

Concentric Flanged Butterfly Valve Series S20 DN150-1600 - Sewage version



General information

The concentric flanged butterfly valves have been designed, generally, for industrial applications where dimensional problems are important.

Their bolting design, on both sides, allows the dismantling of only one part of the installation while maintaining the other one under pressure and operational. They also facilitate the assemblies requiring a temporary isolation of some parts of the network in settlements such as pumping stations, warehouses, naval installations, etc.

Field of use

Different materials and coatings used for butterfly valves and liners can have a large response to many situations in the industrial area of sewage water and other fluids as the raw water, sea water, etc.

It provides an effective and reliable solution in conditions of work as may be pumping stations, water treatment, desalination, irrigation, etc.

Range

Concentric flanged butterfly valve from DN150 to DN1600 (consult us for other diameters).

- Bodies: flanged type in ductile iron EN GJS-400-15 + red epoxy powder 250 microns (RAL 3020)
- Maximum working pressure:
 - 16 bar
 - PFA 25 bar, consult us
- Flange dimensions:
 - PN10 and 16
 - Consult us for PN25
- Discs:
 - Ductile iron EN GJS-400-15 + Epoxy coating in black 250 microns

- CF8M Stainless Steel
- Contact us for other materials
- Sealing materials in the body type nitrile. (please consult us for other types)
- Operation:
 - Hand lever type MN : DN40-150mm
 - Hand lever type MR : DN200-350mm
 - Gear-box + handwheel : DN40-1200mm
 - Motorized: Electrical motor (Auma, Bernard, ...), Pneumatic actuators, ...

Given our wide range of materials, coatings and available drives, we remain at your disposal to look for a solution adapted to your requirements.

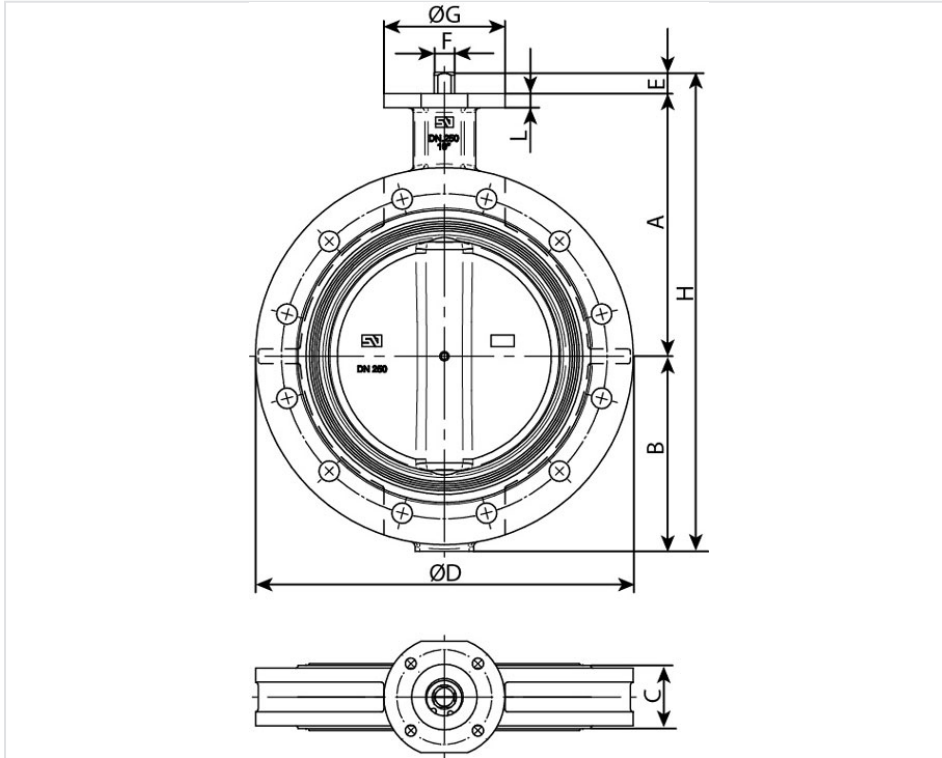
References

Codification

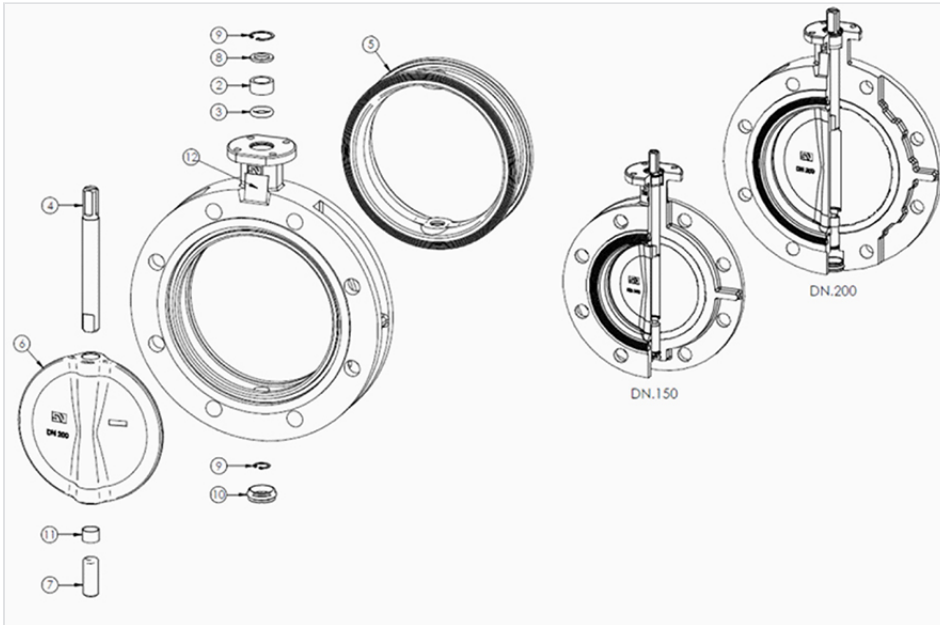
- Position 6 (disc) : A = St Steel CF8M, B = Ductile Iron + black epoxy
- Position 7 (actuator) : L = hand lever, B = gearbox with handwheel, M = motorized
- Position 10 (Elastomer) : N=Nitrile, V=Viton

