**MAIN ENGINE CRANKSHAFT DEFLECTION & ALIGNMENT CHECKS**

**DESCRIPTION**

This specification covers the measurement of crankshaft web deflections for the main engine [MAKE: [\_\_\_\_\_\_\_] | MAKE: [ ] , MODEL: [ ] , TYPE: [ ], OUTPUT / RATING: [ ], QUANTITY / NUMBER OF UNITS: [ ]

Measurements are to be conducted under different vessel conditions including pre-docking, on-dock blocks, post-docking, and hot running conditions.

Location: Engine room

**SCOPE OF WORK / INSTRUCTIONS**

Preparatory measures:

- Obtain necessary permits and safety clearances  
- Isolate engine system and apply lock-out tag-out procedures  
- Prepare work area with lighting, staging, ventilation, and access  
- Confirm engine is in fully stopped and locked condition  
- Record vessel’s trim, draft, and operational condition at the time of each reading

Job breakdown:

1. Pre-docking (afloat) readings:  
 - Measure crank web deflections at 90-degree intervals for each unit  
 - Note draft, trim, and sea condition  
2. Docking (on blocks) readings:  
 - Re-measure crankshaft deflections  
 - Compare against afloat values and highlight structural distortion if any  
3. Post-docking (afloat after undocking):  
 - Measure crankshaft deflections again to validate engine alignment  
 - Compare with initial pre-docking readings  
4. Hot condition readings:  
 - Warm up engine to normal operating temperature  
 - Record crank web deflections under thermal conditions to detect any warping

**MATERIAL & SUPPORT**

Owner supply:

- Technical drawings, engine manuals  
- Previous deflection readings for benchmarking

Yard supply:

- Dial gauges, deflection scales, micrometers, vernier calipers  
- Crankcase access tools, lifting gear, temporary lighting  
- Safety staging, ventilation fans, cleaning equipment

Test equipment required:

- Precision dial gauges (accuracy: 0.01 mm)  
- Micrometers and vernier calipers  
- Graph plotting or electronic data recording tools

Access & logistics:

- Safe access arrangement inside crankcase  
- Trained measurement technicians and assistants

**SERVICE LINES**

|  |  |  |  |
| --- | --- | --- | --- |
| Service line # | Description of service | UOM | Qty |
| 301.1 | Main engine crankshaft deflection measurement (full cycle: pre, dock, post, hot phase) | Lumpsum | [\_\_\_\_\_\_\_] |

**APPROVALS & SUPERVISION**

Work authorization:

- Measurements to be approved and witnessed by chief engineer  
- Owner’s technical superintendent to verify and countersign

Documentation:

- Complete deflection measurement reports and certificates  
- Graphical analysis and cross-phase comparisons  
- Photographic log of each measuring activity  
- Records to be archived onboard and submitted to technical office