

MODEL DBFV-1S

ELECTRIC BUTTERFLY VALVE

PRODUCT MANUAL

Thank you very much for choosing a Yoshitake product. To ensure proper and safe use, please read this manual carefully before operating the product. Keep this manual in a safe place for future reference.

The symbols used in this manual have the following meanings.

 Warning	This symbol indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
 Caution	This symbol indicates a hazardous situation that, if not avoided, may result in minor or moderate injury or may result in only property damage.

Table of Contents

1. Specifications	1
1.1 Valve Specifications	1
1.2 Electric Actuator Specifications	2
2. Transportation and Storage	3
2.1 Transportation	3
2.2 Storage	3
3. Installation	3
3.1 Precautions for Installation	3
3.2 Electrical Wiring Procedure	5
3.3 Wiring Diagram	6
4. Operating Instructions	6
4.1 Warnings and Precautions for Product Use	6
5. Maintenance and Inspection Instructions	7
5.1 Warnings and Precautions for Maintenance	7
5.2 Regular Inspections	7
5.3 Troubleshooting	8
Warranty Information	

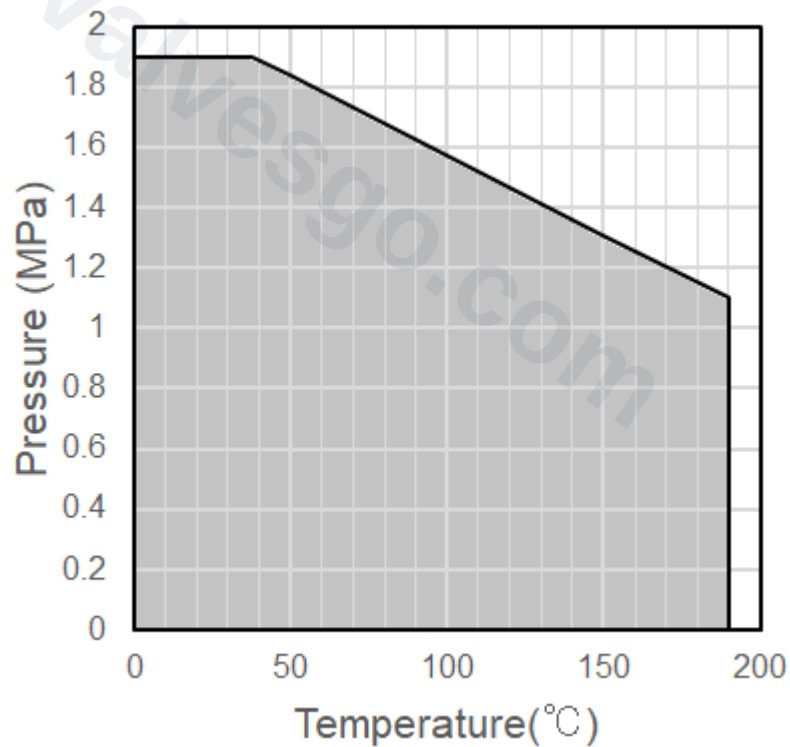
YOSHITAKE

1. Specifications

1.1 Valve Specifications

Model		DBFV-1S
Size		50-150A
Application		Steam, air, hot and cold water, oil, and other non-hazardous fluids
Material	Body, cap	Stainless steel
	Ball	Stainless steel
	Ball seat	PTFE
Connection		Wafer (Applicable flange standards: JIS 10K, ANSI 150lb and EN PN16)
Max. pressure		According to the Pressure-Temperature rating
Max. temperature		
Piping orientation		Horizontal or Vertical (inverted horizontal is not allowed)
Actuator		50A, 65A, 80A : DA50 100A : DA80 125A, 150A : DA200

* The valve has double-eccentric structure with minimal seat wear.



Use the valve within this range.

