

Tore Supra Cryomagnetism System Maintenance/Refurbishment for the WEST Project

V. Lamaison, D. Arranger, S. Girard, R. Goncalves, D. Guibert, M. Moreau, P. Prochet, M. Tena

CEA, IRFM, 13108 Saint Paul Lez Durance, France

The Tore Supra tokamak is presently being transformed in an ITER-relevant test platform, in particular through the WEST (W -for Tungsten- Environment in Steady state Tokamak) project which aims at minimizing technology and operational risks of a full tungsten actively cooled divertor on ITER. In parallel, Tore Supra main systems are being refurbished to prepare for typically 10 more years of operation starting from spring 2016.

The cryomagnetism system, i.e. the Helium cryogenics facility and the superconducting toroidal field (TF) magnet, has entered since 2013 a maintenance/refurbishment phase. Due to the obsolescence of key components and in order to ensure a reliable future operation of the TF magnet, several sub-systems have to be changed, like the different TF coils quench detection systems, the electronics of the cold compressors, the helium gas purity analyzer, and the main cryogenic valves.

In the paper, the main features of the Tore Supra cryomagnetism system will be recalled and the main sub-systems modifications will be presented and discussed.