



INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTIONS

## INNOVA SINGLE SEAT VALVE - N/K TYPE



10.240.32.0001

10.240.32.0002

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Original Manual

10.240.30.01EN

(A) 2018/11



## EC Declaration of Conformity

We,

**INOXPA, S.A.U.**

Telers, 60

17820 – Banyoles (Girona)

Hereby declare under our sole responsibility that the machine

### **Single Seat Valve**

Modelo

**INNOVA**

Tipo

**INNOVA N / K**

From serial number **IXXXXXX** to **IXXXXXX** <sup>(1)</sup> / **XXXXXXXXXXIIN** to **XXXXXXXXXXIIN** <sup>(1)</sup>

Fulfills all the relevant provisions of the following directive:

**Machinery Directive 2006/42/EC**

**Pressure Equipment Directive 2014/68/EU**

Identification of the person empowered to draw up the Declaration on behalf of the manufacturer and qualified to compile the technical file established by the community

A handwritten signature in black ink, appearing to read "David Reyer Brunet".

David Reyer Brunet  
Technical Office Manager

Banyoles, October 25, 2018

<sup>(1)</sup> The serial number may be preceded by a slash and by one or two alphanumeric characters



# 1. Safety

## 1.1. INSTRUCTION MANUAL

This instruction manual contains basic guidelines which must be followed during installation, start-up, and maintenance.

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

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

## 1.2. INSTRUCTIONS FOR START-UP

This instruction manual contains essential and useful information for the correct handling and maintenance of your valve.

The safety instructions detailed in this section as well as all the special measures and recommendations included in the other sections of this manual must be observed and fulfilled. These instructions must be kept in a safe location near the installation area.

## 1.3. SAFETY

### 1.3.1. Warning symbols



Safety hazard for people in general and/or for equipment



Electric hazard

**ATTENTION**

Important instruction for the protection of the equipment

## 1.4. GENERAL SAFETY INSTRUCTIONS



Read the instruction manual carefully before installing and using the valve. If in doubt, please contact INOXPA.

### 1.4.1. During installation



The [Technical specifications in chapter 8](#) should always be observed.

The installation and use of the valve must always be carried out in accordance with applicable safety and health regulations.

Before putting the valve into service, check to make sure it is assembled correctly and that the shaft is perfectly aligned. Misalignment and/or excessive forces when securing the valve can cause serious mechanical problems with the valve.

### 1.4.2. During operation



Always take the [Technical specifications in chapter 8](#) into consideration. 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.



### 1.4.3. During maintenance



The [Technical specifications in chapter 8](#) 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 regulation 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.

### 1.4.4. Compliance with the instructions

Any failure to comply with the instructions may impose a risk to the operators, the environment and the machine, and may ultimately result in the loss of any right to claim damages.

Failure to comply may entail the following risks:

- Failure of important machine/plant functions.
- Failure of specific maintenance and repair procedures.
- Threat of electrical, mechanical and chemical hazards.
- Placing the environment at risk due to the substances released.

### 1.4.5. Warranty

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

- The installation and maintenance work has not been carried out following the instructions in this manual.
- The repairs have not been made by our personnel or have been made without our written authorisation.
- The parts used are not INOXPA genuine parts.
- Modifications have been carried out on our material or equipment without written authorisation.
- The material or equipment has been improperly used, has been used carelessly, or has not been used according to the instructions and their intended purpose, specified in this manual.

The general terms 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.

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



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## 3. General information

### 3.1. DESCRIPTION

The type N single-seat valve is a shut-off valve that is used to open or close sections of a pipe. The type K single-seat valve is a divert valve to divert the product.

Because these two types of valve are single-seat valve, they only have one union that separates the two lines of the pipe. This means that they are not suitable for separating incompatible products, since if there is a failure in the union it may not be detected and the products could mix.

### 3.2. APPLICATION

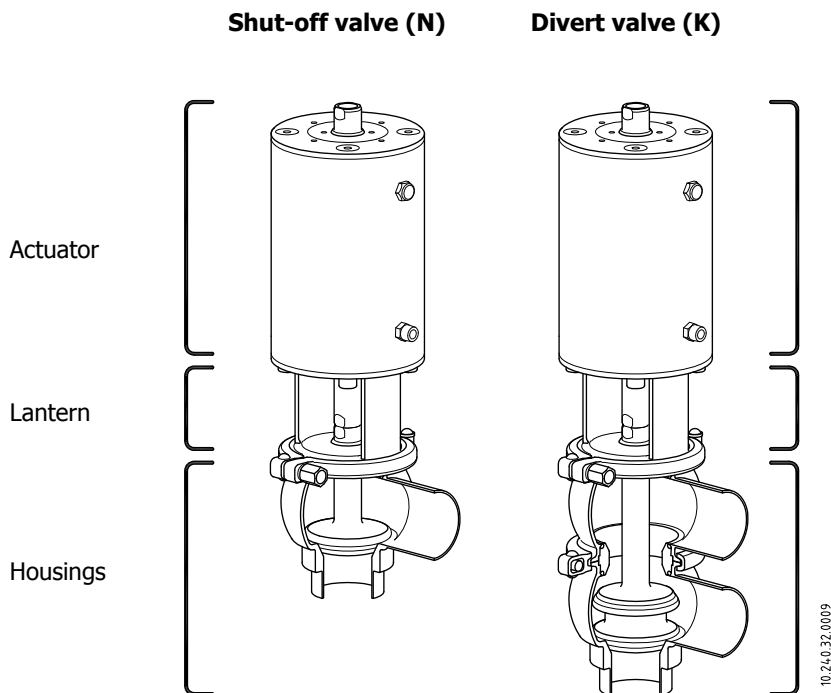
Single-seat N and K pneumatic valves are a sanitary and flexible design for a wide range of applications in the food and beverage industry and the pharmaceuticals and chemical sectors.

