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Experimental validation of Enhanced Heat Flux First Wall Panel Mechanical attachment system

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JSC NIKIET is a main supplier of ITER in-vessel components and its responsibility includes the manufacture of the FW beam, finger bodies, and the mechanical attachment system of the Enhanced Heat Flux (EHF) First Wall (FW) Panels in the framework of Procurement Arrangement 1.6.P1A.RF.01 dated 14.02.2014. The mechanical attachment system comprises the central bolt, threaded barrel and system washers. This FW mechanical attachment system allows the mounting of the FW onto the installed Shield Block (SB) while accommodating all external forces acting during plasma disruptions and normal operation. The design of EHF FW mechanical attachment system has been developed and optimized through a collaboration between the ITER Organization Central Team (IO-CT) and Russian specialists in order to provide the possibility to use it for all the FW panels. Full scale mockups of the FW attachment system components have been manufactured in JSC NIKIET in 2015-2016 and mechanical tests have been performed to demonstrate operation of these mock-ups under a 1 MN cyclic force. This paper summarizes the design description and experimental results of the FW attachment system.

Co-authors: Dr SVIRIDENKO, Maksim (JSC NIKIET); Dr ANDREY, Leshukov (JSC NIKIET); Dr TOMILOV, Sergey (JSC NIKIET); Dr RAFFRAY, Rene (ITER Organization); Dr EATON, Russell (ITER Organization); Dr GICQUEL, Stefan (ITER Organization); Dr PARSHUTIN, Evgenyi (JSC NIKIET); Dr STREBKOV, Yuri (JSC NIKIET); Dr PODDUBNYI, Ivan (JSC NIKIET)

Presenter: Dr SVIRIDENKO, Maksim (JSC NIKIET)

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