

Indoor Distribution Optical Cable

LSZH Jacket

Technical Specification

1. Application

When it is necessary to run a large number of fibres through a building, distribution cable is often used. Distribution cable consists of multiple tight-buffered fibres bundled in a jacket with a strength member. Typically, these cables may also form sub cables within a larger distribution cable.

2. OPTICAL FIBRE

The optical, geometrical and mechanical performance of the optical fibre shall be in accordance with Table

2.1 The properties of single mode fibre (G.652D)

Parameter	Specification
Optical Characteristics	
Attenuation coefficient @ 1310 nm @ 1383 nm @ 1550 nm @ 1625 nm	≤ 0.40 dB/km \leq @1310 nm dB/km loss↓ ≤ 0.30 dB/km ≤ 0.35 dB/km
Dispersion coefficient @ 1285 ~ 1330 nm @ 1550 nm	≤ 3.4 ps/(nm ² .km) ≤ 18.0 ps/(nm ² .km)
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	≤ 0.091 ps/(nm ² .km)
PMD Maximum Individual Fibre	≤ 0.2 ps/km ^{1/2}
Cable cut-off wavelength	≤ 1260 nm
Mode field diameter @ 1310 nm	9.2 ± 0.4 μ m
Geometrical Characteristics	
Cladding diameter	125.0 ± 1.0 μ m
Cladding non-circularity	≤ 1.0 %
Coating diameter	245 ± 7 μ m
Coating-Cladding concentricity error	≤ 12.0 μ m
Coating Non-circularity error	≤ 6.0 %
Core-Clad concentricity error	≤ 0.6 μ m
Curl (Radius)	≥ 4 m

Mechanical Specification	
Proof test level	≥100 kpsi
Micro-bend induced attenuation 1 turn around a mandrel of 32mm diameter 100 turns around a mandrel of 50mm diameter	≤0.05 dB at 1550 nm ≤0.05 dB at 1310 nm & 1550 nm &1625 nm

2.2 The properties of cabled multi mode fibre(OM3)

Parameter	Specification
Optical Characteristics	
Attenuation coefficient @ 850 nm @ 1300 nm	≤ 3.0 dB/km ≤ 1.0 dB/km
Bandwidth (B.W) @ 850 nm @ 1300 nm	≥ 1500 MHz.km ≥ 500 MHz.km
Effective Modal Bandwidth @850nm	≥ 2000 MHz.km
Application support distance on 10 Gigabit Ethernet S 850nm Gigabit Ethernet SX 850nm Gigabit Ethernet LX 1300nm 40 & 100 Gigabit Ethernet 850nm	300 m 1000 m 600 m 100 m
Numerical Aperture (NA)	0.200±0.015
Zero-dispersion wavelength	1295 ~ 1320 nm
Zero-dispersion slope 1300 ~ 1320 nm	≤ 0.11 ps/(nm ² .km)
Back scatter characteristics (@850 nm and 1300 nm)	
Step (mean of bidirectional measurement)	≤ 0.10 dB
Irregularities over fibre length	≤ 0.10 dB
Attenuation uniformity	≤ 0.08 dB/km
Geometrical characteristics	
Core diameter	50.0 ± 2.5 μm
Cladding diameter	125.0 ± 1.0 μm
Cladding non-circularity	≤ 5.0 %
Coating diameter	245 ± 10μm
Coating-Cladding concentricity error	≤ 12.0 μm
Coating Non-circularity error	≤ 6.0 %
Core-Clad concentricity error	≤ 1.0 μm
Proof test level	≥100 kpsi

Micro-bend induced attenuation 100 turns around a mandrel of 60 mm diameter	≤ 0.5 dB at 850 nm ≤ 0.5 dB at 1300 nm
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2.3 The properties of cabled multi mode fibre(OM4)

Parameter	Specification
Optical Characteristics	
Attenuation coefficient @ 850 nm @ 1300 nm	≤ 3.0 dB/km ≤ 1.0 dB/km
Bandwidth (B.W) @ 850 nm @ 1300 nm	≥ 3500 MHz.km ≥ 500 MHz.km
Effective Modal Bandwidth @850nm	≥ 4700 MHz.km
Application support distance on 10 Gigabit Ethernet S 850nm Gigabit Ethernet SX 850nm Gigabit Ethernet LX 1300nm 40 & 100 Gigabit Ethernet 850nm	550 m 1100 m 600 m 150 m
Numerical Aperture (NA)	0.200 ± 0.015
Zero-dispersion wavelength	1295 ~ 1320 nm
Zero-dispersion slope 1300 ~ 1320 nm	≤ 0.11 ps/(nm ² .km)
Back scatter characteristics (@850 nm and 1300 nm)	
Step (mean of bidirectional measurement)	≤ 0.10 dB
Irregularities over fibre length	≤ 0.10 dB
Attenuation uniformity	≤ 0.08 dB/km
Geometrical characteristics	
Core diameter	50.0 ± 2.5 μ m
Cladding diameter	125.0 ± 1.0 μ m
Cladding non-circularity	≤ 5.0 %
Coating diameter	245 ± 10 μ m
Coating-Cladding concentricity error	≤ 12.0 μ m
Coating Non-circularity error	≤ 6.0 %
Core-Clad concentricity error	≤ 1.0 μ m
Proof test level	≥ 100 kpsi
Micro-bend induced attenuation 100 turns around a mandrel of 60 mm diameter	≤ 0.5 dB at 850 nm ≤ 0.5 dB at 1300 nm

