ΟΡΓΑΝΙΣΜΟΣ ΛΙΜΕΝΟΣ ΘΕΣΣΑΛΟΝΙΚΗΣ
ΑΝΩΝΥΜΗ ΕΤΑΙΡΙΑ
(Ο.Λ.Θ. Α.Ε.)
Αρ. Μ.Α.Ε.: 42807/06/Β/99/30
ΕΔΡΑ ΘΕΣΣΑΛΟΝΙΚΗ

INVESTMENTS GENERAL DIRECTORATE
PROCUREMENT DEPARTMENT

Thessaloniki 5.8.2019
Ref. Num. 5469/13.8.2019

TED 028 RE/2019

REPEATED CALL FOR OPEN TENDER

FOR THE SUPPLY AND INSTALLATION OF TWO (2) COLLISION AVOIDANCE SYSTEMS TO STS (SHIP TO SHORE) BRIDGE CRANES

SUMMARY OF THE TENDER

REPEATED OPEN TENDER	
ECONOMIC OPERATOR	**THESSALONIKI PORT AUTHORITY SA** Main line of business: Port works Address: Within the Port of Thessaloniki PC: 54625, Thessaloniki Tel.: 2310593121, Fax: 2310510500 Email: secretariat@thpa.gr Website: http://www.thpa.gr
Deadline for the Submission of Bids	**13.09.2019**
Deadline for the Submission of Requests for clarifications	**06.09.2019**
Awarding Criterion	Most economically advantageous bid based on price and quality criteria
Estimated Procurement Value	**€ 90,000 plus VAT**
Contact for information / clarifications	**For the tender procedure** Name: Chrysanthi Athanasiou E-mail: cathanasiou@thpa.gr Telephone: +302310593360.363 **For technical issues** Name: Dimitrios Tsitsamis E-mail : dtsitsamis@thpa.gr Telephone: +302310593620

PART A: GENERAL & SPECIAL TERMS

ARTICLE 1 –Description of the object of the contract and its financial terms

1.1. Object of the contract

The object of the contract is the supply and installation in full operation of two (2) forward collision warning systems to the STS (ship to shore) bridge cranes of ThPA SA, to avoid collision with the overhead parts of vessels berthed for loading, in accordance with the following General Terms and Technical Specifications. Both STS cranes have the same type and manufacturer (Post Panamax, Rokas – Man Takraf, Rocontain V, 50t, 1997)

1.2. Financial terms

The estimated value of the supply amounts to **ninety thousand euros (€ 90,000)** plus 24% VAT.

1.3. Award Criterion

The award criterion of the supply is the most economically advantageous bid based on the best value for money, estimated on the basis of the price and the following criteria:

Technical characteristics - compliance with technical specifications

Time of delivery

Supplier experience – reliability, organization, infrastructure, technical support, supply of spare parts

Period of validity of the performance guarantee

ARTICLE 2- Right of Participation - Qualitative Criteria

2.1 Right of Participation

2.1.1. Participation in the procedure for the award of this contract shall be open to natural or legal persons and, in the case of associations of economic operators, their members who are established in:

a) a Member-State of the European Union;

b) a Member-State of the European Economic Area (EEA);

c) third countries that have signed and ratified the GPA, to the extent that the procurement contract is covered by Annexes 1, 2, 4 and 5 and the general notes of Annex I to the above Agreement,

The above location requirements shall also be covered by the system manufacturer.

2.1.2. Participants shall:

- Not be under bankruptcy, liquidation or administration;
- Not have been irrevocably convicted (the administrators for the case of limited partnerships or limited liability companies, the Chairman and the CEO for the case of SAs and the natural persons performing management duties in other cases) for:
  a) participation in a criminal organization, pursuant to article 2(1) of Joint Action No. 98/733/JHA of the Council of the European Union;
  b) corruption, as it is respectively defined in Article 3 of the Council Act dated 26t h May 1997 and in Article 3, paragraph 1 of Joint Action No. 98/742/CFSP of the Council;
  c) fraud within the meaning of article 1 of the Convention on the protection of financial interests of the European Communities;
  d) money laundering, as defined in article 1 of Council Directive 91/308/EEC of 10 June 1991 on the prevention of the use of the financial system for the purpose of money laundering;
  e) embezzlement (Criminal Code 375);
  f) fraud (Criminal Code 386-388);
  g) extortion (Criminal Code 385);
  h) forgery (Criminal Code 216-218);
  i) perjury (Criminal Code 224);
  j) corruption (Criminal Code 235-237);
  k) fraudulent bankruptcy (Criminal Code 398).

2.1.3. Associations of economic operators, including temporary partnerships, are not required to have a specific legal form for bidding. The selected Consortium or Association of Suppliers may be required to have a

specific legal form insofar as the inclusion of such a legal form is necessary for the proper performance of the contract.

2.1.4. In the case of a bid by an association of economic operators, all its members are jointly and wholly liable to the contracting entity.

2.2 Qualitative Criteria

2.2.1 Technical & Professional Capacity

With regard to the technical and professional capacity for this process, it is desirable that participants have experience in installation – maintenance, technical support to relevant projects-systems.

