

Estimation of Tangential Contact Force between Actual Wheel and Rail Using Twin-disc Rolling Machine

Daisuke YAMAMOTO

In this paper, to investigate the relationship between contact-ellipse and tangential contact force of wheel/rail under dry conditions, we conduct tangential force measurement experiments using different sizes of cylindrical specimens with 30 mm and 500 mm in diameters. As a result, we confirm that these characteristics of tangential contact force agree well with the Kalker's theoretical formula regardless of the size of contact-ellipse. These experimental results mean the tangential contact force characteristics of an actual wheel/rail interface can be estimated by means of the laboratory experiment under the same conditions of the roughness of a contact surface, surface property, and humidity around a contact surface.