



## Test Report

No.: SHHG1508032551MD

Date: FEB. 26, 2016 Page: 1 of 17

GOLDEN MOTOR TECHNOLOGY CO., LTD.  
BLOCK 8, MODERN INDUSTRIAL CENTER, 801 CHANGWU MIDDLE ROAD, CHANGZHOU,  
JIANGSU, 213164, CHINA

The following sample(s) was/were submitted and identified by the client as:

Sample Description : FOLDABLE ELECTRIC WHEELCHAIR  
Style/ Item No. : ET-08F22  
Country of Origin : CHINA  
Sample Receiving Date : SEP. 06, 2015  
Testing Period : SEP. 06, 2015 TO FEB. 26, 2016  
Test Performed : SELECTED TEST(S) AS REQUESTED BY APPLICANT  
Test Requested : EN 12184 2014 ELECTRICALLY POWERED  
WHEELCHAIRS, SCOOTERS AND THEIR CHARGERS-  
REQUIREMENTS AND TEST METHOD (PARTIAL,  
DETAILS SEE FOLLOWING PAGES)  
Test Result(s) : FOR FURTHER DETAILS, PLEASE REFER TO THE  
FOLLOWING PAGE(S)  
Conclusion : THE SUBMITTED SAMPLE MET THE TEST  
REQUIREMENT.

\*\*\*\*\*

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Vincent Feng  
Technical Manager



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## Test Conducted:

### EN 12184 2014 Electrically powered wheelchairs, scooters and their chargers-Requirements and test method

Number of test sample	:	2 Pieces
Size of the test dummy	:	150kg
The maximum user mass	:	150kg
Type classes	:	Class B

Test Items	Test Method /Test requirements	Data Record
<b>6 General requirements</b>	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.	/
	The wheelchair shall conform to the requirements specified in EN 12182 for the following:	/
	--- Intended performance and technical documentation;	N/C See remark 1
	--- aids that can be dismantled;	Pass
	--- single-use fasteners;	N/A See remark 2
	--- biocompatibility and toxicity;	N/C See remark 1
	--- contaminants and residues;	N/C See remark 1
	--- infection and microbiological contamination;	N/C See remark 1
	--- overflow, spillage, leakage and ingress of liquids;	N/C See remark 1
	--- safety of moving parts;	Pass
	--- prevention of traps for parts of human body;	Pass
	--- folding and adjusting mechanisms;	Pass
	--- surfaces, corners and edges;	Pass
	--- clinical evaluation;	N/C See remark 1
--- ergonomics	N/C See remark 1	
A risk analysis shall also be carried out in accordance with EN ISO 14971:2009		N/C See remark 1
<b>8 Wheelchair performance</b>		
<b>8.1 Performance of driving characteristics</b>		
<b>8.1.1 General</b>	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.	/
<b>8.1.2 Ability to climb rated slope</b>		



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Test Items	Test Method /Test requirements	Data Record
8.1.2.1 Requirements	The wheelchair shall be capable of climbing at a speed not less than 2 km/h: the applicable maximum safe slope specified in Table 1, or the rated slope specified by the manufacturer, whichever is greater.	N/C See remark 1
	The wheelchair passes the test specified in 8.1.2.2 if it achieves or exceeds a speed of 2 km/h after travelling 5 m up the slope.	N/C See remark 1
8.1.2.2 Test	Adjust the gradient of the adjustable test plane specified in 4.1 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. Use the means to measure speed specified in 4.5. When the wheelchair has travelled $(5.0 \pm 0.1)$ m up the slope, measure and record the speed to an accuracy of $\pm 10\%$ .	/
8.1.3 Ground unevenness		
8.1.3.1 Principle	A wheelchair shall be able to drive on uneven terrain without stopping even if one wheel is at a higher level than the others.	Pass
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.	Pass
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 slowly off the test block. 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 slowly off the test block for each wheel.	/
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 — the rated slope specified by the manufacturer, whichever is greater.	N/C See remark 1
8.1.4.2 Test	a) Drive the loaded wheelchair at maximum speed down a gradient equivalent to its maximum safe slope $\pm 0.5^\circ$ . b) Measure the speed with a device as specified in 4.5. c) Record the measured speed and record whether the wheelchair meets the requirement.	/
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.	N/C See remark 1