#### 3.2.1. Type N valve

This type of valve is usually used for emptying/drainage, or as a shut-off valve on a bypass line.

#### 3.2.2. Type K valve

This type of valve is often used to supply CIP and on return lines.





## 4. Installation

### 4.1. RECEPTION OF THE VALVE





INOXPA will not be liable for any deterioration of the material occurred during shipping or unpacking. Visually check that the packaging has not been damaged.

The first thing to do upon receipt of the valve is to check it and make sure that it matches the packing list.

INOXPA inspects all its equipment before packaging; however, it cannot guarantee that the merchandise arrives to the user intact. Therefore, when receiving valves or any other item, they must be checked; if it is found that they are not in good condition or all the parts are not present, the carrier will fill out a report as soon as possible.

Each valve is inscribed with its fabrication number. Indicate the fabrication number on all documents and correspondence.

			
<small>INOXPA S.A. C. TELERS, 54 . 17820 BANYOLES GIRONA (SPAIN) . www.inoxpa.com</small>			
Item	WANL0-00652050120	Size	DN 050
Type	INNOVA NL DIN S EPDM ACT.T2 S/E NC		
Air pressure	Min. 6 bar / 87 psi Max. 8 bar / 116 psi		
Working pressure	10 bar / 145 psi		
Serial number	Work order	I254782	Year
		2017	

10.240.32.0003

### 4.2. TRANSPORTATION AND STORAGE



INOXPA shall in no case be liable for improper unpacking of the valve and its components

#### 4.2.1. Delivery:

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.

#### 4.2.2. Unpacking:

- 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.



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



#### 4.3. IDENTIFICATION

WA	N	L	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
										14 T4 S/E NC
										21 T1 S/E NO
										22 T2 S/E NO
										23 T3 S/E NO
										24 T4 S/E NO
										31 T1 D/E
										32 T2 D/E
										33 T3 D/E
										34 T4 D/E
										Size
										025 DN 25, OD 1"
										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
										Housing configuration
										L, T 1 housing
										A, B, C, D, H, E, F, G 2 housings
										J, P, R, S, V, W, X, Z 3 housings
										Types
										N Shut-off
										K Divert
										Product family
										WA INNOVA Valve



#### 4.4. POSITIONING

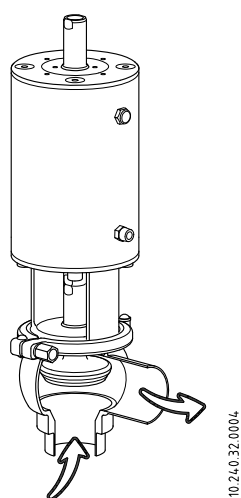
The valve should be installed in a manner that permits to be cleaned, inspected and self-draining. Allow sufficient space around the valve for adequate review, dismantling and maintenance ([see table in section 4.8.1](#)). Installation shall allow that removable parts shall be readily disassembled.

#### 4.5. DIRECTION OF FLOW

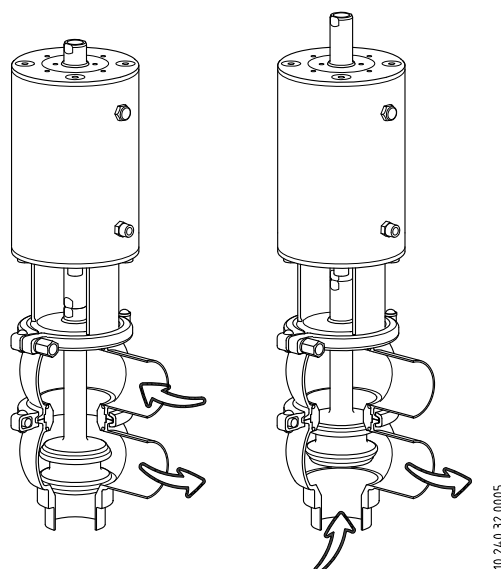
The following image indicates the recommended direction for product flow, as well as the direction of closing, depending on the type of valve. Following these indications will prevent water hammer and its consequences to the extent possible, which can occur when single-seat valves close.

The recommended direction will always be contrary to the movement of valve closing; that is, when the valve is closing, the valve will always work against the pressure of the fluid.

Type N Valve



Type K Valve



#### 4.6. GENERAL INSTALLATION

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



#### ATTENTION

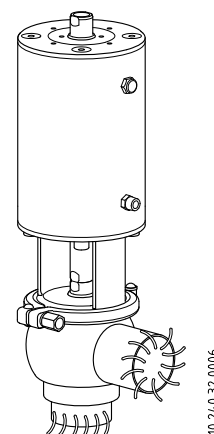
For type K, N valves (two housings), it is recommended that the union for one of the housings be made using a facilitate valve disassembly.

Before starting to weld the valve housings to the pipe, disassemble the valve to prevent damage to the joints, following the instructions in section [7.4 Assembly and disassembly](#).

