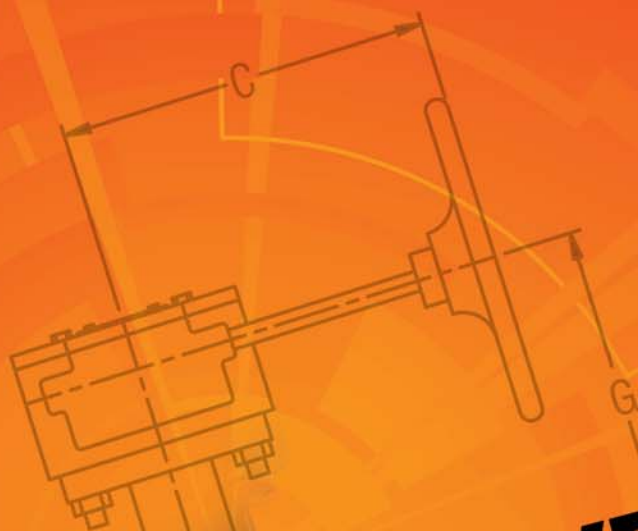


VALVES



VALVES



VALVES

The Grinnell® line of grooved end valves offers a wide range of butterfly, check, ball and triple duty valves with a variety of wear resistant materials.

VALVES

Butterfly Valves



Model B302
Pages 65-67



Model B8101
Low Profile Butterfly Valve
Page 70

Ball Valves



Model BV835
Pages 71-72

Check Valves



Model 590
Pages 73-74

Triple Duty Valves



Model TD 830
Page 75

BUTTERFLY VALVES

Model B302 Grooved End Butterfly Valve

Grinnell® Model B302 Butterfly Valves are capable of pressures of 300 psi (20.7 Bar) for sizes 2" – 8" (DN 50 – DN 200) and 200 psi for sizes 10" and 12" (DN 250 – DN 300). The valves are designed for efficient control of: on/off or throttling/balancing service, fluid flow and "bubble tight" shut-off in piping systems. Flow may be from either direction and the valve may be positioned in any orientation. The valves are available with either a Gear Operator, for sizes 2" – 12" (DN 50 – DN 300) or Lever-Lock Operator, for sizes 2" – 8" (DN 50 – DN 200). The valves are furnished with grooved ends for use with grooved couplings and can be easily adapted to flanged components utilizing Grinnell Figure 71 Class 150 Flange Adapters.

The body and disc construction provides for increased strength and durability. The disc seal and body coatings are compatible with a variety of chemicals and temperature ranges (Contact Tyco Fire & Building Products for specific recommendations on seal and coating selections).

The Model B302 Butterfly Valve with Gear Operator is a self-locking worm gear type. It is equipped with adjustable stops at the open and shut positions.

The Model B302 Butterfly Valve with Lever-Lock Operator has a throttling plate which provides throttling notches every 10° for manual control in balancing up to 90° or shut off service. The lever may be padlocked in any one of the positions including opened or closed by virtue of a locking hole located in the handle and lever.



Model B302
with Gear Operator



Model B302
with Lever-Lock Operator

Tech Data: G310

MATERIAL SPECIFICATIONS

Ductile Iron Body and Disc Specifications

- ASTM A-395 – Standard Specification for Ductile Iron Castings
- Grade 60-40-18
- Tensile Strength, Minimum PSI – 60,000 (MPa-414)
- Yield Strength, Minimum PSI – 40,000 (MPa-276)
- Elongation in 2" (50mm), Minimum 18%

Body Coating

- Black Polymid Coated

Upper and Lower Stem

- Type 416 Stainless Steel

Gear Operator

- Cast Iron Housing

Lever-Lock Operator

- Handle – Iron Polymer Coated
- Lever-Lock – Steel Zinc Plated
- Throttling Plate – Steel Zinc Plated

Disc Seal Specifications Encapsulated Rubber

- **EPDM** – for service temperatures from -20°F (-29°C) to 250°F (121°C), intermittent service at 250°F (121°C) and continuous service at 225°F (107°C). Recommended for hot water not to exceed the temperature ratings above, plus a variety of dilute acids, alkalines and many chemical services. They are not recommended for petroleum oil, strong acid, strong alkaline or compressed air services.
- **Nitrile** – for service temperatures from -20°F (-29°C) to 180°F (82°C). Recommended for solvents, oils, water and hydraulic fluid resistance. They are not recommended for highly polar solvents such as acetone and methyl ethyl ketone, chlorinated hydrocarbons, ozone or nitro hydrocarbons and some aviation fuels.
- **Fluoroelastomer** – For service temperatures +20° F (-7°C) to +300°F (+149°C). Recommended for oxidizing acids, petroleum products, hydraulic fluids, lubricants, and halogenated hydrocarbons.

