

# REPORT

Heisteel DK Aps minicrosser  
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## Impact test, electrical wheelchair and locking device

(1 appendix)

### Assignment

Impact test on a wheelchair Model MC Skubber and floor pocket system model Qstraint Q-5001 according to ISO-10542.

### Client

Heisteel DK Aps Mini crosser

### Test object

|                       |                                     |
|-----------------------|-------------------------------------|
| Electrical wheelchair | MC Skubber, mass 60 kg.             |
| Harness system        | QSTRAINT Q-5001 floor pocket system |
| Dummy                 | TNO-10 dummy, mass 76.5 kg          |

The complete unit is meant to be mounted in the vehicle. One sample was used for the test.

The test objects arrived at SP on 11 December , 2001.

The test objects have been selected by the client without SP's assistance.

The test results shown in this report refer only to the tested objects.

### Test date

The test was performed on 11 December, 2001.

### Measuring

The deceleration was measured by two accelerometers mounted on the trolley.

The test was filmed with a high-velocity camera (1000 frames a second).

The measurement uncertainty when determining the deceleration was  $\pm 5\%$  ( $g = 9.81 \text{ m/s}^2$ ).

## Testing

One impact test, with one test object was performed. The test object was mounted in a forward direction on the test trolley plate. A TNO-10 Crash Test Dummy (76.5 kg) was placed and belted in the wheelchair with a 3 point belt. The speed immediately before the impact was 50.0 km/h. The maximum deceleration was measured to 25 g. The acceleration was more than 15 g during 40 milliseconds and 20 g during 15 milliseconds, see appendix.

## Result

After the test, all components were intact. No fractures or damages could be observed on the tested objects. The wheelchair was fit to drive after the test.



Before test



Belt system before test.



After test.



After test.

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**Appendix:**  
Deceleration graph