

The Integration of Tunnels and Pipelines

Bennett Associates has worked in the fields of tunnelling and pipelines as both consultants and detail design engineers for many years. As a consequence, they are well placed to integrate the requirements of both sectors into a single package.

Tunnelling

Within the tunnelling field, Bennett Associates have undertaken many projects as the designers of bespoke equipment including:

- Back-up equipment design for the Channel Tunnel
- Back-up equipment design for the Channel Tunnel Rail Link
- Tunnelling and shaft handling equipment for the London Ring Main

Pipeline Design and Pipe Handling

With respect to pipeline design, we have undertaken the design of pipe work for steam, oil, water and gas for both chemical plants and power stations. In addition, work has been undertaken on the design of horizontal drilled pipelines to include both the design of the pipeline and the installation equipment.

In terms of pipe handling, we have been involved with the design of automatic welding machines for pipelines and for overland pipe laying machines for major oil companies.

Integration of Disciplines

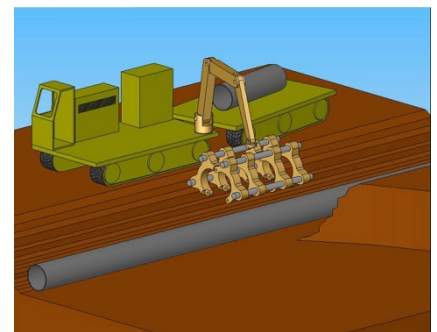
With detailed knowledge of both disciplines, we are able to integrate the requirements of pipe installations into the specialist work of tunnelling and the restrictive practices imposed by safety requirements. A detailed knowledge is required of the practicalities of the situation including, for example, lifting and handling operations. In the past, we have designed the tunnelling system for the handling of equipment at the shaft bottom and jacking rigs for the installation of jacked pipes.

Bennett Associates (originally founded in 1984) was acquired in 2008 by Atkins; bringing their proven technical expertise to the UK's leading engineering consultancy.

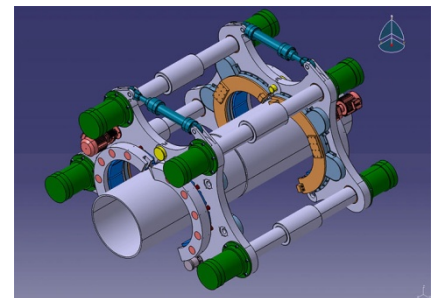
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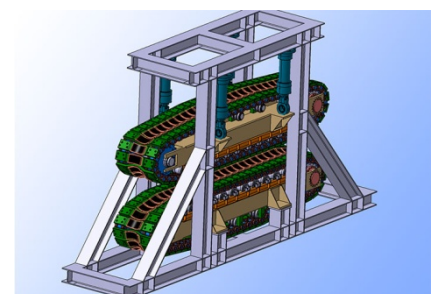
Typical gantry used on CTRL



Concept of a pipe laying machine



Manipulator for the welding of pipe lines



Pipe tensioning unit