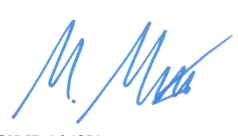


TEST REPORT EN 12184:2014 TUV SUD Test report for Electrically powered wheelchairs, scooters and their chargers - Requirements and test methods	
Report reference No.:	713139077-1
Date of issue	2019-11-26
Project handler.....:	Matthias Müller
Testing laboratory	TÜV SÜD Product Service GmbH
Address	Masurenweg 1-3, 30163 Hanover, GERMANY
Testing location	as above
Client	AAT Alber Antriebstechnik GmbH
Client number.....:	5010145620
Address	Ehestetter Weg 11, 72458 Albstadt, GERMANY
Contact person.....:	Mr. Holger Staib
Standard.....:	This TUV SUD test report form is based on the following requirements: EN 12184:2014
TRF originated by.:	TUV SUD Product Service GmbH, Mr. Michael Kese, Dipl.-Ing. (product specialist)
Copyright blank test report	This test report is based on the content of the standard (see above). The test report considered selected clauses of the a.m. standard(s) and experience gained with product testing. It was prepared by TUV SUD Product Service GmbH. TUV SUD Group takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.
Scheme	☒ TÜV Mark, ☐ without certification
Non-standard test method.....:	☒ No ☐ Yes, see details under Summary
National deviations	N/A
Number of pages (Report).....:	68
Number of pages (Attachments)	N/A
Compiled by	Approved by.....:
(+ signature)	(+ signature)
 SIGN-ID 304853 26.11.2019	 SIGN-ID 305007 26.11.2019

Test sample.....:	Storix ID: HAN-356301-1	
Type of test object.....:	Add-on power propulsion unit	
Trademark.....:		
Model and/or type reference	T2001 and T1601	
Rating(s).....:	See copy of marking plate	
Manufacturer	AAT Alber Antriebstechnik GmbH	
Manufacturer number.....:	5010145620	
Address	Ehestetter Weg 11, 72458 Albstadt, GERMANY	
Sub-contractors/ tests (clause).....:	N/A	
Name.....:	N/A	
Order description.....:	☒	Complete test according to TRF
	☐	Partial test according to manufacturer's specifications
	☐	Preliminary test
	☐	Spot check
	☐	
Date of order..... :	2018-07-24	
Date of receipt of test item..... :	2018-05-29	
Date(s) of performance of test..... :	2018-08-06 to 2019-11-19	
Test item particulars: Add-on propulsion unit for manual wheelchairs, tested with a manual wheelchair by VASSILLI Deutschland GmbH, type 17.60XXL55. The manual wheelchair was not part of testing.  Both types (T2001 and T1601) have the same components and belong to the AAT SOLO family. The T2001 has larger dimensions and can carry more total weight.		

Attachments: N/A

General remarks:

"(see remark #)" refers to a remark appended to the report.
"(see appended table)" refers to a table appended to the report.
Throughout this report a comma is used as the decimal separator.
The test results presented in this report relate only to the object tested.
This report shall not be reproduced except in full without the written approval of the testing laboratory.

Summary of testing:

Additional information on Non-standard test method(s)

Sub cl..... : --

Page..... : --

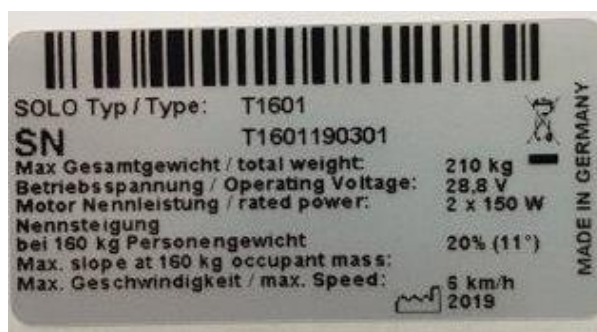
Rational..... : --

☐ deviation(s) found / product is not in compliance with the specified requirements

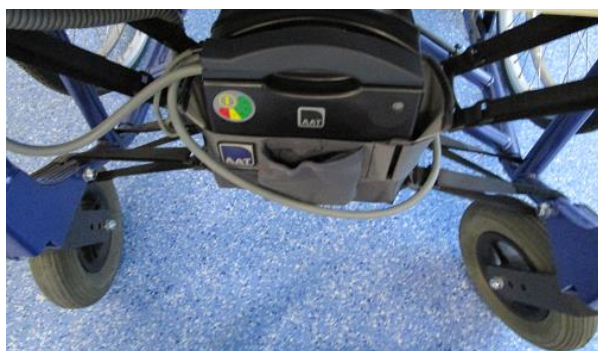
☒ no deviations found / product is in compliance with the specified requirements

If additional information is necessary, please provide

Copy of marking plate:



Picture of the product



Characteristic data (not shown on the marking plate) rated voltage: 28.8 V_{DC} motor: Elmotech, E25N (28.8 V_{DC}, 8.4 A, 238 W) max. speed drive unit: 6 km/h rated slope: 9° 11.3° (160 kg user weight) max. user weight: 200 kg total weight: 250 kg protection of degree: IPX4 batteries: AAT Alber Antriebstechnik GmbH, 8INR19/66-7 (28.8 V / 15.4 Ah) battery charger: Mascot AS, type 2042 IN: 100 - 240 V_{AC}, 50 - 60 Hz OUT: 33.6 V_{DC}, 1.7 A	
Characteristic data Factory (only if certification is provided) N/A	
Purpose of the product (Description of intended use) The T2001 presented for testing is to be used as an add-on power propulsion unit for manual wheelchairs. The T2001 allows those who have limited mobility, or disabled people that are no longer able to use a manual wheelchair using their own residual force, to move around independently. The system can be adapted by swapping the drive wheels and installing the battery pack and control unit. The same applies for the T1601 version.	
Possible test case verdicts: - test case does not apply to the test object..... : N/A (not applicable / not included in the order) - test object does meet the requirement : P (Pass) - test object does not meet the requirement : F (Fail) Possible suffixes to the verdicts: - suffix for detailed information for the client.....: - C (Comment) - suffix for important information for factory inspection...: - M (Manufacturing)	

Clause	Requirement – Test	Measuring result – Remark	Verdict
5	Type classes		
	Class A: compact, manoeuvrable wheelchairs, which are not always capable to overcome obstacles outdoor.		N/A
	Class B: wheelchairs, which are sufficiently compact and manoeuvrable for indoor and which can overcome some obstacles outdoor.		N/A
	Class C: wheelchairs, normally with larger dimensions, which are not intended to be used indoor. They can be driven at longer distances and can overcome obstacles outdoor.		N/A
6	General requirements		
	The wheelchair shall conform to the requirements specified in EN 12182 for the following:		
6.1	Intended performance and technical documentation		
	[EN 12182:2012, clause 4.2 a] An assistive product shall have sufficient strength and durability to sustain all loads expected during its intended use. This shall be confirmed by using, as appropriate, references to relevant clinical and scientific literature in addition to requirements in this standard, strength and/or durability calculations, appropriate test standards and their test results.		P
	[EN 12182:2012, clause 4.2 b] The intended performance including, if appropriate, strength, durability and tipping stability of an assistive product shall be described in technical documentation which sets out its functional characteristics, its application(s) and conditions of use.		P
	[EN 12182:2012, clause 4.2 c] The technical documentation shall include, if appropriate, references to relevant clinical and scientific literature, any strength and/or life calculations, conformity with appropriate test standards and their test results.		P
6.2	Aids that can be dismantled		
	[EN 12182:2012, clause 4.4] If it is intended that an assistive product can be dismantled for storage or transportation, it shall not be possible to reassemble the assistive product in a manner that presents a hazard.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
6.3	Fasteners		
	[EN 12182:2012, clause 4.5] If it is intended that an assistive product can be dismantled for storage or transportation, the fasteners which are loosened or removed to allow this dismantling shall not be single use fasteners.		P
6.4	Biocompatibility and toxicity		
	[EN 12182:2012, clause 5.3] Materials which come into contact with the human body shall be assessed for biocompatibility using the guidance in EN ISO 10993-1 and shall fulfil the following requirements. The assessment shall take into account the intended use and contact by those involved in user care or transportation and storage of the product.	Test material: Operating unit (top cover) Material: ABS black Test standard: EN ISO 10993-5 Date of issue: 2018-04-16 Test lab: HygCen Germany GmbH Test report no.: SN 25099 Test material: Joystick Material: TPU D11T92EM Test standard: EN ISO 10993-5 Date of issue: 2018-04-03 Test lab: HygCen Germany GmbH Test report no.: SN 25102 Test material: Operating unit (hand rest) Material: ABS Terluran GP22 Test standard: EN ISO 10993-5:2009 Date of issue: 2018-04-03 Test report no.: SN 25101 Test material: Operating unit (display window) Material: PC Test standard: EN ISO 10993-5:2009 Date of issue: 2018-04-03 Test report no.: SN 25100	P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 12182:2012, clause 5.3] The assistive products shall be designed and manufactured in such a way as to reduce to a minimum the risks posed by substances leaking from the assistive product. Special attention shall be given to substances which are carcinogenic, mutagenic or toxic to reproduction and other substances of very high concern (SVHCs). The assessment should follow the guidance given in Annex D of EN 12182:2012.	Reach declaration available	P
	EN 12182:2012, clause 5.3] The result of the assessment shall be incorporated in the risk analysis.		P
6.5	Contaminants and residues		
	General		
	[EN 12182:2012, clause 5.4.1] The requirements see below do not apply to the body fluids which may be collected in an assistive product (e.g. stomacare products) but only to those substances which are an integral part of an assistive product or are needed for its function (e.g. oil and grease).		
	Substances which may leak from an assistive product in intended use and in fault conditions		
	Substances which may leak from the assistive product shall either:		
	[EN 12182:2012, clause 5.4.2 a] be assessed for biocompatibility in accordance with the guidance given in EN ISO 10993-1; the assessment shall take into account the intended use and contact by those involved in user care, transport and storage; or		N/A
	[EN 12182:2012, clause 5.4.2 b] be provided with protection that minimizes the possibility of such substances becoming a biological hazard.		N/A
6.6	Infection and microbiological contamination		
	Cleaning and disinfection		
	EN 12182:2012, clause 5.5.1] If an assistive product is intended to be cleaned, the method and suitable cleaning materials shall be described in the information supplied by the manufacturer.		P
	[EN 12182:2012, clause 5.5.1] If an assistive product is intended to be disinfected, the method and suitable materials shall be described in the information supplied by the manufacturer.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 12182:2012, clause 5.5.1] If an assistive product is intended to be cleaned by automatic washing systems or hand held jet stream/steam washing the details of the procedure, such as temperature, pressure, flow and pH value of cleaning/rinsing solution shall be described in the instructions for use. Where practicable, the assistive product shall be labelled with appropriate symbols to represent the method of cleaning. See examples of labelling and an example of test of machine washable assistive products in B.5.5.1 of EN 12182.		N/A
	Animal tissue		
	[EN 12182:2012, clause 5.5.2] Where a device has been manufactured utilising tissues of animal origin or their derivatives, a risk assessment shall be performed and documented according to EN ISO 22442-1.		N/A
6.7	Overflow, spillage, leakage, and ingress of liquids		
	Overflow		
	Requirements		
	[EN 12182:2012, clause 9.1.1] If an assistive product incorporates a reservoir or liquid storage chamber that may be overfilled or may overflow in the manufacturer's intended use, liquid overflowing from the reservoir or chamber shall not wet electrical insulation and live parts which are liable to be adversely affected by such a liquid, nor shall a safety hazard be created. Unless restricted by a marking or by the instructions for use, no safety hazards shall develop if assistive products are tilted through an angle that is 15° greater than the maximum inclination that can occur during intended use.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	Test method		
	EN 12182:2012, clause 9.1.2] Fill the reservoir to the maximum level specified by the manufacturer and, if possible, add further liquid equal to 15% of the capacity of the reservoir or until the reservoir is full. Tilt the assistive product through an angle of 15° ^{+1°}_{-0°} in each direction(s) starting from the position of the manufacturer's intended use or the maximum angle of intended use, whichever is the most severe. If necessary, refill the reservoir between tests. If the working position is a specified range the 15° ^{+1°}_{-0°} shall add to the extreme position of this range. These procedures shall not wet parts of the assistive product that will cause a hazard. In particular, an assistive product shall show no signs of wetting of un-insulated live parts or electrical insulation of parts which may cause a safety hazard. For electrical insulation, in case of doubt, the assistive product shall be subjected to the dielectric strength test as described in EN 60601-1.		N/A
	Spillage		
	Requirements		
	[EN 12182:2012, clause 9.2.2] Position the equipment as in the manufacturer's intended use. Pour 200 ml ⁺⁵ ₋₀ of water steadily on an arbitrary point on the top surface of the assistive product.		N/A
	Test method		
	Position the equipment as in the manufacturer's intended use. Pour 200 ml ⁺⁵ ₋₀ of water steadily on an arbitrary point on the top surface of the assistive product.		N/A
	After the test, the assistive product shall function as specified by the manufacturer.		N/A
	Leakage		
	[EN 12182:2012, clause 9.3] Assistive products shall be so constructed that liquid which might escape in single fault condition does not cause a safety hazard.		N/A
	Ingress of liquids		
	Requirements		

