

VA-3000 SERIES EASY INSTALLATION ACTUATOR

DESCRIPTION

VA-3000 series easy installation cubic cover actuator is electromechanical product, and can be mounted on VB-3000 series valves.

VA-3000 series easy installation cubic cover actuator has 3 basic types:

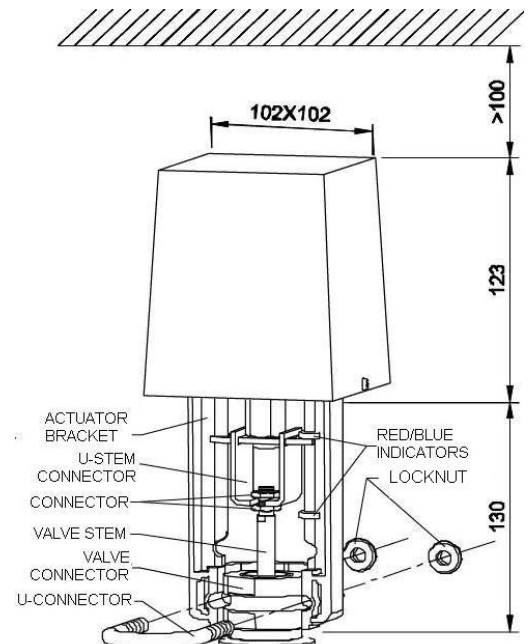
1. VA-3300 (VA-3400) reversible motor operation and provide increasing control;
2. VA-3301 (VA-3401) can accept input 0~10V DC or 4~20mA DC control signal and provide proportional control, and also can provide 0~10V DC feedback signal to indicate the position of the actuator;
3. VA-3302 (VA-3402) can accept input 0~10V DC or 4~20mA DC control signal and provide proportional control.



Fig. 1)

CHARACTERISTICS

- Low AC voltage synchronic reversible motor.
- Magnetism clutch.
- The action uses gear to transit. Output gear rollers are supported by surface rolling bearing, which rotate around the central bearing.
- Valve working position indicator.
- Fireproof ABS plastic casing.
- Conveniently mounting.
- 0~10V DC or 4~20mA DC control (For VA-3301 (VA-3401) and VA-3302 (VA-3402) only)
- Working state (DA or RA) can be selected by jumper.
- Apply to 13mm, 15mm, 17mm, 19mm or 22mm stroke can be selected by jumper.
- Have overtime protection function, and failure protection function when without control signal.
- 0~10V DC feedback signal.
- Have manual open/close valve function (only for VA-3XXXM)
- Have auxiliary micro-switch (only for VA-3XXXS)
- Have manual open/close valve function and auxiliary micro-switch (only for VA-3XXXK)



(Fig. 2)

OPERATION

1. Actuator is driven by reversible synchronous motor with magnetism clutch. Motor can create stable torsion at stopping condition depending on the magnetism effort, which is created by motor rotor and magnetism clutch. And the motor can stop at any position when there is no current pass through.
2. The signal of the increasing or proportional type controller can make the motor rotate clockwise or anti-clockwise.

Ex-factory setting for VA-3301 (VA-3401) and VA-3302 (VA-3402) are: 22mm stroke, 0~10V DC mode, DA working state, UP direction failure protection. If the manufacturer has already mounted the actuator on the valve body, it will fit with the valve's stroke. Further more, it can select direct (DA) or reversible (RA) working mode. The two modes are just opposite. When there is no control signal, it can select DOWN/UP jumper to select the working direction. For VA-3301 (VA-3401) model, it also has 0~10V DC feedback signal output. Since the 0~10V DC and 4~20mA DC control

signals are quite different, so if need 4~20mA DC mode, please indicate when ordering, and the factory will adjust the parameter of the PCB.

