

INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTIONS

DOUBLE SEAT VALVE

INNOVA S



EC Declaration of Conformity



INOXPA S.A.U.

Telers, 60
17820 - Banyoles (Spain)

hereby declare under our sole responsibility that the

Machine: **DOUBLE SEAT VALVE**

Model: **INNOVA**

Type: **S**

Size: **DN 40 - DN 100 / OD 1½" - OD 4"**

Serial number: **IXXXXXXXXXX to IXXXXXXXXXX**
XXXXXXXXXXIINXXX to XXXXXXXXXXXIINXXX

fulfills all the relevant provisions of the following directive:

Machinery Directive 2006/42/EC
Pressure Equipment Directive 2014/68/EU¹
Regulation (EC) n° 1935/2004
Regulation (EC) n° 2023/2006

and with the following harmonized standards and/or regulations:

EN ISO 12100:2010, EN ISO 13732-1:2008, EN 1672-2:2005+A1:2009,
EN ISO 14159:2008, EN 12266-1:2012, EN 19:2016

The technical file has been prepared by the signer of this document.

David Reyero Brunet
Technical Office Manager
15th December 2021



Document: 10.251.30.04EN

Revision: (0) 2021/12

¹DN≤25 Designed and manufactured in accordance with the sound engineering practice
DN>25 Class I equipment. Conformity assessment procedure used: Module A

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fulfills all the relevant provisions of these regulations:

Supply of Machinery (Safety) Regulations 2008
Pressure Equipment (Safety) Regulations 2016¹

and with the following designated standards:

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2. Generalities

2.1. INSTRUCTIONS MANUAL

This manual contains information about the reception, installation, operation, assembly, disassembly and maintenance of the INNOVA S valve.

Carefully read the instruction prior to starting the agitator, familiarize yourself with the installation, operation and correct use of the agitator and strictly follow the instructions. These instructions should be kept in a safe location near the installation area.

The information published in the instruction manual is based on updated data.

INOXPA reserves the right to modify this instruction manual without prior notice.

2.2. COMPLIANCE WITH THE INSTRUCTIONS

Not following the instructions may impose a risk for the operators, the environment and the machine, and may cause the loss of the right to claim damages.

This non-compliance may cause the following risks:

- failure of important machine/plant functions,
- failure of specific maintenance and repair procedures,
- possible electrical, mechanical and chemical hazards,
- risk to the environment due to the type of substances released.

2.3. WARRANTY

Any warranty will be void immediately and lawfully and, additionally, INOXPA will be compensated for any civil liability claims submitted by third parties, in the following cases:

- the service and maintenance work have not been carried out in accordance with the service instructions, the repairs have not been carried out by our personnel or have been carried out without our written authorisation,
- modifications have been carried out on our material or equipment without written authorisation,
- the parts or lubricants used are not original INOXPA parts and products,
- the material or equipment has been improperly used, has been used negligently, or has not been used according to the instructions and their intended.

The General Conditions of Delivery already in your possession are also applicable.



The machine may not undergo any modification without prior approval from the manufacturer.

For your safety, only use original spare parts and accessories.

The usage of other parts will relieve the manufacturer of any liability.

Changing the service conditions can only be carried out with prior written authorization from INOXPA.

Please do not hesitate to contact us in case of doubts or if further explanations are required regarding specific data (adjustments, assembly, disassembly, etc.).

3. Safety

3.1. WARNING SYMBOLS



Safety hazard for people in general and/or for equipment



Electric hazard

ATTENTION

Important instruction to prevent damage to the equipment and its function

3.2. GENERAL SAFETY INSTRUCTIONS



Read the instruction manual carefully before installing and starting the valve. Contact INOXPA in case of doubt.

3.2.1. During installation

The [Technical specifications](#) of [chapter 9](#) should always be observed.



The installation and use of the valve should always be in accordance with applicable regulations in regard to health and safety.

Before starting up the valve, check that it is assembled correctly and its shaft is perfectly aligned. Incorrect alignment and/or excessive stress during coupling can cause serious mechanical problems in the valve.

3.2.2. During operation

The [Technical specifications](#) of [chapter 9](#) should always be observed.



The specified limit values shall never be exceeded under any circumstance.

NEVER touch the valve and/or piping that is in contact with the fluid during operation. If the process involves hot products, there is a risk of burns.

The valve contains parts that move in a linear fashion. Do not place hands or fingers in the valve closing area. This can cause serious injury.

3.2.3. During maintenance

The [Technical specifications](#) of [chapter 9](#) should always be observed.



NEVER disassemble or remove the valve until the pipes have been emptied. Bear in mind that the fluid in the pipe may be hazardous or extremely hot. Consult the regulations in effect in each country for these cases.

Inside the actuator, there is a spring with an applied load, and the steps specified in this manual must be followed when performing maintenance operations to avoid injury. Do not leave loose parts on the floor.



All electrical work must be carried out by authorised personnel.

4. General Information

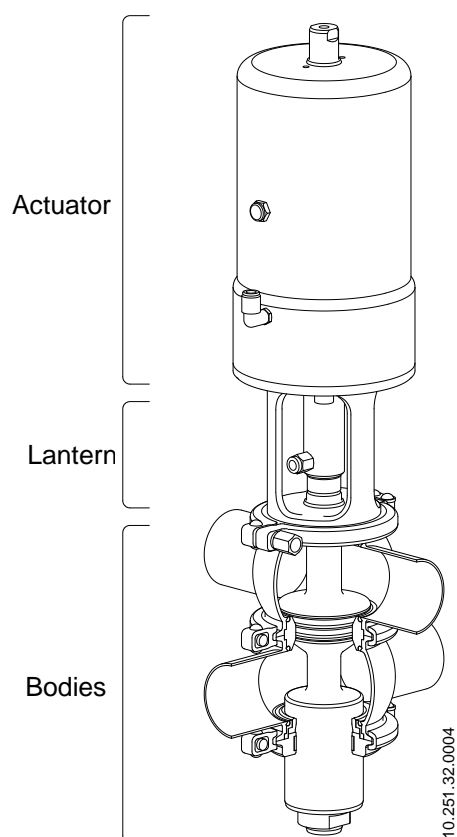
4.1. DESCRIPTION

The INNOVA S valve is a double seat shut-off valve. It essentially consists of a pneumatic actuator, which may incorporate a control unit, a lantern, the plug shafts and the bodies.

4.2. APPLICATION

The INNOVA S valve is a double seat pneumatic shut-off valve for hygienic applications which, at atmospheric pressure, between the two seats is formed a leak detection chamber which allows safe separation of two products, one of which is usually CIP (cleaning product).

