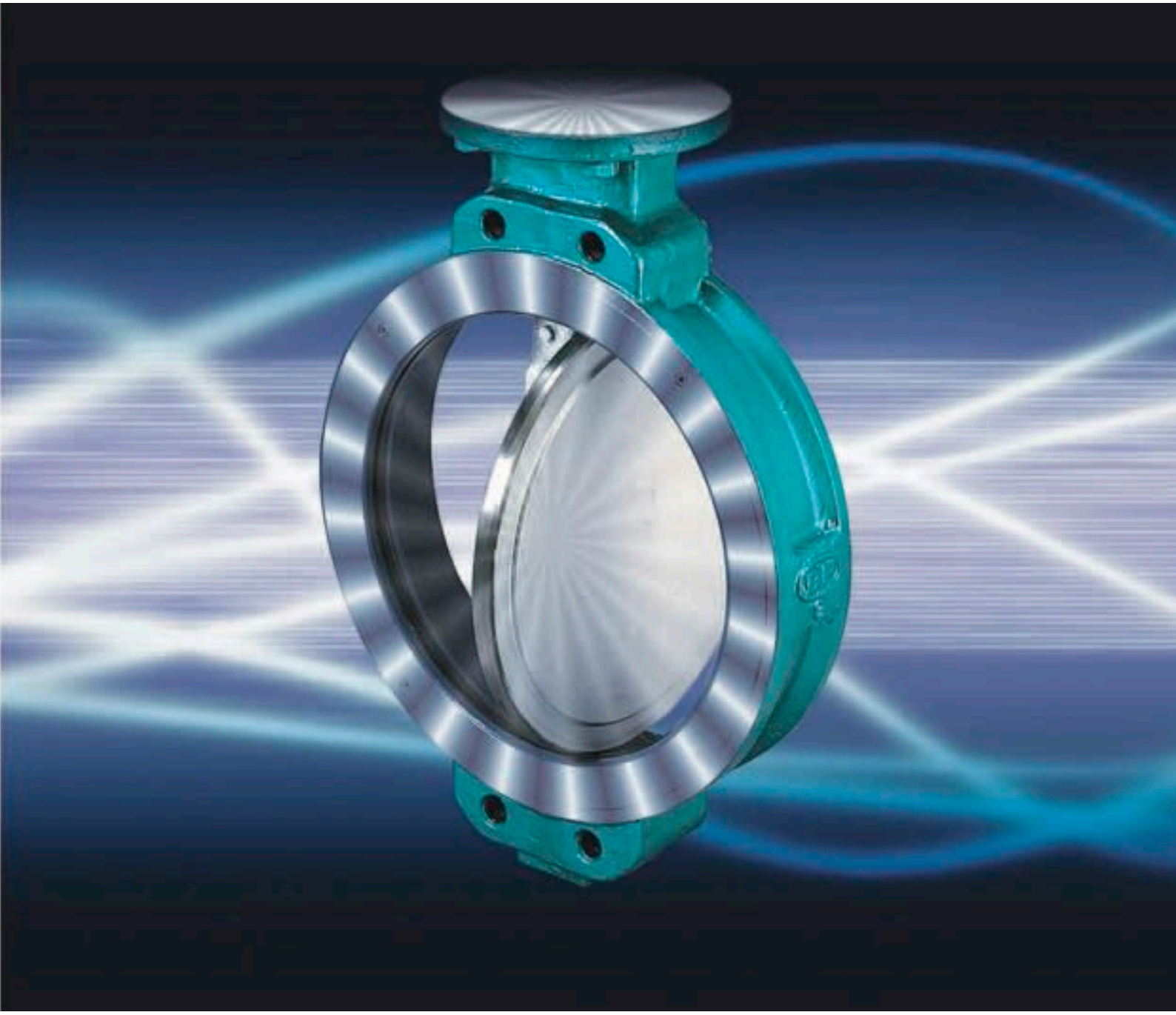
BUTTERFLY VALVES

Butterfly valves & Dampers



BF KOGYO KAISHA LTD.

Our unrivaled high performance, high quality butterfly valves and dampers control all types of liquid and gaseous flow — supporting the present and the future of industry

Since its establishment, BF Kogyo has constantly been at the forefront in valve technology and our ability to respond to customer needs allows us to provide strong support for all industrial sectors in Japan and worldwide.

By utilizing the advanced technology and know-how we have accumulated, and our extensive experience, we contribute to the further advancement of industry. And through our work and products, we are actively contributing to minimizing industry's load on the environment.

We never forget the essential nature of valves and we believe in their limitless possibilities, and based on this we are committed to providing high quality products to industry, something only BF Kogyo can do.

Our policy

1. We contribute to society by aiming for "Company-wide Management Participation", and supplying products that fully satisfy customers. In this way, we benefit customers, shareholders, employees, and the company.
2. We seek to foster wisdom, to enhance our technology and work skills, and to attain harmony and coordinated action. We are committed to ensuring the constant advance of the industrial sector by fully utilizing our integrated strengths.
3. Management executives must always take responsibility for every aspect of management, and endeavor to ensure the continued existence and expansion of the company.

Formulated March 1, 1988

Product Index

Butterfly Valves (Tight shutoff type)

Butterfly Damper (Low leakage type)

TDtype

● Size:80A~1,000A
Wafer type, used as a control valve····· p12

SDtype

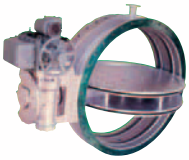
● Size:200A~2,400A (We also make square configuration)
Fabricated from steel plate and used for ON-OFF control of various gases and air flows····· p13

Dtype

● Size:300A~2,400A (We also make square configuration)
This airtight damper, made of steel plate, is used mainly as a shutoff valve for high temperature gases and air····· p14

Special Valves

SWptype



● Size:650A~2,400A
This steel plate valve has two discs inside the valve completely shutting off gas flow····· p15

CDtype

● Size:100A~2,400A (We also make square configuration)
This is a non-return gravity damper used for blower outlets as well as for transfer····· p15

■ BF Kogyo Butterfly Valves···

BF Kogyo is a pioneer in the valve sector and it was the first company in Japan to develop tight shutoff type butterfly valves. Since then we have achieved a wide array of technological innovations, and we have earned a high reputation, not only in Japan, but also in the Middle East and many Asian and oceanic nations. Our Butterfly Valve products give high performance service in many sectors such as general industrial use, nuclear, thermal power generation facilities, a sector requiring stringent conditions, and in harsh environments including tankers and steelworks.

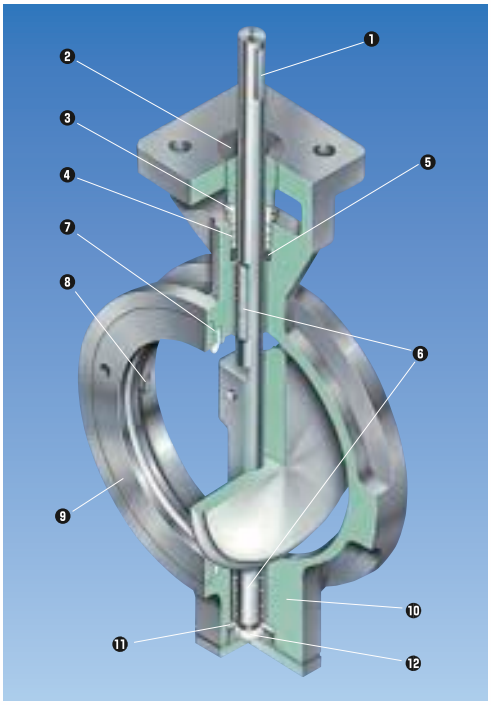
■ BF Kogyo Butterfly Dampers···

Butterfly dampers are used as control valves, and this is another area where our technological strengths are deployed. We offer an extensive lineup able to respond to a broad spectrum of conditions such as high temperature, high pressure and high flow speed lines, high seal tightness and corrosion resistance. They provide accurate control for fluid flows requiring special conditions. The quality and reliability of our dampers has earned them a high reputation in many industrial sectors.

