

BUTTERFLY VALVE M1A

DN 40 – 900

PN 10/16



M1A valve meets good advantages of centric soft-seated butterfly valve. Valve is suitable to be used for on/off or control operation. Valve can be used for different chemical media because of different material combination of internal parts.

Main features

- one-piece body
- through stem
- easy disassembly and assembly
- lever with lock

Operation

- lever
- electric actuator
- pneumatic actuator
- gearbox

Assembly

- horizontal stem position is recommended
- between neck flanges PN10 or PN16

Technical features

Maximal working pressure	1,6 MPa for DN 40-300
	1,0 MPa for DN 350-900
Maximal working temperature	depend on seat or disc material
Face-to-face	ISO 5752, table 5 short
Mounting flange	ISO 5211

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Markings

Body		
Material	V.Nr	Code
cast iron GG25	0.6025	1
ductile iron GG640	0.7040	2
SS AISI 304	1.4301	7
SS AISI 316	1.4408	8

Disc			
Material	W. Nr	Code	
ductile iron . polyamide coated	0.7040	2	
ductile iron . halar coated	0.7040	3	
SS CrNi	1.4301	7	
SS CrNiMo	1.4408	8	

type M1A

Seat		
Material	Temp.range	Code
EPDM	-20°C + 120°C	E
NBR	-10°C + 80°C	B
Hypalon	-20°C + 135°C	H
Viton	-18°C + 150°C	V
Silikon	-20°C + 180°C	S

Description

1. Body

One-piece body wafer type or lug type long neck for pipeline isolation

2. Disc

Machined in spherical form. Friction face is polished

3. Seat

Seat made of elastomer forms sealing to counter flange as well. Seat also provides a full isolation from medium and it is also very easily replacable.

4. Stem

Through stem construction allows accurate torque transmission with square stem end. Stemholding through special Q-mechanism. Stem can be removed easily from body without special tools.

5. Pin

Safety against stem shot

6. Upper bearing

Produced from high strenght DELRIN

7. O-rings

Prevent unpurities go in

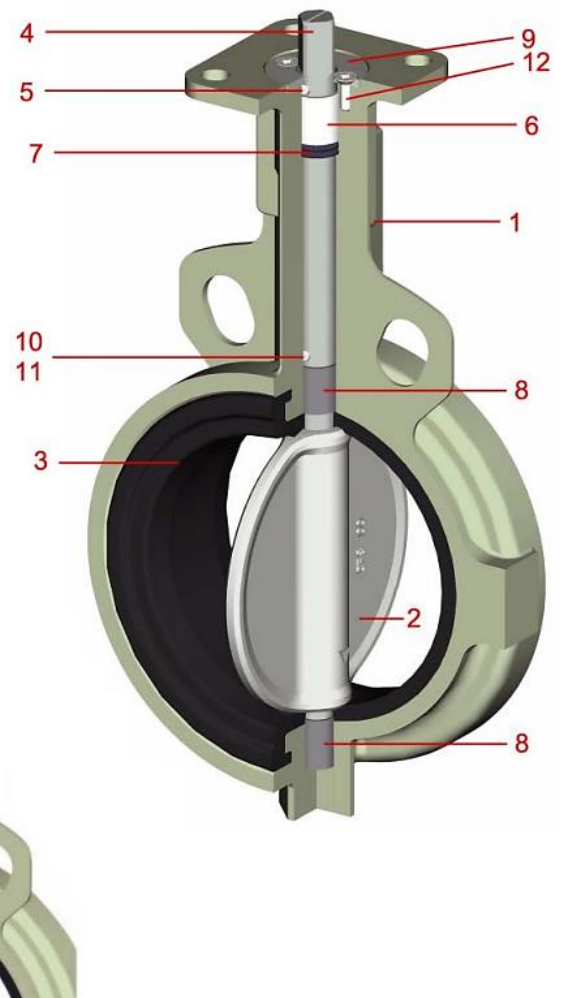
8. Schuetzring

Brass (if full SS execution)

10. Flange

11. Anti-static

(only full SS-execution available)



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Dimension definition

Dimension definition for control operation

Firstly we define the coefficient k_v by following formula:

