

**Instruction, Use and Maintenance Manual**



**HIGH PRESSURE MANUAL  
VALVE**

**BBZMQ**

**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

MANUAL REVISION	DATE

# INDEX

1	Safety, Warning and Mandatory Signs	5
1.1	Operator training	8
2	Safety	9
2.1	General safety warnings	9
3	Technical data	10
4	Checking / Unpacking / Lifting	11
5	Installation	13
6	Troubleshooting	15
7	Cleaning	16
8	General maintenance	18
9	Disposal	20
10	Maintenance	21
10.1	Scheduled maintenance	21
10.2	Tools useful for Disassembly/Reassembly	22
10.3	Manual valve BBZMQ	23
10.4	Disassembly of the BBZMQ	25
10.5	Assembly of the BBZMQ	28
11	Annexes	34
12	2D diagram BBZMQ	35
13	Warranty	36
14	Recommendations	37

# INTRODUCTION

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

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

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

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

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






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







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




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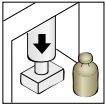
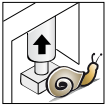


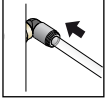
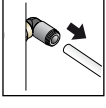



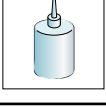


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# 1 Safety, Warning and Mandatory Signs

WARNING SIGNS		
Pictogram	Description	Notes
	<b>WARNING! General</b>	This tells the person in question that the operation described involves (when not performed in accordance with the relative safety regulations) the risk of personal injury.
	<b>WARNING! Hand crushing</b>	Exercise caution in executing the procedure Hand crushing hazard
	<b>WARNING! Heavy loads</b>	Exercise caution in executing the procedure Heavy suspended loads.
	<b>WARNING! Severe burns</b>	Heat emission hazard Very hot surface, risk of severe burns
	<b>WARNING! Risk of explosions</b>	Take Care, risk of explosions

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

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

OPERATING SIGNS		
Pictogram	Description	Notes
	<b>PRESS</b>	Use of a press
	<b>PRESS (release)</b>	Use of a press Gradual release of the pressure force
	<b>ELECTRICAL CONNECTION</b>	Electrical connection to the control unit (consult the relative instruction manual).
	<b>ELECTRICAL DISCONNECTION</b>	Electrical disconnection from the control unit (consult the relative instruction manual).
	<b>PNEUMATIC CONNECTION</b>	Connection of the air to the valve.
	<b>PNEUMATIC DISCONNECTION</b>	Disconnection of the air from the valve
	<b>APPLICATION OF FOODSAFE GREASE</b>	Use CIP-FILM grease or similar
	<b>APPLICATION OF FOODSAFE GREASE</b>	Use FOODLUBE Multi-paste grease or similar
	<b>APPLICATION OF MULTIPURPOSE GREASE</b>	Use AGIP GREASE MU EP 2 SE or similar
	<b>THREADLOCK APPLICATION</b>	Use SPEED BOND M500 threadlock or similar
	<b>ASSEMBLY / DISASSEMBLY SEQUENCE</b>	Sequence of assembly disassembly operations
	<b>OPTIONAL</b>	

## 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;
- 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 valve 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!**

### 3 Technical data

VALVE DATA	
Maximum pressure	150 bar (2173 psi) DN25 -80 connections to be welded / DN25.4-76.1
	55 bar (798 psi) DN100 connections to be welded / DN101.6
Maximum seal pressure	See catalogue
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, 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

GASKET MATERIALS COMPATIBILITY		
Product	EPDM	FKM
Temperature (applications with air)	from -10°C to +140°C	from -10°C to +200°C
Caustic soda 2%	60°C	30°C
Nitric Acid 2%	60°C	80°C
Saturated steam 125°C	Suitable	To be checked
Greases	Unsuitable	Suitable
Alcohols	Suitable	Unsuitable



**La valvola è conforme alla Direttiva PED 2014/68/UE, con speciale riferimento all' Allegato III, Modulo A riguardante il Controllo di fabbricazione interno come indicato nelle Procedure di Valutazione della Conformità.**



Le valvole con DN uguale o inferiore al DN25 non sono comprese conformemente all'Articolo 4 paragrafo 3.

Le valvole destinate a gas, gas liquidi, gas disciolti sotto pressione, vapore e quei liquidi la cui tensione di vapore alla temperatura massima ammissibile è superiore di 0,5 bar alla pressione atmosferica normale (1.013 mbar) sono comprese entro i seguenti limiti:

- le valvole con DN da 32 a 100 (compresi) con fluidi del gruppo 1;
- le valvole con DN uguale o superiore al DN125 con fluidi del gruppo 2.

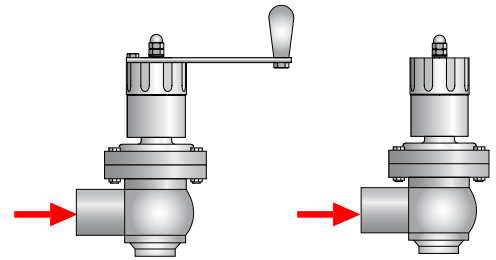
Si rimanda all'utilizzatore finale l'esecuzione delle prove di emissione acustica una volta avvenuta l'installazione della valvola nello stabilimento di destinazione.

In caso di qualsiasi dubbio di qualsiasi tipo, contattare Bardiani Valvole S.p.A.

## 4 Checking / Unpacking / Lifting

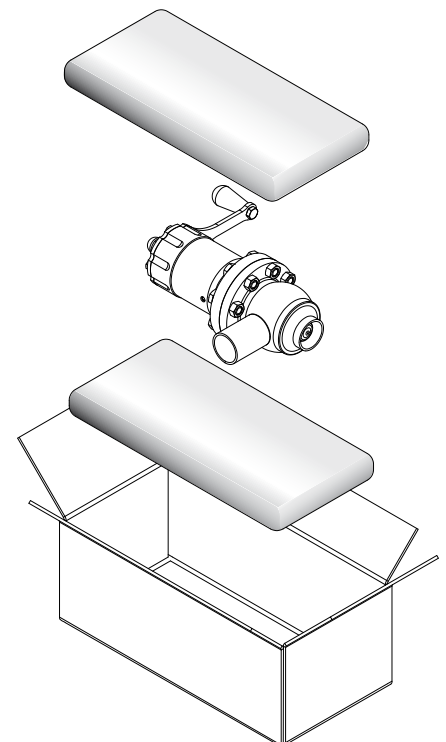
### 1. CHECK:

- 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. The handle in the DN15 - DN100 sizes is made from plastic (POM-C). Disposal must be in compliance with local legislation.

