



INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTIONS

BUTTERFLY VALVE



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EC DECLARATION OF CONFORMITY (according to Directive 2006/42/CE, annex II, part A)

Manufacturer: INOXPA, S.A.
C/ Telers, 54
17820 Banyoles (Girona) - SPAIN

Hereby declares, that the product:

VALVE

BUTTERFLY

Name

Type

conforms to the specifications of the Council Directive:

Machine Directive 2006/42/EC, and complies with the essential requirements of the Directive and Harmonised Standards:

UNE-EN ISO 12100-1/2:2004
UNE-EN 953:1997
UNE-EN ISO 13732-1:2007

Pressure Equipment Directive 97/23/CE, the equipment has been designed and manufactured in accordance with the requirements of the Directive.

Max operating P.: DN-10 to DN-100/4" =10 bar / DN-125/5" to DN-150/6" =8 bar / DN-200/8" =5 bar

Diameter: $X < \text{or} = \text{DN-25}$

Equipment category: SEP = Sound Engineering Practice, determined according to Article 3 Section 1.3.a, first paragraph Annex II, Table 6

This material SHALL NOT carry CE marking.

Diameter: $\text{DN-25} < X < \text{or} = \text{DN-100}$

Equipment category: Category I, determined according Article 3 Section 1.3.a, first paragraph Annex II, Table 6

This material SHALL carry CE marking.

Conformity Assessment Module: Module A

Diameter: DN-125/150/200

This valves are subject to the following assessment procedure, **Module A, Category I, fluids Group 2.**

This material SHALL carry CE marking.

In compliance with the Regulations (CE) n° 1935/2004, relating to materials and articles intended to come into contact with foodstuff (repeal Directive 89/109/CEE), the materials in contact with the product do not transfer their components in quantities which may jeopardise consumer's health or safety.

Declaration of Incorporation (Directive 2006/42/CE, annex II, part B):

The equipments above mentioned won't put to operation till the machine into or onto it will be installed must comply with the stipulations of the Machine Directive.

Banyoles, 2013

1. Safety

1.1. INSTRUCTION MANUAL.

This instruction manual contains the basic instructions that must be followed during installation, commissioning and maintenance work.

The information given herein is based on the up-to-date data available.

INOXPA reserves the right to modify this instructions manual without having to give prior notice.

1.2. COMMISSIONING.

This instructions manual contains both essential and useful information in order that your valve be properly handled and maintained.

Not only should the safety instructions set forth in this chapter be obeyed, but all those special measures and recommendations that have been added to other chapters herein must also be observed. It is extremely important that these instructions be kept in a set place near the installation.

1.3. SAFETY.

1.3.1. Warning signs.



Danger for people in general



Danger of injury caused by rotating parts of the equipment



Peligro! Electricity



Danger! Caustic or corrosive agents



Danger! Suspended loads



Danger to the proper operating of the machine



Obligation to ensure safety at work



Use of safety goggles obligatory

1.4. GENERAL SAFETY INSTRUCTIONS.



Please read the instruction manual carefully before installing and commissioning the valve. Should you have any doubts or queries, contact INOXPA.

1.4.1. During the installation procedure.



You must always bear in mind the *Technical Specifications* set forth in Chapter 8.

The installation and use of the valve / actuator must always be carried out in accordance with health and safety rules that are to be applied.

Before putting the valve / actuator into operation, check to make sure that it has been correctly assembled and that the shaft has been perfectly aligned. Incorrect alignment and / or excessive force applied during the securing of the valve / actuator may give rise to serious mechanical problems.



During the installation procedure, all the electrical work must be carried out by duly authorised personnel.

1.4.2. During operation.



You must always bear in mind the *Technical Specifications* set forth in Chapter 8. The limit values that have been set must NEVER be exceeded.



NEVER touch the valve and / or pipes that come into contact with the liquid whenever the valve is in service. If it works with hot products, there is a risk of getting burned.

Do not tamper with the actuator if there is a breakdown; the springs are not protected.



The valve / actuator has rotating parts. Do not put your hands or fingers in the coupling that joins the valve and actuator when the compressed air has been connected. Any such action may give rise to serious injury.

1.4.3. During maintenance work.



You must always bear in mind the *Technical Specifications* set forth in Chapter 8.

NEVER dismantle the valve down until the pipes have been drained. Remember that the liquid contained in the pipes can be dangerous or extremely hot. For situations of this type, please, consult the prevailing regulations in the country in question.

Do not leave loose parts on the floor.



All electrical work must be carried out by duly authorised personnel.

1.4.4. Compliance with the instructions.

Any failure to comply with the instructions could endanger the operators, the environment and the machine, and could result in the loss of any rights to claim damages.

Failure to observe these instructions could carry the following risks:

- Serious operational failure of the machine / plant.
- Specific maintenance and fault repair procedures.
- The threat of electrical, mechanical and chemical risks.
- The environment may be endangered by the substances released.

1.5. GUARENTEE.

Any guarantee will immediately become fully null and void, and what is more, we will be fully compensated for any civil liability claim made against us by third parties, in the event that:

- The installation and maintenance work has not been carried out in accordance with the instructions set forth in this manual.
- The repairs have not been carried out by a member of our staff, or have been done without our company having issued prior written authorisation.
- The parts used are not original INOXPA pieces.
- Modifications have been carried out without prior written consent.
- The material has been badly, incorrectly or negligently used, or has been used in accordance with the instructions and end set forth in this manual.

The general delivery conditions already in your possession also apply.

Should you have any doubts or require more in-depth explanations about particular data (adjustments, assembly, dismantling, ...) please do not hesitate to contact us.

2. Contents

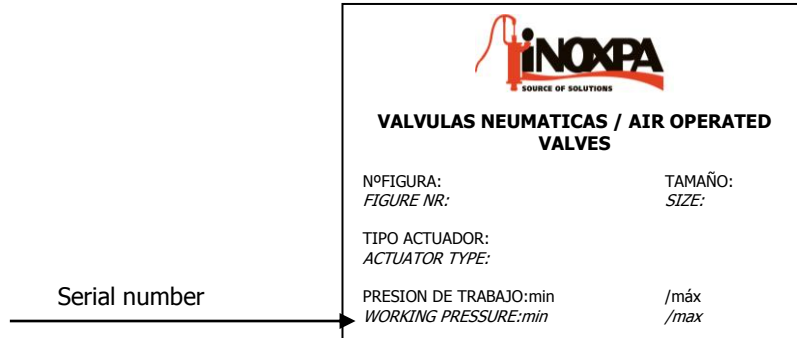
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3. Reception and Installation

3.1. CHECK THE DELIVERY

The first thing to do on receiving the valve is to inspect it and make sure that is the same as that recorded on the delivery note. INOXPA checks all of its equipment before packaging. Notwithstanding, it cannot guarantee that the goods in question will arrive at the address intact. For this very reason, the valve that is received, as well as any other article, must be checked. In the event that the product is not in good condition and / or all the parts have not been received, the haulier must write up a report to this end as soon as possible.

Each valve is stamped with a manufacture number. Indicate this manufacture number on all documents and correspondence. Should the valve be supplied with an actuator, this will carry a tag containing the following information;



3.2. DELIVERY AND UNPACKING



INOXPA does not accept liability should the valve, actuator and its component parts be unsuitably packaged.

