

# ACTIVAL™

## Motorized Three-Way Valve with Flanged-End Connection (JIS 10K / FC200)

### General

ACTIVAL Model VY54X0F is a series of motorized three-way valves with flanged connection. The valve and the actuator are integrated in a single unit.

The valve size ranges from DN50 (2") to DN80 (3"), and the valve body rating corresponds to JIS\* 10K.

The actuator has a reversible synchronous motor, which operates at a low voltage of 24 V AC.

4 kinds of control signals are available to operate the ACTIVAL.

1. Nominal 135  $\Omega$  feedback potentiometer (built-in) provides proportional control in combination with a DDC\* controller (e.g., Infilex™ GC Model WY5111).
2. Nominal 135  $\Omega$  resistance input provides proportional control in combination with a proportional electric controller (e.g., Neostat™ Model TY900XZ, Model T991).
3. 4-20 mA DC input provides proportional control in combination with a DDC controller (e.g., Infilex GC Model WY5111, Model R15).
4. 2-10 V DC input provides proportional control in combination with a DDC controller (e.g., Infilex AC Model WY5117).

### Features

- Compact and lightweight.
- Valve and actuator integrated in a single unit.
- A variety of control signals available:
  - Nominal 135  $\Omega$  feedback potentiometer
  - Nominal 135  $\Omega$  resistance input
  - 4-20 mA DC input
  - 2-10 V DC input
- Durable design.
- Low power consumption.
- Linear flow characteristics.
- 2-10 V DC output (for position feedback) available with 4-20 mA DC input type and 2-10 V DC input type.



#### Notes:

- \* JIS: Japanese Industrial Standards
- \* DDC: Direct digital control

#### IMPORTANT:

To control ACTIVAL with a third-party controller, please consult with Azbil Corporation's sales personnel.

## Safety Instructions

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.

### Usage Restrictions

This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact Azbil Corporation's sales representative. Azbil Corporation will not bear any responsibility for the results produced by the operators.

### WARNING



- This product weighs 18 kg or over (depending on the models). To prevent hazardous accident and severe injury, move or carry the product with enough manpower or using a vehicle.



- Do not disassemble the product. Disassembly may result in electrical shock or equipment damage.

### CAUTION



- This product must be operated under the operating conditions (power, temperature, humidity, vibration, shock, installation position, atmospheric condition, etc) specified in this manual to prevent equipment damage.



- This product must be operated within its rated operating ranges specified in this manual. Failure to comply will cause equipment damage.



- Operate the product within the service life, and avoid application that keeps product operating cycle excessively frequent so as not to shorten its service life.



- Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.



- All wiring must comply with local codes of indoor wiring and electric installation rules.



- Install the product in the position as specified in this manual. Excessively tight connection of the valve to a pipe and improper installation position may damage the valve.



- After installation, make sure no fluid leaks from the connecting parts of valve and pipes. Incorrect piping may cause fluid leakage.



- Use full gaskets for flat face flanges to prevent the product damage or fluid leakage.



- Do not allow any foreign substance inside the piping. Flush the piping so that no foreign substance remains. Attach a strainer (with 40 or more meshes) in a pipe on the inflow side of the product to prevent equipment damage.



- Do not leave the controlled fluid frozen to prevent equipment damage or fluid leakage.



- Do not put heavy load on the actuator.



- Do not install the product in a location close to a steam coil or a hot-water coil. High temperature radiation may result in an actuator malfunction.



- Avoid touching the installed product (valve body, yoke, joint). When being used to control hot water, it reaches high temperature and may cause burn injury.



- Disconnect power from the product before performing any wiring or maintenance to prevent equipment damage.



- Use crimp terminal lugs with insulation for electric wires to be connected to the screw terminals.



- Make sure all the wires are tightly connected to the screw terminals. Loose connection may cause fire or heat generation.



- Avoid using the product (actuator, valve, and other components) in a corrosive gas including oxide gas and explosive gas.



- Dispose of this product as an industrial waste in accordance with your local regulations. Do not reuse all or part of this product.

### Model Numbers

The following model numbers are applicable to the ACTIVAL Model VY54X0F series.

Model number label is attached to the yoke. Control signal type is indicated on the actuator label and the wiring diagram label as follows.

- Nominal 135 Ω feedback potentiometer: 

F.B. Pot
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- Nominal 135 Ω resistance input: 

135 Ω
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- 4-20 mA DC input : 

4-20 mA
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- 2-10 V DC input: 

2-10 V
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Base model No.	Actuator / Valve		Actuator		Valve	Description
	Control signal	Rating / Material	Type	—	Size/Cv	
VY54						Motorized three-way valve with flanged connection
	1					Nominal 135 Ω feedback potentiometer
	2					Nominal 135 Ω resistance input
	3					4 mA DC to 20 mA DC input with 2 V DC to 10 V DC feedback output
	4					2 V DC to 10 V DC input with 2 V DC to 10 V DC feedback output
		0				JIS 10K / JIS FC200
			F			IEC IP54 protected and standard torque type actuator with terminal block (Mountable valve sizes: DN50 to DN80)
				00		—
					51	DN50 (2") / 45 in Cv value
					61	DN65 (2 <sup>1</sup> / <sub>2</sub> " ) / 70 in Cv value
				81	DN80 (3") / 100 in Cv value	

**Specifications**

For weight of the ACTIVAL, refer to the table shown in the section **Dimensions**.

**Valve**

Item	Specification			
Model	Three-way valve with flanged-end connection			
Body pressure rating	JIS 10K (Max. pressure 1.0 MPa)			
Size, Cv, Maximum pressure drop (MPa)	Model number	Nominal size (in inch)	Cv	Maximum pressure drop
	VY54X0F0051	DN50 (2")	45	0.3 MPa
	VY54X0F0061	DN65 (2 1/2")	70	0.2 MPa
	VY54X0F0081	DN80 (3")	100	0.15 MPa for mixing use 0.1 MPa for diverting use
Materials	Body	Gray cast iron (equivalent to JIS FC200)		
	Retainer	Stainless steel		
	Ball, stem	Stainless steel		
	Seat ring	PTFE with filler		
	Gland packing	Inorganic fiber		
	Gasket	Non-asbestos joint sheet		
End connection	JIS 10K flanged-end, flat face flange (FF)			
Applicable fluids	Chilled/hot water, brine (ethylene glycol solutions, 50 % max.)			
Allowable fluid temperature	0 °C to 100 °C (Non-freezing)			
Flow characteristics	Linear characteristic (See Fig. 1.)			
Rangeability	30 : 1			
Seat leakage	0.1% of the rated Cv value			
Paint of body	Gray (equivalent to Munsell 5B 4/1)			
Actuator to be combined	Integrated with the valve			

