

Rotary Damper

FRT-E2/E9 Series

Fixed Type

Bi-Directional

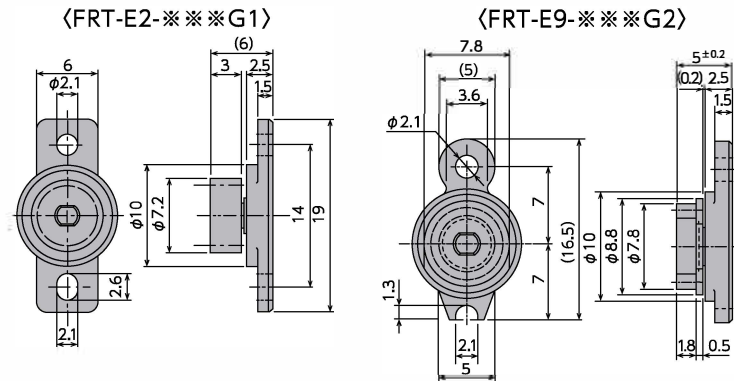
Uni-Directional

Adjustable type

Self-adjusting

RoHS Compliant

● Products specification might be changed without notice.



Specifications

Model	Rated torque
FRT-E2-100G1	$(1 \pm 0.5) \times 10^{-3} \text{N}\cdot\text{m}$
FRT-E9-100G2	$10 \pm 5 \text{ gf}\cdot\text{cm}$
FRT-E2-200G1	$(2 \pm 0.7) \times 10^{-3} \text{N}\cdot\text{m}$
FRT-E9-200G2	$20 \pm 7 \text{ gf}\cdot\text{cm}$
FRT-E2-300G1	$(3 \pm 0.8) \times 10^{-3} \text{N}\cdot\text{m}$
FRT-E9-300G2	$30 \pm 8 \text{ gf}\cdot\text{cm}$
FRT-E2-400G1	$(4 \pm 1) \times 10^{-3} \text{N}\cdot\text{m}$
FRT-E9-400G2	$40 \pm 10 \text{ gf}\cdot\text{cm}$

- * Max. rotation speed 50rpm
- * Max. cycle rate 10cycle/min
- * Operating temperature 0 ~ 50°C
- * Weight FRT-E2 : with gear : 0.41g
FRT-E9 : with gear : 0.38g
- * Body and cap material Polycarbonate (PC)
- * Rotating shaft material Polyacetal (POM)
- * Gear material Polyacetal (POM)
- * Oil type Silicone oil

Note 1) Rated torque measured at a rotation speed of 20rpm at 23°C
Note 2) Gear model number has G1 and G2 at the end

Note 3) Torque can be customized by changing the oil viscosity (see Customizable Torque Chart on page 178)
Note 4) Model E9 is a customized product with a one-sided mounting

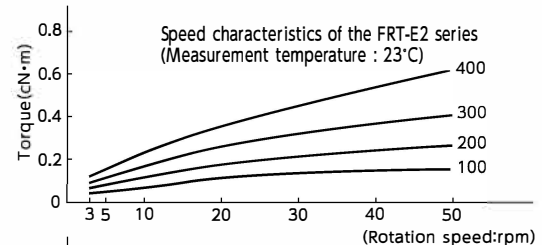
Gear Specifications

Model	G1 (for E2)	G2 (for E9)
Type	Standard spur gear	Standard spur gear
Tooth profile	Involute	
Module	0.6	
Pressure angle	20°	
Number of teeth	10	11
Pitch circle diameter	φ6	φ6.6

Damper Characteristics

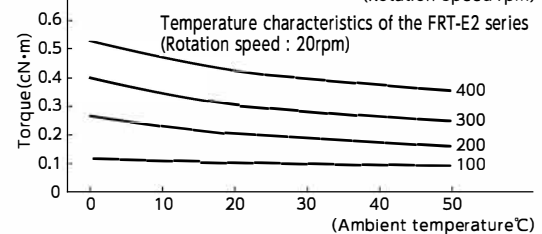
1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.



2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



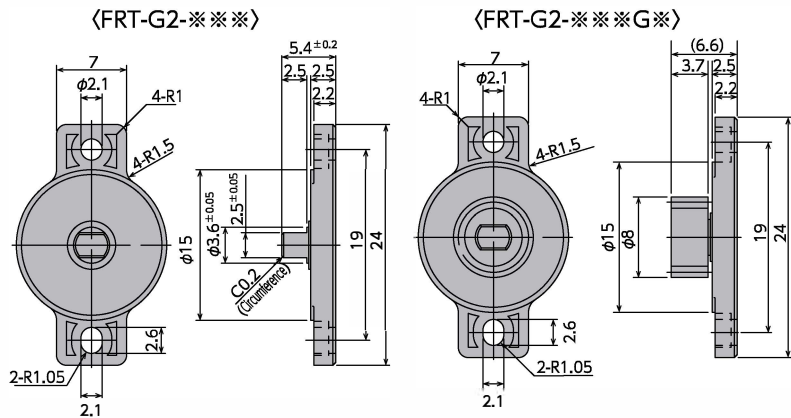
Rotary Damper

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

FRT-G2 Series

RoHS Compliant

●Products specification might be changed without notice.