The leakage detection chamber is cleaned using an external CIP connection located on the lantern.



5. Installation

5.1. RECEPTION OF THE VALVE



INOXPA is not liable for any deterioration of the material caused by its transport or unpacking. Visually check that the packaging has not been damaged.

When receipt the valve, check to see whether all the parts listed on the delivery slip are present:

- complete valve,
- its components, if any are supplied,
- delivery slip,
- instruction manual.

INOXPA inspects all its equipment before packaging. However, it cannot guarantee that the merchandise arrives to the user intact.

When receipt the valve:

- remove any possible traces of packaging from the valve or its parts,
- inspect the valve or the parts that comprise it for possible damage incurred during shipping,
- take all possible precautions against damage to the valve and its components.

5.2. TRANSPORT AND STORAGE



The buyer or user shall be liable for assembly, installation, start-up and operation of the valve.

Take all possible precautions when transport and storage the valve to avoid damage it and its components.

5.3. IDENTIFICATION OF THE VALVE

Each valve is inscribed with its fabrication number. Indicate de fabrication number on all documents to refer to the valve.

| | | |
|----------------------|--|---------------|
| | INOXPA S.A.U. | CE EAC |
| | C. TELERS 60 . 17820 BANYOLES GIRONA (SPAIN) . www.inoxpa.com | |
| | ITEM: WASC-00652050120 | SIZE: DN 50 |
| | TYPE: INNOVA SA DIN EPDM FDA ACT.T2 S/E NC | |
| | WORKING PRESSURE: 10 bar / 145 psi | |
| | AIR PRESSURE: Min. 6 bar / 87 psi Max. 8 bar / 116 psi | |
| Fabrication number → | PRODUCTION NR: I254782 | YEAR: 2018 |

10.251.32.0021

| | | | | | | | | | | |
|-----------|----------|----------|----------|----------|----------|-----------|-----------|------------------------|-------------------------------|---------------------------|
| WA | S | C | 0 | - | 0 | 06 | 52 | 050 | 12 | 0 |
| | | | | | | | | | | Options |
| | | | | | | | | | | 0 ID Ra < 0,8 |
| | | | | | | | | | | 1 ID Ra < 0,5 |
| | | | | | | | | | | Actuator |
| | | | | | | | | | 11 | T1 S/E NC |
| | | | | | | | | | 12 | T2 S/E NC |
| | | | | | | | | | 13 | T3 S/E NC |
| | | | | | | | | | | Size |
| | | | | | | | | 040 | DN 40, OD 1 1/2" | |
| | | | | | | | | 050 | DN 50, OD 2" | |
| | | | | | | | | 063 | OD 2 1/2" | |
| | | | | | | | | 065 | DN 65 | |
| | | | | | | | | 076 | OD 3" | |
| | | | | | | | | 080 | DN 80 | |
| | | | | | | | | 100 | DN 100, OD 4" | |
| | | | | | | | | | | Seals |
| | | | | | | | | 43 | HNBR | |
| | | | | | | | | 52 | EPDM | |
| | | | | | | | | 78 | FPM | |
| | | | | | | | | | | Material |
| | | | | | | | | 06 | AISI 316L | |
| | | | | | | | | | | Connection |
| | | | | | | | | 0 | Welded | |
| | | | | | | | | | | Standard pipe |
| | | | | | | | | 0 | DIN | |
| | | | | | | | | 1 | OD | |
| | | | | | | | | | | Body configuration |
| | | | | | | | | A, B, C, D | 2 bodies | |
| | | | | | | | | J, P, R, S, V, W, X, Z | 3 bodies | |
| | | | | | | | | | | Types |
| | | | | | | | | S | Mixproof valve (cavity spray) | |
| | | | | | | | | | | Product family |
| | | | | | | | | WA | INNOVA valve | |

5.4. LOCATION

The valve should be installed in a manner that permits to be cleaned, inspected and self-draining. Allow sufficient spacer around the valve for adequate review, dismantling and maintenance. See table in section 5.8. [Welding](#).

Installation shall allow that removable parts shall be readily disassembled.

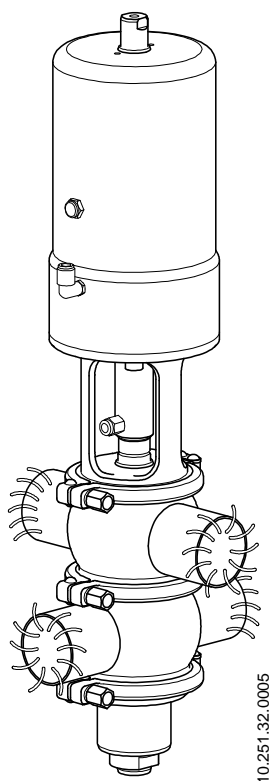
5.5. GENERAL INSTALLATION

After the location of the valve is defined, the pipe can be joined by welding the valve body or using fittings. In this case, do not forget the seals, and tighten the unions properly.

Before starting to weld the valve bodies to the pipe, disassemble the valve to prevent damage to the joints, following the instructions in section 8.4. [Assembly and disassembly of the valve](#).

Avoid using excessive force when assembling the valves, and pay special attention to:

- vibrations that may be produced on the facility,
- thermal dilation that the pipe may undergo when hot fluids are circulating,
- the weight that the pipe can support,
- excessive welding current.



5.6. CHECKING AND REVIEW

Perform the following checks before using:

- check that the clamps and nuts are tightened,
- open and close the valve, applying compressed air to the actuator, several times to make sure it operates correctly and to make sure that the shaft joint is coupled smoothly to the valve body.

5.7. WELDING

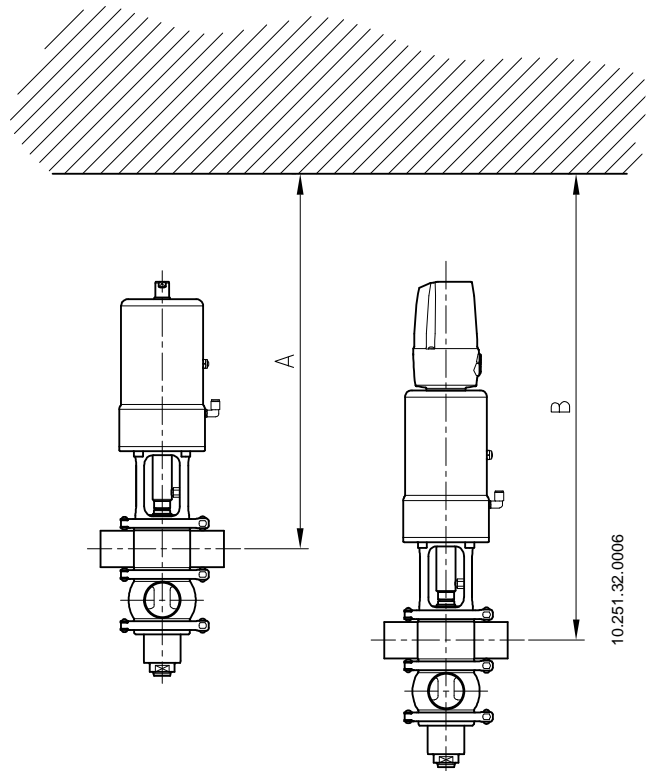


Welding work should only be done by qualified persons who are trained and equipped with the necessary equipment to perform this kind of work.

