

### Lefortovo tunnel

MOSCOW - RUSSIA

#### Automatic monitoring of surface subsidence during use of tunneling machine

The Lefortovo motorway tunnel, 2.2 km long, is one of the constructions around Moscow's outer perimeter. The tunnel has a record cross section with a diameter of 14.2 metres.

SolData was involved in real-time surveillance all through the construction work and monitoring of the geotechnical parameters. 15 Cyclops and more than 750 target prisms were fixed to the structures being monitored (buildings, historic monuments, bridges, quays, tall buildings.)

In particular the Lefortovo Military Academy (officer training school of the former Red Army), was under the surveillance of 3 CYCLOPS which monitored the compensating injections, making it possible to maintain the building within a tolerance of  $\pm 2$  mm.

Consideration of the extreme winter conditions led SolData to develop suitable climate protection solutions for the apparatus, without affecting the accuracy of the measurements. So the CYCLOPS were protected in a glass "bubble" with a thermal regulation device.



Compensating injections: LEFORTOVO barracks



CLIENT:	VINCI
FINAL CLIENT	CITY OF MOSCOW
DATE OF WORK:	2002 - 2004

<b>WORK UNDERTAKEN:</b>
<ul style="list-style-type: none"><li>• Installation of CYCLOPS stations</li><li>• Instrumented drilling profiles using automatic extensometers, inclinometers and piezometers</li></ul>
<b>EQUIPMENT INSTALLED:</b>
<ul style="list-style-type: none"><li>• 15 CYCLOPS posts</li><li>• 55 real-time instruments / 2 weather stations</li></ul>