2.2.2 Quality Assurance Standards & Environmental Management Standards

The economic operators shall comply with quality assurance standards and, at the time of the tender, be in possession of an ISO 9001: 2008 (or equivalent) Certificate in relation to the design, marketing and installation of automation, IT and telecommunication systems & the provision of high-tech services.

In the case of business partnerships, joint ventures or consortia, it is sufficient that only one member meets the criteria set out in paragraph 2.2

ARTICLE 3 - Provision of Clarifications on the Call

Requests for additional clarifications shall be submitted to the procurement department of ThPA SA by email to cathanasiou@thpa.gr, also forwarding the request to ptheologou@thpa.gr, no later than five (5) days before the closing date for submission of bids. Requests for clarifications submitted in any other way will not be considered.

The clarifications are posted electronically on the website of ThPA SA www.thpa.gr.

ARTICLE 4 – Means and time for offer submission

Bids shall be submitted electronically by the economic operators no later than **13/09/2019** at 15:00, in Greek, by email to cathanasiou@thpa.gr, also forwarding the bid to ptheologou@thpa.gr and they shall not be dependent on any other term, condition, proviso or reservation. After the expiry of this date and time, the bid cannot be submitted. Bids submitted late will be disregarded.

ARTICLE 5 - Extension, amendment, addition or cancellation of the tender

ThPA SA reserves the right to extend the time for submitting bids or to cancel the award procedure, or to decide to repeat it at any stage, without any liability, cost or penalty, following a decision by its competent body. It also reserves the right to modify the terms of the procedure with transparency.

ARTICLE 6 - Time of Bid Validity

Bids submitted are valid and bind the participants for **a period of one hundred and twenty (120) days** from the deadline for their submission.

The validity of the bid may be prolonged, if requested by ThPA SA, prior to its expiry, for a maximum period of time equal to the initial bid validity period specified in the Call.

ARTICLE 7 - Bid Content

The bid details are defined as follows:

(a) Participation documents

(b) Technical Bid

(c) Economical Bid

ARTICLE - 8 Participation documents

To prove that the selection criteria have been met, economic operators shall submit the following supporting documents:

- A Formal Statement through which the Candidate declares that he has taken note of the specific requirements and particularities of the Object of the Tender and that he unconditionally accepts the terms of the Call;
- To demonstrate the right of participation referred to in paragraph 2.1, a certificate of registration in the relevant chamber (national economic operators) and a corresponding certificate/approval/authorization from the relevant authority of their country of origin (foreign economic operators);
- A Formal Statement through which the Candidate declares that there are no grounds for exclusion, as set out in paragraph 2.1.2, for the economic operator and its authorized representatives and that there are no grounds for believing that such impediments will occur during the period of validity of the bid and any possible extensions thereof;
- An analytical table, according to the following template, of the installation, maintenance - technical support contracts.

Serial number	Client	Brief Project Description	Duration of the provided services	Budget	Client Reference or Contact Information

- A Certificate of Quality Assurance System ISO 9001: 2008 of the Participant for the "design, marketing and installation of automation, IT and telecommunication systems & the provision of high-tech services" or other equivalent issued by a recognized Institute or Organization established in a Member State of the European Union, which shall carry the name or distinctive title of the participant;
- Forms and promotional material of the offered system to prove that it is a ready-made commercial solution;
- Due to the particular situation with the current electronic systems, the participants may visit the premises of ThPA SA, in order to have their own estimate of the equipment and services that will be required to complete the project. The visit is optional and not mandatory.

In the cases where the economic operator is a legal person, to prove its legal constitution and representation, the legal documents of constitution and legal representation shall be submitted (such as statutes, certificates of company information amendments, respective pages of the Official Gazette, documents of BoD meetings, in the case of SAs, depending on the legal form of the participant). The above documents shall specify the lawful establishment, the person(s) legally binding the company on the date of the tender (legal representative, right of signature, etc.), any third parties authorized to represent the contractor, as well as the term of office of the person(s) and/or the members of the management body/legal representative.

The associations of economic operators submitting a joint bid shall submit the first three documents and the documents of constitution of each economic operator that participates in the association.

In case an economic operator wishes to rely on the capacities of other entities to prove that he has the necessary resources, he shall in particular provide a written commitment of those entities to that end.

NOTE: The Formal Statements submitted in accordance with this call, if drawn up by Greek citizens living in Greece, shall be in the form provided for in article 8(2) of Law No. 1559/1986 and submitted by the natural persons concerned or, in the case of legal persons and depending on the legal form of the participating legal entity: a) from limited partners and managers of limited or general partnerships or b) by managers of limited liability companies or c) by the authorized representative of an SA (e.g. CEO) if the relevant competence is proved by an act of the BoD published in the Government Gazette.

ARTICLE - 9 Technical Bid

The Technical Bid shall obligatorily include a full and binding technical description of the equipment and the methodology to be used for the completion of the project. In addition, it must be accompanied by technical prospectus, photographs and designs of the offered systems, as well as the compliance table of paragraph 13 of Part B of this call, completed and duly signed.