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

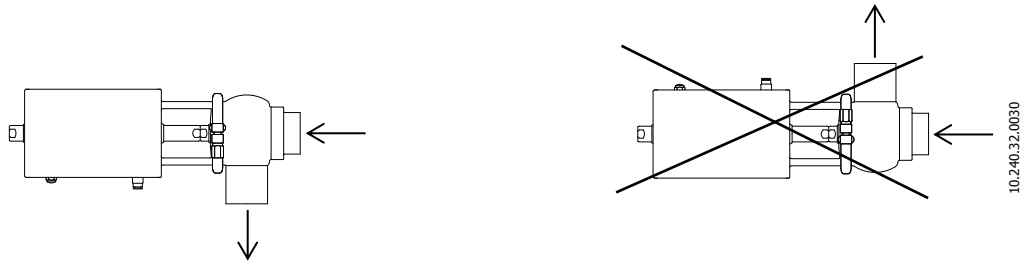
- Vibrations that may be produced on the facility.
- Thermal dilation that the pipe may undergo when hot fluids are circulating.
- The weight that the pipe can support.
- Excessive welding current.

To assure the self-draining of the valve, install it in a manner that at least the port that occupies the lowest position must be facing downwards.





Due to design of the bodies, the valve is completely drainable in vertical position. In case of placing the valve in other positions, horizontal or inclined, to assure the self-draining, install the valve with at least the port that occupies the lowest position facing downwards. See figures:



#### 4.7. CHECKING AND REVIEW

Perform the following checks before using:

- Check that the clamps and nuts are well secured.
- 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 housing.

#### 4.8. 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.

Before starting welding, disassemble the valve as explained in section [7.4 Assembly and disassembly](#).

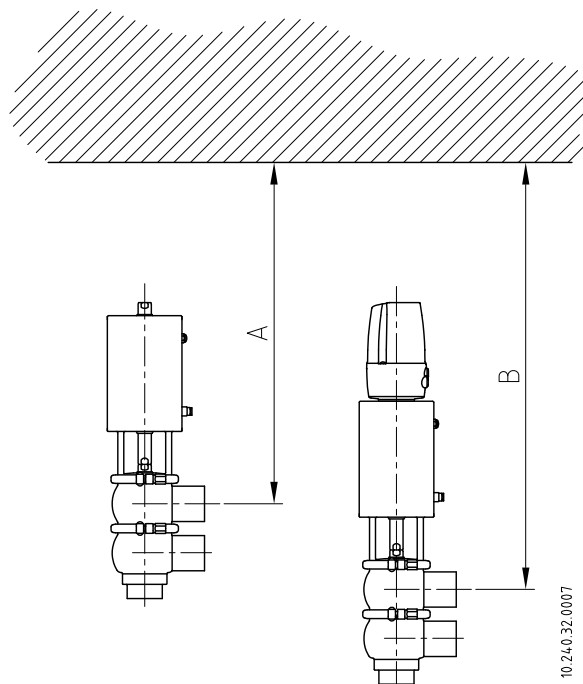
All welded joint shall have full penetration, be free of pits, folds, crevices, cracks and misalignments; and may have an as-welded interior surface finish as per AWS/ANSI D 18.1. The weld discoloration in the as-welded condition shall be either weld 1, 2 or 3 as shown in AWS/ANSI D 18.2 or weld No 1, 2, 3, 4 or 5 as shown in EHEDG Guideline 35.



#### 4.8.1. Single-seat valve, weld / weld

- Disassemble the valve as indicated in section [7.4 Assembly and disassembly](#).
- Weld the valve housing to the pipes.
- When welding the valve housing, 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 (see height B).
- For type K valves, it is recommended that the union for one of the housings be made using a fitting to facilitate valve disassembly.

Valve size	A [mm]	B [mm]
DN 25 / OD 1"	330	450
DN 40 / OD 1 1/2"	350	470
DN 50 / OD 2"	430	530
DN 65 / OD 2 1/2"	500	600
DN 80 / OD 3"	520	620
DN 100 / OD 4"	580	680



#### 4.9. 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 [7.8.3 Actuator configuration](#)).

Valves can also be configured as DE valves (Double Effect).



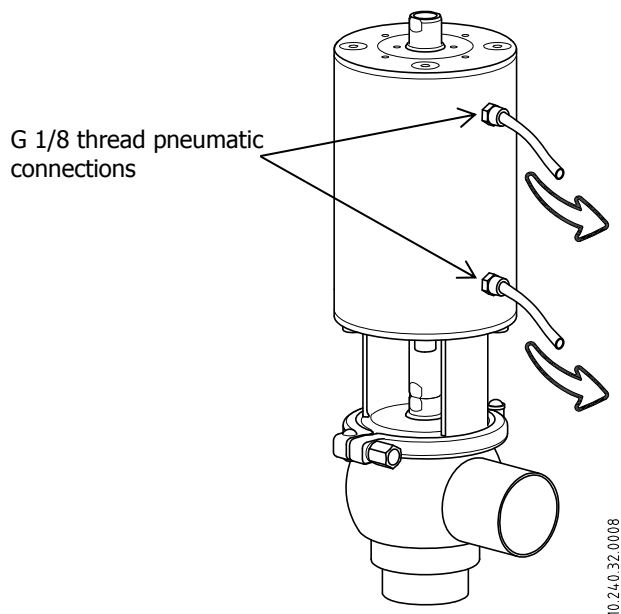
Never disassemble the valve clamps directly without reading the instructions carefully, since the actuator contain a spring inside it with an applied load.

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



#### 4.10. 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 [Technical specifications](#).
- Depending on the configuration, the actuator may have one or two air connections.





## 5. Start-up

Valve start-up can be done if the instructions detailed in [chapter 4. Installation](#) have been followed first.

