



X Internal External Grade

X Corrugated Steel Tape Armour

X 25 Year System Warranty

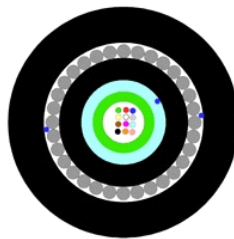
X Bend insensitive core construction

Features

- Internal External Grade
- Corrugated Steel Tape Armour
- 50/125 Multimode Fibre
- 6000/500MHz.km Bandwidth
- Bend insensitive core construction
- Sequentially Metre Marked
- 25 Year System Warranty
- LSOH Blue Sheath
- Duct Grade, Rodent Resistant

Product Overview

Excel corrugated steel tape (CST) armoured loose tube optical fibre cables have been designed specifically for applications requiring a high degree of mechanical protection. These compact, lightweight cables are extremely rugged, provide rodent resistance and are quick and easy to install. The fibre cores have a bend insensitive construction for improved performance. The cables are constructed around a gel filled (non-dripping and silicon free) tube containing up to 24 colour coded 250µm primary coated 50/125µm fibres. This cable construction is completed with a longitudinally applied corrugated steel tape and a flame retardant, low smoke zero halogen, outer sheath.



Performance Overview

Excel loose tube fibre optic cables are designed and manufactured to ensure that optimum performance is possible from installed fibre links. Support of protocols such as 10 Gigabit Ethernet over maximum distances - 550 metres is assured, due to improved bandwidth available as standard from Excel fibre cables. OM4 has been additionally developed to support the parallel optics applications 40 & 100 Gigabit Ethernet using parallel optics to 150m.

Cores Colours

1. Red	2. Green	3. Blue	4. Yellow
5. White	6. Grey	7. Brown	8. Violet
9. Turquoise	10. Black	11. Orange	12. Pink
13. Yellow with mark every 70 mm	14. White with mark every 70 mm	15. Grey with mark every 70 mm	16. Turquoise with mark every 70 mm
17. Orange with mark every 70 mm	18. Pink with mark every 70 mm	19. Yellow with mark every 35 mm	20. White with mark every 35 mm
21. Grey with mark every 35 mm	22. Turquoise with mark every 35 mm	23. Orange with mark every 35 mm	24. Pink with mark every 35 mm

Physical Properties

Property	Test method	Value	
Permanent tensile strength	IEC 60794-1 E1	500 N	
Dynamic tensile strength	IEC 60794-1 E1	1000 N	
Crush (compressive strength)	IEC 60794-1 E3	2000 N	
Torsion	IEC 60794-1 E7	5 cycles ± 1 turn	
Kink	IEC 60794-1 E10	The cables do not form a kink when a loop is drawn together to a diameter of 100 mm	
Temperature range	IEC 60794-1 F1	Operation	-40°C to +70°C
		Installation	-40°C to +70°C
		Storage	-40°C to +70°C
Max. attenuation variation in Operational Temperature range		0.2 dB/km	

Property	4-16 Cores	24 Core
Nominal diameter	8.5 mm	8.5 mm
Nominal cable weight	75 kg/km	85 kg/km
Minimum bend radius	55 mm	
Unloaded (IEC 60794-1 E11)		

Property		
Loose Tube	Ø 2.8 mm Jelly filled loose tube (≤ 16 fibres) Ø 3.5 mm Jelly filled loose tube (24 fibre)	
Strength member	Waterblocked E-Glass rovings	
Armouring	0.15 mm Corrugated Steel Tape	
Jacket	1.1 mm black, Halogen free, flame resistant thermoplastic sheathing compound acc. to EN 50290-2-27, UV stabilised	
Fire rating	IEC 60332-1-2	Single vertical wire test
	IEC 60754-1	No halogens
	IEC 60754-2	No acid matters
	IEC 61034-2	No dense smoke

