



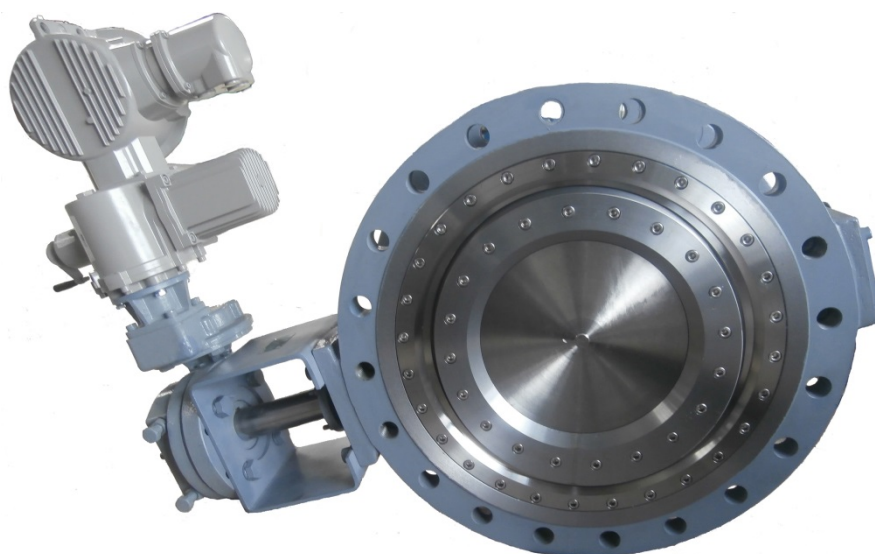
# **INSTRUCTION OF USE**

## ***Construction 16-25-50-100 bars***

### **Butterfly valves**

### **Ultimate performance**

### **IVALDISC**



## **Manual of use of ultimate performance butterfly valve IVALDISC**

### **Directive 2014/68/EU**

Declaration according to directive 2014/34/UE and directive 2006/42/CE.

IVALTEC

200 rue Léon Blum - 69 100 Villeurbanne

Ultimate performance butterfly valve IVALDISC.

States that IVALDISC valves:

Are designed and manufactured to resist to normal use within the service conditions present in our different communication tools.

1. The IVALDISC valves are subjected to pressure under the Directive 2014/68/EU (Pressure Equipment Directive), in accordance with the requirements of this Directive.
2. IVALDISC valves should only be used in respect of manual.

### Standards

Directive 2014/68/EU (Pressure Equipment Directive)

Product standard EN 593 butterfly valve

Dimensions of the body of the valve

### **Technical description:**

IVALTEC's catalog – IVALDISC

Method applicable to check the conformity:

Directive 2014/68/EU, Annex III, Module H

Name of the independent organism: **TUV SUD**

Registration number: **0036**



Any changes made to the valve which could affect the technical specifications, improper use and / or each modification which alters the design of the product IVALDISC, invalidate this declaration of IVALTEC.

### Foreword

This manual should help the user of ultimate performance butterfly valve IVALDISC for installation, commissioning and maintenance of the valves.

Non-compliance with the instructions and warnings written in this manual can cause hazards and invalidate the warranty IVALTEC.

For further information please contact us.

## I. Intended use

Ultimate performance butterfly valves IVALDISC are designed to be used as on/off valves or regulation valves, within the control pressure / temperature eligible \*. This kind of butterfly valve is not proposed for fluids with abrasive particles, even small quantities.

\* Refer to standard NF EN 12516-1.



In setting on liquids, it is not recommended to use butterfly valves IVALDISC on permanent cavitation (trading cavitation index  $K_c$  is 0.35).

In setting on gas, avoid using continuously IVALDISC butterfly valve with absolute downstream pressure is less than half the absolute upstream pressure to avoid permanent supersonic flow.

## II. Safety instructions

### 2.1 General safety instructions

This manual contains safety instructions applicable to valves. Common instructions for installation, operation and maintenance are according to the rules of art intended for industrial valves are not included in this manual.

### 2.2 Responsibility of the user

It is not the responsibility of IVALTEC to check that the user observes the following:

- The valve is designed for being used strictly in accordance with its intended use.
- It is forbidden to use a valve which range pressure / temperature does not match the conditions.
- The choice of materials in contact with the fluid must correspond to the nature and conditions of service of the fluid. It is the responsibility of the user. In any circumstances the responsibility of IVALTEC cannot be held liable.
- In terms of service, or materials of the body, apart from these documents: make a prior request to IVALTEC.



