Base Load Power Hub (BLPH)

Technical Specification for DAVIT CRANE

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

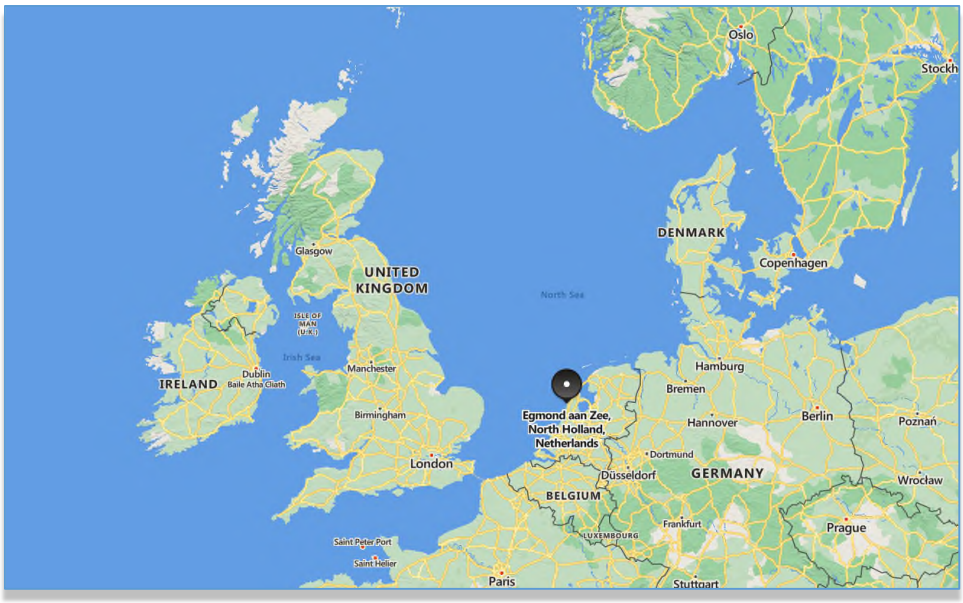


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

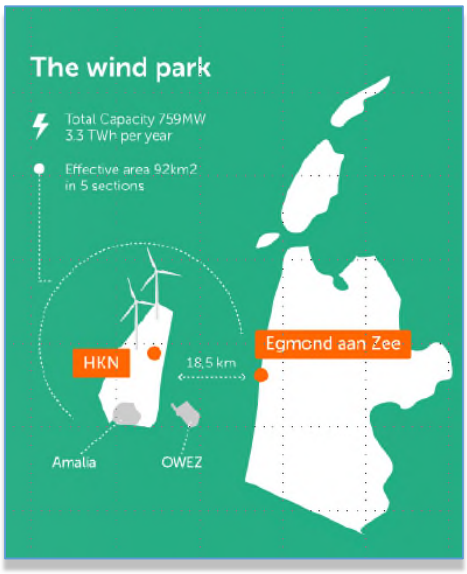


Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

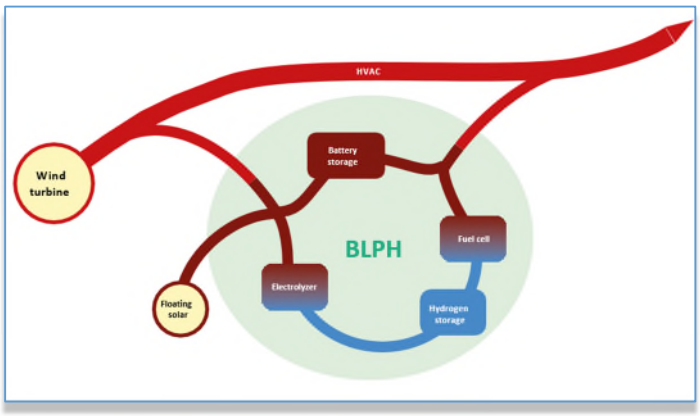


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting

wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

1.1.3 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project

Table 1 - Definitions and Abbreviations

2 REGULATIONS, CODES AND STANDARDS

The systems shall be designed, manufactured, tested and delivered in accordance with the relevant sections of the latest editions, including addendums, of the international codes and standards and comply with the latest revisions of the following project documents.
Where national Italian regulations, codes and standards exist or HSE guidance notes have been published, their recommendations shall always apply. Such national regulations shall therefore supplement or amend the provisions of this document.