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 12182:2012, clause 9.4.1] If liquid unintentionally can come into an enclosure there shall be a way for the liquid to get out of the enclosure, or the liquid shall not cause any harm.		N/A
	[EN 12182:2012, clause 9.4.1] The hazards that can be caused by the ingress of liquids to non-electrically powered assistive products shall be assessed in the risk analysis.		N/A
	Test method		
	[EN 12182:2012, clause 9.4.2] Test if the liquid can get out of the enclosure by tilting it 10 degrees to each direction. If there still is liquid in the enclosure test the equipment to check if it fails to work, or if the liquid is likely to cause any harm.		N/A
6.8	Safety of moving parts		
	Squeezing		
	[EN 12182:2012, clause 12.1] Unless the intended purpose of an assistive product, or part of an assistive product, is to grip, cut, squeeze etc., or if the intended use cannot be achieved without a hazard such as risk of squeezing (e.g. the elbow or knee flexion of a limb prosthesis):		
	[EN 12182:2012, clause 12.1 a] any moving parts that constitute a safety hazard shall be provided with guards that can only be removed by the use of a tool; or		N/A
	[EN 12182:2012, clause 12.1 b] the gap between exposed parts of an assistive product that move relative to each other shall be maintained throughout the range of movement at less than the minimum value or more than the maximum value set out in Table 2 (see below) or:		P
	Table 2 - Safe distances between moving parts		
	To avoid	Safe distances for adults ☒ applicable	Safe distances for children ☐ applicable
	Finger traps	Less than 8 mm or more than 25 mm	Less than 4 mm or more than 25 mm
	Foot traps	Less than 35 mm or more than 120 mm	Less than 25 mm or more than 120 mm
	Head traps	Less than 120 mm or more than 300 mm	Less than 60 mm or more than 300 mm
	Genitalia traps	Less than 8 mm or more than 75 mm	Less than 8 mm or more than 75 mm
			The squeezing points were assessed in the product configuration provided by the manufacturer. The inspection of the squeezing points between moving parts and between moving and fixed parts was carried out with a test gauge.

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 12182:2012, clause 12.1 c] if cords (ropes), chains and drive belts are used, they shall either be confined so that they cannot run off or jump out of their guiding devices, or a safety hazard shall be prevented by other means. Mechanical means applied for this purpose shall be removable only by the use of a tool; or		N/A
	[EN 12182:2012, clause 12.1 d] the assistive product shall incorporate a control device which initiates the movement when it is operated and stops the movement when it is released (e.g. a spring loaded control device that returns to the stop position when released); or		P
	[EN 12182:2012, clause 12.1 e] the assistive product shall incorporate a means for detecting that a person is in danger of being trapped and automatically activating a means of preventing injury (e.g. by stopping the movement).		N/A
	[EN 12182:2012, clause 12.1] For moving parts that can cause squeezing, manufacturers shall take into consideration what part/parts of the body that are at risk. The user/user group has to be specified, so that correct safety distances can be applied. NOTE: A product intended to be used by a child may also be operated by an adult.		P
	Mechanical wear		
	[EN 12182:2012, clause 12.2] Parts subject to mechanical wear likely to result in a safety hazard shall be accessible for inspection.		P
	Emergency stopping functions		
	[EN 12182:2012, clause 12.3] If there is a risk for the user to be squeezed or a single fault appearing that might create a safety hazard there shall be an emergency stop as specified in EN ISO 13850 together with the following requirements:		
	- The assistive product shall be designed to prevent accidental damage or stopping movements.		N/A
	- The user shall be able to reach the emergency stop easily, and stop the dangerous situation within one action.		N/A
	- The stopping device shall maintain the equipment in a safe position, but not interfere with other critical functions.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict		
	- The emergency stopping device shall maintain the assistive product in a stopped position until it is released by a designated procedure.		N/A		
	- The designated procedure for the release of the emergency stop shall require two independent actions.		N/A		
	- A safe stopping distance shall be considered in the risk analyses.		N/A		
6.9	Prevention of traps for parts of the human body				
	Holes and clearances				
	[EN 12182:2012, clause 13.1] Holes in, and clearances between stationary parts that are accessible to the user and/or assistant during the intended use of an assistive product shall be as specified in Table 3 (see below).				
	Table 3 - Safe distances between stationary parts				
	To avoid	Safe distances for adults ☒ applicable	Safe distances for children ☐ applicable		
	Finger traps	Less than 8 mm or more than 25 mm	Less than 5 mm or more than 12 mm	The holes in, and clearances between stationary parts were assessed in the product configuration provided by the manufacturer. The inspection of the holes in, and clearances between stationary parts was carried out with a test gauge.	P
	Foot traps	Less than 35 mm or more than 100 mm	Less than 25 mm or more than 45 mm		N/A
	Head traps	Less than 120 mm or more than 250 mm	Less than 60 mm or more than 250 mm		N/A
	Genitalia traps	Less than 8 mm or more than 75 mm	Less than 8 mm or more than 75 mm		N/A
	[EN 12182:2012, clause 13.1] If the intended purpose of an assistive product cannot be met without a hazard caused by the size of holes and the clearance between stationary parts, a warning and instructions on how to operate the assistive product safely shall be provided in the instructions for use.			P	
[EN 12182:2012, clause 13.1] For stationary parts that can cause a trap, manufacturers shall take in consideration what part/parts of the body that are at risk. The user/user group has to be specified, so that correct safety distances can be applied. NOTE 1: A product intended to be used by a child may also be operated by an adult.			P		

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 12182:2012, clause 13.1] The design of parts that confine a hole or clearance shall take into consideration the forces that can be applied in normal use. NOTE 2: A force might cause a hole/clearance to widen. This can then cause a failure, as specified in Table 3.		P
	[EN 12182:2012, clause 13.1] On holes with the shape of a keyhole or V-shaped openings the lower limit shall not apply. When inspecting the assistive product for traps for body parts any flexibility/elasticity of adjacent parts shall be taken into account.		N/A
	V-shaped openings		
	[EN 12182:2012, clause 13.2] The risk of entrapment in V-shaped openings shall be assessed by the manufacturer. Particular guidance can be found in EN 12182:2012, B.13.2.		N/A
6.10	Folding and adjusting mechanisms		
	General		
	[EN 12182:2012, clause 14.1] Folding and adjusting mechanisms may cause a hazard if parts of the body can enter a gap between parts and be trapped when the gap is closed.		
	[EN 12182:2012, clause 14.1] If an assistive product incorporates folding and/or adjusting mechanisms it shall conform to the requirements of locking mechanisms and guards.		P
	Locking mechanisms		
	[EN 12182:2012, clause 14.2] The mechanisms shall be capable of being securely locked when the assistive product is in any fixed working configuration. It shall also be capable of being securely locked when folded if it constitutes a risk for the user or assistant. The product shall fold in a safe manner.		P
	Guards		
	Either:		
	[EN 12182:2012, clause 14.3 a] the assistive product shall incorporate means to protect the user from trap and/or squeeze hazards; or		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 12182:2012, clause 14.3 b] the gap between exposed parts of an assistive product that move relative to each other shall be maintained throughout the range of movement at less than the minimum value or more than the maximum value set out in Table 2 of EN 12182:2012; or		N/A
	[EN 12182:2012, clause 14.3 c] if the intended purpose of an assistive product cannot be met without a hazard such as squeezing, a warning and instructions on how to operate the assistive product safely shall be provided in the instructions for use.		N/A
	[EN 12182:2012, clause 14.3] The design of a guard shall take into consideration the forces that can be applied in normal use.		N/A
6.11	Surfaces, corners, edges and protruding parts		
	[EN 12182:2012, clause 18] If not required for the intended function of an assistive product, all accessible edges, corners and surfaces shall be smooth and be free from burrs and sharp edges.		P
	[EN 12182:2012, clause 18] If not required for the intended function, assistive products shall not have protruding parts. Where possible, necessary protruding parts shall have protection to prevent injury and/or damage.		P
6.12	Clinical evaluation and investigation		
	[EN 12182:2012, clause 4.3] A clinical evaluation shall be done for all assistive products.		P
	[EN 12182:2012, clause 4.3] If, as part of the product conformity assessment, the clinical evaluation requires a clinical investigation, the clinical investigation shall conform to the requirements of EN ISO 14155-1 and EN ISO 14155-2. A clinical evaluation shall always be done before performing a clinical investigation.		N/A
6.13	Ergonomic principles		
	[EN 12182:2012, clause 23] An assistive product shall be designed to the ergonomic principles set out in EN 614-1 taking into account the special needs of the person with a disability for whom the assistive product is intended.		
	[EN 12182:2012, clause 23] An assistive product may be used not only by whom it is primarily intended for, but also by an assisting person.		

Clause	Requirement – Test	Measuring result – Remark	Verdict
	The ergonomic principles set out in EN 614-1 shall apply to all involved persons.		
	[EN 12182:2012, clause 23] Grips, handles and pedals shall suit the functional anatomy of the user, according to the intended use and meet with the following requirements:		
	[EN 12182:2012, clause 23 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 assistive product shall not be less than 35 mm;		N/A
	[EN 12182:2012, clause 23 b] the distance between any upper surface of a pedal (in its operating position) and any other part of the assistive product shall have a vertical toe clearance of not less than 75 mm;		N/A
	[EN 12182:2012, clause 23 c] the diameter of any operating handles and/or knobs requiring an operating force of more than 10 N shall be between 19 mm and 43 mm;		N/A
	[EN 12182:2012, clause 23 d] for assistive products operated from a standing position, pedals shall be placed not more than 300 mm above the surface of the floor;		N/A
	[EN 12182:2012, clause 23 e] for assistive products operated from a standing position, hand operated controls shall be placed at a height of 800 mm to 1200 mm above the surface of the floor;		N/A
	[EN 12182:2012, clause 23 f] handles for pushing and/or pulling shall be placed at a minimum height of 900 mm.		N/A
6.14	Risk analysis		
	[EN 12182:2012, clause 4.1] A risk analysis shall also be carried out in accordance with EN ISO 14971:2007.		P
7	Preparation for testing		
7.1	General		
	Unless otherwise specified in Clauses 8, 9, 10, 11 and 12, the wheelchair shall be prepared for testing as specified in ISO 7176-22:2000 with the following modification.		
	Air pressure in pneumatic tyres, drive wheels (6.1.1)	8.0 bar	
	Air pressure in pneumatic tyres, castors (6.1.1)	N/A	
	Distance between the brake blocks and their contact surfaces (6.1.3)	N/A	

Clause	Requirement – Test	Measuring result – Remark	Verdict
	Drive-wheel axle position, horizontal (6.3.2.1)	N/A	
	Drive-wheel axle position, vertical (6.3.2.2)	N/A	
	Drive-wheel camber (6.3.2.3)	N/A	
	Drive-wheel track width (6.3.2.4)	N/A	
	Castor stem housing position, horizontal (6.3.3.1)	N/A	
	Castor stem housing position, vertical (6.3.3.2)	N/A	
	Castor wheel axle position, vertical (6.3.3.3)	N/A	
	Castor wheel track width (6.3.3.4)	N/A	
	Castor stem angle, fore-aft plane (6.3.3.5)	N/A	
	Castor stem angle, lateral plane (6.3.3.6)	N/A	
	Seat depth (6.3.4.2)	N/A	
	Backrest height (6.3.4.3)	N/A	
	Seat height (6.3.4.4)	N/A	
	Seat plane angle (6.3.5)	N/A	
	Backrest angle (6.3.6)	N/A	
	Leg-to-seat-surface angle (6.3.7)	N/A	
	Footrest angle (6.3.8.1)	N/A	
	Footrest clearance (6.3.8.2)	N/A	
	Control device, mounting (6.3.9.1)	Right, mid-position	
	Control device, electrical settings (6.3.9.2)	Max. speed, electrical settings kept in file	
	Other electrical control devices (6.3.9.3)	N/A	
	If a test procedure requires the use of a test dummy or human test occupant, they shall be selected and fitted as specified in 7.2 or 7.3.		
7.2	Test dummy		
	Select a test dummy, as specified in ISO 7176-11:2012, of mass equal to the maximum occupant mass specified by the wheelchair manufacturer, with a tolerance of 0 kg to +5 kg.	maximum occupant mass specified by the wheelchair manufacturer : 200 kg	
7.3	Human test occupant		
	Select a human test occupant whose mass, in combination with any supplementary weights as specified in 4.7, is equal to the maximum occupant mass specified by the wheelchair manufacturer, with a tolerance of 0 kg to + 5 kg.	mass of the human test occupant: 90 kg supplementary weights: 110 kg	