ARTICLE 10 - Economical Bid

The economical bid shall be drafted in accordance with the attached model and, in addition, it shall include:
a) the time of bid validity, in accordance with article 6 of the Call;
b) the delivery time, as defined in article 14.2 hereof;
c) the period of validity of the performance guarantee, as defined in article 14.4 hereof;
d) the signature of the legally authorized representative of the participating economic operator.

ARTICLE 11 - Language

The official language of the procedure is Greek and the bids shall be drafted in Greek or accompanied by an official translation into Greek. In case of inconsistency, the prevailing wording is always the Greek one.
Further information and technical prospectus, as well as other documents - corporate or not - with special technical *content* may be submitted in English without a translation into Greek.

ARTICLE 12 – Evaluation – Contract award criteria

During the evaluation, ThPA SA may address requests to the economic operators concerned for clarifications and economic operators must provide clarifications within the time limits set.
The award criterion of the supply is the most economically advantageous bid based on the best value for money, estimated on the basis of the price and the following criteria:

Criterion	**Importance**
Technical characteristics - compliance with technical specifications	70%
Time of delivery	10%
Supplier experience – reliability, organization, infrastructure, technical support, supply of spare parts	15%
Period of validity of the performance guarantee	5%

The rating of each evaluation criterion ranges from 80 points if the terms of the technical specifications are not fully met, reaches 100 points if the terms and specifications are fully met and it increases up to 120 points when the requirements of the criterion are exceeded.
The weighed score of each criterion will derive from the product of each weighting factor multiplied by its score and the total score of the offer will derive from the sum of the weighted scores of all criteria.

The most advantageous offer, will be the one with the lowest bid price/score ration (i.e. The one where L will

$$L = \frac{\text{Bid price}}{\text{Technical bid final score}}$$

After completion of the evaluation, participants are informed of the acceptance or rejection of their bid.

ARTICLE 13 - Contract – Amendments

After the announcement of the result of the tender, a contract is signed between ThPA SA and the contractor. The contract may be modified during its term, without the need for a new contract procedure, only upon the mutual agreement of the parties.

ARTICLE 14 – Special terms for the performance of the supply

14.1 Performance guarantee

For the signing of the contract, the contractor is required to submit a Performance Guarantee, the amount of which is set at a rate of up to five percent (5%) of the value of the contract, excluding VAT and the contractor shall submit it before or at the signing of the contract.

The performance guarantee shall be forfeited in the event of a breach of the terms of the contract, as specifically stated in the contract.

The performance guarantee concerning the contract covers in total and without exceptions the application of all terms of the contract and any claims of ThPA SA against the contractor.

14.2. Time of delivery & installation

The time for completion of the supply (delivery and installation) will be determined by the bidders in their bid and it shall not exceed four (4) months from the date of signing the relevant contract. Installation of the systems will take place on working days and hours agreed between the supplier and ThPA SA and the standby time of each bridge crane shall not exceed three days.

In the case of overdue delivery, a fine of 1% on the contractual value for each day of delay, with a maximum of 5%, shall be imposed.

14.3 Test mode - Receipt of items

Receipt of the systems will be made by an employee committee of ThPA SA, after the successful completion of the training and test operation. In particular, after successful completion of the installation and training, each bridge crane along with the new system will be tested for one (1) month. During this time, it will be necessary to verify the seamless operation of each system, while allowing the supplier to make any final adjustment that may be required. If, during the last 10 days of operation, the systems do not present a malfunction due to the contractor (materials-work), the Receipt Committee will proceed with the Provisional Acceptance of the systems.

14.4 Guaranteed Proper Operation

14.4.1 Time of guaranteed proper operation

The minimum acceptable time of guaranteed proper operation is one (1) year starting on the date of signature of the temporary receipt protocol. During the period of the guarantee, the contractor is responsible for the proper operation of the systems and shall remedy any damage or malfunction resulting from a defective construction or a defective material.

If the system is replaced, the period of guarantee shall be extended accordingly.

14.4.2 Letter of guarantee

After the completion of the project, a Letter of Guarantee is submitted, the amount of which is set at a rate of up to five per cent (5%) of the value of the contract, excluding VAT, with a maturity of sixty (60) days after the end of the period of guarantee. The performance guarantee will be returned after the expiration of the period of guarantee and the drafting of the Receipt Protocol by the competent Committee of ThPA SA, without including any remarks.

In the event of non-compliance of the contractor with his contractual obligations, the committee shall recommend to the Competent Body of ThPA SA the total or partial forfeiture of the Letter of Guarantee.

14.5 Payment method

The procurement is financed from the regular budget of ThPA SA.

An amount of **up to forty percent (40%)** of the value of the entire object of the contract, excluding VAT, may be given as an advance payment upon signing the contract and, in return, with the issuance of a Letter of Guarantee for the receipt of advance payment.

The payment of the CONTRACTOR shall be made following the issuance of an invoice within sixty (60) days from the end of the month in which the invoice was issued and provided there are not negative remarks in the Receipt Protocol signed by the competent Committee of ThPA SA.

14.6 Letter of Guarantee for advance payment

In the case of an advance payment, the Contractor shall provide a Letter of Guarantee, which will cover the difference between the amount of the performance guarantee and the amount of the advance payment.