To perform welding work:

- Disassemble the valve as indicated in section [8.4. Assembly and disassembly of the valve](#),
- Weld the valve body to the pipes,
- When welding the valve body, it is very important to keep the minimum distance (height A) to allow the valve to be disassembled for subsequent reviews and to change valve parts (seals, bushings, etc.). It is important to differentiate when the valve has a control head (height B).

| Valve size | A [mm] | B [mm] |
|-----------------|--------|--------|
| DN 40 / OD 1 ½" | 590 | 720 |
| DN 50 / OD 2" | 650 | 780 |
| DN 65 / OD 2 ½" | 790 | 920 |
| DN 80 / OD 3" | 810 | 940 |
| DN 100 / OD 4" | 950 | 1080 |



5.8. VALVE CONFIGURATION WITH ACTUATOR

The standard configuration of the valves is NC (normally closed).

It is possible to convert them into NO (Normally Open) simply by turning the valve actuator (see section [8.8.3 Actuator configuration](#)).

Valves can also be configured as DE valves (double effect).

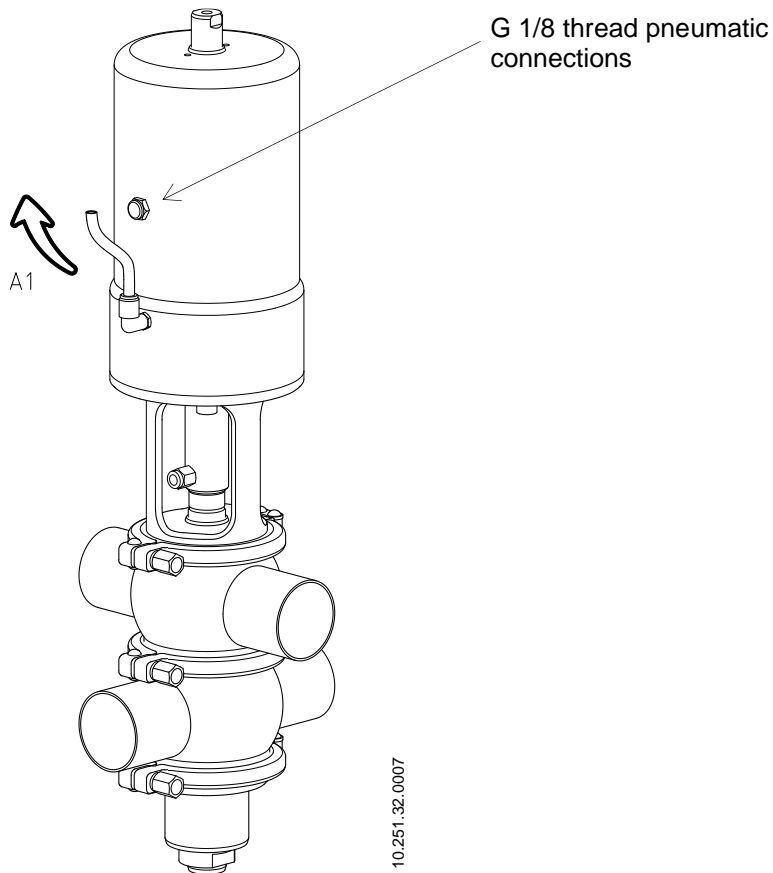


Never disassemble the valve clamps directly without Reading the instructions carefully, since the actuator contain a spring inside it with and applied load.

Valve and/or actuator assembly and disassembly should only be done by qualified persons.

5.9. ACTUATOR AIR CONNECTION

- Connect and check the compressed air connections.
- INOXPA valves are supplied with connections for Ø6 pipe, and with a silencer on S/E actuators.
- Consider the quality of the compressed air, according to the specifications described in chapter 9. [Technical specifications](#).
- Depending on the configuration, the actuator may have one or two air connections.



6. Start-up



The start-up of the valve can be carried out provided the instructions indicated in the chapter [5. Installation](#) have been followed.



Prior to start-up, the persons in charge must be duly informed about how the valve Works and the safety instructions to follow. This instruction manual will be available to personnel at all times.

Before putting the valve or the actuator into service, the following must be taken into consideration:

- check that the piping and valve are completely free of possible traces of welding slag or other foreign particles. Clean the system if is necessary,
- check to make sure the valve moves smoothly. If is necessary, lubricate it with special grease or soapy water,
- check for possible leaks, and make sure the pipes and their connections are sealed and do not have any leaks,
- if the valve has been supplied with an actuator, make sure that the alignment, of the valve shaft and the actuator shaft enables smooth movement,
- check that the compressed air pressure at the inlet to the actuator matches what is indicated in the [9. Technical specifications](#),
- consider the quality of the compressed air, according to the specifications described in chapter [9. Technical specifications](#),
- activate the valve.

ATTENTION



Do not modify the operating parameters for which the valve has been designed without prior written authorisation from INOXPA.

Do not touch the moving parts of the coupling between the actuator and the valve when the actuator is connected to the compressed air supply.



¡Burn hazard! Do not touch the valve or the pipes when hot fluids are circulating or when cleaning and/or sterilization are being carried out.

