ACTIVAL™

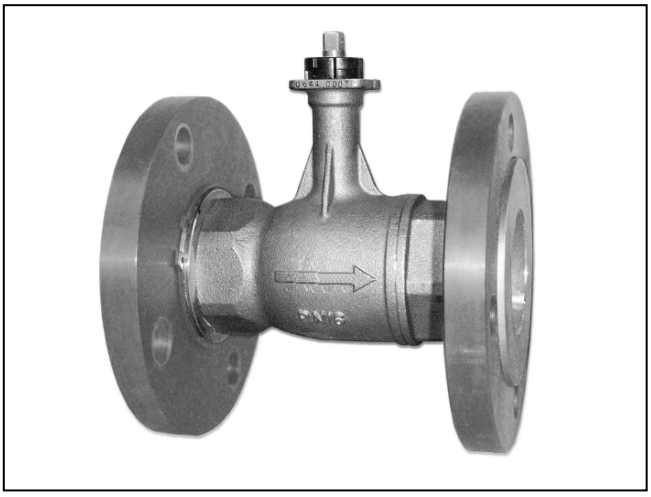
Two-Way Ball Valve with Flanged-End Connection

General

ACTIVAL Model VY5302C is a flanged-end connection two-way valve. It provides a proportional control of chilled/hot water of air handling units.
The valve body is made of bronze. The body rating is PN16. It has optimal Cv value and size for controlling air handling units.

This product needs to be integrated with the actuator Model MY53X0AX to work.

Note: For information on wiring and other specifications of the actuator Model MY53X0A, refer to Specifications/Instructions of the actuator Model MY53X0A.



Features

- The bronze body rated at PN16.
- Easy to attach the actuator Model MY53X0A to the product without needing any tool or adjustment.
- Equal-percentage flow characteristic

IMPORTANT:
- When you need to use a third-party controller for controlling ACTIVAL, please consult with our sales personnel before installing it.

Model Numbers and Cv Values

Model number	Valve size	Cv value	Weight*1	Maximum pressure drop*2	Close-off rating
VY5302C0061	DN65	75	11 kg	0.35 MPa	0.5 MPa
VY5302C0081	DN80	110	12.5 kg	0.35 MPa	0.5 MPa

Note:
*1 Weight does not include the mass of the actuator.
*2 Do not apply negative pressure to the secondary (outlet) side of the valve.

Safety Precautions

Please read the instructions carefully and use the product as specified.
Be sure to keep the manual on hand for later use.

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 our sales representative. Azbil Corporation will not bear any responsibility for the results produced by the operators.

Warnings and Cautions

⚠ WARNING	Alerts users that improper handling may cause death or serious injury.
⚠ CAUTION	Alerts users that improper handling may cause minor injury or material loss.

Signs

	Alerts users to possible hazardous conditions caused by erroneous operation or erroneous use. The symbol inside △ indicates the specific type of danger. (For example, the sign on the left warns of the risk of electric shock.)
	Notifies users that specific actions are prohibited to prevent possible danger. The symbol inside ⃠ graphically indicates the prohibited action. (For example, the sign on the left means that disassembly is prohibited.)
	Instructs users to carry out a specific obligatory action to prevent possible danger. The symbol inside ● graphically indicates the actual action to be carried out. (For example, the sign on the left indicates general instructions.)

⚠ WARNING	
	Before wiring and maintenance of the actuator, be sure to turn off the power to the actuator. Failure to do so might cause electric shock.

