



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **E-10743**

This is to certify that the
Electric Power Cable

with type designation(s)

TEOF RFOU (P1) & TEOF RFOU (P1/P8) 0,6/1 kV, TEOF RFCU & TEOF RFCU Mud 0,6/1 kV

Manufactured by

PRYSMIAN CABLES Y SISTEMAS, S.A.
Sant Vicenç dels Horts BARCELONA, Spain

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

IEC 60092-353 (2001-04)

IEC 60332-3-22 (2009-02)

IEC60754-1/2 (1994-01/1997-04)

IEC61034-1/2 (2005-04/2005-04)

NEK 606 (2009-05) (P-types only)

Application

General power and lighting.

Flame retardant Cat. A. Halogen free. Low smoke.

Type	Voltage class (kV)	Temp. class (°C)
TEOF RFOU (P1) & TEOF RFOU (P1/P8) 0,6/1 kV	0,6/1	90
TEOF RFCU & TEOF RFCU Mud 0,6/1 kV	0,6/1	90

Høvik, 2011-06-09
for **Det Norske Veritas AS**



This Certificate is valid until
2014-12-31


Marit Laumann
Head of Section

DNV local office:
Barcelona


Ivar Bull
Surveyor

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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: E-10743
 File No.: 827.10
 Job Id.: 262.1-010789-1

Product description

Type: TEOF RFOU (P1) & TEOF RFOU (P1/P8) 0,6/1 kV, TEOF RFCU & TEOF RFCU Mud 0,6/1 kV

Construction:

Conductors: Tinned annealed, stranded copper Class 2 or Class 5
 Core insulation: EPR
 Inner covering: Halogen free compound
 Metal covering: Copper wire braid (O) or Galvanized steel wire braid (C) for multicore cables only
 Outer sheath: SHF2 or SHF Mud

Number of cores x conductor cross-section mm ²	Overall diameter mm
1 x 1,5	9,4
1 x 2,5	9,8
1 x 4,0	10,5
1 x 6,0	11,0
1 x 10	12,0
1 x 16	13,3
1 x 25	16,1
1 x 35	17,6
1 x 50	18,5
1 x 70	20,3
1 x 95	22,8
1 x 120	24,5
1 x 150	26,5
1 x 185	28,9
1 x 240	32,1
1 x 300	35,3
2 x 1,5	13,8
2 x 2,5	14,8
2 x 4,0	16,4
2 x 6,0	17,7
2 x 10	19,6
2 x 16	21,9
2 x 25	25,8
2 x 35	28,5
2 x 50	30,3
2 x 70	34,4
2 x 95	40,6
2 x 120	43,2
3 x 1,5	14,9
3 x 2,5	16,0
3 x 4,0	17,1
3 x 6,0	18,5
3 x 10	20,6
3 x 16	23,1
3 x 25	27,1
3 x 35	29,9
3 x 50	32,2
3 x 70	37,3

Number of cores x conductor cross-section mm ²	Overall diameter mm
3 x 95	42,6
3 x 120	45,8
3 x 150	52,2
3 x 185	56,5
4 x 1,5	16,0
4 x 2,5	17,0
4 x 4,0	18,5
4 x 6,0	20,1
4 x 10	22,4
4 x 16	25,5
4 x 25	29,7
4 x 35	32,8
4 x 50	35,9
4 x 70	41,2
4 x 95	46,6
4 x 120	51,0
5 x 1,5	17,0
5 x 2,5	18,3
6 x 1,5	18,3
6 x 2,5	19,5
7 x 1,5	18,3
7 x 2,5	19,5
8 x 1,5	19,4
8 x 2,5	21,0
9 x 1,5	20,7
9 x 2,5	22,2
10 x 1,5	22,2
10 x 2,5	24,0
11 x 1,5	22,8
11 x 2,5	24,6
12 x 1,5	22,8
12 x 2,5	24,6
13 x 1,5	23,9
13 x 2,5	25,9
14 x 1,5	23,9
14 x 2,5	25,9
15 x 1,5	24,9
15 x 2,5	27,0

Number of cores x conductor cross-section mm ²	Overall diameter mm
16 x 1,5	24,9
16 x 2,5	27,0
17 x 1,5	26,3
17 x 2,5	28,6
18 x 1,5	26,3
18 x 2,5	28,6
19 x 1,5	26,3
19 x 2,5	28,6
20 x 1,5	27,4
20 x 2,5	29,9
21 x 1,5	27,4
21 x 2,5	29,8
22 x 1,5	28,7
22 x 2,5	31,2
23 x 1,5	28,7
23 x 2,5	31,2
24 x 1,5	30,1
24 x 2,5	32,8
25 x 1,5	30,6
25 x 2,5	33,4
26 x 1,5	30,6
26 x 2,5	33,4
27 x 1,5	30,6
27 x 2,5	33,4
30 x 1,5	30,4
30 x 2,5	33,3
37 x 1,5	33,1
37 x 2,5	36,3
3 x 120 + 1 x 70	49,1
3 x 150 + 1 x 95	53,9
3 x 185 + 1 x 95	59,9
3 x 240 + 1 x 120	66,6
4 x 120 + 1 x 70	55,5
4 x 150 + 1 x 95	61,6
4 x 185 + 1 x 95	67,2
4 x 240 + 1 x 120	76,5



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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:

TEOF RFOU (P1) & TEOF RFOU (P1/P8) 0,6/1 kV, TEOF RFCU & TEOF RFCU Mud 0,6/1 kV rev. 00 dated 05/11.

Test reports

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 60092-351	2004-04	Insulating materials for shipboard and offshore units, power, control, instrumentation and data cables	
IEC 60092-353	2001-04	Single and multicore non-radial field power cables with extruded solid insulation for rated Voltages of 1 kV and 3 kV	
IEC 60092-359	1999-08	Sheathing materials for shipboard power and telecommunication cables	
IEC 60332-1-2	2004-07	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	
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	1994-01	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	1999-07	Test on gases evolved during combustion of 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	Halogen free: pH > 4,3 Conductivity < 10µS
IEC 61034-1/2	2005-04	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke
NEK 606 Ed. 4	2009-05	Cables for offshore installations. Halogen-free and/or mud resistant. Technical specification.	

Marking of product

PRYSMIAN * - TEOF RFOU (P1) or TEOF RFOU (P1/P8) or TEOF RFCU or TEOF RFCU Mud - size - 0,6/1 kV – Lot No.

Certificate retention survey

The scope of the retention/renewal survey 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 survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routine Tests (RT) checked
- (if RT- and PST-test reports are 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
- Ensure traceability between manufacturer's product type marking and Type Approval Certificate.

Survey shall be performed at least every second year.

END OF CERTIFICATE