SPECIFICATIONS AND TECHNICAL DATA

MODEL		VA-3300X (VA-3400X*)	VA-3301X (VA-3401X*)	VA-3302X (VA-3402X*)
MOTOR		Bi-directional Synchronous motor with magnetic clutch.		
POWER SUPPLY (MOTOR)		24VAC \pm 10%, 50/60Hz, 5.5VA 230VAC \pm 10%, 50/60Hz, 5.5VA	24VAC \pm 10%, 50 / 60Hz, 5.5VA	
STARTUP CAPACITANCE		10 μ F/100V (24V motor) 0.33 μ F/400V (230V motor)	10 μ F/100V (24V motor)	
CURRENT-LIMITING RESISTANCE		10 Ω /1w	10 Ω /1w	
OPERATION / CONTROL		Reversible, incremental control	Proportional control upwards or downwards	
ELECTRIC CIRCUIT	POWER	—	24V AC \pm 10%, 50/60Hz,	
	INPUT SIGNAL	—	0~10V DC or 4~20mA DC	
	FEEDBACK	—	0~10V DC (5mA)	—
POWER CONSUMPTION (PCB)		—	2VA	
NORMAL TORQUE		1000N (# 1500N)		
MATERIAL	GEAR	Stainless steel, POM plastic (# Brass)		
	REDUCER CHASSIS	Zinc-plated steel		
	BRACKET	Die-casting aluminum alloyed		
	CASING	Fire-proof ABS engineering plastic (UL94V-0)		
OPERATION TIME		50Hz: 4.6s/mm (# 50Hz: 7.77s/mm) 60Hz: 3.8s/mm (# 60Hz: 6.45s/mm)		
OPERATION TEMP.		2~55 $^{\circ}$ C		
STORAGE TEMP.		-20~65 $^{\circ}$ C		
MAX. RH		<90% no condensation		
CONNECTING WIRES		0.5~1 mm ²		
DEFAULT SETTING		Move upwards to fully-close position	Stroke: 22mm; Input signal: 0~10V DC; Working mode: DA; Failure protection: UP; Move upwards to fully-close position	
ACCESSORIES		Lock nut, position indicator, position pointer		
NET WEIGHT		1.4kg	1.45kg	

- The "X" with "*" is additional code: M-with manual open/close function; S-with auxiliary micro-switch; K-with manual open/close function and auxiliary micro-switch; omitted-standard type.
- The data with "#" is the data of VA-34XXX

INSTALLATION

1. Install the actuator bracket on the valve body, insert the U-connector and tighten the fixed screw of the actuator. (See Fig. 2)
2. Lift up the valve stem and put the lock nut and position pointer onto it, then insert the stem into the U-stem connector. Use spanner to lock the locknut after adjusted the position. (See Fig. 2, the actuator have been set to fully-close position for the valve body, if no special requirements, it should not be changed.)
3. Give priority to vertical installation and remain enough room for screw off the actuator when repair the valve body. (See Fig.3)

- Connect the wires according to the Wiring Diagram. (See Fig. 3)
- Turn on the power supply and make the valve fully closed, then aim at the position indicator closing line with the position pointer, and stick it tightly on the bracket of the actuator. (See Fig. 2)
- Power supply test: The UP or DOWN operation of VA-3300 (VA-3400) actuator can CLOSE or OPEN valve completely. For VA-3301 (VA-3401) and VA-3302 (VA-3402) actuator, choose the STROKE jumper (J5) according to the valve's stroke, then provide it a fully-open signal, for example, if provide 10V signal at the mode "0~10V", actuator will move downwards till the red indicator lamp turns dark. If the gears inside the actuator have already stopped, but the indicator lamp is still on, in this case, it indicates the setting stroke is larger than the valve's real stroke. The stroke potentiometer PT1 (STROKE) needs to be micro-adjusted anticlockwise until the indicator lamp turns off, then, the valve is fully opened. Provide a 0V fully-close signal, actuator will move upwards until the indicator lamp turns off, and then the valve is fully-closed (Ex-factory setting). If the indicator lamp is still on, unscrew the stem from the U-stem connector till the lamp turns off. Finally, let the valve operate a circle to ensure the fully-open and the fully-close of the valve will make the indicator lamp turn off.

NOTE

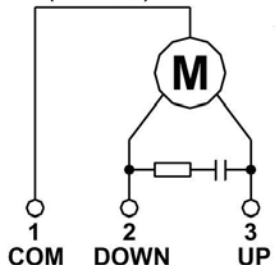
- Actuator must be protected and prevented from water dripping to destroy internal elements and motor.
- Actuator can't be covered with adiabatic material.

CAUTION

- Cut off power supply when repair the actuator, to avoid destroying elements or cause casualty because of leakage of electricity.
- When power is on, don't try to connect or disconnect the electrical wires.

