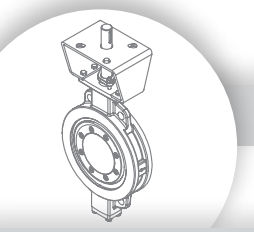
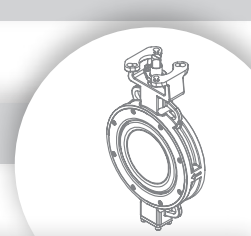
SIRCA
INTERNATIONAL S.P.A.

301 series
Butterfly Valves
with Rubber Seat

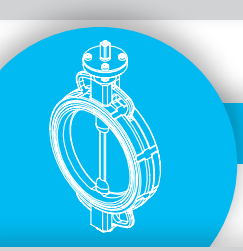
OUR PRODUCTION



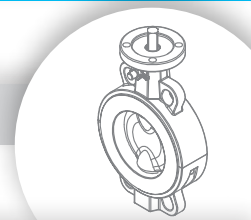
501M series - Triple Eccentric Metal Seated Butterfly Valves



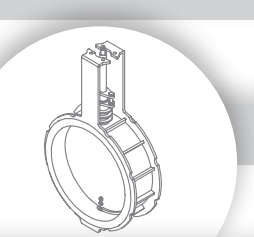
401N series - Double Eccentric Butterfly Valves



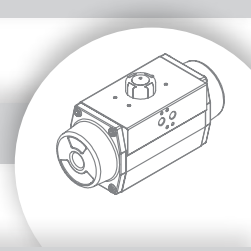
301 series - Butterfly Valves with rubber seat



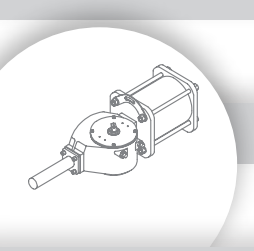
301TSS / 301TT series - Butterfly Valves with PTFE lined



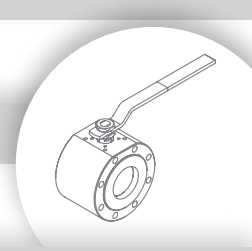
HT600 series - Damper valves for high temperature



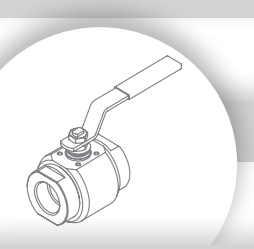
AP / APM series - Pneumatic Rotary Actuators



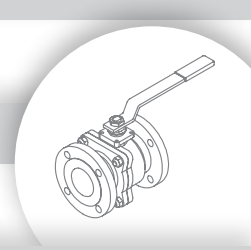
APG series - Schotch Yoke Pneumatic Actuators



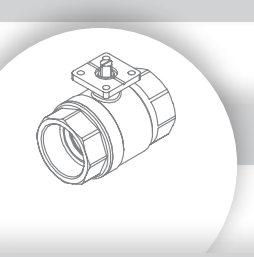
S10 series - Wafer Flat Body Ball Valves



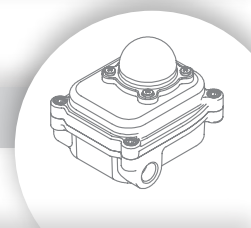
S20 series - Two-pieces 800 p.s.i. Ball Valves



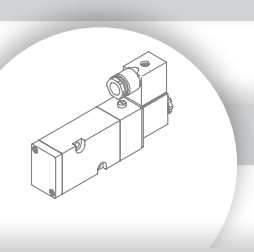
S30 series - Split Body Ball Valves



S40, S50, S60, S70, S80 series - Threaded actuated and manual ball valves



MBX series - Limit Switch Box



SVS series - Solenoid valve 5/2 or 3/2 way

ACCESSORIES

SIRCA INTERNATIONAL S.P.A.

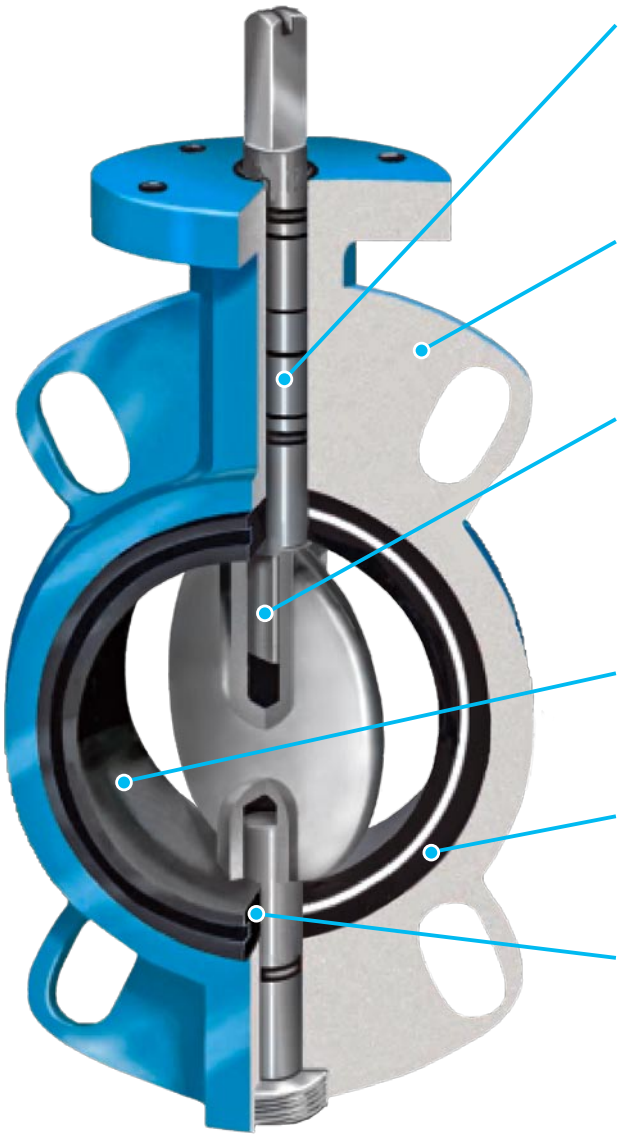
Sirca International SpA was founded in the late seventies, and started doing business as a manufacturer of complete automation and pneumatic regulation systems.
Our flagship product is rotating pneumatic quarter-turn actuators which are compact, lightweight and highly reliable.

