Technical manual

Sylax

Butterfly valves

DN25 to 350 mm

Summary

Applications and main characteristics

Industrial processes and general services

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, ship-building, 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.

Main characteristics :

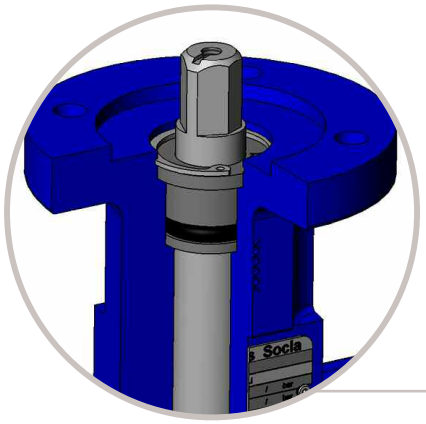
- Multiple connections : centering lugs, tapped lugs, central and double flange.
- Vertical and horizontal operating position.
- High power transmission with robust grooved connection between the shaft and the disc.
- Easy maintenance by removing the circlips
- Interchangeable disc and liner.
- Body in cast iron GJL1040, ductile iron GJS1030 , 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.

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

Sale leaflet

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

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



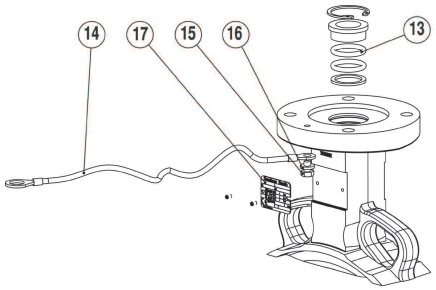
- Safety anti-ejection circlip keeps shaft in place and allows easy maintenance
- Safety reinforced by a secondary water-tightness.
- Spline driven one piece shaft connected to floating disc :

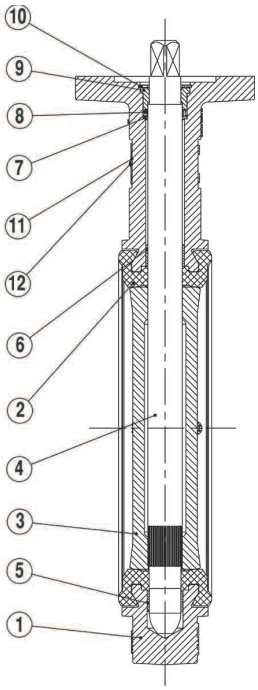
. high reliability of tightness and torque transmission in the long term.

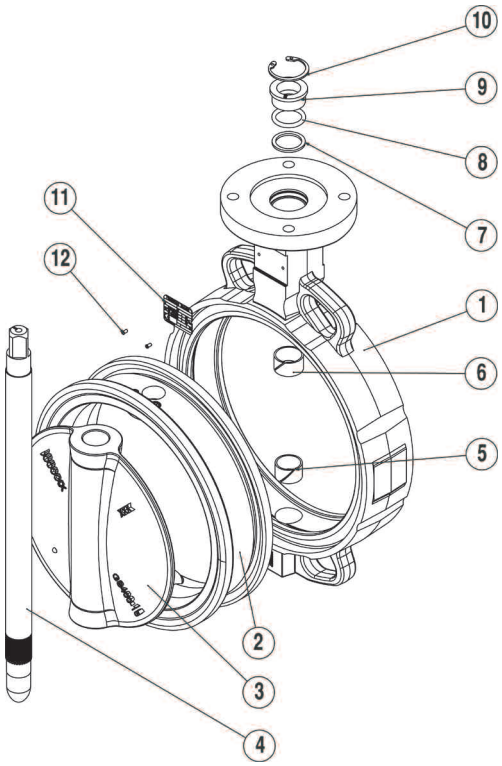
- High power transmission with robust grooved connection between the shaft and the disc.
- Complete protection of the shaft and valve body from fluids.
- Reliability of movements with self-lubricating bearings.

- Identification and traceability ensured by riveted metal tag : see on page 14.

Spare parts list





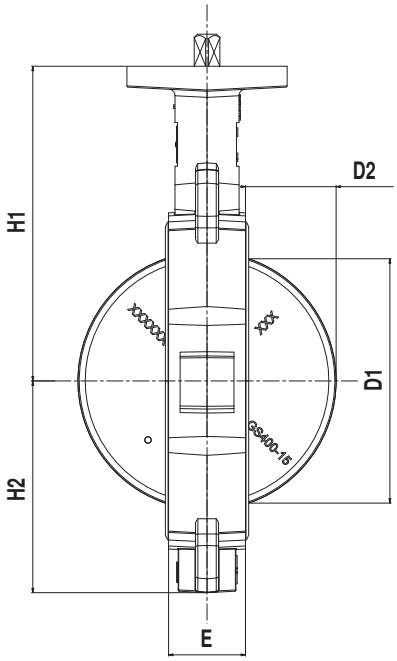


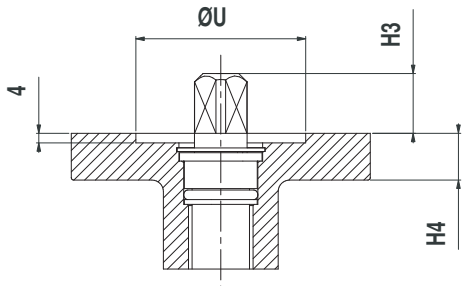
Nb	DESCRIPTION	Qty	MATERIALS ACCORDING TO NORMS			
			Materials	EN	ASTM	JIS
1	Body	1	Ductile iron	EN GJS 400-15 (JS 1030)	-	FCD40
			Cast iron	EN GJL 250 (JL 1040)	-	FC25
			Steel	GE 280 (E280 - 480M)	gr WCB	-
			Stainless steel	GX5 CrNiMo 19-11-2 (1.4408)	316	SUS 316
2	Liner	1	EPDM	-	-	-
			White EPDM	-	-	-
			High content nitrile	-	-	-
			White nitrile	-	-	-
			Carboxylated nitrile	-	-	-
			Hypalon	-	-	-
			Silicone	-	-	-
			FKM	-	-	-
			Buthyl	-	-	-
			Natural rubber	-	-	-
3	Disc	1	Ductile iron	EN GJS 400-15 (JS 1030)	-	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	-	-	-

