

# Butterfly valve

<b>Dimension range</b> DN 50-1400	<b>PN</b> 10/16	<b>Temperature range</b> -20 °C to +200 °C	<b>Material</b> Cast iron
--------------------------------------	--------------------	---	------------------------------

## Range of Application

Soft seal , butterfly valve for shut-off and control of hot and cold water, air and other neutral gases. For example, tap water, wastewater, sea water, oils and glycol mixtures. See also: "Selection of Butterfly Valves".

**NBR-lining: 0°C to +90°C** Hydrocarbon compounds with up to 30% aromatics at +20 ° C, water, powder, air and neutral gases.

**EPDM-lining: -20°C to +110°C** Tap water, some alcohols (max 30%), certain diluted inorganic acids.

**EPDM Hightemp: -20°C to +130°C** Hot or cold water with extended temperature range.

**Viton-lining: 0°C to +200°C** Hydrocarbon compounds, oils and hot air.

The valves are corrosion protection painted according to EN12944 class C3 as a standard. Other classes on demand.

## PSB.2 Butterfly valve

Butterfly valve AT 231x with body of gray iron, fixed vulcanized rubber liner of NBR/EPDM and disc of stainless steel.

Butterfly valve AT 2314 with body of gray iron, fixed vulcanized rubber liner of NBR and disc of alubronze.

Butterfly valve AT 2319 with body of nodular iron, fixed vulcanized rubber liner of Viton and disc of stainless steel.

With long stem neck (up to DN200) for insulation and mounting wholes for one sided flange mounting.

AT 231xS with standard shaft up to DN150,

AT 231xV with standard gear from DN200.

## Quality Assurance

Testing is performed according to SS-ISO 5208 edition 2, leakage rate A, applies to the valve type.

Certificate SS-EN 10204 2.2 from most of the classification authorities can be delivered.

Certificate SS-EN 10204 3.1 can be supplied on special order.

Type of certificate has to be specified upon ordering.

End valve DN 50–200 max. 10 bar, DN 250–300 max. 6 bar.

## CE-marking.

AT 2310-2319 are in compliance with PED 2014/68/EU category 1 as a standard.

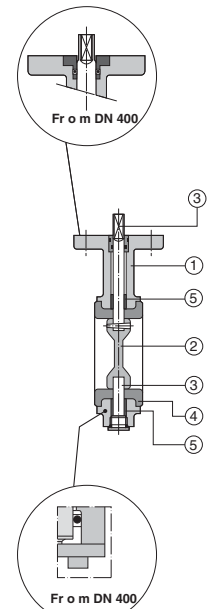
Other categories are available on request.

## Material Specification

		AT 2310	AT 2311	AT 2312	AT 2313	AT 2314	AT 2319
1	<b>Body</b>	JL1040	JL1040	JL1040	JL1040	JL1040	JS1030
2	<b>Disk</b>						
	(DN 50-600)	1.4057	1.4057	1.4462 Duplex	1.4462 Duplex	G-CuAl10Ni	1.4462 Duplex
	(DN 700-1600)	1.4057	1.4057	1.4517 Duplex	1.4517 Duplex	G-CuAl10Ni	1.4517 Duplex
3	<b>Shafts</b>	1.4057	1.4057	1.4462	1.4462	CuAl10Ni5Fe4	1.4462
4	<b>Linig</b>	NBR	EPDM	NBR	EPDM	NBR	Viton®
5	<b>Bushing</b>	Steel-PTFE	Steel-PTFE	Steel-PTFE	Steel-PTFE	Steel-PTFE	Steel-PTFE
	seal ring	Copper	Copper	Copper	Copper	Copper	Copper
	Plugg	Steel	Steel	Steel	Steel	Steel	Steel
6	Standard corrosion protection (SS-EN 12944)	C3	C3	C3	C3	C3	C3

