# SPECIFICATION OF THE SUBJECT-MATTER OF THE TENDER PROCEDURE

PCC Intermodal S.A. invites tenderers to submit tenders for performance of the following task:

**supply together with installation, commissioning** and servicing of **three rail mounted gantry cranes (RMG)for the following tasks:**

**“EXPANSION OF THE INTERMODAL CONTAINER TERMINAL IN KUTNO AND THE PURCHASE OF THE EQUIPMENT SUPPORTING ITS OPERATIONS”**

**and**

**“EXPANSION OF THE INTERMODAL HANDLING TERMINAL TOGETHER WITH ACCOMPANYING FACILITIES IN BRZEG DOLNY, UL. SIENKIEWICZA 6.”**

**THE ABOVE TASKS ARE 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)**

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# PURPOSE OF THE TENDER PROCEDURE

**The purpose of the tender procedure is to select the Tenderer that will supply complete RMG cranes allowing to provide handling services in accordance with this Specification of the subject-mater of the tender procedure.**

**SUBJECT-MATTER OF THE TENDER PROCEDURE**

**The subject-matter of the tender procedure is the supply of three cranes as part of the two tasks:**

1. As part of Task 1 - supply of one RMG crane to the container terminal in KUTNO
2. As part of Task 2 - supply of two RMG cranes to the container terminal in Brzeg Dolny.

**The crane supplied as part of Task 1 shall cooperate smoothly with the cranes currently operated at the terminal.**

**The cranes supplied as part of Task 2 shall allow for installing a third crane on the same runway (in the same working area) in the future.**

The Ordering Party assumes the purchase of the 3 cranes from one Supplier, therefore the Tenderer may submit a tender for the performance of Task 1 and Task 2 at the same time. Partial tenders or tenders submitted for one of the Tasks shall not be considered by the Ordering Party.

As part of the performed Tasks, the Supplier shall ensure servicing of the supplied cranes. The complete cranes shall be handed over to the Ordering Party as approved for operation in accordance with applicable laws and regulations.

**CPV Code 42414210-6 cranes**

# 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.

**RMG, crane** - terms used interchangeably to define the subject-matter of the contract.

**tender** - a set of documents sent to the Ordering Party within the time limit set by the Ordering Party, including the form constituting Annexe No. 1 to the Specification, formal documents and two copies of the supply agreement and two copies of the servicing agreement signed by the Tenderer, together with annexes.

**Specification** - this Specification of the subject-matter of the tender procedure.

**Task 1 - supply of one RMG crane to the container terminal in Kutno, in accordance with the requirements of this Specification.**

**Task 2 - supply of two RMG cranes to the container terminal in Brzeg Dolny, in accordance with the requirements of this Specification.**

**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.

**Specification -** the present Specification of the Subject of the Tender

# 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 the crane, taking into account optimal operation and cost parameters, for PCC Intermodal S.A. terminals in Kutno and in Brzeg Dolny, 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 complete RMG cranes, respectively for a given Task, together with the equipment and remote operating stations (ROS), in accordance with the Specification,
3. Delivery to the terminal, appropriate for the Task, together with unloading, installation and all actions, as well as the necessary insurances and custom duties
4. Power supply from the cable connection together with equipping the crane with a power cable, power cable reeling devices, MV junction boxes together with an element (funnel) leading the cables outside, from each supply chamber,
5. Performance of technological start-ups and the necessary operational tests and acceptances,
6. Development and submission of complete technical documentation of the cranes in paper and electronic versions in Polish and English,
7. Training the staff designated by the Ordering Party in the field of management, operation and maintenance of the crane at the terminal,
8. Preparation and submission of instructions for use and operation of the crane,
9. Obtaining appropriate authorisations for each of the cranes from a competent acceptance body, together with an approval for use, if such obligation is imposed by applicable laws and regulations as of the acceptance date,
10. Performance of all actions defined in the Specification and in the Agreement, and all other actions necessary for the proper operation and use of the crane, as specified in the servicing agreement,
11. Provision of full maintenance and post-warranty service of the cranes within the period of operation set approximately in the tender specification and the servicing agreement,
12. Provision of post-warranty service for the crane during the life of the crane,
13. Assistance with development of the internal manual of PCC Intermodal S.A. concerning the training of operators, including controlling the cranes with the use of the Remote Operating Station, 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 authorisations and conducting necessary trainings in the operation and use of the crane and handing over the crane to the Ordering Party, not to fall later than:**

- within 16 months and 23 days from the conclusion of the Agreement, for Task 1

- within 17 months and 23 days from the conclusion of the Agreement“, for Task 2

In the schedule of task performance, the date of conclusion of the agreement shall be adopted as the date when the Supplier shall commence work. The Ordering Party expects:

* the complete documentation for the RMG cranes together with necessary approvals to be ready within **six months** of the date of concluding the agreement;
* complete structural elements of the cranes to be delivered to the Ordering Party's container terminals in accordance with the Tasks no later than

- 15 months from the conclusion of the Agreement in relation to Task 1,

- 16 months from the conclusion of the Agreement in relation to Task 2,

* the cranes to be installed, commissioned and ready for making technical acceptance, for conducting operator trainings
1. one gantry covered by Task 1 - within 16 months and 15 days from the conclusion of the Agreement,
2. two cranes covered by Task 2 - within 17 months and 15 days from the conclusion of the Agreement.
* The Supplier shall obtain the required permits and approvals for use prior to the date of final hand-over of each of the cranes to the Ordering Party;

the final hand-over of the RMG crane to the Ordering Party, together with relevant documentation and certificates of staff training in operation and maintenance, shall be made in the form of a final acceptance protocol, no later than:

- within 16 months and 23 days from the conclusion of the Agreement, for one gantry covered by Task 1

- within 17 months and 23 days from the conclusion of the Agreement, for two cranes covered by Task 2

The above dates *(milestones*) shall be taken into account by the Tenderer in the Schedule of the works, including the information on the dates of manufacture, installation and commissioning of each of the cranes as part of the Tasks, to be prepared by the Tenderer and submitted as Annexe No. 5 to the supply agreement (in the 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.

# PART I - TECHNICAL SPECIFICATION

TECHNICAL GUIDELINES FOR THE PREPARATION OF TENDERS FOR RMG CRANES

**Preliminary description**

**The Ordering Parry expects entities interested in the execution of the Tasks to submit tenders for the supply of three RMG cranes:**

-**for Task 1 - 1 crane** with one-sided overhang above the terminal surface, beyond the supports, allowing to handle three rows **and two stacks (2+1) of** containers + one vehicular traffic lane **in accordance with drawing No 8a – the operation of the container terminal in Kutno.**

-**for Task 2 - 2 cranes** with two-sided overhang above the road and buffer **allowing to perform handling operations on 4 railway tracks (two of them under cantilever), 2 rows of containers - quick reloading buffer (2+1), 2 vehicular traffic lanes (truck lanes), 7 rows of containers under the crane and four stacks (4+1) and then under cantilever alternatively buffer 1 row of containers (2+1) or one vehicular traffic lane in accordance with drawing No. 8b – the operation of the container terminal in Brzeg Dolny in accordance with the requirements defined for each of the Tasks in this Specification.**

**The cranes delivered to Brzeg Dolny should be prepared to change the layout of the yard. The Ordering Party reserves the right to change, for example, to change the quick reloading buffer zone to truck lanes, and the truck lanes to additional 2 rows of containers (4 + 1).**

**Unless otherwise indicated in the Specification, it shall be assumed that all requirements apply to both Tasks.**

The existing conditions at the terminal in Kutno Task 1

At present, train handling operations are carried out by two RMG cranes, which service the rail part together with a part of the road lane of the terminal directly adjacent to the rail part. At present, the cranes travel on the same runways of the length of about 660 m (about 600 m of operational length and about 60 m of "parking" space, about 30 m at the end of each runway). Ultimately, all three cranes will travel along an extended runway of the length of approximately 700 m, with the eastern end of the runway intended as the parking area for one crane and the western end for two cranes. The Investor does not exclude temporary handling of trains with the use of reach stackers in the event of failure or servicing and maintenance works; therefore, the head of the runway built in the terminal slab has been designed at the same level as the terminal slab.

As a consequence of the possibility of using different train handling equipment, the crane support with drive components, a power supply unit and a power cable shall be located on the northern side of the terminal (opposite the terminal surface, at track number 50). On the same side, there shall also be stairs and landings allowing to get on/off the crane, which shall not interfere with the route of the cable feeding all three cranes. Appropriate clearance lines to terminal facilities, e.g. lamps, the fencing, as well as to the stack of containers and wagons with containers on the tracks under the crane shall be maintained.

The existing conditions at the terminal in Brzeg Dolny Task 2

At present, train handling operations are carried out with the use of reach-stackers, which service the rail part together with a part of the road lane of the terminal directly adjacent to the rail part. In the course of the expansion implemented by the Ordering Party, there will be built runways of the length of about 660 m (about 600 m of operational length and about 60 m of "parking" space, about 28 m at the end of each runway). At the end of the foundations, a fixed buffer element shall be constructed, while on the crane, bumpers shall be designed and installed to work with these buffer elements and between the bumpers of individual cranes. Ultimately, three cranes are planned to be installed on the runways. Parking areas for the cranes have been planned at the ends of the runways, with the northern end of the runway (office building) to be used as a parking area for one crane and the southern end for two cranes. For the purpose of the supply of the cranes as part of Task 2, it shall be assumed that the cranes are parked at the ends of the runway. The investor does not exclude temporary handling of trains with the use of reach stackers in the event of failure, servicing and maintenance works or other events after excluding the possibility of the crane operation in the area of operation of the reach stacker.

As a consequence of the possibility of using different train handling equipment, the crane support with drive components, a power supply unit and a power cable shall be located on the western side of the terminal (opposite the rail part and the terminal, at the access road and the buffer zone (2+1 containers). On the same side, there shall also be stairs and landings allowing to get on/off the crane, which shall not interfere with the route of the cable feeding the cranes (ultimately all three cranes). Appropriate clearance lines to terminal facilities, e.g. lamps, the fencing, as well as to the stack of containers and wagons with containers on the tracks under the crane shall be maintained.

Requirements for Task 1 and Task 2:

The Ordering Party assumes that each crane will be able to operate along the entire operational length of the runway, with another crane parked at the end and temporarily shut down. The place of power supply for the cranes is shown in Annexe No. 10. In the event of failure of the crane or immobilisation of the crane (e.g. due to lack of power supply), the Supplier shall, at the design stage, indicate in the documentation regarding the use of the equipment, a safe method of placing or moving the cranes to the parking area so as to park the crane and vacate the operational area for other cranes, or, in the event of power supply failure, allow for emergency handling with the use of reach stackers.

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 IV item 6 of the Specification.

## GENERAL FUNCTIONAL REQUIREMENTS FOR THE CRANES

**Project description**

The task includes the design and manufacture of complete electrified **rail mounted gantry cranes (RMG)** for Task 1 and Task 2, of the rated load of 41 metric tonnes under the spreader, with a remote operating station (including 2 control stations for each of the Tasks) 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.

1.1 Location

The cranes shall be delivered and installed in the Ordering Party’s location, for

Task 1 - at the container terminal of PCC Intermodal S.A. in Kutno, ul. Intermodalna 5.

Task 2 - at the container terminal of PCC Intermodal S.A. in Brzeg Dolny, ul. Sienkiewicza 6.

1.2 The Ordering Party’s key requirement

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 a given 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 the same handling operation in respect of a given container.

For the purpose of this Specification and the Agreement, 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 below).

Reinforcing, cutting and/or replacing corroded, worn or defective steel or its fastening elements, etc. shall constitute repair works, not maintenance works.

1. For the paint coating, acceptable routine maintenance shall include:
	* Preparation and coating the existing paint system in the 10th year counting from the date of the crane final 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 the crane final hand-over protocol.
	* 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.
2. 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. Replacement, if any, of parts during the period of the warranty granted by the Supplier shall be included in the fee for the crane.
3. The above 1-3 conditions 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 the Agreement or otherwise, including in respect of defects.

## GENERAL DESIGN CRITERIA

2.1 Type of the crane

The cranes shall be electrically powered and equipped with a cab and the Remote Operating Station (ROS) for each Task. The cranes shall be connected by the Supplier to the power source located in the existing crane power supply chamber.

The supply chamber shall be made by the Ordering Party.

**The crane covered by Task 1** shall be made as a wheeled rail mounted gantry crane (RMG) with a self-propelled trolley and a cab, similarly to the two cranes operating in Kutno, with extension of the functionality of the third crane covered by this tender procedure with a remote control system delivered and commissioned by the Supplier, with 2 operators' stations together with necessary equipment (ROS), which shall be installed by the Supplier in the rooms of the Ordering Party's office building.

**The two cranes covered by Task 2** shall be made as a wheeled rail mounted gantry cranes (RMG) with a self-propelled trolley, a cab and a remote control system delivered by the Supplier, with 2 operators' stations together with necessary equipment (ROS), which shall be installed by the Supplier in the rooms of the Ordering Party's office building

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, successfully operating in cranes with similar capabilities, currently used for container handling operations at modern container terminals.

2.2 Type of cargo handled

Required type of cargo to be handled by the crane:

1. ISO 20’, 30’ and 40’ 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, from 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.

2.3 Working environment and purpose of the project

1. The cranes shall be suitable for continuous operation (24/7) and for all weather conditions, in particular the conditions specified in item I 2 .10 Weather conditions. All electrical, electronic, and mechanical equipment shall be non-hygroscopic, non-corrosive and adapted to use in the environment and under the conditions specified 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 /operator's cab. 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 throughout the project in order to minimise crane downtime.

