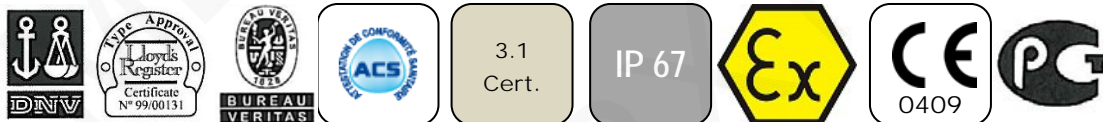


1160-1168 BUTTERFLY VALVES + SA ELECTRIC ACTUATOR

CHARACTERISTICS

The butterfly valves 1160 to 1168 are dedicated to the automatic opening/shut-off of various fluid pipes. It has a ductile iron body. Thanks to various material possibilities for both the butterfly and the sleeve, it can be used in different applications. The lug type body enables the mounting on PN10/16 flanges. This type of attachment enables the dismantling of pipes or other devices without draining the whole system. The ISO 5211 pad enables the direct mounting of the SA electric actuator. It is perfectly adapted for an indoor or outdoor industrial use.



AVAILABLE ITEMS

DN 32 to DN 100

Flanged connections PN16

Voltages: 12 V DC, 24 V AC/DC and 230 V AC

Ref.	Butterfly	Sleeve	Application examples	Min. TS	Max. TS
1160	Ductile iron	EPDM	Cold water – hot water (110 °C max.) - ACS	-10 °C	+90 °C
1161	SS 316	NBR	Hydrocarbons, natural gas, compressed air	-10 °C	+80 °C
1162	Ductile iron	NBR	Hydrocarbons, natural gas, compressed air	-10 °C	+80 °C
1163	SS 316	EPDM	Demineralised water – Alkaline materials (max 110 °C) - ACS	-10 °C	+90 °C
1164	SS 316	FKM	Compatible aggressive fluids, oil	-5 °C	+150 °C
1168	SS 316	White NBR		-10 °C	+80 °C
1181	Ductile iron	NBR	Natural gas –NF-ROB GAZ 5 bar certification	-10 °C	+60 °C

LIMITS OF USE

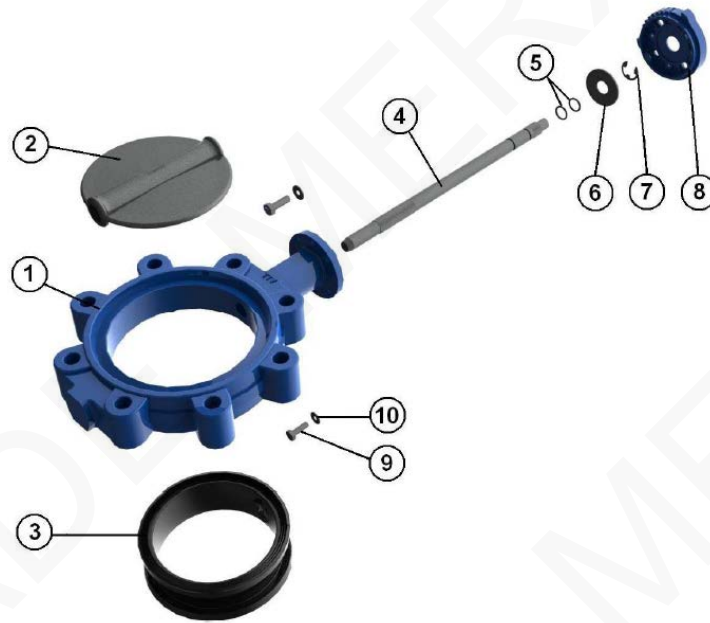
Max. allowable pressure (PS)	16 bar until 200 10 bar until DN 400
End-of-pipe mounting	6 bar
Min./max. allowable temperature (TS)	See the upper chart
Room temperature	-15 °C / +70 °C
Service	S2 – 70 %



