Sylax butterfly valves

DN 32 up to 350 mm

sylax

Technical Manual



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Description

By concentrating the technologies and by integrating technical solutions of the highest levels, Socla fulfils its ambition :

- competitiveness of a standard range,
- reliability,
- comprehensive range thanks to a multiplicity of solutions.



Sylax butterfly valves

DN 32 up to 350 mm

- Multiple connections : centering lugs, tapped lugs.
- Vertical and horizontal operating position.
- High power transmission with robust grooved connection between the shaft and the disc.
- Easy maintenance by removing the circlips
- Interchangeable disc and liner.
- Complete recyclability of the butterfly valve
- Body in ductile iron 5.3106 and stainless steel.
- Body epoxy coated 80µm colour blue RAL 5017 (a lot of other coatings on option, please ask our sales department)
- Wide choice of actuations.

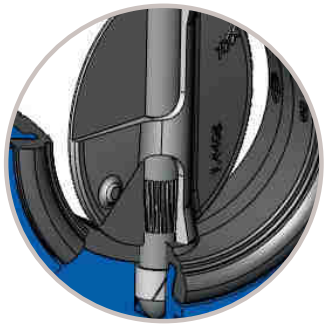


SAFETY

> Safety anti-ejection circlip keeps shaft in place and allows easy maintenance

> Safety reinforced by a secondary watertightness.

> Spline driven one piece shaft connected to floating disc : high reliability of tightness and torque transmission in the long term.



PROTECTION AND RELIABILITY

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

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

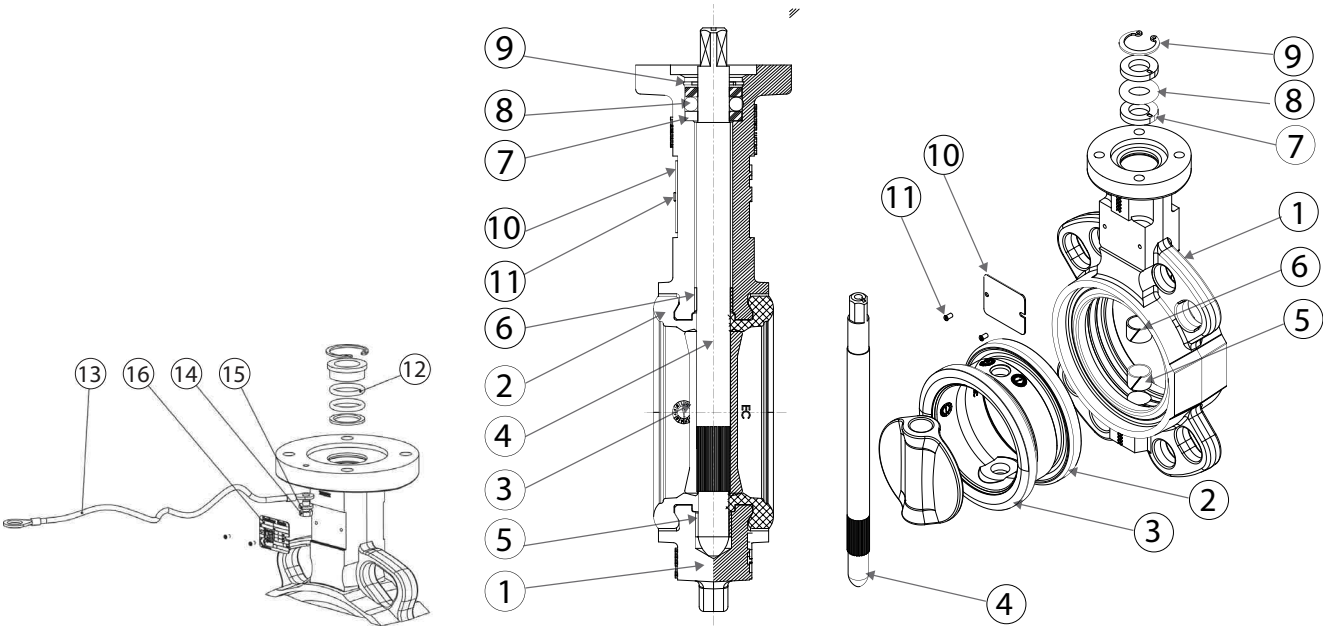
> Reliability of movements with self-lubricating bearings.



TRACEABILITY

> Identification and traceability ensured by riveted metal tag : see on leaf 13.

Spare parts list and materials



N°	Designation	Qty	Materials	EN	ASTM	JIS
1	Body	1	Ductile iron	EN GJS 400-15 (5.3106)	-	FCD40
			Stainless steel*	GX5 CrNiMo 19-11-2 (1.4408)	316	SUS 316
2	Liner	1	EPDM	-	-	-
			White EPDM	-	-	-
			High content nitrile	-	-	-
			White nitrile	-	-	-
			Carboxylated nitrile	-	-	-
			CSM (Polyethylen chloro-sulfonated)	-	-	-
			Silicone	-	-	-
			FKM	-	-	-
			Buthyl	-	-	-
			Natural rubber	-	-	-
3	Disc	1	Ductile iron	EN GJS 400-15 (5.3106)	-	FCD40
			Stainless steel	GX5 CrNiMo 19-11-2 (1.4408)	316	SUS 316
			Alu-bronze*	CuAl10Fe5Ni5 (CC333G)	-	-
4	Stem	1	Stainless steel	X5 CrNiCuNb 16-4 (1.4542)	630	SUS 630
			Stainless steel°	X2 CrNiMo 17-12-2 (1.4404)	316L	SUS 316L
			Stainless steel	X30 Cr13 (1.4028)	420	SUS 420 J2
5 6	Anti-friction bearing	1	Zinc coated steel + PTFE	-	-	-
7	Sealing and anti-extrusion bush	2	Plastic	Grivory XE3883 black 9915 GV4	-	-
8	O-ring seal	1	Nitrile/FKM	-	-	-
9	Circlips	1	Stainless steel	X30 Cr13 (1.4028)	420	SUS 420 J2
			Steel	XC 75	-	-
10	Identification plate	1	Aluminium	EN AW - AL995 (EN AW - 1050A)	-	-
11	Rivet	2	Alu / Stainless steel	-	-	-

ATEX special spare parts list

12	Braid	1	Tinned copper	-	-	-
13	Discharge electro-static braid	1	Tinned copper	-	-	-
14	Screw	1	Stainless steel	A2 - 70	304	SUS 304
15	Stop washer	1	Stainless steel	X5 CrNi 18-10 (1.4301)	304	SUS 304
16	ATEX identification plate	1	Aluminium	EN AW - AL995 (EN AW - 1050A)	-	-

Except DN 200

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 11)
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 4.3, I, II, III, IV), required for the assessment of conformity with CE marking. The equipment defined in article 4.3 of the directive must not bear the CE marking.

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.

Machinery 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.