Failure to follow these safety precautions may pose a risk to the health or life of the user of the valves and / or for the installation, operation and maintenance.

### 2.3 Specific dangers

#### *a) Resistance of the body*

Valve bodies are designed to safely support the conditions of pressure and temperature for which they have been designed. Under no circumstances the bodies must support significant additional efforts due to misalignment of piping, non-parallelism with flanges, pipe distension...

The valve is installed, operated and maintained by professionals (qualified and trained staff) of industrial valves. Only qualified staff to pressure conduct system handles and maintains the valves.

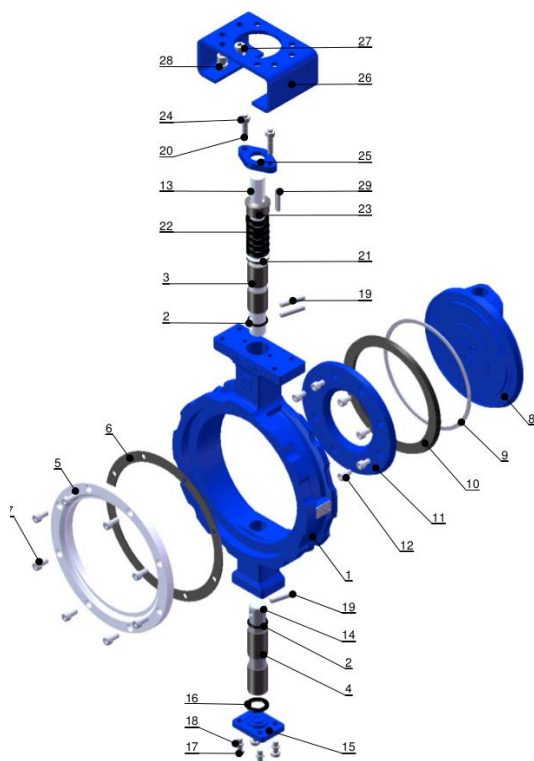
#### *b) General characteristics of the fluids*

The continuous speed of the fluid in use is limited to current values (eg. 4m/s for liquids).

The standard operating conditions must be free of vibration, water hammer, cavitation, erosion by steam tempered, and fluids with abrasive particles. Valves, flanges and fittings used in conditions of service temperatures between  $> 50\text{ }^{\circ}\text{C}$  to  $< -20\text{ }^{\circ}\text{C}$  must be protected against contact with any part of the human body.

## 2.4 Intervention rules

### Nomenclature



sp	Designation / Désignation	Material			
		-200 à -20°C	-20 à 250°C	250 à 425°C	425 à 750°C
1	BODY	Stainless steel <i>Nota 2</i>	Carbon steel	Carbon steel	Refractory stainless steel <i>Nota 3</i>
2	Protection	graphite	PTFE	graphite	
3	Level	AISI 316L durci			Fl Ni-Résist
4	Stop level	AISI 316L durci			Fl Ni-Résist
5	SEAT	AISI 304 L			AISI 310
6	Seat ring	graphite	Fibre inorganique	graphite	
7	Screw seat	AISI 304 L	cl 8.8		AISI 310
8	BUTTERFLY	<i>Nota 2</i>	<i>Nota 1</i>		<i>Nota 3</i>
9	Butterfly ring	graphite	Fibre inorganique	graphite	
10	LAMELLAR RING	AISI 304 L			AISI 310
		graphite	Fibre inorganique	graphite	
11	Counter-ring	AISI 304 L	S235JR	A 42 CP	AISI 310
12	Butterfly screw	AISI 304 L	cl 8.8		AISI 310
13	CONTROL'S SHAFT	<i>Nota 5</i>	<i>Nota 4</i>		<i>Nota 6</i>
14	Stop's shaft	<i>Nota 5</i>	<i>Nota 4</i>		<i>Nota 6</i>
15	Cover	<i>Nota 2</i>	<i>Nota 1</i>		<i>Nota 2</i>
16	Cover ring	graphite	Fibre inorganique	graphite	
17	Cover screw	AISI 304 L	cl 8.8		AISI 310
18	Cover washer	inox			
19	PIN	<i>Nota 5</i>	<i>Nota 4</i>		<i>Nota 6</i>
20	Stud PE	AISI 304 L	cl 8.8		AISI 310
21	Bottom washer PE	inox			
22	Trim ring PE	graphite	PTFE	graphite	
23	Gland PE	AISI 304 L			AISI 310
24	Nut PE	AISI 304 L	cl 8.8		AISI 310
25	Flange PE	AISI 304 L			AISI 310
26	Arcade	Tu 42 b	Tu 42 b	AISI 310	
27	Arcade screw	AISI 304 L	cl 8.8		AISI 310
28	Arcade washer	inox			
29	Cotter pin	<i>Nota 5</i>	<i>Nota 4</i>		<i>Nota 6</i>