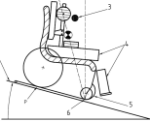
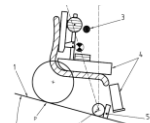
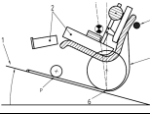
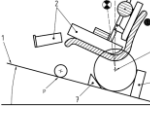
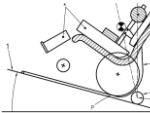
Clause	Requirement – Test	Measuring result – Remark	Verdict
8	Wheelchair performance		
8.1	Performance of driving characteristics		
8.1.1	General		
	The loaded wheelchair shall meet the driving performance requirements specified in Table 1 and Table 2 for the type class of the wheelchair as specified in Clause 5.		
8.1.2	Ability to climb rated slope		
8.1.2.1	Requirements		
	The wheelchair shall be capable of climbing at a speed not less than 2 km/h:		
	the applicable rated slope specified in Table 1 of EN 12184, or	--	N/A
	The rated slope specified by the manufacturer, whichever is greater.	200 kg, 9° 160 kg, 11.3°	P
8.1.2.2	Test		
	Adjust the gradient of the adjustable test plane to the required angle, $\pm 0,5^\circ$.		
	Starting on the adjustable test plane, drive the loaded wheelchair up the adjustable test plane using the maximum speed command.		
	When the wheelchair has travelled $(5,0 \pm 0,1)$ m up the slope, measure and record the speed to an accuracy of $\pm 10 \%$.		
		Test plane inclination	speed
	rated slope specified in Table 1 of EN 12184	--	--
	rated slope specified by the manufacturer	200 kg, 9° 160 kg, 11.3°	2.27 km/h (200 kg, 9°) 3.67 km/h (160 kg, 11.3°)
8.1.3	Ground unevenness		
8.1.3.1	Principle		
	It is important that a wheelchair is able to drive on uneven terrain without stopping even if one wheel is at a higher level than the others.		
8.1.3.2	Requirement		
	The wheelchair shall be capable of driving when any of its wheels is raised to a height specified in Table 1 for ground unevenness.		
8.1.3.3	Test		
	a) Place the loaded wheelchair on the horizontal test plane.		
	b) Place the test block specified in 4.8 under one wheel, such that one of its largest faces is flat on the test plane with the centre of the block beneath the point of contact with the wheel.		
	c) Attempt to drive the loaded wheelchair off the test block.		

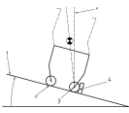
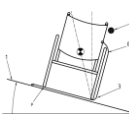
Clause	Requirement – Test				Measuring result – Remark	Verdict
	d) Record the result of the test.					
	e) Repeat for the remaining wheels, one at a time.					
	f) The test is passed if the wheelchair is able to drive off the test block for each wheel.					
		Type Class				
		A	B	C	--	
	Ground unevenness	10 mm	30 mm	50 mm	Depending on the manual wheelchair	N/A
8.1.4	Maximum downhill speed					
8.1.4.1	Requirement					
	The wheelchair shall not exceed 125 % of its maximum speed on the horizontal, when driving down					
	the applicable rated slope for the type class of wheelchair specified in Table 1, or					
		Class A	Class B	Class C	--	
	Rated slope	min. 3°	min. 6°	min. 10°	--	
	the rated slope specified by the manufacturer, whichever is greater				200 kg, 9° 160 kg, 11.3°	
8.1.4.2	Test					
	a) Drive the loaded wheelchair at maximum speed down a gradient with the required slope, ± 0,5°.					
	b) Measure the speed achieved.					
	c) Record the measured speed and record whether the wheelchair has met the requirement.					
	rated slope:				200 kg, 9° 160 kg, 11.3°	
	speed on the horizontal:				5.33 km/h (200 kg) 5.73 km/h (160 kg)	
	max. speed on max. rated slope:				6.54 km/h (200 kg, 9°) 7.12 km/h (160 kg, 11.3°)	P
8.1.5	Dynamic stability					
8.1.5.1	Requirements					
	The dynamic response score of the wheelchair shall be 2 or 3 as specified in Table A.1 of ISO 7176-2:2001 when tested on					
	the applicable rated slope for the type class of wheelchair specified in Table 1, and				--	
	the rated slope specified by the manufacturer				200 kg, 9° 160 kg, 11.3°	

Clause	Requirement – Test			Measuring result – Remark					Verdict
8.1.5.2	Test								
	a) Load the wheelchair with the test dummy in accordance with 7.2. Do not use a human test occupant.								
	b) Test the loaded wheelchair in accordance with ISO 7176-2:2001 with the following modifications:								
	1) for tests on slopes the test plane is inclined relative to the horizontal at the angle stated in Table 1 for the type class of the wheelchair;								
	2) fixed test ramps or adjustable test ramps may be used;								
	3) the test environment specified in Annex F may be used when testing wheelchairs with a maximum speed of 10 km/h or greater, on slopes of 10° or steeper;								
	4) if the manufacturer recommends a technique for driving on a slope, test the wheelchair using only the recommended technique; if not, the test methods are unmodified;								
	5) apply only the clauses listed below:								
	Test	Antitip device	Method of retardation	Stability score Ramp angle (°)					
				0	3	6	9	11.3(*)	
	Rearward Dynamic Stability								
	Starting forwards	With antitip devices	N/A	3	3	3	3	3	P
		Without antitip devices	N/A	--	--	--	--	--	N/A
	Stopping after travelling forwards (horizontal only)	With antitip devices	R Release	3	3	3	3	3	P
			P Power off	3	3	3	3	3	P
			A Applying reverse	3	3	3	3	3	P
		Without antitip devices	R Release	--	--	--	--	--	N/A
			P Power off	--	--	--	--	--	N/A
			A Applying reverse	--	--	--	--	--	N/A
	Braking when travelling back-wards	With antitip devices	R Release	3	3	3	3	3	P
P Power off			3	3	3	3	3	P	
A Applying reverse			3	3	3	3	3	P	
Without antitip devices		R Release	--	--	--	--	--	N/A	
		P Power off	--	--	--	--	--	N/A	
		A Applying reverse	--	--	--	--	--	N/A	

Clause	Requirement – Test				Measuring result – Remark				Verdict
	Forward dynamic stability								
	Braking when travelling forwards	N/A	R Release	3	3	3	3	3	P
			P Power off	3	3	3	3	3	P
			A Applying reverse	3	3	3	3	3	P
	dynamic stability in lateral directions								
	Turning on a slope (does not apply to manually steered wheel-chairs).	N/A	N/A	N/A	3	3	3	3	P
	(*) only tested with a 160 test dummy								
c) If the rated slope specified by the manufacturer is greater than the applicable rated slope for the type class of wheelchair specified Table 1 of EN 12184, repeat b) with the test plane set at the rated slope specified by the manufacturer.									
8.1.6	Obstacle climbing and descending								
8.1.6.1	Requirements								
	The wheelchair shall be capable of climbing and descending obstacles of the height specified in Table 1 for the type class of the wheelchair without any part of the wheelchair other than wheels or a kerb climbing device contacting the obstacle or the test plane								
8.1.6.2	Test								
	Put the wheelchair into the least-stable configuration specified by the manufacturer. If the manufacturer does not specify some or all settings for the least-stable configuration, use settings within the range of adjustment specified in the manufacturer's instructions for use to achieve the least-stable configuration								
	Test the wheelchair as specified in ISO 7176-10:2008 for climbing and descending a test obstacle of the height specified in Table 1 for the type class of the wheelchair.								

Clause	Requirement – Test				Measuring result – Remark	Verdict
		Type Class				
		A	B	C	--	
	Minimum obstacle height	15 mm	50 mm	100 mm	Depending on the manual wheelchair	N/A
	climbing forward and with the wheelchair in contact with the obstacle (without a run-up)				--	
	climbing forward with a run-up of 500 mm ± 25 mm				--	
	climbing rearwards and with the wheelchair in contact with the obstacle (without a run-up)				--	
	climbing rearward with a run-up of 500 mm ± 25 mm				--	
	descending forward				--	
	descending rearwards				--	
	If the manufacturer specifies a method for climbing and descending steps, kerbs or obstacles, test as specified in ISO 7176-10:2008 using only the manufacturer's method. If the manufacturer specifies a run-up distance greater than that specified in ISO 7176-10:2008, limit the run-up distance to the maximum specified in that document					
	If the manufacturer of the wheelchair does not specify a method for climbing and descending steps, kerbs or obstacles, test as specified in ISO 7176-10:2008 using the methods specified in that document.					
8.1.7	Static stability					
8.1.7.1	Requirements					
	The wheelchair shall meet or exceed the minimum requirements for static stability specified in Table 1 for the type class of the wheelchair					
8.1.7.2	Test					
	Test the loaded wheelchair in the least-stable configuration for each direction as specified in ISO 7176-1:1999 to determine whether it meets or exceeds the angles in Table 1 for the type class of the wheelchair					
		Type Class				
		A	B	C	--	
	minimum slope	6°	9°	15°	--	
	the rated slope specified by the manufacturer				200 kg, 9° 160 kg, 11.3°	

Clause	Requirement – Test		Measuring result – Remark	Verdict
	Test for static stability in the forward direction			
			Tipping angle	
	Forward	Front wheels locked 	15.2°(*) (200 kg) 15.2°(*) (160 kg)	P
		Front wheels unlocked 	15.2°(*) (200 kg) 15.2°(*) (160 kg)	P
	Test for static stability in the rearward direction			
			Tipping angle	
	Rearward	Rear wheels locked 	12.9° (200 kg) 15.2°(*) (160 kg)	P
		Rear wheels unlocked 	12.9° (200 kg) 15.2°(*) (160 kg)	P
	Test for rearward static stability with rear antip devices			
			Tipping angle	
	Rearward	Antip devices 	15.2°(*) (200 kg) 15.2°(*) (160 kg)	P

Clause	Requirement – Test			Measuring result – Remark	Verdict	
	Test for static stability in the sideways direction					
				Tipping angle		
	Sideway	Left		15.2°(*) (200 kg) 15.2°(*) (160 kg)	P	
		Right				15.2°(*) (200 kg) 15.2°(*) (160 kg)
	(*) Test was stopped at 15.2° (max. degree of test slope)					
8.1.8	Maximum speed					
8.1.8.1	Requirements					
	The maximum speed of the wheelchair when travelling forwards and travelling in reverse on the horizontal shall not exceed the maximum speed requirements specified in Table 1 for the type class of the wheelchair.					
8.1.8.2	Test					
	Test the loaded wheelchair as specified in ISO 7176-6:2001 for the maximum forward speed and maximum reverse speed on a horizontal surface.					
		Type Class				
		A	B	C	--	
	Forward	15 km/h	15 km/h	15 km/h	5.33 km/h (200 kg) 5.73 km/h (160 kg)	P
	Reverse	70 % of maximum forward speed of the wheelchair or 5 km/h whichever is lower	70 % of maximum forward speed of the wheelchair or 5 km/h whichever is lower	70 % of maximum forward speed of the wheelchair or 5 km/h whichever is lower	2.34 km/h 200 kg 3.17 km/h (160 kg°)	P
8.1.9	Distance range					
8.1.9.1	Requirements					
	The theoretical continuous driving distance range for the wheelchair shall not be less than the requirement specified in Table 1 for the type class of the wheelchair.					

