

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Electric Power Cable**with type designation(s)
P5 BFOU, P5/P12 BFOU

Issued to

**Jiangsu Jiangyang Special Cable Co., Ltd.
Yangzhou, China**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Rated voltage (kV) 0,6/1****Temp. class (°C) 90**Issued at **Hamburg** on **2017-08-01**This Certificate is valid until **2022-07-31**.for **DNV GL**DNV GL local station: **Nanjing**Approval Engineer: **Holger Jansen**

**Joannis Papanuskas
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.



Product description

Type: P5 BFOU, P5/P12 BFOU 0,6/1 kV

Conductors : Tinned annealed, stranded copper Class 2 or Class 5
Insulation: XLPE + mica tape
Inner covering: Halogen free compound
Metal covering: Copper wire braid
Outer Sheath: SHF2 or SHF Mud

Number of cores x conductor cross-section mm ²	Number of cores x conductor cross-section mm ²	Number of cores x conductor cross-section mm ²	Number of cores x conductor cross-section mm ²
1x1	3x1 (2x1+E)	5x1,0	5x2,5
1x1,5	3x1,5 (2x1,5+E)	7x1,0	7x2,5
1x2,5	3x2,5 (2x2,5+E)	10x1,0	10x2,5
1x4	3x4 (2x4+E)	12x1,0	12x2,5
1x6	3x6 (2x6+E)	14x1,0	14x2,5
1x10	3x10 (2x10+E)	16x1,0	16x2,5
1x16	3x16 (2x16+E)	19x1,0	19x2,5
1x25	3x25 (2x25+E)	24x1,0	24x2,5
1x35	3x35 (2x35+E)	27x1,0	27x2,5
1x50	3x50 (2x50+E)	30x1,0	30x2,5
1x70	3x70 (2x70+E)	33x1,0	33x2,5
1x95	3x95 (2x95+E)	37x1,0	37x2,5
1x120	3x120 (2x120+E)		
1x150	3x150 (2x150+E)	5x1,5	
1x185	3x185 (2x185+E)	7x1,5	
1x240	3x240 (2x240+E)	10x1,5	
1x300		12x1,5	
	4x1 (3x1+E)	14x1,5	
2x1	4x1,5 (3x1,5+E)	16x1,5	
2x1,5	4x2,5 (3x1,5+E)	19x1,5	
2x2,5	4x4 (3x4+E)	24x1,5	
2x4	4x6 (3x6+E)	27x1,5	
2x6	4x10 (3x10+E)	30x1,5	
2x10	4x16 (3x16+E)	33x1,5	
2x16	4x25 (3x25+E)	37x1,5	
2x25	4x35 (3x35+E)		
2x35	4x50 (3x50+E)		
2x50	4x70 (3x70+E)		
2x70	4x95 (3x95+E)		
2x95	4x120 (3x120+E)		
2x120	4x150 (3x150+E)		
	4x185 (3x185+E)		
	4x240 (3x240+E)		

Application/Limitation

This type of cable is fire resistant according to IEC 60331-21.

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bundles of Cables or Wires) are fulfilled without any additional measures.

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

Type Approval documentation

Tests carried out

Standard	Issued	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 60092-353	2011-08	Single and multicore non-radial field power cables with extruded solid insulation for rated Voltages of 1 kV and 3 kV	
IEC 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 60331-21	1999-04	Test for electric cables under fire conditions – Circuit integrity – Part 21: Productures and requirements – Cables of rated voltage up to and including 0,6/1,0 kV	
IEC 60332-1-2	2015-07	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	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	2011-11	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	2016-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke
NEK TS 606	2009-05	Cables for offshore installations. Halogen-free and/or mud resistant. Technical specification.	

Marking of product

Jiangsu Jiangyang Special Cable Co., Ltd.P5 BFOU or P5/P12 BFOU 0,6/1kV – date – IEC 60331-21 – IEC 60332-3-22

Periodical assessment

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

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance



Job Id: **262.1-014494-2**
Certificate No: **TAE0000229**

- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE