Safety valve
Ultra-clean
HSV

Instructions

Référence : HSV_NOT_EN

Version E

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1 INTRODUCTION

1.1. The manufacturer

SERVINOX is a specialist, making process equipment for the brewing, food, cosmetic and chemical industries.

Skill and knowledge about process equipment:
In areas such as the protection of tanks, sampling, injection of gas in liquids, scouring or cleaning pipes with patented products.

SERVINOX is certified ***ISO 9001: 2008*** and makes products complying with the following applicable standards and directives:

- Pressure Equipment Directive ***(PED) 2014/68/EU***
- European Directive concerning Devices for Use in Explosive Atmospheres ***(ATEX) 2014/34/EC***
- Hygienic standard for manufacturers US 3A

We are an active member of the association ***EHEDG France*** (hygienic standard for European manufacturers).

1.2. Instructions

To ensure the integrity of the device and the safety of people, you should be aware of the information contained in these instructions before installing and using the device.

Depending on the installation and the fluid, the specific directives and regulations apply, and should be complied with.

In addition to these instructions, the general instructions for safety at work and protection should be applied. The regulations concerning the protection of the environment must also be followed.

1.3. About the equipment

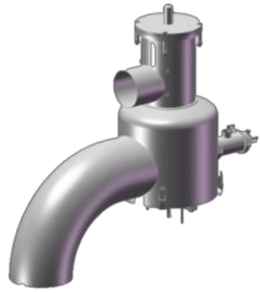
The HSV safety device helps you solve the hot/cold thermic stresses suffered by the tank when hot cleaning. The valve allows the instantaneous passage of a significant airflow.

The HSV safety valves are completely autonomous devices, not requiring any external control for their operation.

This valve is intended for use with fluids of type steam and gas of group 1 and 2 (article 13 of the PED 2014/68/EU) from 0.05 bar to 0.5 bar.

The HSV valve is available in 2 versions:

- ***Pressure / vacuum valve***



- ***Vacuum valve only***

Functional description

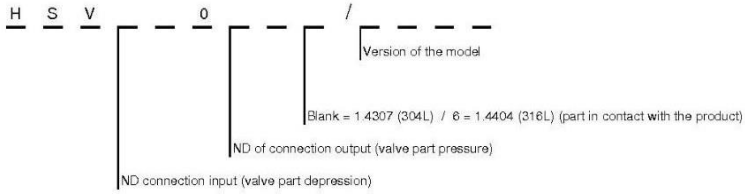
Pressure valve

When the pressure inside the tank is increased, the valve releases the overpressure by a high exhaust. Pressure calibration is a fixed factory setting.

Valve part depression

During a depression inside the tank, the vacuum valve moves up allowing air to enter the tank to restore the pressure.

Codification of the article



VACCUM VALVE		PRESSURE VALVE	
CODIFICATION	ND	CODIFICATION	ND
82	100	**00***	-
85	150	**08****	8
88	250	**13****	13
89	320	**20****	20
92	450	**25****	25
		32**	32
		40**	40
		65	65
		82	100
		85	150

**** HSV depression only (no pressure valve)***

**** * SHP valve only***

1.4. Signs

If you have difficulties these instructions cannot resolve, you should ask for further information from the manufacturer or from the equipment distributor.

It is essential to mention the SERVINOX order and/or this serial/production order number, beginning with SVX, for all special requests (spare parts, etc).

2 SAFETY INSTRUCTIONS

This technical manual contains basic instructions that should be followed. It is therefore essential to read it before installation and commissioning.

2.1. Indications and symbols

The following pictograms are designed to draw your attention to important points relating to the safety of people and the integrity of the device:

SYMBOL	DEFINITION
	Direct danger for people
	Possible damage to the product or its environment
	Useful information and application guidelines
	Minimum number required for certain operations. (The number of characters in the pictogram indicates the minimum number of persons).
	Minimum technical skill level. (the number in red indicates the minimum level required).

Some jobs require special technical skills and qualifications, such as for maintenance repairs or work on electrical equipment.

Three levels specify the required technical skill (knowledge of the equipment concerned, experience, training, etc):

	WORKER'S PROFILE	QUALIFICATIONS
Level 1	**End user** with no technical knowledge	**Default level** if the skill pictogram is not present. Permits only **ordinary use and routine maintenance.**
Level 2	**Experienced professional**	**Trained and experienced - knowing the equipment and the technologies used.**
Level 3	**The manufacturer's personnel** / expert of the product	**Work reserved for the manufacturer** of the documented device.

2.2. Safety of workers

Installation, test, adjustment, maintenance and replacement should be performed:

- By qualified persons
- Following the recommendations and guidelines given in these instructions
- Complying with the arrangements for safety at work, procedures and resources of the fitter, and the legal notifications for the prevention of accidents, especially those concerning electrical installations.

Not following these safety instructions can result in the loss of all right to claim damages.

2.3. Intended use

Correct utilisation

Check that the device chosen is right for its intended use, using the documents supplied with it.

Incorrect utilisation

The device must not be used for any other purpose other than its intended use. The manufacturer cannot be held responsible in case of incorrect utilisation.

The equipment must not be used beyond the following operating limits:

PARAMETERS	LIMITS
Maximum admissible pressure	0.5 bar
Temperature minimum/maximum of utilization	+1°C / +140 °C

2.4. Breakdown of the risks

DANGER / RISK			
	Hot fluid	**Very hot surface**	**Aggressive fluid**
HARM	Burns	Burns	Burns
PREVENTION			
	Garments, goggles, suitable gloves	Suitable gloves	Gloves, goggles, suitable mask

3 TECHNICAL SPECIFICATIONS

3.1. Standard version

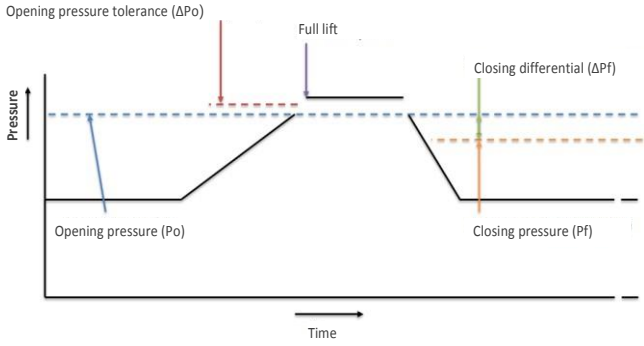
Specifications

SPECIFICATIONS	SERVINOX PROPOSAL
Calibrated pressure	0.05 to 0.5 bar
Vacuum calibration	-5 mbar
Temperature (Minimum / Maximum)	+1 °C / +140 °C
Orientation of the cleaning tube	180°
Connection collected escape in pressure	To weld only
Connection on tank	To weld or flange
Materials: • Part in contact with the product • Seals	Stainless-steel 1.4404 (316L) or 1.4307 (304L). VITON (FKM), EPDM

This valve is intended for use with fluids of type steam and gas of group 1 and 2 (article 13 of the PED 2014/68/EU).

Functional tolerances

CRITERIA	TOLERANCE
Opening pressure	
From +50mbar to +250mbar	±15 %
From +251mbar to 500mbar	±10 %

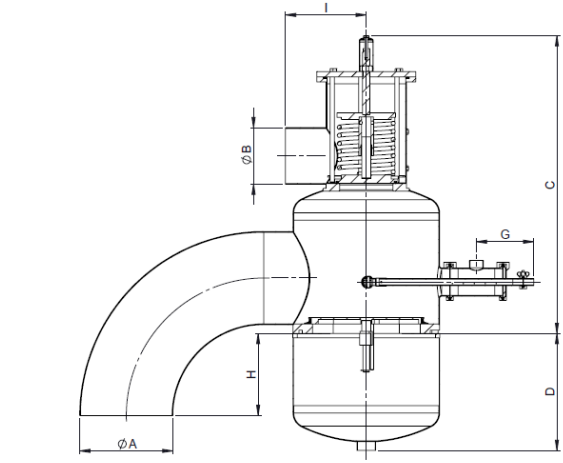


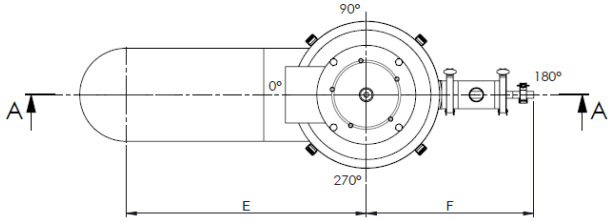
Dimensions (mm)

