

## FIBER OPTIC

OUTDOOR FIBER  
OPTIC CABLE

Product Web Page



## NS-40ISM144

OUTDOOR FIBER OPTIC CABLE IS A TYPE OF OPTICAL CABLE THAT IS SPECIFICALLY DESIGNED FOR OUTDOOR USE, IT IS TOUGH, CAN WITHSTAND WIND AND SUN EXPOSURE, AND HAS A ROBUST OUTER JACKET TO PROTECT THE CABLE

## FIBER CABLE 144 CORE SINGLE MODE OS2 9/125

## GYTS

## DESCRIPTION

The bers, 250 $\mu$ m, are positioned in a loose tube made of a high modulus plastic.

The tubes are lled with a water-resistant Ring compound.

A steel wire, sometimes sheathed with polyethylene (PE) for cable with high fiber count, locates in the center of core as a metallic strength member.

Tubes (and Hers) are stranded around the strength member into a compact and circular cable core.

The PSP is longitudinally applied over the cable core, witch is filled with the Ring compound to protect it from water ingress.

Then, the cable is completed with a PE sheath

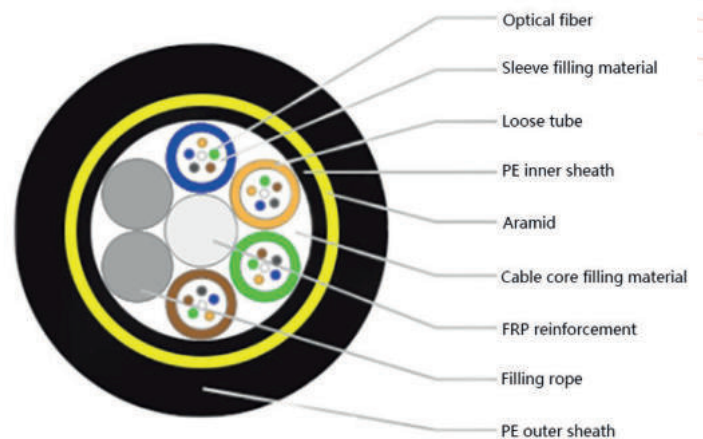
**THE FOLLOWING MEASURES ARE  
TAKEN TO ENSURE THE CABLE WATERTIGHT:**

Steel wire used as the central strength member.

Loose tube filling compound.

100% cable core filling.

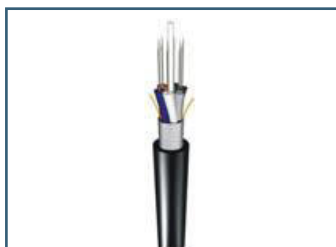
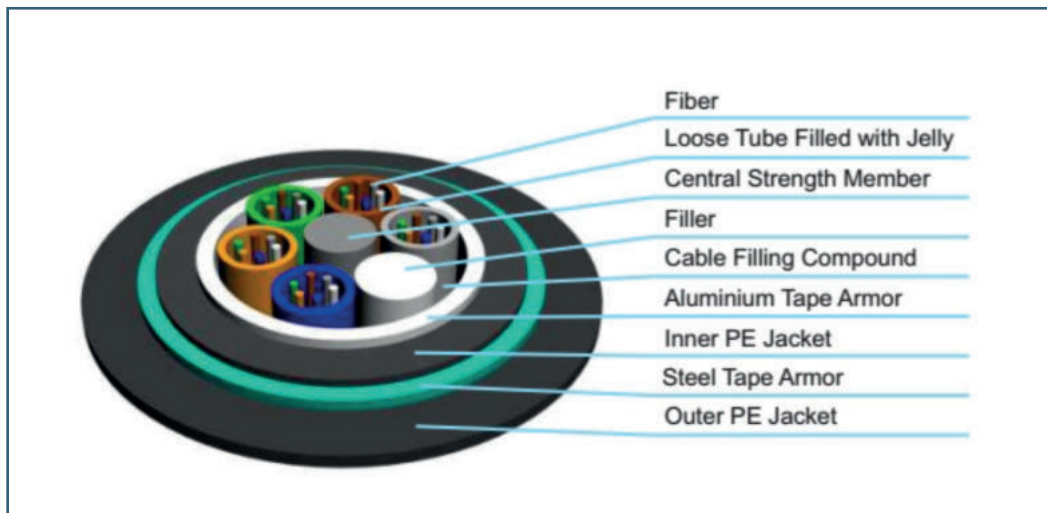
PSP enhancing moisture-proof.