2.4. Mode of operation

All functions of the crane shall be controlled by the operator from the crane cab (manually) or with the use of the Remote Operating Station (ROS) supplied together with the cranes (semi-automatic mode), save that it is planned to automate the operation of the crane in the future.

The Ordering Party intends to use the crane initially in manual mode (controlled by the operator from the cab), in the transitional period in semi-automatic mode (with remote control from the terminal building), and ultimately in automatic (autonomous) mode with possible remote control of critical operations, such as loading and unloading containers from wagons to/from the yard and semi-trailers.

To that end, the Ordering Party expects the Supplier to design, install and provide all types of electrical, optical, network, antenna outputs, cable bundles and conduits, brackets and equipment mounting locations necessary for automated operation, in order to provide for the possibility of subsequent installation of a system of camera recorders, lasers and other equipment necessary for automatic operation.

2.5 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 requirements or regulations applicable in the country of crane 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 and operation 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.

2.6 Crane safety. Conformity with the EU Machinery Directive

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.

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.

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

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 crane 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.

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

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

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

2.7 Power supply

The cranes shall be electrically powered by medium voltage for:

**Task 1** - AC 15kV, 50 Hz. The Supplier shall supply the crane together with a cable reel, with a power cable with a length that allows the crane to operate in the entire operational range of the crane track, i.e. at a distance from the feeding chamber approx. 400 meters plus any necessary length reserve, as defined by the Supplier.

**Task 2** - AC 6kV, 50 Hz. The Supplier shall supply each of the cranes together with a cable reel, with a power cable with a length that allows the crane to operate in the entire operational range of the crane track, i.e. at a distance from the feeding chamber approx. 340 meters plus any necessary length reserve, as defined by the Supplier.

This power cables shall be equipped with optical fibres, hermetic MV and optical fibre junction boxes, an element (funnel) leading the crane cable out of the chamber (from the top) and other equipments that are necessary to connect the crane to the power supply.

The Supplier shall also make appropriate electrical connections and systems for data transmission, including optical fibre 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's stations will be located,

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

- in the room where 2 operators' stations of the Remote Operating System ROS will be located.

The Supplier shall supply the necessary optical fibre equipment (switches), video servers, complete remote stations, etc.
The Ordering Party shall lay a composite cable from the server room to the underground chamber.

For **Task 1** a composite cable shall include at least 6 pieces of multi-mode optical fibre with low loss. The number of fibers should be selected by the Supplier in such a way that they can be used in the future to automate overhead cranes.

A plan of the existing supply chamber is shown in Annexe No. 9a to the Specification.

The composite cable for **Task 2** shall include at least 6 pieces of multi-mode optical fibre with low loss. The number of fibers should be selected by the Supplier in such a way that they can be used in the future to automate overhead cranes.

A plan of the existing supply chamber is shown in Annexe No. 9b to the Specification.

The Ordering Party expects the Supplier, as part of this tender procedure, to supply and exchange for new, as recommended by the Supplier, a cable guiding elements (funnels) between cable rack (cable ledder) and the underground chamber, used for connecting three cranes in the Ordering Party's supply chamber, and to perform all actions necessary to connect the new crane as part of Task 1 and the 2 new cranes as part of Task 2, and to connect the 2 existing cranes in Kutno with a new cable guiding element (funnel).

At the stage of developing the crane design, the parties will mutually confirm the dimensions of these elements on the ground and in the construction documentation.

The Supplier shall perform the necessary electrical measurements and provide the relevant measurement reports.

The crane 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 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 enclosures with anti-condensation heating and cooling, if required.

The cranes 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. The crane electrical system shall be constructed in such a way as to ensure the recovery of electricity regained during the braking process (recuperation). The connection of MV trailing cables in the power box will be provided by an MV cable connector manufactured by a recognised manufacturer.

MV cables shall be supplied by the Supplier, together with suitable cable reeling equipment and cable connectors and a connector for optical fibre cables. The Supplier shall provide a sufficient length of the cable for each crane to cover the crane operating range on either side of the central power point. The Supplier shall route the trailing cable end of each crane to the power box and make cable connections with the use of an approved cable connector kit. The cable connectors made at the site and the HV cabling shall meet the inspection requirements, which shall be confirmed by appropriate tests and trials.

The Supplier shall supply high quality MV trailing cables. The cable shall be round, flexible, suitable for HV power with integrated optical fibre data transmission cables.

2.8 Load of the crane runway and wheels

1. The Supplier shall submit in its Tender, for the review by the Ordering Party, the declared wheel loads to clarify the vertical and horizontal loads under operating and immobilisation conditions of the crane.
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.
3. The wheel loads shall under no circumstances exceed the parameters specified in the tables below:

**for the implementation of Task 1**

1. during handling operations:

|  |  |  |
| --- | --- | --- |
|  | Northern side (8 wheels | Southern side (12 wheels |
| Maximum single static wheel load | 285 kN | 245 kN |
| Maximum single wheel load during operation with maximum wind | 325 kN | 285 kN |
| Maximum horizontal load perpendicular to the rail | 30 kN | 10 kN |
| Maximum horizontal load parallel to the rail (emergency stop | 150 kN | 200 kN |
| Bumper force to maximum stop (without the swing factor | 350 kN | 350 kN |

b. in the parked position with the trolley facing northwards with the brakes and rail clamps activated

|  |  |  |
| --- | --- | --- |
|  | Northern side (8 wheels | Southern side (12 wheels |
| Maximum single wheel loads due to storm wind in the direction of travel of the crane | 290 kN | 160 kN |
| Maximum horizontal load parallel to the rail (storm brake | - | 550 kN |
| Maximum single wheel loads due to storm wind in the direction of travel of the trolley | 280 kN | 140 kN |
| Maximum horizontal load perpendicular to the rail | 60 kN | 20 kN |
| Clamping force of the rail clamps (in the direction of travel of the crane  | - | 450 kN |

**for the implementation of Task 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Characteristic actions from an overhead crane | East side (minimum 12 wheels) | West side (minimum 12 wheels) | Comments |
|  |  | **[kN]** | **[kN]** |  |
| 1 During reloading operations |
|  | Maximum dynamic vertical load on a single wheel, without the action of wind | 300 | 318 |   |
|  | Maximum dynamic vertical load on a single wheel, subject to wind action | 342 | 361 |   |
|  | Maximum dynamic horizontal load on a single wheel, perpendicular to the rail, under the action of wind | 68 | 75 |   |
|  | Maximum horizontal load parallel to the rail (emergency stop) | 273 | 268 | Total for all wheels on the rail |
|  | Maximum force in an emergency hitting a fender at the end of the track | 1100 | 1100 |   |
| 2 In parked position where the cart is facing west with activated brakes and rail clamps |
|  | **Maximum loads parallel to the rail caused by storm wind in the direction of travel of the crane** | 29 | 29 |  |
|  | **Maximum horizontal load parallel to the rail (storm brake)** | 551 | 662 |   |
|  | **Maximum loads on individual wheels caused by storm wind in the direction of travel of the truck** | 57 | 71 |   |
|  | **Maximum horizontal load perpendicular to the rail** | 80 | 123 |   |
|  | **Clamping force of rail tongs (in the direction of travel of the crane)** | Not taken into account | Not taken into account | The use of a storm brake is adopted. The combination of the rail clamp system and the storm brake is not combined |

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.

1. The crane runways are equal. The Ordering Party shall accept a vertical the tolerance in accordance with ISO 12488 class 2, not worse than class 2.
2. The crane runway on which the crane to be delivered by the Ordering Party will move shall be A100 in the event of Task 1 and MRS 87A in the event of Task 2. The Supplier shall design and build in an additional brake, acting on the crane, to immobilise the supplied cranes during storms and high winds.

2.9 Power sources in the cab

1. The Supplier shall provide the possibility of permanent installation of additional equipment inside the operator's cab, together with the necessary system.
2. Two openings shall be provided at or near the radio location for the installation of a coaxial cable that connects to an externally mounted antenna. The openings shall be fitted with watertight fixings ready to accept the coaxial cable.
3. At least 6 power circuits shall be provided by the Supplier together with circuit breakers rated for the appropriate voltage, connected to screw type limit switches plus negative connections and earthing system.
4. 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, including those outside the cab, necessary to power the components.
5. A power supply system in the cab for radio devices, computer and monitors shall provide voltage support for at least 60 minutes in the event of a power failure.
6. In particular, the Supplier shall install 3 standard 12V sockets, with current consumption of up to 20 A, for the equipment listed above and at least two dual 230V/16A sockets in the rear of the cab and one dual 230V/16A socket in front of the cab, under the ceiling for monitor power.
7. A power supply system in the cab for radio devices, computer and monitors shall provide voltage support for at least 60 minutes in the event of a power failure.
8. 2 Ethernet sockets connected to the communication device with the terminal operating system. The Supplier shall also prepare blinded outlets in the cab roof for connecting an antenna, and indicate the potential antenna mounting locations.
9. It shall be possible to connect a radio at the right-hand joystick in the operator's cab in such a way that pressing one of the buttons allows for communication with the terminal.

2.10 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 and equipment of the operator’s cab.

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.

2.11 Wind conditions Wind speed measurement system

1. The entire crane structure, including all its equipment, components, fittings and accessories, shall be designed and constructed so as to withstand 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.

* For the crane "at rest":

Wind load of **up to 42 m/s** shall be admissible when the crane is off and parked without the use of the additional wedge of the crane wheels or any immobilisation system other than the brakes.

1. 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.

2.12 Lifting loads and stability

1. The Supplier shall submit to the Ordering Party, for review, a solution aimed at complete prevention from lifting one container end by two container locks (twistlocks). 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.

2.13 Noise control

The crane noise level shall comply with the following requirements:

1. The noise emission measured outside the cranes shall not exceed the parameters resulting from the applicable standards.
2. The noise level inside the e-house shall be less than 85 dB during operation, with the heater / air conditioner on and with doors and windows closed.
3. The Supplier shall include the results of tests of actual noise levels in the document "Final Acceptance Protocol", in accordance with the Supplier's template.
4. The noise level inside the operator's cab shall be less than 75 dB during operation, with the air conditioner on and with doors and windows closed.
	1. Components of key importance for operation
5. 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 cranes as part of each of the Tasks 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.
6. 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.
7. 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 and other components that are important for maintaining the continuity of crane operation).

## CRANE STRUCTURAL SPECIFICATION

3.1 General requirements

1. The parts shall be connected to each other with the use of welding or 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).
3. The girders shall be designed so as to allow the operator, in the event of any hazard, to escape from the operator's cab and get to the gangway at any point along the trolley route.

3.2 Design

1. Bearing beams, legs and girders as well as cantilever beams 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.

#### 3.2.1 Equipment and materials

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

1. The crane, trolley and hoisting winch drive devices
2. Crane bumpers (hydraulic bumpers are preferred).
3. Crane wheel brakes with limit switches.
4. Cable reel with a cable guide and limit switches.
5. Hoisting winch pulleys.
6. Rail clamps.
7. Ground level crane traffic control station.
8. Storm brake.

By Ground level crane traffic control station we mean the box accessible either from ground or from entry platform, allowing to move the crane drive at limited speed and e.g. control the slack of reeled power supply cable. See an example solution in Kutno in the picture.

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#### 3.2.2 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.
10. Bumpers and anti-collision devices.

3.3 Material

#### 3.3.1 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 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.

#### 3.3.2 Steel

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

The Supplier shall provide the required welding certificates, which shall certify that all provisions regarding the assessment and verification of performance described in EN 3834, EN 1090-1 and EN 1090-2 for steel and machinery are fulfilled

#### 3.3.3 Edge finishing

All edges of the structure shall be free of sharp shapes and burrs.

#### 3.3.4 Surface finishing

1. All welding spatter shall be removed from the surface of the structure.
2. Metal surfaces shall be cleaned and treated as defined in item 4.23 “Corrosion protection”.

#### 4.3.5 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. A water trap shall not be permitted in any part of the crane.

3.4 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.
2. Any other data or design calculations at various design stages shall be submitted at the request of the Ordering Party as part of the review process conducted during the construction of the RMG.

#### 3.4.1 Audit

The purchaser reserves the right to conduct a detailed structural and mechanical audit of the design presented by the Supplier.

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, performed as part of the Tasks.

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.

#### 3.4.2 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 the request of the Ordering Party as part of the review process.

#### 3.4.3 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 shall be in .pdf ~~and .dwg~~ formats and at least A1 size, so that they can be reproduced clearly upon receipt to allow for accurate examination and evaluation.

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 and the crane maintenance.

3.5 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 shall not exceed the permissible deflections resulting from standards, laws and regulations.
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.
5. The structure of the crane beams and supports shall be made of tightly welded steel elements. The main beam of the crane shall be designed so as to provide stiffness and keep the stress to a minimum.

3.6 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. Welders and persons involved in the process of joining components shall be certified for the material, processes, type of welding and operations performed.
3. 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. Alternatively, the Supplier should have a construction welding system implemented in accordance with the requirements of the applicable standards, confirmed by obtaining a certificate, as well as meeting the requirements of EN and ISO standards regarding the quality requirements for welding metal materials, also confirmed by obtaining a certificate. Both certificates must be valid during the entire duration of the order / contract. Two weeks before the technical acceptance of each gantry, the Supplier shall provide the Recipient with a document issued by a European Welding Engineer, confirming that all welding works on a given gantry have been performed correctly.
4. 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.
5. 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.
6. 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.
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.
7. 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.