Clause	Requirement – Test	Measuring result – Remark	Verdict
8.1.9.2	Test		
	Load the wheelchair as specified in ISO 7176-4:2008, except that the mass of the load shall be the maximum occupant mass or 100 kg, whichever is the lower.		
	Test the loaded wheelchair as specified in ISO 7176-4:2008.		
	Record the results and determine whether the requirement has been met.		
	It is recognised the use of shorter test tracks in the range specified by ISO 7176-4:2008 could give smaller values of theoretical distance range. Use of the largest specified track length should be treated as the referee method.		
		Type Class	
		A B C	--
	min. theoretical continuous driving distance range	15 km 25 km 35 km	15 km (200 kg only informative) 35 km 160 kg (only informative)
			N/A
8.2	Static, impact and fatigue strength		
8.2.1	Requirements		
	The wheelchair shall conform to the requirements of ISO 7176-8:1998 with the exception that wheelchairs of Class A are not required to be tested as specified in ISO 7176-8:1998, 10.5, drop test.		
	Arm supports shall conform to the static loading requirements of ISO 7176-8:1998 in all intended operating positions.		
	For wheelchairs with a maximum occupant mass greater than 75 kg but not greater than 100 kg, the maximum upward force to be applied to each single push handle shall be (880 ± 26) N.		
	Where the manufacturer specifies a maximum occupant mass greater than 100 kg the forces specified in Table 3 shall apply		
8.2.2	Test		
	Test the wheelchair in accordance with ISO 7176-8:1998 with modifications as specified in 8.2.1.		
	Strength requirements (ISO 7176-8, section 4.1)		
	a) No component shall be fractured or have visible cracks.		P
	b) No nut, bolt, screw, locking-pin, adjustable component or similar item shall have become detached after having been tightened, adjusted or refitted once. However, in addition, footrests may be adjusted after each of the two footrest impact tests.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict				
	c) No electrical connector shall be displaced or disconnected.		P				
	d) All parts intended to be removable, folding or adjustable shall operate as described by the manufacturer.		P				
	e) All power-operated systems shall operate as described by the manufacturer.		P				
	f) Handgrips shall not be displaced.		N/A				
	g) Any multiposition or adjustable component shall not be displaced from the present position, except as permitted in b)		P				
	h) No component or assembly of parts shall exhibit deformation, free play or loss of adjustment that adversely affects the function of the wheelchair.		P				
	Test methods for static strength (ISO 7176-8, section 8)						
	Armrests: resistance to downward forces The force mentioned below or - if the manufacturer claims that the wheelchair exceeds the appropriate minimum requirement a force claimed to $\pm 3\%$ - is applied for 5 s to 10 s. <table><tr><td>Maximum user mass [kg]</td><td>Force to be applied to each armrest [N]</td></tr><tr><td>--</td><td>--</td></tr></table> Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: F= 950 N		Maximum user mass [kg]	Force to be applied to each armrest [N]	--	--	N/A
Maximum user mass [kg]	Force to be applied to each armrest [N]						
--	--						
	Footrests: resistance to downward forces The force mentioned below or - if the manufacturer claims that the wheelchair exceeds the appropriate minimum requirement a force claimed to $\pm 3\%$ - is applied for 5 s to 10 s. <table><tr><td>Maximum user mass [kg]</td><td>Force to be applied to footrests [N]</td></tr><tr><td>--</td><td>--</td></tr></table> Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: F= 1230 N		Maximum user mass [kg]	Force to be applied to footrests [N]	--	--	N/A
Maximum user mass [kg]	Force to be applied to footrests [N]						
--	--						
	Tipping levers: resistance to downward forces The force as described below is applied on the tipping lever 25 ± 5 mm away from its end for 5 s to 10 s. <table><tr><td>Maximum user mass [kg]</td><td>Force to be applied to each tipping lever [N]</td></tr><tr><td>200 kg</td><td>1000</td></tr></table> Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: F= 1000 N		Maximum user mass [kg]	Force to be applied to each tipping lever [N]	200 kg	1000	P
Maximum user mass [kg]	Force to be applied to each tipping lever [N]						
200 kg	1000						

Clause	Requirement – Test	Measuring result – Remark	Verdict						
	Handgrips: resistance to pull off forces The force as described below is applied for 5 s to 10 s in an axial way. Radial forces are to be avoided. <table><tr><td>Maximum user mass [kg]</td><td>Force to be applied to each handgrip [N]</td></tr><tr><td>--</td><td>--</td></tr></table> Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: F= 750 N	Maximum user mass [kg]	Force to be applied to each handgrip [N]	--	--		N/A		
Maximum user mass [kg]	Force to be applied to each handgrip [N]								
--	--								
	Armrests: resistance to upward forces The force mentioned below or - if the manufacturer claims that the wheelchair exceeds the appropriate minimum requirement a force claimed to $\pm 3\%$ - is applied for 5 s to 10 s. <table><tr><td>Maximum user mass [kg]</td><td>Force to be applied to each armrests [N]</td></tr><tr><td>--</td><td>--</td></tr></table> Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: F= 1000 N	Maximum user mass [kg]	Force to be applied to each armrests [N]	--	--		N/A		
Maximum user mass [kg]	Force to be applied to each armrests [N]								
--	--								
	Footrests: resistance to upward forces The force mentioned below or - if the manufacturer claims that the wheelchair exceeds the appropriate minimum requirement a force claimed to $\pm 3\%$ - is applied for 5 s to 10 s. <table><tr><td>Maximum user mass [kg]</td><td>Each side structure [N]</td><td>Centre of one-piece footrests [N]</td></tr><tr><td>--</td><td>--</td><td>--</td></tr></table> Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: F= 500 N for two single foot supports. Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: F= 1000 N for one-piece foot support.	Maximum user mass [kg]	Each side structure [N]	Centre of one-piece footrests [N]	--	--	--		N/A
Maximum user mass [kg]	Each side structure [N]	Centre of one-piece footrests [N]							
--	--	--							

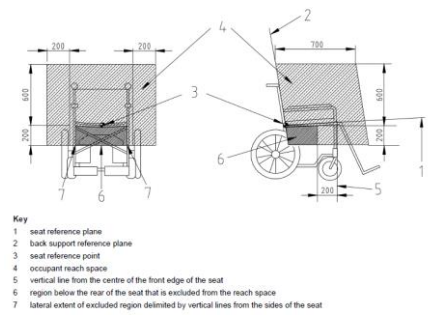
Clause	Requirement – Test	Measuring result – Remark	Verdict						
	Push handles: resistance to upward forces The force mentioned below or - if the manufacturer claims that the wheelchair exceeds the appropriate minimum requirement a force claimed to $\pm 3\%$ - is applied for 5 s to 10 s. <table><tr><td>Maximum user mass [kg]</td><td>Each single push handle [N]</td><td>Centre of bar-type handle [N]</td></tr><tr><td>--</td><td>--</td><td>--</td></tr></table> For wheelchairs with a maximum occupant mass greater than 75 kg but not greater than 100 kg, the maximum upward force to be applied to each single push handle shall be (880 ± 26) N. Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: $F= 1000$ N for two single handles. Where the manufacturer specifies a maximum occupant mass greater than 100 kg the following force specified in Table 3 shall apply: $F= 2000$ N for one cross bar handle.	Maximum user mass [kg]	Each single push handle [N]	Centre of bar-type handle [N]	--	--	--		N/A
Maximum user mass [kg]	Each single push handle [N]	Centre of bar-type handle [N]							
--	--	--							
	Test methods for impact strength (ISO 7176-8, section 9)								
	Backrest: resistance to impact — Test method (ISO 7176-8, section 9.3)								
	(only for wheelchairs with a backrest ≥ 320 mm) The mass is touching the backrest at a point 30 mm below the top of the backrest. The pendulum is supported so that the rigid bar is at an angle of $30^{\circ} \pm 2^{\circ}$ to the vertical and then it falls freely and strikes the back of the wheelchair		N/A						
	For wheelchairs where the backrest is mounted on two supporting members the test is repeated twice with the pendulum repositioned so that it strikes the central line of each backrest support 20 mm below the top of the backrest.		N/A						
	For wheelchairs where the backrest is mounted on a single central support the test is repeated with the pendulum positioned to strike the backrest points located 0.4 times the backrest max. width from each side of its centreline.		N/A						

Clause	Requirement – Test	Measuring result – Remark	Verdict
	Handrim: resistance to impact — Test method (ISO 7176-8, section 9.4)		
	With the wheelchair standing on the horizontal test plane set up the handrim test pendulum (see 5.6) so that when it is hanging vertically its centre of percussion of one side face is on the same horizontal line as the wheel hub and is touching the handrim in line with one of its attachment points as shown in figure 16. If the handrim has a joint which coincides with an attachment point, select that attachment point as the location of the test. Ensure that the wheelchair brakes are disengaged. Raise the pendulum so that its longitudinal axis is at the angle shown in figure 16 and then release it so that it strikes the handrim. Rotate the wheel and handrim so that the pendulum centre of percussion will strike the handrim mid-way between two attachment points and repeat the test. If the handrim has a joint which lies between two attachment points select this part of the handrim for the test. If the handrim is continuously attached to the rim of the wheel, rotate the wheel and handrim through $90^{\circ} \pm 5^{\circ}$ between the two impacts. If the manufacturer claims that the wheelchair exceeds the above requirements, use the angle claimed by the manufacturer $\pm 2^{\circ}$.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict						
	Castors: resistance to impact — Test method (ISO 7176-8, section 9.5)								
	The castor is set up so that it is to be tested aligned at $45^{\circ} \pm 5^{\circ}$ to the longitudinal axis of the wheelchair. The plane of the pendulum’s swing has to be in the plane of the castor wheel $\pm 2^{\circ}$. The pendulum is located so that it is hanging vertically with its centre of percussion of one side face on the same horizontal line as the castor hub $\pm 5^{\circ}$ and touching the wheel rim. The angle of swing is calculated from following equation: $\cos \theta = 1 - \frac{M_d + M_w}{377}$ with: θ = angle of swing in degrees M_d = max. dummy mass in kg M_w = wheelchair mass in kg The pendulum is raised so that its longitudinal axis is at $\theta + 3^{\circ}$ to the vertical and then it is released so that it strikes the castor wheel. If the manufacturer claims that the wheelchair exceeds the min. requirement the angle claimed by the manufacturer with a tolerance of $+ 3^{\circ}$ is used. The test is repeated on all other castors of the wheelchair	<table><tr><td>M_d</td><td>--</td></tr><tr><td>M_w</td><td>--</td></tr><tr><td>θ</td><td>--</td></tr></table>	M_d	--	M_w	--	θ	--	N/A
M_d	--								
M_w	--								
θ	--								
	Footrests: resistance to impact — Test method (ISO 7176-8, section 9.6)								
	Lateral impact								
	The footrest test pendulum is suspended so that its centre of percussion touches that part of the footrest which is nearest to the test plane and furthest from the wheelchair longitudinal centreline, its plane of swing in normal to the wheelchair longitudinal centreline $\pm 2^{\circ}$ and the longitudinal axis of the pendulum is vertical. The pendulum is raised so that its longitudinal axis is at $\theta + 3^{\circ}$ to the vertical and released so that it strikes the footrest. If the manufacturer claims that the wheelchair exceeds the above requirement the angle claimed by the manufacturer with a tolerance of $+ 3^{\circ}$ is used. If the footrest has moved from its setting but is undamaged, reset it to its initial position.		N/A						

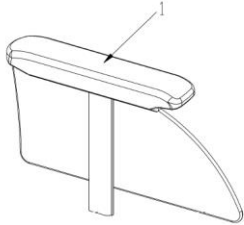
Clause	Requirement – Test	Measuring result – Remark	Verdict
	Longitudinal impact		
	The footrest pendulum is suspended so that its centre of percussion touches that part of the footrest which is furthest forward and furthest from the wheelchair longitudinal centreline; its plane of swing is parallel to the wheelchair longitudinal centreline; the longitudinal axis of the pendulum is vertical.		N/A
	Front structure: resistance to impact (ISO 7176-8, section 9.7)		
	Frontal impact		
	The vertical pendulum impacts the front side at the position, which protrudes the most. The pendulum is suspended by an angle of $\theta + 3^\circ$ - resp. if the manufacturer claims that the wheelchair exceeds the above requirement the angle claimed by the manufacturer with a tolerance of $+3^\circ$ is used - and dropped.		N/A
	Offset impact		
	Suspend the test pendulum so that the centre of percussion of one of its flat faces touches the "point of impact" identified above, its plane of swing is at $20^\circ \pm 2^\circ$ to the centreline of the wheelchair (scooter) and its longitudinal axis is vertical. Raise the pendulum so that its longitudinal axis is at $\theta + 3^\circ$ as obtained in 9.5 above, to the vertical and then release it so that it strikes the front structure of the wheelchair (scooter).		N/A
	Fatigue tests (ISO 7176-8, section 10)		
	Two-Drum-Test		
	The reference drum surface shall run at 1.0 m/s $\pm 0,1$ m/s. The test is finished, when the drum had run 200.000 revolutions or any higher figure claimed by the manufacturer.		P
	Drop-Test		
	The wheelchair is dropped freely from a height of 50 mm ± 5 mm. The test is finished, when the process had been repeated 6.666 time resp. if the manufacturer claims that the wheelchair exceeds the min. requirement, 1/30 times the number of cycles of the two-drum test.		P

