

Test Report



Customer Alu Rehab

Test Item Netti 4U CE Plus – Java Back

Test ISO 7176-19:2008 as amended by
EN 12183:2014

Millbrook Report No. 18/0472

Millbrook Test No. S15330

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Approved:  N. Targett
Manager: Safety Test
Engineering

Date: 19th March 2018

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Distribution

Organisation	Recipient	Format	Qty
Alu Rehab AS, Bedriftsveien 23, 4353Klepp stasjon Norway	Oddvar Kverme	PDF	1
Millbrook Proving Ground Ltd Millbrook Bedford MK45 2JQ	Contract file	PDF	1

Report Revision History

Rev.	Revision Description	Date	Author	Approver	Pages
0	Initial release	19 th March 2018	C. Sells	N. Targett	All

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Appendices

Graphical Results	Appendix A
Transducer Calibration Report	
Pre and Post Test Photographs	Appendix B
Test Results Summary	Appendix C
High Speed Digital Films	See "Films" directory on data media
Still Photography	See "Stills" directory on data media

Test Facility and Date

The test, number S15330, was performed on 8th March 2018 at the Sled facility at Millbrook Proving Ground Ltd.

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Test Items

Test parts were delivered to Millbrook on 6th March 2018.

Item	Part No.	Test mass (kg)
Wheelchair	Netti 4U CE Plus – Java Back	34.55kg
Front Wheelchair Tie Downs	Unwin OF03	5kg
Rear Wheelchair Tie Downs	Unwin OR02	
Occupant Restraints	MPG SORv1	

The following table provides information regarding the ATD used in the test.

Description	Family	Test mass (kg)
50 th percentile male	HII	75kg

Test Outcome

The 'Netti 4U CE Plus' wheelchair successfully met the dynamic test requirements of ISO 7176-19:2008 as amended by EN 12183:2014.

Note 1: High definition pre and post-test still images of the test are provided in the 'Stills' directory.

Note 2: A summary of test results is given in Appendix C

Photographic

A single high speed camera was positioned to provide overall coverage of the dynamic response of test item and occupant during the test. The high speed camera (nominal 1000 frames per second) used for this test was as detailed below:

Camera Position	Camera	Lens
LH Total on-board view	MotionXtra NX-Air-5-S2	IDT 6mm

Disclaimers

1. The results contained within this report relate only to the Alu-Rehab 'Netti 4U CE Plus' wheelchair product.

Millbrook Proving Ground has no control over matters pertaining to conformity of production items with tested items.

Test Results Summary

Test No: S15330 Test Type ISO 7176-19:2008 as amended by EN12183:2014 Manufacturer Alu Rehab. WC Model: Netti 4U CE Plus – Java Back Mass: 34.55kg Seat Rail Angle: 7° Seat Back Angle: 10° Head Restraint: Fitted Occupant: Hybrid II 50 th Percentile (75kg) Front Tie Downs: Unwin OF01 Rear Tie Downs: Unwin OR02 Occupant Restraint: MPG SORv1	RESULTS
5.1 During the Test	
a) Horizontal ATD and wheelchair excursion limits as per limits shown in Table 3:-	
Was the horizontal movement of the test wheelchair P- Point (X_{ss}) less than 200 mm. (± 5 mm)	Pass 72mm
Was the horizontal movement of the dummy Knee (X_{knee}) less than 375 mm. (± 5 mm)	Pass 184mm
Was the forward horizontal movement of the Dummy Head (X_{headF}) less than 650 mm. (± 5 mm)	Pass 408mm
Was the rearwards horizontal movement of the Dummy Head (X_{headR}) greater than -450 mm. (± 5 mm)	Pass -396mm
b) Was the ratio $X_{knee}/X_{ss} > 1.1:1$	Pass 2.6:1
c) Did the batteries of powered wheelchairs, or their surrogate parts:-	
I. move outside of the wheelchair footprint	N/A
II. move into the wheelchair user's space	N/A
5.2 Post Test	
a) Did the wheelchair remain upright on the test platform and did the ATD remain in a seated posture in the test wheelchair with a torso angle $> 45^\circ$	Pass
b) Did the wheelchair securement points show visible signs of material failure	Pass
c) Did any components of a mass greater than 100g become detached from the wheelchair	Pass
d) Did any occupant contactable components fragment or separate with an edge of less than 2mm	Pass
e) Did any primary load carrying components of the wheelchair show any visible signs of failure	Pass
f) Did any 'tilt in space' locking mechanisms show signs of failure	Pass
g) Was the ATD released from the wheelchair without the use of tools	Pass
h) Was the wheelchair released from the restraint system without the use of tools	Pass
i) Was the average decrease of H-Point height relative to the wheelchair platform less than 20% of the pre-test height	Pass <1%
j) Did the wheelchair and its components cause partial or complete failure of the webbing or any of the WTORS assemblies	Pass
The Netti 4U CE Plus wheelchair satisfied the dynamic test requirements of ISO 7176-19:2008 as amended by EN12183:2014	