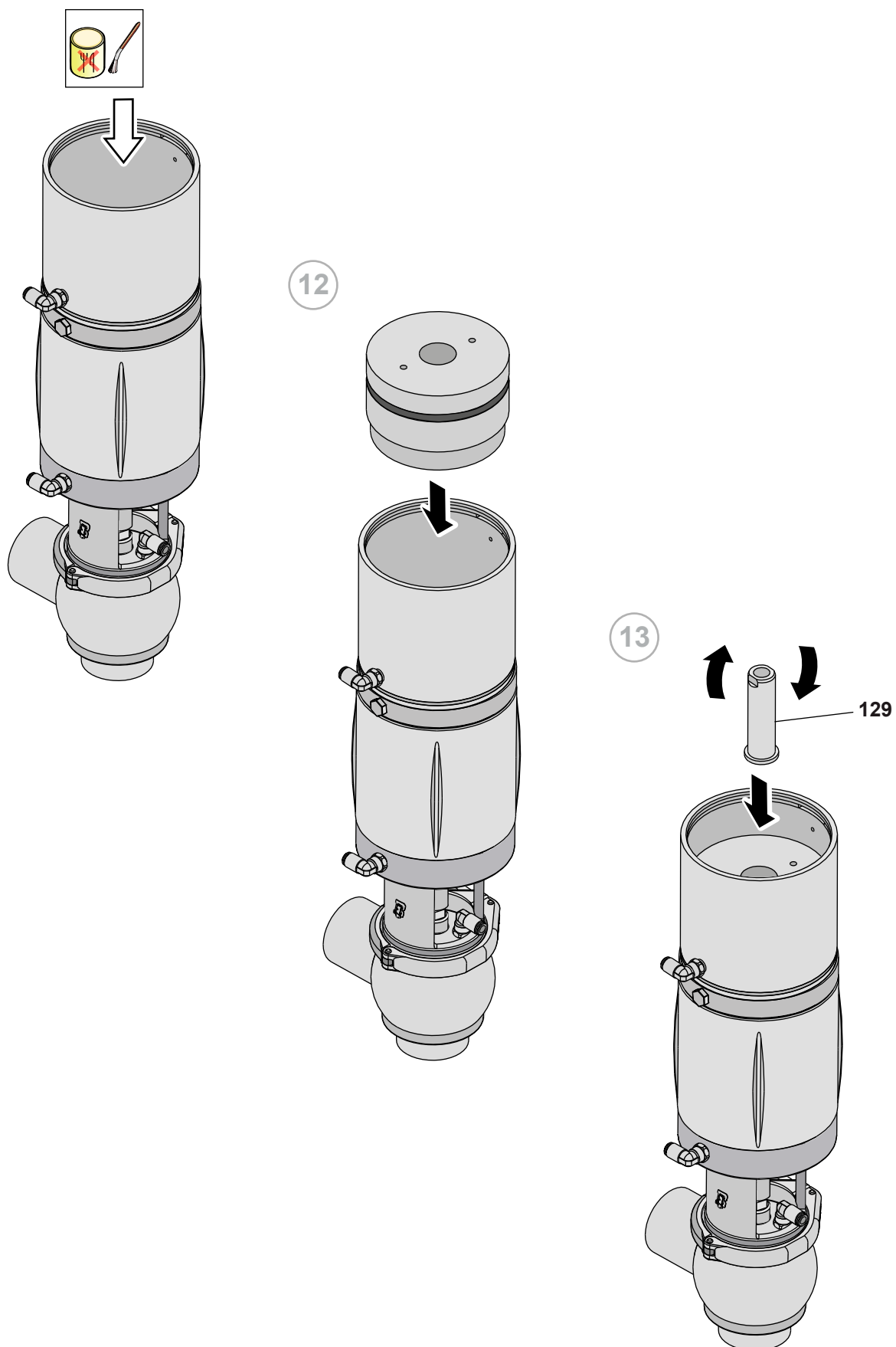


10.12 Assembly of the BBZT - BBYT

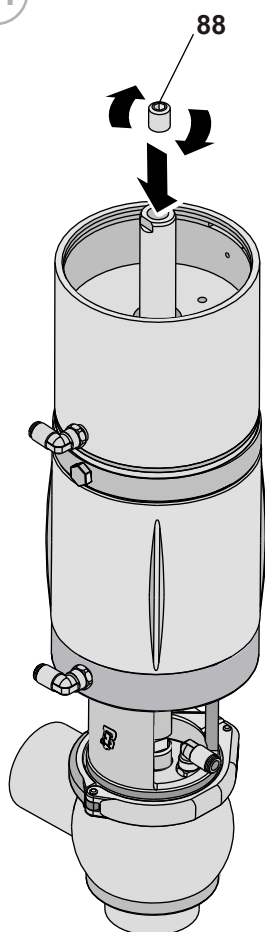




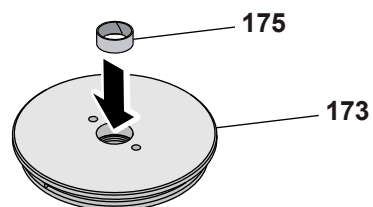




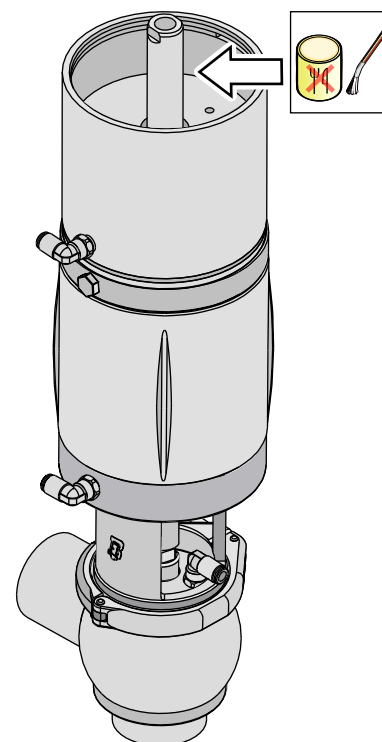
14



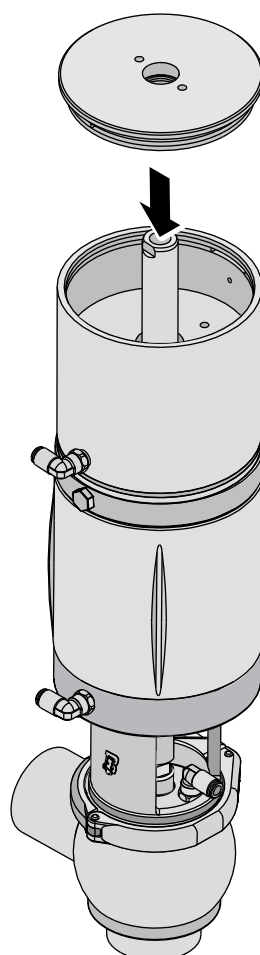
15



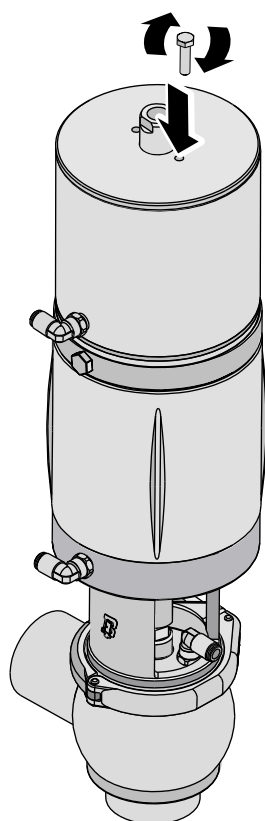
16



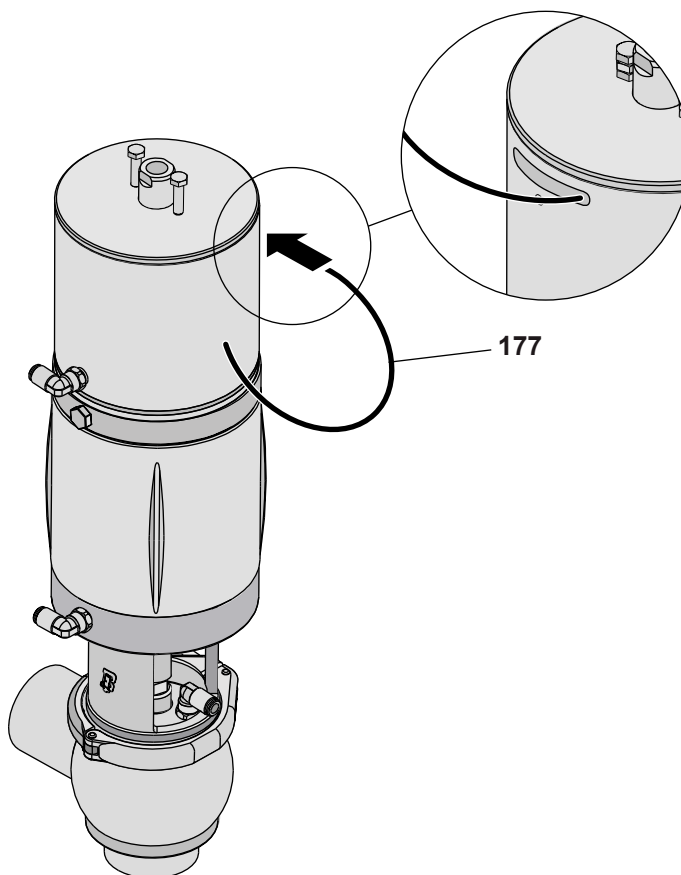
17



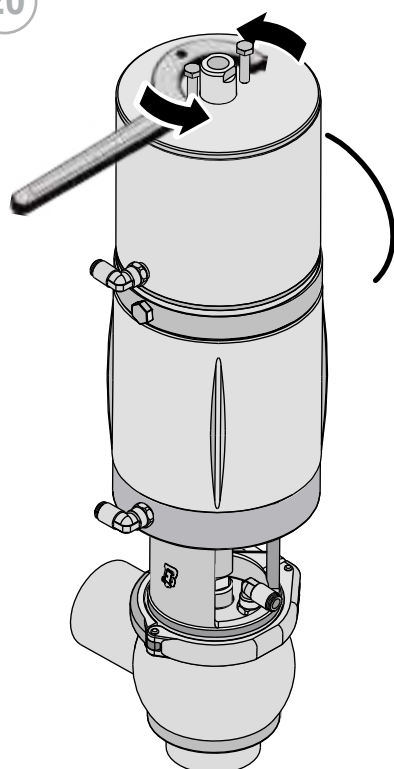
18



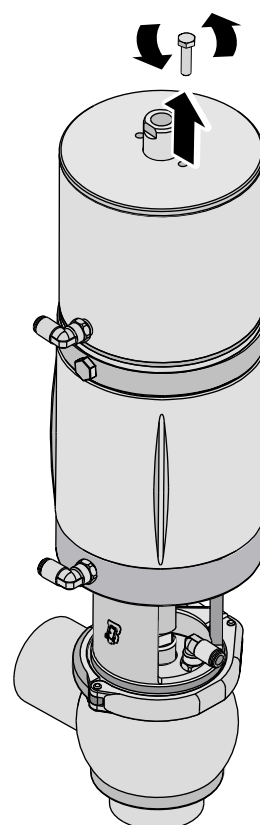
19



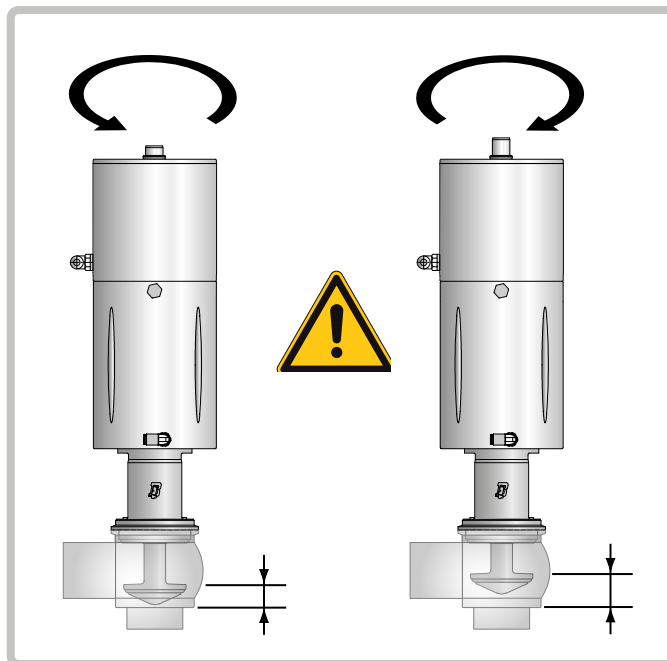
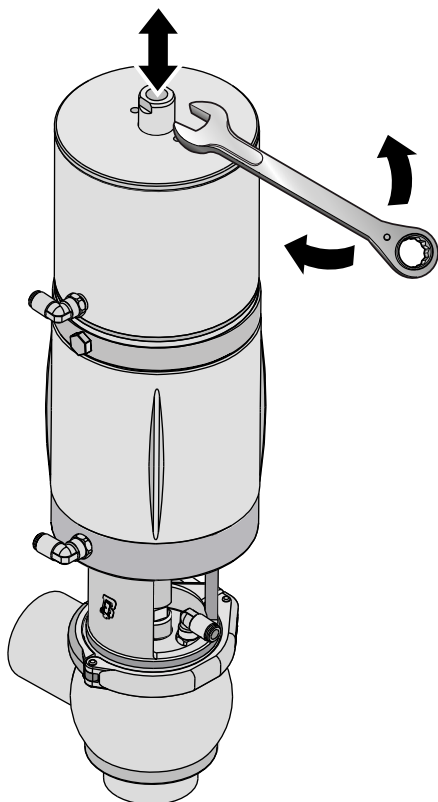
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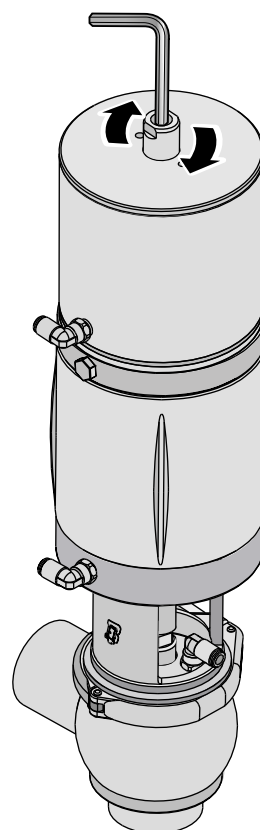
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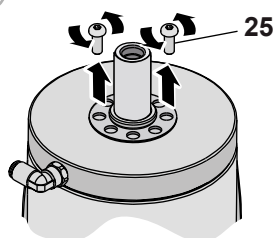
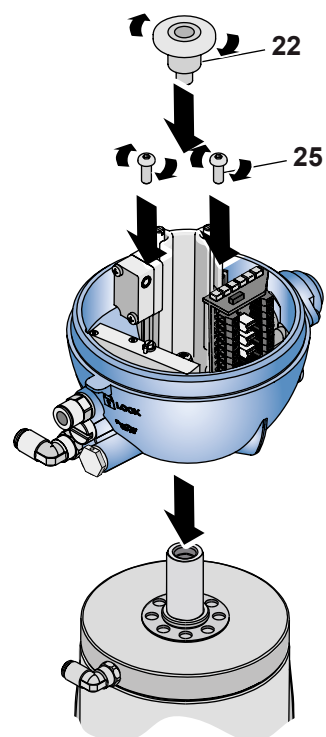
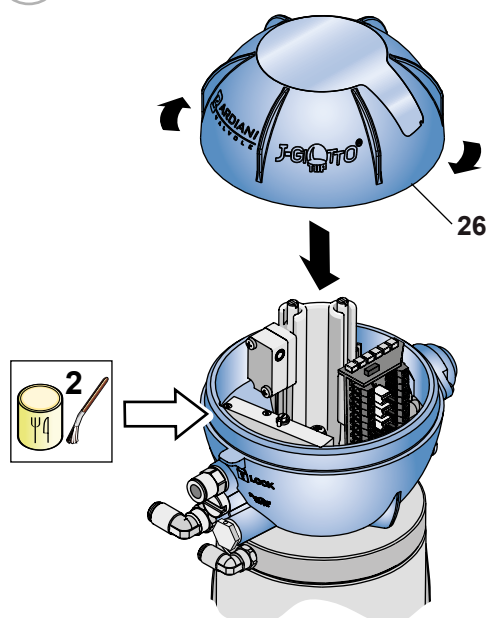
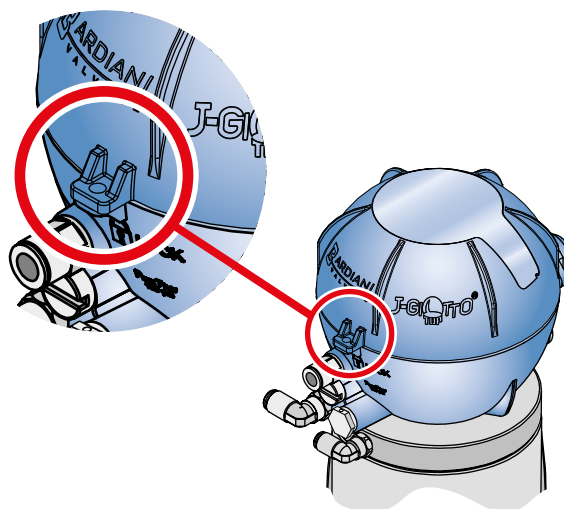