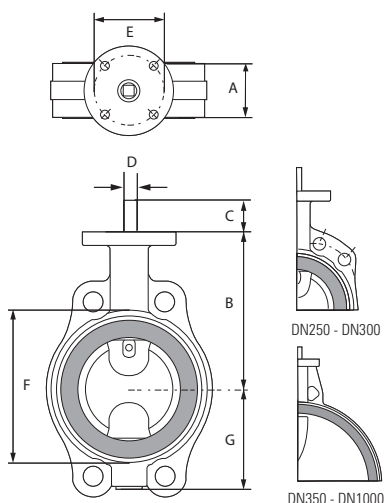


AT 2311



AT 2310

# Butterfly valve



## Dimension and Weight

DN	A	B	B*	C	D	E	F	G	Weight
50	43	118	152	34	10	70	100	63	3,1
65	46	126	160	34	10	70	115	71	3,9
80	46	133	167	34	10	70	130	78	4,2
100	52	147	189	34	12	70	150	96	5,5
125	56	160	202	34	12	70	182	109	7
150	56	180	224	34	16	70	210	133	10
200	60	204	248	34	16	70	262	158	14
250	68	245		45	24	102	315	194	22
300	78	270		45	24	102	371	219	32
350	78	315		45	24	102	405	256	40
400	102	363		50	30	140	470	308	75
450	114	388		50	30	140	522	334	90
500	127	413		50	30	140	576	360	120
600	154	510		50	40	140	672	426	180
700	165	560		60	46	165	776	480	295
800	190	610		60	46	165	880	525	345
900	203	690		70	60	254	980	635	475
1000	216	740		70	60	254	1085	685	635

B\* AT 2310-11 with long stem neck for insulation. DN 50-200.

Measurements in mm, weight in kg.

## Function and Design

Fully tight, maintenance-free butterfly valve with centrally placed disc, split stem, one-piece body with fixed vulcanized rubber lining, eliminating risk of contact corrosion and protecting body internally against corrosion and also serving as flange packing. The manufacturing process ensures excellent seal and increased longevity because the abrasion of the liner is eliminated. Disc profile is crucial for achieving good flow characteristics which ultimately leads to energy losses are minimized. The valve is sealed regardless of flow direction.

Body with SEMI-LUG mounting wholes for one sided mounting.

AT 2310 and AT 2311 are equipped with mounting holes up to DN 300. Porting pattern acc. to PN16 up to DN 200 and PN10 for DN250-300.

AT 2312, AT 2313 and AT 2314 are equipped with mounting holes up to DN 200. Due to this design, the valve will keep its seal function even with one sided flange mounting, as an example end valve.

Disc and shaft are connected by one or more strong conical pins.

Butterfly valve AT 2310-11 DN 50–200 is delivered with long stem neck as standard for insulation.

Face to face dimension acc. to SS-EN 558.

Top flange acc. to ISO 5211.

Standard corrosion class C3 acc. to ISO 12944.

When the installation is done outdoors without rain cover, class C4 is recommended.

# Butterfly valve

## Technical Information

Pressure and temperature			
Fig. No	DN	Working pressure	Working temperature.
		Max bar	Max °C
AT 2310	50-200	16*	90
AT 2311	50-200	16*	120
AT 2313	50-300	16*	120
AT 2314/2312	50-300	16*	90
AT 2310	250-1600	10**	90
AT 2311	250-1600	10**	120
AT 2313	350-1600	10	120
AT 2312/2314	350-1600	10	90
AT 2319	50-1600	10**	200

\* End of the line valve DN 50-200 Max. 10 bar (e).  
 \*\*End of the line valve DN 250-300 Max. 6 bar (e).

KVs-value and Torque							
DN	Kvs-value			Torque (Nm), Differential pressure (bar)			
	AT 2310/2311	AT 2312/2313	AT 2314	2,5	6	10	16
50	95	95	95	9	10	10	11
65	231	231	231	13	13	14	15
80	491	491	491	17	18	19	21
100	690	690	690	28	30	32	36
125	1450	1450	1450	39	42	46	52
150	1945	1945	1945	60	67	75	86
200	4095	4095	4095	120	130	140	160
250	6085	6085	4260	300	320	350	400
300	9570	9570	6360	420	450	490	560
350	13500	13500	8975	310	360	410	660
400	16350	16350	10130	460	540	640	1020
450	21550	21550	12730	630	740	850	1400
500	17000	17000	17000	840	970	1120	1800
600	24810	24810	24810	910	1100	1900	3100
700	34470	34470	34470	1500	1900	3200	5200
800	45540	45540	45540	2100	2600	4400	7000
900	58290	58290	58290	2900	3800	6400	10200
1000	73510	73510	73510	3800	4900	8100	13000
1200	108400	108400	108400	5900	7900	13000	21000
1400	151400	151400	151400	9000	12000	20000	32000
1600	203200	-	203200	12000	17000	29000	46000

The torque applies for standard valves:  
 - Temperature 0 ≤ 80 °C  
 - Liquids  
 - Gases always at diff.pressure 6 bar or specially finished disc PN6  
 - Viton®-lining always at Dp 10 bar  
 - Manoeuvring min. 10 times/year.

