# Sylax butterfly valves

DN 400 up to 1200 mm

sylax

## Technical manual



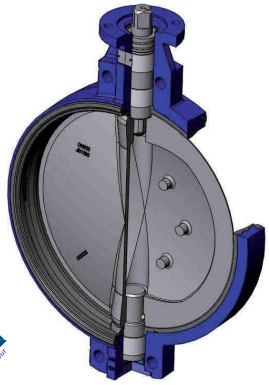
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# Description

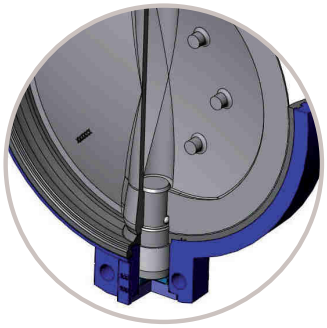
By concentrating the technologies in the field and by integrating technical solutions of the highest standard, Socla is realising its ambition :
- the competitiveness of a standard range,
- reliability,
- and a comprehensive approach, offering a multiplicity of solutions.



## Sylax butterfly valves

DN 400 up to 1200 mm

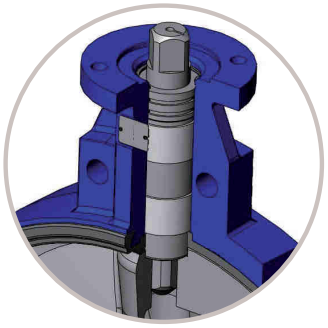
- Dimensional complement of the Sylax range
- Available in :
  centering lugs (DN400 to 1000)
  tapped lugs (DN400 to 600)
  double flanges (DN400 up to DN1200)
- Vertical and horizontal mounting of the shaft.
- JS1030 ductile iron body (DN400 - 1000) wafer type, DN 400-1200 & DN 1200 double-flange, and DN 400 - 600 lug type body.
- Body epoxy coated 80µm colour blue RAL 5017 (a lot of other coatings on option, please ask our sales department).
- Disc spherically machined. The floating disc eliminates the stress against the liner when actuating the butterfly valve.
- Easy maintenance. Interchangeable disc and liner
- Wide choice of actuations



**SAFETY**

> The anti-ejection of the two-part shaft is ensured by a circlip at the upper level and a bottom at the lower level of the shaft

> 2- part shaft connected to floating disc : high reliability of tightness and torque transmission in the long term.



**PROTECTION AND RELIABILITY**

> Safety reinforced by double water tightness.

> High power transmission with robust connection between the shaft and the disc.

> Complete protection of the shaft and valve body from fluids.

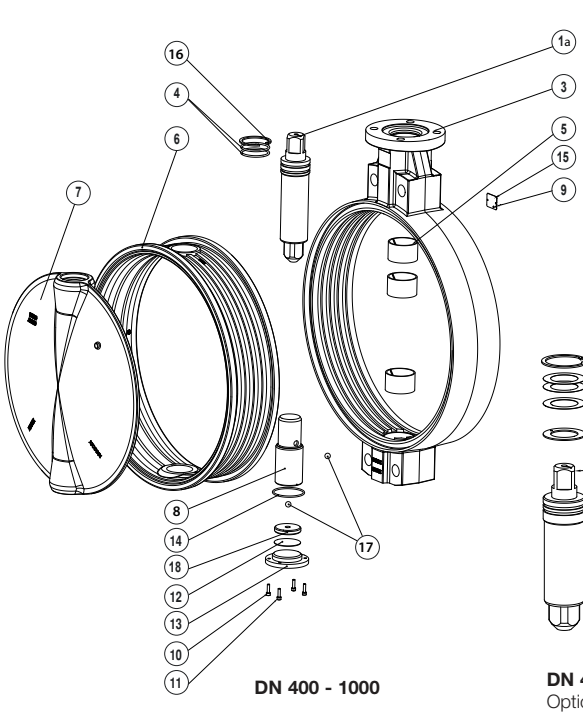
> Reliability of movements with self-lubricating bearings.



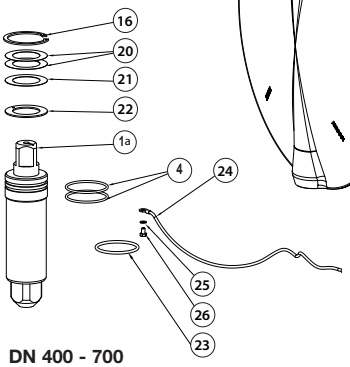

**TRACEABILITY**

Identification and traceability ensured by riveted metal tag : see on page 13

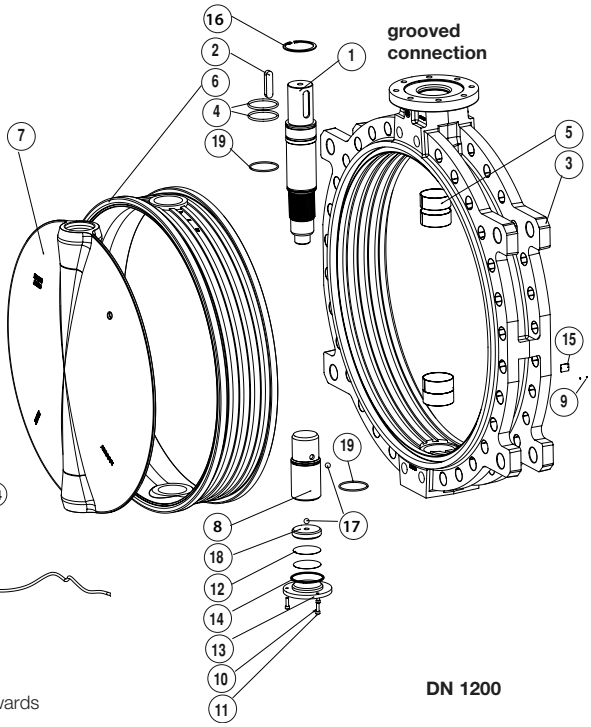
## Spare parts list and materials




DN 400 - 1000




**DN 400 - 700**
Option 1 : Mounting downwards
Option 2 : ATEX




DN 1200

| N° | Description | Qty | Materials | EN | ASTM | JIS |
|---|---|---|---|---|---|---|
| 1 | Upper shaft (3) | 1 | Stainless steel(1) | X5CrNiCuNb16-4 (1.4542) ou X30Cr13 (1.4028) | 630 ou 420 | SUS630 ou SUS420J2 |
| 1a | Upper shaft square version (3) | 1 | | | | |
| 2 | Key | 1 | Steel | - | - | - |
| 3 | Body | 1 | Ductile iron | EN GJS 400-15 (JS1030) | - | FCD40 |
| 4 | O-ring | 2 | Nitrile | - | - | - |
| 5 | Guide bushes | 3 or 4 | Zinc coated steel + PTFE | - | - | - |
| 6 | Liner | 1 | EPDM | - | - | - |
| | | | High content Nitrile | - | - | - |
| | | | Silicone | - | - | - |
| | | | FKM | - | - | - |
| 7 | Disc | 1 | Ductile iron | EN GJS 400-15 (JS1030) | - | FCD40 ou SC514 |
| | | | Stainless steel | GX5CrNiMo19-11-2 (1.4408) | - | |
| | | | Alu-bronze | CuAl10Fe5Ni5-C (CC333G) | - | |
| | | | Alu-bronze Annealing with protective gas/Epoxy | CuAl10Fe5Ni5-C (CC333G) | - | |
| 8 | Lower shaft | 1 | Stainless steel(1) | X5CrNiCuNb16-4 (1.4542) ou X30Cr13 (1.4028)- | 630 ou 420 | SUS630 ou SUS420J2 |
| 9 | Rivet | 2 | Stainless steel | - | - | - |
| 10 | Stop washer | 3 or 4 | Zinc coated steel | - | - | - |
| 11 | Screw | 3 or 4 | Zinc coated steel | - | - | - |
| 12 | Packing ring | 1 or 2 | Steel | S275JR (1.0037) | grC/D | - |
| 13 | Bottom | 1 | Steel | S275JR (1.0037) | grC/D | - |
| 14 | O-ring | 1 | Nitrile | - | - | - |
| 15 | Identification plate | 1 | Aluminium | EN AW - AL995 (EN AW - 1050A) | - | - |
| 16 | Circlips | 1 | Steel browned | - | - | - |
| 17 | Ball | 2 | Stee | 100Cr6 (1.3505) | 52100 | SUJ 2 |
| 18 | Bottom | 1 | Zinc coated steel | X30Cr13 (1.4028) | 420 | SUS420J2 |
| 19 | O-ring (2) | 2 | Nitrile | - | - | - |

(1) : 1.4542 for DN400 & 1.4028 for others DN - (2) : DN 1200 only - (3) : DN400 - 1200 Transmission shaft/disc with grooved connection : optional

