



“More than 400 km of high-speed railway lines built”

Railways

The execution of over 400 kilometres of high-speed rail (40 km using a tunnelling machine and 35 km of conventional tunnel) for an overall sum of more than 3 billion euros makes Sacyr an international expert capable of overcoming such major construction challenges as the urban tunnel between Sants and Sagrera in Barcelona.



Folletos Obras Ferroviarias

Tunnel between Sants and Sagrera (Barcelona)

5.9 kilometre tunnel in Barcelona between the **Sants** and **Sagrera** train stations: the longest urban tunnel in Europe. Highly complex construction due to its proximity to La Sagrera and La Sagrada Familia in Barcelona, requiring significant measures to be taken to avoid any interaction between the drilling works and the structures of the monumental buildings. The project received the technical endorsement of national and international bodies and institutions; UNESCO's expert panel concluded that the drilling works had been conducted in “a highly competent



manner”.

High Speed Train between Madrid-Barcelona-French border



Scancyr

Scancyr: 3D scanner developed by Sacyr for use in tunnels, to improve the control and execution of these works (motorway, railway and mines).



High-Speed rail research project

Based on a **research project**, two experimental sections in the **High-Speed Rail** to the French border were built using two types of bituminous sub-ballast (asphalt mixture), which entail lower maintenance costs for the rail structures and environmental improvements (lower use of natural waste, and lower emissions of noise and vibrations into the surroundings).