2.1 ORDER OF PRECEDENCE

In the event of any conflict between this specification and the documents listed herein, the decreasing order of precedence shall be:

- Dutch Government Legislation & HSE guidance notes
- This specification
- Referenced Project documents.
- International Codes, Standards and Regulations

2.2 PROJECT AND GENERAL DOCUMENTS

Related Project Documents consist of the following:

Doc. No.	Description
123A90-DDL-MAC-SP-50034	Technical Specification for DAVIT CRANE
123A90-DDL-MAC-DS-50035	TDS - Davit Crane
123A90-DDL-MAT-SP-60006	Coating and Painting spec
123A90-DDL-EL-SP-20085	Technical Specification for Electrical Requirement in Packaged Units
123A90-DDL-EL-SP-20084	Technical Specification for LV Motors
123A90-DDL-SAF-RE-30046	HSE Design Philosophy
K559-2254-PM-PLN-003	Basic Design Engineering Package
CWHKN-INN-BPH-DTS-00005	BLPH PLATFORM SITE AND ENGINEERING DATA
123A90-DDL-PP-DS-70070	Plot Plan Lower & Upper Deck
123A90-DDL-MAC-TBE-50037	Abstract of TBE - DAVIT CRANE

Table 2 – Reference documents

2.3 INTERNATIONAL CODES AND STANDARDS

Vendor to make reference to the last edition of the Codes and Standards therein listed

ASME IX	Welding and Brazing Qualification
ASTM / EN	Materials
ISO 9000 – 9004	Quality Management Systems
FEM 1.001	Rules for the Design of Hoisting Appliances
EN 13001	Cranes - general design. General principles and requirements
2006/42/EC	Machinery Directive
IEC	Rules and Regulations applicable for the electrical system and equipment
ISO/TR 25599:2005	Cranes – Jib cranes – International Standards for design, manufacturing, use and maintenance requirements and recommendations

EN-13852-3	Cranes - Offshore cranes - Part 3
EN ISO 17637	Non-destructive testing of welds – Visual testing of fusion-welded joints
EN ISO 17638	Non-destructive testing of welds
EN ISO 23278	Non-destructive testing of welds
EN ISO 17640	Non-destructive testing of welds
EN ISO 11666	Ultrasonic testing – Acceptance levels
EN ISO 5817	Welding – Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) – Quality levels for imperfections
EN ISO 3452	Non-destructive testing – Penetrant testing Part 1: General principles
EN ISO 23277	Penetrant testing – Acceptance levels
DNVGL-ST-0378	Standard for offshore and platform lifting appliances
EN ISO 12100:2010	General Principles for design
ISO 4301-1	Cranes and Lifting Appliance Classification
ATEX 2014/34/UE	Atmospheres Explosive, receipt con D. Lgs. n. 85 del 19/05/2016
ISO 19900	Petroleum and natural gas industries - General requirements for offshore structures
ISO 19901	Petroleum and natural gas industries - Specific requirements for offshore structures – Part 1 to 8

Table 3- List of international codes

All the applicable Codes and Rules shall be considered the latest edition.

It will be at Bidder/Supplier responsibility to specify/indicate any additional specifications and/or standards necessary for a safe design and operable facilities.

3 GENERAL DESIGN DATA

3.1 ENVIRONMENTAL DATA

For the Environmental Condition such as rainfall, wind or seismic activity please refer to doc. n° CWHKN-INN-BPH-DTS-00005 "BLPH PLATFORM SITE AND ENGINEERING DATA" and K559-2254-PM-PLN-003 Basic Design Engineering Package

3.2 SCOPE OF SUPPLY

3.2.1 General

The SUPPLIER's scope of work shall include the design, fabrication, inspection, Q.A., system testing, calibration, packing for shipment, certification and documentation, including operational handbooks necessary for safe and good operation and maintenance of the specified system.

The SUPPLIER shall assume full responsibility; this means the SUPPLIER shall guarantee operability, quality of all components inclusive of all sub-suppliers and conformance to authority and code requirements.

SUPPLIER shall provide nameplates for all main components.

This specification shall be read in conjunction with the other relevant specifications, codes and standards referenced therein.

3.2.2 Scope

This specification refers to the supply of Davit Crane to be installed on BLPH platform:

N° 1 Lifting Davit (TAG X-99001) to be installed on Upper Deck

The lifting davit (electrical chain hoist) will be used for materials handling from decks of the platform and to/from the supply vessel.

For each lifting davit the supply consists, but not limited to of the following:

- Column

- Rotating arm
- Electric Motor
- Braking device
- Fixing system, base flange, counterflange and adapter (including certified bolts)
- Rotation stops
- Trolley on arm
- Hoist, hook
- Chains and mechanism for rotation, trolley movement, load lifting/lowering

Note: Chains, pulley, hoist, hook, trolley built in antisparking way.

Additional details are indicated in 123A90-DDL-MAC-DS-50035 TDS - Davit Crane

3.2.3 Inclusions

Unless otherwise indicated, the supply shall be generally complete with:

- design
- painting, coating
- nameplates and labels
- lubricant / grease first filling
- earth terminals
- lifting lugs
- adaptor to be welded to platform structure
- inspection & tests according to par. 6
- certifications and documentation according to par. 10
- packaging
- special tools and wrenches for assembly and maintenance with list of parts
- spare parts for commissioning and start-up
- spare parts for 2 (two) years spare parts list (only quotation)
- final data book inclusive of certificates
- operation and installation manuals
- assistance during installation, commissioning, and initial start-up (only quotation)
- all materials and/or items not included in the above list, but required by specification, standards, data sheets herein referred and necessary for the safe and functional operation of the system.

3.2.4 Exclusions

- Structural works on platform and welding of adaptor to platform structure

3.2.5 Design requirements

The lifting davit shall be electrical chain type. The arm shall be provided with a trolley allowing movement of winch along the arm.

