

Test Report

Number: GZHH00343574

Applicant:

Date: Nov 15, 2019

Sample Description:

Five (5) pieces of submitted sample said to be :
Item Name : **OFFICE CHAIR**
Item No. : **Chap Apeks Chair**
Date Sample Received : Oct 29, 2019
Testing Period : Oct 29, 2019 to Nov 14, 2019



Original Sample A

To be continued



Page 1 of 15

Intertek Testing Services Shenzhen Limited, Guangzhou Branch

深圳天祥质量技术服务有限公司广州分公司

#111 TCL Cultural Industry Park, Guangpu-west Road, Science City, High and New Technology Industrial Development Zone, Guangzhou. / E501, No.7-2, Caipin Road, Guangzhou Science City, GETDD Guangzhou.

广州高新技术产业开发区科学城光谱西路 69 号 TCL 文化产业园汇创空间 111/广州经济技术开发区科学城彩频路 7 号之二 E501(510663)

Tel +8620 8213 9688
Fax +8620 3205 3537
intertek.com.cn
intertek.com



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Number: GZHH00343574



Original Sample B for Back Strength Test Original Sample C for Back Durability Test

Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

Conclusion:

Tested sample	Standard	Result
Submitted samples	ANSI/BIFMA X5.1-2017 General-Purpose Office Chairs - Tests	Pass

Remark:

- As per client's requirement, the tests were conducted on the following specified samples.

Section 5 - Back Strength Test-Static - Type I and II	Sample B
Section 14 - Back Durability Test - Cyclic - Type I	Sample C
Section 15 - Back Durability Test - Cyclic - Type II and Type III	Sample C
All other test except above three tests	Sample A

Authorized by:
For Intertek Testing Services Shenzhen Ltd.
Guangzhou Branch, Hardlines

Victor T.J. Wang
Assistant General Manager



Tests Conducted

1 Office Chairs Tests

Test standard: ANSI/BIFMA X5.1-2017 – General-Purpose Office Chairs – Tests.

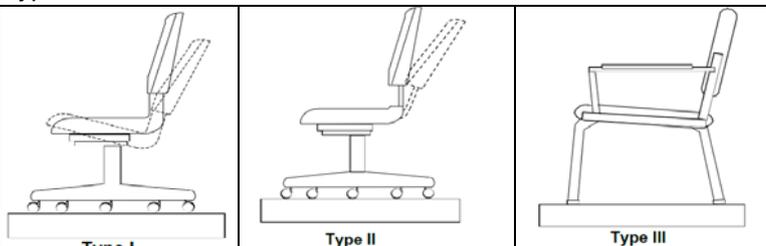
Number of samples tested: Three (3) pieces sample A, One (1) piece sample B & One (1) piece sample C
Total five (5) pieces

	Overall dimensions	Radius of the base	Weight
Sample A	715 mm W x 700 mm D x 990 mm ~ 1072 mm H	340 mm	17.2 kg
Sample B	715 mm W x 700 mm D x 990 mm ~ 1072 mm H	340 mm	17.4 kg
Sample C	715 mm W x 700 mm D x 990 mm ~ 1072 mm H	340 mm	17.4 kg

The type of the submitted sample: Type I & III

Initial inspection: No damage was found.

Executive summary:

Clause	Test Method/Requirement	Result
1	Scope	-
2	Definitions	-
3	General	-
4	Types of Chairs 	Recorded: Type I & III



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Section 5 - Back Strength Test-Static - Type I and II	<p>Test Procedures</p> <p>Functional Load</p> <p>a) A force of 667 N (150 lbf.) shall be applied to the backrest at the backstop position for one (1) minute. If the backrest/tilt lock mechanism will not accept the load due to gradual slipping of the adjustment mechanism during the load application, set the backrest to its most rearward (stopped) position, then apply the specified load(s).</p> <p>b) Remove the load.</p> <p>Proof Load</p> <p>a) A force of 1001 N (225 lbf.) shall be applied to the backrest at the backstop position for one (1) minute. If the backrest/tilt lock mechanism will not accept the load due to gradual slipping of the adjustment mechanism during the load application, set the backrest to its most rearward (stopped) position, then apply the specified load(s).</p> <p>b) Remove the load.</p> <p>Acceptance Level</p> <p>Functional Load</p> <p>There shall be no loss of serviceability to the chair.</p> <p>Proof Load</p> <p>There shall be no sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.</p>	P (Sample B)



