Application Note

Active Cladding vs Core Alignment – How to Select the Correct Fusion Splicer

Tempo Communications has two fusion splicer technologies. The FSP200 is Core Alignment and the 915FS is Active Cladding Alignment. The FSP200 Core Alignment fusion splicer provides lower loss fusion splices than cladding (V-Groove technology) and approximately the same losses as the 915FS Active Cladding fusion splicer (when splicing fibers of similar geometries).
Below is a comparison chart comparing the FSP200, 915FS and typical V-Groove splicers.

Parameter	FSP200	915FS	NA
Technology	Core Alignment	Active Cladding Alignment	V-Groove
Splice Loss	0.02dB (SM); 0.01dB (MM); 0.04dB (DS); 0.04dB (NZDS & BIF)	0.02dB (SM); 0.01dB (MM); 0.04dB (DS); 0.04dB (NZDS & BIF)	High Splice Loss
Number of Motors	Six	Four	Two

- The two motors not in the 915FS compared to the FSP200 are focus motors for the objective lenses. These two motors allow the Core Alignment FSP200 to find the exact center of the core of the fiber.
- No special adapters are required to splice the Tempo Communications splice on connector.
- The splice loss for the 915FS will be identical to the FSP200 if the fibers are geometrically similar (standard singlemode fibers produced the past 20 years), the splicer is clean and the V-Grooves are in good condition.

Active Cladding splicer's (915FS) have virtually the same loss specifications as the Core Alignment splicer's (FSP200) and will perform the same when splicing like fibers and are ideal for FTTH installations.

Core Alignment splicer's (FSP200) should be used when splicing:

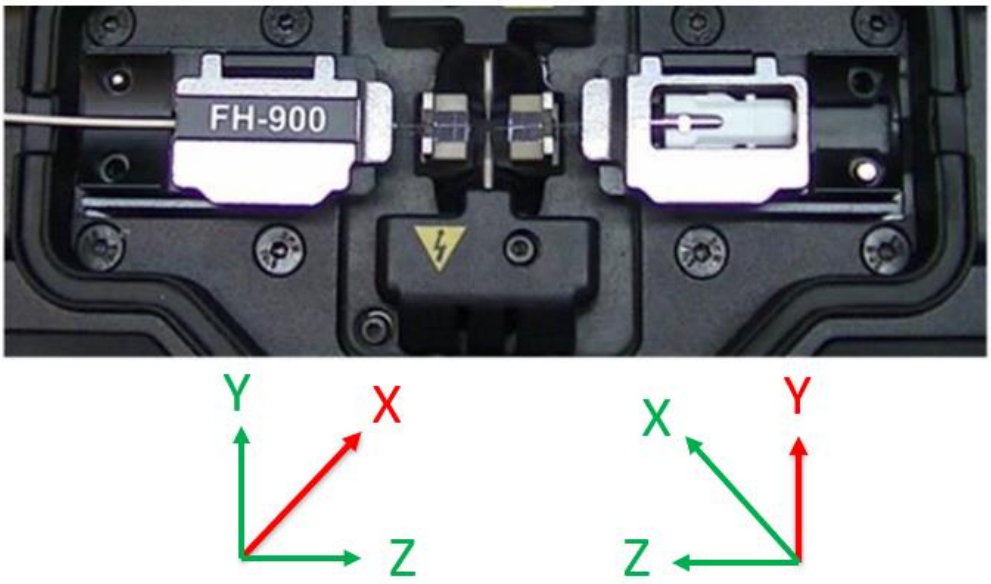
- Dissimilar fibers (old to new)
- Multimode fiber; especially dissimilar fibers. The FSP200 will likely be able to compensate for this as the two focus motors will be able to find the center of the core of the fiber to help reduce the splice loss.
- Fiber backbone and core installations

Both Active Cladding and Core Alignment splicer's will outperform V-groove splicer's because of the following:

- Ability to minimize losses due to fiber geometries (concentricity and diameters)
- Ability to compensate Dirt in the V-Groove will misalign the fibers
- Ability to compensate for misalignment or damage of the V-Grooves

Refer to the Application note **"Reducing Losses in Fusion Splicing".** V - Groove splicers specifications are not as good as an Active Clad or Core alignment splicer and degrade quickly when the splicer is not diligently cleaned and maintained.

Active Clad and Core Alignment Motor Control
Z Stages push the fiber in
X Stage #1 and Y Stage #2 align the two fibers
Two focus motors in a Core Alignment splicer locate the center of the core of the fiber by focusing onto the cleaved fiber end faces.



V - Groove Motor Control
Z Stages push the fiber in
There is no control in the X and Y domains