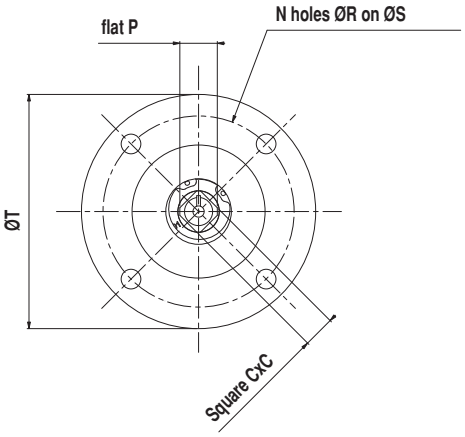
ATEX special spare parts list

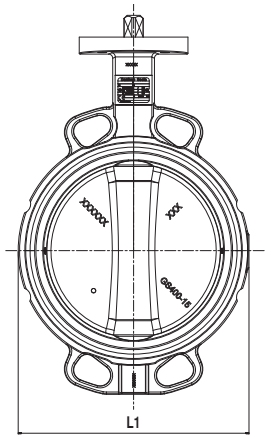
13	Braid	1	Tinned copper	-	-	-
14	Discharge anti-static braid	1	Tinned copper	-	-	-
15	Screw	1	Stainless steel	A2 - 70	304	SUS 304
16	Stop washer	1	Stainless steel	X5 CrNi 18-10 (1.4301)	304	SUS 304
17	ATEX identification plate	1	Aluminium	EN AW - AL995 (EN AW - 1050A)	-	-

Overall dimensions





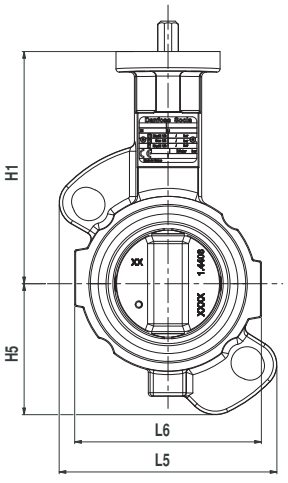




• 4 Centering lugs

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	Ø R	Ø S	ØT	Ø U	N°	□C	H3	plat P	D1	D2	(1)	(2)
25	1	32	100	125	50	12	4	6,5	50	65	36	F05	11	19	11	6	1	-	1,6
32/40	1 1/2	32	144	130	57	12	4	6,5	50	65	36	F05	11	19	11	31	6,5	1,9	1,7
50	2	43	121	136	62	12	4	6,5	50	65	36	F05	11	19	11	29	4,5	2,5	2,5
65	2 1/2	46	136	145	70	12	4	6,5	50	65	36	F05	11	19	11	48	10	2,7	2,9
80	3	46	127	151	89	12	4	6,5	50	65	36	F05	11	19	11	67	18	2,8	3,2
100	4	52	153	175	106	12	4	8,5	70	90	56	F07	14	19	14	88	25	4,9	5,2
125	5	56	182	190	120	12	4	8,5	70	90	56	F07	14	19	14	113	35	6,2	6,3
150	6	56	209	203	131	12	4	8,5	70	90	56	F07	14	19	14	141	48	7,1	7,3
200	8	60	265	245,5	164	15,5	4	10,5	102	125	71	F10	17	25	20	192	71	15,4	13,7
250	10	68	317	271	200	16	4	10,5	102	125	71	F10	22	32	26	242	91,5	19	20,1
300	12	78	370	296	235	16	4	12,5	125	150	87	F12	22	32	26	291	112	30,2	29,2
350	14	78	424	305	270	16	4	12,5	125	150	87	F12	27	35	-	331	132	35,9	36,2

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

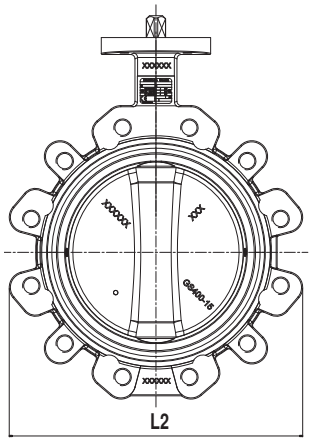


• 2 Centering lugs

Diameter		Face to face	Overall dimensions					Iso top according to ISO 5211						Square shaft outlet			Travel of the disc		Weight Kg	
DN	NPS	E	L5	L6	H1	H5	H4	N	Ø R	Ø S	ØT	Ø U	N°	□C	H3	plat P	D1	D2	(1)	(2)
32/40	1 1/2	32	106	99	130	56	12	4	6,5	50	65	36	F05	11	19	11	31	6,5	1,7	1,6
50	2	43	121	99	136	73	12	4	6,5	50	65	36	F05	11	19	11	29	4,5	2,6	2,1
65	2 1/2	46	136	117	145	82	12	4	6,5	50	65	36	F05	11	19	11	48	10	3,1	2,4
80	3	46	150	136	151	93	12	4	6,5	50	65	36	F05	11	19	11	67	18	3,2	2,8
100	4	52	166	167	175	106	12	4	8,5	70	90	56	F07	14	19	14	88	25	5,3	4,4
125	5	56	132	194	190	127	12	4	8,5	70	90	56	F07	14	19	14	113	35	6,6	5,7
150	6	56	139	225	203	147	12	4	8,5	70	90	56	F07	14	19	14	141	48	8,1	6,8
200	8	60	164	279	245,5	174	15,5	4	10,5	102	125	71	F10	17	25	20	192	71	13,5	12,1
250	10	68	187	332	271	210	16	4	10,5	102	125	71	F10	22	32	26	242	91,5	20,5	18,1
300	12	78	166	382	296	239	16	4	12,5	125	150	87	F12	22	32	26	291	112	29,2	26
350	14	78	185	435	305	267	16	4	12,5	125	150	87	F12	27	35	-	331	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.