C = distance between flanges

DN mm	DN inch	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	L mm	Mass kg	Reference
150	6"	193	143	56	285	33	14	90	369	12	11.1	Consult us
200	8"	225	172.5	60	345	33	17	90	430.5	12	21.2	Consult us
250	10"	282.5	210	68	406	23	22	130	515.5	14	32.1	Consult us
300	12"	308	243	78	480	23	22	130	574	14	48	Consult us
350	14"	338.5	282.5	78	535	31	22	160	652	15	56.4	Consult us
400	16"	380	308	102	597	31	27	160	719	18	83	Consult us
450	18"	380.5	340	114	640	38	36	190	758.5	20	108.9	Consult us
500	20"	432.5	380	127	700	38	36	210	850.5	20	144.8	Consult us
600	24"	494	440	154	834	80	60	210	1014	24	223.6	Consult us
700	28"	590	490	165	910	106	65	300	1186	30	277.8	Consult us
750	30"	590	530	190	995	106	80	200	1226	25	366	Consult us
800	32"	630	565	190	1060	106	80	300	1301	28	413	Consult us
900	36"	695	610	203	1170	110	80	350	1415	32	565	Consult us
1000	40"	770	675	216	1290	110	80	350	1555	32	704	Consult us
1100	44"	815	733	216	1405	110	80	350	1658	32	856	Consult us
1200	48"	875	818	254	1485	110	100	350	1803	40	1087	Consult us
1400	56"	1000	973	280	1735	120	120	350	2093	40	1651	Consult us
1600	64"	1115	1090	318	1930	160	130	475	2365	40	2132	Consult us



Material and coating

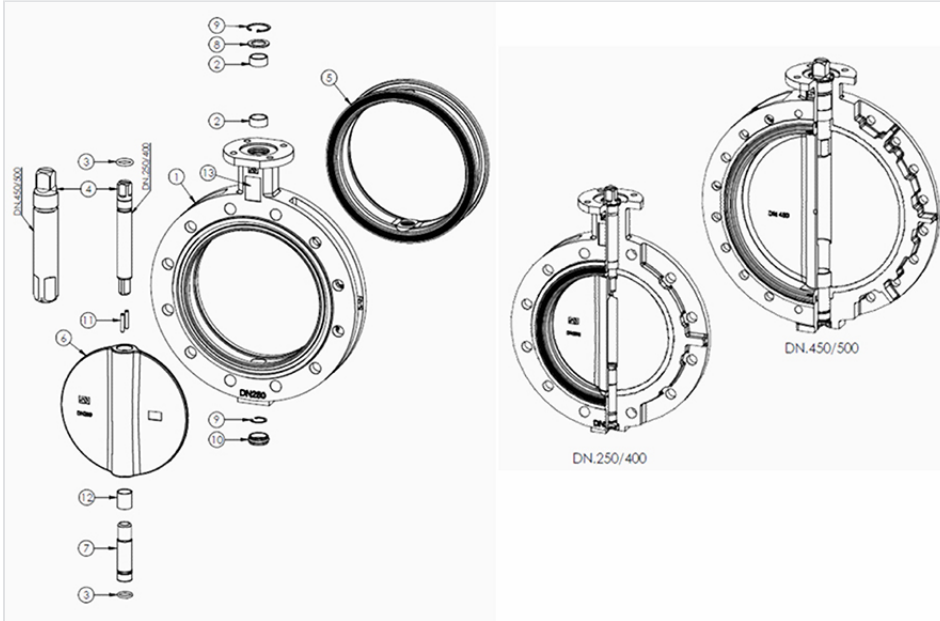


DN40-200

DN40-200

Item	Designation	Material	Coating
1	Valve Body	Ductile Iron EN GJS-400-5	Red Epoxy 250 μ
2	Bushing	Acetal « DELRIN » (POM)	
3	O'ring	Nitrile	
4	Upper shaft	Stainless Steel X20Cr13 according EN10088-3	
5	Seat	Nitrile	
6	Disc	Ductile Iron EN GJS-400-15	Black Epoxy 250 μ
		Stainless Steel CF8M	
7	Lower shaft	Stainless Steel X20Cr13 according EN10088-3	
8	Retaining ring	Zinc plated steel	
9	Circlip	Zinc plated steel	DIN 472
10	Lower Plug	EPDM	
11	Bushing	Steel BZ	PTFE
12	Features TAG	Polyester	