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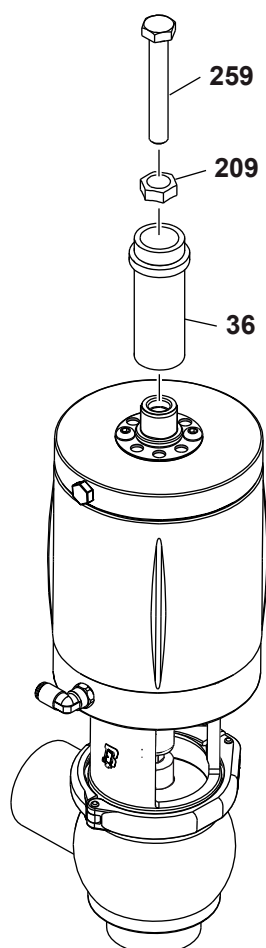


A**B****C****D**

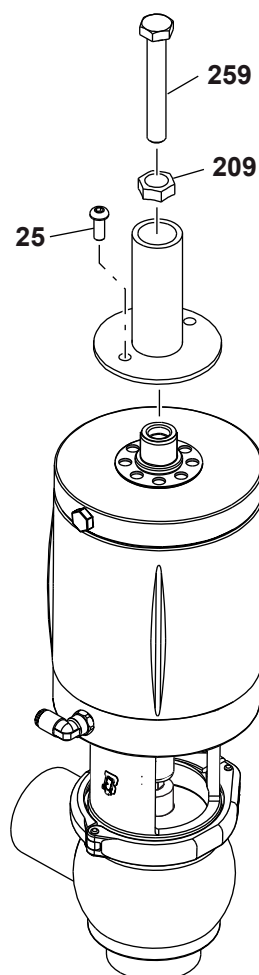
10.13 Shaft stroke limiter

NO.	DESCRIPTION
25	Screw
36	Mechanical stop
209	Nut
259	Screw

Shaft stroke limiter



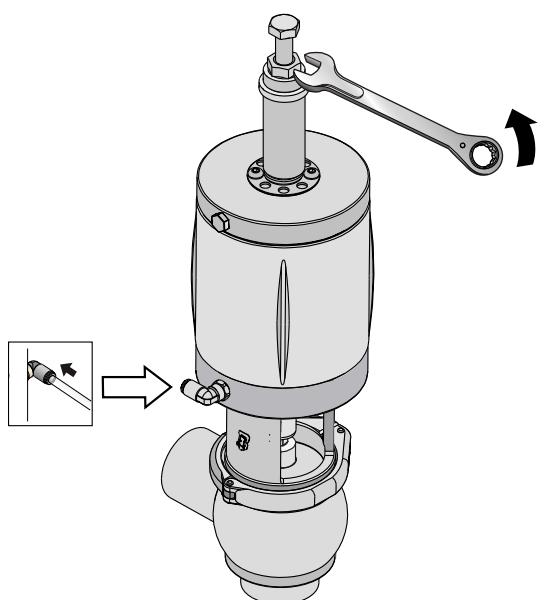
Shaft stroke limiter



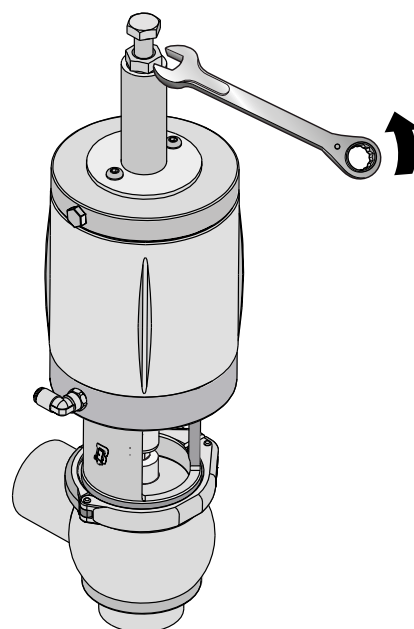
Inlet

Outlet

1 a



1 b



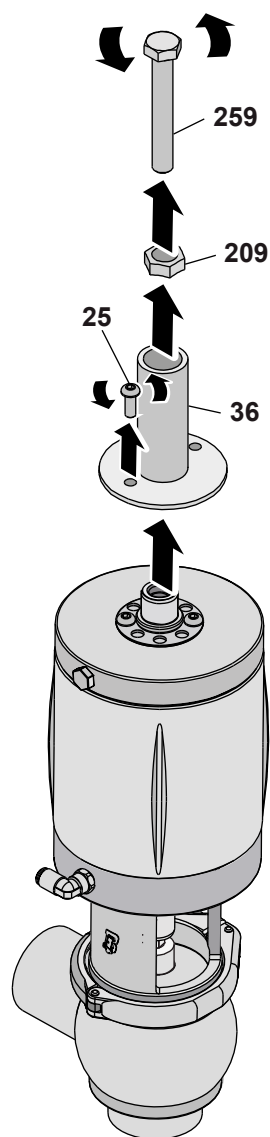
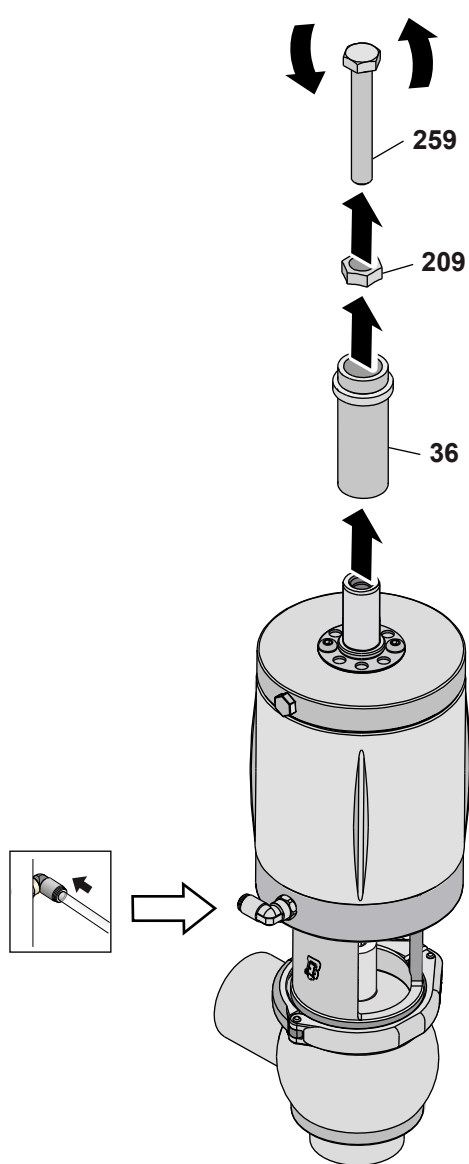
10.14 Shaft stroke limiter disassembly

