**SPECIFICATION OF THE SUBJECT-MATTER OF THE TENDER PROCEDURE REGARDING**

**THE TASK NAMED** **“SUPPLY, TOGETHER WITH INSTALLATION, COMMISSIONING AND SERVICING, OF TWO ELECTRIFIED RUBBER-TYRED GANTRY CRANES (eRTG)”.**

**THE TASK IS PART OF THE PROJECT ENTITLED:**

**“EXPANSION OF THE INTERMODAL CONTAINER TERMINAL IN KUTNO AND THE PURCHASE OF THE EQUIPMENT SUPPORTING ITS OPERATIONS”**, **CO-FINANCED FROM THE FUNDS OF THE COHESION FUND WITHIN THE FRAMEWORK OF THE OPERATIONAL PROGRAMME INFRASTRUCTURE AND ENVIRONMENT (2014-2020), MEASURE 3.2 DEVELOPMENT OF MARITIME TRANSPORT, INLAND WATERWAYS AND MULTIMODAL CONNECTIONS (GROUP C INTERMODAL TRANSPORT)**

Sosnowiec, 2021

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PCC Intermodal S.A. invites tenderers to submit tenders for performance of the following task: **“Supply, together with installation, commissioning and servicing, of two electrified rubber-tyred gantry cranes (eRTG)**”.

# PURPOSE OF THE TENDER PROCEDURE

**The purpose of the tender procedure is to select the Tenderer that will supply two complete, identical eRTG cranes allowing to perform handling operations in accordance with this Specification of the subject-matter of the tender procedure, and guarantee servicing of the cranes. The complete cranes shall be handed over to the Ordering Party as approved for operation in accordance with applicable laws and regulations.**

# Definitions

For the purpose of this tender procedure, the following definitions are adopted:

**Tenderer** - an entity or consortium that participates in the tender procedure.

**Supplier** - an entity or consortium with which crane supply and servicing agreements will be concluded in the course of the tender procedure.

**Client or Ordering Party or Investor** - PCC Intermodal S.A.

**RTG, eRTG, crane** - terms used interchangeably to define the subject-matter of the contract. Whenever a crane is referred to in the following provisions, this term shall be understood as each of the two cranes being the subject-matter of the tender procedure.

**tender** - a set of documents compliant with the requirements of the Specification and Annexes 1 and 2 to the Specification, sent to the Ordering Party, also including two copies of the supply agreement and two copies of the servicing agreement with appendices to the contract signed by the Bidder.

**Specification** - the present Specification of the subject of the tender.

**Business Day** - any day other than Saturday or Sunday or any other day legally free from work in the territory of the Republic of Poland.

# SCOPE OF THE TENDER PROCEDURE

The scope of the tender procedure covers performance by the Supplier, among others, of the following actions:

1. Design of cranes, taking into account optimal operation and cost parameters, for PCC Intermodal S.A. terminal in Kutno, together with making necessary approvals, including the approvals made with the technical supervision authority, occupational health and safety assessor and fire protection assessor;
2. Manufacture of two complete eRTG cranes, together with the equipment and two remot operating stations that conforms with this Specification;
3. Delivery to the terminal in Kutno, under DDP terms, including unloading, installation, all actions and necessary insurance, custom duties paid;
4. Performance of technological start-ups and the necessary operational tests and acceptances;
5. Development and submission of complete technical documentation of the cranes in paper and electronic versions in Polish and English;
6. Training the personnel designated by the Investor in the field of management, operation and maintenance of the supplied eRTG cranes at the terminal;
7. Preparation and submission of instructions for use and operation of the cranes and performing and submitting a risk analysis;
8. Obtaining appropriate authorisations for the cranes from a competent acceptance body, together with a permit for use, if such obligation is imposed by applicable laws and regulations as of the acceptance date;
9. Performance of all actions defined in this Specification and in the supply agreement, and all other actions necessary for the proper operation and use of the cranes, as specified in the servicing agreement;
10. Provision of full maintenance and warranty service of the cranes within the scope and period specified in the tender specification and servicing agreement;
11. Provision of post-warranty service for the cranes during the life of the cranes in accordance with the servicing agreement;
12. Assistance with development of the internal manual of PCC Intermodal S.A. concerning the training of operators, on the basis of which the Ordering Party will train new operators and the competent authority will conduct examinations for them, allowing them to obtain appropriate licences.

# MILESTONES IN THE SUPPLY OF CRANES

In accordance with the content of the notice, the Ordering Party expects the **time limit for manufacture, delivery, installation and commissioning, together with obtaining relevant permits and conducting necessary trainings in the operation and use of the cranes, not to exceed 14 months of the date of concluding an agreement.**

The Ordering Party expects:

* the complete documentation for both eRTG cranes together with necessary approvals to be ready **within six months** of the date of concluding the supply agreement;
* complete structural elements of both cranes to be delivered to the Ordering Party's container terminal in Kutno no later than **four months** prior to the expiry of the time for completion of the supply agreement;
* the cranes to be installed, commissioned and ready for making technical acceptance, for conducting operator trainings and for carrying out the procedure for issuance of the permission to operate at least **one month** prior to the expiry of the time for completion of the supply agreement;
* The Supplier shall obtain the required permits for use prior to the date of final hand-over of the cranes to the Ordering Party;
* the final hand-over of both eRTG cranes to the Ordering Party, together with relevant documentation and certificates of personnel training in the area of operation and maintenance, shall be made in the form of a final acceptance protocol, no later than on the last day of **14 months** from signing the supply agreement.

The above time limits *(milestones*) shall be taken into account by the Tenderer in the Crane Manufacture, Installation and Commissioning Schedule, to be prepared by the Tenderer and submitted as Annexe No. 5 to the supply agreement (in the post-auction tender). The schedule shall indicate, with particular accuracy, the dates on which the Supplier expects part of the terminal area to be made available to the Supplier for the purpose of carrying out works relating to the infrastructure and installation of the cranes.

**Note!** Failure to present in the Tender the Crane Manufacture, Installation and Commissioning Schedule or failure to take into account the above milestones in the Schedule may result, if shortcomings are not remedied within the required time limit, in rejection of the Tender and retention of the tender guarantee.

## TECHNICAL SPECIFICATION

### TECHNICAL GUIDELINES FOR THE PREPARATION OF TENDERS FOR eRTG CRANES

#### Preliminary description

**The investor expects a tender to be submitted for the supply of two electrified rubber-tyred gantry cranes (eRTG), to be operated at the container terminal in Kutno, in accordance with the requirements defined in this Specification.**

Currently, handling operations are performed at the terminal in the stacking section with the use of reach stackers. The railway section is operated with the use of RMG cranes.

#### Basic assumptions - container stacks, lane length, stacking height

In the first stage, the Investor assumes handling operations with the use of RTG cranes over one stacking block of the length of 210 metres and the width of **8 lanes for containers + 1 lane for trucks, road tractors with trailers / semi-trailers and terminal tractors with semi-trailers**. In the transitional stage, as the terminal grows, the cranes will be used for handling operations over two stacking blocks of the same width and the length of 210 m and 190 m for the second block, and in the final stage over three blocks of the length of 210 m, 190 m and 180 m, respectively.

Container stacking height: 4+1 (for high-cube containers, i.e. 290 cm high).

The slope of the crane travel paths will be 1% from the north and 1% from the south, as shown in Appendix No. 7b to this Specification. The power cable exit location is approximately 1/3 to 2/3 of the total length of the container stacking blocks under the eRTG, as shown in Appendix No. 7a to this Specification.

#### Basic safety conditions and failures

After installing the cranes, the Ordering Party does not exclude temporary operation of the stacking block with the use of reach stackers in the event of failure or servicing and maintenance works.

Stairs and landings allowing to access/leave the crane shall provide for conditions conforming with occupational safety regulations. Appropriate clearance lines to terminal facilities, e.g. lamp posts, as well as to the planned block of containers and vehicles with containers under the crane shall be maintained. A cross-section of the terminal with the location of the crane is presented in the Annexe, Figure 7a.

The Ordering Party assumes that each of the cranes will eventually be able to operate in the entire operational length of the stacking blocks (approximately 210 m + 190 m +180 m), which may be connected with the possible temporary shutdown of one of the cranes. In the event of failure or shutdown of the crane(s), the Supplier shall, at the design stage, indicate in the crane operation documentation a safe method of shutting down or moving the cranes to a parking area, so as to allow for temporary handling operations with the use of reach stackers in the area where the shut-down crane operated.

The Ordering Party explains that the temporary reach stacker operation in a stack under the eRTG crane will be possible only if the eRTG crane is turned off and access to the containers is ensured.

#### Uncertainties in the Specification

If this Specification does not regulate specific issues or regulates them in an unclear manner, the Ordering Party shall be asked a question in accordance with the procedure described in Part III of the Specification, Section “Questions and Answers”. In all doubtful or ambiguous matters, the solution that is more favourable to the Ordering Party shall be adopted, provided that it is not contrary to applicable laws and regulations.

### GENERAL FUNCTIONAL REQUIREMENTS FOR THE CRANE

#### Description of the task

The task includes design and production of two complete **electrified rubber-tyred gantry cranes (eRTG)** of the rated load of 40.5 metric tonnes under the spreader, with a remote operating station - ROS (including 2 control stations) together with their delivery, installation, connection, testing, approval for use and handing over to the Ordering Party after personnel training. The cranes shall be handed over to the Ordering Party as fully installed, tested and approved for use.

####  Location

The cranes shall be delivered, installed and handed over for use in the Ordering Party’s location, i.e. **on the premises of the container terminal of PCC Intermodal S.A. in Kutno, ul**. **Intermodalna 5.**

#### General requirements for the Ordering Party

The Ordering Party’s key requirement is that the cranes shall be suitable, in all respects, for safe, efficient and continuous use under the operating conditions prevailing at Kutno terminal for handling containers for the period not shorter than **two million (2,000,000) moves**, ordinary wear and tear accepted (with the absolute exclusion of any failure due to wear and tear) with routine maintenance.

The **number of moves** shall be understood as the number of handled single containers, counted from the beginning (i.e. from locking the twistlocks on a container) to the end (i.e. to unlocking the twistlocks) of one handling operation.

For the purpose of this Specification and contracts, acceptable routine maintenance shall not exceed the following general parameters:

1. For steel structures and related components, accessories and attachments, acceptable routine maintenance shall be limited to the maintenance of the paint coating, as specified below (item 2). Reinforcing, cutting and/or replacing corroded, worn or defective steel or its fastening elements, etc. shall constitute repair works, not maintenance works.
2. For the paint coating, acceptable routine maintenance shall include:

- Preparation and coating of the existing paint system after 9 years, i.e. in the tenth year counting from the date of signing the final crane acceptance protocol.

- Removal of defective parts of the paint coating to clean steel and replacement of the paint coating, but not exceeding the total area of more than 1% and 2% of the total area after 5 years and in the 10th year, respectively, counting from the date of signing the final acceptance protocol of both cranes.

- Removal of the paint coating to the steel and replacement of the paint coating in areas greater in total than the above percentages of the total surface area of the painted part of the crane shall constitute repair works, not maintenance works.

1. For items of electrical and mechanical equipment, controls, systems, components, accessories and attachments, acceptable maintenance shall include periodic and routine maintenance works normally carried out on various parts, generally undertaken as actions performed by the Ordering Party. Servicing visits and replacement, if any, of parts during the warranty period, unless made free of charge under the warranty granted by the Supplier, shall be included in the servicing fee.
2. The above conditions (items 1-3) shall apply notwithstanding any conflicting requirement or information included in any maintenance manual provided by the Supplier or otherwise presented by the Supplier, and any such other conflicting requirement or information shall not be or become grounds for the Supplier to release itself from, limit or reduce any obligation or liability of the Supplier under any supply agreement or servicing agreement or otherwise, including in respect of defects.

### GENERAL DESIGN CRITERIA

##### Type of the crane

The cranes shall be electrically powered and connected by the Supplier to the power source located in the crane power supply chamber. The chamber shall be constructed by the Ordering Party and the cranes shall be constructed as rubber-tyred gantry cranes with self-propelled trolley without a cab (with remote control from the ROS supplied by the Supplier as part of the task). The cranes shall be retrofitted with a diesel powered auxiliary generator (see details in item 3.11 - Auxiliary generator). The drive and control of the crane shall be provided fully on AC inverters, with fully digital controls, including PLC. The proposed drive and control system shall be proved systems of internationally recognised manufacturers, successfully operating in cranes with similar capabilities, currently used for container handling operations at modern container terminals.

##### Type of cargo handled

Required type of cargo to be handled by the crane:

1. ISO 20’, 30’, 40’ and 45’ containers, including high-cube and flat-rack containers.
2. Other container types with top corner fittings in 20’, 30’ or 40’ positions, such as tank containers in 20’ to 30’ sizes, bulk containers, 45' containers for intra-European and maritime traffic, and others. Such containers can protrude on one or both sides of the frame in length and/or width, e.g. tank containers with a tank longer than their 20-foot frame, 45' refrigerated containers with protruding built-in power generator or 45' extended containers for 33 or 34 europallets, which may be observed in the traffic in Europe.
3. Incidentally, containers with damaged top corner fittings or preventing from fastening with the use of a spreader, e.g. flat racks without side walls or open tops with protruding cargo - with the use of rope or chain slings attached to the crane spreader.

##### Working environment and purpose of the project

1. The cranes shall be adapted to continuous operation (24/7) and all weather conditions, in particular the conditions specified in items 3.14 and 3.15. All electrical, electronic, and mechanical equipment shall be non-hygroscopic, non-corrosive and adapted to use in the environment and under the conditions specified elsewhere in this Specification.

2. Special attention shall be paid to all aspects of the design, in order to provide for accurate determination of load with rapid damping of sway, and with full operational capability and safety for uninterrupted service, including operation in heavy rain and snow.

3. The crane will be exposed to the presence of non-technical staff, particularly at ground level and when accessing the trolley. The Supplier shall provide protection inside and around all equipment and accessories in these areas of the crane.

4. Ease of maintenance and safety of maintenance staff shall be taken into account by the Supplier throughout the project in order to minimise crane downtime.

##### Modes of operation and staging

As part of this tender, the Ordering Party expects to receive tenders that include pricing of 2 gantry cranes controlled remotely from 2 remote operating stations (ROS) located in the terminal office, described in the further part of this document as operating in semi-automatic mode "a", as described in item 3.4.1.

Additionally, the Ordering Party expects to receive a tender for adaptation of the supplied cranes operating in semi-automatic mode "a" to operation in automatic mode "b", as described in item 3.4.2., that is, to ensure their operation in an autonomous manner.

**3.4.1 (Semi-automatic mode "a")**

The Ordering Party intends to order and use these gantry cranes as operating in the semi-automatic mode, with the operator controlling the indicated operations via a remote operating station (ROS). Remote control of all functions of each of the cranes shall take place from one of the two fully equipped operator stations. The ROS shall be delivered, installed and connected by the Supplier in the Ordering Party's office. The crane shall be equipped with systems supporting the operator's work, as described in the specification.

It must be provided a posibility to controlling the two cranes may take place alternately from one station or from two stations independently.

Each crane shall provide for:

- automatic positioning of the crane for the next TOS task (with maintaining the crane path along the stack),

- automatic positioning of the trolley for the next TOS task,

- automatic lowering of the spreader for the next TOS task up to the height of 6 m above the terminal surface on the truck lane and its automatic lifting after reaching the height of 6 m from the terminal surface on the truck lane.

- in the event of handling vehicles with the driver staying in the cab (side loading, i.e. in the lane under the crane), active (manual) supervision over the lowering of the container onto the semi-trailer and lifting the container from the semi-trailer shall take place from the remote oparating station. The operator manually lowers and lifts the spreader up to the height of 6 m above the terminal surface in the truck lane and lifts and lowers it in the stacking area.

- performance of trimming, skewing, listing operations in manual mode by the operator,

The TOS system and the crane system shall be integrated and exchange information on the location of the cranes, trolley, hoist and spreader as well as twistlock position, and allocate tasks directly to the nearest crane, and the crane shall perform the appropriate positioning based on the locations of containers to be picked up, received from the TOS system, and provide feedback on the locations of the containers to be stored.

Apart from the above requirements, the operator shall retain the possibility of controlling each operation of the crane, trolley and spreader by intercepting these activities manually.

The required capacity of the crane in the semi-automatic mode shall be **at least 11 cycles per hour** for each of the scenarios at each of the required load modes, in accordance with the Ordering Party's assumptions described in Annexe No. 6 to the Supply Agreement.

**One cycle** is understood by the Ordering Party as a complete handling operation, counted from the time of starting the crane travel over the container, lowering the spreader, locking the twistlocks, lifting the spreader, transporting the container to the designated place, lowering the spreader, unlocking the twistlocks, lifting the spreader and the crane getting to the place where the next task begins.

In order to facilitate the transition to the target mode of automatic (autonomous) operation "b", the Ordering Party expects the Supplier, at the stage of performance of semi-automatic crane "a", to design, install and perform all necessary electrical, optical, network, antenna outputs, cable bundles and conduits, brackets and equipment and system mounting locations to ensure the possibility of subsequent installation of a system of cameras, lasers and other devices that will allow for autonomous operation, as specified in item 3.4.2.

**3.4.2 (Automatic (autonomous) mode “b”)**

Ultimately, as an additional option, the Ordering Party plans to extend the crane operation to the automatic (autonomous) mode with possible remote supervision of critical operations. Each stage shall be preceded with appropriate technical and organisational changes.

The Ordering Party reserves the right, after acceptance of the semi-automatic cranes, to order from the Supplier additional extension of the crane operation capabilities to automatic (autonomous) mode "b", under a separate order. The right to exercise this option and the validity of the tender for the performance of option "b” shall apply for **at least 24 months** of the date of acceptance of the cranes in semi-automatic mode "a" by the Ordering Party. The tender for the performance of the option of automation of crane operation mode “b” shall include all activities, equipment, materials and preparation of the documentation necessary to carry out the change of the crane control mode. Costs of the works relating to the necessity of fencing the place where containers are stacked under the crane and kiosks used to ensure safety and isolation of drivers during automatic handling shall be borne by the Ordering Party on the basis of separate arrangements between the Parties based on additional pricing and shall be performed by the Ordering Party in accordance with the documentation and precise directions given by the Supplier.

The extension of the operation mode of the cranes to automatic (autonomous) mode "b” shall take into account and provide for:

- conducting automatic handling operations in stacking blocks (housekeeping, taking out containers blocked by others)

- extension of the integration with the Ordering Party's terminal system (TOS)

- recommendation and implementation of the service option selected by the Ordering Party (the Ordering Party considers the possibility of operating vehicles in the lane under the crane as well as in the designated areas at 2 ends of each of the stacking blocks - "end loading"; the final selection of the crane operation method shall be made by the Ordering Party)

- Automatic handling operations in the truck lane ("truck lane" and "end loading").

- Automatic positioning within the full range of the crane, trolley and spreader.

- dealing with exceptions (situations that require the operator’s intervention) remotely from the crane remote oparating station (ROS).

- loading and unloading of containers to/from semi-trailer(s) shall be done automatically with authentication confirming that the driver has left the cab and is outside the cab (e.g. special "button" in the kiosk). Authentication system, e.g. a "button" supplied and integrated by the Supplier. Another form of authentication agreed with the Ordering Party is acceptable.

- Detection of any objects and containers in the travel path and prevention of movement of the spreader, or the spreader with a raised container, in the direction in which there is a risk of collision.

- Installation of an optical container recognition system (OCR) by the Supplier or a third party

- Installation of the equipment of the system for calculating the optimal paths of the crane

- Smooth connection of the terminal's TOS system with cranes, so that the terminal system receives information about the location of the cranes and assigns tasks directly to the nearest crane, and the crane receives from the TOS information about the location of containers to be picked up and provides feedback on the location of the containers to be stored

Along with the auction tender, the Supplier shall present a description of the technical and engineering solutions necessary to operate the crane in the semi-automatic and automatic modes, taking into account the above requirements of the Ordering Party. In the event of any doubt, the Ordering Party may request the Tenderer to make additional clarifications.

**Note!** Lack of technical and engineering solutions allowing to operate the crane in the semi-automatic and automatic modes shall result in rejection of the tender. Failure to provide the required description of these solutions or refusal to make additional clarifications may result in rejection of the tender.

The selection by the Ordering Party of the automatic operation option "b" must always include both cranes, but the Ordering Party will indicate which gantry will be subject to the extension of the operating mode in the first place. The second gantry will be automated immediately after acceptance of the works performed on the first gantry. Extending the gantry operation mode to the automatic option "b" means that it will still be able to work also in the semi-automatic operation mode "a".

**NOTE!** In the event the Ordering Party selects option of operation in mode “b”, the Supplier shall conduct a full training for the selected option (training for remote operators and supervision over the crane operating in the autonomous mode).

##### Statutory requirements and minimum design standard

1. The electrical, electronic equipment and mechanism of the Crane shall be designed for efficient operation and manufactured by internationally recognised manufacturers to comply, in all respects, with the requirements under any applicable laws and regulations, standards or any other documents or regulations applicable in the country of operation.

2. The design and structure of the cranes shall be carried out in accordance with all laws and regulations, standards and other requirements applicable in the country of installation of the cranes as of the date of conclusion of the agreement.