### Option DN 400 up to 700

| | | | | | | |
|---|---|---|---|---|---|---|
| 20 | Wedge(4) | 1 or 2 | Steel | S275JR (1.0037) | grC/D | - |
| 21 | Wedge(4) | 1 | Steel | S275JR (1.0037) | grC/D | - |
| 22 | Guide bush(4) | 1 | Steel/PTFE | - | - | - |
| 23 | Electro-static tress(5) | 1 | Tinned copper | - | - | - |
| 24 | Braid(5) | 1 | Tinned copper | - | - | - |
| 25 | Stop washer(5) | 1 | Stainless steel | X5CrNi18-10 (1,4301) | 304 | SUS 304 |
| 26 | Screws(5) | 1 | Stainless steel | A2-70 | 304 | SUS 304 |

(4) Optional : mounting downwards - (5) Optional : ATEX

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# Normalisation

**DESIGN**
According to EN 593 and marking according to EN 19

**ISO TOP CONNECTION FOR ACTUATIONS**
According to EN ISO 5211

**FACE TO FACE**
According to 558-1 series 20
ISO 5752 series 20
API 609 table 2

**CONNECTING FLANGES** see on page 13
According to EN1092-1 and EN1092-2
ASME/ANSI B16.5
BS10-d and BS10-e
JIS B2238 and JIS B2239

**TESTS**
According to EN12266-1
Resistance and tightness of the body : test P11(1,5 x allowable operating pressure)
Tightness of the seat : test P12 rate A (1,1 x allowable operating pressure)
According to EN12266-2
Anti-static design : test F21

**EUROPEAN DIRECTIVES**
Our butterfly valves are in accordance to the safety requirements of the following directives. :

**· Directive 2014/68/UE : Equipments under pressure PED (Pressure Equipment Directive)**

Applies to the design, manufacturing and the assessment of the conformity of pressure equipment, the maximum allowable pressure of which is 0.5 bar.

Pressure equipment for water supply, distribution, and disposal of water is excluded. Depending on the type of pressure equipment, maximum allowable temperature (PS), DN, physical nature of the fluid (liquid, gas or vapour) and the degree of danger of the fluid (group1/2)*, the directive classifies this same equipment into different categories (article 3.3, I, II, III, IV), required for the assessment of conformity with CE marking. The equipment defined in article 3.3 of the directive must not bear the CE marking.

(*) Group 1 : according to rule CE 1272/2008.

Group 2 : all other fluids.

*Important notice : the indicated pressure for the different categories of fluids (L1/L2/G1/G2) is under no condition a guarantee of use.Therefore, it is essential to validate the use of products under given operating conditions. Socla is not responsible for alteration of the products to working conditions not previously specified by the customer.*

**Directive 2014/34/UE : ATEX (EXplosive ATmospheres)**

This directive is only applicable for the following atmospheric conditions : -20°C < T < +60°C ; 0,8 bar ≤ P ≤ 1,2 bar.
In this risk analysis, the fluid which passes through the valve is not taken into account. It is under the responsibility of the user to take into consideration the risks generated by the fluid like : heating of the surface of the valve, internal chocks generated by granulates, wave of chocks due to the installation (water hammering), or the risks due to foreign bodies which are inside the installation.
Classification of the bare shaft valve : The marking of the bare shaft valve is : Ex II 2 DG.

Classification of the set valve + actuation :

- Valve with a hand lever : The use of hand levers produced by Socla within a ATEX area do not represent additional risks. The valve with a hand lever is in conformity to the marking : Ex II 2 DG.
- Valve with other actuations : The classification of the valve + actuation supplied by Socla is similar to the lowest classification of the components which composed the assembly.

No additional marking will be used to indicate the classification of the assembly.
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 classification of the equipment allows its use in a determinate area; an use in another area is under the responsibility of the user.

**Directive 2006/42/CE : Machinery Directive**

In its Appendix I it sets a certain number of Essential Health and Safety Requirements which must be met. It applies to motorised butterfly valves, (with electric, pneumatic or hydraulic actuators). According to this Directive, these sets are “Partly Completed Machineries” designed for being integrated into a machine.

“Partly Completed Machinery” means an assembly which is almost machinery but which cannot in itself perform a specific application. A drive system is partly completed machinery. Partly completed machinery is only intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment, thereby forming machinery to which this Directive applies.

*An instruction notice specifying the installation characteristics and the commission of the Lycene is added to every product; It is available on our web site www.socla.com or on request by our sales department.*

# Pressure

## DIRECTIVE 2014/68/UE EQUIPMENTS UNDER PRESSURE

Products manufactured in conformity with the requirements of the directive, according to pressure, DN and fluid (see on the precedent page ).

| LINERS | | DN mm | Cat. | MOUNTING | PFA | PS | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | L1 | L2 | G1 | G2 |
| 6 bar | EPDM, Nitrile, White EPDM, White Nitrile, Carbolyxated Nitrile | 400 to 500 | I | Flange | 6 | 6 | 6 | - | 6 |
| | | | | End of line | 4 | 4 | 4 | - | - |
| | | 600 | I | Flanges | 6 | 6 | 6 | - | 5 |
| | | | | End of line | 4 | 4 | 4 | - | - |
| | | 700 to 800 | I | Flange | 6 | 6 | 6 | - | 4 |
| | | | | End of line | 4 | 4 | 4 | - | - |
| | | 900 to 1000 | I | Flanges | 6 | 6 | 6 | - | 3,5 |
| | | | | End of line | 4 | 4 | 4 | - | |
| | | 1200 | I | Flange | 6 | 6 | 6 | - | 2,5 |
| | | | | End of line | 4 | 4 | 4 | - | - |
| | Silicone, Neoprene, Butyl CSM (Polyethylen chloro-sulfonated), FKM, Natural rubber, White natural rubber | 400 to 500 | I | Flanges | 6 | 6 | 6 | - | 6 |
| | | | | End of line | 4 | 4 | 4 | - | - |
| | | 600 to 800 | II | Flange | 6 | 6 | 6 | - | 6 |
| | | | | End of line | 4 | 4 | 4 | - | |
| | | 900 to 1000 | II | Flanges | 6 | 6 | 6 | - | 5 |
| | | | | End of line | 4 | 4 | 4 | - | - |
| | | 1200 | II | Flange | 6 | 6 | 6 | - | 4 |
| | | | | End of line | 4 | 4 | 4 | - | - |
| 10 bar | EPDM, Nitrile, White EPDM | 400 to 1200 | I | Flanges | 10 | 10 | 10 | - | - |
| | | | | End of line | 6 | 6 | 6 | - | - |
| | CSM (Polyethylen chloro-sulfonated), FKM, | 400 to 1200 | I | Flange | 10 | 10 | 10 | - | - |
| | | | | End of line | 6 | 6 | 6 | - | - |
| 16 bar | EPDM, Nitrile | 400 to 1200 | I | Flanges | 16 | - | 16 | - | - |
| | | | | End of line | 8 | - | 8 | - | - |
| | Neoprene,Butyl, Natural rubber, White natural rubber | 400 to 1200 | I | Flange | 16 | 16 | 16 | - | - |
| | | | | End of line | 8 | 8 | 8 | - | - |
| *20 bar | EPDM, Nitrile | 400 to 600 | I | Flanges | 20 | - | 20 | - | - |
| | | | | End of line | 10 | - | 10 | - | - |

NOTE : Butterfly valves of category II used as «end of line», please consult us.

PS : Maximum allowable pressure (in bar) according to Directive 2014/68/UE
PFA : Allowable operating pressure (in bar) for supply, distribution and disposal of water.
* : Double-flange version with stainless steel disc only.

# Applications

- Water distribution and supply with the main European approvals, water treatment, most of the fluids for general services.
- Industrial applications such as : Mining, paper-making, shipbuilding, nuclear, environmental and mechanical, food industry (see our list of approvals).
- For special applications, especially for particularly difficult media, contact our technical back office team.

# 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.

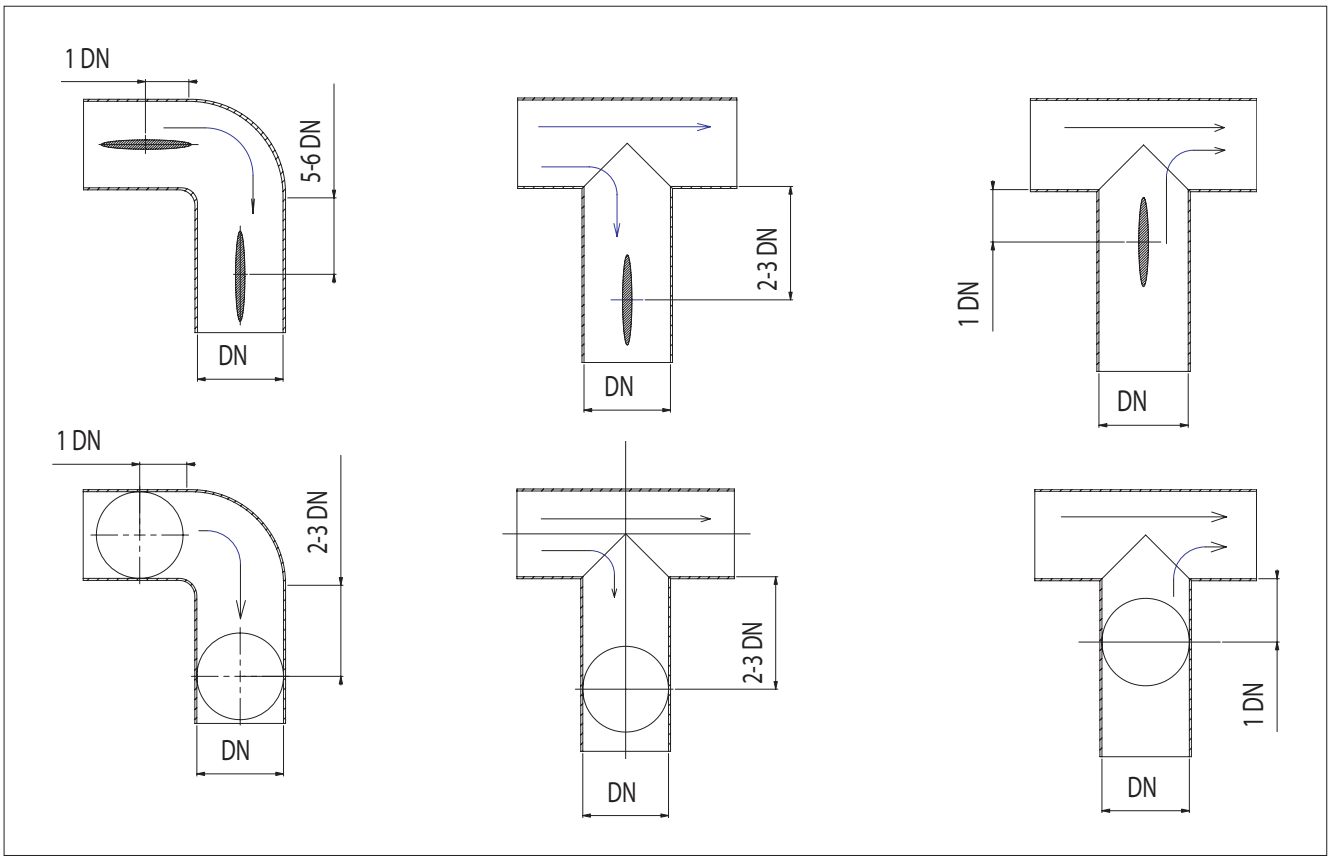
The pipe work must be correctly aligned so that no extra stress is exerted on the valve casing. Check the compatibility of the connection flanges against the operating pressure : the PN number of the flanges must be greater or equal to the operating pressure.

The valve is a machined piece of equipment and must not be used to prise apart the flanges. An instruction notice specifying the installation characteristics and the commission of the Sylax 400-1200 is added to every product. It is available on our web site www.socla.com or on request by our sales department.

**Installation conditions :**

It is recommended that the distances mentioned below be respected in order to prolong the life time of the valve.

Mounting the valve close to pipe work junctions places it in turbulent zones which increase its wear.



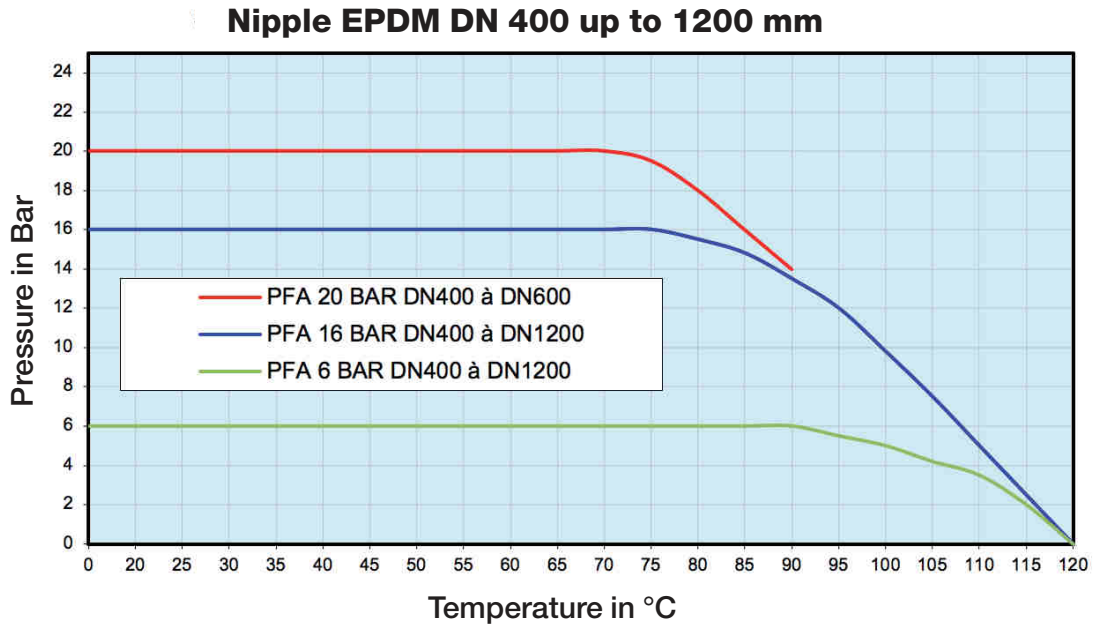
# Functionning characteristics

**Torque values - EPDM liner for water and lubrificated products.**

| Torques for Water (Nm) | 400 | 450 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 |
|---|---|---|---|---|---|---|---|---|---|
| **PS 6 bar** | 400 | 550 | 800 | 1200 | 2000 | 2800 | 4000 | 5000 | 7500 |
| **PS 16 bar** | 600 | 850 | 1200 | 2000 | 3200 | 5200 | 6500 | 7500 | 8500 |

NOTE : One actuation minimum per month.

**Pressure/temperature diagram :**




NOTE : For every other elastomer, please ask our sales department.

**Flow rate (Kv)**

| OPENING STAGE - Stainless steel disc | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **DN** | **10°** | **20°** | **30°** | **40°** | **50°** | **60°** | **70°** | **80°** | **90°** |
| 400 | 186 | 670 | 1395 | 2660 | 4420 | 7000 | 10000 | 13560 | 14695 |
| 450 | 230 | 868 | 1826 | 3340 | 5656 | 8634 | 12278 | 15575 | 17000 |
| 500 | 284 | 1060 | 2348 | 4415 | 7595 | 11335 | 14995 | 20380 | 20080 |
| 600 | 450 | 1544 | 3545 | 7000 | 11475 | 15995 | 20725 | 24045 | 25000 |
| 700 | 700 | 2450 | 5483 | 9900 | 14994 | 21150 | 26540 | 30700 | 32990 |
| 800 | 1110 | 3500 | 8000 | 14990 | 22495 | 31290 | 39990 | 46230 | 49000 |
| 900 | 1400 | 4950 | 12500 | 23000 | 34880 | 46500 | 57130 | 61915 | 63460 |
| 1000 | 1990 | 7000 | 17500 | 32090 | 46025 | 60000 | 70000 | 77078 | 77920 |
| 1200 | 2540 | 9650 | 24865 | 46710 | 69390 | 88760 | 101750 | 108160 | 109775 |

Kv = volume of water in m3/h through a valve at a preset opening stage and under a head loss of 1 bar.

The butterfly valve is not the best product for regulating Nevertheless, the Sylax 400-1200 butterfly valve can be used to regulate by an opening stage between 30° and 90°.