a) for liquids

$$k_v = Q \cdot \sqrt{\frac{\gamma}{\Delta p}}$$

b) for gases

$$k = \frac{V_N}{514} \cdot \sqrt{\frac{G \cdot T}{\Delta p \cdot p_2}}$$

k_v = flow coefficient

V_N = max. flow in Nm^3/St

T = absolute temperature in $^{\circ}\text{C}$

Q = max. m^3/h flow

p_1 = absolute pressure /bar/

p_2 = absolute pressure behind the valve /bar/

G = specific weight in kg/Nm^3

Δp = pressure lost /bar/ γ = specific weight in $\text{v kg}/\text{dm}^3$

DN	flowspace S in cm^2	10°	20°	30°	40°	50°	60°	70°	80°	90°
40	12,6	0,7	2,4	6,9	14,2	22	36	59	81	113
50	19,6	1,1	3,8	10,2	22	38	60	100	132	193
65	33,2	2	7,5	18,2	35	61	95	187	240	315
80	50,3	2,5	9,8	26	48	83	126	214	338	425
100	78,5	3,8	14,6	39	72	119	221	361	606	723
125	123	6,5	24	62	118	217	394	599	1038	1243
150	177	10	41	95	175	326	542	873	1260	1859
200	314	19	64	165	306	573	995	1567	2310	3124
250	491	28	1,1	245	451	836	1462	2253	3256	4757
300	707	34	129	312	615	1137	2125	3248	4991	7058
350	962	47	163	390	795	1498	2573	3980	5749	8319
400	1257	62	231	508	1077	1973	3381	5385	8099	11458
450	1590	75	256	621	1208	2315	3925	6331	9474	13612
500	1963	103	346	859	1692	3086	5348	8513	13109	18748
600	2827	139	494	1153	2389	4466	7561	11945	18088	25217
700	3846	191	659	1674	3224	5990	10659	17442	25194	36821
750	4416	203	700	1777	3420	6354	11307	18503	26727	39062
800	5024	257	973	2302	4533	8235	14123	23021	31613	45995
900	6358	329	1253	2950	5862	10810	18184	29756	42893	61044
950		460	1730	4020	7180	12170	19800	32490	49320	62150
1000		510	1919	4456	7956	13494	21939	36000	54649	68874
1050		562	2116	4913	8771	14877	24188	39690	60251	75934
1100		617	2322	5392	9627	16328	26546	43560	66125	83338
1200		734	2763	6417	11457	19431	31592	51840	78695	99179

Flow velocity should not exceed 4,5m/s by **fluids** and 100m/s by **gases**.

Velocity calculation is according to following formulas:

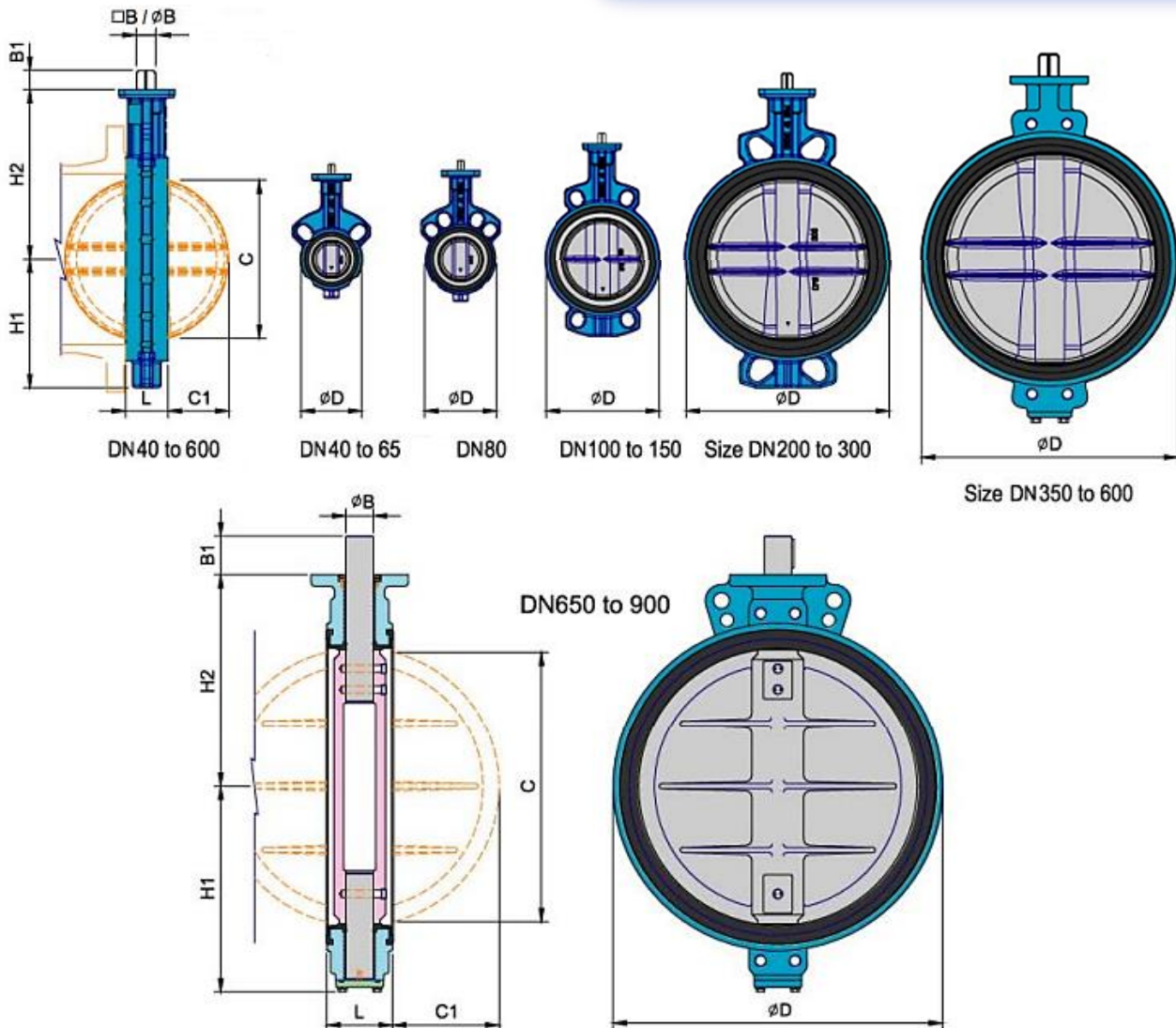
a) Fluids $v = \frac{Q}{S \cdot 0,36}$ b) Gases $v = \frac{V_N \cdot T}{S \cdot p \cdot 98,28}$

