

Effect of Axial Clearance on Rolling Element Load of Double Row Tapered Roller Bearings

Ken TAKAHASHI Daisuke SUZUKI Takafumi NAGATOMO

An external load applied to a rolling bearing is distributed among the rolling elements. This rolling element load distribution is changed according to the internal clearance of the bearing. And, it will affect the rolling contact fatigue life of the bearing. In this work, the rolling element load has been measured by using an optical fiber sensor mounted on a roller of a double row tapered roller bearing, and the effect of the axial clearance on the rolling element load has been investigated. As a result, it has been clarified that the load distribution factor decreases with the increase in the axial clearance, and as the radial load becomes small, the degree of reduction of the load distribution factor due to the increase in the axial clearance increases. Further, this tendency has been confirmed to be consistent with the numerical results.