



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-8390
This Certificate consists of 4 pages

This is to certify that the
Electric Cable, Power Current
with type designation(s)
TFOI 0,6/1 kV, TFCI 0,6/1 kV


Holder of certificate
Draka Marine, Oil & Gas International
Houston, TX 77032, United States

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 (2000-10)
IEC 60332-3-24 (2000-10)
IEC 60754-1 (1994-01)
IEC 60754-2 (1997-04)
IEC 61034-2 (2005-04)

Application
General power and lighting. Control. Flame retardant. Halogen free. Low smoke.

Type	Voltage class (kV)	Temp. class (°C)
TFOI 0,6/1 kV	0,6/1	90
TFCI 0,6/1 kV	0,6/1	90



Place and date
Høvik, 2007-05-11
for DET NORSKE VERITAS AS


Frode Berntsen
Head of Section



Local Office
DNV Oslo

This Certificate is valid until
2011-06-30


Ivar Bull
Surveyor 

Notice: 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.



Cert. No.: E-8390
File No.: 827.10

Name and place of manufacturer:

Draka Norsk Kabel AS
Drammen, Norway

Product description

Type: TFOI 0,6/1 kV & TFCI 0,6/1 kV
Construction:
Conductors: Tinned, stranded copper
Core insulation: XLPE
Bedding: Flame retardant halogen-free thermoplastic compound extruded or lapped
Metal covering: Tinned, Copper wire braid (O) or Galv. Steel wire braid (C)
Outer sheath: SHF1

Number of cores x conductor cross-section mm ²	Overall diameter (Extruded bedding) mm	Overall diameter (Lapped bedding) mm
1 x 16	11,5±0,8	-
1 x 25	13,0±0,8	-
1 x 35	15,0±0,8	-
1 x 50	16,5±0,8	-
1 x 70	19,0±0,8	-
1 x 95	20,5±1,0	-
1 x 120	22,5±1,0	-
1 x 150	25,0±1,0	-
1 x 185	27,0±1,0	-
1 x 240	30,0±1,5	-
1 x 300	33,0±1,5	-
2 x 1,5/2,5	11,0±0,8	9,0±0,5
2 x 2,5/2,5	12,0±0,8	10,0±0,8
2 x 4/4	13,0±0,8	11,0±0,8
2 x 6/6	14,5±0,8	12,5±0,8
2 x 10/10	16,5±0,8	14,5±0,8
2 x 16/16	20,0±1,0	18,0±1,0
2 x 25/16	23,0±1,0	21,0±1,0
2 x 35/16	25,5±1,0	23,5±1,0

Number of cores x conductor cross-section mm ²	Overall diameter (Extruded bedding) mm	Overall diameter (Lapped bedding) mm
3 G 1,5	11,5±0,8	9,0±0,5
3 G 2,5	12,5±0,8	10,5±0,8
3 x 1,5/2,5	11,5±0,8	9,5±0,5
3 x 2,5/2,5	12,5±0,8	10,5±0,8
3 x 4/4	13,5±0,8	11,5±0,8
3 x 6/6	15,5±0,8	13,5±0,8
3 x 10/10	17,5±0,8	16,0±0,8
3 x 16/16	20,5±1,0	18,5±0,8
3 x 25/16	24,0±1,0	21,0±1,0
3 x 35/16	27,0±1,0	24,5±1,0
3 x 50/25*	28,0±1,0	-
3 x 70/35*	32,0±1,5	-
3 x 95/50*	37,0±1,5	-
3 x 120/60*	41,0±2,0	-
4 G 1,5	12,5±0,8	13,0±1,0
4 G 2,5	13,5±0,8	14,0±1,0
4 G 4	15,0±0,8	15,5±1,0
4 G 6	16,5±0,8	17,0±1,0



Cert. No.: E-8390
File No.: 827.10

Number of cores x conductor cross-section mm ²	Overall diameter (Extruded bedding) mm	Overall diameter (Lapped bedding) mm
4 x 1,5/4	12,5±0,8	10,5±0,8
4 x 2,5/4	13,5±0,8	11,5±0,8
4 x 4/6	15,0±0,8	13,5±0,8
4 x 6/6	16,5±0,8	14,5±0,8
4 x 10/10	19,0±0,8	17,0±0,8
4 x 16/16	22,5±1,0	21,0±1,0
4 x 25/16	26,5±1,0	24,5±1,0
4 x 35/16	29,5±1,0	27,0±1,0
4 x 50/25*	30,5±1,5	-
4 x 70/35*	36,5±1,5	-
4 x 95/50*	40,5±2,0	-
4 x 120/60*	44,5±2,0	-
5 G 1,5	13,0±0,8	11,5±0,8
5 G 2,5	15,0±0,8	12,5±0,8
5 x 1,5/2,5	13,0±0,8	11,5±0,8
5 x 2,5/4	15,0±0,8	12,5±0,8

Number of cores x conductor cross-section mm ²	Overall diameter (Extruded bedding) mm	Overall diameter (Lapped bedding) mm
7 x 1,5/4	14,5±0,8	12,0±0,8
7 x 2,5/6	16,0±0,8	14,0±0,8
10 x 1,5/6	18,0±0,8	16,5±0,8
12 x 1,5/6	18,5±0,8	16,5±0,8
12 x 2,5/6	20,0±1,0	18,0±0,8
14 x 1,5/6	19,0±0,8	17,0±0,8
16 x 1,5/6	20,0±1,0	18,0±0,8
19 x 1,5/6	21,0±1,0	19,0±0,8
24 x 1,5/10	24,0±1,0	22,5±1,0
27 x 1,5/10	24,5±1,0	23,0±1,0
37 x 1,5/10	27,5±1,0	25,5±1,0
19 x 2,5/10	23,0±1,0	21,0±1,0

G = with yellowgreen core
* = Sector shaped

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: TFOI_1kV.doc dated 2001-04-20
Test reports: ABBNK NO 905762 dated 1999-09-15
 ABBNK NO 905763 dated 1999-09-15
 DRAKA NK No. 2190 dated 2000-08-07
 DRAKA NK No. 2191 dated 2000-08-08
 DRAKA NK No. 2192 dated 2000-08-09



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File No.: 827.10

Tests carried out

Type tested according to: IEC 60092-353, IEC 60332-3-22, IEC 60332-3-24, IEC 60754-1/2 and IEC 61034-1/2.

Marking of product

To be marked: DRAKA NORSK KABEL or DRAKA 01 - TFOI or TFCI - size - 0,6/1 kV.

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 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.

Survey to be performed at least every second year.

END OF CERTIFICATE