ASC Engineered Solutions

Butterfly Valve
Series 8000GR

Features

- Up to 150 psig (10.3 bar) WOG (non-shock) in Cast Iron
- Up to 200 psig (13.8 bar) WOG (non-shock) in Ductile Iron
- Outstanding flow characteristics
- Low torque operation
- Superior flow control
- Streamline profile disc
- Suitable for HVAC applications
- Vacuum service to 29.5" (750 mm) Hg
- End-of-line service capabilities

Fig. 8000GR – Weight

Valve Size ANSI	O.D.	Weight	
		Valve Only	Valve with Gear Operator
In./DN(mm)	In./mm	Lbs./Kg.	Lbs./Kg.
14 350	14 355.6	354 160.6	397 180.1
16 400	16 406.4	428 194.1	538.5 244.3
18 450	18 457.2	524 237.7	679.0 308.0
20 500	20 508.0	704 319.3	858.0 389.2
24 600	24 609.6	1,027 465.8	1,324.5 600.8

Butterfly Valve Performance Data

Pressure Ratings:
150 PSIG (10.3 bar) WOG (non-shock)
200 PSIG (13.8 bar) WOG (non-shock)
Special order - available upon request.
29.5" (750 mm) Hg Vacuum Service

Temperature Ratings
☐ Grade E (EPDM):
-40°F to 230°F (-40°C to 110°C)
(Service Temperature Range)
Recommended for water service, dilute acids, alkaline, oil-free air and many chemical services.
Not For Use In Petroleum Services.

☐ Grade T (Nitrile):
-20°F to 180°F (Service Temperature Range)
(-29°C to 82°C)
Recommended for petroleum products, air with oil vapors, vegetable oils and mineral oils.
Not For Use In Hot Water Services.

GRUVLOK
An ASC Engineered Solution

PROJECT INFORMATION	APPROVAL STAMP
Project:	☐ Approved
Address:	☐ Approved as noted
Contractor:	☐ Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

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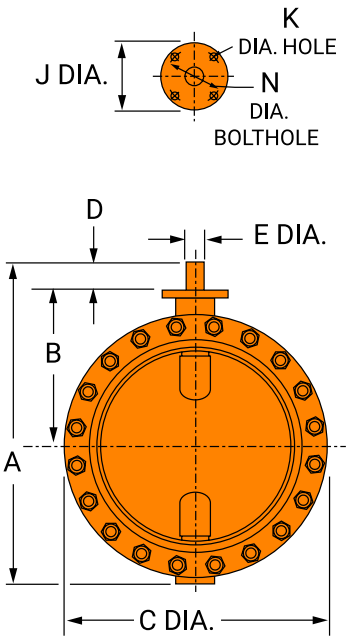

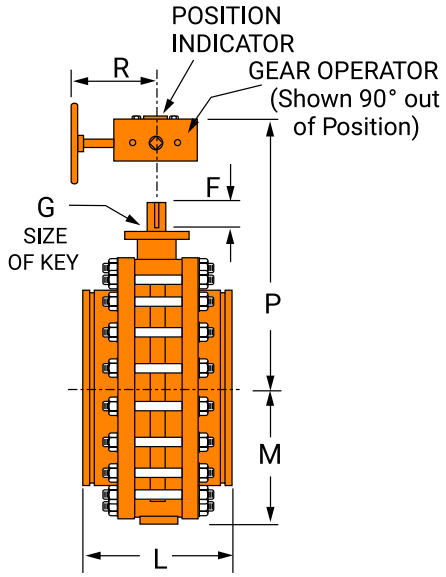

Material Specifications

Body
Cast Iron - ASTM A126 CL.B, Epoxy Coated
Ductile Iron - ASTM A536, Epoxy Coated

Extension Body
Pipe - ASTM A53 Steel
Flange - ANSI B16.42 Forged Steel

Liner
Grade E (EPDM)
Grade T (Nitrile)
Note: Stem O-Ring material matches Liner

Disc
Stainless Steel - ASTM A351
Aluminum Bronze - ASTM B148 C95400
Nickel Plated Ductile Iron - ASTM A536 Grade 65-45-12

Drive Shaft
Stainless Steel - ASTM A 582 Type 416
Stainless Steel - ASTM A 276 Type 316

Bottom Shaft
Stainless Steel - ASTM A 582 Type 416
Stainless Steel - ASTM A 276 Type 316

Plug
Cast Iron - ASTM A 126 CL.B

Upper Bearing
Reinforced Nylon

Lower Bearing
Reinforced Nylon

Grounding Spring (14" – 20")
Stainless Steel 302

Grounding Ball (24" Only)
AISI-1022

Tension Screw (24" Only)
AISI-1020

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Series 8000GR Butterfly Valves – Dimensions