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 (CC333G disc), White EPDM	32 to 150	4.3	Flanges	6	6	6		6
				End of line	4	4	4		4
		200 to 350	I	Flanges	6	6	6		6
				End of line	4	4	4		4
	Nitrile (except CC333G disc), Neoprene, Butyl, CSM (Polyethylen chloro-sulfonated), Natural rubber, White natural rubber	32 to 100	I	Flanges	6	6	6	6	6
				End of line	4	4	4		4
		125 to 350	II	Flanges	6	6	6	6	6
				End of line	4	4	4		4
10 bar	EPDM, Nitrile (CC333G disc), White Nitrile, Carboxylated Nitrile, White EPDM	32 to 100	4.3	Flanges	10	10	10		10
				End of line	6	6	6		6
		125 & 150	I	Flanges	10	10	10		10
				End of line	6	6	6		6
		200 to 350	I	Flanges	10	10	10		10
				End of line	6	6	6		6
	Nitrile (except CC333G), FKM	32 to 100	I	Flanges	10	10	10	10	10
				End of line	6	6	6		6
		125 to 350	II	Flanges	10	10	10	10	10
				End of line	6	6	6		6
	Silicone	32 to 100	I	Flanges	10	10	10	10	10
				End of line	6	6	6		6
		125 to 150	II	Flanges	10	10	10	10	10
				End of line	6	6	6		6
		200 to 350	II	Flanges	6	6	6	6	6
				End of line	4	4	4		4
16 bar	EPDM, Nitrile (CC333G disc)	32 to 100	4.3	Flanges	16	16	16		10
				End of line	12	12	12		10
		125	I	Flanges	16	16	16		10
				End of line	12	12	12		10
		150	I	Flanges	16	10	16		10
				End of line	12	6	12		10
		200 to 300	I	Flanges	16	10	16		10
				End of line	10	6	10		10
		350	I	Flanges	16	10	16		10
				End of line	8	6	8		8
	Nitrile (except CC333G disc), Neoprene, Butyl, CSM (Polyethylen chloro-sulfonated), Natural rubber, White natural rubber	32 to 100	I	Flanges	16	16	16	10	16
				End of line	12	12	12		12
		125 & 150	II	Flanges	16	16	16	10	16
				End of line	12	12	12		12
		200 to 300	II	Flanges	16	16	16	10	10
				End of line	10	10	10		10
		350	II	Flanges	16	16	16	10	10
				End of line	8	8	8		8
20 bar	EPDM, Nitrile (CC333G disc)	32 to 250	4.3	Flanges	20		20		
				End of line	12		12		
		300 & 350	I	Flanges	20		20		
				End of line	12		12		
	Nitrile (except CC333G disc), Neoprene, Butyl, Natural rubber, White natural rubber	32 to 100	4.3	Flanges	20	20	20		
				End of line	12	12	12		
		125 to 350	II	Flanges	20	20	20		
				End of line	12	12	12		
25 bar	EPDM, Nitrile (CC333G disc)	32 to 150	4.3	Flanges	25		25		
				End of line	16		16		
	Nitrile (except CC333G disc)	32 to 80	4.3	Flanges	25	25	25		
				End of line	16	16	16		
		100 to 150	II	Flanges	25	25	25		
				End of line	16	16	16		

ATTENTION
For butterfly valves of category II, the body minimum temperature are as follow :
- **-10°C for ductile iron 5.3106 (EN-GJS-400-15)**

WARNING: End of the line assembly must be done with a counter flange for the DN350.

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.

Applications

- Water distribution and supply with the main European approvals, water treatment, most of the fluids of general services.
- Industrial applications such as Metallurgical, 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.
- For vacuum and frequencies above 1 cycle / min, the headline will be pasted.

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.

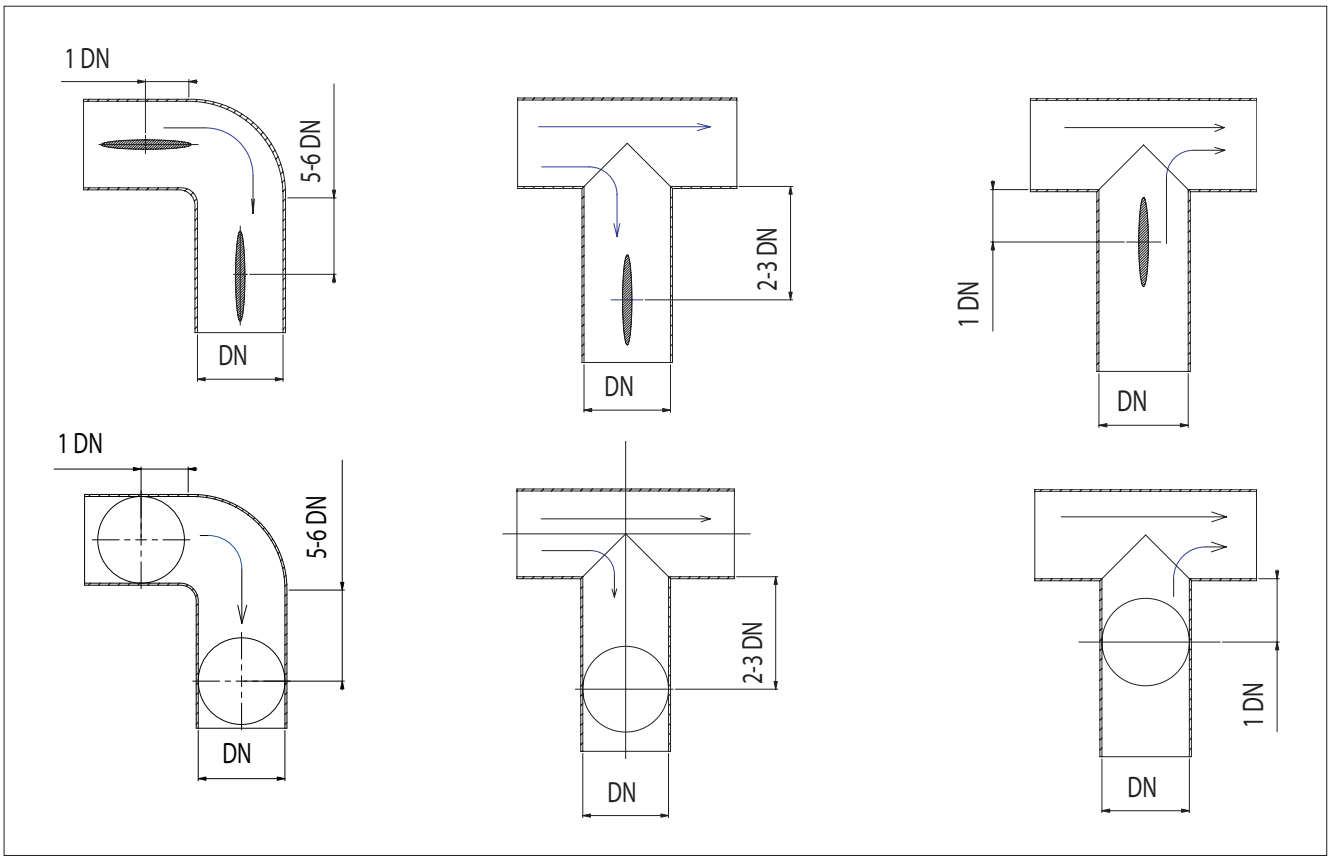
The valve is a machined piece of equipment and must not be used to prise apart the flanges.

