Base Load Power Hub (BLPH)

Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER)

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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.

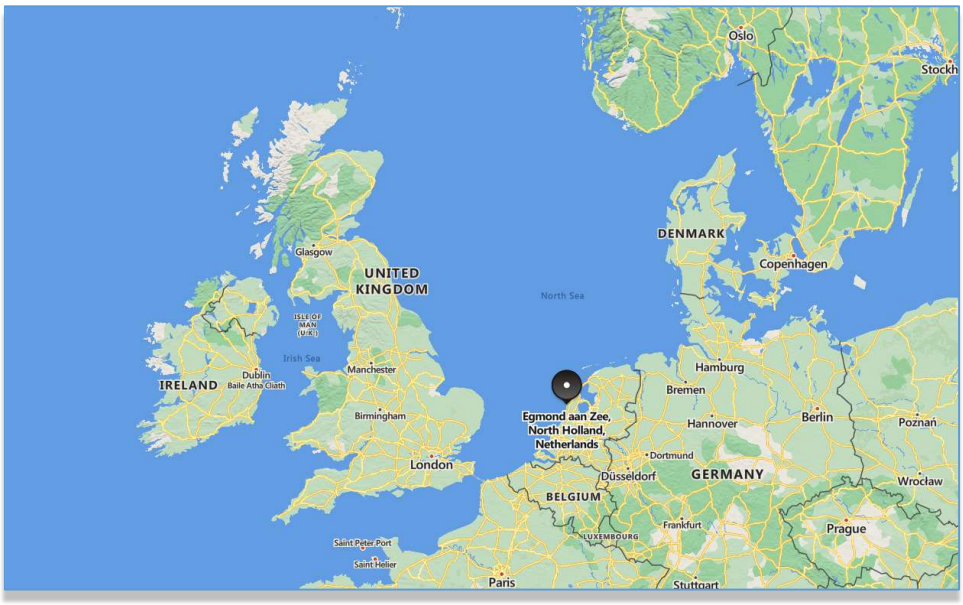


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

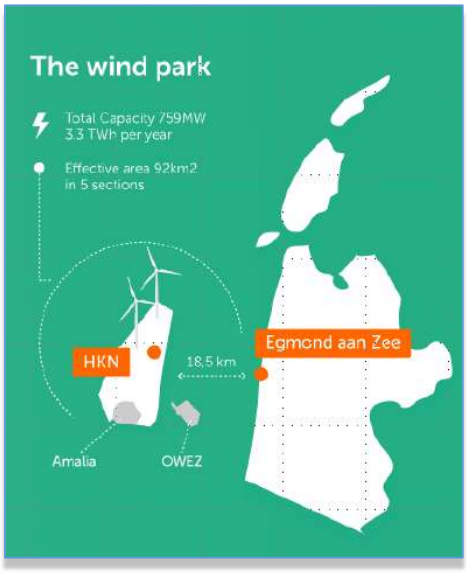


Figure 2 - Wind Park Details

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.

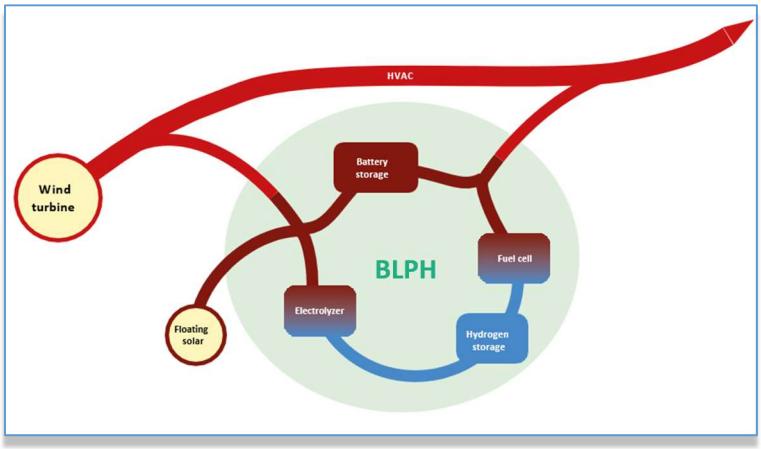


Figure 3 – BLPH Concept

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.

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2 DOCUMENT SCOPE

This specification covers the general criteria, the scope of work and minimum requirement for the design, material selection, construction, supply, inspection, testing, documentation and preparation for shipment of Neutral Earthing resistor. Technical requirements of this specification are based upon considerations to performance, and functionality.

Any failure by the Vendor to take exception to any part of this specification in the initial bid proposal shall indicate complete compliance to the specification.

It shall be the Vendor's responsibility to be, or to become, knowledgeable of the requirements of the standards and codes referenced in section 4.

The NER manufacturing shall follow the International Standard IEC 60076 Power Transformers – Part 25: Neutral Grounding Resistors, as well as the specifications indicated in the following chapters of this document.

Related to the quality assurance and test shall be apply the "Inspection Data Sheet" in Annex II.

The Documents that shall be supply along with the technical proposal and during the manufacturing phase are indicated in the "Documents Data Sheet" in Annex III.