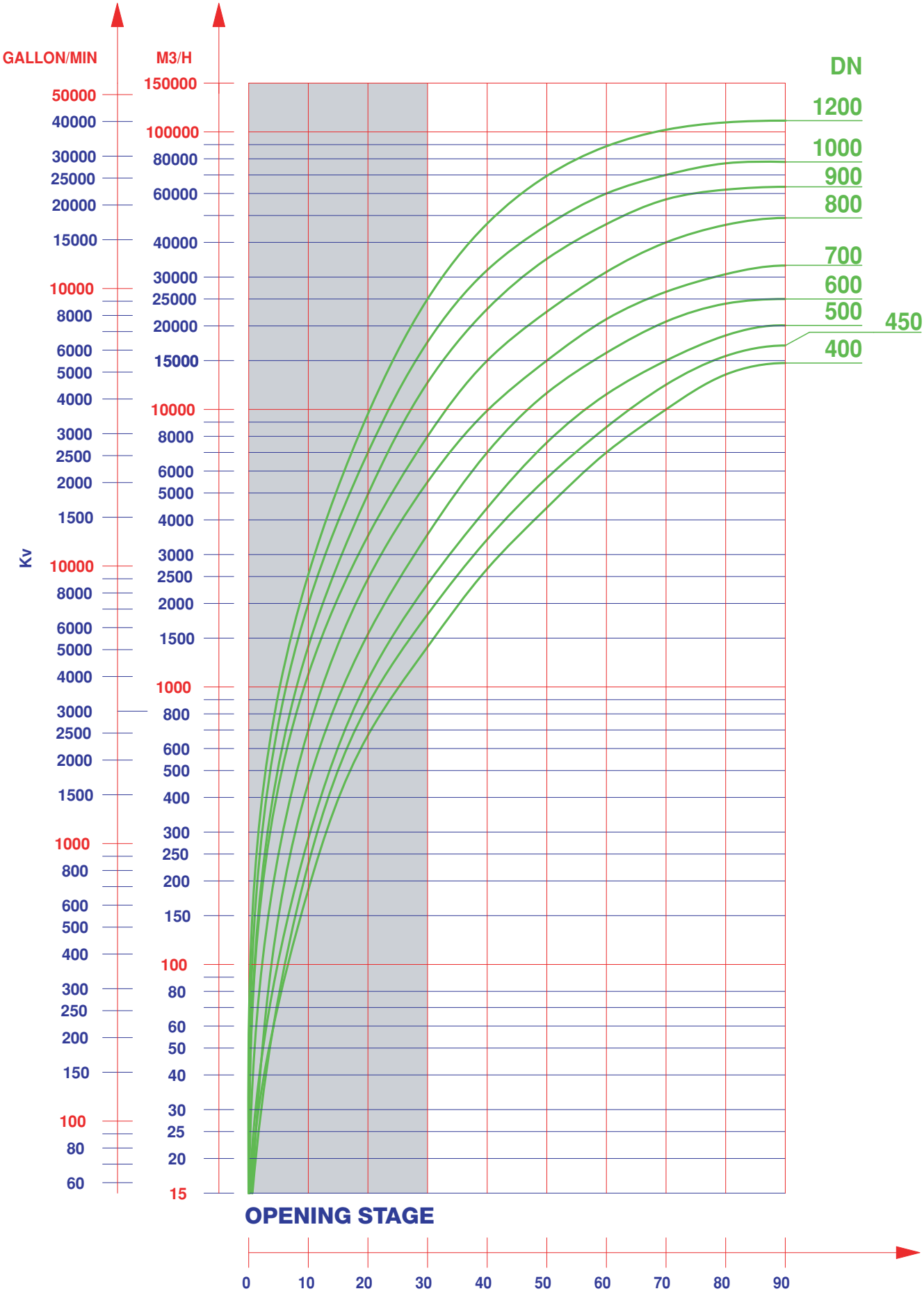
A regulation in the opening stage lower than 30° is not advisable because of over speed, cavitation effect, which could damage prematurely the valve.

**The maximum flow velocity of the fluid through the valve must not exceed, for fluid liquids :**

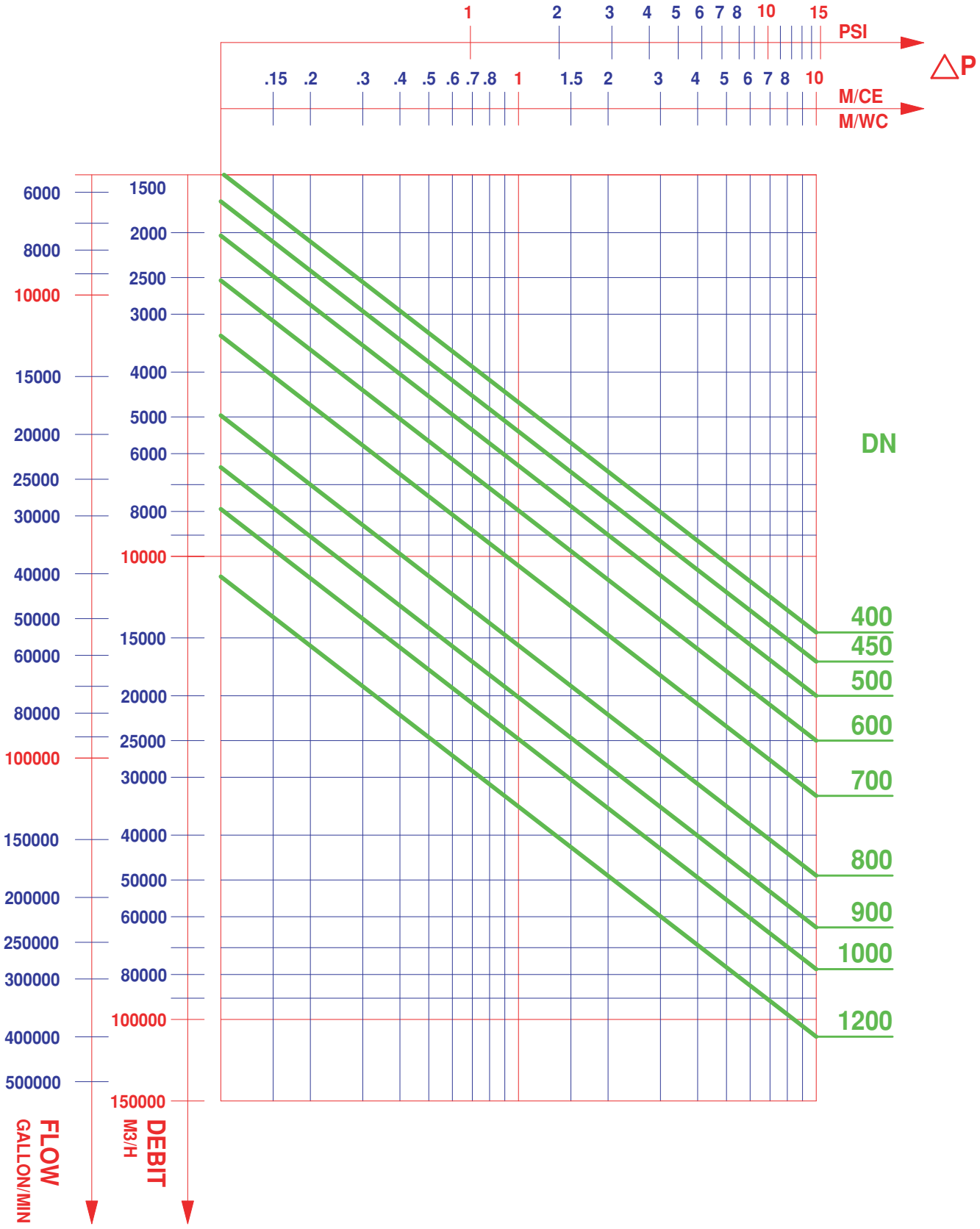
- 3 m/s for DN 400
- 2,5 m/s for DN 450 to 800
- 2 m/s for DN 1200
- for gas and and pulverulent or paste fluids : please consult us.

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## Flow rate (Kv)

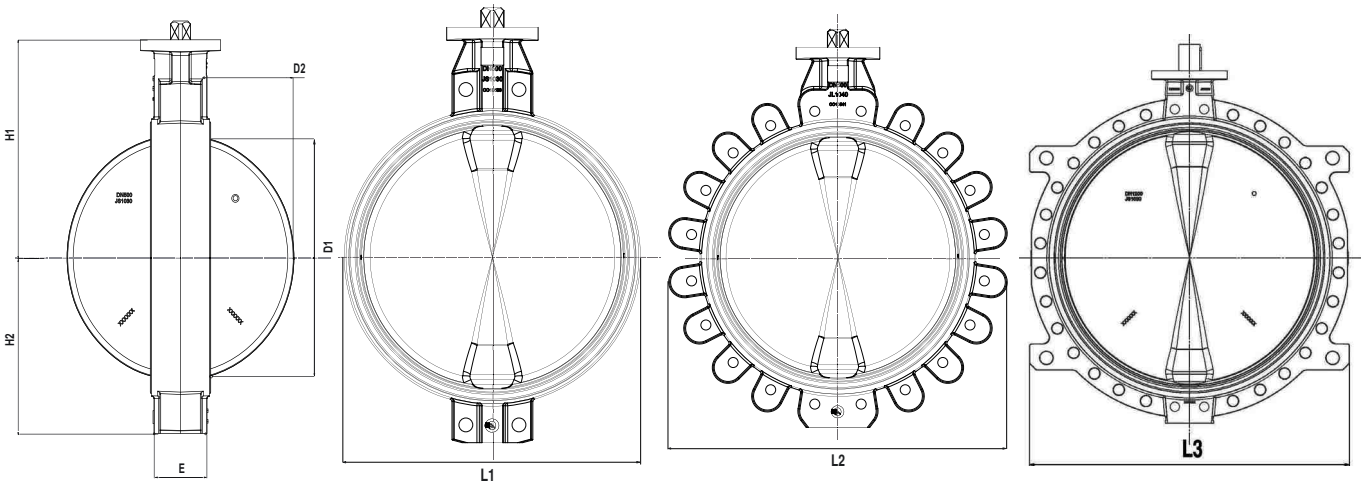


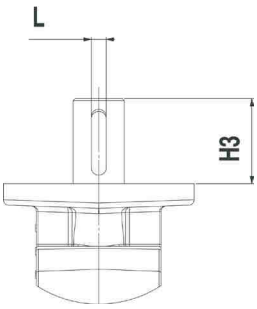
## Head loss diagram (Δp)