Double eccentric structure, facilitating lightweight, compact form and easy maintenance. This is BF Kogyo's leading product featuring excellent operability and durability.

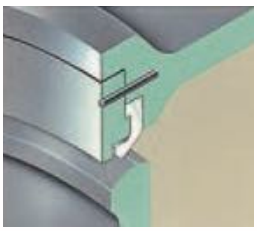
Btype

This is a highly innovative valve that achieves both robustness and lightness. It has a double eccentric structure enabling total tightness and low torque. This facilitates greater operability, longer seat life and a major decrease in maintenance as well as high cost performance. It is used in various industries including the chemical, nuclear power, steelmaking and air conditioning sectors.



❶Key way
It allows easy assembly and disassembly of all types of actuator
❷Gland follower
❸Packing gland
❹Gland packing
❺Adapter
❻Upper and lower bearings
The bearings are of Teflon coated stainless steel mesh construction to ensure smooth and reliable shaft movement with balanced contact between disc and seat resulting in lower toque.
❼Seat
❽Disc stopper
❾Seat retainer
Integral with retainer plate. Plate is located by.
❿Body
Slim wafer pattern for easy mounting between flanges to specification
⓫Thrust ring
⓬Thrust piece

● **Rubber seat**
Inner core metal with rubber vulcanized to metal shaped one piece with retainer.



● **Teflon seat**
Applicable to almost all corrosive fluids thanks to Teflon's anti-corrosive characteristic.

● **Metal seat**
Metals are nitrided for hardening improving wear and seating. Uses are special fluids and higher temperatures.

● Standard specifications

Size:80A～300A

Working pressure:MAX.1.0MPa

Flanges:JIS, ANSI

● Standard materials（JIS code）

Body:FCD450-10,SCS13,SCS14,SCS16

Disc:SCS13, SCS14, SCS16

Shaft:SUS304, SUS316, SUS316L

※The materials of the body, disc and shaft can be chosen freely as required.

● Standard test pressure （hydraulic pressure）

Body shell:1.5MPa

Seat:1.1 MPa

● Seat materials

NBR:－10～80°C

EPDM:－10～120°C

FKM:－10～150°C

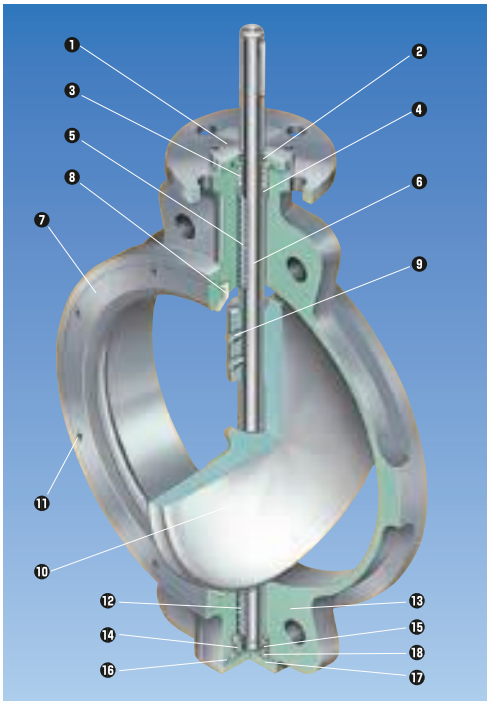
PTFE:－20～180°C

METAL:－20～200°C

High performance tight shutoff butterfly valve.
Light duty type developed for medium and low-pressure use.

Etype

A light duty type tight shutoff butterfly valve used for tap water, building air conditioning, gas, chemicals, and waste disposal facilities.
As it is a low torque type, it also gives excellent performance for air and gas lines.



❶Gland bush	❿Disc
❷O-Ring	⓫Seat retainer bolt
❸Gland packing	⓬Lower bearing
❹Adapter	⓭Body
❺Upper beating	⓮Thrust block
❻Shaft	⓯Block set pin
❼Seat retainer	⓰Bottom cover gasket
❽Seat	⓱Bottom cover
❾Disc set pins	⓲Thrust bearing

●Standard specifications

Size:50A, 65A, 350A~1,000A

Working pressure:

MAX.0.5MPa（350A～600A）

MAX.0.3MPa（650A～1,000A）

Flanges:JIS, DIN, ANSI, AS, BS

●Standard materials（JIS code）

Body:FC200, FCD450-10,SCS13, SCS14, SCS16

Disc:FC200, FCD450-10,SCS13, SCS14, SCS16

Shaft:SUS403, SUS304, SUS316, SUS316L

※The materials of the body, disc and shaft can be chosen freely as required.

●Rubber Seats
These seats have a metal core coated with seating material.

●Teflon Seats
These high performance seats work well with a wide range of fluids (Especially corrosive fluids)

●Metal Seats
Made of nitriding-hardened stainless steel and are the ideal choice for high temperature and special fluids

●Standard test pressure
（hydraulic pressure）

Body shell:0.75MPa(0.45MPa)

Seat:0.55MPa(0.33MPa)

