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The feasibility of application the existing IVVS concept to CFETR

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The Chinese Fusion Engineering Test Reactor (CFETR) is the next generation fusion device of China for realization of fusion energy. Its mission aims to bridge the gaps between the fusion experimental reactor ITER and the demonstration reactor (DEMO). To carry out the maintenance work of CFETR, remote handling systems shall be employed. To inspect the position and status of in-vessel components of CFETR, a remotely operated in-vessel viewing system (IVVS) shall be developed. A kind of IVVS prototype with an articulate arm and a viewing system has built in China, which bases on the size of EAST Tokamak. To test, install and store the IVVS around the Tokamak, a cylindrical vacuum vessel with foundation support inside is designed and checked. To connect the vacuum vessel to the Tokamak, an ultra-high vacuum gate valve a bellow is utilized between them. To keep the vacuum degree of the Tokamak after connection, a set of vacuum unit with molecular pump is configured for the vacuum vessel. Various performance tests of the IVVS are performed on the remote handling test facility before it connects with EAST Tokamak. The test result shows that it is feasible to apply this IVVS concept to CFETR.

Eligible for student paper award?

No

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