Test Report

Report No.: 779624-2 Rev 3

DANISH TECHNOLOGICAL INSTITUTE

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Jlj/ir/hbs
Order no.: 779624
No. of appendices: 2

Assignor: Rehab Care
Avnvej 10
DK-7400 Herning

Subject: Model: ErGo Tilt 4000/5000

Type:	Toilet Bathing Chair ISO classification 09.12.03				
Weight	35 kg	SWL	200 kg	Date	2017-11-12
Materials:	Painted steel and plastic		Serial No.	3075	
Expected lifetime	3 years				

Sampling: The test material was sampled by the client and received at the Danish Technological Institute 30.10.2017.

Method: ISO 17966:2016 Assistive products for personal hygiene that support users – Requirements and test methods

Period: The testing was carried out from 30.10.2017 to 04.01.2018.

Result: Model ErGo Tilt 4000/5000 fulfils the requirements of ISO 17966:2016.

Individual results appear from Appendix 1.

Storage: The test material will be destroyed after 1 month, unless otherwise agreed.

Terms: The accredited test was carried out according to DANAK's general conditions see www.danak.dk and according to the General Terms and Conditions regarding Commissioned Work Accepted by the Danish Technological Institute, which apply at the time of signing the agreement. The test is only valid for the tested specimen. The test report may only be extracted, if the laboratory has approved the extract.

Note: Rev 1 - Addition of ErGo Tilt 5000
Rev 2 – Year under Date/place revised to 2018
Rev 3 – Addition of accreditation logo

Date/place: 07-08-2018, Danish Technological Institute, Wood and Biomaterials, Taastrup
Replaces report dated 17-01-2018

Signature:

Digitally signed by Jens Ljørring
Test responsible

Digitally signed by: Peder Fynholm
Date: 2018.08.07 14:18:53 + 01'00'
Co-signatory

ilac-MRA DANAK TEST Reg.no. 2

Testing of Model: ErGo Tilt 4000/5000

ISO 17966:2016

		Result
4.1	Risk analysis	N/T
4.2	Intended performance	Passed
4.3	Clinical evaluation and investigation	N/T
4.4	Assistive products for personal hygiene that can be dismantled	N/A
4.5	Fasteners	Passed
4.6	Means to prevent falling out	N/A
4.7	User mass/load limits	Passed
4.8	Apparatus	
4.9	Test conditions	
5	**Materials**	
5.1	General	Passed
5.2	**Flammability**	
5.2.1	General	N/T
5.2.2	Moulded parts used as enclosures for electrical equipment	N/T
5.2.3	Upholstered parts and moulded parts	N/T
5.3	Biocompatibility and toxicity	N/T
5.4	**Infection and microbiological contamination**	
5.4.1	Cleaning and disinfection	Passed
5.4.2	Resistance against temperature alterations	N/T
5.4.3	Animal tissue	N/A
5.5	Resistance to corrosion	N/T
6	Emitted sound and vibration	
6.1	Noise and vibration	N/T
6.2	Sound pressure levels and frequencies of audible warning devices	N/T
7	**Electromagnetic compatibility**	
7.1	General	N/T
7.2	Emissions	N/T
7.3	Immunity	N/T
7.4	Power frequency magnetic field immunity	N/T
8	**Electrical safety**	
8.1	General	N/T
8.2	Electrical systems	N/T
8.3	Safe positioning	Passed
8.4	Single fault safety	Passed
8.5	Hold to run activation	Passed
8.6	Emergency stopping functions	N/T
8.7	Continuity of power supply	N/T
8.8	Battery powered assistive products for personal hygiene	
8.8.1	Battery housings	N/T
8.8.2	Connection	N/T

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		Result
8.8.3	Charge level indicator	Passed
8.9	Circuit protection	N/T
8.10	Electrically heated blankets, pads and similar flexible heating appliances	N/A
8.11	Ingress of liquids	N/T
9	**Overflow, leakage, and ingress of liquids**	
9.1	Ingress of liquids	N/T
9.1.1	Requirements	N/T
9.1.2	Test method	N/T
9.2	Overflow and leakage	N/T
9.2.1	General	N/T
9.2.2	Substances which may leak from an APPH in intended use and in fault conditions	N/T
10	Temperatures of parts that come in contact with human skin	N/T
11	**Safety of moving and folding parts**	
11.1	Squeezing	Passed
11.2	Velocity of powered lifting and lowering movements	
11.2.1	Requirements	Passed
11.2.2	Test method	
11.3	Mechanical wear	Passed
11.4	Trapping zones for feet in relation to moving parts Between footrest and the floor. The footrest moves if somebody's foot got squeezed	(Passed)
12	**Prevention of traps for parts of the human body**	
12.1	Holes and clearances	Passed
12.2	V-shaped openings	Passed
13	**Folding and adjusting mechanisms**	
13.1	General	N/A
13.2	Locking mechanisms	N/A
14	**Lifting and carrying means**	
14.1	General	N/A
14.2	Requirement	N/A
14.3	Test method	
15	Portable and hand-held parts	N/A
16	**Static strength, impact and durability**	
16.1	General	
16.2	**Formulae**	
16.2.1	Formulae for calculating forces Seat F=200x9,802x1,5=2940N Back F=0,5x200x9,802=980N Seat durability F=200x9,802=1960N Static arm F=950N Arm durability F=635N Foot support F=1200N Foot support durability F=200N	