Material and coating

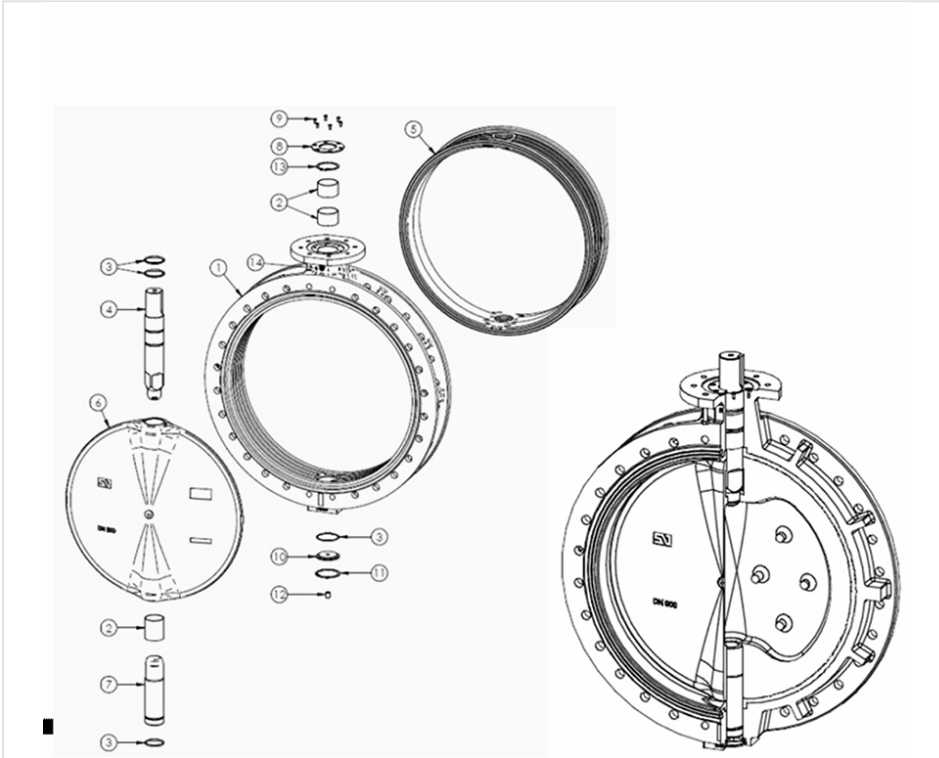


DN250-500

DN250-500

Item	Designation	Material	Coating
1	Valve Body	Ductile Iron EN GJS-400-15	Red Epoxy 250 µ
2	Bushing	Steel BZ	PTFE
3	O'ring	Nitrile	
4	Upper shaft	Stainless Steel X20Cr13 according EN10088-3	
5	Seat	Nitrile	
6	Disc	Ductile Iron EN GJS-400-15	Black Epoxy 250 µ
		Stainless Steel CF8M	
7	Lower shaft	Stainless Steel X20Cr13 according EN10088-3	
8	Retaining ring	Zinc plated steel	
9	Circlip	Zinc plated steel	DIN 472
10	Lower Plug	Nitrile	
12	Bushing	Steel BZ	PTFE
13	Features TAG	Polyester	

Material and coating



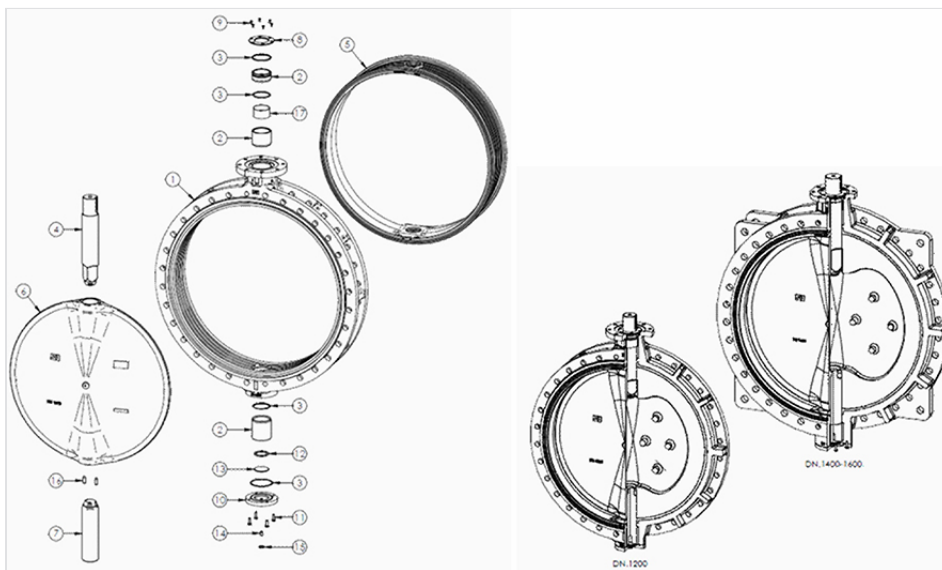
DN600-1200

DN600-1100

Item	Designation	Material	Coating
1	Valve Body	Ductile Iron EN GJS-400-15	Red Epoxy 250 μ (RAL 3009)
2	Bushing	Steel BZ	PTFE
3	O'ring	Nitrile	
4	Upper shaft	Stainless Steel X20Cr13 according EN10088-3	
5	Seat	Nitrile	
6	Disc	Ductile Iron EN GJS-400-15	Black Epoxy 250 μ
		Stainless Steel CF8M	
7	Lower shaft	Stainless Steel X20Cr13 according EN10088-3	
8	Upper cover	Carbon steel	Black Epoxy powder
9	Bolt of upper cover	Zinc plated steel	DIN 472
10	Lower cover	Zinc plated steel	
11	Zegi ring Body	Zinc plated steel	
12	Screw (DN800/1100)	Zinc plated steel	DIN 913

