



# Resilient Seated Butterfly Valves

[usa.siemens.com/valves](http://usa.siemens.com/valves)

**SIEMENS**

# More durable valve design lasts even longer.

Butterfly valves are the workhorse in a hydronic system and are used to isolate flow with bubble-tight shutoff. Siemens butterfly valves exceed system demands with improved performance and efficiency designed to be more durable and last longer – delivering better value. These valves are ideal for chilled water, hot water and open-loop cooling tower applications.

## A better butterfly valve

Siemens resilient seated butterfly valve series uses the best materials to withstand continuous high temperature operation up to 250°F. The valve disc is built for high corrosion resistance and increased strength. While these valves are for continuous high-temperature use, every hydronic system can benefit from these butterfly valves for affordable long-lasting performance.

## Greater durability and reliability

Resilient, high-temperature EPDM seat is suitable for continuous 250°F applications

- The high purity, peroxide-cured seat has better shape and memory retention over the service life of the valve
- Molded tongue-and-groove seat design lowers torque and provides bubble-tight shutoff

## Valves tested to 30,000 full strokes, 300,000 repositions and meet ANSI 125 standard

- Siemens valves and actuators are 100% tested from the factory line to assure longer performance and bubble-tight shutoff for 0% leakage
- Lifecycle testing performed at continuous 250°F
- Industrial actuators are tested to 15,000 full strokes and 1.2 million repositions
- OpenAir™ commercial actuators are tested to 1.5 million repositions



Improved seat for longer lifespan.



Siemens offers a 5-year warranty on valves, actuators, damper actuators, sensors, thermostats and meters.

# Resilient Seated Butterfly Valve Features

- 2"–24" sizes (50-610 mm)
- Full cut / under cut discs
- 2-Way / 3-Way assemblies
- ASTM A126 Class A cast iron body
- 316 stainless steel disc (2"–12")
- Electroless nickel plated ductile iron disc (14"–24")
- 416 stainless steel stem
- Heavy-duty acetal stem bearing
- High purity, peroxide cured, high temperature EPDM seat
- -20°F to continuous 250°F (-28°C to 121°C) temperature range
- Nitrile butadiene rubber packing



## Actuator Features

### Commercial OpenAir Series

Fail-safe option provides close-off during power loss.

- GCA Torque: 160 lb-in for sizes 2"–4"
- GIB Torque: 310 lb-in for sizes 2"–6"
- On/off, floating and modulating control signals
- 24 VAC power supply
- NEMA 2 rated
- UL and CE certified
- Manual override capable



GCA Spring Return



GIB Non-Spring Return

### Industrial A-Series

Low profile, compact design directly mounts to valves for easy installation.

Integrated heater included as a standard feature.

Easy manual override.

High visibility position indicator viewable from any angle for quick troubleshooting.

Enclosure built for high impact, heat and chemical resistance.

Lower energy usage on low-torque model.

- Low-torque model: 530 lb-in for sizes 2"–5"; 24 VAC/DC, 120 VAC power supply
- Medium-torque model: 600–18,000 lb-in for sizes 6"–18", 24 VAC/DC, 120 VAC power supply
- High-torque model: 21,300–40,680 lb-in for sizes 20"–24", 120 VAC power supply
- On/Off and modulating control signals
- NEMA 4X rated for use in rugged, outdoor conditions
- ISO 5211 rated
- UL and CE certified



Low-torque model



Medium-torque model



High-torque model

# Resilient Seated Butterfly Valve Selection Guide

All sizes available in 2-way and 3-way configurations

					OpenAir Commercial Actuators		Industrial Actuators			
					Spring Return	Non-Spring Return	Non-Spring Return			
					GCA	GIB	A-Series			
							Low*/ Medium Torque	High Torque		
Size	Full Cut	Under Cut	Disc Material	Resilient Seat Material						
2"	175	N/A	316 Stainless Steel	High Purity, Peroxide Cured, High Temp EPDM	•	•	• (low)			
2.5"	175				•	•	•			
3"	175				•	•	•			
4"	175	•			•	•				
5"	175				•	•				
6"	175	50 PSI			Electroless Nickel Plated Ductile Iron		•	• (med)		
8"	175							•		
10"	175								•	
12"	175								•	
14"	150								•	
16"	150						•			
18"	150					•				
20"	150						•			
24"	150						•			

\* Low torque model is available for sizes 2"-5".

