

## Features

- Double offset design reduces torque and seal wear
- High quality, passivated 316SS (CF8M) construction for superior corrosion protection
- Multiple RPTFE V-type rings for superior shaft sealing
- Bolted seat retainer keeps seat stable and allows easy changeout
- Belleville washers for consistent, self-adjusting stem seal pressure
- One piece, reinforced Teflon (RPTFE) seal
- Bi-directional seal design ensures increased sealing force in either flow direction
- Integral disc stop prevents overtravel
- Integral ISO5211 direct mounting pad eliminates the need for external brackets
- Full vacuum rating
- ANSI/ASME Class 150# design (285psi)



## Description

High Performance lug butterfly valves with 316 Stainless Steel body are designed to control various media in commercial and industrial applications. Valve mounts between two standard ANSI/ASME/ASME Class 150 and other international flanges. Disc is spherically machined 316SS. Flange gaskets required.

## Applications

High performance lug butterfly valves are used to control the flow of water, oils, air, certain caustics, and other media compatible with the materials of construction for general service and where an expanded temperature range or higher pressure is required.

Also suitable for end of line applications.

## Operation

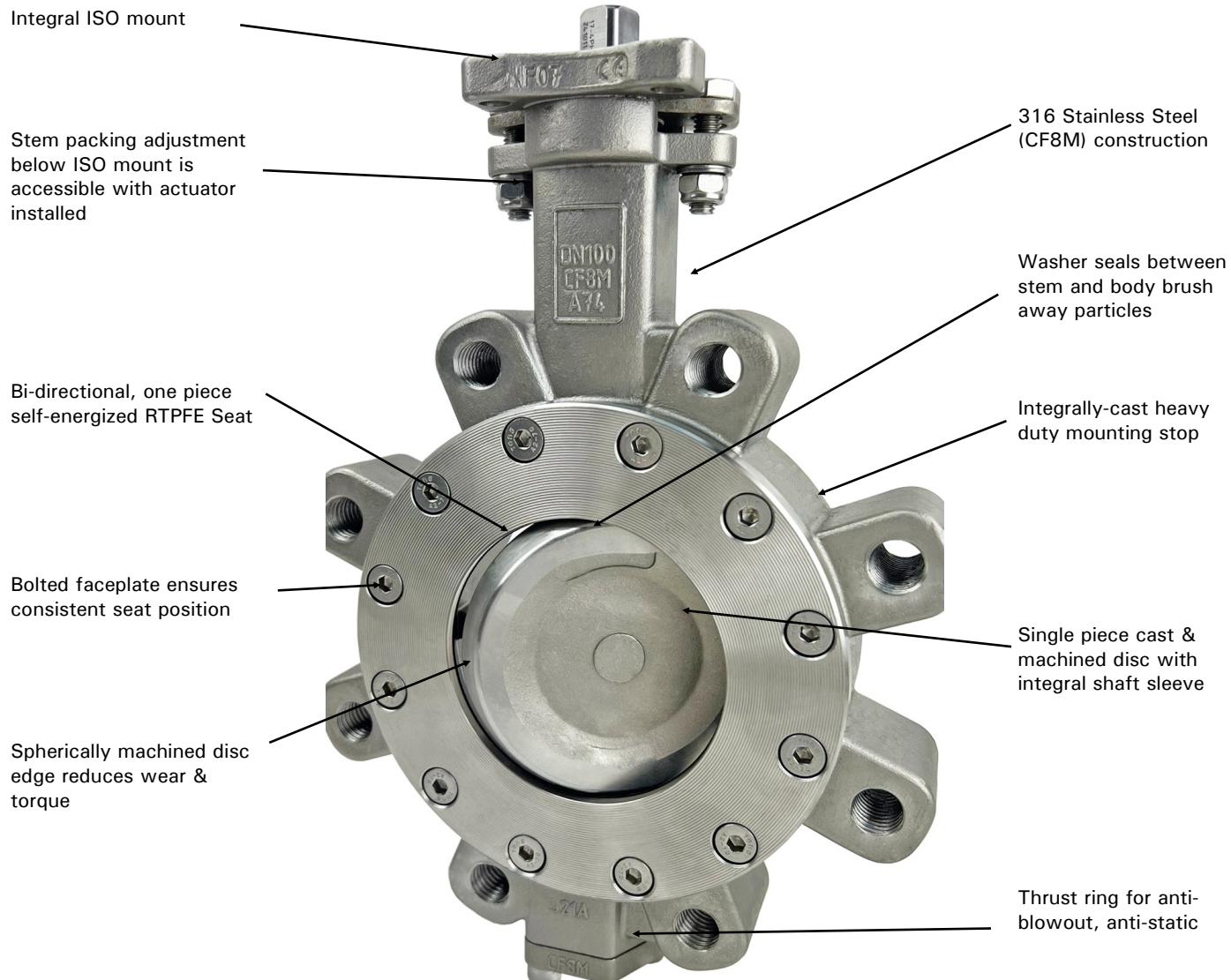
Direct mount lug butterfly valves can be easily fitted with optional manual operator, air actuator or electric actuator using standard ISO5211 top mounting. Rotating the square stem one quarter turn moves the stainless steel disc and open or closes the valve.

