

# Specification

## FOR Armored Optic Cable --- [GYTS]

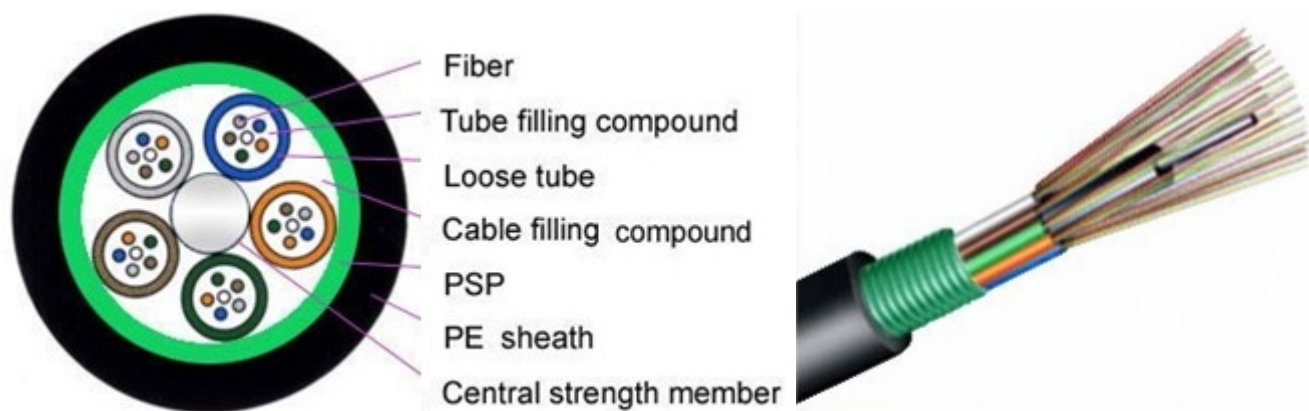
Canal autorizado:

**Unicor s.a.**

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## 1. CABLE CONSTRUCTION

### 1.1. CROSS SECTIONAL DIAGRAM



### 1.2. TECHNICAL SPECIFICATION

<b>Fiber count</b>		2~30	32~36	38~60	62~72	74~84
Loose Tube	OD(mm):	1.6 $\pm$ 0.1	1.6 $\pm$ 0.1	1.9 $\pm$ 0.1	1.9 $\pm$ 0.1	1.9 $\pm$ 0.1
	Material:	PBT				
Max fiber count/tube		6	6	12	12	12
Core unit		5	6	5	6	7
Steel/Coating (mm)		1.4	1.7	1.4	2.0	2.0/2.6
Water Block		Water blocking Compound				
Material:		Water blocking Compound				
Armored		Corrugated Steel tape				
Sheath	Thickness:	Non. 1.5mm				
	Material:	Black PE / LSZH				
OD of cable (mm)		8.8	9.1	9.5	10.0	10.6
Net weight ( kg/km)		83/103	91/115	91/115	110/135	121/147
<b>Fiber count</b>		86~96	98~108	110~120	122~132	134~144
Loose Tube	OD(mm):	1.9 $\pm$ 0.1	1.9 $\pm$ 0.1	1.9 $\pm$ 0.1	1.9 $\pm$ 0.1	1.9 $\pm$ 0.1
	Material:	PBT				
Max fiber count/tube		12	12	12	12	12
Core unit		8	9	10	11	12

Steel/Coating (mm)	2.0/3.2	2.0/3.8	2.0/4.5	2.0/5.1	2.0/5.7
Water Block Material:	Water blocking Compound				
Armored	Corrugated Steel tape				
Sheath	Thickness:	Non. 1.5mm			
	Material:	Black PE / LSZH			
OD of cable (mm)	11.2	11.8	12.5	13.1	13.7
Net weight ( kg/km)	132/160	144/173	157/189	169/203	182/218

## 2. FIBER AND LOOSE BUFFER TUBE IDENTIFICATION

NO.	1	2	3	4	5	6	7	8	9	10	11	12
Tube Color	Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Pink	Aqua
NO.	1	2	3	4	5	6	7	8	9	10	11	12
Fiber Color	Blue	Orange	Green	Brown	Slate	natural	Red	Black	Yellow	Violet	Pink	Aqua

