



Marine & Offshore

Certificate number: 13786/C0 BV

File number: ACE 01/746/01

Product code: 2505I

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

BELDEN GRASS VALLEY INDUSTRIA, COMERCIO E SERVICOS LTDA
 DIADEMA - SP - BRAZIL

for the type of product

INSTRUMENTATION AND COMMUNICATION CABLES
 MA NV, MA NV ES, TA NV, ITA NV, ITA NV ES, CM NV, CA NV series.
 150/250V.

Requirements:

BUREAU VERITAS Rules for the classification of Steel Ships.

IEC 60092-350 (2014), 376 (2014), 360 (2014), IEC 60228 (2004), IEC 60331-1 (2009), IEC 60331-21 (1999), IEC 60332-1 (2004), IEC 60332-3-22 Cat.A (2009).

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: 16 Mar 2023

For Bureau Veritas Marine & Offshore,

At BV RIO DE JANEIRO, on 16 Mar 2018,

Lando Ribeiro



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 electronic version is available at: <http://www.veristarp.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=au1fpz1yrc>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **MA NV, MA NV ES, TA NV, ITA NV, ITA NV ES, CM NV, CA NV cables series** are Marine and Offshore control and instrumentation cables.

1.1 - Common specifications:

Rated voltage: 150/250 V
 Temperature class: 90°C
 Flame retardant: IEC 60332-1 and IEC 60332-3-22 Cat. A (All Types)
 Fire resistant: IEC 60331-21 and IEC 60331-1 (MA NV ES & ITA NV ES Type only)
 Halogen Free: IEC 60754-1 (SHF1 & SHF2 compound)

1.2 - Construction:

Conductor: Circular tinned copper (Class 2)
 Fire protection: Glass/Mica tape (MA NV ES & ITA NV ES Type only)
 Insulation: HEPR or XLPE
 Separator: Polyester tape
 Individual Screen: Aluminium + Polyester tape (ITA NV Type only)
 Collective Screen: Aluminium + Polyester tape (All types except CM NV Type)
 Inner Sheath: Halogen Free compound (SHF1 & SHF2)
 Armour: Metal wires or tinned copper wires (when applicable)
 Outer Sheath: Halogen Free compound (SHF1 or SHF2)

1.3 - Product Range:

Type	Number of cores	Cross-Section. (mm ²)	Remarks
MA NV, MA NV ES	1P - 1T - 1Q	0.5 to 2.5	Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A Fire resistant according to IEC 60331 (NV ES Type)
TA NV, ITA NV, ITA NV ES	2P to 36P 2T to 26T 2Q to 36Q	0.5 to 2.5	Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A Fire resistant according to IEC 60331 (NV ES Type)
CM NV, CA NV	2 to 60C	0.5 to 10	Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A

2. DOCUMENTS AND DRAWINGS:

POLIRON:

According to specifications filed in ACE 01/746/01.
 Data book for fire proof approval dated 11/08/06 for NV ES cables.
 Data book for renewal ref: O&G/12/00125 dated 17/11/2011.

BELDEN:

Specifications for cables.

3. TEST REPORTS:

POLIRON:

Test reports dated: 23/06/2004, 20/07/2004, 17/04/2004, 01/10/2004, 09/09/2004, 13/09/2004, 14/09/2004 (Tests witnessed by a BV surveyor).

Test results P.109 to P.114.

Data book for fire proof approval dated 11/08/06 for NV ES cables.

Test reports N°M60935-01, 026772-03, GG35W4-02, 027547-04/05/06/08.

IL SPE: Test report N° 99 604-01 dated 15/09/2004 and n° 1000 604-01 dated 15/09/2004.

CPQD: Test report N° PD.12.AT.ENS.1718A/RE-02-AA dated 28/09/2004.

Lab System: Products Testing and Analysis Report nr. 650806-01 dated 09/08/06.

ITEN:

Test report N°1008029-1/01-02-03-04-05-06 dated 18.04.2011.

Test report N°1707195-4, dated 09-18-19/01/18.

BELDEN:

Test report N° 1407144-1/04-1, 1507144-1/01-1, 1507144-1/03-3, 1507144-1/05-1, 1507144-1/02-3, dated 24.Sep.2015.

Test report N° 047232, dated 11/12/17 and 30/01/18.

4. APPLICATION / LIMITATION:

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.

4.2 - Approval valid for units having to comply with IMO Resolution A649 (The "MODU Code").

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The INSTRUMENTATION AND COMMUNICATION CABLES are to be supplied by **BELDEN GRASS VALLEY INDUSTRIA, COMERCIO E SERVICOS LTDA** 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.

5.4 - For information, **BELDEN GRASS VALLEY INDUSTRIA, COMERCIO E SERVICOS LTDA** has declared to Bureau Veritas the following production site(s):

BELDEN GRASS VALLEY INDUSTRIA, COMERCIO E SERVICOS LTDA
Av. Maria Leonor, 1222
Parque Reid
DIADEMA - SP
BRAZIL

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:

- 1) - Voltage grade.
- 2) - Cable symbol and temperature class.
- 3) - Number of conductors and conductor size.
- 4) - Applicable standard(s) to flame retardant and fire resistance if any
- 5) - Manufacturer's name or trade mark.
- 6) - Year of manufacture.

7. OTHERS:

7.1 - It is **BELDEN GRASS VALLEY INDUSTRIA, COMERCIO E SERVICOS LTDA**'s 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 N° 13786/B2 BV issued on 17 Nov 2015 by the Society.

*** END OF CERTIFICATE ***