2.1 REFERENCES

Doc. No.	Description
123A90-DDL-EL-DG-20015	Electrical Single Line Diagram 6.6kV Systems
123A90-DDL-EL-DS-20011	Technical Data Sheet (TDS) for Neutral Earthing Resistor (NER)
123A90-DDL-EL-SP-20001	Technical Specification, IDS and DDS for Power Transformers
123A90-DDL-EL-DS-20002	Technical Data Sheet (TDS) for 66/6.9 kV Power Transformers
123A90-PML-DIG-PRO-00002	Equipment and System Tag Numbering

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

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

INSPECTION AUTHORITY:	The organization representing the Owner or Vendor /Contractor that verifies that the equipment and facilities have been designed, constructed, inspected and tested in accordance with the requirements of this specification and the Purchase Order/Contract.
INSPECTOR:	A qualified individual representing the Owner, Vendor/Contractor or the assigned Inspection Authority, who verifies that the equipment and facilities have been designed, constructed, inspected and tested in accordance with the requirements of this specification and the Purchase Order/Contract.
VENDOR:	Individual, firm or manufacturer that provide Materials/Equipment to COMPANY in accordance with this specification and terms of the Purchase Order.
NER:	Neutral Earthing Resistor
IDS:	Inspection Data Sheet
DDS:	Document Data Sheet

Table 2 - Definitions and Abbreviations

3 GENERAL CONDITIONS

3.1 LANGUAGE

All correspondence, engineering documents and manuals shall be in the English language.

4 APPLICABLE CODES AND STANDARDS

The following documents list shall constitute an integral part of this specification.

IEC - International Electrotechnical Committee (latest edition shall be applied).

- IEC 60076-25 Power Transformers – Neutral Earthing Resistor
- IEC 60076-5 Power Transformers – Ability to withstand short circuit
- IEC 60071 – 1 Insulation co-ordination - Part 1: Definitions, principles and rules
- IEC 60529 Degree of Protection provided by Enclosures (IP Code)

5 ENVIRONMENTAL AND OPERATING CONDITIONS

The site climate conditions are indicated in the relevant Technical Data Sheet.

5.1 ELECTRICAL SYSTEM

The A.C. main power supply characteristics (e.g. voltage, frequency, neutral grounding method, voltage and frequency variation) shall be defined in the relevant data sheet.

6 EQUIPMENT CHARACTERISTIC AND REQUIREMENTS

The design of the NER will be based on continuous and reliable service, safety of personnel and equipment, ease of maintenance of equipment.

The NER and its accessories will be selected, designed and manufactured taking into account the site conditions specified on the Technical Data Sheet.

Vendor standard quality materials shall be used for parts and accessories not detailed in the specifications.

Different materials may be offered as an alternative, and they shall meet or exceed the specified requirements. A technical justification for these changes will be submitted with the Quotation. All modifications will be evaluated before acceptance by the CONTRACTOR and updated in Specifications and Technical Data Sheets.

Units of measurements shall be in S.I. (System International) units; British unit to be shown between brackets.

7 TECHNICAL CHARACTERISTIC

7.1 NER TYPE

The NER shall be dry type natural air-cooled resistors, for neutral grounding of transformers and generators, to limit the earth fault current in power systems by means of metallic resistive elements.

7.2 RATED CURRENT

The NER's rate current and short time of duration of the fault shall be as specified on the Technical Data Sheet.

The NER shall be capable to handle continuous current, which will be 5 to 10% of the rated short time current.

7.3 RATED VOLTAGE

The NER's rate voltage and insulation level shall be as specified on the Technical Data Sheet.

7.4 ABILITY TO WITHSTAND FAULT CURRENTS

NER shall be designed and manufactured to withstand the thermal and dynamic stresses caused by short circuit conditions. NER's maximum stresses shall be calculated by the Vendor on the basis of:

- Short circuit current value specified on Technical Data Sheet.
- Short circuit apparent power of the system specified on Technical Data Sheet.

8 CONSTRUCTION CHARACTERISTIC

8.1 NER ENCLOSURE

The NER cover shall be designed to prevent the accumulation of oil and/or rainwater.

The NER shall be mounted in a single enclosure.

8.2 RESISTORS

The resistors shall be fixed in such a way as to withstand (without any permanent deformation) the thermal and dynamic stress caused by the fault current, after the elapse rate time as indicated in the Technical Data Sheet.

8.3 ENCLOSURE TEMPERATURE

After a full fault or where a continuous current is present some parts of a neutral earthing enclosure may be hazardously hot. The effects of this can be mitigated by labelling, by ventilation design, by enclosure construction or by the addition of heat shields that keep the hot parts out of reach.

8.4 PROTECTION AGAINST CORROSION

NER will be painted in accordance with Manufacturer standard. However, the painting must be suitable for the specified ambient conditions and in particular must be oil, grease, acid and salt corrosion resistant, as well as shall resistant to the high temperatures during the rated short time current.

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8.5 ACCESSORIES

Unless otherwise specified on the Technical Data Sheet, the following accessories shall be provided:

- Two grounding bolts shall be provided for the NER box grounding connections. The grounding bolts will be marked with the grounding symbol.
- Lugs or whatever facility to allow the hoisting of the whole NER
- Name plate
- Rate plate
- Terminal marking plate

8.6 ANTI-CONDENSATION HEATERS

Heaters suitably rated to prevent condensation shall be provided within the enclosure. The heater's voltage supply shall be as specified in the Data Sheet.

The heaters shall be protected by a fuse and neutral link and controlled by a thermostat.

9 TAGGING PROCEDURE

All equipment shall be tagged as per the "Equipment and System Tag Numbering" Doc. No. 123A90-PML-DIG-PRO-00002.

For all the components which are part of the Main Item to be suppled, as applicable like: control relays, measurement instruments, cables, terminal blocks, heaters, etc, the manufacturer tagging procedure shall be submitted for approval prior the construction.

10 EQUIPMENT IDENTIFICATION

Corrosion-resistant identification plate shall be fixed by means of rivets or screws to the NER. The inscriptions shall be engraved on one or more nameplates, with the minimum information as indicated in the IEC 60076-25 clause 6.2.

The inscriptions shall be black on light background.