HSV pressure/vacuum

Sizes	A	B	C	D	E
DN 100/65	104x2	70x2	394	131	350
DN 150/100	154x2	104x2	485	129	400
DN 250/150	254x2	154x2	690	226	654
DN 320/150	324x2	154x2	815	271	807
DN 450/150	457x3	154x2	985	420	1118

Sizes	F	G	H	I
DN 100/65	335	156	304	120
DN 150/100	364	156	329	150
DN 250/150	457	156	402	220
DN 320/150	507	156	452	220
DN 450/150	630	156	572	220

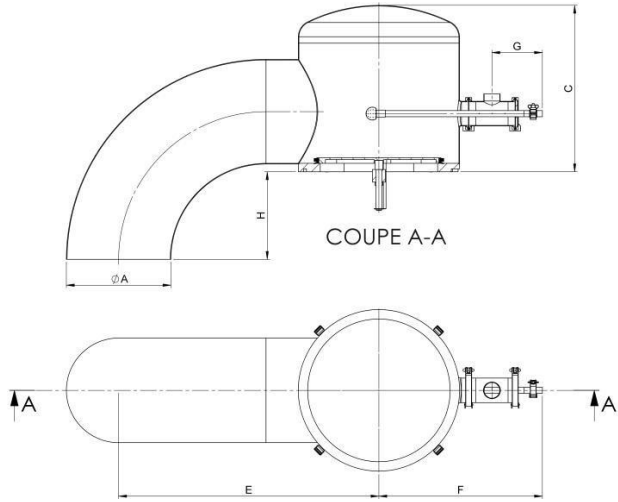




HSV depression only

Tailles	A	B	C	D	E
DN 100/65	104x2	-	215	-	350
DN 150/100	154x2	-	295	-	400
DN 250/150	254x2	-	395	-	654
DN 320/150	324x2	-	516	-	807
DN 450/150	457x3	-	690	-	1118

Tailles	F	G	H	I	
DN 100/65	335	156	304	-	
DN 150/100	364	156	329	-	
DN 250/150	457	156	402	-	
DN 320/150	507	156	452	-	
DN 450/150	630	156	572	-	



3.2. Standard Equipment

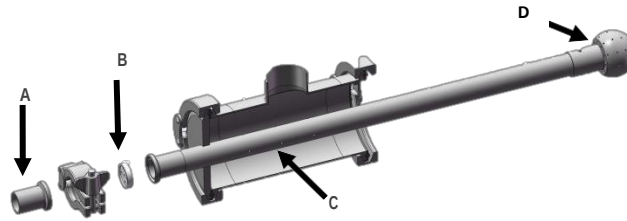
Technical and cleaning tube

The HSV valve is equipped with a technical tube that allows the connection, for example, of a sterile air supply and / or pressure sensor. The number of connecting tubes as well as the sizes of them, connections and orientations are to be specified according to your needs.

The orientation of the technical tube (DIN50 from DN100 to DN150, and SMS76 from DN250 to DN45) is 180 ° to the main valve connection.

The technical tube is composed of a cleaning tube with:

- 1 connection (Rep.A) to be welded OD ¾'' (19,05 x 1,65mm)
- 1 pellet (Rep.B) for the reduction of the cleaning flow;
- 1 Perforated cleaning tube (Rep.C) to clean the inside of the technical tube;
- 1 cleaning ball Ø40 - 360 ° (Rep.D) to clean the inside of the valve body.



Insect-proof drip collector

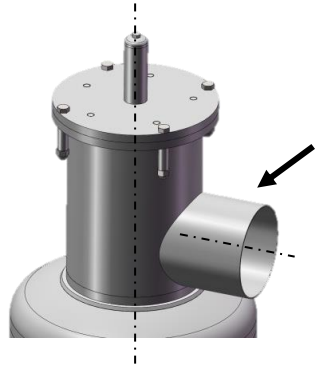
The HSV valve is equipped with an insect-proof drip collector which prevents the aspiration of insects or particles inside the valve during the self-opening of the vacuum valve. In addition, the collector allows recovery of wash drippings or condensate during CIP cycles.

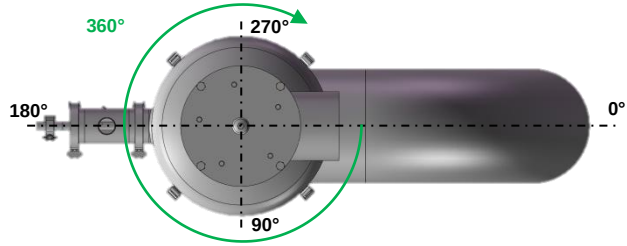
Size valve	ND 100/65	ND 150/100	ND 250/150	ND 320/150	ND 450/150
ØA	DN10 to ligate	SMS25to bewelded	SMS51to bewelded	SMS51to bewelded	SMS51to bewelded

3.3. Options

Orientation of the pressure exhaust

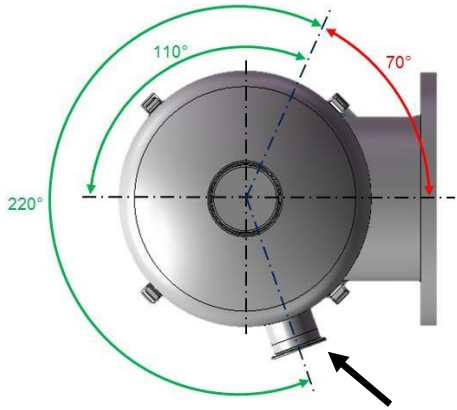
On request, it is possible to steer the pressure exhaust tube 360 ° in steps of 45 °. The standard orientation is 0 ° to the main valve connection.





Orientation of the technical tube

On request, it is possible to orient the clamping connection of the technical tubing of + / - 110 ° opposite to the main connection.

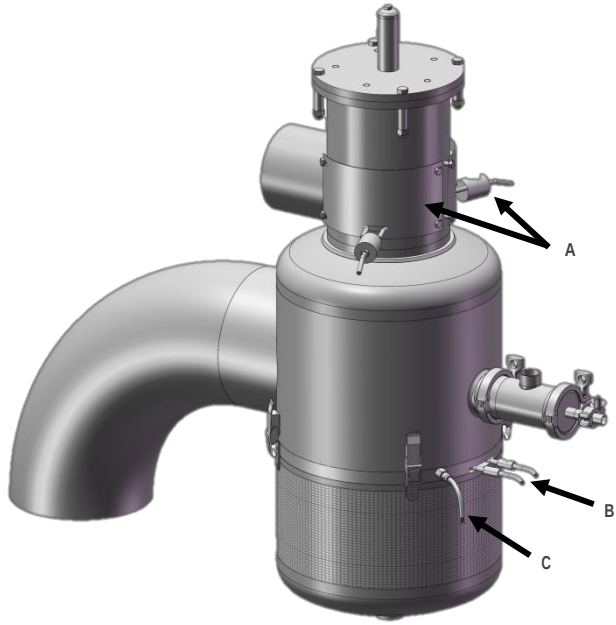


Frost protection system

If the HSV valve is used outside and subjected to temperatures below 1 ° C, the safety equipment must be equipped with heating accessories on the vacuum and pressure parts to avoid any risk of sticking the valves, bound to frost.

The freeze system is composed of:

- 2 heating sectors (Rep.A) on the recovery chamber of the pressure valve.
- 1 heating ring under the seat (flange) of vacuum valve (Rep.B).
- 1 PT100 temperature sensor (Rep.C).



Characteristics of the resistances

SIZES	PRESSURE FUNCTION	DEPRESSION FUNCTION
ND 100/65	-	-
ND 150/100	2 x 500W – 230V	500W – 230V
ND 250/150	2 x 600W – 230V	500W – 230V
ND 320/150	2 x 600W – 230V	1000W – 230V
ND 450/150	2 x 600W – 230V	2000W – 230V

Optional snow deflector

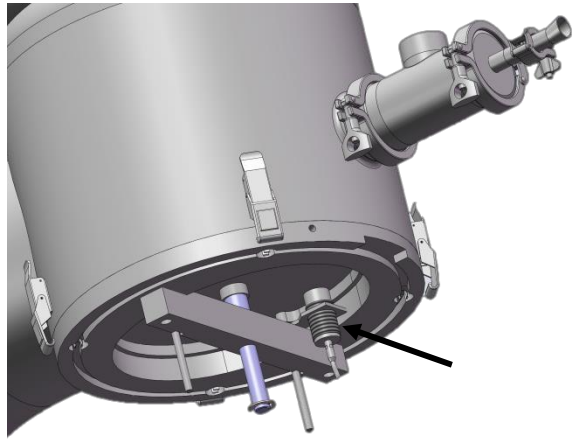
In the case of outdoor use with snow and in addition to the frost protection system, a snow cone must be installed on the insect-proof drip collector to avoid any risk of intake obstruction of air when opening the vacuum valve.