Valve Size ANSI	O.D.	A	B	C	D	E	F	G	J	K	L	M	N	P	R
In./DN(mm)	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm
14 350	14.0 355.6	27.1 687.3	13.5 342.9	21.0 533.4	2.0 50.8	1.6 41.4	1.5 38.1	0.4 9.7	6.5 165.1	5.3 133.4	13.1 331.7	11.6 293.6	5.3 133.4	17.3 438.2	13.4 340.4
16 400	16.0 406.4	29.4 747.8	14.8 374.7	23.5 596.9	2.0 50.8	1.6 41.4	1.5 38.1	0.4 9.7	6.5 165.1	5.3 133.4	14.1 357.1	12.7 322.3	5.3 133.4	18.8 476.3	13.4 340.4
18 450	18.0 457.2	32.1 816.1	15.5 393.7	25.0 635.0	3.0 76.2	2.1 54.1	2.4 60.3	0.5 12.7	9.5 241.3	7.5 190.5	15.1 382.5	13.6 346.2	7.5 190.5	19.6 498.6	12.6 320.0
20 500	20.0 508.0	34.9 886.0	16.8 425.5	27.5 698.5	3.0 76.2	2.1 54.1	2.4 60.3	0.5 12.7	9.5 241.3	7.5 190.5	16.1 407.9	15.1 384.3	7.5 190.5	20.9 530.4	12.6 320.0
24 600	24.0 609.6	40.5 1028.4	19.4 492.0	32.1 815.3	3.1 77.7	2.1 54.1	2.4 60.3	0.5 12.7	7.5 190.5	7.5 190.5	17.1 433.3	18.1 458.7	7.5 190.5	25.0 635.0	12.6 320.0

Series 8000GR Butterfly Valves (Ordering Information)

Sample Part Number 24" GD-82837 –>	24"	G	D-	8	2	8	3	7
	Valve Size	Body Style	Body	Series	Seat Material	Disc Material	Operator	Stem
	14" 16" 18" 20" 24"	G - Grooved	**C** - 150 PSI Service **D** - 200 PSI Service	**8** - 8000	**1** - Nitrile **2** - EPDM	**0** - Nickel Plated Ductile Iron **7** - 316 S.S. **8** - Bronze (Al-Brz.)	**0** - None **2** - Gear Operator **3** - Pneumatic **4** - Electric **5** - Spring Return Pneumatic **6** - Square Nut (with Gear Operator) **7** - Chain Wheel (with Gear)	**6** - 416 S.S. with RTFE Bearing **7** - 316 S.S. with RTFE Bearing

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Series 8000GR

Torque is the rotary effort required to operate a value. This turning force in a butterfly valve is determined by three factors; the friction of the disc and seat due to interference for sealing, bearing friction, and fluid dynamic torque. Breakaway torque is the total of the torques resulting from bearing friction and disc/seat interference friction at a given pressure differential. This value is normally the highest required torque to operate a valve, and is used to size the actuator. Listed below are recommended sizing torques.

Note: These values include a safety factor and are for gases, including nonlubricating or dry gases, at 70 °F. Values for water and lubricating fluids would be reduced. Consult your ASC Engineered Solutions Sales Office for additional application information.

Actuator Sizing For General Service Application Series 8000GR Breakaway Torque

Line Pressure	Valve Size (In.)				
	14	16	18	20	24
(PSI)/Bar	Breakaway Torque (In. - Lbs.) / N-m				
50	6,246	8,262	10,800	13,662	20,250
3.4	706	934	1,220	1,544	2,288
100	7,200	9,900	13,050	16,650	24,300
6.9	814	1,119	1,475	1,881	2,746
150	8,262	11,400	15,300	19,650	28,330
10.3	934	1,288	1,729	2,220	3,201

C_V VALUES (WATER @ 70°F SP. GR. = 1.00)

Valve Size	Disc Position (Degrees Open)							
	20°	30°	40°	50°	60°	70°	80°	90°
In./mm								
14	335	670	1,226	1,935	2,893	4,406	6,752	9,578
350								
16	443	886	1,622	2,560	3,827	5,829	8,933	12,671
400								
18	567	1,138	2,075	3,275	4,896	7,457	11,429	16,211
450								
20	711	1,422	2,609	4,116	6,156	9,377	14,371	20,385
500								
24	1,038	2,078	3,792	5,985	8,947	13,628	20,887	29,627
600								

Fluid Dynamic Torque is the force exerted when a fluid passes over the surface of the butterfly valve disc. The magnitude of this force is dependent on valve size, disc opening and flow through the valve. Typically, fluid dynamic torque is a maximum at an approximate 75° disc opening. Generally, the effects of dynamic torque can be ignored when the velocity is less than 15 feet/second for liquids and 15,000 feet/minute for gases to minimize the effects of turbulence on the valve. For applications above these limits, consult engineering.

The formula for determining the velocity for liquids is:

$$V = 0.0022 \frac{Q}{A}$$

V = Velocity of liquid (feet/second)

Q = Flow (gallons/minute)

A = Area of upstream pipe (sq. ft. See "Area of Pipe" chart

The formula for determining the velocity of gases:

$$Vg = \frac{Qf}{A}$$

Vg = Velocity of gas (feet/minute)

Qf = Flow of gas @ flowing condition* (cubic feet/minute)

A = Area of upstream pipe (sq. ft.) See "Area of Pipe" Chart

Area of Pipe

Pipe Size (Sch 40)	Area
In./mm	Sq. ft/Sq. cm
14	0.940
350	873.29
16	1.227
400	1,140
18	1.553
450	1,443
20	1.931
500	1,794
24	2.792
600	2,594

* Flowing condition means at temperature and pressure of gas stream in the valve

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