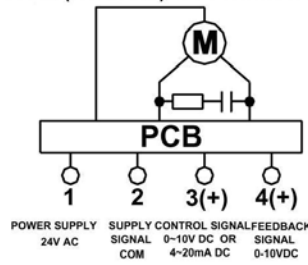
WIRING DIAGRAM AND SETTING DIAGRAM

VA-3300X (VA3400X) WIRING DIAGRAM



TERMINAL	ACTUATOR ROD
1-2	DOWN EXTEND
1-3	UP CONTRACT

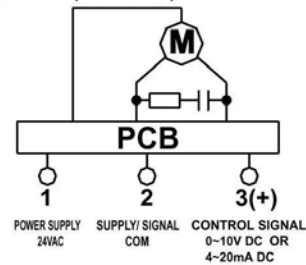
VA-3301X (VA3401X) PCB WIRING DIAGRAM



POWER SUPPLY 24V AC
 SIGNAL COM 0-10V DC OR 4-20mA DC
 SIGNAL FEEDBACK SIGNAL 0-10VDC

INPUT CONTROL SIGNAL		ACTUATOR ROD
DA	RA	DOWN
INCREASE	DECREASE	DOWN
DECREASE	INCREASE	UP

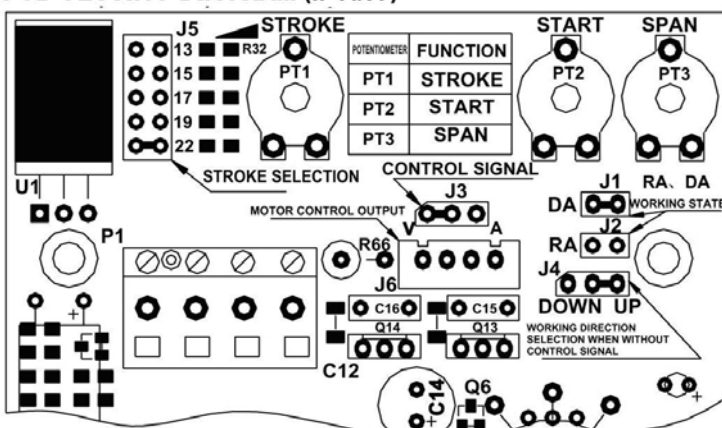
VA-3302X (VA3402X) PCB WIRING DIAGRAM



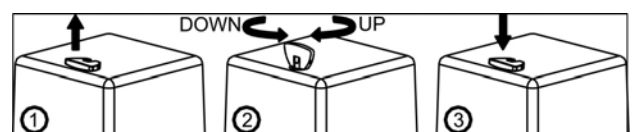
POWER SUPPLY 24VAC
 SUPPLY SIGNAL COM
 CONTROL SIGNAL 0-10V DC OR 4-20mA DC

INPUT CONTROL SIGNAL		ACTUATOR ROD
DA	RA	DOWN
INCREASE	DECREASE	DOWN
DECREASE	INCREASE	UP

PCB SETTING DIAGRAM (IF ANY)



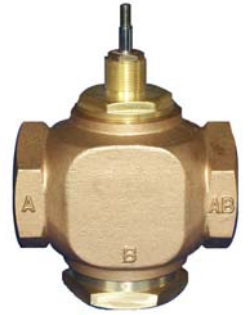
VA-3XXXM MANUAL SWITCH



VB-3000 SERIES BRASS VALVE

DESCRIPTION

VB-3000 series brass valve is equipped with electrical control device, it can be used to control the flow of steam or cool / heat water in central air-conditioning, heating, water handling and industrial processing industry system.



MATERIAL DESCRIPTION AND TECHNICAL DATA

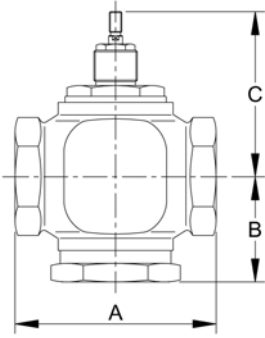
PRODUCT		VB-3000 Standard Valve	VB-3000V High temperature valve (Steam Valve)
MATERIAL	VALVE BODY	Casting brass	High intensity casting brass
	VALVE STEM	1Cr18Ni9	1Cr18Ni9
	SEALING MATERIAL	Fluon filler and O-ring Nitrile rubber sealing combination	Fluon filler and O-ring Fluorine rubber sealing combination
	VALVE PLATE	Forging brass with Nitrile rubber gasket	High intensity forging brass with Fluon gasket
PRESSURE RATING		1.6MPa (At 95°C)	1.6MPa (At 180°C)
PIPE CONNECTION		G / BSP / NPT	
WORKING MEDIUM		Water	Water / Steam
FLUID TEMPERATURE		2~94°C	2~180°C
FLOWING CHARACTERISTICS		Equal percentage	
LEAKAGE		Less than 0.05% of Kv factor	
CLOSING DIRECTION		Valve stem goes up is closing	

