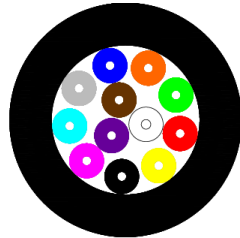


Indoor / Outdoor Light Duty Riser Optical Cable- Single Mode

DESCRIPTION

This semi-tight buffered multi-fibre optical cable is suitable for applications in local area network (LAN) including FDDI cabling, Ethernet and Token ring.



FEATURES

- Multi-fibre construction
- Secondary fibre protection (Semi-tight buffer): Low smoke and fumes zero halogen (LSZH) material
- Peripheral strength members: High modulus aramid yarns
- Longitudinal water tightness: Water swellable elements (dry-core technology)
- Sheath: UV stabilised low smoke and fumes zero halogen (LSZH) in compliance with AS 1049

STANDARDS

























- IEC/EN 60793-2-50 Category B-652.D
- ITU-T Recommendation G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO / IEC 11801: Category OS2 and OS1a

TECHNICAL DATA

Number of Fibres		4	6	8	12	24
Tight buffer diameter	µm	900 ± 50				
Cable nominal diameter	mm	4.8	4.8	5.4	6.2	8.8
Cable nominal weight	kg/km	20	22	26	33	61
Max. installation tension	N	600				1100
Max. crush resistance	N/100 mm	500 (Short-term) / 300 (Long-term)				
Min. bending radius	mm	At full load 20 x Cable OD At no load 10 x Cable OD				
Temperature range	°C	Installation 0 -> +50		Transport & Storage -10 -> +60		Operation -10 -> +70
#Footnote: Cable should be installed in an environment that is not permanently submerged in water.						

IDENTIFICATION

Fibre Colours (Buffered fibre)

No.	1	2	3	4	5	6	7	8	9	10	11	12
Colour	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua
												
No.	13	14	15	16	17	18	19	20	21	22	23	24
Colour	blue	orange	green	brown	grey	white	red	black	yellow	violet	pink	aqua
												

Sheath Colour:

The outer sheath colour is black.

Yellow or blue sheath are also available for single-mode fibres upon request.

Orange or aqua sheath are also available for multi-mode fibres upon request.

FLAME RESISTANCE

AS/NZS IEC 60332.1	Vertical flame propagation for single cable
AS/NZS IEC 60332.3.24	Vertical flame propagation for bunched cables – Category C

MAIN MECHANICAL CHARACTERISTICS

Parameter	Test method	Test conditions	Acceptance criteria*
Tensile strength	IEC 60794-1-21-E1	Load: As per cable maximum installation tension in technical data table above	Fibre strain $\leq 0.6\%$. No physical damage and no change in attenuation after test.
Crush	IEC 60794-1-21-E3	Load: As per maximum crush resistance in technical data table above Duration: 1 min (short-term) / 15 min (long-term)	No physical damage. No change in attenuation after test (short-term) or during test (long-term).
Impact	IEC 60794-1-21-E4	Impact energy: 1 J Anvil radius: 300 mm	No physical damage. No change in attenuation after test.
Torsion	IEC 60794-1-21-E7	Sample length: 1 m Rotation: +/-180 degree, 10 cycles	No physical damage. No change in attenuation after test.
Bend	IEC 60794-1-21-E11	Mandrel radius: As per Min. bending radius at no load in technical data table above No. of turns/helix: 6, No. of cycles: 10	No physical damage. No change in attenuation after test.
Bend under tension	Concurrent to tensile test	Mandrel radius: As per Min. bending radius at full load in technical data table above Bend: 360°, 1 turn	No physical damage. No change in attenuation after test.
Temperature cycling	IEC 60794-1-22-F1	Sample length: 1000 m (minimum) Temperature range: As per Operation temperature range in technical data table above	No change in attenuation between 10°C & 30°C. Max. change in attenuation $\leq 0.15\text{dB/km}$ between Min. & Max. operation temperatures.
Water penetration	IEC 60794-1-22-F5C	Sample length=3m, Water height=1m	No water leakage after 24 hours

* All optical measurements for singlemode fibres performed at 1550 nm.

