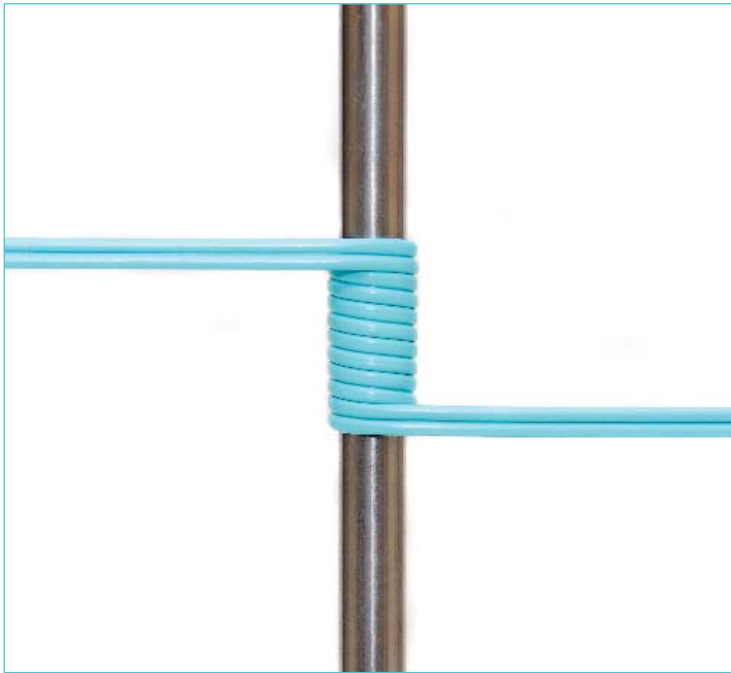


Just the Technical Facts



Laser-optimized multimode cable assemblies with ultra-bendable performance mitigate the risks of increased attenuation loss caused by macrobending.

Pretium® Low-Loss OM3 Jumpers with Ultra-Bendable Performance

Customers face continual demands in their data centres and enterprise networks as a result of the increasing growth in high-bandwidth applications. At 10 Gb/s and higher transmission speeds, available margins tighten and systems become more sensitive to additional splices, connectors or bends. Consequently, these networks must operate as efficiently as possible. Laser-optimized 50 μm assemblies with ultra-bendable performance mitigate the risks of increased attenuation loss caused by macrobending and allow system designs to accommodate space constraints and tight bends.

How is the ultra-bendable performance achieved?

The enhanced bend performance of Corning Cable Systems Low-Loss OM3 Jumpers is enabled by Corning's new ClearCurve® multimode fibre. Light traveling in an optical fibre will remain confined in the core when the pathway is relatively straight. When an optical fibre is bent, portions of the light will escape from the core of the fibre as it navigates around the bend (See figure 1). Although there are many proven technologies to achieve optimized bend performance, Corning selected an engineered optical trench technology for the new ClearCurve multimode fibre. The optical trench secures the modes in the core of the fibre, resulting in less signal loss.

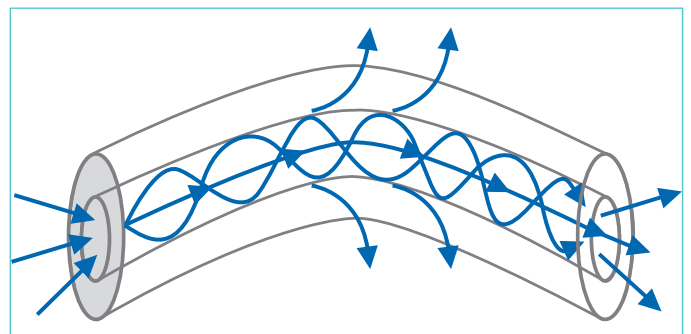


Figure 1: Light traveling down a bent multimode fibre.

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Just the Technical Facts

Pretium® Low-Loss OM3 Jumpers with Ultra-Bendable Performance

How will low-loss, ultra-bendable jumpers reduce my risk of network downtime?