#### 3.6.1 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 the class of their performance shall satisfy the requirements of periodically loaded structures in accordance with the applicable standards including EN 1090 standards and should be selected for the crane load and the structure lifetime specified in the Specification.
2. Determination of the weld inspection plan and indication of the required class of welds will be presented in the documentation prepared by the Supplier. Weld inspection procedures will be handed over to the Employer. The Ordering Party requires a visual inspection of 100% of the welds. Any other tests of welds and the assessment of compliance of the welds with the class of welds selected by the Supplier should also be carried out on the basis of 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 rods will be performed by or under the direct supervision of a person with appropriate certified qualifications or by a person with an equivalent qualification.

#### 3.6.2 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 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.

1. 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.
1. The quality control programme shall comply with applicable requirements, laws and regulations.

#### 3.6.3 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 this 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 quality assurance programme shall include both an organisational chart, together with the names of the staff comprising the quality assurance team under the supply agreement, covering each major stage of manufacture, delivery and commissioning, as well as the Warranty Period.

## FUNCTIONAL DEVICES AND EQUIPMENT

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

4.1 Main hoist - hoisting winch

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.
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. Slewing mechanism. The total spreader slewing angle shall be at least 300°
5. A swivel ring with a ball bearing, anti-sway protection and internal gear shall be designed and constructed as a swivel ring between the chassis frame and the slewing frame of the lifting mechanism.
6. The swivel ring with a ball bearing shall be located so that both the screws and the clearance of the ball swivel ring with a ball bearing can be checked in the mechanism frame housing.
7. Bearings of internationally recognised manufacturers that provide for high quality and durability shall be used.
8. The drive of the slewing mechanism shall be driven by two asynchronous motors connected to one inverter and the actuation shall be performed by a PLC. The mechanical slewing drive shall be integrated with the brake.
9. The slewing mechanism with flange-mounted motors shall be fixed in such a way that the clearance between the pinion of the crane slewing mechanism and the internal gear of the swivel ring with a ball bearing can be accurately adjusted.
10. It shall be possible to extend the drive units of the upward slewing mechanisms together with the chain hoist for maintenance purposes.

4.1.2 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.

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 the requested 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 is fully released from full speed with any operating load at mid-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. There shall be permissible fading (trace) elements of sway, if any, of the period of 2.5 cycles, if they do not stop or prevent further handling operations.
4. Braking during operation shall be performed electrically and continuously.
5. Lifting ropes of internationally recognised manufacturers that provide for high quality and durability shall be used.
6. Lifting mechanisms and motors of internationally recognised manufacturers providing for high quality and durability shall be used.
7. All gear wheels and pinions of the lifting mechanism shall operate in an oil bath and be located in a closed gearbox. Gearboxes shall provide for aeration capability, include an oil level indicator and a drain cock to allow for oil replacement.
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.

1. The hoisting winch shall be equipped with two brakes made as single disc brakes with electro-hydraulic retarder of recognised manufacturers, with parameters selected by the brake manufacturer, which can safely brake the load in the event of an emergency stop.
2. Hoist brakes of internationally recognised manufacturers that provide for high quality and durability shall be used.
3. Limit switches and an emergency limit switch shall be provided for the highest position of the lifting mechanism.

Load-measuring elements shall be built in on the torque transmission handles of lifting mechanisms in order to automatically cut off excessive or unevenly distributed loads.

1. The overload system shall be equipped with special load pins or other devices which measure the total load.
2. 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
* warning when the weight is close to the maximum crane load
suspension of work during detected overload (danger sound and danger light)
1. 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.

4.1.3 Trim control

1. The trim on the spreader shall be no less than 5° longitudinally (on the longer edge of the container) and no less than 2.5° transversely (on the shorter edge of the container at the minimum speed of 0.5º/s).

Task 1. The Ordering Party accepts a passive list provided that it can handle 2.5% transversely (cross slope of stacking/interchange area in Kutno is 2.5%) and around 5% longitudinally (trucks or terminal tractors with chassis which are not ideally levelled). Skew can be performed by rotation of the trolley.

Task 2. The Ordering Party Accepts a passive list provided that it can handle 1.0% transversely (cross slope of stacking/interchange area in Brzeg Dolny is 1.0%) and around 5% longitudinally (trucks or terminal tractors with chassis which are not ideally levelled). Skew can be performed by rotation of the trolley.

1. One button on the control console shall automatically correct the spreader position to the ‘zero’ position.
2. The ‘zero’ position shall be indicated by a lamp on the panel in cab I at the Remote Operating Station (ROS)
3. The system shall be operated electrically.
	1. Trolley

#### 4.2.1 Trolley frame

1. The trolley frame shall be equipped with main hoist devices, drive devices, trim device, operator's cab 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 marked lifting points for trolley wheel and bearing replacement. The housings shall be split so as to allow for easy removal of wheels and axles.
4. The trolley frame shall provide safe emergency access from the operator's cab to girder footwalks at any point along the trolley route.
5. The trolley frame shall be located within the safe maintenance platform and access to all its components and maintenance equipment shall be provided.
6. A weatherproof camera recorder shall be installed to assist the operator in monitoring the far side of the lifted container from the underside of the trolley frame.
7. Two pairs of 250 mm high strength side guide rollers shall be fitted on both sides of the trolley frame at the front and rear for even and smooth guidance of the trolley wheels 4.2.2 Service lift

An electrical auxiliary hoisting winch shall be provided in the upper part 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 the capacity of 2 tonnes.

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.

#### 4.2.3 Trolley drive

1. **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.
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, in a sheltered area, and be equipped with at least 1 electrical drive and gearboxes of relevant power. The drive shaft shall be equipped with a suitable brake that can cope well with a system of eight ropes
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.
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 movements. Ropes shall be suitable for the strength of 1960 N/mm2 and the minimum tensile strength of 550 kN.
8. **Pulleys** Hoisting winch pulleys shall be made of strong, hard polyamide (Lamigamid) or equivalent material.

#### 4.2.4 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:
	1. Spacing and bending radius of the cable in each conveyor connection, including the allowances recommended by the manufacturers.
	2. Adequate allowance for cavity fill, including manufacturers' recommended safety factors.
	3. In each case less than 60% of the total cross-sectional area of the cavity.
	4. Uniform and symmetrical weight distribution in each conveyor cavity.
	5. 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.
8. The Ordering Party accepts a proven torsions cable between upper part of the trolley and the winch house.

#### 4.2.5. 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 noise generated by energy chain shall not exceed parameters resulting from the applicable standards.

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

#### 4.2.6. 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.

4.3 Crane

#### 4.3.1 Crane drive

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

1. The crane propulsion motors 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. Brakes for crane operation shall include power-operated spring-loaded disc brakes mounted on each crane drive. The dynamic ratio shall be greater than 100% of the maximum engine torque, but not greater than 150% of the maximum engine torque. 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 or rail clamps. Each brake shall be equipped with a strong, lightweight, snap-on and rainproof housing. The brakes shall be applied after an adjustable time delay of the crane inactivity. 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.
5. Storm brakes for all cranes will be provided by the Supplier. The installed storm brake pockets in the foundation will be made by the Ordering Party in accordance with the guidelines of the Supplier and the designer of the crane foundation and the Ordering Party. The storm brake for Task 1 shall be installed on the southern side of the crane. For Task 2, at least 2 storm brakes per crane shall be installed on the inside of each crane rails in locations specified by the Supplier and agreed upon with the crane foundation designer. The number and parameters of the storm brakes for each Task shall be selected so as to allow for holding the crane in continuous 42m/s storm winds in connection with the crane rail clamps.
6. The work connected with installing the storm brake system components in the cranes shall be performed by the Supplier. As part of performance of Task 1 the Supplier shall be obliged to define a place where to move the currently installed storm brake pocket of one of the currently operating cranes to a location agreed upon with the Ordering Party at the stage of crane installation. The transfer of the storm brake pockets will be performed by 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 motor that drives one wheel. 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 trolleys shall be equipped with safety features for the trolley 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 drives shall be equipped with robust safety protection measures.
12. Rail guards shall be placed at the front of the outside wheel at each corner.
13. Hydraulic bumpers shall be installed on the 4 corners of the crane.
14. The crane shall be equipped with limit switches to prevent the crane from moving when the auxiliary storm brake is activated.
15. The crane movement shall be prohibited whenever the service lift movement is activated.

#### 4.3.2 MV cable reel

1. 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 be selected by the Supplier accordingly for Task 1, approx. 380 m and for Task 2, approx. 340 m in each direction + necessary reserve as defined by the Supplier. The cable shall also be equipped with optical fibre cables that are free from interference of data transmission and control signals.

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 cabinet in which the slip ring system will be located shall be weatherproof (IP min. 65) and equipped with heating appliances.

* 1. The cable reel shall be installed on one of the legs on the northern side for Task 1 and on the western side for Task 2. The cable reel drive control system shall be designed so as to minimise rapid starting, braking, and excessive cable slack/tension when the crane is operating, in particular when passing through the supply chamber point.

Sensors/switches to detect the above conditions shall be provided.

* 1. The cable reel shall be manufactured entirely from stainless steel or be hot dip galvanised after all manufacture and treatment have been completed.
	2. The cable guide shall be positioned so as to keep the MV cable close to the ground level. The cable shall be uncoiled on a cable rack mounted at the terminals. Note for Task 1: the cable shall be laid together with the two cables that power the currently operating cranes. (Annexe No. 7 to the Specification, item 2)
	3. The system shall be well protected against the weather conditions, in particular near the medium voltage slip ring components, and the slip ring housing shall be made of stainless steel.
	4. The cable reel drive equipment and the slip ring area shall be fenced to allow access only to authorised personnel. A high voltage warning sign shall be affixed by the Supplier at the entrance to the fenced area.
	5. A suitable sized heater shall be provided in the slip ring housing.
	6. Limit switches shall be installed to control crane movement near the travel limit (limited by cable length).

Manual controls shall be provided to operate the reel at ground level.

* 1. Switches shall be housed in a lockable, weatherproof box mounted at ground level adjacent to the cable system to provide control for forward and reverse movement, and for bypass of loose cables.
	2. A cable reel of internationally recognised manufacturers that provide for high quality and durability shall be used.
	3. The Supplier of the crane shall provide a power point distributor and a cable relief drum, and the Ordering Party shall provide a cable tray and a concrete chamber (cable box) in which the cable connection shall be carried out by the Supplier. A terminal box and/or socket connector for the power cable shall be provided by the Supplier. In accordance with Fig. No. 3 - Annexe No. 7 to the Specification.
	4. The Supplier shall provide short circuit and overload protection of the cable guide.
1. MV power cable
	1. The cable shall be circular, with three conductors, earthing and embedded optical fibre cables for data transmission. A sufficient length of the cable shall be installed to provide full reach length for the crane movement, three ‘dead’ coils on the reel plus one safety coil while completing the length of the cable, transition from the ground and at least 2 wraps on the relief drum in the cable box.
	2. The composite cable shall include at least 6 pieces of multi-mode optical fibre with low loss.

Cable reel mechanisms shall include low-loss connecting devices that allow to use the entire optical fibre cable with simultaneous connection of the equipment on the crane to the external equipment.

* 1. The Supplier shall bring the end of the crane power cable to the power chamber and make the appropriate electrical connections, including the connection of the optical fibre cables.

The connection of the MV cable in the cable chamber shall be made with a medium voltage cable box, not more than 700 mm high and 1000 mm wide, made by an internationally recognised manufacturer and supplied by the Supplier.

In addition, a test and appropriate measurements shall be carried out.

The crane Supplier shall also provide the equipment through which it will connect the optical fibre cables inside the cable box.

The Ordering Party shall make the connection of the medium voltage and optical fibre cables to the cable chamber from the external network.

The Supplier shall be obliged to perform the necessary tests and electrical measurements and provide the relevant measurement reports.

The power cable shall be uncoiled simultaneously with the cables of the other cranes on the cable rack prepared by the Ordering Party.

#### 4.3.3 Crane anti-collision system. Anti-collision systems

1. The crane shall be equipped with 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;
* 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);

As Ordering Party, we understand that detecting objects between crane legs is difficult to implement and we do not expect this area to be secured with the supplied cranes. On the other hand, however, we require the crane to detect collisions in the area of the crane rail on which it moves. Beam width detecting people and objects around (above and besides) crane rails (adequate to the gauge of the crane), it needs to be agreed between parties and adjusted/tested by the Seller. Clearance on the left and right side of each radar might vary which means that the detection “beams” will be asymmetrical.

Reliable ~~laser or~~ radar devices or other devices with similar parameters and effectiveness of detection in difficult weather conditions shall be installed at each of the four corners of the crane to prevent collision with a neighbouring crane, vehicle, container and other objects. The system shall operate without interference in all weather conditions (heavy rain, snow, darkness, fog, etc.). If the anti-collision systems are 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 within the infrastructure of Stara Wieś railway station (PKP PLK S.A., running on the border of the terminal in Kutno).

1. The Supplier shall provide a high quality anti-collision system between the cranes, based on long range laser communication set up to detect a neighbouring RMG crane. This system should allow to regulate the permissible operating distance of two neighboring cranes; the initial setting should be at least 4 m. The Supplier shall make the necessary connections and adjustments, including in the event of Task 1 it applies to the 2 RMG cranes currently in operation, to provide for continuous uninterrupted operation of all cranes.
2. A sound warning that the crane is approaching an obstacle shall be provided in the operator's cab and in the crane remote operating station, and slowing-down/stopping functions shall be provided automatically in a logical sequence in the travel direction.