Pressure-Temperature Rating

1.2 Electric Actuator Specifications

Actuator	DA50	DA80	DA200
Voltage	-100: AC100V -200: AC200V -220: AC220V		
Frequency	50/60Hz		
Ambient temperature	-25 to 70°C		
Operation	ON-OFF		
Operation angle	90°bi-directional rotation		
Feedback signal	Fully open/closed position feedback (Contact capacity: 5A at AC250V)		
Working time	Short-time duty 15 min		
Insulation class	Class F		
Motor protection	Built-in thermal protector Built-in torque protector		
Anti-condensation measure	Built-in space heater		
Manual operation	Possible		
Protection	IP67		
Body material	Aluminum alloy		
Compatible cable diameter	6 to 12mm		10 to 14mm
Cable gland connection	PG13.5		PG16
Mounting standard	ISO5211		
	F03/F05/F07		F07/F10
Torque (N·m)	50	80	200
Travel time (sec)	50Hz	15	22
	60Hz	13	18
Power consumption (W)	10		40
Current consumption (A)	AC100V: 0.36 AC200V: 0.21 AC220V: 0.21		AC100V: 0.93 AC200V: 0.42 AC220V: 0.42

Caution

(1) Please verify the label information of the valve and the actuator against the specifications of the product you ordered.

*For the valve and actuator combination, please refer to the 1.1 valve specifications.

*The model name "DBFV-1S" is not displayed on the product.

*If there is any discrepancy, please do not use the product and contact us.

(2) The valve is at the closed position at the time of shipment from the factory.

2. Transportation and Storage

2.1 Transportation

Caution

- (1) If it is necessary to suspend the valve with the actuator attached, do not directly hook the rope or hook onto the actuator to suspend it.
*The actuator may be damaged.

2.2 Storage

Caution

- (1) The allowable transportation and storage temperature range is -30°C to +40°C.
*The product lifetime will be shortened if the storage temperature exceeds 40°C.
- (2) Store in a dry, well-ventilated area free of corrosive gases

3. Installation

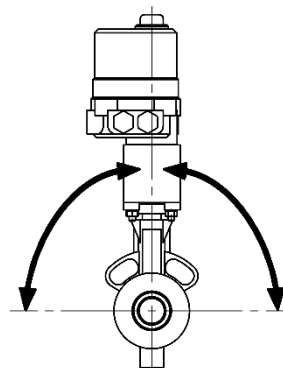
3.1 Precautions for Installation

Warning

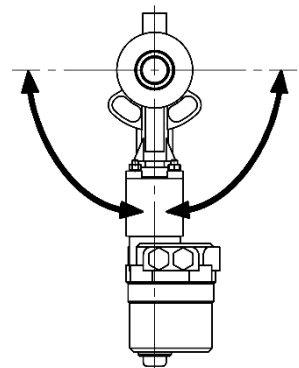
- (1) The electrical wiring should be performed by a skilled professional (such as an equipment or construction contractor).
- (2) If the failure or malfunction of the product could pose a risk to human life, health, or property, make sure to install appropriate safety devices such as shutdown, isolation, or alarms in accordance with the equipment or system.
- (3) This product cannot be used as an emergency shut-off valve.
*This product is not designed as a safety valve, such as an emergency shut-off valve. If used in such systems, ensure that other reliable safety measures are implemented.
- (4) Do not use in locations or atmospheres where explosive gases may accumulate.
*This product is not explosion-proof, and there is a risk of fire.
- (5) Always turn off the power before making any electrical connections.
*There is a risk of electric shock.
- (6) Verify the rated voltage before making connections, and follow the wiring instructions carefully.
*Incorrect wiring may result in a risk of fire or electric shock.
- (7) Be sure to connect the ground terminal.
*There is a risk of electric shock.

Caution

- (1) The actuator is pre-configured at the factory and requires no further adjustment. If adjustments are necessary, please have them performed by a professional.
*Incorrect adjustments may cause the actuator to malfunction.
- (2) The installation posture can be either horizontal or vertical, but ensure that the actuator is not installed upside down.
*This may cause malfunction.



