

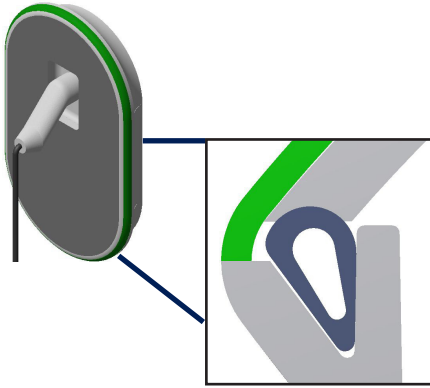
Problem Solved!

TECHSEAL INNOVATIONS - HOLLOW TEARDROP SEALS



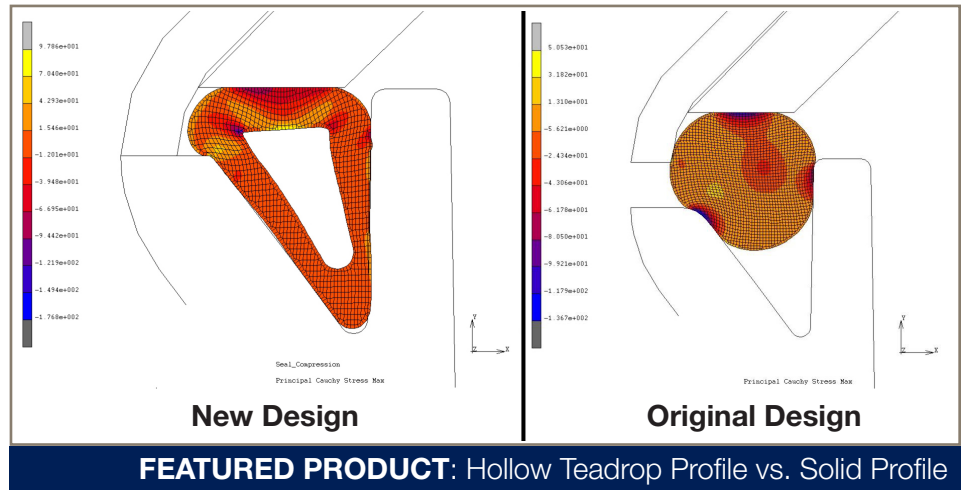
Application

Electric vehicle charging station



(The images above are illustrations only, not representations of the actual application.)

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Problem

One of our customers in the electric vehicle industry was in need of an enclosure seal for an electric vehicle charging station. Initially, the customer was gluing a solid cord into a triangular groove. However, the solid profile created such a large a deflection force that the plastic unit could not close.

This fitting issue not only exposed the seal but also resulted in inadequate protection for the station. The charging unit did not pass the wind-driven rain test due to the minimal contact area of the solid profile. The customer consulted with TechSeal's Application Engineers for a new seal design:

- The triangle-shaped groove required a custom profile that completely fit and stayed inside the groove.
- The material needed to be UL certified for compliance with flammability regulations.

Parker Solution

Using Finite Element Analysis (FEA) simulation, TechSeal's Application Engineers confirmed the failure of the solid profile and recommended a unique hollow teardrop-shaped profile. This new hollow design not only fit into the triangular groove but also allowed the unit to close completely using the existing closure force. The FEA image above shows that the plastic unit is able to fully closed and the hollow teardrop profile provides maximum sealing contact to the groove.

Pressure sensitive adhesive was added to one side of the seal for quick and easy installation. Our Application Engineers also selected an anti-fungal, UL94 V-0 rated material, silicone S7395, for the extruded profile.

As a result, the charging station passed the wind-driven rain test and met the UL flammability requirements without having to be redesigned.

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