Butterfly Valve EUROSTOP - Buried type

Flanged Butterfly Valve (flange-flange) with joint in the automatic butterfly (JPA) with double eccentricity and long spacing between the flanges.
Ductile iron body and butterfly covered with blue epoxy powder 250 microns average thickness with a minimum of 250 microns, conforming to EN 14901 (PECB).
Range from DN150 to DN2000mm for pressures of PFA10 to 25 bar.

Field of application

Butterfly valves are isolating valves used on water supply networks, in the interconnections of network, in the factories, in pumping stations, on the general networks and on the fire protection networks in the industrial sites.

Butterfly valves are compatible with drinking water and raw water with grid filtration. They will be installed on water networks in factories, in valves chambers or buried.

Their main advantages are:

- Low pressure loss
- Good performance thanks to the choice of the materials, the coatings and the design
- Easy operation per mechanism of the worm type/without end
- Mechanisms equipped with a standardized flange carry-accessory for buried version and motorizable version

Range

The EUROSTOP butterfly valve is available in different configuration: manual, buried service, motorized and motorizable (for this three last configuration see the specific TDS).

Version with gearbox without mechanical position indicator but with watertight seal cover.

References with operating cap

DN	Closing direction	References PN10	References PN16	References PN25
mm				
150	Anti-clockwise	223968	223968	224006
200	Anti-clockwise	223994	223982	224007
250	Anti-clockwise	223995	223983	224008
300	Anti-clockwise	223996	223984	224009
350	Anti-clockwise	223997	223985	224010
400	Anti-clockwise	223998	223986	224011
450	Anti-clockwise	223999	223987	224012
500	Anti-clockwise	224000	223988	224013
600	Anti-clockwise	224001	223989	224014
700	Anti-clockwise	224002	223990	224016

DN	Closing direction	References PN10	References PN16	References PN25
mm				
800	Anti-clockwise	224003	223991	224015
900	Anti-clockwise	224004	223992	224017
1000	Anti-clockwise	224005	223993	224018
1200	Anti-clockwise	266337	266338	please contact us

References without operating cap

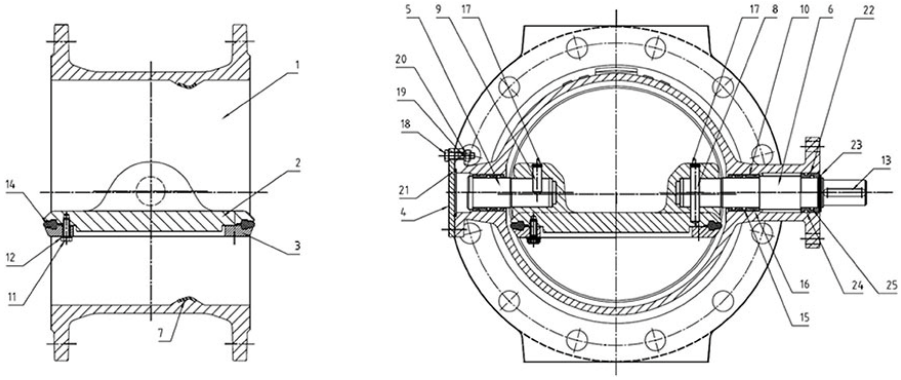
DN valve	Closing direction	References PN10	References PN16	References PN25
mm				
150	Clockwise	RPB15NFCH	RPB15NFCH	RPB15NFDH
200	Clockwise	RPB20NFBH	RPB20NFAH	RPB20NFDH
250	Clockwise	RPB25NFBH	RPB25NFAH	RPB25NFDH
300	Clockwise	RPB30NFBH	RPB30NFAH	RPB30NFDH
350	Clockwise	RPB35NFBH	RPB35NFAH	RPB35NFDH
400	Clockwise	RPB40NFBH	RPB40NFAH	RPB40NFDH
450	Clockwise	RPB45NFBH	RPB45NFAH	RPB45NFDH
500	Clockwise	RPB50NFBH	RPB50NFAH	RPB50NFDH
600	Clockwise	RPB60NFBH	RPB60NFAH	RPB60NFDH
700	Clockwise	RPB70NFBH	RPB70NFAH	RPB70MFDH
800	Clockwise	RPB80NFBH	RPB80MFAH	RPB80MFDH
900	Clockwise	RPB90MFBH	RPB90MFAH	RPB90MFDH
1000	Clockwise	RPC10MFBH	RPC10MFAH	RPC10MFDH
1200	Clockwise	RPC12MFBH	RPC12MFAH	RPC12MFDH
1400	Clockwise	RPC14MFBH	RPC14MFAH	RPC14MFDH
1500	Clockwise	RPC15MFBH	RPC15MFAH	RPC15MFDH
1600	Clockwise	RPC16MFBH	RPC16MFAH	RPC16MFDH
1800	Clockwise	RPC18MFBH	RPC18MFAH	please contact us
2000	Clockwise	RPC20MFBH	RPC20MFAH	please contact us

