

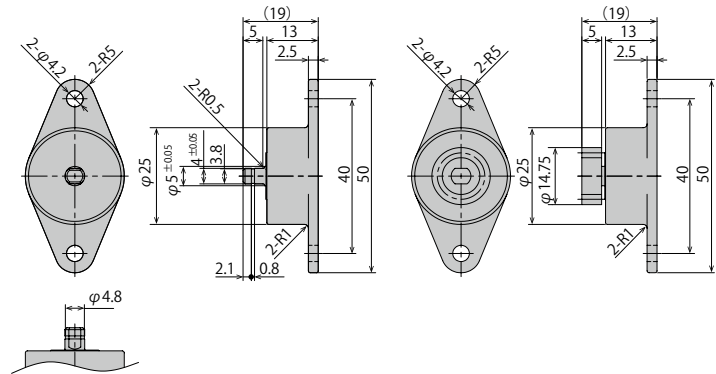
Rotary Damper

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

FRT/FRN-D3 Series

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: * Oil type
- * Rotating shaft material: Polyacetal (POM)
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

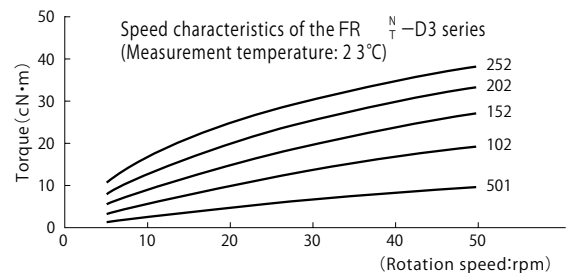
Note 3) Torque can be customized by changing the oil viscosity (see Customizable Torque Chart on page 178)

- 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.