## Construction

Valve Body	316 stainless steel CF8M
Disc	316 stainless steel CF8M
Disc Seat	RPTFE
Stem Packing	RPTFE
Stem	17-4PH SS
Bearings	316 stainless steel
Fasteners	304 stainless steel

## Standards

- Pressure- ANSI/ASME B16.5 CLASS150
- JIS B 2239 10K, 16K
- Top Flange- ISO 5211
- Face- API 609 Class B
- Leakage- ISO 5208 Category 3, API 598 Table 5
- CE Conformance- PED 2014/68/EU Annex III Module B

**Construction Features****Pressure/Temperature Range**

**RPTFE Seals:** -40 to 450°F (-40 to 230°C)

**Pressure Max\*:** 285 PSI (19.7 Bar)

Vacuum rating– Full vacuum

**Options**

- Hand lever with 10 position locking (3-4")
- Air Actuators
- Electric Actuators
- High Temperature Brackets

**Specifications (English units)**

Stock Number	Pipe Size (inch)	Orifice Diam. (inch)	Cv Flow Factor	Pressure** Max.(PSI)	Fluid Media*	Body	Disc
<b>Lug Body EPDM Seals: BARE STEM (no handle)</b>							
547003A	3	2.8	180	285	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
547004A	4	3.6	375	285	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
547006A	6	5.7	1350	285	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS

Cv = The GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

\* Consult compatibility chart for other fluid media. Suitable for vacuum up to 29 inHg

\* See P/T Chart

**Specifications (Metric units)**

Stock Number	Pipe Size (DN)	Orifice Diam. (mm)	Kv Flow Factor	Pressure** Max.(Bar)	Fluid Media*	Body	Disc
<b>Lug Body EPDM Seals: BARE STEM (no handle)</b>							
547003A	80	72.0	155.7	19.7	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
547004A	100	91.0	324.4	19.7	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS
547006A	150	145.0	1167.8	19.7	Air, oil and other fluids compatible with materials of construction	316SS (CF8M)	316SS

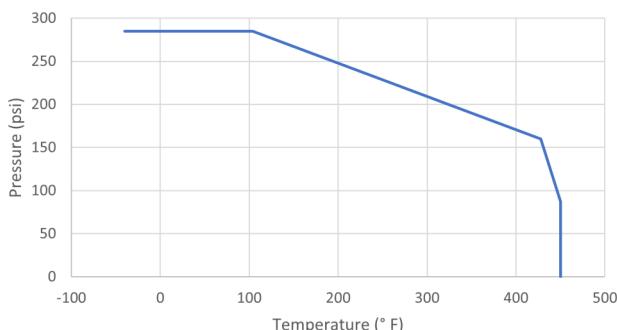
Kv = The number of m³ per hour of 20° C water at 1 bar pressure drop