#### 4.3.4 Crane CCTV

The crane shall be equipped with HD CCTV IP camera recorders located on the outer legs of the crane, providing high resolution views in both directions of crane movement on the runways. The purpose of the system is to provide additional visibility for the operator to detect personnel or obstacles that may be positioned outside his view. Monitors shall also be part of the equipment of the crane remote operating station.

The CCTV monitor(s) shall be located in the upper corner of the operator's cab in such a way as not to obstruct visibility from the operator's seat. For the remote operating station, the monitors shall be ergonomically positioned to provide the necessary visibility to operate the crane.

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. An additional camera recorder shall provide an overhead view of the crane operations from the operator's cab. 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 operator's cab, 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.

4.4 E-house

#### 4.4.1 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 have non-corrosive heavy duty locks, security windows in upper panels together with a drainage system shall be metal sliding doors with non-corrosive heavy duty locks and security windows in upper panels. Doors shall be located at each end of the e-house and be self-closing doors. A drip shield shall be placed over the door.
5. The Supplier shall provide a cabinet with a lock inside the e-house and a working table with the dimensions of approx. 1200 mm x 600 mm with a chair.

#### 4.4.2 Fittings, objects placed in the e-house

1. Button switches for the main control circuit, main power source for motion, and lighting switches.
2. Main high voltage supply switch and remote control switches.
3. Main drive control panels for the hoist, trolley, crane and cab movements, etc.
4. Transformer
5. Auxiliary power source panels.
6. Control panels.
7. LED lighting, providing uniform illumination of the working area of no less than 150 lux.
8. Intercom.
9. Proper meters and counters.
10. Fire extinguishers suitable for electrical systems.
11. Service sockets.
12. Central distribution panel for the crane lighting.
13. Harmonic attenuator.
14. Power factor controller.
15. 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).
16. Safety lighting system with safety lamp power backup for at least 2 hours. Lamps switched on automatically in the event of crane power break. The backup batteries shall be charged automatically by appropriate devices.
17. Additional air conditioner built in as a backup in case of failure or service.
18. An automatic fire detection system in the e-house, equipped with a smoke detector in each individual e-house 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.
19. 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.

#### 4.4.3 Electrical connection

The Ordering Party informs that:

- **for Task 1**, the Ordering Party has constructed a concrete cable box (in accordance with Annexe No. 9a), to which the Ordering Party will provide a connection via **an 3 x XRUHAKXS 1 x 70 mm2 12/20kVmm2 cable**. The cable box is located at the crane runway in the rail part, it will be adjacent to the crane runway from the northern side, in the middle part of the runway. The Ordering Party has also made ground cable trays/rack for depositing the crane power cable of the width of 400 mm, seated at the height of 300 mm above the ground, in accordance with Fig. No. 2 - Annexe No. 7 to the Specification,

- **for Task 2**, the Ordering Party will construct a concrete cable box (in accordance with Annexe No. Y), to which the Ordering Party will provide a connection via **an 3 x** **YHAKXS 1x70/25 6/10 kV** **cable**. The cable box is located at the road from the western side, in the middle part of the crane’s foundation. The Ordering Party will also make ground cable trays/rack for depositing the crane power cable of the width of 400 mm, seated at the height of 310 mm above the ground, in accordance with Fig. - Annexe No. 10b to the Specification.

1. As part of the contract, the Supplier of the cranes shall supply complete power cables and cable connectors connecting the connection in the underground cable box of the crane, and supply a cable reel for each cable and a funnel-shaped element for the cable box, as well as prepare the cable and supply the electrical components and carry out the connection of the crane flexible cable supplied by the Supplier with the power supply earth cable prepared by the Ordering Party.
2. The Supplier of the cranes shall equip the cranes with necessary power protection to ensure correct and failure-free operation of the cranes and shall install elements to compensate reactive power, if the crane causes its emission (Active Power Factor Correction System).
3. The list of additional elements to be supplied by the Supplier under the contract is included in Annexe No. 7. (Other elements, not included in Annexe No. 7, are regulated by this Specification and the attached agreements).
4. The Supplier shall also supply electrical boxes for the cable box and make a connection in the underground box and server room. **After completion of the work, the Supplier shall deliver a set of electrical measurements** required by the Polish law.

#### 5.4.3. Electrical equipment

1. The electrical equipment shall comply with currently applicable quality and safety standards.
2. All accessories, such as motors, contactors, the PLC, etc., shall be supplied by internationally recognised manufacturers that provide for high quality and durability.

#### 4.4.4 Switches

1. The Supplier shall provide one main switch of each crane 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 requires each of the cranes to have two independent electrical circuits.
2. 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 the cab, and with an automatic fire detection system.

1. Emergency stop and transition buttons
2. 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.
3. All limit switches shall be suitable for the weather conditions prevailing at the installation site of each of the cranes 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.
4. The activated buttons shall be displayed in the error message system.
5. Standard emergency stops
6. 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.
7. Safety switches used for emergency stop shall be installed at the following locations:
8. E-house x 1
9. Switchgear on the trolley x 1
10. Console in the operator's cab x 1
11. Crane travel mechanism corners x 4
12. Upper beam corners x 2
13. Spreader x 1
14. Entry to hoisting winch area x 1
15. Gantry passage from portal to cab x 1
16. Cable reeler area x 1
17. Hoisting winch
18. Emergency limit switch for highest load position (switches in emergency stop circuit), including bypass circuit breaker for testing purposes
19. Limit switch for operation above (with the use of a sensor)
20. Limit switch for operation below (with the use of a sensor)
21. 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.
22. Overspeed switch - excitation weakening control (switches in the emergency stop circuit)
23. Switch if the spreader has fastened the container on one side only
24. The pre-disconnection shall be carried out independently of the speed in order to guarantee smooth availability of the limit switch.
25. Crane travel mechanism
* Limit switch at the front and at the rear
1. Crane travel mechanism
* Limit switch on the left and on the right

4.5 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 each of the cranes. 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.

4.6 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.

4.7 Crane wheels

1. The Supplier of the RMG cranes shall adjust the solutions for the RMG to be delivered with respect to static and dynamic loads taking into account the parameters of the crane foundation.
2. In order to maintain the permissible pressure of the crane wheels on the runway, the Ordering Party expects the crane covered by Task 1 to be equipped with 20 wheels, of which 12 wheels (6 per corner) to be installed on the southern side (hinged post) and 8 wheels (4 per corner) on the northern side (fixed post of the diameter of 630 mm). The selection of the number, placement and size of wheels for Task 2 shall be made by the Supplier so as to fulfil the requirements for acceptable impact on the crane runway and crane runway foundation. Detailed design data regarding the crane foundation and the crane runway shall be made available to the Ordering Party upon request after the conclusion of the agreement.
3. The Ordering Party shall not accept flanged wheels. There shall only be applied non-flanged crane travel wheels (smooth, adapted to run on the A100 runway) together with guide rolls of the following diameter:
4. for Task 1 at the southern runway: 150 mm
5. for Task 1 at the northern runway: 250 mm from the northern side.
6. In the event of Task 2 the selection of diameters of guide rolls shall be made by the Supplier.
7. The travel wheels of the crane shall be connected to the drives with the use of a Hirth joint.
8. Wheels shall be made of hardened high tensile steel alloy. Material 42CrMo4 or equivalent, i.e. material that fulfils the requirements for mechanical properties of materials exposed to mechanical stress while complying with safety requirements.
9. The travel wheels shall be mechanically designed so as not to require adjustment.
10. The drives will be synchronised so that both sides of the crane move at the same speed.

For Task 2 (Brzeg Dolny) drive speeds on both rails need to be synchronized. For Task 1 (Kutno) if it’s not recommended and in the same time crane structure provides proper stiffness and crane drives on both sides work evenly (not causing e.g. abnormal use of rails or wheels), we can resign from this requirement.

1. To ensure crane safety during a storm, the crane shall be equipped with self-activated rail clamps to secure the crane in any position.
2. The designed minimum life cycle of the crane wheels shall be 20,000 operating hours.

4.8 Access to the crane

1. Access (entering/leaving the crane) shall be provided as follows: for Task 1 on the fixed support from the northern side, and for Task 2 on the support from the western side of the terminal, as an assembled and lockable stairway with transition platforms, including access to the main beam.
2. Stairways, ladders and platforms shall be made of galvanised and anti-slippery materials. Any ladder located above the ground level shall be fitted with a safety cage, in accordance with the applicable laws and regulations.
3. Platforms shall be provided at the height of the crane cab and its mountings to allow access to the trolley and cab.
4. 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.
5. The main beams of the crane shall be equipped with galvanised platforms allowing for pedestrian access and finished in a manner that prevents from slipping.

4.9 Crane travel mechanism

1. The crane shall move on the A100 runway (Annexe No. 11 to the Specification).
2. It shall be easy to install and remove the travel wheels, which shall be mounted with rolling bearings.
3. Guide rolls of the diameters indicated in item 4.7.3 shall be installed.
4. Safe travelling and operation of the crane shall be provided at the rated speed under wind load conditions up to 22 m/s. The crane secured on rail clamps shall withstand wind speeds of up to 42 m/s without displacement.
5. The crane drive shall be made with the use of gear motors equipped with power-operated disc 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. The motors shall be selected taking into account the assumed energy efficiency.
6. Motors of internationally recognised manufacturers that provide for high quality and durability shall be used.
7. All 4 corners of the crane travel system shall be fitted with hydraulic bumpers and protective barriers. In the event of Task 1, the currently installed steel ground-mounted crane bumper shall be relocated.
8. Hydraulic bumpers of internationally recognised manufacturers that provide for high quality and durability shall be used.
9. Limit switches on the runway shall be installed so that the crane stops in the operational end position before the bumpers.
10. For Task 1 from the inside southern side of the crane and in a manner selected and constructed by the Supplier for Task 2 there shall be provided and installed a storm brake to lock the crane in the event of storm winds and storms.

4.10 Spreader

1. The Supplier shall equip the cranes with a spreader of an internationally recognised manufacturer that provides for high quality and durability.
2. The spreader shall be fully electric, controlled from the operator's cab or from the remote operating station, 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. In addition, flippers shall be secured with an additional chain (fall protection).
3. The spreader shall be 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.
5. 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.
6. 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
7. 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)
8. 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
9. Spreader parameters

**Lifting capacity:** 41 tonnes

**Slings:** 4 x 10 t

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

1. The weight of the spreader shall be selected optimally for the required crane type and parameters.
2. 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.
3. 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.
4. 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).
5. The spreader shall automatically adjust to the 20', 30' and 40' positions after the operator selects the desired dimension.
6. 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.
7. In order to allow for lifting damaged containers or specifically shaped loads, lashing rings shall be installed in the four corner castings of the spreader near the twistlocks, to allow for attaching a sling.
8. 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.
9. In addition, power cables connecting moving parts shall be protected against mechanical damage.
10. The spreader control shall be integrated with the crane management system (CMS). Functions shall appear as individual messages in the CMS.
11. 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.
12. The spreader shall withstand min. 2 million cycles, and rope wear time shall be min. 8,000 mth 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.
13. The spreader shall be equipped with an operation counter.
14. 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 switches shall be self-locking or loosening-proof.
15. Tilting on the spreader.

The crane shall be equipped with a spreader, allowing for handling operations with a container, taking into account the slope of the loading surface of the object. The tilt on the spreader shall be no less than 5° longitudinally (on the longer edge of the container) and no less than 2.5° transversely (on the shorter edge of the container).

1. Power supply of the spreader

The spreader power cable shall be placed in the cable cage located on the spreader frame. The spreader power cable shall be a shielded PVC-insulated cable 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.

4.11 Operator's cab

The operator's cab shall be equipped with a complete set of air conditioning, electric heaters, fans and a system for defrosting and demisting the windows.

Air conditioning and heating shall be effective and allow to maintain the conditions of approx. 20°C and 50% humidity and provide for adequate air exchange and circulation, with the possibility of regulations +/- 3°C.

The operator's cab shall ensure safety and ergonomics during the work performed. The cab shall be installed under the trolley and provide the operator with an excellent view of the area of operation. The cab manufacturer shall provide a diagram showing the operator's view in order to demonstrate the correct location of the cab as well as its size and shape. The cab shall be of rigid welded steel structure, with adequate and effective sound, vibration and heat insulation between the double walls, including floor and ceiling. The cab shall be glazed extensively with single reinforced tempered and laminated glass, tinted on the sides and at the rear, and transparent at the front and floor panel. Foot grids shall be installed above the lower glazing panel.

The crane control panel shall be operated from the operator's seat. There shall be two consoles on both sides of the seat with two industrial strength joysticks. The joystick on the right shall act as a controller for lifting/lowering and locking/unlocking the twistlocks. The joystick on the left shall control the trolley drive together with the crane travel.

