



SPECIFICATIONS

| Model | Rated Torque | Damping Direction | Max Rotation Speed | Max Cycle Rate |
|----------------|-----------------------------------------------------------|-------------------|--------------------|----------------|
| FRN-D3-L102-G1 | $(100 \pm 20) \times 10^{-3} \text{Nm}$ (1000±200gfcM) | Counter-clockwise | 50 RPM | 10 cycles/min. |

| Operating Temperature | Weight | Body & Cap Material | Rotating Shaft Material | Gear Material | Oil Type | Cap Color |
|-----------------------|--------|---------------------|-------------------------|------------------|--------------|-----------|
| 0 ~ 50°C | 13g | Polyacetal (POM) | Metal (SUS) | Polyacetal (POM) | Silicone Oil | White |

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

Note 2) Gear model number has G1 at the end

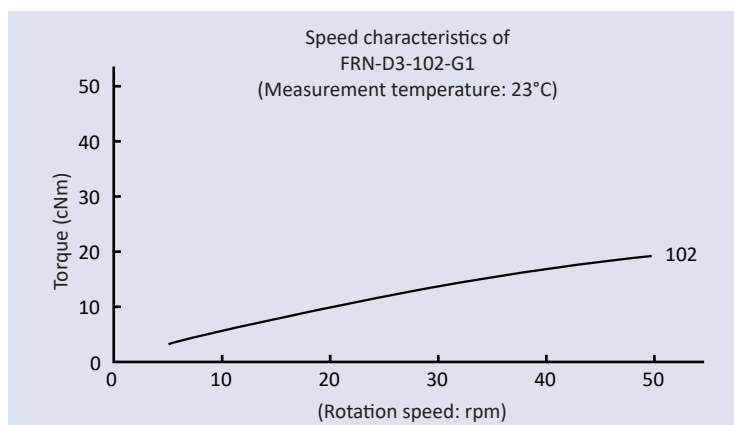
Note 3) Torque can be customized by changing the oil viscosity

■ There are dampers that generate torque in both directions and one-way torque in the clockwise direction or counter clockwise direction when the rotating axle is viewed from the top

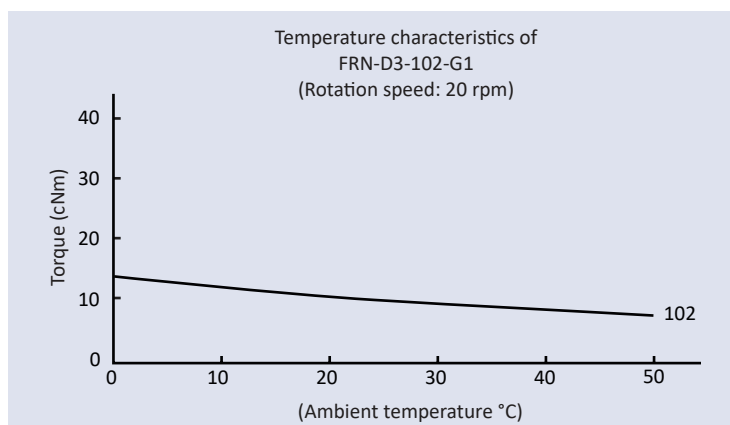
GEAR SPECIFICATIONS

| Model | Type | Tooth Profile | Module | Pressure Angle | Number of Teeth | Pitch Circle Diameter | Addendum Modification Coefficient | Weight (damper+gear) |
|-------|---------------------------|---------------|--------|----------------|-----------------|-----------------------|-----------------------------------|----------------------|
| G1 | Profile Shifted Spur Gear | Involute | 1.0 | 20° | 12 | ∅12 | +0.375 | 13g (12.3g+0.7g) |

DAMPING CHARACTERISTICS



■ **Speed characteristics:** A rotary damper's torque varies according to the rotation speed. In general, as shown in the graph above, 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.



■ **Temperature characteristics:** A rotary damper's torque varies according to the ambient temperature. In addition, as shown in the graph above, 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.