

Technical manual

Sylax Gas Butterfly valves DN 32 - 150 mm



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Applications and main characteristics

Industrial processes and general services

Applications :

- Designed for domestic or industrial gas networks. NF ROB-GAZ, and DVGW (N° DG-4313BS0449, FGS-version only) approved.



- In case of applications for gas with special temperatures, please ask our technical department.

Main characteristics :

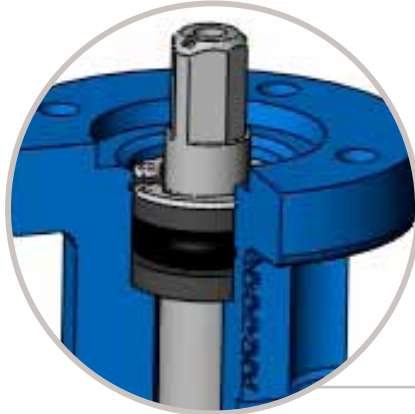
- Multiple connections : centering lugs, tapped lugs, and ring shaped type body.
- Vertical and horizontal operating position.
- High power transmission with robust grooved connection between the shaft and the disc.
- Easy maintenance by removing the circlips
- Interchangeable disc and liner.
- Body in ductile iron EN-GJS-400-15 (5.3106)
- Body epoxy coated 80 μ m colour blue RAL 5017 (a lot of other coatings on option, please ask our sales department)
- Wide choice of actuators.

Mounting instructions specifying the installation characteristics and the commission of the Sylax Gas are available on our web site www.socla.com or on request by our sales department.

Sale leaflet

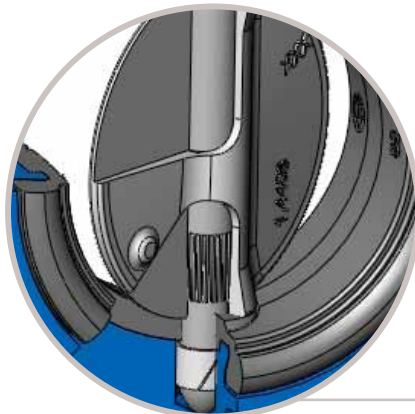
By concentrating the technologies and by integrating technical solutions of the highest levels, Socla fulfils its ambition :

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



- 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 :

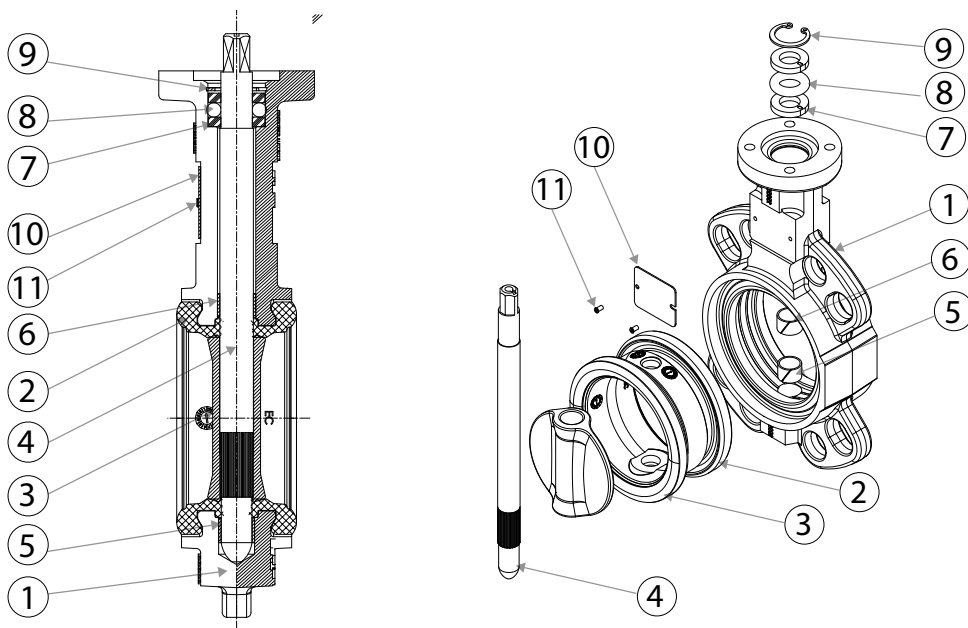
high reliability of tightness and torque transmission in the long term.



- 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.