\* Consult compatibility chart for other fluid media. Suitable for vacuum up to 29 inHg

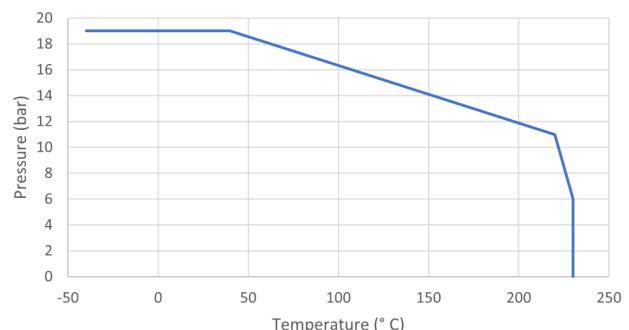
\* See P/T Chart

**Pressure vs Temperature**

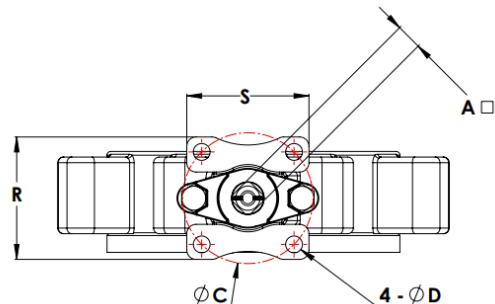
Temp °F	-40	104	428	450	450
Pressure- PSI	285	285	160	87	0

**Pressure vs Temperature- Standard Units**

**Pressure vs Temperature**

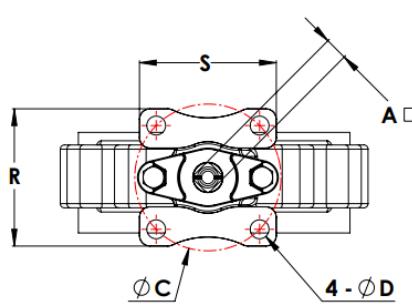
Temp °C	-40	40	220	230	230
Pressure- Bar	19	19	11	6	0

