

Lift and Traverse of 18 Modules, Mobil Coryton Refinery, Essex.

Client: Mobil Oil

Main Contractor: M.W. Kellogg Limited



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At Mobil Coryton Refinery in Essex, M.W. Kellogg Limited were appointed to construct, a CCR Continuous Catalytic Reformer unit for the purpose of producing high octane and lead free petrol. This unit was required to be built within the very heart of the congested live Refinery. In order to minimize the disruption to the refinery, it was decided to adopt a 'fast track' construction method involving modularising as many pieces of the unit as possible, building these modules off site and then simply connecting them together on site.

One difficulty in delivering these modules to the CCR site was that a piperack containing approximately fifty live pipes (forming the life line of the Refinery) encircled it. This piperack was some 9.5 metres high and 15 metres wide. Due to the importance maintaining uninterrupted Refinery operations, a system was required to lift over the piperack, 18 of the largest modules.

The largest of the modules is 14 metres long by 12 metres wide by 23 metres high and weighs 300 Tonnes. The large modules were transported by barge to Corton to a purpose built jetty and then rolled off the barge by a multi-wheeled transporters and delivered along side the live piperack.

It was Fagioli PSC's overall responsibility to design, supply, install and operate a six mast tower lift system to allow these 18 modules to be lifted from their transporter, moved over the piperack and lowered back onto the transporter for their onward journey to the CCR project area.

The lifting system comprises six triangular towers, each tower 36 metres high, formed from Fagioli PSC Towerlift sections, two towers being positioned on the delivery side of the piperack and four towers on the other. The towers sit on purpose made grillages which are extended on one side to give an anchorage point for stability thus eliminating the width of the requirement for external guying. Due to the need for minimising the width of the street down which the modules are delivered plus the location of underground services, the tower system carries the vertical load in the front legs only.

The tops of each tower are connected by a runway beam. A strut at the extreme ends of each runway beam connects the two parallel beams to provide the system stability. A transverse jacking beam mounted on the wheeled bogie units mounts directly onto the top of the runway beams.



The traversing beam is moved by the use of hydraulically driven roller units. Lifting and lowering of the modules is by use of 2 No. Fagioli PSC L300 centre hole lifting jacks mounted directly onto the transverse jacking beam. Power for both lifting and traversing is via diesel engine power packs situated on top of the traversing beam. A typical cycle time for the connection, lifting, transversing, lower and disconnection of a module is just over 3 hours.