

## 1.4. High Rigidity without Backlash

Since the Ball Screw is capable of receiving a preload, the axial clearance can be reduced to below zero and high rigidity is achieved because of the preload. In Fig. 5, when an axial load is applied in the positive (+) direction, the table is displaced in the same (+) direction. When an axial load is provided in the reverse (-) direction, the table is displaced in the same (-) direction. Fig. 6 shows the relationship between the axial load and the axial displacement. As indicated in Fig. 6, as the direction of the axial load changes, axial clearance occurs as a displacement. In addition, when the Ball Screw is provided with a preload, it gains higher rigidity and smaller axial displacement than zero clearance in the axial direction.

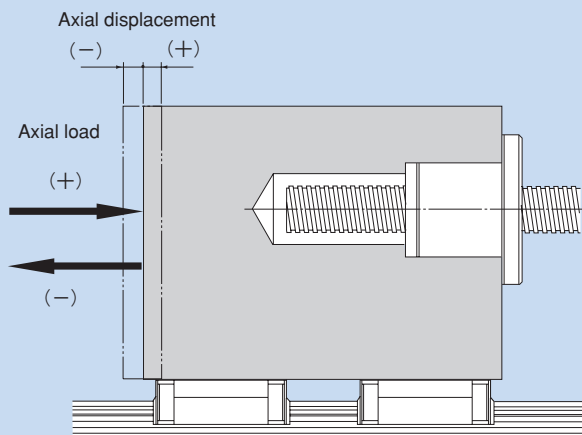


Fig. 5

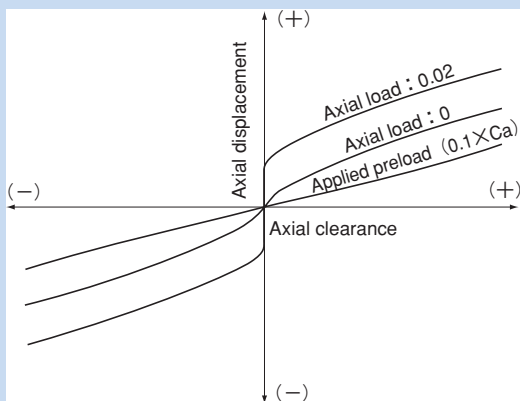


Fig. 6 Axial Displacement in Relation to Axial Load