

User Manual

JV-E

Electric 1/4 Turn Johnson Valves Actuator 20Nm - 1200Nm

The JV-E electric actuator is designed for quarter turn applications on ball and butterfly valves with bases to ISO 5211 & DIN 3337 standard. Small, lightweight and compact in design but still offering high output torques.

Simple Installation

All connections are located in a separate terminal box, minimising the amount of disassembly required.

High Visibility Position Indicator

Making visual checks easy even from a distance.

Watertight Unit

IP68 Watertight (IP68 5m 120hr)

Efficient Design

High torques are achieved with relatively low power consumption.

Captive Bolts

Bolts will not be lost even when the cover is open.

Self Locking

The risk of overheating due to repeated operations is avoided with this feature.



Standard Specifications

Enclosure	IP68 Watertight (IP68 5m 120hr)	Travel Angle	90° ± 5°
Power Supply	110V & 250V (1PH) / 24VDC / 380V & 440V (3PH) ***	Casing Material	Aluminium Alloy, Dry Power Polyester Coated
Indicator	Dome Type Mechanical	Terminal Block	Push Button
Limit Switches	2 x Open / 2 x Close, SPDT, 250V AC *	Ambient Temp	-20 to +60°C
Inside Heater	(AC Only) 1PH 110/220V AC **	Mechanism	Scotch-Yoke (JV-E05 - Spur Gear Type)

* not available on JV-E02 ** not available on JV-E02, 04 & 05 ***Only available for JV-E16, 28, 40, 50, 80 & 120

Model No.	Maximum Torque Output			Op. Time 50 / 60Hz 90° (sec.)	Rated Current (A)					Motor Insulation / output (AC . DC)	Manual Handle Turns
	0°	45°	90°		AC (1PH)		AC (3PH)		DC 24V		
					110V	220V	380V	440V			
JV-E02	20	20	20	17.5/14.5	0.29/0.25	0.12/0.1	N/A	N/A	1.5	E . B/10W . 10W	3
JVE-04	40	40	40	12/10	0.67/0.6	0.23/0.2	N/A	N/A	2	E . B/10W . 10W	3
JV-E05	50	50	50	13	(100-250V AC) 0.1-0.25		N/A	N/A	2	B . B/10W . 10W	18
JV-E10	100	65	100	22/18	0.82/0.75	0.42/0.40	N/A	N/A	2.5	F . B/10W . 15W	15
JV-E16	160	107	160	28/23	0.94/0.85	0.50/0.46	0.47/0.37	0.62/0.49	4	F . B/15W . 15W	19
JV-E28	280	190	280	40/33	0.94/0.85	0.50/0.46	0.47/0.37	0.62/0.49	4	F . B/15W . 15W	23
JV-E40	400	270	400	40/33	1.09/1.23	0.54/0.58	0.16/0.15	0.18/0.16	5.5	F . B/25W . 40W	23
JV-E50	500	350	500	40/33	1.55/1.75	0.72/0.90	0.30/0.28	0.40/0.30	N/A	F/40W	23
JV-E80	800	540	800	51/42	1.97/2.83	1.09/1.46	0.50/0.54	0.57/0.55	N/A	F/60W	77
JV-E120	1200	800	120	51/42	1.97/2.83	1.09/1.46	0.50/0.54	0.57/0.55	N/A	F/90W	77

(s) spanner operated

JV-E USER MANUAL

- Table of Content -

1. Summary	
1-1. Model System	
1-2. Label	
2. Products	
2-1. Construction	
3. Installation	
3-1. Attachable Valve	
3-2. Selection of Actuator	
3-3. Caution during Installation	
4. Operation	
4-1. Operation	
4-2. Limit Switch Setting	
4-3. Caution during Operation	
5. Maintenance & Repair	
5-1. Self-Diagnosis	
5-2. Assembling & Disassembling	
6. Customer Service Support Contact	

Revision

Date: 04/12/2015

Contents: Issued

Issued: Lee Houghton

1. Summary

JV-E Actuator allows to conveniently open & close the Valve fast in any places wherever the electricity are connected & available. The Valve is designed to thoroughly assure the safety & convenience of users, however, please make sure to operate after reading & digesting the User Manual completely. Please check the homepage of Johnson Valves or inquire with Johnson Valves & authorized Agents for those items & subjects not described in the Manual.

