Certificate No:
TAE00004N8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fiber optical cable

with type designation(s)
Draka Oceanline OLF03 LSHF-FR Loose Tube Cable for Marine Application

Issued to
Prysmian Kablo s.r.o.
Bratislava, Bratislavský, Slovakia (Slovak Republic)
Prevádzkáreň Záborské

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Fiber optic cable. Loose tube.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-02-20**
This Certificate is valid until **2028-02-19**.
DNV local unit: **Site Office Komarno**

Approval Engineer: **Ivar Bull**

for **DNV**

Frederik Tore Elter
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Draka OceanLine™ OLF03 LSHF-FR Stranded Loose Tube Cable for Marine Application
Indoor loose tube cable with 1-12 loose tubes.

Construction	1-12 loose tubes with 12 or 24 fibres in each. Water blocked.
Loose tubes:	For ≤144 fibres, ø2,3mm gel filled tubes with 12 fibres in each
	For >144 fibres, ø2,8mm gel filled tubes with 24 fibres in each
Central strength member:	FRP rod
Reinforcement:	Layer of glass fibre yarns as reinforcement and rodent proteciton
Outer sheath	SHF1 Halogen free.

Fiber types:

Fiber type	SM7A1	SM7B	50/125 OM3B	62,5/125 OM1	50/125 OM4B	50/125 OM5
Prysmian Data sheet	C17	C24	C31	C02	C32	C39

For more details please see datasheet.

Application/Limitation

Min. Installation temperature:
Operation temperature: -20°C to + 60°C
Storage temperature:

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
DNVGL-CP-0402	2021-09	DNV-GL Class Programme Optical fibre cables	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60332-3-24	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically mounted bunched wires or cables - Category C	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

Draka OceanLine™ OLF03 LSHF-FR <fibre count> <Fibre type> <Fibre brand> <Item No> <Factory Number> <Batch Number> <Meter mark> U-DQ(ZN)BH <Number of elements>x<Fibre count per element> <Fibre family> <Mode field diameter> /125 <Transmission class> IEC60332-3-24

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) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall 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 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