

# Cavity Grouting with PFT Machines

## Effects of the Flood – Even One Year Later

Even one year after the flood of the century, Rosswein, a town with about 8,000 inhabitants situated on the river Mulde (Eastern Germany), has still not returned to normal. The mayor estimates that around 70 % of the damage caused by the flood will be repaired by the end of 2003.

The foundations of the river embankment retaining walls had been undermined or washed away by the flood in August 2002, so that the walls were in danger of collapse. The municipal authorities of Rosswein charged the Leipzig-based company Dr. Schäfer GmbH with the filling of the cavities resulting from the flood. Dr. Schäfer GmbH is a young and modern building firm specialised in civil engineering. Dr. Ralph Schäfer established his business in Leipzig in 1990; today he employs 14 persons.

### Cavity Grouting

Thanks to support by PFT specialists, Dr. Schäfer GmbH successfully performed the cavity grouting job at the embankment retaining walls. "We looked for a grouting method that was as economical as possible," says Dieter Petzsche, Schäfer's project manager. Mr. Mäder, an employee of Colditzter Bauservice GmbH, the local PFT partner trader, found the solution. In

co-operation with PFT specialists, he recommended a PFT HM 22 horizontal continuous mixer, for cement preparation, combined with a PFT N 2 V mortar pump.



*Thanks to the use of an injection lance, the cement suspension flowed even into narrow cavities.*

The PFT HM 22 produced a lump-free mixture of the blast furnace cement supplied by Rüdersdorfer

Zement GmbH. Then the PFT N 2 V conveying pump injected the cement suspension into the cavities at a pumping capacity of approx. 8-12 litres per minute. The special feature of the blast furnace cement

used is the fact that it develops less heat during the setting process and therefore shows a slightly lower initial strength than

other cement types. For the injection of the cement, Schäfer's workers drilled holes, 90 mm in diameter, spaced 1 m apart, within a length of 50 running metres, with the aid of a deep hole hammer. Through an injection lance, the PFT N 2 V injected the blast furnace cement into the drill holes. As soon as an injection pressure could be built up, the injection speed was decreased, i.e. the capacity of the conveying pump was



*Bag by bag, blast furnace cement was used as a grouting material.*

reduced. This is no problem thanks to the vario drive of the PFT N 2 V, which allows of a continuous speed control. Low injection speeds ensure a constant flow of the suspension, even into narrow cavities or small pores. In this way, a lasting rehabilitation of the embankment retaining walls of the river Mulde in Rosswein was achieved, and the team of Dr. Schäfer GmbH and PFT partner trader Colditzter Bauservice GmbH made a small contribution to the reconstruction efforts after the flood of the century.



*Ulrich Mäder of PFT partner trader Colditzter Bauservice GmbH supervised the use of the PFT HM 22 and PFT N 2 V machine combination.*