

Original installation instructions with operating instructions and technical documentation.

In accordance with:

- Pressure Equipment Directive 2014/68/EC
- Machinery Directive 2006/42/EC
- Standard EN 161
- Gas Appliances Regulation 2016/426/EC (GAR)

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1. Introduction

This manual is intended to support the user during the installation, operation and maintenance of the butterfly valves models Desponia® and Desponia® plus in accordance with the EN 161.



The “warning” and “caution” notes must be strictly followed. Not following the advice might result in damages of various severity levels for the operators and the place of installation of the valves, and the warranty may be invalidated.

The butterfly valves according EN 161 are always supplied from the factory with a pneumatic actuator and accessories to assure the closing of the valve when de-energized and other technical features according the EN 161.

The valves are class A and Group 2 according the EN 161.

2. Intended use

Butterfly valves models Desponia® and Desponia® plus in accordance with the EN 161 are intended to shut-off or regulate fluids of various natures, including those mentioned in the EN 161 standard and the Gas Appliances Regulation 2016/426/EC (GAR). After installation the valves in the piping system, please ensure the temperature and pressure limits of the valve are always kept.

The technical datasheets of the Desponia® and Desponia® plus valves, show the different limits in temperature and pressure of the different materials.

In the valve labels (example provided on page 5), „PS“ and „TS“, show the limits of pressure and temperature according to the EN 161 standard and complement the data provided by the technical datasheets. The information is based on neutral liquids only, so please contact InterApp if you need additional information for other liquids.



If the valve is operated outside its limits of pressure and temperature, personal damage and to the equipment might occur.

Please avoid cavitation and water hammer, which can cause a failure of the valve, with personal and equipment damages.

Butterfly valves models Desponia® and Desponia® plus by themselves, are no equipment according to article 1 of the directive 2014/34/EU (ATEX), but they can be used in explosive areas. In potentially explosive areas, the user is obliged to identify dangerous ignition sources, perform a risk analysis of the entire system and initiate the necessary preventive measures. Therefore, the use of conductive versions might be necessary. Electrical and mechanical actuators as well as accessories are subject to a separate conformity analysis according to ATEX. The user is responsible to consider all the safety instructions for applications in explosion hazardous areas.

Additional safety instructions for the proper selection the InterApp valves materials and their use in explosion hazardous zones are listed in the document "interapp-butterfly-valves-for-use-in-potentially-explosive-atmospheres.pdf", which can be downloaded from www.interapp.net.

For the actuators and accessories safety instructions according ATEX directive, please refer to the specific documentation, which can be obtained from InterApp.

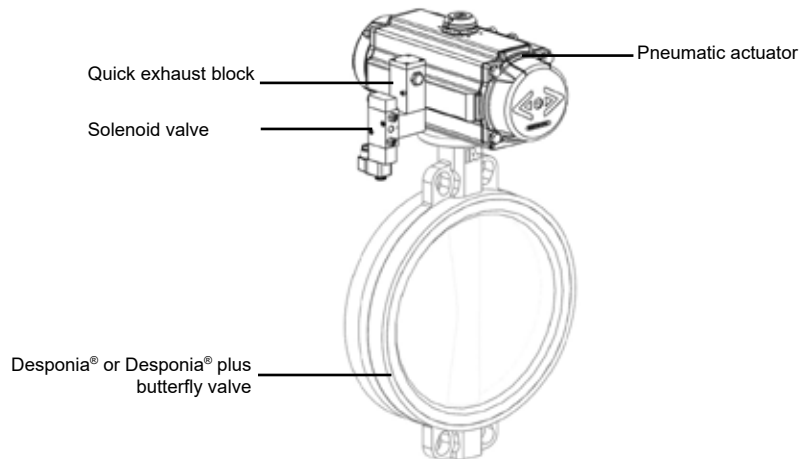
Note: The valve fitted with actuator and accessories may not be used as an automatic shut-off valve for domestic cooking appliances burning gas in accordance with standard EN 30.