7. Operating problems

| The upper shaft does not rise during impulses | | | | | | | | | | | | | | | | | | | | | |
|---|---|-----------------|-----------|--|--|--|---|--|---|---|--|--|---|--|---|---|---|--|--|---|--|
| ↓ | The individual seats do not clean | | | | | | | | | | | | | | | | | | | | |
| ↓ | Internal leak of product (valve closed) | | | | | | | | | | | | | | | | | | | | |
| ↓ | Jerky valve operation | | | | | | | | | | | | | | | | | | | | |
| ↓ | <table border="1"> <thead> <tr> <th>PROBABLE CAUSES</th> <th>SOLUTIONS</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> The seal or guide bushing is worn, damaged or jammed </td> <td> <ul style="list-style-type: none"> Replace the seals Replace the seals with others of a different material or grade that is more suitable for the product Lubricate with soapy water or a lubricant that is compatible with the seal material and the product </td> </tr> <tr> <td> <ul style="list-style-type: none"> Normal seal wear </td> <td> <ul style="list-style-type: none"> Replace the seals </td> </tr> <tr> <td> <ul style="list-style-type: none"> Premature wear of the seal/affected by the product </td> <td> <ul style="list-style-type: none"> Replace the seals with ones made of a different material or grade that is more appropriate for the product. Reduce the pressure in the line Lower the operating temperature </td> </tr> <tr> <td> <ul style="list-style-type: none"> Product residue has deposited on the valve seat and/or plug </td> <td> <ul style="list-style-type: none"> Clean frequently </td> </tr> <tr> <td> <ul style="list-style-type: none"> Product pressure exceeds the actuator specifications </td> <td> <ul style="list-style-type: none"> Reduce the product pressure </td> </tr> <tr> <td> <ul style="list-style-type: none"> Excessive product pressure in upper body </td> <td> <ul style="list-style-type: none"> Reduce the product pressure </td> </tr> <tr> <td> <ul style="list-style-type: none"> Loss of seal (vibrations) </td> <td> <ul style="list-style-type: none"> Tighten loose parts </td> </tr> <tr> <td> <ul style="list-style-type: none"> Insufficient time for impulses </td> <td> <ul style="list-style-type: none"> Adjust cleaning time in control system </td> </tr> <tr> <td> <ul style="list-style-type: none"> Insufficient air pressure </td> <td> <ul style="list-style-type: none"> Increase the compressed air pressure </td> </tr> </tbody> </table> | PROBABLE CAUSES | SOLUTIONS | <ul style="list-style-type: none"> The seal or guide bushing is worn, damaged or jammed | <ul style="list-style-type: none"> Replace the seals Replace the seals with others of a different material or grade that is more suitable for the product Lubricate with soapy water or a lubricant that is compatible with the seal material and the product | <ul style="list-style-type: none"> Normal seal wear | <ul style="list-style-type: none"> Replace the seals | <ul style="list-style-type: none"> Premature wear of the seal/affected by the product | <ul style="list-style-type: none"> Replace the seals with ones made of a different material or grade that is more appropriate for the product. Reduce the pressure in the line Lower the operating temperature | <ul style="list-style-type: none"> Product residue has deposited on the valve seat and/or plug | <ul style="list-style-type: none"> Clean frequently | <ul style="list-style-type: none"> Product pressure exceeds the actuator specifications | <ul style="list-style-type: none"> Reduce the product pressure | <ul style="list-style-type: none"> Excessive product pressure in upper body | <ul style="list-style-type: none"> Reduce the product pressure | <ul style="list-style-type: none"> Loss of seal (vibrations) | <ul style="list-style-type: none"> Tighten loose parts | <ul style="list-style-type: none"> Insufficient time for impulses | <ul style="list-style-type: none"> Adjust cleaning time in control system | <ul style="list-style-type: none"> Insufficient air pressure | <ul style="list-style-type: none"> Increase the compressed air pressure |
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| <ul style="list-style-type: none"> Normal seal wear | <ul style="list-style-type: none"> Replace the seals | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Premature wear of the seal/affected by the product | <ul style="list-style-type: none"> Replace the seals with ones made of a different material or grade that is more appropriate for the product. Reduce the pressure in the line Lower the operating temperature | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Product residue has deposited on the valve seat and/or plug | <ul style="list-style-type: none"> Clean frequently | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Product pressure exceeds the actuator specifications | <ul style="list-style-type: none"> Reduce the product pressure | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Excessive product pressure in upper body | <ul style="list-style-type: none"> Reduce the product pressure | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Loss of seal (vibrations) | <ul style="list-style-type: none"> Tighten loose parts | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Insufficient time for impulses | <ul style="list-style-type: none"> Adjust cleaning time in control system | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Insufficient air pressure | <ul style="list-style-type: none"> Increase the compressed air pressure | | | | | | | | | | | | | | | | | | | | |

8. Maintenance

8.1. GENERAL CONSIDERATIONS

This valve, just like any other machine, requires maintenance. The instructions in this manual cover the identification and replacement of spare parts. The instructions are aimed at maintenance personnel and those responsible for the supply of spare parts.



Carefully read chapter chapter 9. [Technical specifications](#).

All replaced material should be duly disposed of/recycled according to the directives in effect in each area.

Valve and/or actuator assembly and disassembly should only be done by qualified persons.

Before starting maintenance work, make sure that the pipes are not under pressure.

8.2. MAINTENANCE

To perform maintenance properly, the following are recommended:

- periodic inspection of the valve and its components,
- keeping an operational record of each valve, noting any problems,
- always having spare replacement seals in stock.

During maintenance, pay special attention to the hazard warnings indicated in this manual.



The valve and the pipes must never be under pressure during maintenance.

During maintenance, the valve must never be hot. ¡Burn hazard!

8.2.1. Seal maintenance

| CHANGING SEALS | |
|--------------------------|--|
| Preventive maintenance | Replace every 12 months |
| Maintenance after a leak | Replace at the end of the process |
| Planned maintenance | Regularly check for the absence of leaks and smooth operation of the valve Keep a valve log Use statistics to plan inspections |
| Lubrication | During assembly, apply lubricants that are compatible with the seal material. See the table below |

| SEAL COMPONENT | LUBRICANT | NLGI DIN 51818 Class |
|-----------------|--------------------------|----------------------|
| HNBR/ FPM | Klübersynth UH 1 64-2403 | 3 |
| EPDM/ HNBR/ FPM | PARALIQ GTE 703 | 3 |

The period between each preventive maintenance service will vary depending on the working conditions to which the valve is subject: temperature, pressure, number of operations per day, type of cleaning solutions used, etc.

8.2.2. Storage

Valves should be stored in an enclosed location under the following conditions:

- temperature from 15°C to 30°C,
- ambient humidity < 60%.

Equipment MAY NOT be stored outside.

8.2.3. Spare parts

To order spare parts, you must indicate the valve type, the fabrication number, the position and description of the part, as found in chapter 9. [Technical specifications](#).

8.3. CLEANING



The use of aggressive cleaning products such as caustic soda and nitric acid may burn the skin. Wear rubber gloves during all cleaning procedures. Always wear protective goggles.