3. The cranes shall satisfy all requirements necessary to obtain the Polish approval for use issued by the Transport Technical Supervision.

4. The Supplier shall specify all applied standards, laws and regulations in the design of the Crane and submit them to the Client together with the crane documentation at the latest.

##### Safety of the equipment. Conformity with the EU Machinery Directive

(1) The crane shall comply with the requirements of the European machinery guidelines, in particular Machinery Directive 2006/42/EC. The cranes shall be provided with certificates of conformity, CE markings and symbol in accordance with the relevant Annexes to the Machinery Directive.

(2) The Supplier shall be solely and fully liable for all aspects of this declaration of conformity and CE marking. Any single malfunction or failure of an electrical power, control or hydraulic component shall not cause damage to the crane or injury to the staff. If possible, failure or malfunction of a component shall result in safely stopping the crane operation.

(3) The Supplier shall equip the cranes with appropriate redundancy systems to ensure safety, including safe stopping of the crane.

(4) The crane shall be equipped with a system allowing to prevent operation while maintenance staff are performing crane maintenance works. Measures shall be provided so that maintenance staff can routinely check any redundant or backup system. The checking procedure shall be included in the maintenance manual. No component of the crane shall change its condition as a result of a power failure. Activating or re-activating the crane or any crane system shall not cause unforeseen or potentially hazardous movement or hazard.

(5) The cranes shall satisfy all requirements necessary to obtain the Polish approval for use issued by the Transport Technical Supervision.

(6) The cranes shall be designed in a manner that facilitates maintenance. All gearboxes and drives shall be easily accessible for oil replacement and/or servicing

(7) All descriptions and warnings on control panels and in maintenance areas shall be in Polish.

##### Power supply

The crane shall be powered by medium voltage (AC 15kV, 50 Hz). The Supplier shall deliver the crane together with a cable reel, power supply cable equipped with optical fibres necessary to ensure operation of the crane in the semi-automated & automatic mode and transmission of data required for both of these operating modes, hermetic MV and optical fibre junction boxes, along with other elements of equipment necessary to connect the crane to the power supply and steering. The Supplier shall also make appropriate electrical connections and systems for data transmission, including fibre optic cables and equipment in:

- the power chamber,

- the Ordering Party’s server room,

- the room where elements of the crane remote control system and operator stations will be located,

- at the junction of the fibre optic cable supplied by the Supplier, built into the crane power supply cable with the power supply cable and the fibre optic cable connected to the crane power supply chamber by the Ordering Party, including treatment of all cable terminations in the crane power supply chamber.

For this purpose the Supplier shall provide the necessary equipment (including, among others fibre optic switches, elements for connecting power cables, etc.). The Ordering Party's fibre optic cable laid from the Ordering Party’s server room to the junction box shall have the following parameters:

- 2x12J composite cable (24 single-mode fibres).

The Ordering Party shall construct a power supply chamber together with power and fibre optic cable outlets in the power supply chamber along with a cable rack

A projection of the power supply chamber is shown in Annexe No. 7c.

The crane Supplier shall be provided with as-built documentation of the chamber upon completion of the construction works, for which it shall make a final selection of the components, the manner of their placement and connection.

**~~Note!~~** *The Ordering Party deleted the part of the paragraph.*

In either case of power supply of one of the cranes, ~~i.e. with the use of a power supply chamber or any other ground solution~~, after making the connections the Supplier shall perform the necessary electrical measurements and provide the relevant measurement protocols.

The electrical system shall provide sufficient power supply parameters for fast and accurate handling of containers during continuous handling operations, taking into account heavy loads and simultaneous upwind travel.

The power supply for the main drives of hoisting winches, trolley, crane travelling and auxiliary drives shall be made with the use of the AC technology. The main switchgear shall be installed in the transformer room or e-house. The switchgear shall control and supply power to all drives and their equipment as well as other minor systems, such as lighting, heating, etc. The purchaser’s objective is to have access to circuit breakers of low-voltage (<1000 V) equipment and systems operating on separate circuits. These circuit breakers shall be located in a room that is separated from the high (medium) voltage transformer and equipment, so that personnel with 1 kV ratings have free access to the low voltage circuit breaker area. The MCCB technology will be acceptable to the Ordering Party as long as the MCCB low voltage switches are separated from the high (medium) voltage.

The Supplier shall take into account power compensation and appropriate filtering systems in order to achieve the correct power factors and low noise levels in accordance with applicable EU standards. All electrical and electronic equipment shall be protected against overvoltage. Electrical equipment, cables, diagrams and drawings shall comply with relevant EU standards and directives. All electrical switchgears shall consist of components supplied by experienced and reputable suppliers.

All sensitive electrical equipment shall be located in enclosed spaces with anti-condensation heating and cooling, if required.

The crane shall be equipped with a system for automatic shutdown in the event of overvoltage. The power supply system shall be provided with the use of a cable reel. Cable reel and slip ring drive elements shall be protected by protective barriers with easy and safe access for authorised technical staff and secured with locks against unauthorised access.

##### Cable reel

The crane shall be equipped with a single spiral cable reel. The reel shall be driven by an electric motor directly connected to the gearbox. The drive shall provide sufficient torque and speed to lift the cable from the ground, preventing from clearance under all operating conditions.

The cable shall be suitable for sufficiently fast coiling/uncoiling speeds, for long distances and for high tensile forces. The uncoiling range shall reach ca. 430 metres + necessary reserve as determined by the Supplier. The cable shall also be equipped with fibre optic cables that are free from interference of data transmission and control signals. Attached drawing – attachment no 7 d) to the agreement (attachmentA\_to\_QA3), shows:

• the approximate length of the stacks to be serviced in Phase 1 (A), Phase 2 (A + B) and Phase 3 (A + B + C) (the final cable length to be serviced will be agreed);

• power point location (fixed),

• max. operating distance of overhead cranes.

The estimated cable length is approx. 430 meters. The Supplier can calculate it at a later stage, based on the detailed DWG drawings of the yard. Referring to point 3.4., The maximum length of the stack is 210 m, as shown in the drawing (Annex 7d to the contract). RTG crane can be parked in this area (at the ends).

The cable reeler system shall prevent from coiling/uncoiling when the drive is not powered. The cable shall run vertically down to the roller guides that will lay the cable on the cable rack. The Supplier shall adjust the solutions to the conditions prevailing in the place of the crane operation, including the possibility of power supply both with the use of an underground power supply chamber and an optional ground solution supplied by the Supplier as an option. The cabinet in which the slip ring system will be located shall be weatherproof (IP min. 65) and equipped with heating appliances.

##### Transformer

The Supplier shall deliver LV transformer designed for this type of equipment, hermetically sealed, equipped with appropriate electrical protection. The transformer shall be installed in a weatherproof and ventilated location on the crane. The transformer shall be equipped with a monitoring and alarming system, to activate in the event of occurrence of any undesirable event. Access to the transformer and other MV equipment shall be well protected against unauthorised persons, and LV equipment requiring staff access shall be in a separate location.

##### Switchgear

The switchgear shall be installed in a safe, dedicated, sealed area and supplied by a leading manufacturer. The switchgear shall provide for maximum electrical protection for the transformer, electrical circuits and individual items of equipment, and prevent overload currents, short-circuit currents and insulation failures. The switchgear shall be equipped with a monitoring and alarming system, to activate in the event of occurrence of any undesirable event.

##### Auxiliary generator

The Ordering Party requires the supply, as part of the subject-matter of the agreement, of a diesel powered auxiliary generator, used for moving the cranes between stacking blocks, as a mobile unit that can be easily moved and connected to the supplied eRTG cranes, which can be moved with the use of a container spreader or forklift transport.

The unit may be suitable for forklift transport, if its gross weight does not exceed 2 tonnes. If the weight of the auxiliary generator exceeds 2 tonnes (including the fully refilled fuel tank), it must be possible to carry it with the use of a sling connected to the spreader grips used for lifting 4x10 tonnes - see item 5.9 (3) SPREADER.

##### Loading the runways on which the crane wheels run

(1) The Supplier shall submit in its Tender, for the Ordering Party's review, the declared wheel loads in order to explain the vertical and horizontal loads under operating and immobilisation conditions of the crane, including the static and dynamic loads with which the crane wheel interacts with the surface, save that the loads shall not exceed the parameters specified in the building design and those indicated in item 3.12(3). The Ordering Party shall make available the building design in the section regarding runways with the permitted loads.

(2) The maximum wheel loads shall be calculated with the Trolley placed in the most difficult positions, with the wind blowing in the most difficult horizontal direction, at full lift.

(3) The eRTG runways were made with the assumption of the maximum load not to exceed:

Maximum characteristic load of the runway:

- crane wheel load 229 kN

- crane axle load 458 kN

Maximum dynamic load of the runway:

- crane wheel load 270 kN

- crane axle load 540 kN

If the loads exceed the above values, it shall be considered a defect and the Supplier shall not be entitled to dispute this fact for any reason or under any circumstances.

The Supplier shall also assume that during operation, the edge of the RTG crane tyre may not reach the edge of the runway at less than 27 cm.

(4) The southern runway with the slope of 1% is flat, while the northern runway has a 1% slope formed in the existing surface. Details are presented in Annexe No. 7a

(5) The foundation of the runway was designed for the above-mentioned load in accordance with item (3).

(6) The crane base shall be designed so as to maintain the stability of the crane even in the event of a tyre puncture on one of the crane wheels.

##### Power sources – remote oparating station

The Supplier shall provide the possibility of permanent installation of additional equipment on the ROS, together with the necessary installation for data transmission and power supply.

The Supplier shall provide a sufficient number of power circuits to connect the equipment necessary for the operator's work (e.g. monitors, radios, tablets, etc.) and any sockets, necessary to power the components necessary in the event of full automation of the cranes.

The power supply installation for the equipment in the cab (including radio equipment) shall allow to maintain the voltage for at least 60 minutes in the event of failure.

The Supplier shall equip the station with Ethernet or fibre optic cables and sockets and their respective terminations, necessary to ensure operation of the crane in the automated mode.

##### Weather conditions

The crane, its accessories and all parts shall be designed and constructed so as to provide for fully safe operation and withstand the following weather conditions:

(1) Ambient temperature - 25 oC to + 35 oC

(2) Relative humidity Max. 95%

(3) Wind up to 22 m/s without special warning during operation.

(4) Thunderstorm.

(5) Heavy snow and/or hail and fog, which is a common weather phenomenon at the crane installation site

Including isolation of power circuits of the crane accessories.

More stringent and detailed requirements shall be applied to the subsystems and components of the crane, as separately identified in each relevant clause of this Specification.

##### Wind conditions. Wind speed measurement system

(1) The entire crane structure, including all its equipment, components, fittings and accessories, shall be designed, constructed and adapted to the following wind load conditions:

* For the crane "in service":

Allow for wind load at a constant **speed of 22 m/s** for safe load handling by the Crane. The Ordering Party accepts the possibility of the crane to operate at a reduced speed of the crane in the event of a wind load of 18-22 m / s.

* For the crane "at rest":

Wind load of **up to 37 m/s** shall be admissible when the crane is off and parked without the use of a wheel wedge system.

(2) The cranes shall be equipped with wind speed measurement systems that provide real-time information about the possibility of handling cargo, and alert in the event of deteriorating conditions. In the event of extremely adverse conditions (threatening the safety of work), the system shall automatically prevent from conducting the works until the weather conditions improve.

##### Loads and stability

(1) The Supplier shall submit to the Ordering Party, for review, a solution aimed at complete prevention of lifting one container end by two container locks. The design shall include a system that immediately detects this condition and stops the spreader movement upwards. The spreader that stops with one end locked to the twistlocks inside the container shall only allow for lowering in compliance with safety procedures.

(2) Structural fatigue. The supplier shall select parameters of structural solutions so that no structural fatigue occurs in accordance with the applicable standards.

(3) The crane shall remain stable with the safety factor that at least complies with the requirements of F.E.M (Righting Moments versus Tipping Moments) under the most extreme and adverse operating and rest conditions.

(4) No damage shall occur when dynamic hindered loading is applied to each position of the trolley and hoist. Emergency braking of the crane shall not cause any damage to the crane equipment.

##### Noise control

The crane noise level shall comply with the following requirements:

Noise emission measured outside the crane must not exceed the parameters resulting from the applicable standards.

The Supplier shall include the results of tests of actual noise levels in the document **"Delivery-Handover Protocol**", in accordance with the Supplier's template, taking into account the above requirements.

##### Components of key importance for operation

(1) The Supplier shall submit to the Ordering Party a schedule for inspection and replacement of key components as part of the scheduled maintenance of the crane for at least 20 years.

The inspection schedules shall include detailed instructions on the components to be checked, along with the method and rejection criteria for the inspection.

(2) The Supplier shall provide **the Ordering Party with a schedule of planned maintenance activities along with their scope** as Annexe No. 5 to the servicing agreement and specification of costs as part of Annexe No. 3 to the servicing agreement (costs connected with any repair, replacement, maintenance, replacement of consumables, in accordance with this Specification and the servicing agreement, shall be appropriately included in individual prices, as discussed further below).

(3) The Supplier shall develop and provide the Ordering Party with maintenance and inspection instructions for components of key importance for operation (i.e., those components and structural connections whose failure may have catastrophic consequences), together with the servicing agreement at the latest.

### CRANE STRUCTURAL SPECIFICATION

##### General requirements

(1) The parts shall be connected to each other with the use of high strength bolted connections secured against self-loosening.

(2) Deformation or oscillation of the structure shall not affect the performance of the Crane (in particular the positioning ability of the spreader).

##### Design

(1) Bearing beams, legs and girders shall form a continuous rigid frame. The connections between these components shall be bolted or welded and resistant to all the forces.

(2) The material used for the longitudinal structural stiffeners shall be the same material (or have the same material yield strength). The use of different grades of steel in the cross-section of major structural parts shall be duly justified by the Supplier.

4.2.1. Equipment and materials

The following equipment/machinery shall be included in the main structure:

(1) Crane and trolley, drive and hoist equipment

(2) Crane wheel brakes with limit switches

(3) Hoisting winch pulleys

(4) Auxiliary generator, if this option is selected by the Ordering Party

The delivery of the generator is mandatory as part of the basic option. The Ordering Party also requires a separate valuation of this element as an optional equipment.

4.2.2. Accessories

The following accessories shall be attached to the main structure:

(1) Walkways, stairs, ladders and platforms

(2) Lighting necessary for the operation of the crane and lighting of walkways, stairs, ladders and platforms.

(3) A high quality vane anemometer that shall be affected by turbulence caused by the crane's own design during operation to the minimum extent

(4) Intercom system

(5) Luminous-acoustic warning device that operates at the time of driving

(6) Two loudspeakers mounted at yard level on each side of the crane, facing inside the crane

(7) Service sockets

(8) Emergency stop buttons

(9) Fire extinguishers

**4.2.3. General information**

All materials used in the Crane shall be brand new, of good quality and suitable for their intended use. Quality and manufacturing certificates from the factory shall be obtained for the major structural components and a register shall be strictly maintained to adapt the above to the various sections of the crane manufactured during production. Steel materials for all the above-mentioned elements shall be selected from among the materials whose parameters allow to operate and perform repairs in the environment of the temperature ranging from -25 to + 35ºC.

**4.2.4. Steel**

The steel used to manufacture the Crane shall be of the highest quality and comply with currently applicable internationally recognised standards and regulations

**4.2.5. Edge finishing**

All edges of the structure shall be free of sharp edges.

**4.2.6. Surface finish**

(1) All welding spatter shall be removed from the surface of the structure.

(2) Metal surfaces shall be cleaned and treated as defined in items 4.20 and 4.21 (Painting and protective coatings).

**4.2.7. Drainage and inspection manhole**

The steel structure and mechanisms shall be designed for effective drainage. Drainage water shall not affect continuity of operation, safety of operation or maintenance works during heavy rain.

##### Calculations. Documents to be submitted to the Ordering Party

(1) Apart from the documents listed elsewhere in the Specification, calculations of wheel load, stability, braking capacity and drive power for all movements, and for peak power consumption shall be submitted to the Ordering Party for review prior to proceeding to development of the detailed design. **A detailed list of the documents to be submitted is included in item 13 of Part I of this Specification.**

(2) Any other data or design calculations at various design stages shall be submitted at a request of the Ordering Party as part of the review process conducted during the construction of the eRTG.

**4.3.1. Audit**

The purchaser reserves the right to conduct a detailed structural and mechanical audit of the design proposed by the Supplier. The Ordering Party will cover the costs of its own employees and hired auditors.

To facilitate the audit, the Supplier shall provide, in a logical sequence and in complete packages, all relevant information about the major components and functional drives. It shall include:

- Relevant drawings allowing for an integrated audit of the design

- Appropriate calculations

- Sufficient drawings, in order to indicate how the components make up the conceptual design

- Calculations, in order to justify the Supplier's selection of such components as the hoist, trolley, crane frame and components e.g. motors, couplings, tubes, brakes etc.

The audit shall be conducted so as not to disrupt the Supplier's work, with the minimum effort and time frame necessary to conduct the audit.

**4.3.2. Calculations**

The design for the structure shall be calculated with the use of methods and procedures specified in internationally recognised design standards. Calculations shall be prepared and presented in a clear and precise format and demonstrate all methods and assumptions used in each element of the design.

Other data or design calculations at various design stages shall be submitted on a periodic basis at a request of the Ordering Party as part of the review process.

**4.3.3. Drawings**

The Supplier shall provide copies of drawings and electronic documentation in .pdf and .dwg formats, presenting structural details in order to allow for supervision over manufacture and construction by representatives of the Ordering Party or surveyors.

Drawings forming part of the design packages submitted for audit or appraisal to be carried out by the surveyors shall be in .pdf or .dwg formats (for easier reading, measurements etc.) and at least A1 size, so that they can be reproduced clearly upon receipt to allow for accurate examination and appraisal. If the drawings are in PDF format, they should be made in such a way as to preserve their legibility.

The Ordering Party, employees acting on behalf of the Ordering Party and third parties acting on behalf of the Ordering Party warrant that they shall keep trade secret in respect of the provided drawings and shall only use them for the purpose of evaluating the design.

##### Stiffness of the crane structure

(1) Deformation or oscillation of the structure shall not affect the performance of the Crane (in particular the positioning ability of the spreader).

(2) Horizontal displacement at girder level due to full acceleration or deceleration of the rated load trolley, or full acceleration or deceleration of the trolley when the rated load is suspended at the maximum top position will meet the applicable standards.

(3) The main structure shall be designed so as not to suffer damage if any elements are punctured.

(4) The two main girders shall be designed with sufficient convexity so that the main girders are horizontal under loading conditions. The Ordering Party allows the possibility to use a solution with one main girder, provided that the operating parameters of the crane mentioned in the Specification are met.

(5) The structure of the crane beams and supports shall be made of tightly welded steel elements.

##### Workmanship

(1) All structural manufacture and installation shall be performed in an accurate, professional manner and in accordance with the best modern practices in the manufacture of high-end metal structures.

(2) Welding of all crane components shall be done in accordance with the currently applicable laws and regulations in this respect and shall comply with all standards in force at the place of operation of the crane and under proper supervision.

(3) Welders and persons involved in the process of joining components shall be certified for the material, processes, type of welding and operations performed.

(4) Certificates of qualification for each welder shall be provided by the Supplier.

Welds installed with the use of unqualified procedures or welding performed by uncertified welders shall be subject to removal and rework by the Supplier at the Supplier’s own expense.

(5) The Supplier's Quality Assurance Team shall maintain an accurate register of qualified welders for the job. The register shall be reviewed at any time by the Ordering Party or the Ordering Party’s representative at the installation site.

(6) The Supplier's Quality Assurance Team shall ensure that all correct welding procedures are strictly complied with by welding staff. Any welding works found not to conform with the adopted procedures shall be stopped immediately and recorded as a non-conformity report. In such event welding may be resumed subject to approval by the Ordering Party's representative.

(7) The Supplier's Quality Assurance Team shall ensure that all welding works performed at low temperatures shall be conducted, as far as practicable, in an enclosed and sheltered area to ensure a controlled environment.

(8) In order to ensure that all laws, regulations and requirements applicable in the country of installation of the crane are fulfilled, the Supplier shall check, on its own, all requirements of the Transport Technical Supervision in Poland [*TDT - Transportowy Dozór Techniczny*], which will make acceptance of the cranes. If necessary, the Supplier shall submit complete welding documentation at an express request of the Transport Technical Supervision or the Ordering Party.

(9) The application of correct preheating procedures for welding processes shall be essential and strictly monitored by the Supplier, and may be subject to an inspection carried out by the Ordering Party's representative.

**4.5.1. Weld testing and inspection**

(1) All welds shall be inspected with the use of methods and to the extent that reflects the essential nature of the welded joint. Welds and their grade shall meet the requirements of cyclically loaded structures to the applicable standards including EN 1090 and be selected for the crane load and structural life specified in the Specification.

(2) The definition of the weld inspection plan and the indication of the required weld class will be shown in the documentation prepared by the Supplier. The weld inspection procedures will be submitted to the Ordering Party. The Ordering Party requires a visual inspection of 100% of the welds. Any other weld tests and evaluation of welds' compliance with the class of welds selected by the Supplier shall also be performed based on the EN 1090 standard.

