CENTRE FOR TESTING AND CERTIFICATION - MECH-TEST
Mechanical Laboratory
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Date 17.11.2014

TEST REPORT NO. *CBC –084/2014*

Subject of testing:	*Manually propelled wheelchair*	**Classification according to PN-EN ISO 9999:2011 :** *12 21 06*
Type / Model:	*DOLPHIN*	**Art.-Nr.:** --
Manufacturer:	*MOBILEX A/S, Grønlandsvej 5* *DK - 8660 Skanderborg*	**Number of specimens:** *1*
Applicant:	*A-Net s.c.* *93-469 Łódź,* *ul. Łaskowice174*	
Kind of testing	*Testing scope according to application of Client* *Mechanical testing for conformity with PN-EN 12183 : 2011 cl. 7.5,1* *ISO 7176 –3:2003; PN – ISO 7176 –8:2002*	
Test started:	*1. 10. 2014*	
Test finished:	*17. 11. 2014*	

Approved by:

DYREKTOR

mgr inż. Andrzej Tkaczyk

Special comments / enclosures:
Annex 1,2: Identyfication of wheelchair elements

CHARACTERISTIC OF MANUALLY PROPELLED WHEELCHAIR

Name of wheelchair: *Wheelchair*	**Type/Model:** *Dolphin*	**Art.-Nr.:** --
Maximum load capacity: *200kg*		**Overall mass of wheelchair:** *22,64kg*

Description				Comments
Dimensions:	**Length:**		*1043 mm*	
	Height:		*995-1086 mm*	
	Width :		*772 mm*	
Construction of frame:	**Material:**		*Steel, aluminum*	
	Method of fastening frame elements:		*Welding, Bolts, nuts*	
	Folding/unfolding:		*Folding*	
Castor wheels	**Ø of wheel:**		*198 mm*	
	Width:		*44 mm*	
	Material of ring of a wheel:		*Plastic*	
	Material of fork:		*Aluminum*	
	Vertical adjustment (number of fixing positions)		*YES 4*	
	Horizontal adjustment (number of fixing positions):		*NO*	
	Adjustment of axis inclination angle:		*YES*	
Drive wheels	**Ø external:**		*557 mm*	
	Ø pipe:		*The cross-section profile in the shape of an ellipse*	
	Material:		*Aluminum*	
	Way of fastening to driven wheel:		--	
	Number of fastening points to driven wheel:		--	
Driving wheels	**Material of ring of a wheel:**		*Aluminum*	
	Dimension of tyre:		*37-540/24x1⅜*	
	Pressure:		*Solid tyre*	
	Way of fastening wheel to construction:		*Quick connector*	
	Vertical adjustment (number of fixing positions)		*YES 6*	
	Horizontal adjustment (number of fixing positions):		*YES 3*	
	Inclination angle adjustment:		*NO*	
	Inclination angle:		*0 °*	
Backrest	**Folding/unfolding:**		*Unfolding*	
	Backrest inclination adjustment	**stepless:**	*NO*	
		number of fixing positions:	--	
Tilt levers	**Two singular:**		*YES*	
	One lateral:		*NO*	
Push handles	**Kind:**		*Two separate*	
Parking brake	**Back:**		*YES*	*2 units*
	Front:		*NO*	
	Operated by the occupant:		*YES*	
	Operated by assistant:		*NO*	
	Kind:		*Lever*	
	Material of lever:		*Steel*	
	Fastening to frame:		*With screws and clamp stabilizing position of break towards tyre*	
Brake chassis	**Kind:**		*NO*	
Upholstery	**Material:**		*Nylon*	
	Colour:		*Black*	

Wheel space in forward direction position:		*345 mm*	
Wheel space in backward direction position:		*453 mm*	
Legrests	**Common for both legs:**	*NO*	
	Separate for each leg:	*YES*	
	Stationary:	*NO*	
	Folding:	*YES*	
	Vertical adjustment (number of fixing positions)	*YES stepless*	
	Horizontal adjustment (number of fixing positions):	*NO*	
	Angle adjustment (number of fixing positions):	*NO*	
	Material of legrest:	*Steel, Aluminum plastic*	
Accessories	**Seat belt**	*NO*	
	Anti-overturn device:	*NO*	
	Anterior pelvic support:	*YES*	
	Service :	*NO*	