DN valve	Closing direction	References PN10	References PN16	References PN25
mm				
150	Anti-clockwise	RPB15NRAH	RPB15NRAH	RPB15NRDH
200	Anti-clockwise	RPB20NRBH	RPB20NRAH	RPB20NRDH
250	Anti-clockwise	RPB25NRBH	RPB25NRAH	RPB25NRDH
300	Anti-clockwise	RPB30NRBH	RPB30NRAH	RPB30NRDH
350	Anti-clockwise	RPB35NRBH	RPB35NRAH	RPB35NRDH
400	Anti-clockwise	RPB40NRBH	RPB40NRAH	RPB40NRDH
450	Anti-clockwise	RPB45NRBH	RPB45NRAH	RPB45NRDH
500	Anti-clockwise	RPB50NRBH	RPB50NRAH	RPB50NRDH
600	Anti-clockwise	RPB60NRBH	RPB60NRAH	RPB60NRDH
700	Anti-clockwise	RPB70NRBH	RPB70NRAH	RPB70MRDH
800	Anti-clockwise	RPB80NRBH	RPB80MRAH	RPB80MRDH
900	Anti-clockwise	RPB90MRBH	RPB90MRAH	RPB90MRDH
1000	Anti-clockwise	RPC10MRBH	RPC10MRAH	203188

DN valve	Closing direction	References PN10	References PN16	References PN25
mm				
1200	Anti-clockwise	RPC12MRBH	RPC12MRAH	203199
1400	Anti-clockwise	please contact us	please contact us	please contact us
1500	Anti-clockwise	please contact us	please contact us	please contact us
1600	Anti-clockwise	please contact us	please contact us	please contact us
1800	Anti-clockwise	please contact us	please contact us	please contact us
2000	Anti-clockwise	please contact us	please contact us	please contact us