## 3.OPTICAL FIBER

### 3.1 Single Mode Fiber

LTEMS	UNITS	SPECIFICATION	
Fiber type		G652D	G657A
Attenuation	dB/km	1310nm ≤ 0.34 1550nm ≤ 0.21 1625nm ≤ 0.23	
Chromatic Dispersion	ps/nm.km	1310nm ≤ 3.5 1550nm ≤ 18 1625nm ≤ 22	
Zero Dispersion Slope	ps/nm <sup>2</sup> .km	≤ 0.092	
Zero Dispersion Wavelength	nm	1300 ~ 1324	
Cut-off Wavelength (λ <sub>cc</sub> )	nm	≤ 1260	
Attenuation vs.Bending	1625nm	30mm radius,100ring ≤ 0.05 dB	15mm radius,10ring ≤ 1.0 dB
	1310nm	25mm radius,100ring ≤ 0.05 dB	15mm radius,10ring ≤ 0.25 dB
	1550nm	16mm radius,1ring ≤ 0.05 dB	10mm radius,1ring ≤ 0.75 dB

Mode Field Diameter	$\mu\text{m}$	8.7~ 9.5 at 1310nm 9.8~ 10.8 at 1550nm	8.4~ 9.2 at 1310nm 9.3~ 10.3 at 1550nm
Core-Clad Concentricity	$\mu\text{m}$	$\leq 0.5$	$\leq 0.5$
Cladding Diameter	$\mu\text{m}$	125.0 $\pm$ 0.7	125.0 $\pm$ 0.7
Cladding Non-circularity	%	$\leq 1.0$	$\leq 0.7$
Coating Diameter	$\mu\text{m}$	235~250	235~245
Proof Test	N	$\geq 9.0$	$\geq 9.0$

### 3.2 Multi Mode Fiber

LTEMS	UNITS	SPECIFICATION					
		OM1 62.5/125	OM2 50/125	OM3-150	OM3-300	OM4-550	
Fiber Core Diameter	$\mu\text{m}$	62.5 $\pm$ 2.5	50.0 $\pm$ 2.5	50.0 $\pm$ 2.5			
Fiber Core Non-circularity	%	$\leq 5.0$	$\leq 5.0$	$\leq 5.0$			
Cladding Diameter	$\mu\text{m}$	125.0 $\pm$ 1.0	125.0 $\pm$ 1.0	125.0 $\pm$ 1.0			
Cladding Non-circularity	%	$\leq 1.0$	$\leq 0.6$	$\leq 0.6$			
Coating Diameter	$\mu\text{m}$	245 $\pm$ 7	245 $\pm$ 10	245 $\pm$ 7			
Coat-Clad Concentricity	$\mu\text{m}$	$\leq 10.0$	$\leq 10.0$	$\leq 10.0$			
Coating Non-circularity	%	$\leq 6.0$	$\leq 6.0$	$\leq 6.0$			
Core-Clad Concentricity	$\mu\text{m}$	$\leq 1.5$	$\leq 1.0$	$\leq 1.0$			
Attenuation	850nm	dB/km	$\leq 2.7$	$\leq 2.4$	$\leq 2.4$		
	1300nm	dB/km	$\leq 0.6$	$\leq 0.6$	$\leq 0.6$		
OFL	850nm	MHz.km	$\geq 200$	$\geq 500$	$\geq 700$	$\geq 1500$	$\geq 3500$
	1300nm	MHz.km	$\geq 500$	$\geq 500$	$\geq 500$	$\geq 500$	$\geq 500$
The biggest theory numerical aperture	/	0.275 $\pm$ 0.015	0.200 $\pm$ 0.015	0.200 $\pm$ 0.015			
Group Refractive Index	850nm		1.496	1.482	1.482		
	1300nm		1.491	1.477	1.477		
Proof Test	N	$\geq 9.0$	$\geq 9.0$	$\geq 9.0$			