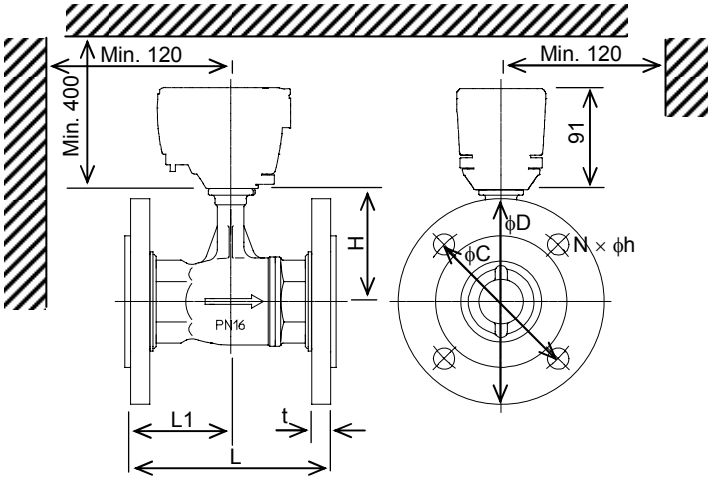
⚠ CAUTION (1/2)	
	Use the product under the operating conditions (temperature, humidity, power, vibration, shock, mounting direction, atmospheric condition, etc.) as listed in the specifications. Failure to do so might cause fire or device failure.
	Use this product within the lifespan given in the specifications and avoid instrumentations that keep the product to operate excessively. Continued use beyond this lifespan might cause device failure or fire.
	Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.
	Install the product in the proper position as specified in this manual. Excessively tight connection to a pipe or improper installation position might damage the product.
	After installation, make sure no fluid leaks from the valve-pipe connections. Incorrect installation might cause fluid leakage.
	Do not allow any foreign objects inside the pipes during installation. Flush the piping to remove the foreign objects after installation. Foreign objects inside the piping might damage the product.
	Do not allow the fluid to freeze. Doing so might damage the valve body and cause fluid leakage.

⚠ CAUTION (2/2)	
	Do not install the product nearby a steam coil or a hot-water coil. High temperature radiation might cause malfunction of its actuator.
	Be sure to protect the product in the packaging box when putting it in storage. Failure to do so can cause defacement or damage to the product.
	Do not use any of the parts including the actuator and the valve in a corrosive atmosphere. Otherwise, the device may be seriously damaged.
	Do not disassemble the product. Doing so might cause device failure.
	Do not carelessly touch the product when being used to control hot liquid. Its temperature becomes high, and you might get burned.
	Dispose of the product as industrial waste in accordance with your local regulations. Do not reuse all or part of this product.

Specifications

Item	Specifications	
Type	Flanged-end connection two-way ball valve	
The actuator to be combined	Model MY53X0A	
Pressure rating	PN16 (Maximum working pressure: 1.6 MPa)	
Materials	Valve body	Cast bronze equivalent to: CuAn5An5Pb5-C (DIN EN1982) CAC406 (JIS)
	Flange	Electro-galvanized carbon steel
	Retainer	Electro-galvanized cast steel
	Ball	Cast stainless steel
	Stem	Stainless steel
	Seat ring	Polytetrafluoroethylene (PTFE)
End connection	Flanged-end connection: Raised face (RF)	
Fluid	Chilled/hot water, brine (ethylene glycol solution, 50 wt.% max.)	
Fluid temperature	0°C to 80°C (non-freezing)	
Flow characteristic	Equal-percentage characteristics	
Rangeability	30 : 1	
Seat leakage	0.01% of rated Cv value	
Installation orientation	Upright or sideways	

Dimensions



Model number	L	L1	H	ϕD	ϕC	t	ϕh	N	Weight*
VY5302C0061	190	95	100.5	185	145	21	19	4	11 kg
VY5302C0081	203	101.5	100.5	200	160	21	19	8	12.5 kg

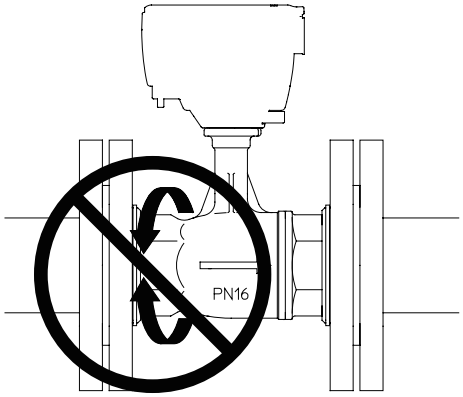
Note: Weight does not include the mass of the assembled actuator.