# Butterfly valve

Torque (Nm), for special processed gate PN 6		
DN	Differential pressure (bar)	
	2,5	6
600	910	1100
700	1500	1900
800	2100	2600
900	2900	3800
1000	3800	4900
1200	5900	7900
1400	9000	12000
1600	12000	17000

The torque is valid for valves with undercut disc, PN6:

- NBR or EPDM lining
- Temperature 0≤80 °C
- Liquids
- Gases always at diff.pressure 6 bar
- Manoeuvring min. 10 times/year.

Best control range for a butterfly valve is between 20-70 ° opening angle.

Kvs-value DN	Opening angle°							
	20	40	50	60	70	80	90	
50	3	13	24	44	72	90	95	
65	7	22	44	79	136	212	231	
80	15	42	82	135	231	378	491	
100	21	82	148	246	414	660	690	
125	44	125	232	370	650	1110	1450	
150	58	225	383	592	1016	1691	1945	
200	123	352	599	967	1615	2878	4095	
250	183	626	1151	1939	3289	5154	6085	
300	287	984	1809	3050	5172	8105	9570	
350	405	1388	2553	4303	7296	11434	13500	
400	491	1681	3091	5211	8837	13848	16350	
450	647	2216	4075	6868	11647	18252	21550	

Applies for AT2310/2311/2312/2313/2319 DN50-450 and AT2314 DN50-200

Kvs-value DN	Opening angle°							
	20	30	40	50	60	70	80	90
250	171	299	554	938	1493	2474	3625	4265
300	254	445	763	1272	2099	3434	5533	6360
350	269	359	718	1167	1885	3141	5565	8975
400	405	717	1271	2222	3876	5774	8786	10130
450	509	810	1478	2497	4211	6716	10380	12730
500	680	1069	1943	3283	5452	8730	13677	17000
600	992	1560	2836	4791	7956	12741	19961	24810
700	1379	2167	3941	6656	11054	17701	27733	34470
800	1822	2863	5206	8794	14604	23386	36639	45540
900	2332	3665	6664	11256	18693	29933	46897	58290
1000	2940	4622	8404	14195	23574	37749	59142	73510
1100	3718	5844	10625	17947	29804	47727	74775	92940
1200	4336	6816	12392	20933	34762	55666	87213	108400
1400	6056	9519	17308	29237	48552	77748	121808	151400
1500	7044	11072	20132	34006	56473	90432	14681	176100
1600	8128	12776	23230	39240	65163	104348	163484	203200

Applies for AT3210/2311/2312/2313/2319 DN500-1400 and AT2314 DN250-500

## Accessories and Options

- Body of nodular iron
- Body with monoflange for end of line mounting DN250-1000
- Disc of nodular iron – epoxy coated
- Polished disc Ra 0,1

# Butterfly valve

- Maschined disc PN 6 (undercut disc)
- Rubber-lining by EPDM special (-30°C to +120°C)
- Rubber-lining by FPM (-0°C to +200°C)
- Rubber-lining by NBR for natural gases according to DVGW-gas
- Surface finish, corrosion class C4, C5
- Alternative pressure class
- Extended stem in different performances
- Flanged valves, see series AT 2340

## - Hand manoeuvring

The valves are delivered as standard with lever for DN 50–150 (**AT 2390**) or with worm gear (**AT 2394**) in all DN. or with worm gear **AT 2394SPR** with internal limit switches.

## Accessories

**AT 2390R** blockable and lockable fine-slip with 20 positions, for lever

**AT 2390L** lockable plate with 10 positions, for lever

**AT 2390KONT** plate with 2 mechanical Honeywell limit switches, for lever

**AT 2395** limit position open/closed for worm gear,

Proxymatly sensors erected on worm gear, type of sensors to be stated in the order. Lock chain mounted on the worm gear.