1160-1168 BUTTERFLY VALVES + SA ELECTRIC ACTUATOR

DIRECTIVES AND DEVELOPMENT STANDARDS APPLICABLE

	Standard	Notified bodies		Standard
97/23/EC Pressure Equipment Directive	Cat. III modules B+C1	0409	Valve testing	ISO 5208
ATEX Directive	II 2G/D Tx zones 1,2,21 and 22	0038	Face-to-face dimension	ISO 5752 series 20
Flanges dimension	EN 1092-1		Sanitary compliance	ACS N° 07 ACC LY 504
Actuator attachment	ISO 5211			

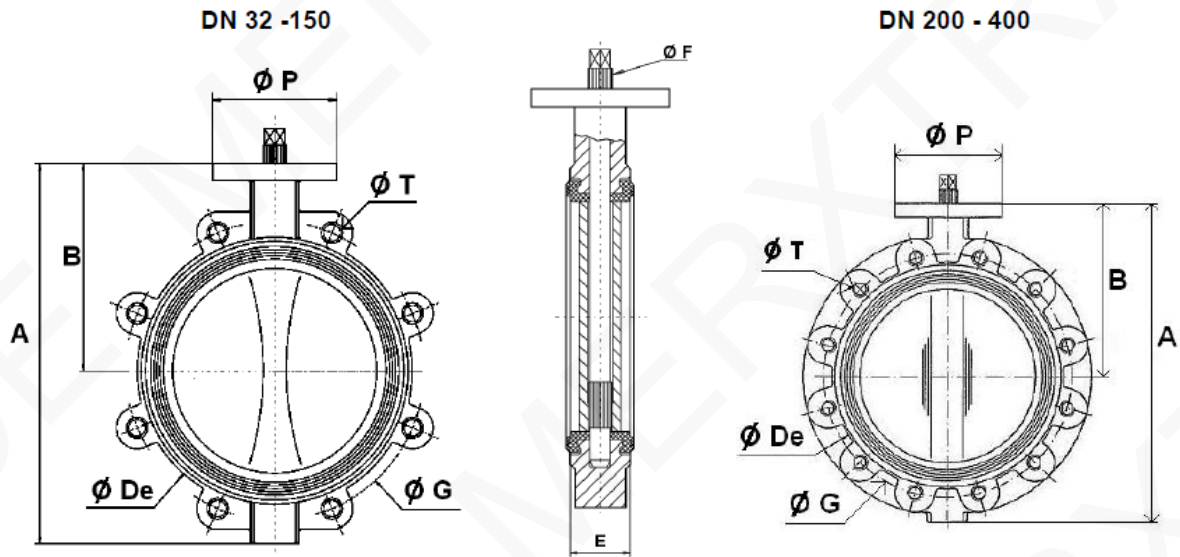


CONSTRUCTION

#	Item	1160	1161	1162	1163	1164	1168	1181
1	Body	Ductile iron EN GJS-500-7						
2	Butterfly DN32-100	Stainless steel A351 CF8M /1.4408						
2	Butterfly DN125-400	Ductile iron EN GJS-500-7			Stainless steel A351 CF8M /1.4408			Ductile iron
3	Sleeve	EPDM	NBR	NBR	EPDM	FKM	White NBR	NBR
4	Stem	SS 420	SS 304	SS 420	SS 304	SS 304	SS 304	SS 420
5	O-ring	EPDM	NBR	NBR	EPDM	FKM	NBR	NBR
6	Ring	Steel						
7	Securing rings /Circlips	Steel						
8	ISO pad	Aluminium						
9	Screw	Steel 5.6						
10	Washer	Steel						

1160-1168 BUTTERFLY VALVES + SA ELECTRIC ACTUATOR

DIMENSIONS (mm)



