



# FYN-M1 Series

RoHS Compliant

Vane Damper [Uni-Directional]

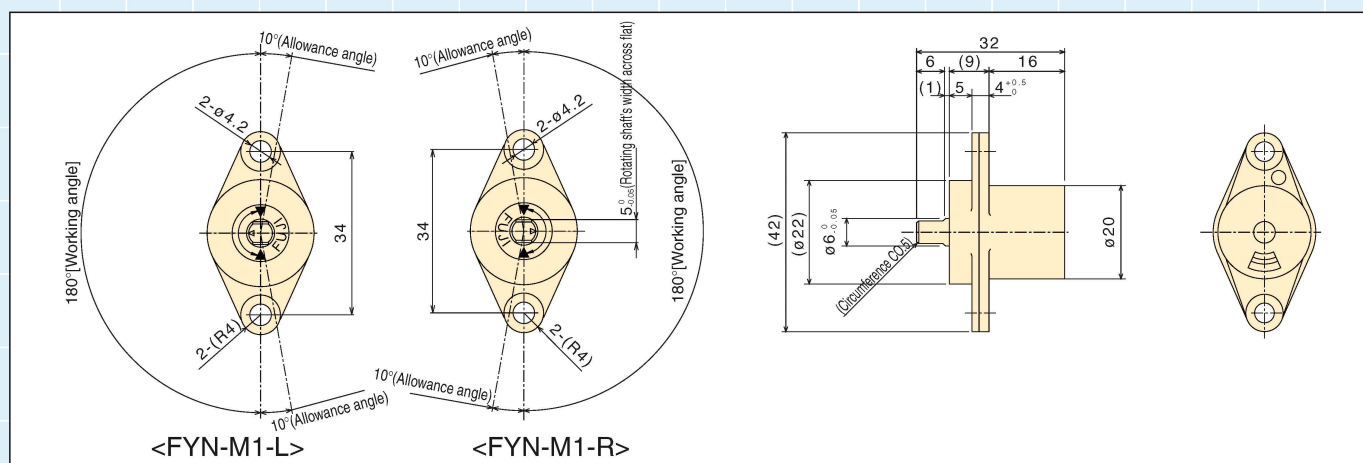
Fixed



## <Specifications>

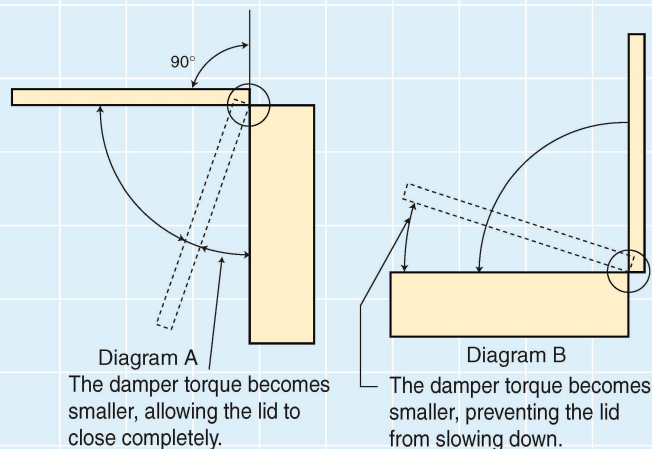
Model	Max. torque	Reverse torque	Damping direction	*Max. angle	180°
FYN-M1-R152	0.15 N·m	0.1 N·m	Clockwise	*Max. cycle rate	6 cycle/min
FYN-M1-L152	(1.5kgf·cm)	(1kgf·cm)	Counter-clockwise	*Operating temperature	-5~50°C
FYN-M1-R252	0.25 N·m	0.2 N·m	Clockwise	*Weight	17±2g
FYN-M1-L252	(2.5kgf·cm)	(2kgf·cm)	Counter-clockwise	*Main body	Polybutylene terephthalate (PBT)
FYN-M1-R352	0.35 N·m	0.2 N·m	Clockwise	*Cap material	Polybutylene terephthalate (PBT)
FYN-M1-L352	(3.5kgf·cm)	(2kgf·cm)	Counter-clockwise	*Rotating shaft material	Zinc die-cast (ZDC)
FYN-M1-R602	0.60 N·m	0.4 N·m	Clockwise	*Oil type	Silicone oil
FYN-M1-L602	(6.0kgf·cm)	(4kgf·cm)	Counter-clockwise	*Cap colour	R: Black, L: Gray

Note) Measured at 23°C±2°C



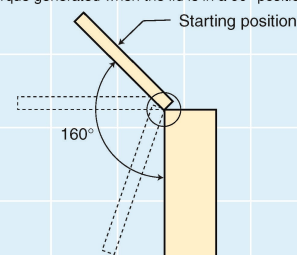
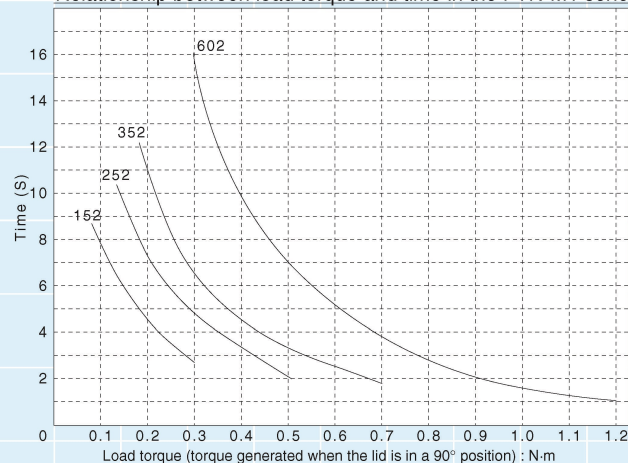
## How to Use the Damper

1. The FYN-M1 Series is designed to generate a large torque up to 90° in a closing lid, as shown in Diagram A, and the lid is able to close completely. However, when the lid is closed from a vertical position, as shown in Diagram B, the lid cannot be slowed down, as the torque becomes small just before the lid is completely closed.

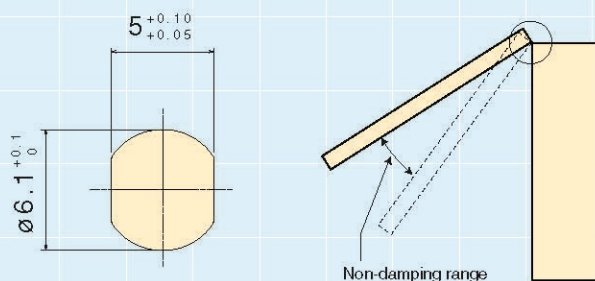


2. Below is a graph showing the relationship between the load torque and the time when a lid is closed from a 160° angle, as shown in the diagram.

Relationship between load torque and time in the FYN-M1 series

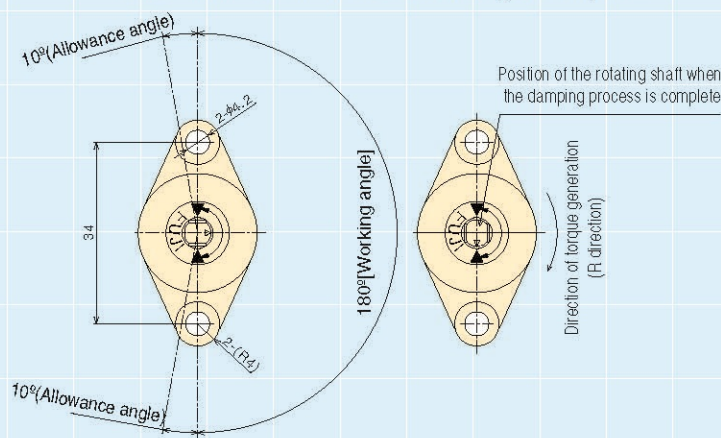


3. When connecting the rotating shaft to other parts, please ensure a tight fit between them. Without a tight fit, the lid will not slow down properly when closing.



