Sylax butterfly valves

DN 200 up to 350 mm

sylax

Technical manual



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Description

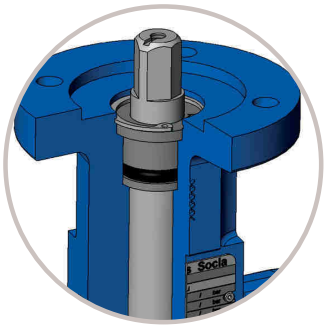
A product which is simple but rich in technology, essential in the chain of fluid circulation. Our butterfly valves bring reliability, a comprehensive range and à high level of safety.



SYLAX BUTTERFLY VALVES

DN 200 up to 350 mm

- Multiple connections: centering lugs, tapped lugs
- Vertical and horizontal operating position
- Interchangeable disc and liner
- Body in cast iron 5.1301, ductile iron 5.3106, steel 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

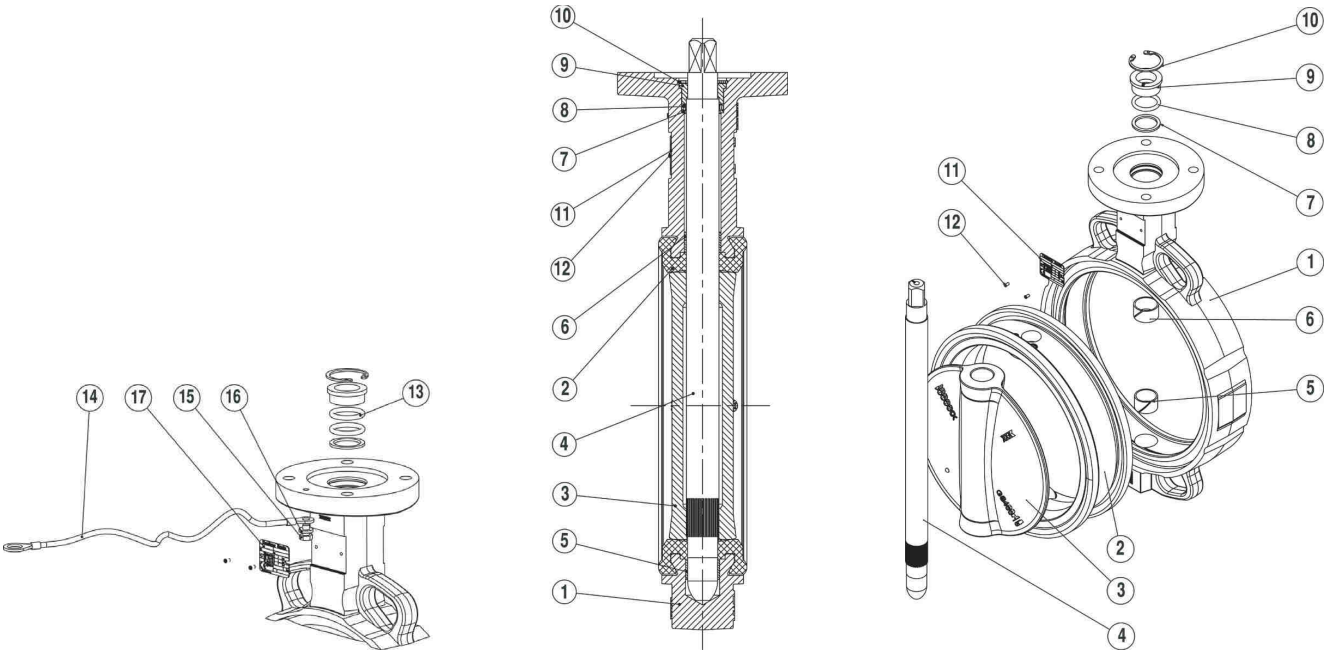
> Reliability of movements with self-lubricating bearings



TRACEABILITY

> Identification and traceability ensured by riveted metal tag (see on page 13)

Spare parts list and materials



№	Description	Qty	Materials	EN	ASTM	JIS
1	Body	1	Ductile iron	EN GJS 400-15 (5.3106)	-	FCD40
			Steel	GE 280 (E280 - 480M)	gr WCB	-
			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
			Stainless steel	X2 CrNiMo 17-12-2 (1.4404)	316L	SUS 316L
			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	Anti-extrusion bush	1	Stainless steel	X5 CrNi 18-10 (1.4301)	304	SUS 304
			Plastic	IXEF 50 FV	-	-
8	O-ring	1	Nitrile/FKM	-	-	-
9	Sealing washer	1	Plastic	IXEF 50 FV	-	-
			Stainless steel	X5 CrNi 18-10 (1.4301)	304	SUS 304
			Brass	CuZn39Pb2 (CW612N)	-	-
10	Circlips	1	Stainless steel	X30 Cr13 (1.4028)	420	SUS 420 J2
			Steel	XC 75	-	-
11	Identification plate	1	Aluminium	EN AW - AL995 (EN AW - 1050A)	-	-
12	Rivet	2	Alu / Stainless steel	-	-	-

ATEX special spare parts list

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

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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 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.