## - Automatic manoeuvring

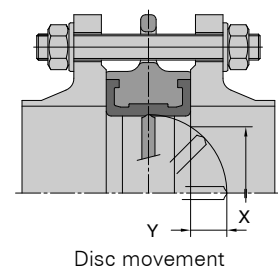
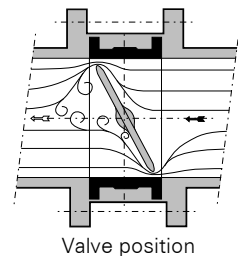
The valves can be supplied with **AT** actuators program adapted for compact direct mounting, for pneumatic, hydraulic or electrical operation.

## Installation

The valve shall be mounted between flanges, **without gaskets** and if possible with the shaft in horizontal position and min. measurement for the disc movement acc.to table below. End of line mounting, bolts and nuts are not allowed to be tightened with more than:

DN	Flanges according to	DN	Max torque Nm
50-200	SS-EN 1092 PN16	50-125	100
250-300	SS-EN 1092 PN10/16	150-300	250
350-1600	SS-EN 1092 PN10		

Disc placement in the system		
DN	X	Y
50	26	3,5
65	46	9,5
80	66	17
100	86	24
125	112	34,5
150	140	47
200	191	70
250	241	92
300	290	114
350	327	130
400	373	142
450	421	161
500	470	180



# Butterfly valve

## Marking

Manufacturer, DN, PN and material according to SS-EN 19

## How to order

**Example: AT 2310V200-1014**

**Butterfly valve, NBR lining, stainless disc with worm gear and extra surface coating C4**

Valve	Lining	Manoeuvring	DN	Flange	Surface coating
231X	0= NBR/stainless steel 1= EPDM/stainless steel 2= NBR/acidproof steel 3= EPDM/acidproof steel 4= NBR/alu-bronze 9= Viton®/acidproof steel	- = Free shaft end S = worm gear V= lever	200= DN	PN10 PN16	1014= C4 1015= C5

# Butterfly valve

**New Table**

# Butterfly valve

Rätten till ändringar utan föregående meddelande förbehålls.  
Armatec ansvarar inte för eventuella tryckfel eller missförstånd.  
Dokumentet får kopieras endast i sin helhet.



# Butterfly valve

	<b>DN</b>	<b>AT-number</b>	<b>RSK- number</b>
2310S	50	2310S50-1013	4658470
	65	2310S65-1013	4658471
	80	2310S80-1013	4658472
	100	2310S100-1013	4658473
	125	2310S125-1013	4658474
	150	2310S150-1013	4658475
2310V PN16	65	2310V65-1013	4658461
	80	2310V80-1013	4658462
	100	2310V100-1013	4658463
	125	2310V125-1013	4658464
	150	2310V150-1013	4658465
2310V PN10	200	2310V200-1013	4658466
	250	2310V250-1013	4658467
	300	2310V300-1013	4658468
2311S	50	2311S50	4658335
	65	2311S65	4658336
	80	2311S80	4658337
	100	2311S100	4658338
	125	2311S125	4658339
	150	2311S150	4658340
2311V PN16	200	2311S200	4658386
	50	2311V50	4658380
	65	2311V65	4658381
	80	2311V80	4658382
	100	2311V100	4658383
	125	2311V125	4658384
2311V PN10	150	2311V150	4658341
	200	2311V200	4658342
	250	2311V250	4658343
	300	2311V300	4658344
	350	2311V350	4658345
	400	2311V400	4658346
	450	2311V450	4658347
2313S	500	2311V500	4658348
	50	2313S50	4658349
	65	2313S65	4658350
	80	2313S80	4658351
	100	2313S100	4658352
	125	2313S125	4658353
2313V PN16	150	2313S150	4658354
	200	2313S200	4658396
	50	2313V50	4658390
	65	2313V65	4658391
	80	2313V80	4658392
	100	2313V100	4658393
	125	2313V125	4658394
	150	2313V150	4658355
	200	2313V200	4658356
	250	2313V250	4658357
2313V PN10	300	2313V300	4658358
	350	2313V350	4658359
	400	2313V400	4658360
	450	2313V450	4658361

# Butterfly valve

	<b>DN</b>	<b>AT-number</b>	<b>RSK- number</b>
	500	2313V500	4658362

Rätten till ändringar utan föregående meddelande förbehålls.  
Armatec ansvarar inte för eventuella tryckfel eller missförstånd.  
Dokumentet får kopieras endast i sin helhet.