

Electric Vehicle Case Study: Charging Station Seal.

Electric vehicles are revolutionising travel for the better, providing cleaner, more efficient travel across the globe.

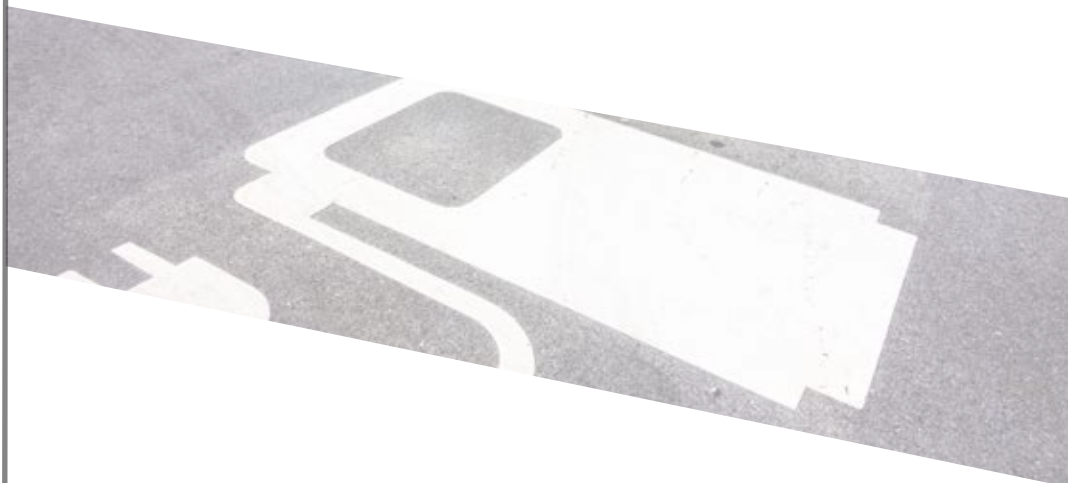
With advances in battery technology, longer ranging, faster charging, and more efficient battery performance is possible. As EV batteries become more powerful, protection from heat is critical to ensure risk of thermal runaway is rapidly reduced. In addition to heat, protection from environmental stresses such as rain, salt spray, UV and Ozone also need to be considered.

Silicone closed cell sponge is the ideal material to provide the protection needed to improve lifespan, efficiency and reduce failure.

The Opportunity & Challenge

A major EV charging manufacturer contacted Silicone Engineering for an effective sealing solution for commercial and home mounted charging stations.

The company required a sealing solution for their range of electric vehicle charging stations to provide a protective environmental seal against water and dust ingress. Additionally, they required the gasket material must have a high flame protection rating.





The Solution: **expanSil™ V-0 Soft Cord**

After discussions with the customer's design team, we recommended an extruded rectangular section to act as a gasket. expanSil™ V-0 was selected as the recommended grade due to the material's high flame rating, excellent compression set and its ability to maintain stability in temperatures ranging from -60°C to 230°C (-76°F to 450°F).

Tested and approved to flame standard UL94 V0, the closed-cell silicone sponge gasket provides extra flame protection in the event of a fire. Samples in various densities were sent to the customer ranging from soft through to medium to determine the correct material compression for the application.

After testing the different expanSil™ V-0 samples, the customer verified that the soft density achieved the best sealing performance and water resistance achieving their required IP67 rating.

The customer selected the expanSil™ V-0 Soft silicone sponge due to its sealing performance inside the rapid charging station. Customer feedback also noted the fast sample dispatch as a contributing factor to allow them to start application testing.