●Seat materials

NBR: −10～80°C

EPDM: −10～120°C

FKM: −10～150°C

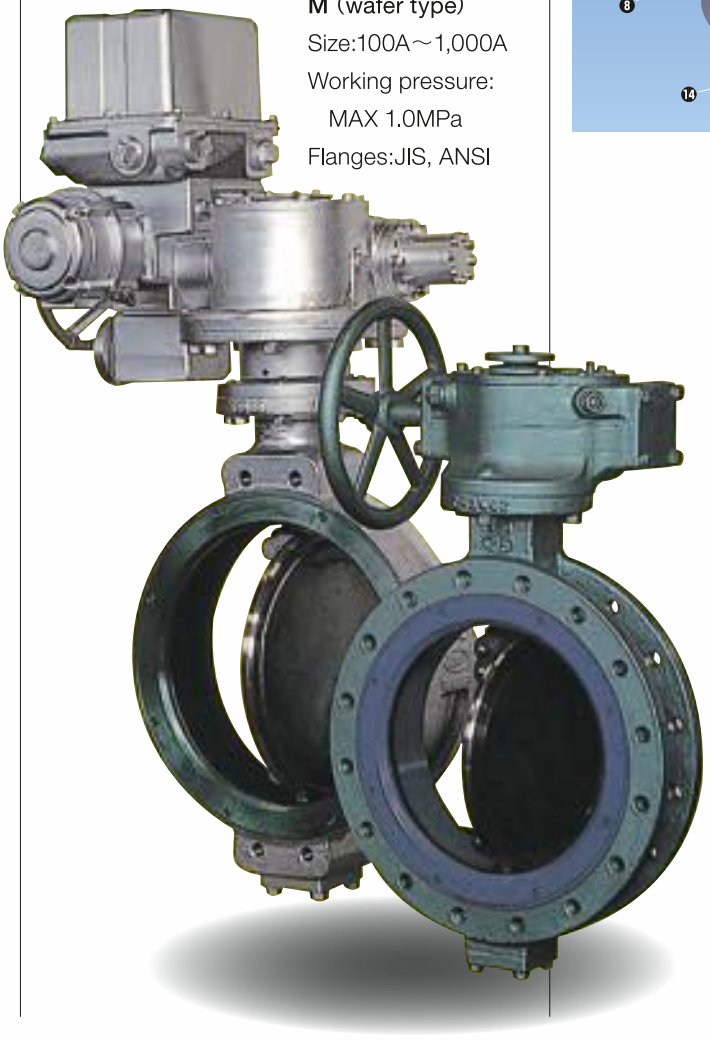
PTFE: −20～180°C

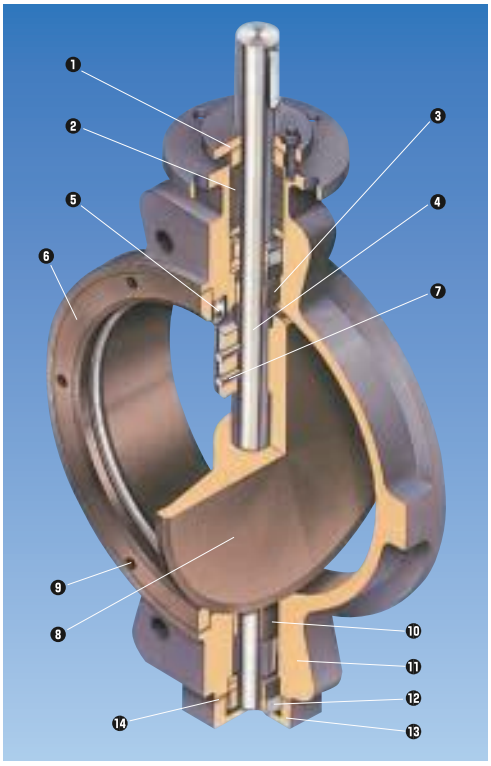
METAL: −20～200°C

A high performance butterfly valve ideal for high temperature, high pressure and high flow speed lines. A wide range of sizes is provided responding to numerous requirements.

M type

Ideal for high pressure, high temperature and high flow speed lines.
We offer both wafer and flange types. This valve has a double eccentric structure ensuring long service life and low torque. It is used extensively as a ship valve





For high temperature

❶Gland bush
❷Gland packing
❸Upper bearing
❹Shaft
❺Seat
❻Seat retainer
❼Disc set pins
❽Disc
❾Seat retainer bolt
❿Lower bearing
⓫Body
⓬Thrust block
⓭Bottom cover
⓮Bottom cover gasket

● **Standard specifications**

M (wafer type)
Size:100A～1,000A
Working pressure:
MAX 1.0MPa
Flanges:JIS, ANSI

M16 (wafer type)
Size:100A～1,000A
Working pressure:MAX 1.6MPa
Flanges:JIS

MF (flange type)
Size:150A～1,000A
Working pressure:MAX 1.0MPa
Flanges:JIS, ANSI

MF16 (flange type)
Size:250A～1,000A
Working pressure:MAX 1.6MPa
Flanges:JIS

● **Standard materials**(JIS code)

M (wafer type)
Body materials:FC200, SCPH2, SCS13, SCS14, SCS16
Disc materials:SCPH2, SCS13, SCS14, SCS16

M16 (wafer type)
Body materials:FC200, SCPH2, SCS13, SCS14, SCS16
Disc materials:SCPH2, SCS13, SCS14, SCS16

MF (flange type)
Body materials:SCPH2, SCS13, SCS14, SCS16
Disc materials:SCPH2, SCS13, SCS14, SCS16

MF16 (flange type)
Body materials:SCPH2, SCS13, SCS14, SCS16
Disc materials:SCPH2, SCS13, SCS14, SCS16

※The materials of the body, disc and shaft can be chosen freely as required.
※The flange type obtains the recognition of the model of various classifications.

● **Standard test pressure** (hydraulic pressure)

M, MF
Body shell:1.5MPa
Seat:1.1 MPa

M16, MF16
Body shell:2.4MPa
Seat:1.8 MPa

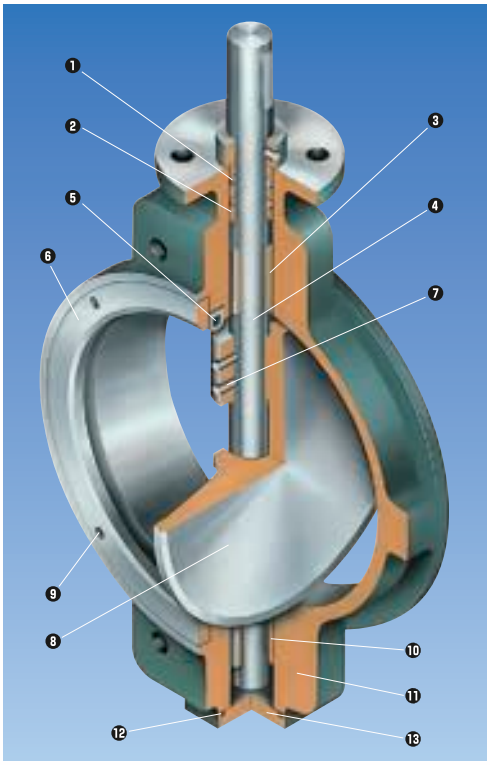
● **Seat materials**

NBR: −10～80°C
EPDM: −10～120°C
FKM: −10～150°C
PTFE: −20～180°C
METAL: −20～450°C

The standard valve for ships. A compact and lightweight butterfly valve with enhanced tightness and easy operation. It has a double eccentric structure, which eliminates local seat wear and ensures long service life.

Gtype

The standard type of valve for ships. The valve's original features have been preserved, and it now also features a more compact and lighter construction, and its tightness and operability have also been improved. The maximum working pressure is 1.6 MPa. It is also used for general industrial purposes. It has obtained model authorization of various ship classifications such as Lloyd, ABS and NK.



❶Gland packing
❷Thrust block
❸Upper bearing
❹Shaft
❺Seat
❻Seat retainer
❼Disc set pins
❽Disc
❾Seat retainer bolt
❿Lower bearing
⓫Body
⓬Bottom cover gasket
⓭Bottom cover

●Standard specifications

G (wafer type)
Size:80A～1,000A
Working pressure:MAX 1.0MPa
Flanges:JIS

G16 (wafer type)
Size:80A～1,000A
Working pressure:MAX 1.6MPa
Flanges:JIS

●Standard materials(JIS code)

G (wafer type)
Body materials:FC200, SCPH2, SCS13, SCS14, SCS16
Disc materials:SCPH2, SCS13, SCS14, SCS16
Shaft materials:SUS403, SUS431, SUS304, SUS316, SUS316L

G16 (wafer type)
Body materials:FC200, SCPH2, SCS13, SCS14, SCS16
Disc materials:SCPH2, SCS13, SCS14, SCS16
Shaft materials:SUS403, SUS431, SUS304, SUS316, SUS316L

●Standard test pressure (hydraulic pressure)

G
Body shell:1.5MPa
Seat:1.1 MPa

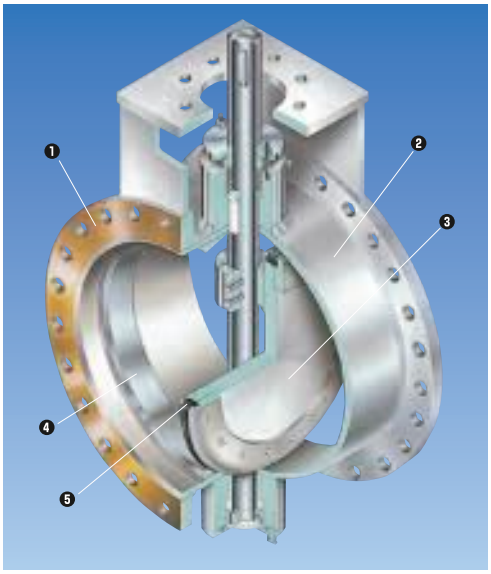
G16
Body shell:2.4MPa
Seat:1.76 MPa

●Seat materials
NBR: −10～80°C
EPDM: −10～120°C
FKM: −10～150°C
PTFE: −20～180°C
METAL: −20～200°C

Steel welded perfectly tight closure valve featuring large size, lightweight, short delivery time and low cost.
It is suitable for the control of large volumes of air, gases and water.