- A conical deflector is welded on the flange of the dripping collector.

- The heating system is a resistance wire arranged and wrapped around the deflector to prevent obstruction du to snow or ice on the dripping collector.

Depression valve opening detector

An inductive detection M30 can be installed under the vacuum valve in order to have a feedback on the opening of the vacuum valve

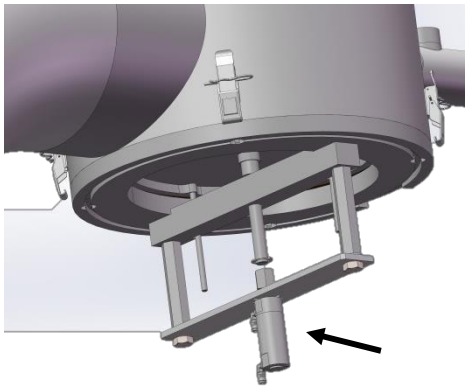


Forcing cylinder depression

CIP version

A pneumatic cylinder (6 bar) double acting can be installed to force the opening of the vacuum valve to ensure the cleaning of the valve seat and / or ensure the venting of the tank.

The forcing cylinder does not modify the autonomous operation of the vacuum valve.

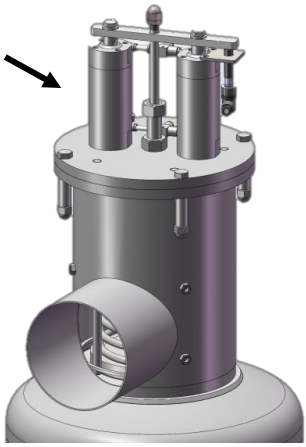


Pressure forcing cylinder

CIP version

2 pneumatic cylinders (6 bar) double acting + M12 sensor can be installed to force the opening of the pressure valve to ensure the washing of the valve seat and / or to vent the tank.

The forcing cylinder does not modify the autonomous operation of the pressure valve.



4 COMMISSIONING

4.1. Transport /Reception /Handling

Upon receipt, check :

- that **the package is in good condition**
- that the device **is delivered as ordered**
- that the device **has not been damaged**

If the device is damaged, it must not be fitted on the installation. Contact the manufacturer or your distributor.

4.2. Storage

If the device is not fitted immediately after delivery, it should be stored carefully.

It should be stored in its original packaging, in a covered area, with protection against dirt, rain, snow, insects and away from shock.

The safe storage temperature is between 5°C and 40°C, with relative humidity of the air < 50%.

If the device is stored at negative temperatures, the resistance of the materials to cold should be taken into account (e.g.: the seals).

If storage is for longer than one year, the seals need to be replaced before commissioning

4.3. Installation

General

Before any utilization of the equipment, the user must visually verify good condition: absence of corrosion, bits of packaging.

If the fluid is harmful, inflammable, toxic, etc…, fit the installation with discharge pipes going into a safe place.

Also, you are advised to check the compatibility of these products with the seals and materials before using them.

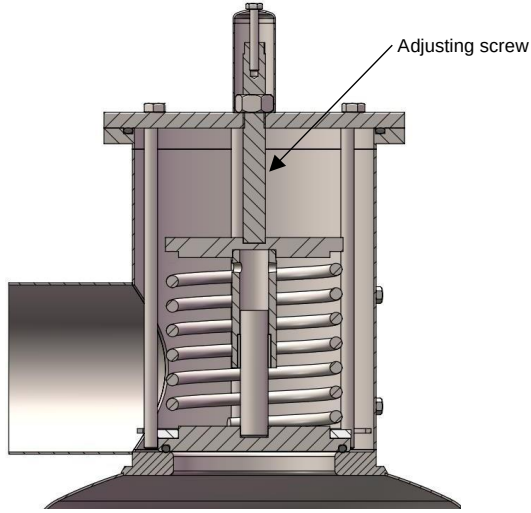
Precautions during the installation

- It is strictly forbidden to modify the calibrated pressure and modify the adjuster screw (Ref.16).

- It is strictly forbidden to change the intended use (Safety device and not a regulating device).

- It is very important to comply with the standards with regard to the assemblies and their dimensions.

Cross-section of the pressure valve part:



The workers

The work described below should be carried out by qualified and experienced persons.

The personnel must be fitted with gloves, helmet, and safety shoes.

Transport wedge

Before installing the valve, verify the absence of the transport wedge. To do this, proceed as follows

1) Withdraw the instruction sheet (below) from the drip collector

2) Remove the drip collector insect filter

3) Remove the Truarc ring

4) Withdraw the transport wedge

5) Fit the Truarc ring

6) Check the operation of the vacuum valve manually by fully raising the valve.

7) Refit the drip collector insect filter

Keep the instruction sheet and the transport wedge

Lifting the valve

Check that the lifting system and the slings are suitable for the weight of the HSV valve (see table below) and the lifting height.

Before any lifting operation verify the anchorage and the suitability of the lifting resources.

Weight of the valve and torque applied on the tank

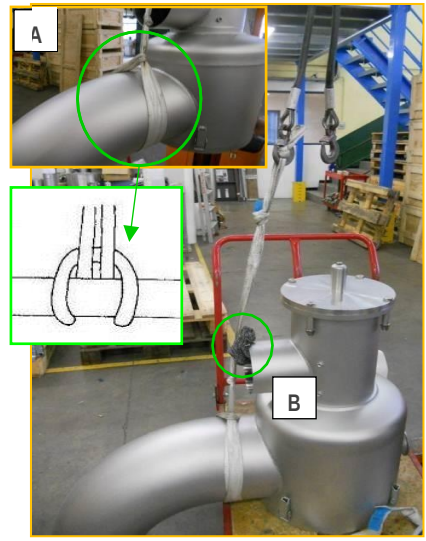
SIZES	WEIGHT (DAN)
ND 100/65	20
ND 150/100	31
ND 250/150	82
ND 320/150	120
ND 450/150	183

1) Withdraw the drip collector insect filter

2) Fit the 3 slings around the valve as follows:

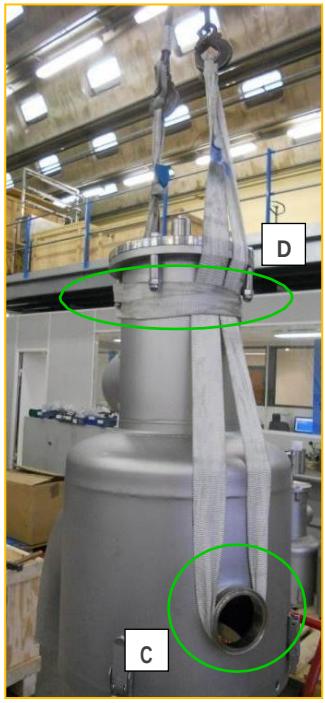
First strap:

Pass a sling around the tank connection (Ref.A) and put a rag on the pressure outlet to prevent any risk of cutting the sling. (Ref.B).



Second strap:

Pass the strap around the clamp ferrule of the cleaning tube. (Ref.C).



Third strap:

3) Pass the last strap around the two others, to stabilize the body while lifting. (Ref.D)

While lifting, make sure that nobody is under the load

Connections to the tank and outlet

The device should be welded to the tank by qualified persons following the regulations in force in the country of installation. The weld must not contain impurities and should be carried out hygienically.

After all welding and/or polishing work, the device should be cleaned of all residues, dust, etc.