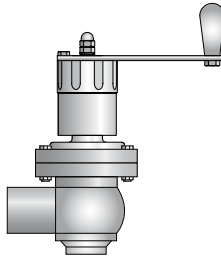


**3. VALVE LIFTING:**

Take care as to the type of valve you are handling.

**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.

**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.

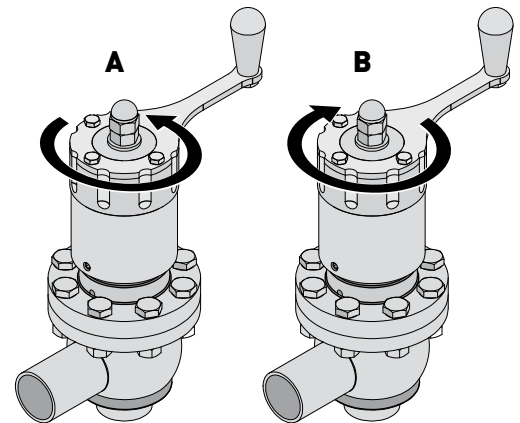
## 5 Installation



### 1. PNEUMATIC SUPPLY:

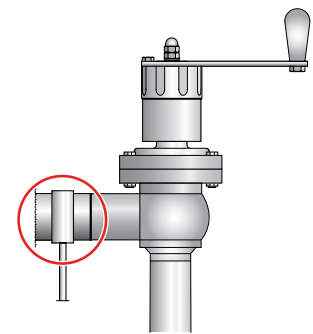
- Use expert personnel for installation/uninstallation operations.

A = Valve opening  
B = Valve closing



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

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



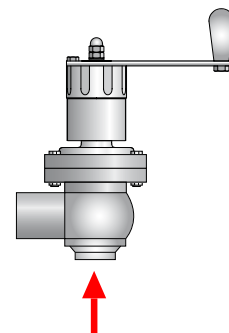
### CAUTION!

The seal seats may become deformed or cause valve malfunctioning.



### 3. CORRECT DIRECTION OF FLOW:

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



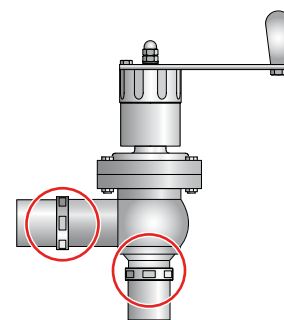
### CAUTION!

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



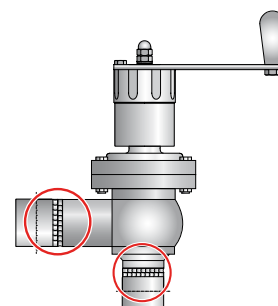
#### 4. VALVE CONNECTIONS/CONNECTORS:

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



#### 5. WELDING THE VALVE BODY ONTO PIPING:

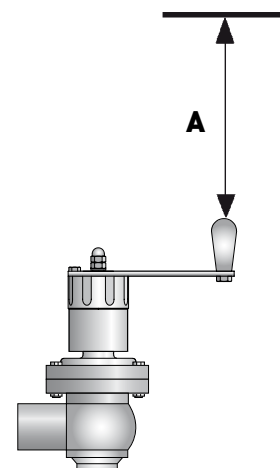
Remove the body from the rest of the valve before proceeding with welding operations. Please refer to the following pages in this manual.



#### 6. MINIMUM MAINTENANCE CLEARANCES:

Make sure there is enough room to disassemble the valve.

DN	A (mm)	B (mm)	C (mm)
10-25	250	245	245
32-40	270	255	255
50	280	270	270
65	300	285	285
80	310	300	300
100	330	310	310



#### 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.

## 6 Troubleshooting



PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
External leak	Worn gasket	Replace the seal
Leaks inside the closed valve caused by normal wear		
External leak	Excessive pressure	Replace with a gasket of a different type of elastomer
	Excessive temperature	
Premature leaks inside the closed valve	Aggressive fluids	Modify the operating conditions
	Too many commands active	
Difficulty opening and closing	Incorrect type of elastomer used for the gaskets	Replace with a gasket of a different type of elastomer
	Incorrect valve body positioning	Disassemble and correctly reposition the valve body

## 7 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:

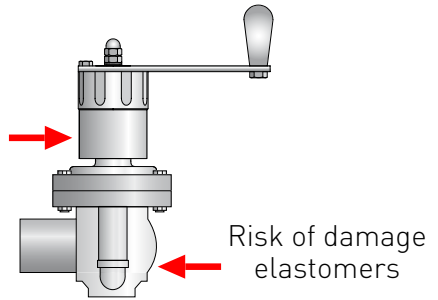
- Abide by the indicated detergent concentration values;
- Observe the instructions provided by the detergent manufacturer.
- Always wear protective safety glasses and gloves.



### IMPORTANT!

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

Risk of stainless steel corrosion



Risk of damage elastomers



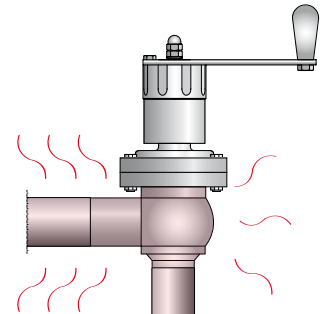
### WARNING!

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



### WARNING

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



EXAMPLE OF INTERNAL WASHING CYCLE (CIP)

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

Recommended washing product velocity = 2m/s



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

	EPDM	FKM
<b>Steam</b>		
Maximum continuous temperature	130°C	120°C
Maximum temperature (for a period of 15-20 minutes)	150 °C	140 °C

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

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

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

## 8 General maintenance



### 1. MAINTENANCE PRECAUTIONS

Maintenance operations must be carried out by expert technicians only.



