GIGANET FIBRE OPTIC CABLING SYSTEM
Single Mode and Multi Mode Fibre Cable

Our comprehensive range of fibre optic cabling provides high-speed, reliable data connection over long distances. In addition to the full range of fibre-optic test gear and networking accessories we stock an extensive range of fibre optic patch leads and pigtails in a number of fibres, lengths, colours & termination types. Our Fibre Cable is available in Tight buffered and Loose Tube configuration in core sizes from 4-24. We have both standard internal external plus armoured and steel wire armoured which is suitable for installation in harsh environments. We can supply leads in any length and configuration including ST, SC & LC.

GIGANET 9/125µm OS2 Singlemode Fibre Cable

Giganet's low water peak dispersion unshifted singlemode fibre is designed specially for optical transmission systems operating over the entire wavelength window from 1260nm to 1625nm. By suppressing the water peak that occurs near 1385nm in conventional single mode fibre due to hydroxyl (OH) ions absorption, The fibre is able to open E-band (1360-1460nm) for operation, and consequently provides 100nm more usable wavelengths. It is comprehensively optimized for attenuation and dispersion performance across the entire wavelength window from 1260nm up to 1625nm and upgraded for macro-bending performance in L-band (1565-1625nm). The fibre is fully satisfying the demand for transmitting multi-channel high-speed services over one single fibre.

Features and Characteristics:

- Designed for operation over the full optical spectrum from 1260-1625nm, which provides 50% more usable wavelengths and hence the transmission capacity is increased
- Outstanding optical performance supporting highspeed transmission technologies such as DWDM and CWDM
- Being compatible with existing 1310nm equipment
- Good protection and excellent strip force stability
- Accurate geometrical parameters that insure low splicing loss and high splicing efficiency

Application:

- Supports various applications such as Ethernet, Internet Protocol (IP), Asychronous Transfer Mode (ATM), Synchronous Optical Network (SONET) and Wavelength Division Multiplexing (WDM)
- It provides more bandwidth for backbone, metropolitan area and access networks.
- The fibre enables bandwidth demanding of multi-service like voice, digital and image transmission
- It is applicable in all cable types including ribbon cable, loose tube stranded cable, slotted core cable, unitube cable and tight-buffer cable
- The fibre complies with or exceeds the ITU-T Recommendation G.652.D and the IEC 60793-2-50 type B1.3 Optical Fibre Specification

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GIGANET 9/125µm OS2 Singlemode Fibre Cable Product Specification Table

Characteristics	Conditions	Specified Values	Units
Optical Characteristics			
Attenuation	1310 nm 1383 nm 1550 nm 1625 nm	≤0.34 ≤0.34 ≤0.20 ≤0.24	[dB/km] [dB/km] [dB/km] [dB/km]
Attenuation vs. Wavelength Max. *a* difference	1285-1330 nm 1525-1575 nm	≤0.03 ≤0.02	[dB/km] [dB/km]
Dispersion coefficient	1285-1340 nm 1550 nm 1625 nm	≥-3.4 ≤3.4 ≤18 ≤22	[ps/(nm • km)] [ps/(nm • km)] [ps/(nm • km)]
Zero dispersion wavelength		1312± 12	[nm]
Zero dispersion slope Typical value		≤0.091 0.086	[ps/(nm² • km)] [ps/(nm² • km)]
PMD Maximum Individual Fibre Link Design Value (M=20, Q=0.01%) Typical value		 ≤0.2 ≤0.1 0.04	 [ps / √km] [ps / √km] [ps / √km]
Cable cutoff wavelength λ_{cc}		≤1260	[nm]
Mode field diameter (MFD)	1310 nm 1550 nm	8.8 ~ 9.6 9.9 ~ 10.9	[µm] [µm]
Effective group index of refraction (N_{eff})	1310 nm 1550 nm	1.466 1.467	
Point discontinuities	1310 nm 1550 nm	≤0.05 ≤0.05	[dB] [dB]
Geometrical Characteristics			
Cladding diameter		125.0 ± 1.0	[µm]
Cladding non-circularity		≤1.0	[%]
Coating diameter		245±7	[µm]
Coating-cladding concentricity error		≤12.0	[µm]
Coating non-circularity		≤6.0	[%]
Core-cladding concentricity error		≤0.6	[µm]
Curl (radius)		≥4	[m]
Delivery length		2.1 to 50.4	[km/reel]
Environmental Characteristics	(1310 nm, 1550 nm & 1625 nm)		
Temperature dependence Induced attenuation at	-60°C to +85°C	≤0.05	[dB/km]
Temperature-humidity cycling Induced attenuation at	-10°C to +85°C, 98% RH	≤0.05	[dB/km]
Water soak dependence Induced attenuation at	23°C, for 30 days	≤0.05	[dB/km]
Damp heat dependence Induced attenuation at	85°C and 85% RH, for 30 days	≤0.05	[dB/km]
Dry heat aging at	85°C	≤0.05	[dB/km]
Mechanical Specification			
Proof test	off line	≥9.0 ≥1.0 ≥100	[N] [%] [kpsi]
Macro-bend induced attenuation 1 tum around a mandrel of 32 mm diameter 100 turns around a mandrel of 50 mm diameter 100 turns around a mandrel of 60 mm diameter	 1550 nm 1310 nm & 1550 nm 1625 nm	 ≤0.05 ≤0.05 ≤0.05	 [dB] [dB] [dB]
Coating strip force	typical average force peak force	1.7 ≥1.3 ≤8.9	[N] [N]
Dynamic stress corrosion susceptibility parameter n_d		≥20	

