Technical Report No. 68.190.17.0405.01

Rev. 00

Dated 2017-07-24

Test subject:	Product: Office chair (MESH CHAIR) Type designation: D00237H MESH CHAIR
Test specification:	ANSI/BIFMA X 5.1-2017
Purpose of examination:	Test according to the client's requirements.
Test result:	Pass Details see report Clause 3.

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1 Description of the test subject

1.1 Function

☒ Manufacturer's specification for intended use:
Product: Office chair (MESH CHAIR)
Type designation: D00237H MESH CHAIR

1.2 Technical Data

Chair Type: Type I & Ⅲ.
Height : 106,0-113,0cm
Width : 69,0cm
Depth : 66,5cm
Net weight: 20,0KG

1.3 Product Photos

2 Order

2.1 Date of Purchase Order, Customer's Reference

2017-06-28

2.2 Receipt of Test Sample, Location

2017-06-29, TÜV SÜD Certification and Testing (China) Co., Ltd. Guanlan lab
2017-07-20, receipt the armrest of the sample.
No.11, Jukeng Rd., Juling Village, Jutang District, Guanlan, Longhua New District, Shenzhen, 518110, P.R.China

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2.3 Date of Testing

From 2017-06-30 to 2017-07-14
Retest from 2017-07-20 to 2017-07-24

2.4 Location of Testing

TUV SUD Certification and Testing (China) Co., Ltd. Guanlan lab
No. 11, Jukeng Rd., Juling Village, Jutang District, Guanlan, Longhua New District, Shenzhen, 518110, P.R.China

2.5 Points of Non-compliance or Exceptions of the Test Procedure

None

3 Test Results

Abbreviations:			
P(ass) = passed	F(ail) = failed	NA = not applicable	NT = not tested

ANSI/BIFMA X5.1-2017			
Clause	Requirement ~Test	Measuring result -Remark	Verdict
5.4.1	Back Strength Test - Static - Type I & II - Functional Load Back force: 667 N (150 lbf.), 70 degree to the backrest, max 16 inch above the seat. Loading period: 1 minute Acceptance level: No loss of serviceability.	Fulfilled.	P
5.4.2	Back Strength Test - Static - Type I & II - Proof Load Back force: 1001 N (225 lbf.), 70 degree to the backrest, max 16 inch above the seat. Loading period: 1 minute Acceptance level: No sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.	Fulfilled.	P
6.4.1	Back Strength Test - Static - Type III - Functional Load Back force: 667 N (150 lbf.), 90 degree to the backrest, max 16 inch above the seat. Loading period: 1 minute Acceptance level: No loss of serviceability.	Fulfilled.	P
6.4.2	Back Strength Test - Static – Type III - Proof Load Back force: 1001 N (225 lbf.), 90 degree to the backrest, max 16 inch above the seat. Loading period: 1 minute Acceptance level: No sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.	Fulfilled.	P

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7.4.1	Drop Test - Dynamic - Functional Load Weight of test bag: 102 kg (225 lb.) Drop height: 152 mm (6 in.) Acceptance level: No loss of serviceability.	Fulfilled.	P
7.4.2	Drop Test - Dynamic - Proof Load Weight of test bag: 136 kg (300 lb.) Drop height: 152 mm (6 in.) Acceptance level: No sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.	Fulfilled.	P
8	Swivel Test – Cyclic Seat load: 122 kg (270 lb.) Cycles: 60,000 cycles when seat at highest position, and another 60,000 cycles when seat at lowest position. Acceptance level: No loss of serviceability.	Fulfilled.	P
9	Tilt Mechanism Test - Cyclic - Type I & II Seat load: 109 kg (240 lbs.) Cycles: 300,000 cycles Accptance level: No loss of serviceability to the tilt mechanism.	Fulfilled.	P
10.3	Seating Durability Tests – Cyclic - Impact Test - Cyclic Test bag: 57 kg (125 lb.) Drop height: 30 mm (1,2 in.) above the seat Cycles: 100,000 cycles. Accptance level: no loss of serviceability.	Fulfilled.	P
10.4	Seating Durability Tests – Cyclic - Front Corner Load Ease Test - Cyclic - off Center Test load: 890 N 200 lbf.) Test points: two front corners of seat Cycles: 20,000 cycles on each corner. Acceptance level: no loss of serviceability. Note: this test is done after “Impact test” on the same sample.	Fulfilled.	P

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11.3.1	Stability Test – Rear Stability for type III Apply only to chairs with backrests greater than 200mm Type III: Load the chair with 6 disks, apply a horizontal force to the highest disk. The location of the force application is 6 mm (0.25 in.) from the top of the disk. The force shall be: • F = 0.1964 (1195 – H) Newton. H is the seat height in mm. • [F = 1.1 (47 – H) pounds force.]. H is the seat height in inches. For chairs with seat height equal to or greater than 710 mm (28.0 in.), a fixed force of 93 N (20.9 lbf.) shall be applied. The chair shall not tip over.	Fulfilled.	P
11.3.2	Stability Test – Rear Stability for type I and II Apply only to chairs with backrests greater than 200 mm. Load the chair with 13 disks (each 10 kg), the chair shall not tip over.	Fulfilled.	P
11.4	Stability Test - Front Stability The chair is obstructed with a 13mm (½ in.) obstruction to the chair casters/legs. A downward load of 610 N (135 lbf.) is centered 60mm (2.4in.) from the seat front center edge. The seat shall withstand a 20N (4.5lbf.) horizontally from the front seat edge without tipping.	Fulfilled.	P
12.4.1	Arm Strength Test Vertical - Static - Functional Load Test load: 750 N (169 lbf.) at weakest point of arm with all adjustments set at normal use conditions. Loading period: 1 minute. Acceptance level: no loss of serviceability .For a height adjustable arm, failure to hold its height adjustment position to within 6 mm (0.25 in.) from its original set position as the result of the loading is considered a loss of serviceability.	Fulfilled.	P

