



Safety Precautions (Controller for Pneumatic Artificial Muscle)

Before selecting a model and starting to use the product, please check this "Safety Precautions".

The following precautions are intended to ensure safe and correct use of the product and to prevent harm to you or others, or damage to property. They must be observed in conjunction with ISO 4414 (Pneumatic fluid power - General rules and safety requirements for systems and their components), JIS B 8370 (General rules for pneumatic systems) and other safety regulations.

Design and selection

DANGER

● This product is intended for use in general industrial equipment and components, as well as for research and development purposes. This product is not planned or designed for applications that require a high level of safety. In particular, when using this product in the following applications, conditions, and environments, the designer is responsible for configuring a system that ensures safety and reliability.

1. Outside the stated specification range and outdoor usage
2. Mechanisms and mechanical devices related to the maintenance and management of human life and body.
3. Mechanisms and mechanical equipment used for the purpose of moving and transporting people.
4. Critical safety parts of mechanical equipment.
5. Usage in applications where a significant impact on people and property can be expected, and where safety is particularly required. (e.g. nuclear power, railroads, aviation, vehicles, medical equipment, equipment and applications in direct contact with food and beverages, entertainment equipment, emergency shutdown circuits, clutch and brake circuits for presses, safety equipment, etc.)

Warning

- If the product is to be used under a variety of conditions, the determination of the suitability of the system should be made after thorough evaluation by the person responsible for the system design. The guarantee of performance and safety of the system is the responsibility of the designer who has determined the suitability of the system. Thoroughly examine and evaluate the contents of the specifications using the latest instruction manuals and technical data. It is the responsibility of the designer to determine the suitability of the system, and to evaluate the specifications thoroughly using the latest instruction manuals and technical data. In addition, consider the possibility of equipment failure, and configure the system with fail-safe and other safety and reliability features.
- The product cannot be used outside the specification range. If the

product is used outside of the specification range, it may cause malfunction or performance change of the product.

- If the system is to be stopped in the event of an emergency, power failure, or other abnormality, design the circuit and equipment to ensure safety. This may result in damage to the equipment or personal injury.
- The product can be attached to the fittings of other manufacturers, but it should be used in combination with our fittings, because the fittings may be destroyed even when a weak load is applied.

Mounting (installation), piping, and wiring

Warning

- When installing the product, be sure to check the instruction manual for proper piping and wiring. Incorrect piping or wiring may result in abnormal operation or damage to the product. Before turning on the compressed air, make sure that the piping is correct. Make sure that the piping is correct before turning on the power.
- Do not turn off the air source or power supply when piping or wiring the product. Failure to do so may result in abnormal operation of the product, damage, injury or electric shock.

Caution

- When installing the product, be sure to secure a work space. If you do not secure a work space, daily inspection and maintenance will not be possible, which may result in equipment stoppage, product failure or performance change.
- When installing, adjusting, or otherwise working on the product, indicate that work is in progress. If compressed air enters the product unexpectedly due to the operation of a third party, it may cause injury due to the operation of the product.

Note

- When installing or adjusting the product, be sure to hold and secure it securely.
- Before installing piping to the product, perform air blowing (flushing) and cleaning to prevent chips, cutting oil, dust, etc. from entering the flow path.

Operating media and environment

Danger

- This product cannot be used in an environment where there are hazardous materials such as ignition materials or flammable materials. The product is not explosion-proof. The product is not explosion-proof and may cause ignition or flash.

Warning

- The fluid supplied to the product should be air. The product allows leakage. When using inert gas, etc., consider the surrounding environment and take safety measures such as ventilation.
- The product cannot be used if the fluid used or the surrounding atmosphere contains corrosive fluids such as organic solvents, phosphate ester hydraulic oil, sulfurous acid gas, chlorine gas, or acids. This may result in product failure or performance change.
- This product is not designed to be used in an environment where there is a heat source around the product and the radiated heat exceeds the operating temperature range.
- This product is not designed to be used in a place where it will be subjected to vibrations or shocks that may cause product failure.

Caution

- If the product is used in an environment where it is exposed to direct sunlight (ultraviolet rays), high temperature, high humidity, dust, salt, or iron powder, it may result in product failure or performance change.

Usage, maintenance inspection

Danger

- Do not modify the product in any way. Doing so may result in injury due to abnormal operation.
- Do not disassemble, reassemble, or repair the product in any way that affects its basic structure, performance, or function. Improper disassembly, reassembly, or repair of the product may result in injury due to abnormal operation.

Warning

- Before performing any adjustment, maintenance, inspection, maintenance, replacement, or other work related to the product, be sure to shut off the compressed air supply completely and make sure that the pressure inside the product and the piping to which the product is connected has reached atmospheric pressure. If pressure remains inside the product or the piping to which the product is connected, the pneumatic artificial muscles may move unexpectedly, causing injury.
- There are many exposed electrodes in the product. Make sure that there is no accidental short circuit. This may cause the product to operate abnormally or be damaged, resulting in injury or electric shock.

- Do not scratch, dent, or deform the product by climbing on it or placing objects on it. This may cause damage to the product or changes in performance.
- Do not throw the product into fire, as this may cause harmful gases to be emitted, which may adversely affect the human body.

Caution

- Do not use the product in a transient state (about 0.5s) when the power is turned on.
- Within a strong electromagnetic field, the performance may not be satisfactory.
- When performing maintenance or inspection work, be sure to indicate that work is in progress so that compressed air or power will not be turned on unexpectedly. If compressed air or power is turned on unexpectedly, it may cause injury due to sudden operation.

Note

- The performance and functions of the product may change over its lifetime. By performing daily inspections, make sure the product meets the required system functions, and prevent accidents from occurring.
- When handling the product, wear protective gloves, safety glasses, safety shoes, etc. as necessary to ensure safety.
- If the product becomes unusable or unnecessary, dispose of it properly as industrial waste.

Storage

Caution

- The product should be stored under the following environmental conditions. Regardless of the history of use, it may cause a decrease in the service life or a change in performance.
 1. The product should be stored in its original packaging as shipped.
 2. The storage temperature should be 0 to 40° C (with no condensation or freezing).
 3. Do not store in a high temperature and high humidity environment.
 4. Do not expose the product to visible dust.
 5. Do not expose the product to direct sunlight.
 6. Do not expose the product to corrosive gases or salt air.
 7. Do not apply loads that may deform or alter the product.

Warranty and Disclaimer

1. Warranty period

The warranty period for our products is within 12 months after delivery.

2. Scope of Warranty and Disclaimer

- (1) The warranty for our products is for the product itself. If the purchased product fails due to our fault within the warranty period, we will replace the product free of charge.
- (2) We shall not be liable for any damage induced by the failure or change in performance of our products, nor for any damage to other equipment caused by such failure or change.
- (3) We are not responsible for any damage caused by usage, storage, installation, adjustment, maintenance, or any other actions other than those described in the precautions beyond the scope of the product specifications described in the instruction manual.
- (4) We shall not be liable for any damage caused by failure of following the general safety precautions.
- (5) We shall not be liable for any damage caused by fire, natural disaster, act by a third party, intentional act or negligence of the customer, which is not our responsibility.

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