FDT-47A/FDN-47A Series

Bi-Directional Uni-Directional

Fixed Type Reputation type sensations

**RoHS** Compliant

Products specification might be changed without notice.

- \* Max. rotation speed
- \* Max. cycle rate
- \* Operating temperature
- \* Weight
- \* Main body material
- \* Rotating (shaft) material
- \* Oil typel
- FDN-47A:55g Iron (SPFC) Nylon (with glass) Silicone oil

2-R4.5

2-04.5

<FDT-47A-% \*\* >>

**8**<sup>+0.25</sup>

φ42.8 **b**47

## **Specifications**

10.3<sup>±0.5</sup>

1.6

Model	Rated torque	Damping direction
FDT-47A-502	0.5±0.15 N·m(5±1.5 kgf·cm)	Both directions
FDT-47A-103	1±0.2 N·m(10±2 kgf·cm)	Both directions
FDT-47A-163	1.6±0.3 N·m(16±3 kgf·cm)	Both directions
FDT-47A-203	2±0.3 N·m(20±3 kgf·cm)	Both directions
FDN-47A-R502	0.5±0.15 N•m	Clockwise direction
FDN-47A-L502	(5±1.5 kgf•cm)	Counter-clockwise direction
FDN-47A-R103	1±0.2 N∙m	Clockwise direction
FDN-47A-L103	(10±2 kgf•cm)	Counter-clockwise direction
FDN-47A-R163	1.6±0.3 N∙m	Clockwise direction
FDN-47A-L163	(16±3 kgf•cm)	Counter-clockwise direction
FDN-47A-R203	2±0.3 N∙m	Clockwise direction
FDN-47A-L203	(20±3 kgf•cm)	Counter-clockwise direction

Note) Rated torque is measured at a rotation speed of 20rpm at 23°C±3°C



<sup>&</sup>lt;FDN-47A-R/L\*\*\*>

4. To insert a shaft into FDN-47A, insert the shaft while spinning it in

the idling direction of the one-way clutch. (Do not force the shaft

in from the regular direction. This may damage the oneway clutch.)

dimensions is inserted in the damper's shaft opening. A wobbling shaft and damper shaft may not allow the lid to slow down properly

5. When using FDT-47A, please ensure that a shaft with specified angular

when closing. Please see the diagrams to the right for the recommended shaft

6. Please contact us when a continuous

## How to Use the Damper

(65) 56

- 1. Dampers may generate torque in both directions, clockwise, or counter-clockwise.
- 2. Please make sure that a shaft attached to a damper has a bearing, as the damper itself is not fitted with one.
- 3. Please refer to the recommended dimensions below when

creating a shaft for	Sha
FDN-47A. Not using	Su
the recommended	Qu
shaft dimensions may	Su
cause the shaft to	Ch
slip out.	(Da

nr.		
1	Shaft's external dimensions	<b>Φ</b> 6- <sup>0</sup> <sub>0.03</sub>
Ig	Surface hardness	HRC55 or higher
d	Quenching depth	0.5mm or higher
ay İ	Surface roughness	1.0Z or lower
0	Chamfer end (Damper insertion side)	<u>c0.2~c0.3</u>
		(orR0.2~R0.3)

## **Damper Characteristics**

### 1. Speed characteristics

A disk damper's torque varies according to the rotation speed. In general, as shown in the graph to the right, the torque increases as the rotation speed increases, and the torque decreases as the rotation speed decreases. Torque at 20rpm is shown in this catalogue. In a closing lid, the rotation speed is slow when the lid begins to close, resulting in the generation of torque that is smaller than the rated torque.



### 2. Temperature characteristics

rotation is planned.

dimensions for a damper.

Damper torque (rated torque in this catalogue) varies according to the ambient temperature. As the temperature increases, the torque decreases, and as the temperature decreases, the torque increases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. The graph to the right illustrates the temperature characteristics



Temperature characteristics of FDN/T-47A series (Rotation speed : 20rpm) 3.0 F**\_, DN-47, AR2/**03 FDT-47**A-203** Ê 2.5 Lorque (N-N-47A-L/R10. DT-47A0-3 DN-A-L/R163 FDT-47A-163 0.5 -30-20-10 0 10 20 30 4050 60 (Ambient temperature °C)

50rpm 12cycle /min -10~50℃ FDT-47A:50g

FDT-57A/FDN-57A Series

Bi-Directional Uni-Directional

Fixed Type CONTRACT ASSOCIATE INCOME INCOME IN CONTRACT, INCOME INCOM

**RoHS** Compliant

Products specification might be changed without notice.