Item	Designation	Material	Coating
13	Retaining ring shaft (only DN600/800)	Zinc plated steel	DIN 471
14	Features TAG	Polyester	

Material and coating

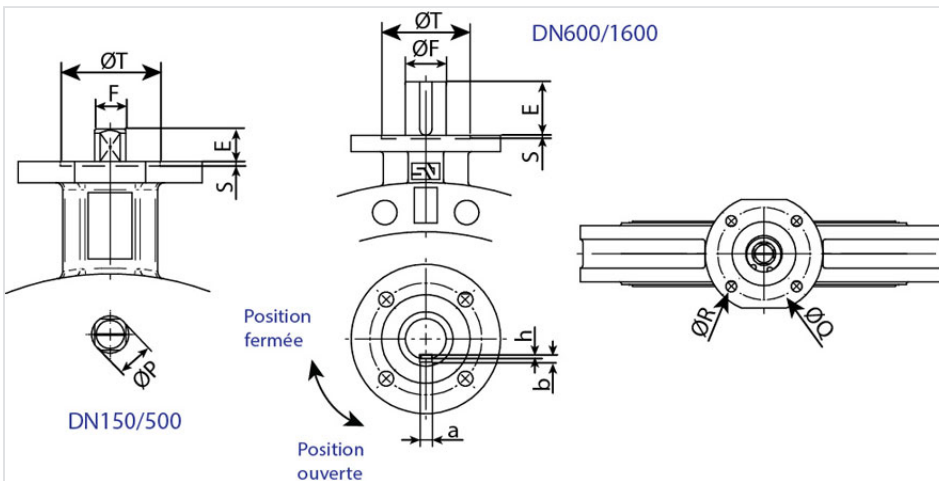


DN1200

Item	Designation	Material	Coating
1	Valve Body	Ductile Iron EN GJS-400-15	Red Epoxy 250 µ (RAL 3009)
2	Bushing	Bronze	
3	O'ring	Nitrile	
4	Upper shaft	Stainless Steel X20Cr13 according EN10088-3	
5	Seat	Nitrile	
6	Disc	Ductile Iron EN GJS-400-15 Stainless Steel CF8M	Black Epoxy 250 µ
7	Lower shaft	Stainless Steel X20Cr13 according EN10088-3	
8	Upper cover	Carbon steel	Black Epoxy powder
9	Bolt of upper cover	Zinc plated steel	DIN 7991
10	Lower cover	Zinc plated steel	
11	Lower bolt	Zinc plated steel	DIN 931
12	Lower ring	Bronze/brass	

Item	Designation	Material	Coating
13	Disc	Zinc plated steel	
14	Screw	Zinc plated steel	DIN 913
15	Nut	Zinc plated steel	DIN 934
16	Keyway	Stainless steel X20Cr13 according EN10088-3	
17	Bushing	Steel-Bz	PTFE

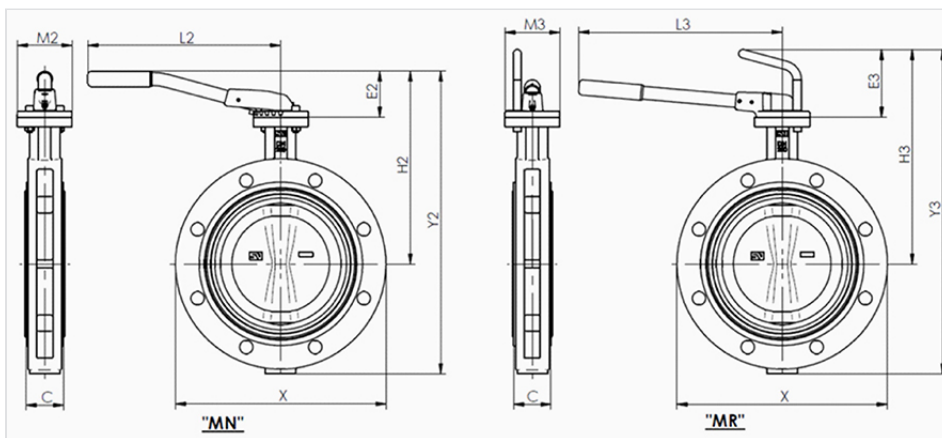
Upper flange



DN mm	DN inch	ISO mm	P mm	Q mm	R mm	S mm	T mm	axb mm	H mm
80	3"	F-07	13	70	4x9				
100	4"	F-07	13	70	4x9				
125	5"	F-07	17	70	4x9				
150	6"	F-07	17	70	4x9				
200	8"	F-07	20.3	70	4x9				
250	10"	F-10	26.2	102	4x12	3	70		
300	12"	F-10	26.2	102	4x12	3	70		
350*	14"	F-10	28	102	4x12	3	70		
350	14"	F-10	28	102	4x12	3	70		
400	16"	F-12	33	125	4x14	4	85		
450*	18"	F-14	48	140	4x18	4	100		
450	18"	F-14	48	140	4x18	4	100		
500	20"	F-14	48	140	4x18	4	100		