<Recommended dimensions for a rotating shaft opening>

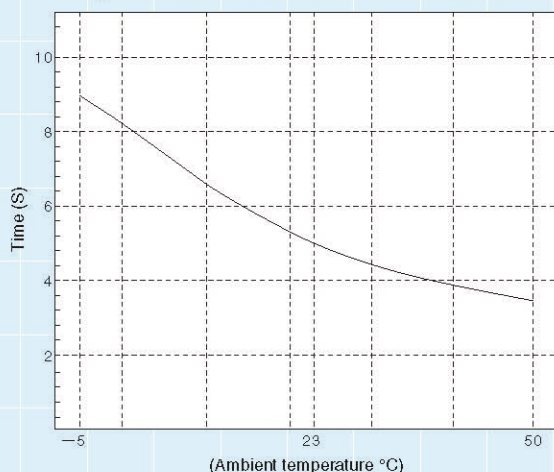
5. The standard for a damper's working angle is 180° with respect to the main body's attachment flange. Rotating the damper beyond this angle will cause damage to the damper. Please make sure that an external stopper is in place.



<FYN-M1-R>

4. The time it takes for a lid with a damper to close varies according to the ambient temperature. As the temperature increases, it takes less time, and as the temperature decreases, it will take longer for the lid to close. This is because the viscosity of the oil inside the damper changes according to the temperature. When the temperature returns to normal, the required time will return to normal as well. The temperature characteristics are shown in the graph below.

Temperature characteristics of the FYN-M1 Series



6. The FYN-M1 series is a fixed type; its torque is non-adjustable. However, a customized order for a torque of 0.15 ~ 0.6N·m is possible by changing the oil viscosity.

7. The direction in which torque is generated varies according to the model. Please select the appropriate model for your purpose.





Soft Silent Safety

# FYN-P1 Series

RoHS Compliant

Vane Damper [Uni-Directional]

Fixed



## <Specifications>

Model	Max. torque	Reverse torque	Damping direction
FYN-P1-R103	1 N·m	0.3 N·m	Clockwise
FYN-P1-L103	(10kgf·cm)	(3kgf·cm)	Counter-clockwise
FYN-P1-R153	1.5 N·m	0.5 N·m	Clockwise
FYN-P1-L153	(15kgf·cm)	(5kgf·cm)	Counter-clockwise
FYN-P1-R183	1.8 N·m	0.8 N·m	Clockwise
FYN-P1-L183	(18kgf·cm)	(8kgf·cm)	Counter-clockwise

Note) Measured at 23°C±2°C

\*Max. angle 115°

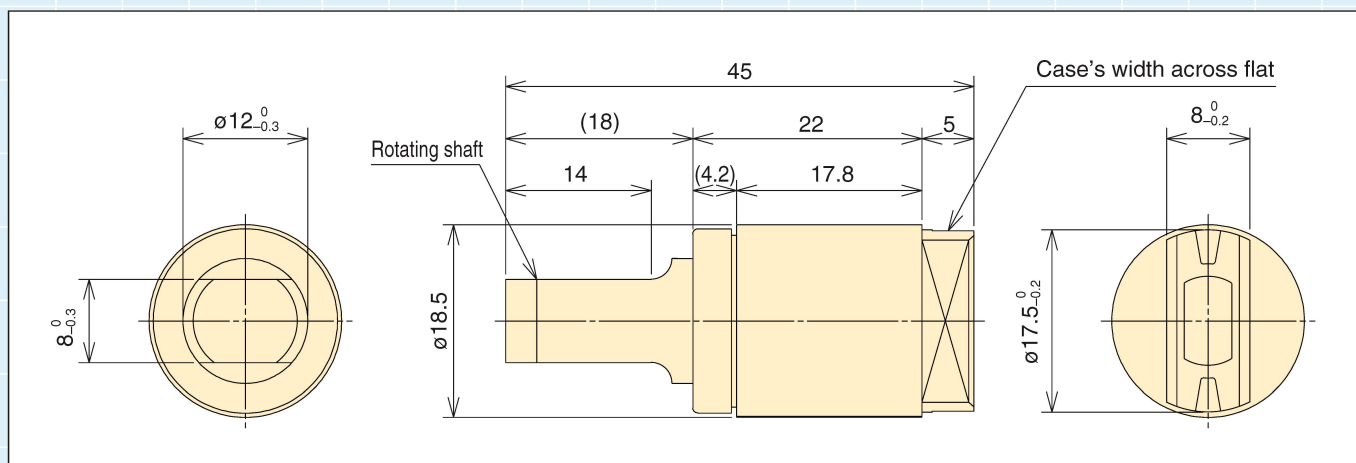
\*Operating temperature -5~50°C

\*Weight 10.5±1g

\*Body and cap material Polybutylene terephthalate (PBT)

\*Rotating shaft material Polybutylene terephthalate (PBT)

\*Oil type Silicone oil



## How to Use the Damper

1. FYN-P1 is designed to generate a large torque just before a lid closing from a vertical position, as shown in Diagram A, comes to a full closure. When a lid is closed from a horizontal position, as shown in Diagram B, a strong torque is generated just before the lid is fully closed, causing the lid to not close properly.

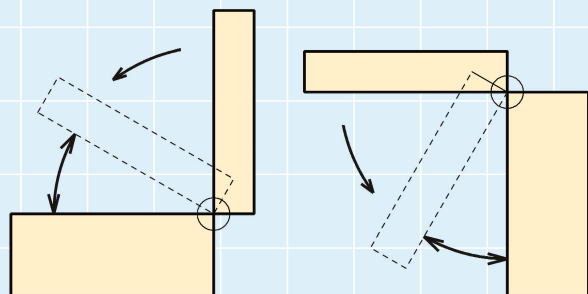


Diagram A

Diagram B

The damper torque becomes larger, preventing the lid from slowing down.

The damper torque becomes larger, preventing the lid from closing completely.

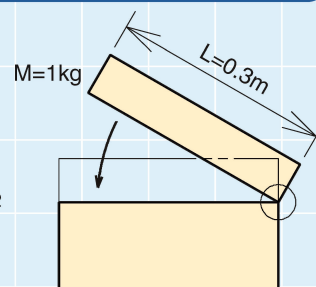
2. When using a damper on a lid, such as the one shown in the diagram, use the following selection calculation to determine the damper torque.

Example) Lid mass M : 1 kg

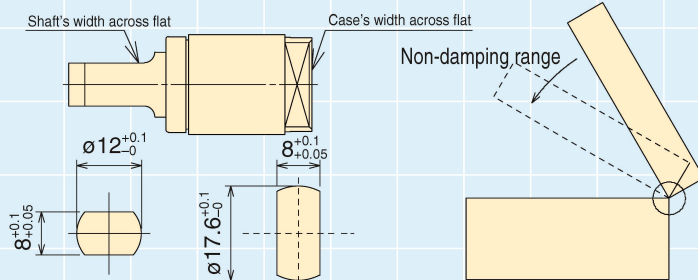
Lid dimensions L : 0.3m

$$\text{Load torque} : T = 1 \times 0.3 \times 9.8 \div 2 = 1.47 \text{ N·m}$$

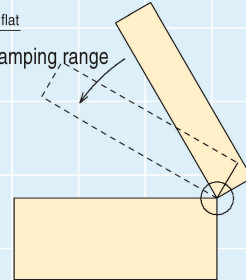
Based on the above calculation, FYN-P1-\*153 is selected.



