

Advantages of AFL TAPLINK® Wedge Connectors

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AFL is one of the leading manufacturers of conductor accessories for the electric utility industry and continues to lead the way by designing and manufacturing innovative products. One of the most recent introductions in AFL's Transmission and Distribution product line is the TAPLINK bolted wedge connector shown in **Figure 1**. The use of TAPLINK wedge connectors in distribution systems requires consistent performance to ensure an effective electrical connection. Many features contribute to the overall performance, but there are three distinct advantages of using TAPLINK wedge connectors when compared to alternate connectors.

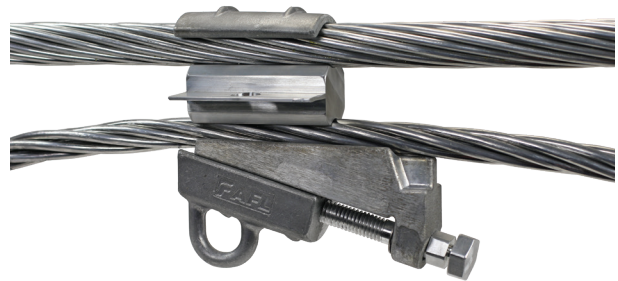


Figure 1 – AFL TAPLINK Wedge Connector

The primary advantage is the simple and efficient installation method used to install TAPLINK wedge connectors. The primary feature contributing to this simplicity is the use of a bolt-driven wedge. As the bolt is tightened with a socket wrench, the wedge is driven into the connector where it provides the initial pressure and establishes the electrical connection. The connector must be installed at a specific torque to guarantee performance, so a shear-head bolt is used to ensure the required torque is reached every time. Other connectors require special tools and training which significantly complicates installation and inventory. These tools must be ordered, stocked, and maintained which adds another level of complexity. AFL incorporated the use of a shear-head bolt into our TAPLINK wedge connectors to eliminate the need for special tooling and training thus simplifying installation for a better overall customer experience.

The second advantage to selecting TAPLINK wedge connectors is that they are both removable and reusable. This feature provides customers with the flexibility to remove the connector for line changes or upgrades. Once the shear-head of the bolt breaks off, a secondary hex head remains that can be used to back the wedge out and remove the connector. Prior to reuse, it is strongly recommended that more compound is applied and the bolt is replaced. (Packages of replacement bolts may be ordered through your AFL Representative.) Other connectors may be removable, but the process may require special tooling or result in permanent damage to the conductor or connector. AFL's TAPLINK wedge connectors eliminate these concerns and provide flexibility for any necessary changes.

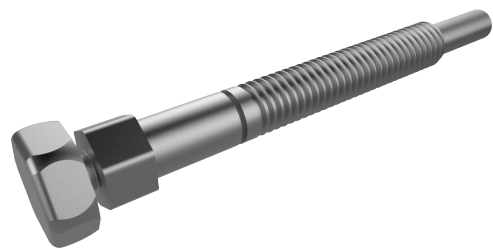


Figure 2 - Shear-head Bolt

The final advantage is their resistance to fatigue caused by thermal cycling. Fluctuations in ambient and conductor temperatures both contribute to thermal cycling which causes aluminum to expand and contract. Over time this can lead to fatigue and failure of the part if not accounted for. AFL TAPLINK wedge connectors are designed to resist thermal fatigue due to the innovative design of the C-shaped body. The bolt-driven wedge provides the initial pressure on the connection, and as the aluminum expands and contracts, the C-shaped body acts like a spring to maintain constant pressure on the conductors being joined. **Figures 3 and 4** show an example of the spring-like action when an internal force is applied in opposing directions. It is important to note that, where deflection is large, the body does not exceed the yield strength, further confirming its ability to resist thermal fatigue. This feature is crucial to the performance of the connector as it works to maintain a strong electrical connection throughout the life of the part

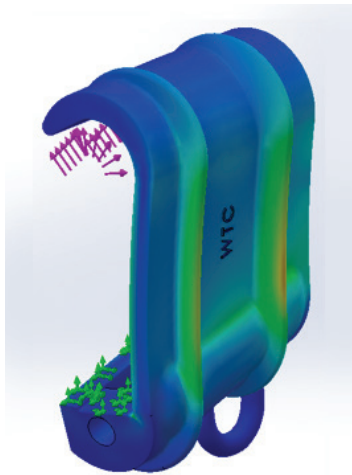


Figure 3 – Von Mises Stress (FEA)

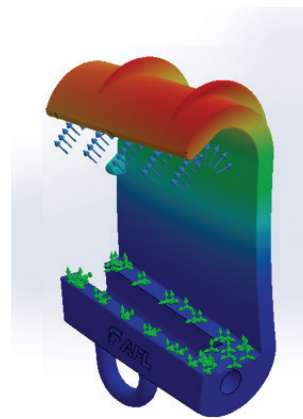


Figure 4 – Deflection (FEA)

All together, these features contribute to the overall proven and reliable performance of AFL TAPLINK wedge connectors.

If you are interested in more information, please contact [Andrew Leigh](#).