V2.1 – PROJECT PHASING AND DELIVERABLES

Project phase	Milestone ending the Project phase	Deliverables
P1 Tender procedure	M1 Contract award	D1 Mutually signed Contract
P2 Detailed design	M2 Customer Design Approval	D2 Full design documentation adapted after design review meeting
P3 Manufacture	M3 Factory Acceptance Test	D3.1 FAT successful in accordance the check list within V2.5 – Factory and Site Acceptance Checklist D3.2 Completion of Factory Training
P4 Transport and on-site commissioning	M4 Delivery to Site	D4 Delivery Compliance Confirmation Protocol
P5 Site Acceptance Test (SAT)	M5 Provisional Acceptance	D5 SAT successful in accordance the check list within V2.5 – Factory and Site Acceptance Checklist and completion of onsite maintenance and operator training
P6 Improvement Stage	M6 Final Acceptance	D6 Final Acceptance Protocol

GENERAL COMMENTS

The project phases and milestones in the table above are derived from the Technical Specification. The absence or incompleteness of one or more of the indicated deliverables will automatically lead to the postponement of the approval or acceptance, indicating the end of said phase and being an indispensable condition for the start of the subsequent phase. In the chapters below, a more detailed overview of the different deliverables is provided.

D1 MUTUALLY SIGNED CONTRACT

Contract document signed by the customer and the Contractor, covering all agreed commercial and technical terms together, including Technical Specification with all annexes, schedules, and financial attachments.

D2 FULL DESIGN DOCUMENTATION ADAPTED AFTER DESIGN REVIEW MEETING

Comprising the complete, approved technical documentations, including detailed design drawings, calculations, electrical, hydraulic, and pneumatic schematics, prepared based on the comments raised during the design review.

- The data transfer of EPM as stated in V2 Technical Specification item 3.18 and 3.19.
- Layout drawings showing the general arrangement of the EPM, operator's cabin (including instrument panel) sidewalk, steps, ladders etc. Drawings of the internal arrangement of components inside the battery and power-electronics are to be included.
- The drawings shall include detailed dimensions with front, rear, left, right and top views. Installation drawings of, electric drive motors, inverters, battery packs, drive line and axles are to be included.
- Details and diagrams of the brake pneumatic system and electrical system (inclusive of the starting circuit).
- The design calculation on the GCW, axles loading, chassis beam sizing, traction force, speed and grade-ability, stability motor, motor, inverter and battery selection, and turning radius; with and without the trailer.
- The design calculation of the fifth wheel’s mountings, chassis members and axles to withstand shock impact loading during the landing of container from Quay Crane; including the energy absorbed by the mountings.

- Characteristics of the DC charging system and any DC-DC converter (charging power, current and voltage profiles), including the design calculation for their sizing, shall be submitted.
- Names and addresses of sub-contractors, if applicable.
- Warranty periods of the EPM including the battery system, electric drive motors, inverters, mainframe and air conditioner.
- Details and installation layout of air conditioner including the design calculations for the sizing of the air-conditioner.
- Organisational setup and facilities of local servicing agent or the plan for local support for commissioning and warranty repair.
- Details and installation layout of the driver's seat which comes with an integral built-in safety belt. The brand/model of the driver seat with an integral built-in safety belt shall also be submitted.
- A comprehensive list of maintenance items stating their servicing intervals.
- Maintenance intervals of all components.
- List of endorsement & test certificates which indicate the design of the prime mover, the country of manufacture which must be designed and manufactured according to the standard and its intended purpose.

D3.1 FACTORY ACCEPTANCE TEST (FAT)

Protocol of the Factory Acceptance Test, confirming compliance of the equipment with the technical and contractual requirements.

D4 DELIVERY COMPLIANCE CONFIRMATION PROTOCOL

Post-delivery inspection and commissioning: verify shipment completeness, confirm no visible defects.

D5 SITE ACCEPTANCE TEST

- The Customer conducts a full EPM inspection and testing program in accordance with the V2.5 – Factory and Site Acceptance Checklist by the Customer based on all requirements specified in the Technical Specification and V2.3 – Main Technical Parameters.

- The SAT shall be considered successful as soon as the on-site commissioning a minor punch list (no major items which affect the safety working conditions of EPM, in case of any conflict for classification of any defect items, decision for clarification of any items as major items is subjected to Customer approval).
- Complete the training as stated in in V2 Technical Specification
- Delivery of complete as-built documentation file. The as-built documentation file shall be provided both in soft and in hard copy (3 copies), and shall include the following items:
    a. EC declaration of conformity in accordance with the Machinery Directive,
    b. Operational and maintenance documentation including:
        i. complete operating manual for the EPM
        ii. maintenance manuals for motor, batteries, axles, brakes, electrical and pneumatic equipment, including references to spare part numbers and descriptions of the manufacturer part numbers, catalogue data, operating and maintenance manuals including instructions for (dis)assembly
        iii. inspection manuals for all types of inspections for the total EPM
        iv. maintenance checklists for all types of manufacturer-required EPM inspections
        v. hydraulic, pneumatic and electrical schematics
        vi. lubrication manual including recommended lubricants and oils, as well as service intervals
        vii. a complete fault-finding system in Polish and English to facilitate troubleshooting
        viii. instruction manual for adjustable settings
        ix. spare parts catalogue with drawings, descriptions, and part numbers of the entire EPM
        x. all required certificates and reports
        xi. Delivery of all software and hardware, and licenses for maintenance teams:
        xii. Daily Pre operation checks

D6 Improvement Stage

The final Acceptance Protocol will be signed only after all of the following conditions have been met:

1. Clear list of defect.

   The punch list empty occurs when the Contractor has remedied all material deficiencies and non-conformities with the approved technical documentation; the Customer has the right, acting reasonably and by reference to the V2.5 – Factory and Site Acceptance Chlift idefectdefectDeecklist, to determine what constitutes a material non-conformity.