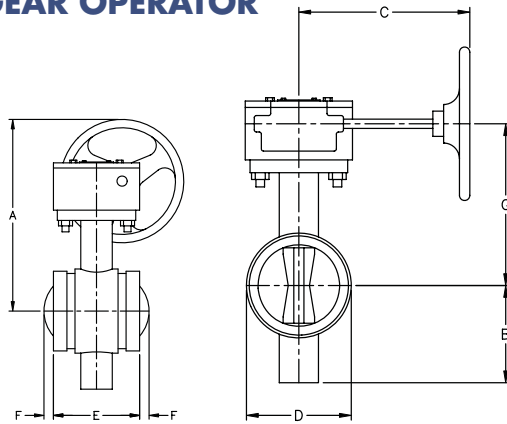
VALVES

BUTTERFLY VALVES

Model B302 Grooved End Butterfly Valve

VALVES

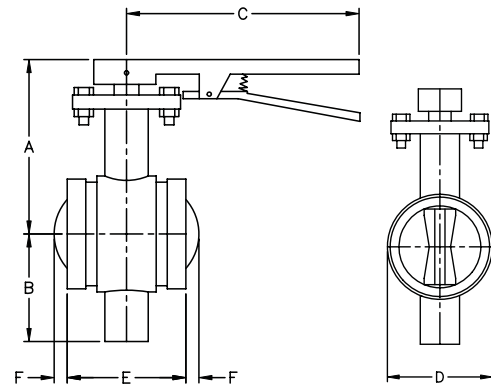
GEAR OPERATOR



Side view
with valve open

Front view
with valve open

LEVER LOCK OPERATOR



Side view
with valve open

Front view
with valve open

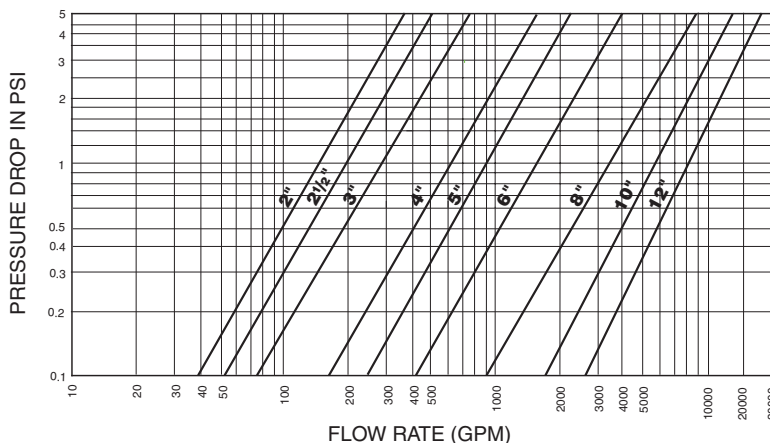
Nominal Size	Nominal Dimensions							Approx. Weight
	A	B	C	D	E	F	G	
Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	lbs
mm	mm	mm	mm	mm	mm	mm	mm	kg
2	8.46	3.14	7.64	2.89	3.33	N/A*	5.50	14.5
50	214.9	79.8	194.1	73.4	84.6		139.7	6.6
2½	8.65	3.25	7.64	3.46	3.85	N/A*	5.69	15.5
65	219.7	82.6	194.1	87.9	97.8		144.5	7.0
3	8.99	3.54	7.64	3.97	3.85	N/A*	5.94	17.0
80	226.1	89.9	194.1	100.8	97.8		150.9	7.7
4	9.79	4.35	7.64	5.03	4.56	N/A*	8.00	20.5
100	248.7	110.5	194.1	127.8	115.8		203.2	9.3
5	9.30	4.84	7.64	6.28	5.86	N/A*	7.33	25.0
125	236.2	122.9	194.1	159.3	148.8		186.2	11.3
6	13.53	5.93	9.53	7.25	5.86	N/A*	8.61	33.0
150	343.7	150.6	242.1	184.2	148.8		218.7	15.0
8	14.47	6.87	9.53	9.25	5.26	1.30	9.55	45.0
200	367.5	174.5	242.1	235.0	133.6	33.0	242.6	20.4
10	16.53	9.17	11.54	11.25	6.29	1.65	11.61	83.0
250	418.9	232.9	293.1	285.8	159.8	41.9	294.9	37.6
12	17.52	10.17	11.54	13.14	6.52	2.56	12.60	100.0
300	445.0	258.3	293.1	333.8	165.6	65.0	320.0	45.4

* End of disc does not extend beyond valve body.
Please refer to General Notes on page 17.

