

## **NFM TECHNOLOGIES TBM BREAKTHROUGH ON LINE 9 OF THE BARCELONA METRO**

*Lyon, 31.05.10.* The NFM Technologies tunnelling machine charged with excavating line 9 of the Barcelona metro has made its breakthrough of the section excavated using the hard rock cutter head fitted at the beginning of 2010. The client UTE LINIA 9 (a group of Spanish and Catalan companies - FCC / FERROVIAL / OHL / COPSICA / COPISA) is very satisfied with how the work has progressed and with the resistance of the cutting tools throughout this particularly tricky section. The 11.95m diameter dual-mode machine has excavated 960 metres in three months through fractured ground featuring large blocks of granite and schist. The machine has reached GUINARDO station, where a second change of cutter head is currently underway.

The tunnelling machine will continue to excavate through 4,400 metres to MANDRI station using the initial EPB cutter head. It will bore through approximately 4,000m of clay soil before once more coming across rocky soil made up of granite and schist for the last 500 metres. NFM Technologies has supplied a solution for optimising the initial cutter head in order to cope with ground variations (soft ground/hard ground) and to cut through rock without being replaced again.

The Spanish client has highlighted the efficient support supplied by NFM Technologies during all of its technical operations. To date, the tunnelling machine has bored through more than 7km on line 9 of the Barcelona metro.

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