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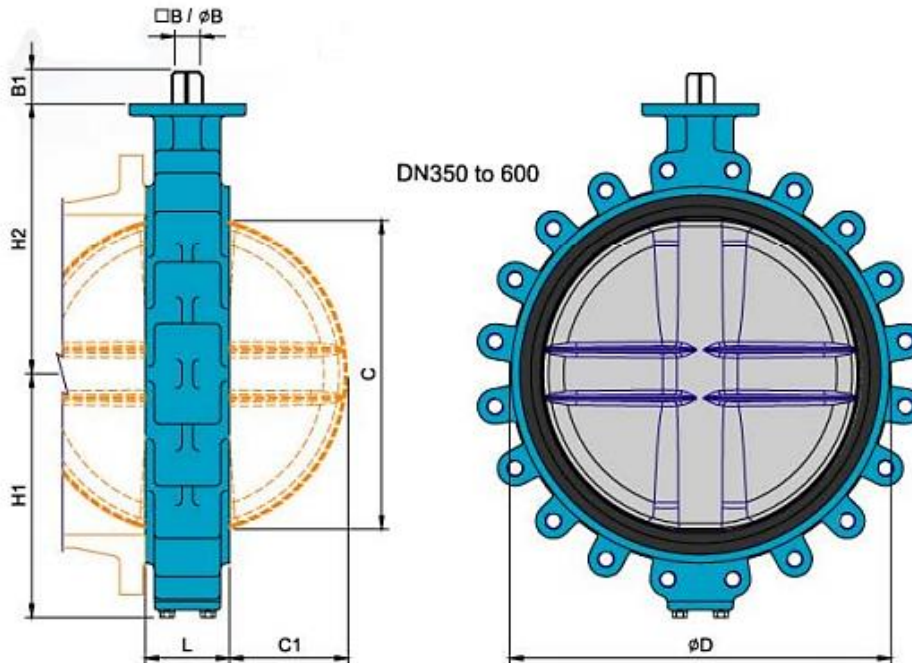
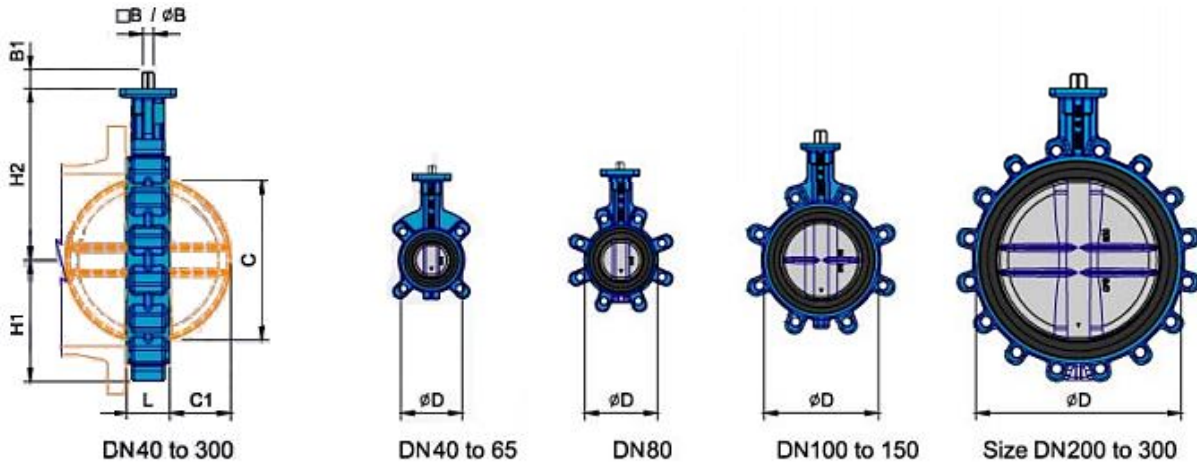
PN 10/16