Test Report

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Clause	Test Method/Requirement	Result
Section 6 - Back Strength Test-Static - Type III	<p>Test Procedures</p> <p>Functional Load</p> <p>a) A force of 667 N (150 lbf.) shall be applied to the backrest at the backstop position for one (1) minute. If the backrest/tilt lock mechanism will not accept the load due to gradual slipping of the adjustment mechanism during the load application, set the backrest to its most rearward (stopped) position, then apply the specified load(s).</p> <p>b) Remove the load.</p> <p>Proof Load</p> <p>a) A force of 1001 N (225 lbf.) shall be applied to the backrest at the backstop position for one (1) minute. If the backrest/tilt lock mechanism will not accept the load due to gradual slipping of the adjustment mechanism during the load application, set the backrest to its most rearward (stopped) position, then apply the specified load(s).</p> <p>b) Remove the load.</p> <p>Acceptance Level</p> <p>Functional Load</p> <p>A functional load applied once shall cause no loss of serviceability to the chair.</p> <p>Proof Load</p> <p>A proof load applied once shall cause no sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.</p>	<p>P (Sample A)</p>



Test Report

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Clause	Test Method/Requirement	Result
Section 7 - Drop Test-Dynamic	<p>Test Procedures</p> <p>Functional Load Test</p> <p>a) A test bag weighing 102 kg (225 lb.) shall be raised 152 mm (6 in.) above the uncompressed seat and released one time.</p> <p>b) Remove the bag.</p> <p>c) For chairs with seat height adjustment features, set height to its lowest position and repeat a) and b).</p> <p>Proof Load Test</p> <p>a) A test bag weighing 136 kg (300 lb.) shall be raised 152 mm (6 in.) above the uncompressed seat and released one time.</p> <p>b) Remove the bag.</p> <p>c) For chairs with height adjustments, set seat height to its lowest position and repeat a) through b). A second chair may be used for testing the chair in the lowest position</p> <p>Note: If a second chair is used for the proof load test, it must also be subjected to the functional load impact per Section 7.4.1 while in its lowest position.</p> <p>Acceptance Level</p> <p>Functional Load There shall be no loss of serviceability.</p> <p>Proof Load There shall be no sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.</p>	P (Sample A)
Section 8 - Swivel Test - Cyclic	<p>Test Procedure</p> <p>A 122 kg (270 lb.) load placed on seat, rotated at rate 5-15 rev/min. for 120,000 cycles.</p> <p>For chair with seat height adjustment: 60,000 cycles at the highest position followed by 60,000 cycles at the lowest position.</p> <p>Acceptance Level</p> <p>There shall be no loss of serviceability.</p>	P (Sample A)



Tests Conducted

Clause	Test Method/Requirement	Result
Section 9 - Tilt Mechanism Test Cyclic	<p>Test Procedure A 109 kg (240 lb.) load placed on seat, tested at rate 10-30 cycles /min. for 300,000 cycles to move the mechanism between the front and back stops, without overriding or impacting either stop.</p> <p>Acceptance Level There shall be no loss of serviceability to the tilt mechanism.</p>	P (Sample A)
Section 10 Seating Durability Tests - Cyclic	<p>Test Procedure</p> <p>Impact Test A 57 kg (125 lb.) bag shall free drop on seat from 36 mm (1.4 in.) height, at a rate 10-30 cycles /min. for 100,000 cycles.</p> <p>Front Corner Load-Ease Test Apply 890 N (200 lb.) force at one front corner flush to each structural edge, at a rate 10-30 cycles /min. for 20,000 cycles. Repeat the test on the other front corner for additional 20,000 cycles.</p> <p>Acceptance Level There shall be no loss of serviceability to the chair after completion of both the impact and load-ease tests.</p>	P (Sample A)



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Clause	Test Method/Requirement	Result
Section 11 Stability Tests	<p>Stability Tests – Rear stability - Type III</p> <p>Test Procedure Load the chair with 6 disks, Apply a horizontal force at 6 mm from the top of the disk. For chairs H < 710 mm (28.0 in.), calculate the force as follows: $F = 1.1 [47 - H \text{ (in)}] \text{ lbf.}$; For chairs H \geq 710 mm (28.0 in.), Apply a fixed force of 93 N (20.9 lbf.).</p> <p>Acceptance level The chair shall not tip over.</p>	P (Sample A)
	<p>Stability Tests – Rear stability - Type I & Type II</p> <p>Test Procedure Load the chair with 13 disks. Note: If the chair does not tip over and the tilt mechanism does not tilt to its most rearward position (i.e., at its tilt stop) when the disks are placed in the chair, the chair shall also be tested according to 11.3.1 with the chair in the unlocked position.</p> <p>Acceptance level The chair shall not tip over.</p>	P (Sample A)
	<p>Stability Tests –Front stability</p> <p>Test Procedure Apply a vertical load of 600N (135 lb.) at a point 60mm from the front center edge of the load-bearing surface of the seat. Apply a horizontal force of 20N (4.5 lbf.) at the same level of the plane of the top of the seat. The force shall be coincident with the side-to-side centerline of the seat.</p> <p>Acceptance Level The chair shall not tip over as the result of the force application.</p>	P (Sample A)