(*) 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. In addition, the operating instructions are available on our web site www.socla.com or by simple request from our sales department.

· Machinery Directive 2006/42/CE

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), EPDM Blanc	200 to 350	I	Flanges	6	6	6		6
				End of line	4	4	4		4
	Nitrile (except CC333G disc), Neoprene,Butyl, Hypalon, Natural rubber, White natural rubber.	200 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	200 to 350	I	Flanges	10	10	10		10
				End of line	6	6	6		6
	Nitrile (except CC333G disc), FKM	200 to 350	II	Flanges	10	10	10	10	10
				End of line	6	6	6		6
	Silicone	200 to 350	II	Flanges	6	6	6	6	6
				End of line	4	4	4		4
16 bar	EPDM, Nitrile (CC333G disc)	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, Hypalon, Natural rubber, White natural rubber	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)	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	200 to 350	II	Flanges	20	20	20		
				End of line	12	12	12		
25 bar	EPDM	200	4.3	Flanges	25		25		
				End of line	12		12		
		250	I	Flanges	25		25		
				End of line	10		10		

ATTENTION
Gas G1 and G2 : The max. pressure is 6 bar when using cast iron 5.1301(EN-GJL-250).

For butterfly valves of category II, the body minimum temperature are as follow :
- **-10°C for cast iron 5.1301 (EN-GJL-250)**
- **-10°C for ductile iron 5.3106 (EN-GJS-400-15)**

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.

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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.

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.

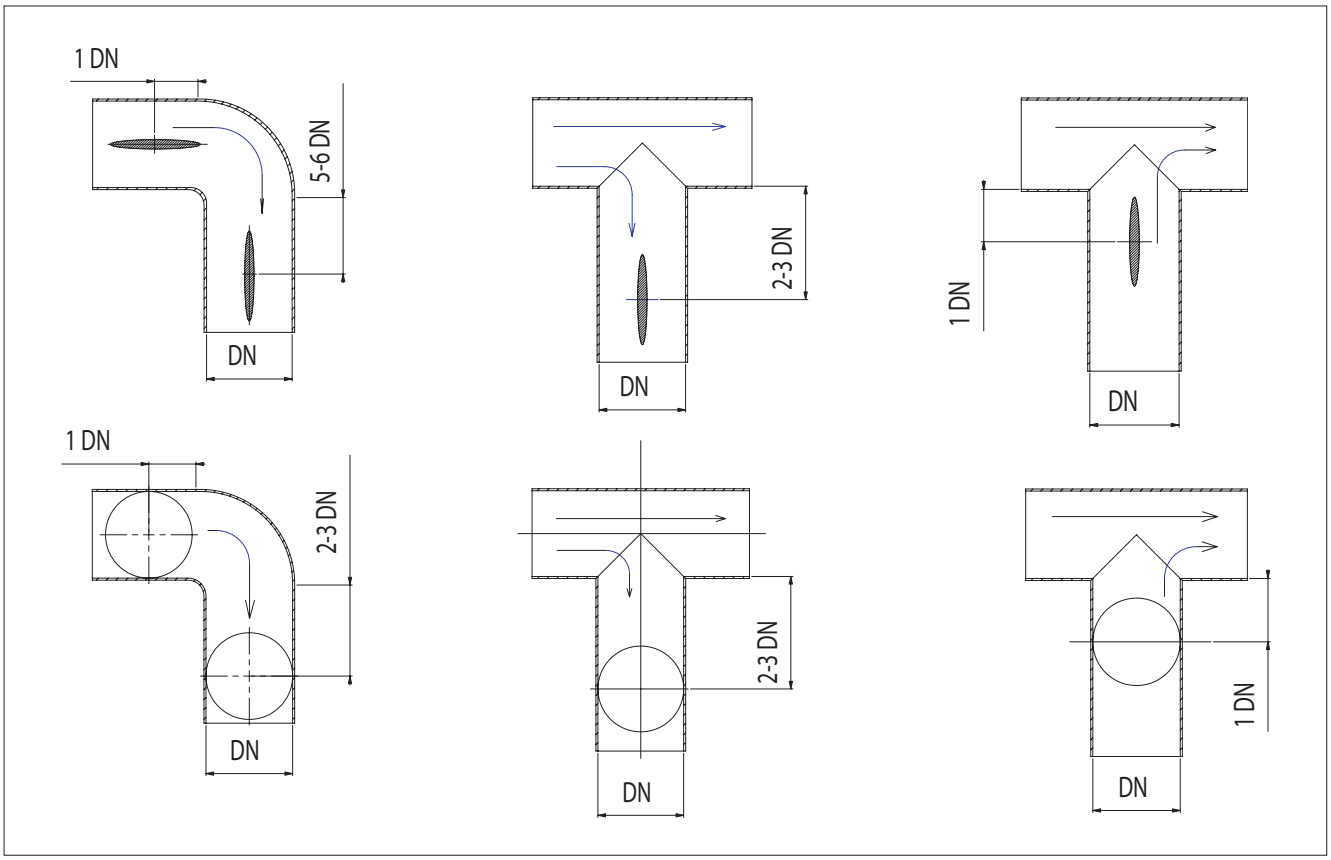
The valve is a machined piece of equipment and must not be used to prise apart the flanges.

