



Rehab Care DK ApS
Avnvej 10
DK-7400 Herning

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Test report

Material: Model Cathy
Standing mobile hoist ISO classification 12.36.04

Type:	Mobile hoist	Height actuator:	Item No 34320F+3L200141
SWL:	200 kg	Series no.	1628 (pdf)
Weight:	50 kg	Date 2014-08-28(pdf)	Materials:
			Welded steel profiles

See Appendix 2.

Sampling The test material was sampled by the client and received at the Danish Technological Institute on 05.11.2013.

Method: EN/ISO 10535:2006 Hoist for the transfer of disabled persons – Requirements and test methods.
4. General requirements and test methods
6. Standing and/or raising hoist specific requirements and test methods with the exception of the clauses 4.1.3: “Sound level”, 4.3.1.2: “Electrical safety”, 4.3.1.4: “Biocompatibility”, 4.3.1.23: “Electrical safety”, 4.11 “Hydraulic components” and 4.12 “Pneumatic components”.

The testing was carried out under normal indoor conditions.

Period: The testing was carried out in the period 05.11.2013-18.08.2014.

Result: Cathy meets the requirements in EN/ISO 10535:2006

Individual results appear from Appendix 1

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

Terms: The test was performed according to the attached conditions, which are according to the guidelines laid down by DANAK (The Danish Accreditation). The testing is only valid for the tested specimen. The test report may only be extracted, if the laboratory has approved the extract.

28-08-2014, Danish Technological Institute, Wood Technology, Taastrup

Test responsible

Verifier

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4. General Requirements

Section	Test	Comments	Results
4.1.1	Risk analysis	A risk analysis was not included in the testing.	
4.1.2	Ergonomics:		
	a) The distance between any handle (part intended to be grabbed) requiring an operating force of more than 10 N and any construction part of the hoist shall not be less than 35 mm.		Passed
	b) The distance between any upper surface of a pedal (in its operating position) and any other part of the hoist shall have a toe clearance of not less than 75 mm	No pedals	N/A
	c) The diameter of operating handles and/or knobs requiring an operating force of more than 10 N shall be between 19 mm and 43 mm	D= 28 mm	Passed
	d) For hoists operated from a standing position, pedals shall be placed not more than 300 mm above the surface of the floor		N/A
	e) For hoists operated from a standing position, hand operated controls shall be placed at a height from 800 mm to 1200 mm above the floor	Remote hand control – any height	Passed
	f) Handles for pushing and/or pulling shall be placed at a minimum height of 900 mm	Midpoint of handle placed at 1070 mm above ground -	
4.1.3	Sound level	Not included.	-

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4.3 GENERAL SAFETY

Section	Test	Comments	Results
4.3.1.1	Safe Working Load (SWL)	200 kg	-
4.3.1.2	Electrical safety	Not included.	-
4.3.1.3	Materials	Welded and painted steel tubes – Normally used for these products.	Passed
4.3.1.4	Biocompatibility	Not included.	-
4.3.1.5	Fasteners:	Load bearing fasteners are locked	Passed
4.3.1.6	Self-tapping screws:	Not used for said purposes.	Passed
4.3.1.7	Handgrips:	Fixed handgrips.	N/A
4.3.1.8	Edges and corners:	All accessible edges, corners and surfaces are smooth.	Passed
4.3.1.9	Correct assembly:		N/A
	Horizontally movement of load:		N/A
4.3.1.10	Shearing and crushing:	There are no points of shearing or crushing within normal reach	Passed
4.3.1.11	Limiting the load on the disabled person – vertical movement:	A built-in safety mechanism will limit the load on the disabled person to the mass of part of the lifting arm, which is app. 40 N	Passed
4.3.1.12	Limiting the load on the disabled person – horizontal movement:		N/A
4.3.1.13	When operated, the means provided in 4.3.1.11 shall not allow the hoist to become unsafe	The hoist will not become unsafe	Passed
4.3.1.14	Accessibility of controls:	Hand held control box – easily accessible	Passed
4.3.1.15	Emergency stop:	There is an emergency device at the battery box. Activated by pushing and deactivated by rotating The device is coloured red	Passed
4.3.1.16	Battery warning device:	Battery lamp both on	Passed