The end of the drive shaft of the valve is sealed by a packing. Before releasing the bolts of the packing, drop all pressure existing on both sides of the line.

#### Notes:

- If the valve is removed from a pressure line, the fluid can leak uncontrollably. Before removing the valve from the line or before removing the packing of the valve body, drop fully and completely the pressure and drain the existing pipe.  
You must open the disk about 5° to 10° to ensure that the pressure in the valve body is zero in both directions.
- Valves mounted in the end of line only, and in particular for hazardous fluids and / or hot, be sure to mount a flange or full bung downstream of the valve with rings (materials flanges and gaskets must correspond to the use tap water). A safety lock closed position of the valve can or should be put in place after installation or operation.
- If the valve is removed or if a portion of the pipe is removed from the pipe (if installing end-of-line): when operating the valve with either a manual actuator or an automatic actuator (pneumatic, hydraulic, spring...) there is a risk of jamming, especially of the fingers or other body parts of the operator between the butterfly and the valve body.



Take all safety measures to remove the energy sources used to supply operating organs before the intervention on the valve.



Only trained and qualified staff in industrial valves may intervene on IVALDISC valve.




Before opening the valve, provide safety measures against fluids projections: risk of projection and chemical attack on environment and on immediate operators.



The fluid can leak uncontrollably. For hazardous or toxic fluids, the piping must be drained and cleaned before disassembling the valve.

## 2.5 Marking of the valve

Each valve is marked by a plate regarding its service conditions.

<p><b>CE 0036</b></p> <p><b>IVALTEC</b></p>  <p>200 RUE LEON BLUM 69100 VILLEURBANNE +33 478241461 www.ivaltec.fr</p>	<b>N° FAB</b> <input type="text"/>
	<b>REF</b> <input type="text"/>
	<b>DN</b> <input type="text"/> <b>END</b> <input type="text"/>
	<b>TS</b> <input type="text"/> <b>PS</b> <input type="text"/>
	<b>DATE</b> <input type="text"/> <b>PT</b> <input type="text"/>
	<b>BODY</b> <input type="text"/> <b>SEAT</b> <input type="text"/>
	<b>DISC</b> <input type="text"/> <b>2014/68/UE</b>
	<b>Gr</b> <input type="text"/> <b>Cat</b> <input type="text"/>



To identify the valve, it is important to refer to the name plate.

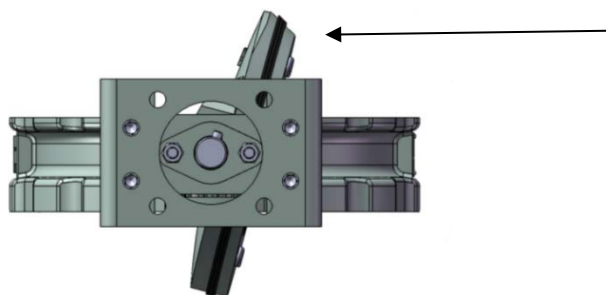
The marking of the plate must not be damaged by chemical projections and/or abrasive and must be free from shocks.

For any communication with our after sales service, the indications written on the plate will be required.

## III. Transportation and Storage

- Make sure to handle and store valves carefully.
- Carry and store the valve in its protection package until the installation on the pipe.
- Choose an inside storage location, clean, dry and without penetration of abrasive dusts risk in the body of the valve and moving parts.
- Protect especially the metal seat, and all the pieces, or part of pieces that can receive shocks or aggressions.
- Butterfly valves are delivered in closing position to protect the seat. Avoid operating the handwheel uselessly.
- Bare shaft valves supplied :  
Transport the valve carefully: the disc can open under gravity effect.





## **IV. Installation on piping**

### **4.1. General rules**

The installation of valves is subjected to the same instructions as industrial valve devices and good practice of connection links of the industrial valve devices.