8.3.1. CIP (clean-in-place) cleaning

If the valve is installed in a system with a CIP process, its disassembly will not be required. EPDM is the standard seal material that will be used for CIP cleaning, both in alkaline mediums and in acid mediums. The other two options (HNBR, FPM) are not recommended.

Cleaning solutions for CIP processes:

Only use clear water (chlorine-free) to mix with the cleaning agents:

a) Alkaline solution: 1% by weight of caustic soda (NaOH) at 70°C (150°F)

1 Kg NaOH + 100 l H₂O = cleaning solution

or

2,2 l NaOH al 33% + 100 l H₂O = cleaning solution

b) Acid solution: 0,5% by weight of nitric acid (HNO₃) at 70°C (150°F)

0,7 l HNO₃ al 53% + 100 l H₂O = cleaning solution

ATTENTION



Check the concentration of the cleaning solutions; incorrect concentrations may lead to the deterioration of the valve seals.

To remove any traces of cleaning products, ALWAYS perform a final rinse with clean water at the end of the cleaning process.



Before starting disassembly and assembly tasks, clean the entire interior and exterior of the valve.

8.3.2. Automatic SIP (sterilization-in-place)

Sterilization with steam is applied to all equipment including the pigging.

ATTENTION



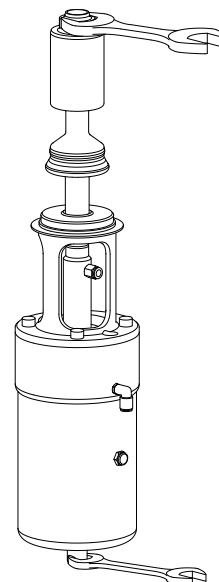
Do NOT start the equipment during the sterilization with steam.

The parts/materials will not be damaged if the indications specified in this manual are observed.

No cold fluid can enter the equipment until the temperature of the equipment is lower than 60°C (140°F).

Maximum conditions during the SIP process with steam or superheated water:

- a) Max. temperature: 140°C / 284°F
- b) Max. time: 30 min
- c) Cooling: Sterile air or inter gas
- d) Materials: EPDM (HNBR and FPM are not recommended)



8.4. ASSEMBLY AND DISASSEMBLY OF THE INNOVA S VALVE



Proceed with caution. Personal injury can occur.

Always disconnect the compressed air before starting to disassemble the valve.

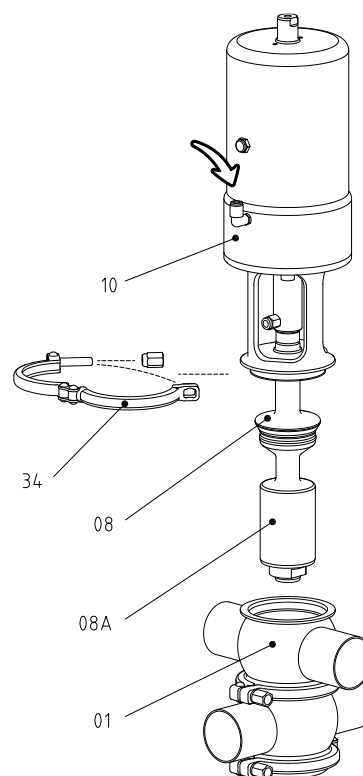
Never disassemble the valve clamps directly without Reading the instructions carefully, since the actuator contains a spring inside it with an applied load.

Never move the actuator if the shafts are not assembly.

Valve and/or actuator assembly and disassembly should only be done by qualified persons.

8.4.1. Disassembly

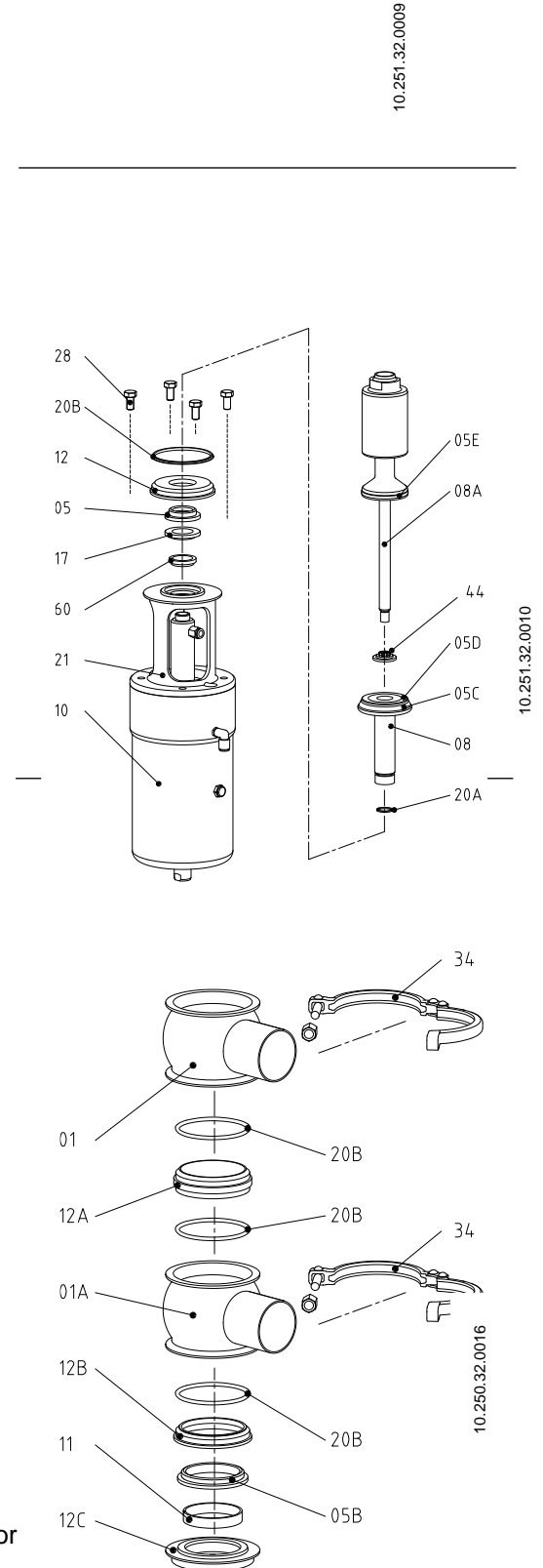
1. Apply compressed air to the actuator (10) so that the shafts (08,08A) move to the open position.
2. Loosen and remove the top clamp (34) between the top body (01) and the lantern (21).
3. Remove the actuator (10) together with the valve shafts (08,08A) from the valve bodies (01,01A).
4. Release the compressed in the actuator (10).
5. Place the valve-actuator assembly in a vertical position with the actuator at the bottom and the shaft at the top. If required, disassemble C-TOP and leave enough space on the bottom part so that the protruding part of the actuator shaft is not in contact with the support surface.
6. Unscrew the bottom shaft (08A) while holding the top shaft (08) of the actuator (10).
7. Remove the top shaft (08).
8. Extract the lip seal (05A), the inner bushing (11A) and the O-ring (20A) from inside the shaft.
9. Remove the top cover (12).
10. Remove the shaft seal (05) and the O-ring (20B) fitted on the top cover (12), as well as the bearing (17) and the scraper (60) housed in the lantern (21).
11. Remove the three seat seals from the top and bottom shafts (05C,05D,05E) follow the steps specified in section [8.6. Replacing the seat seal](#).
12. Remove the lower clamp (34) located on one end of the valve bodies.
13. Take off the two covers (12C,12B) as well as the inner bushing (11), the O-ring (20B) and the shaft seal (05B).
14. Remove the intermediate clamp (34) and take the bodies apart. Take off the intermediate cover (12A) and the two O-ring seals (20B).