Linear flow characteristic diagram

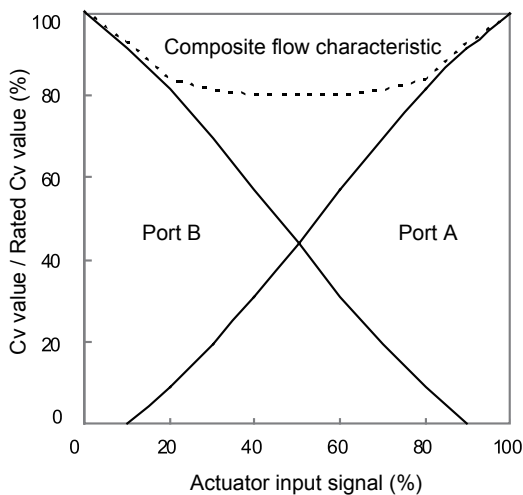


Figure 1. Linear flow characteristic diagram

Flow direction

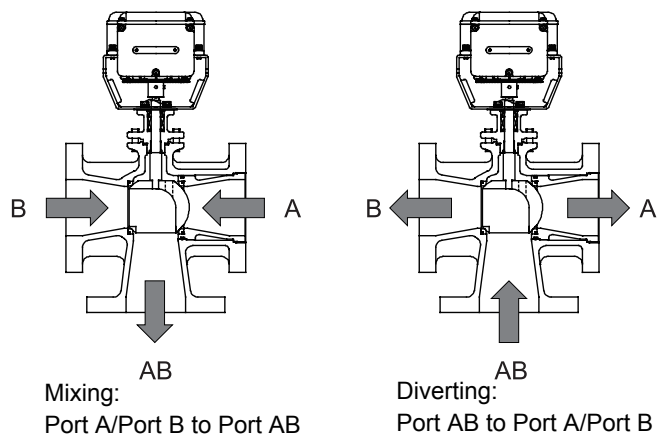


Figure 2. Flow direction

## Actuator

Item	Specification				
Power supply	24 V AC $\pm$ 15 % 50 Hz/60 Hz				
Applicable valve size	DN50 to DN80 of standard torque type				
Power consumption	Nominal 135 $\Omega$ feedback potentiometer type: 7 VA Other types (nominal 135 $\Omega$ resistance input, 4 mA DC to 20 mA DC input, 2 V DC to 10 V DC input): 8 VA				
Timing	63 $\pm$ 5 sec. (50 Hz) / 53 $\pm$ 5 sec. (60 Hz)				
Control signal	Nominal 135 $\Omega$ feedback potentiometer <table border="0" style="margin-left: 20px;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">Feedback potentiometer</td> <td style="padding: 0 5px;">Total resistance: Nominal 135 <math>\Omega</math></td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;"></td> <td style="padding: 0 5px;">Max. applied voltage: 5 V DC</td> </tr> </table> Nominal 135 $\Omega$ resistance input 4 mA DC to 20 mA DC input (input impedance: 100 $\Omega$ ) 2 V DC to 10 V DC input (input impedance: 150 k $\Omega$ or higher)	Feedback potentiometer	Total resistance: Nominal 135 $\Omega$		Max. applied voltage: 5 V DC
Feedback potentiometer	Total resistance: Nominal 135 $\Omega$				
	Max. applied voltage: 5 V DC				
Analog output (only with 4 -20 mA DC and 2-10 V DC inputs)	Range: 2 V DC (0 %) to 10 V DC (100 %) Allowable load resistance: 10 k $\Omega$ or higher (Max. 1 mA)				
Materials	Case	Die cast aluminum			
	Top cover, terminal cover	Polycarbonate resin (Color: gray)			
	Yoke	Steel plate			
Surface finishing	Case	None			
	Yoke	Electro-galvanized (Bright chromate finish)			
Valve position indication	Pointer located at the bottom of the actuator shows the position by pointing at the value of the scale (0 to 100) on front, rear, and bottom sides. (0: B-AB (Port B fully open), 100: A-AB (Port A fully open))				
Manual operation	Available. Refer to the section <b>Manually opening/closing the ACTIVAL.</b>				
Wires connection	M3.5 screw terminal connection				
Enclosure rating	IEC IP54 (splash-proof and dust-proof)				
Insulation resistance	Between terminal and case: 5 M $\Omega$ or higher at 500 V DC				
Dielectric strength	Between terminal and case: 500 V AC/min with 5 mA or less leakage current				
Position for shipment	Port A in 100 % (fully open)				

## Valve and actuator (as a single unit) specifications

Item	Specification		
Environmental conditions	Rated operating conditions	Transport/storage conditions (packaged* <sup>2</sup> )	
	Ambient temperature* <sup>1</sup>	-20 °C to 50 °C	-20 °C to 70 °C
	Ambient humidity	5 %RH to 95 %RH	
	Vibration	4.9 m/s <sup>2</sup> (10 Hz to 150 Hz)	19.6 m/s <sup>2</sup> (10 Hz to 150 Hz)
	Notes: *1 Do not allow the fluid to freeze. *2 Actuator shall be packed during transport.		
Installation locations	Indoor / outdoor (Keep away from direct sunlight.)		
Installation orientation	Installable in any position ranging from upright to sideways (90° tilted.) *Always install in upright position outdoors.		
Position for shipment	Port A 100 % (fully open) preset at factory.		

## Option and auxiliary device

Item	Specification
Seal connector (Part No. 83104346-003)	Diameter of wire (mm): $\phi$ 7 to $\phi$ 9 (Seal connector is necessary for IEC IP54 protection.)
Auxiliary switches (Part No. 83165274-001)	Number of switches: 2 (SW A and SW B) Maximum applied voltage/current: 30 V DC / 3 A DC Actuating position SW A: Adjustable between 0 % (fully closed) and 100 % (fully open) SW B: Adjustable between 0 % (fully closed) and 100 % (fully open)
Auxiliary potentiometer (Part No. 83165275-001)	Number of potentiometer: 1 Total resistance: Nominal 1 k $\Omega$ Operating position: 0 % (fully closed) to 100 % (fully open) Max. applied voltage: 5 V DC

Note:

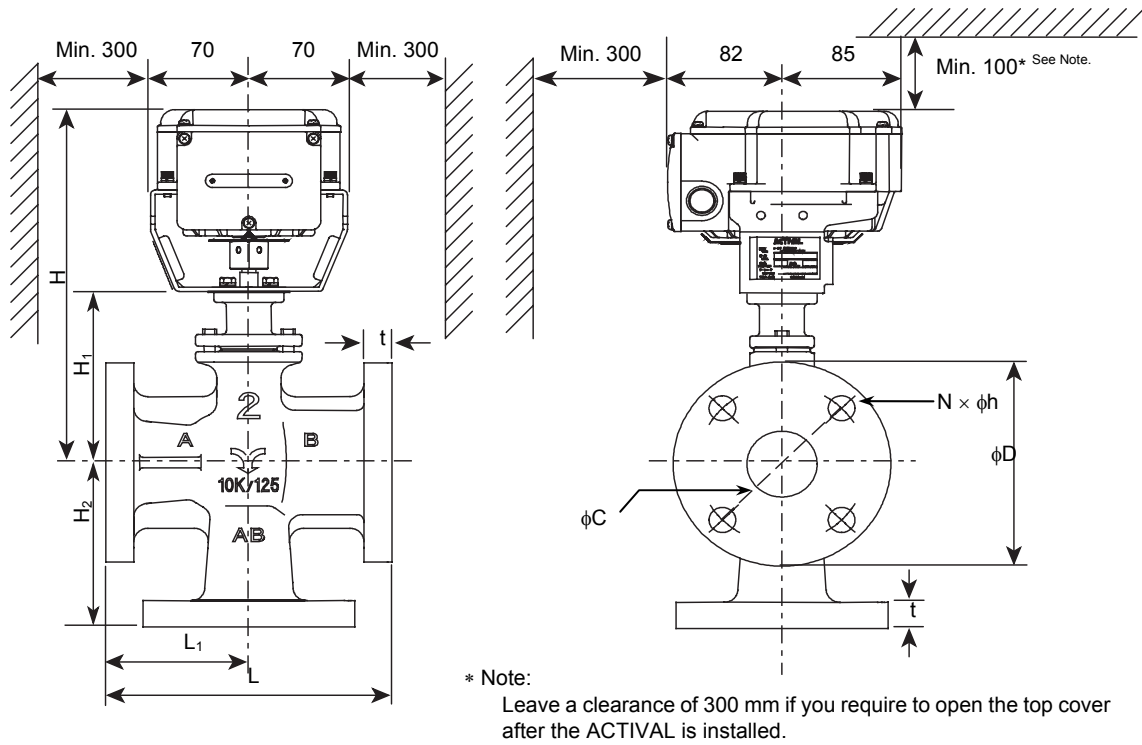
Either of an auxiliary switch or an auxiliary potentiometer can be added, but not both.

## CE Marking Conformity

This product complies with the following Electromagnetic Compatibility (EMC).

EMC : EN61000-6-2, EN55011 Class A

Dimensions



Model number	Valve size (DN)	H (mm)	H <sub>1</sub> (mm)	H <sub>2</sub> (mm)	L (mm)	L <sub>1</sub> (mm)	t (mm)	φC (mm)	φD (mm)	φh (mm)	N	Weight (kg)
VY54X0F0051	50	269.5	131	125	204	102	20	120	155	19	4	14
VY54X0F0061	65	274	135.5	130	230	115	22	140	175	19	4	18.5
VY54X0F0081	80	278.5	140	150	240	120	22	150	185	19	8	20

Figure 3. Dimensions (mm)

Parts Identification

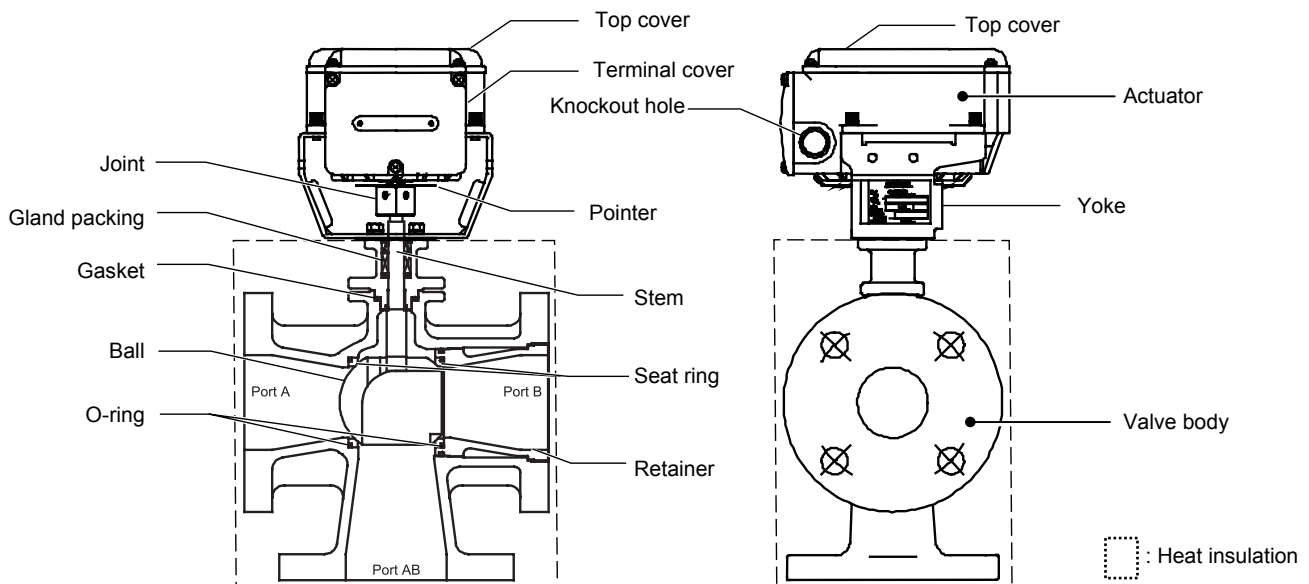


Figure 4. Parts identification

## Installation

### Precautions for installation

#### ⚠ CAUTION

- ❗ • Install the product in the position as specified in this manual. Excessively tight connection of the valve to a pipe and improper installation position may damage the valve.
- ❗ • After installation, make sure no fluid leaks from the connecting parts of valve and pipes. Incorrect piping may cause fluid leakage.
- ❗ • Do not allow any foreign substance inside the piping. Flush the piping so that no foreign substance remains. Foreign substance may damage the valve.

- ACTIVAL Model VY54X0F is the valve and actuator integrated into a single unit. Do not combine the valve with any other actuator, or do not combine the actuator with any other valve.
- To remove foreign substances inside the pipes, install a strainer (with 40 or more meshes) on the inflow side of each valve. In case that the strainers cannot be installed on the inflow side of each valve, install it on the pipe diverting sections (sections diverting from main piping system to sub piping system).
- The arrow indicated on the valve body (port A/port B → port AB) is the flow direction of the process fluid for mixing use. This product also can be installed for diverting use (port AB → port A/port B).