Nominal Size	Nominal Dimensions							Approx. Weight
	A	B	C	D	E	F	G	
Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	lbs
mm	mm	mm	mm	mm	mm	mm	mm	kg
2	5.00	3.14	10.50	2.89	3.33	N/A*		6.5
50	127.0	79.8	266.7	73.4	84.6			2.9
2½	5.19	3.25	10.50	3.46	3.85	N/A*		7.0
65	131.8	82.6	266.7	87.9	97.8			3.2
3	5.44	3.54	10.50	3.97	3.85	N/A*		8.5
80	138.2	89.9	266.7	100.8	97.8			3.9
4	6.33	4.35	13.75	5.03	4.56	N/A*		13.0
100	160.8	110.5	349.3	127.8	115.8			5.9
5	6.83	4.84	13.75	6.27	5.86	N/A*		18.0
125	173.5	122.9	349.3	159.3	148.8			8.2
6	8.11	5.93	13.75	7.25	5.86	N/A*		25.0
150	206.0	150.6	349.3	184.2	148.8			11.3
8	9.05	6.87	13.75	9.25	5.26	1.30		33.0
200	229.9	174.5	349.3	235.0	133.6	33.0		15.0

* End of disc does not extend beyond valve body.
Please refer to General Notes on page 17.

Performance



Note: It is good piping practice to apply a safety factor of 15% to 20% to the values in the above table.

BUTTERFLY VALVE

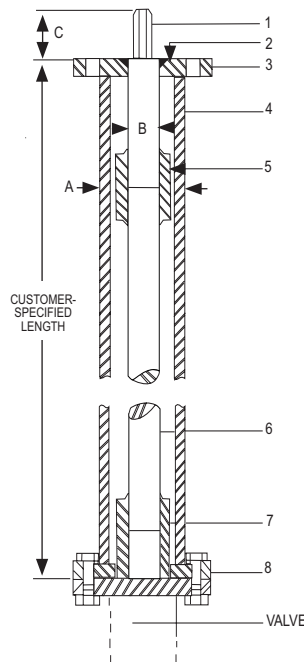
Model B302 Butterfly Valve Options

Stem Extensions

Stem extensions can be provided to permit remote operation of the valve in any required length. Stem extensions are available in lengths up to 10 feet. The top flange of the extension stem, plug shaft diameter, and distance across the flats on the plug shaft are the same size as the valve selected. This allows interchangeability of gear operators, actuators, and adapter bushings from the valve mounting flange to the extension stem top flange.

Adjustable Sprocket Rim

The Babbitt Adjustable Sprocket Rim will provide for remote operation of the butterfly valves in high, out-of-reach locations. Specify the sprocket number and size. The chain length must also be specified. (Chain length = Height x 2 + 2 ft.).



MATERIAL LIST	
Part	Specification
1. Plug	Steel
2. Top Flange Bushing	Bronze
3. Top Flange	Steel
4. Housing (Steel Pipe)	Steel
5. Plug and Rod Coupling	Steel
6. Rod	Steel
7. Rod and Stem Coupling	Steel
8. Bottom Flange	Steel

DIMENSIONS			
SIZE	A	B	C
2" - 12"	2.88	1.125	1.12

Adjustable Sprocket Rim Dimensions

Size No.	Dia. of Sprocket Wheel Inches	Weight lbs	Dia. Of HDWL Rim will Fit	Chain Size	Chain Weight per 100' in lbs	Butterfly Valve Size
1	5½	4	4½ to 5½	1/0	17½	
1½	7½	5	6 to 7½	1/0	17½	2" - 6"
2	9	8	7¾ to 9	1/0	17½	
2½	12½	15	9¾ to 12½	4/0	30	8" - 16", 20", 24"
3	15½	21	12¾ to 15½	4/0	30	
3½	19	25	15¾ to 19	4/0	30	18", 30" - 48"
4	22	34	19¾ to 22	5/0	35	

VALVES

BUTTERFLY VALVES

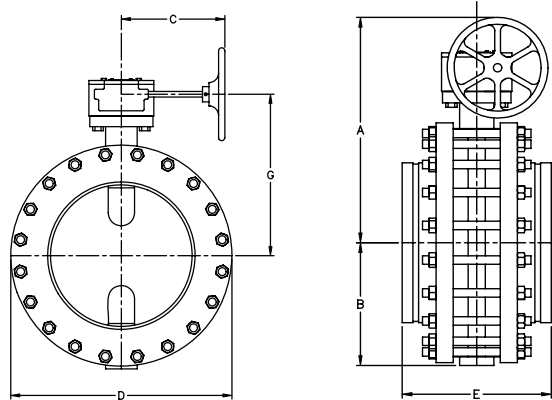
Model 308 14" - 24" Butterfly Valve

The Model 308 Butterfly Valve provides dependable, long-term service and superior control of fluid flow in piping systems. Flow may be from either direction and the valve may be positioned in any orientation. The valve is furnished with grooved ends for use with grooved couplings. The body and disc design provides exceptional flow characteristics and low operating torque. The disc has a streamline profile that optimizes flow. The body is lined with an elastomer seat that is reinforced with a phenolic backing ring, reducing seat distortion, and wear.