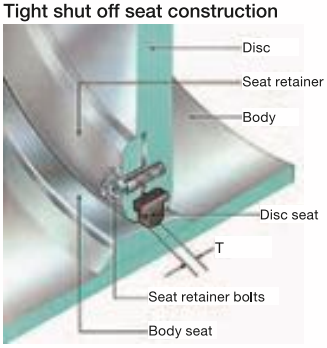
SRptype

A valve made of steel plate corresponding to all flange standards
Face to face dimensions can be made to user specifications. It is particularly suitable for lines requiring large size valves such as those for waste gas in steel mills, heat ventilation air conditioning in power stations, and solvent recovery in chemical plants.



❶Flanges
❷Body
❸Disc
❹Body seat (SUS)
❺Disc seat

Tight shut off seat construction



- Disc seat—jointless seat rings.
- Disc seat—exposed by tightening and contracted when bolts loosen.
- Seat contact width—"T", can be fine adjusted in position by tightening or loosing the retainer bolts.
- Variation to form the most suitable contact width to meet present flow pressure without unnatural friction, but keeping perfect sealing and torque for longer lasting seal line.

※In occasion of replacing disc seat, you can be easily replaced inside the pipe without removing valve itself from the pipe line.

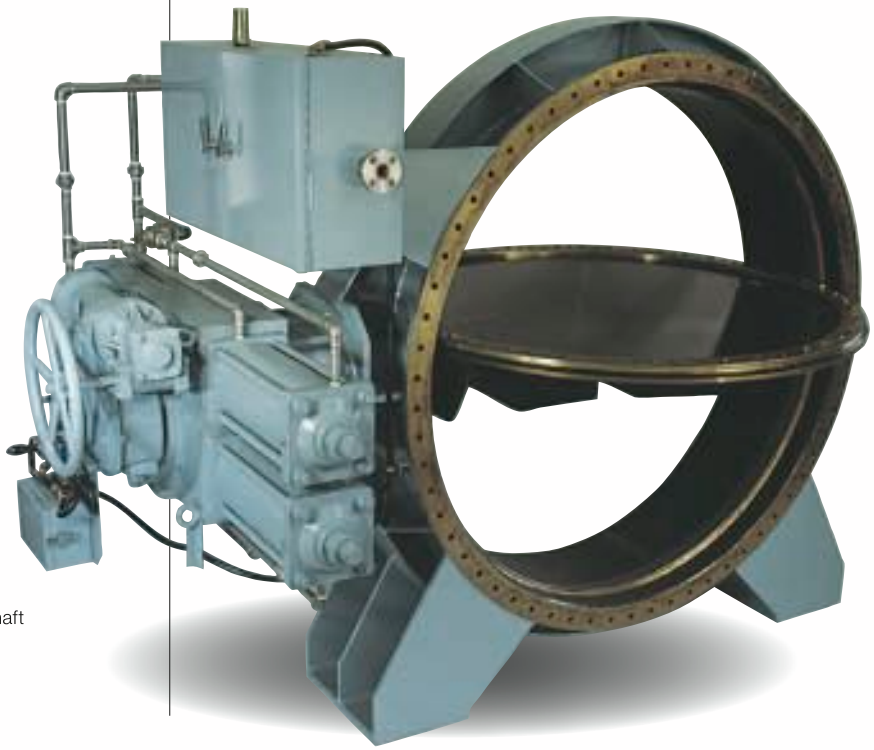
●Standard specifications
Size:650A～2,400A
Working pressure:MAX 0.05MPa
（Special MAX 0.5MPa）
Flanges: ANSI , BS, AS, DIN, JIS, Special

●Standard materials (JIS code)
Body:SS400, SUS304,
SUS316, SUS316L
Disc:SS400, SUS304,
SUS316, SUS316L
Shaft:SUS403, SUS304,
SUS316, SUS316L

●Seat materials
NBR:－10～80°C
EPDM:－10～120°C
FKM:－10～150°C
PTFE:－20～180°C

●Standard test pressure (hydraulic pressure)
Body shell : Max. allowable pressure×1.5
Seat : Max. allowable pressure ×1.1

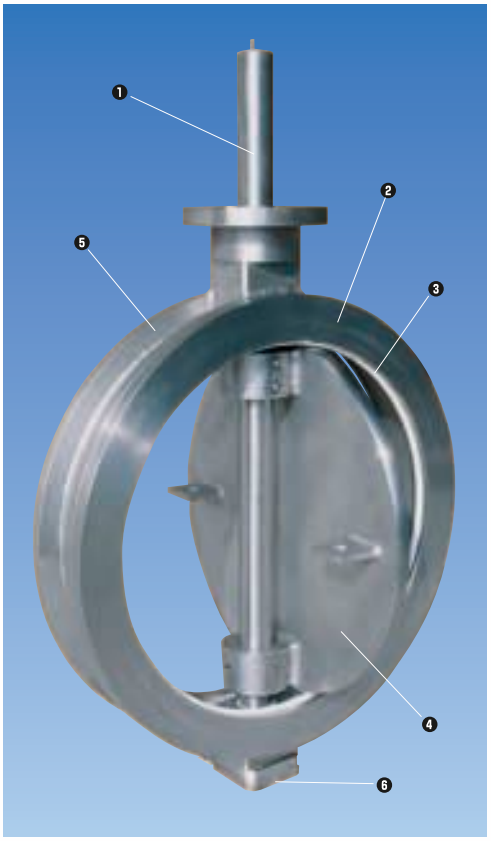
※The materials of the body, disc and shaft can be chosen freely as required.



This titanium valve gives excellent anti-corrosion properties and great strength. This is a top class valve fabricated utilizing welding know-how accumulated over many years.

Ti type

This top class titanium valve is used under very severe conditions where high quality is required. This valve has been created utilizing welding know-how accumulated over many years, and is fabricated under strict oxygen concentration control conditions. This has resulted in a valve that has earned an outstanding reputation for reliability due to its excellent performance and quality, far ahead of any other valve manufacturer.



❶Shaft
❷Seat retainer
❸Seat
❹Disc
❺Body
❻Bottom cover

● Standard specifications

Size:80A～600A

Working pressure:MAX 0.5MPa

Working temperature:MAX 180°C

Flange:JIS, ANSI

● Standard materials (JIS code)

Body:Titanium

Disc:Titanium

Shaft:Titanium

● Seat materials

PTFE: −20～180°C

● Standard test pressure (hydraulic pressure)

Body shell : Max allowable pressure ×1.5

Seat : Max allowable pressure ×1.1

Small size, large volume wafer type butterfly damper.
It gives excellent controllability and responds to the needs of a wide range of industries.

TDtype

This wafer type damper is economical, simple and compact. It is used as a control valve in combination with a diaphragm actuator, an air cylinder and a positioner. It gives outstanding controllability from low temperatures to ultra high temperatures.

❶High range ability
❷Big reduction in size
The hydrodynamic configuration of the disc keeps the flow resistance at a minimum level when the valve is fully open. This valve has twice the CV of glove valves.
❸The body is slim, lightweight and compact.
❹Clearance between body and disc
Although it is a damper type, it has a low leakage structure (0.5 to 2% of rated CV). Stable control is effected allowing the fitting of a compact actuator.