Specifications

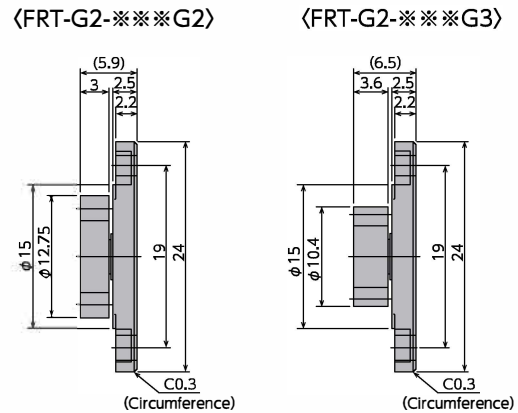
Model	Rated torque
FRT-G2-200(G*)	$(2 \pm 0.7) \times 10^{-3} \text{N}\cdot\text{m}$ 20±7 gf·cm
FRT-G2-300(G*)	$(3 \pm 0.8) \times 10^{-3} \text{N}\cdot\text{m}$ 30±8 gf·cm
FRT-G2-450(G*)	$(4.5 \pm 1) \times 10^{-3} \text{N}\cdot\text{m}$ 45±10 gf·cm
FRT-G2-600(G*)	$(6 \pm 1.2) \times 10^{-3} \text{N}\cdot\text{m}$ 60±12 gf·cm
FRT-G2-101(G*)	$(10 \pm 2) \times 10^{-3} \text{N}\cdot\text{m}$ 100±20 gf·cm

- * Max. rotation speed 50rpm
- * Max. cycle rate 10cycle/min
- * Operating temperature 0~50°C
- * Weight 0.6g(with gear : G1 : 0.8g
G2 : 1.0g G3 : 0.9g)
- * Body and cap material Polycarbonate (PC)
- * Rotating shaft material Polyacetal (POM)
- * Gear material Polyacetal (POM)
- * Oil type Silicone oil

Note 1) Rated torque measured at a rotation speed of 20rpm at 23°C
 Note 2) Models with gear bears G1, G2, or G3 at the end of their model numbers
 Note 3) Torque can be customized by changing the oil viscosity (see Customizable Torque Chart on page 178)
 Note 4) The diagrams above are outline drawings of FRT-G2-****. Please refer to the diagrams at the right for G2 and G3.

Gear Specifications

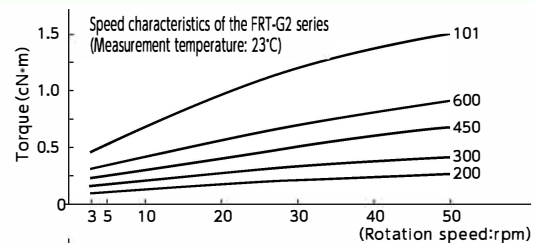
	G1	G2	G3
Type	Standard spur gear	Profile shifted spur gear	Standard spur gear
Tooth profile	Involute		
Module	0.5	1.0	0.8
Pressure angle	20°		
Number of teeth	14	10	11
Pitch circle diameter	$\phi 7$	$\phi 10$	$\phi 8.8$
Addendum modification	-	+0.375	-



Damper Characteristics

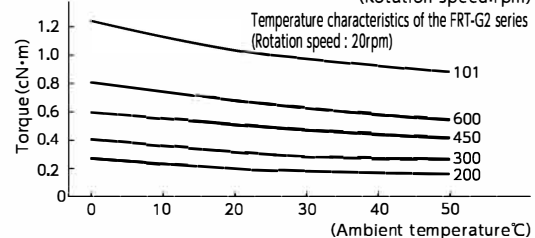
1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.



2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



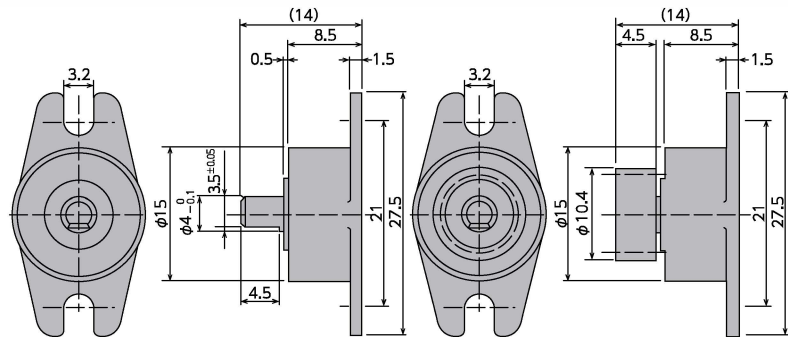
Rotary Damper

FRT/FRN-C2 Series

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

RoHS Compliant

● Products specification might be changed without notice.