DN mm	DN inch	ISO mm	P mm	Q mm	R mm	S mm	T mm	axb mm	H mm
600	24"	F-16		165	4x22	5	130	18x11	7
700	28"	F-25		254	8x18	5	200	18x11	7
750	30"	F-25		254	8x18	5	200	22x14	9
800	32"	F-25		254	8x18	5	200	22x14	9
900	36"	F-25		254	8x18	5	200	22x14	9
1000	40"	F-25		254	8x18	5	200	22x14	9
1100	44"	F-25		254	8x18	5	200	22x14	9
1200	48"	F-30		298	8x23	5	230	28x16	10
1400	56"	F-30		298	8x23	5	230	32x18	11
1600	64"	F-40		406	8x39	8	300	32x18	11

DN40-600 - Operation by hand lever type MN and MR



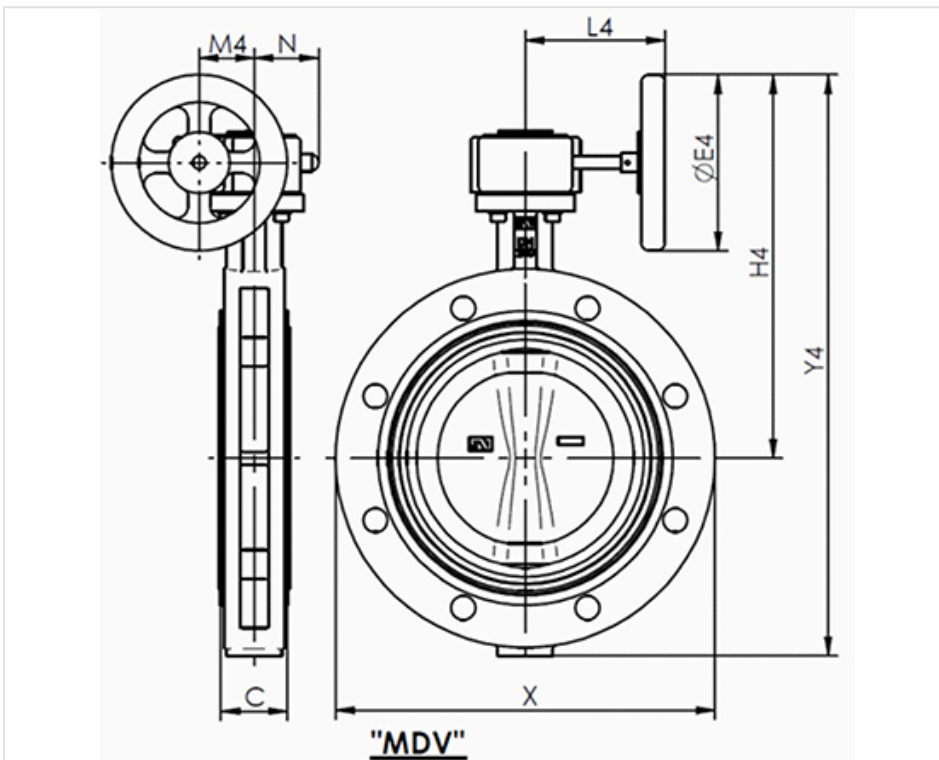
The operation by hand lever allows the disc between 0 and 90°. There are two types of manual control lever, the MN type and type MR.

MN type is the referenced for our range of Wafer and Lug valves. The lever allows seven positions of the butterfly between 0° to 90° with anchorage by spring.

DN		C	X	Hand lever type MN						Hand lever type MR					
mm	inch	mm	mm	E2	H2	Y2	L2	M2	Mass	E3	H3	Y3	L3	M3	Mass
80	3"	46	200	60	201	301	260	90	5.3	113	254	448	260	90	6.5
100	4"	52	229	60	225	339.5	260	90	6.9	113	278	498	260	90	7.1

DN		C	X	Hand lever type MN						Hand lever type MR					
mm	inch	mm	mm	E2	H2	Y2	L2	M2	Mass	E3	H3	Y3	L3	M3	Mass
150	6"	56	285	75	268	400	315	90	11.5	115	308	451	310	90	11.8
200	8"	60	345	75	300	472	315	90	21.7	115	340	512	310	90	21.8
250	10"	68	406							120	402	612	500	130	33.7
300	12"	78	480							120	428	671	500	130	49.7
350	14"	78	535							120	458	740	500	130	58.1

