

최적화 H형 지지격자 5x5 봉다발의 유동유발 진동특성

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Flow-Induced Vibration Characteristics of the 5x5 Rod Bundle with Optimized H Type Spacer Grid

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Key Words: Flow-Induced Vibration(유동유발진동), Spacer Grid(지지격자), Pressurized Light Water Reactor(가압경수로), Hydraulic Test Loop(수력시험루프), 5x5 Rod Bundle(5x5 봉다발)

Abstract : The PWR Nuclear Fuel assembly consists of more than 250 fuel rods that are supported by leaf springs in the cells of more than 10 Spacer Grids (SG) along the rod length. Since it is not easy to conduct mechanical tests on a full-scale model basis, the small-scaled rod bundle (25 half-sized rods, 5 SGs) is generally used for various performance tests during the development stage. As one of the small-scaled tests, a flow test should be carried out in order to verify the performance of the spacer grid like the coolant mixing performance and to obtain the Flow-Induced Vibration (FIV) characteristics of the rod bundle over the reactor operating flow range. The 5x5 rod bundle of optimized H type spacer grid was tested using a newly developed hydraulic test loop. The test bundle of optimized H type spacer grid has better FIV characteristic in the point of vibration amplitude compared to that of the bundle of reference spacer grid.

치과용 임플란트의 풀림현상에 관한 역학적 해석

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Development of an analytical model for dental implant screw loosening

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Key Words: Dental Implant(치과용 임플란트), Preload(전하중), Loosening(풀림), Joint separating force(나사분리력), Clamping force(조임력)

Abstract : The screw loosening appears to be the most common problem concerned with implant systems. Theoretical formulas are developed for the prediction of preload generated in the connecting screw of dental implant system during tightening since it is believed that the preload is associated with screw loosening. The screw loosening torques are measured for different implant systems with various connection types. The results of theoretical formulas are compared to that of the experiments. It is found that various geometrical parameters affect the screw loosening.