Body – wafer type dimensions



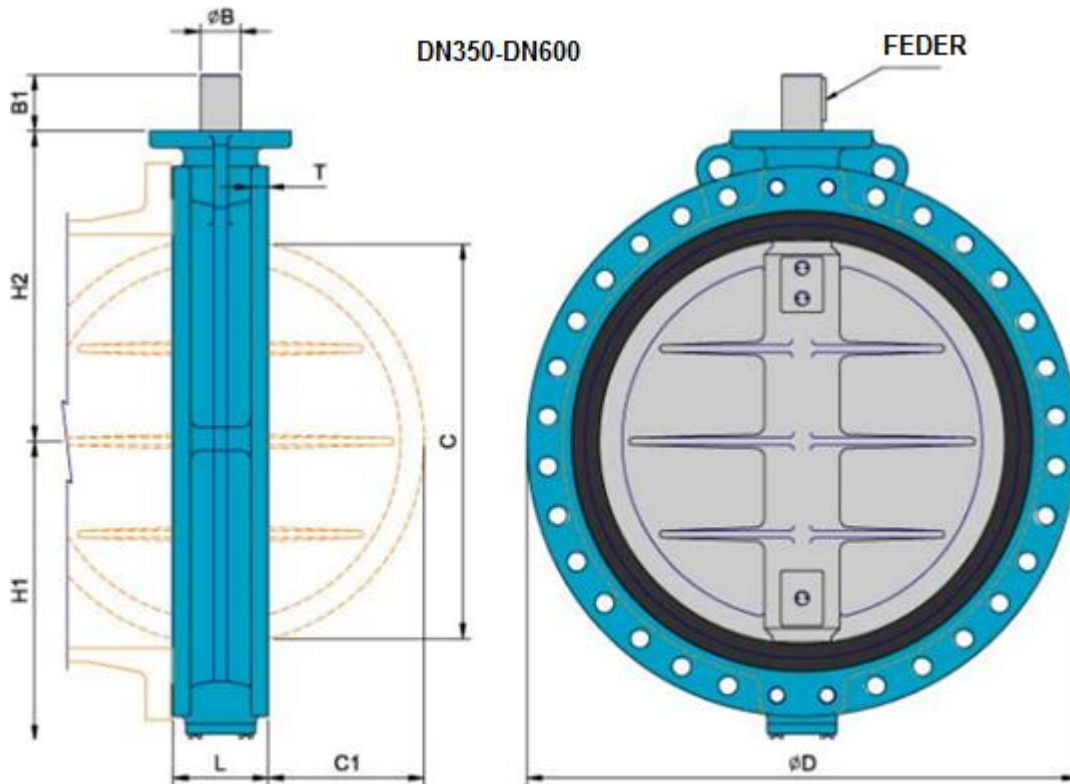
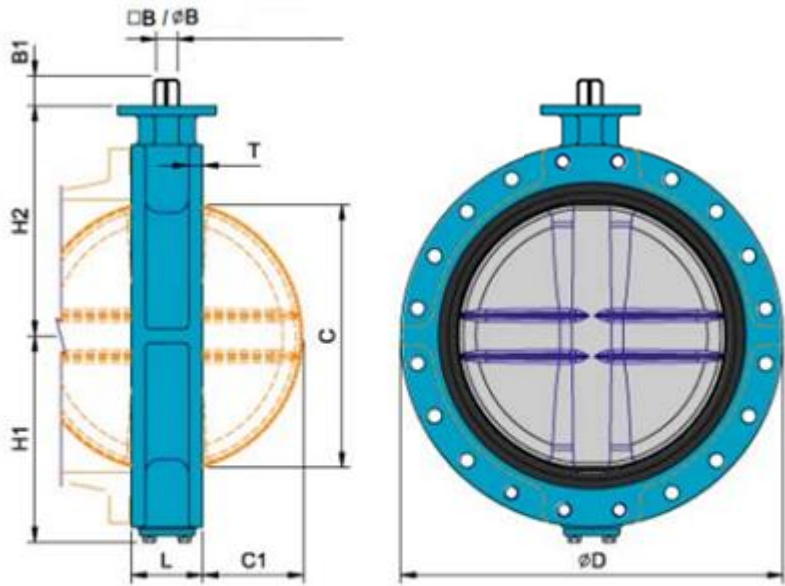
DN	L	H1	H2	D	ISO 5211		Stem			Key	Disc in pipeline		Weight kg
					pitch	ϕ	ϕ B	B	B1		C	C1	
40	33	60	120	81	F07	70	14	11	19		34	7	2
50	43	65	143	90	F07	70	14	11	19		39	8	3
65	45	71	155	110	F07	70	14	11	19		55	13	3,8
80	48	77	162	124	F07	70	14	11	19		69	9	4
100	52	107	181	148	F07	70	14	11	19		91	27	5,3
125	58	122	197	180	F07	70	18	14	19		115	36	7,3
150	56	140	210	206	F07	70	18	14	19		140	47	8,2
200	60	165	240	259	F10	102	22	17	24		186	68	13,5
250	68	201	256	320	F10	102	25	19	24		239	90	21,2
300	78	234	300	270	F10	102	28	22	24		288	111	32,5
350	78	301	329	412	F12	125	35	27	29		325	128	48
400	102	333	361	475	F12	125	35	27	29		375	143	60
450	111	358	393	530	F14	140	48	36	38		423	162	80
500	127	392	427	585	F14	140	48	36	38		473	180	125
600	164	454	492	687	F16	165	60	46	48		560	214	200
700	165	508	563	796	F16	165	70		90	18 x 12	655	255	395
760	190	543	585	856	F25	254	75		110	20 x 12	692	264	490
800	190	592	630	870	F25	254	80		110	24 x 16	738	285	580
900	203	632	660	1003	F25	254	85		110	24 x 16	841	331	730

BUTTERFLY VALVE DN 40 – 600 PN 10/16 Body – Lug type dimensions



DN	L	H1	H2	D	ISO 5211		Stem			Disc in pipeline		Weight /kg/
					pitch.	φ	φ B	B	B1	C	C1	
40	33	60	120	81	F07	70	14	11	19	34	7	2,2
50	45	66	143	96	F07	70	14	11	19	39	8	3,4
65	46	71	155	110	F07	70	14	11	19	55	13	4
80	46	77	162	124	F07	70	14	11	19	69	19	4,5
100	52	89	181	148	F07	70	14	11	19	91	27	7,6
125	56	113	197	180	F07	70	18	14	19	115	36	9,5
150	56	123	210	206	F07	70	18	14	19	140	47	10,4
200	60	150	240	259	F10	102	22	17	24	186	68	17,5
250	68	179	286	320	F10	102	25	19	24	239	90	26,5
300	78	215	309	370	F10	102	28	22	24	288	111	43,5
350	78	301	329	412	F12	125	35	27	29	325	128	58
400	103	333	361	475	F12	125	35	27	29	375	143	81
450	114	358	393	530	F14	140	48	36	38	423	162	110
500	127	392	427	585	F14	140	48	36	38	473	182	155
600	154	454	492	687	F16	165	60	46	48	560	214	259