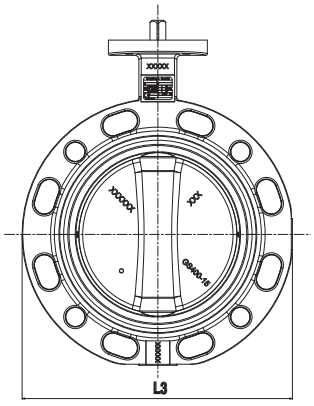
Overall dimensions



Tapped lugs

Diameter		Face to face	Overall dimensions				Iso top according to ISO 5211						Square shaft outlet			Travel of the disc		Weight Kg	
DN	NPS	E	L2	H1	H2	H4	N	Ø R	Ø S	Ø T	Ø U	N°	□C	H3	plat P	D1	D2	(1)	(2)
32/40	1 1/2	32	146	130	57	12	4	6,5	50	65	36	F05	11	19	11	31	6,5	1,9	2,7
50	2	43	121	136	62	12	4	6,5	50	65	36	F05	11	19	11	29	4,5	2,5	3,3
65	2 1/2	46	165	145	70	12	4	6,5	50	65	36	F05	11	19	11	48	10	2,7	3,9
80	3	46	179	151	89	12	4	6,5	50	65	36	F05	11	19	11	67	18	2,8	4,8
100	4	52	206	175	107	12	4	8,5	70	90	56	F07	14	19	14	88	25	4,9	7,2
125	5	56	238	190	124	12	4	8,5	70	90	56	F07	14	19	14	113	35	6,2	9,7
150	6	56	265	203	150	12	4	8,5	70	90	56	F07	14	19	14	141	48	7,1	11,2
200	8	60	336	245,5	179	15,5	4	10,5	102	125	71	F10	17	25	20	192	71	15,4	21,6
250	10	68	396	271	212	16	4	10,5	102	125	71	F10	22	32	26	242	91,5	19	28,1
300	12	78	462	296	244	16	4	12,5	125	150	87	F12	22	32	26	291	112	30,2	38,2
350	14	78	497	305	248	16	4	12,5	125	150	87	F12	27	35	-	331	132	46	-

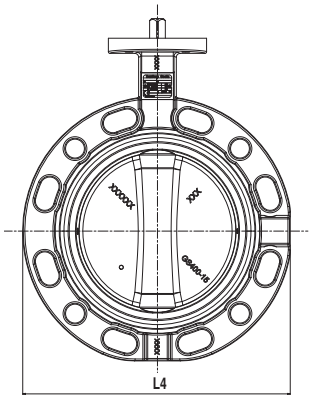
(1) Ductile iron body (JS1030), ductile iron disc (JS1030), EPDM liner.
(2) Stainless steel body (1.4408), stainless steel disc (1.4408), EPDM liner.



• Double flange

Diameter		Face to face	Overall dimensions				Iso top according to ISO 5211						Square shaft 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	plat P	D1	D2	(1)
200	8	60	343,5	245,5	164	15,5	4	10,5	102	125	71	F10	17	25	20	192	71	18
250	10	68	406	271	200	16	4	10,5	102	125	71	F10	22	32	26	242	91,5	28
300	12	78	482,5	296	235	16	4	12,5	125	150	87	F12	22	32	26	291	112	44,4
350	14	78	533	305	270	16	4	12,5	125	150	87	F12	27	35	--	331	132	57,5

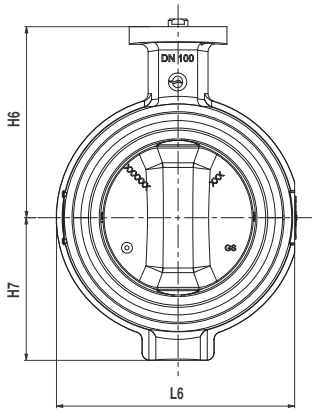
(1) Ductile iron body (JS1030), ductile iron disc (JS1030), EPDM liner.



• Central flange

Diameter		Face to face	Overall dimensions				Iso top according to ISO 5211						Square shaft outlet			Travel of the disc		Weight Kg
DN	NPS	E	L4	H1	H2	H4	N	Ø R	Ø S	Ø T	Ø U	N°	□C	H3	plat P	D1	D2	(1)
80	3	46	190,5	151	90	12	4	6,5	50	65	36	F05	11	19	11	67	18	3,9
100	4	52	226,5	175	107	12	4	8,5	70	90	56	F07	14	19	14	88	25	6,5
125	5	56	252	190	120,5	12	4	8,5	70	90	56	F07	14	19	14	113	35	8,1
150	6	56	276,5	203	132	12	4	8,5	70	90	56	F07	14	19	14	141	48	9,3
200	8	60	340,5	245,5	165	15,5	4	10,5	102	125	71	F10	17	25	20	192	71	16,3

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

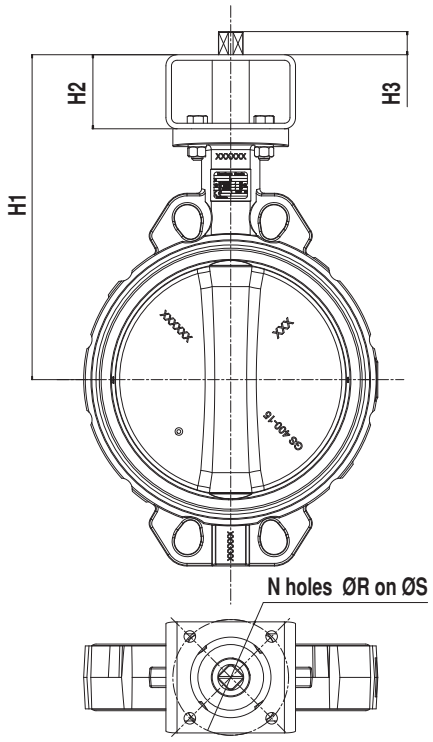


• Ring shaped type body

Diameter		Face to face	Overall dimensions				Iso top according to ISO 5211						Square shaft outlet			Travel of the disc		Weight Kg
DN	NPS	E	L6	H6	H7	H4	N	Ø R	Ø S	Ø T	Ø U	N°	□C	H3	plat P	D1	D2	(1)
50	2	43	104	99	66	12	4	6,5	50	65	36	F05	11	19	11	29	4,5	1,9
65	2 1/2	46	124	109	75	12	4	6,5	50	65	36	F05	11	19	11	48	10	2,4
80	3	46	140	115	82	12	4	6,5	50	65	36	F05	11	19	11	67	18	2,8
100	4	52	160	127	95	12	4	8,5	70	90	56	F07	14	19	14	88	25	4

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

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 1/4	F05/□11	190	60	190	60	190	60	190	60	210	80						
40	1 1/2		190		190		190		190		210							
50	2		199		199		199		199		219							
65	2 1/2		204,5		204,5		204,5		204,5		224,5							
80	3		210		210		210		210		230							
100	4	F07/□14			236,5	60	236,5	60	236,5	60	256,5	80	256,5	80	256,5	80		
125	5				249		249		249		269		269		269			
150	6				262		262		262		282		282		282			
200	8	F10/□17					324,5	80	324,5	80	324,5	80	324,5	80	334,5	90	334,5	90
250	10	F10/□22					350		350		350		350		360		360	
300	12	F12/□22							375	80	385	90	385	90	385		385	
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
32	1 1/4	F05/□11	F03	7	9	12	15	20	25		
40	1 1/2		F04								
50	2		F05								
65	2 1/2		F07								
80	3		F10								
100	4	F07/□14	F04		9	12	15	20	25	34	
125	5		F05								
150	6		F07								
			F10								
			F12								
			F14								
200	8	F10/□17	F05		9	12	15	20	25	34	
			F07								
			F10								
			F12								
			F14								
250	10	F10/□22	F05			12	15	20	25	34	
			F07								
			F10								
			F12								
			F14								
300	12	F12/□22	F07			12	15	20	25	34	44
			F10								
			F12								
			F14								
			F16								
350	14	F12/□27	F07				15	20	25	34	48
			F10								
			F12								
			F14								
			F16								

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.

