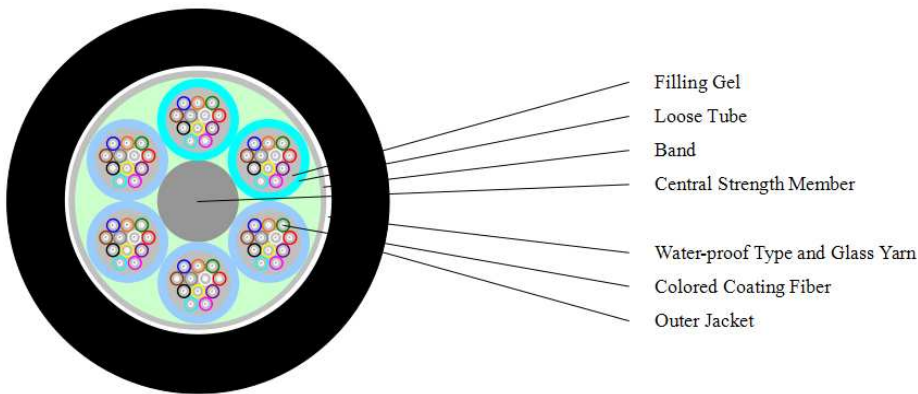


# UNIVERSAL MULTI LOOSE TUBE CABLE INDOOR/OUTDOOR

P/N: CL....

Date	Author	Review	Approve	Version	Revision Declaration
JUL 2015	R.T.	S.T.	L.K.	A1	-

## CROSS SECTION



## Features & Benefits

- Streamlined installation with direct outdoor-to-indoor cable transitions.
- No splicing required at building entrance
- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fiber ( $\text{Ø } 250\mu\text{m} \pm 15\mu\text{m}$ )
- Full dielectric construction, no grounding required
- Choice of fiber types
- Color coded fibers
- E-glass strength member for rodent resistance or Aramid strength member for very good bending performances
- Flame retardant LSZH jacket for enhanced fire performance or standard PE jacket for environmental protection and water permeation resistance

## Applications

- For outdoor and indoor use in structured (data) wiring system
- For outdoor and indoor use in network for telecom, cable TV and/or broadcast
- Ideal for intra building links in campus environments
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial
- Suitable for environments where rodent resistance is required

## Compliance

Optical cables fulfill one or more of the following standards:

- DIN VDE 0888
- IEC 60793
- IEC 60794-1-E1 (Pulling strength)
- IEC 60794-1-E3 (Crushing)
- IEC 60794-1-E4 (Accidental impact)
- IEC 60794-1-E6 (Continuous bending)
- ITU-T Rec G.651 to G.657
- IEC 60794-1-E11 (Minimum bending radius)
- IEC 60794-1-F1 (Temperature)
- IEC 60794-1-F5 (Water penetration)
- IEC-60332-3C - CEI 20-22/III (Flame resistance)
- RoHS 2002/95/EG

