TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE000048M
Revision No:
1

This is to certify:

that the Electric Power Cable

with type designation(s)
EXZHELLENT MAR RC4Dt & RDtC4Dt 1kV,
EXZHELLENT MAR RO2C4Dt & RDtO2C4Dt 1kV,
EXZHELLENT MAR RZ5Dt & RDtZ5Dt 1kV

issued to
Grupo General Cable Sistemas, S.L.
Abrera, Barcelona, Spain

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

General power and lighting. Control.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Type	Rated voltage (kV)	Temp. class (°C)
EXZHELLENT MAR RC4Dt & RDtC4Dt 1kV	0,6/1	90
EXZHELLENT MAR RO2C4Dt & RDtO2C4Dt 1kV	0,6/1	90
EXZHELLENT MAR RZ5Dt & RDtZ5Dt 1kV	0,6/1	90

Issued at **Høvik** on **2026-10-05**

This Certificate is valid until **2031-02-25**.
DNV local unit: **Area NB/CMC Iberia**

Approval Engineer: **Deep Vaishampayan**

for **DNV**

This document has been digitally signed and will therefore not have handwritten signature

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Type:	EXZHELLENT MAR RC4Dt & RDtC4Dt 1kV,	0,6/1
	EXZHELLENT MAR RO2C4Dt & RDtO2C4Dt 1kV,	0,6/1
	EXZHELLENT MAR RZ5Dt & RDtZ5Dt 1kV	0,6/1

Construction:

Conductors:	Plain or tinned, stranded copper. Class 2 or class 5
Core insulation:	HF XLPE
Filler:	Tape or Halogen free compound (if necessary)
Metallic Screen:	Helically copper tape overlapped
Metal covering:	Plain or tinned copper wire braid or Galv. steel wire braid (Not for single core cables)
Outer sheath:	SHF1

No of cores:	Cross sectional area [mm$^{2]}$
1	1 - 300
2, 4	1 – 120
3	1 – 185
5	4 – 120
5, 7, 10, 12, 14, 16, 19, 20, 24, 27, 30, 37	1,5 2,5

EXZHELLENT MAR 0,6/1 kV

No of cores:	Conductor cross section [mm^2]
3G	2.5, 4, 6, 10

Manufactured by

Santa Perpetua Plant - Poligon Industrial
Can Vinyalets 2 - 08130 Santa Perpetua de Mogoda, Barcelona, Spain

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Data sheets
Test reports

Tests carried out

	Release	General description	Limitation
DNV-CP-0399	2021-08	Electric cables	
IEC 60092-350	2020-01	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60332-1-2	2025-06	Tests on electric and optical fibre cables under fire conditions - Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame	Flame retardant small scale. Distance between the lower edge of the top support and the onset of charring > 50 mm and charring not to extend

			downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

General Cable SAP - EXZHELLENT MAR RC4Dt & RDtC4Dt 1kV or EXZHELLENT MAR RO2C4Dt & RDtO2C4Dt 1kV or EXZHELLENT MAR RZ5Dt & RDtZ5Dt 1kV - size - 0,6/1 kV – IEC 60332-3A - Lot No.
SAP = Santa Perpetua Plant.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer’s product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE