

**LUG BUTTERFLY VALVE FM FIRE NETWORK AND SPRINKLER  
EXCELLENCE RANGE**



Lloyd's  
Register  
ISO 9001 : 2015



Lloyd's  
Register  
PED/2014/68/EU



**Certificate 3.1**

**Size :** DN 50 to 300 mm  
**Ends :** Between flanges PN10/16  
**Min Temperature :** - 10°C  
**Max Temperature :** + 110°C  
**Max Pressure :** 16 Bars  
**Specifications :** For fire network and sprinkler  
Lug type  
Full crossing stem  
Gear box with position indicator

**Materials :** Ductile iron EN GJS-500-7 body, EPDM seat

\*the installation defects and wear defects are not covered by the guarantee

## LUG BUTTERFLY VALVE FM FIRE NETWORK AND SPRINKLER EXCELLENCE RANGE

### SPECIFICATIONS :

- F.M. : Factory mutual
- Long neck for isolation
- For fire network ( F.M. approved )
- IP65 gearbox
- Gear box with position indicator
- Cast iron gear box
- Valve indicator ( indicate valve position : opened or closed )
- Lug type (reinforced lug from DN200 to 300)
- Between flanges PN10/16 up to DN150, PN16 over
- Full crossing stem
- Stainless steel disc up to DN100 included
- Ductile iron epoxy coated disc ( +/- 40  $\mu$  thickness ) from DN125 to DN300
- Rilsan coated body color RAL 5024 250-300 microns thickness

### USE :

- For fire network and sprinkler
- Min and max Temperature Ts : - 10°C to + 110°C
- Max Pressure Ps : 16 bars (see graph page 4)

### RANGE :

- Lug valve with FM gearbox **Ref. 1182** from DN 50 to DN 300

### ENDS:

- Between flanges PN10-PN16 up to DN150, PN16 over

### TORQUE VALUE ( in Nm with safety coefficient of 30 % included ) at 16 bars :

DN	50	65	80	100	125	150	200	250	300
Torque ( Nm )	11	20	29	47	82	130	210	360	475

### TORQUE VALUE ( in Nm with safety coefficient of 30 % included ) at 10 bars :

DN	50	65	80	100	125	150	200	250	300
Torque ( Nm )	10	14	18	31	59	93	206	330	425

## LUG BUTTERFLY VALVE FM FIRE NETWORK AND SPRINKLER EXCELLENCE RANGE

**FLOW COEFFICIENT Kv ( m<sup>3</sup> / h ) :**

DN	Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	3	7	15	33	44	48	54	54	54
65	6	10	21	40	57	86	102	102	102
80	7	16	37	56	84	182	246	246	246
100	9	22	51	88	134	187	255	336	336
125	21	33	91	153	232	331	468	560	560
150	45	69	149	281	302	597	822	1015	1072
200	55	131	254	420	631	904	1388	1758	1758
250	64	246	442	710	1056	1522	2128	3096	3096
300	100	275	472	953	1450	2093	2972	4193	4480

**HEAD LOSS CALCULATIONS :**

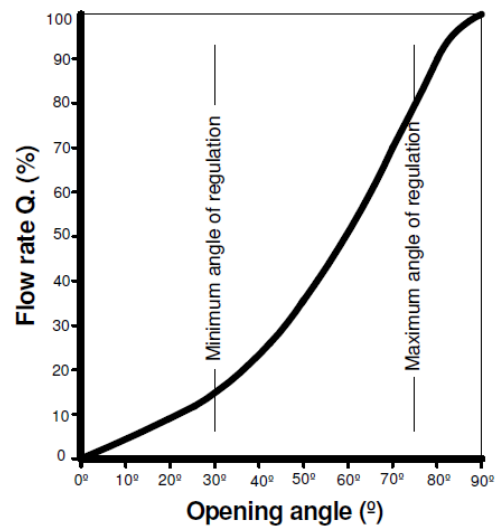
$$\Delta p = ( Q / Kv )^2 \times SG$$

Q : flow in m<sup>3</sup>/h

$\Delta p$  : Head loss in bar

SG : Specific gravity (= 1 for water)

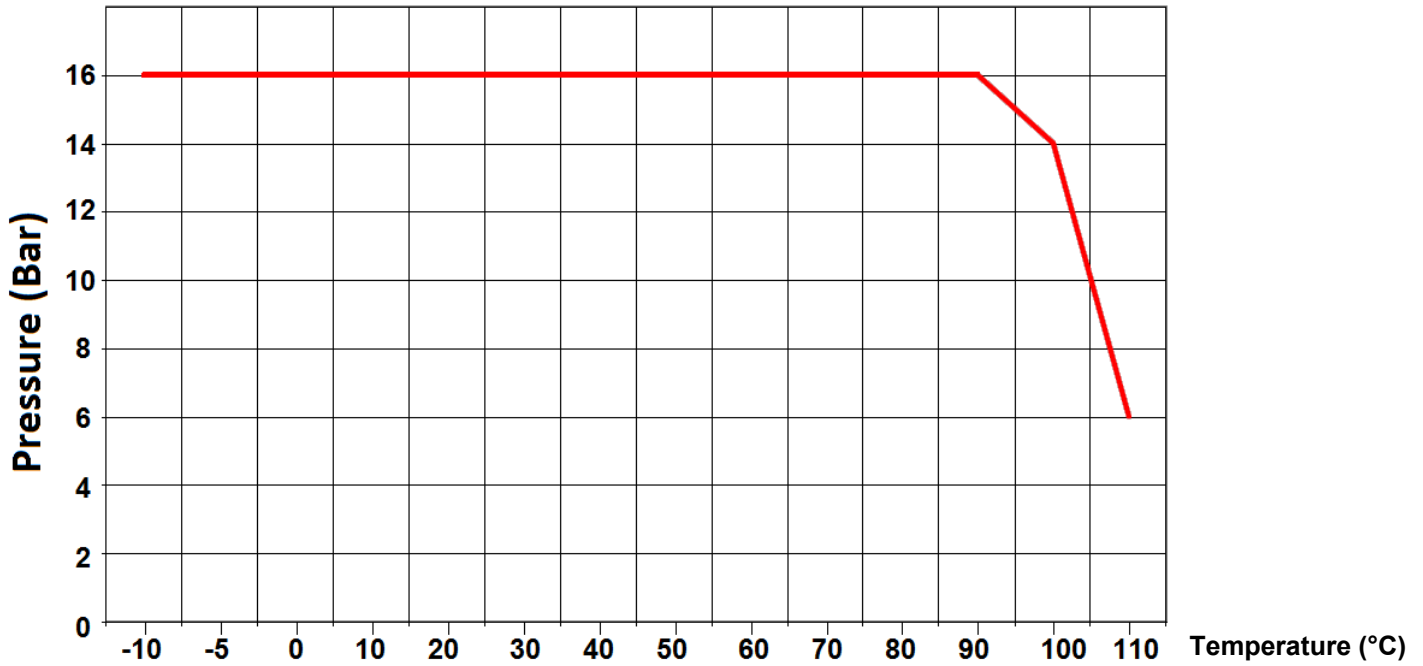
Kv : Volume of water in m<sup>3</sup>/h, that will flow through a given restriction or valve opening with a pressure drop of 1 bar at 20°C)





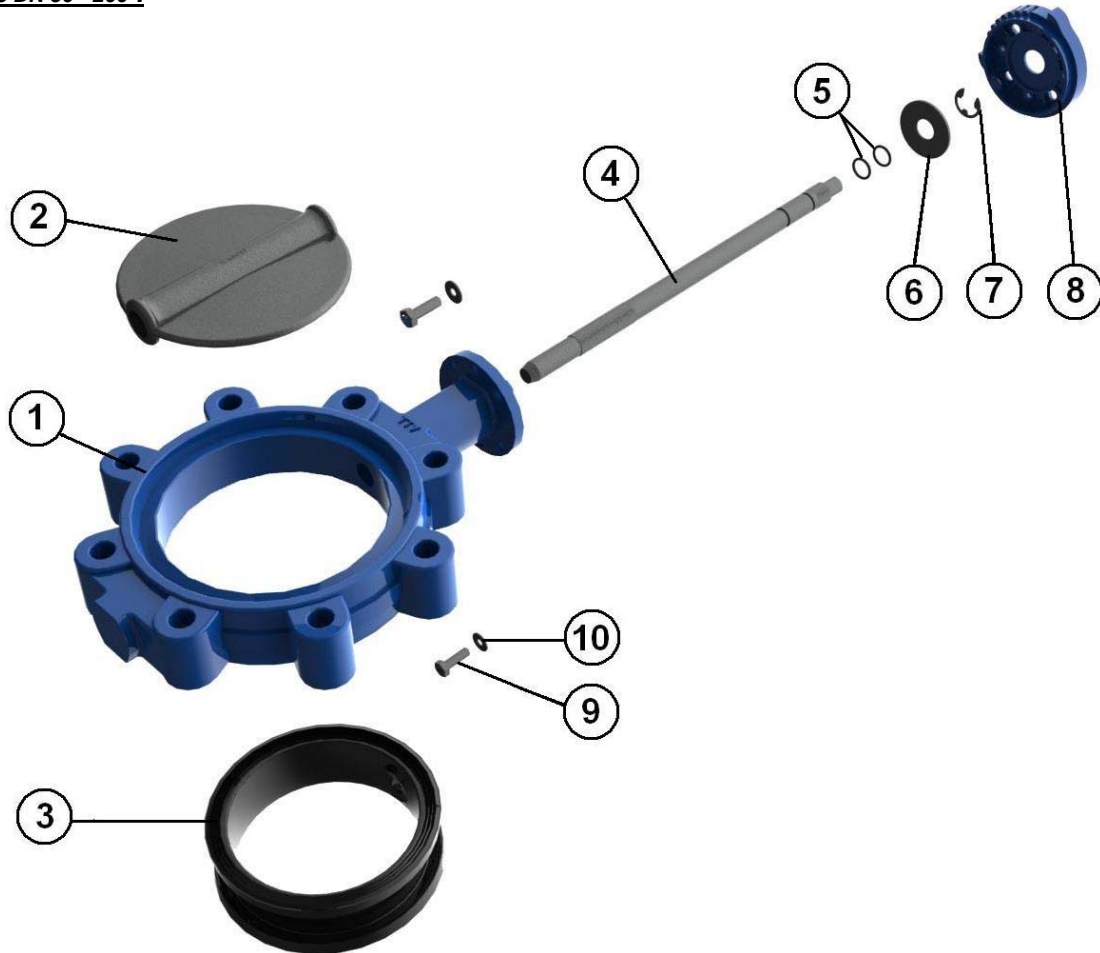
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PRESSURE / TEMPERATURE GRAPH (STEAM EXCLUDED):



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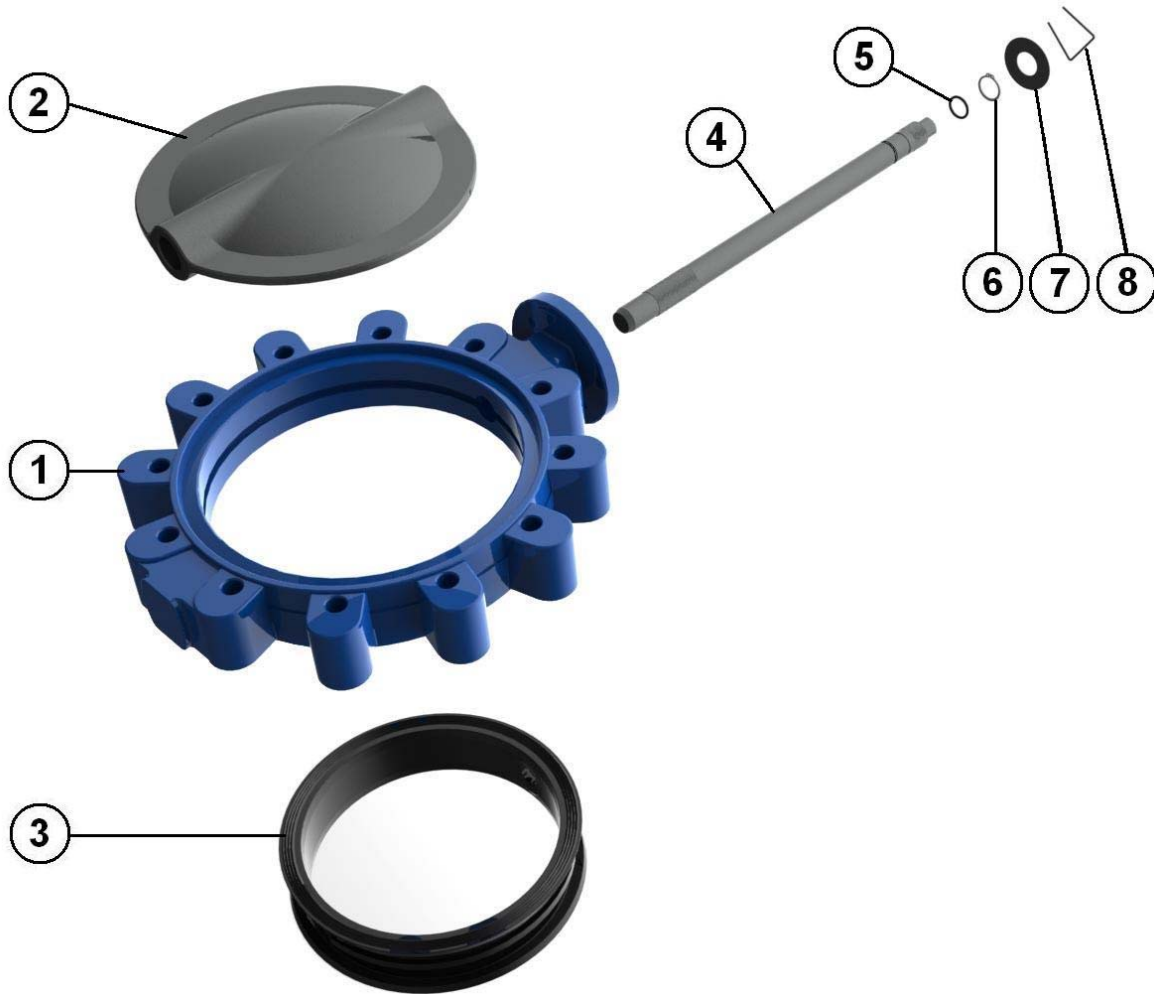
MATERIALS DN 50 - 200 :



Item	Designation	Materials
1	Body	Ductile iron EN GJS-500-7 rilsan coated color RAL 5024 250-300 μ thickness
2	Disc DN 50 -100	ASTM A351 CF8M
2	Disc DN125 - 200	Ductile iron EN GJS-500-7 epoxy coated +/- 40μ
3	Seat	EPDM
4	Stem	AISI 420
5	O ring	NBR
6	Ring	Steel
7	Circlips	Steel
8	Plate	Aluminium
9	Plate screw	5.6
10	Washer	Steel

