Base Load Power Hub (BLPH)

Technical Specification, IDS and DDS for Electrical Heat Tracing (EHT) System

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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.

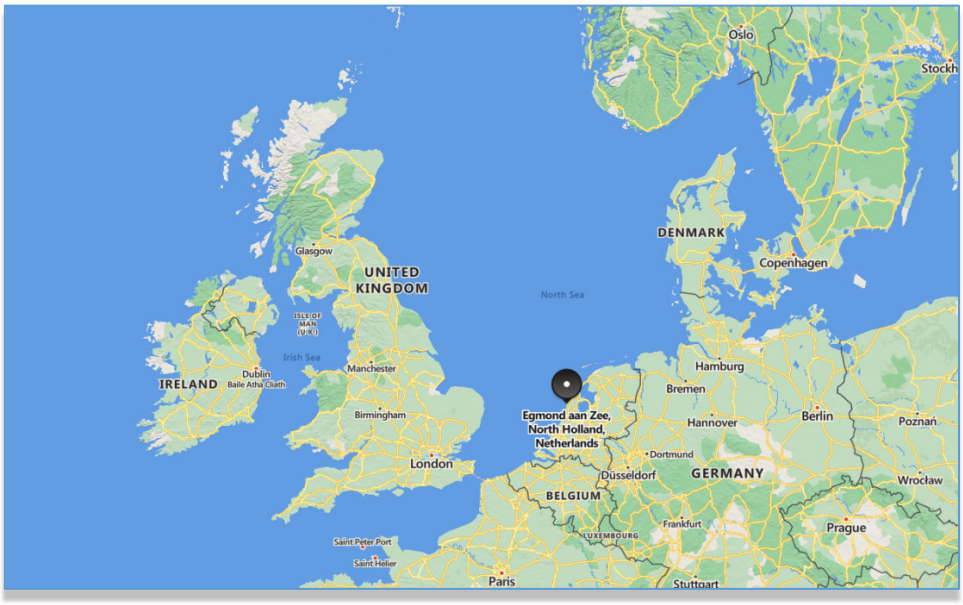


Figure 1 - HOLLANDSE KUST NOORD WIND PARK Location Map

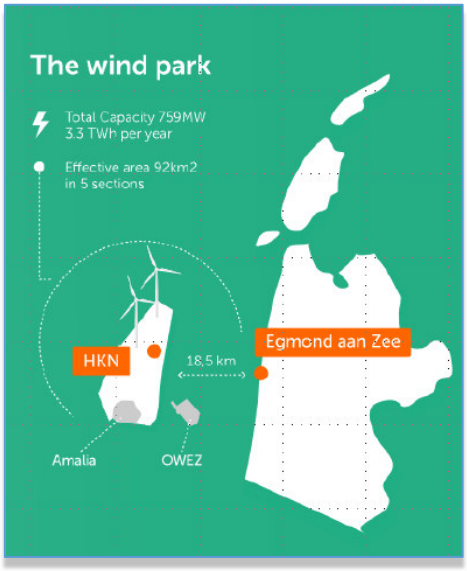


Figure 2 - Wind Park Details

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.

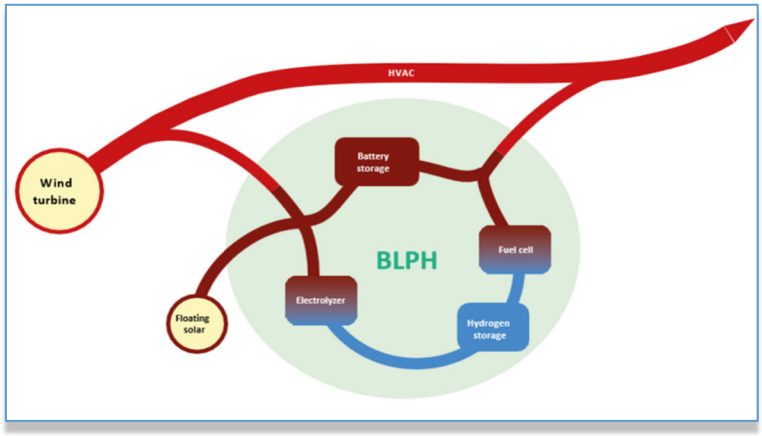


Figure 3 – BLPH Concept

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.