Inlet

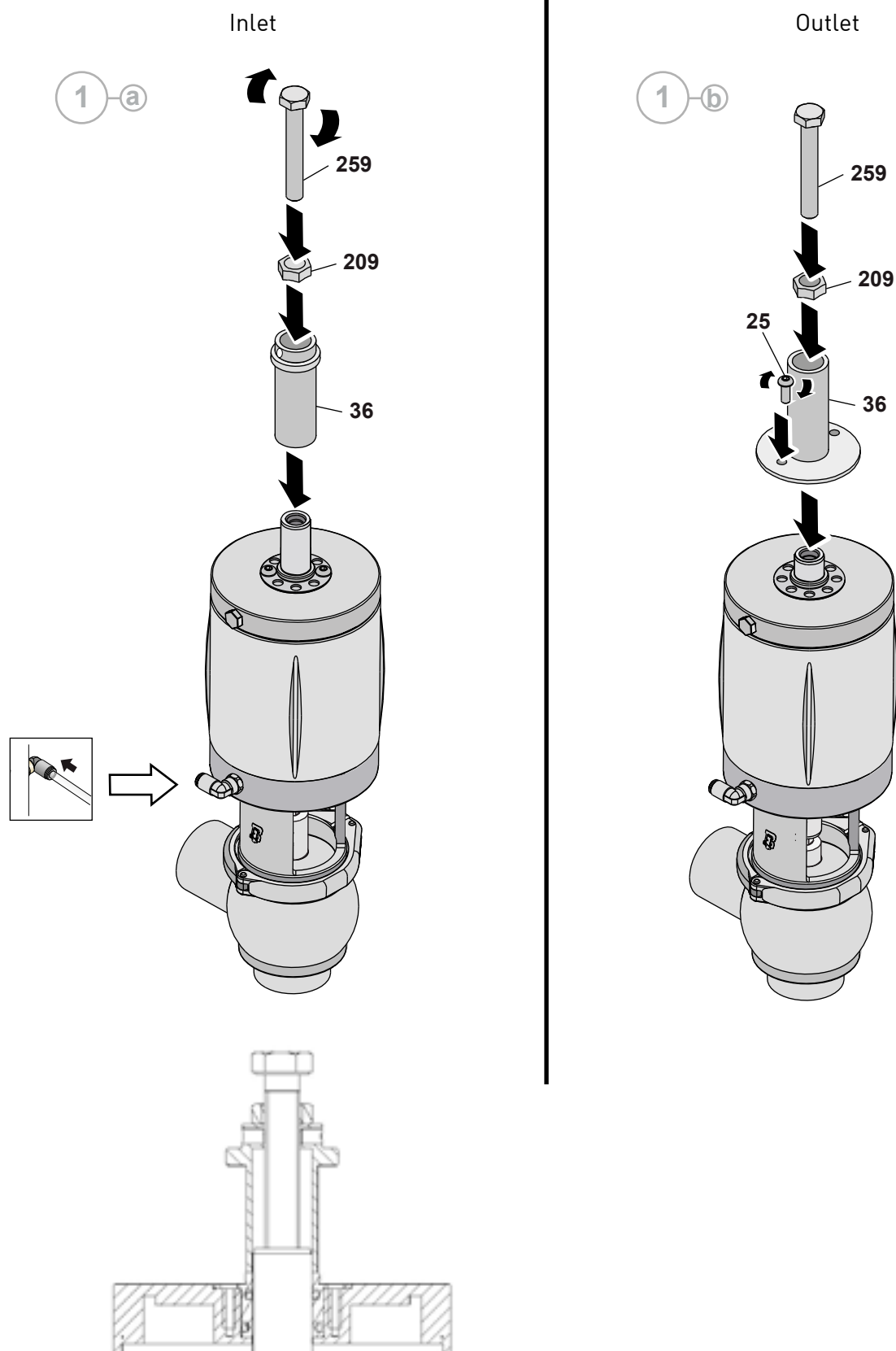
Outlet

2 a

2 b

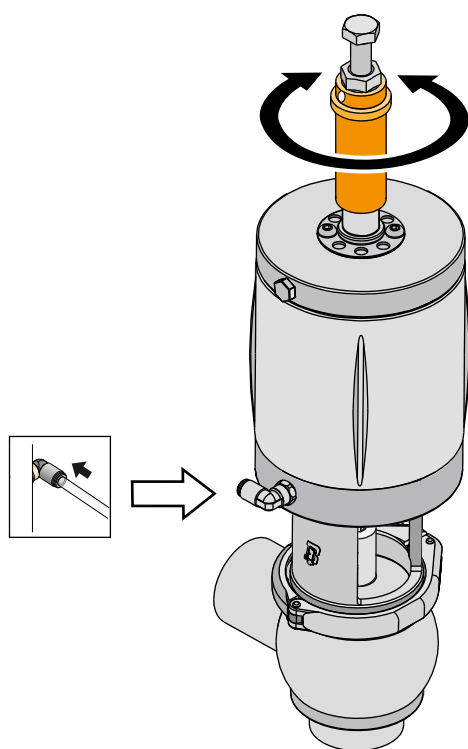


10.15 Shaft stroke limiter assembly



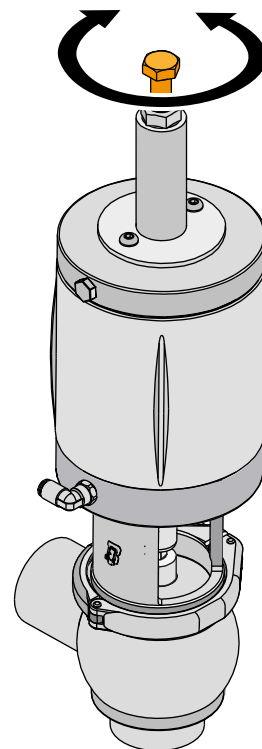
Inlet

2-a



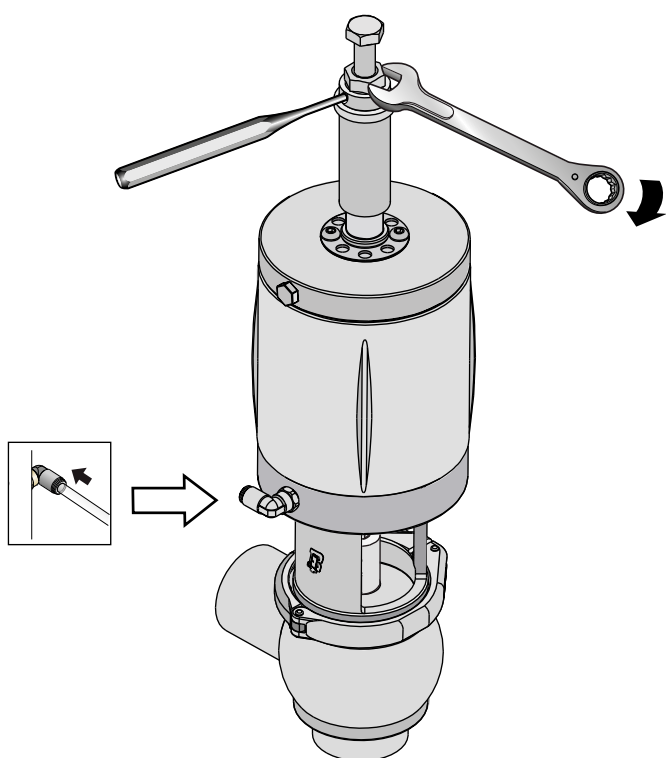
Outlet

2-b



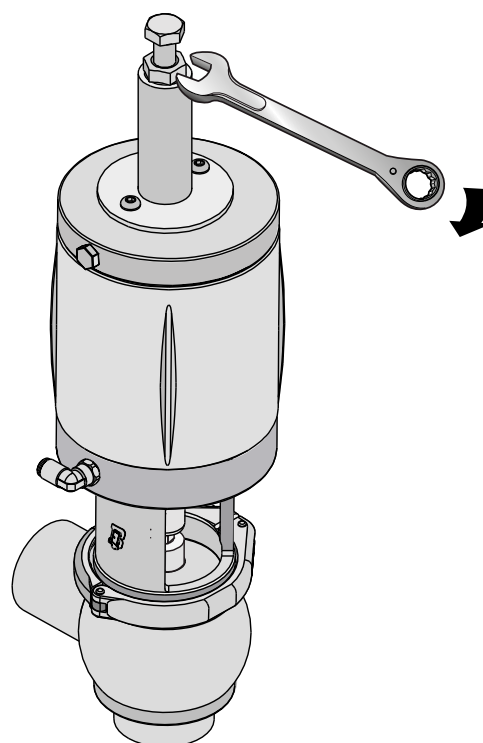
Inlet

3-a



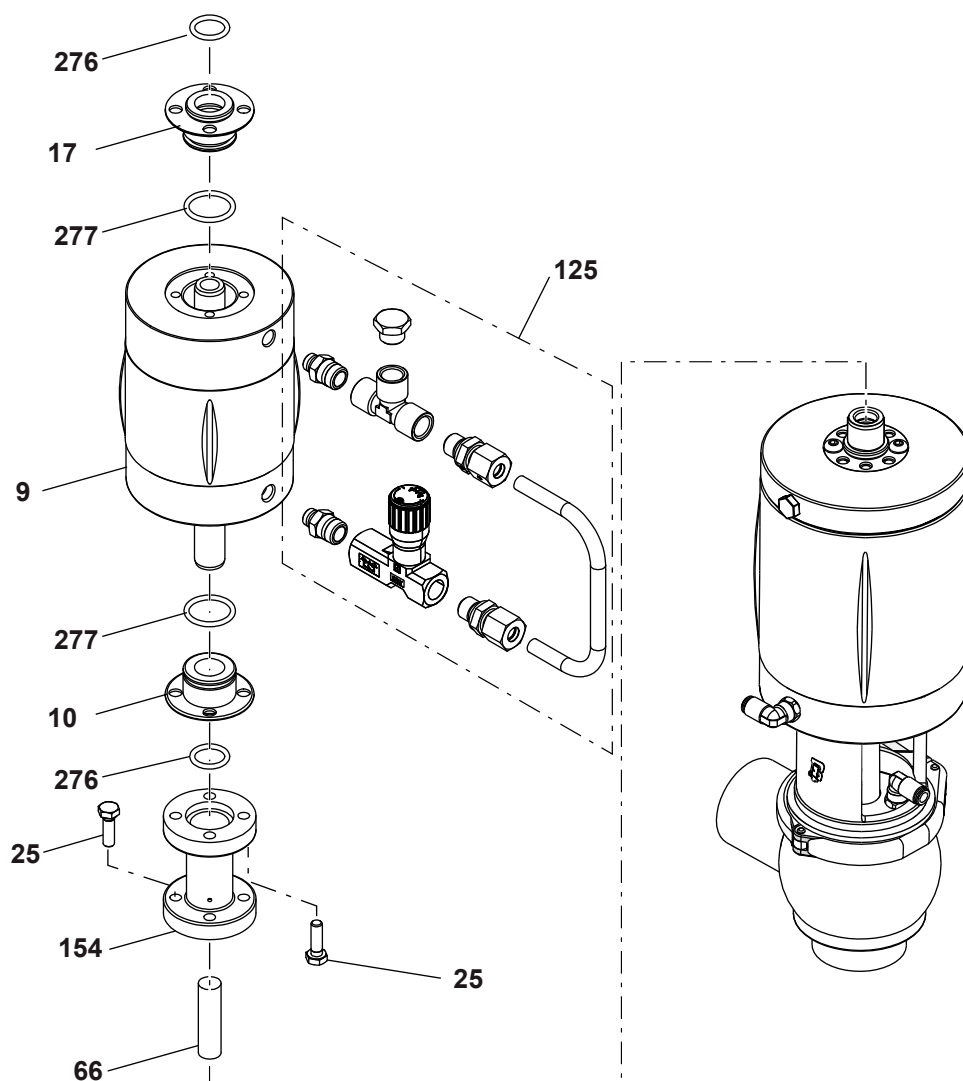
Outlet

3-b



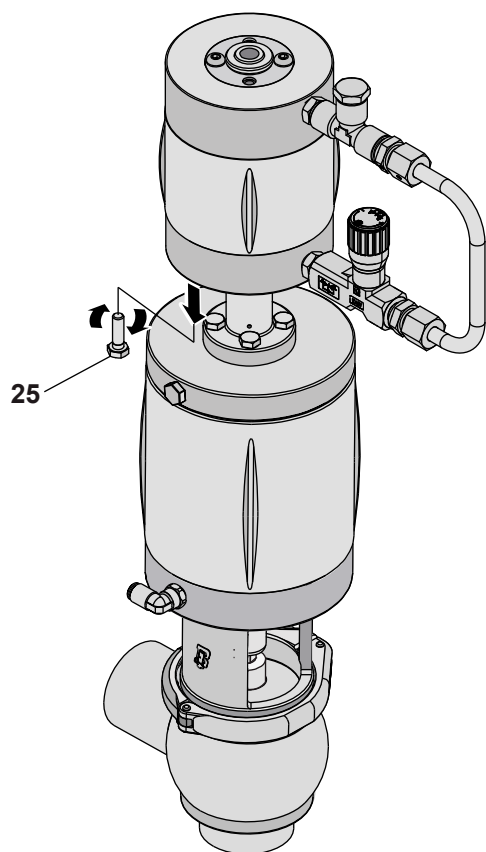
10.16 Idraulic damper

NO.	DESCRIPTION
9	Cylinder
10	Bush
17	Bush
25	Screw
66	threaded rod
125	Damper
154	Assembly
276	Sealing ring
277	Sealing ring

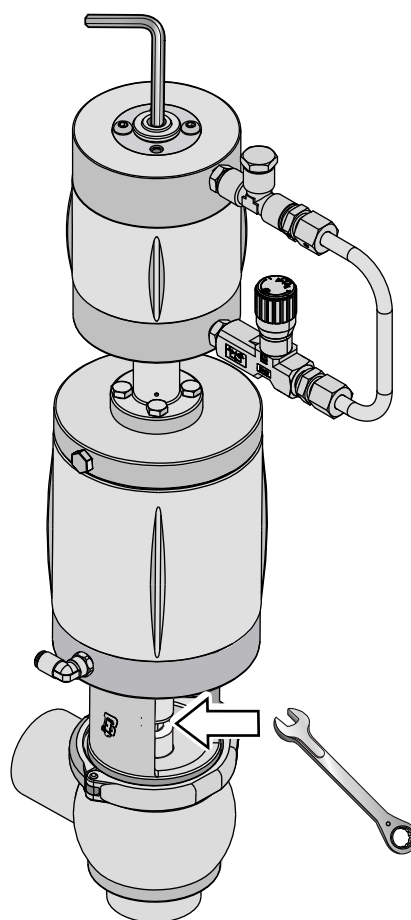


10.17 Idraulic Damper disassembly

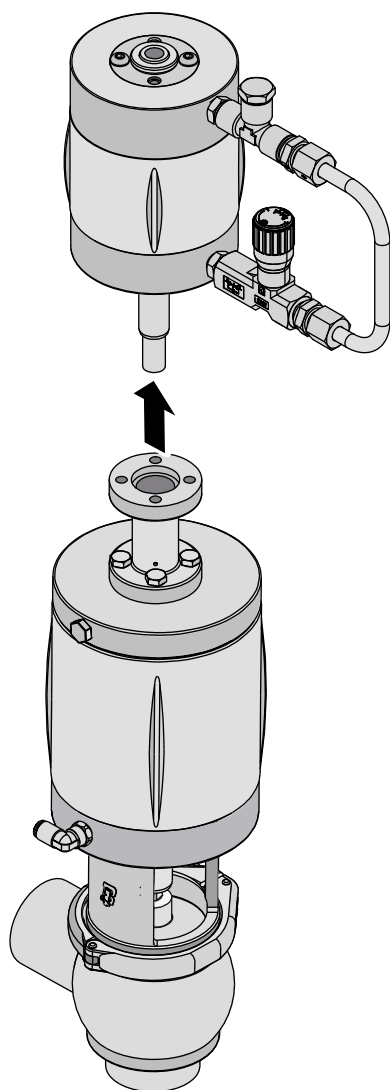
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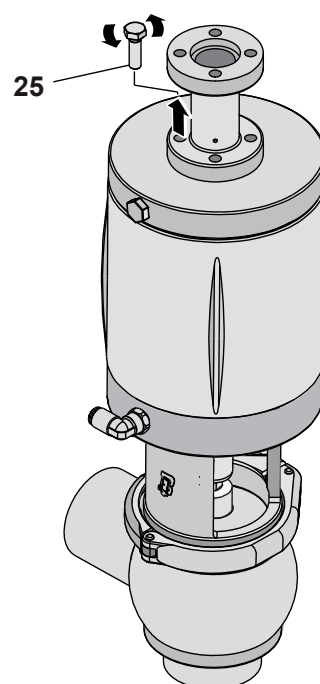
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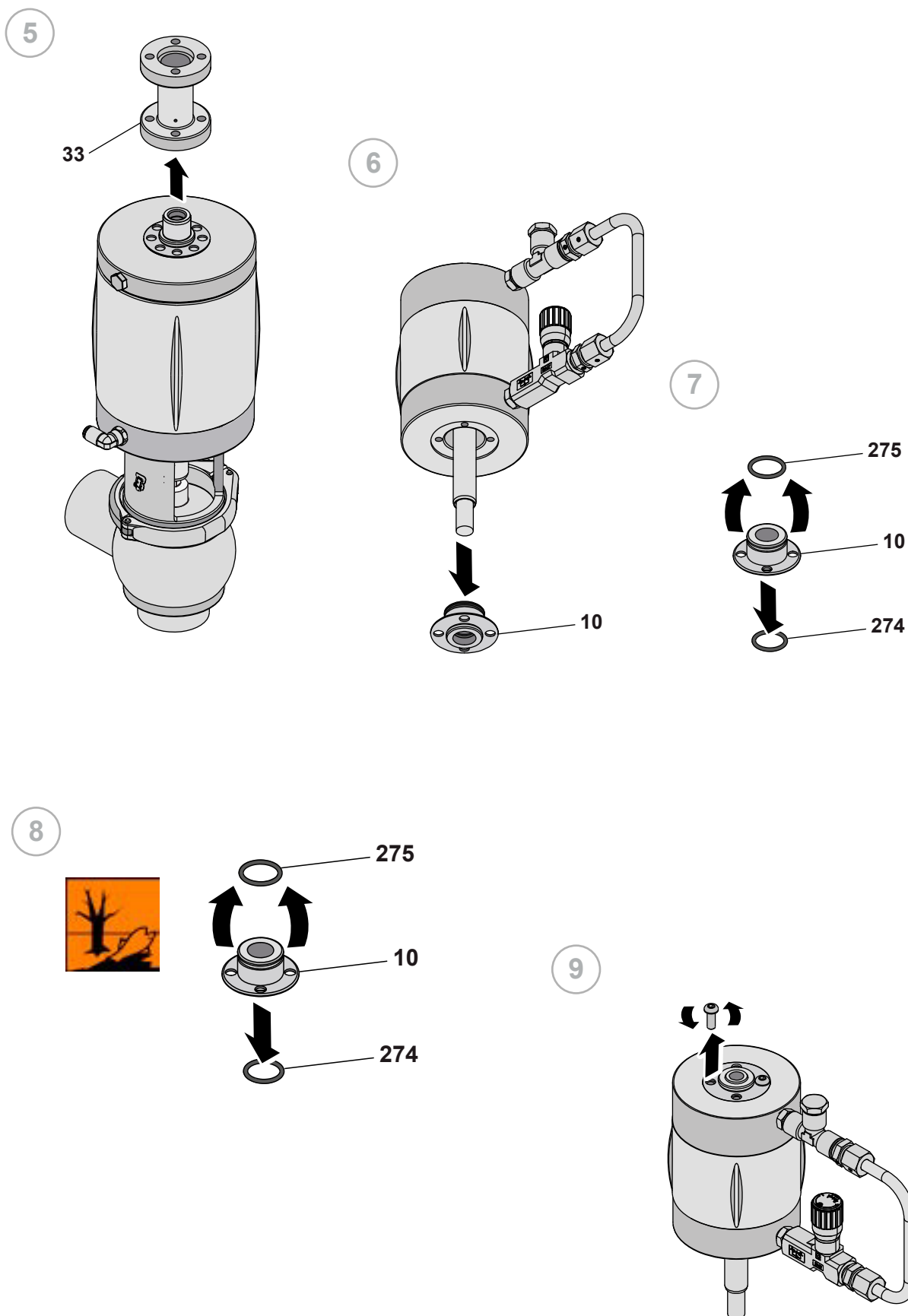


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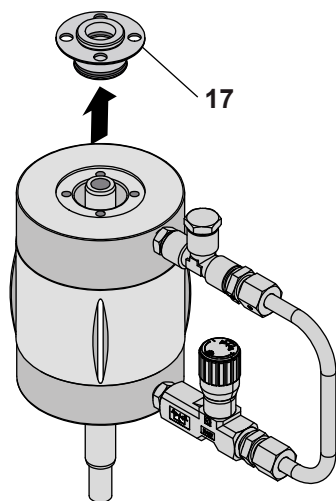


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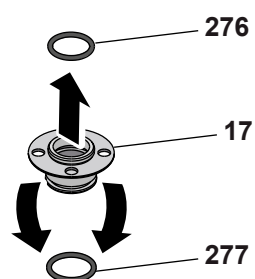




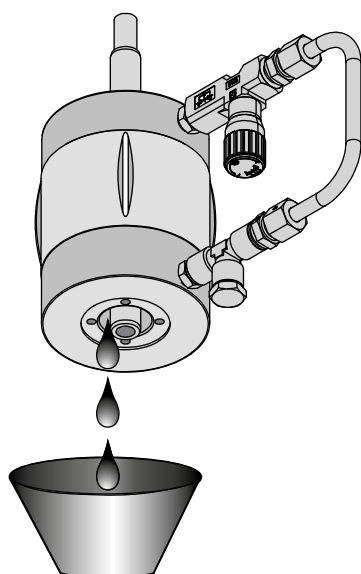
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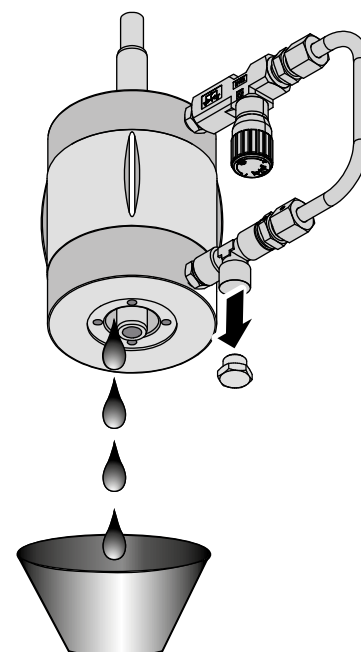
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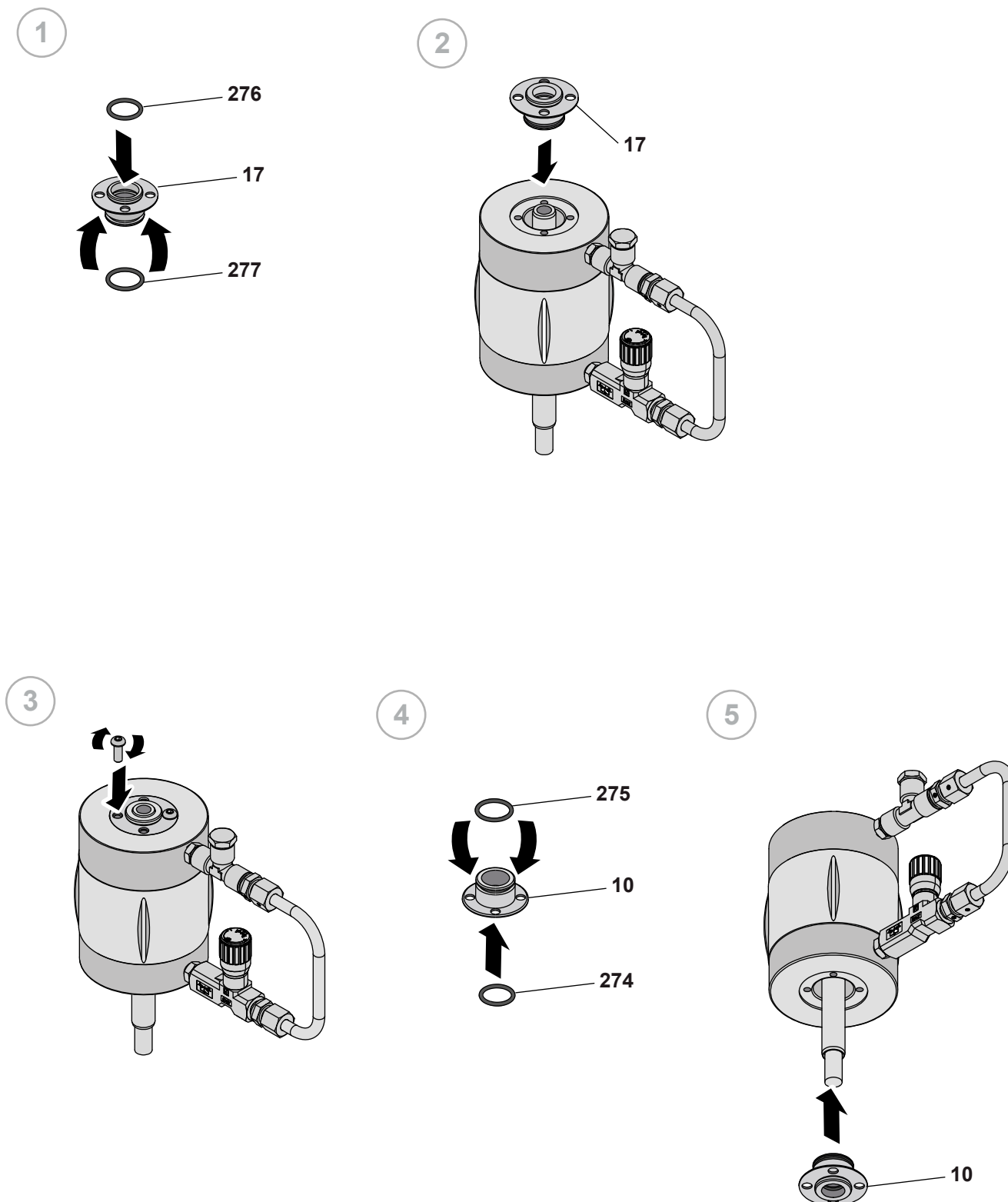
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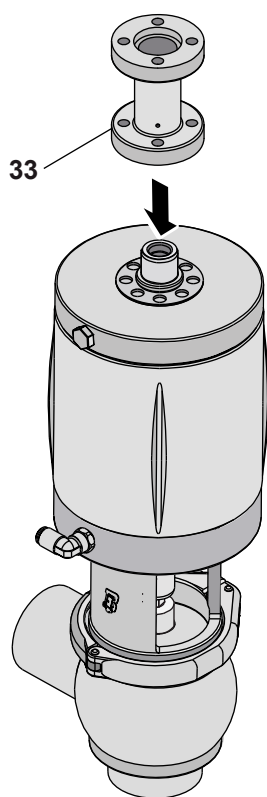
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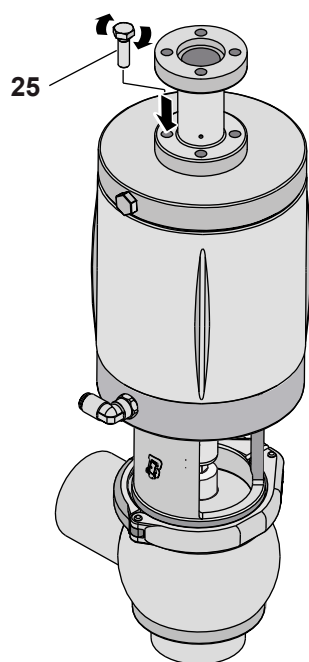
10.18 Idraulic Damper assembly