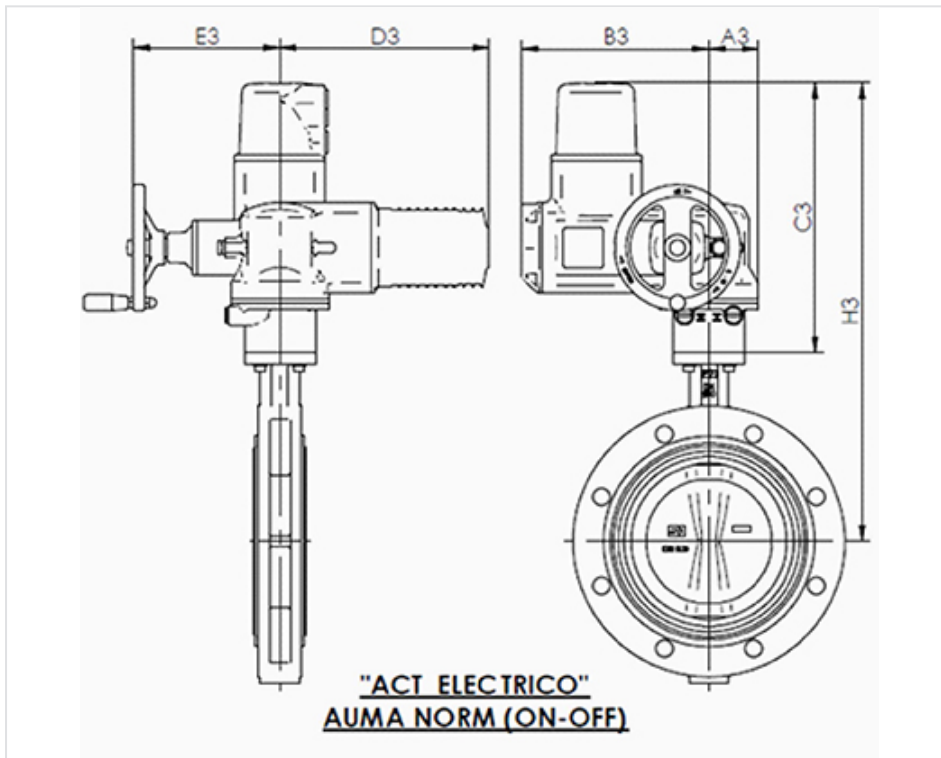
DN40–600 - Operation by gearbox MDV and Handwheel



DN		C	X	Gearbox type MDV with handwheel						
mm	inch	mm	mm	E4	H4	Y4	L4	M4	N	Mass
80	3"	46	200	125	229	329	129	43.5	50.5	6.0
100	4"	52	229	125	253	367.5	129	43.5	50.5	7.6
150	6"	56	285	160	298	441	135	43.5	50	12.5
200	8"	60	345	200	355	527	152	52.5	57	23.7

DN		C	X	Gearbox type MDV with handwheel						
mm	inch	mm	mm	E4	H4	Y4	L4	M4	N	Mass
250	10"	68	406	250	442	652	222	61	70	35.5
300	12"	78	480	250	468	711	222	61	70	51.5
350	14"	78	535	250	498	780	222	61	70	60
400	16"	102	597	300	572	880	278	69	72.5	92
450	18"	114	640	400	630	970	321	96.5	91.5	127
500	20"	127	700	400	682	1062	321	96.5	91.5	163
600	24"	154	834	500	799	1239	408	137.5	140	258
700	28"	165	910	600	945	1435	424	137.5	140	351
750	30"	190	995	600	945	1475	456	137.5	140	413
800	32"	190	1060	600	985	1550	456	137.5	156	470
900	36"	203	1170	700	1108	1718	510	180	156	665
1000	40"	216	1290	700	1183	1858	579	180	156	783
1100	44"	216	1405	700	1229	1962	579	180	156	941
1200	48"	254	1485	700	1310	2128	593	252.5	201	1260
1400	56"	280	1735	700	1435	2410	593	252.5	201	1846
1600	64"	318	1930	700	1550	2640	593	252.5	201	2328

Operation by motor type AUMA

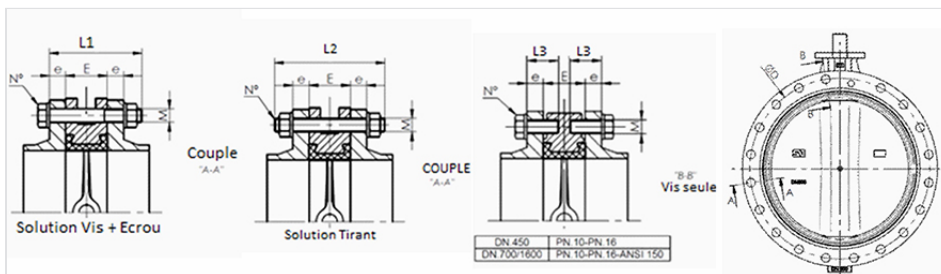


PFA 10 bar

DN		Electric motor Type	A3	B3	C3	D3	E3	H3	Mass
mm	inch								
80	3"	SQ 05.2	63	238	344	265	186	485	27.8
100	4"	SQ 05.2	63	238	344	265	186	509	27.8
150	6"	SQ 05.2	63	238	344	265	186	537	34.1
200	8"	SQ 07.2	63	238	344	265	186	569	44.2
250	10"	SQ 10.2	80	248	361	265	191	643.5	44.2
300	12"	SQ 10.2	80	248	361	265	191	669	75
350	14"	SQ 12.2	105	248	385	265	191	723.5	88.4
400	16"	SQ 12.2	105	248	385	265	191	765	115
450	18"	SQ 14.2	112.5	255	447	265	216	827.5	152
500	20"	SQ 14.2	112.5	255	447	265	216	879.5	188
600	24"	GS100.3/VZ4.3 SA07.6	547	189	313	164	287	807	284
700	28"	GS125.3/VZ4.3 SA10.2	554	194	323	158	306	913	349
750	30"	GS125.3/VZ4.3 SA10.2	554	194	323	158	316	913	437

DN		Electric motor Type	A3							Mass
mm	inch		A3	B3	C3	D3	E3	H3		
800	32"	GS160.3/GZ160.3(8:1) SA10.2	630	290	323	165	351	953	530	
900	36"	GS160.3/GZ160.3(8:1) SA10.2	630	290	323	165	351	1018	682	
1000	40"	GS200.3/GZ200.3(8:1) SA10.2	760	366	338	208	391	1108	900	
1100	44"	GS200.3/GZ200.3(16:1) SA10.2	760	366	338	208	391	1153	1052	
1200	48"	GS200.3/GZ200.3(8:1) SA10.2	760	366	338	208	391	1213	1283	