3.2.1. Delivery:

Check that all of the parts listed on the delivery note have been received

- Complete valve.
- Actuator and its components (whenever applicable).
- Delivery note.
- Instruction manual.

3.2.2. Unpacking:

- Remove the remains of packaging from the valves or its parts. Manually activated or pneumatically driven valves and their components are delivered fully assembled.
- Check the valve and the parts that go to make it up for any possible damage received during its transportation.
- Take all the necessary measures to avoid damage to the valve / actuator and its components.

3.3. IDENTIFICATION

Familia		Code				
V480	0	-	00	06	52	050 M

Maneta / Levier / Handwheel
 Sin maneta
 B = dos posiciones/2 positions
 E = 2 pos.(gatillo/catch hook/main d'arrêt)
 M= Multiposición/Multiposition
 R = Regulación micrométrica
 Micrometric regulation
 Regulation micrometrique
 D =Con detector de proximidad
 With proximity detector
 Avec détecteur de proximité

Diametro nominal / Nominal diameter / Diamètre nominal

 025 DN 25 DN 25 (DN 1")
 032 DN 32 DN 32 (DN 1 1/4") (GAILLOT Nº2)
 038 DN 1 1/2" DN 1 1/2" (SMS DN38)
 040 DN 40 DN 40 (GAILLOT nº3)
 050 DN 50 DN 50 (GAILLOT nº4)
 051 DN 2" DN 2" (SMS DN51)
 063 DN 2 1/2" DN 2 1/2" (SMS DN 63.5) (GAILLOT nº5)
 065 DN 65 DN 65
 076 DN 3" DN 3" (SMS DN 76) (GAILLOT Nº6)

Material Junta / Material seal / Materiau joint
 52 - EPDM (Estándar / Standard)
 43- NBR
 61- VMQ (Silicona)
 80 - FPM (Vitón)

Material Válvula Material Valve / Materiau Vanne
 04- AISI 304L
 06- AISI 316L

Conexiones / Connections / Conection
 00 - S/S S/S S/S
 10 - M/S G/S BF/S
 11 - M/M G/G BF/BF
 13 - M/T G/KM T/T
 77 - CL/CL CL/CL CL/CL

Tipo Conexión / Type Connection / Type Conection
 0 - DIN 11851 5 - ASEPTICO DIN 11864 PULGADAS
 1 - OD ASME 6 - RJT UK
 2 - SMS FRANCE 7 - MACON FRANCE
 3 - GAS DIN 259 1 - ISO 1127
 4 - ASEPTICO DIN 11864

Código Figura / Code Figure / Code Figure
 V480 - Válvula Mariposa
 V48A - Válvula Mariposa "10"
 V487 - Válvula Mariposa Fijación Clamp
 V490 - Válvula Mariposa Sandwich

Ejemplo / Example / Exampel

- Válvula Mariposa DIN AISI 316L, conexiones soldar/soldar DN-50, junta EPDM, con maneta multiposición.
- Butterfly valve DIN AISI 316L, welding connections DN-50, EPDM gaskets, with multiposition handle.
- Soupape de papillon DI N AISI 316L, souder conection DN-50, EPDM joints, avec poignée multiposition.



The purchaser or user Will be responsible for assembly, installation, commissioning and operating of the valve with our without a pneumatic drive.

3.4. POSITIONING.

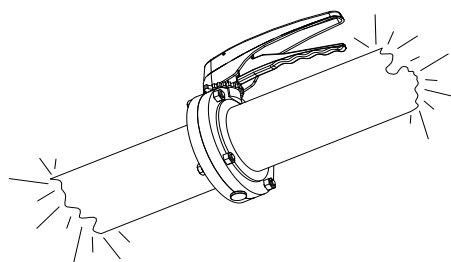
Position the valve / actuator in such a way as to facilitate checks and inspectors. Leave enough clear space around the valve / actuator so that it can be properly checked and service (See section 3.7.3). It is extremely important that access can be had to the actuator air connection device, even when this is in service. This equipment is suitable for his use in food process.

3.5. ASSEMBLY.

After the positioning of the valve has been decided upon, the pipe can be welded to the valve body, or joined by means of accessories (connectors).

During the assembly of the valves excessive tightening must be avoided and special attention must be paid to:

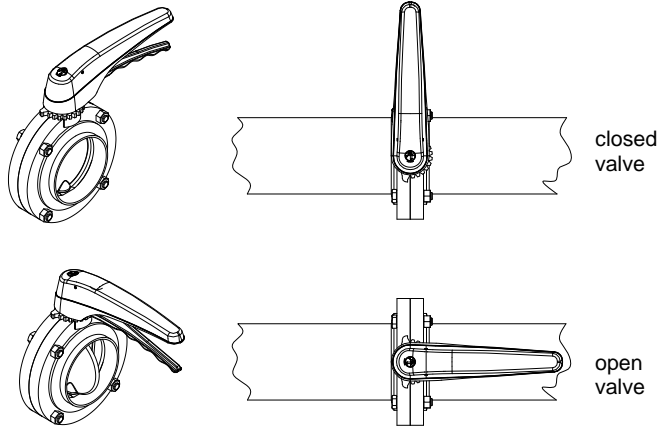
- The vibrations that may be produced in the installation.
- The swelling that the pipes may be subject too n account of the circulation of hot liquids.
- The weight that the pipes can bear.
- The excessive weld intensity.



3.6. INSPECTION AND CHECKING.

Carry out checks before use:

- Open and close the valve several times in order to ensure that it works properly and check that the butterfly smoothly connects up to the coupling.
- If the valve is fitted with a pneumatic drive, apply the compressed air three or four times, checking to make sure that the valve carried out the opening and closing action without difficulty.



3.7. WELDING.



The welding work must only be carried out by properly qualified personnel, who have been trained and fitted out with the jeans hended to perform such tasks. Before embarking on welding tasks, dismantle the valve.

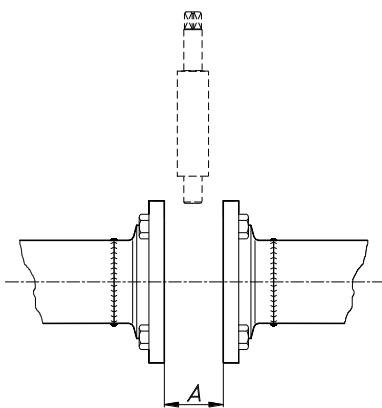
3.7.1. Welding the butterfly valve / welding. Fig. V4800.

- Dismantle the valve as indicated in the section entitled *Dismantling*.
- Weld the two valve flanges to the pipes.
- On welding the two flanges of the valve body, check that they can be axially separated (See dimension A) in order to be able to strip the internal parts of the valve (butterfly and coupling).

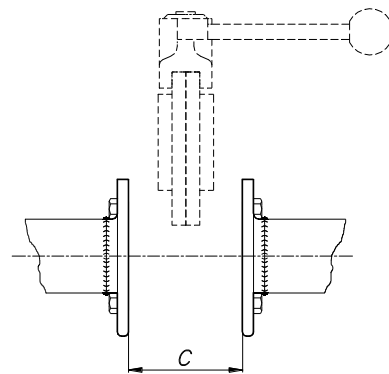
3.7.2. Sandwich butterfly valve. Fig. V4900.

