



QFCI SHF2

4, 8 , 12, 24, 48 or 72 fibers

Armoured Loose tube, jelly filled

Fire resistant

SHF2, UV

DNV

Application

Fiberoptical cable for the oil- and offshore industry and other harsh environments. The cable has excellent communication properties and is tested to be operative in at least 180 min. at 1,000°C which means that it can maintain vital communication in case of a fire situation. The fibers are protected in jelly filled loose tubes stranded around a central strength member to ensure optimum performance and long life. Each fiber and loose tube is color coded for easy identification during splicing and termination. Outer jacket SHF2



Construction Fiber

Fibertype	jelly filled MM 62.5 - 50 and SM 9
Colorcode fiber	TIA 598 1 - Blue 5 - Grey 9 - Yellow 2 - Orange 6 - White 10 - Violet 3 - Green 7 - Red 11 - Pink 4 - Brown 8 - Black 12 - Turquoise
Sub unit	Jelly filled, loose tube with Mica tape $\varnothing = 2.2$ [mm]
Strength member	Centre steel wire
Inner jacket	SHF1 $\varnothing = 10.1$ [mm]
Armour	Armour alt.1 Galvanised steel wire braid Armour alt.2 Tinned Cu-braid Armour alt.3 Bronze wire braid
Jacket	Black SHF2
Diameter	13.5 [mm]
Weight	260 [kg/km]
Jacket marking	NEK Kabel QFCI FIBER OPTIC CABLE IEC 60331-25 SHF2

Specifications

Operating temperature normal	-40 - +70 [°C]
Temperature @ installation	-10 - +60 [°C]
Tensile strength installed	500 [N]
Crush test	3000 [N/10cm]
Impact	30 [J]
Torsion	± 1 [turn/m]
Min. bending radius	15 [x outer diam]
Min. bending radius flexible	20 [x outer diam]



Norms

Halogenfree, max content corrosive and toxic gases	IEC 60754-1 & IEC 60754-2
Material properties, insulation and sheath	IEC 60092-360 (359) SHF2
Flame resistance	IEC 60332-3-22 Cat.A
Fire resistant	IEC 60331-25 , 180 min. 1,000°C
Weather resistant	IEC 60794-1-22-F1
Ozone resistant	IEC 60811-2-1
Smoke emission	IEC 61034-1 & IEC 61034-2 EN 50268-2
Oil and fuel resistant	IEC 60811-404 IRM 903
UV-resistant	ASTM G 154
Certification	DNV

Fiber data

Properties	MM 62.5 OM1	MM 50 OM2	MM 50 OM3	MM 50 OM4
Core Diameter	62.5 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5 µm
Core non-circularity	< 5%	< 5%	< 5%	< 5%
Cladding diameter	125 ± 1.0 µm	125 ± 1.0 µm	125 ± 1.0 µm	125 ± 1.0 µm
Coating diameter	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm
Cladding non-circularity	<0.7%	<0.7%	<0.7%	<0.7%
Core/Cladding concentricity error	<1 µm	<1 µm	<1 µm	<1 µm
Coating/cladding concentricity error	<10 µm	<6 µm	<6 µm	<6 µm
Numerical Aperture	0.275 ± 0.015 µm	0.200 ± 0.015 µm	0.200 ± 0.015 µm	0.200 ± 0.015 µm
Attenuation @ 850 nm	<3.50 dB/km	<2.89 dB/km	<2.89 dB/km	<2.89 dB/km
Attenuation @1300 nm	<1.00 dB/km	<0.80 dB/km	<0.80 dB/km	<0.80 dB/km
Bandwidth @ 850 nm	>200 MHz*km	>500 MHz*km	>1500 MHz*km	>3500 MHz*km
Bandwidth @ 1300 nm	>500 MHz*km	>500 MHz*km	>500 MHz*km	>500 MHz*km
Effective Modal Bandwidth (EMB)@ 850 nm	-	-	>2000 MHz*km	>47000 MHz*km
Fibre capacity 10GBase-SR	33m	83m	300m	550m
Fibre cap. 40GBase-SR4/100BaseRS10	274m	600m	1000m	1100m
Fibre cap. 40GBase-SR4/100BaseRS10	-	-	140m	170m
Proof test	>100kps	>100kps	>100kps	>100kps



