

Mounting instructions of butterfly valves

SYLAX DN 25 - 350 mm

This installation instruction is available in the official languages of the EC on our web site or by requesting our sales department

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Οι παρούσες οδηγίες εγκατάστασης διατίθενται στις επίσημες γλώσσες της Ευρωπαϊκής Κοινότητας στον ιστότοπό μας η μέσω απλής αίτησης από το τμήμα πωλήσεων μας.:

SYLAX DN 25-350

Introduction

Sylax DN 25 350 butterfly valves are provided for drinking water, swimming pool water, hydrocarbons, dry or hot gas, powdery, abrasive and food process. Nevertheless before fitting the valve between flanges, make sure that the operating conditions are compatible with the details given on the identification plate, this instruction notice, the manufacturer's details (technical data sheets, price list) and the fluid being carried (nature of the fluid, temperature range etc).

Socla cannot be held responsible for the malfunctioning of the valve nor for damage or injury resulting from failure to comply with these details.

European Directives

Our butterfly valves subject to directives are the object of statements of conformity available from our sales department.

When using accessories, (actuators, limit switches, solenoid valves), please see the corresponding instructions documents.

• **Directive 97/23/CE (Equipment under Pressure)**

Our Sylax butterfly valves DN 25-350 conforms to the Equipment under Pressure directive 97/23/CE in **catégorie I et II**.

• **Machinery Directive 2006/42/EC (Machinery Directive)**

Our Sylax butterfly valves DN 25-350 conform to the Machinery Directive 2006/42/EC

• **Directive 94/9/CE (EXplosive ATmospheres)**

As standard, our Sylax butterfly valves DN 25-350 conform , **in special version**, to the Directive on equipment and protection systems destined to be used in Explosive Atmospheres 97/9/CE

This directive is only applicable in the following atmospheric conditions :

-20°C < T < +60°C and 0,8 bar ≤ P ≤ 1,2 bar

The fluid being carried is not taken into account in the risk analysis of the valve made in this directive, even if the fluid brings about deliberate internal explosive atmospheres. It is the user's responsibility to take into account the risks generated by the fluid for example:

- the heating of the valve surface,

The temperature of the valve surface should be considered as equivalent to the temperature of the fluid which passes through the pipe (in an environment normally ventilated). Considering the temperature of the fluid which passes through the pipe, the class of temperature of the valve is :

Class of temperature	Maximum temperature of surface (°C)
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

- the generation of electrostatic charging due to fluid displacement,

- internal shocks generated by granular substances, shock waves present in the installation (water hammer) or risks from foreign objects which may be present in the installation.

Classification of the valve only:


II : group


2 : category

G : explosive atmospheres due to the presence of gas, vapours or mists

D : explosive atmospheres due to the presence of dust

Our products are designed to be used in atmospheres of gas and vapours of groups IIA, IIB and IIC as their coatings are a maximum 0.2 mm thick.


Our valves (valve only) are marked :  II 2 DG

In cases where the coating is between 0.2 and 2 mm the marking is :  II 2 DG IIB

Classification of the valve with control :

➤ **Valve with hand lever :**

The use of Socla hand lever designed to function in ATEX zones does not present any extra risk.

The valve / hand lever together have the same marking :  II 2 DG

➤ **Valve with other actuators :**

The classification of the valve and control together given by Socla is identical to the classification of the lowest-classed component involved (see illustration below).

No supplementary markings are used to indicate the classification of valve/control combinations.

If a single element of the combination does not carry the ATEX mark then the entire valve/control combination does not conform to the ATEX directive.

The connecting base plate of butterfly valves conforms to the standard EN ISO 5211.



SYLAX DN 25-350

In the combination opposite, the whole is classed:

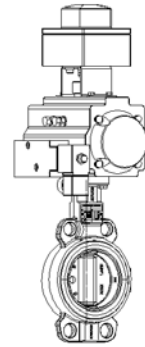
⊕ II 2G IIC T4

Limit switches : ⊕ II 2G EEx ia IIC T4

Pneumatic actuator : ⊕ II 2 DG Tmax=95°C

Solenoid valve ⊕ II 2 DG EEx ia IIC T6

Valve : ⊕ II 2 DG



The classification of the equipment allows its use in a determined area ; use in another area is under the responsibility of the user.