Subsequently, our company entered the Italian market with the production and sale of rubber-seated butterfly valves, double eccentric butterfly valves, ball valves and check valves.
In time at Sirca International we began marketing and producing accessories to actuate, control and regulate valves. These were installed on our own valves and actuators in order to offer our customers complete “assemblies” that are capable of meeting the most varied system requirements.

Beginning in the 1990s, our company began looking at foreign markets and in a short time we started exporting more than 60% of our production.
This type of market development requires continuous product innovation as well as continuous effort to maintain product competitiveness and quality.
With this motivation and these objectives, with the arrival of the new millenium we at Sirca International began designing and producing the triple eccentric butterfly valve metal-seated that are currently top of the range of the valves produced at Sirca.

The main strong points of Sirca International SpA lie in our product quality, competitive price, large warehouse stocks and in the reliability of our services. These confirm our status as a Leading Company on the national and international markets.

Constructive features **DN40÷DN600**



The upper stem is locked by manual or motorized control while the O-ring assures a life-time lubrication. Moreover, a mark is machined on the top part of the stem, which reproduces exactly the disc position, when yhe valve is inserted between the flanges.

The one-piece valve body casting ensures high strength with minimum weight. It can be supplied in a wide choice of materials, for both WAFER and LUG models, so as to meet all possible installation requirements.

The stem has a quare end which fits directly in the disc; hence no fastening elements are needed. This allows the disc to float on the stem and to be self-centering inside the seal so as to form a continuos tight shut-off line with the latter. Thanks to the special shape of the SIRCA disc, pressure drops and forces of rotation are appreciably reduced.

Thanks to the special internal profile of the surface of contact between disc-seat, the reciprocal back pressures ensure tight shut-off.

The resilient seat is vulcanized on metallic support ring. Thanks to its straight-forwar design it is easily replaceable without use of special tools.

Thanks to the special profile of the seat, no seal is required between the flanges.while the O-ring assures a life-time lubrication. Moreover, a mark is machined on the top part of the stem, which reproduces exactly the disc position, when yhe valve is inserted between the flanges.

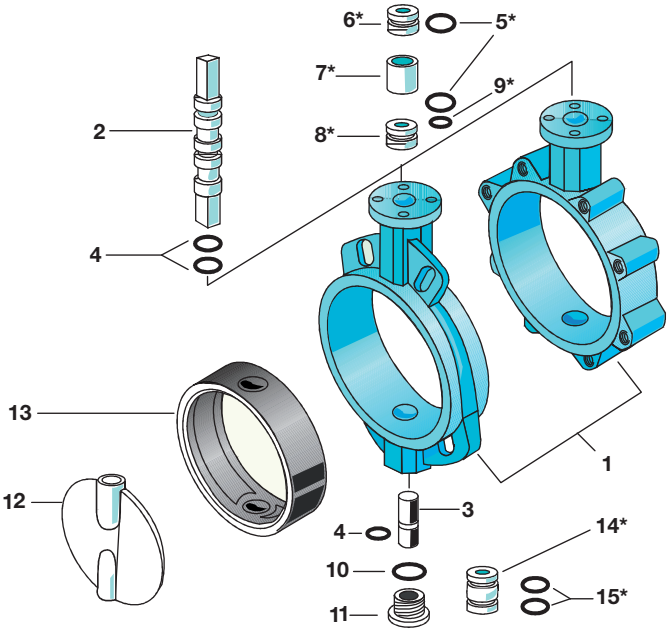
- **Corrosion and abrasion resistant** only the seat and disc are in contact with the fluid.
- **Self-cleaning** and two-way (therefore the valve can be mounted in both direction of flow).
- **Seat** with internal metallic support ring to ensure geometric and dimensional stability.
- **Disc** self-centering inside the seat thanks to the floating coupling between stem-disc.
- **Stem-disc coupling** without use of fastening elements (screw bolts, etc.) which could be sources of corrosion and failures.
- **Disc of special design** in order to ensure ample full flow, low pressure drops, and minimum turbulence.
- **Valves** are in according to I.S. EN 558-1 API STD 609 - MSS SP 67 - ASME B16.5 / B16.34.
- **Maximum** ease of assembly and maintenance: no additional seals are required for mounting between the flanges, nor lubrication.
- **Adaptability** to any type of pneumatic or electric actuator.
- **Protection** of the valve outer parts against corrosion (epoxy or polyuretane paint).
- **Good** adjustment characteristic.
- **Tight shut-off** with pressure drop up to 20 bar.
- **Favourable cost.**
- **Very compact** size and light weight.