Figure 1 External Dimensions (mm): Size Including the Actuator

Installation

IMPORTANT:

- Carefully joint the flange on the pipe side with the flange on the valve side and securely fasten them. Failure to do so may result in a misalignment of the joint. Once they are joined in a wrong position, it will be hard to modify the joint.
- Do not change the installation orientation of the valve while it is fastened to the piping. Changing the orientation by turning the valve may cause leakage.



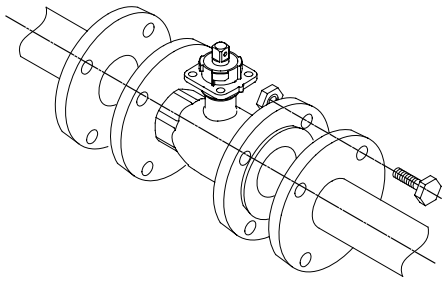
Do not change the orientation of the valve before removing the valve from the piping.

Installation Precautions

⚠ WARNING	
⚠	Wiring and maintenance of the actuator to mount must only be done after power supply to the actuator is cut. Failure to do so might cause electric shock or device failure.

⚠ CAUTION	
❗	Install the product in the proper position as specified in this manual. Excessively tight connection to a duct or improper installation position may damage the product.
❗	After installation, make sure no fluid leaks from the valve-pipe connection. Incorrect installation may result in fluid leakage.
❗	Install the product so that no foreign objects remain inside the pipes. Be sure to provide a strainer (suitable for the process fluid) on the inflow side of the piping. Flush the piping to remove the foreign objects after installation. Foreign objects inside the piping may damage the product.

- To remove foreign substances, install a strainer on the inflow side of each valve.
  In case where a strainer cannot be installed on the inflow side of the valves, install it on the pipe diverting sections.
- Install the valve so that the flow direction of process fluid agrees with the arrow indicated on the valve body.
- As shown in the figure below, align the center of the valve and the center of the pipe in connecting them.



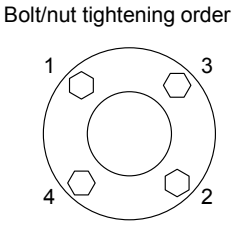


Figure 2 Valve Installation

- First, use the bolts and nuts for providing a temporary joint of the valve flange and the pipe flange. Then gradually tighten pairs of kitty-cornered bolts and nuts with even force to fasten the valve flange and the pipe flange together. (See Bolt/nut tightening order in Figure 2)

Installation Location

⚠ CAUTION
Do not use any of the parts including the actuator and the valve in a corrosive atmosphere. Doing so may cause device failure.

- Install ACTIVAL (the valve and the actuator) in a position that allows an easy access for maintenance and inspection. Figure 1 shows the minimum clearance required for maintenance and inspection. When installing the valve and the actuator in a ceiling space, provide an access panel within the 50 cm radius of the valve and the actuator. Also, make sure to place a drain pan under the valve.
- Do not mount the valve on a pipe that is exposed to water hammering or may have slugs accumulated within.

Installation Orientation

The valve with the actuator assembled can be mounted in any orientation ranging from upright to sideways (90° tilted). The valve must be installed with its actuator vertically positioned above the valve body. (See Figure 2.) Outdoors, however, it must always be installed upright.

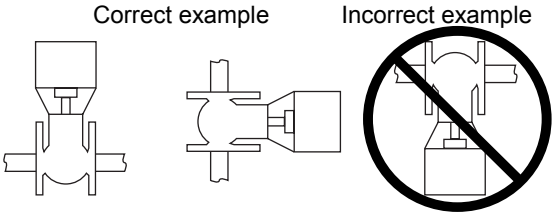


Figure 3 Installation Orientation of the Valve

Piping

- Install a bypass pipe and gate valves on the inflow, outflow, and bypass sides. Also, install a strainer on the inflow side.
- When installing the valve to pipes, do not allow any object, such as chips, to get inside a pipe or valve. Valve cannot fully closes, or the valve seat may get damaged causing fluid leakage, due to a foreign object jammed inside the valve.
- When piping, apply to the pipe joints the right quantity of sealing materials such as solidifying liquid and tape in order not to allow excess materials to flow into the valve. Foreign objects jammed in the valve may cause the valve failing to fully close or damage to the valve seat, resulting in fluid leakage.
- Before activating the valve and actuator, flush the pipes (with the valve and actuator installed) at the maximum flow rate to remove all the foreign substances. Fully open (in 100 % position) the valve to flush. Factory preset position: 100 %