0.03

shaft diameter: Ø10

(Suitable a10 φ52.4

13.8<sup>±0.5</sup>

1.6



\* Max. rotation speed

\* Max. cycle rate

- \* Operating temperature
- \* Weight
- \* Main body material
- \* Rotating (shaft) material
- \* Oil typel
- FDT-57A:75g FDN-57A:94g Iron (SPFC) Nylon (with glass) Silicone oil

12cycle /min

-10~50℃

50rpm

## **Specifications**

<u>\_1.6</u>

(29)

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Model	Rated torque	Damping direction
FDT-57A-303	3±0.4 N∙m (30±4 kgf∙cm)	Both directions
FDT-57A-403	4±0.5 N∙m (40±5 kgf∙cm)	Both directions
FDT-57A-503	4.7±0.5 N∙m (47±5 kgf∙cm)	Both directions
FDN-57A-R303	3±0.4 N∙m	Clockwise direction
FDN-57A-L303	(30±4 kgf•cm)	Counter-clockwise direction
FDN-57A-R403	4±0.5 N⋅m	Clockwise direction
FDN-57A-L403	(40±5 kgf•cm)	Counter-clockwise direction
FDN-57A-R553	5.5±0.6 N∙m	Clockwise direction
FDN-57A-L553	(55±6 kgf•cm)	Counter-clockwise direction

-R5.5

-05.5

<FDN-57A-R/L\*\*\*>

Note) Rated torque is measured at a rotation speed of 20rpm at 23°C±3°C



## How to Use the Damper

- 1. Dampers may generate torque in both directions, clockwise, or counter-clockwise.
- 2. Please make sure that a shaft attached to a damper has a bearing, as the damper itself is not fitted with one.
- 3. Please refer to the recommended dimensions below when

creating a shaft for		
	Shaft's external dimensions	<b>φ</b> 10 <sub>-0.03</sub>
FDN-57A. Not using	Surface hardness	HRC55 or higher
the recommended	Quenching depth	0.5mm or higher
shaft dimensions	Surface roughness	1.0Z or lower
may cause the shaft	Chamfer end	$ \longrightarrow $
to slip out.	(Damper insertion side)	CD.2~CD.3 (orR0,2~R0,3)

## **Damper Characteristics**

### 11. Speed characteristics

A disk damper's torque varies according to the rotation speed. In general, as shown in the graph to the right, the torque increases as the rotation speed increases, and the torque decreases as the rotation speed decreases. Torque at 20rpm is shown in this catalogue. In a closing lid, the rotation speed is slow when the lid begins to close, resulting in the generation of torque that is smaller than the rated torque.



rotation is planned.

2. Temperature characteristics Damper torque (rated torque in this catalogue) varies according to the ambient temperature. As the temperature increases, the torque decreases, and as the temperature decreases, the torque increases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. The graph to the right illustrates the temperature characteristics





4. To insert a shaft into FDN-57A, insert the shaft while spinning it in the idling direction of the one-way clutch. (Do not force the shaft in from the regular direction. This may damage the oneway clutch.)

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5. When using FDT-57A, please ensure that a shaft with specified angular dimensions is inserted in the damper's shaft opening. A wobbling

shaft and damper shaft may not allow the



lid to slow down properly when closing. Please see the diagrams to the right for the



recommended shaft dimensions for a damper. 6. Please contact us when a continuous



FDT-63A/FDN-63A Series

Bi-Directional Uni-Directional

Fixed Type Reputation type sense justing

**RoHS Compliant** 

Products specification might be changed without notice.

- \* Max. rotation speed
- \* Max. cycle rate
- \* Operating temperature
- \* Weight
- \* Main body material
- \* Rotating (shaft) material
- \* Oil typel
- Nylon (with glass) Silicone oil

50rpm

12cycle /min

FDT-63A: 92g FDN-63A: 115g

-10~50℃

Iron (SPFC)



# **Specifications**

11.3<sup>±0.5</sup>

1.6

Model	Rated torque	Damping direction
FDT-63A-403	4±0.5 N∙m	Both directions
	(40±5 kgf•cm)	Both directions
FDT-63A-533	5.3±0.6 N·m	Both directions
	(53±6 kgf•cm)	Both directions
FDT-63A-703	6.7±0.7 N∙m	Both diractions
FDT-63B-703	(67±7 kgf•cm)	Both directions
FDN-63A-R453	4.5±0.5 N∙m	Clockwise direction
FDN-63A-L453	(45±5 kgf•cm)	Counter-clockwise direction
FDN-63A-R603	6±0.6 N∙m	Clockwise direction
FDN-63A-L603	(60±6 kgf•cm)	Counter-clockwise direction
FDN-63A-R903	8.5±0.8 N⋅m	Clockwise direction
FDN-63A-L903	(85±8 kgf•cm)	Counter-clockwise direction

Note) Rated torque is measured at a rotation speed of 20rpm at 23°C±3°C 63B has a slotted rotating shaft opening



## How to Use the Damper

- 1. Dampers may generate torque in both directions, clockwise, or counter-clockwise.
- 2. Please make sure that a shaft attached to a damper has a bearing, as the damper itself is not fitted with one.
- 3. Please refer to the recommended dimensions below when creating a shaft for FDN-63A. Not using the recommended shaft dimensions may cause the shaft to slip out.
- 4. To insert a shaft into
- FDN-63A, insert the shaft while spinning it in the idling direction of the one-way clutch. (Do not force the shaft in