Size range	1.1/2" ÷ 40" (DN40 ÷ DN1000)
Type	Wafer, Lug, Double flanged
Face to face dimension	EN 558 series 20
Top flange	ISO 5211
Max working pressure	20 bar - bidirectional
Flange drilling	PN6, PN10, PN16 / ANSI class 150
Operating temperature	-20 °C ÷ +160 °C (-4 °F ÷ +320 °F)
Standard materials	Body: Ductile Iron, Carbon Steel, Stainless Steel, Al/Bronze, F51 Disc: Ductile Iron, Carbon Steel, Stainless Steel, Al/Bronze Stem: AISI 316, AISI 420, AISI 630, MONEL K Seat: NBR, EPDM, EPDM HT, VITON, more (all seats have inside a metal ring reinforcement)
Leakage class	Rate "A" - No leakage – according to EN 12266-1
Applications	Liquids or gases in industrial environments, plants, water treatment, vacuum, other applications with compatible materials to working conditions
Certifications	2014/68/UE PED, 2014/34/UE ATEX, SIL IEC 61508 - IEC 61511, CU TR 010 – CU TR 032 CU TR 012, TA-Luft

Exploded view

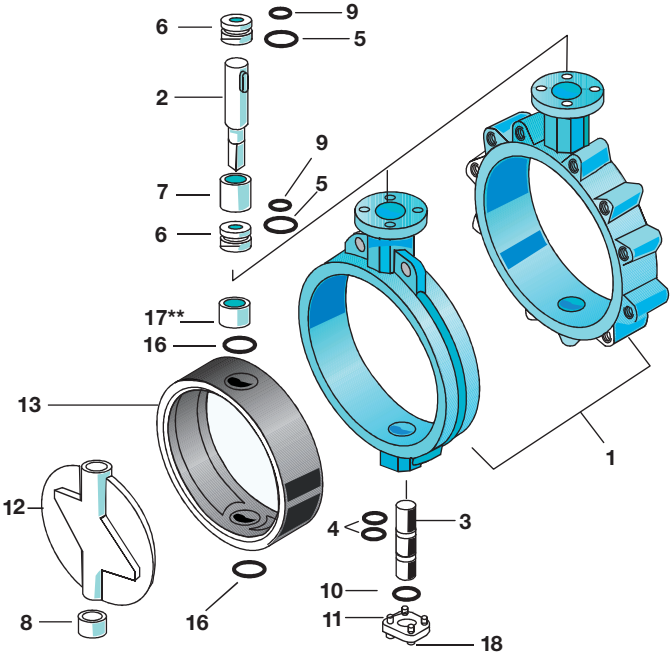
DN 40 ÷ DN 300 (1 1/2" ÷ 12")

* Only for valves with body in steel material.



DN 350 ÷ DN 600 (14" ÷ 24")

** Only for 18"-20".



Item	Description	Materials	Ref. Norm.
1	**Body**	Ductile Iron EN GJS 400/15 o GGG40 Al/BR. G-CU Al 11 Fe4 Ni4 Cut-off Carb.Steel P355NH Carbon Steel Stainless Steel	ASTM A 536 GR. 65-45-15 ASTM B 148-GR.955 EN 10028-3 ASTM 216 WCB ASTM 351-CF8M / CF3M
2+3	**Upper and lower stem**	Al/BR CU Al 10 Ni5 Fe4 416 S.S. 316 S.S / 316 L.S.S. 630 S.S. Duplex F51 Hastelloy C 276 Monel K 500	DIN 1756 ASTM A 582 Type 416 ASTM A 479 Type 316 / 316L ASTM A 5642 Type 630 UNS S 31803 ASTM B 574-94 BS 3076 NA 18(1989)
4+5	**O-Ring**	Buna / Viton	-
6	**Short bushing with 1 OR**	Bronze	-
7	**Spacer**	Carbon Steel	-
8	**Short bushing with 2 OR**	Bronze	-
9+10	**O-Ring**	Buna / Viton	-
11	**Plug**	Carbon Steel / 304 S.S.	-
12	**Disc**	Ductile Iron EN GJS 400/15 o GGG40 Al/BR. G-CU Al 11 Fe4 Ni4 Cut-off Carbon Steel Stainless Steel EPDM-BUNA N-Viton coated RILSAN-HALAR coated	ASTM A 536 GR.64-45-15 ASTM B 148-GR.955 ASTM A 216 WCB ASTM A 351-CF8M / CF3M ASTM A 351 GR. CK 3 M CUN ASTM A 351 GR. CD 4 M CU ASTM A 494 CW 2 M ASTM A 494 GR. CK M 35-1
13	**Seat**	Buna N* - EPDM - EPDM H.T. Natural rubber - Neoprene Viton - Hypalon - Silicone PTFE	- ASTM D 2000 - ASTM D 1437-73
14	**Long bushing**	Bronze	-
15+16	**O-Ring**	Buna / Viton	-
17**	**Bushing**	Bronze	-
18	**Screw**	Carbon Steel 8.8 / S.S. A2	-