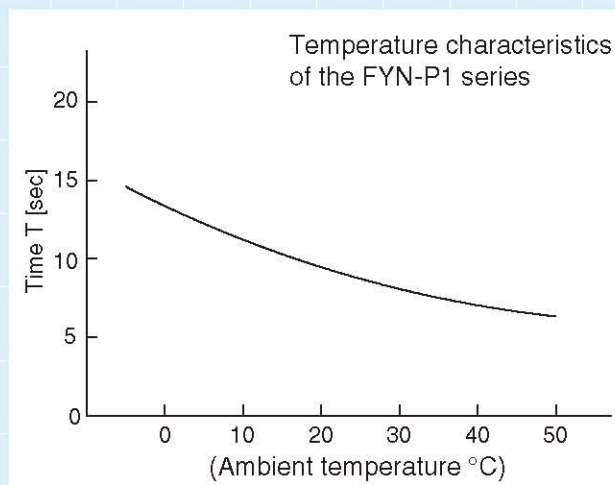
3. When connecting the rotating shaft to other parts, please ensure a tight fit between them. Without a tight fit, the lid will not slow down properly when closing. The corresponding dimensions for fixing the rotating shaft and the main body are as follows.



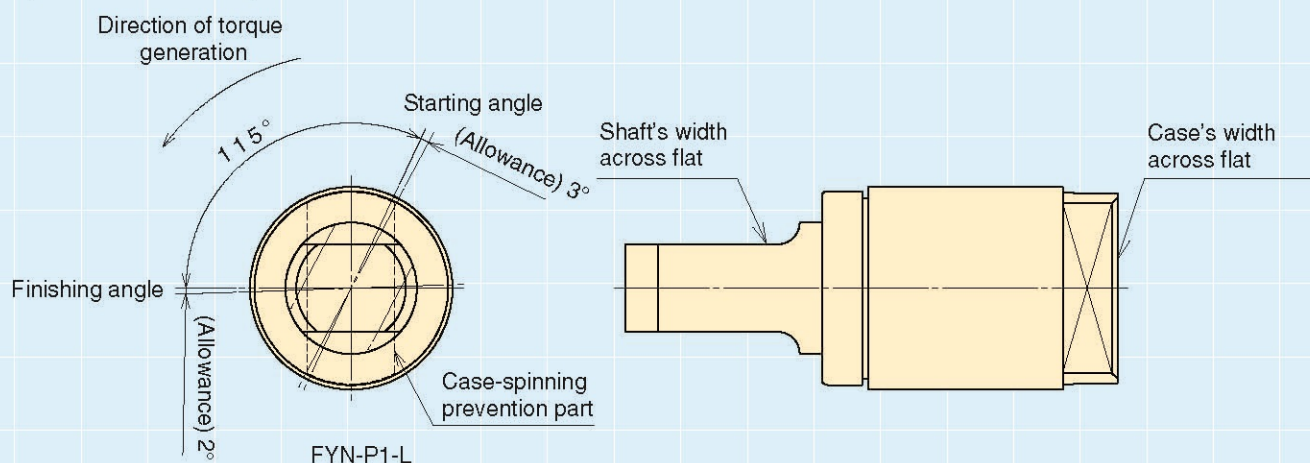
Non-damping range



4. 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. The time it takes for the lid to close is shown in the graph to the right.



5. The damper's working angle is  $115^\circ$ , as shown below. Rotating the damper beyond this angle will cause damage to the damper. Please ensure that an external stopper is in place. The working angle is based on the width across flat for fixing, located towards the rear end of the main body. The position where the rotation is complete is at  $90^\circ$  with respect to the width across flat.



6. The FYN-P1 series is a fixed type; its torque is non-adjustable. However, a customized order for a torque between the range of 1 ~1.8N·m is possible by changing the oil viscosity.

7. The direction in which torque is generated varies according to the model. Please select the appropriate model for your purpose.





# FYN-N1 Series

RoHS Compliant

Vane Damper [Uni-Directional]

Fixed

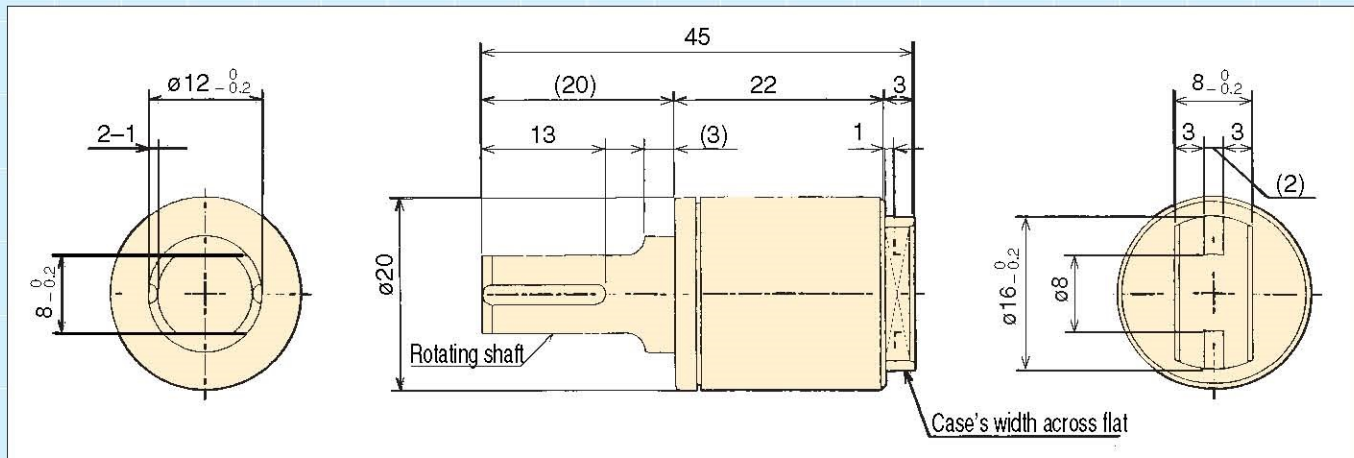


## <Specifications>

Model	Max. torque	Reverse torque	Damping direction
FYN-N1-R103	1 N·m	0.2 N·m	Clockwise
FYN-N1-L103	(10kgf·cm)	(2kgf·cm)	Counter-clockwise
FYN-N1-R203	2 N·m	0.4 N·m	Clockwise
FYN-N1-L203	(20kgf·cm)	(4kgf·cm)	Counter-clockwise
FYN-N1-R303	3 N·m	0.8 N·m	Clockwise
FYN-N1-L303	(30kgf·cm)	(8kgf·cm)	Counter-clockwise

Note) Measured at 23°C±2°C

*Max. angle	110°
*Operating temperature	-5~50°C
*Weight	12±1g
*Body and cap material	Polybutylene terephthalate (PBT)
*Rotating shaft material	Polyphenylene Sulphide (PPS)
*Oil type	Silicone oil



## How to Use the Damper

1. FYN-N1 is designed to generate a large torque just before a lid closing from a vertical position, as shown in Diagram A, comes to a full closure. When a lid is closed from a horizontal position, as shown in Diagram B, a strong torque is generated just before the lid is fully closed, causing the lid to not close properly.

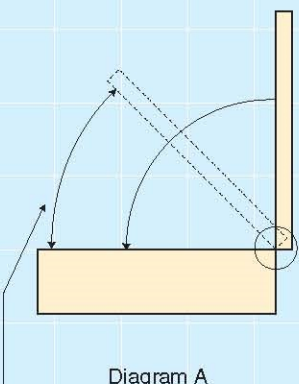


Diagram A

The damper torque becomes larger, preventing the lid from slowing down.

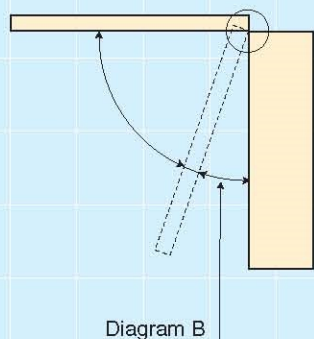


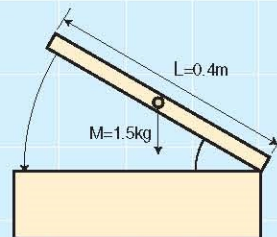
Diagram B

The damper torque becomes larger, preventing the lid from closing completely.

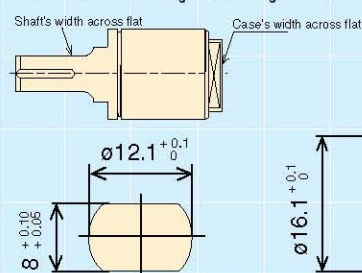
2. When using a damper on a lid, such as the one shown in the diagram, use the following selection calculation to determine the damper torque.

Example) Lid mass M : 1.5 kg  
Lid dimensions L : 0.4m  
Load torque :  $T = 1.5 \times 0.4 \times 9.8 \div 2 = 2.94 \text{ N·m}$

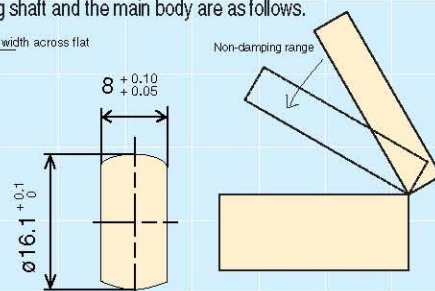
Based on the above calculation, FYN-N1-\*303 is selected.



3. When connecting the rotating shaft to other parts, please ensure a tight fit between them. Without a tight fit, the lid will not slow down properly when closing. The corresponding dimensions for fixing the rotating shaft and the main body are as follows.

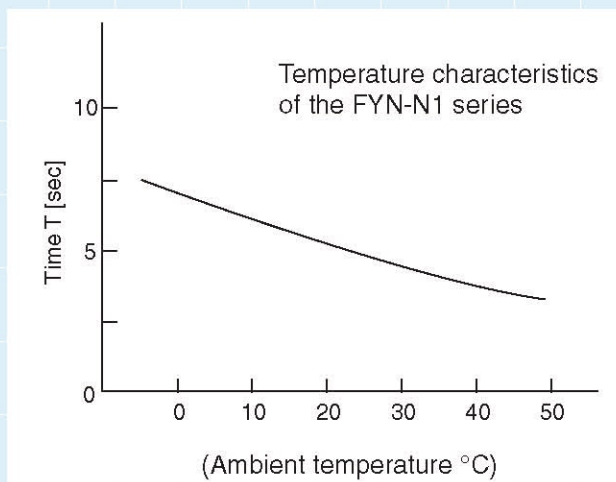


<Recommended dimensions for mounting a rotating shaft>

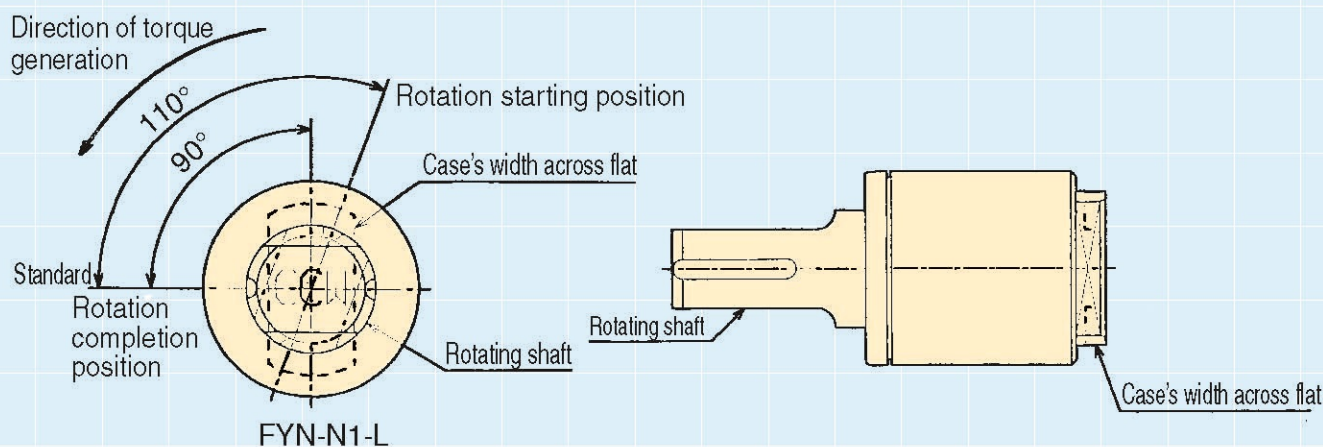


<Recommended dimensions for mounting the main body>

4. 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. The changes in the time it takes for the lid to close are shown in the graph to the right.



5. The damper's working angle is  $110^\circ$ , as shown below. Rotating the damper beyond this angle will cause damage to the damper. Please ensure that an external stopper is in place. The working angle is based on the width across flat for fixing, located towards the rear end of the main body. The position where the rotation is complete is at  $90^\circ$  with respect to the width across flat.



6. FYN-N1 series is a fixed type; its torque is non-adjustable. However, a customized order for a torque between the range of  $1 \sim 3\text{N}\cdot\text{m}$  is possible by changing the oil viscosity.

7. The direction in which torque is generated varies according to the model. Please select the appropriate model for your purpose.





Soft Silent Safety

# FYN-U1 Series

RoHS Compliant

## Vane Damper [Uni-Directional]

Fixed



### <Specifications>

Model	Max. torque	Reverse torque	Damping direction
FYN-U1-R103	1 N·m	0.5 N·m	Clockwise
FYN-U1-L103	(10kgf·cm)	(5kgf·cm)	Counter-clockwise
FYN-U1-R203	2 N·m	0.7 N·m	Clockwise
FYN-U1-L203	(20kgf·cm)	(7kgf·cm)	Counter-clockwise
FYN-U1-R303	3 N·m	0.9 N·m	Clockwise
FYN-U1-L303	(30kgf·cm)	(9kgf·cm)	Counter-clockwise

Note) Measured at 23°C±2°C

\*Max. angle

115°

\*Operating temperature

-5~50°C

\*Weight

40±4g

\*Main body, rotating shaft materials

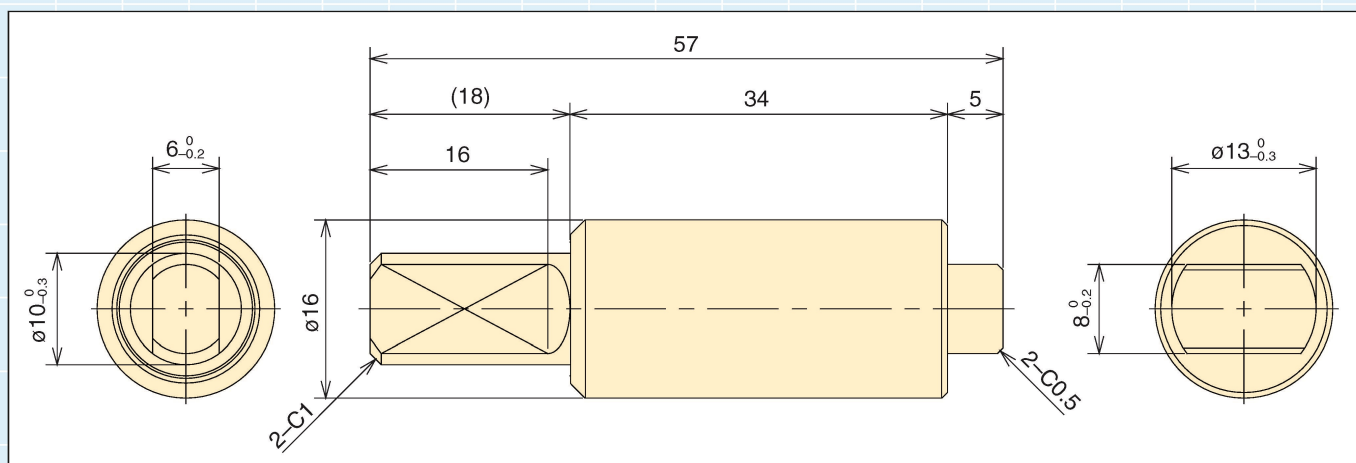
Zinc die-cast (ZDC)

\*Cap material

Polyphenylene Sulphide (PPS)

\*Oil type

Silicone oil



### How to Use the Damper

1. FYN-U1 is designed to generate a large torque just before a lid closing from a vertical position, as shown in Diagram A, comes to a full closure. When a lid is closed from a horizontal position, as shown in Diagram B, a strong torque is generated just before the lid is fully closed, causing the lid to not close properly.