FIBRE OPTIC CABLING SYSTEM
Giganet Multimode Fibre Cable

The Giganet fibre cable is perfectly suited for 10 Gigabit Ethernet (10G/OM3) campus and backbone applications. The loose tube cable is gel filled & covered in aramid strength members and a flame retardant LSOH, outer black sheath. The Tight buffered cable is constructed of colour coded 900µm fibres enclosed by aramid strength members, and a flame retardant LSOH outer jacket.

GIGANET 50/125µm **OM3 / OM4 Multimode Fibre Cable** Standards

Giganet's OM3/OM4 - Multimode Fibres comply with or exceed ISO/IEC 11801 OM3/OM4 specification, IEC 60793-2-10 typeA1a.2 andA1a.3 (in preparation) Optical Fibre Specification, and TIA/EIA-492AAAC/492AAAD detail specification.

Features:

- Very low macro-bending sensitivity
- The fibre can be installed in loops as small as 7.5mm radius with less than 0.2dB bending loss at both 850nm and 1300nm
- Low micro-bending sensitivity
- Maintaining compatibility with current OM3/0M4 multimode optical fibre
- Specially designed for IOGb/s Ethernet applications using low cost 850nm VCSELs
- Supporting 40 & 100 Gb/s applications
- Low differential mode delay (DMO)
- Low attenuation
- Coated with YOFC's proprietary dual layer UV curable acrylate

Benefits & Applications:

- The fibre is easier to handle and install without excessive care when storing the fibre, for example, in splicing cassettes
- Supports installation with small cable bend radii and compact organizers
- Facilitates jumper moves, adds and changes
- Central offices
- Data centers
- High performance computing centers
- Local Area Networks
- Storage Area Networks
- 1 & 10 & 40 & 100 Gb/s Ethernet
- Optimized performance in tight-buffer cable applications
- High resistance to microbending
- Stable performance over a wide range of environmental conditions
- High power signal transmission capability retaining entire power without loss
- High bandwidth and real-time data transfer at extremely fast rates
- Provides high security making it extremely tough to break into optical networks
- Support of multiple protocols
- Can act as the backbone for wired communication requirements with high performance