3. Configuration

Butterfly valves according EN 161 are always supplied from the factory with a pneumatic actuator and accessories to assure the compliance with the EN 161.

Please refer to the technical datasheet „EN161 butterfly valves“ that includes the possible combinations of actuators and accessories for the valves according the EN161.

The different parts that could be included are:



Butterfly valves

Models Desponia and Desponia plus. D1/D3/D4-DP1/DP3. Sizes DN50 to DN250. Disc: 4C0 and Liner: NG.

Single acting pneumatic actuators

Model: PTB - XXX -YY -FA

Where XXX denotes the size of the actuator and YY the flange connection to the butterfly valve. The FA denotes the special execution of the actuators, which is Fast Acting.

The pneumatic actuators have their own manuals, which will be attached together with this manual, when ordering the valves.

Solenoid valve

Models VSNC- XXX

Where XX denotes the different voltage and current possibilities, according to the different coils options.

According the EN 161 cl 6.6 the input signal has to be 0-20 mA to ensure a safe shutdown, 4 mA trip signal is not allowed. The solenoid valves have their own manuals, which will be attached together with this manual, when ordering the valves.

Models 331N03 - XXX

Where XX denotes the different voltage and current possibilities. According the EN 161 cl 6.6 the input signal has to be 0-20 mA to ensure a safe shutdown, 4 mA trip signal is not allowed.

The solenoid valves have their own manuals, which will be attached together with this manual, when ordering the valves.

Quick exhaust block

Model: SENR-207-01-Ex

Other optional equipment

Limits switches can be provided together with the valves, and they do not affect the behavior of the assembled unit or its capacity to close in the required time when the actuator is de-energized.

Due to the temperature range of the valve, and the required cycling operations proximity switches are recommended, and the materials have to be selected to be compatible with the ambient operations.

Rated flow:

DN	opening angle of the valve							
	20°	30°	40°	50°	60°	70°	80°	90°
50	2	7	15	28	45	68	88	100
65	3	11	24	48	85	138	180	210
80	8	22	50	83	134	230	312	360
100	15	35	70	130	225	410	585	650
125	28	70	135	230	360	600	920	1050
150	33	95	205	320	580	980	1410	1620
200	60	175	355	580	910	1600	2450	2800
250	132	340	590	940	1480	2550	3950	4480

Ambient temperature: as shown on the label -20°C up to +60°C.

Opening and closing time: Less than one second for all sizes between DN 50 and DN 250

4. Safety information

General safety information

Butterfly valves are intended to be installed in a piping system, so the same regulations and safety measures that apply to the complete system, must be applied to the valve. In this manual, additional safety instructions related to the butterfly valve are contained.

Safety instructions to the operators

InterApp does not assume any responsibility, so therefore the operator must ensure when operating the valve that:

- The valve is only used properly as intended.
- The piping system has been laid professionally and is checked regularly.
- The valve is professionally connected to the piping.
- In the piping system, the common flow speeds in permanent operation are not exceeded.
- If abnormal operational conditions such as vibrations, cavitation, erosion, solids in the medium, are present, they have been discussed with InterApp.
- At operating temperatures that result in hot or cold valve parts (incl. add-ons) and therefore might cause dangers, the installation must take into account protective measures against accidental touching.
- Only expert personnel operate and service the valve.



For the installation of the valve in explosive atmospheres, please refer to the additional safety instructions for the proper selection the InterApp valves materials. Their use in explosion hazardous zones are listed in the document „interapp-butterfly-valves-for-use-in-potentially-explosive-atmospheres.pdf“, which can be downloaded from www.interapp.net. For the actuators and accessories safety instructions according ATEX directive, please refer to the specific documentation, which can be obtained from InterApp.

Particular hazards



Before the valve is removed from the piping system, ensure that the pressure in the system is completely relieved from both sides of the valve. Do not attempt to unscrew the valve of the pipes with pressure, failure to follow this recommendation can cause damages to the personnel and the equipment.