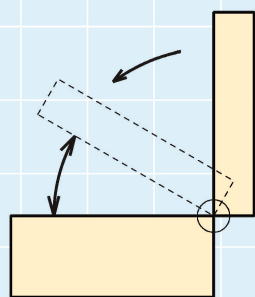


Diagram A

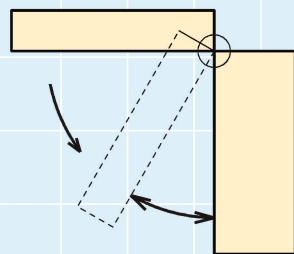


Diagram B

The damper torque becomes larger, preventing the lid from slowing down.

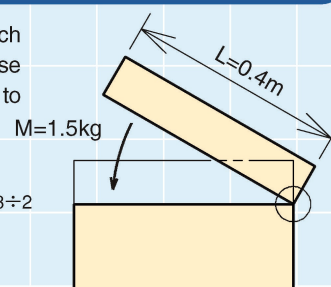
2. When using a damper on a lid, such as the one shown in the diagram, use the following selection calculation to determine the damper torque.

Example) Lid mass M : 1.5 kg

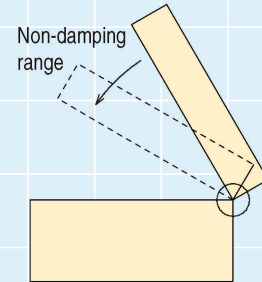
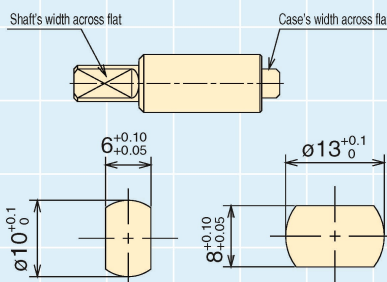
Lid dimensions L : 0.4m

$$\text{Load torque} : T = 1.5 \times 0.4 \times 9.8 \div 2 = 2.94 \text{ N·m}$$

Based on the above calculation, FYN-U1-\*303 is selected.



3. When connecting the rotating shaft to the other parts, please ensure a tight fit between them. Without a tight fit, the lid will not slow down properly when closing. The corresponding dimensions for fixing the rotating shaft and the main body are as follows.





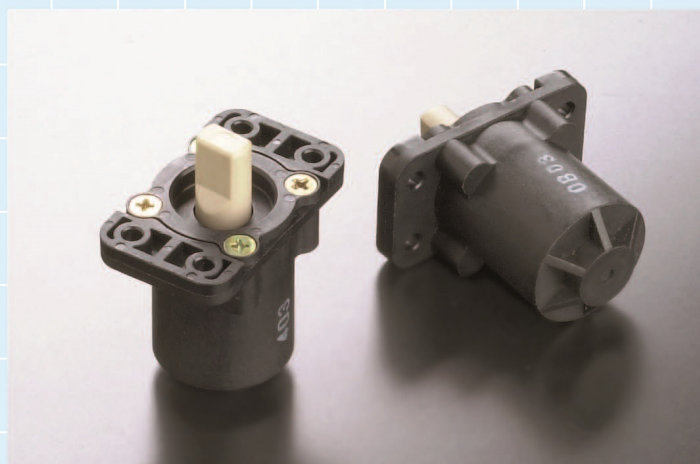
Soft Silent Safety

# FYN-K1 Series

RoHS Compliant

Vane Damper [Uni-Directional]

Fixed

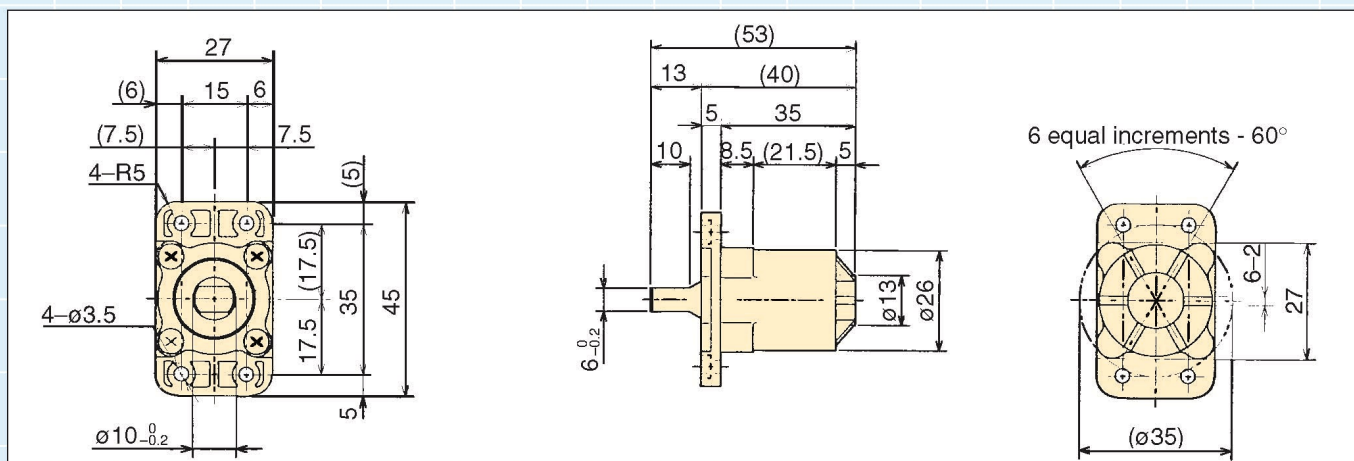


## <Specifications>

Model	Max. torque	Reverse torque	Damping direction
FYN-K1-R403	4 N·m	1 N·m	Clockwise
FYN-K1-L403	(40kgf·cm)	(10kgf·cm)	Counter-clockwise

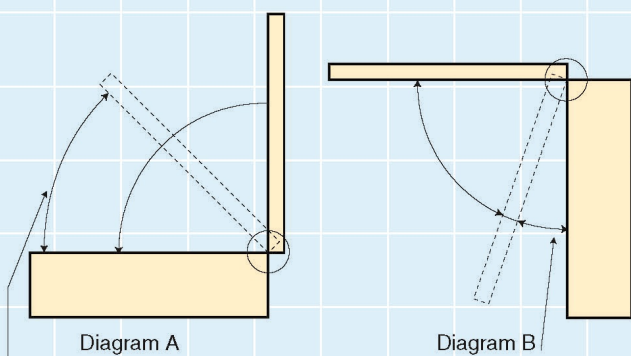
Note) Measured at 23°C±2°C

*Max. angle	108°
*Operating temperature	-5~50°C
*Weight	33±3g
*Body and cap material	Polybutylene terephthalate (PBT)
*Rotating shaft material	Polyphenylene Sulphide (PPS)
*Oil type	Silicone oil



## How to Use the Damper

1. FYN-K1 is designed to generate a large torque just before a lid closing from a vertical position, as shown in Diagram A, comes to a full closure. When a lid is closed from a horizontal position, as shown in Diagram B, a strong torque is generated just before the lid is fully closed, causing the lid to not close properly.



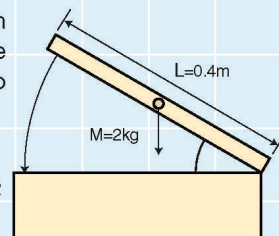
The damper torque becomes larger, preventing the lid from slowing down.

The damper torque becomes larger, preventing the lid from closing completely.

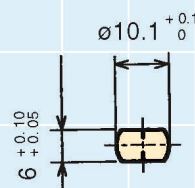
2. When using a damper on a lid, such as the one shown in the diagram, use the following selection calculation to determine the damper torque.