NOTE 1: Measurements were carried out at loading wheelchair with RLG dummy (angle of backrest – 9,5^0, angle of seat plane - 5,5^0)

NOTE 2: Footrest was set up in position of 50 mm above base

PHOTO OF WHEELCHAIR

TESTING

NORMATIVE REFERENCES	Applied
PN-EN 12182:2012 Technical aids for disabled persons – General requirements and test methods	*NO*
PN-EN 12183:2011 Manually propelled wheelchairs – Requirements and test methods	*YES*
PN-EN 12184:2010 Electrically powered wheelchairs, scooters and their chargers – Requirements and test method	*NO*
ISO 7176-1:1999 Wheelchairs – Determination of static stability	*NO*
ISO 7176-2:2001 Wheelchairs – Determination of dynamic stability of electric wheelchairs	*NO*
ISO 7176-3:2003 Wheelchairs – Determination of efficiency of brakes	*YES*
ISO 7176-4:2008 Wheelchairs – Energy consumption of electric wheelchairs and scooters and determination of theoretical distance	*NO*
ISO 7176-5:2008 Wheelchairs – Determination of overall dimensions, mass and turning space	*NO*
ISO 7176-6:2001 Wheelchairs – Determination of maximum speed, acceleration and retardation of electric wheelchairs	*NO*
PN-ISO 7176-7:2001 Wheelchairs – Measurement of seating and wheel dimensions	*NO*
PN-ISO 7176-8:2002 Wheelchairs – Requirements and test methods for static, impact and fatigue strengths	*YES*
ISO 7176-9:2001 Wheelchairs – Climatic test for electric wheelchairs	*NO*
ISO 7176-10:2008 Wheelchairs – Determination of obstacle-climbing ability of electric wheelchairs	*NO*
PN-ISO 7176-14:2001 Wheelchairs – Power and control systems for electric wheelchairs – Requirements and test methods	*NO*
PN-ISO 7176-15: 2002 Wheelchairs – Requirements for informative disclosure, documentation and labelling	*NO*
PN-EN 1021-1:2007 Furniture. Assessment of ignitability o upholstered furniture. Ignition source: smouldering cigarette.	*NO*
PN-ISO 7176-16:2001 equivalent: **PN-90/P-04823** Wheelchairs. Resistance to ignition of upholstered parts – Requirements and test methods	*NO*
PN-ISO 7176-19:2007 Wheelchairs. Wheeled mobility devices for use in motor vehicles	*NO*
PN-ISO 7193: 2001 Wheelchairs. Maximum dimensions.	*NO*

Note: Wheelchair with adjustment elements regulated in a factory was performed

TEST RESULTS according to PN-EN 12183:2011

DESIGN REQUIREMENTS

Requirements according to clause	Test method according to clause	Checked characteristics/assemblies/parameters	Test result	Opinion	Comments
7.4.1	**V/I**	Braking system			
	Measur. 7.4.2.2	Accessibility and possibility to be operated	--	*N/T*	
		Engaging and disengaging force	*Conf. 50N/28N*	*Pos.*	*requirements on force – see table 1*
	V/I Measur. 7.5.3	No components that protrude above the level of the unoccupied seat when brake is engaged in the wheelchair fitted with movable? or removable arm supports	--	*N/T*	
		Presence of the system enabling to stop the wheelchair/parking brake	--	*N/T*	*drive wheel operated by the occupant allow to stop the wheelchair*
		Possibility to adjust brake	--	*N/T*	
	7.4.2.1 7.4.2.2 7.5.2.2 PN-ISO 7176-3 clause 7	Effectiveness of parking brake (after fatigue test – 60 000 cycles): Effectiveness of parking brake - force applied to hand-brakes: - force applied to pushed foot brakes - force applied to pulled foot brakes	*Conf. 50N/28N* -- --	*Pos.* *N/A* *N/A*	*requirements on force applied to brakes – specified in table 1*
		- effectiveness of braking of the wheelchair facing uphill	*Conf.*	*Pos.*	*no rotation or slide of wheels when the wheelchair is located on inclined plane of 7°*
		- effectiveness of braking of the wheelchair facing downhill	*Conf.*	*Pos.*	
	V/I	Posssibility of adjustement and/or replacement of brake	--	*N/T*	