BUTTERFLY VALVE DN 40 – 900 PN 10/16 Body: Flanged type



DN350-DN600

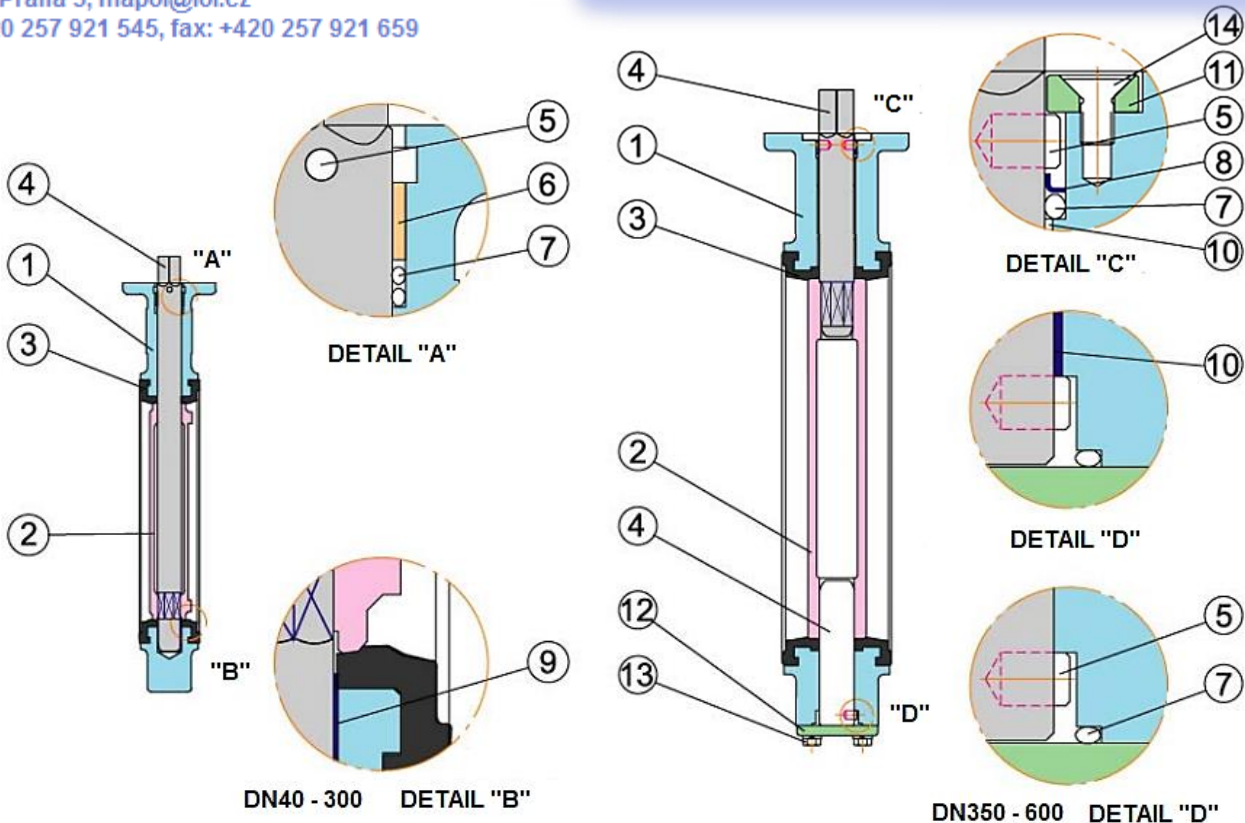
DN650-DN900

DN	L	H1	H2	D	ISO 5211		Stem			Key	Disc in pipeline		Flange	Weight /kg/
					ϕ pitch	ϕ B	B	B1	C		C1	T		
500	127	393	427	715	F14	140	50	36	38		473	182	30	190
600	154	455	492	840	F16	165	60	46	48		560	214	36	260
700	165	508	533	927	F16	165	70		110	18 x 12	655	255	40	380
750	190	543	568	997	F25	254	75		110	20 x 12	692	264	40	480
800	190	574	599	1060	F25	254	75		110	20 x 12	736	285	44	540
900	203	632	660	1170	F25	254	85		110	24 x 12	841	331	46	700

BUTTERFLY VALVE M1A

DN 40 – 600

Materials



DN40 - 300 DETAIL "B"