## FEATURES

Good mechanical and temperature performance.  
High strength loose tube that is hydrolysis resistant.  
Special tube filling compound ensure a critical protection of fiber.  
Special designed compact structure is good at preventing loose tubes from shrinking.  
Crush resistance and flexibility.  
PE sheath protects cable from ultraviolet radiation

# TECHNICAL SPECIFICATION



## Technical Parameters

| Cable Type 2<br>(increased by 2 bers) | Fiber Count | Tubes | Fillers | Cable Diameter<br>(mm) | Cable Weight<br>(kg/km) | Tensile Strength<br>Long/Short term<br>(N) | Crush Resistance<br>Long/Short term<br>(N/100mm) | Bending Radius<br>Static/Dynamic<br>(mm) |
|---------------------------------------|-------------|-------|---------|------------------------|-------------------------|--|--|--|
| GYTS-2-6                              | 2~6         | 1     | 4       | 9.5                    | 100                     | 600/1500                                   | 300/1000   | 10D/20D                                  |
| GYTS-8-12                             | 8~12        | 2     | 3       | 9.5                    | 100                     | 600/1500                                   | 300/1000   | 10D/20D                                  |
| GYTS-14-18                            | 14~18       | 3     | 2       | 9.5                    | 100                     | 600/1500                                   | 300/1000   | 10D/20D                                  |
| GYTS-20-24                            | 20~24       | 4     | 1       | 10.5                   | 100                     | 600/1500                                   | 300/1000   | 10D/20D                                  |
| GYTS-26-30                            | 26~30       | 5     | 0       | 10.5                   | 100                     | 600/1500                                   | 300/1000   | 10D/20D                                  |
| GYTS-32-36                            | 32~36       | 6     | 0       | 10.5                   | 119                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-38-48                            | 38~48       | 4     | 1       | 11.0                   | 136                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-50-60                            | 50~60       | 5     | 0       | 11.0                   | 136                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-62-72                            | 62~72       | 6     | 0       | 12.0                   | 155                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-74-84                            | 74~84       | 7     | 1       | 13.6                   | 192                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-86-96                            | 86~96       | 8     | 0       | 13.6                   | 192                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-98-108                           | 98~108      | 9     | 1       | 15.0                   | 227                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-110-120                          | 110~120     | 10    | 0       | 15.0                   | 227                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-122-132                          | 122~132     | 11    | 1       | 16.9                   | 227                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |
| GYTS-134-144                          | 134~144     | 12    | 0       | 16.9                   | 227                     | 1000/3000                                  | 300/1000   | 10D/20D                                  |

# TECHNICAL SPECIFICATION

## Optical Characteristics

| Characteristics                              | Conditions                          | Specified values | Units                     |          |
|--|-------------------------------------|------------------|---------------------------|----------|
| Attenuation                                  | 1310nm                              | ≤0.36            | [dB/km]                   |          |
|  | 1383nm(after H2-aging)              | ≤0.36            | [dB/km]                   |          |
|  | 1550nm                              | ≤0.24            | [dB/km]                   |          |
|  | 1625nm                              | ≤0.24            | [dB/km]                   |          |
| Attenuation vs. Wavelength Max. a difference | 1285-1330nm, in reference to 1310nm | ≤0.03            | [dB/km]                   |          |
|  | 1525-1575nm, in reference to 1550nm | ≤0.02            | [dB/km]                   |          |
| Dispersion Coefficient                       | 1285-1340nm                         | -3.5 to 3.5      | [ps/(nm.km)]              |          |
|  | 1550nm                              | ≤18              | [ps/(nm.km)]              |          |
|  | 1625nm                              | ≤22              | [ps/(nm.km)]              |          |
| Zero Dispersion Wavelength (20)              | --                                  | 1300-1324        | [nm]                      |          |
| Zero Dispersion Slope(So)                    | --                                  | ≤0.092           | [ps/(um <sup>2</sup> km)] |          |
| Typical Value                                | --                                  | 0.086            | [ps/(nm <sup>2</sup> km)] |          |
| PMD  | Maximum Individual Fibre            | --               | ≤0.1                      | [ps//km] |
|  | Link Design Value (M=20,Q=0.01%)    | --               | ≤0.06                     | [ps//km] |
|  | Typical Value                       | --               | 0.04                      | [ps//km] |
| Cable Cutoff Wavelength (cc)                 | --                                  | ≤1260            | [nm]                      |          |
| Mode Field Diameter (MFD)                    | 1310nm                              | 8.7-9.5          | [μm]                      |          |
|  | 1550nm                              | 9.8-10.8         | [μm]                      |          |
| Effective Group Index of Refraction (Nett)   | 1310nm                              | 1.466            | --                        |          |
|  | 1550nm                              | 1.467            | --                        |          |
| Point Discontinuities                        | 1310nm                              | ≤0.05            | [dB]                      |          |
|  | 1550nm                              | ≤0.05            | [dB]                      |          |

## Environmental Characteristics

| 1310nm, 1550nm & 1625nm                          |                              |                  |         |
|--|------------------------------|------------------|---------|
| Characteristics                                  | Conditions                   | Specified values | Units   |
| Temperature Dependence Induced Attenuation       | -60°C to +85°C               | ≤0.05            | [dB/km] |
| Temperature-Humidity Cycling Induced Attenuation | -10°C to +85°C, 98% RH       | ≤0.05            | [dB/km] |
| Water Immersion Dependence Induced Attenuation   | 23°C, for 30 days            | ≤0.05            | [dB/km] |
| Damp Heat Dependence Induced Attenuation         | 85°C and 85% RH, for 30 days | ≤0.05            | [dB/km] |
| Dry Heat Aging                                   | 85°C, for 30 days            | ≤0.05            | [dB/km] |