### Installation location

#### ⚠ CAUTION

- ❗ • Avoid using the product in an atmosphere containing oxidizing or explosive gas since it may corrode the actuator, valve, or their components.
- ❗ • The actuator may malfunction if being exposed to high heat radiation. Do not install it near by steam coil or high temperature water coil.

#### IMPORTANT:

- The top and the terminal covers might be corroded by some chemical and organic solvent/vapor. Do not clean the ACTIVAL using such substances, or do not expose the ACTIVAL to such substances.
  - Although the ACTIVAL can be used in high humidity environments (max. 95 %RH), do not immerse the actuator in water.
  - Although the ACTIVAL can also be used outdoors, be sure not to expose the ACTIVAL to direct sunlight.
- Install the ACTIVAL in a position allowing easy access for maintenance and inspection. Fig 3 shows the minimum clearance for maintenance and inspection. When installing the ACTIVAL in a ceiling space, provide an access hole within the 50 cm radius of the ACTIVAL. And, place a drain pan under the valve.
  - Do not mount the ACTIVAL on a pipe where water hammer occurs, or where solid objects including slug may accumulate.

### Identification between Ports A and B

#### Valve body without heat insulation wrapped:

Identify ports A and B with the letters 'A' and 'B' marked on the valve body.

#### Valve body with heat insulation wrapped:

Identify ports A and B with the raised bar shape on the valve bonnet, as shown in Fig. 5.

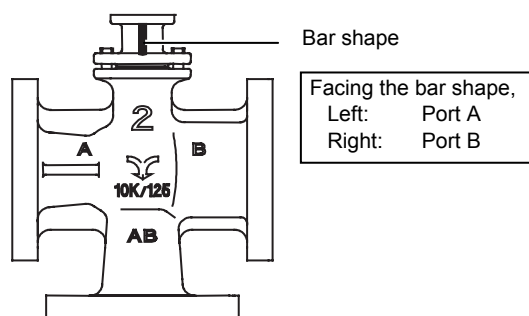


Figure 5. Identification between Ports A and B

**Mounting position**

The ACTIVAL can be mounted in any position ranging from upright to sideways (90° tilted). The ACTIVAL should be installed with its actuator vertically positioned above the valve body. (See Fig. 6.) However, the ACTIVAL must be installed always in upright position outdoors.

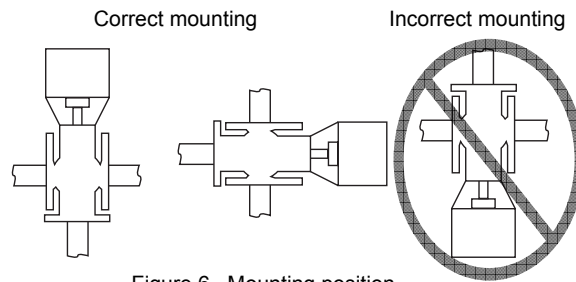


Figure 6. Mounting position

**Piping**

- Check that the model number of the product is what you ordered. The model number is shown on the label attached to the yoke.
- Install a bypass pipe and gate valves on the inflow, outflow, and bypass sides. If difference between the coil side pipe resistance (which contains coil resistance) and the bypass side pipe resistance are extremely large, use the gate valves to adjust the pressure. Also, install a strainer with 40 or more meshes on the inflow side.
- When installing the ACTIVAL to pipes, do not allow any object, such as chips, to get inside a pipe or valve. Valve cannot fully close, or the valve seat may get damaged causing fluid leakage, due to an object jammed inside the valve.
- When piping, do not apply too much sealing material, such as solidifying liquid and tape, to the pipe connection sections so that these materials flow into the valve. Valve cannot fully close, or the valve seat may get damaged causing fluid leakage, due to the sealing material jammed inside the valve.
- Before activating the ACTIVAL, fully open (in 100 % position) the valve and flush the pipes (flush per each port) at the maximum flow rate to remove all the foreign substances. (Factory preset position: Port A in 100 %)

**Heat insulation**

Do not apply heat insulation to the actuator or to the yoke, as [ ] shows in Fig. 4. If the yoke and the actuator are covered with insulation material, the pointer cannot be checked and may be distorted.

**Factory preset position**

The actuator shaft is positioned at 100% (Port A in fully open position) for shipment. The shaft is completely turned clockwise, and the pointer points at “100”. (See Fig. 7.)

