

The system of the future

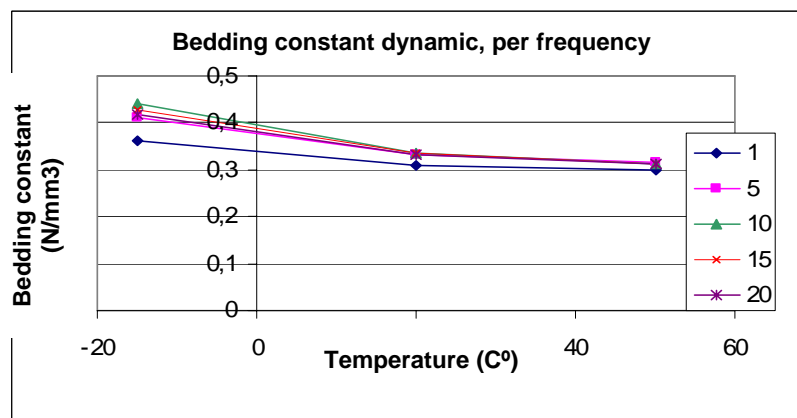
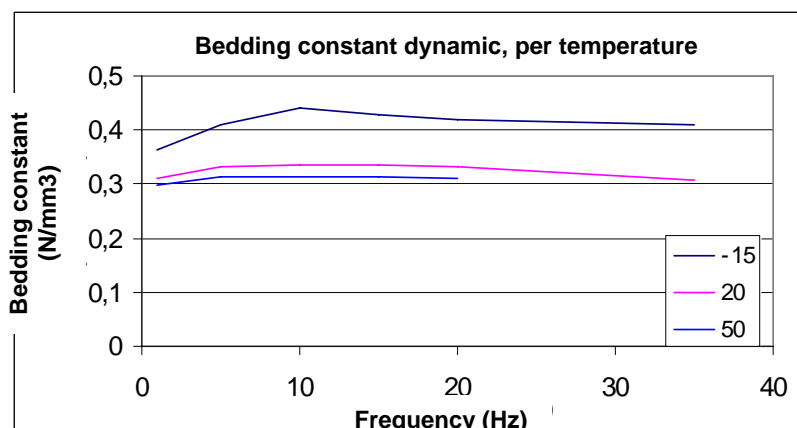
The comprehensive conclusion of AEA Technology read that the Embedded Rail System of [Bolidt® Rail Technology](#) is the system of the future. The technical properties, such as the bedding constant, elasticity and the results from the fatigue tests are well within the norm.

Durability, among other things, plays an increasingly important part in the design of railways. The application of low-maintenance constructions becomes more attractive. The ballastless rail concept offers good prospects in this respect. In this concept the rail is continuously supported by a formulated synthetic resin compound. If a producer of compounds wants to qualify for approval, numerous tests need to be completed to prove the employability of the synthetic system in the rail application.

Bolidt entered this procedure years ago and has gained approval. AEA commended the technical properties of the material and the way in which Bolidt implements the concept in the installation phase. Praise was given on specific technical issues, including:

Bedding constant

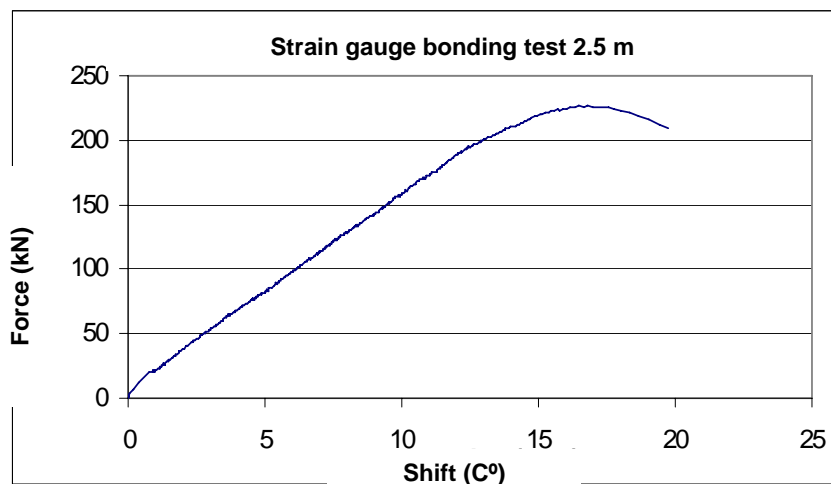
The dynamic and quasi-static bedding constant is a measure for the flexure of the [rail system](#) under a moving or stationary axle load. The constant is determined by a formula in which this flexure is an important variable. The flexure is affected by load frequencies (1-30 Hz) and environmental conditions, such as temperature (-15 to 50 °C). A special note was taken of the fact that the calculated constant showed very little variation under these very variable conditions. Material usually becomes extremely hard at temperatures under 0 °C, which causes a sharp rise in this constant.