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

- Switchbox :
  . mechanical
  . inductive

- Inductive limit switch

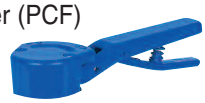
- Positioners (1)

For other options, please consult us.

ASSEMBLY LEVEL 1

- Adjustable ductile iron hand lever (PRF)

- Notched ductile iron hand lever (PCF)



- Notched hand lever polyamide (PCX)

HAND LEVER

- Manual gearbox in cast iron

GEAR BOX

- Danfoss hydraulic actuation

HYDRAULIC ACTUATOR

- Remote control + emergency hand wheel

- Air torque

PNEUMATIC ACTUATOR

- Rotork

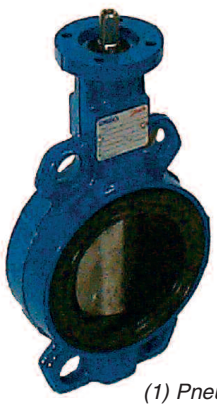
- Valpes

- Belimo

- Auma

- Bernard

ELECTRIC ACTUATOR



(1) Pneumatic actuator only

Connecting flanges

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

✔ : possible mounting
● : possible mounting with re-machining
■ : impossible mounting

• 4 Centering lugs

DN	NPS	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		
		PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10K	16K
25	1	✔(1)	✔(1)	✔(1)	✔(1)	✔(1)	✔(1)	✔(1)	✔(1)	✔(1)	✔(1)	●	✔	●
32	1 1/4	✔	✔	✔	✔	✔	✔(2)	✔(2)	✔	●	●	●	✔	●
40	1 1/2	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	●	✔	●
50	2	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	●	●	●
65	2 1/2	✔	✔	✔	●	●	✔	✔	●	●	●	●	●	●
80	3	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	✔	●	●
100	4	✔	✔	✔	●	●	✔	✔	●	✔	✔	●	●	●
125	5	✔	✔	✔	●	●	✔	✔	●	✔	✔	✔	✔	●
150	6	✔	✔	✔	●	●	✔	✔	●	✔	●	✔	✔	●
200	8	✔	✔	✔	●	●	✔	✔	●	●	●	●	●	●
250	10	✔	✔	✔	●	●	✔	✔	■	●	✔	✔	✔	●
300	12	✔	✔	✔	●	●	✔	✔	■	✔	✔	●	●	●
350	14	✔	✔	✔	✔	●	✔	✔	■	✔	✔	●	●	●

(1) Cast iron body GJL-250 (JL1040) only.
(2) Cast iron body GJL-250 (JL1040) only; re-machining for ductile iron body GJS 400-15 (JS1030)

• 2 Centering lugs (3)

DN	NPS	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		
		PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10K	16K
32	1 1/4	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
40	1 1/2	✔	✔	✔	✔	✔	✔	✔	●	✔	✔	✔	✔	✔
50	2	●	✔	✔	✔	✔	✔	✔	●	●	●	●	●	●
65	2 1/2	●	✔	✔	●	●	✔	✔	●	✔	✔	●	✔	●
80	3	●	✔	✔	✔	✔	✔	✔	●	●	●	●	●	●
100	4	●	✔	✔	●	●	✔	✔	●	●	●	●	●	●
125	5	●	✔	✔	●	●	✔	✔	●	●	●	●	●	●
150	6	●	✔	✔	●	●	✔	✔	●	✔	✔	●	●	●
200	8	●	✔	✔	●	●	✔	✔	●	✔	✔	●	●	●
250	10	●	✔	✔	●	●	✔	✔	■	●	✔	✔	✔	●
300	12	●	✔	✔	●	●	✔	✔	■	✔	●	●	●	●
350	14	●	✔	✔	●	●	●	●	■	✔	✔	●	●	●

(3) Body in stainless steel (1.4408) and in steel (WCB)

• Tapped lugs

DN	NPS	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		
		PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10K	16K
32	1 1/4	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
40	1 1/2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
50	2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	■	✔	✔(4)
65	2 1/2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
80	3	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
100	4	■	✔	✔	✔	✔	✔	✔	✔	✔(5)	✔	■	✔	✔
125	5	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
150	6	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
200	8	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
250	10	✔	✔	✔	✔	✔	✔	✔	✔	■	✔	✔	✔	✔
300	12	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
350	14	■	✔	✔	■	■	■	■	■	✔	✔	■	■	■

(4) Possible mounting for ductile iron body GJS 400-15 (JS1030) , impossible mounting for body in cast iron GJL-250 (JL1040) and in stainless steel.
(5) Possible mounting if the butterfly valve is inclined at 22,5°

Connecting flanges

✔ : possible mounting
● : possible mounting after re-machining
■ : impossible mounting

• Double flanges

DN	NPS	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		
		PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10K	16K
200	8	■	✔	✔	●	■	✔	✔	■	✔	●	■	●	●
250	10	■	✔	✔	■	■	✔	✔	■	✔	●	●	✔	■
300	12	■	✔	✔	■	■	✔	✔	■	✔	✔	■	■	●
350	14	■	✔	✔	■	■	●	●	■	●	●	■	■	■

• Central flange

DN	NPS	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		
		PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10K	16K
80	3	✔	✔	✔	●	●	✔	✔	■	●	●	●	●	●
100	4	■	✔	✔	●	●	✔	✔	■	●	●	●	●	●
125	5	●	✔	✔	●	●	✔	✔	■	✔	✔	●	●	■
150	6	●	✔	✔	■	■	✔	✔	■	●	●	●	✔	■
200	8	●	✔	✔	■	■	✔	✔	■	✔	●	●	●	●