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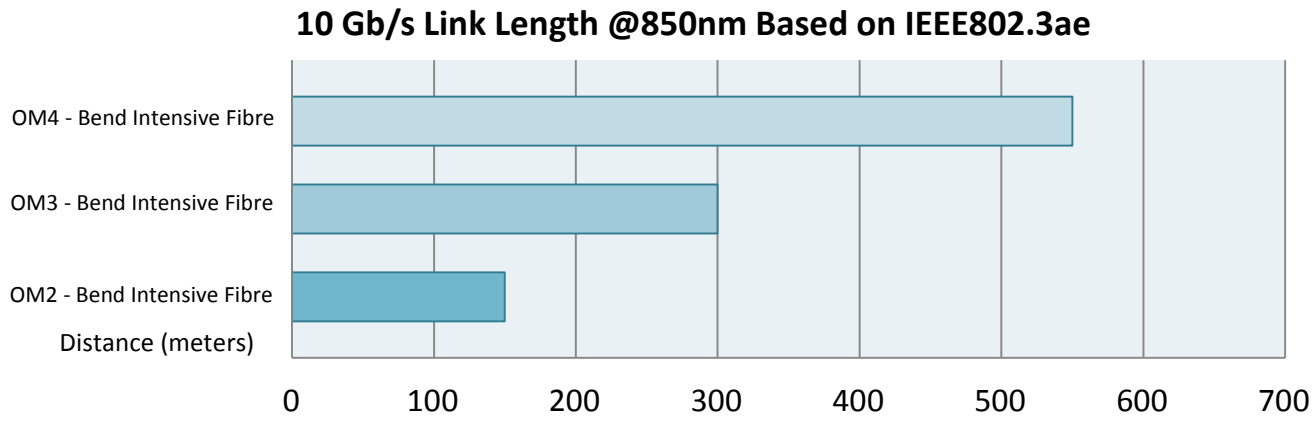
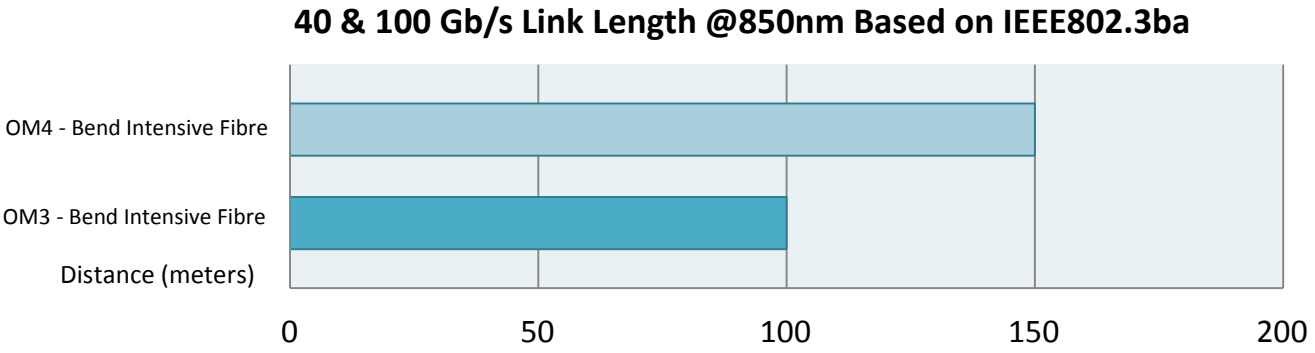
SYSTEM LINK LENGTH





GIGANET 50/125µm OM3/OM4 Multimode Fibre Cable Product Specification Table

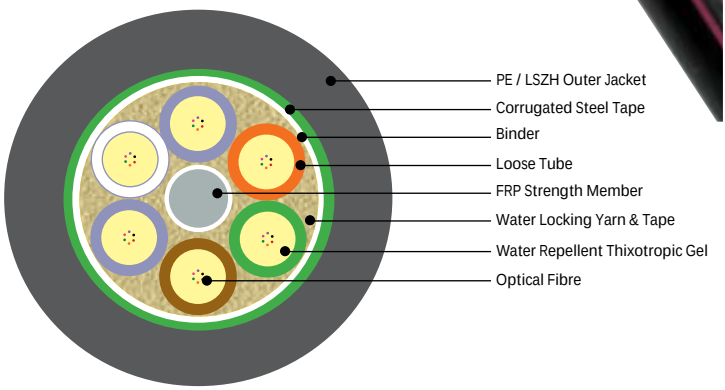
Geometrical Characteristics				
Core Diameter (µm)		50±2.5		
Core Non-Circularity (%)		≤5.0		
Cladding Diameter (µm)		125±1.0		
Cladding Non-Circularity (%)		≤1.0		
Coating Diameter (µm)		245±7		
Coating/Cladding Concentricity Error(µm)		≤12.0		
Coating Non-Circularity (%)		≤6.0		
Core/Cladding Concentricity Error(µm)		≤1.0		
Delivery Length (km/reel)		Up to 8.8		
Optical Characteristics				
Attenuation (dB/km)	850nm 1300nm	≤2.3 ≤0.6		
		OM3+	**OM4+**	
OFL Bandwidth (MHz.km)	850nm	≥1500	≥3500	
	1300nm	≥500	≥500	
Effective Modal Bandwidth @850nm (MHz.km)		≥2000	≥4700	
Application support distance on				
10 Gigabit Ethernet SX 850nm (m)		300	550	
Gigabit Ethernet SX 850nm (m)		1000	1100	
Gigabit Ethernet LX 1300nm (m)		600	600	
40 & 100 Gigabit Ethernet 850nm (m)		100	150	
DMD Specification		See Note 1		
Numerical Aperture		0.200±0.015		
Group Refractive Index	850nm	1.482		
	1300nm	1.477		
Zero Dispersion Wavelength (nm)		1295-1320		
Zero Dispersion Slope (ps/(nm²,km))	1295-1300nm	≤0.001*(λ-1190)		
	1300-1320nm	≤0.11		
Macrobending induced loss			@ 1300nm	
2 turns @15 mm radius			≤0.3	
2 turns @7.5 mm radius			≤0.5	
Backscatter Characteristics (1300nm)				
Step (Mean of bidirectional measurement) (dB)				
Irregularities over fibre length and point discontinuity (dB)		≤0.10		
Attenuation uniformity (dB/km)		≤0.08		
Environmental Characteristics (850nm & 1300nm)				
Temperature dependence induced attenuation at -60°C to +85°C (dB/km)		≤0.10		
Temperature-humidity cycling induced attenuation at -10°C to +85°C, 98% RH (dB/km)		≤0.10		
Watersoak dependence induced attenuation at 23°C for 30 days (dB/km)		≤0.10		
Damp heat dependence induced attenuation at 85°C and 85% RH, for 30days (dB/km)		≤0.10		
Dry heat aging at 85°C (dB/km)		≤0.10		
Mechanical Specification				
Proof test	(N)	≥9.0		
	(%)	≥1.0		
	(kpsl)	≥100		
Coating strip force (N)	typical average force	1.5		
	peak force	≥1.3 ≤8.9		
Dynamic stress corrosion susceptibility	parameter nd	≥27		