#### **WARNING!**

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



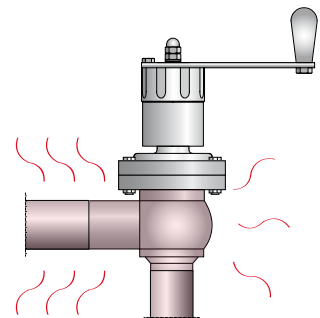
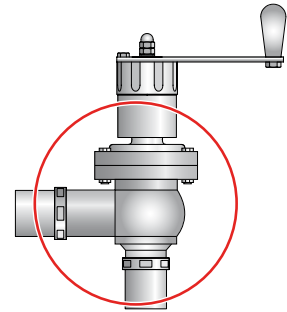
#### **WARNING!**

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



#### **WARNING!**

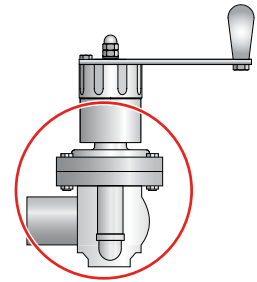
Burns hazard. The valves and piping may be very hot. Wear protective gloves





**2. CLEANING AWAY DEPOSITS:**

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



**3. REPLACEMENT OF WORN VALVE PARTS:**

Always use original spare parts

## 9 Disposal



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

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

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

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

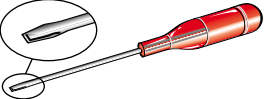



- make sure the line on which the valve is installed in is not in use
- empty the line on which the valve is installed and clean if necessary
- disconnect the air supply if it is not required during dismantling
- disconnect the valve from the power supply
- remove the valve from the system
- move the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

## 10 Maintenance

### 10.1 Scheduled maintenance

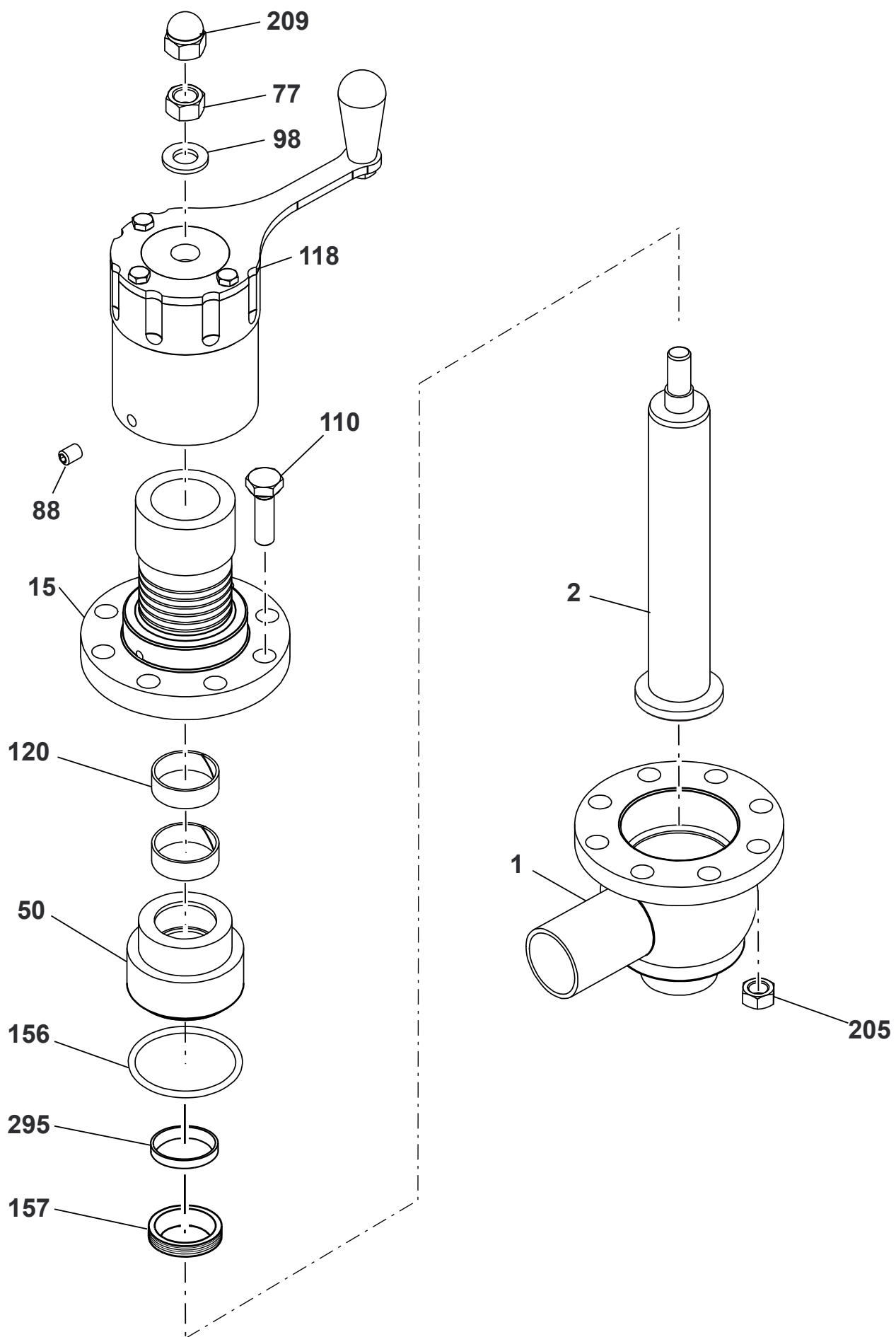
SCHEDULED MAINTENANCE	VALVE GASKETS
Preventive	Replace after 12 months
In the event of leaks	Replace at the end of the day
Periodical	Check correct operation and that there are no leaks
	Record the actions carried out