The Model 308 Butterfly Valve is provided with a gear operator with adjustable stops at the open and shut positions.

Maximum Working Pressure is 150 psi (10.3 Bar) with 316 S.S. Stem and 200 psi (13.8 Bar) with 416 S.S. Stem. Special order is available upon request: Vacuum Service to 29.5" (750mm) Hg.

Temperature rating for Grade E EPDM seat material is -40°F (-40°C) to +230°F (+110°C), recommended for water service, dilute acids, alkalis, oil-free air and many chemical services. **NOT RECOMMENDED FOR USE IN PETROLEUM SERVICES.** The temperature rating for Grade T (Nitrile) seat material is -20°F (-29°C) to +180°F (+82°C), recommended for petroleum products, air with oil vapors, vegetable oils and mineral oils. **NOT RECOMMENDED FOR USE IN HOT WATER SERVICES.** (Contact Tyco Fire & Building Products for specific recommendations on seat material.)



Tech Data: G320

BUTTERFLY VALVES

Model 308 14" – 24" Butterfly Valve

MATERIAL SPECIFICATIONS

Body

- Cast Iron conforming to ASTM A-126, Class B

Body Seat (Liner)

- Grade E EPDM, Grade T Nitrile or Fluoroelastomer

Body Coating

- Epoxy Coated

Disc

- Stainless Steel Conforming to ASTM A-351, Grade CF8M
- Aluminum Bronze Conforming to ASTM B-148, C95400
- Ductile Iron Conforming to ASTM A-536, Grade 65-45-12

Nominal Size Inches mm	Nominal Dimensions						Approx. Weight lbs kg
	A Inches mm	B Inches mm	C Inches mm	D Inches mm	E Inches mm	F Inches mm	
14	23.25	10.75	10.00	21.00	13.06	15.25	378.0
350	590.6	273.1	254.0	533.4	331.7	387.4	171.8
16	24.75	12.50	10.00	23.50	14.33	16.75	452.0
400	628.7	317.5	254.0	596.9	364.0	425.5	205.5
18	25.75	14.00	10.00	25.00	15.40	17.75	548.0
450	654.1	355.6	254.0	635.0	391.2	450.9	249.1
20	27.25	15.00	10.00	27.50	16.38	18.25	728.0
500	692.2	381.0	254.0	698.5	416.1	463.6	330.9
24	30.12	16.75	10.25	32.00	18.26	21.12	1097.0
600	765.0	425.5	260.4	812.8	463.8	536.4	498.6

Drive and Bottom Shaft

- Stainless Steel Conforming to ASTM A-582, Type 416 or Stainless Steel Conforming to ASTM A-276, Type 316

Gear Operator

- Cast Iron Housing

Upper and Lower Bearings

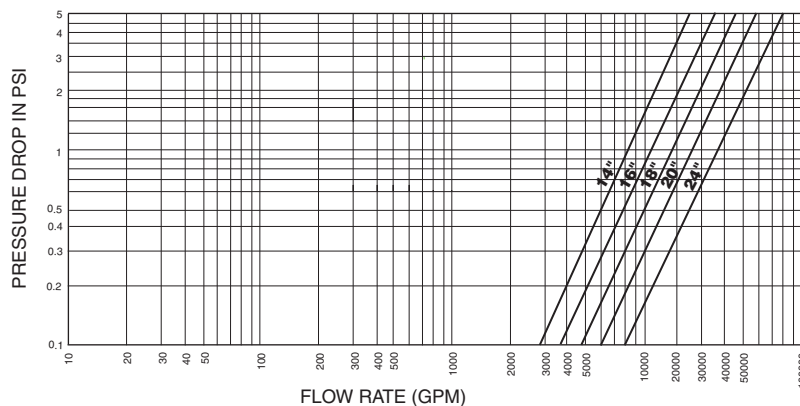
- Reinforced Teflon®*

Plug

- Cast Iron ASTM A-126

* Teflon® is an E.I. Dupont trademark

Performance



Note: It is good piping practice to apply a safety factor of 15% to 20% to the values in the above table for design purposes.

BUTTERFLY VALVES

Model B8101 Low Profile Butterfly Valve

The Model B8101 Low Profile Butterfly Valve has a rated working pressure of 200 psi and provides efficient control of fluid in piping systems. Flow may be from either direction, and the valve may be positioned in any orientation. The ductile iron body is epoxy coated to resist atmospheric corrosion and the disc is EPDM encapsulated ductile iron to be compatible with a variety of chemicals and temperature ranges.



