DNV·GL

Certificate No:
TAE000008U

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
XAI(C) 331 250 V, XAI(IC) 331 250 V

Issued to
Controlcavi Industria S.r.l.
Ferentino FR, Italy

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

Instrumentation and communication. Control.
Fire resistant. Flame retardant Cat. A. Halogen free. Low smoke. Low temp. (-40 °C).
Ozone and UV resistant.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type	Voltage class (V)	Temp. class (°C)
XAI(C) 331 250 V	250	90
XAI(IC) 331 250 V	250	90

This Certificate is valid until .

Issued at **Høvik** on **2015-08-25**

for **DNV GL**

DNV GL local station: **Milan**

Approval Engineer: **Ivar Bull**

Marit Laumann
Head of Section

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.

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Job Id: **262.1-011080-2**
Certificate No: **TAE000008U**

Product description

XAI(C) 331 250 V,
XAI(IC) 331 250 V

Construction:	
Conductors:	Plain or tinned copper flexible Class 2 and class 5 IEC 60228
Core insulation:	Mica tape + XLPE
Common screen:	Metalized polyester tape with tinned copper drain wire (C) only
Filler:	Polyolefine compound
Separator::	Halogen free tape
Metal covering:	Plain or tinned copper wire braid or galv. steel wire braid.
Outer sheath:	SHF1

No of Elements:	Cross sectional area [mm^2]
Pairs: 1, 2, 4, 7, 10, 14, 19, 24, 30	0,75 1,5
Triples: 1, 4, 14	0,75 1,5

Application/Limitation

This type of cable is fire resistant in accordance with IEC Publication 60331.

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

Tests carried out

Standard	Issued	General description	Limitation
IEC 60092-350	2008-02	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2014-04	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60092-376	2003-05	Cables for control and instrumentation circuits 150/250 V (300 V)	
IEC 60331-1/2	2009-05	Fire resistance / Circuit integrity – Test for method for fire with shock at temperature of at least 830ºC for cables rated up to and including 0,6/1 kV	Minimum 120 min+15 min cooling down time
IEC 60331-21	1999-04	Tests for electric cables under fire conditions – Circuit integrity – Part 21: Procedures and requirements – Cables of rated voltage up to and including 0,6/1,0 kV	Minimum 90 min + 15 min cooling down time
IEC 60332-3-22	2009-02	Tests on electric and optical fibre cables under fire conditions – Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category A	Bunch test Category A
IEC 60332-1-2	2006-07	Tests on electric cables under fire conditions. Test for vertical flame propagation for a single insulated wire or cable.	
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables – Determination of the amount of halogen acid gas	Low Halogen: <0,5% Halogen
IEC 60754-2	2011-	Test on gases evolved during combustion of	Halogen free:

Standard	Issued	General description	Limitation
	11	materials from cables – Determination of the degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity	pH > 4,3 Conductivity < 10µS
IEC 61034-1/2	2013-07/09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke
IEC 60092-350	2014-08	Annex E: Cold bend test and impact test for low temperature behaviour	Cold bend: -40°C Cold impact: -35°C
IMO resolution MSC 41(64), ATS 100.001	1994-12	Interim standard for measuring smoke and toxic products of combustion	Concentration of 10 toxic gases shall not exceed stated limits
UL 1581 Ed4	2001-10	Reference standard for Electrical wires, Cables and Flexible Cords	720h E@B>0,8

Marking of product

CCI – XAI(C) 331 or XAI(IC) 331 - size – IEC 60331 – IEC 60332 Cat. A – 150/250 V – Lot No.

Periodical assessment

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

The main elements of the periodical assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to 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 to be performed at least every second year.

END OF CERTIFICATE