ARTICLE 14.7 Price Adjustments

The offered prices are considered **fixed and final** and are not subject to adjustment for any reason and cause until the end of the project. For that reason, the participation of any interested party in the tender entails his explicit, unconditional and irrevocable resignation from any right to adjust the prices offered and possibly resulting from another relevant provision.

ARTICLE 15 - Dispute Resolution – Applicable Law

This procurement is governed by Greek and EU legislation and any dispute that may arise between ThPA SA and the Supplier deriving from the performance, application or in general the relationships created by the contract shall be resolved by the competent courts of Thessaloniki.

PART B: TECHNICAL TERMS

The object of the contract is the supply and installation in **full operation** of two (2) forward collision warning systems to the STS (ship to shore) bridge cranes of ThPA SA, to avoid collision of container bridge cranes with the overhead parts of vessels berthed for loading.

NOTE: It is clarified that the term "Supply" means all the works, materials, machinery and services required for the full and regular operation of the forward collision warning systems for the avoidance of collision of the bridge cranes.

DESCRIPTION

The systems to be installed will be based on Laser technology to accurately determine the location of objects within predefined warning, deceleration and emergency stop fields. For greater reliability and security, system functions will be monitored by an appropriate controller and software. Each system will consist of two (2) laser scanners that will be installed on both sides of the bridge crane boom and one (1) controller of the appropriate type and number of inputs / outputs for analysis and evaluation of the signals and the transmission of the result to the central crane automation controller. The controller will be installed in the bridge crane power room and connected to the scanning devices with a suitable cable that will endure moisture, electromagnetic interference, etc., in order to ensure uninterrupted operation of the system. It is noted that solutions offering detectors by SICK will be preferred.

1. LASER SCANNER:

Scanning devices will have a scanning range of 40 meters (35 meters of black objects, up to 10% reflectivity) and a scanning angle of 190°. The scanners will emit a laser pulse. The relative position of an object in relation to the bridge crane boom will be calculated automatically and continually by evaluation: a) of the emitting angle and b) of the time interval between the laser pulse and the reception of its reflection when it strikes the surface of an object. For each device, three separate detection-control fields will be set as defined below (system operation). All incoming and outgoing signals from the scanner will be directly connected to the control-security unit that will evaluate the information and act accordingly. Laser scanners will be designed for outdoor use and for adverse weather conditions. For this reason, they will be equipped with suitable IP67 protection and an internal heating element. They will have special **interference suppression features** as well as the possibility to **automatically measure the pollution of the optical elements** to transmit fault signals to the control unit. They will also be able to process multiple reflections for each transmitted pulse, in order to discard, through evaluation, any reflections of suspended particles such as drops or snowflakes.

2. CONTROL - SECURITY UNIT

The system control - security unit will evaluate the signals received from the scanning devices and give the appropriate commands to the local crane automation-control system, in order to prevent the collision of the crane with barriers. The system will be continuously monitored for proper operation through internal diagnostic tests and any non-normal conditions will be reported to the crane's drive control system by activation of the corresponding exits. The self-diagnosis function of the system will be achieved by continuous fixed target detection (reference point), which will be outside the field of actual detection. The type, dimensions and color of the object to be used as a target will be given by the system manufacturer. The control unit of the system will be placed in a metal cabinet or in a free field, near the local automation station in the power room of each bridge crane, it will be scalar, digital and will consist of (a) the CPU with programmable memory and (b) two (2) I/O expansion units with a suitable number and type of inputs-outputs.

3. FUNCTION OF THE SYSTEM

The forward collision warning system for container bridge cranes is a self-controlled object detection system whose operation is controlled by the control-security unit. The controlled area scanned by laser scanners is

divided into several fields. The size and geometry of the detection areas may be different and will be programmed on the spot. The system will have the following fixed detection fields:

- **Immediate stop area:** To stop the system or change the bridge crane on the move.
- **Warning area:** To warn or reduce the speed of the bridge crane on the move.
- **Reference area:** To detect the external reference target and test the operation of scanning devices.

Laser scanners operate internally with predefined assessment points associated with detection fields. When an object enters a scanning area, this will be reported to the corresponding scanner output. The control unit analyzes the information from the scanner and transmits the corresponding results such as "warning field violation" or "stop field violation" to the bridge crane control system. The security control unit also manages the self-diagnosis of the laser scanner. Internal self-testing ensures the continuous detection of the reference target by the laser scanner. In the absence of a proper response, the control unit will send a stop signal to the bridge crane's drive control system.

All signals of the forward collision warning system to the bridge crane drive control system will be connected to inputs of the central PLC that will be indicated to the contractor by ThPA SA.

The non-normal conditions include, among others, the following:

- Laser scanner failure
- Loss of reference target
- Displacement of the scanning device
- Output circuit failure, output short-circuit, earth leakage
- Cable break etc.

The scanner will have external light indicators to signal the following situations:

- Scanner running, no scanning area reports an incident;
- Scanner running, at least one incident reported;
- Optical cover pollution;
- Enable ON output.