- The valve should be installed in ***vertical position with a slope of about 2%*** towards the tank for discharging the solutions found in the valve.
- ***The connection tubes (tank and pressure outlet) must have interior and exterior diameters identical to the valve.***
- ***The tubes must not generate a loss of charge greater than 10% of the calibration.***

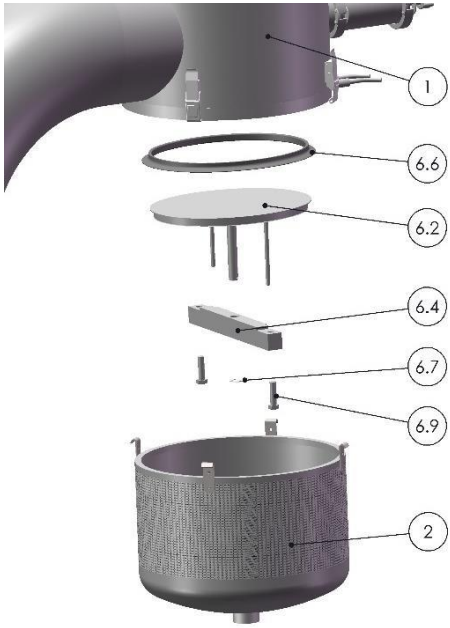
The pressure outlet pipe is sized so that the counter-pressure never exceeds 0.5 bar.

It is strictly forbidden to reduce the dimensions of the overpressure discharge pipes.

- ***Torque of the valve on the tank connection (table below)***

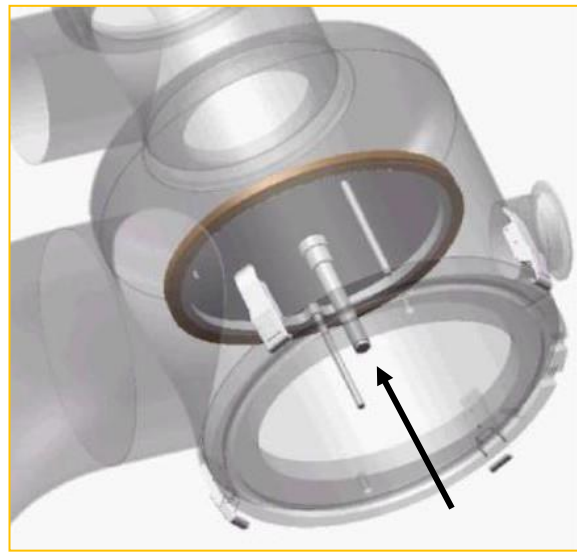
SIZES	TORQUE ON THE TANK CONNECTION ØA (NM)
ND 100/65	69
ND 150/100	119
ND 250/150	505
ND 320/150	892
ND 450/150	-

Fitting / dismantling the vacuum valve



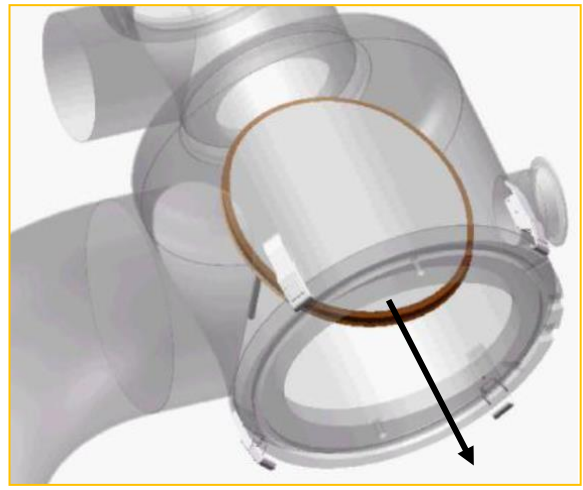
1) Remove the insect-proof drip collector (Ref.2).
2) Remove the Truarc ring (Ref.6.7) on the valve's axis (Ref.6.2).
3) Unscrew the 2 screws (Ref.6.9) and withdraw the arm (Ref.6.4).

4) Raise the valve inside the body

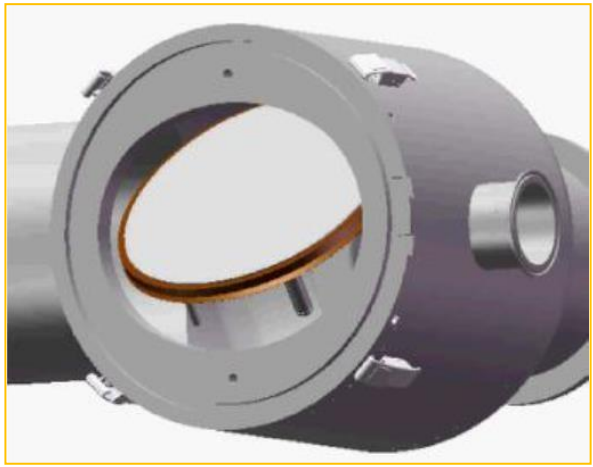


5) Turn the valve to 90° to horizontal

6) Tilt the valve to vertical and on its length



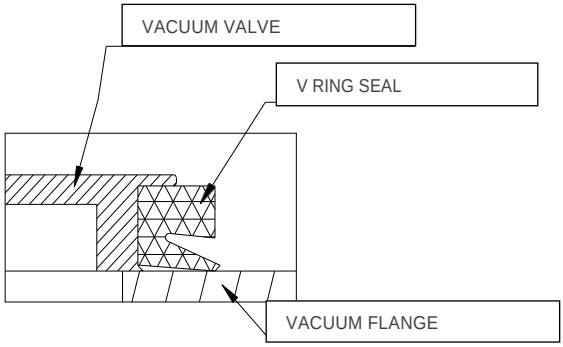
7) Remove the valve vertically by its narrowest side and the seating of the vacuum valve by its greatest distance from the oval hole



Proceed in the reverse order for refitting the vacuum valve.

Verification of the position of the vacuum valve

It is essential to verify the free travel of the valve (seal completely crushed).



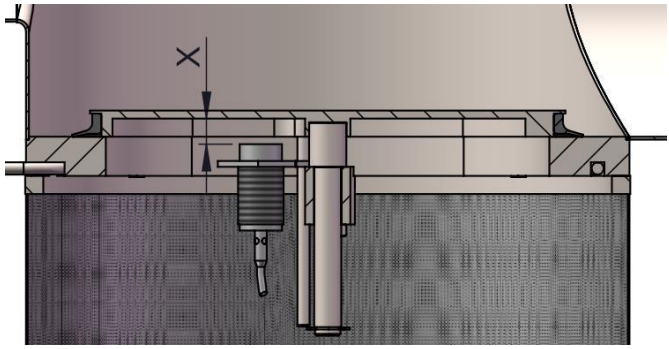
1) Handle the vacuum valve manually to raise it completely and release the valve in position of maximum opening.

2) Verify the absence of jamming or misalignment of the valve's axis.

Adjustment of the vacuum valve opening sensor

The adjustment of the vacuum valve opening sensor should be carried out under three conditions:

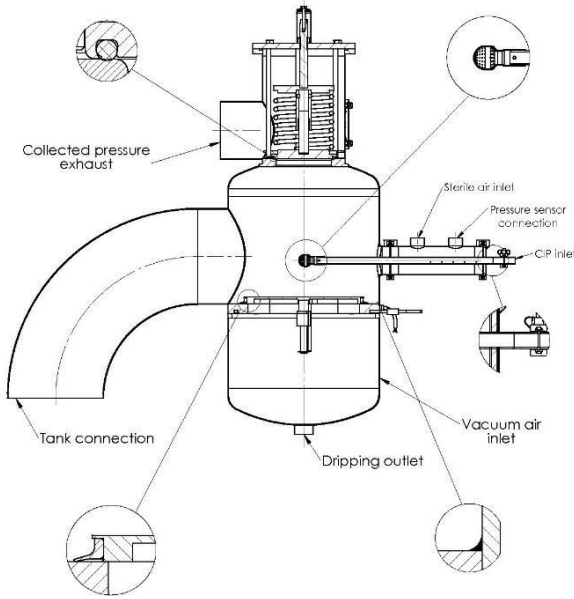
- Valve under pressure (jamming of the vacuum valve) = ***detection*** of the vacuum valve. ***MAKE SURE that the valve's axis is not stopped against detector.***
- Valve at atmospheric pressure (no pressure in the tank) = ***detection*** of the vacuum valve
- Opening of the vacuum valve = ***no detection***



The detection sensor must be installed on its support so that the "X" distance between the sensor and the vacuum valve is approximately 17 mm.

This distance is given as an indication and can be readjusted according to a bad detection of the vacuum valve, or if the sensor captures the valve when it is open.