1. DMD specifications are compliant with and more stringent than the requirements of IEC 60793-2-10 (type A1a.2 for OM3 and type A1a.3 for OM4 [under development]) and TIA-492AAAC (OM3) and 492AAAD (OM4).

GIGANET FIBRE OPTIC CABLING SYSTEM

Giganet Loose Tube (LT)Corrugated Steel Tape (CST) Armoured Cable

The Giganet Loose Tube (LT) optical fibre cables with corrugated steel tape (CST) have been designed and manufactured for harsh rugged outdoor environments. The CST armor is bonded to the outer sheath and protects the cables from rodents and can be used as direct burial. The loose tubes are filled with gel which allows the flexibility and protection when pulling the cable and enables easier and faster installation on site. The water blocking E-glass strength members surrounds the tube and the CST is longitudinally applied. The CST armored cable is suitable for outdoor Campus and building Backbones. All cables designed are designed to IEC 11801 standards. The cable can contain 24 colour coded fibres in un-stranded form and are available in OS2,OM3 and OM4 variants.The cable outer sheath is flame retardant LSOH.



CABLE CHARACTERISTICS

250µm colour-coded optical fibre
Gel filled loose-tubes for fibre lubrication and water repelling properties
FRP Central strength member
Corrugated Steel Tape for superior protection

CABLE FEATURES

Choice of fibre type
Choice of colour coded fibres
High strength aramid-yarn strength member
Choice of outer jacket material and colour
OS2, OM3,OM4
Able to withstand impacts and high pressure

CABLE APPLICATIONS

External duct and direct burial applications
Harsh environments where impact and crush protection is demanded
Ideal for water crossings i.e. rivers and lakes

FIRE RETARDANT · WATER RESISTANT · EXTERNAL CABLE · RODENT RESISTANT · CRUSH RESISTANT

ENVIRONMENTAL CHARACTERISTICS

Operate temperature range: -20 to +60°C

Storage temperature range: -20 to +60°C

Compliant with RoHS standards

GIGANET 25 Year System Warranty

PRODUCT INFORMATION

Part Number	Product Description
GN-SM-OS2-LT-CST-(ZZ)C	Giganet Single Mode OS2 9/125 Loose Tube CST Armoured Fibre Optic Cable
GN-MM-OM3-LT-CST-(ZZ)C	Giganet Muiti Mode OM3 50/125 Loose Tube CST Armoured Fibre Optic Cable
GN-MM-OM4-LT-CST-(ZZ)C	Giganet Muiti Mode OM4 50/125 Loose Tube CST Armoured Fibre Optic Cable

Where:

ZZ = 04,08,12,16,24 & 48 Core

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Performance Overview

Giganet corrugated steel tape (CST) armoured loose tube fibre optic cables are designed and manufactured ensure that optimum performance is possible from installed fibre links. Support of protocols such as 10 Gigabit Ethernet over maximum distances – 300 metres is assured, due to improved bandwidth available as standard from Giganet fibre cables..