4. PARAMETER MEMORY

The programming parameters will be stored in the CPU so that key components or expansion components can be replaced without the need to reprogram the security control unit. All detection areas will be permanently stored together with the geometric locations and evaluation positions on the laser scanner using the appropriate software.

5. BOOTH INDICATIONS

The user should be informed of the situation of the system by means of an LED indicator or other equivalent visual mode and at least of the following situations: "warning field violation", "stop field violation", "normal operation". For the transmission of the above signals, ThPA SA will indicate to the contractor the current available booth interconnections with the power room of the bridge crane, where the central PLC is located. The proposed solution shall be described in detail (**on an exclusion penalty**).

6. GENERAL INFORMATION REGARDING THE ELECTRICAL EQUIPMENT AND ELECTRICAL INSTALLATION

All components of the electrical equipment, unless otherwise specified in individual paragraphs, will comply with the applicable FEM, BS, VDE, IEC, DIN or equivalent regulations. All components will be new, of new technology and constructed by top manufacturers. For the installation of electrical equipment, the applicable FEM regulations will be followed and where no such provisions apply, other applicable regulations will be followed.

The coding of electrical designs and equipment will be done according to DIN 40719 or newer. Every item of electrical equipment, including electronic equipment (motors, cables, terminal switches, electronic boards, etc.), will be given a code. This code will be written in indelible letters on the item itself at a plastic label. The same code will be given to each item and the designs to be delivered. The designs will be arranged in such a

way that one can immediately read the code from the item's label and immediately find the item in the design. This procedure will also work backwards, i.e. by reading the item's code in the design, the position of that item can be immediately detected on the crane.

7. OTHER PARTS

Any material needed for the installation of the system in full operation shall be provided by the candidate contractor (signal and power wiring, din rail industrial power supplies, in 65 cabinets, fuses, Ethernet switches, etc.). Signal wires shall be suitable for an industrial environment, resistant to moisture and oils (super-PAAR-TRONIC - C-PUR type, indicatively) and, if it is necessary to use Ethernet, it will be F/UTP or S/FTP type for outdoor areas resistant to moisture and oils.
Also, the technical solution, all the equipment offered along with the technical prospectus and whatever is necessary for the evaluation of the bid shall be described in detail.

8. SOFTWARE

There will be two licenses for the software that is necessary, in order to configure the detectors and the system and it will be installed on the respective computers.

9. COMPUTERS

Two LAPTOP computers will be offered with the following minimum specifications, with the collision warning system configuration software installed, as well as with MS Office Home & Business 2019 (one-time purchase, no monthly or annual subscription) installed and activated:

Screen size:	15.6 in or bigger
Screen resolution:	1920 x 1080 or higher
Screen type:	IPS with anti-glare
Processor:	Intel Core i7-8850H (2.60 GHz) or newer
Memory:	32 GB or more
Memory type:	DDR4 - 2400MHz or higher frequency
1st hard drive:	512 GB SSD
2nd hard drive:	2TB HDD 5400 rpm internal
Graphics card:	Dedicated (not integrated)
Graphics card memory:	2 GB or more
Operating System:	Windows 10 Professional GR 64-bit
Software:	Microsoft Office Home & Business 2019 (Word, Excel, Outlook, PowerPoint)
Visual media:	DVD-RW internal
Network:	Ethernet 10 / 100 / 1000, Wi-Fi 802.11ac, Bluetooth 4.2
I/O Ports:	HDMI 2.0, USB 3.0, SD Card Reader
Warranty:	36 months minimum for hardware
Warranty type:	On-site service / repair ”

10. Network Equipment - Switches

If network equipment (switches) is required, which will be proposed by the contractor, it shall meet at least (**on an exclusion penalty**) the following technical features and be fully compatible with the rest of the network equipment.

L2 Industrial Switches

Generally:

- Line-rate, nonblocking uplink, downlink ports
- Forwarding rate: 6.5 Mpps with 64-byte packets
- Egress buffer: 2 MB
- Unicast MAC addresses: 8000
- Internet Group Management Protocol (IGMP) multicast groups: 255
- Maximum virtual LANs (VLANs): 1005

- IPv4 MAC security ACEs: 384 (default ternary content-addressable memory [TCAM] template)
- Bidirectional, 128 NAT translation entries
- IPv4 routing: 3500 routes, IPv6 routing: 1750 routes

Industry Standards
- CSA C22.2 No. 142
- EN 61131-2 (EMC/EMI, environmental, mechanical)
- Marine DnV
- Substation KEMA (IEEE 1613, IEC 61850-3)
- Railway EN 50155 (EMI/EMC, environmental, mechanical)
- EN50121-3-2
- EN50121-4
- NEMA TS-2 (EMC, environmental, mechanical)
- ABB Industrial IT certification
- IP30
- ODVA Industrial Ethernet/IP support
- PROFINETv2.3 support

Shock and Vibration
- IEC 60068-2-27 (Operational Shock: 30G 11ms, half sine)
- IEC 60068-2-27 (Non-Operational Shock 55-70G, trapezoidal)
- IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Operational Vibration)
- IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Non-operational Vibration)

11. STRUCTURAL ENGINEERING STUDY – INSTALLATION SUPERVISION

A prerequisite for the participation in the tender is for the Contractor to conduct (after the conclusion of a contract between ThPA SA and the Contractor) and also submit to ThPA SA, a suitable and sufficient Structural Engineering Study in order to evaluate and calculate all static and dynamic loads, stresses and strains of:

a) All structural steel members (including all connections between them) that each, new support frame / arm consists of.
(each new support frame / arm which shall be connected to an existing member of each STS, in order to provide support for the main equipment (electrical / electronic) of the collision avoidance systems)

b) The connection point (s) / location (s) of each new support frame / arm with an existing member of each STS.

