

Application Note

Installing Heat Shrink Splice Sleeves in Splice Holders

Fusion splicing provides a very consistent and low loss mating of fiber optic strands. While the process is fairly easy and the use of heat shrink splice sleeves provides a strong and protective barrier to the spliced fiber optic strand there are a few considerations that should be applied when storing the finished assembly.

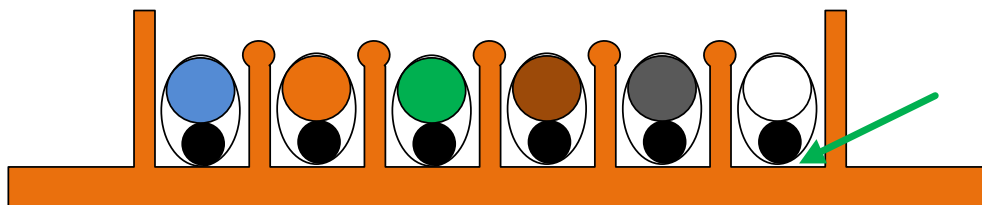
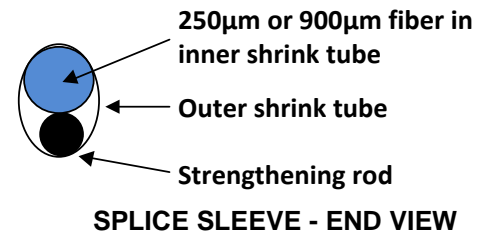
Splice trays have various methods to store the spliced fibers that all utilize a splice sleeve holding apparatus. Depending on the physical construction and dimensions of the splice tray the holders will typically be foam or plastic.

Plastic holders provide a more robust method of securing each splice sleeve while foam holders provide less opportunity to damage the splice sleeve and/or fiber during installation. This Applications Note provides recommended steps to achieve safe and successful installation into plastic fiber holders used in the Leviton injection molded splice trays and Opt-X Fiber Splice Modules.

Heat shrink splice sleeves have three components: the outer shrink sleeve, the inner shrink sleeve and the strengthening rod.

As the sleeve is heated and reduced around the fiber and strengthening rod, the assembled sleeve becomes oval in shape. The strengthening rod not only protects the fiber from stress due to radius bend control or pull tension but also provides protection during installation and removal from splice holders.

This protection is achieved by inserting the spliced fiber into a splice holder with the strengthening rod in the down position, being installed first into the target holder position. This minimizes contact of the fiber with any surface and allows the strengthening rod to be used to assist removing a splice sleeve later if necessary. The following diagram shows the recommended method for seating splice sleeves in holders.

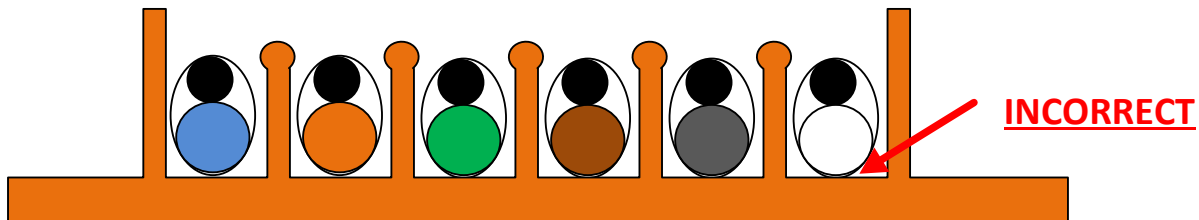


CORRECT INSERTION – STRENGTHENING ROD INSTALLED FIRST

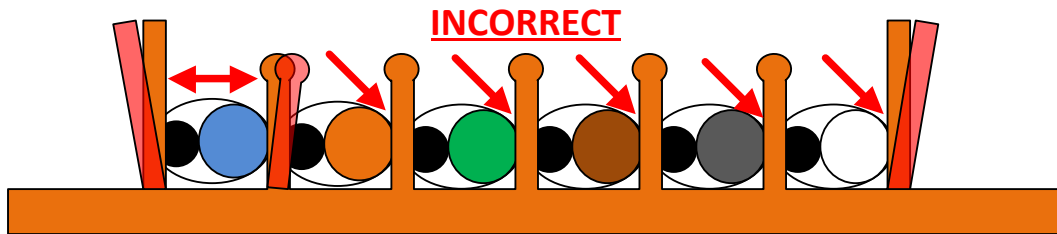
IF FIBER NEEDS TO BE REMOVED, FORCE IS APPLIED TO STRENGTHENING ROD, NOT THE FIBER

If splice sleeves are installed either fiber first or with the fiber and strengthening rod parallel to the base of the fiber holder, excess stress can be placed on the fiber holder, splice sleeve and the fiber itself.

When installed fiber first or parallel, the fiber may even experience increased insertion loss due to compression, crimping of the fiber jacket or even breakage. Insertion loss testing after using these methods of installation indicates an increase of insertion loss by as much as 0.65dB. The following diagrams show the impact of incorrectly seated splice sleeves.



INCORRECT INSERTION – FIBER FIRST CAN DAMAGE OR COMPRESS FIBER
IF FIBER NEEDS TO BE REMOVED, EXCESSIVE FORCE IS APPLIED TO FIBER



INCORRECT INSERTION – FIBER ROTATED CAN DAMAGE OR COMPRESS FIBER
HOLDER WALLS ARE FORCED OUT AS EACH SPLICE SLEEVE IS LOADED
IF FIBER NEEDS TO BE REMOVED, EXCESSIVE FORCE IS APPLIED TO FIBER

Summary: Correct installation of heat shrink splice sleeves will provide optimum protection, performance and accessibility when installed in splice holders and trays.

For more information on Leviton Fiber Optic Enclosure systems and accessories go to:
www.leviton.com/fiber

Not sure which splice tray is right for you? Try our Splice Tray Finder at
www.leviton.com/configurator