- Data contained in the User Manual may be subject to change without advance notice for improvement of performance & safety of Product.

※Did you receive the JV-E ELECTRIC ACTUATOR?

Followings must be checked before operation.

- 1) It should be checked if the label is well attached, and if the specification of the label is the same with your order.
- 2) It should be checked if the connection diagram is attached at the inside of terminal cover.
- 3) It should be checked if the manual lever is attached at side or lower part.
- 4) It should be checked if there is any other scratch or dent.

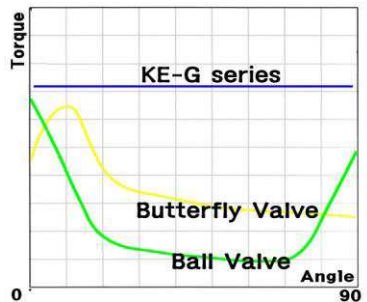
1-1. Model System

This is the JV-E series user manual and each model is as follows.

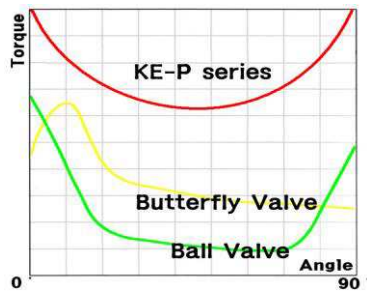
JV-E05

JV-E = Johnson Valves Electric / **05** = Size & torque output

JV-E05 series (Spur gear) Torque graph



JV-E10 to 50 series (Scotch yoke) Torque graph



Temperature range = -20 to +60°C

1-2. Label

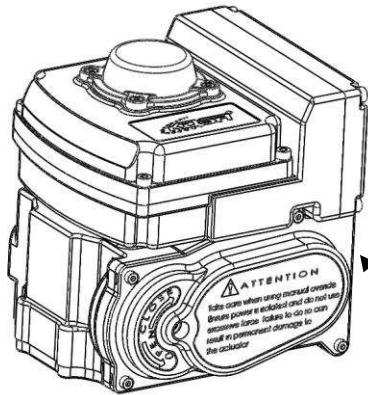
Models can be identified as labels with lot numbers and model numbers are attached to the products of Johnson valves as follows.

Model number:	Voltage:
Serial Number:	Rated current:
Max torque: Nm	Power:
Op time (90): secs	
Output flange:	Options:

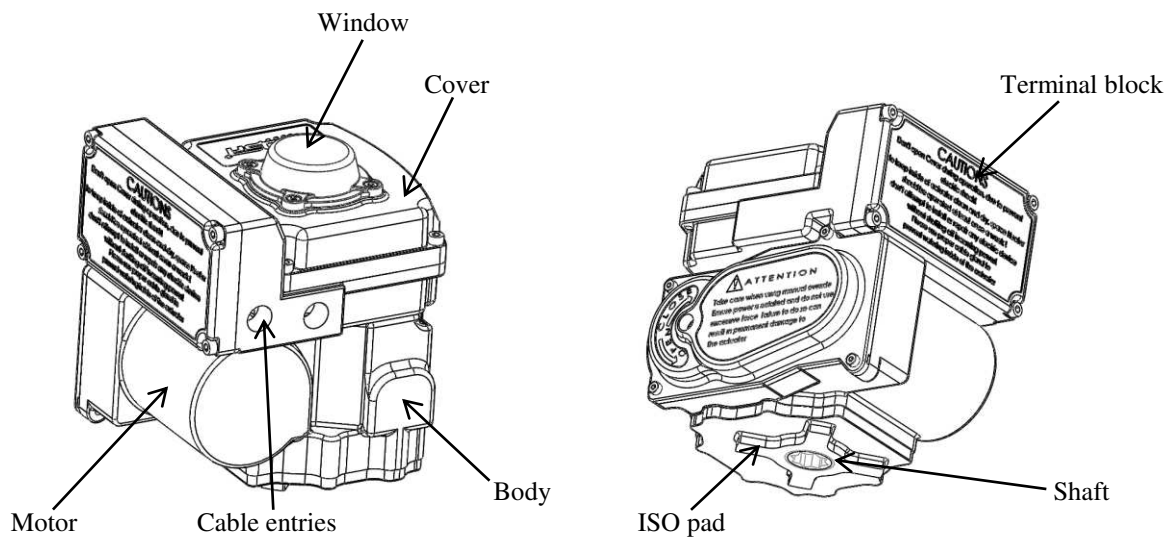
2. Products

2-1. Construction

Construction of the Product is illustrated as following.



Appearance based on JV-E16



Names of each parts based on JV-E16

3. Installation

User should execute the product installation after thoroughly digesting the following content.

3-1. Attachable Valve

The JV-E product can be applied to all the Rotary Type Valve executing opening & closing actions rotating 90°.

a. Major Components ; Ball Valve (2 way, 3 way), Butterfly Valve

3-2. Selection of Actuator

Check the following items in advance when selecting the model of Actuator.

a. Required torque to open & close the Valve

b. Voltage and Operation Environment of Site (High Temperature/Low Temperature)

c. Fluid Characteristic

d. Other items to consider to operate the Actuator

3-3. Caution during Installation

a. When installing the Product, execute the installation after either removing the potentially hazardous elements or mounting the safety devices considering the accidents & danger that may be happen during the installation works.

b. Johnson Valves Product can be used in any indoor & outdoor places except with the explosive environments, while the rust may be processed a little fast in case of installation in sea shore locations.

c. CAUTION as for the Products weighing over 20Kg, the Label of below shown flowing may be attached, either lifting by two persons or utilizing the appropriate device to move the product.



d. WARNING during the operation, electric current should not be sent to this product before it is completely equipped to a valve.

e. When attaching the Accessories, install after checking the Jointing Method & Joint Section.

f. As a basic installation direction, the window should be faced upward, but in case of vertical piping, it must be installed with the cable entries faced downward, and after connection please seal the cable entries in order to prevent any foreign materials from entering through it.

g. Do never either use the hazardous substances or operate or store under the condition using hazardous substances. Definition of hazardous substances are those potentially harmful materials, e.g. which may cause explosion or fire, flammable materials, toxic materials, corrosive materials & etc

h. Please make sure to connect a line at a correct location after checking the connection diagram attached on the terminal block cover. Wrong connection may cause not only the failure of product, but also an accident.

4. Operation

User of Product should operate upon fully recognizing the potential danger caused by the inappropriate management.

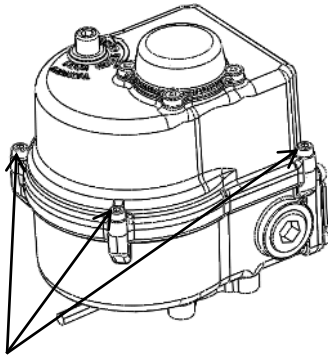
4-1. Operation

▷ Operation Voltage: Product is delivered with a voltage selected as per the demand of a user. Please use the product after checking if the voltage of the site and the one in the product label are same before installation.

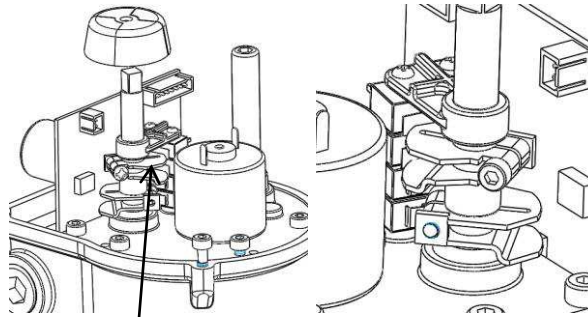
4-2. Limit Switch Setting

Our product is delivered with the limit switch adjusted basically as 90 degrees. However, please follow the below guides if the opening/closing angles are not correct when the product is operated, or if the limit switch should be set again according to the demand of the site.