Requirements according to clause	Test method according to clause	Checked characteristics/assemblies/parameters	Test result	Opinion	Comments
7.4.1	**V/I Measur.**	Location of brake operation mechanism in the region of access by the occupants (Fig. 2)	--	*N/T*	*If the wheelchair is intended to be operated and driven only by the occupants*
		Location of brake operation mechanism in the region of access by an assistant (Fig. 3)	--	*N/T*	*If the wheelchair is intended to be operated and driven only by an assistant*
	V/I Measur. ISO 7176-8 7.5.2.1	No deformation, free play or loss of adjustment that adversely affects the function of the wheelchair	*Conf.*	*Pos.*	*60 000 cycles*
7.5.1	**V/I 7.5.2.1**	Fatigue strength of parking brake	*Conf.*	*Pos.*	*60 000 cycles $f \leq 0,5$ Hz*
7.6.1	**7.6.2 7.4.2.2**	Operating forces	--	*N/T*	*requirements on forces – in table 1, moments- in clause 7.6.1*

TEST RESULTS according to ISO 7176-3:2003

Requirements according to clause	Test method according to clause		Checked characteristics/assemblies/parameters	Test result	Opinion	Comments
PN-EN 12183 cl. 7.2.1	**7.2 V/I Measur.**	Parking brake	Effectiveness of parking brake of wheelchair positioned forwards down the slope	*11,0° Conf. Wheelchair slides down*	*Pos.*	*No rotation or wheel spin when wheelchair is on inclined plane of 7° slope (requirements of PN-EN 12183 cl. 7.2.1)*
PN-EN 12183 cl. 7.2.1	**7.2 V/I Measur.**		Effectiveness of parking brake of wheelchair positioned backwards down the slope	*10,5° Conf. Wheelchair loses stability*	*Pos.*	
PN-EN 12183 cl. 7.2.1	**PN-EN 12183 cl. 7.2.3 Measur.**		Measurement of force acting on brake lever	*Conf. 50N/28N*	*Pos.*	*Below 60 N force engaging hand-brake is required (requirements of PN-EN 12183 cl 7.2.1)*
EN 12184 cl. 8.4	**7.3**		The effectiveness of the service/automatic brake during drive forwards on horizontal plane and downhill at speeds according to PN- EN 12184:2010 (Table 2)	--	*N/A*	
EN 12184 cl. 8.4	**7.2**		Effectiveness of parking brake of wheelchair positioned backwards down the slope	--	*N/A*	
EN 12184 cl. 8.4	**7.2**		Effectiveness of parking brake of wheelchair positioned forwards down the slope	--	*N/A*	
EN 12184 cl. 8.4	**7.2**		Effectiveness of parking brake of wheelchair positioned backwards down the slope	--	*N/A*	
EN 12184 cl. 8.4	**7.2**		Effectiveness of parking brake of wheelchair positioned forwards down the slope	--	*N/A*	
EN 12184 cl. 8.4	**7.3 Annex B**		Effectiveness of service/automatic brake during drive forwards on horizontal plane (speed – 6 km/h)	--	*N/A*	
EN 12184 cl. 8.4	**7.5**		Effectiveness of emergency brake of wheelchair positioned backwards down the slope	--	*N/A*	
EN 12184 cl. 8.4	**7.5**		Effectiveness of emergency brake of wheelchair positioned forwards down the slope	--	*N/A*	
EN 12184 cl. 8.4	**7.7**		Effectiveness of emergency brake – during drive forwards on horizontal plane	--	*N/A*	
EN 12184 cl. 8.4	**7.4**		Braking distance during drive backwards on horizontal plane	--	*N/A*	

TEST RESULTS according to PN-ISO 7176-8

Requirements according to clause	Test method according to clause	Checked characteristics/assemblies/parameters	Test result	Opinion	Comments
4.	**8.4.**	Armrest – resistance to forces acting downwards	*Conf.*	*Pos.*	*loading 1520 N*
4.	**8.5.**	Footrests - resistance to forces acting upwards	*Conf.*	*Pos.*	*loading 150kg, NOTE 1*
4.	**8.6.**	Anti-tip levers	*Conf.*	*Pos.*	*loading 200kg*
4.	**8.7.**	Grips	*1500 N*	*Pos.*	*taking off force ≥ 750N with user weight 100kg NOTE 2*
4.	**8.8.**	Armrest – forces acting upwards	*Conf.*	*Pos.*	
4.	**8.9.**	Footrest – forces acting upwards	*Conf.*	*Pos.*	*NOTE 4*
4.	**8.10.**	Handle grips for pushing – load acting upwards	*Conf.*	*Pos.*	*NOTE 5*
4.	**9.3.**	Backrest – impact strength	*Conf.*	*Pos.*	*25kg pendulum impact*
4.	**9.4.**	Driving wheel – impact strength	*Conf.*	*Pos.*	*10kg pendulum impact*