Identification plate

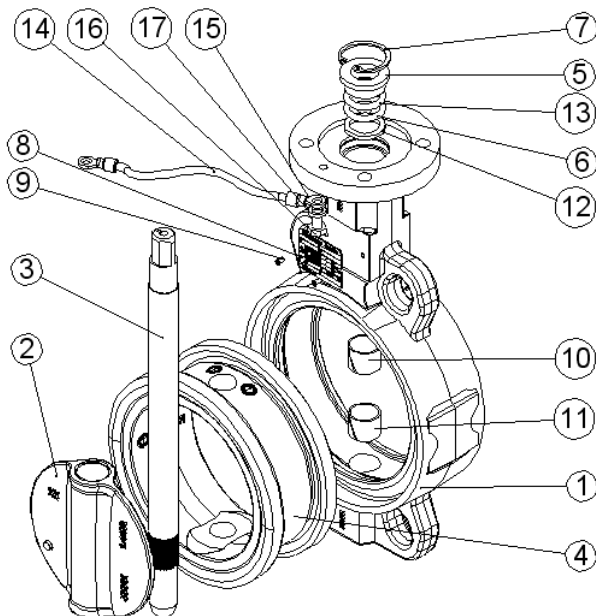
An identification plate with information required by the Directives is attached to the valve. This plate must not be removed and must be kept legible for the user.

Name of the valve	Socla SAS	Made in France
Maximum permissible pressure between flanges - Water : 20°C	SYLAX PS °C à bar	149 G
Material of the disc	DI.....	LI.....
Maximum permissible pressure between flanges L1/L2	L1/2/.....bar	G1/2/.....bar
Mini / maxi permissible temperature according to the material of the liner	T° -.....°C/+.....°C/.....
Connecting gauge	PN.....	000006
Labelling relating to the Directive	ATEX 94/9/CE	

Reference
Material of the liner
Maximum permissible pressure between flanges for gas G1/G2
Maximum permissible pressure end of line for liquid L1/L2
Year of manufacture
Number of manufacturing order
Notified Body number for the directive PED 97/23/CE
Various approvals

Fluids Group 1: dangerous fluids (directive 67/548/CEE) /explosive / extremely inflammable /easily inflammable /inflammable / very toxic / toxic / combustible.
Fluids Group 2: all other fluids (except for water supply, distribution and evacuation networks).

Valve components



1. Body
2. Disc
3. Shaft
4. Liner
5. Sealing washer
6. O' ring seal
7. Circlip
8. Identification plate
9. Rivet
10. Upper guide bush
11. Lower guide bush
12. Anti-extrusion bush
13. Earth strap (ATEX version)
14. Earth strap(ATEX version)
15. Annular thimble (ATEX version)
16. Screw (ATEX version)
17. Stop washer (ATEX version)



Mounting instructions for butterfly valves

SYLAX DN 25-350

Transport and storage

• Before installation

The valve must be held in a semi-closed position (as delivered). In the case of motorized valves with spring return controls long storage is not advised.

The valve must not be removed from its original packaging.

The valve must be stored inside premises which are clean, dry and free from UV light.

On site, the valve must not be removed from its original packaging and must be protected from the surrounding elements (dust, sand, rain,...)

• During handling and installation

The valve must not be suspended by its shaft.

The valve must be manipulated using adequate straps. These must not be likely to damage the casing coating.

Any item having suffered a large impact must be returned to Socla for checking. A crack which is invisible to the naked eye may in time lead to a leak into the atmosphere.

Installation

•General remarks

For safety reasons, the installation must take place under the supervision of authorised people taking account of local safety instructions and advice.

The handling of butterfly valves and their controls must be done by staff trained in all technical aspects of their operation.