Limit Switch Setting – JV-E05

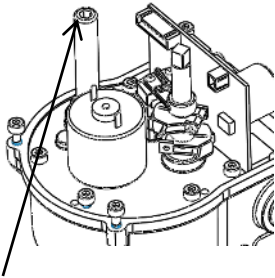


① Please open the cover by loosening the 4 bolts



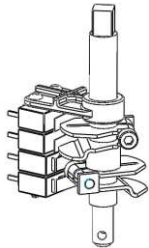
② The indicator should be separated and detached upward, and the cam fixing bolt should be loosened with a hexagon key

CLOSE



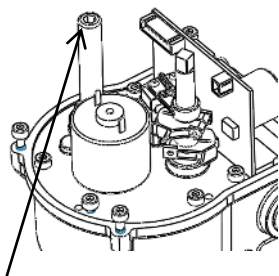
③ The angle required by the user should be set by turning the wrench to the direction of CLOSE (CW) in a state that it is stuck to the manual area and fully pressed. The wrench is attached to the product.

※Refer to cautions



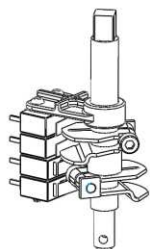
④ Rotate the upper cam out of the two cams for the 2 limit switches to be all pressed slightly while making a click sound.

OPEN



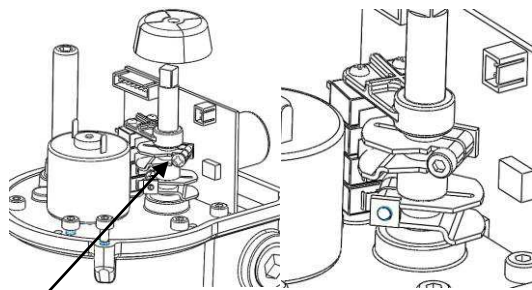
③ The angle required by the user should be set by turning the wrench to the direction of OPEN (CCW) in a state that it is stuck to the manual area and fully pressed. The wrench is attached to the product.

※Refer to cautions

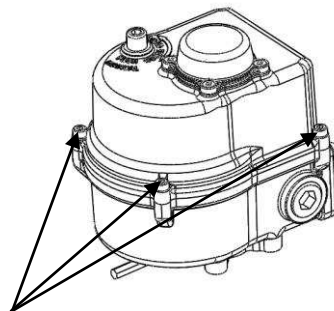


④ Rotate the lower cam out of the two cams for the 2 limit switches to be all pressed slightly while making a click sound.

※Cautions ※In case of JV-E05 series, the manual shaft must be rotated in a state that it is fully pressed by use of the wrench equipped to the product. Even though rotated in a state it is not fully pressed, it can be opened and closed, but it is much difficult as the connected motor is rotated together, and the different sound of motor rotation [wing] is heard.



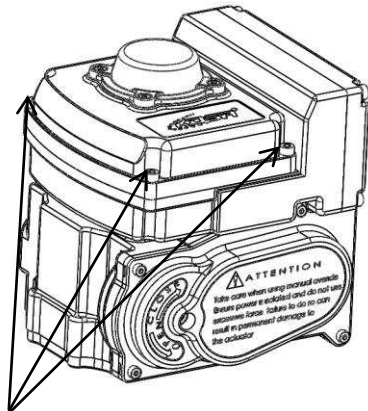
⑦ The cap fixing bolt should be fastened with a wrench, and the indicator should be angled and stuck to the shaft.



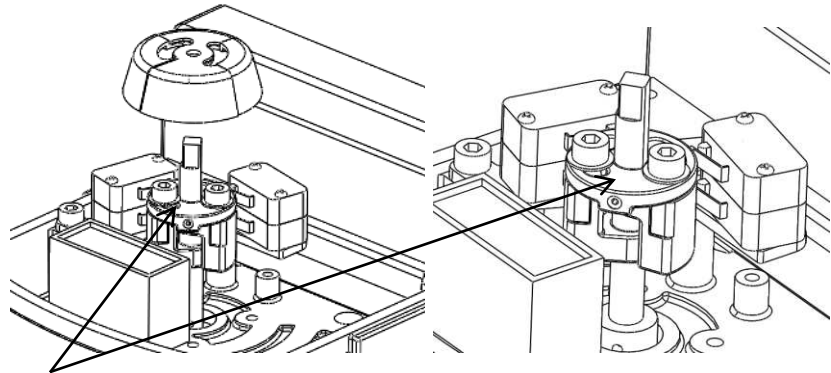
⑧ The cover must be closed and the indicator bolt should be fastened after checking if the OPEN/CLOSE is correct.