Requirements according to clause	Test method according to clause	Checked characteristics/assemblies/parameters	Test result	Opinion	Comments
4.	**9.5.**	Castor/front wheel – impact strength	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**9.6.3.**	Footrest – side impact	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**9.6.4.**	Footrest – in-line impact	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**9.7.2.**	Frontal part of wheelchair – directly impact	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**9.7.3.**	Frontal part of wheelchair – displaced impact	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**10.4.2.**	Testing of manually propelled wheelchair on two-drum machine	*Conf.*	*Pos.*	*200 000 of cycles with full loading of wheelchair (200kg)*
4.	**10.4.3.**	Measurement of initial current for electrically powered wheelchair	--	*N/A*	
4.	**10.4.4.**	Testing of electrically powered wheelchair on two-drum machine	--	*N/A*	
4.	**10.5.**	Drop testing	*Conf.*	*Pos.*	*6666 drops of wheelchair with full loading 200kg from height of 50mm*

Pos. – positive; Neg – negative; N/T – not tested; N/A – not applicable; N/R – not required , N/O – not occurred , V/I.- visual inspection, Conf.- conformed.

NOTE 1: PN-EN 12183:2011 cl.1 and PN-ISO 7176-8 cl.1 specify requirements and test methods for manual wheelchairs intended to carry one person of mass not greater than 100kg.
The footrest loaded with a mass of 100kg - a positive test result.
The footrest loaded with a mass of 150kg - a positive test result.
NOTE 2: The handle can withstand loads of 750N. The handle begins to slip under load 1500N.
NOTE 4: The construction of the footrests stand the test of the rising up of the wheelchair with the user (200kg) (Annex B-2).
NOTE5: The test to raise up the wheelchair with the user (200kg), using handles for pushing, successfully passed.
NOTE 7: During visual inspection before testing any visible defects that can have an effect on test results were not stated.
NOTE 8: Tests were carried out on the wheelchair with adjustment elements set according to recommendations of the manufacturer and according to requirements of PN-ISO 7176-22:2006.
NOTE 9: Sample/object for testing was delivered to the Laboratory by the Orderer.
NOTE 10: Test dummy of mass 200 kg were used for testing.
NOTE 11: Environment temperature for testing - 18^0C.

Final assessment			
PN-EN 12182:2012	***N/T***	**PN-ISO 7176-7:2001**	***N/T***
PN-EN 12183:2011	***Pos.***	**PN-ISO 7176-8:2002**	***Pos.***
PN-EN 12184:2010	***N/A***	**ISO 7176-9:2001**	***N/A***
ISO 7176-1:1999	***N/T***	**ISO 7176-10:2008**	***N/A***
ISO 7176-2:2001	***N/A***	**PN-ISO 7176-14:2001**	***N/A***
ISO 7176-3:2003	***Pos.***	**PN-ISO 7176-15: 2002**	***N/T***
ISO 7176-4:2008	***N/A***	**PN-ISO 7176-16:2001**	***N/T***
ISO 7176-5:2008	***N/T***	**PN-EN 1021-1:2007**	***N/T***
ISO 7176-6:2001	***N/A***	**PN-ISO 7176-19:2007**	***N/T***
		PN-ISO 7193:2001	***N/T***

Note: Conformity assessment of product according to standard requirements refer to the scope of mechanical tests ordered by client, excluding testing of material biocompatibility with human body according to PN-EN ISO 10993-1:2010

