



Resilient Seated Butterfly Valves

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.

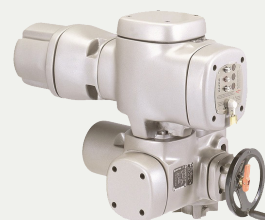
- Low-torque model: 530 lb-in for sizes 2"–5"; 24 VAC/DC, 120 VAC power supply
- Medium-torque model: 600–18,000 lb-in for sizes 6"–18", 24 VAC/DC, 120 VAC power supply
- High-torque model: 21,300–40,680 lb-in for sizes 20"–24", 120 VAC power supply
- On/Off and modulating control signals
- NEMA 4X rated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

| | Close Off Rating (PSI) | | | |  |  |  |  |
|------|------------------------|-----------|---------------------|---|---|---|---|---|
| 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 | | | | • | • (med) | |
| 8" | 175 | | | | | | • | |
| 10" | 175 | | | | | | • | |
| 12" | 175 | | | | | | • | |
| 14" | 150 | | | | Electroless Nickel Plated Ductile Iron | | | • |
| 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 in PSI **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

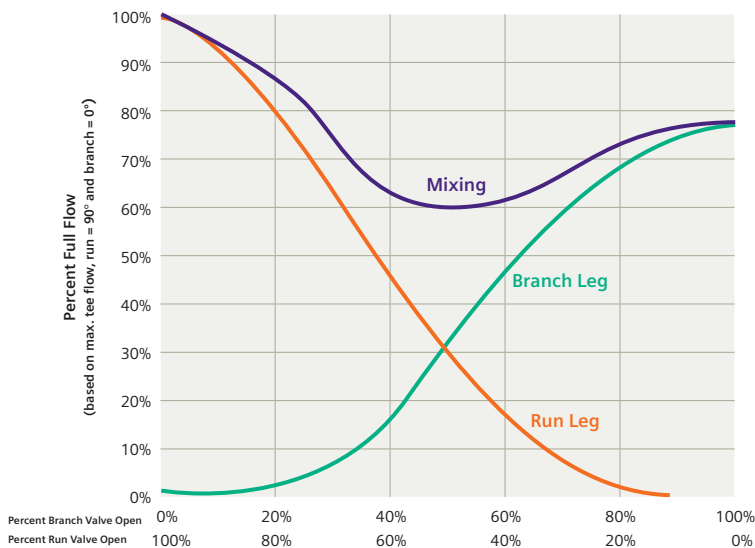
Cv* at Opening Angles, Two-Way Valves

| 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 | 1,812 | 22,339 |
| 24" | 259 | 1,028 | 2,387 | 4,244 | 6,962 | 11,040 | 18,235 | 27,186 | 33,154 |

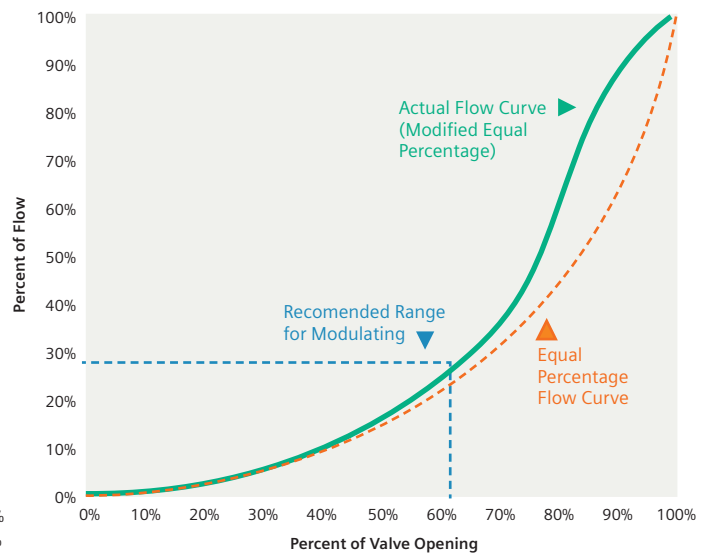
* Flow Coefficients (Cv) = The amount of water in gallons per minute, at 60°F that will pass through a given orifice with a one-pound pressure drop.

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.

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



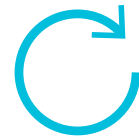
100%

Factory tested



1.5+ Million

Repositions for longer life



Up to 30 Thousand

Full strokes

Siemens Industry, Inc.

Building Products
1000 Deerfield Parkway
Buffalo Grove, IL 60089-4513
USA
Tel. 847-215-1000

Siemens Canada Limited Headquarters

1577 North Service Road East
Oakville, ON L6H 0H6
Canada
Tel. 905-465-8000

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