1. The cab shall be mounted on and move with the crane
2. The cab shall be assembled to the crane with the use of an anti-vibration system to reduce shock and vibration to the operator.
3. For safety reasons, the cab shall, as an additional safeguard, be fitted with hooks or shackles to prevent the cab from falling
4. The securing system of the cab mounting shall be designed to bear the weight of the cab together with the operator and equipment
5. The cab, illuminated with LED lights, air conditioning/heating system with evaporating and defrosting windows in all conditions, microphone + button with speakers outside, sound signal, adjustable roller blinds on the cab roof and side windows to effectively reduce sunlight and prevent from direct heat, TOS device holder. Sockets complying with item 2.9 of the Specification, including 60 minutes power backup.
6. The crane cab shall be designed in accordance with the directives and regulations applicable for the area of Poland, in terms of the design of crane operator cabs and work ergonomics.
7. The floor, walls and roof shall be of shell construction, made of steel sheet of the minimum thickness of 2.5 mm. The cab shall be constructed so as to allow for maintaining the proper working environment (temperature). Joints shall be sealed with a permanently flexible polyurethane binder.
8. The front door shall have a window and a lock. The front and rear parts of the roof shall be fitted with gutters and the whole cab shall be leakproof and suitable for operation under the conditions specified in the Specification, including during heavy rain
9. The glass defrosting and demisting system shall allow for defrosting and demisting all windows under all conditions. Air conditioning and heating vents shall be as low as possible above the floor.
10. Adjustable operator footrest for good visibility.
11. The cab doors shall open safely and without collision. An additional safety exit shall be installed to provide for a possibility of evacuation.

The escape route can lead through cabin door. By extra safety exit we mean the way for the crane operator to evacuate from the crane regardless the position of the cabin (e.g. in case of a crane failure or a power shortage).

1. The cab shall be designed as a fully glazed cab with tinted safety windows. Safety windows shall consist of laminated safety glass. The cab windows shall be made of scratch-resistant glass to provide for unobstructed visibility.
2. The bottom panel shall consist of laminated safety glass and provide for the possibility of opening. The top front window shall be split, the top side panel windows on the right and left shall be sliding windows. The upper front window, the upper right and left side panel windows and the panel of glass on the doors shall be equipped with roller blinds. For safety reasons, the windows shall not be wide open, possibly only to the extent allowing for ventilation.
3. If the interior cladding consists of sheet steel, the Ordering Party shall accept the cab to be insulated with mineral wool panels or other attested and non-flammable material.
4. The design of the cab shall allow the operator to safely wash the cab windows from the outside.
5. The cab shall be equipped with a control console. The console together with the operator's seat shall provide an ergonomic workplace for the operator to minimise fatigue. The seat shall be adjustable in height and fore and aft, and profiled so as to allow for viewing through the lower glass panel (between the operator's legs).
6. The cab shall be equipped with the following signalling system: ready to connect (yellow), locking (green), unlocking (red), wind warning (blue), wind alert (red). Signal lamps shall be placed on the operator’s panel, and in the event of auxiliary lamps (concerning wind strength) alternative solutions are acceptable, to be confirmed by the Ordering Party.
7. Safety handrails shall also be installed in the cab to protect the operator or servicemen from falling.
8. In addition, the Supplier shall equip the cab with:
9. Safety system to prevent unauthorised use of the crane. Inside the cab there shall be an access point system 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
10. Telephone connection to other areas of the crane.
11. Microphone and speaker system
12. Warning signal (horn)
13. LED headlights
14. Emergency light
15. Air conditioning and heating units with defrosting and demisting systems
16. Roller blinds, as described in item 13
17. Cabinet
18. 6 x 230V/16A sockets (2 in the upper corners and one on the left and right side of the seat) on separate electrical circuits
19. 3 x 12V sockets
20. Radio
21. TOS tablet/terminal unit power holders
22. CCTV system - control and display
23. Windscreen, side and roof wipers with washers
24. There shall be an ergonomically placed digital touch screen monitor in the cab, ensuring good visibility in all lighting conditions and displaying at least the following data continuously:
25. Fault/alarm indications
26. Current load
27. Spreader height
28. Travel position of the trolley and crane
29. Current wind speed
30. Trim/tilt angle
31. Twistlock status (unlocked, ready to turn, locked)
32. Galvanised platform consisting of anti-slippery hot-dip galvanised gratings, the height of the handrail shall be 1100 mm.
33. Cab interior in RAL 7015 (anti-glare) or equivalent.
34. Other equipment: fire extinguisher, 2 places/holders for TOS screens provided by the Supplier.
35. All markings, instructions and information about hazard shall be given in the Polish language and in accordance with the health and safety regulations in force in Poland.
36. The heating and air-conditioning systems together with vents and fan (installed above the floor) shall be designed for the minimum cab temperature of 20°C, regardless of ambient temperature and sunshine.
37. Moisture resistant LED lighting mounted at the cab ceiling to ensure adequate level and layout of illumination. Light switch for cab and door lighting.
38. The cab shall be equipped with electrical wipers and washers. The wipers shall provide clear visibility for the operator seated in the seat throughout the area of operations. They shall be placed on both the windscreen and the side windows.
39. The operator's cab shall be ultimately equipped with a radio-telephone for terminal communications. It shall be possible to connect a radio at the right-hand joystick in the operator's cab in such a way that pressing one of the buttons allows for communication with the terminal.
40. The Supplier shall use a cab of internationally recognised manufacturers that provide for high quality and durability.
41. The Supplier shall provide for the possibility of safely lowering the cab through the cab guide and chassis frame in all crane and cab positions.
42. The Supplier shall use a system that eliminates or reduces the possibility of splashing cab windows, e.g. with grease from spreader ropes.
43. 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. The seat shall be fitted with a two-point safety belt. Designed for operators of the weight of max. 150 kg The upholstery shall be made of leather. 2 sets of seat covers (easily replaceable) shall be provided.
44. The communication system shall allow for communication from the operator's cab 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:
45. 1 x speaker in the operator's cab
46. 4 speakers on inner legs - one speaker per leg/support
47. A telephone system with its own, independent power supply shall be installed on the crane. The system shall include at least the following locations:
48. Headphones with a slot and a power cable in the e-house and the operator’s cab
49. Headphones with a power cable at ground level at the main entrance and on the trolley at the switchgear
50. Headphones, plugs, cables and other equipment shall have adequate protection against the weather conditions
	1. . Remote operating station (ROS). Remote operating station

As part of this tender procedure, the Ordering Party expects tenders that include quotations for each Task with the provision of service from remote operator stations, which will be located in the terminal office, described further in detail.

* The Ordering Party intends to order and use these cranes as operating in the semi-automatic mode, with the operator controlling the indicated operations and handling exceptions via a remote operating station located in an office building. This method of operation should allow remote control of all functions of each of the cranes delivered as part of a given Task. Remote control shall be provided from each of the two fully equipped operator’s stations provided by the Supplier (within a given terminal). In other words, it shall be possible to control the crane in Kutno from each of the two remote stations delivered to Kutno (Task 1). Identically it shall be possible to control any crane delivered to the terminal in Brzeg Dolny (Task 2) from each of the two remote stations delivered to Brzeg Dolny. The remote operating stations shall be installed and connected by the Supplier in the Ordering Party's office located at the terminal corresponding to the location of the delivered cranes.
* In the event of Task 1, the Ordering Party informs that, as part of a separate tender procedure, the Ordering Party plans to order eRTG cranes together with remote control equipment. The Ordering Party expects the Supplier of the third RMG crane, to be delivered to Kutno, to verify the possibility of extension and use of the equipment and devices that will be installed in the server room by the supplier of eRTG cranes to control also RMG cranes, provided that full compatibility, safety of crane operation and warranty for eRTG control devices are maintained.
* If it is possible to integrate the equipment and devices installed in the Ordering Party's server room with the devices delivered to control the RMG crane, the Supplier shall ensure the possibility of controlling the RMG crane supplied as part of this tender procedure, both from the remote operating stations delivered together with the RMG crane and from the 2 stations delivered to control the eRTG cranes (full interchangeability). The implemented control solutions shall be prepared so as to allow to launch remote control for the currently working in Kutno 2 RMG cranes in the future, after their proper preparation (retrofitting).
If it is possible to integrate the equipment and devices, the Ordering Party shall prefer a scenario allowing to control also eRTG cranes from the stations delivered together with the RMG crane as part of this tender procedure. In other words, in this scenario (for Task 1) there shall be intimately full integration allowing to control any crane (RTG or RMG) from any remote operating station within the dedicated terminal network.
* If it is impossible to integrate the equipment and devices in connection with the extension and use of the server room equipment and devices (for Task 1), the Supplier shall be obliged to install all necessary devices and elements of equipment allowing to control the RMG crane from each of the 2 operator’s stations delivered by the Supplier. The implemented control solution shall be prepared so as to allow to launch remote control for the existing 2 RMG cranes in the future, after their proper preparation (retrofitting). Ultimately, the control of 3 RMG cranes should be performed from each of the 2 remote operator stations.
* For Task 2 the Ordering Party requires the Supplier of 2 RMG cranes to supply the RMG ensuring that each crane is controlled by an operator from one of the 2 operator stations located in the terminal's office room. Along with the delivery of the crane, the Supplier will provide comprehensive equipment and devices that the Supplier will install in the Ordering Party's server room. The implemented control solution shall be prepared so as to allow to launch remote control for the third RMG crane planned in the future. This should be done without change of the server room equipment, and only by adding equipment and devices. It shall be possible to control two cranes alternately from each station independently. Ultimately, control of 3 RMG cranes from 2 remote operating stations + one reserve station.
* For each of the Tasks, the Crane shall have the systems described in the Specification that support the operator's work, ensuring the performance of trimming, skewing and listing operations in manual mode by the operator.

**For Task 1**, the gantry should provide:

- automatic positioning of the gantry gate for the next task according to TOS, with operator supervision (in the cabin or remotely),

- automatic positioning of the crane trolley for the next task according to TOS, with operator supervision (in the cabin or remotely). However, without automatically lowering or raising the crane spreader, all winch operations will be performed manually by the operator.

**For Task 2**, each crane shall also provide for:

- automatic positioning of the gantry to the next task in accordance with the TOS, with operator supervision (in the cabin or remotely),

- automatic positioning of the crane trolley for the next task according to TOS, in the area of container storage 7 rows (1 over 4) and positioning of the crane trolley without the attached container in the full range / span of the crane (in the cabin or remotely),

- automatic lowering of the spreader to the next TOS task in the container stacking area 7 rows (1 over 4),

- 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 in the quick load buffer 2 rows (1 over 2) and on 4 railway tracks and its automatic **lifting** after reaching the height of 6 m from the terminal surface on the truck lanes and in the quick load buffer 2 rows (1 over 2) and on 4 railway tracks,

The Ordering Party does not require the use of an additional laser system; allows the use of proximity sensors or other Supplier's solutions. The Ordering Party expects that the lowering of the empty spreader with the attached container will be carried out automatically up to the level of 6 m. If safety reasons require it, for example, by the truck line - the lowering of the spreader with the attached container may be done manually by the operator.

- in the event of remote control of wagon and vehicle handling operations, where the driver remains in the cab (side loading, i.e. in the lane under the crane), active (manual) supervision over lowering the container onto the wagon or semi-trailer and over lifting the container from the wagon or semi-trailer shall be required. In manual mode the operator will lower and lift the spreader up to the height of 6 m above the terminal surface on the truck lane and on 4 railway tracks.

* For each of the Tasks, 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.
* Overhead cranes delivered as part of both Tasks should be equipped with fasteners and weather-resistant cabling adapted to the subsequent assembly of the OCR (Crane OCR) overhead crane system without losing the warranty for the Overhead Cranes. Mounts for cameras / equipment should be placed in accordance with the guidelines of leading manufacturers of this type of equipment. Confirmation of the mounting location, type, stock and method of terminating the cables between the Supplier and the Ordering Party will take place no later than 6 months after signing the contract, in such a way that the OCR cameras installed on them at a later date by the Ordering Party cover the containers being transhipped to / from the means of transport; between means of transport (e.g. between wagons or between trucks) and transhipped within storage blocks (house-keeping). Cabling (OCR equipment power supply and transmission medium - optical fiber) should be installed by the Supplier before the acceptance of the Cranes by the Ordering Party. In the e-house of each of the gantries, a place should be prepared and indicated for quick connection of the above-mentioned cables in the future, when the OCR system is installed.

Apart from the above requirements, for each of the Tasks the operator shall retain the possibility of controlling each operation of the crane, trolley and spreader by taking control over these actions manually.

The obtained efficiency of the crane operation and the rate of reloading operations performed in the control mode via the remote control station may not be worse than that obtained in the manual control mode from the operator's cabin.

Together with the tender the Supplier shall present a description of the technical and engineering solutions necessary for the crane to operate in the mode that takes 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 the cranes to operate in the mode required for given Tasks shall result in rejection of

the tender. The Ordering Party may request the Tenderer to provide additional explanations in this regard.

##### 4.12.A. Remote operating stations (ROS).

Regardless of the fact that the overhead cranes will be equipped with operator's cabins, they should be prepared for control via remote control stations (ROS) provided by the Supplier and located in the Ordering Party's building, allowing for steering the overhead cranes. As part of each of the Tasks the Supplier shall provide two fully equipped operator's stations allowing for remote operation of each crane (ROS). The stations shall be complete and equipped with the devices, software and solutions necessary to carry out crane operation in the mode described in item 4.10. In particular, within the Remote Operating Station there shall be provided, among others, a video server and a redundant video server as well as all devices and their connections providing for communication and data transfer among the crane, servers and the TOS. The remote operating station and the required stations for each of the Tasks shall be prepared for the ultimate control of 6 cranes for Task 1 and 3 cranes for Task 2. 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 workstation shall be designed in accordance with the directives and regulations applicable in the field of work ergonomics and meet the conditions applicable for Poland.

The operator's 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.

Each remote control station (ROS) should be equipped with a crane operation mode switch (operation in the remote control station mode by the operator, operation in autonomous mode, autonomous operation with operator assistance - if applicable, the control station (ROS) disconnected - manual control from the cabin ), transparent information with which the crane is currently being controlled by the operator via ROS.

The whole system shall be equipped with protections against moving a crane from the remote station with an operator or employees carrying out technical work.