Please notice that some residues could remain in the inner of the valve and that they might be dangerous for people or the environment. Therefore, the butterfly valve has to be handled with the corresponding caution.

For valve to be installed at the end of line, please always follow the instructions on chapter 6. Never attempt to unscrew or operate the valve without relieving the pressure.

Do not remove the actuator of the valve, while the valve is still under pressure.

Lifetime for safe function

Verify the external tightness of the valve at suitable intervals, and if leakage is detected please proceed to uninstall the valve and replace the liner.

The liners are suitable for the following frequency of operations without replacement:

Nominal Size DN	Number of cycles without service operations
50 ≤ DN ≤ 80	100.000
80 < DN ≤ 150	50.000
150 < DN ≤ 250	25.000

Marking and labelling

InterApp valves carry a label with the following information:

Label	Details	Explanation
	Manufacturer	InterApp
	Conformity ID and number	CE marking and notified body as per EU directives
	Valve class (VC)	Class A
	Ambient temperature (AT)	-20°C – 60 °C (according EN 161 certification)
	Nominal size	DN and number (in mm)
	Maximum pressure	PS – maximum allowable pressure in bar at room temperature
	Maximum Temperature	TS –Allowable temperature in Celsius (for clean neutral fluids)
	Valve type and codification	D1XXX / D3XXX / Sequence of alphanumeric characters that identify the valve. See the valve datasheet for an explanation of the same
	Body Material	BOD → Material used for the body
	Shaft Material	SH → Material used for the shaft
	Disc material	DIS → Material used for the disc
	Reference number	A set of numbers that identify the production order, therefore establishing the date of manufacture

5. Transport and Storage

Special care should be taken when handling, storing and transporting the butterfly valves Desponia® and Desponia® plus. Local regulations as well as the necessary safety measure must always be observed.

The butterfly valves must be kept in the original packaging up to the installation.

InterApp butterfly valves Desponia® and Desponia® plus should always be stored free from dust and humidity.

6. Installation

Introduction



To guarantee the benefits of the InterApp butterfly valves Desponia® and Desponia® plus, proper procedures and compliance with the installation instruction are essential. The installation has to be carried out according to the state of the art and only by qualified personnel. InterApp reserves the right to decline responsibility for damage or premature failure if the recommendations contained in this instruction are not being followed. Consult the corresponding valve datasheet concerning the installation of a valve at the end of the line. Dimension, material and application range of the butterfly valves Desponia® and Desponia® plus are according to the technical documentation.

The weight of the butterfly valves Desponia® and Desponia® plus is shown on the technical datasheets. Due to its weight, special care should be taken during the installation of the valves, and the use of lifting devices, ropes, slings, etc. should always be contemplated. For these operations the end user and personnel should wear the necessary protection equipment as per the local regulations and follow the local safety regulations.

Precautions to be taken prior to installation



Please make sure that the valve intended for installation is suitable for the service conditions prevailing. The responsibility about the used fluids (corrosion resistance, pressure, temperature, etc.) lies by the user of the plant.

Call your supplier or InterApp if you need any assistance.

Please consider that turbulences (i.e. created by piping bow) generate hydro dynamic forces increasing the operating torque of the valve. We recommend installing the valve minimum 5 x DN after pipe fittings.

Check before installation:

Positioning



For the installation of valves in horizontal pipelines, we recommend installing the valves with their shaft in a horizontal position.

Please ensure that the lower edge of the disc opens with the direction of the flow. This prevents deposition of slurries and contamination in the shaft sealing area. (Fig. 2)

Gaskets



Never use gaskets nor grease. (Fig. 3)

Installation

Flange facings must be smooth and clean. Rust, welding scores, rests of paint, dirt, etc. must be removed in order to prevent damage of the valve gasket. The flange shape and dimension has to assure metal to metal contact between the valve body and the flange surface.