- Weld the flanges to the pipes.
- It is very important to keep the distance (see dimension C) in order to enable axial movement and to facilitate valve assembly and stripping.
- After the flanges have been welded to the pipe, assemble the valve in accordance with the instructions set forth in Chapter 7.
- If the valve is pneumatically driven, follow the instructions set forth in *pag 16*.

DN	A
10-15	24
20	23
25-1"	23
32	23
40-1 1/2"	24
50-2"	24
65-2 1/2"	25
80-3"	28
100-4"	29
125	35
150	35
200	36



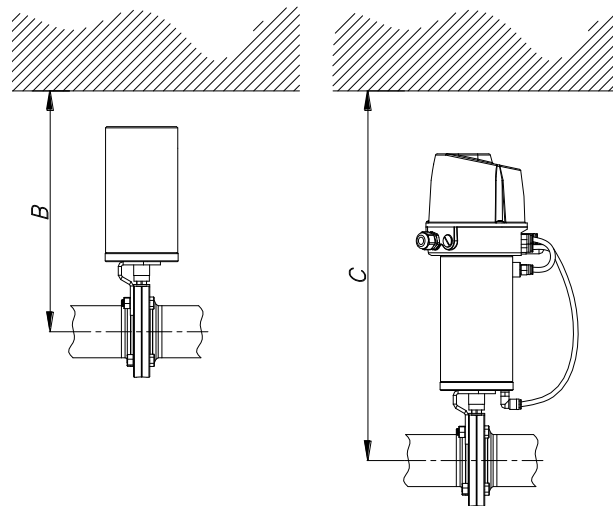
DN	C
25-1"	48
32	48
40-1 1/2"	48
50-2"	48
65-2 1/2"	48
80-3"	58
100-4"	48
125	78
150	98



3.7.3. Valve with pneumatic drive.

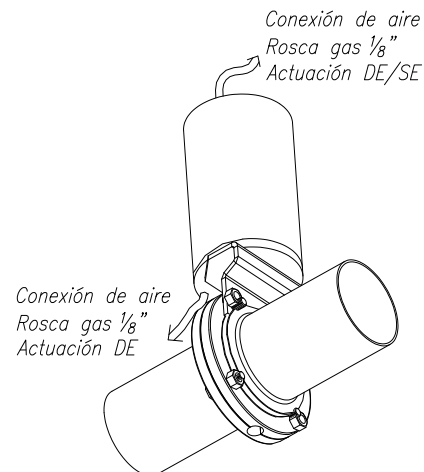
- When assembling a pneumatically driven valve it is extremely important to keep the minimal distance (dimension B) which will enable the stripping of the actuator. In this case, one must bear in mind whether or not the actuator is fitted with a control head (dimension C).

DN	B	C
	With pneumatic drive	With pneumatic drive and control head
10	253	425
15	253	425
20	258	398
25-1"	267	407
32	269	409
40-1 1/2"	272	412
50-2"	298	438
65	307	447
2 1/2"	299	439
80	314	454
3"	307	447
100-4"	324	464
125	388	528
150	412	552
200	435	575



3.8. CONNECTING THE AIR TO ACTUATOR.

- Connect and check the air connections (BSP 1/8" thread) in accordance with double-effect or simple effect needs.
- Correctly point the actuator and butterfly depending on whether an NO/NC is required or not. By turning the butterfly 90°, one achieves one or the other solution.
- Mind the quality of the compressed air according to the specifications described in chapter 8 [Technical Specifications](#).



4. Start-up

The valve can be commissioned or put into operation (with or without actuator) if the instructions set forth in Chapter 3 – *Reception and Installation* have been followed.

4.1. START-UP.



Before commissioning, the people who are responsible must be informed as to how the valve / actuator works and the safety instructions to be observed. This instructions manual will be readily available to personnel at all times.

Before commissioning the valve / actuator the following needs to be borne in mind;

- Make sure that the pipe and the valve are completely free from all possible welding remains and other foreign bodies. If necessary, clean the system.
- Check the smooth operation of the valve. Should it be necessary, lubricate with special grease or soapy water.
- If the valve has been supplied with an actuator, make sure that the actuator shaft permits us a smooth action.
- Check the compressed air pressure at the actuator inlet is the same as that which is indicated in the technical specifications (*chapter 8*).
- Mind the quality of the compressed air according to the specifications described in chapter 8 Technical Specifications.
- Check for possible leaks, make sure that all of the pipes and their connections are sealed and from any leaks.
- Activate the valve.

4.2. OPERATION.



Do not modify the operation settings for which the valve / actuator has been designed without having received prior written authorisation from INOXPA.

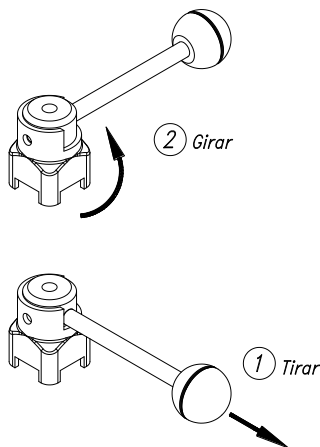
Do not touch the moving parts of the coupling between the actuator and the valve, when the former is connected up to the compressed air.



Canger of burns! Do not touch the valve or pipes while there is hot liquid in circulation or when clearing and / or sterilisation work is being carried out.

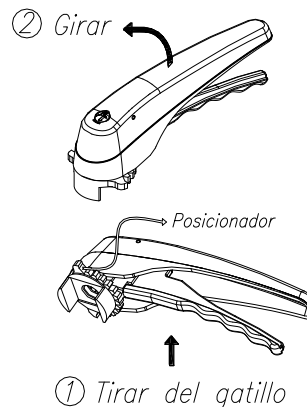
4.2.1. Operating with two position handle.

- Enables the manual on/off operation of the valve.
- Pull the handle outwards.
- While pulling the handle turn it 90°



4.2.2. Operating with multi-position handle.

- This handle enables the gradual opening and closing of the valve. It has 5 positions.
- Pull the catch finger upwards (1).
- While the catch finger is held in position turn the handle. Release the catch finger in order to place it the desired close position (2).



Visually check that the sealing area is free from leaks.

5. Troubleshooting: Causes and solutions

PROBLEM	CAUSE/EFFECT		SOLUTION
EXTERNAL LEAK. THE PRODUCT IS LEAKING AT THE SHAFT	Most likely the seal has completely worn or is deteriorated.		<ul style="list-style-type: none"> • Replace the seat. • Change the seats for others made of a different material more suitable to the product.
INTERNAL PRODUCT LEAK (CLOSED VALVE)	Normal wear and tear of the seat seals.		<ul style="list-style-type: none"> • Replace the seat.
	Premature wearing of seals	Gasket worn or affected by the product. Excessive pressure on line. Work temperatura too high (nuts and screws). Loss of sealability (vibrations). High manoeuvre periodicity (Num. operations/tour).	<ul style="list-style-type: none"> • Change the gaskets for others made of a different material more suitable to the product. • Tighten loose parts. • Clean frequently. • Decrease valve opening / closing frequency.
THE VALVE IS JERKING	The gaskets are jamming up.		<ul style="list-style-type: none"> • Lubricate with soapy water or lubricant compatible with the gasket material and the product.
	The actuator does not operate the valve efficiently.		<ul style="list-style-type: none"> • Check the supply pressure of the compressed air. • Replace with a larger sized actuator.
	Excessive pressure on line.		<ul style="list-style-type: none"> • Check the installation pressure and adjust whenever necessary.
THE VALVE DOES NOT OPEN/CLOSE	Deformation of gasket. Incorrect operation of the actuator. Worn actuator components. Dirt in actuator.		<ul style="list-style-type: none"> • Replace the seals with others of different quality, if prematurely deteriorated. • Replace from NC to NO. • Check the actuator. • Check the compressed air pressure.
WATER HAMMER	The valve closes too fast.		<ul style="list-style-type: none"> • Adjust the closing speed of the actuator (with a flow regulator).