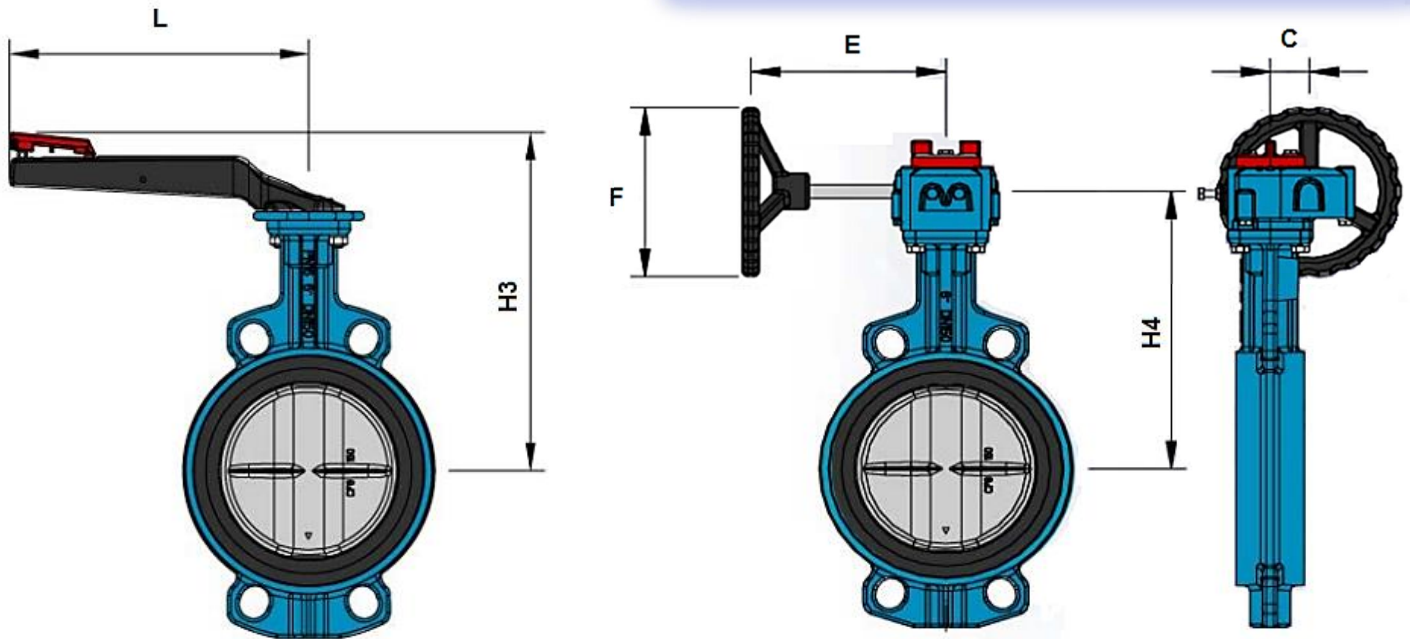
DN350 - 600 DETAIL "D"

#	Part	Material	Indication		Note
			DIN	US	
1	Body	Cast iron	0.6025	GG 25	
		Ductile iron	0.7040	GGG 40	
		Stainless steel	1.4301	AISI 304	
			1.4408	AISI 316	
2	Disc	Ductile iron	0.7040		Polyamide coating
			0.7040		Halar coating
		Stainless steel	1.4301	AISI 304	
			1.4408	AISI 316	
3	Seat	Alu - brass	ALBC2	B148 C95400	
		NBR (BUNA)			-10°C ~ 80°C
		EPDM			-20°C ~ 120°C
		Silicon			-20°C ~ 180°C
		Hypalon			-20°C ~ 135°C
4	Stem	Stainless steel	SUS 410	A182 Gr.F6A	
			1.4301	AISI 304	
			1.4404	AISI 316	
			1.4301	AISI 304	
			1.4301	AISI 304	
5	Pin	Stainless steel	1.4301	AISI 304	
6	Bearing	Delrin			
7	O-ring	NBR			
8	Support	Plastic			
9	Bearings	Stainless steel	1.4301	AISI 304	
10	Upper cover	Steel	St.20	A36	for Cast iron body
		Stainless steel	1.4301	AISI 304	for SS body
11	Bottom cover	Cast iron	0.6025	GG 25	for Cast iron body
		Stainless steel	1.4301	AISI 304	for SS body
12	Bolt	Steel			
13	Botl	Steel			

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DN 40 – 900

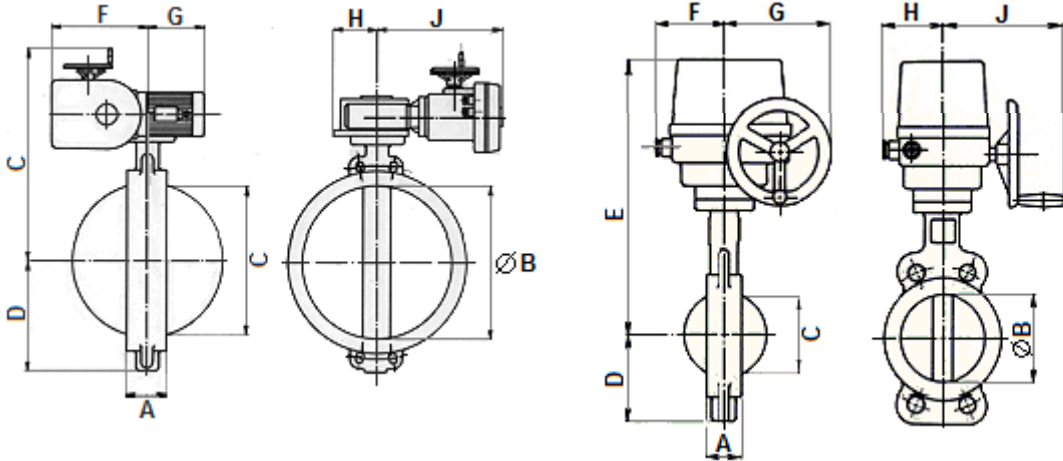
Dimensions with lever and gearbox



DN	Lever		Gearbox			Rev on/off	ISO 5211		
	H3	L	H4	C	E		F		ØPCD
40	181	200							
			157	41	155	150	10	F07	70
50	204	200							
			180	41	155	150	10	F07	70
65	216	200							
			192	41	155	150	10	F07	70
80	223	200							
			199	41	155	150	10	F07	70
100	242	200							
			218	41	155	150	10	F07	70
125	258	250							
			234	41	155	150	10	F07	70
150	271	250							
			247	41	155	150	10	F07	70
200	308	355							
			281	63	195	200	9	F10	102
250	354	355							
			327	63	195	200	9	F10	102
300	377	355							
			350	63	195	200	9	F10	102
350			370	61	232	310	9	F12	125
400			402	61	232	310	9	F12	125
450			445	81	280	400	13	F14	140
500			479	81	280	400	13	F14	140
600			548	123	307	400	17,5	F16	165
700			589	123	307	400	17,5	F16	165
750			713	160	370	400	52,5	F25	254
800			744	160	370	400	52,5	F25	254
900			805	160	370	400	52,5	F25	254