The lifting davit shall be suitable for unprotected outdoor operation in an offshore environment.

The equipment shall be designed considering the loads due to the wind and seismic loads, as applicable.

The equipment shall be suitable and certified for installation and operation in a Safe Area.

The lifting davit shall be designed suitable for mounting directly on to the platform steelwork.

The equipment shall be designed and constructed for continuous operation and sized in accordance with relevant equipment data sheet.

Vendor shall take into account SWL of 1,5m, in design of the crane

The equipment shall be sufficiently rigid and complete of eyebolts, such to permit lifting of the whole davit assembled, including the mounted equipment and shall be suitable for fastening to a steel structure by welding or bolting. All welds shall be continuous, due to seal and stiffness reasons.

Where the weight of a component exceeds 25kg and are required to be regularly removed for maintenance, SUPPLIER shall provide suitable mechanical handling provision.

SUPPLIER shall provide a method statement for removal any heavy component which requires regular removal for maintenance. The method statement shall describe fully the means required and method for removal of component from the complete equipment.

The IOM manual shall contain detailed instructions where required for the use of mechanical handling equipment.

The Supplier shall indicate on the bid the dimensions and weight.

3.2.6 Electrical

The lifting davit shall be provided by electric motor to operate the hoist.

It shall be provided by proper JB.

The power supply shall be provided by others.

The control panel shall perform at least the following function:

Power supply disconnection.

Hoist up-down command.

Emergency stop.

The power supply presence shall be indicated by proper signal lamp.

All the equipment shall be completely installed and wired up to the interface terminals in proper junction box at the battery limits on the davit.

The electrical equipment shall be suitable for external installation (protection degree IP56 or higher) and for the installation in hazardous area Zone 1 gas group IIB and temperature class T1.

All the electrical equipment shall be bonded to form an equipotential complex, proper earthing plate shall be installed at the bottom of the pedestal support for the connection to the earthing grid of the platform.

3.2.7 Nameplate

A nameplate shall be provided for the lifting davit and affixed in a suitable to read location. The nameplate shall have as a minimum the following information:

SUPPLIER Name & Address

Serial Number

Description

Tag Number

Date of Manufacturer

Markings

Main performance data

Purchase Order Number

The nameplate material shall be 316 stainless steel with a minimum thickness of 1.6mm. It shall have a brushed finish with dark blue characters & border. Lettering height to be a minimum of 10 mm. SUPPLIER's standard nameplate formats may be submitted for PURCHASER's review.

Components that may require maintenance shall be readily accessible with minimal disturbance to any other parts in the system.

The arrangement on the package of the components that require maintenance shall allow a readily accessibility to them with minimal disturbance to any other parts of the system.

4 CERTIFICATIONS

SUPPLIER is the responsible for compliance with local Laws and Directives concerning safety, such as, for example but not limited to: Machinery 2006/42/EC by Annex II.1.A declaration type, ATEX Directive 2014/34/EU.

SUPPLIER shall CE mark Davit and supply Declarations of Conformity in accordance with

the Machinery Directive and all other relevant product Directives (e.g. ATEX) for the Davit

and other equipment appliances supplied with them.

5 FABRICATION & WELDING

Weld procedures and associated qualifications may be required to be submitted to PURCHASER for review prior to commencement of welding. Requirements for review of welding documents shall be indicated within the Requisition.

The welding procedures and the welders shall be qualified in compliance with recognized standards.

The welding shall be continuous type.

5.1 INSPECTION & TESTING

The supply will be accepted by Purchaser only upon the positive result of the functional inspection of all the components.

Inspection and testing shall be carried out at the Supplier's or his Sub-supplier's workshop.

5.2 INSPECTION & TEST PLAN

SUPPLIER and any sub-SUPPLIER's shall be responsible for inspection of the supplied equipment to ensure these are in compliance with the specifications and approved drawings and documentation.

SUPPLIER shall submit for approval, a suitable Quality Control Inspection and Test Plan that will indicate the level and degree of all inspection activities including all inspection and test points required throughout the fabrication programme.

The Quality Control Inspection Plan shall be submitted to the PURCHASER for approval and input of surveillance points prior to commencement of manufacture.

5.3 INSPECTION ACCESS

PURCHASER & COMPANY reserves the right to inspect equipment at any time during manufacturing or testing to assure that the materials, workmanship, and performance are in accordance with the specifications and approved drawings and documentation. The PURCHASER or the PURCHASER's authorized inspector may call for additional or repeat tests, if deemed necessary, to declare the equipment in compliance with the specifications and approved drawings and documentation. The SUPPLIER shall provide free access to the works and that of sub-SUPPLIERs for the authorized representative of the PURCHASER.

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All necessary certification on materials, shop test data, etc. shall be made available to verify that the requirements of purchase order are being met. The Quality Control Inspection Plan, showing witness hold points and statutory/code surveillance points, shall be made available.

The PURCHASER Inspector or representative shall also review the progressive assembly of the Manufacturers Data Book as the work proceeds.

5.4 GENERAL TESTING REQUIREMENTS

Testing shall be performed to verify the adequacy of design, materials, and workmanship.

SUPPLIER, as part of the document submissions, shall provide procedures for testing.