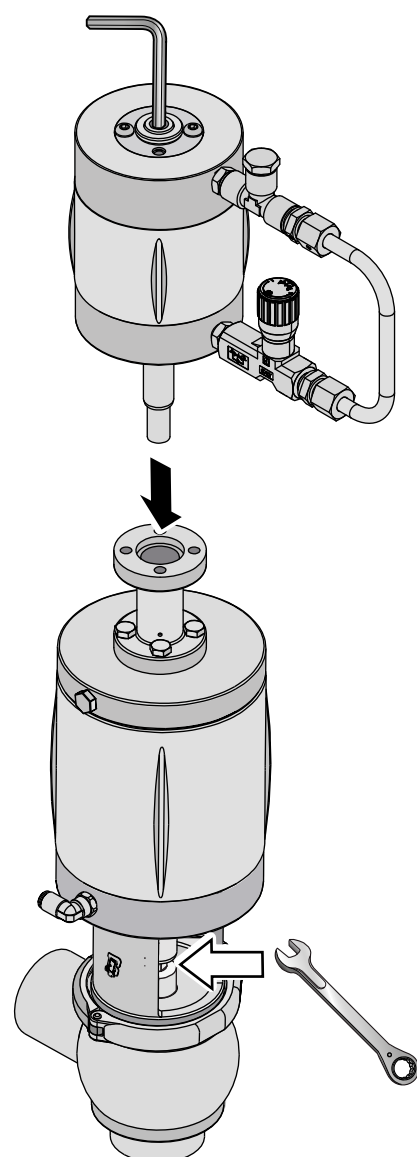
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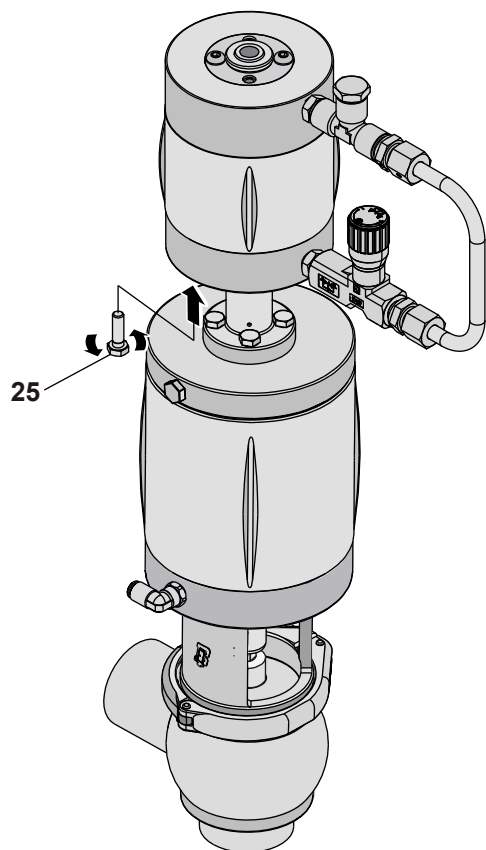
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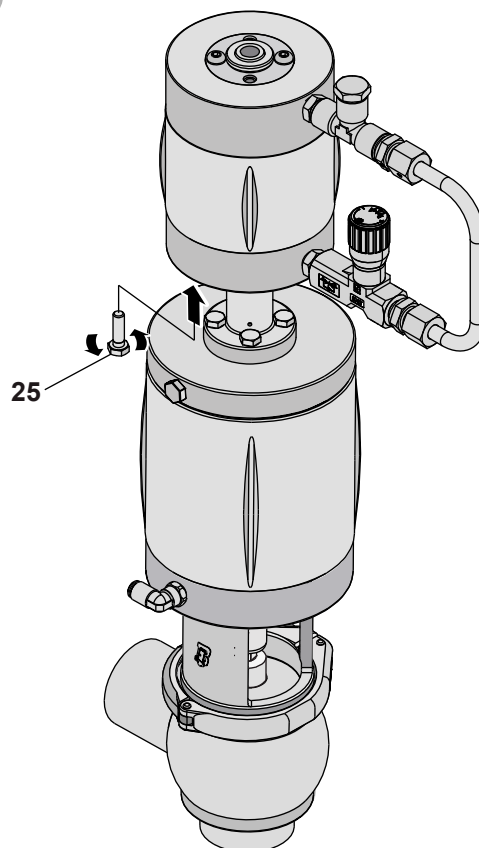
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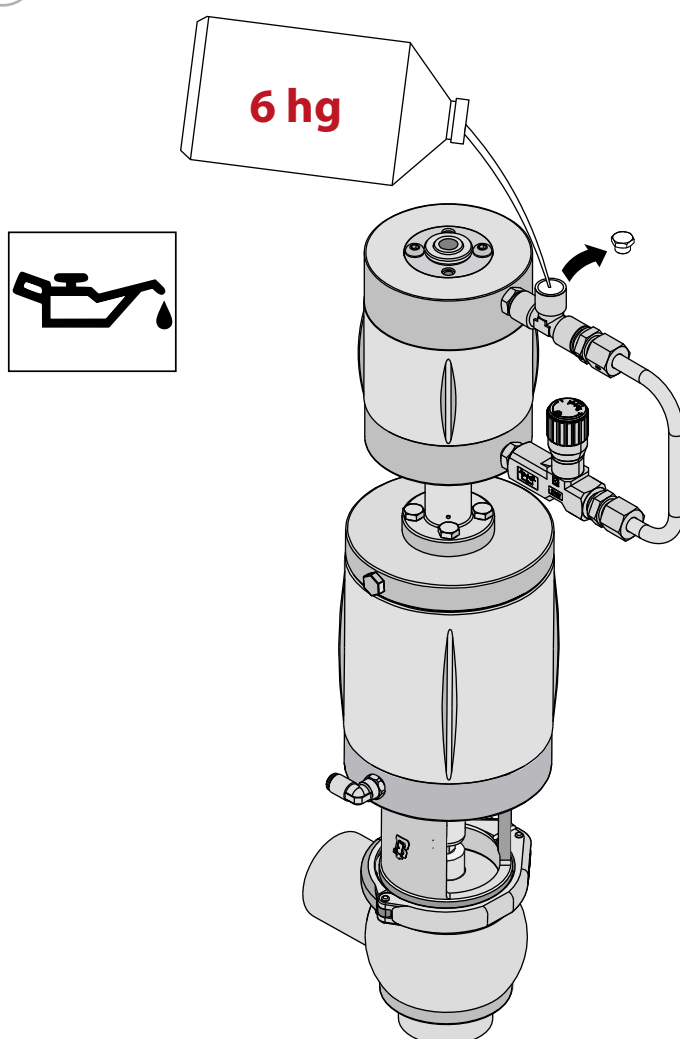
9



10



11



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:	Pneumatic valve
Model:	#####
Serial number:	#####
Function:	Fluid handling
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

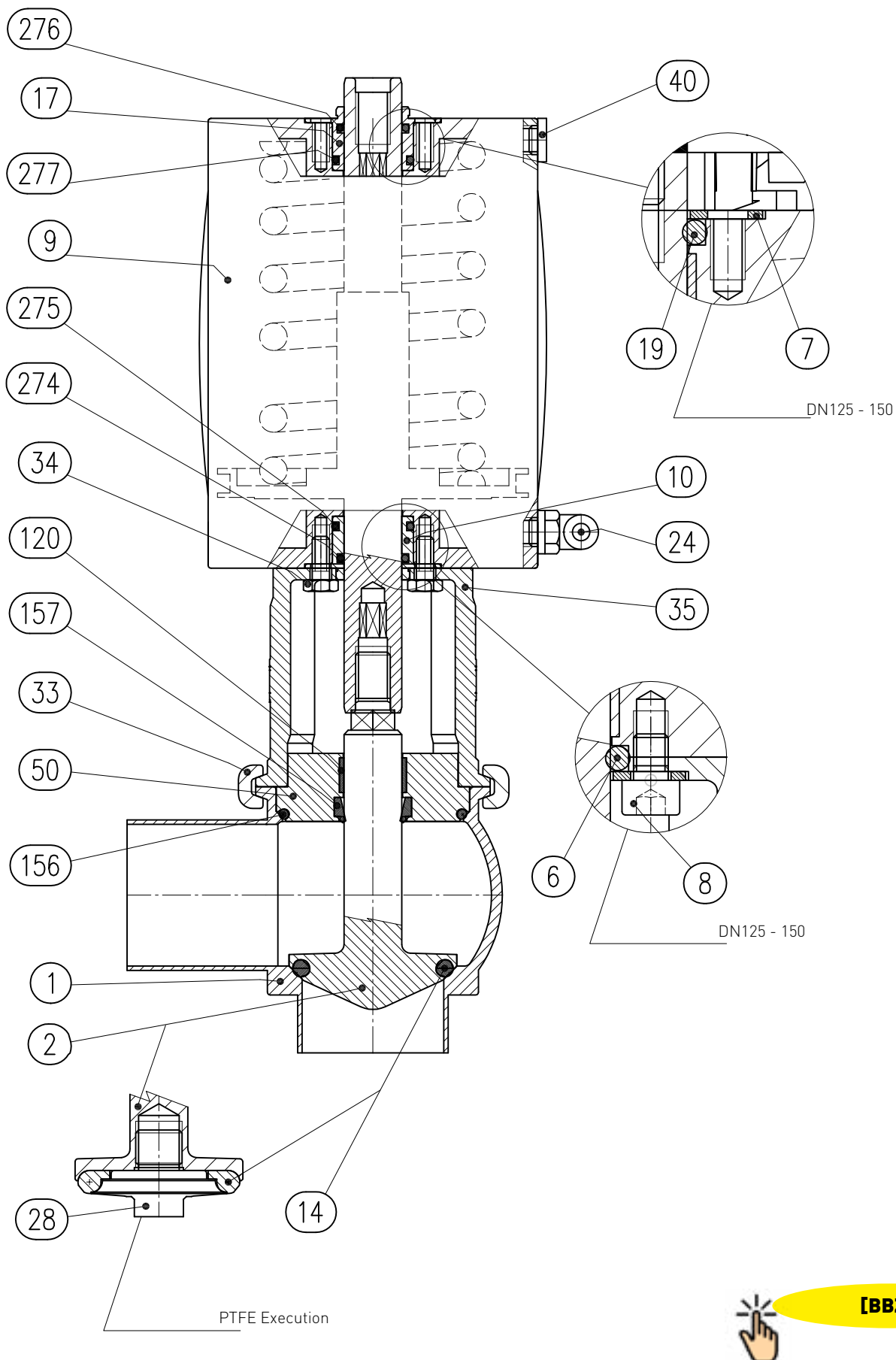
Fornovo di Taro

##.##.####

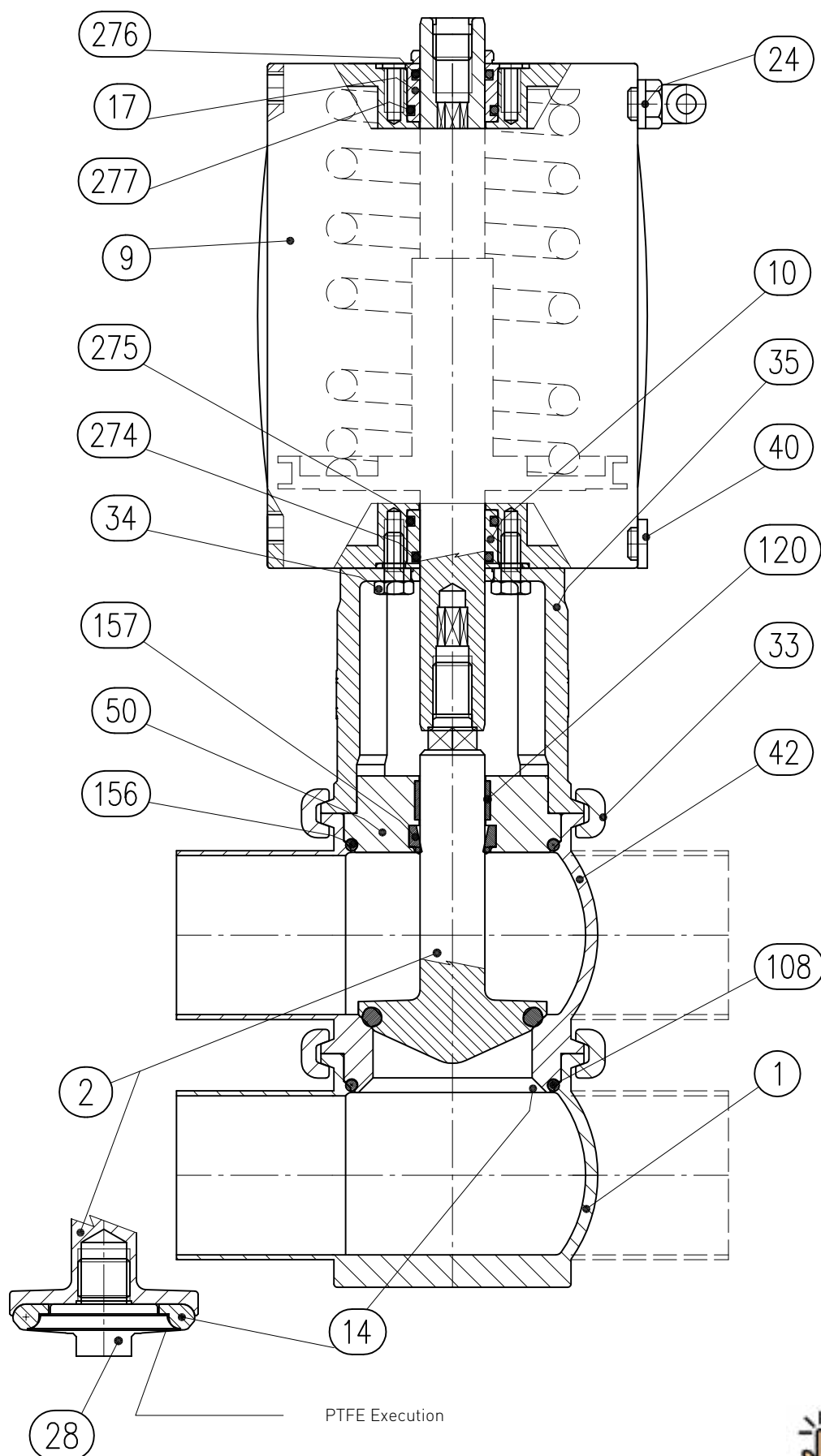
Legal Representative

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.

