

# Distributed power

## Freeing up space on board and optimizing access to cars

### › The principles

Progress in electronic power components has significantly reduced the size of traction systems in trains. It's now possible to distribute these systems under the floors of the cars instead of concentrating them in the locomotives at the head and tail of trains, as in the current TGV™.

The AGV™, the new generation of high-speed trains developed by Alstom, abandons the concentrated power model in favour of the distributed power system. This concept does away with the need for locomotives and frees up space for use by passengers. It results in around 20% extra space that can be used as required: for increased train capacity with extra seating, or for lounge, leisure and work areas.

Distributed power also optimizes access to the cars along the whole length of the platform, unlike the conventional train which, with its locomotives at either end, occupies "dead" space at the beginning and end of the platform – and sometimes right in the middle too, in the case of coupled trains.

### › How does it work?

Alstom has designed a distributed power architecture which works according to a "triplet" system. With this system the cars are configured in groups of three: two cars, each with a motor unit on a motored bogie, on either side, with the third car, equipped with a transformer and carrying bogie, in the middle. A car containing all the auxiliary systems is interposed between each triplet to assemble the train. The length of the train varies according to the number of triplets.

### › The advantages

**More space on board:** 20% extra space, i.e. seating capacity of between 300 and 700 places for the AGV™.

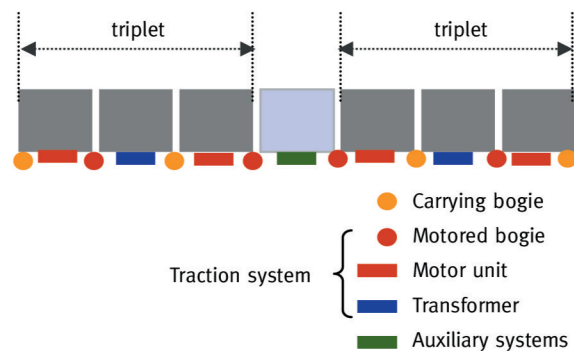
**Modularity:** unlike the TGV™ which always comprises one or two trainsets of eight cars each, the AGV™ is much more versatile in terms of its composition: configurations of seven, eight, ten, eleven, thirteen or even fourteen cars are possible. This means operators can put together their trains exactly as their capacity requirements dictate.

**Energy consumption:** the new system permits energy consumption savings of up to 30% in comparison with a single-tier TGV™.

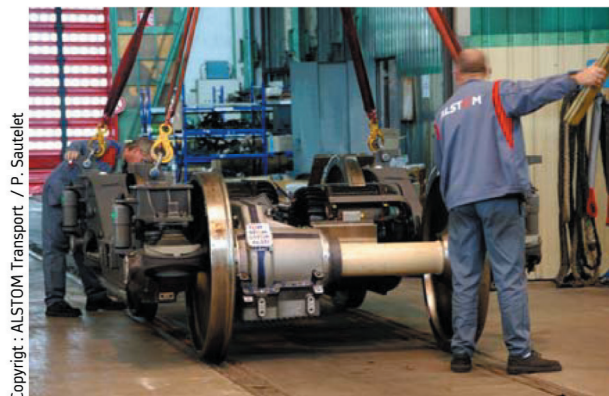
**Maintenance:** fewer bogies than a conventional train and increased passenger capacity reduce maintenance costs by 30%.



Position of motored bogie on the AGV™



Distributed power offers greater modularity thanks to a triplet assembly configuration



AGV™ motor bogies are built at Alstom's Creusot factory