The procedures shall specify the minimum acceptance criteria for all test requirements.

All instrumentation required for testing purposes shall have current calibration certificates. Originals of all test certificates shall be available for review by PURCHASER.

SUPPLIER shall be responsible for providing all equipment, instrumentation, and controls to conduct the specified test safely.

SUPPLIER shall carry out all appropriate tests required by relevant legislation, codes, standards, regulations, including pressure testing, run testing, performance testing, welding and NDT to ensure the supply is fit for purpose and will operate and perform in accordance with the requirements herein.

5.5 TEST CERTIFICATION

Supporting documentation shall be issued for each system or item of equipment tested to confirm the actual results obtained or measured during the test. All documents shall be stamped, dated, and, where applicable, signed by the PURCHASER's representative in accordance with the Quality Inspection and Test Plan.

5.6 TEST WITNESSING

The PURCHASER or the approved representative shall reserve the right to attend and witness any such tests at their discretion. SUPPLIER shall inform the PURCHASER, in writing, five days prior to any test being carried out.

5.7 FACTORY ACCEPTANCE TESTING (FAT)

The equipment shall be subjected to a FAT at SUPPLIER's workshop before shipment.

IDS

The following table summarizes the minimum activities required and will be used for the preparation of the Vendor ITP. In any case other possible activities required by applicable documentation shall be included.

5.8 TESTING AUTHORITIES:

SUP	SUPPLIER
CTR	CONTRACTOR
CPY	COMPANY
CA	CERTIFYING AUTHORITY

5.9 TYPE OF ACTION:

H	HOLD POINT
W	WITNESS POINT
R	REVIEW OF THE CERTIFICATES / DOCUMENTATION
SW	SPOT WITNESS
M	MONITORING
C	CHECK HAS BEEN PERFORMED AND CERTIFICATE ISSUED
N	CHECK HAS BEEN PERFORMED BUT NO CERTIFICATE ISSUED

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POS	DESCRIPTION	SUP	CTR	CPY	CA	REMARKS
1	GENERAL					
1.1	Review of Purchase Order	N	R	R	N/A	
1.2	Review of Contractual technical specification	N	R	R	N/A	
1.3	Check of Construction Drawing approval	C	R	R	N/A	
1.4	Check of Quality Procedure approval	C	R	R	N/A	
1.5	Check of ITP approval	C	R	R	N/A	
1.6	Check of Welding book (WPS, PQR, WPQ)	C	R	R	N/A	
1.7	Check of Quality Procedure (Visual and dimensional, FAT, NDT, PMI, etc.)	C	N	R	N/A	
2	MATERIAL RECEIVING					
2.1	Visual examination and dimensional check	C	R	R	N/A	
2.2	Material traceability check	C	R	R	N/A	
2.3	Review material certificates	C	R	R	N/A	
3	DAVIT					
3.1	Non-destructive examination (PT-UT-MT-RT)	C	R	R	N/A	
3.2	Visual/ dimensional check before painting	C	W	R	N/A	
3.3	Check of test certificates on welding coupons	C	R	R	N/A	If applicable
4	TROLLEY-HOOK-CHAINS-PULLEY					

POS	DESCRIPTION	SUP	CTR	CPY	CA	REMARKS
4.1	Drawings and data sheet approval check	C	N	R	N/A	
4.2	Visual and dimensional check	C	W	R	N/A	
4.3	Certificates check	C	W	R	N/A	
5	COMPLETE UNIT					
5.1	Cleanliness check	C	R	R	N/A	
5.2	No-sparking material certificate/declaration check	C	W	R	N/A	
5.3	Visual and dimensional check	C	W	R	N/A	
5.4	FAT procedures approval check	C	W	R	N/A	
5.5	FAT including as min. static load test, functional test without & with load, overload functional test	C	H	W	N/A	
5.6	SAFETY requirements check - Safety instruction in English languages - Check safety labels	C	R	R	N/A	
5.7	Weight check	C	R	R	N/A	
5.8	Nameplate check	C	W	R	N/A	
5.9	Painting/coating check acc. to specification 355607-MAT-SP-79200	C	W	R	N/A	
5.10	Marking check	C	W	R	N/A	
5.11	Packing and preservation check	C	W	R	N/A	
5.12	Spare part check	C	W	R	N/A	
5.13	Special tools check	C	W	R	N/A	If applicable

POS	DESCRIPTION	SUP	CTR	CPY	CA	REMARKS
6	FINAL DOCUMENTATION					
6.1	Manufacturer Data Book Review	C	R	R	N/A	
6.2	Installation, Operating and Maintenance Manual Review	C	R	R	N/A	

6 SURFACE PREPARATION & COATING

The SUPPLIER may submit his standard painting and surface preparation procedure for PURCHASER's approval. This SUPPLIER's standard must be suitable for humid, moisture and salt laden, exposed offshore environment.

ISO 12944-2 Standard category C3 painting shall be applied, according to project specification

123A90-DDL-MAT-SP-60006 Coating and Painting spec

7 PRESERVATION & PREPARATION FOR SHIPMENT

7.1 GENERAL

After final inspection and acceptance of functional/performance tests, the equipment shall be prepared for shipping in accordance with the following.