DN	32-40	50	65	80	100	125	150	200	250	300	350	400
A	205	224	241	256	294	327	354	438	462	524	580	660
B	140	154	160	172	185	204	214	256	248	282	300	340
Ø De	83	102	115	136	157	192	220	275	329	378	436	487
E	33	43	46	46	52	56	56	60	68	78	78	102
Ø F	10.5	10.5	14.5	16.5	16.5	18.5	18.5	22.5	25.5	30.5	30.5	35.5
Ø G	100/110	125	145	160	180	210	240	295	350	400	460	515
Ø P	88	88	88	88	88	105	105	105	150	150	170	170
Ø T	4xM16	4xM16	4xM16	8xM16	8xM16	8xM16	8xM20	8xM20	12xM20	12xM20	16xM20	16xM24
Weight (kg)	2.7	4.1	4.7	6.1	7.9	10.9	11.9	18.5	31.8	47.8	53	77

FLOW FACTOR Kv (m³/h)

DN	32-40	50	65	80	100	125	150	200	250	300	350	400
Kv	70	109	200	334	551	901	1427	2383	3825	5659	8177	10659

1160-1168 BUTTERFLY VALVES + SA ELECTRIC ACTUATOR

ACTUATION WITH SA

Suggested standard SA actuation under the following conditions:

- Electric actuator with an IP 67 epoxy coated aluminium enclosure and steel gears
- A minimum 1.3 safety factor compared with the valve nominal torque rating,
- A maximum pressure differential up/downstream of 10 bar (=ΔP)






The actuator is directly mounted with an aluminium actuation pad

DN	Actuator	Power	Intensity 230 V AC	Intensity 24 V AC/DC	Operating Time*	Standard equipment of the actuator
32	SA05	6 W	28 mA	1.8 mA	17 s	2 adjustable limit switches 2 dry auxiliary switches 2 W anti-condensation heater Actuator thermal cut-out Manual override by key Backlit position indicator (except for SA-X) Electrical connection: 2 gland packs M20 x 1.5
40	SA05	6 W	28 mA	1.8 mA	17 s	
50	SA05	6 W	28 mA	1.8 mA	17 s	
65	SA05	6 W	28 mA	1.8 mA	17 s	
80	SA05	6 W	28 mA	1.8 mA	17 s	
100	SA05	6 W	28 mA	1.8 mA	17 s	
125	Refer to 1160 + NA					
150						

*Unloaded operating time given for information purpose only. May vary depending on the medium
 For any other working conditions, please contact us.

ACTUATION OPTIONS

There are many different options, please contact our commercial department.

1	2	3	4	5
SA05S: Slow closing electric actuator 70 s	SA05PCU: Regulation actuator 4-20 mA or 0-10 V	SA05RBP: Safety actuator with an integrated battery emergency shutdown	SA05 X: Actuator for use in ATEX zones 1 and 2	SR 05: Safety spring return actuator
				
6	SAPUI electric actuator with a feedback potentiometer			
7	Electric actuator sized for a maximum pressure differential up/downstream over 10 bar (=ΔP)			
8	NA electric actuator with a declutchable manual override by handwheel			
VALVE OPTIONS				
1	Carbon steel body, stainless steel 304 and 316, bronze and aluminium			
2	Carbon steel butterfly, stainless steel 304 and 316, bronze aluminium, uranus, hastelloy			
3	Hypalon seats, steam silicone, white EPDM, natural rubber, vulcanized neoprene			
4	Stainless steel 420, 304, 316 stems, hastelloy			

