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## P3.137 Initial Configuration Studies of the Upper Vertical Port of the European DEMO

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In the current pre-concept phase of the European DEMO, integration studies of the systems in the Upper Port area are being carried out. In DEMO, the Upper Port of the Vacuum Vessel is extraordinarily large to allow for the vertical extraction of the Breeding Blanket segments. This requires a number of components inside and outside the port to be integrated with tight space constraints: The Upper Port structure and its annexes, the adjacent Toroidal and Poloidal Field Coils, the Thermal Shields, the piping connection to the Vacuum Vessel Pressure Suppression System, the Shield Plug and its inserts, the feeding pipework of the in-vessel components and part of the Breeding Blanket supporting structures. Apart from functional aspects, the design of these components is mainly driven by considerations of structural integrity, maintainability and irradiation shielding, which are mutually competing in many areas. A number of studies have recently been conducted on the design of the Upper Port and the required configuration of the components within. The present article describes the studied options and the respective results, the identified issues as well as the proposed engineering solutions, in particular with respect to the mechanical design of the Upper Port and the integrated Shield Plug.

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