Tech Data: G330

MATERIAL SPECIFICATIONS

Body

- Ductile Iron

Body Coating

- Black Epoxy Coated

Disc

- Ductile Iron

Disc Seal

- EPDM Encapsulated Rubber
- Optional: Nitrile

Stem

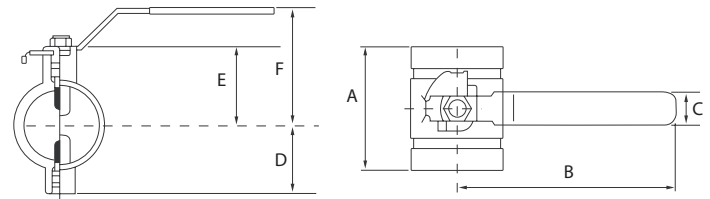
- Two-piece Stainless Steel, Splined

Stem Seal

- O-rings, Upper and Lower Stem

Handle

- Carbon Steel Zinc Plated



Nominal Size Inches	A Inches mm	B Inches mm	C Inches mm	D Inches mm	E Inches mm	F Inches mm	Approx Weight Lbs Kg
2	3.39	5.98	0.98	1.81	1.97	3.15	4.2
50	86.0	152.0	25.0	46.0	50.0	80.0	1.9
2½	3.78	5.98	0.98	2.05	2.40	3.58	6.4
65	96.0	152.0	25.0	52.0	61.0	91.0	2.9
3	3.78	8.27	0.98	2.56	2.64	4.21	7.5
80	96.0	210.0	25.0	65.0	67.0	107.0	3.4
4	4.53	8.27	0.98	3.27	3.27	4.84	11.7
100	115.0	210.0	25.0	83.0	83.0	123.0	5.3
6	5.20	12.01	1.26	4.29	4.29	6.85	26.6
150	132.0	305.0	32.0	109.0	109.0	174.0	12.1

Please refer to General Notes on page 17.

BALL VALVES

Model BV835 Ball Valve

The Model BV835 Ball Valve is capable of a working pressure of 1,000 psi. Available in sizes 2" (DN 50) to 6" (DN 150). Flow may be from either direction and the valves may be positioned in any orientation. The Model BV835 is furnished with grooved ends and features a handle that accepts a padlock device for locking in either the open or closed position.



Max. Working Pressure
 1,000 psi (68,9 bars) 2 – 3 inches
 800 psi (55,1 bars) 4 inches
 600 psi (41,4 bars) 6 inches

MATERIAL SPECIFICATIONS

Body

- Ductile Iron Conforming to ASTM A-536, Grade 65-45-12

Body Coating

- Black Enamel

Ball

- Carbon Steel, Chrome Plated 304SS Available

Ball Seal

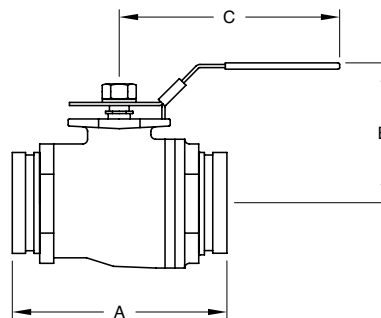
- Teflon®*

Upper Stem

- Carbon Steel Nickel Plated

Operator

- Lever With Locking Device



* Teflon® is an E.I. Dupont trademark

Nominal Pipe Size		Nominal Dimensions Inches mm				Approx. Weight lbs kg
ANSI Inches DN	O.D. Inches mm	A Inches mm	B Inches mm	C Inches mm	D Inches mm	
2 DN50	2.375 60,3	5.50 140,0	3.75 95,0	7.0 178,0	1.50 38,1	6.4 2,9
2½ DN65	2.875 73,0	6.25 159,0	5.20 132,0	10.43 265,0	2.00 51,0	10.6 4,8
3 DN80	3.500 88,9	6.56 167,0	5.63 143,0	10.43 265,0	2.50 63,5	13.4 6,1
4 DN100	4.500 114,3	9.45 240,0	3.70 94,0	10.43 265,0	3.50 90,0	55.0 25,0
6 DN150	6.625 168,3	10.15 258,0	8.68 220,5	23.60 600,0	4.92 125,0	79.2 36,0

Please refer to General Notes on page 17.