ATEX ZONES INSTALLATION

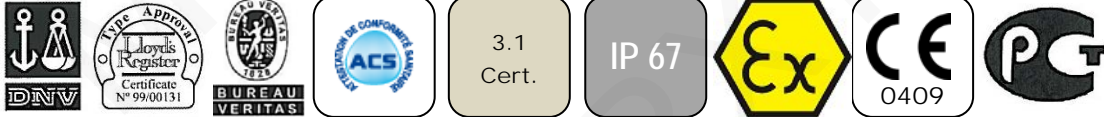
It is compulsory to specify if the installation of the automatic valve 1160-1168+SA-X will take place in ATEX zones 1 or 2 while making the order. Our services will proceed to the mounting check, to a grounding strip installation and will edit a mounting certificate. Those operations are performed by our proper engineers. Please contact us for further details. It is also compulsory to follow the ATEX zone mounting and maintenance special instructions for motorized valves. The ATEX gland packs and sealing plugs are not provided. Please use the following codes:

ATEX aluminium gland pack M20x1.5	Code 980179	ATEX aluminium sealing plugs M20x1.5	Code 980180
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1160-1168 BUTTERFLY VALVES + NA ELECTRIC ACTUATOR

CHARACTERISTICS

The butterfly valves 1160 to 1168 are dedicated to the automatic opening/shut-off of various fluid pipes. It has a ductile iron body. Thanks to various material possibilities for both the butterfly and the sleeve, it can be used in different applications. The lug type body enables the mounting on PN10/16 flanges. This type of attachment enables the dismantling of pipes or other devices without draining the whole system. The ISO 5211 pad enables the direct mounting of the NA electric actuator. It is perfectly adapted for an indoor or outdoor industrial use.



AVAILABLE ITEMS

DN 100 to DN 350

Flanged connections PN16 for DN 100 to DN 200

Flanged connections PN10 for DN 250 to DN 350

Voltages: 24 V AC, 24 V DC and 230 V AC

Ref.	Butterfly	Sleeve	Application examples	Min. TS	Max. TS
1160	Ductile iron	EPDM	Cold water – hot water (110 °C max.) - ACS	-10 °C	+90 °C
1161	SS 316	NBR	Hydrocarbons, natural gas, compressed air	-10 °C	+80 °C
1162	Ductile iron	NBR	Hydrocarbons, natural gas, compressed air	-10 °C	+80 °C
1163	SS 316	EPDM	Demineralised water – Alkaline materials (max 110 °C) - ACS	-10 °C	+90 °C
1164	SS 316	FKM	Compatible aggressive fluids, oil	-5 °C	+150 °C
1168	SS 316	White NBR		-10 °C	+80 °C
1181	Ductile iron	NBR	Natural gas –NF-ROB GAZ 5 bar certification	-10 °C	+60 °C

LIMITS OF USE

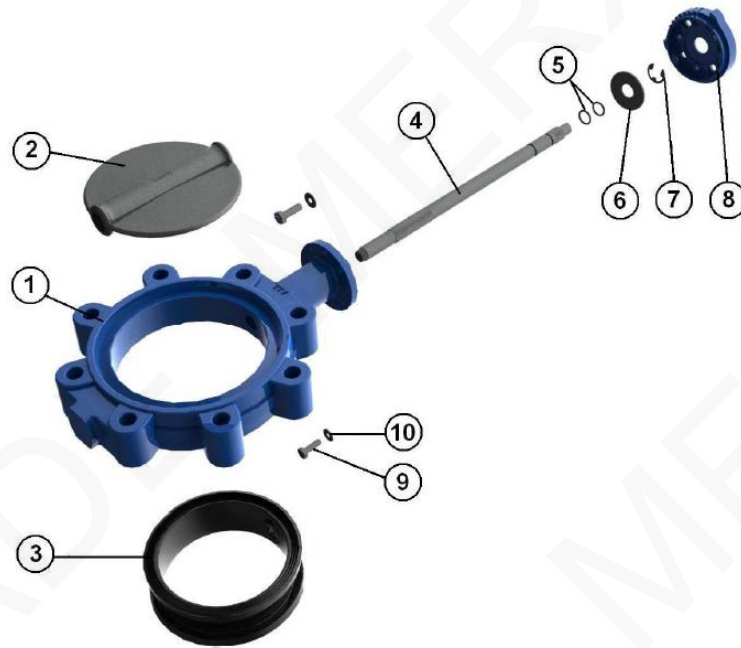
Max. allowable pressure (PS)	16 bar until 200 10 bar until DN 400
End-of-pipe-mounting	6 bar
Min./max. allowable temperature (TS)	See the upper chart
Room temperature	-15 °C / +70 °C
Service	S2 – 70 %