※Cautions※In case the indicator of ⑦ is wrongly stuck, the OPEN/CLOSE may be reversed when the cover is closed. The bolt must be fastened after closing the cover, and after checking if the OPEN/CLOSE of the indicator is same with the state of the product and the valve.

Limit Switch Setting – JV-E10 to 50

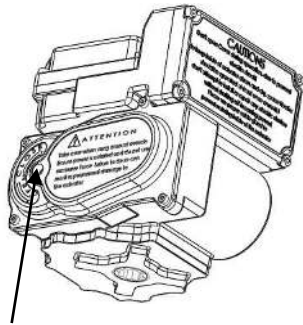


- ① Please open the cover by loosening the 4 bolts.

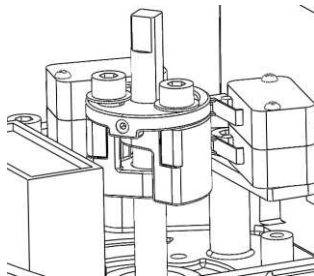


- ② The indicator should be separated and detached upward, and the cam fixing bolt should be loosened with a hex key.

CLOSE



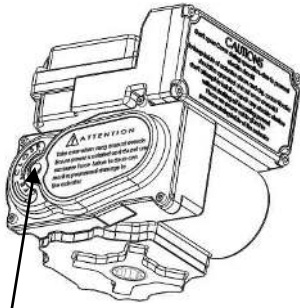
- ③ The angle required by the user should be set by turning the wrench to the direction of CLOSE (CW) in a state that it is stuck to the manual area. The wrench is attached to the product.



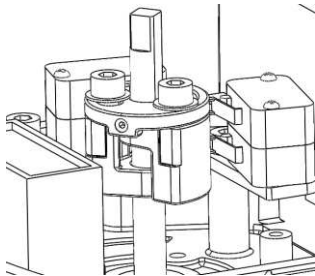
- ④ Rotate the Upper Cam out of the two cams for the 2 CLOSE limit switches to be all pressed slightly while making a click sound.

※Refer to below cautions

OPEN

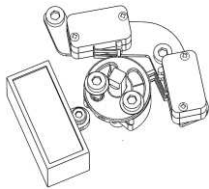


③ The angle required by the user should be set by turning the wrench to the direction of OPEN (CW) in a state that it is stuck to the manual area. The wrench is attached to the product.



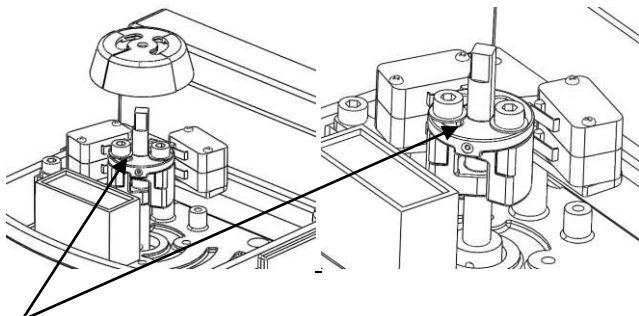
④ Rotate the lower cam out of the two cams for the 2 CLOSE limit switches to be all pressed slightly while making a click sound.

※Refer to below cautions

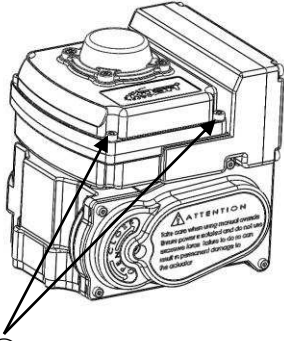


※Cautions※

Model	A	B	C
JV-E10	Condenser	OPEN	CLOSE
JV-E16 JV-E50	Condenser	CLOSE	OPEN



⑦ The cap fixing bolt (circled area) should be fastened with a wrench, and the indicator should be angled and stuck to the shaft.