Structure of high temperature gland (251°C～350°C)

Structure of ultra high temperature gland (351°C～800°C)

- We supply two types of gland units for high temperature valves depending on the temperature conditions, as shown on the above.
- The high temperature and ultra high temperature types take the expansion of the shaft into consideration, and a vertical (upper and lower) gland system is employed.
- In the ultra high temperature type, a stuffing box is also fitted and gland packing is installed.
- The above structures have been developed based on many years of operational experience. A totally sealed structure is employed which prevents external leakage from the gland due to the effects of heat.

●Standard specifications

Size:80A～1,000A

Working pressure:MAX 1.0MPa

Working temperature:MAX 800°C

Flange: JIS, ANSI

●Standard test pressure (hydraulic pressure)

Body shell : Max. allowable pressure ×1.5

●Standard materials (JIS code)

Body:SCPH2, SCS13, SCS14, SCS16

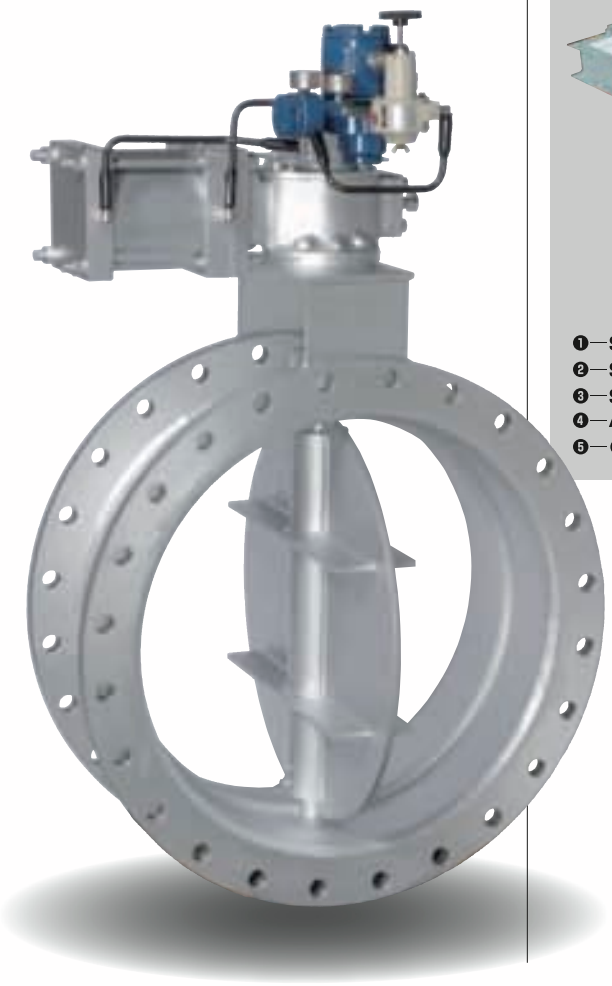
Disc:SCPH2, SCS13, SCS14, SCS16

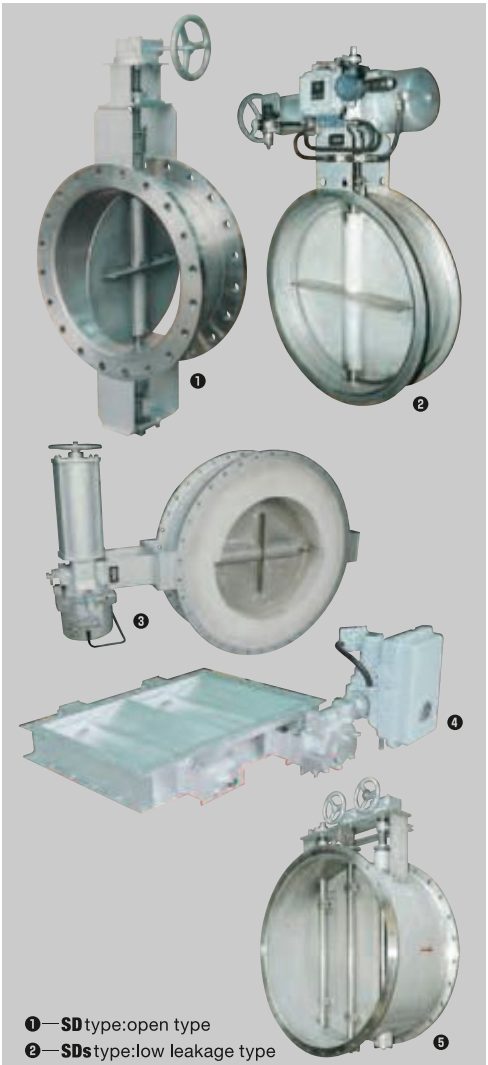
Shaft:SUS304, SUS403, SUS316, SUS316L

Lightweight, low cost steel damper that enables users to select size, dimensions and material according to applications.

SDtype

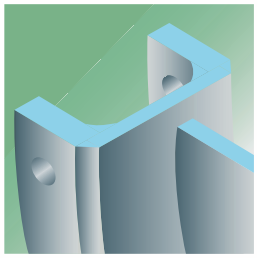
This is a butterfly damper type featuring a steel plate welded structure.
It is used for ON-OFF and control of the flow of various gases and air.
As there is no need for the wooden or metal molds normally used in the manufacturing process, a louver damper can also be fabricated.





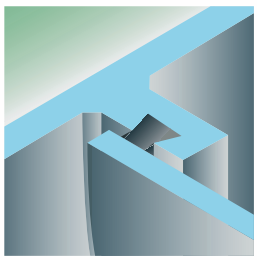
❶—**SD** type:open type
❷—**SDs** type:low leakage type
❸—**SDs-AS** type:high temperature type
❹—**Angular louvers** type:low leakage type
❺—**Circular louvers** type:low leakage type

Seat structure



●**Type：open type**
Seat：no seat
Leakage rate：about 5% of rated Cv at closed position

●**Type：low leakage type（S）**
Seat：step seat
Leakage rate：about 3% of rated Cv at closed position



●**Type：low leakage type（P）**
Seat：Packing seat
Leakage rate：about 2% of rated Cv at closed position

※**We also manufacture other low leakage types by demand (Cv:0.1%)**

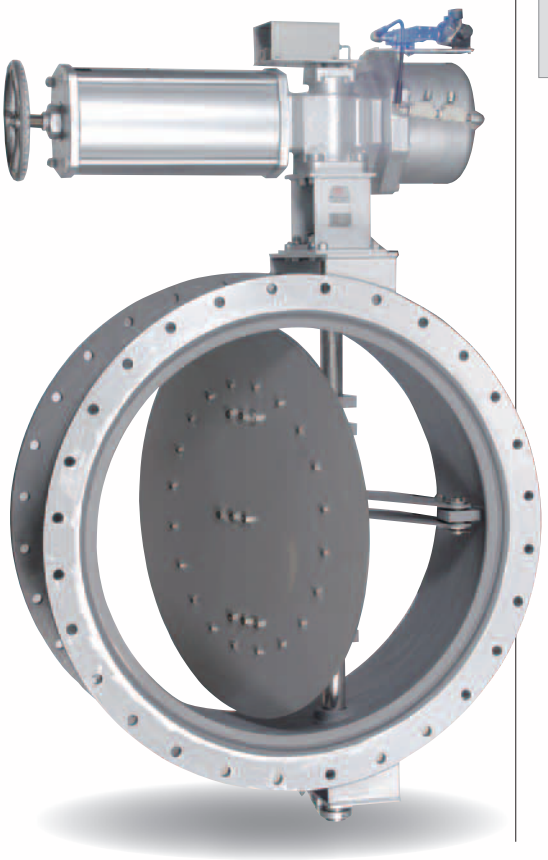
●Standard specifications

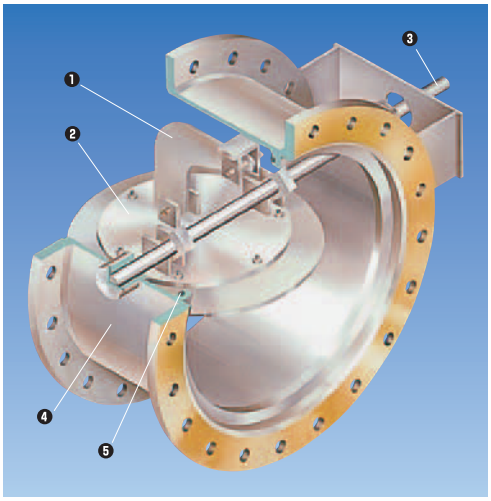
Size:200A～2,400A
（Square type is aiso available）
Materials:SS400, S-Ten（JIS code）,
SUS304, SUS316, SUS316L, SUS310S
Disc sheet:Louvers single, double, multiple
Working pressure:MAX 0.05MPa
Working temperature:MAX 900°C
Form:Wafer and Flange
（Steel, JIS2K, 5K, etc）