The plate shall, as a minimum, carry the following information:

- The Vendor's/Contractor's name or trademark.

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- Current rate
- Rated time
- Voltage Insulation levels
- Material of the Resistor
- Type of protection, i.e, the IP number (e.g. IP 55)
- Weight
- Dimension

11 INSPECTION AND TESTING

11.1 INSPECTION

Any supplied equipment shall be subjected to the factory tests stated in the relevant specifications and applicable standards. The COMPANY or CONTRACTOR, or his appointed representative, may, at his discretion, witness all or part of the factory tests. The tests results shall in any case be made available to the COMPANY.

The Manufacturer shall allow the free access of inspectors to his manufacturing shop, shall give all information required and shall make available all copies of internal orders to other sub-suppliers.

11.2 TEST PROCEDURE

Tests shall be carried out in Manufacturer's workshop at his care and expense.

The Vendor/Contractor shall submit his test procedures in writing to the CONTRACTOR for approval, prior to the start of the testing program.

The tests shall be carried out in the presence of Inspector(s) from the CONTRACTOR's Inspection Authority.

For the tests, the motors shall be fully assembled and fitted with all accessories for the test.

In addition to the Test Reports and letters of conformity, the following certificates shall be provided with each motor/instrument/component as minimum and as applicable:

- Inspection Release Certificate.
- Code Compliance Certificate.
- Type Test Certificate.
- Calibration Certificates (where applicable).

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Tests shall be carried out in compliance with the requirements of the IEC 60076-25 standard.

11.3 TESTS

All tests shall be as per IEC standards and as stated in the Annex II.

11.3.1 Routing Test

The Routing test shall be carried out on the NER in accordance with the applicable IEC international standard.

11.3.2 Type Test

Unless otherwise specified the manufacturer will provide the type test certificate, only, according to the applicable IEC international standard.

11.4 INSPECTION AND TEST PLAN

ITP(s) shall be provided by VENDOR for CONTRACTOR approval.

The ITP(s) shall be issued by VENDOR in compliance with the Inspection and Test requirement listed in the Material Requisition and to any additional inspections not specifically mentioned in the Material Requisition but considered necessary as standard by VENDOR.

Prior to start any fabrication activities a Pre-Inspection Meeting (PIM) shall be performed at VENDOR workshop in order to discuss and fix all quality control related issues.

The ITP(s) shall be structured in a sequential manner, including the following requirements against each activity to be carried out:

- Applicable procedure.
- Applicable Codes & Standards or Specifications.
- Acceptance criteria.
- Records to be issued.
- Definition of Quality Surveillance Points (as defined below) of the involved CONTRACTOR's and COMPANY's representatives.

Following the first issue, CONTRACTOR will review the ITP(s) with H/W/M/C points to inform VENDOR on the requested quality Surveillance during equipment manufacturing and following inspection / testing activities.

VENDOR shall allow free access to the manufacturing plants for CONTRACTOR's and COMPANYs' inspectors (if any), expeditors or other nominated representatives.

The ITP shall be supplied to the CONTRACTOR for review and approval.

11.5 SPECIAL TOOLS

VENDOR shall provide a detailed special tools list for CONTRACTOR review and reference.

All special tools required for erection, pre-commissioning, commissioning and start-up, operation and maintenance activities shall be provided by VENDOR as part of the supply.

Any package lifting kit required for transportation and site erection of the equipment shall be provided by VENDOR.

Any equipment necessary to perform the Pre-Commissioning and Commissioning activities shall be provided by the VENDOR as part of the supply and shall not be returnable.

12 SPARE PARTS

As applicable VENDOR shall include in its quotation a priced list of spare parts suggested for the period of commissioning, start-up and final performance / acceptance test.

Supply of the suggested spare parts for commissioning, start-up and final performance/ acceptance test shall be included in the base VENDOR scope of work.

If additional spares are required during this period, VENDOR shall supply them on his account released by CONTRACTOR satisfaction.

Typology and quantity of the suggested spare parts shall be based on the VENDOR experience and is subject for CONTRACTOR's approval.

VENDOR shall ensure spare availability for at least 10 years form final acceptance certificates released by CONTRACTOR.

The spare parts offered shall be new and original supply from the same equipment Manufacturer.

VENDOR shall submit also a recommended priced spare part list for two (2) years operation.

VENDOR shall analyse the life expectancy of the components of equipment, based on Manufacturer Maintenance Manual; and shall evaluate carefully the required spare parts and quantity. COMPANY will purchase such spares separately.

13 DOCUMENTATION

The supply shall include the preparation of any required documentation, with its approval cycle, as stated in the Annex III.

This section covers the documentation required for the design, fabrication, inspection, selection, fabrication and testing for the supplied equipment including any device and accessory.

Vendor shall provide the documents related to design, selection, fabrication, inspection and testing and all details necessary for the installation, showing NER and cable arrangements, clearances, mounting of structures on the foundations, structure details and loadings to demonstrate to how the NER and cables will fit in the installation area. The drawings shall include all necessary horizontal and vertical clearances to walls and roof and to the hook of the travelling crane which will be used for erection and subsequent maintenance of the NER.

The detailed list of documents that are required will be attached to the Purchase Order/Contract. However, as a minimum the following listed documents shall be provided by the Vendor:

- Detailed Drawings of the equipment including accessories.
- Foundation Lay-out
- Electrical connection diagrams
- Data sheets
- Calculations (if applicable)
- Test Procedures
- Material and test certificates
- Result of testing
- Nonconformity list
- Shipping conditions
- Installation / Operations Manual
- Commissioning procedures
- Maintenance Manual

13.1 CIVIL REQUIREMENT

Vendor shall provide all loads on foundation (Shears, Moment, Vertical Load) for the equipment included in the scope of supply.