An instruction notice specifying the installation characteristics and the commission of the Sylax 200-350 mm 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.



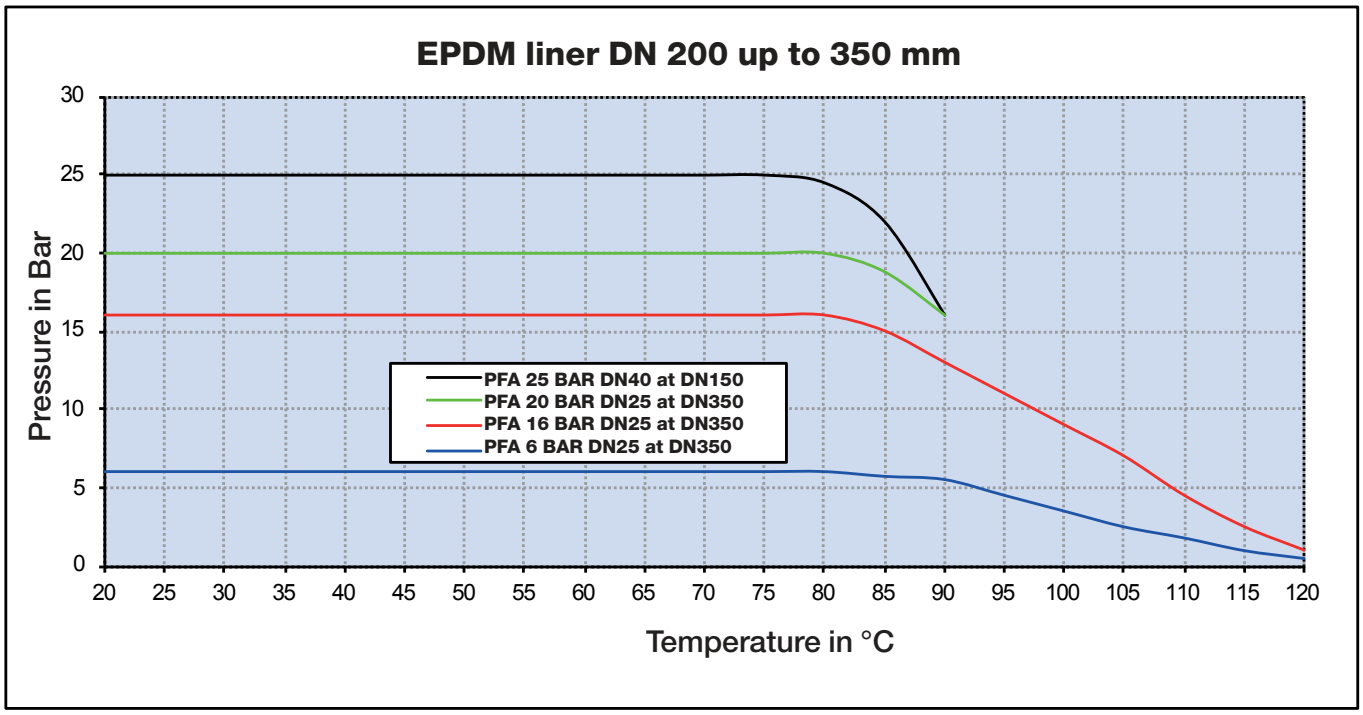
Functionning characteristics

Torque values

Wet torques (Nm)		200	250	300	350
PS6	EPDM	79	101	221	400
	NBR	113	270	420	560
PS16	EPDM	123	295	346	500
	NBR	155	301	714	720
PS20	EPDM - NBR	350	560	850	1250
PS25	EPDM	385	641		

NOTE: One actuation minimum per month.

Pressure/Température 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°
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

The butterfly valve is not the best product for regulating Nevertheless, the Sylax 200-350 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.

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

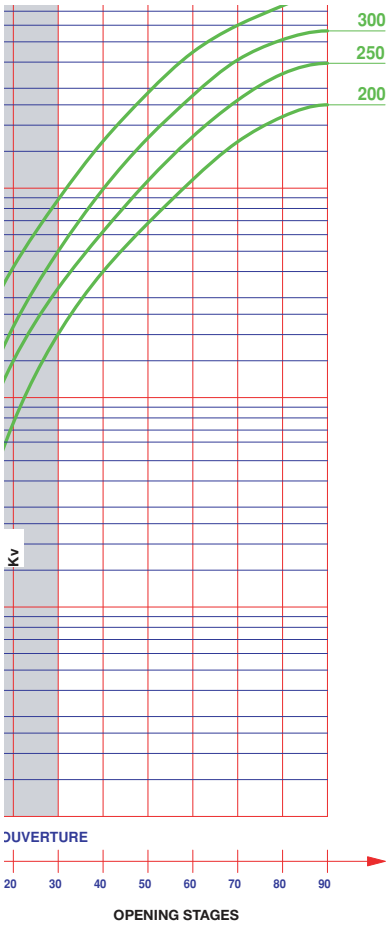
The maximum flow velocity of the fluid through the valve must not exceed (flow velocities are defined in the NF EN 593):

- **3 m/s for liquid fluids.** Between 3 and 5m/s, the use of the Sylax 200-350 mm butterfly valve is possible, but the phenomena of cavitation, noise, vibration and water hammering increase.
- **20m/s for gas.** Between 20 and 25m/s, the use of the Sylax 200-350 mm butterfly valve is possible, but the phenomena of cavitation, noise, vibration and water hammering increase.