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Section	Test	Comments	Results
		the hand control and battery holder. Audible signal, too. When operating, there is still more than one full lifting cycle available	
4.3.1.17	“Hold to run” controls:	All controls are “hold to run” type	Passed
4.3.1.18	Limiting the lifting force:	The hoist is not able to lift more than 300 kg.	Passed
4.3.1.19	Safety device:	According to the supplier, there is a safety nut in the actuator	Passed
4.3.1.20	Flexible lifting devices:		N/A.
4.3.1.21	Inadvertent detachment of slings etc.:	The connection points are designed to prevent inadvertently detachment of the slings	Passed
4.3.1.22	Protection against inadvertent falling form the body support unit:	A body support unit was not included in the testing	N/A
4.3.1.23	Electrical safety:	Not included	-
4.3.1.24	IPxx class: Any electrical component that can be splashed during normal operation shall have an IP rating of at least IPx4. Any electrical component that can be submerged during normal operation shall have an IP rating of at least IPx7	IPx4	Passed N/A
4.3.1.25	Connection points for body support units:		Passed
4.3.1.26	Stretchers:	No stretcher	N/A
4.4	Requirements for body support units:	No body support unit	N/A
4.5	Central suspension point		Passed
4.6	Requirements for the spreader bar:		
4.6.1.1	Safety device for adjustable spreader bar		N/A
4.6.1.2	Spreader bar supporting at least 1,5xSWL		Passed
4.6.1.3	In the instructions for use, information shall be given about the type(s) and design(s) of body support units, e.g. number of connection points, dimension and material of connections means, which can be used in combination with the spreader bar.		Passed
4.6.1.4	Detachable spreader bars shall be marked with the maximum load of the hoist.		N/A

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4.7 PERFORMANCE

Section	Test	Comments	Results
4.7.1.1	Field of application:	The hoist is designed for the purpose of lifting, transferring and positioning a disabled person. When used in accordance with the manufacturer's instructions, the hoist will fulfil these purposes.	Passed
4.7.1.2	Cavities:	The hoist contains no cavities in which water can accumulate	Passed
4.7.1.3	Stopping distance:	Distance measured < 10 [mm]	Passed
4.8	Rate of lifting and lowering		
4.8.1.1	Rate of lifting and lowering when loaded:	<u>Lifting:</u> s = 748 [mm] - t = 20,8 [s] v = 36 [mm/s] <u>Lowering:</u> s = 748 [mm] - t = 15,0 [s] v = 50 [mm/s]	Passed
4.8.1.2	Rate of lifting and lowering when unloaded:	<u>Lifting:</u> s = 772 [mm] - t = 15,6 [s] v = 49 [mm/s] <u>Lowering:</u> s = 772 [mm] - t = 16,0 [s] v = 48 [mm/s]	Passed

4.9 Operating forces/torques

4.9.1	Operating forces: The operating forces of those parts of the hoist that are designed to be operated by fingers, hands/arms or feet shall not exceed the following figures: <ul style="list-style-type: none"> • operation by using a finger 5 N • operation by using a hand/arm 105 N • operation by using a foot 300 N • operation by a turning 1.9 Nm 	Operating forces are measured as indicated in the table below Ref. table below. N/A. N/A. N/A.
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Application	1	2	3	4	5	Mean
Handheld control box	3,4	2,5	2,6	2,2	2,9	2,7

