





Rail Case Study: Traction system seal

Traction systems are powered by electrical energy and produce the power to rotate the train's wheels forward. The turning force produced by traction motors is transferred to the wheels via the driving gear unit and axle. Traction motor systems are generally mounted in the trucks where the wheels are housed.

The Opportunity & Challenge

A rail design technology company contacted Silicone Engineering to help design a seal for a traction propulsion unit for a rail application.

The company required a sheeting material that would be malleable enough to convert into flat gaskets. The flat gasket would be used to seal the exterior electronic enclosure positioned under the train.

The gasket material would be required to meet the European standard EN 45545-2 (HL2 and HL3) BS6853 Category A1 and NF F 16-101 I2 F0. Due to the exterior positioning of the traction unit, an IP 65 classification would be an additional requirement to stop the propagation of dust and water ingress from seeping into the unit and ultimately causing system failure.

The Solution kSl° V-0 Medium

Before deciding on the material of choice to create the seal, the customer's mechanical design engineer requested the material could aid in vibration reduction, be resistant to fluctuations in heat, and be relatively easy to install.





With these additional elements in mind, our material design engineer suggested our kSil[®] V-0 in a Medium density. kSil[®]V-0 has been purposely developed for use in the rail/mass transit industry, where fire and smoke safety is a priority.

The material would satisfy the critical criteria of being EN 45545-2 compliant, and once compressed inside the unit, would create a tight environmental seal that would achieve the IP65 rating.

Additionally, the material would aid the reduction in vibration with its closed cell structure, aiding the dampening properties of the traction unit whilst being resistant to heat changes Finally, the customer mechanical engineer worked with our project engineer to design the sealing gasket so that it was easy to install. The customer was satisfied with the material solution and ordered kSil[®] V-0 Medium for the traction propulsion application.

Silicone sponge and solid silicone rubbers are extensively used throughout train exterior and interior applications due to their flame resistance, low compression set, temperature resistance, and long lifespan.

Rail Silicone Sponge Sealing Gasket Traction Systems

Find out more about our rail applications here: www.silicone.co.uk/industries/rail-mass-transit/