Connecting the cleaning tube and sterile air

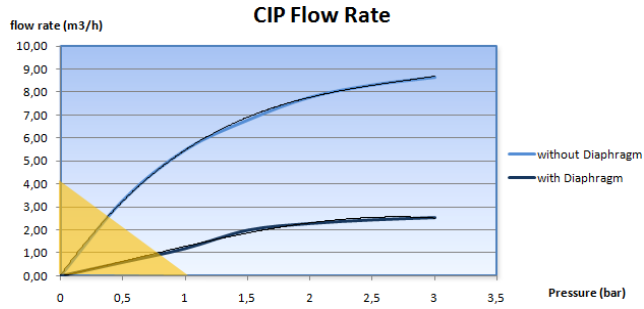


The ***cleaning tube*** connection is to be welded, the diameter of the tube to ***connect is 19 x 1.6mm.***

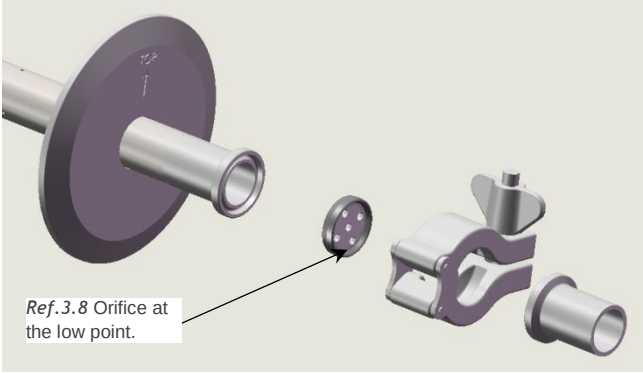
A complete clamp connector is placed on the arrival pipes so that the cleaning tube can be removed.

The drip collector must be connected to a pipe. If the valve is exposed to frost (external mounting), the insulation on the drain hose is strongly recommended to prevent freezing of drops inside the drain collector.

The cleaning ball should be supplied at the minimum with 1.2 m^3/h to 1 bar.



Check that the position of the diaphragm of the cleaning tube is assembled with an orifice at the lowpoint:



Ref.3.8 Orifice at the low point.

For a valve with a sterile air entry, a "T" is inserted between the arrival of the cleaning and the valve. A connector should be placed on the sterile air arrival pipes so that the "T" can be removed.

Connecting the the drip collector

For a valve with a drip collector, the diameter of the tube to connect is 25mm at the minimum.

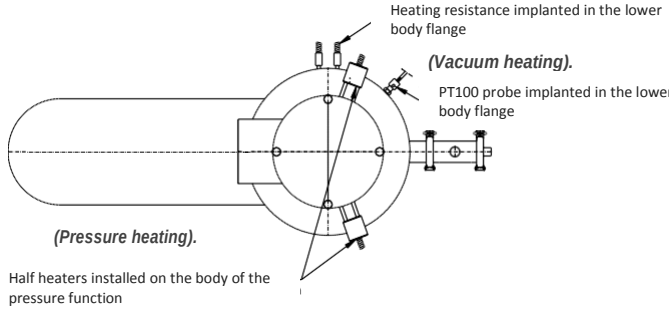
A connector must without fail be placed on the drip recovery pipes so that the collector can be removed.

If the equipment is equipped with an anti-freeze system, it is imperative to provide the frost protection of the drip recovery piping.

Electrical connection for the heating resistors

For a valve with heating resistors, the cables of the heating resistor and the two heating half-collars have a length of 10 metres.

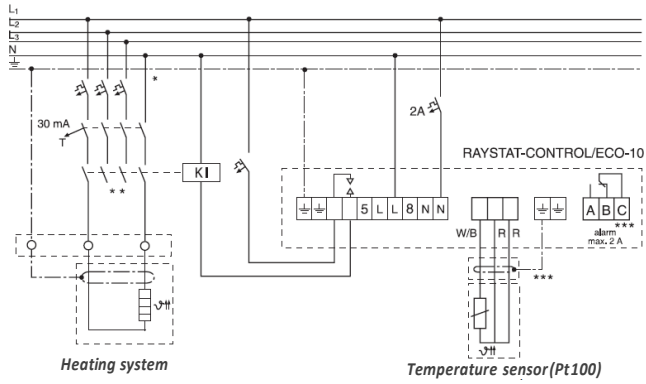
The power and voltages are indicated in the table in the chapter "technical specifications". They are protected by a flexible metal sheath. The temperature sensor Pt100 has a 3-wire cable with a length of 2.5 metres.



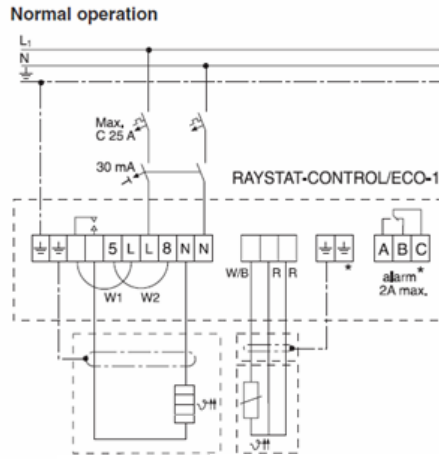
Automatic control is strongly recommended

Examples of fitting:

- Three-phase fitting



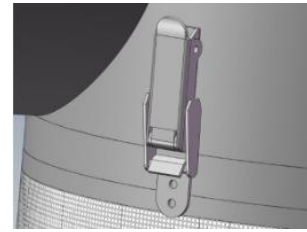
- Standard fitting



Heating system *Temperature sensor (Pt100)*

Do the following to check that the resistors have been fitted correctly:

- Verify the absence of power failure of the resistor; to do this measure the amperage on each resistor to check its functioning; if incorrect: ***ALERT***
- Verify the absence of short-circuit in a connection.
- Check the control of the heating resistors compared with the measurement of temperature by the sensor PT100; if incorrect: ***ALERT***.
- An ***ALERT*** should be given to the automatic controller in case of too high or too low temperature and if the sensor is not functioning.
- Check the discharging of fluids by the drip system and the absence of risk of freezing, otherwise provide insulation.
- The vacuum seating can be kept frost-free, only if the resistor is definitely fitted and the drip collector definitely fixed (clasp closed).



Heating for snow deflector

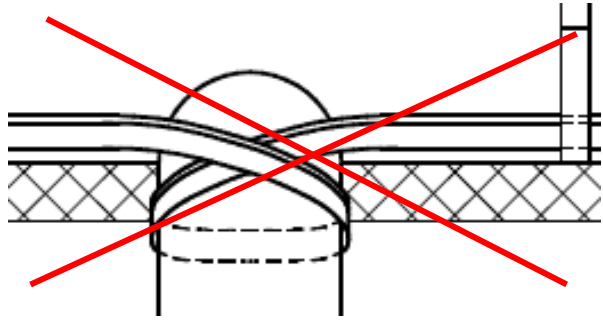
The heating ribbon should be fitted in spiral around the deflector and the resistor must keep a fixed distance "P" between wires:

DN 250/150 P = 33mm DN

320/150 P = 40mm

The resistor should be supported with plastic collars fitted vertically. Plan easy dismantling of the drip collector for maintenance.

Pay attention to the installation, never tie a knot or loop with the resistor band.



For the anti-freezing resistor to start, the conical deflector needs the temperature sensor Pt 100.

- Program a minimum temperature of 5°C; under this temperature start heating the deflector.
- Program an ***ALERT*** in case of failure of the sensor
- Program an ***ALERT*** in case of failure of the outlet voltage

All the alerts must transmit a warning signal and prevent all utilization of the tank.

Transporting the valve onto the tank

If the transport wedge on the vacuum valve (Ref.2) has been removed for connecting the valve on the tank, it is essential to refit the wedge for transporting the valve onto the tank.

To fit the transport wedge:

1) Remove the drip collector insect filter
2) Remove the Truarc ring on the axis of the vacuum valve
3) Insert the transport wedge
4) Refit the Truarc ring
5) Fit the drip collector insect filter with all the clasps
6) Fix with the instruction sheet (below) with a plastic collar on a clasp

5 USE

5.1. Functional checks

After installation, before using the valve or during all maintenance work

- Clean the seal gasket and the seating of the seals.

- Check that the vacuum valve can definitely perform all its travel up to the Truarc ring and redescend by gravity to closed position

5.2. Overflow of tank into the valve

In case of overflow of the tank into the valve:

HALT PRODUCTION: it is essential to manually clean the interior of the valve and the seal gaskets. Flooding of the valve no longer protects the installation from the risk of vacuum and overpressure

RISK OF DESTRUCTION OF THE TANK

5.3. Adjustment

Adjustments are reserved for the manufacturer of the documented device.

Contact SERVINOX or your distributor.