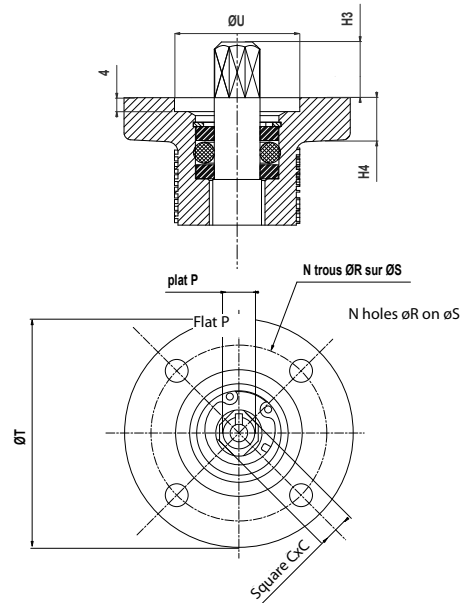
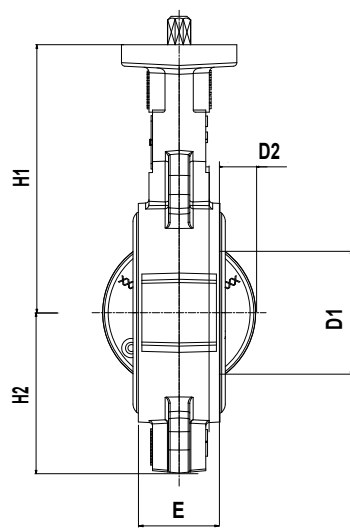


- Identification and traceability ensured by riveted metal tag : see on page 12.
- Improvement of torque values.

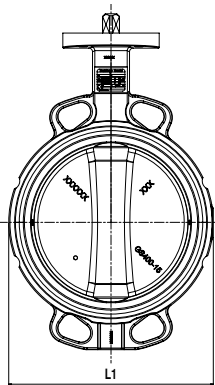
Spare parts list


Nb.	DESCRIPTION	Qty	MATERIALS ACCORDING TO NORMS			
			Materials	EN	ASTM	JIS
1	Body	1	Ductile iron	EN GJS 400-15 (5.3106)	-	FCD40
2	Liner	1	High Content Nitrile	-	-	-
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	Shaft	1	Stainless steel	X30 Cr13 (1.4028)	420	SUS 420 J2
5 - 6	Anti-friction bearing	1	Zinc coated steel/PTFE	-	-	-
7	Sealing washer and Anti-extrusion bush	1	Plastic	IXEF 50 FV	-	-
8	O-ring	1	Nitrile	-	-	-
9	Circlips	1	Steel	XC 75	-	-
10	Identification plate	1	Aluminium	EN AW - AL995 (EN AW - 1050A)	-	-
11	Rivets	2	Alu/Stainless steel			

Overall dimensions



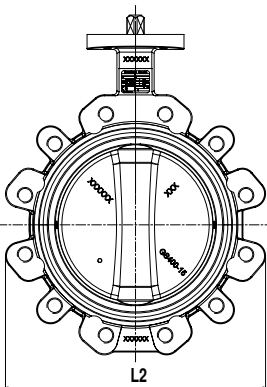
• 4 Centring lugs



Diameter		Face to face E	Overall dimensions				Iso top according to 5211					ISO N°	Square drive outlet			Travel of the disc		Weight (kg) *
DN	NPS		L1	H1	H2	H4	N	øR	øS	øT	øU		□C	H3	Flat P	D1	D2	
32/40	1 1/2	32	144	130	57	12	4	6,5	50	65	36	F05	11	16	11	31	6,5	1,9
50	2	43	121	136	62	12	4	6,5	50	65	36	F05	11	16	11	33	6	2,6
65	2 1/2	46	136	145	84	12	4	6,5	50	65	36	F05	11	16	11	55	13	2,9
80	3	46	127	151	89	12	4	6,5	50	65	36	F05	11	16	11	73	20	3,6
100	4	52	149	175	106	10	4	6,5	50	65	36	F05	11	16	11	87	25	4,4
125	5	56	182	190	120	12	4	8,5	70	90	56	F07	14	19	14	113	35	6,2
150	6	56	209	203	131	12	4	8,5	70	90	56	F07	14	19	14	141	48	7,1

(*) Ductile iron body (EN GJS 400-15), ductile iron disc (EN GJS 400-15), Nitrile liner.