Specifications

Model	Rated torque	Damping direction
FRT-C2-201 (G1)	(20±6)×10 ⁻³ N·m 200±60 gf·cm	Both directions
FRT-C2-301 (G1)	(30±8)×10 ⁻³ N·m 300±80 gf·cm	Both directions
FRN-C2-R301 (G1)	(30±8)×10 ⁻³ N·m 300±80 gf·cm	Clockwise
FRN-C2-L301 (G1)		Counter-clockwise

Note 1) Rated torque measured at a rotation speed of 20rpm at 23°C

Note 2) Gear model number has G1 at the end

Note 3) Torque can be customized by changing the oil viscosity (see Customizable Torque Chart on page 178)

● There are dampers that generate torque in both directions and one-way torque in the CW direction or CCW direction when the rotating axle is viewed from the top.

- * Max. rotation speed 50rpm
- * Max. cycle rate 10cycle /min
- * Operating temperature 0 ~50°C
- * Weight FRT-C2 : 2.1g (with gear : 2.4g)
FRN-C2 : 3.2g (with gear : 3.5g)
- * Body and cap material Polycarbonate (PC)
- * Rotating shaft material Polyacetal (POM)
metal (FRT: POM, FRN: SUS)
- * Gear material Polyacetal (POM)
- * Oil type Silicone oil

Gear Specifications

Type	Profile shifted spur gear
Tooth profile	Involute
Module	0.8
Pressure angle	20°
Number of teeth	11
Pitch circle diameter	φ8.8

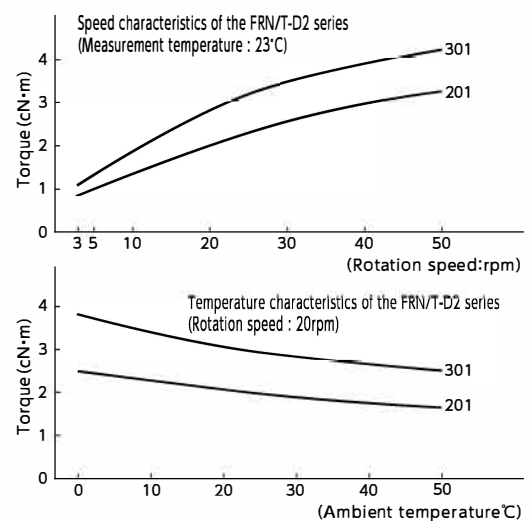
Damper Characteristics

1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.

2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



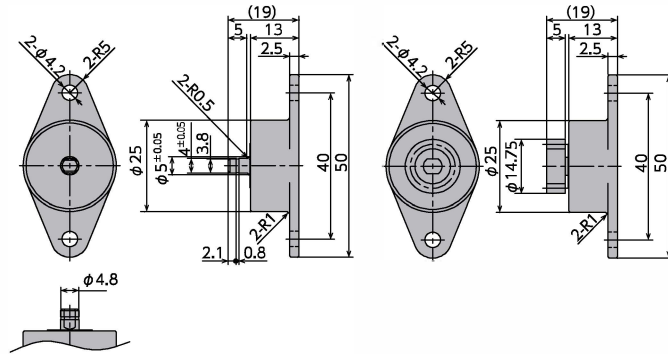
Rotary Damper

FRT/FRN-D3 Series

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

RoHS Compliant

●Products specification might be changed without notice.



Specifications

Model	Rated torque	Damping direction
FRT-D3-501 (G1)	(50±10)×10 ⁻³ N·m 500±100 gf·cm	Both directions
FRT-D3-102(G1)	(100±20)×10 ⁻³ N·m 1,000±200 gf·cm	Both directions
FRT-D3-152(G1)	(150±30)×10 ⁻³ N·m 1,500±300 gf·cm	Both directions
FRT-D3-202(G1)	(200±40)×10 ⁻³ N·m 2,000±400 gf·cm	Both directions
FRT-D3-252(G1)	(250±50)×10 ⁻³ N·m 2,500±500 gf·cm	Both directions
FRN-D3-R501 (G1)	(50±10)×10 ⁻³ N·m 500±100 gf·cm	Clockwise
FRN-D3-L501 (G1)	(50±10)×10 ⁻³ N·m 500±100 gf·cm	Counter-clockwise
FRN-D3-R102 (G1)	(100±20)×10 ⁻³ N·m 1,000±200 gf·cm	Clockwise
FRN-D3-L102 (G1)	(100±20)×10 ⁻³ N·m 1,000±200 gf·cm	Counter-clockwise
FRN-D3-R152 (G1)	(150±30)×10 ⁻³ N·m 1,500±300 gf·cm	Clockwise
FRN-D3-L152 (G1)	(150±30)×10 ⁻³ N·m 1,500±300 gf·cm	Counter-clockwise
FRN-D3-R202 (G1)	(200±40)×10 ⁻³ N·m 2,000±400 gf·cm	Clockwise
FRN-D3-L202 (G1)	(200±40)×10 ⁻³ N·m 2,000±400 gf·cm	Counter-clockwise
FRN-D3-R252 (G1)	(250±50)×10 ⁻³ N·m 2,500±500 gf·cm	Clockwise
FRN-D3-L252 (G1)	(250±50)×10 ⁻³ N·m 2,500±500 gf·cm	Counter-clockwise

