

KOSA⁺ USER MANUAL (KE SERIES)

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Date	Contents	Issued
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1. Summary

KOSA+ 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 KOSA+ or inquire with the Customer Service Centers of KOSA+ & 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 KOSA+ 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 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 KE series user manual and each model is as follows.

KE010-3P

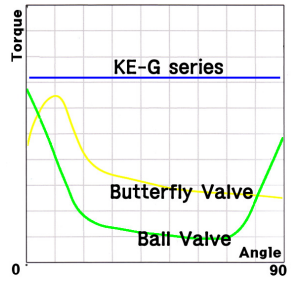
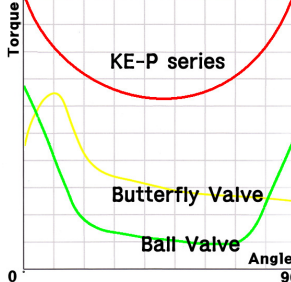
(a) (b) (c)

(a)	(b)	(c)
KOSA ELECTRIC	Model Number ¹⁾	Option of Model Number ²⁾
		<input type="checkbox"/> P scotch yoke type
		<input type="checkbox"/> G spur gear type

※Cautions※ 1) **The value of (b) does not always mean the product.**

2) Please refer to the label attached to the product as well as catalogue for the torque of each model as the product torque is changed according to the value of (c).

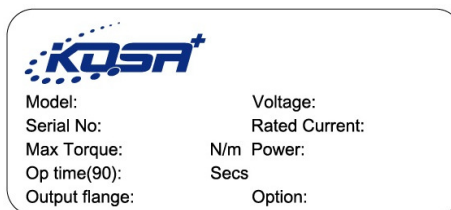
<Electric actuator Model System>

	KE-G series	KE-P series
Operating	spur gear	scotch yoke
Torque graph		
Model	Small Size	Medium, Large Size
Temperature range	-20℃ ~ 60℃	

<Differences per each Models>

1-2. Label

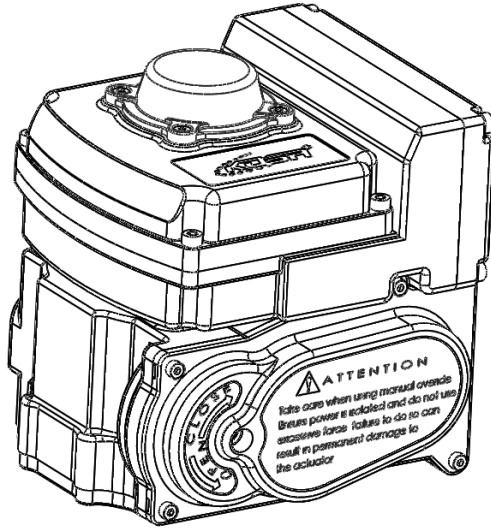
Models can be identified as labels with lot numbers and model numbers are attached to the products of KOSA⁺ as follows.



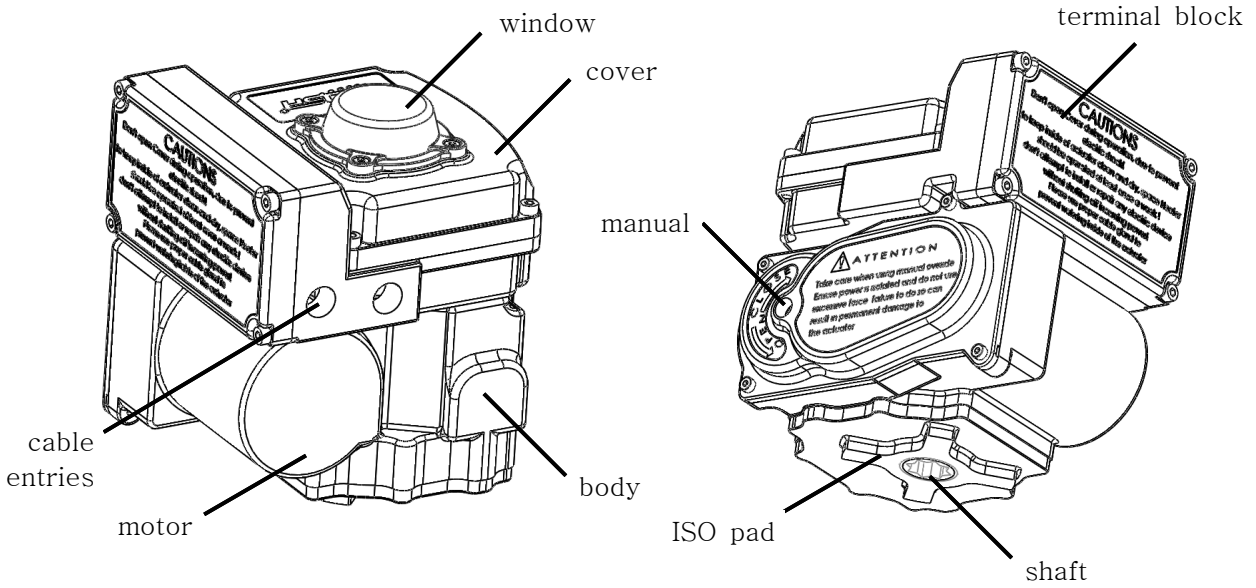
2. Products

2-1. Construction

Construction of the Product is illustrated as following.