### 5.1. USES FOR SINGLE-SEAT VALVES

Single-seat valves can be shut-off type or switching type. Those referred to as shut-off valves are used to open or close the passage of the fluid, while divert valves are used to divert the path of the product.

### 5.2. START-UP



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/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 necessary.
- Check to make sure the valve moves smoothly. If 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.
- This 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 [Technical specifications](#).
- Consider the quality of the compressed air, according to the specifications described in [chapter 8. Technical specifications](#).

### 5.3. OPERATION

#### ATTENTION



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



## 6. Operating problems


Water hammer																									
↓	Valve does not open/close																								
↓	Internal leak of product (valve closed)																								
↓	The valve plug is sticking																								
↓	<table><tr><th>PROBABLE CAUSES</th><th>SOLUTIONS</th></tr><tr><td><ul style="list-style-type: none"><li>• The seal or guide bushing is worn, deteriorated or has gotten stuck</li></ul></td><td><ul style="list-style-type: none"><li>• Replace the seals.</li><li>• Replace the seals with ones made of a different material or grade that is more appropriate for the product.</li><li>• Lubricate with soapy water or a lubricant that is compatible with the seal material and the product.</li></ul></td></tr><tr><td><ul style="list-style-type: none"><li>• Insufficient air pressure</li></ul></td><td><ul style="list-style-type: none"><li>• Replace the actuator with a larger one.</li><li>• Increase the compressed air pressure.</li></ul></td></tr><tr><td><ul style="list-style-type: none"><li>• Normal wear of seals</li></ul></td><td><ul style="list-style-type: none"><li>• Replace the seals.</li></ul></td></tr><tr><td><ul style="list-style-type: none"><li>• Premature wear of the seal / affected by the 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# 7. Maintenance

## 7.1. 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 [8. 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.

## 7.2. 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!

### 7.2.1. 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	Class NLGI DIN 51818
HNBR/ FPM	Klübersynth UH 1 64-2403	3
EPDM/ HNBR/ FPM	PARALIQ GTE 703	3

The time 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.



### 7.2.2. 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.

### 7.2.3. Spare parts

To order spare parts, you must indicate the valve type and the position and description of the part, as found in chapter 8. [Technical specifications](#).

## 7.3. 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.

### 7.3.1. 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 litres of water = cleaning solution

or

2,2 litres of 33% NaOH + 100 litres of water = cleaning solution

**b) Acid solution:** 0,5% by weight of nitric acid (HNO<sub>3</sub>) at 70°C (150°F)

0,7 litres of 53% HNO<sub>3</sub> + 100 litres of water = 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



### 7.3.2. 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/material 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 inert gas
- d) Materials: EPDM (HNBR and FPM materials are not recommended)

### 7.4. ASSEMBLY AND DISASSEMBLY



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.

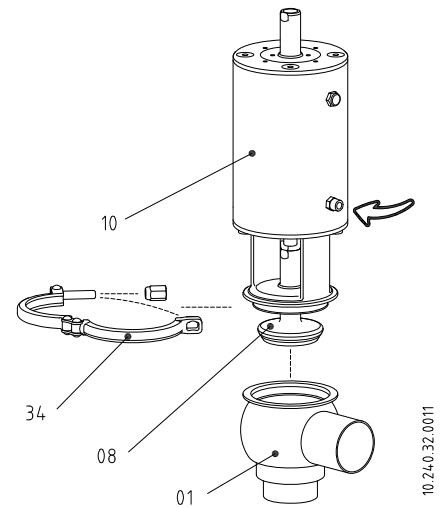
Valve and/or actuator assembly and disassembly should only be done by qualified persons.



## 7.5. DISASSEMBLY/ASSEMBLY OF THE INNOVA SINGLE-SEAT VALVE (TYPE N)

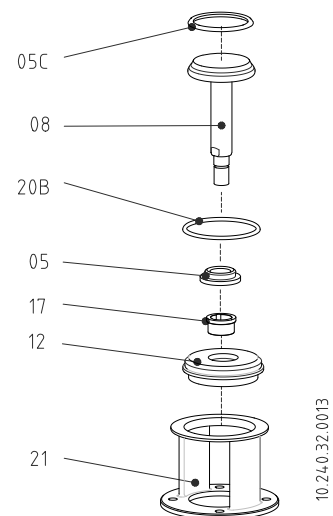
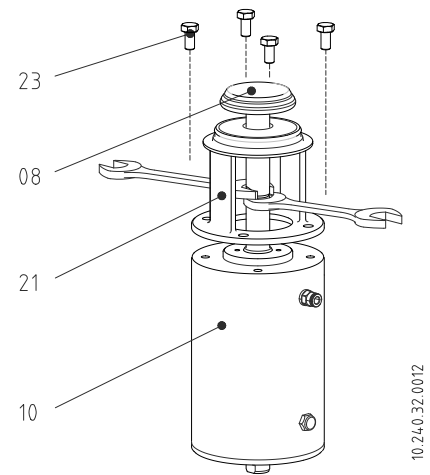
### 7.5.1. Disassembly

1. Apply compressed air to the actuator (10) so that the plug shaft (08) passes the open position (only NC valves).
2. Loosen and separate the clamp (34).
3. Separate the actuator (10) from the valve housing (01).
4. Release the compressed air in the actuator (only NC valves).
5. Unscrew the hexagonal screws (23) from the lantern (21).
6. Unscrew the plug shaft (08) from the actuator shaft two 17 mm crescent spanners.
7. Finish unscrewing the plug shaft by hand.
8. Once the plug shaft is out, remove the housing cap (12) and the seals inside it (20B and 05).
9. Remove the guide bushing (17).
10. Remove the seat seal (05C) as explained in section [7.7. Replacing the seat seal](#).



