



Hinged Light Diffusers for 150 Driver's Cab

The Challenge

Northern Rail had a number of reported driver complaints about draughts in the driver's cab of the Class 150 vehicles. The draught was coming in through the gap around light diffuser in the ceiling of the drivers cab.

A new light diffuser panel was required that complied with new fire legislation and could be easily retro fitted to the existing frame without modification to the vehicle.

The Solution

Unipart Rail designed a new diffuser panel that is flame retardant, lightweight in construction and incorporates a light cover that are widely used in the rail industry. The product fully complies with the new EN 45545-2 Fire Standard and to the R4 requirements for lighting components. The new product has a seal around the perimeter of the diffuser panel so that the unit seals against the ceiling to eliminate the air gap and the original source of the draughts experienced by the drivers.

As the old design of diffuser panel was prone to rattle in service, an additional benefit of the new product is that there is no movement of the panel when fitted which reduces the amount of noise in the cab.

The hinging of the fixing frame was incorporated into the design of the new product to enable periodic inspection and replacement of the light fittings in a simple and efficient manner.

The Result

Following the initial evaluation of potential designs with the customer and vehicle inspections, a trial light diffuser was provided. This product had been designed, approved for rail use, validated and manufactured to ensure that if successful, the trial unit could be available for a fleet rollout within a short period of time.

After a successful trial fit, Northern Rail placed an order with Unipart Rail to supply full fleet fitment of light diffusers for their Class 150 fleet. The gaining of product approvals and compliance to relevant standards in the development phase of the new product increased the speed with which production of the full quantity of units could be provided.

The design and construction materials of the new light diffuser can be easily adapted to fit other train fleets.

Unipart Rail produced a complete service to Northern Rail from feasibility to trial.



Old Unit



New Unit

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