1160-1168 BUTTERFLY VALVES + NA ELECTRIC ACTUATOR

DIRECTIVES AND DEVELOPMENT STANDARDS APPLICABLE

	Standard	Notified bodies		Standard
97/23/EC Pressure Equipment Directive	Cat. III modules B+C1	0409	Valve testing	ISO 5208
ATEX Directive	II 2G/D Tx zones 1,2,21 and 22	0038	Face-to-face dimension	ISO 5752 series 20
Flanges dimension	EN 1092-1		Sanitary compliance	ACS N° 07 ACC LY 504
Actuator attachment	ISO 5211			

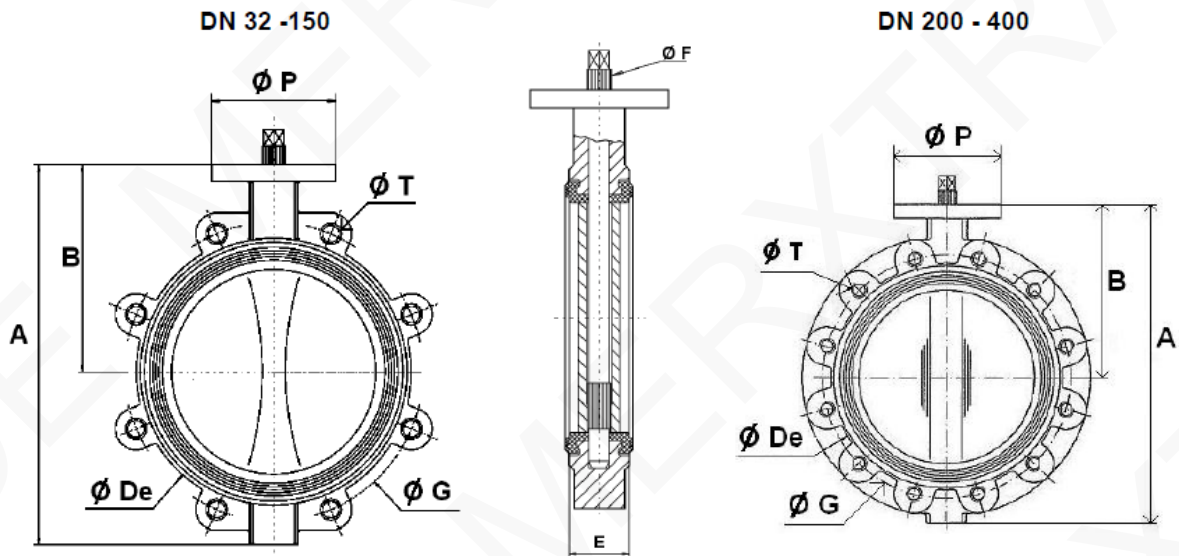


CONSTRUCTION

#	Item	1160	1161	1162	1163	1164	1168	1181
1	Body	Ductile iron EN GJS-500-7						
2	Butterfly DN32-100	Stainless steel A351 CF8M /1.4408						
2	Butterfly DN125-400	Ductile iron EN GJS-500-7			Stainless steel A351 CF8M /1.4408			Ductile iron
3	Sleeve	EPDM	NBR	NBR	EPDM	FKM	White NBR	NBR
4	Stem	SS 420	SS 304	SS 420	SS 304	SS 304	SS 304	SS 420
5	O-ring	EPDM	NBR	NBR	EPDM	FKM	NBR	NBR
6	Ring	Steel						
7	Securing rings /Circlips	Steel						
8	ISO pad	Aluminium						
9	Screw	Steel 5.6						
10	Washer	Steel						