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12.4.2	Arm Strength Test Vertical – Static - Proof Load Test load: 1125 N (253 lbf.) at weakest point of arm with all adjustments set at normal use conditions. Loading period: 1 minute. Acceptance level: there shall be no sudden and major change in the structural integrity of the chair. For a height adjustable arm, a sudden drop in height of greater than 25 mm (1 in.) does not meet this requirement. Loss of serviceability is acceptable.	Fulfilled.	P
13.4.1	Arm Strength Test Horizontal –Static – Functional Load Test load: 445 N (100 lbf.) Loading period: 1 minute. Acceptance level: no loss of serviceability	Fulfilled.	P
13.4.2	Arm Strength Test Horizontal – Static –Proof Load Test load: 667 N (150 lbf.) Loading period: 1 minute. Acceptance level: no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.	Fulfilled.	P
14	Backrest Durability Test - Cyclic - Type I Seat load: 109 kg (240lb.) secured in the center of the seat Back load: 445 N (100 lbf.) Cycles: total 120,000 cycles. Acceptance level: no loss of serviceability	Fulfilled.	P
15	Back Durability Test - Cyclic - Type II & III Seat load: 109 kg (240lbs.) secured in the center of the seat Back load: 334 N (75 lbf.) Cycles: total 120,000 cycles. Acceptance level: no loss of serviceability	Fulfilled.	P
16.1	Caster / Chair Base Durability Test For Pedestal Base Chair Load: 122 kg (270 lb.) Cycles: 2,000 cycles with 3 obstacles and 98,000 cycles over a smooth hard surface without obstacles. Acceptance level: no part of the caster shall separate from the chair as a result of the application of the 22 N (5 lbf.) force.	Fulfilled.	P

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16.2	Caster / Chair Base Durability Test for Chairs with Legs No loss of service after 2,000cycles over a hard surface with 2 obstacles and 98, 000cycles over a smooth hard surface without obstacles under a 122kg (270lb.) load on the seat. Test stroke is 762mm (30in.) minimum. The caster should not separate under 22N (5lbf.) pulling force in line with the caster stem after the cycling test.	Without leg.	NA
17.3.2.1	Leg Strength Test – Front Load Functional Load Load: a force of 334 N (75 lbf.) is applied to each front leg individually for 1 minute. Acceptance level: No loss of serviceability	Without leg.	NA
17.3.2.2	Leg Strength Test – Front Load – Proof Load Load: a force of 503 N (113 lbf.) is applied to each front leg individually for 1 minute. Acceptance level: no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.	Without leg.	NA
17.4.2.1	Leg Strength Test-Side Load- Functional Load Load: a force of 334 N (75 lbf.) is applied to each front leg individually for 1 minute. Acceptance level: No loss of serviceability	Without leg.	NA
17.4.2.2	Leg Strength Test -Side Load- Proof Load Load: a force of 503 N (113 lbf.) is applied to each front leg individually for 1 minute. Acceptance level: no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.	Without leg.	NA
18.4.1	Footrest Static Load Test – Vertical- Functional Load Test load: 445 N (100 lbf) for 1 minute Acceptance level: no loss of serviceability or sudden loss of footrest height.	No footrest.	NA
18.4.3	Footrest Static Load Test – Vertical – Proof Load Test load: 1334 N (300 lbf) for 1 minute Acceptance level: no sudden and major change in the structural integrity of the unit.	No footrest.	NA
19	Footrest Durability Test Test load: 890 N (200 lbf) Cycles: 50,000 cycles Acceptance level: there shall be no loss of serviceability. Adjustable footrests that move more than 25 mm in the first 500 cycles shall be considered to have lost their serviceability.	No footrest.	NA

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20	Arm Durability Test – Cyclic Test load: 400 N (90 lbf) on each arm at 10° angle. Cycles: 60,000 cycles. Acceptance level: no loss of serviceability.	Fulfilled.	P
21	Out Stop Tests for Chairs with Manually Adjustable Seat Depth Place a 74 kg (163 lb) rigid mass in the center of the seat. Hold the seat at its most position. A cable is attached to the most rigid point of the vertical centerline of the seat. Hang a weight of 25 kg (55 lb) on the opposite end of the cable. Release the weight so it can drag the seat move forward rapidly and impact	Not applicable.	NA
22	Tablet Arm Static Load Test Test load: 68 kg (150 lb.) at apparent weakest point for 1 minute The load applied once shall cause no sudden and major change in the structural integrity of the chair. After performing the test, the tablet arm must allow egress from the unit; other losses of serviceability are acceptable.	No tablet arm.	NA
23	Tablet Arm Load Ease Test – Cyclic Test load: 25 kg (55 lbf.) Cycles: 100,000 cycles Acceptance level: No loss of serviceability	No tablet arm.	NA
24	Structural Durability Test – Cyclic This test applies to chairs that do not swivel. It does not apply to chairs with casters or products with seat heights greater than 24 inches. Load: 109 kg (240 lb.) in the centre of the seat. Apply a force of 334 N (75 lbf.) at an appropriate rate between 10 and 30 cycles per minute. Cycles: 25,000 cycles Acceptance level: No loss of serviceability.	Swivel chair.	NA

Appendix C : Base Test - Informative			
Appendix C	Base Test – Static Test force: 111,20 N, on the center of base via a vertical column. Loading period: 2 times, each time 1 minute. Acceptance level: There shall be no sudden and major change in the structural integrity of the base. The center column may not touch the test platform during the load application.	Fulfilled.	P

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--- End of Report ---

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