

Raising a sunken floor plate

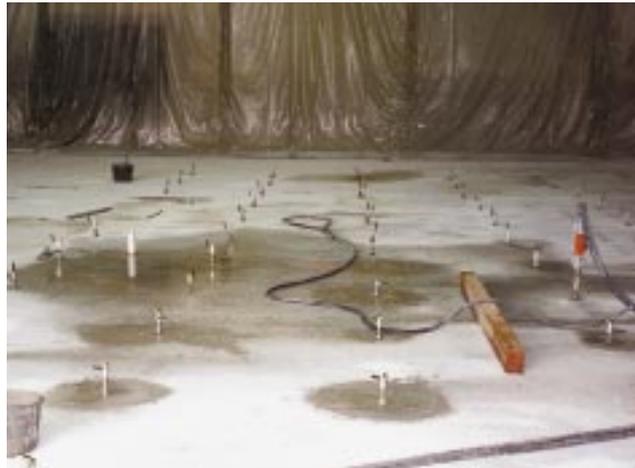
Sinking is often a cause of building damage. This problem is usually due to undetected instability in the foundation soil. Such was the case in a factory in Bad Neustadt on the Saale.

As the result of the many projects that have affected the groundwater, signs of sinking began to appear after a few years. Hollow spaces had formed beneath the 20 cm-thick reinforced concrete plate, and the floor sagged downward as much as 14 cm. A remodelling of the factory made it necessary for an approximately 1000 m² section to be restored and set up for fork lift travel.

The restoration work was entrusted to RIBAS Bausanierung GmbH in Rimpf. This firm was founded in 1993 and employs 50 workers. Managing director Wolfgang Czegley equipped the machine site with four PFT G4 mixing pumps.

In order to keep the interruption to production as short as possible, the contractor of the factory floor restoration set tight deadlines. RIBAS' plan called for the hollow spaces to be filled, the floor plate raised to re-establish an even surface, and finally for a coating to be applied.

RIBAS Superintendent Engineer Norbert Feser solicited the advice of PFT consultant Otto Iff. The planned restoration procedure required a high-capacity pump with maximum flexibility. Otto Iff recommended the conveying pump PFT N 2 V. The R7-2,5 pump unit with an output of approx. 30–35 l/min proved to be the equipment best suited for application in



Factory building in Bad Neustadt. Holes are bored every 1.5 m and sealed with packers.

the factory building. RIBAS managing director Wolfgang Czegley decided to purchase a PFT N 2 V from industrial machine dealer Wolfgang Stöcker of Kitzingen. The floor plate was then successfully raised in the following sequence: In

preparation, all 1.5 m holes in the floor plate were rebored and sealed with packing. A special cement grouting from the cement plant Märker GmbH in Harburg was used as filler. The material was transported to the silo, processed with a PFT HM 5

continuous mixer and pumped through 35 mm mortar hoses to the application site. The conveying distances measured up to 80 m.

To raise the 20 cm thick floor plate, pressure is required. The cement grouting is pressed via a packer into the hollow spaces under the floor plate with a pump pressure of approx. 2 bar. As soon as the hollow spaces are filled, the cement grouting is pressed out of the neighbouring packers. Then the packers are closed and the pump pressure is raised to 5 bar. After a section of the surface is successfully raised, another packer is connected to process the next section.

The mortar pressure is monitored with a PFT mortar pressure gauge. Final checking is performed via laser measurement.

The factory floor was raised and secured punctually within three weeks.



Technical data:	PFT N 2 V
Pumping capacity ¹ :	approx. 3–60 l/min
Pumping pressure:	max. 30 bar
Drive:	3.0 kW vario, 52–338 U/min
Electrical connection:	400 V rotary current, 50 Hz
Dimensions L/W/H:	1560/570/700 mm
Total weight:	150 kg
<small>¹ Depending on motor speed, mortar quality, consistency, pump design and mortar hose diameter.</small>	
Technical data:	PFT HM 5
Mixing capacity:	approx. 40–90 l/min
Electrical connection:	400 V rotary current, 16 A
Drive:	5.5 kW, 280 U/min
Dimensions L/W/H:	2280/390/370 mm
Total weight:	174 kg