(3) Rejection of any part of a weld checked at less than 100% shall require a visual inspection of 100% of that weld.

(4) Ultrasonic testing of welded strings shall be performed by or under the direct supervision of a person holding relevant certified qualifications or by a person holding equivalent qualifications.

**4.5.2. Structure manufacture quality control**

(1) Quality control shall be the responsibility of the Supplier. The Supplier shall implement a written quality control programme that will be part of the Supplier's Quality Assurance Manual, submitted to the Ordering Party for review within 1 month of signing the supply agreement. The Quality Assurance Manual shall also include the Supplier Inspection and Testing Specification.

(2) The quality assurance programme shall include information about the general principles and organisation of quality assurance during the design, procurement, manufacture and construction periods, along with identification of specific requirements.

The quality assurance programme shall also include the drawings and a schedule of recommended inspections to be carried out by the Ordering Party during manufacture, delivery and handover of the crane to the Ordering Party, along with proposed inspections and tests.

(3) As regards structural manufacture, it shall include, among others, the following elements:

- Inventory of incoming materials, consumables, components and machinery,

- Traceability procedures for materials together with identification codes to be issued in series and indexed to controlled production procedures,

- Cutting, fastening, welding, moulding and dimensions of structural components,

- Welding and inspection procedures that unambiguously identify the type and dimension of non-destructive tests conducted on the crane structure,

-Qualification and certification of welding and inspection staff,

- Maintenance and calibration of welding, processing, measurement and inspection equipment,

- Surface finish machining, bolt tensioning procedures,

- Procedures for reporting non-conformity (NCR) and punch list (PL) and defect remedy,

- Control and procedures for the design and production drawings and for revisions, updates and reissues of drawings,

- Procedures for cleaning, preparing, purging and painting material.

(4) The quality control programme shall comply with applicable requirements, laws and regulations.

**4.5.3. Quality Assurance Programme/Manual**

(1) The Contractor shall, within one (1) month of the date of concluding the supply agreement, submit a quality assurance programme to the Ordering Party for review.

2) The programme shall consist of the General Quality Assurance Programme, which shall define the Contractor's general practices and organisation for quality assurance during the design, procurement, manufacture and installation phases, and of a Specific Quality Assurance Programme.

(3) The Specific Quality Assurance Programme shall relate specifically to the Cranes and Related Equipment described in the supply agreement, which shall include a schedule for the provision of drawings/data for the Ordering Party’s review and the major items to be tested and examined during manufacture until the hand-over of the Crane or other Products to the Ordering Party, together with proposed dates and locations of carrying out such tests and examinations.

(4) The General Programme shall include both an organisational chart of the staff comprising the quality assurance team under the supply agreement, covering each major stage of manufacture, delivery and commissioning.

### 5. FUNCTIONAL DEVICES AND EQUIPMENT

Each of the components and subassemblies of the lifting system shall be clearly marked and identifiable.

##### Main hoist

(1) Couplings that connect the hoist gearbox to the hoist drum shall be manufactured by an internationally recognised manufacturer of this type of components. Wear markers shall be provided in a location convenient to view without disassembly of any component. In the case of solutions where there is no coupling between the drum and the gearbox, the solutions functioning at the Bidders are allowed, provided that they comply with the applicable standards.

(2) Calculation of brake compliance for the defined load shall be performed by the brake manufacturer.

(3) Acceleration from zero to maximum speed or deceleration to zero shall occur smoothly and continuously for all load combinations.

(4) The limit switch shall indicate and monitor the condition of the braking system. The brake shall be equipped with a LockOut system (with an additional manual release lever).

(5) The guards necessary for safe operation shall also be fitted.

**5.1.1. Sway control**

Spreader operations shall be supported with the use of an effective anti-sway system, which shall be electronic and/or performed with the use of a cable and pulley tensioning system. This system shall prevent from swaying rather than correcting. The Ordering Party allows another anti sway system, provided that the required crane parameters for sway control are submitted - point (3) below.

(1) The anti-sway/tilt device or the sway/tilt reducing system shall be effective in short range motion and also when stopped after full release. The operation of the system shall not change the lift of the spreader, with or without load, at any height.

(2) An effective anti-sway system of proved design shall be provided.

(3) The sway control shall bring the spreader to a stop when the trolley and/or crane is fully released from full speed with any operating load (operational braking, not emergency braking) ~~within 150 mm~~ at half lift height measured at the lower corners of a 40’ container or at the twistlocks of an unloaded spreader. It shall be able to bring the spreader to a stop within 2.5 swaying cycles. Any fading (trace) elements of sway after the period of 2.5 cycles shall not stop or prevent further handling operations.

(4) It shall be possible to adjust the tilt with the use of the buttons at the left-hand joystick at the ROS or as otherwise agreed with the Ordering Party.

(5) Braking during operation shall be performed electrically and continuously.

(6) Lifting ropes of internationally recognised manufacturers that provide for high quality and durability shall be used.

(7) Lifting mechanisms and motors of internationally recognised manufacturers providing for high quality and durability shall be used.

(8) The rope drum shall be manufactured from welded hot-rolled sheet and shall be grooved. In the lowest lowering position, the rope drum shall have at least 2 additional safety windings.

(9) The hoisting winch shall be equipped with disc brakes from recognised producers with parameters selected by the brake producer that can safely brake the load in the event of an emergency stop.

(10) Hoist brakes of internationally recognised manufacturers that provide for high quality and durability shall be used.

(11) Limit switches and an emergency limit switch shall be provided for the highest position of the lifting mechanism.

(12) Load-measuring elements shall be incorporated on the torque transmission handles of lifting mechanisms for the purpose of automatically cutting off excessive or unevenly distributed loads.

(13) The overload system shall be equipped with special load pins or other devices which measure the total load.

(14) The system shall consist of:

* monitoring, which prevents the lifting movement in the event of a fault in the measuring device
* tare adjustment
* monitoring loose ropes
* overload warnings on the lifting system + visual
* warning when the weight is close to the maximum crane load
suspension of work during detected overload (danger sound and danger light)

(15) The overload system shall be equipped with a bypass to protect against unauthorised use. The bypass shall allow for lifting the load at 110% and 125% during the required tests carried out by the Transport Technical Supervision. The Ordering Party accepts the possibility of installation of bypasses in electronic or keyed form.

**5.1.2. Trim/skew control**

(1) The cranes shall be equipped with a system that allows for additional handling movements of the spreader, such as tilting the container within the minimum range of +/- **5°** and trimming the container with the minimum range of +/- **2,5°**

Both functionalities shall operate both simultaneously and separately

(2) One button on the control console shall automatically correct the spreader position to the ‘zero’ position.

(3) The ‘zero’ position shall be indicated in an effective way on the ROS panel.

(4) The system shall be operated electrically.

##### Trolley

**5.2.1. Trolley frame**

(1) The trolley frame shall be equipped with main hoist devices, drive devices, trim device, and bumpers (or buffers) for forward and reverse collision movement. The bumpers shall be able to absorb and dissipate the impact of a full speed collision with the rated load.

(2) The trolley frame shall be equipped with drop-stop safety switches to support the trolley in the event of wheel or axle failure.

(3) The trolley frame shall have lifting points for trolley wheel and wheel bearing replacement. The housings shall be split or designed so as to allow for easy removal of wheels and axles.

(4) The trolley frame shall be located within the safe maintenance platform and access to all its components and maintenance equipment shall be provided.

(5) A camera recorder made of weatherproof material shall be installed to assist the operator in monitoring the far side of the lifted container from the underside of the trolley frame.

**5.2.2. Trolley wheels and steering system**

(1) Trolley drive

The trolley drives shall be mounted directly on the trolley.

The four electric motors shall be equipped with a speed controller and an emergency brake. The trolley drive system, as well as the wheel, shaft and bearing systems, shall be designed so as to allow components to be replaced easily and quickly at any trolley location. Replacement of the trolley wheel shall not take more than 1 hour for 2 persons. The Ordering Party does not accept the use of a chain drive for the trolley.

(2) Trolley gearbox

Gearboxes shall be fitted with hardened, tempered gear wheels that provide a high degree of accuracy and quiet operation. Gearboxes shall be fully enclosed units with oil bath lubrication.

(3) Trolley brakes

The trolley system shall have the number of brakes equal to the number of drive motors. Each emergency brake shall be electromagnetically triggered. In addition, manual unlocking equipment shall also be installed. To ensure a fast emergency stop of the trolley (initiated by safety features of the trolley/crane or by human pushing a kill-switch) each motor (or wheel) needs to have an emergency brake installed. This translates into 4 emergency brakes on the trolley. Additionally, each electric motor needs to have an electrodynamic braking ability.

(4) Trolley bumpers

On the main beam at the end stops of the trolley movement, four bumpers shall be installed at each trolley corner.

(5) Lifting system

The hoisting winches shall be placed on the trolley and be equipped with at least 2 electrical drives and a gearbox. The drive shaft shall be equipped with a suitable brake that can cope well with the rope system used by the Supplier. The Ordering Party accepts the solution based on a 4 or 8 rope system with the appropriate adjustment of the number of electric drives. At the same time, the Ordering Party points out that irrespective of the number of ropes, the remaining parameters of the crane, in particular those relating to anti-sway control, should be ensured.

(6) Hoisting winch rope drums

Rope drums shall be equipped with spiral grooves for proper rope lay, sufficient for the total length of the rope, and have an adequate margin. The Ordering Party shall also accept other types of solutions

(7) Ropes

Standard ropes shall be used, as readily available on the market.

The theoretical wear time of the ropes shall not be less than 8,000 mths

Ropes shall be suitable for the strength of 1960 N/mm2 and the minimum tensile strength of 473 kN

(8) Pulleys

Hoisting winch pulleys shall be made of steel or strong, hard polyamide (Lamigamid) or equivalent material.

**5.2.3. Service lift**

An electrical auxiliary hoisting winch shall be provided at the top of the crane for servicing works to be carried out on the trolley and for transporting spare parts and subassemblies from the ground level up to the height of the beam bridge, of sufficient capacity to carry the subassemblies. The Ordering Party did not indicate a specific load capacity of service lift, but specified that it should be sufficient to carry the crane components. Should it be necessary to move a component heavier than the lifting capacity of the auxiliary lift as part of maintenance during the guarantee period, the Supplier shall bear the cost of the lift.

Since the hoist is exposed to precipitation, it shall be enclosed with watertight material. The Supplier shall prepare documentation to obtain the approval of the Transport Technical Supervision in compliance with the requirements under Polish laws and regulations for the hoist, which is treated by the authority as a unit independent of the RTG, subject to registration and obligatory inspections.

**5.2.4. Power supply**

The trolley power supply shall be provided with the use of a flexible cable guide. It means that all electrical cables, including power cables, control cables, connecting the crane wiring to the trolley through the power/cable chain. The cables shall be laid in a reinforced plastic cable chain tray and insulated against UV radiation, oils and weather conditions. The chain shall be located in a corrosion resistant guide attached to the crane structure. The power system shall be suitable for the maximum speed of the trolley, as described in this Specification, and shall be supplied by an experienced manufacturer.

(1) Power and control cables shall be routed to and from the trolley in systemic cable chain solutions from internationally recognised manufacturers.

(2) The Supplier shall submit design calculations approved by the cable chain manufacturer to demonstrate that an analysis has been made taking into account appropriate factors in respect of the following parameters:

- Spacing and bending radius of the cable in each position, including the allowances recommended by the manufacturers.

- Adequate allowance for cavity fill, including manufacturers' recommended safety factors.

In each case less than 60% of the total cross-sectional area of the cavity.

Uniform and symmetrical weight distribution in each conveyor cavity.

- Adequate consideration of the separation of dissimilar cables along with consideration of cable replacement.

(3) Cable conveyors shall have additional sockets for additional cables (in addition to the sockets specified for spare cables).

(4) The cable system shall include 20% spare control cables of each type/size.

(5) All cables shall be purchased from a cable conveyor supplier who shall confirm that they are suitable for the application.

(6) Access to the energy chain system shall be provided with the use of a fixed walkway and a platform. The manufacturer's recommendations shall be strictly adhered to for installation in terms of details and tolerances. A trolley platform may be used to access the energy chain system, if it provides safe access and handrails are fitted.

(7) The system design shall not generate water collection areas between the cable and the chain or outward between the chain material and the crane structure.

**5.2.5. Energy chain**

Electricity shall be supplied to the trolley through a flexible energy chain, the guides of which shall be installed inside the sheltered spaces.

The range of the required operating temperatures of the guides: -40°C to +40°C

**5.2.6. Cables in the energy chain**

The cable routing system in the guides shall allow for quick and easy cable replacement. Cables shall be secured and routed in a manner that eliminates tension/stretch. Cables used inside the guides shall be intended for indoor use and supplied by the same manufacturer as one set. The permissible cable bending radius shall be in accordance with the guide system. The operating range for copper cables shall be -35°C to +90°C and -35°C to +60°C for optical fibres.

##### Crane

**5.3.1. Crane drive**

The hoisting winch, trolley and crane travelling drives shall be variable frequency, continuously adjustable AC drives, developed specifically for eRTG cranes.

(1) The crane drive and braking system shall provide sufficient thermal capacity, torque and traction under all operating conditions, including continuous operation at full load.

(2) Acceleration and deceleration forces shall not cause wheel loads exceeding the limits defined in the Specification.

(3) The crane drives shall be capable of accelerating and decelerating the crane and its components both under and against wind loads without adverse heating of any components.

(4) The drives shall be equipped with anti-condensation heaters and overload protection.

(5) Circuit breakers and overload devices shall transmit status and fault signals to the CMS crane surveillance system.

(6) Brakes for crane operation shall include electromagnetic, spring-loaded disc brakes mounted on each crane drive. The dynamic ratio shall be greater than 100% of the maximum brake down engine torque (BDT), but not greater than 150% of the maximum brake down engine torque. In the case of crane drives, the provisions of EN 15011: 2020 standards apply. The thermal capacity of the brake shall be sufficient to stop the crane from its rated speed in accordance with the direction of the maximum acting wind without suffering any damage even if the emergency stop button is pressed without any assistance from the wheel brakes. Each brake shall be equipped with a strong, lightweight, snap-on and rainproof housing (except for the brake integrated with the motor). The brake design calculations and selection shall be formally approved by the brake manufacturer and the approval shall be submitted by the Supplier to the Ordering Party.

(7) The crane drive shall be self-contained within its drive trolley and transmitted by a fully enclosed, oil-lubricated, conic and/or helical bevel gearbox with one motor and one wheel drive motor. The motor shall be flange mounted to the reducer.

(8) Crane components shall be protected by proper placement or by the provision of substantial protective features to prevent damage due to movement.

(9) The crane trolley shall be equipped with safety features in the event of wheel or wheel shaft failure.

(10) Each trolley and balance beam shall have appropriate lifting points to facilitate lifting for simple removal of any wheel without disassembly of the trolley or balance beams. The load and lifting position shall be chosen so as to prevent overloading of the surface structure.

(11) Wheels and gears shall be equipped with robust safety protection measures.

(12) The movement of the crane shall be prohibited whenever the service lift is in use, when the movement of the service lift is activated.

**5.3.2. Crane anti-collision system. Anti-collision systems**

(1) Both cranes shall be equipped with at least two separate, independently operating anti-collision systems that automatically slow down, alert and eventually stop the equipment in dangerous situations, such as:

* when approaching the runway end
* when the devices approach each other,
* when approaching other handling equipment at the terminal (e.g. reach stacker)
* if there is an obstacle on the runway;
* if there is an obstacle or a person in the working area of the crane (clearance line)

**The** ‘**whiskers**’

The system that stops the crane in the event of a collision. The movement of the crane shall be stopped as soon as one of the ‘whiskers’ touches the undesired object. The whiskers shall be installed at least on each corner/leg of the crane (in all directions of crane movement) and on the protruding elements forming the crane gauge

**Anti-collision system**

Reliable laser or radar devices shall be installed at each of the four corners to prevent collision with any other crane, vehicle, container and other objects. The system shall operate without interruption in all weather conditions (heavy rain, snow, darkness, fog, etc.)

If the anti-collision systems are to be operated with the use of radio devices transmitting at frequencies which require an appropriate permission, the crane Supplier shall be obliged to obtain a permission from the Electronic Communications Office *[UKE - Urząd Komunikacji Elektronicznej]*. The frequency of operation of the crane equipment may not interfere with other terminal equipment or railway systems located on the tracks of PKP PLK S.A., running on the border of the terminal in Kutno.

Radio devices to be installed on cranes by the Supplier may not interfere with other radio devices used by the Ordering Party.

(2) The system between the cranes shall be based on a long range sensor set up to detect eRTG cranes moving along the crane path. The system shall be able to detect other eRTG cranes and other handling equipment.

(3) A sound warning that the crane is approaching an obstacle shall be provided at the ROS, and slowing-down/stopping functions shall be provided automatically in a logical sequence in the travel direction.

(4) A highly desirable anti-collision solution between two cranes is one based on mutual communication of the current position of the cranes via a reliable fibre-optic connection (optical fibre embedded in the power supply cable). Due to the possible operation of two cranes in one stack, an additionally expected, but not obligatory, solution is one in which the cranes communicate their positions to each other on an ongoing basis through fiber optic cables routed in the power cable (described in point 3.7 page 17). Communication between the cranes is to ensure speed adjustment and avoid sudden braking and collisions in the event of approaching cranes. It is logical to include point 3.7 to apply optical fibers also for anti-collision, thus the optical fiber scenario is highly desirable but not mandatory.

**5.3.3. Crane CCTV**

Camera recorders shall be placed on the outer corners/legs of the crane, so as to provide the operator with a live view while the crane and trolley are in motion and the possibility of monitoring during container handling operations. The CCTV monitor shall not limit the visibility from the operator's seat. All installed CCTV systems shall be based on IP camera recorders with HD resolution and IP DVRs. The DVRs shall be installed in secure cabinets with restricted access. Communication between DVRs and camera recorders shall be provided via IP data network allowing for interference-free communication.

CCTV camera recorders shall be placed on the crane in a manner that will not interfere with normal operation or maintenance. The place of installation of camera recorders, angle of view, lens focal length and other parameters shall be chosen so as to provide for full visibility of the areas around the crane at the ground level on both sides of the container stack. The additional camera recorder should provide an overhead view of the crane's operations from the perspective that the view from the operator's cabin would provide if the cabin was installed. Camera recorders shall be mounted so that they are accessible for servicing works, with minimised necessity for use of lifts. The system shall allow for live viewing from the ROS and recording the video image, both during the day and at night.

The camera recorders shall be suitable for the environmental conditions prevailing at the installation site, as defined in the Specification. Additional CCTV camera recorders shall be placed in the inner legs, intended for:

* safe handling of containers
* a good view of the container being handled and of the truck cab
* positioning the container on the fixing bolts at the semi-trailer The Contractor shall perform all actions connected with testing and certification of the systems to demonstrate fitness for purpose. The equipment and cabling shall satisfy regulatory requirements and provide adequate protection from local conditions with respect to the IP rating of the equipment.

**Specification of DVRs:**

* IP camera recorders
* H.264/H.265 video compression
* Internal high-performance mass storage that can be easily replaced for downloading or saving recordings or for maintenance purposes
* Possibility of storing at least 30 days of recordings for all camera recorders at full resolution (min. 30 FPS)
* Standard of connection and communication between devices that provides for continuous, uninterrupted operation
* Possibility of sending e-mail alerts and notifications via SMTP on a custom port
* Conformity with NTP
* Possibility of exporting recordings via IP and high-speed connection for data storage
* Weather resistant

**5.3.4. Path control / automatic control system**

A guidance system ensuring that each crane maintains its travel path without the necessity for the operator to keep controlling the crane manually while travelling along the runways. It shall be a reliable, proved technical solution that shall provide for smooth movement of the crane (along with appropriate coiling of the power supply cable), called ‘automatic control’, ‘virtual path’, ‘virtual rail’, etc., implemented in accordance with the best market solutions, such as DGPS, providing for continuous operation, regardless of weather conditions.

It is necessary to satisfy the condition of accuracy of maintaining the runway over the entire working distance, for each of the cranes, 2 x 210 m, respectively. Tolerance of max. ± 15 cm from the wheel travel axle. The crane shall run on the rail indicated on the drawing in Annexe No. 7a.

##### E-house

**5.4.1. General structure**

(1) The e-house shall be equipped with a complete set of air conditioners, electrical heaters and fans. Air conditioning and heating shall be maintained at approx. 20°C and 50% humidity and provide for adequate air exchange and circulation. Air conditioners and heaters shall be duplicated, in case one of them fails, to allow for the use of the crane until the repair.

(2) The e-house floor shall be fully equipped with a rubber mat providing 1000 Volts of anti-static protection. Ample space shall be provided in the e-house for all equipment for the Crane Management System.

(3) All electrical cables installed under the floor shall be easily accessible.

(4) Access doors shall be equipped with non-corrosive heavy duty locks, safety windows in upper panels along with a drainage system.

(5) The Supplier shall provide locker / compartment / small storage box for documents or small items, e.g. small spare parts with a lock inside the e-house.

**5.4.2. Fixtures, objects placed in the e-house**

The e-house shall be equipped with diagnostic tools and PC interfaces (USB), including software providing easy access to the equipment installed on the crane, including among others:

* Generator/battery control panel
* DGPS or other reliable system
* Digital displays
* Drives
* Parts of the communication network

The software shall allow for calibration of all parameters and maintenance of the equipment. All access codes shall be accompanied with instructions describing what they relate to, along with the user’s manual.