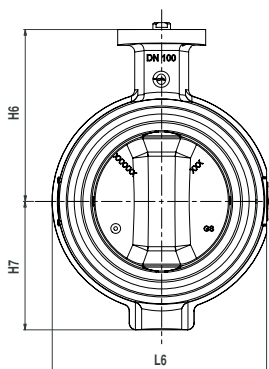
• Tapped lugs



Diameter		Face to face E	Overall dimensions				Iso top according to 5211					ISO N°	Square drive outlet			Travel of the disc		Weight (kg) *
DN	NPS		L1	H1	H2	H4	N	øR	øS	øT	øU		□C	H3	Plat P	D1	D2	
32/40	1 1/2	32	146	130	57	12	4	6,5	50	65	36	F05	11	16	11	31	6,5	1,9
50	2	43	121	136	62	12	4	6,5	50	65	36	F05	11	16	11	33	6	3
65	2 1/2	46	135	145	70	12	4	6,5	50	65	36	F05	11	16	11	55	13	3,3
80	3	46	179	151	89	12	4	6,5	50	65	36	F05	11	16	11	73	20	4,2
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	113	35	6,2
150	6	56	265	203	133	12	4	8,5	70	90	56	F07	14	19	14	141	48	7,1

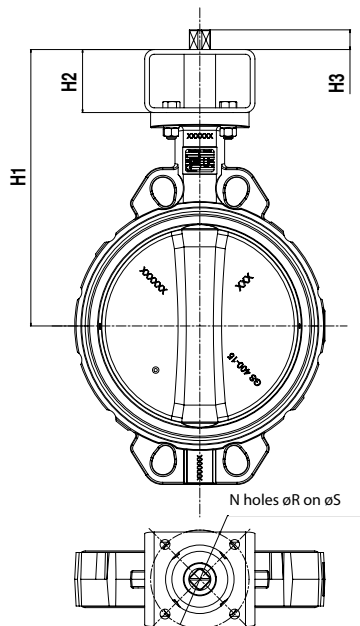
(1) Ductile iron body (EN GJS 400-15), ductile iron disc (EN GJS 400-15), Nitrile liner.

• Ring shaped type body



Diameter		Face to face E	Overall dimensions				ISO top according to EN ISO 5211					ISO N°	Square shaft outlet			Travel of the disc		Weight Kg EN-GJS-400-15 (3.3106)
DN	NPS		L6	H6	H7	H4	N	ØR	ØS	ØT	ØU		□C	H3	flat P	D1	D2	
50	2	43	104	99	66	12	4	6,5	50	65	36	F05	11	16	11	29	4,5	1,9
65	2 1/2	46	124	109	75	12	4	6,5	50	65	36	F05	11	16	11	48	10	2,4
80	3	46	140	115	82	12	4	6,5	50	65	36	F05	11	16	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

Connecting kit for actuations



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

DN	NPS	Sur embase VP	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		205		205		205		205		225							
80	3		210		210		210		210		230							
100	4	235	235	235	235	255												
125	5	F07/□14	249		249	60							249	60	269			
150	6		262		262								262		282			

DN	NPS	Iso top of the valve	Exceeding length fo the shaft H3										
			Kit	□9	□11	□14	□17	□22	□27	□36	□46		
32	1 1/4	F05/□11	F03										
40	1 1/2		F04										
50	2		F05										
65	2 1/2		F07										
80	3		F10										
100	4	F07/□14	F04										
125	5		F05										
150	6		F07										
			F10										
			F12										
		F14											

