Base Load Power Hub (BLPH)

DATA SHEETS - CABLE CLEATS AND ACCESSORIES

Document Number: 1724002000-EL-DS-00005

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
Andrea Padovani	08/11/2024

Document Class: Class 3

General Note:
a. missing RSTF fixing frame
b. missing Bolt Lugs power and earthnig

(In case it will be present into the doc.: 1724002000-EL-DS-00004, not consider the point "b." and insert the file number in the par. 2.1 of this document)

Rev.	Date	Description	Prepared	Reviewed	Approved
00	04/11/2024	Issue for Information (IFI)	T. Papadimitriou	P. Maniatis	G. Keser

reynard HIGH VOLTAGE SOLUTIONS

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Revision / Change Log

Rev.	Description
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1	
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None

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.

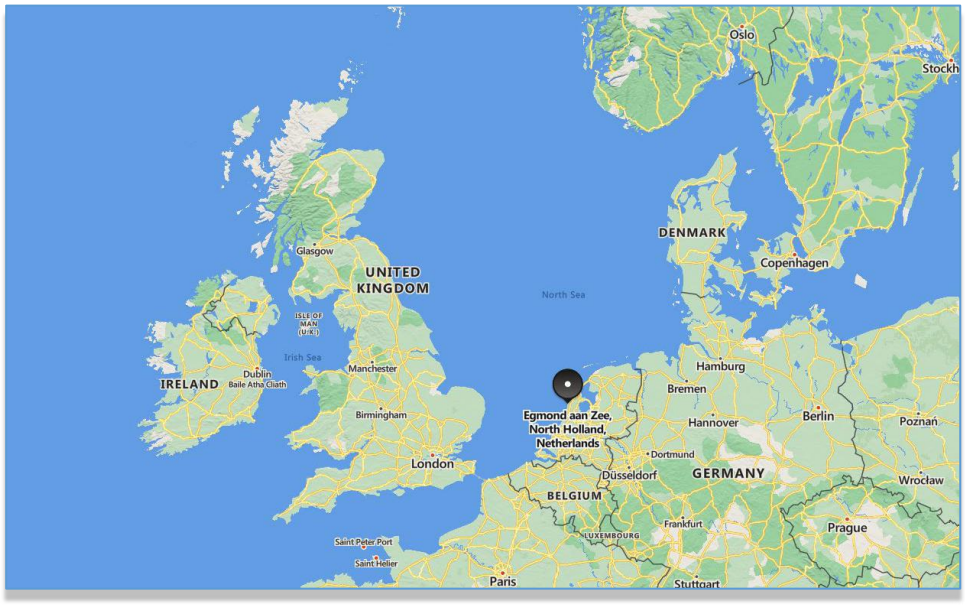


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map



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.

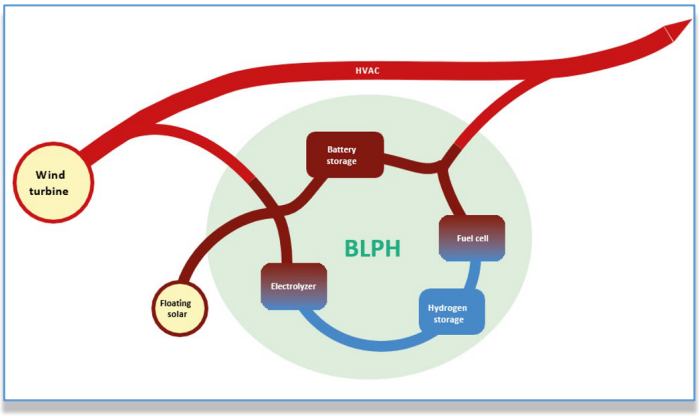


Figure 3 – BLPH Concept

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

Providing the technical specifications of the cable cleats that are going to be installed for the HOLLANDSE KUST NOORD WIND PARK Project. The document also references to applied standards and (Employer) requirements.

