Soft Silent Safety

Selection / Key to Model Number

Selection of Rotary Damper and Vane Damper

1) If the rotating shaft and the damper's axis are directly connected, the approximate torque can be calculated based on the following equation if the lid size and the weight are known.

$$\text{Torque } T = \frac{L}{2} \times 9.8 \times M \text{ (N·m)}$$

L : Dimensions of the lid (m)
M : Weight of the lid (kg)

Using the above equation, determine the maximum torque generaged immediately prior to the closing of the lid. Use a prototype to confirm its performance in an actual machine, and determine the torque required.
Fine adjustment of the torque can be done by varying the viscosity of the oil inside the damper.

Damper location
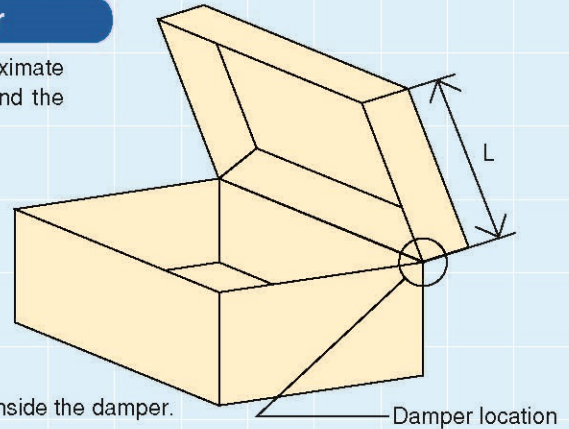
2) If the damper's rotating shaft and the lid's rotating shaft are connected by a lever or a gear, the results of the aforementioned torque calculation will vary according to the lever ratio or gear ratio.
If the gear ratio is 1:n, a damper torque that is n times the regular damper torque will be required.

Rack Damper

Pinion Damper
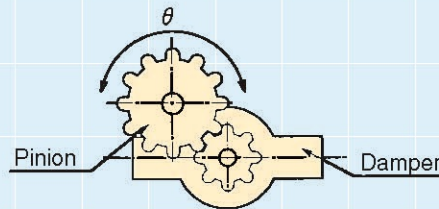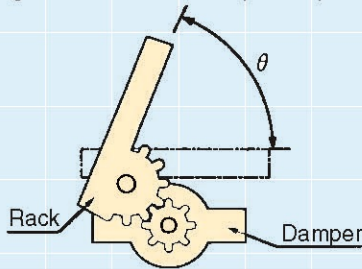
There is no exact method for determining whether a damper is suitable for the application or not. In the event that closing time is chosen as a factor, an apparent damper effect can be observed if it takes 2 seconds or longer for the lid to fully close after it is allowed to free-fall from a 60° angle. However, it is ultimately up to the user as to whether the damper is suitable for the application or not.

Key to Model Number

<Rotary damper, Disc damper>

F R N – F 2 – R   2 0 3 G

Series name
FRT : Bi-directional rotary damper
FRN : Uni-directional rotary damper
FDT : Bi-directional disc damper
FDN : Uni-directional disc damper

Model name

Damping direction

Torque

With or without gear
G : With gear, Blank : without gear

The last digit indicates the power, and the torque is expressed as below.
$203 = 20 \times 10^3 = 20{,}000 \text{gf·cm}$
$= 20 \text{kgf·cm}$

R : Torque is generated in a clockwise direction
L : Torque is generated in a counter-clockwise direction

<Vane Damper>

F Y N – H 1 – R   1 0 4

Series name
FYT : Bi-directional vane damper
FYN : Uni-directional vane damper

Model name

Damping direction

Torque
The last digit indicates the power, and the torque is expressed as below.
$104 = 10 \times 10^4 = 100{,}000 \text{gf·cm}$
$= 100 \text{kgf·cm}$

R : Torque is generated in a clockwise direction
L : Torque is generated in a counter-clockwise direction