- A butterfly valve – in particular wafer type – must be transported and installed with the disc closed, or it can be damaged, and particularly the tightness of the valve.
- The butterfly valve is set in the factory to ensure the tightness.
- The adjustments of line's end stops are ensured in our factory by IVALTEC.  
In case of bare shaft valve order, the user has to check that its operating system ensures the whole butterfly race and that the tightness is perfect.
- If - in exceptional cases - a butterfly valve must be installed bare shaft, it is imperative not to put the valve under pressure (the butterfly is free at this time). Plan to install an operating system.
- Nominal torque and adjustment of end stops OPENED and CLOSED must be conformed to the characteristics of the valve and working conditions. The failure of this safety measure may create a risk for the health of the valve user and / or for installation.
- Examine the valve, its accessories and options before assembly: A damaged valve cannot be installed on the pipe.
- Make sure that the class pressure / temperature, type and size of valve fittings correspond to the ends of the pipe. See information on the plate IVALTEC.



It is strictly forbidden to install a valve whose pressure / temperature class does not match the conditions. Range pressure / temperature eligible is specified in the documents, IVALDISC catalog and 12516-1 standard. For a material body or working conditions outside those documents, you have to require the consent of IVALTEC. The non-observance of this safety measure may pose a risk to the health or life of the valve user and / or to installation.



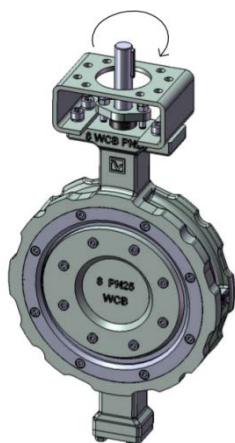
In case of doubt consult IVALTEC

## 4.2. Butterfly valve – General rules

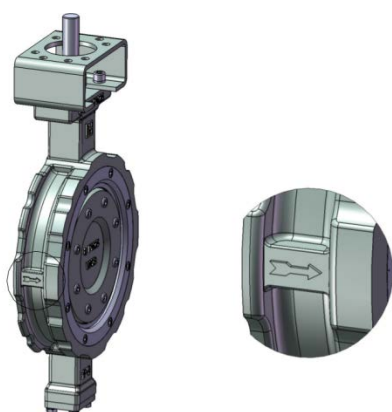
Make sure to use connection flanges of pipe with those of the valve device to allow a proper cinematic of the butterfly.

There may be no contact between the gasket and the pipe elements (risk of deterioration of the tightness).

- The closing direction is clockwise



- Make sure the disc can be fully handled when opening and closing in the conduct.
- Before installing the butterfly valve, clean the valve and the conduct. Make sure to remove all hard and abrasive particles.
- IVALDISC valves are bidirectional but with a direction of autoclave security following the arrow on the body. To be tight, it is necessary to maintain a closing torque conformed to the service conditions.



**This direction can be opposite to the direction of flow!**

- Installation: IVALDISC valves can be mounted in any positions. The preferred position is assembling the horizontal shaft.