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INFORMATION SUPPLIED BY THE MANUFACTURER

Section	Test	Comments	Results
4.13.2	Marking:		
	All operating controls shall be marked for their intended functions.		Passed
	Every hoist (and any main part of a multi-purpose hoist) shall be fitted with a permanently fixed identification plate which shall contain the following information as a minimum:		Passed
a)	Name and address of the manufacturer		Passed
b)	Model definition		Passed
c)	Lot or batch and serial number		Passed
d)	Year and month of manufacture		Passed
e)	Electrical details including protection class		Passed
f)	Details of any other energy source		N/A
g)	Maximum load	200 kg.	Passed
h)	The product IP rating (where applicable, see 4.3.1.24)	IPx4	Passed
4.13.3	Instructions for use:		
a)	Name address and telephone number		Passed
b)	Check list before use.		Passed
c)	The intended use of the hoist		Passed
d)	Expected lifetime of the product.		Passed
e)	Sufficient drawings/illustrations in order to show the key dimensions described in i) below.		Passed
f)	Name, address and telephone to contact for service.		Passed
g)	Method of cleaning and disinfection		Passed
h)	Details for trouble shooting/assistance.		Passed
i)	Technical specifications: <ul style="list-style-type: none"> • Dimensions • Maximum load • Safety precautions • Total mass of the unloaded hoist • The A-weighted sound power level (see 4.1.3) • Operating forces of controls • The designs and types of body support units 		Passed Passed Passed Passed Passed Passed Passed
j)	Electrical information in accordance with IEC 60601 – 1		Passed
k)	Limits of accuracy of any measuring device	No device	N/A
l)	All the information needed to verify		N/A
m)	A list of replaceable spare parts shall be available		Passed
n)	Any warning according to the risk assessment		Passed
o)	An indication of the forward direction of travel.		Passed

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6 – STANDING/RAISING HOISTS - SPECIFIC REQUIREMENTS

6.1 General requirements

This clause specifies requirements and test methods for standing and/or raising hoists, which are additional or modifications to those specified in Clause 4. Standing and/or raising hoists shall not fulfil the requirements in Clause 5, as the applicable requirements have been included in the present clause.

6.2 Static strength:

Section	Test	Results
6.2.1	Requirements for static strength: After the static test as defined in 6.2.2, the hoist shall function as defined by the manufacturer. There shall be no deformation or wear that might affect its function.	Passed

6.2.2 Testing results

Loading and deformations are made as indicated in the table below:

Loading	Deformation before load	Deformation during load	Deformation after load
SWL for 5 minutes tilted 10° forwards	Tested – deformations not measured. 1)		
SWL for 5 minutes tilted 10° backwards			
SWL for 5 minutes tilted 5° to the left side			
SWL for 5 minutes tilted 5° to the right side			
150 % SWL for 20 min. on a horizontal surface	0 mm	105 mm	30 mm
125 % SWL for 5 minutes on a horizontal surface using a dummy.	Deformations not measured		

Comments:

1) Clamped to inclined surface.

6.3 Static stability:

Section	Test	Results
6.3.1	Requirements for static stability: During the static stability test according to 6.3.2, both unloaded and under maximum load, the hoist shall not lose its equilibrium (balance) at the following angles: a) Forwards and backwards directions 10° with the base in the intended travelling position. b) Forwards and backwards directions 7° with the base in its most adverse condition. c) Any other direction, 5°	Passed Passed Passed

6.3.2 Testing results:

Tipping angles are measured as indicated in the table below.

