# Read these instructions before use

This owner's manual contains various safety cautions regarding the proper handling of this product, and preventing danger to the operator as well as damage to the plant and the machine. Please read this manual thoroughly before using the product.

#### Warning <sup>Definition of</sup> Warning <sup>"Warning"</sup> applies to situations in which death or serious injuries may occur to the user, etc. if the potential dangers of the products are not avoided.

#### A person who designs the equipment or determines the specification shall determine the compatibility of a rotary damper.

• A person who designs the equipment or determines the specification shall determine the compatibility of a rotary damper with the equipment as necessary after carrying out a performance verification and a life test because there are a variety of conditions for applications.

#### Please do not use outside the specification range of a rotary damper.

• Any use outside the specification range will cause a malfunction or damage to product.

#### Enforcement of safety measures for applications as follows

- Please enforce a safety measure when using in the conditions and environments listed below, and consult our company beforehand for determining the adequacy of use.
- 1) The use in such places as an environment outside the specification not clarified in the catalogs or owner's manuals, outdoors or direct sunlight
- 2) The use for those devices and applications such as nuclear power equipment, the devices directly or indirectly related with the services of railroad, boats and ships and the running of vehicles, aerospace devices, military devices, medical devices, devices contacting with beverages and foods, combustion equipment, amusement devices influencing human or property, emergency shut down circuit, press devices, etc., a serious influence on humans or property is anticipated and special safety is requested.

#### Do not throw into an open flame

• Throwing into an open flame poses a risk of injury by explosion or ignition of encapsulated oil.

## ▲ Caution

**Defifinition of** "Caution" applies to situations in which minor injuries or property damage may "Caution" result if the operation or maintenance procedures are not strictly followed.

#### Do not operate without sufficient mounting strength

Operating with insufficient mounting strength may damage the main machine and cause injuries.

•Ensure sufficient mounting strength of load torque x safety factor

#### Do not operate without an external stopper

•Use within the damper's range of operating angle. Do not use the damper itself as a stopper by setting the rotational limit position of the rotating shaft as the resting position of the rotating object. Using the damper itself as a stopper may damage the damper and consequently damage the main machine, and it may also result in injuries.

•Set the external stopper to the operating angle before use.

#### Do not use when the maximum operating torque is exceeded

•Using this product beyond the maximum operating torque may cause an oil leak, reduced durability, and damage to the shaft This may damage the damper and consequently damage the main machine, and it may also result in injuries. Do not exceed the maximum operating torque when using this product.

#### Do not operate outside the operating temperature range

•Using this product outside the operating temperature range may cause an oil leak and torque problems. Use this product within the operating temperature range.

#### Usage enviornment

- •This product cannot be used in a vaccum or under high pressure, as this will cause damage to the main machine.
- •Do not use in an environment where chips, cutting oil, water, etc. can come in contact with the linear damper. This will result in a malfunction due to an oil leak caused by damage.

#### Do not discard oil more than is necessary

•Discarding the oil contained in dampers more than is necessary will pollute the environment.

Dispose the oil according to laws concerning waste management and cleaning.

#### Remodeling of the product is prohibited

• Any remodeling on the product (additional working, coating, welding, hardening, etc.) will void all warranties by our company.

### Radial load to the shaft





•Applying load to the rotating shaft (gear) in a radial direction may cause an oil leak, torque problems, and damage to the shaft (or to the gear if the gear is used).

#### Thrust load to the shaft

•Applying load to the rotating shaft (gear) in a thrust direction may cause an oil leak, torque problems, and damage to the main unit (or to the gear, or cause the gear to become disengaged, if the gear is used).



 $\star$  When assembling, attach the damper's gear to the opposing arm (gear) as parallel as possible.



#### Using the product above its maximum rotations

●Using this product above its maximum rotations may cause an oil leak, torque problems, and damage to the rotating shaft. ★ Please refer to the catalogue for the product's maximum rotations.

(\*If you are going to exceed the maximum rotations when using this product, please contact our sales department.)

#### Using the product outside its operating temperature range

Ousing this product outside the operating temperature range may cause an oil leak and torque problems.

 $\star$  Please refer to the catalogue for the product's operating temperature range.

(\*If you are going to use this product outside its operating temperature range, please contact our sales department.)

#### Using the product above its maximum cycles

Ousing this product above its maximum cycles may cause torque down and an oil leak.

 $\star$  Please refer to the catalogue for the product's maximum cycles.

(\*If you are going to exceed the maximum rotations when using this product, please contact our sales department.)

#### Over-tightening of mounting screws

Over-tightening the mounting screws when installing a rotary damper may cause damage to the main unit.

★ Based on the types and sizes of the screws used, please apply an appropriate tightening torque to tighten the screws.

#### Disposal

• When a rotary damper is no more necessary, please take a proper disposal procedure in accordance with the local ordinance, rules, etc. as an industrial waste.

Takachiho America Inc. is not responsible for any secondary accidents caused by a rotary damper. The user should implement preventative measures against such secondary accidents.