⑧ The cover should be closed, and the indicator bolt should be fastened after checking if the OPEN/CLOSE is correct.

※Cautions※ In case the indicator of ⑦ is wrongly stuck, the OPEN/CLOSE may be reversed when the cover is closed. The bolt must be fastened after closing the cover, and after checking if the OPEN/CLOSE of the indicator is same with the state of the product and the valve.

4-3. Caution during Operation

- a. Johnson Valves Product is designed to open & closed the Valve. Do not use the Product on the purposes other than specified applications.
- b. Ensure not to have the unskilled labors user the Product at own discretion.
- c. Ensure to approach after completely securing the safety when the access to the Product under operation is desired.
- d. It should be kept at a cool and dry place in case not used for a long period and it is recommended that the power should be provided about 1 time and that the product should be operated more than 5 times for a month.

5. Maintenance & Repair

5-1. Self Diagnosis

All the Johnson Valves Actuators, going through the high pressure test from the development stage, are to be individually & fully tested prior to the shipment from factory. However, in the event the Product oftentimes does not operate with normal condition, execute the Self Diagnosis referring the below table. Nevertheless, if the trouble occurred is not still resolved, contact the Johnson Valves or authorized Agents for customer service support.

▷ Valve Not Working At All

Check	Result	Cause	Measures
Turn on the power after detaching the actuator from the valve	Operated	Valve torque is higher than the actuator	The actuator of the higher model should be equipped
		Voltage of the site is to low	The equipment is reinforced for the product to receive the correct voltage
	Not operated	The power of the product and the site is not corresponded	Exchange it with a product that meets the voltage of the site
		The connection is wrongly made	The connection should be made again referring to the correct wiring diagram
		The limit switch is wrongly set	The limit switch is set again referring to the user manual

▷ When Valve is Closed Stopping the Opening Process

Check Area	Cause	Measures
Actuator check	The limit switch is wrongly set	The valve torque is higher than that of the actuator
	Valve torque is higher than the actuator	The actuator higher model should be equipped
	The motor TP (Thermo Protect) is cut	It should be operated again after a fixed time has passed

※Caution ※ In case there is any burnt smell, or any spark is arisen, immediately shut off the power, and call to head office or agents after separating the product safely.

5-2. Assembling & Disassembling

The assembling & disassembling of Product should be executed by the Skilled Labors of Johnson Valves or an authorized Agents to secure the safety of Users and life cycle of Product in principle. However, in the event the indispensable assembling & disassembling of Product at site is desired due to unavoidable reasons, make sure to execute the works only after consulting with the persons in charge of Product of Johnson Valves or authorized Agents to receive sufficient instructions through e-mail or telephone communications.

▷ Skilled Labor; Persons who have received the professional trainings of Johnson Valves or authorized Agents and recognizes all the potentially dangerous situations. Further, the Skilled Labor must possess all the required knowledge on applicable laws & regulations with regard to the occurrence of unexpected accidents and other special job site conditions.

※ In the event the addition or variation from the original design of Product are to be desired, make sure to execute the works after consulting with Johnson Valves or authorized Agents to receive sufficient instructions. Johnson valves does not assume the responsibility for any property damages or personal injuries caused by the User's operating faults or arbitrary design change & improper maintenance works.

6. Customer Service Support Contact

Johnson Valves Head Office Address:

Unit 7 Trinity Court, Calmore Industrial Estate, Totton, Southampton, SO40 3WX

Head Office Telephone: +44 (0) 2380 669 666

KOSA+ Head Office Fax: +44 (0) 2380 669 606

Head Office e-mail: sales@johnsonvalves.com

The User Manual is made to allow the operation & convenience of Purchaser, User & Skilled Labor of Product, and Johnson Valves duly reserves the right of operating instruction & guides contained in the Manual. As such, any sorts of revisions & sales by copying of entire or part of the Manual without securing the written consent of Johnson Valves in advance should be absolutely prohibited.