

**Cut Sheet #4011**

DIAMOND LINE

Directional Side Light Fiber

Figure 1

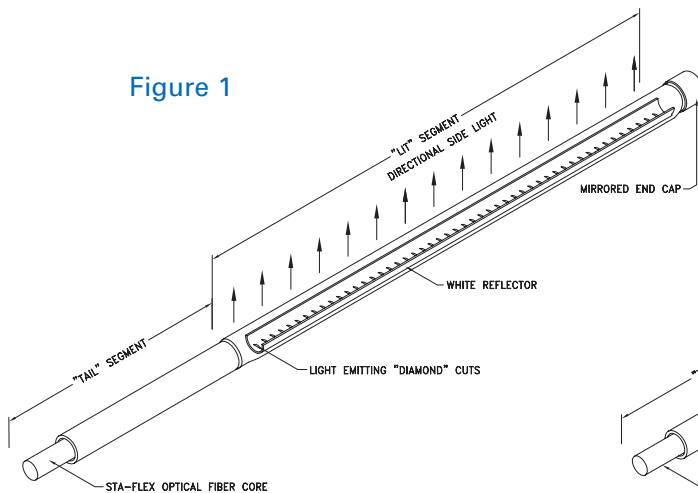
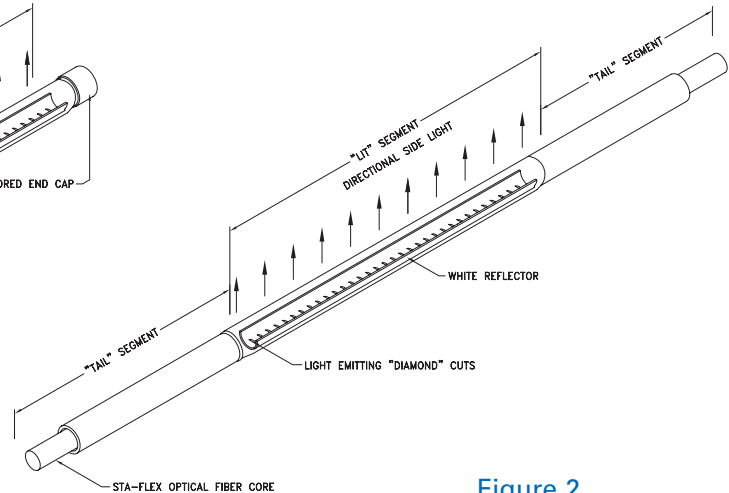


Figure 2



Diamond Line is a unique large core fiber which extracts light directionally in a 30° or 60° linear beam. Because light is actually projected out of the fiber, Diamond Line is the ideal choice for applications requiring more light than conventional 360° radiating fiber optics. Whether for indirect applications such as cove lighting, or when viewed directly, as in architectural perimeters, the results will be extraordinarily bright with Diamond Line. And when you combine Diamond Line's brilliance with the color-changing ability of fiber optics, you have the perfect zero-maintenance alternative to linear LEDs.

One Fiber...Two Distinct Segments

Although Diamond Line is one continuous piece of fiber, it is actually composed of two segments with differing purposes and composition. The Tail Segment works as a light guide, transmitting the maximum amount of uninterrupted light to the Lit Segment. The Lit Segment itself incorporates a reflector, along with light-emitting "diamond" cuts, to extract bright, even light along the Lit length.

Customized Light Extraction

Although Diamond Line is designed to emit high levels of light regardless of length, shorter lengths do produce higher intensity than longer lengths. When multiple pieces of Diamond Line are used in one application, the "diamond" cuts along the Lit Segment can be adjusted to match the light output from piece to piece. This customization is done during our state-of-the-art production process and should be discussed with our lighting designers prior to order placement.

Specifying and Ordering

Due to the different functions of Tail Segments and Lit Segments, orders for Diamond Line must provide separate measurements for each segment. For single-ended configurations (see Figure 1) your order must include a specified Tail length and a specified Lit length (a mirrored end seal will be added automatically.) For double-ended or looped configurations (see Figure 2) your order must include a specified Lit length as well as two specified Tail lengths.

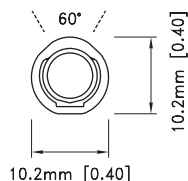
Additional Uses

In addition to its superior performance in cove lighting and architectural perimeters, Diamond Line is also great for use under counters or toe-kicks, or in underwater applications such as pools and fountains. When specifying Diamond Line for use in a submersible application, please select a fiber with the WR designation at the end of the catalog number. The WR version includes the extra protection of a water resistant Teflon jacket for years of extraordinary brilliance.