6 SERVICING AND MAINTENANCE

6.1. General

Weight of the components

REF.	DESCRIPTION	SIZE	WEIGHT (DAN)
15	Upper plate	DN65	3.1
		DN100	6
		DN150	9.2
23	Pressure valve	DN65	0.46
		DN100	1.8
		DN150	3.8
24	Drip collector insect filter	DN100	1.4
		DN150	2.3
		DN250	6.3
		DN320	15.2
		DN450	20.4
9	Arm	DN100	1.2
		DN150	1.66
		DN250	2.6
		DN320	4.5
		DN450	14.7
2	Vacuum valve	DN100	0.8
		DN150	1.3
		DN250	3.7
		DN320	5.4
		DN450	9.6

Calibrated pressure

The equipment is calibrated at a pressure under 0.5 bar and is therefore not governed by PED 2014/68/EU.

The calibration adjustment is carried out and tested by SERVINOX, which ensures the adjustment setting on delivery of the equipment. SERVINOX declines all responsibility if modifications to the calibration are made after reception of the valve.

For all modification to the calibration, contact SERVINOX, or your distributor.

6.2. Inspections and servicing

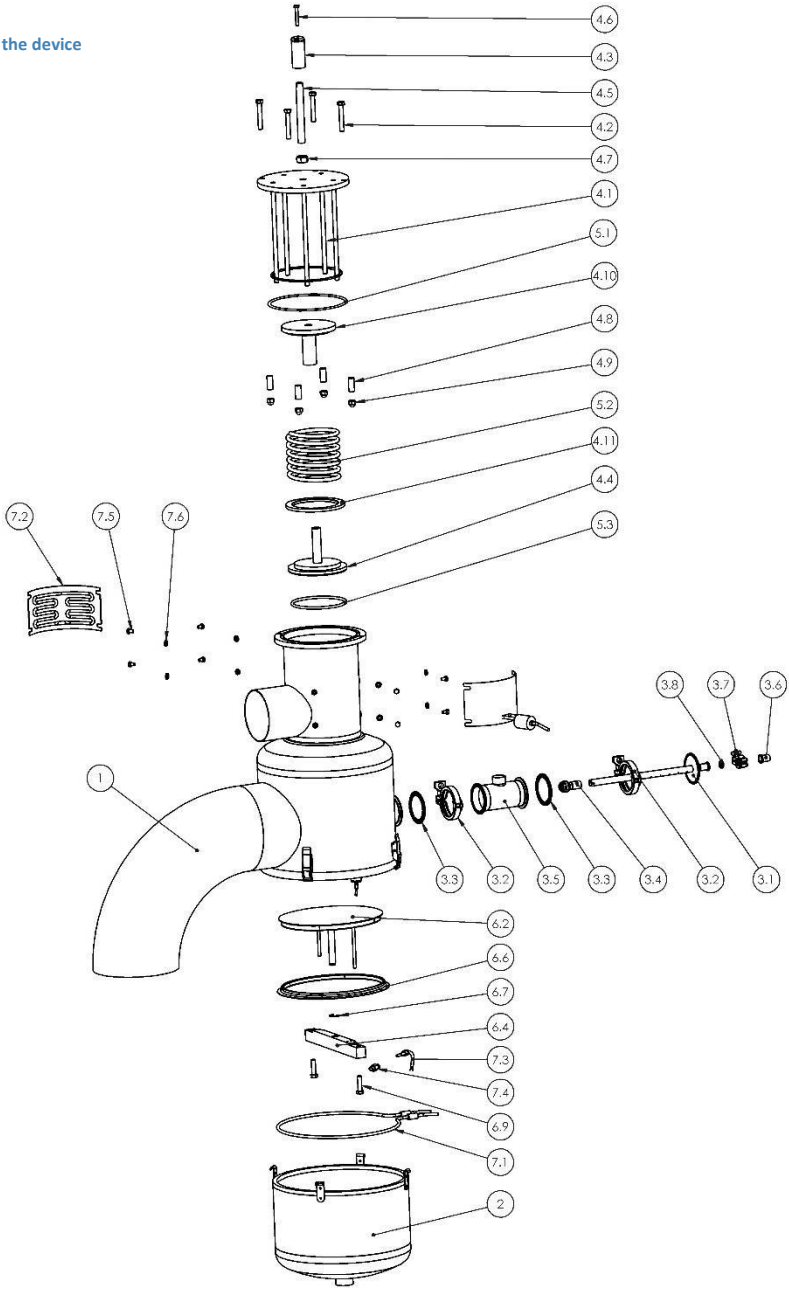
Frequency of maintenance required:

- *Every 6* ***months:***
  - Check for good condition and cleanliness of the seals (Ref. 5.1, Ref. 5.3 and Ref. 6.6).
  - Clean the interior of the valve
  - Check for correct functioning of the vacuum valve (Ref. 6.2).
  - Check that the diaphragm of the cleaning tube (Ref. 3.8) is not blocked.
  - Check the cleanliness of the interior of the cleaning ball (Ref. 3.4) so that it contains no impurities
  - Check for correct functioning of the temperature sensors and the heating resistors.
  - Check that the cable insulation of the electrical accessories are not damaged or cut.

- ***Every year:***
  - Change the seals of the pressure valves (Ref. 4.4) and vacuum valves (Ref. 6.2).

6.3. Replacing wear parts

Exploded view of the device



Parts list of the device

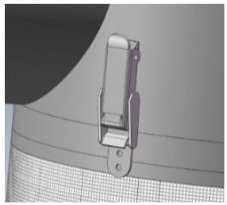
REF	DESCRIPTION
1	Body
2	Drip collector insect filter
3.1	Cleaning tube
3.2	Clamp collar
3.3	Clamp seal
3.4	Cleaning ball
3.5	"T" clamp (option)
3.6	Micro-clamp counter-ferrule
3.7	Micro-clamp collar
3.8	Pierced PTFE seal
4.1	Upper plate
4.2	Screw
4.3	Cap
4.4	Pressure valve
4.5	Adjuster screw
4.6	Screw cap
4.7	Locknut
4.8	Spacer
4.9	Cap nut
4.10	Upper spring guide
4.11	PTFE ring
5.1	Gasket
5.2	Spring
5.3	Pressure seal
6.2	Vacuum valve
6.4	Arm
6.6	V-ring vacuum seal
6.7	Truarc ring
6.9	Screw
7.1	Heating resistor (option)
7.2	Power for heating collar (option)
7.3	Temperature sensor (option)
7.4	Counterpart sensor (option) Cap screw
7.5	Power screw (option)
7.6	Washer (option)

Drip collector option

To dismantle the drip collector, proceed as follows:

1) Remove the connector of the drip collector if present

The drip collector is fixed by clasps.



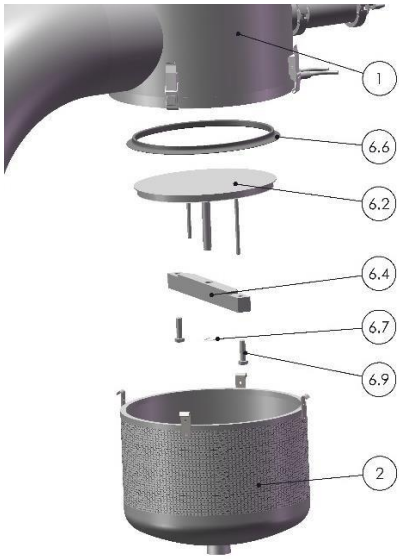
2) Open the clasps to free it.

Proceed in the reverse order for refitting the drip collector.

Changing the vacuum valve seal

Standard model:

Dismantle the valve as follows:



1) Remove the drip collector (Ref. 2) and the resistor (Ref. 7.1).

2) Remove the cleaning tube (Ref. 3.1) by removing the clamp collar (Ref. 3.2).

3) Remove the Truarc ring. (Ref. 6.7).

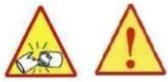
4) Loosen the screws (Ref. 6.9) holding the support arm (Ref. 6.4); the support arm slides on the valve's axis and is stopped in the lower part.

5) Take the assembly "Valve (Ref. 6.2) / Support arm (Ref. 6.4)", lift the assembly towards the interior of the valve, pivot the assembly by 90° and remove the valve by inclining it so that it passes by the oval orifice of the air inlet.

6) Change the seal (Ref. 6.6) of the vacuum valve.

7) Clean all the parts and the body before refitting.