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Test Items	Test Method /Test requirements	Data Record
8.1.5.2 Test	<p>a) Load the wheelchair with the test dummy in accordance with 7.2. Do not use a human test occupant.</p> <p>b) Test the loaded wheelchair in accordance with ISO 7176-2:2001 with the following modifications:</p> <ol style="list-style-type: none"> <li>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;</li> <li>2) fixed test ramps or adjustable test ramps may be used;</li> <li>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;</li> <li>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;</li> <li>5) apply only the clauses listed below:               <ol style="list-style-type: none"> <li>i) for rearwards dynamic stability:                   <ol style="list-style-type: none"> <li>I) 8.1 Wheelchair preparation;</li> <li>II) 8.2 Starting forwards;</li> <li>III) 8.3 Stopping after travelling forwards (horizontal only);</li> <li>IV) 8.4 Braking when travelling backwards;</li> </ol> </li> <li>ii) for forward dynamic stability:                   <ol style="list-style-type: none"> <li>I) 9.1 Wheelchair preparation;</li> <li>II) 9.2 Braking when travelling forwards;</li> </ol> </li> <li>iii) for dynamic stability in lateral directions:                   <ol style="list-style-type: none"> <li>I) 10.1 Wheelchair preparation;</li> <li>II) 10.2 Turning on a slope (does not apply to manually steered wheelchairs).</li> </ol> </li> </ol> </li> </ol> <p>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, repeat b) with the test plane set at the rated slope specified by the manufacturer.</p>	/
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.	Pass



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Test Items	Test Method /Test requirements	Data Record
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. 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.	Pass
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.	/
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.	N/C See remark 1
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. Record the results and determine whether the requirement has been met.	/
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.	N/C See remark 1
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 recognized 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.	/
8.2 Static, impact and fatigue strength		



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Test Items	Test Method /Test requirements	Data Record
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. NOTE This is a correction of an erroneous value stated in Table 8 of ISO 7176-8:1998. Where the manufacturer specifies a maximum occupant mass greater than 100 kg the forces specified in Table 3 shall apply.	Pass
8.2.2 Test	Test the wheelchair in accordance with ISO 7176-8:1998 with modifications as specified in 8.2.1.	/
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.	N/C See remark 1
	— 4.1.2 is replaced by the following: 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.	N/C See remark 1
	— 5.2.1 a) is replaced by the following: 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, Xhead, R, shall not be measured.	N/C See remark 1
	— 5.2.2 e) is replaced by the following: 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/C See remark 1
8.4 Climatic performance		
	The wheelchair shall conform to the requirements of ISO 7176-9:2009. NOTE This requirement includes the one stated in ISO 7176-14:2008, 13.1. It is not necessary to duplicate the test.	Pass
<b>9 Component properties</b>		
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. Any swing away, movable or removable foot support, lower leg support assembly or arm support fitted on the wheelchair shall	/



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Test Items	Test Method /Test requirements	Data Record
	a) incorporate a means to locate it securely in any intended operating position,	Pass
	b) be adjustable in increments not exceeding 25 mm,	Pass
	c) be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair,	Pass
	d) be within the reach space shown in Figure 1, and	Pass
	e) be operable without the use of tools. NOTE The ability to make adjustments without the use of tools is not required. 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,	Pass
	f) means to prevent the occupant's feet from sliding into the gap shall be provided, or	Pass
	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.	Pass
9.1.2 Tests method	<p>9.1.2.1 Test for general performance</p> <p>a) Fit foot supports, lower leg support assemblies and arm supports in the operating position(s) specified in the manufacturer's instructions.</p> <p>b) Adjust the foot supports, lower leg support assemblies and arm supports as specified in the manufacturer's instructions.</p> <p>c) Record whether the foot supports, lower leg support assemblies and arm supports met the requirements.</p> <p>9.1.2.2 Test for support gap</p> <p>a) Simultaneously apply a force <math>F_0^{+5}</math> 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 <math>F</math> is calculated from the following equation:  <math display="block">F=0.125 \times m \times g</math>                     where  <math>F</math> is the force applied to each foot support, expressed in newtons;  <math>M</math> is the maximum occupant mass specified by the manufacturer, expressed in kilograms;  <math>g</math> is the acceleration due to gravity, <math>9.81\text{m/s}^2</math></p> <p>b) Apply the force for 5s to 10s.</p> <p>c) While the force is being applied measure the shortest distance between the foot supports.</p> <p>d) Record whether the foot supports met the requirements.</p>	F=184N



