DNV·GL

Certificate No:
TAE00000J9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MV-FHFH/A, MV-HFH/A series ; Single core & Three core cables
F/RG7M1AM1 & F/RG7OM1AM1 1,8/3 kV

Issued to
PRYSMIAN CAVI E SISTEMI ITALIA SRL Stab.to di Merlino
Merlino LO, Italy

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

General power and lighting.
Flame retardant Cat. A. Halogen free. Low smoke.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Voltage class (kV) **1,8/3**
Temp. class (°C) **90**

This Certificate is valid until **2020-10-08**.

Issued at **Høvik** on **2015-10-09**

DNV GL local station: **Milan** for **DNV GL**

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: **262.1-018465-1**
Certificate No: **TAE00000J9**

Product description

MV-FHFH/A & MV-HFH/A series Single core & Three core cables
F or RG7M1AM1 & F or RG7OM1AM1 1,8/3 kV

Construction:

Conductors:	Tinned or plain, stranded copper class 5 (flexible) or class 2
Core insulation:	HEPR (G7)
Inner covering:	LSOH compound - SHF1
Metal covering:	Galvanised steel wire braid (three core cables only) or plain/tinned copper wire braid
Bedding:	Halogen free compound (spaced configuration)
Outer sheath:	SHF1

MV-FHFH/A & MV-HFH/A series F or RG7M1AM1 & F or RG7OM1AM1 1.8/3 kV

	No of cores:	Cross sectional area [mm^{2}]
F or RG7M1AM1	1	16 – 300
F or RG7M1AM1 (Spaced configuration)	1	16 – 300
F or RG7OM1AM1	3	16 – 300

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

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2014-08	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 60092-353	2011-08	Single and multicore non-radial field power cables with extruded solid insulation for rated Voltages of 1 kV and 3 kV	
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 60754-1	2011-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen

Standard	Release	General description	Limitation
IEC 60754-2	2011-11	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	2013-07 2013-09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance ≥60%
IEC 60684-2	2003-05	Flexible insulating sleeving – Part 2: Methods of test.	Fluorine content < 0,1%
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

Marking of product

PRYSMIAN (P) – MV-FHFH/A or MV-HFH/A (F or RG7M1AM1 or F or RG7OM1AM1) – 1,8/3 kV- Size – IEC 60332-3-22 – IEC 60092-353 - Year

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