DCT.GDANSK.SA
Deepwater Container Terminal Gdansk

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Scope of works of Contract Engineer for delivery of five STS cranes

1) General duties

a. Act according to the STS CRANE SUPPLY CONTRACT – PORT OF GDAŃSK
b. Ensure that all Employer's requirements are followed by the Contractor (i.e. manufacturer and supplier of the cranes).
c. Review and approve or reject Contractor's Documents.
d. Issue instructions to the Contractor
e. Issue progress and approval reports in relation to time schedule
f. Create snag list including issues which were or were not resolved
g. Issue final certificate for each stage or milestone
h. Allocate staff for production supervision. The number of staff should be suitable for correct supervision of all production processes but as a minimum there is required regular presence of one electrical engineer, mechanical engineer, welding engineer. Each of these engineers must have as a minimum five years' experience in total on site in the STS cranes Contractor's factories.
i. Keep correct documentation of the supervision of the manufacture process and deliver to the Employer one paper copy and one electronic version of full documentation after each stage of works. At the completion of the STS SUPPLY CONTRACT, deliver three paper copies and one electronic version in pdf format on DVD disks.
j. Assure all works comply with technical standards and regulations required by the STS CRANE SUPPLY CONTRACT, international standards, local regulations
k. Participate in claims and disputes related to STS SUPPLY CONTRACT .

2) Design review

a. Check if the requirements and calculations demanded in the Employer's Requirements (technical specifications) are fulfilled by the design works of the Contractor. The design works should comply with international and local requirements.
b. Review and discuss the Technical Specification with the Contractor to ensure that all requirements are understood and will be implemented.
c. Verify static and dynamic calculations of the crane structure as well as fatigue calculations with respect to the Employer's Requirements and relevant norms and standards.
d. Check the design of the drives including working area, performance, efficiency, overloads, etc. Main drives for: Gantry travel, hoisting, trolley travel, derrick drive,
e. Check the design of the control systems and wiring.
f. Check the calculation of energy balance.
g. Check the designs and drawings of hoist and derrick reeving system, hydraulics, brakes, gearboxes.

3) Production supervision in the factory

a. Review fabrication drawings and welding technologies.
b. Verify material lists
c. Verify list of mechanical and electrical equipment
d. Arrange project meetings with Contractor on regular basis (minimum once a week).
e. Verify all subcontractors and their products
f. Undertake surveys and approval of all electrical and mechanical equipment delivered by subcontractors beginning from the design, scope of works and quality assurance.
g. Check and approve all steel and the Steel Mill material certificates
h. Recommend and witness additional material tests and examinations
i. Check the contractor's quality control plan and system and recommend improvements if needed
j. Verify the ongoing quality control plan and system including welding procedures and coating plus painting procedures
k. Verify all technical documents sent by Contractor to the Employer for approval.
l. Examine the works on main Steels Structure and assembling works
m. Verify all Gears, Wheels, Sheaves, Axles, Wire Ropes, Hooks, Connecting Elements and Hoist Drums and Bearings together with manufacturing certificates
n. Verify all motors like hoist , gantry travel, booming Motors
o. Verify all Brakes and Hydraulic systems
p. Check all assembly works and alignment on accordance with design and acceptable tolerances.
q. Verify if all lubricants, hydraulic and all other fluids were filled in up to required level and are of correct type.
r. Check if all bolts were tightened with correct torque especially on structural high strength bolts.
s. Check electrical installations and if the measurements of them were taken and gave correct results.

4) Tests at Contractors facilities prior to Shipment

a. Carry out tests on completion
b. Verify all important dimensions
c. Supervise the assembly.
d. Carry out tests of the functionality and capacity of PLCs, switchgears, frequency inverters, transformers.

5) Transport

a. Review shipping plans, arrangement and fastening
b. Carry out surveillance of marine operations
c. Undertake offload analysis and supervision
d. Carry out supervision of transport in assembly area

6) Assembly process

a. Supervise assembly works.
b. Supervise transport from the assembly area to the crane rails track

7) Functionality and performance test

a. Prepare and agree the test plan according to the contract and Employer's requirements
b. Supervise the agreed tests including performance, speed, durability, load, safety, etc. until the required tests results are achieved
c. Agree improvement plan if cranes didn't pass any test

8) Approval of the documentation issued by the Contractor according to the Contract between the Contractor and the Employer

The set of following documentation should be delivered as a minimum:

a. STS Instruction Manual for operation
b. STS crane passport
c. STS Maintenance Instruction Manual
d. CE certificate of STS
e. CE certificate of spreader
f. STS Spare Parts list - all parts used on the crane
g. Service Crane Instruction Manual and Maintenance Instruction Manual
h. Service crane passport
i. CE certificate of service crane
j. Technical main data sheets and machinery cards
k. Spreader Instruction Manual for operation
l. Spreader Maintenance Instruction Manual
m. Spreader Spare Parts list
n. Assembly drawings
o. Main components drawings
p. Static calculations and drawings of the steel construction
q. Electrical diagrams
r. Electrical manual
s. PLC documentation with FBD (Function Block Diagram), LD (Ladder Diagram), IL (Instruction List), SFC (Sequential Function Chart),
t. All passwords for PLC and other electronic devices and systems
u. After-assembly Protocol with measurements of electrical installations including earth loop impedance for the whole crane, resistance of insulation, effectiveness of electrical protections and lightning protection, etc.
v. After assembly drawing showing crane and crane surrounding

9) TDT approval

a. Supervision of the delivery of documentation to TDT according to the local requirements
b. Arrangement and supervision of the load, overload, safety and other tests as required by the national rules.