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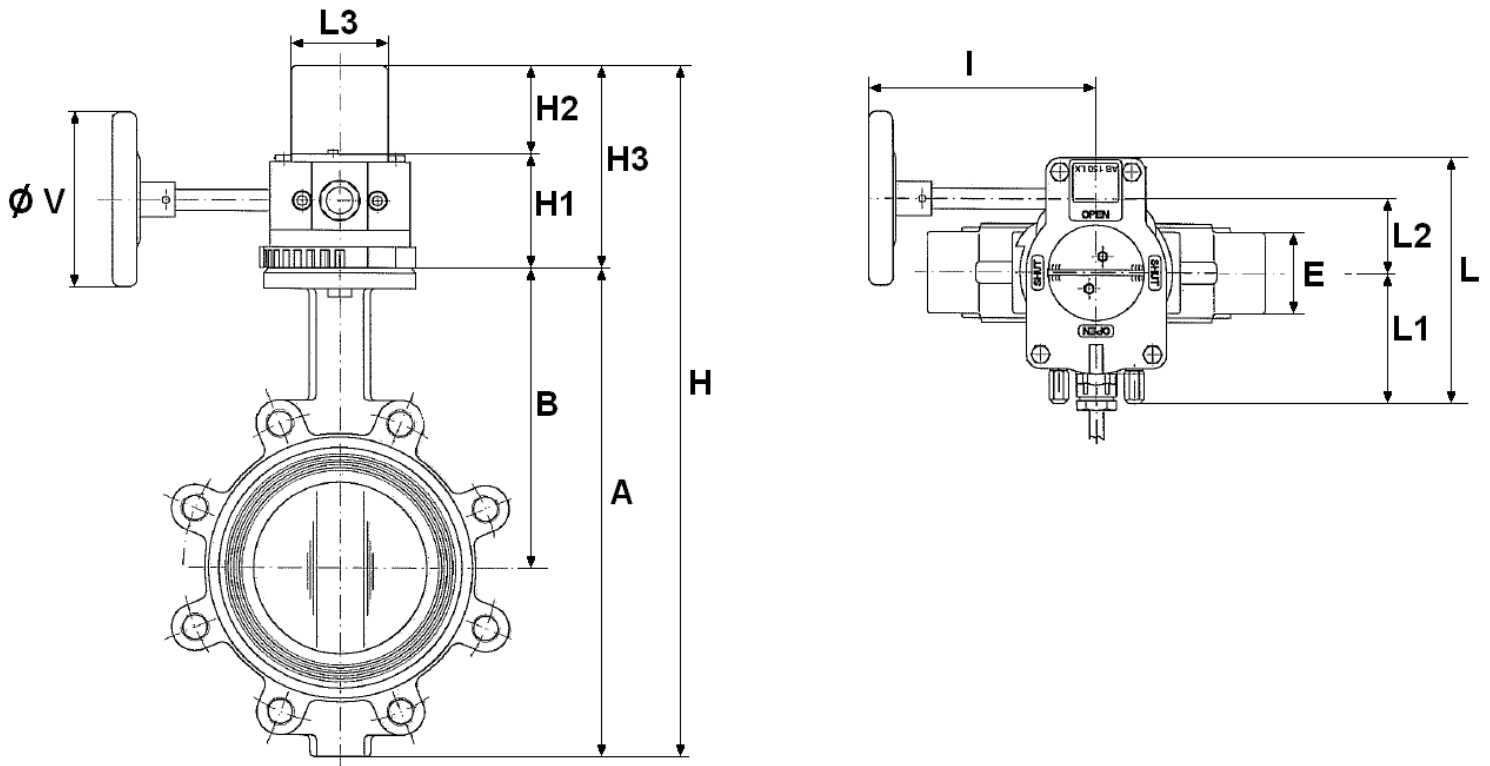
MATERIALS DN 250 - 300 :



Item	Designation	Materials
1	Body	Ductile iron EN GJS-500-7 rilsan coated color RAL 5024 250-300 μ thickness
2	Disc	Ductile iron EN GJS-500-7 epoxy coated +/- 40μ
3	Seat	EPDM
4	Stem	AISI 420
5	O ring	NBR
6	Circlips	Steel
7	Ring	Steel
8	Spring	Steel

**LUG BUTTERFLY VALVE FM FIRE NETWORK AND SPRINKLER  
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SIZE DN50-150 ( in mm ) :

