CENTRE FOR TESTING AND CERTIFICATION - MECH-TEST
Mechanical Laboratory
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Date 3.06.2024

TEST REPORT NO. *CBC-041/2024*

Subject of testing: *Manual lightweight wheelchair*

Classification according to PN-EN ISO 9999:2017-02: 12 21 03

Type / Model: ***Turtle Transport wheelchair 14" Wheels***

SN.: *0001*

REF: ***271045***

Manufacturer: *Mobilex A/S*
Grønlandsvej 5
DK-8660 Skanderborg

Number of specimens: *1*

Applicant: *A-Net s.c.*
ul. Łaskowice174
93-469 Łódź

Kind of testing *Testing scope according to application of Client*
Mechanical testing for conformity with PN-EN 12183 : 2023-02;
ISO 7176-part 3, 8

Test started: *20.05.2024*

Test finished: *3.06.2024*

Approved by:

DYREKTOR
mgr inż. Andrzej Tkaczyk

Special comments / enclosures:

1) *Annex 1-2 – Identyfication of wheeichair elements*

CHARACTERISTIC OF MANUALLY PROPELLED WHEELCHAIR

Maximum load capacity: *150 kg* **Overall mass of wheelchair: *12,5 kg***

Description			
Dimensions:	**Length:**	*905/940/983 mm*	
	Height (max.)	*938 mm*	
	Width:	*624 mm*	
Construction of frame:	**Material:**	*Aliminum*	
	Method of fastening frame elements:	*Welding/rivets/bolts*	
	Folding/unfolding:	*Folding*	
Drive wheels	**Ø external:**	--	
	Ø pipe:	--	
	Material:	--	
	Way of fastening to driven wheel:	--	
	Number of fastening points to driven wheel:	--	
Driving wheels	**Material of ring of a wheel:**	*Plastic*	
	Dimension of tyre:	*ø335 mm, width 43,5 mm*	
	Pressure:	--	
	Way of fastening wheel to construction:	*Permanently*	
	Vertical adjustment (number of fixing positions)	*NO*	
	Horizontal adjustment (number of fixing positions):	*NO*	
	Inclination angle adjustment:	*NO*	
	Inclination angle:	*0,0 °*	
Castor wheels	**Ø of wheel:**	*147 mm*	
	Width:	*27 mm*	
	Material of ring of a wheel:	*Plastic*	
	Material of fork:	*Plastic*	
	Vertical adjustment (number of fixing positions)	*YES 2*	
	Horizontal adjustment (number of fixing positions):	*NO*	
	Adjustment of axis inclination angle:	*NO*	
Backrest	**Folding/unfolding:**	*Unfolding*	
	Backrest inclination adjustment — **stepless:**	*NO*	
	Backrest inclination adjustment — **number of fixing positions**	*NO*	
Tilt levers	**Two singular:**	*NO*	
	One lateral:	*YES*	
Push handles	**Kind:**	*Two separate*	
Parking brake	**Left:**	*YES*	
	Right:	*YES*	
	Kind:	*with bicycle type lever*	
	Material of lever:	*Plastic*	
	Fastening to frame:	*Using the clamp*	
	Way of adjustment:		
Upholstery	**Material:**	*Nylon*	
	Colour:	*Black/gray*	
Wheel space in forward direction position:		*406 mm*	
Wheel space in backward direction position:		*505 mm*	

NOTE. Measurements were made in the wheelchair with factory regulations (photo)

Legrests	**Common for both legs:**	*NO*	
	Separate for each leg:	*YES*	
	Stationary:	*NO*	
	Folding:	*YES*	
	Vertical adjustment (number of fixing positions)	*YES 5*	
	Horizontal adjustment (number of fixing positions):	*NO*	
	Angle adjustment (number of fixing positions):	*NO*	
	Material of legrest:	*Aluminum / plastic*	
Accessories	**Seat belt**	*NO*	
	Anti-overturn device:	*NO*	
	Anterior pelvic support:	*YES*	
	Service :	*NO*	