**Pressure vs Temperature- Metric Units**


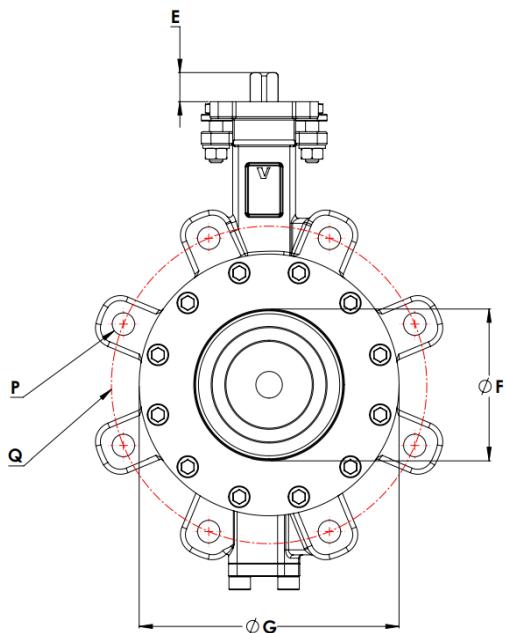
### Dimensions- Lug



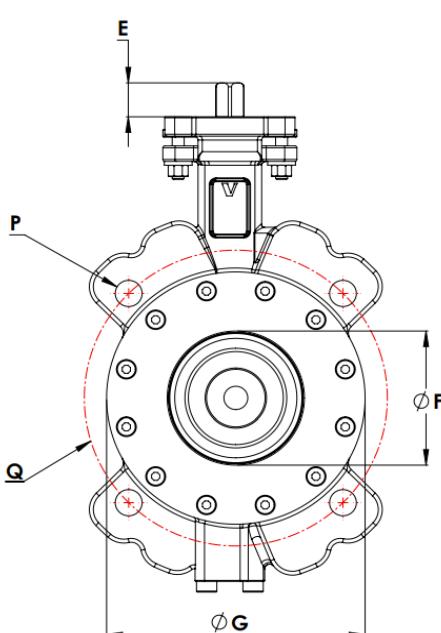
4" & 6" ISO 5211 mounting



3" ISO 5211 mounting



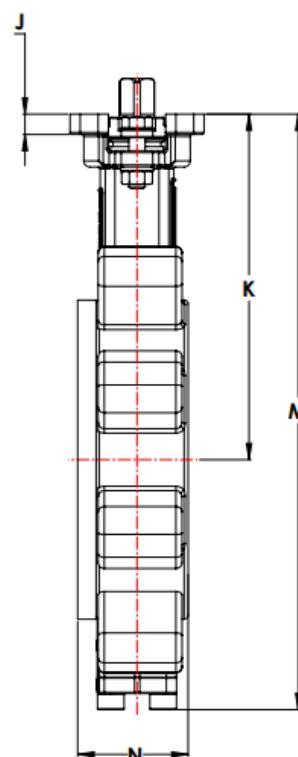
4" & 6" sizes 8-bolt flange



3" size 4-bolt flange

#### Valves suitable between flanges:

- ◆ ANSI/ASME B16.5 CLASS 150
- ◆ ANSI/ASME B16.1 CLASS 125



Pipe Size		A	C	D	E	F	G	J	K	M	N	P	Q	R	S	ISO	Weight
3	inch	0.4	2.8	0.3	0.6	2.8	6.0	0.4	5.7	9.6	1.2	4) 5/8-11	6.0	0.7	2.6	F07	12.4 lb
	mm	11.0	70.0	9.0	17.5	72.0	130.0	10.5	145.0	245.0	48.0	-	152.4	17.5	65.5		5.6 kg
4	inch	0.6	2.8	0.3	0.6	3.6	6.2	0.4	6.7	11.6	2.1	8) 5/8-11	7.5	0.7	2.6	F07	19.1 lb
	mm	14.0	70.0	9.0	17.5	91.0	157.0	10.0	170.0	294.0	54.0	-	190.5	17.5	65.5		8.7 kg
6	inch	0.7	4.0	0.5	0.7	5.7	8.5	0.5	7.9	13.9	2.2	8) 3/4-10	9.5	0.7	3.8	F10	30.9 lb
	mm	17.0	102.0	12.0	18.5	145.0	216.0	12.0	203.0	353.0	57.0	-	241.3	18.5	96.0		14.0 kg

### Valve Seating Torques (inch lbs)

SIZE	Standard Disc Differential Pressure (PSI)		
	100	200	285
3	310	336	354
4	442	487	531
6	885	1018	1106

### Valve Seating Torques (nm)

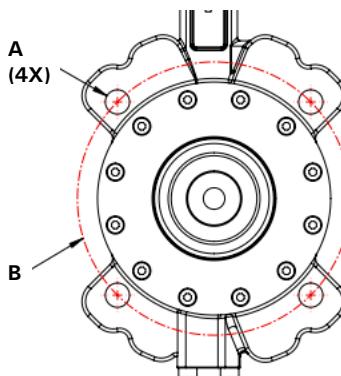
SIZE	Standard Disc Differential Pressure (Bar)		
	6.9	13.8	19.7
DN80	35	38	40
DN100	50	55	60
DN150	100	115	125

Torques shown are for on-off "wet" service (ex: water), for dry service (ex: air) multiply above values by 1.25, or see below. Valve disc turned clockwise and actuated at least once per month. The effect of dynamic torque is not considered in calculation.

