

<b>TITLE: Coil Designer – Mechanical Design and testing</b>		<b>TKM-052</b>
<b>REPORTS TO LINE MANAGER: PF Coil Section Leader; Tokamak Department</b>		
<b>DIRECT EMPLOYMENT: NOT REQUIRED</b>		<b>GRADE RANGE: P3-P4</b>
<b>DATE WRITTEN:</b> October, 2006	<b>DATE REVISED:</b> FEBRUARY 28, 2007	<b>DATE REVISED:</b>

**Purpose:**

Contribution to the design of the ITER PF coils, specialising in mechanical design and composite (glass-epoxy) technology

**Major Duties/Responsibilities:**

- Contribute to the design of the PF coils
- Contribution to the mechanical and superconducting design aspects of the PF coils, including insulation specification and layout, conductor handling during winding and insulation, helium piping layout and joining, mechanical support of joint regions and conductor joint forming
- Contributes to the definition of mechanical aspects of the insulation systems design criteria for the magnets
- Prepares documentation to support the design, concentrating on mechanical assessments
- Responsible for defining qualification and quality control tests for the PF coil resin systems
- Contribute to the preparation of design and procurement specifications relating to the coil design and testing, especially mechanical aspects of the composite systems and the conductor joints
- Prepare CAD drawings for the design of the PF coils
- Participate in the monitoring of the PF coil fabrication, especially as regards the impregnation

**Qualifications and Experience:**

- University degree (DipIng or Bachelors) in engineering (mechanical or electrical)
- At least 10 years post graduate experience in magnetic coil design and manufacturing
- Familiarity with magnetic field coil design and superconductivity
- Good knowledge of vacuum impregnation techniques for epoxy resins
- Good knowledge of electromagnetic effects on structural design
- Knowledge of vacuum sealing techniques with He pipes
- Familiarity with basic metallic joining techniques such as welding, brazing
- Ability to communicate clearly and write technical reports and specifications in English.

**Work Direction and Interfaces:**

Reports to the PF coil group head. Interface with other groups in the magnet division. Interfaces with other departments as required by the magnet design, in particular to the CAD office. Interface with the Field Teams and their industries regarding coil fabrication.

**Authority/Approval Levels:**

Has authority and approval levels generally defined by the magnet division head for his/her scope of work.

**Measures of Effectiveness:**

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Complete design of PF coils. Acceptance of coil design by industries. Successful qualification and quality control testing of PF coils regarding leaks, insulation and joint performance.