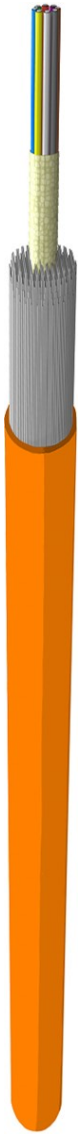
QFAI UNI SHF1

Fire resistant
4 – 24 fibres, loose tube
Nonmetallic
SHF1
DNV

Application

A robust fibre cable suited for harsh ship- and offshore environment. It has no metal content, which leaves it immune to electric and electromagnetic shockwaves. For LAN and WAN installations as well as telecommunication and data transmission on board. UV resistant and rodent protected, SHF1 outer jacket. Fire resistant; operational for 90 min. if exposed to fire.



Construction

Fibers	Loose tube Jelly filled PBTP tube 3,5 mm
Colour code	1- Natural 13- Turquoise 2- Red 14- Red (with black rings) 3- Green 15- Green (with black rings) 4- Yellow 16- Yellow (with black rings) 5- Brown 17- Brown (with black rings) 6- Blue 18- Blue (with black rings) 7- Violet 19- Violet (with black rings) 8- Orange 20- Orange (with black rings) 9- Grey 21- Grey (with black rings) 10- White 22- White (with black rings) 11- Black 23- Pink (with black rings) 12- Pink 24-Turquoise (with black rings)
Fire resistant barrier	Mica tape
Armour	Glass yarn
Jacket	Red or Orange SHF1
O.D.	9,5 ± 0,3 [mm]
Weight	95 [kg/km]

Specifications

Operating temperature normal	-40 – 70 [°C]
Temperature @ installation	-5 – +50 [°C]
Tensile strength	3200 [N] acc. to IEC 60794-1-2
Crush test	3200 [N/10cm] acc. to IEC 60794-1-2 (E3)
Impact	10 [J] acc. to IEC 60794-1-2 (E4)
Min. bending radius	10 [x outer diam] IEC 60794-1-2 E11A
Min. bending radius flexible	15 [x outer diam]

Norms

Halogenfree, max content corrosive and toxic gases	<0.3% when measured according to IEC 60754-1 & IEC 60754-2
Material properties, insulation and sheath	IEC 60092-360 (359)
Flame resistance	IEC 60332-3-22
Flame retardant	IEC 60332-1-2
Fire resistant	IEC 60331-25
Smoke emission	IEC 61034-1 & IEC 61034-2
Oil and fuel resistant	IEC 60811-404 IRM 902
Test and material	Circuit integrity test IEC 60331-11 / IEC 60331-25 (1000°C, 90 min.) max change of attenuation 2,0 dB
UV-resistant	ASTM-D-2565-16
Certification	DNV

RoHS

Specifications and properties for available fibre types can be found at nek-sealine.com under Multimode or Singlemode optical fibres.

Tips

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	>4700 MHz*km
Fibre capacity 10GBase-SR	33 m	83 m	300 m	550 m
Fibre capacity 10GBase-LX4	274 m	600 m	1000 m	1100 m
Fibre cap. 40GBase-SR4/100Base-RS10	-	-	140 m	170 m
Proof test	>100kpsi	>100kpsi	>100kpsi	>100kpsi

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	1440 µm
Dispersion slope (S_0) @ (λ_0)	≤ 0,090 ps/(nm² * km)	≤ 0,090 ps/(nm² * km)	≤ 0,092 ps/(nm² * 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	-	-	-	5,5 - 10 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	≤ 0,40 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	-	-	≤ 0,5 dB	-
Mandreal Radius 7,5mm @1625 1 turn	-	-	≤ 1,0 dB	-
Proof test	≥ 100 kpsi	≥ 100 kpsi	≥ 100 kpsi	≥ 100 kpsi

Table

Number of fibers	Weight [kg/km]	Part.no.
G4 50/125 SHF1 - OM4 - orange	95	1028778
G6 50/125 SHF1 - OM4 - orange	95	1028779
G8 50/125 SHF1 - OM4 - orange	95	1028780
G12 50/125 SHF1 - OM4 - orange	95	1028781
G24 50/12 SHF1 - OM4 - orange	105	1028782
G4 9/125 SHF1 - OS2 - red	95	1028783
G6 9/125 SHF1 - OS2 - orange	95	1028784
G8 9/125 SHF1 - OS2 - red	95	1028785
G8 9/125 SHF1 - OS2 - orange	95	1091127
G12 9/125 SHF1 - OS2 - red	95	1028786
G24 9/125 SHF1 - OS2 - orange	105	1028787
G4 50/125 SHF1 - OM2 - orange	95	1028788
G6 50/125 SHF1 - OM2 - orange	95	1028789
G8 50/125 SHF1 - OM2 - orange	95	1028790
G12 50/125 SHF1 - OM2 - orange	95	1028791
G24 50/125 SHF1 - OM2 - orange	105	1028792
G4 62,5/125 SHF1 - OM1 - red	95	1028793
G4 62,5/125 SHF1 - OM1 - orange	95	1091123
G6 62,5/125 SHF1 - OM1 - orange	95	1028794
G8 62,5/125 SHF1 - OM1 - orange	95	1028795
G12 62,5/125 SHF1 - OM1 - orange	95	1028796
G24 62,5/125 SHF1 - OM1 - orange	105	1028797
G4 50/125 SHF1 - OM3 - red	95	1091149
G6 50/125 SHF1 - OM3 - orange	95	1091148
G8 50/125 SHF1 - OM3 - orange	95	1091151
G12 50/125 SHF1 - OM3 - red	95	1028776
G12 50/125 SHF1 - OM3 - orange	95	1028771
G24 50/12 SHF1 - OM3 - red	105	1028777
G24 50/12 SHF1 - OM3 - orange	105	1028772

Updated

Date	Rev.	Description
6.12.2016	1	Construction
10.12.2016	2	Minor dimension change
28.11.2017	3	Jacket/drawing
06.02.2018	4	Colour code fibers
21.03.2018	5	Adding orange SM and dimensions
14.11.2018	6	dimensions, specs and colour
05.04.2019	7	Weight in table
16.03.2021	8	Norms