3. Construction

Structure	Material	Specifications
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Optical Fibre	Fibre	<ul style="list-style-type: none"> ●SMF: G652D, G657 A2 ●MMF: 50.0(OM3), 50.0(OM4) 	
Tight Buffer	Material	PVC, LSZH	
	Diameter	0.90 ± 0.05 mm	
	Color	●1C~12C : Blue, Orange, Green, Red, Yellow, Violet, Brown, Black, White, Gray, Aqua, Pink	
Outer jacket	Strength Member	Aramid yarns	
	Waterproof	Water blocking yarns	
	Jacket	Material	UV Stabilized LSZH
		Diameter	<ul style="list-style-type: none"> ●Diameter : 1.3 Reference ●Jacket thickness 1C~12C : 1.0 ± 0.3 mm
		Color	SM : Yellow, MM : Orange
Marking	Ink Jet	Black & White , 1m,	

4. Cable diameter & Tensile strength

Fibre Count	Outer Diameter (mm)	Weight (Nominal) (kg/km)	Max. Pulling Strength (N)	Remarks
1	3.0 ± 0.2	9.8	600	2km/drum
2	4.3 ± 0.2	18.5	600	2km/drum
4	4.7 ± 0.2	23	600	2km/drum
6	5.2 ± 0.3	28	600	2km/drum
12	6.2 ± 0.3	41	800	2km/drum
24	9.0 ± 0.5	79	1,200	1km/drum

5. Cable Property

5.1 Mechanical & Environmental properties

5.1.1 Cable bending radius: 10 x cable diameter (during operation)
15 x cable diameter (during installation)

5.1.2 Operating temperature range : -20°C to +60°C
Installation temperature range : -10°C to +60°C

5.2 Mechanical & Environmental requirements

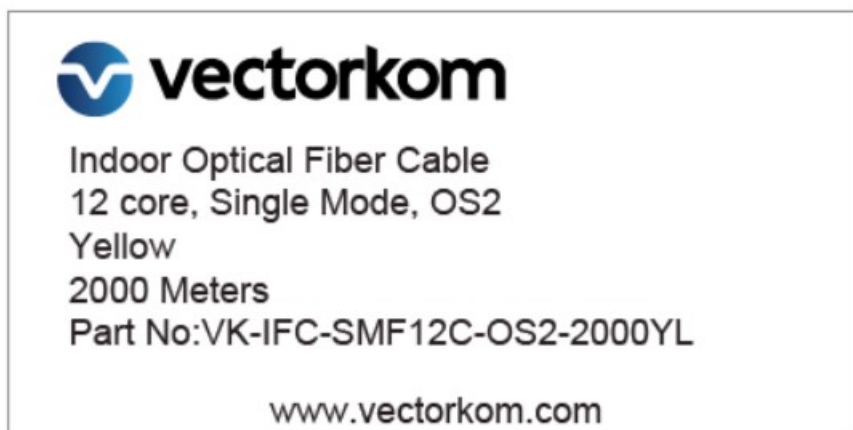
No	Item	Test Method	Specification
1	Tensile load IEC60794-1-E1	<ul style="list-style-type: none"> ● Load: Refer 4 ● Length: 100 m ● Time: 10 mins 	<ul style="list-style-type: none"> ● Loss change ≤ 0.2dB @1550 nm (SM) ≤ 0.3dB @1300 nm (MM)
2	Crush test IEC60794-1-E3	<ul style="list-style-type: none"> ● Load: 1,000 N ● plate : 100*100 ● Time: 5 mins. 	<ul style="list-style-type: none"> ● Loss change ≤ 0.2 dB @1550 nm (SM) ≤ 0.3 dB @1300 nm (MM)