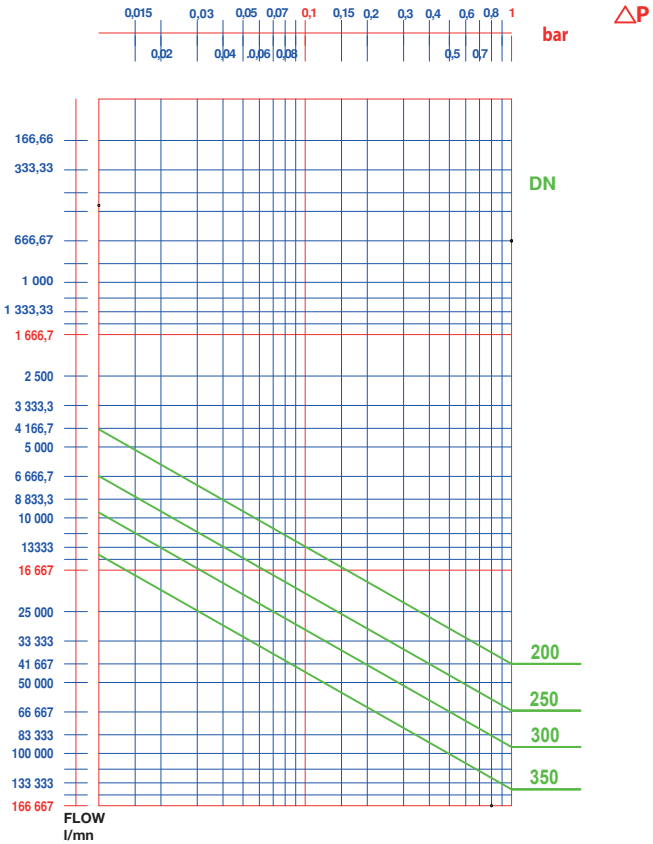
- for pulverulent or paste fluids : please consult us.

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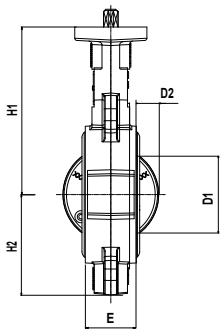
Flow rate (Kv)

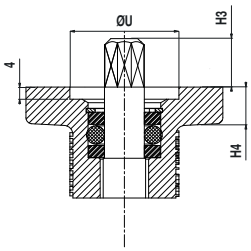


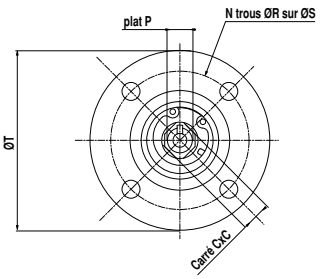
Head loss diagram (Δp)

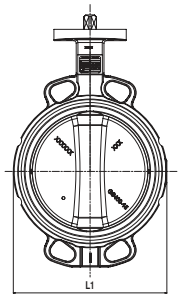


Overall dimensions





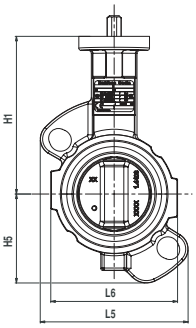




4 Centring lugs

Diameter		Face to face	Overall dimensions				Iso top according to ISO 5211						Square drive outlet			Travel of the disc		Weight (kg)
DN	NPS	E	L1	H1	H2	H4	N	ØR	ØS	ØT	ØU	N°	□C	H3	Flat P	D1	D2	(1)
200	8	60	265	245.5	164	15.5	4	10.5	102	125	71	F10	17	24	20	192	71	15.4
250	10	68	317	271	200	16	4	10.5	102	125	71	F10	22	24	26	242	91.5	19
300	12	78	370	296	235	16	4	12.5	125	150	87	F12	22	29	26	291	112	30.2
350	14	77	424	305	270	16	4	12.5	125	150	87	F12	27	29	-	333	132	35.9

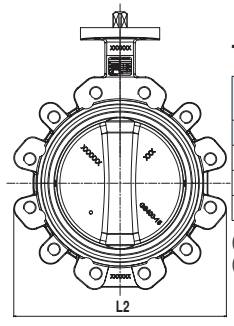
(1) Ductile iron body (JS1030), ductile iron disc (JS1030), EPDM liner.