# Geometrical Characteristics

| Characteristics                      | Conditions | Specified values | Units     |
|--------------------------------------|------------|------------------|-----------|
| Cladding Diameter                    | --         | 125 ± 0.7        | [μm]      |
| Cladding Non-Circularity             | --         | ≤ 1              | [%]       |
| Coating Diameter                     | --         | 235-250          | [μm]      |
| Coating-Cladding Concentricity Error | --         | ≤12              | [μm]      |
| Coating Non-Circularity              | --         | ≤6.0             | [%]       |
| Core-Cladding Concentricity Error    | --         | ≤0.6             | [μm]      |
| Curl(radius)                         | --         | ≥4               | [m]       |
| Delivery Length                      | --         | Up to 50.4       | [km/reel] |

# Mechanical Specifications

| Characteristics                |  | Conditions            | Specified values | Units  |
|--------------------------------|--|-----------------------|------------------|--------|
| Proof Test                     |  | --                    | ≥9.0             | [N]    |
|                                |  | --                    | ≥1.0             | [%]    |
|                                |  | --                    | ≥100             | [kpsi] |
| Macro-bend Induced Attenuation | 100 Turns Around a Mandrel of 30 mm Radius | 1625nm                | ≤0.05            | [dB]   |
|                                | 100 Turns Around a Mandrel of 25 mm Radius | 1310nm and 1550nm     | ≤0.05            | [dB]   |
|                                | 1 Turn Around a Mandrel of 16 mm Radius    | 1550nm                | ≤0.05            | [dB]   |
| Coating Strip Force            |  | typical average force | 1.5              | [N]    |
|                                |  | peak force            | 1.3-8.9          | [N]    |
| Dynamic Fatigue Parameter(na)  |  | --                    | ≥20              | -      |

| Fiber color |      |        |       |       |      |       |     |       |
|-------------|------|--------|-------|-------|------|-------|-----|-------|
| NO.         | 1    | 2      | 3     | 4     | 5    | 6     | 7   | 8     |
| Color       | Blue | Orange | Green | Brown | Gray | White | Red | Black |

| Loose tube color |      |        |       |       |      |       |     |       |
|------------------|------|--------|-------|-------|------|-------|-----|-------|
| NO.              | 1    | 2      | 3     | 4     | 5    | 6     | 7   | 8     |
| Color            | Blue | Orange | Green | Brown | Gray | White | Red | Black |

# TECHNICAL SPECIFICATION

|                               |                        |         |  |     |     |
|-------------------------------|------------------------|---------|--|-----|-----|
| <b>Fiber count</b>            |                        | /       | 4  | 8   | 12  |
| <b>Structure</b>              |                        | /       | Uni tube   |     |     |
| <b>Fiber type</b>             |                        | /       | G652D  |     |     |
| Central strength<br>en member | <b>Material</b>        | mm      | Steel  |     |     |
|                               | OD<br>(Average)        |         | 2*1.2mm  |     |     |
| Loose<br>tube                 | <b>Material</b>        | mm      | PBT  |     |     |
|                               | OD<br>(Average)        |         | 2.0±0.1  |     |     |
|                               | Thickness<br>(Average) |         | 0.30±0.1   |     |     |
|                               | Fiber<br>max/tube      |         | 4  | 8   | 12  |
|                               | Loose tube<br>color    |         | Standard color   |     |     |
| Extra fiber<br>length         | %                      | 0.2~0.4 |  |     |     |
| Water<br>blocking             | <b>Material</b>        | /       | Flooding Compound + Water blocking tape + Steel armor tape |     |     |
| Outer<br>jacket               | <b>Material</b>        | HDPE    |  |     |     |
|                               | <b>Thickness</b>       | mm      | 2.35mm   |     |     |
| <b>OD</b>                     |                        | mm      | 9.0  | 9.0 | 9.0 |
| <b>Cable weight (Average)</b> |                        | Kg/km   | 75   | 75  | 75  |
| Tension<br>strength           | Long term              | N       | 400  |     |     |
|                               | Short term             |         | 1200   |     |     |
| Crush<br>resistance           | Long term              | N/100mm | 600  |     |     |
|                               | Short term             |         | 2000   |     |     |
| Bending<br>Ridus              | Static                 | mm      | 10D  |     |     |
|                               | Dynamic                |         | 20D  |     |     |
| Environment<br>Temperature    | Installation           | °C      | - 10/60  |     |     |
|                               | Operation              |         | - 30/70  |     |     |
|                               | Storag                 |         | - 40/70  |     |     |