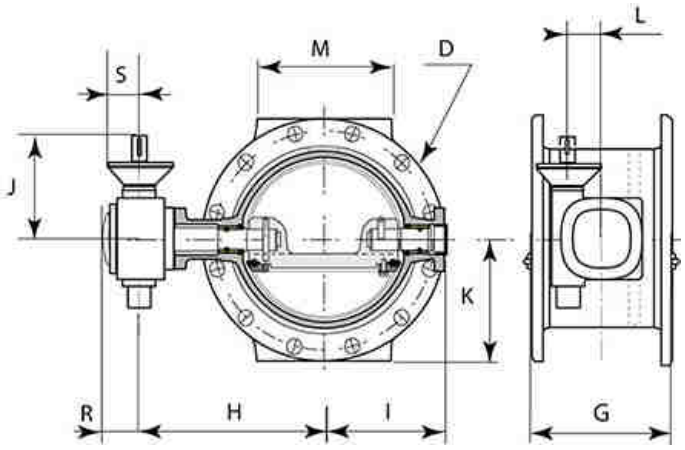
Material and coating

Versions DN150-800 PN10 - DN150-700 PN16 - DN150-600 PN25



Item	Description	Material	Coating
1	Body	Ductile iron GJS500-7	Blue epoxy powder 250 microns average thickness with a minimum of 200 microns, conforming to EN 14901 (PECB).
2	Disc	Ductile iron GJS500-7	
3	Retaining ring (*)	Carbon Steel SR235JR	-
4	Cover	Stainless steel X2CrNiMo17-12-2	-
5	Rear shaft	Stainless steel EN 10088 X30Cr13 (420)	-
6	Drive shaft	Stainless steel EN 10088 X30Cr13 (420)	-
7	Seat ring	Stainless steel EN 10088-2 X2CrNiMo 17,12,2 (316L)	-
8	Cylindrical pin (rear shaft)	Stainless steel EN 10088-3 X5CrNiCuNb 16-4 (630)	-
9	Cylindrical pin (drive shaft)	Stainless steel EN 10088-3 X5CrNiCuNb 16-4 (630)	-
10	Bearing	Bronze EN 1982 CuSn12	-
11	Screw	Stainless steel A2	-
12	Spring washer	Stainless steel A2	-
13	Feather key	Steel C40	-
14	Gasket	EPDM	-
15-16	O-ring	EPDM	-
17	Circular circlips	Stainless steel EN 10088-3 X5CrNi 18-10	-
18	Screw	Stainless steel EN 10088-3 X5CrNi 18-10	-
19	Spring washer	Stainless steel EN 10088-3 X5CrNi 18-10	-
20	Nut	Stainless steel EN 10088-3 X5CrNiMo 17-12	-
21	O-ring	EPDM	-
22	Bush	POM-C	-
23	External circlip	Stainless steel EN 10088-3 X5CrNi 18-10	-
24-25	O-ring	EPDM	-
(*) DN150-200 : Stainless steel AISI 316L			

Dimensions and mass



PN10 - Version with gearbox without mechanical position indicator but with watertight seal cover

DN	G	H	I	J	K	L	M	D	R	S	Mass clockwise	Mass anti clockwise
mm	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*kg*	*kg*
150	210	217	142.9	165	143	63	150	285	62	62.5	35	36
200	230	241	171.0	165	170	63	180	340	62	62.5	46	49
250	250	294	215.3	165	200	63	230	400	62	62.5	67	81
300	270	318	239.3	165	228	63	250	455	62	62.5	86	101
350	290	340	258.3	162	253	63	260	505	62	62.5	111	123
400	310	371	311.4	162	283	63	310	565	62	62.5	139	159
450	330	427	342.4	170	308	80	340	615	66	62.5	183	223
500	350	452	367.4	170	335	80	320	670	66	62.5	215	254
600	390	524	421.4	230	390	100	300	780	84	62.5	302	319
700	430	594	495.5	299	448	100	440	895	84	62.5	453	497
800	470	675	569.5	304	508	125	480	1015	88	62.5	640	793
900	510	724	623	304	558	125	570	1115	88	62.5	839	861
1000	550	815	707	335	615	160	620	1230	116	62.5	1193	1249
1200	630	909	842	420	728	200	750	1455	121	62.5	1831	1831
1400	710	1051	953	500	838	250	850	1675	146	87.5	2512	2515
1500	750	1102	1004	500	893	250	900	1785	146	87.5	2873	2873
1600	790	1154	1056	500	958	250	950	1915	146	87.5	3470	3470
1800	870	1331	1179	725	1058	315	1000	2115	200	62.5	4965	4965
2000	950	1526	1367	826	1173	400	1050	2345	240	87.5	6560	6560

PN16 - Version with gearbox without mechanical position indicator but with watertight seal cover

DN	G	H	I	J	K	L	M	D	R	S	Mass clockwise	Mass anti clockwise
mm	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*kg*	*kg*
150	210	217	142.9	165	143	63	150	285	62	62.5	35	36