Test Report

Number: GZHH00343574

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Clause	Test Method/Requirement	Result
Section 12 - Arm Strength Test Vertical - Static	<p>Test Procedures</p> <p>Functional Load a) A force of 750 N (169 lbf.) shall be applied for one (1) minute. b) Remove the force.</p> <p>Proof Load a) A force of 1125 N (253 lbf.) shall be applied for fifteen (15) seconds. b) Remove the force.</p> <p>Acceptance Level</p> <p>Functional Load There shall be 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.</p> <p>Proof Load 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.</p>	P (Sample A)
Section 13 - Arm Strength Test Horizontal - Static	<p>Test Procedures</p> <p>Functional Load a) A force of 445 N (100 lbf.) shall be applied for one (1) minute in the outward direction. b) Remove the force.</p> <p>Proof Load a) A force of 667 N (150 lbf.) shall be applied for fifteen (15) seconds. in the outward direction. b) Remove the force.</p> <p>Acceptance Level</p> <p>Functional Load A functional load applied once shall cause no loss of serviceability.</p> <p>Proof Load A proof load applied once shall cause no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.</p>	P (Sample A)



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Number: GZHH00343574

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Clause	Test Method/Requirement	Result
Section 14 - Back Durability Test Cyclic - Type I	<p>Test Procedures A 109 kg (240 lb.) placed on seat, apply a 445 N (100 lbf.) for 120,000 cycles. Rate 10-30 cycles per minute.</p> <p>Acceptance Level There shall be no loss of serviceability.</p>	P (Sample C)
Section 15 - Back Durability Test Cyclic - Type II and Type III	<p>Test Procedures A 109 kg (240 lb.) placed on seat, apply a 334 N (75 lbf.) for 120,000 cycles. Rate 10-30 cycles per minute.</p> <p>Acceptance Level There shall be no loss of serviceability.</p>	P (Sample C)
Section 16 Caster/Chair Base Durability Test-Cyclic	<p>Test Procedures Place 122 kg (270 lb) on chair or chair base. The sample shall be cycled 2,000 cycles over the obstacles and then 98,000 cycles on a smooth, hard surface without obstacles at a rate 8-12 cycles/min.</p> <p>Acceptance Level There shall be no loss of serviceability. Caster Retention Test A 22 N (5 lbf.) pull applied to each caster. The caster shall not separate from the base after test.</p>	P (Sample A)



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Clause	Test Method/Requirement	Result
Section 17 - Leg Strength Test Front and Side Application	<p>Test Procedures</p> <p>Front: Functional load: 334 N (75 lb.) for 1 min. Proof load: 503 N (113 lb.) for 1 min.</p> <p>Side: Functional load: 334 N (75 lb.) for 1 min. Proof load: 503 N (113 lb.) for 1 min.</p> <p>Acceptance Level</p> <p>The functional load applied in each direction shall cause no loss of serviceability. A proof load applied in each direction shall cause no sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.</p>	NA
Section 18 Footrest Static Load Test Vertical	<p>Test Procedures</p> <p>The test only performed on chairs with seat height \geq 610mm (24in.). Functional Load: Apply F1 of 445 N (100 lbf.) for 1 min. If the footrest adjustable, maintain F1 and apply an F2 of 445 N (100 lbf.) to the footrest at the opposing position for 1 min. If applicable, remove force F2. Increase F1 to 200 lbf. for 1 min. Proof Load: 1334 N (300 lbf.) for 1 min.</p> <p>Acceptance Level</p> <p>A Functional Load shall be no loss of serviceability or sudden loss of footrest height. A Proof Load applied once shall cause no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.</p>	NA



