

Erection of 1,250 tonnes bottles North Alwyn Project - NAA Platform

Client: Total Oil Marine P.L.C.

Main Contractor: R.G.C. - U.I.E. (U.K.) Joint Venture P.L.C.



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RGC Offshore P.L.C. at their Methil, Scotland yard employed Fagioli PSC as specialist rigging contractors in the fabrication of the 18,000 tonnes North Alwyn 'A' Platform for Total Oil Marine P.L.C., for the erection of the two upper pile guide clusters (bottles).

In open competition with other international rigging specialists Fagioli PSC were able to offer bids for vertical jacking tower arrangements conforming to the clients original tender enquiry. However, the adaptability of the Towerlift concept enabled Fagioli PSC to offer as an alternative the luffing portal scheme which, in addition to equipment costs savings, had the further advantage of standing clear of the platform fabrication and allowing pre-erection of the main elements connecting the bottles into the platform.



Above: bottle at end of first stage of lift with tower ready for luffing to the vertical.

The luffing portal was constructed of 14 square format Towerlift sections of 12 metres length erected as twin towers of 84 metres height spanned by a 70 metres length girder. Both towers and the girder articulated upon large spherical bearings of 30 degrees rotational capacity also manufactured by Fagioli PSC.

The portal was luffed by guys operated by Fagioli PSC L180 centre hole jacks which were attached to the platform in one direction and in the other direction to prestressed ground anchors. Guying in the other direction was by cables controlled by Fagioli PSC L50 centre hole jacks. The main lifting was by 3 No. Fagioli PSC L600 jacks.

Initial erection of the system was carried out with the towers vertical including the final section which already incorporated all the guying systems ready for attachment to the ground anchors. It was then necessary to luff the towers out to an angle of 30 degrees to the vertical to position the tops low enough for erection of the main cross girder using existing site cranes. The completed system was then luffed back to its 12 metres offset position and connected to the bottle ready for lifting. Each bottle lift consisted of four stages. Initially the bottle was lifted approx. 15 metres to clear the already installed lower bottle. The portal was then luffed into the vertical, at which stage there remained approx. 1 metre clearance between the bottle and the platform vertical bracing members. Lifting to the full height of 75 metres now followed, with the final phase being to luff

the system 12 metres in towards the platform and stab the bottle onto its connections.

In addition to the main lifting function, pre-calibration of the L600 lifting jacks in conjunction with the remote control system, enabled the bottles to be weighed to within an accuracy of 1% whilst the lifting operations were in progress.

The very precise control available from the lifting and guying jacks enabled positioning of the bottle with weld gaps set to an accuracy of 1mm.

The first and second lifts were both completed in the programmed two day period. The same system was detailed for erection of two 900 tonnes bottles to form part of the North Alwyn NAB platform.



Above: completion of lift with towers luffed in opposite direction for final positioning.