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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.	N/A See remark 2
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. The tyres or the rims shall be marked with the maximum pressure in kPa, bar or PSI.	N/A See remark 2
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. NOTE The term 'support' is used in relation to occupant posture, and the term 'restraint' is used in relation to motor vehicle impacts.	Pass
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 1021-1:2006 and EN 8191-2:1988. Progressive smouldering ignition and flaming ignition as defined in these European Standards shall not occur.	N/C See remark 1
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 material face that contacts the occupant by the methods specified in EN 1021-1:2006 and EN 9181-2:1988(see Figure 2). Progressive smouldering ignition and flaming ignition as defined in the European Standards shall not occur.	N/C See remark 1
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. Belts that are intended for use as restraints in motor vehicles may, as an alternative, meet the requirements of FMVSS 302 or equivalent. NOTE It is not necessary to test components that are inherently resistant to ignition, e.g. steel frame tube.	N/C See remark 1



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Test Items	Test Method /Test requirements	Data Record
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. b) The power and control system of the wheelchair shall meet the requirements of ISO 7176-14:2008, 9.7, resistance to ignition.	N/C See remark 1
<b>10 Propulsion and braking systems</b>		
10.1 Means for operating brakes		
10.1.1 Requirements	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;	Pass
	2) be within the reach space shown in Figure 1, if the wheelchair is intended to be operated by the occupant;	Pass
	3) be within the reach space shown in Figure 3, if the wheelchair is intended to be operated solely by an assistant;	Pass
	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; NOTE The brake lever type shown in Figure 4 has a whole hand operation.	Pass
	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 See remark 2
	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 See remark 2
	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).	N/A See remark 2
	c) Means for releasing parking brakes shall be protected against activation caused by accidental contact. EXAMPLE A suitable shape and location for the means for disengagement.	/



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Test Items	Test Method /Test requirements	Data Record
<p>10.1.2 Test for determination of brake operating forces</p>	<p>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.                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 15mm below the top.                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 15mm 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 travel of the point of application of the force in order to measure the maximum releasing force required.            e) Perform c) and d) three times in total and record the measurements.            f) Calculate and record the arithmetic mean value of the forces measured.            g) Determine whether or not the requirements for operating forces stated in Table 1 have been met.</p>	<p>Pass</p>
<p>10.2 Braking functions</p>		
<p>10.2.1 Requirement</p>	<p>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.            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.            NOTE 1 This requirement could be met by a brake which operates when freewheel mode is ended, if that brake provides the required function. The accessibility requirements in 10.3 would apply. See also NOTE 3.            NOTE 2 The maximum stopping distances of Table 2 do not apply for a running brake operated after the wheelchair has been put into freewheel mode.            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).            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>	<p>N/C See remark 1  Pass  Pass  Pass</p>



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# Test Report

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Test Items	Test Method /Test requirements	Data Record
	e) Parking brakes shall meet the parking brake effectiveness requirement in Table 1 when tested in accordance with 10.2.2.2.	Pass
	f) Parking brakes shall be operable when there is no power from the battery supplying the drive system.	Pass
	g) Parking brakes shall be operable when the wheelchair is in freewheel mode (see NOTE 1).	Pass
	h) If they are subject to wear, parking brakes shall have provision for adjustment and/or replacement as specified by the manufacturer.	N/A See remark 2
	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.	Pass
	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.	Pass
	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. NOTE 3 Braking functions can be combined in one device, for example a spring-loaded disc brake could combine automatic brake and parking brake, and could also act as a running brake when exiting freewheel mode. NOTE 4 The wheelchair might be subject to national requirements for brakes.	Pass
10.2.2.1 Test for the 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.	N/C See remark 1
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 as specified in 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 maximum slope specified by the manufacturer if it is greater. c) Repeat b) with the wheelchair facing downhill. d) Determine whether the parking brake hold the loaded wheelchair stationary on the slope.	/