Example) Lid mass M : 2 kg  
Lid dimensions L : 0.4m  
Load torque :  $T = 2 \times 0.4 \times 9.8 \div 2 = 3.92 \text{ N·m}$

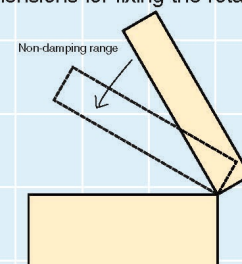
Based on the above calculation, FYN-K1-\*403 is selected.



3. When connecting the rotating shaft to other parts, please ensure a tight fit between them. Without a tight fit, the lid will not slow down properly when closing. The corresponding dimensions for fixing the rotating shaft are as follows.

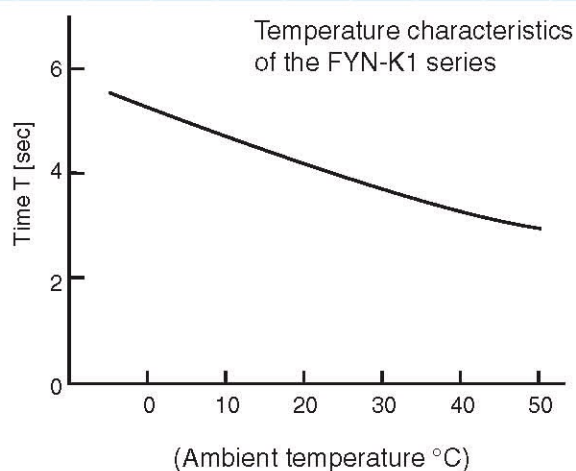


<Recommended dimensions for mounting a rotating shaft>

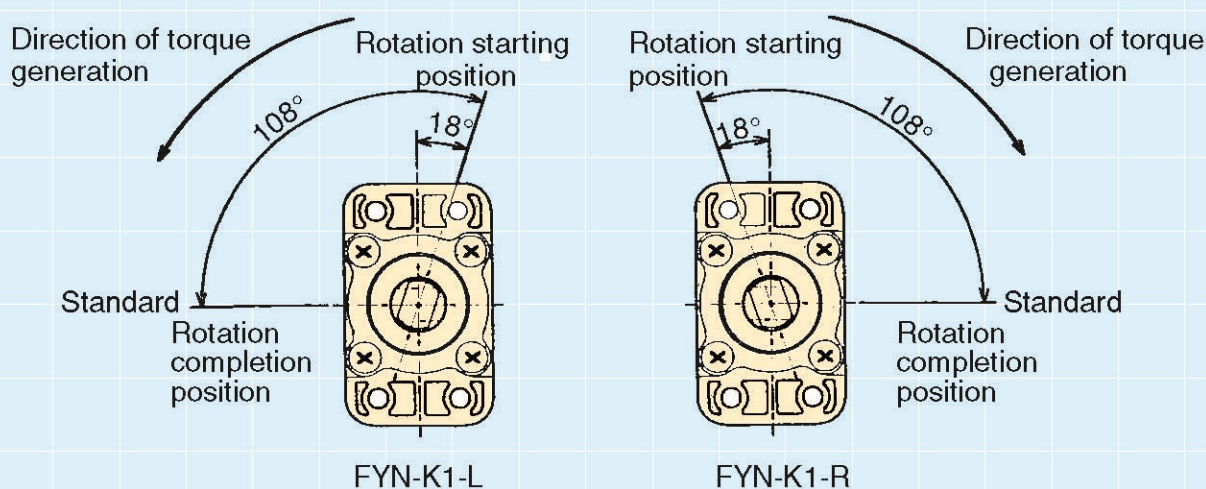




4. Damper characteristics vary according to the ambient temperature. In general, the damper characteristics become weaker as the temperature increases, and become stronger as the temperature decreases. This is because the viscosity of the oil inside the damper varies according to the temperature. When the temperature returns to normal, the damper characteristics will return to normal as well. The changes in the time it takes for the lid to close are shown in the graph to the right.



5. The damper's working angle is  $108^\circ$ , as shown below. Rotating the damper beyond this angle will cause damage to the damper. Please ensure that an external stopper is in place.



Detailed diagram of the damper's working angles

6. The FYN-K1 series is a fixed type; its torque is non-adjustable. However, a customized order for a torque between the range of 2 ~ 4N·m is possible by changing the oil viscosity.

7. The direction in which torque is generated varies according to the model. Please select the appropriate model for your purpose.

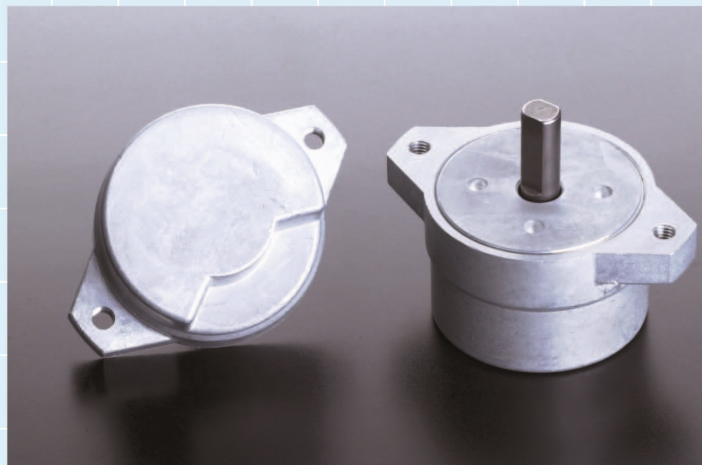


# FYN-D3 Series

RoHS Compliant

Vane Damper [Uni-Directional]

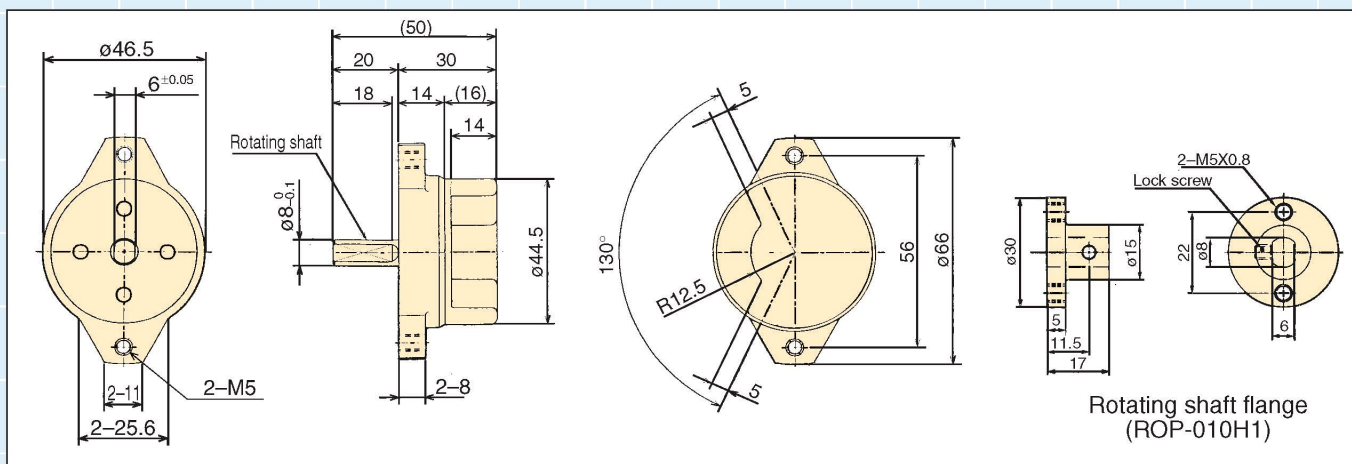
Fixed



## <Specifications>

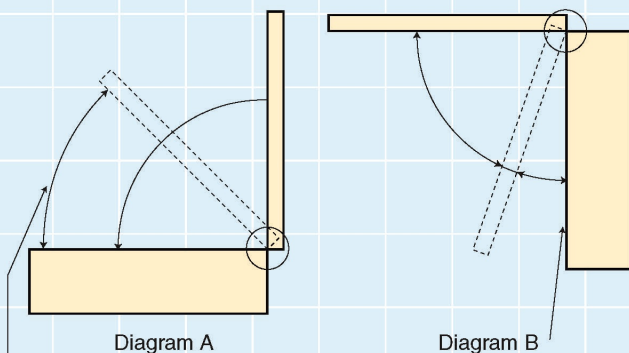
Model	Max. torque	Reverse torque	Damping direction
FYN-D3-R503	5 N·m	1 N·m	Clockwise
FYN-D3-L503	(50kgf·cm)	(10kgf·cm)	Counter-clockwise
FYN-D3-R703	7 N·m	1 N·m	Clockwise
FYN-D3-L703	(70kgf·cm)	(10kgf·cm)	Counter-clockwise
FYN-D3-R104	10 N·m	2 N·m	Clockwise
FYN-D3-L104	(100kgf·cm)	(20kgf·cm)	Counter-clockwise