Before installation the pipes must be depressurised and purged (empty of its fluid) in order to avoid any danger to the operator.

The pipe work must be correctly aligned so that no extra stress is exerted on the valve casing.

In ATEX zone, check that the pipes are connected to the earth. Do not use insulating pipes (PVC...)



Check the compatibility of the connection flanges against the operating pressure: the PN number of the flanges must be greater or equal to the operating pressure.

The valve is a machined piece of equipment and must not be used to prise apart the flanges.

The use of compensation joints, as well as flanges elastomer coated, between flange and valve are strictly forbidden.

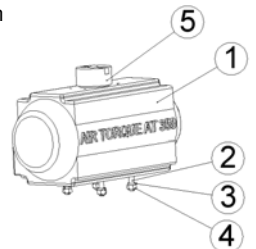
Fitting to the pipe work

The Sylax butterfly valves DN 25-350 is bi-directional.

The recommended installation position is with the spindle of the valve horizontal and the lower wing of the disc opening from upstream to downstream (flow direction). Particularly when dealing with slurries or products with a tendency to solidify.

Warning : The Sylax butterfly valves DN 25-350 mounted with a single acting electric or pneumatic actuator will always be delivered Normally Closed (NC). If you need it Normally Open (NO), please read the following instructions: :

- Follow the general procedure of installation with mounting the valve and its actuator in normally closed position
- Uncouple the valve and its actuator by unscrewing the four nuts (4) and with taking out the four washers (3).
- Pull up the actuator (1).
- Turn the disc at 90° with an adjustable spanner through the shaft up to the open position (the saw cut shows the position of the disc). Check the saw cut is perpendicular to the valve.
- Reassemble the actuator on the valve. It must be parallel to the pipe.
- Screw the four nuts (4). Do not forget the washers (3).
- Turn the position indicator (5) from 90° (the yellow strap on the position indicator, which shows the disc position, must be parallel to the pipe).



Remarks :

- In this configuration, the valve turns anti-clockwise.
- Do not modify anything for solenoid valve setting.
- In cases when using a positionner, modify the visual position indicator. Check and modify the wiring.



SYLAX DN 25-350

Installation on existing pipe work

1. Make sure that:
 - The flange surfaces are clean and undamaged.
 - The valve fits between the flanges without difficulty and without damaging the liner. Prise apart the flanges with a suitable tools without damaging the flanges.
 - The internal diameter of the flanges conforms to the dimensions in the « flange ratings » table.
 - Nothing interferes with the movement of the disc when the valve is operating.
2. Close the butterfly so that it is about 5 to 10mm inside the casing.
If the disc is open too far, it may be damaged by the flanges.
3. Slip the valve between the flanges. Centre the valve casing and fit all the screws.
Using extra seals or grease between the valve and the flanges is prohibited.
4. Open the valve completely.
5. Keep the valve aligned with the flanges while removing the flange retractors and tightening the nuts by hand.
6. Close the valve carefully making sure that the butterfly turns freely.
7. In ATEX zone category 2, connect the earth strap to one of the bolts of the flange.



Check the link between the actuation shaft connected to the



antistatic strap using an ohmmeter (test according to EN 1226-2, annex B, point b.2.2.2. and B.2.3.1). Check also that the pipes are connected to the earth.

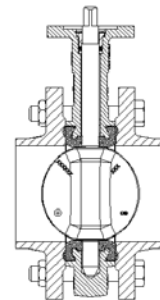
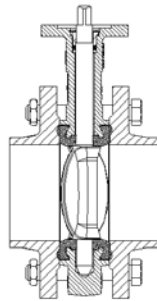
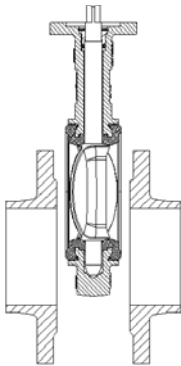
For the Sylax, butterfly valve, the conductivity between the two pipes (upstream/downstream) is recommended. In Atex zone, it is compulsory.

