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Magnetic Diagnostics for Ignitor<sup>1</sup> F. ALLADIO, G. PIZZICAROLI, F. BOMBARDA, ENEA, Italy — All the electromagnetic diagnostics commonly used in present experiments to measure plasma parameters such as current, loop voltage, horizontal and vertical position, plasma beta, toroidal and poloidal modes, etc., are adopted for Ignitor. The moderate neutron fluence and very intense neutron flux expected in Ignitor demand the use of fully inorganic insulating materials, for which permanent radiation damage should be limited, but transient, reversible effects cannot be excluded. More data is needed to verify the sensitivity of the chosen materials to the radiation background, but in the meantime, an R&D program has started with the purpose of selecting insulator materials, testing impregnation techniques, verification of installation feasibility for all types of magnetic diagnostic coils. Full size prototypes are being manufactured. The magnetic coils system must be closely integrated with the plasma chamber as it requires early installation. While the initial positioning of the in-vessel components should be possible with relative ease (before the welding of the individual sectors of the plasma chamber), their replacement and maintenance in the course of the experimental life of the machine can be problematic. Therefore, an adequate level of redundancy is being considered.

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