7.2 CLEANING

All dirt, grime, grease, and shop residue shall be removed from the surface of furnished equipment prior to packaging and shipping from the manufacturing facility.

7.3 LUBRICATION

All bearings and other similar parts of furnished equipment shall be suitably lubricated prior to shipment in accordance with SUPPLIER's recommended lubrication instructions.

7.4 PRESERVATION, PACKAGING AND TRANSPORT

Preservation & Packaging

Preservation & packaging shall be for export and provide for extended storage at final facility.

All instruments and any equipment which is to be supplied loose shall be removed, tagged and crated in waterproof boxes. Instruments shall be packaged with sufficient desiccant for 6 months storage. The boxes shall be securely attached to the package for transport. The content of each box shall be clearly stated on the outside of that box.

SUPPLIER shall state in the Bid the recommendations for long term storage (up to 24 months) for both indoor and open-air storage in a desert saline environment.

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Rust Prevention

All equipment unpainted machined metal surfaces, both external and internal shall be coated with a rust preventative which will maintain a protective coating for a minimum of twenty-four (24) months so long as the coating is not burned, dissolved, or mechanically rubbed off.

For surfaces which are external the rust preventative should be a heavy application of grease or liquid film which dries to a tough coating.

Protection for Transport

Flanged openings shall be protected with rubber gaskets and bolted-on wooden outdoor plywood (min. 12mm thickness) or metal covers (min. 3mm thickness), using at least three bolts. Wiring-on covers is not acceptable.

A mastic sealer shall be used between the flanges and the cover. After openings have been covered, the joint shall be wrapped with waterproof adhesive tape.

For sea shipment flanged openings shall be covered with securely taped heavy plastic sheet.

All butt weld connections shall be sealed with heavy plastic sheet taped to the nozzle.

All equipment shall be suitably protected against salt water for sea transport.

All loose items shall be suitably packaged and marked with identification.

All equipment appurtenances susceptible to damage shall be suitably protected.

Transport Marking

All equipment shall be suitably prepared for shipment by sea, rail or road.

Shipping weights, dimensions and other requirements as required by customs must be clearly marked on transport containers or specific signs provided advising such information.

SUPPLIER shall co-operate with the PURCHASER in the preparation of shipping documents and customs clearance, for delivery to the platform fabrication yard.

Each piece of equipment shall be export crated and appropriately marked. Each crate, skid, package or module shall have a detailed packing list of contents in a weatherproof envelope attached to the outside and a duplicate packing list included internally as required.

Packing, Shipping, Storage and Preservation Procedure

The SUPPLIER shall submit a procedure detailing all the following activities prior to packing and shipping of the equipment:

- Initial preservation for shipping/transport
- Proposed packing/protection for shipping/transport
- Method of transport
- At site offloading/handling requirements (inc. drawings if appropriate)

- Requirements for short term and long- term storage and preservation at site
- Ongoing Maintenance activities before/after installation prior to commissioning

SUPPLIER to ensure proposed at site preservation procedures are adequate and should seek clarification/information on site conditions from PURCHASER as required.

8 SPARES & SPECIAL TOOLS

All spare parts supplied by the SUPPLIER or SUB-SUPPLIER's shall be wrapped and packaged so that they will be preserved in an original as new condition under normal operating conditions of extended storage. These parts shall be tagged and coded so that later identification as to intended usage can be made. Packing lists shall be furnished so that parts can be handled without unpacking.

Any tools or fixtures not readily available commercially, which are required for installation, maintenance, testing, commissioning and start-up shall be permanently tagged for information pertaining to their use. Any special drawings or instruction regarding the use of such tools shall be included in the instruction manual.

8.1 SPECIAL TOOLS

SUPPLIER shall provide a complete set of fixtures, appliances and special commissioning tools necessary for installation, inspection, and routine maintenance of the skid and auxiliaries, including all lifting and withdrawal equipment.

8.2 COMMISSIONING SPARE PARTS

SUPPLIER shall provide all necessary spares to fully undertake commissioning of the equipment. SUPPLIER to complete Spare Parts for commissioning list. Supplier shall provide a complete set of all the required Commissioning Spares that shall be used to complete the Commissioning Process for the equipment in accordance to approved Commissioning Procedure submitted by the Supplier and approved by the Company.

8.3 OPERATIONAL SPARES

SUPPLIER will be required to complete the Spare Parts Recommendation List, for all recommended operational spares required for the first two years of operation.

Recommended spares for 2 years operation should take into account related factors of equipment reliability, effect of downtime upon production, cost of parts and availability of service facilities. The list should include a listing of individual component parts.

8.4 WEIGHT CONTROL

The SUPPLIER shall complete the standard Weight data sheet included in the Material Requisition for all equipment supplied during detailed design. These weight data sheets shall be an estimate based on calculation.

SUPPLIER will also be required to weigh the equipment prior to delivery and issue weight certificates.

9 SUPPORT SERVICE ASSISTANCE

The Bidder shall include in the quotation the rate for whatever possible assistance for equipment erection, commissioning, start up, operation and maintenance.