Screwing - Main dimensions



DN	E	PN10						PN16						ANSI 150 Lbs					
		D	e	M	L1/L3	L2	Number	D	e	M	L1/L3	L2	Number	D	e	M	L1/L3	L2	Number
80	46	160	20	M16	110	130	8	160	20	M16	110	130	8	152.4	23.8	W 5/8"	110	130	4
100	52	180	20	M16	110	130	8	180	20	M16	110	130	8	190.5	23.8	W 5/8"	120	140	8
150	56	240	22	M20	130	150	8	240	22	M20	130	150	8	241.3	25.4	W 3/4"	130	150	8
200	60	295	24	M20	130	160	8	295	24	M20	130	160	12	298.5	28.6	W 3/4"	140	160	8
250	68	350	26	M20	150	170	12	355	26	M24	150	170	12	361.9	30.2	W 7/8"	160	180	12
300	78	400	26	M20	160	180	12	410	28	M24	160	180	12	431.8	31.7	W 7/8"	170	190	12
350	78	460	26	M20	170	180	16	470	30	M24	170	190	16	476.2	34.9	W 1"	180	200	12
400	102	515	26	M24	180	216	16	525	32	M27	200	220	16	539.7	36.5	W 1"	210	230	16
450	114	565	26	M24	190	220	16	585	32	M27	210	240	16	577.8	39.5	W 1.1/8"	230	250	16
450	114	565	26	M24	60	-	8	585	32	M27	60	-	8	577.8	39.7	-	-	-	-
500	127	620	28	M24	210	230	20	650	34	M30	230	260	20	635.0	46.0	W 1.1/8"	250	280	20
600	154	725	28	M27	240	270	20	770	36	M33	260	290	20	749.3	47.6	W 1.1/4"	280	310	20
700	165	840	30	M27	260	280	20	840	36	M33	270	300	20	863.5	52.5	W 1.1/4"	310	340	24
700	165	840	30	M27	80	-	8	840	36	M33	85	-	8	863.5	52.5	W 1.1/4"	110	-	8
750	190	900	32	M30	290	320	20	900	38	M33	300	340	20	914.4	54	W 1.1/4"	335	375	24
750	190	900	32	M30	95	-	8	900	38	M33	100	-	8	914.4	54	W 1.1/4"	110	-	8
800	190	950	32	M30	290	320	20	950	38	M36	310	345	20	978	57	W 1.1/2"	340	380	24
800	190	950	32	M30	110	-	8	950	38	M36	80	-	8	978	57	W 1.1/2"	95	-	8

DN	E	PN10						PN16						ANSI 150 Lbs					
		D	e	M	L1/L3	L2	Number	D	e	M	L1/L3	L2	Number	D	e	M	L1/L3	L2	Number
900	203	1050	34	M30	310	350	24	1050	40	M36	330	375	24	1086	60	W1.1/2"	370	415	28
900	203	1050	34	M30	100	-	8	1050	40	M36	100	-	8	1086	60	W1.1/2"	110	-	8
1000	216	1160	34	M33	325	360	24	1170	42	M39	345	390	24	1200	63.5	W1.1/2"	390	430	32
1000	216	1160	34	M33	95	-	8	1170	42	M39	100	-	8	1200	63.5	W1.1/2"	120	-	8
1100	216	1270	38	M33	330	37	28	1270	48	M39	360	400	28	1314.5	101	W1.1/2"	465	410	36
1100	216	1270	38	M33	100	-	8	1270	48	M39	110	-	8	1314.5	101	W1.1/2"	150	-	8
1200	254	1380	38	M36	375	420	28	1390	48	M45	395	445	28	1422	108	W1.1/2"	475	520	40
1200	254	1380	38	M36	110	-	8	1390	48	M45	115	-	8	1422	108	W1.1/2"	165	-	8
1400	280	1590	42	M39	410	450	32	1590	52	M45	440	490	32	1651	124	W1.3/4"	580	630	44
1400	280	1590	42	M39	100	-	8	1590	52	M45	110	-	8	1651	124	W1.3/4"	160	-	8
1600	318	1820	46	M45	460	510	36	1820	58	M52	470	530	36	-	-	-	-	-	-
1600	318	1820	46	M45	110	-	8	1820	58	M52	120	-	8	-	-	-	-	-	-

Tapped holes for the flanges assembly will be :

- Metric for the PN standards
- Whitworth type for the NSI 150 standards

For other tappings, consult us.

Packing

DN	Number of valves with hand lever per crate		Crate dimensions
mm	DOUBLE FLANGED S20		
80	110		1200 x 800 x800
100	100		
150	70		
200	50		
250	14		
300	14		

DN	Number of valves with gearbox per crate		Crate dimensions
mm	DOUBLE FLANGED S20		
80	90		1200 x 800 x800
100	80		
150	55		
200	35		
250	14		

DN mm	Number of valves with gearbox per crate DOUBLE FLANGED S20	Crate dimensions
300	14	
350	14	
400	10	
450	5	900 x 750 x750
500	5	
600	4	1150 x 900 x 900
700	3	1200 x 1100 x 700
800	2	1500 x 1200 x 650
900	2	1500 x 1200 x 650
1000	1	1600 x 1350 x 400
1200	1	1950 x 1600 x 500
1400	1	1700 x 1500 x 500 (palette)
1600	1	1700 x 1500 x 500 (palette)

Added values



A) Bushings

They ensure alignment of the shafts as well as reducing the torque. Together with the shaft packing give additional safety preventing internal leakage and external contamination.