PHOTO OF WHEELCHAIR

TESTING

NORMATIVE REFERENCES	Applied
PN-EN ISO 21856:2023-01 Assistive products – General requirements and test methods	*NO*
PN-EN 12183:2023-02 Manually propelled wheelchairs – Requirements and test methods	*YES*
PN-EN 12184:2023-02 Electrically powered wheelchairs, scooters and their chargers – Requirements and test method	*NO*
ISO 7176-1:2014 Wheelchairs – Determination of static stability	*NO*
ISO 7176-2:2001 Wheelchairs – Determination of dynamic stability of electric wheelchairs	*NO*
ISO 7176-3:2012 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*
ISO 7176-8:2014 Wheelchairs – Requirements and test methods for static, impact and fatigue strengths	*YES*
ISO 7176-9:2009 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 1021-1:2014-12 Furniture. Assessment of the ignitability of upholstered furniture. Ignition source: smouldering cigarette.	*NO*
PN-EN 1021-2:2014-12 Furniture. Assessment of the ignitability of upholstered furniture. Ignition source: math flame equivalent	*NO*
PN-ISO 7176-16:2001 equivalent: **PN-90/P-04823** Wheelchairs. Resistance to ignition of upholstered parts – Requirements and test methods	*NO*
ISO 7176-16:2012 Wheelchairs. Resistance to ignition of upholstered parts – Requirements and test methods	*NO*
PN-ISO 7176-19:2008 Wheelchairs. Wheeled mobility devices for use in motor vehicles	*NO*

TEST RESULTS ACCORDING TO PN-EN 12183:2023-02

Requirements according to clause	Test method according to clause	Checked characteristics/assemblies/parameters	Test result	Opinion	Comments
7 WHEELCHAIR PERFORMANCE					
7.2.1	**ISO 7176-8**	Static, impact and fatigue strength	*Conf.*	*Pos.*	
7.3.1	**7.3.3**	Tilting fatigue strength	*Conf.*	*Pos.*	*20 000 of cycles with full loading of wheelchair*
9.2		**Braking functions**			
9.2.1	**9.2.2 ISO7176-3**	a. Engaging and disengaging force ***40/40N***	*Conf*	*Pos.*	*requirements on force – see table 1*
		b. Possibility of adjustment and/or replacement of brake	*Conf.*	*Pos.*	
		c. 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/A*	
		d. No deformation, free play or loss of adjustment that adversely affects the function of the wheelchair	*Conf.*	*Pos.*	*60 000 cycles*
		e. Fatigue strength of parking brake	*Conf.*	*Pos.*	*60 000 cycles* $f \leq 0,5$ *Hz*

TEST RESULTS according to PN-ISO 7176-3

Requirements according to clause	Test method according to clause		Checked characteristics/assemblies/parameters	Test result	Opinion	Comments
PN-EN 12183 9.2 Tab. 1	**7.2 V/I Measur.**	Parking brake	Effectiveness of parking brake of wheelchair positioned forwards down the slope	*Conf.* ***9,5⁰ wheel rotate***	*Pos.*	*No rotation or wheel spin when wheelchair is on inclined plane of 7° slope (requirements of PN-EN 12183 cl. 14 Tab. 1)*
PN-EN 12183 9.2 Tab. 1	**7.2 V/I Measur.**		Effectiveness of parking brake of wheelchair positioned backwards down the slope	*Conf.* ***10,0⁰ wheel rotate***	*Pos.*	
PN-EN 12183 9.2 Tab. 1	**PN-EN 12183 cl.14 fig5 Measur.**		Measurement of force acting on brake lever	***40/40N*** *Conf.*	*Pos.*	*Below 60 N force engaging hand-brake is required (requirements of PN-EN 12183 cl. 14, Tab. 1)*

NOTE1: Measurements were made in the wheelchair with factory regulations (photo)