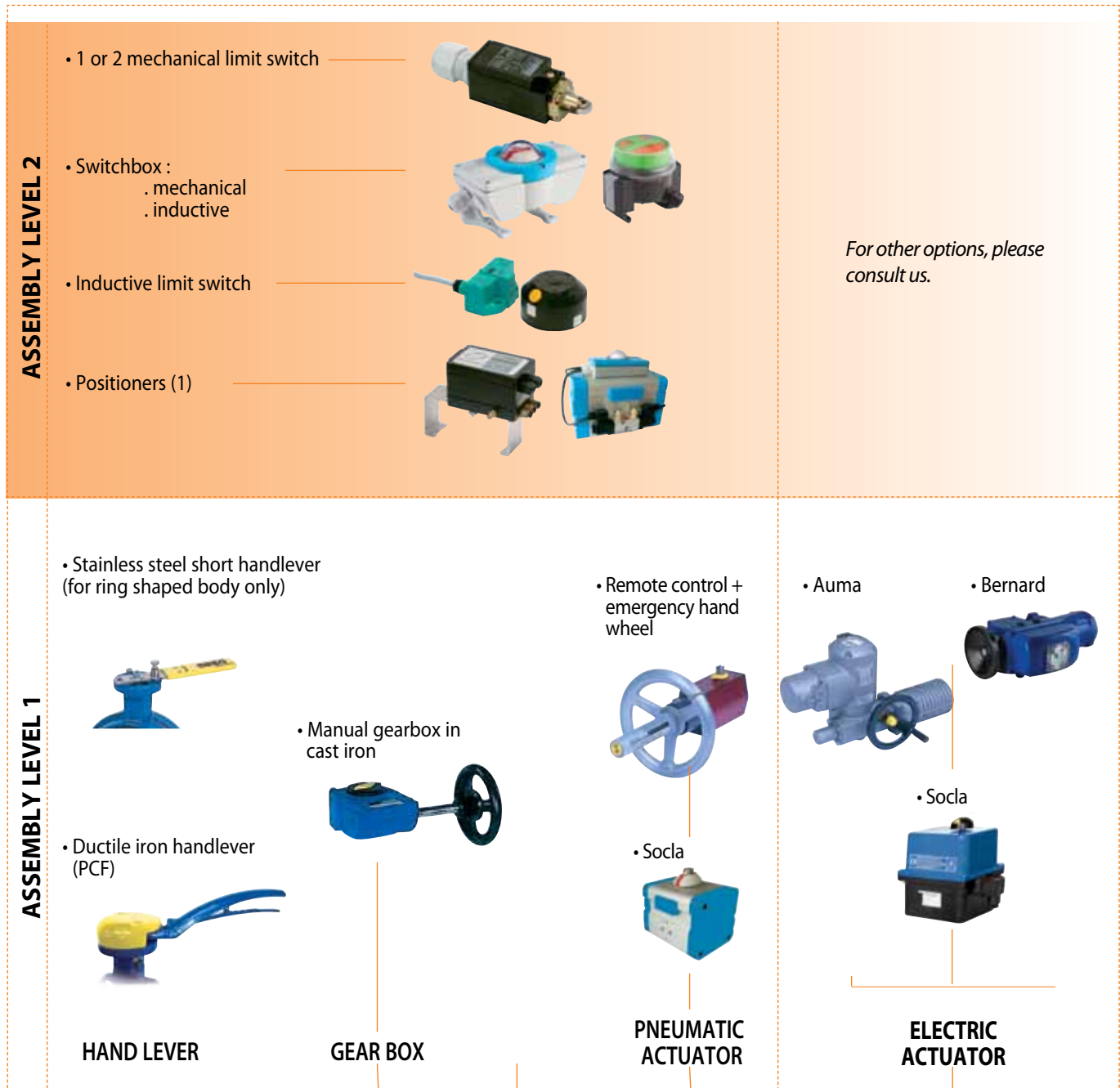
N°	N	øR	øS
F03	4	5,5	36
F04	4	5,5	42
F05	4	6,5	50
F07	4	8,5	70
F10	4	10,5	102
F12	4	12,5	125
F14	4	17	140
F16	4	22	165

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.



(1) Pneumatic actuator only

Connecting flanges

The Sylax 25-150 mm butterfly valve can be mounted with the following connections (other types on request) :

- ✓ : possible mounting
- : possible mounting with re-machining
- : possible mounting but special reference
- : impossible mounting

• 4 Centering lugs

Diameter		EN1092-1 & EN1092-2					ASME/ANSI B16.1 Class 125	ASME/ANSI B16.5 Class 150	ASME/ANSI B16.5 Class 300	BS10		JIS B2238 et JIS B2239		
DN	NPS	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	✓	✓	✓	●	●	✓	✓	●	✓	✓	✓	✓	●

• Tapped lugs

Diameter		EN1092-1 & EN1092-2					ASME/ANSI B16.1 Class 125	ASME/ANSI B16.5 Class 150	ASME/ANSI B16.5 Class 300	BS10		JIS B2238 et JIS B2239			
DN	NPS	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	■	✓	✓	○	○	○	○		○(5)	○	○	○	○	○
125	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
150	6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

DN65 PN10/16 4 holes

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

Attention : the Sylax 25-350 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.

• 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	■	✓	✓	✓	✓	✓	✓	✓	●	●	■	●	✓

NB : The end of line mounting is impossible with this type of valve

Normalisation

- **Design :**
According to EN 593 and marking according to EN 19.
- **ISO top connection:**
ISO top connection according to EN ISO 5211
- **Face to face :**
According to EN 558-1 series 20
ISO 5752 series 20
API 609 table 1
- **Connecting flange :** see page 7
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
 - tightness of the body : Test P11 (1,5 x permissible operating pressure)
 - tightness of the seat : test P12 rate A (1,1 x permissible operating pressure).
 According to EN12266-2
 - anti-static device : 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 (group 1/2), 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. Socla is not responsible for modifications of the products to working conditions not previously specified by the customer.

In order to facilitate your choice regarding these new regulatory requirements, Socla has put the necessary information concerning products with CE marking, specification sheets and product identification plates at your disposal in the price list.

An **instruction notice** specifying the installation characteristics and the commission of the Sylax Gas is available on our web site www.socla.com or on request by our sales department.

