

TECHNICAL SPECIFICATIONS COMPLIANCE

| Tender Ref.  | Date of issue of Bid  | Date of Bid   |                   |          |
|--|---|---|-------------------|----------|
|  | Project   | THPA, Thessaloniki, Greece  |                   |          |
|  | Bidder  | Name  |                   |          |
| ITEM   | DESCRIPTION AND REQUIREMENTS  | COMPLIANCE or PROPOSAL  | DEVIATIONS if any | COMMENTS |
| <b>1. SCOPE OF SUPPLY</b>  |   |   |                   |          |
| <b>Introduction</b>  |   |   |                   |          |
| Manufacturer   |   | Reference of the Bidder   |                   |          |
| Model  |   | Reference of the Bidder   |                   |          |
| Location of manufacturing plant  |   | Reference of the Bidder   |                   |          |
| Number of Spreaders  | two (2)   | Yes/No  |                   |          |
| General Description  | Ship- to -Shore Twin Lift Spreader  | Reference of the Bidder   |                   |          |
| Principal Operating  | Electro-hydraulic telescope   | Yes/No  |                   |          |
| ISO Container Handling   | 1x20ft, 2x20ft, 1x40ft, 1x45ft  | Yes/No  |                   |          |
| Lifting Capacity   | 50tn SWL & Twin Lift: 2x25tn SWL  | Yes/No  |                   |          |
| Spreader Tare Weight   | in Kgs  |   |                   |          |
| Operational Speeds   | 1. Twistlock<br>2. Flippers adjustable<br>3. telescopic 20ft-40ft<br>4. Telescopic 40ft-45ft<br>5. Center Speed -   | proposal  |                   |          |
| Communication  | Commercially available 2 or 4 wire open system included in the signal and power cable.<br>Closed 'black box systems' is not accepted  | Yes/No  |                   |          |
| Certifications, Design Criteria  | EN 15056 / DIN 15018,<br>Class H2B4,<br>Class of Utilization-U6,<br>loading-Q3,<br><b>1.000.000 cycles</b>  | FEM Reregulation:<br>Spectrum class of<br>Group classification-A7<br>proposal |                   |          |
| <b>Options</b>   |   |   |                   |          |
| Option 1   | manually Pump for Emergency Twistlock Operation   | Yes/No  |                   |          |
| Option 2   | Camera System   | Yes/No  |                   |          |
| Option 3   | 6 Flippers Upgrade  | Yes/No  |                   |          |
| Option 4   | Flexi Flippers  | Yes/No  |                   |          |
| Option 5   | Shock Absorb (SA)   | Yes/No  |                   |          |
| <b>2. Main Structure</b>   |   |   |                   |          |
| <b>Applicable standards and codes</b>  |   |   |                   |          |
| Certification  | CE marking , compliance with Machinery Directive 2006/42/EC or other more applicable.   | Yes/No  |                   |          |
| Design Criteria  | EN 10137-2 S690Q,<br>EN 10025 S355 J2G3,<br>EN 10025 S355 JR/S275 JR  | proposal  |                   |          |
| Lifting Lugs /capacity   | Equipment with suitable lifting lugs the number and each capacity will be filled by the Seller.   | proposal  |                   |          |
| Hydraulic Tank   | Made in stainless steel (SS316)   | Yes/No  |                   |          |
| Oil tank capacity  | in Litres   |   |                   |          |
| Protect Against Hits, Damages, Rain  | Stainless Steel Hydraulic Tank and Electrical Box<br>S690Q<br>Secondary details: EN 10025S355JR/ S275 JR  | Material: EN10137-2<br>EN10025 S355J2G3<br>proposal                           |                   |          |
| <b>Environmental conditions</b>  |   |   |                   |          |
| Temperature  | Mediterranean climate:Ranging from -5°C to 40°C (direct sunlight)   | Yes/No  |                   |          |
| Relative humidity  | Ranging from 50 to 100%   | Yes/No  |                   |          |
| Max wind speed during operations   | 24 m/s  | Yes/No  |                   |          |
| Atmosphere   | Salt laden marine environment with fine sand  | Yes/No  |                   |          |
| Climate type   | Mediterranean climate. Exposure to snow (up to 20 cm) and rarely ice during winter months   | Yes/No  |                   |          |
| <b>Applicable spreader devices</b>   |   |   |                   |          |
| Device when the cable is collected   | A special device- basket- should be installed by the Contractor in the Spreader so as to protect the cable when it is collected.<br>The Bidder has to apply about it a fully analytical technical description with the necessary drawing.<br>This device should be mounted on the spreader with anti-vibration support. | Yes/No  |                   |          |
| Overheight latching bracket  | The spreader must have overheight latching bracket compatible with overheight frames according to the attached of RFP File 5 and 6 .  | Yes/No  |                   |          |
| Additional fixtures must be considered for enabling safe maintenance and efficient operations: | (1)-Flared guide for headblock connection<br>-Hand rail brackets<br>-Motor and space heater<br>-Access ladder<br>-Low level and high temperature gauges<br>-Shock damper protection<br>-Dummy socket for headblock connection   | Yes/No  |                   |          |
| <b>Requirements</b>  |   |   |                   |          |
| Number of Twistlocks   | Four (8)  | Yes/No  |                   |          |
| Certification  | ISO Standard  | Yes/No  |                   |          |
| Type   | Forged and hardened certified steel   | Yes/No  |                   |          |