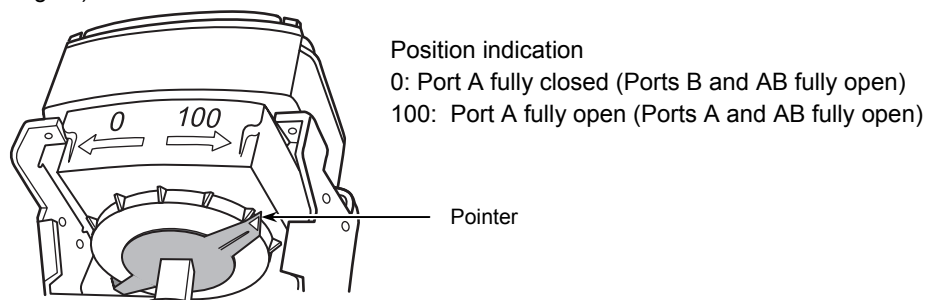


Figure 7. Pointer position for shipment



**Application examples**

For diverting valve application

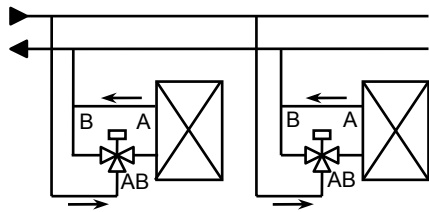


Figure 8. Example of diverting valve application

For mixing valve application

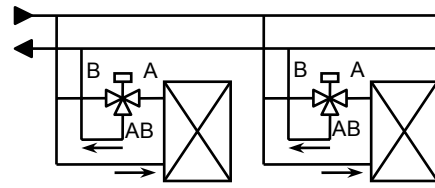


Figure 9. Example of mixing valve application

**Installation examples**

For diverting valve installation

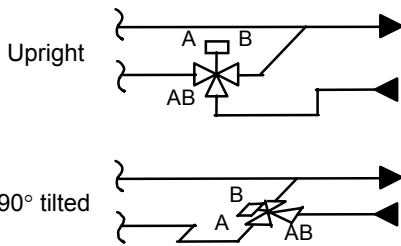


Figure 10. Example of diverting valve installation

For mixing valve installation

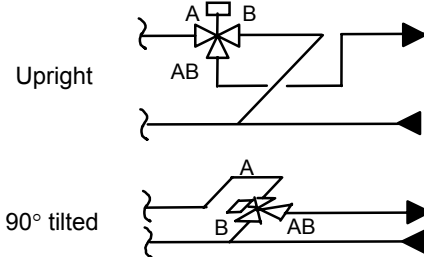


Figure 11. Example of mixing valve application

**Manually opening/closing the ACTIVAL**

**IMPORTANT:**

- Manually opening/closing the ACTIVAL with the power (24 V AC) applied may damage the actuator.
- To manually open/close the ACTIVAL, do not turn the joint beyond the fully open (100)/closed (0) mark.
- To manually open/close the ACTIVAL, slowly turn the joint. If shock is sent to the actuator, the actuator may get damaged.

Disconnect the power from the ACTIVAL before manually operating the ACTIVAL. As shown in Fig. 12, from the front of the ACTIVAL, hold the joint using a tool such as a wrench, and turn the joint slowly toward the set position.

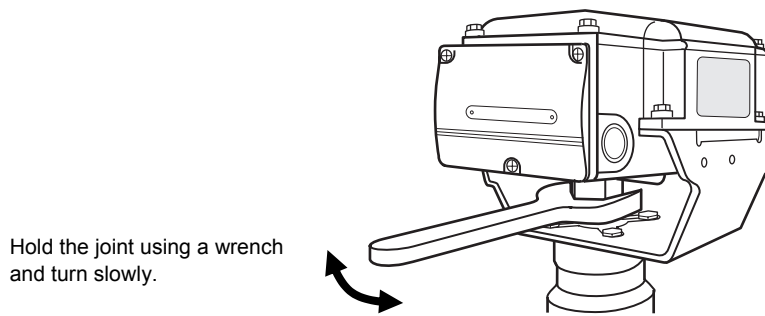


Figure 12. Manual open/close operation

**Auxiliary switch / Auxiliary potentiometer (optional)**

**IMPORTANT:**

- The auxiliary switch/potentiometer is installed on site. Refer to the instructions supplied with the auxiliary switch/potentiometer for installation.
- Do not open the top cover except when adjusting the auxiliary switch/potentiometer. Close the top cover instantly after adjusting the auxiliary switch/potentiometer.
- Do not put any load on the top cover.

**Procedure to change the actuator mounting position**

**IMPORTANT:**

- Do not change the combination of the valve, yoke, and actuator.
- Set the port A of the valve and the actuator in 100 % position when changing the mounting position. If the valve with port A in 0 % position is assembled with the actuator in 100 % position, the actuator puts torque on the closed port A of the valve, and the gear of the actuator gets damaged.

- 1) Remove the screws connecting the actuator and the yoke. Lift the actuator and detach it from the yoke. Make sure that the mark on the valve stem and raised bar shape on the valve bonnet face the same direction.  
<Step 1 in Fig. 13>
- 2) Remove the screws connecting the yoke and the valve. <Step 2 in Fig. 13>
- 3) Change the facing direction of the yoke. The yoke and actuator can be horizontally rotated every 90° (0°/90°/180°/270° from the factory preset position) to mount onto the valve. <Step 3 in Fig. 13>
- 4) A thermal insulation sheet is inserted between the yoke and the valve. When changing the mounting positions, reinsert the sheet and then fit the yoke into the new mounting position.
- 5) Before fixing the yoke to the valve with the screws, check that the actuator engages correctly with the valve stem (at the new mounting position). Check that the pointer of the actuator indicates 100 % position as well. Then, fix the yoke to the valve with bolts. <Step 3 in Fig. 13>
- 6) Mount the actuator. Place the actuator, with its facing direction changed, on the yoke, and fix them with the screws.  
<Step 4 in Fig. 13>
- 7) Check that the ACTIVAL with the mounting position changed operates smoothly.

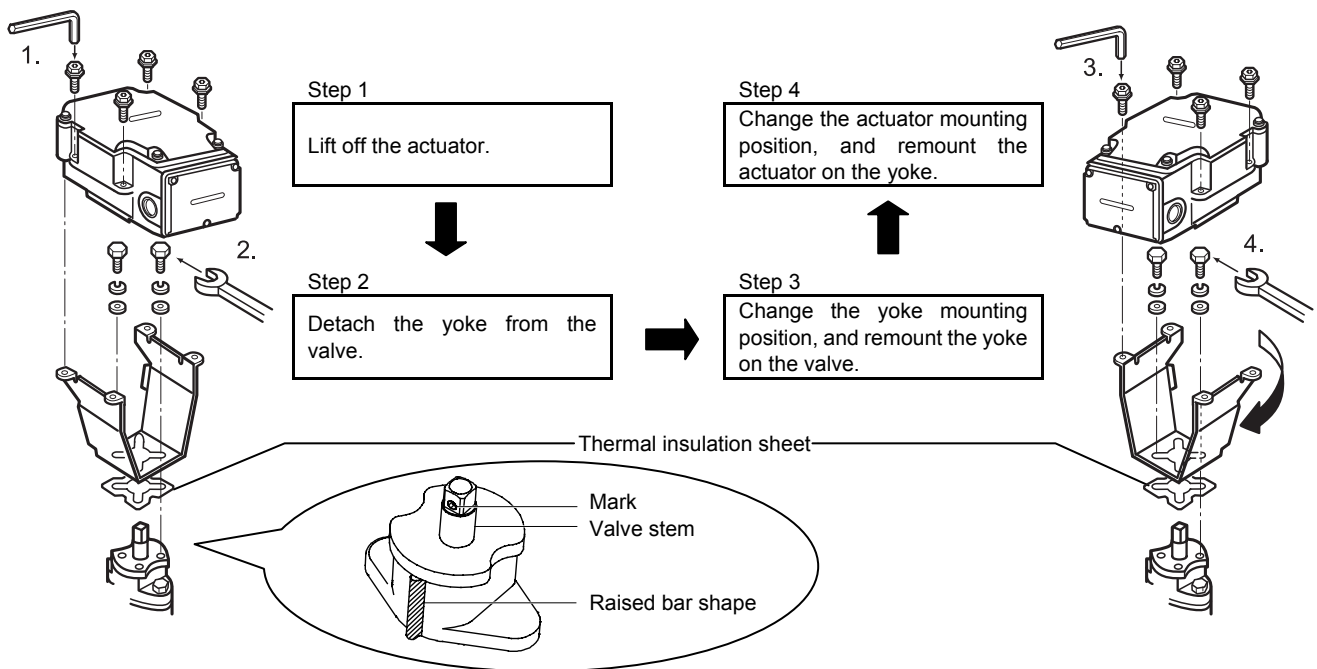


Figure 13. Changing the actuator mounting position

## Wiring

### ⚠ CAUTION

- Disconnect power from the product before performing any wiring or maintenance (installation) to prevent equipment damage.