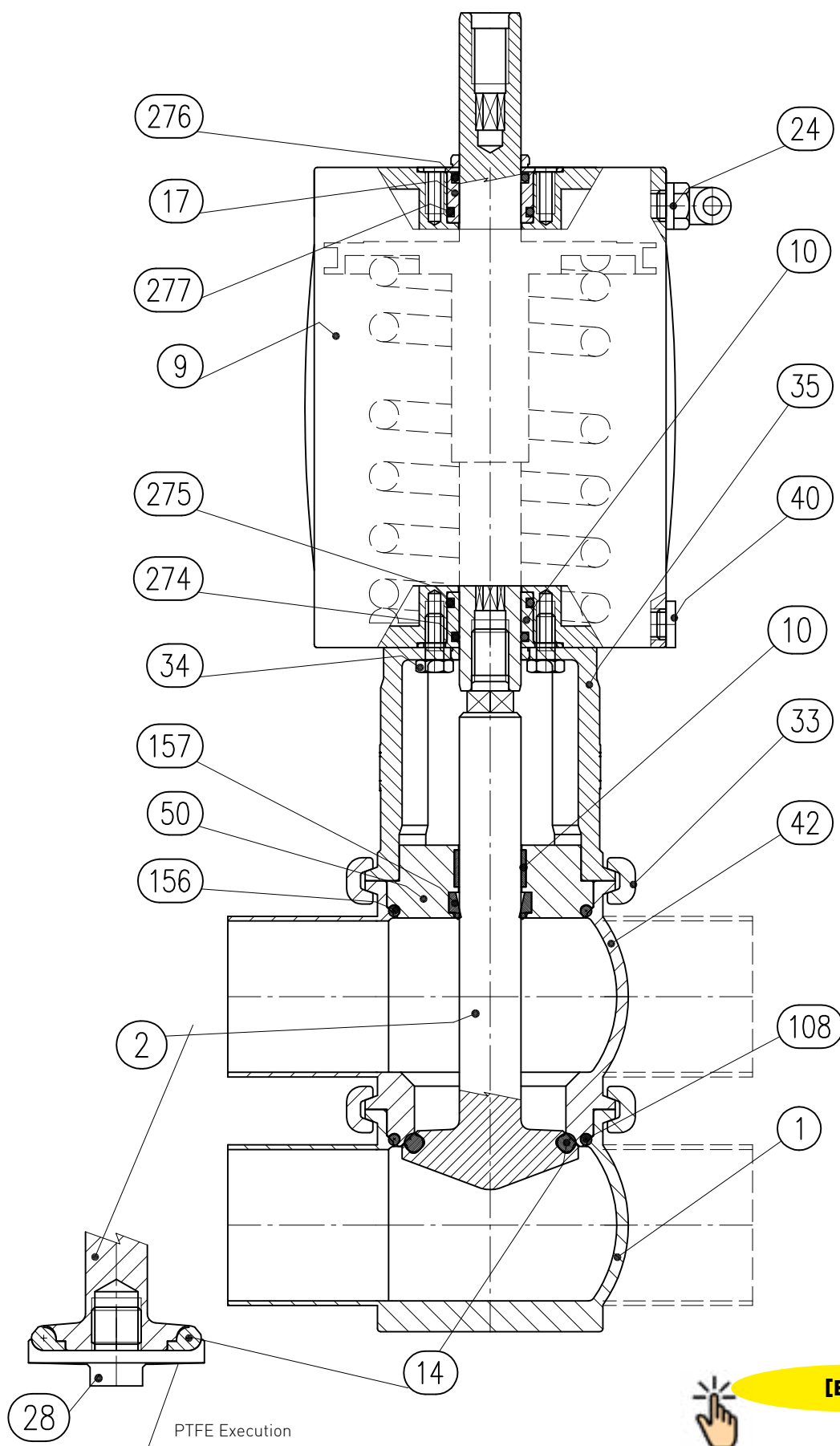
12 2D diagram BBZP



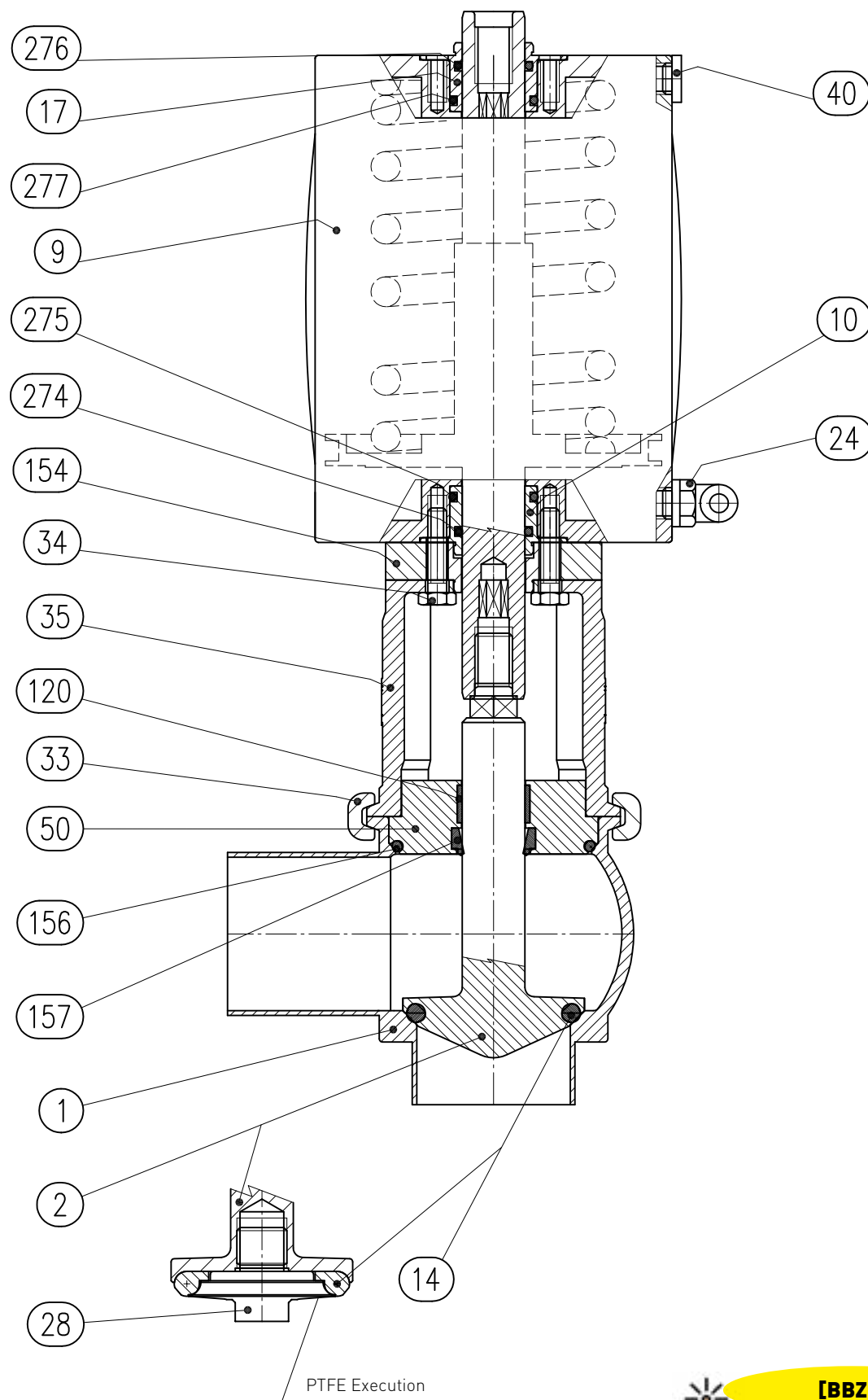
13 2D diagram BBZP M8-LL



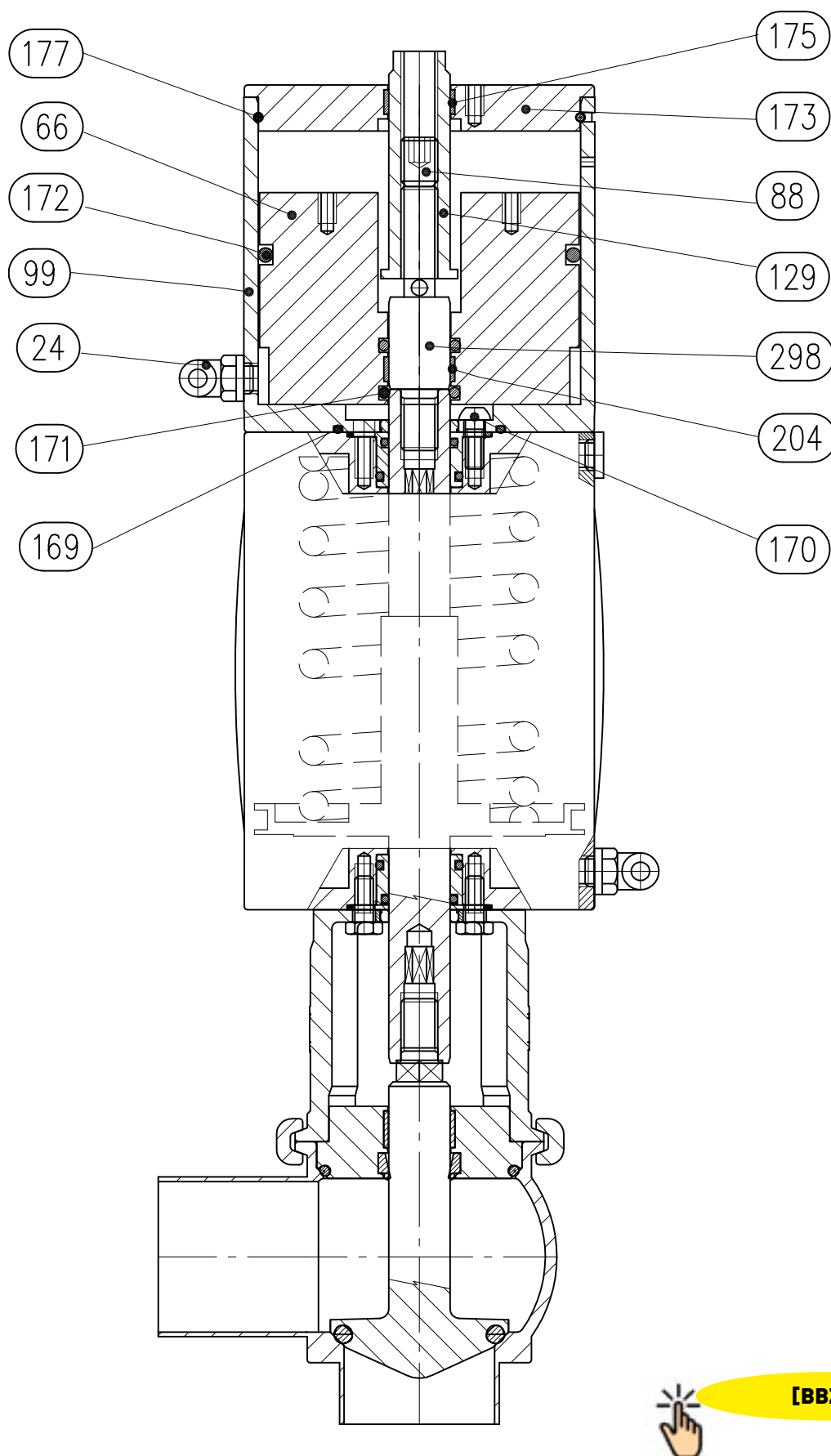
14 2D diagram BBZP P7-LL



15 2D diagram BBZR

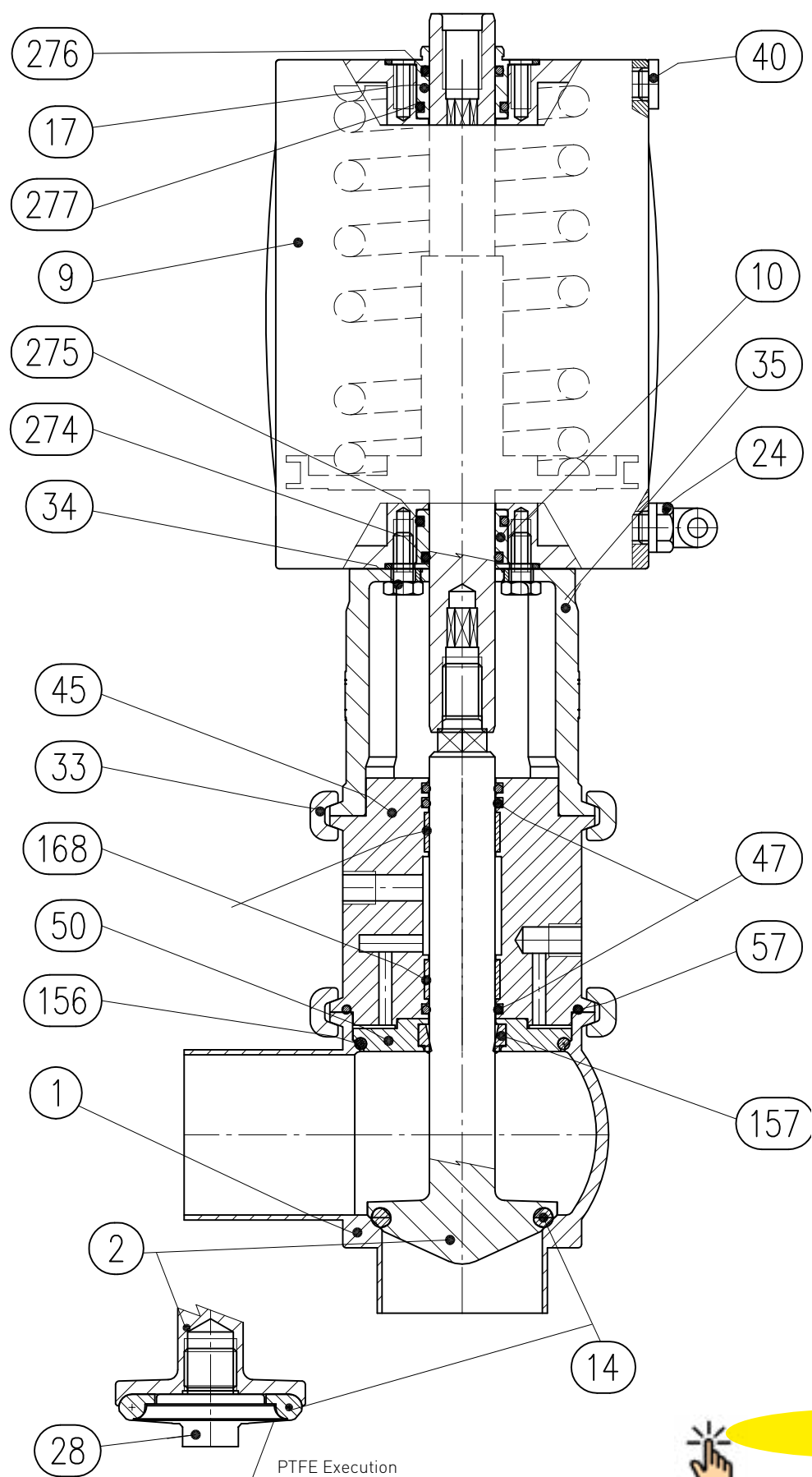
**[BBZP]**

16 2D diagram BBZT



[BBZT]