A mounting instruction specifying the installation characteristics and the commission of the Sylax 32-350 mm 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

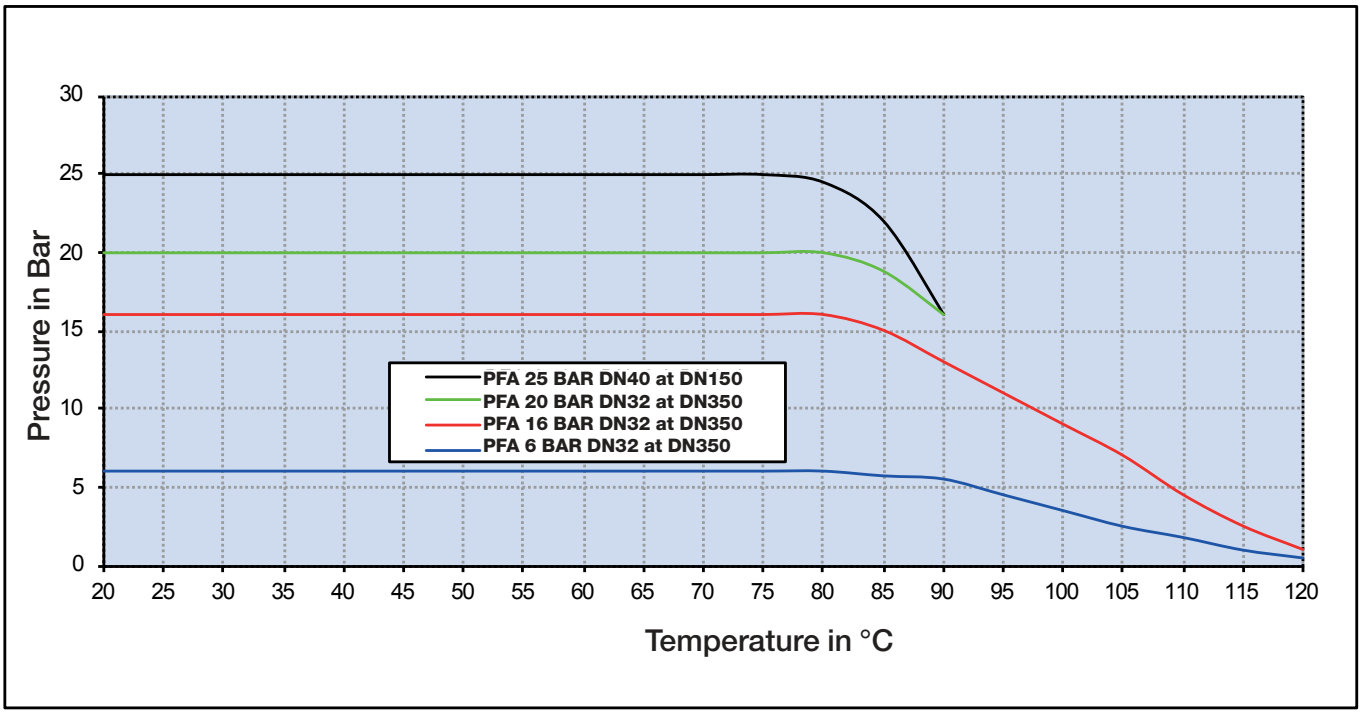
Torque values

NOTE : One actuation minimum per month.

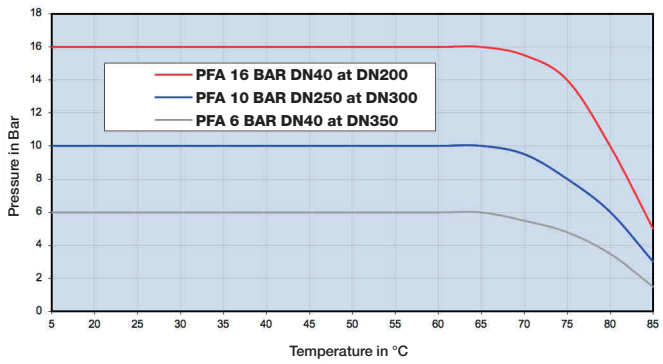
Wet torques (Nm)		32	40	50	65	80	100	125	150	200	250	300	350
PS6	EPDM	10	10	10	11	15	19	41	50	79	101	221	400
	NBR	12	12	20	25	25	32	62	90	113	270	420	560
PS16	EPDM	10	10	15	20	26	45	53	66	123	295	346	500
	NBR	12	12	22	34	34	59	77	100	155	301	714	720

Diagram pressure / temperature:

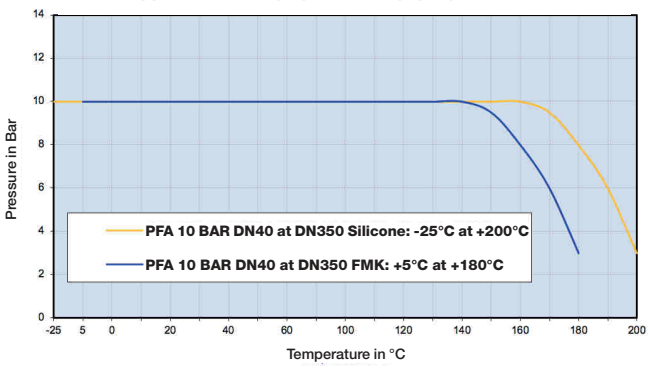
SYLAX Nipple EPDM - DN 32 at DN 350



SYLAX Nipple Nitrile - DN 40 at DN 350 (liquid)



SYLAX Nipple SILICONE (air) and FKM (liquid) - DN 40 at DN 350



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°**
32/40	-	-	-	5	12	25	40	56	62
50	-	-	1	8	18	33	54	71	79
65	-	-	6	19	41	76	118	158	174
80	-	3	18	43	79	138	211	252	275
100	-	15	38	83	154	253	368	458	496
125	-	20	61	134	249	399	599	792	883
150	5	37	100	200	374	600	863	1109	1212
200	15	76	200	399	680	1099	1666	2196	2500
250	40	150	333	621	1084	1765	2452	3517	3948
300	60	219	500	989	1736	2770	4097	5118	5635
350	145	420	882	1676	2850	4462	6000	7431	8520

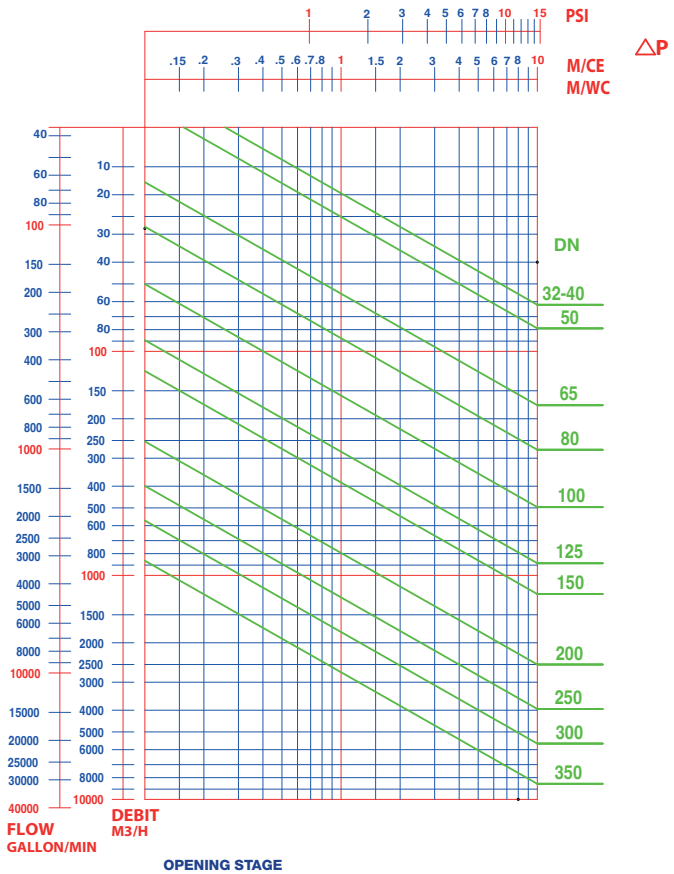
Kv = volume of water in m^3/h through a valve at a preset opening stage and under a head loss of 1 bar.