2 DOCUMENT SCOPE

This specification covers the general criteria, the scope of work and minimum requirement for the design, engineering, manufacture, installation, testing and commissioning of entire Electrical heat tracing system for use on offshore fixed structures.

Electrical heat tracing system comprise of the following:

- Supply of Electrical heating cables
- Supply of Thermal insulation and cladding for EHT wherever required.
- Supply of Mounting brackets, connection boxes, branch cable trays, power connectors, splice connectors, tee connectors, end connectors and all installation hardware including end seal, T-splices, fixing tapes, warning labels & earthing materials.
- Supply of any other material not listed above but required for successful design, engineering, installation, testing and commissioning of EHT shall be supplied by vendor.

It shall be the Vendor's responsibility to be, or to become, knowledgeable of the requirements of the references, standards and codes referenced in sections 2.1 and section 4.

Related to the quality assurance and test shall be apply the Quality requirements in Annex I – Inspection Data Sheet.

The Documents that shall be supplied along with the technical proposal and during the manufacturing phase are indicated in the information requirements in Annex II – Document Data Sheet.

2.1 REFERENCES

Doc. No.	Description
DEP 33.64.10.10. Gen.	DEP Specification - Electrical Engineering Guidelines
123A90-PML-QHSE-PRO-00113	Vendor Final Document Requirements & Management
123A90-DDL-EL-DL-20140	Electrical Heat Tracing (EHT) Layouts
123A90-DDL-PR-PID-80009 to 80042	BLPH Piping and Instrumentation Diagram
123A90-DDL-EL-DG-20162	Electrical Single Line Diagrams (Distribution Board BoP)
123A90-DDL-PR-LIS-80035	Process Line List
123A90-DDL-PR-RE-80032	Insulation and Winterization Philosophy
123A90-DDL-PP-DI-71000	Isometrics drawing and list
123A90-DDL-MAT-SP-60003	Insulation specification

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.

AC	Alternating Current
CCS	Central Control System
DCS	Distributed Control System
DEP	Design and Engineering Practice
EHT	Electrical Heat Tracing
EMCS	Electrical Monitoring & Control System
IEC	International Electro-technical Commission
IP	Ingress Protection
LV	Low Voltage (<1000V)
Max	Maximum
MCB	Miniature Circuit Breaker
Min	Minimum
NA	Not Applicable
Nom	Nominal
PE	Protective Earth
P&ID	Piping & Instrumentation Diagram
PLC	Programmable Logic Controller
PO	Purchase Order
RCD	Residual Current Device

Table 2 - Definitions and Abbreviations

3 GENERAL CONDITIONS

3.1 LANGUAGE

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

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4 APPLICABLE CODES AND STANDARDS

VENDOR shall comply with relevant guidelines and recommendations for the Electrical Cables.

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

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

- IEC 62395-1 Electrical resistance trace heating systems for industrial and commercial applications - Part 1: General and testing requirements
- IEC 62395-2 Electrical resistance trace heating systems for industrial and commercial applications - Part 2: Application guide for system design, installation and maintenance
- IEC 61892-1 Mobile and fixed offshore units - Electrical installations, Part-1 General requirements and conditions
- IEC 60364-1 Low Voltage Electrical Installations Part 1: Fundamental principles, assessment of general characteristics, definitions
- IEC 60529 Degrees of protection provided by enclosures (IP Code)
- IEC 60079-0 Explosive Atmospheres– Part 0 Equipment – General requirements
- IEC 60079-1 Explosive Atmospheres Part 1 Equipment Protection by flameproof enclosures “d”
- IEC 60079-7 Explosive Atmospheres Part 7 Equipment protection by increased safety “e”
- IEC 60079-14 Explosive Atmospheres Part 14 Electrical installation design, selection and erection
- IEC 60079-15 Explosive Atmospheres Part 15 Equipment protection by type of protection “n”
- IEC 60079-30-1 Explosive Atmospheres Part 30-1 Electrical resistance trace heating – General and test requirements
- IEC 60079-30-2 Explosive Atmospheres Part 30-2 Electrical resistance trace heating – Application guide for design, installation and maintenance

