To Use This Product Safely

Be sure to read this before use.
Refer to Intro 17 for general information on electric actuators.

Individual Precautions: Electric actuator FFLD Series

During Design / Selection

⚠DANGER

■ Do not use in places where dangerous goods such as ignitable substances, inflammable substances or explosives are present.
There is a risk of ignition, fire, or explosion.

■ Ensure that the product is free of water droplets and oil droplets.
This can cause fire or malfunction.

■ When mounting the product, be sure to securely hold and fix (including the workpiece) it.
There is a risk of injury due to the product tipping over, falling, malfunctioning, etc. As a general rule, please fix the product using all mounting holes.

■ Use a DC stabilized power supply (24VDC ±10%) for the power supply, communication/Control power supply, and the power supply for the I/O circuit. Direct connection to an AC power supply can cause fire, bursting, damage, etc.

■ Through FFLD for common Control power supply (L-) and power supply (N24) Do not connect externally, as the unit is connected with an internal circuit board.
The reverse connection protection function installed in this machine will not operate normally, and there is a risk of fire, bursting, damage, etc.

⚠Warning

■ Use within the product's specified operating range.

■ Provide a safety fence to prevent entry to the movable range of the electric actuator. In addition, install the emergency stop button switch as a device in a location which is easy to operate in an emergency situation. The emergency stop push button must have a structure and wiring that does not automatically reset and cannot be carelessly reset by a person.

■ If the machine stops in the event of a system failure such as power outage, equipment damage or injury do not occur.Design a safety circuit or device.

■ Install indoors with low humidity.
In places where it is exposed to rainwater or in humid places (humidity of 80% or more, places with condensation), there is a risk of electric leakage or fire. Oil drops and oil mist are also strictly prohibited. Use in such an environment will cause damage and malfunction.

■ Make sure that the product is D type grounded (ground resistance of 100 Ω or less).
If an electric leakage occurs, there is a risk of electric shock or malfunction.

■ Use and store in accordance with the working/storage temperatures and where there is no condensation.
(Storage Temperature: -10°C to 50°C, Storage Humidity: 35% to 80%, Operating Temperature: 0°C to 40°C, Operating Humidity: 35% to 80%) It may cause abnormal shutdown of the product or decrease its service life. Ventilate if heat builds up.

■ Do not use this product in a location where the ambient temperature could suddenly change and cause dew to condense.

■ Install in a location free from direct sunlight, dust, and corrosive gas/explosive gas/inflammable gas/combustibles, and away from heat sources. In addition, this product has not been considered for chemical resistance.
This can cause malfunction, explosion, or fire.

■ Use and store in locations free from strong electromagnetic waves, ultraviolet rays, or radiation.
This can cause malfunction or failure.

■ Take possibility of power source breakdown into consideration.
Take measures to ensure that even if a failure occurs in the power source, it does not cause injury or damage to people or equipment.

■ Take the operational status into consideration if the machine is reactivated after emergency or abnormal stops.
Design it so that restarting does not cause harm to people or equipment. Also, if it is necessary to reset the electric actuator to the starting position, design a safe control device. Consider the possibility of failure of the installed motor. Take measures to ensure that even if a failure occurs in the power source, it does not cause harm to people or equipment.

■ Avoid using this product where vibration and impact are present.

■ Do not apply a load to the product that is greater than or equal to the allowable load listed in the materials for selection.

■ If the moving workpiece poses a possible risk to personnel or if human fingers could be caught in the finger section, etc., install a protective cover, etc.

■ The gripping power may decrease during a power outage or similar. Use a safe design that takes this into consideration. The gripping force may decrease due to power outages, etc., and the workpiece may come off, so please incorporate a safety device that will not cause injury to people or damage to machinery.

⚠Caution

■ Product is per minuteDo not attempt to disassemble or modify the product.

■ The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

■ Set up the wiring so as not to apply inductive noise.
Avoid places where large currents or strong magnetic fields are generated. Do not use the same wiring as the power lines for large motors other than this product. Do not use the same wiring as the inverter power supply and wiring part used for robots, etc., apply a frame ground to the power supply, and insert a filter in the output part.

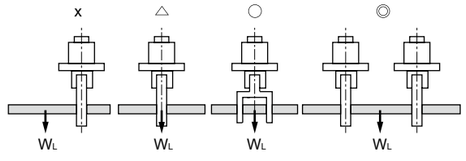
■ Be sure to separate the power supply of the output of this product and the power supply of inductive loads that generate surges, such as solenoid valves and relays.
If the power supply is shared, surge current will flow into the output part, causing damage. If a separate power supply cannot be used, connect a surge absorbing element directly in parallel to all inductive loads.

■ Select a power supply which provides ample capacity based on the number of installed products. If there is not enough capacity, it may malfunction.

■ Fix the cable so that it does not move easily.

■ The origin position is recognized when the power supply is turned ON. If an external stopper or holding mechanism (brake, etc.) is attached, an unintended position may be recognized as the origin position. After turning on the power, please pay attention to the placement of external stoppers, etc., so that the home position can be reliably detected.

■ When gripping long or large workpieces, stable gripping requires a grip on the center of gravity. Stability is a must when using larger or multiple workpieces as well.

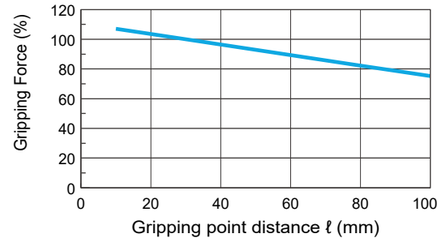


◎: Excellent, ○:Good, △: Conditional, X: Not Applicable

■ Select a model that has sufficient power to grip the workpiece weight.

■ Select a model that has sufficient opening/closing width for the workpiece size. Variations in the opening/closing width and workpieces can cause the gripping position to become unstable. Also, when opening from gripping operation, increase the stroke by the amount of backlash.

■ Jigs that are to be mounted to the finger should be as short and lightweight as possible. If it is long and heavy, the inertial force during opening and closing will be large, which may cause backlash in the fingers or accelerate wear of the sliding parts, adversely affecting the service life.



■ Do not hold the product's movable parts or cables during transportation and installation.
This can cause injury or disconnection.

For precautions regarding mounting, installation, adjustment, operation, and maintenance, please refer to the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → 'model No.' → Instruction Manual