### Seat Liner Resistance to Media

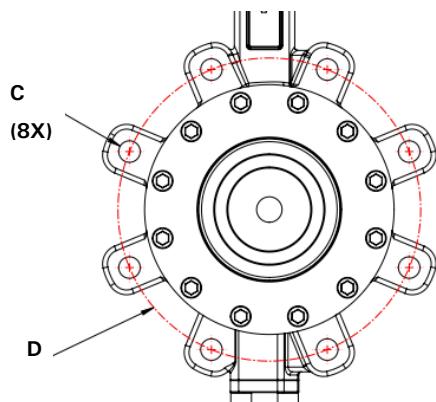
\* Many conditions can affect the valve material choices, including: pressure, temperature, chemical mix, material compounding, viscosity and environment. Ultimately it is the user's responsibility to ensure valve materials are suitable for any specific purpose.

### Typical Lug Valve Installation



Lug - 3"  
Pipe Size

Lug - 4" & 6"  
Pipe Size



### Example Flange Mounting

Valve suitable between flanges:

- ◆ ANSI/ASME B16.5 CLASS150
- ◆ ANSI/ASME B16.1 CLASS125
- ◆ JIS B 2239 10K, 16K
- ◆ BS 10 Table D, Table E

Pipe Size		A (4x)	B	C (8x)	D
3	inch	4) 5/8-11	6		
	mm	-	152.4		
4	inch			8) 5/8-11	7.5
	mm				190.5
6	inch			8) 3/4-10	9.5
	mm				241.3

### Example Valve Torque Service and Medium Factors

SERVICE FACTOR (SF)	Multiply by	SERVICE TYPE (ST)	MEDIA TYPE	Multiply by
ON/OFF operation	1.15	Ideal	Lubricating Oil	1.20
Modulating operation	1.25	Normal	Water	1.30
* 2 cycle/day "NC"	1.15	Severe	Dry Air, Solvents	1.50
** 1 cycle/week "NC"	1.50	Extreme	Abrasives	2.00

\* Valve normally remains completely closed (NC), and is opened 2 times a day minimum.

\*\* Valve normally remains completely closed (NC), and is opened only one time per week or less.

Having a long period without cycling the valve will increase the breakaway torque.

Only choose one Service Factor (SF) and one Service Type (ST) when calculating the sizing torque.

### Typical Lug Valve Installation

- Always keep the valve closed during installation and disassembly
- The piping must have a straight line and the flanges have to be parallel.
- The distance between the flange must correspond to the face-to-face dimensions of the butterfly valve.
- Before commissioning, the pipework has to be rinsed out to remove dirt and remnants of welding material, to avoid damage to the liner. During the rinsing procedure, the butterfly valve has to be positioned as open and may not be operated before the rinsing has been completed.
- Welding operations may not be performed near the butterfly valve, as welding drops can damage the liner.
- When installing and disassembling, the pipe must be completely relieved of pressure to avoid injury to people or damage to equipment.
- Where vacuum, high flow rate or water hammering can occur, flanges without a loose collar should be used.
- Carefully place the gasket between the flanges and place them in the center of the pipe to ensure a good seal. (see Fig.1)
- Place the valve between the gaskets and make sure the valve disc is parallel to the flange.
- Tighten the flange bolts in a diagonally opposite way to ensure that the valve is evenly stressed. (see Fig.3)
- After the installation is complete, carefully open and close the valve to ensure smooth operation.

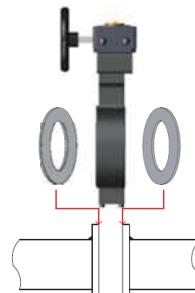
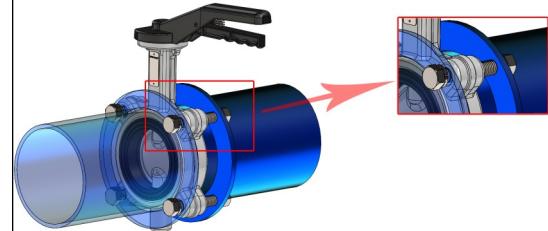


