

3M™ Fibrlok™ Angle Fiber Splices 2529-AS and 2540-AS

3M™ Fibrlok™ AS series is specifically designed for the splicing of optical fibers in analog video networks, which require excellent optical reflection performance across temperature extremes. Utilizing keyed, angle cleaves, these Fibrlok splices direct reflected light outside of the fiber while maintaining a very low mean insertion loss of < 0.1 dB.



3M™ Fibrlok™ II Angle Fiber Splice 2529-AS

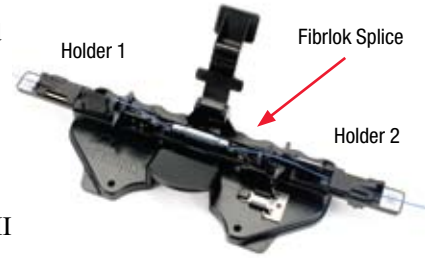
The 3M™ Fibrlok™ II Angle Fiber Splice 2529-AS splices any combination of 250 µm and 900 µm fibers while the 3M™ Fibrlok™ 250 µm Angle Fiber Splice 2540-AS specifically splices 250 µm fiber with a smaller form factor. These angle fiber splices have splice elements that have been optimized for keyed, angle cleaves and have green end caps, so they can be identified after installation. The 2529-AS and 2540-AS splices have the same size and shape as the 3M™ Fibrlok™ II Universal Optical Fiber Splice 2529 and 3M™ Fibrlok™ 250 µm Fiber Splice 2540G splices; respectively, and can be used in the same splice trays.



3M™ Fibrlok™ 250 µm Angle Fiber Splice 2540-AS

These splices are ideal for restoration or permanent splice applications, in particular for cable television or Fiber to the Home (FTTH) networks. With field proven, stable Fibrlok technology, theses splices can be installed in indoor or outdoor locations where temperatures range from -40 ºC to 70 ºC (-40 ºF to 158 ºC) and maintain their excellent reflection performance.

To fabricate an angle mechanical splice, the Fibrlok angle fiber splices are used in conjunction with the 3M™ Fibrlok™ Angle Splice Assembly Tool 2501-AS and the 3M™ Fiber Optic Angle Cleaver 2535. The 3M™ Angle Cleave Kit 2565 contains these tools and all of the fiber preparation tools necessary to terminate angle splices.



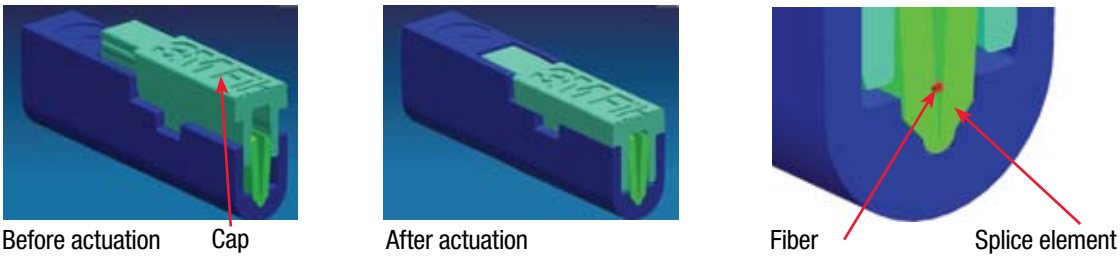
3M™ Fibrlok™ Angle Splice Assembly Tool 2501-AS

The Fibrlok 2529-AS splice and 2540-AS splice can also splice fibers with standard, flat cleaves using the 2501 Fibrlok assembly tool and 3M™ Fibrlok 250 µm Assembly Tool 2504G, respectively. The performance of these splices is comparable to the 3M™ Fibrlok™ II Universal Optical Fiber Splice 2529 and the 3M™ Fibrlok™ 250 µm Fiber Splice 2540G.

Whether the application is aerial, buried, underground or pedestal; outside plant or inside building; these RoHS compliant* Fibrlok splices will meet the needs for analog video networks.