Current studies¹ estimate that cable and connectors account for 5-10 percent of the downtime companies experience during a year. Loss degradation accounts for roughly 50 percent of total outages. Corning Cable Systems low-loss jumpers with ultra-bendable performance will greatly reduce, if not eliminate, most outages and loss degradation in the system caused by macrobending. Even when best practices are employed, mistakes can occur that result in kinked cables and cables bent beyond the recommended minimum bend radius. Examples of these situations may include jumpers closed in housing doors, jumpers pulled too tightly against tie wraps in slack loops and jumpers caught in drawers as they are pulled from the housing.

Each 'event' can result in unnoticed attenuation that causes a live system running close to its link loss budget to degrade to levels higher than the desired bit error rate (BER) of 10^{-12} , leading to reductions in network throughput. Corning Cable Systems testing has shown typical events (such as those above) can increase BER to levels of 10^{-9} to 10^{-6} . Low-loss jumpers with ultra-bendable performance are the insurance policy to protect against these degradation events.

Where does the risk reduction value of the ultra-bendable jumpers matter?

Pretium® Low-Loss OM3 Jumpers with Ultra-Bendable Performance can have a positive system impact where, based on distance and connector pairs, the available headroom is 2.0-4.0 dB. As a level of comparison, macrobending events that cause up to 5.0 dB of attenuation with standard 50 μ m jumpers experience 0.2-1.5 dB of attenuation with the ultra-bendable jumpers. The value of these jumpers is highlighted in data centres, where 10 Gb/s speeds are employed and margins are tight. This value only increases as systems migrate to 40 and 100 Gb/s speeds.

Can you provide examples of the risk mitigation associated with the ultra-bendable jumpers?

The photos shown at right represent the attenuation and BER impact of a standard OM3 jumper closed in a housing door (Figure 2) versus a low-loss ultra-bendable jumper under the same conditions.

(Figure 3).

Five and a half minutes after closing the standard jumper in the housing door, the BER was 10^{-6} with an attenuation of 3.4 dB².

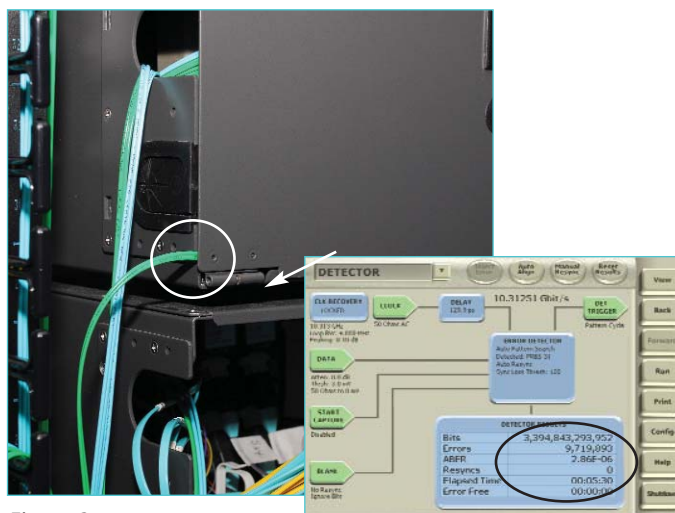


Figure 2:

Macrobend induced with a standard multimode fibre jumper.

Five and a half minutes after closing the low-loss ultra-bendable OM3 jumper in the housing door, the BER level was better than 10^{-12} with an attenuation of 1.5 dB.