Vendor shall specify the dimensions of required ancillaries and supports if any.

14 WARRANTY

Vendor shall guarantee the equipment in term of design, materials and workmanship for two (2) years after being placed in service. The equipment shall be guaranteed to operate satisfactorily at rated conditions and all other conditions within the specified range as indicated in the relevant data sheet and applicable codes/specifications referenced at clause 4.

All equipment and materials within Vendor scope of work shall be designed for a 25 years Design Life.

14.1 MAKE GOOD

In case of any equipment and/or components are to demonstrate do not meet the required performance guarantees at the operating/design conditions, VENDOR shall provide at its care and cost any necessary corrective action to comply with the required performance values.

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15 ANNEX I: VENDOR DEVIATIONS LIST

VENDOR shall list in its proposal any deviation and/or clarification to this specification and applicable code and standards referenced at clause 4.

Any further deviation not listed by VENDOR in its proposal and pointed-out during work execution shall not be accepted by CONTRACTOR.

As guideline the deviation list should be filled-in by VENDOR following the hereunder table

Document Number / Title	Rev	Paragraph Reference	Deviation

Each deviation shall be technically explained and justified.

The final agreed deviation list with CONTRACTOR reply will be part of the documentation for PO as Attachment of this Technical Supply Specification.

16 ANNEX II: "Inspection Data Sheet"

INSPECTION DATA SHEET

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1 DOCUMENT SCOPE

The purpose of this Inspection Data Sheet (IDS) is to specify the Inspection, Test and Quality intervention activities for the procurement of Neutral Earthing Resistor (NER) in accordance with Technical Specification (Doc. 123A90-DDL-EL-SP-20006).

Purchaser intervention activities are identified through the selection of one of four conformity assessment system (CAS) levels based on a risk and criticality assessment. The applicable CAS level is specified by the purchaser in the procurement data sheet or purchase order.

This IDS shall be used in conjunction with the Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006) and the Technical Data Sheet (TDS) for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-DS-20011) which together comprise the full set of specification documents. The introduction section in the specification provides further information on the purpose of each of these documents and the order of precedence for their use.

This document is based on the IOGP Specification for Quality Requirements and adapted to the requirements of Neutral Earthing Resistor (NER) needed for the project "HOLLANDSE KUST NOORD WIND PARK Project".

To specify Inspection and Quality requirements for the supply of Neutral Earthing Resistor (NER) including:

a) Supplier quality management system requirements.

b) Purchaser conformity assessment (surveillance and inspection) activities.

c) Traceability requirements.

1.1 NORMATIVE REFERENCES

For the purpose of this document, the documents referenced in Technical Specification for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006) and those listed below, in whole or in part, are normatively referenced in this document and are indispensable for its application. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Specification Q1, *Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry*

ISO 9001, *Quality management systems – Requirements*

ISO 29001, *Petroleum, petrochemical and natural gas industries – Sector-specific quality management systems – Requirements for product and service supply organizations*

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2 TERMS, DEFINITIONS AND ABBREVIATIONS

For the purpose of this document, the terms and definitions given in Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006) and ISO 9000 (normative to ISO 9001), and the following shall apply.

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
VENDOR:	Individual, firm or manufacturer that provide Materials/Equipment in accordance with this specification and terms of the Purchase Order.
CAS	CAS Conformity assessment system
DDS	Document Data Sheet
QMS	Quality management system
QRS	Quality requirements specification (this document)

Table 1 - Definitions and Abbreviations

2.1 CONFORMITY ASSESSMENT

Demonstration that specified requirements are fulfilled.

Note 1 to entry: Conformity assessment (or assessment) includes but is not limited to review, inspection, verification and validation activities.

Note 2 to entry: Assessment activities may be undertaken at a supplier/sub-supplier's premises, virtually by video link, desktop sharing, etc. or by review of information.

2.2 CONFORMITY ASSESSMENT SYSTEM CAS

System that provides different levels of purchaser interventions to assess and verify supplier conformance to specified requirements.

Note 1 to entry: CAS A applies to the highest risk and associated extent of verification. CAS D is the lowest.

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2.3 HOLD POINT - H

Point in the chain of activities beyond which an activity shall not proceed without the approval of the purchaser or purchaser's representative.

2.4 WITNESS POINT - W

Point in the chain of activities that the supplier shall notify the purchaser or purchaser's representative before proceeding.

Note 1 to entry: The operation or process may proceed without witness if the purchaser does not attend after the agreed notice period.

2.5 SURVEILLANCE - S

Observation, monitoring or review by the purchaser or purchaser's representative of an activity, operation, process, product or associated information.

2.6 REVIEW - R

Review of the supplier's information to verify conformance to requirements.

3 QUALITY REQUIREMENTS

3.1 QUALITY MANAGEMENT SYSTEM

The manufacturer shall operate and maintain a quality management system (QMS) that conforms with ISO 9001, ISO 29001, API Specification Q1 or an equivalent quality management system standard.

3.2 CONFORMITY ASSESSMENT SYSTEM (CAS)

3.2.1

The conformity assessment system (CAS) provides different levels of assessment of the supplier control activities. The CAS level is defined by the purchaser, using a risk-based approach, and included in the purchase order/contract. The defined CAS level may be adjusted by the purchaser during manufacture based on supplier performance and re-assessment of risk.

NOTE For industrial proven solutions, CAS level D is specified unless risk assessment indicates that a more stringent CAS level is required.

3.2.2

Quality plans and inspection and test plans shall include provision for purchaser intervention activities based on the CAS level selected in the procurement data sheet or purchase order. See Annex A.