This steel plate shutoff valve features lightweight, low cost and high air-tightness. It gives absolute seal tightness for gases and air from room temperature to ultra high temperatures.

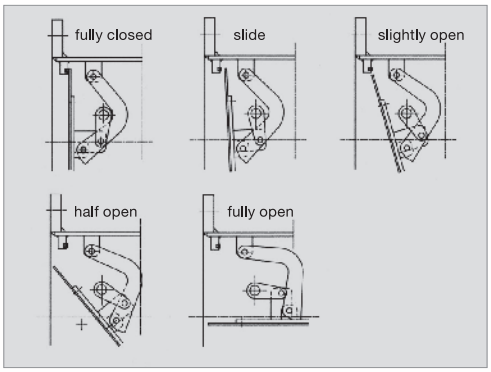
Dtype

This steel plate airtight damper is mainly used as a shutoff valve for high temperature gases (600°C max.) and gives unrivaled sealing performance.
It is used for a wide range of applications including steel works, boiler equipment, fumigation equipment, smoke collector ducts, and solvent recovery.





❶Guide lever
❷Disc
❸Shafy
❹Body
❺Seat



←The D series tight shutoff damper valve disc rotates and slides simultaneously by turning the shaft 90° thanks to its mechanical structure system.

● Standard specifications
Size:300A～2,400A (Square type is also available)
Working pressure:MAX 0.05MPa
Working temperature:MAX 600°C
Flange: JIS, ANSI, Special

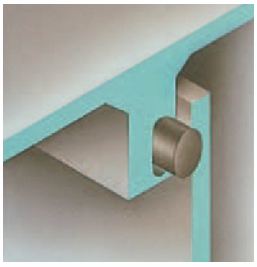
● Standard test pressure (pneumatic)
Body shell : Max. allowable pressure ×1.5
Seat : Max. allowable pressure ×1.1

● Standard materials (JIS code)
Body:SS400, SUS304, SUS316, SUS316L
Disc:SS400, SUS304, SUS316, SUS316L
Shaft:SUS304, SUS403, SUS316, SUS316L

● Seat materials
NBR: MAX 80°C
EPDM: MAX 120°C
FKM: MAX 150°C
PTFE: MAX 200°C
NON A: MAX 600°C
METAL: MAX 600°C

Seat structure

● Non-asbestos



● Rubber, Teflon, etc

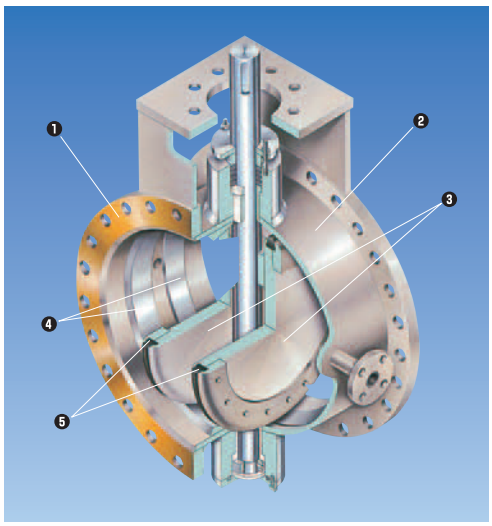
● Metal seat

Original innovative BF Kogyo water seal valve.

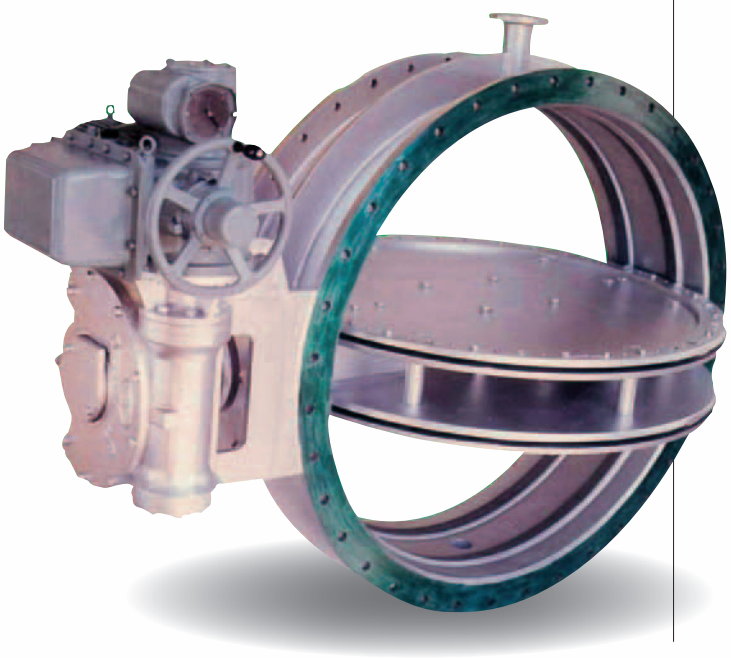
Used extensively in nuclear power plants where very exacting quality control is required.

SWptype

A special structure is employed with two discs inside the valve. Water is trapped between the two discs completely shutting off gas flow in this butterfly water trap valve. It has an extensive track record of use in diverse gas lines of many steel works for emergency shutoff use.

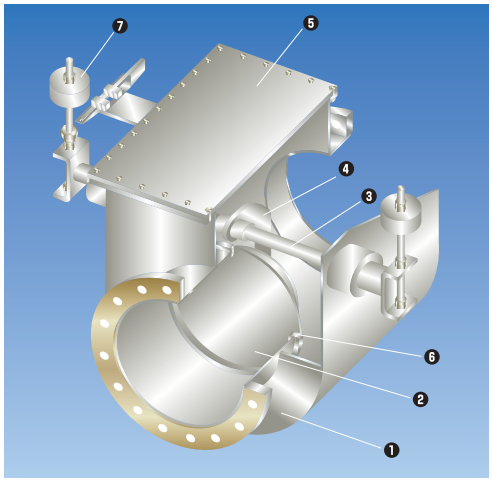


❶Flange
❷Body
❸Disc
❹Body seat (SUS)
❺Seat



CDtype

A steel plate damper available with either round or square pipe connection ends. This non-return gravity damper is mainly used in nuclear power facilities for ventilation and air conditioner outlets as well as for transfer. It is equipped with an easily adjustable balance weight to balance the impeller blade gravity and operates reliably on even a slight pressure difference.