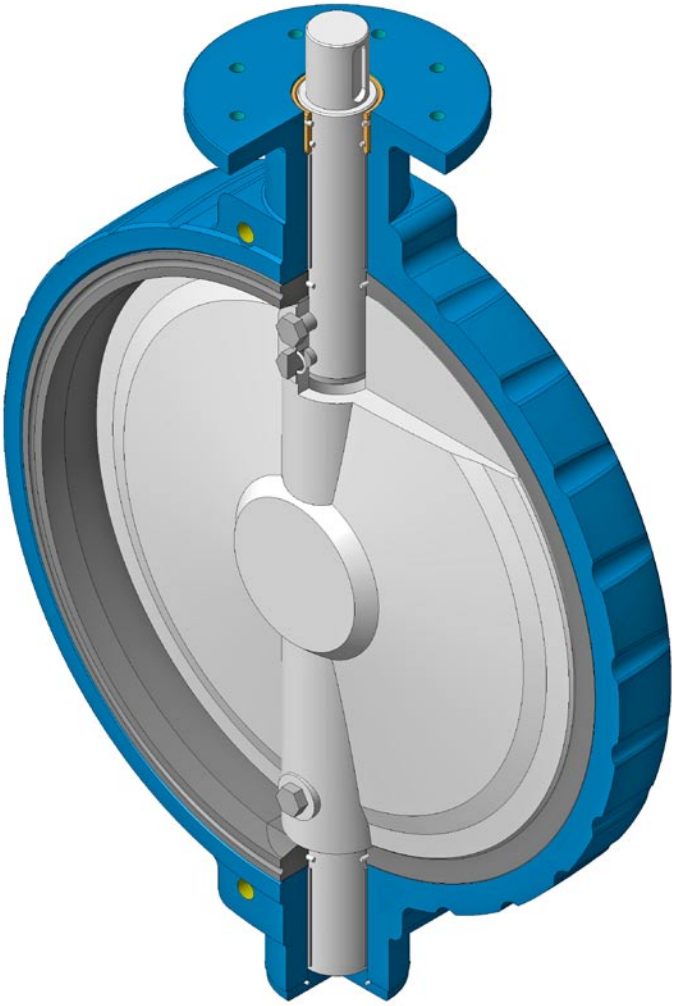
* Du Pont trademark

Spare part suggested

NOTE:
Special materials, are available on request.

General features **DN700÷DN1000**

The butterfly valve 301 series bears to satisfy applications as interception and regulation of fluids in plants for big diameters (DN700÷DN1000).



One of the many advantages of this valve is the low Weight that allows an easy installation and the low cost with the guarantee of a safety technical application.

Butterfly Valves 301 series are bidirectional and have the seal constituted by a particular seat with a wide gauge bigger than face to face of the valve's body, so it's possible to install the valve without the use of added seals.

These valves are available in Wafer, Lug and Flanged applications.

The **Wafer** type has four througout threaded holes according to actual flanges norms.

The **Lug** type has ears with threaded holes according to actual flanges norms.

Also the **Flanged** Valves have the threaded holes but for this application there are not ears on the valve's body, in fact the Flanged valve's body is made by two flat faces similar to two flanges.

All sizes of 301 series can be mounted on the flanges according to actual flanges norms, UNI EN 1092-1 for PN6-10-16 and ASME B16.1 for ANSI150.

The easy structure of the valve and the employment of few components of the valve during the action of the same, guarantee the long life of the valve and besides they reduce the maintenance operations. The large choise of material at disposal and the possibility to execute particular applications, like coverings of components of the valve, give to this valve a large variety of fields of application.