6. Maintenance

6.1. GENERAL COMMENTS

This valve, as with any other machine, needs to be maintained. The instructions container in this manual deal with the identification and replacement of the spare parts. These instructions have been drawn up by maintenance staff and are destined for those people who are responsible for supplying spare parts.



Read carefully Chapter 8. *Technical Specifications*.

All the parts or materials that are changed must be duly eliminated / recycled in accordance with the prevailing directives in each area.

The assembly and stripping of the valves (with or without pneumatic drive) must only be carried out by qualified personnel.

Before beginning the maintenance work, make sure that the compressed air is disconnected and that the pipes are not pressurised.

6.2. MAINTENANCE.

The following actions are recommended in order to carry out suitable maintenance:

- Regular checking of the valve, of the actuator and its components.
- Keep an operation record for each valve, noting down every incidents.
- Always make sure to have spare gaskets in stock.

Pay special attention to the danger warnings indicated in this manual whenever carrying out maintenance tasks.



Do not touch the moving parts when the actuator is connected to the compressed air.

The valve and the pipes must never be pressurised whenever maintenance work is being carried out.

The valve must never be hot during maintenance work. Danger of burns!

On stripping the actuator or maintenance / repair, the springs are not protected.

6.2.1. Maintenance of the seat seal.

REPLACING SEAL	
Preventive maintenance	Replace alter 12 months.
Maintenance after a leak	Replace at the end of the process.
Planned maintenance	Regularly check the absence of leaks and the smooth operation of the valve. Keep a record of the valve. Use statistics for planning inspections.
Lubrication	During assembly, apply lubricants that are compatible with the material of which the seat seal is made.

The time interval between each preventive maintenance, may vary in accordance with the work conditions to wich the valve is subject: temperatura, pressure, number of daily manoeuvres, type of clearing solutions used...

6.2.2. Storage

Tha valves should be stored in a closed area, Under the following conditions:

- Temperature from 15°C to 30°C
- Air humidity <60%

Outdoor storage of the equipment **NOT** permitted.

6.2.3. Spare parts

When it comes to ordering spare parts, the type of valve, the position and the description of the part, all to be found in the chapter on technical specifications, must be indicated. When ordering pneumatic actuators please indicate the type and number that are to be found on the data plate and engraved on the body of the valve.

6.3. CLEANING



The use of aggressive clearing products such as caustic soda and nitric acid may give rise to skin burns.

Use rubber gloves during the cleaning process.



Always use protective goggles.

6.3.1. Automatic CIP (cleaning-in-place)

If the valve is installed in a system fitted with a CIP process, there will be no need for stripping.

Cleaning solutions for CIP processes.

Only use clear water (free from chlorine) 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. of water = cleaning solution

o

2.2 l. NaOH at 33% + 100 l. of water = cleaning solution

b) Acid solution: 0.5% by weight of nitric acid (HNO₃) at 70°C (150°F)

0.7 litres HNO₃ at 53% + 100 l. of water = cleaning solution



Control the concentration of cleaning solutions; it may cause the deterioration of the watertight seals of the valve

To eliminate the remains of cleaning products, ALWAYS carry out a final rinse on completion of the cleaning process.



Before beginning the disassembly and assembly work, clean the valve inside as well as outside. Disconnect the air from the actuator.

6.3.2. Automatic SIP (sterilization-in-place)

The process of sterilization with steam is applied to all the equipment including the pigging.



Do NOT start the equipment during the process of sterilization with steam.

The parts/materials suffer no damage if the indications specified in this manual are observed.

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

Maximum conditions during the SIP process with steam or overheated water

- | | | |
|-----------|--------------------------|--|
| a) | Max. temperature: | 140°C / 284°F |
| b) | Max. time: | 30 min |
| c) | Cooling: | Sterile air or inert gas |
| d) | Materials: | EPDM / PTFE (recommended)
FPM / NBR / VMQ (not recommended) |

7. Assembly and dismantling



Work carefully. Failure to do so could result in personal injury.

The assembly and stripping of the valve (with or without pneumatic drive) must only be carried out by qualified personnel.



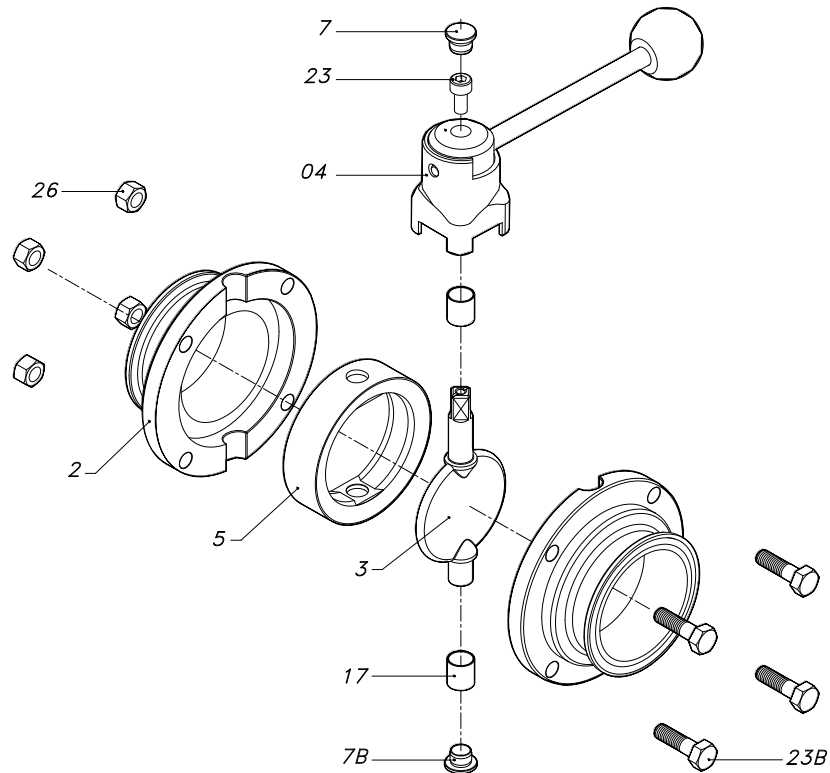
The following tools are needed in order to strip the valve down;

- 4mm (DN-10 to DN-100) or 5mm (DN-125 to DN-200) Allen key
- 2 fixed spanners 10mm (DN-10 to DN-20), 13mm (DN-25 to DN-125), 17mm (DN-150 to DN-200)

7.1. DISMANTLING / ASSEMBLY OF THE VALVE WITH TWO POSITION HANDLE.

Dismantling

1. Remove the plug (7) at the top part of the handle (04).
2. Loosen the screw (23) and remove the entire handle (04).
3. Remove the screws (23B) and the nuts (26) that join both flanges.
4. Separate the flanges (2) and take out the bushes (17).
5. Remove the butterfly (3) with the gasket. (Put the plug in a safe place 7B).
6. Detach the gasket (5) from the butterfly (3). See point 7.4.



