



Marine & Offshore

Certificate number: 06158/E0 BV

File number: ACE 1/129/2

Product code: 25011

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

GRUPO GENERAL CABLE SISTEMAS ,S.L.

Barcelona - SPAIN

for the type of product

CABLES (LOW VOLTAGE)

150/250V or 0.6/1kV.

RDt, RDt-M, R01Dt, R0102Dt, RDtZ5Dt, RDtC4Dt, RDtC4Dt-M, RC4Dt, RC4Dt-M series.

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

IEC 60092-350 (2008), IEC 60092-353 (2016), IEC 60092-376 (2003), IEC 60092-360 (2014), IEC 60228 (2004), IEC 60332-1 (2004), IEC 60332-3-22 Cat.A (2009), IEC 60331-21 (1999), IEC 60754-1/2 (2011), IEC 61034-1/2 (2005).

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 30 May 2022

For Bureau Veritas Marine & Offshore,

At BV MADRID, on 30 May 2017,

Montserrat Espin



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

EXZHELLENT MAR SERIES

Flame retardant, fire resistant (M type only), low smoke and Halogen Free Marine power and control cables or Instrumentation cables.

1.1 - Specification:

Rated Voltage:	0.6/1kV, 150/250V
Temperature Class:	90°C
Flame Retardant:	IEC 60332-3-22 (Cat.A)
Fire Resistant:	IEC 60331-1/21(M Type only)
Halogen Free:	IEC 60754-1/2
Low Smoke:	IEC 61034-1/2
Low Toxicity index:	RATP-K20

1.2 - Construction:

Conductor:	Copper Wire
Tape:	Mica Glass (RC4Dt-M, RDt-M and RDtC4Dt-M)
Insulation:	XLPE
Armour bedding material:	LSFOH (RDtZ5Dt, RDtC4Dt and RDtC4Dt-M)
Armour:	Galvanized Steel Wire Braid - GSWB (RDtZ5Dt only) Copper Wire Braid - CWB (RDtC4Dt and RDtC4Dt-M)
Individual Screen:	PETP/Al (RO1Dt and RO102Dt)
Collective Screen:	PETP/Al (R012ODt)
Sheath:	LSF-OH

1.3 - Product Range:

Type	Number of cores	Cross Sectional Areas (mm ²)
RDt	1 to 4	1 to 300
RDt-M (1)	5	1 to 50
	6 to 61	1 to 4
R01Dt(2)	1 to 24	0.75 to 2.5
R0102Dt(3)	1 to 24	0.75 to 2.5
RDtZ5Dt	1 to 4	1.5 to 300
	5	1.5 to 50
	6 to 61	1.5 to 4
RDtC4Dt	1 to 4	1.5 to 300
RC4Dt		
RDtC4Dt-M	5	1.5 to 50
RC4Dt-M	6 to 61	1.5 to 4

(2) 01 = aluminium / mylar or copper / mylar type (individual)

(3) 02 = aluminium / mylar or copper / mylar type (collective)

2. DOCUMENTS AND DRAWINGS:

According to documents filed in ACE 01/129/02.

General Cable Specification N°CO/SGC/INF/CAL/10-004-11 dated 13/09/2011 RDtC4Dt-M.

General Cable Specification N°CO/SGC/INF/CAL/10-006-11 dated 15/09/2011 RO1Dt, RO102Dt, RC4Dt and RC4Dt-M.

General Cable Specification N°CO/SGC/INF/CAL/10-005-11 dated 15/09/2011 RDt, RDt-M, RDtZ5Dt, RDtC4Dt and RDtC4Dt-M.

3. TEST REPORTS:

N° 17373/99 (RDt) ; N° 17374/99 (RDtZ5Dt) & N° 17373/99 (RDtC4Dt), N° 28292/02 (RC4Dt-M) ; N° 28293/02 (RDt-M) ;

N° 28294/02 (RDtC4Dt-M) ; N° 28296/02 (RC4Dt).

UP/SGC/LFC/IE/24-5728-06 according to IEC 60331-1 (RDt-M 3x25 0.6/1kV) dated 30/06/2006.

UP/SGC/LFC/IE/24-143-02 according to IEC 60331-21 (RDtC4Dt-M 3x6 0.6/1kV) dated 29/04/2002.

UP/SGC/LFC/IE/24-144-02 according to IEC 60331-21 (RDt-M 3x6 0.6/1kV) dated 29/04/2002.

UP/SGC/LFC/IE/24-145-02 according to IEC 60331-21 (RC4Dt-M 2x1.5 150/250V) dated 29/04/2002.

For E0 version:

General cable

- Tests report ref. 91028/17, dated 23 Feb 2017.

4. APPLICATION / LIMITATION:

According to BV Rules for the Classification of Steel Ships and IEC 60092 series.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above products are to be supplied by **GRUPO GENERAL CABLE SISTEMAS S.L.** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

6. MARKING OF PRODUCT:

The cable shall be marked on the surface outer sheath, in a durable legible and visible manner, with the following information

Through the length of cable:

6.1 - Voltage grade

6.2 - Cable symbol and temperature class

6.3 - Number of conductors and conductor size

6.4 - Applicable standard(s) to flame retardant and fire resistant if any.

6.5 - Manufacturer's name or trademark

6.6 - Year of manufacture

7. OTHERS:

7.1 - It is **GRUPO GENERAL CABLE SISTEMAS S.L.** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This Certificate supersedes the Type Approval Certificate No. 06158/D1 BV issued on 19 Jan 2015 by the Society.

*** END OF CERTIFICATE ***