- * Max. rotation speed: 50rpm
- * Max. cycle rate: 10cycle/min
- * Operating temperature: 0~50°C
- * Weight: FRT-D3 : 8.3g (with gear : 9g)
FRN-D3 : 12.3g (with gear : 13g)
- * Body and cap material: Polyacetal (POM)
- * Rotating shaft material: metal (FRN : SUS)
- * Gear material: Polyacetal (POM)
- * Oil type: Silicone oil
- * Cap color: FRT : Gray
FRN (R) : Black
FRN (L) : White

Gear Specifications

Type	Profile shifted spur gear
Tooth profile	Involute
Module	1.0
Pressure angle	20°
Number of teeth	12
Pitch circle diameter	φ12
Rack shift coefficient	+0.375

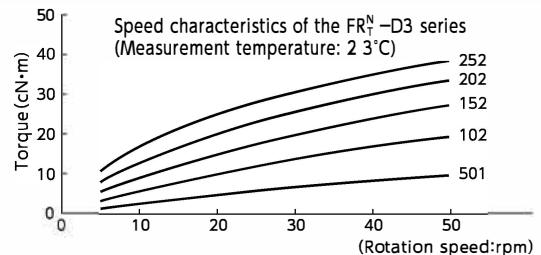
Note 1) Rated torque measured at a rotation speed of 20rpm at 23°C
Note 2) Gear model number has G1 at the end

Note 3) Torque can be customized by changing the oil viscosity (see Customizable Torque Chart on page 178)
● There are dampers that generate torque in both directions and one-way torque in the CW direction or CCW direction when the rotating axle is viewed from the top.

Damper Characteristics

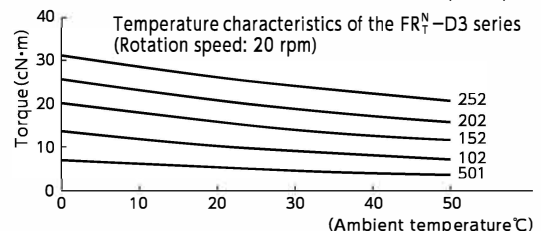
1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.



2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



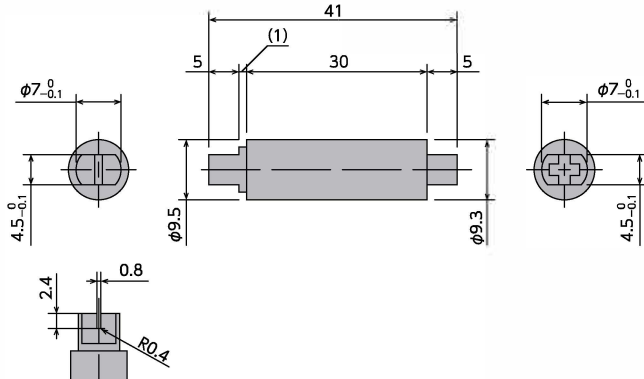
Rotary Damper

FRT-S1 Series

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

RoHS Compliant

● Products specification might be changed without notice.



Specifications

Model	Rated torque
FRT-S1-201	$(20 \pm 6) \times 10^{-3} \text{N}\cdot\text{m}$ $200 \pm 60 \text{ gf}\cdot\text{cm}$
FRT-S1-301	$(30 \pm 8) \times 10^{-3} \text{N}\cdot\text{m}$ $300 \pm 80 \text{ gf}\cdot\text{cm}$

Note 1) Rated torque measured at a rotational speed of 20 rpm at 23°C
 Note 2) Torque can be customized by changing the oil viscosity.
 (See Customizable Torque Chart on page 178.)

- * Max. rotational speed 50rpm
- * Max. cycle rate 10cycle /min
- * Operating temperature 0 ~ 50°C
- * Weight 3g
- * Main body material Polyacetal(POM)
- * Rotating shaft material Polyacetal(POM)
- * Oil type Silicone oil

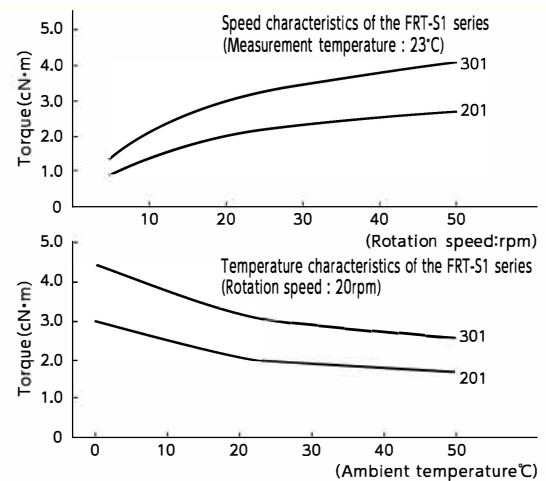
Damper Characteristics

1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.