Assembly

1. Lubricate the butterfly disc shaft and the gasket with soapy water
2. Fit the butterfly (3) in the gasket (5). See [point 7.4](#).
!WARNING! After the gasket has been fit, leave the butterfly in the open position in order to facilitate the assembly of the valve.
3. Fit the butterfly and gasket assembly between the two sides (2).
4. Put the bushes (17) into butterfly shaft.
5. Position the screws (23B) and the nuts (26), screw them (to the tightness torque value indicated in chapter 8.1), check that the seat seal (5) and the bushes (17) are positioned correctly.
6. Fit the entire handle (04) into butterfly shaft (3) and put the handle arm in open position (aligned with the butterfly disk) and put the screw (23).
7. Place the plugs, one at the top part (7) of the handle and the other at the bottom part (7B) of the butterfly spindle.

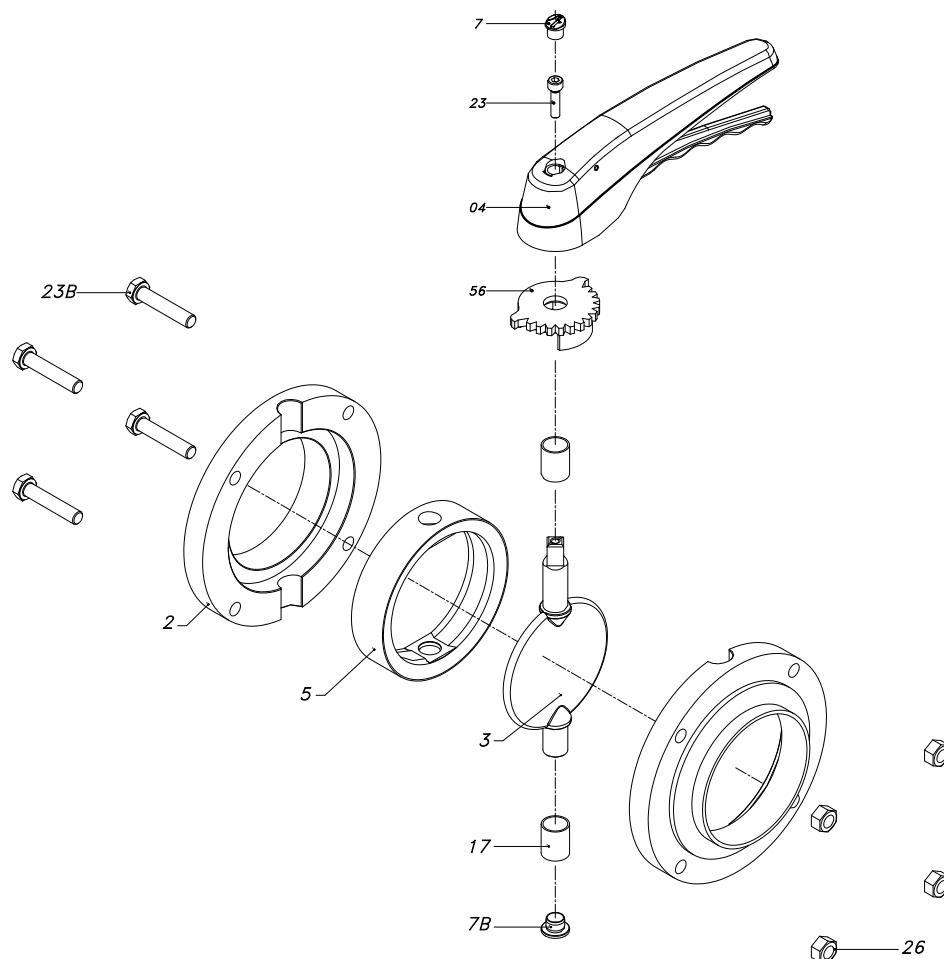


Before putting the valve into operation open and close it several times in order to make sure that the butterfly is smoothly housed against the gasket.

7.2. DISMANTLING / ASSEMBLY OF THE VALVE WITH MULTI-POSITION HANDLE.

Dismantling

1. Remove the plug (7) at the top of the handle (04).
2. Loosen the screw (23) and remove the entire handle (04).
3. Remove the positioner (56) from the flanges of the valve by using a screwdriver as a lever.
4. Take off the plug (7B) situated at the bottom part of the butterfly spindle.
5. Remove the screws (23B) and the nuts (26) that join both flanges.
6. Separate the flanges (2) and remove the bushes (17).
7. Take out the butterfly with the seat seal (3+5).
8. Detach the seal (5) from the butterfly (3). See point 7.4.



Assembly

1. Lubricate the butterfly shaft and the gasket with soapy water.
2. Fit the butterfly (3) into the gasket (5). See point 7.4.
!WARNING! After the seat seal has been fit, leave the butterfly in the open position in order to facilitate the assembly of the valve.
3. Fit the butterfly and seat seal assembly between the two flanges (2).
4. Put the bushes (17) into butterfly shaft.
5. Position the screws (23B) and the nuts (26), screw them (to the tightness torque value indicated in chapter 8.1), check that the seat seal (5) and the bushes (17) are positioned correctly.
6. Fit the positioner (56).
7. Fit the handle (04), in the open position (aligned with the butterfly disc) on the butterfly shaft and tighten the screw (23).
8. Place the plugs, one at the top part (7) of the handle and the other at the bottom part (7B) of the butterfly shaft.

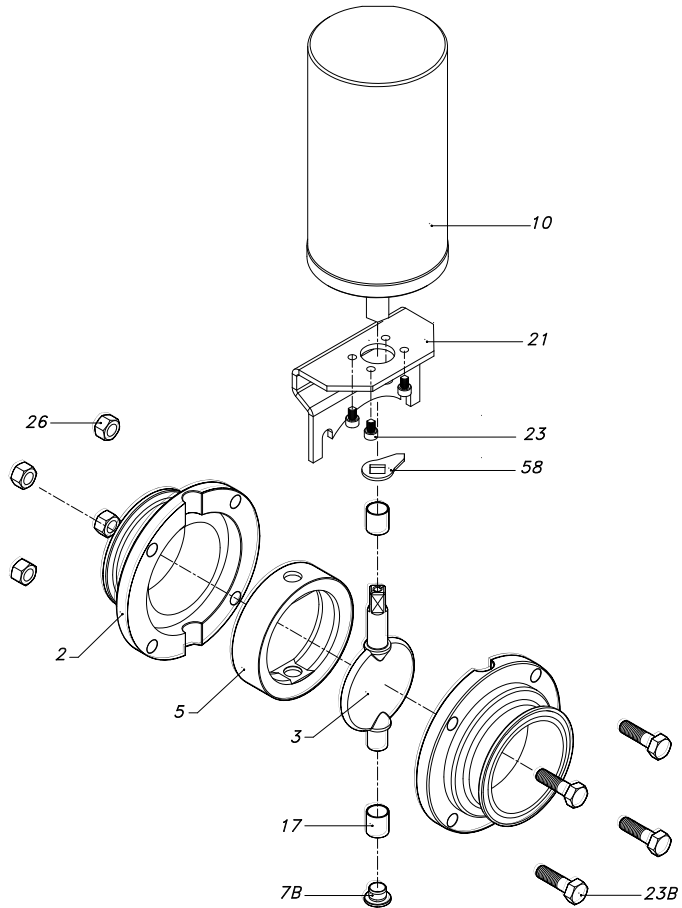


Before putting the valve into operation open and close it several times in order to make sure that the butterfly is smoothly housed against the seat seal.

