Hinge Damper

Bi-Directional Uni-Directional
Fixed Type Adjustable type Self-adjusting

FHD-A1 Series

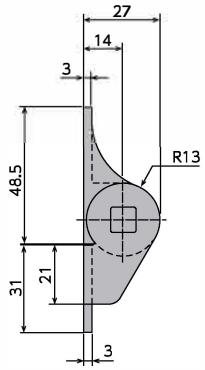
RoHS Compliant

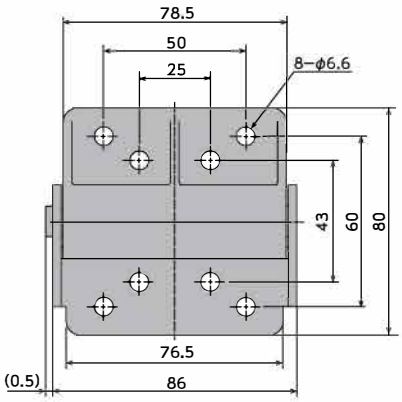
●Products specification might be changed without notice.

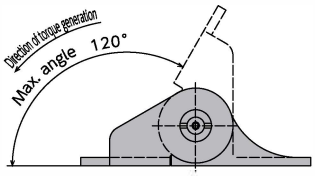
Specifications

Model	Max. torque	Max. reverse torque
FHD-A1-1-503 FHD-A1-2-503	5N·m (50 kgf·cm)	0.6N·m or lower (6kgf·cm or lower)
FHD-A1-1-104 FHD-A1-2-104	10N·m (100 kgf·cm)	1N·m or lower (10kgf·cm or lower)

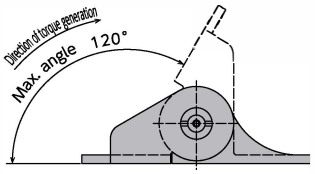
- Max. angle 120°
- Operating temperature −5~50℃
- Weight 410g
- Main body material Zinc die-cast (ZDC) + silver coating
- Hinge material SUS304
- Oil type Silicone oil







<FHD-A1-1-***>

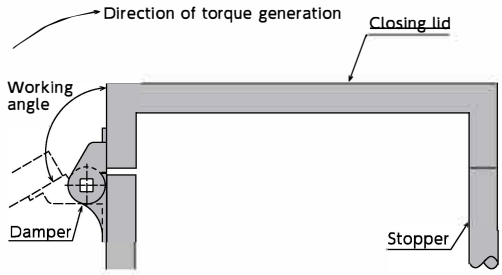


<FHD-A1-2-***>

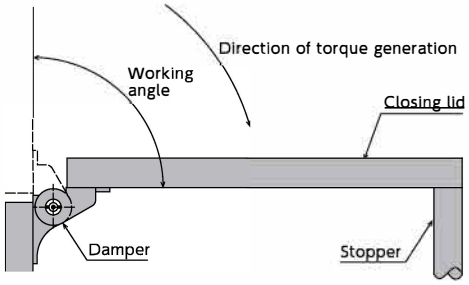
How to Use the Damper

1. There are two ways to attach the damper, as shown below.

○Attached externally(FHD-A1-1***)



○Attached internally(FHD-A1-2***)

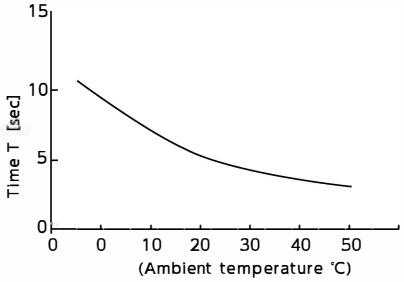


2. This damper is only for horizontal application. Please do not use this damper for vertical application.

Damper Characteristics

1. Temperature characteristics

Damper characteristics vary according to the ambient temperature. In general, the damper characteristics become weaker as the temperature increases, and become stronger as the temperature decreases. This is because the viscosity of the oil inside the damper varies according to the temperature. When the temperature returns to normal, the damper characteristics will return to normal as well.



2. The working angle of the hinge is 120° .
Operating the hinge beyond this angle will cause damage to the hinge. Please ensure that an external stopper is in place.