Desponia® and Desponia® plus butterfly valves, in wafer style design, are suitable for installation between DIN PN10/16 or ANSI150 flanges. For the installation of valve between flanges of other standards consult InterApp or its authorized distributors. Special precautions need to be taken into account with raised faces flanges for lower pressure classes (e.g PN 6). The valve should not be mounted in pipes, where the actual bore diameter is less than the nominal bore dimension of the valve. In that case, spacer rings should be fitted between flanges and valve to prevent damage to the disc on opening. (Fig.4)

The valve should never be installed between flanges which are not parallel to each other. Make sure that pipes and valves are installed concentric. The disc of a misaligned valve may be damaged. (Fig.5). Furthermore, it is inadmissible to carry out any welding on the piping while the valve is between the flanges. This would destroy the liner of the valve.

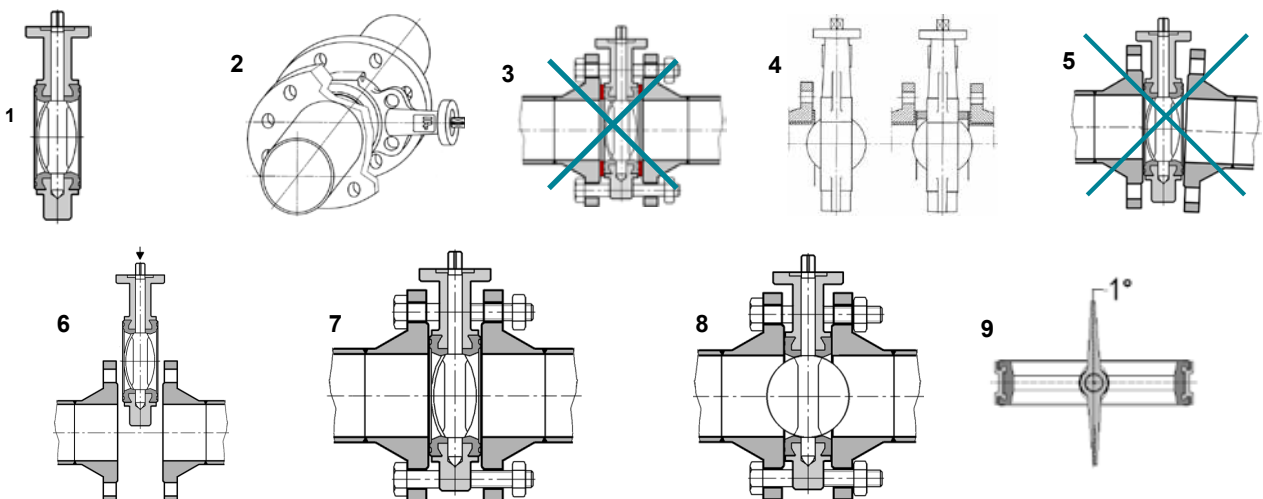
The flanges have to be spread in order to ease the installation of the valve and the disc must be partially open (Fig. 6).

Misspread flanges may damage or roll the liner outside the body flanges.

Set all stay-bolts by keeping the disc slightly open and do not tighten the nuts (Fig. 7).

By tightening the stay-bolts when the disc is closed, the liner will be compressed in a wrong position. An excessive closing torque and leakage will result. Open completely the disc (Fig. 8). Ensure that the piping is aligned. Tighten diagonally opposite the nuts.

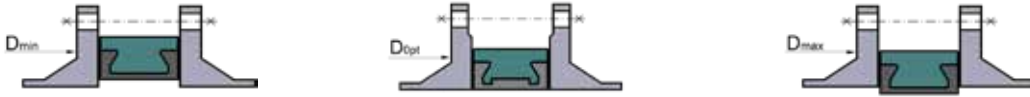
In case of valve maintenance operations in which the disassembly of its elements is required, it is necessary to simply extract the valve shaft. For this purpose, the valve design includes a minimum clearance between the shaft and the valve disc. Due to this clearance, there will be a minimum circumferential clearance of the valve disc. This circumferential clearance will not exceed the value of +/- 1° according to InterApp quality standards (Fig. 9). This circumferential clearance will not affect the tightness of the valve in any case.