Test Report

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Section 19 Footrest Durability Test - Vertical Cyclic	<p>Test Procedures The test only performed on chairs with seat height \geq 610mm (24in.).</p> <p>890 N (200 lbf.) applied to footrest at a rate 10-30 cycles/min. for 50,000 cycles. If the footrest moves $>$ 25 mm (1 in.) within the first 500 cycles, discontinue testing. If the footrest moves throughout the remainder of the test, reset it to its original position when it is within 12 mm (0.5 in.) from its lowest position.</p> <p>Acceptance Level There shall be no loss of serviceability. Adjustable footrests that move more than 25 mm (1 in.) in the first 500 cycles shall be considered to have lost their serviceability.</p>	NA
Section 20 - Arm Durability Test Cyclic	<p>Test Procedures Apply a force of 400N (90 lbf.) to each arm initially at a $10^\circ \pm 1^\circ$ angle at a rate 10-30 cycles/min. for 60,000 cycles.</p> <p>Acceptance Level Structural breakage or loss of serviceability shall constitute failure.</p>	P (Sample A)
Section 21 - Out Stop Test for Chairs with Manually Adjustable Seat Depth	<p>Test Procedures A 74 kg (163 lb.) load placed on seat. The seat with the hanging weight 25 kg (55 lb.) shall be held at it most rearward position, then released, permitting it to move forward rapidly and impact the out stops. Repeat 25 cycles.</p> <p>Acceptance Level There shall be no loss of serviceability to the unit.</p>	P (Sample A)



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Clause	Test Method/Requirement	Result
Section 22 - Tablet Arm Static Load Test	<p>Test Procedures Apply a load of 68 kg (150 lb.) through a 203mm ± 13mm (8in ± 0.51in) diameter area 25mm (1 in) from the edge of the surface at its apparent weakest point for 1 minutes and remove the load.</p> <p>Acceptance Level 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 be allowing egress from the unit; other loss of serviceability is acceptable.</p>	NA
Section 23 - Tablet Arm Load Ease Test - Cyclic	<p>Test Procedures The 25 kg (55 lb.) bag shall be raised until the entire weight is off the tablet surface and then eased (without impact) onto the surface, so that it takes the entire weight without any support from the cycling device. Applied a rate 8-20 cycles/min. Repeat 100,000 cycles.</p> <p>Acceptance Level There shall be no loss of serviceability to the unit.</p>	NA
Section 24 – Structural Durability Test - Cyclic	<p>Test Procedures 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.</p> <p>Place a weight of 109 kg (240 lb.) in the center of the seat, attach a cycling device to the unit frame midway between front and rear of the seat at the height of the midpoint of the seat frame structure, adjust the cycling device to apply a “push-pull” action, apply a force of 334 N (75 lbf.) at an appropriate rate between 10 and 30 cycles per minute, cycle for 25,000 cycles.</p> <p>Acceptance Level There shall be no loss of serviceability.</p>	NA



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Appendix A	Impact Test Bag - Construction Details	-
Appendix B	Stability Disk - Construction Details	-
Appendix C Informative - Base Test-Static	<p>Test Procedures</p> <p>a) A force of 11,120 N (2500 lbf.) shall be applied for one (1) minute.</p> <p>b) Remove the force.</p> <p>c) Apply a second force of 11,120 N (2500 lbf.) for one (1) minute.</p> <p>d) Remove the load.</p> <p>Acceptance Level</p> <p>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 applications.</p>	P (Sample A)
Appendix D Informative	Front Stability Load Locator Fixture - Construction Details	-
Appendix E Informative	BIFMA Position – Chair weight Limits / Load Ratings	-
Appendix F Informative	Summary of Significant Changes	-
Appendix G	Template for Rear Stability	-



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Appendix H Informative – Simultaneous Side Legs Strength Test	<p>Test Procedures This test applies to all chairs with legs, including leg bases.</p> <p>Attach the loading device to the chair so that initially horizontal forces are applied inward and parallel to the side-to-side axis of the chair, between 13 mm (0.5 in) and 38 mm (1.5 in) from the bottom of the legs. Apply a force of 334 N (75 lbf.) per leg once to a front and rear leg simultaneously for one (1) minute. Remove the force.</p> <p>Acceptance Level There shall be no loss of serviceability.</p>	NA
Appendix J Informative	Figure of Leg-Base Chair	-

Abbreviation: P = Pass; NA = Not Applicable

End of report

The statements of conformity reported have considered the decision rule agreed, namely that Intertek have taken account of measurement uncertainty as calculated by Intertek, and applied according to ILAC-G8/09:2019 (APPENDIX B – Example 2) except designation from the customer, regulation or test specification.

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