OK



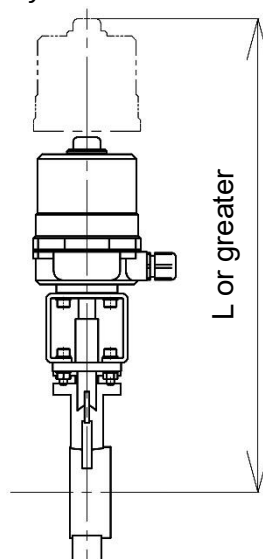
WRONG

⚠ Caution

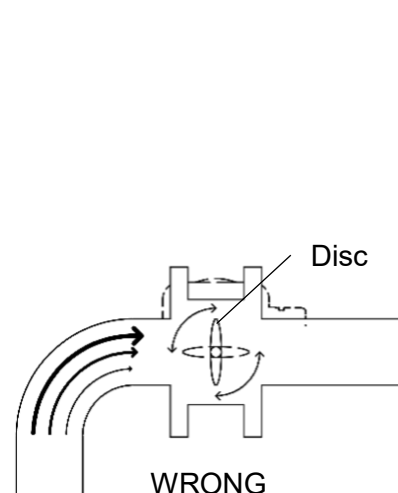
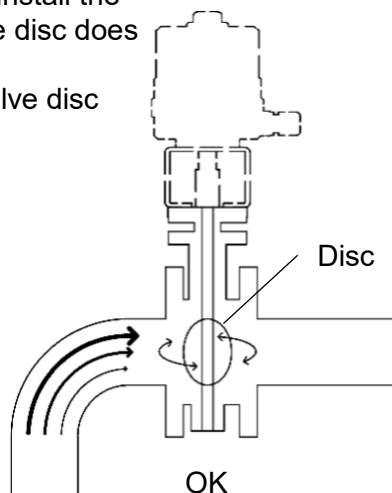
- (3) Install the valve so that the directions of the flow and the arrow shown on the product match.
- (4) Use sheet gaskets when connecting the valve to pipes.
*Using other types of gasket may cause fluid leak.
- (5) When piping the product, make sure to remove any foreign objects, scales, or other debris from inside the piping.
*If foreign objects or scales are present, the product will not function properly.
- (6) Always install a strainer (80–100 mesh) on the inlet side of the product.
*If foreign objects or scales are present, the product will not function properly.
- (7) Ensure that no excessive load, bending, or vibration is applied to the product during installation.
*This may significantly shorten the product's lifespan.
- (8) Ensure there is adequate space for disassembly and removal during maintenance and inspection.
*Without sufficient space, maintenance and inspection cannot be performed.

Size	L (mm)
50A	500
65A	515
80A	525
100A	592
125A	736
150A	758

L: Minimum Space Required for Removal of Protective Cover

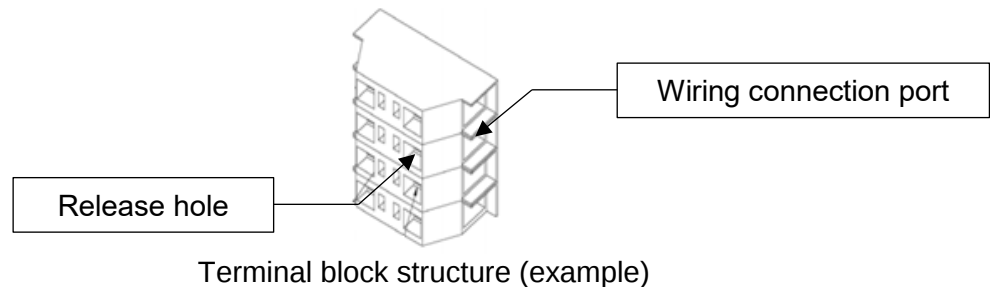


- (9) Ensure that the product is connected securely to prevent fluid leakage.
*If the connection is insufficient, fluid leakage may occur due to vibrations or other factors. In the case of high-temperature fluids, there is also a risk of burns.
*When tightening bolts, tighten them alternately in a diagonal pattern with even force.
- (10) If there is a risk of freezing, take measures such as draining the water or providing insulation.
*Freezing can cause damage to the product.
- (11) Do not install the product on the suction side of the pump.
*Such installation will damage the product.
- (12) Avoid installing the product at a location where the flow is uneven, such as near the discharge outlet of the pump, outlet of an elbow, downstream side of a reducer and outlet side of a control valve. If such installation is unavoidable, spare a distance about 5 times of the nominal size and install the valve with a posture in which the disc does not rotate by uneven flow.
*Uneven force applied on the valve disc may damage the product.