*Max. angle	180°
*Operating temperature	-5~50°C
*Weight	215±10g
*Body and cap material	Zinc die-cast (ZDC)
*Rotating shaft material	S25C
*Oil type	Silicone oil
*Option	Rotating shaft flange : ROP-010H1



## How to Use the Damper

1. FYN-D3 is designed to generate a large torque just before a lid closing from a vertical position, as shown in Diagram A, comes to a full closure. When a lid is closed from a horizontal position, as shown in Diagram B, a strong torque is generated just before the lid is fully closed, causing the lid to not close properly.



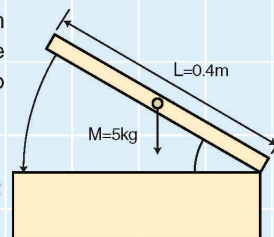
The damper torque becomes larger, preventing the lid from slowing down. The damper torque becomes larger, preventing the lid from closing completely.

The angle in which the damper torque becomes large can be customized by modifying the inside orifice.

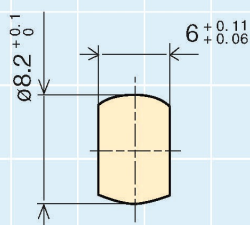
2. When using a damper on a lid, such as the one shown in the diagram, use the following selection calculation to determine the damper torque.

Example) Lid mass  $M$ : 5 kg  
Lid dimensions  $L$ : 0.4m  
Load torque:  $T = 5 \times 0.4 \times 9.8 \div 2 = 9.8 \text{ N}\cdot\text{m}$

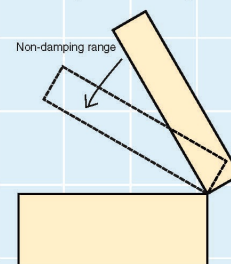
Based on the above calculation, FYN-D3-\*104 is selected.



3. When connecting the rotating shaft to other parts, please ensure a tight fit between them. Without a tight fit, the lid will not slow down properly when closing. The corresponding dimensions for fixing the rotating shaft are as follows.

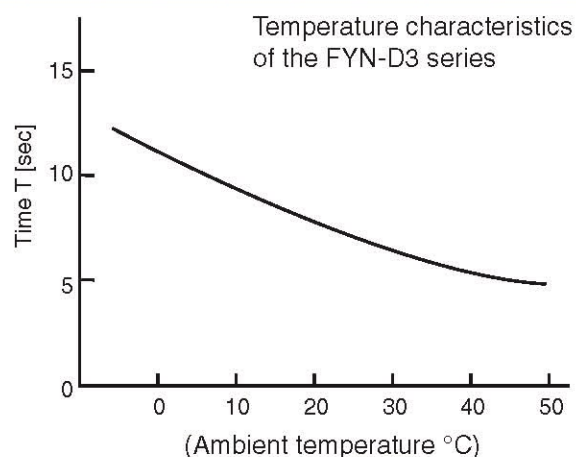


<Recommended dimensions for mounting a rotating shaft>

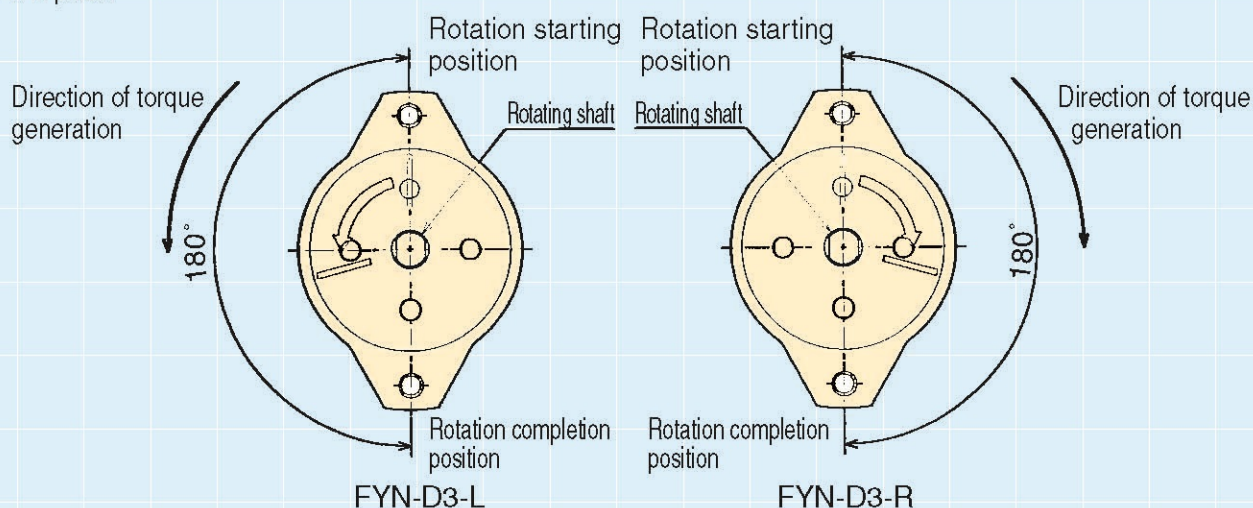




4. Damper characteristics vary according to the ambient temperature. In general, the damper characteristics become weaker as the temperature increases, and become stronger as the temperature decreases. This is because the viscosity of the oil inside the damper varies according to the temperature. When the temperature returns to normal, the damper characteristics will return to normal as well. The changes in the time it takes for the lid to close are shown in the graph to the right.



5. The damper's working angle is  $180^\circ$  with respect to the attachment flange, as shown below. Please determine where to attach it according to your needs. Also, rotating the damper beyond this angle will cause damage to the damper. Please ensure that an external stopper is in place.



6. The FYN-D3 series is a fixed type; its torque is non-adjustable. However, a customized order for a torque between the range of 5 ~ 10N·m is possible by changing the oil viscosity.

7. The direction in which torque is generated varies according to the model. Please select the appropriate model for your purpose.