Optical Performance	
Modal-Field Diameter	50 ± 2.5 µm
	125 ± 1 µm
Numerical Aperture	0.20 ± 0.015 µm

	850 nm	1300 nm
Average Attenuation	2.5 dB/km	0.5 dB/km
Maximum Attenuation	3.0 dB/km	1.0 dB/km
Bandwidth	≥1500 MHz.km	≥500 MHz.km
Ethernet Performance		
Gigabit	900 m	550 m
10 Gigabit	300 m	n/a
Refractive Index (n)	1.482	1.477

Fibre Colours

1-12 plain colours

1. Blue	2. Orange	3. Green	4. Brown
5. Natural	6. White	7. Red	8. Black
9. Yellow	10. Violet	11. Pink	12. Turquoise

Loose Tube CST Cable		
Nominal and Maximum Outside Diameter	10.6 / 10.9 mm 4	
Loose Tube Diameter	mm	
Energy of flame	1308 kJ/m	
Weight	148 kg/km Ø1000 x	
Reel Size	588 mm 2100 ±	
Standard delivery length	100 m IEC	
Temperature range	60794-1-2-F1	
Transport / Storage		-30 to +70°C
Installation		-5 to +50°C
Operation		-30 to +70°C
Pulling tension Long term Short term	IEC 60794-1-2-E1	≤ 2000 N ≤ 4000 N
Bending radii cable for fibres and tubes	>25 mm	
Installation/operation		
Watertightness	IEC 60794-1-2-F5	Yes
Bending radii cable	IEC 60794-1-2-E11	10 x Ø
Long term	IEC 60794-1-2-E6	20 x Ø
Short term		
Flame retardancy	IEC 60332-3C (EN	Pass
	50266-2-4) IEC 60331-25	Pass
	(EN 50200) IEC 61034 (EN	Pass
Halogen-free Corrosivity	50268-2) IEC 60754-2 (EN	pH ≥ 3.5 - µS/cm ≤ 100
Construction	50267-2-2) IEC 60794	
Direct Burial Installation Crush	≤ 400 N/cm	

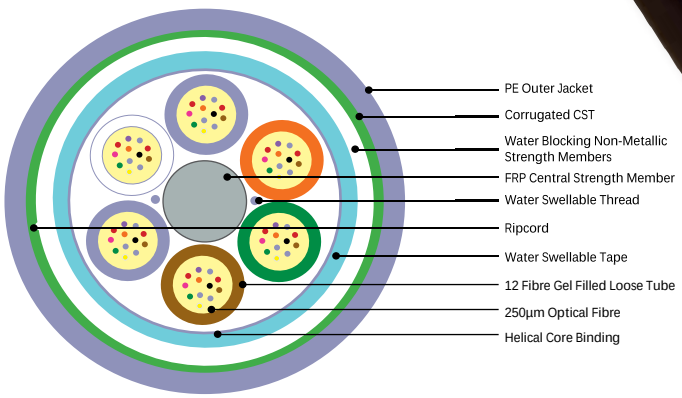
Typical Applications

- 100BASE-FX
- 1000BASE-SX
- 1000BASE-LX
- 10GBASE-SR/SW
- FDDI
- 622 Mbps ATM
- 531 Mbps Fibre Channel
- 1062 Mbps Fibre Channel

GIGANET FIBRE OPTIC CABLING SYSTEM

Giganet Loose Tube (LT)Steel Wired Armoured (SWA) Cable

The Giganet Loose Tube (LT) optical fibre cables with Steel Wired Armor (SWA) have been designed and manufactured for harsh rugged outdoor environments. The SWA enables direct burial of the cable and the steel wire protects the inside cores from any damage from external crush and impact. The loose tubes are filled with gel which allows the flexibility and protection when pulling the cable and enables easier and faster installation on site. The SWA armored cable is suitable for outdoor Campus and building Backbones. All cables designed are designed to IEC 11801 standards. The cable can contain 24 colour coded fibres in un-stranded form and are available in OS2,OM3 and OM4 variants. The cable outer sheath is flame retardant LSOH.



FIRE RETARDANT | WATER RESISTANT | EXTERNAL CABLE | RODENT RESISTANT | CRUSH RESISTANT

CABLE CHARACTERISTICS

250 µm optical fibres
Gel filled loose tube with longitudinally applied water swellable tape
Corrugated Steel Tape (CST) armouring
LSZH or PE jacket with radially opposed steel wire strength members.

