

# From Mecca to Medina in two hours

Traction transformers to power world's first high-speed inter city train to operate largely on desert sands.

People are travelling more today than ever and with a global trend towards greater urbanization, countries are investing in high speed rail (HSR) so that passengers can enjoy minimum journey times in comfort, while remaining considerate to the environment. In Saudi Arabia a 450 km long high-speed line is under construction that will provide a safe and comfortable alternative for travel.

The Haramain high-speed intercity line is expected to carry three million passengers a year, reducing travel time between Medina and Mecca to two hours, and Jeddah and Mecca to half an hour. Mecca has a population of 1.7 million and attracts 2.5 million Hajj pilgrims and more than two million Umrah performers every year during the month of Ramadan and seasonal holidays.

According to a study by the Ministry of Hajj, the number of pilgrims to Mecca is expected to increase to more than three million over the next 25 years, while there will be over 11 million Umrah performers. Until the Haramain high-speed intercity line was conceived, travel was restricted to road, either by private vehicle, taxi or buses, or air.

Saudi Railways Organization (SRO), the state-owned company that operates Saudi Arabia's rail network, has ordered 35 Talgo 350 electric trains, which will operate on the line at 300 km/h. The trains will use ABB traction transformers, a well-proven technology that is already deployed onboard Talgo Avril high-speed trains, which operate at speeds of 380 km/h. ABB traction transformers are designed to withstand desert temperatures that can range from -20°C to more than 55°C, and in harsh desert conditions such as blowing dust, scalding sand with altitudes ranging from sea level to over 1,200 m.

ABB has supplied two identical static Var compensators (SVCs) to maintain the stability of the power grid when the HSR system is in operation. It will also supply 72 traction transformer sets (and two

spares), as well as 72 battery chargers to the Spanish train manufacturer Talgo for the SRO.

"ABB traction transformers are critical components in the traction chain, affecting both train performance and operator services," said Markus Heimbach, head of ABB's Transformers business. "We are proud to be able to provide our advanced and proven technology to this prestigious rail project."

The Haramain high-speed intercity line is not only a safe and comfortable option for travel, but it is also expected to boost local businesses and tourism.



A quicker alternative than road, at a price cheaper than air

ABB has been manufacturing traction transformers for 130 years. More than half of the world's trains are powered by ABB transformers, and most of the world's train manufacturers and rail operators rely on them.

ABB traction transformers have accumulated massive running hours worldwide, from dusty hot winds to icy winters