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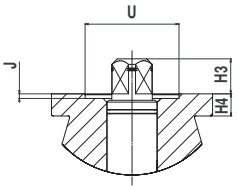
# Overall dimensions



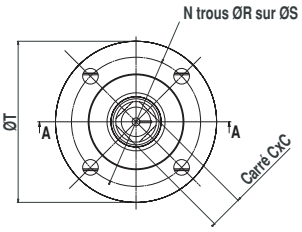




## Centering lugs

| Diameter | | Face to face | | Overall dimensions | | | | ISO top according to EN ISO 5211 | | | | | | | Square drive outlet DN400/450/500/600/700 round other DN | | | Travel of the disc | | Weight Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | NPS | E | E'** | L1 | H1 | H2 | H4 | N | ØR | ØS | ØT | ØU | J | N | C | H3 | L* | D1 | D2 | |
| 400 | 16 | 102 | 106 | 470 | 378 | 286 | 24 | 4 | 17 | 140 | 175 | 102 | 5 | F14 | □36 | 38 | | 381 | 146 | 57 |
| **400** | **16** | **102** | | **470** | **378** | **286** | **24** | **4** | **12,5** | **125** | **175** | **87** | **4** | **F12** | **□27** | **29** | | **381** | **146** | **57** |
| **450** | **18** | **114** | 118 | **526** | **417** | **315** | **19** | **4** | **17** | **140** | **175** | **102** | **5** | **F14** | **□36** | **38** | | **430** | **166** | **87** |
| 450 | 18 | 114 | | 526 | 417 | 315 | 19 | 4 | 12,5 | 125 | 175 | 87 | 4 | F12 | □27 | 29 | | 430 | 166 | 83 |
| **500** | **20** | **127** | 132 | **570** | **440** | **355** | **22** | **4** | **17** | **140** | **175** | **102** | **5** | **F14** | **□36** | **38** | | **478** | **184** | **77** |
| 500 | 20 | 127 | | 570 | 440 | 355 | 22 | 4 | 12,5 | 125 | 175 | 87 | 4 | F12 | □27 | 29 | | 478 | 184 | 77 |
| **600** | **24** | 154 | 160 | 676-FGS/ 692-FGL | 495 | 415 | 28 | 4 | 22 | 165 | 210 | 132 | 6 | F16 | □46 | 48 | | 575 | 221 | 141 |
| | | | | | | | | | **17** | **140** | **210** | **102** | **5** | **F14** | **□36** | **38** | | | | |
| **700** | **28** | 165 | 173 | 793 | 576 | 460 | 40 | 8 | 18 | 254 | 300 | 202 | 6 | F25 | 72 | 110 | 20 | 675 | 265 | 209 |
| | | | | | | | | **4** | **22** | **165** | | **132** | | **F16** | **□46** | **56** | | | | |
| **800** | **32** | 190 | 193 | 898 | 630 | 520 | 35 | **8** | **18** | **254** | 300 | 202 | 6 | **F25** | **72** | **110** | **20** | 772 | 303 | 251 |
| | | | | | | | | 4 | 22 | 165 | | | | F16 | □46 | 56 | | | | |
| **900** | **36** | 203 | | 1000 | 700 | 583 | 40 | 8 | **22** | **298** | 350 | 232 | 6 | **F30** | **98** | **130** | **28** | 872 | 346 | 395 |
| | | | | | | | | | 18 | 254 | | | | F25 | 72 | 110 | 20 | | | |
| **1000** | **40** | 216 | | 1102 | 752 | 640 | 44 | 8 | **22** | **298** | 350 | 232 | 6 | **F30** | **98** | **130** | **28** | 971 | 390 | 448 |
| | | | | | | | | | 18 | 254 | | | | F25 | 72 | 110 | 20 | | | |




## Tapped lugs




| Diameter | | Face to face | | Overall dimensions | | | | ISO top according to EN ISO 5211 | | | | | | | Square drive outlet DN 400/450/500/600 | | | Travel of the disc | | Weight Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | NPS | E | E'** | L2 | H1 | H2 | H4 | N | ØR | ØS | ØT | ØU | J | N | C | H3 | L* | D1 | D2 | |
| 400 | 16 | 102 | 106 | 572 | 378 | 286 | 24 | 4 | 17 | 140 | 175 | 102 | 5 | F14 | □36 | 38 | | 381 | 146 | 78 |
| **400** | **16** | **102** | | **572** | **378** | **286** | **24** | **4** | **12,5** | **125** | **175** | **87** | **4** | **F12** | **□27** | **35** | | **381** | **146** | **78** |
| **450** | **18** | **114** | 118 | **638** | **417** | **315** | **19** | **4** | **17** | **140** | **175** | **102** | **5** | **F14** | **□36** | **38** | | **430** | **166** | **108** |
| 450 | 18 | 114 | | 638 | 417 | 315 | 19 | 4 | 12,5 | 125 | 175 | 87 | 4 | F12 | □27 | 35 | | 430 | 166 | 108 |
| **500** | **20** | **127** | 132 | **708** | **440** | **355** | **22** | **4** | **17** | **140** | **175** | **102** | **5** | **F14** | **□36** | **38** | | **478** | **184** | **144** |
| 500 | 20 | 127 | | 708 | 440 | 355 | 22 | 4 | 12,5 | 125 | 175 | 87 | 4 | F12 | □27 | 35 | | 478 | 184 | 144 |
| **600** | **24** | 154 | 160 | 831 | 495 | 415 | 28 | 4 | 22 | 165 | 210 | 132 | 6 | F16 | □46 | 48 | | 575 | 221 | 214 |
| | | | | | | | | | **17** | **140** | | **102** | **5** | **F14** | **□36** | **38** | | | | |

## Double flanges

| Diameter | | Face to face | | Overall dimensions | | | | ISO top according to EN ISO 5211 | | | | | | | Square drive outlet DN400/450/500/600/700 round other DN | | | Travel of the disc | | Weight Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | NPS | E | E'** | L2/L3 (1) | H1 | H2 | H4 | N | ØR | ØS | ØT | ØU | J | N | C | H3 | L* | D1 | D2 | |
| 400 | 16 | 102 | 106 | 582 | 378 | 286 | 24 | 4 | 17 | 140 | 175 | 102 | 5 | F14 | □36 | 38 | | 381 | 146 | 83 |
| **400** | **16** | **102** | | **582** | **378** | **286** | **24** | **4** | **12,5** | **125** | **175** | **87** | **4** | **F12** | **□27** | **35** | | **381** | **146** | **83** |
| **450** | **18** | **114** | 118 | **642** | **417** | **315** | **19** | **4** | **17** | **140** | **175** | **102** | **5** | **F14** | **□36** | **38** | | **430** | **166** | **103** |
| 450 | 18 | 114 | | 642 | 417 | 315 | 19 | 4 | 12,5 | 125 | 175 | 87 | 4 | F12 | □27 | 35 | | 430 | 166 | 103 |
| **500** | **20** | **127** | 132 | **717** | **440** | **355** | **22** | **4** | **17** | **140** | **175** | **102** | **5** | **F14** | **□36** | **38** | | **478** | **184** | **134** |
| 500 | 20 | 127 | | 717 | 440 | 355 | 22 | 4 | 12,5 | 125 | 175 | 87 | 4 | F12 | □27 | 35 | | 478 | 184 | 134 |
| **600** | **24** | 154 | 160 | 842 | 495 | 415 | 28 | 4 | 22 | 165 | 210 | 132 | 6 | F16 | □46 | 48 | | 575 | 221 | 202 |
| | | | | | | | | | **17** | **140** | | **102** | **5** | **F14** | **□36** | **38** | | | | |
| **700** | **28** | 165 | 173 | 930 | 576 | 460 | 40 | 8 | 18 | 254 | 300 | 202 | 6 | F25 | 72 | 110 | 20 | 675 | 265 | 270 |
| | | | | | | | | **4** | **22** | **165** | | **132** | | **F16** | **□46** | **56** | | | | |
| **800** | **32** | 190 | 193 | 1063 | 630 | 520 | 35 | **8** | **18** | **254** | 300 | 202 | **6** | **F25** | **72** | **110** | **20** | 772 | 303 | 320 |
| | | | | | | | | 4 | 22 | 165 | | | 6 | F16 | □46 | 56 | | | | |
| **900** | **36** | 203 | | 1171 | 700 | 583 | 40 | 8 | **22** | **298** | 350 | 232 | 6 | **F30** | **98** | **130** | **28** | 872 | 346 | 501 |
| | | | | | | | | | 18 | 254 | | | | F25 | 72 | 110 | 20 | | | |
| **1000** | **40** | 216 | | 1292 | 752 | 640 | 44 | 8 | **22** | **298** | 350 | 232 | 6 | **F30** | **98** | **130** | **28** | 971 | 390 | 611 |
| | | | | | | | | | 18 | 254 | | | | F25 | 72 | 110 | 20 | | | |
| **1200** | **48** | 254 | 260 | 1485 | 870 | 768 | 40 | 8 | 22 | 298 | 350 | 232 | 6 | F30 | 98 | 125 | 28 | 1134 | 454 | 924 |

**In bold :**
**standard mounting**

**E' :** compressed Elastomer

***** according to norm NFE22-175

**** ATTENTION** Mounting dimensions : Before mounting the butterfly valve, make sure that the distance between the pipe flanges is sufficient enough, so that the liner is not moved from its sealing position on the butterfly valve.