### IMPORTANT:

- The ACTIVAL is designed for 24 V AC power supply voltage. Do not apply any other power voltage (e.g., 100 V AC, 200 V AC) to the ACTIVAL.
- For 2-10 V DC input type and 4-20 mA input type, make sure the polarity of the power supply and 2-10 V DC feedback output referring to the wiring diagrams. Incorrect wiring may result in PCB (print circuit board) burnout.
- To prevent damage, cover the terminals except when connecting/disconnecting wires.
- Do not connect 24 V AC power to the terminals 4 to 7. (Max. applicable voltage: 5 V DC)

### Wiring precautions

- 1) To lead the wires into the terminals, cut out a knockout hole for a wiring port. Two knockout holes are provided on the bilateral sides of the actuator terminals. Select a knockout hole according to the conduit mounting direction, and cut it out by lightly knocking the hole using a screwdriver.

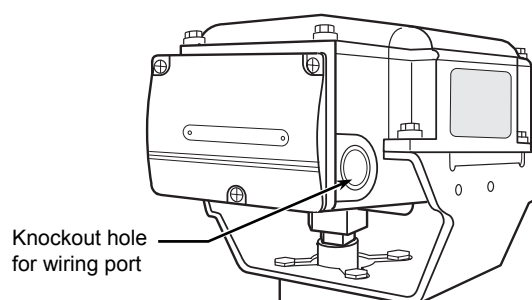


Figure 14. Knockout hole for wiring port

- 2) Unscrew the 3 setscrews (M4 × 10) of the terminal cover and remove the terminal cover, as shown in Fig. 15.

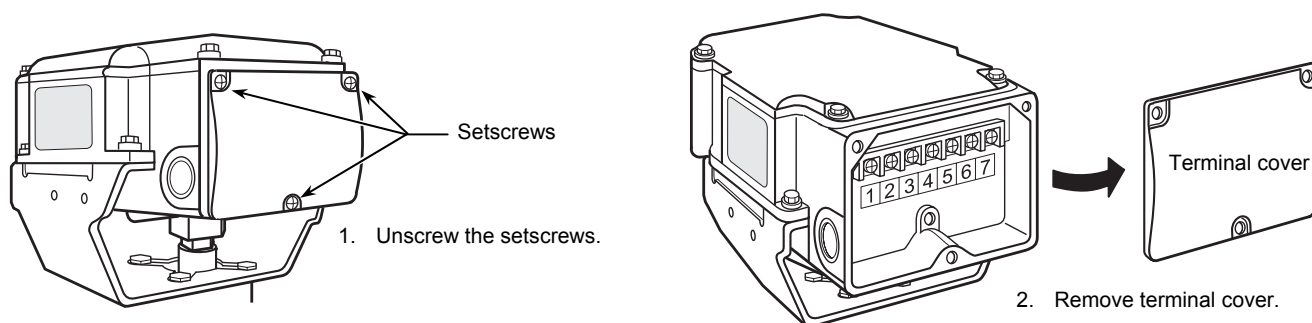


Figure 15. Terminal cover removal

- 3) Correctly connect the wires to the terminals with M3.5 screw terminal lugs, referring to Figs 16 to 24.

### To keep IP54 protection (dust-proof and splash-proof),

Use a water-proof connector for the ACTIVAL in a high-humidity environment or outdoor location.

- Be sure to completely close the terminal cover and the top cover.
- Waterproof the wiring port.
  - For cable connection, use a water-proof connector. (Seal connector Part No. 83104346-003 is recommended.)
  - For conduit connection, use a water-proof plica tube or the like.

**Terminals connection**

Model VY5410F00XX

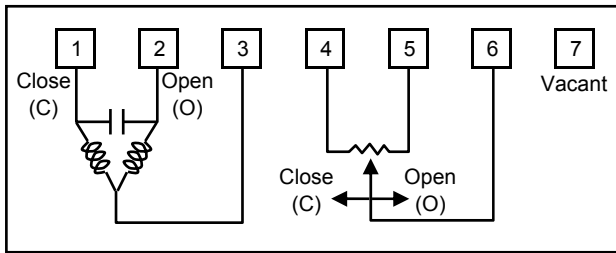


Figure 16. Terminals connection of Model VY5410F00XX (Nominal 135 Ω feedback potentiometer type)

\* Note:

Controller that receives voltage between the terminals 4 and 6 as feedback signal is recommended to connect.

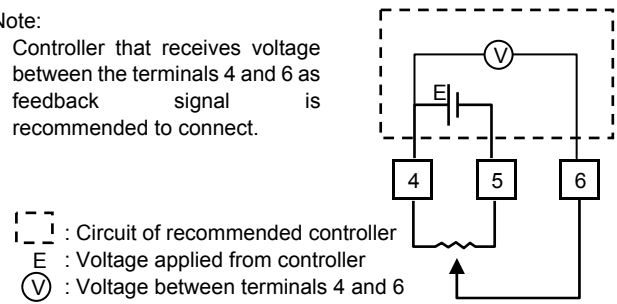


Figure 17. Circuit of recommended controller

Model VY5420F00XX

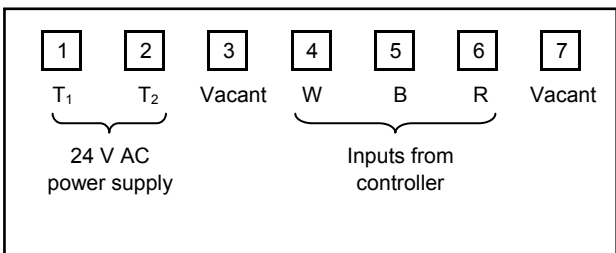
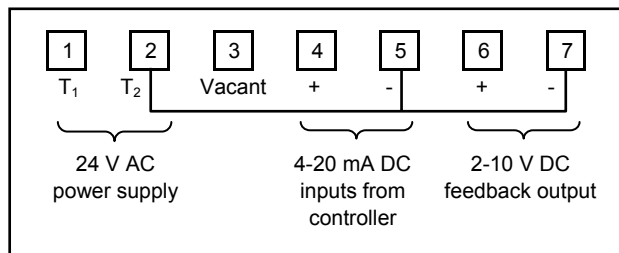


Figure 18. Terminals connection of Model VY5420F00XX (Nominal 135 Ω resistance input type)

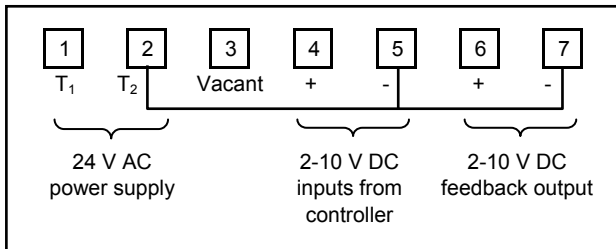
Model VY5430F00XX



Note: Terminals 2, 5, and 7 are connected inside the actuator.