## Valve Sizing Steps

- Determine the designed Cv as follows:**

Q = Flow in gallons per minute (GPM) required to passthrough the valve **550 GPM**

SG = Specific gravity of the fluid (water = 1)

ΔP = Designed pressure drop across the valve inPSI **5 PSI**

Cv = Flow coefficient

$$Cv = \frac{Q\sqrt{SG}}{\sqrt{\Delta P}}$$

**CV=550\*1/(SQRT(5))** **CV=245.9675**

**Note:** for modulating butterfly valves, size for design flow at 60° rotation
- Determine whether the valve should be line sized or sized to match the designed pressure drop**

**Option 1:** On/Off Valves  
Select the valve size to equal the pipe size

**Option 2:** Modulating Valves  
Size the valve for design flow at 60° open
- Determine actual pressure drop as follows:**

$$\Delta P = \left( \frac{Q\sqrt{SG}}{Cv} \right)^2$$

Pressure drop recommended to be no higher than 29 PSI or match the designed pressure drop. 3, 4, 5, and 6 PSI commonly accepted for modulating applications.
- Ensure close-off requirements met.**

## 2-Way Flow Coefficients

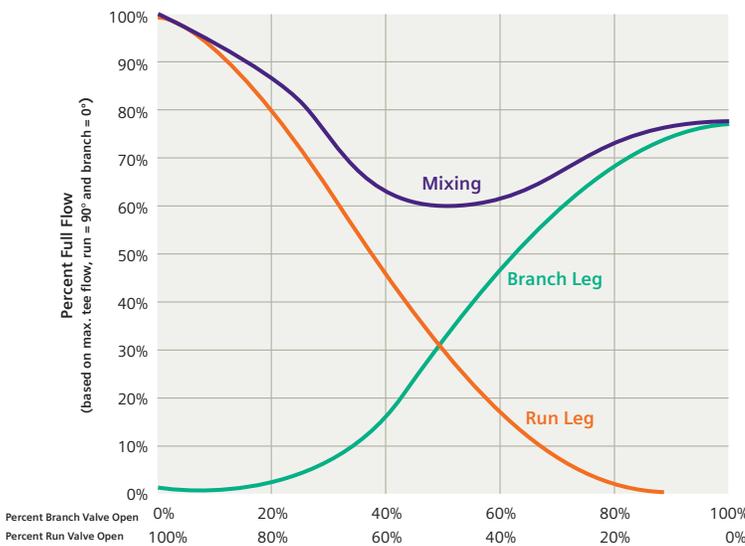
Cv\* at Opening Angles, Two-Way Valves

Valve Size (Inches)	Disc Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	1	7	16	27	43	61	84	114	144
2.5"	1.5	11	24	43	67	107	163	223	282
3"	2	15	35	61	96	154	267	364	461
4"	3	27	62	109	171	274	496	701	841
5"	5	43	98	170	268	428	775	1,146	1,376
6"	6	56	129	225	354	567	1,025	1,542	1,850
8"	12	102	241	421	680	1,081	1,862	2,842	3,316
10"	19	162	382	667	1,076	1,710	2,948	4,525	5,430
12"	27	353	555	1,005	1,594	2,563	4,393	6,731	8,077
14"	34	299	756	1,320	2,149	3,384	5,939	9,974	10,538
16"	45	397	1,001	1,749	2,847	4,483	7,867	11,761	13,966
18"	58	507	1,281	2,237	3,643	5,736	10,062	14,496	17,214
20"	72	632	1,595	2,786	4,536	7,144	12,535	18,112	22,339
24"	259	1,028	2,387	4,244	6,962	11,040	18,235	27,186	33,154