This structural engineering study will also include / define :

a) The design and sizing of all structural steel reinforcement of each STS (in case any reinforcement is necessary, due to the installation of each support frame / arm)

b) All necessary/applicable (based on technical expertise) and/or foreseen/applicable (by the Hellenic Republic laws, rules and regulations and international standards) non-destructive tests (N.D.T.), which are required to confirm the correct & safe execution of all fabrication & final installation works of each support frame / arm.

The supplier is solely responsible and will bear all associated costs in order to perform all necessary on-site inspections and/or all necessary on-site measurements, in order to prepare and submit his offer.
This structural engineering study will be signed and sealed by a Civil or Structural Engineer, graduate of a School of Engineering, registered in the Technical Chamber of Greece (TEE) or a corresponding chamber of a member state of the European Union.
It will also be signed and sealed by a legal representative of the supplier's company.

Also, the supplier will provide on-site supervision during the complete time period of the installation of the collision avoidance systems in order ensure full compliance with the structural engineering study.
It is the sole responsibility of the supplier that **prior** to his mobilization for the installation of the collision avoidance systems, to submit ThPA SA a comprehensive Health & Safety Plan (HSP), signed and sealed by the

legal representative of the supplier's company and the Health & Safety Manager of the supplier (or subcontractor thereof).
This HSP shall also include the relevant Occupational Risk Assessment Study (ORAS).
Both the HSP and the ORAS shall include a sufficient description of the way/method of work performance (detailed description of all phases of each work and not a simple / general description), the duration, the means and the personnel to be employed, a description/analysis of all Hazards and Risks in each phase of the work, as well as a description of specific and clear measures for eliminating / limiting each risk.
Indicatively, they will contain all of the following fields completed:

- Activity / Working phase
- Hazards
- Risks
- Affected staff
- Risk level before taking measures for risk elimination/restriction
- Elimination / restriction measures for each hazard
- Risk level after taking measures for risk elimination/restriction

In addition to the initial comprehensive HSP & ORAS, a detailed lift plan shall be submitted, each time a load is lifted / lowered.
It is expressly stated that it is the sole responsibility of the supplier to provide all items and perform all tasks mentioned in this section, namely:

- conduct & submit the structural engineering study,
- fabricate, transport & install each support frame / arm at each STS
- conduct all Non-destructive tests (NDT) included in the structural engineering study
- create, edit and submit the HSP and ORAS

and that all associated costs will be included in his offer.
All afore mentioned non-destructive tests (N.D.T.) will be performed according to all pertinent internationally and nationally recognized standards and from certified in Hellenic Republic contractors / companies.

12. DESIGNS & OPERATION AND MAINTENANCE MANUALS

The contractor will submit in print (six copies) and editable electronic format (Eplan)
the following:

1. Construction designs before the commencement of works;
2. Final designs upon completion of works (as built);
3. System operation and maintenance manual;
4. Programming/software manual;

The designs to be submitted shall of course include all electronic/electrical circuits.

13. TRAINING

Complete theoretical and practical one-day training of a group of (5) electricians in two cycles at the premises of ThPA SA (two days in total). The specific training days will be decided with the agreement of ThPA SA.
The training shall be provided in the Greek language and it shall mainly cover the following:

- Familiarization with the equipment;
- Explanation of all electrical designs (design by design);
- Principles of operation of the offered system;
- Explanation of the parameterization;
- Configurations or replacements to be made on electronic cards, if replacement of any of them is required;
- Possible damages - causes;
- Damage detection method;
- Damages to the bridge crane - finding - restoring them;
- Maintenance instructions, including:
  (a) Daily, weekly, monthly and six-month inspection;

(b) Systems configuration;
(c) Troubleshooting and repair.