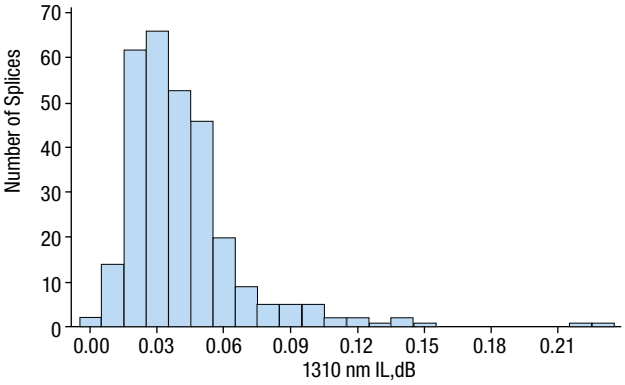
Features	Benefits
Keyed, angle cleave splice	Low reflection for excellent analog video performance
Simple assembly tools	Fast, easy installation
Separate cleaver and assembly tool	Same cleaver used for Fibrlok splice and 3M™ No Polish Connector
Long-term reliability	Stable optical performance across temperature extremes

Cross-sectional view of actuated splice

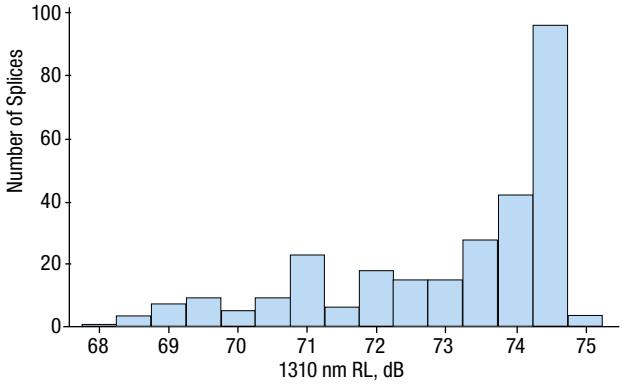


After preparation, the fibers are inserted into the 3M™ Fibrlok™ II Angle Fiber Splice 2529-AS splice element. The assembly tool is then used to close the cap, forcing the clamping and locating surfaces against the fibers and aligning the fibers precisely and permanently in place.

Histogram of Insertion Loss



Histogram of Return Loss



Note: As allowed by IEC 61753-131-3, three samples were eliminated that had insertion loss > 0.25 dB and/or return loss < 60 dB

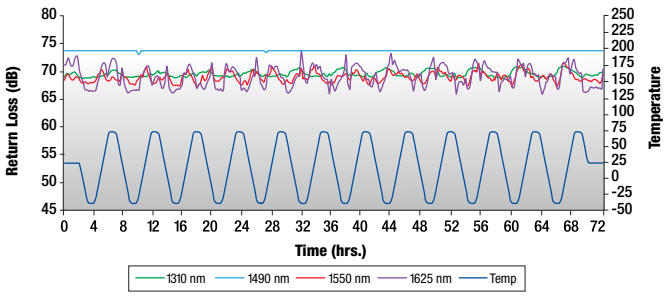
A total of 300 Fibrlok angle fiber splices were tested to IEC 61753-131-3 Ed. 1/CDV "Singlemode Mechanical Fibre Splice for Category U – Uncontrolled Environment".

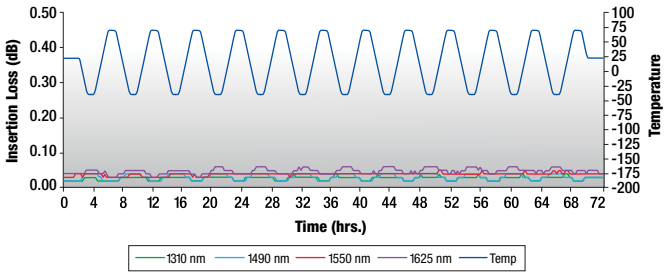
The initial insertion loss and return loss were measured with the following configurations with Corning® SMF-28e® fiber.

- 100 3M™ Fibrlok™ 250 µm Angle Fiber Splices 2540-AS with 250 µm fiber
- 100 3M™ Fibrlok™ II Angle Fiber Splices 2529-AS with 250 µm fiber
- 100 3M™ Fibrlok™ II Angle Fiber Splices 2529-AS with 900 µm fiber

As shown in the histograms, the splices exhibited excellent optical performance with an average insertion loss of <0.1 dB and return loss of > 65 dB.

