

QFCI Arctic Grade (QFCU)

G8 OM3 RS

G4 SMR ITU G657 B2 RS

Fire resistant, SHF2

RMRS

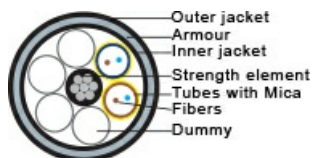
Application

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 1000°C which means that it can maintain vital communication in case of a fire situation. Operational in extreme low temperatures. 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 Arctic Grade SHF2 for extreme environments.



Construction Fiber

Fibertype	50/125, OM3 9/125, SMR ITU	
Colorcode fiber	- OM3 - 1 - blue 2 - orange 3 - green 4 - brown	- SMR ITUG 657 - 1 - blue 2 - orange
Fiber tube	Loose tube PBTP with jelly Ø = 2.2 [mm]	
Colorcode fiber tube	- OM3 - 1 - blue with 2 or 4 fibers 2 - orange with 2 or 4 fibers 3 to 6 are fillers	- SMR ITUG 657 - 1 - blue (2F) 2 - orange (2F)
Fire barrier	Mica tape	
Assembling	Galvanized steel rope + no. coloured loose stranded (SZ) + n filler + syntetic tape	
Inner jacket	Black SHF1 10 ± 0.3 [mm]	
Armour	Galvanized steel wire braid ≥ 80 % coverage	
Jacket	Black SHF2 UV-resistant halogen free crosslinked, UV-resistant	
Diameter	13.5 ± 0.3 [mm]	
Weight	250 [kg/km]	
Jacket marking	NEK Kabel – month/year – QFCI SHF2 Arctic Grade (G8-OM3 50/125) or (G4-SMRT ITU 9/125) – RS – ****M	





Specifications

Operating temperature normal	-45 – +85 [°C]
Temperature @ installation	-25 – +70 [°C]
Tensile strength	2000 [N] (IEC 60794-1-21-E1)
Crush test	3000 [N/10cm] (IEC 60794-1-21-E3)
Impact	30 [J Δα reversible] (IEC 60794-1-21-E4)
Torsion	±180° [pr. 1m 5 cycle] - (IEC 60794-1-21-E7)
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 60092-350
Flame resistance	IEC 60332-3-22
Flame retardant	IEC 60332-1-2
Cold bend and impact	Cold bend acc. to IEC 60092-350 Annex E Method No. 1 @ -55°C Cold impact acc. to IEC 60092-350 Annex E @ -55°C
Fire resistant	IEC 60331-25: @750°C 3H ≤1dB/fiber
Smoke emission	IEC 61034-2 ≥60%
Oil and fuel resistant	IEC 60811-404 IRM 902 100°C x 24h
UV-resistant	ASTM D 2565 92A
Certification	RS

Vibration & shock, solar and sea water resistance:
Russian Marine Register of Shipping Part IV Technical supervision during manufacturer of products.
Section 10 Ed. 2021

Part No.	G8 OM3 50/125: 6217013 G4 SMR ITU 9/125: 6217021
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Fiber data

Properties	MM 62.5 OM1	MM 50 OM2	MM 50 OM3	MM 50 OM4
Core Diameter	62.5 ± 2.5 µm	62.5 ± 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	< 6 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	> 4700 MHz*km
Fibre capacity 10GBase-SR	33 m	83 m	300 m	550 m
Fibre cap. 40GBase-SR4/100Base-RS10	274 m	600 m	1000 m	1100 m
Fibre cap. 40GBase-SR4/100Base-RS10	-	-	140 m	170 m
Proof test	> 100 kpsi	> 100 kpsi	> 100 kpsi	> 100 kpsi

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	8.6 ± 0.4 µm	8.6 ± 0.4 µm / 8.6 ± 0.4 µm	-
Mode field Diameter @ 1550 nm	10.1 ± 0.5 µm	10.1 ± 0.5 µm	9.9 ± 0.5 µm	9.2 ± 0.5 µm
Cladding diameter	125 ± 0.7 µm	125 ± 0.7 µm	125 ± 0.7 µm	125 ± 1.0 µm
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 %
Primary coating	-	250 ± 10 µm	250 ± 10 µm	-
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	1440 µm



Properties	SMR ITU-T G652D	SMR ITU-T G657A	SMR ITU-T G657B / -B2	SMR NZD ITU-T G655.E
Dispersion slope (S_0) @ (λ_0)	≤ 0.090 ps/(nm ² * km)	≤ 0.090 ps/(nm ² * km)	≤ 0.092 ps/(nm ² * km) / ≤ 0.090 ps/(nm ² * km)	-
Chromatic dispersion @ 1285- 1330nm	≤ 3.5 ps/(nm * km)	≤ 3.5 ps/(nm * km)	≤ 3.5 ps/(nm * km)	-
Chromatic dispersion @ 1550nm	≤ 18 ps / (nm * km)	≤ 18 ps / (nm * km)	≤ 18 ps/(nm * km)	-
Chromatic dispersion @ 1625nm	≤ 22 ps/(nm * km)	-	-	-
Chromatic dispersion @ 1530- 1565nm	-	-	-	$5.5 \div 10$ ps/(nm * km)
Chromatic dispersion @ 1565- 1625nm	-	-	-	$5,5 \div 10$ ps/(nm * km)
PMD @ 1550nm	≤ 0.1 ps/ $\sqrt{}$ km	≤ 0.1 ps/ $\sqrt{}$ km	≤ 0.1 ps/ $\sqrt{}$ km	≤ 0.2 ps/ $\sqrt{}$ km
Attenuation @ 1310nm	≤ 0.35 dB/km	≤ 0.35 dB/km	≤ 0.34 dB/km / ≤ 0.36 dB/km	≤ 0.40 dB/km
Attenuation @ 1383nm	≤ 0.35 dB/km	≤ 0.35 dB/km	≤ 0.36 dB/km / ≤ 0.36 dB/km	≤ 1.0 dB/km
Attenuation @ 1550nm	≤ 0.25 dB/km	≤ 0.20 dB/km	≤ 0.20 dB/km / ≤ 0.23 dB/km	≤ 0.25 dB/km
Attenuation @ 1625nm	≤ 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	-	≤ 0.03 dB	≤ 0.03 dB	-
Mandreal Radius 15mm @1625 10 turns	-	≤ 0.1 dB	≤ 0.1 dB	-
Mandreal Radius 10mm @1550 1 turn	-	≤ 0.1 dB	≤ 0.1 dB	-
Mandreal Radius 10mm @1625 1 turn	-	≤ 0.2 dB	≤ 0.2 dB	-
Mandreal Radius 7,5mm @1550 1 turn	-	≤ 0.5 dB	≤ 0.5 dB	-
Mandreal Radius 7,5mm @1625 1 turn	-	≤ 1.0 dB	≤ 1.0 dB	-
Proof test	≥ 100 kpsi	≥ 100 kpsi	≥ 100 kpsi	≥ 100 kpsi

Updated

Date	Rev.	Description
14.09.2022	1	Various changes