DN	G	H	I	J	K	L	M	D	R	S	Mass clockwise	Mass anti clockwise
mm	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*kg*	*kg*
200	230	241	171.9	165	170	63	180	340	62	62.5	46	49
250	250	294	215.3	165	200	63	230	400	62	62.5	67	81
300	270	318	239.3	162	228	63	250	455	62	62.5	88	101
350	290	340	280.4	162	260	63	260	520	62	62.5	132	150
400	310	407	322.4	66	290	80	310	580	66	62.5	170	216
450	330	427	342.4	66	320	80	340	640	66	62.5	207	252
500	350	470	367.4	230	358	100	320	715	84	62.5	265	307
600	390	550	451.5	299	420	100	300	840	84	62.5	414	476
700	430	627	521.5	304	455	125	440	910	88	62.5	543	675
800	470	713	602	335	513	160	480	1025	116	62.5	830	986
900	510	764	653	335	563	160	570	1125	116	62.5	1021	1152
1000	550	815	748	420	628	200	620	1255	121	62.5	1432	1479
1200	630	950	852	500	743	250	750	1485	146	87.5	2357	2357
1400	710	1125	973	725	843	315	850	1685	200	62.5	3590	3590
1500	750	1156	1077	725	933	315	900	1865	200	62.5	5582	5582
1600	790	1229	1119	725	965	315	950	1930	200	87.5	4916	4916
1800	870	1431	1272	826	1065	400	1000	2130	240	87.5	6974	6974
2000	950	1526	1367	826	1173	400	1050	2345	240	87.5	8353	8353

PN25 - Version with gearbox without mechanical position indicator but with watertight seal cover

DN	G	H	I	J	K	L	M	D	R	S	Mass clockwise	Mass anti clockwise
mm	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*kg*	*kg*
150	210	219	147.9	165	150	63	150	300	62	62.5	39	43
200	230	219	190.3	165	180	63	180	360	62	62.5	63	73
250	250	297	214.3	162	213	63	230	425	62	62.5	88	93
300	270	321	260.4	162	243	63	250	485	62	62.5	120	138
350	290	376	290.4	170	278	80	310	555	66	62.5	174	213
400	310	425	321.4	230	310	100	310	620	84	62.5	221	249
450	330	471	371.4	299	335	100	340	670	84	62.5	300	280
500	350	498	398.5	299	365	100	320	730	84	62.5	348	404
600	390	581	474.5	304	423	125	380	845	88	62.5	636	636
700	430	665	552	335	480	160	470	960	116	62.5	782	975
800	470	713	645	420	543	200	480	1085	121	62.5	1130	1243
900	510	788	695	420	593	200	570	1185	121	62.5	1379	1693
1000	550	856	756	500	660	250	620	1320	146	87.5	2091	2091
1200	630	1024	872	725	765	315	750	1530	200	62.5	3398	3400
1400	710	1126	1016	725	878	315	850	1755	200	87.5	4067	4067
1500	750	1186	1078	826	933	400	900	1865	240	87.5	6052	6052
1600	790	1328	1169	826	988	400	950	1975	240	87.5	6200	4067

Gearbox type

Buried type PN10

DN	Gearbox AUMA type	Number of turns at 90°	ISO 5210	Operating torque
mm				*Nm*
150	GS 63.3 – F10	12,75	F 10	8
200	GS 63.3 – F10	12,75	F 10	13
250	GS 63.3 – F10	12,75	F 10	21
300	GS 63.3 – F10	12,75	F 10	31
350	GS 63.3 – F12	12,75	F 10	40
400	GS 63.3 – F12	12,75	F 10	61
450	GS 80.3 – F14	13,25	F 10	79
500	GS 80.3 – F14	13,25	F 10	101
600	GS 100.3 – F16	13	F 10	133
700	GS 100.3+VZ4.3 – F16	52	F 10	52
800	GS 125.3+VZ4.3 – F25	52	F 10	77
900	GS 125.3+GZ160.3 – F25	52	F 10	100
1000	GS 160.3+GZ160.3 - F30	110,5	F 10	65
1200	GS 200.3+GZ200.3 - F30	216	F 10	74
1400	GS 250.3+GZ250.3 - F35	212	F 14	93
1500	GS 250.3+GZ250.3 - F35	212	F 14	110
1600	GS 250.3+GZ250.3 - F35	212	F 14	130
1800	GS 315+GZ30 - F40	424	F 10	75
2000	GS 400+GZ35 - F48	432	F 14	117