*Recommended*



*Acceptable*

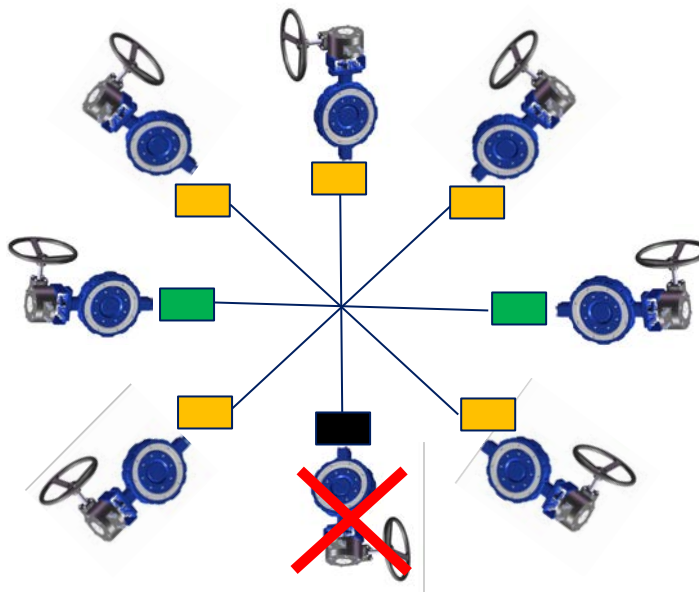


*Not recommended*

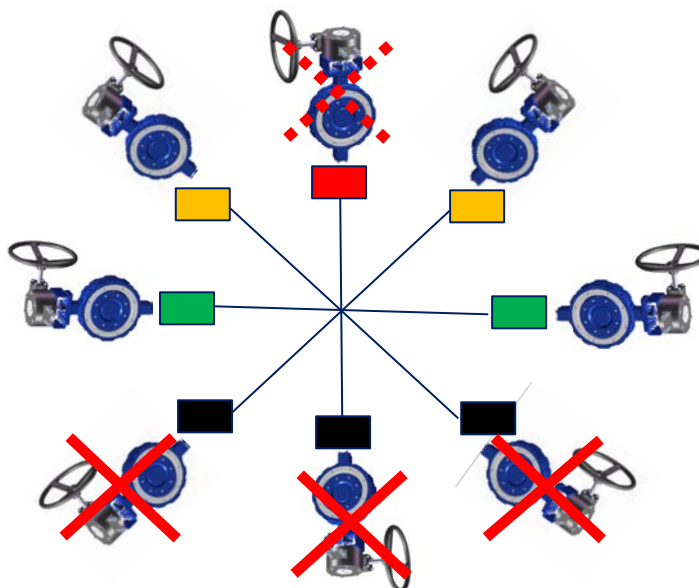


*Forbidden*

**DN smaller ou equal to 300mm :**



**DN from 350mm :**





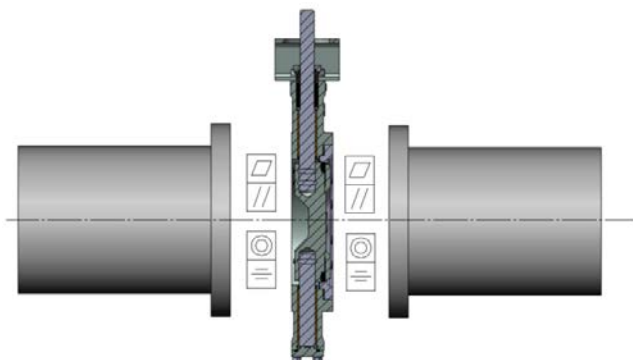


In case of installation with actuators, take into account the recommendations of the motorized accessories manufacturers (breaking risk of the lubricating function in some positions).

- Preferably, when using a gear box actuator, it should not be mounted upside down. Fluid leakage can damage the gear box.
- Automatic or manual actuators must be supported on fixed infrastructure, not to transmit effort not provided by the design of IVALDISC valves. Be careful with the weight.
- Follow the dimension table rules, alignment and clamping equipment flanges. Flanges and counter flanges of the valve must be flat, parallel and aligned.

#### Butterfly valve without flanges (Wafer or Lug)

- To protect the disc, the butterfly valve must be installed between two counter flanges of the disc conduct (almost) closed (no contact with the seat of the body).
- Respect the alignment between the valve body and the axis of the pipe. If necessary, adjust the bolts through the flanges.



- Check the materials and dimensions of the flanges, bolts, nuts and washers respect the fitting torques.
- Do not weld the pipe when the valve is assembled on it.



Any weld intervention on the body free IVALTEC from its responsibility and from the warranty. The welding process shall be as additional constraints do not damage the valve, the temperature does not damage the material and a deformation of the body is avoided: for example, weld with interruption to eliminate local distortion in the valve body. Failure to do so may lead to malfunction of the valve: permanent deformation > 1/10mm in the seat of the body can make a butterfly valve inoperable.



IVALTEC's responsibility can not be held liable in case of manual or automatic accessories adaptation, installation or maintenance not covered by our design department.

## **V. Hydraulic test of pipe**

The valve's hydraulic test is made in the factory by IVALTEC.

The test of a pipe with a valve installed is the responsibility of the installer.



Bleed recently installed conduct and rinse all foreign particles.

- Opened valve: make sure that the pressure doesn't exceed 1.5 x PS (see the plate)  
*PS = allowable pressure at 20°C*
- Closed valve: make sure that the pressure doesn't exceed 1.1 x PS (see the plate)

In case of leakage, check the fitting of the packing gland and the installation compliance of the valve on the pipe.

