

Articulated trainset

Guaranteed comfort and safety

› The principles

Right from the outset, Alstom and SNCF designed the TGV™ according to the principle of the articulated trainset, an architecture which combines lightness, comfort and safety.

On conventional trains, the bogies (axles and wheels) are located under the cars – and therefore under the passengers – while in the TGV™ they're placed between the car bodies. This helps eliminate much of the vibration and rolling noise experienced on board, while friction between cars is absorbed by the innovative body-body connection system.

The TGV™ and the AGV™, the latest generation of the high speed train developed by ALSTOM, are the only trains in the world equipped with this articulation system.

› How does it work?

A “non-articulated” train is made up of a series of cars each carried by 2 bogies and linked by couplers.

A train 200 m long is typically composed of 6 cars with a locomotive at either end, making a total of 16 bogies.

In an “articulated” train, it's the bogies which connect the cars.

So an articulated train that's 200 m long will have 8 cars with a locomotive at either end, making a total of 13 bogies – i.e. 20% fewer than with a conventional train.

› The advantages

Safety: the fact that the cars form an unbroken chain gives a certain rigidity to the trainset. Therefore, in the event of derailment, the trainset retains its integrity instead of jack-knifing like a conventional train.

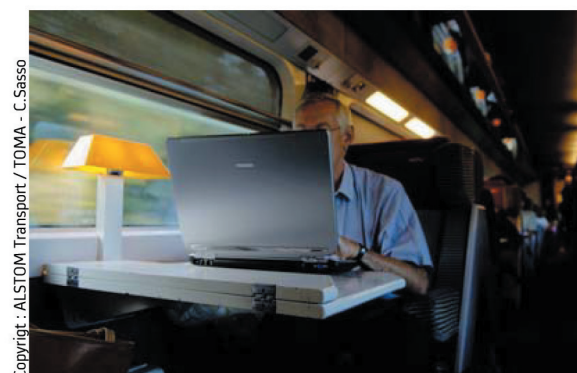
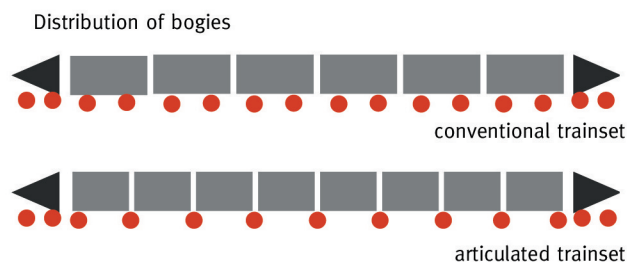
On-board comfort: rolling noise and vibration are confined to the spaces between the cars, which enhances the acoustic quality of passenger areas. And since the bodies form a continuous chain, independent movement of cars is greatly restricted and they can be fitted with a pressure wave-resistant sheath which limits the unpleasant effects of air pressure in tunnels.

Aerodynamics: bogies are a major factor in resistance to movement, as their highly complex structure generates air turbulence which slows the train down. The fewer bogies there are, the less turbulence, and therefore the less resistance.

Cost: every bogie accounts for between 35-40% of maintenance costs for it's here that most wearing parts are concentrated (wheel, axle, brake, shock absorber etc.). Therefore the fewer the bogies, the lower the maintenance costs.



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Rolling noise and vibration are confined to the plates between cars, which greatly increases passenger comfort

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AGV™, Automotrice Grande Vitesse, est une marque Alstom