Flange inside diameter



The InterApp butterfly valve has to be mounted between flanges without gasket. It has bidirectional tightness. Consult the corresponding valve datasheet concerning the installation of a valve at the end of the line. It is centred by stay-bolts or by screws. The diameter of the flange should be in accordance with the stated values D_{opt} , D_{min} , D_{max} .



D_{min} Minimum diameter of the flange enabling to move the disc (in case of a perfectly centred valve).

D_{opt} Diameter of the flange for optimal mounting.

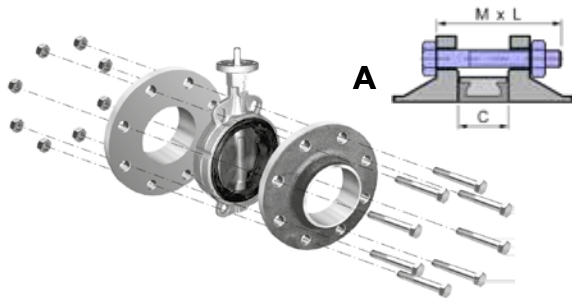
D_{max} Maximum diameter of the flange.

DN	50	65	80	100	125	150	200	250
D_{min}	35	53	74	93	119	147	198	247
D_{opt}	53	68	83	103	128	153	202	253
D_{max}	68	87	104	126	154	174	226	277

Bolting

Wafer + U-section body DN 50 - 250

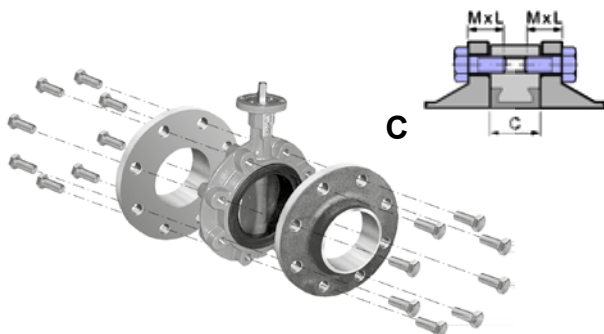
A Bolt with nut



DN	C	n	PN 6	PN 10	PN 16	ANSI 150			
			A	A	A	A			
			M x L	n	M x L	n	M x L	n	UNC x L [Inch]
50	43	4	M12x100	4	M16x110	4	M16x110	4	UNC 5/8"-11 x 4"
65	46	4	M12x100	4	M16x110	4(8)	M16x110	4	UNC 5/8"-11 x 4 1/2"
80	46	4	M16x110	8	M16x120	8	M16x120	4	UNC 5/8"-11 x 4 1/2"
100	52	4	M16x120	8	M16x120	8	M16x120	8	UNC 5/8"-11 x 5"
125	56	8	M16x120	8	M16x130	8	M16x130	8	UNC 3/4"-10 x 5"
150	56	8	M16x120	8	M20x140	8	M20x140	8	UNC 3/4"-10 x 5 1/4"
200	60	8	M16x130	8	M20x150	12	M20x150	8	UNC 3/4"-10 x 5 1/2"
250	68	12	M16x140	12	M20x160	12	M24x170	12	UNC 7/8"-9 x 6 1/4"

LUG type DN 50 - 250

C Bolt



DN	C	n	PN 10	PN 16	ANSI 150		
			A	A	A		
			M x L	n	M x L	n	UNC x L [Inch]
50	43	8	M16x30	8	M16x30	8	UNC 5/8"-11 x 1 1/2"
65	46	8	M16x40	8	M16x40	8	UNC 5/8"-11 x 1 1/2"
80	46	16	M16x40	16	M16x40	8	UNC 5/8"-11 x 1 3/4"
100	52	16	M16x40	16	M16x40	16	UNC 5/8"-11 x 2"
125	56	16	M16x50	16	M16x50	16	UNC 3/4"-10 x 2"
150	56	16	M20x50	16	M20x50	16	UNC 3/4"-10 x 2"
200	60	16	M20x50	24	M20x50	16	UNC 3/4"-10 x 2"
250	68	24	M20x60	24	M24x60	24	UNC 7/8"-9 x 2 1/2"

n = number of bolts for one valve

Mounting the valve at the end of a line

When installing of the valve at the end of a line please note:

Fluid	Only neutral liquids, temperature 10 - 80°C
Body material	Ductile iron GGG 40 / EN-GJS-400-15, carbon steel 1.0619 or stainless steel 1.4408
Flange bolting	Tightening torque values according to the supplier of the bolting you are using



Body type	Picture	Mounting end of line	DN	Max. working pressure
Wafer D1	--	not allowed	--	--
Lug D3	--	possible without counter flange	DN 25 - 250	valve PN 16 = 10 bar, valve PN 10 = 6 bar
		with flanges on both sides	DN 25 - 250	nominal pressure of the valve
Flanged D4	①	only with counter flange using passing through bolts	DN 150 - 250	nominal pressure of the valve



Cleansing of the piping:

When cleansing the piping system, it is very important to assure that the cleaning products and devices are harmless for the valve. Not convenient products and devices might destroy the valve.

Removal:

When removing the valve from the pipe please take care not to damage the disc and the liner of the valve.



Disposal:

Please notice that some residues could remain in the inner of the valve and that they might be dangerous for people or the environment. Therefore, the butterfly valve has to be handled with the corresponding caution. After its use, the butterfly valve has to be disposed of according to the state of the art and under consideration of the environment.

7. Functional Tests

Pressure tests on the valves has already been done by InterApp.

When putting the piping system in operation for the first time, please follow the local regulations and the necessary safety measures of the whole system.

In order to remove potential debris located in the piping system, prior to the normal operation of the same, it is recommended to flush the piping system.

Prior starting to use the installation, we recommend making a function test. Therefore, the valve must be opened and closed at least once in order to check that the disc doesn't touch the flanges and that the valve is tight through the passage and toward outside.

To make the pressure test of the piping system with the valves installed, please observe the following:

- Valve Open: The pressure test must not exceed the value of $x \ 1,5$ PS (Ps is shown on the label)
- Valve Closed: The pressure test must not exceed the value of $x \ 1,1$ PS (Ps is shown on the label)

8. Operation and Maintenance

Normal operation



Please notice that fluid residues inside the butterfly could be dangerous for humans and the environment. The butterfly valve must be handled accordingly and be cleaned carefully prior to the maintenance.

Maintenance

Introduction



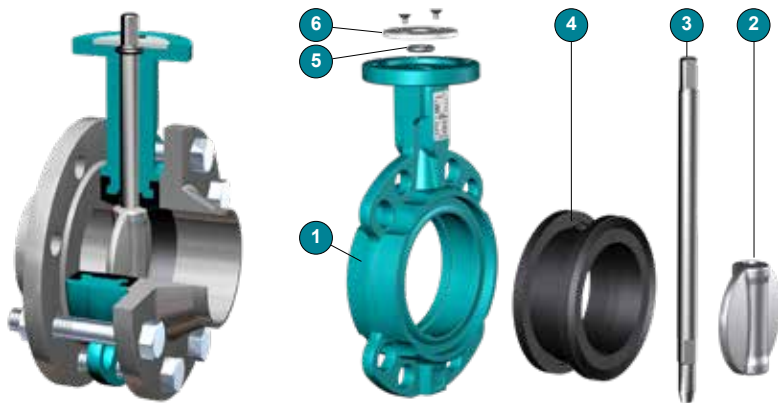
Maintenance is made at the own risk of the user. Maintenance on a Desponia® must be executed by trained staff only. Only original spare parts are to be used.