SPECIFICATIONS AND TECHNICAL DATA

STANDARD VALVE MODEL	STEAM VALVE MODEL	TYPE	SIZE (DN)		Kv	STANDARD VALVE MAX. DIFF. PRES. (MPa)		STEAM VALVE MAX. DIFF. PRES. (MPa)		STROKE (mm)
			mm	in		FIT WITH VA-31XX	FIT WITH VA-32XX	FIT WITH VA-31XX	FIT WITH VA-32XX	
VB-3200-25(*Q)	VB-3200-25V(*Q)	2-Way	25	1"	8	1.0	1.4	0.8	1.2	15
VB-3200-32(*Q)	VB-3200-32V(*Q)		32	1¼"	16	0.75	1.1	0.6	1.0	19
VB-3200-40(*Q)	VB-3200-40V(*Q)		40	1½"	25	0.5	0.8	0.4	0.7	19
VB-3200-50(*Q)	VB-3200-50V(*Q)		50	2"	40	0.3	0.5	0.2	0.4	22
VB-3200-65(*Q)	VB-3200-65V(*Q)		65	2½"	63	0.2	0.35	0.2	0.35	22
VB-3300-25(*Q)	VB-3300-25V(*Q)	3-Way	25	1"	8	1.0	1.4	0.8	1.2	15
VB-3300-32(*Q)	VB-3300-32V(*Q)		32	1¼"	16	0.75	1.1	0.6	1.0	19
VB-3300-40(*Q)	VB-3300-40V(*Q)		40	1½"	25	0.5	0.8	0.4	0.7	19
VB-3300-50(*Q)	VB-3300-50V(*Q)		50	2"	40	0.3	0.5	0.2	0.4	22
VB-3300-65(*Q)	VB-3300-65V(*Q)		65	2½"	63	0.2	0.35	0.2	0.35	22

* Q indicates Easy Installation type valve. The Easy Installation Actuator can only be installed on Easy Installation type valve. If Easy Installation type valve is required on steam valve, radiator is not available.

DIMENSIONS

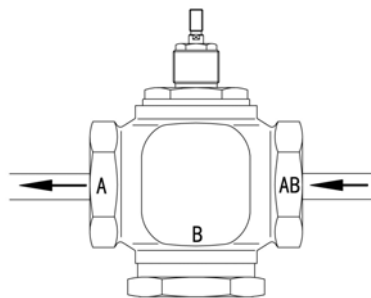
FIGURE	MODEL	DIMENSIONS (mm)		
		A	B	C
	VB-3200-25(V)	110	63	108
	VB-3200-32(V)	120	69	108
	VB-3200-40(V)	130	71	111
	VB-3200-50(V)	145	77	114
	VB-3200-65(V)	175	83	121
	VB-3300-25(V)	110	81	108
	VB-3300-32(V)	120	85	108
	VB-3300-40(V)	130	85	111
	VB-3300-50(V)	145	96	114
	VB-3300-65(V)	175	104	121

INSTALLATION

1. Before mounting the valve, make sure that the pipe is clean and free from soldering scraps, metal sheet, sand, stone or other sundries.
2. The pipe and valve body must be connected perfectly without vibration. The water flow direction should be the same as marked on the valve body.
3. If the valve is mounted in the factory, which is working with high temperature fluid (steam, overheated water, diathermic liquid), it is necessary to use expansion joint to avoid expanding the pipe and pressing the valve.
4. The actuator should be mounted vertically on the valve body, and avoid the actuator below the valve body. Remain enough space so that the actuator can be taken down from the valve body during the daily maintenance.
5. Power supply must be shut off or insulated when maintain the valve. There should not have pressure in the water system.
6. For other installation requirements, please refer to the Installation Instruction of the actuator.

FLOW DIRECTION DIAGRAM

TWO-WAY VALVE



THREE-WAY VALVE