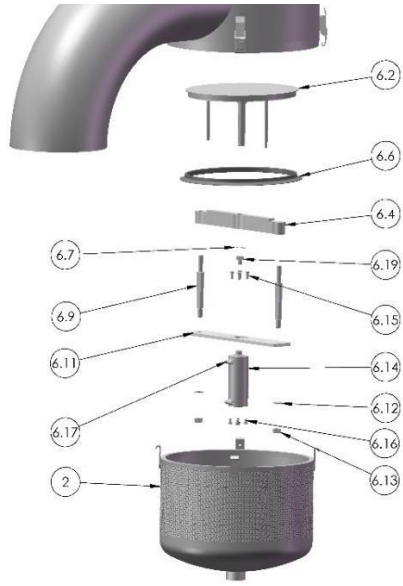
Proceed in the reverse order for refitting the drip collector.



It is essential to manually check the free travel of the valve: Raise the vacuum valve to its highest point and check that it is not blocked when it goes down by gravity.

When using a valve opening sensor: check that the axis of the vacuum valve is stopped against the sensor.

Model with cylinder:



1) Disassemble the drip collector (Ref. 2) and ensure that the pneumatic network is depressurized. Disconnect the fitting (Ref. 6.17) from the cylinder (Ref. 6.14) and unscrew the nuts (Ref. 6.13) to remove the cylinder assembly (Ref. 6.14) and cylinder holder (Ref. 6.11).

2) Remove the cleaning tube (Ref. 3.1) by removing the clamp (Ref 3.2).

3) Disassemble the Truarc ring. (Ref 6.7)

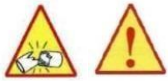
4) Unscrew the screws (Ref. 6.9) of the support arm (Ref. 6.4); the support arm slides on the axis of the valve as far as the bottom stop.

5) Take the assembly "Valve (Ref. 6.2) / Support arm (Ref. 6.4)", lift the assembly towards the inside of the valve, rotate the assembly by 90 ° and pull out the valve at an angle of so that it passes through the oval air intake orifice.

6) Replace the seal (Ref. 6.6) of the vacuum valve.

7) Clean all parts and body before reassembly.

Proceed in reverse order for reassembly of the drip collector.



It is imperative to manually check the full free travel of the valve: Lift the vacuum valve upwards and check that it does not block when it comes down by gravity.

In the case of the use of the valve opening detection sensor: check that the depression valve axis is against the sensor.

Changing the pressure valve seal

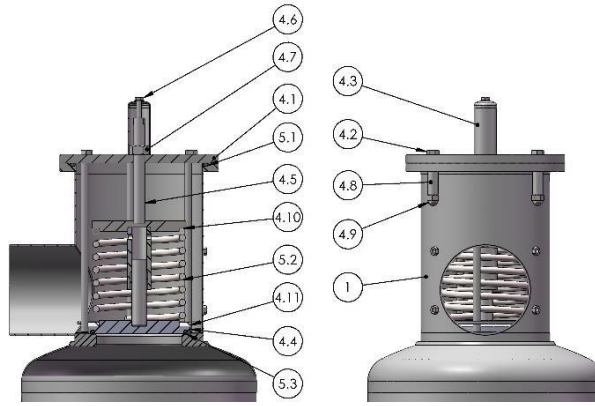
Standard model:

Dismantle the pressure valve as follows:

CAUTION:

When dismantling the upper plate (Ref. 4.1), do not remove the screw cap (Ref. 4.3) which protects the pressure calibrated by the adjuster screw (Ref. 4.5).

The locknut (Ref. 4.7) and the adjuster screw (Ref. 4.5) are linked by a point of weld which prevents any change to the calibrated pressure.



1) Remove the cap nuts (Ref. 4.9) and the spacers (Ref. 4.8).

2) Slacken the spring by the screws (Ref. 4.2) with the nuts (Ref. 4.9) holding the upper plate (Ref. 4.1) at the same time.

Caution when dismantling the compressed spring (Ref. 5.2): it should be removed very carefully.

3) Remove the upper plate (Ref. 4.1), then the spring guide (Ref. 4.10).

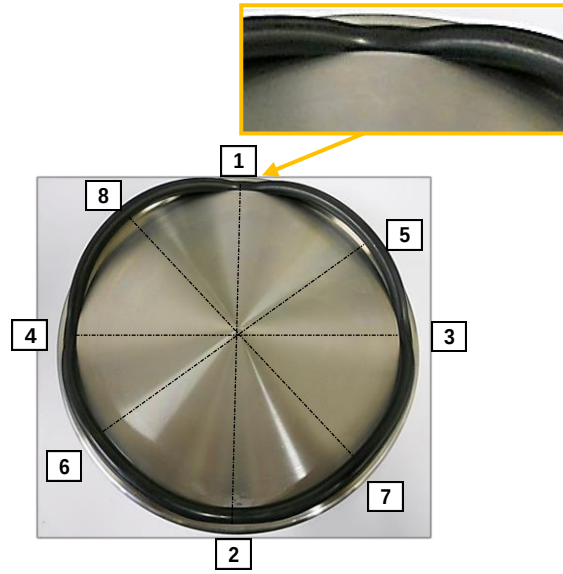
4) Remove the spring (Ref. 5.2), the valve (Ref. 4.4) and the seal (Ref. 5.3).

5) Change the seal (Ref. 5.3) of the pressure valve (Ref. 4.4) following these instructions:

- Clean all impurities from the valve
- Lightly spray food-standard silicone on the seal (Ref. 5.3).
- Refit the seal, without tools, as follows:

  - Put the seal (Ref. 5.3) flat on the throat of the valve seal (Ref. 4.4)

  - Introduce the seal (Ref. 5.3) in 8 points into the throat of the valve (Ref. 4.4) as shown in the following pictures:

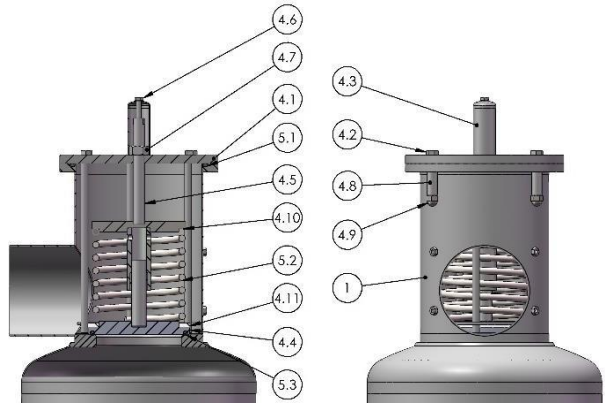


- Then, evenly slide the seal (Ref. 5.3) into its throat on the remaining sections. ***DO NOT USE TOOLS.***

BE CAREFUL WHEN FITTING THE SEAL (Ref. 5.3):

- When fitting, check that the seal (Ref. 5.3) does not turn.
- Check that the plane of the seal is right in the throat of the valve (Ref. 4.4).

Refit the pressure valve as follows:



1) Clean the interior of the pressure body and components before refitting.

2) Put the valve (Ref. 4.4) on its seating and **center** it in the body.

3) Stack on the valve (Ref. 4.4): the spring (Ref. 5.2), the spring guide (Ref.4.10), then the upper plate (Ref. 4.1).

CAUTION:

When refitting the upper plate (Ref. 4.1), do not remove the screw cap (Ref. 4.3) which protects the pressure calibrated by the adjuster screw (Ref. 4.5).

The locknut (Ref. 4.7) and the adjuster screw (Ref. 4.5) are linked by a point of weld which prevents any change to the calibrated pressure.

4) Apply food-standard grease on the screws (Ref.19) before refitting them, and fit the seal (Ref.20) and the throat of the body (Ref.1).

5) Reclose the pressure body while compressing the spring (Ref.22) and tightening the screws (Ref.19) on the upper plate (Ref.15).

CAUTION WHEN COMPRESSING THE SPRING:

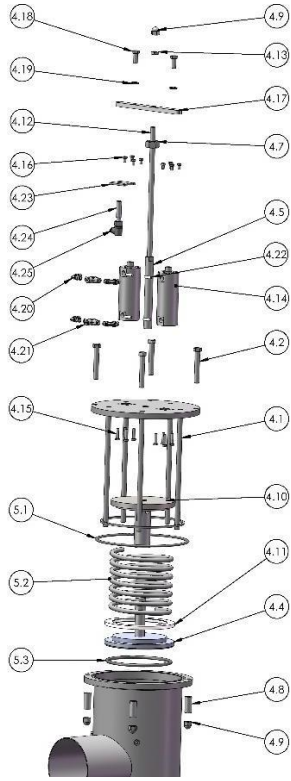
- Make sure that the screw (Ref. 4.5) is centered in the spring guide (Ref. 4.10).