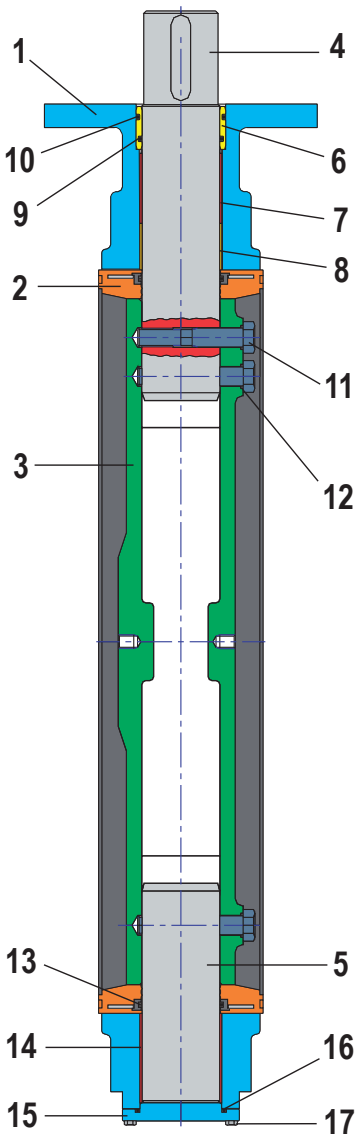
Project Design

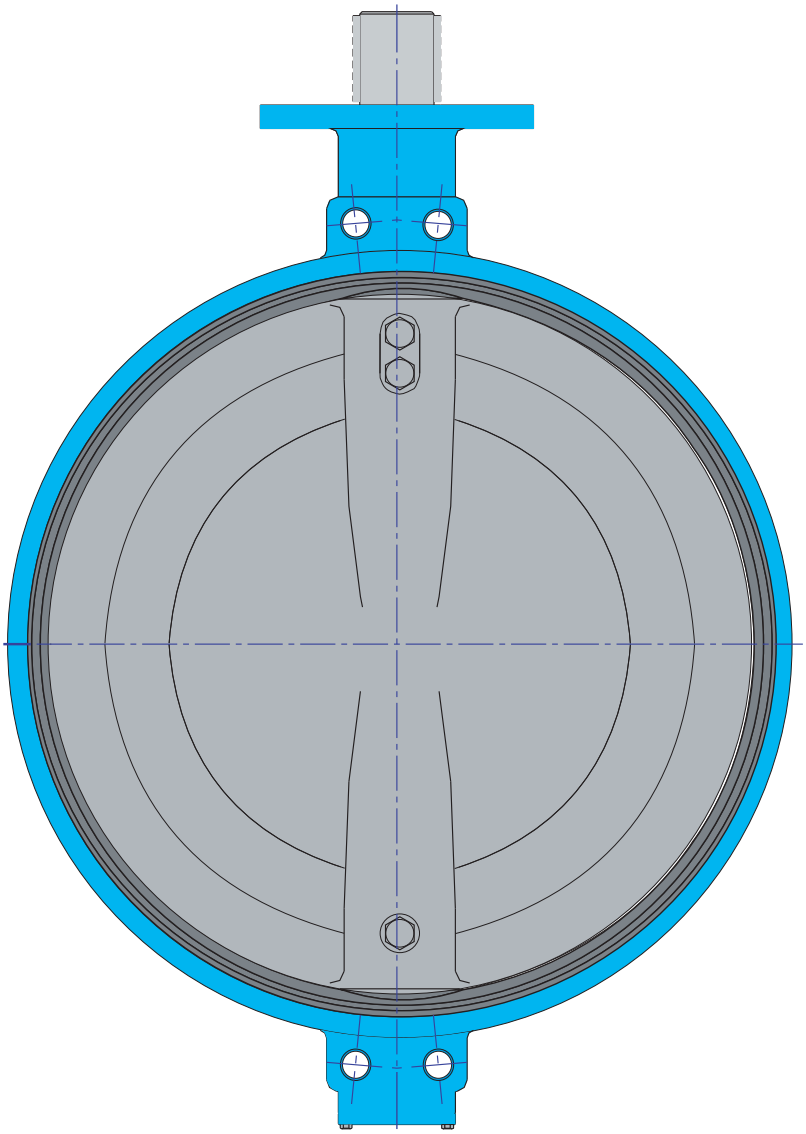
The valves are built in diameters from DN700 up to DN1000. The valves have a perfect held "bubble tight shut off" in every direction of fluid at maximum rating application. The Seat is constituted by matter of vulcanized rubber on a metallic support that allows geometric stability. The disc is very width in order to have low drop of pressure and minimum turbulence. The body and the shafts are always protected from the fluid, only the seat and the disc are in contact with the fluid. Easy to adapt to any type of actuator: pneumatic, electrical, hydraulic or handwheel and gear devices. The body has an epoxy painting that protects the valve from corrosion and makes it suitable for marine atmosphere. The valve is self-cleaning and it has double tightening on the shafts. The one-piece cast can be supplied in different materials in Wafer, Lug and Flanged application.

Technical Features

The one-piece cast can be supplied in different materials in Wafer, Lug and Flanged application.
The rounded profile of the Disc, and the particular shape of the Seat allow to obtain a low torque during the closing-action and guarantee a perfect bubble tight shut off.
The high resistent shafts enter into the discs for 2/3 of the diameter of the disc.
The shafts are guided by bushings with internal and external O-rings that guarantee a good operation and avoid that powders and liquids go inside the body or be in contact with the shafts.
The shafts are fixed onto the discs with special screws.
The buttefly valves 301 series has also in the lower part a plug with O-ring that clocks the lower shaft and eliminates the leakages towards the outside.