2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



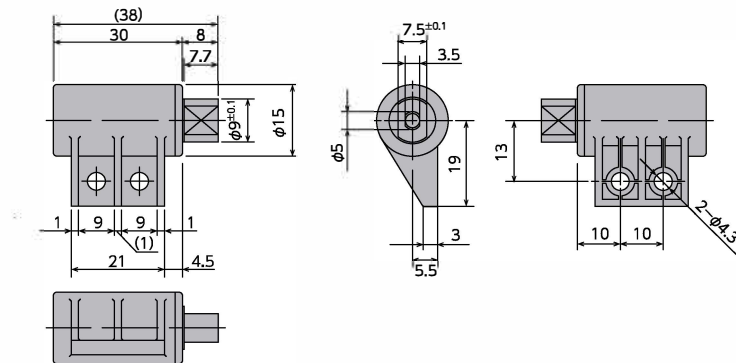
Rotary Damper

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

FRT-N1 Series

RoHS Compliant

●Products specification might be changed without notice.



Specifications

Model	Rated torque
FRT-N1-102	$(100 \pm 20) \times 10^{-3} \text{N}\cdot\text{m}$ 1,000±200 gf·cm
FRT-N1-182	$(180 \pm 36) \times 10^{-3} \text{N}\cdot\text{m}$ 1,800±360 gf·cm

Note 1) Rated torque measured at a rotational speed of 20 rpm at 23°C
 Note 2) Torque can be customized by changing the oil viscosity.
 (See Customizable Torque Chart on page 178.)

- * Max. rotational speed 50rpm
- * Max. cycle rate 10cycle /min
- * Operating temperature 0~50°C
- * Weight 8.2g
- * Main body material Polyacetal(POM)
- * Cap material Polyacetal(POM)
- * Rotating shaft material Polyacetal(POM)
- * Oil type Silicone oil

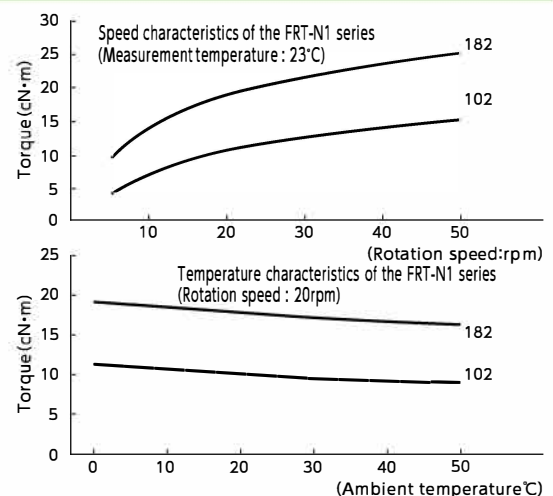
Damper Characteristics

1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.

2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



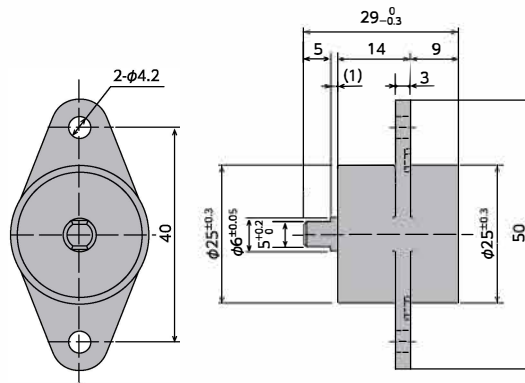
Rotary Damper

FRT-L1 Series

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

RoHS Compliant

●Products specification might be changed without notice.



Specifications

Model	Rated torque
FRT-L1-202	$(200 \pm 40) \times 10^{-3} \text{N}\cdot\text{m}$ $2,000 \pm 400 \text{gf}\cdot\text{cm}$
FRT-L1-302	$(300 \pm 60) \times 10^{-3} \text{N}\cdot\text{m}$ $3,000 \pm 600 \text{gf}\cdot\text{cm}$

Note 1) Rated torque measured at a rotational speed of 20 rpm at 23°C
 Note 2) Torque can be customized by changing the oil viscosity.
 (See Customizable Torque Chart on page 178.)

*Max. rotational speed	50rpm
*Max. cycle rate	10cycle/min
*Operating temperature	0~50°C
*Weight	14.1g
*Main body material	Polycarbonate(PC)
*Rotating shaft material	Polyacetal (POM)
*Oil type	Silicone oil

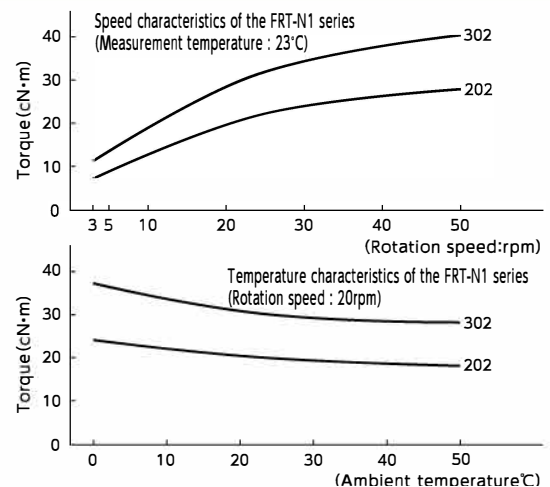
Damper Characteristics

1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.