### 7.5.2. Assembly

1. Loosen the guide bushing (17) on the lantern (21).
2. Insert the lantern (21) underneath the actuator.
3. Lubricate the seals with soapy water if necessary.
4. Install the seals (20B and 05) in the housing cap (12) and put this assembly in the lantern.
5. Install the seat seal (05C) as explained in section [7.7. Replacing the seat seal](#)
6. After the seat seal is installed (05C), then screw in the plug shaft (08) with the actuator shaft (10).
7. Tighten the four hexagonal screws (23) that secure the lantern (2) to the actuator.
8. Apply compressed air to the actuator so that the plug shaft (08) is in the open position (only for NC valves)
9. Mount the actuator (10) - lantern (21) - plug shaft (08) - housing cap (12) assembly to the valve housing (01) (can be turned 360° according to the user's needs) and secure it using the clamp (34).
10. Release the compressed air in the actuator (only NC valves).



See section [8.2](#) for a reference to the parts described. [Exploded drawing and parts list, Innova valve, type N](#)

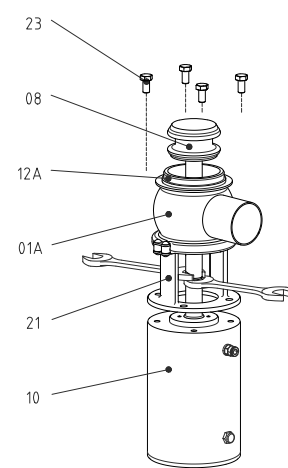
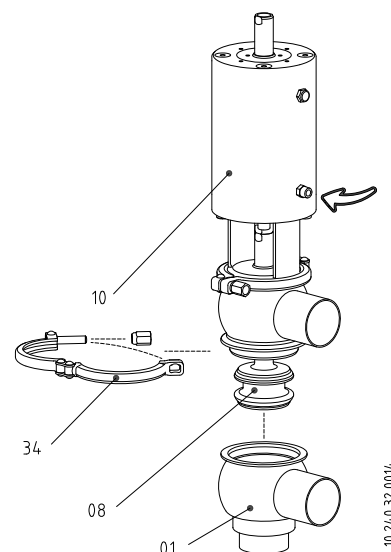
**Note!** To replace the seat seal, see section [7.7. Replacing the seat seal](#).



## 7.6. DISASSEMBLY/ASSEMBLY OF THE INNOVA SINGLE-SEAT VALVE (TYPE K)

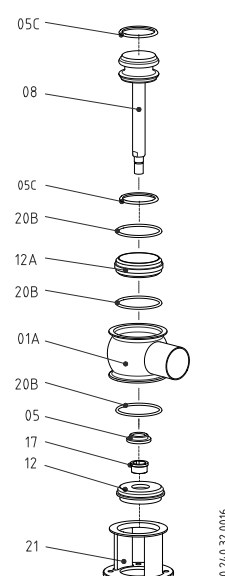
### 7.6.1. Disassembly

1. Apply compressed air to the actuator (10) so that the plug shaft (08) does not make contact with the lower part of the valve housing (only for NC valves).
2. Dismount the fitting from the top part of the housing (01A).
3. Loosen and separate the lower clamp (34).
4. Separate the actuator (10) - lantern (21) - shaft (08) assembly from the valve housing (01).
5. Release the compressed air in the actuator (only NC valves).
6. Apply compressed air to the actuator (only NO valves).
7. Disassemble the clamp that joins the top part of the housing (01A) to the lantern (21).
8. Unscrew the four hexagonal screws (23) that secure the lantern to the actuator, which will allow the lantern to turn freely.
9. Using two crescent spanners, unscrew the plug shaft (08) and remove the intermediate bushing (12A) along with the seals (20B).
10. Separate the top part of the valve housing (01A) and the housing cap (12), the seal (20B), the shaft seal (05) and the guide bushing (17).
11. Release the compressed air from the actuator (only NO valves).
12. Separate the lantern (21).
13. Remove the two seat seals (05C) as explained in section [7.7. Replacing the seat seal](#)



### 7.6.2. Assembly

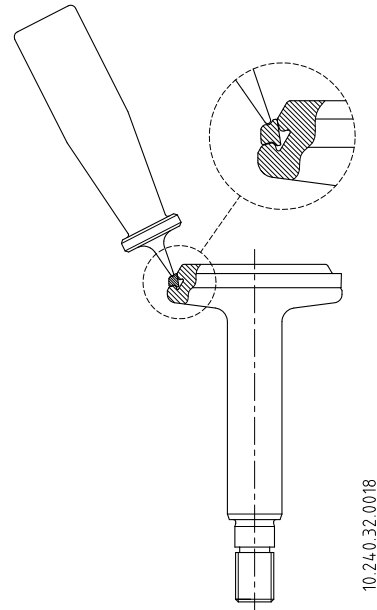
1. Loosen the guide bushing (17) on the lantern (21).
2. Insert the lantern (21) underneath the actuator.
3. Lubricate the seals with soapy water if necessary.
4. Install the seals (20B and 05) in the housing cap (12) and put this assembly in the lantern.
5. Put the top part of the housing in position (01A).
6. Install the two seals (20B) in the separator bushing (12A) and put it in the top part of the valve housing (01A).
7. Install the seat seal (05C) as explained in section [7.7. Replacing the seat seal](#)
8. Apply compressed air to the actuator (only NO valves).
9. After the seat seals are installed (05C), then screw in the plug shaft (08) with the actuator shaft (10).
10. Tighten the four hexagonal screws (23) that secure the lantern (21) to the actuator.
11. Position the top clamp (34) that joins the lantern to the top part of the valve housing.
12. Release the compressed air from the actuator (only NO valves).
13. Apply compressed air to the actuator (only NC valves).
14. Mount the actuator (10) – top valve housing (01A) – shaft (08) assembly on the bottom valve housing (01).
15. Mount the fitting on the top part of the valve housing (01A).
16. Secure the bottom clamp (34) that joins the two halves of the valve housing.
17. Release the compressed air in the actuator (only NC valves).