8. Open the butterfly valve again completely and tighten all the bolts (opposing bolts gradually and sequentially) until there is contact between the body of the valve and the flange (metal to metal).
If the nuts are tightened with the valve closed, the liner is then compressed unequally. This results in excessive torque and possible leaks.
9. Make at least 5 complete actuations of the valve.
10. See « bringing into service » paragraph.

Prise apart the flanges as much as possible so that the valve collar slides in easily with the disc partly open.

With the disc still partly open attach the bolts without tightening the nuts.

Tighten opposing nuts sequentially, Check that the whole surface of the flange is in contact with the metallic part of the valve.



SYLAX DN 25-350

• Installation on new pipe work

1. Make sure that:

- The flange surfaces are clean and undamaged.
- The valve fits between the flanges without difficulty and without damaging the sleeve. Prise apart the flanges with suitable tools without damaging the flanges.
- The internal diameter of the flanges conforms to the dimensions in the « flange ratings » table.
- Nothing interferes with the movement of the shutter when the valve is operating.

2. Close the disc so that it is about 5 to 10mm inside the casing.

3. Fit the two flanges to the casing using some bolts, tighten the valve a little between the two flanges.

4. Fix this whole assembly to the pipe work.

5. Consolidate the flanges to the pipe work by welding at several points.

6. Unscrew the bolts and remove the valve from between the flanges.

Never weld the flanges with the valve in place : risk of burning the elastomer liner.

7. Finish welding the flanges and allow to cool completely.

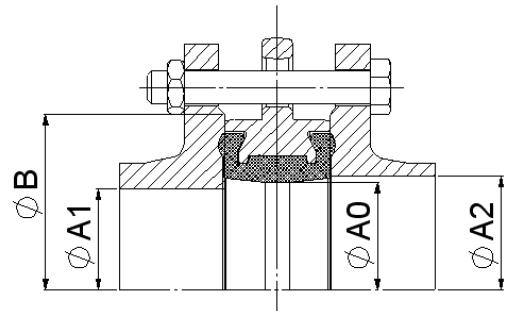
8. Return the valve to the pipe work using the procedure "installation on existing pipe work".(from point 3.).

• Flange ratings :

The Sylax butterfly valves DN 25-350 has been designed to be fitted between standard flanges. Only flanges type 11, 21 and 34 according to EN 1092-1 are completely suitable for this valve.

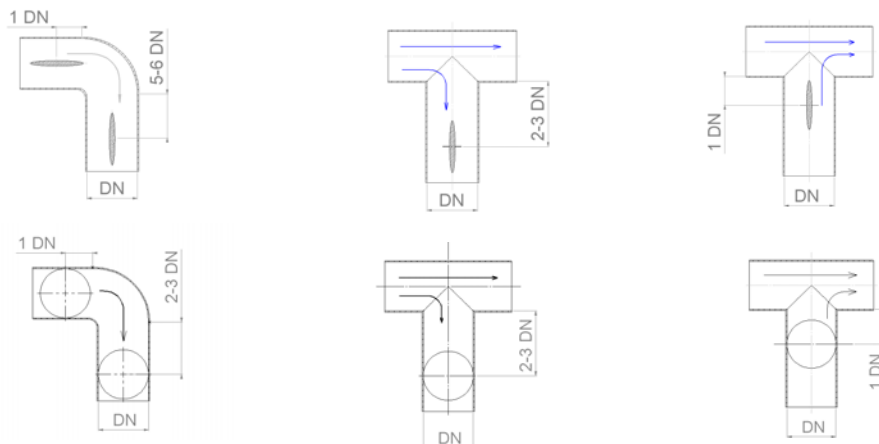
For other flange models, please check the figures in the table below. Non appropriate connections will cancel our guarantee.

