

QFCI - Loose Tube Fibre Optic Cable Fire Resistant and Fire Retardant, Armoured SHF1 Sheath. DNV-GL & ABS Approved



Application:

Fire Resistant Optical fibre cable for ships, onshore and offshore environments. The cable is suitable for both indoor and outdoor use as it is protected against UV radiation and, for shorter periods, to fluids such as diesel and mineral oils (acc. to IEC 60811-2-1). The cable is reinforced with a steel wire braiding between the two jackets for improved mechanical strength and resistance. QFCI cables provide continuous operation also in the event of a fire as required by Standard IEC60331-25. Each fibre is colour coded for easy identification. The cable is DNV-GL & ABS approved.

Construction:

Bare fibre:	250µm
Buffer:	Loose tube (Ø2.2mm) filled with jelly, housing up to 12 fibres
Colour codes:	See table
Fire protection:	A fire barrier is applied over each loose tube
Central member:	Steel rope with LSZH sheath
Cable core:	Loose tubes with fillers (when necessary) stranded around the central member and wrapped with a synthetic tape
Inner sheath:	LSZH SHF1 material black. Outer diameter 10.1mm nominal.
Armouring:	Galvanized steel wire armour coverage ≥85%
Outer sheath:	LSZH SHF1 material black. Outer diameter 13.5mm nominal.

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Mechanical characteristics:

Tensile performance:	2000 N (Δ reversible)	IEC 60794-1-2-E1
Crush:	3000 N/100 mm (Da reversible)	IEC 60794-1-2-E3
Impact:	30 J (Da reversible)	IEC 60794-1-2-E4
Bending:	@ max allowed tension, 10 cycles (Da \leq 0.05dB @ 1550nm)	IEC 60794-1-2-E18
Under tension:	= no breakage of the sheath	
Repeated bending:	@ 20N, 35 cycles = no breakage of the sheath	IEC 60794-1-2-E6
Torsion:	@ 20N, 5 cycles, \pm 1 turn (Da \leq 0.10dB @ 1550nm) = no breakage of the sheath	IEC 60794-1-2-E7
Kink:	Diameter of the loop: 500mm = no kink	IEC 60794-1-2-E10
Cable bend:	Mandrel, 5 turn, 3 cycles, T:-15°C (Da \leq 0.05dB @ 1550nm) = no breakage of the sheath	IEC 60794-1-2-E11A
Water penetration:	3m cable, 1m water, 24 hours = no water leakage (inner core)	IEC 60794-1-2-F5-B
Temperature cycling:	According to temperature range specified = max increase of attenuation 0.10dB @1550nm	IEC 60794-1-2-F1

Environmental properties and Fire Performances:

Halogen gas:	IEC 60754-1, IEC 60754-2
Smoke emission:	IEC 61034-1, IEC 61034-2, EN 50268
Toxicity:	NES 713, CEI 20-37/7
Flame retardant:	IEC 60332-1-2
Fire retardant:	IEC 60332-3-22A
Fire resistant:	IEC 60331-25
Weather resistant:	ASTM G 154, EN 11507
Oil resistant:	IEC 60811
Water resistant:	IEC 60502
UV resistant:	ASTM-D-2565-92A
SHF1 sheath:	IEC 60092-359

Installation features:

Temperature (storage):	-40 to +70 °C
Temperature (operation):	-40 to +70 °C
Temperature (installation):	-10 to +50 °C
Minimum bending radius (static):	15 x O.D.
Minimum bending radius (dynamic):	20 x O.D.
Fibre characteristics:	See detailed specification

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Colour code of fibres	Fibre count	Colour code of loose tubes	
01 White	2	1 - Red (With 2 OF)	4 - Filler
		2 - Filler	5 - Filler
02 Red		3 - Filler	6 - Filler
03 Yellow	4	1 - Red (With 2 OF)	4 - Filler
04 Green		2 - Green (With 2 OF)	5 - Filler
		3 - Filler	6 - Filler
05 Blue	8	1 - Red (With 4 OF)	4 - Filler
06 Grey		2 - Green (With 4 OF)	5 - Filler
		3 - Filler	6 - Filler
07 Brown	12	1 - Red (With 4 OF)	4 - Filler
08 Black		2 - Green (With 4 OF)	5 - Filler
		3 - Natural (With 4 OF)	6 - Filler
09 Violet	24	1 - Red (With 6 OF)	4 - Natural (6 of)
10 Orange		2 - Green (With 6 OF)	5 - Filler
		3 - Natural (With 6 OF)	6 - Filler
11 Pink	48	1 - Red (With 12 OF)	4 - Natural (12 of)
12 Turquoise		2 - Green (With 12 OF)	5 - Filler
		3 - Natural (With 12 OF)	6 - Filler

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Part code	Description	OD (mm)	Weight (Kg/Km)
FOS204QFCI1	4 x 9/125µm OS2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOS206QFCI1	6 x 9/125µm OS2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOS208QFCI1	8 x 9/125µm OS2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOS212QFCI1	12 x 9/125µm OS2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOS224QFCI1	24 x 9/125µm OS2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOS248QFCI1	48 x 9/125µm OS2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM104QFCI1	4 x 62.5/125µm OM1 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM106QFCI1	6 x 62.5/125µm OM1 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM108QFCI1	8 x 62.5/125µm OM1 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM112QFCI1	12 x 62.5/125µm OM1 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM124QFCI1	24 x 62.5/125µm OM1 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM148QFCI1	48 x 62.5/125µm OM1 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM204QFCI1	4 x 50/125µm OM2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM206QFCI1	6 x 50/125µm OM2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM208QFCI1	8 x 50/125µm OM2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM212QFCI1	12 x 50/125µm OM2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM224QFCI1	24 x 50/125µm OM2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM248QFCI1	48 x 50/125µm OM2 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM304QFCI1	4 x 50/125µm OM3 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM306QFCI1	6 x 50/125µm OM3 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM308QFCI1	8 x 50/125µm OM3 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM312QFCI1	12 x 50/125µm OM3 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM324QFCI1	24 x 50/125µm OM3 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM348QFCI1	48 x 50/125µm OM3 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM404QFCI1	4 x 50/125µm OM4 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM406QFCI1	6 x 50/125µm OM4 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM408QFCI1	8 x 50/125µm OM4 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM412QFCI1	12 x 50/125µm OM4 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM424QFCI1	24 x 50/125µm OM4 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261
FOM448QFCI1	48 x 50/125µm OM4 Multi-Loose Tube QFCI SHF1 Sheath DNV Approved	13.5	261