10 GUARANTEES AND WARRANTY

All equipment and component parts shall be guaranteed by the Vendor against faulty design, defective or improper materials and failure due to normal usage for a period of 12 months from offshore commissioning date.

Items replaced through this period shall have a further 12 months warranty period, starting from the date of replacement.

11 DIGITAL DOCUMENTS REQUIREMENTS

3D CAD MODEL FROM SUBCONTRACTORS & SUPPLIERS

As part of the scope of supply, the SUPPLIER shall develop and deliver a 3D model of the supplied equipment to be integrated by CONTRACTOR in the overall 3D model of the Plant.

Package equipment shall be modelled in sufficient detail to facilitate the review of access to all components and instrumentation for operation and maintenance, ergonomic design, piping, instrument and electrical connections.

All interfaces including nozzles and tie-ins shall be detailed and identified, as per the following example, with the same level of detail of the CONTRACTOR's overall 3D model of the Plant:

As a general requirement, model information for all package equipment shall contain information and details to ensure overall design integrity of the plant and to support inspection and maintenance programs. SUPPLIER is requested to specify in the offer which items will be modelled and with which tool, considering the selected 3D model SW for the Project is Aveva E3D 3.1.

It may be tolerated to receive 3D CAD Model of equipment or packages in an exchange format compatible with Aveva E3D, provided that the equipment or package hasn't process functionality and is not represented on a P&ID (e.g., Crane, Pig Trap, Drum, Tanks & Vessels, Vent tip, CO2/Nitrogen skids, Pumps, Actuators, ELE I&C TCOM bulk items etc.).

The exchange format shall be one of the following:

- AutoCAD Files (.dwg dxf)
- Autodesk DWF Files (.dwf*.dwfx)
- Inventor Files (*.ipt, *.iam)
- Revit Files (*.rvt, *.rfa)
- Rhino Files (*.3dm)
- SolidEdge Files (*.par, *.asm, *.pwd,*.psm)
- SolidWorks Files (*.sldprt, *.sldasm, *.sldfpp, *asm)
- STEP Files (*.stp, *.step, *.stpz, *.stp.z) / STEP XML (*.stpx, *.stepxz, *.stpxml)

In the other cases, i.e. for packages/skids with tagged objects on P&ID, the Aveva E3D is the preferred option.

Any deviation must be specified and agreed with CONTRACTOR.

Supplier's Data Management

As per COMPANY contractual requirement, all plant main assets and all assets with high impact on operation & maintenance activities must be tagged as per the below specification:

123A90-PML-DIG-PRO-00002 Equipment and System Tag Numbering

For example, all items shown on SUPPLIER's P&IDs must have a project specific tag, as well as any other major component even if P&ID doesn't exist.

Asset Register

SUBCONTRACTOR will develop and deliver a complete Asset Register consistent with the information in process flow diagrams, equipment drawings and maintenance manuals, for loading into COMPANY Asset and Maintenance Management Systems.

This Asset Register will contain a list of all Production Assets split over Process Assets (e.g. process, process support, utility, materials handling, etc.) and Non-Process Assets (e.g. buildings, special tools, personnel movement related, etc.), together with below information, ref to documentation and data, including:

1. Item Tag
2. Description
3. Location in the plant
4. Manufacturer
5. SUBCONTRACTOR
6. Model

7. Specifications project number
8. Maintenance item & plan project number
9. Criticality (HSSE, Production or other)

PURCHASER will submit to SUBCONTRACTOR during the PO execution phase an excel template with the list of concerned tags. It shall be SUBCONTRACTOR duty to validate the tag list and return to PURCHASER the filled list.

12 SUPPLIER DATA REQUIREMENTS

The PURCHASER has identified the expected documentation requirements from the SUPPLIER during contract execution in the RDDS, which is part of the Requisition.

This list is considered the minimum documentation requirement. The SUPPLIER shall base the SMIR on the PURCHASER's SMIR.

The SUPPLIER shall submit the proposed SMIR with the bid. It is a mandatory requirement that the SMIR is submitted before any other documentation.

NB: All documentation, including Material Certificates, shall be clearly legible to permit photocopying and microfilming by the PURCHASER. Illegible copies and copies with information obliterated by hole punching is not acceptable.

SUPPLIER to advise in the bid any SMIR documents which have been requested for review or for information during the contract execution phase that are not applicable to the scope of work/supply.

The PURCHASER's approval of any SUPPLIER drawings or documentation shall not relieve the SUPPLIER from any guarantees, responsibilities or obligations to furnish equipment or materials to this specification.

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

ATTACHMENT 1 –SMIR

Note:

The native form is attached.