**(1)** L3 only DN1200

# Connecting kits for actuation

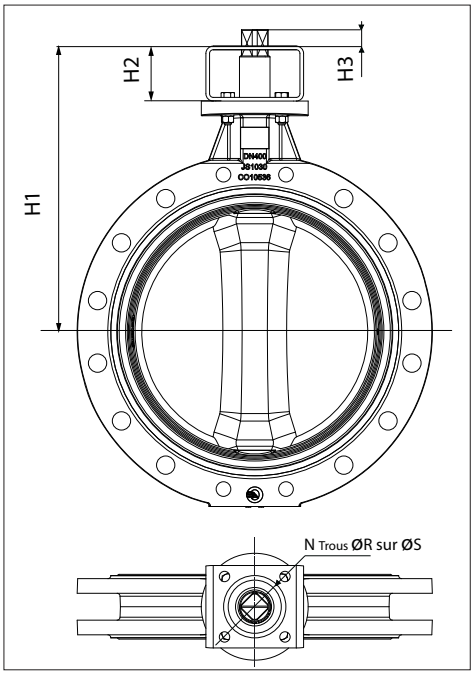
**We recommend direct mounting of the actuation, otherwise see table below.**

| DN | NPS | iso top of the valve | Iso top of the actuation | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F10 | | F12 | | F14 | | F16 | | F25 | | F30 | | F35 | |
| | | | H1 | H2 | H1 | H2 | H1 | H2 | H1 | H2 | H1 | H2 | H1 | H2 | H1 | H2 |
| 400 | 16 | F12/□27 | 468 | 90 | 468 | 90 | 468 | 90 | 478 | 100 | 478 | 100 | | | | |
| 450 | 18 | F14/□36 | 567 | 150 | 567 | 150 | 567 | | 567 | 150 | 567 | 150 | | | | |
| 500 | 20 | F14/□36 | 590 | 150 | 590 | 150 | 590 | 150 | 590 | 150 | 590 | 150 | | | | |
| 600 | 24 | F14/□36 | 645 | | 645 | 150 | 645 | | 645 | 150 | 645 | 150 | | | | |
| 700 | 28 | F16/□46 | | | 726 | 150 | 726 | 150 | 726 | 150 | 726 | 220 | 726 | 150 | | |
| 800 | 32 | F25/Ø72 | | | | | 850 | 220 | 850 | 220 | 850 | 220 | 850 | 220 | 850 | 220 |
| 900 | 36 | F30/Ø98 | | | | | | | 920 | 220 | 920 | 220 | 920 | | 920 | 220 |
| 1000 | 40 | F30/Ø98 | | | | | | | 972 | 220 | 972 | 220 | 972 | 220 | 972 | 220 |
| 1200 | 48 | F30/Ø98 | | | | | | | 1090 | 220 | 1090 | 220 | 1090 | | 1090 | 220 |

**We recommend direct mounting of the actuation**

| DN | NPS | Exceeding length of the shaft H3 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | iso top of the valve | Kit | □27 | □36 | Ø60 | Ø72 | Ø98 |
| 400 | 16 | F12/□27 | F10 | | | | | |
| | | | F12 | 29 | 38 | | | |
| | | | F14 | | | | | |
| | | | F16 | | | 80 | | |
| | | | F25 | | | | 110 | |
| 450 - 500<br>600 | 18 - 20<br>24 | F14/□36 | F10 | | | | | |
| | | | F12 | 29 | 38 | | | |
| | | | F14 | | 38 | | | |
| | | | F16 | | | 80 | | |
| | | | F25 | | | | 110 | 130 |
| 700 | 28 | F16/□46 | F12 | 29 | 38 | | | |
| | | | F14 | | | 80 | | |
| | | | F16 | | | 80 | 110 | |
| | | | F25 | | | | | 130 |
| | | | F30 | | | | | |
| 800 | 32 | F25/Ø72 | F14 | | 38 | 80 | | |
| | | | F16 | | | | 110 | |
| | | | F25 | | | | 110 | |
| | | | F30 | | | | | 130 |
| | | | F35 | | | | | |
| 900<br>1000<br>1200 | 36<br>40<br>48 | F30/Ø98 | F16 | | | 80 | 110 | |
| | | | F25 | | | | | 130 |
| | | | F30 | | | | | 130 |
| | | | F35 | | | | | |

| N° | N | ØR | ØS |
|---|---|---|---|
| F10 | 4 | 10,5 | 102 |
| F12 | 4 | 12,5 | 125 |
| F14 | 4 | 17 | 140 |
| F16 | 4 | 22 | 165 |
| F25 | 8 | 18 | 254 |
| F30 | 8 | 22 | 298 |
| F35 | 8 | 32 | 356 |




Reminder of the iso top dimensions EN ISO 5211 (see also the overall dimensions).

Other special executions on request subjected to technical feasibility.

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# Connecting flanges

**The Sylax 400-1200 butterfly valve in ductile iron body can be mounted with the following connections (other types on request);**

✔ : standard version : see price list
● : specific version : consult us
■ : impossible mounting
■ : connection not specified by the Standard

## Centering lugs - CLEARLY indicate the connection at order

| DN | NPS | PN6 | PN10 | PN16 | PN25 | PN40 | ASME/ANSI B16.1 CLASS 125 | ASME/ANSI B16.5 CLASS 150 | ASME/ANSI B16.47 CLASS 150 | BS10 | | JIS B2238 & JIS B2239 | | | AWWA/ C207 B,D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Table D | Table E | 5K | 10K | 16K | |
| 400 | 16 | ● | ✔ | ✔ | ● | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 450 | 18 | ● | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ● | ● | ● | ■ | ● |
| 500 | 20 | ● | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 600 | 24 | ● | ✔ | ✔ | ● | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 700 | 28 | ● | ✔ | ✔ | ■ | | | | ● | | | ● | ● | ■ | ● |
| 800 | 32 | ● | ✔ | ✔ | ■ | | | | ● | | | ● | ● | ■ | ● |
| 900 | 36 | ● | ✔ | ✔ | ● | | ● | | ● | ● | ● | ● | ● | ● | ● |
| 1000 | 40 | ● | ✔ | ✔ | ■ | | | | ● | | | ● | ● | ■ | ● |

## Tapped lugs - CLEARLY indicate the connection at order

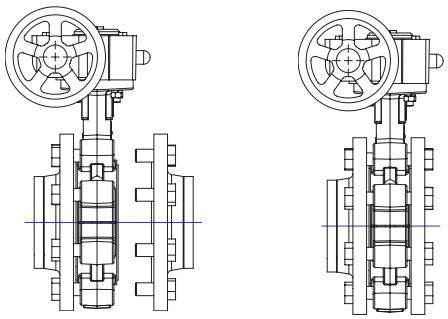
| DN | NPS | PN6 | PN10 | PN16 | PN25 | PN40 | ASME/ANSI B16.1 CLASS 125 | ASME/ANSI B16.5 CLASS 150 | ASME/ANSI B16.47 CLASS 150 | BS10 | | JIS B2238 & JIS B2239 | | | AWWA/ C207 B,D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Table D | Table E | 5K | 10K | 16K | |
| 400 | 16 | ● | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 450 | 18 | ■ | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ■ | ● | ● | ■ | ● |
| 500 | 20 | ● | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 600 | 24 | ● | ✔ | ✔ | ● | ■ | ● | ● | | ■ | ■ | ● | ■ | ■ | ● |