5 ENVIRONMENTAL AND OPERATING CONDITIONS

The Metrological and Oceanographic Data are as given below (source: HKN2018 data @ 1979-2018)

Description	Value	Unit
Ambient Conditions		
Ambient Temperature (min/nom/max) – hourly @ +10m	-8.4 / 10.5 / 25.0	° C
Atmospheric Pressure (nominal) – hourly @ +10m	1013.7	mbar
Specific Humidity (min/nom/max) – hourly @ +10m	4.2 / 6.5 / 9.5	x 10^{-3}
Wind conditions		
Annual average wind speed (at 100m)	9.56	m/s
Extreme Wind Speed for 1-Year Recurrence Period (at 100 m)	33.1	m/s
Extreme Wind Speed for 50-Year Recurrence Period (at 100 m)	41.0	m/s
Marine conditions		
Sea Water Temperature (min/max)	1.2 / 20.2	° C
Average Sea Water Density	1025	Kg/m^3

Table 3 - Metrological and Oceanographic Data

6 ELECTRICAL SYSTEM

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

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7 TECHNICAL REQUIREMENTS

7.1 GENERAL

The design of the EHT system shall be, as far as possible, of a stabilized type, that is, it shall ensure that in the most unfavorable environmental conditions (maximum/minimum ambient temperature), electrical conditions and operational conditions (failure of temperature controllers, if any), the temperature at any point in the system can be stabilized at a value less than the following values:

- Maximum temperature supported by heating cables and control elements.
- Maximum temperature permitted by the process.
- Maximum temperature supported by the materials & Insulation.
- Maximum temperature supported by plastic pipes

Trace-heating shall be designed and installed in accordance with IEC 62395, ATEX and Vendor instructions and recommendations.

All materials shall be suitable for installation outdoors, exposed directly to the sun or a saline, corrosive and dusty environment, such as that found in offshore facilities.

The design, engineering, manufacture, installation, testing and commissioning of Electrical heat tracing system shall include both flanges of the battery limit (inlet and outlet) and upto one meter of pipe inside the other vendor packages.

Trace heating shall be applied to external water pipes, liquid lines and level bridles of the Vent Drum, gas process instrumentation impulse lines and instrument enclosures for frost protection and to prevent the formation of hydrates within impulse lines.

Adequate tracing of impulse lines in the metering systems shall be ensured. Preference is for valves not to be insulated or trace heated.

In case the packaged units will include electrical heat tracing for frost protection, condensation prevention and for maintaining process temperature, it shall be designed and installed in accordance with IEC standards and the Vendor instructions and recommendations.

7.2 INFORMATION TO BE SUPPLIED BY THE CONTRACTOR

The contractor shall provide the supplier of the heat tracing system with all the information needed to correctly design the system. In general, this information shall consist of:

- Environmental conditions.
- Process data (fluids, minimum/maximum process temperatures, temperature to be maintained in the pipeline, flow rates, etc.).
- Data regarding pipelines, valves, pumps, flanges, supports, etc.
- Isometrics and P&I diagrams.
- Available power supply (supply voltage, frequency, etc. including tolerances).

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The heat tracing system supplier shall request additional information considered necessary from the contractor. Likewise, necessary meetings between the contractor and the vendor shall be held to properly determine the scope and design of the system.

7.3 HEAT TRACING CIRCUITS

Heat tracing circuits may be made up of one or various heating sections.

The heat tracing circuits shall be designed considering operational requirements, process conditions, layout, availability of electric power supply and installation and maintenance requirements.