❶Flange
❷Disc
❸Shaft
❹Lever
❺Bonnet
❻Seat
❼Counter weight

Standard selection chart of actuators and seats

Actuators

manual

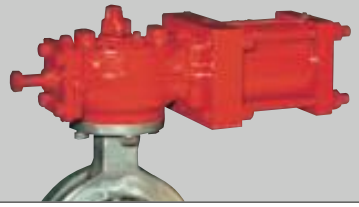
L type: Lever

HW type: Worm Gear
HWC type: Chain Operating

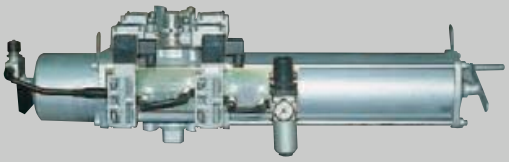
SH type: Screw Gear

pneumatic

FA type: Double Acting



AS type: Single Acting (Spring Return)



electric

E type: Electric Mortor

※In addition, various actuators can be attached.

accessories (options)

H : Handle　P : Positioner　LS : Limit Switch　AR : Air Set　others : It is possible that many kinds of instrumentation production are equipped.

standard selection chart of seat

Heat resistant

Materials	NBR	EPDM	FKM	PTFE	METAL
＜70°C	◎	○	○	○	○
＜120°C	×	◎	○	○	○
＜180°C	×	×	○	◎	○
＞180°C	×	×	△	△	◎

◎ :Use is possible (Recommendation material)
○ :Use is possible
△ :Conditional use is possible
× :Use is impossible
Please use this selection table as a standard of material selection.
There is a case that conditions of a sheet is changed　by temperature, humidity, concentration, etc.

Anticorrosive Properties

Fluids	Materials	NBR	EPDM	FKM	PTFE
Gases	Air	◎	○	○	○
	City gas	◎	○	○	○
	Coke-oven gas	△	×	◎	○
	Chlorine gas	×	×	△	◎
	Sulfurous acid gas	△	△	◎	○
	Carbon dioxide gas	◎	○	○	○
	Steam	×	○	×	◎
Liquids	Fresh water	◎	○	○	○
	Sea water	◎	○	○	○
	Crude oil	◎	×	○	○
	Fuel oil	◎	×	◎	○
	Light oil	◎	×	◎	○
	Kerosene	◎	×	◎	○
	Naphtha	△	×	◎	○
	Gasoline	×	×	◎	○
	Lubrication oil	◎	×	○	○
	Turbine oil	◎	×	○	○

Standard Specifications Chart
(Butterfly Valves and Butterfly Dampers)

BUTTERFLY VALVES BF

Valve type		Size	Maximum working pressure	Maximum working temperature range
Tight shutoff	B type	80A～300A	Max1.0MPa	Max200°C
type	E type	350A～1000A	Max0.5MPa (350A～600A), Max0.3MPa (650A～1000A)	Max200°C
	M type	100A～1000A	Max1.0MPa (M16 type: Max. 1.6MPa)	Max450°C
	G type	80A～1000A	Max1.0MPa (G16 type: Max. 1.6MPa)	Max200°C
	SRp type	650A～2400A	Max0.05MPa (Special: 0.5 MPa)	Max180°C
	SWp type	650A～2400A	Max0.05MPa	Max150°C
	Ti type	80A～600A	Max0.5MPa	Max180°C
Normal shutoff	TD type	80A～1000A	Max1.0MPa	Max800°C
type	SD type	200A～2400A	Max0.2MPa	Max800°C
	D type	300A～2400A	Max0.05MPa	Max600°C
	CD type	100A～2400A	Max0.05MPa	Max150°C

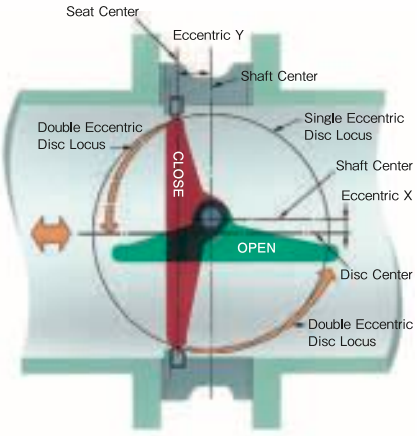
Valve type	Valve casing materials	FC200				FCD450-10			SCPH2	
	Valve disc materials	FC200	FCD450-10	SCPH2	SCS13	FCD450-10	SCPH2	SCS13	SCPH2	SCS13
Tight shutoff	B type	–	–	–	–	○	–	–	–	–
type	E type	○	○	–	○	○	–	○	–	–
	M type	–	–	○	○	–	○	○	○	○
	G type	–	–	○	○	–	○	○	○	○
	SRp type	SS400, SUS304, SUS316 Others								
	SWp type	SS400, SUS304, SUS316 Others								
	Ti type	Titanium								
Normal shutoff	TD type	○	–	○	○	–	–	–	○	○
type	SD type	SS400, SUS304, SUS316 Others								
	D type	SS400, SUS304, SUS316 Others								
	CD type	SS400, SUS304, SUS316 Others								

Valve type	Valve casing materials	SCS13	SCS14	SCS16	Seat material				
	Valve disc materials	SCS13	SCS14	SCS16	NBR	EPDM	FKM	PTFE	METAL
Tight shutoff	B type	○	○	○	○	○	○	○	○
type	E type	○	○	○	○	○	○	○	○
	M type	○	○	○	○	○	○	○	○
	G type	○	○	○	○	○	○	○	○
	SRp type	SS400, SUS304, SUS316 Others			○	○	○	○	–
	SWp type	SS400, SUS304, SUS316 Others			○	○	○	○	–
	Ti type	Titanium			–	–	–	○	–
Normal shutoff	TD type	○	○	○					
type	SD type	SS400, SUS304, SUS316 Others							
	D type	SS400, SUS304, SUS316 Others							
	CD type	SS400, SUS304, SUS316 Others							

●We also manufacture special specification valves other than those shown above.

Double eccentric disc structure

Tight Shut off Type



● Double eccentric disc construction

Fig.1 shows the position of disc and shaft when closed / seated and open-double eccentric.

● Tight shut off

This double eccentric principle along with BF's fine and tight manufacturing tolerances allow an equal contact between disc and seat over the broadest range of pressures and temperature. The elasticity of seat materials coupled with the fluid flow dynamics of the double eccentric disc ensure tight shut off.

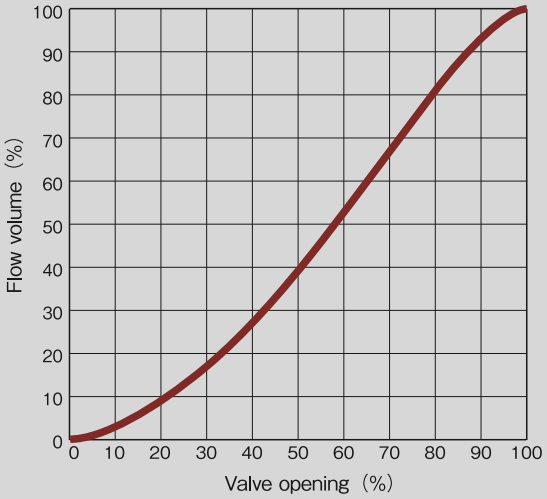
● Seat life

Only opening of the disc clears the seat. This allows clean tight shut off, no "drag" or "wear" on seat face. Life of seat is extended resulting in lower maintenance costs.

● Lower torque

An improvement to torque results from double eccentric disc arrangement, as the disc is in equal balance clearing the seat. The bearings (Teflon coated stainless steel mesh) located at top and bottom of shaft ensure an equal load and smooth operation on shaft.