<Total Appearance; based on KE016>



<Names per each Parts; based on KE016>

3. Installation

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

3-1. Attachable Valve

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


- a. Major Component ; 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. KOSA+ 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.  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.  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. that may cause explosion or fire, flammable materials, toxic materials, corrosive materials & etc
- h.  **WARNING** 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

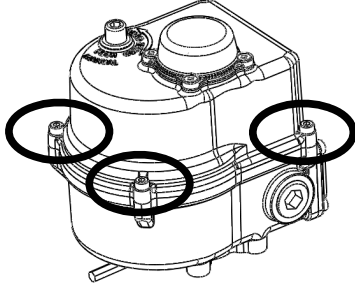
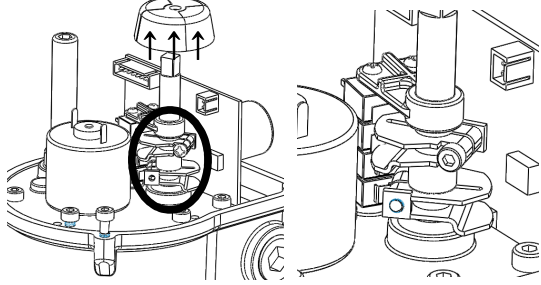
User of Product should operate upon fully recognizing the potential danger caused by the inappropriate management.

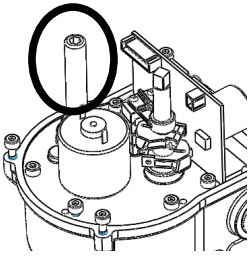
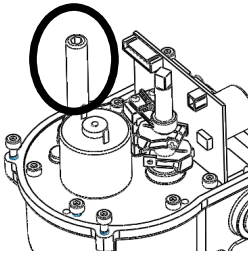
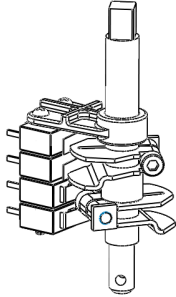
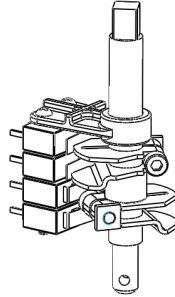
4-1. Operation

▷ 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.

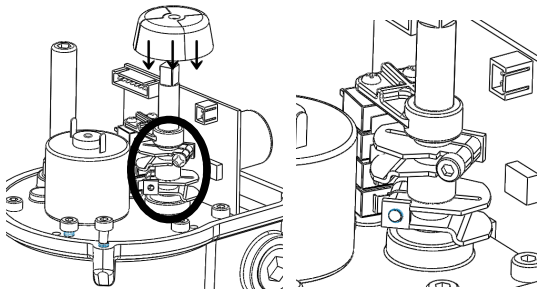
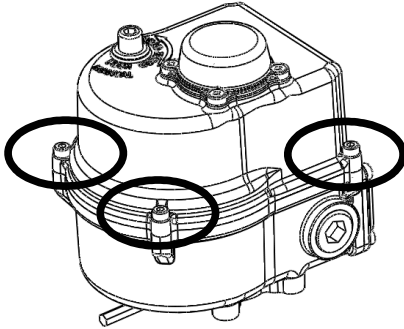
4-2. Limit Switch Setting

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		Relevant Model KE-G series
		
<p>① Please open the cover by loosening the 4 wrench bolts (circled area).</p>	<p>② The indicator should be separated and detached upward, and the cam fixing bolt(circled area) should be loosened with a wrench.</p>	

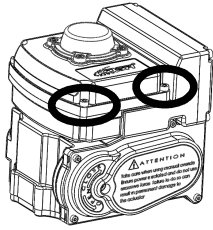
C L O S E	 <p>③ The angle required by the user should be set by turning the wrench to the direction of <u>CLOSE (CW)</u> in a state that it is stuck to the manual area and fully pressed. The wrench is attached to the product. *Refer to cautions</p>	O P E N	 <p>③ The angle required by the user should be set by turning the wrench to the direction of <u>OPEN (CCW)</u> in a state that it is stuck to the manual area and fully pressed. The wrench is attached to the product. *Refer to cautions</p>
	 <p>④ Rotate the <u>Upper Cam</u> out of the two cams for the 2 limit switches to be all pressed slightly while making a click sound.</p>		 <p>④ Rotate the <u>Lower Cam</u> out of the two cams for the 2 limit switches to be all pressed slightly while making a click sound.</p>

Cautions In case of KE-G 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.