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8.4.2. Assembly

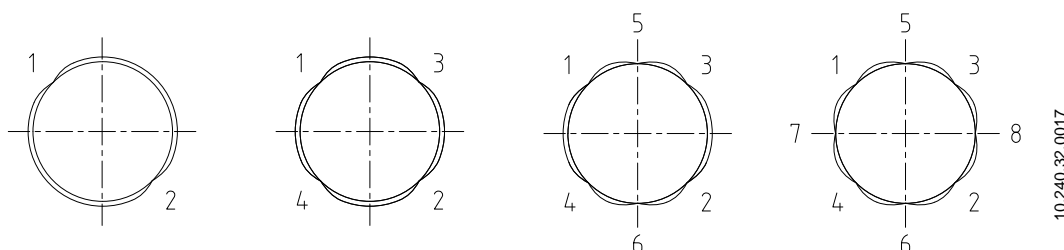
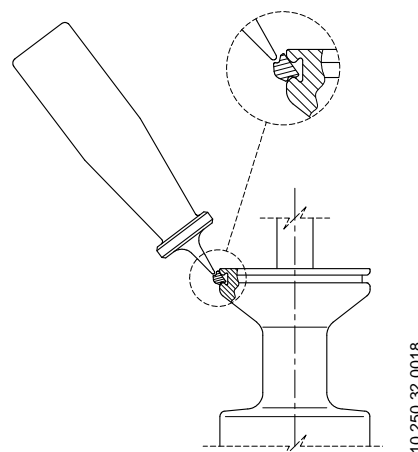
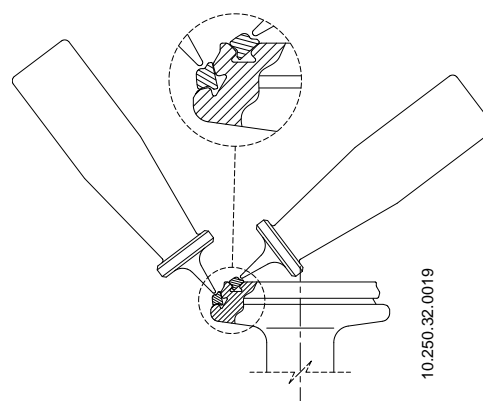
1. Place the actuator-valve assembly in a vertical position with the actuator at the bottom.
2. Perform the installation of the three seat seals (05C,05D,05E) as described in section 8.6. [Replacing the seat seal](#).
3. Install the scraper (60) and the bushing (17) inside the lantern (21).
4. Fit the O-ring (20B) and the shaft seal (05) on the top cover (12).
5. Place the top cover (12) on the lantern (21).
6. Place the O-ring (20A), the inner bushing (11A) and the shaft seal (05A) inside the top shaft (08).
7. Place the top shaft (08) over the sleeve protruding from the actuator, inserting the shaft through the inside of the top cover (12).
8. Screw the bottom shaft (08A) inside the top shaft (08) holding the top shaft to stop it from turning.
9. Fit the two O-rings (20B) on the intermediate cover (12A).
10. Place the intermediate cover (12A) over one of the valve bodies (01) and then place the other body on top.
11. Install the intermediate clamp (34) joining these two bodies together.
12. Fit the O-ring (20B) and the shaft seal (05B) inside the bottom cover (12B).
13. Position the bottom cover (12B) over the valve body lower opening.
14. Slide the seal bushing (11) inside the bottom cover (12C) and rest the cover over the top opening of the valve body where the bottom cover is already in place (12B).
15. Install the lower clamp (34) joining the valve body and lower cover (12C).
16. Supply compressed air to the actuator (10).
17. Insert the actuator-valve assembly into the valve bodies, with the actuator and the valve body lower opening on opposite sides.
18. Position the top clamp (34) that joins the lantern (21) to the two valve bodies.
19. Release compressed air in the actuator.
20. Open and close the valve several times applying compressed air to the actuator to make sure it operates correctly and the shaft seal fits smoothly with the body valve.



See section 9.7. [Exploded drawing and parts list of the INNOVA S valve](#) for a reference to the parts described.

8.5. REPLACING THE SEAT SEAL

1. Put the plug shaft in a vertical position –for example, with a bench clamp- so that the shaft is kept stable and no damage is caused to the mating surface of the conical seal. Do not press the shaft too much if using a bench clamp.
2. Remove the used seal using a screw driver or a sharp hook-shaped tool. Make sure not to damage the mating surface of the seal.
3. Lubricate the new seat seal with soapy water if necessary to facilitate installation.
4. Insert the seal in the plug shaft seat accommodation so that its edges are inside the accommodation. Preferably the seal should fit within the part of the section that has the greatest diameter, as shown in the figure.
5. Then, with the help of an appropriate tool (not piercing), press the edge of the seal that hasn't yet fit into the accommodation, as shown in the figure.
6. This operation should be done around the entire diameter, applying the tool in the sequence **1-2-3-4-5-6-7-8** as shown in the bottom figure. Always press on opposite sides. Once you get to the last step of this sequence, repeat the process until the seal is completely inside the accommodation.
7. Press the seal with your fingers to make sure it is well seated. Make sure there are no parts projecting due to poor positioning of the seal.