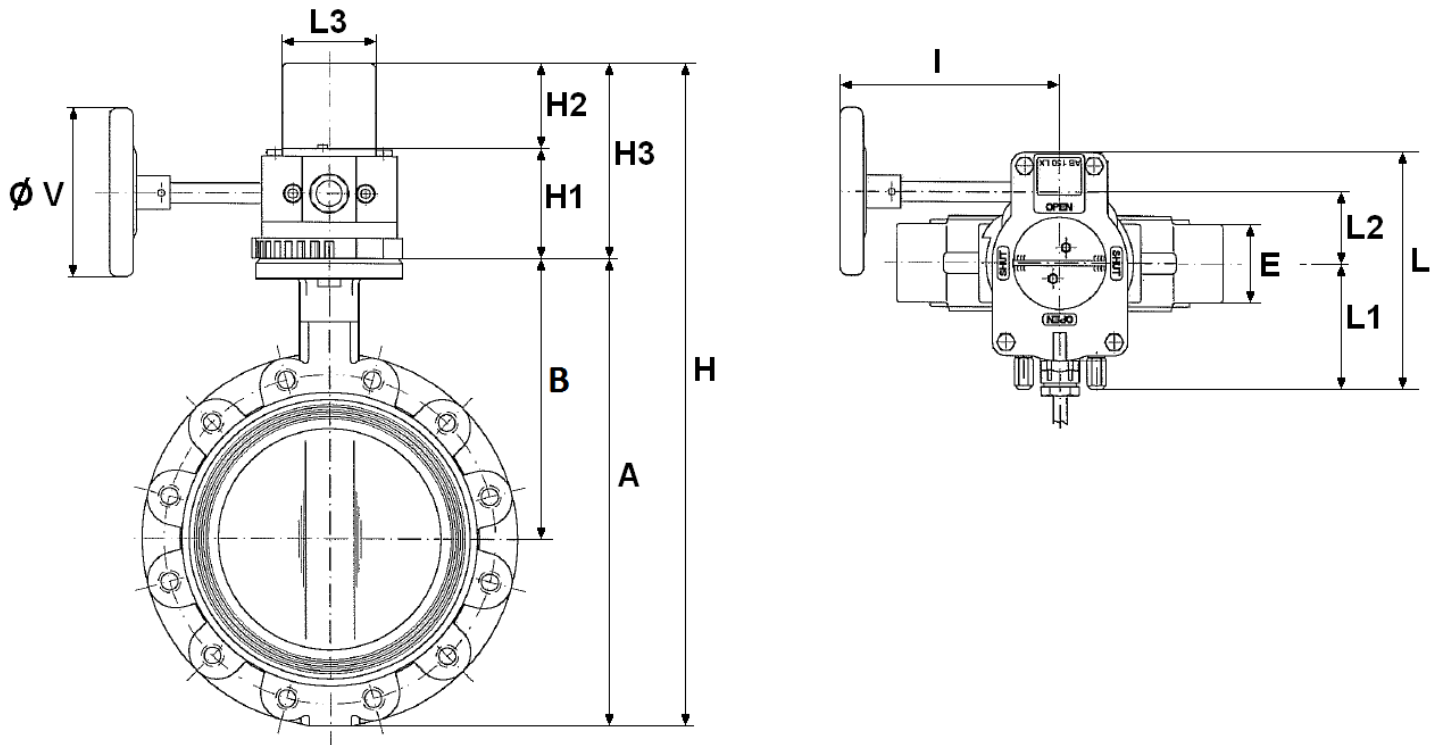


DN	50	65	80	100	125	150
E	43	46	46	52	56	56
A	224	241	256	294	327	354
B	156	160	168	185	204	214
H	326	343	358	396	418	445
H1	48	48	48	48	54	54
H2	54	54	54	54	37	37
H3	102	102	102	102	91	91
L3	55	55	55	55	46	46
Ø V	100	100	100	100	250	250
I	130	130	130	130	192	192
L	141	141	141	141	178	178
L1	58	58	58	58	78	78
L2	42	42	42	42	50	50
Weight (in Kg)	6.5	7.5	9.5	11	16.5	17.5
Ref.	1182050	1182065	1182080	1182100	1182125	1182150



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SIZE DN200-300 PN16 ( in mm ) :



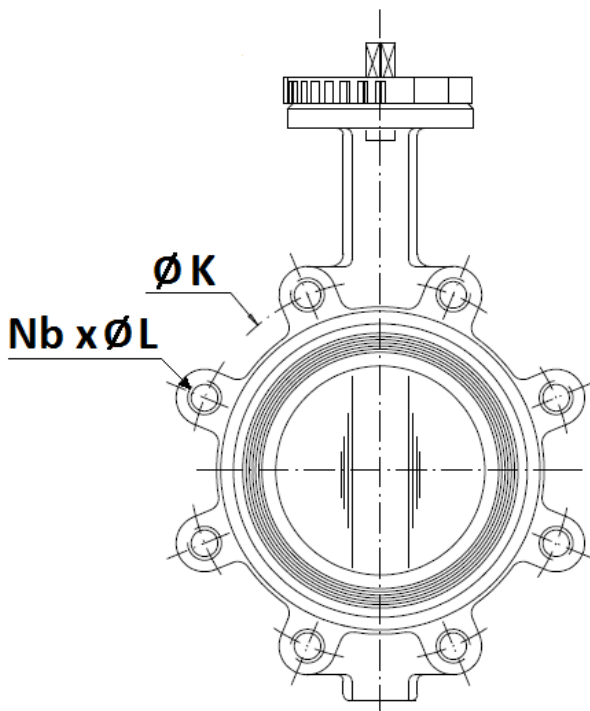
DN	200	250	300
E	60	68	78
A	422	462	524
B	256	248	282
H	546	586	664
H1	78	78	84
H2	46	46	56
H3	124	124	140
L3	75	75	86
$\phi V$	250	250	315
I	231	231	225
L	209	209	232
L1	80	80	88
L2	71	71	86
Weight (in Kg)	35	40	61.5
Ref.	1182200	1182250	1182300