Figure 1

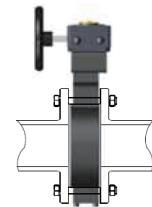
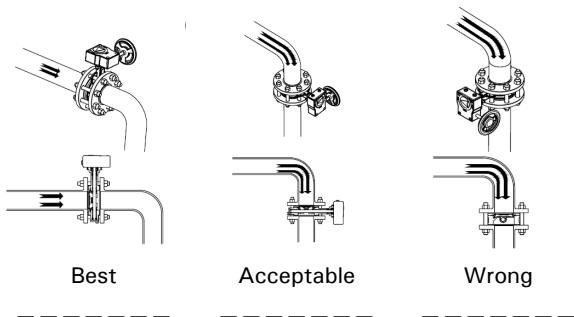


Figure 2



Best

Acceptable

Wrong

Valve upstream of pipe bend

Valve downstream, shaft parallel to pipe bend

Valve downstream, shaft perpendicular to pipe bend

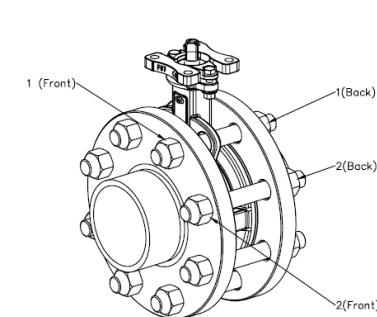
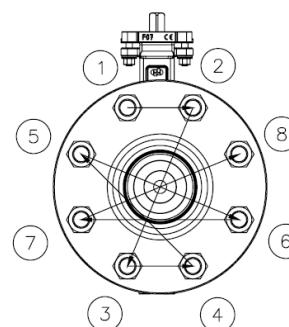


Figure 3

\*Tighten the bolts in order shown above. Refer to the table (right) for bolt tightening.

Bolt Specifications	Bolt Tightening Torque (Nm)
M16	230
M20	450
M24	780
M30	1550
M36	2700

**Features**

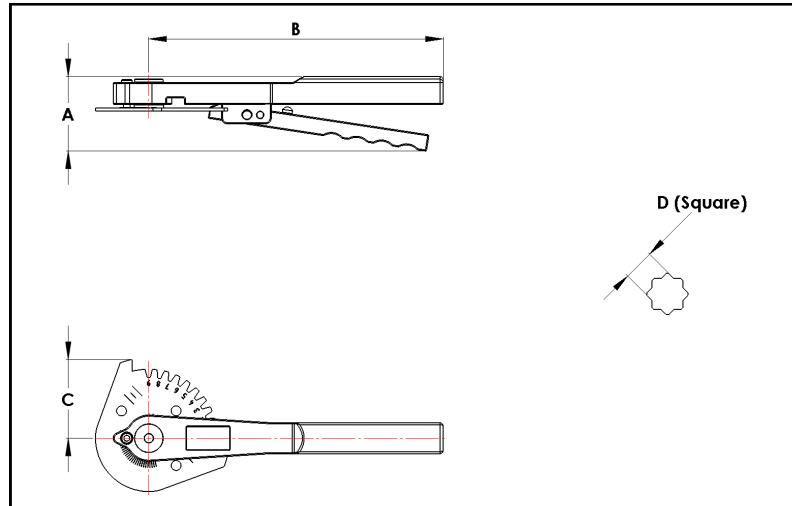
- Stainless steel construction
- 10 position locking handle
- Convenient installation and usage
- 304SS bolts and nuts

**Application**

Hand lever operator for high performance butterfly valves. The valve disc can be locked in any one of 10 positions with spring loaded lever. Hand lever kit includes lever, gear locking plate and stainless hardware for mounting.

**Specifications**

Stock No.	Description
565020A	Hand lever for valve sizes 3", stainless steel
565020C	Hand lever for valve sizes 4", stainless steel

**Dimensions**

Pipe Size		A	B	C	D	ISO	Weight
3-4	inch	3.7	10.5	2.9	14x14	F07	1.8 lbs
	mm	95.0	267.0	73.0			0.8 kg