SERIES 8000GR

Butterfly Valve

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

FEATURES

- Up to 200 psig (13.8 bar) WOG (non-shock)
- 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 *350*	14 *355.6*	354 *160.6*	378 *171.5*
16 *400*	16 *406.4*	428 *194.1*	452 *205.0*
18 *450*	18 *457.2*	524 *237.7*	548 *248.6*
20 *500*	20 *508.0*	704 *319.3*	728 *330.2*
24 *600*	24 *609.6*	1,027 *465.8*	1,097 *497.6*

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 A 126 CL.B

EXTENSION BODY:
- Pipe - ASTM A 53 Steel
- Flange - ANSI B16.5 Forged Steel

LINER: Grade E (EPDM), GRADE T (Nitrile)

DISC:
- Stainless Steel - ASTM A 351
- Aluminum Bronze - ASTM B 148 C95400
- Ductile Iron - ASTM A 536 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

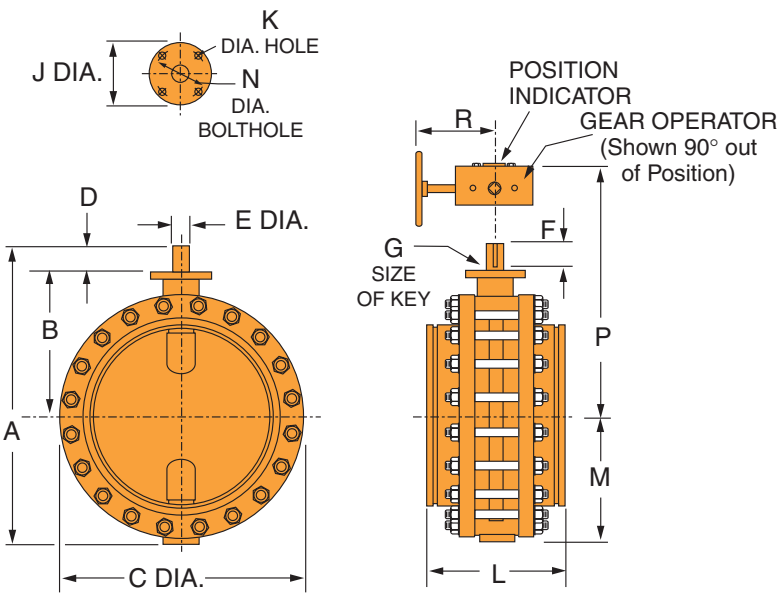
RETAINING SCREW: Steel

THRUST WASHER: Acetal

PLUG: Cast Iron - ASTM A 126 CL.B

UPPER BEARING: Teflon (Reinforced)

LOWER BEARING: Teflon (Reinforced)



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*	14.000 *356*	26¼ *667*	13¼ *337*	21 *533*	2¼ *57*	1½ *38*	2 *51*	⅜ x ⅜ *87*	6 *152*	½ *13*	13 1⁄16 *332*	10¾ *273*	5 *127*	17 15⁄16 *456*	10 *254*
16 *400*	16.000 *406*	29½ *749*	14¾ *375*	23½ *597*	2¼ *57*	1½ *38*	2 *51*	⅜ x ⅜ *87*	6 *152*	½ *13*	14 5⁄16 *364*	12½ *318*	5 *127*	19 7⁄16 *494*	10 *254*
18 *450*	18.000 *457*	32¾ *832*	15¾ *400*	25 *635*	3 *76*	1¾ *44*	2⅜ *60*	⅜ x ⅜ *87*	6¾ *171*	½ *13*	15⅜ *391*	14 *356*	5 *127*	20 7⁄16 *519*	10 *254*
20 *500*	20.000 *508*	34 *864*	16¼ *413*	27½ *699*	3 *76*	1¾ *44*	2⅝ *66*	⅜ x ⅜ *87*	6¾ *171*	½ *13*	16⅜ *416*	15 *381*	5 *127*	20 15⁄16 *532*	10 *254*
24 *600*	24.000 *610*	39⅜ *1,000*	19⅛ *486*	32 *813*	3 *76*	2¼ *57*	3¼ *83*	½ x ½ *116*	9½ *241*	13⁄16 *21*	18¼ *464*	16¾ *425*	6½ *165*	24⅜ *619*	10¼ *260*

SERIES 8000GR BUTTERFLY VALVES (ORDERING INFORMATION)

Sample Part Number 18" GC-8282-6 —>	18"	G	C -	8	2	8	2	6
	Valve Size	**Body Style**	**Body Material**	**Series**	**Seat Material**	**Disc Material**	**Operator**	**Stem**
	14" - 24"	**G** - Grooved End	**C** - Cast Iron	8 - 8000	**1** - Nitrile **2** - EPDM	**0** - Nickel Plate 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. w/ RTFE Bearing **7** - 316 S.S. w/ RTFE Bearing

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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 are based on testing performed in the Gruvlok Research & Development Center. These values include a safety factor and are valid for water and lubricating fluids only at 70° F (21° C).

Since torques are greatly increased for dry and non-lubricating fluids and temperature variations, contact your Anvil Sales Office for accurate values in these applications.

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*	4,000 *452*	4,800 *542*	5,400 *610*	10,000 *1,130*	13,000 *1,469*
100 *6.9*	4,800 *542*	5,200 *588*	6,200 *701*	12,500 *1,412*	18,000 *2,034*
150 *10.3*	5,500 *621*	6,500 *734*	8,500 *960*	13,500 *1,525*	21,500 *2,429*

NOTE: For Teflon seated valves, contact your Anvil Sales Office.
These values are valid for water and lubricating fluid service only.
Contact factory for information on torques for dry and non-lubricating fluid service.

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

Valve Size	Disc Position (Degrees Open)							
	25°	***30°***	***40°***	***50°***	***60°***	***70°***	***80°***	***90°***
In./mm								
14 *350*	650 *44.8*	825 *56.9*	1,500 *103.4*	2,300 *158.6*	3,500 *241.3*	6,200 *427.5*	9,700 *668.8*	10,500 *723.9*
16 *400*	850 *58.6*	1,000 *68.9*	1,850 *127.6*	2,900 *199.9*	4,600 *317.2*	7,500 *517.1*	10,600 *730.8*	13,500 *930.8*
18 *450*	1,100 *75.8*	1,400 *96.5*	2,450 *168.9*	3,800 *262.0*	5,000 *344.7*	9,700 *668.8*	13,850 *954.9*	18,000 *1,241.1*
20 *500*	1,400 *96.5*	1,650 *113.8*	3,050 *210.3*	4,800 *330.9*	7,400 *510.2*	12,500 *861.8*	17,750 *1,223.8*	23,000 *1,585.8*
24 *600*	2,000 *137.9*	2,400 *165.5*	4,200 *289.6*	6,600 *455.1*	10,500 *723.9*	17,000 *1,172.1*	23,000 *1,585.8*	31,000 *2,137.4*

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)	Area
In./mm	*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*