## **VI. Normal operation and maintenance**

- Valves are designed for working conditions determined by IVALTEC: make sure to operate the wheel with normal efforts.
- It is forbidden to use an operating extension to operate the closing or opening of the valve.
- A periodic maintenance is required for the valves.
- It is strongly recommended to operate the valves remaining permanently in the same position every 6 or 12 months.
- The bare shaft valve is not an irreversible mechanical system. Take all the necessary measures for the immobilization of the butterfly.



Do not work on the valve when it is under pressure, and do not dismember the actuator when the pipe is under pressure.

## **VII. Reminders**

In case of failure, respect the following points for the repair:

- The rules of use and maintenance of industrial valves
- The IVALDISC's instructions of use



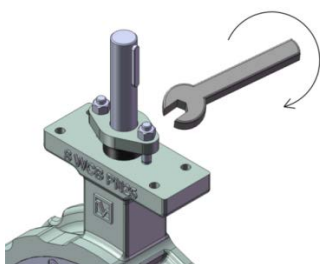
In case of use of the valve IVALDISC on dangerous fluids:

- The pipe and the valve must be drained,
- The valve must be decontaminated before transportation and intervention,
- Residual fluids must be isolated and treated.

## **VIII. Maintenance**

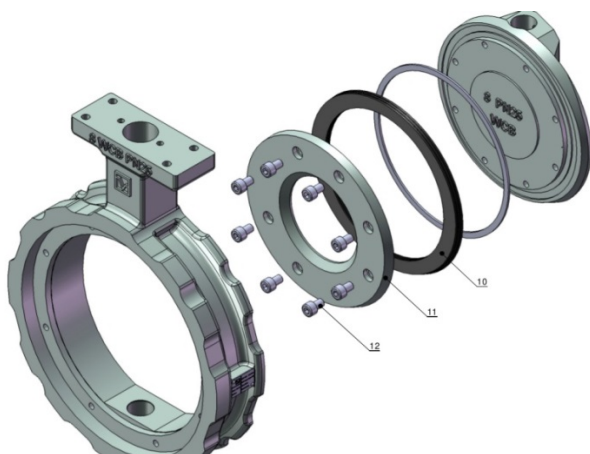
### **9.1 Leakage on the packing gland**

- [Retighten the packings](#)
- [Change the packings](#)



## 9.2 Leakage through the valve

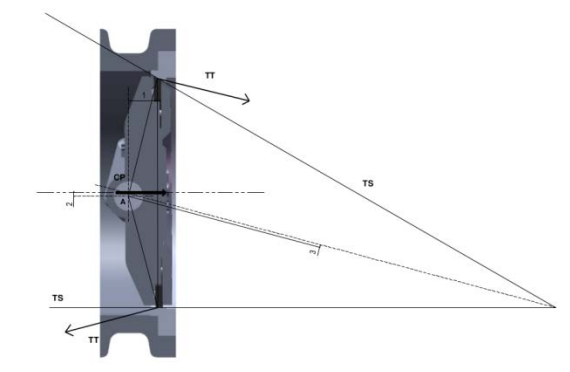
- [Replacement of the lamelar ring](#)



1. Unlock and remove the screws 12
2. Remove the counter ring 11
3. Remove the ring 10
4. Replace the ring 10
5. Control that it is facing the point of reference
6. Make kinematic and tightness tests
7. Finish to fit the screws 12

A particular attention will be given to the adjustment of the tightness between the body and the ring. Contact IVALTEC or industrial valve professionals.

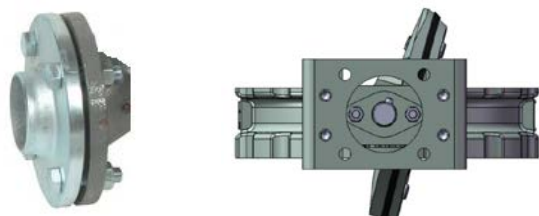
- [Adjustment of the geometry](#)



IVALTEC declines any responsibility in case of mounting non-compliance.

## 9.3 Cinematic blockage

- [Control of flange environnement](#)



A particular attention will be given to the connection parts of the valve. The use of unsuitable pieces can prevent the butterfly move and damage the butterfly ring.



IVALTEC declines any responsibility in case of mounting non-compliance.

- [Control of actuating torque](#)



Respect interfaces and torques of the actuators which can be adapted on IVALDISC.



IVALTEC declines any responsibility in case of mounting non-compliance.

- [Control of the corrosion](#)



Conduct regular checks to ensure proper corrosion of the butterfly and internal pieces.

- [Replacement of shaft rings and levels](#)

