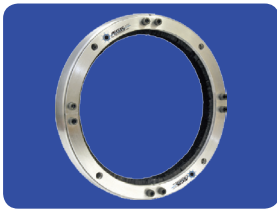
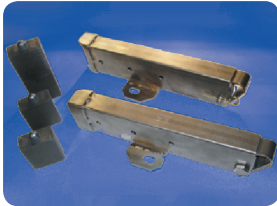


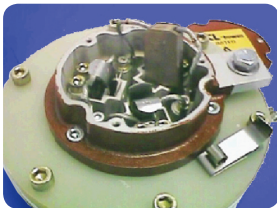
# Traction Package



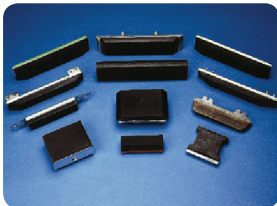
1 Aegis SGR™



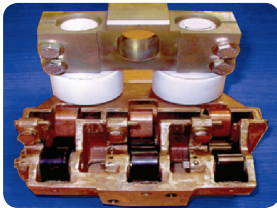
2 Wheel Flange Lubrication



3 Earthing Unit



4 3rd Rail Shoes



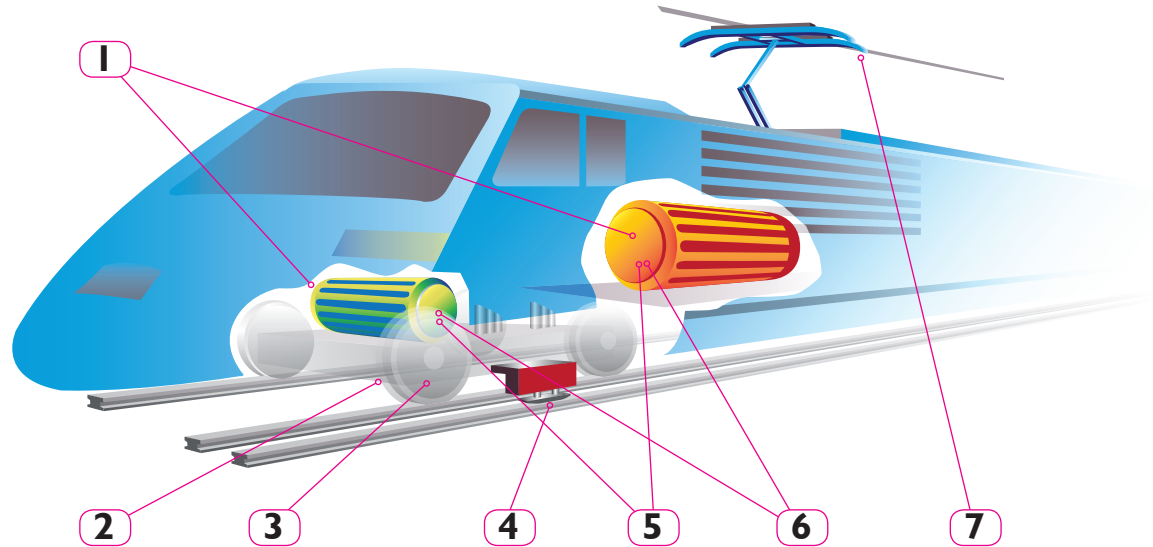
5 Holders



6 Brushes and Contacts



7 Pantograph Carbons



Carbon exhibits many operational and financial advantages over metallic materials as a linear current collector, and the benefits to user systems are becoming increasingly apparent as more of the world's railway, third rail and tram/trolleybus systems change to carbon.

## Overhead current collection

On pantograph systems, the advantages of carbon include:

- Longer collector strip life, with lower maintenance costs and less frequent replacement
- Longer wire life, giving significant reductions in cost of maintenance for the overhead system
- Reduced mass for better current collection
- Carbon's inert qualities, which ensure that carbon will not weld to the conductor wire - even after long periods of static current loading
- The ability to operate at high speeds (300km/hour and more)
- The virtual elimination of electrical interference to telecommunications and signal circuits
- Negligible audible noise between rubbing surfaces.
- Laboratory and field comparisons between carbon and copper, sintered bronze or aluminium pantograph collector strips show many examples of up to tenfold increase in collector and wire life and recent studies in Japan show a projected 25% saving in total system operating costs.