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Test Items	Test Method /Test requirements	Data Record
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 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. e) If a test fixture was used, return the brake mechanism to the wheelchair.	/
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,	Pass
	— be within the reach space shown in Figure 1, if the wheelchair is intended to be operated by the occupant,	N/A See remark 2
	— be within the reach space shown in Figure 3, if the wheelchair is intended to be operated solely by an assistant;	Pass
	— have operating forces for engaging and disengaging that do not exceed those stated in Table 1,	Pass
	— be operable without detaching any parts,	Pass
	— not depend on the battery power supplying the motor drive system,	Pass
	— have two defined positions including clear indication of freewheel mode and drive mode,	Pass
	— prevent use of the wheelchair's drive system, if the freewheel device is activated.	Pass
	A battery independent from the motor drive battery may be used to supply energy to enable freewheel mode. NOTE 1 An audible alarm activated when the freewheel device is in operation and deactivated when the drive and braking systems are fully operational would assist the occupant and/or assistant. NOTE 2 These requirements apply in addition to those concerning non-powered mobility stated in ISO 7176-14:2008.	Pass
Freewheel devices shall be protected against activation caused by accidental contact. EXAMPLE A suitable shape and location for the means for disengagement.	Pass	

## 11 Operations



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Test Items	Test Method /Test requirements	Data Record
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. Examples include:	/
	— operation of adjustable seating and adjustment of postural supports,	Pass
	— use of detachable components, including removable arm supports, lower leg support assemblies, etc., to facilitate safe transfers into and out of the wheelchair,	Pass
	— use of folding mechanisms, including folding frames, etc., to facilitate storage and transportation of unoccupied wheelchairs,	Pass
	— carrying out maintenance, including use of tools, etc.,	Pass
	— use of manual steering controls,	Pass
	— use of braking systems and freewheel devices,	Pass
11.2 Controls intended for operation by the occupant	— use of assistant controls,	Pass
	— use of control devices.	Pass
	Controls intended to be operated by the occupant while seated shall be within the occupant reach as shown in Figure 1. The following controls, if fitted, are included:	Included: on/off switch or key, speed regulator, speed pre-setting, running brake, audible warning device, direction switch control device, manual steering controls, detachable components, steering controls
	--- on/off switch or key,	
	--- speed regulator	
	--- speed pre-setting,	
	--- running brake,	
--- parking brake,		
--- audible warning device,		
--- direction indicator,		
--- direction switch,		
--- control device,		
--- manual steering controls,		
--- lighting controls,		
--- seating adjustments,		
--- detachable components, including removable arm supports, lower leg supports etc., to facilitate safe transfers into and out of the wheelchair,		
--- steering controls,		
--- freewheel device.		
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. Examples include: — brakes, — control devices, — push handles, and — electrical ancillary equipment.	Include: parking brakes control devices push handles
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.	/
	When an assistant control unit is fitted,	/



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Test Items	Test Method /Test requirements	Data Record
	— 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 See remark 2
	— there shall be a means to support the assistant's hand or hands used to operate the control device.	N/A See remark 2
	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:	/
	— a plane at 85° to the horizontal, that touches the rearmost points of the push handles as shown in Figure 6;	Pass
	— 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;	Pass
	— the horizontal test plane.	Pass
	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 See remark 2
	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).	N/A See remark 2
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.	/
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. NOTE Requirements and test methods for means to operate brakes are given in 10.1.	Pass



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Test Items	Test Method /Test requirements	Data Record
	<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 — 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.</p>	Pass
11.5.2 Test	<p>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.            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.</p>	/
<b>11.6 Seating adjustments for tilt and recline systems</b>		
11.6.1 Requirements	<p>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.            Controls for seating adjustments intended to be operated by the occupant shall be accessible to the occupant from all seating positions.            Note The shaded region of Figure 2 shows the maximum reach space for the occupant in relation to the position of the back support reference plane and the seat reference plane (see ISO 7176-7:1998).</p>	Pass  N/A See remark 2
11.6.2 Test method	<p>a) Adjust the seating as specified in the manufacturer's instructions.            b) Record whether the wheelchair meets the requirements.</p>	/
<b>12 Electrical requirements</b>		N/C See remark 1
<b>13 Information supplied by the manufacturer</b>		N/C See remark 1



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## Test Report

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### Remark:

1. N/C means not conducted as per client's request.
2. N/A means not applicable for the design of product.



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### Sample Photo:

Received sample (front view)



Received sample (side view)



Received sample (back view)



SGS authenticate the photo on original report only

\*\*\*End of Report\*\*\*



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