## 10.2 Tools useful for Disassembly/Reassembly

TOOLS	DN25 -- DN50	DN65	DN80 -- DN100	
				
	6			
	17 - 19	17 - 19 - 22	19-22	

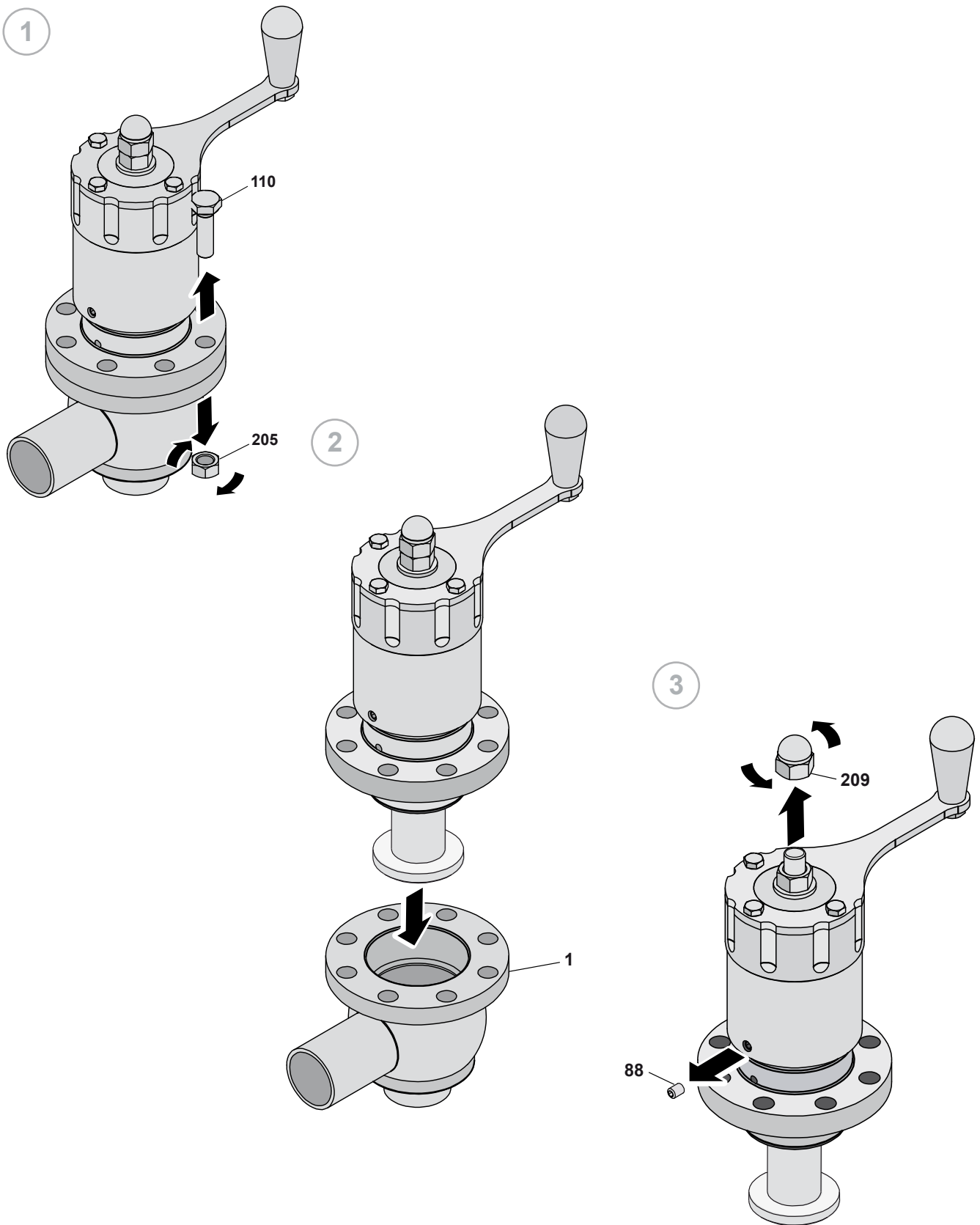
### 10.3 Manual valve BBZMQ

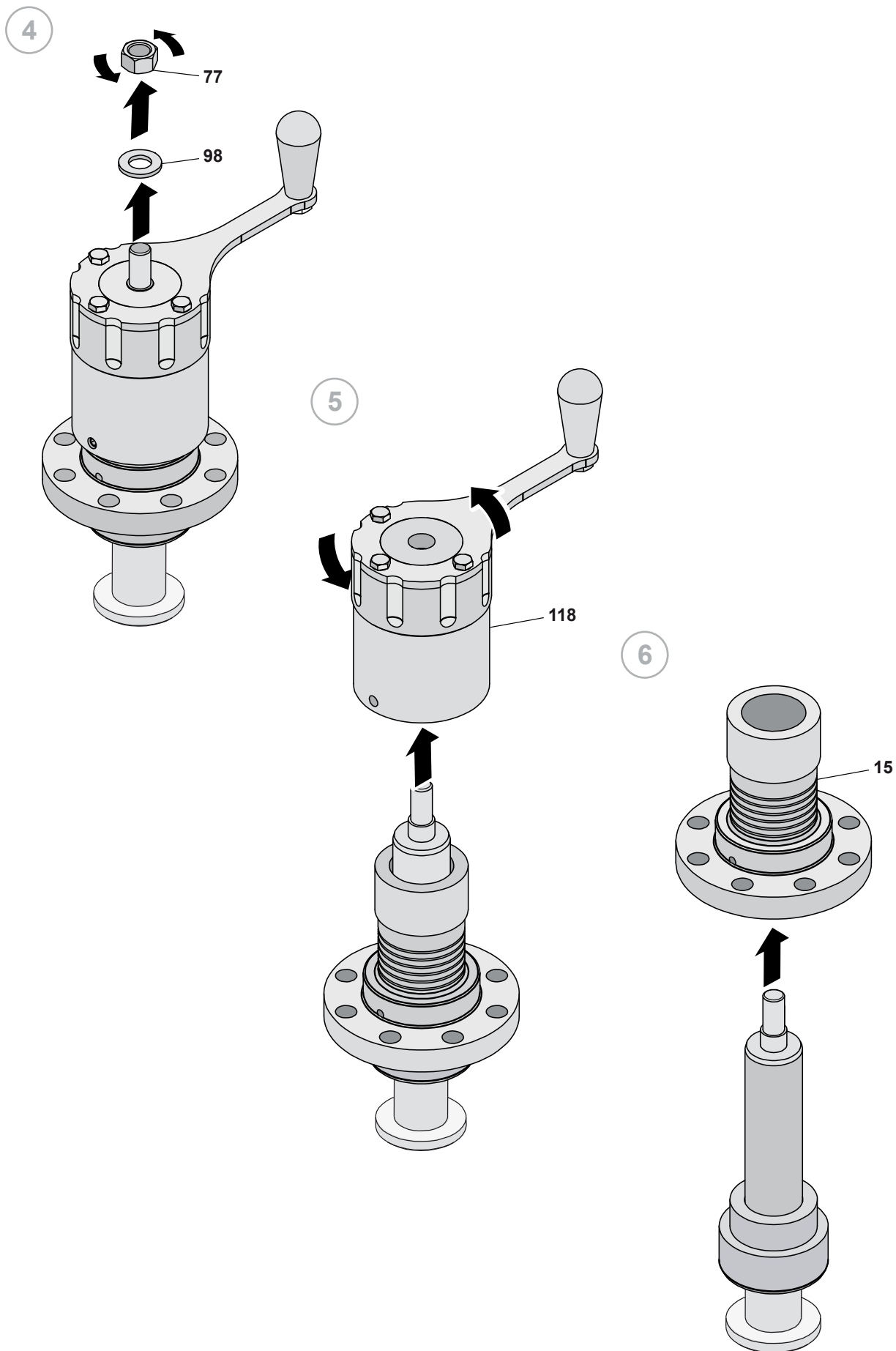
NO.	DESCRIPTION	NO.	DESCRIPTION
1	Lower body		
2	Valve member		
15	Yoke		
50	Gasket holder disc		
77	Nut		
88	Threaded grub screw		
98	Washer		
100	Flange		
118	Handle		
120	Bush		
156	Sealing ring		
157	Sealing ring		
205	Nut		
209	Nut		
295	Bush		