## Double flanges - CLEARLY indicate the connection at order

| DN | NPS | PN6 | PN10 | PN16 | PN25 | PN40 | ASME/ANSI B16.1 CLASS 125 | ASME/ANSI B16.5 CLASS 150 | ASME/ANSI B16.47 CLASS 150 | BS10 | | JIS B2238 & JIS B2239 | | | AWWA/ C207 B,D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Table D | Table E | 5K | 10K | 16K | |
| 400 | 16 | ● | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 450 | 18 | ● | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ● | ● | ● | ■ | ● |
| 500 | 20 | ● | ✔ | ✔ | ■ | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 600 | 24 | ● | ✔ | ✔ | ● | ■ | ● | ● | | ■ | ■ | ● | ● | ● | ● |
| 700 | 28 | ● | ✔ | ✔ | ■ | | | | ● | | | ● | ● | ■ | ● |
| 800 | 32 | ● | ✔ | ✔ | ■ | | | | ● | | | ● | ● | ■ | ● |
| 900 | 36 | ● | ✔ | ✔ | ● | | ● | | ● | ● | ● | ● | ● | ● | ● |
| 1000 | 40 | ● | ✔ | ✔ | ■ | | | | ● | | | ● | ● | ■ | ● |
| 1200 | 48 | ● | ✔ | ✔ | ● | | ● | | ● | ● | ● | ● | ● | ● | ● |

Note : The references of the valves are different in PN10 & PN16

## End of line mounting and downstream removing



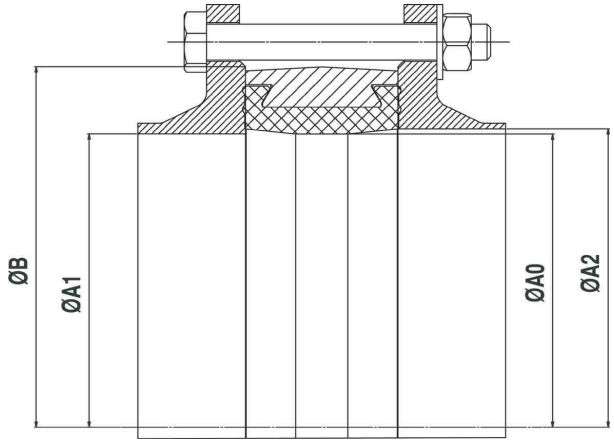
**Downstream removing** **End of line mounting**

The end of line mounting and the downstream removing, at ambient temperature, of the Sylax 400-1200 butterfly valve is limited to the pressure mentioned on page 9 according to the PED directive 2014/68/UE

Theses mountings are only possible on tapped lugs and double flanges bodies.

# Type of flange

The Sylax 400-1200 butterfly valve has been designed to be mounted on normalised standard flanges. Only standard flanges type 11, 21 and 34 according to EN 1092 are quite compatible. For other types of flanges, refer to the table below. Non appropriate connections will cancel our guarantee.

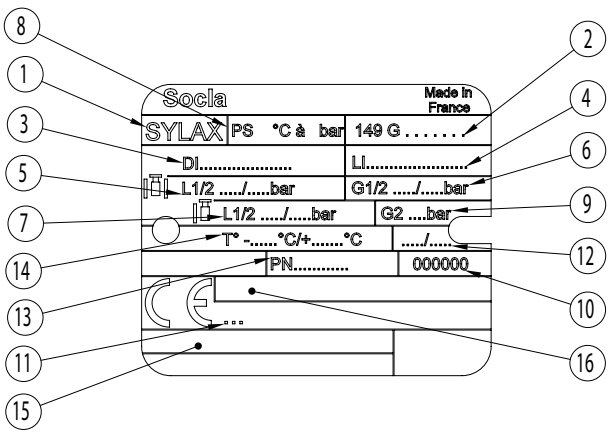



| DN | Ø A0 | Ø A1 mini | Ø A2 maxi | Ø B mini |
|---|---|---|---|---|
| 400 | 392 | 401 | 417 | 480 |
| 450 | 442 | 450 | 468 | 536 |
| 500 | 492 | 498 | 520 | 585 |
| 600 | 592 | 595 | 620 | 707 |
| 700 | 690 | 695 | 717 | 813 |
| 800 | 792 | 792 | 818 | 918 |
| 900 | 892 | 892 | 920 | 1020 |
| 1000 | 992 | 991 | 1022 | 1122 |
| 1200 | 1160 | 1157 | 1199 | 1330 |

NOTE : The use of expansion seals, as well as the use of elastomer coated flanges, between the flange and the valve are strictly forbidden.

# Tag and traceability

| N° | Description |
|---|---|
| 1 | Name of the valve |
| 2 | Reference |
| 3 | Material of the disc |
| 4 | Material of the liner |
| 5 | Pressure PS between flanges L1/L2 (liquid) |
| 6 | Pressure PS between flanges G1/G2 (gas) |
| 7 | Pressure PS end flange L1/L2 (liquid) |
| 8 | Pressure PFA water 20°C |
| 9 | Pressure PS end flange G2 (gas) |
| 10 | Number of manufacturing order |
| 11 | Notified Body Number for the Directive PED 2014/68/UE |
| 12 | Manufacturing date |
| 13 | Connecting flanges |
| 14 | Limit of use |
| 15 | Approval information zone |
| 16 | Marking relating to the Directive ATEX 2014/34/UE |



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# Bolts and nuts

**NOTE :** Bolts and nuts are not part of our standard supply.

## CENTERING LUG TYPE BODY

| DN | NPS | a | NF EN 1092 PN10 | | | | | | NF EN 1092 PN16 | | | | | | ASME/ANSI B16.1 Cl125 up to DN 600 + DN 900<br>ASME/ANSI B16.5 Cl150 up to DN 600<br>ASME/ANSI B16.47 Cl150 DN 700 - 1000<br>AWWA C207 Class D | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØV | Rods* | | Screw/face** | | | ØV | Rods* | | Screw/face** | | | ØV UNC | Rods* | | Screw/face** | | |
| | | | | Nb | C | Nb | e | f | | Nb | C | Nb | e | f | | Nb | C | Nb | e | f |
| 400 | 16 | 102 | M24 | 16 | 29 | | | | M27 | 16 | 32 | | | | 1 | 16 | 32 | | | |
| 450 | 18 | 114 | M24 | 16 | 29 | 4 | 35 | 4 | M27 | 16 | 32 | 4 | 35 | 4 | 1"1/8 | 12 | 35 | 4 | 50 | 4 |
| 500 | 20 | 127 | M24 | 16 | 29 | 4 | 45 | 4 | M30 | 16 | 35 | 4 | 45 | 4 | 1"1/8 | 16 | 35 | 4 | 45 | 4 |
| 600 | 24 | 154 | M27 | 16 | 32 | 4 | 60 | 4 | M33 | 16 | 38 | 4 | 60 | 4 | 1"1/4 | 16 | 38 | 4 | 60 | 4 |
| 700 | 28 | 165 | M27 | 20 | 32 | 4 | 50 | 4 | M33 | 20 | 38 | 4 | 45 | 4 | 1"1/4 | 24 | 38 | 4 | 45 | 4 |
| 800 | 32 | 190 | M30 | 20 | 35 | 4 | 60 | 4 | M36 | 20 | 42 | 4 | 60 | 4 | 1"1/2 | 24 | 45 | 4 | 50 | 4 |
| 900 | 36 | 203 | M30 | 24 | 35 | 4 | 45 | 4 | M36 | 24 | 42 | 4 | 45 | 4 | 1"1/2 | 28 | 45 | 4 | 45 | 4 |
| 1000 | 40 | 216 | M33 | 24 | 38 | 4 | 60 | 5 | M39 | 24 | 45 | 4 | 60 | 5 | 1"1/2 | 32 | 45 | 4 | 50 | 5 |

* Assembly by rods : Number of nuts = 2x Number of rods (below)
**Assembly by bolts : Number of nuts = Number of screws (below)

## TAPPED LUG TYPE BODY

| DN | NPS | a | NF EN 1092 - PN10 | | | | NF EN 1092 - PN16 | | | | ASME/ANSI B16.1 Cl. 125/Cl.150 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ØV | Screw/face** | | | ØV | Vis par face** | | | ØV UNC | Screw/face** | | |
| | | | | Nb | e | f | | Nb | e | f | | Nb | e | f |
| 400 | 16 | 102 | M24 | 16 | 45 | 4 | M27 | 16 | 45 | 4 | 1 | 16 | 45 | 4 |
| 450 | 18 | 114 | M24 | 20 | 35 | 4 | M27 | 20 | 35 | 4 | 1"1/8 | 16 | 50 | 4 |
| 500 | 20 | 127 | M24 | 20 | 45 | 4 | M30 | 20 | 45 | 4 | 1"1/8 | 20 | 45 | 4 |
| 600 | 24 | 154 | M27 | 20 | 60 | 4 | M33 | 20 | 60 | 4 | 1"1/4 | 20 | 60 | 4 |

