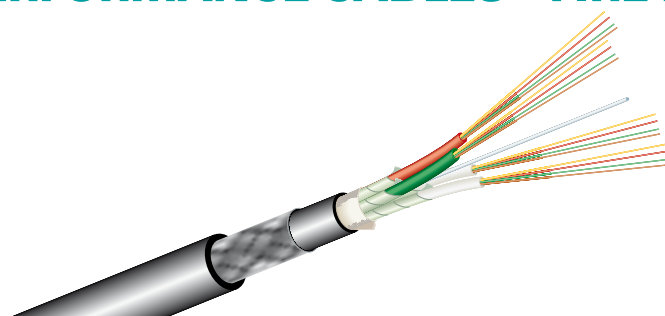


SPECIAL HIGH PERFORMANCE CABLES - FIRE RESISTANT

QFCI/QFCU - Multiloose



MLO-000-**-M1-A1-FR-QFCI/QFCU

Approved by:



FEATURES & APPLICATIONS

- Safety Systems, Critical Connections and Fire Fighting Systems
- Outdoor installation in Off-shore, Oil & Gas and Marine applications
- Data transmission and telecommunication systems

TEMPERATURE RANGE

-40/+70°C (operating)
-40 /+70°C (storage)
-10 /+70°C (installation)

MINIMUM BENDING RADIUS

20 times overall diameter (dynamic)
10 times overall diameter (static)

CABLE CONSTRUCTION

Fibres

Singlemode and multimode fibres, with loose technology coating.

Structure

The jelly filled tubes containing the fibres are individually wound with a mica tape and are cabled around a central steel or FRP (fibreglass reinforced plastic) element. A flame resistant tape improves fire resistance.

Inner sheath

LSZH (M1) compound

Armouring

A1Galvanized steel wire braid

Outer sheath

QFCI type: LSZH (M1) compound

QFCU type: oil and mud resistant LSZH (M1) compound

APPLICABLE STANDARDS

Optical fibre characteristics IEC 60793-1

Optical fibre cable characteristics IEC 60794-1

Fire Resistant IEC 60331-25 EN 50200 PH30/PH120

Fire retardant IEC 60332-3 EN 50266

Flame retardant IEC 60332-1EN 60332-1

Test on gases evolved during combustion IEC 60754 EN 50267-2

Low smoke emission IEC 61034-2 EN 50268-2

Cables for offshore installation NEK 606

Type	Fibre (n° max)	Tube Diameter (mm)	Diameter (mm)	Weight (kg/km)	Tension load (N)	Crush (N/100mm)
MLO-000-**(n)-M1-A1-FR-QFCI/QFCU	4	2.0	13.5	230	1500	3000
MLO-000-**(n)-M1-A1-FR-QFCI/QFCU	8	2.0	13.5	230	1500	3000
MLO-000-**(n)-M1-A1-FR-QFCI/QFCU	12	2.0	13.5	230	1500	3000
MLO-000-**(n)-M1-A1-FR-QFCI/QFCU	24	2.0	13.5	230	1500	3000
MLO-000-**(n)-M1-A1-FR-QFCI/QFCU	48	2.0	13.5	230	1500	3000