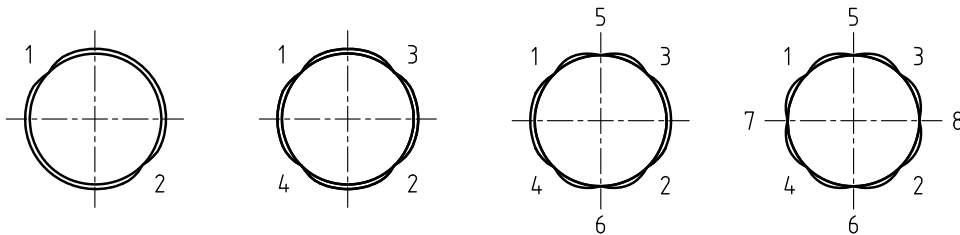


## 7.7. REPLACING THE SEAT SEAL

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.



10 240 32 0018



10 240 32 0017



The following tools are needed to assemble/disassemble the valve:

- 2 crescent spanners 15 mm – To remove the plug shaft DN 25
- 2 crescent spanners 17 mm – To remove the plug shaft DN 40 to DN 100
- Crescent spanner 13 mm – For the clamps
- Appropriate tool (not piercing) to mount the seat seals
- Allen key per the table:

Zone	DN 25/40	DN 50/65/80	DN 100
Lantern	5 mm	6 mm	10 mm
Cap	4 mm	5 mm	8 mm



Proceed with caution. Personal injury can occur.  
Never directly disassemble the clamps from the valve reading the instructions carefully.



### ATTENTION

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

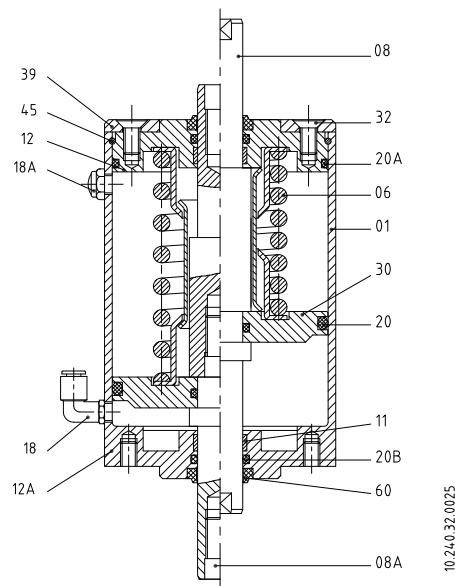


## 7.8. ACTUATOR ASSEMBLY / DISASSEMBLY

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.

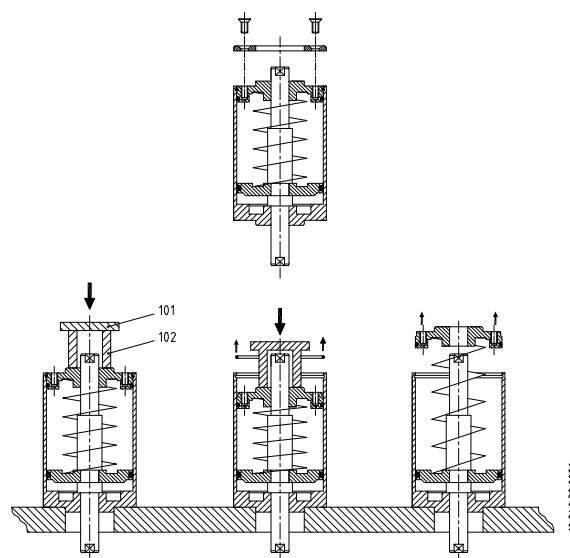
### 7.8.1. Disassembly

1. Loosen the 4 bolts (32) and remove the cap (39).
2. Remove air fitting (18A).
3. Situate 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.
4. Apply force to the shim. Once the cover (12) has dropped 15-20 mm, remove the snap ring (45); this should have sufficient free space to be able to remove it.
5. Reduce the force on the shim slowly until the top cover is free (you will note that the spring no longer exerts pressure).
6. Remove the cover (12) and the internal components, spring assembly (06) and piston (30).
7. Take out the seals (20A and 20B), the scraper (60) and the guide (11) from the cover (12).
8. Take out the seals (20 and 20C) from the piston (30).
9. Dismount the scraper (60), seal (20B) and guide (11) from the base of the actuator.



### 7.8.2. Assembly

1. Mount the scraper (60), seal (20B) and guide (11) on the base of the actuator.
2. Mount the seals (20A and 20B), the scraper (60) and the guide (11) for the cover (12).
3. Put the seals (20 and 20C) on the piston (30).
4. Put the piston (30) and the spring assembly (06) inside the cylinder (01).
5. Mount the top cover (12) on the cylinder.
6. Apply force to the shim so it lowers 15-20 mm. Insert the snap ring (45).
7. Reduce the force applied slowly until the tool no longer touches the cover.
8. Install the counter cover (39) and screw in the 4 bolts (32).
9. Install air fitting (18A).
10. Apply compressed air to check the proper functioning of the actuator.