1160-1168 BUTTERFLY VALVES + NA ELECTRIC ACTUATOR

DIMENSIONS (mm)



DN	32-40	50	65	80	100	125	150	200	250	300	350	400
A	205	224	241	256	294	327	354	438	462	524	580	660
B	140	154	160	172	185	204	214	256	248	282	300	340
Ø De	83	102	115	136	157	192	220	275	329	378	436	487
E	33	43	46	46	52	56	56	60	68	78	78	102
Ø F	10.5	10.5	14.5	16.5	16.5	18.5	18.5	22.5	25.5	30.5	30.5	35.5
Ø G	100/110	125	145	160	180	210	240	295	350	400	460	515
Ø P	88	88	88	88	88	105	105	105	150	150	170	170
Ø T	4xM16	4xM16	4xM16	8xM16	8xM16	8xM16	8xM20	8xM20	12xM20	12xM20	16xM20	16xM24
Weight (kg)	2.7	4.1	4.7	6.1	7.9	10.9	11.9	18.5	31.8	47.8	53	77

FLOW FACTOR Kv (m³/h)

DN	32-40	50	65	80	100	125	150	200	250	300	350	400
Kv	70	109	200	334	551	901	1427	2383	3825	5659	8177	10659

1160-1168 BUTTERFLY VALVES + NA ELECTRIC ACTUATOR

ACTUATION WITH NA

Suggested standard NA actuation under the following conditions:

- Electric actuator with an IP 67 epoxy coated aluminium enclosure and steel gears
- A minimum 1.3 safety factor compared with the valve nominal torque rating
- A maximum pressure differential up/downstream of 10 bar (=ΔP)

The actuator is mounted:






- Direct with an aluminium actuation pad for DN 100 to 200
- With stainless steel bracket and coupler according to the EN 15081 standard for DN 250 to 350

DN	Actuator	Power	Operating Time*	Standard equipment of the actuator
32 to 80	Refer to 1160 + SA actuator			
100	NA06	15 W	17 s	2 adjustable limit switches 2 dry auxiliary switches 20 W anti-condensation heater Visual position indicator Actuator thermal cut-out (NA06 and NA09) Torque limiter (NA15 to NA150) Electrical connection: 2 gland packs M20 x 1.5 Manual override by declutchable handwheel
125	NA09	25 W	17 s	
150	NA15	40 W	20 s	
200	NA15	40 W	20 s	
250	NA28	40 W	20 s	
300	NA38	60 W	24 s	
350	NA60	90 W	29 s	

* Unloaded operating time given for information purpose only. May vary depending on the medium
For any other working conditions, please contact us.

ACTUATION OPTIONS

There are many different options, please contact our commercial department.

1	2	3	4	5
NALCU: Actuator with a local control	NAPCU: Regulation actuator 4-20 mA or 0-10 V	NARBP: Safety actuator with an integrated battery emergency shutdown	NA-X: Actuator for use in ATEX zones 1 and 2	SR: Safety spring return actuator
				
6	Electric actuator sized for a maximum pressure differential up/downstream over 10 bar (=ΔP)			
7	NA electric actuator with a declutchable manual override by handwheel			
VALVE OPTIONS				
1	Carbon steel body, stainless steel 304 and 316, bronze and aluminium			
2	Carbon steel butterfly, stainless steel 304 and 316, bronze aluminium, uranus, hastelloy			
3	Hypalon seats, steam silicone, white EPDM, natural rubber, vulcanized neoprene			
4	Stainless steel 420, 304, 316 stems, hastelloy			

ATEX ZONES INSTALLATION

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ATEX aluminium gland pack M20x1.5	Code 980179	ATEX aluminium sealing plugs M20x1.5	Code 980180
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