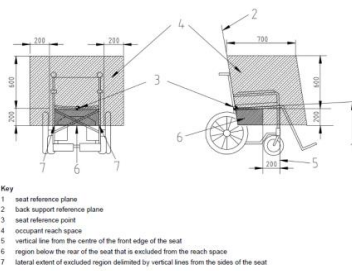
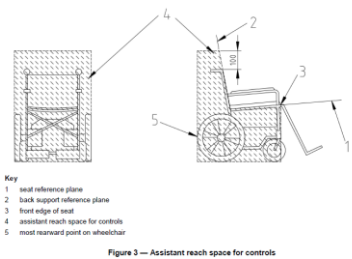
Clause	Requirement – Test	Measuring result – Remark	Verdict
8.3	Wheelchairs for use as seats in motor vehicles		
	If the manufacturer specifies that the intended use of the wheelchair includes use as a seat in a motor vehicle by an occupant of mass 22 kg or greater, the wheelchair shall conform to the performance requirements of ISO 7176-19:2008 with the following modifications. <i>4.1.2 is replaced by the following:</i> If a wheelchair is intended by the manufacturer to also be secured by a docking securement device in public transportation and/or different private vehicles, the securement points on the wheelchair and/or of the wheelchair tiedown adaptors shall conform to the performance requirements in Clause 5. <i>5.2.1 a) is replaced by the following:</i> If the wheelchair has a head restraint, the horizontal excursions of the ATD and the wheelchair, with respect to the impact sled, shall not exceed the limits in Table 7 at any time during the test. If the wheelchair does not have a head restraint, the horizontal excursions of the ATD and the wheelchair, with respect to the impact sled, shall not exceed the limits in Table 7 at any time during the test with the exception that the excursion of the back of the head of the ATD, $X_{\text{head, R}}$, shall not be measured. <i>5.2.2 e) is replaced by the following:</i> Primary occupant-load-carrying components of the wheelchair shall not show visible signs of failure, unless there is a backup system to provide support		N/A
8.4	Climatic performance		
	The wheelchair shall conform to the requirements of ISO 7176-9:2009		
	Test methods (ISO 7176-9:2009, section 8)		
	Cold operating conditions		P
	Hot operating conditions		P
	Cold storage conditions		P
	Hot storage conditions		P
	Protection against ingress of liquids	IPX4	P

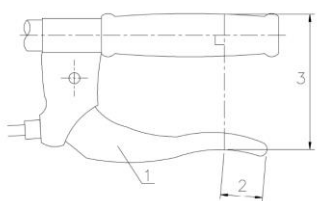
Clause	Requirement – Test	Measuring result – Remark	Verdict
	Functional check		P
9	Component properties		
9.1	Foot supports, lower leg support assemblies and arm supports		
9.1.1	Requirements		
	The wheelchair shall be fitted with foot supports that have a means of positioning the occupant's feet at the required height and prevent the occupant's feet from sliding backwards.		N/A
	Any swing away, movable or removable foot support, lower leg support assembly or arm support fitted on the wheelchair shall:		
	a) incorporate a means to locate it securely in any intended operating position,		N/A
	b) be adjustable in increments not exceeding 25 mm,		N/A
	c) be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair,		N/A
	d) be within the reach space shown in Figure 1, and		N/A
	 Key 1 seat reference plane 2 back support reference plane 3 seat reference point 4 occupant reach space 5 vertical line from the centre of the front edge of the seat 6 region below the rear of the seat that is excluded from the reach space 7 lateral extent of excluded region delimited by vertical lines from the sides of the seat Figure 1 — Occupant reach space		N/A
	e) be operable without the use of tools.		N/A
	Where the wheelchair has separate foot supports which have a gap between them or the possibility of a gap being formed when they are loaded,		
	f) means to prevent the occupant's feet from sliding into the gap shall be provided, or		N/A
	g) when the foot supports are tested in accordance with 9.1.2.2, any gap between them shall meet the requirement for safe distances between stationary parts specified in EN 12182.		N/A

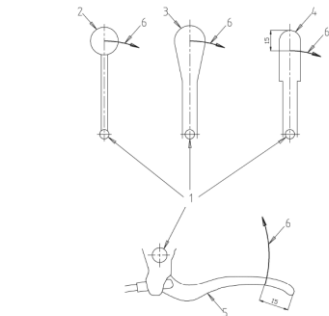
Clause	Requirement – Test	Measuring result – Remark	Verdict
9.1.2	Test methods		
9.1.2.1	Test for general performance		
	a) Fit foot supports, lower leg support assemblies and arm supports in the operating position(s) specified in the manufacturer's instructions.		
	b) Adjust the foot supports, lower leg support assemblies and arm supports as specified in the manufacturer's instructions.		
	c) Record whether the foot supports, lower leg support assemblies and arm supports have met the requirements.		N/A
9.1.2.2	Test for foot support gap		
	a) Simultaneously apply a force F^{+5} N to the centroid of each foot support, normal to the plane of the unloaded foot support. In cases where the foot support has no identifiable plane, apply the force within 5° of vertical. The force F is calculated from the following equation: $F = 0,125 \times m \times g$ where F is the force applied to each foot support, expressed in newtons m is the maximum occupant mass specified by the manufacturer, expressed in kilograms g is the acceleration due to gravity, 9,81 m/s².		
	b) Apply the force for 5 s to 10 s.		
	c) While the force is being applied measure the shortest distance between the foot supports	Distance = --	
	d) Record whether the foot supports have met the requirements.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
9.2	Component mass		
	If the wheelchair is intended to be dismantled for storage or transportation, any component that requires moving or handling that has a mass greater than 10 kg shall be provided with suitable handling devices (e.g. handles). The manufacturer shall provide information indicating the points where such components can be lifted and describing how they shall be handled during disassembly, lifting, carrying, and assembly to reduce risks to the person or persons moving or handling them.		P
9.3	Pneumatic tyres		
	All pneumatic tyres on the wheelchair shall have the same type of valve connection. Valves should be readily accessible when using the intended inflating tool.		P
	The tyres or the rims shall be marked with the maximum pressure in kPa, bar or PSI.		P
9.4	Anterior pelvic support		
	The wheelchair shall have provision for an anterior pelvic support to be fitted. The manufacturer of the wheelchair shall have available as an option an anterior pelvic support which can be used with that provision.		N/A
9.5	Resistance to ignition		
9.5.1	Upholstered composite parts		
	For upholstered parts which are composites of cover and filling, with or without a support base or interliner, the complete composite shall be tested by the methods specified in EN 1021-2:2006 or ISO 8191-2:1988. Progressive smouldering ignition and flaming ignition as defined in the Standard applied shall not occur.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
9.5.2	Foam materials		
	For foam materials which form all or part of a seat, back support, postural support, arm support or lower leg support and which consist of foam material with or without an integral skin, the material of each part shall be tested with the source applied centrally to the surface intended to support the occupant by the methods specified in EN 1021-2:2006 or ISO 8191-2:1988 (see Figure 2). Progressive smouldering ignition and flaming ignition as defined in the Standard applied shall not occur.  Key 1 application of source to the centre of the surface intended to support the occupant Figure 2 — Application of ignition source to a postural support		N/A
9.5.3	Other parts in contact with the occupant		
	For sling seats, sling backs, belts, restraint harnesses, foot supports and clothing guards, the material of each item shall be tested with the source applied centrally to the surface intended to contact or support the occupant by the methods specified in EN 1021-2:2006 or ISO 8191-2:1988. Progressive smouldering ignition and flaming ignition as defined in the Standard applied shall not occur.		N/A
	Belts that are intended for use as restraints in motor vehicles may, as an alternative, meet the requirements of FMVSS 302 or equivalent.		N/A
9.5.4	Power and control systems		
	Either of the following options a) or b) shall apply.		
	a) The manufacturer shall adopt appropriate means to eliminate or reduce as far as reasonably practicable the risk of a hazardous situation developing from the ignition of any part of the power and control system of the wheelchair. The manufacturer shall use the process specified in EN ISO 14971:2012 to manage that risk.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	b) The power and control system of the wheelchair shall meet the requirements of ISO 7176-14:2008, 9.7, resistance to ignition.	Test standard: ISO 7176-14:2008 Date of issue: 2019-10-29 Test report no.: 713139077-3 Test lab: TÜV SÜD Product Service GmbH	P
10	Propulsion and braking systems		
10.1	Means for operating brakes		
10.1.1	Requirement		
	a) Means for operating brakes shall:		
	1) be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair;		P
	2) be within the reach space shown in Figure 1, if the wheelchair is intended to be operated by the occupant;		P
	 Key 1 seat reference plane 2 back support reference plane 3 seat reference point 4 occupant reach space 5 vertical line from the centre of the front edge of the seat 6 region below the rear of the seat that is excluded from the reach space 7 lateral extent of excluded region delimited by vertical lines from the sides of the seat Figure 1 — Occupant reach space		
	3) be within the reach space shown in Figure 3, if the wheelchair is intended to be operated solely by an assistant;	Attendant control available	P
	 Key 1 seat reference plane 2 back support reference plane 3 front edge of seat 4 assistant reach space for controls 5 most rearward point on wheelchair Figure 3 — Assistant reach space for controls		
	4) have operating forces for engaging and disengaging that do not exceed those stated in Table 1 when tested in accordance with 10.1.2		P

Clause	Requirement – Test		Measuring result – Remark	Verdict
	Maximum operating forces	Requirements		
	single finger operation	5 N	1 - 3 N	P
	more than one finger operation	13,5 N	--	N/A
	whole hand operation	60 N	--	N/A
	combined hand and arm operation	60 N	--	N/A
	foot operation, pushing operation	100 N	--	N/A
	foot operation, pulling operation	60 N	--	N/A
	b) If one or more brake levers are fitted to a wheelchair in the form used on bicycles and mopeds:			
	1) for wheelchairs with a maximum occupant mass not greater than 150 kg, the force applied to each lever to hold the loaded wheelchair stationary on the rated slope shall not exceed 60 N;			N/A
	2) for wheelchairs with a maximum occupant mass greater than 150 kg, the force applied to each lever to hold the loaded wheelchair stationary on the rated slope should not exceed 60 N;			N/A
	3) the handgrip width of such brake levers when no force is applied, measured 15 mm from the end of the brake lever, shall not be greater than 100 mm and should not be greater than 80 mm (see Figure 4)  Key 1 lever gripped by the fingers of one hand 2 15 mm 3 handgrip width Figure 4 — Handgrip width			N/A
	c) Means for releasing parking brakes shall be protected against activation caused by accidental contact.			P

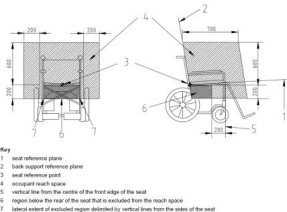
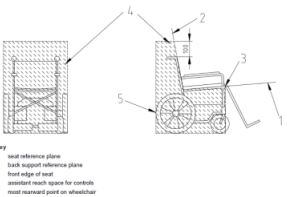
Clause	Requirement – Test	Measuring result – Remark	Verdict
10.1.2	Test for determination of brake operating forces		
	a) Adjust the brakes as specified by the manufacturer. b) Select the part of the lever through which the force is to be applied as shown in Figure 5.  Key 1 fulcrum 2 generally spherical knob 3 tapered lever 4 parallel lever 5 bicycle-style lever 6 path of the point of application of the operating force Figure 5 — Application of forces to levers		
	1) If the lever is fitted with a generally spherical knob, apply the force through the centre of the knob.		
	2) If the lever is tapered, apply the force through the point where the largest cross section intersects the centre line of the lever.		
	3) If the lever is parallel or any shape other than those above, apply the force through a point on the centre line of the lever 15 mm from the end.		
	4) If the form of the lever is such that the lever is gripped by the whole hand apply the force through the centre line of the lever 15 mm from the end.		
	5) If the brake is operated by pushing or pulling a bar or pad, apply the force to the centroid of the bar or pad.		
	c) Apply the brakes while measuring the force with the device specified in 4.4 aligned in the direction of travel of the point of application of the force in order to measure the maximum application force required.		
	d) Release the brakes while measuring the force with the device specified in 4.4 aligned in the direction of		

Clause	Requirement – Test	Measuring result – Remark	Verdict
	e) Perform c) and d) three times in total and record the measurements		
	f) Calculate and record the arithmetic mean value of the application and the release forces measured separately.		
	g) Determine whether or not the requirements for operating forces stated in Table 1 have been met.		
10.2	Braking functions		
10.2.1	Requirements		
	a) The wheelchair shall have a running brake which operates independently of tyre wear and tyre inflation pressure and which does not exceed the maximum stopping distance specified in Table 2 when tested in accordance with 10.2.2.1.	0.95 m	P
	Driving characteristics and requirements		
	Maximum stopping distance		
	Speed (km/h)	Horizontal distance (m)	
	4,0	0,6	
	5,0	0,8	
	6,0	1,0	
	7,0	1,2	
	8,0	1,5	
	9,0	1,8	
	10,0	2,1	
	11,0	2,5	
	12,0	2,9	
	13,0	3,4	
	14,0	3,9	
	15,0	4,5	
	b) The wheelchair shall have a running brake which, when operated after the wheelchair has been put into freewheel mode, shall bring the wheelchair to a stop.		P