Performance Properties

Cable attenuation	IEC 60793-1-40
Maximum attenuation value of cable at 850 nm	≤ 3.0 dB/km
Maximum attenuation value of cable at 1300 nm	≤ 1.0 dB/km
Attenuation limit according to IEC 60793-2-10 at 850 nm	≤ 2.5 dB/km
Attenuation limit according to IEC 60793-2-10 at 1300 nm	≤ 0.8 dB/km
Inhomogeneity of OTDR trace for any two 1000 metre fibre lengths	Max. 0.1 dB/km
Fibre bending loss R=7.5 mm 850/1300 nm	≤ 0.2 dB / ≤ 0.5 dB
Fibre bending loss R=15 mm 850/1300 nm	≤ 0.1 dB / ≤ 0.3 dB

Bandwidth	IEC 60793-1-41
Overfilled (OFL) modal bandwidth at 850 nm	≥ 3500 MHz.km
Overfilled (OFL) modal bandwidth at 1300 nm	≥ 500 MHz.km
Effective Modal Bandwidth (EMB) at 850 nm (assured by means of differential mode delay (DMD) measurement as specified in IEC 60793-1-49)	≥ 4700 MHz.km

Standards and Norms		
IEC 60793-2-10: type A1a.3 (in development)	EN 50173-1 category OM4	IEEE 802.3
EN 60793-2-10: type A1a.3 (in development)	ISO / IEC 11801 category OM4	TIA / EIA-492 AAAD

Property	Standard	Value
Core diameter	IEC / EN 60793-1-20	50.0 ± 2.0 µm
Core non-circularity	IEC / EN 60793-1-20	≤ 5 %
Cladding diameter	IEC / EN 60793-1-20	125.0 ± 1.0 µm
Cladding non-circularity	IEC / EN 60793-1-20	≤ 0.7 %
Core - cladding concentricity error	IEC / EN 60793-1-20	≤ 1.5 µm
Primary coating diameter - uncoloured	IEC / EN 60793-1-21	242 ± 5 µm
Primary coating diameter - coloured	IEC / EN 60793-1-21	250 ± 15 µm
Primary coating non-circularity	IEC / EN 60793-1-21	≤ 5 %
Primary coating - cladding concentricity error	IEC / EN 60793-1-21	≤ 6 µm
Group index of refraction:	IEC / EN 60793-1-22	
	at 850 nm	1.482
	at 1300 nm	1.477
Proof stress level	IEC / EN 60793-1-30	≥ 0.7 (≈ 1 % strain) Gpa
Typical average stripforce	IEC / EN 60793-1-32	1.7 N
Strip force (peak)	IEC / EN 60793-1-32	1.3 ≤ F _{peak.strip} ≤ 8.9 N
Numerical aperture	IEC / EN 60793-1-43	0.200 ± 0.015

Part Number Information

Part No.	Description
204-204	Internal/External Grade CST Armoured Fibre Cable 4 Core 50/125 OM4
204-206	Internal/External Grade CST Armoured Fibre Cable 6 Core 50/125 OM4
204-208	Internal/External Grade CST Armoured Fibre Cable 8 Core 50/125 OM4
204-212	Internal/External Grade CST Armoured Fibre Cable 12 Core 50/125 OM4
204-216	Internal/External Grade CST Armoured Fibre Cable 16 Core 50/125 OM4
204-224	Internal/External Grade CST Armoured Fibre Cable 24 Core 50/125 OM4

Typical Applications

- 100BASE-FX
- 100BASE-SR10
- 1062 Mbps Fibre Channel
- 1000BASE-SX
- 155 Mbps ATM
- FDDI
- 10GBASE-SR/SW
- 622 Mbps ATM
- 40GBASE-SR4
- 531 Mbps Fibre Channel

System Warranty

The Excel System Warranty provides a 25-year product and applications assurance of compliance with the industry performance standard appropriate to the class of cabling installed. The warranty may be applied for by an accredited Excel Partner who has designed, supplied and installed the said system.



axilan

c.so santorre di santarosa 36, cuneo, Cuneo, 12100, Italia

Tel: +390171692038

Email: info@axilan.it Web: www.axilan.it



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OPTICAL and COPPER WIRING

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www.excel-networking.com