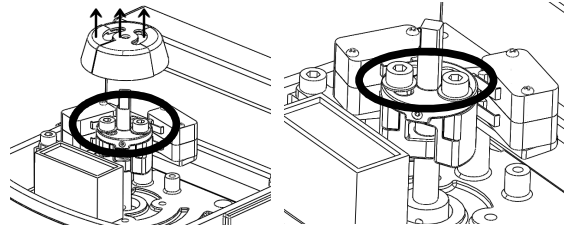
 <p>⑦ The cap fixing bolt (circled area) should be fastened with a wrench, and the indicator should be angled and stuck to the shaft.</p>	 <p>⑧ The cover should be closed, and the indicator bolt should be fastened after checking if the OPEN/CLOSE is correct.</p> <p>*Cautions* In case the indicator of 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.</p>
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Limit Switch Setting

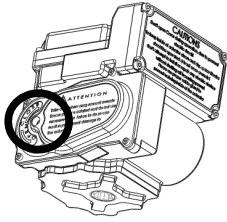
Relevant Model
KE-P series



① Please open the cover by loosening the 4 wrench bolts (circled area).

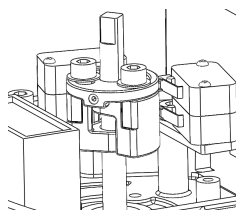


② The indicator should be separated and detached upward, and the cam fixing bolt(circled area) should be loosened with a wrench.

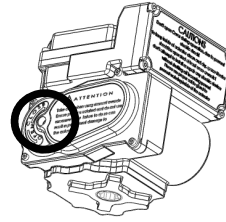


C
L
O
S
E

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.

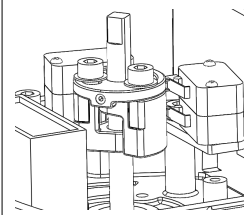


④ Rotate the Upper Cam out of the two cams for the 2 CLOSE limit switches to be all pressed slightly while making a click sound.
*Refer to below cautions

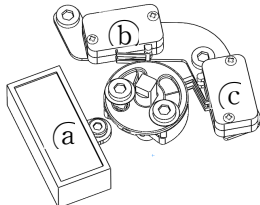


O
P
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N

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.

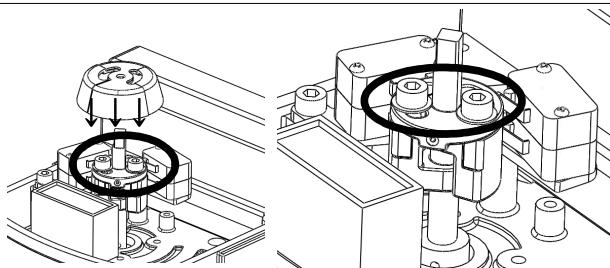


④ Rotate the Lower Cam out of the two cams for the 2 CLOSE limit switches to be all pressed slightly while making a click sound.
*Refer to below cautions

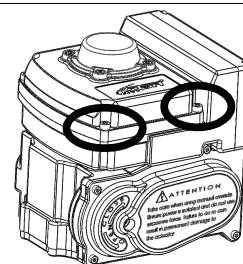


Cautions

Model	(a)	(b)	(c)
KE010	condenser	OPEN	CLOSE
KE016~ KE050	condenser	CLOSE	OPEN



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



⑧The 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. KOSA+ 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 KOSA+ 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 KOSA+ 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 that of actuator.	The actuator of higher model should be equipped.
		Voltage of the site is too low.	The equipment is reinforced for the product to receive enough voltage.
	Not operated.	The power of site and product 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 connection diagram.
		The limit switch is wrongly set.	The limit switch is set again referring to this user manual.

▷ When Valve is Closed Stopping the Opening Process.

Check Area	Cause	Measures
Actuator Check	The limit switch is wrongly set.	Valve torque is higher than that of actuator.
	Valve torque is higher than that of actuator.	The actuator of higher model should be equipped.
	The motot 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 KOSA+ or 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 KOSA+ or authorized Agents to receive sufficient instructions through e-mail or telephone communications.

▷ Skilled Labor ; Persons who have received the professional trainings of KOSA+ or authorized Agents and recognizes all the potentially dangerous situations. Further, the Skilled Labor must possess all the required knowledge on app 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 KOSA+ or authorized Agents to receive sufficient instructions. KOSA+ 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

KOSA⁺ HeadOfficeTelephone:+ 86-531-88588198

KOSA⁺ HeadOfficeFax:+ 86-531-88586385

KOSA⁺ Head Office e-mail: kosaplus@126.com

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