14. MINIMUM TECHNICAL SPECIFICATIONS - COMPLIANCE TABLE

		Compliance	Remarks
Response time:	Up to 330 ms		
Number of detection areas:	2 per laser scanner		
Control filed of reference target:	1 per laser scanner		
Power supply:	Laser scanners: 24VDC Control - security unit: 24VDC (±25%)		
Scanning range:	At least 40m with 10% object reflectivity		
Coverage angle:	At least 190^{o}		
Laser category:	1 (IEC 60825-1 (2007-6)), eye safe		
Customization:	Laser scanners: Ethernet port Control - security unit: USB		
Output type:	Control - security unit: PNP transistor type digital output with short circuit protection & polarity reversal		
Heating element:	Yes		
Support:	Laser scanners: Suitable vibration-resistant support mechanism. Control - security unit: DIN rail		
Protection:	Laser scanners: III (EN 60529, 14.2.7) Control - security unit: III (EN 61140)		
Casing:	Laser scanners: IP67 (EN 60529, S. 14.2.7) Control - security unit: IP20		
Operating temperature:	-30^{o} C … +50^{o} C		
Relative humidity:	Control - security unit: 10% ... 95%		
Maximum ambient light intensity:	Suitable for outdoor environments of up to 70,000 lux		
Electromagnetic compatibility (EMC):	Laser scanners: As per EN 61000-6-2:2005 - EN 61000-6-3 (2007-03) Control - security unit: As per EN 61000-6-2, EN 55011, EN 61131-2 (Zone B)		
Impact strength:	Laser scanners: As per EN 60088-2-27 (1993-03) & EN 60068-2-29 (1993-04)		
Vibration resistance:	Laser scanners: As per EN 60068-2-6 (1995-04) Control - security unit: 5Hz ... 500 (as per EN 61131-2)		

15. Equipment/materials/services

The minimum required quantity of basic equipment/materials/services is the one described and suggested below. The candidate Contractor will be able, following his visit and according to his study, propose additional equipment if he considers it necessary for the technical solution that will be offered to ThPA SA, **per bridge crane** for a total of **two** bridge cranes.

MINIMUM QUANTITY TABLE (per bridge crane)

1	Laser scanners	2
2	Central control unit & interconnection & installation accessories	1
3	Signal cables	150m
4	Ethernet cables	150m
5	Laptop	1
6	Configuration software	1
7	Equipment for booth indications	Whatever the solution requires & according to specifications
8	Industrial Ethernet switches	1

NB:

(*) Minimum quantity of new materials/equipment to be offered by the candidate Contractor, in accordance with the technical descriptions and specifications, for the implementation of the project in accordance with the implementation study that he will draft during the bidding phase.

ANNEX

A. Economical Bid template

B. Pictures

THE CHIEF EXECUTIVE OFFICER

OF THPA SA

FRANCO NICOLA CUPOLO

ANNEX

A) ECONOMICAL BID TEMPLATE

1. Ready-to-use Software & equipment

Serial number	DESCRIPTION	TYPE	AMOUNT	VALUE WITHOUT VAT [€]		VAT [€]	TOTAL VALUE WITH VAT [€]
				UNIT PRICE	TOTAL		
TOTAL							

2. Services

Serial number	DESCRIPTION	TYPE	AMOUNT	VALUE WITHOUT VAT [€]		VAT [€]	TOTAL VALUE WITH VAT [€]
				UNIT PRICE	TOTAL		
TOTAL							

3. Other Expenses

Serial number	DESCRIPTION	TYPE	AMOUNT	VALUE WITHOUT VAT [€]		VAT [€]	TOTAL VALUE WITH VAT [€]
				UNIT PRICE	TOTAL		
TOTAL							

Aggregate Table of Economical Bid for the Project

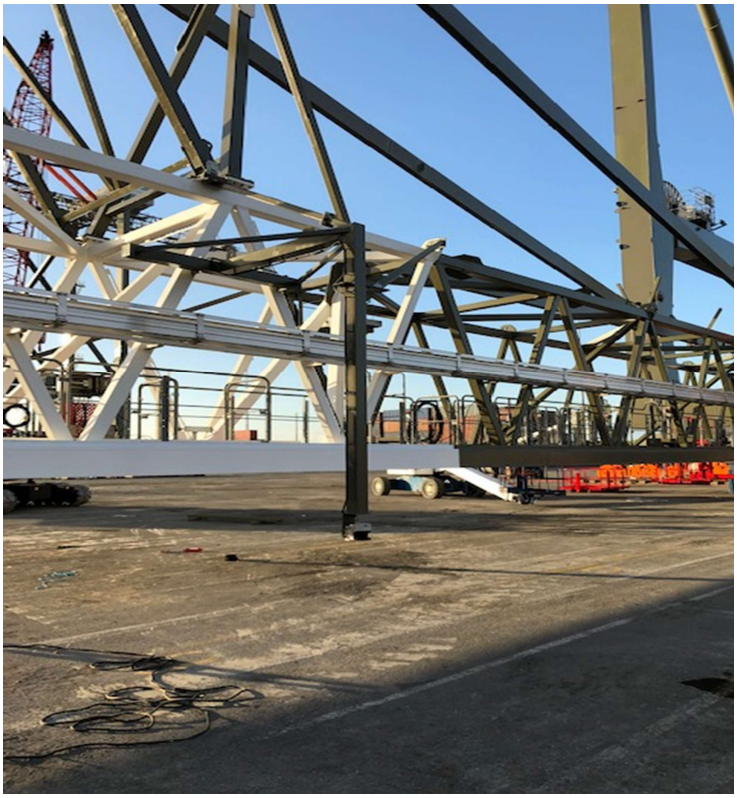
Serial number	DESCRIPTION	TOTAL PROJECT VALUE WITHOUT VAT [€]	VAT [€]	TOTAL PROJECT VALUE WITH VAT [€]
1	*Ready-to-use Software* & equipment			
2	Services			
3	Other Expenses			
	GRAND TOTAL			