ADJUSTMENT OF HOIST	TIPANGLE Loaded	TIPANGLE Unloaded
Forward stability: <ul style="list-style-type: none"> wide base, dummy leaned forwards narrow base, dummy leaned forwards 	>15° >15°	> 15.0° > 15.0°
Left side stability: <ul style="list-style-type: none"> narrow base, dummy upright 	11.2°	> 15.0°
Right side stability: <ul style="list-style-type: none"> narrow base, dummy upright 	14.1°	> 15.0°
Backward stability: <ul style="list-style-type: none"> narrow base, dummy upright 	19.4°	> 15.0°

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Section	Test	Results
6.4.1	Immobilising devices: An immobilising device shall be provided for mobile hoists. When tested in accordance with 5.4.2, a maximum movement of 10 mm in any direction is allowed.	Passed

Section	Test	Results
6.5.1	Moving forces: The maximum forces for moving the hoist shall be as follows when tested with the maximum load on the hoist: <ul style="list-style-type: none"> Starting 160 N Driving (pushing/pulling) 85 N <p>NOTE: For hoists operated by disabled persons or non-professionals, Annex C in EN 12182:1999 can be used as a guideline.</p>	Moving forces are measured as indicated in the table below Passed Passed

APPLICATION	1	2	3	4	5	MEAN
Starting forwards	137	108	87	107	86	105
Starting backwards	96	82	76	74	72	80
Driving forwards	56	48	71	68	68	62
Driving backwards	51	72	47	66	54	58

6.6 DURABILITY

Section	Test	Results
6.6.1	Durability: After testing in accordance with 6.6.2 the hoist shall function as intended when loaded with the maximum load and when unloaded, and shall show no sign of permanent deformation or wear that may affect its function.	11.000 cycles full stroke 75%*SWL=150 kg Duty cycle: 15% Power supply: 24 V No maintenance Passed

Section	Test	Results
6.7	Instructions for use: This subclause specifies requirements in addition to those specified in 4.13.3. The manufacturer shall provide at least the following information: <ol style="list-style-type: none"> Functional dimensions as given in figures 1, 12 and 14. The turning diameter. The total mass of the hoist excluding body support unit. The number of parts and the identification of those parts into which the hoist can be disassembled. The mass of the heaviest part of the hoist. 	Passed Passed Passed Passed Passed

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Photo



Cathy

The general conditions pertaining to assignments accepted by Danish Technological Institute shall apply in full to the technical testing and calibration at Danish Technological Institute and to the completion of test reports and calibration certificates within the relevant field.

Danish Accreditation (DANAK)

DANAK was established in 1991 in pursuance of the Danish Act No. 394 of 13 June 1990 on the promotion of Trade and Industry.

The requirements to be met by accredited laboratories are laid down in the "Danish Agency for Trade and Industry's ("Erhvervsfremme Styrelsens") Statutory Order on accreditation of laboratories to perform testing etc. and GLP inspection. The statutory order refers to other documents, where the criteria for accreditation are specified further.

The standards DS/EN ISO/IEC 17025 "General requirements for the competence of testing and calibration laboratories" and DS/EN 45002 "General criteria for the assessment of testing laboratories" describe fundamental criteria for accreditation. DANAK uses guidance documents to clarify the requirements in the standards, where this is considered to be necessary. These will mainly be drawn up by the "European co-operation of Accreditation (EA)" or the "International Laboratory Accreditation Co-operation (ILAC)" with the purpose of obtaining uniform criteria for accreditation. In addition, DANAK draws up Technical Regulations with specific requirements for accreditation that are not contained in the standards.

In order for a laboratory to be accredited it is, among other things, required:

- that the laboratory and its personnel are not subject to any commercial, financial or other pressures, which might influence their technical judgement

- that the laboratory operates a documented quality system

all items of equipment, facilities and premises required for correct performance of the service that it is accredited to perform

- that the laboratory management and personnel have technical competence and practical experience in performing the service that they are accredited to perform

- that the laboratory has procedures for traceability and uncertainty calculations

- that accredited testing or calibration is performed in accordance with fully validated and documented methods

- that the laboratory keeps records, which contain sufficient information to permit repetition of the accredited test or calibration

- that the laboratory is subject to surveillance by DANAK on a regular basis

- that the laboratory shall take out an insurance, which covers liability in connection with the performance of accredited services

Reports carrying DANAK's logo are used, when reporting accredited services and show that these have been performed in accordance with the rules for accreditation.