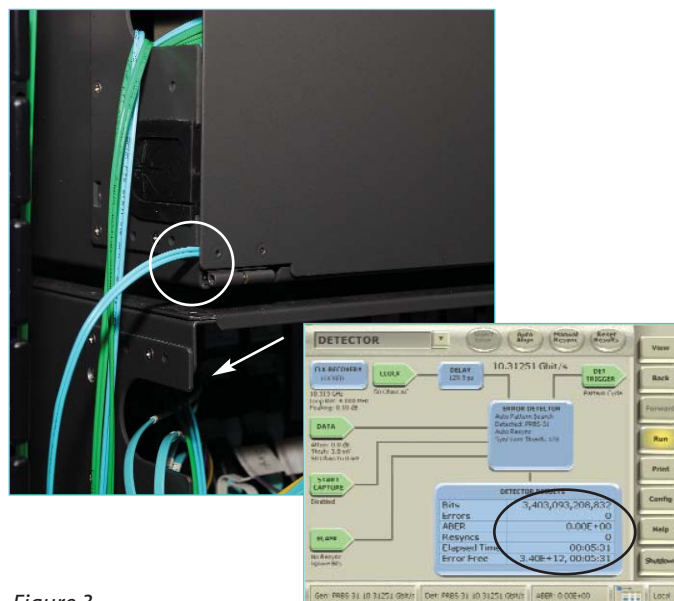


Figure 3:

Macrobend induced with a Pretium® Low-Loss OM3 Jumper with Ultra-Bendable Performance.

Just the Technical Facts

Pretium® Low-Loss OM3 Jumpers with Ultra-Bendable Performance

The photos below demonstrate the impact of a standard laser optimized jumper and the low-loss ultra-bendable OM3 jumper (Figures 5 and 6) in a slack loop with a tightly applied tie wrap. This test was used to simulate a typical move-add-change (MAC) event when the slack loop is not properly adjusted and is pulled too tight as the jumper is rerouted. With ClearCurve multimode fibre within Corning Cable Systems' low-loss jumpers, what would have been a probable outage becomes a non-event.

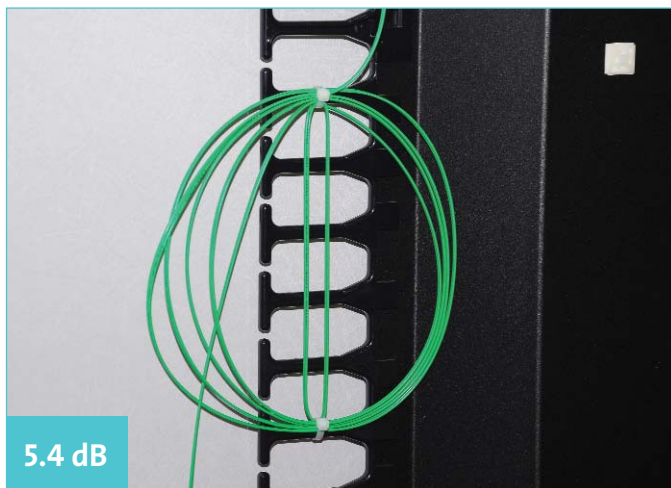


Figure 4: Attenuation of Standard Jumper 5.4 dB

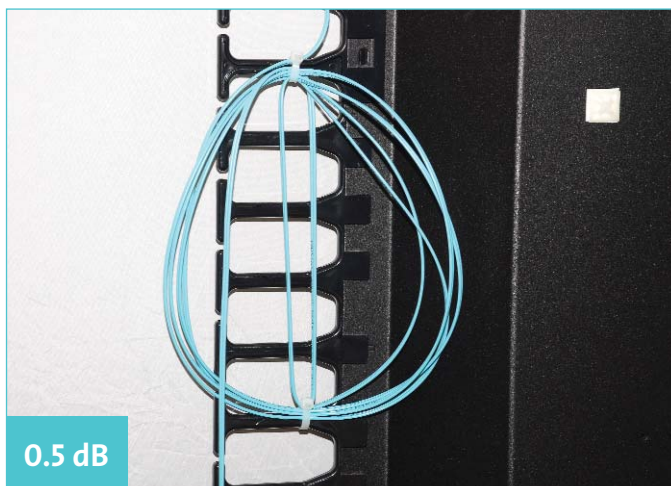


Figure 5: Attenuation of Low-Loss Ultra-Bendable Jumper 0.5 dB

The following photos (Figures 6 and 7) represent the attenuation impact of a 2.0 mm standard laser optimized zipcord cable versus the ultra-bendable OM3 zipcord cable under mandrel wrap conditions. An 11 mm mandrel was used.

