

CASE STUDY - Bespoke Pulse™ Software used for Channel Tunnel Rail Link Piping Pressure Analysis

Following our design work for the London Underground Jubilee line, we were asked to design the brackets that would hold the fire mains and drainage piping in the 43 kilometres of the Channel Tunnel Rail Link system.

The brackets were required to support the self-weight of the pipework as well as surge pressures.

Surge Analysis

Although the fire mains were permanently filled with water, the system requires fire appliances to increase the pressure during fire fighting operations. This increase in pressure over the normal head of water pressure required a surge analysis to be performed considering the nozzle reaction forces and how they interact with the adjacent brackets.



Bespoke Pulse™ Software

In order to model the surge, DC White developed its own Pulse™ analysis software, which enabled us to model the pressure pulsations in the tunnel's fire-fighting piping system and analyse the imposed loads from the water hammer and nozzle jet effects.

The analysis we carried out also gave us valuable information that allowed us to carry out testing of potential anchors to attach the brackets to the tunnel walls. The anchors we selected meant that the brackets would be both securely attached to the wall and rapidly installed, saving our client money in both the cost of the anchors and the man hours required.

DC White is proud to have played our part in this historic project and although the brackets that hold up the fire mains and drainage piping are not exactly glamorous they play a vital role in the operation of the tunnels.

Under One Roof

Many projects of this scale would have someone to design a component, a separate consultancy to substantiate that design of component, using information gained from another consultant.

By using DC White, Tyco Wormald was able to benefit from a comprehensive range of skills, without the involvement of middle-men. We performed the surge analysis on the piping system so that we could then quickly design a range of brackets and select an efficient anchor system. Review of the requirements, analysis, design, and substantiation of that design were all carried out under one roof.

Get In Touch

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