2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



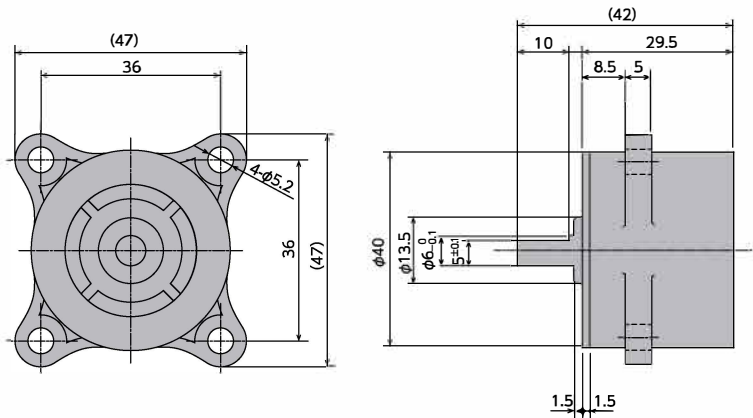
Rotary Damper

FRT/FRN-K2 Series

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

RoHS Compliant

●Products specification might be changed without notice.



Specifications

Model	Rated torque	Damping direction
FRT-K2-103	1±0.2 N·m (10±2 kgf·cm)	Both directions
FRN-K2-R103	1±0.2 N·m	Clockwise
FRN-K2-L103	(10±2 kgf·cm)	Counter-clockwise

- * Max. rotational speed: 50rpm
- * Max. cycle rate: 10cycle /min
- * Operating temperature: 0 ~50°C
- * Weight: FRT-K2 : 78.3g, FRN-K2 : 56.6g
- * Main body material: Polycarbonate + glass fiber
- * Rotating shaft material: Metal (SUS)
- * Oil type: Silicone oil

Note 1) Rated torque measured at a rotation speed of 20rpm at 23°C

Note 2) Torque can be customized by changing the oil viscosity (see Customizable Torque Chart on page 178)

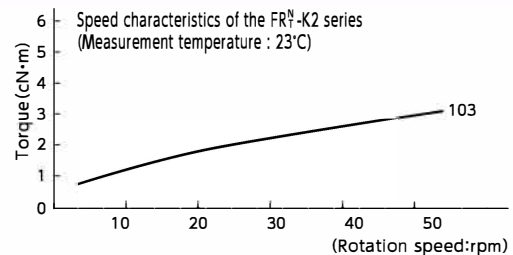
Note 3) Dampers with gear can also be custom ordered.

● An FRT type damper generates torque in both directions and an FRN type generates one-way torque in the CW direction (R) or CCW direction (L) when the rotating axle is viewed from the top.

Damper Characteristics

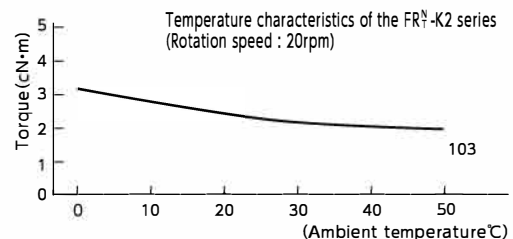
1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.



2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



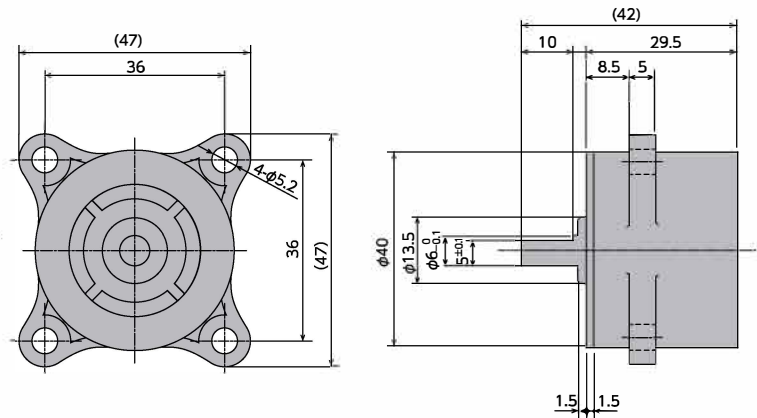
Rotary Damper

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

FRT/FRN-F2 Series

RoHS Compliant

●Products specification might be changed without notice.



Specifications

Model	Rated torque	Damping direction
FRT-F2-203	2±0.4 N·m (20±4 kgf·cm)	Both directions
FRT-F2-303	3±0.8 N·m (30±8 kgf·cm)	Both directions
FRT-F2-403	4±1 N·m (40±10 kgf·cm)	Both directions
FRN-F2-R203	2±0.4 N·m (20±4 kgf·cm)	Clockwise
FRN-F2-L203	2±0.4 N·m (20±4 kgf·cm)	Counter-clockwise

- * Max. rotational speed 50rpm
- * Max. cycle rate 10cycle /min
- * Operating temperature 0 ~50°C
- * Weight FRT-K2 : 115.6g
FRN-K2 : 93.2g
- * Main body material Polycarbonate + glass fiber
- * Rotating shaft material Metal (SUS)
- * Oil type Silicone oil

Note 1) Rated torque measured at a rotation speed of 20rpm at 23°C

Note 2) Torque can be customized by changing the oil viscosity
(see Customizable Torque Chart on page 178)

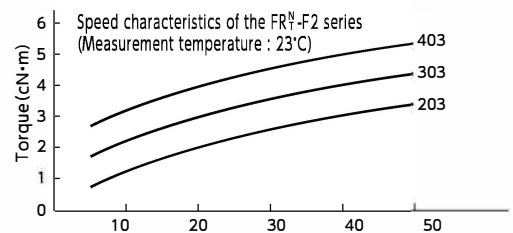
Note 3) Dampers with gear can also be custom ordered.

