

Application Note AN-3008 Visible Splice Joint

Splice Acceptance Criteria (Visual Inspection) and Visible Splice Joint:

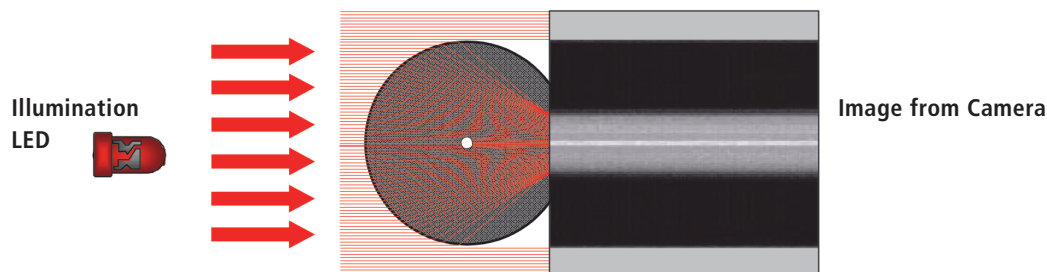
After splicing two optical fibers together the operator should make a visual inspection of the splice to ensure that there are no bubbles or other splice defects. One anomaly that may be seen when using a PAS core alignment fusion splicer is a visible splice joint.

Common properties of glass and other transparent material are directly related to the refractive index of the material:

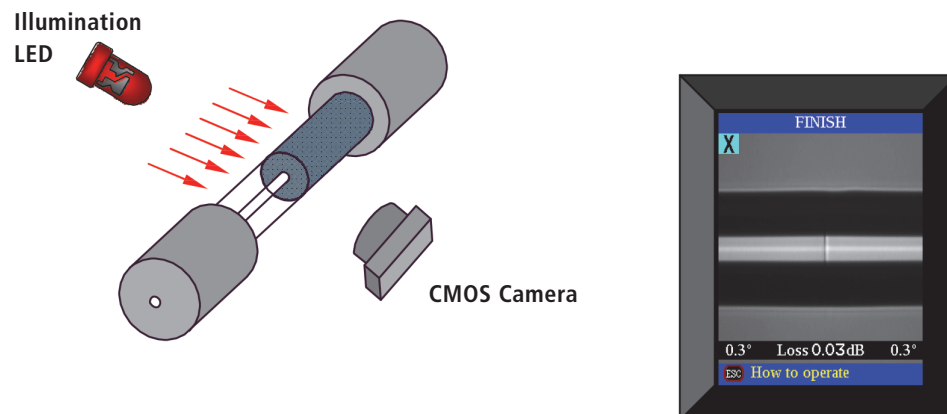
- Light is refracted as it crosses the interface at the outer edge of the material.
- Light is refracted partially from surfaces having a refractive index different from that of their surroundings.

The ray tracing simulation shown below illustrates how light behaves as it passes through an optical fiber and the resulting profile image of the fiber as observed by a high-resolution camera.

Ray Tracing Simulation

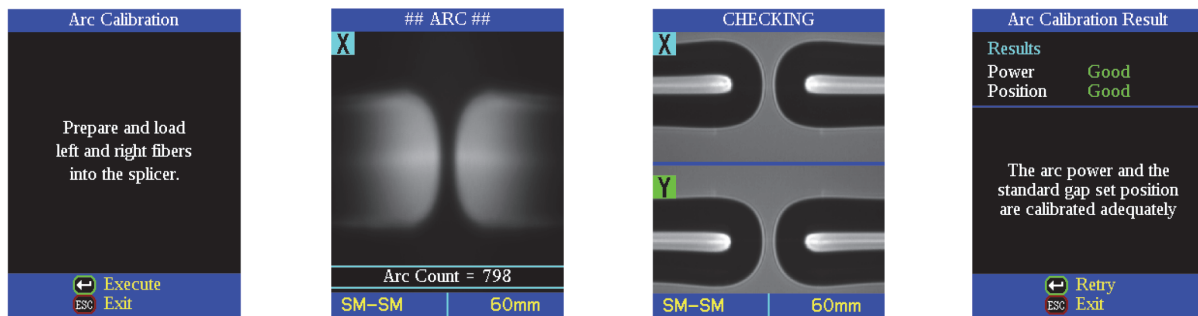


Two Fibers with Different Index of Refraction



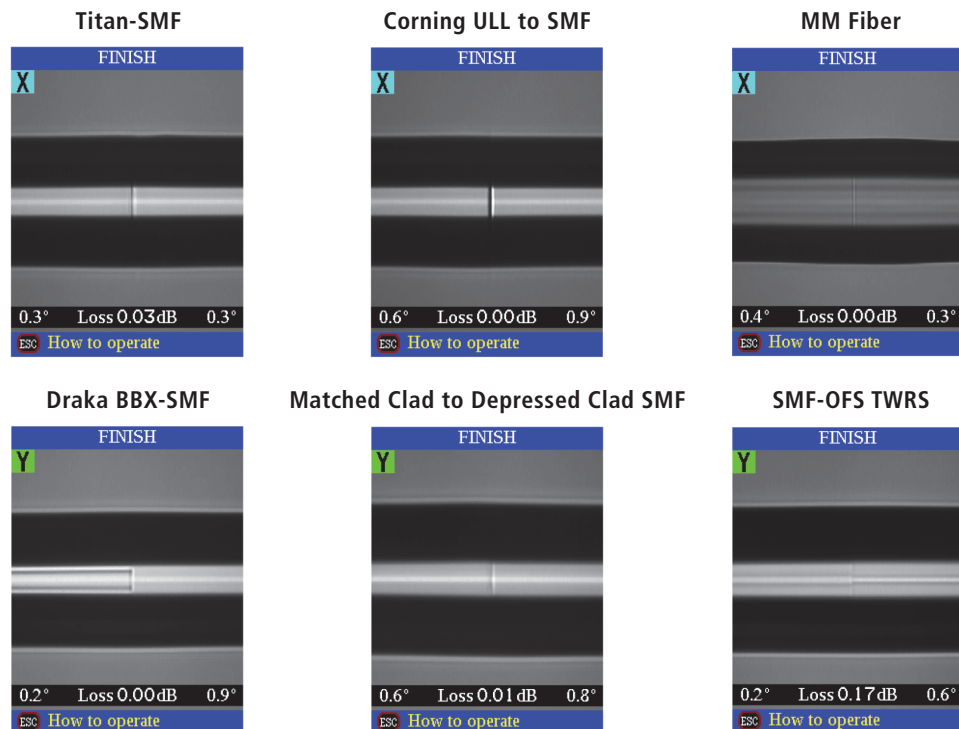
Application Note AN-3008 Visible Splice Joint (cont.)

If a visible splice joint is observed confirm that the arc power and arc position are adequate through the arc calibration (a “cold splice” can cause a visible splice joint).



When splicing two fibers having different indices of refraction, it is common to see a visible splice joint due to the properties of glass outlined above. Additionally, a faint visible splice joint is observed when splicing graded index multimode fibers as this fiber is made of many layers of glass having different refractive indices.

Below are examples of good splices made between dissimilar fibers.



Provided the arc power and arc position are good, this line has no effect on splice quality or splice strength.