Pressure

DIRECTIVE 97/23/CE Équipements 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	NITRILE	32 to 100	I	Flanges	6			6	6
				End of line	4				4
		125 to 300	II	Flanges	6			6	6
				End of line	4				4
8 bar	NITRILE	32 to 100	I	Flanges	8			8	8
				End of line	6				6
		125 to 300	II	Flanges	8			8	8
				End of line	6				6

PS : Maximum allowable pressure(bar) according to Directive 97/23/CE - PFA : Allowable operating pressure (bar) for supply distribution and disposal of water

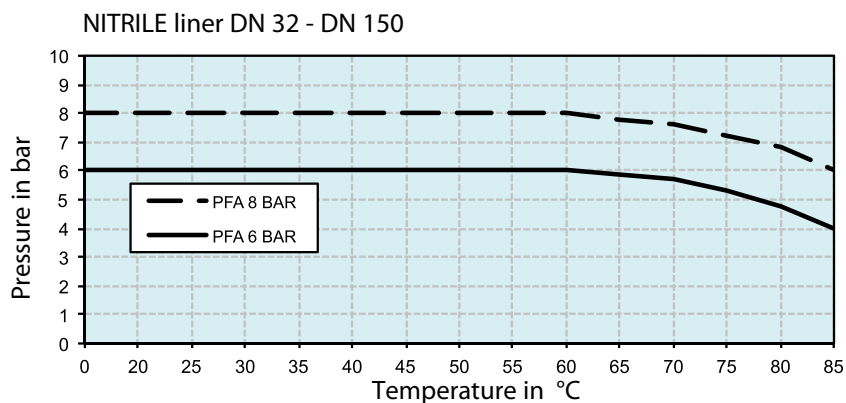
NOTE : Butterfly valves of category II used as «end of line», please consult us.

Torque values

Torques for dry fluids (Nm) NBR	32	40	50	65	80	100	125	150
PS6	23	23	33	42	48	55	88	100
PS8	23	23	40	55	80	100	150	250

NOTE :
One actuation/month minimum .

Pressure/temperature diagram



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	

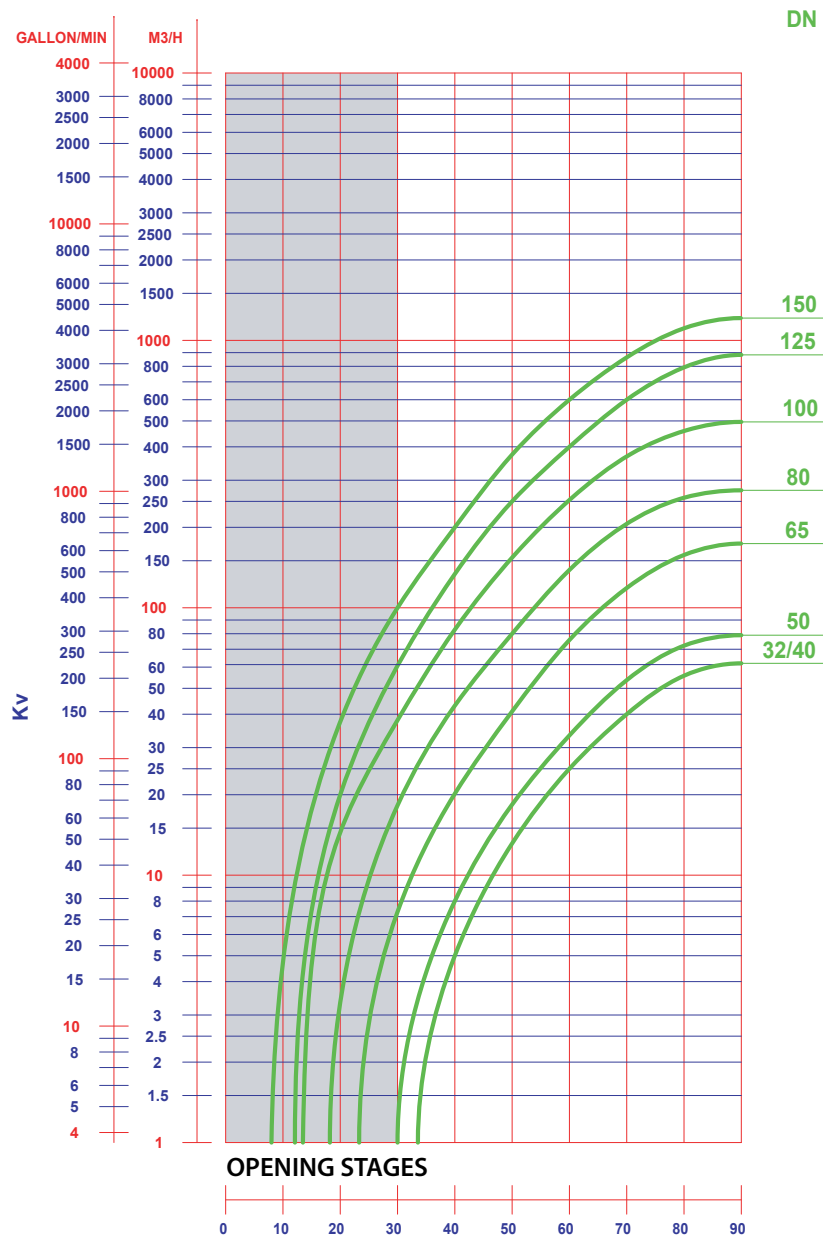
The butterfly valve is not the best product for regulating. Nevertheless, the Sylax gas butterfly valve can be used to regulate by an opening stage between 30° and 90°.