● An FRT type damper generates torque in both directions and an FRN type generates one-way torque in the CW direction (R) or CCW direction (L) when the rotating axle is viewed from the top.

Damper Characteristics

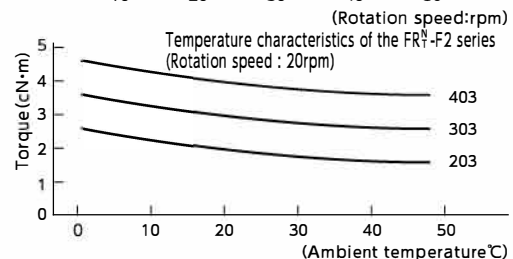
1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.



2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.

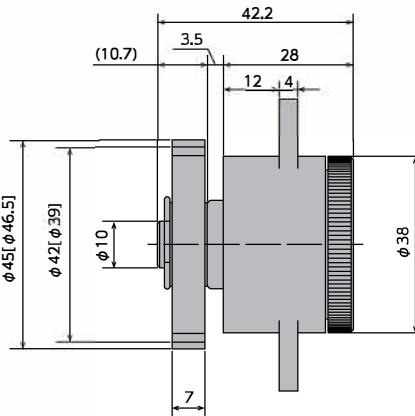
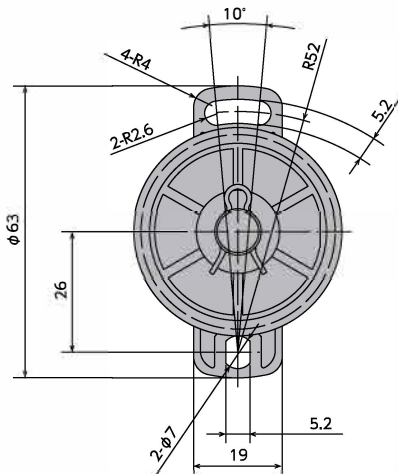


Rotary Damper

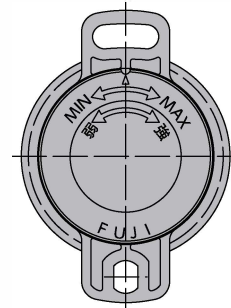
FRN-P2 Series(Adjustable Types: Variable Torque Models)



- * Max. rotation speed 50rpm
- * Max. cycle rate 10cycle/min
- * Operating temperature 0~50°C
- * Weight 64g
- * Body and cap material PBT
- * Rotating shaft material SUS
- * Gear, adjustment knob POM
- * Oil type Silicone oil



Dimensions of G2 gear are in []



Specifications

Model	Rated torque	Damping direction
FRN-P2-R501G*	0.05±0.01 N·m (0.5±0.1 kgf·cm)	Clockwise direction
FRN-P2-L501G*		Counter-clockwise direction
FRN-P2-R102G*	0.10±0.02 N·m (1.0±0.2 kgf·cm)	Clockwise direction
FRN-P2-L102G*		Counter-clockwise direction
FRN-P2-R202G*	0.20±0.04 N·m (2.0±0.4 kgf·cm)	Clockwise direction
FRN-P2-L202G*		Counter-clockwise direction

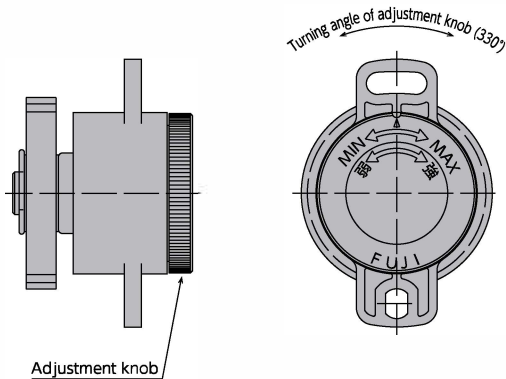
Note 1) Rated torque is measured at a rotation speed of 20rpm at 23°C (adjustment knob set at MAX)

● There are dampers that generate torque in the CW direction or CCW direction when the rotating axle is viewed from the top.