All software shall be installed on a PC, to be located at a desk in the e-house.

The installation version of the software installed on the PC along with all licenses shall be provided on an external data carrier (e.g. pen drive).
One complete set of diagnostic tools per two cranes shall be provided to allow for diagnostics on each crane.

Other minimum requirements of the Ordering Party for the e-house equipment:

* Button switches for the main control circuit, main power source for motion, and lighting switches.
* Main voltage supply switch and remote control switches.
* Main drive control panels for hoist, trolley, and crane movements
* Transformers.
* Auxiliary power source panels.
* LED lighting, providing uniform illumination of the working area of not less than 150 lux.
* Intercom.
* Proper meters and counters.
* Fire extinguishers suitable for electrical systems.
* Service sockets.
* Central distribution panel for the crane lighting.
* Two (2) heaters / air conditioners suitable for continuous operation, if required. Provided that the operation of air conditioners while the crane is not operating shall not lead to a detrimental effect on the power factor. (POWER FACTOR).
* Safety lighting system with safety lamp power backup for at least 1 hour. Lamps switched on automatically in the event of crane power break. The backup batteries shall be charged automatically by appropriate devices.
* Additional 2 air conditioner in E-house as a backup in case of failure or service.
* An automatic fire detection system in the control room, equipped with a smoke detector in each individual control room panel near sensitive components, such as transformers or switches. Information about a fire shall be sent to the operator in accordance with an agreed procedure that will eventually lead to the automatic and safe shutdown of the crane if critical conditions are reached.

There shall be one keyed button in the e-house to switch standard operations to the ‘creep motion’ for maintenance and servicing purposes. In the ‘creep motion’ position, all maximum speeds shall be reduced to 1-10% of the standard maximum speeds.

**5.4.3. Electrical equipment**

(i) The electrical equipment shall comply with currently applicable quality and safety standards

(ii) All accessories, such as motors, contactors, PLCs, etc., shall be supplied by internationally recognised manufacturers that provide for high quality and durability.

**5.4.4. Switches**

The Supplier shall provide one crane main switch in the e-house for all drives and controls, and one switch for auxiliary equipment (lighting, heating, sockets, etc.). Both switches shall be made as power switches. The Ordering Party expects the cranes to have two independent electrical circuits.

*Fire safety devices*

The crane shall be equipped with fire extinguishers in accordance with applicable laws and regulations, e.g. in the e-house, and with an automatic fire detection system.

*Emergency stop and transition buttons*

All gates between mobile and fixed platforms shall be equipped with gravity closure, with a high quality weatherproof electric lock. The opening of any of the transition gates shall result in the immediate shutdown of trolley movement.

All limit switches shall be suitable for the weather conditions prevailing at the crane installation site and have a protection factor of IP65. Each limit switch shall be part of a monitored circuit checked by the PLC for correctness and error data recorded.

*Standard emergency stops*

After pressing the safety switch the emergency stop shall disconnect the power supply of all crane drives and halt the crane existing operations. The power supply shall be disconnected while the brakes are on.

Main emergency stop switches shall be installed at the following locations:

* E-house x 1
* Switchgear on the trolley x 1
* Console at ROS x 1
* Crane travel mechanism corners x 4
* Upper beam corners x 2
* Spreader x 1
* Entry to hoisting winch area x 1
* Cable reeler area x 1
* Auxiliary diesel drive (if the Ordering Party chooses the auxiliary generator as optional equipment)

All emergency stop switches shall be red, mushroom type and self-locking.

##### Hoisting winch

* Emergency limit switch for highest load position (switches in emergency stop circuit), including bypass circuit breaker for testing purposes
* Limit switch for operation above (with the use of a sensor)
* Limit switch below (with the use of a sensor)
* Lockout in case of overload, complete and for each lifting mechanism (key switch or bypass circuit breaker). There shall be installed shafts for measurement of the load on the torque transmission mounts of the gearbox or on the rope ends.
* Overspeed switch - excitation weakening control (switches in the emergency stop circuit)
* Switch if the spreader has fastened the container on one side only

The pre-disconnection shall be carried out independently of the speed in order to guarantee smooth availability of the limit switch.

*Trolley travel mechanism*

* Limit switch at the front and at the rear

*Crane travel mechanism*

* Limit switch on the left and on the right

##### Crane wheels

(1) The Supplier of the eRTG cranes shall adjust the solutions to be supplied to static and dynamic loads, taking into account the parameters of the rail on which the crane wheels run.

(2) The Supplier shall use synchronisation of drives, so that both sides of the crane move at the proper speed, while maintaining perpendicular alignment of the crane to the rail on which it moves.

(3) Wheels of the eRTG crane shall be suitable for tubeless tyres of the size of at least 24 inches. The life of the wheels and rims shall be designed for the life of the crane. The inner surface of the wheel, i.e. the place where the tyre is fitted, shall be covered with an anti-corrosion coating. The life time of the rims shall not be worse than the parameters of the M7 classification (table in Part I of the Specification, point 11), while the guarantee for the tyres shall be in accordance with the guarantee for the cranes. The gantry crane is made of wearing parts and should be replaced and maintained in accordance with the Supplier's instructions.

(4) Tyres

(a) The crane shall be factory fitted with 16 wheels with tyres of a recognised premium brand.

(b) All tyres shall be tubeless, of a standard size, not less than 16.00-25 or 14.00-24.

(c) the outer wheels shall be fitted with the best contemporary passive means of protecting pedestrians and objects against collision, such as low bumpers/guard.

**5.6.1. Tyres and rims**

Robust rims, tubeless industrial tyres from a recognised premium manufacturer, suitable for use on eRTG cranes. The air pressure in the tyre shall be approximately 10 bars. The tyre pressure shall be continuously indicated for each tyre in the crane management system. These data shall be stored for at least 1 month. If the pressure is below or above the permissible pressure, the crane system shall alert the operator by displaying in the system / operator panel the pressure together with the location.The time needed for the wheel to turn by 90 degrees shall be no more than 120 seconds and shall be supported by differential axles to reduce tyre wear.

**5.6.2. Brakes**

Road wheel brakes shall be capable of smoothly regulating the braking and acceleration force as well as of manual deceleration.

**5.6.3. Steering system and turning wheels**

Steering and turning shall be possible on each of the crane drives and allow the wheels to turn up to 90 degrees. The steering system shall be designed for at least the following wheel-locking positions:

* all wheels aligned in the crane travel direction used in normal eRTG operation
* all wheels angled at 90 degrees to drive to other stacks/sections
* all wheels adjusted in such a way that the drive system may rotate around its axis (rotary drive/rotation)

The drives shall also be able to control the crane at different speeds on each side of the crane.

**5.6.4. Wheel load**

The maximum dynamic load (including the weight of the power cable) shall be in accordance with item 3.12 (3) of this Specification.

##### Access to the crane

The e-house, engine room and all other components which require routine maintenance or inspection shall be easily accessible with the use of fitted stairways and platforms. Access to the cable reeler, trolley or fire escape route may be via ladders. Stairways, sidewalks, platforms, ladders and platforms shall be made of galvanised and anti-slippery materials. Hot-dip galvanizing and painting are allowed in order to provide the best protection against corrosion. Any ladder located above the ground level shall be fitted with a safety cage, in accordance with the applicable laws and regulations.

(1) Access to the crane (ingress/egress) shall be provided at the driven support from the southern side of the terminal as a lockable folding staircase with transition platforms together with access to the main beam. The Ordering Party accepts the solution to provide a permanent staircase from the ground to the main beam for safety reasons, but access to the crane must be closed for safety reasons.

(2) Platforms shall be provided to allow access to the trolley.

(3) All walkways shall be equipped with self-closing doors secured against inadvertent opening. Account should be taken of the applicable legal provisions in this respect.

(4) The main beams of the crane shall be equipped with galvanised platforms allowing for pedestrian access and finished with an anti-slip surface.

If the maintenance manual does not require maintenance activities on one side (including access to lighting, antennas, etc.), a platform on only one of the beams may be used.

##### Crane travel mechanism

The crane drive and braking system shall be adapted to all operating conditions. The travel system shall consist of at least four electrically driven units. Drive units shall be accessible from the ground level. The driving axle shall consist of an electric motor with a brake. The Supplier shall supply a complete system allowing for pushing/towing, which shall be included in the price of the cranes. The system shall provide for safe pushing/towing in any of the four main directions of the crane travel in the event of failure of the main power/transformer, etc. Pushing/towing points shall be located in an easily accessible place for maintenance staff.

All axles shall have adequate lifting points and safety guards.

The automatic steering system shall provide power assisted driving and route corrections shall be made automatically by the speed differential of the propulsion motors

(1) The crane shall move on rubber wheels along marked runways designed for travel. Due to space constraints at the terminal in Kutno, the Ordering Party does not envisage crane travel other than along marked lanes. The width of each lane is 3000 mm, and the runway may not come within the distance of less than 27 cm from the edge of the runway.

(2) Requirements for crane wheels in accordance with items 5.6 and 5.6.1

(3) Safe travelling and operation of the crane shall be provided in each direction at the rated speed under wind load conditions up to 22 m/s

(4) The crane drive shall be made with the use of gear motors with integrated disc brakes (parking brakes). The connection between the gearbox and the clutch shaft shall be made in such a way that it can be easily unscrewed, even after many years of service. Motors shall be selected for energy efficiency and braking energy recuperation.

(5) Drives of internationally recognised manufacturers that provide for high quality and durability shall be used.

(6) The automatic straight track guidance system shall allow the ends of the runways to be programmed by the service and the crane stopping point to be changed (in the event of a decision to extend or shorten the crane working area)

##### Spreader

(1) A spreader of internationally recognised manufacturers that provide for high quality and durability shall be installed for each of the cranes.

(2) Fully electric, controlled from the remote operating station (ROS), made by a leading and experienced manufacturer, made of high quality steel, equipped with an electrically controlled guidance system (four flippers), automatically adjustable to handle 20’, 30’ and 40’ containers. At the time of lifting, the flippers shall lift automatically, taking into account the available space around the spreader.

(3) Equipped with lifting handles, min. 4x10 tonnes each, in the corners of the end beams for handling damaged containers, and with a robust cable cage for the power cable. The cable shall be easy to replace and have simple connection points on the spreader and trolley.

(4) The spreader shall be designed for lifting containers and the design calculations made shall also take into account the degree of uneven load distribution inside the containers. The criteria adopted shall assume that the centre of gravity of the load can be shifted axially and laterally from the centre line.

In addition, the above-mentioned functionality shall also be taken into account when lifting loads with the use of grips mounted on the spreader end beams.

(4) Electric motors mounted at the spreader shall draw electricity only when loading operations are performed. Electrical fittings and cable chain system shall be well protected in the main frame. All components shall be easily accessible for servicing and maintenance works.

(5) The spreader shall be fitted with a height monitoring system to provide for safety by signalling to the operator when approaching the top of the container

(6) Electrical systems shall monitor the operating status of the spreader at all times. Controls shall alert the operator when the spreader is misplaced, locked, or not locked. Each signal shall be a condition for protective functions of the spreader (twistlock activation, telescope unfolding)

(7) The electrical cabinet shall be mounted on the spreader frame with special shock absorbers to minimise damage to electrical components during handling. Cabinet waterproof level IP66

**Lifting capacity:** 40,5 tonnes (+/- 5%)

**Slings:** 4 x 10 t

**Telescope unfolding speed**: 20' to 40': no more than 25 seconds

**Flippers:** electrically foldable

**Twistlocks:** life min. 100,000 cycles, quickly changed, so-called floating, which allow for movement in all lateral directions to ensure effective positioning in the corner castings of the container**,** turning force of 250 Nm.

(8) The weight of the spreader shall be selected optimally for the required crane type.

(9) Twistlocks shall be in accordance with ISO standards and mounted on rotary bearings. Locks shall be located adjacent to twistlocks and shall lock mechanically, provided they are not located on the container. The loss of lift signal shall be transmitted directly by proximity sensors.

(10) Movement of twistlocks from the ‘unlocked’ to the ‘locked’ position shall be mechanically and electrically secured until all 4 twistlocks are fully fitted into the corner castings of the container and the entire spreader is laid on the container. Unlocking the twistlocks from ‘locked’ to ‘unlocked’ position shall be impossible during lifting or when the container has not been put down.

(11) The spreader shall have a mechanism that prevents from overloading in the event of freezing at temperatures below zero (e.g. in the form of a clutch with adjustable torque to disconnect the system and to prevent from tripping of electrical protections).

(12) The spreader shall automatically adjust to the 20', 30' and 40' positions after the operator selects the desired container length.

(13) The first three seconds of the container position change and the last three seconds shall be done with the motion slowed down to minimise impact.

(14) In order to allow for lifting damaged containers or specifically shaped loads, lashing rings shall be installed in the four corner casings of the spreader near the twistlocks, to allow for attaching a sling.

(15) All mechanical and electrical components, including cables, attached to or operating at the spreader shall be protected from the effects of frequent impact and vibration during operations. All fasteners shall be self-locking or loosening-proof.

(16) In addition, power cables connecting moving parts shall be protected against mechanical damage.

(17) The spreader control shall be integrated with the crane management system (CMS). Functions shall appear as individual messages in the CMS.

(18) The signal lights (yellow red green) shall be in the form of LEDs against the black background. Duplicate lights are preferred. The light shall be visible under all lighting conditions. The spreader shall be fully weatherproof.

(19) The spreader shall withstand min. 2 million cycles, and rope wear time shall be min. 80000 movements at the intensity of operation assumed by the Ordering Party and correct servicing, and the safety factor shall meet the parameters provided for the loads referred to in the Specification.

(20) The spreader shall be equipped with an operation counter.

**5.9.1. Tilting/trimming on the spreader**

The cranes shall be equipped with a system that allows for handling operations with a container, taking into account the slope of the terminal slab. The tilt (trim) on the spreader shall be no less than 5° longitudinally (on the longer edge of the container) and not less than 2.5° transversely (on the shorter edge of the container).

The Ordering Party requires tilting/trimming because of some unevenly loaded trucks or not properly leveled chasiss and the cross-slope of the yard of 1 to 2.5%. Skew and trim will be performed on the trolley, not on the spreader, as long as such solution does not limit the operation of the crane in automatic mode (in the future).

**5.9.2 Spreader power supply**

The spreader power supply cable shall be placed in the cable cage located on the spreader frame. The spreader power supply cable shall be a shielded cable made of PVC with an appropriate load. Its strength shall be suitable for the weather conditions, the intensity of the operations and the dynamic loads occurring during all types of handling operations. The cable shall be terminated with a plug that allows for quick disconnection.

##### Remote operation station.

The cranes shall not be equipped with operator cabs; control shall take place on a remote basis. The Supplier shall provide two fully equipped operator stations allowing for remote operation of each crane (ROS). The stations shall be complete and equipped with devices, software and solutions necessary to carry out the operation of the cranes in the mode described in item 3.4. In particular, as part of the remote control station, there shall be provided, among others, a video server and a redundant video server as well as all devices and their connections allowing for communication and data transfer among the servers, the crane and the TOS. The remote operating station and its two stations shall be prepared to control 6 cranes. The place of the operator's work shall ensure safety and ergonomics during the work performed. The set of monitors used in the supplied station will provide the operator with an excellent view of the area in which he works and performs handling operations.

The crane control at the remote station shall be performed by an operator working in a sitting posture. The crane shall be controlled through ergonomic consoles with industrial, robust joysticks and other control devices selected by the Supplier.

The operator station shall be equipped with the following signalling system: ready to connect (yellow), locking (green), unlocking (red), wind warning (blue), wind alert (red). The signalling system shall be placed on the operator’s monitor, and in the event of auxiliary lights (concerning wind strength) alternative solutions are acceptable, to be confirmed by the Ordering Party.

In addition, the Supplier shall equip the station with:

* Safety system to prevent unauthorised use of the crane. An access point should be provided at the operator station that allows the crane to be started and operated only after the operator has placed a magnetic card in the reader. The system shall register card numbers and recognise the name of the operator assigned to a particular card number, it is recommended as an open 125 kHz RFID system allowing the Ordering Party to program access cards/locks, including adding those already used to provide access to other devices
* Telephone connection to other areas of the crane.
* Microphone and speaker system
* Warning signal (horn)
* Radio
* TOS tablet/terminal unit power holders
* CCTV system - control and display

There shall be an ergonomically placed digital screen monitor in the station, ensuring good visibility in all lighting conditions and displaying at least the following data continuously:

* Fault/alarm indications
* Current load
* Spreader height
* Travel position of the trolley and crane
* Current wind speed
* Trim/tilt angle
* Twistlock status (unlocked, ready to turn, locked)

The seat shall be suitably and ergonomically designed, electrically adjustable forwards and backwards, up and down and shall also be capable of rotation. The seat back shall have different reclining positions and adjustable lumbar support. Designed for men and women weighing up to 150 kg. The upholstery shall be made of leather. 2 sets of seat covers (easily replaceable) shall be provided.

The communication system shall allow operator's communication with persons on the ground near the crane and shall consist of a microphone, an amplifier and a speaker. Speakers shall be placed at least in the following locations:

* 1 x speaker at the operator’s station
* 4 speakers on inner legs - one speaker per leg/support

A telephone system with its own, independent power supply shall be installed on the crane. The system shall include at least the following locations:

* Headphones with a slot and a power cable in the e-house and at the operator’s station
* Headphones with a power cable at ground level at the main entrance and on the trolley at the switchgear

Headphones, plugs, cables and other equipment shall have adequate protection against the weather conditions.

##### 5.1. Cabling between the server room and the ROS room.

As part of the commissioning of remote control stations, the Supplier will ensure the delivery, assembly and connection of all infrastructure necessary for their operation (components such as servers, video servers, switches and others). The Ordering Party will make cabling between the server room and the room where the remote control stations will be located. The cabling will be performed by the Ordering Party prior to the delivery of the crane according to with the Supplier's detailed guidelines provided to the Ordering Party in writing within 2 months from the date of signing the contract.

The work on the Supplier's side will include ending and connecting the optical fibers introduced by the Ordering Party to the server room to the system components provided by the Supplier and installed in the Ordering Party's server room, installation of these components, connection of the components in the server room to the remote control station as well as ending and connecting in the operators’ room as well as configuration and commissioning of the entire system. The servers and switches required for the operation of the system should be placed in a standard lockable rack provided by the Ordering Party and **in accordance with the Supplier's guidelines** (full height, e.g. 42U).

The parameters of the rack cabinet as well as the power demand of the devices that the Supplier plans to install in the server room will be provided to the Ordering Party in writing within 2 months from the date of signing the contract.

If additional components were required for the operation of the system, e.g. a time server (NTP and a redundant videoserver), they would also be included in the scope of delivery on the Supplier's side. Image (video) servers should ensure the recording of the image sent from the cameras on the crane for control purposes for 45 days.

##### Electrical systems and switchgears

(1) Electrical systems shall be laid in galvanised conduits, grated cable trays, and open cable shelves. Cables in horizontally installed cable racks shall be attached with the use of stainless steel cable clamps with neoprene washers.

(2) Devices with low electromagnetic resistance (BUS interfaces, incremental encoders, wind meter, etc.) shall be connected with shielded or separately laid cables or fibre optic cables.

(3) PLCs and frequency converters shall be centrally installed in the e-house.

(4) Connecting boxes / switch boxes / control panels mounted outside the crane shall be made of stainless steel with the minimum degree of protection of IP65, equipped with hinged doors and anti-condensation heaters. All components shall be properly grounded. Lack of anti-condensation heaters is accepted only in case, if external connecting boxes / switch boxes / control panels are in high class protected from moisture/condensation and dust.

(5) All electrical switchgears installed on the crane shall be of suitable industrial type and consist of standard electrical components.

(6) All components shall be readily available on the market through standard purchasing procedures.
(7) LV control circuits shall not have more than three devices under one circuit breaker.

(8) Electrical switchgears shall be fully assembled and all wiring shall be connected.

(9) They shall pass all tests at the manufacturer's facility prior to shipment in order to confirm correct wiring, functionality and lack of errors.

(10) The crane shall have a standard built-in electricity meter.

##### Electrical cables

(1) Each electrical cable of the crane shall be permanently labelled at both ends for easy identification and shall be properly identified on the wiring diagram.

(2) The power supply for variable frequency AC drives/motors shall be supplied via special motor cables.

(3) Wiring shall have insulation of at least 1000 VA.

(4) The spreader power supply cable shall be a shielded cable made of PVC with an appropriately selected load. Its strength shall be suitable for the weather conditions, the intensity of the operations and the dynamic loads occurring during all types of handling operations. The cable shall be terminated with a plug of the protection level of IP65 that allows for quick disconnection. The way the cables are terminated at the ends should ensure quick disconnection and a minimum degree of protection of IP65.

(5) All cables shall be laid on cable racks and conduits and secured with UV resistant plastic ties with double locks.

(6) All cables transmitting digital or control signals shall be of the shielded type and terminated with clamps that adequately protect against electromagnetic interference.

(7) Shields shall be installed at regular and appropriate intervals to ensure adequate strength and durability.