7.3. DISMANTLING / ASSEMBLY OF THE VALVE WITH PNEUMATIC ACTUATOR

Dimantling

1. Disconnect the compressed air from the actuator.
2. Loosen the two screws (23B) and the nuts (26) that join the actuator support (21) with the flanges (2).
3. Detach the support/actuator from the flanges.
4. Take out the screws (23) and separate the support (21) from the actuator (10).
5. Remove the on/off position indicator (58).
6. Take off the plug (7B) situated at the bottom part of the butterfly shaft.
7. Remove the screws (23B) and the nuts (26) that join the two flanges.
8. Separate the flanges (2) and remove the bushes (17).
9. Remove the butterfly with the gasket (3+5).
10. Detach the seat seal (5) from the butterfly (3). See point 7.4.



Assembly

1. Lubricate the butterfly shaft and the gasket with soapy water.
2. Fit the butterfly (3) into gasket (5). See point 7.4.
- iWARNING!** After the seal has been fit, leave the butterfly in the open position in order to facilitate the assembly of the valve.
3. Fit the butterfly and seal assembly between the two flanges (2).
4. Put the bushes (17) into butterfly shaft.
5. Put the screws (23B) and nuts (26). Place the long screws to the upper part to fix the support (21).
6. Screw them (to the tightness torque value indicated in chapter 8.1), check that the seat seal (5) and the bushes (17) are positioned correctly.
7. Fit the support (21) on the actuator (10) and tighten the screws (23).
8. Loosen the two upper screws (23B) of the valve.
9. Place the position indicator (58) to the shaft of the disk (3) and place the actuator. See [chapter 7.5](#).
10. Fix the support to the flange, check the position of the actuator, loosen the screws (23) if necessary. Place the actuator and tighten the screws.



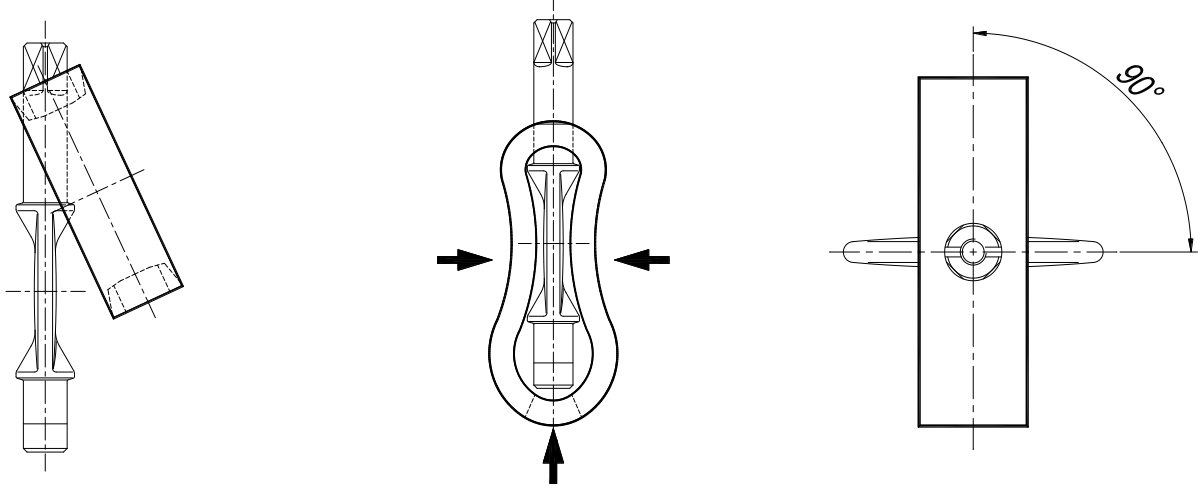
Before putting the valve into operation open and close it several times in order to make sure that the butterfly is smoothly housed against the seat seal.

7.4. FITTING THE SEAT SEAL.



Carry out the operation with great care, avoiding any deterioration of the seat seal.

Make sure that all parts are in perfect condition and free from any dirt.



1 Insert the long butterfly spindle into one of the seal holes.

2 Stretch the seal as shown in the drawing, in such a way that it is possible to insert the short spindle in the free gasket hole.

3 Turn the butterfly until it is perpendicular to the seal. This position facilitates its assembly in the body of the valve.

7.5. ACTUATOR FITTING OPTIONS.

NC Air/Spring (Normally Closed).

The butterfly (3) and the position indicator (58) must be in the closed position (see figure 1).

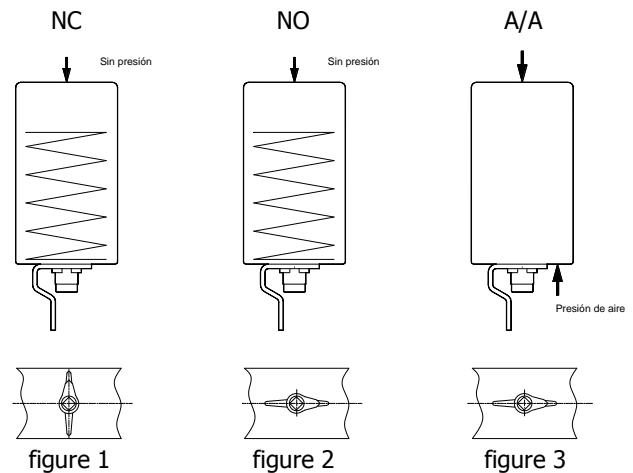
NO Air/Spring (Normally Open).

The butterfly (3) and the position indicator (58) must be in the open position (see figure 2).

A/A Double effect.

The butterfly (3) and the position indicator (58) must be in the open position (see figure 3).

Before assembly supply compressed air at the cogger actuator connection.

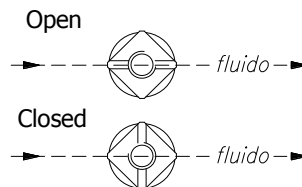


7.6. VALVE POSITION.

See the position of the shaft (8) to check the position of the valve, open or closed, during the assembly/disassembly or replacement of the andel-actuator.

At the upper part of the shaft (8) there is a groove. It indicates the position of the valve:

- Open; the groove is on the line of the fluid circulation.
- Closed; the groove 'cuts' the circulation of the fluid.



8. Technical Specifications

8.1. TECHNICAL FEATURES

GENERAL FEATURES															
<i>Maximum working pressure</i>	DN-10 to 100 / DN-1/2" a 4"					DN-125 to 150 / DN-5" to 6"					DN-200 / 8"				
	10 bar					8 bar					5 bar				
<i>Maximum working temperature</i>	121°C (250 °F) Standard seat seal EPDM (For higher temperatures other qualities of seals will be applied)														
<i>Operating torque [N.m.] (by dry process)</i>	10	15	20	25	32	40	50	2 1/2"	65	3"	80	100	125	150	200
	6	6	6	8	9	10	14	15	18	18	20	25	55	70	90
<i>Surface finish</i>	In contact with the product: Ra ≤ 0,8 µm Outside surfaces: mechanized finish (turned)														

MATERIAL	
<i>Pieces in contact with the product</i>	AISI 316L (1.4404) AISI 304L (1.4306)
<i>Other stainless steel pieces</i>	AISI 304 (1.4301)
<i>Gaskets in contact with the product</i>	EPDM (standard) - NBR - VITON - SILICONE.
<i>Surface finish</i>	Pieces in contact with the product. < Ra. 0,8µm
<i>Type connections</i>	DIN 11851 (Standard) Welding, FIL-IDF, BS-RJT, SMS, Clamp, Flanges, Macon.

