

## Optical fiber / Loose tube / Gel filled / PE outer jacket / All dielectric

### Standards

ITU-T G.652, 657  
IEC 60793, 60794-1-2  
ISO 9001:2015, 14001:2015  
TIA 598-C  
GR 20 Core compliant glass



### Application

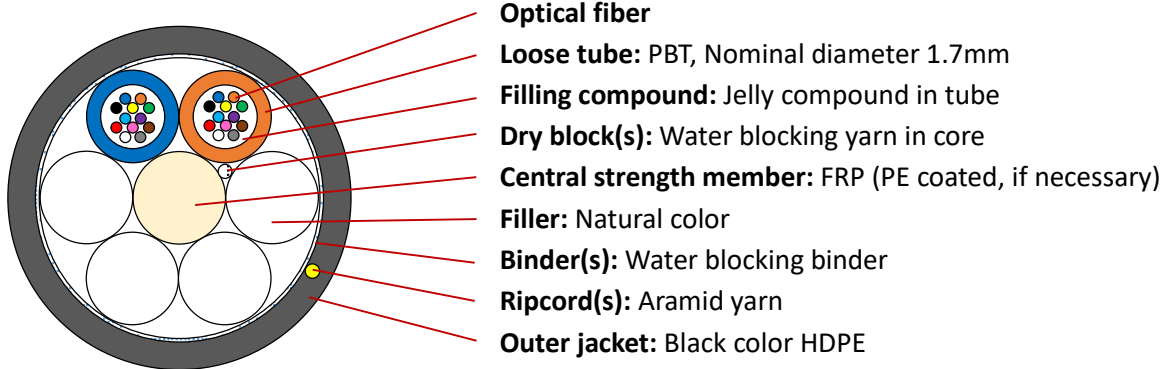
Microduct  
Long haul communication system  
Subscriber network system  
Junction communication system  
Communication link

### Features

Installation in microduct by air pressure  
Small diameter & Light weight  
Distinguishable by color of fiber & Loose tube  
Essential for moisture protection  
UV-resistant outer jacket

### Cable Cross Section

In case of 24C fiber cable



### Cable Construction

Fiber count	Unit position	Active tube	Fibers per tube	Nominal cable outer diameter		Nominal cable weight	
				inch	mm	lbs/kft	kg/km
12 ~ 72	6	1 ~ 6	12	0.256	6.5	23	35
96	8	8	12	0.303	7.7	35	52
144	12	12	12	0.374	9.5	51	77

## Fiber Characteristics for Single Mode Fiber

Fiber type	ITU-T G.652D	ITU-T G.657A1
Mode field diameter (MFD)	9.2 $\mu\text{m} \pm 0.4 \mu\text{m}$ @1310 nm	8.9 $\mu\text{m} \pm 0.4 \mu\text{m}$ @1310 nm
Mode field concentricity error	$\leq 0.8 \mu\text{m}$	
Cladding diameter	125 $\mu\text{m} \pm 1 \mu\text{m}$	
Cladding non-circularity	$\leq 1.0 \%$	
Coating diameter	245 $\mu\text{m} \pm 15 \mu\text{m}$	
Attenuation	$\leq 0.35 \text{ dB/km}$ @ 1310 nm $\leq 0.35 \text{ dB/km}$ @ 1383 nm $\leq 0.25 \text{ dB/km}$ @ 1550 nm	
Chromatic dispersion	$\leq 3.5 \text{ dB/km}$ @ 1285 ~ 1330 nm $\leq 18 \text{ dB/km}$ @ 1550 nm	
Cable cut-off wave length	$\leq 1260 \text{ nm}$	
Zero dispersion wavelength	1300 ~ 1324 nm	
Zero dispersion slope	$\leq 0.092 \text{ ps/nm}^2.\text{km}$	
Proof test	Nom. 100 kpsi	

## Fiber & Tube Identification

Color code	Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
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## Temperature Range

Installation	14 °F ~ 140 °F (- 10 °C ~ + 60 °C)
Operation, Storage, Transport	- 22 °F ~ 140 °F (- 30 °C ~ + 60 °C)

## Cable Bend radius & Marking & Packing

Bend radius	20 X Cable diameter (With load), 10 X Cable diameter (Without load)	
Marking	Sequence	Customer (Upon request), Part number, Serial number (4~5 digits), Fiber type, Fiber count, Manufacturer, Manufacture year (YYYY), Length marking (Every 2 feet or 1mtrs)
	Example	<b>SD-9E-144-P-A-SN-HD-F-0 00001 G652D 144F GAON CABLE 2021 00002FT</b>
	Method	Hot foil indent (White color)
Packing	Length	Standard 13,000 ft (4,000 m)

## Mechanical & Environmental Tests (Based on IEC 60794-5-10)

Test items	Test method	Description	Acceptance criteria <sup>1)</sup>
Tensile strength	IEC 794-1-2 E1	≥ 50 m, 40 D <sup>2)</sup> , Load: 1 W <sup>3)</sup> , 60 min	Reversible, after test
Crush resistance	IEC 794-1-2 E3	500 N / 100 mm plate, 1 min	Δ ≤ 0.15 dB, after test
Impact resistance	IEC 794-1-2 E4	4.9 N.m, 3 different points (interval: ≥ 500 mm)	Δ ≤ 0.15 dB, after test
Repeated bend	IEC 794-1-2 E6	40 D, 50 N, 25 cycles, ± 90°	No damage to sheath and cable elements
Torsion	IEC 794-1-2 E7	2m sample, 50N, 10 cycles, ± 180°	Reversible, after test
Kink	IEC 794-1-2 E10	40 D	No kink
Cable bend	IEC 794-1-2 E11A	40 D, 4 turns, ± 180°	Reversible, after test
Temperature cycling	IEC 794-1-2 F1	≥ 1,000 m sample, soak: 8 h, 2 cycles, + 23 °C, - 30 °C, + 60°C, + 23 °C	Δ ≤ 0.15 dB/km (Measure during the last cycle)
Water penetration	IEC 794-1-2 F5	3m sample, 1m height, 24 h	No leakage

<sup>1)</sup> It shall be measured at 1550nm for single mode fiber. The acceptance measurement equipment error is 0.02dB.

<sup>2)</sup> Cable diameter

<sup>3)</sup> Cable weight per length (kg/km)

## Part number

Description		SD – <u>P1</u> – <u>P2</u> – <u>P3</u> – <u>P4</u> – <u>P5</u> – <u>P6</u> – <u>P7</u> – <u>P8</u>	
Fiber type	<u>P1</u>	<b>9E:</b> G.652D	<b>A1:</b> G.657A1
Fiber count	<u>P2</u>	<b>12 ~ 144</b>	
Tube material	<u>P3</u>	<b>P:</b> PBT	
Fibers per tube	<u>P4</u>	<b>A:</b> 12	
Construction	<u>P5</u>	<b>SN:</b> Single jacket non armor	
Jacket material	<u>P6</u>	<b>HD:</b> HDPE	
Length unit	<u>P7</u>	<b>F:</b> Feet	<b>M:</b> Meter
Special requirements	<u>P8</u>	<b>O:</b> No special requirement	

Example (SJNA, 652D, 144F cable, PBT tube, HDPE jacket, FT unit): **SD-9E-144-P-B-SN-HD-F-0**

## Revised Record

Revised number	Date	Description
1	Mar. 19, 2021	Update Crush resistance & Impact resistance
2	Apr. 15, 2021	Change Temperature Range and Temperature cycling test
3	Oct. 25, 2021	Add part number