3	Bending test IEC60794-1-E11A	<ul style="list-style-type: none"> ● Mandrel dia. 15 x cable diameter ● 6 turns 	<ul style="list-style-type: none"> ● Loss change ≤ 0.2 dB @1550 nm (SM) ≤ 0.3 dB @1300 nm (MM)
4	Impact test IEC60794-1-E4	<ul style="list-style-type: none"> ● Radius of impacted surface: 25 mm ● Impact load: 0.5 kg ● Falling height: 150mm ● Times: 10 	<ul style="list-style-type: none"> ● Loss change ≤ 0.2 dB @1550 nm (SM) ≤ 0.3 dB @1300 nm (MM)
5	Torsion IEC60794-1-E7	<ul style="list-style-type: none"> ● Length: 2 m ● Load: 50 N ● Twist angle: ±180° ● No. of cycle : 5 	<ul style="list-style-type: none"> ● Loss change ≤ 0.2 dB @1550 nm (SM) ≤ 0.3 dB @1300 nm (MM)
6	Temperature Cycling IEC60794-1-F1	<ul style="list-style-type: none"> ● Temperature cycle: 20C→-20C→+60C→-20C→+60C →20C ● Number of cycle: 1 ● Time per step: 8 hours 	<ul style="list-style-type: none"> ● Loss change ≤ 0.3 dB @1550 nm (SM) ≤ 0.6 dB @1300 nm (MM)

6. Cable Marking & Packing label

VECTORKOM INDOOR OPTICAL FIBER CABLE SMF OS2 12F LSZH YELLOW YYYY-XXXXM

The marking is printed every 1 meter, YYYY for year, XXXX for cable length in sequential number per meter.



Label size: 100x50MM

7. SAFETY

7.1 ROHS Directive

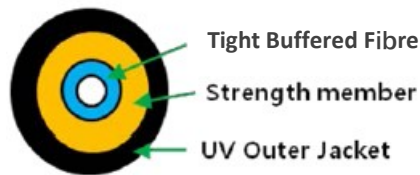
All cables and any associated packing and labeling materials shall meet RoHS (Restriction of the Use of certain Hazardous Substances) regulations as appropriate.

7.2 ISPM 15 Directive

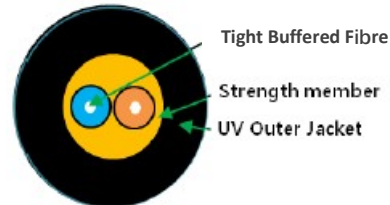
All wooden packing materials shall meet ISPM(International Standard for Phytosanitary Measures) regulations as appropriate

Cross-sectional Drawing of Cable

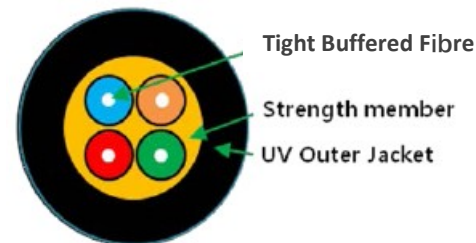
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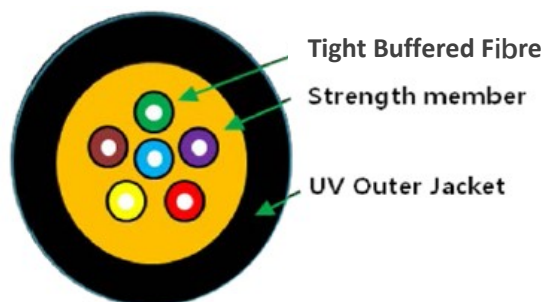
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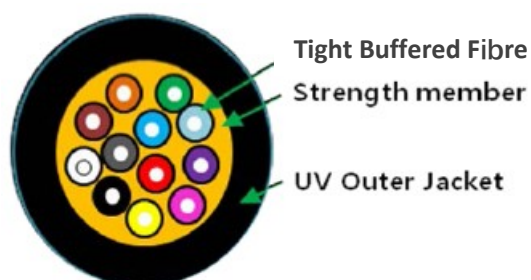
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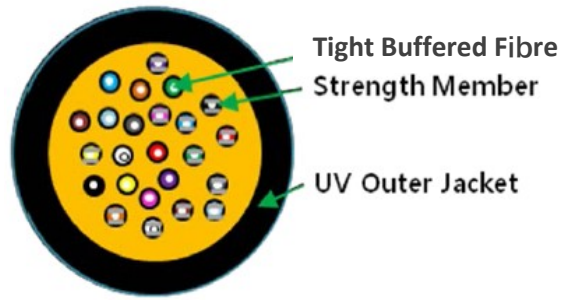
[6F]



[12F]



[24F]





Indoor Optical Fiber Cable
12 core, Single Mode, OS2
Yellow
2000 Meters
Part No:VK-IFC-SMF12C-OS2-2000YL

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PLYWOOD DRUM LABEL:100 X 50MM
WHITE GROUNDING COLOR PRINTING