- During compression: the tie rods of the upper plate (Ref. 4.1) must be centered around the valve (Ref. 4.4).

Note: If the upper plate (Ref. 4.1) is blocked before the complete reclosing: check that the tie rods on the upper plate do not stop against the valve (Ref. 4.4). In this case: check that the valve (Ref. 4.4) is properly centered in the pressure body (Ref. 1).

6) Fit the spacer (Ref. 4.8) and screw the cap nuts (Ref. 4.9).

Model with cylinder:



Dismantle the pressure valve as follows:

1) Make sure the pneumatic network is depressurized. Disconnect the cylinder connection (Ref. 4.14) and unscrew the nuts and screws (Ref. 4.9, 4.13 and 4.18). Unscrew and remove the threaded rod (Ref. 4.5).

2) Discharge the spring by loosening the screws (Ref. 4.2) with the nuts (Ref. 4.9) securing the top plate (Ref. 4.1) at the same time.

Becarefull when dismounting the compressed spring (5.2), it must be removed with care.

3) Remove the upper plate (Ref. 4.1) and the spring guide (Ref. 4.10).

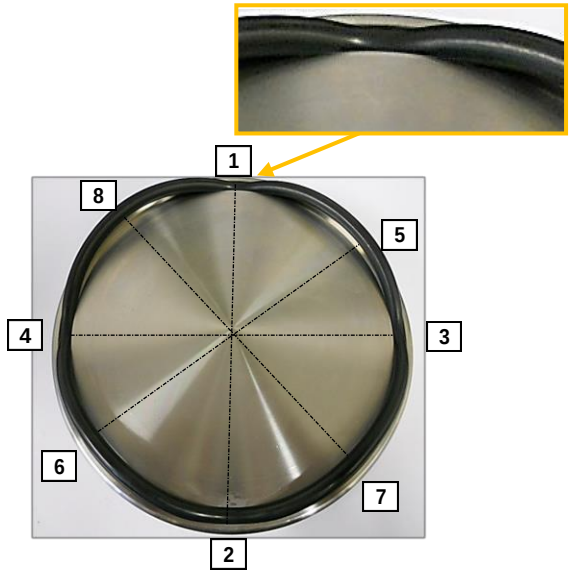
4) Remove the spring (Ref. 5.2), the valve (Ref. 4.4) and the seal (Re. 5.3).

5) Change the seal (Ref. 5.3) of the pressure valve (Ref. 4.4) following these instructions:

- Clean all impurities from the valve
- Lightly spray food-standard silicone on the seal (Ref. 5.3).
- Refit the seal, without tools, as follows:

  - Put the seal (Ref. 5.3) flat on the throat of the valve seal (Ref. 4.4)

  - Introduce the seal (Ref. 5.3) in 8 points into the throat of the valve (Ref. 4.4) as shown in the following pictures:



- Then, evenly slide the seal (Ref. 5.3) into its throat on the remaining sections. ***DO NOT USE TOOLS.***

BE CAREFUL WHEN FITTING THE SEAL (Ref. 5.3):
- When fitting, check that the seal (Ref. 5.3) does not turn.
- Check that the plane of the seal is right in the throat of the valve (Ref. 4.4).

Refit the pressure valve as follows:

1) Clean the interior of the pressure body and components before refitting.

2) Put the valve (Ref. 4.4) on its seating and center it in the body.

3) Stack on the valve (Ref. 4.4): the spring (Ref. 5.2), the spring guide (Ref.4.10), then the upper plate (Ref. 4.1).

CAUTION:

The locknut (Ref. 4.7) and the adjuster screw (Ref. 4.5) are linked by a point of weld which prevents any change to the calibrated pressure.

4) Apply food-standard grease on the screws (Ref.19) before refitting them and fit the seal (Ref.20) and the throat of the body (Ref.1).

5) Reclose the pressure body while compressing the spring (Ref.22) and tightening the screws (Ref.19) on the upper plate (Ref.15).

CAUTION WHEN COMPRESSING THE SPRING:

- Make sure that the screw (Ref. 4.5) is centered in the spring guide (Ref. 4.10).

- During compression: the tie rods of the upper plate (Ref. 4.1) must be centered around the valve (Ref. 4.4).

Note: If the upper plate (Ref. 4.1) is blocked before the complete reclosing: check that the tie rods on the upper plate do not stop against the valve (Ref. 4.4). In this case: check that the valve (Ref. 4.4) is properly centered in the pressure body (Ref. 1).

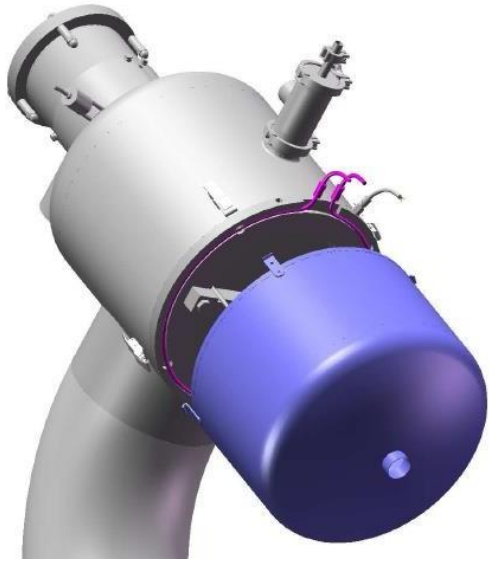
6) Fit the spacer (Ref. 4.8) and screw the cap nuts (Ref. 4.9)

7) Put and screw the threaded rod (Ref. 4.5). Screw the nuts and screws (Ref.4.9, 4.13 and 4.18) and connect the cylinder connection (Ref. 4.14).

Heating resistors

To dismantle the heating resistors, proceed as follows:

1) The heating resistor (Ref. 7.1) of the vacuum function is held in the flange under the body by clips. To remove it, you should therefore remove the drip collector (Ref. 2).



2) The heating half-collars (Ref. 7.2) of the pressure function are removed by taking out the screw (Ref. 7.5) and washers (Ref. 7.6).

3) The sensor Pt100 (Ref. 7.3) is fixed by bayonet on the counterpart (Ref. 7.4).

Proceed in the reverse order for refitting the heating resistors.

7 DIAGNOSTIC AID

The table below is a diagnostic aid. It is intended to help you remedy simple functional problems:

PROBLEM	POSSIBLE CAUSE	REMEDY
The vacuum valve does not start	- Seals frozen	> Install the frost-free option > Draughtproofing or insulation of the equipment
	- Wire rack of the vacuum collector blocked	> Clean the grille
	- Blocking of the valve by a product from the tank during an overflow	> Clean the interior of the equipment and its seals
The pressure valve does not start	- Adjust the modified spring calibration	> Contact SERVINOX to adjust the calibration
	- Seals frozen	> Install the frost-free option > Draughtproofing or insulation of the equipment
Premature start of the pressure valve	- Adjust the modified spring calibration	> Contact SERVINOX to adjust the calibration
	- Seal worn	> Replace seal
Freezing of the equipment	- Resistors not functioning	> Short-circuit of the electrical installation > Bare wire > Temperature sensor defective
Detection of vacuum opening not functional	- Detector out of order (cable bare, poor sealing, etc).	> Change the detector
	- Incorrect setting of the detector	> Adjust the detector valve and seal in contact with the inner face of the flange
Leak from the cleaning tube	Seal worn	> Replace seal

8 WARRANTY

Unless otherwise stated in the proposal, ***the device is guaranteed 12 months as from the date of delivery***.

After an examination in our factory, the parts considered as defective will be replaced at our expense.

All replacement of the device's components (wear parts, seal, etc) must be replaced by SERVINOX original parts

The warranty does not cover damage due to:

- Poor fitting, inappropriate or abusive utilization
- An accident or incorrect installation
- Modification of the equipment
- Leaks following the passage of impurities will not be taken into account
- Required maintenance not performed

The warranty on our products covers the free repair of parts returned when proved that they have become unusable prematurely, following a manufacturing or material fault.

We are not bound to any compensation or any other obligation of this kind. This equipment has been inspected before leaving the factory.

This equipment has been certified as having been inspected and authorised for sale

Notes

Notes

solutions
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de solu
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