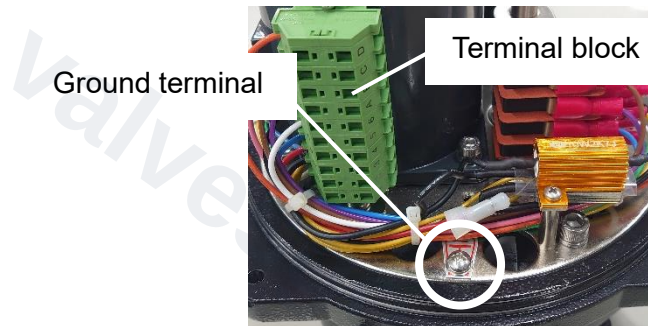


3.2 Electrical Wiring Procedure

- (1) Loosen the bolts of the protective cover with a 4mm hex wrench and remove the cover.
- (2) Loosen the nut of the cable gland and remove the rubber stopper. Insert the wiring cable through the cable gland and connect it to the terminal block according to the wiring diagram.
 - *Use a wiring cable that is compatible with the size of the cable gland.
 - *Failure to do so may compromise the actuator's waterproofing.



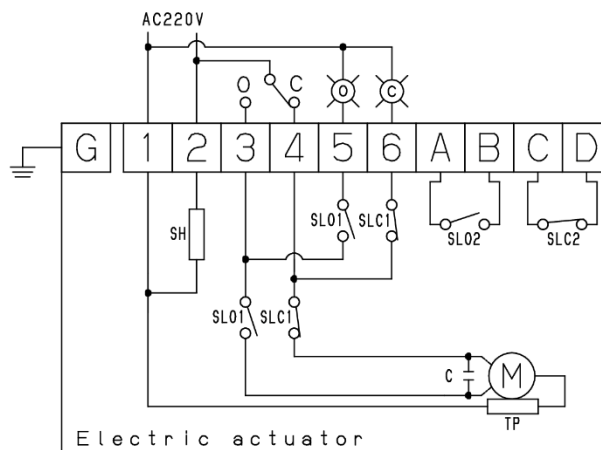
- (3) Wire the ground terminal.
 - *The ground terminal is located away from the terminal block.



- (4) Tighten the nut of the cable gland after wiring.
- (5) Turn on the power only after confirming that the wiring has been done correctly.
- (6) Perform a trial operation of the actuator and check if the direction of operation, limit switch, and other functions are working properly.
- (7) After confirming that all functions are normal, install the protective cover and tighten the bolts.

3.3 Wiring Diagram

●DA50, DA80, DA200



SLO1 : Open Position Limit Switch

SLC1 : Close Position Limit Switch

SLO2 : Open Position Limit Switch (Dry contact)

SLC2 : Close Position Limit Switch (Dry contact)

M: Motor

C: Capacitor

SH: Space Heater

TP: Thermal Protector

*Be sure to connect the ground terminal.

4. Operating Instructions

4.1 Warnings and Precautions for Product Use

⚠ Warning

- (1) Before allowing the fluid to flow, always ensure that it is safe for the fluid to flow at the piping end and that the product is securely connected.
*Fluid leakage may contaminate the surrounding area. Additionally, if the fluid is high-temperature, there is a risk of burns.
- (2) For high-temperature fluids, do not touch the product directly with bare hands.
*There is a risk of burns.

⚠ Caution

- (1) Pay attention to the on/off indication of the indicator and avoid operating beyond the fully open or fully closed positions.
*There is a risk of damaging the actuator mechanism.
- (2) If the product is to be out of operation for an extended period, discharge the fluid from the product and piping.
*There is a risk of failure due to rust formation in the product and piping, or damage caused by freezing.