Figure 19. Terminals connection of Model VY5430F00XX (4-20 mA DC input type)

Model VY5440F00XX



Note: Terminals 2, 5, and 7 are connected inside the actuator.

Figure 20. Terminals connection of Model VY5440F00XX (2-10 V DC input type)

**Connection examples (Connection to Azbil Corporation's controllers)**

Connection to Inflex™ GC

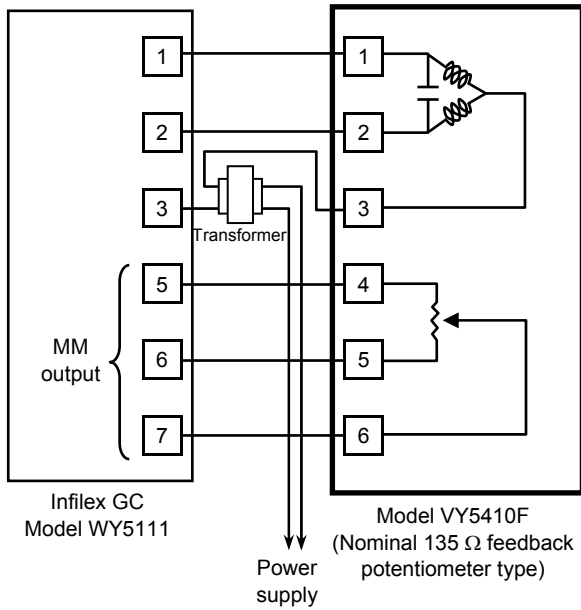


Figure 21. Connection example: Model VY5410F to Model WY5111

Connection to Neostat (Model TY900XZ)