DN	Ø A0	Ø A1 mini	Ø A2 maxi	Ø B mini
25	32	-	44	60
32/40	43	33	51	80
50	54	40	60	90
65	70	59	74	110
80	85	78	91	128
100	100	97	108	148
125	125	119	143	178
150	150	146	166	202
200	200	196	224	258
250	250	246	280	312
300	300	296	329	365
350	340	335	369	415



• Installation conditions

It is recommended that the distances indicated below be respected in order to prolong the life of the valve. Mounting the valve close to pipe work junctions places it in turbulent zones and increases wear.



SYLAX DN 25-350

Commission

Before putting valve into operation, check that:

- The working conditions are compatible with the details given on the identification plate , this instruction notice and the manufacturer's details (technical data sheet, price list catalogue, advisory service).
- The indicator on the control or the handle position (disc direction), properly indicates the position of the disc.
- All the connections have been properly made (pneumatic, electrical, hydraulic).
- The valve works effectively when tried (check several times). If necessary certain adjustments may be made to the end stops by qualified personnel.

On a new installation or after maintenance, the circuit must be rinsed with the valve completely open in order to remove solid matter which may damage the internal parts of the valve.

During a prolonged stoppage, a change in the state of the fluid may result in damage when the installation is brought back into service (solidification...). Establish an adequate procedure programme for cleaning the system.

Use

In order to guarantee the good working of the valve, we advise to carry out 1 actuation minimum per month (full opening and closing).



In ATEX zone, valve and actuation must be cleaned regularly in order to avoid any accumulation of dusts. The hot or cold parts of valve and actuation presenting a danger for the operator must be protected.

Do not insert fingers close to parts which are moving or between the lever and the handle during its operation.



In ATEX zone, the end of line mounting is not authorized.

Maintenance

Maintenance and repair work must be carried out by qualified personnel.

During opening, closing and testing of the valve, take care not to put hands or any other object in the area of the disc.

Manipulate the liner and the disc with gloves in order to avoid damaging them by scratches.

• **Removing the valve from the installation**

The pipe must be depressurized and purged (emptied of its fluid) in order to avoid any danger to the operator. If the installation has carried fluids which are dangerous in themselves if in contact with the outside atmosphere (inflammable, corrosive, toxic, explosive..) it must be thoroughly cleaned to eliminate all risks.

All fluid remaining in the valve must be removed.

The temperature of the valve must be lower than 35°C to avoid all risk of burning.

If necessary, perform the operation using suitable protection (clothing, gloves, mask...).



Warning : when used in an ATEX zone, electrostatic charges may be present inside the valve (disc, liner). These electrostatic charges created by the flow of the fluid may present a risk of explosion. The user is responsible for taking all precautions to avoid this risk.

Place the disc at 10° from opening before removing the valve.

Where a control uses an external energy source, it is essential to isolate this source before any operation.

• **Dismantling the control from the valve.**

Check the mounting position of the control before dismantling.

To reassemble, use all the original screws etc.

• **Maintenance of the valve**

All spare parts must be genuine Socla.

All spare parts must be used.

The use of grease is not allowed in a silicon free environment.

Greases and silicones used must be compatible with the fluid being carried and the installation constraints.



SYLAX DN 25-350

➤ Tightness

This maintenance must be done according to the working conditions.

In an ATEX zone of category 2, this maintenance must be carried out at least every 5 years or every 500.000 operations.

- Remove the valve from the installation (see specific procedure).
- Closed the disc so that it is about 5 to 10mm inside the body.
- Remove, in order, the circlip (7), the sealing washer (5), the anti-static casing tress (13) (ATEX version only), the o' ring seal (6), the anti- extrusion bush (12). If need be, position the valve upside down to carry out this operation
- Put the valve in open position
- Pull the shaft (3) upwards and take it out completely.
- Remove the disc (2).
- Remove the liner (4).
- If the valve is mounted with glued liner (Silicone, FKM, ...), we advise to replace the valve, otherwise, please follow the instructions below:
 - Rip the liner (4) out using a tool.
 - Remove all the liner from the body (1).
 - Remove the rings DU (10 & 11) using a screwdriver.
 - Strip properly the body (1)
 - Apply Epoxy onto the body (1) (mini thickness 80µm).