2 Centring lugs

Diameter		Face to face	Overall dimensions					Iso top according to ISO 5211						Square drive outlet			Travel of the disc		Weight (kg)	
DN	NPS	E	L5	L6	H1	H5	H4	N	ØR	ØS	ØT	ØU	N°	□C	H3	Flat P	D1	D2	(1)	(2)
200	8	60	164	279	245.5	174	15.5	4	10.5	102	125	71	F10	17	24	20	192	71	13.5	12.1
250	10	68	187	332	271	210	16	4	10.5	102	125	71	F10	22	24	26	242	91.5	20.5	18.1
300	12	78	166	382	296	239	16	4	12.5	125	150	87	F12	22	29	26	291	112	29.2	26
350	14	77	185	435	305	267	16	4	12.5	125	150	87	F12	27	29	-	333	132	37.5	-

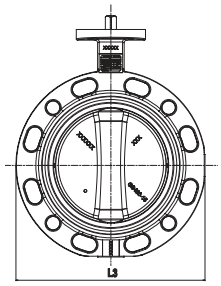
(1) Stainless steel body (1.4408), stainless steel disc (1.4408), EPDM liner.
(2) Steel body (WCB), stainless steel disc (1.4408), EPDM liner.



Tapped lugs and lugs with unthreaded holes

Diameter		Face to face	Overall dimensions				Iso top according to ISO 5211						Square drive outlet			Travel of the disc		Weight (kg)	
DN	NPS	E	L1	H1	H2	H4	N	ØR	ØS	ØT	ØU	N°	□C	H3	Flat P	D1	D2	(1)	(2)
200	8	60	336	245.5	168	15.5	4	10.5	102	125	71	F10	17	24	20	192	71	15.4	21.6
250	10	68	396	271	198	16	4	10.5	102	125	71	F10	22	24	26	242	91.5	19	28.1
300	12	78	462	296	227	16	4	12.5	125	150	87	F12	22	29	26	291	112	30.2	38.2

(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 flange

Diameter		Face to face	Overall dimensions				Iso top according to ISO 5211						Square drive outlet			Travel of the disc		Weight (Kg)
DN	NPS	E	L3	H1	H2	H4	N	Ø R	Ø S	Ø T	Ø U	N°	□C	H3	Flat P	D1	D2	(1)
200	8	60	343.5	245.5	164	15.5	4	10.5	102	125	71	F10	17	24	20	192	71	18
250	10	68	406	271	200	16	4	10.5	102	125	71	F10	22	24	26	242	91.5	28
300	12	78	482.5	296	235	16	4	12.5	125	150	87	F12	22	29	26	291	112	44.4

(1) Ductile iron body (JS1030), ductile iron disc (JS1030), EPDM liner.

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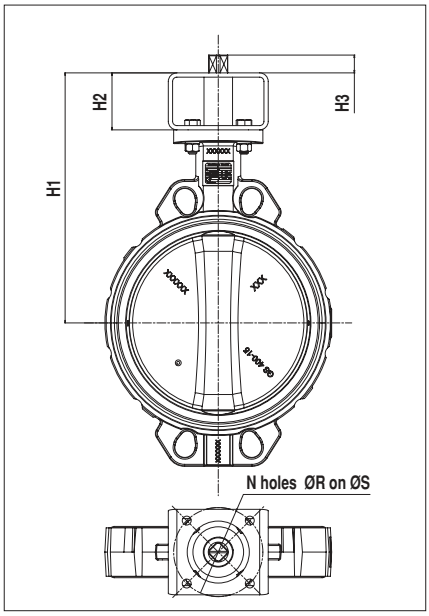
Connecting kit for actuations

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
200	8	F10/□17					325,5	80	325,5	80	325,5	80	325,5	80	335,5	90	335,5	90
250	10	F10/□22					351		351		351		351	80	361		361	
300	12	F12/□22							376	80	386	90	386	90	386		386	
350	14	F12/□27									395		395		395		395	

DN	NPS	Iso top of the valve	Exceeding length of the shaft H3							
			Kit	□9	□11	□14	□17	□22	□27	□36	□46
200	8	F10/□17	F05 F07 F10 F12 F14		9	12	15	20	25	34	
250	10	F10/□22	F05 F07 F10 F12 F14			12	15	20	25	34	
300	12	F12/□22	F07 F10 F12 F14 F16			12	15	20	25	34	44
350	14	F12/□27	F07 F10 F12 F14 F16				15	20	25	34	48

№	N	ØR	ØS
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 200-350 mm butterfly valve can be mounted with the following connections (other types on request):

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

4 Centering lugs

Diameter		EN 1092-1 and EN 1092-2					ASME/ANSI B16.1 Class 125	ASME/ANSI B16.5 Class 150	ASME/ANSI B16.5 Class 300	BS10		JIS B2238 and JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
200	8	✔	✔	✔	●	●	✔	✔	●	✔	✔	●	●	●
250	10	✔	✔	✔	●	●	✔	✔		●	✔	✔	✔	●
300	12	✔	✔	✔	●	●	✔	✔		✔	✔	●	●	●
350	14	✔	✔	✔	✔	●	✔	✔		✔	✔	●	●	✔