Constructive features **DN700÷DN1000**



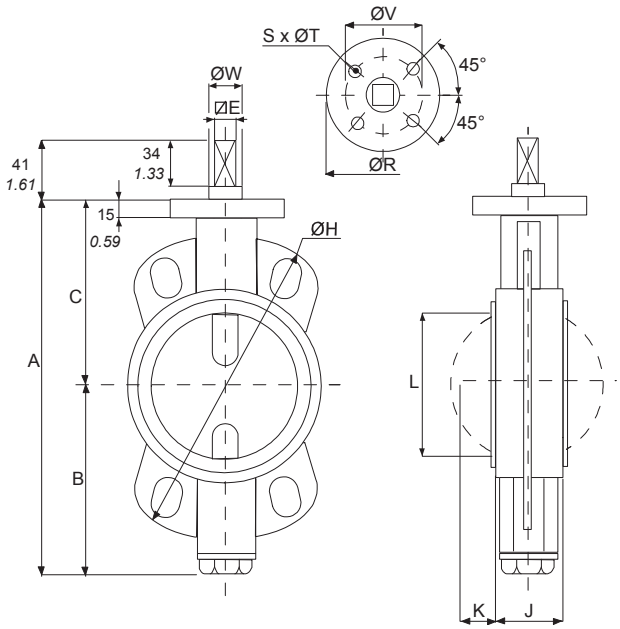


Item	Description	Standard materials	Q.ty
1	**Body**	Carbon Steel A216 WCB - Stainless Steel ASTM A351-CF8M - Ductile Iron ENGJS400-15	1
2*	**Gasket**	BUNA / VITON /EPDM	1
3	**Disc**	Carbon steel A216 WCB - Stainless Steel ASTM A351-CF8M - Ductile Iron ENGJS400-15	1
4	**Upper stem**	S.S. AISI 416 - S.S. AISI 420 - S.S. AISI 316	1
5	**Lower stem**	S.S. AISI 416 - S.S. AISI 420 - S.S. AISI 316	1
6	**Upper bushing**	Bronze	1
7	**Metal bushing**	Carbon Steel	1
8	**Metal bushing**	Carbon Steel	1
9*	**O-Ring**	BUNA / VITON	1
10*	**O-Ring**	BUNA / VITON	1
11*	**Hexagon screw**	Steel type class 8.8 or A2 S.S.	3
12*	**O-Ring**	BUNA / VITON	3
13*	**O-Ring**	BUNA / VITON	3
14	**Metal bushing**	Carbon Steel	1
15	**Plug**	Carbon Steel - 316 S.S.	1
16*	**O-Ring**	BUNA / VITON	1
17	**Hexagon screw**	Steel type class 8.8 or A2 S.S.	4

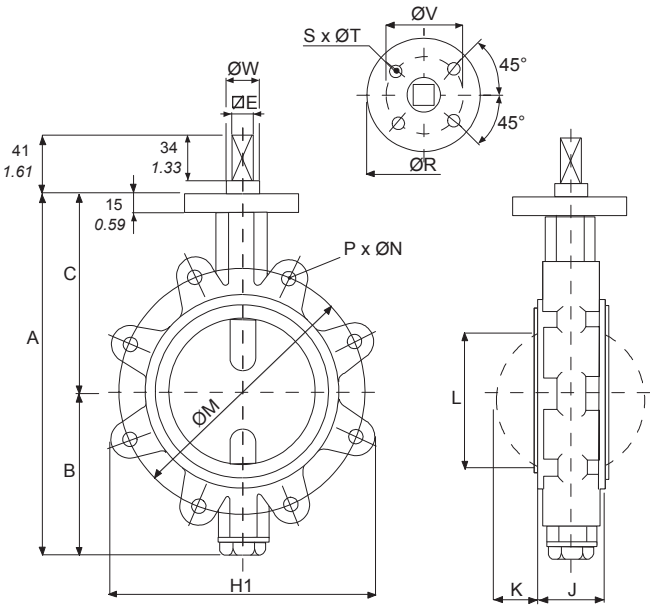
* Spare part suggested

Overall dimensions

WAFER TYPE



LUG TYPE



DN	A	B	C	∅E	ØH	H1	J**	K	L	ØM PN6	ØM PN10	ØM PN16	ØM ANSI 150 lbs	ØN PN6	ØN PN10	ØN PN16	ØN ANSI 150 lbs ***	P PN6	P PN10	P PN16	P ANSI 150 lbs	ØR FLANGE	S N° HOLES	T Ø HOLES	ØV HOLES CIRCLE	ØW
40	188	90	98	12	145	111	34	6.6	31	100	110	110	98.5	M12	M16	M16	1/2"	4	4	4	4	90	4	8.5	70	16
50	205	96	109	12	160	120	43,5	7.2	36	110	125	125	120.5	M12	M16	M16	5/8"	4	4	4	4	90	4	8.5	70	16
65	230	108	122	12	180	138	46	12.9	53	130	145	145	139.5	M12	M16	M16	5/8"	4	4	4	4	90	4	8.5	70	16
80	250	118	132	12	198	150	46	19.3	69	150	160	160	152.5	M16	M16	M16	5/8"	4	8	8	4	90	4	8.5	70	16
100	285	132	153	12	230	213	52	27.15	90	170	180	180	190.5	M16	M16	M16	5/8"	4	8	8	8	90	4	8.5	70	16
125	327	150	177	16	256	243	56,5	36.4	115	200	210	210	216	M16	M16	M16	3/4"	8	8	8	8	90	4	8.5	70	19.5
150	359	165	194	16	286	267	56,5	48.6	142	225	240	240	241.5	M16	M20	M20	3/4"	8	8	8	8	90	4	8.5	70	19.5
200	419	194	225	16	348	320	60	69.8	199	280	295	295	298.5	M16	M20	M20	3/4"	8	8	12	8	90	4	8.5	70	19.5
250	495	220	275	18	414	402	68	90	238	335	350	355	362	M16	M20	M24	7/8"	12	12	12	12	125	4	11	102	24
300	559	262	297	22	490	473	78	111.1	289	395	400	410	432	M20	M20	M24	7/8"	12	12	12	12	125	4	11	102	29