Heat tracing shall be designed for auto cut-off and auto start from thermostat device. The vendor shall provide all relevant information to the contractor to enable a logic and economical circuiting of the heat tracing system.

Heat tracing circuits will be supply by Distribution board BoP 400 3ph+N+PE LV switchboard by means of n.01 50A MCB type "C". Outgoings circuit shall be protected by 1 phase suitably sized MCB and 30mA RCD to provide sensitive earth leakage protection. Each MCBs can supply multiple lines or instruments but of the same process system.
For heat tracing system are available the following feeders:
- N. 8 Circuit breakers 2x20A "C" 30mA from LV Distribution Board Bop for winterizing protection (see documents 123A90-DDL-EL-DG-20162)

7.4 CALCULATIONS

The vendor shall perform heat demand calculations and submit for contractor's review. The calculation shall be based on the project specific requirements provided in the data sheet. The design safety factor used in design shall be stated in the calculations. The output in terms at the end of the EHT shall meet the heat loss requirement. The voltage drop and voltage dip shall not affect the heat output at the end of the heat tracing. The vendor shall include test calculations that justify the stabilized design, in accordance with the indications of point 7.1 of this specification.

7.5 SELECTING THE HEATING CABLE

The following selection criteria shall be taken into consideration:

a) Trace Heating systems shall be considered for winterizing protection.
b) Electric heating cable shall be selected and designed in accordance with IEC 62395.
c) The materials and structural requirements of heating cables shall be in accordance with IEC 60079-30-1 for classified areas at least Zone-1, Gas group C (or) IIB, T1.
d) The heating cable shall have a high resistance to water, a high mechanical resistance and shall be tested for impact and deformation according to 60079-30-1.
e) The selection of the cable shall always be realized considering a stabilized system design in accordance to the indications of point 7.1 of this specification.

f) As long as temperatures and work conditions allow, heating cables that are powered at 230V, 50Hz and can be cut to size onsite without changing the power per meter established by the manufacturer shall be used. Self-regulating flexible heating cables which have a delivery power/m that varies according to temperature are preferable.
g) The heating cables shall be flexible and have a braided metal covering for mechanical protection that shall be used as a protection conductor, and an exterior cover suitable for protection against corrosion.
h) The maximum operational temperatures of the heating cables shall be higher than the temperatures at which the fluids shall be maintained and the maximum process temperatures during pipeline operation.
i) The number of circuits shall be decided considering all possible flow conditions. At least one spare circuit shall be installed in each section of piping.
j) Heat tracing shall withstand the highest equilibrium pipe temperature that occurs when heat tracing is continuously energized at the maximum ambient temperature and at the maximum operating voltage.
k) For pipes in plastic material PMC 01CP (e.g. lines coming out of the Electro-chlorination package), heating cable must have characteristics suitable for the material with which it will come into contact.
    - Heat should be applied evenly to the pipes, fittings to ensure that the pipes do not melt
    - Specify the correct cable with low watt value
    - Consider the CPVC thermal conductivity value for the correct cable selection

7.6 TEMPERATURE CONTROL

The heat tracing system will be developed through out one general ambient thermostat.

7.7 CONNECTION BOXES

Connection boxes shall be used for:

a) The connections between supply cable and heater cable.
b) The distribution of supply from one circuit of the distribution board to subcircuits. Only the supply from one circuit of the distribution board shall be allowed in a connection box.
c) Connection boxes shall contain sufficient terminals for all the connections to be made. Individual terminals shall be provided for each conductor.
d) All cables connected to the box shall enter the box through the bottom or the sides, not the top. Sufficient cable glands, suitably sized for the associated cables, shall be installed.
e) Connection boxes shall be suitable for the environmental conditions stated with weather proofing to IP-56 minimum.

7.8 ADHESIVE TAPES

Adhesive tape, for securing heating tape to pipe lines shall be glass cloth pressure sensitive with thermosetting adhesive. Adhesive tape should not cause corrosion in pipelines and equipment.