# Specifications

	No.	Items	Unit	G.652D		G.655 C & D		OM1		OM2		OM3		OM4					
				9/125	10.4±0.5	9/125	124.8±0.7	62.5/125	50/125	50/125	50/125	50/125							
Fiber type specifications	1	Mode Field Diameter	μm	9.2±0.4	10.4±0.5	9.6±0.5		62.5±2.5		50.0±2.5		50.0±2.5		50.0±2.5					
	2	Cladding Diameter	μm	124.8±0.7		124.8±0.7		125.0±1.0		124.8±1.0		124.8±1.0		124.8±1.0					
	3	Wave-length	nm	1310	1550	1550	1625	850	1300	850	1300	850	1300	850	1300				
	4	Cladding Non-Circularity	%	≤0.7		≤0.7		≤1.0		≤1.0		≤1.0		≤1.0					
	5	Core-Cladding Concentricity Error	μm	≤0.5		≤0.5		≤1.0		≤1.5		≤1.0		≤1.0					
	6	Coating Diameter	μm	245±5		242±5		245±10		245±7		245±7		245±7					
	7	Coating Non-Circularity	%	≤6.0		≤6.0		≤6.0		≤6.0		≤6.0		≤6.0					
	8	Cladding-Coating Concentricity Error	μm	≤12.0		≤12.0		≤10.0		≤10.0		≤10.0		≤10.0					
	9	Attenuation (max.)	dB/km	≤0.36	≤0.25	≤0.20	≤0.22	≤3.5	≤1.5	≤3.5	≤1.5	≤3.5	≤1.5	≤3.5	≤1.5				
	10	Dispersion	ps/nm-km	≤5.3	≤18	≤6.0	≤11.2												
	11	Polarization mode dispersion (PMD)	ps/km <sup>1/2</sup>	≤0.2		≤0.2		≤0.11		≤0.105		≤0.105		≤0.105					
	12	Cable Cut-off Wave-length	nm	λ <sub>cc</sub> ≤1260		λ <sub>cc</sub> ≤1450		λ <sub>cc</sub> ≤1365		λ <sub>cc</sub> ≤1340		λ <sub>cc</sub> ≤1340		λ <sub>cc</sub> ≤1340					
	13	Bandwidth	MHz/km					≥200	≥500	≥500	≥500	≥2000	≥500	≥4700	≥500				
	14	Ethernet Performance 1GBE	m	No required		No required		275	33	600	82	900	300	900	550				
	15	Ethernet Performance 10GBE	m					550	300	600	300	550	300	550	300				
	16	Num. Apert.	μm					0.275±0.015		0.200±0.015		0.200±0.015		0.200±0.015					
	17	Refractive index	m	1,466	1,467	1,469	1,469	1,497	1,493	1,483	1,478	1,483	1,478	1,483	1,478				
Mechanical and Environmental	18	Tension (Long Term)	N	800N		800N		800N		800N		800N		800N					
	19	Tension (Short Term)	N	2000N		2000N		2000N		2000N		2000N		2000N					
	20	Crush (Long Term)	N/10cm	300N		300N		300N		300N		300N		300N					
	21	Crush (Short Term)	N/10cm	1000N		1000N		1000N		1000N		1000N		1000N					
	22	Min. Bend Radius (Dynamic)	mm	20D		20D		20D		20D		20D		20D					
	23	Min. Bend Radius (Static)	mm	10D		10D		10D		10D		10D		10D					
	24	Fire load	/	IEC-60332-3 (on request IEC-60332-1, IEC-60332-2)															
	24	Installation Temperature	°C	-20 ~ +60															
	25	Operating Temperature	°C	-40 ~ +70															
26	Storage Temperature	°C	-40 ~ +70																
Cable parameters	27	Outer Jacket	Color	Black (other color on request)															
			Material	PE (LSZH on request)															
			Dimension	9.8±0.5 / 10.5±0.5				10.5±0.5 / 11.0±0.5				11.0±0.5 / 12.0±0.5				13.5±0.5 / 15.0±0.5			
	28	Fiber Count	n.	2 to 60				60 to 72				72 to 96				96 to 144			
	29	Central strength member + loose tubes	n.	1 + 5				1 + 6				1 + 8				1 + 12			
	30	Central strength member	Dimension	1,5				1,5				3,2				5,7			
			Material	FRP								FRP + PE							
	31	Loose Tube	Dimension	1.95±0.5															
			Material	PBT															
			Color	Red, Green, Natural, Natural, Natural, .... , Natural (every loose tube can have a different color on request)															
32	Colored Coating Fiber	Dimension	250±15																
		Color	Blue, Orange, Green, Brown, Gray, White, Red, Black, Yellow, Purple, Pink, Aqua,																
33	Strength Member	/	Aramid Yarns (AY) or E-Glass Yarn (GY)																
Standard plywood reel (non returnable):																			
Standard delivery length: 2100±100 m and 4100±100 m																			