

### **Estimation for the Transverse Crack Propagation of a Heat Treated Rail**

Mitsuru HOSODA      Jun MIZUTANI      Ryu-ichi YAMAMOTO      Hiroo KATAOKA

Rail breakage due to transverse crack originating from the gauge corner cracks has been occurring in the heat treated rails. Operators conduct periodic maintenance by rail replacement, visual inspection and rail ultrasonic flaw detection. These measures require a great deal of cost, and it is required to research on crack propagation. In this research, we carried out rail bending tests with an artificially-processing crack in the rail head to investigate the transverse crack growth rate and tendency using various rails. In addition, we developed a methods for estimation transverse crack growth by FEM and verified the method by comparing the estimated values with rail bending test results.