2 Centering lugs[3]

Diameter		EN 1092-1 and EN 1092-2					ASME/ANSI B16.1 Class 125	ASME/ANSI B16.5 Class 150	ASME/ANSI B16.5 Class 300	BS10		JIS B2238 and JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
200	8	O	✔	✔	O	O	O	O	O	✔	✔	O	O	O
250	10	O	✔	✔	O	O	O	O		O	✔	O	✔	O
300	12	O	✔	✔	O	O	O	O		✔	✔	O	O	O
350[4]	14	O	✔	✔	O	O	O	O		O	O	O	O	O

(3) Body in stainless steel (1.4408) and in steel (WCB)
(4) Stainless steel version only

Tapped lugs and lugs with unthreaded holes

Diameter		EN 1092-1 and EN 1092-2					ASME/ANSI B16.1 Class 125	ASME/ANSI B16.5 Class 150	ASME/ANSI B16.5 Class 300	BS10		JIS B2238 and JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
200	8	O	✔	✔	O		O	O		O	O	O	O	O
250	10	O	✔	✔	O		O	O			O	O	O	O
300	12	O	✔	✔	O		O	O		O	O	O	O	O

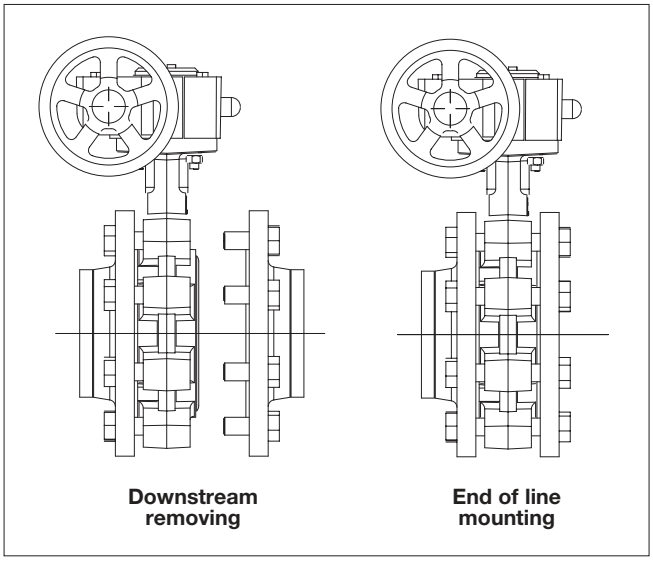
Attention: the Sylax 200-350 mm lug type body is not a multi-connection body (connection to many flanges of different sizes). Generally, every connection relates to a different reference of finished products.

Double flange

Diameter		EN 1092-1 and EN 1092-2					ASME/ANSI B16.1 Class 125	ASME/ANSI B16.5 Class 150	ASME/ANSI B16.5 Class 300	BS10		JIS B2238 and JIS B2239		
DN	NPS	PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10k	16k
200	8		✔	✔	●		✔	✔		✔	✔		●	●
250	10	●	✔	✔	●		✔	✔		●	✔	●	✔	
300	12	●	✔	✔	●		✔	✔		✔	✔	●	●	●

Connecting flanges

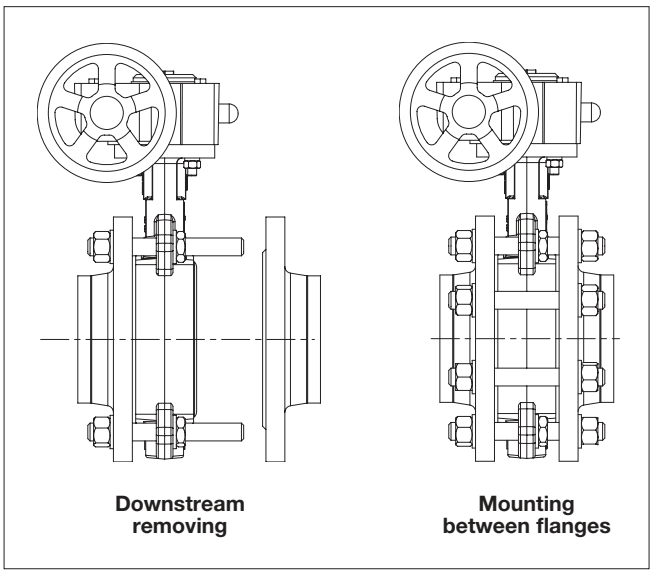
End of line mounting and downstream removing :
End-of-line assembly is done with a flange against.
The downstream removing, at ambient temperature, of the Sylax 200-350 mm butterfly valve is limited to the pressure mentioned on page 5 according to the PED directive 2014/68/UE.



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, etc.), 15 days maximum
· In pressure conditions (PFA or PS) such as: see table

DN	PFA or PS (bar)
200 to 300	8



Use hexagon thin nuts 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.