VALVES

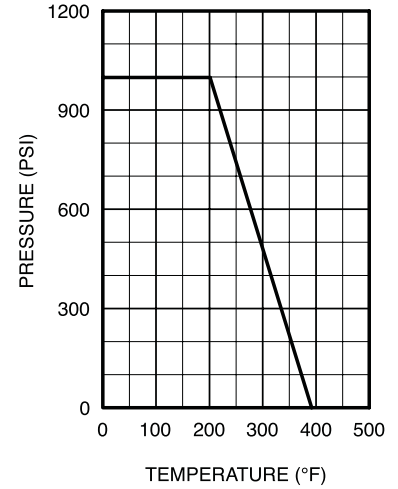
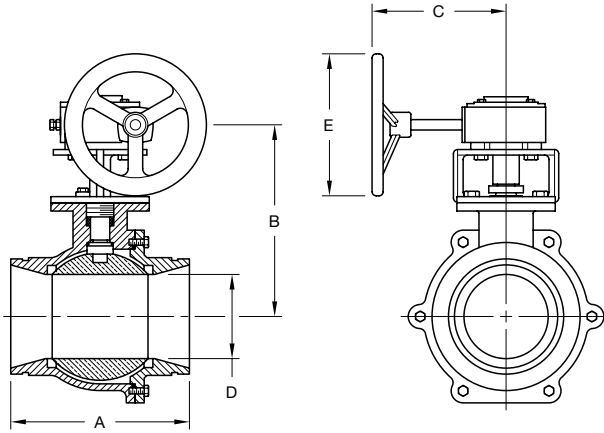
BALL VALVES

Model BV835 Ball Valve

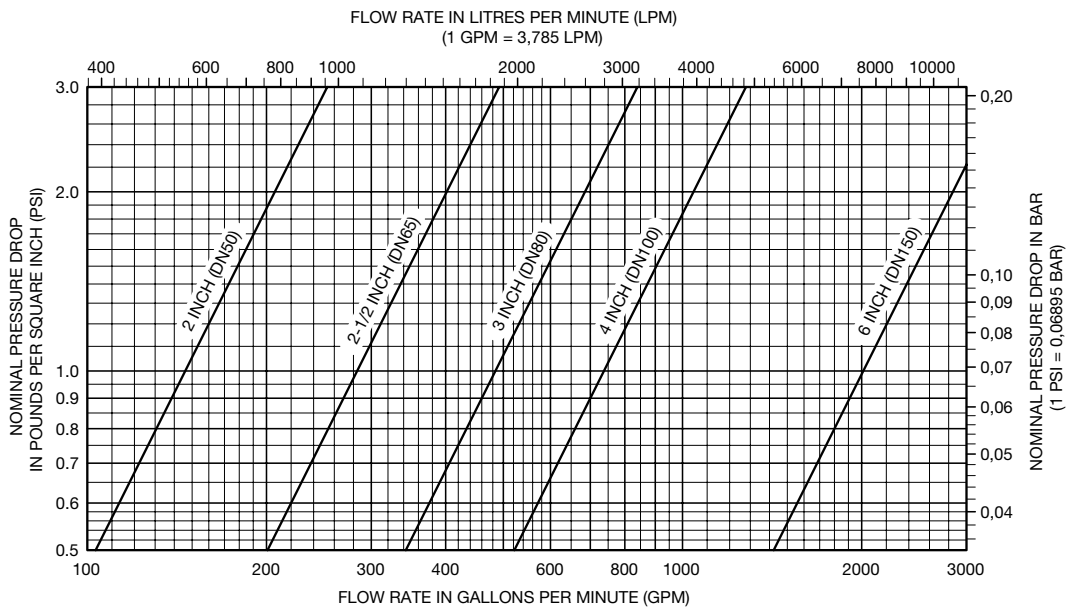
OPTIONAL WITH GEAR OPERATOR

Pressure Performance

VALVES



Nominal Pipe Size		Nominal Dimensions Inches mm					Approx. Weight lbs kg
ANSI Inches DN	O.D. Inches mm	A Inches mm	B Inches mm	C Inches mm	D Inches mm	E Inches mm	
2	2.375	5.50	5.38	8.00	1.50	6.00	18.0
DN50	60,3	140,0	137,0	203,2	38,1	152,4	8,0
2½	2.875	6.25	5.68	8.00	2.00	6.00	22.0
DN65	73,0	159,0	144,2	203,2	51,0	152,4	10,0
3	3.500	6.56	7.16	8.00	2.50	6.00	31.0
DN80	88,9	167,0	182,0	203,2	63,5	152,4	14,0
4	4.500	9.45	8.00	8.00	3.50	6.00	73.0
DN100	114,3	240,0	203,2	203,2	90,0	152,4	33,0
6	6.625	10.15	10.89	14.00	4.92	12.00	123.4
DN150	168,3	258,0	277,0	356,0	125,0	305,0	56,0



CHECK VALVES

Model 590 Grooved End Check Valve

Grinnell® Model 590 Check Valves are capable of pressures up to 300 psi (20.7 Bar) and are designed as compact and rugged swing-type units that allow water flow in one direction and prevent flow in the opposite direction. They are manufactured with a ductile iron body, nickel seat and a stainless steel clapper assembly for sizes 2" – 8" (DN 50 – DN 200), and a ductile iron clapper assembly for sizes 10" – 12" (DN 250 – DN 300). A resilient elastomer seal facing on the spring loaded clapper ensures a leak tight seal and a non-sticking operation. All Model 590 Check Valves are designed to minimize water hammer caused by flow reversal.