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

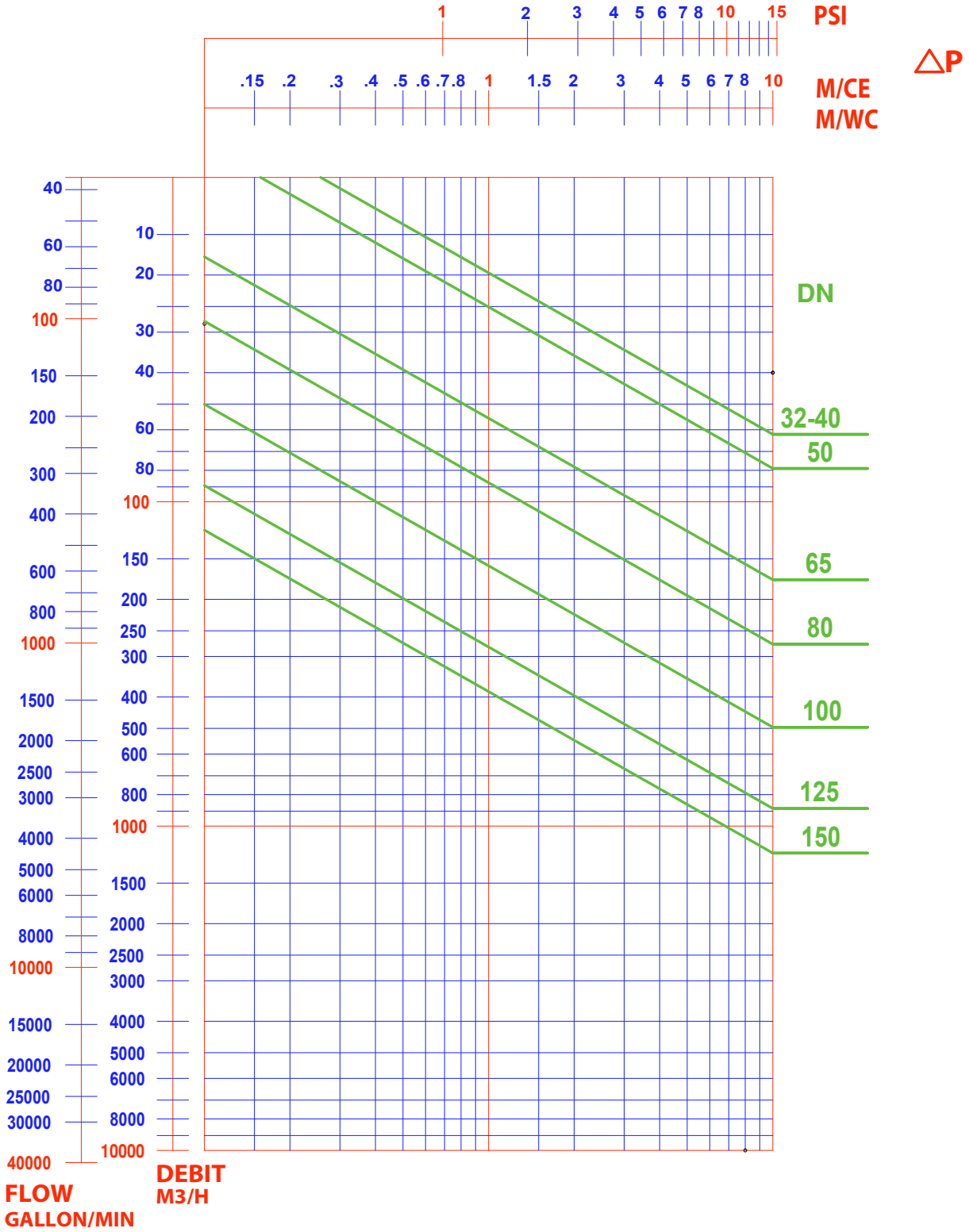
Kv = volume of water in m³/h through a valve at a preset opening stage and under a head loss of 1 bar.