The butterfly valve is not the best product for regulating Nevertheless, the Sylax 32-350 mm 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

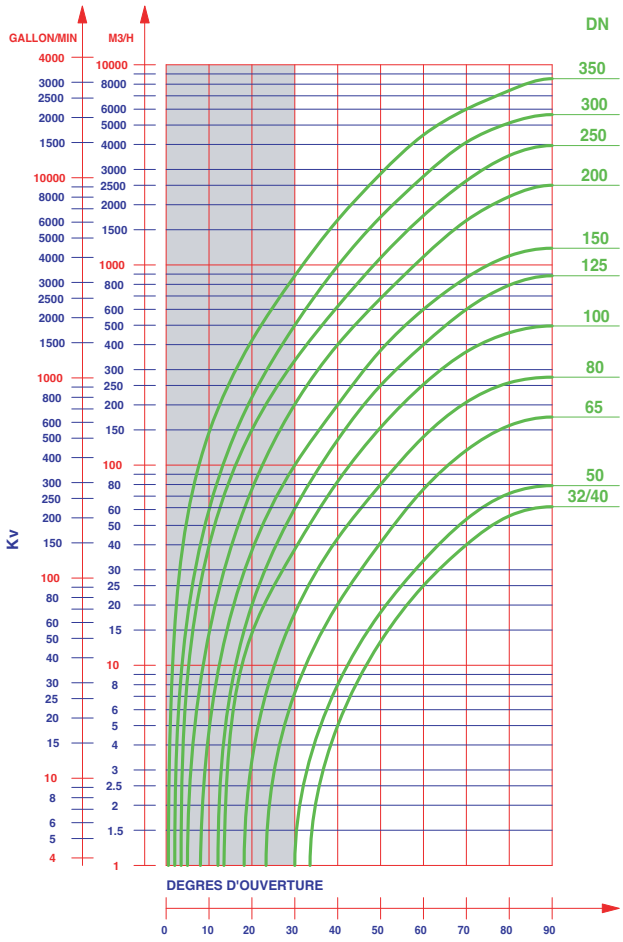
PS in Bar	**Maximum speed m/s**	
	Liquid with density of 1000 kg/m^3*	Gas (density of 1,293 kg/m3 at 273 °K and 1 bara)*
Up to 6	2,5	25
6 < PS ≤ 10	3	30
10 < PS ≤ 16	4	35
PS > 16	5	40

* : In case of physical properties of fluid, the butterfly valves are adapted to the specific weight of the fluid.

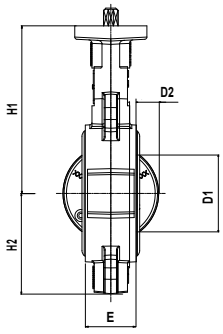
Headloss diagram (Δp)

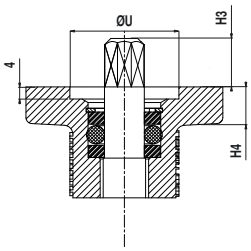


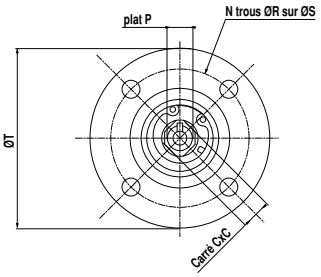
Flow rate (Kv)



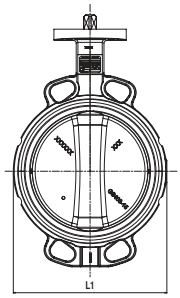
Overall dimensions







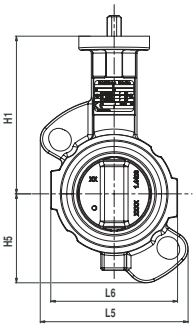
4 Centering lugs



Diameter		Face to face	Overall dimensions				ISO top according EN ISO 5211						Square shaft outlet			Travel of the disc		Weight (Kg)	
DN	NPS	E	L1	H1	H2	H4	N	ØR	ØS	ØT	ØU	N°	oC	H3	Plat P	D1	D2	(1)	(2)
32/40	1 ½	32	144	130	57	12	4	6,5	50	65	36	F05	11	16	11	31	6,5	1,9	1,7
50	2	43	121	136	62	12	4	6,5	50	65	36	F05	11	16	11	35	6	2,6	2,6
65	2 ½	46	136	145	84	12	4	6,5	50	65	36	F05	11	16	11	55	13	2,9	2,9
80	3	46	127	151	89	12	4	6,5	50	65	36	F05	11	16	11	73,5	20	3,6	3,6
100	4	52	149	175	106	10	4	6,5	50	65	36	F05	11	16	11	87	25	4,4	4,4
125	5	56	182	190	120	12	4	8,5	70	90	56	F07	14	19	14	118,5	37,5	6,2	6,3
150	6	56	209	203	131	12	4	8,5	70	90	56	F07	14	19	14	146,5	50,5	7,1	7,3
200	8	60	265	225	165	12	4	8,5	70	90	56	F07	14	19	14	190	70	11,2	11,2
250	10	68	316	266	196	14	4	10,5	102	125	71	F10	17	24	20	242	92	17,1	
300	12	77	368	290	238	14	4	10,5	102	125	71	F10	22	29	16	292,5	112,5	23,8	
350	14	77	421	305	270	16	4	12,5	125	150	87	F12	27	29	-	333	132,5	33,2	

(1) Ductile iron body (JS1030), ductile iron disc (JS1030), EPDM liner. - (2) Cast iron body (JL1040), ductile iron disc (JS1030), EPDM liner.

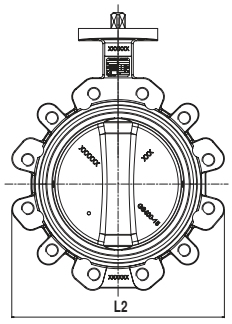
2 Centering lugs



Diameter		Face to face	Overall dimensions				ISO top according EN ISO 5211						Square shaft outlet			Travel of the disc		Weight (Kg)	
DN	NPS	E	L5/L6	H1	H5	H4	N	ØR	ØS	ØT	ØU	N°	oC	H3	Plat P	D1	D2	(1)	(2)
32/40	1 ½	32	106/99	130	56	12	4	6,5	50	65	36	F05	11	16	11	31	6,5	1,7	1,6
50	2	43	121/99	136	73	12	4	6,5	50	65	36	F05	11	16	11	35	6	2,6	2,1
65	2 ½	46	136/117	145	82	12	4	6,5	50	65	36	F05	11	16	11	55	13	3,1	2,4
80	3	46	150/136	151	93	12	4	6,5	50	65	36	F05	11	16	11	73,5	20	3,2	2,8
100	4	52	166/167	175	106	12	4	8,5	70	90	56	F07	14	19	14	87	25	5,3	4,4
125	5	56	132/194	190	127	12	4	8,5	70	90	56	F07	14	19	14	118,5	37,5	6,6	5,7
150	6	56	139/225	203	147	12	4	8,5	70	90	56	F07	14	19	14	146,5	50,5	8,1	6,8

(1) Stainless steel body (1.4408), stainless steel disc (1.4408), EPDM liner. - (2) Steel body (WCB), stainless steel disc (1.4408), EPDM liner.

