

Zur Information!
for information only!

Invacare Deutschland GmbH
Dehmer Strasse 66
D-325 49 Bad Oeynhausen
Germany

Handläggare, enhet / <i>Handled by, department</i>	Datum / <i>Date</i>	Beteckning / <i>Reference</i>	Sida / <i>Page</i>
Mikael Bynander, Building Technology and Mechanics - Transport and Vehicle Technology +46 (0)33 16 52 33, mikael.bynander@sp.se	January 28 2003	BMf P300950 Rev. 1	1 (3)

Crash test according to ISO-7176-19:2001 and ISO-10542:2000 (One appendix)

Assignment

Crash testing of wheelchair and locking device according to ISO-7176-19:2001 and ISO-10542-5:2000.

Test object

Wheelchair	InvaCare Storm3
Serienumber	0602476506
Class	B
Locking system	UNWIN-GEMINI/G3.
Dummy	Hybrid III dummy, mass 76.5 kg

Date of arrival

The test objects arrived at SP on 20 January 2003. The test objects have been selected by the client without SP's assistance. The test results showed in this report refer only to the tested objects.

Date of testing

The test was performed on 28 January, 2003.

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 better than $\pm 5\%$
($g = 9.81 \text{ m/s}^2$).

Zur Information!
for information only!

Results

Test

Velocity: 48.8km/h

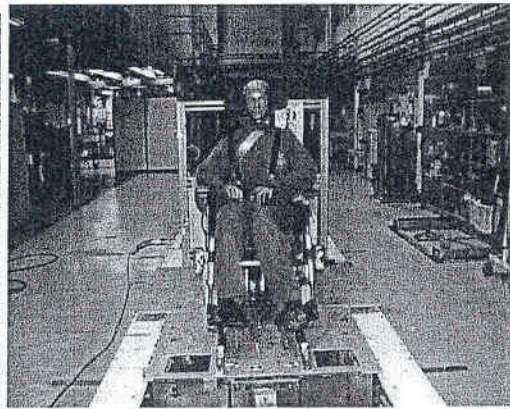
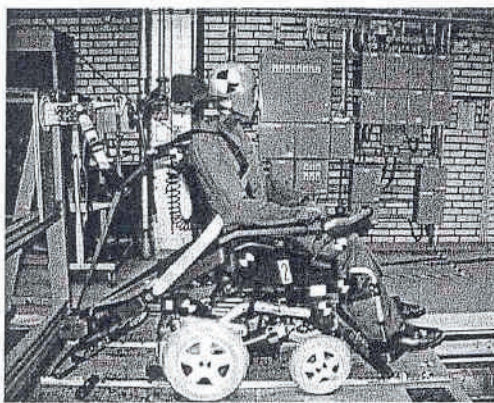
Retardation distance: 640 mm

Retardation pulse according to acceleration curves in appendix.

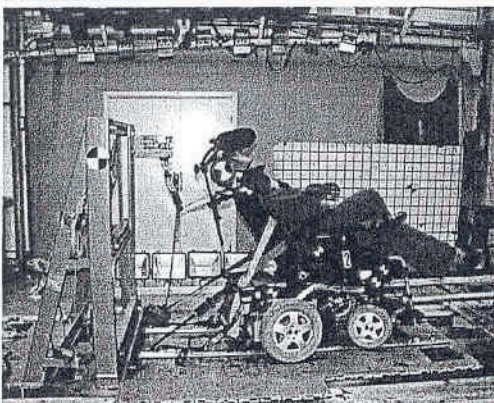
Locking device with wheelchair model InvaCare Storm3 and Hybrid III crash test dummy.

The locking device withstands the test without remarks. The seat back of the wheelchair was bent back 7° at the rebound of the dummy. The movement of the dummy is approved according to specification in ISO-7176-19:2001. No other fractures or apparent deformations were noted on the wheelchair or anchorage points. The system fulfils the requirements according to ISO-10542-5:2000 and ISO-7176-19:2001.

Movements of dummy	Result
Knee	265 mm
Head frontal	375 mm
Head rear	350 mm
Wheelchairpoint	160 mm
Xknee/Xwc > 1.1	1.65

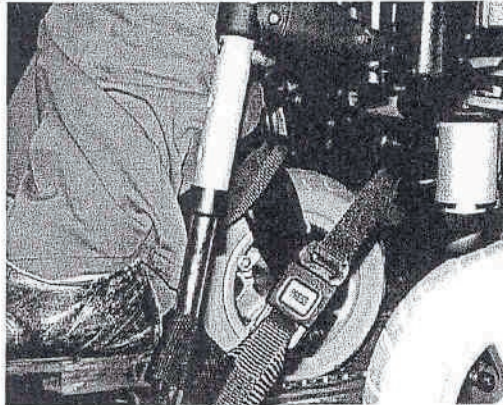


Before test

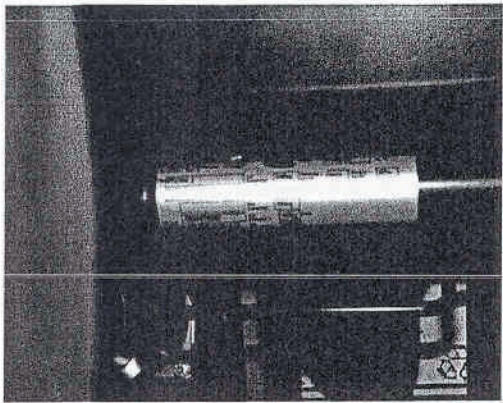
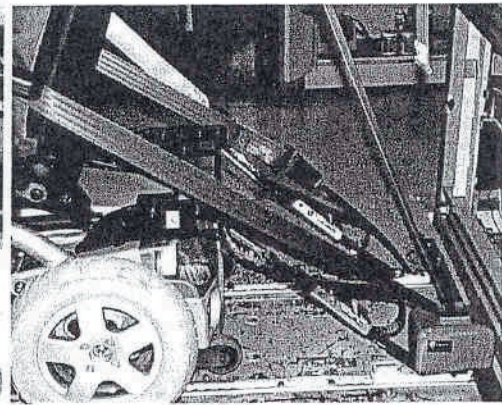


After test

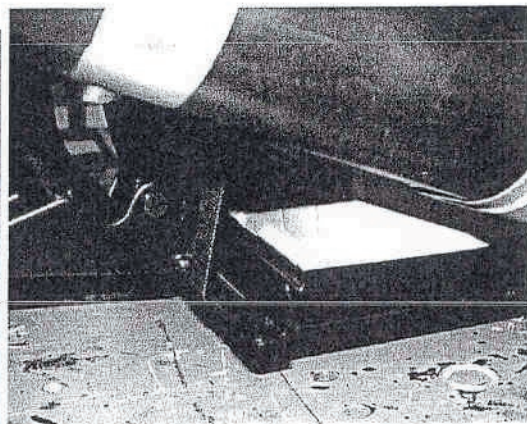
Zur Information!
for information only!



Strap system



Identification



Battery holder

Note

The following changes have been made in this Rev.1, on 18 February 2003-02-18
Insert year of standard, ISO-7176-19:2001 and ISO 10542:2000

SP Swedish National Testing and Research Institute
Building Technology and Mechanics – Transport and Vehicle Technology

Lars-Göran Nilsson
Technical Manager

Mikael Bynander
Technical Officer

Appendices

Appendix Retardation pulses