(8) Cable entries shall be made from the underside of electrical cabinets or, if it is not possible, suitable cable loops shall be made to drain cable surfaces outside the electrical cabinet.

##### PLCs (Programmable Logical Controllers)

The control shall be fully digital, based on a microprocessor and a programmable logic controller.

The controlled units shall be connected via Profinet or Profibus.

PLCs of internationally recognised manufacturers that provide for high quality and durability shall be used.

##### Drives

(1) The cranes shall be equipped with a device to synchronise the crane travel mechanism.

(2) All drives with frequency converters shall be protected against overload with the use of temperature-controlled resistance sensors.

(3) All drives at frequency converters shall be designed with increased insulation resistance.

(4) Lifting drives:

* Protection system min. IP65
* Anti-condensation heating
* Forced ventilation

 (5) Crane and trolley travel mechanism drives:

* Protection system min. IP65
* Self-ventilation
* Anti-condensation heating

(6) Frequency converters of internationally recognised manufacturers that provide for high quality and durability shall be used.

##### Sound generator and horn

(1) The Supplier shall install warning light and sound generators on all four corners of the crane travel structure.

(2) Warnings shall be triggered automatically when the crane is in motion.

(3) The Supplier shall provide for the possibility of adjusting the volume of the warning generators

(4) The crane shall be equipped with a horn, to be activated by the crane operator

##### Lighting

All lighting circuits shall be separated into individual branches.

Each branch shall be protected by its own circuit breaker with an earth fault protection in the e-house. The failure of one branch shall not cause loss of power for more than 50% of all the lights in the same group. Light fittings shall be mounted so as to withstand vibrations generated by the operating crane.

The location of the lamps shall allow for easy repair and replacement.

**5.17.1. Top beam lighting**

Type: suitable LED

Providing lighting of approximately 100 LUX at ground level, hoisting winch / trolley.

**5.17.2. Trolley lighting**

Type: suitable LED.

At least two headlights shall be mounted on the bottom of the trolley so as to well light up the spreader and the container attached to it.

**5.17.3 Lower beam lighting**

Type: suitable LED.

At least one headlight to illuminate the runway at each corner of the crane.

Additional headlights on the lower level to illuminate the container pins on the semi-trailer used for transporting containers.

**5.17.4. Entrance lighting**

Each ladder, staircase, platform and pavement shall be adequately illuminated with LED headlights providing illumination of minimum 50 LUX.

Lighting shall be controlled automatically by a photocell.

**5.17.6. E-house lighting**

Inside the power generator cabinet, the light source shall be overhead and consist of at least 2 LED light sources that shall provide illumination that is fully sufficient for maintenance works. Inside the E-house, light sources shall be mounted overhead to provide illumination of the working area of no less than 150 LUX.

**5.17.7. Warning lights**

A reliable and weatherproof orange flashing warning light shall be installed at each corner of the crane. Signal lights and sound signals shall be connected to the power supply of the crane drives and operate continuously during travel. They shall provide for the possibility of adjusting the sound level and remote management at night.

**5.17.8. Emergency lighting**

As a minimum requirement, emergency lighting shall be installed in pedestrian walkways and the e-house.

##### Plug sockets

Socket assemblies:

* Minimum equipment level: 2 items CEE 5x16A, 2 pcs. 230V (type E) 16A, circuit breakers mounted at the lower electrical cabinets located between the crane legs from the north and south

230V socket type-E - 16A:

* 1 item at the electrical cabinet lamp and in all electrical cabinets

##### Heating

It shall be required to use:

* anti-condensation heating of the trolley, crane and lifting mechanism motors.
* heating in each electrical cabinet located outside.

##### Recuperation

The crane shall be equipped with a system for feeding energy back into the power supply (recuperation) during braking of the crane, the hoisting winch and the trolley. The Client shall, with the support of the Supplier, obtain an appropriate permit for feeding energy into the network or modify the one already held before the final acceptance of the crane.

##### Crane management system and remote maintenance

The crane management system and remote connection via the Internet for maintenance operations shall include at least:

* Crane diagram
* Display of crane position
* Alarm and malfunction management
* Statistical analyses and reports
* Operating hour counter for all drives, twistlocks, etc.
* Counter of the number of containers handled
* Operating instructions together with the wiring diagram
* Maintenance module
* Work stations: 1x operator’s station, 1x e-house

##### Operation of subassemblies

The supplied cranes shall allow to perform simultaneous operation by driving the crane, the trolley and the spreader.

##### Crane Management System

(1) The crane management system shall monitor and record faults/failures and current operating conditions that are critical for loading operations.

(2) The system shall allow for testing all electrical and electronic circuits, simulating starting sequences and checking motor supply current

(3) Fault finding and monitoring shall be monitored and controlled by the PLC.

(4) The PLC shall continuously monitor the status of all switchgears and electrical components. If any irregularity is detected, the information shall be transmitted and displayed on the PC monitor in the ROS and in the e-house.

(5) The system shall allow the displayed error/alarm to be routed directly to a specific point in the crane wiring diagram.

(6) The system shall provide a minimum display area of the following data:

operating hours (hoisting winch, trolley movement, crane movement, auxiliary generator, together with indication of fuel level (if the crane is equipped with it), rotation of twistlocks (number of movements), power consumption, tyre pressure, crane position, alarms and warnings from the control systems. The system shall also record and provide remote readings of voltage, current, kVar, kWh, power factor, Hz.

(7) The system shall allow to develop and register reports showing total power consumption in a given month along with operating hours. It shall be possible to select a given time period for creating reports with operating hours of all drives, downtime and out of service times.

(8) All of the above data shall be stored in the crane memory in the form of date and time records.

(9) The system shall operate at a high speed to monitor all critical tasks. It shall be organised in a clear, logical and understandable manner, even to non-technical staff.

(10) The system shall allow for current (and historical) reading of energy consumption.

(11) The system shall be installed and operated from the position of the PC at the ROS and the e-house.

(12) The system shall also present the data in a graphical way, allowing for selection and tracking.

(13) The crane management system shall be accessible via a reliable link on designated (two or three) terminal computers for viewing, and include availability of all data, including warning alarms and current statuses.

(14) The Supplier shall provide a communication channel allowing for collection of live data from the central unit as well as remote access to the system by the service staff.

##### Crane operating parameter recorder (black box)

A register, in the form of a log, of all of the operator’s signals and commands shall be kept for at least 30 days of operation on a 24/7 basis. The register shall include all signals, loads, twistlock rotation counter, hour counter, crane start-up time counter, power consumption counter, hoisting winches, crane and trolley travel time etc. All data shall also be available through a remote connection to the CMS.

##### TOS (Terminal Operating System)

(1) The crane shall provide bi-directional data transfer to/from the Terminal Operating System (TOS). It shall be possible to send the data from the crane to the TOS in a structured manner. The crane Supplier shall provide the data structure and define the information that can be transmitted by the crane, to be used in the TOS. The Ordering Party explains that it expects the Supplier to present the structure of data that will be sent by the crane (CMS) to the TOS, as well as the structure of data that the crane can receive from the TOS.

(2) The Ordering Party reserves the requirement for remote control/administrative access to the crane management system. Direct access to the crane PLC shall be provided; a heavy duty laptop with system and service software shall be included in the scope of the supply. The access/service codes for PLC settings shall be provided by the Supplier to the Ordering Party after the expiry of the standard warranty period.

##### Colour of the equipment

(1) The paint coating shall include at least 2 layers: prime coat and paint. Painting shall start immediately after shot blasting. The total thickness of the dry paint coating shall be at least 250 microns.

(2) The Ordering Party stipulates that the metal components of the structure shall be painted in RAL 2008 (subject to special area signage requirements).

(3) On selected elements (e.g. the main beam of the crane) there shall be agreed places of putting the logo of the equipment Supplier as well as the logo of PCC Intermodal S.A. and one-digit numbers of the equipment. The logo shall be marked in RAL 5002, 9003 (preliminary arrangements). The visualisation of the crane appearance and marking shall be presented by the crane Supplier within 3 months of the date of concluding an agreement. The Ordering Party may submit comments to the visualisation within 30 days.

(4) Marking with the company's name and putting logos shall be done by the Supplier after prior approval of the design with the Marketing Department of PCC Intermodal S.A.

(5) In addition, for safety reasons, the Supplier shall mark yellow (RAL 1023) sensitive parts, such as handrails, protective elements, ladders and possibly bumpers.

(6) The floor of the e-house shall be grey (RAL 7042), the interior of the e-house shall be white (RAL 9016).

##### Corrosion protection

Surface of all steel materials shall be prepared in an automatic surface cleaner or in a specialised manual blasting hall. The quality of the cleaned surface shall be in accordance with PN - ISO 8501-1:2008, "Preparation of steel substrates". All steel profiles shall be completely cleaned to restore surface quality according to SA Class 2.5 prior to application of the paint coating.

The steel structure of the crane shall be protected against corrosion in accordance with EN ISO 12944 (varnish paint, corrosion protection of steel structures)

1x 150 μm prime coat (two-component HS epoxy-zinc coating)

1x 100 μm top coat (polysiloxane) in RAL colours

250 μm total paint thickness

It shall be acceptable to use paints/varnishes that guarantee long durability and stability of colour and meet the requirements of the warranty period. The Supplier shall recommend the type of the varnish coating to the Ordering Party for acceptance.

##### Serial and standard parts

Manufacturer's standard paint.

##### Platforms, stairs, ladders

All platforms, stairs and ladders bolted with screws with self-locking nuts in the entrance system shall be hot-dip galvanised. The zinc coating shall typically be over 70 microns thick. All connections used in these areas shall be made of stainless steel - grade A2-70

##### Crane subassemblies

(1) The Ordering Party shall accept the use, during the construction of the eRTG crane, of components manufactured by different equipment manufacturers. However, the Ordering Party expects the used subassemblies to operate smoothly and effectively together and to **be manufactured by well-known companies with an established market position and experience in the supply of crane equipment and subassemblies**, including as regards the provision of appropriate levels of servicing works and availability of spare parts to provide for continued operation of the cranes.

(2) All bearings of the trolley, hoisting winch and crane wheels shall satisfy the minimum requirements when loaded with the maximum crane operation for at least **25,000 hours of operation**.

(3) Bearing housings shall be removable to allow quick and easy access for inspection and possible replacement. All moving parts of the crane that require lubrication shall have an efficient lubrication system with easy access for inspection and maintenance.

(4) The lubrication plan provided by the Suppliershall indicate the locations and frequency of lubrication along with the materials to be used.

(5) The list of materials shall indicate products available in Poland, according to the relevant API classification.

(6) All areas requiring lubrication shall have walkways and landings together with the necessary guardrails.

(7) Lubrication locations shall be clearly marked in accordance with the colour codes. One colour shall correspond to one type of lubricant.

(8) All crane systems shall be correctly and unambiguously described and marked (both externally and internally), both ends shall be marked with foil with a description consistent with a set of system diagrams to be prepared by the Supplier and submitted to the Ordering Party.

(9) All external electrical systems shall meet the minimum protection level of IP65 and internal electrical systems shall meet the minimum protection level of IP20, provided that the IP20 devices are located in an area separated from moisture and dust and effectively protected against condensation.

##### Warning signs and notes

Warning signs shall be affixed by the manufacturer in accordance with currently applicable laws and regulations, all EU requirements and requirements of the Polish Transport Technical Supervision. Warnings shall be in Polish.

S.W.L.: Two signs, one on each beam
Phrasing: Safe working load 40,5 tonnes
Colour of letters: Black against white background

##### Marking the cranes with a sticker informing about the funding:

Each crane supplied as part of the contract shall be marked with an information sticker (commemorative plaque) - one sticker/plaque per eRTG. The marking results from co-financing the supply from the funds of the EU. The place for the information sticker shall be set at the stage of drawing up the technical documentation. The location of information stickers as well as their format and graphic design shall be agreed with the Client no later than 1 month before the installation of the cranes. The information stickers shall be made by the Client / Ordering Party and their sticking in the right place shall be entrusted to the Supplier's employees during crane installation works.

### ADDITIONAL SYSTEMS (OPTION)

As part of this tender procedure, the Ordering Party expects a supplemental quote to be submitted for additional systems as options, as listed in the sections below. Quotation for options is not mandatory.

The Ordering Party informs that if the Tenderer offers retrofitting eRTG cranes with the systems listed below and if the Ordering Party selects a given option in the course of signing the agreement, the ordered eRTG cranes shall be equipped with the indicated systems as of the acceptance date.

##### A system to prevent collision in a container stack with containers standing in the yard.

The system shall scan the area of container stacks located under the crane and the spreader with the use of laser scanners during the trolley travel in the direction designated by the operator**.** When the system detects an obstacle it shall automatically slow down and then prevent further movement.

##### Spreader collision prevention system

The system shall continuously scan the area under the hooked up container to track all objects under the spreader. It shall be equipped with a function to automatically eliminate the risk of collision connected with each direction of movement resulting from the operation of the crane, including the risk of collision with another container in a stack and/or with a means of transport.

The profiles of the stacked containers shall be scanned with the use of external laser scanners to calculate the shortest, quickest and most economical and safest route. The TOS shall indicate to the system the position of the trolley over the stack of containers and the positioning control devices shall remember this position until the operator decides to change it. The system shall also detect containers that extend beyond the 4 high-cube layers. In the autonomous mode of operation, it shall be acceptable to use a traditional system with lifting the container all the way to the top before the trolley travel, for safety reasons.

##### Automatic cable lubrication system

The system shall completely eliminate the necessity to additionally lubricate ropes during maintenance or significantly reduce the frequency of lubrication. The system used shall optimise the consumption of lubricant or oil and prevent contamination with lubricant in the immediate environment.

##### Automatic container weighing system

Information about the weight of a given container shall be automatically transmitted from the crane system to the terminal operating system. The system shall be installed on the spreader, in the form of 4 load sensors mounted at each twistlock to capture weighing information with each lift. The Ordering Party allows for the possibility of using a solution with 2 load pins installed on the hoist or another effective solution ensuring the implementation of the above option.

##### Semi-trailer lift prevention system

The system shall prevent from lifting the semi-trailer used for transporting containers when the crane lifts the container and the twistlocks of the semi-trailer have not been unlocked.

The system shall operate in the two ways:

* Prevent lifting when the semi-trailer is lifted together with the container, by switching off the system
* A sound and light alarm shall be fitted in the operator's station to inform that the semi-trailer has been lifted. In such event, the alarm type shall be different from the other alarms displayed in the crane CMS.

##### Traffic light for positioning the truck under the crane

The crane shall be equipped with a traffic light system on the side where the truck lane will be located. Lights or images displayed on the truck lane by lasers shall inform the truck driver of the necessity to stop, move forward or backward, so that the crane can safely and quickly handle the container on the semi-trailer directly under the spreader.

### Other accessories required by the Ordering Party

(1) Flippers shall be secured with an additional chain (fall protection).

(2) The radio-telephone for internal communication shall be operated with the use of a button located on the operator's joystick.

(3) The crane shall be equipped with the so-called "people pushers" at each corner located at the outer end of each leg.

### TECHNICAL DOCUMENTATION, OPERATING AND MAINTENANCE MANUALS

**The Supplier shall prepare and deliver, as part of the contract, full technical documentation of the equipment** **as well as operating manuals for the operators in Polish and English**, along with a maintenance manual for the technicians, prepared in Polish and English. All supplied components and subassemblies shall have the necessary approvals and certificates required under the Polish laws and regulations.

**Additionally, together with the cranes there shall be supplied a laptop resistant to work in difficult conditions, with licensed software in the Polish language, including all connectors, cables and interface with service and diagnostic software and programming software, together with user’s manuals.**

The technical documentation shall comply with the laws and regulations and satisfy the requirements of the Transport Technical Supervision.

A set of the documentation shall include:

* eRTG user’s manual
* eRTG user’s manual, including instructions on calibrating sensors and other equipment that should be adjusted on the crane
* CE Certificate
* CE Certificate of the spreader
* A catalogue of all spare parts fitted on the crane
* All technical data sheets with nominal dimensions, tolerances, permissible wear of rails, wheel flanges and other necessary data
* Spreader use and maintenance manual
* List of spare parts for the spreader
* Technical drawings
* Static calculation and drawings of the steel structure
* Wiring diagrams
* Electrical system user’s manual
* PLC documentation
* All passwords for PLCs and other electronic devices
* After-sales report with measurements of the electrical system and effectiveness of electrical and lightning protection
* Cyber security certificate

In addition, relevant parts of the documentation shall include:

* technical descriptions
* drawings
* wiring, hydraulic and pneumatic diagrams, if any
* diagrams of rope drive systems.

After completion of the installation works, the Contractor shall provide a written confirmation that the installation was carried out in accordance with the applicable standards and technical knowledge, as well as a confirmation that all tests were performed and confirm the correctness of the subject of the supply and the efficiency of the crane.

The confirmation of compliance shall be signed by an authorised person coordinating the installation works.

Both the documentation and the equipment shall satisfy the requirements of Polish laws and regulations regarding handling equipment in terms of quantity, quality and regulatory requirements.

Drawings and diagrams shall be provided in PDF format and general crane assembly drawings shall be provided in both PDF readable format and DWG readable format. These files will be read-only for easy reading, measurement, etc.

A progress report and project documentation for cranes dedicated to the terminal in Kutno shall be provided in one English paper version and in one Polish version + on two data carriers (e.g. two pen drives) within 6 to 9 months of the date of signing the agreement.

### CRANE RUNWAY END

The eRTG crane shall be equipped with a system that automatically stops the crane after detection of any obstacles in its travel path and smoothly slows down when approaching the runway end. The Supplier shall provide the possibility of programming by the service staff the system of detection of runway ends and changing the crane stopping point (in the event of a decision to extend or shorten the crane operation area)

### ****SUMMARY OF TECHNICAL REQUIREMENTS FOR CRANES****

The Investor expects both cranes to handle containerised cargoes ranging in size from 20 to 45 feet. The assumed lifting capacity of eRTG cranes under the spreader is 40,5 tonnes.

The Ordering Party assumes that both cranes will operate under the following operating conditions:

* Temperature range -25°C to +35°C; humidity up to 95%.
* The wheelbase of the runways is 28.65 m (and the width of each runway is 3 m) / symmetrical widening of the crane by 1 metre is permissible so that its wheelbase between the centres of the trolleys (between the wheels) is 29.65 m, which means 50 cm offset from the centreline of both runways, provided that the wheels of the trolleys do not protrude beyond the runway or move closer to its edge than 27 cm.
* Maximum operational wind speed 22 m/s.
* Along the length of each runway of max. 210 metres together with two parking areas at the ends of the stacking block.
* The height of the crane shall allow for handling High Cube containers in a "one over four" arrangement, taking into account the safe distance between elements.
* Working width of eight container rows in a block + truck service lane (for semi-automatic mode; for automatic service option 7 container rows in a block shall be assumed).
* Effective continuous, uninterrupted communication
* Automatic system of maintaining the crane runway
* Monitoring - local and remote

### ****DETAILED**** TECHNICAL DATA****:****

The Ordering Party assumes that the total number of handling operations carried out with both eRTG cranes shall reach approximately 16,000 (± 3,000) per month.

Containers of various sizes and weights will be handled.

The cranes supplied by the Supplier shall be made in accordance with the parameters selected for the loads and intensity of operation assumed by the Ordering Party. Indicatively, they shall meet the following parameters:

|  |  |  |
| --- | --- | --- |
| **Position, parameter** | **Value** | **Unit** |
| Lifting capacity  | 40,5 | tonnes |
| Spreader telescope | 20, 30, 40, (45) | feet |
| Lifting speed with the load of 40,5 tonnes  | 0 - minimum 30m/min | m/min |
| Lifting speed with the load of up to 10 tonnes under the spreader  | 0 - minimum 50m/min | m/min |
| Crane travel speed; | 0 - minimum 130  | m/min |
| Trolley acceleration | 0.2 | m/s² |
| Trolley travel speed | 0-70 | m/min |
| Crane acceleration | 0.2 | m/s² |
| Spreader unfolding speed | No longer than 25 sec |  |

The Ordering Party expects that the steel elements will be selected by the Supplier in accordance with the classification of structures and mechanisms in such a way as to meet the requirements of the Specification.

Unless otherwise stated, F.E.M. 1.001 3. Revised Edition 1998.10.01, and other applicable design standards listed in this Specification shall be used in the design of the crane and its mechanisms.

**Structures:**

The following or higher classes of the equipment shall be provided (as far as the relevant calculations indicate) assuming that the device should be designed for a workload of at least 2,000,000 cycles:

**Mechanisms:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mechanismus / mechanizmy | Class of Operation/ Klasa eksploatacji | State of loading / Stan obciążenia | Group Classification / Klasyfikacja grupa | Service Life / Okres serwisu |
| Hoist / Podnośnik | T7 | L2 | M7 | Minimum 25.000h working hours |
| Trolley Travel/ Jazda wózka | T7 | L2 | M7 | Minimum 25.000h working hours |
| Gantry Travel/ Jazda suwnicy | T7 | L2 | M7 | Minimum 25.000h working hours |

### TECHNICAL ACCEPTANCES / FINAL ACCEPTANCE

1. The Ordering Party may have tests and acceptance checks carried out by a notified body of its choice.

2. The crane Supplier shall provide all technical documents required for the acceptance tests.

3. Technical acceptance shall be deemed to have taken place when it is noted that there are no defects affecting the possibility and safety of operation. Defects present at the time of acceptance shall be remedied by the Supplier within the agreed period, not longer than 2 weeks.