The following tools are needed to assembly/disassembly the valve:

- to unscrew the top shaft from the bottom shaft of the valve:

| Zone | DN 40 | DN 50 | DN 65/80 | DN100 |
|--------------|-------|-------|----------|-------|
| Actuator | | 17 mm | | |
| Bottom shaft | 27 mm | 30 mm | 49 mm | |

- a crescent spanner 13 mm for remove the clamps,
- appropriate tool (not piercing) to mount the seat seals,
- crescent spanner as per the table:

| Zone | DN 40/50/65/80 | DN 100 |
|---------|----------------|--------|
| Lantern | 13 mm | 19 mm |



Proceed with caution. Personal injury can occur.

Never directly disassembly the clamps from the valve reading the instructions carefully.



ATTENTION

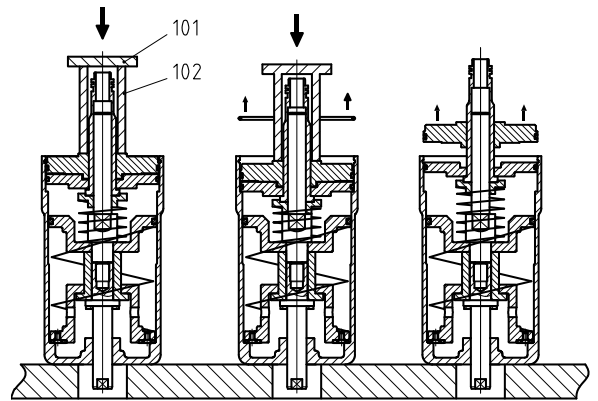
Valve/actuator assembly and disassembly should only be done by qualified persons.

8.6. DISASSEMBLY AND ASSEMBLY OF THE ACTUATOR

Do not apply compressed air until the disassembly/assembly process is completed. The figure is a schematic representation of some of the steps in the actuator disassembly process.

8.6.1. Disassembly

1. Remove the air fittings (18).
2. Locate the actuator in the base of the clamp or in the lathe collet. A thick tube (102) and a shim (101) must be used on the free end of the actuator.
3. Apply force to the shim. Once the cover (12) has dropped 15-20mm, remove the snap ring (45); this should have sufficient free space to be able to remove it.
4. Reduce the force on the shim slowly until the top cover is free (you will note that the spring no longer exerts pressure).
5. Remove the cover (12), the piston (30A) and the sleeve (35).
6. Extract the seals (20C & 20F), the scraper (60C) and the bushing (11D) from the cover (12).
7. Remove the seals (20C & 20F) from the piston (30A).
8. Extract the bushing (11C) and the seal (20E) from the shaft sleeve (35).
9. Extract the spring base (43B) and spring (06A).
10. Extract the spring assembly (06) without disassembling it.
11. Extract the seal (20B) from the spring assembly (06).
12. Disassemble the scraper (60), the seal (20) and the bushing (11B) from the actuator body (01).



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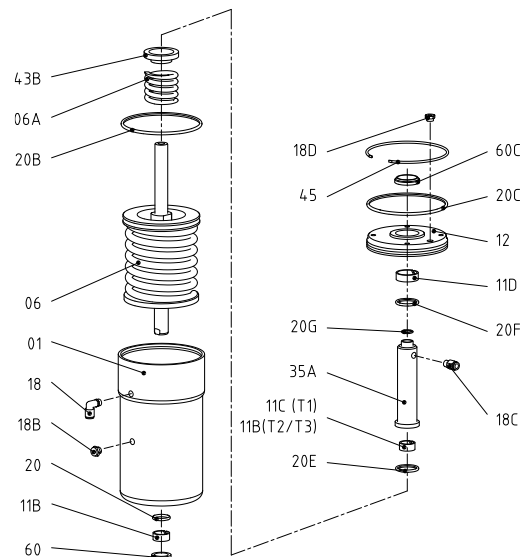


Do not take the spring assembly (06) apart, as it contains a spring with an applied charge.

Valve and/or actuator assembly and disassembly should only be performed by qualified personnel.

8.6.2. Assembly

1. Fit the scraper (60), seal (20) and bushing (11B) on the actuator body (01).
2. Fit the seal (20B) on the spring assembly (06).
3. Fit the seal (20E) and bushing (11C) on the shaft sleeve (35).
4. Fit the seals (20C,20F) on the piston (30A).
5. Fit the seals (20C,20F), scraper (60C) and bushing (11D) on the cover (12).
6. Insert the spring assembly (06) into the actuator body (01).
7. Insert spring (06A), spring base (43B), shaft sleeve (35) and piston (30A) into the cylinder (01).
8. Mount the top cover (12) on the cylinder.
9. Apply force to the shim so it lowers 15-20mm. Insert the snap ring (45).
10. Reduce the force applied slowly until the tool no longer touches the cover.
11. Install the air fitting (18,18A).
12. Apply compressed air to check the proper operation of the actuator.



10.251.32.0011

9. Technical Specifications

9.1. VALVE

Maximum working pressure 10 bar
 Minimum working pressure Vacuum
 Working temperature - 10°C to 121°C (14°F to 250°F) standards seals EPDM (for higher temperatures, other grades of seals will be used)

9.2. ACTUATOR

Compressed air pressure 6 - 8 bar
 Compressed air quality per DIN/ISO 8573.1:

- Solid particulate content: quality class 3 / max. particle dimension 5 microns / max. particle density 5 mg/m³.
- Water content: quality class 4 / max dew point +2°C. If the valve is used at high altitude or under low ambient temperature conditions, the dew point must be adjusted accordingly.
- Oil content: quality class 5, preferentially oil free, max. 25 mg oil per 1m³ air.

Compressed air fitting G 1/8
 Compressed air consumption (litres N/cycle)

| DN | Actuator movement |
|-----|-------------------|
| 40 | 0,5 |
| 50 | 0,5 |
| 65 | 1,5 |
| 80 | 1,5 |
| 100 | 2,5 |

9.3. MATERIALS

Parts in contact with the product AISI 316L
 Other steel parts AISI 304
 Seals in contact with the product EPDM – FPM – HNBR
 Internal surface finish Polished Ra ≤ 0,8 µm
 Outer surface finish Matt

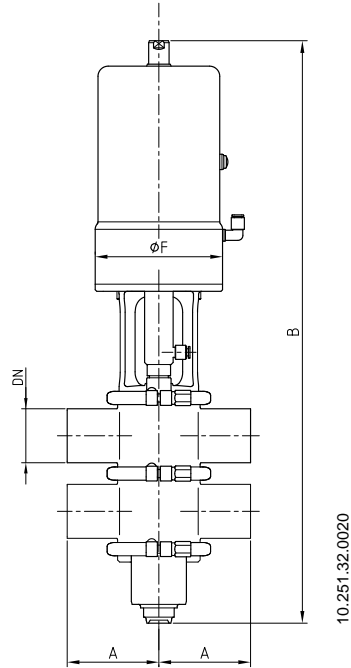
9.4. SIZES AVAILABLE

DIN EN 10357 series A (formerly DIN 11850 series 2) DN 40 – DN 100
 ASTM A269/270 (correspond to OD tube) OD 1 ½” – OD 4”
 Connections Welded