CABLE FEATURES

Choice of fibre type
Choice of colour coded fibres
CST armouring for enhanced impact and crush resistance
Compact 250 µm loose tube construction
Flame retardant LSZH jacket for enhanced fire performance or PE jacket for environmental protection and water permeation resistance

CABLE APPLICATIONS

Suitable for internal/external duct and direct burial applications
Suitable for environments where impact protection is required
Ideal for intra building links in campus environments

ENVIRONMENTAL CHARACTERISTICS

Operate temperature range: -20 to +60°C

Storage temperature range: -20 to +60°C

Compliant with RoHS standards

GIGANET 25 Year System Warranty

PRODUCT INFORMATION

Part Number	Product Description
GN-SM-OS2-LT-SWA-(ZZ)C	Giganet Single Mode OS2 9/125 Loose Tube SWA Armoured Fibre Optic Cable
GN-MM-OM3-LT-SWA-(ZZ)C	Giganet Multi Mode OM3 50/125 Loose Tube SWA Armoured Fibre Optic Cable
GN-MM-OM4-LT-SWA-(ZZ)C	Giganet Multi Mode OM4 50/125 Loose Tube SWA Armoured Fibre Optic Cable

Where:

ZZ = 04,08,12,16,24 & 48 Core

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Performance Overview

The Giganet Loose Tube (LT) optical fibre cables with Steel Wired Armor (SWA) have been designed and manufactured for harsh rugged outdoor environments and ensure that optimum performance is possible from installed fibre links. Support of protocols such as 10 Gigabit Ethernet over maximum distances – 300 metres is assured, due to improved bandwidth available as standard from Giganet fibre cables.

Optical Performance

Modal-Field Diameter	50 ± 2.5 µm 125 ± 1 µm
Numerical Aperture	0.20 ± 0.015 µm

	850 nm	1300 nm
Average Attenuation	2.5 dB/km	0.5 dB/km
Maximum Attenuation	3.0 dB/km	1.0 dB/km
Bandwidth	≥1500 MHz.km	≥500 MHz.km
Ethernet Performance		
Gigabit	900 m	550 m
10 Gigabit	300 m	n/a
Refractive Index (n)	1.482	1.477

Fibre Colours

Cores 1-12 plain colours

1. Blue	2. Orange	3. Green	4. Brown
5. Natural	6. White	7. Red	8. Black
9. Yellow	10. Violet	11. Pink	12. Turquoise

Loose Tube CST Cable		
Nominal and Maximum Outside Diameter	10.6 / 10.9 mm 4	
Loose Tube Diameter	mm	
Energy of flame	1308 kJ/m	
Weight	148 kg/km Ø1000 x	
Reel Size	588 mm 2100 ±	
Standard delivery length	100 m IEC	
Temperature range	60794-1-2-F1	
Transport / Storage		-30 to +70°C
Installation		-5 to +50°C
Operation		-30 to +70°C
Pulling tension Long term Short term	IEC 60794-1-2-E1	≤ 2000 N ≤ 4000 N
Bending radii cable for fibres and tubes	>25 mm	
Installation/operation		
Watertightness	IEC 60794-1-2-F5	Yes
Bending radii cable	IEC 60794-1-2-E11	10 x Ø
Long term	IEC 60794-1-2-E6	20 x Ø
Short term		
Flame retardancy	IEC 60332-3C (EN	Pass
	50266-2-4) IEC 60331-25	Pass
	(EN 50200) IEC 61034 (EN	Pass
Halogen-free Corrosivity	50268-2) IEC 60754-2 (EN	pH ≥ 3.5 - µS/cm ≤ 100
Construction	50267-2-2) IEC 60794	
Direct Burial Installation Crush	≤ 400 N/cm	

Typical Applications

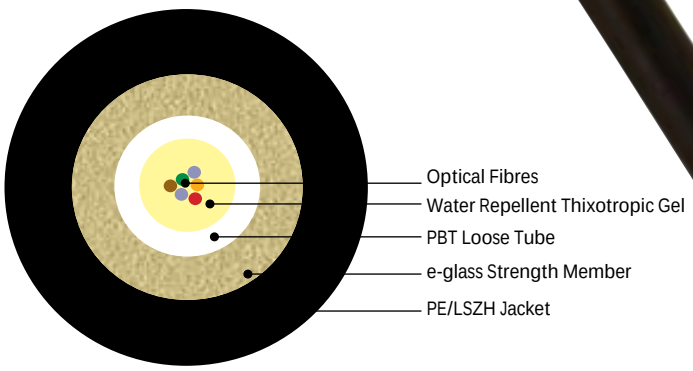
- 100BASE-FX
- 1000BASE-SX
- 1000BASE-LX
- 10GBASE-SR/SW
- FDDI
- 622 Mbps ATM
- 531 Mbps Fibre Channel
- 1062 Mbps Fibre Channel

GIGANET FIBRE OPTIC CABLING SYSTEM
Giganet Loose-tube(LT)4-144 Core Cable

The Giganet Loose Tube (LT) optical fibre cables have been designed and manufactured for both indoor and outdoor environments. The loose tubes are filled with gel which allows the flexibility and protection when pulling the cable and enables easier and faster installation on site. All cables designed to IEC 11801. The cable can contain 24 colour coded fibres in un-stranded form and are available in OS2,OM3 and OM4. The cable outer sheath is flame retardant LSOH.