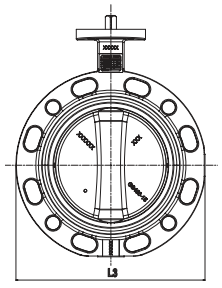
Tapped lugs and lugs with unthreaded holes*



Diameter		Face to face	Overall dimensions				ISO top according EN ISO 5211						Square shaft outlet			Travel of the disc		Weight (Kg)	
DN	NPS	E	L2	H1	H2	H4	N	ØR	ØS	ØT	ØU	N°	oC	H3	Plat P	D1	D2	(1)	(2)
32/40	1 ½	32	146	130	57	12	4	6,5	50	65	36	F05	11	16	11	31	6,5	1,9	2,7
50	2	43	121	136	62	12	4	6,5	50	65	36	F05	11	16	11	35	6	3	3,3
65	2 ½	46	135	145	70	12	4	6,5	50	65	36	F05	11	16	11	55	13	3,3	3,9
80	3	46	179	151	89	12	4	6,5	50	65	36	F05	11	16	11	73,5	20	4,2	4,8
100	4	52	206	175	103	10	4	6,5	50	65	36	F05	11	16	11	87	25	6	
125	5	56	238	190	119	12	4	8,5	70	90	56	F07	14	19	14	118,5	37,5	6,2	9,7
150	6	56	265	203	133	12	4	8,5	70	90	56	F07	14	19	14	146,5	50,5	7,1	11,2
200	8	60	325(1)-313(2)	225	163(1)-157(2)	12	4	8,5	70	90	56	F07	14	19	14	190	70	15,7	14,3
250	10	68	397	266	198	14	4	10,5	102	125	71	F10	17	24	20	242	92	23	
300	12	77	454	290	227	14	4	10,5	102	125	71	F10	22	29	16	292,5	112,5	34	
350	14	77	497	305	248	16	4	12,5	125	150	87	F12	27	29	-	331	132	46	

*the version «lugs with unthreaded holes» replaces the double flange version
(1) Ductile iron body (JS1030), ductile iron disc (JS1030), EPDM liner - (2) Stainless steel body (1.4408), stainless steel disc (1.4408), EPDM liner.

Double flanges



Diameter		Face to face	Overall dimensions				ISO top according EN ISO 5211						Square shaft outlet			Travel of the disc		Weight (Kg)	
DN	NPS	E	L3	H1	H2	H4	N	ØR	ØS	ØT	ØU	N°	oC	H3	Plat P	D1	D2	(1)	(2)
250	10	68	406	266	201	14	4	10,5	102	125	71	F10	17	24	20	242	92	27	
300	12	77	483	290	242	14	4	10,5	102	125	71	F10	22	29	16	292,5	112,5	43	
350	14	77	534	305	256	16	4	12,5	125	150	87	F12	27	29	-	331	132	56	

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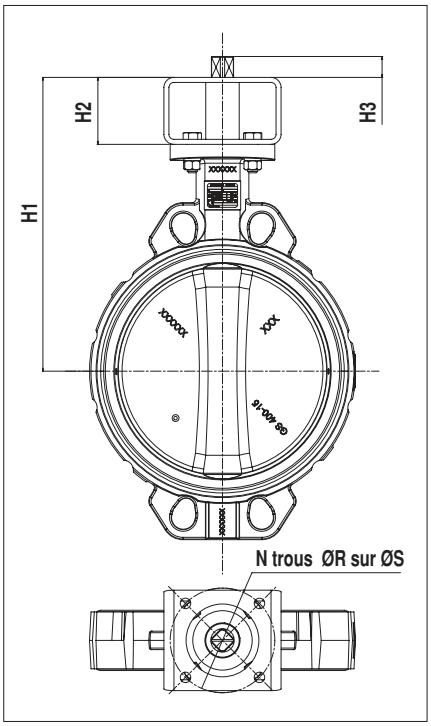
Connecting kit for actuations

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

DN	NPS	Iso top of the valve	Iso top of the actuation															
			F03		F04		F05		F07		F10		F12		F14		F16	
			H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
32	1 ¼	F05/o11	190	60	190	60	190	60	190	60	210	80						
40	1 ½		190		190		190		190		210							
50	2		199		199		199		199		219							
65	2 ½		205		205		205		205		225							
80	3		210		210		210		210		230							
100	4		235		235		235		235		255							
125	5	F07/o14			249		249	60	249	60	269							
150	6				262		262		262		282							
200	8				285		285		285		305							
250	10	F10/o17					346	80	346	80	346	80	346	80	356	90	356	90
300	12	F10/o22					370		370		370		370		380		380	
350	14	F12/o27									395	90	395	90	395		395	

DN	NPS	Iso top of the valve	Exceeding length fo the shaft H3								
			Kit	o9	o11	o14	o17	o22	o27	o36	o46
32	1 ¼	F05/o11	F03 F04 F05 F07 F10	7	9	12	15	20	25		
40	1 ½										
50	2										
65	2 ½										
80	3										
100	4										
125	5	F07/o14	F04 F05 F07 F10 F12 F14		9	12	15	20	25	34	
150	6										
200	8	F07/o14	F04 F05 F07 F10 F12 F14		9	12	15	20	25	34	
250	10	F10/o17	F05 F07 F10 F12 F14		9	12	15	20	25	34	
300	12	F10/o22	F05 F07 F10 F12 F14			12	15	20	25	34	
350	14	F12/o27	F07 F10 F12 F14 F16				15	20	25	34	48

N°	N	ØR	ØS
F03	4	5,5	36
F04	4	5,5	42
F05	4	6,5	50
F07	4	8,5	70
F10	4	10,5	102
F12	4	12,5	125
F14	4	17	140
F16	4	22	165



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

Other special executions on request : actuated by par square drive and flat according to EN ISO 5211, subjected to technical feasibility..

Connecting flanges

The Sylax 32-350 mm butterfly valve can be mounted with the following connections (other types on request) :

4 Centering lugs

Diameter		EN 1092-1 & EN 1092-2					ASME/ ANSI B16.1 Class 125	ASME/ ANSI B16.5 Class 150	ASME/ ANSI B16.5 Class 300	BS10		JIS B2238 & JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
32	1 ¼	✔	✔	✔	✔	✔	✔(1)	✔(1)	✔	●	●	●	✔	●
40	1 ½	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	●	✔	●
50	2	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	●	●	●
65	2 ½	✔	✔	✔	✔	✔	✔	✔	●	●	●	✔	✔	●
80	3	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	✔	●	●
100	4	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	●	●	✔
125	5	✔	✔	✔	●	●	✔	✔	●	✔	✔	✔	✔	●
150	6	✔	✔	✔	●	●	✔	✔	●	✔	✔	✔	✔	●
200	8	✔	✔	✔	●	●	✔	✔	●	✔	✔	●	●	●
250	10	✔	✔	✔	●	●	✔	✔		●	✔	✔	✔	●
300	12	✔	✔	✔	✔	●	✔	✔	●	✔	✔	✔	✔	✔
350	14	✔	✔	✔	✔	●	✔	✔		✔	✔	●	●	✔

✔ : possible mounting
● : possible mounting with re-machining
O : possible mounting but special reference
■ : impossible mounting

Re-machining for ductile iron body GJS 400-15 (JS1030)