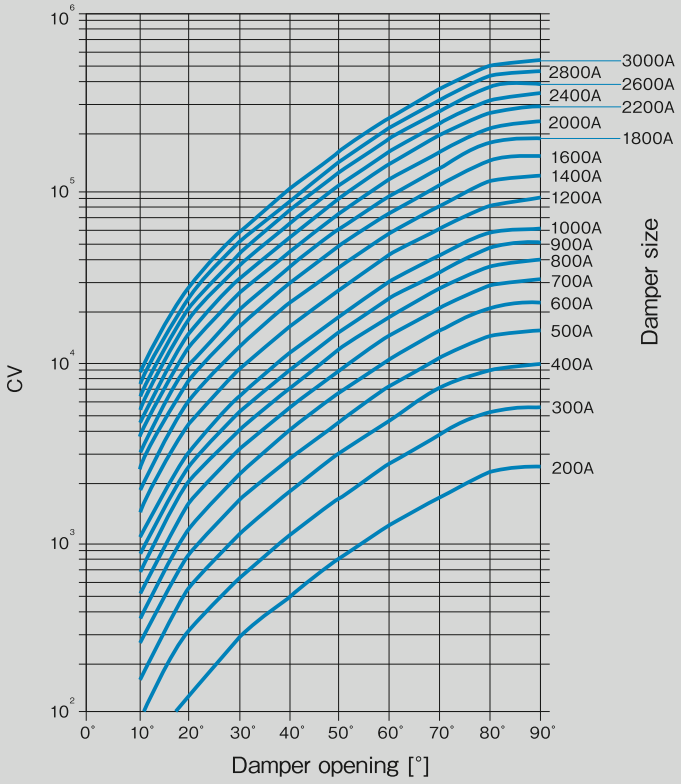
Flow curve



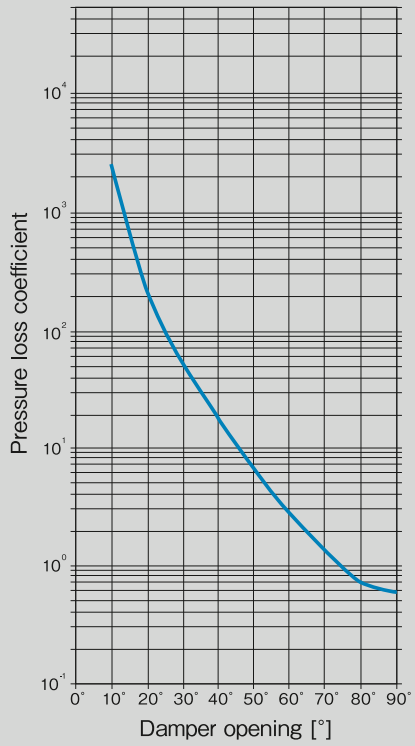
Reffence

Reffence data

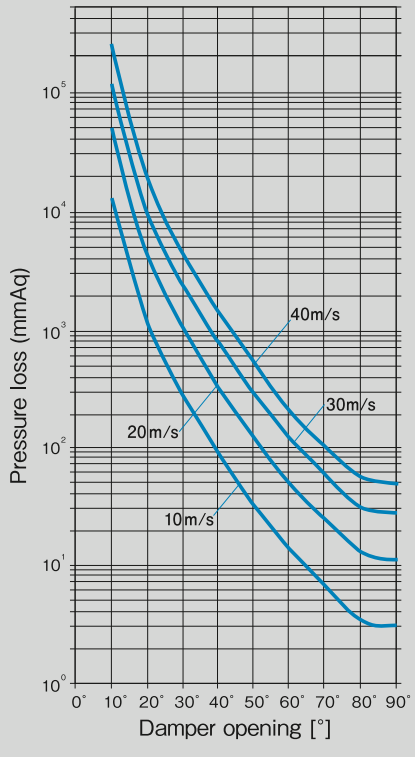
CV curve



Pressure loss coefficient



Pressure loss



CV Value Calculation Formula

Specifications	$P_2 > \frac{P_1}{2}$, $\Delta P < \frac{P_1}{2}$	$P_2 < \frac{P_1}{2}$, $\Delta P > \frac{P_1}{2}$
Water	$CV = 11.6Qt\sqrt{\frac{Gt}{\Delta P}}$	⟶
Gas	$CV = \frac{Qg}{2.78}\sqrt{\frac{Gg\,(273+t)}{\Delta P\,(P_1+P_2)}}$	$CV = \frac{Qg}{2.43P_1}\sqrt{Gg\,(273+t)}$

Qt (m^3/h) : Fluid flow rate
Qg (m^3/h) : Gas flow rate (at 150C 760mm Hgab)
P_1 (kPa) : Inlet pressure (Absolute pressure)
P_2 (kPa) : Outlet pressure (Absolute pressure)
ΔP (kPa) : $P_1 - P_2$ (Pressure differential)
t (°C) =Temperature
Gt : Fluid SG (Water: 1)
Gg : Gas SG (Air: 1)

Pressure Loss Calculation Formula

● Calculation formula when using pressure loss coefficient (ζ)

$$\Delta P = \zeta \frac{1}{2} \rho V^2$$

ΔP : Pressure difference Pa(N/㎡)
ζ : Pressure loss coefficient
ρ : Fluid density kg/㎥
V : Flow velocity m/s

Reffence data

Corporate Outline

Corporate Outline

BF Kogyo kaisha Ltd.
Head Office
5-24-22 Yotsugi, Katsushika-Ku, Tokyo 124-0011 Japan
Tel : +81-3-3694-5251
Fax : +81-3-3694-5258
Establishment : July 1939
Paid up capital : 90 million yen
Authorized capital : 200 million yen
President : Mitsuo Murayama
Number of employees : 40
Business lines : manufacture and sale of various butterfly valve and butterfly damper
Industrial rights : 7 patents awards, 2 pending,
7 utility model rights awarded, 5 pending,
4 trade mark rights awarded, 5 patents in USA,
1 patent in Canada
Major Banks : MUFG Bank, Ltd.,
Katsushika branch
Sumitomo Mitsui Banking Corporation.,
Katsushika branch
Factory : Isohara factory

History

July 1939
Company founded under the name of Shimura Seiki Seisakusho, mainly engaged in mufacture of automobile parts
October 1956
Ichiro Tsuboi appointed as President
December 1956
Company name changed to Toyo Kiki Co., Ltd.
Commenced the manufacture and sale of chemical equipment and apparatus
May 1963
Start the production sale of the patent butterfly valve (small size mainly)
March 1969
Isohara Factory established in Ibaraki Pref.
March 1970
Merged with Yoshiike Valve Works, Ltd. (mainly engaged in manufacture of large size butterfly valve)
Company name changed to BF Kogyo Kaisha Ltd.
Commenced integrated manufacture and sale of patented butterfly valves
Capital to 50million yen
Capital to 60million yen

Head Office

October 1971
Capital to 70million yen
October 1972
Capital to 80million yen
October 1973
Capital to 90million yen
May 1979
The main office to the present address from Kyobashi, Chuuo-ku, Tokyo
September 1980
Established Tokyo Office in Nihonbashi-ningiyoucho, Chuuo-ku, Tokyo
October 1989
Commenced manufacture and sale of B Type valve
October 1989
Commenced manufacture and sales of B Type Valve
December 1990
Masao Satoh appointed as President
July 2004
Acquired ISO9001 quality systems certification
October 2005
Tsuneo Kitayama appointed as President
October 2017
Mitsuo Murayama appointed as President
February 2022
Head office relocation

Isohara Factory

BF KOGYO KAISHA LTD.

Head office: 5-24-22 Yotsugi, Katsushika-ku, Tokyo, 124-0011, Japan
Tel:+81-3-3694-5251 Fax:+81-3-3694-5258
Isohara factory: 1652 Isoharachoisohara, Kitaibaraki, Ibaraki 319-1541 Japan
Tel:+81-293-42-0164 Fax:+81-293-42-0106
https://www.bfkogyo.co.jp/

2022.02.ACN