Friction Type Hinge Damper

Fixed Type | Bi-Directional | Uni-Directional | Adjustable type | Self-adjusting

FHD-B1/B2 Series

RoHS Compliant

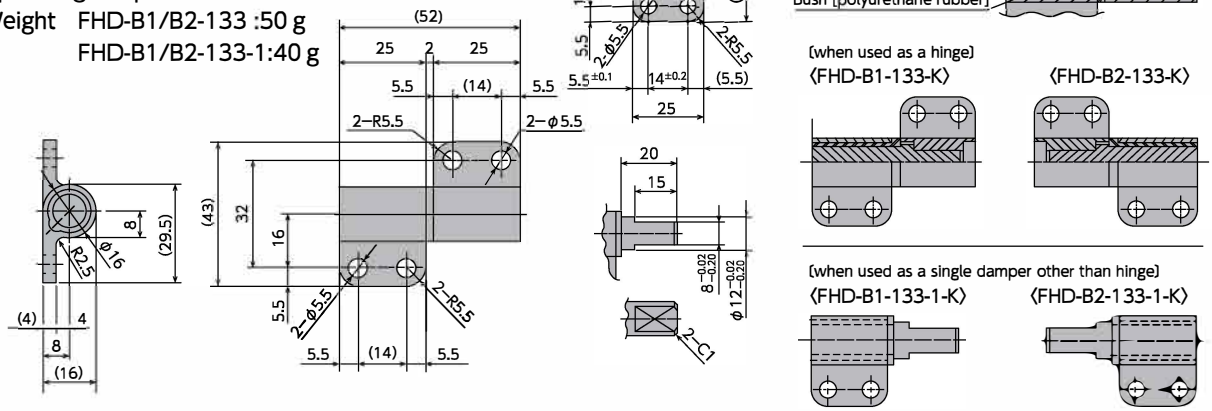
●Products specification might be changed without notice.

Specifications

Model	Max. torque
FHD-B1-133-K FHD-B2-133-K	1.35±0.34 N·m (13.5±3.4 kgf·cm)
FHD-B1-133-1-K FHD-B2-133-1-K	1.35±0.34 N·m (13.5±3.4 kgf·cm)
FHD-B1-133-2-K FHD-B2-133-2-K	

Note) Damper torque was measured at 25°C±2C° at 2rpm

* Max. rotation speed 15rpm
* Max. cycle rate 5cycle / min
* Operating temperature 0℃~60℃
* Weight FHD-B1/B2-133 :50 g
  FHD-B1/B2-133-1:40 g



How to Use the Damper

1. The damper generates torque in both clockwise and counter-clockwise directions.
2. A friction-type hinge damper can be used as a bearing.
3. Friction-type hinge dampers have a long product life and do not require lubrication.
4. Torque down will result if the damper part gets wet with water or oil.
5. It cannot be used for continuous rotation. Please use it in a vane motion.
6. Depending on the operating conditions, it can be used as a free-stop hinge. Please calculate the retention torque based on the following equation.

$$\text{Retention torque } o = \frac{M \times 9.8 \times \frac{L}{2} \times \cos\theta}{0.65 \times \alpha \times N} \text{ (N·m)}$$

Retention temperature	α
Room temperature (25±5℃)	1.0
MAX40℃	0.75
MAX60℃	0.50

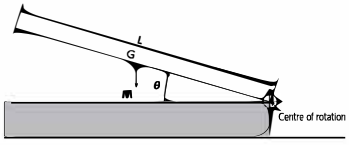
M : Mass of the retaining part

L : Distance between the tip of retaining part and the centre of rotation

θ : Retention angle from the retaining part's horizontal position

α : Temperature coefficient of the max. temperature

N : Number of dampers used

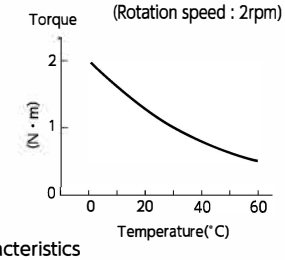


7. This damper is only for horizontal application. Please do not use this damper for vertical application.

Damper Characteristics

1. Temperature characteristics

Damper characteristics vary according to the ambient temperature. In general, the damper characteristics become weaker as the temperature increases, and become stronger as the temperature decreases. This is because the temperature of the shaft bush inside the damper varies according to the temperature. When the temperature returns to normal, the damper characteristics will return to normal as well.



2. Speed characteristics

The speed characteristics of a friction-type hinge damper are shown in the graph below. The damper torque is determined based on the speed characteristics at 2rpm.