B) Body design

The long-neck construction allows easy installation and provision for insulation, even if the valves are assembled between flanges. The top and bottom alignment lugs make mounting between DIN-ANSI-JIS, etc., flanges very easy.

C) Spherical disc

The disc edge in contact with the seat is completely spherical providing smooth operation and considerable reduction of the valve torque. The combination of the valve tightness and reduced friction, especially around the shafts, gives a three folds increase in the life span of the seat

D) Interchangeability

All valve components can be dismantled and the replaceable parts are interchangeable with concentric flanged butterfly valves.

Compliance with standards

Company: designer and manufacturer works according to ISO 9001 by AENOR n° ES 0780 / 1997

Product: complies to the NF EN1074-1 and DVGW standards (up to DN700). Rest of the range in process.

Dimensions:

- NF EN 593: Metallic butterfly valves
- NF EN 558-1: Face to Face dimensions series 20
- EN ISO 5752: Metal valves for flanged pipe network. Table 5 short series
- API 609: Butterfly valves Flanged, Lugged and Wafer
- NF EN 1092-2: Flange connections to the piping material

Materials: NF EN1503: Valves. Materials for bodies, bonnets and covers

Operation:

- EN ISO 5210 : Multi-turn actuator to valve
- EN ISO 5211 : Part-turn actuator to valve

Assembling between flanges: ISO PN10 or PN16, DIN 2632 PN10 or PN16, EN-1092 PN10 or PN16, NFE 29222 PN10 or PN16

Identification: EN ISO 5209: Marking

Hydraulic Tests:

- EN ISO 5208: Pressure (Ratio A-No leakage)
- EN 12 266-1: Sealing (Ratio A-No leakage)

Traceability



Traceability system for LUG butterfly valves allows since the departure from the factory to the last day of life of the valve to obtain information relating to the product origin and quality both of coatings and materials, manufacturing, inspection and hydraulic tests results.

From the moment the order is in the computer system, starts the program of manufacturing. A serial number is automatically assigned to this valve. Manufacturing sheet will be marked with this number. This sheet will contain all information about manufacture and inspection of the valve. At the end, two stickers with the number of identification will be placed in the body and in the top flange of the valve.

Assembling

The trial sheet assembly is identified with the internal number. This sheet has as many labels as valves to assemble. This label identifies the person responsible for the mounting and the possible problems during the assembling. The document contains the components of the valve if certification 3.1 is required by the customer.

Hydraulic tests

Label identifying the inspector and the results of the tests. Any remark produced during the tests and the torque is shown.

Foundry marking



Body and disc: manufacturer and type of material.
and

Marking (identification/labels)

Hydraulic characteristics

Headloss Δp inside the valve is expressed with the flow coefficient K_v which is the flow going through the valve at a temperature 20°C and generating a headloss of 1 bar.

For the water we obtain the simplified calculation below:

$$K_v = \frac{Q}{\sqrt{\Delta P}}$$

with Q in m³/h and K_v in m³/h, Δp in bar

Flow coefficient K_v (in m³/h) according to the opening angle of the disc:

DN	Degree of valve opening							
	25	30	40	50	60	70	80	90
150	146	125	215	353	690	890	1420	1680
200	146	215	360	603	1120	1510	2350	2800
250	224	336	580	990	1850	3190	3700	4310
300	327	475	860	1380	2670	3490	5215	6465
350	430	645	1120	1896	3535	4395	6980	8620
400	560	775	1465	2285	4395	5600	9310	10775
450	775	1077	1980	3190	6120	7930	12700	15086
500	970	1380	2415	3965	7500	9900	15085	18965
600	1293	1895	3275	5260	10130	14225	20700	24137
700	1350	1990	3860	5980	10600	17100	25300	36000
800	1600	2200	4500	8200	12500	20000	29000	44000
900	1800	2300	6100	10400	17500	29000	42000	58000
1000	2500	3800	8700	13500	23000	37500	59200	80500
1100	4450	6350	10560	18210	28650	54560	72540	97586
1200	5400	7800	12500	22600	35500	61500	82000	110500
1400	5680	8568	15256	28950	45685	85700	145800	170500
1500	6154	9755	18850	34230	54560	101675	176450	195400
1600	6456	10952	20568	37850	59452	110325	198450	220350

Mechanical characteristics

Necessary torque, in Nm, to close the disc at ΔP . These torques have been obtained with the standard range, water at 20°C and Nitrile seats.

bar	DN																	
	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200	1400	1500	1600
3	48	90	126	161	245	520	590	840	1000	1650	2300	4700	6500	7000	8500	14000	20000	22000
6	75	120	210	270	300	624	1120	1390	2200	3300	4600	6800	8500	9000	12000	17000	24000	26000
10	90	140	270	390	500	897	1450	1800	3450	5000	6500	8500	11500	12000	15500	19500	28000	30000
16	110	215	350	560	950	1400	1950	2500	3800	5860	9500	11500	15000	16000	22000	-	-	-

The information on this sketch is, to the best of our knowledge correct at the time of printing. However Saint-Gobain are constantly looking at ways of improving their products and services therefore reserve the right to change without prior notice, any of the data shown. Any orders placed will be subject to our Standard Conditions of Sale, available on request.