The frequency of replacement of the wear parts, is highly dependent on the fluid, cycles, operating conditions, etc.

The user should include in its maintenance program a chapter for inspecting the valves to check the wear parts and change them if necessary.

In the next paragraph the spare parts are identified. Please contact InterApp to obtain the specific codes and additional information for the spare parts.

1. Parts of a DESPONIA®, DESPONIA® plus



Parts list

1	Body
2	Disc
3	Shaft
4	Liner*
5	O-ring*
6	Retaining washer + 2x Screws*

*Spare parts

2. Valve removal from the line:

Before removing the valve from the pipe consider that dangerous fluids might leak. Corresponding measures of precaution must be applied.

When removing the valve from the pipe please take care not to damage the disc and the liner of the valve.

- 2.1 Do not close the valve completely.
- 2.2 Loosen all bolts and remove the valve.
- 2.3 Use flange spreaders and remove the valve

3. Disassembly:

- 3.1 Make sure there is no overpressure trapped inside of the valve prior disassembly.
- 3.2 Open the valve completely.
- 3.3 Remove the actuator.
- 3.4 Unlock screws and remove the retaining washer
- 3.5 Remove the shaft (either by using an extractor or by tightening the square of the shaft in a vise).
- 3.6 Remove the disc.
- 3.7 Loosen the liner at a point, squeeze until it is heart-shaped and then remove the liner.

4. Reassembly:

- 4.1 Clean all parts. Use, if possible, a silicone spray or like ease the handling.
- 4.2 Ensure that the bigger hole of the liner is on the top side of the valve (the shaft diameter on the upper side is bigger than this on the lower side).
- 4.3 Insert the heart-shaped liner. Set the upper part facing the shaft hole (use the shaft to centre the liner), let the liner expand and adapt with the body.
- 4.4 Replace the disc. Ensure that the square is at the lower part (opposite the top of the valve). Take care not to damage the liner.
- 4.5 Introduce the shaft through the liner and the disc, by rotating the disc in an alternated movement to ease the operation.
- 4.6 Properly align the axis of the shaft square with the axis of the disc. Completely insert the shaft, evacuating air from the lower shaft housing (slightly lift the liner using a screwdriver).
- 4.7 Remount the actuator.



Before using the valve in a piping system, if it is required to make a tightness test (e.g. EN 12266-1) or similar as well as a function test. Afterwards, put the disc in a slightly open position, so that the disc edge doesn't surpass the flange surface. This position must be kept until the valve is installed.

9. Troubleshooting

Fault	Action
Leak at the piping flange connection of the valve	1. Tighten the flange bolts. Please follow the recommendations of the bolt's supplier being used.
	2. If the medium leaks even after tightening the bolts: remove the valve from the pipe and observe the instructions mentioned in paragraph 7 of this manual.
	3. Ensure that the pipe flanges are aligned and the flange surface is smooth and clean.
	4. If still the leaking persists, check for damages in the liner. Order replacement parts from InterApp.
Leaking from the shaft of the valve	1. Repair needed. Repair shaft sealing system. Remove the valve from the pipe and observe the instructions mentioned in paragraph 7 of this manual
	2. Order replacement parts from InterApp and contact us for further instructions.
The valve does not open or close	1. If the valve carries an actuator, please check if the supply pressure is high enough and the corresponding documentation of the actuator.
	2. If the valve is manually operated, please check for the following possibilities: <ul style="list-style-type: none"> • If foreign media is present → Please flush the piping. • Operating pressure too high → Operate the valve with its corresponding allowable pressure.
	3. If still the problem persists, please check for damages on the valve. Remove the valve from the pipe and observe the instructions mentioned in paragraph 7 of this manual.
	4. Order replacement parts from InterApp and contact us for further instructions.
Leakage between disc and liner	1. Please check that the valves have been correctly installed. Follow the instructions on paragraph 6.
	2. If the valve is correctly installed, and the leakage still occurs, disc/liner might be damaged. Contact InterApp for spare parts and further instructions.
Other malfunctions	1. If the valve is damaged, please contact InterApp for further instructions and spare parts ordering.

