



HVS - TEST ENTERPRICES IN FINLAND

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TOP FIVE SIGNIFICANT ACHIEVEMENTS

- In low-volume roads significant part of the rutting happens in lower parts of the road
- The permanent strains begin to grow more quickly after some threshold stress (or dynamic strain)
- The rule of fourth power is not valid for low-volume roads
- The growth of wheel load from 50 kN to 70 kN accelerates rutting 2,3 - 2,6 times
- The effect of shape of the cross section can be taken into account in design by GEOM-factor

The dissemination and implementation

- The test results have been published as research reports in Finland Road Administrations publication series or as dissertations
- A few conference papers have also been written
- GEOM-factor has been implemented into the new design method of low-volume roads
- Some other results have been implemented more indirectly to the design procedure of the TPPT

Significant problems / issues

- The quality of construction is a problem in relatively small test basins in outdoor conditions
- The measuring of the water content and its changes in the structure is not reliable
- The measuring of the stresses in crushed aggregates is not reliable enough
- The measuring of the strains in other directions than vertical
- The low speed of the test wheel

Program costs

- The total cost of one test area (8 meters) is 40 000 - 50 000 euros, including design, light instrumentation, construction, testing and reporting
- If there are three tested areas described above, the total cost is 110 000 - 120 000 euros

Collaboration activities

- Instrumentation
- The improvement of construction techniques to get better quality
- The measuring of shear stresses
- The development of database
- The measuring of strains in other directions than vertical
- The measuring of stresses and water content