

Evaluation of Fatigue Strength and Wear Property of Bolts for Fixing Contact Strips Made of Carbon-fiber Reinforced Carbon Composite

Yoshitaka KUBOTA Hisashi MORI Hiroshi TSUCHIYA

The metal-impregnated carbon/carbon composite contact strips (hereinafter referred to as the 'C/C composite strips') featuring self-lubricating property and high fracture toughness have been developed and put to practical use. Given the expansion of use of C/C composite strips, it is necessary to conduct a further study about a bolt joint of the C/C composite strip. The purpose of our work was to investigate the load acting on fixing bolts and to select adequate materials of bolts for fixing the C/C composite strips. For this purpose, we measured bolt axial load in tightening process and examined the tensile strength, fatigue strength and wear property of six different bolts. Based on the test results, we proposed suitable materials of bolts for fixing the C/C composite strips.