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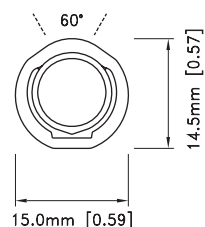
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Outer Diameter: 10.4mm (0.410")
Rec. Min.
Bend Radius: 125mm (4.92")
Beam Spread: 60°
Jacket Type: Clear PVC
Weight Per Foot: 32g. (1.13oz.)
Operating Temp.: Up to 90°C (194°F)
Tracking Size: 11mm

Catalog No. F-DL-DSL-LC-6011
Description

11mm Diamond Line directional large core side light fiber with 10.4mm outer diameter and a clear PVC jacket with UV inhibitors; includes "diamond" cuts and integral reflector producing a 60° beam of light evenly extracted across the fiber's length; for indoor and outdoor use.

Max Tails 9mm: 1
Max Tails 28mm: 3

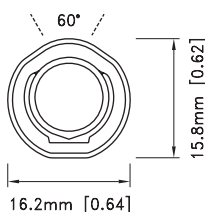


Outer Diameter: 15.1mm (.595")
Rec. Min.
Bend Radius: 181mm (7.13")
Beam Spread: 60°
Jacket Type: Clear PVC
Weight Per Foot: 63 g. (2.2 oz.)
Operating Temp.: Up to 90°C (194°F)
Tracking Size: 15mm

Catalog No. F-DL-DSL-LC-6015
Description

15mm Diamond Line directional large core side light fiber with 15.1mm outer diameter and a clear PVC jacket with UV inhibitors; includes "diamond" cuts and integral reflector producing a 60° beam of light evenly extracted across the fiber's length; for indoor and outdoor use.

Max Tails 9mm: N/A
Max Tails 28mm: 3



Outer Diameter: 15.8mm (.622")
Rec. Min.
Bend Radius: 190mm (7.48")
Beam Spread: 60°
Jacket Type: Teflon
Weight Per Foot: 63 g. (2.2 oz.)
Operating Temp.: Up to 90°C (194°F)
Tracking Size: 15mm

Catalog No. F-DL-DSL-LC-6015WR
Description

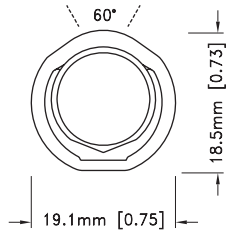
15mm Diamond Line directional large core side light fiber with 15.8mm outer diameter and a clear Teflon jacket for water resistance; includes "diamond" cuts and integral reflector producing a 60° beam of light evenly extracted across the fiber's length; for indoor, outdoor and submersible use.

Max Tails 9mm: N/A
Max Tails 28mm: 3

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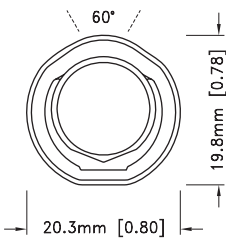


Outer Diameter: 19.3mm (.76")
Rec. Min.
Bend Radius: 232mm (9.13")
Beam Spread: 60°
Jacket Type: Clear PVC
Weight Per Foot: 100 g. (3.47 oz.)
Operating Temp.: Up to 90°C (194°F)
Tracking Size: 19mm

Catalog No. **F-DL-DSL-LC-6019**

Description
 19mm Diamond Line directional large core side light fiber with 19.3mm outer diameter and a clear PVC jacket with UV inhibitors; includes "diamond" cuts and integral reflector producing a 60° beam of light evenly extracted across the fiber's length; for indoor and outdoor use.

Max Tails 9mm: N/A
Max Tails 28mm: 2

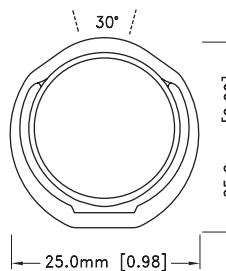


Outer Diameter: 19.8mm (.779")
Rec. Min.
Bend Radius: 238mm (9.37")
Beam Spread: 60°
Jacket Type: Teflon
Weight Per Foot: 100 g. (3.47 oz.)
Operating Temp.: Up to 90°C (194°F)
Tracking Size: 20mm

Catalog No. **F-DL-DSL-LC-6019WR**

Description
 19mm Diamond Line directional large core side light fiber with 19.8mm outer diameter and a clear Teflon jacket for water resistance; includes "diamond" cuts and integral reflector producing a 60° beam of light evenly extracted across the fiber's length; for indoor, outdoor and submersible use.