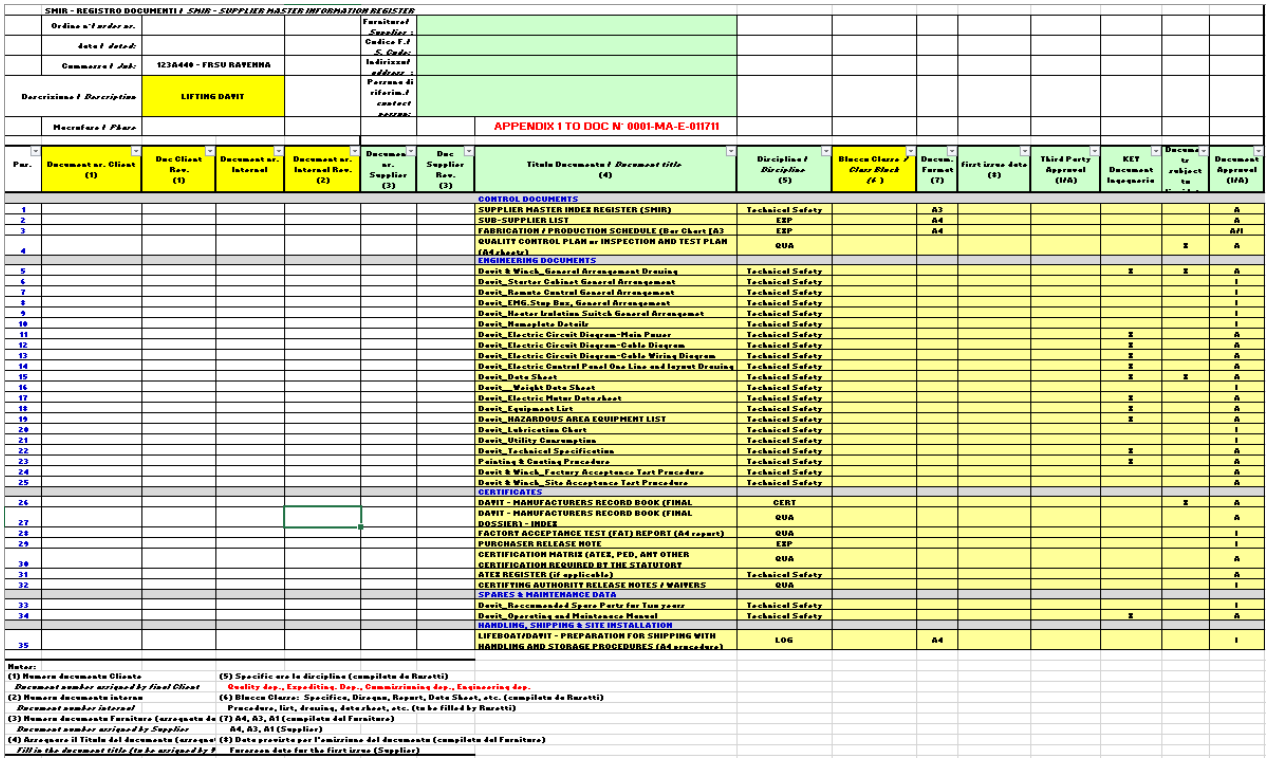
GENERAL NOTES:

1) All documents must be issue in PDF file created from native file.
2) The Supplier shall re-issue the documents including Contractor and/or Company comments within 2 weeks from the relevant transmittal.
3) All documents necessary for the tests, must be issued for Costruction and approved by Rosetti Marino.
4) If necessary, Vendor has issue Tecnichal Clarification / Deviation Request before to proceed with activities in order to receive approval.
5) Manufacturer Record Book must be send in PDF files with bookmarks, also native file of all documents (final copy approved) must be supplied.

SMIR

Note:

The native form is attached



SMIR - REGISTRO DOCUMENTI / *SMIR - SUPPLIER MASTER INFORMATION REGISTER*

Ordine n.° / *order nr.*:
Data / *dated*:
Commessa / *Job*: 123A440 - FRSU RAVENNA
Descrizione / *Description*: LIFTING DAVIT
Macrofase / *Phase*:
Fornitore / *Supplier*:
Codice F.I / *S. Code*:
Indirizzo / *address*:
Persona di riferim. / *contact person*:
APPENDIX 1 TO DOC N° 0001-MA-E-011711

