

**Tunneling****Reference Details:**

Owner Channel Tunnel
Rail Link +++

Contractor Eurolink,
consisting of: Miller,
GTM, Dumez and Beton
Monierbau +++

Operator Union
Railways, UK +++

Consulting engineers
Rail Link Engineering,
consisting of: Ove Arup,
Halcrow and Bechtel
+++ **Engineering**
Eurolink

DSI Services DSI
services Supply of 2,000
GEWI® bolts and
DYWI® Drill Hollow
Bars, 50 DSI permanent
ground anchors and 40
temporary DSI soil nails.



17,000 m DYWI® Drill Hollow Bars deep beneath Downtown London

The North Downs Tunnel is the first part of the railway tunnel which connects the British Channel with King's Cross Station in downtown London.

DYWI® Drill Hollow Bars proved very effective for stabilization under difficult geological conditions, particularly at the London portal. DSI UK supplied 17,000 m R32N hollow core anchors with EC51 drill bits. Anchors up to 20 m long were drilled into the soil to stabilize the portal and to secure advancing. In addition rock bolts were used for driving the tunnel, soil nails were used for the slope stabilization.

The DYWI® Drill Hollow Bars were injected with a cement grout to ensure a maximum grout cover around the Hollow bar and increased anchor capacity which shortened the construction time by combining two steps into one.

DSI UK supplied rotary grouting adapters which made it possible to simultaneously drill and grout.

A reserve of spare adapters were always in stock to ensure continuous progress around the clock seven days a week.