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3.2.3

Supplier performance in meeting the requirements may be routinely assessed during execution of the scope and where appropriate, corrective action requested and conformity assessment activities increased or decreased consistent with criticality and risk.

4 CERTIFICATION AND TRACEABILITY

The manufacturer shall maintain traceability of sub-assembly components to the original component manufacturer tag / serial number and where applicable, associated certification.

5 EVIDENCE – CONFORMANCE RECORDS

Documents and information shall be provided for in accordance with the associated DDS.

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6 ANNEX A - (NORMATIVE)

Purchaser conformity assessment requirements

This annex defines four conformity assessment systems (CAS) or levels of purchaser assessment.

	PURCHASER ASSESSMENT ACTIVITIES	CAS			
		A	B	C	D
1	Operational planning and control activities				
1.1	Quality planning	H	W	S	-
1.2	Inspection and test planning	H	H	W	R
1.3	Pre-assessment/inspection planning	H	W	W	-
2	Design and development activities				
2.1	Type testing (if type test certificates are not available)	H	H	H	H
3	Control of external supply				
3.1	External supply scope, risk assessment and controls	H	W	S	-
3.2	Nominated sub-suppliers of NER	H	W	-	-
4	Production and service provision				
4.1	Materials verification				
4.1.1	Input material and components identification, traceability and certification	S	S	S	-
4.2	Assembly routine tests				
4.2.1	Test on auxiliary circuits	S	S	S	S
4.2.2	Rated resistance measurement	S	S	S	S
4.2.3	Power frequency withstand voltage test	H	W	S	S
4.2.4	Insulation resistance	H	W	S	S
4.2.5	Tightness test (applicable to gas/liquid-filled assemblies only)	W	W	S	S
4.2.6	Design and visual checks	H	W	S	S
4.2.7	Visual inspection and dimensional verification	H	W	S	S
4.3	Temperature rise tests				
4.3.1	Continuous current duty	H	W	S	S

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	PURCHASER ASSESSMENT ACTIVITIES	CAS			
		A	B	C	D
4.3.2	Rated time duty	H	W	S	S
4.4	Special tests				
4.4.1	Inductance measurement	H	W	S	S
4.4.2	Lightning impulse test	H	W	S	S
4.4.3	Mechanical design verification	H	W	S	S
4.4.4	Protection degree of enclosure	H	W	S	S
5	Release of product or service				
5.1	Verify conformance to purchase order including as applicable				
5.1.1	Inspection of loose ship item, spares special tools as applicable	W	W	S	-
5.1.2	Handling, preservation and packaging	W	W	S	-
5.2	Release equipment	H	H	H	H

Key

H: Hold point

W: Witness point

R: Review

S: Surveillance

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17 ANNEX III: "Document Data Sheet"

DOCUMENT DATA SHEET FOR NEUTRAL EARTHING REGISTER (NER)

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Table of Contents

SH.	DESCRIPTION	REVISIONS							
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1	Cover								
2	Table of Contents		X						
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4	References								
5	Introduction								
6	Instructions								
9	Requirements								
10	Definitions								

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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REFERENCE DOCUMENT AND STANDARD:

1)	Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER)	Doc. No. 123A90-DDL-EL-SP-20006
2)	Technical Data Sheet for Neutral Earthing Resistor (NER)	Doc. No. 123A90-DDL-EL-DG-20011
3)	Electrical Single Line Diagram HV & MV Systems	Doc. No. 123A90-DDL-EL-DG-20015

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Introduction

The purpose of this Document Data Sheet (DDS) is to define information requirements for the procurement of Neutral Earthing Resistor (NER). The DDS defines the information requirements, including format, timing and purpose, for information to be provided by the VENDOR. It also defines the specific conditions which must be met for conditional information requirements to become mandatory. The information requirements listed in the DDS provide references to the source of the requirement.

This document is based on the IOGP Specification for "Information Requirements" and adapted to the requirements of Neutral Earthing Resistor (NER) needed for the project "HOLLANDSE KUST NOORD WIND PARK Project".

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Instructions

In response to the offer request

Vendor shall submit information as defined in column E 'Submit At Proposal' in 'Requirements' sheet and in accordance with the Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006)

Structure Contents

'Instructions' sheet

The 'Instructions' sheet provides instructions that suppliers shall follow in response to this DDS.

'Requirements' sheet

The 'Requirements' sheet lists information requested during tendering and shall be supplied following award of the PO.

The information requirements are grouped under three broad categories:

— Contract Management Information Requirements
Key information requirements relating to planning, managing, assuring and reporting the execution of the technical scope.

— Technical Information Requirements
Technical information developed by the supplier or their sub-suppliers, during the execution of the PO.

— Purchase Order Specific Information Requirements
Information requirements specified by the purchaser in addition to those detailed by the IRS to meet specific operational, project or legislative requirements.

The 'Requirements' sheet comprises columns A to L.

Column A — 'No.' contains consecutive number of the requirement.

Column B — 'Information Requirements' contains data, documents or models to be provided by suppliers.

Column C — 'Condition Invoking Requirement' identifies any specific conditions under which the information requirement is deemed to be needed.

Column D — 'Typical Deliverable' is provided for the purchaser to identify the deliverable type that the information would typically appear within. This also allows the purchaser's requisitioning engineers to group the various information requirements by deliverable type.

Column E — 'Submit At Proposal' (Yes / No) defines if the information requirement is requested to be submitted with the supplier's proposal. Preliminary information submitted at proposal shall be matured and delivered to the purchaser as per the PO and delivery times identified in column G 'Weeks' and column H 'Period'.
As default, column 'Submit At Proposal' is prepopulated for CAS D procurement.

