

### Fiber G.652.D

#### Singlemode Optical Fiber

Zero Water Peak Singlemode Fiber(VAD Process). V-Protect offers ANYWAVE®(Low Water Peak) singlemode optical fiber produced by the Vapour Phase Axial Deposition (VAD) method, which enables construction of high-capacity, low-cost transmission in Metropolitan and WDM Network. ANYWAVE®singlemode optical fiber has step index and matched clad type characteristics operating in the entire wavelength region from 1280 nm to 1625 nm, free of OH-peak at  $1383 \pm 3$  nm in compliance with the latest ITU-T G.652.D standard. ANYWAVE®fiber has low PMD (Polarization Mode Dispersion) and supports legacy transmission equipment and applications.



#### ▣ Features

- Conspicuous lower attenuation
- Superior bending performance
- Mechanically strippable coating
- Excellent geometric properties for low splicing loss
- Transmission capacity at 1285nm and 1625nm

#### ▣ Application

- Data communication cable
- FTTH network cable
- Long haul telecommunication cable
- CATV cable
- Long term reliability for attenuation

#### ▣ Fiber characteristics

|                                                | Single mode                                    | G.652.D                                                                                                                                                   |
|------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| ■ <b>Fiber type</b>                            |                                                |                                                                                                                                                           |
| ■ <b>Composition</b>                           |                                                |                                                                                                                                                           |
| Core                                           |                                                | Germanium doped silica                                                                                                                                    |
| Cladding                                       |                                                | Silica, step index and matched clad type                                                                                                                  |
| Coating                                        |                                                | Dual layers of UV-cured acrylate                                                                                                                          |
| ■ <b>Geometrical Characteristics</b>           |                                                |                                                                                                                                                           |
| Mode field diameter                            |                                                | $9.2 \pm 0.4 \mu\text{m}$ at 1310 nm<br>$10.4 \pm 0.5 \mu\text{m}$ at 1550 nm                                                                             |
| Cladding diameter                              |                                                | $125.0 \pm 0.7 \mu\text{m}$                                                                                                                               |
| Core/cladding concentricity error              |                                                | $\leq 0.5 \mu\text{m}$                                                                                                                                    |
| Cladding non-circularity                       |                                                | $\leq 0.7 \%$                                                                                                                                             |
| Fiber curl radius                              |                                                | $\geq 4 \text{ m}$                                                                                                                                        |
| Primary coating diameter (for uncolored fiber) |                                                | $242 \pm 5 \mu\text{m}$                                                                                                                                   |
| Primary coating diameter (for colored fiber)   |                                                | $250 \pm 10 \mu\text{m}$                                                                                                                                  |
| Coating/cladding concentricity error           |                                                | $\leq 12 \mu\text{m}$                                                                                                                                     |
| ■ <b>Optical Characteristics</b>               |                                                |                                                                                                                                                           |
| Attenuation                                    | at 1310 nm<br>at 1550 nm<br>at $1383 \pm 3$ nm | $\leq 0.334 \text{ dB/km}$<br>$\leq 0.194 \text{ dB/km}$<br>$\leq 0.31 \text{ dB/km}$ (after $\text{H}_2$ aging)                                          |
| Attenuation Change                             | at 1285 ~ 1330 nm<br>at 1525 ~ 1575 nm         | $\leq 0.03 \text{ dB/km}$ (1310 nm reference)<br>$\leq 0.02 \text{ dB/km}$ (1550 nm reference)                                                            |
| Point discontinuity                            | at 1310 nm and 1550 nm                         | $\leq 0.05 \text{ dB}$                                                                                                                                    |
| Zero dispersion wavelength                     |                                                | 1302 ~ 1322 nm                                                                                                                                            |
| Zero dispersion slope                          |                                                | $\leq 0.090 \text{ ps}/(\text{nm}^2 \cdot \text{km})$                                                                                                     |
| Chromatic dispersion                           | at 1285 ~ 1330 nm<br>at 1550 nm<br>at 1625 nm  | $\leq 3.5 \text{ ps}/(\text{nm} \cdot \text{km})$<br>$\leq 18 \text{ ps}/(\text{nm} \cdot \text{km})$<br>$\leq 22 \text{ ps}/(\text{nm} \cdot \text{km})$ |

