

VA-704x and VA-706x Thermal Valve Actuators

Product Bulletin

PB_VA-704x and VA-706x
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The VA-704x and VA-706x actuators provide ON/OFF or proportional control in HVAC applications.

The compact design of these actuators make them suitable for installations in confined spaces, such as fan-coil applications.

The VA-704x and VA-706x actuators are designed for field mounting onto VG5000, VG4000 and V5000 terminal unit valves (*see pertinent bulletins*).



VA-704x Actuator and VA-706x Actuators

Table 1: Features and Benefits

Features	Benefits
Low and line voltage models available	Flexible applications
On / Off or proportional control	Allows optimum control selection
Stem position indicator	Simplifies commissioning
Compact design	Ideal for installation in confined spaces (fan coils, etc.)
Can be mounted after valve body is installed	Easier to install. Allows more flexibility in actuator selection
Actuator can be rotated after mounting	Allows location of the cable entry in the required position. Makes installation easier.
Smooth action	No noise. Suitable for comfort installations
Separate models for Direct Action and Reverse Action	Allows flexibility in valve selection

Ordering Codes

Codes	Supply voltage	Control Type	Factory Setting	Valve Combinations (mounting thread)
VA-7040-21	24 V	ON/OFF or PAT	Direct Acting (stem extend when energized)	VG5000, VG4000 (M28 x 1.5)
VA-7047-21			Reverse Acting (stem retracts when energized)	V5000 (M30 x 1.5)
VA-7048-21				
VA-7040-23	230 V		Direct Acting (stem extend when energized)	VG5000, VG4000 (M28 x 1.5)
VA-7047-23			Reverse Acting (stem retracts when energized)	V5000 (M30 x 1.5)
VA-7048-23				
VA-7060-21	24 V	Proportional	Direct Acting (stem extend when energized)	VG5000, VG4000 (M28 x 1.5)
VA-7067-21				V5000 (M30 x 1.5)

Actuator combinations

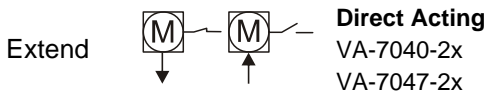
The VA-704x and VA-706x series thermal valve actuators are designed to be used with the V5000, VG5000 and VG4000 valve series.

Please refer to the “VG5000 Forged Brass Valves”, “VG4000 High Capacity - High close-off Terminal Unit Valves” and “V5000 Terminal Unit Valve” Product Bulletins for complete ordering information.

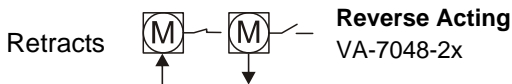
Operation

VA-704x Actuators

The actuators allows the choice for:



or



Normally Closed configuration (Direct Acting)

When energised, the actuator pushes down axially on the valve stem against the force of the valve return-spring to open the normally closed port of the valve.

When the actuator is de-energised, the valve return-spring brings the valve back to its normal position against the pressure of the fluid.

Normally Open configuration (Reverse Acting)

When the actuator is energised, the valve return-spring brings the valve to the closed position against the pressure of the fluid.

When the actuator is de-energised, the actuator pushes down axially on the valve stem against the force of the valve return-spring to open the normally closed port of the valve.

VA-706x Actuators

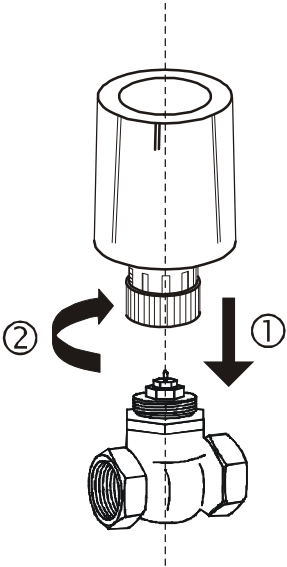
The valve aperture is proportionally to the control signal (DC 0 to 10 V) of the controller.

The action of the actuator can be set by energizing the white or red wire.

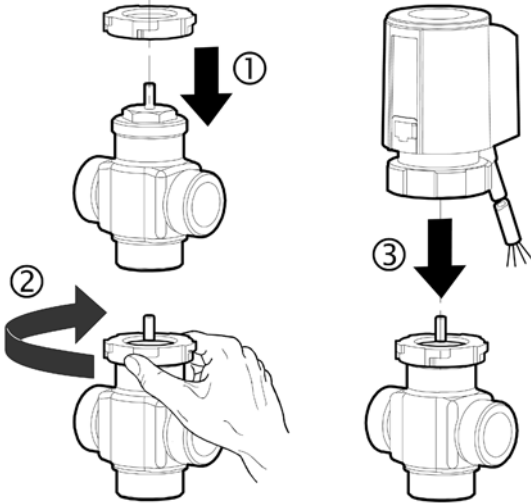
Mounting Instructions

When mounting the actuator on a V5000, VG5000 or VG4000 valve, please follow the instructions below:

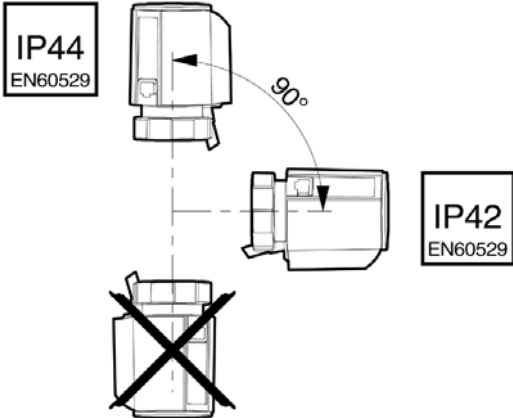
VA-704x Models




VA-706x Models



Mounting Position



Wiring Instructions



When servicing make sure that:

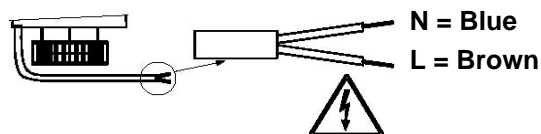
- the electric supply to the actuator is switched off to avoid possible damage to the equipment, personal injury or shock.
- you do not touch or attempt to connect or disconnect wires when electric power is on.
- you do not open or attempt to repair, contact your Johnson Controls dealer.