Column F — First Issue Post Purchase Order, 'Purpose' (For Information / For Acceptance) is prepopulated for CAS D procurement.
'For Information' means that information is issued for information only.
'For Acceptance' means that the information is issued for client, or delegated authorised person/organisation, to review and accept the content for use in further equipment development activities.
Information acceptance does not relieve the supplier of any PO responsibility or liability.

Column G and Column H — First Issue Post Purchase Order, ('Weeks' and 'Period') include durations for the first issue of the deliverable with respect to specific activities.

(Period)	Long description
WAD	Weeks After Delivery
WAI	Weeks After Inspection
WAO	Weeks After Order
WAO (Monthly)	Weeks After Order Monthly
WAT	Weeks After Test
WPTD	Weeks Prior To Delivery
WPTF	Weeks Prior to Fabrication
WPTT	Weeks Prior To Test

Table 1 — Information Submission Abbreviations

Column I — 'Required As Built' (Yes / No), where “Yes” chosen, identifies any information requirements that shall incorporate all changes that have been made to the procured equipment original information prior to the completion of the PO.

Column J — 'Fulfilled by Document Number(s)' shall be used by the supplier to demonstrate compliance with the information requirement either:
a) by providing document number cross reference to the information requirement in the SMIS; or
b) if specified in the PO, by using this column within IRS .

Column K — 'Translation Required' (Yes / No)
Specifies if the information requirement shall be translated into another language additional to the main language specified in the PO.
'Yes' means the information requirement should be translated into other language(s) additional to the main language (to be advised in contractual documentation).
'No' means to be provided in main language only.

Column L — 'Remarks' may include additional information needed to clarify the information requirement.

'Definitions' sheet

The 'Definitions' sheet comprises columns A to F.

Column A — 'Code' contains the JIP33 unique record identification code specific to the individual information requirement for the particular equipment.

Column B — 'Information Requirements' contains data, documents or models to be provided by suppliers, based on the Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006).

Column C — 'Description' provides a description of the information requirement.

Column D — 'Format' identifies the format of the relevant information deliverable to be submitted by the supplier as described in Table 2 below.
Note: Project or software specific formats shall be specified by the purchaser by means of their hand over specifications.

Drop-down value	Definition
Native	A native file is the default file format that a software application is designed to work with.
PDF	A universal file format developed by Adobe® and standardized as ISO 32000 which preserves all the fonts, formatting, graphics, and colour of any source document, regardless of the application and platform used to create it. PDF's must be in Optical Character Recognition (OCR) format which is text searchable and indexed.
Hardcopy	A permanent reproduction or copy of data which cannot be easily edited or manipulated, in the form of a physical object, of any media suitable for direct use by a person (e.g. paper).

Table 2 — Deliverable Formats

Abbreviations and definitions

The following abbreviations, terms and definitions have been used in the various sheets of this workbook.

Buyer	Organisation placing a contract or purchase order with supplier for equipment or services on project; may be alternatively referred to as 'user' or 'purchaser'
Company	Project operating entity or the organisation the contractor is under contract to
Contractor	Project contractor responsible for procuring equipment.
Information	Data, documents and/or models
DDS	Document Data Sheet
PO	Purchase Order
IDS	Inspection Data Sheet
SMIR	supplier master Information register
IED	Intelligent Electronic Device
Vendor/Suplier	Organisation supplying equipment or services to the company and/or contractor on project; may alternatively be referred to as "vendor", "seller" or “manufacturer”.

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CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	Document Data Sheet for Neutral Earthing Resistor (NER)	Sh. 9 of 12 Date: 14/05/24 Rev. 01

Requirements

Column	Heading — Details and requirements
A	No. — consecutive number of the requirement.
B	Requirement — Contains data, documents or models to be provided by Vendor.
C	Condition Invoking Requirement — Describes condition(s) under which the information requirement is required (e.g. service offshore and weight greater than one tonne means information is required). Note: if blank, always required.
D	Typical Deliverable — Purchaser to advise the short description of the information deliverable that would typically include this information requirement
E	Submit At Proposal — 'Yes' or 'No', where 'Yes' means the information requirement is required to be submitted with the supplier's proposal or 'No' is not required.
F, G & H	First Issue Post Purchase Order — Issue purpose ('For Information' or 'For Acceptance'), time in weeks for issue of the information requirement and period defined after the purchase order placement. See the 'Instructions' sheet, Table 1 for full description of codes use in column H 'Period'.
I	Required As Built — Any information incorporating all changes that have been made to the procured equipment original information prior to the completion of the purchase order.
J	Fulfilled by Information Deliverable Number(s) — Identifies which information requirement(s) listed in the supplier master information register (SMIR) addresses the purchaser's requirements. Note: It should be noted that one information deliverable can fulfil more than one information requirement.
K	Translation Required — 'Yes' or 'No', specifies if the information requirement shall be translated into another language additional to the main language specified in the purchase order.
L	Remarks — Additional information needed to clarify the information requirement.