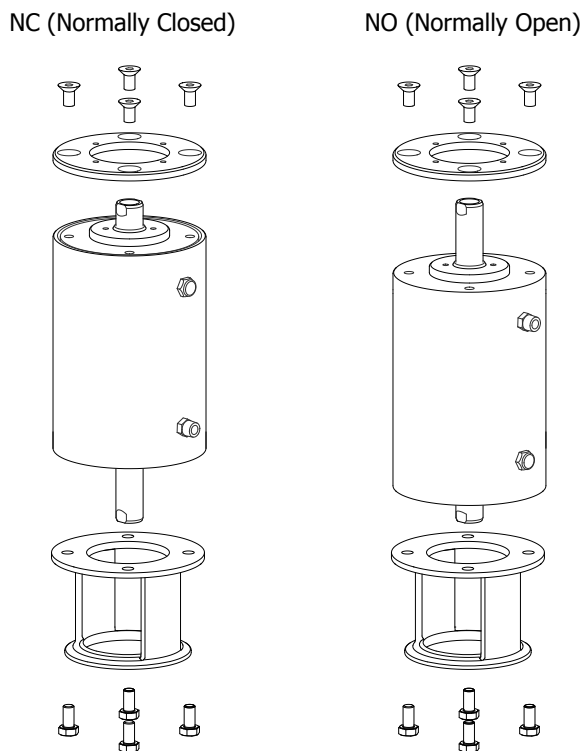




### 7.8.3. Configuration of the actuator

The standard configuration of the valves is NC (Normally Closed).

If a NO (Normally Open) valve is needed, turn the actuator 180°. The following figure shows the orientation of the actuator depending on the desired actuator configuration.



The following tools are needed to disassemble the actuator:

- Allen spanner 5 mm (DN-25/40), 6 mm (DN-50/80), 10 mm (DN-100).
- Fine point screw driver (to remove the snap ring).
- Vice or lathe (to compress the spring and enable the actuator to be opened).



## 8. Technical specifications

### 8.1. TECHNICAL SPECIFICATIONS

#### Valve

Maximum working pressure	10 bar
Minimum working pressure	Vacuum
Maximum working temperature	121°C (250°F) Standard seals EPDM (For higher temperatures, other grades of seals will be used)

#### Actuator

Compressed air pressure	6-8 bar
Compressed air quality	Per DIN/ISO 8573.1 <ul style="list-style-type: none"> <li>- <u>Solid particulate content</u>: quality class 3 / max. particle dimension 5 microns / Max. particle density 5 mg/m<sup>3</sup>.</li> <li>- <u>Water content</u>: 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.</li> <li>- <u>Oil content</u>: quality class 5, preferentially oil free / max. 25mg oil per 1m<sup>3</sup> are.</li> </ul>

Compressed air fitting	G 1/8
------------------------	-------

#### Compressed air consumption (Litres N./cycle)

DN	SE (Single Effect)	DE (Double Effect)
25	1,1	3,2
40	1,1	3,2
50	2,6	8,5
65	4,9	17,7
80	4,9	17,7
100	10,6	42,3

#### Materials

Parts in contact with the product	AISI 316L (1.4404)
Other steel parts	AISI 304L (1.4301)
Seals in contact with the product	EPDM (standard) – FPM – HNBR