2.1 REFERENCES

remove

Doc. No.	Description

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

Table 2 - Definitions and Abbreviations

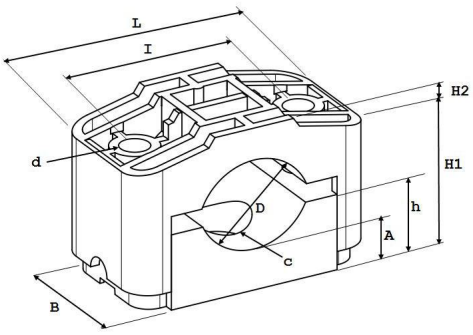
~~APPENDIX~~ 3. KOZ CABLE CLAMP STC 36-52 DATA SHEET (SINGLE)

SPECIFICATION KOZ CABLE CLAMP STC 36-52

Application:	Suitable for mounting single- and multiple-conductor low- medium- and high voltage cables.
Range:	For cables with a nominal outer diameter of 36 up to 52 mm.
Material:	Black polyamide (PA66), fibreglass-reinforced, virgin material.
Fire resistance:	UL94 V-0 and classification standard EN 45545-2: 2020 – Railway applications. Requirement set R22,R23 / Hazard level HL1,HL2.
Standards:	Certified in accordance with the international standard NEN-EN-IEC 61914:2021.
Temperature:	Permanent application from -80˚C to +120˚C. Short-term heating of up to +220˚C.
Advantages:	Resistant to oils, greases, frost, heat, UV, ozone, salt water, salts, acids and aggressive chemicals. Non-oxidizing, non-corrosive, non-magnetic and non-conductive. Halogen-free and no sharp edges. Lifetime warranty, easy assembly and available worldwide.
Extra possibilities:	The central fastening hole in the bottom part of this STC clamp enables more installation possibilities for e.g. masts, poles, concrete or fitting rails.







Initial torque for fastening fixing material : 5 – 8 Nm.
(depends on cable manufacturer's prescription).

Tests have been performed by KEMA, SGS, KU Leuven, UL and Schneider.

The product listed in this datasheet is produced in conformity with the latest EU Directive 2011/65 / EU (RoHS), and complies with all legal obligations in accordance with REACH.

DIMENSIONS IN MILIMETERS

Type	DØ	L	B	I	dØ	H1	H2	h	A	C	Kracht (N)
KOZ STC 36-52	36-52	107	60	75	12,5	57-72	12	33	18	12,5	45.300

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~~APPENDIX I~~ 4. KOZ CABLE CLAMP TRI ECT 47-66 DATA SHEET (TREFOIL)

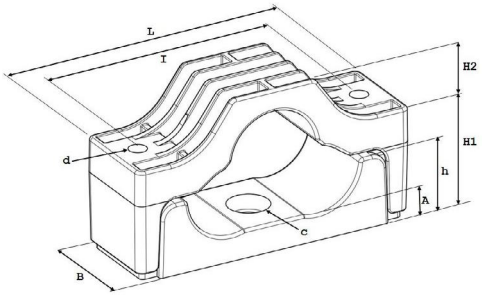
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SPECIFICATION KOZ CABLE CLAMP TRI ECO 47-66

Application:	Suitable for mounting 3 single- and multiple-conductor low- medium- and high voltage cables.
Range:	For cables with a nominal outer diameter of 47 up to 66 mm.
Material:	Black polyamide (PA66), fibreglass-reinforced, virgin material.
Fire resistance:	UL94 V-0 and classification standard EN 45545-2: 2020 – Railway applications. Requirement set R22,R23 / Hazard level HL1,HL2.
Standards:	Certified in accordance with the international standard NEN-EN-IEC 61914:2021.
Temperature:	Permanent application from -80˚C to +120˚C. Short-term heating of up to +220˚C.
Advantages:	Resistant to oils, greases, frost, heat, UV, ozone, salt water, salts, acids and aggressive chemicals. Non-oxidizing, non-corrosive, non-magnetic and non-conductive. Halogen-free and no sharp edges. Lifetime warranty, easy assembly and available worldwide.
Extra possibilities:	The central fastening hole in the bottom part of this TRI eco clamp enables more installation possibilities for e.g. masts, poles, concrete or fitting rails.







Initial torque for fastening fixing material : 5 – 8 Nm.
(depends on cable manufacturer's prescription).

Tests have been performed by KEMA, SGS, KU Leuven, UL and Schneider.

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DIMENSIONS IN MILIMETERS

Type	DØ	L	B	I	dØ	H1	H2	h	A	C	Strength (N)
KOZ TRI eco 47-66	3x47-66	205	70	170	13	80-120	38	51	19	13	22.300

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