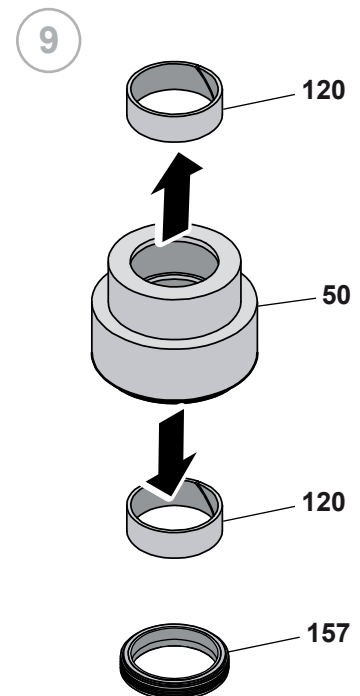
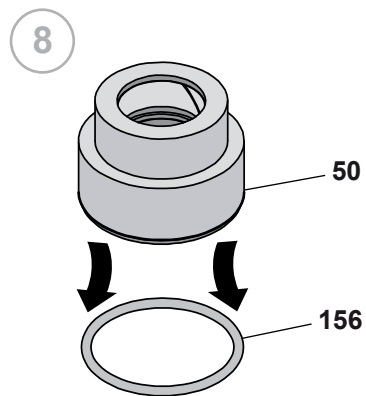
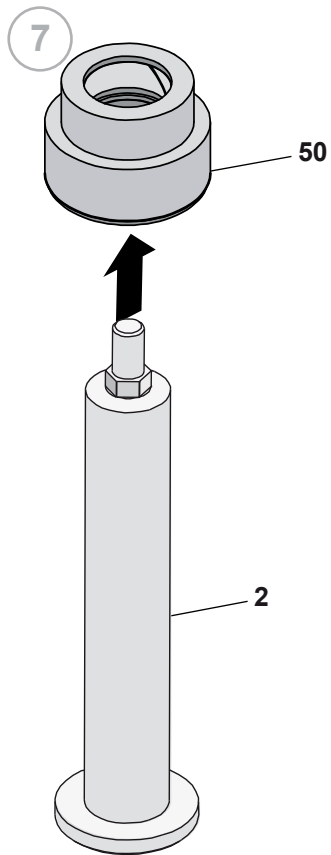




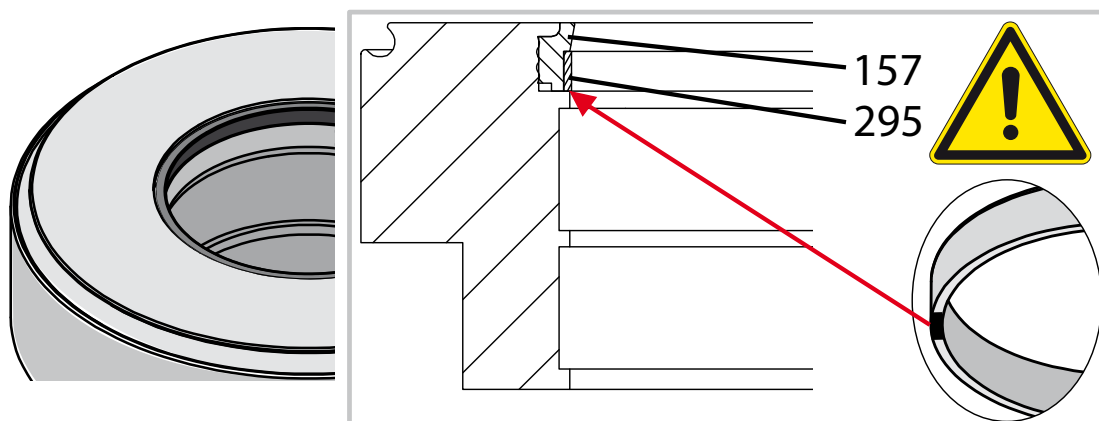
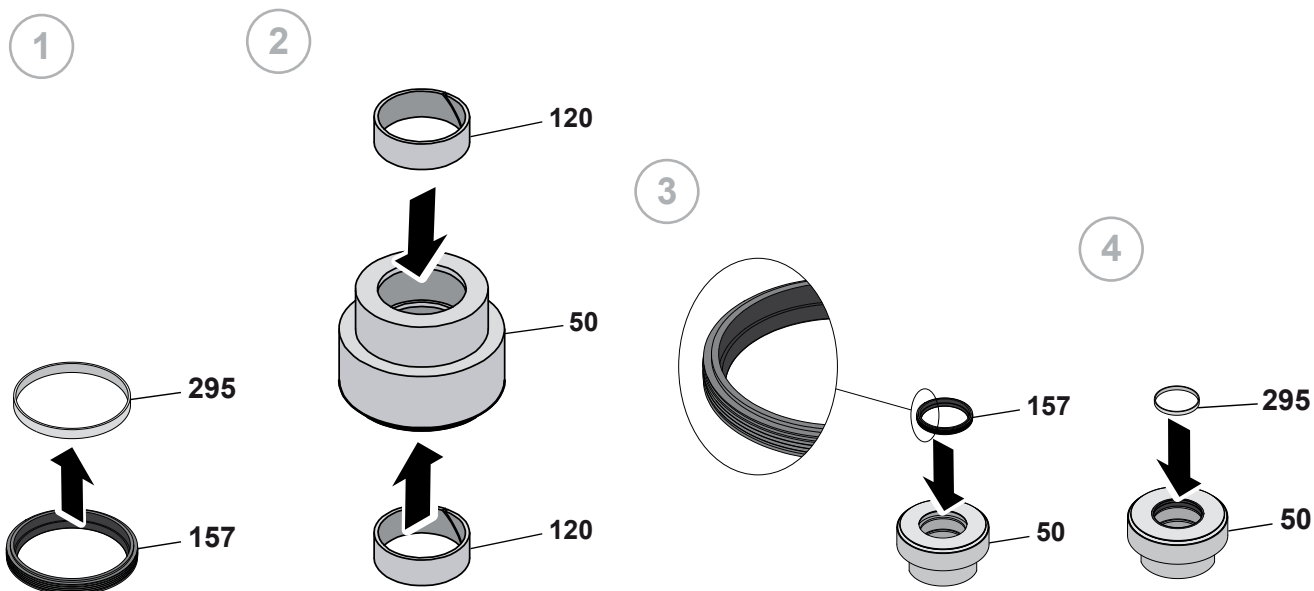
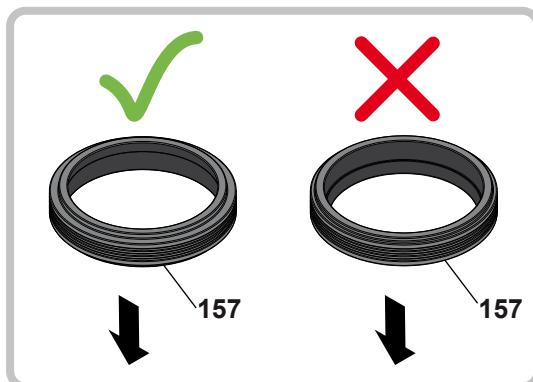
## 10.4 Disassembly of the BBZMQ