Buried type PN16

DN *mm*	Gearbox AUMA type	Number of turns at 90°	ISO 5210	Operating torque *Nm*
150	GS 63.3 – F10	12,75	F 10	8
200	GS 63.3 – F10	12,75	F 10	17
250	GS 63.3 – F10	12,75	F 10	30
300	GS 63.3 – F12	12,75	F 10	43
350	GS 63.3 – F12	12,75	F 10	60
400	GS 80.3 – F14	13,25	F 10	93
450	GS 80.3 – F14	13,25	F 10	112
500	GS 100.3 – F14	13	F 10	125
600	GS 100.3+VZ4.3 – F16	52	F 10	59
700	GS 125.3+VZ4.3 – F25	52	F 10	84
800	GS 160.3+GZ160.3 – F30	110,5	F 10	64
900	GS 160.3+GZ160.3 – F30	110,5	F 10	83
1000	GS 200.3+GZ200.3 - F30	216	F 10	65
1200	GS 250.3+GZ250.3 - F35	212	F 14	104
1400	GS 315+GZ30 - F40	424	F 10	65
1500	GS 315+GZ30 - F40	424	F 10	77
1600	GS 315+GZ30 - F40	424	F 14	94
1800	GS 400+GZ35 - F48	432	F 14	126
2000	GS 400+GZ35 - F48	432	F 14	161

Buried type PN25

DN	Gearbox AUMA type	Number of turns at 90°	ISO 5210	Operating torque
mm				*Nm*
150	GS 63.3 – F10	12,75	F 10	13
200	GS 63.3 – F10	12,75	F 10	29
250	GS 63.3 – F12	12,75	F 10	45
300	GS 63.3 – F12	12,75	F 10	71
350	GS 80.3 – F14	13,25	F 10	98
400	GS 100.3 – F14	13	F 10	122
450	GS 100.3+VZ4.3 – F16	52	F 10	45
500	GS 100.3+VZ4.3 – F16	52	F 10	59
600	GS 125.3+VZ4.3 – F25	52	F 10	100
700	GS 160.3+GZ160.3 – F30	110,5	F 10	70
800	GS 200.3+GZ200.3 – F30	216	F 10	65
900	GS 200.3+GZ200.3 – F35	216	F 10	84
1000	GS 250.3+GZ250.3 - F35	212	F 14	115
1200	GS 315+GZ30 - F40	424	F 10	74
1400	GS 315+GZ30 - F40	424	F 14	110
1500	GS 400+GZ35 - F48	432	F 14	133
1600	GS 400+GZ35 - F48	432	F 14	153

Applicable Standards

Hydraulic test

Every single butterfly valve is subjected to hydraulic final test with the purpose of verifying the accordance with the prescriptions ISO 5208:

- Body test at 1,5 time the PFA (open valve);
- Seat test at 1,1 time the PFA (closed valve).

Product test

- Control of manoeuvre torque (MOT and mST) as defined in the EN1074
- Control of coating: test of thickness, holiday test, impact test, MIBK test

Conformity to the standards

Product:

- EN 1074 – 1 and 2
- EN 593
- ISO 10631

Plant test:

- ISO 5208

Flanges dimension:

- ISO 5752 series 14

Flanges drilling:

- EN 1092-2
- ISO 7005-2

Suitability for potable water:

- Italian D.M. 174/04
- Conformity to foreign norms: UBA (Germany),, ACS (France)

Marking

On the body in according to EN19:

- Nominal diameter in mm (DN);
- Nominal pressure in bar (PN);
- Type of ductile iron;
- Manufacturer's logo;
- Model code;
- Fusion traceability.

On the label like EN19:

- Nominal diameter in mm (DN);
- Nominal pressure in bar (PN);
- Maximum operating pressure (PFA);
- Closing direction;
- Model code;
- Manufacturing order, Order confirmation;
- Manufacturer's logo.

On the disk:

- Nominal diameter in mm (DN);
- Nominal pressure in bar (PN);
- Type of ductile iron;
- Manufacturer's logo;
- Model code.