2 Centering lugs(3)

Diameter		EN 1092-1 & EN 1092-2					ASME/ ANSI B16.1 Class 125	ASME/ ANSI B16.5 Class 150	ASME/ ANSI B16.5 Class 300	BS10		JIS B2238 & JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
32	1 ¼	✔	✔	✔	✔	✔	✔	✔	O	✔	✔	✔	✔	✔
40	1 ½	✔	✔	✔	✔	✔	✔	✔	O	✔	✔	✔	✔	✔
50	2	O	✔	✔	✔	✔	✔	O	O	O	O	O	O	O
65	2 ½	O	✔	✔	O	O	✔	✔	O	✔	O	O	4	O
80	3	O	✔	✔	✔	✔	✔	O	O	O	O	O	O	O
100	4	O	✔	✔	O	O	✔	✔	O	O	O	O	O	O
125	5	O	✔	✔	O	O	✔	✔	O	O	O	O	O	O
150	6	O	✔	✔	O	O	✔	✔	O	✔	O	O	O	O

(3) Body in stainless steel (1.4408)

Tapped lugs

Diameter		EN 1092-1 & EN 1092-2					ASME/ ANSI B16.1 Class 125	ASME/ ANSI B16.5 Class 150	ASME/ ANSI B16.5 Class 300	BS10		JIS B2238 & JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
32	1 ¼	O	✔	✔	✔	✔	O	O	O	O	O	O	O	O
40	1 ½	O	✔	✔	✔	✔	O	O	O	O	O	O	O	O
50	2	O	✔	✔	✔	✔	O	O		O	O		O	O(4)
65	2 ½	O	✔	✔	O	O	O	O		O	O	O	O	O
80	3	O	✔	✔	✔	✔	O	O		O	O	O	O	O
100	4	O(5)	✔	✔	O	O	O	O		O(5)	O	O	O	O
125	5	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
150	6	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
200	8	✔	✔	✔			O	O		O	O	O		O(1)
250	10	O	✔	✔	O		O	O			O	O	O	
300	12	O	✔	✔			O	O		O	O	O		
350	14		✔	✔									O	

DN65 PN10/16 4 holes

(1) Body JS1030

(4) Possible mounting for ductile iron body GJS 400-15 (JS1030), and in stainless steel.

(5) Possible mounting if the butterfly valve is inclined at 22,5°

Attention : the Sylax 32-350 mm lug type body is not a multi-connection body (connection to many flanges of different sizes). Generally, every connection relates to a different reference of finished products.

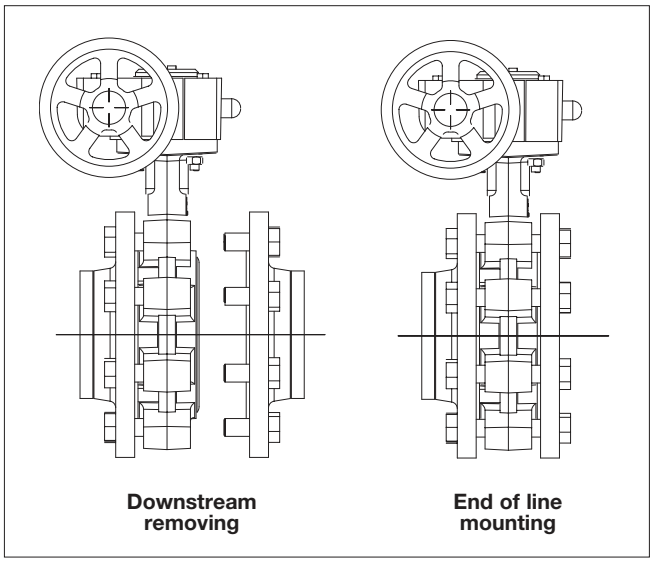
Double flanges

Diameter		EN 1092-1 & EN 1092-2					ASME/ ANSI B16.1 Class 125	ASME/ ANSI B16.5 Class 150	ASME/ ANSI B16.5 Class 300	BS10		JIS B2238 & JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
250	10	O	✔	✔			O	O		O	O	O	O	
300	12	O	✔	✔	O		O	O		O	O	O	O	O
350	14	O	✔	✔			O	O		O	O	O	O	O

Connecting flanges

End of line mounting and downstream removing :
The downstream removing, at ambient temperature, of the Sylax 32-350 mm butterfly valve is limited to the pressure mentioned on page 11 according to the PED directive 2014/68/UE.
WARNING : End of the line assembly must be done with a counter flange for the DN350.

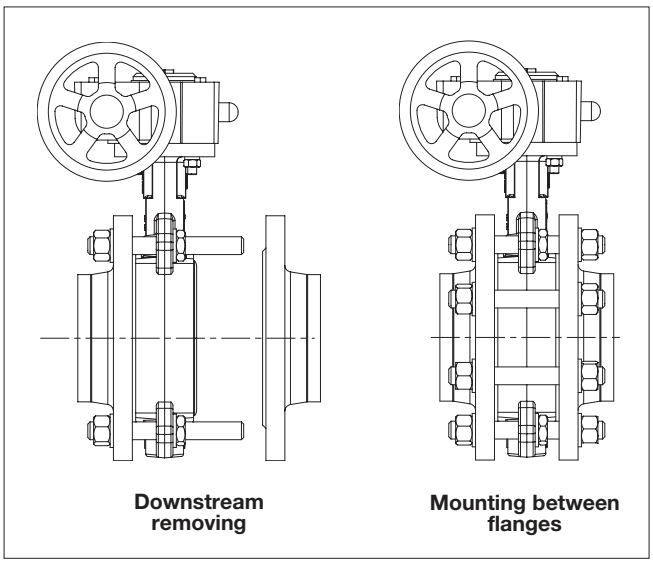
These mountings are only possible on tapped lugs and lugs with unthreaded holes.



For wafer type bodies with 4 centering lugs, the end of line mounting can be done in the following conditions :

- ambient temperature
- For water or non dangerous liquids (L2)
- For butterfly valves PFA 16 bar between flanges
- For butterfly valves with ductile iron body
- For butterfly valves with liners in EPDM or high content nitrile
- Within a short period (such as maintenance, ...), 15 days maximum
- In pressure conditions (PFA or PS) such as : see table

DN	PFA or PS (bar)
32 to 150	10
200 to 300	8
350	Forbidden



Use nuts with reduced face-to-face dimensions between the flange to be dismounted and the centering lugs.

Use washers, wide ones if needed, in order to mount the nuts on the lugs.

The mounting and the removing must be done successively and in opposite way on each nut.

For the mounting, apply a reasonable torque on the nuts, in order not to damage the lugs, until metal-metal contact between flange and body.

For flanges with 8 rods, only 4 are used to maintain the valve in downstream removing ; the 8 rods must be re-mounted for a normal use between flanges .

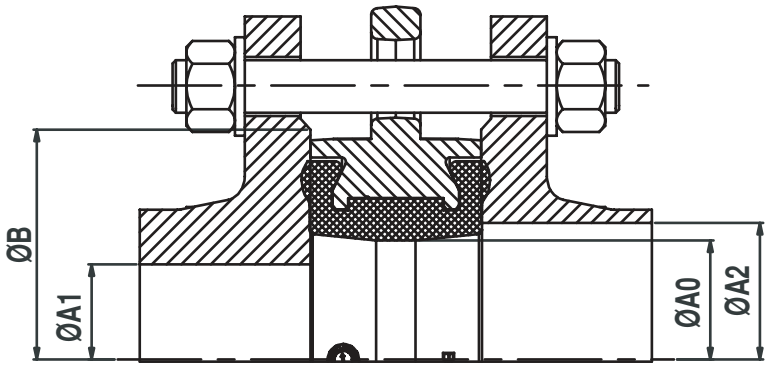
In case of unexpected downstream removing, integrate and screw successively and in opposite way, between the lugs and the flange to be removed, the 4 nuts which hold the butterfly valve.

Type of flange

The Sylax 32-350 mm 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.