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		Result
16.3	Number of test cycles for durability. Expected lifetime 3 years. Arm support NTC=2x10x365x3=21.900 cycles Seat support NTC=1x10x365x3=10.950 cycles Foot support NTC=1x10x365x3=10.950 cycles Height adjustment NTC=1x10x365x3=10.950 cycles Frame NTC=1x10x365x3=10.950 cycles, max 10.000 cycles	
16.4	**Static strength of lying support, arm and foot supports and seat and back surfaces**	
16.4.1	Requirements	Passed
16.4.2	**Test methods** Arm Seat and back support Foot support	 Passed Passed Passed
16.5	**Durability**	
16.5.1	Requirements	Passed
16.5.2	Test methods Arm Seat Height adjustment Frame of the APPH Foot support	 Passed Passed Passed Passed Passed
16.6	**Impact**	
16.6.1	Requirements	Passed
16.6.2	Test methods	
17	**Stability**	
17.1	Requirements for static stability	Passed
17.2	Test method for static stability	

Adjustment of commode chair	**TIPANGLE Loaded**	**Result**
Forward stability: • Forwards, max. height, seat forwards	11,4°	Passed
Left side stability: • Max. height, horizontal seat	10,0°	Passed
Right side stability: • Max. height, horizontal seat	8,0°	Passed
Backward stability: • Max. height, seat backwards	10,0°	Passed

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		Result
18	Surfaces, corners, edges and protruding parts	Passed
19	Small parts	N/A
20	Forces in soft tissues of the human body	N/T
21	Ergonomic principles	Passed
22	**Mobile APPHs**	
22.1	General	
22.2	**Immobilizing means**	
22.2.1	General	
22.2.2	Requirements for locking devices	Passed
22.2.3	Test methods for locking devices	
22.2.4	Test methods for durability of brakes	
22.2.5	Brake operated by a lever	N/A
22.3	**Electrical safety for mobile APPHs**	
22.3.1	Power-driven mobile APPHs	N/A
22.4	**Rough handling and movement**	
22.4.1	General	
22.4.2	Requirements	Passed
22.4.3	Test method for movement over a threshold	
22.4.4	Test method for door frame shock	
22.5	**Functional requirements for mobile APPHs**	
22.5.1	Foot supports	Passed
22.5.2	Position of push handles/points	N/A
22.5.3	Turning diameter of mobile APPHs	Passed
22.6	Moving forces	
22.6.1	Requirements for moving forces	Passed
22.6.2	Test methods for moving forces	

Moving forces

Application	1	2	3	4	5	Mean
Starting forwards	113	87	95	93	100	97
Starting backwards	112	90	111	94	84	98
Driving forwards	32	51	47	47	34	42
Driving backwards	55	59	48	45	33	48

Testing of Model: ErGo Tilt 4000/5000

		Result
23	**Fixed APPHs**	
23.1	General	
23.2	Requirements	N/A
23.3	Shower seat (09 33 03)	
23.3.1	Description	N/A
23.3.2	Test methods for static strength, durability and impact for shower seats	N/A
23.4	**Bathing stretchers, shower tables and diaper changing tables (09 33 12)**	
23.4.1	Description	
23.4.2	Test methods for static strength and durability for bathing stretchers, shower tables and diaper changing tables	N/A
23.5	**Bath/shower chairs (without wheels), bath boards, stools, back supports and seats (09 33 03)**	
23.5.1	Description	
23.5.2	Test method for durability	N/A
23.6	**Raised toilet seats (09 12 18)**	
23.6.1	Description	
23.6.2	Requirements for static strength for raised toilet seats	N/A
23.6.3	Test methods for static strength and durability for raised toilet seats	N/A
23.7	**Hand rails, grab bars and handgrips (18 185 03 and 18 18 06)**	
23.7.1	Description	
23.7.2	Ergonomic principles for handrails, grab bars and handgrips	N/A
23.7.3	Test method for static strength and durability for handrails, grab bars and handgrips	N/A
23.8	**Removable grab rails and handgrips (18 18 10)**	
23.8.1	Description	
23.8.2	Ergonomic principles for removable grab rails and handgrips	N/A
23.8.3	Test methods for static strength and durability for removable grab rails and handgrips	N/A
23.9	**Hinged rails and arm supports (18 18 10)**	
23.9.1	Description	
23.9.2	General	N/A
23.9.3	Test method for static strength for hinged rails and arm supports	N/A
23.10	**Height-adjustable plinths and brackets (18 15 06)**	
23.10.1	Description	
23.10.2	Test method for static strength and durability for height-adjustable plinths and brackets	N/A
24	**Static APPHs**	
24.1	General	
24.2	Stability and strength tests for static APPHs	N/A
24.3	**Toilet seat inserts (non-fixed) (09 12 15)**	
23.3.1	Description	
23.3.2	Impact	N/A

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		Result
24.4	**Toilet seats with built-in raising mechanisms to help standing up and sitting down (non-fixed) (09 12 21)**	
24.4.1	Description	
24.4.2	Durability	N/A
24.5	**Bath/shower chairs (without wheels), bath boards, stools, back supports and seats (09 33 03)**	
24.5.1	Description	
24.5.2	Materials	N/A
24.5.3	Stability	N/A
24.5.4	Stability tests for APPHs designed to be supported by the sides of a bathtub	N/A
24.5.5	Strength test of brackets	N/A
24.5.6	Friction test of bath board/seat	N/A
24.5.7	Static horizontal force test on handle	N/A
24.5.8	Static vertical force test of handle of bath and transfer boards	N/A
25	**Requirements for information supplied by the manufacturer**	
25.1	General	Passed
25.2	**Instructions for use**	
25.2.1	Pre-sale information	Passed
25.2.2	User information	Passed
25.2.3	Service information	Passed
25.3	Labelling	Passed
26	Packaging	N/T
27	Test report	

N/A –Not applicable

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Photo

ErGo Tilt 4000

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