

Abstract Submitted  
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**Advances in the Fabrication of Toroidal Field Coil Prototypes\*** F. BOERT, KM, Germany, H.G. WOBKER, A. CUCCHIARO, ENEA, Italy, R. FROSI, A. PIZZUTO, G. RAMOGIDA, A. BIANCHI, Ansaldo, Italy, B. PARODI, B. COPPI, MIT — The Bitter-type Toroidal Field Coils (TFC) adopted for Ignitor consist of plates that are cooled down to 30 K by Helium gas. Copper OFHC has been selected for these plates, allowing for an Electron Beam (EB) welding solution of the cooling channels. Kabel Metal set up the welding parameters and qualified the process to achieve full joint penetration with acceptable metallurgical structure. The qualification covers both the welding of the cooling channels and the inlet/outlet tube made on two full size samples. A metallographic examination and vacuum and pressure tests have been performed to validate the basic suitability of the EB welding process.

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