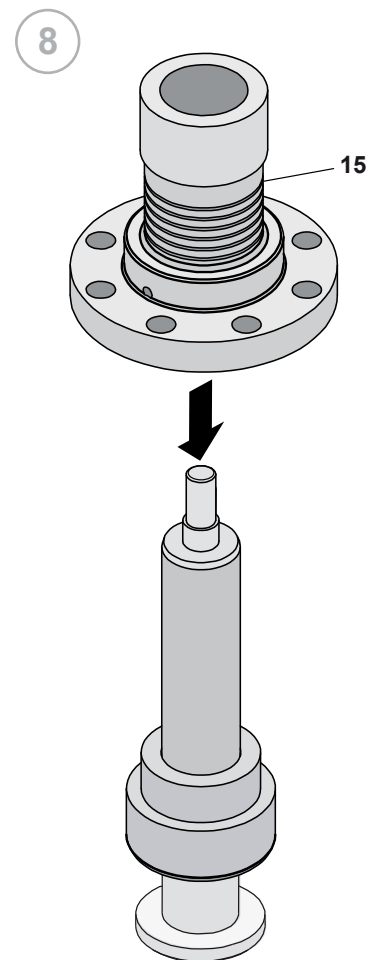
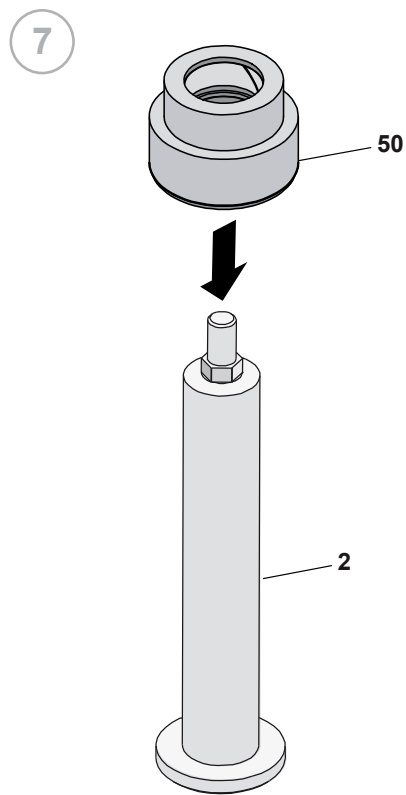
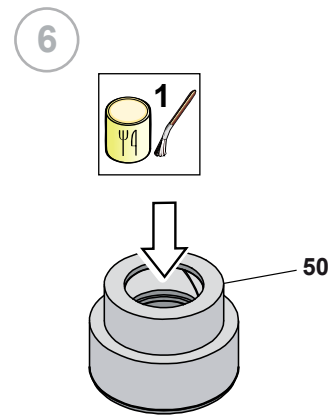
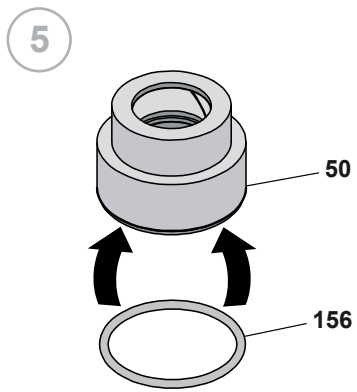


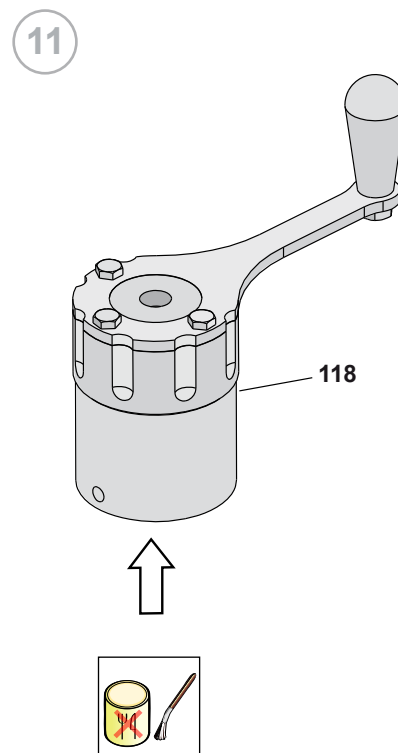
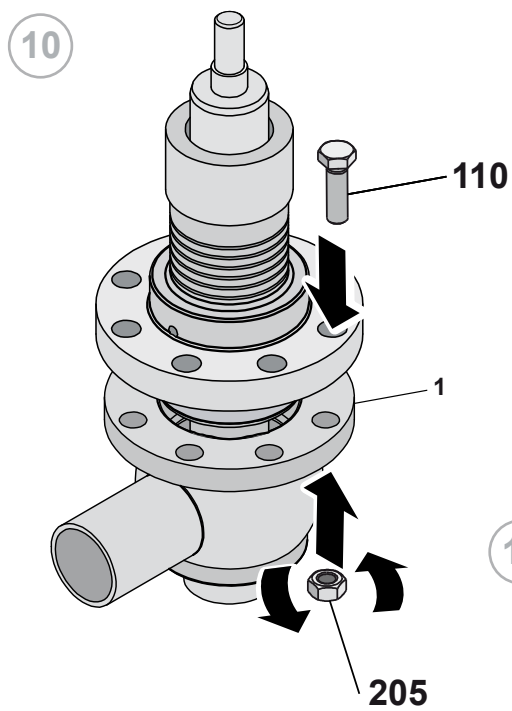
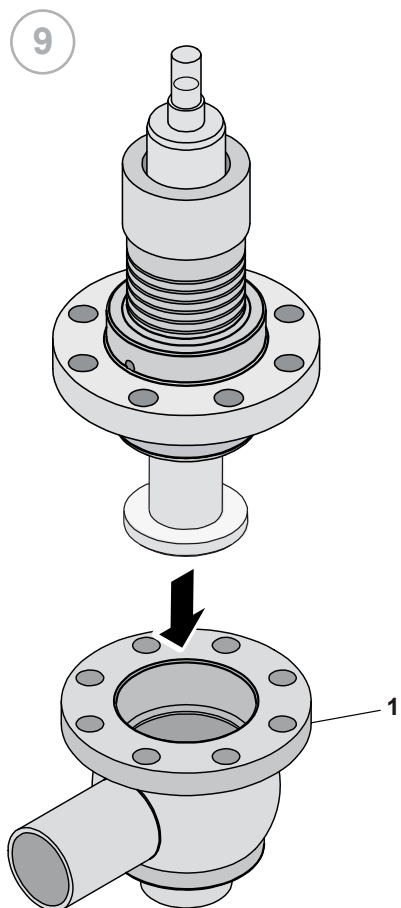