The valves are furnished with grooved ends and can be installed using Grinnell Couplings. The Model 590 can be installed with our Figure 71 Flange Adapters and also ANSI class 300 Flange Adapters. All Model 590 Check Valves have been designed with a removable cover for ease of field maintenance. They may be installed in either horizontal or vertical piping systems with the flow in the upward or downward direction.

MATERIAL SPECIFICATIONS

Ductile Iron Body & Cap Specifications

- ASTM A-536 – Standard Specification for Ductile Iron Castings Grade 65-45-12
- Tensile Strength, Minimum PSI – 65,000 (MPa-448)
- Yield Strength, Minimum PSI – 45,000 (MPa-310)
- Elongation in 2" (50mm), minimum 12%

Seat

- Nickel

Coating

- Non-Lead Paint



Tech Data: G350

Seal Specifications

- **Grade "E" EPDM** seals have a green color code identification and conform to ASTM D-2000 for service temperatures from -30°F (-34°C) to 230°F (110°C). They are recommended for hot water not to exceed 230°F (110°C), plus a variety of dilute acids, oil free air and many chemical services. They are not recommended for petroleum services.
- **Grade "T" Nitrile** seals have an orange color code identification and conform to ASTM D-2000 for service temperatures from -20°F (-29°C) to 180°F (82°C). They are recommended for petroleum products, vegetable oils, mineral oils, and air with oil vapors.