Soft Silent Safety

# FYT/FYN-D1 (D2) Series

RoHS Compliant

Vane Damper [Bi-Directional] [Uni-Directional] Fixed



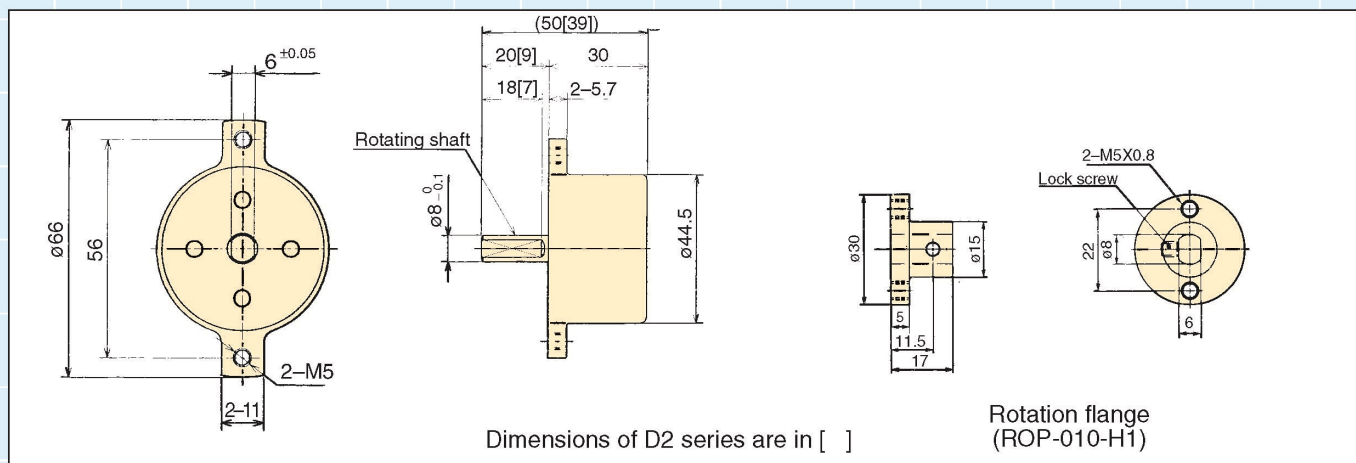
## <Specifications>

Model	Max. torque	Reverse torque	Damping direction
FYT-D1(2)-104	10 N·m (100kgf·cm)	—	Both directions
FYN-D1(2)-R104	10 N·m (100kgf·cm)	0.5 N·m (5kgf·cm)	Clockwise
FYN-D1(2)-L104	10 N·m (100kgf·cm)	0.5 N·m (5kgf·cm)	Counter-clockwise

Note) Measured at 23°C±2°C

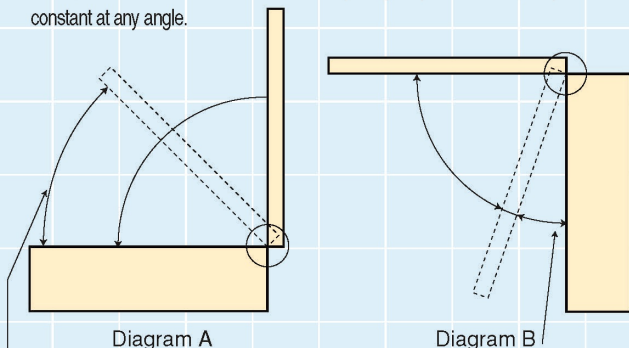
The FYT/N-D2 series has a shorter shaft length.

*Max. angle	105°
*Operating temperature	-5~50°C
*Weight	D1:215±10g, D2:210±10g
*Body and cap material	Zinc die-cast (ZDC)
*Rotating shaft material	S25C
*Oil type	Silicone oil
*Option	Rotation flange : ROP-010-H1



## How to Use the Damper

1. FYN-D1 is designed to generate a large torque just before a lid closing from a vertical position, as shown in Diagram A, comes to a full closure. When a lid is closed from a horizontal position, as shown in Diagram B, a strong torque is generated just before the lid is fully closed, causing the lid to not close properly. Torque is generated in both clockwise and counter-clockwise directions in the FYT-D1 series. Unlike the FYN-D1 series, it does not have a fixed orifice for adjusting torque. Therefore, torque remains constant at any angle.



The damper torque becomes larger, preventing the lid from slowing down.

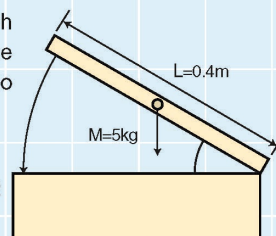
The damper torque becomes larger, preventing the lid from closing completely.

The angle in which the damper torque becomes large can be customized by modifying the inside orifice.

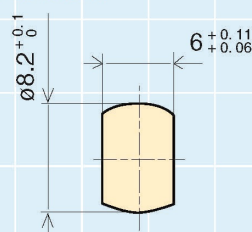
2. When using a damper on a lid, such as the one shown in the diagram, use the following selection calculation to determine the damper torque.

Example) Lid mass M : 5 kg  
Lid dimensions L : 0.4m  
Load torque :  $T = 5 \times 0.4 \times 9.8 \div 2 = 9.8 \text{ N·m}$

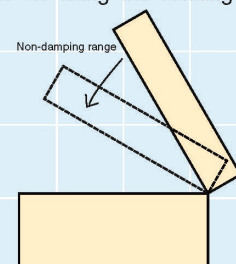
Based on the above calculation, FYN-D1-\*104 is selected.



3. When connecting the rotating shaft to other parts, please ensure a tight fit between them. Without a tight fit, the lid will not slow down properly when closing. The corresponding dimensions for fixing the rotating shaft are as follows.



<Recommended dimensions for mounting a rotating shaft>

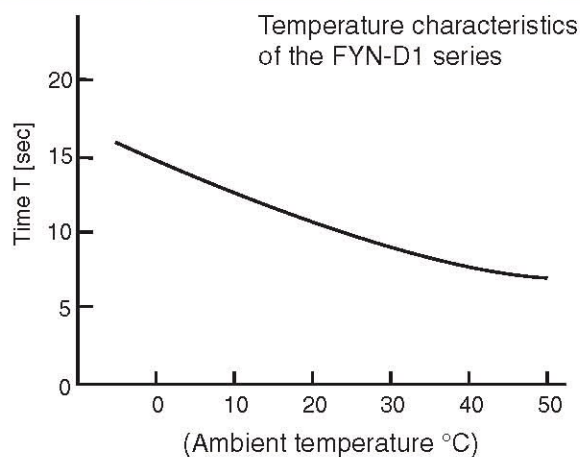




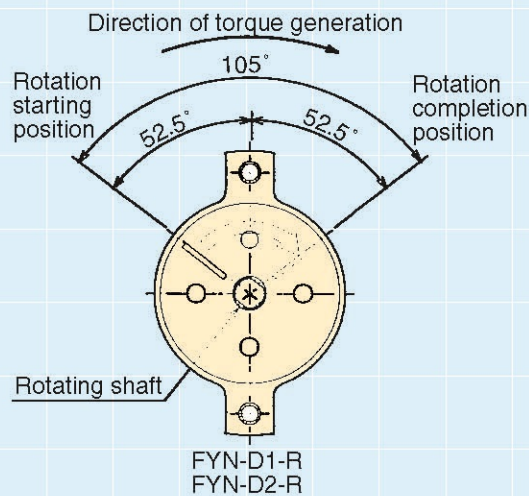
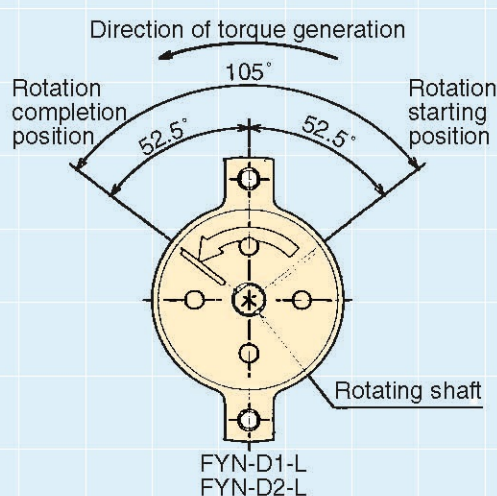
# FYT/FYN-D1 (D2) Series

## Vane Damper [Bi-Directional] [Uni-Directional] Fixed

4. 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. The changes in the time it takes for the lid to close are shown in the graph to the right.



5. The damper's working angle is  $\pm 52.5^\circ$  with respect to the attachment flange, as shown below. Please determine where to attach it according to your needs. Also, rotating the damper beyond this angle will cause damage to the damper. Please ensure that an external stopper is in place.



6. The FYN-D1 series is a fixed type; its torque is non-adjustable. However, a customized order for a torque between the range of 2 ~ 20N·m is possible by changing the oil viscosity.

7. The direction in which torque is generated varies according to the model. Please select the appropriate model for your purpose.