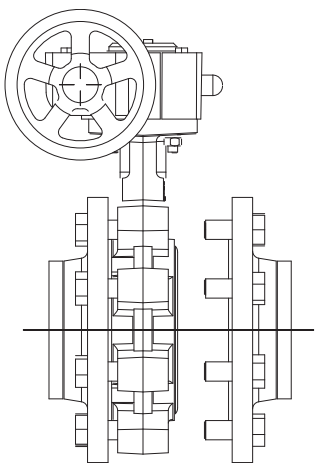
• Ring shaped type body

DN	NPS	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		
		PN6	PN10	PN16	PN25	PN40				Table D	Table E	5K	10K	16K
50	2	●	✔	✔	✔	✔	●	●	✔	●	●	■	●	●
65	2 1/2	●	✔	✔	●	●	●	●	✔	■	■	●	●	●
80	3	●	✔	✔	✔	✔	●	●	✔	●	●	●	●	●
100	4	■	✔	✔	✔	✔	✔	✔	✔	●	●	■	●	✔

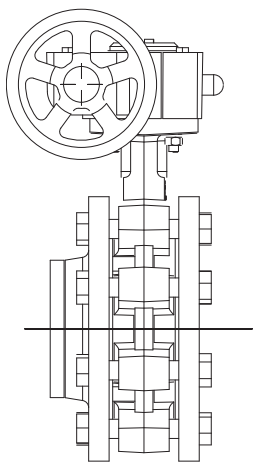
• End of line mounting and downstream removing

The end of line mounting and the downstream removing, at ambient temperature, of the Sylax butterfly valve is limited to the pressure mentioned on page 11 according to the PED directive 97/23/CE .

Downstream removing



End of line mounting



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 8
  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 97/23/CE : 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 : hazardous fluids (directive 67/548/EEC) / explosive / highly flammable /easily flammable / flammable / very toxic / toxic / combustion agents.
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. Danfoss Socla is not responsible for non-adaptation of the products to working conditions not previously specified by the customer.
In order to facilitate your choice regarding these new regulatory requirements, Danfoss Socla has put the necessary information concerning products with CE marking, specification sheets and product identification plates at your disposal in the price list (+ see additional explanations on the detachable slip).
In addition, the operating instructions are available on our web site www.danfoss-socla.com or by simple request from our sales department.

Directive 94/9/CE : **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 Danfoss Socla within an 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 Danfoss 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 only one component of the assemblyset is not market with ATEX label, therefore the complete assemblyset is not conformed to ATEX directive.

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

Pressure/Temperature

DIRECTIVE 97/23/CE Equipments under pressure.

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

	Liner	DN in mm	Mounting	PFA (bar) WATER	PS (bar) L1	L2	G1	G2	Cat.
25 bar	EPDM , Nitrile (alu bronze disc)	32 to 150	Flanges	25	x	25	x	x	I
			End of line	16	x	16	x	x	I
20 bar	EPDM , Nitrile (alu bronze disc)	32 to 350	Flanges	20	x	20	x	x	I
			End of line	16	x	12	x	x	I
16 bar	EPDM , Nitrile (alu bronze disc)	32 to 125	Flanges	16	16	16	x	10	I
			End of line	12	12	12	x	10	I
		150	Flanges	16	10	16	x	10	I
			End of line	12	6	12	x	10	I
		200 to 300	Flanges	16	10	16	x	10	I
			End of line	10	6	10	x	10	I
		350	Flanges	16	10	16	x	10	I
			End of line	8	6	8	x	8	I
10 bar	EPDM , Nitrile (alu bronze disc), White nitrile Carboxylated nitrile, White EPDM	25 to 350	Flanges	10	10	10	x	10	I
			End of line	6	6	6	x	6	I
6 bar	EPDM , Nitrile (alu bronze disc), White EPDM	32 to 350	Flanges	6	6	6	x	6	I
			End of line	4	4	4	x	4	I
25 bar	Nitrile (except alu bronze disc)	32 to 150	Flanges	25	25	25	x	x	II
			End of line	16	16	16	x	x	II
20 bar	Nitrile (except alu bronze disc, Nepoprene, Butyl, Natural rubber, White natural rubber	32 to 350	Flanges	20	20	20	x	x	II
			End of line	16	16	16	x	x	II
16 bar	Nitrile (except alu bronze disc), Neoprene, Butyl, Natural rubber, White natural rubber, Hypalon,	32 to 150	Flanges	16	16	16	10	16	II
			End of line	12	12	12	x	12	II
		200 to 300	Flanges	16	16	16	10	10	II
			End of line	10	10	10	x	10	II
		350	Flanges	16	16	16	10	10	II
			End of line	8	8	8	x	8	II
10 bar	Nitrile (except . CC333G disc), FKM	25 to 350	Flanges	10	10	10	10	10	II
			End of line	6	6	6	x	6	II
10 bar	Silicone	32 to 150	Flanges	10	10	10	10	10	II
			End of line	6	6	6	x	6	II
		200 to 350	Flanges	6	6	6	6	6	II
			End of line	4	4	4	x	4	II
6 bar	Nitrile (except alu bronze disc), Nepoprene, Butyl, Natural rubber, White natural rubber, Hypalon	32 to 350	Flanges	6	6	6	6	6	II
			End of line	4	4	4	x	4	II

PS : Maximum allowable pressure (in bar) according to Directive 97/23/CE

PFA : Allowable operating pressure (in bar) for supply, distribution and disposal of water.

Torque values

Torques for water - in Nm *EPDM / NBR*	25	32	40	50	65	80	100	125	150	200	250	300	350
PS6	10	15	15	18	23	30	50	70	90	150	255	380	560
PS16	10	15	15	24	35	40	66	86	110	220	340	500	720
PS20		20	20	32	45	65	100	130	190	350	560	850	1250
PS25		25	25	50	70	120	240	270	460				

NOTE :
Torques for liner in EPDM and high content nitrile (except DN250 to 350 for PS20).
One actuation minimum per month.

