



# Get the straight story on Corning® ClearCurve® fiber



## The Straight Story about Bend-Insensitive Multimode Fibers

Bend-insensitive multimode fibers (BIMMFs) use an innovative core design that enables them to significantly reduce macrobend loss even in the most challenging bend scenarios. But not all bend-insensitive multimode fibers are created equal, and differences in the design of BIMMFs have resulted in some misunderstandings about how these fibers perform.

Here are answers to some of the questions you may have about bend-insensitive multimode fiber technology.



### 1. Are bend-insensitive multimode fibers standards compliant?

Well designed bend-insensitive multimode fibers are indeed standards compliant. Corning ClearCurve® multimode fiber is fully compliant to the industry standards for 50 µm multimode fiber:

- IEC 60793-2-10 for A1a class 50/125 multimode fibers
- TIA/EIA 492AAAB (OM2), 492AAAC-A (OM3), and 492AAD (OM4)
- ITU-T Recommendation G.651
- ISO/IEC 11801 Grade OM2, OM3 and OM4



Ensuring ClearCurve multimode fiber is fully standards compliant means no compatibility issues when combining ClearCurve multimode fiber with any other standards-compliant 50 µm multimode fiber (bend-insensitive or conventional).

### 2. How is a bend-insensitive multimode fiber different from a conventional multimode fiber?

Bend-insensitive multimode fiber is similar to standard multimode fiber except there is an optical trench surrounding the fiber's core. If you bend a conventional fiber too tightly the modes of light can often leak out of the core, resulting in signal degradation. With a well-designed bend-insensitive multimode fiber, the optical trench acts like a barrier to keep the modes of light inside the core even during tight bends.



It is critical to select a bend-insensitive multimode fiber, like Corning ClearCurve multimode fiber, that is well-designed and remains fully standards compliant. Bend-insensitive multimode fibers that do not carefully manage the design of the optical trench may end up being non-standards-compliant and have the potential for performance issues.

### 3. Is there really a benefit to having bend-insensitive multimode fiber in your network?

Absolutely. Although initial installations typically follow all the rules for routing cables and managing slack, the pristine nature of the installation doesn't last long when subjected to repetitive moves, adds and changes. The minimum bend radius of the fiber may become compromised despite cable management components. An example of this is that conduit or cable trays can become overcrowded as new links are added into the network, compressing or pinching the fiber.



Of course, ClearCurve multimode fiber was never intended to encourage poor handling or bad practices in the field. But sometimes mistakes and mishaps can happen. ClearCurve multimode fiber is a no-additional-cost insurance policy that covers your entire network, and that insurance can mean the difference between a close call and network downtime.



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#### 4. Are bend optimized fibers proven in the market or are there risks I need to be aware of? Can I really use a bend-insensitive multimode fiber with other multimode fibers without performance issues? Do I need to use special tools or processes to terminate or connectorize a bend-insensitive fiber?

ClearCurve® multimode fiber is absolutely proven in the market, and with no issues. Since March 2010, Corning has been shipping ClearCurve multimode fiber to all of our contract customers, and to date has had with no issues or customer complaints from the switch.



Before launching this product Corning did extensive testing to understand and explore the potential risks to our customers, including compatibility and interoperability with other manufacturers' standards-compliant multimode fibers. No issues were observed. In addition, several of our customers have done their own testing which has also shown no issues. As long as both fibers are standards compliant, you can and should feel confident about combining ClearCurve multimode fiber with other multimode fiber in the same network.

#### 5. Does the unique design of this fiber impact its strength? Or is there a concern that the improved bend performance could mask a situation that may eventually lead to a fiber break?

No. The mechanical reliability of Corning ClearCurve multimode fiber is equivalent to Corning's other standard fibers as deployed in the field.



Remember, any bend enhanced multimode fiber only addresses the optical performance at tight bends. It does not change the mechanical capabilities of the fiber. In terms of bend performance, ClearCurve multimode fibers offer up to 10x better bend performance than standard 50  $\mu\text{m}$  multimode fibers at the most stringent bend requirements described in standards.



Without ClearCurve multimode fiber, a severe bend will likely cause immediate system slow-down and/or failure. This means having to send someone to identify and locate the cause of the problem and fix that problem immediately. With ClearCurve multimode fiber, a severe bend is less likely to cause immediate system slow-down and/or failure. While it is true that a severe bend may eventually lead to a fiber break, it is also possible that it will not break during the lifetime of the product. Therefore, the worst case scenario is that eventually a technician has to come out and fix the problem. This is no different than in the case of standard 50  $\mu\text{m}$  except that this action is delayed – and there are likely to be fewer overall bend-related issues. This will save you the stress and inconvenience of being without connection for an indefinite length of time.

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