|   |   |          |  |  |
|---|---|----------|--|--|
| 90 rotation time                          | <= 1 second   |          |  |  |
| Speed up and down                         | seconds   |          |  |  |
| Max. hydraulic Pressure                   | bar   |          |  |  |
| Safety 1                                  | Electric and Mechanical Interlock to prevent accidental rotation                        | Yes/No   |  |  |
| Safety 2                                  | Twistlocks shall not turn if all four corners have not landed on the container          | Yes/No   |  |  |
| Safety 3                                  | The container shall not be lifted if the twistlocks have not been locked                | Yes/No   |  |  |
| Safety 4                                  | Unlocking power of the twistlocks is exceeding the locking power by at least 40%.       |          |  |  |
| safety 5                                  | The twistlocks shall not unlock if the container has been lifted                        | Yes/No   |  |  |
| Safety 6                                  | Extension/retraction is only possible with twistlocks unlocked and spreader not landed. | Yes/No   |  |  |
| Safety 7                                  | In case of emergency, the drive link of twistlock can be rotated manually.              | Yes/No   |  |  |
| Safety 8                                  | The twistlocks should be able to operate for at least 200.000 moves.                    | Yes/No   |  |  |
| Indicator lights                          | LED Indicator Lights : Red: Unlocked, Green: Locked, White: Landed                      | Yes/No   |  |  |
| Twistlocks rotation time (90°)            | in Seconds  | proposal |  |  |
| gap between the two 20ft containers       | adjusted gap from 0 to....mm  | proposal |  |  |
| Twistlock mounting type/Micromotion range | in mm   | proposal |  |  |
| Twistlock counter                         | Spreader twistlock counter shall be provided  | proposal |  |  |

| 3. Vibration Damping System |  |          |  |  |
|-----------------------------|--|----------|--|--|
| <b>Requirements</b>         |  |          |  |  |
| Shock Absorbing             | in %   | proposal |  |  |
| Noise Reduction System      | in dBA   | proposal |  |  |
| Type of System              | Mechanical, hydraulic or either type   | proposal |  |  |
| attached Files about :      | 1. detailed technical data<br>2. functional characteristics.<br>3. detailed drawings.<br>4. advantages of the applied methods over others. | proposal |  |  |

