



Smart and simple cabling solutions

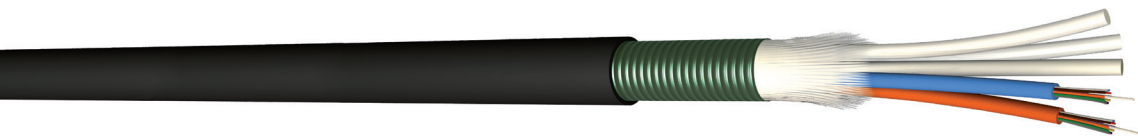
The background of the lower half of the page is a composite image. On the left, there are abstract, glowing blue and yellow fiber optic lines and nodes. On the right, there is a low-angle shot of a modern glass skyscraper reaching towards a clear blue sky.

FIBER GUIDE



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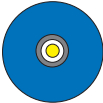

HOW TO CHOOSE THE ADEQUATE FIBER TYPE ?



FIBER TYPE	MULTIMODE				SINGLEMODE	
Light source	LED or VCSEL source				LASER	
Structure	62.5 / 125 μ		50 / 125 μ		9 / 125 μ	
Fiber quality	OM1	OM2	OM3	OM4	OS1	OS2
Bandwidth at 850 nm	200 Mhz/km	500 Mhz/km	1500 Mhz/km 2000 Mhz/km (VCSEL source)	3500 Mhz/km 4700 Mhz/km (VLSSEL source)	-	-
Bandwidth at 1300 nm	500 Mhz/km	500 Mhz/km	500 Mhz/km	500 Mhz/km	-	-
Insertion Loss at 850nm (typical)	3.5dB/km	3.2 dB/km	3.2 dB/km	2.7 dB/km	-	-
Insertion Loss at 1300nm (typical)	1.2 dB/km	1.0 dB/km	1.0 dB/km	0.8 dB/km	-	-
Insertion Loss a 1310nm (typical)	-	-	-	-	0.35 dB/km	0.35 dB/km
Insertion Loss at 1550nm (typical)	-	-	-	-	0.22 dB/km	0.22 dB/km
TRANSMISSION LENGTHS FOR EACH APPLICATION						
10 Base FL & FB	2000m	1514m	2000m	2000m	-	-
Token Ring 4 & 16 Mbits	2000m	1857m	1857m	1857m	-	-
Token Ring 100 Mbits	2000m	2000m	2000m	2000m	-	-
ATM 155 (850nm)	1000m	1000m	1000m	1000m	-	-
ATM 622 (850nm)	300m	300m	300m	300m	-	-
100 Base SX	2000m	2000m	2000m	2000m	-	-
1000 Base SX	220m	550m	550m	550m	-	-
1000 Base LX	550m	550m	1000m*	1000m*	2000m	5000m
10G Base SX	32m	86m	300m	550m	-	-
10G Base LW	220m	220m	220m	220m	2000m	10000m
10G Base LX4	300m	300m	300m	-	2000m	10000m
40G Base SR4	-	-	100m	125m	-	-
1400G Base SR4	-	-	100m	125m	-	-
Multimedia Connect Advice	<ul style="list-style-type: none">• Less performance and more expensive than the 50/125	<ul style="list-style-type: none">• The best compromise between price/ quality	<ul style="list-style-type: none">• Necessary if 10G will be deployed on the instalation	<ul style="list-style-type: none">• Necessary if 40G or 100G are possible upgrade in the futur	<ul style="list-style-type: none">• Necessary for analogue transmission• Long-distance connection• Necessary for 40G/100G	

* On optimized fiber

HOW TO CHOOSE THE ADEQUATE FIBER TYPE ?

FIBER TYPE	CHARACTERISTICS	APPLICATIONS
Tight Buffered	 TIGHT BUFFERED	<ul style="list-style-type: none">• The 900 µm sheath protects each fiber and enables direct termination• Tight buffered structure is suitable for cables requiring less than 24 fibers
Loose Tube	 LOOSE TUBE	<ul style="list-style-type: none">• Fan-out kits are required to mechanically protect each fiber for the last meter before termination• Loose tube structure is to be preferred for cables.

MECHANICAL PROTECTION	CHARACTERISTICS	APPLICATIONS
Dielectric armour	Aramid yarns Strength member	<ul style="list-style-type: none">• Indoor applications
	E-Glass yarns Strength member, Water protection & Rodent protection	<ul style="list-style-type: none">• Indoor / Outdoor applications• Direct buried cable
Corrugated Steel	Extremely resistant to crush load (4000 N min.)	<ul style="list-style-type: none">• Duct• Direct buried• High crush resistance
OUTER SHEATH	CHARACTERISTICS	APPLICATIONS
LSZH	<ul style="list-style-type: none">• Does not generate acid and toxic gases in case of combustion• Limited water resistance• Limited mechanical resistance	<ul style="list-style-type: none">• For indoor applications• Requires additional protection if used for outdoor applications
PEHD	<ul style="list-style-type: none">• Excellent water resistance• Good resistance to compression and abrasion• Good UV resistance• Very low fire resistance	<ul style="list-style-type: none">• Adapted to outdoor applications• Not adapted to indoor applications
PUR	<ul style="list-style-type: none">• Excellent mechanical resistance• Very flexible• Resistant to oil and chemical agents• Excellent water resistance• Adapted to low temperatures• Expensive	<ul style="list-style-type: none">• Use limited to specific applications because of its cost

FIBRE OPTIC CABLE STRUCTURES & MMC CABLE RANGE

FIBRE STRUCTURE	ARMOUR	JACKET	PART NUMBER	PHOTO
Indoor and Indoor / outdoor cables				
Tight Buffered	None!	LSZH	BIFIBRES	
Tight Buffered	None	LSZH	MULTI x IE	
Tight Buffered	None	PUR	FOLIVE	
Tight Buffered	None	LSZH Fire Resistant	FOFIRE	
Loose Tube (central tube)	None	LSZH	INTEX	
Loose Tube (Multi tubes)	Corrugated Steel	LSZH Flame Retardant	EXTAL LSZH C1	
Outdoor cables				
Tight Buffered	Glass Fiber	LSZH or PEHD	MULTIEX	
Loose Tube (central tube)	Glass Fiber	PEHD	EXT CT	
Loose Tube (multi tube)	Glass Fiber	PEHD	EXT MT	
Loose Tube (central tube)	Corrugated Steel	PEHD	EXTAL CT	
Loose Tube (multi tubes)	Corrugated Steel	PEHD	EXTAL MT	
Loose Tube (multi tubes)	Corrugated Steel	LSZH Flame Retardant	EXTAL LSZH C1	



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