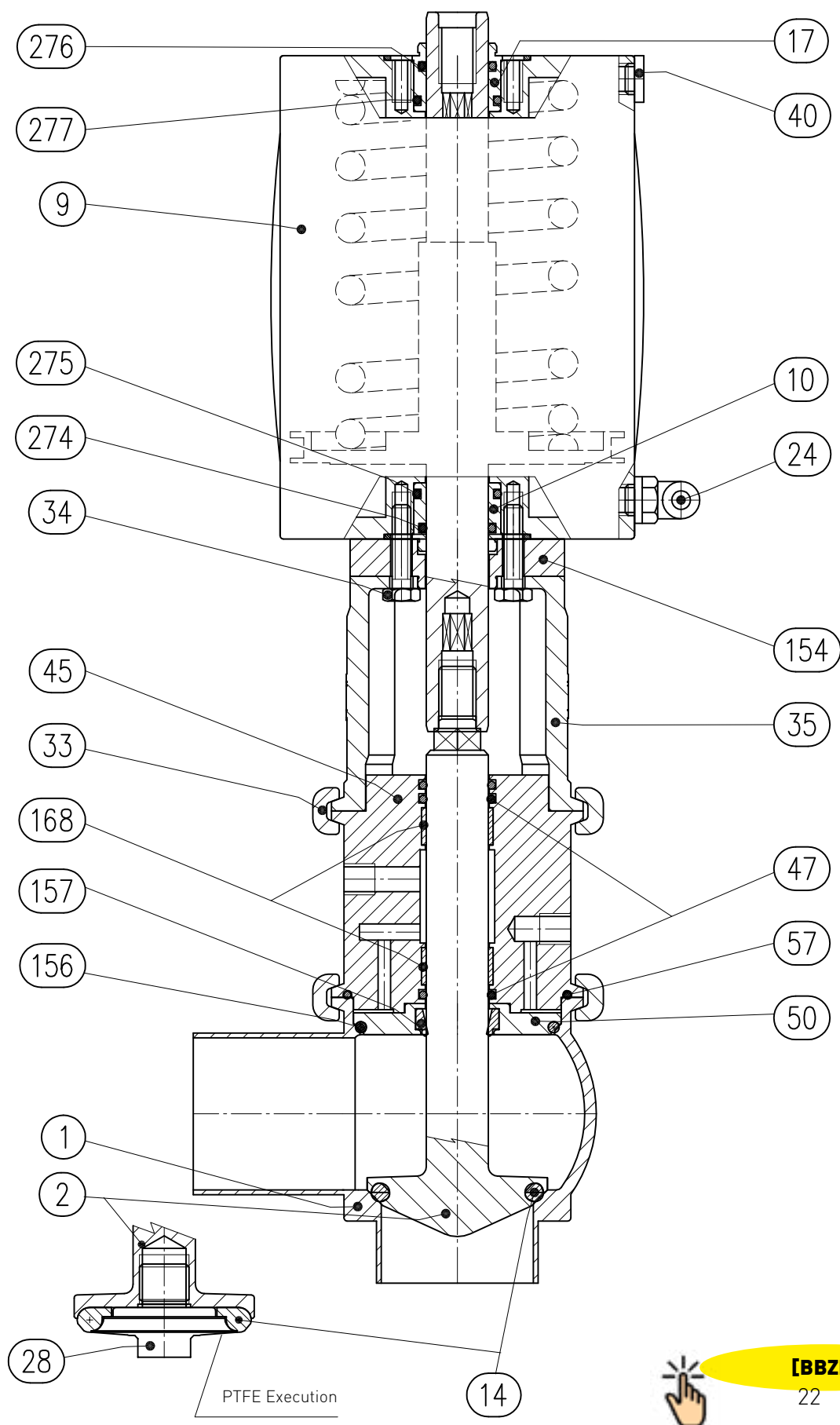
17 2D diagram BBYP



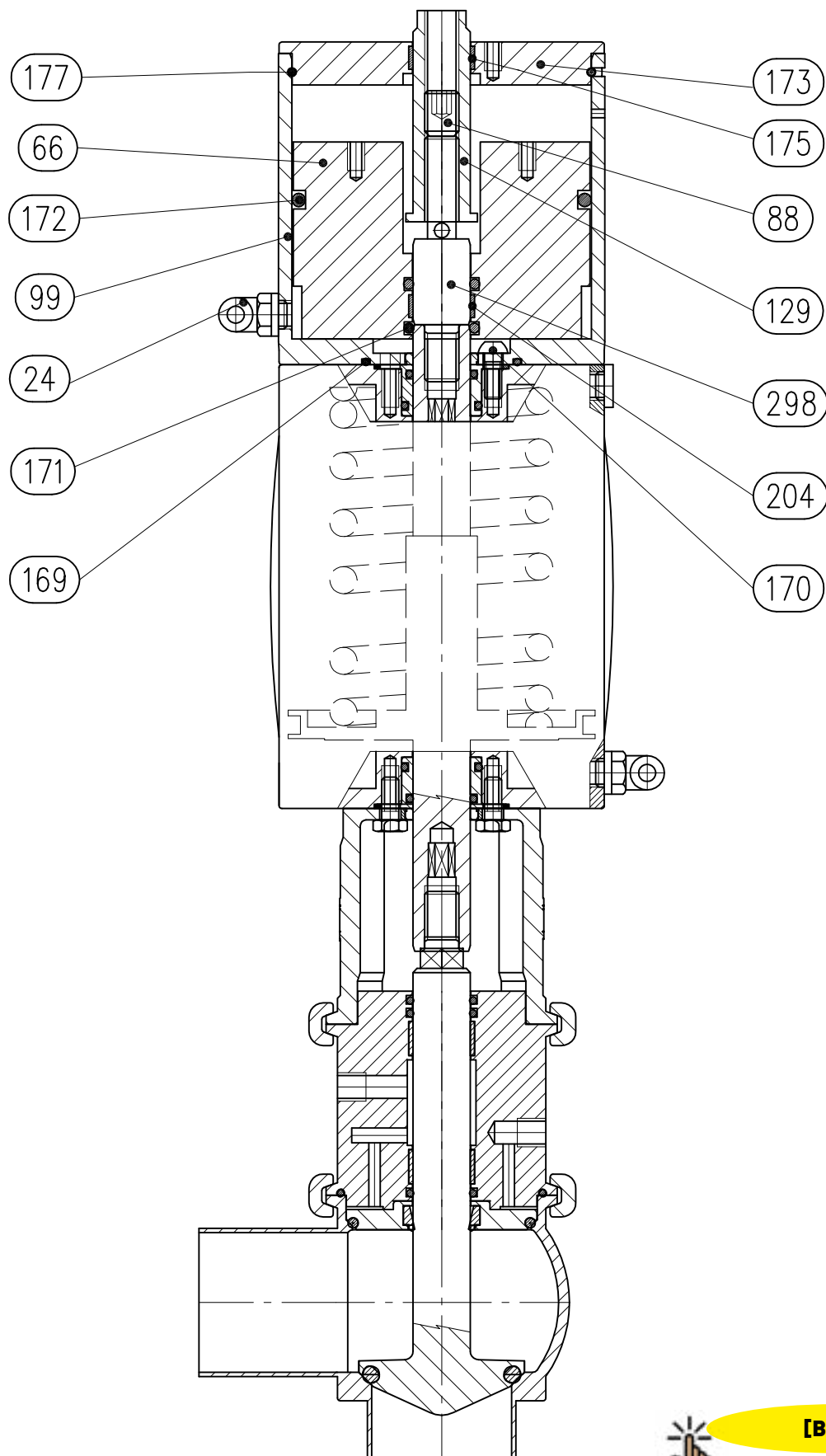
[BBZP]

22

18 2D diagram BBYR

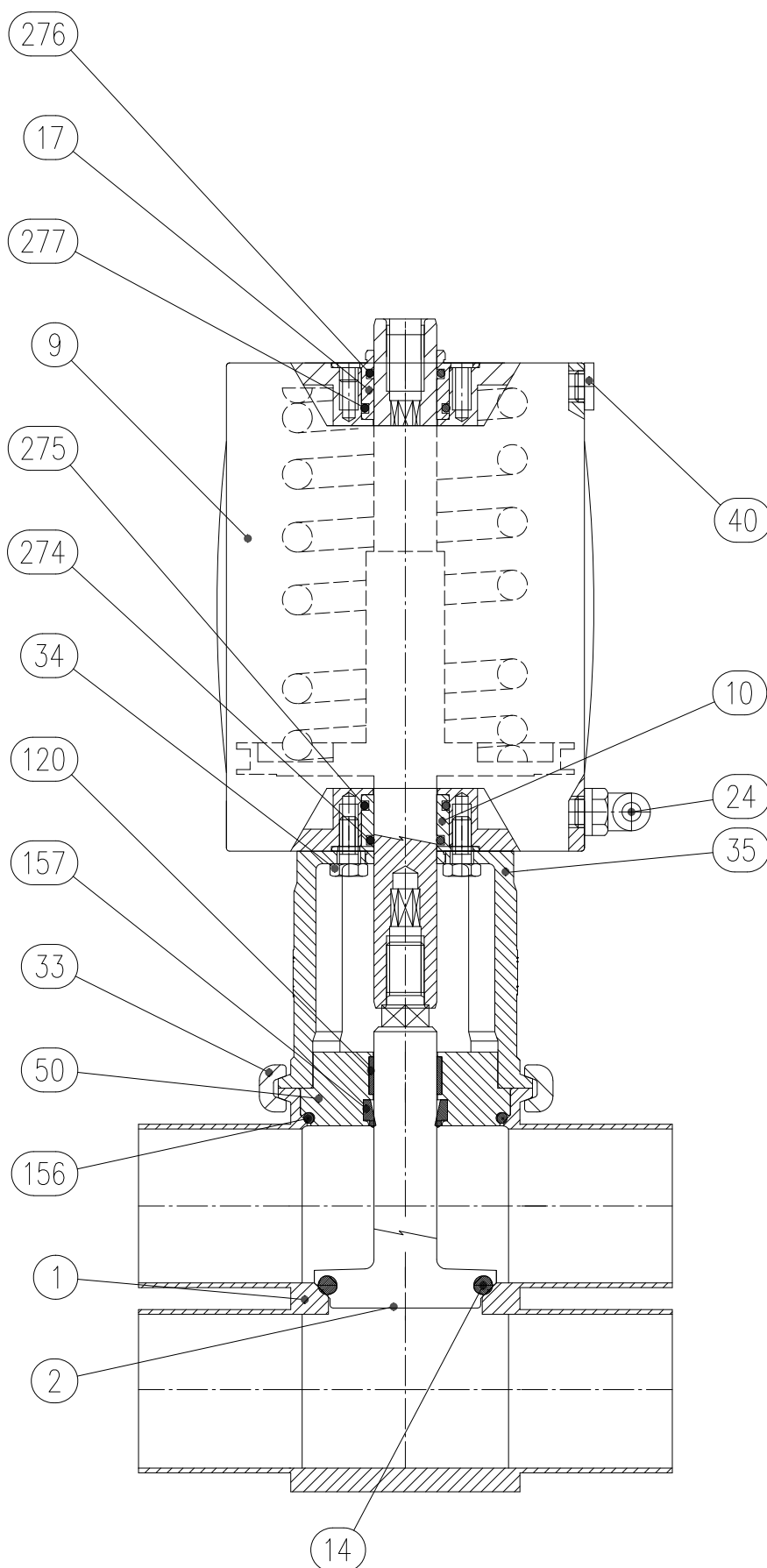


19 2D diagram BBT

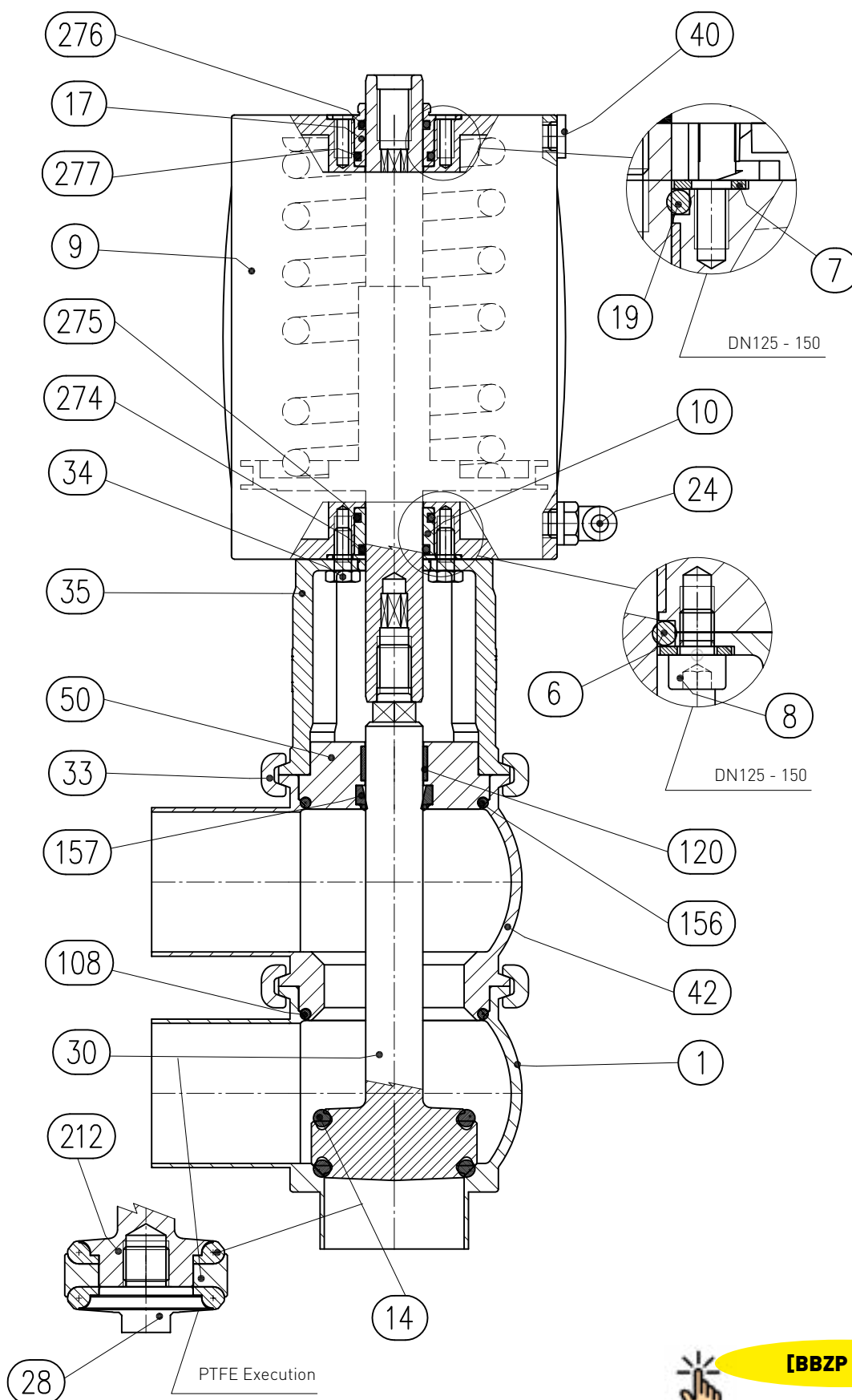


[BBZT]