Gear Specifications

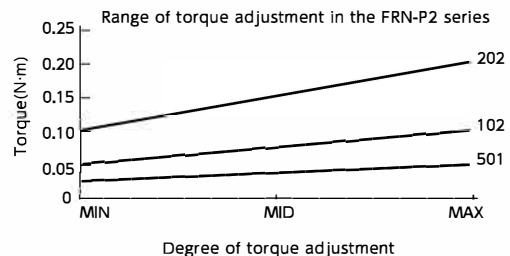
Model	G1	*G2
Type	Standard spur gear	Shifted spur gear
Tooth profile	Involute	
Module	1.5	3.0
Pressure angle	20°	
Number of teeth	28	13
Pitch circle diameter	φ42	φ39
Addendum modification coefficient	-	+0.25

How to Adjust Torque



Adjustment knob

Range of Torque Adjustment



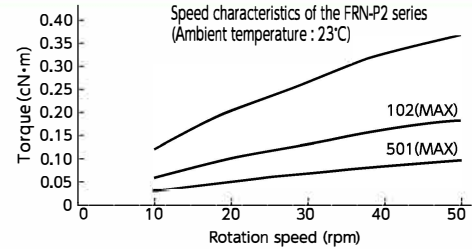
Turn the adjustment knob clockwise to increase damper torque and counterclockwise to decrease it.

●Products specification might be changed without notice.

Characteristics

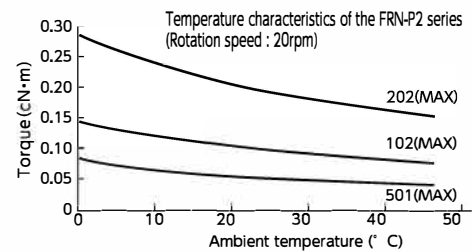
1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.

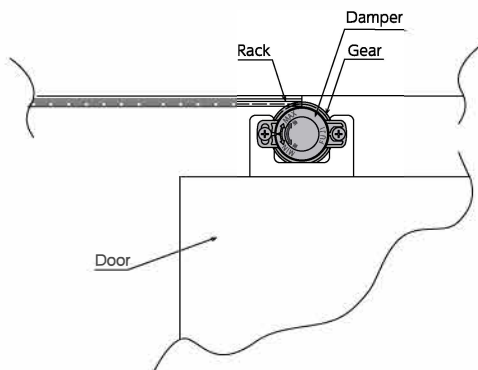


2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.



Example of Using a Damper



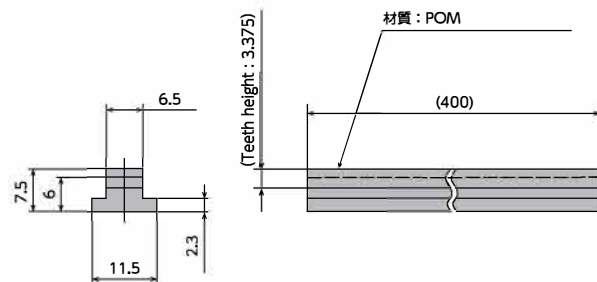
Application of the FRN-P2 Series

Option Rack

G1 Rack : ROP-020P2-1

Applicable Models	Model
FRN-P2	ROP-020P2-1

Rack specifications : m=1.5
 Pressure angle 20° (full depth tooth)
 Z=85



There is no provision for option racks complying with the gear specification G2 (shifted spur gear) of FRN-P2

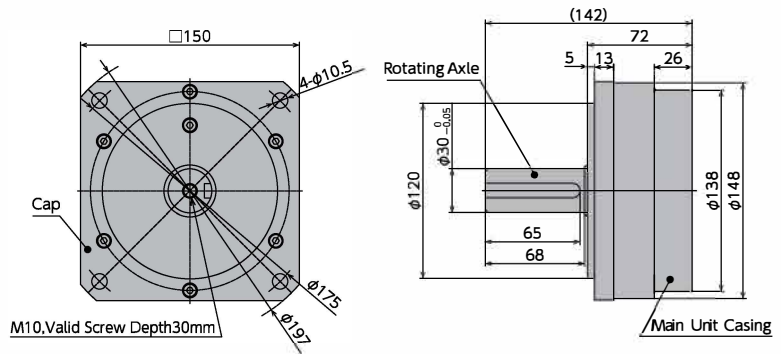
Rotary Damper

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

FRT-W1

RoHS Compliant

●Products specification might be changed without notice.



Specifications

Model	Rated torque	Damping direction
FRT-W1-105	100±20N·m	Both directions
FRT-W1-185	180±40N·m	Both directions

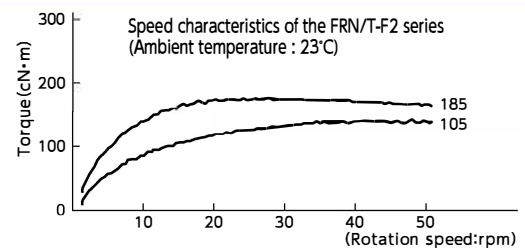
Note 1) Rated torque measured at a rotation speed of 20rpm at 23°C

- * Max. rotation speed 50rpm
- * Max. cycle rate 1.5cycle /min
- * Operating temperature -20 ~60°C
- * Weight 6g
- * Main body material SUS304
- * Cap material A2017
- * Rotating (shaft) material SUS420
- * Oil type Silicone oil

Damper Characteristics

1. Speed characteristics

A rotary 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. In addition, please note that the starting torque slightly differs from the rated torque.



2. Temperature characteristics

A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph to the right, the torque decreases as the ambient temperature increases, and the torque increases as the ambient temperature decreases. This is because the viscosity of the silicone oil inside the damper varies according to the temperature. When the temperature returns to normal, the torque will return to normal as well.