Col A	Col B	Col C	Col D	Col E	Col F	Col G	Col H	Col I	Col J	Col K	Col L
No.	Requirement	Condition Invoking Requirement	Typical Deliverable	Submit At Proposal	First Issue Post Purchase Order			Required As Built	Fulfilled by Document Number(s)	Translation Required	Remarks
				(Yes/No)	Purpose	(Weeks)	(Period)	(Yes/No)			
Contract Management Information Deliverables											
1	Supplier master information register		Information deliverables list	No	For Information		-	-		-	
2	Delivery schedule		Delivery/production schedule	Yes	For Information		-	-		-	Preliminary with proposal
3	Progress report		Progress report	No	For Information		-	-		-	
4	Quality plan	Required for CAS A, CAS B	Quality plan	-	-		-	-		-	Preliminary with proposal
5	Sub-supplier delivery schedule		Delivery/production schedule	Yes	For Information		-	-		-	Preliminary with proposal
6	Inspection and test plan (ITP)		Inspection and test plan (ITP)	Yes	For Acceptance		-	-		-	Preliminary with proposal
7	Handling, shipping and storage procedure		Handling, shipping and storage procedure	No	For Acceptance		-	-		-	
8	Non-conformance records		Non-conformance records	Yes	For Information		-	-		-	
9	Concession request		Concession request	No	For Acceptance		-	-		-	
10	Obsolescence management plan		Obsolescence management plan	Yes	For Information		-	-		-	Preliminary with proposal
Technical Information Deliverables											
12	General arrangement details		General arrangement diagram and dimensions	Yes	For Acceptance		-	-		-	Preliminary with proposal
13	Foundation and Installation details		Installation diagram	No	For Information		-	-		-	
14	Connection diagram		Connection diagram	No	For Information		-	-		-	
15	Manufacturer data sheet		Manufacturer data sheet	Yes	For Acceptance		-	-		-	
16	Installation manual		Installation manual	No	For Information		-	-		-	
17	Maintenance manual		Maintenance manual	No	For Information		-	-		-	
18	Operating manual		Operating manual	No	For Information		-	-		-	
19	Recommended spare part list (RSPL)		Spare part list	Yes	For Information		-	-		-	
20	Special tools list		Special tools list	Yes	For Information		-	-		-	
21	Bill of materials		Bill of materials	No	For Information		-	-		-	
22	Type test certificate		General certificate	No	For Information		-	-		-	
23	Lifting equipment test certificate (if applicable).	If lifting equipment included in scope	Lifting equipment test certificate	No	For Information		-	-		-	
24	Weight data sheet		Weight report	Yes	For Information		-	-		-	
25	Routine verification test (FAT) procedure		Factory acceptance test (FAT) procedure	No	For Acceptance		-	-		-	
26	Routine verification test (FAT) results		Factory acceptance test (FAT) records	No	For Acceptance		-	-		-	
27	Certificate of conformity	Where class or regional certification is included in scope	Certificate of conformance	No	For Information		-	-		-	Marine class approval from an independent verification body
Purchase Order Specific Information Requirements											

Definitions

Column	Heading — Details and requirements
A	No. — consecutive number.
B	Requirement — Contains data, documents or models to be provided by suppliers, based on the Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006)
C	Description — Provides a description of the information requirement.
D	Format — Defines the required format of the relevant information requirement to be submitted by the supplier.
E	Remarks — Additional information needed to clarify the information requirement.

Col A	Col B	Col C	Col D	Col E
No.	**Requirement**	**Description**	**Format**	**Remarks**
	Contract Management Information Deliverables			
	Supplier master information register		PDF	
	Delivery schedule	Schedule depicting, as applicable to the service or product scope, design, supply, manufacture, inspection, testing and delivery activities to be executed by manufacturer/suppliers. Schedule details typically** include;. a) Contractual milestones b) Activity early/late start/completion dates, durations, dependencies (Calendar Dates) c) Critical path and float d) Outsourced services and equipment (cross referenced to purchase order and supplier) e) Information deliverable submission dates identifying any execution activity dependencies Once agreed , changes to planned dates are subject to agreement by user. Progress against planned dates is measured and the schedule updated and reported to the user in accordance with contract reporting agreements. ** Schedule development tools, formats and submission protocols follow the manufacturer's standard practice unless otherwise agreed in the contract.	PDF	
	Progress report	Report detailing activities completed in the period, percent complete against planned, activities planned for the next period, risks/areas of concern, cause of any delays and proposed recovery plans, concessions, internal and outsourced inspection and audit activities.. Note: may also include actionable items such as Health, Safety, Security & Environment (HSSE) incidents & status if required under the Contract.	PDF	
	Quality plan	Plan specifying the actions, responsibilities and associated resources to be applied by the manufacturer, and when applicable sub-suppliers, to deliver the services or procured item(s) in conformance with the agreed requirements. ISO9001 Clause 8.1 and ISO10005 may be used to inform the development of quality plans for specific applications, processes or products..	PDF	
	Sub-supplier delivery schedule	Definition of processes, products or services that will be externally provided and the controls to be applied by the [supplier] to ensure conformance with agreed requirements. The schedule includes evidence of the basis of capability assessment , quality management system certification (or equivalent), process or product qualification for proposed suppliers of outsourced products and services when nominated in the Contract or Quality Requirements Specification (QRS) . Note: ISO9001, API Specs Q1/Q2 define requirements for assessing risks and establishing controls for outsourced products and services.	PDF	
	Inspection and test plan (ITP)	Tabular presentation of a quality plan typically used for process or product applications to define the specific sequence of operational activities, instructions, acceptance criteria, records and associated manufacturer, user and independent conformity assessment activities. ISO9001 Clause 8.1 and ISO10005 may be used to inform the development of inspection and test plans for specific processes and products.	PDF	
	Handling, shipping and storage procedure	Definition of practices to be followed during the; storage, transport, lifting and preservation of the equipment and materials included in the scope of supply to maintain their functionality and guarantees. Procedures typically define: a) Packaging requirements; contents, identification, size, weight and number of packages/container (s), b) special packing/unpacking/handling requirements c) storage location and requirements, d) preservation requirements detailing inspection periods and required maintenance, materials required etc., both prior to installation and post installation, but prior to commissioning.	PDF	
	Non-conformance records	Details of non-conformances raised by or to the manufacturer/sub suppliers against technical requirements prior to or during the delivery of the products or services. Non-conformance is managed by the manufacturer in accordance with ISO9001 Clause 8.7 and associated records typically include; description of non-conformance, analysis and disposition, correction implemented and details of any retesting or inspection taken to demonstrate subsequent conformance. Note: Instances where the proposed disposition is to accept a nonconforming condition are subject to agreement by the user in accordance with the concession management protocols defined in the Contract.	PDF	