The maximum flow velocity of the fluid through the valve must not exceed :

- 20m/s for gas. Between 20 and 25m/s, the use of the Sylax gas butterfly valve is possible, but the phenomena of cavitation, noise, vibration and water hammering increase.



Head loss diagram (ΔP)

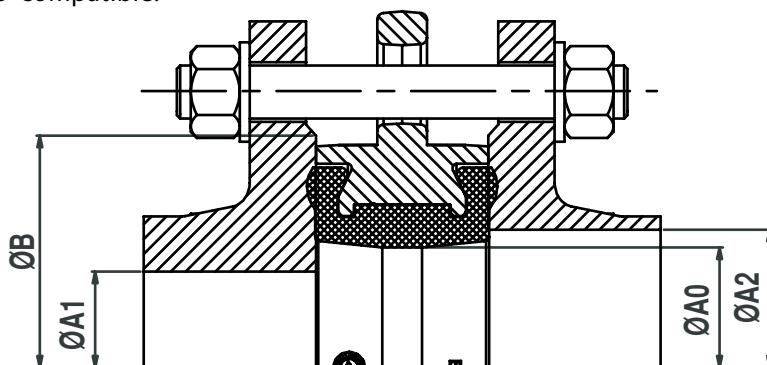


Type of flange

The Sylax gas 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.

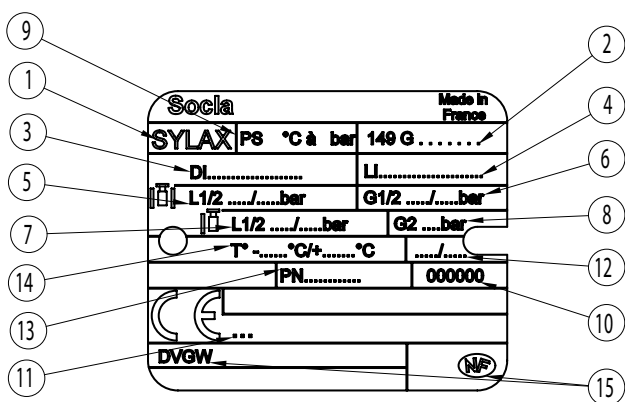


DN		Ø A0	Ø A1 mini	Ø A2 maxi	Ø B mini
32	1 1/4	43	33	51	80
40	1 1/2	43	33	51	80
50	2	54	40	60	90
65	2 1/2	70	59	74	110
80	3	85	78	91	128
100	4	100	97	108	148
125	5	125	119	143	178
150	6	150	146	166	202

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



Rep	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 PS end flange for Gas G2
9	Pressure PFA water 20°C
10	Number of manufacturing order
11	Notified Body Number for the Directive PED 97/23/CE
12	Manufacturing date
13	Connecting flanges
14	Limit of use
15	Approvals

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 1/2	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 1/2	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

* 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
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

* WAFER TYPE BODY AND LUGS WITH UNTHREADED HOLES :

Assembly by rods : number of nuts and washer = 2 x Number of rods (above)

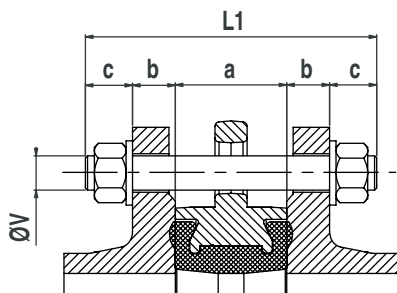
Assembly by bolts : Number of nuts = Number of screws (above) and number of washer = 2 x Number of nuts

* LUG TYPE BODY :

Assembly by screws : Number of screw per face (above) and number of washer is the same

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

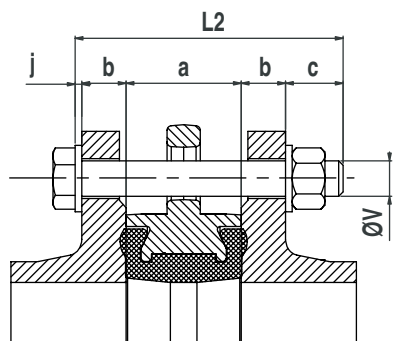
Bolts and nuts



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

L1 = a + 2(b+c)

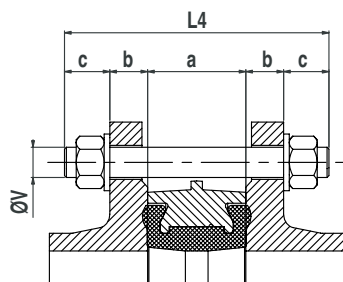
- L1 = minimum length of rods
- a = width of the butterfly valve (face to face dimension)
- b = thickness of the flange (customer)
- c = thickness of washer + thickness of nut + exceeding length of the rod.