Heat Insulation

Do not apply heat insulation to the joint surface. Apply as shown in Figure 4 so that it does not cover the joint to the actuator.

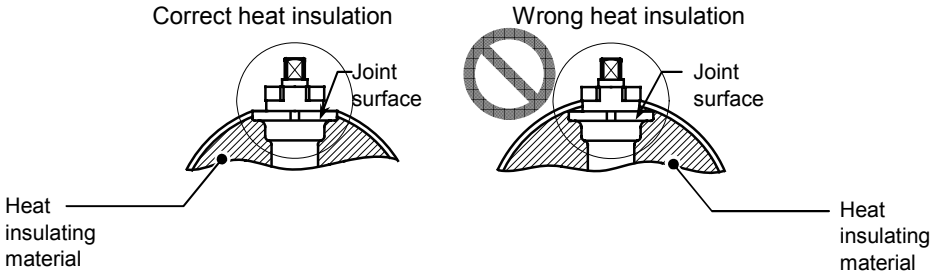


Figure 4 Heat Insulation

Assembling the Valve with the Actuator Model MY5302C

IMPORTANT:

- Do not use any other actuator than those specially made for this valve.
- The actuator can be horizontally rotated every 90 degrees to fit into the valve mounting position. Refer to Figure 5 and make sure that the actuator and the vale look as shown (fully open position) before shipping.
  - Actuator: Indicator/manual lever points at 100.
  - Valve: An arrow on the top of the stem points at 100.
    Align the hole on the side of the stem should be aligned with the tip at the joint surface.
    (See “a” in Figure 5)
- Set both the actuator and the valve in 100 % position (full open) when changing the mounting position. If the valve in 0% position is assembled with the actuator in 100 % position, the actuator puts torque on the closed valve, and the gear of the actuator gets damaged.