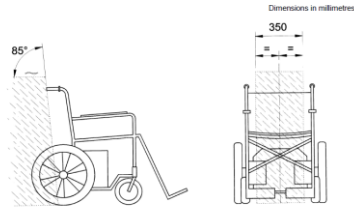
Clause	Requirement – Test	Measuring result – Remark	Verdict
	c) The wheelchair shall have an automatic brake, which operates independently of tyre wear and tyre inflation pressure and which is operated by releasing the control device to achieve a zero speed command (e.g. spring loaded disc brake).		P
	d) The wheelchair shall have a parking brake which operates independently of tyre wear and tyre inflation pressure (e.g. drum brake in wheels, spring loaded disc brake).		P
	e) Parking brakes shall meet the parking brake effectiveness requirement in Table 1 of EN 12184 when tested in accordance with 10.2.2.2.		P
	f) Parking brakes shall be operable when there is no power from the battery supplying the drive system.		P
	g) Parking brakes shall be operable when the wheelchair is in freewheel mode.		P
	h) If they are subject to wear, parking brakes shall have provision for adjustment and/or replacement as specified by the manufacturer.		N/A
	i) If the wheelchair is fitted with arm supports that can be moved or removed to enable transfer, when tested in accordance with 10.2.2.3, engaged parking brakes shall not have parts that protrude above the level of the occupied seat.		N/A
	j) When parking brakes are tested in accordance with 10.2.2.4, no parking brake mechanism shall move from the pre-set position and no component or assembly of parts shall show visible signs of cracks, breakages, gross deformations, free play, loss of adjustment or any other damage that adversely affects the function of the wheelchair.		P
	k) Following testing of the parking brake in accordance with 10.2.2.4, parking brakes shall meet the parking brake effectiveness requirement in Table 1 when tested again in accordance with 10.2.2.2.		P

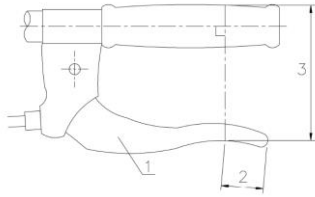
Clause	Requirement – Test	Measuring result – Remark	Verdict				
10.2.2	Test methods						
10.2.2.1	Test for determination of the effectiveness of running brakes						
	Perform the tests for normal, reverse command and emergency operation specified in 7.3, 7.4 and 7.5 of ISO 7176-3:2012 using the loaded wheelchair on the horizontal and on the steepest slope specified in ISO 7176-3:2012 less than or equal to the rated slope. The wheelchair fails the requirement if the maximum stopping distance specified in Table 2 of this European Standard is exceeded on the horizontal, or if the wheelchair fails to stop on the test slope. <i>N = Normal operation</i> <i>R = Reverse</i> <i>E = Emergency power off</i>						
	Test plane inclination	Direction of travel					
	Horizontal	Forwards	Min. brake distance [m]	0.95	0.91	0.98	P
		Reverse	Min. brake distance [m]	0.38	0.42	0.74	
	3°	Forwards	Min. brake distance [m]	1.37	1.00	1.38	
		Reverse	Min. brake distance [m]	0.73	0.55	0.23	
	6°	Forwards	Min. brake distance [m]	2.36	1.27	1.52	
		Reverse	Min. brake distance [m]	0.63	0.20	0.24	
	10°	Forwards	Min. brake distance [m]	2.63	2.00	1.70	
		Reverse	Min. brake distance [m]	0.70	0.36	0.36	
11.31°	Forwards	Min. brake distance [m]	2.80	1.95	2.00		
	Reverse	Min. brake distance [m]	0.77	0.37	0.43		
10.2.2.2	Test for determination of effectiveness of parking brakes						
	a) Adjust the parking brake in accordance with the manufacturer's instructions without exceeding the operating force requirements stated in Table 1.						
	b) Test the loaded wheelchair facing uphill in accordance with ISO 7176-3:2012, with the test plane inclined to the horizontal at the applicable angle stated in Table 1 for the type class of the wheelchair or at the rated slope specified by the manufacturer, whichever is greater.						
	c) Repeat b) with the wheelchair facing downhill						
	d) Determine whether the parking brake holds the loaded wheelchair stationary on the slope.						

Clause	Requirement – Test		Measuring result – Remark	Verdict
	Test plane inclination	Direction of travel		
	6°	uphill	--	N/A
		downhill	--	N/A
	9°	uphill	--	N/A
		downhill	--	N/A
	15°	uphill	--	N/A
		downhill	--	N/A
	maximum slope specified by the manufacturer	uphill	12.9°	P
		downhill	15.2° (*)	P
	(*) Test was stopped at 15.2° (max. degree of slope)			
10.2.2.3	Test for protrusion of parts of the parking brakes			
	a) Engage the parking brake.			
	b) Move or remove the arm support to enable transfer			
	c) Check whether any part of the parking brake protrudes above the level of the occupied seat.			
10.2.2.4	Test method for fatigue strength of parking brakes			
	a) Carry out the test with the parking brake mounted on the wheelchair or mounted on a suitable test fixture that simulates mounting on the wheelchair. If the wheelchair is fitted with two identical brakes (left and right), test only one of the brakes.			
	b) Adjust the parking brake in accordance with the manufacturer's instructions without exceeding the operating force requirements stated in Table 1.			
	c) Move the lever operating the brake smoothly from the non-braking position to the braking position for 60 000 cycles at a frequency not greater than 0,5 Hz (4.12). Carry out maintenance during testing only in accordance with the manufacturer's instructions.			
	d) Inspect the brake mechanism and determine whether it has met the requirement.			P
	e) If a test fixture was used, return the brake mechanism to the wheelchair.			

Clause	Requirement – Test	Measuring result – Remark	Verdict														
10.3	Freewheel device																
	The wheelchair shall be fitted with a freewheel device that shall																
	- be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair,		P														
	- be within the reach space shown in Figure 1, if the wheelchair is intended to be operated by the occupant,  Figure 1 — Occupant reach space		N/A														
	- be within the reach space shown in Figure 3, if the wheelchair is intended to be operated solely by an assistant;  Figure 3 — Assistant reach space for controls		P														
	- have operating forces for engaging and disengaging that do not exceed those stated in Table 1,		P														
	<table><tr><th>Maximum operating forces</th><th>Requirements</th></tr><tr><td>single finger operation</td><td>5 N</td></tr><tr><td>more than one finger operation</td><td>13,5 N</td></tr><tr><td>whole hand operation</td><td>60 N</td></tr><tr><td>combined hand and arm operation</td><td>60 N</td></tr><tr><td>foot operation, pushing operation</td><td>100 N</td></tr><tr><td>foot operation, pushing operation</td><td>60 N</td></tr></table>	Maximum operating forces	Requirements	single finger operation	5 N	more than one finger operation	13,5 N	whole hand operation	60 N	combined hand and arm operation	60 N	foot operation, pushing operation	100 N	foot operation, pushing operation	60 N		
Maximum operating forces	Requirements																
single finger operation	5 N																
more than one finger operation	13,5 N																
whole hand operation	60 N																
combined hand and arm operation	60 N																
foot operation, pushing operation	100 N																
foot operation, pushing operation	60 N																
	single finger operation	5 N	--	N/A													
	more than one finger operation	13,5 N	--	N/A													
	whole hand operation	60 N	--	N/A													
	combined hand and arm operation	60 N	14 N	P													
	foot operation, pushing operation	100 N	--	N/A													
	foot operation, pushing operation	60 N	--	N/A													

Clause	Requirement – Test	Measuring result – Remark	Verdict
	- be operable without detaching any parts,		P
	- not depend on the battery power supplying the motor drive system,		P
	- have two defined positions including clear indication of freewheel mode and drive mode,		P
	- prevent use of the wheelchair's drive system, if the freewheel device is activated.		P
	A battery independent from the motor drive battery may be used to supply energy to enable freewheel mode.		N/A
11	Operations		
11.1	Operations intended to be carried out by the occupant and/or assistant		
	Wheelchairs shall be designed to facilitate ease of operation by the occupant and/or assistant as specified in the manufacturer's instructions.		P
11.2	Controls intended for operation by the occupant		
	Controls intended to be operated by the occupant while seated shall be within the occupant reach space shown in Figure 1. Key 1 seat reference plane 2 back support reference plane 3 seat reference point 4 occupant reach space 5 vertical line from the centre of the front edge of the seat 6 region below the rear of the seat that is excluded from the reach space 7 lateral extent of excluded region defined by vertical lines from the sides of the seat Figure 1 — Occupant reach space		P
11.3	Controls intended for operation by an assistant		
	Controls intended to be operated by an assistant shall be within the reach space shown in Figure 3. Key 1 seat reference plane 2 back support reference plane 3 front edge of seat 4 assistant reach space for controls 5 most rearward point on wheelchair Figure 3 — Assistant reach space for controls		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
11.4	Assistant control unit, push handles and handgrips		
11.4.1	Requirements		
	Switches intended to be operated by an assistant while driving the wheelchair shall be attached to an assistant control unit.		N/A
	When an assistant control unit is fitted,		
	- the unit shall be positioned behind the wheelchair's back support, between 900 mm and 1 200 mm from the floor to the centre of the operating means for the control device (e.g. joystick handle), and		N/A
	- there shall be a means to support the assistant's hand or hands used to operate the control device.		N/A
	When push handles are fitted, no part of the wheelchair shall lie within a space to the rear of the wheelchair bounded by the following:		N/A
	- a plane at 85° to the horizontal, that touches the rearmost points of the push handles as shown in Figure 6;  Figure 6 — Space for assistant movement		
	- two planes not less than 350 mm apart equidistant from a vertical plane parallel to the forward direction of travel that bisects the wheelchair, unless the intended occupant is a child;		
	- the horizontal test plane.		
	When the wheelchair is fitted with steering and/or manoeuvring handgrips for use by an assistant, the handgrips shall be at least 75 mm in length and between 20 mm and 50 mm in diameter.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	When manoeuvring handgrips are fitted with controls that are intended to be used by being gripped by one hand, the handgrip width when no force is applied shall not be greater than 100 mm and should not be greater than 80 mm (see Figure 4).  Key 1 lever gripped by the fingers of one hand 2 15 mm 3 handgrip width Figure 4 — Handgrip width		N/A
11.4.2	Test method		
	a) Place the wheelchair on the horizontal test plane.		
	b) If an assistant control device is fitted, note its position and measure the height of its operating means above the test plane.		
	c) Project the planes specified in 11.4.1 and determine whether any part of the wheelchair lies within the enclosed space.		
	d) Measure the dimensions of the steering and/or manoeuvring handgrips.		
	e) Where applicable, measure the handgrip width of the controls fitted to the manoeuvring handgrips that are intended to be used by being gripped by one hand.		
	f) Inspect the wheelchair for means to support the assistant's hand or hands used to operate the control device while the wheelchair is being driven.		
	g) Record whether the wheelchair has met the requirements.		N/A
11.5	Operating forces		
11.5.1	Requirements		
	All controls, except for means to operate brakes, shall have operating forces for engaging and releasing that do not exceed those stated in Table 1 when tested in accordance with 11.5.2.		P
	In addition, to achieve the intended function of the system or device being operated, for knobs intended to be gripped and turned by one hand		

Clause	Requirement – Test	Measuring result – Remark	Verdict
	- where the diameter of the knob is greater than or equal to 25 mm and the force is transmitted by friction, the numerical value of the torque, expressed in Nm, shall not be greater than 0,05 times the numerical value of the diameter of the knob, expressed in mm, and		
	- where the diameter of the knob is less than 25 mm diameter, the numerical value of the torque, expressed in Nm, shall not be greater than 0,025 times the numerical value of the diameter of knob, expressed in mm.		
	Maximum operating forces	Requirements	
	single finger operation	5 N	1 - 3 N
	more than one finger operation	13,5 N	--
	whole hand operation	60 N	--
	combined hand and arm operation	60 N	--
	foot operation, pushing operation	100 N	--
11.5.2	Test method		
	a) Position a means to apply force or torque as applicable:		
	1) where the operation is performed by pushing or pulling, position the means to apply force parallel to the direction of operation and in the middle of the knob or button;		
	2) in the case of a lever of length 30 mm or greater, position the means to apply force at a distance of 15 mm from the end of the operating lever;		
	3) in the case of a lever of length less than 30 mm, position the means to apply force at the midpoint of the lever;		
	4) for a turning knob, use a suitable means (e.g. a force gauge) to measure torque concentrically on the knob.		
	b) Gradually increase the force or torque until the intended function of the system or device as specified by the manufacturer's instructions is achieved.		

