

TEST REPORT FOR:
**Product Design Group Eclipse
Manual Tilt Wheelchair,
272 kg / 600 lbs user weight**



LABORATORY REFERENCE
492986

25th October 2018

REFERENCED DOCUMENTS IN THIS REPORT:

AS/NZS 3695.1:2011	
Part 1: Requirements and test methods for manual wheelchairs	
Part 1	AS/NZS ISO 7176.1:2015 (Identical to ISO 7176-1:2014) Part 1: Determination of static stability
Part 3	AS/NZS ISO 7176.3:2015 (Identical to ISO 7176-3:2012) Part 3: Determination of effectiveness of brakes
Part 5	AS 3696.5-1989 (Identical to ISO 7176/5-1986, Reconfirmed 2014) ISO 7176-5 Second edition 2008-06-01 Part 5: Determination of overall dimensions, mass and turning space
Part 7	ISO 7176-7-1998 (E) Part 7: Measurement of seating and wheel dimensions
Part 8	AS/NZS ISO 7176.8:2015 (Identical to ISO 7176-8:2014) Part 8: Requirements & test methods for static, impact and fatigue strengths
Part 11	AS/NZS ISO 7176.11:2013 (Identical to ISO 7176-11:2012) Part 11: Test dummies
Part 13	AS 3696.13-1991 (Identical to ISO 7176-13:1989) Part 13: Coefficient of friction of test surfaces
Part 16	AS/NZS ISO 7176.16:2013 (Identical to ISO 7176-16:2012) Part 16: Resistance to ignition of postural supports
Part 19	AS/NZS 3696.19:2009 (Adopted from ISO 7176-19:2008 MOD) Part 19: Wheeled mobility devices for use as seats in motor vehicles
Part 22	AS/NZS ISO 7176.22:2015 (Identical to ISO 7176-22:2014) Part 22: Set-up procedures
Part 26	AS/NZS ISO 7176.26:2011 (Identical to ISO 7176-26:2007) Part 26: Vocabulary

The above referenced standards were confirmed as current at date of testing

TEST REPORT

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PRODUCT

Job no: 492986

Name and Model No:

Product Design Group Eclipse manual tilt wheelchair

Serial no(s) of test sample:

Serial # 92540

Maximum user mass:

272 kg / 600 lb

Documents used in testing

As referenced on page 2 of this report.

SUPPLIER

Name:

Product Design Group

Address:

103 – 318 East Kent Avenue South
Vancouver, BC, Canada

Telephone: +1 604-323-9220



Fax:

Contact person: Torr Brown

Order No: n/a

Order Date: n/a

TESTING AUTHORITY

NOVITATECH TEST LABORATORY

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Senior Test Technician
(Authorised signatory)

Checked: Andrew Rose

(Team Leader)



Dates of testing period:

October 2018

Date of issue of this report:

25th October 2018

PRODUCT DETAILS

Manufacturer:

Name Product Design Group
Address 103 – 318 East Kent Avenue South, Vancouver BC Canada

Chair type:

Rigid frame manual wheelchair (wide seat)

Frame:

Size Adult (Wide seat)
Frame type Rigid frame with tilt function
Frame material Tubular steel frame with sheet metal seat base and sling backrest
Tilt Tilt function
Recline No recline function
Anti-tips Anti-tips fitted
Push handles Single 1 piece push handle
Footrests Individual footrests, removable, swing up footplates
Armrests Adjustable height, removable, padded arm support.
Headrest No headrest

Seating:

Backrest
Width 605 mm
Height 450 mm
Description Sling type fabric backrest
Seat
Width 605 mm
Depth 560 mm
Description Sheet metal seat base with Velcro fasteners for optional cushions

Wheels:

Front castor wheels
Width 32 mm
Diameter 127 mm
Description Steel rims with solid tyres
Rear drive wheels
Width 30 mm
Diameter 580 mm
Description Spoked steel rims with solid tyres fitted

Other features:

Manual seat tilt

**Set-up details
(to AS/NZS ISO 7176.22)**

Ambient test temperature: 22 ° C (Unless stated otherwise)
As per product user instructions and test standards requirements

Note: This report is limited to the details and dimensions stated in above table.
No other dimensions or data for Parts 5 and 7 of the wheelchair standards are included in this test report.

**Record of measurements from Set-up procedures to AS/NZS ISO 7176.22:2015 (ISO 7176-22:2014)
Table B.2 (Informative requirements)**

Adjustable part	Type of Equipment	Value / Position Measurement
Seat plane angle	TLE 185 Inclinator	4.2°
Effective seat depth	TLE 141 measure	500mm
Effective seat width	TLE 141 measure	600mm
Seat surface height at front edge	TLE 141 measure	510mm (4.2°)
Back support angle	TLE 185 Inclinator	14.5°
Back support height	TLE 141 measure	500mm
Handgrip height	TLE 141 measure	1135mm
Back support width	TLE 141 measure	600mm
EITHER Footrest to seat Or Foot support clearance	TLE 141 measure	350mm
	TLE 141 measure	60mm
Foot support length	TLE 141 measure	150mm
Foot support to leg angle	TLE 185 Inclinator	105°
Leg to seat surface angle	TLE 185 Inclinator	120°
Arm support height	TLE 141 measure	210-270mm (3 adjustments)
Front of arm support to back support	TLE 141 measure	400mm
Air pressure, drive wheels	TLE 067	NA (solid tyres)
Air pressure, castor wheels	TLE 067	NA (solid tyres)
Fixed (rear) wheels diameter	TLE 141 measure	580mm
Fixed (rear) wheels, camber	TLE 185 Inclinator	3°
Fixed (rear) wheels, track	TLE 141 measure	670mm
Fixed (rear) wheels, air pressure	TLE 067 measure	NA (solid tyres)
Movable (castor) wheels diameter	TLE 141 measure	127mm
Movable (castor) wheels, camber	TLE 185 measure	0°
Movable (castor) wheels, track	TLE 141 measure	530mm
Movable (castor) wheels, air pressure	TLE 067 measure	NA (solid tyres)
Other adjustable components	No other adjustable components	
Note: NA referenced for items that are not adjustable or applicable to this wheelchair.		

AS/NZS 3695.1:2011 and AS/NZS ISO 7176.8:2015 – STATIC, IMPACT AND FATIGUE TESTS

STATIC STRENGTH TESTS to AS/NZS ISO 7176.8:2015				
Test method for static strength	Actual force applied, (N)	Specification according to a table of AS/NZS ISO 7176.8:2015	Result of strength test	Reference in AS/NZS ISO 7176.8
		Force for 272 kg user mass (N)		
Armrest resistance to downward forces (No test dummy fitted)	955 N (Each)	952 N (Each)	PASS	8.4
Footrest resistance to downward forces (No test dummy fitted)	1228 N	1226 N	PASS	8.5
Tipping levers downwards load (Test dummy fitted)	NA (None fitted)	1000 N	NA	8.6
Handgrips (Test dummy fitted)	NA (Enclosed)	750 N	PASS	8.7
Armrests resistance to upward forces (Test dummy fitted)	990 N	986 N	PASS	8.8
Footrest resistance to upward forces (Test dummy fitted)	488 N	485 (Each)	PASS	8.9
Push handle resistance to upward load (Test dummy fitted)	1760 N	1760 (Each)	PASS	8.10

Remarks:

Static strength tests were performed before impact and fatigue tests. WW. End of remarks -----

IMPACT STRENGTH TESTS to AS/NZS ISO 7176.3:2015			
Test method for impact strength	Result of test and mode of failure (see list of failures above)	Impact angle used for test	Reference in AS/NZS ISO 7176.8
Backrest resistance to impact (DUMMY THIGHS ONLY FITTED)	PASS	30°	9.3
Hand-rim resistance to impact (DUMMY FITTED)	PASS	45°	9.4
Castors (DUMMY FITTED)	PASS	78.8°	9.5
Footrests resistance to lateral impact (DUMMY FITTED)	PASS	78.8°	9.6.3
Footrests resistance to longitudinal impact (DUMMY FITTED)	PASS	78.8°	9.6.4
Anti-tip devices – Upwards impacts (3 Times with test dummy fitted)	PASS	15 mm	9.7.1
Anti-tip devices – Longitudinal impact (Test dummy fitted)	PASS	48.8°	9.7.2
Anti-tip devices – Lateral impact (Test dummy fitted)	PASS	48.8°	9.7.3

Remarks:

Impact tests were performed before fatigue tests. WW. End of remarks -----

FATIGUE TESTS to AS/NZS ISO 7176.8:2015				
Test method for fatigue strength	Actual number of cycles (Or cycles recorded at failure)	Specification according to AS/NZS ISO 7176.8, number of cycles	Mode of failure (see list of failures in table below)	Reference in AS/NZS ISO 7176.8
Two drum test	200,000 Cycles	200,000 Cycles	No failure	10.3
Drop test	6,666 Cycles	6,666 Cycles	No failure	10.4

Remarks:

WW. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS/NZS 3695.1:2011 and AS/NZS ISO 7176.8:2015 (except the methods indicated in this report as “not tested” and/or tested with deviations) for user mass 272 kg / 600 lb

PASS

STRENGTH REQUIREMENTS AS/NZS ISO 7176.8:2015 Confirmation of strength test requirements – Post-test – Clause 4		
Test requirement.	Result following all strength tests	Reference in AS/NZS ISO 7176.8 (Clause 4)
No component to show evidence of visible cracks, be fractured or have become detached	PASS	4.1 a)
No externally visible cable shall be cut, abraded or crushed No externally visible electrical connector shall be crushed or disconnected	NA (No cables)	4.1 b)
All parts intended to move, rotate or be removable, folding or adjustable shall operate		4.1 c)
All power operated systems shall operate as described by the manufacturer	NA (No power)	4.1 d)
Handgrips shall not be displaced	PASS	4.1 e)
No component or assembly of parts shall exhibit visible plastic deformation, free play or loss of adjustment that adversely affects the function of the wheelchair	PASS	4.1 f)
The brake mechanism shall not have moved from the pre-set condition	PASS	4.1 g)