4. In the event that critical defects are present at the time of acceptance which prevent acceptance and/or a re-inspection is required, the costs of additional acceptance checks and bringing the crane into compliance with the Specification shall be borne by the Supplier.

5. The required two-week testing of operation of each crane in the presence of the Supplier's commissioning engineer shall take place after acceptance by the Transport Technical Supervision. Trainings for crane operators shall also be conducted during this period. If there are any further problems with the operation of the crane after the two-week test period, the tests shall be extended until any defects are remedied.

6. The final acceptance that entitles the Supplier to issue an invoice shall be confirmed with a final acceptance protocol signed by both parties.

7. Bypasses allowing the cranes to operate at 110-125% load shall only be used for tests carried out by the Transport Technical Supervision.

9. The Supplier shall declare in Annexe No. 3 to the Specification the period of availability of spare parts and components or equivalent parts for repair and replacement in the period of at least 20 years of the date of acceptance of the crane by the Ordering Party.

### LIST OF DOCUMENTS AND ITEMS TO BE PROVIDED BY THE SUPPLIER TO THE ORDERING PARTY

Along with the tender, the Tenderer shall submit:

1. Declared wheel loads in order to clarify the vertical and horizontalloads under operating and immobilisation conditions of the crane, in accordance with Part I, item 3.12.
2. Guarantee of availability of spare parts and components or equivalent parts for repair and replacement for the period of 20 years of the date of acceptance of the crane, in accordance with Part I, item 12.
3. List of materials and parts which, based on the Supplier's experience, will be subject to scheduled replacement for the period of 10 years of the final acceptance of the crane.

In the period between the conclusion of the supply agreement and the final acceptance, the Supplier shall provide:

1. Within 6 weeks of the date of signing the supply agreement, the original bank or insurance guarantee of proper performance of the supply agreement, issued for the Ordering Party, of the value equal to 15 per cent **of the price** for the eRTG cranes, in accordance with Part III, item 7.
2. List of all standards used in the crane design, in accordance with Part I, item 3.5.
3. Brake design, in accordance with Part I, item 5.3.1.
4. Description of the system that prevents from lifting the container from one side, in accordance with Part I, item 3.16.
5. Schedule of inspection and replacement of components of critical importance for operation - inspections and maintenance, in accordance with Part I, item 3.18.
6. Schedule of planned maintenance activities, in accordance with Part I, item 3.18.
7. Copies of drawings showing structural details, in accordance with Part I, item 4.3.3.
8. Qualification certificates for each welder, in accordance with Part I, item 4.5.
9. Weld inspection procedures, in accordance with Part I, item 4.5.1.
10. Supplier's Quality Assurance Manual, in accordance with Part I, items 4.5.2 and 4.5.3
11. Design calculations approved by the cable chain manufacturer, in accordance with Part I, item 5.2.4
12. Lubrication plan, in accordance with Part I, item 5.28.
13. Technical documentation and equipment maintenance manuals along with a critical parts list, in accordance with Part I, item 8.
14. Rules of organisation and conduct of works, in accordance with Part III, item 2.
15. The crane Supplier shall provide all technical documents required for the acceptance to be made by the Transport Technical Supervision, in accordance with Part I, items 3.5 and 12.
16. Calculation of wheel load, stability, braking capacity and drive power, in accordance with Part I, item 4.3
17. Visualization, in accordance with Part I, item 5.25.
18. Selection and acceptance of varnishes, in accordance with Part I, item 5.26.

Documents to be submitted by the Supplier no later than the date of final acceptance:

1. Noise - tests made available as part of the final acceptance protocol, in accordance with Part I, item 3.17
2. **Laptop (1 per two cranes),** in accordance with Part I, item 5.24.
3. Recuperation - permission to return energy to the grid or modification, in accordance with Part I, item 5.19.
4. Critical parts in accordance with Part III, item 3.

Documents & items to be submitted by the Supplier after final acceptance of the cranes:

1. Within 14 days of the final acceptance of the first crane, the Supplier shall provide a bank or insurance guarantee of proper performance of the servicing agreementamounting to 3% **of the price** for the eRTG cranes, in accordance with Part III, item 7
2. PLC access codes and data and information structure to the TOS, in accordance with Part I, item 5.24 - after expiry of the basic warranty

## GENERAL INFORMATION CONCERNING THE TERMINAL IN KUTNO

### OPERATING ACTIVITIES

**PCC Intermodal S.A. informs that the terminal is a facility operating on a 24/7 basis, which shall be taken into account in the planned installation and commissioning works.**

At the Supplier's request, PCC Intermodal S.A. will make available materials concerning the conditions of performing installation works (i.e. a drawing of the installation site and excerpt from the Terminal Rules).

### CONSTRUCTION SITE ORGANISATION AND TERMINAL OPERATIONS

**The Supplier of the eRTG gantry crane** shall arrange the assembly facilities on its own, including all necessary infrastructure, necessary connections, access road approvals, and shall ensure that the access road may be used for the entire duration of the installation works in a manner that does not affect the time for completion of this task.

The Supplier shall design the crane installation sites and agree them with the Ordering Party. Since the terminal operates on a 24/7 basis, crane installation sites shall be limited to the necessary minimum and separated from the active part of the terminal. The fence line shall be agreed upon with the Ordering Party's representative prior to the installation.

The crane installation site is a concrete yard of the size of 38 x 112 metres, with a cross slope of 1% and 2.5% (with a break in the middle) along the short side. It is bounded from one side by railings (an embankment), from the second side by a curb and an embankment, and from the third side by a terminal siding. The Investor accepts the possibility of operating e.g. a crane arm over the terminal track ends, after making prior agreements in this respect.

The container terminal operates on a 24/7 basis throughout the year, the Supplier of the eRTG crane shall be obliged to prepare and present to the Ordering Party for approval the "**Rules for organisation and conduct of works"**, valid during the construction period**.** The draft Rules shall, in particular, take into account the occupational health and safety regulations and the regulations governing the vehicular traffic and shall be **submitted to the Ordering Party for approval and agreed in writing no later than three weeks prior to the supply of parts for the installation**.

The works performed may not disturb the continuity of the operation of the functioning container terminal. Therefore, the Supplier shall anticipate that, with respect to the works at the interface between the terminal and the construction site, it may be necessary to carry out some of the works on the second or third shift, as well as on non-working days, i.e. Saturdays, Sundays and public holidays. No additional compensation shall be due for performing work under these conditions.

If it is necessary to turn off the power at the terminal or existing systems for more than 1 hour, the Supplier shall, at the Supplier’s own expense, provide an individual power supply source for the duration of the power supply interruption. The parameters of the power supply shall be adapted to the supply of the receivers that are to be disconnected from the mains supply.

The Ordering Party may, as part of the arrangements made with the crane Supplier, provide access (free of charge) to sanitary facilities for the duration of the construction works, to be used only for the needs of the crane Supplier's employees and authorised persons acting on behalf of the Supplier, depending on the current COVID-19 situation. The Investor may also agree with the Contractor of eRTG cranes upon **paid terms of using electricity**.

In order to ensure the safety of people, the persons employed for the performance of the Suppy agreement and Servicing agreement by the Supplier and by subcontractors, if any, shall be trained by the Supplier and undertake in writing to observe the rules for staying and moving around the terminal in accordance with the **"Instructions on the rules for staying and moving around the Container Terminal of PCC Intermodal S.A. in Kutno"** (Annexe No. 6 to the Specification) and shall be trained by a representative of PCC Intermodal S.A.

### PROTECTION OF THE CONSTRUCTION SITE

Despite the fact that the container terminal is under protection and has a CCTV camera system, the Supplier shall provide its own protection of the crane installation sites and left equipment, materials and crane components. The Ordering Party shall bear no liability for the property of the Supplier and persons acting on behalf of the Supplier left in the terminal installation sites.

### ACCESS ROAD LEADING TO THE CRANE INSTALLATION SITE

Prior to the date of installation of the eRTG gantry cranes, the Supplier shall agree with the Ordering Party's representative upon the rules for passing through the terminal area to the crane installation sites. The Supplier shall, on its own, agree upon passing through any third party areas with the respective owners. Passing through the terminal area shall take place in accordance with strictly defined rules, the regulations in force at the terminal and at times that do not conflict with operational works performed at the terminal. The Supplier shall be liable for any problems or damage resulting from failure to comply with the established rules.

The organisation and arrangement of transport of the crane elements along public roads shall also be the responsibility of the Supplier.

### YARD

The Supplier shall be responsible for keeping the yard where installation works will be carried out clean, including for not leaving any vehicles, objects or materials in the crane clearance line, unless it is permitted under the temporarily agreed "**Rules for organisation and conduct of works"**. The Supplier shall also bear liability for any damage caused by the installation works and liability towards third parties (e.g. subcontractors, PCCI suppliers).

### HEALTH, SAFETY AND FIRE PROTECTION REGULATIONS AND CLEANLINESS

The Supplier of eRTG gantry cranes shall comply with applicable health and safety and fire protection regulations, and shall clean up and treat the waste generated during the installation in accordance with the applicable laws and regulations in force in Poland. The Ordering Party shall not be a producer or recipient of such waste.

### SITE INSPECTION AND SAFETY PRINCIPLES

**A site inspection is possible at the terminal at ul. Intermodalna 5 in Kutno**. During the site inspection the Supplier will be able to become familiar with the project area. A convenient visit date shall be arranged by sending by e-mail to: przetargi.kutno@pcc.eu, at least three days before the planned visit, information about the arrival date together with indication of the full name of the person(s) intending to arrive at the terminal. Due to the prevailing epidemiological situation, the persons who wish to visit the terminal shall satisfy the current sanitary requirements and observe the rules for personal protection. The Tenderers’ representatives may only move in and enter the places and rooms indicated by the Ordering Party's staff.

**Representatives of the company that wins the tender procedure shall be obliged to carry out a site inspection together with representatives of PCC Intermodal S.A., within 30 days of the date of signing the agreement. Safety conditions as mentioned above. During the site inspection the Supplier shall become familiar with technical and organisational details allowing for proper performance of the task**, including becoming familiar with the area in which the crane will be placed and with the design documentation concerning the container terminal. During the meeting, possible technical and organisational issues of the contract performance will also be discussed.

## PART III. BASIC TERMS AND CONDITIONS OF THE SUPPLY AND SERVICING AGREEMENTS

### 1. PRICE PAYMENT TERMS

The Supplier may request the Client for advance payments for the supply of eRTG cranes. The Supplier shall inform the Ordering Party whether advance payments are required or not, within **60 days** of the date of concluding the agreement. In the absence of the afore-mentioned information or information on a decision not to request for advance payments, payment of the price shall be effected after delivery, commissioning and acceptance of the cranes at the terminal in Kutno, on the basis of a final acceptance protocol signed by both parties without any reservations. The Supplier may request for fewer advances than the number specified in this Specification, in which event payment of the Price after delivery of the cranes shall be reduced by the value of the advances paid. The Supplier may not request for a greater number or value of the advances than the number and value indicated in the Specification.

**Advance due dates and payment terms:**

The Supplier shall be entitled to the first advance payment of 20% of the price for 2 eRTG cranes, within 30 days of the date of receipt of the request for an advance payment, but no earlier than five (5) weeks of the date of concluding the supply agreement.

The Supplier shall be entitled to the second advance payment of 30% of the price for 2 eRTG cranes. After lapse of 6 months of the date of signing the agreement, the Supplier may submit a request for an advance payment. The advance payment shall be made no earlier than 30 days of the date of provision to the Client of the request for an advance payment, work progress report and complete design and technical documentation for the cranes dedicated to the terminal in Kutno.

The Supplier shall be entitled to the third advance payment of 30% of the price for 2 eRTG cranes, within 30 days of the date of receiving the request for an advance payment, but no earlier than 30 days of providing a set of structural elements of 2 eRTG cranes to the Client’s terminal for installation.

The payment of each advance (the first, second and third instalment) shall be conditional on provision to the Client of a *pro forma* invoice and a bank or insurance guarantee of due performance of the contract, in accordance with Part III, item 7, and a bank or insurance guarantee of refund of the advance payment in the event of failure by the Supplier to fulfil the contractual obligations. The guarantee of refund of the advance payment shall be irrevocable, unconditional and payable on the Client’s first demand. Its content and issuer shall be agreed upon with the Ordering Party before submission to the Client. The Supplier shall not, without an important reason, refuse to include information in the content of the guarantee that any claim under the guarantee may be transferred to a bank or any other financial sector entity to which the Client will transfer its claim for the refund of the advance payment secured by the guarantee.

 Payment of the remaining 20% of the price for the eRTG cranes (or the entire outstanding part of the price if it is not covered by the advance payment instalments) shall be effected on the basis of a VAT invoice, no earlier than 30 days of the date of signing the final acceptance protocol by the Client.

The ownership of the cranes shall pass to the Client upon signing the final acceptance protocol.

### QUALITY WARRANTY

The Ordering Party requires from the Supplier a quality warranty for the supplied eRTG cranes:

1. **2 years’ warranty for the crane and its components** (the **“basic warranty”**), covering all faults and failures that arise during this period. The basic warranty period shall be extended by the time during which it is impossible to operate the crane due to finding a defect covered by the warranty.
2. **1 year’s warranty for parts repaired** during the basic warranty period, but no less than the basic warranty period indicated in item 1.
3. **5 years’ warranty for the paint coating tightness** of the crane, covering any faults that arise during this period.
4. **8 years’ warranty for the colour durability of the paint coating** applied to the crane structure.
5. **10 years’ warranty for the steel structure of the crane**, covering any faults or failures that arise during this period.

The running of the period of each warranty shall commence from the date of the final acceptance of the equipment by the Ordering Party, and in the event of repairs - from the date of restoring the crane to operation after the repair.

The scope of the granted warranties shall cover any defects, failures, damage, software errors, corrosion and other events resulting in improper functioning, immobilisation, or unsightly appearance of the crane, arising during the warranty period, except for those caused for reasons attributable to the Ordering Party.

### SERVICING AND MAINTENANCE OF THE CRANES

1. **The crane servicing provided by the Supplier during the basic warranty period shall include both Supplier's interventions in the event of any problems with the cranes or their components and servicing activities aimed at maintaining normal, proper operation of the equipment.**
2. The costs of servicing activities relating to repairs and remedying any failures covered by the Supplier's liability under the warranty together with the costs of parts and labour during the warranty period shall be covered by the Supplier. They are an integral part of the price for the supply of the cranes. The Ordering Party shall bear the costs of crane servicing works performed as part of periodical inspections resulting from normal operation of the cranes as part of separate quarterly lump sum remuneration as well as the costs not covered by the Supplier's liability under the warranty. The Ordering Party shall also bear the costs electricity the provision of which arises from the normal operation of the cranes. As part of the servicing activities the Supplier shall make every effort to minimise the time of the crane shutdown due to failure. Therefore, as part of the servicing works, the Supplier shall provide, among others, a 24/7 hot-line and proper response time (as described further in the Specification).
3. The Ordering Party expects the Supplier to provide full servicing of the equipment during the **term of the servicing agreement** . Any repairs, replacements of worn parts and periodic inspections of subassemblies shall be the responsibility of the Supplier.
4. Servicing works during the term of the servicing agreement shall result in no negligence or backlogs, the consequences of which will appear after expiry of the basic warranty period.
5. In the event of a reasonable suspicion that the Tenderer has underestimated the quantity or quality of servicing activities, which would result in piling up renovation works or in failures of the crane after the basic warranty period, the Ordering Party shall appoint an expert to assess whether the failure or increased quantity of works is a result of negligence.
6. The Ordering Party’s employees may participate in these inspections for training purposes.
7. The Ordering Party shall be responsible for the daily general technical inspection of the equipment before starting work, at the shift change and at the end of work, as well as for possibly lubrication in accordance with the plan provided by the Supplier.
8. The maintenance manual for eRTG cranes provided by the Supplier shall indicate the scope of servicing activities to be performed by the Ordering Party.
9. The Supplier's employees shall perform servicing activities in accordance with the inspection schedule presented by the Supplier.
10. The Ordering Party assumes the crane operating intensity of 5,000mths/year/eRTG (calculated as the average annual operating time of both cranes divided by 2).
11. The complete tender shall include the price of both complete cranes together with provision of critical parts (contactors, relays, fuses, modules, and other elements indicated in the list prepared by the Supplier) and warranty service in accordance with items 1-12 of the Scope of the Tender Procedure (pages 6-7 of the Specification).
12. Critical parts shall be delivered no later than the date of final acceptance. If the Supplier's service technicians use any of the critical parts for the purposes of guarantee repairs, the Supplier shall replenish the parts at the Supplier’s own expense. In other cases, critical parts shall be replenished at the Client's expense.
13. The cranes shall be designed with the use of such solutions that inspections are carried out relatively rarely. In the opinion of the Ordering Party, standard servicing inspections shall take place no more than once every three months or every 20,000 cycles/crane (one **cycle** is defined in item 3.5.3).
14. Payments for servicing works performed in connection with periodic inspections and repairs and replaced parts shall be made on the basis of the servicing agreement (based on the tender submitted in the post-auction form (in accordance with Annexe No. 3 to this agreement). The total of quartarly payments for servicing works during the maintenance period documented with an acceptance protocol certified by authorised employees of the Ordering Party shall not exceed the amount offered in this tender procedure in the tender form (Price of annual servicing works, i.e. “M”, in accordance with Annexe No. 3 to the Specification). The remuneration for the servicing works included in the "M" servicing price shall be invoiced on a quarterly basis, as ¼ of the annual servicing price indicated in Annexe No. 3 to the servicing agreement. Any other payments resulting from the conducted servicing works shall be made on the basis of invoices issued on the basis of the servicing work acceptance protocol.
15. As a rule, servicing activities shall be performed on working days from 8:00 a.m. to 5:00 p.m., and preventive servicing activities shall also be performed on Saturdays other than days legally free from work. For the time of work performed on days other than working days or in hours other than 8:00 a.m. - 5:00 p.m. on working days, provided that performance of the work on such days and within such hours was commissioned by the Client (and, thus, also for the preventive servicing works performed on Saturday), the Supplier shall be entitled to additional remuneration, calculated at the double rate per 1 manhour, (i.e. 2\*R, in accordance with the provisions of Part IV, item 9 of the Specification).
16. As the annexe No. 5 to the servicing agreement, to be submitted together with the post-auction tender, the Supplier **shall provide a schedule of inspections during the warranty period, specifying the scope of activities, materials and parts** to be replaced. The Ordering Party provides general schedule guidelines as part of this Specification (milestones). The schedule shall be drawn up in legible tabular form and shall be complete, i.e. it shall include all activities and all parts, consumables (oils, filters and lubricants) to be replaced as part of inspections within the period of 10 years of the date of acceptance of the cranes.
17. The lump-sum annual amount for servicing activities together with provision of 24/7 hot-line service and costs relating to travel and accommodation of the Supplier's service technicians providing inspection services shall also be included in item "M" as part of the auction tender (Annexe No. 3 to the Specification) and as the Annexe No. 3 to the agreements. The costs of spare parts and consumables necessary to carry out the inspections shall be borne by the Supplier.

### TIME FOR COMPLETION

1. The date of commencement of installation works expected by the Ordering Party results from the schedule of construction works relating to the expansion of the container terminal and from the time regime imposed by the institution co-financing the project.
2. **The expected time for completion of the contract and obtaining an approval for use is 14 months of the date of concluding the supply agreement.**
3. If the Supplier offers the final time for completion that is longer than specified above, the tender may be rejected.

### FAULTS, FAILURES AND SHUTDOWNS OF THE CRANE

1. In the event of occurrence of any problems with the crane, the Ordering Party's technical support staff shall report the fault to the e-mail address and/or hot-line contact phone number indicated by the Supplier.
2. The Supplier shall provide, as part of servicing activities, hot-line service, in Polish or English, on a 24/7 basis. Contact from the Supplier's service technicians shall also be possible on days free from work, around the clock. Remote technical assistance provided by the Supplier's service technicians shall be provided without unnecessary delay after notification made by phone or e-mail.
3. The cranes shall be equipped with software that allows for remote monitoring of their technical performance via a link established between each crane and the Ordering Party's computer network. The Supplier's service technicians shall be able to perform ongoing inspections of the cranes on a remote basis and, if necessary, provide information and guidance to the Ordering Party's staff. However, the above shall not release the Supplier from the obligation to provide timely visits of professional technical staff and to carry out the inspection of the cranes at the terminal. In the event of any fault preventing the crane from operating, which cannot be remedied on a remote basis or by simply instructing the Ordering Party's technical staff, the Supplier's qualified service technicians **shall arrive at the terminal to remedy the fault, no later than 24 hours after the problem is reported by the Ordering Party's employees**. In practice, if the notification was made on Friday around 11:50 p.m., immediately on Friday or in the night hours on Friday-Saturday there shall be an e-mail/telephone consultation (an attempt to solve the problem on a remote basis) and if the problem is not solved, the technicians shall arrive at the terminal no later than the next working day. In the event of faults which do not limit the operation of the crane, the service technicians' arrival time may be postponed to 72 hours.
4. Failure by the Supplier's service technicians to respond within the stipulated time limit shall constitute grounds for charging contractual penalties.