- END –

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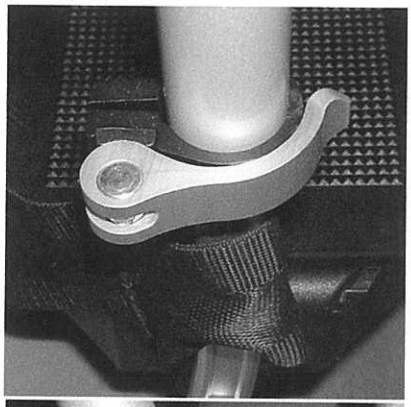
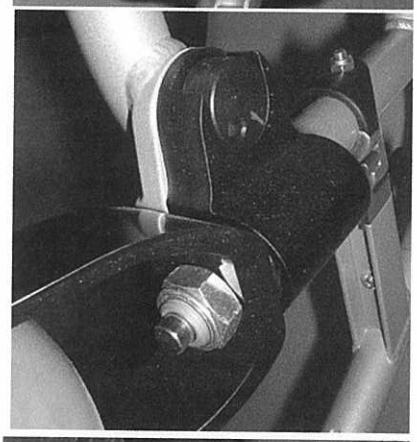
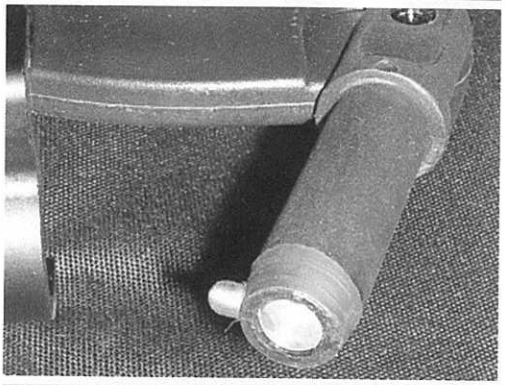
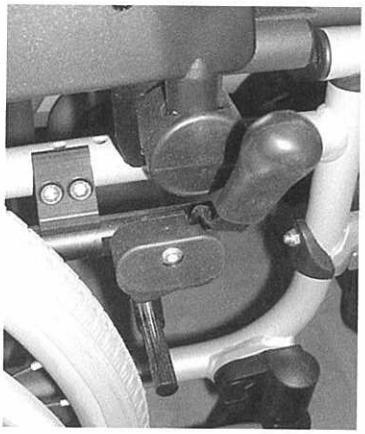
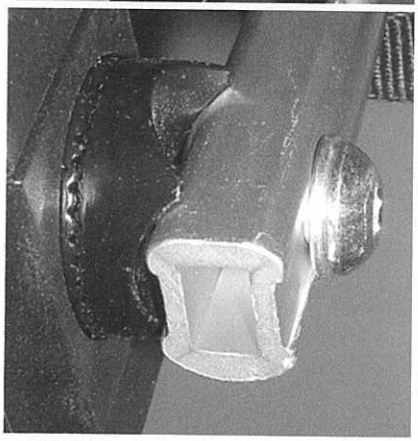
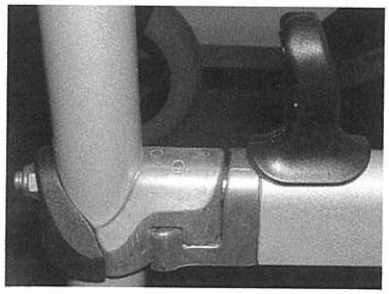
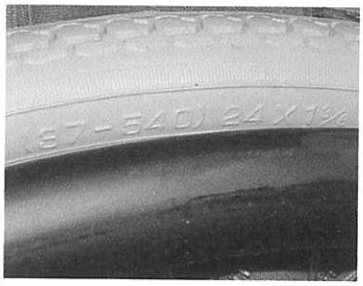
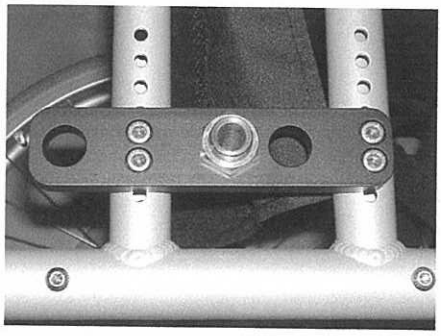
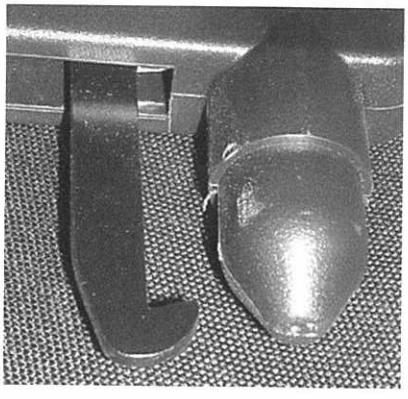
ANNEX 1 TO TEST REPORT No. CBC 084/2014
Identification of product elements

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