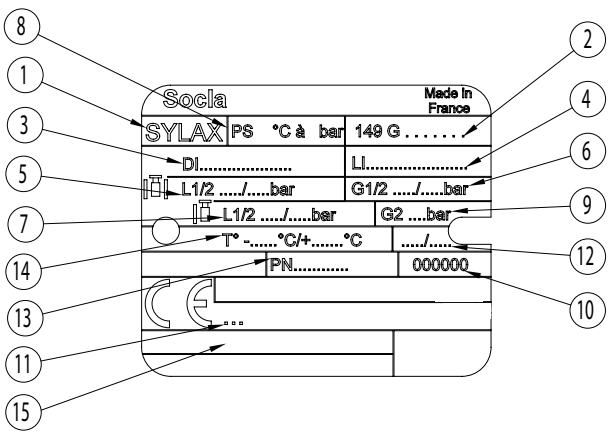
DN		Ø A0	Ø A1 mini	Ø A2 maxi	Ø B mini
mm	"	mm	mm	mm	mm
32	1 1/4	43	35	51	80
40	1 1/2	43	35	51	80
50	2	54	42	60	90
65	2 1/2	70	62	74	110
80	3	85	82	91	128
100	4	100	97	108	148
125	5	125	128	143	178
150	6	150	156	166	202
200	8	200	200	224	258
250	10	250	252	280	313
300	12	300	303	329	365
350	14	340	344	369	418

Lightening torques with Screw / Nut / Washer appropriate and class 8.8		
DN	**Centering lugs**	**Tapped lugs**
DN 32 up to 80	70 Nm	100 Nm
DN 100 up to 200	100 Nm	150 Nm
DN 250 up to 350	250 Nm	200 Nm

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



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Bolts and nuts

Note : Bolts and nuts are not part of our standard supply

DN	NPS	a	e	EN 1092 PN6			EN 1092 PN10			EN 1092 PN16			EN 1092 PN25			ASME / ANSI B16.5 Class 150			
				* Nb rods or Nb screw	ØV	C	* Nb rods or Nb screw	ØV	C	* Nb rods or Nb screw	ØV	C	* Nb rods or Nb screw	ØV	C	* Nb rods or Nb screw	ØV Metric	ØV UNC**	C
32/40	1 ½	32	14	4	M12	18	4	M16	24	4	M16	24	4	M16	24	4	M14	1/2”	18
50	2	43	18	4	M12	18	4	M16	24	4	M16	24	4	M16	24	4	M16	5/8”	24
65*	2 ½	46	20	4	M12	18	8*	M16	24	8*	M16	24	8	M16	24	4	M16	5/8”	24
80	3	46	20	4	M16	24	8	M16	24	8	M16	24	8	M16	24	4	M16	5/8”	24
100	4	52	24	4	M16	24	8	M16	24	8	M16	24	8	M20	26	8	M16	5/8”	24
125	5	56	26	8	M16	24	8	M16	24	8	M16	24	8	M24	32	8	M20	3/4”	26
150	6	56	26	8	M16	24	8	M20	26	8	M20	26	8	M24	32	8	M20	3/4”	26
200	8	60	28	8	M16	24	8	M20	26	12	M20	26	12	M24	32	8	M20	3/4”	26
250	10	68	32	12	M16	24	12	M20	26	12	M24	32	12	M27	32	12	M24	7/8”	26
300	12	77	36	12	M20	26	12	M20	26	12	M24	32	16	M27	32	12	M24	7/8”	26
350	14	77	36	12	M20	26	16	M20	26	16	M24	32	16	M30	36	12	M27	1”	32

* For flanges ductile iron 4 holes M16 and for flanges in steel 8 holes M16 on the same drilling circle.

DN	NPS	a	e	BS10-d			BS10-e			JIS2238 & JIS2239 5K			JIS2238 & JIS2239 10K			JIS2238 & JIS2239 16K		
				* Nb rods or Nb screw	ØV UNC	C	* Nb rods or Nb screw	ØV UNC	C	* Nb rods or Nb screw	ØV	C	* Nb rods or Nb screw	ØV	C	* Nb rods or Nb screw	ØV	C
32/40	1 ½	32	14	4	1/2”	18	4	1/2”	18	4	M12	18	4	M16	24	4	M16	24
50	2	43	18	4	5/8”	24	4	5/8”	24	4	M12	18	4	M16	24	8	M16	24
65	2 ½	46	20	4	5/8”	24	4	5/8”	24	4	M12	18	4	M16	24	8	M16	24
80	3	46	20	4	5/8”	24	4	5/8”	24	4	M16	24	8	M16	24	8	M20	26
100	4	52	24	4	5/8”	24	8	5/8”	24	8	M16	24	8	M16	24	8	M20	26
125	5	56	26	8	5/8”	24	8	5/8”	24	8	M16	24	8	M20	26	8	M22	26
150	6	56	26	8	5/8”	24	8	3/4”	26	8	M16	24	8	M20	26	12	M22	26
200	8	60	28	8	5/8”	24	8	3/4”	26	8	M20	26	12	M20	26	12	M22	26
250	10	68	32	8	3/4”	26	12	3/4”	26	12	M20	26	12	M22	26	12	M24	32
300	12	77	36	12	3/4”	26	12	7/8”	26	12	M20	26	16	M22	26	16	M24	32
350	14	77	36	12	7/8”	26	12	7/8”	26	12	M22	26	16	M22	26	16	M30 x 3	36

*** WAFER TYPE BODY, LUGS WITH UNTHREADED HOLES AND ANNULAR TYPE BODY :**
Assembly by rods : .....Number of nuts and washer = 2 x Number of rods (above)
Assembly by bolts : .....Number of nuts = Number of screws (above) and number of washer = 2 x Number of nuts

*** LUG TYPE BODY :**
Assembly by screws : .....Number of screw per face (above) and number of washer is the same

*** DOUBLE FLANGE BODY :**
Assembly by rods : .....Number of nuts and washers= 2 x Number of rods (above)
Assembly by rods + central nut : Number of nuts = 2 x Number of rods (above)
Number of washers = 4 x Number of rods (above)
Number of thin nuts for central position = 1 x Number of rods (above)

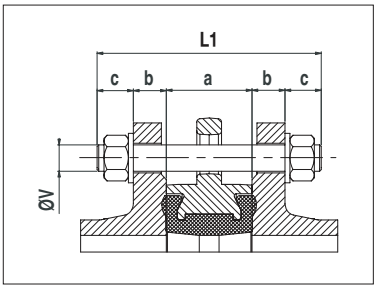
**** ASME / ANSI B16.5 Class 150 : Standard version : metric threading; UNC threading : please consult us.**

For any other templates, please refer to the corresponding standards and use the formulas below.