approximate values

Fibre Characteristics

ST/1405/26

06/10/2015

TYPE OF FIBRES			Single Mode	Single Mode Enhanced Low macrobending sensitive	Single Mode Enhanced Low macrobending sensitive	Single Mode NZDSF
CaviceL Fibre Code (000)			009	009	009	NZD
IEC 11801 classification			OS1/OS2	OS1/OS2	OS1/OS2	-
ITU-T type			G.652D	G.657.A1	G.657.A2	G.655/G.656
Mode Field Diameter (MFD)	at 1310 nm	µm	9.0 ± 0.4	9.0 ± 0.4	8.8 ± 0.4	-
	at 1550 nm	µm	10.1 ± 0.5	10.1 ± 0.5	9.8 ± 0.5	9.2 ± 0.5
Cladding Diameter			µm	125.0 ± 0.7	125.0 ± 0.7	125 ± 1.0
Coating Diameter nominal			µm	242 ± 7	242 ± 7	242 ± 7
Numerical Aperture						
Attenuation	at 850 nm	dB/km (max)	-	-	-	-
	at 1300 nm	dB/km (max)	-	-	-	-
	at 1310 nm	dB/km (max)	≤ 0.35	≤ 0.35	≤ 0.35	≤ 0.40
	at 1383 nm	dB/km (max)	≤ 0.35	≤ 0.35	≤ 0.35	-
	at 1460 nm	dB/km (max)	≤ 0.25	≤ 0.25	≤ 0.25	-
	at 1550 nm	dB/km (max)	≤ 0.21	≤ 0.21	≤ 0.20	≤ 0.25
	at 1625 nm	dB/km (max)	≤ 0.23	≤ 0.23	≤ 0.21	≤ 0.28
Bending loss 1 turns D = 10 mm	at 1550 nm	dB	-	≤ 0.75	≤ 0.1	≤ 0.50
	at 1625 nm	dB	-	≤ 1.5	≤ 0.2	-
Bandwidth	at 850 nm	MHz x km	-	-	-	-
	at 1300 nm	MHz x km	-	-	-	-
Chromatic Dispersion	at 1285 ÷ 1330 nm	ps/nm x km	≤ 3.0	≤ 3.0	≤ 3.0	-
	at 1550 nm	ps/nm x km	≤ 18	≤ 18	≤ 18	-
	at 1530 ÷ 1565 nm	ps/nm x km	-	-	-	-
	at 1565 ÷ 1625 nm	ps/nm x km	≤ 22	≤ 22	≤ 22	10
Applicable Distance *						
Gigabit Ethernet	SX (1310 nm)	m	10000	10000	10000	-
	LX (1550 nm)	m	40000	40000	40000	-
10Gigabit Ethernet	SX (1310 nm)	m	10000	10000	10000	-
	LX (1550 nm)	m	40000	40000	40000	-

* These are the allowable distances at given frequencies. For lower frequencies, distances increase.

TYPE OF FIBRES			Multimode 62.5/125	Multimode 50/125	Multimode 50/125	Multimode 50/125	Multimode 50/125
CaviceL Fibre Code (000)			062	050	050	050	050
IEC 11801 classification			OM1	OM2	OM2+	OM3	OM4
ITU-T type			-	G.651	G.651	G.651	G.651
Core Diameter			µm	50 ± 2.5	50 ± 2.5	50 ± 2.5	50 ± 2.5
Cladding Diameter			µm	125 ± 2.0	125 ± 2.0	125 ± 2.0	125 ± 2.0
Coating Diameter			µm	242 ± 5.0	242 ± 7.0	242 ± 5.0	242 ± 5.0
Numerical Aperture				0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
Attenuation	at 850 nm	dB/km (max)	≤ 3.0	≤ 2.8	≤ 2.8	≤ 2.8	≤ 2.8
	at 1300 nm	dB/km (max)	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bending loss 100 turns D = 75 mm	at 850 nm	dB	≤ 0.05	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
	at 1300 nm	dB	≤ 0.05	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Bandwidth	at 850 nm	MHz x km	≥ 200	≥ 500	≥ 700	≥ 1500	≥ 3500
	at 1300 nm	MHz x km	≥ 500	≥ 500	≥ 500	≥ 500	≥ 500
Applicable Distance (mt) *							
100Gigabit-SX			-	-	-	≥ 140	≥ 170
10 Gigabit-SX (850 nm) 10 Gigabit-LX (1300 nm)			33 300	82 300	150 300	300 300	550 300
1 Gigabit-SX (850 nm) 1 Gigabit-LX (1300 nm)			275 550	550 550	750 2000	1100 550	1100 550

* These are the allowable distances at given frequencies. For lower frequencies, distances increase.

" All data have to be intended as values on raw material - Values provided by fiber optic supplier "