Remarks:

Partial test only at request of supplier for confirmation of static strength and durability.
Wheelchair fatigue tested 200,000 cycles and 6,666 cycles drop test as per standards requirements.
WW. End of remarks -----

Traceable Equipment used for Measurements in this report

Gauge #	Gauge Type		Gauge #	Gauge Type	
TLE004	Standard finger Probe	<input type="checkbox"/>	TLE141	Tape Measure, 5 Metre	<input checked="" type="checkbox"/>
TLE009	Cold Climate Chamber	<input type="checkbox"/>	TLE144	Stop Watch	<input checked="" type="checkbox"/>
TLE010	Test Rig (Static Load Drop)	<input checked="" type="checkbox"/>	TLE148	Protractor, Vernier	<input type="checkbox"/>
TLE011	2 Drum Durability Rig	<input checked="" type="checkbox"/>	TLE151	Accelerometer	<input type="checkbox"/>
TLE012	Stability Ramp - Static	<input type="checkbox"/>	TLE167	Test Masses, 25kg	<input type="checkbox"/>
TLE016	Square, Steel - Large	<input type="checkbox"/>	TLE175	2 Drum Durability rig	<input type="checkbox"/>
TLE018	Rule, Steel – 1,000 mm	<input type="checkbox"/>	TLE176	Test Dummy	<input type="checkbox"/>
TLE019	Reference Load Gauge	<input type="checkbox"/>	TLE179	Test Rig Prosthetics, Foot	<input type="checkbox"/>
TLE024	Stability Ramp, Dynamic	<input type="checkbox"/>	TLE182	Multimeter	<input type="checkbox"/>
TLE028	Spring Balance 0-100g	<input type="checkbox"/>	TLE183	Impact Pendulum	<input type="checkbox"/>
TLE029	Spring Balance 0– 5kg	<input type="checkbox"/>	TLE184	Test Dummy	<input type="checkbox"/>
TLE030	Spring Balance 0-20kg	<input type="checkbox"/>	TLE185	Inclinometer	<input checked="" type="checkbox"/>
TLE032	Thermometer	<input type="checkbox"/>	TLE186	Inclinometer, small	<input type="checkbox"/>
TLE049	Torque Wrench	<input type="checkbox"/>	TLE196	Test Rig Prosthetics, Knee	<input type="checkbox"/>
TLE067	Tyre Pressure Gauge	<input type="checkbox"/>	TLE201	Load Cell	<input checked="" type="checkbox"/>
TLE068	Impact Mass, 25 kg Soccer	<input type="checkbox"/>	TLE203	Impactor	<input type="checkbox"/>
TLE077	Force Gauge, RLG	<input checked="" type="checkbox"/>	TLE204	Pendulum Impact Hammer	<input type="checkbox"/>
TLE084	Rule, Steel – 300mm	<input type="checkbox"/>	TLE205	Tape Measure, 8 Metre	<input type="checkbox"/>
TLE087	Test Obstacles	<input type="checkbox"/>	TLE210	Test Obstacle, Threshold	<input type="checkbox"/>
TLE105	Thermohygrograph	<input checked="" type="checkbox"/>	TLE211	Prosthetic Set up Gauge	<input type="checkbox"/>
TLE106	Scales, Digital	<input type="checkbox"/>	TLE212	Test Rig, Proof Test	<input type="checkbox"/>
TLE112	Vernier Caliper, 200mm	<input type="checkbox"/>	TLE216	Load Pad, Seat Base	<input type="checkbox"/>
TLE114	Spring Balance, 50kg	<input type="checkbox"/>	TLE218	Square, Steel - Small	<input type="checkbox"/>
TLE131	Test Dummy	<input type="checkbox"/>	TLE220	DC Wattmeter	<input type="checkbox"/>
TLE132	Test Dummy	<input checked="" type="checkbox"/>	TLE221	Temp/Humidity Meter	<input type="checkbox"/>
TLE133	Test Dummy	<input type="checkbox"/>	TLE225	Caliper, Digital 200mm	<input checked="" type="checkbox"/>

NOTES

1U₉₅ Uncertainty of measurements where not specified: linear ± 1 mm, angular $\pm 30'$, force, mass $\pm 1\%$, temperature $\pm 1^\circ\text{C}$, cycles ± 1 count. This means the true measurement is within the stated tolerances at least ninety five times in one hundred

2 All testing was carried out in a controlled environment laboratory using methods set out in the Standards documents, all deviations and additions to the Standards' methods are noted in remarks.

3 All instruments either carried valid calibration certificates throughout the test period or were checked against traceable Standards before and after use.

4 The NovitaTech Test Laboratory has no control over the selection of test samples. Any extension of the findings of this report to cover production items must be based on production being truly represented by the sample(s).

5 Any non-conformances are indicated in red.

6 Items marked NA – Not applicable to sample tested

END OF REPORT