CABLE CHARACTERISTICS
250µm colour-coded optical fibre
Gel filled loose-tubes for fibre lubrication and water repelling properties
FRP Central strength member

CABLE FEATURES
Choice of fibre type
Choice of color coded fibres
High strength aramid-yarn strength member
Choice of outer jacket material and colour
OS2,OM3 and OM4



CABLE APPLICATIONS
Ideal for internal/external duct applications
Suitable for one or both end pre-termination

ENVIRONMENTAL CHARACTERISTICS

Operate temperature range: -20 to +60°C

Storage temperature range: -20 to +60°C

Compliant with RoHS standards

GIGANET 25 Year System Warranty

PRODUCT INFORMATION

Part Number	Product Description
GN-SM-OS2-LT-(ZZ)C	Giganet Single Mode OS2 9/125 Indoor/Outdoor Loose Tube Fibre Optic Cable
GN-MM-OM3-LT-(ZZ)C	Giganet Multi Mode OM3 50/125 Indoor/Outdoor Loose Tube Fibre Optic Cable
GN-MM-OM4-LT-(ZZ)C	Giganet Multi Mode OM4 50/125 Indoor/Outdoor Loose Tube Fibre Optic Cable

Where:

ZZ = 04,08,12,16,24 & 48 Core

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Performance Overview

Giganet loose tube fibre optic cables are designed and manufactured ensure that optimum performance is possible from installed fibre links. Support of protocols such as 10 Gigabit Ethernet over maximum distances – 300 metres is assured, due to improved bandwidth available as standard from Giganet fibre cables.

Optical Performance	
Modal-Field Diameter	50 ± 2.5 µm
	125 ± 1 µm
Numerical Aperture	0.20 ± 0.015 µm

	850 nm	1300 nm
Average Attenuation	2.5 dB/km	0.5 dB/km
Maximum Attenuation	3.0 dB/km	1.0 dB/km
Bandwidth	≥1500 MHz.km	≥500 MHz.km
Ethernet Performance		
Gigabit	900 m	550 m
10 Gigabit	300 m	n/a
Refractive Index (n)	1.482	1.477

Fibre Colours

Cores 1-12 plain colours

1. Blue	2. Orange	3. Green	4. Brown
5. Natural	6. White	7. Red	8. Black
9. Yellow	10. Violet	11. Pink	12. Turquoise

Loose Tube CST Cable		
Nominal and Maximum Outside Diameter	10.6 / 10.9 mm 4	
Loose Tube Diameter	mm	
Energy of flame	1308 kJ/m	
Weight	148 kg/km Ø1000 x	
Reel Size	588 mm 2100 ±	
Standard delivery length	100 m IEC	
Temperature range	60794-1-2-F1	
Transport / Storage		-30 to +70°C
Installation		-5 to +50°C
Operation		-30 to +70°C
Pulling tension Long term Short term	IEC 60794-1-2-E1	≤ 2000 N ≤ 4000 N
Bending radii cable for fibres and tubes	>25 mm	
Installation/operation		
Watertightness	IEC 60794-1-2-F5	Yes
Bending radii cable	IEC 60794-1-2-E11	10 x Ø
Long term	IEC 60794-1-2-E6	20 x Ø
Short term		
Flame retardancy	IEC 60332-3C (EN	Pass
	50266-2-4) IEC 60331-25	Pass
	(EN 50200) IEC 61034 (EN	Pass
Halogen-free Corrosivity	50268-2) IEC 60754-2 (EN	pH ≥ 3.5 - µS/cm ≤ 100
Construction	50267-2-2) IEC 60794	
Direct Burial Installation Crush	≤ 400 N/cm	

Typical Applications

- 100BASE-FX
- 1000BASE-SX
- 1000BASE-LX
- 10GBASE-SR/SW
- FDDI
- 622 Mbps ATM
- 531 Mbps Fibre Channel
- 1062 Mbps Fibre Channel

GIGANET FIBRE OPTIC CABLING SYSTEM
Giganet Tight Buffered (TB)Distribution Cable

The Giganet Tight Buffered (TB) optical fibre cables have been designed and manufactured to offer flexibility and strength for both indoor and outdoor environments. The tight buffered cable is ideal for indoor and riser applications for inter-building backbone and enables easier, flexible pulling and faster installation on site. The cable can contain 24 colour coded fibres in un-stranded form and are available in OS2, OM3 and OM4 variants. The cable outer sheath is flame retardant LSOH.