BUTTERFLY VALVE M1A

DN 40 – 900 PN 10/16
With electric actuator

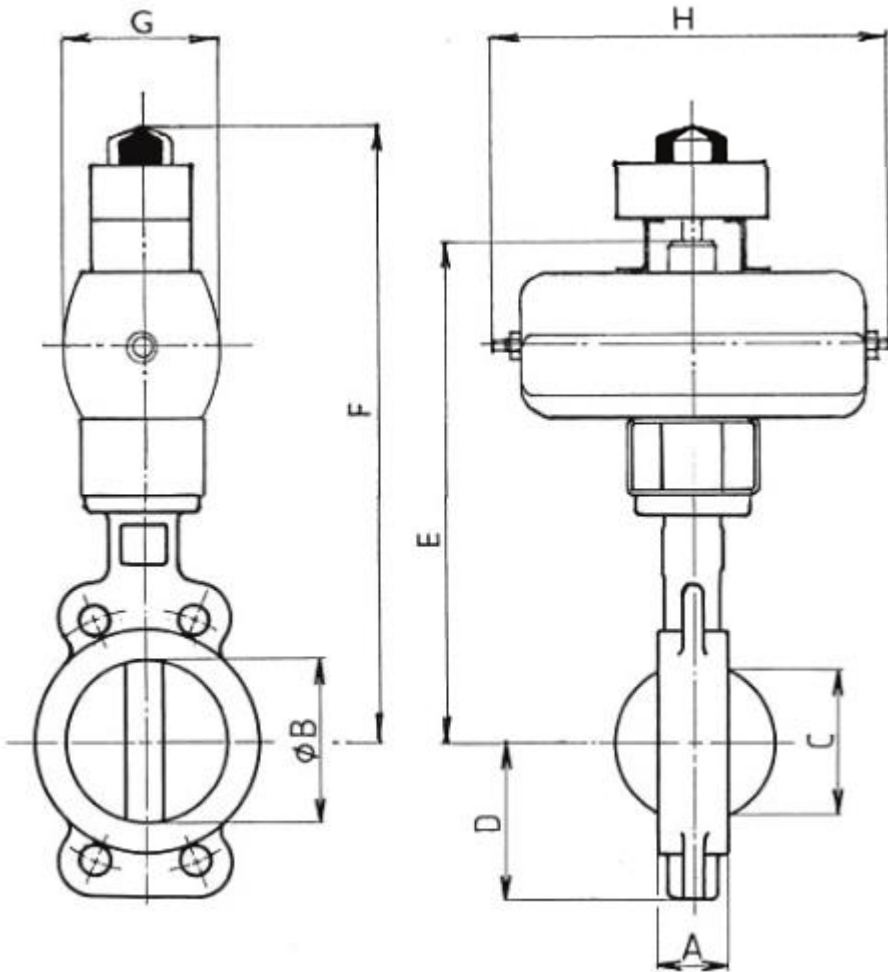


DN	Áp max /bar/	Act.	A	B	C	D	E	F	G	H	J	Weight /kg/
50	10	SP0	43	57	38	82	297	45	82	69	63	5
	10	SP1					350	98	186	93	183	10
65	10	SP0	46	70	53	92	308	45	82	69	63	5
	10	SP1					361	98	186	93	183	10,8
80	6	SP0	46	82	68	98	315	45	82	69	63	6
	10	SP1					368	98		93	183	11
100	10	SP1	52	104	90	113	388	98	186	93	183	12,3
125	10	SP1	56	127	114	127	403	98	183	93	183	14,3
150	6	SP1	56	150	139	141	417	98	186	93	183	15,2
	10	SP0					172	472	123	186	118	203
200	10	SP1	60	194	185	210	503	123	192	118	203	31,5
250	10	SP2,3	68	247	238	242	548	123	192	118	203	41
300	10	SP2,4	78	297	287	272	575	123	192	118	203	52
350	10	SP2,4	78	333	325	310	568	123	192			98
400	10		102	387	368	360	595					111
450	10		114	436	417	380	635					131
500	10		127	488	471	430	734	280	165	140	415	177
600	10		154	581	565		824					258