Max Tails 9mm: N/A
Max Tails 28mm: 2



Outer Diameter: 25.5mm (1.00")
Rec. Min.
Bend Radius: 306mm (12.05")
Beam Spread: 30°
Jacket Type: Clear PVC
Weight Per Foot: 190 g. (6.78 oz.)
Operating Temp.: Up to 90°C (194°F)
Tracking Size: 25mm

Catalog No. **F-DL-DSL-LC-3025**

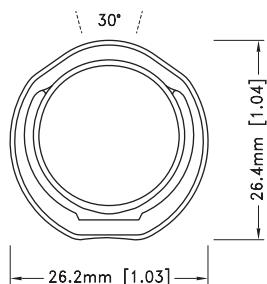
Description
 25mm Diamond Line directional large core side light fiber with 25.5mm outer diameter and a clear PVC jacket with UV inhibitors; includes "diamond" cuts and integral reflector producing a 30° beam of light evenly extracted across the fiber's length; for indoor and outdoor use.

Max Tails 9mm: N/A
Max Tails 28mm: 1



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Outer Diameter: 26.4mm (1.03")
Rec. Min. Bend Radius: 317mm (12.48")
Beam Spread: 30°
Jacket Type: Teflon
Weight Per Foot: 190 g. (6.78 oz.)
Operating Temp.: Up to 90°C (194°F)
Tracking Size: 25mm

Catalog No. F-DL-DSL-LC-3025WR

Description

25mm Diamond Line directional large core side light fiber with 26.4mm outer diameter and a clear Teflon jacket for water resistance; includes "diamond" cuts and integral reflector producing a 30° beam of light evenly extracted across the fiber's length; for indoor, outdoor and submersible use.

Max Tails 9mm: N/A
Max Tails 28mm: 1

DIAMOND LINE application notes

1. The recommended maximum length for a Diamond Line directional side light application is dependent on illuminator type and configuration. Double-ended and looped configurations (refer to Figures 1 and 2) can have much longer fiber lengths than single-ended configurations (refer to Figure 3.)
2. With some fiber sizes, multiple double-ended lengths of fiber can be "daisy-chained" together to create longer effects. In a daisy-chain configuration, illuminators should be spaced evenly along the total length to ensure uniform light output across the entire line. Daisy-chaining does reduce light output by as much as 40% compared to double-ended systems (refer to Figure 4.)
3. When calculating fiber lengths, allow for an extra one foot service loop of cable per illuminated end of fiber. This service loop will allow for slight changes in illuminator location or orientation, and also allows the cable to be re-harnessed in the future, if required.
4. Straight, uninterrupted fiber runs are best for optimum light output. The minimum bending radius for each fiber is shown in the individual product details, but larger bends are recommended if the application permits.
5. Diamond Line directional side light fiber is most effective in environments with medium to low ambient light levels, depending on the application.
6. Due to the rigidity of Diamond Line fiber, the use of side-by-side mounting track is strongly advised for creating both straight lines and curves. (Mounting track must be field-cut into smaller segments to create curves.)
7. Fiber exiting the illuminator must remain straight for a minimum of 18" to avoid significantly reduced light transmission. (Refer to Figure 5.)
8. Fiber optic cable is not plenum rated. Please consult local codes to determine installation requirements, which may include routing of all fibers through metal conduit.
9. When using conduit to route fiber runs between the illuminator and visible application, conduit must be large enough to allow the fiber (and end seal, where applicable) to move freely. Electrical sweeps or bends of 8 – 12" minimum radius must be used at all turns. No hard 90° angles may be used.
10. The Diamond Line fiber core must be protected from water/moisture and sunlight intrusion. Mirrored-End Seals are factory installed on all single-ended fibers.

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FIGURE 1. Fiber Lengths in Double-Ended Configuration



FIGURE 2. Fiber Lengths in Looped Configuration



FIGURE 3. Fiber Lengths in Single-Ended Configuration



FIGURE 4. "Daisy-Chain" Configuration vs. Double-Ended Configuration

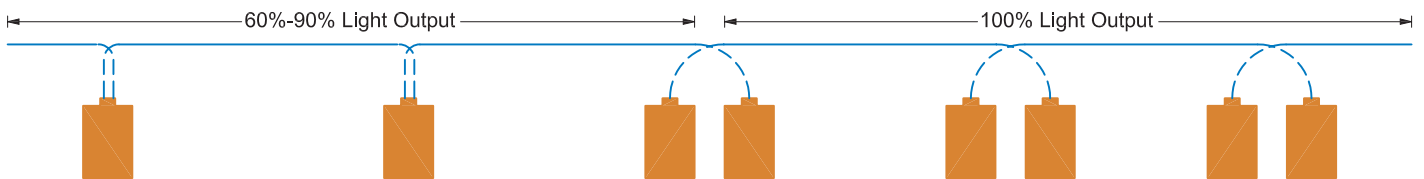


FIGURE 5. Fiber Exiting the Illuminator

