

## T.M.L. Cross Channel Link Lowering of tunnel boring machines

**Client:** Transmanche Link

**Main Contractor:** Entrepose Montalev



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CIVIL 08



Fagioli PSC's responsibility was to design, supply, install and operate a centre hole jack system for various operations over a two year hire period.

The lifting system comprised of 4 No. L180 long stroke jacks operating on 12/18 dia x 65 metres length lifting cables. These cables were installed on recoilers to maintain them in good condition during the two year period. The jacks were controlled by an L4/12/E electric power pack, all four jacks being remotely operated from a central console. The lifting/lowering rate achieved with this equipment was 8 metres per hour. For several of the ancillary pieces only two jacks were operated which increased this movement rate to 16 metres per hour.

With the construction of the Euro Channel tunnel between Dover, England and Sangatte, France, the client Transmanche Link were faced with the task of placing 4 No. tunnel boring machines and ancillary equipment down the service shaft at the Sangatte site.

T.M.L. appointed French main contractor Entrepose Montalev to build and commission a special purpose gantry. The gantry had to have the capacity to handle boring machines of 450 tonnes in weight with overall dimensions of 8.5 metres dia x 10 metres length.

The testing requirements specified by T.M.L. entailed the lifting, traversing, lowering and subsequent removal of a 650 tonnes test weight from the shaft.

The actual boring machines were delivered to Calais by ship, offloaded by crane and delivered to the lifting gantry by multi-wheeled transporter. They were then connected by means of various slinging arrangements to the Fagioli PSC's lifting system for installation into the shaft.

The operations on site commenced in January 1988 and in the following 15 month period, four complete boring machines were installed, varying in weight between 450 and 400 tonnes, and 15 No. pieces of ancillary equipment varying in weight from 90 to 300 tonnes. In all cases the equipment was operated on a 24 hour shift basis and in some cases in extreme weather conditions.