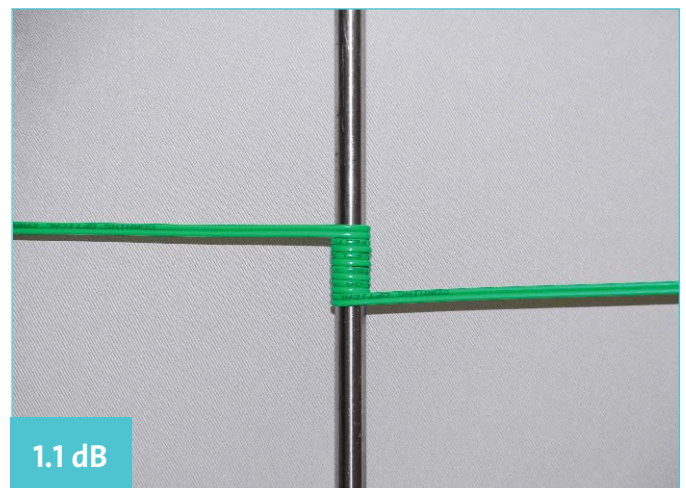


Figure 6: Attenuation of standard jumper (1.1 dB with 11 mm mandrel wrap)

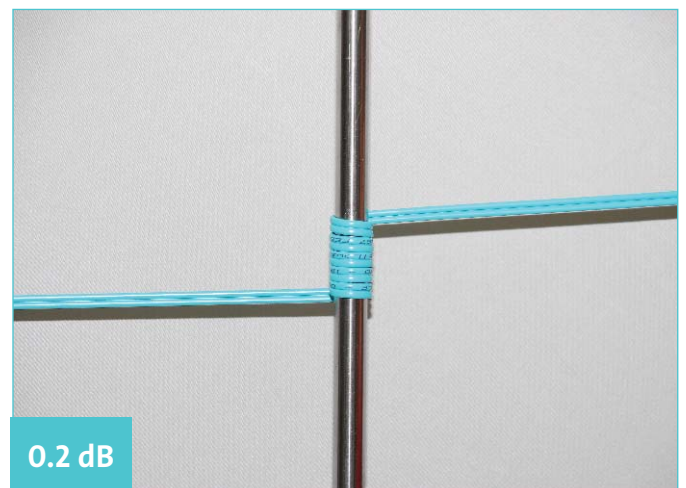


Figure 7: Attenuation of low-loss ultra-bendable jumper (0.2 dB with 11 mm mandrel wrap)

Just the Technical Facts

Pretium® Low-Loss OM3 Jumpers with Ultra-Bendable Performance

What are the bend specifications for the jumpers?

Cable O.D. (mm)	Minimum Bend Radius of Cable Leg (mm)
2.8 x 5.7	14.0
2.0 x 4.1	10.0
1.8 x 3.7	9.0

What connector and cable types are available?

Corning Cable Systems Pretium Low-Loss OM3 Jumpers with Ultra-Bendable Performance are available as SC duplex and LC duplex assemblies. Riser, plenum and FRNC/LSZH versions are available. Refer to the specification sheet (LAN-09-05-05 EN) for part numbers.

How can I tell the difference between the Pretium low-loss OM3 ultra-bendable jumper and a standard OM3 jumper in the field or in a rack?

The print statement on the cable clearly identifies the jumper as a Corning Cable Systems ultra-bendable assembly. Below is an example of the print statement.

CORNING 2009 J-VH 2G50/125
PRETIUM 300– ULTRA-BEND 7.5 TB3

Are there other applications in which the performance of the Corning Cable Systems ultra-bendable jumpers have value?

Any application in which bend restrictions put the network at risk of degradation will benefit from the Pretium Low-Loss OM3 jumpers with Ultra-Bendable Performance.

Fibre-to-the-desk applications will benefit from the bend tolerance of the jumpers, particularly when wound tightly in a space restricted outlet junction box and when routed across the floor, around corners and office cubical walls.

Where can I purchase Corning Cable Systems Pretium Low-Loss OM3 Jumpers with Ultra-Bendable Performance?

The jumpers are available through authorized Corning Cable Systems distributors.

Notes:

¹Infonetics, *The Cost of Network Downtime in Medium Businesses*, 2006.

²Attenuation data was collected using overfilled launch conditions.