10. Further Information

Technical datasheets, drawings, other documents and further advice can be obtained from:

InterApp Valcom S.A.
 Calle Almenara, s/n.
 Carretera Nacional A-1, KM 31.1 (Salida 30),
 (Polígono Industrial Sur)
 28750 San Agustín del Guadalix, Madrid, Spain

☎ +34 916 584 134 ✉ info@es.interapp.net

Additional further information can be obtained from: www.interapp.net

1.1.2 a) b) c) d)	See operating manuals and related documentation. The protective measures for personnel are the same as the ones where the product will be installed
1.1.2 e)	No specific tools are needed
1.1.3	The materials in contact with the media are identified in the product datasheet, the order confirmation and in the valve label. The user must make a risk analysis.
1.1.5	Relevant instructions and information are given in the operating manuals and related documentation
1.2	Responsibility of the user following the instructions of the actuator.
1.3.1	See operating manual and handling instructions.
1.3.2	For the parts under pressure, through the declaration of conformity according 2014/68/EC. For the functional parts, ensured through the intended use.
1.3.3	Fulfilled through design and assembling process
1.3.4	Fulfilled
1.3.7, 1.3.8, 1.3.9 and 1.4	Ensured through the intended use. Maintenance and servicing operations are never allowed with the valve under pressure and/or connected to the control system.
1.5.1, 1.5.2, 1.5.3 and 1.5.4	Responsibility of the user. See operating manuals and related documentation of the actuators.
1.5.5	Responsibility of the user when the products are installed in its destination. See warnings and intended use of the operating manual.
1.5.7	In potentially explosive areas, the user is obliged to identify dangerous ignition sources, perform a risk analysis of the entire system and initiate the necessary preventive measures. If Ex-protection is required is must be stated in the order. See also document "interapp-butterfly-valves-for-use-in-potentially-explosive-atmospheres-XXX.pdf", which can be downloaded from www.interapp.net
1.5.8	It is the responsibility of the user to verify the hydrodynamic conditions of the media line and establish the noise limits
1.5.13	Valves are installed in piping systems, which can carry dangerous fluids. The user is responsible to ensure a correct installation of the valves for which information is given in the operation and installation manual and ensure the intended use.
1.6.1 and 1.6.5	See operating manual.
1.7.3	According to the manuals for the valves and the actuators.
1.7.4	Fulfilled through the manuals.

InterApp Valcom S.A. declares that the following basic requirements according to EN ISO 12100 , are applied and fulfilled	
Scope	The risk analysis has been done considering the products a "partly completed machinery". The basis for the analysis of the butterfly valves is the product standard EN 593 (Industrial valves - Metallic butterfly valves). For the actuators, please refer to their own documentation. For the risk analysis, our long experience supplying the above-mentioned valves + actuators, has been taken into account, with the result of the different instructions and warnings contained in the Manuals. <i>It is mandatory that for fulfilling the requirements of the clauses 4 to 6 of the ISO 12100, the user must make a risk analysis of the actuator+valve installed and taking into account all details of the final application. This type of analysis cannot be done by InterApp Valcom S.A.</i>
Machine limits	The limits of the "partly completed machinery" have been defined according the "intended use"
Hazard Identification	The hazards mentioned in the standard ISO 12100, have been identified for the complete risk assessment. Hazard related to dismantling, decommissioning and scrapping are not under the responsibility of InterApp Valcom S.A.
Risk estimation	A risk estimation has been carried out, with the "intended use" for the products as a prerequisite.
Risk evaluation	A risk evaluation has been carried out.
Risk reduction	By means of; Inherent safe design measures and Information for use contained in the manual
Documentation of risk assessment and risk reduction	InterApp Valcom S.A. has the documentation that demonstrates that the ISO 12100 procedure has been followed and the consequent results.