Flow rate (Kv)

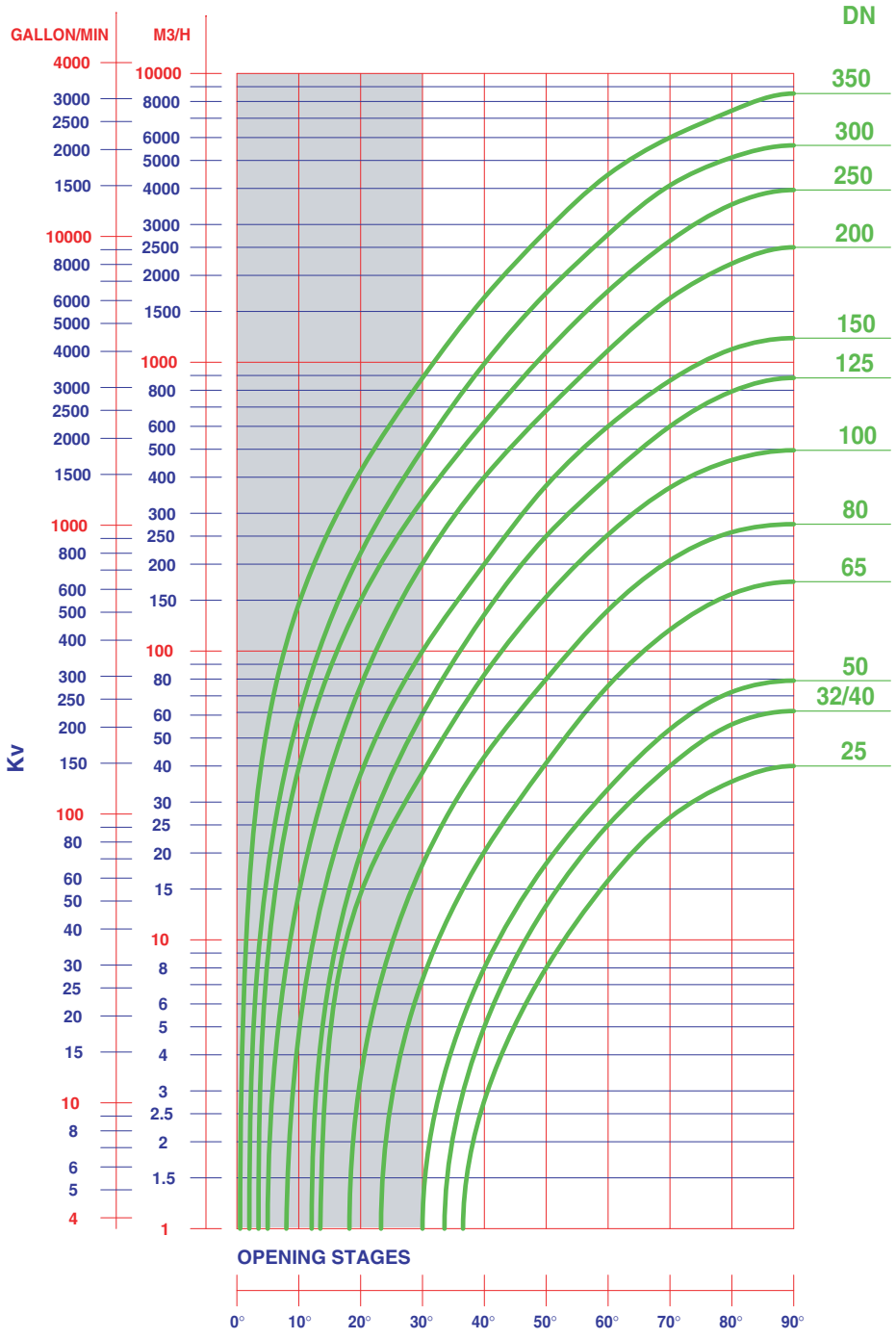
OPENING STAGE - Stainless steel disc

DN	10°	20°	30°	40°	50°	60°	70°	80°	90°
25	-	-	-	3	8	16	27	35	40
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	2652	3517	3948
300	60	219	500	989	1736	2770	4097	5118	5635
350	145	420	882	1676	2850	4462	6000	7431	8520

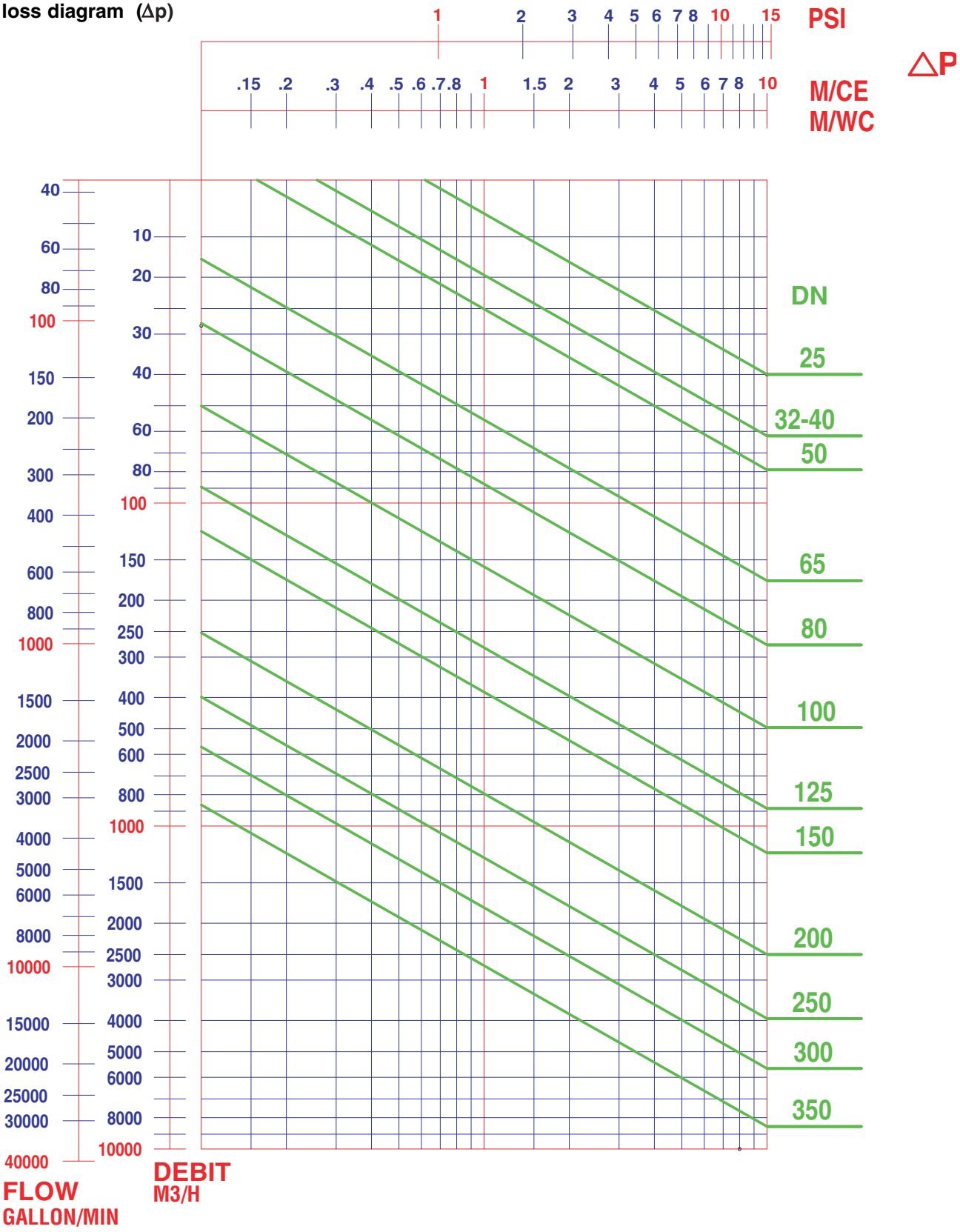
The butterfly valve is not the best product for regulating Nevertheless, the Sylax butterfly valve can be used to regulate by an opening stage between 30° and 90°.

