

Raising a Bridge by Filling Work with Ready-Mix Concrete



The bridge that crosses the Lütschine, a mountain river in Bernese Oberland (Switzerland), between Wilderswil and Gesteigwiler had to be raised by 50 cm.

The reason: When the river was in flood, and especially when the snow melted in spring, ice and snow masses accumulated at the bridge and made it impassable.

The bridge floor was hydraulically raised. Then the bridge pier had to be joined to the floor again.

The formwork for the addition of concrete to the pier was erected almost up to the oscillation elements. There was only an 80-mm gap through which the concrete was to be poured in. Since the discharge nozzle of a concrete pump was too thick to fit through this narrow opening, Civil Engineers Hans-Peter Kummer, the manager of the building firm ZIAG in Spiez, asked PFT specialist trader Werner Wälti, located in

Bern, for help. Thanks to his many years of PFT experience, Mr. Wälti was able to give competent advice and support.

The material to be poured in was Masterflo 328 (grain size: 3 mm) and Masterflo 380 (grain size: 10 mm) ready-mix concrete, manufactured by MBT.

Mr. Wälti recommended the use of a compulsory mixer and a PFT ZP 3 feed pump with an R 9 pump for coarse-

grained materials.

A 35-mm mortar hose, which just fit through the clearance of the formwork, was connected. The coarse-grained concrete could then be pumped into the formwork without any problems.

Raising a bridge across the Lütschine, a mountain river in Bernese Oberland: The hydraulic elevation of the bridge floor and the formwork for the addition of concrete to the pier are plainly visible.

To prevent cracking, the formwork was filled in two steps. The bridge across the Lütschine in Bernese Oberland has meanwhile been reopened to traffic.

Once more, PFT equipment has kept things moving.

Ready-mix concrete was pumped into the formwork with a PFT ZP 3 mortar pump.



The fresh concrete clearly shows the extent to which the bridge pier has been raised.

Technical Data:	PFT ZP 3 S/ZP 3 V
Conveying capacity ¹ :	5 – 140 l/min
Conveying pressure:	max. 30 bar
Conveying distance	up to 100/120 m
Drive:	5,5/7,5 kW Vario 175/60 – 190 rpm 400 V three-phase current 50/60 Hz
Hopper content:	85 l
Filling height:	520/540 mm
Dimensions L/W/H:	2140/700/(520/540) mm
Weights of the modules:	Drive unit 51/90 kg Control unit 24 kg Pump shaft 5 kg
Total weight:	210/285 kg

¹ depending on motor speed, mortar quality, consistency, pump type, conveying height and mortar hose diameter