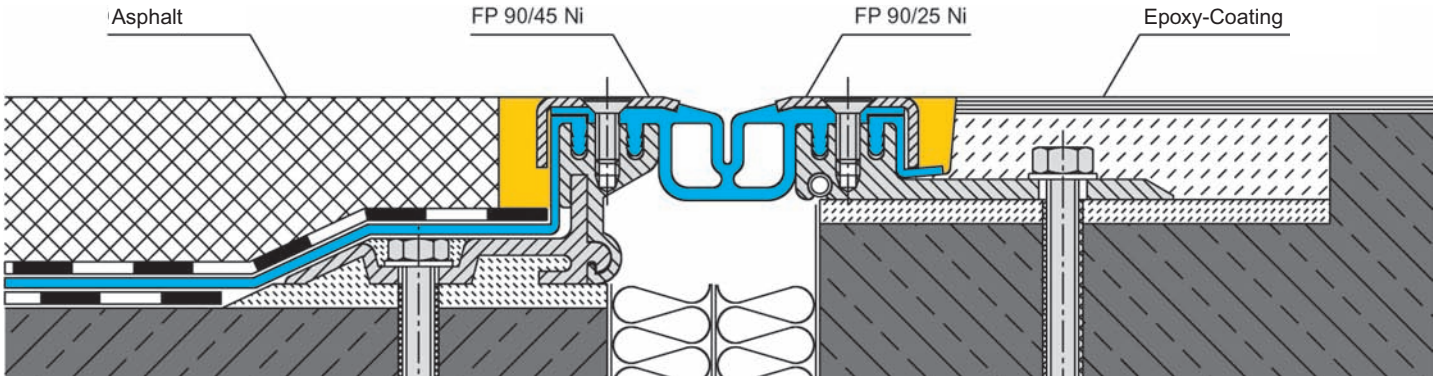
RESEARCH REPORT

We commissioned the testing department of the construction of national traffic routes of the TU Munich to carry out a suitability test with our MIGUTAN Expansion Joint Systems FP 90/45 Ni and FP 90/25 Ni.
The test was relevant to watertightness under repeated loads and different joint widths and was carried out on a testing stand.

TEST SPECIMEN

The specimen for the test consisted of two concrete slabs, onto which a combination profile, comprising FP 90/45 NI in connection with asphalt on one side and FP 90/25 NI in connection with epoxy coating on the other side, was mounted.
The aluminium side plates were then screwed to the concrete slabs, and after the sealing insert had been pressed into the side plates, the 2,5 mm thick stainless steel capping sections were screwed to the basic aluminium sections.



TEST PROCEDURE

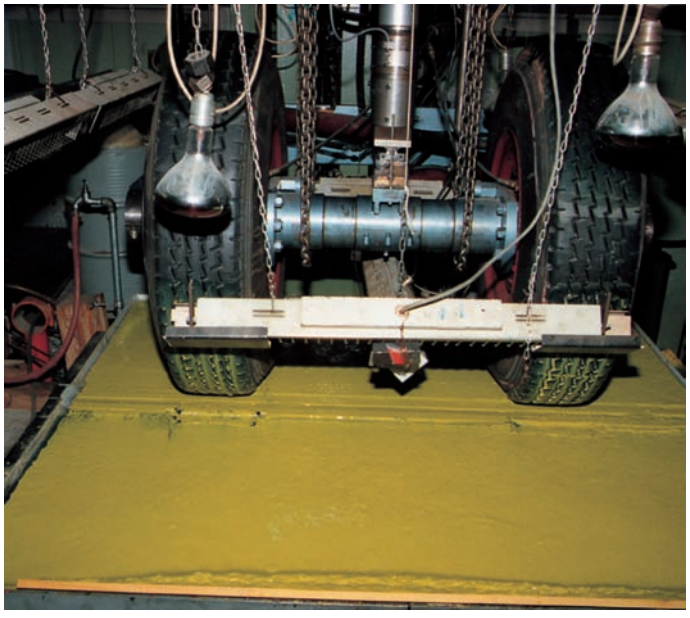
The test specimen was mounted into the testing stand and subsequently pushed forward and backward under two single wheels, at a rolling speed of approx. 1 km/h, over a total rolling path of 500 mm in length. These conditions create an increased stress to both the profile system and the surrounding surface. To simulate the relevant track distribution in normal circumstances, continuous shifts ± 2 cm in transverse direction were made during the approx. 30 no. longitudinal passages.
To simulate light trucks, the twin tyres were changed to single tyres, the axle load was set to 50 kN and the tyre inflation pressure to 8,0 bar. Two test were determined.

Test phase no. 1:
Joint width = 0 mm (normal position) 60.000 passages at room temperature, under an axle load of 50 kN and a tyre inflation pressure of 8,0 bar.

Test phase no. 2:
Joint width = + 20 mm (position in winter) 60.000 passages, under an axle load of 50 kN and a tyre inflation pressure of 8,0 bar.

At the end of each test phase, the surface of the test specimen was submerged in water in order to test watertightness.

TEST RESULTS



Watertight test
after termination of test phase no. 2
(142.000 load changes)

Test phase no. 1:
Even after a total of 65.000 passages, no evidence of water colouration and thus leakage, could be found at the underside of the joint (which was visible from the side).

Test phase no. 2:
A further 77.000 passages were made and after approx. 142.000 load changes with a joint width of 0 mm and + 20 mm, no evidence of water leakage could be found.

Summary: The load tests showed that the two aluminium side plates, FP 90/45 NI and FP 90/25 NI, are both watertight and of sufficient dimension for frequent passage by axle loads of 50 kN and tyre inflation pressure of 8,0 bar.