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.



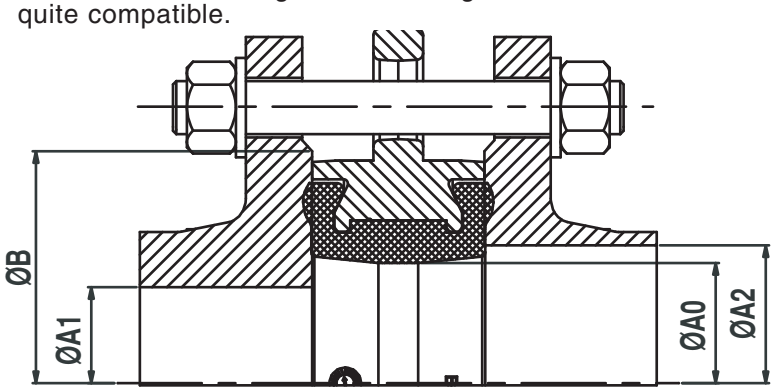
Head loss diagram (Δp)



Type of flange

The Sylax 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.

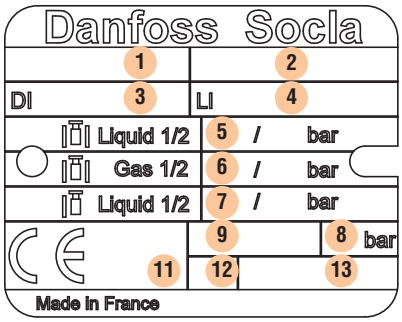


DN		Ø A0	Ø A1 mini	Ø A2 maxi	Ø B mini
25	**1**	32	-	44	60
32	**1 1/4**	43	33	51	80
40	**1 1/2**	43	33	51	80
50	**2**	50	36	59	90
65	**2 1/2**	65	54	74	110
80	**3**	80	73	88	128
100	**4**	100	93	116	148
125	**5**	125	119	143	178
150	**6**	150	146	166	202
200	**8**	200	196	224	258
250	**10**	250	246	280	312
300	**12**	300	296	329	365
350	**14**	340	335	369	415

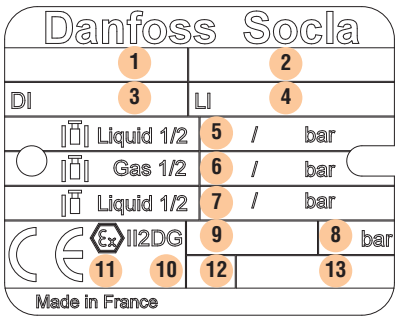
NOTE :
The use of expansion seals, as well as the use of elastomer coated flanges, between the flange and the valve are strictly forbidden.

Tag / traceability

• Standard version



• ATEX version



Nb	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
9	Manufacturing date
10	Marking relating to the Directive ATEX 94/9/CE
11	Notified Body Number for the Directive PED 97/23/CE
12	Year of manufacturing
13	Connecting flanges

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 UNC**	c
25	1	32	--	4	M10	16	4	M12	18	4	M12	18	4	M12	18	4	1/2"	18
32/40	1 1/2	32	14	4	M12	18	4	M16	24	4	M16	24	4	M16	24	4	1/2"	18
50	2	43	18	4	M12	18	4	M16	24	4	M16	24	4	M16	24	4	5/8"	24
65*	2 1/2	46	20	4	M12	18	8*	M16	24	8*	M16	24	8	M16	24	4	5/8"	24
80	3	46	20	4	M16	24	8	M16	24	8	M16	24	8	M16	24	4	5/8"	24
100	4	52	24	4	M16	24	8	M16	24	8	M16	24	8	M20	26	8	5/8"	24
125	5	56	26	8	M16	24	8	M16	24	8	M16	24	8	M24	32	8	3/4"	26
150	6	56	26	8	M16	24	8	M16	24	8	M20	26	8	M24	32	8	3/4"	26
200	8	60	28	8	M16	24	8	M20	26	12	M20	26	12	M24	32	8	3/4"	26
250	10	68	32	12	M16	24	12	M20	26	12	M24	32	12	M27	32	12	7/8"	26
300	12	78	36	12	M20	26	12	M20	26	12	M24	32	16	M27	32	12	7/8"	26
350	14	78	36	12	M20	26	16	M20	26	16	M24	32	16	M30	36	12	1"	32

* For flanges in cast or 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
25	1	32	--	4	1/2"	18	4	1/2"	18	4	M10	16	4	M16	24	4	M16	24
32/40	1 1/2	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 1/2	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	78	36	12	3/4"	26	12	7/8"	26	12	M20	26	16	M22	26	16	M24	32
350	14	78	36	12	7/8"	26	12	7/8"	26	12	M22	26	16	M22	26	16	M30 x 3	36

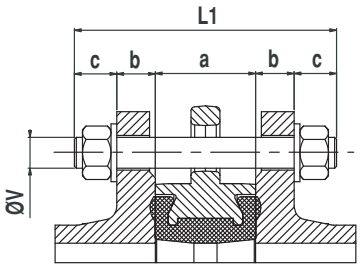
** WAFER TYPE BODY, CENTRAL FLANGE BODY AND RING SHAPED TYPE BODY :*
Assembly by rods : number of nuts and washer = 2 x Number of rods (above)
Assembly by bolts : Number of nuts = Number of screws (above) and number of washer = 2 x Number of nuts

** 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)

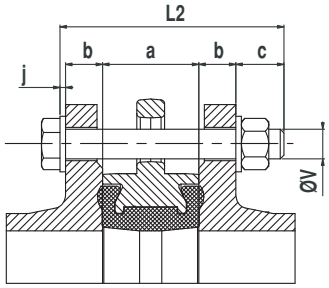
*** ASME / ANSI B16.5 Class 150 : ØV UNC threading in inch ; for metric threading, please consult us.*

Bolts and nuts



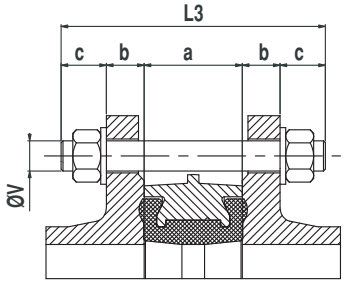
For wafer type and central flange type body ; assembly by rods :

L1 = a + 2(b+c)
L1 = minimum length of rods
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.