Shaft's external dimensions	<b>φ</b> 10_8 <sub>03</sub>
	¥ 10 0.05
Surface hardness	HRC55 or higher
Quenching depth	0.5mm or higher
asher	
Surface roughness	1.0Z or lower
Chamfer end	$\square$
(Damper insertion side)	C0.2~C0.3 (orR0.2~R0.3)

## **Damper Characteristics**

### 1. Speed characteristics

A disk damper's torque varies according to the rotation speed. In general, as shown in the graph to the right, the torque increases as the rotation speed increases, and the torque decreases as the rotation speed decreases. Torque at 20rpm is shown in this catalogue. In a closing lid, the rotation speed is slow when the lid begins to close, resulting in the generation of torque that is smaller than the rated torque.



rotation is planned. 2. Temperature characteristics Damper torque (rated torque in this catalogue) varies according to the ambient temperature. As the temperature increases, the torque decreases, and as the temperature decreases, the torque increases. This is

because the viscosity of the silicone oil

inside the damper varies according

to the temperature. The graph to

the right illustrates the temperature

characteristics

shaft dimensions for a damper.

for usage with spiral springs

6. A damper shaft connecting to a part

with slotted groove is also available.

The slotted groove type is excellent

7. Please contact us when a continuous



from the regular direction. This may damage the one-way clutch.)

- 5. When using FDT-63A, please ensure that a shaft with specified angular dimensions is inserted in the damper's shaft opening. A wobbling shaft and damper shaft may not allow the lid to slow down properly when closing. Please see the diagrams to the right for the recommended
  - $12.5_{-0.10}^{-0.02}$ 0<sup>1</sup>

(Recommended dimensions for the corresponding shaft)



FDT-70A/FDN-70A Series

Bi-Directional Uni-Directional

Fixed Type CONTRACT ASSOCIATE INCOME INCOME IN CONTRACT, INCOME INCOM

**RoHS Compliant** 

Products specification might be changed without notice.





## **Specifications**

Model	Rated torque	Damping direction
FDT-70A-903	8.7±0.8 N∙m	Both directions
FDT-70B-903	(87±8 kgf•cm)	Both directions
FDN-70A-R114	11±1.1 N•m	Clockwise direction
FDN-70A-L114	(110±11 kgf•cm)	Counter-clockwise direction

Note) Rated torque is measured at a rotation speed of 20rpm at 23°C±3°C 70B has a slotted rotating shaft opening

Operating temperature

\* Max. rotation speed

\* Max. cycle rate

- \* Weight
- FDT-70A: 112g FDN-70A: 136g

50rpm

12cycle/min

-10~50℃

Iron (SPFC)

Nylon (with glass)

- \* Main body material
- \* Rotating (shaft) material
- \* Oil typel



## How to Use the Damper

- 1. Dampers may generate torque in both directions, clockwise, or counter-clockwise.
- 2. Please make sure that a shaft attached to a damper has a bearing, as the damper itself is not fitted with one.
- 3. Please refer to the recommended dimensions below when creating a shaft for FDN-70A. Not using the recommended shaft dimensions may cause the shaft to slip out.
- 4. To insert a shaft into

(Do

	Shaft's
FDIN-70A, Insert the	Surfa
shaft while spinning it	Quer
in the idling direction	Surfa
of the one-way clutch.	Charr
To not force the shaft in	(Dam

	Shaft's external dimensions	<b>Φ10</b> _8.03
	Surface hardness	HRC55 or higher
t	Quenching depth	0.5mm or higher
ו	Surface roughness	1.0Z or lower
	Chamfer end	$\rightarrow$
۱	(Damper insertion side)	C0.2~C0.3 (orR0.2~R0.3)

## **Damper Characteristics**

## 1. Speed characteristics

A disk damper's torque varies according to the rotation speed. In general, as shown in the graph to the right, the torque increases as the rotation speed increases, and the torque decreases as the rotation speed decreases. Torque at 20rpm is shown in this catalogue. In a closing lid, the rotation speed is slow when the lid begins to close, resulting in the generation of torque that is smaller than the rated torque.



## 2. Temperature characteristics

for usage with spiral springs

rotation is planned.

Damper torque (rated torque in this catalogue) varies according to the ambient temperature. As the temperature increases, the torque decreases, and as the temperature decreases, the torque increases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. The graph to the right illustrates the temperature characteristics



from the regular direction. This may damage the one-way clutch.)

5. When using FDT-70A, please ensure that a shaft with specified angular dimensions is inserted in the damper's shaft opening. A wobbling shaft and

damper shaft may not allow the lid to slow down properly when closing. Please see the diagrams to the right for the recommended shaft dimensions for a damper.

6. A damper shaft connecting to a part

with slotted groove is also available.

The slotted groove type is excellent

7. Please contact us when a continuous

 $125^{-0.02}$ 

(Recommended dimensions for the corresponding shaft)



(FDT-70B-903)

