DNV·GL

Certificate No:
TAE00000K1

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
Topside drilling loop - Instrument, COMPLIANT INSTRUMENT LOOP CABLE FOR BLOCK DOLLY DRWG 76887/C

Issued to
Miltronic AS
DRAMMEN, Norway

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

Application :

Topside drilling loop - Instrument

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

Type	Voltage class (kV)	Temp. class (°C)
Topside drilling loop - Instrument COMPLIANT INSTRUMENT LOOP CABLE FOR BLOCK DOLLY DRWG 76887/C	**0,6/1**	**90**

This Certificate is valid until **2020-12-16**.

Issued at **Høvik** on **2015-12-17**

for **DNV GL**

DNV GL local station: **Station Oslo Maritime and CAP**

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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Product description

Instrument loop cables designed for dynamic operation in top drives.
COMPLIANT INSTRUMENT LOOP CABLE FOR BLOCK DOLLY

Construction:

1x Electric cable:	8x2x1,34mm2 Class 6 XLPE insulated individually screened PE foil with drain wire
2x Electric cables:	4x2x1,34mm2 Class 6 XLPE insulated individually screened PE foil with drain wire
2x Profibus pairs	0,5mm2 tinned copper class 6. Individually screened. PUR sheath
1x4 Profibus power conductors	2,5mm2 tinned copper class 6. Common shield. PUR sheath
Fillers	In interstices
Inner sheath:	Polyurethane. Mud resistant as per NEK 606.
Strength members	Aramid fibre braid
Outer sheath:	Polyurethane. Mud resistant as per NEK 606.

Name & place of manufacturer

LAPP Muller SAS
Grimaud, 83310
France

Application/Limitation

Minimum static bending radius: 460mm
Minimum dynamic bending radius: 980 mm

Type Approval documentation

Tests carried out

Type tests:
Similar instrument loop tested 110.620 dynamic cycles in outdoor test rig in Southern Norway.
Surface resistivity maximum 1 GOhm as per IEC 60079-0 items 26.13 and 7.4.2.
Flame retardant test IEC 60332-1
Abrasion resistance test. (if available)
MUD resistant test NEK606.
Mechanical properties of new, heat aged and dynamic tested insulation + sheath
Tensile test
Routine tests:
Electrical Routine tests before and after dynamic test

- Conductor resistance
- Braid resistance test
- Insulation resistance
- HV test 5 minutes @1,5kV
- Profibus parameters

Marking of product

MILTRONIC - COMPLIANT INSTRUMENT LOOP CABLE FOR BLOCK DOLLY Drawing No 76887/C – 0,6/1kV – IEC 60332-1 - 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 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.

Periodical assessment to be performed at least every second year.

END OF CERTIFICATE