TEST RESULTS according to 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 952 N*
4.	**8.5.**	Footrests - resistance to forces acting upwards	*Conf.*	*Pos.*	*loading 1226 N*
4.	**8.6.**	Anti-tip levers	*Conf.*	*Pos.*	*loading 1000 N*
4.	**8.7.**	Grips	*Conf.*	*Pos.*	*loading 750 N*
4.	**8.8.**	Armrest – forces acting upwards	*Conf.*	*Pos.*	*loading 1000 N*
4.	**8.9.**	Footrest – forces acting upwards	*Conf.*	*Pos.*	*loading 506 N*
4.	**8.10.**	Handle grips for pushing – load acting upwards	*Conf.*	*Pos.*	*loading 880 N*
4.	**8.11.**	Scooter steering handles: Resistance to forward forces	--	*N/A*	
4.	**8.12.**	Scooter steering handles: Resistance to rearward forces	--	*N/A*	
4.	**8.13.**	Scooter steering handles: Resistance to downward forces	--	*N/A*	
4.	**8.14.**	Scooter steering handles: Resistance to upward forces	--	*N/A*	
4.	**9.3.**	Backrest – impact strength	*Conf.*	*Pos.*	*25kg pendulum impact*
4.	**9.4.**	Driving wheel – impact strength	--	*N/A*	*10kg pendulum impact*
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.	**9.7.1.**	Upward impacts on anti-tip devices **h_1=30mm, h=45mm**	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**9.7.2.**	Forward or rearward impacts on anti-tip devices	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**9.7.3.**	Lateral impacts on anti-tip devices	*Conf.*	*Pos.*	*10kg pendulum impact*
4.	**10.3.2.**	Testing of manually propelled wheelchair on two-drum machine	*Conf.*	*Pos.*	*200 000 of cycles with full loading of wheelchair (150kg)*
4.	**10.3.3.**	Measurement of initial current for electrically powered wheelchair	-	*N/A*	
4.	**10.3.4.**	Testing of electrically powered wheelchair on two-drum machine	-	*N/A*	
4.	**10.4.**	Drop testing	*Conf.*	*Pos.*	*6666 drops of wheelchair with full loading (150kg) from height of 50mm*
4.	**10.5.**	Fatigue test of manually operated parking brakes	*Conf.*	*Pos.*	*60 000 cycles*

NOTE: For cl. 9.3 – angle $\Theta = 30^0$, for cl. 9.4 – angle $\Theta = 45^0$,for cl. 9.5, 9.6.3, 9.6.4 – angle $\Theta = 60^0$, for cl. 9.7.2 – angle $\Theta = 38^0$ hit from behind, angle $\Theta = 60^0$ - hit from the front, for cl. 9.7.3 – angle $\Theta = 45^0$

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: During visual inspection before testing any visible defects that can have an effect on test results were not stated.
NOTE 2: Sample/object for testing was delivered to the Laboratory by the Orderer.
NOTE 3: Test dummy of mass 150 kg and person of required mass were used for testing.
NOTE 4: Environment temperature for testing - 19^0C.

Final assessment			
PN-EN ISO 21856:2023-01	***N/T***	**PN-ISO 7176-7:2001**	***N/T***
PN-EN 12183:2023-02	***Pos.***	**ISO 7176-8:2014**	***Pos.***
PN-EN 12184:2023-02	***N/A***	**ISO 7176-9:2009**	***N/A***
ISO 7176-1:2014	***N/T***	**ISO 7176-10:2008**	***N/A***
ISO 7176-2:2001	***N/A***	**PN-ISO 7176-14:2001**	***N/A***
ISO 7176-3:2012	***Pos.***	**PN-ISO 7176-15: 2002**	***N/T***
ISO 7176-4:2008	***N/A***	**ISO 7176-16: 2012**	***N/T***
ISO 7176-5:2008	***N/T***	**PN-EN 1021-1:2014-12**	***N/T***
ISO 7176-6:2001	***N/A***	**PN-ISO 7176-19:2008**	***N/T***

***)** The standard does not specify requirements towards tested parameters of product

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

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ANNEX 1 TO TEST REPORT No. CBC-041/2024
Identification of wheelchair elements

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ANNEX 2 TO TEST REPORT No. CBC-041/2024

Identification of wheelchair elements