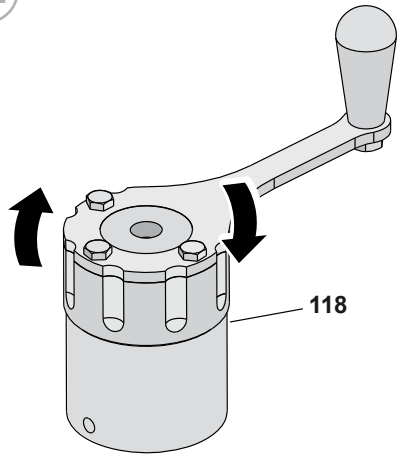
## 10.5 Assembly of the BBZMQ



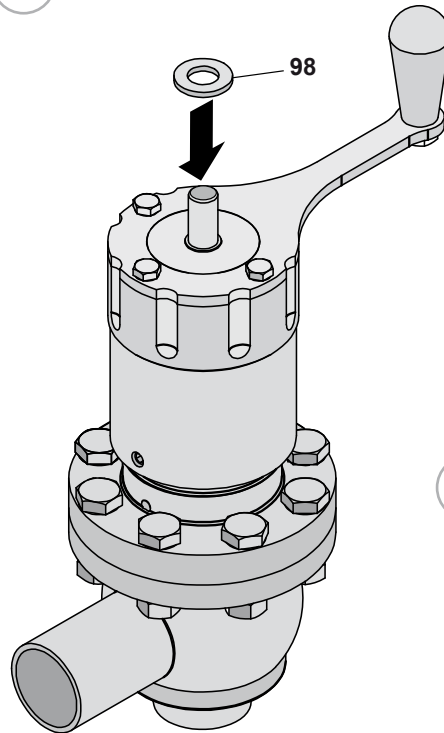




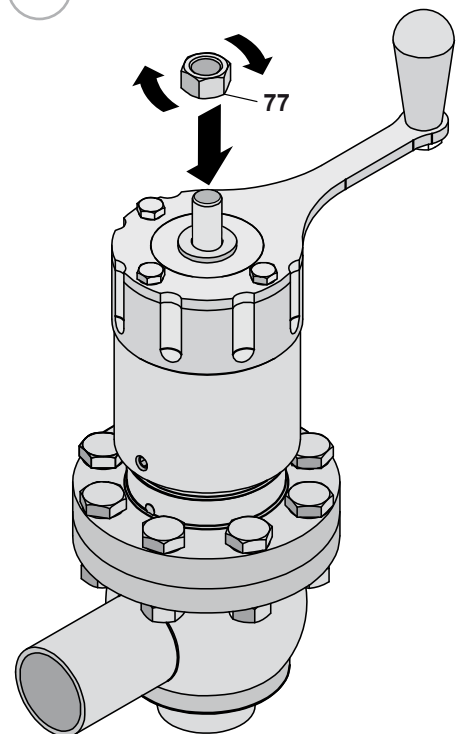
12

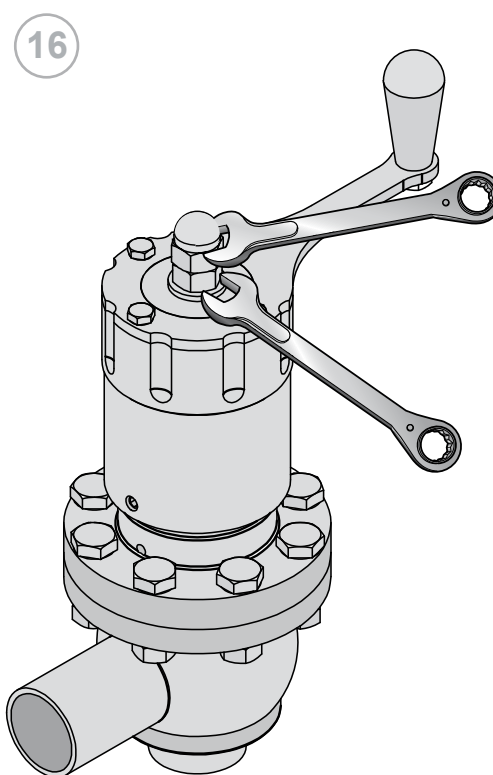
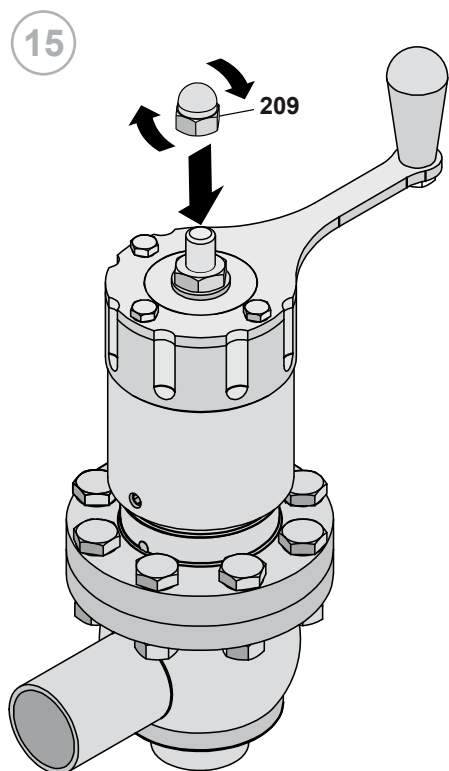