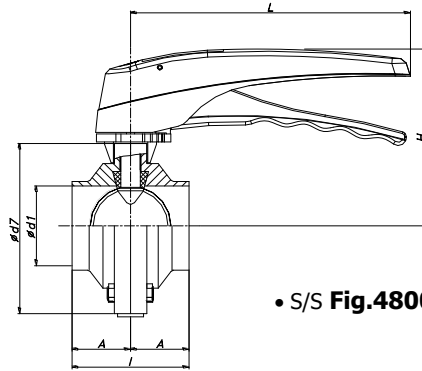
PNEUMATIC ACTUATOR GENERAL FEATURES	
<i>Air consumption/cycle</i>	10 (1/2") – 15 – 20 (3/4") – 25 (1") – 32 – 40 (1 1/2") Air/Spring: 0,15 litros / Air/Air: 0,3 litros
	50 (2") – 65 (2 1/2") – 80 (3") – 100 (4") Air/Spring: 0,25 litros / Air/Air: 0,5 litros
	125 – 150 (6") – 200 Air/Spring: 0,85 litros / Air/Air: 1,7 litros
<i>Air pressure (Actuator)</i>	6-8 bar (87-116 PSI) Air/Spring 4-6 bar (58-87 PSI) Air/Air
<i>Air compressed quality</i>	According to DIN/ISO 8573.1 <ul style="list-style-type: none"> - <u>Solid particle content</u>: Quality class 3 / Particle size max. 5 micres / Particle density max. 5 mg/m³ - <u>Water content</u>: Quality class 4 / max. Dew point +2°C If the valve is used at higher altitudes or at low ambient temperatures, the dew point must be adapted accordingly - <u>Oil content</u>: Quality class 5, preferably oil free / max. 25 mg oil in 1 m³ air
<i>Weight</i>	10 (1/2") – 15 – 20 (3/4") – 25 (1") – 32 – 40 (1 1/2") Air/Spring 2,13Kg / Air/Air 1,71Kg
	50 (2") – 65 (2 1/2") – 80 (3") – 100 (4") Air/Spring 3,0Kg / Air/Air 2,35Kg
	125 – 150 (6") – 200 Air/Spring 8,34Kg / Air/Air 6,37Kg
<i>Angle of turn</i>	90°

<i>Maximum operating torque</i>	<p>10 (1/2") – 15 – 20 (3/4") – 25 (1") – 32 – 40 (1 1/2") 15Nm (air/spring) / 25Nm (air/air)</p> <p>50 (2") – 65 (2 1/2") – 80 (3") – 100 (4") 35Nm (air/spring) / 60Nm (air/air)</p> <p>125 – 150 (6") – 200 90Nm (air/spring) / 150Nm (air/air)</p>
<i>Continuous working temperatura</i>	-20°C a +50°C
<i>Air connection</i>	R1/8" (BSP)

Tools/ Operating torque flange assembly

Valve dimensions	DN-10 / 20 DN-1/2" / 3/4"	DN-25 / 125 DN-1" / 4"	DN-200 DN-6"
Fixed spanners DIN 37110	10	13	17
Operating torque	16 Nm	21 Nm	42 Nm

8.2. MANUAL VALVE DIMENSIONS

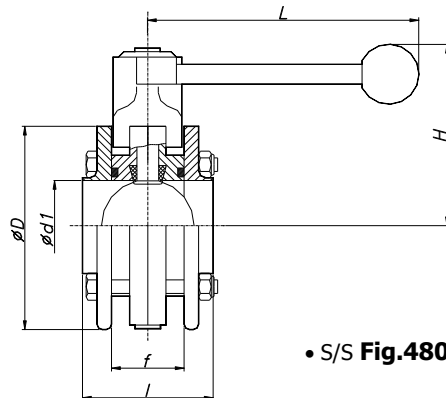


• S/S Fig.4800/40900

DN	d1	d7	A	I	H	L
10	10	62	20	40	90	115
15	16	62	20	40	90	115
20	20	72	20	40	95	115
25	26	87	20	40	102	115
32	32	92	21	42	105	170
40	38	97	25	50	107	170
50	50	110	25	50	115	170
65	66	127	25	50	125	170
80	81	142	30	60	130	170
100	100	162	30	60	150	170
125*	125	190	55	110	147	270
150*	150	240	66	132	180	300
200*	200	284	75	150	205	325

DN	d1	d7	A	I	H	L
1/2"	9,4	62	20	40	90	115
3/4"	15,8	62	20	40	90	115
1"	22,1	87	20	40	102	115
1 1/2"	34,9	97	25	50	107	170
2"	47,6	110	25	50	115	170
2 1/2"	60,3	118	25	50	125	170
3"	72,9	131	25	50	130	170
4"	97,4	162	30	60	150	170
6" *	146,8	240	66	132	180	300
8" *	197,6	284	75	150	205	325

*Only with two position handle



• S/S Fig.4800/40900

DN	d1	D	I	f	H	L
25	26	93	68	40	90	150
32	32	98	68	40	93	150
40	38	103	68	40	95	150
50	50	115	72	40	100	150
65	66	132	72	40	110	150
80	81	145	80	40	117	180
100	100	165	80	40	128	180
125*	125	191	120	70	147	270
150*	150	240	140	90	180	300

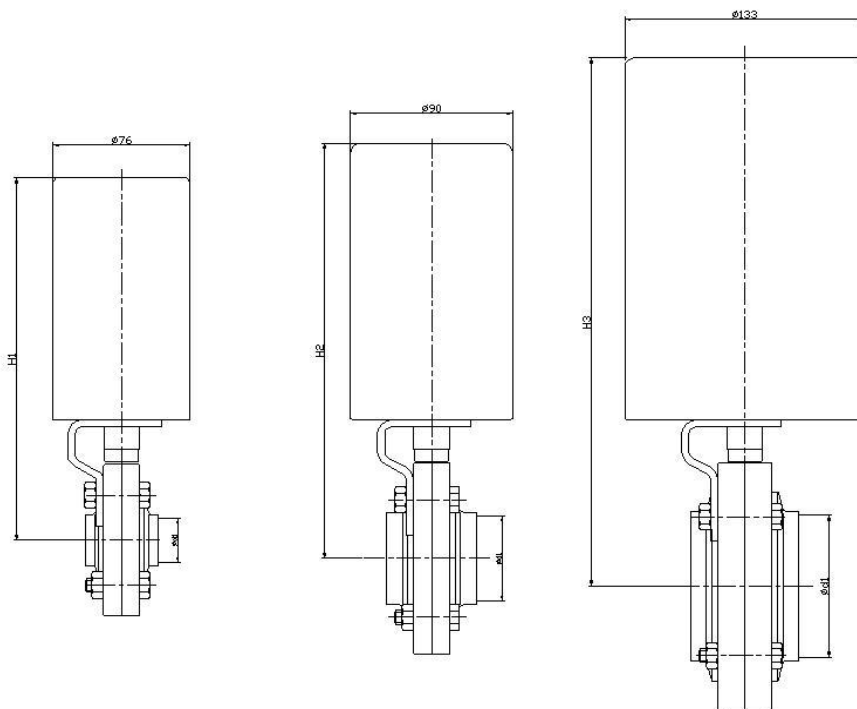
DN	d1	D	I	f	H	L
1"	22,1	93	68	40	90	150
1 1/2"	34,9	103	68	40	95	150
2"	47,6	115	72	40	100	150
2 1/2"	60,3	117	72	40	110	150
3"	72,9	132	72	40	117	180
4"	97,4	165	80	40	128	180
6" *	146,8	240	140	90	180	300