CABLE CHARACTERISTICS

Tight buffered 900µm optical fibre
Aramid-yarn strength member
Durable outer jacket

CABLE FEATURES

Choice of fibre type
Choice of color coded fibres
High strength aramid-yarn strength member
Easy to strip with appropriate tool
Choice of outer jacket material and colour
OS2, OM3 and OM4

CABLE APPLICATIONS

Internal cable for installation in trunking under floor or ceiling spaces
Short run external links between buildings
Fibre backbones in riser and horizontal configurations

FIRE RETARDANT

INTERNAL CABLE

ENVIRONMENTAL CHARACTERISTICS

Operate temperature range: -20 to +60°C

Storage temperature range: -20 to +60°C

Compliant with RoHS standards

GIGANET 25 Year System Warranty

PRODUCT INFORMATION

Part Number	Product Description
GN-SM-OS2-TB-(ZZ)C	Giganet Single Mode OS2 9/125 Indoor/Outdoor Tight Buffered Fibre Optic Cable
GN-MM-OM3-TB-(ZZ)C	Giganet Multi Mode OM3 50/125 Indoor/Outdoor Tight Buffered Fibre Optic Cable
GN-MM-OM4-TB-(ZZ)C	Giganet Multi Mode OM4 50/125 Indoor/Outdoor Tight Buffered Fibre Optic Cable

Where:

ZZ = 04,08,12,16,24 & 48 Core

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Performance Overview

Giganet tight buffered 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 – 300 metres is assured, due to improved bandwidth available as standard from Giganet fibre cables.

Property	Test method	Value	
Permanent tensile strength	IEC 60794-1-2 E11	4, 6, 8 & 12 cores 16 cores 24 cores	500 N 1000 N 1500 N
Short term tensile strength (some days)	IEC 60794-1-2 E11	4, 6, 8 & 12 cores 16 cores 24 cores	1000 N 1400 N 1600 N
Maximum installation load (a few hours)		4, 6, 8 & 12 cores 16 cores 24 cores	1500 N 2100 N 2400 N
Impact Crush (compressive strength) Torsion Temperature range	IEC 60794-1-2 E4 IEC 60794-1-2 E3 IEC 60794-1-2 E7 IEC 60794-1-2 F1	Operation & installation Storage	20 J 3000 N / 100 mm 5 cycles ± 1 turn -20°C to +70°C -40°C to +70°C

	4 Core	6 Core	8 Core	12 Core	16 Core	24 Core
Heat of combustion	760 MJ/km 0.21 KWh/m	845 MJ/km 0.23 KWh/m	970 MJ/km 0.29 KWh/m	1180 MJ/km 0.33 KWh/m	1400 MJ/km 0.39 KWh/m	1700 MJ/km 0.47 KWh/m
Nominal diameter	6.5 mm	6.6 mm	7.0 mm	7.0 mm	8.0 mm	8.5 mm
Nominal cable weight	34 kg/km	36 kg/km	39 kg/km	43 kg/km	52 kg/km	63 kg/km
Minimum bend radius						
Long term	100 mm	100 mm	100 mm	130 mm	130 mm	230 mm
Short term	50 mm	50 mm	50 mm	75 mm	75 mm	115 mm

Property		
Fibre	Tight buffered fibres 900 µm ± 50 µm	
Strength member	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	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 bandwith at 850 nm	≥ 1500 MHz.km ≥
Overfilled (OFL) modal bandwith at 1300 nm	500 MHz.km
Effective Modal Bandwidth (EMB) at 850 nm	≥ 2000 MHz.km
(assured by means of differential mode delay (DMD) measurement as specified in IEC 60793-1-49)	

Standards and Norms	
IEC 60793-2-10: type A1a.2	EN 50173-1 category OM3
ITU G.651.1	ISO / IEC 11801 category OM3
IEEE 802.3	TIA / EIA-492 AAAC

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	≤ 1.0 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	IEC / EN 60793-1-21	≤ 6 µm
error 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	$1.3 \leq F_{peak.strip} \leq 8.9$ N
Numerical aperture	IEC / EN 60793-1-43	0.200 ± 0.015

Typical Applications

■ 100BASE-FX	■ 1000BASE-SX	■ 1000BASE-LX	■ 10GBASE-SR/SW
■ FDDI	■ 622 Mbps ATM	■ 531 Mbps Fibre Channel	■ 1062 Mbps Fibre Channel