### SPARE PARTS

1. As part of providing the servicing works for the period of 10 years counting from the crane acceptance date, the Supplier shall draw up, together with the Supplier’s tender, a list of parts which, based on the Supplier's experience, shall be subject to scheduled replacement. The list of parts shall be provided along with a schedule of servicing works and activities, which shall also be submitted **with the tender**.
2. The Ordering Party accepts the possibility of the Supplier storing spare parts at the terminal, upon prior agreement, in the place indicated by the Ordering Party, if storage of such spare parts may be useful for performing fast servicing activities or for quick remedy of failures of cranes delivered to Kutno.
3. The Supplier shall indicate the parts to be stored at the terminal and agree the usable area required for this purpose.

### GUARANTEE OF PROPER PERFORMANCE OF THE AGREEMENT

1. The entity with which the Ordering Party will sign the agreement shall be **obliged to provide, within six weeks of the date of signing the supply agreement,** the original bank or insurance guarantee of proper performance of the supply agreement, issued for the Ordering Party, **for the value equal to 15%** (per cent) of the contractual remuneration for performance of the subject-matter of the supply (as specified in the Supply agreement in paragraph 3, paragraph 3). **The validity period** should begin no later than on the date of commencement of delivery to the place of delivery of the first crane structural elements and should not end earlier than 7 days after the final acceptance date for both cranes (in accordance with the schedule of production, assembly and commissioning of the cranes), but no longer than the date of signing the protocol of final acceptance of the subject-matter of the supply. The guarantee shall be irrevocable, unconditional and payable on the beneficiary’s first demand submitted to the guarantor.
2. The final content of the guarantee referred to in item 1 above shall be agreed with the Ordering Party before it is submitted to the Ordering Party. In the event of failure to provide such guarantee on time, or provision of a guarantee of the content not agreed upon with the Ordering Party, the Ordering Party shall be entitled to withhold the advance payment or rescind the agreement due to the fault of the selected Tenderer - Supplier.
3. In order to secure potential claims of the Ordering Party for non-performance or improper performance of warranty repairs , the Supplier shall, within **two weeks of the date of final acceptance of the cranes**, submit a bank or insurance guarantee of proper performance of the servicing agreement,for the amount of **2,5%** of the price of the two cranes being the subject-matter of the supply. The guarantee shall be issued to the Ordering Party and maintained for the period of one month longer than the basic warranty granted by the Supplier, i.e. at least 25 months. The guarantee shall be irrevocable, unconditional and payable on the first demand submitted to the guarantor.
4. The final content of the guarantee referred to in item 3 above shall be agreed with the Ordering Party before it is submitted to the Ordering Party. In the event of failure to provide such guarantee on time, or provision of a guarantee of the content not agreed upon with the Ordering Party, the Ordering Party shall be entitled to retain 20% of each instalment of the remuneration due to the Supplier, until the amount equal to the amount of the required guarantee is collected.

### INFORMATION ABOUT THE SUPPLIER'S STAFF

1. The works relating to the installation and commissioning of both eRTG cranes shall be carried out with the use of the appropriate number of employees to guarantee the proper quality of the task performance and meeting the times for completion of this task.
2. If the technical and assembly workers are citizens of a country other than the Republic of Poland, the Supplier shall ensure that at least one of them has a communicative command of Polish or English or the Supplier shall provide, at the installation stage, at the Supplier’s own expense, an interpreter for the whole duration of the works relating to installation and commissioning of the cranes.
3. At the same time, all tender correspondence between the Parties shall be maintained in Polish. It shall be permissible to maintain correspondence in a bilingual PL/EN version, save that **the Polish version shall prevail in the event of any doubt**.
4. The Supplier shall provide:
* a Construction Manager holding licences required under Polish laws and regulations and a certificate of membership of the appropriate chamber,
* Design Work Manager,
* Full surveyor’s supervision relating to the proper foundation of the crane, if required,
* Personal protective equipment and Covid testing for employees, in a manner that ensures the highest standards of epidemiological safety.
* Protective equipment in accordance with occupational safety and health regulations.

### TRAININGS

The Ordering Party requires the Supplier to conduct, without unnecessary delay after the cranes have been approved for use by the Transport Technical Supervision, trainings for the crane operators in crane operation and maintenance. The Ordering Party assumes that **14 employees of the Ordering Party will undergo training.** Training of crane operators and technicians responsible for crane maintenance shall be conducted in Polish on the premises of the terminal of PCC Intermodal in Kutno.

The training shall consist of theoretical (1 day) and practical (5 days) parts.

**1. Training in maintenance:**

**(a) crane:**

- at least 5 days of training for the electrician(s)

- at least 5 days for mechanics

**(b) spreader:**

- at least one training day

Additionally, 2 persons trained in maintenance will participate in crane inspections and maintenance performed by the Supplier's service technicians.

**2. Training in crane operation:**

Within 14 days of the date of issuance by the Transport Technical Supervision of the approval of the cranes for use, a training lasting at least five days shall be organised at the terminal for crane operators and conducted in Polish. A training day shall last no longer than eight hours with one 30-minute break. In the event that the epidemiological threat persists, the training shall take place in at least three five-day rounds, depending on the situation and the decision of the Head of the Terminal.

The training shall take place from Monday to Friday. The training shall be conducted by a person proficient in the operation of eRTG cranes. After the training, all participants shall know how to correctly and safely operate the crane and all the equipment necessary for operational work, be able to interpret the most common error or fault messages, be able to operate all the systems supporting the operation.

Crane operators shall be instructed as to what ongoing maintenance works must be carried out before and after starting work.

The Ordering Party reserves the right to obtain assistance from the crane Supplier with whom the agreement will be signed as regards development of the training manual required by the crane regulatory agencies. On the basis of internal instruction manuals of PCC Intermodal S.A. concerning trainings for operators, the Ordering Party will train new operators and, on the basis of the above-mentioned instruction manuals, a competent authority will conduct examinations for operators, leading to obtaining proper licences.

The training programme shall be subject to approval of the competent Technical Supervision Authority. The final development and approval of these instruction manuals shall the responsibility of the Ordering Party. The crane Supplier shall not be responsible for the outcome of operator examinations.

### ADDITIONAL GUIDELINES AND ASSUMPTIONS FOR CALCULATION OF THE TENDER PRICE

The amounts of prices and remuneration for the performance of the subject-matter of the tender procedure shall take into account the guidelines referred to in the Specification, and in particular they shall include the activities referred to in items 1-12 in the introductory part of the Specification "Scope of the tender procedure" (pp. 6-7).

The tender shall take into account the Supplier's obligation to bear the costs of:

* performing installation and connection works necessary for proper performance of the subject-matter of the supply agreement, as well as those that result from the applicable laws and regulations,
* ensuring supervision of authorities and technical services, as required under laws and regulations, during the performance of installation and connection works.
* providing and agreeing upon with the supervisory authority (Transport Technical Supervision) the required documentation.

All proposed systems and materials shall have relevant declarations of conformity or certificates required under laws and regulations in force in the place of operation. The Supplier shall also be obliged to provide a set of documents, certificates and attestations required in the process of obtaining the approval for use.

The Supplier shall be obliged to obtain the appropriate complete permits to operate both eRTG cranes as part of the flat-rate remuneration.

**The final acceptance of the cranes by the Ordering Party shall take place after acceptance by the competent supervisory authority (Transport Technical Supervision).**

### PRICE INDEXATION

The price for eRTG crane servicing works, the flat-rate price for getting to the Ordering Party’s premises and the price for 1 manhour shall be subject to indexation based on the HICP index once a year. The first indexation may occur no earlier than 1 January 2024, in accordance with the following formula:

**M1** = M x $\frac{HICP(1)}{HICP(0)}$, **R1** = R x $\frac{HICP(1)}{HICP(0)}$, **T1** = T x $\frac{HICP(1)}{HICP(0)}$

where:

M, R, T - individual tender prices

M1, R1, T1 - individual prices after indexation

$HICP$**(1)** – EU 27 Harmonised Index of Consumer Prices available on Eurostat website, calculated as of the month preceding the indexation month.

$HICP$**(0)** - EU 27 Harmonised Index of Consumer Prices available on Eurostat website, calculated as of the month of submission of the Tender:

In the event of the **price for servicing works**, crane inspections scheduled for a given year shall be subject to indexation.

## PART IV. FORMAL INFORMATION - SUBMISSION OF A TENDER

### FORMAL REQUIREMENTS FOR TENDERERS AND TENDERS, TENDER PROCEDURE AND AWARD CRITERION

**The Tenderers satisfying the following conditions may apply for the award of the contract:**

Tenderers that satisfy the terms and conditions of participation in the tender procedure, specified in this Specification and in the Agreement Conclusion Procedure of PCC Intermodal S.A., in force as of the date of publishing information about this tender procedure (applies to projects co-financed from EU funds within the framework of the Operational Programme Infrastructure and Environment 2014-2020, available at: <https://www.pccintermodal.pl/przetargi/>), i.e.

(a) Tenderers that have the experience and necessary knowledge within the scope resulting from the detailed requirements described in this Specification;

(b) Tenderers that have the capacity and resources allowing to complete the contract;

(c) Tenderers that are in a good economic and financial position, allowing to complete the contract,

(d) Tenderers that are not excluded for the reasons defined in the Specification.

### TERMS AND CONDITIONS OF ADMISSION OF A TENDERER TO AN AUCTION

The condition for the evaluation of the sent offer is the submission of the offer form, completed and signed in accordance with the Bidder's representation (Annex 1 to the Specification), along with the following formal documents:

1. A valid1 **registration document** or an extract from the court or administrative register for the Tenderer, allowing to determine the persons authorised to represent the Tenderer, if it is not available at <https://ems.ms.gov.pl/> or <https://ceidg.gov.pl/>; in respect of the persons whose authorisation is not yet entered into the court or administrative registers, a valid1 instrument of appointment or commercial power of attorney shall be produced.
2. A valid 1 **power of attorney** for representation, if the Tenderer is represented by an attorney; a consortium member shall present the power of attorney granted to the consortium's attorney referred to in item 9 below, and if, at the time of granting the power of attorney or concluding the consortium agreement, it was represented by an attorney, it shall also present a valid power of attorney to carry out such actions.
3. A valid1 **certificate issued by the Head of a relevant Tax Office** and a relevant branch of the **Social Insurance Institution**, confirming respectively that the Tenderer is not in arrears with payment of taxes, health and social insurance contributions, or certificates that the Tenderer has obtained an exemption, deferral or putting into instalments of arrears or suspension in full of the performance of a decision issued by a relevant authority.
4. **References confirming the necessary knowledge and experience** in performing tasks of a similar nature, scope and technical complexity, (i.e. stacking height minimum 4+1; eRTG wheelbase, stacking fields minimum 7+1).
**Minimum 1**, but no more than 5 references **given to the Tenderer by recipients of eRTG gantry cranes, i.e. Purely electrified cranes, the supply of which was provided by the Tenderer on its own**, i.e. the eRTG gantry cranes were manufactured and supplied by the Tenderer. The condition of participation in the tender procedure shall be demonstration that the Tenderer has supplied at least 2 eRTG cranes in the period from 2017 to the date of announcement of this tender procedure**.** References shall include at least the following information:
* country of delivery,
* number of supplied cranes,
* general technical data of the supplied cranes,
* period of performance,
* positive opinion of the client concerning fulfilment by the Tenderer of the terms and conditions of the concluded contract,
* contact details of the person that issued the references.

The Ordering Party reserves the right to verify the submitted references; therefore, the Ordering Party requires that the references include contact details of a person (phone number and e-mail address) who will be able to provide information if the Ordering Party has any questions regarding the cooperation between the Tenderer and the entity that provided the reference.

1. Price form, filled in and signed by the Tenderer, in accordance with Annexe No. 3 to the Specification.
2. An insurance policy or any other document certifying **professional liability insurance** of the Tenderer, with the sum insured not lower than the offered price for the supply of the cranes in the basic version (i.e. without taking into account the price for options)**.**

With reference to the consortium, the above obligation means the obligation to submit policies of individual consortium members with the sum insured corresponding to the final price offered. The terms and conditions of maintaining the professional liability policy by the Supplier during the period of performance of the supply and servicing agreements shall be specified in each of the agreements.

1. **In order to ensure the effectiveness of the auction procedure and the fulfilment of the obligation to provide a complete Tender** that complies with the requirements of the Specification, the Tenderer shall be obliged to provide a tender guarantee in cash or in the form of a bank or insurance guarantee.

**The amount of the tender guarantee: EUR 180,000.**

The Ordering Party accepts the possibility of providing the tender guarantee in the form of a bank or insurance guarantee or in cash.

The tender guarantee **in the form of a bank or insurance guarantee** shall be irrevocable, unconditional and payable to one of the following accounts of PCC Intermodal S.A., at the first demand submitted to the guarantor. **The tender guarantee shall cover the Tender validity period from the date designated for submitting bids to the end of the Tender validity period, i.e. from 19/01/2022 to 20/03/2022.** The content of the bank or insurance guarantee shall be agreed upon with the Ordering Party by e-mail before it is submitted.

The **original guarantee shall be provided to the Client as one of the documents confirming the fulfillment of formal requirements with the Tender**, no later than 19/01/2022.

It shall be acceptable to provide the tender guarantee bearing a qualified signature; however, the person appending the qualified signature shall document his/her capacity to represent the guarantor (in accordance with the content of the entry into the National Court Register) or present a power of attorney signed with a qualified signature by the persons entered into the National Court Register.

The amount of the tender guarantee in **cash**, in EUR currency, shall be credited to the account of PCC Intermodal S.A.: BGK Oddział we Wrocławiu, for **EUR: 77 1130 1033 0018 8179 3520 0001 SWIFT GOSKPLPW**, no later than **in the date indicated as day of Tender submission**, and electronic evidence of its payment shall be sent with the Tender.

It shall be acceptable to provide the tender guarantee in the form of the above-mentioned bank or insurance guarantee or in cash **in PLN currency**, to the account of PCC Intermodal S.A. If the tender guarantee is provided in PLN, it shall be paid to the following account number: **77 1130 1033 0018 8179 3520 0001.** The average exchange rate as announced by the National Bank of Poland as of the date preceding the date of issuance of the guarantee or the date preceding the payment of the tender guarantee to the account shall be applied.

The tender guarantee provided by a **consortium** shall be subject to the same rules, but in the content of the guarantee or transfer description the Tenderer shall indicate to which consortium the tender guarantee relates.

The tender guarantee shall be refunded to the Tenderer whose Tender is accepted by PCC Intermodal S.A., within 7 days of the date of signing the agreement by PCC Intermodal S.A. The tender guarantee shall be refunded to other Tenderers without unnecessary delay after notification that their Tenders have not been accepted. The tender guarantee refunded on time shall not bear interest.

The tender guarantee may be forfeited to PCC Intermodal S.A. in the following events:

1. The Tenderer **withdraws from the tender procedure** after submitting the Tenderer,
2. The Tenderer **provides a tender whose content does not conform with the Specification** and, despite a request for supplementation of the Tender, the Tenderer fails to supplement the Tender within 5 business days counting from the date of the notification of the Tenderer,sent by electronic means to the e-mail address indicated by the Tenderer in the tender form.
3. The Client consents to Tenderers jointly applying for the award of the contract **(consortia**). The consortium agreement and the power of attorney granted to the person representing the consortium (consortium’s attorney) shall be the documents confirming joint application for the award of the contract. Tenderers jointly applying for the award of the contract shall appoint an attorney to represent them in the tender procedure or to represent them in the tender procedure and at the time of the conclusion of the agreement, and indicate the consortium member to pay the tender guarantee on behalf of the consortium. In the event of Tenderers jointly applying for the award of the contract (consortium), the terms and conditions of participation in the tender procedure may be satisfied by them jointly, save that the required documents listed in items 1, 2 and 3 above shall be submitted for/by each consortium member. The Client does not accept Tenderers using the potential of any third parties while demonstrating the satisfaction of the terms and conditions of participation in the tender procedure. Tenderers jointly applying for the award of the contract shall present an agreement governing in particular the principles of the cooperation between consortium members and establishing the Consortium Leader authorised to contact the Client as regards the participation in the tender and procedure and the performance of the contract. The Client requires that the consortium agreement shall regulate in a comprehensive manner the division of responsibilities between the members of the Consortium as regards performance of all obligations arising from the subject-matter of the contract, including indicating the Leader as a member of the Consortium responsible for issuing invoices to the Client and establishing the principle of joint and several liability of the members of the Consortium for obligations of the members of the Consortium under the agreement concluded between them and the Client, and that any amendment of the content of the consortium agreement shall be subject to the Client’s approval. Irrespective of the content of the consortium agreement, acceptance of the Consortium's Tender shall mean joint and several liability of the Consortium members, which shall be understood as liability in accordance with the principles laid down in Articles 366-378 of the Polish Civil Code. Furthermore, the Client’s declarations and performances made towards the Consortium Leader shall be effective towards other members of the Consortium. The Consortium Leader shall be irrevocably authorised to represent the other members of the Consortium towards the Client during the performance of the agreement in all matters concerning the agreement, including to sign amendments in all matters related to the performance of the agreement. Any declarations or actions of the Consortium Leader shall also be deemed as declarations or actions of the other members of the Consortium.

### FORMAL REQUIREMENTS

All powers of attorney referred to in the Specification shall be submitted in the original or as a notarised copy. The other documents shall be submitted in the original or a copy certified as a true copy of the original by the Tenderer (Consortium member) or its representative.

It is permissible for all the above documents, including powers of attorney, to be sent in an uncompressed electronic version with a qualified signature, and the size of data sent in a single e-mail should not exceed 20 MB. If the number of scans exceeds this value, the documents should be sent in several numbered emails. It is recommended to send a separate message with the list of contents of each e-mail with documents.

If, in the country of the Tenderer’s registered office, the documents referred to above are not issued, they shall be replaced by an appropriate declaration and documents that are commonly used in this respect.

If, while demonstrating the satisfaction of the terms and conditions of participation in the tender procedure, the Tenderer presents documents or declarations issued in a language other than the Polish language, the Tenderer shall provide them together with a **reliable and correct translation into the Polish language**. The Tenderer shall be liable for the correctness of the translation.

In the event the value given in the documents is denominated in a currency other than EUR, for the purpose of evaluating the satisfaction of the condition, the Client shall apply, for the purpose of the translation of the value of performed services, the average exchange rate of the National Bank of Poland as of the date of opening the tender procedure, i.e. the date of publishing the contract notice.

The Ordering Party attaches to the Specification Annexes, which shall apply in the content provided by the Client, as listed on the last page of the Specification. The Tenderer shall complete and sign the Annexes as indicated. No erasure or addition intended to change their content shall be admissible and all such erasures and additions shall be treated as failure to submit a given document.

### PROCEDURE AND CRITERION

The submitted documents and declarations shall be evaluated for completeness and compliance with the requirements defined in this Specification.

The entities that provide complete and valid documents satisfying the criteria described in the Specification within the required time limit shall take part in the electronic auction. An invitation to participate in the auction shall be sent by the Client.

**Only tenders submitted by entities satisfying the formal criteria shall be evaluated.**

As of the date of publication of this tender procedure, the Client shall set an appropriate, generally accepted and applicable time limit for drafting tenders, including the preparation and submission of formal documents. In view of the above, the Client expects the Tenderers interested in participating in the tender procedure to submit, in a timely and reliable manner, a set of required, correctly completed and signed documents.

Thus, in order to efficiently organise the entire tender process, **in the event of any deficiency or irregularity** in the documents sent by a given Tenderer prior to the electronic auction, the Client shall request each of the Tenderers in whose documents any deficiency or irregularity has been found to give an explanation or supplement the deficiency within **5 business days of the date of notification of the deficiency or irregularity**. In the event of occurrence of the above-mentioned situation, the request for explanation or supplementation of data shall be addressed to the Tenderer **only in electronic form**. Failure to respond to the request within the set time limit or provision of a supplementation that contains any further deficiencies or irregularities in the supplemented materials shall be treated as incompleteness, which may result in the exclusion of the Tenderer. Supplements submitted after the lapse of the time limit shall not be considered.

### TENDER EVALUATION CRITERIA

The only criterion for selection of the crane Supplier to be entrusted with the performance of the task shall be the **value of the “W” index**, as described further in the Specification. The prices (remuneration) composing “W” shall be quoted as net prices (i.e. excluding VAT), and denominated in EUR.

The best tender shall be the one that satisfies the requirements resulting from this Specification and **has the lowest “W” index**, calculated in accordance with the formula described in the further part of the Specification.

### QUESTIONS AND ANSWERS

Please send any questions you may have regarding the subject-matter of the tender procedure and the Specification by e-mail to przetargi.kutno@pcc.eu by **15/12/2021, 15:00 hrs.**. In the subject of the question please indicate that the question concerns: “Tender procedure for supply of eRTG cranes”. The Ordering Party shall not be obliged to answer questions submitted after that date.