**Assembly by bolts : Number of nuts = Number of screws (below)

## DOUBLE FLANGE BODY

| DN | NPS | a et a1 | d | NF EN 1092 PN10 | | | | | | | NF EN 1092 PN16 | | | | | | | ASME/ANSI B16.1 Cl125 up to DN 600 + DN 900<br>ASME/ANSI B16.5 Cl150 up to DN 600<br>ASME/ANSI B16.47 Cl150 DN 700 - 1200<br>AWWA C207 Class D | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | øV | Nb1* | c | c(1) | f | Shaft crossing | | øV | Nb1* | c | c1 | f | Shaft crossing | | øV UNC | Nb1* | c | c(1) | f | Shaft crossing | |
| | | | | | | | | | Nb2** | e | | | | | | Nb2** | e | | | | | | Nb2** | e |
| 400 | 16 | 102 | 29 | M24 | 12 | 29 | 22 | 4 | 4 | 45 | M27 | 12 | 32 | 22 | 4 | 4 | 45 | 1 | 12 | 32 | 22 | 4 | 4 | 45 |
| 450 | 18 | 114 | 31 | M24 | 16 | 29 | 22 | 4 | 4 | 35 | M27 | 16 | 32 | 24 | 4 | 4 | 35 | 1"1/8 | 12 | 35 | 24 | 4 | 4 | 35 |
| 500 | 20 | 127 | 32 | M24 | 16 | 29 | 22 | 4 | 4 | 38 | M30 | 16 | 35 | 26 | 4 | 4 | 34 | 1"1/8 | 16 | 35 | 26 | 4 | 4 | 34 |
| 600 | 24 | 154 | 37 | M27 | 16 | 32 | | 4 | 4 | 50 | M33 | 16 | 38 | | 5 | 4 | 55 | 1"1/4 | 16 | 38 | | 4 | 4 | 50 |
| 700 | 28 | 165 | 42 | M27 | 20 | 32 | | 4 | 4 | 40 | M33 | 20 | 38 | | 5 | 4 | 40 | 1"1/4 | 24 | 38 | | 4 | 4 | 40 |
| 800 | 32 | 190 | 46 | M30 | 20 | 35 | | 4 | 4 | 50 | M36 | 20 | 42 | | 5 | 4 | 45 | 1"1/2 | 24 | 42 | | 5 | 4 | 45 |
| 900 | 36 | 203 | 41 | M30 | 24 | 35 | | 4 | 4 | 42 | M36 | 24 | 42 | | 5 | 4 | 42 | 1"1/2 | 28 | 42 | | 5 | 4 | 42 |
| 1000 | 40 | 216 | 48 | M33 | 24 | 38 | | 5 | 4 | 60 | M39 | 24 | 45 | | 6 | 4 | 55 | 1"1/2 | 32 | 42 | | 5 | 4 | 55 |
| 1200 | 48 | 254 | 78 | M36 | 28 | 42 | | 5 | 4 | 70 | M45 | 28 | 10 | | 7 | 4 | 60 | 1"1/2 | 40 | 40 | | 5 | 4 | 60 |

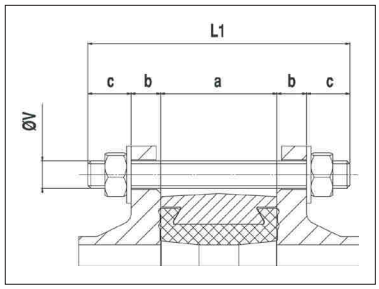
* Assembly by rods between flanges : Number of nuts = 2x Number of rods (below)
** Number of screw/face end flange mounting = Nb1+Nb2, Number of nuts/face = Nb1
For c1, use nuts Hm (thin nuts).

For any other connecting flanges, please consult the corresponding norms and use the formula below.

# Bolts and nuts

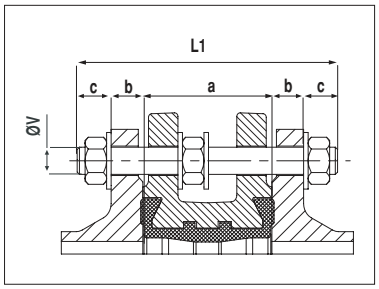
**L1** = minimum length of rods
**L2** = minimum length under head of screw
**L3** = maximum length under head of screw
**L4** = minimum length of the threading of the screw

**a** = width of the butterfly valve
**a1** = valve flange thickness
**b** = thickness of the flange (customer)
**c** = thickness of washer + thickness of nut + exceeding length of the rod
**d** = width of the flange of the butterfly valve body
**e** = maxi depth of screws
**f** = thickness of washer




**For wafer type body; assembly by rods :**

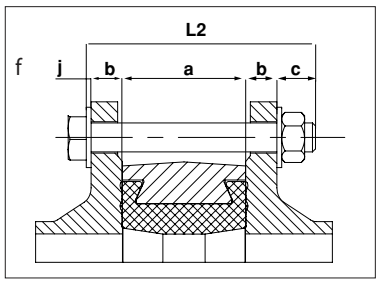
**L1 = a + 2(b+c)**




**For double flange body, assembly by rods :**

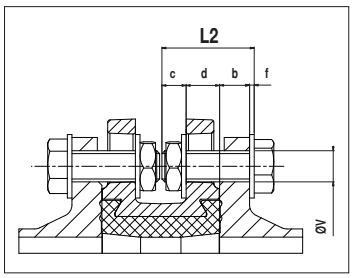
**L1 = a + 2(b+c)**

Mounting in case of downstream pipework dismantling (see page 12).




**For wafer type body; assembly by bolts :**

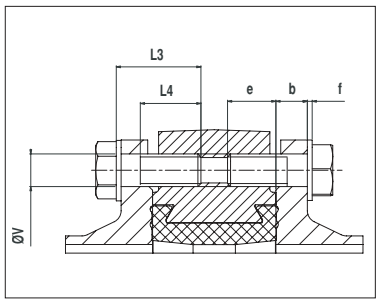
**L2 = a + 2b + c + f**




**For double flange body, assembly by bolts or end of line mounting :**

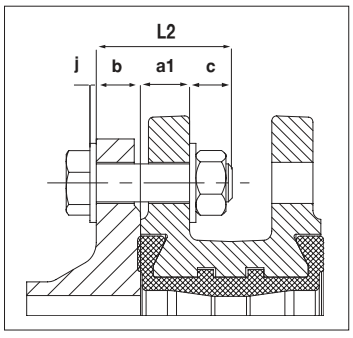
**L2 = b + d + c + f**

NOTE : use nuts with reduced face-to-face dimensions



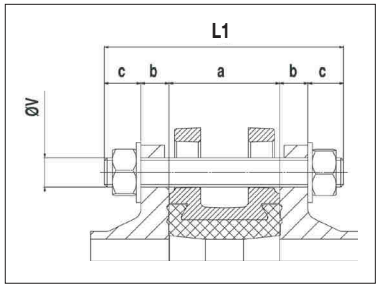

**For lug type body; assembly by screws; For wafer type body, mounting shaft crossing DN 450 up to DN 1000:**

**L3≤b+e+f** with **L4≥L3-(b+f)**



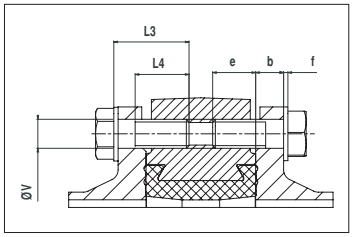

**For double flange body, permanent downstream dismantling, assembly by bolts :**

**L2 = a1 + b + c + f**




**For double flange body, mounting between flanges; assembly by rods :**

**L1 = a + 2(b+c)**




**For double flange body, mounting shaft crossing :**

**L3≤b+e+f** with **L4≥L3-(b+f)**

# Actuations

**Find below the different standard assembly combinations.**
For any other information, please ask our technical Department.

ASSEMBLY LEVEL 2

1 or 2 mechanical limit switch



Inductive limit switch



Limit switchbox : mechanical or inductive



Positionners* : BAR Positurn 2



*Pneumatic actuator only

For other options, please consult us.

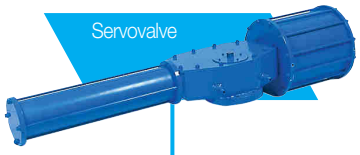
ASSEMBLY LEVEL 1

Manual gearbox



Optional: with chain-wheel

Servovalve



Remote control + emergency steering wheel control



Socla



Socla



Bernard



Auma



**GEAR BOX**

**PNEUMATIC ACTUATOR**

**ELECTRIC ACTUATOR**



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SOCLA

A WATTS Brand

**Socla sas**
365 rue du Lieutenant Putier • 71530 Virey-Le-Grand • France
Tél. +33 03 85 97 42 00 • Fax +33 03 85 97 42 42
contact@wattswater.com • www.socla.com
ISO 9001 version 2015 / ISO 18001



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