9.5. WEIGHTS OF THE INNOVA S VALVE

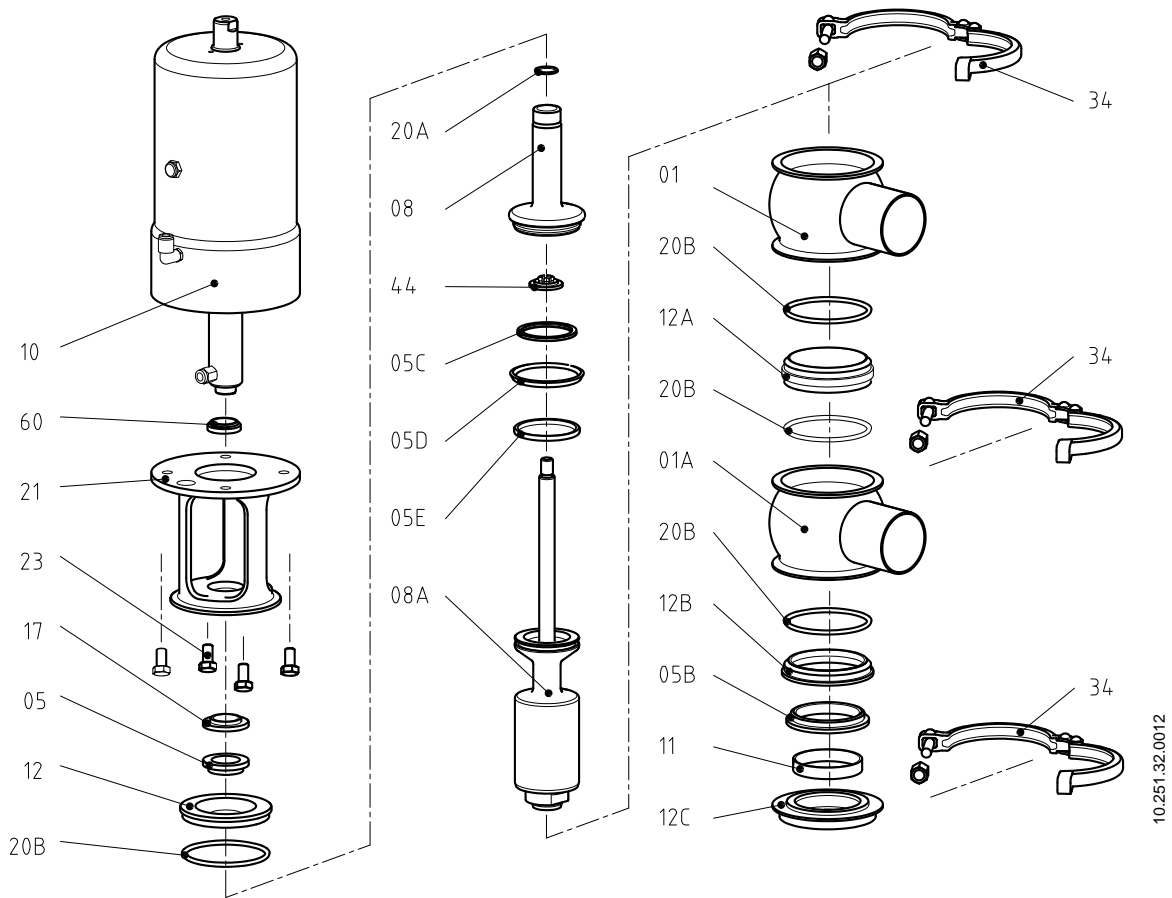
| | DN | Weight (kg) |
|-----|--------|-------------|
| DIN | 40 | 14 |
| | 50 | 16 |
| | 65 | 26 |
| | 80 | 28 |
| | 100 | 39 |
| OD | 1 1/2" | 14 |
| | 2" | 15, |
| | 2 1/2" | 26 |
| | 3" | 28 |
| | 4" | 39 |

9.6. DIMENSIONS OF THE INNOVA S VALVE



| | DN | Dimensions (mm) | | |
|-----|--------|-----------------|-----|-----|
| | | A | B | ØF |
| DIN | 40 | 85 | 552 | 125 |
| | 50 | 90 | 596 | 125 |
| | 65 | 110 | 738 | 161 |
| | 80 | 125 | 747 | 161 |
| | 100 | 150 | 882 | 193 |
| OD | 1 1/2" | 85 | 552 | 125 |
| | 2" | 90 | 603 | 125 |
| | 2 1/2" | 110 | 737 | 161 |
| | 3" | 125 | 747 | 161 |
| | 4" | 150 | 882 | 193 |

9.7. EXPLODED DRAWING AND PARTS LIST OF THE INNOVA S VALVE



| Position | Description | Quantity | Material |
|-----------------|------------------------------------|----------|-------------------|
| 01 | Top body | 1 | AISI 316L |
| 01A | Bottom body | 1 | AISI 316L |
| 05 / 05B | Shaft seal* | 3 | EPDM / FPM / HNBR |
| 05C / 05D / 05E | Tapered / flat / radius seat seal* | 3 | EPDM / FPM / HNBR |
| 08 | Top shaft | 1 | AISI 316L |
| 08A | Bottom shaft | 1 | AISI 316L |
| 10 | Actuator | 1 | AISI 304 |
| 11 / 11A | Shaft bushing | 2 | PTFE |
| 12 | Body cap (top bushing) | 1 | AISI 316L |
| 12A | Upper bushing | 1 | AISI 316L |
| 12B | Bottom seal bushing | 1 | AISI 316L |
| 12C | Body cap (bottom bushing) | 1 | AISI 316L |
| 17 | Guide bushing* | 1 | PTFE |
| 20A / 20B | O-ring* | 5 | EPDM / FPM / HNBR |
| 21 | Lantern | 1 | AISI 304 |
| 23 | Allen screw | 4 | A2 |
| 34 | Clamp | 3 | AISI 304 |
| 44 | Diffuser | 1 | AISI 304 |
| 60 | Scraper | 1 | NBR |

10.251.32.0012

* recommended spare parts

How to contact INOXPA S.A.U.:

Contact details for all countries are
Continually updated on our website.

Please visit www.inoxpa.com to access the information.



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