



Appointment of Third -Party Inspection  
Company for supervising the studies and the  
implementation of Structural Reinforcement of  
the  
STS Panamax Container Cranes

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## 1. Introduction

There are three “S.T.S. Panamax Container Cranes” located at Pier I Container Terminal of the Piraeus Port Authority S.A.

For that cranes, PPA has assigned to an expert company to create analytical repair procedures through re-design, calculation and simulation studies using FEA of the problematic areas for the cranes to be able to be repaired and to resume an effective working condition.

PPA S.A shall also assign the supervision and approval process to a certified Third-Party inspection and certification company supervision and approval process.

## 2. Technical Standards & Methodologies

PPA has requested to the winning bidder to follow the below technical standards and methodologies:

- 2D drawings:
  - ✓ In accordance with ISO Standards.
  - ✓ For machining parts dimensions without tolerances values should be in accordance with ISO 2768, for welded parts tolerances should be in accordance with ISO 13920. The Candidate will have to specify the class of tolerances.
  - ✓ Welding symbols in accordance with ISO 2553.
  - ✓ For welding following information must appear on drawings:
    - ❖ Principle of construction and welding according to FEM 1.001 3rd Edition – booklet 3 and/or EN 1090.
    - ❖ Execution of welds in accordance with ISO 5817 quality level B.
  - ✓ Non-Destructive Testing requirements will be clearly specified on the drawings.
  - ✓ For sheet metal parts the unfold (flat pattern) will be given with the required preparation for welding (if applicable).
- For the newly proposed parts and assemblies, the raw material will be in accordance with EN and/or DIN-ISO standards.
- Welding in accordance with FEM 1.001 and DIN 15018.
- Computer Aided Design (CAD) software admissible to perform the 2D and 3D design for the creation of newly proposed parts and assemblies are but not limited to: Solidworks, Inventor, CATIA, Creo, NX Cad, SolidEdge etc.

- Computer Aided Engineer (CAE) software admissible to perform models for Finite Element Analysis for the new proposed parts and assemblies and for all the STS Crane are but not limited to: Solidworks, Inventor, Ansys, MSC Nastran – Patran, FEMAP, NX FEA etc.

### 3. Scope of works for the structural reinforcement of the STS Panamax Container Cranes

The scope of works for the winning bidder for the structural reinforcement of the STS Panamax is presented in the attached pdf file *“Structural Reinforcement of the STS Panamax Container Cranes – Technical Description of the Scope of works”*.

### 4. Task of the Third-Party Inspection (TPI) Company

PPA S.A will assign a Third-Party Inspection Company that will undertake the task of supervising the entire project, that is: a. phase one: Design Studies & repairs procedures, b. Implementation of repair studies, c. Testing of cranes. The tasks of the Third-Party Inspection Company will be the following:

#### **During phase a (Design Studies):**

- ✓ To inspect that all new parts fully adhere to the latest versions of FEM 1.001 and DIN 15018.
- ✓ To inspect that detailed construction drawings (parts and assemblies) conform with the applicable standards ISO & DIN.
- ✓ To inspect the welding’s symbols, the thickness of welding and NDTs on all detailed construction drawings that they fully adhere to the latest versions of FEM 1.001, DIN & ISO Standards.
- ✓ To inspect that the Finite Element analysis models (beams & Shell-solid elements) are in conformance with the latest versions of FEM 1.001 and DIN 15018.
- ✓ To inspect that all deliverables are in conformance with the requirements of PPA.
- ✓ To issue at the end of the project a report by submitting it to PPA.

#### **During phase b (During repair – implementation of the study):**

- ✓ Prior to starting the repair works the TPI will review: contractor Welding Procedure Specifications, procedure Qualification Records, welders’ certificates and filler material certificates.

- ✓ Review the Quality Inspection Plan issued by the contractor.
- ✓ Review of raw materials and fastener certificates used for the construction and installation of the newly parts.
- ✓ Spot witness at contactor facilities during the fabrication of the newly parts.
- ✓ Visual and dimensional inspection of the new parts.
- ✓ Spot witness at PPA facilities during the repairs and installation of the new parts to the Cranes.
- ✓ Visual inspection of welds and conduct NDT tests according to the repair drawings.
- ✓ Witness for Trolley rail alignment evenness and straightness, alignment measurement of trolley wheels.
- ✓ Inspection for cleanliness and overall workmanship.
- ✓ Inspection of the painting for the new parts and for touchup applied on the cranes.

**During phase c (Commissioning, Load Testing, Final report):**

- ✓ With the completion of the repair works, TPI will witness that all functions, safety devices, brakes etc. of the crane work properly.
- ✓ Witness the load Tests. These tests will be conducted in accordance with the Hellenic gazette ΦΕΚ 1186 Β / 2003 (Loads will be at the responsibility of PPA to provide).
- ✓ The issue of a final report & Certificate of Conformance which will be submitted to PPA.

**Important note:** During phases a, b and c if in the case the TPI provides remarks or non-conformities, the winning bidder will be obliged to apply them at no extra cost and thereafter the TPI company will proceed for final approval.

## 5. Delivery time

For phase a (Design Studies & repairs procedures) a maximum delivery time from the signing of the relevant contract shall be six (6) calendar months.

For phase b & c the delivery time will be notified upon approval of the deliverables of phase a.

## 6. Eligibility conditions for the TPI

- The selection of the bidder will be based on previous experience for inspections / certifications for containers cranes.
- The TPI shall meet the relevant ISO standards including ISO/IEC 17025:2005 and ISO 9001:2015. Certificates of their company in force to be attached for reference.
- The candidate TPI shall submit list of technical personnel proposed to be employed on the work with their qualifications and experience.