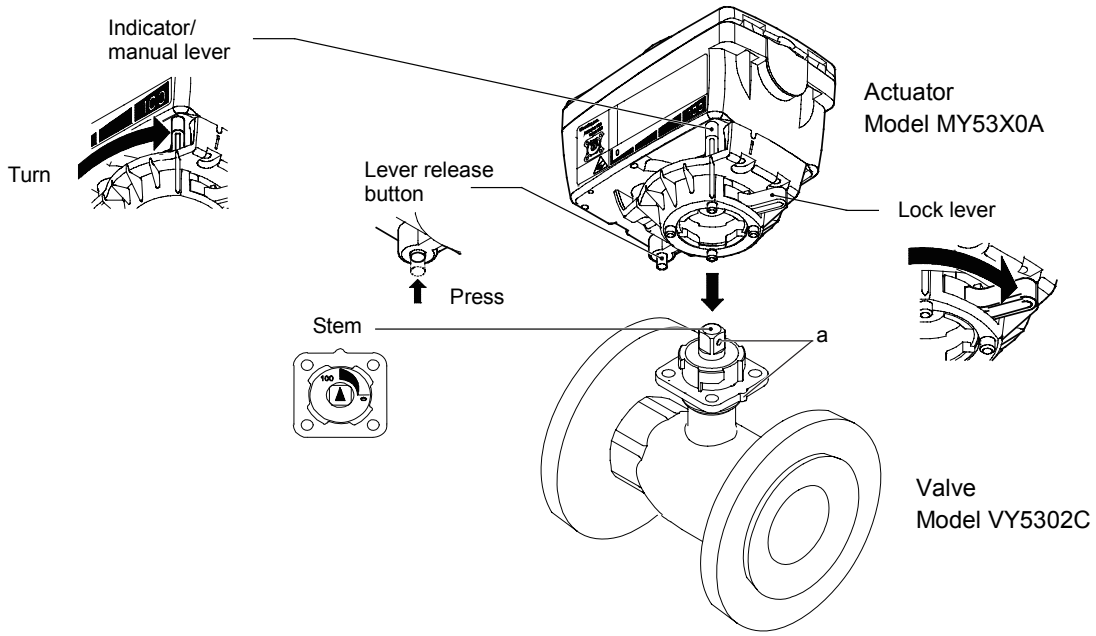


Figure 5 Mounting the Actuator onto the Valve

Mounting Procedure

(1) Manually turn the indicator/manual lever of the actuator to "100" with the lever release button pressed.

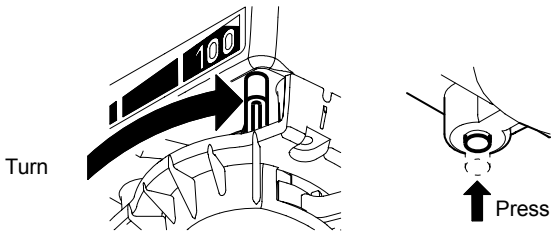


Figure 6 Indicator/Manual Lever at 100% Position (Full Open)

(2) Move the lock lever to the right end as shown in Figure 7.

Figure 7 Lock Lever (Released)

(3) Make sure that the arrow on the top of the valve stem points at "100". When the valve is fully open, a hole on the side of the stem faces in the direction of the tip of the valve joint surface (with the actuator). ("a" in Figure 5)

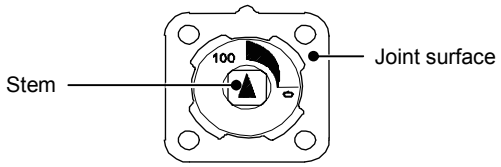


Figure 8 Valve Installation

(4) Assemble the actuator Model MY53X0A with the valve Model VY5302C. Engage the four pins of the actuator with the mating holes on the valve joint surface.

(5) Move the lock lever to the left end (a groove as an indication) as shown in Figure 9.