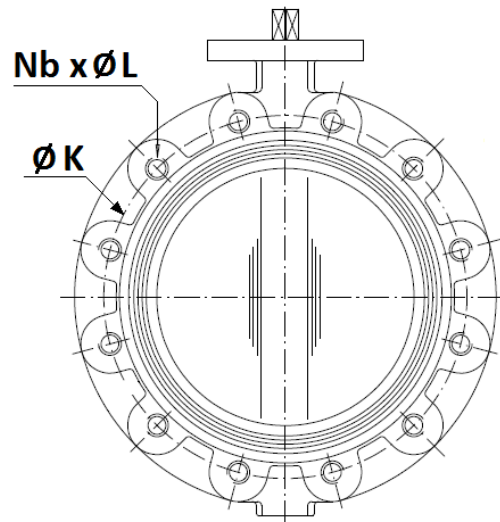
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**BETWEEN FLANGES SIZE (in mm) :**

**DN 32-150**



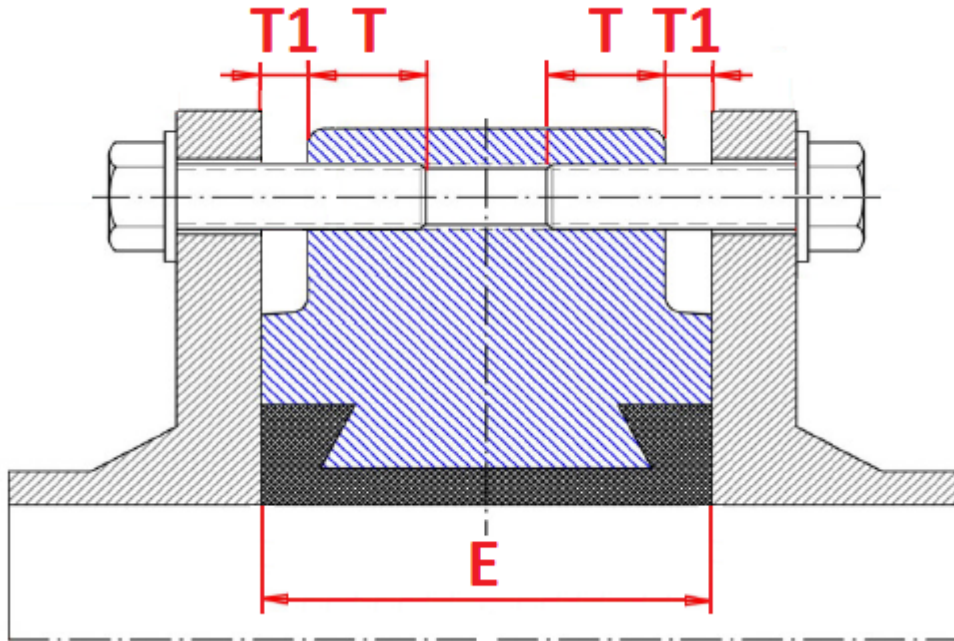
**DN200 – 300**



	DN (mm)	32	40	50	65	80	100	125	150	200	250	300
	NPS ( " )	1"1/4	1"1/2	2"	2"1/2	3"	4"	5"	6"	8"	10"	12"
PN10	Ø K	100	110	125	145	160	180	210	240	295	350	400
	Nb x Ø L	4 x M16				8 x M16			8 x M20		12 x M20	
PN16	Ø K	100	110	125	145	160	180	210	240	295	355	410
	Nb x Ø L	4 x M16				8 x M16			8xM20	12xM20	12 x M24	