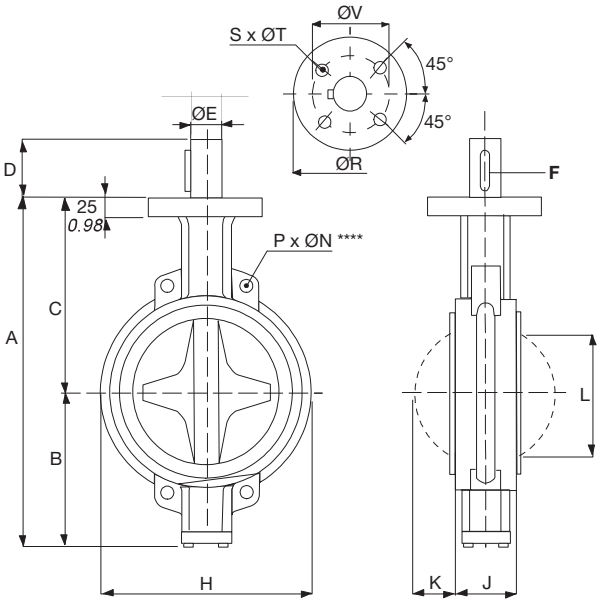
** Complying with I.S. EN 558-1 Standards
"L" is the measurement of the disc chord, which determines its full opening.
*** For flanges ANSI 150 lbs thread is according to ANSI B1.1 type UNC / 8-UN .
*** On request, for ANSI 150 lbs metric threading UNI EN 1092-1.

Weights (Kg)

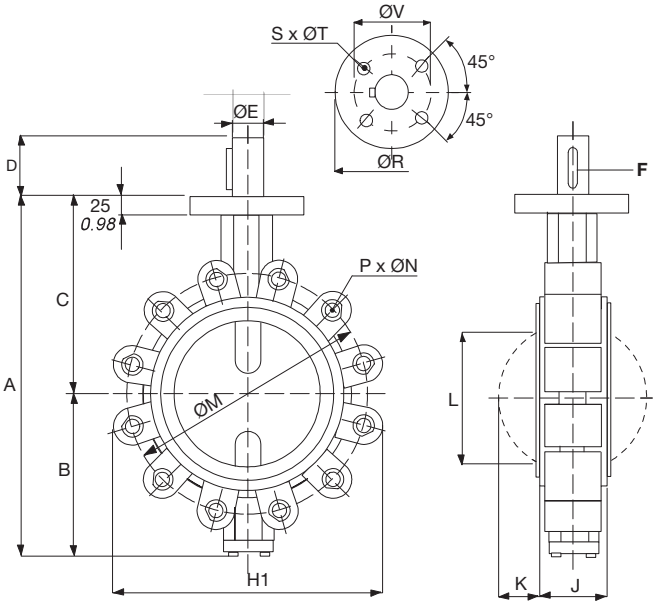
DN	mm	40	50	65	80	100	125	150	200	250	300
	inc	1 1/2	2	2 1/2	3	4	5	6	8	10	12
Weight	Wafer	2.2	2.9	3.9	4.2	5	7.4	8.5	11.8	18.5	29.8
	Lug	2.6	3.5	4.9	5.4	7	10	11.1	17	27.4	40.4

Overall dimensions

WAFER TYPE



LUG TYPE



DN	A	B	C	D	ØE	F	ØH	H1	J**	K	L	ØM PN6	ØM PN10	ØM PN16	ØM ANSI 150 lbs	ØN PN6	ØN PN10	ØN PN16	ØN ANSI 150 lbs ***	P PN6	P PN10	P PN16	P ANSI 150 lbs	ØR FLANGE	S N° HOLES	T Ø HOLES	ØV HOLES CIRCLE
350	632	281	351	60	44,5	14x 9x 45	436	516	78	126	324	445	460	470	476	M20	M20	M24	1"	12	16	16	12	175	4	17	140
400	681	305,5	375,5	60	44,5		483	590	102	138	367	495	515	525	540	M20	M24	M27	1"	16	16	16	16	175	4	17	140
450	749	349	400	60	44,5		540	644	114	157	417	550	565	585	578	M20	M24	M27	1 1/8" 8-UN	16	20	20	16	175	4	17	140
500	798	373	425	60	44,5		580	715	127	179	468	600	620	650	635	M20	M24	M30	1 1/8" 8-UN	20	20	20	20	175	4	17	140
600	936	445	491	90	63	18x 11x 80	710	830	153	218	572	705	725	770	749,3	M24	M276	M33	1 1/4" 8-UN	20	20	20	20	210	4	22	165
700	1120	540	580	90	75	n°2 22x 14x 80	792	910	165	261	666	810	840	840	863,6	M24	M27	M33	1 1/4" 8-UN	24	24	24	28	300	8	18	254
750	1195	585	610	90	75		860	970	190	279	719	-	-	-	914,4	-	-	-	1 1/4" 8-UN	-	-	-	28	300	8	17	254
800	1242	612	630	90	75		925	1040	190	304	774	920	950	950	977,9	M27	M30	M36	1 1/2" 8-UN	24	24	24	28	360	8	18	254
900	1350	660	690	120	95	n°2 25x 14x 110	1008	1150	203	339	858	1020	1050	1050	1085,9	M27	M30	M36	1 1/2" 8-UN	24	28	28	32	360	8	21	298
1000	1500	740	760	120	95		1135	1260	216	383	957	1120	1160	1170	1200,2	M27	M33	M39	1 1/2" 8-UN	28	28	28	36	415	8	21	298