In addition, the Supplier shall equip the station with:

* Safety system to prevent unauthorised use of the crane. At the operator’s station there shall be an access point 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
* Additional monitor dedicated to the needs of TOS
* CCTV system - control and display

At the station there shall be ergonomically placed digital screen monitors in the cab, 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)
* View from cameras supporting the loading and movement of the crane

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 (intercom) shall allow unidirectional communication of the operator 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:

* 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 the operator’s cab and at the remote operating station (ROS)
* 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.

##### 4.12.B. Equipment and cabling between the server room and the ROS room.

As part of the commissioning of the remote operating stations (ROS), the Supplier shall ensure delivery, installation and connection of all infrastructure necessary for their operation (such components as, for example, servers, video servers, switches and others). The Ordering Party shall perform cabling between the server room and the room where the remote operating stations will be located. The cabling shall be done by the Ordering Party before delivery of the crane, in accordance with detailed guidelines provided by the Supplier in writing to the Ordering Party, within 2 months of signing the agreement**.**

The works to be performed by the Supplier shall include termination and connection of optical fibres introduced by the Ordering Party into the server room to the system components delivered 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 operating station, as well as termination and connection with ROS in the operators' room and configuration and start-up of the whole system. The servers and switches required for the system operation shall be placed in a standard lockable rack (e.g. full height 42U) in accordance with the Supplier's guidelines.

Parameters concerning the rack as well as the power demand of the devices the Supplier plans to install in the server room shall be provided to the Ordering Party in writing within 2 months of the date of signing the agreement**.**

If any additional components, e.g. time server (NTP), are required for system operation, they shall also be included in the scope of delivery on the part of the Supplier. The image (video) servers shall ensure recording the images transmitted from the camera recorders on the crane for inspection purposes for 45 days.

4.13 Electrical systems and switchboard

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 optical fibre cables.
3. All power systems shall be permanently marked on both sides with a cable number.
4. The PLC and frequency converter shall be centrally installed in the e-house.
5. Connecting boxes / switch boxes / control panels mounted outside the cranes 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.
6. All electrical switchgears installed on the crane shall be of suitable industrial type and consist of standard electrical components.
7. All components shall be readily available on the market through standard purchasing procedures.
8. LV control circuits shall not have more than three devices under one circuit breaker.
9. Electrical switchgears shall be fully assembled and all wiring shall be connected.
10. They shall pass all tests at the manufacturer's facility prior to shipment in order to confirm correct wiring, functionality and lack of errors.
11. The cranes shall have standard built-in electricity meters.

4.14 Electrical cables

1. Each electrical cable of the cranes 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 cable shall be a shielded PVC-insulated cable 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.
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 shielded 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.

4.15 PLC

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

The controlled units shall be connected via Profibus or Profinet.

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

4.16 Drives

1. The cranes shall be equipped with devices to synchronise the crane travel mechanism.
2. All drives with frequency converters shall be protected against overload with the use of sensors. All drives at frequency converters shall be designed with increased insulation resistance. 4 Lifting drives:
* Protection system min. IP65
* Anti-condensation heating
* Forced ventilation
1. Crane and trolley travel mechanism drives:
* Protection system min. IP65
* Self-ventilation
* Anti-condensation heating
1. Frequency converters of internationally recognised manufacturers that provide for high quality and durability shall be used.

4.17 Sound generator and horn

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

1. Warnings shall be triggered automatically when the crane is in motion.
2. The Supplier shall provide for the possibility of adjusting the volume of the warning generators
3. The crane shall be equipped with a horn, to be activated by the crane operator

4.18 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 and to minimise the reflection of light in the operator's cab.

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

#### 4.18.1. Top beam lighting

**Type:** suitable LED

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

**4.18.2. 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.

**4.18.3 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 properly illuminate the container pins on the means of transport used for transporting containers on which handling operations are performed.

**4.18.4. 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.

**4.18.5. Cab lighting**

The level of illumination of the operator's cab shall not be less than 200 LUX (without shadow)

**4.18.6. E-house lighting**

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.

**4.18.7. 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.

**4.18.8. Emergency lighting**

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

### 4.19 Plug sockets

Socket assemblies:

Minimum equipment level:

* 2 items CEE 5x32A,
* 2 items **230V (type E** 16A,
* 1 item CEE 5x63A,
* circuit breakers mounted at the lower electrical cabinets located between the crane legs from the north and south

230V sockets type E - 16A:

* 1 item in all control cabinets
* 3 items (double) in the cab, as described in item 2.9.5.

### 4.20 Heating

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

### 4.21 Recuperation

The cranes 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 Ordering Party 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.

### 4.22 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 handling operations
* Operating instructions together with the wiring diagram
* Maintenance module
* Work stations: 1x crane cab 1x e-house

### 4.23 Operation of subassemblies

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

4.24 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 monitor in the cab 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:

hours of operation (hoisting winch), trolley movement, crane movement, twistlock rotation (number of movements), power consumption, crane position, alarms and warnings from 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 reading of energy consumption.

11. The system shall be installed and operated from the position of the PC in the operator's cab 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 (maximum 3) 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 crane central unit as well as remote access to the crane system by the service staff.

4.25 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.

4.26 TOS (Terminal Operating System)

1. The cranes shall provide bi-directional data transfer to/from the Terminal Operating System (TOS). It shall be possible to send the data from the cranes 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 cranes, to be used in 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 as part of each of the Tasks. 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.

4.27 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 240 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., description of the Terminal and one-digit number of the crane, as indicated by the Ordering Party. The Recipient’s 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 bumpers, handrails, protective elements, ladders.
6. The floor of the operator’s cab and the e-house shall be grey (RAL 7042), the interior of the e-house shall be white (RAL 9016).

4.28 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 EN - 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 min 40 μm prime coat (two-component HS epoxy-zinc coating)
* 1x min 60 μm top coat - polysiloxane or polyurethane in RAL colours

 min 240 μm total thickness of all layers of the paint 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.

* **The corrosivity category shall be at least C4**

4.29 Painting of series and standard parts

Manufacturer's standard paint.

4.30 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

4.31 Crane subassemblies

1. The Ordering Party shall accept the use, during the construction of the RMG 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 international 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 trolley, hoist and crane bearings as well as crane wheels and trolley wheels shall fulfil the minimum requirements at the maximum crane load of **20,000 operating hours**.
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 Supplier shall 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 or indicate products according to the relevant API classification.
6. All areas requiring lubrication shall have walkways and landings together with the necessary guardrails. Lubrication locations shall be clearly marked in accordance with the colour codes. One colour shall correspond to one type of lubricant.
7. All crane systems shall be correctly and unambiguously described and marked (both externally and internally), both ends that reach panels 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. All external electrical systems shall meet the minimum protection level of IP55 and internal electrical systems - IP41.

4.32 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 41 tonnes
* Colour of letters: Black against white background

## 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, and 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, as part of each Task, together with each crane there shall be supplied a laptop resistant to work in difficult conditions, with licensed software in the Polish or English language, including all connectors, cables and interfaces with service and diagnostic software and crane 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.

The complete documentation for each Task shall include, in particular:

1. RMG user’s manual
2. RMG user’s manual, including instructions on calibrating sensors and other equipment that should be adjusted on the crane
3. CE Certificate
4. CE Certificate of the spreader
5. A catalogue of all spare parts fitted on the crane
6. All technical data sheets with nominal dimensions, tolerances, permissible wear of rails, wheel flanges and other necessary data
7. Spreader use and maintenance manual
8. List of spare parts for the spreader
9. Technical drawings
10. Static calculation and drawings of the steel structure
11. Wiring diagrams
12. Electrical system user’s manual
13. PLC documentation
14. All passwords for PLCs and other electronic devices
15. After-sales report with measurements of the electrical system and effectiveness of electrical and lightning protection
16. Cyber security certificate
17. In addition, relevant parts of the documentation shall include:
18. technical descriptions
19. drawings
20. wiring, hydraulic and pneumatic diagrams, if any
21. diagrams of rope drive systems.

After completion of the installation works in respect of each crane, 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.

The documentation shall be provided in one English paper version and in one Polish version + on two data carriers (e.g. two pen drives) within 9 to 12 months of the date of signing the agreement.

## BUMPERS AND CRANE RUNWAY END.

The RMG cranes shall be equipped with a system that automatically stops the crane after detection of any obstacle within the clearance line of the travel path and smoothly slows down when approaching the runway end or a bumper of another crane.

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)

If the Ordering Party has, for Task 1, the existing solutions of the bumpers at the ends of the crane runway, the Supplier shall analyse them in order to select solutions in the cranes that provide for proper cooperation of the existing solutions with the crane bumpers.

As part of this tender procedure, the Ordering Party expects the Supplier to design and install two new complete hydraulic bumpers on the currently operating crane, which will ultimately operate in direct vicinity of the new crane.

In the event of Task 2, the Supplier shall inform the Ordering Party in writing about the applied solution and present drawings of the bumpers installed on the cranes by the Supplier. The supplier shall provide bumper drawings within 2 months from the conclusion of the contract. The Supplier will make and deliver, together with the delivery of the crane structural elements, the buffers cooperating with the buffers installed on the crane, which the Ordering Party will install in the crane foundation.

## FOUNDATION AND CRANE RUNWAY

The Ordering Party informs that for Task 1 in Kutno, the ordinate/level of the southern and northern head of the crane runway is 110.75 m above sea level. The southern crane runway is installed at the level of the terminal slab, while the northern crane runway is installed on a concrete foundation above the ground. At the time of designing the crane, the Supplier shall ensure that the travelling elements of the crane located in the southern foundation do not collide with the concrete foundation of the crane.

**The crane foundation for Task 1** was made in accordance with the drawings constituting Annexe No. 8.1 – 8.4 to the Specification.

The Ordering Party informs that for Task 2 in Brzeg Dolny the ordinate/level of the western crane foundation “A” is 128,49 m above sea level and the ordinate/level of the eastern crane foundation “B” is 127,89 m above sea level.

**The crane foundation for Task 2** was made in accordance with the drawings constituting Annexe No. 8.5 to the Specification.

The Supplier shall select suitable solutions for the design of the travelling and braking systems, including a storm brake for the cranes. The supplier is obliged to agree on the method of installation of the storm brake no later than 2 months from the date of concluding the contract, and not later than with the delivery of crane structural elements to the given terminal, deliver metal elements of storm brakes for cranes. The Ordering Party will install the metal elements of the storm brake in accordance with the Supplier's instructions and arrangements with the Design Office supervising the foundation and the crane rail.

## SUMMARY OF TECHNICAL REQUIREMENTS FOR CRANES

The Investor expects the cranes to handle containerised cargoes ranging in size from 20 to 45 feet. The assumed lifting capacity of RMG cranes under the spreader is 41 tonnes. The Ordering Party assumes that the crane will operate under the following operating conditions:

* Temperature range -25°C to +35°C; humidity up to 95%.
* Maximum operational wind speed 22 m/s.
* The height of the crane shall allow for handling High Cube containers in a "one over two" arrangement, taking into account the reserve specified in the technical part of this Specification,
* a rotating trolley,
* possibility to fully rotate a 45' container across the crane width and between crane supports
* effective continuous, uninterrupted communication
* monitoring - local and remote
* For Task 1:

- crane runway wheelbase of approx. 21.3 m, i.e. over four terminal railway tracks, between crane supports, cantilever, buffer of 3 rows of containers (2+1) + truck lane;

- over the length of the crane runway of approx. 700 m with two RMG cranes currently in operation and parking areas at the ends of the runway (1 x 25-28 m from the eastern side and 2 x 25 - 28 m from the western side)

* For Task 2:

- crane runway wheelbase of approx. 45,79 m, i.e. working over four terminal railway tracks ((including 2 from cantilever and 2 under the crane), buffer of 2 container rows (2+1), 2 truck lanes, 7 rows of containers (4+1) between crane supports, cantilever, interchangeable functions: buffer container row (2+1), alternatively truck lane. For the maximum height of the crane and its operational work, reloading and storage of High Cube containers should be assumed

- over the length of the crane runway of approx. 660 m with two RMG parking areas at the ends of the runway (1 x approx. 28 m from the northern side and 1 x 28 m from the southern side)

## DETAILED TECHNICAL DATA:

The Ordering Party assumes that the **number of handling operations carried out with the use of an RMG crane shall reach approximately 10,000 (± 3000) per month**. Containers of various sizes and weights will be handled.

The crane 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, it shall meet the following parameters:

|  |  |  |
| --- | --- | --- |
| **Position, parameter** | **Value** | **Unit** |
| Lifting capacity of twistlocks | 41 | tonnes |
| Telescopic positions of the spreader | 20, 30, 40,  | feet |
| Hoisting speed with the load of 41 tonnes / full load | 0 - minimum 20 | m/min |
| Hoisting speed with the load of up to 10 tonnes under the spreader / partial load  | 0 - minimum 40 | m/min |
| Crane travel speed; full and empty load | 0 – minimum 160 for Task 10- minimum 120 for Task 2 | m/min |
| Trolley travel speed / cross travel speed | * 1. - for Task 1

0-100 for Task 2 | m/min |
|  |  |  |
| Trolley slewing speed | 0-2.0 | Rotations per min U/min |
| Electricity connection Task 1 / Power supply voltage | 15 +/- 10% | kV |
| Electricity connection Task 2 / Power supply voltage | 6 +/- 10% | kV |
| Control voltage | 230 | V |
| Control voltage | 24 | V |
| **Equipment classification** |  |  |
| Steel structures | S4 | EN 15011 |
| Spreader | S4 | EN 15011 |

**Mechanisms:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mechanisms | Class of operation | State of loading | Group Classification | Service Life |
| Hoist | T8 | L3 | M8 | 50.000h |
| Trolley Travel | T8 | L3 | M8 | 50.000h |
| Gantry Travel | T8 | L3 | M8 | 50.000h |

## TECHNICAL/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.
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 4 weeks.
4. In the event that critical defects are present at the time of the first 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 two-week testing of operation in the presence of the Supplier's commissioning engineer shall take place no later than after acceptance by the Transport Technical Supervision. Trainings for crane operators shall also be conducted during this period. If there are any 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 cranes shall have keyed bypasses to allow operation at 110-125% load. Bypasses shall only be used for tests conducted by the Transport Technical Supervision.
7. In Annexe No. 3 to the agreements, the Supplier will confirm that the period of availability of spare parts and components or equivalent parts for repair and replacement will be at least 20 years from the date of acceptance of the crane by the Ordering Party. Failure to meet this condition will be the subject of a call to supplement the deficiencies under the pain of rejection of the offer.