5. Maintenance and Inspection Instructions

5.1 Warnings and Precautions for Maintenance

Warning

- (1) Disassembly and inspection should be performed by a skilled professional or the manufacturer.
- (2) Before performing maintenance or inspection, always ensure that the pressure inside the product and piping is at atmospheric pressure. For high-temperature fluids, allow the product to cool to a temperature that can be safely touched with bare hands before proceeding.
*Fluid leakage may contaminate the surrounding area. Additionally, there is a risk of burns when handling high-temperature fluids.

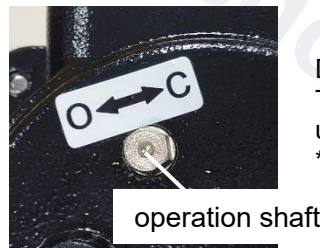
5.2 Regular Inspections

To maintain the product's functionality and performance, perform regular inspections approximately once a year. If any abnormalities are found, refer to Section 5.3 "Faults and Countermeasures" for corrective actions.

Inspection Items
☐ Check if the open/close operation is functioning correctly
☐ Check for abnormal sounds
☐ Check for external leaks
☐ Manually open and close the actuator to ensure smooth operation throughout the full stroke*1
☐ Verify that the control and feedback signals are accurate

*1 For DA50, the actuator can be manually operated using the operating shaft at the bottom of the actuator.

For DA80 and DA200, manual operation is possible with a handle.



DA50

The valve can be opened/closed using a wrench.

*The wrench is not included.

5.3 Troubleshooting

Faults	Causes	Countermeasures
External leak from the gland part	Nut [11] is loose.	Tighten nut [11]. If the leak does not stop, replace the product.
Seat leakage	Seat [4] is damaged.	Replace the product.
	Disc [3] is damaged.	Replace the product.
	Foreign object caught	Remove the foreign object.
Actuator not operating	No power supply (no voltage)	Check the supply voltage.
	No input signal, or incorrect input value	Check the input signal.
	Wire disconnected from terminal block	Securely connect the wire to the terminal block.
	Motor thermal protector activated	Wait for the motor to cool down.
	Damaged capacitor	Replace the actuator.
	Damaged motor coil	Replace the actuator.
Stops at intermediate position	Increased valve torque due to foreign objects, causing protection circuit to activate	Operate manually, and if the valve torque doesn't decrease, clean the valve.
Actuator does not stop	Unstable input signal	Check the input signal.
No feedback signal	Wire disconnection or poor contact	Please check if the wiring is done according to the wiring diagram.

*If condensation appears inside the actuator after installation, but before the power is turned on, first power up the unit to activate the heater and remove the moisture. Then, resume operation.

Warranty Information

1. Limited warranty

This product has been manufactured using highly-advanced techniques and subjected to strict quality control. Please be sure to use the product in accordance with instructions on the manual and the label attached to it.

Yoshitake warrants the product to be free from any defects in material and workmanship under normal usage for a period of one year from the date of receipt by the original user, but no longer than 24 months from the date of shipment from Yoshitake's factory.

2. Parts supply after product discontinuation

This product may be subject to discontinuation or change for improvement without any prior notice. After the discontinuation of the product, Yoshitake supplies the repair parts for 5 years otherwise individually agreed.

3. This warranty does not cover the damage due to any of below:

- (1) Valve seat leakage or malfunction caused by foreign substances inside piping.
- (2) Improper handling or misuse.
- (3) Improper supply conditions such as abnormal water pressure/quality.
- (4) Water scale or freezing.
- (5) Trouble with power/air supply.
- (6) Any alteration made by other than Yoshitake.
- (7) Use under severe conditions deviating from the design specifications (e.g. in case of corrosion due to outdoor use).
- (8) Fire, flood, earthquake, thunder and other natural disasters.
- (9) Consumable parts such as O-ring, gasket, diaphragm and etc.

Yoshitake is not liable for any damage or loss caused by malfunction or defect of the product.

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