For wafer type body ; assembly by bolts :

L2 = a + 2b + c + j

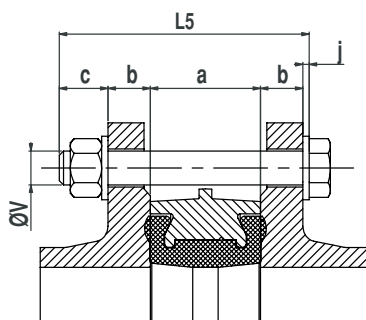
- L2 = minimum length under head of screw
- a = width of the butterfly valve
- b = thickness of the flange (customer)
- c = thickness of washer + thickness of nut + exceeding length of the rod
- j = thickness of washer at the head of the screw.



For ring shaped type body ; assembly by rods :

L4 = a + 2(b+c)

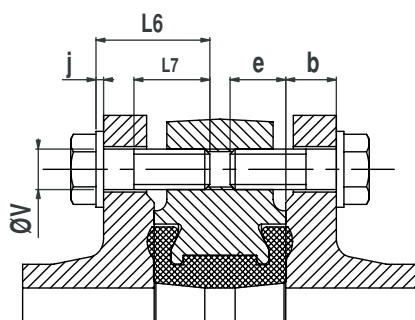
- L4 = minimum length of rods
- a = width of the butterfly valve
- b = thickness of the flange (customer)
- c = thickness of washer + thickness of nut + exceeding length of the rod



For ring shaped type body ; assembly by rods :

L5 = a + 2b + c + j

- L5 = maximum length under head of screw
- 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 ; assembly by screws :

L6 ≤ b + e + j avec L7 ≥ L6 - (b + j)

- L6 = maximum length under head of screw
- L7 = 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

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.

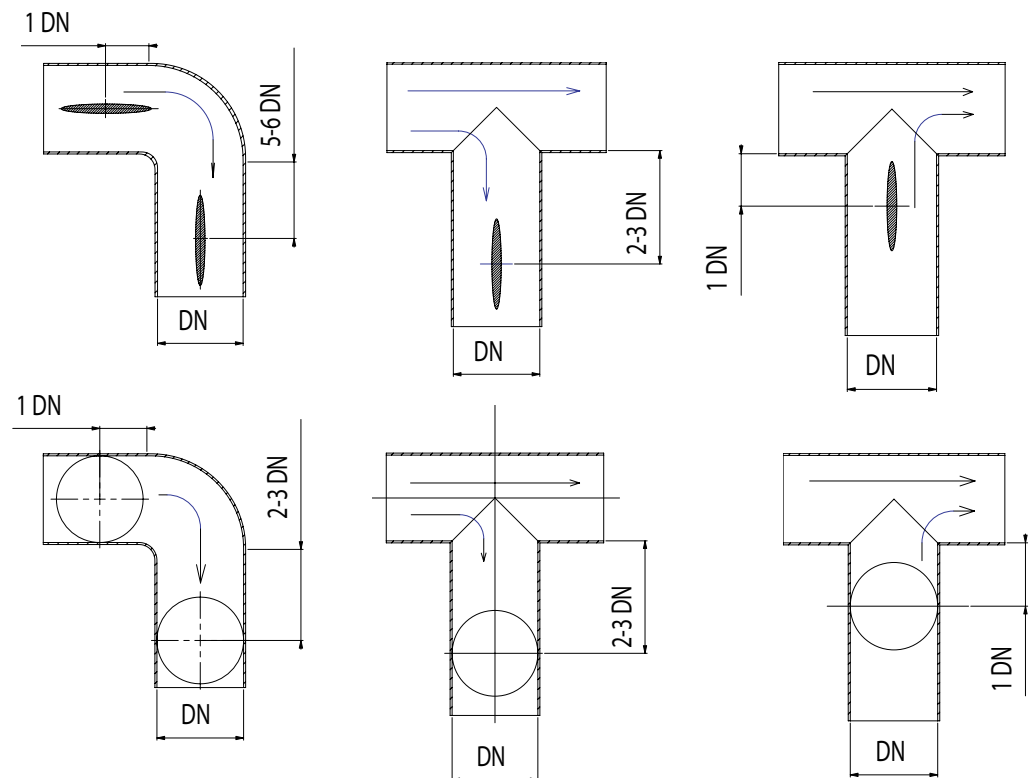
The valve is a machined piece of equipment and must not be used to prise apart the flanges.

A mounting instruction specifying the installation characteristics and the commission of the Sylax gas 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.



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