Definitions

Column	Heading — Details and requirements
A	No. — consecutive number.
B	Requirement — Contains data, documents or models to be provided by suppliers, based on the Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006)
C	Description — Provides a description of the information requirement.
D	Format — Defines the required format of the relevant information requirement to be submitted by the supplier.
E	Remarks — Additional information needed to clarify the information requirement.

Col A	Col B	Col C	Col D	Col E
No.	**Requirement**	**Description**	**Format**	**Remarks**
	Concession request	Formal submission seeking user agreement to accept deviations from the contracted scope or technical requirements. Requests may be raised as a result of, as examples, material or service availability, obsolescence, innovation, non-conformance. Requests are typically raised as required during execution with a summary report detailing concessions raised, user directions, agreed action status provided with progress reports and at contract closeout	PDF	
	Obsolescence management plan	Plan defining the manufacturer's co-ordinated activities to direct and control the strategies for the identification and mitigation of the effects of obsolescence to the user, through all stages of the life of all components within the NER assembly. An example of the principles of this plan is defined within IEC 62402, Obsolescence management – Application guide.	PDF	
		Technical Information Deliverables		
	General arrangement details	The manufacturer's standard general arrangement drawing showing overall dimensions and critical interface dimensions. The drawing contains references to main specifications and standards. For equipment / components the drawing may include cross sectional views. This will include details of the arc chutes when a dedicated arc chute arrangement drawing is not provided.	PDF	
	Foundation and Installation details	The manufacturer's standard installation drawing showing; • Critical interface dimensions • Interface connections • Weight of assemblies, equipment and components • Centre of gravity • Withdrawal/installation and maintenance space. • Installation and mounting details • Lifting arrangement The drawing to reference to main specifications and standards.	PDF	
	Connection diagram	Drawing providing information about the external physical connections.	PDF	
	Manufacturer data sheet	To include confirmation of compliance with Technical Data Sheet (TDS) for Neutral Earthing Resistor (NER) (Doc. No. 123A90-DDL-EL-DS-20011) by providing actual values of NER specification and all other information in accordance with IEC 60076-25.	PDF	
	Installation manual	The manufacturer's standard information manual. This document includes sufficient information to install the equipment. It is acknowledged this may be provided as part of an overall IOM manual.	PDF	
	Maintenance manual	The manufacturer's standard maintenance manual. This document includes sufficient information to maintain the equipment. It is acknowledged this may be provided as part of an overall IOM manual.	-	
	Operating manual	The manufacturer's standard operating manual. This document includes information to operate the assembly and subcomponents. This document includes sufficient information for troubleshooting. It is acknowledged this may be provided as part of an overall IOM manual.	-	
	Recommended spare part list (RSPL)	Identified products which may require replacement are listed in a spare parts list identified and described so that the necessary spare, the whole item or parts can be obtained. The spare parts list includes: - reference to project documentation (e.g. drawing number and position number); - the manufacturer's catalogue/unique and unambiguous parts number; - for standardized parts: the real manufacturer's name and catalogue/unique and unambiguous parts number. - reference to tag (where applicable) The list includes equipment manufacturer's recommendation for commissioning and two years operational spares.	PDF	
	Special tools list	The special tools list identifies special tool and equipment necessary for handling, installation, dismantling, operation and maintenance of the NER.	PDF	
	Bill of materials	A list of parts, components and sub-assemblies for equipment with part numbers, item numbers, quantities, material designations and references to specifications including sub-suppliers and associated purchase orders. To include OEM part numbers for components not manufactured by the supplier.	PDF	

Definitions

Column	Heading — Details and requirements
A	No. — consecutive number.
B	Requirement — Contains data, documents or models to be provided by suppliers, based on the Technical Specification, IDS and DDS for Neutral Earthing Resistor (NER) (Doc. 123A90-DDL-EL-SP-20006)
C	Description — Provides a description of the information requirement.
D	Format — Defines the required format of the relevant information requirement to be submitted by the supplier.
E	Remarks — Additional information needed to clarify the information requirement.

Col A	Col B	Col C	Col D	Col E
No.	**Requirement**	**Description**	**Format**	**Remarks**
	Type test certificate	A document providing objective evidence that the equipment is compliant to relevant standards. To include equipment designation, manufacturer, testing authority name and address, specific year and edition of the IEC used to perform verification and a summary of the proving tests performed.	PDF	
	Lifting equipment test certificate	Lifting equipment test certificate in relation NER load certified hoist (if applicable).	PDF	
	Weight data sheet	Document with weight of individual shipping sections	PDF	
	Routine verification test (FAT) procedure	Procedure documenting the manufacturers recommended testing activities and acceptance criteria according to applicable standards, specifications and requirements, to document the condition of the equipment as tested from factory. Procedure to define test set-up and test equipment.	PDF	
	Routine verification test (FAT) results	This document records and documents all results from the activities performed in accordance with the FAT procedure. Include any observation rework or retesting.	PDF	
	Certificate of conformity	The manufacture's or other party's confirmation that the product is designed, manufactured and tested as specified. To be delivered according to applicable authorities requirements.	PDF	
		Purchase Order Specific Information Requirements		