Answers to questions asked by one Tenderer shall be sent to all Tenderers, without information about the Tenderer that asked the question. Questions shall be answered on an ongoing basis by means of publication on the Ordering Party's website <https://www.pccintermodal.pl/przetargi/> as well as in the Competitiveness Database <https://bazakonkurencyjnosci.funduszeeuropejskie.gov.pl/>. The questions and answers, asked and answered in the course of the tender procedure, shall be listed by the Client and made available on the Ordering Party’s website <https://www.pccintermodal.pl/przetargi/> and in the Competitiveness Database <https://bazakonkurencyjnosci.funduszeeuropejskie.gov.pl/>.

The list of questions and answers shall be made available by the Client to Tenderers upon completion of the process of answering questions by the Ordering Party.

The list of questions and answers shall be signed by the Tenderer and attached **to the Tender as** Annexe No. 3 to the supply agreement and to the servicing agreement. A Tender without a list of questions and answers **shall not be deemed as complete**. If, in the course of questions asked by Tenderers, the Client changes the content of the Specification or the content of one or both agreements, the Client shall notify Tenderers by publishing the information about the change in the Competitiveness Database: <https://bazakonkurencyjnosci.funduszeeuropejskie.gov.pl/> and by publishing the changes together with any files to be downloaded at [https://www.pccintermodal.pl/przetargi/](https://www.pccintermodal.pl/przetargi/o) . In such event, the introduced and published changes shall be binding on all Tenderers.

Any changes or additions to the content of this Specification, including the draft supply agreement and the draft servicing agreement, related to answering Tenderers' questions asked in the manner presented above, shall be made by the Ordering Party to the original texts, before the lapse of the time limit for submission of tenders, and published as consolidated texts at https://www.pccintermodal.pl/przetargi and, insofar as possible, in the Competitiveness Database <https://bazakonkurencyjnosci.funduszeeuropejskie.gov.pl/> , together with a notice of the consolidated texts published in the Competitive Database: <https://bazakonkurencyjnosci.funduszeeuropejskie.gov.pl/> .

Printing by the Tenderer of such consolidated version of the draft supply agreement and the draft servicing agreement and of the consolidated text of the Specification of the subject-matter of the tender procedure shall be attached by the Tenderer to the complete Tender submitted in accordance with the provisions of Part IV, item 11 of this Specification.

### EXCLUSION FROM THE TENDER PROCEDURE

The following Tenderers may be excluded from the tender procedure:

1. towards whom liquidation has been instigated or bankruptcy has been declared,
2. who, as a result of purposeful action or gross negligence, have misled the Client at the time of presentation of information by claiming that they are not subject to exclusion, satisfy the terms and conditions of participation in the tender procedure, or that the scope of supply and servicing works offered by them satisfies the requirements defined in the Specification, or who have concealed this information or are unable to provide the required documents,
3. who, due to lack of caution or negligence, have presented information that misled the Client as to the circumstances that may have a significant influence on the Client’s decisions in the tender procedure,
4. against whom a final and non-appealable judgment or a final administrative decision has been entered on the arrears of taxes, social security or health insurance contributions, unless the Tenderer has paid the taxes and contributions due with interest or fines or has entered into a binding agreement on the repayment of these dues,
5. who have entered into an agreement with other entities in order to distort competition in the tender procedure,
6. who, while belonging to the same group with another Tenderer, within the meaning of the Competition and Consumer Protection Act of 16/02/2007, have submitted a separate tender, unless they demonstrate that the relations between them do not lead to distortion of competition,
7. who have not submitted complete formal documents as required,
8. who have submitted all the required formal documents, but do not satisfy the terms or conditions defined in the Specification,
9. who have submitted documents with deficiencies or ambiguities and, despite being requested, have not supplemented them or have not provided explanations within the time limit set by the Client.
10. who have offered the performance of the design works other than in accordance with the Specification.

### PREPARATION OF A PRICE TENDER (PRICE OFFER)

**The price offer should be prepared in accordance with the form provided (Annex 2 to the Specification) and signed by the persons representing the Tenderer, it should be submitted along with the formal documents referred to in points 1-8 in part IV item 1 of the Specification.**

The prices in the offer will be valid when ranking the offers submitted by Bidders, unless the Ordering Party uses the procedure provided for in part V item 2 of the Specification.

The price of the eRTG crane included in the Tender will be expressed in EUR and will be the same for both cranes, regardless of any circumstances that may affect the price differentiation of both cranes.

All prices in the offer will be given in EUR. If it is necessary to convert the EUR - PLN currencies, the average exchange rate of the National Bank of Poland on the day preceding the last day of the offer submission date will apply. The prices should also meet the other conditions set out in this Specification.

The price form attached to the offer (Annex 2 to the Specification) also contains other data, including the possibility of presenting the prices of individual elements of optional equipment. The possibility of providing optional equipment is not obligatory, and the prices of this equipment will not be subject to evaluation of the offers**.**

### EVALUATION OF THE OFFERS. “W” INDEX.

**The value of the “W” index shall be calculated on the basis of the submitted tender** (in accordance with Annexe No. 2 to the Specification), **in accordance with the following formula:**

**W = P + M\*10 + R\*1440 + T\*200**

where:

**W** - index determining in a weighted manner the place of a given tender in the ranking. This index does not represent the total amount to be received by the Tenderer under the supply agreement or the value of the orders for servicing works, but it shall only be used for determining the ranking of the tenders. The best tender shall be deemed the one that satisfies all requirements under this Specification and achieves **the lowest “W” from among all submitted tenders / offers**;

**P** - the price of 1 eRTG crane; In the above “W” formula, the value of P was assumed according to the components resulting from the degree of automation of the crane operation mode, which is described in Part I of the Specification, item 3.4.

 **P= P(a)+P(b), where:**

P(a) - price for delivery of 1 eRTG crane in basic, i.e. semi-automatic mode (a),

P(b) - price for retrofitting the eRTG crane to the automatic mode (b).

**M** - price of servicing works offered for 1 eRTG crane for one year. For the purpose of the evaluation of the offers, the M price shall be multiplied by 10, i.e. theoretically for the period of ten consecutive years.

The price of servicing works shall be calculated only with the assumption of all periodic and preventive actions required to be taken in respect of the crane and its equipment in option (a). The servicing works for the equipment in option (b) shall be agreed upon in the event of purchase of these options.

**R** - flat-rate price for 1 manhour of work of a service technician related to **additional works not covered by the warranty nor performed as part of servicing**. The cost of standard servicing activities of the Supplier's employees shall be included in the M price. For the purpose of the calculation, in “W” formula the R priceshall be multiplied by the estimated value of 1,440, resulting from the Ordering Party's theoretical assumptions concerning the additional servicing works for 720 working hours on Business Days during working hours, i.e. from 8:00 a.m. to 4:00 p.m., and 360 working hours outside the afore-mentioned working hours. The remuneration for work on non-working days was estimated as doubled price for 1 manhour for work on Working Days [720+(2x360)=1440]. **The Tenderer shall only provide the flat-rate price for 1 manhour**;

**T** - flat-rate price for 1 travel of a service technician related to **additional works not covered by the warranty**. Travel of the Supplier's employees in order to perform the standard servicing activities covered by the servicing agreement shall be included in the M price. For the purpose of the calculation, in “W” formula the T priceshall be multiplied by 200, i.e. the theoretical, estimated number of travels to the terminal.

**The Tenderer shall only provide the flat-rate price for 1 travel**.

### SUBMITTING A COMPLETE TENDER

**A complete Tender in accordance** with this Specification in paper or in an electronic version with a qualified signature, including the prices in the suppy agreement and in the servicing agreement, presented along with the offer **to the following address**:

**PCC INTERMODAL S.A. ul. Małachowskiego 1A, 41 – 200 Sosnowiec.**

The submitted Tender shall be permanently stapled, placed in a sealed envelope marked as follows: “**Oferta na dostawę z montażem, uruchomieniem oraz ze świadczeniem usługi serwisu dwóch elektrycznych suwnic placowych typu eRTG”**

In view of the unpredictability of the development of the epidemic, the Ordering Party agrees that the tender may be submitted in electronic form and signed with the use of a qualified signature **to the following address:** przetargi.kutno@pcc.eu

The tenderer is bound by the offer for a period of 60 days from the date designated as the date of submission of tenders.

At the same time, the Ordering Party reserves the right to request the Tenderer/Supplier to submit the Tender signed with a traditional (handwritten) signature within the set time limit, no shorter than 14 days of the request, or to confirm the entire content of the supply agreement in this manner after the conclusion of the supply agreement. The failure by the Tenderer/Supplier to comply with the obligation resulting from the request shall not affect the binding character of its Tender or the supply agreement concluded with it.

### CONTENT OF POST-AUCTION TENDERS

**A complete post-auction Tender with attachments shall be prepared in Polish and include:**

1. **A cover letter**, in which the Tenderer may provide supplementary information to the Tender, if the Tenderer deems such information to be relevant and not in conflict with the provisions of the Specification. The Tenderer may also specify what part of the tender constitutes a business secret. However, the price offer may not be subject to secrecy, since, due to the co-financing of the subject-matter of the contract, the prices finally obtained in the tender procedure shall be published.
2. **Formal documents listed in point 2 of part IV of the Specification.**
3. The text of the **supply agreement** in two counterparts, **signed in accordance with the representation**, of the content conforming with the form provided in Annexe No. 4 to the Specification, supplemented in the dotted spaces, together with Annexes No. 1-7to the supply agreement, i.e.

Annexe No. 1 **Specification of the subject-matter of the tender procedure** *(the text of this Specification in the final version published on* *the Ordering Party’s website at* www.pccintermodal.pl/przetargi/*, but without Annexes to the Specification*);

Annexe No. 2 **Questions and Answers** *(regarding the subject-matter of the tender procedure* - *text published by the Client in accordance with the Specification at the address indicated above*);

Annexe No. 3 **Price Form** *(completed by the Tenderer as stipulated in the form constituting Annexe No. 2* to the Specification)

Annexe No. 4 **Delivery-handover protocol** (*a form of the delivery-handover protocol prepared by the Client*)*;*

Annexe No. 5 **Crane Manufacture, Installation and Commissioning Schedule** *(prepared by the Supplier taking into account the guidelines included in the Specification);*

Annexe No. 6 **Scenarios of the required minimum parameters of operation of the cranes in automatic mode;** *(prepared by the Client*)*;*

Annexe No. 7(a) Drawing of eRTG runways together with power supply locations.

Annexe No. 7(b) Drawing of the cross-section of the eRTG crane runways.

Annexe No. 7(c) Drawing of the supply chamber.

Annexe No. 7 (d) Cable range in relation to stacks and power chamber.

(Appendices No. 7 a-7d developed and made available in the tender by the Ordering Party).

1. The text of the **servicing agreement** in two counterparts, **signed in accordance with the representation**, of the content conforming with the form provided in Annexe No. 5 to the Specification, supplemented in the dotted spaces, together with Annexes No. 1-6to the servicing agreement, i.e.

Annexe No. 1 **Specification of the subject-matter of the tender procedure** *(the text of this Specification in the final version published on the Ordering Party’s website at www.pccintermodal.pl/przetargi/, but without Annexes to the Specification)*ł

Annexe No. 2 **Questions and Answers** (regarding the subject-matter of the tender procedure - *text published by the Client in accordance with the Specification at the address indicated above*);

Annexe No. 3 – **Price form** (*completed by the Tenderer as stipulated in the form constituting Annexe No. 2 to the Specification*)

Annexe No. 4 - **Contact details of the Client's and the Supplier's representatives** *authorised to perform activities relating to the cranes, including to sign protocols (form prepared by the Client);*

Annexe No. 5 - **Schedule of scheduled servicing works** *(prepared by the Tenderer and consistent with the guidelines included in the Specification*);

Annexe No. 6 - **Terms and Conditions of the Warranty for the Cranes** *(prepared by the Tenderer*), provided that they shall not limit the requirements described by the Ordering Party in the Specification and the supply agreement;

Each of the documents composing the Tender, listed in items III - IV, above shall be prepared in two counterparts, signed on the last page in accordance with the representation of the Tenderer.

**Note:**

Since Annexes No. 1, 2 and 3 to the supply agreement are of the same content as Annexes No. 1, 2 and 3 to the servicing agreement, the Tenderer may attach one set of these annexes (in two counterparts), and indicate only in the title of each of them that it is Annexe (appropriately No. 1, 2 or 3) to the supply agreement and the servicing agreement.

### INFORMATION ABOUT THE AGREEMENTS

The Tenderer shall only complete the text of the supply agreement and the servicing agreement in the dotted spaces. Annexes nr. 4 to each agreement are a form of the documents to be drafted in the course of the performance of the agreements; therefore, it shall not be completed or modified.

The text of the agreements may not be crossed out, and no content may be added, except where indicated, otherwise the tender shall be rejected. In the event of any doubt, inquiries shall be sent to the Ordering Party in the manner referred to in this Specification.

This Specification and other Annexes to the supply agreement and the servicing agreement based on it shall be an integral part of these agreements.

## PART V. EVALUATION OF THE SUBMITTED TENDERS, CONCLUSION OF THE AGREEMENT AND CLOSURE OF THE PROCEDURE.

### SELECTION CRITERION

**The criterion for selection of the best Tender shall be the total net remuneration, calculated in accordance with the “W” formula, in accordance with the guidelines provided in this Specification.**

After receiving the Tender, representatives of PCC Intermodal S.A. shall check its completeness and compliance with the requirements of the Specification in a confident manner with regard to formal and substantial aspects.

The Ordering Party emphasises that the submitted Tender cannot imply that the Tenderer is not able to ensure compliance with all technical parameters of the cranes, required by this Specification. Failure to provide certain functionalities or offering them in a manner inconsistent with the Specification may result in rejection of the Tender.

The Ordering Party stipulates that the supplied crane shall undergo verification, on the basis of a protocol, of compliance with the provisions of the Specification and the Tender accepted as a result of the tender procedure. In the event of supply of the crane whose parameters, technical equipment and functionalities, despite previous assurances made by the Tenderer, differ from those offered in the course of the tender procedure, the Ordering Party shall have the right to make the Supplier supplement the deficiencies and remove the inconsistencies, otherwise a penalty may be charged, including rescission of the agreement. Details are included in the supply agreement.

If, as a result of the verification, the **Tender containing** the **lowest “W” index** proves to be complete and consistent with the tender submitted during the auction and with the provisions of this Specification, then the Ordering Party shall notify the Tenderer (contact person) without unnecessary delay, by telephone and in writing, along with sending the **supply agreement and the servicing agreement** signed by the other party, together with the Annexes.

**If the tender is not complete, i.e. it does not comply with the provisions of the Specification, then the Ordering Party shall request the Tenderer to supplement the deficiencies or give explanations, within no less than 5 business days. Failure to supplement the deficiencies or to give sufficient explanations within the time limit set by the Ordering Party shall result in rejection of the tender.**

In such event, the Ordering Party may retain the tender guarantee. In this event, the Ordering Party shall conclude an agreement with the next Tenderer that submitted a complete and correct Tender, by which the Tenderer is bound for 60 days in accordance the provisions of this Specification.

### BUDGET

**In the event that none of the tenders fall within the budget amount, the Ordering Party shall have the right to inform the Tenderers of this fact and request them to submit revised tenders by revising Annexe No. 2 to the Specification and setting the time limit of no more than 5 business days.**

The time limit of 5 days may be extended by the Ordering Party in justified events, at the request of the Tenderer, which shall be communicated to all Tenderers. In that event, the revised wording of Annexe No. 2 to the Specification shall be decisive for the final ranking of the Tenderers in the tender procedure.

The prices presented in Annex No. 2 to the Specification may only be adjusted downwards. In the event described in this paragraph, the Tenderer shall also be entitled to submit a self-amendment of its tender (another downward revision of the price offer). A self-amendment of a tender submitted after the lapse of the time limit set by the Ordering Party shall not affect the ranking of the tender.

### RESERVATIONS AND REMARKS

**The Ordering Party reserves the right to select and accept only one tender.**

The Ordering Party shall not accept partial tenders or tenders based on variant solutions. A Tenderer may only submit one tender. Any costs and expenses connected with preparing the tender shall be borne by the Tenderer.

PCC INTERMODAL S.A. reserves the right to change the terms and conditions and to cancel the tender procedure, at any stage of the procedure, including to change the content of the Specification or leave the tender procedure without determination. The above shall also apply if none of the tenders is lower than the budget adopted by the Ordering Party for this task. In the event of any change of the content of the Specification or any other documents referred to in the Specification, the Ordering Party shall inform all Tenderers, taking into account the time needed by the Tenderers to adapt to the new provisions.

The Specification has been drawn up in two languages - in Polish and English. **In the event of any doubt or discrepancy between these versions, the Polish version shall prevail.**

If necessary, the Tenderer interested in taking part in the tender should translate other documents, including the delivery and service agreement with attachments, for his own needs and on his own. The language in which the delivery and service agreement will be concluded is Polish.

The tender procedure shall be conducted on the basis of the Polish law and the internal Agreement Conclusion Procedure of PCC Intermodal S.A., available at [**www.pccintermodal.pl**](http://www.pccintermodal.pl) in tab “About company/Tenders”.

Any disputes shall be settled by the Polish courts of jurisdiction over the Ordering Party's registered office.

The provisions of the Public Procurement Law of 29 January 2004 shall not apply to this tender procedure.

All costs relating to the preparation of the tender documentation nad Tender shall be borne by the Tenderer.

### INFORMATION ABOUT CO-FINANCING OF THE PROJECT

**PCC Intermodal S.A.** informs that the purchase of the two eRTG cranes is co-financed from the funds of the **Cohesion Fund** within the framework of project No. POIS.03.02.00-00-0016/17 entitled: “EXPANSION OF THE INTERMODAL CONTAINER TERMINAL IN KUTNO AND THE PURCHASE OF THE EQUIPMENT SUPPORTING ITS OPERATIONS”.

### GDPR:

Pursuant to Article 13(1) and (2) of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (O J EU L 119 of 4 May 2016, page 1) (the “GDPR”), the Ordering Party informs that:

1. the controller is PCC Intermodal SA, ul. Hutnicza 16, 81-061 Gdynia;
2. personal data shall be processed under Article 6(1)(c)of the GDPR for the purpose relating to the tender procedure for the "**supply, together with installation, commissioning and servicing, of two electrified rubber-tyred gantry cranes (eRTG)**”, in accordance with the principle of competitiveness;
3. the recipients of personal data shall be persons or entities to whom the documentation of the tender procedure will be made available on the basis of the Specification and subsection 6.5 of the Guidelines on the Eligibility of Expenditure within the framework of the European Regional Development Fund, the European Social Fund and the Cohesion Fund for 2014-2020 (the “Guidelines”);
4. personal data shall be stored for the period of 5 years of the date of the final payment made to the Supplier;
5. the obligation to provide personal data directly relating to the data subject is a requirement specified in the provisions of the Guidelines, connected with participation in the contract award procedure; consequences of failure to provide certain data result from the Guidelines;
6. no automated decision-making shall be carried out in respect of personal data, in accordance with Article 22 of the GDPR;
7. an individual shall have the following rights:
* the right to request access to his/her personal data under Article 15 of the GDPR;
* the right to request rectification of his/her personal data under Article 16 of the GDPR;
* the right to request the controller to restrict the processing of his/her personal data under Article 18 of the GDPR, subject to the cases referred to in Article 18(2) of the GDPR;
* the right to file a complaint with the President of the Personal Data Protection Office, if, in his/her opinion, the processing of his/her personal data violates the provisions of the GDPR;
1. an individual shall not have the right to:
* request erasure of his/her personal data, in connection with Article 17(3)(b), (d) or (e) of the GDPR;
* data portability as referred to in Article 20 of the GDPR;
* object to the processing of his/her personal data under Article 21 of the GDPR, since the legal basis for the processing of his/her personal data is Article 6(1)(c) of the GDPR.

The Ordering Party informs that in connection with the applicable data protection laws and regulations and the guidelines of the entity co-financing the project, the Tenderer with whom the supply agreement will be signed shall be obliged to sign with the Ordering Party **a data processing agreement,** the form of which constitutes Annexe No. 7 to the Specification. The data processing agreement shall be signed within two weeks of the date of the Ordering Party's request, but no later than two month of the date of conclusion of the supply agreement, under the pain of penalties in the event of the Supplier's delay in relation to the time limit set by the Client for signing and delivering this agreement.

### ANNEXES TO THE SPECIFICATION OF THE SUBJECT-MATTER OF THE TENDER PROCEDURE:

1) Auction tender form

2) Price form *(completed before the electronic auction as the auction tender, and completed after the auction as Annexe No. 3 to the supply agreement and (at the same time) Annexe No. 3 to the servicing agreement*).

3) Supply agreement *(form*),

together with Annexes :

* No. 4 - Delivery-Handover Protocol *(form*).
* No. 6 - Scenarios of the required minimum parameters of operation of the cranes in automatic mode.
* No. 7(a) Drawing of eRTG crane runways together with power supply locations.
* No. 7(b) Drawing of the cross-section of the eRTG crane runways.
* No. 7(c) Drawing of the supply chamber.
* No. 7(d) Drawing of cable range in relation to stacks and power chamber (attachment\_A\_to\_QA3)

4) Servicing agreement **(***form***),**

together with Annexe No. 4 to the servicing agreement - Contact data of representatives of the Client and the Supplier *(form*).

**5)** Instructions on and rules for staying and moving around the Container Terminal of PCC Intermodal S.A. in Kutno.

**6) Data processing agreement.**