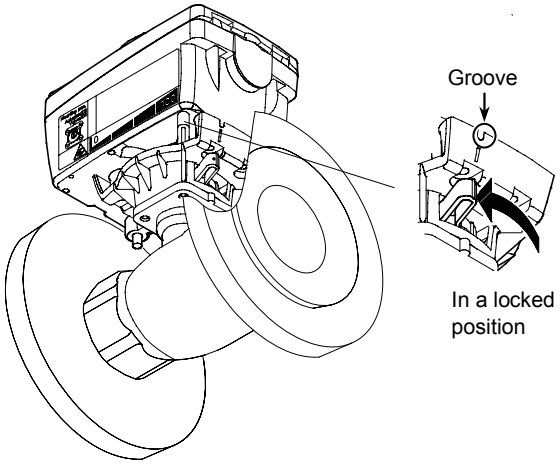


Figure 9 Locked Position

Parts Names and Materials

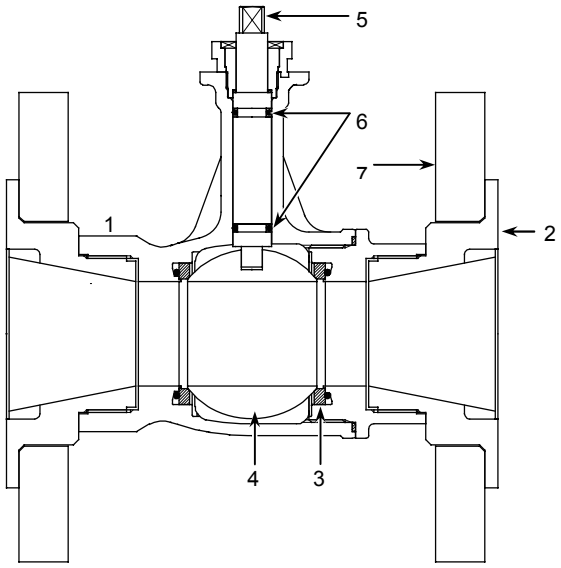


Figure 10 Parts Names and Materials

No.	Name	Material
1	Body	Bronze (equivalent to: CuAn5An5Pb5-C (DIN EN1982) CAC406 (JIS)
2	Retainer	Electro-galvanized cast steel
3	Seat Ring	PTFE
4	Ball	Cast stainless steel
5	Stem	Stainless steel
6	Seat Ring	NBR
7	Flange	Electro-galvanized carbon steel

Flow Characteristic

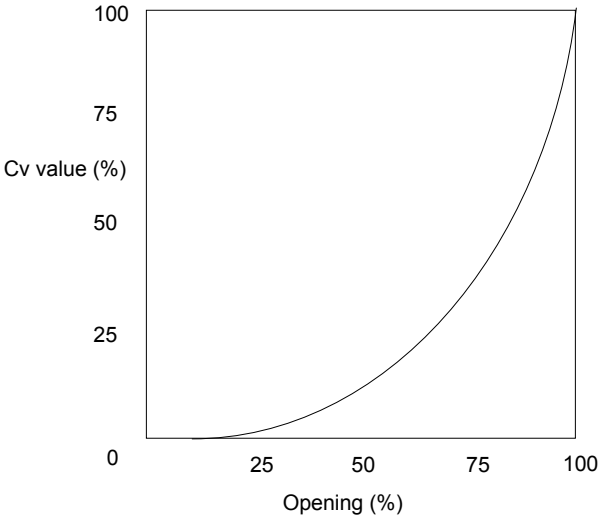


Figure 11 Flow Characteristic Diagram

Inspection and Troubleshooting

⚠ CAUTION
Do not carelessly touch the product when it is being used to control hot water. The product temperature goes high, and you may get burned.

- Inspect the product according to Table 1.
- Manually open/close the product at least once a month if it is left in an inactive state for a long period of time after installation.
- Visually inspect the product (e.g. fluid leakage) every six months.
  If any of the problems described in Table 2 is found, take corresponding actions shown in the table.
  If the problem is not solved by the corresponding actions, please contact Azbil Corporation.

Table 1 Inspection Items and Details

Inspection Item	Inspection Interval	Inspection detail
Visual inspection	6 months	• Loosened lock lever • Valve and actuator damage • Fluid leakage from the gland/pipe joint.
Operating status	6 months	• Unstable open/close operation • Abnormal noise and vibration
Routine inspection	Any time	• Abnormal noise and vibration • Unstable open/close operation • Valve hunting

Table 2 Troubleshooting

Problem	Part/s to check	Action
Valve doesn't operate smoothly. Valve stops halfway. Valve does not operate at all.	Conditions of power and the input signal applied to the actuator. Wiring condition/disconnected wires of the actuator Jammed foreign substances	Check the power supply. Check the connected controller. Check the wiring. Remove foreign substances by manually opening and closing the valve.
Fluid leaks when the assembled actuator fully closes the valve.	Refer to the section **Assembling the valve with the actuator Model MY5302C** in order to reconfirm the mounting procedure.	Redo mounting by the mounting procedure described in this document.
Valve hunting	Secondary pressure condition, differential pressure condition Control stability	Reset and adjust the valve inlet/outlet pressure. Modify the control parameters/PID setting of the controller that is connected to the assembled actuator.
The auxiliary switch of the assembled actuator does not work.	Auxiliary switch (cam switch) condition Wiring condition/disconnected wires of the actuator	Redo the cam switch setting. Check the wiring.
Joint part of the valve and the actuator vibrates or produces an abnormal sound.	Lock lever condition of the actuator Yoke damage	Lock the lock lever. Consult with our sales/service personnel.
Noise of water flowing	—	Consult with our sales/service personnel.
The assembled actuator in operation produces abnormal sound.	—	Consult with our sales/service personnel.

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Specifications are subject to change without notice.

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