7.9 CAUTION SIGNS

All pipe lines and equipment's heated with EHT shall be provided with suitable, durable weatherproof caution signs, visible from all sections of a traced system. Signs on traced pipe lines shall not be more than 5 meters apart and positioned on alternative sides of the cladding.

The elements of a circuit such as thermostats, connection boxes and heaters shall be provided with permanent labels which shall consistently indicate the number of the circuit to which the elements are connected and the circuit reference. The labels shall be fixed on a non-removable part; for heaters of the label shall be fixed on the sheathing of the associated pipe lines or equipment.

7.10 TERMINATION KITS

Heating element shall be fitted with termination kit where they are connected to the power source. Termination kit cable gland shall be brass, waterproof and fitted with special grommet to suit each size of heating tapes as required. Each gland to be supplied shall be complete with locknut, IP washer and termination sleeving where necessary. Remote end sealing materials of the heat shrink type shall also be provided.

7.11 INSULATION ENTRY KITS

Insulation entry kit to provide weather proof entry into thermal insulation shall include cable gland with grommet to suit each size of heating tapes as required. In addition, each kit to include tightening plate manufactured from stainless steel and locknut for cable gland.

7.12 EARTHING SYSTEM

All metallic non-current carrying parts of electrical apparatus, control panels, heater tape mounting accessories, connection boxes, thermostats etc., shall have earthing provision like earthing bosses. Also, vendors responsibility to carried out earthing connection to the nearest Earthing point.

7.13 CABLING SYSTEM

All cable shall run on cable trays are neatly clamped with cable number tags attached at the terminations and where the cable changes its direction.

The heating cable shall be fastened at suitable interval. Additional fasteners shall be placed on all accessories: elbow joints, flanges, etc.

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8 LABELS AND MARKING

An identification label shall be placed (weather-resistant) on each segment of heating cable and at its connection end, providing the following information:

- Identification of the project
- Reference of the heating cable
- Serial number
- Voltage and power
- Operating temperature

9 LIMIT OF SUPPLY

Vendor shall supply all the materials and equipment for the heat tracing system including of all necessary engineering activities, to the design and sizing of the system itself.

It is included in the Vendor scope of work also the sizing of the cold power supply cables according to the wiring and distribution diagram.

The supply of cold power supply cables is not in the Vendor scope.

Moreover, vendor shall cooperate in order to define the number of the necessary feeding circuits on the distribution boards.

The supply of LV Distribution Board Bop is not in the Vendor scope of work.

Installation on yard is not in the Vendor scope of work, while is included in the Vendor scope of work training and technical support to personnel of Contractor.

All special tools necessary for the installation, commissioning, operation and maintenance of the EHT system included in the package shall be included in the supply.

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10 ANNEX – I: INSPECTION DATA SHEET (IDS)

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11 ANNEX – II: DOCUMENT DATA SHEET (DDS)

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7 ANNEX A 5

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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 Electrical Heat Tracing (EHT) system in accordance with Technical Specification (Doc. 123A90-DDL-EL-SP-20044).

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 Electrical Heat Tracing system (Doc. 123A90-DDL-EL-SP-20044) and the Document Data Sheet (DDS) 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.

To specify Inspection and Quality requirements for the Electrical Heat Tracing System including:

a) supplier quality management system requirements;

b) purchaser conformity assessment (surveillance and inspection) activities;

c) traceability requirements.

2 NORMATIVE REFERENCES

For the purpose of this document, the documents referenced in Technical Specification, IDS and DDS for Electrical Heat Tracing System (Doc. 123A90-DDL-EL-SP-20044) 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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3 TERMS, DEFINITIONS AND ABBREVIATIONS

For the purpose of this document, the terms and definitions given in Technical Specification for Electrical Heat Tracing System (Doc. 123A90-DDL-EL-SP-20044) and ISO 9000 (normative to ISO 9001), and the following shall apply.