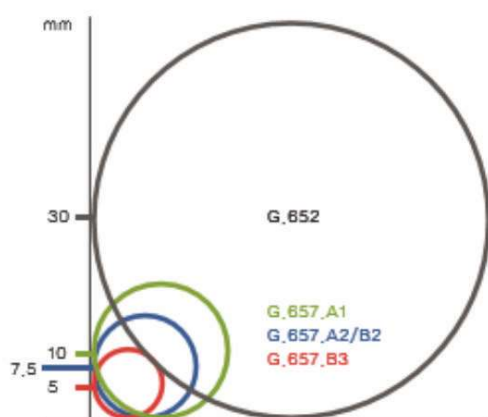
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## Optical fiber

|                                              |                                                      |
|----------------------------------------------|------------------------------------------------------|
| Cable cut-off wavelength ( $\lambda_{cc}$ )  | $\leq 1260$ nm                                       |
| PMD for individual value (uncabled fiber)    | $\leq 0.15$ ps/ $\sqrt{\text{km}}$                   |
| for link value                               | $\leq 0.1$ ps/ $\sqrt{\text{km}}$                    |
| <b>■ Mechanical Characteristics</b>          |                                                      |
| Fiber proof test level                       | $\geq 120$ kpsi (1.2 % strain)                       |
| Macrobending loss:                           |                                                      |
| for 100 turns at a 25 mm mandrel radius      | $\leq 0.05$ dB at 1310 nm, $\leq 0.05$ dB at 1550 nm |
| for 100 turns at a 30 mm mandrel radius      | $\leq 0.05$ dB at 1625 nm                            |
| for 1 turn at a 16 mm mandrel radius         | $\leq 0.05$ dB at 1550 nm                            |
| Coating strip force                          | 1.3 ~ 8.9 N                                          |
| Dynamic fatigue resistance parameter         | $\geq 20$                                            |
| <b>■ Environmental Characteristics</b>       |                                                      |
| Induced attenuation at 1310 nm and 1550 nm:  |                                                      |
| from -60°C to +85°C temperature cycling      | $\leq 0.05$ dB/km                                    |
| +85°C / 98 % RH temperature humidity cycling | $\leq 0.05$ dB/km                                    |
| +85°C heat aging                             | $\leq 0.05$ dB/km                                    |
| +23°C water immersion                        | $\leq 0.05$ dB/km                                    |

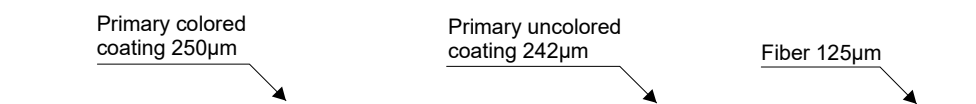
## Radius



## Packing

| Fiber type           | Singlemode           | G.652.D    |            |
|----------------------|----------------------|------------|------------|
|                      |                      | up to 25,2 | up to 50,4 |
| Length on spool [km] |                      |            |            |
|                      |                      |            |            |
| Spool dimension      | Flange diameter [mm] | 234.5      | 265        |
|                      | Barrel diameter [mm] | 152.0      | 170        |
|                      | Inner width [mm]     | 96.0       | 150        |
|                      | Outer width [mm]     | 116.0      | 175        |
|                      | Bore diameter [mm]   | 25.4       | 25,4       |

## Fiber construction



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Optical fiber

### Order code

OC-F2D-x

#### Fiber color

**00** - neutral, **01** - red, **02** - green, **03** - blue, **04** - yellow, **05** - white, **06** - grey, **07** - brown, **08** - violet, **09** - aqua, **10** - black, **11** - orange, **12** - pink, **13** - neutral/black, **14** - red/black, **15** - green/black, **16** - blue/black, **17** - yellow/black, **18** - white/black, **19** - grey/black, **20** - brown/black, **21** - violet/black, **22** - aqua/black, **23** - black/white, **24** - orange/black, **25** - pink/black

#### Standard colours:

| Fiber type   | G.652.D | G.657.A1,A2,B3 | OM1 62,5/125 | OM2 50/125 | OM3 50/125 | OM4 50/125 | OM5 50/125 |
|--------------|---------|----------------|--------------|------------|------------|------------|------------|
| Fiber colour | Yellow  | White          | Blue         | Orange     | Aqua       | Violet     | Green      |
| RAL          | 1021    | 9010           | 5015         | 2003       | 6027       | 4005       | 6001       |

### Label on the spool contain

Tape of fiber  
Length

### Warranty

V-Protect warrants that the delivered fibers meet this specification. If the fibers fail to meet this specification, V-Protect agrees to replace such failed fibers. V-Protect makes no warranty, however, as to the results to be obtained from the use of these fibers. In no event shall V-Protect be liable for removal or installation costs or other indirect or consequential damages.