## COMPATIBILITY WITH CURRENTLY USED CRANES

The crane to be supplied as part of Task 1 will be used together/alternately with two existing RMG cranes operated by the Ordering Party at the terminal in Kutno, it will move on the same crane runway and use the same cable tray, on which the third 15kV power cable dedicated for the third crane shall be installed by the Tenderer. It is therefore critically important that the new crane is compatible with the cranes already in use by the Ordering Party and forms a seamless operational system with them. In particular, it concerns compliance in terms of:

1. impact on the crane runway (static/dynamic pressures).
2. redundant safety systems in respect of other cranes, e.g. deceleration and braking when cranes approach each other, provision of information on mutual positions, laser detection of the neighbouring crane, elastomer bumpers.
3. ensuring the safety of persons and possible objects that may appear in the clearance of the moving crane gantry - radar system.
4. ensuring that the MV power cable is coiled/uncoiled in such a way that it properly interacts and does not interfere with the cables being uncoiled/coiled on that tray by the existing two cranes.
5. information system - generation of statistics concerning operational data for 3 cranes in one place.
6. compatibility of the ECS (Equipment Control Systems) so that partial or complete automation of all 3 cranes may be carried out in the future by a single supplier as part of a single technology.
7. possibility of using on all cranes basic spare parts stored by the Ordering Party, both for mechanical and electronic components, in order to ensure the fastest possible start-up of any of the cranes after failure and to minimise downtime.
8. full compatibility of the systems of manual control of the crane from the cab (system of joysticks, functions programmed into the buttons to ensure the same operating conditions for operators of RMG cranes and occupational safety.

Below there are pictures of the currently used operator’s panels (left panel on the left, right panel on the right)

 

If, in order to ensure full integrity of the system composed of three cranes, within the scope of this tender procedure there would arise a necessity to make necessary changes in the software and technical equipment of the existing cranes, the Tenderer shall be obliged to make arrangements with their Supplier of the existing cranes and introduce these changes.

At the same time, the Ordering Party requires that for all cranes supplied as part of Task 1 and Task 2 there may be used basic spare parts for both mechanical and electronic components in order to ensure the fastest possible start-up of any of the cranes after failure and to minimise downtime.

## CHANGES TO THE EXISTING CRANES TASK 1 AND THEIR RETROFITTING

In order to ensure efficient and safe joint functioning of all three cranes, including the one covered by Task 1 as part of this tender procedure, the Supplier shall make, at the Supplier’s own expense, the necessary modifications and integration of the existing cranes and the accompanying infrastructure. Scope of modification:

1. Addition of bumpers of specified parameters on existing crane No. 2 to protect it in the event crane No. 2 is run over by crane No. 3 or runs onto crane No. 3 covered by the tender procedure.
2. Changing the software of crane No. 2 so that it takes into account the presence and movement of the new (third) crane and receives positioning information from it and uses such information to calculate its own speed and to implement braking, if necessary.
3. Determining and reprogramming the safe parking area for crane No. 2 and changing the software of crane No. 2 to take into account this change.
4. In the upper part of crane No. 2 from the side of the crane covered by the tender procedure, installation of a laser proximity sensor to detect crane No. 3, of the same type as those on the inner side of cranes No. 1 and 2, making any wiring and programming the anti-collision system of crane No. 2 to include this sensor.
5. Preparation of the documentation regarding the relocation of the metal element of the storm brake pocket of crane No. 2 in accordance with its designated parking area.
6. Changes to the network equipment in the Ordering Party's server room to allow the cranes to communicate with each other.
7. Adjustment or replacement of the funnel taking the power cable out of the supply chamber and carrying out all connection work, including switching the power and optical fibre cables of the existing cranes.
8. If the technical modifications introduced to the existing cranes involved the necessity to carry out further measurements, supervision tests or other tests required by law (e.g. because they concern critical systems that ensure safety), the Tenderer shall submit appropriate applications to the relevant authority, carry out these actions and cover their costs.

All arrangements regarding technical conditions and data exchange in the area of cooperation with the existing cranes are included in the Tenderer's obligations and shall be carried out by the Tenderer at the Tenderer’s own expense.

# PART II - GENERAL INFORMATION ON THE TERMINAL IN KUTNO (TASK 1) AND BRZEG DOLNY (TASK 2)

**PCC Intermodal S.A. informs that both terminals are facilities 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 terminal with the proposed installation site and excerpt from the Terminal Rules – Annexe No. 12a and 12b to the Specification).

## CONSTRUCTION SITE ORGANISATION AND TERMINAL OPERATIONS

**The Supplier of the RMG 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 installation site of the crane covered by **Task 1** is a concrete yard of the size of approx. 130 x 40 metres, with a cross slope of 1% and 2.5% (with a break) 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 or necessary equipment temporarily entering the tracks, after making prior arrangements in this respect.

The installation site of the cranes covered by **Task 2** is a concrete yard of the size of approx. 108 x 23 metres or 120 x 15 meters (one or the other to choose from), with a cross slope of 1% (the Investor accepts the possibility of operating e.g. a crane arm over the terminal track ends or necessary equipment temporarily entering the tracks, after making prior arrangements in this respect.)

Each of the container terminals of the Ordering Party operates on a 24/7 basis throughout the year, the Supplier of the RMG cranes shall be obliged to prepare and present to the Ordering Party for approval the "**Rules for organisation and conduct of works for a given Task"**, 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 railway traffic and shall be **submitted to the Ordering Party for approval and agreed in writing no later than three weeks prior to the planned commencement of 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.

As part of the arrangements made with the crane Supplier, the Ordering Party shall ensure, for the duration of the construction works, the possibility of setting up on the Ordering Party’s premises up to three 20' containers constituting the Supplier's back-up facilities (free of charge). The Ordering Party shall also make available **electricity**.

 In order to ensure the safety of people, the persons employed for the performance of the 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 following documents applicable at a given terminal:

For Task 1 **“Instructions on and rules for staying and moving around the Container Terminal of PCC Intermodal S.A. in Kutno”.** (Annexe No. 6a to the Specification) and shall be trained by a representative of PCC Intermodal S.A.

- for Task 2 **“Instructions on and rules for staying and moving around the Container Terminal of PCC Intermodal S.A. in Brzeg Dolny”.** (Annexe No. 6b 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 RMG gantry crane, the Supplier shall agree with the Ordering Party's representative upon the access road leading through the terminal area to the crane installation sites. 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.

## TERMINAL YARD AND TRACK

The Supplier shall be responsible for keeping clean the yard and terminal tracks where installation works will be carried out, including for keeping the necessary clearance line resulting from railway regulations for this track, and for not leaving any vehicles, objects or materials in the clearance line of the terminal railway tracks, unless it is permitted under the temporarily agreed "**Rules for organisation and conduct of works"**. The Supplier shall also bear liability for any damage, including damage to the track(s) 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 the RMG gantry crane shall comply with applicable health and safety and fire protection regulations, and shall clean up and transfer to the Ordering Party the waste produced during the installation, in accordance with the applicable laws and regulations in force in Poland. The Ordering Party shall dispose of such waste.

## SITE INSPECTION AND SAFETY PRINCIPLES

A site inspection is possible at each of the terminals, i.e. at ul. Intermodalna 5 in Kutno and at ul. Sienkiewicza 6 in Brzeg Dolny. 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.rmg @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 at both Terminals 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

## PRICE PAYMENT TERMS

The Supplier may request the Client for advance payments for the supply of an RMG crane. 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 as part of each of the Tasks separately, 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 of the crane for Task 1 and 20% of the price of the cranes for Task 2, 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 receive the second advance instalment of 30% of the price of the crane for Task 1 and of the price of the cranes for Task 2 within 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 crane for Task 1 and the cranes for Task 2, but not earlier than within 7 (seven) months from the date of the contract.

The Supplier shall be entitled to the third advance payment of 30% of the price of the crane for Task 1 and the price of the cranes for Task 2, within 30 days of the date of receiving the request for an advance payment, but no earlier than 30 days of the delivery of a set of structural elements of the RMG crane covered by a given Task to the Client’s terminal as appropriate for the given Task.

The payment of each advance (the first, second and third instalment) shall be conditional on provision to the Client of a pro forma invoice or a bank or insurance guarantee of due performance of the contract, in accordance with Part III, item 7 of the Specification, and a 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 RMG 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**, separately for Task 1 and Task 2.

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 RMG crane:

1. **2 years’ warranty for the crane, its components and equipment supplied as part of this tender procedure** (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 crane or its 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 shall be an integral part of the price of the subject-matter of the supply. The Ordering Party shall bear the costs of crane servicing works performed as part of periodic inspections resulting from normal operation of the cranes as part of separate **quarterly flat-rate remuneration** as well as the costs not covered by the Supplier's liability under the warranty. The Ordering Party shall also bear the costs of 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 activities, the Supplier shall provide, among other things: 24/7 hot-line and appropriate 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 the 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 lubrication, if required, in accordance with the plan provided by the Supplier.
8. The maintenance manual for RMG cranes for a given Task 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 5,000 operating hours / year / RMG crane.
11. The complete tender shall include the delivery and assembly of the crane and equipment in accordance with the requirements of this Specification, including the provision of critical parts (contactors, relays, fuses, modules and other elements indicated in a list prepared by the Supplier) and ensure warranty service in accordance with items 1-13 of the Scope of the tender procedure (pages 6-7 of the Specification).
12. Critical parts for the cranes supplied as part of each Task 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 purpose of the warranty repairs, the Supplier shall replenish the parts at the Supplier’s own expense. In other events, critical parts shall be replenished at the Client's expense.
13. The crane 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 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.
14. Payments for the performed servicing work concerning periodic inspections and repairs or replacement of parts (to the extent not covered by the Supplier's liability under the warranty) shall be made on the basis of the servicing agreement for a given Task (based on the Tender submitted in the form (in accordance with Annexe No. 3 to the agreements). The total of quarterly payments for periodic inspections, whose performance is certified by authorised employees of the Ordering Party, shall not exceed the amount offered in this tender procedure (price of annual servicing works, i.e. “M”, in accordance with Annexe No. 3 to the agreements). 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 agreements. 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., while periodic inspections (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 offered rate per 1 manhour (i.e. R, in accordance with the provisions of Part IV, item 9.3 of the Specification).
16. As Annexe No. 5 to the servicing agreement, to be submitted together with the 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 (milestones) as part of this Specification. 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 crane.
17. The flat-rate annual amount of the remuneration for periodic inspection activities together with provision of 24/7 hot-line service throughout the term of the servicing agreement and costs relating to travel and accommodation of the Supplier's service technicians providing inspection services shall also be included in item "M" (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 required deadline for completion of the contract and for obtaining a permit for use is as follows:**

- within 16 months and 23 days from the conclusion of the Agreement, for one gantry covered by Task 1

- within 17 months and 23 days from the conclusion of the Agreement, for two cranes covered by Task 2

1. If the Supplier offers the final time for completion that is longer than specified above, The Ordering Party will call the Tenderer to improve the tender. If the tender is not corrected, it will be rejected as inconsistent with the requirements of the Specification.

## 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 defects that do not limit the possibility of crane operation, it shall be permissible to postpone the arrival of service technicians for up 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 for Task 1 and Task 2. **Validity** shall commence no later than on the date of commencement of delivery at the delivery site of the crane structural elements and shall not expire earlier than 7 days after the date of final acceptance of the last one of the three cranes (in accordance with the schedule of manufacture, installation and commissioning of cranes),but it shall last 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 payment of an advance 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 or other maintenance services, the Supplier shall, within **two weeks of the date of final acceptance of the crane**, submit a bank or insurance guarantee of proper performance of the servicing agreement, for the amount of **2.5%** of the price for the three cranes being the subject-matter of the supply. Due to different time limits for completion of the acceptance of the cranes for Task 1 and Task 2 indicated in the Specification, it shall be permitted to provide two separate guarantees of proper performance of the agreement, separately for Task 1 and for Task 2. The guarantee shall be issued to the Ordering Party and maintained for the period one month longer than the period of 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 of the deposit 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 the RMG crane 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 **12 employees of the Ordering Party will undergo training for each of the Tasks.** Training of crane operators and technicians responsible for crane maintenance shall be conducted in Polish on the premises of the terminal of PCC Intermodal S.A. in Kutno (Task 1) and in Brzeg Dolny (Task 2).

The training shall consist of theoretical and practical parts.