BUTTERFLY VALVE M1A

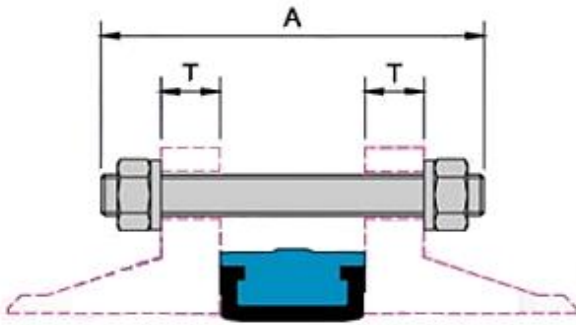
DN 40 – 900 PN 10/16

With pneumatic actuator

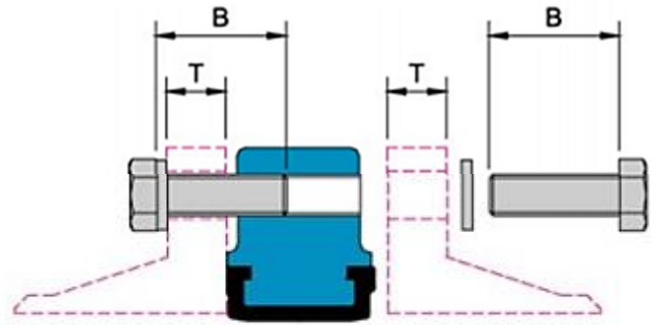


DN					with DA - actuator				Weight		with SR - actuator				Weight	
	A	B	C	D	type	E	F	G	H	/kg/	typ	E	F	G	H	/kg/
50	43	57	38	82	63	303	418	81	202	5,3	85	352	440	105	250	7,7
65	46	70	53	92	63	314	429			6,1	100	352	467			9,3
80	46	82	68	98	85	343	485	105	250	8,4	100	360	475	118	296	9,7
100	52	104	90	113	85	363	478			9,8	100	380	495			11,2
125	56	127	114	127	100	394	509	118	296	13,8	115	439	554	137	342	19,2
150	56	150	139	141	100	408	532			15,8	125	464	579	146	402	24,7
200	60	194	185	172	115	484	599	137	342	23,5	150	521	638	169	486	39
250	68	247	238	210	150	566	681	169	486	44	175	638	753	201	542	67
300	78	297	287	242	150	611	726	228	260	53	250	746	861	285	750	122
350	78	333	325	272	200	705	820			94	300	817	932	342	890	190
400	102	387	365	310	250	840	962	285	750	135	300	847	962	342	890	205
450	114	436	417	360	250	920	1045			147	R312	995	1110	426	1140	290
500	127	488	471	380	250	940	1065			203	R314	1060	1180	460	1610	407
600	154	581	565	430	250	1025	1170			280	R314	1150	1270			485

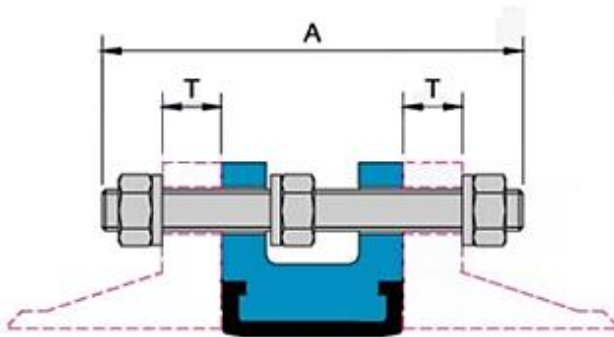
BUTTERFLY VALVE M1A DN 40 – 900 PN 10/16 Bolts for flange connections



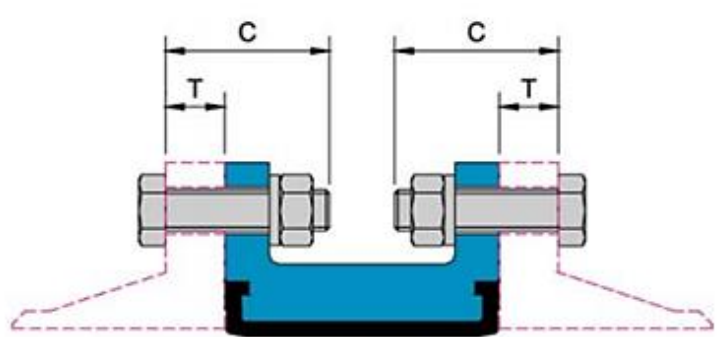
WAFER TYPE DN40 - DN900



LUG TYPE DN40 - DN600



FLANGED TYPE DN500



FLANGED TYPE DN600 - DN900

DN	Bolt	PN 10						PN 16						
		A	A	B	C	T	Qty.	A	A	B	C	T	Qty.	
	Stud	Bolt DIN931						Stud	Bolt DIN931					
40	M16	115	100	35		18	4	M16	115	100	35		18	4
50	M16	130	100	40		20	4	M16	130	100	40		20	4
65	M16	130	110	45		20	4	M16	130	110	45		20	4
80	M16	130	110	45		20	8	M16	130	110	45		20	8
100	M16	140	120	50		22	8	M16	140	120	50		22	8
125	M16	145	120	50		22	8	M16	145	120	50		22	8
150	M20	160	130	55		24	8	M20	160	130	55		24	8
200	M20	165	130	55		24	8	M20	160	130	55		24	12
250	M20	175	150	60		26	12	M24	180	150	60		26	12
300	M20	185	160	60		26	12	M24	195	160	70		28	12
350	M20	185	160	60		26	16	M24	200	170	70		30	16
400	M24	220	180	65		26	16	M27	235	200	80		32	16
450	M24	235	200	70		28	20	M27	265	220	85		40	20
500	M24	250	220	70		28	20	M30	290	240	100		44	20
600	M27	295	240	80	100	34	20	M33	345	260	110	130	54	20
700	M27	295			100	30		M33	325			120	38	
750														
800	M30	330			110	32		M36	355			120	38	
900	M30	345			110	34		M36	370			130	40	