Optical Stability of Fibrlok Splice -40°C to 75°C





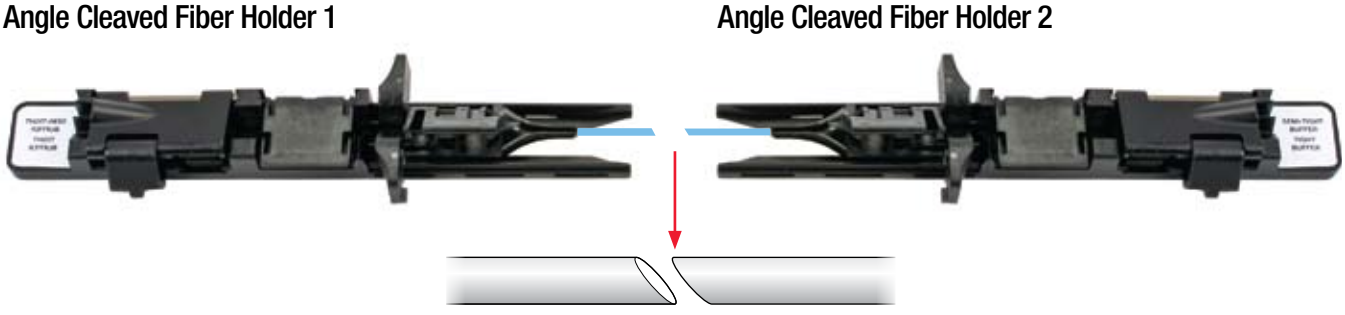
3M™ Fibrlok™ Angle Fiber Splice Specifications	
Size 2540-AS 2529-AS	 4.0 x 4.0 x 40.0 mm (0.16 x 0.16 x 1.42 in.) 3.8 x 6.4 x 38.1 mm (0.15 x 0.25 x 1.50 in.)
Coating diameter 2540-AS 2525-AS	 250 µm 250 and 900 µm
Fiber diameter	125 µm
Wavelengths	1310, 1490, 1550, 1625 nm
Insertion loss	< 0.1 dB typical < 0.25 dB max per IEC 61753-131-3
Return loss	65 dB typical at room temperature > 60 dB for -40 ºC to 70 ºC (-40 ºF to 158 ºF) per IEC 61753-131-3
Operating temperature	-40 ºC to 70 ºC (-40 ºF to 158 ºF)
Vibration	IEC 61300-2-1, 10-55 Hz in all 3 axes
Torsion	IEC 61300-2-5, Twist fiber +/- 180º for 10 cycles at 0.2 m (8 in.) from splice
Fiber retention	IEC 61300-2-4, > 5N (1.1 lbf) min and > 10 N (2.2 lbf) typical
Dust – laminar flow	IEC 61300-2-27, 10 minutes at 35 ºC (95 ºF)
Salt mist	IEC 61300-2-26, 96 hours at 35 ºC (95 ºF) with 5% salt solution
Material	Engineering thermoplastic with aluminum alloy element; UL 94, V-0 rating
Fungus resistance	ASTM G-21-70; rating 0

Index Matching Gel Performance

Inside the Fibrlok element is a factory installed, index matching gel which is designed to minimize optical loss at the splice interface. The gel has shown exceptional reliability, even with testing that is more stringent than industry standards. For example, gel samples were aged in bulk at 115 ºC (239 ºF) for seven months and then Fibrlok splices assembled with this gel. All ten samples had insertion loss <0.1 dB. To determine extended splice reliability with gel, 16 Fibrlok splices were exposed to environmental conditions of 85 °C (185 ºF) and 85% relative humidity for 8,812 hours (> 1 year). The insertion loss for all the samples remained <0.25 dB. The gel even resists water intrusion into the splice. Thirty Fibrlok splices were submerged in distilled water for 30 months and all of the splices had insertion loss <0.2 dB after the test. This testing, along with 20 years experience with more than 10 million Fibrloks deployed, confirms the index matching gel has outstanding long-term performance.

Keyed, Angle Cleave Splices

The 3M™ Fiber Optic Angle Cleaver 2535 precisely forms a 7º cleave on the fiber end face. The fiber holder in the 3M™ Fibrlok™ Angle Splice Assembly Tool maintains the fiber angle orientation. The fibers in Holder 1 and Holder 2 are cleaved exactly in the same manner and the fiber holders automatically key the angle cleaves in the splice as shown below.



Keyed, Angle Cleave Splice

Ordering Information

Product Number	Product Description	Stock Number	Packaging
2529-AS	3M™ Fibrlok™ II Angle Fiber Splice	80-6113-2737-2	60/package
2529-AS/B	3M™ Fibrlok™ II Angle Fiber Splice Bulk Pack	80-6113-2991-5	1,000/package
2540-AS	3M™ Fibrlok™ 250µm Angle Fiber Splice	JE-4200-8435-0	60/package
2501-AS	3M™ Fibrlok™ Angle Splice Assembly Tool	80-6113-2424-7	1/package
2535	3M™ Fiber Optic Angle Cleaver	80-6113-2423-9	1/package
2565	3M™ Fiber Optic Angle Cleaver Kit	80-6113-2508-7	1/package





Angle cleave fiber using 3M™ Fiber Optic Angle Cleaver 2535

3M™ Fiber Optic Angle Cleaver Kit 2565 includes 3M™ Fiber Optic Angle Cleaver 2535, 3M™ Fibrlok™ Angle Splice Assembly Tool 2501-AS and all tools necessary for Fibrlok angle splice

*"RoHS Compliant 2002/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. This information represents 3M's knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M.

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