CAS	CAS Conformity assessment system
DDS	Document Data Sheet
QMS	Quality management system
QRS	Quality requirements specification (this document)

Table 1 - Definitions and Abbreviations

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.

4 QUALITY REQUIREMENTS

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.

Conformity assessment system (CAS)

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.

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

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.

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.

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5 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.

6 EVIDENCE – CONFORMANCE RECORDS

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

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7 ANNEX A

Purchaser conformity assessment requirements

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

Vendor shall perform inspection and test at his shop during construction and before shipment.

The inspection and tests shall be carried out in accordance with applicable documents (Project specifications and Data sheets, Codes, COMPANY specifications, etc.)

The VENDOR shall submit for approval to CONTRACTOR a detailed Inspection and Testing Plan (ITP) based on the following table (I.D.S).

ITEM	DESCRIPTION	TESTING AUTHORITY				REMARKS
		SUP	CTR	CPY	CA	
1	GENERAL					
1.1	Review of the Purchase Order		R	R		
1.2	Data Sheets, Procedures approval check		R	R		
1.3	Check of the Quality Procedure		R	R		
2	PROCUREMENT					
2.1	Incoming material and certificates check		R	M		
3	CHECK OF INCOMING MATERIAL					
3.1	Visual and dimensional Check		W	W		
3.2	Check of proper material identification by tag/marking		W	W		
4	PACKING					
4.1	Packing & initial preservation inspection, marking and packing list check		R	R		
5	FINAL DOCUMENTATION					
5.1	Final documentation and Testing certificates review (Data Book)		R	R		
5.2	Final Inspection and Final Inspection Release note		W	W		
5.3	Instruction, Operating and Installation Manual		R	R		

Testing Authorities:

SUP	SUPPLIER
CTR	CONTRACTOR (ROSETTI MARINO)
CPY	COMPANY (CROSSWIND)
CA	CERTIFYING AUTHORITY

Type of Action:

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

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CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project	ROSETTI MARINO	
	Contract No. CW-I-WP4-2023-05		
Document Title:	Document Data Sheet for Electrical Heat Tracing (EHT) System	Sh. 1 of	2
		Date:	24.06.2024
		Rev.	01

POS.	DESCRIPTION OF DOCUMENTATION	Delivery in Bid	Delivery after Order (revision issued for……)								KEY DOC.
			IFI (Information)		IFA (Approval)		IFC (construction)		ASB (as-built)		
			Required / Within weeks after order	Note	Required / Within weeks after order	Note	Required / Within weeks after order	Note	Appr. Required / Within weeks after order	Note	YES NO
	CONTROL DOCUMENTS										
1	SUPPLIER MASTER INDEX REGISTER (SMIR)	Y					Y				Y
2	FABRICATION/PRODUCTION SCHEDULE (Bar Chart, A3 max)				Y / 2						
3	PROGRESS REPORT (A4 document)				Y / 2			(4)			
	MANAGEMENT DOCUMENTS										
4	TQ - TECHNICAL QUERY (A4 document)						Y				
5	DR - DEVIATION REQUEST (A4 document)						Y				
6	CR - CONCESSION REQUEST (A4 document)						Y				
	QUALITY DOCUMENTS										
7	INSPECTION AND TEST PLAN (A4 sheets)				Y / 3	*(2)*	*Y / 5*	*(2)*			
	ENGINEERING DOCUMENTS										
	DA - GENERAL ARRANGEMENT										
8	EHT PLOT PLAN	Y			Y / 7		Y / 11		Y		X
	DG – DIAGRAMS										
9	EHT SINGLE LINE DIAGRAM	Y			Y / 6		Y / 10		Y		X
10	TYPICAL WIRING DETAILS				Y / 4		Y / 8		Y		
11	EHT INSTRUMENT HOOK-UP				Y / 6		Y / 10		Y		
	DL – LAYOUT & PLOT PLAN										
12	ISOMETRICS				Y / 6		Y / 10		Y		X
	DS – DATA SHEET										
13	TECHNICAL DATA SHEET (HEATING CABLES, JBs,TERMINATION KITS, THERMOSTAT,ACCESSORIES)	Y			Y / 6		Y / 10		Y		X
	LIS – LIST										
14	EHT CALCULATION LIST	Y			Y / 4		Y / 8				X
15	BILL OF MATERIALS	Y			Y / 6		Y / 10		Y		X
	PRO – PROCEDURES										
17	FACTORY / SITE ACCEPTANCE TEST PROCEDURE / PRE-COMMISSIONING / COMMISSIONING PROCEDURES (A4 procedure)				Y / 8		Y / 12				
18	EQUIPMENT MANUFACTURER RECORD BOOK (FINAL DOSSIER) - INDEX				Y / 8		Y / 12				
	CERTIFICATES										
19	FACTORY ACCEPTANCE TEST (FAT) REPORT (A4 report) / SITE ACCEPTANCE TEST (SAT) REPORT (A4 report)		Y	*(5)*							
20	ATEX REGISTER				Y / 8		Y / 12	(3)			

CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project	ROSETTI MARINO	
	Contract No. CW-I-WP4-2023-05		
Document Title:	Document Data Sheet for Electrical Heat Tracing (EHT) System	Sh. 2 of	2
		Date:	24.06.2024
		Rev.	01

POS.	DESCRIPTION OF DOCUMENTATION	Delivery in Bid	Delivery after Order (revision issued for……)								KEY DOC.
			IFI (Information)		IFA (Approval)		IFC (construction)		ASB (as-built)		
			Required / Within weeks after order	Note	Required / Within weeks after order	Note	Required / Within weeks after order	Note	Appr. Required / Within weeks after order	Note	YES NO
21	CODE / STANDARD / COMPLIANCE CERTIFICATE (A4 document)					(1)					
22	CERTIFICATION MATRIX (ATEX, PED, ANY OTHER CERTIFICATION REQUIRED BY THE STATUTORY DIRECTIVES)				Y / 4		Y / 12	(3)			
23	EQUIPMENT MANUFACTURERS RECORD BOOK – COMPLETE (A4 bound volume(s) to Purchaser specifications)				Y	*(6)*					X
24	PURCHASER's RELEASE NOTE (Issued by Purchaser)		Y	*(3)*							
25	CERTIFYING AUTHORITY RELEASE NOTES / WAIVERS		Y	*(3)*							
	SPARES & MAINTENANCE DATA										
26	SPARE PARTS INDEX REGISTER (COMMISSIONING, 2-YEAR's OPERATION, INSURANCE)				Y / 6		Y / 10				
27	TECHNICAL OPERATING AND MAINTENANCE MANUAL – COMPLETE (A4 bound volumes to Purchaser's specification)				Y / 8		Y / 12				X
28	TECHNICAL OPERATING AND MAINTENANCE MANUAL – INDEX				Y / 8		Y / 12				X
	HANDLING, SHIPPING & SITE INSTALLATION										
29	SHIPPING PROCEDURES (A4 procedure)		Y	*(3)*							
30	HANDLING AND STORAGE PROCEDURES (A4 procedure)		Y	*(3)*							

Notes (refer to brackets above):

(1) - The list of the certificates shall be comprehensive of all the certificates required according to contract and to applicable Codes / Standard / compliance (e.g: ASME STAMP, PED compliance and technical dossier). The certificates shall be collected and submitted as part of the Manufacturer Record Book. All the certificates shall be made available by the Supplier in due time during the manufacturing activities.

(2) - The delivery due date is within the indicated number of weeks after the PO or at least 4 weeks in advance prior the start of the first activity/test covered by the procedure.

(3) - To submit before the shipping of the supply.

(4) - To be updated every 2 weeks.

(5) - To be submitted as soon as the FAT is completed and ignatures of the involved party taken

(6) - MRB - complete - to be delivered in the due time as specificed in the PO and, in any case, not later than 30 days of the delivery date of the manufactured item