| 4. Flippers                           |   |          |  |  |
|---------------------------------------|---|----------|--|--|
| <b>Requirements</b>                   |   |          |  |  |
| Number of Flippers                    | four(4), two(2) on the land side or the water side.             | Yes/No   |  |  |
| Torque of each Flipper/ Rotation Time | at least 5000Nm/s   | proposal |  |  |
| Collection Distance of the Container  | in mm   | proposal |  |  |
| Safety                                | Protection System from impact load exists                       | proposal |  |  |
| Lifting-Lowering time (0-180°)        | in seconds  | proposal |  |  |
| Single button lift                    | If it is possible to lift all the flippers with a single button | Yes/No   |  |  |

| 5. Electrical System - Automation - Safety Devices |   |                  |  |  |
|--|---|------------------|--|--|
| <b>Electrical Systems</b>                          |   |                  |  |  |
| Communication                                      | Can Open Communication  | proposal         |  |  |
| Control from Crane                                 | Directly from PLC   |                  |  |  |
| Control on Spreader                                |   |                  |  |  |
| Routed cables                                      | Power cables routed so that they are protected against hits   | proposal         |  |  |
| HIS  | Height Indication System  | Yes/No           |  |  |
| TTDS   | Twin Twenty Container Detection System  | Yes/No           |  |  |
| ODS  | OnBoard Diagnostic Screen .<br>The Bidder has to apply all the technical analytical information about the system which should be of the closed - industrial type robust and vibration -resistant -needs the relevant certification- | Yes/No           |  |  |
| Specific diagnostic spreader application           | Remote diagnosis of the source of the faults in case of spreader downtime occurs  | Yes/No/ proposal |  |  |
| Led Lights   | LED Indicating Lights   | Yes/No           |  |  |
| Local Functions                                    | Twistlock and Telescope operate locally on spreader   | Yes/No           |  |  |
| Spreader ID information                            | Spreader ID information should be provided to Crane   | Yes/No           |  |  |
| Safety Device about the Central Cable              | Anti-Vibration Supports   | Yes/No           |  |  |
| Voltage  | in Volts  | proposal         |  |  |
| Power consumption                                  | in KW   | proposal         |  |  |
| X1 Cabinet   | should be facing outside so it is easily maintained   | proposal         |  |  |
| <b>Automation</b>                                  |   |                  |  |  |
| Greasing   | Auto Greasing System  | Yes/No           |  |  |
| <b>Insulation</b>                                  |   |                  |  |  |
| Electrical Motors                                  | IP 56   | proposal         |  |  |
| Electrical Boxes                                   | IP 66   | proposal         |  |  |
| Sensors and Led indication lights                  | IP 67   |                  |  |  |
| Remaining Components                               | IP 65 minimum   |                  |  |  |
| PLC  | PLC closed-industrial type and vibration resistant  | Yes/No           |  |  |

| Painting and corrosion protection |                                 |        |  |  |
|-----------------------------------|---------------------------------|--------|--|--|
|                                   | Suitable for marine environment | Yes/No |  |  |

|                             |  |        |  |  |
|-----------------------------|--|--------|--|--|
|                             | Sandblasted SA 2 <sup>1/2</sup> or newer according to Swedish Standards 055900   | Yes/No |  |  |
|                             | All exterior surface coatings shall be of a high durability (>10 years), protective two-component EPOXY LINK RICH PRIMER | Yes/No |  |  |
|                             | Final thickness at least 210mm   | Yes/No |  |  |
| <b>Logos and Nameplates</b> |  |        |  |  |
|                             | Buyer's name and logo, to be validated during design review  | Yes/No |  |  |
|                             | Manufacturer's name and date of manufacture  |        |  |  |
|                             | A plate showing main specifications will be installed at a notable location of the frame                                 |        |  |  |
|                             | Any danger / warning signs as per EU regulations, legends in Greek & English   |        |  |  |