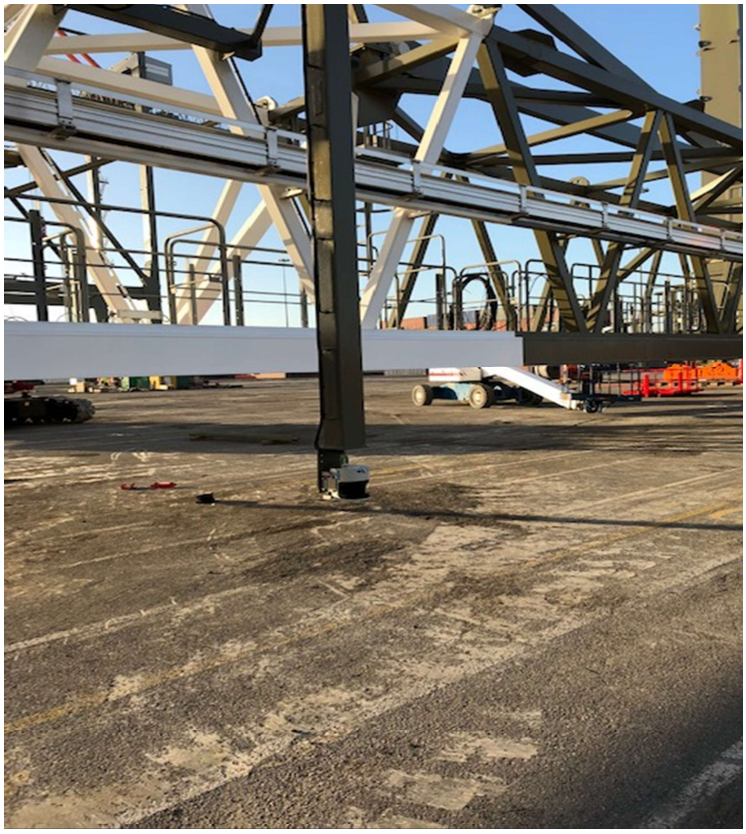
Indicative maintenance cost after the end of the Performance Guarantee

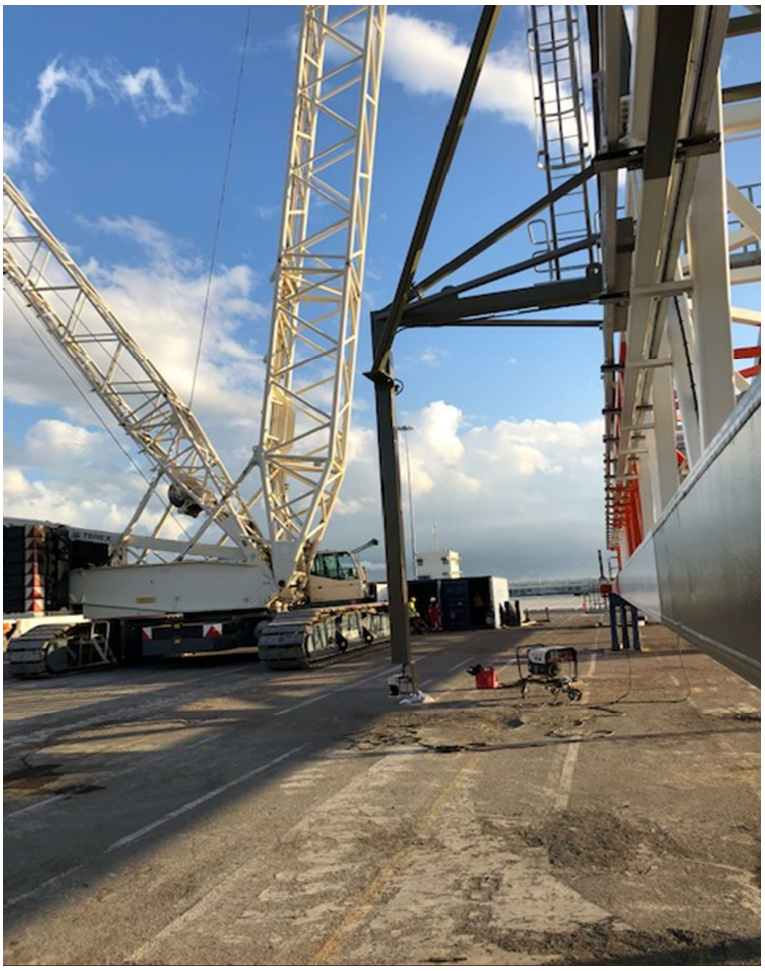
Description	**Offered Value excluding VAT (numerically and in full wording)**	**VAT amount (numerically and in full wording)**	**Offered Value including VAT (numerically and in written)**
Annual maintenance/technical support cost			

The annual maintenance cost, after the end of the performance guarantee, is not subject to evaluation. ThPA SA is not bound to the procurement of these services.

B) <u>PICTURES</u>








SICK


IP Address : 192.168.150.141
Subnet Mask : 255.255.255.0
Gateway : 192.168.150.1
CC2038 Boom Left
Calibrated
Q1
Q2