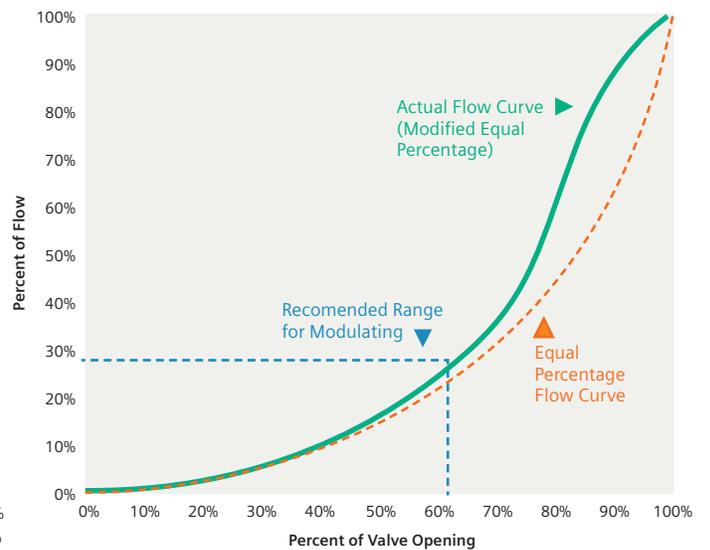
\* Flow Coefficients (Cv) = The amount of water in gallons per minute, at 60°F that will pass through a given orifice with a one-pound pressure drop.

## 3-Way Assembly at Constant Valve Differential Pressure

(corrected for tee loss)



## Equal Percentage Flow Curve Chart



### Free factory assembly and valve tagging

Valves and valve actuators are assembled and tagged for direct delivery to any jobsite, free of charge. All you do is specify each valve's location when placing your initial order and we will tag them before shipping to save you installation time and expense. For questions call **800-516-9964** or email [bgcustomersupport.us.sbt@siemens.com](mailto:bgcustomersupport.us.sbt@siemens.com).

**SIEMENS**  
 B204FC-SA166.600  
 Valve PN: B204F  
 Act PN: A166.600  
 CONFIG: BFV\_2\_CHILLER\_1  
 DATE: xx/yy  
 ORIGIN: CH  
 PO: XXXXXXXX

# Part Number Configuration

Valve and actuator assemblies are available for either standard temperature (intermittent 250°F) operation or high temperature (continuous 250°F) operation.

Standard temperature assemblies can be field upgraded to high temperature at any time simply by updating the actuator. There is no need to remove the valve from the piping.

**SAMPLE:** B 2 02 F C - S A 1 2 6 . 600

**Valve Type**  
 Butterfly

**Action**  
 2 2-Way  
 3 3-Way

**Valve Size**  
 02=2", 25=2.5", 03=3", 04=4", 05=5", 06=6", 08=8", 10=10", 12=12", 14=14", 16=16", 18=18", 20=20", 24=24"

**Disc Type**  
 F Full Cut  
 U Under Cut

**Valve Configuration**  
 3-Way A, B, C, D  
 2-Way O = Normally Open  
 C = Normally Closed  
 M = Valve assembly with manual operator

**Denotes Assembly**

**Application**  
 S Standard Temperature – Intermittent 250°F Operation  
 H High Temperature – Continuous 250°F Operation  
 Blank Siemens Commercial Actuator

**Actuator**  
 A Industrial Actuator  
 GCA Siemens SR Commercial Actuator  
 GIB Siemens NSR Commercial Actuator

**Voltage**  
 1 24V  
 2 120V

**Control Signal**  
 2 2-Position  
 3 Floating (Commercial Actuators only)  
 6 Modulating (0-10V)

**End Switches**  
 1 No Switches  
 6 Switches

**Separator**

**Industrial Actuator Torque (lb-in)**  
 600=600; 1K=1,200; 2K=2,000; 3K=3,000; 5K=5,000; 6K=6,500; 13K=13,000; 18K=18,000; 21K=21,300; 41K=40,680;  
 3U=shaft adapter with 3 foot cable (commercial actuators only).

## More is better with Siemens butterfly valves.

Siemens resilient seated butterfly valves are designed with the best materials to withstand continuous high temperature operation. Built to last, our butterfly valves are built and tested to Siemens standards to exceed hydronic system demands with improved performance, efficiency and value.



### 75+ Years

Innovating control valves



### Quality

Siemens standards



### Better Value

Product lasts even longer



### 100%

Factory tested



### 1.5+ Million

Repositions for longer life



### Up to 30 Thousand

Full strokes

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Buffalo Grove, IL 60089-4513  
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