

## Brake Calculation

Parking brake performance determination for trailers equipped with spring brake actuators.

Brake calculations for towed vehicles are produced in accordance with ECE Regulation 13. Whereas there are very detailed requirements for the service brake system described in this regulation, this is not so for the parking brake. The only performance requirement is that an uncoupled trailer must be able to be held stationary on an up or down gradient **18%**.

As a de facto industry standard, the relevant parking brake force provided from the spring brake actuator has been determined at **30mm stroke**. Haldex has now some indication that this historic norm may not be applicable for today's lightweight trailer brakes.

As there are several influences to be considered, such as different brake pad materials and design principles of the wheel brake and actuators, investigations will take some time.

**For this reason, our interim recommendation is to calculate the parking brake deceleration to a conservative minimum of 26%. In cases this value can't be reached in theory, the trailer manufacturer must make sure that the 18% value defined in the regulation is reached in practice.**

As the overall weight of a trailer has a huge influence on the parking performance, especially with semi-trailers, **a realistic value for the overall weight must be chosen.**

Once these investigations are completed, this temporary recommendation will be reviewed and revised.