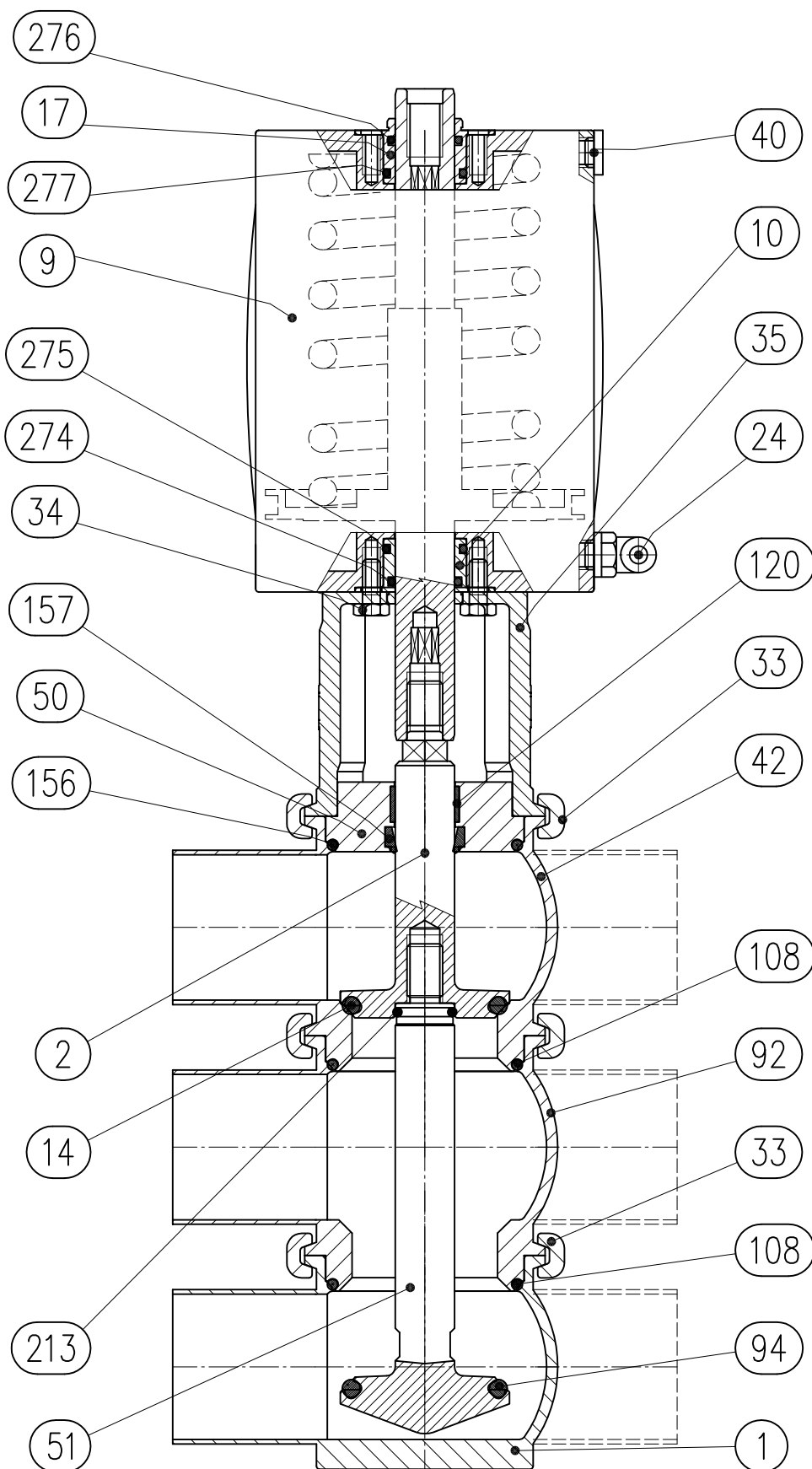
20 2D Diagram BBZP M8 Solid Body

**[BBZP]**

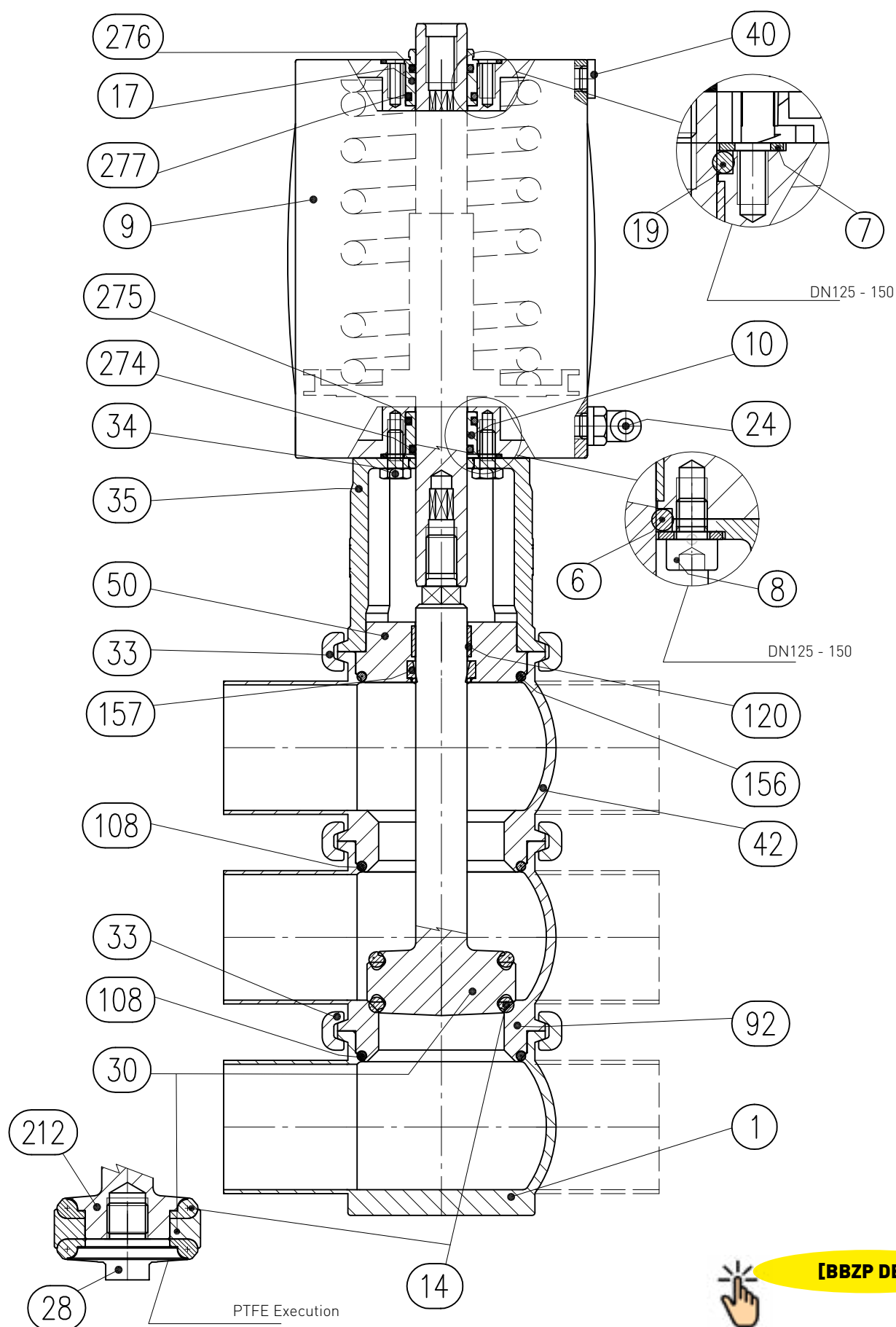
21 2D diagram BBZP Diverter



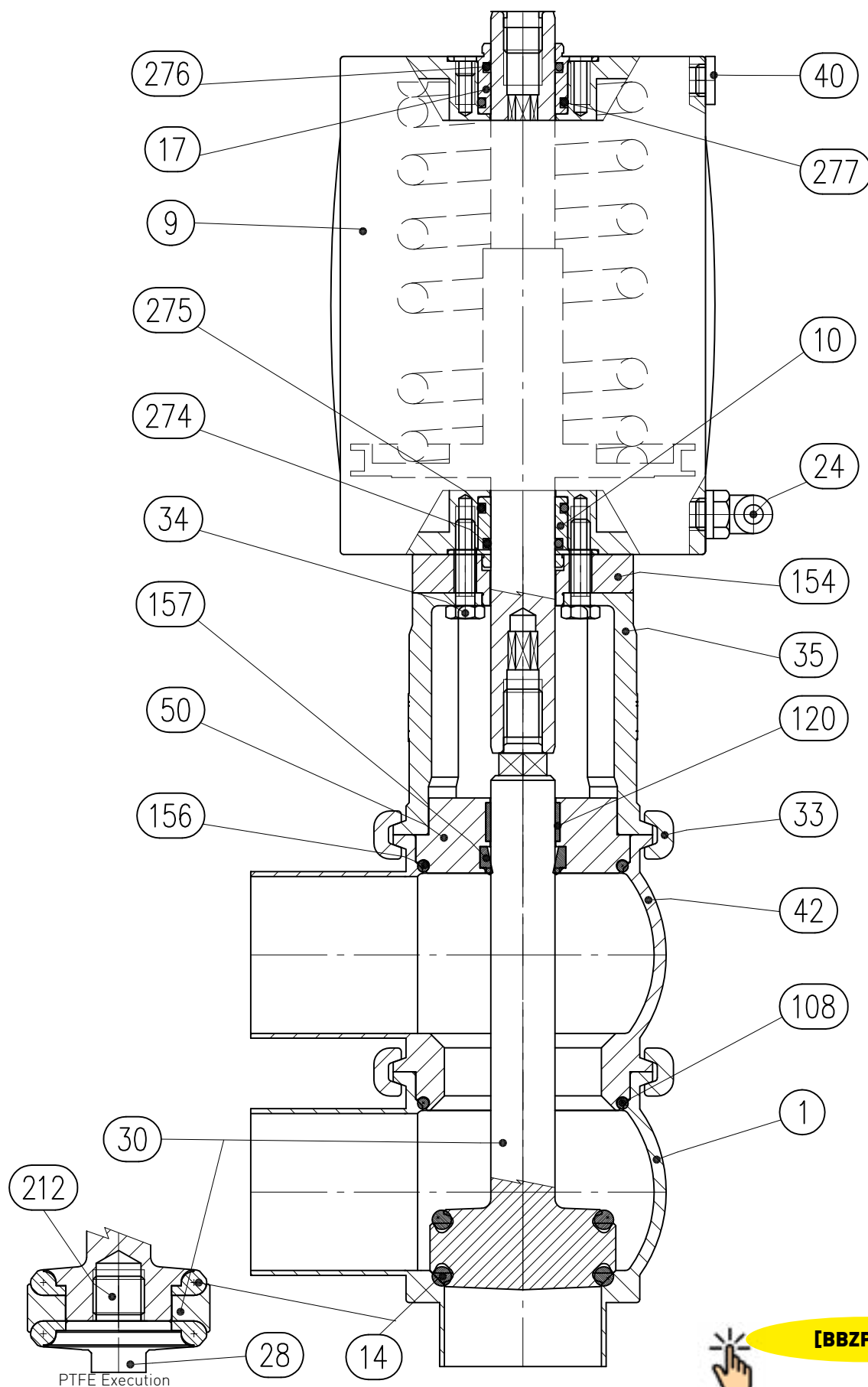
22 Diagram BBZP M8-LLL Diverter

**[BBZP DEV]**

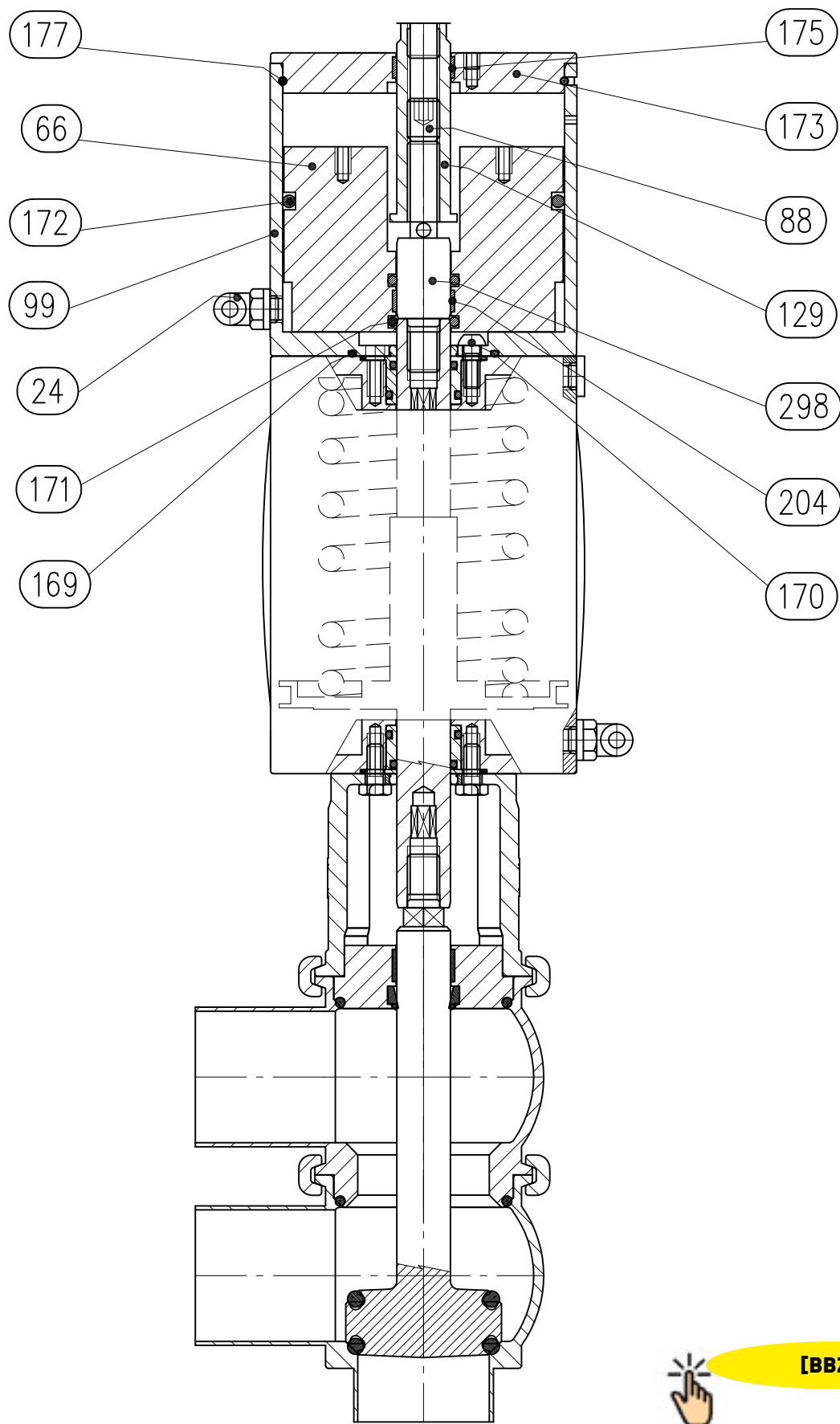
23 Diagram BBZP M9-LLL Diverter



24 2D diagram BBZR Diverter

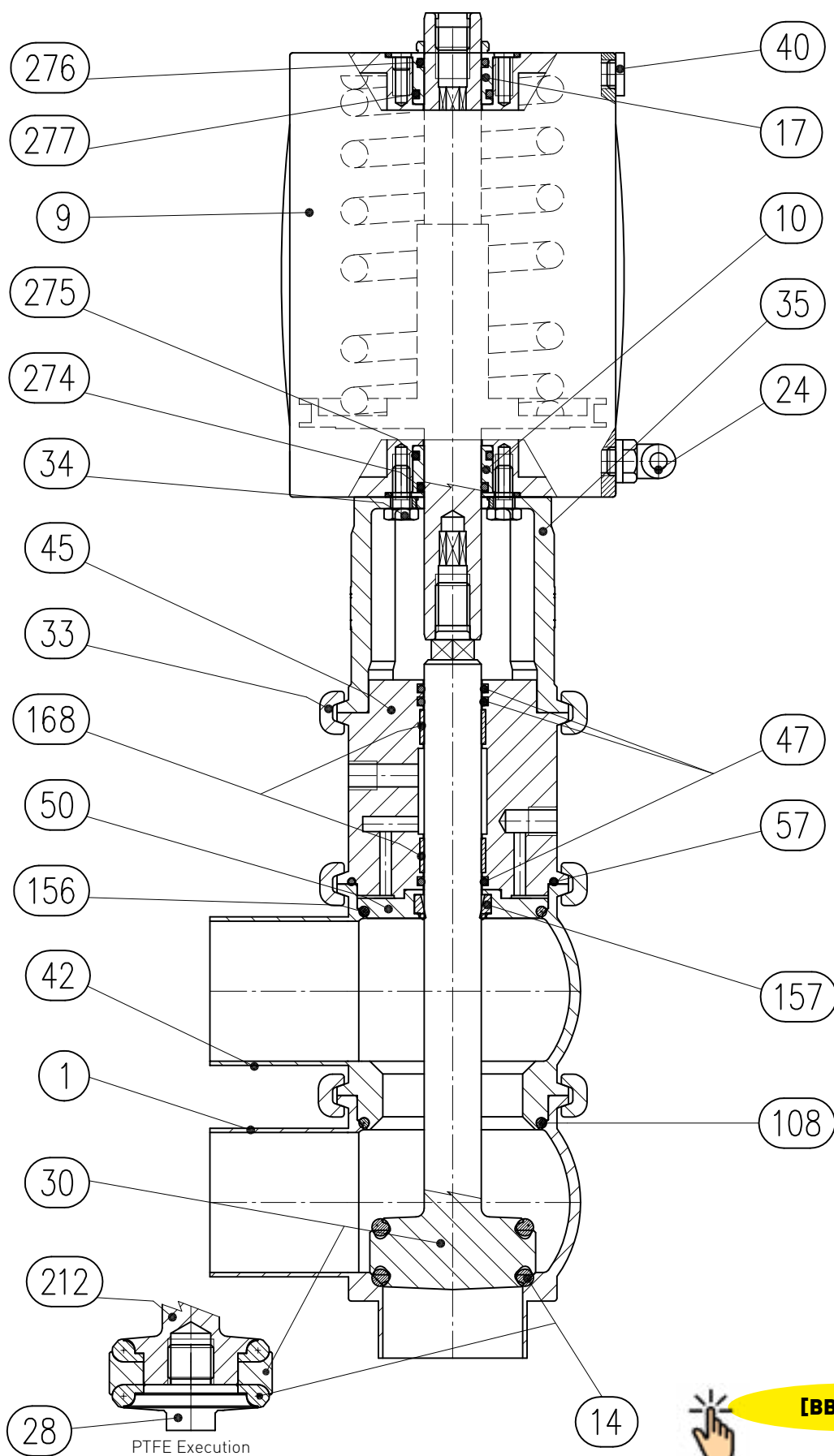


25 2D diagram BBZT Diverter

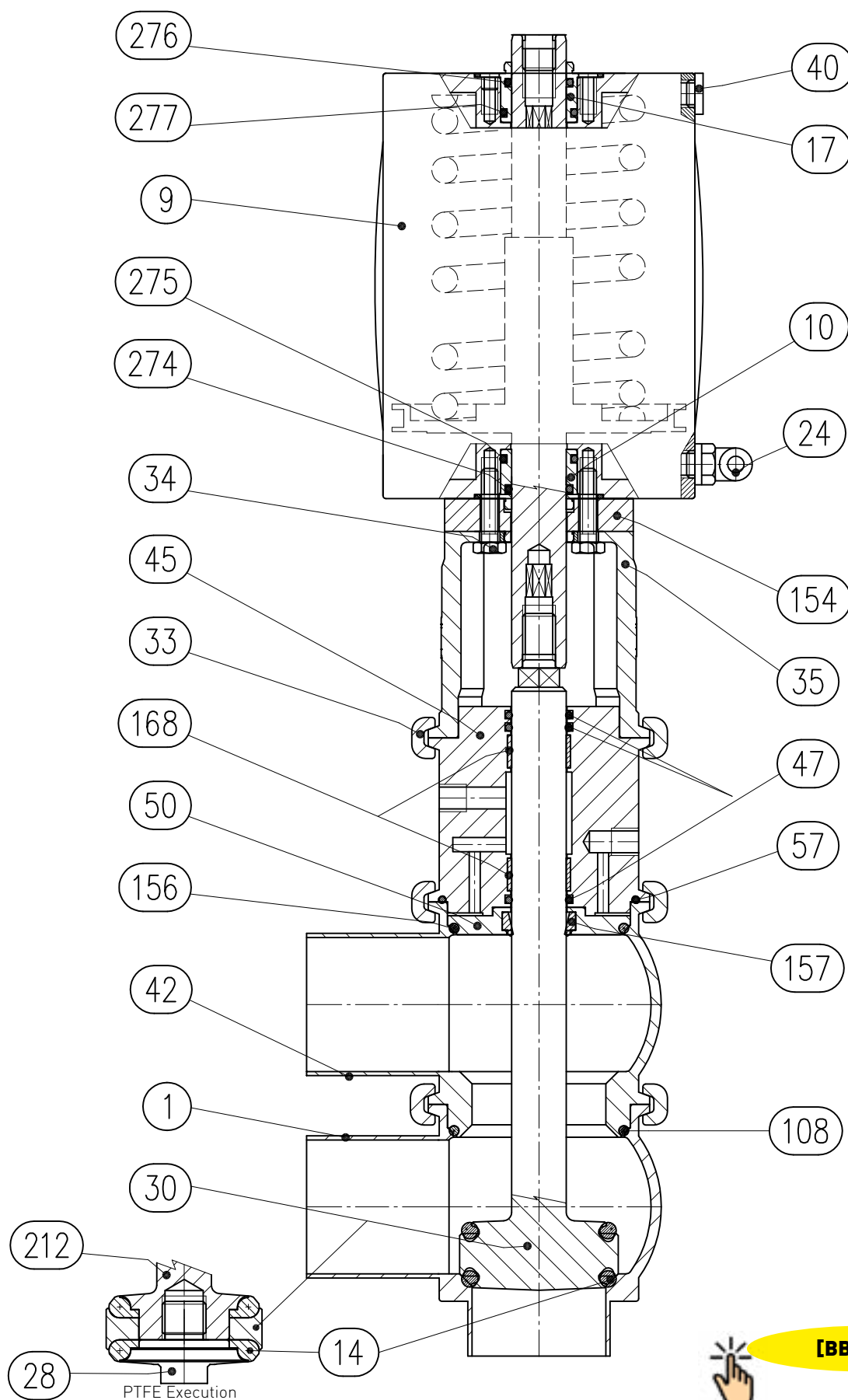


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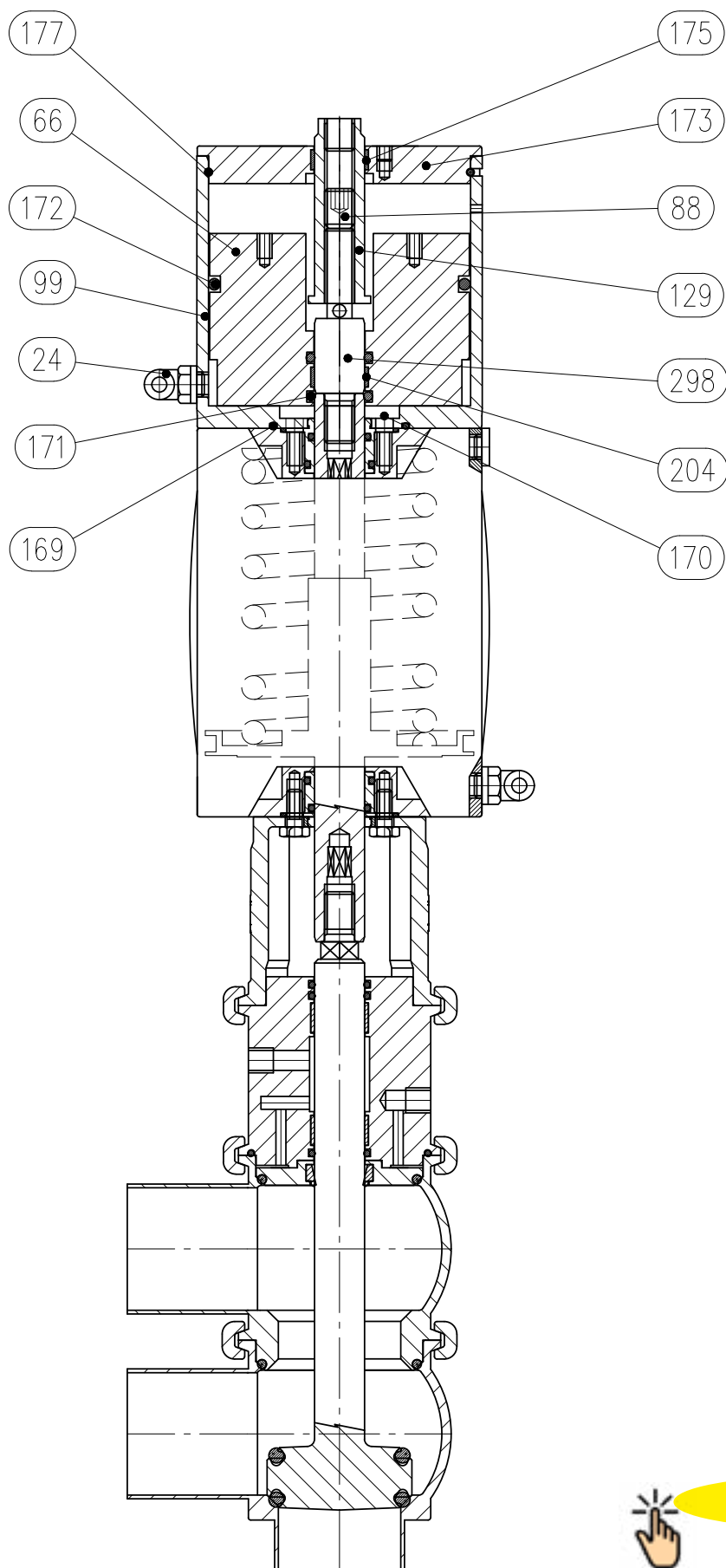
26 2D diagram BBYP Diverter



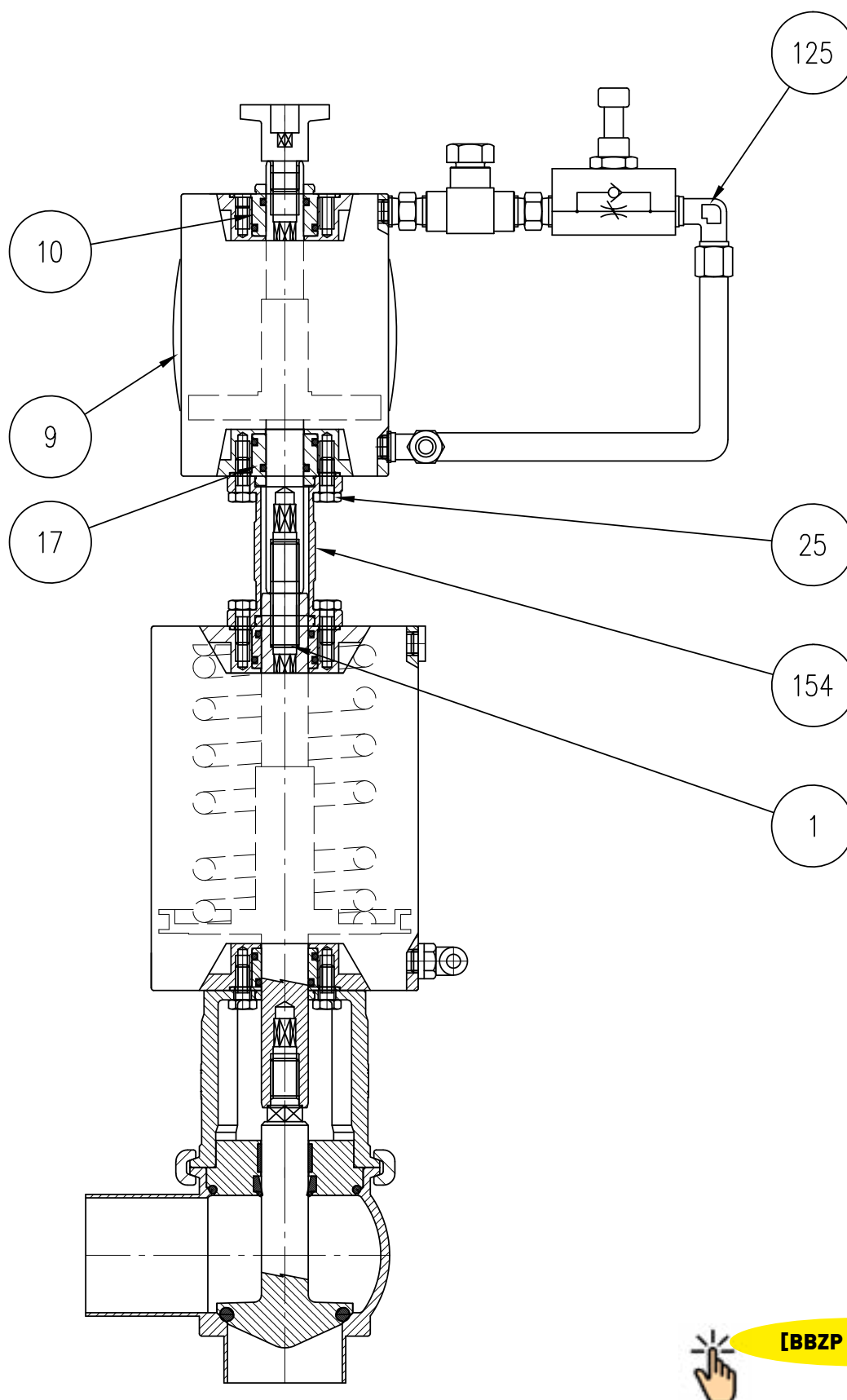