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Elasticity tests and longitudinal strength

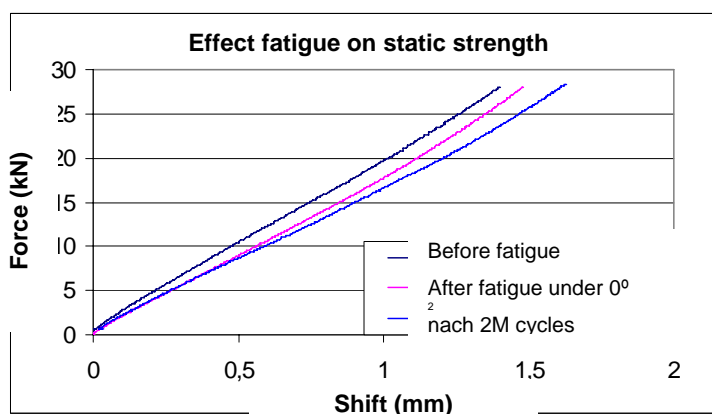
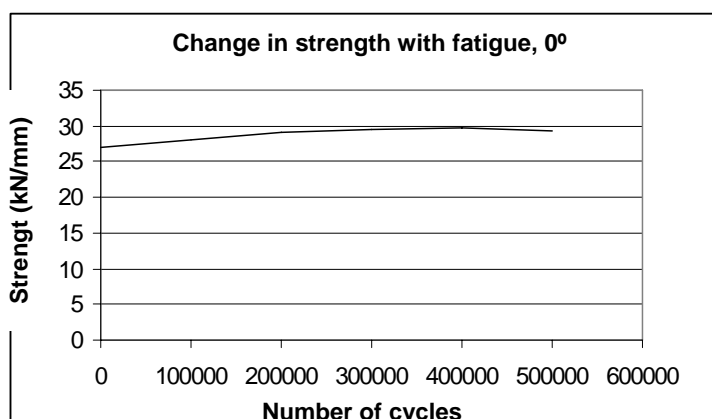
This test examines, whether the embedded rail also remains elastically fixed to the synthetic compound longitudinally if a force is put on the transverse side. No crack initiation should occur in case of a shift of the rail of up to 10 mm. The construction should also be able to absorb a longitudinal force of 120 kN. This requirement applies for a temperature range of -15 to 50 °C. The Bolidt® ERS ultimately showed a shift of 20 mm without cracks at a load of 225 kN and thereby comfortably bore this test of competence.



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Fatigue tests

The synthetic compound was tested for its resistance to variable loads such as the ones that occur under used rails. During these tests, a force is exerted on the embedded rails which presses down and then relieves the system 2,000,000 times in total. After 500,000 vertical blows the material is checked for crack initiation and/or detachment. After this, the load angle is changed (22°) and the cycle upped to 750,000 times. Then the angle is changed once more (31°) and the rail is subjected to another 750,000 blows. The Bolidt® Embedded Rail System got through this extremely severe testing process literally unscathed. Experts have noted that the minimal decrease in the bedding constant shows a nearly matchless quality of the material.



These test results provide Prorail and the Dutch Railways with the trust of knowing that the Bolidt® Embedded Rail System has an expected life span of at least 50 years and an availability rate of 99,94 %. This, combined with the enthusiastic reactions from rail contractors gives Bolidt faith in its future in rail construction.

Bolidt Embedded Rail System is shrink-proof and crack-resistant!

NB Technical requirements can be checked in PVE00121