Jobreport

Double power at the Brenner base tunnel

LIEBHERR

Situation
The construction work on the Brenner Base Tunnel for a railway link between Austria and Italy has been underway since 2008. With a length of 64 km, it will be the longest underground railway link in the world.

The contract was awarded to a consortium led by PORR Bau GmbH. Construction should be completed according to plan by the end of 2027. This is one of the most important infrastructure projects for Austria and the European Union.

Task
For a construction project in this dimension, the concrete supply has to be well organised. The challenge here is in particular that the excavated tunnel tubes are secured with plastic and steel fibre reinforced shotcrete. For this propose, large quantities of concrete must be delivered reliably in perfect formulations with mixed-in fibres into the corresponding pipe section. The exact concrete mix is adapted to the condition of the rock in the tunnel, which changes over the entire length.

Furthermore, when planning the mixing plant, the large aggregate storage volumes, reliable concrete output, fibre addition and dosing, limited space for positioning and assembly of the plants and 24-hour operation - even in winter - had to be taken into account in the decision.

Another important criterion was logistics. For this purpose, special railway tracks were laid for the rail transport means for the concrete collection and for the material delivery of aggregate.

Solution
Porr chose two Liebherr-Betomix 3.0 plants for its concrete mixing plants. These achieve together with their two 3 m³ twin-shaft mixers to a maximum output of around 240 m³ compacted fresh concrete per hour. Thanks to the modular design of this plant concept, the Betomix plants could be optimally adapted to the local conditions.

The large storage volume for aggregates with low space requirements was achieved by the new Liebherr tower silos. Each of the two tower silos can store 600 m³ of sand and gravel in seven chambers. Twelve binder silos, each with a capacity of 100 tonnes, supply the two plants with the required cement types. The fibre dosing systems are also part of the mixing plant, with the plastic and steel fibres being dosed separately, as the fibres have to be added in perfect doses during mixing and mixed in uniformly.

For Porr, the decisive factors were the quality, the modular design and the short delivery time for Liebherr mixing plants.

Technical data	2 x Betomix 3.0 with tower silo
Theoretical output rate for mixed concrete	300 m³/h (2 x 150 m³/h)
Theoretical output rate for mixed concrete, compacted	240 m³/h (2 x 120 m³/h)
Mixer type	Liebherr twin-shaft mixer DW 3.0
Storage volume for aggregates	6 x 100 m³ (per tower silo)

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Liebherr-Mischtechnik GmbH
Postfach 145, 88423 Bad Schussenried, Germany
Tel: +49 7583 949-0, Fax: +49 7583 949-396
www.liebherr.com, E-Mail: info.lmt@liebherr.com