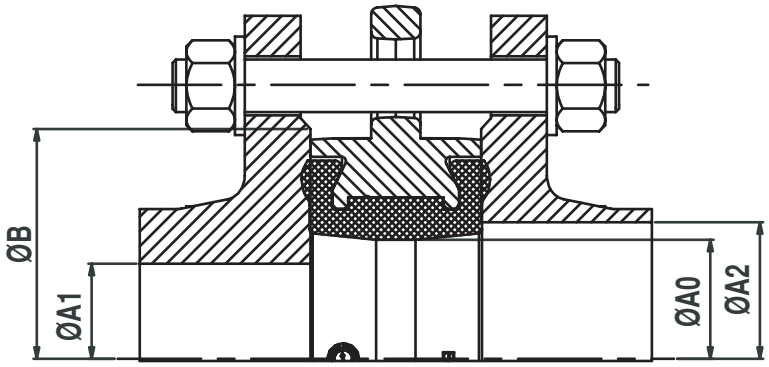
In case of unexpected downstream removing, integrate and screw successively and in opposite way, between the lugs and the flange to be removed, the 4 nuts which hold the butterfly valve.

Type of flange

The Sylax 200-350 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.

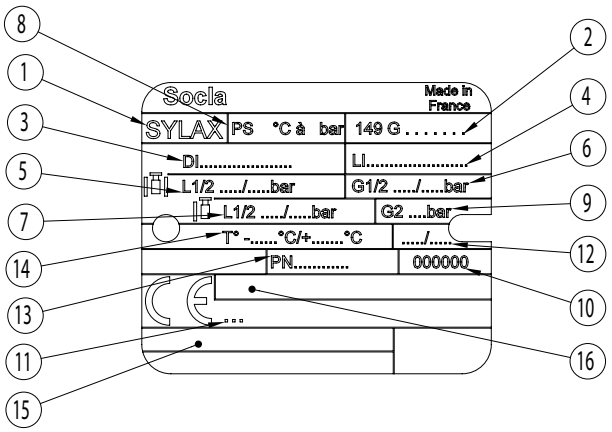


DN		Ø A0	Ø A1 mini	Ø A2 maxi	Ø B mini
mm	”	mm	mm	mm	mm
200	8	200	200	224	258
250	10	250	252	280	312
300	12	300	303	329	365
350	14	340	344	369	415

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.

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
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	78	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

DN	NPS	a	e	BS10-d			BS10-e			JIS2238 and JIS2239 5K			JIS2238 and JIS2239 10K			JIS2238 and 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
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	78	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, CENTRAL FLANGE 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)

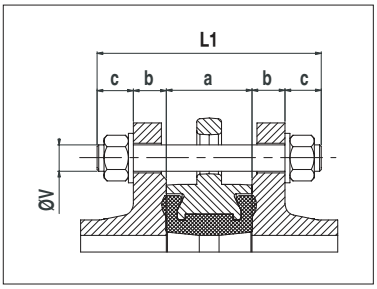
**** ASME / ANSI B16.5 Class 150:**
Standard version: metric threading; UNC threading: please consult us.

For any other template, please consult standards corresponding and use the algorithm hereinafter.

Bolts and nuts

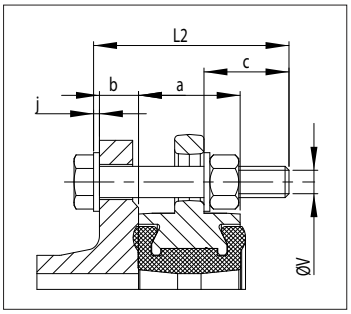
L1 = minimum length of rods
L2 = minimum length under head of screw
L3 = maximum length under head of screw
L4 = minimum length of the threading of the screw

a = width of the butterfly valve (face to face dimension)
b = thickness of the flange (customer)
c = thickness of washer + thickness of nut + exceeding length of the rod
e = maxi depth of screw
j = thickness of washer at the head of the screw



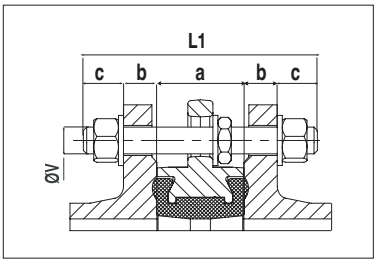
For wafer type and lugs with unthreaded holes type body; assembly by rods:

L1 = a + 2(b+c)



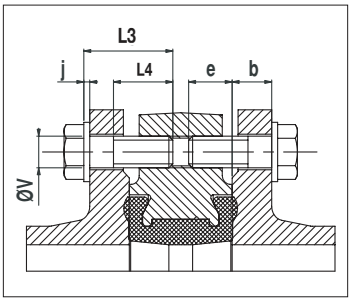
For lugs with unthreaded holes type body (permanent downstream dismantling); assembly by bolts:

L2 = a/2 + b + c + j



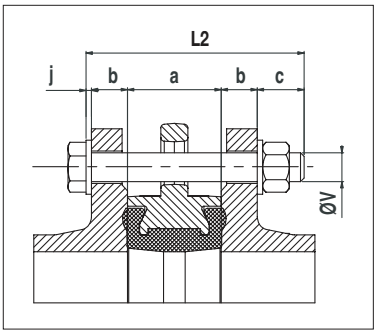
Mounting in case of downstream pipework dismantling (see page 13).