Properties	SMR ITU-T G652D	SMR ITU-T G657A	SMR ITU-T G657B / - B2	SMR NZD ITU-T G655.E
Mode field Diameter @ 1310 nm	9,0±0,4 μm	9,0±0,4 μm	9,0±0,4 μm	-
Mode field Diameter @ 1550 nm	10,1±0,5μm	10,1±0,5μm	9,9±0,5μm	9,2±0,5μm
Cladding diameter	125±0,7μm	125±0,7μm	125±0,7μm	125±1,0μm
Coating diameter	242±7 μm	242±7 μm	242±7 μm	242±7 μm
Cladding non-circularity	≤ 0,7 %	≤ 0,7 %	≤ 0,7 %	≤ 0,7 %
Core/Cladding concentricity error	≤ 0,5 μm	≤ 0,5 μm	≤ 0,5 μm	≤ 0,5 μm
Coating/cladding concentricity error	≤ 12 μm	≤ 12 μm	≤ 12 μm	≤ 12 μm
Cable Cut off wavelength	≤ 1260 nm	≤ 1260 nm	≤ 1260 nm	≤ 1300 nm
Zero dispersion wavelength (λ ₀)	1300-1322 μm	1300-1322 μm	1300-1324 μm	1400 μm
Dispersion slope (S ₀) @ (λ ₀)	≤ 0,090 ps/(nm ² * km)	≤ 0,090 ps/(nm ² * km)	≤ 0,092 ps/(nm ² * km)	-
Chromatic dispersion @ 1285 – 1330 nm	≤ 3,5 ps/(nm * km)	≤ 3,5 ps/(nm * km)	-	-
Chromatic dispersion @ 1550 nm	≤ 18 ps/(nm * km)	≤ 18 ps/(nm * km)	-	-
Chromatic dispersion @ 1625 nm	≤ 22 ps/(nm * km)	≤ 22 ps/(nm * km)	-	-
Chromatic dispersion @ 1530 – 1565 nm	-	-	-	5,5 ÷ 10 ps/(nm * km)
Chromatic dispersion @ 1565 – 1625 nm	-	-	-	7,5 ÷ 13,8 ps/(nm * km)
PMD @ 1550 nm	≤ 0,1 ps/√ km	≤ 0,1 ps/√ km	≤ 0,1 ps/√ km	≤ 0,2 ps/√ km
Attenuation @ 1310 nm	≤ 0,35 dB/km	≤ 0,35 dB/km	≤ 0,35 dB/km	≤ 0,40 dB/km
Attenuation @ 1383nm	≤ 0,35 dB/km	≤ 0,35 dB/km	≤ 0,35 dB/km	≤ 1,00 dB/km
Attenuation @ 1550 nm	≤ 0,25 dB/km	≤ 0,25 dB/km	≤ 0,25 dB/km	≤ 0,25 dB/km
Attenuation @ 1625 nm	≤ 0,28 dB/km	≤ 0,28 dB/km	≤ 0,28 dB/km	≤ 0,28 dB/km
Attenuation with bending:				
Mandreal Radius 15mm @1550 10 turns	-	≤ 0,25 dB	≤ 0,03 dB	-
Mandreal Radius 15mm @1625 10 turns	-	≤ 1,0 dB	≤ 1,0 dB	-
Mandreal Radius 10mm @1550 1 turn	-	≤ 0,75 dB	≤ 0,1 dB	-
Mandreal Radius 10mm @1625 1 turn	-	≤ 1,5 dB	≤ 0,2 dB	-
Mandreal Radius 7,5mm @1550 1 turn	-	-	≤ 0,5dB	-
Mandreal Radius 7,5mm @1625 1 turn	-	-	≤ 0,1dB	-
Proof test	≥ 100 kpsi	≥ 100 kpsi	≥ 100 kpsi	≥ 100 kpsi



Updated

Date	Rev.	Description
01.03.2023	1	Colour code TIA 598
06.03.2023	2	Added 72 fiber