Bringing structures to life

# Dubai Metro

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| Client: | RTA |
| Contractor: | VFR Joint Venture |
| Location: | Dubai, UAE |
| Products: | Megashor |

## Case Study

Of all the infrastructure developments undertaken in the Emirates, the Dubai Metro is undoubtedly the most important public transport project in terms of its strategic implications: creating a high speed link to the new Jebel Ali airport; and designed to carry 27,000 passengers per hour on each of the two lines. Already there are plans on the drawing board to double the size of the network.

RMD Kwikform Middle East secured the contract to supply all the temporary support-work for the construction of the Metro's elevated tracks, which was undertaken by the vastly experienced members of a joint venture company.

VFR Joint Venture is made up of the two post-tensioned pre-stressing specialists, VSL and Freyssinet, together with Italian contractor Rizzani.

RMD Kwikform's Project Manager, David Barrington explains: "While there was serious competition for this contract, a number of members of the project team had come to Dubai from building a similar transport scheme in Hong Kong, where they had come to realise the benefits of Megashor. So although we were up against heavy competition from a variety of businesses, we had the equipment that the client trusted already on the ground, and the designers to provide the drawings for each location.

"Essentially we have to complete a drawing and component list for every different height of the track units above the existing ground level, to ensure the installation goes ahead smoothly and safely; and these have to be turned around within a couple of days to keep the work on schedule."

So colossal has been the scale of the scheme which VFR is undertaking that the consortium had up to a dozen sections of the route under construction at any one time; with RMD Kwikform being called upon to supply Megashor towers to site for erection within a very short time frame.

David Barrington continues: “We then began to supply the first pieces of equipment from stock in November 2006 with the larger orders starting to be delivered early in 2007, and continuing on a regular basis ever since.

“The Megashor support system offers a load-carrying capacity of 100 tonnes per leg and it was used to carry the very heavy, U-shaped precast concrete sections to the Metro’s tracks wherever the main contractor was unable to use its standard launching system.

This may be due to there being restricted headroom, perhaps due to a road coming over the top, or the presence of electricity cables. Then they were making use of Megashor as support from below.”

One of the key attributes of Megashor is the fact that the integral jacks provide up to 400 mm adjustment top and bottom. With the towers set to millimetre accuracy, the main contractor’s operatives took over installing a series of bolted and welded steel beams across the top bearing plates, which then carried the track sections.

Depending on the distance from one abutment to the next, the Megashor system was being employed to erect double rows of towers to carry as many as eight or nine precast units: each one four metres in length and 10 metres wide, to make up the span.

These were then jointed together and the pre-stressing tendons passed through the cast-in ducts that determine their correct profile or path. Hydraulic jacks then tensioned the cables in sequence and the Megashor supports could be lowered ready for reuse.

Although many in the VFR management team were familiar with the merits and methodology of Megashor, it was still considered appropriate for RMD Kwikform to provide trainers for the operatives on site. This ensured the safe handling of what are large and relatively heavy pieces of equipment; as well as maximising the economic benefits of the system.

The first section to the Red Line opened on 9th September 2009, with the project progressing towards its ultimate conclusion in 2012.