| 7. DOCUMENTATION           |  |                  |  |  |
|----------------------------|--|------------------|--|--|
| <b>Technical Documents</b> |  |                  |  |  |
|                            | All documentation shall be provided in hard and electronic format copies   | Yes/No           |  |  |
|                            | 2 Operator's Manual in Greek   | Yes/No           |  |  |
|                            | 2 Maintenance Manual in Greek  |                  |  |  |
|                            | 2 Electrical Circuit Diagrams in English & Greek (24V & 220v)  | Bidders proposal |  |  |
|                            | 2 Hydraulic Circuit Diagrams in English & Greek  | Yes/No           |  |  |
|                            | 2 Mechanical Circuit in English & Greek  | Yes/No           |  |  |
|                            | 2 Automation Circuit Diagrams in English & Greek   | Yes/No           |  |  |
|                            | 2 Detailed drawings of metal structure in English & Greek  | Yes/No           |  |  |
|                            | 2 Detailed drawings in English and Greek   | Yes/No           |  |  |
| <b>Maintenance Manual</b>  |  |                  |  |  |
|                            | 2 copies in English & Greek  | Yes/No           |  |  |
|                            | Detailed maintenance plan including procedures, spare parts, schedule  | Yes/No           |  |  |
|                            | Procedure of assembly and disassembly of main components   | Yes/No           |  |  |
|                            | List of possible faults, causes, recovery actions  | Yes/No           |  |  |
|                            | List of alarms and faults codes with associated procedure  | Yes/No           |  |  |
|                            | Lubrication charts   | Yes/No           |  |  |
|                            | Detailed list of spare parts with references   | Yes/No           |  |  |
|                            | Manual for quickly worn-out parts and spare parts, including name, size, quantity, material, special requirement and shop drawings of the parts; | Yes/No           |  |  |

| 8. TOOLS- AFTER SALE SERVICES          |  |          |  |  |
|--|--|----------|--|--|
| <b>Tools</b>                           | THE Bidder has to apply with an analytical list of required tools about the spreader electrical and hydraulic maintenance  | proposal |  |  |
| <b>Spare parts</b>                     | Two (2) items of Spreader Flippers (2) Items will be included in the price.  | Yes/No   |  |  |
| <b>Training</b>                        |  |          |  |  |
| <b>Language</b>                        | English and Greek  | Yes/No   |  |  |
| <b>Training supports</b>               | Operation, Maintenance, Repair (safety, electrical, electronic, hydraulic, mechanical) Training with Manuals in hard and soft copies in Greek language   | Yes/No   |  |  |
| <b>Location</b>                        | On the Terminal facilities   | Yes/No   |  |  |
| <b>Program</b>                         | Training sessions shall include 2 groups for the maintenance staff (mechanicals, electricians) (3 days minimum, 4 persons per group) and 1 session for the operators (3 days minimum, 5 persons group) | Yes/No   |  |  |
| <b>Agency/representation in Greece</b> |  |          |  |  |
|  | Name and contact details of local agent  | proposal |  |  |
|  | Location of local agent near Thessaloniki  | proposal |  |  |
|  | Stock of spare parts in Greece   | Yes/No   |  |  |

| 9. WARRANTY             |  | COMPLIANCE or PROPOSAL | DEVIATIONS if any | COMMENTS |
|-------------------------|--|------------------------|-------------------|----------|
| General                 | 2 years minimum for all components                 | proposal               |                   |          |
| Structure & chassis     | 7 years  | proposal               |                   |          |
| Pump & Motors           | 2 years  |                        |                   |          |
| Paintwork & galvanizing | 7 years,<br>Degree of rusting Ri3 per ISO 4628-1:3 | proposal               |                   |          |

| 10. DELIVERY TIME                       |                   | COMPLIANCE or PROPOSAL | COMMENTS |
|---|-------------------|------------------------|----------|
| EXW                                     |                   | proposal               |          |
| DAP Port of Thessaloniki                |                   | proposal               |          |
| Erection - Installation - Commissioning | 3 months in total | proposal               |          |