CABLE PROPERTIES

Optical Properties

Attribute	Measurement	Units	Limits
Mode field diameter at 1310 nm	IEC/EN 60793-1-45	µm	9.0 ± 0.4
Mode field diameter at 1550 nm		µm	10.1 ± 0.5
Chromatic dispersion coefficient: In the interval 1285 nm – 1330 nm At 1550 nm At 1625 nm	IEC/EN 60793-1-42	ps/km • nm ps/km • nm ps/km • nm	≤ 3.5 ≤ 18 ≤ 22
Zero dispersion wavelength, λ ₀		nm	1302-1322
Zero dispersion slope		ps/(nm ² • km)	≤ 0.092
Cut-off wavelength	IEC/EN 60793-1-44	λ _{cc} nm	≤ 1260 *
Polarisation mode dispersion (PMD) coefficient	IEC/EN 60793-1-48	ps/√km	≤ 0.1
PMDQ Link Design Value (computed with Q=0.01%, N=20)	IEC/EN 60794-3	ps/√km	≤ 0.06
* guaranteed value according to ITU-T (ATM G650) method			

Attenuation

Attribute	Measurement	Units	Limits
Maximum attenuation cabled fibre at 1310 nm	IEC/EN 60793-1-40	dB/km	≤ 0.35
Maximum attenuation cabled fibre at 1383 nm**	IEC/EN 60793-1-40	dB/km	≤ 0.35
Maximum attenuation cabled fibre at 1550 nm	IEC/EN 60793-1-40	dB/km	≤ 0.21
Maximum attenuation cabled fibre at 1625 nm	IEC/EN 60793-1-40	dB/km	≤ 0.24
Local discontinuity at 1310 and 1550 nm	IEC/EN 60793-1-40	dB	± 0.1
** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383 nm			

Attenuation variation vs Bending

Attribute	Measurement	Units	Limits
100 Turns on a R = 25 mm mandrel @ 1310 & 1550 nm	IEC/EN 60793-1-47	dB	≤ 0.05
100 Turns on a R = 30 mm mandrel @ 1625 nm	IEC/EN 60793-1-47	dB	≤ 0.05

Group index of refraction

Attribute	Measurement	Units	Values
1310 nm	IEC/EN 60793-1-22	-	1.467
1550 nm	IEC/EN 60793-1-22	-	1.468
1625 nm	IEC/EN 60793-1-22	-	1.468

Rayleigh Backscatter coefficient (1ns pulse width)

Attribute	Measurement	Units	Values
1310 nm	-	dB	-79.4
1550 nm	-	dB	-81.7
1625 nm	-	dB	-82.5

Geometrical properties

Attribute	Measurement	Units	Limits
Cladding diameter	IEC/EN 60793-1-20	μm	125.0 ± 0.7
Cladding non-circularity	IEC/EN 60793-1-20	%	≤ 0.7
Core-cladding concentricity error	IEC/EN 60793-1-20	μm	≤ 0.5
Coating nominal diameter - ColorLockXS	IEC/EN 60793-1-21	μm	245
Coating non-circularity	IEC/EN 60793-1-21	%	≤ 5
Coating-cladding concentricity error	IEC/EN 60793-1-21	μm	≤ 12

Mechanical properties

Attribute	Measurement	Units	Limits
Proof stress level	IEC/EN 60793-1-30	GPa	≥ 0.7 (≈ 1 %)
Strip force (average)	IEC/EN 60793-1-32	N	1 ≤ Faverage.strip ≤ 3
Strip force (peak)	IEC/EN 60793-1-32	N	1.2 ≤ Fpeak.strip ≤ 8.9
Dynamic Fatigue Resistance aged and unaged	IEC/EN 60793-1-33	-	nd ≥ 20