#### Surface finish

Inner	Polished Ra ≤ 0,8 µm
Outer	Mate

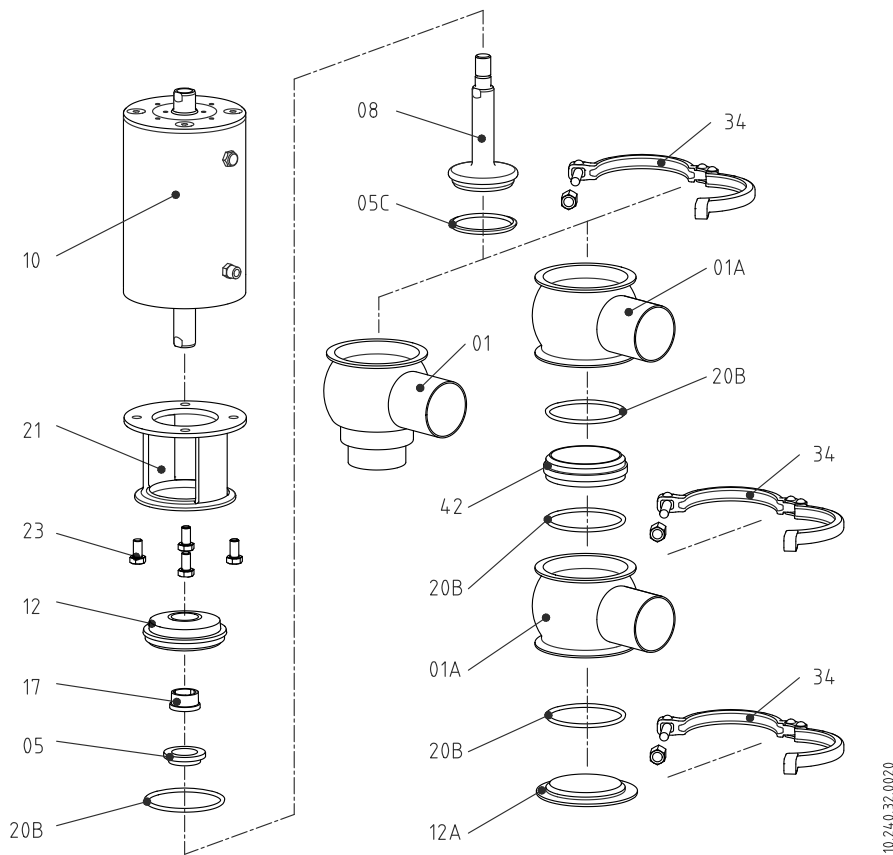
#### Sizes available

DIN 11850	DN 25 – DN 100
ASME BPE	OD 1" – OD 4"
Connections	Welded



## 8.2. EXPLODED DRAWING AND PARTS LIST INNOVA VALVE TYPE N

### 8.2.1. Exploded drawing



### 8.2.2. Parts list

Item	Description	Quantity		Material
		A	B	
01	Lower housing	1	---	AISI 316L
01A	Intermediate housing	---	2	AISI 316L
05	Shaft seal	1		EPDM / FPM / HNBR
05C	Seat seal	1		EPDM / FPM / HNBR
08	Valve shaft	1		AISI 316L
10	Actuator	1		AISI 304
12	Housing cap (top bushing)	1		AISI 316L
12A	Housing cap (bottom bushing)	---	1	AISI 316L
17	Guide bushing	1		PTFE
20B	O-ring	1	3	EPDM / FPM / HNBR
21	Lantern	1		AISI 304
23	Hexagonal screw	4		A2
34	Clamp	1	3	AISI 304
42	Separator	---	1	AISI 316L

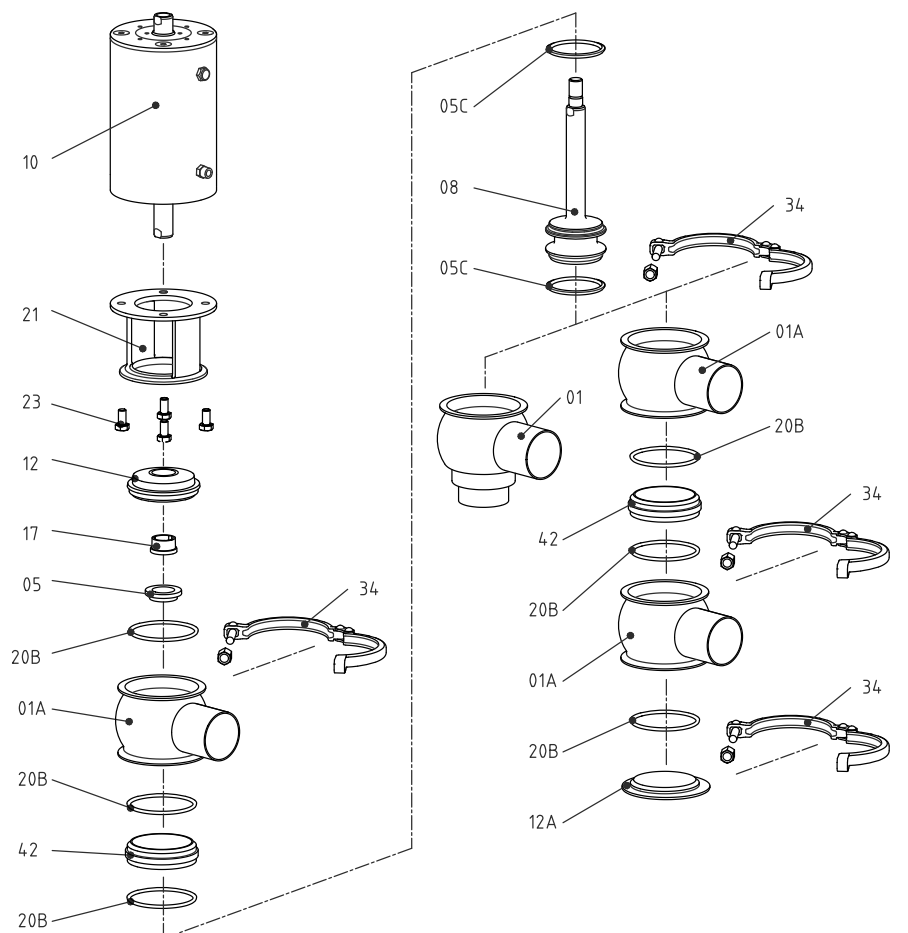
A = 1 housing (L / T)

B = 2 housings (A / B / C / D)



### 8.3. EXPLODED DRAWING AND PARTS LIST INNOVA VALVE TYPE K

#### 8.3.1. Exploded drawing



#### 8.3.2. Parts list

Item	Description	Quantity		Material
		A	B	
01	Lower housing	1	---	AISI 316L
01A	Intermediate housing	1	3	AISI 316L
05	Shaft seal		1	EPDM / FPM / HNBR
05C	Seat seal		2	EPDM / FPM / HNBR
08	Valve shaft		1	AISI 316L
10	Actuator		1	AISI 304
12	Housing cap (top bushing)		1	AISI 316L
12A	Housing cap (bottom bushing)	---	1	AISI 316L
17	Guide bushing		1	PTFE
20B	O-ring	3	6	EPDM / FPM / HNBR
21	Lantern		1	AISI 304
23	Hexagonal screw		4	A2
34	Clamp	2	4	AISI 304
42	Separator	1	2	AISI 316L

A = 2 housings (H / E / F / G)

B = 3 housings (J / P / R / S / V / W / X / Z)



NOTES





## NOTES





**How to contact INOXPA S.A.U.:**

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