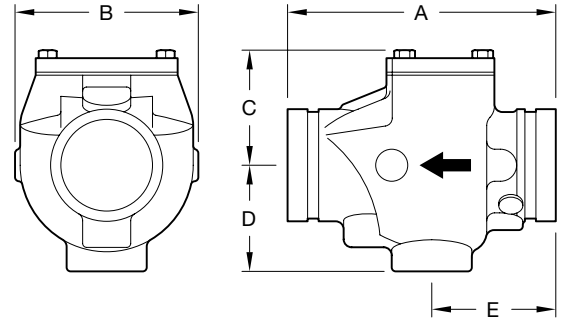
VALVES

CHECK VALVES

Model 590 Grooved End Check Valve

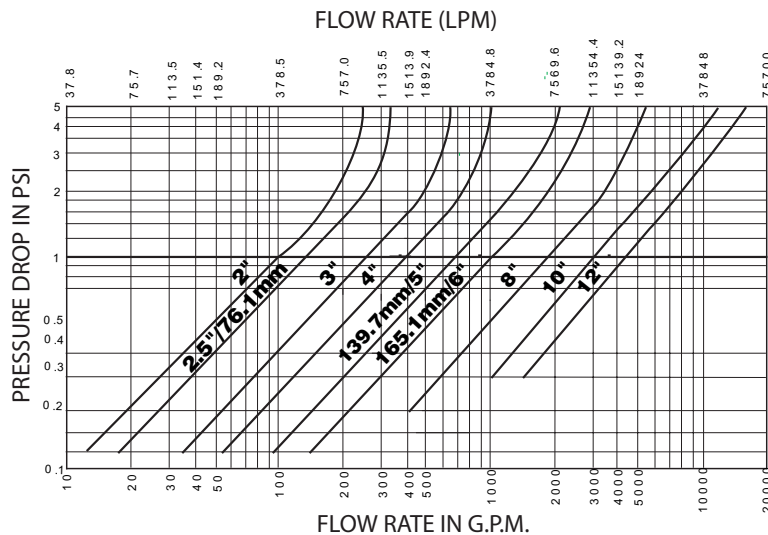
VALVES

Nominal Size Inches mm	Nominal Dimensions					Cover Bolt Torque lb-ft/mm	Approx. Weight lbs kg
	A Inches mm	B Inches mm	C Inches mm	D Inches mm	E Inches mm		
2	6.75	4.38	2.55	2.57	3.25	15	9.0
50	171.5	111.3	64.8	65.3	82.3	21	4.5
2½	8.00	5.42	3.41	3.09	3.88	39	10.0
65	203.2	136.7	86.6	78.5	98.6	54	4.5
76.1mm	8.00	5.42	3.41	3.09	3.88	39	10.0
	203.2	136.7	86.6	78.5	98.6	54	4.5
3	8.38	5.76	3.60	3.31	3.88	39	11.0
80	212.9	146.3	91.4	84.1	98.6	54	5.0
4	9.63	6.74	4.61	3.63	4.53	39	25.0
100	245.6	171.2	117.1	92.2	115.4	54	11.3
139.7mm	10.50	7.50	5.29	4.13	4.90	39	29.0
	266.7	190.5	134.4	104.9	124.5	54	13.2
5	10.50	7.50	5.29	4.13	4.90	39	29.0
125	266.7	190.5	134.4	104.9	124.5	54	13.2
165.1mm	11.50	8.05	5.75	4.50	5.00	60	47.0
	292.1	204.4	146.1	114.3	127.0	82	21.3
6	11.50	8.05	5.75	4.50	5.00	60	47.0
150	292.1	204.4	146.1	114.3	127.0	82	21.3
8	14.00	10.25	7.75	5.62	5.45	120	66.0
200	355.6	260.4	196.9	142.7	138.4	164	30.0
10	18.00	13.00	10.21	6.38	7.50	120	109.7
250	457.2	330.2	259.3	162.1	190.5	164	49.4
12	21.0	14.28	11.31	7.26	7.62	120	151.0
300	533.4	362.7	287.2	184.4	193.5	164	68.0



Please refer to General Notes on page 17.

Performance



Note: It is good piping practice to apply a safety factor of 15% to 20% to the values in the above table.

TRIPLE DUTY VALVES

Model TD830 Triple Duty Valve

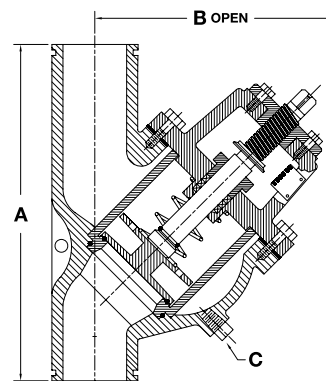
The Model TD830 Triple Duty Valve is designed for installation in pump discharge piping where it functions as a spring loaded silent check valve, flow control valve and shut-off valve.

The Model TD830 Triple Duty Valve operates automatically and silently. Line pressure of approximately ¼ psi will open the disc. The spring closes the disc as the line flow approaches zero in order to prevent flow reversal and water hammer. The flow through the valve can be adjusted from bubble tight shut-off to full flow by the acme threaded rising stem.

The Model TD830 Triple Duty Valve can be installed quickly into grooved end piping systems with two Grinnell Couplings. The externally guided disc has a soft seat to ensure a leak-tight seal. It lifts ⅓ inch for each inch of pipe diameter. The rising stem design incorporates a graduated position indicator to ensure accurate disc positioning for throttling service. The yoke and valve stem are unwetted external parts so they cannot be corroded or eroded by the line fluid. All mating threaded parts are made of dissimilar, non-galling metals. An NPT drain plug is provided, as well as bosses for gauge taps at the inlet and outlet.



Tech Data: G390



MATERIAL SPECIFICATIONS

Body & Yoke Specifications

- Ductile Iron Conforming to ASTM A-536 or A-395

Seat Guide

- Bronze Conforming to ASTM B-62, 85/5/5/5

Disc

- Cast Iron Conforming to ASTM A-126-B

Spring

- 302 Stainless Steel

Stem

- Bronze Conforming to ASTM B-21

Seat, Disc, and Stem O-Rings

- EPDM

Seat

- Bronze

Flanged Gland

- Cast Iron Conforming to ASTM A-126-B

Cover Gasket and Packing

- Non-Asbestos

Nominal Pipe Size		Nominal Dimensions			Approx. Weight lbs kg
ANSI Inches DN	O.D. Inches mm	A Inches mm	B Inches mm	C Inches NPT	
2	2.375	9.375	9.625	½	23.0
DN50	60.3	238.1	244.5	15	10.0
2½	2.875	10.250	9.625	½	24.0
DN65	73.0	260.4	244.5	15	10.9
3	3.500	11.250	10.125	½	33.0
DN80	88.9	285.8	257.2	15	15.0
4	4.500	15.625	11.125	½	84.0
DN100	114.3	397.9	282.6	15	38.0
5	5.563	15.625	11.125	½	84.0
DN125	141.3	397.9	282.6	15	38.0
6	6.625	19.625	17.500	¾	156.0
DN150	168.3	498.5	444.5	20	70.0
8	8.625	23.625	18.000	¾	300.0
DN200	219.1	600.0	457.2	20	136.0
10	10.750	28.000	19.875	1	392.0
DN250	273.1	711.2	504.8	25	178.0
12	12.750	31.625	25.000	1	496.0
DN300	323.9	803.3	635.0	25	225.0
14	14.000	33.500	25.000	1	790.0
DN340	355.6	851.0	635.0	25	358.3

Please refer to General Notes on page 17.

Stem Guide

- Ductile Iron Conforming to ASTM A-536 or A-395

Finish

- Black Paint

VALVES