Use hexagon thin nuts between the butterfly valve and the downstream flange.



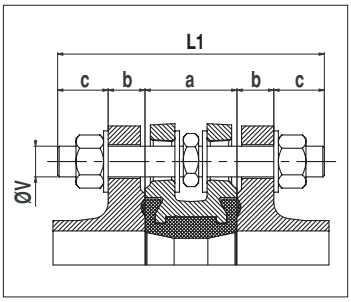
For lug type body; assembly by screws:

L3 ≤ b + e + j
avec L4 ≥ L3 - (b + j)



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

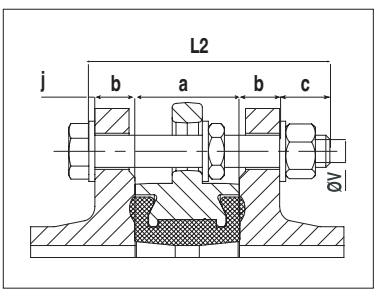
L2 = a + 2b + c + j



For double flange body; assembly by rods:

L1 = a + 2(b+c)

Note: Use hexagon thin nuts between the flanges.

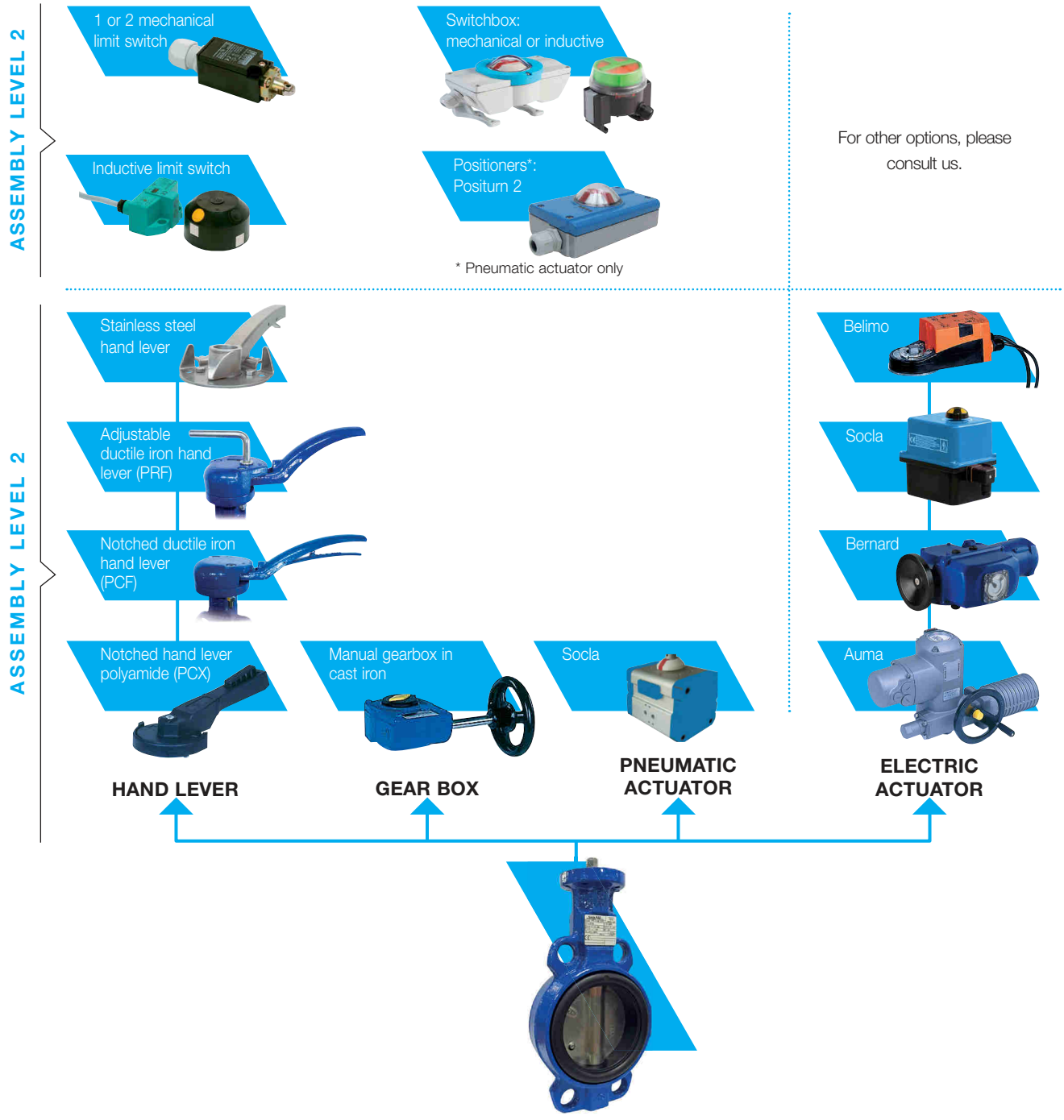


Mounting in case of downstream pipework dismantling (see page 13).

Use hexagon thin nuts between the butterfly valve and the downstream flange.

Actuations

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



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