** Complying with I.S. EN 558-1 Standards.
"L" is the measurement of the disc chord, which determines its full opening.
*** For flanges ANSI 150 lbs thread is according to ANSI B1.1 type UNC / 8-UN.
*** On request, for ANSI 150 lbs metric threading UNI EN 1092-1.
**** For butterfly valves wafer type from DN700 to DN1000, the body has only four holes threaded for each side.

Weights (Kg)

DN	mm	350	400	450	500	600	700	750	800	900	1000
	inc	14	16	18	20	24	30	30	32	36	40
Weight	Wafer	50	70	90	110	210	250	315	365	440	575
	Lug	60	90	110	150	270	350	415	465	530	672

Torque values (Nm)

DN mm	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000
DN inc	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32	3	4
△p 0 bar	11	12	28	35	38	64	70	85	180	325	400	515	840	1150	2130					
△p 3 bar	12	13	29	42	45	78	80	110	190	400	460	680	925	1355	2300					
△p 7,5 bar	13	14	30	48	51	82	84	125	260	472	600	775	1100	1490	2685	2880	3430	4100	6240	8000
△p 11,5 bar	14	18	34	50	54	94	100	140	300	570	750	920	1320	1690	3200	4800	5720	6940	10400	14540
△p 17,5 bar	17	23	38	59	60	108	119	200	370	715	900	1114	1545	1815	5420	6300	7600	9100	13600	18980
△p 21,5 bar	18	25	46	67	69	138	145	275	450	820	1035	1340	1710	2210	5790	7680	9150	11110	16000	23260

NOTE:

The table above gives the recommended maximum torque values to be applied to the SIRCA butterfly valves. They represent the sum of the amounts of the mechanical friction caused by opening and closing the valve in relation on the various pressure drops. These torque do not include the safety value, besides these values apply to any type of application.

VALVE SIZING

Nominal valve diameter is determined by calculating the CV* coefficient on the basis of actual fluid operating conditions.
Determine the valve size in the table below so that the CV* calculated by the formula is about 80% of the CV in the table.

CV values

ANGLE OF OPENING	VALVE SIZES																			
DN mm	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000
DN inc	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32	3	4
90°	80	130	200	300	550	1125	1950	3250	5000	7500	1000	12500	17500	22000	28000	29100	33300	37880	47950	59200
80°	70	105	160	240	475	1000	1650	2725	4300	6050	8100	10800	14000	17500	24000					
75°	55	90	130	205	400	830	1350	2200	3600	5000	6700	9000	12000	15000	20500					
70°	45	70	105	160	305	625	1030	1750	2750	4050	5100	6500	9200	11500	16500					
60°	26	53	83	125	235	490	800	1300	2150	3100	4100	5100	7100	8700	11750					
50°	18	27	42	63	120	250	410	700	1150	1600	2200	2650	3700	4600	6100					
40°	11	17	26	38	73	155	250	420	670	1000	1300	1700	2300	2800	3800					
30°	5	9	15	22	42	88	145	250	390	550	750	900	1250	1600	2200					
25°	3	6	10	15	28	60	98	170	260	380	500	650	900	1125	1500					

CV* (pure number) gives the flow rate of water in U.S. gallons per minute passing through the valve, creating a pressure drop of 1 psi at a temperature of + 68° F (American units). In metric units this coefficient is defined as the KV which likewise represents the flow rate in m^3/h passing through the valve with a pressure drop of 1 bar at a temperature of 20° C. The relation between CV and KV expressed in the above units is a follows: CV= 1.16 KV.

Valves with command devices and accessories

Butterfly valve
with pneumatic actuator AP model
double acting or spring return type.

Butterfly valve
with10 position leverlock.

Butterfly valve
with reduction gear and handwheel.

Butterfly valve
with pneumatic actuator AP model
and solenoid valve namur IP65.

Butterfly valve
with pneumatic actuator AP model
and solenoid valve EX-proof style.

Butterfly valve
with pneumatic actuator
and MBX series limit switch box IP65.

Butterfly valve
with pneumatic actuator AP model
and electropneumatic actuator 4÷20mA.

Butterfly valve
with pneumatic actuator AP model
featuring emergency control.

Butterfly valve
with 230V-50Hz one phase o 400V-50Hz
three phases IP67 electric actuator.

CAT-301-02-05/2020

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