

The “Halo Effect” – Understanding the End Face Appearance of LaserWave® FLEX Bend-Optimized Multimode Fiber

LaserWave® FLEX 50 μm multimode fiber provides *improved bending performance* at tight radii by confining “higher order” modes (those operating closer to the core/clad interface) that normally escape from standard multimode fiber under bent conditions. To do this, OFS has modified the fiber cladding area surrounding the core to include a *trench* that prevents light from escaping. The trench area is carefully designed to properly confine and control this light in order to maintain *excellent system performance and low connection loss*, even when mated to standard 50 μm multimode fiber.

Because of this trench, careful inspection of the fiber’s end face (usually conducted with a fiber scope after connectorization) will reveal a difference from standard multimode fiber. Figure 1 below shows a standard LaserWave fiber under inspection, while Figure 2 shows a LaserWave FLEX bend-optimized fiber. Notice the ring around the core of the LaserWave FLEX fiber. This “halo effect” is generated by the light source that is used for end-face inspection. These light sources fill the entire fiber end face, allowing careful inspection of not just the core, but also the cladding area. This is important when inspecting the quality of a connector finish, *but it is not an indication of actual core size*. OFS uses a standards-compliant core diameter measurement, combined with extensive interoperability measurements, to ensure that *the halo has no negative effect on system performance*.

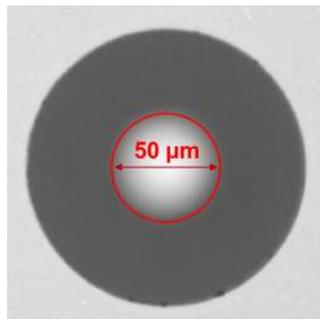


Figure 1
Standard LaserWave
50 μm Fiber End Face

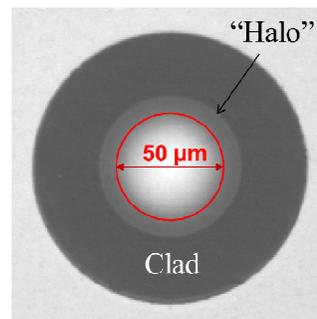


Figure 2
LaserWave FLEX 50 μm Fiber
End Face with “Halo” Effect

OFS uses both the EMBc method and the more discriminating DMD Mask method to characterize bandwidth. The DMD Mask method verifies fiber performance more effectively, especially for higher order modes. Because of this, users of LaserWave FLEX fiber are assured that they will receive the same high-quality, high-bandwidth fiber they expect from standard LaserWave fiber, with the added benefit of superior bend performance.