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Upgraded Design of EAST Lower Divertor

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EAST is one of the most important experimental fusion devices of China, the design of each component has important reference significance for China Fusion Engineering Testing Reactor (CFETR). Divertor, as one of the most important in-vessel components on the EAST, has always been quite difficult and challenging for its design. With the completion of the upgrade of the upper divertor, EAST has achieved a series of good test results, and then, the thermal load capacity of the lower divertor has become a bottleneck that constrains EAST to obtain higher parameters. This article explains the upgrade of the lower divertor which referred to the structure of tungsten monoblock on upper divertor. The lower divertor uses the circular monoblock structure at hit point area, at the end of monoblocks, end boxes are applied. The role of the end boxes is rational distribution of water flow in the premise of maintain the existing water supply capacity (1.8KG/s), which will improve the thermal load capacity of lower divertor from 2MW/m^2 to 5MW/m^2. Finally, the structure of the target plate satisfies the requirements, at the same time, the existing space can also accommodate the installation of the support structure. The reconstruction of the lower divertor not only provides support for the subsequent physical experiments on the EAST, but also provides an important reference for the design of the CFETR divertor.

Key Words:EAST,lower divertor,monoblock,tungsten,thermal load capacity

Eligible for student paper award?

No

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