



X 25 Year System Warranty

X Internal External Grade

X Sequentially Metre Marked

X Bend insensitive core construction

### Features

- 25 Year System Warranty
- Sequentially Metre Marked
- 50/125 Multimode Fibre
- 6000/500MHz.km Bandwidth
- Cut to length service
- Internal External Grade
- Bend insensitive core construction
- LSOH Black Sheath
- Duct Grade

### Product Overview

Excel loose tube optical fibre cables have been designed specifically for internal and external applications. These improved bend insensitivity, compact, lightweight cables are extremely flexible and quick and easy to install. 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. The outer jacket is Flame Retardant, Low Smoke Zero Halogen. In addition to the standard black jacket the 24 core cable is also available in yellow.



### 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 (no attenuation change, fibre strain less than ¼ of proof test level)
Short term tensile strength	IEC 60794-1 E1	750 N (fibre strain less than ½ of proof test level)
Maximum installation tensile strength	IEC 60794-1 E1	1000 N (fibre strain less than ½ of proof test level)
Impact	IEC 60794-1 E4	15 Nm (no attenuation change, no broken cable elements)
Crush (compressive strength)	IEC 60794-1 E3	1500 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 -30°C to +60°C Installation -30°C to +60°C Storage -40°C to +60°C
Water penetration	IEC 60794-1 F5B	No water on free end

Property	4-16 Cores	24 Core
Heat of combustion	630 MJ/km 0.18 KWh/m	800 MJ/km 0.22 KWh/m
Nominal diameter	6.0 mm	6.5 mm
Nominal cable weight	40 kg/km	45 kg/km
Minimum bend radius	Unloaded (IEC 60794-1 E11) Loaded	60 mm 100 mm

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	
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 IEC 60754-1 IEC 60754-2 IEC 61034-2	Single vertical wire test No halogens No acid matters 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 <sub>peak.strip</sub> ≤ 8.9 N
Numerical aperture	IEC / EN 60793-1-43	0.200 ± 0.015

### 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

### Part Number Information - Black Cable

Part No.	Description
204-004	Internal/External Grade Loose Tube Fibre Cable 4 Core 50/125 OM4
204-006	Internal/External Grade Loose Tube Fibre Cable 6 Core 50/125 OM4
204-008	Internal/External Grade Loose Tube Fibre Cable 8 Core 50/125 OM4
204-012	Internal/External Grade Loose Tube Fibre Cable 12 Core 50/125 OM4
204-016	Internal/External Grade Loose Tube Fibre Cable 16 Core 50/125 OM4
204-024	Internal/External Grade Loose Tube Fibre Cable 24 Core 50/125 OM4

### Part Number Information - Yellow Cable

Part No.	Description
204-024-YW	Internal/External Grade Loose Tube Fibre Cable 24 Core 50/125 OM4 - Yellow

### 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.



Excel is a world-class premium performing end-to-end infrastructure solution - designed, manufactured, supported and delivered - without compromise.

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