**SPECIFICATION 301 – MAIN ENGINE CRANK SHAFT DEFLECTION MEASUREMENT**

**SFI Reference**: 231 – Main Engine Components

**🔹 DESCRIPTION**

This job involves the **measurement of crankshaft web deflection** on the main engine under different vessel and engine conditions to assess shaft alignment and deflection within acceptable limits.

Deflection readings are to be taken:

1. **Before docking**, with the vessel afloat and fully supported by water
2. **During docking**, with the vessel **sitting on the blocks**
3. **After undocking**, with the vessel afloat again
4. **In hot condition**, after running the engine to normal operating temperature

**🔹 SCOPE OF WORK / INSTRUCTIONS**

1. **Initial Deflection Measurement (Pre-docking)**
   * Take crank web deflection readings with vessel afloat
   * Record readings for reference
2. **Docking Condition Measurement**
   * Once the vessel is docked and sitting on keel blocks, take a second reading
   * Note the difference between afloat and blocked conditions
3. **Post-Docking Measurement**
   * After vessel is floated out of dock, repeat deflection readings
   * Compare with baseline to evaluate structural or support-induced deflection
4. **Hot Condition Measurement**
   * Heat up the main engine by running it to normal operational temperature
   * Record crank web deflection at operating temperature (pre-heated condition)
   * This provides real-world dynamic condition evaluation
5. **Documentation**
   * Submit complete set of readings with:
     + Condition (cold/docked/afloat/hot)
     + Journal number and crank throw position
     + Angular positions (typically every 90°)
     + Graphical plot (optional but preferred)

**🔹 TO BE INCLUDED IN TENDER**

* Access arrangements to crankshaft (removal of crankcase covers, platform installation, etc.)
* Temporary **ventilation, lighting, and work area safety setup**
* Measuring instruments, deflection gauge (micrometer, dial gauge, etc.)
* Skilled personnel to carry out measurements under supervision of Chief Engineer

**🔹 FINAL DELIVERABLES**

* Full deflection measurement report with tabulated values
* Comments on alignment or abnormalities
* Copy to be retained on board and one shared with Technical Superintendent