Bolts and nuts

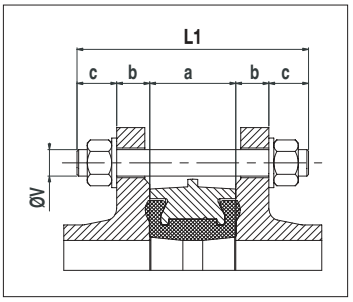
L1 = minimum length of rods
L2 = minimum length under head of screw
L3 = minimum length under head of screw
L4 = minimum screw thread length

a = width of the butterfly valve (face to face dimension)
b = thickness of the flange (customer)
c = thickness of washer + thickness of nut + exceeding length of the rod
e = Maximum implantation of screws
j = thickness of washer under head of screw



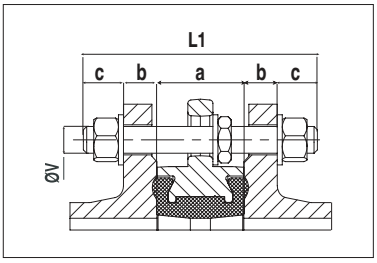
For wafer type and lugs with unthreaded holes ; assembly by rods :

L1 = a + 2(b+c)



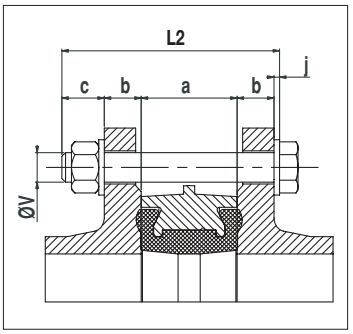
For annular type ; assembly by rods :

L1 = a + 2(b+c)



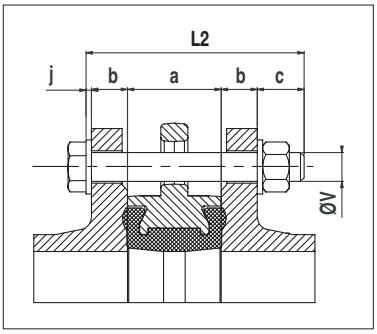
Mounting in case of downstream pipework dismantling (on leaf 12).

Use nuts with reduced face-to-face dimensions between the butterfly valve and the downstream flange.



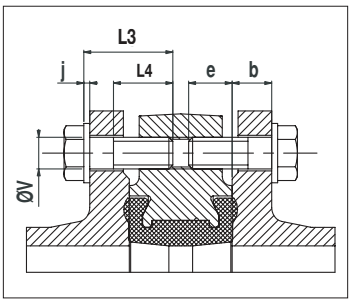
For annular type ; assembly by bolts :

L2 = a + 2b + c + j



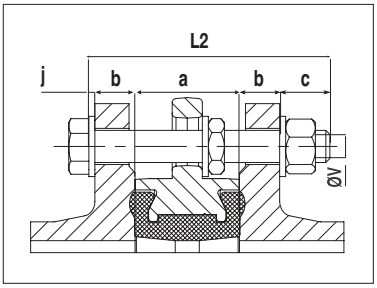
For wafer type and lugs with unthreaded holes ; assembly by bolts :

L2 = a + 2b + c + j



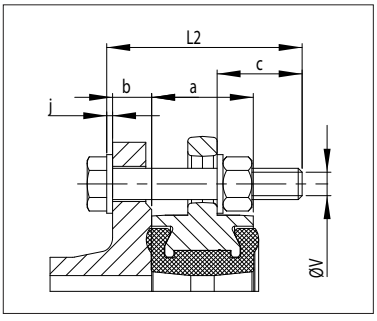
For lug type and double flange type DN350; screw assembly:

L3 ≤ b + e + j
with L4 ≥ L3 - (b + j)



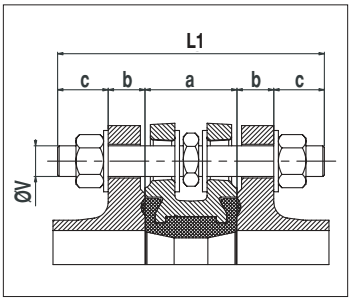
Mounting in case of downstream pipework dismantling (on leaf 12).

Use nuts with reduced face-to-face dimensions between the butterfly valve and the downstream flange.



Version lug type with unthreaded holes, (permanent downstream dismantling) assembly by bolts :

L2 = a/2 + b + c + j



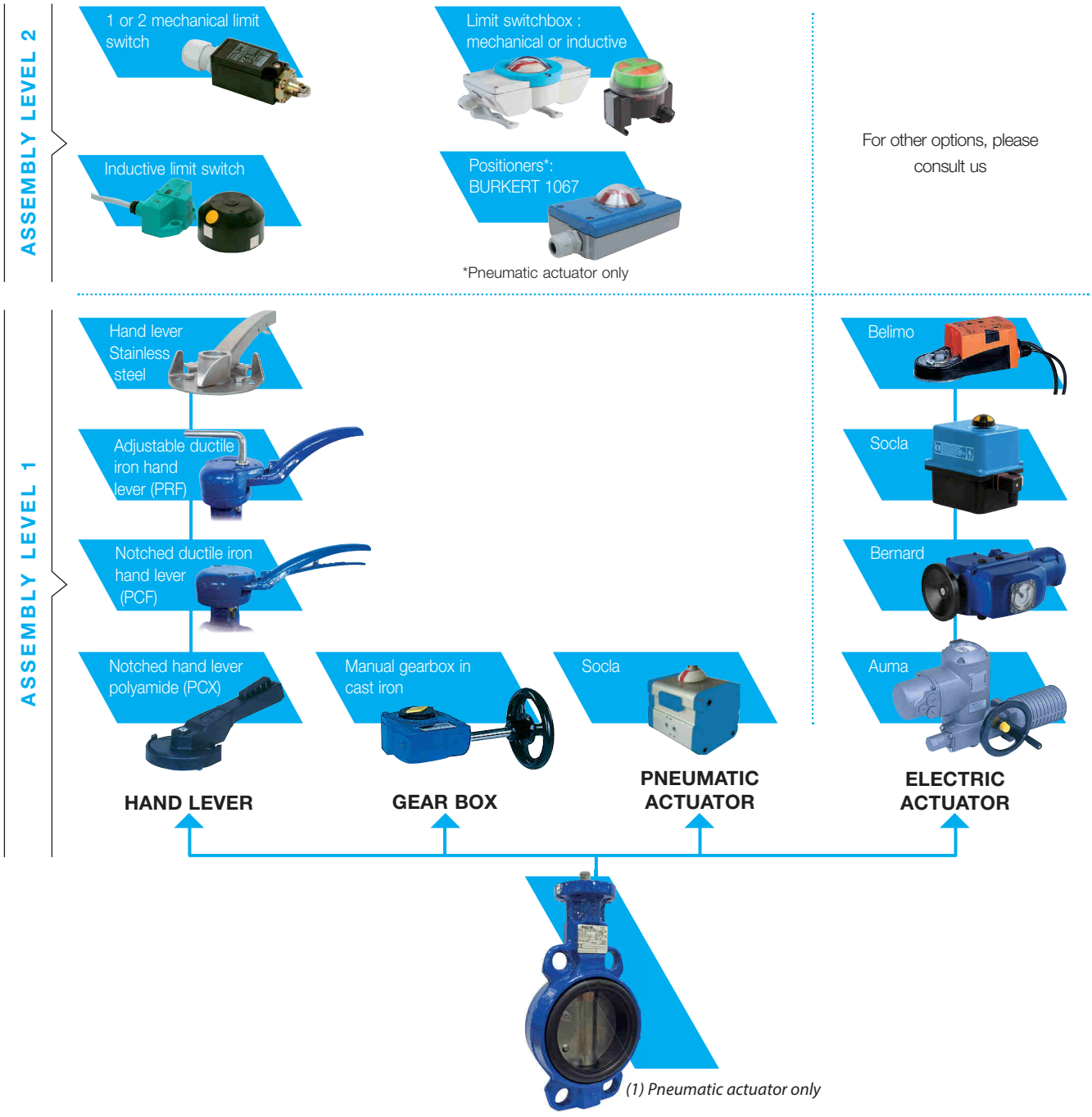
For double flange type assembly by rods:

L1 = a + 2(b+c)

Note: use low hexagonal nuts between flanges.

Actuations

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



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