Valve re-assembly with replacement parts :

- Apply silicone inside and outside the liner (4) (not too much).
- Version with glued liner, do not silicone the liner (4).
- Hold the body (1) of the valve in a vice.
- Version with glued liner, put new DU-rings (10 et 11) into the body of the valve (1).
- Put the liner (4) in place (date at the top and material at the bottom). Make sure it is properly in place in the neck of the valve (1).
- Version with glued liner, coat the inside of the valve body (1) with glue (ref.: LOCTITE 4204 and put the liner (4) in place (date at the top and material at the bottom). Make sure it is properly in place in the neck of the valve (1).
- Grease the end of the shaft (3).
- Put the liner (4) in place by using a plastic-headed mallet to obtain the shape of an upside down heart.
- Check that the liner (4) fits properly into the body (1).
- Grease the liner (4) around the bottom of the shaft (3).
- Put the disc in place, the grooves at the bottom (DN25 up to DN150: Use a plastic-headed mallet. DN200 up to DN350: position by hand).



- Make sure the liner (4) has not been deformed or damaged by the input of the disc (2).
- Position the shaft (3) indexing it to the saw cut on the upper part of the shaft and the mark in relief on the side of the disc (2)
- Reassemble the secondary sealing tightness in order, the anti-extrusion bush (12), the o'ring seal (6), the anti-static earth strap (13) (ATEX version only), the sealing washer (5) (large interior diameter at the bottom) and the circlip (7).
- Make one complete manoeuvre by turning the disc 360°.
- It is advised that the valve be re-tested by a test under pressure at 1.5 PMA (trial P11 following the standard EN12266-1). In ATEX zone, this test is compulsory.
- Check the link between the actuation shaft connected to the antistatic strap using an ohmmeter (test according to EN 1226-2, annex B, point b.2.2.2. and B.2.3.1) In ATEX zone, this test is compulsory.
- Fit the valve to the pipe work : see "installation" paragraph).



➤ Guide bushes

It is recommended that this maintenance be carried out every ten years or every 1,000,000 actuations (in normal conditions of use).

In ATEX zone, this maintenance is compulsory.

Follow the "Tightness" procedure. Remove the guide bushes (10,11) use a mallet and a screw driver.

For the valve re-assembly, put the guide bushes(10,11) in with a mallet. The smallest guide bush in the lower half-body and the biggest one in the upper half-body. Follow the "Tightness" procedure.



SYLAX DN 25-350

Safety

As well as the indications given in the preceding paragraphs of this notice, it is imperative that the following instructions be followed:



- This notice must be available on site where Sylax butterfly valves DN 25-350 are installed.



- Personnel carrying out any intervention on the valve (installation, setting, repair, maintenance) must be qualified for the task.

- In ATEX zone, the personnel must be trained in the risks of explosion, and should have received specific ATEX training.

- In case the forwarded media would be an explosive atmosphere (deliberate internal explosive) or should it cause an explosive atmosphere in case of external leakage, the user must check the tightness of the installation after assembling, further to a faulty operation or on a periodic basis under normal conditions.

It is the responsibility of the user to check after the installation of the valve that there is no leakage. Especially in case of deliberate internal explosive atmospheres.

- Internal rules and legislation current in the country concerned with respect to health and safety at work must be applied and respected.

- The valve and its control must not undergo any modification without prior approval from our advisory service.

Danfoss Socla is not responsible for any damage which may be caused by the use of parts, accessories or controls which are not genuine Socla.



- In ATEX zone, the valve and its control must be cleaned regularly to avoid the accumulation of dust.

- Hot or cold parts of the valve which present a danger to the operator must be protected.



- In ATEX zone, fitting a Sylax butterfly valves DN 25-350 at the end of the line is not authorized.

- Do not insert fingers close to parts which are moving or between the lever and the handle during its operation.

- In ATEX zone do not re-paint the products or delivered assemblies.



- In ATEX zone, do not use conductive materials or tools (screw driver,) any closer than one centimetre distance from the external surface of the liner due to static discharge.