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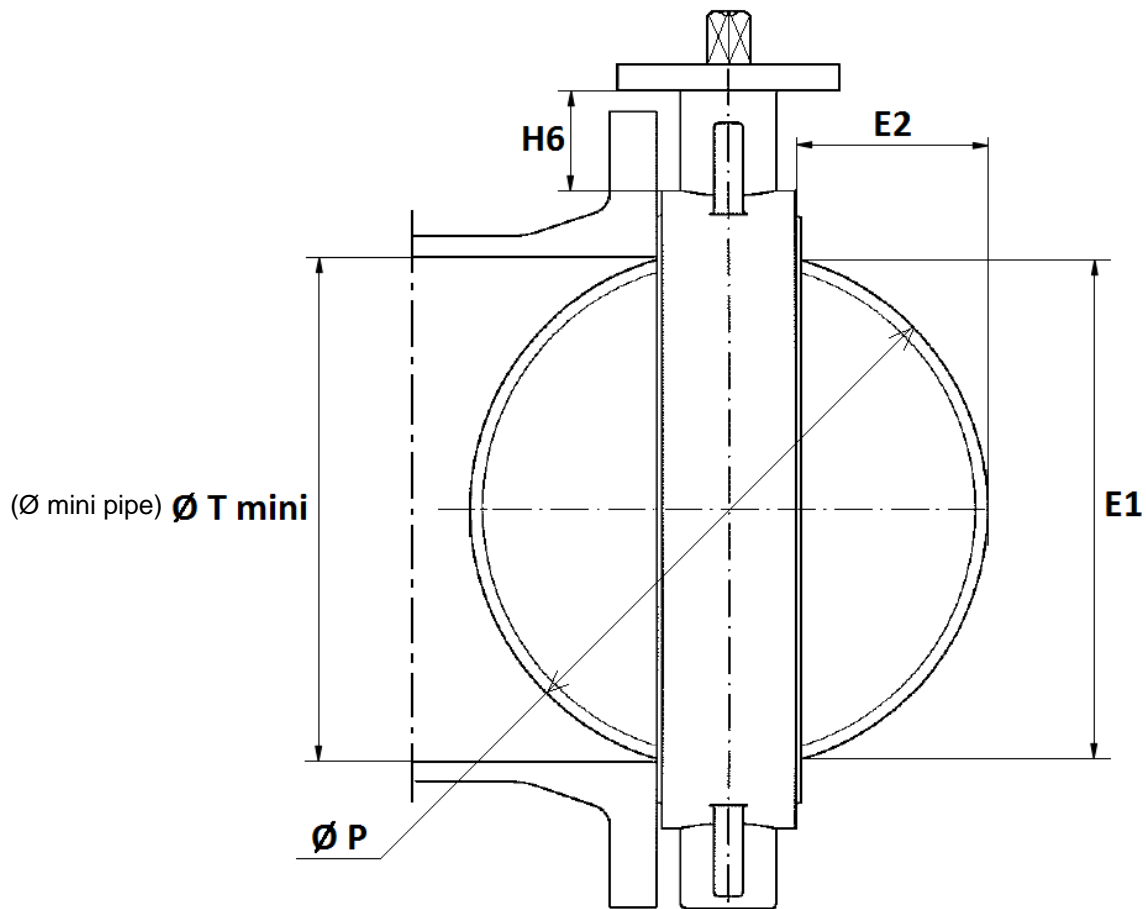
DEPTH THREADED HOLES (in mm) :



DN	PN10	PN16	PN10, PN16	
	T	T	T1	E
32	13.5	13.5	2.5	33
40	13.5	13.5	2.5	33
50	14.5	14.5	2.5	43
65	13.5	13.5	3.5	46
80	16	16	4	46
100	17.5	17.5	2.5	52
125	20	20	3	56
150	20	20	3	56
200	23	23	3	60
250	26.5	26.5	2.5	68
300	31	29	3	78

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DISC AND NECK SIZE ( in mm ) :

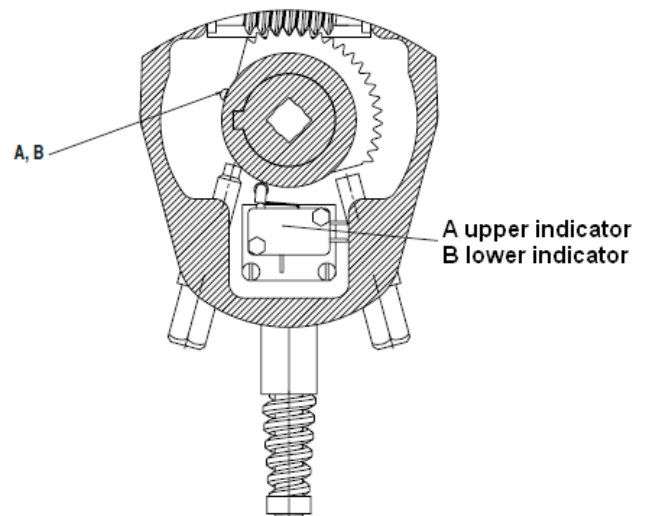
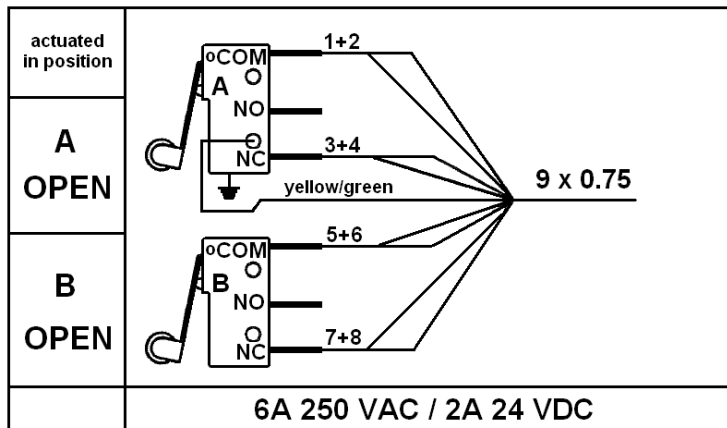


DN	50	65	80	100	125	150	200	250	300
E1	24.5	46	65	85	109	136	188	238	289
E2	3.5	9.5	17	24	33.5	45.5	69	90	110.5
H6	82	80	80	88	93	89	99	71	76
Ø T mini	27.5	49	68	88	112	139	191	241	292
Ø P	50	65	80	100	123	147	198	248	299

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**POSITION INDICATOR :**

- A double contact ( incompleted opening position ) , signal at the begining of closure.
- 9 wires cable 0.75 mm<sup>2</sup> 1 meter long