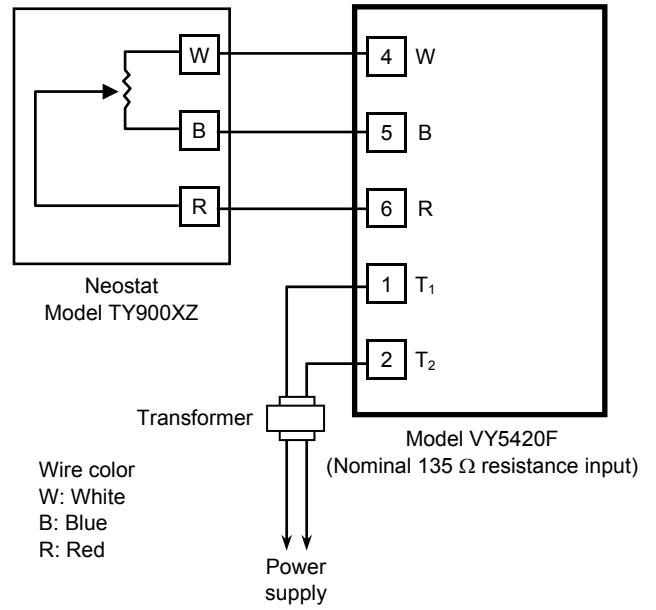


Figure 22. Connection example: Model VY5420F to Model TY900XZ

Connection to Model R series controller

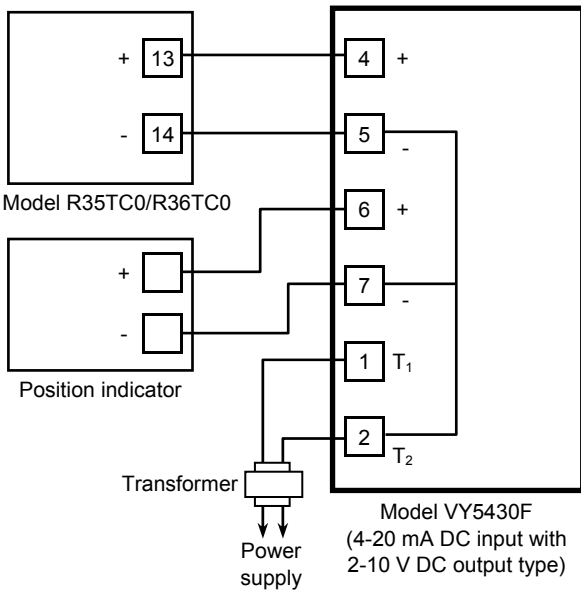


Figure 23. Connection example: Model VY5430F to Model R35TC0/R36TC0

Connection to Inflex™ AC

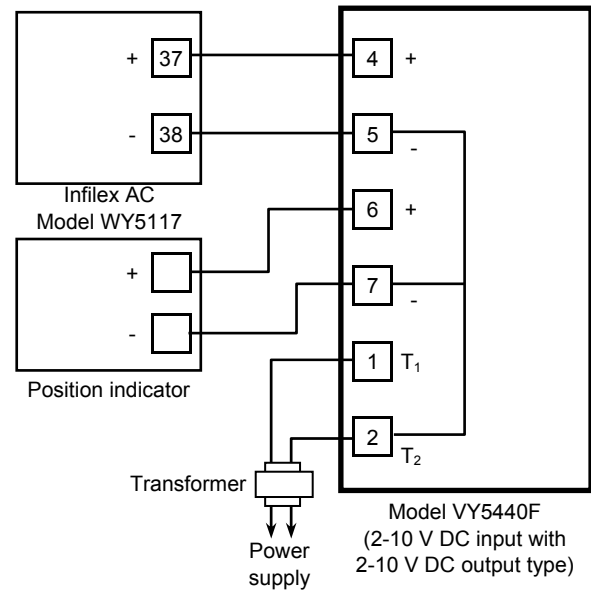
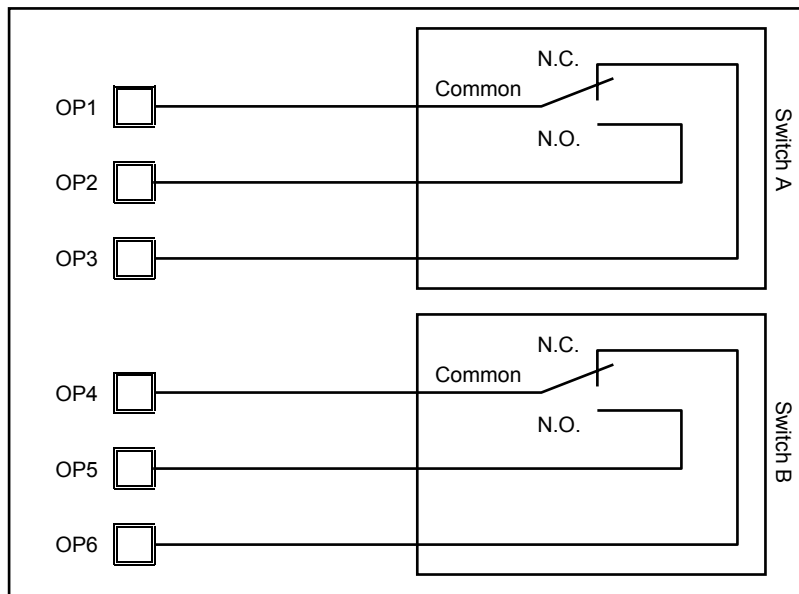


Figure 24. Connection example: Model VY5440F to Model WY5117

### Internal Connection of Auxiliary Switch / Auxiliary Potentiometer

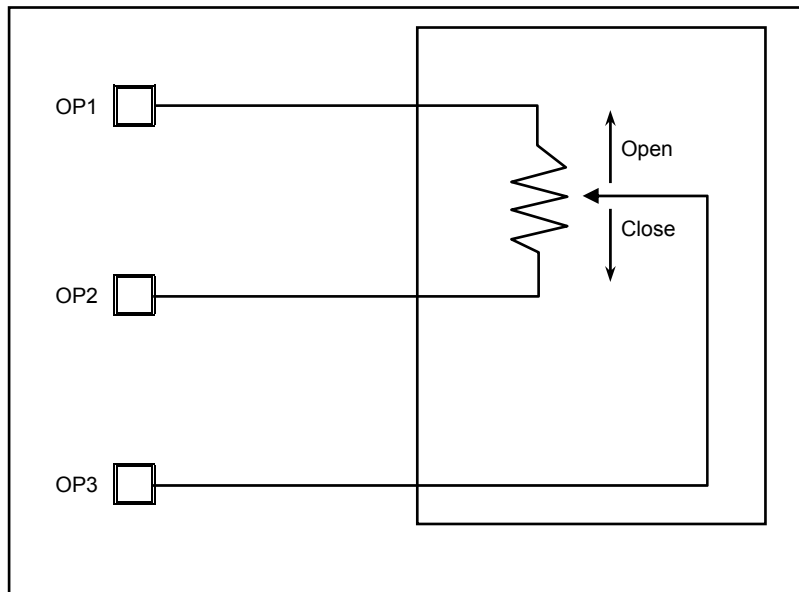
Auxiliary switch Part No. 83165274-001



Switches A and B actuating position: Adjustable between 0 % (fully closed) and 100 % (fully open)

Figure 25. Internal connection of Part No. 83165274-001

Auxiliary potentiometer Part No. 83165275-001



Potentiometer operating position: Adjustable between 0 % (fully closed) and 100 % (fully open)

Figure 26. Internal connection of Model 83165275-001

## Inspection and Maintenance

### CAUTION



- Avoid touching the installed ACTIVAL (valve body, yoke, joint). When being used to control hot water, it reaches high temperature and may cause burn injury.

- Inspect the ACTIVAL according to Table 1.
- Manually open/close the ACTIVAL at least once a month if it is left in inactive state for a long period.
- Visually inspect the fluid leakage of the valve and the actuator operations every six months. If any of the problems described in Table 2 are found, take corresponding actions shown in the table.  
If your problem is not solved by the corresponding action, please contact Azbil Corporation near you.

Table 1. Inspection items and details

Inspection item	Inspection interval	Inspection detail
Visual inspection	Semiannual	<ul style="list-style-type: none"> <li>• Fluid leakage from the gland and the flange face</li> <li>• Loosened bolts</li> <li>• Valve and actuator damages</li> </ul>
Operating status	Semiannual	<ul style="list-style-type: none"> <li>• Unstable open/close operation</li> <li>• Abnormal noise and vibration</li> </ul>
Routine inspection	Any time	<ul style="list-style-type: none"> <li>• Fluid leakage to the outside</li> <li>• Abnormal noise and vibration</li> <li>• Unstable open/close operation</li> <li>• Valve hunting</li> </ul>

Table 2. Troubleshooting

Problem	Part to check	Action
Fluid leaks from the flange face.	Loosened flange bolts Gasket on the flange face Misaligned piping	Tighten the flange bolts. Replace the gasket. Redo piping.
Fluid leaks from the gland part.	—	Consult with our sales/service personnel.
Fluid leaks from the bonnet.	Loosened bolts	Tighten the bolts.
Valve does not operate smoothly / valve stops halfway / valve does not operate at all.	Conditions of the power applied and of the input signal applied Loosened terminals Wiring condition / disconnected wires	Check the power supply and the controller connected to. Tighten the terminals. Check the wiring.
Fluid leaks to the outside of the valve when the ACTIVAL is in fully closed position.	Actuator pointer not pointing to fully closed position	Fully close the ACTIVAL.
The valve vibrates or produces an abnormal noise.	Primary pressure condition Differential pressure condition	Adjust the mounting position and change the installation location.
The auxiliary switch does not operate.	Auxiliary switch (cam switch) condition Loosened terminals Wiring condition / disconnected wires	Redo the cam switch setting. Tighten the terminals. Check the wiring.
The auxiliary potentiometer does not operate.	Condition of resistance Loosened terminals Wiring condition / disconnected wires	Check the resistance value (1 kΩ). Tighten the terminals. Check the wiring.
Valve hunting occurs.	Secondary pressure condition Differential pressure condition Control stability	Adjust the mounting position and change the installation location. Correct the control parameter setting of controller.
Voltage/current input signal disagrees with the feedback output signal.	To completely shut off the valve, valve open and close (0-100% position) operation is controlled by 10-90 % range of actuator voltage/current input signal. Voltage/current input signal therefore disagrees with the feedback signal, and this is not an error.	

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*Specifications are subject to change without notice.*

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