The marking of the valves manufactured by Saint-Gobain refers to the EN 1074-2 and EN 19 international standards.

Markings are either integral markings, cast in the body, or markings made on plates, securely fixed to the body, in accordance with the EN 19 standard specifications.

Specifications EN19			Saint-Gobain valves process
Table1–Valve markings		Requirements	
1	DN	EN 19 § 4.2.1 Mandatory markings Shall be integral markings or on a marking plate	Integral
2	PN		Integral
3	Material		Integral
4	Manufacturer's name or trade mark		Plate
11	Reference to Standard	EN 19 § 4.3	Integral

Specifications EN19			Saint-Gobain valves process
Table1–Valve markings		Requirements	
12	Melt identification	Supplementary markings Items 7 to 21 in Table 1 are optional	Integral
16	Quality test		Printed on body
18	Manufacturing date		Plate
21	Closing direction		Plate + sticker on body

Valve selection

The butterfly valves are generally used as isolating devices type on/off. In some particular case, in which there's low differences of pressure and low flow rate variation can be used like regulating devices, considering the hydraulic parameters necessary to avoid the cavitation risk.

To do the right dimensioning of butterfly valve it's necessary to know the followings parameters:

- Upstream hydrostatic pressure (that is the hydrostatic pressure with valve in closed position)
- The maximum speed in water pipe (generally expressed in l/s) or the nominal diameter and the project flow rate from which it is gained the speed V=Q/A

Moreover, it's necessary to control that the maximum speed in water pipe have to be equal or inferior to 5m/s, and the exercise temperature have to be between 0°C and 40 °C.

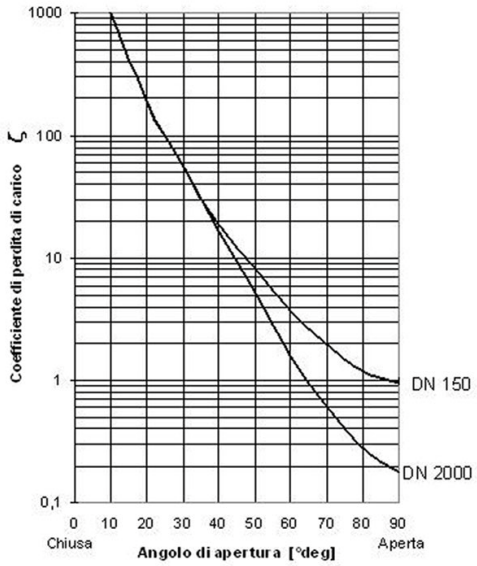
Hydraulic features

The head loss Δh are variable in function of valve open degree and can be calculated with the following expression:

$$\Delta h = \frac{\zeta . v^2}{2.g}$$

with Δh = head loss (m), ζ = head loss coefficient (dimensional), v = nominal speed (m/s), g = 9,81 (m/s²)

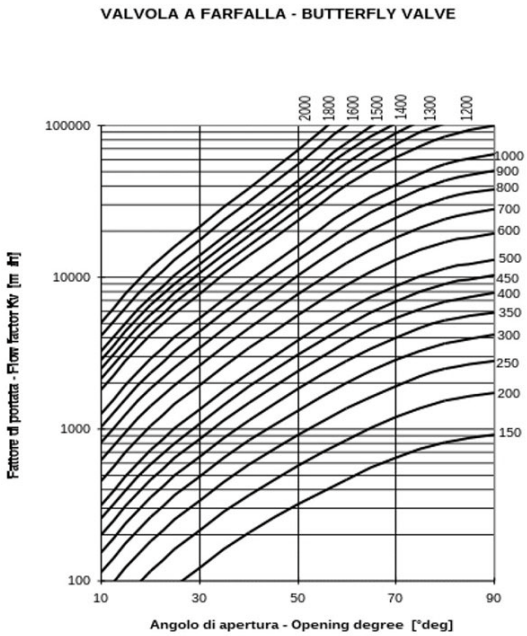
The head loss coefficient can be estimated from this diagram:



