



TUNNEL HONGRIN
Tunnel located in Switzerland

Rehabilitation of the Hongrin hydroelectric gallery in Switzerland

CONTEXT

The Hongrin hydroelectric tunnel is located in the Vaud Pre-Alps in Switzerland. This tunnel with a diameter of about 2.5m and a length of 6 km was structurally rehabilitated with shotcrete.

The dry spraying concrete equipment is a combination of standard elements (boom, nozzle, water pump, air compressor) and custom-made equipment (silos) mounted on a train tracks. Each of the elements works within certain limits of flow, temperature and pressure, and must be adapted and synchronized with the rest of machinery to achieve good and stable results.

The refurbishment and shotcreting is planned over 3 winter seasons (3 years).

The dry mix is a fiber based dry mortar with material grain size of 8mm. The rebound was measured during trials before the start of the project and it was around 35%.



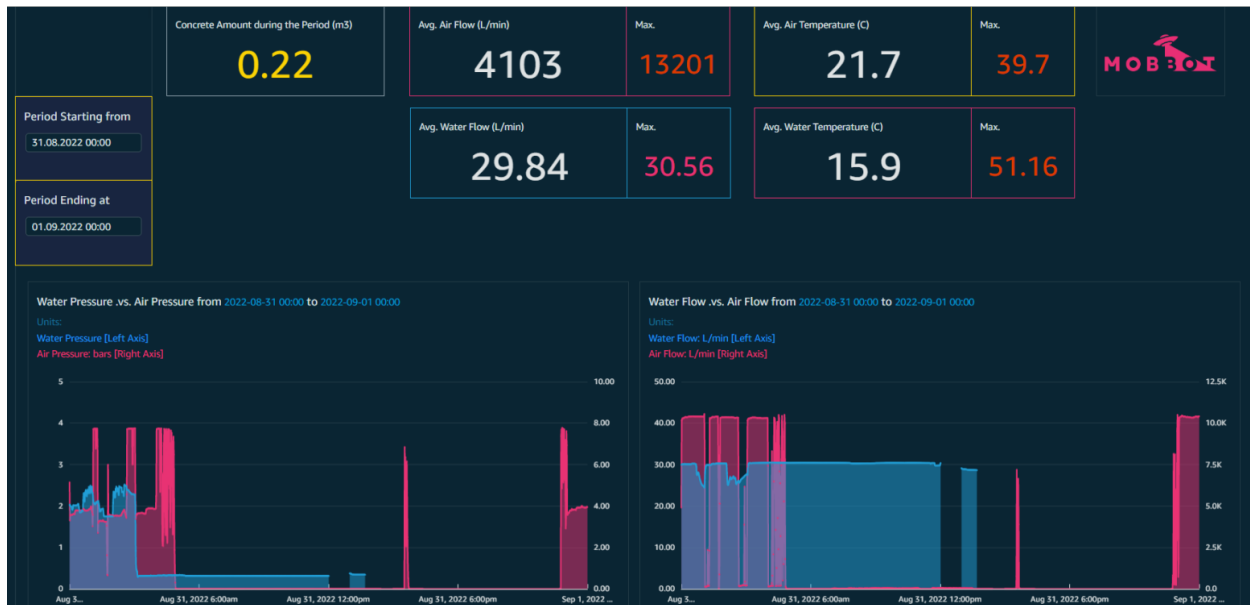
CHALLENGES

- Each element of spraying system comes from different producer and they were assembled together for the first time in the tunnel
- The nominal performance of machinery (e.g. air flow rate into the silos) is unknown
- No data is collected from any of the machinery equipment
- Dry mix throughput measurement is a challenge
- Large concrete rebound (>30%) generating high logistics costs during evacuation from the tunnel

BENEFITS

- Reduction of rebounds by ~ 30% comparing to before Mobbot intervention after first spraying season
- Homogenization of practices between teams for uniform good concrete quality
- Increase of productivity, less time spent on equipment repairing
- Optimization of the spraying parameters to increase strength performance
- Real-time data output

MOBBOT SOLUTIONS



TECHNICAL INFORMATION

- Installation of sensors on the air compressor to monitor air flow, pressure and temperature
- Installation of sensors on the boom to monitor water flow, pressure and temperature
- Development and installation of sensors to monitor concrete consumption for each silo separately
- Collection of data from all sub-systems and processing in the cloud

PRODUCT FEATURES

- Synchronization of spraying parameters between all elements of the system
- Stabilization of the spraying parameters
- Identification of problems with equipment and process
- Presentation of results in real time for equipment adjustment and troubleshooting
- Graphical presentation of results in online dashboard for project management
- On-site assistance during trial spraying

To learn more about our solutions and how you can optimize your shotcrete performance, please write to us at the email address below.

Mobbot SA
Route de la Glâne 26
1700 Fribourg, Switzerland
+41 26 422 1060

Head of Sales & Marketing
Damien Emery
info@mobbot.ch