When wiring the actuator, please follow the instructions below:

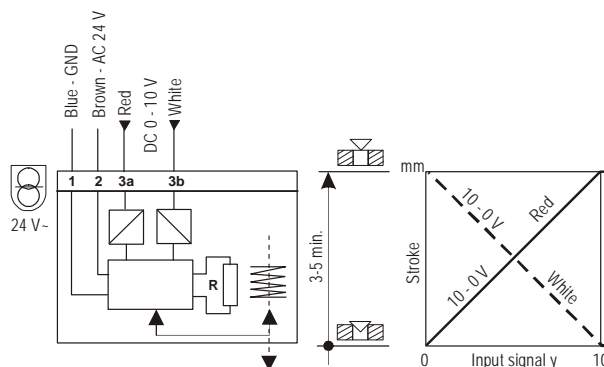
- Before mounting, wiring or adjusting the actuator, make sure that the power supply has been disconnected to avoid possible harm to material or person.
- Make sure that the line power supply is in accordance with the power supply specified on the actuator.
- All wiring should conform to local codes and must be carried out by authorised personnel only.

Wiring Diagram

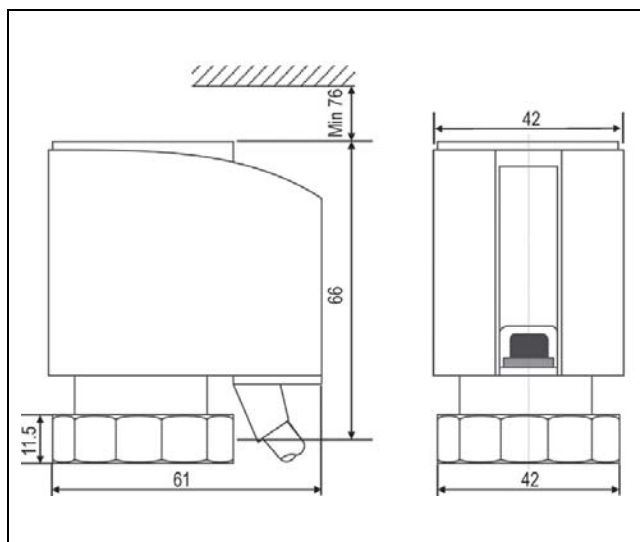
VA-704x



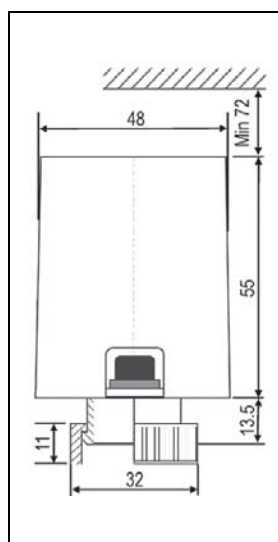
VA-706x



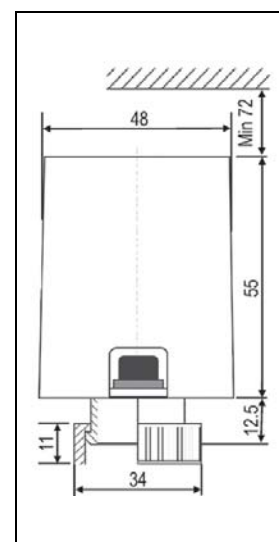
Dimensions in mm



VA-706x




VA-7040



VA-7047 and VA-7048

Technical Specifications

Models	VA-704x-23	VA-704x-21	VA-706x-21
Type of motor	Thermal ("Wax" power element)		
Action	ON/OFF or PAT		Proportional DC 0...10 V
Supply voltage (50/60 Hz)	AC 230 V \pm 10%	AC 24 V or DC 24 V \pm 20%	AC 24 V \pm 20%
Power consumption:			
- Continuous	2.5 W	3 W	3 W
- Start-up	36 W (150 mA) max.	6 W (250 mA) max.	6 W (230 mA) max.
Impedance	---		Ri \geq 800 k Ohm
Nominal force	125 N		
Nominal stroke	4.5 mm		
Full stroke time	3 min for 3 mm stroke when starting from cold		
Electrical connection	Fitted cable 0.5 mm ² wire gauge		
Protection	IP44 (IEC 60529); IP 42 when horizontal		
Connection to Valves	M 28 x 1.5 (VA-7040 / VA-7060) M 30 x 1.5 (VA-7047 / VA-7067 / VA-7048)		
Valve max fluid temperature	95° C		
Ambient operating condition	-5 to +50 °C, non condensing		
Ambient storage condition	-30 to +65 °C, non condensing		
Weight, excl. packaging	170 g		
 Compliance	VA-704x-23 EMC 89 / 336 EEC as per EN 61000-1 / EN 61000-2, EN 61000-3 / EN 61000-4 LVD directive 73 / 23 / EEC as per EN 60730-1 / EN 60730-2-14 VA-704x-21, VA-706x-21 EMC 89 / 336 EEC as per EN 61000-6-1 / EN 61000-6-3 EN 61000-6-4		

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.



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