**STANDARDS :**

- Fabrication according to ISO 9001:2015
- DIRECTIVE 2014/68/EU : CE N° 0038  
Risk Category III module H
- Certificate 3.1 on request
- Designing according to NF EN 593 v 2004
- Marking according to NFE 29-130
- Pressure tests according to EN 12266-1, Rate A
- Between flanges according to EN 1092-1 PN10/16
- ISO 5211 mounting pad
- Length according to ISO 5752 short series 20, EN 558 series 20 ( NF 29305 ), BS 5155 Wafer short/medium, DIN 3202 part 3, series K1
- **FM** approved N°3025174 17/06/2008

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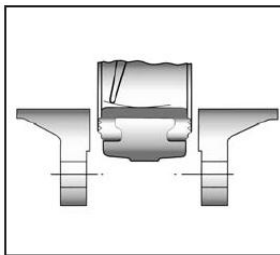
**INSTALLATION INSTRUCTIONS**

**GENERAL GUIDELINES :**

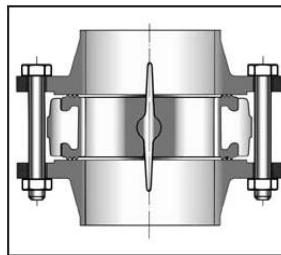
- Ensure that the valves to be used are appropriate for the conditions of the installation (type of fluid, pressure and temperature).
- Be sure to have enough valves to be able to isolate the sections of piping as well as the appropriate equipment for maintenance and repair.
- Ensure that the valves to be installed are of correct strength to be able to support the capacity of their usage.
- **Installation of all circuits should ensure that their function can be automatically tested on a regular basis (at least two times a year).**

**INSTALLATION INSTRUCTIONS :**

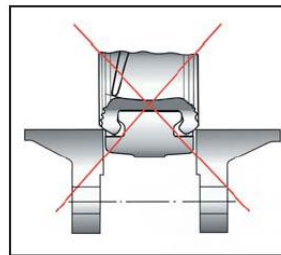
- **Before installing the valves, clean and remove any objects from the pipes** (in particular bits of sealing and metal) which could obstruct and block the valves.
- **Ensure that both connecting pipes either side of the valve (upstream and downstream) are aligned (if they're not, the valves may not work correctly).**
- **Make sure that the two sections of the pipe (upstream and downstream) match, the valve unit will not absorb any gaps. Any distortions in the pipes may affect the tightness of the connection, the working of the valve and can even cause a rupture.** To be sure, place the kit in position to ensure the assembling will work.
- **If sections of piping do not have their final support in place, they should be temporarily fixed. This is to avoid unnecessary strain on the valve.**
- The valve must be inserted between flanges with disc half opened but the disc must not overpass the valve thickness. Position the bolts to keep centered the valve. Then open fully the valve and tighten the bolts.  
**See graph under.**



Half open valve introduction



Complete opened disc valves when screw tightening



- **Do not install with head down**

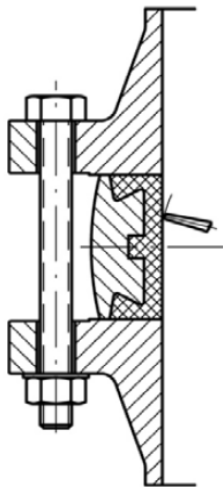


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### INSTALLATION INSTRUCTIONS (SUITE) :

- Tighten the bolts in cross.
- The disc must move easily inside the pipe.
- Valves must be opened during cleaning operation.
- Tests must be done with a cleaned pipe.
- Tests must be done with opened valve. Test pressure must not be higher than the valve specification according to EN 12266-1.
- Then open slowly the valve.
- **Do not mount butterfly valves with stainless steel pressed collars and turning flanges without strias.**
- **And not on flat face flanges without strias ( example : painted cast iron fittings )**

### MAXIMUM TIGHTENING TORQUES FOR BOLTING FLANGES :



		Maximum torques (Nm)			
		Bolting types	5,6 / A307 Gr.B	8,8 / A193 B7	10,9
Bolting DN	M12 (1/2")	41,16	84,28	117,6	142,1
	M14 (9/16")	66,64	132,3	186,2	225,4
	M16 (5/8")	102,9	205,8	289,1	347,9
	M18 (3/4")	142,1	284,2	396,9	475,3
	M20 (3/4")	196	401,8	568,4	676,2
	M22 (7/8")	259,7	539	764,4	911,4
	M24 (1")	338,1	695,8	980	1176
	M27 (1"1/8)	499,8	1029	1470	1764
	M30 (1"1/4)	666,4	1421	1960	2352

### MAINTENANCE :

- We recommend to operate fully the valve 1 to 2 times per year.
- During maintenance operation, ensure that the pipe isn't under pressure, that there's no fluid in the pipe and that the valve is isolated. If there's a fluid in the pipe , evacuate it. Ensure that there are no risks due to the temperature or the fluid ( like acids ). If the fluid is corrosive , inert the installation before maintenance operation.

**ADVICE :** Our opinion and our advice are not guaranteed and SFERACO shall not be liable for the consequences of damages. The customer must check the right choice of the products with the real service conditions.