Clause	Requirement – Test	Measuring result – Remark	Verdict
	c) Measure and record the maximum operating force.		
	d) Perform b) to c) three times in total		
	e) Calculate and record the arithmetic mean of the three recorded measurements.		
11.6	Seating adjustments for tilt and recline systems		
11.6.1	Requirements		
	If the manufacturer specifies that the seating can be adjusted by an assistant or the occupant or both while the occupant is seated, the assistant and/or the occupant shall not have to lift a mass (e.g. the combined mass of the occupant and the seating) which presents a moving and handling safety hazard to the assistant and/or the occupant.		N/A
	Controls for seating adjustments intended to be operated by the occupant shall be accessible to the occupant from all seating positions.		N/A
11.6.2	Test method		
	a) Adjust the seating as specified in the manufacturer's instructions		
	b) Record whether the wheelchair has met the requirements		
12	Electrical systems		
12.1	General requirements		
	The wheelchair shall conform to the requirements of ISO 7176-14:2008, except as specified in 9.5.4.	Test standard: ISO 7176-14:2008 Date of issue: 2019-10-29 Test report no.: 713139077-3 Test lab: TÜV SÜD Product Service GmbH	P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	The wheelchair and battery charger shall conform to the requirements of ISO 7176-21:2009.	Test standard: ISO 7176-21:2009 Date of issue: 2018-08-14 Test lab: TÜV SÜD Product Service GmbH Test report no.: 145620-40829-01	P
	In addition, wheelchairs that include an on-board battery charger shall conform to the applicable electrical requirements of EN 60601-1:2006.		N/A
12.2	Circuit protection		
	The driving, braking and steering functions shall not be affected by the operation of the means of protection of any other circuit.		P
	Lights, direction indicators and hazard warning flasher functions shall not be affected by the operation of the means of protection of any other circuit.		N/A
	Circuit protection devices that carry the total current of the battery set may be used.		P
12.3	Battery chargers		
	Battery chargers for wheelchairs shall conform to the requirements of ISO 7176-14:1997 that apply to battery chargers,		
	[ISO 7176-14:1997, clause 9.2.1] Battery chargers for wheelchairs shall be in line with the requirements of IEC335-2-29, class 2 and IEC529 IPX1	Test standard: IEC 60335-2-29:2002 + A1:2004 + A2:2009 Date of issue: 2017-07-14 Test lab: TÜV SÜD Product Service GmbH Test report no.: 713105776	P
	[ISO 7176-14:1997, clause 9.2.2] If the battery charger is intended for different battery voltages, the switching shall be done with a tool or it shall be locked in order to avoid unintended switching and therefore damages to the batteries.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[ISO 7176-14:1997, clause 9.2.3] If the battery charger is intended for different battery types and is equipped with a manual switch, the switching shall be done with a tool or it shall be locked in order to avoid unintended switching and therefore damages to the batteries.		N/A
	[ISO 7176-14:1997, clause 9.2.4] The charger has to display clearly that the batteries are connected		P
	[ISO 7176-14:1997, clause 9.2.5] If the battery charger is connected so that the two poles are mixed up,		
	no current higher than 100 mA shall flow		N/A
	the device shall not be damaged (exchange resp. reversing of fuses)		N/A
	[ISO 7176-14:1997, clause 9.2.6] The battery charger shall charge the batteries of the wheelchair up to 80% of their rated capacity within 8 hours.		P
	[ISO 7176-14:1997, clause 9.2.6] A label has to show, which batteries can be charged up to 80 % of the rated capacity within 8 hours.		P
	[ISO 7176-14:1997, clause 9.2.7] The charging process shall start 0.5 s after the connection of the batteries, in order to prevent sparks during the process of plugging in.		P
	together with the following provisions:		
	a) battery chargers shall indicate when charging is in progress and when charging is complete;		P
	b) battery chargers shall have the capability of charging batteries discharged to 70 % of their nominal voltage;		P
	c) battery chargers shall operate without the need for intervention or supervision apart from connecting and turning on at the start of charging and turning off and disconnecting at the end of charging;		P
	d) carry-on and on-board battery chargers shall meet the environmental protection requirements of IPX4 when tested in accordance with EN 60529:1991 and shall meet the Class II Test Voltage requirements of EN 60335-1:2012 following the test.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
12.4	Charging connector		
	The wheelchair shall have a charging connector that is readily accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair.		P
12.5	Battery enclosures and containers		
	Battery enclosures and containers shall provide protection so that it should not be possible for liquids dropping from above to enter into them and onto any cell or battery they contain.		P
12.6	Emergency stop		
	The wheelchair shall be fitted with one or more emergency stop devices to enable actual or impending danger to be averted.		N/A
	Each emergency stop device shall:		
	- be clearly identifiable, clearly visible and quickly accessible by the intended operator, and		N/A
	- stop the hazardous process as quickly as practicable, without creating additional risks.		N/A
	Once active operation of the emergency stop device has ceased following a stop command, that command shall be sustained by the wheelchair until that engagement is specifically overridden. It shall not be possible to engage the device without triggering a stop command. It shall be possible to disengage the device only by an appropriate operation, and disengaging the device shall not restart the wheelchair but only permit restarting.		N/A
	The emergency stop function shall be available and operational at all times, regardless of the operating mode.		N/A
	Emergency stop devices shall be a back-up to other safeguarding measures and not a substitute for them.		N/A
	Additional emergency stop devices may be attached to a wheelchair to be operated by an assistant. Where the intended occupant has an impairment which restricts their ability to operate an emergency stop device, the risk assessment should take this into account.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
12.7	Lighting		
	Wheelchairs intended by the manufacturer for outdoor use shall be supplied with integral lighting suitable for the operations concerned where the absence thereof is likely to cause a risk despite ambient lighting of normal intensity.		N/A
	Wheelchairs might be subject to national requirements for lighting and reflectors.	Motorised wheelchairs are motor vehicles according to the traffic law (§1, chapter 2). Wheelchairs which shall be operated on public roads have to fulfil the requirements of the German Traffic Law (StVZO), of the Road Traffic Regulations (StVO) as well as of the FZV (Fahrzeugzulassungsverordnung). This also applies to motorized wheelchairs with a design-related maximum speed of 6 km/h (see also §18 StVZO, explanation 1).	N/A
	there are no national requirements, the manufacturer should conform to applicable automotive Directives of the European Union (76/756/EEC [12], 97/28/EC [13]).	Motorised wheelchairs are motor vehicles according to the traffic law (§1, chapter 2). Wheelchairs which shall be operated on public roads have to fulfil the requirements of the German Traffic Law (StVZO), of the Road Traffic Regulations (StVO) as well as of the FZV (Fahrzeugzulassungsverordnung). This also applies to motorized wheelchairs with a design-related maximum speed of 6 km/h (see also §18 StVZO, explanation 1).	N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
12.8	Switching off while driving		
	If the wheelchair is switched off while driving on the horizontal, it shall come to a stop within the maximum stopping distances specified in Table 2.	0.98 m	P
	Driving characteristics and requirements		
	Maximum stopping distance		
	Speed (km/h)	Horizontal distance (m)	
	4,0	0,6	
	5,0	0,8	
	6,0	1,0	
	7,0	1,2	
	8,0	1,5	
	9,0	1,8	
	10,0	2,1	
	11,0	2,5	
	12,0	2,9	
	13,0	3,4	
	14,0	3,9	
	15,0	4,5	
12.9	Software		
	Software that is embedded in the wheelchair or is an integral part of the wheelchair, and the malfunction of which could give rise to a hazardous situation, shall be developed and maintained in accordance with EN 62304:2006.	Test standard: ISO 7176-14:2008 Date of issue: 2019-10-24 Test report no.: 713139077-3 Test lab: TÜV SÜD Product Service GmbH	P
	This requirement does not apply to software produced before the date of withdrawal of EN 12184:2009, but it does apply to software modifications that are made after that date.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
13	Information supplied by the manufacturer		
13.1	General		
	Each wheelchair shall be provided with documentation and labelling that conform to the requirements in EN 12182 and ISO 7176-15:1996. In addition, the manufacturer shall provide the documentation in three separate sections: pre-sale, user and service information as specified in 13.2, 13.3 and 13.4. These may be provided as separate printed documents or in other forms of media to meet the needs of individual occupants or their assistants. For the requirements in 13.2 and 13.3, unless otherwise specified, all linear dimensions shall be expressed in millimetres and all masses shall be expressed in kilograms.		
	EN 12182 The information applied to, and supplied with, aids shall conform to EN 1041.		
	EN 1041		
	[EN 1041:2008, clause 4.1] General Product information and labelling shall be part of risk management procedures. NOTE 1: Due consideration should be given to the guidance provided in Annex A of EN 1041. NOTE 2: Product-related standards may require additional information to be supplied.		P
	[EN 1041:2008, clause 4.2] Units, symbols and colours Units used shall be SI units as specified in ISO 1000 or any other legal units. Symbols and safety-related identification colours shall be explained in the information supplied unless they are taken from harmonized standards, e.g. EN 980.		P
	[EN 1041:2008, clause 4.3] Language and country identifiers If the manufacturer decides to identify the language used in the information provided, for example to indicate to users the appropriate language in a multilingual document. this shall be done using the language codes given in ISO 639-1 and/or the plain text of the language (e.g. "English"). If the manufacturer decides to identify the country in the information provided, for example to indicate to users the appropriate customer service contact details for their country, this shall be done using the country codes given in EN ISO 3166-1 and/or the plain name of the country (e.g. "France").		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 1041:2008, clause 4.4] Dates Any human-readable date shall be expressed in the format YYYY-MM-DD, YYYY-MM or YYYY, in accordance with ISO 8601. NOTE: The choice of format will be determined by the requirements of the relevant Directives and the specific nature of the devices concerned.		P
	[EN 1041:2008, clause 4.5] Device nomenclature		
	[EN 1041:2008, clause 4.5.1] Identifiers of nomenclature When it is required to include the identification of the generic device group or the device category in the information supplied with the device, this may be done using a nomenclature that is in compliance with EN ISO 15225. NOTE: For details of nomenclatures claimed to be in compliance with EN ISO 15225, see the Bibliography.		N/A
	[EN 1041:2008, clause 4.5.2] Device common terms When it is appropriate to identify collective terms for medical devices in the information supplied, for example common technology or common materials of construction, this shall be done using the terms and codes set out in CEN/TR 15133.		N/A
	[EN 1041:2008, clause 4.5.3] Batch code; lot number; batch number; lot code These shall consist of alphanumeric characters but may also be presented by other means, for example by using machine-readable codes.		P
	[EN 1041:2008, clause 5] Requirements for provision of information		
	[EN 1041:2008, clause 5.1] General		
	[EN 1041:2008, clause 5.1.1] Safe and effective use of the device		
	Any means of provision of information with medical devices shall take into account the intended users, the conditions of use and any issues specific to individual device types that are necessary for the safe and effective use of the device. This shall apply regardless of whether the specific requirements listed below apply to the device.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	The appropriate way of providing information shall be based on a risk assessment and in line with the training, experience and education of the intended users.		P
	[EN 1041:2008, clause 5.1.2] Address required under medical devices directives		
	All medical devices which are placed on the market and put into service within the Community, shall contain the name or trade name and address of the manufacturer in the information supplied by the manufacturer. When the manufacturer does not have a registered place of business in the Community, the information shall contain in addition the name and address of the authorised representative.		P
	For devices covered by the MDD, the name or the trade name and address of the manufacturer shall appear on the label and in the instruction for use if provided with the device. When the manufacturer does not have a registered place of business in the Community, the label, or the outer packaging, or instructions for use shall contain, in addition, the name and address of the authorised representative.		P
	The address to be used shall be the same as the address of the manufacturer and/or the authorised representative as their registered place of business. The address shall be the same as the address used on the declaration of conformity, in relevant certificates and in the European database for medical devices.		P
	The full address used shall contain the following elements insofar as they are available in the address system of the country where the relevant entity (manufacturer or authorised representative) is registered: - street/road; - number/house/floor; - postal code; - city; - state/region; and - country.		P
	The information regarding street/road and number/house/floor may be omitted if a postal code dedicated to the manufacturer (corporate postal code) or authorised representative is used which fully replaces the indication of street/road and number/house/floor, and is not a PO box number.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 1041:2008, clause 5.2] Specific requirements		
	[EN 1041:2008, clause 5.2.1] Applicability These specific requirements shall be applicable to all devices to the extent that they are applicable to the specific device type concerned and to the means of provision of the relevant information . For example, the requirement to allow for a "use by" date is not applicable to devices that do not bear a "use by" date.		N/A
	[EN 1041:2008, clause 5.2.2] Accessibility The information presented with a device shall be accessible to intended users taking into account their age, education, knowledge and training. When appropriate, a specific means of provision may be restricted to users to whom it is particularly applicable. NOTE: This requirement may result in more than one means of provision being necessary.		P
	[EN 1041:2008, clause 5.2.3] Legibility Information intended for visual recognition shall be easily legible when viewed using normal vision, corrected if necessary, taking into account the specific size and conditions of use of the particular device.		P
	[EN 1041:2008, clause 5.2.4] Availability Information shall be available as long as reasonably necessary, taking the lifetime of the device into consideration.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	[EN 1041:2008, clause 5.2.5] Security As far as practicably possible, the medium of information provision shall be protected from corruption, degradation and deliberate change by those other than the manufacturer, whether malicious or not. If the user can readily identify faulty information, for example by virtue of damaged labels, advice on the action to take shall be provided. Where the damage to information is not readily apparent and/or the consequences of damage are not obvious, guidance shall be provided on how to maintain the security of the information and limit any adverse consequences. NOTE: When appropriate and relevant, manufacturers should consider if there are any preventative measures that can be taken to maintain information security in relation to customer service.		P
	[EN 1041:2008, clause 5.2.6] Changes to information provided Any changes to information provided for existing users shall be clearly communicated if they are important for patient safety.		P
	[EN 1041:2008, clause 6] Documentation Documentation relating to information provided shall be maintained in the technical documentation(s) relating to the device(s) that are the subject of the information . This may take the form of a specific section holding all the documentation or, alternatively, references to parts of a larger document where the information may be found, such as a quality manual.		P
	ISO 7176-15:1996, clause 7.1 The following information shall be available in the official languages of countries in which the wheelchair is marked.		
	a) The specification sheets (see ISO 7176-15, Annex A)		P
	b) a statement as to which features and options are included in specific models of wheelchairs;		P
	c) a description of the intended use, (for example, maximum mass of the user, or indoor/outdoor use);		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	d) either		
	i) details of the warranty, or		P
	ii) if no warranty is provided, a statement to that effect;		N/A
	e) information on how to get repairs and service;		P
	f) information as to whether a service manual is available; and		P
	g) a user manual.		P
13.2	Pre-sale information		
	In addition to the requirements of 13.1, pre-sale information shall include the following:		
	a) information on how to obtain the user information in a format appropriate for use by visually impaired people;		P
	b) a description of the intended occupant of the wheelchair, including the occupant's mass and any specific requirements for the occupant's functional capability, visual ability and cognitive ability suitable for operating the wheelchair safely in its intended environment;		P
	c) the intended operator (occupant, assistant or both);		P
	d) a description of the intended use and the intended environment;		P
	e) the type class of the wheelchair: Class A, Class B or Class C;	Add-on power propulsion unit	N/A
	f) the overall dimensions (width, length and height) of the wheelchair and its mass when it is ready for use and, if applicable, when it is folded or dismantled;		N/A
	g) if the overall dimensions of the wheelchair when it is ready for use exceed the values recommended in A.1.1, a clear statement that the wheelchair is larger than the recommended dimensions;		N/A
	h) the minimum width of corridor in which the wheelchair can be turned to face the opposite direction;		N/A
	i) the rated slope, expressed in degrees		P
	j) the standard options that are available for the wheelchair;		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	k) the type(s) of tyres that can be used on the wheelchair;		P
	l) operator adjustments;		P
	m) if the wheelchair can be dismantled or has any removable parts, the mass of the heaviest part;		P
	n) information concerning whether the removal of parts or accessories intended by the manufacturer to be removed without the use of tools will have adverse or beneficial effects on the wheelchair;		N/A
	o) information on whether or not the wheelchair is intended to be used as a seat in a motor vehicle, and whether and how this depends on the standard options referred to in j);		N/A
	p) information on whether the unoccupied wheelchair is suitable for land and/or air transport.		P
	q) the theoretical continuous driving distance range, expressed in kilometres, that the wheelchair can travel under its own power on the horizontal when tested in accordance with ISO 7176-4:2008, with the addition of a note explaining that the distance will be reduced if the wheelchair is used frequently on slopes, rough ground or to climb kerbs, etc.; This additional requirement may be reduced to some degree if an accurate charge level indicator is fitted		P
	r) the maximum height of kerb which the wheelchair can descend safely;		N/A
	s) if a programmable controller is fitted, information on the method of programming, the competency required to carry out the programming and the effects it can have on driving performance.	Only by qualified personnel	N/A
13.3	User information		
	User information shall be provided by the manufacturer with each wheelchair. Further copies shall also be available for any subsequent user of the wheelchair. User information shall contain all pre-sale information and the following:		

Clause	Requirement – Test	Measuring result – Remark	Verdict
	a) the unique identification number of the wheelchair or information on the location of the unique identification number on the wheelchair;		P
	b) any adjustment or settings required before the wheelchair can be used and warnings of how adjustments or settings affect stability;		P
	c) where applicable, information on any adjustments that can be made and the competency required to carry out these adjustments;		P
	d) instructions on operation of all controls, including brakes;		P
	e) instructions on how to engage and disengage the drive system;		P
	f) the wheelchair manufacturer's recommended tyre pressure(s), expressed in kPa, bar or PSI;		N/A
	g) instructions for dealing with tyre punctures, where pneumatic tyres are fitted;		N/A
	h) the battery type and nominal voltage;		P
	i) instructions for battery maintenance;		N/A
	j) instructions for operating the battery charger, including warnings regarding any potential safety hazards (e.g. a possibility of gas accumulating in the charging area, use of the wrong type of battery charger);		P
	k) if required by the risk analysis, instructions for fitting an additional emergency stop device where the intended occupant has an impairment which could restrict their ability to operate one;		N/A
	l) instructions on whether and how the wheelchair can be folded to assist in storage or transport;		N/A
	m) instructions on dismantling and re-assembly of the wheelchair or any removable parts;		P
	n) instructions regarding transport of the wheelchair when it is unoccupied (e.g. in a car or aeroplane);		P
	o) the masses of parts of the wheelchair that are expected to be handled during dismantling, reassembly, or carrying;		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	p) the positions of points where the component parts can be gripped for safe moving and handling and/or a method for handling during dismantling, assembly or carrying;		P
	q) if the manufacturer specifies that the wheelchair is intended for use as a seat in a motor vehicle, the method of attaching wheelchair tiedown and occupant restraints, and recommendations about suitable tiedown and restraint systems;		N/A
	r) if the manufacturer specifies that the wheelchair is not intended for use in the motor vehicle, a warning to that effect, together with the symbol shown in Figure 7;  Figure 7 — Symbol for wheelchair not intended to be used as a seat in a motor vehicle		N/A
	s) instructions on how to obtain and fit the optional anterior pelvic support (see 9.4) if it is not supplied with the wheelchair;		P
	t) the positions of points intended to carry additional loads;		N/A
	u) instructions for preparing the wheelchair for long-term storage (e.g. longer than four months) and for preparing it for use afterward;		P
	v) a warning that the wheelchair might disturb the operation of devices in its environment that emit electromagnetic fields (e.g. alarm systems of shops, automatic doors, etc.);		P
	w) a warning that the driving performance of the wheelchair can be influenced by electromagnetic fields (e.g. those emitted by portable telephones, electricity generators or high power sources);		P
	x) a warning that the stopping distance on slopes can be significantly greater than on level ground;		P
	y) a warning that surface temperatures can increase when exposed to external sources of heat (e.g. sunlight);		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	z) a warning for trapping hazards (e.g. pinch points);		P
	aa) a warning if driving characteristics can be adjusted outside the limits specified in Table 1 and Table 2;		P
	bb) a warning if the adjustments of seating or wheel positions can be set outside safe limits;		N/A
	cc) if the overall width or overall length of the wheelchair when it is ready for use exceed the applicable values recommended in A.1.1, a warning concerning access to emergency escape routes;		N/A
	dd) the level of resistance to ignition of materials and assemblies;		P
	ee) information on the recycling of used batteries and of the wheelchair;		P
	ff) if the characteristics of the wheelchair (including occupant as applicable) exceed the limits specified in Annex M of the Technical Specification for Interoperability relating to Accessibility for Persons with Reduced Mobility (PRM-TSI), a statement to that effect (see Annex D);		N/A
	gg) information on how to find out about product safety notices and product recalls, for example by ensuring the supplier has up-to-date contact information;		P
	hh) the expected service life of the wheelchair;		P
	ii) the name and address of the manufacturer;		P
	jj) the name and address of the authorised representative, where the manufacturer does not have a registered place of business in the European Union.		P
	User manual (ISO 7176-15)		
	At least one copy of the user manual shall be supplied with each wheelchair.		P
	When illustrations show components that are referred to in the text of the user manual. these components shall be numbered or named for positive identification. Illustrations shall be numbered or named for positive identification.		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	Contents of user manual		
	[ISO 7176-15:1996, clause 7.3] User manuals shall contain the following information:		
	a) details of the warranty		P
	b) general characteristics as follows:		
	i) description of the wheelchair type. accompanied by pictures or drawings of the wheelchair and a nontechnical description of how the wheelchair is intended to be used.		P
	ii) description of the intended user. including maximum occupant mass.		P
	iii) the environment in which the wheelchair is intended to be used and any environmental conditions that might be harmful to the wheelchair. such as temperature and humidity.		P
	iv) if pneumatic tyres are fitted. the recommended inflation pressure or pressure range. given in kilopascals;		N/A
	c) if a wheelchair is marketed for user-assembly, the following information:		
	i) a list of components,		N/A
	ii) information about any tools or equipment needed to assemble the wheelchair,		N/A
	iii) instructions on how to inspect for missing or damaged parts,		N/A
	iv) instructions for assembling. installing and removing any parts supplied by the manufacturer,		N/A
	v) instructions on how to prepare the wheelchair for storage, shipment or travel, for example, removal of any batteries;		N/A
	d) instructions for operation of the wheelchair as follows:		
	i) complete operating instructions for safe use including: - instructions for operating the wheelchair on surfaces likely to be encountered by the user. - instructions for transfer of the user to and from the wheelchair. - illustrations to clarify these instructions;		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	ii) any common misuse of the wheelchair known by the manufacturer that might lead to personal injury or damage to the wheelchair;		P
	e) maintenance instructions accompanied by annotated illustrations, and the following information:		
	i) details of any maintenance, including - any service, maintenance and/or fault-finding for which the manufacturer intends the user to be responsible, - information about the type of tools or equipment needed to repair and service the wheelchair, - frequency of maintenance, - a list of materials necessary, including any part numbers and procurement information, - identification of circumstances in which an operation should be undertaken by the manufacturer, distributor or service agent		P
	ii) instructions on methods of cleaning,		P
	iii) for parts that the manufacturer intends to be readily replaced, the following: - ordering information, - instructions for access removal, - replacement and testing, and - annotated illustrations of the parts (including tyres and batteries) and their location,		P
	iv) information on how to perform potentially hazardous maintenance operations, such as battery servicing and tyre inflation;		N/A
	f) instructions for carrying out performance checks;		P
	g) description of wheelchair repair procedures as follows:		
	i) identification of parts that are intended to be repaired by the user,		P
	ii) identification of parts that have to be serviced by the manufacturer or an authorized service facility in order to maintain warranties and serviceability,		P
	iii) identification of any parts that can be removed and sent to the manufacturer/distributor or other party for repair,		P

Clause	Requirement – Test	Measuring result – Remark	Verdict
	iv) identification of circumstances in which the manufacturer, distributor or service agent should undertake the repair,		P
	v) a list of authorized service facilities		P
	vi) information on whether or not any replacement units are available,		P
13.4	Service information		
	The service information shall contain all the pre-sale information, user information and instructions necessary for the maintenance, adjustment and repair of the wheelchair and for the replacement of parts.		P
13.5	Labelling		
	In addition to the requirements of 13.1, the manufacturer shall apply permanent labelling for the following:		
	a) devices for disengagement of the drive system, showing engaged and disengaged positions, including a warning that the drive system should be re-engaged before an occupant is left unattended or attempts to operate the wheelchair;		P
	b) for wheelchairs where the intended use includes use as a seat in a motor vehicle, the position of attachment points for wheelchair tie-down and occupant restraint systems (WTORS);		N/A
	c) for wheelchairs not intended to be used as a seat in a motor vehicle, a warning to that effect, including the symbol shown in Figure 7 with a diameter not less than 15 mm, in the same location as the labelling required by ISO 7176-15:1996;  Figure 7 — Symbol for wheelchair not intended to be used as a seat in a motor vehicle		N/A
	d) for battery chargers that are not on-board chargers, information and connection details specified in Clause 9 of ISO 7176-14:1997;		P
	e) for Class A wheelchairs not intended for use outdoors, a warning to that effect.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	Permanent labeling (ISO 7176-15)		
	The following shall be marked in a permanent manner on each wheelchair		
	a) the name and address of the manufacturer of the wheelchair;		P
	b) the model designation and serial number of the wheelchair;		P
	c) the year of manufacture;		P
	d) any driving restrictions; - permitted total weight (unladen weight, load) - permitted load on the axle front / rear - maximum speed - max. safe slope		P
	e) recommended maximum mass of the user.		P
	Tyres shall be marked with the size of the tyre.		P