1. **Training in maintenance:**
2. **Crane:**
* - at least 2 days of training for the electrician(s)
* - at least 2 days for mechanics
1. **Spreader:**
* - at least one day of the training for electricians and mechanics

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

1. **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 in crane operation lasting at least five days shall be organised for crane operators at each of the terminala and conducted in Polish as follows: practical training for 4 groups of 3 operators each, and theoretical training for 2 groups of 6 persons each. 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 RMG cranes. After the training, all participants shall know how to correctly and safely operate the crane and all the equipment necessary for operational work, including for the work via the Remote Operating Station (ROS), 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 must be approved by 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 requirements and guidelines referred to in the Specification, and in particular they shall include the activities referred to in items 1-13 in the introductory part of the Specification "Scope of the tender procedure" (pages 6-7).

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

1. 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,
2. ensuring supervision of authorities and technical services, as required under laws and regulations, during the performance of installation and connection works.
3. 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, as part of the flat-rate remuneration, the appropriate complete permits to operate the RMG cranes as part of particular Tasks.

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

## PRICE INDEXATION

The price for RMG 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 prices specified in the Complete Tender

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:

# 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.

1. Tenderers that have the experience and necessary knowledge within the scope resulting from the detailed requirements described in this Specification;
2. Tenderers that have the capacity and resources allowing to complete the contract;
3. Tenderers that are in a good economic and financial position, allowing to complete the contract,
4. Tenderers that are not excluded for the reasons defined in the Specification.

## TERMS AND CONDITIONS OF ADMISSION OF A TENDERERTO THE TENDER PROCEDURE

A condition of evaluation of the submitted tender shall be submission of the following documents signed in accordance with the representation of the Tenderer:

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. Tender form, filled in and signed by the Tenderer, in accordance with Annexe No. 1 to the Specification.
3. Valid [[1]](#footnote-1) **registration document** or any other extract from the court or administrative register relevant 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/>; for persons whose authorisation has not yet been disclosed in the court or administrative registers, a valid1 act of appointment or establishment of a commercial power of attorney shall be presented.
4. 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.
5. 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.
6. **References** confirming the necessary knowledge and experience in the performance of tasks of a similar nature, scope and technical complexity (i.e. involving the supply of **at least** **3** container **cranes** of the stacking height of at least 4+1; and the RMG wheelbase of not less than 45 m, including mixed service, i.e. railway platforms, trucks and container stacks in remote mode with the implementation of the automatic positioning function of the gantry, trolley and hoist. The references shall concern at least 3, but not more than 5 cranes supplied by the Tenderer and shall be **issued by the recipients of RMG cranes.** The cranes indicated in the references shall be solely electrically powered and their supply shall be carried out by the Tenderer itself (i.e. manufacture and delivery of RMG cranes). The condition of participation in the tender procedure shall be demonstration that the Tenderer has supplied at least 3 RMG cranes described above in the period from 2017 to the date of announcement of this tender procedure. References may be provided by a single client as long as the number and parameters of the supplied RMG cranes meet the guidelines of the Specification. References shall include at least the following information:
7. country of delivery,
8. number of supplied cranes,
9. general technical data of the supplied cranes, including power supply
10. period of performance,
11. positive opinion of the client concerning fulfilment by the Tenderer of the terms and conditions of the concluded contract,
12. 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. 2 to the Specification (and attached to the supply and service agreements described below, as Annexe No. 3 to each of these agreements).
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.

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 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 200,000.**

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 set for submission of tenders to the end of the tender validity period, i.e. from 10/02/2022 to 11/04/2022.** 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 fulfilment of formal requirements together with the tender, no later than 10/02/2022.

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 the date indicated as the date of submitting tenders and an electronic proof of payment shall be sent together 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 its tender.
2. The Tenderer **submits 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 3, 4 and 5 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.
4. 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. 1-5 to 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 No. 1-4, and annexes No. 5-12 will only be accepted with a digital signature in an electronic version);
* 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, already mentioned in point 7 above);
* 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);
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. 1-6 to 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);
* 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, already mentioned in point 7 above);
* 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;

Note:

Each of the documents composing the tender, listed in items 1-12 above, shall be signed on the last page in accordance with the representation of the Tenderer.

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 No. 1, 2 or 3 to the supply agreement and the servicing agreement.

This remark does not apply to Annexes 5-12 to the Specification, included in Annex 1 to the supply agreement, which are signed by the Tenderer only in digital form.

## 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 shall be acceptable for all the above documents, including powers of attorney, to be sent in an uncompressed electronic version bearing a qualified signature, but the size of the data sent in a single e-mail shall not exceed 20 MB. If the volume of scans exceeds the said value, the documents shall be sent in several numbered e-mails. It is recommended to send a separate message with a list of the contents of individual e-mails 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 the Annexes described above, 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 documents constituting the Tender, indicated above in Part IV, item 2 sub-items 1-12, shall be sent to the Ordering Party no later than 10/02/2022 15:00 hrs.** The documents referred to in item **10** shall only be submitted by participants applying jointly for the award of the contract (consortia).

The submitted documents and declarations shall be evaluated for completeness and compliance with the requirements defined in this Specification. The tenders of the entities that provide complete and valid documents satisfying the criteria described in the Specification within the required time limit shall be evaluated and the entities that submitted such tenders shall be notified of the outcome of the evaluation.

**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, 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 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.

## PROCEDURE FOR 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.rmg@pcc.eu by **26/01/2022, 15:00 hrs.** In the subject of the question please indicate that the question concerns: “Tender for the supply of RMG 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. 2 to the both agreements. 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/](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/> .

Consolidated version of the draft supply agreement and the draft servicing agreement and the consolidated text of the Specification of the subject-matter of the tender procedure will constitute the basis for the preparation of the tender submitted in accordance with the provisions of **Part IV, item 10** 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 OFFER

**The price offer shall be prepared in accordance with the provided form (Annexe No. 2 to the Specification) and signed by the persons representing the Tenderer, shall be submitted together with the formal documents referred to in Part IV, item 3 subitems 1-12 of the Specification.**

The prices indicated in the tender shall be used to rank the tenders submitted by Tenderers, unless the Ordering Party uses the procedure provided for in Part V, item 2 of the Specification.

The price of RMG cranes included in the tender shall be expressed in EUR. The Ordering Party expects that due to technical conditions the price of the crane offered for Task 1 will be different from the price of the cranes offered for Task 2. However, the price of the cranes covered by Task 2 shall be the same for each of the cranes, regardless of any circumstances that might affect the price difference between the two cranes.

All prices in the tender shall be in EUR. If it is necessary to translate the EUR-PLN currencies, the average exchange rate as published by the National Bank of Poland as of the date preceding the last date of the time limit for submission of tenders shall apply. Prices shall also satisfy the other terms and conditions defined in the Specification.

The price form attached to the tender (Annexe No. 2 to the Specification / Annexe No. 3 to the agreements) also contains other data, including the possibility of presenting prices for individual items of optional equipment. The provision of optional equipment is not mandatory, and the prices of such optional equipment shall not be taken into account in the evaluation of the tenders.

## EVALUATION OF TENDERS “W” INDEX

The value of the “W” index shall be calculated on the basis of the tender submitted in accordance with Annexe No. 3 to the agreements (Annexe No. 3 to the Specification), in accordance with the following formula:

**W = P(KT)+ 2\*P(BD) + (MKT+2\*MBD)\*10**

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” value;

P(KT) - price of 1 RMG crane offered for the container terminal in Kutno;

P(BD) - price of 1 RMG crane offered for the container terminal in Brzeg Dolny;

M - price of servicing works offered for 1 RMG crane for one year. For the purpose of the evaluation of tenders, 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.

The Ordering Party requires a tender indicating the rates for 1 hour of work of a service technician and for travel of service technicians to the place of crane operation. The rates shall not affect the “W” index. The Ordering Party assumes that the rates offered will be on the market level.

**R** - flat-rate price for 1 manhour of work of a service technician related to **additional works not covered by the guarantee** or applicable to the actions performed outside the working time indicated in the Specification. The cost of standard servicing activities to be performed by the Supplier's employees shall be included in the M price.

**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 for standard servicing activities covered by the servicing agreement shall be included in the M price.

The **prices** quoted in the tender that has obtained the best “W” value shall be accepted as binding prices in the supply agreement and the servicing agreement, provided that they do not exceed the budget assumed by the Ordering Party for the performance of this Task.

## SUBMISSION OF A TENDER

**A complete tender** that conforms with this Specification, in paper or electronic version bearing a qualified signature, including in the supply agreement and in the servicing agreement the prices offered by the Tenderer in the tender, shall be sent **to the following address**: PCC INTERMODAL S.A. ul. Małachowskiego 1A, 41 – 200 Sosnowiec. The Ordering Party may set a longer time limit for delivery of tenders.

**The tender shall be submitted by 10/02/2022, 15:00 hrs.**

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 suwnic typu RMG dla terminali Kutno i Brzeg Dolny”**

Each Tenderer shall be bound by its tender for 60 days of the date set for submission of tenders.

Due to the unpredictability of the development of the epidemiological situation, the Ordering Party agrees that the tender may be submitted electronically with the use of a qualified signature.

The Ordering Party reserves the right to request the Tenderer/Supplier to submit the documents (a complete 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.

## INFORMATION ABOUT THE AGREEMENTS

The Tenderer shall only complete the text of the supply agreement and the servicing agreement in the dotted spaces. Annexes 1 and 2 to each of the agreements are forms of documents that shall not be completed or modified. The same applies to Annex 4 to the supply agreement (template of the Delivery-handover protocol) and Annex 4 to the servicing agreement (template Contact details of the Client's and the Supplier's representatives).

The Tenderer fills in Annex 3 (the same pricing form for the supply and servicing contract), and also encloses the Annexes 5 to each of the agreements (schedules) and Annex 6 to the servicing agreement (warranty terms).

Annexes to the Specification, which are auxiliary drawings, which the Ordering Party made available under numbers from 5 to 12, due to their length and a format larger than A4, will not be printed. The Ordering Party requires that the persons representing the Tenderer send these files to the address przetargi.rmg@pcc.eu , certified with a qualified signature, no later than on the date of submission of tenders.

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 tenders, representatives of PCC Intermodal S.A. shall check their contents 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 Complete 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 consistent with the provisions of the Specification and with the tender submitted in the course of the tender procedure, then the Ordering Party shall notify the Tenderer (contact person) without unnecessary delay, by telephone/e-mail 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 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 request the next Tenderer that submitted a correct Tender to submit a Complete Tender, by which the Tenderer shall be bound for 60 days in accordance with the provisions of this Specification.**

## BUDGET

**In the event that none of the tenders falls 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. 3 to the agreements** **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. 3 to the agreements shall be decisive for the final ranking of the Tenderers in the tender procedure. The prices presented in Annexe No. 3 to the agreements 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 participating in the tender procedure shall translate the other documents, including the supply agreement and the servicing agreement together with Annexes, for its own purposes and on its own. The language of the supply agreement and the servicing agreement shall be 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 connected with the preparation of the tender documentation and the submission of the tender or a revised tender shall be borne by the Tenderer.

## INFORMATION ABOUT CO-FINANCING OF THE PROJECT

**PCC Intermodal S.A** informs that the purchase of RMG cranes is 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)

The purchase of 2 cranes is carried out under the project "Purchase of reloading equipment and construction of the crane runway at the intermodal terminal in Brzeg Dolny".

The purchase of 1 crane is carried out under the project entitled "Expansion of the intermodal container terminal in Kutno and purchase of devices 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:

the controller is PCC Intermodal SA, ul. Hutnicza 16, 81-061 Gdynia;

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 three RMG cranes**”, in accordance with the principle of competitiveness;

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”);

personal data shall be stored for the period of 5 years of the date of the final payment made to the Supplier;

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;

no automated decision-making shall be carried out in respect of personal data, in accordance with Article 22 of the GDPR;

1. 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. 5 to the Specification. The data processing agreement shall be signed within two weeks of the date of the Ordering Party's request (under pain of withholding the advance payment), but no later than two months of the date of conclusion of the supply agreement, under the pain of charging contractual penalties.

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

The following Annexes constitute an integral part of the Tender Specification.

1. Tender form.
2. The price form which, after being filled in by the Supplier, will constitute Annexe No. 3 to the supply agreement and (at the same time) Annexe No. 3 to the servicing agreement.
3. Supply agreement *(form*, with the following Annexe):

- Annexe No. 4 to the supply agreement - Delivery-handover protocol *(form*),

1. Servicing agreement **(**form **,** with the following Annexe):

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

1. Data processing agreement.
2. Instructions on and rules for staying and moving around the Container Terminal of PCC Intermodal S.A. in Kutno.
3. Supply checklist - identification of the supplying entity
4. Drawings - RMG cross-section of the crane service zone in Kutno (8.1); Foundation of RMG Kutno (8.2); Foundation of RMG Kutno (8.3); Cross-section of the railway part in Kutno (8.4); RMG Cross-section of the crane service area in Brzeg Dolny (8.5)
5. Drawings - RMG crane feed chamber in Kutno (9a) and RMG crane feed chamber in Brzeg Dolny (9b);
6. Drawings - location of the RMG cranes supply chamber at the terminal in Kutno (10a) and the location of the RMG cranes supply chamber in Brzeg Dolny (10b);
7. Drawings - crane rail in Kutno;
8. Drawings - places on the terminal for the assembly of cranes - in Kutno (12a) and places on the terminal for the assembly of cranes in Brzeg Dolny (12b).
1. The word “valid” used in items 2-4 shall be understood as documents consistent with the current legal status, issued **no earlier than 01/06/2021.** [↑](#footnote-ref-1)