Editorial

Dear Readers,

With this issue we will introduce you to the Project Sedrun Gotthard Base Tunnel, Lot 360. The current and long-term goal of Rowa, to consistently mechanise conventional headings, is especially clear in the case of Sedrun. In this issue you can read how Rowa has developed and implemented two highly mechanised heading installations with continuous conveyor facilities for the advance in a southerly direction into the Gotthard massif.

Your Rowa-Team

Project

The segment Sedrun, Lot 360, comprises the construction of a multi-function station and 2 tunnel tubes with a length of 7.8 km of the 57 km long Gotthard Base Tunnel. The contract section includes the geotechnically most demanding conventional excavation segments in the whole of the Gotthard Base Tunnel. Made accessible over a 1 km long access gallery and two 800 meter vertical shafts, the multi-function station Sedrun is being constructed. In this, all necessary technical installations, emergency stopping points and crossover facilities for railway operations are to be established. From the multi-function station both tunnel tubes, direction north to Faido and direction south to Amsteg, are being excavated conventionally. Supply and removal for the underground construction site is provided for over the vertical shafts.

Assessment of the Client

Engineer Luzi Gruber, Chairman of the Management Board Tunnel + TU Division, Implenia Bau AG

Engineer Benno Schwegler, PL ARGE TRANSCO Sedrun Staff Unit

In a very short time, Rowa developed and put a concrete transport system into operation with many advantages for our particular needs. After making few adjustments to the 0-series, the first series is currently being put into operation. Hence, Rowa has once again proven that it is capable of developing and implementing innovative and economical complete systems.
On October 21, 2006, the ARGE TRANSCO-Sedrun (Batigroup AG, Frutiger AG, Bilfinger Berger AG, Pizzarotti SA) has given Rowa the assignment for the supply of a concrete transport system, consisting of 4 RoCon-Shuttles with 3 energy supply wagons and 2 direct conveyor units to the concrete pump. The new concrete transport system is a more economical alternative to today’s system.

**Customer Advantages**

- quick and easy filling of the concrete transport shuttles under the concrete plant
- no exact positioning of the shuttles under the loading point of the concrete plant
- capacity of the concrete plant is strongly reduced by using drum agitators due to the longer loading times
- no additional extensive modifications and additions of a cover assembly and disassembly facility for the drum agitators of the concrete plant
- no training and optimisation phase as well as operation and maintenance of cover assembly and disassembly facility for drum agitators for loading at the concrete plant
- low maintenance costs
- considerably lower cleaning costs
- higher productivity (personnel savings during unloading)
- possible options such as extra addition of fluxing agents or activators for long transport routes
- possible options such as extra addition of neutralisation agents in the event of accidents
- standardised concrete transport system (trough) at the Sedrun construction site
- conveyance of concrete by shuttle composition at the unloading site
- visual check of concrete and fill level in the troughs of the shuttles during unloading
- low amounts of residual concrete in the trough
- more economical concrete transport system
- easier pouring of concrete for the kicker

**Know-how, innovation and closeness to the customer are the key to the optimum solution.**
RoCon-Shuttle
Concrete Transport System

RoCon-Shuttle
The RoCon-Shuttle essentially consists of the following components:
- 1 trough with agitator
- 2 sliders at front and back of trough
- 1 outlet cone
- 1 inlet cone
- 1 positioning mechanism for drawing the shuttles together during unloading
- 1 shuttle chassis
- 2 bogies
- 2 shuttle couplings

Trough with Agitator
The trough consists of a self-supporting structure made of canted and welded plates. The top of the trough is open and covered with a removable grate (including shaker). The removable grate is not equipped with a monitoring device. The trough is bolted to the shuttle chassis with 4 feet. A hydraulically operated slider is installed at the inlet and outlet.

The agitator consists of a central shaft with welded-on helical segments. In the event of wear, these helical segments can be replaced. The drive of the agitator is hydraulic.

Conveyance Equipment
The direct conveyance facility consists of a steel cone with a vulcanised seal and a steel hopper as a coupling element.

The steel cone and seal as well as steel hopper are bolted onto the trough and can therefore be replaced easily.

Positioning Mechanism
A hydraulic draw-gear at the coupling is used to draw the two shuttles together. The positioning mechanism consists of a steel frame structure that can be extended or retracted by means of a hydraulic cylinder.

Shuttle Chassis
The shuttle chassis consists of a sturdy steel structure that has the job of connecting the two bogies, absorbing the longitudinal forces during travel via the shuttle couplings, and to support the trough.

Bogies
The bogies consist of a stable steel structure. The bogie is supported by a central ball socket. The wheel sets are equipped with suspensions.
Energy Supply Shuttle, RoCon-Powerpack

The energy is supplied by an energy supply shuttle hitched up to each composition consisting of:

– platform shuttle with 2 axles
– shuttle couplings
– Powerpack (diesel engine and hydro-pump with valves)
– hydraulics installation
– oil and diesel tank
– oil cooler
– control console

Platform Shuttle

The platform shuttle consists of a stable steel structure. The steel frame absorbs the longitudinal forces during travel via the couplings and is used to connect the two rigid axles. In addition, it is used to hold the energy supply components.

Powerpack (diesel engine)

The diesel generator consists of a diesel engine (excl. particle filter) and a hydro-pump for driving the shuttle on the route.

Technical Data

Concrete transport system RoCon-Shuttle

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<th>Specification</th>
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<td>Transport volume of water</td>
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<tr>
<td>Width</td>
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<tr>
<td>Height from SOK</td>
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<td>Track gauge</td>
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<td>Weight empty</td>
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<tr>
<td>max. wheel load</td>
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<tr>
<td>max. speed</td>
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RoCon-Powerpack

<table>
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<td>Total weight</td>
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<td>max. speed</td>
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<td>Installed power (Diesel)</td>
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