27 2D diagram BBYR Diverter



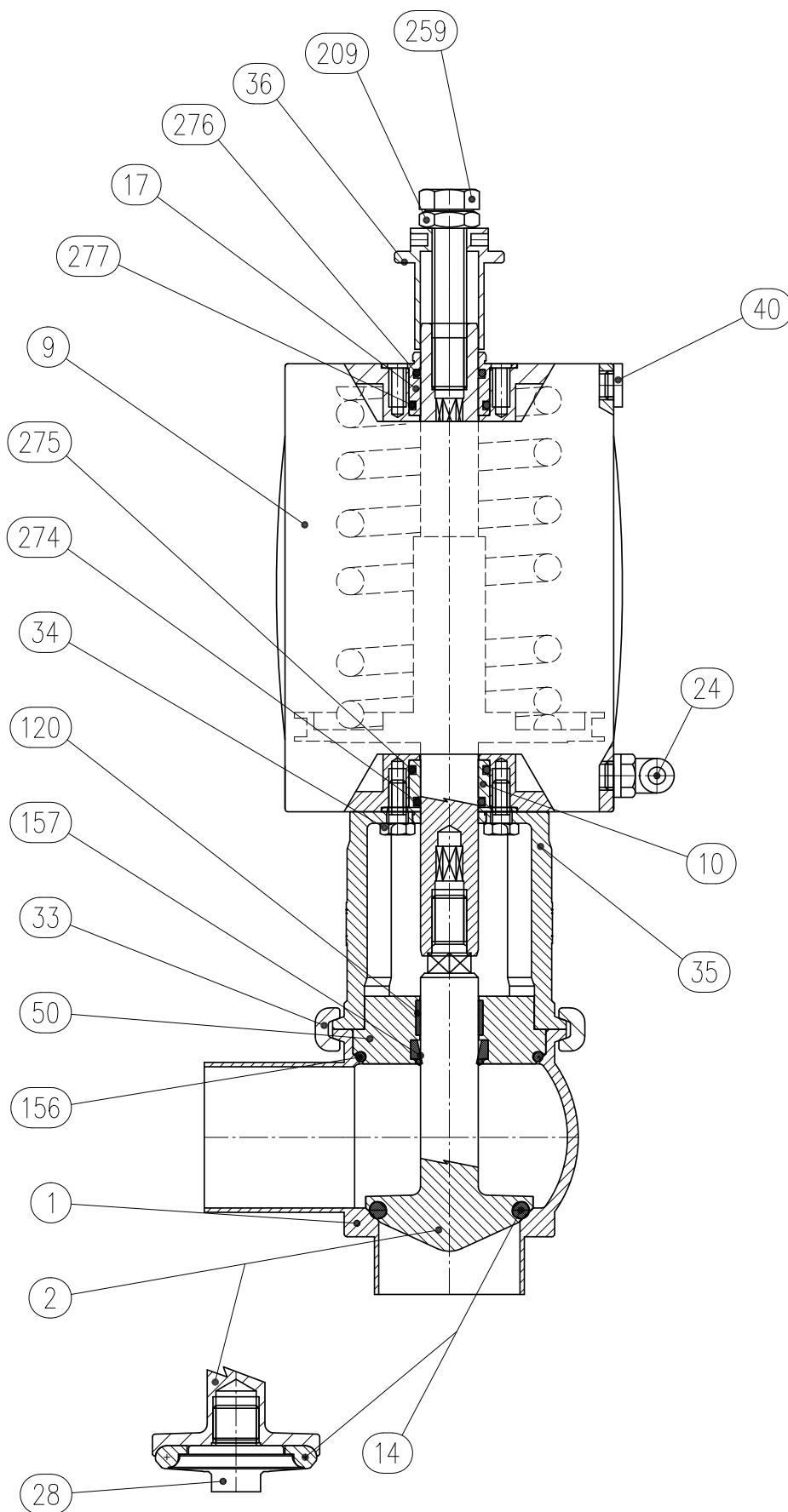
28 2D diagram BBYT Diverter



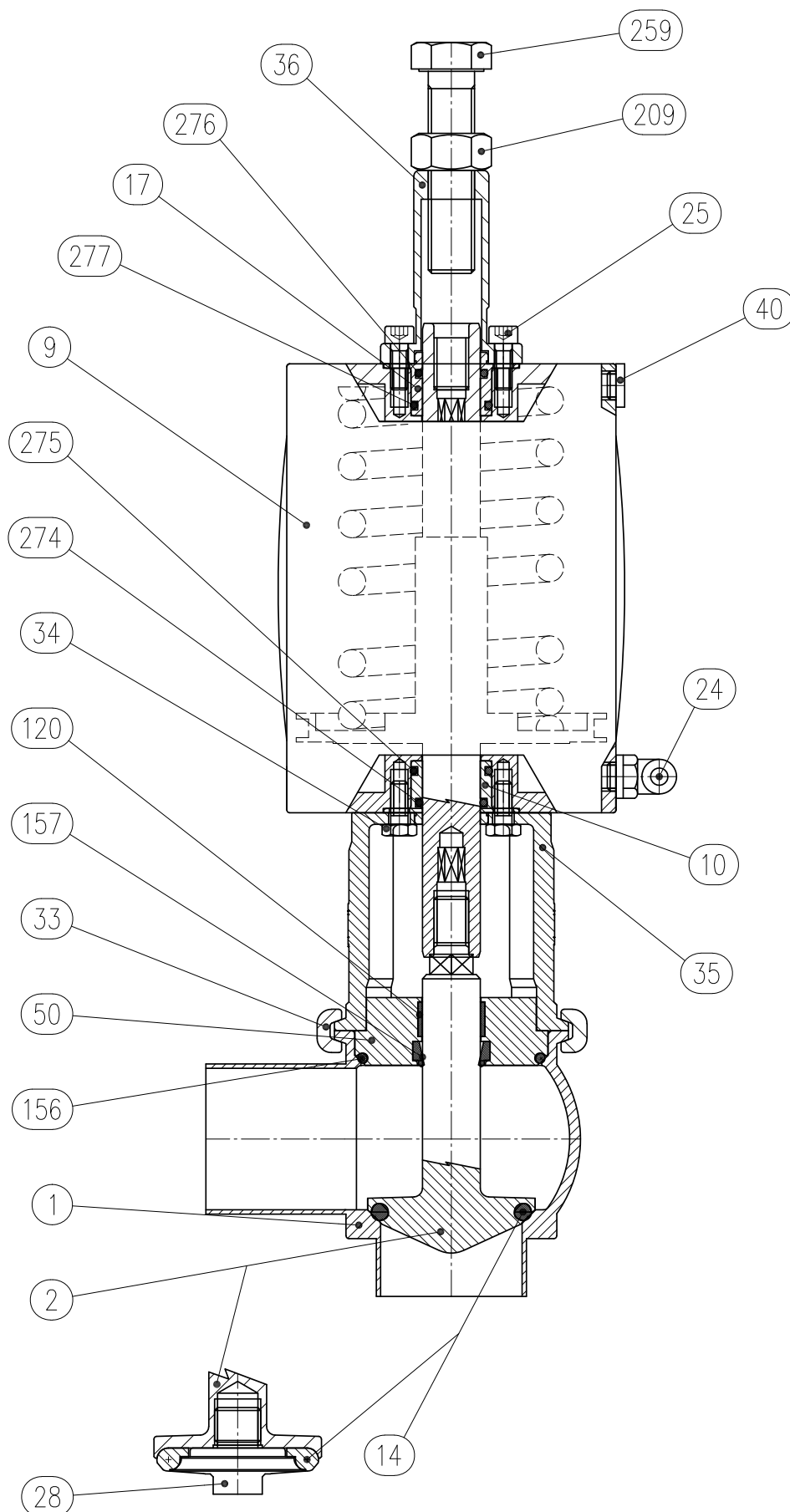
29 2D Diagram BBZP cylinder with damper



30 2D diagram BBZP stroke limiter

**[BBZP LIM]**

31 2D diagram BBZP stroke limiter



[BBZP LIM]

32 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.

33 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, 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

Bardiani Valvole S.p.A.
via G. di Vittorio, 50/52 - 43045 Fornovo di Taro (PR) - Italy
tel. +39 0525 400044 - fax +39 0525 3408
bardiani@bardiani.com - www.bardiani.com