13

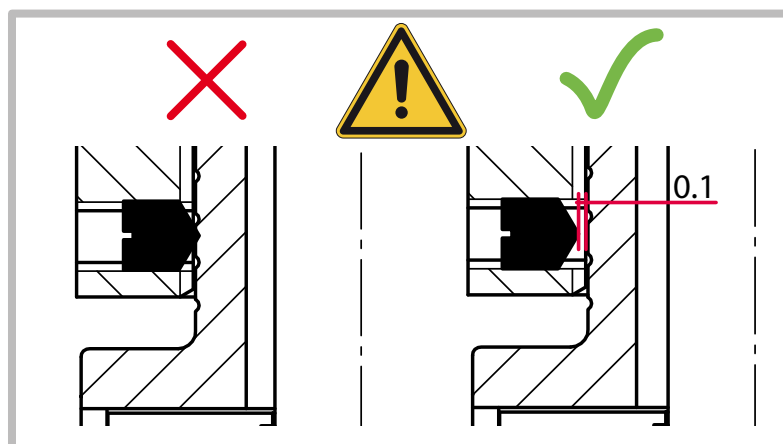
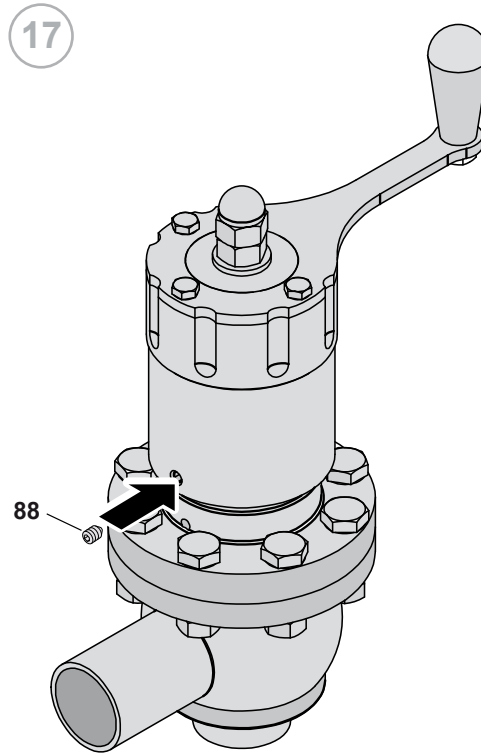


14









# 11 Annexes



GB - PED Declaration of  
conformity - manual VVF

## EC DECLARATION OF CONFORMITY

(EC) 97/23, Annex. VII

### BARDIANI VALVOLE S.p.A.

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

#### Declares

under its own responsibility that the pressure equipment:

Type:	<b>Manual valves</b>
Model:	
Serial number:	
Conformity evaluation procedure used:	<b>Module A</b>
Year of construction:	<b>2016</b>
Reference	

complies with all relevant provisions of the following EC directives:

#### **(EC) 97/23**

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

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

REGULATION (EC) 10/2011 and subsequent amendments and additions with regard to PTFE in contact with the product

Fornovo di Taro

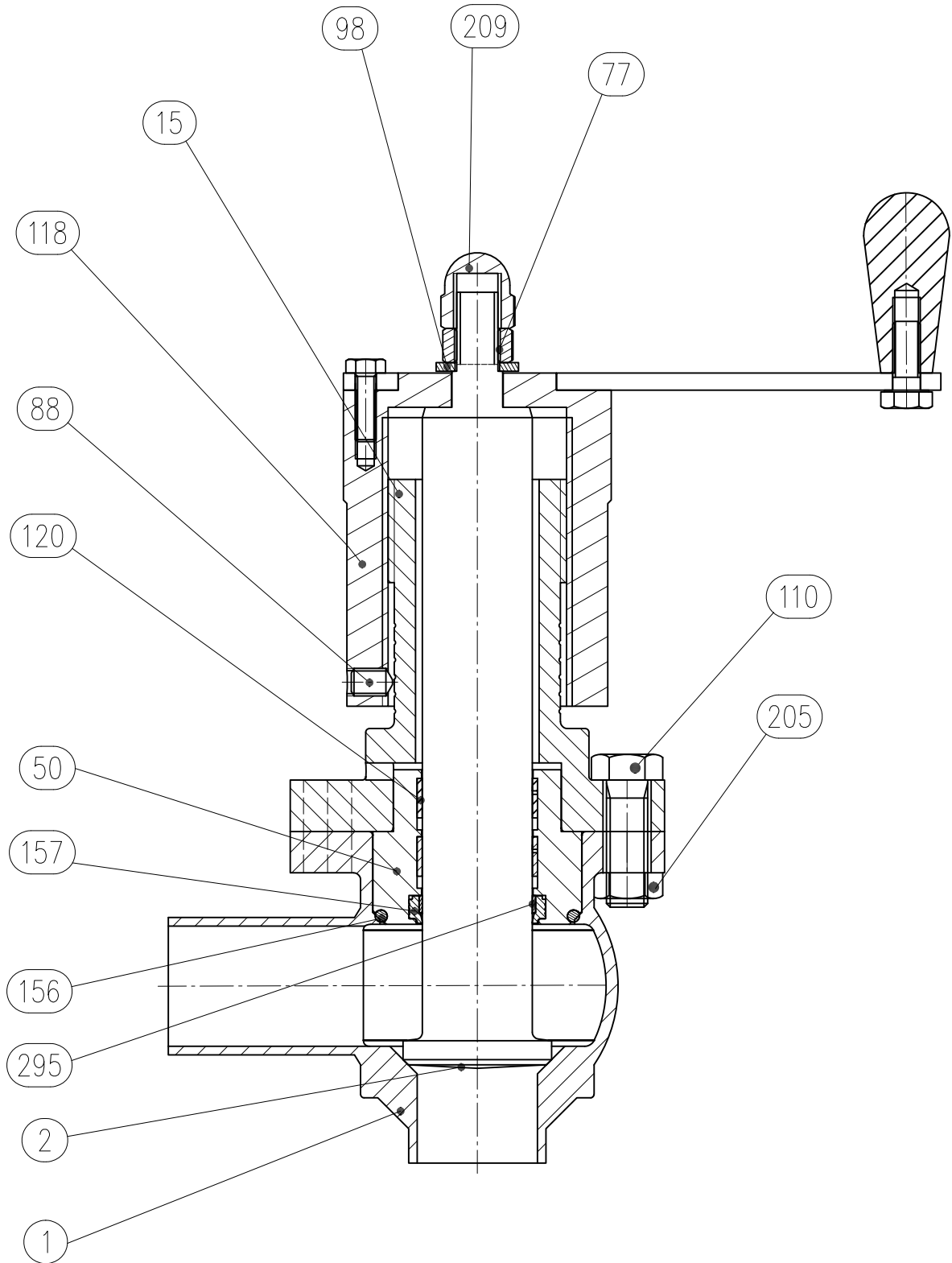
22/01/2016

\_\_\_\_\_  
Emanuela Bardiani  
Legal Representative

A20-P-PRG-GB Ed. 1. Rev.  
0

**BARDIANI VALVOLE S.p.A.**  
Via G. di Vittorio 50/52  
43045 Fornovo di Taro (Pr)

# 12 2D diagram BBZMQ



[A S BBZMQ]

## 13 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.

## 14 Recommendations

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



NOTES

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