Determinates the head loss Δh it's possible to calculate the flow rate Q in m3/h with the following expression (the same expression can be used to, having the project flow rate Q, to determinate the head loss Δh without using the head loss coefficient):

$$Q = {}^{Kv}\sqrt{\frac{\Delta h}{10.2}}$$

in which 10,2 is a corrective factor in meters, and Kv is the flow rate coefficient in m3/h, determinable from the following diagram in function of valve open degree:

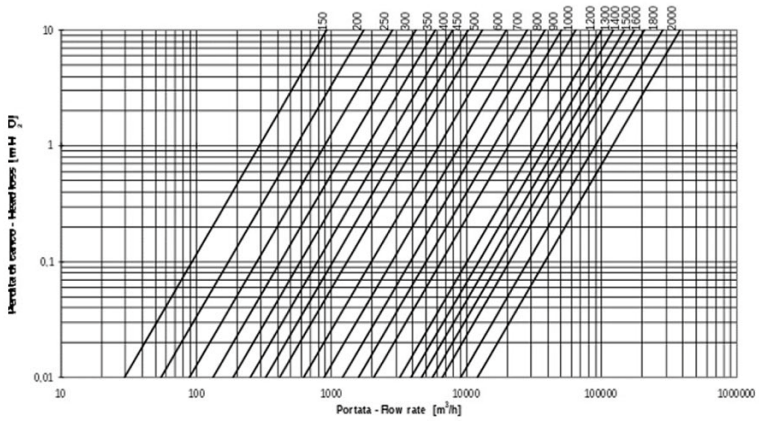


Example: Valve DN600 mm - Δh = 3 m

From the diagram with valve open to 100% the coefficient Kv is 20000 m3/h. Using this data in the flow rate expression:

$$Q = 20000 \times \sqrt{3/10{,}2} = 10850\ \mathrm{m3/h}$$

Otherwise it's possible to calculate the head loss with valve completely open, having the project flow rate Q, in function of DN, using the following diagram:



Cavitation

If the butterfly valve is used only like isolating device there's not cavitation risk.

In the particular case in which it's used like regulating device, this can be possible only respecting the following parameters:

- The valve open degree have to be between 30° and 90° (valve completely open)
- The downstream pressure P2 have to be: $P_2 \geq 0{,}7 \cdot P_1 - 2{,}8$ with P_1 upstream pressure.

Instructions for use

Storage

The butterfly valve will have to be held (if possible) in covered places, the most possible protected from the sun (maximum allowable temperature 70°C in accordance to EN 1074), from the rain and generally from the atmospheric agents. Moreover it will have to be avoided that the seal of the same air valves come to contact with powder or earth.

Installation

The butterfly valves are generally installed with retaining ring mounted in the opposite way respect to the direction of flow rate to permit the substitution of gasket without dismounting the valve from pipeline. In any case it is possible to install the butterfly valve with flow rate in opposite direction and also, if required, in vertical position. We recommend to install the butterfly with the operating device on the hydraulic right side of pipeline.

It's possible to install the butterfly valve both in chamber valve that underground (choosing the right configuration).

We recommend to insert a dismounting joint for the operation of maintenance.

Maintenance

The butterfly valve does not require a particular maintenance, all parts subjected to wear are perfectly auto-lubricating. In any case, if for a long time will be not used, it is necessary to evaluate the functioning of valve doing (at least one time for year) some manoeuvre of opening-closing.

All the maintenance operation have to be do after the total emptying of pipeline (no flow rate and pressure) to avoid every risk to the people during this operation.

In presence of particularly exercise condition or damage due to external cause, it will be necessary some maintenance operation. In this case the particular shape of EUROSTOP butterfly valve permits the simple gasket substitution without the dismounting of valve from pipeline (if the dismounting joint is present).

Accessories

To adapt the butterfly valves to the different exercise and installation conditions required, they can be equipped with particular accessories used in combination with control devices: please refer to data sheet for accessories.

The technical features in this document are not contractual and can be changed without preliminary notification due to the continuous technical progress of product.