*Only with two position handle

8.3. PNEUMATIC VALVE DIMENSIONS

DN	d1	H	
10	10	193	H1
15	16	193	H1
20	20	198	H1
25	26	207	H1
32	32	209	H1
40	38	212	H1
50	50	238	H2
65	66	247	H2
80	81	254	H2
100	100	264	H2
125	125	328	H3
150	150	352	H3
200	200	375	H3

1/2"	9,4	193	H1
3/4"	15,8	198	H1
1"	22,1	207	H1
1 1/2"	34,9	212	H1
2"	47,6	238	H2
2 1/2"	60,3	239	H2
3"	72,9	247	H2
4"	97,4	264	H2
6"	146,8	352	H3

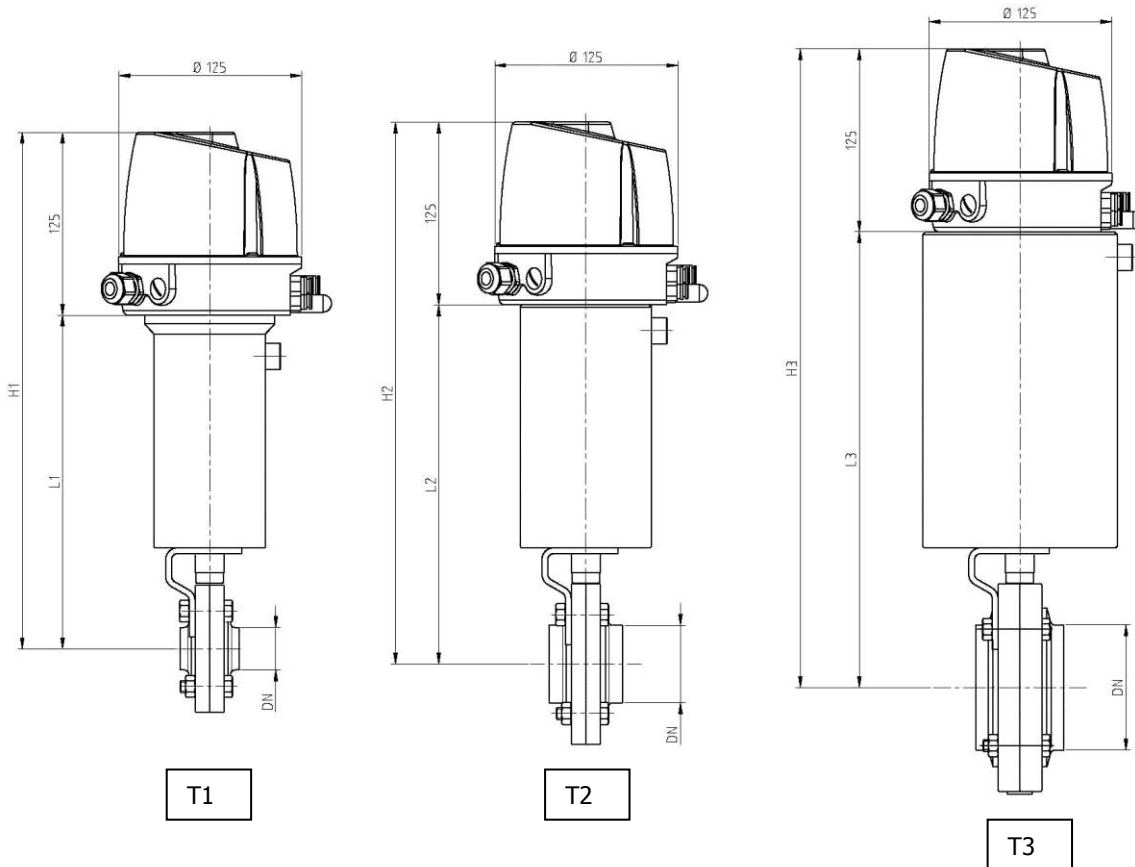


8.4. PNEUMATIC VALVE DIMENSIONS AND C-TOP

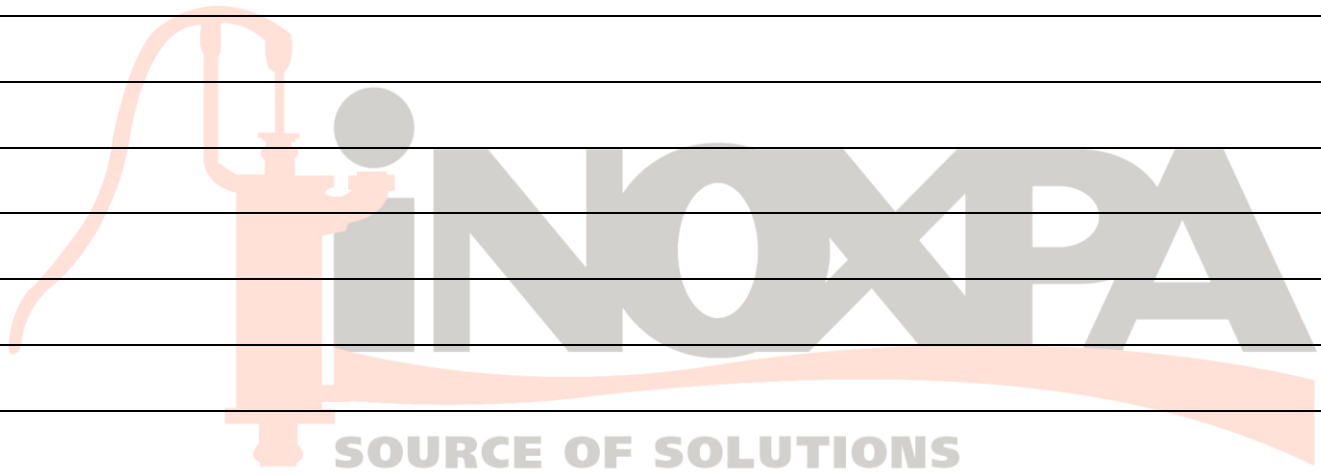
		T1	
		DN	
STANDARD	10-15-1/2"	213	338
	20-3/4"	218	343
	25-1"	227	352
	32	229	354
	40-11/2"	232	357

		T2	
		DN	
STANDARD	25-1"	234	359
	32	236	361
	40-11/2"	239	364
	50-2"	245	370
	21/2"	146	271
	65-3"	254	379
	80	261	386
	100-4"	271	396

		T3	
		DN	
STANDARD	125	336	461
	150-6"	360	485
	200-8"	383	508



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