SERIES 8000GR
Butterfly Valve

For use in Grooved-End Piping Systems 14" to 24"

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

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.

FIGURE 8000GR - WEIGHT

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

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

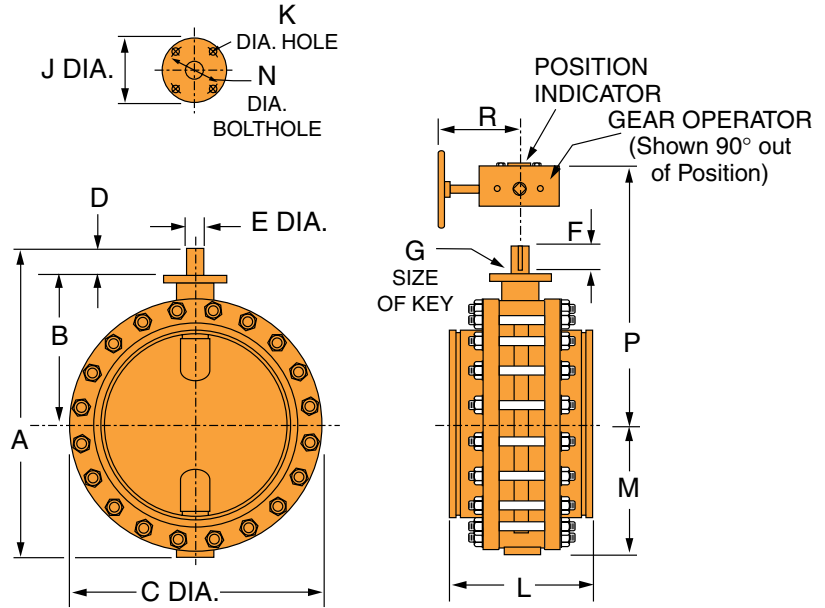**LOWER BEARING:** Reinforced Nylon

GROUNDING SPRING (14" - 20"): Stainless Steel 302

GROUNDING BALL (24" Only): AISI-1022

TENSION SCREW (24" Only): AISI-1020

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

VALVES & ACCESSORIES

SERIES 8000GR
Butterfly Valve

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 non-lubricating or dry gases, at 70 °F. Values for water and lubricating fluids would be reduced. Consult your Anvil 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 / 3.4	6,246 / 706	8,262 / 934	10,800 / 1,220	13,662 / 1,544	20,250 / 2,288
100 / 6.9	7,200 / 814	9,900 / 1,119	13,050 / 1,475	16,650 / 1,881	24,300 / 2,746
150 / 10.3	8,262 / 934	11,400 / 1,288	15,300 / 1,729	19,650 / 2,220	28,330 / 3,201

C$_V$ VALUES (WATER @ 70°F SP. GR. = 1.00)

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

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

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

AREA OF PIPE

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