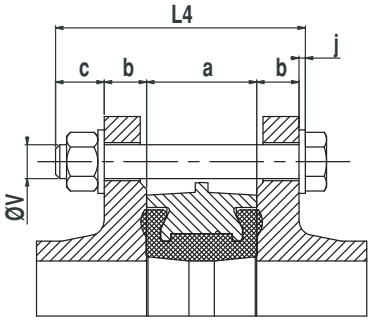
For wafer type and central flange type body ; assembly by bolts :

L2 = a + 2b + c + j
L2 = minimum length of rods
a = width of the butterfly valve
b = thickness of the flange (customer)
c = thickness of washer + thickness of nut + exceeding length of the rod
j = thickness of washer at the head of the screw.



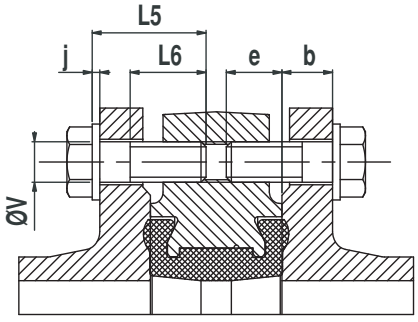
For ring shaped type body ; assembly by rods :

L3 = a + 2(b+c)
L3 = minimum length of rods
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



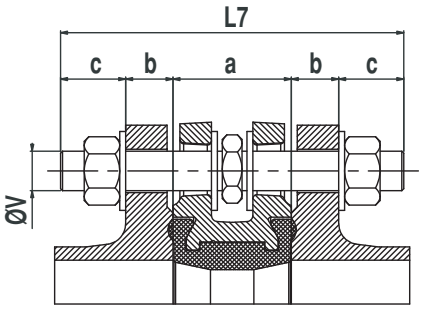
For ring shaped type body ; assembly by bolts :

L4 = a + 2b + c + j
L4 = minimum length of rods
a = width of the butterfly valve
b = thickness of the flange (customer)
c = thickness of washer + thickness of nut + exceeding length of the rod
j = thickness of washer at the head of the screw.



For lug type body and double flange body DN350; assembly by screws :

L5 ≤ b + e + j with L6 ≥ L5 - (b + j)
L5 = maximum length under head of screw
L6 = minimum length of the threading of the screw
a = width of the butterfly valve (face to face dimension)
b = thickness of the flange (customer)
e = maxi depth of screw
j = thickness of washer



For double flange body ; assembly by rods :

L7 = a + 2(b+c)
L7 = minimum length of rods
a = width of the butterfly valve
b = thickness of the flange (customer)
c = thickness of washer + thickness of nut + exceeding length of the rod

Installation

• General remarks :

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

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

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

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

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

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

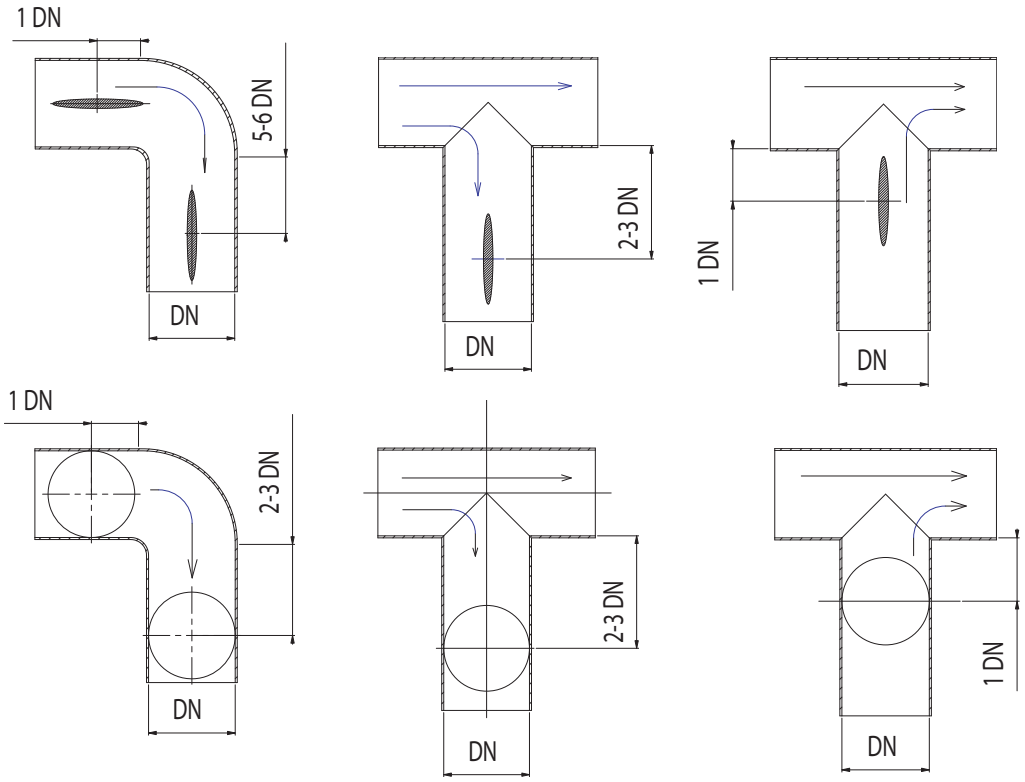
The valve is a machined piece of equipment and must not be used to prise apart the flanges.

An **instruction notice** specifying the installation characteristics and the commission of the Sylax is added to every product. It is available on our web site **www.danfoss-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.



Danfoss Socla

365 rue du lieutenant Putier
71530 VIREY LE GRAND
Postal address : BP273
71107 CHALON SUR SAONE Cedex

Tel : 33 3 85 97 42 52
Fax : 33 3 85 97 97 42
http://www.danfoss-socla.com
e-mail:commer@danfoss.com