**4.Mechanical and Environmental Performance of the Cable**

NO.	ITEMS	TEST METHOD	ACCEPTANCE CRITERIA
1	Tensile Loading Test	#Test method:IEC 60794-1-E1 -. Long-tensile load:600N -. Short-tensile load:1500N -. Cable length:≥50m	-. Attenuation increment@1550nm:≤0.1dB -. No jacket cracking and fiber breakage
2	Crush Resistance Test	#Test method:IEC 60794-1-E3 -.Long load:300 N/100mm -.Short load:1000 N/100mm Load time:1 minutes	-. Attenuation increment@1550nm:≤0.1dB -. No jacket cracking and fiber breakage
3	Impact Resistance Test	#Test method:IEC 60794-1-E4 -.Impact height:1m -.Impact weigh: 450 g -.Impact point:≥5 -.Impact frequency:≥3/point	-. Attenuation increment@1550nm:≤0.1dB -. No jacket cracking and fiber breakage
4	Repeated Bending	#Test method:IEC 60794-1-E6 -.Mandrel diameter:20D (D = cable diameter) -.Subject weight:15kg -.Bending frequency: 30 times -.Bending speed: 2s/time	-. Attenuation increment@1550nm:≤0.1dB -. No jacket cracking and fiber breakage
5	Torsion Test	#Test method:IEC 60794-1-E7 -.Length:1m -.Subject weight:25kg -.Angle:±180 degree -.Frequency: ≥10/point	-. Attenuation increment@1550nm:≤0.1dB -. No jacket cracking and fiber breakage
6	Water Penetration Test	#Test method:IEC 60794-1-F5B -.Height of pressure head:1m -.Length of specimen:3m -.Test time: 24 hours	-. No leakage through the open cable end
7	Temperature Cycling Test	#Test method:IEC 60794-1-F1 -.Temperature steps: +20°C、-40°C、+70°C、+20°C -.Testing Time: 24 hours/step -.Cycle index: 2	-. Attenuation increment@1550nm:≤0.1dB -. No jacket cracking and fiber breakage
8	Drop Performance	#Test method:IEC 60794-1-E14 -.Testing length: 30cm -.Temperature range: 70±2°C -.Testing Time: 24 hours	-. No filling compound drop out

9	Temperature	Operating: -40°C~+60°C Store/Transport : -50°C~+70°C Installation -20°C~+60°C
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## 5. FIBER OPTIC CABLE BENDING RADIUS

Static bending:  $\geq 10$  times than cable out diameter

Dynamic bending:  $\geq 20$  times than cable out diameter.

## 6. PACKAGE AND MARK

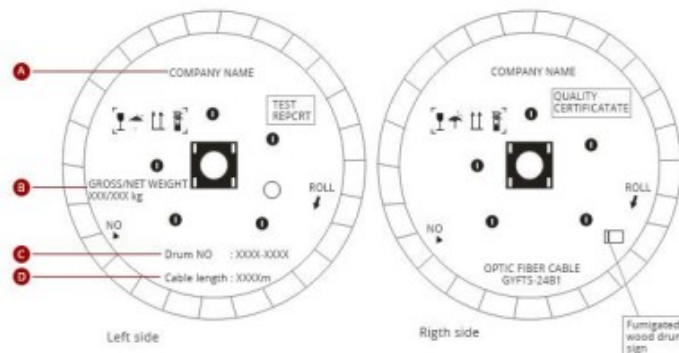
### 6.1 PACKAGE

Not allowed two length units of cable in one drum, two ends should be sealed,. Two ends should be packed inside drum, reserve length of cable not less than 3 meters.

### 6.2 MARK

Cable Mark: Brand、Cable type、Fiber type and counts、Year of manufacture、Length marking .

Mark



Usually we only attach Test Report on the out package of the cable, but we could also mark as your requirements, such as:

1. Company Name
2. Cross / Net weight
3. Drum No: XX
4. Cable Length : XX

## 7. TEST REPORT

Test report and certification supplied.