Par.	Document nr. Client (1)	Doc Client Rev. (1)	Document nr. Internal	Document nr. Internal Rev. (2)	Document nr. Supplier (3)	Doc Supplier Rev. (3)	Titolo Documento / *Document title* (4)	Disciplina / *Discipline* (5)	Blocco Classe / *Class Block* (6)	Docum. Format (7)	first issue date (8)	Third Party Approval (IAA)	KEY Document Ingegneria	Documento subject to ...	Document Approval (IAA)
							CONTROL DOCUMENTS								
1							SUPPLIER MASTER INDEX REGISTER (SMIR)	Technical Safety		A3					A
2							SUB-SUPPLIER LIST	ERP		A4					A
3							FABRICATION / PRODUCTION SCHEDULE (Bar Chart (A3)	ERP		A4					A/I
4							QUALITY CONTROL PLAN or INSPECTION AND TEST PLAN (A4 sheets)	QUA						x	A
							ENGINEERING DOCUMENTS								
5							Davit & Winch_General Arrangement Drawing	Technical Safety					x	x	A
6							Davit_Starter Cabinet General Arrangement	Technical Safety							I
7							Davit_Remote Control General Arrangement	Technical Safety							I
8							Davit_EMG.Stop Box_General Arrangement	Technical Safety							I
9							Davit_Heater Isolation Switch General Arrangement	Technical Safety							I
10							Davit_Hemoplate Details	Technical Safety							I
11							Davit_Electric Circuit Diagram-Main Power	Technical Safety					x		A
12							Davit_Electric Circuit Diagram-Cable Diagram	Technical Safety					x		A
13							Davit_Electric Circuit Diagram-Cable Wiring Diagram	Technical Safety					x		A
14							Davit_Electric Control Panel One Line and layout Drawing	Technical Safety					x		A
15							Davit_Data Sheet	Technical Safety					x	x	A
16							Davit_Weight Data Sheet	Technical Safety							I
17							Davit_Electric Motor Data sheet	Technical Safety					x		A
18							Davit_Equipment List	Technical Safety					x		A
19							Davit_HAZARDOUS AREA EQUIPMENT LIST	Technical Safety					x		A
20							Davit_Lubrication Chart	Technical Safety							I
21							Davit_Utility Consumption	Technical Safety							I
22							Davit_Technical Specification	Technical Safety					x		A
23							Painting & Coating Procedure	Technical Safety					x		A
24							Davit & Winch_Factory Acceptance Test Procedure	Technical Safety							A
25							Davit & Winch_Site Acceptance Test Procedure	Technical Safety							A
							CERTIFICATES								
26							DAVIT - MANUFACTURERS RECORD BOOK (FINAL	CERT						x	A
27							DAVIT - MANUFACTURERS RECORD BOOK (FINAL DOSSIER) - INDEX	QUA							A
28							FACTORY ACCEPTANCE TEST (FAT) REPORT (A4 report)	QUA							I
29							PURCHASER RELEASE NOTE	ERP							I
30							CERTIFICATION MATRIX (ATEX, PED, ANY OTHER CERTIFICATION REQUIRED BY THE STATUTORY	QUA							A
31							ATEX REGISTER (if applicable)	Technical Safety							A
32							CERTIFYING AUTHORITY RELEASE NOTES / WAIVERS	QUA							I
							SPARES & MAINTENANCE DATA								
33							Davit_Raccomanded Spare Parts for Two years	Technical Safety							I
34							Davit_Operating and Maintenance Manual	Technical Safety					x		A
							HANDLING, SHIPPING & SITE INSTALLATION								
35							LIFEBOAT/DAVIT - PREPARATION FOR SHIPPING WITH HANDLING AND STORAGE PROCEDURES (A4 procedure)	LOG		A4					I

Note:
(1) Numero documento Cliente
Document number assigned by final Client
(2) Numero documento interno
Document number internal
(3) Numero documento Fornitore (assegnato da
Document number assigned by Supplier
(4) Assegnare il Titolo del documento (assegna
Fill in the document title (to be assigned by F
(5) Specific are la disciplina (compilata da Rarotti)
Quality dep., Expediting, Dep., Commissioning dep., Engineering dep.
(6) Blocco Classe: Specifica, Disegno, Report, Data Sheet, etc. (compilata da Rarotti)
Procedura, list, drawing, data sheet, etc. (to be filled by Rarotti)
(7) A4, A3, A1 (compilata dal Fornitore)
A4, A3, A1 (Supplier)
(8) Data prevista per l'emissione del documento (compilata dal Fornitore)
Foreseen date for the first issue (Supplier)

APPENDIX 2 – ATEX REGISTER

Note:

The native form is attached.

ELECTRICAL and INSTRUMENTATION EQUIPMENT Ex CERTIFICATION LIST

ROSETTI MARINO

Revision	Discipline	Tag Number	Description	Location	Manufacturer	Model/Type/ Catalogue Number	Serial N°	ATEX Certification/Marking	Reference Document	ATEX certificate number	Notes / Comments
01	ELE	18-AL-3401	Actuator Louver	Lower Deck	Schischek	EX MAX – 5 .BF		Ex d [ia] IIC T6,T5 and T4	AR-VPL-10-DR03-000233	PTB 04 ATEX 1028X	

INSTRUCTIONS/NOTES:

1_Coloumn "Revision" will change when info in the row should be change

2_ Coloumn "Location" owner is CTR (RM) and not the Vendor

3 _ For All Vendors of : Lightings,Fire&Gas Sensors,Junction Boxex ; Vendor will fill only column of "Serial Number" , the Column "Tag Number" the owner will be CTR(RM) during Pre commissioning activities

4_Column "Reference Document" the owner are Vendor (where applicable) anche CTR (RM).

APPENDIX 3 – SUPPLIER Deviation Request Form

STATEMENT OF COMPLIANCE	

List of proposed deviations

All deviations shall be clearly stated on this sheet, with reference to VENDOR's quotation. Each proposed deviation shall be supported by a Deviation Request Form.

A proposed deviation is accepted if the related Deviation Request Form as been reviewed by Purchaser and APPROVED by COMPANY before the Purchase Order placement.

Item #	Subject	Proposed deviation description + reference to the section of the Requisition and SPECIFICATIONS concerned by the deviation

Remarks :

Date : Signature :

Name : Function :

Purchaser XXX	Requisition no XXX
PO number XXX	Sheet 1 of 1
ject	Rev.